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REMOVAL SUPPORT TEAM 3  
EPA CONTRACT EP-S2-14-01

June 13, 2017

Mr. Cris D'Onofrio, On-Scene Coordinator  
U.S. Environmental Protection Agency, Region II  
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**EPA CONTRACT No: EP-S2-14-01**

**TDD No: TO-0007-0180**

**DOCUMENT CONTROL No: RST3-03-F-0123**

**SUBJECT: FINAL REMOVAL ACTION REPORT – M.C. CANFIELD & SONS  
SITE, NEWARK, ESSEX COUNTY, NEW JERSEY**

Dear Mr. D'Onofrio,

Enclosed please find the Final Removal Action Report for the M.C. Canfield & Sons Site located in Newark, Essex County, New Jersey. This report details the Removal Action activities conducted at the Site from July 10, 2014 through November 14, 2014. The U.S. Environmental Protection Agency comments regarding the draft version of this deliverable have been incorporated.

If you have any questions or comments, please feel free to call me at (908) 565-2980.

Sincerely,

WESTON SOLUTIONS, INC.

Bernard Nwosu  
RST 3 Site Project Manager/Group Leader

Enclosure

cc: TDD File No.: TO-0007-0180

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In association with Scientific and Environmental Associates, Inc.,  
Environmental Compliance Consultants, Inc., Avatar Environmental, LLC,  
On-Site Environmental, Inc., and Sovereign Consulting, Inc.



**FINAL REMOVAL ACTION REPORT**

**M.C. CANFIELD & SONS SITE**  
**NEWARK, ESSEX COUNTY, NEW JERSEY**

Prepared by:

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East Division  
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**DC No.: RST3-03-F-0123**  
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- A2 – Sampling Trip Report (Phase II) - MC Canfield & Sons Site
- A3 – EPA Action Memorandum
- A4 – Site-Specific Community Air Monitoring Plan
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## **1.0 INTRODUCTION**

This Removal Action Report (RAR) describes the actions taken during the Removal Action conducted from July 10, 2014 through November 14, 2014 by the U.S Environmental Protection Agency, Region II (EPA) within the Society Hill at University Heights III condominium complex, located in Newark, Essex County, New Jersey. The Removal Action was conducted to address the findings of EPA's Phase I Removal Site Evaluation (RSE) and Phase II Removal Assessment conducted in August 2012 and April/May 2013 by Weston Solutions, Inc., Removal Support Team 2 (RST 2) [currently Removal Support Team 3 (RST 3)] at the M.C. Canfield & Sons Site (the Site).

### **1.1 Site Location and Description**

The Site is located within the Society Hill at University Heights III condominium complex which is bounded by Norfolk, Wickliffe, West Market, and Warren Streets in Newark, Essex County, New Jersey. There is a church located directly adjacent to the Site in the center of the northern portion, an unused school on the northeast corner, and an abandoned warehouse adjacent to the eastern edge of the Site.

The area is an urban, mixed residential and light industrial neighborhood. It is located adjacent to the University Heights District that includes Rutgers University, New Jersey Institute of Technology, the University of Medicine and Dentistry of New Jersey, and Essex County College campuses. The Essex County Vocational Technical High School borders the southeast corner of the Site (refer to Figure 1 for the Site Location Map).

### **1.2 Site History and Background**

M.C. Canfield & Sons was a lead smelter and Babbitt metal manufacturer that operated at 93 Wilsey Street and 196 Newark Street from at least 1907 to approximately 1970. M.C. Canfield & Sons transferred ownership of the Site to Salem Trucking, Inc. in March 1974. The City of Newark, New Jersey foreclosed on the property encompassing the Site in September 1976 for non-payment of taxes. The Site was redeveloped for residential use during the early 1990s by K. Hovnanian at Newark, Urban Renewal Corporation II, Inc. (K. Hovnanian). The City of Newark, New Jersey transferred ownership to K. Hovnanian in December 1993. Ownership of a number of other surrounding lots was also transferred to K. Hovnanian and the Site was redeveloped into a residential condominium complex known as Society Hill at University Heights III, circa 1993. A portion of Wilsey Street, close to the former location of the facility, was renamed during the redevelopment and is now known as Cornerstone Lane. The condominiums were sold to individual owners as single family residences, but the complex, including the outdoor grounds, is managed by Impac Property Management. The Site is currently maintained by the Society Hill at University Heights III Condominium Association and is landscaped with ornamental trees, shrubs, and flower plantings, and adequate grass cover in most areas. Some turf damage in a few areas of high foot traffic has led to soil erosion and loss of integrity to what is normally a protective turf cover.

In May 2012, the EPA Removal Action Branch (RAB) was requested to assess residential properties for the presence of lead in the vicinity of the Site. The justification for the RSE was

based upon analytical results provided to EPA as a result of previous New Jersey Department of Environmental Protection (NJDEP) soil investigations conducted in 2010 and 2011 in areas included within the Site. These previous NJDEP investigations indicated that there was lead contamination in the soil at residential properties in the vicinity of the Site at concentrations ranging from 753 parts per million (ppm) to 4,860 ppm. As a result, EPA conducted a Phase I RSE in August 2012 to determine if any additional properties had been impacted by historical operations at the Site.

For the Phase I event, soil sampling was conducted in accordance with the *Superfund Lead-Contaminated Residential Site Handbook*, dated August 2003. The Site was divided into 34 quadrants (P001-SS001 through P001-SS034) and included areas of high use, such as vegetable gardens or children's play areas. Five-point composite soil samples from each quadrant were collected from depths of 0 inches (bottom of sod grass), 0 to 2 inches, 2 to 6 inches, 6 to 12 inches, 12 to 18 inches, and 18 to 24 inches below ground surface (bgs). Discrete samples were also collected from the four corners of the Site and from the four quadrants where the concentrations of lead were the highest. Soil samples collected from the Site were screened on-site for metals using an Innov-X portable x-ray fluorescence (XRF) instrument with 10 percent (%) of the samples submitted for confirmation laboratory analysis. Based on the XRF field screening results of the composite soil samples collected from the Site, lead was detected at concentrations ranging from 24 ppm to 3,227 ppm. At least one sample collected from Quadrants P001-SS001, P001-SS003, P001-SS009, P001-SS012, P001-SS013, P001-SS014, P001-SS015, P001-SS017, P001-SS019, P001-SS023, P001-SS026, P001-SS027, P001-SS028, P001-SS029, P001-SS030, P001-SS031, and P001-SS032 contained lead at concentrations above the New Jersey Administrative Code (NJAC) Residential Direct Contact Soil Remediation Standard (RDCSRS) and the EPA Regional Screening Level (RSL) for residential soil of 400 milligrams per kilogram (mg/kg). XRF field screening results of the discrete soil samples collected from the four corners of the Site indicated lead at concentrations ranging from 20 mg/kg to 494 mg/kg. P001-SS034-D contained a sample with a lead concentration exceeding the NJAC RDCSRS of 400 mg/kg. XRF field screening results of the discrete soil samples collected from the four quadrants of the Site, in which the composite samples contained the greatest concentrations of lead, indicated lead at concentrations ranging from 19 mg/kg to 6,863 mg/kg (refer to Attachment A1 - Final Sampling Trip Report - M.C. Canfield & Sons Site).

Based upon the results from the Phase I RSE, EPA conducted a Phase II Removal Assessment in April and May 2013 to further delineate the lead contamination in soil throughout the Site.

The Site was divided into three separate areas during the Phase II event and discrete soil samples were collected at depths of 0 to 2 inches and 2 to 6 inches bgs, and for some locations at depths of 6 to 12 inches, 12 to 18 inches, and 18 to 24 inches bgs, depending on available XRF field screening results. The highest concentrations of lead were found in the quadrants at, and adjacent to, the suspected location of the previous M.C. Canfield & Sons smelter. This area was defined by Quadrants P001-SS012, P001-SS013, P001-SS014, and P001-SS015 and is referred to as Area 1 (refer to Figure 2 - Areas of Concern Overview Map). Concentrations of lead exceeding the EPA RSL of 400 mg/kg for residential soils were found in Area 1 in a majority of the samples collected from the 0 to 2 feet bgs depth. Lead concentrations in these quadrants ranged from background levels to 13,000 mg/kg and tended to increase with depth, suggesting that Area 1 contains the main source of lead contamination at the Site. The highest lead concentration of

13,000 mg/kg was detected in Quadrant P001-SS015 in Area 1 at a depth of 18 to 24 inches bgs [refer to Attachment A2 - Sampling Trip Report (Phase II) - MC Canfield & Sons Site].

Area 2 is defined by Quadrants P001-SS023, P001-SS026, and P001-SS031 and is located directly north and east of the Society Hill at University Heights III condominium complex community center swimming pool (refer to Figure 2 - Areas of Concern Overview Map). Based on the XRF field screening and laboratory confirmation analytical results, lead contamination was present but not uniformly distributed in this area. A total of 32 of 44 locations sampled in Area 2 contained lead concentrations exceeding the EPA RSL for residential soils with a maximum concentration of 2,163 mg/kg being detected in Sample No. P001-SS031-J-1218. Lead in excess of the EPA RSL was found sporadically in each of the intervals sampled throughout the quadrants. Soil erosion where sod coverage had been compromised by foot traffic was evident in some portions of Area 2, creating a direct pathway for contaminant migration and exposure to lead contaminated soils.

Area 3 is defined by Quadrants P001-SS017, P001-SS019, P001-SS027, P001-SS028, P001-SS029 and P001-SS030. Results of the Phase II Removal Assessment confirmed the original findings of the RSE that lead contamination was largely confined to the 0 to 6 inch depth interval within Area 3. Phase II results indicated lead concentrations ranging from background to 855 ppm. A total of 69 of the 87 sample locations in Area 3 indicated lead concentrations in excess of the EPA RSL for lead in at least one of the depth intervals sampled. In general, the sod in Area 3 was in good condition, provided a barrier to direct contact, and prevented erosion of contaminated soils.

Based on the findings from these site investigations, EPA concluded that lead concentrations in Area 3 are generally an order of magnitude lower than those found in the source area (Area 1). Both the distribution of lead in the top 6 inches of soil in Area 3 and the relatively lower concentrations of lead in Area 2 suggests that contaminated soil from Area 1 (the former smelter location) were likely spread to Areas 2 and 3 and mixed with cleaner soils by mechanical means (such as bulldozing) during past construction activities conducted at the Site.

## **2.0 SCOPE OF WORK**

Sampling and analysis conducted at the Site during EPA's Phase I RSE and Phase II Removal Assessment identified elevated concentrations of lead in on-site soils. Lead is a Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) hazardous substance as defined in section 101(14) of CERCLA, 42 U.S.C. § 9601(14). The Site constitutes a "facility" within the meaning of section 101(9) of CERCLA, 42 U.S.C. § 9601(9), and the presence of lead in the soil at the Site constitutes a "release," as defined in section 101(22) of CERCLA, 42 U.S.C. § 9601(22).

EPA identified conditions at the Site that met the requirements of section 300.415(b) (2) of the National Oil and Hazardous Substances Pollution Contingency Plan [National Contingency Plan (NCP)], indicating that a Removal Action was warranted. The potential for release of hazardous substances from the Site presented a threat to public health and welfare as defined by section 300.415(b) (2) of the NCP. Therefore, the removal and off-site disposal of hazardous substances was required to eliminate the threat posed to the public. The objectives of the Removal Action,

as defined in the EPA Action Memorandum, signed on September 26, 2013, was to prevent human exposure to lead through direct dermal contact, incidental ingestion of soil, and inhalation of lead in dust (refer to Attachment A3 – EPA Action Memorandum).

The EPA Action Memorandum addressed the contamination in Areas 1 and 2 by excavation and in Area 3 by institutional controls and public education. However, prior to initiating the Removal Action at the Site, NJDEP consented during consultations with EPA that it would address the lead contamination in Area 3 through its state remediation program. Pursuant to the *Superfund Lead-Contaminated Residential Sites Handbook*, dated August 2003, EPA decided that excavating and removing the top 2 feet of contaminated soil along with any source material that may exist in Areas 1 and 2 and replacing with certified clean fill and topsoil would sufficiently reduce human exposure to lead (refer to Figure 2 - Areas of Concern Overview Map).

As part of the Removal Action activities which began on July 10, 2014, EPA's Emergency and Rapid Response Services (ERRS) Contractor, Environmental Restoration LLC (ER), was tasked with marking out surface and subsurface utilities around the Areas of Concern (AOCs) proposed for excavation. ERRS was also tasked with excavation of lead-contaminated soils to a depth of 2 feet bgs at the various AOCs located in Areas 1 and 2 of the Site. In addition, ERRS was responsible for managing and disposing of the contaminated soils generated during excavation activities and preventing off-site migration of fugitive dust using dust suppression measures. Furthermore, ERRS was responsible for restoration of disturbed areas of the Site, which included, backfilling excavations with clean fill and topsoil, landscaping to preserve existing ground elevations, planting grass sod, and replacing flowering plants, ornamental plants, shrubs, and trees to their original locations. In order to ensure that dust suppression measures were adequately protecting the on-site personnel, ERRS was required to conduct personal air monitoring for its personnel.

As part of the Removal Action completed at the Site, RST 3 was tasked with the following:

- Maintaining a daily record of site activities in the Site logbook;
- Collecting photographic documentation of Site activities;
- Conducting perimeter air monitoring for fugitive dust levels;
- Conducting air sampling for total lead laboratory analysis;
- Collection of post-excavation soil samples in all excavated areas;
- Conducting field screening analyses for lead in all post-excavation soil samples using an XRF analyzer; and
- Coordinating laboratory analysis for lead in post-excavation soil samples.

## **2.1 Mobilization**

Prior to mobilizing to the Site, EPA approved the Site-Specific Health and Safety Plan (HASP) prepared by ERRS, which outlined the safety procedures for all activities to be conducted at the

Site by its personnel. In addition, EPA approved the site documents prepared by RST 3, including a Site-Specific HASP, which defined safety protocols for RST 3 personnel during field activities, a Site-Specific Uniform Federal Policy (UFP) Quality Assurance Project Plan (QAPP), which provided guidelines for field sampling, and a Site-Specific Community Air Monitoring Plan (CAMP), which outlined the air monitoring and sampling procedures to be followed to protect on-site personnel and the surrounding community from potential airborne contaminant releases during the implementation of the Removal Action (refer to Attachment A4 - Site-Specific Community Air Monitoring Plan, A5 - RST 3 Site-Specific Health and Safety Plan, and A6 - Site-Specific Uniform Federal Policy Quality Assurance Project Plan).

From July 1, 2014 through September 9, 2014, the ERRS Contractor utilized the services of Utility Survey Corporation of Washingtonville, New York to perform the necessary utility clearance procedures as required by the State of New Jersey prior to any excavation work. This involved the location and marking of surface and subsurface utilities.

On July 10, 2014, EPA and its ERRS and RST 3 Contractors mobilized to the Site. The ERRS Contractor mobilized all necessary equipment to the Site and a command post (Support Zone) was established behind the Society Hill at University Heights III community center. Due to the discontinuous nature of the AOC locations, Contamination Reduction Zones (CRZs) were established daily based upon the locations of the active work areas (Hot Zones). Additionally, all surface and subsurface utilities locations were carefully reviewed and clearly demarcated prior to beginning excavation activities in each AOC. As part of the air monitoring program, RST 3 conducted baseline air monitoring for particulates and air sampling for total lead analysis to ascertain background air quality at the Site under normal, pre-excavation conditions. Area 1 was selected for baseline air monitoring/sampling based on historical information and analytical results from EPA's Phase I and Phase II investigations which indicated that as the source area of the lead contamination at the Site.

## **2.2 Monitoring and Sampling Objectives and Methodology**

The monitoring and sampling objectives of the Removal Action are summarized in the following sections. Additional details can be found within the RST 3 Site-Specific CAMP and UFP QAPP and the ERRS Work Plan.

### **2.2.1 *Particulate Monitoring Objectives and Methodology***

In accordance with the procedures outlined within the Site-Specific CAMP and the EPA guidance document, *Superfund Program Representative Sampling Guidance, Volume 2: Air (Short-Term Monitoring), Interim Final*, dated December 1995, particulate monitoring was conducted daily to determine when the established engineering controls were necessary in order to prevent off-site fugitive dust migration and to ensure that on-site personnel and residents were not being exposed to particulates through inhalation at concentrations above the Site-Specific Action Level. The Site-Specific Action Level for particulates was established at 100 micrograms per cubic meter ( $\mu\text{g}/\text{m}^3$ ) above background for a 15-minute time-weighted average (TWA), with a maximum of 150  $\mu\text{g}/\text{m}^3$  above background for a 15-minute TWA.

Based upon the Site-Specific CAMP, the following response actions were adhered to throughout the Removal Action activities: when particulate concentrations were below the minimum Site-Specific Action Level ( $100 \mu\text{g}/\text{m}^3$ ), normal work activities and air monitoring continued; if particulate concentration exceeded the minimum Site-Specific Action Level, RST 3 informed the work crew and dust suppression measures were initiated immediately; and if particulate concentration exceeded the maximum Site-Specific Action Level ( $150 \mu\text{g}/\text{m}^3$ ), site activities would be temporarily suspended and dust suppression measures would be continuous throughout the work period or re-evaluated as necessary (refer to Attachment A4 – Site-Specific Community Air Monitoring Plan).

Five DataRAM4™ real-time particulate air monitors equipped with  $\text{PM}_{10}$  (particulate matter smaller than 10 microns in diameter) detectors were used to monitor particulate levels throughout the duration of the Removal Action. The monitors were deployed each workday to measure the  $\text{PM}_{10}$  concentrations in real time. The monitors were factory-calibrated by the equipment manufacturer prior to being used at the Site. The monitors were field-calibrated daily prior to being used. Once turned on, the monitors recorded particulate concentrations every 60 seconds and a 15-minute TWA was automatically calculated for the duration of the monitoring period. Meteorological data consisting of wind speed, wind direction, temperature, and barometric pressure were recorded each day to position the monitoring equipment in the appropriate upwind and downwind locations. Meteorological data was obtained via internet from the Weather Underground website (<http://www.wunderground.com/>) and recorded daily in the Site logbook. Air monitoring was not conducted during periods of precipitation.

Air monitoring locations were upwind and downwind of intrusive site activity. On a daily basis, one of the five air monitoring stations was established at an upwind location outside the zone of intrusive activities to document background air quality. The monitoring stations were connected to a Life-line Interoperable Network Communicators (LINC) which communicated with the VIPER system (a wireless network-based communication system) via a computer gateway (Internet Source). The VIPER system provided instantaneous real-time air quality readings through a computer server [Viper Deployment Manager (VDM)]. Based on the established Site-Specific Action Levels (minimum of  $100 \mu\text{g}/\text{m}^3$  and maximum of  $150 \mu\text{g}/\text{m}^3$ ), alarms were set on each air monitor and the VIPER system was programmed to send a combination of cell phone text messages and electronic mail (email) alerts to the EPA On-Scene Coordinator (OSC) and the RST 3 Site Project Manager (SPM) when particulate concentrations exceeded the Site-Specific Action Levels to warrant dust suppression measures or re-evaluation of site activities.

Although air monitoring data from each air monitoring station was automatically stored real-time in a computer server, at the end of each workday, the air monitoring data was downloaded from the online server onto a computer and maintained on-site in files that were readily available for review.

### **2.2.2 Air Sampling Objectives and Methodology**

In order to verify the effectiveness of the established engineering controls, ambient air sampling was conducted daily in accordance with the procedures outlined within the Site-Specific CAMP and the EPA guidance document entitled, *Superfund Program Representative Sampling Guidance, Volume 2: Air (Short-Term Monitoring), Interim Final*, dated December 1995. Per



the Site-Specific CAMP, the Site-Specific Air Sampling Action Level was established based on the Occupational Safety and Health Administration (OSHA) Permissible Exposure Limit (PEL) and the National Institute for Occupational Safety and Health (NIOSH) Recommended Exposure Limit (REL) for lead dust, both of which are 50  $\mu\text{g}/\text{m}^3$  measured as an 8-hour TWA. In order to ensure that on-site personnel and residents were protected from lead exposure, a more stringent OSHA Action Level of 30  $\mu\text{g}/\text{m}^3$  for lead dust was adopted as the Site-Specific Action Level for lead in air.

In accordance with the Site-Specific CAMP, air samples were to be submitted for total lead analysis when there were exceedances of particulates above the maximum Site-Specific Action Level of 150  $\mu\text{g}/\text{m}^3$  if the nature of the site activities could potentially cause a lead exposure condition. Since this condition did not occur, air samples were periodically submitted for laboratory analysis at the discretion of the EPA OSC in order to confirm that airborne lead concentrations were below acceptable levels. In order to facilitate the daily assessment of potential lead exposure of on-site personnel and residents, laboratory analysis of air samples was based on a 24-hour turn-around time (TAT). Therefore, analytical results of air samples were available for on-site review within 24 hours of sample collection.

Air sampling was conducted in accordance with EPA/Environmental Response Team (ERT) Standard Operating Procedure (SOP) Nos. 2008: *General Air Sampling Guidelines* and 2119: *Air Sampling for Metals (NIOSH Method 7300, Elements)*. Each air sampling station consisted of one 0.8 micrometer ( $\mu\text{m}$ ) mixed cellulose ester (MCE) filter, connected to a personal sampling pump (SKC PCXR8<sup>®</sup>) via Teflon<sup>®</sup> tubing. The sampling pump was calibrated with a Bios Dry Cell DC Lite to sample at a flow rate of approximately 2.0 liters per minute (L/min) through the MCE filter. Sampling was conducted for an 8-hour period with a target volume of 960 liters (L) (refer to Attachment A6 – Site-Specific Uniform Federal Policy Quality Assurance Project Plan).

Five air sampling stations were co-located daily with the air monitoring stations which were established upwind and downwind of the intrusive activities at each AOC. In addition, one of the five air sampling stations was established in an upwind area outside of the hot zone to document daily background conditions. Once the sampling period was completed, the flow rate was measured again. The duration of the sampling period and the flow rate was entered onto an air sampling worksheet. The total volume of air was calculated and entered onto the worksheet. If the sample pump failed to run for the pre-selected period of time, this was noted on the air sampling worksheet. All sample information was transcribed into EPA's SCRIBE sample management database. Sample labels and chain of custody (COC) documents were generated from the SCRIBE software. Matrix spike/matrix spike duplicate (MS/MSD) and field duplicate samples were not required for air sampling. Appropriate blank samples were included in each shipment of air samples. All air samples were preserved in ice-packed sample coolers and shipped, via FedEx, to EPA-certified laboratories, including MITKEM and EMSL, for total lead analysis via NIOSH Method 7300.

### **2.2.3 Soil Sampling Objectives and Methodology**

The ERRS Contractor conducted waste stream characterization sampling to determine the appropriate facility for off-site disposal. Clean fill and topsoil sampling was also conducted to determine the acceptability of the imported soils for use during restoration of the Site. Post-

excavation soil samples were collected from Areas 1 and 2 by RST 3 to document the concentration of lead in soils left in place that were below the 2 foot target excavation depth and at locations that could not be excavated due to their proximity to permanent structures, including paved sidewalks, electrical transformers, and air conditioning (A/C) units. Post-excavation soil samples were collected in order to meet a definitive data quality assurance/quality control (QA/QC) objectives. All post-excavation soil samples, including QA/QC samples, were pre-screened for lead on-site using XRF technology. The soil samples were then stored in ice-packed sample coolers and submitted weekly to EPA's Division of Environmental Science and Assessment (DESA) laboratory, located in Edison, New Jersey, for total lead analysis (refer to Attachment A6 – Site-Specific Uniform Federal Policy Quality Assurance Project Plan).

RST 3 conducted soil sampling activities in accordance with the guidelines outlined in EPA ERT Soil Sampling SOP No. 2012: *Soil Sampling*. Post-excavation soil sampling was also conducted in accordance with the NJDEP Technical Requirements for Site Remediation (NJAC 7:26E) which requires post-excavation soil samples to be collected at a frequency of one sidewall soil sample per every 30 linear feet of the excavation perimeter and one base soil sample per every 900 square feet (ft<sup>2</sup>) of the excavation area. The sidewall soil samples were collected from 18 to 24 inches bgs and the base soil samples were collected at 24 inches bgs. When Site conditions affected the final excavation depth, sidewall samples were collected from the lowest 6 inch depth interval of the excavation sidewall and base samples were collected at the final excavation depth. All soil sample locations were approved by the EPA OSC. The soil samples were collected in 6 x 9 inch plastic Ziploc<sup>®</sup> bags using dedicated plastic scoops. Organic debris was removed from the bagged sample, the sample was homogenized, and screened on-site for lead using an XRF analyzer. Each soil sample was screened three times with the XRF analyzer at an interval lasting no less than 60 seconds. The data obtained for each XRF screening interval was averaged to determine the concentration of lead in the soil sample. The field screening data was documented in field data sheets.

All selected pre-screened post-excavation soil samples were placed in 4 ounce (oz.) glass sample jars. Field duplicate and MS/MSD samples were collected at a rate of one per every 20 soil samples collected. All soil sample information was transcribed into EPA's SCRIBE sample management database. Sample labels and COC documents were generated from the SCRIBE software. All soil samples were preserved in ice-packed sample coolers and hand-delivered to the EPA DESA laboratory for lead analysis via DESA Method C-109 (Ref. EPA 200.7). Soil sampling locational data was collected using a Trimble<sup>®</sup> Global Positioning System (GPS) (refer to Attachment A6 – Site-Specific Uniform Federal Policy Quality Assurance Project Plan).

## **2.3 General Site Activities**

All site activities were conducted in accordance with the EPA-approved Site-Specific HASP and Work Plan for the ERRS Contractor and the RST 3 Site-Specific HASP, Site-Specific UFP QAPP, and Site-Specific CAMP. The majority of the general site activities were conducted between July 10, 2014 and November 14, 2014. Minor landscaping and Site repairs were completed at later dates which are not described in this report (details of those activities were documented in separate Site Situation Reports).

### ***2.3.1 Documentation of Site Activities***

On a daily basis, RST 3 documented site activities, including pre-excavation, excavation, backfill, and site restoration activities, in the site field logbook and through photographic documentation (refer to Attachment B for Photographic Documentation of Site Activities). XRF screening data was electronically documented on-site as it was generated in the field in a separate spreadsheet. Post-excavation soil sampling locations and information were also documented in the site field logbook.

### ***2.3.2 Pre-Excavation Activities***

Prior to excavating each AOC at the Site, ERRS and RST 3 photo documented the landscape and vegetation of the area. In addition, ERRS video-recorded the landscape and vegetation of each AOC. The landscaping subcontractor provided an inventory of the Site features and landscape vegetation for each AOC. The inventory was used to identify the locations of pre-existing physical structures, including traffic and street signs, personal decorative items of residents, and to determine the location and types of vegetation removed in order to ensure restoration of the disturbed areas to as close to original condition as feasible.

### ***2.3.3 Clearing and Grubbing of AOCs***

After documentation and inventory of each AOC was completed, all areas were prepared for excavation. ERRS cut down trees as needed, removed shrubs and ornamental plants, and grubbed areas as needed with the excavator bucket to expose utility access ports that were hidden in the vegetation overgrowth. Utilities exposed after grubbing were identified and sprayed with high visibility paint for visual reference prior to initiating excavation.

### ***2.3.4 Dust Control***

During clearing and grubbing, excavation, soil removal, and site restoration activities, ERRS staged a truck-mounted water tanker close to the work area as a water supply to adequately provide dust control. The tank was fitted with connectors for pressurized water hoses. When dust control was triggered by site activities, water hoses with spray heads were attached to the tank connectors and turned on to release a pressurized mist of water which was sprayed on the excavation. RST 3 conducted particulate monitoring to determine when dust suppression was necessary and ambient air sampling to determine if the dust control measures employed by ERRS were sufficient to provide protection to on-site personnel and the general public. These safety protocols were implemented throughout the Removal Action.

### ***2.3.5 Soil Excavation and Waste Management***

A total of 40 AOCs were excavated during the Removal Action. A total of 32 of the 40 AOCs were located in Area 1 and the remaining eight AOCs were located in Area 2. Each AOC was excavated to a target depth of 2 feet bgs. In locations where the contaminated soils had to be left in place due to proximity to permanent structures (*i.e.*, sidewalks, central air conditioning units, electrical transformers, etc.) contaminated soils were demarcated with rolls of orange safety fence as a subterranean warning barrier for anyone performing future excavation/intrusive

activities. The orange safety fencing marks the boundary between clean fill and contaminated soil where concentrations of lead may still exceed the EPA RSL of 400 mg/kg for residential soils.

Soil excavation was accomplished using a mini excavator and a skid steer equipped with a loading bucket. ERRS transferred the excavated soils directly from the excavator bucket into the bucket of the skid steer. The skid steer was used to transport and deposit the excavated soils directly into polyethylene-lined roll-off containers which were staged as close to each AOC as feasible. Each roll-off container was filled with approximately 18 tons of contaminated soil and debris. All roll-off containers were shipped in accordance with U.S. Department of Transportation (DOT) requirements. A total of 100 roll-off containers filled with contaminated soil and debris were transported offsite for disposal as non-hazardous waste to the Conestoga Landfill located in Morgantown, Pennsylvania or to the IESI Landfill located in Bethlehem, Pennsylvania.

### ***2.3.6 Soil Excavation around Surface and Sub-Surface Utilities***

Extreme care was taken while excavating around surface and sub-surface utilities to ensure that service disruption did not occur. Underground utility markings were maintained throughout the Removal Action. When the scope of work required removal of contaminated soil from areas where utilities were present hand digging procedures were used in place of mechanized equipment to prevent accidental damage. No service disruption were experienced as a result of site activities.

### ***2.3.7 Waste Disposal***

A total of 1,792 tons of lead-contaminated soil and debris was transported from the Site in 100 roll-off containers to the Conestoga Landfill and the IESI Landfill for disposal (refer to Table 5 for a summary of the waste disposal manifest information and Attachment A13 for the waste disposal manifests).

### ***2.3.8 Backfill and Landscaping***

All excavations were backfilled with pre-analyzed clean fill and topsoil that met the NJDEP requirements for clean fill. Prior to backfilling each AOC, orange safety fence was installed at the bottom of every excavation as a subterranean warning barrier demarcating where concentrations of lead in soil may still exceed the EPA RSL of 400 mg/kg. Each excavation was backfilled to 12 inches bgs with clean fill. A vibrating compactor was used to compact the clean fill in approximately 6 inch lifts, where feasible. Thereafter, approximately 12 inches of topsoil was placed on top of the clean fill and lightly compacted again to bring the ground level to its pre-existing surface elevation while ensuring that the original landscape was maintained. Photographic documentation of backfill and landscaping of the AOCs is presented in Attachment B.

### **2.3.9 Site Restoration**

As part of the site restoration, traffic and street signs were placed back at their original locations during backfill operations at each AOC. Additionally, personal decorative items, including decorative signs, flower pots, landscaping bricks, and sculptures were replaced to their original locations. The landscaping contractor reinstalled sprinkler lines and sprinkler heads in all areas where excavation had required their removal. The sprinkler lines were pressure tested prior to backfilling and the lines were tested for normal operation upon installation. Sod grass, flowering plants, ornamental plants, shrubs, and trees were replaced in each AOC in accordance with the vegetation inventory and with the approval of property management. Photographic documentation of site restoration activities is presented in Attachment B.

## **2.4 Particulate Monitoring and Results**

Prior to initiating Removal Action activities, on July 10, 2014, baseline particulate air monitoring was conducted in Area 1 to ascertain the air quality within the Site under normal conditions as they existed prior to conducting intrusive activities. Area 1 was selected for baseline air monitoring based on historical information and analytical results from EPA's Phase I and Phase II sampling events which indicated that it was the source area of the lead contamination at the Site. Baseline particulate monitoring results indicated that no exceedances of particulates above the Site-Specific Action Level of  $100 \mu\text{g}/\text{m}^3$  were documented during the baseline monitoring phase. A graph of the baseline particulate air monitoring results is presented in Attachment C, Graph 1.

Air monitoring for particulates was conducted on a daily basis throughout the Removal Action in accordance with the procedures outlined within the Site-Specific CAMP. A vast majority of the air monitoring data collected was below the Site-Specific Action Level for particulates. Particulate exceedances that did occur were observed as short duration intermittent spikes in particulate concentrations that did not present an exposure hazard to workers or the general public. The exceedances usually consisted of concentration spikes that were less than 30 seconds in duration; none were sustained long enough to indicate an exceedance of the Site-Specific Action Level based on a 15-minute TWA. A majority of the particulate concentration spikes were caused by backfilling operations involving clean soil and stone fill. Particulate concentrations were continually monitored through constant receipt of real-time particulate data from the VDM server and through automated alarms which were transmitted as a combination of text messages and email alerts. All email and text alerts were investigated to ensure that site worker and public TWA exposure levels were not being exceeded, to determine the cause of the temporary spike in particulate concentrations, and to determine any corrective actions required. No TWA exposure action levels were observed throughout the Removal Action. The email alerts documented the 15-minute average particulate concentration based on a TWA specifically for the monitoring period prior to the alert.

Table 1 summarizes the particulate monitoring and exceedance data received in email notifications throughout the air monitoring activities at the Site. Table 1 also documents the Site activities being conducted at the time of the notification. Attachment C provides graphical representation of daily particulate exceedances and provides graphical representation of the air monitoring data collected during ambient air sampling events on July 10 and 17, 2014,

September 9, 2014, and October 28, 2014. The air filter samples collected during these four air sampling events were submitted for total lead laboratory analysis. The analytical results of the air filter samples is discussed in Section 2.5 of this report.

When temporary particulate concentration spikes were observed site activities were suspended immediately followed by the application of a water spray of the excavation area to reduce dust levels. Air quality was allowed to return to normal before intrusive activities were resumed. Sustained exceedances of particulate concentrations above the Site-Specific Action Level were not experienced.

During backfill operations of excavated AOCs, clean fill (quarry gravel dust) and topsoil were occasionally spilled onto the roadway. The landscape contractor used a leaf blower to return the spilled fill material into the AOC being backfilled. This action sometimes caused particulate concentrations to spike above the Site-Specific Action Level. Particulate exceedance spikes were also observed during the use of a vibrating compactor to compact backfill material within an AOC. Although clean fill and topsoil were the cause of the rise in PM<sub>10</sub> concentrations, water misting was implemented as a dust suppression technique during these operations.

During periods of high winds, excavation activities were temporarily suspended until water misting could be implemented and maintained as a dust suppression measure. Another site activity that caused temporary spikes in particulate concentrations included tree cutting operations. This activity did not cause lead-contaminated dust migration issue. However, the established engineering controls were implemented and work activities resumed only after RST 3 confirmed through real-time air monitoring data that it was safe to continue work. Refer to Attachment B for photographic documentation of site activities.

It is noteworthy that on August 8, 2014, while ERRS was cutting down a tree at AOC 13C, a particulate exceedance alert, received via email, indicated that the particulate concentration was 2,532.17 µg/m<sup>3</sup>; but at exactly the same time another alert was received from the same air monitor indicating a particulate concentration at 150.18 µg/m<sup>3</sup>. The exceedance alert of 2,532.17 µg/m<sup>3</sup> was therefore considered to be anomalous. Since no intrusive site activity was going on at the time, the particulate exceedance alert was not regarded as a concern; however, dust suppression measures were activated immediately as a precaution.

## **2.5 Air Sampling and Analytical Results**

Baseline ambient air sampling was conducted prior to initiating Removal Action activities at the Site. Thereafter, per the Site-Specific CAMP, ambient air samples were to be submitted for total lead laboratory analysis if the following conditions were met:

- If particulate concentrations were observed through real-time air monitoring which exceeded the 150 µg/m<sup>3</sup> Site-Specific Action Level for a 15-minute TWA during activities involving contaminated soil;
- if an exceedance of the 8 hour OSHA TWA was suspected based on air monitoring results and the work activity involved work in areas of contaminated soil with a high lead concentration;
- or at the request of the EPA OSC.

Although there were only two instances where contaminated soil activities were the potential cause of an exceedance of the 150  $\mu\text{g}/\text{m}^3$  Site-Specific Action Level for a 15-minute TWA, air filter samples from four ambient air sampling events (not including the baseline sampling) were submitted for total lead laboratory analysis. Laboratory analysis of ambient air samples was performed on a 24-hour turnaround time.

ERRS and EPA also conducted personal air sampling of on-site contractor personnel in accordance with OSHA 1910.120 and the OSHA Respiratory Protection Standard, 1910.134. The procedures for the personal air sampling are included in the ERRS Site-Specific HASP. The personal air samples were analyzed by an ERRS-procured laboratory.

### ***2.5.1 Air Sampling Analytical Results Summary***

Based on analytical results from previous site investigations, it was determined that Area 1, encompassing Quadrants P001-SS012, P001-SS013, P001-SS014 and P001-SS015, was the source area with the highest lead concentrations at the Site. For this reason, prior to initiating Removal Action activities, on July 10, 2014, baseline air sampling was conducted around Area 1 to determine the quality of air at the Site under normal conditions. Seven air filter samples, including one field blank and one lot blank, were collected from Area 1 and shipped to MITKEM Laboratories located in North Kingstown, Rhode Island under COC Record No. 2-071014-152337-0001 for total lead analysis. Analytical results were non-detect for total lead in all samples.

On July 17, 2014, during the excavation of AOC 13A, located in Area 1, seven air filter samples, including one field blank and one lot blank, were collected and shipped to MITKEM Laboratories under COC Record No. 2-071714-161938-0003 for total lead analysis. The air filter samples were collected to corroborate the effectiveness of engineering controls and to determine if air quality was affected during intrusive site activities. It is noteworthy that on this day, a particulate spike (151  $\mu\text{g}/\text{m}^3$ ) above the maximum particulate Site-Specific Action Level of 150  $\mu\text{g}/\text{m}^3$  was recorded at air monitoring Station 2. Site activities were temporarily suspended and dust suppression measures were activated by wetting the excavation area with a water spray. Analytical results were non-detect for total lead in all samples collected on that day.

On September 9, 2014, during the excavation of AOCs 12H and 14A, located in Area 1, no exceedances of particulate concentrations were recorded on the air monitors. However, at the discretion of the EPA OSC, seven air filter samples, including one field blank and one lot blank, were collected and shipped to EMSL Analytical, Inc. located in Cinnaminson, New Jersey under COC Record No. 2-090914-124224-0012 for total lead analysis. Analytical results were non-detect for total lead in all samples.

On October 28, 2014, during the excavation of AOC 31A, located in Area 2, seven air filter samples, including one field blank and one lot blank, were collected. Although there was no exceedance of particulates recorded on the air monitors throughout the work day, at the discretion of the EPA OSC, the air filter samples were selected for laboratory analysis to document the air quality around Area 2 during site activities. The air filter samples were shipped to EMSL Analytical, Inc. under COC Record No. 2-102814-155502-0019 for total lead analysis. Analytical results were non-detect for total lead in all samples.

Real-time particulate data available through the VDM server and the combined text message and email notifications received by RST 3 and the EPA OSC provided useful information to trigger immediate activation of established engineering controls, including temporary suspension of site activities and immediate dust suppression measures. For this reason, it was unlikely that any ambient air sample collected throughout the Removal Action activities would have indicated any exceedance of lead above the Site-Specific Action Level as evidenced in the results of the air samples analyzed for total lead.

During the Removal Action activities, a total of 28 air filter samples, including four field blanks and four lot blanks, collected during four ambient air sampling events were submitted for total lead analysis. All air filter samples analyzed indicated that lead concentrations were non-detect. Refer to Table 2 (Air Sample Collection and Analytical Results Summary for Lead) and Attachment A7 (Validated Air Sampling Analytical Report).

### ***2.5.2 Personal Air Sampling and Analytical Results***

On July 29, 2014, ERRS and EPA conducted personal air sampling of three ERRS personnel to ensure that they were not being exposed to lead dust while conducting removal activities in the area of the Site which contained the highest concentrations of lead contaminated soil. The personal air samples were analyzed by EMSL Analytical, Inc. Analytical results were below the detection limits for lead in two of the personal air samples. However, one personal air sample (729-02) indicated a trace lead concentration of  $0.15 \mu\text{g}/\text{m}^3$ , which was well below the Site-Specific Action Level of  $30 \mu\text{g}/\text{m}^3$  using an 8-hour TWA. Refer to Attachment A8 – Personal Air Sampling Analytical Report.

## **2.6 Soil Sampling and Analytical Results**

### ***2.6.1 Disposal Sampling Methodology and Analytical Results***

In preparation for Removal Action activities at the Site, on May 27, 2014, RST 2 (currently RST 3) collected two composite soil samples from Areas 1 and 2 for disposal analysis at an ERRS-procured laboratory, Mid-Atlantic Environmental Laboratories, Inc. located in New Castle, Delaware. On September 30, 2014, additional soil samples were collected from Area 2 by ERRS and analyzed for disposal purposes by Mid-Atlantic Environmental Laboratories, Inc. (refer to Attachment A12 – Disposal Soil Sampling Analytical Report).

Disposal sampling was conducted in the areas of highest lead contamination in order to represent the worst case scenario for waste categorization. This was done in order to determine whether soil from these areas would need to be managed as a Resource Conservation and Recovery Act (RCRA) hazardous waste. Full waste profile analyses were conducted on these samples, including the toxicity characteristic leachate procedure (TCLP) analysis. Based on the results of the disposal sampling, all soils met the characteristics of non-hazardous waste. Conestoga Landfill and the IESI Landfill were selected as the designated disposal facilities for all of the lead-contaminated soils and debris that were generated during the Removal Action.



### ***2.6.2 Clean Fill and Topsoil Sampling Methodology and Analytical Results***

The sampling of clean fill and topsoil material was conducted by ERRS to determine if the imported soils were acceptable for use during restoration of the Site. The sampling of clean fill and topsoil material was conducted in accordance with the NJDEP Technical Requirements for Site Remediation outlined in *N.J.A.C.7:26E*. All sample results for the clean fill were below the applicable NJDEP RDCSRS. All sample results for topsoil were below NJDEP RDCSRS of 0.2 mg/kg except for benzo(a)pyrene which was slightly above at a concentration of 0.290 mg/kg (refer to Attachment A9 – Clean Fill Sampling Analytical Report and Attachment A10 – Topsoil Sampling Analytical Report).

### ***2.6.3 XRF Soil Screening and Results***

The two areas of the Site being remediated, Areas 1 and 2, were divided into quadrants. Area 1 was divided in quadrants P001-SS012, P001-SS013, P001-SS014 and P001-SS015 and Area 2 was divided into quadrants P001-SS023, P001-SS026 and P001-SS031. Soil sample nomenclature reflects the specific areas from which soil samples were collected. Excavation of contaminated soils was limited to 2 feet in depth bgs; contaminated soils below 2 feet bgs were left in place. Additionally, soils under driveways, sidewalks, A/C units, and underneath/between co-located electrical transformers were also left in place. Wherever feasible, hand digging procedures were utilized to excavate in order to maximize contaminated soil removal in some of these areas where permanent structures/utilities presented an obstacle to mechanized excavating equipment. Soil sampling for XRF screening and laboratory analysis was conducted in order to check the progress of contaminated soil excavation and to document lead concentrations in all soils left in place.

Field screening of final post-excavation soil samples was conducted to determine the concentration of lead in the samples before they were placed in sample jars and submitted to the laboratory for confirmation analysis. Each soil sample was screened three times with the XRF analyzer at an interval lasting no less than 60 seconds. The data obtained for each XRF screening interval was averaged to determine the concentration of lead in the soil sample. The field screening data was electronically documented on-site in a spreadsheet and retained on hardcopy paper on-site for immediate reference. XRF operation, screening, and handling were conducted in accordance with the manufacturer's instruction manual. The XRF unit was calibrated periodically in accordance with the manufacturer's recommendation to provide appropriate QA/QC and ensure the accuracy of the data generated after each sample was screened.

XRF screening of sidewall soils between and around A/C units and electrical transformers in Area 1 indicated that the lead concentrations for soil left in place (as measured by the XRF) in quadrant P001-SS012 ranged from 23 ppm (P001-SS012A-SW1824-B2) at AOC 12A to 3,317 ppm (P001-SS012H-SW1824-E3) at AOC 12H. In quadrant P001-SS013, the lead concentrations ranged from 8 ppm (P001-SS013A-SW1824-A2) at AOC 13A to 7,117 ppm (P001-SS013D-SW1824-D3) at AOC 13D. In quadrant P001-SS014, the lead concentrations ranged from 81 ppm (P001-SS014A-SW1824-C1) to 9,743 ppm (P001-SS014A-SW1824-E2), both at AOC 14A. In quadrant P001-SS015, the lead concentrations ranged from 22 ppm (P001-SS015D-SW1218-B1) at AOC 15D to 6,455 ppm (P001-SS015A-SW1824-F2) at AOC 15A. In

Area 2, the lead concentrations ranged from 293 ppm (P001-SS026A-SW1824-A3) to 734 ppm (P001-SS026A-SW1824-A4), both at AOC 26A. The XRF screening results for soils left-in-place around A/C units and electrical transformers are presented in Table 3.

AOC 23C consisted of two flower beds. The XRF screening results of the soil samples collected from AOC 23C were below the EPA RSL of 400 ppm for lead (refer to Table 4 for Post-Excavation Soil Sampling XRF Screening and Analytical Results Summary for Lead).

XRF screening results of sidewall samples under A/C units and electrical transformers were reported both as discrete sidewall sample concentrations and as a calculated mean to represent the mean lead concentration under each A/C unit or electrical transformers. Lead concentrations for sidewall samples collected around each A/C unit or electrical transformers were totaled and divided by the total number of sidewall samples from each A/C unit/electrical transformers to obtain the mean lead concentration. In Area 1, based on the mean lead concentration per A/C or electrical transformers location, lead concentrations in quadrant P001-SS012 ranged from 198 ppm (SS012A-SW-B) at AOC 12A to 2,655 ppm (SS012H-SW-D) at AOC 12H. In quadrant P001-SS013, the mean lead concentration per electrical transformer location ranged from 28 ppm (SS013A-SW-A) at AOC 13A to 5,840 ppm (SS013D-SW-D) at AOC 13D. In quadrant P001-SS014, the mean lead concentration per electrical transformer location ranged from 616 ppm (SS014H-SW-A) at AOC 14H to 4,347 ppm (SS014A-SW-E) at AOC 14A. In quadrant P001-SS015, the mean lead concentration per electrical transformer location ranged from 156 ppm (SS015D-SW-A) at AOC 15D to 4,392 ppm (SS015A-SW-F) at AOC 15A. In Area 2, the mean lead concentration per electrical transformer location in quadrant P001-SS031 ranged from 368 ppm to 593 ppm in AOC 31A. Figures 3 through 7 provide the locations and XRF screening results of the soils left-in-place around A/C units and utilities in Areas 1 and 2.

#### ***2.6.4 Post-Excavation Soil Sampling and Analytical Results***

A total of 256 post-excavation soil samples, including 13 field duplicates, from 39 AOCs were collected in support of the Removal Action. All the post-excavation soil samples were hand-delivered by RST 3 to the EPA DESA laboratory for total lead analysis.

The laboratory analytical results of post-excavation soil samples collected from Area 1 indicated that lead concentrations in quadrant P001-SS012 ranged from 15 mg/kg (P001-SS012H-SW1824-002-01) to 20,000 mg/kg (P001-SS012H-SW1824-005-01), both in AOC 12H. In quadrant P001-SS013, lead concentrations ranged from 4.1 mg/kg (P001-SS013A-BS24-004-01) in AOC 13A to 8,100 mg/kg (P001-SS013D-SW1824-010-01) in AOC 13D. In quadrant P001-SS014, lead concentrations ranged from 3.8 mg/kg (P001-SS014A-SW1824-002-01) to 27,000 mg/kg (P001-SS014A-SW1824-011-01), both in AOC 14A. In quadrant P001-SS015, lead concentrations ranged from 13 mg/kg (P001-SS015A-BS24-003-01) to 9,300 mg/kg (P001-SS015A-SW1824-010-01), both in AOC 15A.

The analytical results of post-excavation soil samples collected from Area 2 indicated that lead concentrations ranged from 50 mg/kg (P001-SS031A-BS24-001-01) to 1,800 mg/kg (P001-SS031A-SW1824-003-01). Refer to Table 4 for Post-Excavation Soil Sampling XRF Screening and Analytical Results Summary for Lead, Figures 3 through 7 for Post-Excavation Analytical

Results Maps, and Attachment A11 for the Validated Post-Excavation Soil Sampling Analytical Report.

### ***2.6.5 XRF Screening Results and Laboratory Analytical Results Comparison***

In order to justify the usability of the XRF screening data, laboratory analytical results and the XRF screening data from post-excavation soil samples summarized in Table 4 were used to prepare Chart 1 (Laboratory Analytical Results and XRF Screening Results Correlation).

**Chart 1 - Laboratory Analytical Results and XRF Screening Results Correlation**

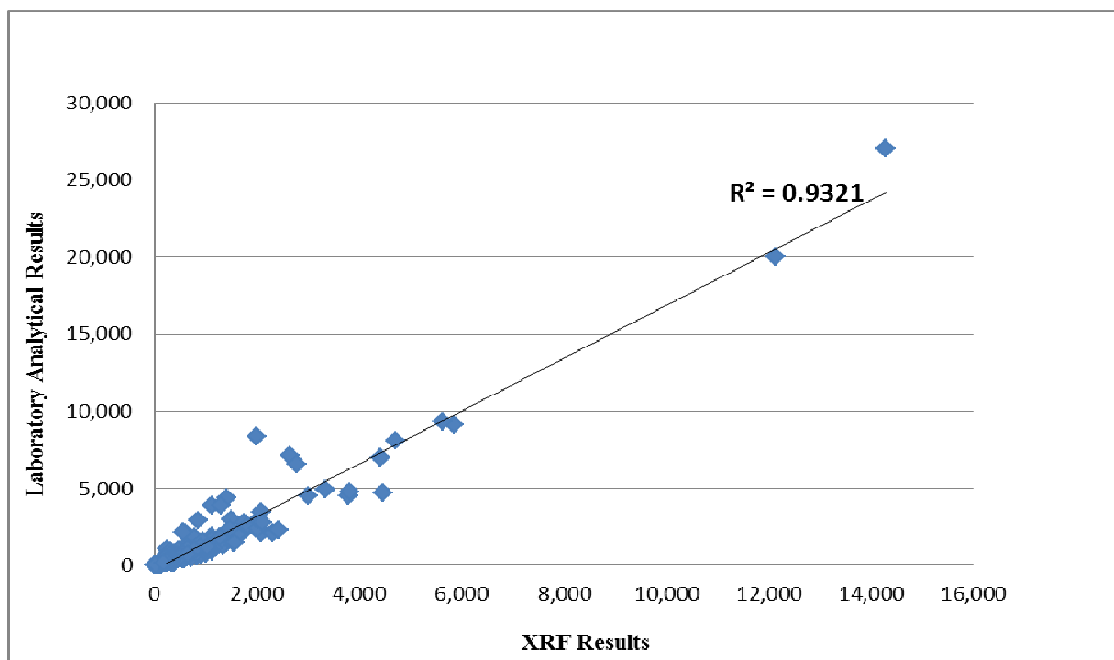


Chart 1 illustrates that there is a strong correlation ( $R^2$  [correlation coefficient] = 0.9321) between the laboratory analytical results and XRF screening results. The XRF screening data was therefore determined to be within the useable limits.

## **3.0 CONCLUSIONS**

Approximately 1,792 tons of lead-contaminated soils and debris were excavated from the Site and transported to the Conestoga Landfill and the IESI Landfill for disposal. Approximately 894.45 tons of topsoil and 114.44 tons of clean fill was utilized for site restoration. Site restoration involved backfilling of all AOCs with clean fill and topsoil, landscaping to maintain pre-existing ground elevations, replacement of sprinkler systems, and planting of sod grass, flowering plants, ornamental plants, shrubs, and trees as needed to restore each AOC to near original condition.

Daily air monitoring for particulates and daily air sampling for lead dust was conducted for the duration of the Removal Action. Air samples were submitted for laboratory analysis during worst case conditions to confirm that airborne lead concentrations were being adequately controlled

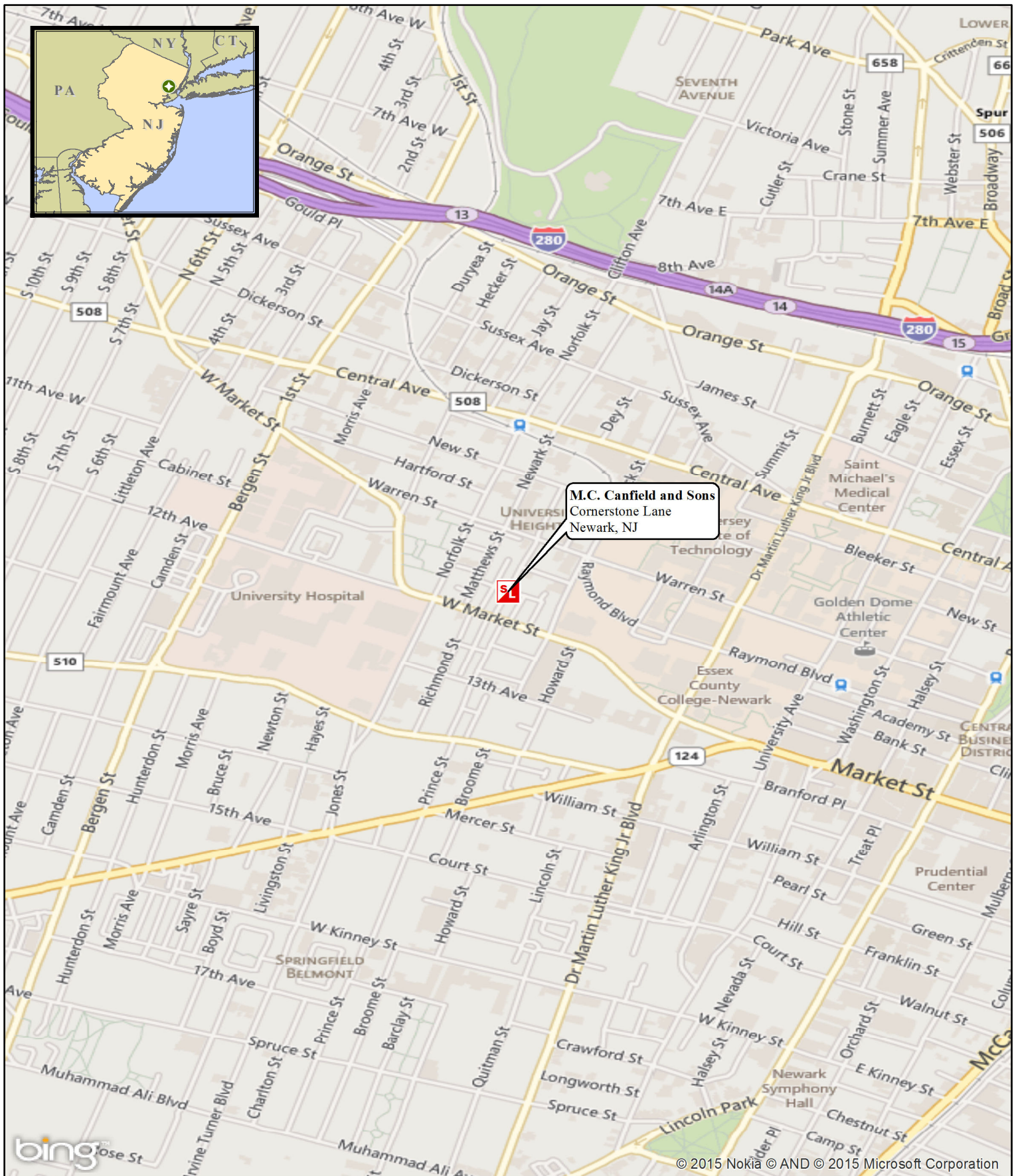
during site activities. A total of 28 air filter samples, including field blanks and lot blanks, were analyzed for total lead on five separate days. Air filter samples were below the detection limit for lead for all samples except one. One personal air sample indicated a lead concentration of 0.15 mg/m<sup>3</sup> which was below the Site-Specific Action Level.

RST 3 documented the lead concentration results of field-screened soils, including soils that were left-in-place around A/C units and electrical transformers, and in post-excavation soil samples. Lead concentrations around A/C units and electrical transformers were generally above the EPA RSL for lead in all the AOCs; however, these areas do not present a risk to the public as they are covered by the concrete pads upon which these fixtures are installed. A total of 256 post-excavation soil samples, including field duplicates, were collected from the 39 on-site AOCs and analyzed for total lead. Laboratory analysis of post-excavation soil samples was not conducted for AOC 23C because XRF screening results did not indicate any exceedance of lead above the EPA RSL in the soil samples. Lead concentrations in post-excavation soil samples collected from all other on-site AOCs were generally above the EPA RSL for lead as the access for excavations was limited by permanent structures such as sidewalks, driveways, building foundations and the utilities already discussed. However, the threat of lead exposure to the general public has been removed as long as these areas remain covered by the permanent structures that currently exist. A total of 3,118 linear feet of contaminated sidewall were left in place due to the excavation extents reaching permanent structures (*i.e.*, sidewalks, A/C units, electrical transformers, etc.). In addition, a total of approximately 13,298 ft<sup>2</sup> of contaminated base were left in place due to the excavation extents reaching the 2 foot target excavation depth, per the Action Memorandum for the Removal Action (refer to Figure 8 for the Contaminated Soil Left in Place Map). Site institutional controls will be implemented by the property owner to prevent potential future exposures should intrusive work be need to be performed as part of property maintenance. Details of the institutional controls will be developed with the property owner with EPA assistance at a later date.

# Figures

# Figure 1

Site Location Map



## Legend



Site Location



0 0.125 0.25 0.5 Miles



**Weston Solutions, Inc.**  
East Division

In Association With Scientific and Environmental  
Associates, Inc., Environmental Compliance  
Consultants, Inc., Avatar Environmental, LLC,  
On-Site Environmental, Inc. and Sovereign Consulting, Inc

## Figure 1:

### Site Location Map

M.C. Canfield & Sons  
Newark, New Jersey

U.S. ENVIRONMENTAL PROTECTION AGENCY  
REMOVAL SUPPORT TEAM 3  
CONTRACT # EP-S2-14-01

GIS ANALYST:	F. CAMPBELL
EPA OSC:	C. DONOFRIO
RST SPM:	B. NWOSU
FILENAME:	150218 SITE LOCATION MAP

# Figure 2

Areas of Concern Overview Map

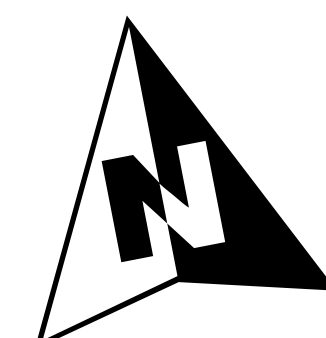
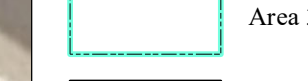




**SCALE**

1:357

### LEGEND

Operational Area

**Note(s):**  
» Excavation locations and dimensions are approximate representations.

**Figure 2: Areas of Concern  
Overview Map**

M.C. CANFIELD & SONS SITE  
NEWARK, NEW JERSEY

**UNITED STATES ENVIRONMENTAL  
PROTECTION AGENCY  
REMOVAL SUPPORT TEAM 3  
CONTRACT # EP-S2-14-01**

**Weston Solutions, Inc.**  
East Division

In Association With Avatar Environmental, LLC,  
Scientific and Environmental Associates, Inc.,  
Environmental Compliance Consultants,  
On-Site Environmental, Inc.,  
and Sovereign Consulting, Inc.

GIS ANALYST:	F. CAMPBELL
EPA OSC:	C. DONOFRIO
RST SPM:	B. NWOSU
FILENAME:	150208_AREAS OF CONCERN.MXD
FIGURE	2
REVISION	1
DATE MODIFIED	6/12/2017





# Figure 3

Area 1, P001-SS012, Post-Excavation Analytical Results Map







# Figure 4

Area 1, P001-SS013, Post-Excavation Analytical Results Map







# Figure 5

Area 1, P001-SS014, Post-Excavation Analytical Results Map







# Figure 6

Area 1, P001-SS015, Post-Excavation Analytical Results Map



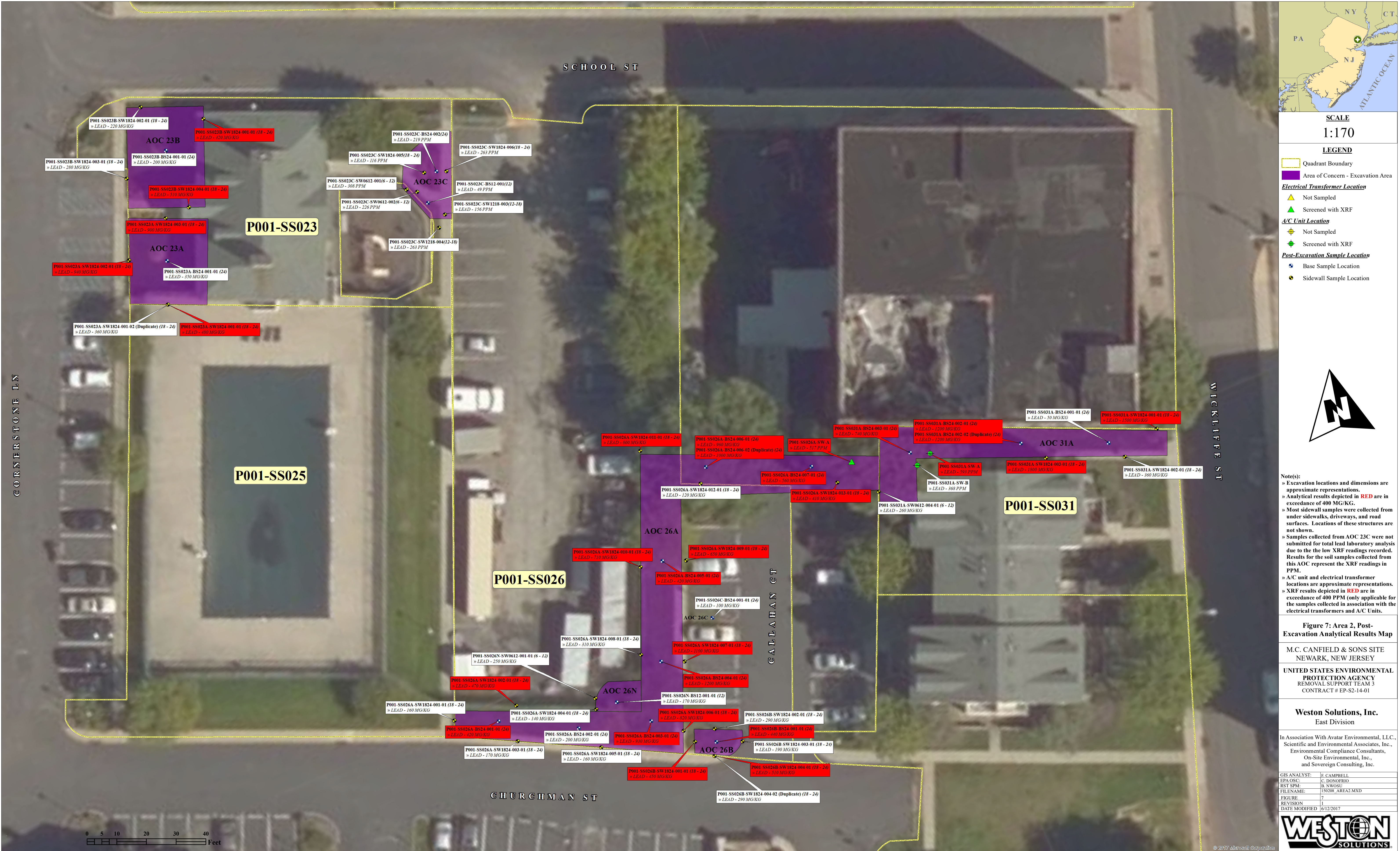




# Figure 7

Area 2, Post-Excavation Analytical Results Map





Notes(s):

- » Excavation locations and dimensions are approximate representations.
- » Analytical results depicted in **RED** are in exceedance of 400 MG/KG.
- » Most sidewalk samples were collected from under sidewalks, driveways, and road surfaces. Locations of these structures are not shown.
- » Samples collected from AOC 23C were not submitted for total lead laboratory analysis due to the low XRF readings recorded. Results for the soil samples collected from this AOC represent the XRF readings in PPM.
- » A/C unit and electrical transformer locations are approximate representations.
- » XRF results depicted in **RED** are in exceedance of 400 PPM (only applicable for the samples collected in association with the electrical transformers and A/C Units).

Figure 7: Area 2, Post-Excavation Analytical Results Map

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In Association With Avatar Environmental, L.L.C.,  
Scientific and Environmental Associates, Inc.,  
Environmental Compliance Consultants,  
On-Site Environmental, Inc.,  
and Sovereign Consulting, Inc.

GIS ANALYST:	F. CAMPBELL
EPA OSC:	C. DONOFIO
RST SPM:	B. NWOJU
FILENAME:	150208 AREA2.MXD
FIGURE:	7
REVISION:	1
DATE MODIFIED:	6/12/2017

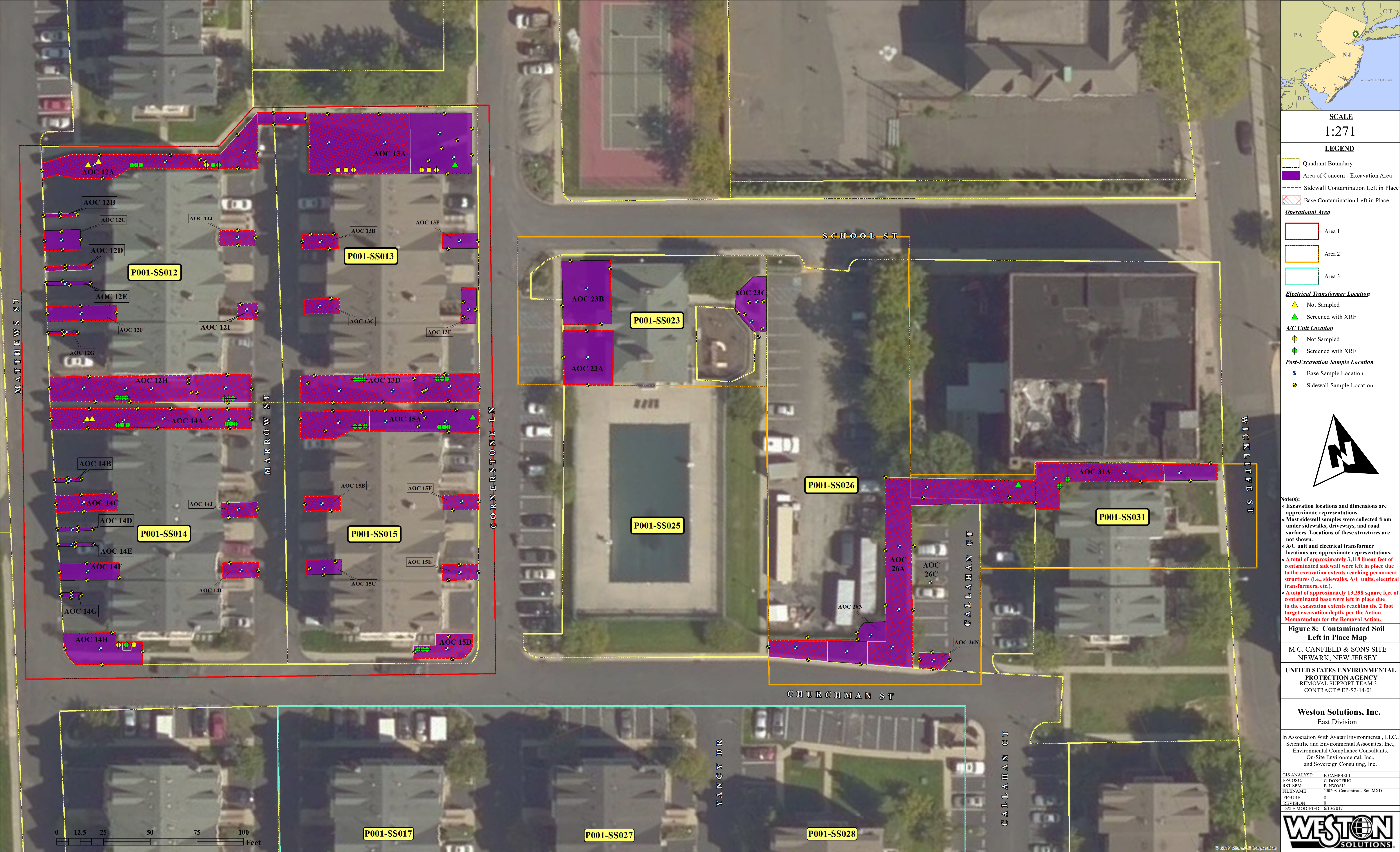




# Figure 8

Contaminated Soil Left in Place Map





SCALE

1:271

LEGEND

- Quadrant Boundary
- Area of Concern - Excavation Area
- Sidewall Contamination Left in Place
- Base Contamination Left in Place

Operational Area

- Area 1
- Area 2
- Area 3

Electrical Transformer Location

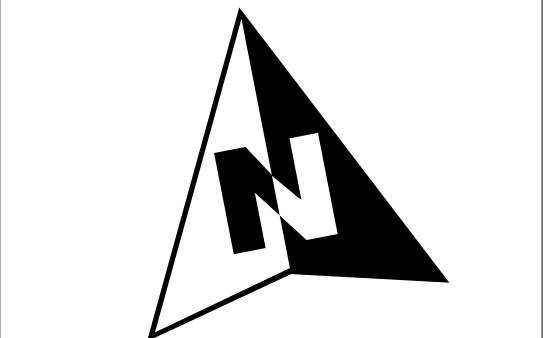
- Not Sampled
- Screened with XRF

A/C Unit Location

- Not Sampled
- Screened with XRF

Post-Excavation Sample Location

- Base Sample Location
- Sidewall Sample Location



Note(s):  
» Excavation locations and dimensions are approximate representations.  
» Most sidewall samples were collected from under sidewalks, driveways, and road surfaces. Locations of these structures are not shown.  
» A/C unit and electrical transformer locations are approximate representations.  
» A total of approximately 3,118 linear feet of contaminated sidewall were left in place due to the excavation extents reaching permanent structures (i.e., sidewalks, A/C units, electrical transformers, etc.).  
» A total of approximately 13,298 square feet of contaminated base were left in place due to the excavation extents reaching the 2 foot target excavation depth, per the Action Memorandum for the Removal Action.

Figure 8: Contaminated Soil Left in Place Map

M.C. CANFIELD & SONS SITE  
NEWARK, NEW JERSEY

UNITED STATES ENVIRONMENTAL  
PROTECTION AGENCY  
REMOVAL SUPPORT TEAM 3  
CONTRACT # EP-S2-14-01

Weston Solutions, Inc.  
East Division

In Association With Avatar Environmental, LLC.,  
Scientific and Environmental Associates, Inc.,  
Environmental Compliance Consultants,  
On-Site Environmental, Inc.,  
and Sovereign Consulting, Inc.

GIS ANALYST:	F. CAMPBELL
EPA OSC:	C. DONOFIO
RST SPM:	B. NWOSU
FILENAME:	150208_ContaminatedSoil.MXD
FIGURE	8
REVISION	0
DATE MODIFIED	6/13/2017





# Tables

# Table 1

Daily Particulate Monitoring and Exceedance Summary

**Table 1**  
**Daily Particulate Monitoring and Exceedance Summary**  
**M.C. Canfield & Sons Site**

Date	Time	Air Monitoring Location			15 Minute Concentration TWA Alarm Level	Reading ID Number	15 Minute Concentration TWA Results (µg/m <sup>3</sup> )	Site Activity
		Station Number	Latitude	Longitude				
7/17/2014*	08:41	Station 2	40.741925	-74.183473	EXCEEDANCE	678169	151.40	Excavation of AOC 13A.
7/22/2014	08:52	Station 3	40.741902	-74.183177	EXCEEDANCE	1276838	150.05	Crew backfilling AOC 13A. Crew using blower to clean up spilled clean fill from roadway.
	08:54				WARNING	1278767	100.38	
	14:30	Station 2	40.741938	-74.18342	WARNING	1544657	100.03	
	14:31	Station 1	40.742258	-74.18358	EXCEEDANCE	1545457	214.14	
	14:32	Station 2	40.741938	-74.18342	EXCEEDANCE	1545937	259.51	
7/23/2014	11:23	Station 3	40.74204	-74.183428	EXCEEDANCE	1751761	151.76	Crew installing plants at AOC 13A and excavation of AOC 12A.
8/8/2014	08:37	Station 1	40.741558	-74.183688	EXCEEDANCE	4195331	150.12	Crew cut down tree and removed shrubs at AOC 13C. Crew installing sprinkler system, sod grass, and plants at AOCs 14C, 14D, 14E, 14F, and 14H.
	08:38				WARNING	4195707	136.51	
	08:40	Station 2	40.742012	-74.183553	EXCEEDANCE	4196675	2,532.17	
	08:40				EXCEEDANCE	4196531	150.18	
	08:40				WARNING	4196671	148.30	
8/19/2014	08:41	Station 2	40.741443	-74.183345	WARNING	5331438	110.14	Crew cutting down trees. Excavation and backfill of AOC 13E and AOC 13F.
8/26/2014	13:03	Station 5	40.741615	-74.183155	WARNING	6618539	101.83	Excavation and backfill of AOC 23B.
	13:57				WARNING	6662917	104.59	
9/10/2014	14:38	Station 3	40.741675	-74.183857	WARNING	7824139	102.35	Excavation and backfill of AOC 12H and AOC 14A.
	14:39				WARNING	7824944	155.45	
9/24/2014	08:39	Station 4	40.741725	-74.183752	WARNING	9612716	111.10	Crew using vibrating compactor on clean backfill at AOC 12H and AOC 14A.
	09:31				WARNING	9642918	100.07	
10/20/2014	09:00	Station 3	40.740965	-74.182622	EXCEEDANCE	3217	150.40	Crew excavating AOC 26C and using clean fill to backfill AOC 26A and AOC 26B.
	09:03				WARNING	4981	100.22	
	14:58	Station 4	40.741067	-74.182687	EXCEEDANCE	242017	215.91	
10/30/2014	08:29	Station 2	40.742307	-74.186467	WARNING	1475766	117.57	Excavation of AOC 31A.
11/14/2014	08:06	Station 2	40.740977	-74.18254	WARNING	3078635	100.03	Excavation of AOC 26A.

Notes:

µg/m<sup>3</sup> - Microgram per cubic meter

TWA - Time-Weighted Average

\* Air filter samples were collected and submitted for total lead laboratory analysis.



# Table 2

Air Sample Collection and  
Analytical Results Summary for Lead

**Table 2**  
**Air Sample Collection and Analytical Results Summary for Lead**  
**M.C. Canfield & Sons Site**

Sample Number	*CLP Sample Number	Sample Date	Sample Time		Sample Volume (Liters)	Lead Concentration (mg/m <sup>3</sup> )	Matrix	Site Activity	Sample Location			
			Start	Stop					Station No.	Site Area	Longitude	Latitude
P001-AA013-A-071014	MBASJ3	7/10/2014	10:16	15:38	661.59	0.10 U	MCE Filter	Baseline Air Sampling	Station 1	Area 1	-74.183458	40.741944
P001-AA015-A-071014	MBASJ4		10:28	15:43	662.81	0.10 U			Station 2	Area 1	-74.183769	40.741238
P001-AA014-A-071014	MBASJ5		10:30	15:42	683.08	0.10 U			Station 3	Area 1	-74.184129	40.741371
P001-AA012-A-071014	MBASJ6		10:31	15:32	682.48	0.10 U			Station 4	Area 1	-74.184221	40.741792
P001-AA012-B-071014	MBASJ7		10:33	15:30	658.36	0.10 U			Station 5	Area 1	-74.183783	40.741667
FB-071014	MBASJ8		NA	16:00	NA	0.10 U			Field Blank	NA	NA	NA
LB-071014	MBASJ9		NA	16:00	NA	0.10 U			Lot Blank	NA	NA	NA
P001-AA012-A-071714	MBASK0	7/17/2014	08:09	15:32	1012.32	0.10 U	MCE Filter	Excavation of AOC 13A	Station 1	Area 1	40.741987	-74.183522
P001-AA013-A-071714	MBASK1		08:09	15:33	952.30	0.10 U			Station 2	Area 1	40.741892	-74.183440
P001-AA013-B-071714	MBASK2		08:09	15:34	900.99	0.10 U			Station 3	Area 1	40.741957	-74.183203
P001-AA013-C-071714	MBASK3		08:10	15:35	949.98	0.10 U			Station 4	Area 1	40.741582	-74.183830
P001-AA012-B-071714	MBASK4		08:10	15:36	949.88	0.10 U			Station 5	Area 1	40.741637	-74.183707
FB-071714	MBASK5		NA	16:00	NA	0.10 U			Field Blank	NA	NA	NA
LB-071714	MBASK6		NA	16:00	NA	0.10 U			Lot Blank	NA	NA	NA
P001-AA013-A-090914	NA	9/9/2014	08:23	15:03	860.60	0.000058 U	MCE Filter	Excavation of AOCs 12H & 14A	Station 1	Area 1	40.741625	-74.183742
P001-AA015-A-090914	NA		08:23	15:05	868.17	0.000058 U			Station 2	Area 1	40.741560	-74.183900
P001-AA012-A-090914	NA		08:23	15:05	852.73	0.000059 U			Station 3	Area 1	40.741655	-74.183843
P001-AA014-A-090914	NA		08:24	15:06	858.87	0.000058 U			Station 4	Area 1	40.741840	-74.184165
P001-AA012-B-090914	NA		08:24	15:07	834.35	0.000060 U			Station 5	Area 1	40.741615	-74.184038
FB-090914	NA		NA	16:00	NA	0.000050 U			Field Blank	NA	NA	NA
LB-090914	NA		NA	16:00	NA	0.000050 U			Lot Blank	NA	NA	NA
P001-AA031-A-102814	NA	10/28/2014	08:17	15:20	869.69	0.000057 U	MCE Filter	Excavation of AOC 31A	Station 1	Area 2	-74.182112	40.740953
P001-AA031-B-102814	NA		08:18	15:20	871.85	0.000057 U			Station 2	Area 2	-74.181875	40.740972
P001-AA031-C-102814	NA		08:17	15:20	878.82	0.000057 U			Station 3	Area 2	-74.181745	40.741030
P001-AA026-A-102814	NA		08:19	15:21	887.26	0.000056 U			Station 4	Area 2	-74.182600	40.741070
P001-AA026-B-102814	NA		08:20	15:21	914.20	0.000055 U			Station 5	Area 2	-74.182713	40.741035
FB-102814	NA		NA	16:00	NA	0.000050 U			Field Blank	NA	NA	NA
LB-102814	NA		NA	16:00	NA	0.000050 U			Lot Blank	NA	NA	NA

Notes:

U - The analyte was analyzed for but not detected.

NA - Not applicable

mg/m<sup>3</sup> - Milligrams per cubic meter

\* Leading "M" in the CLP Sample Numbers was mistakenly omitted from the Chain of Custody records.

# Table 3

A/C Units/ Electrical Transformer Locations XRF Screening Results  
for Lead in Soils Left in Place

**Table 3**  
**A/C Unit/Electrical Transformer Locations XRF Screening Results for Lead in Soils Left in Place**  
**M.C. Canfield & Sons Site**

Site Area	AOC	Sample Number	Result 1	(+/-)	Result 2	(+/-)	Result 3	(+/-)	Results Average (ppm)	Date	Sample Time	Sample Depth (inches)	A/C Unit/Electrical Transformer Number	Results Mean Average (ppm)	Location Description	Latitude	Longitude
Area 1, P001-SS012	12A	P001-SS012A-SW1824-A1	589	5	285	4	301	4	392	7/25/2014	11:28	18-24	P001-SS012A-SW-A	429	A/C Unit	40.74193	-74.18362
		P001-SS012A-SW1824-A2	267	4	413	5	381	5	354		11:30	18-24				40.74193	-74.18362
		P001-SS012A-SW1824-A3	509	5	563	6	555	5	542		11:32	18-24				40.74193	-74.18363
		P001-SS012A-SW1824-B1	444	5	345	4	328	4	372	7/25/2014	11:34	18-24	P001-SS012A-SW-B	198		40.74193	-74.18363
		P001-SS012A-SW1824-B2	11	1.1	22	1.2	36	1.4	23		11:36	18-24				40.74193	-74.18363
		P001-SS012A-SW0612-C1	404	4	379	4	345	4	376	8/27/2014	13:30	6-12	P001-SS012A-SW-C	378		40.74201	-74.18372
		P001-SS012A-SW0612-C2	574	5	646	6	674	6	631		13:32	6-12				40.74201	-74.18372
		P001-SS012A-SW0006-C3	144	2	105	2	128	2	126		13:34	0-6				40.74201	-74.18373
		P001-SS012A-SW0006-D1	163	3	156	2	163	2	161	8/27/2014	13:36	0-6	P001-SS012A-SW-D	300		40.74201	-74.18373
		P001-SS012A-SW0006-D2	565	5	563	5	412	4	513		13:38	0-6				40.74201	-74.18373
		P001-SS012A-SW0006-D3	250	3	203	3	222	3	225		13:40	0-6				40.74201	-74.18373
		P001-SS012A-SW0006-E1	435	4	399	4	429	4	421	8/27/2014	13:42	0-6	P001-SS012A-SW-E	528		40.74201	-74.18374
		P001-SS012A-SW0006-E2	580	5	700	6	583	5	621		13:44	0-6				40.74201	-74.18374
		P001-SS012A-SW0612-E3	495	5	499	5	636	5	543		13:46	6-12				40.74201	-74.18374
	12H	P001-SS012H-SW1824-A1	381	11	506	12	344	10	410	9/10/2014	13:00	18-24	P001-SS012H-SW-A	1,104	A/C Unit	40.74172	-74.18397
		P001-SS012H-SW1824-A2	2,856	43	2,044	33	2,870	42	2,590		13:02	18-24				40.74172	-74.18397
		P001-SS012H-SW1824-A3	579	14	181	8	177	8	312		13:04	18-24				40.74172	-74.18397
		P001-SS012H-SW1824-B1	413	11	443	11	710	15	522	9/10/2014	13:06	18-24	P001-SS012H-SW-B	1,579		40.74173	-74.18398
		P001-SS012H-SW1824-B2	2,843	41	2,597	38	3,543	46	2,994		13:08	18-24				40.74173	-74.18398
		P001-SS012H-SW1824-B3	963	18	956	18	1,743	27	1,221		13:10	18-24				40.74173	-74.18398
		P001-SS012H-SW1824-C1	893	17	1,008	19	968	19	956	9/10/2014	13:12	18-24	P001-SS012H-SW-C	1,995		40.74173	-74.18400
		P001-SS012H-SW1824-C2	3,082	46	3,377	47	3,169	47	3,209		13:14	18-24				40.74173	-74.18400
		P001-SS012H-SW1824-C3	1,526	26	2,116	13	1,820	29	1,821		13:16	18-24				40.74173	-74.18400
		P001-SS012H-SW1824-D1	2,332	34	2,608	38	2,125	32	2,355	9/17/2014	11:20	18-24	P001-SS012H-SW-D	2,655		40.74168	-74.18386
		P001-SS012H-SW1824-D2	3,717	50	2,101	33	3,005	43	2,941		11:22	18-24				40.74168	-74.18386
		P001-SS012H-SW1824-D3	2,425	35	3,307	52	2,276	34	2,669		11:22	18-24				40.74168	-74.18386
		P001-SS012H-SW1824-E1	2,168	33	1,733	27	2,011	31	1,971	9/17/2014	11:24	18-24	P001-SS012H-SW-E	2,070		40.74167	-74.18385
		P001-SS012H-SW1824-E2	901	18	1,007	19	862	17	923		11:26	18-24				40.74167	-74.18385
		P001-SS012H-SW1824-E3	3,473	49	3,580	51	2,897	42	3,317		11:28	18-24				40.74167	-74.18385
		P001-SS012H-SW1824-F1	2,692	40	2,381	36	2,828	42	2,634	9/17/2014	11:30	18-24	P001-SS012H-SW-F	1,839		40.74167	-74.18383
		P001-SS012H-SW1824-F2	1,060	20	1,276	22	1,318	23	1,218		11:32	18-24				40.74167	-74.18383
		P001-SS012H-SW1824-F3	1,454	24	1,445	25	2,096	32	1,665		11:34	18-24				40.74167	-74.18383

Notes:

AOC - Area of Concern

ppm - Parts Per Million

A/C - Air Conditioner

Lead results above 400 ppm are highlighted in **bold red**

**Table 3**  
**A/C Unit/Electrical Transformer Locations XRF Screening Results for Lead in Soils Left in Place**  
**M.C. Canfield & Sons Site**

Site Area	AOC	Sample Number	Result 1	(+/-)	Result 2	(+/-)	Result 3	(+/-)	Results Average (ppm)	Date	Sample Time	Sample Depth (inches)	A/C Unit/Electrical Transformer Number	Results Mean Average (ppm)	Location Description	Latitude	Longitude
Area 1, P001-SS013	13A	P001-SS013A-SW1824-A1	76	1.8	34	1.4	22	1.2	44	7/21/2014	14:18	18-24	P001-SS013A-SW-A	28	Electrical Transformer	40.74184	-74.18323
		P001-SS013A-SW1824-A2	8	0.9	10	4	8	0.9	8		14:20	18-24					
		P001-SS013A-SW1824-A3	27	1.3	33	1.4	40	1.5	33		14:22	18-24					
	13D	P001-SS013D-SW1824-A1	1,805	29	1,501	26	1,662	27	1,656	9/24/2014	13:35	18-24	P001-SS013D-SW-A	1,916	A/C Unit	40.74160	-74.18360
		P001-SS013D-SW1824-A2	1,652	28	2,137	34	1,979	33	1,923		13:37	18-24					
		P001-SS013D-SW1824-A3	2,043	34	1,908	32	2,553	41	2,168		13:39	18-24					
		P001-SS013D-SW1824-B1	1,899	31	2,468	38	2,243	35	2,203	9/24/2014	13:41	18-24	P001-SS013D-SW-B	2,859		40.74158	-74.18354
		P001-SS013D-SW1824-B2	3,224	48	2,927	44	3,146	46	3,099		13:43	18-24					
		P001-SS013D-SW1824-B3	2,751	43	2,859	44	4,215	61	3,275		13:45	18-24					
		P001-SS013D-SW1824-C1	1,075	22	1,043	21	997	20	1,038	9/24/2014	13:47	18-24	P001-SS013D-SW-C	1,163		40.74157	-74.18349
		P001-SS013D-SW1824-C2	1,333	25	1,299	25	1,456	25	1,363		13:49	18-24					
		P001-SS013D-SW1824-C3	866	20	1,141	23	1,253	24	1,087		13:51	18-24					
		P001-SS013D-SW1824-D1	6,465	98	5,505	80	6,034	88	6,001	10/1/2014	13:04	18-24	P001-SS013D-SW-D	5,840		40.74156	-74.18344
		P001-SS013D-SW1824-D2	4,536	68	5,402	79	3,267	48	4,402		13:06	18-24					
		P001-SS013D-SW1824-D3	7,683	115	7,152	107	6,516	95	7,117		13:08	18-24					
		P001-SS013D-SW1824-E1	5,800	85	6,548	98	5,044	75	5,797	10/1/2014	13:10	18-24	P001-SS013D-SW-E	4,304		40.74155	-74.18342
		P001-SS013D-SW1824-E2	3,980	60	4,368	65	3,868	57	4,072		13:12	18-24					
		P001-SS013D-SW1824-E3	3,023	45	3,166	48	2,940	45	3,043		13:14	18-24					
		P001-SS013D-SW1824-F1	4,532	67	6,074	92	4,000	60	4,869	10/1/2014	13:16	18-24	P001-SS013D-SW-F	3,987		40.74155	-74.18340
		P001-SS013D-SW1824-F2	3,296	52	3,279	52	2,770	43	3,115		13:18	18-24					
		P001-SS013D-SW1824-F3	4,561	67	3,429	54	3,938	60	3,976		13:20	18-24					

Notes:

AOC - Area of Concern

ppm - Parts Per Million

A/C - Air Conditioner

Lead results above 400 ppm are highlighted in **bold red**

**Table 3**  
**A/C Unit/Electrical Transformer Locations XRF Screening Results for Lead in Soils Left in Place**  
**M.C. Canfield & Sons Site**

Site Area	AOC	Sample Number	Result 1	(+/-)	Result 2	(+/-)	Result 3	(+/-)	Results Average (ppm)	Date	Sample Time	Sample Depth (inches)	A/C Unit/Electrical Transformer Number	Results Mean Average (ppm)	Location Description	Latitude	Longitude
Area 1, P001-SS014	14A	P001-SS014A-SW1824-A1	1,105	20	1,310	22	1,175	21	1,197	9/10/2014	13:20	18-24	P001-SS014A-SW-A	1,457	A/C Unit	40.74167	-74.18405
		P001-SS014A-SW1824-A2	1,668	26	3,297	47	3,031	44	2,665		13:22	18-24					
		P001-SS014A-SW1824-A3	417	12	512	13	600	14	510		13:24	18-24					
		P001-SS014A-SW1824-B1	2,155	33	3,441	48	1,595	25	2,397	9/10/2014	13:26	18-24	P001-SS014A-SW-B	1,308		40.74167	-74.18406
		P001-SS014A-SW1824-B2	853	16	807	16	1,031	19	897		13:28	18-24					
		P001-SS014A-SW1824-B3	662	15	670	14	557	13	630		13:30	18-24					
		P001-SS014A-SW1824-C1	45	5	156	7	43	5	81	9/10/2014	13:32	18-24	P001-SS014A-SW-C	638		40.74168	-74.18408
		P001-SS014A-SW1824-C2	560	13	382	11	443	12	462		13:34	18-24					
		P001-SS014A-SW1824-C3	1,471	22	1,384	21	1,258	19	1,371		13:36	18-24					
		P001-SS014A-SW1824-D1	3,060	40	2,526	36	3,205	45	2,930	9/17/2014	13:16	18-24	P001-SS014A-SW-D	3,505		40.74162	-74.18392
		P001-SS014A-SW1824-D2	4,894	64	4,162	59	7,131	97	5,396		13:18	18-24					
		P001-SS014A-SW1218-D3	2,294	36	2,180	35	2,095	34	2,190		13:20	12-18					
		P001-SS014A-SW1218-E1	1,538	25	1,762	29	2,472	37	1,924	9/17/2014	13:22	12-18	P001-SS014A-SW-E	4,347		40.74161	-74.18388
		P001-SS014A-SW1824-E2	10,512	143	8,541	115	10,175	138	9,743		13:24	18-24					
		P001-SS014A-SW1218-E3	1,371	23	1,150	21	1,599	25	1,373		13:26	12-18					
		P001-SS014A-SW1218-F1	1,872	30	1,495	25	1,665	28	1,677	9/17/2014	13:28	12-18	P001-SS014A-SW-F	3,680		40.74161	-74.18387
		P001-SS014A-SW1824-F2	1,986	30	2,508	36	1,481	25	1,992		13:30	18-24					
		P001-SS014A-SW1824-F3	1,507	25	18,855	29	1,752	27	7,371		13:32	18-24					
	14H	P001-SS014H-SW1824-A1	282	4	615	6	250	3	382	8/6/2014	15:36	18-24	P001-SS014H-SW-A	616	A/C Unit	40.74140	-74.18419
		P001-SS014H-SW1824-A2	401	5	425	5	385	5	404		15:38	18-24					
		P001-SS014H-SW1824-A3	1,095	9	1,145	9	942	8	1,061	8/7/2014	9:04	18-24					

**Notes:**

AOC - Area of Concern

ppm - Parts Per Million

A/C - Air Conditioner

Lead results above 400 ppm are highlighted in **bold red**

**Table 3**  
**A/C Unit/Electrical Transformer Locations XRF Screening Results for Lead in Soils Left in Place**  
**M.C. Canfield & Sons Site**

Site Area	AOC	Sample Number	Result 1	(+/-)	Result 2	(+/-)	Result 3	(+/-)	Results Average (ppm)	Date	Sample Time	Sample Depth (inches)	A/C Unit/Electrical Transformer Number	Results Mean Average (ppm)	Location Description	Latitude	Longitude
Area 1, P001-SS015	15A	P001-SS015A-SW1824-A1	2,473	38	2,073	33	2,271	37	2,272	9/24/2014	13:54	18-24	P001-SS015A-SW-A	1,830	A/C Unit	40.74155	-74.18364
		P001-SS015A-SW1824-A2	1,857	32	1,702	28	1,302	23	1,620		13:56	18-24					
		P001-SS015A-SW1824-A3	1,305	24	1,430	27	2,062	35	1,599		13:58	18-24					
		P001-SS015A-SW1824-B1	1,806	31	1,960	33	1,919	31	1,895	9/24/2014	14:00	18-24	P001-SS015A-SW-B	1,691			
		P001-SS015A-SW1824-B2	1,468	26	1,403	26	1,111	20	1,327		14:02	18-24					
		P001-SS015A-SW1824-B3	1,849	31	1,757	30	1,943	32	1,850		14:04	18-24					
		P001-SS015A-SW1824-C1	384	13	864	18	926	20	725	9/24/2014	14:06	18-24	P001-SS015A-SW-C	971			
		P001-SS015A-SW1824-C2	3,144	45	956	19	1,479	27	1,860		14:08	18-24					
		P001-SS015A-SW1824-C3	379	13	354	14	248	12	327		14:10	18-24					
		P001-SS015A-SW1824-D1	2,824	41	3,163	46	3,049	44	3,012	9/30/2014	14:20	18-24	P001-SS015A-SW-D	3,555			
		P001-SS015A-SW1824-D2	5,641	79	3,150	44	4,899	72	4,563		14:22	18-24					
		P001-SS015A-SW1218-D3	3,998	56	2,701	42	2,572	40	3,090		14:24	12-18					
		P001-SS015A-SW1218-E1	1,669	28	3,619	51	4,136	59	3,141	9/30/2014	14:26	12-18	P001-SS015A-SW-E	3,599			
		P001-SS015A-SW1824-E2	3,233	48	4,388	63	2,989	45	3,537		14:28	18-24					
		P001-SS015A-SW1218-E3	3,830	56	3,361	50	5,170	74	4,120		14:30	12-18					
		P001-SS015A-SW1218-F1	3,344	47	2,209	34	1,971	31	2,508	9/30/2014	14:32	12-18	P001-SS015A-SW-F	4,392			
		P001-SS015A-SW1824-F2	6,053	84	6,904	97	6,409	91	6,455		14:34	18-24					
		P001-SS015A-SW1824-F3	4,501	62	3,846	55	4,292	62	4,213		14:36	18-24					
		P001-SS015A-SW1824-G1	1,970	30	1,476	25	1,900	30	1,782	9/30/2014	14:38	18-24	P001-SS015A-SW-G	1,442	Electrical Transformer	40.74150	-74.18342
		P001-SS015A-SW1824-G2	1,870	30	2,418	37	1,777	28	2,022		14:40	18-24					
		P001-SS015A-SW1824-G3	987	19	748	16	1,153	20	963		14:42	18-24					
		P001-SS015A-SW1824-G4	987	19	830	17	1,188	22	1,002		14:44	18-24					
	15D	P001-SS015D-SW0006-A1	72	5	60	5	33	4	55	9/19/2014	13:10	0-6	P001-SS015D-SW-A	156	A/C Unit	40.74122	-74.18368
		P001-SS015D-SW1218-A2	271	9	311	10	189	7	257		13:12	12-18					
		P001-SS015D-SW1218-B1	26	4	14	1	26	4	22	9/19/2014	13:14	12-18	P001-SS015D-SW-B	306			
		P001-SS015D-SW1824-B2	214	9	191	9	298	10	234		13:16	18-24					
		P001-SS015D-SW1218-B3	664	15	998	19	320	10	661		13:18	12-18					
		P001-SS015D-SW1218-C1	217	8	266	9	208	8	230	9/19/2014	13:20	12-18	P001-SS015D-SW-C	218			
		P001-SS015D-SW1824-C2	245	9	143	8	188	8	192		13:22	18-24					
		P001-SS015D-SW1824-C3	221	8	255	9	222	9	233		13:24	18-24					

Notes:

AOC - Area of Concern

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Lead results above 400 ppm are highlighted in **bold red**

**Table 3**  
**A/C Unit/Electrical Transformer Locations XRF Screening Results for Lead in Soils Left in Place**  
**M.C. Canfield & Sons Site**

Site Area	AOC	Sample Number	Result 1	(+/-)	Result 2	(+/-)	Result 3	(+/-)	Results Average (ppm)	Date	Sample Time	Sample Depth (inches)	A/C Unit/Electrical Transformer Number	Results Mean Average (ppm)	Location Description	Latitude	Longitude
Area 2, P001-SS026 & P001-SS031	26A	P001-SS026A-SW1824-A1	479	12	500	13	591	13	523	11/11/2014	15:00	18-24	P001-SS026A-SW-A	517	Electrical Transformer	40.74159	-74.18214
		P001-SS026A-SW1824-A2	519	13	449	12	579	14	516		15:02	18-24					
		P001-SS026A-SW1824-A3	267	9	248	9	363	11	293		15:04	18-24					
		P001-SS026A-SW1824-A4	761	15	697	15	745	16	734		15:06	18-24					
	31A	P001-SS031A-SW1824-A1	589	13	624	14	638	15	617	10/30/2014	14:32	18-24	P001-SS031A-SW-A	593	A/C Unit	40.74104	-74.18237
		P001-SS031A-SW1824-A2	731	15	509	13	627	14	622		14:34	18-24					
		P001-SS031A-SW1824-A3	491	12	504	14	623	14	539		14:34	18-24					
		P001-SS031A-SW1824-B1	359	11	295	10	405	11	353	10/30/2014	14:36	18-24	P001-SS031A-SW-B	368		40.74107	-74.18244
		P001-SS031A-SW1824-B2	398	11	251	9	417	11	355		14:38	18-24					
		P001-SS031A-SW1824-B3	434	12	362	11	391	12	396		14:40	18-24					

Notes:

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ppm - Parts Per Million

A/C - Air Conditioner

Lead results above 400 ppm are highlighted in **bold red**



# Table 4

Post-Excavation Soil Sampling XRF Screening  
and Analytical Results Summary for Lead

**Table 4**  
**Post-Excavation Soil Sampling XRF Screening and Analytical Results Summary for Lead**  
**M.C. Canfield & Sons Site**

Site Area	AOC	Sample Number	Sample Date	Sample Time	Sample Depth (inches)	Sample Type	Sample Location	Longitude	Latitude	XRF Average Results (ppm)	Analytical Results (mg/kg)
Area 1, P001-SS012	12A	P001-SS012A-SW1824-001-01	7/23/2014	13:40	18-24	Field Sample	Sidewall	40.74200989	-74.18351336	<b>494</b>	<b>600</b>
		P001-SS012A-SW1824-002-01	7/23/2014	13:42	18-24	Field Sample	Sidewall	40.74199857	-74.18347449	208	250
		P001-SS012A-SW1824-003-01	7/23/2014	13:44	18-24	Field Sample	Sidewall	40.74201954	-74.18350855	386	<b>440</b>
		P001-SS012A-BS24-001-01	7/23/2014	13:46	24	Field Sample	Base	40.74201156	-74.18351421	257	330
		P001-SS012A-BS24-001-02	7/23/2014	13:46	24	Field Duplicate	Base	40.74201156	-74.18351421	257	290
		P001-SS012A-SW1824-004-01	7/24/2014	14:18	18-24	Field Sample	Sidewall	40.74201458	-74.18360409	308	330
		P001-SS012A-BS24-002-01	7/24/2014	14:20	24	Field Sample	Base	40.741993	-74.18360182	<b>482</b>	<b>450</b>
		P001-SS012A-SW1824-005-01	7/25/2014	11:10	18-24	Field Sample	Sidewall	40.74199862	-74.18357705	<b>752</b>	<b>1,100</b>
		P001-SS012A-SW1824-006-01	7/25/2014	11:15	18-24	Field Sample	Sidewall	40.74201077	-74.18360637	<b>659</b>	<b>860</b>
		P001-SS012A-SW1824-007-01	7/25/2014	11:20	18-24	Field Sample	Sidewall	40.74200473	-74.18367786	<b>442</b>	<b>520</b>
		P001-SS012A-SW1824-008-01	7/25/2014	11:25	18-24	Field Sample	Sidewall	40.74205543	-74.18367155	384	360
		P001-SS012A-BS24-003-01	7/28/2014	11:40	24	Field Sample	Base	40.74204012	-74.18379807	<b>1,510</b>	<b>3,000</b>
		P001-SS012A-SW1824-009-01	7/28/2014	11:42	18-24	Field Sample	Sidewall	40.7420457	-74.18378825	<b>529</b>	<b>540</b>
		P001-SS012A-BS24-004-01	7/29/2014	10:46	24	Field Sample	Base	40.74206539	-74.18389862	<b>589</b>	<b>620</b>
		P001-SS012A-SW1824-010-01	7/29/2014	10:48	18-24	Field Sample	Sidewall	40.742066	-74.18386	<b>404</b>	<b>760</b>
		P001-SS012A-SW1824-012-01	7/29/2014	10:50	18-24	Field Sample	Sidewall	40.74203267	-74.18389822	<b>407</b>	<b>550</b>
		P001-SS012A-SW1824-011-01	7/29/2014	13:30	18-24	Field Sample	Sidewall	40.74208601	-74.18396276	258	290
	12B	P001-SS012B-BS24-001-01	7/30/2014	9:24	24	Field Sample	Base	40.74200864	-74.18396351	<b>602</b>	<b>540</b>
		P001-SS012B-SW1824-001-01	7/30/2014	9:16	18-24	Field Sample	Sidewall	40.74199723	-74.1839372	122	120
		P001-SS012B-SW1824-002-01	7/30/2014	9:18	18-24	Field Sample	Sidewall	40.74199537	-74.18394789	<b>446</b>	<b>710</b>
		P001-SS012B-SW1824-003-01	7/30/2014	9:20	18-24	Field Sample	Sidewall	40.74202506	-74.18400105	42	45
	12C	P001-SS012B-SW1824-004-01	7/30/2014	9:22	18-24	Field Sample	Sidewall	40.74201783	-74.1839557	<b>417</b>	380
		P001-SS012C-BS24-001-01	7/31/2014	11:40	24	Field Sample	Base	40.74198014	-74.18400027	78	68
		P001-SS012C-SW1824-001-01	7/31/2014	11:32	18-24	Field Sample	Sidewall	40.74197107	-74.18397503	<b>443</b>	350
		P001-SS012C-SW1824-002-01	7/31/2014	11:34	18-24	Field Sample	Sidewall	40.74197061	-74.18399787	380	<b>520</b>
	12D	P001-SS012C-SW1824-003-01	7/31/2014	11:36	18-24	Field Sample	Sidewall	40.74198889	-74.1840154	<b>600</b>	<b>2,100</b>
		P001-SS012C-SW1824-004-01	7/31/2014	11:40	18-24	Field Sample	Sidewall	40.74199135	-74.18399203	283	310
		P001-SS012D-BS24-001-01	7/30/2014	12:24	24	Field Sample	Base	40.74192596	-74.18398944	248	<b>1,100</b>
		P001-SS012D-SW1824-001-01	7/30/2014	12:16	18-24	Field Sample	Sidewall	40.74190821	-74.18395485	206	270
	12E	P001-SS012D-SW1824-001-02	7/30/2014	12:16	18-24	Field Duplicate	Sidewall	40.74190821	-74.18395485	206	330
		P001-SS012D-SW1824-002-01	7/30/2014	12:18	18-24	Field Sample	Sidewall	40.74192667	-74.18399133	<b>559</b>	380
		P001-SS012D-SW1824-003-01	7/30/2014	12:20	18-24	Field Sample	Sidewall	40.74193977	-74.18403057	267	240
		P001-SS012D-SW1824-004-01	7/30/2014	12:22	18-24	Field Sample	Sidewall	40.7419324	-74.18399408	<b>463</b>	<b>460</b>
	12F	P001-SS012E-BS24-001-01	7/30/2014	12:58	24	Field Sample	Base	40.74191414	-74.18400743	272	210
		P001-SS012E-SW1824-001-01	7/30/2014	12:50	18-24	Field Sample	Sidewall	40.741891	-74.18396	368	320
		P001-SS012E-SW1824-002-01	7/30/2014	12:52	18-24	Field Sample	Sidewall	40.74190946	-74.18399832	329	320
		P001-SS012E-SW1824-003-01	7/30/2014	12:54	18-24	Field Sample	Sidewall	40.74192707	-74.18404206	297	310
	12F	P001-SS012E-SW1824-004-01	7/30/2014	12:56	18-24	Field Sample	Sidewall	40.74190755	-74.18399232	329	170
		P001-SS012F-BS24-001-01	7/31/2014	10:38	24	Field Sample	Base	40.74186609	-74.18401698	316	350
		P001-SS012F-SW1824-002-01	7/31/2014	10:32	18-24	Field Sample	Sidewall	40.74185578	-74.184009	393	<b>420</b>
		P001-SS012F-SW1824-003-01	7/31/2014	10:34	18-24	Field Sample	Sidewall	40.74187781	-74.18405624	<b>435</b>	<b>550</b>
	12F	P001-SS012F-SW1824-004-01	7/31/2014	10:36	18-24	Field Sample	Sidewall	40.74188212	-74.18398659	<b>425</b>	<b>420</b>
		P001-SS012F-SW24-001-01	7/31/2014	10:30	24	Field Sample	Sidewall	40.741839	-74.183983	<b>442</b>	<b>480</b>

Notes:

AOC - Area of Concern

ppm - Parts Per Million

mg/kg - Milligrams Per Kilogram

Lead results above 400 ppm or 400 mg/kg are highlighted in bold red

**Table 4**  
**Post-Excavation Soil Sampling XRF Screening and Analytical Results Summary for Lead**  
**M.C. Canfield & Sons Site**

Site Area	AOC	Sample Number	Sample Date	Sample Time	Sample Depth (inches)	Sample Type	Sample Location	Longitude	Latitude	XRF Average Results (ppm)	Analytical Results (mg/kg)
Area 1, P001-SS012	12G	P001-SS012G-BS24-001-01	7/31/2014	14:08	24	Field Sample	Base	40.74184522	-74.18404096	63	52
		P001-SS012G-SW1824-001-01	7/31/2014	14:00	18-24	Field Sample	Sidewall	40.74184289	-74.18401738	334	530
		P001-SS012G-SW1824-002-01	7/31/2014	14:02	18-24	Field Sample	Sidewall	40.74184018	-74.18404254	624	750
		P001-SS012G-SW1824-003-01	7/31/2014	14:04	18-24	Field Sample	Sidewall	40.74184975	-74.18407569	133	64
		P001-SS012G-SW1824-003-02	7/31/2014	14:04	18-24	Field Duplicate	Sidewall	40.74184975	-74.18407569	133	77
	12H	P001-SS012G-SW1824-004-01	7/31/2014	14:06	18-24	Field Sample	Sidewall	40.74184469	-74.18404376	186	150
		P001-SS012H-SW1824-001-01	9/8/2014	13:26	18-24	Field Sample	Sidewall	40.74164224	-74.18393182	267	410
		P001-SS012H-SW1824-002-01	9/8/2014	13:28	18-24	Field Sample	Sidewall	40.74165641	-74.1839572	9	15
		P001-SS012H-SW1824-003-01	9/8/2014	13:50	18-24	Field Sample	Sidewall	40.741712	-74.183898	337	720
		P001-SS012H-SW1824-004-01	9/9/2014	14:36	18-24	Field Sample	Sidewall	40.74166028	-74.18401263	1,434	1,700
		P001-SS012H-BS24-001-01	9/9/2014	14:38	24	Field Sample	Base	40.74173208	-74.18392568	760	950
		P001-SS012H-BS24-002-01	9/10/2014	15:06	24	Field Sample	Base	40.74173306	-74.18402718	1,183	1,500
		P001-SS012H-SW1824-005-01	9/11/2014	14:00	18-24	Field Sample	Sidewall	40.74174413	-74.18404982	12,132	20,000
		P001-SS012H-BS24-003-01	9/11/2014	14:02	24	Field Sample	Base	40.74177281	-74.18407643	546	650
		P001-SS012H-SW1824-007-01	9/11/2014	14:04	18-24	Field Sample	Sidewall	40.7417762	-74.1840365	1,275	1,800
		P001-SS012H-SW1824-006-01	9/12/2014	9:45	18-24	Field Sample	Sidewall	40.74178099	-74.18412193	290	360
		*P001-SS012H-SW1824-005-02	9/12/2014	11:06	18-24	Field Sample	Sidewall	40.74174413	-74.18404982	5,862	9,100
		P001-SS012H-SW1824-008-01	9/16/2014	13:52	18-24	Field Sample	Sidewall	40.741678	-74.183858	1,122	1,700
		P001-SS012H-SW1824-009-01	9/16/2014	13:54	18-24	Field Sample	Sidewall	40.741684	-74.183785	2,302	2,100
		P001-SS012H-BS24-004-01	9/16/2014	13:56	18-24	Field Sample	Base	40.741668	-74.183795	1,343	1,300
		P001-SS012H-SW1824-011-01	9/16/2014	13:58	18-24	Field Sample	Sidewall	40.741655	-74.18381	399	370
		P001-SS012H-SW1824-010-01	9/16/2014	15:16	18-24	Field Sample	Sidewall	40.741655	-74.183755	1,430	1,700
	12I	P001-SS012I-SW1824-001-01	8/14/2014	11:50	18-24	Field Sample	Sidewall	40.74179868	-74.18377175	1,403	1,600
		P001-SS012I-SW1824-002-01	8/14/2014	11:52	18-24	Field Sample	Sidewall	40.74176784	-74.18369214	1,712	2,100
		P001-SS012I-BS24-001-01	8/14/2014	11:54	24	Field Sample	Base	40.74176964	-74.1837064	2,010	2,800
	12J	P001-SS012J-SW1824-001-01	8/13/2014	11:30	18-24	Field Sample	Sidewall	40.741887	-74.183653	817	770
		P001-SS012J-SW1824-002-01	8/13/2014	11:32	18-24	Field Sample	Sidewall	40.74186479	-74.18364479	543	500
		P001-SS012J-SW1824-003-01	8/13/2014	11:34	18-24	Field Sample	Sidewall	40.74184656	-74.18366138	809	690
		P001-SS012J-BS24-001-01	8/13/2014	11:36	24	Field Sample	Base	40.74187853	-74.18369092	819	930

**Notes:**

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mg/kg - Milligrams Per Kilogram

Lead results above 400 ppm or 400 mg/kg are highlighted in bold red

\* Sample is not a field duplicate.

**Table 4**  
**Post-Excavation Soil Sampling XRF Screening and Analytical Results Summary for Lead**  
**M.C. Canfield & Sons Site**

Site Area	AOC	Sample Number	Sample Date	Sample Time	Sample Depth (inches)	Sample Type	Sample Location	Longitude	Latitude	XRF Average Results (ppm)	Analytical Results (mg/kg)
Area 1, P001-SS013	13A	P001-SS013A-BS24-001-01	7/15/2014	15:36	24	Field Sample	Base	40.74194721	-74.18343413	<b>445</b>	<b>660</b>
		P001-SS013A-SW1824-001-01	7/15/2014	15:30	18-24	Field Sample	Sidewall	40.74191525	-74.18345914	<b>823</b>	<b>610</b>
		P001-SS013A-SW1824-002-01	7/15/2014	15:32	18-24	Field Sample	Sidewall	40.74195789	-74.18347668	<b>518</b>	<b>970</b>
		P001-SS013A-SW1824-003-01	7/15/2014	15:34	18-24	Field Sample	Sidewall	40.74198587	-74.18341941	<b>582</b>	<b>560</b>
		P001-SS013A-SW1824-004-01	7/17/2014	13:15	18-24	Field Sample	Sidewall	40.74195081	-74.18331927	329	360
		P001-SS013A-BS24-002-01	7/17/2014	13:25	24	Field Sample	Base	40.74192342	-74.18337905	<b>625</b>	<b>610</b>
		P001-SS013A-SW1824-011-01	7/21/2014	14:00	18-24	Field Sample	Sidewall	40.74183242	-74.18324935	236	<b>710</b>
		P001-SS013A-BS24-004-01	7/21/2014	14:02	24	Field Sample	Base	40.74184771	-74.18324669	3	4.1
		P001-SS013A-SW1824-009-01	7/21/2014	14:04	18-24	Field Sample	Sidewall	40.74188252	-74.18323221	282	250
		P001-SS013A-SW1824-008-01	7/21/2014	14:06	18-24	Field Sample	Sidewall	40.74187157	-74.18331263	295	260
		P001-SS013A-SW1824-007-01	7/21/2014	14:08	18-24	Field Sample	Sidewall	40.74187956	-74.18326152	254	<b>500</b>
		P001-SS013A-BS24-003-01	7/21/2014	14:10	24	Field Sample	Base	40.74191539	-74.18325309	355	340
		P001-SS013A-SW1824-010-01	7/21/2014	14:16	18-24	Field Sample	Sidewall	40.74184883	-74.18320007	197	220
		P001-SS013A-SW1824-005-01	7/22/2014	9:54	18-24	Field Sample	Sidewall	40.74191825	-74.18321291	383	<b>540</b>
		P001-SS013A-SW1824-006-01	7/22/2014	9:56	18-24	Field Sample	Sidewall	40.74188735	-74.18318125	113	130
	13B	P001-SS013B-BS24-001-01	8/11/2014	11:22	24	Field Sample	Base	40.741827	-74.183529	<b>904</b>	<b>900</b>
		P001-SS013B-SW1824-001-01	8/11/2014	11:24	18-24	Field Sample	Sidewall	40.741811	-74.183538	<b>875</b>	<b>850</b>
		P001-SS013B-SW1824-002-01	8/11/2014	11:26	18-24	Field Sample	Sidewall	40.74183725	-74.18356457	<b>1,106</b>	<b>1,100</b>
		P001-SS013B-SW1824-003-01	8/11/2014	11:28	18-24	Field Sample	Sidewall	40.74184845	-74.18354692	<b>903</b>	<b>850</b>
		P001-SS013B-SW1824-004-01	8/11/2014	11:30	18-24	Field Sample	Sidewall	40.741828	-74.183507	<b>1,435</b>	<b>1,700</b>
	13C	P001-SS013C-SW1824-001-01	8/8/2014	11:04	18-24	Field Sample	Sidewall	40.741742	-74.18357	<b>1,109</b>	<b>1,900</b>
		P001-SS013C-BS24-001-01	8/8/2014	11:08	24	Field Sample	Base	40.741732	-74.183579	<b>1,116</b>	<b>950</b>
	13D	P001-SS013D-SW1824-001-01	9/23/2014	14:34	18-24	Field Sample	Sidewall	40.741574	-74.183506	<b>4,463</b>	<b>4,700</b>
		P001-SS013D-SW1824-002-01	9/23/2014	14:36	18-24	Field Sample	Sidewall	40.7415619	-74.18347982	<b>2,642</b>	<b>7,100</b>
		P001-SS013D-SW1824-003-01	9/23/2014	14:38	18-24	Field Sample	Sidewall	40.74158466	-74.18353623	<b>2,081</b>	<b>3,500</b>
		P001-SS013D-BS24-001-01	9/23/2014	14:40	24	Field Sample	Base	40.74157594	-74.18355855	<b>3,815</b>	<b>4,800</b>
		P001-SS013D-SW1824-004-01	9/24/2014	14:06	18-24	Field Sample	Sidewall	40.7415963	-74.18361319	<b>2,430</b>	<b>2,300</b>
		P001-SS013D-BS24-002-01	9/24/2014	14:08	24	Field Sample	Base	40.74160686	-74.18360226	<b>455</b>	<b>630</b>
		P001-SS013D-SW1824-005-01	9/25/2014	12:10	18-24	Field Sample	Sidewall	40.74162697	-74.18363824	<b>2,106</b>	<b>2,800</b>
		P001-SS013D-SW1824-006-01	9/26/2014	8:00	18-24	Field Sample	Sidewall	40.74164704	-74.18361651	<b>1,538</b>	<b>1,500</b>
		P001-SS013D-SW1824-007-01	10/1/2014	12:54	18-24	Field Sample	Sidewall	40.74154813	-74.18346379	<b>2,787</b>	<b>6,600</b>
		P001-SS013D-SW1824-008-01	10/1/2014	12:56	18-24	Field Sample	Sidewall	40.74152923	-74.1834176	<b>1,297</b>	<b>3,900</b>
		P001-SS013D-SW1824-009-01	10/1/2014	12:58	18-24	Field Sample	Sidewall	40.74153303	-74.18336075	<b>642</b>	<b>1,100</b>
		P001-SS013D-SW1824-010-01	10/1/2014	13:00	18-24	Field Sample	Sidewall	40.74156817	-74.18339064	<b>4,696</b>	<b>8,100</b>
		P001-SS013D-BS24-003-01	10/1/2014	13:02	24	Field Sample	Base	40.74154824	-74.18342075	<b>828</b>	<b>770</b>
	13E	P001-SS013E-SW1824-001-01	8/19/2014	10:30	18-24	Field Sample	Sidewall	40.74166264	-74.18334288	<b>827</b>	<b>880</b>
		P001-SS013E-SW1824-002-01	8/19/2014	10:32	18-24	Field Sample	Sidewall	40.74163989	-74.18330662	147	200
		P001-SS013E-SW1824-003-01	8/19/2014	10:34	18-24	Field Sample	Sidewall	40.741632	-74.183376	<b>1,622</b>	<b>2,000</b>
		P001-SS013E-BS24-001-01	8/19/2014	10:36	24	Field Sample	Base	40.74164371	-74.18330593	<b>576</b>	360
	13F	P001-SS013F-SW1824-001-01	8/19/2014	13:22	18-24	Field Sample	Sidewall	40.741724	-74.183276	271	270
		P001-SS013F-SW1824-002-01	8/19/2014	13:24	18-24	Field Sample	Sidewall	40.741722	-74.183247	<b>916</b>	<b>690</b>
		P001-SS013F-BS24-001-01	8/19/2014	13:26	24	Field Sample	Base	40.741734	-74.183274	294	330

**Notes:**

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**Table 4**  
**Post-Excavation Soil Sampling XRF Screening and Analytical Results Summary for Lead**  
**M.C. Canfield & Sons Site**

Site Area	AOC	Sample Number	Sample Date	Sample Time	Sample Depth (inches)	Sample Type	Sample Location	Longitude	Latitude	XRF Average Results (ppm)	Analytical Results (mg/kg)
Area 1, P001-SS014	14A	P001-SS014A-SW1824-001-01	9/8/2014	13:20	18-24	Field Sample	Sidewall	40.74166722	-74.18389911	<b>1,814</b>	<b>2,600</b>
		P001-SS014A-SW1824-002-01	9/8/2014	13:22	18-24	Field Sample	Sidewall	40.74167272	-74.18391504	8	3.8
		P001-SS014A-SW1824-003-01	9/8/2014	13:24	18-24	Field Sample	Sidewall	40.741648	-74.183909	<b>848</b>	<b>1,600</b>
		P001-SS014A-SW1824-004-01	9/9/2014	14:32	18-24	Field Sample	Sidewall	40.74169011	-74.18398338	<b>1,204</b>	<b>1,400</b>
		P001-SS014A-BS24-001-01	9/9/2014	14:34	24	Field Sample	Base	40.7418397	-74.18383644	<b>1,130</b>	<b>1,400</b>
		P001-SS014A-BS24-002-01	9/10/2014	15:02	24	Field Sample	Base	40.7417093	-74.18407037	<b>789</b>	<b>1,800</b>
		P001-SS014A-BS24-002-02	9/10/2014	15:04	24	Field Duplicate	Base	40.7417093	-74.18407037		<b>1,100</b>
		P001-SS014A-SW1824-005-01	9/12/2014	11:52	18-24	Field Sample	Sidewall	40.74171831	-74.18406589	<b>4,410</b>	<b>7,000</b>
		P001-SS014A-SW1824-006-01	9/12/2014	11:54	18-24	Field Sample	Sidewall	40.7417363	-74.18413839	318	<b>560</b>
		P001-SS014A-SW1824-007-01	9/12/2014	11:56	18-24	Field Sample	Sidewall	40.74170243	-74.18408665	253	<b>410</b>
		P001-SS014A-BS24-003-01	9/12/2014	12:00	24	Field Sample	Base	40.74172604	-74.18408624	299	<b>540</b>
		P001-SS014A-SW1824-008-01	9/17/2014	13:22	18-24	Field Sample	Sidewall	40.741649	-74.183872	<b>2,012</b>	<b>2,400</b>
		P001-SS014A-SW1824-009-01	9/17/2014	13:24	18-24	Field Sample	Sidewall	40.741642	-74.183819	<b>845</b>	<b>1,200</b>
		P001-SS014A-BS24-004-01	9/17/2014	13:26	24	Field Sample	Base	40.741627	-74.183827	<b>557</b>	<b>810</b>
	14B	P001-SS014A-SW1824-011-01	9/17/2014	13:28	18-24	Field Sample	Sidewall	40.741605	-74.18382	<b>14,275</b>	<b>27,000</b>
		P001-SS014A-SW1824-010-01	9/18/2014	8:36	18-24	Field Sample	Sidewall	40.741605	-74.183776	<b>1,301</b>	<b>1,700</b>
		P001-SS014B-BS24-001-01	8/1/2014	10:08	24	Field Sample	Base	40.74165577	-74.18414741	286	290
		P001-SS014B-SW1824-001-01	8/1/2014	10:00	18-24	Field Sample	Sidewall	40.74164083	-74.18413627	<b>702</b>	<b>1,400</b>
		P001-SS014B-SW1824-002-01	8/1/2014	10:02	18-24	Field Sample	Sidewall	40.74164892	-74.18415626	376	170
	14C	P001-SS014B-SW1824-003-01	8/1/2014	10:04	18-24	Field Sample	Sidewall	40.74166061	-74.18417443	78	29
		P001-SS014B-SW1824-004-01	8/1/2014	10:06	18-24	Field Sample	Sidewall	40.74165721	-74.18414891	<b>811</b>	<b>810</b>
		P001-SS014C-SW1824-001-01	8/1/2014	13:10	18-24	Field Sample	Sidewall	40.741599	-74.184096	<b>1,415</b>	<b>1,500</b>
		P001-SS014C-SW1824-002-01	8/1/2014	13:12	18-24	Field Sample	Sidewall	40.74160174	-74.18415151	<b>751</b>	<b>670</b>
		P001-SS014C-SW1824-003-01	8/1/2014	13:14	18-24	Field Sample	Sidewall	40.74163869	-74.18419385	<b>539</b>	<b>430</b>
	14D	P001-SS014C-SW1824-004-01	8/1/2014	13:16	18-24	Field Sample	Sidewall	40.74163881	-74.18415136	<b>856</b>	<b>2,900</b>
		P001-SS014C-BS24-001-01	8/1/2014	13:18	24	Field Sample	Base	40.74161155	-74.18414639		<b>780</b>
		P001-SS014C-BS24-001-02	8/1/2014	13:18	24	Field Duplicate	Base	40.74161155	-74.18414639	<b>487</b>	<b>730</b>
		P001-SS014D-SW1824-001-01	8/5/2014	9:14	18-24	Field Sample	Sidewall	40.74157218	-74.18416559	<b>1,753</b>	<b>2,800</b>
		P001-SS014D-SW1824-002-01	8/5/2014	9:16	18-24	Field Sample	Sidewall	40.74157608	-74.18417803	365	320
		P001-SS014D-SW1824-003-01	8/5/2014	9:18	18-24	Field Sample	Sidewall	40.74158031	-74.18421656	325	<b>840</b>
		P001-SS014D-SW1824-004-01	8/5/2014	9:20	18-24	Field Sample	Sidewall	40.74157692	-74.1841703	<b>594</b>	<b>540</b>
		P001-SS014D-BS24-001-01	8/5/2014	9:22	24	Field Sample	Base	40.74158089	-74.18417364	286	240

Notes:

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**Post-Excavation Soil Sampling XRF Screening and Analytical Results Summary for Lead**  
**M.C. Canfield & Sons Site**

Site Area	AOC	Sample Number	Sample Date	Sample Time	Sample Depth (inches)	Sample Type	Sample Location	Longitude	Latitude	XRF Average Results (ppm)	Analytical Results (mg/kg)
Area 1, P001-SS014	14E	P001-SS014E-SW1824-001-01	8/5/2014	9:32	18-24	Field Sample	Sidewall	40.74155123	-74.18416248	244	440
		P001-SS014E-SW1824-002-01	8/5/2014	9:35	18-24	Field Sample	Sidewall	40.74155459	-74.18418765	377	390
		P001-SS014E-SW1824-003-01	8/5/2014	9:38	18-24	Field Sample	Sidewall	40.74156998	-74.18421639	401	590
		P001-SS014E-SW1824-004-01	8/5/2014	9:40	18-24	Field Sample	Sidewall	40.74156589	-74.18418825	234	190
		P001-SS014E-BS24-001-01	8/5/2014	9:42	24	Field Sample	Base	40.74156411	-74.18418959	209	160
	14F	P001-SS014F-SW1824-001-01	8/4/2014	12:04	18-24	Field Sample	Sidewall	40.741485	-74.184155	1,214	1,200
		P001-SS014F-SW1824-002-01	8/4/2014	12:06	18-24	Field Sample	Sidewall	40.74151345	-74.1842022	233	170
		P001-SS014F-SW1824-003-01	8/4/2014	12:08	18-24	Field Sample	Sidewall	40.74153392	-74.18423971	367	510
		P001-SS014F-SW1824-004-01	8/4/2014	12:10	18-24	Field Sample	Sidewall	40.74153226	-74.18417728	1,023	1,000
		P001-SS014F-BS24-001-01	8/4/2014	12:12	24	Field Sample	Base	40.74151894	-74.18419053	91	62
	14G	P001-SS014G-SW1824-001-01	8/4/2014	12:16	18-24	Field Sample	Sidewall	40.741481	-74.184214	221	180
		P001-SS014G-SW1824-002-01	8/4/2014	12:18	18-24	Field Sample	Sidewall	40.741484	-74.184234	648	800
		P001-SS014G-SW1824-003-01	8/4/2014	12:20	18-24	Field Sample	Sidewall	40.741494	-74.184253	131	200
		P001-SS014G-SW1824-004-01	8/4/2014	12:22	18-24	Field Sample	Sidewall	40.74149	-74.184225	179	200
		P001-SS014G-BS24-001-01	8/4/2014	12:24	24	Field Sample	Base	40.741488	-74.184233	250	270
	14H	P001-SS014H-SW1824-001-01	8/6/2014	15:30	18-24	Field Sample	Sidewall	40.74136564	-74.18409721	390	490
		P001-SS014H-SW1824-001-02	8/6/2014	15:31	18-24	Field Duplicate	Sidewall	40.74136564	-74.18409721		690
		P001-SS014H-SW1824-002-01	8/6/2014	15:32	18-24	Field Sample	Sidewall	40.74137905	-74.18423047	347	420
		P001-SS014H-SW1824-004-01	8/6/2014	15:34	18-24	Field Sample	Sidewall	40.74141908	-74.18420106	1,110	3,900
		P001-SS014H-BS24-001-01	8/6/2014	15:36	24	Field Sample	Base	40.7414078	-74.18421412	367	180
		P001-SS014H-SW1824-003-01	8/7/2014	9:00	18-24	Field Sample	Sidewall	40.74143464	-74.18429608	176	270
	14I	P001-SS014I-SW1824-001-01	8/12/2014	12:02	18-24	Field Sample	Sidewall	40.74143122	-74.18391163	439	400
		P001-SS014I-SW1824-002-01	8/12/2014	12:04	18-24	Field Sample	Sidewall	40.74141447	-74.18388048	754	990
		P001-SS014I-BS24-001-01	8/12/2014	12:06	24	Field Sample	Base	40.7414225	-74.18390887	351	400
		P001-SS014I-BS24-001-02	8/12/2014	12:08	24	Field Duplicate	Base	40.7414225	-74.18390887		440
	14J	P001-SS014J-SW1824-001-01	8/12/2014	9:24	18-24	Field Sample	Sidewall	40.741525	-74.183892	324	360
		P001-SS014J-SW1824-002-01	8/12/2014	9:26	18-24	Field Sample	Sidewall	40.74152137	-74.18384593	719	850
		P001-SS014J-SW1824-003-01	8/12/2014	9:28	18-24	Field Sample	Sidewall	40.74151451	-74.18386221	1,642	2,100
		P001-SS014J-BS24-001-01	8/12/2014	9:30	24	Field Sample	Base	40.74152409	-74.18387392	919	1,000

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**M.C. Canfield & Sons Site**

Site Area	AOC	Sample Number	Sample Date	Sample Time	Sample Depth (inches)	Sample Type	Sample Location	Longitude	Latitude	XRF Average Results (ppm)	Analytical Results (mg/kg)
Area 1, P001-SS015	15A	P001-SS015A-SW1824-001-01	9/23/2014	14:42	18-24	Field Sample	Sidewall	40.741525	-74.183529	<b>2,996</b>	<b>4,500</b>
		P001-SS015A-SW1824-002-01	9/23/2014	14:44	18-24	Field Sample	Sidewall	40.74154699	-74.18348623	309	<b>620</b>
		P001-SS015A-SW1824-002-02	9/23/2014	14:46	18-24	Field Duplicate	Sidewall	40.74154699	-74.18348623	309	390
		P001-SS015A-SW1824-003-01	9/23/2014	14:48	18-24	Field Sample	Sidewall	40.7416113	-74.18352652	<b>568</b>	<b>2,200</b>
		P001-SS015A-BS24-001-01	9/23/2014	14:50	24	Field Sample	Base	40.74155154	-74.18357117	169	210
		P001-SS015A-SW1824-004-01	9/24/2014	14:10	18-24	Field Sample	Sidewall	40.74158631	-74.18361303	<b>1,482</b>	<b>2,400</b>
		P001-SS015A-BS24-002-01	9/24/2014	14:12	24	Field Sample	Base	40.74156418	-74.18362805	<b>2,017</b>	<b>2,900</b>
		P001-SS015A-SW1824-005-01	9/25/2014	12:14	18-24	Field Sample	Sidewall	40.7416063	-74.18369117	<b>1,321</b>	<b>1,600</b>
		P001-SS015A-SW1824-006-01	9/25/2014	12:16	18-24	Field Sample	Sidewall	40.74156967	-74.18366666	<b>935</b>	<b>1,600</b>
		P001-SS015A-SW1824-007-01	9/30/2014	14:08	18-24	Field Sample	Sidewall	40.74152871	-74.18347613	629	<b>530</b>
		P001-SS015A-SW1824-007-02	9/30/2014	14:10	18-24	Field Duplicate	Sidewall	40.74152871	-74.18347613	629	<b>710</b>
		P001-SS015A-SW1824-008-01	9/30/2014	14:12	18-24	Field Sample	Sidewall	40.74152893	-74.1834223	<b>3,791</b>	<b>4,500</b>
	15B	P001-SS015A-SW1824-009-01	9/30/2014	14:14	18-24	Field Sample	Sidewall	40.74148541	-74.18338436	<b>2,002</b>	<b>8,400</b>
		P001-SS015A-SW1824-010-01	9/30/2014	14:16	18-24	Field Sample	Sidewall	40.74148221	-74.1834367	<b>5,617</b>	<b>9,300</b>
		P001-SS015A-BS24-003-01	9/30/2014	14:18	24	Field Sample	Base	40.74151057	-74.18343424	9	13
	15C	P001-SS015B-SW1824-001-01	8/15/2015	11:10	18-24	Field Sample	Sidewall	40.74146105	-74.18372817	<b>461</b>	<b>990</b>
		P001-SS015B-SW1824-002-01	8/15/2015	11:12	18-24	Field Sample	Sidewall	40.7414833	-74.18375197	<b>766</b>	<b>1,000</b>
		P001-SS015B-BS24-001-01	8/15/2015	11:14	24	Field Sample	Base	40.7414779	-74.18370981	<b>1,074</b>	<b>1,400</b>
	15D	P001-SS015C-SW1824-001-01	8/15/2014	12:50	18-24	Field Sample	Sidewall	40.741365	-74.183779	211	230
		P001-SS015C-SW1824-002-01	8/15/2014	12:52	18-24	Field Sample	Sidewall	40.74139409	-74.18381132	<b>405</b>	<b>600</b>
		P001-SS015C-SW1824-003-01	8/15/2014	12:54	18-24	Field Sample	Sidewall	40.74138894	-74.18377031	<b>526</b>	<b>520</b>
	15E	P001-SS015C-BS24-001-01	8/15/2014	12:56	24	Field Sample	Base	40.74137804	-74.18377946	227	190
		P001-SS015D-SW1824-001-01	9/19/2014	13:02	18-24	Field Sample	Sidewall	40.7412216	-74.18365858	256	360
		P001-SS015D-SW1824-002-01	9/19/2014	13:04	18-24	Field Sample	Sidewall	40.74120206	-74.18362555	<b>514</b>	<b>650</b>
	15F	P001-SS015D-SW1824-003-01	9/19/2014	13:06	18-24	Field Sample	Sidewall	40.74121722	-74.18359782	221	250
		P001-SS015D-BS24-001-01	9/19/2014	13:08	24	Field Sample	Base	40.74119729	-74.18361727	363	<b>460</b>
		P001-SS015E-SW1824-001-01	8/18/2014	10:42	18-24	Field Sample	Sidewall	40.741293	-74.183556	<b>1,412</b>	<b>4,400</b>
	15G	P001-SS015E-SW1824-002-01	8/18/2014	10:44	18-24	Field Sample	Sidewall	40.74131308	-74.18352531	<b>999</b>	<b>1,100</b>
		P001-SS015E-SW1824-003-01	8/18/2014	10:46	18-24	Field Sample	Sidewall	40.74128941	-74.18350342	324	390
		P001-SS015E-BS24-001-01	8/18/2014	10:48	24	Field Sample	Base	40.74129995	-74.18352466	<b>805</b>	<b>1,100</b>
	15H	P001-SS015F-SW1824-001-01	8/18/2014	13:40	18-24	Field Sample	Sidewall	40.741377	-74.183445	<b>722</b>	<b>450</b>
		P001-SS015F-SW1824-002-01	8/18/2014	13:42	18-24	Field Sample	Sidewall	40.74132621	-74.18354719	<b>3,334</b>	<b>4,900</b>
		P001-SS015F-BS24-001-01	8/18/2014	13:44	24	Field Sample	Base	40.74131572	-74.18355971	<b>2,082</b>	<b>2,100</b>

**Notes:**

AOC - Area of Concern

ppm - Parts Per Million

mg/kg - Milligrams Per Kilogram

Lead results above 400 ppm or 400 mg/kg are highlighted in bold red



**Table 4**  
**Post-Excavation Soil Sampling XRF Screening and Analytical Results Summary for Lead**  
**M.C. Canfield & Sons Site**

Site Area	AOC	Sample Number	Sample Date	Sample Time	Sample Depth (inches)	Sample Type	Sample Location	Longitude	Latitude	XRF Average Results (ppm)	Analytical Results (mg/kg)
Area 2, P001-SS023 & P001-SS026	23A	P001-SS023A-SW1824-001-01	8/20/2014	13:24	18-24	Field Sample	Sidewall	40.74148868	-74.18315796	329	<b>480</b>
		P001-SS023A-SW1824-001-02	8/20/2014	13:26	18-24	Field Duplicate	Sidewall	40.74148868	-74.18315796		360
		P001-SS023A-BS24-001-01	8/20/2014	13:30	24	Field Sample	Base	40.74150998	-74.18314871	300	350
		P001-SS023A-SW1824-002-01	8/21/2014	12:40	18-24	Field Sample	Sidewall	40.74152875	-74.18318657	<b>601</b>	<b>940</b>
		P001-SS023A-SW1824-003-01	8/21/2014	12:42	18-24	Field Sample	Base	40.74155451	-74.1831266	312	<b>900</b>
	23B	P001-SS023B-SW1824-001-01	8/25/2014	14:32	18-24	Field Sample	Sidewall	40.741625	-74.183032	391	<b>420</b>
		P001-SS023B-SW1824-002-01	8/25/2014	14:34	18-24	Field Sample	Sidewall	40.74165544	-74.18309561	177	220
		P001-SS023B-BS24-001-01	8/26/2014	14:28	24	Field Sample	Base	40.74160156	-74.18308693	173	200
		P001-SS023B-SW1824-003-01	8/26/2014	14:30	18-24	Field Sample	Sidewall	40.74160551	-74.18314164	219	280
		P001-SS023B-SW1824-004-01	8/27/2014	11:30	18-24	Field Sample	Sidewall	40.74156693	-74.18311157	398	<b>510</b>
	23C	P001-SS023C-SW0612-001	10/6/2014	10:06	6-12	Field Sample	Sidewall	40.741481	-74.182837	308	NA
		P001-SS023C-SW0612-002	10/6/2014	10:08	6-12	Field Sample	Sidewall	40.741475	-74.182826	226	
		P001-SS023C-SW1218-003	10/6/2014	10:10	12-18	Field Sample	Sidewall	40.741447	-74.182806	156	
		P001-SS023C-SW1218-004	10/6/2014	10:12	12-18	Field Sample	Sidewall	40.741437	-74.18282	263	
		P001-SS023C-BS12-001	10/6/2014	10:14	12	Field Sample	Base	40.741463	-74.182821	49	
		P001-SS023C-SW1824-005	10/6/2014	13:50	18-24	Field Sample	Sidewall	40.741488	-74.182809	116	
		P001-SS023C-SW1824-006	10/6/2014	13:52	18-24	Field Sample	Sidewall	40.741483	-74.182784	263	
	26A	P001-SS023C-BS24-002	10/6/2014	13:54	12	Field Sample	Base	40.741487	-74.182795	219	NA
		P001-SS026A-SW1824-001-01	10/8/2014	14:30	18-24	Field Sample	Sidewall	40.74102105	-74.18304036	153	
		P001-SS026A-SW1824-002-01	10/8/2014	14:32	18-24	Field Sample	Sidewall	40.74101617	-74.18294216	346	
		P001-SS026A-SW1824-003-01	10/8/2014	14:34	18-24	Field Sample	Sidewall	40.74097738	-74.18296548	137	
		P001-SS026A-BS24-001-01	10/8/2014	14:40	24	Field Sample	Base	40.74101084	-74.18299382	331	
		P001-SS026A-SW1824-004-01	10/8/2014	14:44	18-24	Field Sample	Sidewall	40.74096602	-74.18285084	76	
		P001-SS026A-SW1824-005-01	10/8/2014	14:48	18-24	Field Sample	Sidewall	40.74093821	-74.18287099	117	
		P001-SS026A-BS24-002-01	10/8/2014	14:52	24	Field Sample	Base	40.74095172	-74.18292324	186	
		P001-SS026A-SW1824-006-01	10/9/2014	13:22	18-24	Field Sample	Sidewall	40.74092649	-74.18280335	<b>1,000</b>	
		P001-SS026A-BS24-003-01	10/9/2014	13:24	24	Field Sample	Base	40.7409404	-74.18281846	<b>990</b>	
		P001-SS026A-SW1824-007-01	10/14/2014	14:20	18-24	Field Sample	Sidewall	40.74096214	-74.18276186	<b>1,017</b>	
		P001-SS026A-SW1824-008-01	10/14/2014	14:22	18-24	Field Sample	Sidewall	40.74097799	-74.18279456	259	
		P001-SS026A-SW1824-009-01	10/14/2014	14:24	18-24	Field Sample	Sidewall	40.74107189	-74.18271459	<b>581</b>	
		P001-SS026A-SW1824-010-01	10/14/2014	14:26	18-24	Field Sample	Sidewall	40.74106497	-74.18272162	<b>564</b>	
		P001-SS026A-BS24-004-01	10/14/2014	14:28	24	Field Sample	Base	40.74098677	-74.18278623	<b>905</b>	
		P001-SS026A-BS24-005-01	10/14/2014	14:30	24	Field Sample	Base	40.74107231	-74.18272938	<b>419</b>	
		P001-SS026A-SW1824-011-01	11/13/2014	9:00	18-24	Field Sample	Sidewall	40.74115042	-74.18269014	<b>499</b>	
		P001-SS026A-SW1824-012-01	11/13/2014	9:02	18-24	Field Sample	Sidewall	40.74109396	-74.18265478	93	
		P001-SS026A-SW1824-013-01	11/13/2014	9:04	18-24	Field Sample	Sidewall	40.74109485	-74.18254765	342	
		P001-SS026A-BS24-006-01	11/13/2014	9:06	24	Field Sample	Base	40.74113172	-74.18265282	<b>788</b>	
		P001-SS026A-BS24-006-02	11/13/2014	9:08	24	Field Duplicate	Base	40.74113172	-74.18265282		
		P001-SS026A-BS24-007-01	11/13/2014	9:10	24	Field Sample	Base	40.74108299	-74.18253013	<b>521</b>	

**Notes:**

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Lead results above 400 ppm or 400 mg/kg are highlighted in bold red

NA - Not Analyzed in Laboratory



**Table 4**  
**Post-Excavation Soil Sampling XRF Screening and Analytical Results Summary for Lead**  
**M.C. Canfield & Sons Site**

Site Area	AOC	Sample Number	Sample Date	Sample Time	Sample Depth (inches)	Sample Type	Sample Location	Longitude	Latitude	XRF Average Results (ppm)	Analytical Results (mg/kg)
Area 2, P001-SS026 & P001-SS031	26B	P001-SS026B-SW1824-001-01	10/9/2014	13:30	18-24	Field Sample	Sidewall	40.74091247	-74.18279056	339	<b>450</b>
		P001-SS026B-SW1824-002-01	10/9/2014	13:32	18-24	Field Sample	Sidewall	40.7409143	-74.1827545	342	290
		P001-SS026B-SW1824-003-01	10/9/2014	13:34	18-24	Field Sample	Sidewall	40.74088996	-74.18272603	117	190
		P001-SS026B-SW1824-004-01	10/9/2014	13:36	18-24	Field Sample	Sidewall	40.74089644	-74.18276296	227	<b>510</b>
		P001-SS026B-SW1824-004-02	10/9/2014	13:38	18-24	Field Duplicate	Sidewall	40.74089644	-74.18276296		290
	26C	P001-SS026B-BS24-001-01	10/9/2014	13:44	24	Field Sample	Base	40.74090554	-74.18275751	349	<b>440</b>
		P001-SS026C-BS24-001-01	10/20/2014	9:20	24	Field Sample	Base	40.74100584	-74.18270072	78	100
	26N	P001-SS026N-SW0612-001-01	11/4/2014	11:32	6-12	Field Sample	Sidewall	40.74098792	-74.18288122	235	250
		P001-SS026N-BS12-001-01	11/4/2014	11:40	24	Field Sample	Base	40.74097976	-74.18287218	174	170
	31A	P001-SS031A-SW1824-001-01	10/21/2014	11:16	18-24	Field Sample	Sidewall	40.74100238	-74.18213652	<b>1,558</b>	<b>1,500</b>
		P001-SS031A-SW1824-002-01	10/21/2014	11:18	18-24	Field Sample	Sidewall	40.74100173	-74.18216327	300	360
		P001-SS031A-SW1824-003-01	10/27/2014	13:18	18-24	Field Sample	Sidewall	40.741015	-74.18223	<b>1,272</b>	<b>1,800</b>
		P001-SS031A-BS24-001-01	10/27/2014	13:20	24	Field Sample	Base	40.741016	-74.182193	10	50
		P001-SS031A-BS24-002-01	10/29/2014	14:15	24	Field Sample	Base	40.741053	-74.182303	<b>1,039</b>	<b>1,200</b>
		P001-SS031A-BS24-002-02	10/29/2014	14:18	24	Field Duplicate	Base	40.741053	-74.182303		<b>1,200</b>
		P001-SS031A-BS24-003-01	10/30/2014	14:30	24	Field Sample	Base	40.741074	-74.182401	<b>656</b>	<b>740</b>
		P001-SS031A-SW0612-004-01	11/3/2014	15:04	6-12	Field Sample	Sidewall	40.74111287	-74.18247417	302	260

Notes:

AOC - Area of Concern

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Lead results above 400 ppm or 400 mg/kg are highlighted in bold red

# Table 5

Waste Disposal Manifest Information Summary

**Table 5**  
**Waste Disposal Manifests Information Summary**  
**M.C. Canfield & Sons Site**  
**Generator: USEPA Region II, Generator ID #: NJC200400018**

Truck Count	Date Shipped	Manifest Number	Weight (Tons)	Waste Description	Transporter	Transporter Address	Designated Facility	Designated Facility Address
T01	7/14/2014	5081-34693	13.89	Non-Hazardous Lead-Impacted Soil and Debris	DVC	1420 Clarion Street, Reading, PA	Conestoga Landfill	420 Quarry Road, Morgantown, PA
T02	7/16/2014	5081-34715	24.73	Non-Hazardous Lead-Impacted Soil and Debris	DVC	1420 Clarion Street, Reading, PA	Conestoga Landfill	420 Quarry Road, Morgantown, PA
T03	7/16/2014	5081-34716	18.88	Non-Hazardous Lead-Impacted Soil and Debris	DVC	1420 Clarion Street, Reading, PA	Conestoga Landfill	420 Quarry Road, Morgantown, PA
T04	7/17/2014	5081-34709	26.80	Non-Hazardous Lead-Impacted Soil and Debris	DVC	1420 Clarion Street, Reading, PA	Conestoga Landfill	420 Quarry Road, Morgantown, PA
T05	7/17/2014	5081-34710	24.67	Non-Hazardous Lead-Impacted Soil and Debris	DVC	1420 Clarion Street, Reading, PA	Conestoga Landfill	420 Quarry Road, Morgantown, PA
T06	7/18/2014	5081-34712	20.18	Non-Hazardous Lead-Impacted Soil and Debris	DVC	1420 Clarion Street, Reading, PA	Conestoga Landfill	420 Quarry Road, Morgantown, PA
T07	7/18/2014	5081-34713	24.32	Non-Hazardous Lead-Impacted Soil and Debris	Empire/DVC	1420 Clarion Street, Reading, PA	Conestoga Landfill	420 Quarry Road, Morgantown, PA
T08	7/21/2014	5081-34687	17.22	Non-Hazardous Lead-Impacted Soil and Debris	Empire/DVC	1420 Clarion Street, Reading, PA	Conestoga Landfill	420 Quarry Road, Morgantown, PA
T09	7/21/2014	5081-34688	15.47	Non-Hazardous Lead-Impacted Soil and Debris	DVC	1420 Clarion Street, Reading, PA	Conestoga Landfill	420 Quarry Road, Morgantown, PA
T10	7/21/2014	5081-34689	17.78	Non-Hazardous Lead-Impacted Soil and Debris	Empire/DVC	1420 Clarion Street, Reading, PA	Conestoga Landfill	420 Quarry Road, Morgantown, PA
T11	7/21/2014	5081-34714	13.72	Non-Hazardous Lead-Impacted Soil and Debris	DVC	1420 Clarion Street, Reading, PA	Conestoga Landfill	420 Quarry Road, Morgantown, PA
T12	7/22/2014	5081-34690	11.97	Non-Hazardous Lead-Impacted Soil and Debris	DVC	1420 Clarion Street, Reading, PA	Conestoga Landfill	420 Quarry Road, Morgantown, PA
T13	7/22/2014	5081-34691	17.60	Non-Hazardous Lead-Impacted Soil and Debris	DVC	1420 Clarion Street, Reading, PA	Conestoga Landfill	420 Quarry Road, Morgantown, PA
T14	7/23/2014	5081-34692	15.73	Non-Hazardous Lead-Impacted Soil and Debris	DVC	1420 Clarion Street, Reading, PA	Conestoga Landfill	420 Quarry Road, Morgantown, PA
T15	7/24/2014	5081-34696	15.50	Non-Hazardous Lead-Impacted Soil and Debris	DVC	1420 Clarion Street, Reading, PA	Conestoga Landfill	420 Quarry Road, Morgantown, PA
T16	7/24/2014	5081-34700	11.65	Non-Hazardous Lead-Impacted Soil and Debris	DVC	1420 Clarion Street, Reading, PA	Conestoga Landfill	420 Quarry Road, Morgantown, PA
T17	7/25/2014	5081-34698	16.39	Non-Hazardous Lead-Impacted Soil and Debris	DVC	1420 Clarion Street, Reading, PA	Conestoga Landfill	420 Quarry Road, Morgantown, PA
T18	7/28/2014	5081-34958	19.46	Non-Hazardous Lead-Impacted Soil and Debris	DVC	1420 Clarion Street, Reading, PA	Conestoga Landfill	420 Quarry Road, Morgantown, PA
T19	7/29/2014	019	18.58	Non-Hazardous Lead-Impacted Soil and Debris	DVC	1420 Clarion Street, Reading, PA	IESI PA Bethlehem Landfill	2335 Applebutter Road,Bethlehem, PA
T20	7/29/2014	020	19.06	Non-Hazardous Lead-Impacted Soil and Debris	DVC	1420 Clarion Street, Reading, PA	IESI PA Bethlehem Landfill	2335 Applebutter Road,Bethlehem, PA
T21	7/29/2014	5081-34960	16.10	Non-Hazardous Lead-Impacted Soil and Debris	DVC	1420 Clarion Street, Reading, PA	Conestoga Landfill	420 Quarry Road, Morgantown, PA
T22	7/31/2014	5081-34991	16.86	Non-Hazardous Lead-Impacted Soil and Debris	DVC	1420 Clarion Street, Reading, PA	Conestoga Landfill	420 Quarry Road, Morgantown, PA
T23	7/31/2014	5081-34992	17.46	Non-Hazardous Lead-Impacted Soil and Debris	DVC	1420 Clarion Street, Reading, PA	Conestoga Landfill	420 Quarry Road, Morgantown, PA
T24	8/1/2014	5081-34993	18.30	Non-Hazardous Lead-Impacted Soil and Debris	DVC	1420 Clarion Street, Reading, PA	Conestoga Landfill	420 Quarry Road, Morgantown, PA
T25	8/4/2014	5081-34962	18.54	Non-Hazardous Lead-Impacted Soil and Debris	DVC	1420 Clarion Street, Reading, PA	Conestoga Landfill	420 Quarry Road, Morgantown, PA
T26	8/4/2014	5081-34963	15.54	Non-Hazardous Lead-Impacted Soil and Debris	DVC	1420 Clarion Street, Reading, PA	Conestoga Landfill	420 Quarry Road, Morgantown, PA
T27	8/5/2014	5081-34961	21.23	Non-Hazardous Lead-Impacted Soil and Debris	DVC	1420 Clarion Street, Reading, PA	Conestoga Landfill	420 Quarry Road, Morgantown, PA
T28	8/6/2014	5081-34968	21.17	Non-Hazardous Lead-Impacted Soil and Debris	DVC	1420 Clarion Street, Reading, PA	Conestoga Landfill	420 Quarry Road, Morgantown, PA
T29	8/6/2014	5081-34969	18.59	Non-Hazardous Lead-Impacted Soil and Debris	DVC	1420 Clarion Street, Reading, PA	Conestoga Landfill	420 Quarry Road, Morgantown, PA
T30	8/7/2014	5081-34970	19.22	Non-Hazardous Lead-Impacted Soil and Debris	DVC	1420 Clarion Street, Reading, PA	Conestoga Landfill	420 Quarry Road, Morgantown, PA

**Table 5**  
**Waste Disposal Manifests Information Summary**  
**M.C. Canfield & Sons Site**  
**Generator: USEPA Region II, Generator ID #: NJC200400018**

Truck Count	Date Shipped	Manifest Number	Weight (Tons)	Waste Description	Transporter	Transporter Address	Designated Facility	Designated Facility Address
T31	8/12/2014	5081-34964	14.45	Non-Hazardous Lead-Impacted Soil and Debris	DVC	1420 Clarion Street, Reading, PA	Conestoga Landfill	420 Quarry Road, Morgantown, PA
T32	8/12/2014	5081-34965	15.25	Non-Hazardous Lead-Impacted Soil and Debris	DVC	1420 Clarion Street, Reading, PA	Conestoga Landfill	420 Quarry Road, Morgantown, PA
T33	8/12/2014	5081-34966	13.66	Non-Hazardous Lead-Impacted Soil and Debris	DVC	1420 Clarion Street, Reading, PA	Conestoga Landfill	420 Quarry Road, Morgantown, PA
T34	8/14/2014	034	16.29	Non-Hazardous Lead-Impacted Soil and Debris	DVC	1420 Clarion Street, Reading, PA	IESI PA Bethlehem Landfill	2335 Applebutter Road, Bethlehem, PA
T35	8/14/2014	035	13.53	Non-Hazardous Lead-Impacted Soil and Debris	DVC	1420 Clarion Street, Reading, PA	IESI PA Bethlehem Landfill	2335 Applebutter Road, Bethlehem, PA
T36	8/18/2014	036	19.85	Non-Hazardous Lead-Impacted Soil and Debris	DVC	1420 Clarion Street, Reading, PA	IESI PA Bethlehem Landfill	2335 Applebutter Road, Bethlehem, PA
T37	8/18/2014	5081-34701	18.42	Non-Hazardous Lead-Impacted Soil and Debris	DVC	1420 Clarion Street, Reading, PA	Conestoga Landfill	420 Quarry Road, Morgantown, PA
T38	8/19/2014	5081-34706	17.34	Non-Hazardous Lead-Impacted Soil and Debris	DVC	1420 Clarion Street, Reading, PA	Conestoga Landfill	420 Quarry Road, Morgantown, PA
T39	8/19/2014	5081-34707	19.48	Non-Hazardous Lead-Impacted Soil and Debris	DVC	1420 Clarion Street, Reading, PA	Conestoga Landfill	420 Quarry Road, Morgantown, PA
T40	8/20/2014	5081-34971	17.23	Non-Hazardous Lead-Impacted Soil and Debris	DVC	1420 Clarion Street, Reading, PA	Conestoga Landfill	420 Quarry Road, Morgantown, PA
T41	8/20/2014	5081-34972	15.99	Non-Hazardous Lead-Impacted Soil and Debris	DVC	1420 Clarion Street, Reading, PA	Conestoga Landfill	420 Quarry Road, Morgantown, PA
T42	8/21/2014	5081-34973	18.68	Non-Hazardous Lead-Impacted Soil and Debris	DVC	1420 Clarion Street, Reading, PA	Conestoga Landfill	420 Quarry Road, Morgantown, PA
T43	8/21/2014	5081-34989	21.46	Non-Hazardous Lead-Impacted Soil and Debris	DVC	1420 Clarion Street, Reading, PA	Conestoga Landfill	420 Quarry Road, Morgantown, PA
T44	8/25/2014	014	18.23	Non-Hazardous Lead-Impacted Soil and Debris	DVC	1420 Clarion Street, Reading, PA	IESI PA Bethlehem Landfill	2335 Applebutter Road, Bethlehem, PA
T45	8/26/2014	5081-34974	22.11	Non-Hazardous Lead-Impacted Soil and Debris	DVC	1420 Clarion Street, Reading, PA	Conestoga Landfill	420 Quarry Road, Morgantown, PA
T46	8/26/2014	5081-34975	23.23	Non-Hazardous Lead-Impacted Soil and Debris	DVC	1420 Clarion Street, Reading, PA	Conestoga Landfill	420 Quarry Road, Morgantown, PA
T47	8/27/2014	5081-34967	13.66	Non-Hazardous Lead-Impacted Soil and Debris	DVC	1420 Clarion Street, Reading, PA	Conestoga Landfill	420 Quarry Road, Morgantown, PA
T48	8/27/2014	5081-34990	20.96	Non-Hazardous Lead-Impacted Soil and Debris	DVC	1420 Clarion Street, Reading, PA	Conestoga Landfill	420 Quarry Road, Morgantown, PA
T49	8/28/2014	5081-34699	22.05	Non-Hazardous Lead-Impacted Soil and Debris	DVC	1420 Clarion Street, Reading, PA	Conestoga Landfill	420 Quarry Road, Morgantown, PA
T50	9/9/2014	5081-34704	16.69	Non-Hazardous Lead-Impacted Soil and Debris	DVC	1420 Clarion Street, Reading, PA	Conestoga Landfill	420 Quarry Road, Morgantown, PA
T51	9/9/2014	5081-34705	20.11	Non-Hazardous Lead-Impacted Soil and Debris	DVC	1420 Clarion Street, Reading, PA	Conestoga Landfill	420 Quarry Road, Morgantown, PA
T52	9/10/2014	5081-34702	15.75	Non-Hazardous Lead-Impacted Soil and Debris	DVC	1420 Clarion Street, Reading, PA	Conestoga Landfill	420 Quarry Road, Morgantown, PA
T53	9/10/2014	5081-34703	17.87	Non-Hazardous Lead-Impacted Soil and Debris	DVC	1420 Clarion Street, Reading, PA	Conestoga Landfill	420 Quarry Road, Morgantown, PA
T54	9/11/2014	5081-34959	18.85	Non-Hazardous Lead-Impacted Soil and Debris	DVC	1420 Clarion Street, Reading, PA	Conestoga Landfill	420 Quarry Road, Morgantown, PA
T55	9/11/2014	5081-34981	16.85	Non-Hazardous Lead-Impacted Soil and Debris	DVC	1420 Clarion Street, Reading, PA	Conestoga Landfill	420 Quarry Road, Morgantown, PA
T56	9/12/2014	5081-34708	18.66	Non-Hazardous Lead-Impacted Soil and Debris	DVC	1420 Clarion Street, Reading, PA	Conestoga Landfill	420 Quarry Road, Morgantown, PA
T57	9/12/2014	5081-34980	16.65	Non-Hazardous Lead-Impacted Soil and Debris	DVC	1420 Clarion Street, Reading, PA	Conestoga Landfill	420 Quarry Road, Morgantown, PA
T58	9/15/2014	5081-34979	16.58	Non-Hazardous Lead-Impacted Soil and Debris	DVC	1420 Clarion Street, Reading, PA	Conestoga Landfill	420 Quarry Road, Morgantown, PA
T59	9/16/2014	5081-34977	16.30	Non-Hazardous Lead-Impacted Soil and Debris	DVC	1420 Clarion Street, Reading, PA	Conestoga Landfill	420 Quarry Road, Morgantown, PA
T60	9/17/2014	5081-34976	15.30	Non-Hazardous Lead-Impacted Soil and Debris	DVC	1420 Clarion Street, Reading, PA	Conestoga Landfill	420 Quarry Road, Morgantown, PA

**Table 5**  
**Waste Disposal Manifests Information Summary**  
**M.C. Canfield & Sons Site**  
**Generator: USEPA Region II, Generator ID #: NJC200400018**

Truck Count	Date Shipped	Manifest Number	Weight (Tons)	Waste Description	Transporter	Transporter Address	Designated Facility	Designated Facility Address
T61	9/17/2014	5081-34978	17.41	Non-Hazardous Lead-Impacted Soil and Debris	DVC	1420 Clarion Street, Reading, PA	Conestoga Landfill	420 Quarry Road, Morgantown, PA
T62	9/18/2014	5081-34987	18.47	Non-Hazardous Lead-Impacted Soil and Debris	DVC	1420 Clarion Street, Reading, PA	Conestoga Landfill	420 Quarry Road, Morgantown, PA
T63	9/18/2014	5081-34988	16.96	Non-Hazardous Lead-Impacted Soil and Debris	DVC	1420 Clarion Street, Reading, PA	Conestoga Landfill	420 Quarry Road, Morgantown, PA
T64	9/22/2014	5081-34985	15.39	Non-Hazardous Lead-Impacted Soil and Debris	DVC	1420 Clarion Street, Reading, PA	Conestoga Landfill	420 Quarry Road, Morgantown, PA
T65	9/22/2014	5081-34986	17.55	Non-Hazardous Lead-Impacted Soil and Debris	DVC	1420 Clarion Street, Reading, PA	Conestoga Landfill	420 Quarry Road, Morgantown, PA
T66	9/23/2014	5081-34983	18.53	Non-Hazardous Lead-Impacted Soil and Debris	DVC	1420 Clarion Street, Reading, PA	Conestoga Landfill	420 Quarry Road, Morgantown, PA
T67	9/24/2014	5081-34984	16.31	Non-Hazardous Lead-Impacted Soil and Debris	Empire/DVC	1420 Clarion Street, Reading, PA	Conestoga Landfill	420 Quarry Road, Morgantown, PA
T68	9/25/2014	068	16.93	Non-Hazardous Lead-Impacted Soil and Debris	Empire/DVC	1420 Clarion Street, Reading, PA	Conestoga Landfill	420 Quarry Road, Morgantown, PA
T69	9/25/2014	069	17.36	Non-Hazardous Lead-Impacted Soil and Debris	Empire/DVC	1420 Clarion Street, Reading, PA	Conestoga Landfill	420 Quarry Road, Morgantown, PA
T70	9/29/2014	070	19.83	Non-Hazardous Lead-Impacted Soil and Debris	DVC	1420 Clarion Street, Reading, PA	Conestoga Landfill	420 Quarry Road, Morgantown, PA
T71	9/29/2014	071	12.54	Non-Hazardous Lead-Impacted Soil and Debris	Lacy's/DVC	26 E Mill Street, Pedricktown, NJ	Conestoga Landfill	420 Quarry Road, Morgantown, PA
T72	9/29/2014	072	17.87	Non-Hazardous Lead-Impacted Soil and Debris	DVC	1420 Clarion Street, Reading, PA	Conestoga Landfill	420 Quarry Road, Morgantown, PA
T73	9/30/2014	073	18.60	Non-Hazardous Lead-Impacted Soil and Debris	DVC	1420 Clarion Street, Reading, PA	Conestoga Landfill	420 Quarry Road, Morgantown, PA
T74	10/1/2014	074	17.07	Non-Hazardous Lead-Impacted Soil and Debris	DVC	1420 Clarion Street, Reading, PA	Conestoga Landfill	420 Quarry Road, Morgantown, PA
T75	10/6/2014	075	18.31	Non-Hazardous Lead-Impacted Soil and Debris	Empire/DVC	1420 Clarion Street, Reading, PA	Conestoga Landfill	420 Quarry Road, Morgantown, PA
T76	10/7/2014	076	18.75	Non-Hazardous Lead-Impacted Soil and Debris	Empire/DVC	1420 Clarion Street, Reading, PA	Conestoga Landfill	420 Quarry Road, Morgantown, PA
T77	10/7/2014	077	19.43	Non-Hazardous Lead-Impacted Soil and Debris	Empire/DVC	1420 Clarion Street, Reading, PA	Conestoga Landfill	420 Quarry Road, Morgantown, PA
T78	10/7/2014	078	17.67	Non-Hazardous Lead-Impacted Soil and Debris	Empire/DVC	1420 Clarion Street, Reading, PA	Conestoga Landfill	420 Quarry Road, Morgantown, PA
T79	10/9/2014	079	20.77	Non-Hazardous Lead-Impacted Soil and Debris	Empire/DVC	1420 Clarion Street, Reading, PA	Conestoga Landfill	420 Quarry Road, Morgantown, PA
T80	10/10/2014	080	21.04	Non-Hazardous Lead-Impacted Soil and Debris	Empire/DVC	1420 Clarion Street, Reading, PA	Conestoga Landfill	420 Quarry Road, Morgantown, PA
T81	10/13/2014	081	22.56	Non-Hazardous Lead-Impacted Soil and Debris	Empire/DVC	1420 Clarion Street, Reading, PA	Conestoga Landfill	420 Quarry Road, Morgantown, PA
T82	10/13/2014	082	17.66	Non-Hazardous Lead-Impacted Soil and Debris	Empire/DVC	1420 Clarion Street, Reading, PA	Conestoga Landfill	420 Quarry Road, Morgantown, PA
T83	10/14/2014	083	16.53	Non-Hazardous Lead-Impacted Soil and Debris	Empire/DVC	1420 Clarion Street, Reading, PA	Conestoga Landfill	420 Quarry Road, Morgantown, PA
T84	10/15/2014	084	16.96	Non-Hazardous Lead-Impacted Soil and Debris	Empire/DVC	1420 Clarion Street, Reading, PA	Conestoga Landfill	420 Quarry Road, Morgantown, PA
T85	10/16/2014	085	18.78	Non-Hazardous Lead-Impacted Soil and Debris	Empire/DVC	1420 Clarion Street, Reading, PA	Conestoga Landfill	420 Quarry Road, Morgantown, PA
T86	10/20/2014	086	17.56	Non-Hazardous Lead-Impacted Soil and Debris	Empire/DVC	1420 Clarion Street, Reading, PA	Conestoga Landfill	420 Quarry Road, Morgantown, PA
T87	10/22/2014	087	20.65	Non-Hazardous Lead-Impacted Soil and Debris	Empire/DVC	1420 Clarion Street, Reading, PA	Conestoga Landfill	420 Quarry Road, Morgantown, PA
T88	10/29/2014	088	19.36	Non-Hazardous Lead-Impacted Soil and Debris	DVC	1420 Clarion Street, Reading, PA	Conestoga Landfill	420 Quarry Road, Morgantown, PA
T89	10/29/2014	089	18.74	Non-Hazardous Lead-Impacted Soil and Debris	DVC	1420 Clarion Street, Reading, PA	Conestoga Landfill	420 Quarry Road, Morgantown, PA
T90	10/31/2014	090	18.05	Non-Hazardous Lead-Impacted Soil and Debris	Empire/DVC	1420 Clarion Street, Reading, PA	Conestoga Landfill	420 Quarry Road, Morgantown, PA

**Table 5**  
**Waste Disposal Manifests Information Summary**  
**M.C. Canfield & Sons Site**  
**Generator: USEPA Region II, Generator ID #: NJC200400018**

Truck Count	Date Shipped	Manifest Number	Weight (Tons)	Waste Description	Transporter	Transporter Address	Designated Facility	Designated Facility Address
T91	11/3/2014	091	19.12	Non-Hazardous Lead-Impacted Soil and Debris	Empire/DVC	1420 Clarion Street, Reading, PA	Conestoga Landfill	420 Quarry Road, Morgantown, PA
T92	11/5/2014	092	18.22	Non-Hazardous Lead-Impacted Soil and Debris	DVC	1420 Clarion Street, Reading, PA	Conestoga Landfill	420 Quarry Road, Morgantown, PA
T93	11/6/2014	093	18.45	Non-Hazardous Lead-Impacted Soil and Debris	DVC	1420 Clarion Street, Reading, PA	Conestoga Landfill	420 Quarry Road, Morgantown, PA
T94	11/7/2014	094	9.46	Non-Hazardous Lead-Impacted Soil and Debris	DVC	1420 Clarion Street, Reading, PA	Conestoga Landfill	420 Quarry Road, Morgantown, PA
T95	11/11/2014	095	13.91	Non-Hazardous Lead-Impacted Soil and Debris	DVC	1420 Clarion Street, Reading, PA	Conestoga Landfill	420 Quarry Road, Morgantown, PA
T96	11/11/2014	096	17.98	Non-Hazardous Lead-Impacted Soil and Debris	DVC	1420 Clarion Street, Reading, PA	Conestoga Landfill	420 Quarry Road, Morgantown, PA
T97	11/12/2014	097	17.02	Non-Hazardous Lead-Impacted Soil and Debris	DVC	1420 Clarion Street, Reading, PA	Conestoga Landfill	420 Quarry Road, Morgantown, PA
T98	11/14/2014	098	15.14	Non-Hazardous Lead-Impacted Soil and Debris	DVC	1420 Clarion Street, Reading, PA	Conestoga Landfill	420 Quarry Road, Morgantown, PA
T99	11/17/2014	099	20.14	Non-Hazardous Lead-Impacted Soil and Debris	DVC	1420 Clarion Street, Reading, PA	Conestoga Landfill	420 Quarry Road, Morgantown, PA
T100	11/17/2014	100	20.78	Non-Hazardous Lead-Impacted Soil and Debris	DVC	1420 Clarion Street, Reading, PA	Conestoga Landfill	420 Quarry Road, Morgantown, PA
<b>TOTAL:</b>			<b>1,791.95</b>					

DVC - Delaware Valley Contractors  
Empire - Empire Services  
Lacy's - Lacy's Express Inc.

# Attachments

# Attachment A

## Compact Disk 1:

- A1 – Final Sampling Trip Report - MC Canfield & Sons Site
- A2 – Sampling Trip Report (Phase II) - MC Canfield & Sons Site
- A3 – EPA Action Memorandum
- A4 – Site-Specific Community Air Monitoring Plan
- A5 – RST 3 Site-Specific Health and Safety Plan
- A6 – Site-Specific Uniform Federal Policy Quality Assurance Project Plan
- A7 – Validated Air Sampling Analytical Report
- A8 – Personal Air Sampling Analytical Report
- A9 – Clean fill Sampling Analytical Report
- A10 – Topsoil Sampling Analytical Report
- A11 – Validated Post-Excavation Soil Sampling Analytical Report
- A12 – Disposal Soil Sampling Analytical Report
- A13 – Waste Disposal Manifests





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***The Trusted Integrator for Sustainable Solutions***

REMOVAL SUPPORT TEAM 2  
EPA CONTRACT EP-W-06-072

November 24, 2012

Ms. Shawna Hoppe, On-Scene Coordinator  
U.S. Environmental Protection Agency, Region II  
Removal Action Branch  
2890 Woodbridge Avenue  
Edison, NJ 08837

**EPA CONTRACT NO: EP-W-06-072**

**TDD NO: TO-0027-0034**

**DOCUMENT CONTROL NO: RST 2-02-F-2193**

**SUBJECT: FINAL SAMPLING TRIP REPORT - MC CANFIELD & SONS SITE,  
NEWARK, ESSEX COUNTY, NEW JERSEY**

Dear Ms. Hoppe,

Enclosed please find the Final Sampling Trip Report for the MC Canfield & Sons Site located at Cornerstone Lane & Marrow Street in Newark, Essex County, New Jersey. The sampling conducted from August 20 through 30, 2012 was part of the Removal Assessment of the Site. If you have any questions, please do not hesitate to contact me at (732) 585-4421.

Sincerely,

Weston Solutions, Inc.

Joel Petty

Removal Support Team 2  
Site Project Manager/Group Leader

Enclosure

cc: TDD File No: TO-0027-0034

*an employee-owned company*

*In Association with Scientific and Environmental Associates, Inc.,  
H & S Environmental, Inc., and Avatar Environmental, LLC*



## **FINAL SAMPLING TRIP REPORT**

**SITE NAME:** MC Canfield & Sons  
**DC NO.:** RST 2-02-F-2150  
**TDD NO.:** TO-0027-0034

**EPA SITE ID NO.:** NJN000206557

**SAMPLING DATE:** August 20 through 30, 2012

- 1. Site Location:** Cornerstone Lane & Marrow Street, Newark, Essex County,  
New Jersey  
Refer to Attachment A, Figure 1, Site Location Map
- 2. Sample Location:** Refer to Attachment A, Figure 2, Sample Locations with XRF  
Lead Results

### **3. Introduction:**

In May 2012, the U.S. Environmental Protection Agency's (EPA) Removal Action Branch was requested to assess residential properties for the presence of lead in the vicinity of the MC Canfield & Sons Site (the Site) located at Cornerstone Lane and Marrow Street, Newark, Essex County, New Jersey. The removal assessment is in response to the request from New Jersey Department of Environmental Protection (NJDEP). Soil investigations conducted by NJDEP in March 2012 at the Site indicated that there are elevated lead levels in the soil on the property. As a result, a removal assessment was conducted to determine if any additional properties had been impacted by previous operations conducted at the Site.

This report has been prepared to document the activities which were completed in support of the Removal Assessment.

### **4. Removal Assessment Summary:**

On August 20, 2011, Weston Solutions, Inc., Removal Support Team 2 (RST 2) mobilized to the Site to conduct Removal Assessment sampling activities at the property, now occupied by a residential townhouse community, referred to by RST 2 as MC Canfield & Sons. Sampling was conducted in accordance with the *Superfund Lead-Contaminated Residential Sites Handbook*, dated August 2003. The property was split into 34 quadrants and included areas of high use such as gardens, play areas, flower beds, etc. Five sample locations were designated within each quadrant and soil samples from these locations were collected from depths of 0 inch (sod), 0-2 inches, 2-6 inches, 6-12 inches, 12-18 inches, and 18-24 inches. Samples from discrete intervals throughout each quadrant were composited into one sample for that specific depth. Composite samples were also collected from a church adjacent to the Site and four off-site locations to determine background lead concentrations. At the church, in addition to the composite samples

collected from the property, soil samples were also collected from three locations along the drip line (6-30 inches from the building). Discrete samples were also collected from the four corners of the site (P001-SS001, P001-SS007, P001-SS022, and P001-SS034) and from the four quadrants where concentrations of lead were highest (P001-SS012, P001-SS013, P001-SS014, and P001-SS015). As part of the removal assessment sampling activities, RST 2 collected 233 composite soil samples and 101 discrete soil samples from quadrants established throughout the property, the adjacent church, and background locations.

The soil samples collected from the Site were screened for metals on-site using an Innov-X portable x-ray fluorescence (XRF) instrument with ten percent (not including discrete samples) submitted to an EPA Contract Laboratory Program (CLP) laboratory for Target Analyte List (TAL) metals analysis. Field screening for metals in soil was performed on-site using portable XRF technology. The samples were collected in a 6 by 9 inch plastic bag, homogenized, dried if necessary, and analyzed three times using the XRF. Organic debris was removed from the sample before it was homogenized. Each XRF sample screening interval lasted one minute. The three screening intervals were then averaged to determine the approximate metal concentration. Field screening samples were collected with dedicated plastic scoops.

Ten percent of the soil samples and all of the rinsate blank samples were shipped to a CLP laboratory, A4 Scientific, Inc. on August 23, 2012 under Chain of Custody (COC) Record No. 2-082312-183909-0001 and FedEx US Airbill No. 870897315254, and on August 30, 2012 under COC Record No. 2-083012-143604-0002 and FedEx US Airbill No. 899355984032. All samples sent to the laboratory were chosen by the On-Scene Coordinators (OSCs). Three samples were also hand-delivered to the EPA Division of Environmental Science and Assessment (DESA) laboratory on August 31, 2012 under COC Record No. 2-083112-104405-0003 for Toxicity Characteristic Leaching Procedure (TCLP) metals analysis. For additional information, refer to Attachment C: Chain of Custody Records and Shipping Documentation.

## 5. Laboratories Receiving Samples:

Sample Matrix	Analyses	Laboratory
Soil and Aqueous (Rinsate Blanks)	TAL Metals	A4 Scientific Inc. 1544 Sawdust Rd. Suite 505 The Woodlands, TX 77380
Soil	TCLP Metals	EPA DESA Laboratory 2890 Woodbridge Ave. Edison, NJ 08837

TCLP = Toxicity Characteristic Leaching Procedure  
DESA = Division of Environmental Science and Assessment

TAL = Target Analyte List

## 6. Personnel On Site:

Name	Representing	Duties On-Site
Shawna Hoppe	U.S EPA, Region II	On-Scene Coordinator
Cris D'Onofrio	U.S EPA, Region II	On-Scene Coordinator
David Rosoff	U.S EPA, Region II	On-Scene Coordinator
Keith Glenn	U.S EPA, Region II	On-Scene Coordinator
Joel Petty	RST 2, Region II	Site Project Manager, Site H&S, Field Sample Collection, Sample Management
Britney Kelly	RST 2, Region II	XRF Technician, Sample Management
Mark Conover	RST 2, Region II	Sample Collection
Peter Lisichenko	RST 2, Region II	Sample Collection
Steven O'Brien	RST 2, Region II	Sample Collection
Michael Garibaldi	RST 2, Region II	Sample Collection
Sean Hettinger	RST 2, Region II	Sample Collection
Lionel Montanez	RST 2, Region II	Sample Collection

## 7. Analytical Discussion

Based on the XRF screening data results of the composite soil samples collected, lead was detected at concentrations ranging from 24 milligrams per kilogram (mg/kg) to 3,227 mg/kg. Quadrants P001-SS001, P001-SS003, P001-SS009, P001-SS012, P001-SS013, P001-SS014, P001-SS015, P001-SS017, P001-SS019, P001-SS023, P001-SS026, P001-SS027, P001-SS028, P001-SS029, P001-SS030, P001-SS031, P001-SS032, P002-SS001, P002-SS002, and P006-SS001 contained samples with lead results exceeding the New Jersey Administrative Code (NJAC) Residential Direct Contact Soil Remediation Standard of 400 mg/kg. Refer to Attachment B, Table 1: X-Ray Fluorescence (XRF) Soil Screening Results for Lead – Composite Samples.

Based on the XRF screening data results of the discrete soil samples collected from the four corners of the Site, lead was detected at concentrations ranging from 20 mg/kg to 494 mg/kg. P001-SS034-D contained a sample with lead results exceeding the NJAC Residential Direct Contact Soil Remediation Standard of 400 mg/kg. Refer to Attachment B, Table 2: X-Ray Fluorescence (XRF) Soil Screening Results for Lead – Discrete Samples.

Based on the XRF screening data results of the discrete soil samples collected from the four quadrants of the Site in which the composite samples contained the greatest amounts of lead, lead was detected at concentrations ranging from 19 mg/kg to 6,863 mg/kg. P001-SS012-F, P001-SS012-G, P001-SS012-H, P001-SS012-I, P001-SS013-F, P001-SS013-H, P001-SS013-I, P001-SS014-G, P001-SS014-I, P001-SS015-F, P001-SS015-G, P001-SS015-H, and P001-SS015-I contained samples with lead results exceeding the NJAC Residential Direct Contact Soil Remediation Standard of 400 mg/kg. Refer to Attachment B, Table 2: X-Ray Fluorescence (XRF) Soil Screening Results for Lead – Discrete Samples.

Based on the XRF screening data results of the composite soil samples collected from the Site, the following metals (chosen by the OSC) were detected (maximum concentration and sample location in parentheses): antimony (28 mg/kg in P001-SS014-0206-001); arsenic (91 mg/kg in P001-SS014-1218-001); cadmium (15 mg/kg in P001-SS015-1824-001); chromium (133 mg/kg in P001-SS017-0002-001); cobalt (1,721 mg/kg in P001-SS033-1824-001); copper (730 mg/kg in P001-SS014-0206-001); iron (53,490 mg/kg in P001-SS033-1824-001); manganese (746 mg/kg in P001-SS033-1824-001); nickel (86 mg/kg in P001-SS030-0206-001); tin (4,061 mg/kg in P001-SS015-1824-001); and zinc (1,406 mg/kg in P001-SS015-1824-001). In addition, two of these metals (arsenic and cobalt) were detected in soil samples collected from the Site at concentrations above the NJAC Residential Direct Contact Soil Remediation Standard. Refer to Attachment B, Table 3: X-Ray Fluorescence (XRF) Soil Screening Results for Metals – Composite Samples.

Based on the analytical results of the samples sent to a CLP laboratory, the following 21 TAL metals were detected in soil samples collected from the Site (maximum concentration and sample location in parentheses): aluminum (14,500 mg/kg in P001-SS022-A-0206-001); antimony (14.2 mg/kg in P001-SS015-1824-001); arsenic (8.0 mg/kg in P001-SS026-1824-001); barium (823 mg/kg in P001-SS003-1824-001); beryllium (0.65 mg/kg in P001-SS022-A-0206-001); cadmium (2.2 mg/kg in P001-SS026-1824-001); calcium (26,800 mg/kg in P001-SS003-1824-001); chromium (37.0 mg/kg in P001-SS001-A-0206-001); cobalt (12.6 mg/kg in P001-SS022-A-0206-001); copper (581 mg/kg in P001-SS015-1824-001); iron (30,000 mg/kg in P001-SS034-D-0612-001); lead (5,040 mg/kg in P001-SS009-1824-001); magnesium (4,510 mg/kg in P001-SS034-D-0612-001); manganese (546 mg/kg in P001-SS003-0206-001); nickel (44.0 mg/kg in P001-SS034-D-0612-001); potassium (1,740 mg/kg in P001-SS022-A-0206-001); selenium (1.6 J mg/kg in P001-SS026-1824-001 and P002-SS001-SOD-001); silver (24.5 mg/kg in P001-SS015-1824-001); sodium (1,280 mg/kg in P001-SS034-1218-001); vanadium (47.0 mg/kg in P001-SS022-A-0206-001); and zinc (1,290 mg/kg in P001-SS015-1824-001). In addition, lead was detected in soil samples at concentrations exceeding their NJAC Residential Direct Contact Soil Remediation Standard. Refer to Attachment B, Table 4: Validated Analytical Results for TAL Metals.

Based on the analytical results of the three samples sent to DESA, the following TCLP metal was detected in soil samples collected from the Site (maximum concentration and sample location in parentheses): lead [7.1 milligrams per liter (mg/L) in P001-SS015-1824-001]. Refer to Attachment B, Table 5: Validated Analytical Results for TCLP Metals.

8. Report Prepared By:

  
Joel Petty

Site Project Manager, RST 2

Date 11/24/12

9. Report Reviewed By:

  
Timothy Benton

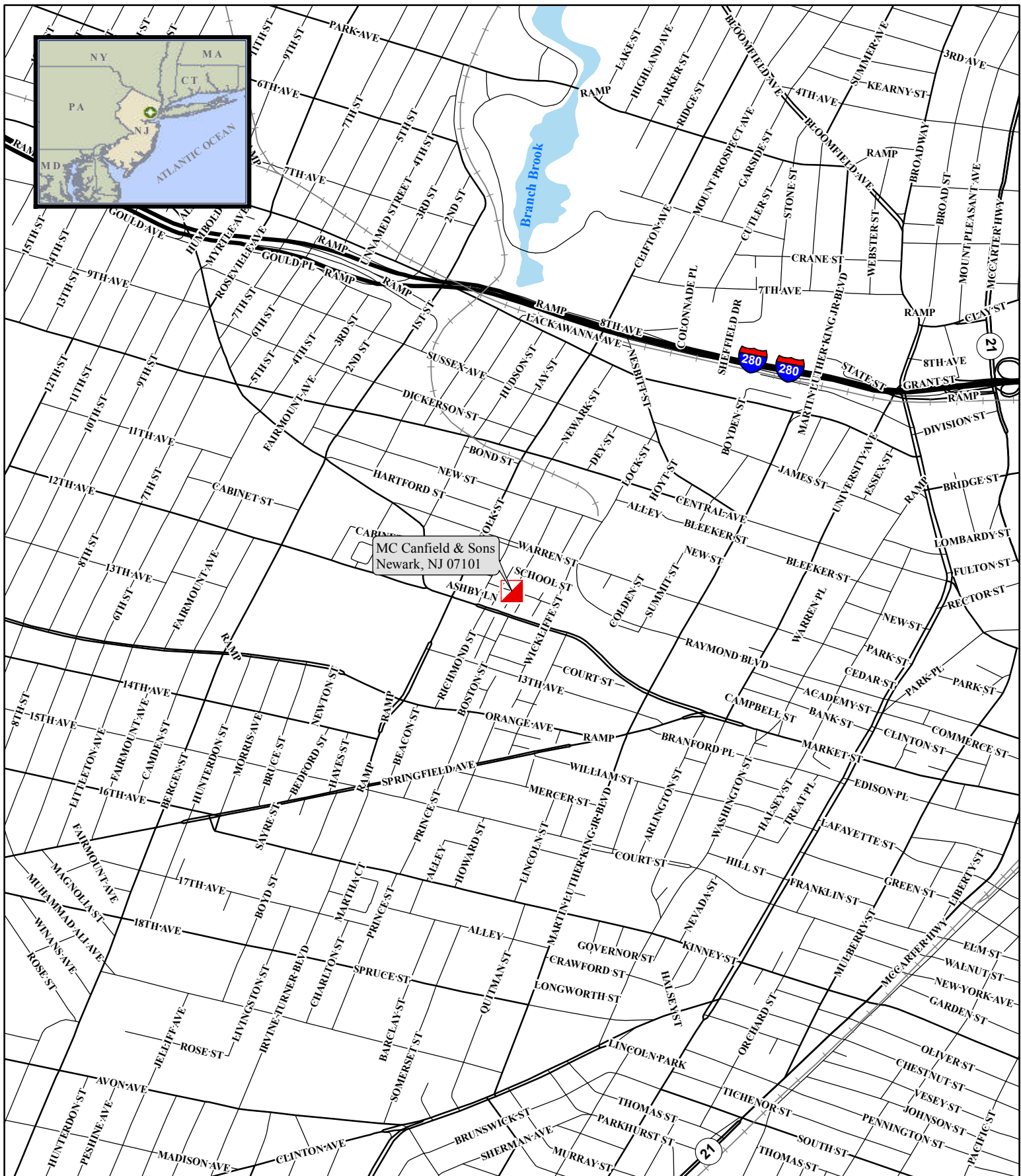
Operations Manager, RST 2

Date 11/24/12

---

## **ATTACHMENT A**

- Figure 1: Site Location Map
  - Figure 2: Sample Locations with XRF Lead Results
-



## Legend



**Site Location**

0 0.05 0.1 0.2 0.3 0.4  
Miles



**Weston Solutions, Inc.**  
Northeast Division

In Association With  
H & S Environmental, Inc.,  
Scientific and Environmental Associates, Inc.  
and Avatar Environmental, LLC.

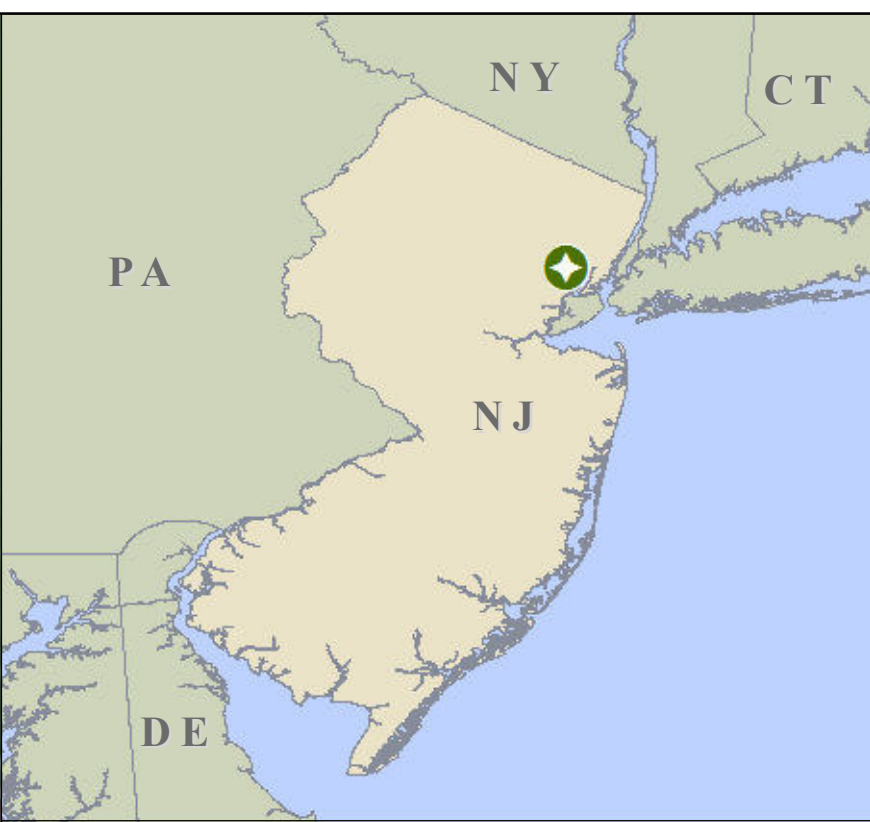
**Figure 1**  
**Site Location Map**

MC Canfield & Sons Site  
Newark, New Jersey

U.S. ENVIRONMENTAL PROTECTION AGENCY  
REMOVAL SUPPORT TEAM 2  
CONTRACT # EP-W-06-072

DATE MODIFIED: 8/15/2012  
GIS ANALYST: T. BENTON  
EPA OSC: S. HOPPE  
RST SPM: J. PETTY  
FILENAME: SITEMAP.MXD





SCALE  
1:450

LEGEND  
⊕ XRF Composite Location  
⊕ XRF Composite Location (Dripline)  
Composite Sampling Grid

NOTES:  
\* ALL RESULTS ARE DEPICTED IN PARTS PER MILLION (PPM).  
\* ALL RESULTS DEPICTED IN RED EXCEED THE NJ/DE RESIDENTIAL DIRECT CONTACT SOIL CLEANUP CRITERIA FOR LEAD.

Figure 2: Sample Locations  
w/ XRF Lead Results

MC CANFIELD & SONS SITE  
NEWARK, NEW JERSEY  
UNITED STATES ENVIRONMENTAL  
PROTECTION AGENCY  
REMOVAL SUPPORT TEAM 2  
CONTRACT # EP-W-06-072

Weston Solutions, Inc.  
Northeast Division

In Association With  
Avatar Environmental, LLC,  
Innovative Technological Solutions, Inc. &  
Scientific and Environmental Associates, Inc.

GIS ANALYST:	F. CAMPBELL
EPA OSC:	S. HOPPE
RST SPM:	J. PETTY
FILENAME:	OV ASSESSMENT.MXD
FIGURE:	1
REVISION:	1
DATE MODIFIED:	10/26/2012





---

## **ATTACHMENT B**

- Table 1: X-Ray Fluorescence (XRF) Soil Screening Results for Lead – Composite Samples
  - Table 2: X-Ray Fluorescence (XRF) Soil Screening Results for Lead – Discrete Samples
  - Table 3: X-Ray Fluorescence (XRF) Soil Screening Results for Metals – Composite Samples
  - Table 4: Validated Analytical Results for TAL Metals
  - Table 5: Validated Analytical Results for TCLP Metals
-

**Table 1**  
**MC Canfield and Sons Site**  
**X-Ray Fluorescence (XRF) Soil Screening Results for Lead**  
**Composite Samples**  
**August 20 - 30, 2012**

Property Number	Sample Location	Sample Depth	Sample Date	Collection Time	Test 1		Test 2		Test 3		Average
					Result	{ +/- }	Result	{ +/- }	Result	{ +/- }	
P001	SS001	0002	8/21/12	0925	159	6	163	7	144	6	155
P001	SS001	0206	8/21/12	0940	451	11	304	9	362	10	372
P001	SS001	0612	8/21/12	0945	285	9	359	10	299	9	314
P001	SS001	1218	8/21/12	0955	322	10	287	9	328	9	312
P001	SS001	1824	8/21/12	1010	388	10	425	11	461	11	425
P001	SS002	SOD	8/21/12	0917	89	5	62	4	68	4	73
P001	SS002	0002	8/21/12	0920	123	6	122	6	138	5	128
P001	SS002	0206	8/21/12	0930	269	8	232	8	243	8	248
P001	SS002	0612	8/21/12	0935	145	6	194	7	184	7	174
P001	SS002	1218	8/21/12	0940	181	7	140	6	147	6	156
P001	SS002	1824	8/21/12	0950	227	8	174	7	177	7	193
P001	SS003	SOD	8/23/12	1345	106	5	104	5	60	4	90
P001	SS003	0002	8/23/12	1350	203	7	117	6	111	5	144
P001	SS003	0206	8/23/12	1540	273	9	310	10	232	8	272
P001	SS003	0612	8/23/12	1550	731	15	719	15	947	18	799
P001	SS003	1218	8/23/12	1600	382	11	432	11	1,193	21	669
P001	SS003	1824	8/23/12	1615	1,339	22	1,354	23	1,591	25	1,428
P001	SS004	SOD	8/22/12	1529	67	5	80	5	76	5	74
P001	SS004	0002	8/22/12	1530	64	5	73	5	52	4	63
P001	SS004	0206	8/22/12	1550	147	7	155	7	153	7	152
P001	SS004	0612	8/22/12	1615	245	8	224	8	265	9	245
P001	SS004	1218	8/22/12	1635	210	8	177	8	209	8	199
P001	SS004	1824	8/22/12	1645	245	8	249	8	206	8	233
P001	SS005	SOD	8/23/12	0850	135	6	125	5	116	5	125
P001	SS005	0002	8/23/12	0910	165	6	182	7	163	6	170
P001	SS005	0206	8/23/12	0915	214	7	191	7	194	7	200
P001	SS005	0612	8/23/12	0955	316	9	234	8	268	8	273
P001	SS005	1218	8/23/12	1115	240	8	216	7	241	8	232
P001	SS005	1824	8/23/12	1320	234	8	194	7	231	8	220
P001	SS006	SOD	8/23/12	0855	96	5	85	5	97	5	93
P001	SS006	0002	8/23/12	0900	91	5	99	5	83	5	91
P001	SS006	0206	8/23/12	0930	176	7	149	6	115	5	147
P001	SS006	0612	8/23/12	0945	143	7	157	7	169	7	156
P001	SS006	1218	8/23/12	1110	213	8	193	8	147	6	184
P001	SS006	1824	8/23/12	1330	76	5	120	6	89	5	95
P001	SS007	SOD	8/21/12	1300	58	4	44	4	43	4	48
P001	SS007	0002	8/21/12	1310	41	4	59	4	64	4	55
P001	SS007	0206	8/21/12	1320	140	6	89	5	94	5	108
P001	SS007	0612	8/21/12	1335	100	5	129	6	81	5	103
P001	SS007	1218	8/21/12	1340	88	5	92	5	50	4	77
P001	SS007	1824	8/21/12	1345	64	4	68	5	73	5	68

**Table 1**  
**MC Canfield and Sons Site**  
**X-Ray Fluorescence (XRF) Soil Screening Results for Lead**  
**Composite Samples**  
**August 20 - 30, 2012**

Property Number	Sample Location	Sample Depth	Sample Date	Collection Time	Test 1		Test 2		Test 3		Average
					Result	{ +/- }	Result	{ +/- }	Result	{ +/- }	
P001	SS008	SOD	8/21/12	1110	103	5	64	4	80	5	<b>82</b>
P001	SS008	0002	8/21/12	1115	42	4	55	4	92	5	<b>63</b>
P001	SS008	0206	8/21/12	1125	77	4	72	5	72	4	<b>74</b>
P001	SS008	0612	8/21/12	1140	205	7	208	7	192	7	<b>202</b>
P001	SS008	1218	8/21/12	1150	282	9	239	8	256	8	<b>259</b>
P001	SS008	1824	8/21/12	1200	225	8	211	7	218	7	<b>218</b>
P001	SS009	SOD	8/23/12	1430	148	6	146	6	194	8	<b>163</b>
P001	SS009	0002	8/23/12	1405	138	6	173	7	112	5	<b>141</b>
P001	SS009	0206	8/23/12	1435	140	7	194	8	170	7	<b>168</b>
P001	SS009	0612	8/23/12	1500	339	10	322	10	331	10	<b>331</b>
P001	SS009	1218	8/23/12	1550	313	12	504	12	561	13	<b>459</b>
P001	SS009	1824	8/23/12	1605	663	14	452	11	902	17	<b>672</b>
P001	SS010	SOD	8/22/12	1500	233	9	201	8	231	8	<b>222</b>
P001	SS010	0002	8/22/12	1505	168	6	126	5	162	6	<b>152</b>
P001	SS010	0206	8/22/12	1515	386	11	223	7	366	10	<b>325</b>
P001	SS010	0612	8/22/12	1535	378	11	483	12	249	8	<b>370</b>
P001	SS010	1218	8/22/12	1545	382	10	275	8	324	9	<b>327</b>
P001	SS010	1824	8/22/12	1605	274	11	467	11	339	10	<b>360</b>
P001	SS011	SOD	8/28/12	1130	209	7	222	7	195	7	<b>209</b>
P001	SS011	0002	8/28/12	1135	284	8	211	8	258	8	<b>251</b>
P001	SS011	0206	8/28/12	1210	187	7	214	7	144	6	<b>182</b>
P001	SS011	0612	8/28/12	1245	124	6	267	8	149	6	<b>180</b>
P001	SS011	1218	8/28/12	1350	166	7	246	8	141	6	<b>184</b>
P001	SS011	1824	8/28/12	1415	85	5	180	7	52	4	<b>106</b>
P001	SS012	SOD	8/20/12	1500	464	10	373	8	398	10	<b>412</b>
P001	SS012	0002	8/20/12	1510	628	14	1,069	18	324	9	<b>674</b>
P001	SS012	0206	8/20/12	1515	369	11	321	9	398	11	<b>363</b>
P001	SS012	0612	8/20/12	1525	2,538	37	486	12	625	14	<b>1,216</b>
P001	SS012	1218	8/20/12	1535	1,462	24	1,479	24	690	14	<b>1,210</b>
P001	SS012	1824	8/20/12	1545	493	12	369	10	733	15	<b>532</b>
P001	SS013	SOD	8/20/12	1045	540	13	361	10	287	9	<b>396</b>
P001	SS013	0002	8/20/12	1058	443	11	1,397	23	611	13	<b>817</b>
P001	SS013	0206	8/20/12	1115	779	15	750	15	669	14	<b>733</b>
P001	SS013	0612	8/20/12	1120	748	16	1,058	21	1,068	19	<b>958</b>
P001	SS013	1218	8/20/12	1138	718	15	806	16	849	17	<b>791</b>
P001	SS013	1824	8/20/12	1200	935	18	507	12	410	11	<b>617</b>
P001	SS014	SOD	8/20/12	1220	859	15	188	6	433	11	<b>493</b>
P001	SS014	0002	8/20/12	1225	266	8	355	10	290	8	<b>304</b>
P001	SS014	0206	8/20/12	1235	1,858	28	623	14	2,202	32	<b>1,561</b>
P001	SS014	0612	8/20/12	1335	1,150	21	990	19	910	18	<b>1,017</b>
P001	SS014	1218	8/20/12	1348	2,790	42	1,773	27	2,249	32	<b>2,271</b>
P001	SS014	1824	8/20/12	1408	574	15	560	13	751	15	<b>628</b>

Results in parts per million (ppm)

Results exceeding the New Jersey Administrative  
Code Residential Direct Contact Soil Remediation  
Standard (400 ppm) highlighted in red

**Table 1**  
**MC Canfield and Sons Site**  
**X-Ray Fluorescence (XRF) Soil Screening Results for Lead**  
**Composite Samples**  
**August 20 - 30, 2012**

Property Number	Sample Location	Sample Depth	Sample Date	Collection Time	Test 1		Test 2		Test 3		Average
					Result	{ +/- }	Result	{ +/- }	Result	{ +/- }	
P001	SS015	SOD	8/20/12	1035	287	8	299	9	227	8	271
P001	SS015	0002	8/20/12	1040	295	8	246	7	901	16	481
P001	SS015	0206	8/20/12	1045	702	15	552	13	535	12	596
P001	SS015	0612	8/20/12	1100	447	11	644	13	667	14	586
P001	SS015	1218	8/20/12	1110	547	13	472	11	437	11	485
P001	SS015	1824	8/20/12	1125	2,908	40	1,566	25	5,206	72	3,227
P001	SS016	SOD	8/24/12	0907	147	6	134	6	146	6	142
P001	SS016	0002	8/24/12	0910	129	5	121	5	197	6	149
P001	SS016	0206	8/24/12	0925	163	6	170	7	191	7	175
P001	SS016	0612	8/24/12	0940	145	7	169	7	189	7	168
P001	SS016	1218	8/24/12	1015	171	7	161	5	131	6	154
P001	SS016	1824	8/24/12	1035	92	6	82	5	76	5	83
P001	SS017	SOD	8/22/12	1315	589	12	287	7	386	10	421
P001	SS017	0002	8/22/12	1317	438	11	528	12	449	11	472
P001	SS017	0206	8/22/12	1336	384	11	459	12	323	9	389
P001	SS017	0612	8/22/12	1352	273	8	282	9	232	8	262
P001	SS017	1218	8/22/12	1417	177	7	182	7	238	8	199
P001	SS017	1824	8/22/12	1450	171	8	132	6	107	6	137
P001	SS018	SOD	8/24/12	1110	124	5	106	5	85	5	105
P001	SS018	0002	8/24/12	1120	160	6	142	6	156	6	153
P001	SS018	0206	8/24/12	1155	443	11	228	8	180	7	284
P001	SS018	0612	8/24/12	1201	168	7	228	8	249	8	215
P001	SS018	1218	8/24/12	1240	176	7	70	5	240	9	162
P001	SS018	1824	8/24/12	1302	166	7	197	7	192	7	185
P001	SS019	SOD	8/24/12	1155	479	11	535	12	510	12	508
P001	SS019	0002	8/24/12	1156	474	11	432	11	476	11	461
P001	SS019	0206	8/24/12	1432	337	10	295	9	255	8	296
P001	SS019	0612	8/24/12	1437	266	9	225	8	245	8	245
P001	SS019	1218	8/24/12	1441	145	7	133	6	196	7	158
P001	SS019	1824	8/24/12	1445	163	6	165	7	205	7	178
P001	SS020	SOD	8/22/12	0840	177	7	173	7	162	7	171
P001	SS020	0002	8/22/12	0845	105	6	159	7	139	6	134
P001	SS020	0206	8/22/12	0915	190	7	171	7	223	8	195
P001	SS020	0612	8/22/12	0940	376	10	195	7	375	10	315
P001	SS020	1218	8/22/12	1015	392	10	279	9	315	9	329
P001	SS020	1824	8/22/12	1035	293	9	213	7	172	7	226
P001	SS021	SOD	8/20/12	1545	121	5	48	5	96	5	88
P001	SS021	0002	8/20/12	1550	110	7	122	6	123	5	118
P001	SS021	0206	8/20/12	1610	230	8	188	8	227	8	215
P001	SS021	0612	8/20/12	1620	191	7	299	9	269	8	253
P001	SS021	1218	8/20/12	1640	134	6	104	5	487	12	242
P001	SS021	1824	8/20/12	1655	137	7	264	8	132	6	178

Results in parts per million (ppm)

Results exceeding the New Jersey Administrative

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Standard (400 ppm) highlighted in red

**Table 1**  
**MC Canfield and Sons Site**  
**X-Ray Fluorescence (XRF) Soil Screening Results for Lead**  
**Composite Samples**  
**August 20 - 30, 2012**

Property Number	Sample Location	Sample Depth	Sample Date	Collection Time	Test 1		Test 2		Test 3		Average
					Result	{ +/- }	Result	{ +/- }	Result	{ +/- }	
P001	SS022	0002	8/22/12	1055	221	8	287	9	267	8	<b>258</b>
P001	SS022	0206	8/22/12	1105	108	6	27	4	132	6	<b>89</b>
P001	SS022	0612	8/22/12	1115	43	4	27	4	33	4	<b>34</b>
P001	SS022	1218	8/22/12	1143	68	5	41	4	43	4	<b>51</b>
P001	SS022	1824	8/22/12	1204	24	4	29	4	19	3	<b>24</b>
P001	SS023	SOD	8/22/12	1300	301	9	616	13	642	13	<b>520</b>
P001	SS023	0002	8/22/12	1103	358	9	404	10	454	11	<b>405</b>
P001	SS023	0206	8/22/12	1120	871	16	876	18	526	13	<b>758</b>
P001	SS023	0612	8/22/12	1145	190	7	301	9	887	16	<b>459</b>
P001	SS023	1218	8/22/12	1205	398	13	760	17	512	13	<b>557</b>
P001	SS023	1824	8/22/12	1225	462	12	100	5	316	11	<b>293</b>
P001	SS024	0002	8/20/12	1330	90	4	116	5	116	4	<b>107</b>
P001	SS024	0206	8/20/12	1345	222	7	289	8	313	8	<b>274</b>
P001	SS024	0612	8/20/12	1404	270	9	275	9	267	8	<b>271</b>
P001	SS024	1218	8/20/12	1415	300	9	332	10	316	10	<b>316</b>
P001	SS024	1824	8/20/12	1425	289	9	271	9	314	9	<b>291</b>
P001	SS025	SOD	8/22/12	1445	233	7	187	7	289	8	<b>236</b>
P001	SS025	0002	8/22/12	1325	317	9	197	8	312	9	<b>275</b>
P001	SS025	0206	8/22/12	1351	285	10	176	8	212	9	<b>224</b>
P001	SS025	0612	8/22/12	1400	151	7	231	8	277	9	<b>220</b>
P001	SS025	1218	8/22/12	1430	138	7	124	6	323	9	<b>195</b>
P001	SS025	1824	8/22/12	1435	205	9	219	8	182	7	<b>202</b>
P001	SS026	SOD	8/28/12	1154	464	10	299	8	443	10	<b>402</b>
P001	SS026	0002	8/28/12	1156	398	10	321	9	285	9	<b>335</b>
P001	SS026	0206	8/28/12	1210	394	11	242	8	249	8	<b>295</b>
P001	SS026	0612	8/28/12	1228	328	9	468	12	262	8	<b>353</b>
P001	SS026	1218	8/28/12	1235	326	9	400	11	409	10	<b>378</b>
P001	SS026	1824	8/28/12	1248	1,530	24	1,826	28	1,642	26	<b>1,666</b>
P001	SS027	SOD	8/24/12	0915	537	12	541	12	417	9	<b>498</b>
P001	SS027	0002	8/24/12	0920	474	11	391	10	350	9	<b>405</b>
P001	SS027	0206	8/24/12	0925	219	8	375	11	538	12	<b>377</b>
P001	SS027	0612	8/24/12	0945	212	7	195	7	174	7	<b>194</b>
P001	SS027	1218	8/24/12	1001	195	7	130	6	150	6	<b>158</b>
P001	SS027	1824	8/24/12	1015	197	7	157	7	124	6	<b>159</b>
P001	SS028	SOD	8/27/12	0900	513	12	407	10	490	11	<b>470</b>
P001	SS028	0002	8/27/12	0905	446	11	667	14	684	13	<b>599</b>
P001	SS028	0206	8/27/12	0930	393	11	389	10	345	10	<b>376</b>
P001	SS028	0612	8/27/12	0950	294	8	229	8	239	8	<b>254</b>
P001	SS028	1218	8/27/12	1000	299	9	301	9	308	9	<b>303</b>
P001	SS028	1824	8/27/12	1015	295	9	111	6	318	9	<b>241</b>

Results in parts per million (ppm)

Results exceeding the New Jersey Administrative

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Standard (400 ppm) highlighted in red

**Table 1**  
**MC Canfield and Sons Site**  
**X-Ray Fluorescence (XRF) Soil Screening Results for Lead**  
**Composite Samples**  
**August 20 - 30, 2012**

Property Number	Sample Location	Sample Depth	Sample Date	Collection Time	Test 1		Test 2		Test 3		Average
					Result	{ +/- }	Result	{ +/- }	Result	{ +/- }	
P001	SS029	SOD	8/24/12	1418	796	15	683	14	601	13	<b>693</b>
P001	SS029	0002	8/24/12	1420	674	14	689	13	630	13	<b>664</b>
P001	SS029	0206	8/24/12	1445	527	12	510	12	598	13	<b>545</b>
P001	SS029	0612	8/24/12	1500	158	6	261	9	220	8	<b>213</b>
P001	SS029	1218	8/24/12	1515	348	10	335	10	242	8	<b>308</b>
P001	SS029	1824	8/24/12	1535	137	6	111	6	228	8	<b>159</b>
P001	SS030	SOD	8/27/12	0900	563	12	571	12	523	11	<b>552</b>
P001	SS030	0002	8/27/12	0910	469	10	411	10	494	11	<b>458</b>
P001	SS030	0206	8/27/12	0925	569	13	471	11	554	12	<b>531</b>
P001	SS030	0612	8/27/12	0930	274	9	260	8	275	9	<b>270</b>
P001	SS030	1218	8/27/12	1015	316	9	249	8	220	8	<b>262</b>
P001	SS030	1824	8/27/12	1105	208	8	295	9	193	7	<b>232</b>
P001	SS031	SOD	8/28/12	0835	605	14	591	13	604	13	<b>600</b>
P001	SS031	0002	8/28/12	0840	478	12	476	12	455	11	<b>470</b>
P001	SS031	0206	8/28/12	0900	546	13	556	13	596	13	<b>566</b>
P001	SS031	0612	8/28/12	0924	581	13	518	12	598	13	<b>566</b>
P001	SS031	1218	8/28/12	1050	434	11	405	10	460	11	<b>433</b>
P001	SS031	1824	8/28/12	1105	466	11	521	12	471	12	<b>486</b>
P001	SS032	SOD	8/28/12	0848	206	7	241	8	226	8	<b>224</b>
P001	SS032	0002	8/28/12	0840	377	10	383	10	349	10	<b>370</b>
P001	SS032	0206	8/28/12	0920	227	8	253	8	254	8	<b>245</b>
P001	SS032	0612	8/28/12	1030	461	12	472	12	437	11	<b>457</b>
P001	SS032	1218	8/28/12	1045	249	9	274	9	260	8	<b>261</b>
P001	SS032	1824	8/28/12	1100	317	9	260	9	-	-	<b>289</b>
P001	SS033	SOD	8/22/12	0840	209	7	224	8	134	7	<b>189</b>
P001	SS033	0002	8/22/12	0850	84	5	237	8	22	3	<b>114</b>
P001	SS033	0206	8/22/12	0855	382	10	392	10	153	6	<b>309</b>
P001	SS033	0612	8/22/12	0930	166	7	197	8	198	7	<b>187</b>
P001	SS033	1218	8/22/12	0952	162	7	147	7	185	7	<b>165</b>
P001	SS033	1824	8/22/12	1010	79	6	123	7	95	6	<b>99</b>
P001	SS034	SOD	8/21/12	1450	273	8	401	10	230	8	<b>301</b>
P001	SS034	0002	8/21/12	1455	322	9	201	7	511	11	<b>345</b>
P001	SS034	0206	8/21/12	1500	244	8	323	9	433	11	<b>333</b>
P001	SS034	0612	8/21/12	1510	357	10	324	9	249	8	<b>310</b>
P001	SS034	1218	8/21/12	1520	689	15	248	8	204	7	<b>380</b>
P001	SS034	1824	8/21/12	1540	129	6	121	6	106	7	<b>119</b>

Results in parts per million (ppm)

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**Table 1**  
**MC Canfield and Sons Site**  
**X-Ray Fluorescence (XRF) Soil Screening Results for Lead**  
**Composite Samples**  
**August 20 - 30, 2012**

Property Number	Sample Location	Sample Depth	Sample Date	Collection Time	Test 1		Test 2		Test 3		Average
					Result	{+/-}	Result	{+/-}	Result	{+/-}	
P002	SS001	SOD	8/28/12	1515	269	8	2,021	30	892	16	<b>1,061</b>
P002	SS001	0002	8/28/12	1520	1,747	26	1,534	23	1,461	23	<b>1,581</b>
P002	SS001	0206	8/28/12	1530	1,370	21	1,266	20	877	16	<b>1,171</b>
P002	SS001	0612	8/28/12	1548	417	10	382	10	315	9	<b>371</b>
P002	SS001	1218	8/28/12	1553	110	5	123	6	124	6	<b>119</b>
P002	SS001	1824	8/28/12	1606	226	8	268	8	261	8	<b>252</b>
P002	SS002	SOD	8/28/12	1540	1,894	27	2,338	33	1,644	24	<b>1,959</b>
P002	SS002	0002	8/28/12	1545	1,396	22	1,818	26	1,514	22	<b>1,576</b>
P002	SS002	0206	8/28/12	1550	357	10	592	13	613	12	<b>521</b>
P002	SS002	0612	8/28/12	1600	219	7	119	6	377	10	<b>238</b>
P002	SS002	1218	8/28/12	1611	49	4	95	5	196	7	<b>113</b>
P002	SS002	1824	8/28/12	1622	102	5	186	7	94	5	<b>127</b>
P005	SS001	0002	8/30/12	0900	251	8	281	8	301	8	<b>278</b>
P005	SS001	0206	8/30/12	0906	283	8	308	9	299	9	<b>297</b>
P005	SS001	0612	8/30/12	0917	296	9	281	9	266	8	<b>281</b>
P005	SS001	1218	8/30/12	1005	183	7	149	6	189	7	<b>174</b>
P005	SS001	1824	8/30/12	1045	161	7	142	6	141	6	<b>148</b>
P006	SS001	0002	8/30/12	0904	286	8	262	8	222	7	<b>257</b>
P006	SS001	0206	8/30/12	0925	244	8	395	10	280	8	<b>306</b>
P006	SS001	0612	8/30/12	0930	338	9	419	10	371	10	<b>376</b>
P006	SS001	1218	8/30/12	1005	314	9	376	10	341	9	<b>344</b>
P006	SS001	1824	8/30/12	1010	521	12	373	10	380	10	<b>425</b>
P007	SS001	0002	8/30/12	1200	218	7	247	8	244	8	<b>236</b>
P007	SS001	0206	8/30/12	1230	174	7	181	7	173	7	<b>176</b>
P007	SS001	0612	8/30/12	1245	170	7	155	7	139	6	<b>155</b>
P007	SS001	1218	8/30/12	1300	126	6	157	7	136	6	<b>140</b>
P007	SS001	1824	8/30/12	1305	94	5	135	6	135	6	<b>121</b>
P008	SS001	0002	8/30/12	1145	106	6	72	5	70	5	<b>83</b>
P008	SS001	0206	8/30/12	1159	135	6	109	5	117	6	<b>120</b>
P008	SS001	0612	8/30/12	1205	118	6	152	6	124	6	<b>131</b>
P008	SS001	1218	8/30/12	1210	118	6	105	5	108	5	<b>110</b>
P008	SS001	1824	8/30/12	1225	107	5	123	6	146	6	<b>125</b>

**Table 2**  
**MC Canfield and Sons Site**  
**X-Ray Fluorescence (XRF) Soil Screening Results for Lead**  
**Discrete Samples**  
**August 21, 22, and 29, 2012**

Property Number	Sample Location	Sample Depth	Sample Date	Collection Time	Test 1		Test 2		Test 3		Average
					Result	{+/-}	Result	{+/-}	Result	{+/-}	
P001	SS001-A	0002	8/21/12	0925	179	7	159	6	157	7	<b>165</b>
P001	SS001-A	0206	8/21/12	0940	212	8	277	9	258	8	<b>249</b>
P001	SS001-A	0612	8/21/12	0945	283	9	260	9	377	11	<b>307</b>
P001	SS001-A	1218	8/21/12	0955	215	8	204	7	217	8	<b>212</b>
P001	SS001-A	1824	8/21/12	1010	178	7	139	6	131	6	<b>149</b>
P001	SS007-B	0002	8/21/12	1310	63	4	43	3	42	3	<b>49</b>
P001	SS007-B	0206	8/21/12	1320	101	5	87	5	92	5	<b>93</b>
P001	SS007-B	0612	8/21/12	1335	78	5	80	5	81	5	<b>80</b>
P001	SS007-B	1218	8/21/12	1340	76	5	74	5	68	5	<b>73</b>
P001	SS007-B	1824	8/21/12	1345	67	4	73	5	69	5	<b>70</b>
P001	SS012-F	0002	8/29/12	0858	197	7	192	7	209	7	<b>199</b>
P001	SS012-F	0206	8/29/12	0902	442	12	460	11	596	13	<b>499</b>
P001	SS012-F	0612	8/29/12	0940	332	9	296	9	327	10	<b>318</b>
P001	SS012-F	1218	8/29/12	0950	462	11	437	11	467	11	<b>455</b>
P001	SS012-F	1824	8/29/12	1010	330	9	394	10	576	13	<b>433</b>
P001	SS012-G	0002	8/29/12	0855	554	13	531	12	570	13	<b>552</b>
P001	SS012-G	0206	8/29/12	0905	533	12	513	12	533	12	<b>526</b>
P001	SS012-G	0612	8/29/12	0910	666	14	634	13	526	12	<b>609</b>
P001	SS012-G	1218	8/29/12	0915	427	11	423	11	490	12	<b>447</b>
P001	SS012-G	1824	8/29/12	0921	440	11	407	10	442	11	<b>430</b>
P001	SS012-H	0002	8/29/12	1000	2,113	37	1,638	26	1,468	23	<b>1,740</b>
P001	SS012-H	0206	8/29/12	1005	1,307	23	1,913	33	600	15	<b>1,273</b>
P001	SS012-H	0612	8/29/12	1010	1,043	19	946	19	1,080	19	<b>1,023</b>
P001	SS012-H	1218	8/29/12	1015	1,149	21	878	23	2,206	31	<b>1,411</b>
P001	SS012-H	1824	8/29/12	1020	1,175	22	1,314	22	1,351	22	<b>1,280</b>
P001	SS012-I	0002	8/29/12	0935	277	9	228	7	237	8	<b>247</b>
P001	SS012-I	0206	8/29/12	0940	447	11	441	11	462	12	<b>450</b>
P001	SS012-I	0612	8/29/12	0945	1,190	20	1,112	19	1,489	24	<b>1,264</b>
P001	SS012-I	1218	8/29/12	0950	4,082	55	3,577	57	2,776	39	<b>3,478</b>
P001	SS012-I	1824	8/29/12	0955	1,902	29	1,564	25	1,858	27	<b>1,775</b>
P001	SS013-F	0002	8/29/12	1418	352	10	328	10	324	10	<b>335</b>
P001	SS013-F	0206	8/29/12	1420	442	11	565	13	468	12	<b>492</b>
P001	SS013-F	0612	8/29/12	1425	433	11	354	9	328	9	<b>372</b>
P001	SS013-F	1218	8/29/12	1428	338	9	372	10	326	10	<b>345</b>
P001	SS013-F	1824	8/29/12	1435	408	11	385	11	366	10	<b>386</b>

Results in parts per million (ppm)  
Results exceeding the New Jersey Administrative  
Code Residential Direct Contact Soil Remediation  
Standard (400 ppm) highlighted in red



**Table 2**  
**MC Canfield and Sons Site**  
**X-Ray Fluorescence (XRF) Soil Screening Results for Lead**  
**Discrete Samples**  
**August 21, 22, and 29, 2012**

Property Number	Sample Location	Sample Depth	Sample Date	Collection Time	Test 1		Test 2		Test 3		Average
					Result	{+/-}	Result	{+/-}	Result	{+/-}	
P001	SS013-G	0002	8/29/12	1346	292	9	319	9	236	8	<b>282</b>
P001	SS013-G	0206	8/29/12	1350	258	8	314	9	521	12	<b>364</b>
P001	SS013-G	0612	8/29/12	1410	143	6	149	6	173	7	<b>155</b>
P001	SS013-G	1218	8/29/12	1415	39	4	33	4	29	4	<b>34</b>
P001	SS013-G	1824	8/29/12	1520	19	3	16	3	21	3	<b>19</b>
P001	SS013-H	0002	8/29/12	1336	234	8	197	6	208	7	<b>213</b>
P001	SS013-H	0206	8/29/12	1340	5,740	77	2,392	38	2,647	37	<b>3,593</b>
P001	SS013-H	0612	8/29/12	1345	916	19	755	21	1,440	30	<b>1,037</b>
P001	SS013-H	1218	8/29/12	1350	129	8	49	6	139	8	<b>106</b>
P001	SS013-H	1824	8/29/12	1355	118	7	48	6	38	5	<b>68</b>
P001	SS013-I	0002	8/29/12	1340	479	12	421	11	370	10	<b>423</b>
P001	SS013-I	0206	8/29/12	1350	1,281	21	1,557	26	973	17	<b>1,270</b>
P001	SS013-I	0612	8/29/12	1400	724	15	704	15	948	18	<b>792</b>
P001	SS013-I	1218	8/29/12	1410	944	18	2,209	33	1,200	21	<b>1,451</b>
P001	SS013-I	1824	8/29/12	1415	489	13	1,053	21	536	13	<b>693</b>
P001	SS014-F	0002	8/29/12	1020	302	9	396	10	378	10	<b>359</b>
P001	SS014-F	0206	8/29/12	1025	109	6	54	4	39	4	<b>67</b>
P001	SS014-F	0612	8/29/12	1030	157	7	133	6	151	6	<b>147</b>
P001	SS014-F	1218	8/29/12	1035	202	7	192	8	63	5	<b>152</b>
P001	SS014-F	1824	8/29/12	1040	25	3	16	3	46	4	<b>29</b>
P001	SS014-G	0002	8/29/12	1020	162	5	167	6	274	8	<b>201</b>
P001	SS014-G	0206	8/29/12	1025	1,390	23	1,511	24	1,178	20	<b>1,360</b>
P001	SS014-G	0612	8/29/12	1030	1,189	20	1,021	18	1,314	23	<b>1,175</b>
P001	SS014-G	1218	8/29/12	1035	2,753	38	2,668	37	1,993	32	<b>2,471</b>
P001	SS014-G	1824	8/29/12	1040	2,030	30	2,476	33	2,073	29	<b>2,193</b>
P001	SS014-H	0002	8/29/12	1125	141	6	163	6	142	6	<b>149</b>
P001	SS014-H	0206	8/29/12	1127	127	6	134	6	125	6	<b>129</b>
P001	SS014-H	0612	8/29/12	1135	96	5	101	5	103	5	<b>100</b>
P001	SS014-H	1218	8/29/12	1140	158	6	175	7	150	6	<b>161</b>
P001	SS014-H	1824	8/29/12	1145	124	6	112	6	107	5	<b>114</b>
P001	SS014-I	0002	8/29/12	1125	252	8	272	8	351	10	<b>292</b>
P001	SS014-I	0206	8/29/12	1127	319	10	619	14	272	10	<b>403</b>
P001	SS014-I	0612	8/29/12	1135	435	12	361	10	493	14	<b>430</b>
P001	SS014-I	1218	8/29/12	1140	268	9	455	12	667	16	<b>463</b>
P001	SS014-I	1824	8/29/12	1145	108	7	179	8	103	7	<b>130</b>

Results in parts per million (ppm)  
Results exceeding the New Jersey Administrative  
Code Residential Direct Contact Soil Remediation  
Standard (400 ppm) highlighted in red

**Table 2**  
**MC Canfield and Sons Site**  
**X-Ray Fluorescence (XRF) Soil Screening Results for Lead**  
**Discrete Samples**  
**August 21, 22, and 29, 2012**

Property Number	Sample Location	Sample Depth	Sample Date	Collection Time	Test 1		Test 2		Test 3		Average
					Result	{+/-}	Result	{+/-}	Result	{+/-}	
P001	SS015-F	0002	8/29/12	1335	404	11	137	6	371	10	<b>304</b>
P001	SS015-F	0206	8/29/12	1340	2,282	33	1,402	23	1,627	28	<b>1,770</b>
P001	SS015-F	0612	8/29/12	1345	1,837	28	1,667	27	1,422	23	<b>1,642</b>
P001	SS015-F	1218	8/29/12	1350	845	17	801	16	998	19	<b>881</b>
P001	SS015-F	1824	8/29/12	1355	839	16	522	12	273	9	<b>545</b>
P001	SS015-G	0002	8/29/12	1323	1,130	20	1,296	24	955	18	<b>1,127</b>
P001	SS015-G	0206	8/29/12	1326	2,876	41	3,151	46	2,937	41	<b>2,988</b>
P001	SS015-G	0612	8/29/12	1328	5,460	74	5,771	79	5,908	80	<b>5,713</b>
P001	SS015-G	1218	8/29/12	1332	3,931	53	4,950	67	3,928	53	<b>4,270</b>
P001	SS015-G	1824	8/29/12	1340	6,962	92	6,885	90	6,743	88	<b>6,863</b>
P001	SS015-H	0002	8/29/12	1301	135	6	136	6	151	6	<b>141</b>
P001	SS015-H	0206	8/29/12	1305	265	8	224	7	267	8	<b>252</b>
P001	SS015-H	0612	8/29/12	1320	388	10	583	13	364	10	<b>445</b>
P001	SS015-H	1218	8/29/12	1325	347	9	325	9	344	10	<b>339</b>
P001	SS015-H	1824	8/29/12	1335	330	9	331	10	374	11	<b>345</b>
P001	SS015-I	0002	8/29/12	1350	325	9	340	9	350	9	<b>338</b>
P001	SS015-I	0206	8/29/12	1400	338	9	318	9	317	9	<b>324</b>
P001	SS015-I	0612	8/29/12	1405	390	10	377	10	454	11	<b>407</b>
P001	SS015-I	1218	8/29/12	1410	463	11	561	13	420	11	<b>481</b>
P001	SS015-I	1824	8/29/12	1415	373	10	393	16	349	10	<b>372</b>
P001	SS022-A	0002	8/22/12	1053	38	4	45	4	50	4	<b>44</b>
P001	SS022-A	0206	8/22/12	1105	24	4	17	3	19	4	<b>20</b>
P001	SS022-A	0612	8/22/12	1120	36	4	67	5	32	4	<b>45</b>
P001	SS022-A	1218	8/22/12	1143	139	6	151	6	149	6	<b>146</b>
P001	SS022-A	1824	8/22/12	1200	38	4	40	4	40	4	<b>39</b>
P001	SS034-D	SOD	8/21/12	1450	183	7	171	7	185	7	<b>180</b>
P001	SS034-D	0002	8/21/12	1455	159	6	181	7	171	7	<b>170</b>
P001	SS034-D	0206	8/21/12	1500	321	9	306	9	339	10	<b>322</b>
P001	SS034-D	0612	8/21/12	1510	540	13	503	13	440	12	<b>494</b>
P001	SS034-D	1218	8/21/12	1520	216	8	207	8	214	8	<b>212</b>
P001	SS034-D	1824	8/21/12	1540	194	8	191	8	204	8	<b>196</b>

Table 3  
MC Canfield and Sons Site  
X-Ray Fluorescence (XRF) Soil Screening Results for Metals  
Composite Samples  
August 20 - 30, 2012

Property Number	Sample Location	Sample Depth	Sample Date	Collection Time	Antimony	Arsenic	Barium	Cadmium	Chromium	Cobalt	Copper	Iron	Manganese	Nickel	Selenium	Silver	Tin	Zinc
P001	SS001	0002	8/21/12	0925	< LOD	< LOD	< LOD	< LOD	< LOD	547	39	18,783	360	< LOD	< LOD	< LOD	< LOD	162
P001	SS001	0206	8/21/12	0940	< LOD	7	< LOD	< LOD	< LOD	796	52	19,872	379	< LOD	< LOD	< LOD	< LOD	256
P001	SS001	0612	8/21/12	0945	< LOD	12	< LOD	< LOD	< LOD	821	62	20,501	450	< LOD	< LOD	< LOD	< LOD	202
P001	SS001	1218	8/21/12	0955	< LOD	6	< LOD	< LOD	< LOD	781	54	20,198	389	< LOD	< LOD	< LOD	< LOD	199
P001	SS001	1824	8/21/12	1010	< LOD	23	< LOD	< LOD	< LOD	816	63	19,259	367	< LOD	< LOD	< LOD	< LOD	287
P001	SS002	SOD	8/21/12	0917	< LOD	3	< LOD	< LOD	< LOD	704	18	15,859	344	< LOD	< LOD	< LOD	< LOD	103
P001	SS002	0002	8/21/12	0920	< LOD	16	< LOD	< LOD	< LOD	667	32	17,260	371	< LOD	< LOD	< LOD	< LOD	131
P001	SS002	0206	8/21/12	0930	< LOD	14	< LOD	< LOD	< LOD	731	70	20,082	349	< LOD	< LOD	< LOD	188	207
P001	SS002	0612	8/21/12	0935	< LOD	< LOD	< LOD	< LOD	< LOD	856	48	21,667	377	< LOD	< LOD	< LOD	< LOD	122
P001	SS002	1218	8/21/12	0940	< LOD	< LOD	< LOD	< LOD	< LOD	753	53	21,129	339	< LOD	< LOD	< LOD	< LOD	106
P001	SS002	1824	8/21/12	0950	< LOD	< LOD	< LOD	< LOD	< LOD	658	51	16,785	304	< LOD	< LOD	< LOD	< LOD	138
P001	SS003	SOD	8/23/12	1345	< LOD	14	< LOD	< LOD	< LOD	950	38	20,115	481	< LOD	< LOD	< LOD	< LOD	144
P001	SS003	0002	8/23/12	1350	< LOD	4	< LOD	< LOD	< LOD	989	30	22,527	560	< LOD	< LOD	< LOD	< LOD	118
P001	SS003	0206	8/23/12	1540	< LOD	8	< LOD	< LOD	< LOD	1,503	62	36,469	579	< LOD	< LOD	< LOD	< LOD	192
P001	SS003	0612	8/23/12	1550	< LOD	48	< LOD	< LOD	< LOD	945	46	25,603	524	< LOD	< LOD	< LOD	< LOD	379
P001	SS003	1218	8/23/12	1600	25	43	< LOD	< LOD	< LOD	709	45	18,312	342	< LOD	< LOD	< LOD	< LOD	354
P001	SS003	1824	8/23/12	1615	< LOD	86	< LOD	< LOD	< LOD	926	54	20,969	430	< LOD	< LOD	< LOD	< LOD	945
P001	SS004	SOD	8/22/12	1529	< LOD	8	< LOD	< LOD	< LOD	896	36	22,258	457	< LOD	< LOD	< LOD	< LOD	130
P001	SS004	0002	8/22/12	1530	< LOD	< LOD	< LOD	< LOD	< LOD	712	48	20,267	440	< LOD	< LOD	< LOD	< LOD	118
P001	SS004	0206	8/22/12	1550	< LOD	9	< LOD	< LOD	< LOD	821	41	20,713	342	< LOD	< LOD	< LOD	< LOD	132
P001	SS004	0612	8/22/12	1615	< LOD	< LOD	< LOD	< LOD	< LOD	897	56	22,889	406	< LOD	< LOD	< LOD	< LOD	177
P001	SS004	1218	8/22/12	1635	< LOD	< LOD	< LOD	< LOD	< LOD	1,103	48	25,479	456	< LOD	< LOD	< LOD	< LOD	164
P001	SS004	1824	8/22/12	1645	< LOD	6	< LOD	< LOD	< LOD	853	50	20,135	323	< LOD	< LOD	< LOD	< LOD	161
P001	SS005	SOD	8/23/12	0850	< LOD	5	< LOD	< LOD	< LOD	664	29	16,064	355	< LOD	< LOD	< LOD	< LOD	166
P001	SS005	0002	8/23/12	0910	< LOD	< LOD	< LOD	< LOD	< LOD	732	31	16,600	435	< LOD	< LOD	< LOD	< LOD	192
P001	SS005	0206	8/23/12	0915	< LOD	12	< LOD	< LOD	< LOD	700	42	18,141	346	< LOD	< LOD	< LOD	< LOD	152
P001	SS005	0612	8/23/12	0955	< LOD	12	< LOD	< LOD	< LOD	745	44	17,538	576	< LOD	< LOD	< LOD	< LOD	179
P001	SS005	1218	8/23/12	1115	< LOD	7	< LOD	< LOD	< LOD	581	40	16,744	400	< LOD	< LOD	< LOD	< LOD	157
P001	SS005	1824	8/23/12	1320	< LOD	< LOD	< LOD	< LOD	< LOD	729	45	19,045	411	< LOD	< LOD	< LOD	< LOD	177
P001	SS006	SOD	8/23/12	0855	< LOD	< LOD	< LOD	< LOD	< LOD	549	30	15,050	314	< LOD	< LOD	< LOD	< LOD	149
P001	SS006	0002	8/23/12	0900	< LOD	3	< LOD	< LOD	< LOD	663	29	14,495	348	< LOD	< LOD	< LOD	< LOD	153
P001	SS006	0206	8/23/12	0930	< LOD	< LOD	< LOD	< LOD	< LOD	849	51	20,437	434	< LOD	< LOD	< LOD	< LOD	137
P001	SS006	0612	8/23/12	0945	< LOD	7	< LOD	< LOD	< LOD	773	52	20,504	328	< LOD	< LOD	< LOD	< LOD	127
P001	SS006	1218	8/23/12	1110	< LOD	< LOD	< LOD	< LOD	< LOD	839	48	19,967	370	< LOD	< LOD	< LOD	< LOD	145
P001	SS006	1824	8/23/12	1330	< LOD	< LOD	< LOD	< LOD	< LOD	801	26	19,650	400	< LOD	< LOD	< LOD	< LOD	95
P001	SS007	SOD	8/21/12	1300	< LOD	< LOD	< LOD	< LOD	< LOD	842	24	20,689	424	< LOD	< LOD	< LOD	< LOD	99
P001	SS007	0002	8/21/12	1310	< LOD	< LOD	< LOD	< LOD	< LOD	631	< LOD	16,473	332	< LOD	< LOD	< LOD	< LOD	92
P001	SS007	0206	8/21/12	1320	< LOD	4	< LOD	< LOD	< LOD	733	27	18,497	366	< LOD	< LOD	< LOD	< LOD	112
P001	SS007	0612	8/21/12	1335	< LOD	3	< LOD	< LOD	< LOD	638	22	19,754	449	< LOD	< LOD	< LOD	< LOD	110
P001	SS007	1218	8/21/12	1340	< LOD	< LOD	< LOD	< LOD	< LOD	754	28	19,332	344	< LOD	< LOD	< LOD	< LOD	84
P001	SS007	1824	8/21/12	1345	< LOD	< LOD	< LOD	< LOD	< LOD	686	26	18,591	336	< LOD	< LOD	< LOD	< LOD	77

Results in parts per million (ppm)  
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Remediation Standard (400 ppm) highlighted in red

**Table 3**  
**MC Canfield and Sons Site**  
**X-Ray Fluorescence (XRF) Soil Screening Results for Metals**  
**Composite Samples**  
**August 20 - 30, 2012**

Property Number	Sample Location	Sample Depth	Sample Date	Collection Time	Antimony	Arsenic	Barium	Cadmium	Chromium	Cobalt	Copper	Iron	Manganese	Nickel	Selenium	Silver	Tin	Zinc
P001	SS008	SOD	8/21/12	1110	< LOD	< LOD	< LOD	< LOD	< LOD	508	17	12,619	431	< LOD	< LOD	< LOD	< LOD	114
P001	SS008	0002	8/21/12	1115	< LOD	3	< LOD	< LOD	< LOD	703	16	16,526	437	< LOD	< LOD	< LOD	< LOD	82
P001	SS008	0206	8/21/12	1125	< LOD	3	< LOD	< LOD	< LOD	562	< LOD	17,025	437	< LOD	< LOD	< LOD	< LOD	92
P001	SS008	0612	8/21/12	1140	< LOD	5	< LOD	< LOD	< LOD	625	39	16,071	279	< LOD	< LOD	< LOD	< LOD	149
P001	SS008	1218	8/21/12	1150	< LOD	< LOD	< LOD	< LOD	< LOD	780	38	19,656	386	< LOD	< LOD	< LOD	< LOD	198
P001	SS008	1824	8/21/12	1200	< LOD	11	< LOD	< LOD	< LOD	644	29	17,631	316	< LOD	< LOD	< LOD	< LOD	155
P001	SS009	SOD	8/23/12	1430	< LOD	< LOD	< LOD	< LOD	< LOD	1,065	47	22,955	396	< LOD	< LOD	< LOD	< LOD	148
P001	SS009	0002	8/23/12	1405	< LOD	8	< LOD	< LOD	< LOD	803	43	16,716	252	< LOD	< LOD	< LOD	< LOD	131
P001	SS009	0206	8/23/12	1435	< LOD	16	< LOD	< LOD	< LOD	1,714	75	41,004	654	< LOD	< LOD	< LOD	< LOD	157
P001	SS009	0612	8/23/12	1500	< LOD	7	< LOD	< LOD	< LOD	900	63	20,133	323	< LOD	< LOD	< LOD	138	175
P001	SS009	1218	8/23/12	1550	< LOD	9	< LOD	< LOD	< LOD	968	70	23,990	333	< LOD	< LOD	< LOD	165	199
P001	SS009	1824	8/23/12	1605	< LOD	15	< LOD	< LOD	< LOD	906	58	23,792	381	< LOD	< LOD	< LOD	25	267
P001	SS010	SOD	8/22/12	1500	< LOD	< LOD	< LOD	< LOD	< LOD	1,025	64	28,155	478	< LOD	< LOD	< LOD	< LOD	183
P001	SS010	0002	8/22/12	1505	< LOD	5	< LOD	< LOD	< LOD	484	44	13,153	208	< LOD	< LOD	< LOD	< LOD	108
P001	SS010	0206	8/22/12	1515	< LOD	15	< LOD	< LOD	< LOD	871	87	23,104	384	< LOD	< LOD	< LOD	77	225
P001	SS010	0612	8/22/12	1535	< LOD	13	< LOD	< LOD	< LOD	999	128	20,785	353	< LOD	< LOD	< LOD	130	218
P001	SS010	1218	8/22/12	1545	< LOD	15	< LOD	< LOD	< LOD	761	105	20,097	327	< LOD	< LOD	< LOD	73	223
P001	SS010	1824	8/22/12	1605	< LOD	16	< LOD	< LOD	< LOD	538	104	18,946	313	< LOD	< LOD	< LOD	99	252
P001	SS011	SOD	8/28/12	1130	< LOD	5	< LOD	< LOD	< LOD	794	51	19,302	285	< LOD	< LOD	< LOD	< LOD	178
P001	SS011	0002	8/28/12	1135	< LOD	< LOD	< LOD	< LOD	118	904	63	20,085	279	< LOD	< LOD	< LOD	44	182
P001	SS011	0206	8/28/12	1210	< LOD	12	< LOD	< LOD	< LOD	791	54	14,217	198	< LOD	< LOD	< LOD	< LOD	135
P001	SS011	0612	8/28/12	1245	< LOD	5	< LOD	< LOD	< LOD	622	46	16,607	225	< LOD	< LOD	< LOD	< LOD	120
P001	SS011	1218	8/28/12	1350	< LOD	5	< LOD	< LOD	< LOD	677	40	17,664	269	< LOD	< LOD	< LOD	< LOD	125
P001	SS011	1824	8/28/12	1415	< LOD	5	< LOD	< LOD	< LOD	615	36	17,540	209	< LOD	< LOD	< LOD	< LOD	89
P001	SS012	SOD	8/20/12	1500	< LOD	< LOD	< LOD	< LOD	< LOD	395	275	10,726	204	< LOD	< LOD	< LOD	235	231
P001	SS012	0002	8/20/12	1510	< LOD	21	< LOD	< LOD	< LOD	653	172	15,129	297	< LOD	< LOD	< LOD	544	310
P001	SS012	0206	8/20/12	1515	< LOD	25	< LOD	< LOD	< LOD	689	115	17,980	305	< LOD	< LOD	< LOD	159	273
P001	SS012	0612	8/20/12	1525	< LOD	36	< LOD	< LOD	61	920	240	25,054	468	< LOD	< LOD	< LOD	1,983	448
P001	SS012	1218	8/20/12	1535	< LOD	71	< LOD	< LOD	< LOD	722	333	20,511	363	< LOD	< LOD	< LOD	1,051	622
P001	SS012	1824	8/20/12	1545	< LOD	34	< LOD	< LOD	< LOD	767	394	17,410	445	< LOD	< LOD	< LOD	316	660
P001	SS013	SOD	8/20/12	1045	< LOD	14	< LOD	< LOD	< LOD	779	111	21,083	290	< LOD	< LOD	< LOD	251	260
P001	SS013	0002	8/20/12	1058	< LOD	10	< LOD	< LOD	< LOD	1,013	213	22,487	344	< LOD	< LOD	< LOD	1,021	371
P001	SS013	0206	8/20/12	1115	< LOD	12	< LOD	< LOD	< LOD	884	156	22,615	338	< LOD	< LOD	< LOD	557	333
P001	SS013	0612	8/20/12	1120	< LOD	16	< LOD	< LOD	< LOD	1,014	233	26,644	469	< LOD	< LOD	< LOD	989	431
P001	SS013	1218	8/20/12	1138	< LOD	< LOD	< LOD	< LOD	< LOD	778	139	22,216	310	< LOD	< LOD	< LOD	1,188	323
P001	SS013	1824	8/20/12	1200	< LOD	13	< LOD	< LOD	< LOD	808	129	20,379	286	< LOD	< LOD	< LOD	608	305
P001	SS014	SOD	8/20/12	1220	< LOD	< LOD	< LOD	< LOD	< LOD	523	172	13,021	170	< LOD	< LOD	< LOD	161	441
P001	SS014	0002	8/20/12	1225	< LOD	11	< LOD	< LOD	< LOD	661	135	17,311	331	< LOD	< LOD	< LOD	103	343
P001	SS014	0206	8/20/12	1235	28	62	< LOD	< LOD	< LOD	1,048	730	27,147	493	< LOD	< LOD	< LOD	865	817
P001	SS014	0612	8/20/12	1335	< LOD	62	< LOD	< LOD	< LOD	1,256	719	28,260	448	< LOD	< LOD	< LOD	582	846
P001	SS014	1218	8/20/12	1348	< LOD	91	< LOD	< LOD	< LOD	1,091	621	23,212	387	< LOD	< LOD	< LOD	2,037	738
P001	SS014	1824	8/20/12	1408	< LOD	11	< LOD	< LOD	< LOD	937	297	23,080	338	< LOD	< LOD	< LOD	489	609

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**Table 3**  
**MC Canfield and Sons Site**  
**X-Ray Fluorescence (XRF) Soil Screening Results for Metals**  
**Composite Samples**  
**August 20 - 30, 2012**

Property Number	Sample Location	Sample Depth	Sample Date	Collection Time	Antimony	Arsenic	Barium	Cadmium	Chromium	Cobalt	Copper	Iron	Manganese	Nickel	Selenium	Silver	Tin	Zinc
P001	SS015	SOD	8/20/12	1035	< LOD	< LOD	< LOD	< LOD	< LOD	626	57	16,178	251	< LOD	< LOD	< LOD	113	169
P001	SS015	0002	8/20/12	1040	< LOD	9	< LOD	< LOD	< LOD	569	80	12,472	239	< LOD	< LOD	< LOD	400	248
P001	SS015	0206	8/20/12	1045	< LOD	17	< LOD	< LOD	< LOD	839	179	21,807	332	< LOD	< LOD	< LOD	331	411
P001	SS015	0612	8/20/12	1100	< LOD	21	< LOD	< LOD	< LOD	710	245	19,120	310	< LOD	< LOD	< LOD	481	650
P001	SS015	1218	8/20/12	1110	< LOD	< LOD	< LOD	< LOD	< LOD	667	174	19,323	272	< LOD	< LOD	< LOD	333	410
P001	SS015	1824	8/20/12	1125	< LOD	82	< LOD	15	< LOD	962	600	23,329	405	< LOD	< LOD	< LOD	4,061	1,406
P001	SS016	SOD	8/24/12	0907	< LOD	< LOD	< LOD	< LOD	< LOD	533	35	13,220	195	< LOD	< LOD	< LOD	< LOD	101
P001	SS016	0002	8/24/12	0910	< LOD	< LOD	< LOD	< LOD	< LOD	338	23	10,021	244	< LOD	< LOD	< LOD	< LOD	108
P001	SS016	0206	8/24/12	0925	< LOD	5	< LOD	< LOD	< LOD	547	46	14,298	274	< LOD	< LOD	< LOD	< LOD	132
P001	SS016	0612	8/24/12	0940	< LOD	< LOD	< LOD	< LOD	< LOD	390	41	15,881	266	< LOD	< LOD	< LOD	< LOD	129
P001	SS016	1218	8/24/12	1015	< LOD	4	< LOD	< LOD	< LOD	432	34	13,541	241	< LOD	< LOD	< LOD	< LOD	95
P001	SS016	1824	8/24/12	1035	< LOD	< LOD	< LOD	< LOD	< LOD	603	11	18,181	266	< LOD	< LOD	< LOD	< LOD	83
P001	SS017	SOD	8/22/12	1315	< LOD	22	< LOD	< LOD	< LOD	589	84	14,316	211	< LOD	< LOD	< LOD	< LOD	368
P001	SS017	0002	8/22/12	1317	< LOD	73	< LOD	< LOD	133	673	111	16,544	272	< LOD	< LOD	< LOD	< LOD	418
P001	SS017	0206	8/22/12	1336	< LOD	8	< LOD	< LOD	< LOD	834	93	22,586	368	< LOD	< LOD	< LOD	< LOD	335
P001	SS017	0612	8/22/12	1352	< LOD	< LOD	< LOD	< LOD	< LOD	892	54	22,127	358	< LOD	< LOD	< LOD	< LOD	192
P001	SS017	1218	8/22/12	1417	< LOD	17	< LOD	< LOD	< LOD	953	54	22,729	492	< LOD	< LOD	< LOD	< LOD	159
P001	SS017	1824	8/22/12	1450	< LOD	5	< LOD	< LOD	< LOD	836	42	20,315	404	< LOD	< LOD	< LOD	< LOD	120
P001	SS018	SOD	8/24/12	1110	< LOD	< LOD	< LOD	< LOD	< LOD	427	21	11,147	189	< LOD	< LOD	< LOD	< LOD	122
P001	SS018	0002	8/24/12	1120	< LOD	5	< LOD	< LOD	< LOD	473	32	11,844	197	< LOD	< LOD	< LOD	< LOD	139
P001	SS018	0206	8/24/12	1155	< LOD	10	< LOD	< LOD	< LOD	609	74	17,942	337	< LOD	< LOD	< LOD	114	499
P001	SS018	0612	8/24/12	1201	< LOD	14	< LOD	< LOD	< LOD	802	62	22,890	402	< LOD	< LOD	< LOD	< LOD	197
P001	SS018	1218	8/24/12	1240	< LOD	7	< LOD	< LOD	< LOD	819	36	20,506	319	< LOD	< LOD	< LOD	< LOD	130
P001	SS018	1824	8/24/12	1302	< LOD	15	< LOD	< LOD	< LOD	932	57	20,873	362	< LOD	< LOD	< LOD	< LOD	188
P001	SS019	SOD	8/24/12	1155	< LOD	17	< LOD	< LOD	< LOD	634	108	19,213	375	< LOD	< LOD	< LOD	< LOD	516
P001	SS019	0002	8/24/12	1156	< LOD	< LOD	< LOD	< LOD	< LOD	729	92	19,327	275	< LOD	< LOD	< LOD	< LOD	455
P001	SS019	0206	8/24/12	1432	< LOD	6	< LOD	< LOD	< LOD	1,031	95	26,865	669	< LOD	< LOD	< LOD	25	261
P001	SS019	0612	8/24/12	1437	< LOD	21	< LOD	< LOD	46	996	84	26,408	594	< LOD	< LOD	< LOD	< LOD	240
P001	SS019	1218	8/24/12	1441	< LOD	4	< LOD	< LOD	< LOD	707	32	20,944	516	< LOD	< LOD	< LOD	< LOD	150
P001	SS019	1824	8/24/12	1445	< LOD	5	< LOD	< LOD	< LOD	490	47	16,006	384	< LOD	< LOD	< LOD	< LOD	166
P001	SS020	SOD	8/22/12	0840	< LOD	< LOD	< LOD	< LOD	< LOD	674	45	17,322	269	< LOD	< LOD	< LOD	< LOD	222
P001	SS020	0002	8/22/12	0845	< LOD	< LOD	< LOD	< LOD	< LOD	524	35	16,694	239	< LOD	< LOD	< LOD	< LOD	154
P001	SS020	0206	8/22/12	0915	< LOD	< LOD	< LOD	< LOD	< LOD	578	51	18,317	285	< LOD	< LOD	< LOD	< LOD	185
P001	SS020	0612	8/22/12	0940	< LOD	< LOD	< LOD	< LOD	< LOD	684	74	16,916	293	< LOD	< LOD	< LOD	< LOD	238
P001	SS020	1218	8/22/12	1015	< LOD	13	< LOD	< LOD	< LOD	593	65	18,368	280	< LOD	< LOD	< LOD	< LOD	298
P001	SS020	1824	8/22/12	1035	< LOD	< LOD	< LOD	< LOD	< LOD	767	51	17,916	244	< LOD	< LOD	< LOD	< LOD	186
P001	SS021	SOD	8/20/12	1545	< LOD	< LOD	< LOD	< LOD	< LOD	405	8	11,520	199	< LOD	< LOD	< LOD	< LOD	148
P001	SS021	0002	8/20/12	1550	< LOD	5	< LOD	< LOD	< LOD	522	27	12,461	149	< LOD	< LOD	< LOD	< LOD	193
P001	SS021	0206	8/20/12	1610	< LOD	5	< LOD	< LOD	< LOD	733	43	19,359	344	< LOD	< LOD	< LOD	< LOD	209
P001	SS021	0612	8/20/12	1620	< LOD	< LOD	< LOD	< LOD	< LOD	699	37	16,754	309	< LOD	< LOD	< LOD	< LOD	177
P001	SS021	1218	8/20/12	1640	< LOD	8	< LOD	< LOD	< LOD	840	53	17,075	677	< LOD	< LOD	< LOD	< LOD	132
P001	SS021	1824	8/20/12	1655	< LOD	< LOD	< LOD	< LOD	< LOD	641	44	16,839	293	< LOD	< LOD	< LOD	< LOD	179

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**Composite Samples**  
**August 20 - 30, 2012**

Property Number	Sample Location	Sample Depth	Sample Date	Collection Time	Antimony	Arsenic	Barium	Cadmium	Chromium	Cobalt	Copper	Iron	Manganese	Nickel	Selenium	Silver	Tin	Zinc
P001	SS022	0002	8/22/12	1055	< LOD	12	< LOD	< LOD	< LOD	521	44	19,572	371	< LOD	< LOD	< LOD	< LOD	211
P001	SS022	0206	8/22/12	1105	< LOD	< LOD	< LOD	< LOD	< LOD	345	26	21,288	425	< LOD	< LOD	< LOD	< LOD	104
P001	SS022	0612	8/22/12	1115	< LOD	< LOD	< LOD	< LOD	< LOD	493	28	18,416	307	< LOD	< LOD	< LOD	< LOD	67
P001	SS022	1218	8/22/12	1143	< LOD	< LOD	< LOD	< LOD	< LOD	477	38	14,320	368	< LOD	< LOD	< LOD	< LOD	79
P001	SS022	1824	8/22/12	1204	< LOD	< LOD	< LOD	< LOD	< LOD	562	36	17,341	372	< LOD	< LOD	< LOD	< LOD	50
P001	SS023	SOD	8/22/12	1300	< LOD	22	< LOD	< LOD	< LOD	777	61	18,237	263	< LOD	< LOD	< LOD	122	270
P001	SS023	0002	8/22/12	1103	< LOD	7	< LOD	< LOD	< LOD	582	48	14,765	288	< LOD	< LOD	< LOD	143	180
P001	SS023	0206	8/22/12	1120	< LOD	13	< LOD	< LOD	< LOD	706	97	16,075	251	< LOD	< LOD	< LOD	386	246
P001	SS023	0612	8/22/12	1145	< LOD	10	< LOD	< LOD	< LOD	583	64	15,680	261	< LOD	< LOD	< LOD	179	143
P001	SS023	1218	8/22/12	1205	< LOD	< LOD	< LOD	< LOD	< LOD	665	63	15,995	287	< LOD	< LOD	< LOD	292	187
P001	SS023	1824	8/22/12	1225	< LOD	< LOD	< LOD	< LOD	< LOD	558	56	15,645	288	< LOD	< LOD	< LOD	121	144
P001	SS024	0002	8/20/12	1330	< LOD	9	< LOD	< LOD	< LOD	200	< LOD	6,321	126	< LOD	< LOD	< LOD	< LOD	110
P001	SS024	0206	8/20/12	1345	< LOD	13	< LOD	< LOD	< LOD	637	51	14,261	379	< LOD	< LOD	< LOD	89	186
P001	SS024	0612	8/20/12	1404	< LOD	11	< LOD	< LOD	< LOD	905	53	21,471	462	< LOD	< LOD	< LOD	59	145
P001	SS024	1218	8/20/12	1415	< LOD	6	< LOD	< LOD	< LOD	670	52	16,158	450	< LOD	< LOD	< LOD	127	158
P001	SS024	1824	8/20/12	1425	< LOD	15	< LOD	< LOD	< LOD	601	49	19,156	365	< LOD	< LOD	< LOD	96	171
P001	SS025	SOD	8/22/12	1445	< LOD	< LOD	< LOD	< LOD	< LOD	532	47	13,243	181	< LOD	< LOD	< LOD	22	279
P001	SS025	0002	8/22/12	1325	< LOD	15	< LOD	< LOD	< LOD	505	54	13,772	190	< LOD	< LOD	< LOD	53	421
P001	SS025	0206	8/22/12	1351	< LOD	9	< LOD	< LOD	< LOD	1,004	49	20,388	306	< LOD	< LOD	< LOD	< LOD	254
P001	SS025	0612	8/22/12	1400	< LOD	< LOD	< LOD	< LOD	< LOD	571	50	18,665	305	< LOD	< LOD	< LOD	23	147
P001	SS025	1218	8/22/12	1430	< LOD	7	< LOD	< LOD	< LOD	709	41	16,766	271	< LOD	< LOD	< LOD	< LOD	163
P001	SS025	1824	8/22/12	1435	< LOD	5	< LOD	< LOD	< LOD	710	49	16,942	324	< LOD	< LOD	< LOD	< LOD	151
P001	SS026	SOD	8/28/12	1154	< LOD	22	< LOD	< LOD	< LOD	583	60	11,438	153	< LOD	< LOD	< LOD	< LOD	348
P001	SS026	0002	8/28/12	1156	< LOD	7	< LOD	< LOD	< LOD	582	82	13,701	199	< LOD	< LOD	< LOD	< LOD	341
P001	SS026	0206	8/28/12	1210	< LOD	6	< LOD	< LOD	< LOD	671	85	17,823	320	< LOD	< LOD	< LOD	< LOD	287
P001	SS026	0612	8/28/12	1228	< LOD	18	< LOD	< LOD	< LOD	795	49	17,601	325	< LOD	< LOD	< LOD	< LOD	202
P001	SS026	1218	8/28/12	1235	< LOD	6	< LOD	< LOD	< LOD	698	89	17,631	266	< LOD	< LOD	< LOD	38	219
P001	SS026	1824	8/28/12	1248	< LOD	64	< LOD	< LOD	< LOD	890	103	20,914	419	< LOD	< LOD	< LOD	< LOD	1,011
P001	SS027	SOD	8/24/12	0915	< LOD	18	< LOD	< LOD	< LOD	621	87	15,631	269	< LOD	< LOD	< LOD	< LOD	467
P001	SS027	0002	8/24/12	0920	< LOD	< LOD	< LOD	< LOD	< LOD	655	78	15,058	501	< LOD	< LOD	< LOD	< LOD	352
P001	SS027	0206	8/24/12	0925	< LOD	10	< LOD	< LOD	< LOD	451	110	16,097	214	< LOD	< LOD	< LOD	< LOD	322
P001	SS027	0612	8/24/12	0945	< LOD	< LOD	< LOD	< LOD	< LOD	677	62	19,912	323	< LOD	< LOD	< LOD	< LOD	168
P001	SS027	1218	8/24/12	1001	< LOD	9	< LOD	< LOD	< LOD	888	48	20,662	314	< LOD	< LOD	< LOD	< LOD	152
P001	SS027	1824	8/24/12	1015	< LOD	8	< LOD	< LOD	< LOD	642	63	21,936	280	< LOD	< LOD	< LOD	< LOD	148
P001	SS028	SOD	8/27/12	0900	< LOD	15	< LOD	< LOD	< LOD	582	106	17,687	279	< LOD	< LOD	< LOD	< LOD	457
P001	SS028	0002	8/27/12	0905	< LOD	9	< LOD	< LOD	< LOD	724	109	18,279	259	< LOD	< LOD	< LOD	51	491
P001	SS028	0206	8/27/12	0930	< LOD	36	< LOD	< LOD	< LOD	792	79	19,716	286	< LOD	< LOD	< LOD	< LOD	341
P001	SS028	0612	8/27/12	0950	< LOD	8	< LOD	< LOD	< LOD	774	50	20,462	324	< LOD	< LOD	< LOD	< LOD	201
P001	SS028	1218	8/27/12	1000	< LOD	13	< LOD	< LOD	< LOD	874	49	21,614	362	< LOD	< LOD	< LOD	< LOD	203
P001	SS028	1824	8/27/12	1015	< LOD	< LOD	< LOD	< LOD	< LOD	936	66	24,139	402	< LOD	< LOD	< LOD	< LOD	176

Results in parts per million (ppm)  
< LOD = Below Limit of Detection  
Results exceeding the NJAC Residential Direct Contact Soil  
Remediation Standard (400 ppm) highlighted in red

Table 3  
MC Canfield and Sons Site  
X-Ray Fluorescence (XRF) Soil Screening Results for Metals  
Composite Samples  
August 20 - 30, 2012

Property Number	Sample Location	Sample Depth	Sample Date	Collection Time	Antimony	Arsenic	Barium	Cadmium	Chromium	Cobalt	Copper	Iron	Manganese	Nickel	Selenium	Silver	Tin	Zinc
P001	SS029	SOD	8/24/12	1418	< LOD	18	< LOD	< LOD	< LOD	644	118	18,130	267	< LOD	< LOD	< LOD	50	589
P001	SS029	0002	8/24/12	1420	< LOD	19	< LOD	< LOD	< LOD	691	123	17,630	268	< LOD	< LOD	< LOD	60	562
P001	SS029	0206	8/24/12	1445	< LOD	28	< LOD	< LOD	< LOD	718	117	22,013	399	< LOD	< LOD	< LOD	24	460
P001	SS029	0612	8/24/12	1500	< LOD	14	< LOD	< LOD	< LOD	1,377	59	30,832	701	< LOD	< LOD	< LOD	< LOD	171
P001	SS029	1218	8/24/12	1515	< LOD	11	< LOD	< LOD	< LOD	1,040	70	24,201	525	< LOD	< LOD	< LOD	< LOD	261
P001	SS029	1824	8/24/12	1535	< LOD	15	< LOD	< LOD	< LOD	722	247	20,806	382	< LOD	< LOD	< LOD	< LOD	156
P001	SS030	SOD	8/27/12	0900	< LOD	< LOD	< LOD	< LOD	< LOD	560	110	16,893	264	< LOD	< LOD	< LOD	27	481
P001	SS030	0002	8/27/12	0910	< LOD	22	< LOD	< LOD	< LOD	504	110	15,147	267	< LOD	< LOD	< LOD	< LOD	415
P001	SS030	0206	8/27/12	0925	< LOD	25	< LOD	< LOD	< LOD	711	200	21,037	298	86	< LOD	< LOD	23	517
P001	SS030	0612	8/27/12	0930	< LOD	12	< LOD	< LOD	< LOD	851	76	21,904	330	< LOD	< LOD	< LOD	< LOD	208
P001	SS030	1218	8/27/12	1015	< LOD	12	< LOD	< LOD	< LOD	810	55	23,146	455	< LOD	< LOD	< LOD	< LOD	156
P001	SS030	1824	8/27/12	1105	< LOD	< LOD	< LOD	< LOD	< LOD	665	66	21,270	480	< LOD	< LOD	< LOD	< LOD	173
P001	SS031	SOD	8/28/12	0835	< LOD	31	< LOD	< LOD	< LOD	860	84	23,721	418	< LOD	< LOD	< LOD	112	323
P001	SS031	0002	8/28/12	0840	< LOD	28	< LOD	< LOD	< LOD	770	79	21,059	484	< LOD	< LOD	< LOD	< LOD	310
P001	SS031	0206	8/28/12	0900	< LOD	19	< LOD	< LOD	< LOD	883	81	21,644	470	< LOD	< LOD	< LOD	131	276
P001	SS031	0612	8/28/12	0924	< LOD	29	< LOD	< LOD	< LOD	666	71	22,731	423	< LOD	< LOD	< LOD	75	291
P001	SS031	1218	8/28/12	1050	< LOD	16	< LOD	< LOD	< LOD	758	60	17,520	298	< LOD	< LOD	< LOD	36	226
P001	SS031	1824	8/28/12	1105	< LOD	33	< LOD	< LOD	< LOD	751	67	19,517	440	< LOD	< LOD	< LOD	24	235
P001	SS032	SOD	8/28/12	0848	< LOD	5	< LOD	< LOD	< LOD	892	47	23,388	384	< LOD	< LOD	< LOD	< LOD	161
P001	SS032	0002	8/28/12	0840	< LOD	6	< LOD	< LOD	< LOD	598	68	22,819	606	< LOD	< LOD	< LOD	< LOD	242
P001	SS032	0206	8/28/12	0920	< LOD	7	< LOD	< LOD	< LOD	727	73	26,388	545	< LOD	< LOD	< LOD	< LOD	234
P001	SS032	0612	8/28/12	1030	< LOD	33	< LOD	< LOD	< LOD	703	52	24,403	383	< LOD	< LOD	< LOD	< LOD	239
P001	SS032	1218	8/28/12	1045	< LOD	< LOD	< LOD	< LOD	< LOD	710	42	21,104	461	< LOD	< LOD	< LOD	< LOD	165
P001	SS032	1824	8/28/12	1100	< LOD	< LOD	< LOD	< LOD	< LOD	844	50	20,236	335	< LOD	< LOD	< LOD	< LOD	165
P001	SS033	SOD	8/22/12	0840	< LOD	8	< LOD	< LOD	< LOD	479	47	11,306	190	< LOD	< LOD	< LOD	< LOD	139
P001	SS033	0002	8/22/12	0850	< LOD	17	< LOD	< LOD	< LOD	757	24	25,914	471	< LOD	< LOD	< LOD	< LOD	110
P001	SS033	0206	8/22/12	0855	< LOD	5	< LOD	< LOD	< LOD	730	60	20,944	332	< LOD	< LOD	< LOD	< LOD	208
P001	SS033	0612	8/22/12	0930	< LOD	7	< LOD	< LOD	< LOD	806	47	24,349	399	< LOD	< LOD	< LOD	< LOD	146
P001	SS033	1218	8/22/12	0952	< LOD	5	< LOD	< LOD	< LOD	1,024	49	30,336	497	< LOD	< LOD	< LOD	< LOD	126
P001	SS033	1824	8/22/12	1010	< LOD	4	< LOD	< LOD	< LOD	1,721	73	53,490	746	< LOD	< LOD	< LOD	< LOD	109
P001	SS034	SOD	8/21/12	1450	< LOD	23	< LOD	< LOD	< LOD	748	79	18,497	318	< LOD	< LOD	< LOD	< LOD	271
P001	SS034	0002	8/21/12	1455	< LOD	7	< LOD	< LOD	< LOD	599	80	17,352	353	< LOD	< LOD	< LOD	< LOD	316
P001	SS034	0206	8/21/12	1500	< LOD	7	< LOD	< LOD	< LOD	750	89	21,016	337	< LOD	< LOD	< LOD	< LOD	278
P001	SS034	0612	8/21/12	1510	< LOD	19	< LOD	< LOD	< LOD	827	85	23,538	370	< LOD	< LOD	< LOD	< LOD	281
P001	SS034	1218	8/21/12	1520	< LOD	< LOD	< LOD	< LOD	< LOD	1,004	57	22,710	384	< LOD	< LOD	< LOD	< LOD	158
P001	SS034	1824	8/21/12	1540	< LOD	4	< LOD	< LOD	< LOD	1,197	56	33,810	536	< LOD	< LOD	< LOD	< LOD	105

Results in parts per million (ppm)  
< LOD = Below Limit of Detection  
Results exceeding the NJAC Residential Direct Contact Soil  
Remediation Standard (400 ppm) highlighted in red

Table 3  
MC Canfield and Sons Site  
X-Ray Fluorescence (XRF) Soil Screening Results for Metals  
Composite Samples  
August 20 - 30, 2012

Property Number	Sample Location	Sample Depth	Sample Date	Collection Time	Antimony	Arsenic	Barium	Cadmium	Chromium	Cobalt	Copper	Iron	Manganese	Nickel	Selenium	Silver	Tin	Zinc
P002	SS001	SOD	8/28/12	1515	< LOD	47	< LOD	< LOD	< LOD	582	119	14,385	199	< LOD	< LOD	< LOD	< LOD	590
P002	SS001	0002	8/28/12	1520	< LOD	77	< LOD	< LOD	< LOD	626	170	18,885	290	< LOD	< LOD	< LOD	61	606
P002	SS001	0206	8/28/12	1530	< LOD	50	< LOD	< LOD	< LOD	657	99	16,735	318	< LOD	< LOD	< LOD	< LOD	366
P002	SS001	0612	8/28/12	1548	< LOD	16	< LOD	< LOD	< LOD	643	68	16,774	288	< LOD	< LOD	< LOD	< LOD	232
P002	SS001	1218	8/28/12	1553	< LOD	5	< LOD	< LOD	< LOD	626	32	15,287	294	< LOD	< LOD	< LOD	< LOD	132
P002	SS001	1824	8/28/12	1606	< LOD	< LOD	< LOD	< LOD	< LOD	728	40	15,585	236	< LOD	< LOD	< LOD	< LOD	155
P002	SS002	SOD	8/28/12	1540	< LOD	44	< LOD	< LOD	< LOD	640	242	16,048	564	< LOD	< LOD	< LOD	43	776
P002	SS002	0002	8/28/12	1545	< LOD	79	< LOD	< LOD	< LOD	632	179	14,788	280	< LOD	< LOD	< LOD	< LOD	696
P002	SS002	0206	8/28/12	1550	< LOD	29	< LOD	< LOD	< LOD	507	49	14,044	310	< LOD	< LOD	< LOD	< LOD	433
P002	SS002	0612	8/28/12	1600	< LOD	< LOD	< LOD	< LOD	< LOD	678	22	15,221	311	< LOD	< LOD	< LOD	< LOD	411
P002	SS002	1218	8/28/12	1611	< LOD	< LOD	< LOD	< LOD	< LOD	532	25	15,230	263	< LOD	< LOD	< LOD	< LOD	99
P002	SS002	1824	8/28/12	1622	< LOD	4	< LOD	< LOD	< LOD	557	31	14,455	310	< LOD	< LOD	< LOD	< LOD	99
P005	SS001	0002	8/30/12	0900	< LOD	13	< LOD	< LOD	< LOD	591	47	14,825	210	< LOD	< LOD	< LOD	< LOD	174
P005	SS001	0206	8/30/12	0906	< LOD	6	< LOD	< LOD	< LOD	454	47	15,942	250	16	< LOD	< LOD	< LOD	171
P005	SS001	0612	8/30/12	0917	< LOD	6	< LOD	< LOD	< LOD	641	37	16,814	229	< LOD	< LOD	< LOD	< LOD	143
P005	SS001	1218	8/30/12	1005	< LOD	4	< LOD	< LOD	< LOD	663	34	17,749	321	< LOD	< LOD	< LOD	< LOD	107
P005	SS001	1824	8/30/12	1045	< LOD	4	< LOD	< LOD	< LOD	516	32	17,975	261	< LOD	< LOD	< LOD	< LOD	104
P006	SS001	0002	8/30/12	0904	< LOD	6	< LOD	< LOD	< LOD	535	47	16,612	272	< LOD	< LOD	< LOD	< LOD	177
P006	SS001	0206	8/30/12	0925	< LOD	< LOD	< LOD	< LOD	< LOD	591	52	18,077	280	< LOD	< LOD	< LOD	< LOD	191
P006	SS001	0612	8/30/12	0930	< LOD	18	< LOD	< LOD	< LOD	558	57	15,365	301	< LOD	< LOD	< LOD	< LOD	222
P006	SS001	1218	8/30/12	1005	< LOD	7	< LOD	< LOD	< LOD	639	38	16,353	344	< LOD	< LOD	< LOD	< LOD	193
P006	SS001	1824	8/30/12	1010	< LOD	7	< LOD	< LOD	< LOD	556	46	17,056	311	< LOD	< LOD	< LOD	< LOD	259
P007	SS001	0002	8/30/12	1200	< LOD	5	< LOD	< LOD	< LOD	720	55	16,229	246	< LOD	< LOD	< LOD	< LOD	173
P007	SS001	0206	8/30/12	1230	< LOD	5	< LOD	< LOD	< LOD	987	63	26,039	442	< LOD	< LOD	< LOD	< LOD	167
P007	SS001	0612	8/30/12	1245	< LOD	< LOD	< LOD	< LOD	< LOD	949	64	21,613	369	29	< LOD	< LOD	< LOD	140
P007	SS001	1218	8/30/12	1300	< LOD	< LOD	< LOD	< LOD	< LOD	763	42	18,170	249	< LOD	< LOD	< LOD	< LOD	126
P007	SS001	1824	8/30/12	1305	< LOD	5	< LOD	< LOD	< LOD	563	36	16,938	306	< LOD	< LOD	< LOD	< LOD	104
P008	SS001	0002	8/30/12	1145	< LOD	< LOD	< LOD	< LOD	< LOD	619	31	15,853	304	< LOD	< LOD	< LOD	< LOD	85
P008	SS001	0206	8/30/12	1159	< LOD	4	< LOD	< LOD	< LOD	558	39	15,418	219	< LOD	< LOD	< LOD	< LOD	109
P008	SS001	0612	8/30/12	1205	< LOD	5	< LOD	< LOD	< LOD	572	28	15,198	260	< LOD	< LOD	< LOD	< LOD	97
P008	SS001	1218	8/30/12	1210	< LOD	4	< LOD	< LOD	< LOD	597	17	16,157	254	14	< LOD	< LOD	< LOD	97
P008	SS001	1824	8/30/12	1225	< LOD	< LOD	< LOD	< LOD	< LOD	507	19	15,778	312	< LOD	< LOD	< LOD	< LOD	92

Results in parts per million (ppm)  
< LOD = Below Limit of Detection  
Results exceeding the NJAC Residential Direct Contact Soil  
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Table 4  
MC Canfield and Sons Site  
Validated Analytical Results for TAL Metals  
August 20-30, 2012

	RST 2 Sample ID	P001-SS001-1824-001	P001-SS001-A-0206-001	P001-SS003-0206-001	P001-SS003-1824-001	P001-SS005-0206-001	P001-SS007-0002-001	P001-SS007-0002-002	P001-SS008-1218-001	P001-SS009-1824-001	P001-SS011-0612-001	P001-SS011-0612-002	P001-SS012-0612-001	P001-SS014-SOD-001	P001-SS015-1824-001	P001-SS020-0002-001	P001-SS022-A-0206-001	P001-SS023-0002-001	P001-SS023-SOD-001
	CLP Sample ID	MBAEN7	MBAEN8	MBAEQ0	MBAEQ5	MBAEQ1	MBAEN9	MBAEP0	MBAEP1	MBAEQ2	MBAEQ6	MBAEQ7	MBAEP2	MBAEP3	MBAEP4	MBAEQ3	MBAEP5	MBAEP6	MBAEP7
Metal	Residential Direct Contact Soil Remediation Standard*																		
Aluminum	78,000	7,150	6,620	10,200	7,520	5,880	8,040	7,700	7,000	7,260	6,430	5,970	8,700	6,210	6,040	6,620	14,500	5,490	6,430
Antimony	31	U	U	U	U	U	U	U	U	U	U	U	11.1	U	14.2	U	U	U	U
Arsenic	19	4.7	2.7	3.4	6.1	3.5	3.3	3.2	3.1	3.0	4.3	4.6	6.0	6.2	5.7	3.5	2.0	4.9	4.5
Barium	16,000	207	112	141	823	180	61.7	61.2	180	196	66.3	81.9	220	82.3	118	82.6	106	139	152
Beryllium	16	0.40 J	0.46 J	0.36 J	0.34 J	0.28 J	0.29 J	0.26 J	0.34 J	0.30 J	0.27 J	0.28 J	0.43 J	0.33 J	0.30 J	0.31 J	0.65	0.30 J	0.31 J
Cadmium	78	0.65	0.40 J	0.45 J	1.7	0.49 J	0.45 J	0.47 J	0.50 J	0.57	0.31 J	0.33 J	0.70	1.1	1.4	0.50 J	0.22 J	0.69 J	0.73
Calcium	NA	11,700	5,860	5,080	26,800	10,400	4,720	4,650	11,200	8,980	3,040	2,690	7,100	4,430	10,300	4,110	695	5,050	4,030
Chromium	NA	31.1	37.0	14.2	21.0	13.9	19.0	16.3	13.6	16.9	15.3	15.4	17.7	15.9	13.9	16.7	23.3	15.3	17.6
Cobalt	1,600	6.7	7.1	11.1	7.5	5.1 J	8.0	7.8	6.5	8.5	4.5 J	4.7 J	10.7	6.2 J	6.1	7.0	12.6	5.7 J	8.7
Copper	3,100	66.7	38.5	52.5	44.8	43.9	R	R	51.5	66.7	33.2	35.0	296	R	581	R	15.9	R	R
Iron	NA	14,500	15,200	20,300	18,500	12,300	17,100	15,800	14,000	15,800	12,000	14,100	22,000	14,000	15,100	16,000	23,500	13,000	17,300
Lead	400	1,940	195	223	1,550	178	69.0	59.9	286	5,040	133	167	1,390	624	3,720	169	17.3	496	598
Magnesium	NA	2,260	3,480	3,370	2,560	2,340	2,250	2,190	2,720	3,190	1,700	1,590	3,400	2,520	2,350	2,670	3,450	2,180	2,630
Manganese	11,000	361	414	546	467	330	458	468	377	387	224	257	538	316	348	371	524	356	429
Nickel	1,600	14.9	22.6	14.8	17.2	9.8	11.0	10.3	11.4	14.9	11.7	16.3	14.9	12.6	14.1	12.1	10.3	11.1	14.6
Potassium	NA	632	904	764	710	541 J	586 J	599 J	641	664	481 J	490 J	625	724 J	631	798	1,740	697 J	718
Selenium	390	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U
Silver	390	U	U	U	0.40 J	U	U	U	U	0.39 J	U	U	5.7	1.5 J	24.5	U	U	0.78 J	1.3 J
Sodium	NA	U	U	1,080	228 J	172 J	U	U	201 J	476 J	156 J	U	434 J	300 J	218 J	U	380 J	U	U
Thallium	5	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U
Vanadium	78	21.1	21.3	37.4	22.6	19.2	39.5	32.5	22.7	28.3	17.7	17.5	31.4	22.2	23.1	25.1	47.0	22.6	25.3
Zinc	23,000	296	146	149	785	141	104	102	182	201	89.8	105	486	436	1,290	187	57.3	212	288

Notes:  
\*Standards retrieved from the New Jersey Administrative Code (NJAC) 7:26D: Remediation Standards, Amended October 3, 2011

Soil sample data presented in milligrams per kilogram (mg/kg).

Rinsate blank data presented in micrograms per liter (ug/L).

Results exceeding the NJAC Residential Direct Contact Soil Remediation Standard are highlighted in red.

J: Flag indicates an estimated value.

U: Flag indicates the compound was analyzed for but not detected.

R: Flag indicates a rejected value.

NA: Not Applicable

Table 4  
MC Canfield and Sons Site  
Validated Analytical Results for TAL Metals  
August 20-30, 2012

	RST 2 Sample ID	P001-SS026-1824-001	P001-SS029-SOD-001	P001-SS030-0206-001	P001-SS033-0002-001	P001-SS034-1218-001	P001-SS034-D-0612-001	P002-SS001-SOD-001	P008-SS001-1218-001	RB-082012	RB-082112	RB-082212	RB-082312	RB-082412	RB-082712	RB-082812	RB-082912	RB-083012
	CLP Sample ID	MBAEQ8	MBAEQ9	MBAER0	MBAEP8	MBAEQ4	MBAEP9	MBAER2	MBAER3	MBAEN3	MBAEN4	MBAEN5	MBAEN6	MBAER4	MBAER5	MBAER6	MBAER7	MBAER8
Metal	Residential Direct Contact Soil Remediation Standard*																	
Aluminum	78,000	6,720	7,070	8,390	6,940	9,510	8,570	6,660	7,690	U	U	U	56.6 J	U	U	U	U	U
Antimony	31	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U
Arsenic	19	8.0	5.0	3.9	4.5	3.6	4.2	7.5	2.2	U	U	U	U	U	U	U	U	U
Barium	16,000	471	553	313	96.6	106	215	428	104	U	U	U	U	U	U	U	U	U
Beryllium	16	0.39 J	0.31 J	0.30 J	0.42 J	0.27 J	U	0.36 J	0.37 J	U	U	U	U	U	U	U	U	U
Cadmium	78	2.2	1.4	1.2	0.40 J	0.45 J	0.99	1.8	0.30 J	U	U	U	U	U	U	U	U	U
Calcium	NA	11,700	9,700	16,500	5,970	16,500	11,100	3,600	10,300	U	U	U	U	U	U	U	U	U
Chromium	NA	20.9	28.0	24.7	17.2	13.4	17.0	30.8	23.8	U	U	U	10.9	U	U	U	U	U
Cobalt	1,600	6.4	7.1	8.2	6.9	9.6	11.7	5.0 J	7.0	U	U	U	U	U	U	U	U	U
Copper	3,100	91.2	130	149	41.0	54.8	120	155	29.3	U	U	U	U	U	U	U	U	U
Iron	NA	18,100	17,000	18,000	14,200	18,700	30,000	13,900	14,300	U	U	U	185	U	U	U	32.8 J	441
Lead	400	1,070	788	504	201	215	374	1,950	142	U	U	U	7.8 J	U	U	U	U	U
Magnesium	NA	2,290	3,530	4,070	3,940	4,070	4,510	1,600	2,900	U	U	U	U	U	U	U	U	U
Manganese	11,000	333	333	374	442	374	402	291	350	U	U	U	7.8 J	U	U	U	U	6.6 J
Nickel	1,600	18.4	27.1	23.7	12.6	13.7	44.0	14.9	16.4	U	U	U	U	U	U	U	U	U
Potassium	NA	728	836	819	662	695	557	551 J	1,070	U	U	U	U	U	U	U	U	U
Selenium	390	1.6 J	U	U	U	U	U	1.6 J	U	U	U	U	U	U	U	U	U	U
Silver	390	0.52 J	1.8	0.94 J	U	U	0.66 J	0.81 J	U	U	U	U	U	U	U	U	U	U
Sodium	NA	238 J	191 J	341 J	U	1,280	638	U	U	U	U	U	U	U	U	U	U	U
Thallium	5	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U
Vanadium	78	26.2	24.6	23.9	22.6	36.0	40.5	32.2	23.1	U	U	U	U	U	U	U	U	U
Zinc	23,000	980	657	430	126	126	358	686	103	U	U	U	U	U	U	U	U	U

Notes:  
\*Standards retrieved from the New Jersey Administrative Code (NJAC) 7:26D: Remediation Standards, Amended October 3, 2011

Soil sample data presented in milligrams per kilogram (mg/kg).  
Rinsate blank data presented in micrograms per liter (ug/L).  
Results exceeding the NJAC Residential Direct Contact Soil Remediation Standard are highlighted in red.  
J: Flag indicates an estimated value.  
U: Flag indicates the compound was analyzed for but not detected.  
R: Flag indicates a rejected value.  
NA: Not Applicable

**Table 5**  
**MC Canfield and Sons Site**  
**Validated Analytical Results for TCLP Metals**  
**August 20-30, 2012**

<b>RST 2 Sample ID</b>	P001- SS001- 1824-001	P001- SS015- 1824-001	P001- SS023- 0206-001
<b>Metal</b>			
<b>Arsenic</b>	U	U	U
<b>Barium</b>	U	U	U
<b>Cadmium</b>	U	U	U
<b>Chromium</b>	U	U	U
<b>Lead</b>	0.32	7.1	0.71
<b>Selenium</b>	U	U	U
<b>Silver</b>	U	U	U

**Notes:**

Soil sample data presented in milligrams per liter (mg/L).

U: Flag indicates the compound was analyzed for but not detected.

---

## **ATTACHMENT C**

- Chain of Custody Records
  - Shipping Documentation
-

## USEPA CLP Inorganics COC (LAB COPY)

DateShipped: 8/23/2012

CarrierName: FedEx

**AirbillNo: 870897315254**

## CHAIN OF CUSTODY RECORD

Case #: 42821

Cooler #: 1

**No: 2-082312-183909-0001**

**Lab: A4 Scientific**

**Lab Contact: Reddy Pakanati**

**Lab Phone: 281-292-5277**

Inorganic Sample #	Matrix/Sampler	Coll. Method	Analysis/Turnaround	Tag/Preservative/Bottles	Station Location	Collected	Organic Sample #	For Lab Use Only
MBAEN3	Rinsate Blank/ RST	Grab.	ICP-AES	1013 (HNO3 pH<2) (1)	RB-082012	08/20/2012 13:00		
MBAEN4	Rinsate Blank/ RST	Grab	ICP-AES	1014 (HNO3 pH<2) (1)	RB-082112	08/21/2012 16:00		
MBAEN5	Rinsate Blank/ RST	Grab	ICP-AES	1015 (HNO3 pH<2) (1)	RB-082212	08/22/2012 17:30		
MBAEN6	Rinsate Blank/ RST	Grab	ICP-AES	1016 (HNO3 pH<2) (1)	RB-082312	08/23/2012 14:30		
MBAEN7	Soil/ RST	Composite	ICP-AES	1003 (4 C) (1)	P001-SS001-1824-001	08/21/2012 11:10		
MBAEN8	Soil/ RST	Discrete Interval	ICP-AES	1006 (4 C) (1)	P001-SS001-A-0206-001	08/21/2012 09:10		
MBAEN9	Soil/ RST	Composite	ICP-AES	1004 (4 C) (1)	P001-SS007-0002-001	08/21/2012 11:30		
MBAEP0	Soil/ RST	Composite	ICP-AES	1012 (4 C) (1)	P001-SS007-0002-002	08/21/2012 11:30		
MBAEP1	Soil/ RST	Composite	ICP-AES	1005 (4 C) (1)	P001-SS008-1218-001	08/21/2012 11:45		
MBAEP2	Soil/ RST	Composite	ICP-AES	1002 (4 C) (1)	P001-SS012-0612-001	08/20/2012 15:25		
MBAEP3	Soil/ RST	Composite	ICP-AES	1001 (4 C) (1)	P001-SS014-SOD-001	08/20/2012 12:20		

**Special instructions:**

### Shipment for Case Complete? N

**Samples Transferred From Chain of Custody #**

Analysis Key: ICP-AES=CLP TAL Total Metals/ICP-AES

[illegible]

DateShipped: 8/23/2012

**Lab: A4 Scientific**

CarrierName: FedEx

Case #: 42821

**Lab Contact: Reddy Pakanati**

AirbillNo: 870897315254

Cooler #: 1

**Lab Phone: 281-292-5277**

Inorganic Sample #	Matrix/Sampler	Coll. Method	Analysis/Turnaround	Tag/Preservative/Bottles	Station Location	Collected	Organic Sample #	For Lab Use Only
MBAEP4	Soil/ RST	Composite	ICP-AES	1000 (4 C) (1)	P001-SS015-1824-001	08/20/2012 10:25		
MBAEP5	Soil/ RST	Discrete Interval	ICP-AES	1011 (4 C) (1)	P001-SS022-A-0206-001	08/22/2012 11:05		
MBAEP6	Soil/ RST	Composite	ICP-AES	1008 (4 C) (2)	P001-SS023-0002-001	08/22/2012 11:03		
MBAEP7	Soil/ RST	Composite	ICP-AES	1009 (4 C) (1)	P001-SS023-SOD-001	08/22/2012 13:00		
MBAEP8	Soil/ RST	Composite	ICP-AES	1010 (4 C) (1)	P001-SS033-0002-001	08/22/2012 08:50		
MBAEP9	Soil/ RST	Discrete Interval	ICP-AES	1007 (4 C) (1)	P001-SS034-D-0612-001	08/21/2012 15:10		
MBAEQ0	Soil/ RST	Composite	ICP-AES	1020 (4 C) (1)	P001-SS003-0206-001	08/22/2012 15:40		
MBAEQ1	Soil/ RST	Composite	ICP-AES	1018 (4 C) (1)	P001-SS005-0206-001	08/22/2012 14:35		
MBAEQ2	Soil/ RST	Composite	ICP-AES	1019 (4 C) (1)	P001-SS009-1824-001	08/22/2012 16:05		
MBAEQ3	Soil/ RST	Composite	ICP-AES	1021 (4 C) (1)	P001-SS020-0002-001	08/21/2012 08:45		
MBAEQ4	Soil/ RST	Composite	ICP-AES	1022 (4 C) (1)	P001-SS034-1218-001	08/21/2012 15:20		

Sample(s) to be used for Lab QC: MBAEP6	Shipment for Case Complete? N
Analysis Key: ICP-AES=CLP TAL Total Metals/ICP-AES	Samples Transferred From Chain of Custody #

[illegible]

## USEPA CLP Inorganics COC (LAB COPY)

Date Shipped: 8/30/2012

Carrier Name: FedEx

Airbill No: 899355984032

## CHAIN OF CUSTODY RECORD

Case #: 42821

Cooler #: 1

No: 2-083012-143604-0002

Lab: A4 Scientific

Lab Contact: Reddy Pakanati

Lab Phone: 281-292-5277

Inorganic Sample #	Matrix/Sampler	Coll. Method	Analysis/Turnaround	Tag/Preservative/Bottles	Station Location	Collected	Organic Sample #	For Lab Use Only
MBAEQ5	Soil/ RST	Composite	ICP-AES	1029 (4 C) (1)	P001-SS003-1824-001	08/23/2012 16:05		
MBAEQ6	Soil/ RST	Composite	ICP-AES	1025 (4 C) (1)	P001-SS011-0612-001	08/28/2012 12:45		
MBAEQ7	Soil/ RST	Composite	ICP-AES	1026 (4 C) (1)	P001-SS011-0612-002	08/28/2012 12:45		
MBAEQ8	Soil/ RST	Composite	ICP-AES	1023 (4 C) (1)	P001-SS026-1824-001	08/28/2012 12:48		
MBAEQ9	Soil/ RST	Composite	ICP-AES	1030 (4 C) (1)	P001-SS029-SOD-001	08/24/2012 14:18		
MBAER0	Soil/ RST	Composite	ICP-AES	1024 (4 C) (1)	P001-SS030-0206-001	08/27/2012 09:25		
MBAER2	Soil/ RST	Composite	ICP-AES	1028 (4 C) (1)	P002-SS001-SOD-001	08/28/2012 15:15		
MBAER3	Soil/ RST	Composite	ICP-AES	1036 (4 C) (2)	P008-SS001-1218-001	08/30/2012 12:10		
MBAER4	Rinsate Blank/ RST	Grab	ICP-AES	1031 (HNO3 pH<2) (1)	RB-082412	08/24/2012 16:00		
MBAER5	Rinsate Blank/ RST	Grab	ICP-AES	1032 (HNO3 pH<2) (1)	RB-082712	08/27/2012 16:00		
MBAER6	Rinsate Blank/ RST	Grab	ICP-AES	1033 (HNO3 pH<2) (1)	RB-082812	08/28/2012 15:30		

Sample(s) to be used for Lab QC: MBAER3		Shipment for Case Complete? Y	
Analysis Key: ICP-AES=CLP TAL Total Metals/ICP-AES		Samples Transferred From Chain of Custody #	

Items/Reason	Relinquished by	Date	Received by	Date	Time
all samples analyzed	Jed Petty	8/30/12	Jed Petty	8/30/12	1700

DateShipped: 8/30/2012

CarrierName: FedEx

**AirbillNo: 899355984032**

Case #: 42821

Cooler #: 1

**Lab: A4 Scientific**

**Lab Contact: Reddy Pakanati**

**Lab Phone: 281-292-5277**

[illegible]

**Special Instructions:**

### Shipment for Case Complete? Y

**Samples Transferred From Chain of Custody #**

Analysis Key: ICP-AES=CLP TAL Total Metals/CP-AES

[illegible]



DateShipped: 8/31/2012

CarrierName: Hand Delivery

AirbillNo: NA

## CHAIN OF CUSTODY RECORD

Site #: A21T

**Contact Name:** Joel Petty

**Contact Phone: 732-570-4943**

**No: 2-083112-104405-0003**

Cooler #: 1

**Lab: DESA**

**Lab Phone: 732-321-6707**

[illegible]

**Special Instructions:**

Special Instructions:	SAMPLES TRANSFERRED FROM
	CHAIN OF CUSTODY #

[illegible]

$T_{\text{enf}} = 6.3^\circ \text{C on ice}$  8/31/12

**From** Please print and press hard.  
**Date** 8/23/12  
**Sender's FedEx Account Number** 402356103  
**Sender's Name** Joel Petty  
**Phone** (732) 570-4943  
**Company** Weston Solutions  
**Address** 1090 King Georges Post Rd Suite 201  
**City** Edison **State** NJ **ZIP** 08837  
**Your Internal Billing Reference** 20401-211-027-6036  
**To**  
**Recipient's Name** Reddy Pakanati  
**Phone** (281) 292-5277  
**Company** A4 Scientific  
**Address** 1544 Sandust Rd Suite 505  
**City** The Woodlands **State** TX **ZIP** 77380



**FedEx Express NEW Package US Airbill**  
**From** Please print and press hard.  
**Date** 8/30/12  
**Sender's FedEx Account Number** 402356103  
**Sender's Name** Joel Petty  
**Phone** (732) 570-4943  
**Company** Weston Solutions, Inc.  
**Address** 1090 King Georges Post Rd. Suite 201  
**City** Edison **State** NJ **ZIP** 08837  
**Your Internal Billing Reference** 20401-135-027-6036  
**To**  
**Recipient's Name** Reddy Pakanati  
**Phone** (281) 292-5277  
**Company** A4 Scientific, Inc.  
**Address** 1544 Sandust Rd. Suite 505  
**City** The Woodlands **State** TX **ZIP** 77380

**The FedEx US Airbill has changed. See Section 4.**  
 For shipments over 150 lbs., order the new FedEx Express Freight US Airbill.

**0200** **Sender's Copy**

**4a Express Package Service** \*To most locations. Packages up to 150 lbs.

☒ **FedEx Priority Overnight**  
 Next business morning.\* Friday shipments will be delivered on Monday unless SATURDAY Delivery is selected.

☐ **FedEx Standard Overnight**  
 Next business afternoon.\* Saturday Delivery NOT available.

☐ **FedEx 2Day**  
 Second business day.\* Thursday shipments will be delivered on Monday unless SATURDAY Delivery is selected.

☐ **FedEx Express Saver**  
 Third business day.\* Saturday Delivery NOT available.

**4b Express Freight Service** \*\*To most locations. Packages over 150 lbs.

☐ **FedEx 1Day Freight**  
 Next business day.\* Friday shipments will be delivered on Monday unless SATURDAY Delivery is selected.

☐ **FedEx 2Day Freight**  
 Second business day.\* Thursday shipments will be delivered on Monday unless SATURDAY Delivery is selected.

☐ **FedEx 3Day Freight**  
 Third business day.\* Saturday Delivery NOT available.

**5 Packaging** \*Declared value limit \$500.

☐ **FedEx Envelope\*** ☐ **FedEx Pak\*** Includes FedEx Small Pak, FedEx Large Pak, and FedEx Sturdy Pak. ☐ **FedEx Box** ☐ **FedEx Tube** ☒ **Other**

**6 Special Handling and Delivery Signature Options**

☐ **SATURDAY Delivery**  
 NOT available for FedEx Standard Overnight, FedEx First Overnight, FedEx Express Saver, or FedEx 3Day Freight.

☐ **No Signature Required**  
 Package may be left without obtaining a signature for delivery.

☒ **Direct Signature**  
 Someone at recipient's address may sign for delivery. Fee applies.

☐ **Indirect Signature**  
 If no one is available at recipient's address, someone at a neighboring address may sign for delivery. For residential deliveries only. Fee applies.

**Does this shipment contain dangerous goods?**  
 One box must be checked.  
☒ **No** ☐ **Yes** As per attached Shipper's Declaration. ☐ **Yes** Shipper's Declaration not required. ☐ **Dry Ice** Dry Ice, 9, UN 1845 x kg  
 Dangerous goods (including dry ice) cannot be shipped in FedEx packaging or placed in a FedEx Express Drop Box. ☐ **Cargo Aircraft Only**

**7 Payment Bill to:**

☐ **Sender** Acct. No. in Section 1 will be billed. ☐ **Recipient** ☒ **Third Party** ☐ **Credit Card** ☐ **Cash/Check**

**Total Packages** **Total Weight** **Total Declared Value†**

0 0.00

†Our liability is limited to \$100 unless you declare a higher value. See back for details. By using this Airbill you agree to the service conditions on the back of this Airbill and in the current FedEx Service Guide, including terms that limit our liability.

Rev. Date 2/08 Part #158281-C1954-2008 FedEx-PRINTED IN U.S.A. SRY

**0200** **Sender's Copy**

**4 Express Package Service** \*To most locations. Packages up to 150 lbs.

**NOTE:** Service order has changed. Please select carefully.

**Next Business Day**

☐ **FedEx First Overnight**  
 Earliest next business morning delivery to select locations. Friday shipments will be delivered on Monday unless SATURDAY Delivery is selected.

☒ **FedEx Priority Overnight**  
 Next business morning.\* Friday shipments will be delivered on Monday unless SATURDAY Delivery is selected.

☐ **FedEx Standard Overnight**  
 Next business afternoon.\* Saturday Delivery NOT available.

**2 or 3 Business Days**

☐ **NEW FedEx 2Day A.M.**  
 Second business morning.\* Saturday Delivery NOT available.

☐ **FedEx 2Day**  
 Second business day.\* Thursday shipments will be delivered on Monday unless SATURDAY Delivery is selected.

☐ **FedEx Express Saver**  
 Third business day.\* Saturday Delivery NOT available.

**5 Packaging** \*Declared value limit \$500.

☐ **FedEx Envelope\*** ☐ **FedEx Pak\*** ☐ **FedEx Box** ☐ **FedEx Tube** ☒ **Other**

**6 Special Handling and Delivery Signature Options**

☐ **SATURDAY Delivery**  
 NOT available for FedEx Standard Overnight, FedEx 2Day A.M., or FedEx Express Saver.

☐ **No Signature Required**  
 Package may be left without obtaining a signature for delivery.

☒ **Direct Signature**  
 Someone at recipient's address may sign for delivery. Fee applies.

☐ **Indirect Signature**  
 If no one is available at recipient's address, someone at a neighboring address may sign for delivery. For residential deliveries only. Fee applies.

**Does this shipment contain dangerous goods?**  
 One box must be checked.  
☒ **No** ☐ **Yes** As per attached Shipper's Declaration. ☐ **Yes** Shipper's Declaration not required. ☐ **Dry Ice** Dry Ice, 9, UN 1845 x kg  
 Dangerous goods (including dry ice) cannot be shipped in FedEx packaging or placed in a FedEx Express Drop Box. ☐ **Cargo Aircraft Only**

**7 Payment Bill to:**

☐ **Sender** Acct. No. in Section 1 will be billed. ☐ **Recipient** ☒ **Third Party** ☐ **Credit Card** ☐ **Cash/Check**

**Total Packages** **Total Weight** **Total Declared Value†**

0 0.00

†Our liability is limited to \$100 unless you declare a higher value. See back for details. By using this Airbill you agree to the service conditions on the back of this Airbill and in the current FedEx Service Guide, including terms that limit our liability.

Rev. Date 11/10 Part #163136-C1954-2010 FedEx-PRINTED IN U.S.A. SRY



Weston Solutions, Inc.  
Suite 201  
1090 King Georges Post Road  
Edison, New Jersey 08837-3703  
732-585-4400 • Fax 732-225-7037  
www.westonsolutions.com

***The Trusted Integrator for Sustainable Solutions***

REMOVAL SUPPORT TEAM 2  
EPA CONTRACT EP-W-06-072

June 28, 2013

Mr. Cris D'Onofrio, On-Scene Coordinator  
U.S. Environmental Protection Agency, Region II  
Response and Prevention Branch  
2890 Woodbridge Avenue  
Edison, NJ 08837

**EPA CONTRACT NO: EP-W-06-072**

**TDD NO: TO-0027-0034**

**DOCUMENT CONTROL NO: RST 2-02-F-2405**

**SUBJECT: SAMPLING TRIP REPORT (PHASE II) - MC CANFIELD & SONS SITE,  
NEWARK, ESSEX COUNTY, NEW JERSEY**

Dear Mr. D'Onofrio,

Enclosed please find the Sampling Trip Report (Phase II) for the MC Canfield & Sons Site located at Cornerstone Lane & Marrow Street in Newark, Essex County, New Jersey. The sampling conducted from April 22, 2013 through May 3, 2013 was part of the Phase II Removal Assessment of the Site. If you have any questions, please do not hesitate to contact me at (732) 585-4421.

Sincerely,

Weston Solutions, Inc.

Joel Petty  
Removal Support Team 2  
Site Project Manager/Group Leader

Enclosure

cc: TDD File No: TO-0027-0034

*an employee-owned company*

*In Association with Scientific and Environmental Associates, Inc.,  
H & S Environmental, Inc., and Avatar Environmental, LLC*





## **SAMPLING TRIP REPORT (PHASE II)**

**SITE NAME:** MC Canfield & Sons  
**DC NO.:** RST 2-02-F-2405  
**TDD NO.:** TO-0027-0034  
**EPA SITE ID NO.:** NJN000206557  
**SAMPLING DATE:** April 22, 2013 through May 3, 2013

- 1. Site Location:** Cornerstone Lane & Marrow Street, Newark, Essex County, New Jersey.  
Refer to Attachment A, Figure 1, Site Location Map.
- 2. Sample Location:** Refer to Attachment A, Figure 2, Phase II Sample Locations with XRF Lead Results.

### **3. Introduction:**

In April and May 2013, the U.S. Environmental Protection Agency (EPA) assessed residential properties for the presence of lead in the vicinity of the MC Canfield & Sons Site (the Site) located at Cornerstone Lane and Marrow Street in Newark, Essex County, New Jersey. The Phase II Removal Assessment was conducted to further delineate the Site based upon the results of Phase I of the Removal Assessment conducted in August 2012. Results from composite samples collected during the August 2012 Phase I Removal Assessment indicated elevated concentrations of lead. A total of 13 of the original quadrants established during the Phase I Removal Assessment were chosen for further delineation.

This report has been prepared to document the activities which were completed in support of the Phase II Removal Assessment.

### **4. Removal Assessment Summary:**

On April 22, 2013, Weston Solutions, Inc., Removal Support Team 2 (RST 2) mobilized to the Site to conduct Phase II Removal Assessment sampling activities at the Site, now occupied by a residential townhouse community, referred to by RST 2 as MC Canfield & Sons. For the Phase I Removal Assessment, property 1 (P001) was split into 34 quadrants and included areas of high use such as gardens, play areas, flower beds, etc. Of these 34 quadrants, 13 were chosen for further delineation as part of the Phase II Removal Assessment. The 13 quadrants chosen for further delineation were SS012, SS013, SS014, SS015, SS017, SS019, SS023, SS026, SS027, SS028, SS029, SS030, and SS031. Sample locations were designated within each quadrant and soil samples from these locations were collected from up to five depth intervals (0-2 inches, 2-6 inches, 6-12 inches, 12-18 inches, and 18-24 inches). Samples were collected at all five depth intervals in quadrants SS012, SS013, SS014, SS015, SS023, SS026, and SS031. Samples were collected at 0-2 inches and 2-6 inches in quadrants SS017, SS019, SS027, SS028, SS029, and SS030. Some locations in these quadrants were sampled at additional depths to determine if lead concentrations decreased below 6 inches. These locations were determined by the EPA On-Scene Coordinator (OSC). Soil samples were collected every 30 feet along transects in each

quadrant under investigation for larger areas with at least one sample being collected from every area with exposed soil. Often times, samples would be collected in between two sample points to try and further delineate the contamination, which was determined by the EPA OSC. This determination was based upon the x-ray fluorescence (XRF) field screenings. One additional location was chosen in a flower bed in quadrant SS025 due to its close proximity to the source of the lead contamination. As part of the Phase II Removal Assessment sampling activities, RST 2 collected a total of 721 discrete soil samples from quadrants established throughout the Site (Refer to Attachment A, Figure 2, Phase II Sample Locations with XRF Lead Results).

The soil samples collected from the Site were screened for metals on-site using an Innov-X portable XRF instrument with 10 percent (%) submitted to the EPA Division of Environmental Science and Assessment (DESA) laboratory for target analyte list (TAL) metals, including tin, analysis. Field screening for lead and tin in soil was performed on-site using portable XRF technology. The samples were collected in a 6 by 9 inch plastic bag, homogenized, dried if necessary, and analyzed three times using the XRF. Organic debris was removed from the sample before it was homogenized. Each XRF sample screening interval lasted one minute. The three screening intervals were then averaged to determine the approximate lead and tin concentrations. Field screening samples were collected with dedicated plastic scoops.

A total of 10% of the soil samples and all of the rinsate blank samples were hand-delivered to the EPA DESA laboratory located in Edison, New Jersey on April 24, 2013 under Chain of Custody (COC) Record No. 2-042413-130421-0004; on April 26, 2013 under COC Record No. 2-042613-111227-0005; on May 1, 2013 under COC Record No. 2-050113-104604-0006; and on May 3, 2013 under COC Record No. 2-050313-091617-0008. For additional information refer to Attachment C, Chain of Custody Records.

#### **5. Laboratory Receiving Samples:**

<b>Sample Matrix</b>	<b>Analyses</b>	<b>Laboratory</b>
Soil and Aqueous (Rinsate Blanks)	TAL Metals and Tin	EPA DESA Laboratory 2890 Woodbridge Ave. Edison, NJ 08837

TAL = Target Analyte List

DESA = Division of Environmental Science and Assessment

## 6. Personnel On Site:

Name	Representing	Duties On-Site
Cris D'Onofrio	U.S. EPA, Region II	On-Scene Coordinator
David Rosoff	U.S. EPA, Region II	On-Scene Coordinator
Joel Petty	RST 2, Region II	Site Project Manager, Site H&S, Sample Management
Aleksandra Mallon	RST 2, Region II	XRF Technician, Sample Management
Dipanjali Chavan	RST 2, Region II	XRF Technician, Sample Management
Timothy Benton	RST 2, Region II	Sample Collection
Mark Conover	RST 2, Region II	Sample Collection
Scott Snyder	RST 2, Region II	Sample Collection
Bernard Nwosu	RST 2, Region II	Sample Collection
Michael Garibaldi	RST 2, Region II	Sample Collection
Sean Hettinger	RST 2, Region II	Sample Collection
Joseph Bundens	RST 2, Region II	Sample Collection

## 7. Analytical Discussion

Based on the XRF screening data results of the discrete soil samples collected from the Site, lead was detected at concentrations ranging from 44 milligrams per kilogram (mg/kg) to 8,290 mg/kg. Sample locations SS012-AA, SS012-BB, SS012-CC, SS012-EE, SS012-K, SS012-L, SS012-M, SS012-N, SS012-O, SS012-Q, SS012-R, SS012-S, SS012-T, SS012-U, SS012-W, SS012-Y, SS013-AA, SS013-CC, SS013-EE, SS013-FF, SS013-GG, SS013-J, SS013-L, SS013-N, SS013-P, SS013-T, SS013-U, SS013-V, SS013-W, SS013-X, SS013-Y, SS014-AA, SS014-BB, SS014-CC, SS014-K, SS014-L, SS014-M, SS014-O, SS014-Q, SS014-R, SS014-S, SS014-V, SS014-X, SS014-Z, SS015-AA, SS015-BB, SS015-J, SS015-L, SS015-N, SS015-O, SS015-P, SS015-Q, SS015-R, SS015-S, SS015-U, SS017-G, SS017-I, SS017-M, SS017-N, SS017-O, SS017-P, SS017-Q, SS017-S, SS017-U, SS017-W, SS017-X, SS017-Y, SS019-F, SS019-H, SS019-J, SS019-L, SS019-M, SS019-N, SS019-O, SS019-Q, SS019-S, SS019-U, SS019-V, SS023-G, SS023-J, SS023-K, SS023-L, SS023-M, SS023-N, SS023-P, SS023-Q, SS026-CC, SS026-F, SS026-I, SS026-J, SS026-K, SS026-L, SS026-M, SS026-N, SS026-P, SS026-R, SS026-S, SS026-V, SS026-X, SS026-Z, SS027-F, SS027-G, SS027-I, SS027-K, SS027-N, SS027-O, SS027-Q, SS027-U, SS027-W, SS027-X, SS027-Y, SS028-BB, SS028-DD, SS028-EE, SS028-GG, SS028-II, SS028-J, SS028-JJ, SS028-KK, SS028-L, SS028-O, SS028-Q, SS028-S, SS028-U, SS028-V, SS028-Z, SS029-F, SS029-H, SS029-J, SS029-L, SS029-N, SS029-O, SS029-S, SS029-U, SS029-V, SS030-BB, SS030-DD, SS030-H, SS030-J, SS030-L, SS030-N, SS030-R, SS030-T, SS030-U, SS030-Y, SS031-H, SS031-I, SS031-J, SS031-L, SS031-N, SS031-P, SS031-R, SS031-S, SS031-T, and SS031-V contained soil samples with lead results exceeding the New Jersey Administrative Code (NJAC) Residential Direct Contact Soil Remediation Standard of 400 milligrams per kilogram (mg/kg). Refer to Attachment B, Table 1: X-Ray Fluorescence (XRF) Soil Screening Results for Lead.

Based on the XRF screening data results of the discrete soil samples collected from the Site, tin was detected at concentrations ranging from non-detect to 9,842 mg/kg. Refer to Attachment B,



Table 2: X-Ray Fluorescence (XRF) Soil Screening Results for Tin.

Based on the analytical results of the confirmatory soil samples submitted to the EPA DESA laboratory, the following 22 TAL metals, including tin, were detected in soil samples collected from the Site (maximum concentration and sample location in parentheses): aluminum (14,000 mg/kg in P001-SS015-Y-0206-001); antimony (260 mg/kg in P001-SS015-L-1824-001); arsenic (59 mg/kg in P001-SS014-R-1824-001); barium (970 mg/kg in P001-SS013-T-0612-001); beryllium (0.73 mg/kg in P001-SS014-O-0612-001); cadmium (5.3 mg/kg in P001-SS014-R-1218-001); calcium (22,000 mg/kg in P001-SS030-J-0206-001); chromium (62 mg/kg in P001-SS012-S-0002-001); cobalt (17 mg/kg in P001-SS014-R-1824-001); copper (5,700 mg/kg in P001-SS014-R-1824-001); iron (45,000 mg/kg in P001-SS015-Y-0206-001); lead (13,000 mg/kg in P001-SS015-L-1824-001); magnesium (8,800 mg/kg in P001-SS015-Y-0206-001); manganese (590 mg/kg in P001-SS015-Y-0206-001); nickel (77 mg/kg in P001-SS026-Z-0206-001); potassium (1,200 mg/kg in P001-SS012-S-0002-001, P001-SS014-R-0002-001, P001-SS014-S-0206-001, and P001-SS015-W-0002-001); sodium (2,900 mg/kg in P001-SS015-Y-0206-001); silver (50 mg/kg in P001-SS015-L-1824-001); thallium (1.6 mg/kg in P001-SS014-AA-1824-001); vanadium (81 mg/kg in P001-SS014-AA-1824-001); zinc (5,800 mg/kg in P001-SS014-R-1824-001); and tin (12,000 mg/kg in P001-SS015-L-1218-001 and P001-SS015-L-1824-001). In addition, five TAL metals (antimony, arsenic, copper, lead, and vanadium) were detected in soil samples collected from the Site at concentrations exceeding their NJAC Residential Direct Contact Soil Remediation Standard. Refer at Attachment B, Table 3: Validated Analytical Results for TAL Metals + Tin.

Report Prepared By:

  
Joel Petty

Site Project Manager, RST 2

Date

6/28/13

Report Reviewed By:



Timothy Benton

Operations Manager, RST 2

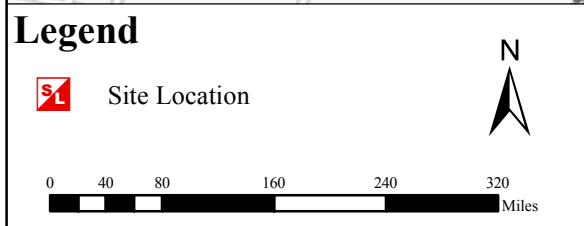
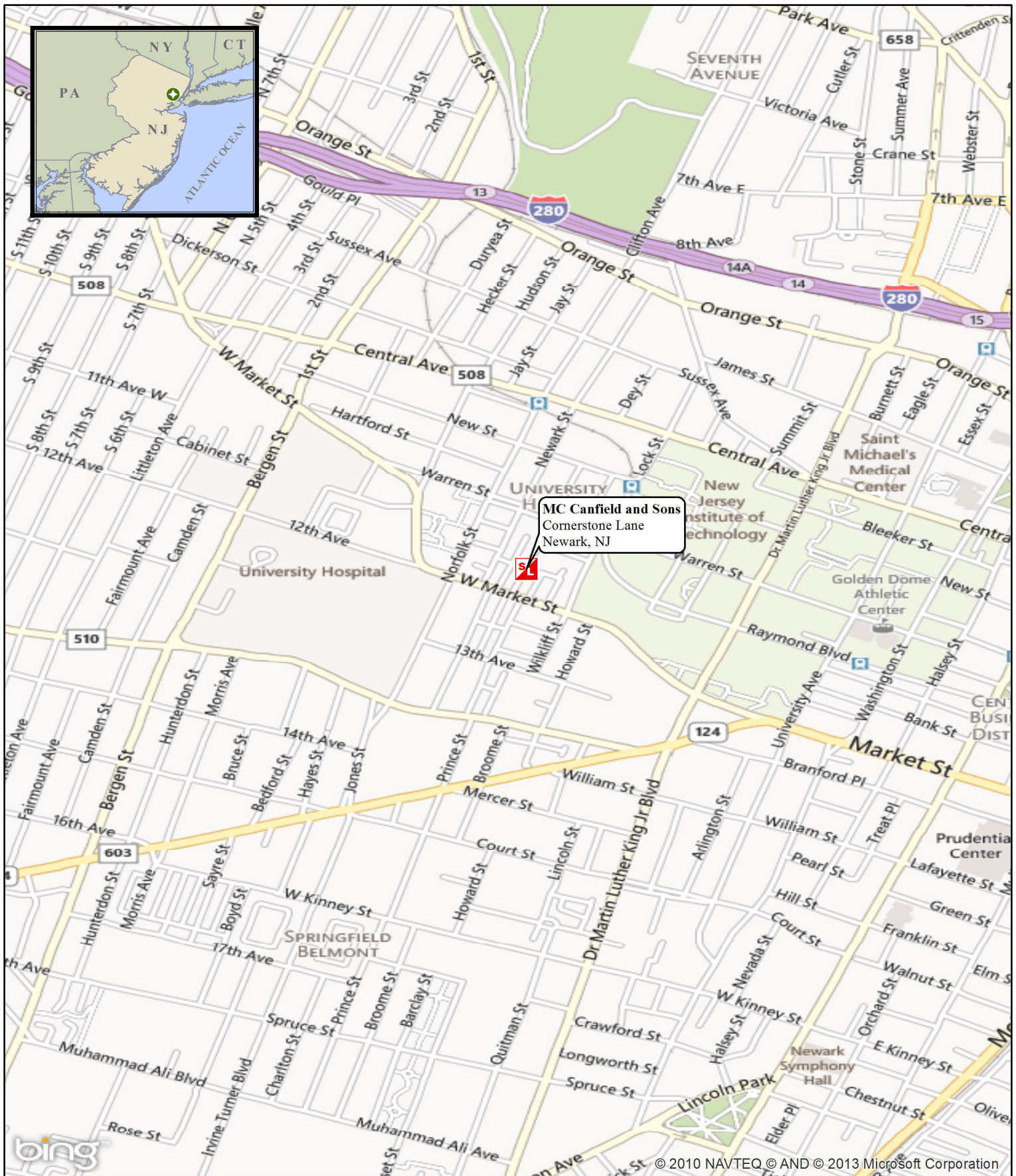
Date

6/28/13

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## **ATTACHMENT A**

- Figure 1: Site Location Map
  - Figure 2: Phase II Sample Locations with XRF Lead Results
-



**WESTON SOLUTIONS** Weston Solutions, Inc.  
East Division

In Association With  
Avatar Environmental, LLC.,  
H & S Environmental, Inc. and  
Scientific and Environmental Associates, Inc.

<b>Figure 1:</b> <b>Site Location Map</b> McCanfield and Sons, Inc. Newark, New Jersey	
U.S. ENVIRONMENTAL PROTECTION AGENCY REMOVAL SUPPORT TEAM 2 CONTRACT # EP-W-06-072	
GIS ANALYST:	F. CAMPBELL
EPA OSC:	C. DONOFRIO
RST SPM:	J. PETTY
FILENAME:	SITE LOCATION MAP





NY  
CT  
PA  
NJ  
DE

SCALE  
1:239

LEGEND  
XRF Sample Location  
Quadrant Boundary

NOTES:  
• ALL RESULTS ARE DEPICTED IN PARTS PER MILLION (PPM).  
• ALL SAMPLE DEPTHS DENOTED IN PARENTHESES AND ARE DEPICTED IN INCHES.  
• EXCELSION OF THE SITE-SPECIFIC ACTION LEVEL OF 100 PPM ARE HIGHLIGHTED RED

**Figure 2: Phase II Sample Locations with XRF Lead Results**

MC CANFIELD & SONS SITE  
NEWARK, NEW JERSEY

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
REMOVAL SUPPORT TEAM 2  
CONTRACT # EP-W-06-072

**Weston Solutions, Inc.**  
Northeast Division

In Association With  
Avatar Environmental, LLC,  
Innovative Technological Solutions, Inc. &  
Scientific and Environmental Associates, Inc.

GIS ANALYST:	F. CAMPBELL
EPA OSC:	C. DONOFIO
RST SPM:	J. PETTY
FILENAME:	PHASEIIPROPSMLOC_130510.MXD
FIGURE:	1
REVISION:	0
DATE MODIFIED:	6/28/2013

**WESTON SOLUTIONS**

W MARKET ST

CALLAHAN CT

MARROW ST

MATTHEWS ST

WICKLIFE ST

PEREZ DR

COSSIO DR

ASHBY LN

SCHOOL ST



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## **ATTACHMENT B**

- Table 1: X-Ray Fluorescence (XRF) Soil Screening Results for Lead
  - Table 2: X-Ray Fluorescence (XRF) Soil Screening Results for Tin
  - Table 3: Validated Analytical Results for TAL Metals + Tin
-

**Table 1**  
**X-Ray Fluorescence (XRF) Soil Screening Results For Lead**  
**MC Canfield & Sons Site**  
**April 22 through May 2, 2013**

Sample ID	Location	Lead (Pb) Result 1	{+/-}	Lead (Pb) Result 2	{+/-}	Lead (Pb) Result 3	{+/-}	Lead (Pb) Average Results
SS012-AA-0002	SS012-AA	252	8	298	9	263	8	271
SS012-AA-0206	SS012-AA	622	14	542	12	515	12	<b>560</b>
SS012-AA-0612	SS012-AA	858	17	849	16	785	16	<b>831</b>
SS012-AA-1218	SS012-AA	591	13	539	12	630	14	<b>587</b>
SS012-AA-1824	SS012-AA	571	13	700	15	660	14	<b>644</b>
SS012-BB-0002	SS012-BB	243	8	261	9	215	8	240
SS012-BB-0206	SS012-BB	394	11	428	11	402	11	<b>408</b>
SS012-CC-0002	SS012-CC	211	3	142	2	192	2	182
SS012-CC-0206	SS012-CC	696	6	755	6	699	6	<b>717</b>
SS012-CC-0612	SS012-CC	448	5	427	4	435	4	<b>437</b>
SS012-CC-1218	SS012-CC	602	6	512	5	489	5	<b>534</b>
SS012-CC-1824	SS012-CC	920	8	1007	9	1024	8	<b>984</b>
SS012-DD-0002	SS012-DD	169	2	200	3	191	2	187
SS012-DD-0206	SS012-DD	253	3	184	3	184	3	207
SS012-DD-0612	SS012-DD	145	2	178	3	172	3	165
SS012-DD-1218	SS012-DD	117	2	99	2	91	2	102
SS012-DD-1824	SS012-DD	102	6	117	6	107	6	109
SS012-EE-0002	SS012-EE	143	5	144	5	152	6	146
SS012-EE-0206	SS012-EE	264	8	255	8	284	8	268
SS012-EE-0612	SS012-EE	360	10	286	9	249	8	298
SS012-EE-1218	SS012-EE	401	11	447	12	406	11	<b>418</b>
SS012-EE-1824	SS012-EE	543	12	346	9	426	11	<b>438</b>
SS012-K-0002	SS012-K	390	4	299	3	346	4	345
SS012-K-0206	SS012-K	439	4	491	5	420	4	<b>450</b>
SS012-K-0612	SS012-K	373	4	579	5	442	4	<b>465</b>
SS012-K-1218	SS012-K	424	4	404	4	476	5	<b>435</b>
SS012-K-1824	SS012-K	271	3	399	4	349	4	340
SS012-L-0002	SS012-L	407	10	429	10	417	10	<b>418</b>
SS012-L-0206	SS012-L	539	12	949	17	551	15	<b>680</b>
SS012-L-0612	SS012-L	400	10	404	10	283	9	362
SS012-L-1218	SS012-L	51	4	63	4	56	4	57
SS012-L-1824	SS012-L	52	4	39	4	54	4	48

**Notes:**

XRF data presented in milligrams per kilogram (mg/kg).

Results exceeding the New Jersey Administrative Code (NJAC) Residential Direct Contact  
Soil Remediation Standard of 400 mg/kg for lead are bolded and highlighted in red.



**Table 1**  
**X-Ray Fluorescence (XRF) Soil Screening Results For Lead**  
**MC Canfield & Sons Site**  
**April 22 through May 2, 2013**

Sample ID	Location	Lead (Pb) Result 1	{+/-}	Lead (Pb) Result 2	{+/-}	Lead (Pb) Result 3	{+/-}	Lead (Pb) Average Results
SS012-M-0002	SS012-M	285	8	328	9	261	8	291
SS012-M-0206	SS012-M	346	9	419	10	374	9	380
SS012-M-0612	SS012-M	725	14	741	15	664	14	<b>710</b>
SS012-M-1218	SS012-M	1434	25	1343	21	1125	20	<b>1,301</b>
SS012-M-1824	SS012-M	2082	30	2034	29	1759	25	<b>1,958</b>
SS012-N-0002	SS012-N	235	8	214	8	195	7	215
SS012-N-0206	SS012-N	383	10	483	12	509	12	<b>458</b>
SS012-N-0612	SS012-N	904	16	721	14	698	15	<b>774</b>
SS012-N-1218	SS012-N	1008	17	942	17	957	18	<b>969</b>
SS012-N-1824	SS012-N	457	11	594	13	588	13	<b>546</b>
SS012-O-0002	SS012-O	299	3	309	3	213	3	274
SS012-O-0206	SS012-O	380	4	444	4	516	5	<b>447</b>
SS012-O-0612	SS012-O	222	3	244	3	127	2	198
SS012-O-1218	SS012-O	557	5	471	5	545	5	<b>524</b>
SS012-O-1824	SS012-O	453	4	325	4	296	3	358
SS012-Q-0002	SS012-Q	230	8	207	8	241	8	226
SS012-Q-0206	SS012-Q	779	16	561	13	554	13	<b>631</b>
SS012-Q-0612	SS012-Q	587	14	570	13	532	13	<b>563</b>
SS012-Q-1218	SS012-Q	555	13	686	15	585	14	<b>609</b>
SS012-Q-1824	SS012-Q	442	11	517	12	477	12	<b>479</b>
SS012-R-0002	SS012-R	214	3	222	3	213	3	216
SS012-R-0206	SS012-R	469	10	396	4	473	5	<b>446</b>
SS012-R-0612	SS012-R	636	6	728	6	630	5	<b>665</b>
SS012-R-1218	SS012-R	329	3	717	9	610	6	<b>552</b>
SS012-R-1824	SS012-R	368	4	450	4	466	4	<b>428</b>
SS012-S-0002	SS012-S	228	7	182	7	208	7	206
SS012-S-0206	SS012-S	272	8	260	8	450	10	327
SS012-S-0612	SS012-S	411	10	412	11	-	-	<b>412</b>
SS012-S-1218	SS012-S	814	17	477	12	543	13	<b>611</b>
SS012-S-1824	SS012-S	539	14	527	13	479	15	<b>515</b>

**Notes:**

XRF data presented in milligrams per kilogram (mg/kg).

Results exceeding the New Jersey Administrative Code (NJAC) Residential Direct Contact  
Soil Remediation Standard of 400 mg/kg for lead are bolded and highlighted in red.

**Table 1**  
**X-Ray Fluorescence (XRF) Soil Screening Results For Lead**  
**MC Canfield & Sons Site**  
**April 22 through May 2, 2013**

Sample ID	Location	Lead (Pb) Result 1	{+/-}	Lead (Pb) Result 2	{+/-}	Lead (Pb) Result 3	{+/-}	Lead (Pb) Average Results
SS012-T-0002	SS012-T	292	7	288	7	275	7	285
SS012-T-0206	SS012-T	847	16	948	18	933	18	<b>909</b>
SS012-T-0612	SS012-T	1268	21	1267	22	1742	28	<b>1,426</b>
SS012-T-1218	SS012-T	1428	24	1871	29	1247	21	<b>1,515</b>
SS012-T-1824	SS012-T	826	16	1062	21	918	25	<b>935</b>
SS012-U-0002	SS012-U	2836	20	2582	17	2438	17	<b>2,619</b>
SS012-U-0206	SS012-U	1919	14	2823	19	1821	13	<b>2,188</b>
SS012-U-0612	SS012-U	1197	10	1395	10	1555	14	<b>1,382</b>
SS012-U-1218	SS012-U	1314	10	1219	10	1289	10	<b>1,274</b>
SS012-U-1824	SS012-U	1104	8	1299	10	984	8	<b>1,129</b>
SS012-W-0002	SS012-W	870	16	922	17	833	16	<b>875</b>
SS012-W-0206	SS012-W	1201	21	1190	21	1246	21	<b>1,212</b>
SS012-W-0612	SS012-W	1021	18	1164	20	1004	18	<b>1,063</b>
SS012-W-1218	SS012-W	925	17	864	17	901	17	<b>897</b>
SS012-W-1824	SS012-W	848	17	814	16	817	16	<b>826</b>
SS012-Y-0002	SS012-Y	168	3	236	3	198	2	201
SS012-Y-0206	SS012-Y	359	4	309	3	346	7	338
SS012-Y-0612	SS012-Y	1714	12	1580	13	1568	12	<b>1,621</b>
SS012-Y-1218	SS012-Y	1834	13	1623	11	1943	14	<b>1,800</b>
SS012-Y-1824	SS012-Y	2896	20	2789	20	3047	22	<b>2,911</b>
SS013-AA-0002	SS013-AA	2535	19	2767	20	3251	22	<b>2,851</b>
SS013-AA-0206	SS013-AA	3821	29	4241	32	4069	68	<b>4,044</b>
SS013-AA-0612	SS013-AA	6101	48	5715	45	6071	48	<b>5,962</b>
SS013-AA-1218	SS013-AA	5461	40	5129	40	3759	30	<b>4,783</b>
SS013-AA-1824	SS013-AA	3387	25	5285	37	3713	26	<b>4,128</b>
SS013-CC-0002	SS013-CC	509	5	459	5	441	5	<b>470</b>
SS013-CC-0206	SS013-CC	4308	32	2630	19	2227	17	<b>3,055</b>
SS013-CC-0612	SS013-CC	1602	11	2161	25	1438	11	<b>1,734</b>
SS013-CC-1218	SS013-CC	1801	13	1699	13	1353	11	<b>1,618</b>
SS013-CC-1824	SS013-CC	1691	14	1715	13	1727	15	<b>1,711</b>

**Notes:**

XRF data presented in milligrams per kilogram (mg/kg).

Results exceeding the New Jersey Administrative Code (NJAC) Residential Direct Contact  
Soil Remediation Standard of 400 mg/kg for lead are bolded and highlighted in red.



**Table 1**  
**X-Ray Fluorescence (XRF) Soil Screening Results For Lead**  
**MC Canfield & Sons Site**  
**April 22 through May 2, 2013**

Sample ID	Location	Lead (Pb) Result 1	{+/-}	Lead (Pb) Result 2	{+/-}	Lead (Pb) Result 3	{+/-}	Lead (Pb) Average Results
SS013-EE-0002	SS013-EE	710	16	881	19	717	16	<b>769</b>
SS013-EE-0206	SS013-EE	867	18	1551	27	972	19	<b>1,130</b>
SS013-EE-0612	SS013-EE	2402	38	1660	28	1612	27	<b>1,891</b>
SS013-EE-1218	SS013-EE	1317	23	1101	21	1267	23	<b>1,228</b>
SS013-EE-1824	SS013-EE	750	16	836	17	876	18	<b>821</b>
SS013-FF-0002	SS013-FF	558	5	576	5	272	3	<b>469</b>
SS013-FF-0206	SS013-FF	1033	9	1129	10	815	8	<b>992</b>
SS013-FF-0612	SS013-FF	865	11	1046	9	889	7	<b>933</b>
SS013-FF-1218	SS013-FF	908	7	959	8	818	7	<b>895</b>
SS013-FF-1824	SS013-FF	838	7	1021	8	1023	12	<b>961</b>
SS013-GG-0002	SS013-GG	349	3	404	4	349	3	367
SS013-GG-0206	SS013-GG	693	6	678	6	588	5	<b>653</b>
SS013-GG-0612	SS013-GG	898	8	344	3	703	6	<b>648</b>
SS013-GG-1218	SS013-GG	671	6	694	6	838	7	<b>734</b>
SS013-GG-1824	SS013-GG	827	8	720	6	749	7	<b>765</b>
SS013-J-0002	SS013-J	246	9	235	8	255	9	245
SS013-J-0206	SS013-J	350	10	478	13	313	10	380
SS013-J-0612	SS013-J	405	11	366	10	400	11	390
SS013-J-1218	SS013-J	643	15	683	16	666	15	<b>664</b>
SS013-J-1824	SS013-J	741	15	450	11	833	16	<b>675</b>
SS013-L-0002	SS013-L	262	9	280	10	280	10	274
SS013-L-0206	SS013-L	712	16	359	10	783	16	<b>618</b>
SS013-L-0612	SS013-L	506	13	552	13	581	13	<b>546</b>
SS013-L-1218	SS013-L	594	13	599	13	611	14	<b>601</b>
SS013-L-1824	SS013-L	251	8	244	8	171	7	222
SS013-N-0002	SS013-N	524	5	308	3	345	3	392
SS013-N-0206	SS013-N	481	5	502	5	296	3	<b>426</b>
SS013-N-0612	SS013-N	408	4	513	5	453	5	<b>458</b>
SS013-N-1218	SS013-N	272	3	318	4	339	4	310
SS013-N-1824	SS013-N	78	2	108	2	91	2	92

**Notes:**

XRF data presented in milligrams per kilogram (mg/kg).

Results exceeding the New Jersey Administrative Code (NJAC) Residential Direct Contact  
Soil Remediation Standard of 400 mg/kg for lead are bolded and highlighted in red.

**Table 1**  
**X-Ray Fluorescence (XRF) Soil Screening Results For Lead**  
**MC Canfield & Sons Site**  
**April 22 through May 2, 2013**

Sample ID	Location	Lead (Pb) Result 1	{+/-}	Lead (Pb) Result 2	{+/-}	Lead (Pb) Result 3	{+/-}	Lead (Pb) Average Results
SS013-P-0002	SS013-P	651	14	663	15	727	15	<b>680</b>
SS013-P-0206	SS013-P	786	16	799	16	779	16	<b>788</b>
SS013-P-0612	SS013-P	687	15	639	14	604	14	<b>643</b>
SS013-P-1218	SS013-P	688	15	730	16	698	15	<b>705</b>
SS013-P-1824	SS013-P	431	11	526	13	400	11	<b>452</b>
SS013-R-0002	SS013-R	279	11	302	9	308	10	296
SS013-R-0206	SS013-R	182	7	182	8	230	8	198
SS013-R-0612	SS013-R	242	8	249	9	206	8	232
SS013-R-1218	SS013-R	282	9	299	9	328	10	303
SS013-R-1824	SS013-R	168	7	113	6	195	7	159
SS013-T-0002	SS013-T	394	11	353	10	414	11	387
SS013-T-0206	SS013-T	514	12	495	12	479	12	<b>496</b>
SS013-T-0612	SS013-T	1574	25	1407	22	1416	22	<b>1,466</b>
SS013-T-1218	SS013-T	697	15	521	12	475	11	<b>564</b>
SS013-T-1824	SS013-T	855	16	643	14	2092	32	<b>1,197</b>
SS013-U-0002	SS013-U	732	15	402	11	462	11	<b>532</b>
SS013-U-0206	SS013-U	799	16	763	15	796	16	<b>786</b>
SS013-U-0612	SS013-U	334	10	267	9	367	11	323
SS013-U-1218	SS013-U	526	12	300	9	304	9	377
SS013-U-1824	SS013-U	236	8	311	9	336	10	294
SS013-V-0002	SS013-V	332	9	249	7	269	8	283
SS013-V-0206	SS013-V	473	11	554	13	517	12	<b>515</b>
SS013-V-0612	SS013-V	604	14	559	13	553	13	<b>572</b>
SS013-V-1218	SS013-V	172	7	141	6	257	8	190
SS013-V-1824	SS013-V	164	7	163	7	164	7	164
SS013-W-0002	SS013-W	553	12	512	11	478	11	<b>514</b>
SS013-W-0206	SS013-W	833	15	557	12	579	13	<b>656</b>
SS013-W-0612	SS013-W	577	13	535	13	447	11	<b>520</b>
SS013-W-1218	SS013-W	163	7	66	5	159	7	129
SS013-W-1824	SS013-W	260	9	239	9	252	8	250

**Notes:**

XRF data presented in milligrams per kilogram (mg/kg).

Results exceeding the New Jersey Administrative Code (NJAC) Residential Direct Contact  
Soil Remediation Standard of 400 mg/kg for lead are bolded and highlighted in red.



**Table 1**  
**X-Ray Fluorescence (XRF) Soil Screening Results For Lead**  
**MC Canfield & Sons Site**  
**April 22 through May 2, 2013**

Sample ID	Location	Lead (Pb) Result 1	{+/-}	Lead (Pb) Result 2	{+/-}	Lead (Pb) Result 3	{+/-}	Lead (Pb) Average Results
SS013-X-0002	SS013-X	591	12	605	13	614	13	<b>603</b>
SS013-X-0206	SS013-X	741	15	635	14	816	16	<b>731</b>
SS013-X-0612	SS013-X	1905	30	1958	31	2405	35	<b>2,089</b>
SS013-X-1218	SS013-X	906	17	858	17	827	17	<b>864</b>
SS013-X-1824	SS013-X	559	13	594	13	702	15	<b>618</b>
SS013-Y-0002	SS013-Y	1982	30	2081	34	2140	33	<b>2,068</b>
SS013-Y-0206	SS013-Y	2254	34	2293	36	2469	37	<b>2,339</b>
SS013-Y-0612	SS013-Y	3586	49	4648	64	2959	43	<b>3,731</b>
SS013-Y-1218	SS013-Y	1146	23	1081	23	764	16	<b>997</b>
SS013-Y-1824	SS013-Y	1008	20	917	21	693	15	<b>873</b>
SS014-AA-0002	SS014-AA	285	8	156	16	199	6	213
SS014-AA-0206	SS014-AA	295	9	307	9	373	10	325
SS014-AA-0612	SS014-AA	400	11	496	12	469	12	<b>455</b>
SS014-AA-1218	SS014-AA	105	7	94	6	181	8	127
SS014-AA-1824	SS014-AA	73	6	72	6	58	7	68
SS014-BB-0002	SS014-BB	201	7	213	7	205	6	206
SS014-BB-0206	SS014-BB	428	11	431	11	405	11	<b>421</b>
SS014-BB-0612	SS014-BB	944	18	869	17	956	19	<b>923</b>
SS014-BB-1218	SS014-BB	709	16	837	17	821	17	<b>789</b>
SS014-BB-1824	SS014-BB	1027	19	823	17	756	16	<b>869</b>
SS014-CC-0002	SS014-CC	493	11	387	10	462	11	<b>447</b>
SS014-CC-0206	SS014-CC	254	8	295	9	282	9	277
SS014-CC-0612	SS014-CC	261	8	87	5	79	5	142
SS014-CC-1218	SS014-CC	47	4	59	5	59	4	55
SS014-CC-1824	SS014-CC	139	6	100	5	123	6	121
SS014-J-0002	SS014-J	232	3	257	3	239	3	243
SS014-J-0206	SS014-J	335	4	338	4	473	4	382
SS014-K-0002	SS014-K	444	11	333	10	443	11	<b>407</b>
SS014-K-0206	SS014-K	181	7	196	7	122	6	166
SS014-K-0612	SS014-K	253	8	160	6	289	8	234
SS014-K-1218	SS014-K	528	12	539	12	420	11	<b>496</b>
SS014-K-1824	SS014-K	308	9	411	10	375	10	365

**Notes:**

XRF data presented in milligrams per kilogram (mg/kg).

Results exceeding the New Jersey Administrative Code (NJAC) Residential Direct Contact  
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**Table 1**  
**X-Ray Fluorescence (XRF) Soil Screening Results For Lead**  
**MC Canfield & Sons Site**  
**April 22 through May 2, 2013**

Sample ID	Location	Lead (Pb) Result 1	{+/-}	Lead (Pb) Result 2	{+/-}	Lead (Pb) Result 3	{+/-}	Lead (Pb) Average Results
SS014-L-0002	SS014-L	371	9	357	9	300	8	343
SS014-L-0206	SS014-L	709	15	456	11	464	11	<b>543</b>
SS014-L-0612	SS014-L	296	8	211	7	391	10	299
SS014-L-1218	SS014-L	506	11	539	12	406	10	<b>484</b>
SS014-L-1824	SS014-L	751	13	873	16	715	14	<b>780</b>
SS014-M-0002	SS014-M	316	8	517	12	-	-	<b>417</b>
SS014-M-0206	SS014-M	669	14	468	12	2223	44	<b>1,120</b>
SS014-M-0612	SS014-M	1743	27	1241	20	868	17	<b>1,284</b>
SS014-M-1218	SS014-M	993	21	1228	21	1130	21	<b>1,117</b>
SS014-O-0002	SS014-O	384	3	406	4	912	7	<b>567</b>
SS014-O-0206	SS014-O	1342	10	1886	13	1425	10	<b>1,551</b>
SS014-O-0612	SS014-O	2993	20	2724	19	3128	21	<b>2,948</b>
SS014-O-1218	SS014-O	3066	22	2772	20	2790	18	<b>2,876</b>
SS014-O-1824	SS014-O	83	6	57	6	23	3	54
SS014-Q-0002	SS014-Q	678	13	680	14	946	18	<b>768</b>
SS014-Q-0206	SS014-Q	1860	28	2115	34	1867	30	<b>1,947</b>
SS014-Q-0612	SS014-Q	936	18	883	19	1081	21	<b>967</b>
SS014-Q-1218	SS014-Q	1088	20	373	10	1059	20	<b>840</b>
SS014-Q-1824	SS014-Q	881	17	1041	19	826	17	<b>916</b>
SS014-R-0002	SS014-R	177	6	173	6	136	6	162
SS014-R-0206	SS014-R	1406	24	1248	22	1015	19	<b>1,223</b>
SS014-R-0612	SS014-R	913	17	960	17	966	18	<b>946</b>
SS014-R-1218	SS014-R	5201	73	4257	58	4193	56	<b>4,550</b>
SS014-R-1824	SS014-R	4811	68	3000	44	2957	45	<b>3,589</b>
SS014-S-0002	SS014-S	229	7	242	7	223	7	231
SS014-S-0206	SS014-S	640	13	480	12	603	13	<b>574</b>
SS014-S-0612	SS014-S	604	14	661	14	651	15	<b>639</b>
SS014-S-1218	SS014-S	528	12	437	11	380	11	<b>448</b>
SS014-S-1824	SS014-S	661	14	511	12	729	15	<b>634</b>

**Notes:**

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**Table 1**  
**X-Ray Fluorescence (XRF) Soil Screening Results For Lead**  
**MC Canfield & Sons Site**  
**April 22 through May 2, 2013**

Sample ID	Location	Lead (Pb) Result 1	{+/-}	Lead (Pb) Result 2	{+/-}	Lead (Pb) Result 3	{+/-}	Lead (Pb) Average Results
SS014-T-0002	SS014-T	107	5	100	5	80	5	96
SS014-T-0206	SS014-T	119	6	101	5	140	6	120
SS014-T-0612	SS014-T	83	5	77	5	106	6	89
SS014-T-1218	SS014-T	152	7	162	7	154	6	156
SS014-T-1824	SS014-T	92	5	138	6	94	6	108
SS014-U-0002	SS014-U	150	6	153	6	147	6	150
SS014-U-0206	SS014-U	148	6	164	6	175	6	162
SS014-U-0612	SS014-U	151	6	123	6	134	6	136
SS014-U-1218	SS014-U	125	6	107	5	96	5	109
SS014-U-1824	SS014-U	142	6	123	6	117	5	127
SS014-V-0002	SS014-V	267	8	256	8	271	8	265
SS014-V-0206	SS014-V	434	11	368	10	412	11	<b>405</b>
SS014-V-0612	SS014-V	281	9	357	10	303	9	314
SS014-V-1218	SS014-V	378	10	319	10	318	9	338
SS014-V-1824	SS014-V	386	11	337	10	358	10	360
SS014-X-0002	SS014-X	292	9	110	6	348	10	250
SS014-X-0206	SS014-X	586	14	609	14	553	13	<b>583</b>
SS014-X-0612	SS014-X	566	14	460	12	586	14	<b>537</b>
SS014-X-1218	SS014-X	472	12	596	15	482	13	<b>517</b>
SS014-X-1824	SS014-X	304	10	310	11	306	10	307
SS014-Z-0002	SS014-Z	544	13	1073	24	524	13	<b>714</b>
SS014-Z-0206	SS014-Z	421	12	521	14	403	12	<b>448</b>
SS014-Z-0612	SS014-Z	459	13	377	12	339	12	392
SS014-Z-1218	SS014-Z	511	14	518	14	537	15	<b>522</b>
SS014-Z-1824	SS014-Z	603	15	535	15	629	16	<b>589</b>
SS015-AA-0002	SS015-AA	193	6	214	6	185	6	197
SS015-AA-0206	SS015-AA	682	14	614	13	674	14	<b>657</b>
SS015-AA-0612	SS015-AA	568	13	493	11	629	13	<b>563</b>
SS015-AA-1218	SS015-AA	191	7	285	9	355	10	277
SS015-AA-1824	SS015-AA	536	10	570	12	481	11	<b>529</b>

**Notes:**

XRF data presented in milligrams per kilogram (mg/kg).

Results exceeding the New Jersey Administrative Code (NJAC) Residential Direct Contact  
Soil Remediation Standard of 400 mg/kg for lead are bolded and highlighted in red.

**Table 1**  
**X-Ray Fluorescence (XRF) Soil Screening Results For Lead**  
**MC Canfield & Sons Site**  
**April 22 through May 2, 2013**

Sample ID	Location	Lead (Pb) Result 1	{+/-}	Lead (Pb) Result 2	{+/-}	Lead (Pb) Result 3	{+/-}	Lead (Pb) Average Results
SS015-BB-0002	SS015-BB	186	6	158	5	174	6	173
SS015-BB-0206	SS015-BB	333	9	322	9	348	10	334
SS015-BB-0612	SS015-BB	476	12	398	11	386	11	<b>420</b>
SS015-BB-1218	SS015-BB	247	9	330	11	241	10	273
SS015-BB-1824	SS015-BB	387	12	189	8	207	9	261
SS015-J-0002	SS015-J	754	15	740	15	724	15	<b>739</b>
SS015-J-0206	SS015-J	1091	20	798	17	1103	23	<b>997</b>
SS015-J-0612	SS015-J	2342	36	2246	36	1174	22	<b>1,921</b>
SS015-J-1218	SS015-J	3584	49	3826	68	1780	31	<b>3,063</b>
SS015-J-1824	SS015-J	2561	40	2087	36	3434	49	<b>2,694</b>
SS015-L-0002	SS015-L	1191	22	1267	23	1313	23	<b>1,257</b>
SS015-L-0206	SS015-L	2157	33	2650	41	2783	42	<b>2,530</b>
SS015-L-0612	SS015-L	3941	54	2811	40	6115	89	<b>4,289</b>
SS015-L-1218	SS015-L	6112	85	5605	76	7375	100	<b>6,364</b>
SS015-L-1824	SS015-L	6303	91	12386	182	6180	85	<b>8,290</b>
SS015-N-0002	SS015-N	404	9	342	8	253	7	333
SS015-N-0206	SS015-N	3226	46	2752	38	2399	34	<b>2,792</b>
SS015-N-0612	SS015-N	3230	46	2641	44	3110	45	<b>2,994</b>
SS015-N-1218	SS015-N	2800	37	3365	43	3409	45	<b>3,191</b>
SS015-N-1824	SS015-N	2572	37	2130	32	2239	31	<b>2,314</b>
SS015-O-0002	SS015-O	1186	19	880	16	990	17	<b>1,019</b>
SS015-O-0206	SS015-O	1641	25	1989	30	1654	25	<b>1,761</b>
SS015-O-0612	SS015-O	1509	24	1713	27	1586	24	<b>1,603</b>
SS015-O-1218	SS015-O	2160	33	3256	48	3388	47	<b>2,935</b>
SS015-O-1824	SS015-O	1848	28	2626	38	1538	24	<b>2,004</b>
SS015-P-0002	SS015-P	594	13	798	15	582	12	<b>658</b>
SS015-P-0206	SS015-P	1488	24	1754	27	1762	27	<b>1,668</b>
SS015-Q-0002	SS015-Q	924	15	723	13	935	15	<b>861</b>
SS015-Q-0206	SS015-Q	1163	20	1010	18	1093	19	<b>1,089</b>
SS015-Q-0612	SS015-Q	1744	27	1865	29	2082	32	<b>1,897</b>
SS015-Q-1218	SS015-Q	4477	61	3737	51	4140	58	<b>4,118</b>
SS015-Q-1824	SS015-Q	3140	48	3526	53	4409	66	<b>3,692</b>

**Notes:**

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**Table 1**  
**X-Ray Fluorescence (XRF) Soil Screening Results For Lead**  
**MC Canfield & Sons Site**  
**April 22 through May 2, 2013**

Sample ID	Location	Lead (Pb) Result 1	{+/-}	Lead (Pb) Result 2	{+/-}	Lead (Pb) Result 3	{+/-}	Lead (Pb) Average Results
SS015-R-0002	SS015-R	1406	20	1426	20	1554	23	<b>1,462</b>
SS015-R-0206	SS015-R	1927	27	1958	27	1934	27	<b>1,940</b>
SS015-R-0612	SS015-R	1217	19	1087	18	935	16	<b>1,080</b>
SS015-R-1218	SS015-R	1358	21	909	15	1588	23	<b>1,285</b>
SS015-R-1824	SS015-R	1889	27	1787	26	2173	30	<b>1,950</b>
SS015-S-0002	SS015-S	264	8	264	8	235	8	254
SS015-S-0206	SS015-S	418	11	389	10	450	11	<b>419</b>
SS015-S-0612	SS015-S	347	10	366	10	355	11	356
SS015-S-1218	SS015-S	177	8	145	6	159	6	160
SS015-S-1824	SS015-S	170	7	179	7	196	7	182
SS015-T-0002	SS015-T	238	7	216	7	219	7	224
SS015-T-0206	SS015-T	111	5	94	5	65	5	90
SS015-T-0612	SS015-T	166	6	161	6	222	7	183
SS015-T-1218	SS015-T	219	8	413	11	238	8	290
SS015-T-1824	SS015-T	180	7	238	8	247	8	222
SS015-U-0002	SS015-U	152	6	139	6	139	6	143
SS015-U-0206	SS015-U	149	6	103	5	195	7	149
SS015-U-0612	SS015-U	296	8	329	10	297	9	307
SS015-U-1218	SS015-U	477	12	394	11	377	10	<b>416</b>
SS015-U-1824	SS015-U	342	11	253	8	286	8	294
SS015-W-0002	SS015-W	195	7	202	7	199	7	199
SS015-W-0206	SS015-W	280	9	207	9	242	9	243
SS015-W-0612	SS015-W	325	9	290	9	266	9	294
SS015-W-1218	SS015-W	307	9	306	9	423	11	345
SS015-W-1824	SS015-W	351	10	406	11	308	9	355
SS015-Y-0002	SS015-Y	268	9	242	9	273	9	261
SS015-Y-0206	SS015-Y	158	8	174	8	160	8	164
SS015-Y-0612	SS015-Y	346	10	308	9	309	9	321
SS015-Y-1218	SS015-Y	85	5	78	4	105	5	89
SS015-Y-1824	SS015-Y	225	7	220	7	203	7	216

**Notes:**

XRF data presented in milligrams per kilogram (mg/kg).

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**MC Canfield & Sons Site**  
**April 22 through May 2, 2013**

Sample ID	Location	Lead (Pb) Result 1	{+/-}	Lead (Pb) Result 2	{+/-}	Lead (Pb) Result 3	{+/-}	Lead (Pb) Average Results
SS015-Z-0002	SS015-Z	186	6	207	6	202	6	198
SS015-Z-0206	SS015-Z	361	9	269	8	323	9	318
SS015-Z-0612	SS015-Z	305	9	500	11	260	8	355
SS015-Z-1218	SS015-Z	535	12	425	10	197	8	386
SS015-Z-1824	SS015-Z	200	7	165	6	208	7	191
SS017-F-0002	SS017-F	38	3	44	3	60	4	47
SS017-F-0206	SS017-F	48	3	48	3	37	3	44
SS017-G-0002	SS017-G	506	11	497	11	352	11	<b>452</b>
SS017-G-0206	SS017-G	480	10	734	13	630	13	<b>615</b>
SS017-I-0002	SS017-I	559	10	540	10	488	10	<b>529</b>
SS017-I-0206	SS017-I	561	12	515	12	842	15	<b>639</b>
SS017-I-0612	SS017-I	169	7	230	8	209	7	203
SS017-K-0002	SS017-K	323	8	239	7	220	7	261
SS017-K-0206	SS017-K	343	10	299	10	323	8	322
SS017-M-0002	SS017-M	391	10	430	10	368	9	396
SS017-M-0206	SS017-M	511	11	545	11	602	12	<b>553</b>
SS017-N-0002	SS017-N	305	7	271	7	289	7	288
SS017-N-0206	SS017-N	662	13	564	12	602	12	<b>609</b>
SS017-O-0002	SS017-O	784	15	894	16	776	15	<b>818</b>
SS017-O-0206	SS017-O	371	9	286	7	296	7	318
SS017-P-0002	SS017-P	286	7	391	8	314	7	330
SS017-P-0206	SS017-P	619	12	660	13	625	13	<b>635</b>
SS017-Q-0002	SS017-Q	780	15	727	14	741	14	<b>749</b>
SS017-Q-0206	SS017-Q	795	15	883	16	887	16	<b>855</b>
SS017-Q-0612	SS017-Q	513	12	279	9	326	10	373
SS017-S-0002	SS017-SS	520	11	600	12	586	12	<b>569</b>
SS017-S-0206	SS017-SS	165	6	183	7	156	7	168
SS017-U-0002	SS017-U	602	12	435	10	440	10	<b>492</b>
SS017-U-0206	SS017-U	690	14	454	11	424	10	<b>523</b>
SS017-W-0002	SS017-W	547	12	503	12	591	13	<b>547</b>
SS017-W-0206	SS017-W	551	13	394	11	398	11	<b>448</b>
SS017-X-0002	SS017-X	275	7	267	7	252	6	265
SS017-X-0206	SS017-X	598	12	437	10	506	11	<b>514</b>
SS017-X-0612	SS017-X	288	8	291	9	273	8	284

**Notes:**

XRF data presented in milligrams per kilogram (mg/kg).

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**April 22 through May 2, 2013**

Sample ID	Location	Lead (Pb) Result 1	{+/-}	Lead (Pb) Result 2	{+/-}	Lead (Pb) Result 3	{+/-}	Lead (Pb) Average Results
SS017-Y-0002	SS017-Y	435	10	388	9	494	11	<b>439</b>
SS017-Y-0206	SS017-Y	393	10	444	11	467	11	<b>435</b>
SS019-F-0002	SS019-F	491	11	367	9	485	11	<b>448</b>
SS019-F-0206	SS019-F	331	9	268	8	421	10	340
SS019-H-0002	SS019-H	532	11	671	14	641	13	<b>615</b>
SS019-H-0206	SS019-H	403	10	461	11	384	10	<b>416</b>
SS019-H-0612	SS019-H	328	9	325	9	304	9	319
SS019-J-0002	SS019-J	555	11	499	11	520	11	<b>525</b>
SS019-J-0206	SS019-J	590	12	533	11	584	12	<b>569</b>
SS019-L-0002	SS019-L	583	12	523	11	550	12	<b>552</b>
SS019-L-0206	SS019-L	655	13	586	13	621	13	<b>621</b>
SS019-M-0002	SS019-M	536	11	574	11	500	10	<b>537</b>
SS019-M-0206	SS019-M	811	15	767	14	618	13	<b>732</b>
SS019-M-0612	SS019-M	462	11	412	10	424	10	<b>433</b>
SS019-M-1218	SS019-M	478	12	507	12	520	12	<b>502</b>
SS019-M-1824	SS019-M	296	9	343	10	223	8	287
SS019-N-0002	SS019-N	534	12	544	12	458	10	<b>512</b>
SS019-N-0206	SS019-N	453	11	597	13	431	11	<b>494</b>
SS019-O-0002	SS019-O	513	11	477	11	491	11	<b>494</b>
SS019-O-0206	SS019-O	331	10	290	9	345	10	322
SS019-Q-0002	SS019-Q	469	10	505	11	440	10	<b>471</b>
SS019-Q-0206	SS019-Q	362	10	360	10	480	11	<b>401</b>
SS019-S-0002	SS019-S	529	12	505	11	478	11	<b>504</b>
SS019-S-0206	SS019-S	587	13	579	12	598	13	<b>588</b>
SS019-S-0612	SS019-S	243	8	247	8	216	8	235
SS019-U-0002	SS019-U	442	10	482	11	479	11	<b>468</b>
SS019-U-0206	SS019-U	519	11	555	12	529	12	<b>534</b>
SS019-V-0002	SS019-V	500	11	612	12	530	11	<b>547</b>
SS019-V-0206	SS019-V	312	9	329	9	338	9	326
SS019-W-0002	SS019-W	267	7	271	7	251	7	263
SS019-W-0206	SS019-W	288	8	243	8	249	8	260

**Notes:**

XRF data presented in milligrams per kilogram (mg/kg).

Results exceeding the New Jersey Administrative Code (NJAC) Residential Direct Contact

Soil Remediation Standard of 400 mg/kg for lead are bolded and highlighted in red.

**Table 1**  
**X-Ray Fluorescence (XRF) Soil Screening Results For Lead**  
**MC Canfield & Sons Site**  
**April 22 through May 2, 2013**

Sample ID	Location	Lead (Pb) Result 1	{+/-}	Lead (Pb) Result 2	{+/-}	Lead (Pb) Result 3	{+/-}	Lead (Pb) Average Results
SS023-F-0002	SS023-F	121	5	177	6	130	5	143
SS023-F-0206	SS023-F	175	6	160	6	158	6	164
SS023-F-0612	SS023-F	292	9	237	8	377	10	302
SS023-F-1218	SS023-F	325	9	311	9	181	7	272
SS023-F-1824	SS023-F	272	9	254	8	297	9	274
SS023-G-0002	SS023-G	276	7	310	8	414	10	333
SS023-G-0206	SS023-G	563	11	493	11	436	10	<b>497</b>
SS023-G-0612	SS023-G	826	15	858	15	874	15	<b>853</b>
SS023-G-1218	SS023-G	638	13	415	10	573	12	<b>542</b>
SS023-G-1824	SS023-G	207	7	243	8	242	8	231
SS023-H-0002	SS023-H	261	7	238	7	296	8	265
SS023-H-0206	SS023-H	205	7	215	7	247	8	222
SS023-H-0612	SS023-H	299	8	193	7	194	6	229
SS023-H-1218	SS023-H	149	6	159	6	134	6	147
SS023-H-1824	SS023-H	105	5	150	6	149	6	135
SS023-I-0002	SS023-I	212	7	238	8	256	8	235
SS023-I-0206	SS023-I	236	8	229	8	224	8	230
SS023-I-0612	SS023-I	259	8	225	8	231	8	238
SS023-I-1218	SS023-I	210	8	217	8	229	8	219
SS023-I-1824	SS023-I	194	7	192	7	174	7	187
SS023-J-0002	SS023-J	535	12	551	12	401	12	<b>496</b>
SS023-J-0206	SS023-J	413	11	455	11	417	11	<b>428</b>
SS023-J-0612	SS023-J	295	9	316	9	297	9	303
SS023-J-1218	SS023-J	303	9	426	11	308	9	346
SS023-J-1824	SS023-J	212	8	256	8	240	8	236
SS023-K-0002	SS023-K	680	14	756	15	804	16	<b>747</b>
SS023-K-0206	SS023-K	445	11	445	11	509	12	<b>466</b>
SS023-K-0612	SS023-K	326	9	340	10	377	10	348
SS023-K-1218	SS023-K	292	9	254	8	296	9	281
SS023-K-1824	SS023-K	279	9	275	8	269	9	274

**Notes:**

XRF data presented in milligrams per kilogram (mg/kg).

Results exceeding the New Jersey Administrative Code (NJAC) Residential Direct Contact  
Soil Remediation Standard of 400 mg/kg for lead are bolded and highlighted in red.



**Table 1**  
**X-Ray Fluorescence (XRF) Soil Screening Results For Lead**  
**MC Canfield & Sons Site**  
**April 22 through May 2, 2013**

Sample ID	Location	Lead (Pb) Result 1	{+/-}	Lead (Pb) Result 2	{+/-}	Lead (Pb) Result 3	{+/-}	Lead (Pb) Average Results
SS023-L-0002	SS023-L	515	11	482	11	428	11	<b>475</b>
SS023-L-0206	SS023-L	2636	35	917	16	1197	20	<b>1,583</b>
SS023-L-0612	SS023-L	1191	20	1108	19	1025	18	<b>1,108</b>
SS023-L-1218	SS023-L	671	14	587	13	564	13	<b>607</b>
SS023-L-1824	SS023-L	515	12	385	10	433	12	<b>444</b>
SS023-M-0002	SS023-M	571	12	647	13	637	13	<b>618</b>
SS023-M-0206	SS023-M	1883	27	852	15	940	16	<b>1,225</b>
SS023-M-0612	SS023-M	939	16	1010	17	796	15	<b>915</b>
SS023-M-1218	SS023-M	1085	18	881	17	914	16	<b>960</b>
SS023-M-1824	SS023-M	1376	25	1492	22	653	15	<b>1,174</b>
SS023-N-0002	SS023-N	489	10	442	10	487	11	<b>473</b>
SS023-N-0206	SS023-N	407	10	420	10	419	10	<b>415</b>
SS023-N-0612	SS023-N	295	8	280	8	303	9	293
SS023-N-1218	SS023-N	216	7	235	7	242	7	231
SS023-N-1824	SS023-N	263	8	288	8	277	8	276
SS023-O-0002	SS023-O	132	5	126	5	91	4	116
SS023-O-0206	SS023-O	193	6	163	6	184	6	180
SS023-O-0612	SS023-O	212	7	214	7	195	7	207
SS023-O-1218	SS023-O	195	6	218	8	236	7	216
SS023-O-1824	SS023-O	208	7	210	7	226	7	215
SS023-P-0002	SS023-P	581	13	524	12	479	11	<b>528</b>
SS023-P-0206	SS023-P	657	15	617	14	493	12	<b>589</b>
SS023-P-0612	SS023-P	261	8	185	7	248	8	231
SS023-P-1218	SS023-P	303	9	263	9	271	9	279
SS023-P-1824	SS023-P	219	8	253	9	226	8	233
SS023-Q-0002	SS023-Q	264	7	289	7	283	7	279
SS023-Q-0206	SS023-Q	514	11	382	9	365	9	<b>420</b>
SS023-Q-0612	SS023-Q	405	9	415	10	383	9	<b>401</b>
SS023-Q-1218	SS023-Q	162	6	158	6	157	6	159
SS023-Q-1824	SS023-Q	462	10	311	8	275	8	349
SS023-R-0002	SS023-R	255	8	283	8	297	8	278
SS023-R-0206	SS023-R	242	8	214	7	259	8	238
SS023-S-0002	SS023-S	234	7	242	7	194	7	223
SS023-S-0206	SS023-S	310	9	253	8	303	9	289

**Notes:**

XRF data presented in milligrams per kilogram (mg/kg).

Results exceeding the New Jersey Administrative Code (NJAC) Residential Direct Contact

Soil Remediation Standard of 400 mg/kg for lead are bolded and highlighted in red.

**Table 1**  
**X-Ray Fluorescence (XRF) Soil Screening Results For Lead**  
**MC Canfield & Sons Site**  
**April 22 through May 2, 2013**

Sample ID	Location	Lead (Pb) Result 1	{+/-}	Lead (Pb) Result 2	{+/-}	Lead (Pb) Result 3	{+/-}	Lead (Pb) Average Results
SS025-F-0002	SS025-F	419	10	396	10	294	8	370
SS025-F-0206	SS025-F	414	10	346	10	313	9	358
SS025-F-0612	SS025-F	198	8	222	8	227	8	216
SS025-F-1218	SS025-F	182	7	148	7	141	7	157
SS025-F-1824	SS025-F	65	5	218	8	148	7	144
SS026-BB-0002	SS026-BB	260	8	256	8	320	9	279
SS026-BB-0206	SS026-BB	165	6	188	7	166	6	173
SS026-BB-0612	SS026-BB	148	6	161	6	128	6	146
SS026-BB-1218	SS026-BB	143	6	103	5	138	6	128
SS026-BB-1824	SS026-BB	163	7	118	6	122	6	134
SS026-CC-0002	SS026-CC	325	9	398	10	401	10	375
SS026-CC-0206	SS026-CC	757	15	693	14	1804	27	<b>1,085</b>
SS026-CC-0612	SS026-CC	367	10	286	9	263	8	305
SS026-CC-1218	SS026-CC	304	9	335	9	224	8	288
SS026-CC-1824	SS026-CC	249	8	271	8	291	8	270
SS026-F-0002	SS026-F	386	9	365	9	358	9	370
SS026-F-0206	SS026-F	542	12	331	9	439	10	<b>437</b>
SS026-F-0612	SS026-F	165	6	200	7	196	7	187
SS026-F-1218	SS026-F	178	7	186	7	179	7	181
SS026-F-1824	SS026-F	199	7	200	7	188	7	196
SS026-H-0002	SS026-H	432	12	366	14	279	16	359
SS026-H-0206	SS026-H	334	9	396	10	-	-	365
SS026-H-0612	SS026-H	222	8	224	7	239	8	228
SS026-H-1218	SS026-H	264	8	251	8	299	8	271
SS026-H-1824	SS026-H	252	8	267	8	338	9	286
SS026-I-0002	SS026-I	475	12	505	12	539	13	<b>506</b>
SS026-I-0206	SS026-I	325	9	357	10	334	9	339
SS026-I-0612	SS026-I	303	9	217	7	209	7	243
SS026-I-1218	SS026-I	201	7	196	7	207	7	201
SS026-I-1824	SS026-I	309	9	288	9	283	9	293

**Notes:**

XRF data presented in milligrams per kilogram (mg/kg).

Results exceeding the New Jersey Administrative Code (NJAC) Residential Direct Contact Soil Remediation Standard of 400 mg/kg for lead are bolded and highlighted in red.



**Table 1**  
**X-Ray Fluorescence (XRF) Soil Screening Results For Lead**  
**MC Canfield & Sons Site**  
**April 22 through May 2, 2013**

Sample ID	Location	Lead (Pb) Result 1	{+/-}	Lead (Pb) Result 2	{+/-}	Lead (Pb) Result 3	{+/-}	Lead (Pb) Average Results
SS026-J-0002	SS026-J	417	10	419	10	432	10	<b>423</b>
SS026-J-0206	SS026-J	591	12	1554	23	655	13	<b>933</b>
SS026-J-0612	SS026-J	410	10	399	10	355	10	388
SS026-J-1218	SS026-J	259	8	239	8	284	9	261
SS026-J-1824	SS026-J	418	10	478	11	471	11	<b>456</b>
SS026-K-0002	SS026-K	402	10	444	10	242	7	363
SS026-K-0206	SS026-K	525	12	537	12	521	12	<b>528</b>
SS026-K-0612	SS026-K	209	7	244	8	212	7	222
SS026-K-1218	SS026-K	388	10	348	9	314	9	350
SS026-K-1824	SS026-K	641	13	406	10	418	10	<b>488</b>
SS026-L-0002	SS026-L	351	9	349	10	342	8	347
SS026-L-0206	SS026-L	502	12	460	10	474	11	<b>479</b>
SS026-L-0612	SS026-L	417	11	318	9	301	9	345
SS026-L-1218	SS026-L	229	7	256	8	221	8	235
SS026-L-1824	SS026-L	201	7	187	7	126	6	171
SS026-M-0002	SS026-M	381	10	322	9	352	10	352
SS026-M-0206	SS026-M	486	12	579	13	512	12	<b>526</b>
SS026-M-0612	SS026-M	474	11	666	14	513	12	<b>551</b>
SS026-M-1218	SS026-M	488	12	484	11	658	13	<b>543</b>
SS026-M-1824	SS026-M	494	12	521	12	664	14	<b>560</b>
SS026-N-0002	SS026-N	395	10	411	10	422	11	<b>409</b>
SS026-N-0206	SS026-N	506	12	477	12	644	14	<b>542</b>
SS026-N-0612	SS026-N	294	9	270	9	247	8	270
SS026-N-1218	SS026-N	379	10	314	9	316	9	336
SS026-N-1824	SS026-N	281	9	275	8	259	8	272
SS026-P-0002	SS026-P	516	11	605	12	569	12	<b>563</b>
SS026-P-0206	SS026-P	514	12	479	11	503	12	<b>499</b>
SS026-P-0612	SS026-P	655	13	595	12	526	12	<b>592</b>
SS026-P-1218	SS026-P	569	12	947	17	614	13	<b>710</b>
SS026-P-1824	SS026-P	506	11	475	11	407	10	<b>463</b>

**Notes:**

XRF data presented in milligrams per kilogram (mg/kg).

Results exceeding the New Jersey Administrative Code (NJAC) Residential Direct Contact  
Soil Remediation Standard of 400 mg/kg for lead are bolded and highlighted in red.

**Table 1**  
**X-Ray Fluorescence (XRF) Soil Screening Results For Lead**  
**MC Canfield & Sons Site**  
**April 22 through May 2, 2013**

Sample ID	Location	Lead (Pb) Result 1	{+/-}	Lead (Pb) Result 2	{+/-}	Lead (Pb) Result 3	{+/-}	Lead (Pb) Average Results
SS026-R-0002	SS026-R	460	10	477	10	436	10	<b>458</b>
SS026-R-0206	SS026-R	626	13	598	12	554	12	<b>593</b>
SS026-R-0612	SS026-R	307	9	253	8	317	9	292
SS026-R-1218	SS026-R	530	12	509	11	519	11	<b>519</b>
SS026-R-1824	SS026-R	445	10	489	11	507	11	<b>480</b>
SS026-S-0002	SS026-S	444	11	437	11	447	11	<b>443</b>
SS026-S-0206	SS026-S	441	12	417	11	438	11	<b>432</b>
SS026-S-0612	SS026-S	419	11	414	11	435	11	<b>423</b>
SS026-S-1218	SS026-S	223	8	302	9	250	8	258
SS026-S-1824	SS026-S	250	8	241	8	252	8	248
SS026-T-0002	SS026-T	167	6	172	6	239	8	193
SS026-T-0206	SS026-T	131	6	218	7	167	6	172
SS026-T-0612	SS026-T	214	7	196	7	178	7	196
SS026-T-1218	SS026-T	155	6	157	7	161	6	158
SS026-T-1824	SS026-T	167	7	123	6	126	6	139
SS026-V-0002	SS026-V	104	4	84	4	96	4	95
SS026-V-0206	SS026-V	117	5	137	5	160	6	138
SS026-V-0612	SS026-V	427	10	408	9	412	9	<b>416</b>
SS026-V-1218	SS026-V	1025	18	809	15	822	15	<b>885</b>
SS026-V-1824	SS026-V	629	13	561	12	1013	16	<b>734</b>
SS026-X-0002	SS026-X	402	10	467	11	410	10	<b>426</b>
SS026-X-0206	SS026-X	717	14	638	14	710	15	<b>688</b>
SS026-Z-0002	SS026-Z	621	13	592	13	566	12	<b>593</b>
SS026-Z-0206	SS026-Z	638	14	634	13	732	15	<b>668</b>
SS027-F-0002	SS027-F	111	2	98	2	135	2	115
SS027-F-0206	SS027-F	623	7	576	5	593	7	<b>597</b>
SS027-G-0002	SS027-G	481	11	574	13	464	11	<b>506</b>
SS027-G-0206	SS027-G	542	13	551	13	545	13	<b>546</b>
SS027-I-0002	SS027-I	717	15	574	11	570	14	<b>620</b>
SS027-I-0206	SS027-I	778	17	939	17	795	16	<b>837</b>
SS027-I-0612	SS027-I	339	9	277	8	307	10	308
SS027-K-0002	SS027-K	503	11	527	11	482	11	<b>504</b>
SS027-K-0206	SS027-K	982	20	673	14	514	15	<b>723</b>

**Notes:**

XRF data presented in milligrams per kilogram (mg/kg).

Results exceeding the New Jersey Administrative Code (NJAC) Residential Direct Contact Soil Remediation Standard of 400 mg/kg for lead are bolded and highlighted in red.



**Table 1**  
**X-Ray Fluorescence (XRF) Soil Screening Results For Lead**  
**MC Canfield & Sons Site**  
**April 22 through May 2, 2013**

Sample ID	Location	Lead (Pb) Result 1	{+/-}	Lead (Pb) Result 2	{+/-}	Lead (Pb) Result 3	{+/-}	Lead (Pb) Average Results
SS027-M-0002	SS027-M	197	6	220	7	195	6	204
SS027-M-0206	SS027-M	287	9	297	8	276	8	287
SS027-N-0002	SS027-N	435	4	432	4	444	4	<b>437</b>
SS027-N-0206	SS027-N	624	5	686	6	607	5	<b>639</b>
SS027-O-0002	SS027-O	474	11	461	10	298	8	<b>411</b>
SS027-O-0206	SS027-O	660	14	719	14	657	13	<b>679</b>
SS027-O-0612	SS027-O	461	11	633	13	445	10	<b>513</b>
SS027-O-1218	SS027-O	393	10	360	10	410	10	388
SS027-P-0002	SS027-P	306	3	289	3	338	3	311
SS027-P-0206	SS027-P	322	4	274	3	180	3	259
SS027-Q-0002	SS027-Q	317	9	306	8	319	9	314
SS027-Q-0206	SS027-Q	472	12	494	12	490	12	<b>485</b>
SS027-S-0002	SS027-S	118	6	116	6	100	6	111
SS027-S-0206	SS027-S	69	5	50	4	72	5	64
SS027-U-0002	SS027-U	467	4	952	7	439	4	<b>619</b>
SS027-U-0206	SS027-U	184	3	162	4	164	4	170
SS027-W-0002	SS027-W	444	11	472	11	436	11	<b>451</b>
SS027-W-0206	SS027-W	285	9	472	12	380	10	379
SS027-X-0002	SS027-X	399	10	405	10	409	11	<b>404</b>
SS027-X-0206	SS027-X	866	17	757	15	762	15	<b>795</b>
SS027-X-0612	SS027-X	199	7	163	7	243	8	202
SS027-Y-0002	SS027-Y	470	4	496	5	528	5	<b>498</b>
SS027-Y-0206	SS027-Y	722	6	634	6	625	5	<b>660</b>
SS027-Y-0612	SS027-Y	410	11	475	11	450	11	<b>445</b>
SS027-Y-1218	SS027-Y	278	9	303	9	302	9	294
SS028-BB-0002	SS028-BB	651	14	696	14	697	14	<b>681</b>
SS028-BB-0206	SS028-BB	163	7	188	7	133	7	161
SS028-DD-0002	SS028-DD	416	10	396	10	409	10	<b>407</b>
SS028-DD-0206	SS028-DD	589	14	687	16	596	14	<b>624</b>
SS028-DD-0612	SS028-DD	257	8	325	9	323	9	302
SS028-EE-0002	SS028-EE	445	11	498	11	463	11	<b>469</b>
SS028-EE-0206	SS028-EE	477	11	520	12	506	12	<b>501</b>
SS028-F-0002	SS028-F	248	8	288	9	269	8	268
SS028-F-0206	SS028-F	335	9	302	9	292	9	310

**Notes:**

XRF data presented in milligrams per kilogram (mg/kg).

Results exceeding the New Jersey Administrative Code (NJAC) Residential Direct Contact

Soil Remediation Standard of 400 mg/kg for lead are bolded and highlighted in red.

**Table 1**  
**X-Ray Fluorescence (XRF) Soil Screening Results For Lead**  
**MC Canfield & Sons Site**  
**April 22 through May 2, 2013**

Sample ID	Location	Lead (Pb) Result 1	{+/-}	Lead (Pb) Result 2	{+/-}	Lead (Pb) Result 3	{+/-}	Lead (Pb) Average Results
SS028-GG-0002	SS028-GG	453	11	523	13	536	13	<b>504</b>
SS028-GG-0206	SS028-GG	546	13	485	12	653	16	<b>561</b>
SS028-H-0002	SS028-H	395	10	341	10	390	10	375
SS028-H-0206	SS028-H	321	9	326	9	275	9	307
SS028-II-0002	SS028-II	215	6	206	6	179	6	200
SS028-II-0206	SS028-II	500	12	272	9	428	10	<b>400</b>
SS028-J-0002	SS028-J	512	12	557	13	441	11	<b>503</b>
SS028-J-0206	SS028-J	690	14	694	15	620	14	<b>668</b>
SS028-J-0612	SS028-J	262	8	265	8	301	9	276
SS028-JJ-0002	SS028-JJ	513	12	534	12	476	12	<b>508</b>
SS028-JJ-0206	SS028-JJ	187	7	212	8	231	8	210
SS028-KK-0002	SS028-KK	423	10	439	10	402	10	<b>421</b>
SS028-KK-0206	SS028-KK	404	10	376	10	378	10	386
SS028-L-0002	SS028-L	580	13	524	12	512	12	<b>539</b>
SS028-L-0206	SS028-L	502	12	392	10	428	11	<b>441</b>
SS028-O-0002	SS028-O	604	13	538	12	700	15	<b>614</b>
SS028-O-0206	SS028-O	555	13	611	14	594	13	<b>587</b>
SS028-O-0612	SS028-O	169	7	199	7	178	7	182
SS028-Q-0002	SS028-Q	564	13	535	12	603	13	<b>567</b>
SS028-Q-0206	SS028-Q	323	10	309	9	306	9	313
SS028-S-0002	SS028-S	455	11	502	12	494	13	<b>484</b>
SS028-S-0206	SS028-S	198	7	314	10	285	10	266
SS028-U-0002	SS028-U	559	12	569	13	601	13	<b>576</b>
SS028-U-0206	SS028-U	251	8	299	9	357	10	302
SS028-V-0002	SS028-V	385	10	368	10	380	10	378
SS028-V-0206	SS028-V	431	11	382	10	440	11	<b>418</b>
SS028-X-0002	SS028-X	311	9	259	8	292	8	287
SS028-X-0206	SS028-X	243	8	175	7	242	8	220
SS028-Z-0002	SS028-Z	760	15	575	12	714	15	<b>683</b>
SS028-Z-0206	SS028-Z	594	13	543	13	663	14	<b>600</b>
SS029-F-0002	SS029-F	605	5	466	4	524	5	<b>532</b>
SS029-F-0206	SS029-F	588	5	543	5	625	5	<b>585</b>
SS029-F-0612	SS029-F	190	7	226	8	454	11	290

**Notes:**

XRF data presented in milligrams per kilogram (mg/kg).

Results exceeding the New Jersey Administrative Code (NJAC) Residential Direct Contact

Soil Remediation Standard of 400 mg/kg for lead are bolded and highlighted in red.



**Table 1**  
**X-Ray Fluorescence (XRF) Soil Screening Results For Lead**  
**MC Canfield & Sons Site**  
**April 22 through May 2, 2013**

Sample ID	Location	Lead (Pb) Result 1	{+/-}	Lead (Pb) Result 2	{+/-}	Lead (Pb) Result 3	{+/-}	Lead (Pb) Average Results
SS029-H-0002	SS029-H	727	9	687	6	546	5	<b>653</b>
SS029-H-0206	SS029-H	353	4	318	4	353	4	341
SS029-J-0002	SS029-J	605	13	833	16	664	15	<b>701</b>
SS029-J-0206	SS029-J	136	6	140	6	230	9	169
SS029-L-0002	SS029-L	928	17	695	14	785	16	<b>803</b>
SS029-L-0206	SS029-L	677	14	620	14	666	14	<b>654</b>
SS029-L-0612	SS029-L	218	7	250	8	180	7	216
SS029-M-0002	SS029-M	90	5	97	5	94	5	94
SS029-M-0206	SS029-M	62	4	79	5	59	4	67
SS029-N-0002	SS029-N	475	11	535	14	495	11	<b>502</b>
SS029-N-0206	SS029-N	615	14	562	14	544	13	<b>574</b>
SS029-N-0612	SS029-N	509	13	654	16	439	11	<b>534</b>
SS029-N-1218	SS029-N	351	10	390	10	285	9	342
SS029-O-0002	SS029-O	475	11	537	12	530	12	<b>514</b>
SS029-O-0206	SS029-O	443	12	486	12	461	12	<b>463</b>
SS029-Q-0002	SS029-Q	355	10	374	10	366	10	365
SS029-Q-0206	SS029-Q	342	10	375	10	385	11	367
SS029-S-0002	SS029-S	646	14	722	15	705	15	<b>691</b>
SS029-S-0206	SS029-S	540	13	543	14	472	12	<b>518</b>
SS029-S-0612	SS029-S	303	9	252	8	299	12	285
SS029-U-0002	SS029-U	431	11	398	10	418	10	<b>416</b>
SS029-U-0206	SS029-U	353	10	331	10	315	11	333
SS029-V-0002	SS029-V	392	12	360	10	535	12	<b>429</b>
SS029-V-0206	SS029-V	273	9	284	9	286	9	281
SS029-W-0002	SS029-W	309	95	375	9	390	9	358
SS029-W-0206	SS029-W	421	10	270	9	409	10	367
SS030-AA-0002	SS030-AA	88	2	80	2	83	1	84
SS030-AA-0206	SS030-AA	255	3	210	3	277	3	247
SS030-BB-0002	SS030-BB	253	3	259	3	256	3	256
SS030-BB-0206	SS030-BB	448	4	477	4	474	4	<b>466</b>
SS030-BB-0612	SS030-BB	242	8	227	8	264	8	244
SS030-CC-0002	SS030-CC	352	3	315	3	362	3	343
SS030-CC-0206	SS030-CC	208	3	208	3	162	2	193

**Notes:**

XRF data presented in milligrams per kilogram (mg/kg).

Results exceeding the New Jersey Administrative Code (NJAC) Residential Direct Contact  
Soil Remediation Standard of 400 mg/kg for lead are bolded and highlighted in red.

**Table 1**  
**X-Ray Fluorescence (XRF) Soil Screening Results For Lead**  
**MC Canfield & Sons Site**  
**April 22 through May 2, 2013**

Sample ID	Location	Lead (Pb) Result 1	{+/-}	Lead (Pb) Result 2	{+/-}	Lead (Pb) Result 3	{+/-}	Lead (Pb) Average Results
SS030-DD-0002	SS030-DD	572	5	498	4	542	5	<b>537</b>
SS030-DD-0206	SS030-DD	672	6	622	5	624	5	<b>639</b>
SS030-DD-0612	SS030-DD	290	9	280	9	193	7	254
SS030-EE-0002	SS030-EE	336	3	319	3	368	4	341
SS030-EE-0206	SS030-EE	290	3	248	3	283	3	274
SS030-F-0002	SS030-F	561	12	519	12	683	14	<b>588</b>
SS030-F-0206	SS030-F	335	9	265	9	352	10	317
SS030-H-0002	SS030-H	480	11	451	11	480	12	<b>470</b>
SS030-H-0206	SS030-H	177	7	271	8	336	10	261
SS030-J-0002	SS030-J	625	13	617	13	733	15	<b>658</b>
SS030-J-0206	SS030-J	577	13	760	16	1048	20	<b>795</b>
SS030-J-0612	SS030-J	289	9	284	9	326	9	300
SS030-L-0002	SS030-L	406	10	356	10	315	9	359
SS030-L-0206	SS030-L	442	11	418	11	380	10	<b>413</b>
SS030-N-0002	SS030-N	686	14	602	13	549	13	<b>612</b>
SS030-N-0206	SS030-N	669	15	684	14	779	16	<b>711</b>
SS030-P-0002	SS030-P	267	8	286	9	259	9	271
SS030-P-0206	SS030-P	297	9	280	9	341	10	306
SS030-R-0002	SS030-R	566	13	508	12	552	12	<b>542</b>
SS030-R-0206	SS030-R	245	8	267	10	171	7	228
SS030-T-0002	SS030-T	597	13	549	12	683	16	<b>610</b>
SS030-T-0206	SS030-T	266	9	241	8	264	9	257
SS030-U-0002	SS030-U	309	9	270	9	261	10	280
SS030-U-0206	SS030-U	688	14	1029	19	617	14	<b>778</b>
SS030-U-0612	SS030-U	73	5	83	5	64	5	73
SS030-W-0002	SS030-W	318	9	333	9	323	9	325
SS030-W-0206	SS030-W	491	12	264	8	291	9	349
SS030-Y-0002	SS030-Y	410	4	421	4	425	4	<b>419</b>
SS030-Y-0206	SS030-Y	367	4	412	4	354	4	378
SS031-F-0002	SS031-F	238	6	324	8	294	7	285
SS031-F-0206	SS031-F	205	8	289	8	301	8	265
SS031-F-0612	SS031-F	221	7	205	7	213	7	213
SS031-F-1218	SS031-F	257	8	280	8	236	7	258
SS031-F-1824	SS031-F	273	8	264	8	256	7	264

**Notes:**

XRF data presented in milligrams per kilogram (mg/kg).

Results exceeding the New Jersey Administrative Code (NJAC) Residential Direct Contact

Soil Remediation Standard of 400 mg/kg for lead are bolded and highlighted in red.



**Table 1**  
**X-Ray Fluorescence (XRF) Soil Screening Results For Lead**  
**MC Canfield & Sons Site**  
**April 22 through May 2, 2013**

Sample ID	Location	Lead (Pb) Result 1	{+/-}	Lead (Pb) Result 2	{+/-}	Lead (Pb) Result 3	{+/-}	Lead (Pb) Average Results
SS031-G-0002	SS031-G	302	8	318	8	300	8	307
SS031-G-0206	SS031-G	307	8	325	9	318	8	317
SS031-G-0612	SS031-G	359	9	341	9	307	8	336
SS031-G-1218	SS031-G	255	7	152	6	148	6	185
SS031-G-1824	SS031-G	141	6	148	6	132	6	140
SS031-H-0002	SS031-H	459	10	456	10	409	10	<b>441</b>
SS031-H-0206	SS031-H	489	11	557	12	484	11	<b>510</b>
SS031-H-0612	SS031-H	185	7	647	14	229	7	354
SS031-H-1218	SS031-H	152	6	135	6	141	6	143
SS031-H-1824	SS031-H	182	7	135	6	191	7	169
SS031-I-0002	SS031-I	211	7	176	6	171	6	186
SS031-I-0206	SS031-I	371	10	341	9	425	10	379
SS031-I-0612	SS031-I	373	10	617	12	280	8	<b>423</b>
SS031-I-1218	SS031-I	449	11	490	11	448	11	<b>462</b>
SS031-I-1824	SS031-I	365	9	366	9	372	9	368
SS031-J-0002	SS031-J	361	9	431	10	362	9	385
SS031-J-0206	SS031-J	563	12	588	13	424	10	<b>525</b>
SS031-J-0612	SS031-J	805	16	475	11	458	11	<b>579</b>
SS031-J-1218	SS031-J	2774	38	1538	25	2176	32	<b>2,163</b>
SS031-J-1824	SS031-J	1903	28	1305	22	1748	28	<b>1,652</b>
SS031-L-0002	SS031-L	966	18	945	18	936	18	<b>949</b>
SS031-L-0206	SS031-L	781	16	823	17	760	16	<b>788</b>
SS031-L-0612	SS031-L	1015	19	982	18	1202	22	<b>1,066</b>
SS031-L-1218	SS031-L	410	11	394	11	178	7	327
SS031-L-1824	SS031-L	325	9	248	8	366	10	313
SS031-N-0002	SS031-N	1371	22	3052	47	1371	23	<b>1,931</b>
SS031-N-0206	SS031-N	1356	23	1465	24	2095	32	<b>1,639</b>
SS031-N-0612	SS031-N	1274	24	1022	21	1018	20	<b>1,105</b>
SS031-N-1218	SS031-N	154	7	61	5	34	4	83
SS031-N-1824	SS031-N	521	12	354	10	420	11	<b>432</b>

**Notes:**

XRF data presented in milligrams per kilogram (mg/kg).

Results exceeding the New Jersey Administrative Code (NJAC) Residential Direct Contact  
Soil Remediation Standard of 400 mg/kg for lead are bolded and highlighted in red.

**Table 1**  
**X-Ray Fluorescence (XRF) Soil Screening Results For Lead**  
**MC Canfield & Sons Site**  
**April 22 through May 2, 2013**

Sample ID	Location	Lead (Pb) Result 1	{+/-}	Lead (Pb) Result 2	{+/-}	Lead (Pb) Result 3	{+/-}	Lead (Pb) Average Results
SS031-P-0002	SS031-P	681	13	595	12	657	13	<b>644</b>
SS031-P-0206	SS031-P	574	12	612	13	600	13	<b>595</b>
SS031-P-0612	SS031-P	520	11	470	11	520	11	<b>503</b>
SS031-P-1218	SS031-P	420	10	466	11	453	10	<b>446</b>
SS031-P-1824	SS031-P	510	12	560	13	500	12	<b>523</b>
SS031-R-0002	SS031-R	414	11	409	10	411	10	<b>411</b>
SS031-R-0206	SS031-R	380	10	348	10	402	10	377
SS031-R-0612	SS031-R	486	12	420	11	491	12	<b>466</b>
SS031-R-1218	SS031-R	429	11	360	10	417	11	<b>402</b>
SS031-R-1824	SS031-R	392	10	364	10	425	11	394
SS031-S-0002	SS031-S	566	12	570	12	506	11	<b>547</b>
SS031-S-0206	SS031-S	490	12	481	11	646	14	<b>539</b>
SS031-S-0612	SS031-S	410	11	446	11	403	10	<b>420</b>
SS031-S-1218	SS031-S	247	9	322	10	310	10	293
SS031-S-1824	SS031-S	260	10	188	8	280	10	243
SS031-T-0002	SS031-T	295	8	272	8	276	8	281
SS031-T-0206	SS031-T	165	6	176	7	151	6	164
SS031-T-0612	SS031-T	154	6	125	6	125	6	135
SS031-T-1218	SS031-T	272	8	254	8	262	8	263
SS031-T-1824	SS031-T	380	11	1294	22	316	9	<b>663</b>
SS031-V-0002	SS031-V	267	7	221	6	271	7	253
SS031-V-0206	SS031-V	296	8	320	9	301	8	306
SS031-V-0612	SS031-V	300	8	330	9	356	9	329
SS031-V-1218	SS031-V	1244	20	1030	17	795	15	<b>1,023</b>
SS031-V-1824	SS031-V	387	10	1048	19	437	11	<b>624</b>
SS031-W-0002	SS031-W	195	6	220	6	200	6	205
SS031-W-0206	SS031-W	228	7	297	8	261	8	262
SS031-W-0206	SS031-W	258	8	276	8	264	8	266
SS031-W-1218	SS031-W	226	7	240	7	242	7	236
SS031-W-1824	SS031-W	296	8	328	9	320	9	315

**Notes:**

XRF data presented in milligrams per kilogram (mg/kg).

Results exceeding the New Jersey Administrative Code (NJAC) Residential Direct Contact  
Soil Remediation Standard of 400 mg/kg for lead are bolded and highlighted in red.



**Table 2**  
**X-Ray Fluorescence (XRF) Soil Screening Results For Tin**  
**MC Canfield & Sons Site**  
**April 22 through May 2, 2013**

Sample ID	Location	Tin (Sn) Result 1	{+/-}	Tin (Sn) Result 2	{+/-}	Tin (Sn) Result 3	{+/-}	Tin (Sn) Average Results
SS012-CC-0002	SS012-CC	142	4	38	3	78	4	86
SS012-CC-0206	SS012-CC	1257	10	1106	9	833	8	1,065
SS012-CC-0612	SS012-CC	421	6	553	6	419	6	464
SS012-CC-1218	SS012-CC	490	7	481	6	751	8	574
SS012-CC-1824	SS012-CC	2183	15	1951	14	1674	12	1,936
SS012-DD-0002	SS012-DD	35	4	43	4	37	4	38
SS012-DD-0206	SS012-DD	117	5	91	5	69	5	92
SS012-DD-0612	SS012-DD	43	5	66	5	44	5	51
SS012-DD-1218	SS012-DD	30	5	26	5	50	5	35
SS012-K-0002	SS012-K	62	5	71	5	83	5	72
SS012-K-0206	SS012-K	186	5	130	5	144	5	153
SS012-K-0612	SS012-K	279	5	350	6	353	6	327
SS012-K-1218	SS012-K	431	6	509	6	413	6	451
SS012-K-1824	SS012-K	160	5	194	5	217	5	190
SS012-L-0002	SS012-L	ND	74	82	25	95	25	89
SS012-L-0206	SS012-L	101	26	ND	79	ND	96	101
SS012-L-0612	SS012-L	87	26	89	26	ND	87	88
SS012-L-1218	SS012-L	ND	77	ND	76	ND	79	ND
SS012-L-1824	SS012-L	ND	73	ND	73	ND	72	ND
SS012-O-0002	SS012-O	42	4	41	4	29	5	37
SS012-O-0206	SS012-O	60	5	44	4	45	4	50
SS012-O-0612	SS012-O	43	6	33	5	39	5	38
SS012-O-1218	SS012-O	350	6	165	5	323	6	279
SS012-O-1824	SS012-O	95	5	43	5	35	5	58
SS012-R-0002	SS012-R	78	4	112	4	104	4	98
SS012-R-0206	SS012-R	245	11	263	5	278	5	262
SS012-R-0612	SS012-R	546	6	554	6	400	5	500
SS012-R-1218	SS012-R	137	4	509	9	331	6	326
SS012-R-1824	SS012-R	197	5	253	5	274	5	241
SS012-U-0002	SS012-U	3276	21	2357	15	2395	16	2,676
SS012-U-0206	SS012-U	2042	15	1923	13	1535	11	1,833
SS012-U-0612	SS012-U	1274	10	1486	11	1390	13	1,383
SS012-U-1218	SS012-U	1360	10	1095	10	1273	10	1,243
SS012-U-1824	SS012-U	953	8	938	8	921	8	937
SS012-Y-0002	SS012-Y	119	5	146	4	166	4	144
SS012-Y-0206	SS012-Y	209	5	240	5	254	9	234
SS012-Y-0612	SS012-Y	1889	13	2100	16	1514	11	1,834
SS012-Y-1218	SS012-Y	2916	19	2491	15	3562	23	2,990
SS012-Y-1824	SS012-Y	4843	31	4200	27	5485	37	4,843

**Notes:**

XRF data presented in milligrams per kilogram (mg/kg).

ND: Non-detect

**Table 2**  
**X-Ray Fluorescence (XRF) Soil Screening Results For Tin**  
**MC Canfield & Sons Site**  
**April 22 through May 2, 2013**

Sample ID	Location	Tin (Sn) Result 1	{+/-}	Tin (Sn) Result 2	{+/-}	Tin (Sn) Result 3	{+/-}	Tin (Sn) Average Results
SS013-AA-0002	SS013-AA	4393	29	4172	28	5838	37	4,801
SS013-AA-0206	SS013-AA	6772	48	7620	54	6859	106	7,084
SS013-AA-0612	SS013-AA	9408	70	9805	73	10312	78	9,842
SS013-AA-1218	SS013-AA	9007	62	6718	49	6026	44	7,250
SS013-AA-1824	SS013-AA	4988	34	7207	49	5591	37	5,929
SS013-CC-0002	SS013-CC	406	6	340	6	343	6	363
SS013-CC-0206	SS013-CC	5614	39	4384	29	3988	27	4,662
SS013-CC-0612	SS013-CC	2531	16	4557	46	2479	16	3,189
SS013-CC-1218	SS013-CC	3896	25	3290	22	1995	14	3,060
SS013-CC-1824	SS013-CC	3848	27	3205	22	3357	25	3,470
SS013-FF-0002	SS013-FF	368	5	341	5	88	4	266
SS013-FF-0206	SS013-FF	876	8	766	8	614	8	752
SS013-FF-0612	SS013-FF	712	10	843	8	859	8	805
SS013-FF-1218	SS013-FF	970	8	819	8	706	7	832
SS013-FF-1824	SS013-FF	835	8	1073	9	1019	12	976
SS013-GG-0002	SS013-GG	240	5	234	5	215	4	230
SS013-GG-0206	SS013-GG	760	7	569	6	503	6	611
SS013-GG-0612	SS013-GG	694	7	236	5	580	7	503
SS013-GG-1218	SS013-GG	632	7	661	7	782	8	692
SS013-GG-1824	SS013-GG	639	7	727	7	614	7	660
SS014-J-0002	SS014-J	176	5	253	5	209	5	213
SS014-J-0206	SS014-J	265	5	255	5	320	5	280
SS014-O-0002	SS014-O	215	4	319	5	309	5	281
SS014-O-0206	SS014-O	1246	9	1640	12	1278	10	1,388
SS014-O-0612	SS014-O	1449	11	1233	10	1873	13	1,518
SS014-O-1218	SS014-O	1448	12	2000	14	1234	9	1,561
SS014-U-0002	SS014-U	ND	71	ND	70	ND	72	ND
SS014-U-0206	SS014-U	89	24	ND	75	ND	76	30
SS014-U-0612	SS014-U	160	25	ND	76	ND	75	53
SS014-U-1218	SS014-U	ND	74	ND	75	ND	75	ND
SS014-U-1824	SS014-U	132	26	ND	75	90	25	74
SS015-AA-1218	SS015-AA	82	27	186	28	114	27	127
SS015-AA-1824	SS015-AA	230	22	263	26	210	27	234
SS015-N-1218	SS015-N	5065	66	6229	77	6046	77	5,780
SS015-N-1824	SS015-N	2028	41	2659	46	3622	51	2,770
SS015-R-0002	SS015-R	1640	32	1510	32	1290	32	1,480
SS015-R-0206	SS015-R	2150	39	2228	39	2334	40	2,237
SS015-R-0612	SS015-R	1261	32	1233	31	948	30	1,147
SS015-R-1218	SS015-R	1660	35	638	26	1739	35	1,346
SS015-R-1824	SS015-R	1445	34	1314	33	1488	34	1,416

**Notes:**

XRF data presented in milligrams per kilogram (mg/kg).

ND: Non-detect



**Table 2**  
**X-Ray Fluorescence (XRF) Soil Screening Results For Tin**  
**MC Canfield & Sons Site**  
**April 22 through May 2, 2013**

Sample ID	Location	Tin (Sn) Result 1	{+/-}	Tin (Sn) Result 2	{+/-}	Tin (Sn) Result 3	{+/-}	Tin (Sn) Average Results
SS015-S-1218	SS015-S	125	30	ND	78	ND	76	42
SS015-S-1824	SS015-S	104	26	ND	80	ND	77	35
SS015-T-0002	SS015-T	111	25	ND	77	81	25	96
SS015-T-0206	SS015-T	93	24	ND	73	72	24	83
SS015-T-0612	SS015-T	79	26	91	24	112	25	94
SS015-U-0002	SS015-U	ND	71	ND	72	ND	71	ND
SS015-U-1218	SS015-U	ND	86	ND	86	ND	80	ND
SS015-U-1824	SS015-U	ND	92	ND	81	ND	78	ND
SS015-Y-1218	SS015-Y	ND	75	ND	74	ND	76	ND
SS015-Y-1824	SS015-Y	ND	79	ND	79	ND	76	ND
SS015-Z-0002	SS015-Z	70	21	ND	62	ND	62	23
SS015-Z-0206	SS015-Z	217	26	152	25	142	26	170
SS015-Z-0612	SS015-Z	101	26	261	26	161	27	174
SS015-Z-1218	SS015-Z	396	27	178	27	115	29	230
SS015-Z-1824	SS015-Z	203	27	132	26	115	24	150
SS017-G-0002	SS017-G	76	24	ND	73	ND	71	25
SS017-G-0206	SS017-G	151	24	95	24	184	26	143
SS017-I-0002	SS017-I	102	21	69	22	96	21	89
SS017-I-0206	SS017-I	114	26	107	27	184	26	135
SS017-K-0002	SS017-K	ND	69	ND	64	ND	73	ND
SS017-K-0206	SS017-K	ND	79	ND	86	ND	73	ND
SS017-M-0002	SS017-M	ND	75	ND	74	ND	77	ND
SS017-M-0206	SS017-M	102	26	87	25	94	25	94
SS017-N-0002	SS017-N	ND	62	ND	62	ND	59	ND
SS017-N-0206	SS017-N	164	25	78	26	78	25	107
SS017-O-0002	SS017-O	214	27	350	27	167	26	244
SS017-O-0206	SS017-O	79	22	ND	64	ND	63	26
SS017-P-0002	SS017-P	ND	61	ND	64	ND	62	ND
SS017-P-0206	SS017-P	132	26	95	26	111	26	113
SS017-Q-0002	SS017-Q	114	26	173	25	136	25	141
SS017-Q-0206	SS017-Q	141	27	83	26	208	27	144
SS017-SS-0002	SS017-SS	ND	73	106	25	ND	75	35
SS017-SS-0206	SS017-SS	ND	78	114	27	ND	83	38
SS017-U-0002	SS017-U	81	24	ND	76	ND	77	27
SS017-U-0206	SS017-U	ND	77	ND	77	107	26	36
SS017-X-0002	SS017-X	ND	63	ND	60	ND	60	ND
SS017-X-0206	SS017-X	217	25	ND	71	101	25	106
SS019-F-0002	SS019-F	93	26	ND	74	130	24	74
SS019-F-0206	SS019-F	ND	75	ND	75	ND	77	ND

**Notes:**

XRF data presented in milligrams per kilogram (mg/kg).

ND: Non-detect

**Table 2**  
**X-Ray Fluorescence (XRF) Soil Screening Results For Tin**  
**MC Canfield & Sons Site**  
**April 22 through May 2, 2013**

Sample ID	Location	Tin (Sn) Result 1	{+/-}	Tin (Sn) Result 2	{+/-}	Tin (Sn) Result 3	{+/-}	Tin (Sn) Average Results
SS019-H-0002	SS019-H	ND	77	ND	80	99	26	33
SS019-H-0206	SS019-H	92	26	ND	80	ND	78	31
SS019-J-0002	SS019-J	72	24	79	25	ND	75	50
SS019-J-0206	SS019-J	214	27	117	26	98	26	143
SS019-L-0002	SS019-L	196	25	93	25	173	26	154
SS019-L-0206	SS019-L	109	26	141	27	162	26	137
SS019-M-0002	SS019-M	ND	70	91	23	ND	69	30
SS019-M-0206	SS019-M	115	26	115	26	86	25	105
SS019-N-0002	SS019-N	142	26	87	26	ND	73	76
SS019-N-0206	SS019-N	ND	79	280	27	ND	83	93
SS019-Q-0002	SS019-Q	115	25	ND	74	ND	75	38
SS019-Q-0206	SS019-Q	ND	77	ND	79	ND	78	ND
SS019-S-0002	SS019-S	104	27	ND	76	ND	75	35
SS019-S-0206	SS019-S	95	27	ND	78	94	27	63
SS019-V-0002	SS019-V	105	25	95	25	ND	73	100
SS019-V-0206	SS019-V	ND	78	ND	77	ND	80	ND
SS019-W-0002	SS019-W	ND	60	ND	64	ND	64	ND
SS019-W-0206	SS019-W	ND	73	ND	77	ND	76	ND
SS023-G-0002	SS023-G	174	22	233	23	277	25	228
SS023-G-0206	SS023-G	428	26	425	26	446	26	433
SS023-G-0612	SS023-G	914	30	1099	30	934	29	982
SS023-G-1218	SS023-G	232	27	232	27	368	27	277
SS023-G-1824	SS023-G	107	26	ND	77	81	26	63
SS023-H-0002	SS023-H	231	23	112	24	184	23	176
SS023-H-0206	SS023-H	77	25	121	24	127	26	108
SS023-H-0612	SS023-H	170	25	132	25	121	24	141
SS023-H-1218	SS023-H	ND	74	181	24	101	25	94
SS023-H-1824	SS023-H	ND	76	84	26	ND	75	28
SS023-M-0002	SS023-M	262	26	242	25	294	26	266
SS023-M-0206	SS023-M	841	30	625	28	966	30	811
SS023-M-0612	SS023-M	908	30	813	30	601	29	774
SS023-M-1218	SS023-M	934	31	798	31	822	29	851
SS023-M-1824	SS023-M	1172	37	1485	33	201	31	953
SS023-N-0002	SS023-N	298	25	179	26	288	25	255
SS023-N-0206	SS023-N	205	27	291	27	277	27	258
SS023-N-0612	SS023-N	ND	74	142	26	89	26	77
SS023-N-1218	SS023-N	ND	78	80	25	ND	75	27
SS023-N-1824	SS023-N	96	26	92	26	121	26	103

**Notes:**

XRF data presented in milligrams per kilogram (mg/kg).

ND: Non-detect



**Table 2**  
**X-Ray Fluorescence (XRF) Soil Screening Results For Tin**  
**MC Canfield & Sons Site**  
**April 22 through May 2, 2013**

Sample ID	Location	Tin (Sn) Result 1	{+/-}	Tin (Sn) Result 2	{+/-}	Tin (Sn) Result 3	{+/-}	Tin (Sn) Average Results
SS023-O-0002	SS023-O	173	21	ND	62	ND	61	58
SS023-O-0206	SS023-O	ND	72	ND	71	603	27	201
SS023-O-0612	SS023-O	ND	72	ND	71	ND	72	ND
SS023-O-1218	SS023-O	78	24	ND	79	ND	71	26
SS023-O-1824	SS023-O	ND	72	ND	72	70	23	23
SS023-Q-0002	SS023-Q	134	21	125	22	141	21	133
SS023-Q-0206	SS023-Q	283	25	247	25	211	25	247
SS023-Q-0612	SS023-Q	264	24	239	25	299	25	267
SS023-Q-1218	SS023-Q	ND	78	ND	78	ND	78	ND
SS023-Q-1824	SS023-Q	165	24	114	25	167	24	149
SS023-R-0002	SS023-R	109	25	156	25	225	26	163
SS023-R-0206	SS023-R	150	25	117	25	172	25	146
SS023-S-0002	SS023-S	76	25	ND	73	73	24	50
SS023-S-0206	SS023-S	ND	81	ND	76	ND	77	ND
SS026-BB-0002	SS026-BB	150	27	170	26	229	26	183
SS026-BB-0206	SS026-BB	ND	76	ND	77	ND	77	ND
SS026-BB-0612	SS026-BB	ND	78	ND	79	ND	78	ND
SS026-BB-1218	SS026-BB	ND	80	ND	78	ND	80	ND
SS026-BB-1824	SS026-BB	ND	81	ND	80	ND	80	ND
SS026-CC-0002	SS026-CC	165	25	79	25	ND	74	81
SS026-CC-0206	SS026-CC	134	27	251	27	1958	39	781
SS026-CC-0612	SS026-CC	ND	78	ND	80	ND	81	ND
SS026-CC-1218	SS026-CC	82	27	ND	80	92	29	87
SS026-CC-1824	SS026-CC	104	26	85	26	81	26	90
SS026-F-0002	SS026-F	ND	74	ND	73	ND	76	ND
SS026-F-0206	SS026-F	146	26	118	26	ND	77	88
SS026-F-0612	SS026-F	ND	78	ND	77	ND	79	ND
SS026-F-1218	SS026-F	ND	77	ND	78	ND	76	ND
SS026-F-1824	SS026-F	ND	77	87	25	ND	76	29
SS026-H-0206	SS026-H	ND	79	ND	78	-	-	ND
SS026-H-0612	SS026-H	ND	78	ND	72	ND	79	ND
SS026-H-1218	SS026-H	ND	76	ND	79	ND	76	ND
SS026-H-1824	SS026-H	86	26	103	25	ND	75	63
SS026-J-0002	SS026-J	ND	71	ND	72	131	25	44
SS026-J-0206	SS026-J	ND	78	ND	79	107	26	36
SS026-J-0612	SS026-J	ND	78	ND	80	101	27	34
SS026-J-1218	SS026-J	100	27	ND	82	ND	81	33
SS026-J-1824	SS026-J	210	26	228	27	355	28	264

**Notes:**

XRF data presented in milligrams per kilogram (mg/kg).

ND: Non-detect

**Table 2**  
**X-Ray Fluorescence (XRF) Soil Screening Results For Tin**  
**MC Canfield & Sons Site**  
**April 22 through May 2, 2013**

Sample ID	Location	Tin (Sn) Result 1	{+/-}	Tin (Sn) Result 2	{+/-}	Tin (Sn) Result 3	{+/-}	Tin (Sn) Average Results
SS026-K-0002	SS026-K	ND	74	75	24	ND	62	25
SS026-K-0206	SS026-K	102	27	103	27	ND	80	68
SS026-K-0612	SS026-K	ND	79	ND	80	ND	80	ND
SS026-K-1218	SS026-K	111	27	137	26	ND	77	83
SS026-K-1824	SS026-K	158	26	186	26	1240	32	528
SS026-P-0002	SS026-P	ND	73	88	24	83	24	57
SS026-P-0206	SS026-P	130	27	ND	76	ND	79	43
SS026-P-0612	SS026-P	117	26	87	26	ND	78	68
SS026-P-1218	SS026-P	ND	76	ND	77	ND	78	ND
SS026-P-1824	SS026-P	ND	76	ND	76	ND	76	ND
SS026-R-0002	SS026-R	ND	69	178	24	113	23	97
SS026-R-0206	SS026-R	95	25	ND	76	95	26	95
SS026-R-0612	SS026-R	ND	78	ND	80	ND	78	ND
SS026-R-1218	SS026-R	ND	77	ND	76	ND	74	ND
SS026-R-1824	SS026-R	ND	73	ND	75	ND	76	ND
SS026-V-0002	SS026-V	ND	61	ND	59	ND	60	ND
SS026-V-0206	SS026-V	ND	68	ND	66	ND	68	ND
SS026-V-0612	SS026-V	80	25	90	24	72	23	81
SS026-V-1218	SS026-V	ND	78	ND	75	119	26	40
SS026-V-1824	SS026-V	91	27	90	26	ND	73	60
SS027-F-0002	SS027-F	ND	10	ND	10	ND	11	ND
SS027-F-0206	SS027-F	154	7	97	5	81	6	111
SS027-N-0002	SS027-N	50	4	45	4	61	4	52
SS027-N-0206	SS027-N	89	5	101	5	81	5	90
SS027-O-0612	SS027-O	ND	76	ND	76	ND	77	ND
SS027-O-1218	SS027-O	ND	77	ND	79	ND	75	ND
SS027-P-0002	SS027-P	20	4	13	4	19	4	17
SS027-P-0206	SS027-P	27	6	16	5	ND	14	14
SS028-DD-0612	SS028-DD	ND	79	ND	77	ND	78	ND
SS029-F-0206	SS029-F	129	5	71	5	141	5	114
SS029-H-0002	SS029-H	99	7	99	5	66	5	88
SS029-H-0206	SS029-H	51	6	61	5	54	5	55
SS029-S-0612	SS029-S	ND	81	ND	80	ND	108	ND
SS030-AA-0002	SS030-AA	ND	11	ND	11	ND	11	ND
SS030-AA-0206	SS030-AA	46	5	32	4	36	5	38
SS030-BB-0002	SS030-BB	ND	12	16	4	ND	12	5
SS030-BB-0206	SS030-BB	39	5	35	4	40	4	38
SS030-CC-0002	SS030-CC	25	4	26	4	30	4	27
SS030-CC-0206	SS030-CC	50	5	41	5	27	5	39

**Notes:**

XRF data presented in milligrams per kilogram (mg/kg).

ND: Non-detect



**Table 2**  
**X-Ray Fluorescence (XRF) Soil Screening Results For Tin**  
**MC Canfield & Sons Site**  
**April 22 through May 2, 2013**

Sample ID	Location	Tin (Sn) Result 1	{+/-}	Tin (Sn) Result 2	{+/-}	Tin (Sn) Result 3	{+/-}	Tin (Sn) Average Results
SS030-DD-0002	SS030-DD	55	4	41	4	48	4	48
SS030-DD-0206	SS030-DD	99	5	83	5	96	5	93
SS030-DD-0612	SS030-DD	115	26	ND	82	ND	76	38
SS030-EE-0002	SS030-EE	29	4	39	4	42	4	37
SS030-EE-0206	SS030-EE	40	5	54	5	47	5	47
SS030-J-0612	SS030-J	79	26	102	77	ND	80	60
SS030-Y-0002	SS030-Y	42	5	46	5	54	5	47
SS030-Y-0206	SS030-Y	17	4	18	4	ND	13	12
SS031-F-0002	SS031-F	ND	59	81	22	77	22	53
SS031-F-0206	SS031-F	ND	84	ND	72	ND	76	ND
SS031-F-0612	SS031-F	ND	75	ND	72	ND	71	ND
SS031-F-1218	SS031-F	ND	73	ND	74	ND	72	ND
SS031-F-1824	SS031-F	ND	73	ND	73	ND	69	ND
SS031-G-0002	SS031-G	ND	73	ND	72	ND	73	ND
SS031-G-0206	SS031-G	ND	72	ND	74	ND	71	ND
SS031-G-0612	SS031-G	ND	78	ND	75	ND	75	ND
SS031-G-1218	SS031-G	ND	73	ND	77	87	26	29
SS031-G-1824	SS031-G	ND	75	ND	76	ND	80	ND
SS031-H-0002	SS031-H	89	25	ND	75	112	25	67
SS031-H-0206	SS031-H	ND	80	144	26	88	26	77
SS031-H-0612	SS031-H	ND	81	117	27	ND	75	39
SS031-H-1218	SS031-H	ND	77	ND	78	ND	75	ND
SS031-H-1824	SS031-H	ND	79	ND	74	ND	80	ND
SS031-I-0002	SS031-I	ND	74	ND	73	ND	70	ND
SS031-I-0206	SS031-I	ND	77	ND	77	ND	75	ND
SS031-I-0612	SS031-I	ND	76	ND	73	ND	77	ND
SS031-I-1218	SS031-I	131	26	ND	77	87	26	73
SS031-I-1824	SS031-I	202	25	76	25	ND	74	93
SS031-P-0002	SS031-P	180	26	91	25	154	26	142
SS031-P-0206	SS031-P	122	25	134	26	ND	78	85
SS031-P-0612	SS031-P	ND	75	172	25	115	25	96
SS031-P-1218	SS031-P	118	25	ND	75	88	25	69
SS031-V-0002	SS031-V	73	21	ND	61	121	22	65
SS031-V-0206	SS031-V	89	25	ND	76	91	24	60
SS031-V-0612	SS031-V	192	25	434	27	252	26	293
SS031-V-1218	SS031-V	3949	53	1282	32	1462	35	2,231
SS031-W-0002	SS031-W	ND	61	ND	63	ND	64	ND
SS031-W-0206	SS031-W	ND	74	ND	74	ND	75	ND
SS031-W-0206	SS031-W	ND	72	ND	74	ND	75	ND
SS031-W-1218	SS031-W	ND	72	ND	74	ND	71	ND
SS031-W-1824	SS031-W	ND	75	ND	76	ND	75	ND

**Notes:**

XRF data presented in milligrams per kilogram (mg/kg).

ND: Non-detect

Table 3  
Validated Analytical Results for TAL Metals + Tin  
MC Canfield & Sons Site  
April 22 through May 2, 2013

	RST 2 Sample ID	P001-SS012-AA-0002-001	P001-SS012-AA-0206-001	P001-SS012-AA-1824-001	P001-SS012-EE-1218-001	P001-SS012-N-0612-001	P001-SS012-N-1218-001	P001-SS012-R-0206-001	P001-SS012-R-0206-002	P001-SS012-S-0002-001	P001-SS012-T-0002-001	P001-SS012-T-0612-001	P001-SS012-U-0002-001	P001-SS012-U-1218-001	P001-SS012-W-0206-001	P001-SS013-AA-0612-001	P001-SS013-AA-1218-001	P001-SS013-AA-1824-001	P001-SS013-CC-0612-001
Metal	Residential Direct Contact Soil Remediation Standard*																		
Aluminum	78,000	8,200	9,200	9,300	9,400	11,000	10,000	9,100	8,900	7,600	4,900	10,000	10,000	10,000	10,000 J	8,100	9,000	8,900	10,000
Antimony	31	3.8	8.4	10	4.4	U	2.6	6.3	5.8	4.5	U	7.1	13	15	10 J	150	120	78	33
Arsenic	19	7.8	4.8	4.1	4.0	8.2	12	6.1	5.3	6.0	6.9	9.9	7.5	5.8	4.1 J	8.4	11	9.9	5.3
Barium	16,000	78	95	110	110	350	540	140	140	120	130	170	200	140	100 J	150	140	110	98
Beryllium	16	0.39	0.38	0.40	0.41	0.53	0.51	0.37	0.36	0.34	U	0.42	0.50	0.44	0.48 J	0.51	0.46	0.59	0.47
Cadmium	78	0.42	0.47	0.49	0.52	0.81	0.88	0.87	0.75	0.82	0.92	1.0	1.8	1.7	1.0 J	2.1	1.5	1.1	0.87
Calcium	NA	3,200	2,900	3,900	8,400	3,200	3,200	7,200	6,500	12,000	14,000	8,100	3,300	5,700	6,500 J	7,300	9,400	12,000	6,200
Chromium	NA	17	19	21	37	22	24	20	18	62	23	28	37	26	22 J	19	17	30	17
Cobalt	1,600	6.0	6.1	5.7	6.3	6.2	6.3	7.4	7.1	6.9	3.9	6.9	8.0	6.4	6.3 J	6.5	11	8.6	7.1
Copper	3,100	100	180	230	160	110	150	190	170	110	110	400	1,200	660	430 J	830	740	530	390
Iron	NA	15,000	19,000	15,000	20,000	18,000	18,000	21,000	17,000	17,000	9,400	18,000	22,000	18,000	18,000 J	26,000	23,000	23,000	20,000
Lead	400	280	810	820	390	760	1,000	610	500	250	450	1,500	3,000	1,400	1,400 J	7,900	6,800	3,900	2,000
Magnesium	NA	2,700	2,600	2,100	2,700	2,200	1,900	3,000	3,200	3,600	1,800	3,000	2,600	2,800	2,500 J	2,500	3,500	4,400	3,200
Manganese	11,000	280	350	390	380	440	400	360	370	360	380	410	460	390	430 J	380	530	500	380
Nickel	1,600	13	14	15	15	16	17	14	14	17	10	16	16	18	15 J	14	16	17	14
Potassium	NA	520	580	620	600	640	610	790	800	1,200	1,000	1,100	590	660	560 J	570	600	650	730
Selenium	390	U	U	U	U	U	U	U	U	U	U	U	U	U	UJ	U	U	U	U
Sodium	NA	210	130	98	340	98	120	340	210	290	520	250	390	420	170 J	200	300	290	190
Silver	390	0.99	2.8	5.1	1.6	3.6	10	1.9	1.9	0.90	3.3	14	38	13	10 J	20	27	16	8.9
Thallium	5	U	U	U	U	U	U	U	U	U	U	U	U	U	UJ	U	U	U	U
Vanadium	78	24	26	23	28	30	31	35	36	29	18	34	32	28	26 J	30	41	43	31
Zinc	23,000	200	280	370	280	420	410	420	350	340	270	830	1,000	830	680 J	1,500	1,100	940	720
Tin	NA	51	290	490	86	25	41	170	160	46	120	550	1,600	560	730 J	4,400	3,800	2,400	1,300

Notes:  
\*Standards retrieved from the New Jersey Administrative Code (NJAC) 7:26D: Remediation Standards, Amended October 3, 2011

Soil sample data presented in milligrams per kilogram (mg/kg).  
Rinsate blank data presented in micrograms per liter (ug/L).  
Results exceeding the NJAC Residential Direct Contact Soil Remediation Standard are highlighted in red.  
J: Flag indicates an estimated value.  
U: Flag indicates the element was analyzed for but not detected.  
NA: Not Applicable



Table 3  
Validated Analytical Results for TAL Metals + Tin  
MC Canfield & Sons Site  
April 22 through May 2, 2013

	RST 2 Sample ID	P001-SS013-FF-1218-001	P001-SS013-GG-1824-001	P001-SS013-N-0206-001	P001-SS013-R-1824-001	P001-SS013-T-0612-001	P001-SS013-T-1824-001	P001-SS013-V-1218-001	P001-SS013-V-1218-002	P001-SS013-W-0002-001	P001-SS013-X-1824-001	P001-SS013-Y-0612-001	P001-SS014-AA-1824-001	P001-SS014-BB-1218-001	P001-SS014-CC-1218-001	P001-SS014-CC-1218-002	P001-SS014-K-0612-001	P001-SS014-O-0612-001	P001-SS014-Q-0206-001
Metal	Residential Direct Contact Soil Remediation Standard*																		
Aluminum	78,000	9,400	9,500	9,400	9,300	8,500	11,000	9,900	9,900	7,200	9,100	11,000	12,000	11,000	12,000	12,000	6,900	11,000	11,000
Antimony	31	7.9	8.1	7.6	U	3.3	U	U	U	U	3.5	27	U	40	U	U	5.6	84	18
Arsenic	19	6.5	4.7	4.2	3.3	7.6	7.4	3.4	3.1	8.9	4.2	5.6	1.5	7.0	2.3	2.2	3.5	9.1	7.0
Barium	16,000	160	140	790	120	970	540	130	100	110	99	100	48	150	50	53	59	140	140
Beryllium	16	0.42	0.38	0.37	0.48	0.50	0.51	0.51	0.50	0.31	0.40	0.48	0.28	0.42	0.46	0.48	0.32	0.73	0.47
Cadmium	78	0.89	0.77	0.48	0.30	1.4	1.9	U	0.25	0.61	0.35	0.57	0.43	1.9	U	U	0.44	0.64	2.4
Calcium	NA	10,000	7,600	7,500	4,600	8,800	12,000	5,000	5,500	7,000	4,100	4,300	17,000	12,000	1,300	1,400	1,400	2,600	5,600
Chromium	NA	23	21	21	24	24	24	20	26	22	18	15	9.6	22	15	14	15	19 J	29
Cobalt	1,600	8.0	8.1	6.2	6.5	5.6	6.1	5.9	5.7	5.8	5.1	6.9	16	8.3	5.1	6.4	4.7	6.8	6.8
Copper	3,100	220	240	120	53	81	75	46	44	75	100	650	110	750	91	87	110	550	530
Iron	NA	19,000	21,000	17,000	16,000	15,000	18,000	16,000	16,000	14,000	14,000	18,000	34,000	21,000	16,000	16,000	13,000	21,000	18,000
Lead	400	1,000	780	500	170	1,900	850	150	160	590	1,500	5,800	53	820	58	51	310	4,300	2,000
Magnesium	NA	3,000	3,500	2,900	2,600	3,300	2,700	2,700	2,700	2,300	2,100	2,300	8,300	4,000	2,400	2,300	1,800	1,900	2,700
Manganese	11,000	380	390	340	430	270	390	390	360	380	400	440	550	390	390	440	260	380 J	330
Nickel	1,600	15	15	13	17	51	17	14	16	11	13	12	20	20	11	11	12	13	34
Potassium	NA	690	610	590	860	690	780	940	920	730	600	580	390	720	700	720	490	630	720
Selenium	390	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U
Sodium	NA	290	310	630	140	160	240	330	330	220	180	160	720	450	170	170	U	U	840
Silver	390	5.1	3.4	1.5	U	U	U	U	U	1.3	3.0	31	U	3.0	0.58	0.56	1.6	23	9.1
Thallium	5	U	U	U	U	UJ	U	U	U	U	U	U	1.6	U	U	U	U	UJ	U
Vanadium	78	40	41	31	28	28	30	23	24	26	23	28	81	40	22	21	18	23	31
Zinc	23,000	420	400	260	130	680	490	110	110	170	190	880	88	1,200	63	59	250	450	920
Tin	NA	350	280	140	13	35	21	16	21	76	340	2,700	7.8	250	16	7.2	110	1,200	720

Notes:  
\*Standards retrieved from the New Jersey Administrative Code (NJAC) 7:26D: Remediation Standards, Amended October 3, 2011

Soil sample data presented in milligrams per kilogram (mg/kg).

Rinsate blank data presented in micrograms per liter (ug/L).

Results exceeding the NJAC Residential Direct Contact Soil Remediation Standard are highlighted in red.

J: Flag indicates an estimated value.

U: Flag indicates the element was analyzed for but not detected.

NA: Not Applicable

Table 3  
Validated Analytical Results for TAL Metals + Tin  
MC Canfield & Sons Site  
April 22 through May 2, 2013

	RST 2 Sample ID	P001-SS014-Q-1824-001	P001-SS014-R-0002-001	P001-SS014-R-1218-001	P001-SS014-R-1824-001	P001-SS014-S-0206-001	P001-SS015-J-1218-001	P001-SS015-L-1218-001	P001-SS015-L-1824-001	P001-SS015-Q-1218-001	P001-SS015-W-0002-001	P001-SS015-Y-0206-001	P001-SS017-S-0206-001	P001-SS019-J-0206-001	P001-SS019-M-0206-001	P001-SS019-V-0002-001	P001-SS023-G-0612-001	P001-SS023-J-1218-001	P001-SS023-L-0206-001
Metal	Residential Direct Contact Soil Remediation Standard*																		
Aluminum	78,000	11,000	6,400	11,000	12,000	9,900	9,800	8,200	7,200	9,300	5,700	14,000	8,000	8,700	7,900	7,600	7,800	8,700	7,800
Antimony	31	14	4.5	170	170	3.7	220	220	260	140	2.3	U	U	4.1	28	3.7	25	2.7	67
Arsenic	19	4.8	5.3	17	59	7.8	13	15	14	7.7	5.5	2.2	4.1	4.6	6.2	4.4	5.1	3.5	13
Barium	16,000	89	140	130	130	180	170	170	230	180	85	59	110	440	630	330	120	150	230
Beryllium	16	0.41	U	0.42	0.50	0.45	0.56	0.54	0.44	0.56	U	U	0.44	0.47	0.43	0.36	0.44	0.43	0.44
Cadmium	78	1.4	1.3	5.3	4.6	1.6	2.3	4.4	3.4	2.3	0.54	0.50	U	1.2	1.8	0.94	0.61	0.87	0.79
Calcium	NA	2,400	16,000	8,500	4,400	9,900	7,400	4,300	4,700	6,900	7,600	19,000	5,200	14,000	19,000	5,600	5,600	8,600	7,500
Chromium	NA	15	28	21	18	24	18	18	29	17	16	11	16	22	26	29	16	16	41
Cobalt	1,600	6.4	4.8	8.2	17	6.3	7.1	13	14	7.6	5.4	16	7.2	6.5	6.2	6.7	6.0	6.6	7.6
Copper	3,100	280	230	2,900	5,700	320	540	2,200	2,100	610	60	110	53	150	180	120	140	74	140
Iron	NA	16,000	14,000	25,000	26,000	15,000	19,000	24,000	22,000	20,000	13,000	45,000	19,000	19,000	17,000	17,000	16,000	17,000	17,000
Lead	400	1,100	470	6,700	12,000	750	6,700	10,000	13,000	6,800	240	120	160	560	1,200	520	1,100	330	1,600
Magnesium	NA	2,000	3,300	2,600	2,400	2,600	2,700	1,600	1,700	2,800	2,700	8,800	3,400	3,700	4,100	3,300	2,500	3,300	3,200
Manganese	11,000	340	390	310	500	430	370	320	370	460	350	590	360	370	410	350	350	340	390
Nickel	1,600	12	14	42	61	15	16	18	19	17	12	21	16	22	31	23	23	14	21
Potassium	NA	760	1,200	930	860	1,200	770	840	690	770	1,200	330	1,100	950	810	750	650	760	850
Selenium	390	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U
Sodium	NA	260	750	180	170	240	350	160	190	170	670	2,900	130	160	320	200	160	160	250
Silver	390	5.7	2.0	29	23	6.4	19	46	50	18	U	U	U	1.1	1.7	1.4	5.2	U	3.5
Thallium	5	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U
Vanadium	78	24	22	27	28	27	40	19	19	41	24	79	24	28	27	27	33	29	28
Zinc	23,000	590	490	3,900	5,800	500	1,200	4,000	3,500	1,100	160	110	110	470	630	460	400	720	400
Tin	NA	620	470	2,100	3,900	210	3,500	12,000	12,000	2,400	26	15	8.3	42	110	30	520	40	450

Notes:  
\*Standards retrieved from the New Jersey Administrative Code (NJAC) 7:26D: Remediation Standards, Amended October 3, 2011

Soil sample data presented in milligrams per kilogram (mg/kg).

Rinsate blank data presented in micrograms per liter (ug/L).

Results exceeding the NJAC Residential Direct Contact Soil Remediation Standard are highlighted in red.

J: Flag indicates an estimated value.

U: Flag indicates the element was analyzed for but not detected.

NA: Not Applicable



Table 3  
Validated Analytical Results for TAL Metals + Tin  
MC Canfield & Sons Site  
April 22 through May 2, 2013

	RST 2 Sample ID	P001-SS023-O-0612-001	P001-SS023-P-0002-001	P001-SS023-Q-0612-001	P001-SS026-CC-0206-001	P001-SS026-J-0002-001	P001-SS026-V-0002-001	P001-SS026-V-0002-002	P001-SS026-V-1218-001	P001-SS026-Z-0206-001	P001-SS028-F-0206-001	P001-SS028-O-0612-001	P001-SS029-N-0612-001	P001-SS030-J-0206-001	P001-SS030-R-0002-001	P001-SS030-U-0612-001	P001-SS031-F-0612-001	P001-SS031-L-0206-001	P001-SS031-L-0612-001
Metal	Residential Direct Contact Soil Remediation Standard*																		
Aluminum	78,000	6,400	6,800	8,500	8,100	6,700	5,700	5,200	8,300	7,100	7,700	9,700	12,000	9,700	9,900	8,300	7,800	7,900	8,200
Antimony	31	U	15	6.2	8.8	4.6	U	U	5.7	6.1	1.8	U	U	4.8	4.7	U	2.4 J	14	15
Arsenic	19	4.1	6.0	6.3	5.1	4.5	8.0	8.1	11	5.8	3.5	3.1	3.3	5.6	6.0	2.6	4.5	5.5	8.0
Barium	16,000	100	93	120	340	370	110	100	400	410	190	120	140	460	880	48	130	250	470
Beryllium	16	0.30	U	0.44	0.40	0.37	U	U	0.42	0.32	0.39	0.47	0.33	0.44	0.50	0.44	0.46	0.41	0.43
Cadmium	78	0.34	1.1	0.51	1.1	0.87	0.63	0.64	1.0	1.3	0.60	0.27	U	1.7	1.3	U	0.32	0.88	1.8
Calcium	NA	11,000	11,000	5,600	12,000	10,000	8,600	8,600	13,000	8,000	7,200	5,900	7,800	22,000	11,000	2,200	13,000	8,800	12,000
Chromium	NA	17	33	22	27	22	21	22	27	29	23	16	14	30	37	14	16	26	61
Cobalt	1,600	4.1	7.1	6.3	6.4	5.4	4.5	4.3	7.2	7.0	6.6	7.6	11	7.5	7.8	5.4	6.1	6.7	7.7
Copper	3,100	62	270	100	200	110	67	65	130	1,700	86	170	90	170	290	28	55	130	110
Iron	NA	13,000	18,000	17,000	17,000	17,000	12,000	11,000	20,000	17,000	20,000	20,000	28,000	19,000	22,000	14,000	16,000	17,000	25,000
Lead	400	240	730	510	680	480	160	150	910	710	340	180	380	1,100	610	73	220	780	1,800
Magnesium	NA	2,700	3,900	2,700	3,300	4,000	2,100	2,000	3,400	3,200	3,700	3,300	5,400	4,500	4,700	2,200	2,900	3,200	2,900
Manganese	11,000	330	350	570	290	250	370	370	370	340	350	360	450	350	390	370	390	360	420
Nickel	1,600	11	16	14	59	19	12	11	26	77	18	14	17	35	31	11	11	19	19
Potassium	NA	600	670	770	650	540	1,100	1,000	800	680	740	740	420	910	1,100	790	700	680	700
Selenium	390	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	UJ	U	U
Sodium	NA	700	240	200	180	250	270	260	760	210	180	190	890	260	280	150	250	230	230
Silver	390	U	2.5	1.4	1.6	1.0	U	U	1.1	2.5	0.50	U	U	2.0	1.8	U	U	1.3	0.91
Thallium	5	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	UJ	U	U
Vanadium	78	18	34	28	28	24	19	18	41	25	28	29	55	32	30	19	28	31	35
Zinc	23,000	140	410	230	490	480	220	210	440	920	270	150	150	630	730	75	130	400	630
Tin	NA	11	210	120	49	32	8.2	11	55	70	20	8.5	16	44	42	2.8	17 J	160	100

Notes:  
\*Standards retrieved from the New Jersey Administrative Code (NJAC) 7:26D: Remediation Standards, Amended October 3, 2011

Soil sample data presented in milligrams per kilogram (mg/kg).  
Rinsate blank data presented in micrograms per liter (ug/L).  
Results exceeding the NJAC Residential Direct Contact Soil Remediation Standard are highlighted in red.  
J: Flag indicates an estimated value.  
U: Flag indicates the element was analyzed for but not detected.  
NA: Not Applicable

Table 3  
Validated Analytical Results for TAL Metals + Tin  
MC Canfield & Sons Site  
April 22 through May 2, 2013

	RST 2 Sample ID	P001-SS031-L-1218-001	P001-SS031-N-0002-001	P001-SS031-N-0206-001	P001-SS031-N-1218-001	P001-SS031-P-0002-001	P001-SS031-W-1218-001	RB-042213	RB-042313	RB-042413	RB-042513	RB-042913	RB-043013	RB-050113	RB-050213
Metal	Residential Direct Contact Soil Remediation Standard*														
Aluminum	78,000	6,200	8,100	8,200	5,700	7,000	10,000	U	U	U	U	U	U	U	U
Antimony	31	U	24	19	U	2.5	U	U	UJ	U	U	U	U	U	U
Arsenic	19	2.8	9.2	9.4	2.2	4.1	6.5	U	U	U	U	U	U	U	U
Barium	16,000	110	270	370	61	190	200	U	U	U	U	U	U	U	U
Beryllium	16	0.33	0.39	U	0.29	0.38	0.58	U	U	U	U	U	U	U	U
Cadmium	78	U	1.4	1.9	0.34	0.57	U	U	U	U	U	U	U	U	U
Calcium	NA	2,000	5,900	5,600	1,900	3,800	10,000	U	U	U	U	U	U	U	U
Chromium	NA	12	19	17	15	20	26	U	U	U	U	U	U	U	U
Cobalt	1,600	5.1	6.9	7.0	5.3	5.7	5.6	U	U	U	U	U	U	U	U
Copper	3,100	26	160	110	36	64	48	U	U	U	U	U	U	U	U
Iron	NA	15,000	19,000	18,000	14,000	16,000	17,000	67	670	U	U	U	U	U	U
Lead	400	200	1,400	1,200	190	560	1,100	U	U	U	U	U	U	U	U
Magnesium	NA	2,200	3,100	3,000	2,400	2,500	2,600	U	U	U	U	U	U	U	U
Manganese	11,000	310	390	280	300	320	570	U	6.6	U	U	U	U	U	U
Nickel	1,600	12	21	26	14	14	14	U	U	U	U	U	U	U	U
Potassium	NA	380	740	570	340	810	800	U	U	U	U	U	U	U	U
Selenium	390	U	U	U	U	U	U	U	U	U	U	U	U	U	U
Sodium	NA	U	250	1,000	U	130	130	U	U	U	U	U	U	U	U
Silver	390	U	2.7	1.1	U	0.51	U	U	U	U	U	U	U	U	U
Thallium	5	U	U	U	U	U	U	U	U	U	U	U	U	U	U
Vanadium	78	18	33	31	17	26	28	U	U	U	U	U	U	U	U
Zinc	23,000	120	540	630	87	380	160	U	U	U	U	U	U	U	U
Tin	NA	8.2	310	160	4.0	30	8.8	U	U	U	U	U	U	U	U

Notes:

\*Standards retrieved from the New Jersey Administrative Code (NJAC) 7:26D: Remediation Standards, Amended October 3, 2011

Soil sample data presented in milligrams per kilogram (mg/kg).

Rinsate blank data presented in micrograms per liter (ug/L).

Results exceeding the NJAC Residential Direct Contact Soil Remediation Standard are highlighted in red.

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NA: Not Applicable

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## **ATTACHMENT C**

- Chain of Custody Records
-



**MC Canfield Site**  
**Contact Name: Joel Petty**  
**Contact Phone: 732-570-4943**

Cooler #: 1  
Lab: DESA  
Lab Phone: 732-321-6707

Lab #	Sample #	Analyses	Matrix	Collected	Sample Time	Numb Cont	Container	Preservative	MS/MSD
	P001-SS012-S-0002-001	TAL Metals + Tin	Soil	4/23/2013	12:55	1	8 oz jar	4 C	N
	P001-SS012-U-0002-001	TAL Metals + Tin	Soil	4/23/2013	13:53	1	8 oz jar	4 C	N
	P001-SS012-U-1218-001	TAL Metals + Tin	Soil	4/23/2013	14:02	1	8 oz jar	4 C	N
	P001-SS013-AA-0612-001	TAL Metals + Tin	Soil	4/23/2013	11:08	1	8 oz jar	4 C	N
	P001-SS013-AA-1218-001	TAL Metals + Tin	Soil	4/23/2013	11:12	1	8 oz jar	4 C	N
	P001-SS013-AA-1824-001	TAL Metals + Tin	Soil	4/23/2013	11:18	1	8 oz jar	4 C	N
	P001-SS013-CC-0612-001	TAL Metals + Tin	Soil	4/23/2013	11:06	1	8 oz jar	4 C	N
	P001-SS013-FF-1218-001	TAL Metals + Tin	Soil	4/23/2013	11:32	1	8 oz jar	4 C	N
	P001-SS013-GG-1824-001	TAL Metals + Tin	Soil	4/23/2013	13:12	1	8 oz jar	4 C	N
	P001-SS013-N-0206-001	TAL Metals + Tin	Soil	4/22/2013	10:29	1	8 oz jar	4 C	N
	P001-SS013-R-1824-001	TAL Metals + Tin	Soil	4/22/2013	10:55	1	8 oz jar	4 C	N

SAMPLES TRANSFERRED FROM	CHAIN OF CUSTODY #

[illegible]

Lab #	Sample #	Analyses	Matrix	Collected	Sample Time	Numb Cont	Container	Preservative	MS/MSD
	P001-SS013-T-1824-001	TAL Metals + Tin	Soil	4/22/2013	11:50	1	8 oz jar	4 C	N
	P001-SS013-V-1218-001	TAL Metals + Tin	Soil	4/22/2013	13:15	1	8 oz jar	4 C	N
	P001-SS013-V-1218-002	TAL Metals + Tin	Soil	4/22/2013	13:15	1	8 oz jar	4 C	N
	P001-SS013-W-0002-001	TAL Metals + Tin	Soil	4/23/2013	09:51	1	8 oz jar	4 C	N
	P001-SS013-X-1824-001	TAL Metals + Tin	Soil	4/23/2013	10:20	1	8 oz jar	4 C	N
	P001-SS013-Y-0612-001	TAL Metals + Tin	Soil	4/23/2013	10:32	1	8 oz jar	4 C	N
	P001-SS028-F-0206-001	TAL Metals + Tin	Soil	4/22/2013	13:45	1	8 oz jar	4 C	N
	P001-SS030-J-0206-001	TAL Metals + Tin	Soil	4/22/2013	13:55	1	8 oz jar	4 C	N
	P001-SS030-R-0002-001	TAL Metals + Tin	Soil	4/22/2013	14:35	1	8 oz jar	4 C	N
	RB-042313	TAL Metals + Tin	Rinsate Blank	4/23/2013 5P	10:00	1	1 L poly	HNO3 pH<2	N
	P001-SS013-T-0612-001	TAL Metals + Tin	Soil	4/22/2013	11:35	2	8 oz jar	4 C	Y
	RB-042213	TAL Metals + Tin	Rinsate Blank	4/22/2013 5P	13:00	1	1 L poly	HNO3 pH<2	N

**Special Instructions:**

**SAMPLES TRANSFERRED FROM**

CHAIN OF CUSTODY #

[illegible]

MC Canfield Site  
Contact Name: Joel Petty  
Contact Phone: 732-570-4943

Cooler #: 1  
Lab: DESA  
Lab Phone: 732-321-6707

Lab #	Sample #	Analyses	Matrix	Collected	Sample Time	Numb Cont	Container	Preservative	MS/MSD
	P001-SS012-R-0206-001	TAL Metals + Tin	Soil	4/24/2013	08:31	1	8 oz jar	4 C	N
	P001-SS012-R-0206-002	TAL Metals + Tin	Soil	4/24/2013	08:31	1	8 oz jar	4 C	N
	P001-SS012-T-0002-001	TAL Metals + Tin	Soil	4/24/2013	08:26	1	8 oz jar	4 C	N
	P001-SS012-T-0612-001	TAL Metals + Tin	Soil	4/24/2013	08:33	1	8 oz jar	4 C	N
	P001-SS014-AA-1824-001	TAL Metals + Tin	Soil	4/24/2013	10:42	1	8 oz jar	4 C	N
	P001-SS014-BB-1218-001	TAL Metals + Tin	Soil	4/24/2013	10:48	1	8 oz jar	4 C	N
	P001-SS014-K-0612-001	TAL Metals + Tin	Soil	4/24/2013	10:40	1	8 oz jar	4 C	N
	P001-SS014-Q-0612-001	TAL Metals + Tin	Soil	4/24/2013	08:40	2	8 oz jar	4 C	Y
	P001-SS014-Q-0206-001	TAL Metals + Tin	Soil	4/24/2013	08:35	1	8 oz jar	4 C	N
	P001-SS014-Q-1824-001	TAL Metals + Tin	Soil	4/24/2013	08:50	1	8 oz jar	4 C	N
	P001-SS014-R-0002-001	TAL Metals + Tin	Soil	4/24/2013	09:35	1	8 oz jar	4 C	N

SAMPLES TRANSFERRED FROM
CHAIN OF CUSTODY #



MC Canfield Site  
Contact Name: Joel Peltz  
Contact Phone: 732-570-4943

Cooler #: 1  
Lab: DESA  
Lab Phone: 732-321-6707

Lab #	Sample #	Analyses	Matrix	Collected	Sample Time	Numb Cont	Container	Preservative	MS/MSD
	P001-SS014-R-1218-001	TAL Metals + Tin	Soil	4/24/2013	09:50	1	8 oz jar	4 C	N
	P001-SS014-R-1824-001	TAL Metals + Tin	Soil	4/24/2013	09:55	1	8 oz jar	4 C	N
	P001-SS014-S-0206-001	TAL Metals + Tin	Soil	4/24/2013	09:36	1	8 oz jar	4 C	N
	P001-SS015-J-1218-001	TAL Metals + Tin	Soil	4/25/2013	09:04	1	8 oz jar	4 C	N
	P001-SS015-L-1218-001	TAL Metals + Tin	Soil	4/25/2013	08:50	1	8 oz jar	4 C	N
	P001-SS015-L-1824-001	TAL Metals + Tin	Soil	4/25/2013	08:55	1	8 oz jar	4 C	N
	P001-SS015-Q-1218-001	TAL Metals + Tin	Soil	4/25/2013	09:15	1	8 oz jar	4 C	N
	P001-SS019-J-0206-001	TAL Metals + Tin	Soil	4/25/2013	15:45	1	8 oz jar	4 C	N
	P001-SS019-M-0206-001	TAL Metals + Tin	Soil	4/25/2013	15:55	1	8 oz jar	4 C	N
	P001-SS019-V-0002-001	TAL Metals + Tin	Soil	4/25/2013	15:56	1	8 oz jar	4 C	N
	RB-042413	TAL Metals + Tin	Rinsate Blank	4/24/2013	16:30	1	1 L poly	HNO3 pH<2	N
	RB-042513	TAL Metals + Tin	Rinsate Blank	4/25/2013	16:45	1	1 L poly	HNO3 pH<2	N

SAMPLES TRANSFERRED FROM	CHAIN-OF CUSTODY #

USEPA

DatesShipped: 5/1/2013

CarrierName: Hand Delivery

AirbillNo: NA

### CHAIN OF CUSTODY RECORD

Mc Canfield Site

Contact Name: Joel Petty

**Contact Phone: 732-570-4943**

No: 2-050113-104604-0006

Cooler #: 1

Lab: DESA

Lab Phone: 732-321-6707

Lab #	Sample #	Analyses	Matrix	Collected	Sample Time	Numb Cont	Container	Preservative	MS/MSD
	P001-SS015-W-0002-001	TAL Metals + Tin	Soil	4/25/2013	10:20	1	8 oz jar	4 C	N
	P001-SS015-Y-0206-001	TAL Metals + Tin	Soil	4/25/2013	10:15	1	8 oz jar	4 C	N
	P001-SS017-S-0206-001	TAL Metals + Tin	Soil	4/25/2013	14:38	1	8 oz jar	4 C	N
	P001-SS023-G-0612-001	TAL Metals + Tin	Soil	4/30/2013	13:37	1	8 oz jar	4 C	N
	P001-SS023-J-1218-001	TAL Metals + Tin	Soil	4/30/2013	11:21	1	8 oz jar	4 C	N
	P001-SS023-L-0206-001	TAL Metals + Tin	Soil	4/30/2013	10:34	1	8 oz jar	4 C	N
	P001-SS023-O-0612-001	TAL Metals + Tin	Soil	4/30/2013	10:40	1	8 oz jar	4 C	N
	P001-SS023-P-0002-001	TAL Metals + Tin	Soil	4/30/2013	13:40	1	8 oz jar	4 C	N
	P001-SS026-J-0002-001	TAL Metals + Tin	Soil	4/30/2013	08:37	1	8 oz jar	4 C	N
	P001-SS026-V-0002-001	TAL Metals + Tin	Soil	4/30/2013	13:10	1	8 oz jar	4 C	N
	P001-SS026-V-0002-002	TAL Metals + Tin	Soil	4/30/2013	13:10	1	8 oz jar	4 C	N

**Special Instructions:**

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**CHAIN OF CUSTODY #**

[illegible]

CHAIN OF CUSTODY RECORD

Contact Name: Joel Petty

No: 2-050113-104604-0006

Cooler #: 1

Lab: DESA

Lab Phone: 732-321-6707

Lab #	Sample #	Analyses	Matrix	Collected	Sample Time	Numb Cont	Container	Preservative	MS/MSD
	P001-SS026-V-1218-001	TAL Metals + Tin	Soil	4/30/2013	13:26	1	8 oz jar	4 C	N
	P001-SS026-Z-0206-001	TAL Metals + Tin	Soil	4/30/2013	13:13	1	8 oz jar	4 C	N
	P001-SS031-F-0612-001	TAL Metals + Tin	Soil	4/29/2013	11:12	2	8 oz jar	4 C	Y
	P001-SS031-L-0206-001	TAL Metals + Tin	Soil	4/29/2013	09:35	1	8 oz jar	4 C	N
	P001-SS031-L-0612-001	TAL Metals + Tin	Soil	4/29/2013	09:40	1	8 oz jar	4 C	N
	P001-SS031-L-1218-001	TAL Metals + Tin	Soil	4/29/2013	09:43	1	8 oz jar	4 C	N
	P001-SS031-N-0002-001	TAL Metals + Tin	Soil	4/29/2013	09:05	1	8 oz jar	4 C	N
	P001-SS031-N-0206-001	TAL Metals + Tin	Soil	4/29/2013	09:11	1	8 oz jar	4 C	N
	P001-SS031-N-1218-001	TAL Metals + Tin	Soil	4/29/2013	09:18	1	8 oz jar	4 C	N
	P001-SS031-P-0002-001	TAL Metals + Tin	Soil	4/29/2013	09:50	1	8 oz jar	4 C	N
	RB-042913	TAL Metals + Tin	Rinsate Blank	4/29/2013	16:45	1	1 L poly	HNO3 pH<2	N
	RB-043013	TAL Metals + Tin	Rinsate Blank	4/30/2013	16:30	1	1 L poly	HNO3 pH<2	N



USEPA

DateShipped: 5/3/2013

CarrierName: Hand Delivery

AirbillNo: NA

### CHAIN OF CUSTODY RECORD

Mc Canfield Site

Contact Name: Joel Petty

Contact Phone: 732-570-4943

No: 2-050313-091617-0008

Cooler #: 1

Lab: DESA

Lab Phone: 732-321-6707

Lab #	Sample #	Analyses	Matrix	Collected	Sample Time	Numb Cont	Container	Preservative	MS/MSD
	P001-SS012-AA-0002-001	TAL Metals + Tin	Soil	5/1/2013	08:40	1	8 oz jar	4 C	N
	P001-SS012-AA-0206-001	TAL Metals + Tin	Soil	5/1/2013	08:45	1	8 oz jar	4 C	N
	P001-SS012-AA-1824-001	TAL Metals + Tin	Soil	5/1/2013	09:26	1	8 oz jar	4 C	N
	P001-SS012-EE-1218-001	TAL Metals + Tin	Soil	5/1/2013	09:40	1	8 oz jar	4 C	N
	P001-SS012-N-0612-001	TAL Metals + Tin	Soil	5/1/2013	11:15	1	8 oz jar	4 C	N
	P001-SS012-N-1218-001	TAL Metals + Tin	Soil	5/1/2013	11:18	1	8 oz jar	4 C	N
	P001-SS012-W-0206-001	TAL Metals + Tin	Soil	5/1/2013	09:31	2	8 oz jar	4 C	Y
	P001-SS014-CC-1218-001	TAL Metals + Tin	Soil	5/1/2013	09:46	1	8 oz jar	4 C	N
	P001-SS014-CC-1218-002	TAL Metals + Tin	Soil	5/1/2013	09:46	1	8 oz jar	4 C	N
	P001-SS023-Q-0612-001	TAL Metals + Tin	Soil	5/2/2013	10:10	1	8 oz jar	4 C	N
	P001-SS026-CC-0206-001	TAL Metals + Tin	Soil	5/2/2013	11:45	1	8 oz jar	4 C	N

**Special Instructions:**

SAMPLES TRANSFERRED FROM	CHAIN OF CUSTODY #

[illegible]

**USEPA**  
**DatesShipped: 5/3/2013**  
**CarrierName: Hand Delivery**  
**AirbillNo: NA**

## CHAIN OF CUSTODY RECORD

MC Canfield Site  
Contact Name: Joel Petty  
Contact Phone: 732-570-4943

No: 2-050313-091617-0008  
Cooler #: 1  
Lab: DESA  
Lab Phone: 732-321-6707

[illegible]

**Special Instructions:**

SAMPLES TRANSFERRED FROM	CHAIN OF CUSTODY #

[illegible]

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
REGION 2

SEP 26 2013

DATE: SEP 26 2013

SUBJECT: Approval and Funding for a Removal Action and Request for Exemption to the 12-Month Statutory Limitation and \$2 Million Limitation at the Canfield, M.C. Sons Co. Site, Newark, Essex County, New Jersey

FROM: Cris D'Onofrio, On-Scene Coordinator *draft for Cris D'Onofrio*  
Response and Prevention Branch

THRU: Walter Mugdan, Director *Walter Mugdan*  
Emergency and Remedial Response Division

TO: Judith A. Enck  
Regional Administrator

Site ID No.: A21T

**I. PURPOSE**

The purpose of this Action Memorandum is to request and document approval of the selected removal action and exemption to the 12-month statutory limitation and \$2 million limit described herein for the M.C. Canfield & Sons Site (also known as the Canfield, M.C. Sons Co. Site, and "the Site"), located in Newark, Essex County, New Jersey. The removal action will address the threats posed by lead contaminated soil on the residential property located at the Society Hill at University Heights III residential condominium complex which is bounded by Norfolk, Wickliff, West Market and Warren Streets in Newark, Essex County, New Jersey.

The total project ceiling requested in this Action Memorandum is \$2,251,136 of Direct Extramural Funds of which \$1,700,947 is from the Regional Removal Advice of Allowance for mitigation contracting to address the direct contact public health threat posed by lead on the Site. Conditions at the Site meet the criteria for a removal action under the Comprehensive Environmental Response, Compensation, and Liability Act of 1980, as amended, 42 U.S.C. §9601-9675, ("CERCLA") as documented in section 300.415 (b)(2) of the National Contingency Plan.

There are no nationally significant or precedent-setting issues associated with the Site.

**II. SITE CONDITIONS AND BACKGROUND**

The Comprehensive Environmental Response, Compensation, and Liability Information System ("CERCLIS") Identification Number for the Site is NJN000206557.

The proposed action is considered a time-critical removal action.

218206





## **A. Site Description**

### **1. Removal site evaluation**

In response to a USA Today inquiry about former lead smelting operations, the New Jersey Department of Environmental Protection ("NJDEP") launched an investigation to verify 31 potential lead smelter facilities that were identified as part of a research project conducted by George Mason University and published in the American Journal of Public Health in 2001. M.C. Canfield & Sons, formerly located at 93 Wilsey Street in Newark, New Jersey, was identified as one of the 31 potential smelter operations. NJDEP performed initial sampling in March 2012 at properties identified as related to the former M.C. Canfield & Sons facility to determine if metal contamination associated with past smelting operation was present in soil above New Jersey's Soil Remediation Standards. NJDEP found elevated lead contamination in surface soils ranging from 753 parts per million ("ppm") to 4,860 ppm.

The Site was referred to EPA by NJDEP on May 9, 2012 (Appendix B). The Site is located within the Society Hill at University Heights III condominium complex which is bounded by Norfolk, Wickliff, West Market and Warren Streets in Newark, Essex County, New Jersey. Maps of the Site are included as Figures 1 and 2 of Appendix A. There is a church directly adjacent to the Site in the center of the northern portion, an unused school on the northeast corner and an abandoned warehouse adjacent to the eastern edge of the Site.

EPA has conducted two rigorous sampling efforts to assess the lead contamination at the Site. The first was conducted during the period August 20, 2012 through August 30, 2012 and was focused on meeting the needs of a removal site evaluation ("RSE") to determine eligibility for a removal action under CERCLA. The second sampling effort, the Phase II removal assessment, was conducted during the period April 22, 2013 through May 3, 2013. This effort was focused on further delineation of the lead contamination at the Site in order to determine an appropriate scope and approach for a removal action.

### **Removal Site Evaluation, Phase I Assessment**

The sampling design for the RSE was based on and is consistent with EPA Superfund Lead-Contaminated Residential Sites Handbook dated August 2003. For this sampling event, the Site was divided into 34 quadrants (P001-SS001 through P001-SS034) and included areas of high use, such as vegetable gardens or children's play areas. Five sample locations were designated within each quadrant. Soil samples from each location were collected from depths of 0 inch (bottom of sod), 0-2 inches, 2-6 inches, 6-12 inches, 12-18 inches, and 18-24 inches. Samples from each depth interval within a quadrant were composited into one sample to make a five point composite sample for each depth interval.

Additional to the composite sampling, discrete samples were collected from the four corners of the townhouse complex property and from the four quadrants within the Site where concentrations of lead were highest (SS012, SS013, SS014 and SS015). The intent of the discrete sampling was to provide better resolution with respect to the potential location of the contaminant source areas than could be obtained through composite sampling alone.

Composite samples were also collected from five off-Site locations. Samples were collected from the Trinity Union American Methodist Episcopal Church, located along the north boundary of the Site, to assess potential impacts due to soil migration from the Site. Samples were also

collected from four other properties located in the vicinity of the Society Hill at University Heights III condominium complex to establish background lead concentrations. Based on elevated lead concentrations found at the Church, additional soil samples were collected from three locations within the drip line of the Church building (6-30 inches from the building edge) to determine whether lead based paint was a potential contamination source at the Church property. During the August 2012 sampling event, a total of 233 composite soil samples and 101 discrete soil samples were collected from the Site, the Church and background locations.

All soil samples were screened for metals on-site using an Innov-X portable x-ray fluorescence instrument. Ten percent of samples collected were submitted to a laboratory for Target Analyte List metals analysis as confirmation of XRF results. The XRF soil screening results for lead are contained in EPA's M.C. Canfield RSE Report dated May 31, 2013. Figure 2 of Attachment A provides a summary of XRF results from the RSE Report.

XRF screening results from composite samples indicated lead at concentrations exceeding EPA's screening level of 400 ppm from 0-6 inches below ground surface ("bgs") in 13 quadrants. Concentrations ranging from 402 ppm to 1561 ppm were detected in the 0-6 inch samples collected from quadrants P001- SS012, SS013, SS014, SS015, SS017, SS019, SS023, SS026, SS027, SS028, SS029, SS030, and SS031.

Discrete samples were collected from quadrants P001-SS012, SS013, SS014 and SS015 as well as the four corners of the townhouse complex in P001-SS001, SS007, SS022 and SS034. Lead was detected in discrete samples in concentrations exceeding EPA's screening level of 400 ppm from 0-6 inches bgs in quadrants P001-SS012, SS013, SS014 and SS015, confirming the composite sampling results from these quadrants. Lead concentrations in the discrete samples from these quadrants were as high as 6,863 ppm.

Background samples collected from three of four off-Site properties (P005, P007 and P008) indicated lead levels ranging from 120 ppm to 297 ppm. Background samples from one of the four properties (P006) showed slightly higher lead levels ranging from 257 ppm to 425 ppm. The calculated average lead concentration detected in off-Site background samples was 214 ppm.

The RSE soil sampling results indicate that there has been a release of lead, a CERCLA-designated hazardous substance, at the Site in concentrations that pose a threat to the public health, particularly to children living in the townhouse complex. The RSE concluded that a time-critical CERCLA removal action is warranted to mitigate health threats associated with potential exposure to lead in soils at the Site.

Elevated levels of lead were also detected in samples collected from 0-6 inches bgs at the Church. Concentrations ranging from 1061 ppm to 1959 ppm were detected in quadrants P002-SS001 and SS002. To determine whether this contamination is related to the Site contamination or a potential lead based paint issue related to the structure, EPA conducted a XRF screening on the exterior painted surfaces of the Church. Lead was detected in some of the exterior painted surfaces at concentrations greater than five milligrams per square centimeter ("mg/cm<sup>2</sup>"). Four paint chip samples were collected from the exterior of the Church (windows trim, wall and chips from soil) and laboratory analyzed for TAL metals. Lead concentrations ranging from 8,600 ppm to 120,000 ppm were detected in three of the four paint chip samples collected.

Since tin was present in most soft solders manufactured at the time M.C. Canfield & Sons was in operation, EPA used screening results for tin to help determine whether the lead contamination at

the Church could be related to contamination found on-Site. Soil samples with the highest levels of lead, collected from within the footprint of the former smelter, did contain elevated levels of tin. Elevated levels of tin were not found in samples collected from the Church property. Both the absence of elevated levels of tin in the Church property soil samples and the high levels of lead found in paint chips from the Church building exterior suggest that the lead contamination at the Church is not attributable to the former smelting operation, but is instead likely the result of the breakdown of lead-based paint. A comparison of the lead and tin data for the discrete samples, Church composite samples, and Church paint chip samples can be found in EPA's RSE Report dated May 31, 2013.

## **Phase II Removal Assessment**

The RSE concluded that the Site is eligible for a CERCLA time-critical removal action to address the public health threats posed by lead contaminated soil. Based on the results of the RSE, EPA determined that additional sampling was necessary to better define the scope of the removal action. A Phase II Removal Assessment was therefore conducted in April/May 2013 to better define areas that might require excavation and to identify areas that might be suitable for alternative remedial actions such as institutional controls.

In order to meet these objectives, a sampling approach utilizing the collection of discrete samples at various depths was selected. Quadrants to be included in the Phase II Assessment were selected based upon the exceedance of the EPA residential screening level of 400 milligrams per kilogram ("mg/kg") of lead in the 0-6 inch bgs interval as determined by the RSE sampling conducted in August 2012. A total of 13 of the original quadrants established during the RSE were chosen for further delineation: SS012; SS013; SS014; SS015; SS017; SS019; SS023; SS026; SS027; SS028; SS029; SS030; and SS031.

Transects were established in each quadrant in order to provide adequate aerial coverage to meet delineation objectives. Soil samples were collected every 30 feet along each transect. Based on real-time evaluation of field screening results, additional samples were collected in between two sample points within a transect (at the 15' interval) and between transects as needed to provide better contaminant delineation. Additionally, at least one location was sampled from each flower bed. Additional samples from flower beds were collected as needed to provide adequate representation of each area being investigated. Sample locations for the Phase II Removal Assessment are shown in Figure 3, "Phase II Sample Locations with XRF Lead Results."

Sample depths were based on the composite sample results obtained during the RSE sampling event. Samples were collected from the 0-2 inches, 2-6 inches, 6-12 inches, 12-18 inches, and 18-24 inches depth intervals in quadrants SS012, SS013, SS014, SS015, SS023, SS026, and SS031 (see Areas 1 and 2, Figure 3). Samples were collected at 0-2 inches and 2-6 inches in quadrants SS017, SS019, SS027, SS028, SS029, and SS030 (see Area 3, Figure 3) with additional depth intervals being sampled at select locations to confirm the findings of the Phase I RSE. A total of 721 discrete soil samples were collected during the Phase II Removal Assessment.

Soil samples were screened for lead and tin on-Site using an Innov-X portable XRF instrument. For laboratory confirmation, ten percent of the samples were submitted to the EPA Division of Environmental Science and Assessment laboratory for TAL metals. Analytical results can be found in the "Sampling Trip Report – Phase II, M.C. Canfield & Sons Site" dated June 28, 2012.

The results of the Phase II Removal Assessment augmented and were consistent with the findings of the RSE sampling. The major conclusions drawn and described herein were made based on the results



of both sampling efforts. In general, lead contamination is more concentrated in the area immediately within and surrounding the previous footprint of the MC Canfield Smelter (smelter location based on Sanborn Maps utilized to conduct the RSE). Soils in this area (designated Area 1) are relatively more homogenous with respect to lead contamination. Soils in the remaining areas of the Site are relatively more heterogeneous with respect to lead contamination, making clear delineation difficult. Three general areas of concern were identified by EPA's sampling which contain the majority of the contamination and pose the highest risk of exposure to lead contamination at the Site. However, given the heterogeneity of the soil contamination observed, it should be recognized that other areas on the Site may contain lower levels of lead contamination.

The following are the main observations and conclusions made from the Phase II Removal Assessment.

- Field screening XRF results indicated lead at concentrations ranging from 44 ppm to 8,290 ppm and tin ranging from non-detect to 9,842 ppm. Laboratory analytical results indicated lead in concentrations as high as 13,000 mg/kg and tin as high as 12,000 mg/kg. XRF results are provided in Figure 3 of Appendix A. Analytical summary tables are also available in Weston Solution's Phase II Sampling Trip Report dated June 28, 2013.
- **Area 1:** The highest concentrations of lead were found in the quadrants at and adjacent to the location of the previous M.C. Canfield & Sons smelter. This area is defined by quadrants SS-012, SS-013, SS-014 and SS-015 and is referred to as Area 1 (Figure 4). Concentrations of lead exceeding EPA residential screening level of 400 mg/kg were found in Area 1 in a significant majority of the samples from 0 – 2' bgs. Lead concentrations in these quadrants range from background levels to 13,000 mg/kg and tend to increase with depth, suggesting that Area 1 contains the main source of lead contamination at the Site. The highest lead concentration of 13,000 mg/kg was detected in quadrant SS-015 in Area 1 at a depth of 18-24" (Sample No. P001-SS015-1-1824.001).
- **Area 2:** Area 2 is defined by quadrants SS-023, SS-026 and SS-031 and is directly north and east of the pool (Figure 4). Based on screening and analytical results, lead contamination is present but is not uniformly distributed in this area. Thirty-one of forty-four locations sampled in Area 2 contained lead levels in excess of the 400 mg/kg residential screening level with concentrations ranging from background to 2,163 mg/kg. Lead in excess of the residential screening level was found sporadically in each of the intervals sampled throughout the 0-24" bgs depth. Soil erosion where turf coverage has been compromised by foot traffic is evident in some portions of Area 2, creating a direct pathway for contaminant migration and exposure to lead contaminated soils.
- **Area 3:** Area 3 consists of quadrants SS-017, SS-019, SS-027, SS-028, SS-029 and SS-030. Results of the Phase II Removal Assessment confirmed the original findings of the RSE that lead contamination was largely confined to the 0-6" bgs depth within Area 3. Phase II results indicated lead concentrations ranging from background to 855 ppm. Sixty-nine of the eighty-seven sample locations in Area 3 showed lead concentrations in excess of the 400 mg/kg residential screening level in at least one of the depth intervals sampled. In general, the turf in Area 3 is in good condition, provides a barrier to direct contact, and retards erosion of contaminated soils.
- Lead concentrations in Area 3 are generally an order of magnitude lower than those found in the source area (Area 1). Both the distribution of lead in the top six inches of soil and the relatively lower concentrations of lead in Area 2 suggest that contaminated soils from Area 1

(the former smelter location) were likely spread and mixed with cleaner soils by mechanical means (such as bulldozing) during past construction activities.

## **2. Physical location**

The Site is located within the Society Hill at University Heights III condominium complex which is bounded by Norfolk, Wickliff, West Market and Warren Streets in Newark, Essex County, New Jersey. Maps of the Site are included as Figures 1 and 2 of Appendix A. There is a church directly adjacent to the Site in the center of the northern portion, an unused school on the northeast corner and an abandoned warehouse adjacent to the eastern edge of the Site.

The area is an urban, mixed residential, light industrial neighborhood and is located adjacent to the University Heights District that includes the Rutgers University, New Jersey Institute of Technology, the University of Medicine and Dentistry and the Essex County College campuses. The Essex County Vocational-Technical High School borders the southeast corner of the Site.

Topographically, the Site is located at approximately 108 feet above sea level and is located at 40° 44' 29.47" N latitude, 74°10' 58.97"W longitude. According to the New Jersey State Climatologist, the average annual precipitation for the Newark, New Jersey area ranges between 43 to 47 inches.

## **3. Site characteristics**

M.C. Canfield & Sons was a lead solder and babbitt metal manufacturer that operated at 93 Wilsey Street and 196 Newark Street from at least 1907 to approximately 1970. M.C. Canfield & Sons transferred ownership of the Site to Salem Trucking, Inc. in March 1974. The City of Newark foreclosed on the property encompassing the Site in September 1976 for nonpayment of taxes. The former M.C. Canfield & Sons Site was redeveloped for residential use during the early 1990's by K. Hovnanian at Newark, Urban Renewal Corporation II, Inc. ("K. Hovnanian"). The City of Newark transferred ownership to K. Hovnanian in December 1993. Ownership of a number of other surrounding lots was also transferred to K. Hovnanian and the Site was redeveloped into a residential condominium complex known as Society Hill at University Heights III circa 1993. The condominiums were sold to individual owners as single family residences, but the complex, including the outdoor grounds, is managed by Impac Property Management. A portion of Wilsey Street in Newark was renamed during the redevelopment and is now known as Cornerstone Lane. A copy of the current City of Newark Tax Map for Society Hill at University Heights III is included in Appendix A.

According to historical Sanborn Maps, the former M.C. Canfield & Sons facility would have occupied a portion of what is now Block 406, Lot 1 in the approximate area of Society Hill Building 25 (units 25.01, 25.02, 25.03, 25.10, 25.11 and 25.12). Prior to redevelopment, the M.C. Canfield & Sons facility was located at Block 409, Lots 22 & 31.

The Trinity Union American Methodist Episcopal Church, located on the corner of Cornerstone Lane and Warren Street at 226-230 Warren Street to the north of the Site, has been in that location since approximately 1922. The vacant school located at 200 Warren Street on the corner of Warren and Wickliff Streets previously housed the American History Public High School. This property has been owned by the City of Newark since at least 1892. The vacant warehouse located at 2-10 School Street has housed the Nite-Kraft Corporation, which made sleeping

garments during the 1950s and Artley Exhibits and Displays, which made signs and displays from the 1970s until at least 2003.

The Site is currently well maintained by the Society Hill at University Heights Condominium Association and is well landscaped with ornamental trees, shrub and flower plantings, and good grass cover in most areas. Some turf damage in a very few areas of high foot traffic has led to soil erosion and loss of integrity to what is normally a protective turf cover.

This is the first EPA removal action to be conducted at the Site.

**4. Release or threatened release into the environment of a hazardous substance, or pollutant or contaminant**

Sampling and analysis conducted at the Site during EPA's RSE and Phase II Removal Assessment identified significant concentrations of lead in site soils. Lead is a CERCLA hazardous substance as defined in section 101(14) of CERCLA, 42 U.S.C. § 9601(14). The Site constitutes a "facility" within the meaning of section 101(9) of CERCLA, 42 U.S.C. § 9601(9), and the presence of lead in the soil at the Site constitutes a "release," as defined in section 101(22) of CERCLA, 42 U.S.C. § 9601(22).

**Hazardous Substances**

**Statutory Source for Designation Under CERCLA**

Lead  
(D008)

Clean Water Act 307(a), Clean Air Act Section 112, RCRA 3001

The highest concentrations of lead were found in the area of the previous M.C. Canfield & Sons smelter (referred to as Area 1). A significant majority of the samples from Area 1 indicate concentrations of lead exceeding the EPA residential screening level of 400 mg/kg. Lead concentrations in this area ranged from background to 13,000 mg/kg and tend to increase with depth, suggesting that Area 1 contains the main source of lead contamination at the Site.

Thirty-one of forty-four locations sampled in Area 2 contained lead levels in excess of the 400 mg/kg residential screening level with concentrations ranging from background to 2,163 ppm (via XRF). Soil erosion where turf coverage has been compromised by foot traffic is evident in some portions of Area 2, creating a direct pathway for exposure to lead contaminated soils.

Lead concentrations in Area 3 were detected ranging from background to 855 ppm. Sixty-nine of the eighty-seven sample locations in Area 3 showed lead concentrations in excess of the 400 mg/kg residential screening level in at least one of the depth intervals sampled.

**5. NPL Status**

The Site is not on the National Priorities List ("NPL"), nor is it expected to be listed on the NPL.

**6. Maps, pictures and other graphic representations**

Please see the figures in Appendix A attached to this Action Memorandum.



## **A. Other Actions to Date**

### **1. Previous actions**

The Site was referred to EPA by NJDEP in May 2012. There have been no other removal activities taken by other government or private parties prior to this request.

### **2. Current actions**

There are no current or ongoing removal activities being taken by other government or private parties on the Site.

## **B. State and Local Authorities' Roles**

### **1. State and local actions to date**

In response to USA Today's inquiry about former lead smelting operations, NJDEP performed initial soil sampling in March 2012 to determine if metal contamination associated with past smelting operations was present in soil above New Jersey's Soil Remediation Standards. Elevated lead contamination was found in surface soil samples ranging from 753 ppm to 4,860 ppm. Based on the results of their initial investigation, NJDEP referred the Site to EPA in May 2012. No further actions have been taken by NJDEP at the Site.

### **2. Potential for continued state/local response**

There are no actions planned by state or local government agencies to address the contamination at the Site.

## **III. THREATS TO PUBLIC HEALTH OR WELFARE OR THE ENVIRONMENT AND STATUTORY AND REGULATORY AUTHORITIES**

EPA has identified conditions at the Site that meet the requirements of section 300.415(b) (2) of the National Oil and Hazardous Substances Pollution Contingency Plan, which indicate that a removal action is necessary. The potential for release of hazardous substances from the Site present a threat to the public health and welfare as defined by section 300.415(b) (2) of the NCP. Specific site conditions that correspond to factors that provides a basis for a removal action under section 300.415 (b) (2) of the NCP include:

### ***(i) Actual or potential exposure to nearby human populations, animals, or the food chain from hazardous substances or pollutants or contaminants***

There is a potential for exposure to a hazardous substance to nearby populations or the food chain. The historic footprint of the M.C. Canfield & Sons smelter and the adjoining properties that now make-up the Society Hill at University Heights III condominium complex is a residential property that has been shown to contain elevated levels of lead in the surface and subsurface soils. Lead was detected at concentrations exceeding the EPA residential soil screening level of 400 mg/kg in surface soil samples (0-6" bgs) in 13 of the 34 quadrants at the townhouse complex. The highest concentration of lead in soil, found near the former M.C. Canfield & Sons facility, is 13,000 mg/kg (sample no. P001-SS015-L-18244-001).

Direct contact with the contaminated soil may occur through common outdoor activities that occur on the residential property, or by tracking lead contaminated soil into residences. Contact with the lead contaminated soils may present a health risk to the residents that occupy the complex. Young children and women of child bearing age currently reside in the Society Hill at University Heights III condominium complex.

The effects of exposure to lead are the same whether it enters the body through breathing or swallowing. The main target for lead toxicity is the nervous system, both in adults and children. Long-term exposure of adults to lead has resulted in decreased performance in some tests that measure functions of the nervous system. Lead exposure may also cause weakness in fingers, wrists, or ankles. Lead exposure also causes small increases in blood pressure, particularly in middle-aged and older people, and may cause anemia. At high levels of exposure, lead can severely damage the brain and kidneys in adults or children and ultimately cause death. In pregnant women, high levels of exposure to lead may cause miscarriage. High-level exposure in men can damage the organs responsible for sperm production.

Lead is a cumulative poison; increasing amounts can build up in the body eventually reaching a point where symptoms and disability occur. Particularly sensitive populations are children and women of child-bearing age, due to the fetal transfer properties of lead. Cognitive deficits are associated with fetal and childhood exposures. Effects on the kidney, nervous system and heme-forming elements are also associated with increasing blood lead concentrations, both in children and adults. Other symptoms include: decreased physical fitness, fatigue, sleep disturbance, aching bones, abdominal pains, and decreased appetite. In adults, an increase in blood pressure is the most sensitive adverse health effect from lead exposure.

The relationship between soil lead concentrations and the consequent impact on blood levels in children has been examined through numerous epidemiological studies. Based on the results of such studies, it is generally believed that persistent exposure to soil-borne lead results in an increase in blood lead levels in children of 1 to 9 microgram per deciliter ("ug/dl") per 1,000 ppm lead in soil. Although this relationship may become less robust as exposure durations decrease and soil lead levels increase, it nonetheless provides compelling evidence of the potential hazard associated with the excessive lead concentrations found in the soil at the Site.

The Department of Health and Human Services has determined that lead and lead compounds are reasonably anticipated to be human carcinogens based on limited evidence from studies in humans and sufficient evidence from animal studies. EPA has determined that lead is a probable human carcinogen.

The presence of lead at the Society Hill at University Heights III residential property poses a significant risk to human health because of the potential for contact with and ingestion of lead-contaminated soils by residents, especially children. In addition, indoor residential contamination could result from foot traffic on and through soils containing elevated levels of lead. The potential for increased exposure to lead exists when residents perform gardening or work in flowerbeds, especially in areas with bare soil.

- (iv) High levels of hazardous substances or pollutants or contaminants in soils largely at or near the surface that may migrate***

Analytical data from the soil samples indicates that elevated levels of lead have been detected in the top two feet of soil of the condominium complex property as high as 13,000 mg/kg. Lead

contaminated soil at the Site can potentially become airborne and/or migrate when disturbed under dry conditions and may migrate during heavy rain events. Failure of the sprinkler system which caused soil erosion into the adjacent streets has been observed by EPA during site investigations.

There is physical and analytical evidence that contamination has migrated from the location of the former M.C. Canfield & Sons property onto neighboring residential areas, possibly during construction of the condominium complex. The most highly impacted residential areas are directly adjacent to the footprint of the former M.C. Canfield & Sons facility. If the soils in these areas are not addressed, the migration of the lead contaminated soils may continue.

**(v) *Weather conditions that may cause hazardous substances or pollutants or contaminants to migrate or be released***

Weather conditions may cause hazardous substances to migrate or to be released particularly through surface water run-off from precipitation, potentially contaminating adjacent properties or portions of the Site that have not yet been significantly impacted by lead contamination. Under dry conditions, exposed soil can potentially become airborne and/or migrate when disturbed, potentially impacting residential and public areas.

**(vii) *The availability of other appropriate federal or state response mechanisms to respond to the release***

Neither NJDEP nor the local government agencies currently have the resources available to conduct a time-critical removal action at the Site.

#### **IV. ENDANGERMENT DETERMINATION**

Actual and/or threatened release from the Site of lead, a CERCLA hazardous substance, if not addressed by implementing the response action selected in this Action Memorandum, may present an imminent and substantial endangerment to public health, or welfare, or the environment.

#### **V. EXEMPTION FROM STATUTORY LIMITS**

Conditions at the Site meet the criterion for an exemption from the statutory limitations.

##### **A. Emergency Exemption:**

Section 104 (c)(1) of CERCLA, as amended, limits federal emergency response to 12 months and \$2 million, unless the criteria are met for an emergency exemption. The immediate risks to human health, welfare and the environment posed by the lead-contaminated soil found at the Site warrant the 12-month and \$2 million exemption as follows:

##### **1. There is an immediate risk to public health, or welfare, or the environment**

Lead identified in surface soil at concentrations as high as 13,000 mg/kg pose the risk of direct contact for residents of the area. Exposure to lead is likely, through routine play and outdoor maintenance activities such as gardening, landscaping, and grass cutting. The potential for increased exposure to lead exists and is a health concern when children place their hands or other



objects covered with lead contaminated dust/soil into their mouth. The threat is increased when bare soil is present. The potential for contamination of residential indoor areas may result from foot traffic on and through lead-contaminated soils.

**2. Continued response actions are immediately required to prevent, limit or mitigate an emergency**

The elevated levels of lead pose a public health threat to anyone who may come in contact with contaminated soil on the residential properties. Lead levels in surface soils were detected as high as 2,851 mg/kg in the 0-2" depth interval and 4,044 mg/kg in the 2-6" depth interval. Failure to complete the recommended response action would result in a continuing health threat to the children and the residents of the condominium properties as well as visitors to the properties. In addition, contaminated soils may migrate to off-Site locations impacting other portions of the residential property or adjacent properties.

**3. Assistance will not otherwise be provided on a timely basis**

There are no other federal, state or local government entities with sufficient resources to accomplish the required removal activities.

**VI. PROPOSED ACTIONS AND ESTIMATED COSTS**

**A. Proposed Actions**

**1. Proposed action description**

The objectives of the removal action at the M.C. Canfield & Sons Site are as follows:

- Prevent human exposure to lead in the residential area through direct dermal contact with and incidental ingestion of soil; and
- Prevent the potential migration of lead from contaminated Site soils to other areas of the Site or adjacent properties.

The following are the major activities to be implemented to achieve the removal action objectives:

- Conduct a complete inventory of landscape plants, shrubs, and trees in all areas to be excavated and ultimately restored. Additionally, document and photograph the landscape planting bed and sod areas in those locations to be excavated (as defined below) to provide a reference for Site restoration.
- Protect all underground utilities by disconnecting and restoring utility service as required to safely conduct excavation activities. Temporary utilities will be provided as needed to ensure continual service to residents through completion of the removal action.
- Removal of trees/shrubs, landscaping and any structures such as fencing as necessary.
- Excavation of lead contaminated soil in Area 1 (previously occupied by and adjacent to the former smelter). Area 1 is defined as quadrants SS-012, SS-013, SS-014 and SS-015

as shown in Figure 4, "Areas of Concern." Soil will be removed until the site cleanup criterion of 400 ppm on residential properties is attained or to a maximum depth of one foot below grade.

- Excavation of lead contaminated soils in portions of Area 2 (quadrants SS-026 and SS-031) that show evidence of high foot traffic and are therefore prone to poor grass cover and erosion. Soil will be removed until the Site cleanup criterion of 400 ppm on residential properties is attained or to a maximum depth of one foot below grade.
- Excavation of lead contaminated "hot spot" areas in quadrant SS-023 (Part of Area 2, see Figure 4, "Proposed Excavation Areas") where lead concentrations at or near the surface are above the 400 ppm cleanup criteria. Soil will be removed until the site cleanup criterion of 400 ppm on residential properties is attained or to a maximum depth of one foot below grade.
- Conduct perimeter air monitoring for particulates during soil removal activities to determine the effectiveness of dust suppression.
- Characterize and dispose of lead contaminated soil. Contaminated soil will be segregated as feasible according to its hazardous/non-hazardous character, loaded and transported off-Site for disposal at a facility which complies with the EPA Off-Site Rule.
- **Post Excavation Sampling.** Post excavation sampling will be conducted prior to backfilling as necessary to document lead concentrations in soils being left in place and to provide adequate documentation of the nature and extent of any lead contamination being left behind.
- **Backfill.** All excavated areas will be backfilled with certified clean fill. Fill material will be adequately graded and tamped to restore pre-excavation site grades and prevent unacceptable settlement.
- **Site Restoration.** Site restoration will include repair and/or installation of the sprinkler system, installation of flower beds, shrub, flower and tree plantings and establishing turf in a manner that is in keeping with the existing landscape at the Society Hill at University Heights III property. All restored areas will be maintained with respect to turf and landscape plantings to guarantee survival and erosion prevention for a period of one year after site restoration.
- **Institutional Controls and Education.** Contaminated soil in Area 3 will be left in place and addressed through institutional controls and public education. In concert with the Society Hill at University Heights III condominium association, EPA will develop and execute a plan for maintaining institutional controls and implementing a sustained public education effort that ensures the protection of public health related to lead contaminated soils remaining on-Site.

## **2. Contribution to remedial performance**

The response measures proposed in this Action Memorandum will address the threat to the public of direct contact with lead. The proposed action will contribute to any long-term remedial action with respect to the release or threatened release of hazardous substances at the Site.

### 3. Engineering evaluation/cost analysis

Due to the time-critical nature of this removal action, an EE/CA will not be prepared.

### 4. Applicable or relevant and appropriate requirements

ARARs within the scope of this removal action, including the RCRA and the Hazardous Materials Transportation Uniform Safety Act regulations that pertain to the disposal of hazardous wastes, will be met to the extent practicable. The Occupational Safety and Health Act regulations that pertain to health and safety will also be met to the extent practicable.

### 5. Project schedule

The proposed removal activities can be implemented immediately upon approval of this Action Memorandum and augmentation of the Site access agreement. The action will require 13 to 15 months to complete and takes into account a seven month construction season per year and a one year maintenance program to address issues associated with restoration. Additionally, the mitigation activities being implemented under this Action Memorandum will require development of a long-term public education program and institutional controls.

### B. Estimated Costs

The estimated costs for the completion of this project are summarized below. A detailed confidential Independent Government Cost Estimate is also included as Appendix C.

Extramural Costs:	Proposed Costs
Regional Removal Allowance Costs:	\$1,479,084
Total Cleanup Contractor Costs (This cost category includes estimates for ERRS, subcontractors, Notices to Proceed, and Interagency Agreements with Other Federal Agencies.	
Cleanup Contractor Cost Contingency (20%)	\$221,863
Total Cleanup Contractor Costs (ERRS)	\$1,700,947
Other Extramural Costs Not Funded from the Regional Allowance:	
Total RST, including multiplier costs	\$150,000
Total ERT, including multiplier costs	\$5,000
Total CLP	\$20,000
Subtotal	\$175,000
Subtotal Extramural Costs	\$1,875,947
Extramural Costs Contingency (20% of Subtotal, Extramural Costs rounded to nearest thousand)	\$375,189
TOTAL REMOVAL ACTION PROJECT CEILING	\$2,251,136



## **VII. EXPECTED CHANGE IN THE SITUATION SHOULD ACTION BE DELAYED OR NOT TAKEN**

Should the proposed actions described in this Action Memorandum not be implemented; the exposure threats posed by the lead will persist. Lead levels in soils at or near the surface of the Site present the potential for migration to further contaminate the environment and pose a threat to nearby residents.

## **VIII. OUTSTANDING POLICY ISSUES**

There are no known outstanding policy issues associated with the Site at the present time.

## **IX. ENFORCEMENT**

EPA is currently in the process of identifying all potentially responsible parties for the Site. Should the schedule allow, EPA will give the PRPs an opportunity to assume responsibility for the work outlined in the Action Memorandum. If EPA uses federal funds to perform the removal action, the On-Scene Coordinator will work with the Office of Regional Counsel to recover clean-up costs from any viable PRPs.

Based on full cost accounting practices, the total EPA costs for this removal action that will be eligible for cost recovery are estimated to be \$3,108,731. The following chart describes the costs which EPA believes are eligible for cost recovery as part of this response action.

Cost Type	Funding Requested in this Action Memorandum
Direct Extramural Costs	\$2,251,136
Direct Intramural Costs	\$ 200,000
Subtotal, Direct Costs	\$2,456,136
Indirect Costs (Indirect Regional Cost Rate (26.57%))	\$ 652,595
Estimated EPA Costs Eligible for Cost Recovery	\$3,108,731

Note: Direct costs include direct extramural costs and direct intramural costs. Indirect costs are calculated based on an estimated indirect cost rate expressed as a percentage of site-specific direct costs, consistent with the full cost accounting methodology effective October 1, 2004. These estimates do not include pre-judgment interest, do not take into account other enforcement costs, including Department of Justice costs, and may be adjusted during the course of a removal action. The estimates are for illustrative purposes only and their use is not intended to create any rights for responsible parties. Neither the lack of a total cost estimate nor deviation of actual costs from this estimate will affect the United States' right to cost recovery.

## **X. RECOMMENDATION**

This decision document represents the selected removal action for the Site which is located at the Society Hill at University Heights III residential condominium complex located at One Cornerstone Lane in Newark, Essex County, New Jersey, developed in accordance with CERCLA as amended, and is not inconsistent with the NCP. This decision document is based on the Administrative Record for the Site.

Conditions at the Site continue to meet the NCP Section 300.415(b)(2) criteria for a removal action and I recommend your formal approval of this Action Memorandum. The total project ceiling requested in this Action Memorandum provides \$2,251,135 of Direct Extramural funding, of which \$1,700,947 is from the Regional Removal Advice of Allowance. There are sufficient funds in our Advice of Allowance for this project.

Please indicate your formal approval of the removal action, 12-month exemption and \$2 million exemption proposed for the M.C. Canfield & Sons Site, as per current Delegation of Authority, by signing below.

Approved: Judith A. Enck  
Judith A. Enck  
Regional Administrator

Date: 9/26/13

Disapproved: \_\_\_\_\_  
Judith A. Enck  
Regional Administrator

Date: \_\_\_\_\_

Attachments  
cc: (after approval)

G. Pavlou, DRA  
W. Mugdan, ERRD-D  
J. LaPadula, ERRD-DD  
J. Rotola, ERRD-RAB  
D. Harkay, ERRD-RAB  
B. Grealish, ERRD-RAB  
C. Petersen, ERRD-NJRB  
D. Karlen, ORC-NJSFB  
J. Rooney, ORC-NJSFB  
W. Reilly, ORC-NJSFB

M. Mears, PAD  
K. Giacobbe, OPM-GCMB  
D. Pace, OPM-FMB  
M. Fiore, OIG  
R. Worley, 5202G  
R. Craig, RST  
I. Kropp, NJDEP  
A. Raddant, USDOJ  
L. Rosman, NOAA

**(SEE ATTACHED)**

**Appendix A**

**Figure 1: Site Location Map**

**Figure 2: Sample Locations with XRF Results from the RSE Report, August 2012**

**Figure 3: Phase II Sample Locations with XRF Lead Results**

**Figure 4: Areas of Concern**

**Figure 5: City of Newark Tax Map, Society Hill Block 406, Lot 1, at University Heights III**

**Appendix B**

**NJDEP Referral Letter**

**Appendix C**

**Independent Government Cost Estimate for MC Canfield & Sons Site**



## **Electronic File of Appendix A**

**Figure 1: Site Location Map**

**Figure 2: Sample Locations with XRF Results from the RSE Report, August 2012**

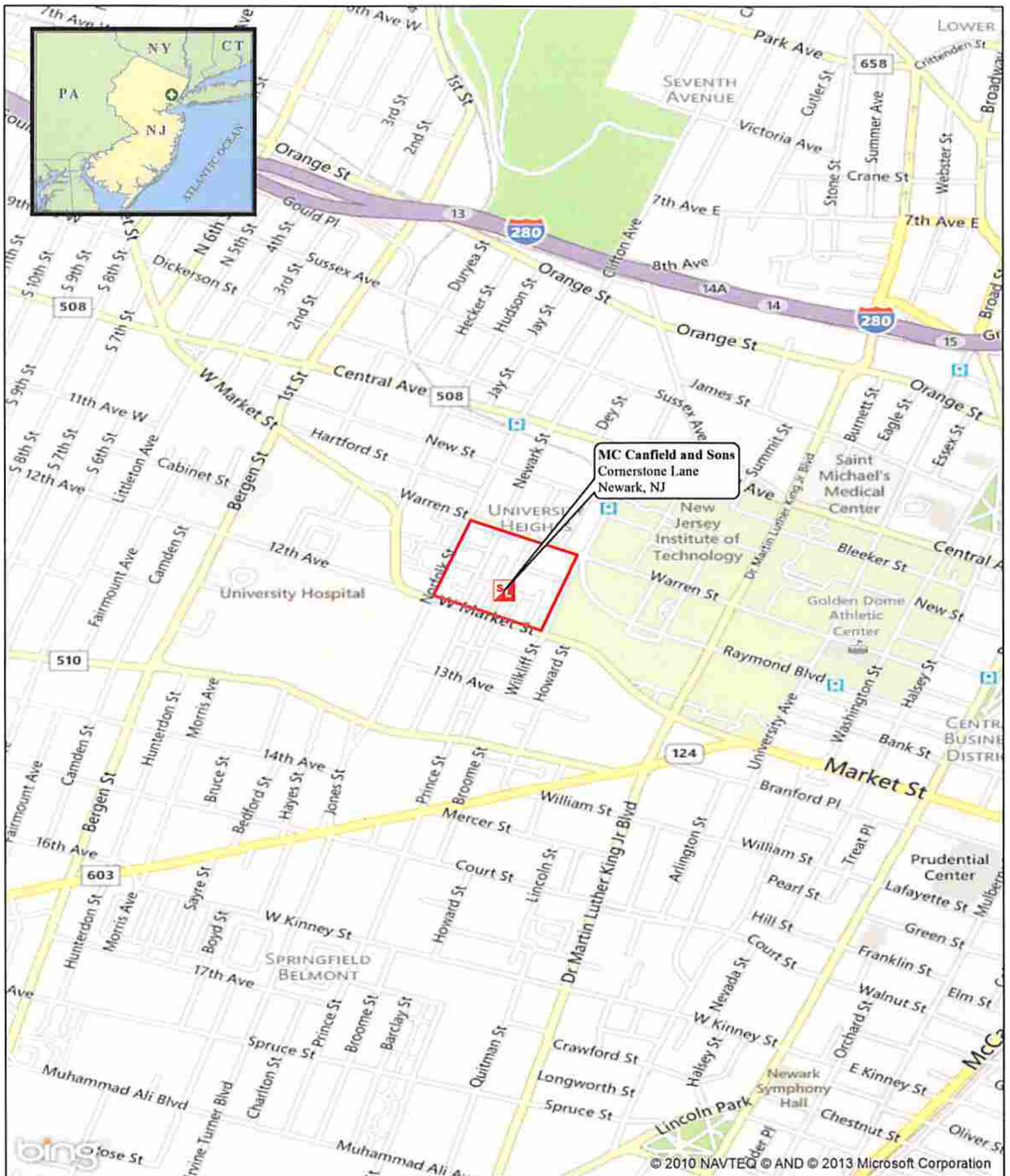
**Figure 3: Phase II Sample Locations with XRF Lead Results**

**Figure 4: Areas of Concern**



**Figure 5: City of Newark Tax Map, Society Hill Block 406, Lot 1, at University Heights III**

## **Appendix A**

### **Figure 1: Site Location Map**



## Legend

-  Site Location
-  Site Boundary



0 40 80 160 240 320 Miles



**Weston Solutions, Inc.**  
East Division

In Association With  
Avatar Environmental, LLC.,  
H & S Environmental, Inc. and  
Scientific and Environmental Associates, Inc.

## Figure 1: Site Location Map

McCanfield and Sons, Inc.  
Newark, New Jersey

U.S. ENVIRONMENTAL PROTECTION AGENCY  
REMOVAL SUPPORT TEAM 2  
CONTRACT # EP-W-06-072

GIS ANALYST:	F CAMPBELL
EPA OSC:	C DONOFRI
RST SPM:	J PELTY
FILENAME:	SITE LOCATION MAP



## **Appendix A**

**Figure 2: Sample Locations with XRF Results  
from the RSE Report, August 2012**

## **Appendix A**

**Figure 3: Phase II Sample Locations with XRF Lead Results**

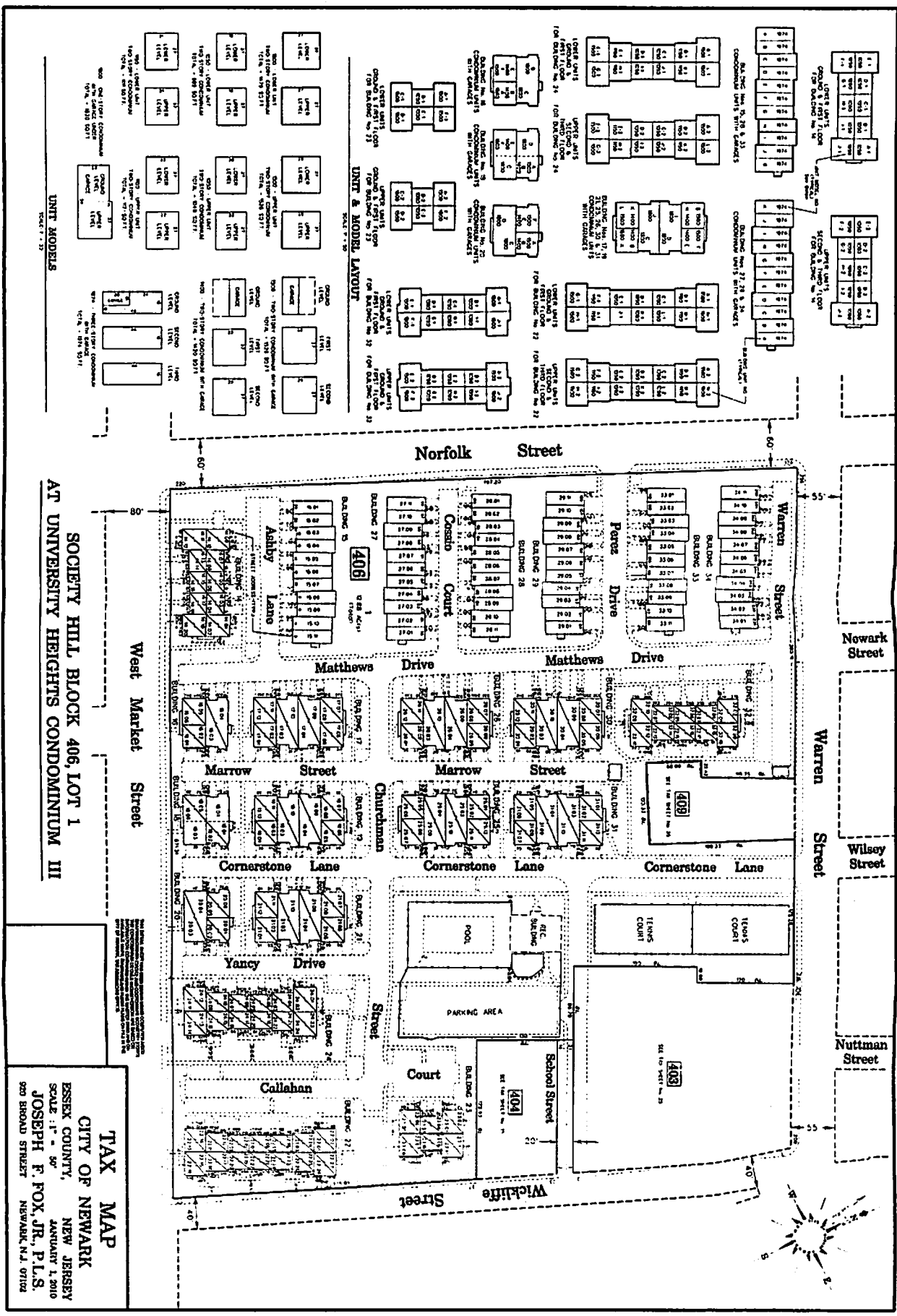
## **Appendix A**

Figure 4: Areas of Concern



## **Appendix A**

**Figure 5: City of Newark Tax Map, Society Hill  
Block 406, Lot 1, at University Heights III**



## **Appendix B**

### **NJDEP Referral Letter**





## State of New Jersey

DEPARTMENT OF ENVIRONMENTAL PROTECTION  
OFFICE OF THE COMMISSIONER

Mail Code 401-07

P.O. Box 402

Trenton, NJ 08625-0402

TEL (609) 292-2885

FAX (609) 292-7695

CHRIS CHRISTIE  
*Governor*

KIM GUADAGNO  
*Lt. Governor*

BOB MARTIN  
*Commissioner*

Walter Mugdan, Director  
Emergency and Remedial Response Division  
United States Environmental Protection Agency  
Region II  
290 Broadway  
New York, New York 10007-1866

Re: Removal Action Site Submission  
M.C. Canfield & Sons site in Newark, Essex County  
Marrow Street and Cornerstone Lane (formerly 93 Wilsey Street)  
Newark, Essex County  
NJDEP/SRP PI# 562176

Dear Mr. Mugdan:

The New Jersey Department of Environmental Protection (DEP) submits the former M.C. Canfield & Sons site in Newark, Essex County for removal action consideration under the federal Comprehensive Environmental Response and Cleanup Liability Act (CERCLA). Elevated levels of lead contamination detected in soil at residential properties associated with the former M.C. Canfield & Sons site require further action to protect public health.

DEP performed initial sampling March 15, 2012 at properties identified as related to the former M.C. Canfield & Sons site to determine if metal contamination associated with past smelting operations was present in soil above New Jersey's Soil Remediation Standards. Elevated lead contamination in surface soil samples was found ranging from 753 parts per million (ppm) to 4,860 ppm collected from vegetated areas on Cornerstone Lane and Marrow Street and a common area of a condominium complex. The results indicate that the properties were impacted by the former smelting company. DEP believes the site warrants action by the U.S. Environmental Protection Agency's (EPA) Removal Action Branch to delineate and remove soil contaminated above both agencies 400 ppm lead remediation standard. Elevated levels of copper, zinc and arsenic also were detected with the lead contamination.

DEP has been in contact with a condominium association manager to discuss the results preliminarily and advise residents to take necessary precautions to avoid contact with the

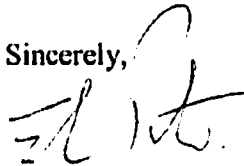
contaminated soil. DEP also provided Newark officials information about the former smelter site and this referral to your agency.

The former M.C. Canfield & Sons site was redeveloped for residential use during the late 1980s or early 1990s. A portion of Wilsey Street in Newark was renamed and is now known as Cornerstone Lane. Smelter operations at the former M.C. Canfield & Sons site likely occurred from approximately 1892 to 1989, according to an ongoing DEP screening of past operations in the area. The former M.C. Canfield & Sons site first appears in historical records in 1927.

Further, this is the second site where DEP sampling has identified significantly elevated levels of soil contamination associated with a former smelting operation. DEP's Site Remediation Program will continue to provide EPA with any additional contamination concerns identified at other smelter locations as information becomes available.

DEP already supplied background information about the former M.C. Canfield & Sons site to your Removal Action Branch to expedite a response. If you have any questions or would like to discuss these issues in further detail, please contact me or Fred Mumford, Superfund coordinator in the Site Remediation Program, at (609) 984-9769.

Sincerely,



Ed Putnam  
Assistant Director  
Publicly Funded Remediation Element  
Site Remediation Program

**Enclosures**

C: Dave Sweeney, Assistant Commissioner, DEP, Site Remediation Program  
Ken Kloo, Director, DEP, Site Remediation Program  
Fred Mumford, Section Chief, DEP, Site Remediation Program  
Joseph Rotola, Branch Chief, Removal Action Branch, EPA Region II  
Mel Hauptman, Section Chief, Special Projects Branch, EPA Region II

18MAY 2:10PM



Weston Solutions, Inc.  
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732-585-4400 • Fax: 732-225-7037  
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***The Trusted Integrator for Sustainable Solutions***

REMOVAL SUPPORT TEAM 3  
EPA CONTRACT EP-S2-14-01

July 9, 2014

Mr. Cris D'Onofrio, On-Scene Coordinator  
U.S. Environmental Protection Agency  
Response & Prevention Branch  
2890 Woodbridge Avenue  
Edison, NJ 08837

**EPA CONTRACT No.: EP-S2-14-01**  
**TDD No.: TO-0001-0002**  
**DOCUMENT CONTROL No.: RST 2-02-F-2849**

**SUBJECT: SITE-SPECIFIC COMMUNITY AIR MONITORING PLAN,  
M.C. CANFIELD & SONS SITE, NEWARK, ESSEX COUNTY,  
NEW JERSEY**

Dear Mr. D'Onofrio,

Enclosed please find the Site-Specific Community Air Monitoring Plan (CAMP) for the air monitoring and sampling activities to be conducted in support of the Removal Action at the M.C. Canfield & Sons Site located at Cornerstone Lane & Marrow Street in Newark, Essex County, New Jersey, beginning in July 2014.

If you have any questions or comments, please do not hesitate to contact me at (732) 585-4413.

Sincerely,  
Weston Solutions, Inc.

Bernard Nwosu  
RST 3 Site Project Manager

Enclosure

cc: TDD File No.: TO-0001-0002





**SITE-SPECIFIC COMMUNITY AIR MONITORING PLAN  
M.C. CANFIELD & SONS SITE,  
CORNERSTONE LANE & MARROW STREET,  
NEWARK, ESSEX COUNTY, NEW JERSEY**

Prepared for:

U.S. Environmental Protection Agency  
Region II – Response & Prevention Branch  
Edison, New Jersey 08837

Prepared by:

Removal Support Team 3  
Weston Solutions, Inc.  
East Division  
Edison, New Jersey 08837

DC No.: RST 2-02-F-2849  
TDD No.: TO-0001-0002  
EPA Contract No.: EP-S2-14-01

July 2014

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## **1.0 INTRODUCTION**

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This Site-Specific Community Air Monitoring Plan (CAMP) is prepared for the Removal Action planned to be implemented at the M.C. Canfield & Sons Site (the Site). The Site is located within the Society Hill at University Heights III condominium complex which is bounded by Norfolk, Wickliff, West Market and Warren Streets in Newark, Essex County, New Jersey. There is a church directly adjacent to the Site in the center of the northern portion, an unused school on the northeast corner and an abandoned warehouse adjacent to the eastern edge of the Site. The area is an urban, mixed residential, light industrial neighborhood and is located adjacent to the University Heights District that includes Rutgers University, New Jersey Institute of Technology, the University of Medicine and Dentistry and Essex County College campuses. The Essex County Vocational-Technical High School borders the southeast corner of the Site.

M.C. Canfield & Sons was a lead solder and babbitt metal manufacturer that operated at 93 Wilsey Street and 196 Newark Street from at least 1907 to approximately 1970. M.C. Canfield & Sons transferred ownership of the Site to Salem Trucking, Inc. in March 1974. The City of Newark foreclosed on the property encompassing the Site in September 1976 for non-payment of taxes. The Site was redeveloped for residential use during the early 1990's by K. Hovnanian at Newark, Urban Renewal Corporation II, Inc. ("K. Hovnanian"). The City of Newark transferred ownership to K. Hovnanian in December 1993. Ownership of a number of other surrounding lots was also transferred to K. Hovnanian and the Site was redeveloped into a residential condominium complex known as Society Hill at University Heights III circa 1993. A portion of Wilsey Street in Newark was renamed during the redevelopment and is now known as Cornerstone Lane. The condominiums were sold to individual owners as single family residences, but the complex, including the outdoor grounds, is managed by Impac Property Management. The Site is currently well maintained by the Society Hill at University Heights Condominium Association and is well landscaped with ornamental trees, shrub and flower plantings, and good grass cover in most areas. Some turf damage in a few areas of high foot traffic has led to soil erosion and loss of integrity to what is normally a protective turf cover.

In May 2012, the U.S. Environmental Protection Agency's (EPA) Removal Action Branch was requested to assess residential properties for the presence of lead in the vicinity of the Site. The justification for the Removal Assessments was based upon analytical results provided to EPA as a result of previous New Jersey Department of Environmental Protection (NJDEP) soil investigations conducted in 2010 and 2011 of other properties in the area of the Site. The previous investigations indicated that there was lead contamination in the soil at residential properties in the vicinity of the Site at concentrations ranging from 753 parts per million (ppm) to 4,860 ppm. As a result, Phase I of the Removal Assessment was conducted in August 2012 to determine if any additional properties had been impacted by previous operations conducted at the Site.

The highest concentrations of lead were found in the area of the previous M.C. Canfield & Sons smelter (referred to as Area 1). A majority of the samples from Area 1 indicate concentrations of lead exceeding the EPA residential screening level of 400 milligram per kilogram (mg/kg). Lead concentrations in this area ranged from background to 13,000 mg/kg and tend to increase with depth, suggesting that Area 1 contains the main source of lead contamination at the Site. A total of 31 of 44 locations sampled in Area 2 contained lead at concentrations exceeding the EPA residential screening level, with concentrations ranging from background to 2,163 ppm (via X-ray fluorescent [XRF] analyzer). Soil erosion where turf coverage has been compromised by foot



traffic is evident in some portions of Area 2, creating a direct pathway for exposure to lead contaminated soils. Lead contamination in Area 3 was detected at concentrations ranging from background to 855 ppm. A total of 69 of the 87 sample locations in Area 3 showed lead concentrations exceeding the EPA residential screening level in at least one of the depth intervals sampled.

In April and May 2013, EPA conducted Phase II of the Removal Assessment to further delineate the Site based upon the results of Phase I conducted in August 2012. Results from this sampling event confirmed elevated concentrations of lead above the EPA residential screening level.

## **1.1 Air Monitoring Objectives**

The primary contaminant of concern at the Site is elemental lead in dust. Historical operations on the Site included the smelting of lead. Analytical results of surface and subsurface soil samples collected from the Site indicate the presence of elemental lead at concentrations exceeding the EPA residential soil screening level of 400 mg/kg. With the selected remedy for the Site being a Removal Action through excavation and off-site disposal of contaminated soils, the possibility exists whereby Site activities could generate dust which potentially may contain elevated concentrations of lead if the engineering controls put in place are not being properly implemented.

This Site-Specific CAMP outlines the air quality monitoring/sampling procedures to be followed to protect on-site personnel and the surrounding community from potential airborne contaminant releases during the implementation of the Removal Action at the Site.

## **2.0 PERIMETER AND COMMUNITY AIR MONITORING**

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### **2.1 Air Monitoring Procedures**

Air monitoring activities will be conducted in accordance with the procedures outlined within the EPA guidance document entitled, “Superfund Program Representative Sampling Guidance, Volume 2: Air (Short-Term Monitoring), Interim Final. 1995. EPA 540/R-95/140. (OSWER Directive 9360.4-09, PB 96-963206).” Appropriate activities as outlined within this document include the monitoring necessary to ensure appropriate Health & Safety levels for protection of on-site personnel and to ensure that residents are not exposed to site-related constituents at concentrations above the Site-Specific Action Levels.

Real-time particulate air monitors (*e.g.*, DataRAM or equivalent) equipped with PM<sub>10</sub> (particulate matter smaller than 10 microns in diameter) detectors will be used to monitor dust levels throughout the duration of the Removal Action. The monitors will be operated each workday and will measure PM<sub>10</sub> dust concentrations in real time. The monitors are calibrated by the equipment manufacturer prior to being used at the Site. When the monitors are turned on daily, the instrument is self-calibrating. Once turned on, the monitors record dust concentrations on a 15-minute time-weighted average (TWA). Meteorological data consisting of wind speed, wind direction, temperature, and barometric pressure will be recorded each day to position the monitoring equipment in appropriate upwind and downwind locations. All air monitoring data with time current activity and the locations of monitoring equipment will be recorded in the onsite files and will be available for review. Meteorological data will be obtained from Weather Underground (<http://www.wunderground.com/>) and recorded daily in the Site logbook.

Perimeter air monitoring will consist of continuous real-time air quality monitoring and data collection. Monitoring locations will be upwind, at areas of intrusive site activity, and downwind. The monitoring stations will be linked via a computer gateway to a VIPER system (a wireless network-based communications system) which will provide instantaneous real-time air quality reading through a computer server. The air monitoring data generated will help to determine if dust levels have exceeded the Site-Specific Action Level and to ensure the effectiveness of engineering controls. Although air monitoring data from each monitoring station is automatically being stored real-time in a computer server, the air monitoring data will be downloaded from each DataRAM unit to a computer or electronic data storage device at the end of each workday.

**Table 2-1: Air Monitoring Specifications**

Direct Reading Instrumentation	Monitoring Locations	Monitored Parameters
DataRam	<ul style="list-style-type: none"> <li>Perimeter monitoring</li> <li>Workspace monitoring</li> </ul>	Particulates

## 2.2 Basis for Establishing the Air Monitoring Action Levels

The community air monitoring program at the Site consists of a combination of perimeter and community monitoring for particulates (dust). In accordance with EPA National Ambient Air Quality Standards (NAAQS), the particulate Action Level measured by the PM<sub>10</sub> concentration was 1.15 milligrams per cubic meter (mg/m<sup>3</sup>) [1,150 micrograms per cubic meter (μg/m<sup>3</sup>)]. This was calculated using the following equation, which calculates a corresponding PM<sub>10</sub> Action Level for contaminated dust for worker exposure limit based on the Occupational Safety and Health Administration (OSHA) Action Level and contaminant concentration on Site, then dividing the result by a safety factor.

$$\text{PM}_{10} \text{ Action Level (mg/m}^3\text{)} = \frac{(10^6 \text{ mg/kg})(\text{OSHA Action Level mg/m}^3\text{)}}{(\text{Concentration mg/kg})(\text{Safety Factor})}$$

Where:

10<sup>6</sup> mg/kg = conversion factor

OSHA Action Level for Lead = 0.03 mg/m<sup>3</sup> (8-hour TWA)

Concentration = highest concentration detected at the Site (13,000 mg/kg)

Safety Factor = degree of confidence of concentration, 1 being very confident and 10 being not confident

$$\begin{aligned} \text{PM}_{10} \text{ Action Level (mg/m}^3\text{)} &= \frac{(10^6 \text{ mg/kg})(0.03 \text{ mg/m}^3\text{)}}{(13,000 \text{ mg/kg})(2)} \\ &= 1.15 \text{ mg/m}^3 (1,150 \text{ } \mu\text{g/m}^3\text{)} \end{aligned}$$

The calculated Action Level assumes that the Site contaminant (Lead) will be present in airborne dust at the highest concentration detected in Site soils (13,000 mg/kg). Although 1.15 mg/m<sup>3</sup> is an acceptable Site-Specific particulate Action Level based on NAAQS, however, 0.100 mg/m<sup>3</sup> (100 µg/m<sup>3</sup>), 15 minute average over background level, with a maximum of 0.150 mg/m<sup>3</sup> (150 µg/m<sup>3</sup>) 15 minute average will be adopted as the Site-Specific particulate Action Level. See Table 2-2 for the air monitoring Action Levels for particulates at the Site.

## 2.3 Non-working Hours

No monitoring will be conducted during non-working hours. No release of contaminants, above background levels, is anticipated during non-working hours.

## 2.4 Equipment Maintenance and Calibration

All air monitoring equipment will be maintained in accordance with applicable manufacturer recommendations. All pertinent data will be logged in a health and safety logbook (or equivalent) and maintained on site for the duration of site activities. All direct-reading instrumentation will be calibrated in accordance with the manufacturer's instructions.

## 2.5 Engineering Controls

Dust suppression measures, utilizing a water fog, will be the primary engineering control during all site intrusive activities. It will be implemented as necessary to prevent the generation of dust during excavation and handling operations. It will utilize non-potable water to wet the surfaces of all stockpiles, loading areas, access roads, and areas being excavated.

**Table 2-2: Community Air Monitoring Action Levels for Particulates (Direct Reading Instrumentation)**

Parameter	Monitoring Locations and Interval	Action Levels (Above Upwind)	Response Activity
Dust (PM <sub>10</sub> )	Perimeter and community monitoring locations with dust readings every 60 seconds, calculate 15-minute average during Removal Action activities.	< 100 µg/ m <sup>3</sup>	<ul style="list-style-type: none"> <li>Continue monitoring.</li> </ul>
		≥ 100 µg/m <sup>3</sup>	<ul style="list-style-type: none"> <li>Continue monitoring.</li> <li>Begin dust suppression measures.</li> <li>Notify field crew that early warning alert level has been reached.</li> </ul>
		≥ 150 µg/m <sup>3</sup>	<ul style="list-style-type: none"> <li>Cease activities; re-evaluate dust suppression measures.</li> <li>Analyze collected air sample for lead dust.</li> <li>If during transport and disposal of hazardous waste, commence community air monitoring.</li> </ul>

## 3.0 AIR SAMPLING

### 3.1 Air Sampling Procedures

In addition to real-time dust monitoring, each monitoring station will be equipped with a low flow air sampling pump (Gilian GilAir<sup>®</sup> programmable pump or equivalent) for sample



collection. Air samples will be collected in accordance with the National Institute of Occupational Safety and Health (NIOSH) Method 7300 or EPA/Contract Laboratory Program (CLP) equivalent. Air samples will be collected using MCE filters (0.8-µm cellulose ester membrane, or 5.0-µm, polyvinyl chloride membrane) connected to a personal sampling pump (SKC PCXR8®) via Teflon® tubing. The sampling pump will be calibrated to collect approximately 2.0 liters per minute (L/min) through the MCE filter. Sampling will be conducted for an 8-hour period with a target volume of 960. Air samples will be collected daily from perimeter and community air monitoring locations. However, air samples will only be submitted for laboratory analysis if particulate concentrations exceed the Site-Specific Action Level (150 µg/m<sup>3</sup>). The samples will be analyzed in accordance with NIOSH Method 7300 or EPA/CLP equivalent.

Work zone activities will include, but are not limited to, soil excavation and handling, road clearing/construction, as well as activities involving the loading and transporting of soil off-site. Dust control measures will be the primary engineering control during all site activities. Air samples will be collected from upwind locations, at areas of intrusive site activity, and downwind locations.

### 3.2 Basis for Establishing Air Sampling Action Levels

The NIOSH PEL for lead is 50 ug/m<sup>3</sup> measured as an 8-hour, TWA. The OSHA Action Level for lead is 30 ug/m<sup>3</sup>. This Action Level will be adopted as the site-specific Action Level. For effective implementation of engineering controls, all air sampling results will be compared with the Site-Specific Action Level. Analytical results of air samples collected the previous work day will be available on site for review 24-hours after they are submitted to the laboratory. The OSHA standard 1910.1025(C)(2) stipulates that if an employee is exposed to lead for more than 8 hours in any work day, the PEL, as a TWA for that day, shall be reduced according to the following formula:

$$\text{Maximum permissible limit (in ug/m}^3\text{)} = 400 \text{ divided by hours worked in the day}$$

Since site activities will be conducted daily for only 8-hour periods, on-site personnel will not be exposed to potential contaminants above the OSHA Action Level if this Action Level is reached. Furthermore, if analytical results of air samples indicate that this Action Level was reached, then continuous dust suppression will become the standard operational procedure (SOP) for all on-site work activities to mitigate the possibility of potential contaminants from becoming airborne. If analytical results indicate that total lead concentrations in air reached or exceeded the OSHA Action Level on a particular day, all site work activities must be stopped. An evaluation of other engineering control options, additional off-site air monitoring/sampling and a reduction in daily work hours will be considered. See Table 3-2 for the Action Levels established for the Removal Action at the Site.

**Table 3-1: NIOSH Method 7300 Sampling Procedures**

Analyte	Sampling Method	Sampling Media	Recommended Flow Rate (Liters per Minute)*	Total Volume	Action Level
Total Lead	NIOSH Method 7300	MCE Filters (0.8-µm , cellulose ester membrane, or 5.0-µm, polyvinyl chloride membrane)	Approximately 2.0 L/min	> 500 Liters	50 µg/m <sup>3</sup>

**Notes:** \* Actual flow rate will be determined in the field based on prevailing Site conditions. Humidity conditions and precipitation events on-site may require air sampling activities for the day to be cancelled.

**Table 3-2: Community Air Sampling Action Levels for Lead Dust**

Parameter	Sampling Interval and Locations	Action Levels (Above Upwind)	Response Activity
Lead Dust	Daily, at perimeter and community monitoring location	$< 30 \mu\text{g}/\text{m}^3$	<ul style="list-style-type: none"><li>• Continue monitoring.</li></ul>
		$\geq 30 \mu\text{g}/\text{m}^3$	<ul style="list-style-type: none"><li>• Continue monitoring.</li><li>• Begin continuous dust suppression measures throughout all site work activities.</li><li>• Notify field crew that early warning alert level has been reached.</li></ul>
		$\geq 50 \mu\text{g}/\text{m}^3$	<ul style="list-style-type: none"><li>• Cease activities; re-evaluate dust suppression measures.</li><li>• Consider limiting work activities to 7-hours daily.</li><li>• Analyze collected air sample for lead.</li><li>• Consider additional off-site air monitoring/sampling.</li><li>• Evaluate site conditions for other engineering control options.</li></ul>

### **3.3 Non-working Hours**

No air sampling will be conducted during non-working hours. No release of contaminants, above background levels, is anticipated during non-working hours.

## **4.0 REPORTING OF AIR MONITORING RESULTS**

### **4.1 Community Notification Procedures**

The specific community notification procedures will be at the discretion of the EPA On-Scene Coordinator (OSC). The exact notification procedures will be developed based on the most feasible means of getting information to the surrounding community in an effective, useful, and timely manner.

### **4.2 On-Site Reporting Procedures**

The Site Health and Safety Representative will maintain a sample log and report airborne levels on a daily basis to the EPA OSC. Elevated results (above Action Levels) will be reported immediately to the EPA OSC so that appropriate engineering controls can be implemented to reduce airborne levels.

### **4.3 Reporting Procedures for Site Employees**

Where personal sampling is performed, the Contractor will be responsible for informing employees and subcontractors of their monitoring results to comply with OSHA regulations and good occupational health practices. Within five working days after the receipt of monitoring results, the Contractor will notify each employee of the results representing that employee's level of exposure.

Whenever the results indicate that employee exposure exceeds the PEL, notification shall be provided to the affected employee stating that the PEL was exceeded and providing a description of the corrective action taken to reduce exposure to a level below the PEL.

#### **4.4 Reporting Procedures for the Analytical Laboratory**

Chain-of-custody procedures will be followed during sample handling and transport to the accredited laboratory. Areas sampled, tasks performed, duration, volumes, and laboratory results will be provided in a letter report format within two weeks of receiving the sample analysis results. Sampling and analysis will be performed in accordance with the appropriate EPA or OSHA method under the direction of the OSC.

Calculations to determine the 8-hour TWA or ceiling concentration results will be performed as needed to allow for comparison to applicable OSHA Action Levels. All monitoring results will be available for review upon receipt from the laboratory.

#### **4.5 Data Review and Interpretation**

The general public will be able to review the captured data for the Site once the air monitoring data has been validated and finalized, and based upon the EPA OSC's authorization for release of the information. Monitoring records will be maintained on site.



## NIOSH Manual for Analytical Methods

# ELEMENTS by ICP (Nitric/Perchloric Acid Ashing)

7300

MW: Table 1

CAS: Table 2

RTECS: Table 2

METHOD: 7300, Issue 3

EVALUATION: PARTIAL

Issue 1: 15 August 1990

Issue 3: 15 March 2003

OSHA: Table 2

NIOSH: Table 2

ACGIH: Table 2

PROPERTIES: Table 1

<b>ELEMENTS:</b>	aluminum*	calcium	lanthanum	nickel	strontium	tungsten*
	antimony*	chromium*	lithium*	potassium	tellurium	vanadium*
	arsenic	cobalt*	magnesium	phosphorus	tin	yttrium
	barium	copper	manganese*	selenium	thallium	zinc
	beryllium*	iron	molybdenum*	silver	titanium	zirconium*
	cadmium	lead*				

\*Some compounds of these elements require special sample treatment.

SAMPLING		MEASUREMENT	
<b>SAMPLER:</b>	FILTER (0.8- $\mu$ m, cellulose ester membrane, or 5.0- $\mu$ m, polyvinyl chloride membrane)	<b>TECHNIQUE:</b>	INDUCTIVELY COUPLED ARGON PLASMA, ATOMIC EMISSION SPECTROSCOPY (ICP-AES)
<b>FLOWRATE:</b>	1 to 4 L/min	<b>ANALYTE:</b>	elements above
<b>VOL-MIN:</b>	Table 1	<b>ASHING</b>	
<b>-MAX:</b>	Table 1	<b>REAGENTS:</b>	conc. HNO <sub>3</sub> / conc. HClO <sub>4</sub> (4:1), 5 mL; 2mL increments added as needed
<b>SHIPMENT:</b>	routine	<b>CONDITIONS:</b>	room temperature, 30 min; 150 °C to near dryness
<b>SAMPLE</b>		<b>FINAL</b>	
<b>STABILITY:</b>	stable	<b>SOLUTION:</b>	4% HNO <sub>3</sub> , 1% HClO <sub>4</sub> , 25 mL
<b>BLANKS:</b>	2 to 10 field blanks per set	<b>WAVELENGTH:</b>	depends upon element; Table 3
ACCURACY		<b>BACKGROUND</b>	
		<b>CORRECTION:</b>	spectral wavelength shift
<b>RANGE STUDIED:</b>	not determined	<b>CALIBRATION:</b>	elements in 4% HNO <sub>3</sub> , 1% HClO <sub>4</sub>
<b>BIAS:</b>	not determined	<b>RANGE:</b>	varies with element [1]
<b>OVERALL PRECISION (<math>\hat{S}_{\text{r}}</math>):</b>	not determined	<b>ESTIMATED LOD:</b>	Tables 3 and 4
<b>ACCURACY:</b>	not determined	<b>PRECISION (<math>\hat{S}</math>):</b>	Tables 3 and 4

**APPLICABILITY:** The working range of this method is 0.005 to 2.0 mg/m<sup>3</sup> for each element in a 500-L air sample. This is simultaneous elemental analysis, not compound specific. Verify that the types of compounds in the samples are soluble with the ashing procedure selected.

**INTERFERENCES:** Spectral interferences are the primary interferences encountered in ICP-AES analysis. These are minimized by judicious wavelength selection, interelement correction factors and background correction [1-4].

**OTHER METHODS:** This issue updates issues 1 and 2 of Method 7300, which replaced P&CAM 351 [3] for trace elements. Flame atomic absorption spectroscopy (e.g., Methods 70XX) is an alternate analytical technique for many of these elements. Graphite furnace AAS (e.g., 7102 for Be, 7105 for Pb) is more sensitive.

**REAGENTS:**

1. Nitric acid (HNO<sub>3</sub>), conc., ultra pure.
2. Perchloric acid (HClO<sub>4</sub>), conc., ultra pure.\*
3. Ashing acid: 4:1 (v/v) HNO<sub>3</sub>:HClO<sub>4</sub>. Mix 4 volumes conc. HNO<sub>3</sub> with 1 volume conc. HClO<sub>4</sub>.
4. Calibration stock solutions, 1000 µg/mL. Commercially available, or prepared per instrument manufacturer's recommendation (see step 12).
5. Dilution acid, 4% HNO<sub>3</sub>, 1% HClO<sub>4</sub>. Add 50 mL ashing acid to 600 mL water; dilute to 1 L.
6. Argon.
7. Distilled, deionized water.

\* See SPECIAL PRECAUTIONS.

**EQUIPMENT:**

1. Sampler: cellulose ester membrane filter, 0.8-µm pore size; or polyvinyl chloride membrane, 5.0-µm pore size; 37-mm diameter, in cassette filter holder.
2. Personal sampling pump, 1 to 4 L/min, with flexible connecting tubing.
3. Inductively coupled plasma-atomic emission spectrometer, equipped as specified by the manufacturer for analysis of elements of interest.
4. Regulator, two-stage, for argon.
5. Beakers, Phillips, 125-mL, or Griffin, 50-mL, with watchglass covers.\*\*
6. Volumetric flasks, 10-, 25-, 100-mL, and 1-L\*\*
7. Assorted volumetric pipets as needed.\*\*
8. Hotplate, surface temperature 150 °C.

\*\* Clean all glassware with conc. nitric acid and rinse thoroughly in distilled water before use.

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**SPECIAL PRECAUTIONS:** All perchloric acid digestions are required to be done in a perchloric acid hood. When working with concentrated acids, wear protective clothing and gloves.

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**SAMPLING:**

1. Calibrate each personal sampling pump with a representative sampler in line.
2. Sample at an accurately known flow rate between 1 and 4 L/min for a total sample size of 200 to 2000 L (see Table 1) for TWA measurements. Do not exceed a filter loading of approximately 2 mg total dust.

**SAMPLE PREPARATION:**

3. Open the cassette filter holders and transfer the samples and blanks to clean beakers.
4. Add 5 mL ashing acid. Cover with a watchglass. Let stand 30 min at room temperature.  
NOTE: Start a reagent blank at this step.
5. Heat on hotplate (120 °C) until ca. 0.5 mL remains.  
NOTE 1: Recovery of lead from some paint matrices may require other digestion techniques. See Method 7082 (Lead by Flame AAS) for an alternative hotplate digestion procedure or Method 7302 for a microwave digestion procedure.  
NOTE 2: Some species of Al, Be, Co, Cr, Li, Mn, Mo, V, and Zr will not be completely solubilized by this procedure. Alternative solubilization techniques for most of these elements can be found elsewhere [5-10]. For example, aqua regia may be needed for Mn [6,12].
6. Add 2 mL ashing acid and repeat step 5. Repeat this step until the solution is clear.
7. Remove watchglass and rinse into the beaker with distilled water.
8. Increase the temperature to 150 °C and take the sample to near dryness (ca. 0.5 mL).
9. Dissolve the residue in 2 to 3 mL dilution acid.
10. Transfer the solutions quantitatively to 25-mL volumetric flasks.
11. Dilute to volume with dilution acid.  
NOTE: If more sensitivity is required, the final sample volume may be held to 10 mL.



**CALIBRATION AND QUALITY CONTROL:**

12. Calibrate the spectrometer according to the manufacturers recommendations.

NOTE: Typically, an acid blank and 1.0 µg/mL multielement working standards are used. The following multielement combinations are chemically compatible in 4% HNO<sub>3</sub>/1% HClO<sub>4</sub>:

- a. Al, As, Ba, Be, Ca, Cd, Co, Cr, Cu, Fe, La, In, Na
  - b. Ag, K, Li, Mg, Mn, Ni, P, Pb, Se, Sr, Ti, V, Y, Zn, Sc
  - c. Mo, Sb, Sn, Te, Ti, W, Zr
  - d. Acid blank
13. Analyze a standard for every ten samples.
  14. Check recoveries with at least two spiked blank filters per ten samples.

**MEASUREMENT:**

15. Set spectrometer to conditions specified by manufacturer.
16. Analyze standards and samples.

NOTE: If the values for the samples are above the range of the standards, dilute the solutions with dilution acid, reanalyze and apply the appropriate dilution factor in the calculations.

**CALCULATIONS:**

17. Obtain the solution concentrations for the sample,  $C_s$  (µg/mL), and the average media blank,  $C_b$  (µg/mL), from the instrument.
18. Using the solution volumes of sample,  $V_s$  (mL), and media blank,  $V_b$  (mL), calculate the concentration,  $C$  (mg/m<sup>3</sup>), of each element in the air volume sampled,  $V$  (L):

$$C = \frac{C_s V_s - C_b V_b}{V}, \text{mg} / \text{m}^3$$

NOTE: µg/L ≡ mg/m<sup>3</sup>

**EVALUATION OF METHOD:****Issues 1 and 2**

Method, 7300 was originally evaluated in 1981 [2,3]. The precision and recovery data were determined at 2.5 and 1000 µg of each element per sample on spiked filters. The measurements used for the method evaluation in Issues 1 and 2 were determined with a Jarrell-Ash Model 1160 Inductively Coupled Plasma Spectrometer operated according to manufacturer's instructions.

**Issue 3**

In this update of NIOSH Method 7300, the precision and recovery data were determined at approximately 3x and 10x the instrumental detection limits on commercially prepared spiked filters [12] using 25.0 mL as the final sample volume. Tables 3 and 4 list the precision and recovery data, instrumental detection limits, and analytical wavelengths for mixed cellulose ester (MCE) and polyvinyl chloride (PVC) filters. PVC Filters which can be used for total dust measurements and then digested for metals measurements were tested and found to give good results. The values in Tables 3 and 4 were determined with a Spectro Analytical Instruments Model End On Plasma (EOP)(axial) operated according to manufacturer's instructions.

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**METHOD REVISED BY:**

Mark Millson and Ronnee Andrews, NIOSH/DART.

Method originally written by Mark Millson, NIOSH/DART, and R. DeLon Hull, Ph.D., NIOSH/DSHEFS, James B. Perkins, David L. Wheeler, and Keith Nicholson, DataChem Laboratories, Salt Lake City, UT.

**TABLE 1. PROPERTIES AND SAMPLING VOLUMES**

Element (Symbol)	Properties		Air Volume, L @ OSHA PEL	
	Atomic Weight	MP, °C	MIN	MAX
Silver (Ag)	107.87	961	250	2000
Aluminum (Al)	26.98	660	5	100
Arsenic (As)	74.92	817	5	2000
Barium (Ba)	137.34	710	50	2000
Beryllium (Be)	9.01	1278	1250	2000
Calcium (Ca)	40.08	842	5	200
Cadmium (Cd)	112.40	321	13	2000
Cobalt (Co)	58.93	1495	25	2000
Chromium (Cr)	52.00	1890	5	1000
Copper (Cu)	63.54	1083	5	1000
Iron (Fe)	55.85	1535	5	100
Potassium (K)	39.10	63.65	5	1000
Lanthanum	138.91	920	5	1000
Lithium (Li)	6.94	179	100	2000
Magnesium (Mg)	24.31	651	5	67
Manganese (Mn)	54.94	1244	5	200
Molybdenum (Mo)	95.94	651	5	67
Nickel (Ni)	58.71	1453	5	1000
Phosphorus (P)	30.97	44	25	2000
Lead (Pb)	207.19	328	50	2000
Antimony (Sb)	121.75	630.5	50	2000
Selenium (Se)	78.96	217	13	2000
Tin (Sn)	118.69	231.9	5	1000
Strontium (Sr)	87.62	769	10	1000
Tellurium (Te)	127.60	450	25	2000
Titanium (Ti)	47.90	1675	5	100
Thallium (Tl)	204.37	304	25	2000
Vanadium (V)	50.94	1890	5	2000
Tungsten (W)	183.85	3410	5	1000
Yttrium (Y)	88.91	1495	5	1000
Zinc (Zn)	65.37	419	5	200
Zirconium (Zr)	91.22	1852	5	200



**TABLE 2. EXPOSURE LIMITS, CAS #, RTECS**

Element (Symbol)	CAS #	RTECS	Exposure Limits, mg/m <sup>3</sup> (Ca = carcinogen)		
			OSHA	NIOSH	ACGIH
Silver (Ag)	7440-22-4	VW3500000	0.01 (dust, fume, metal)	0.01 (metal, soluble)	0.1 (metal) 0.01 (soluble)
Aluminum (Al)	7429-90-5	BD0330000	15 (total dust) 5 (respirable)	10 (total dust) 5 (respirable fume) 2 (salts, alkyls)	10 (dust) 5 (powders, fume) 2 (salts, alkyls)
Arsenic (As)	7440-38-2	CG0525000	varies	C 0.002, Ca	0.01, Ca
Barium (Ba)	7440-39-3	CQ8370000	0.5	0.5	0.5
Beryllium (Be)	7440-41-7	DS1750000	0.002, C 0.005	0.0005, Ca	0.002, Ca
Calcium (Ca)	7440-70-2	--	varies	varies	varies
Cadmium (Cd)	7440-43-9	EU9800000	0.005	lowest feasible, Ca	0.01 (total), Ca 0.002 (respir.), Ca
Cobalt (Co)	7440-48-4	GF8750000	0.1	0.05 (dust, fume)	0.02 (dust, fume)
Chromium (Cr)	7440-47-3	GB4200000	0.5	0.5	0.5
Copper (Cu)	7440-50-8	GL5325000	1 (dust, mists) 0.1 (fume)	1 (dust) 0.1 (fume)	1 (dust, mists) 0.2 (fume)
Iron (Fe)	7439-89-6	NO4565500	10 (dust, fume)	5 (dust, fume)	5 (fume)
Potassium (K)	7440-09-7	TS6460000	--	--	--
Lanthanum	7439-91-0	--	--	--	--
Lithium (Li)	7439-93-2	--	--	--	--
Magnesium (Mg)	7439-95-4	OM2100000	15 (dust) as oxide 5 (respirable)	10 (fume) as oxide	10 (fume) as oxide
Manganese (Mn)	7439-96-5	OO9275000	C 5	1; STEL 3	5 (dust) 1; STEL 3 (fume)
Molybdenum (Mo)	7439-98-7	QA4680000	5 (soluble) 15 (total insoluble)	5 (soluble) 10 (insoluble)	5 (soluble) 10 (insoluble)
Nickel (Ni)	7440-02-0	QR5950000	1	0.015, Ca	0.1 (soluble) 1 (insoluble, metal)
Phosphorus (P)	7723-14-0	TH3500000	0.1	0.1	0.1
Lead (Pb)	7439-92-1	OF7525000	0.05	0.05	0.05
Antimony (Sb)	7440-36-0	CC4025000	0.5	0.5	0.5
Selenium (Se)	7782-49-2	VS7700000	0.2	0.2	0.2
Tin (Sn)	7440-31-5	XP7320000	2	2	2
Strontium (Sr)	7440-24-6	--	--	--	--
Tellurium (Te)	13494-80-9	WY2625000	0.1	0.1	0.1
Titanium (Ti)	7440-32-6	XR1700000	--	--	--
Thallium (Tl)	7440-28-0	XG3425000	0.1 (skin) (soluble)	0.1 (skin) (soluble)	0.1 (skin)
Vanadium (V)	7440-62-2	YW2400000	--	C 0.05	--
Tungsten	7440-33-7	--	5	5 10 (STEL)	5 10 (STEL)
Yttrium (Y)	7440-65-5	ZG2980000	1	N/A	1
Zinc (Zn)	7440-66-6	ZG8600000	--	--	--
Zirconium (Zr)	7440-67-7	ZH7070000	5	5, STEL 10	5, STEL 10

**TABLE 3. MEASUREMENT PROCEDURES AND DATA [1].**  
**Mixed Cellulose Ester Filters (0.45 µm)**

Element (a)	wavelength nm	Est. LOD µg/ Filter	LOD ng/mL	Certified 3x LOD (b)	% Recovery (c)	Percent RSD (N=25)	Certified 10x LOD (b)	% Recovery (c)	Percent RSD (N=25)
Ag	328	0.042	1.7	0.77	102.9	2.64	3.21	98.3	1.53
Al	167	0.115	4.6	1.54	105.4	11.5	6.40	101.5	1.98
As	189	0.140	5.6	3.08	94.9	2.28	12.9	93.9	1.30
Ba	455	0.005	0.2	0.31	101.8	1.72	1.29	97.7	0.69
Be	313	0.005	0.2	0.31	100.0	1.44	1.29	98.4	0.75
Ca	317	0.908	36.3	15.4	98.7	6.65	64.0	100.2	1.30
Cd	226	0.0075	0.3	0.31	99.8	1.99	1.29	97.5	0.88
Co	228	0.012	0.5	0.31	100.8	1.97	1.29	98.4	0.90
Cr	267	0.020	0.8	0.31	93.4	16.3	1.29	101.2	2.79
Cu	324	0.068	2.7	1.54	102.8	1.47	6.40	100.6	0.92
Fe	259	0.095	3.8	1.54	103.3	5.46	6.40	98.0	0.95
K	766	1.73	69.3	23.0	90.8	1.51	96.4	97.6	0.80
La	408	0.048	1.9	0.77	102.8	2.23	3.21	100.1	0.92
Li	670	0.010	0.4	0.31	110.0	1.91	1.29	97.7	0.81
Mg	279	0.098	3.9	1.54	101.1	8.35	6.40	98.0	1.53
Mn	257	0.005	0.2	0.31	101.0	1.77	1.29	94.7	0.73
Mo	202	0.020	0.8	0.31	105.3	2.47	1.29	98.6	1.09
Ni	231	0.020	0.8	0.31	109.6	3.54	1.29	101.2	1.38
P	178	0.092	3.7	1.54	84.4	6.19	6.40	82.5	4.75
Pb	168	0.062	2.5	1.54	109.4	2.41	6.40	101.7	0.88
<b>Sb</b>	206	0.192	7.7	3.08	90.2	11.4	12.9	<b>41.3</b>	32.58
Se	196	0.135	5.4	2.3	87.6	11.6	9.64	84.9	4.78
<b>Sn</b>	189	0.040	1.6	0.77	90.2	18.0	3.21	<b>49</b>	21.79
Sr	407	0.005	0.2	0.31	101.0	1.55	1.29	97.3	0.65
Te	214	0.078	3.1	1.54	102.0	2.67	6.40	97.4	1.24
Ti	334	0.050	2.0	0.77	98.4	2.04	3.21	93.4	1.08
Tl	190	0.092	3.7	1.54	100.9	2.48	6.40	99.1	0.80
V	292	0.028	1.1	0.77	103.2	1.92	3.21	98.3	0.84
<b>W</b>	207	0.075	3.0	1.54	<b>72.2</b>	10.1	6.40	<b>57.6</b>	14.72
Y	371	0.012	0.5	0.31	100.5	1.80	1.29	97.4	0.75
Zn	213	0.310	12.4	4.60	102.2	1.87	19.3	95.3	0.90
<b>Zr</b>	339	0.022	0.9	0.31	88.0	19.4	1.29	<b>25</b>	57.87

- (a) Bold values are qualitative only because of low recovery.  
(b) Values are certified by Inorganic Ventures INC. at 3x and 10x the approximate instrumental LOD  
(c) Values reported were obtained with a Spectro Analytical Instruments EOP ICP; performance may vary with instrument and should be independently verified.

**TABLE 4. MEASUREMENT PROCEDURES AND DATA [1].**  
**Polyvinyl Chloride Filter (5.0 µm)**

Element (c)	wavelength nm	Est. LOD µg per filter	LOD ng/mL	Certified 3x LOD (b)	% Recovery (a)	Percent RSD (N=25)	Certified <sup>17</sup> 10x LOD (b)	% Recovery (a)	Percent RSD (N=25)
Ag	328	0.042	1.7	0.78	104.2	8.20	3.18	81.8	18.9
Al	167	0.115	4.6	1.56	77.4	115.24	6.40	92.9	20.9
As	189	0.140	5.6	3.10	100.7	5.13	12.70	96.9	3.2
Ba	455	0.005	0.2	0.31	102.4	3.89	1.270	99.8	2.0
Be	313	0.005	0.2	0.31	106.8	3.53	1.270	102.8	2.1
<b>Ca</b>	317	0.908	36.3	15.6	<b>68.1</b>	12.66	64.00	96.8	5.3
Cd	226	0.0075	0.3	0.31	105.2	5.57	1.27	101.9	2.8
Co	228	0.012	0.5	0.31	109.3	4.67	1.27	102.8	2.8
Cr	267	0.020	0.8	0.31	109.4	5.31	1.27	103.4	4.1
Cu	324	0.068	2.7	1.56	104.9	5.18	6.40	101.8	2.4
Fe	259	0.095	3.8	1.56	88.7	46.82	6.40	99.1	9.7
K	766	1.73	69.3	23.4	96.4	4.70	95.00	99.2	2.2
<b>La</b>	408	0.048	1.9	0.78	<b>45.5</b>	4.19	3.18	98.8	2.6
Li	670	0.010	0.4	0.31	107.7	4.80	1.27	110.4	2.7
<b>Mg</b>	279	0.098	3.9	1.56	<b>54.8</b>	20.59	6.40	<b>64.5</b>	5.7
Mn	257	0.005	0.2	0.31	101.9	4.18	1.27	99.3	2.4
Mo	202	0.020	0.8	0.31	106.6	5.82	1.27	98.1	3.8
Ni	231	0.020	0.8	0.31	111.0	5.89	1.27	103.6	3.2
P	178	0.092	3.7	1.56	101.9	17.82	6.40	86.5	10.4
Pb	168	0.062	2.5	1.56	109.6	6.12	6.40	103.2	2.9
<b>Sb</b>	206	0.192	7.7	3.10	<b>64.6</b>	22.54	12.70	<b>38.1</b>	30.5
Se	196	0.135	5.4	2.30	83.1	26.23	9.50	76.0	17.2
<b>Sn</b>	189	0.040	1.6	0.78	85.7	27.29	3.18	<b>52.0</b>	29.4
<b>Sr</b>	407	0.005	0.2	0.31	<b>71.8</b>	4.09	1.27	81.2	2.7
Te	214	0.078	3.1	1.56	109.6	7.49	6.40	97.3	3.8
Ti	334	0.050	2.0	0.78	101.0	9.46	3.18	92.4	5.5
Tl	190	0.092	3.7	1.56	110.3	4.04	6.40	101.9	2.0
V	292	0.028	1.1	0.78	108.3	3.94	3.18	102.5	2.6
<b>W</b>	207	0.075	3.0	1.56	<b>74.9</b>	15.79	6.40	<b>44.7</b>	19.6
Y	371	0.012	0.5	0.31	101.5	3.63	1.27	101.4	2.5
Zn	213	0.310	12.4	4.70	91.0	68.69	19.1	101.0	9.6
<b>Zr</b>	339	0.022	0.9	0.31	<b>70.7</b>	54.20	1.27	<b>40.4</b>	42.1

- (a) Values reported were obtained with a Spectro Analytical Instruments EOP ICP; performance may vary with instrument and should be independently verified.
- (b) Values are certified by Inorganic Ventures INC. at 3x and 10x the approximate instrumental LOD [12].
- (c) Bold values are qualitative only because of low recovery. Other digestion techniques may be more appropriate for these elements and their compounds.





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732-585-4400 • Fax: 732-225-7037  
www.westonsolutions.com

*The Trusted Integrator for Sustainable Solutions*

REMOVAL SUPPORT TEAM 3  
EPA CONTRACT EP-S2-14-01

July 9, 2014

Mr. Cris D'Onofrio, On-Scene Coordinator  
U.S. Environmental Protection Agency, Region II  
Response & Prevention Branch  
2890 Woodbridge Avenue  
Edison, NJ 08837

**EPA CONTRACT No.: EP-S2-14-01**  
**TDD No.: TO-0001-0002**  
**DOCUMENT CONTROL No.: RST 2-02-F-2850**

**SUBJECT: SITE-SPECIFIC HEALTH AND SAFETY PLAN – M.C. CANFIELD & SONS SITE, NEWARK, ESSEX COUNTY, NEW JERSEY**

Dear Mr. D'Onofrio,

Enclosed please find the Site-Specific Health and Safety Plan (HASP) for the Removal Action activities to be conducted at the M.C. Canfield & Sons Site located at Cornerstone Lane/Marrow Street, Newark, New Jersey beginning on July 7, 2014.

If you have any questions or comments, please do not hesitate to contact me at (732) 585-4413.

Sincerely,  
Weston Solutions, Inc.

Bernard Nwosu  
RST 3 Site Project Manager

Enclosure  
cc:

TDD File No.: TO-0001-0002

*an employee-owned company*

In association with Scientific and Environmental Associates, Inc.,  
Environmental Compliance Consultants, Inc., Avatar Environmental, LLC,  
On-Site Environmental, Inc., and Sovereign Consulting, Inc.



**REGION II RST 3 HEALTH AND SAFETY PLAN  
EMERGENCY RESPONSE/REMOVAL ASSESSMENT/REMOVAL ACTION  
(Revised 16 March 2011)**

**TDD No.** TO-0001-0002

**Site Name:** M.C. Canfield & Sons Site

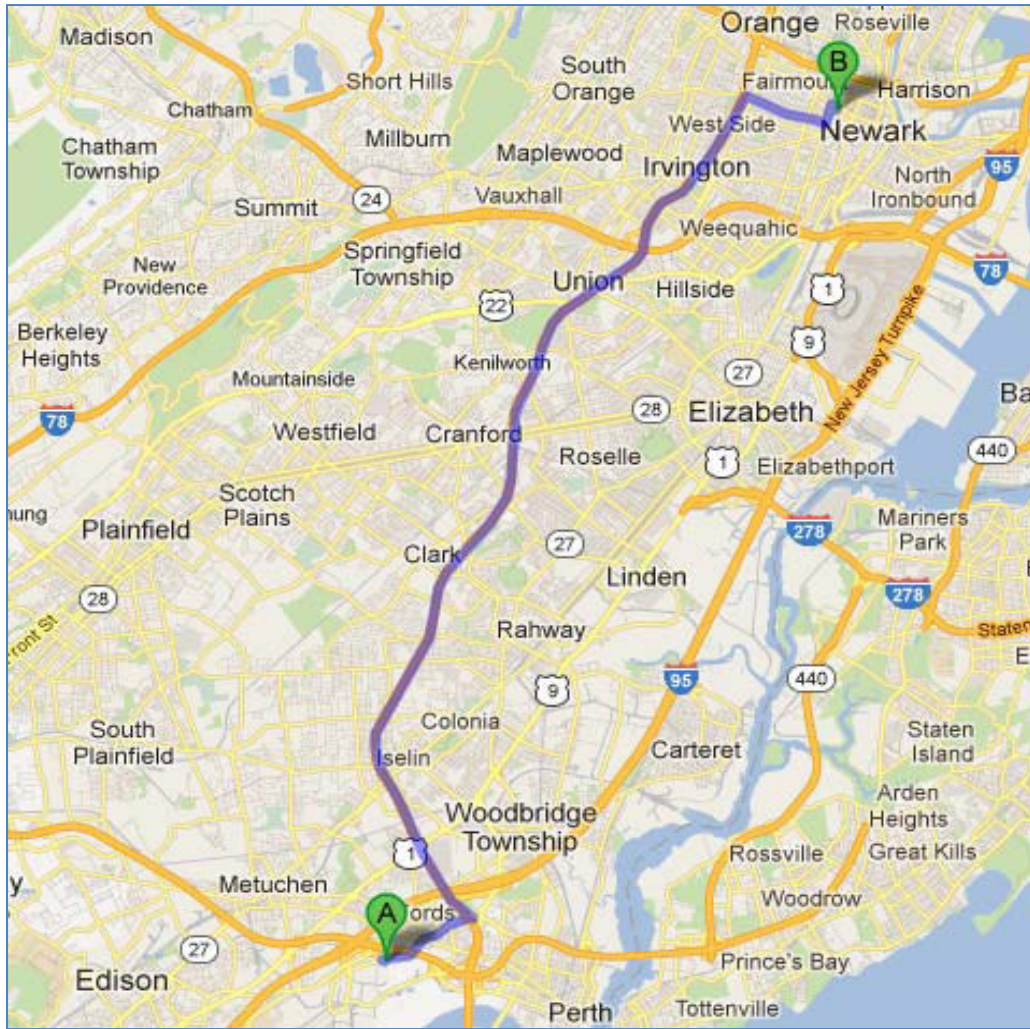
**Site Address:** Street: Cornerstone Lane/Marrow Street  
City: Newark  
County/State: Essex/New Jersey

**Directions to Site from Office:** (Attach Color Map Following This Page)

1090 King Georges Post Rd  
Edison, NJ 08837

1. Head west toward King Georges Rd/King Georges Post Rd  
302 ft
2. Turn right onto King Georges Rd/King Georges Post Rd  
1.8 mi
3. Slight right onto the ramp to Garden State Pkwy N  
0.4 mi
4. Keep left at the fork, follow signs for Garden State Pkwy N and merge onto Garden State Pkwy N  
16.4 mi
5. Take exit 144 to merge onto Eastern Pkwy  
Partial toll road  
0.2 mi
6. Continue onto Speedway Ave  
0.2 mi
7. Turn right onto County Road 510/S Orange Ave/Rte 510  
1.4 mi
8. Turn left onto Norfolk St  
0.4 mi
9. Take the 3rd right onto Perez Dr  
259 ft
10. Turn right onto Matthews Drive  
292 ft
11. Take the 1st left onto Academy St/Churchman St  
Destination will be on the right  
240 ft

Destination is 21 miles = 32 minutes.



\*\*This map is subject to Google's Terms of Service, and Google is the owner of rights therein.

### **Historical/Current Site Information:**

This Health and Safety Plan (HASP) is prepared for the Removal Action planned to be implemented at the M.C. Canfield & Sons Site (the Site). The Site is located within the Society Hill at University Heights III condominium complex which is bounded by Norfolk, Wickliff, West Market and Warren Streets in Newark, Essex County, New Jersey. There is a church directly adjacent to the Site in the center of the northern portion, an unused school on the northeast corner and an abandoned warehouse adjacent to the eastern edge of the Site. The area is an urban, mixed residential, light industrial neighborhood and is located adjacent to the University Heights District that includes the Rutgers University, New Jersey Institute of Technology, the University of Medicine and Dentistry and the Essex County College campuses. The Essex County Vocational-Technical High School borders the southeast corner of the Site.

M.C. Canfield & Sons was a lead solder and babbitt metal manufacturer that operated at 93 Wilsey Street and 196 Newark Street from at least 1907 to approximately 1970. M.C. Canfield & Sons transferred ownership of the property to Salem Trucking, Inc. in March 1974. The City of Newark foreclosed on the property encompassing the Site in September 1976 for non-payment of taxes. The former M.C. Canfield & Sons Site was redeveloped for residential use during the early 1990's by K. Hovnanian at Newark, Urban Renewal Corporation II, Inc. ("K. Hovnanian").



The City of Newark transferred ownership to K. Hovnanian in December 1993. Ownership of a number of other surrounding lots was also transferred to K. Hovnanian and the Site was redeveloped into a residential condominium complex known as Society Hill at University Heights III circa 1993. A portion of Wilsey Street in Newark was renamed during the redevelopment and is now known as Cornerstone Lane. The condominiums were sold to individual owners as single family residences, but the complex, including the outdoor grounds, is managed by Impac Property Management. The Site is currently well maintained by the Society Hill at University Heights Condominium Association and is well landscaped with ornamental trees, shrub and flower plantings, and good grass cover in most areas. Some turf damage in a very few areas of high foot traffic has led to soil erosion and loss of integrity to what is normally a protective turf cover.

In May 2012, the U.S. Environmental Protection Agency's (EPA) Removal Action Branch was requested to assess residential properties for the presence of lead in the vicinity of the Site. The justification for the Removal Assessments was based upon analytical results provided to EPA as a result of previous New Jersey Department of Environmental Protection (NJDEP) soil investigations conducted in 2010 and 2011 of other properties in the area of the Site. The previous investigations indicated that there was lead contamination in the soil at residential properties in the vicinity of the Site at concentrations ranging from 753 parts per million (ppm) to 4,860 ppm. As a result, Phase I of the Removal Assessment was conducted in August 2012 to determine if any additional properties had been impacted by previous operations conducted at the Site.

The highest concentrations of lead were found in the area of the previous M.C. Canfield & Sons smelter (referred to as Area 1). A significant majority of the samples from Area 1 indicate concentrations of lead exceeding the EPA residential screening level of 400 milligram per kilogram (mg/kg). Lead concentrations in this area ranged from background to 13,000 mg/kg and tend to increase with depth, suggesting that Area 1 contains the main source of lead contamination at the Site. A total of 31 of 44 locations sampled in Area 2 contained lead at concentrations in excess of the EPA residential screening level, with concentrations ranging from background to 2,163 ppm (via X-ray fluorescent [XRF] analyzer). Soil erosion where turf coverage has been compromised by foot traffic is evident in some portions of Area 2, creating a direct pathway for exposure to lead contaminated soils. Lead contamination in Area 3 was detected at concentrations ranging from background to 855 ppm. A total of 69 of the 87 sample locations in Area 3 showed lead concentrations in excess of the EPA residential screening level in at least one of the depth intervals sampled.

In April and May 2013, EPA conducted Phase II of the Removal Assessments to further delineate the Site based upon the results of Phase I conducted in August 2012. Results from this sampling event confirmed elevated concentrations of lead above EPA residential screening level.

### **RST 3 Scope of Work:**

As part of Removal Action activities at the Site, Weston Solutions Inc., Removal Support Team 3 (RST 3) has been tasked by EPA to keep daily records of site operations through photographic documentation and notations in a site log book. In addition, RST 2 is to conduct community air monitoring and sampling for particulates (dust). A daily log of the air monitoring readings is to be maintained on-site to determine whether dust suppression measures are necessary to contain fugitive dust from migration offsite. Any changes in atmospheric conditions, trends that may

develop due to changes in work activities and/or weather conditions on site that may be potentially hazardous are also to be documented. RST 3 will collect post-excavation soil samples for lead analysis. Global Positioning System (GPS) data will be documented for all sample locations.

**Three (3) S.M.A.R.T. Health and Safety Goals for the Project (Simple, Measurable, Actionable, Reasonable, & Timely):**

1. Avoid accidents by driving safely to and from the Site and when backing up.
2. Be cautious of slip, trip, and fall hazards, especially while working in and around uneven ground surfaces.
3. Approach areas with vegetation cautiously due the possible presence of poisonous plants.

**Incident Type:**

- ☐ Emergency Response
- ☐ Removal Assessment
- ☒ Removal Action
- ☐ Residential Sampling/Investigation
- ☐ PRP Oversight
- ☐ Other

**Location Class:**

- ☐ Industrial
- ☐ Commercial
- ☒ Urban/Residential
- ☐ Rural

U.S. EPA OSC: Cris D'Onofrio  
Original HASP: Yes  
Lead RST 3: Bernard Nwosu

Date of Initial Site Activities: 7/7/2014  
Site Health & Safety Coordinator: Bernard Nwosu  
Site Health & Safety Alternate: Not Applicable

**Response Activities/Dates of Response** (fill in as applicable)

**Emergency Response:**

- ☐ Perimeter Recon -
- ☐ Site Entry -
- ☐ Visual Documentation -
- ☐ Multi-Media Sampling -
- ☐ Decontamination -

**Removal Assessment:**

- ☐ Perimeter Recon
- ☐ Site Entry
- ☐ Visual Documentation
- ☐ Multi-Media Sampling
- ☐ Decontamination

**Removal Action:**

- ☒ Perimeter Recon – July 7, 2014
- ☒ Site Entry – July 7, 2014
- ☒ Visual Documentation – July 7, 2014
- ☒ Multi-Media Sampling – July 7, 2014
- ☒ Decontamination – July 7, 2014



## Physical Safety Hazards to Personnel:

- |   |   |   |
|---|---|---|
| <input checked="" type="checkbox"/> Inclement Weather – Attach FLD02          | <input checked="" type="checkbox"/> Heat – Attach FLD05               | <input type="checkbox"/> Cold – Attach FLD06                                      |
| <input type="checkbox"/> Confined Space – Attach FLD08                        | <input type="checkbox"/> Industrial Trucks – Attach FLD09             | <input checked="" type="checkbox"/> Manual Lifting – Attach FLD10                 |
| <input checked="" type="checkbox"/> Terrain – Attach FLD11                    | <input type="checkbox"/> Structural Integrity – Attach FLD13          | <input type="checkbox"/> Site Security – Attach FLD14                             |
| <input type="checkbox"/> Pressurized Containers, Systems – Attach FLD16       | <input type="checkbox"/> Use of Boats – Attach FLD18                  | <input type="checkbox"/> Waterways – Attach FLD19                                 |
| <input type="checkbox"/> Explosives – Attach FLD21                            | <input checked="" type="checkbox"/> Heavy Equipment – Attach FLD22    | <input type="checkbox"/> Aerial Lifts and Manlifts – Attach FLD24                 |
| <input type="checkbox"/> Elevated Surfaces and Fall Protection – Attach FLD25 | <input type="checkbox"/> Ladders – Attach FLD26                       | <input checked="" type="checkbox"/> Excavations/Trenching – Attach FLD28          |
| <input type="checkbox"/> Fire Prevention – Attach FLD31                       | <input type="checkbox"/> Demolition – Attach FLD33                    | <input checked="" type="checkbox"/> Underground/Overhead Utilities – Attach FLD34 |
| <input checked="" type="checkbox"/> Hand and Power Tools – Attach FLD38       | <input type="checkbox"/> Illumination – Attach FLD39                  | <input type="checkbox"/> Storage Tanks – Attach FLD40                             |
| <input checked="" type="checkbox"/> Lead Exposure – Attach FLD46              | <input checked="" type="checkbox"/> Sample Storage – Attach FLD49     | <input type="checkbox"/> Cadmium Exposure – Attach FLD50                          |
| <input type="checkbox"/> Asbestos Exposure – Attach FLD52                     | <input type="checkbox"/> Hexavalent Chromium Exposure – Attach FLD 53 | <input type="checkbox"/> Benzene Exposure – Attach FLD 54                         |
| <input type="checkbox"/> Drilling Safety – Attach FLD56                       | <input type="checkbox"/> Drum Handling – Attach FLD58                 | <input type="checkbox"/> Gasoline Contaminant Exposure – Attach FLD61             |
| <input checked="" type="checkbox"/> Noise – Attach CECHSP, Section 7          | <input checked="" type="checkbox"/> Walking/Working Surfaces          | <input type="checkbox"/> Oxygen Deficiency  |
| <input type="checkbox"/> Unknowns in Tanks or Drums                           | <input type="checkbox"/> Nonionizing Radiation                        | <input type="checkbox"/> Ionizing Radiation                                       |

## Biological Hazards to Personnel:

- |   |  |
|---|--|
| <input type="checkbox"/> Infectious/Medical/Hospital Waste – Attach FLD 44 and 45 | <input checked="" type="checkbox"/> Non-domesticated Animals – Attach RST 3 FLD43A     |
| <input checked="" type="checkbox"/> Insects – Attach RST 3 FLD 43B                | <input checked="" type="checkbox"/> Poisonous Plants/Vegetation – Attach RST 3 FLD 43D |
| <input type="checkbox"/> Raw Sewage   | <input type="checkbox"/> Bloodborne Pathogens – Attach FLD 44 and 45                   |

### **Training Requirements:**

- |   |  |
|---|--|
| <input checked="" type="checkbox"/> 40-Hour HAZWOPER Training with three days supervised experience | <input type="checkbox"/> 8-Hour Management or Supervisor Training in addition to basic training course |
| <input checked="" type="checkbox"/> 8-Hour Annual Refresher Health and Safety Training              | <input type="checkbox"/> Site Specific Health and Safety Training                                      |
| <input type="checkbox"/> DOT (CMV Training - ERV in Use)  | <input type="checkbox"/> Bio-Medical Collection and Response   |

### **Medical Surveillance Requirements:**

- |  |   |
|--|---|
| <input checked="" type="checkbox"/> Baseline initial physical examination with physician certification | <input checked="" type="checkbox"/> Annual medical examination with physician certification |
| <input type="checkbox"/> Site-specific medical monitoring protocol (Radiation, Heavy Metals)           | <input type="checkbox"/> Asbestos worker medical protocol                                   |

### **Vehicle Use Assessment and Selection:**

Driving is one of the most hazardous and frequent activities for Weston Employees. As such, Weston Employees are required to adhere to established safe operating practices in order to maintain their eligibility to drive Weston owned, leased, or rented vehicles. Every person riding in a Weston vehicle, including passengers must maintain a commitment for a safe journey. This means being attentive while in the vehicle and helping the driver to notice hazards ahead of and around the vehicle and ensure that their presence does not distract the driver from safely operating the vehicle.

A high percentage of vehicle accidents occur when operating in reverse. Anytime a vehicle is operated in reverse, e.g., backing out of a parking area, if there are passengers, at least one of them are to assist the driver by acting as a guide person during the reverse movement or during other vehicle operation where it would be prudent to have a guide person(s) participate in the vehicle movement. When practical, the preferred parking method would be to back into the parking area.

At a minimum, each Weston Driver must:

- Possess a current, valid drivers' license
- Current Commercial Motor Vehicle (CMV) card when operating the Emergency Response Vehicle
- Obey posted speed limits and traffic laws
- Wear seat belts at all times while the vehicle is in operation
- Conduct a 360 degree inspection around the vehicle before attempting to drive the vehicle
- Report accidents / incidents immediately and complete a Notice of Incident (NOI)
- Keep vehicles on approved roadways (4WD does not guarantee mobility on unapproved surfaces)

All Region II RST 3 personnel are experienced and qualified to drive RST 3 fleet vehicles (Tahoe, Suburbans, Minivan/Cargo Van, and Emergency Response Vehicle). However, in the event that vehicle rental is required, each person must take the time to familiarize themselves with that particular vehicle. This familiarization includes adjustment of the dashboard knobs/controls, mirrors, steering wheel, seats, and a 360 degree external inspection of the vehicle.

1. The following vehicles are anticipated to be used on this project:

- |  |  |
|--|--|
| <input type="checkbox"/> Car   | <input type="checkbox"/> Pickup Truck  |
| <input checked="" type="checkbox"/> Intermediate/Standard SUV<br>(e.g. Chevy Trailblazer, Chevy Tahoe, Ford Explorer, Ford Escape) | <input type="checkbox"/> Full Size SUV (e.g. Chevy Suburban, Ford Expedition, GMC Yukon) |
| <input type="checkbox"/> Minivan/Cargo Van (e.g. Chevy Uplander, Chevy Express Van)  | <input type="checkbox"/> Box Truck (Size: _____)   |
| <input type="checkbox"/> Emergency Response Vehicle (ERV)  | <input type="checkbox"/> Other _____   |

2. Are there any on-site considerations that should be noted:

- |  |  |   |                                       |
|--|--|---|---------------------------------------|
| <input checked="" type="checkbox"/> Working/Driving Surfaces | <input type="checkbox"/> Debris                  | <input type="checkbox"/> Overhead Clearance   | <input type="checkbox"/> Obstructions |
| <input type="checkbox"/> Tire Puncture Hazards               | <input checked="" type="checkbox"/> Vegetation   | <input checked="" type="checkbox"/> Terrain   | <input type="checkbox"/> Parking      |
| <input type="checkbox"/> Congestion                          | <input type="checkbox"/> Site Entry/Exit Hazards | <input type="checkbox"/> Local Traffic Volume | <input type="checkbox"/> Security     |
| <input type="checkbox"/> Heavy Equipment                     | <input type="checkbox"/> Time/Length of Work Day | <input type="checkbox"/> Other:               |                                       |

Do any of the considerations above require further explanation: No

3. Was the WESTON Environmental Risk Management Tool completed in EHS? Yes

Was an Environmental Compliance Plan required? No

4. Are there any seasonal considerations that should be noted (e.g., Anticipated Snowy Conditions): No

5. Is a Traffic Control Plan required?

- ☐ Yes ☒ No



## Chemical Hazards to Personnel

Page 1 of 1

Physical Parameters	Chemical Contaminant Lead CAS [7439-92-1]
Exposure Limits IDLH Level	<p>_____ ppm <u>0.050</u> mg/m<sup>3</sup> PEL</p> <p>_____ ppm <u>0.050</u> mg/m<sup>3</sup> TLV / REL</p> <p>_____ ppm <u>100</u> mg/m<sup>3</sup> IDLH</p>
Physical Form (Solid/Liquid/Gas)	<u>X</u> Solid _____ Liquid _____ Gas
Color	A heavy, ductile, soft, gray solid color
Odor	Odorless
Flash Point Flammable Limits	<p><u>N/A</u> _____ Degrees F or C</p> <p><u>NA</u> _____ % UEL <u>NA</u> _____ % LEL</p>
Vapor Pressure	<u>0</u> mm/Hg
Vapor Density	<u>NA</u> Air = 1
Specific Gravity	<u>11.34</u> Water = 1
Solubility	Insoluble
Incompatible Material	Strong Oxidizers, hydrogen peroxide, acids
Routes of Exposure	<p><u>X</u> Inh _____ Abs</p> <p><u>X</u> Con <u>X</u> Ing</p>
Symptoms of Acute Exposure	Lassitude (weakness, exhaustion), insomnia; facial pallor; anorexia; weight loss; malnutrition; constipation, abdominal pain, colic; anemia; gingival lead line; tremor; paralysis wrist, ankles; irritation eyes, hypertension
First Aid Treatment	<p><b>Eye:</b> Irrigate immediately</p> <p><b>Skin:</b> Soap wash immediately</p> <p><b>Breathing:</b> Respiratory support</p> <p><b>Swallow:</b> Medical attention immediately</p>
Ionization Potential	<u>N/A</u> _____ eV
Instruments for Detection	<p>_____ PID w/ _____ Probe</p> <p>_____ FID _____ CGI _____ RAD</p> <p>_____ Det Tube _____ Other</p> <p>_____ Lumex</p> <p>NIOSH 7082, NIOSH 7300</p>

**Site Map with Work Zones:** To be determined on-site.



**Work Zone Definitions:**

**Exclusion Zone** – The Exclusion Zone is the area where contamination is either known or expected to occur and the greatest potential for exposure exists. The outer boundary of the Exclusion Zone, called the Hotline, separates the area of contamination from the rest of the Site.

**Contamination Reduction Zone (CRZ)** – The CRZ is the area in which decontamination procedures take place. The purpose of the CRZ is to reduce the possibility that the Support Zone will become contaminated or affected by the site hazards.

**Support Zone** – The Support Zone is the uncontaminated area where workers are unlikely to be exposed to hazardous substances or dangerous conditions. The Support Zone is the appropriate location for the command post, medical station, equipment and supply center, field laboratory, and any other administrative or support functions that are necessary to keep site operations running efficiently.

**Communications:**

- |                                     |                          |                                     |                             |
|-------------------------------------|--------------------------|-------------------------------------|-----------------------------|
| <input checked="" type="checkbox"/> | Buddy System             | <input type="checkbox"/>            | Radio                       |
| <input type="checkbox"/>            | Air Horn for Emergencies | <input checked="" type="checkbox"/> | Hand Signals/Visual Contact |

**Personnel Decontamination Procedures:**

- ☐ Wet Decontamination (procedures as follows)
- ☒ Dry Decontamination (procedures as follows)

Post excavation soil sampling activities conducted as part of the Removal Action will be conducted in Level D personal protective equipment (PPE). All used PPE will be grossly decontaminated and disposed of in accordance with applicable federal, state, and local regulations.

**Equipment Decontamination Procedures:**

- ☐ None
- ☒ Wet Decontamination (procedures as follows)
- ☐ Dry Decontamination (procedures as follows)

Non-dedicated sampling equipment, including hand augers and stainless steel sampling equipment, will be decontaminated on site as follows:

1. Alconox/portable water scrub
2. Deionized water rinse
3. Solvent rinse
4. Deionized water rinse
5. Air Dry.

Refer to Emergency Response Team (ERT) SOP#:2006 – Sampling Equipment Decontamination.

Per the request of the On-Scene Coordinator (OSC), all decontamination fluids will be disposed of on site. All disposable sampling equipment will be void of gross contamination, double bagged, and disposed of in accordance with applicable federal, state, and local regulations.

Adequacy of decontamination determined by: RST 3 On-Site Health and Safety Officer.



### Personal Protective Equipment

TASK TO BE PERFORMED	ANTICIPATED LEVEL OF PROTECTION	TYPE OF CHEMICAL PROTECTIVE COVERALL	INNER GLOVE/ OUTER GLOVE/ BOOT COVER	APR CARTRIDGE TYPE or SCBA
Air monitoring and Soil Sampling	Level D	None	Blue Nitrile/Green Nitrile/Latex Booties/Steel Toe Boots/Hard Hat/Safety Glasses	None
Site Documentation	Level D	None	Nitrile gloves/Latex Booties/Steel Toe Boots/Hard Hat/Safety Glasses	None

### Hazard Task Analysis

RISK LEVEL (High, Medium, Low)	HAZARD	RECOGNITION/ SYMPTOMS	MITIGATION	LEVEL OF PROTECTION
Medium	Strains and sprains from manual lifting and sample collection (i.e., use of hand auger)	Objects heavier than 35 pounds, large and oddly shaped objects regardless of weight, pinch points and tight spaces, wet or slippery surfaces.	<ul style="list-style-type: none"> <li>• Use proper lifting techniques such as keeping straight back, lifting with legs, avoid twisting back.</li> <li>• Use mechanical equipment or get help from others.</li> <li>• Ensure that all samplers are familiar with the tools and equipment selected for sample collection.</li> <li>• All samplers should be able to demonstrate to the sampling lead they are familiar with the tools and their function.</li> <li>• Rotate task among workers so no one worker is collecting all the samples. Allow for rest breaks.</li> <li>• See FLD 10.</li> </ul>	Level D

### Hazard Task Analysis (Continued)

<b>RISK LEVEL (High, Medium, Low)</b>	<b>HAZARD</b>	<b>RECOGNITION/ SYMPTOMS</b>	<b>MITIGATION</b>	<b>LEVEL OF PROTECTION</b>
Low	Biological Hazards	Activities conducted outdoors have the potential for contact with poisonous plants, insects, and snakes in addition to potential contact with other animals. This sampling event requires RST 2 staff to enter private residential yards where domesticated animals may be encountered.	<ul style="list-style-type: none"> <li>Residents shall be contacted prior to entering private yards.</li> <li>Workers entering yards should be alert for animals.</li> <li>If an aggressive animal is encountered, remain calm, back away slowly, and vacate the area.</li> </ul>	Level D
Low	Exposure to contaminants	Contact with contaminated soil and dirty or leaking sample containers.	<ul style="list-style-type: none"> <li>Wear required PPE, including nitrile gloves, as specified in this HASP.</li> <li>Follow all equipment decontamination procedures for reusable equipment.</li> <li>Handle all glassware with care. Bottles may break if dropped; use leather gloves when cleaning up broken glass.</li> <li>Ensure that each container top is securely tightened. Pack each container in a manner to prevent damage to container during handling of shipping box and during transportation.</li> </ul>	Level D

### Hazard Task Analysis (Concluded)

RISK LEVEL (High, Medium, Low)	HAZARD	RECOGNITION/ SYMPTOMS	MITIGATION	LEVEL OF PROTECTION
High	Temperature extremes (heat stress)	See FLD05. Some symptoms of <b>heat exhaustion</b> include pale, clammy, and moist skin; profuse sweating; weakness; weak rapid pulse and shallow breathing.  Some symptoms of <b>heat stroke</b> include red, hot dry skin; nausea; dizziness; confusion; extremely high body temperature; rapid seizures and pulse; seizure/convulsions.	<ul style="list-style-type: none"> <li>• Wear clothing / PPE suitable for weather and working conditions.</li> <li>• Keep an eye on your working buddy for signs of heat stress.</li> <li>• Appropriate work/rest schedule</li> <li>• Drink fluids and rest when needed.</li> </ul>	Level D
Low	Slips, trips, falls around uneven surfaces	Unsure or unstable footing and walking, safely navigate walking/working surfaces.	<ul style="list-style-type: none"> <li>• Visually inspect work areas and mark, barricade, or eliminate slip, trip, and fall hazards.</li> <li>• Avoid walking uneven surfaces, if possible.</li> </ul>	Level D
Low	Driving	Vehicular loss of control i.e. swerving or skidding into traffic or pedestrians.	<ul style="list-style-type: none"> <li>• Maintain eyes on road while moving; check rear view mirrors and side mirrors when backing up and changing lanes.</li> <li>• Wear seat belt and make sure there is a line of sight in all directions.</li> </ul>	Seat Belt and Driver Airbags



## Frequency and Types of Air Monitoring:

☒ Continuous

☐ Routine - \_\_\_\_\_

☐ Periodic -

DIRECT READING INSTRUMENTS	MultiRAE CGI / O <sub>2</sub> / H <sub>2</sub> S / CL <sub>2</sub> / CO / PID	MicroFID or TVA-1000	Drager Chemical Detector Tube	DustTrak	Other (_____)
EQUIPMENT ID NUMBER				TBD	
CALIBRATION DATE				TBD	
RST 3 PERSONNEL				Bernard Nwosu	
ACTION LEVEL	<p>≥ 10 - 20% LEL (Confined Space / non- Confined Space)</p> <p>≤ 19.5%, O<sub>2</sub> Deficient ≥ 23%, O<sub>2</sub> Enriched</p> <p>H<sub>2</sub>S – PEL: 20 ppm IDLH: 100 ppm</p> <p>Cl<sub>2</sub> – PEL: 1 ppm IDLH: 10 ppm</p>	<p>Unknowns: 1 - 5 Units - "Level C" 5-500 Units-"Level B"</p>	<p>PEL / TLV / IDLH: Compare with Drager Tube</p> <p>(See Chart Below)</p>	<p>Particulates &gt; 0.025 mg/m<sup>3</sup></p>	

Dräger Tubes	Expiration Date	Strokes	Color Change
Nitrogen Dioxide - 2 to 100 ppm	See individual package before use	10 or 5	yellowish-green to bluish-grey
Phosgene - 0.25 to 5 ppm	See individual package	40 or 20	white to red
Hydrochloric Acid - 50 to 5,000 ppm	See individual package	1 or 10	blue to white
Cyanide - 2 to 15 mg/m <sup>3</sup>	See individual package	10	yellow to red
Acetic Acid - 5 to 80 ppm	See individual package	3	blue/violet to yellow
Chlorine - 0.2 to 3 ppm	See individual package	10	white to yellowish-orange
Ammonia - 5 to 70 ppm	See individual package	10	yellow to blue

### Emergency Telephone Numbers

Emergency Contact	Location / Address	Telephone Number	Notified
<b>Hospital</b>	University of Medicine and Dentistry of New Jersey (UMDNJ) University Hospital 150 Bergen Street, Newark, NJ 07103	Emergency: 911 Non-emergency: (973) 972-4300	No
<b>Police</b>	Newark Police Department 311 Washington Street, Newark, NJ 07103	Emergency: 911 Non-emergency: (973) 733-6000	No
<b>Fire Department</b>	Newark Fire Department 311 Washington Street, Newark, NJ 07102	Emergency: 911 Non-emergency: (973) 733-7400	No

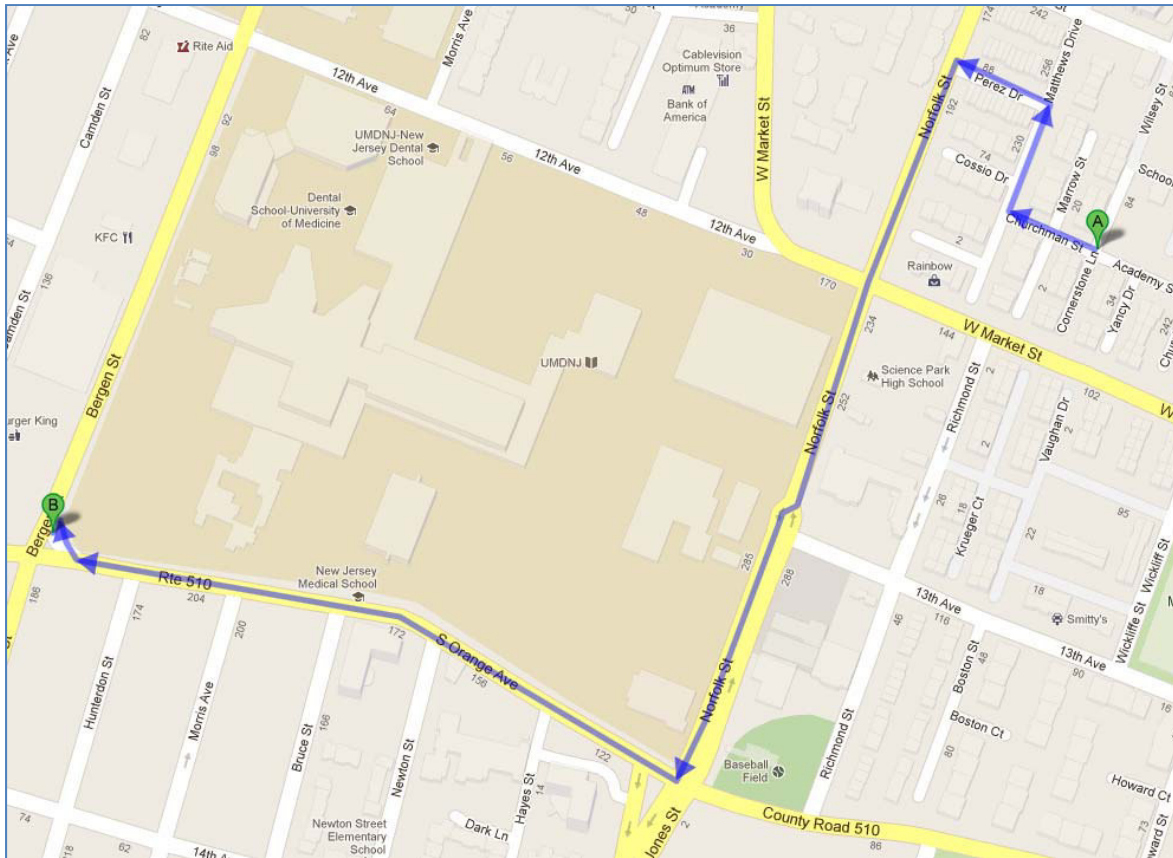
Chemical Trauma Capability? ☒ Yes ☐ No

If no, closest backup: \_\_\_\_\_ Phone: \_\_\_\_\_

Directions to UMDNJ University Hospital (Color Map Following This Page):

1. Head northwest on Academy St/Churchman St toward Marrow St 240 ft
  2. Turn right onto Matthews Drive 292 ft
  3. Take the 2nd left onto Perez Dr 259 ft
  4. Turn left onto Norfolk St 0.4 mi
  5. Take the 2nd right onto County Road 510/S Orange Ave/Rte 510 0.3 mi
  6. Take the 1st right onto Bergen St 112 ft
  7. Sharp left to stay on Bergen St
- Destination will be on the left

Destination is 1 mile = 4 minutes.



\*\*This map is subject to Google's Terms of Service, and Google is the owner of rights therein.

Route verified by: Bernard Nwosu Date: 5/23/2014



### Additional Emergency Telephone Contacts

<b>WESTON Medical Emergency Service</b> Dr. Peter Greaney, Medical Director WorkCare 300 South Harbor Blvd, Suite 600 Anaheim, California 92805	800-455-6155 Regular Business Hours (9AM to 7:30PM) <b>Dial 0 or Ext. 175 for Michelle Bui to request the on-call clinician.</b> 800-455-6155 After Hours (Weekdays 7:31PM to 8:59AM, Weekends, Holidays) <b>Dial 3 to reach the after-hours answering service. Request that the service connect you with the on-call clinician or the on-call clinician will return your call within 30 minutes.</b>
Chemtrec	800-424-9300
ATSDR	404-639-0615
ATF (explosives information)	800-424-9555
National Response Center	800-424-8802
National Poison Control Center	800-764-7661
<b>Chemtel</b>	800-255-3924
DOT	800-424-8802
CDC	800-232-0124

### Pre-Response Approval

HASP prepared by: Bernard Nwosu

Date: 7/1/2014

Pre-Response/Entry Approval by: \_\_\_\_\_

Date:   /  /

Tasks Conducted	Level of Protection/Specific PPE Used
Air Monitoring and Soil Sampling	Level D/Blue Nitrile/Latex Booties/Steel Toe Boots/Hard Hat/Safety Glasses
Site Documentation	Level D/Blue Nitrile/Latex Booties/Steel Toe Boots/Hard Hat/Safety Glasses

### Hazardous Waste Site and Environmental Sampling Activities

Off Site: ☐ Yes ☒ No

On Site: ☒ Yes ☐ No

Describe types of samples and methods used to obtain samples:

During the Removal Action, air monitoring/sampling for particulates (dust) and post excavation soil sampling activities will be conducted by RST 3. Air monitoring/sampling and post excavation soil sampling locations will be determined by the OSC.

Particulate air monitoring will be conducted using DataRAM or equivalent and air sampling will be conducted using SKC PCXR 8 programmable pump or equivalent via National Institute for Occupational Safety and Health (NIOSH) Method 7300 or EPA Contract Laboratory Program (CLP) equivalent. Soil sampling will be conducted in accordance with EPA and NJDEP soil sampling protocols for excavation sites.

Air samples will be collected daily using solid sorbent tube (0.8-µm, cellulose ester membrane, or 5.0-µm, polyvinyl chloride membrane). When conditions are safe, RST 3 will collect grab soil samples from the excavation sidewalls and bottoms using dedicated disposable plastic scoops, and when conditions are unsafe, soil samples will be obtained using the excavator bucket. Soil samples will be placed in 8 ounce jars and preserved in ice-packed sample coolers.

Was laboratory notified of potential hazard level of samples? ☒ Yes ☐ No

Note: The nature of the work assignment may require the use of the following procedures/programs which will be included as attachments to this HASP as applicable: Emergency Response Plan, Confined Space entry Procedures, Spill Containment Program.

Disclaimer: This HASP was prepared for work to be conducted under the RST 3 Contract EP-S2-14-01. Use of this HASP by WESTON and its subcontractors is intended to fulfill the OSHA requirements found in 29 CFR 1910.120. Items not specifically covered in this HASP are included by reference to 29 CFR 1910 and 1926.

The signatures below indicate that the individuals have read and understood this Health and Safety Plan.

PRINTED NAME	SIGNATURE	AFFILIATION	DATE

**Post-Response Approval**

Final Submission of HASP by:		Date:
Post Response Approval by:		Date:
RST 3 HSO Review by:		Date:

## Air Monitoring Summary Log

Date: \_\_/\_\_/\_\_

Data Collected by: \_\_\_\_\_

Station/Location	CGI / O <sub>2</sub> Meter / CL <sub>2</sub> / H <sub>2</sub> S	PID	FID / TVA-1000	DustTrak	Other (_____)



**ATTACHMENT A:**  
**NIOSH POCKET GUIDES**



## Search the Pocket Guide

SEARCH

Enter search terms separated by spaces.

## Lead

## Synonyms &amp; Trade Names Lead metal, Plumbum

<b>CAS No.</b> 7439-92-1	<b>RTECS No.</b> <a href="#">OF7525000 (/niosh-rtecs/OF72D288.html)</a>	<b>DOT ID &amp; Guide</b>
<b>Formula</b> Pb	<b>Conversion</b>	<b>IDLH</b> 100 mg/m <sup>3</sup> (as Pb) See: <a href="#">7439921 (/niosh/idlh/7439921.html)</a>
<b>Exposure Limits</b> <b>NIOSH REL</b> *: TWA (8-hour) 0.050 mg/m <sup>3</sup> See <a href="#">Appendix C (nengapdx.html)</a> [*Note: The REL also applies to other lead compounds (as Pb) -- see Appendix C.] <b>OSHA PEL</b> *: [1910.1025] TWA 0.050 mg/m <sup>3</sup> See <a href="#">Appendix C (nengapdx.html)</a> [*Note: The PEL also applies to other lead compounds (as Pb) -- see Appendix C.]		<b>Measurement Methods</b> <b>NIOSH</b> <a href="#">7082 (/niosh/docs/2003-154/pdfs/7082.pdf)</a> , <a href="#">7105 (/niosh/docs/2003-154/pdfs/7105.pdf)</a> , <a href="#">7300 (/niosh/docs/2003-154/pdfs/7300.pdf)</a> , <a href="#">7301 (/niosh/docs/2003-154/pdfs/7301.pdf)</a> , <a href="#">7303 (/niosh/docs/2003-154/pdfs/7303.pdf)</a> , <a href="#">7700 (/niosh/docs/2003-154/pdfs/7700.pdf)</a> , <a href="#">7701 (/niosh/docs/2003-154/pdfs/7701.pdf)</a> , <a href="#">7702 (/niosh/docs/2003-154/pdfs/7702.pdf)</a> , <a href="#">9100 (/niosh/docs/2003-154/pdfs/9100.pdf)</a> , <a href="#">9102 (/niosh/docs/2003-154/pdfs/9102.pdf)</a> , <a href="#">9105 (/niosh/docs/2003-154/pdfs/9105.pdf)</a> ; <b>OSHA</b> <a href="#">ID121 (http://www.osha.gov/dts/sltc/methods/inorganic/id121/id121.html)</a> , <a href="#">ID125G (http://www.osha.gov/dts/sltc/methods/inorganic/id125g/id125g.html)</a> , <a href="#">ID206 (http://www.osha.gov/dts/sltc/methods/inorganic/id206/id206.html)</a> See: <a href="#">NMAM (/niosh/docs/2003-154/)</a> or <a href="#">OSHA Methods (http://www.osha.gov/dts/sltc/methods/index.html)</a>

## Physical Description A heavy, ductile, soft, gray solid.

<b>MW:</b> 207.2	<b>BP:</b> 3164°F	<b>MLT:</b> 621°F	<b>Sol:</b> Insoluble	<b>VP:</b> 0 mmHg (approx)	<b>IP:</b> NA
<b>Sp.Gr:</b> 11.34	<b>Fl.P:</b> NA	<b>UEL:</b> NA	<b>LEL:</b> NA		

Noncombustible Solid in bulk form.

**Incompatibilities & Reactivities** Strong oxidizers, hydrogen peroxide, acids**Exposure Routes** inhalation, ingestion, skin and/or eye contact**Symptoms** lassitude (weakness, exhaustion), insomnia; facial pallor; anorexia, weight loss, malnutrition;

constipation, abdominal pain, colic; anemia; gingival lead line; tremor; paralysis wrist, ankles; encephalopathy; kidney disease; irritation eyes; hypertension

**Target Organs** Eyes, gastrointestinal tract, central nervous system, kidneys, blood, gingival tissue

**Personal Protection/Sanitation** (See [protection codes \(protect.html\)](#))

**Skin:** Prevent skin contact

**Eyes:** Prevent eye contact

**Wash skin:** Daily

**Remove:** When wet or contaminated

**Change:** Daily

**First Aid** (See [procedures \(firstaid.html\)](#))

**Eye:** Irrigate immediately

**Skin:** Soap flush promptly

**Breathing:** Respiratory support

**Swallow:** Medical attention immediately

#### **Respirator Recommendations**

(See [Appendix E \(nengapdx.html\)](#))

#### **NIOSH/OSHA**

##### **Up to 0.5 mg/m<sup>3</sup>:**

(APF = 10) Any air-purifying respirator with an N100, R100, or P100 filter (including N100, R100, and P100 filtering facepieces) except quarter-mask respirators.

[Click here \(pgintrod.html#nrp\)](#) for information on selection of N, R, or P filters.

(APF = 10) Any supplied-air respirator

##### **Up to 1.25 mg/m<sup>3</sup>:**

(APF = 25) Any supplied-air respirator operated in a continuous-flow mode

(APF = 25) Any powered, air-purifying respirator with a high-efficiency particulate filter.

##### **Up to 2.5 mg/m<sup>3</sup>:**

(APF = 50) Any air-purifying, full-facepiece respirator with an N100, R100, or P100 filter.

[Click here \(pgintrod.html#nrp\)](#) for information on selection of N, R, or P filters.

(APF = 50) Any supplied-air respirator that has a tight-fitting facepiece and is operated in a continuous-flow mode

(APF = 50) Any powered, air-purifying respirator with a tight-fitting facepiece and a high-efficiency particulate filter

(APF = 50) Any self-contained breathing apparatus with a full facepiece

(APF = 50) Any supplied-air respirator with a full facepiece

##### **Up to 50 mg/m<sup>3</sup>:**

(APF = 1000) Any supplied-air respirator operated in a pressure-demand or other positive-pressure mode

##### **Up to 100 mg/m<sup>3</sup>:**

(APF = 2000) Any supplied-air respirator that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode

#### **Emergency or planned entry into unknown concentrations or IDLH conditions:**

(APF = 10,000) Any self-contained breathing apparatus that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode

(APF = 10,000) Any supplied-air respirator that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode in combination with an auxiliary self-contained positive-pressure breathing apparatus

#### **Escape:**

(APF = 50) Any air-purifying, full-facepiece respirator with an N100, R100, or P100 filter.

[Click here \(pgintrod.html#nrp\)](#) for information on selection of N, R, or P filters.

Any appropriate escape-type, self-contained breathing apparatus

[Important additional information about respirator selection \(pgintrod.html#mustread\)](#)

See also: [INTRODUCTION \(/niosh/npg/pgintrod.html\)](/niosh/npg/pgintrod.html) See ICSC CARD: [0052 \(/niosh/ipcsneng/neng0052.html\)](/niosh/ipcsneng/neng0052.html) See MEDICAL TESTS: [0127 \(/niosh/docs/2005-110/nmed0127.html\)](/niosh/docs/2005-110/nmed0127.html)

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Page last reviewed: April 4, 2011

Page last updated: November 18, 2010

Content source: [National Institute for Occupational Safety and Health \(NIOSH\)](#) Education and Information Division

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Centers for Disease Control and Prevention 1600 Clifton Rd. Atlanta, GA 30333, USA  
800-CDC-INFO (800-232-4636) TTY: (888) 232-6348, New Hours of Operation 8am-8pm  
ET/Monday-Friday  
Closed Holidays - [cdcinfo@cdc.gov](mailto:cdcinfo@cdc.gov)





ATTACHMENT B:

WESTON FLDS

	Weston Solutions, Inc.		Doc No:	FLD01-0411
			Initial Issue Date	April 2011
			Revision Date:	Initial Version
FLD01 Occupational Noise and Hearing Conservation Program			Revision No.	0
			Next Revision Date:	Annual Review
Preparation: CEHS	Authority: CEHS Director	Issuing Dept: CEHS	Page:	Page 1 of 5

## 7.0 OCCUPATIONAL NOISE AND HEARING CONSERVATION PROGRAM

Noise can cause sudden traumatic temporary or permanent hearing loss, long-term slowly occurring sensory-neural and irreversible hearing loss, disruption of communication, and masking of warning devices and alarms. Additional concerns include increased stress levels and effects on the cardiovascular and nervous systems. This Program describes the process for controlling, reducing, and minimizing noise exposure.

WESTON's OMP will assist in compliance with this Program through evaluation of clinics, verification of baseline exams, and employee audiogram evaluation. The OMP will advise the appropriate Safety Officer and, if necessary, the CEH&S Director of any problems associated with medical compliance or occupationally related hearing loss in workers.

The need for noise-monitoring equipment, noise dosimeters or hearing protection devices must be addressed in the planning stages of a project. Some of the sources of noise at hazardous materials sites, demolition operations, construction and industrial sites which can cause hearing damage are: earth moving equipment (front end loader, bull dozer), material handling equipment (cranes, industrial trucks), power units (compressors, generators drill rig engines), impact devices (pile drivers, chipping hammers), and other powered devices (saws, needle guns, drills, vibrating equipment).


### 7.1 NOISE EVALUATION AND SURVEILLANCE PROCEDURES

OSHA in 29 CFR 1910.95, establishes a PEL, time weighted average (TWA) of 90 dBA for an 8-hour work day and a TWA of 85 dBA as the trigger point (action level or AL) for establishing a Hearing Conservation Program (HCP). The HCP includes baseline and annual hearing tests, and hearing conservation training.

Noise exposure can also be compared to the American Conference of Governmental Industrial Hygienists (ACGIH) Threshold Limit Value (TLV). The TLVs for noise are arranged in a scale in dBs related to time periods. For an 8-hour work period the TWA TLV is 85 dBA, and the AL is 80 dBA. The ACGIH numbers are more conservative and realistically reflect current scientific knowledge on the human effects from noise exposure. Therefore, WESTON will use the ACGIH TLVs and Guidance and the 3 dB exchange rate as the basis for WESTON's HCP to provide a higher level of protection for our employees than that offered by compliance with the OSHA requirements which are several dB higher.

Noise exposure assessment is performed only by qualified personnel with properly calibrated and functional noise measuring equipment. If the HASP or the FSO indicates that the site, or activity, requires an instrumentation survey then the area will be screened with an A-weighted sound level meter (Area Monitoring). If deemed necessary a more in depth evaluation utilizing a noise dosimeter may be performed (Personnel Monitoring). Both types of monitoring, if needed, will be accomplished in accordance with requirements established in 29 CFR 1910.95(d).

In the absence of sound level measuring instrumentation, any noise preventing normal vocal discussion between two individuals at arm's length distance ("arms-length rule") will dictate the need for hearing protection. WESTON guidelines require the use of hearing protection on an immediate basis under the "arms-length rule". Exceptions may be granted based upon evaluation of a specific task and duration with consultation with an industrial hygienist.

	Weston Solutions, Inc.		Doc No:	FLD01-0411
			Initial Issue Date	April 2011
			Revision Date:	Initial Version
FLD01 Occupational Noise and Hearing Conservation Program			Revision No.	0
			Next Revision Date:	Annual Review
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Long-term work efforts at fixed locations (e.g., water treatment plants, incinerators) require an evaluation of noise levels. Re-monitoring may be necessary when changes in equipment, processes, or activities result in modification of the noise level.

If impact noise is present, the peak noise levels and the frequency of the impacts should be determined. OSHA and AGCIH recommendations and/or qualified personnel should be consulted if questions arise regarding impact or impulse noise.

## 7.2 NOISE CONTROL METHODS

### Engineering Controls

The primary means of reducing or eliminating personnel exposure to noise is through engineering controls. Engineering controls are defined as any modification or replacement of equipment, or related physical change at the noise source or along the sound transmission path that will reduce the noise level to the employee's ear. Engineering controls include items such as; mufflers on heavy equipment or motors, sound baffles, and enclosures.

### Administrative Controls


Administrative controls may include changes in the work schedule or operations to reduce noise exposure, increasing worker distance from the noise source, and rotation of jobs to reduce time limits of exposure. Administrative time control is not a preferable method for preventing noise exposure since extreme noise for a short duration can cause severe, permanent hearing loss. Administrative controls may be utilized in accordance with the TLV Table ACGIH TLVs and Biological Exposure Indices (BEIs), 2007 Edition. Administrative controls may not be utilized for exposures greater than 100 dBA, regardless of the exposure time.

### Hearing Protection

Hearing protection devices are utilized whenever engineering controls prove to be infeasible or cost prohibitive. Various types of ear muffs and ear plugs are available. Hearing protector attenuation is intended to reduce employee exposures below 80 dBA for employees with standard threshold shifts and below 85 dBA for all other employees.

WESTON personnel and WESTON subcontractors must wear hearing protection devices (HPDs) when required and where signs are posted requiring their use. Hearing protection devices are strongly recommended in any noisy environment, but are mandatory in the following situations:

- The 8-hour average may equal or exceed 85 dBs.
- Any employee exposed to greater than or equal to 85 dBs and who have experienced a standard threshold shift in their hearing.
- Any noise equal to greater than 100 dBs impact, continuous or intermittent.
- Anywhere a "HEARING PROTECTION REQUIRED" sign is posted. These signs are to be posted in all mandatory situations listed above.

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In addition when noise levels equal or exceed 80 dBA employees must have:

- Availability of hearing protectors.
- Information and training on effects of noise.
- Availability of audiometric testing where there is a risk to health.

Not all hearing protection devices have the same noise reduction rating (NRR). Verification of all NRR values must be made by referring to the manufacturers' specifications. The proper hearing protection is selected using results from a properly calibrated sound level meter in accordance with ACGIH TLVs and BEIs, 2007 Edition.

Additional information regarding the selection, use, maintenance, and control of hearing protection devices is provided in the WESTON Personal Protective Equipment Program (Section 5.0).

NRR will be adjusted using the following to estimate the attenuation afforded to a noise-exposed employee in a work environment by muffs, plugs, or a combination of both:

### **Single Protection**

A common formula used to estimate exposure for **single protection** (either muffs or plugs) follows:

1. Determine the laboratory-based noise attenuation provided by the HPD. This is referred to as the NRR and is listed on the packaging.
2. Subtract the NRR from the C-weighted TWA workplace noise level, as follows:

$$\text{Estimated Exposure (dBA)} = \text{TWA (dBC)} - \text{NRR}$$

If C-weighted noise level data are not available, A-weighted data can be used by subtracting a 7 dB correction factor from the NRR, as follows:

$$\text{Estimated Exposure (dBA)} = \text{TWA (dBA)} - (\text{NRR} - 7)$$

*Example:*

TWA=100 dBA, muff NRR=19 dB


Estimated Exposure = 100 - (19-7) = 88 dBA

### **Dual Protection**

A common formula used to estimate exposure for **dual protection** (ear muffs and plugs are used simultaneously) follows:

1. Determine the laboratory-based NRR for the **higher** rated protector ( $\text{NRR}_h$ ).
2. Subtract 7 dB from  $\text{NRR}_h$  if using A-weighted sound level data.
3. Add 5 dB to the field-adjusted NRR to account for the use of the second hearing protector.



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4. Subtract the remainder from the TWA as follows:

**Estimated Exposure (dBA) = TWA (dBC) - (NRR<sub>h</sub> + 5) or**

**Estimated Exposure (dBA) = TWA (dBA) - [(NRR<sub>h</sub> - 7) + 5]**

*Example:*

TWA=110 dBA, plug NRR=29, and muff NRR=25 dB

Estimated Exposure = 110 - [(29 - 7) + 5] = 83 dBA

### 7.3 MEDICAL SURVEILLANCE

Compliance with the HCP is required when an employee's exposure to noise is in excess of 85 dBA. Employees who work with drill rigs, heavy construction equipment, or noisy client operations are candidates for the HCP and medical surveillance requirements thereof. Supervisors of any employees who do not meet these categories but who work around excessive noise (e.g., treatment plant operations, print shop, maintenance personnel) must perform noise surveys to determine the need for those employees to participate in the HCP, and advise the safety officer who will notify the OMP.

WESTON's OMP will make the final determination of employee involvement in the medical surveillance component of the HCP. Audiometric testing is performed annually to evaluate the hearing of all individuals who are routinely exposed to 8-hour TWA exposures of 85 dBA or greater (including compliance with the "arms-length rule"). WESTON's OMP is responsible for assuring local clinic compliance with the audiometric testing component of the standard.


### 7.4 TRAINING

Training is regularly provided during WESTON's initial and refresher courses under 29 CFR 1910.120 (HAZWOPER). Alternative training will be given to employees who are included in the HCP but are not required to have HAZWOPER training. Initial and annual training shall be given to each employee included in the HCP and address the following:

- The effects of noise on hearing.
- The purpose of hearing protection, advantages, disadvantages, attenuation of various types, and the selection, fitting, use, and care of protectors.
- The purpose of audiometric tests and explanation of test procedures.
- Recognition of hazardous noise.

### 7.5 PROGRAM EVALUATION

Periodic program evaluations will be conducted to assess compliance with 29 CFR 1910.95. WESTON's OMP is responsible for assisting in this evaluation by providing information relative to employee exposure and medical surveillance data.

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## 7.6 RECORDKEEPING

Employee exposure measurements are retained for a minimum of two years and audiometric test records are retained for the duration of the employee's employment, plus 30 years.

## 7.7 REFERENCES

29 CFR 1910.95, Occupational Noise Exposure

American Conference of Governmental Industrial Hygienists (ACGIH), Threshold Limit Value (TLV) for Chemical Substances and Physical Agents, 2007

## FLD 02 INCLEMENT WEATHER

Hot weather (ambient temperatures over 70°F), cold weather (ambient temperatures below 40°F), rain, snow, ice, and lightning are examples of inclement weather that may be hazardous or add risk to work activities. Extremes of heat, cold, and humidity, as well as rain, snow, and ice, can adversely affect monitoring instrument response and reliability, respiratory protection performance, and chemical protective clothing materials.

### RELATED FLDs AND OP

*FLD 05 – Heat Stress Prevention and Monitoring*

*FLD 06 – Cold Stress*

*OP 05-03-008 – Inclement Weather & Business Disruption Policy*

### PROCEDURE

The potential for exacerbating the impact of physical hazards must be considered for tasks that expose personnel to inclement weather. Risk assessment and hazards analysis should be accomplished during the planning stages of a project for the most likely inclement weather conditions that may be encountered, i.e., rain and lightning in late spring, summer, and early fall, or lightning prone areas; cold, snow, and ice in winter. The Field Safety Officer (FSO) must determine the proper safety procedures and recommend them to the site manager. Each worker must evaluate the risk associated with his/her work and be actively alert to these hazards. Managers and workers must be familiar with the requirements of FLD 05 and FLD 06.

A pre-site activity risk assessment must be completed when inclement weather occurs. Weather conditions that affect instruments and personal protective equipment (PPE) function must be conveyed to site workers who should monitor function and integrity of PPE and be alert to changing weather conditions. A decision must be made on the proper safety procedures to use if work must continue, or to stop work if the risk is too great. The appropriate Safety Professional **must be notified of all instances of the need to stop work for safety reasons, including inclement weather.**

### Heat

Hot, dry weather increases risk of soil drying, erosion, and dust dispersion, which may present or increase risk of exposure and environmental impact from toxic hazards. Hot weather will increase pressure on closed containers and the rate of volatilization, thereby potentially increasing the risk of exposure to toxic, flammable, or explosive atmospheres.

#### Prevention and Protective Measures

Employees must be protected from airborne contaminants using engineering controls such as wetting dry soil to prevent particle dispersion, and providing local ventilation to reduce volatile air contaminants to safe levels, or if engineering controls are infeasible, using prescribed PPE. Wind shifts and velocity should be measured where change may result in dispersion of airborne contaminants into the work area.

### Rain, Wet Weather, and High Humidity

Wet conditions resulting from rain and wet weather increase slipping and tripping hazards, braking distances of vehicles, the potential for vehicle skidding, or difficulties in handling powered devices such as augers and drills. Rain fills holes, obscures trip and fall hazards, and increases risk of electrical shock

when working with electrical equipment. Changes in soil conditions caused by rain can impact trenching and excavating activities, creating the potential for quicksand formation, wall collapse, and cave-in. Vehicles become stuck in mud, and tools and personnel can slip on wet surfaces. Rain and wet conditions may decrease visibility (especially for personnel wearing respiratory protection) and limit the effectiveness of certain direct-reading instruments (e.g., photoionization detectors [PIDs]).

Feet that become wet and are allowed to remain wet can lead to serious problems under both heat and cold conditions. Activities that may result in wet feet include extended work in chemical protective clothing and wading in water/liquid during biological assessments. Trench foot, paddy foot, and immersion foot are terms associated with foot ailments resulting from feet being wet for long periods of time. All have similar symptoms and effects. Initial symptoms include edema (swelling), tingling, itching, and severe pain. These may be followed by more severe symptoms including blistering, death of skin tissue, and ulceration. (NOTE: The following Preventive and Protective Measures also apply to Cold, Snow, and Ice.)

### Preventive and Protective Measures

Walkways, stairs, ladders, elevated workplaces, and scaffold platforms must be kept free of mud, ice, and snow. Employees shall be prohibited from working on scaffolds covered with snow, ice, or other slippery material except as necessary for removal of such materials.

Vehicles used in rain or cold weather must have working windshield wipers and defrosters, and windows must be kept clear of obstruction.

Drivers must observe traffic laws, including maintaining speed within limits safe for weather conditions, and wearing seat belts at all times. Note that this may mean operating below the posted speed limit.

When walking, workers should use a walking stick or probe to test footing ahead where there is standing water, snow, or ice to protect the walker against stepping into potholes or onto puncture hazards, buried containers, or other potential structurally unsound surfaces.

Prior to using vehicles or equipment in off-road work, workers should walk the work area or intended travelway when puddles or snow may obscure potholes, puncture hazards, or buried containers, or other potential structurally unsound surfaces.

Project managers should arrange to have winches, come-alongs, or other mechanical assistance available when vehicles are used in areas where there is increased risk of getting stuck. Cable or rope and mechanical equipment used for pulling stuck vehicles must be designed for the purpose, of sufficient capacity for the load, and be inspected regularly and before use to ensure safety. **Manually pushing stuck vehicles is to be avoided.**

Prevention methods are required when work is performed in wet conditions or when conditions result in sweating, causing the feet to become and remain wet. Proper hygiene is critical. Workers must dry their feet and change socks regularly to avoid conditions associated with wet feet. Use of foot talc or powder can additionally assist in prevention of this type of condition.

### **Cold, Snow, and Ice**

Cold weather affects vehicle operation by increasing difficulty in starting and braking. Ice, frost, and snow can accumulate on windows and reduce vision. Cold, wet weather can cause icing of roadways,



driveways, parking areas, general work places, ladders, stairs, and platforms. Ice is not always as obvious to see as snow or rain, and requires special attention, especially when driving or walking.

Snow and ice increase the risk of accidents such as slipping when walking, climbing steps and ladders, or working at elevation, and the risk of accidents when driving vehicles or operating heavy equipment. Heavy snow and ice storms may cause electric lines to sag or break, and the use of electrical equipment in snow increases the risk of electric shock. Snow can hide potholes and mud, which can result in vehicles getting stuck or persons falling when stepping into hidden holes. Snow also may cover water, drums or other containers, sharp metal objects, debris, or other objects that can cause falls or punctures.

### Preventive and Protective Measures

WESTON personnel are cautioned against operating motor vehicles such as cars or trucks on ice under any circumstances. If traveling in icy conditions, WESTON personnel should follow all public service advisories that curtail driving activities.

Personnel performing activities that require working over ice should be aware of minimal ice thickness safety guidelines as follows:

- 4-inch minimum: activities such as walking or skating.
- 6-inch minimum: activities such as snowmobiling or the use of equipment with the same weight and cross-sectional area as a snowmobile.

Personnel should always be aware that these measurement guidelines are under ideal conditions and that snow cover, conditions on rivers, ponds, or lakes with active currents, and other environmental factors impact the safety of working on ice. Clear ice typically is the strongest, while ice that appears cloudy or honeycombed (contains entrained air) is not as structurally strong. Measurements made by drilling or cutting through the ice should be made every few feet to verify safe conditions. Provisions for rescue (e.g., ladders or long poles and effective communications) must be available at the work site.

## **Lightning**

Lightning represents a hazard of electrical shock that is increased when working in flat open spaces, elevated work places, or near tall structures or equipment such as stacks, radio towers, and drill rigs. Lightning has caused chemical storage tank fires and grass or forest fires. Static charges associated with nearby electrical storms can increase risk of fire or explosion when working around flammable materials, and can adversely affect monitoring instruments.

Lightning is the most dangerous and frequently encountered weather hazard people experience each year. Lightning affects all regions. **Florida, Michigan, Pennsylvania, North Carolina, New York, Ohio, Texas, Tennessee, Georgia, and Colorado** have the most lightning deaths and injuries.

### Preventive and Protective Measures

Prior to working in areas or beginning projects when or where there is an increased potential for lightning striking personnel, steps must be taken to predict the occurrence of lightning strikes. Recommendations include:

- Check with client management to determine if there are any patterns or noted conditions that can help predict lightning or if there are structures that are prone to lightning strikes. Arrange for

client notification when there is increased potential for lightning activities. Ensure that clients include WESTON workers in lightning contingency plans.

- Monitor weather reports.
- Note weather changes and conditions that produce lightning.
- Stop work in open areas, around drill rigs or other structures that may attract lightning, on or in water and in elevated work places when lightning strikes are sighted or thunder is heard near a work site.
- Ensure all personnel are provided with safe areas of refuge. Prevent personnel from standing in open areas, under lone trees, or under drill rigs.
- Observe the “30-30” Rule. If you see lightning and thunder is heard within 30 seconds (approximately 6 miles), seek shelter. If you hear thunder, but did not see the lightning, you can assume that lightning is within 6 miles and you should seek shelter. Remain in the sheltered location for 30 minutes following the last lightning strike.
- Use a hand held static potential meter (lightning detection device) to monitor the potential difference between a cloud and the ground. When the measured potential is greater than 2 kV/m, there is a potential for a lightning strike – seek shelter.

## **High Wind and Tornado Safety**

### High Winds

Many construction workers have died due to wind-related accidents and injuries. A ladder that seems secure under normal circumstances can become unstable during windy conditions and cause you to fall. Scaffolding that is improperly secured can rip free during strong winds and kill bystanders. The risk of injury for construction workers increases during strong winds. Keep in mind that changing weather conditions can affect your daily work tasks, and make sure you have a game plan to prevent proper damage and personal injury.

Stay Informed: With today’s modern technology available at the touch of a button, you should keep up to date with the latest local weather reports. Visit [weatherbug.com](http://weatherbug.com) or [weather.gov](http://weather.gov) to stay informed in case of wind warnings, watches, and advisories. Larger projects may have their own weather station on site to provide instant weather data. Use daily hazard assessments to determine if working conditions have changed or will change throughout the day.

Be Prepared: When you know the weather will be windy, secure loose building materials, scaffolding and fencing that could be picked up or torn loose by strong winds and thrown onto surrounding streets, structures, vehicles, or bystanders.

Know the Limits of Your Equipment: When operating any equipment, take time to read the operator’s manual and become familiar with the wind specifications. Many crane manufacturers have high-wind guidelines to prevent you from operating a crane in unsafe weather. You should also check safety equipment such as fall protection to determine if it is adequate for windy conditions.

## Know the Terminology

### Severe Thunderstorm Watch

A Severe Thunderstorm Watch means that strong thunderstorms capable of producing winds of 58 mph or higher and/or hail 3/4 inches in diameter or larger are possible. If you are in the area of a Severe Thunderstorm Watch, you should be prepared to take shelter from thunderstorms. Severe Thunderstorm Watches are generally issued for 6-hour periods.

### Severe Thunderstorm Warning

A Severe Thunderstorm Warning means that thunderstorms capable of strong winds and/or large hail are occurring or could form at any time. If you are in the area of a severe thunderstorm, you should take shelter indoors immediately, avoid windows, and be prepared for high winds and hail. Severe Thunderstorm Warnings are generally in effect for an hour or less.

### High Wind Watch

A High Wind Watch is issued when sustained winds exceeding 40 mph and/or frequent gusts over 60 mph are likely to develop in the next 24 to 48 hours. For summit areas, high wind watches are issued when sustained winds are expected to exceed 45 mph and/or frequently gust over 60 mph. If you are in an area for which a High Wind Watch has been issued you should secure loose objects outdoors that may blow about and avoid outdoor activity that exposes you to high winds.

### High Wind Warning

A High Wind Warning is issued when sustained winds exceeding 40 mph and/or frequent gusts over 60 mph are occurring or imminent. For summit areas, warnings are issued for winds exceeding 45 mph and/or frequently gusting over 60 mph. Wind warnings may issued up to 24 hours ahead of the onset of high winds and remain in effect for 6 to 12 hours. If you are in an area where a high wind warning is in effect you should avoid activities that expose you to high winds. Loose objects may be blown around. Tree limbs may break and fall. Power lines may be blown down.

### Wind Advisory

A Wind Advisory is issued when sustained winds of 30 to 39 mph and/or frequent gusts to 50 mph or greater are occurring or imminent. Wind advisories may be in effect for 6 to 12 hours. If you are in an area where a wind advisory is in effect you should secure loose objects that may be blown about outdoors and limit activity that may expose you to high winds.

Work Safely: If you will be working on a windy day, you should be alert and protected. Wear eye protection to prevent dust and other particles from entering or striking your eyes. Keep your hard hat on at all times to prevent injuries from falling or flying objects. The likelihood of falls from heights is greatly increased by strong winds. Wear the necessary PPE to ensure your safety.

To avoid flying debris and to minimize damage during high winds:

- Shut down outdoor activities involving work at elevation on ladders, scaffolding, aerial lifts, etc.; handling large tarps and plastic sheeting when wind speeds exceed 25 mph; including work with radioactive materials and highly toxic materials that could be dispersed by the winds.
- At 13 - 18 mph wind will raise dust. Follow the dust action level.

- Move mobile items stored outside to indoor storage.
- Secure any items that cannot be moved inside.
- Be careful opening exterior doors.
- Be cautious about downed power lines, tree limbs, and debris on roads.
- Be alert for animals who have escaped from farms and zoos.

Stay Away from Power Lines: High winds can cause tree limbs to fall on power lines resulting in electrocution hazards or loss of power. Your best bet is to keep your distance.

## Tornados

### What is a TORNADO?

A tornado is a violent windstorm characterized by a twisting, funnel-shaped cloud. It is spawned by a thunderstorm or as a result of severe weather associated with hurricanes. A funnel cloud is formed as cool air overrides a layer of warm air, forcing the warm air to rise rapidly. The damage from a tornado results from high wind velocity and wind blown debris.

### Tornado Safety

When a tornado approaches, you have only a brief amount of time to make life-or-death decisions. Advance planning and quick response are the keys to surviving a tornado.

Purchase a NOAA Weather Alert radio with an alert feature. When tuned to the proper frequency, these weather radios remain silent until a weather emergency occurs. Once they pick up the alarm tone, they will begin broadcasting emergency weather information so that citizens can protect themselves and their property. Some models of the NOAA weather radio incorporate the Specific Area Message Encoder technology, allowing users to target only those warnings that affect their immediate geographic area.

Conduct tornado drills. Designate an area to serve as your safe area, and practice having team members assemble there in response to a mock tornado warning.

Emergency Communications Plan. Develop an emergency communications plan in case team members are separated from one another when a tornado warning goes into effect. Designate an emergency coordinator. Instruct everyone to contact this coordinator in a weather emergency for instructions on what to do during the storm and where to reassemble after the emergency has passed. Design contingency plans to be consistent with client contingency plans. When possible use client warning and alerting systems and confirm that team members have access to shelters and know how to get to them.

### Know the Difference between a Tornado Watch and a Tornado Warning

Tornado Watch: Issued by the National Weather Service when tornadoes are possible in your area. You should remain alert for approaching storms. Remind family members of where the safe areas are within your home, and carefully monitor radio or television reports for further developments.

Tornado Warning: Indicates that a tornado has been sighted in your area, or is indicated on weather radar. You should proceed to safe shelter immediately.



*When A Tornado Warning Goes In Effect, Put Your Safety Plans In Action.*

In Your Automobile: Motor vehicles are easily overturned by tornado winds. Leave your vehicle and seek shelter in a sturdy building. As a last resort, seek shelter in a ditch or culvert. Do not try to outrun or outmaneuver a tornado! Use the time to seek appropriate shelter outside your vehicle.

Office Buildings, Hotels, and Shopping Centers: Take shelter in an interior hallway on a lower floor. A closet, bathroom or other small room with short, stout walls will give some protection from collapse and flying debris. Otherwise, get under heavy furniture and stay away from windows. Many tornado deaths have occurred in large buildings due to the collapse of a roof or wide span wall. A corner area, away from a window, is safer than the middle of a wide span wall.

Out In Open Country: When severe weather approaches, seek inside shelter immediately. The chances of encountering falling trees, downed power lines and lightning are far greater than encountering a tornado itself. If a tornado approaches, lie flat in the nearest depression, such as a culvert or ditch, and cover your head with your arms.

**BE ALERT TO CHANGING WEATHER CONDITIONS**

**HAVE AN EMERGENCY WEATHER PLAN IN PLACE**

**REHEARSE YOUR CONTINGENCY PLANS PERIODICALLY**

**KNOW WHERE TO GO WHEN A TORNADO THREATENS.**

## **FLD 05 HEAT STRESS PREVENTION AND MONITORING**

Heat stress may occur at any time work is performed at elevated temperatures. If the body's physiological processes fail to maintain a normal body temperature because of excessive heat, a number of physical reactions can occur such as fatigue, irritability, anxiety, and decreased concentration or dexterity, and possibly death. Because heat stress is one of the most common and potentially serious illnesses at field sites, regular monitoring and other preventive measures are vital to ensure worker safety. Wearing chemical protective clothing often decreases natural body heat loss (cooling) and increases the risk of heat stress.

Employees who are taking prescription or over-the-counter medications should consult with their personal physician prior to working in high-temperature environments to see if their medication would impair their ability to handle heat stress.

### **REFERENCES**

OSHA 29 CFR 1910 and 1926

### **RELATED FLDs**

*FLD 02 – Inclement Weather*

*FLD 03 – Hot Processes – Steam, Low Temperature Thermal Treatment Unit, and Transportable Incinerator*

*FLD 08 – Confined Space Entry Program*

*FLD 36 – Welding/Cutting/Brazing/Radiography*

*FLD 37 – Pressure Washers/Sandblasting*

### **PROCEDURE**

#### **Heat Stress Symptoms and Treatment**

##### Heat Rash

Heat rash, also known as prickly heat, may occur in hot and humid environments where sweat is not easily removed from the surface of the skin by evaporation and is aggravated by chafing clothes. When extensive or complicated by infection, heat rash can be so uncomfortable that it inhibits sleep and impairs a worker's performance.

Symptoms – Mild red rash, especially in areas of the body that come into contact with protective gear.

Treatment – Decrease amount of time spent working in protective gear and provide body powder to help absorb moisture and decrease chafing. Heat rash can be prevented by showering, resting in a cool place, and allowing the skin to dry.

##### Heat Cramps

Heat cramps are caused by inadequate electrolyte intake. The individual may be receiving adequate water; however, if not combined with an adequate supply of electrolytes, the blood can thin to the point where it seeps into the active muscle tissue, causing cramping.

Symptoms – Acute painful spasms of voluntary muscles, most notably the abdomen and extremities.

*Treatment* – Move the victim to a cool area and loosen clothing. Have the victim drink 1 to 2 cups of cool potable water or diluted commercial electrolyte solution (e.g., Gatorade, Quench) immediately, and then every 20 minutes thereafter until symptoms subside. Electrolyte supplements can enhance recovery; however, it is best to double the amount of water required by the dry mix package directions or add water to the liquid form.

### Heat Exhaustion

Heat exhaustion is a state of weakness or exhaustion caused by the loss of fluids from the body. Heat exhaustion is not as dangerous as heat stroke, but if not properly managed in the field it may lead to heat stroke.

*Symptoms* – Pale, clammy, and moist skin, profuse perspiring, and extreme weakness. Body temperature is normal, pulse is weak and rapid, and breathing is shallow. The person may have a headache, may vomit, may feel dizzy, and may be irritable or confused.

*Treatment* – Move the victim to a cool, air-conditioned or temperature-controlled area, loosen clothing, place in a position with the head lower than the feet (shock prevention), and allow the victim to rest. Consult a physician. Ensure that the victim is not nauseated or vomiting. If not nauseated or vomiting, give the victim small sips of cool water or diluted electrolyte replenishment solution (one to one dilution with water, or if mixing from powder, double the water added). If this is tolerated, have the victim drink 1 to 2 cups of fluid immediately, and every 20 minutes thereafter until symptoms subside. Seek medical attention at the advice of the consulting physician.

### Heat Stroke

Heat stroke is an acute and dangerous reaction to heat stress caused by a failure of the body's heat regulating mechanisms, i.e., the individual's temperature control system (sweating) stops working correctly. Body temperature rises so high that brain damage and death may result if the person is not cooled quickly.

*Symptoms* – Red, hot, dry skin (although the person may have been sweating earlier); nausea, dizziness, confusion, extremely high body temperature (i.e., 104°F or greater as measured with an oral thermometer), rapid respiratory and pulse rate, seizures or convulsions, unconsciousness or coma.

*Treatment* – Immediately call for emergency medical assistance. Remove the victim from the source of heat and cool the victim quickly. If the body temperature is not brought down quickly, permanent brain damage or death may result. Remove all PPE and as much personal clothing as decency permits. Fan the person while sponging or spraying with cool or tepid water. Apply ice packs (if available) to the back of the neck, armpits, groin area, or behind the knees. Place the victim flat on their back or with head and shoulders slightly elevated. If conscious, and not nauseated or vomiting, the victim may be provided sips of cool water. Do not give the victim coffee, tea, or alcoholic beverages. Emergency medical personnel will take over treatment when they arrive.

## **Recognition and Risk Assessment**

In the planning stages of a project, the potential for heat stress disorders must be considered as a physical hazard in the site-specific Health and Safety Plan (HASP). Risk assessment can be accomplished in the development stages of a project by listing in the HASP the most likely heat stress disorders that may occur. The Field Safety Officer (FSO) must make decisions on the proper safety procedures and recommend them to the site manager. Each worker must evaluate the risk associated with his or her work and be actively alert to these hazards. Any site worker may stop work if safety procedures are not

followed or the risk is too great. In addition, all site personnel must be aware of these symptoms in both themselves and their co-workers.

### **Prevention and Protection Programs**

Heat stress is affected by several interacting factors including, but not limited to, age, obesity, physical condition, substance abuse, level of personal protective equipment (PPE) worn, and environmental conditions (temperature, shade, and humidity). Site workers must learn to recognize and treat the various forms of heat stress. The following recommendations should be followed to prevent heat stress:

- The most important measure to prevent heat-related illness is adequate fluid intake. Workers should drink 1/2 to 1 quarts of liquids per hour in high heat conditions. Most of this liquid should be water. Under heavy work and heat conditions, the body may lose up to 2 gallons of fluids per day. To prevent heat stress symptoms, the individual must ensure replacement of this fluid.
- Provide disposable cups that hold about 4 ounces, and water that is maintained at 50 to 60°F. Workers should drink 16 ounces of water before beginning work, and a cup or two at each break period.
- Provide a shaded area for rest breaks. Ensure that adequate shelter is available to protect personnel against heat and direct sunlight. When possible, shade the work area.
- Discourage the intake of caffeinated drinks during working hours.
- Monitor for signs of heat stress.
- Encourage workers to maintain a good diet during these periods. In most cases, a balanced diet and lightly salted foods should help maintain the body's electrolyte balance. Bananas are especially good for maintaining the body's potassium level.
- If utilizing commercial electrolyte mixes, double the amount of water called for in the package directions. Indications are that "full-strength" preparations taken under high heat stress conditions may actually decrease the body's electrolytes.
- Acclimate workers to site work conditions by slowly increasing workloads (i.e., do not begin work activities with extremely demanding tasks).
- Rotate shifts of workers who are required to wear impervious clothing in hot weather.
- Encourage workers to wear lightweight, light-colored, loose-fitting clothing.
- In extremely hot weather, conduct field activities in the early morning and evening.
- Provide cooling devices to aid natural body heat regulation. These devices, however, add weight and their use should be balanced against worker efficiency. An example of a cooling aid is long cotton underwear, which acts as a wick to absorb moisture and protect the skin from direct contact with heat-absorbing protective clothing.
- Good hygienic standards must be maintained by frequent showering and changes of clothing.
- Clothing should be permitted to dry during rest periods.
- Whenever working in the sun, provide employees with sunscreen with both UVA and UVB protection.
- Persons who notice skin problems should immediately consult medical personnel.



## Heat Stress Monitoring and Work Cycle Management

When strenuous field activities are part of on-going site work conducted in hot weather, the following guidelines should be used to monitor the body's physiological response to heat, and to manage the work cycle, even if workers are not wearing impervious clothing. These procedures should be instituted when the temperature exceeds 70°F and the tasks/risk analysis indicates an increased risk of heat stress problems. Consult the HASP and a safety professional (e.g., Division EHS Manager, FSO) if questions arise as to the need for specific heat stress monitoring. In all cases, the site personnel must be aware of the signs and symptoms of heat stress and provide adequate rest breaks and proper aid as necessary.

Measure Heart Rate – Heart rate should be measured by the radial pulse for 30 seconds as early as possible in the rest period. The heart rate at the beginning of the rest period should not exceed 110 beats per minute. If the heart rate is higher, the next work period should be shortened by 33%, while the length of the rest period stays the same. If the pulse rate still exceeds 110 beats per minute at the beginning of the next rest period, the following work cycle should be further shortened by 33%. The procedure is continued until the rate is maintained below 110 beats per minute.

Measure Body Temperature – When ambient temperatures are over 90°F, body temperatures should be measured with a clinical thermometer as early as possible in the rest period. If the oral temperature exceeds 99.6°F (or 1 degree change from baseline) at the beginning of the rest period, the following work cycle should be shortened by 33%. The procedure is continued until the body temperature is maintained below 99.6°F (or 1 degree change from baseline). Under no circumstances should a worker be allowed to work if their oral temperature exceeds 100.6°F.

Measure Body Water Loss – Body water loss greater than 1.5% of total body weight is indicative of a heat stress condition. Body weight is measured before PPE is donned and after the PPE is removed following a work cycle. Body water loss can be measured with an ordinary bathroom scale; however, the scale must be sensitive to one-half pounds increments. A worker is required to drink additional fluids and rest if their body water loss is greater than 1.5%.

**NOTE:** For purposes of this operating practice, a break is defined as a 15-minute period and/or until an individual's vital signs are within prescribed guidelines.

A physiological monitoring schedule is determined by following the steps below:

- Measure the air temperature with a standard thermometer.
- Estimate the fraction of sunshine by judging what percent the sun is out (refer to Table 1).
- Calculate the adjusted temperature based on the following formula:  
$$\text{Adjusted Temperature} = \text{Actual Temperature} + 13 \times X \text{ (where } X = \text{sunshine fraction from Table 1)}$$
- Using Table 2, determine the physiological monitoring schedule for fit and acclimated workers for the calculated adjusted temperature.

The length of work period is governed by frequency of physiological monitoring (Table 2). The length of the rest period is governed by physiological parameters (heart rate and oral temperature).

**Table 1. Percent Sunshine Factors  
Heat Stress Prevention and Monitoring**

<b>Percent Sunshine (%)</b>	<b>Cloud Cover</b>	<b>Sunshine fraction</b>
100	No cloud cover	1.0
50	50% cloud cover	0.5
0	Full cloud cover	0.0

**Table 2. Physiological Monitoring Schedule  
Heat Stress Prevention and Monitoring**

<b>Adjusted Temperature</b>	<b>Level D (Permeable clothing)</b>	<b>Level C, B, or A (Nonpermeable clothing)</b>
90°F (32.2°C) or above	After each 45 minutes of work	After each 15 minutes of work
87.5°F (30.8° - 32.2°C)	After each 60 minutes of work	After each 30 minutes of work
82.5° - 87.5°F (28.1° - 32.2°C)	After each 90 minutes of work	After each 60 minutes of work
77.5° - 82.5°F (25.3° - 28.1°C)	After each 120 minutes of work	After each 90 minutes of work
72.5° - 77.5°F (22.5° - 25.3°C)	After each 150 minutes of work	After each 120 minutes of work

**Example:** Site personnel anticipate wearing level C (impermeable clothing) during site activities. The air temperature is 80°F and there are no clouds in the sky (100% sunshine). The adjusted temperature is calculated in the following manner:

$$\begin{aligned}\text{Adjusted Temperature (Adj T } ^\circ\text{F)} &= \text{Actual Temperature (Amb T } ^\circ\text{F)} + (13 \times \text{sunshine fraction}) \\ \text{Adj T } ^\circ\text{F} &= 80^\circ\text{F} + (13 \times 1.0) \\ \text{Adj T } ^\circ\text{F} &= 93^\circ\text{F}\end{aligned}$$

Using Table 2, the pulse rate, oral temperature and body water loss monitoring would be conducted after each 15 minutes of work. The adjusted temperature may need to be redetermined if the percent sunshine and ambient temperature changes drastically during site work.

If an individual's heart rate exceeds 110 beats per minute at the beginning of the rest period, that individual will continue to rest until his or her heart rate drops to baseline; the next work period is then decreased by 33%.

## FLD 10 MANUAL LIFTING AND HANDLING OF HEAVY OBJECTS

Improper lifting can result in cuts, pinches, crushing, and serious injury to back, abdomen, arm and leg muscles, and joints. Even relatively light objects, lifted improperly, can contribute to injury. Muscle and joint injuries occur when objects to be lifted are too heavy or awkward, are lifted improperly, or in areas where access is restricted. Lifting tasks which are awkward and repetitive, even if involving only light objects, can lead to nerve and joint damage.

At the project level, the need for manual lifting or handling of heavy objects must be identified as a physical hazard in the planning stages of a project Health and Safety Plan (HASP).

### MANUAL LIFTING

Plan any manual lifting task noting the following:

**Contact hazards.** Check each object before lifting for presence of splinters, splinters, sharp edges or parts, cracks and loose joints, which can result in cuts. Signs of biological hazards, and chemical or radioactive material contamination.

- **Weight of object.** Unless involved in weight training, recommended safe lifting weights for an average man or woman are 50 and 35 pounds, respectively.
- **Size and shape of object.** Large and oddly shaped objects are more difficult to lift, even within safe weight limits, due to imbalanced center of gravity.
- **Area in which lifting is to be done.** Heavy objects can pinch or crush fingers, toes, arms, and legs between the object and nearby objects (e.g., walls, tables, counters, or railings). Check for pinch points such as other objects close by and ensure there is room for safe lifting.
- **Conditions under which lifting is to be accomplished.** Check for wet or slippery surfaces. Consider level of protection to be used. Level B or A protection may add up to 40 lbs. To be lifted, as well as restricting range of motion and adding to area restriction by increasing bulk.

**Route to be traveled, if lifting includes carrying.** Check walking and working surfaces for slip and trip hazards, note ramps, changes in level of elevation, and ladders or stairways that need to be negotiated.

### Manual Lifting - Prevention and Protection

- Before lifting, identify the potential for contact hazards on objects to be lifted. Check each object before lifting, remove any noted hazards as feasible, and wear gloves (cotton, at a minimum, or leather, kevlar, or chemical resistant material, depending on the nature of the hazard).
- Avoid contact with, or cover cracks or loose joints to reduce hazards of pinching.
- Workers must know their lifting limitations, plan before lifting, keep themselves in good physical condition, and get help if uncertain that they can lift safely. Managers must plan and allow for safe lifting.
- When lifting an object from the floor:
  - Determine that the object is within the safe weight limit.
  - Check for contact hazards.
  - Walk the intended route of travel to identify and remove slip and fall hazards.
  - Identify changes in elevation, steps, ramps, stairs and ladders that must be negotiated.

- To lift square or rectangular objects:
  - Avoid reaching as you lift.
  - Set feet firmly, placing one foot alongside the load and the other slightly behind the load.
  - Keep objects close to the body.
  - Squat in front of the load.
  - Grasp one of the top corners away from the body and the opposite bottom corner closest to the body.
  - Tilt the object slightly away from the body, tilt forward at the hips, keep the back straight and tuck in the chin.
  - Straighten the legs, keeping the spine straight, pull the object into the body and stand up slowly and evenly without jerking or twisting.

If turning or change of direction is required, turn with feet without twisting the torso and step in the direction of travel

To set an object down, reverse the sequence, being sure not to trap the bottom hand between the object and the surface on which the object is set.

Workers must be trained and have the opportunity to use the above steps with lighter objects before performing heavy lifting. **For odd-shaped objects, the only modification needed should be hand-hold position.** When two or more persons are lifting, have a plan and a set of signals so lifting occurs simultaneously.

Do not carry objects in a manner which obstructs vision in the line of travel.

Carry objects so one hand is free to hold the handrail on stairs and that there is an unobstructed view of footing. Carry objects in a manner to permit use of both hands while climbing a ladder.

## MANUAL HANDLING OF HEAVY OBJECTS

Manual handling of heavy objects, even when not lifting, can pose the same hazards as lifting including cuts, pinches, bruises, crushing, muscle and joint strain, and contact with hazardous materials and biological hazards.

Drums and other containers which must be maneuvered for access to information or sampling locations, that are inaccessible to mechanical handling equipment, require manual handling and special precautions. When handling of heavy objects does not involve lifting, workers can handle heavier objects safely, even those weighing several hundred pounds, if proper techniques are used. In many instances, the procedures involve balancing and taking advantage of the shape of the object.

### Manual Handling - Prevention and Protection

Prior to performing manual handling, it must be determined that it can be done safely and that mechanical assistance is infeasible. Mechanical equipment or assistance such as dollies, carts, come-alongs or rollers are to be used whenever possible. Mechanical assistance must be of proper size, have wheels sized for the terrain, and be designed to prevent pinching or undue stress on wrists. Objects to be moved must be secured to prevent falling and properly balanced to prevent tipping.



The minimum protection for manual handling is heavy cotton or leather gloves, safety boots, and coveralls. Metatarsal guards, chemical protective clothing, and metal mesh or kevlar gloves must be used as risk increases of heavy items falling, hazardous materials contact and sharp edges, splinters or slivers.

Workers must be aware of and work within their weight-handling capabilities.

Objects to be manually handled must be checked for contact hazards before handling, and to ensure handling will not trap hands, arms, legs, or feet between the object and other objects, walls, or railings.

Properly trained personnel may roll heavy objects with a round base such as 55-gallon drums or compressed gas cylinders, if rolling will not damage the structural integrity. Rolling must be controlled by chutes, tag-lines, or other means of limiting acceleration. Use of the legs for pushing and tag-line control of rolled objects must be stressed.

Only properly trained personnel may move cylindrical objects which must remain upright by hand. Cylindrical objects, such as drums that must remain upright, are handled manually by slightly tilting the object, using the legs for control, and balancing the object on the bottom edge. The handler then walks beside the object, with the object tilted toward the body, positioning the hands on the top edge away from the body and moving so they do not cross, thus maintaining balance and a steady controlled forward motion.

Prior to moving cylindrical objects in this way, the route of travel must be walked to identify any changes of elevation, pot holes, or other obstructions that could cause the object to snag, tip, or get out of control.

Flat, square, or rectangular objects are most easily handled using make-shift rollers or skids to break the friction with the resting surface and pushing, using the legs.

## **FLD 11 ROUGH TERRAIN/ATV USE**

### **RELATED FLDs**

*FLD 02 – Inclement Weather*

*FLD 05 – Heat Stress Prevention and Monitoring*

*FLD 06 – Cold Stress*

*FLD 22 – Heavy Equipment Operation*

*FLD 47 – Clearing, Grubbing, and Logging Operations*

*FLD 57 – Motor Vehicle Safety*

### **HAZARD**

Physical hazards associated with rough terrain include vehicle accidents, heavy equipment incidents, falling, slipping, and tripping.

Driving vehicles on uneven surfaces creates a possibility of the vehicle rolling, getting stuck in mud or ditches, or of an accident due to flat tires or striking obstacles and other vehicles.

When working on foot, steep inclines and heavy or downed vegetation can hide holes or breaks in the terrain, increasing the risk of slips, trips, and falls.

### **RECOGNITION AND RISK ASSESSMENT**

Rough terrain complicates work activities and adds to or increases risk. In the planning stages of a project, rough terrain must be considered as a physical hazard and identified in the site-specific health and safety plan (HASP). Risk assessment is usually accomplished from site history information (i.e., site topography) and on site by the Field Safety Officer (FSO).

### **HAZARD PREVENTION AND PROTECTION PROGRAMS**

#### **Safety on Foot**

Personnel working on rough terrain should maintain a high level of physical conditioning due to increased body stress and exertion.

The site crew should be alert and observe terrain while walking to minimize slips, trips, and falls.

Boots should be ankle high or higher to provide additional support and stability.

Work will be completed in adequate natural light or sufficient illumination will be maintained.

Site personnel will conduct an initial walkover and the “buddy system” will be implemented.

Emergency communications such as a cell phone or two-way radio should be carried at all times.

Personnel should be aware of potential hazards and ensure the availability of first-aid supplies and knowledge of the location of the nearest medical assistance.

#### **VEHICLE SAFETY**

Vehicle drivers and passengers will wear seatbelts at all times.

Hazards can be prevented by ensuring regular maintenance is performed on vehicles and all safety features are working. Have brakes and wheel bearings of vehicles used off road or in four wheel drive inspected at increased frequency (suggest inspections at twice the manufacturer's recommended frequency).

In order to minimize accidents, site surveillance on foot may be required to ensure clear driving paths.

Minimize side hill travel. Travel straight up and down hills whenever possible. Passengers will not be allowed when side hill travel is required.

Take into account loads or superstructure of vehicles which raise the center of gravity and increase risk of tipping.

Cross streams, small logs or other passable (there is adequate clearance of the undercarriage) obstructions at right angles.

Four wheel drive vehicles should be used if terrain conditions are wet, frozen, broken, or otherwise deemed unsafe for two wheel drive vehicles by the FSO. Use of vehicles off-road will be specifically addressed in the HASP and personnel operating vehicles will be checked for proficiency.

- Before moving a vehicle in the field, first walk the route of travel, inspecting for depressions, stumps, gullies, ruts, and similar obstacles.
- Always check the brakes of a vehicle before traveling, particularly on rough, uneven, or hilly ground.
- Check the complete drive train of a carrier at least weekly for loose or damaged bolts, nuts, studs, shafts, and mountings.
- Engage the all wheel drive when traveling off highway on hilly terrain.
- Increase tire pressures before traveling in hilly terrain (do not exceed rated tire pressure).
- Use the assistance of someone on the ground as a guide when lateral or overhead clearance is close.
- After the vehicle/equipment has been moved to a new site, set all brakes and/or locks. When grades are steep, block the wheels.

## **Definitions**

**Class I, All-terrain vehicle (ATV):** A motorized off-highway vehicle, 50 in. (127 cm) or less in width, having dry weight of 800 lbs (362.9 kg) or less, and traveling on three or more low pressure tires (10 lbs [4.5 kg] psi or less), with a seat designed to be straddled by the operator.

**Class I, Category G, ATV:** An ATV intended for general recreational and utility use.

**Class I, Category U, ATV:** An ATV intended primarily for utility use.

**Class II, ATV:** A motorized off-highway vehicle with a width which exceeds 50 in. (127 cm) or having a dry weight that exceeds 800 lbs (362.9 kg), traveling on four or more low-profile, low-pressure tires (10 lbs [4.5 kg] psi or less) and having a bench seat.

**NOTE:** Utility Vehicles are designed to perform off-road utility tasks such as passenger and cargo transportation and are addressed separately below. Examples are Rangers, Rhino, M-Gators, Gators, and Mules.

Rollover Protective Structure (ROPS). A cab or frame that provides a safe environment for the tractor operator in the event of a rollover.

## **ALL TERRAIN VEHICLES (ATVS)**

### **Qualifications**

ATV operators will have completed a nationally recognized accredited ATV training course (such as provided by the Specialty Vehicles Institute of America or in-house resources that have been certified as trainers by an accredited organization) prior to operation of the vehicle.

The operator must pass an operating skills test prior to being allowed to operate an ATV. Proof of completion of this training will be maintained.

### **Equipment**

All ATVs shall be equipped with:

- An operable audible warning device (horn);
- Headlights (if it will be used during hours of darkness);
- Taillights; and
- Brake lights.
- Mufflers and spark arresters.

All Class II ATVs will be equipped with ROPS and seatbelts

### **Operation**

Only Class I and Class II ATVs with four or more wheels may be used. Class III ATV's may not be used.

The manufacturer's recommended payload will not be exceeded at any time.

Gloves and an approved motorcycle helmet with full-face shield or goggles will be worn at all times while operating a Class I ATV.

An ATV will not be driven on public roadways except to cross the roadway, and it will only be driven on a public roadway at designated crossing points or with a road guard (no paved road use unless allowed by the manufacturer).

A copy of the operator's manual will be kept on the vehicle and protected from the elements (if practicable).

Tires shall be inflated to the pressures recommended by the manufacturer.

Passengers are prohibited on Class I ATVs.



## UTILITY VEHICLES

Utility vehicles are defined as specialty Class II ATVs designed to perform off-road utility tasks such as passenger and cargo transportation. Examples are Rangers, Rhino, M-Gators, Gators, and Mules.

Utility vehicle operators shall be trained and familiar with the use of all controls; understand proper moving, stopping, turning and other operating characteristics of the vehicle. Operators must review all training materials provided by the manufacturer for the specific vehicles, and training should be in accordance with appropriate manufacturer recommendations. A copy of the operator's manual shall be kept on the vehicle at all times and protected from the elements. At a minimum, training should address:

- Basic riding tips from the manufacturer's published literature for each vehicle.
- Reading terrain.
- Climbing hilly terrain.
- Descending a hill.
- Traversing a slope.
- Riding through water.
- Cargo carriers and accessories.
- Loading and unloading.
- Troubleshooting.
- Proper preventative maintenance, (i.e., oil levels, tire pressure requirements and scheduled maintenance requirements according to the manufacturer's guidelines.).

Utility vehicles shall be equipped with:

- Operable audible warning device (horn).
- Headlights.
- Taillights.
- Brake lights.
- Seatbelts.
- ROPS.

Occupancy in utility vehicles is limited to manufacturer designated seating that has built-in seatbelts. Passengers may not ride in the vehicle's back cargo area unless the vehicle is otherwise equipped. Note: When used for emergency response, medical litters may be placed in the back cargo area but must be secured as described below.

The manufacturer's recommended load carrying capacity, personnel capacity, or maximum safe vehicle speed shall not be exceeded at any time.

Cargo items will be secured as necessary to prevent movement/tipping. All loads over fifty pounds (to include medical litters) must be securely strapped to cargo tie-downs in the rear and to the cargo shelf in the front.

Seatbelts will be worn by operators and passengers of specialty vehicles where installed by the manufacturer. Operators and passengers shall wear goggles at all times when a utility vehicle, not equipped with a windshield, is in motion.

Utility vehicles will not normally be driven on public roadways except to cross the roadway, and will only be driven on a public roadway at designated crossing points or with a road guard. Utility vehicles that are allowed to operate outside a controlled work area and/or on public roads will meet the minimum vehicle safety standards in accordance with 49 CFR 571.5, to include ROPs, seatbelts and placement of “Slow Moving Vehicle” emblems where required.

Manufacturer-installed safety equipment will be maintained in working order and used in compliance with the requirement of this regulation and in accordance with manufacturer’s recommendations.

## **RULES**

Observe the following practices to help prevent accidents:

- Do not misuse utility vehicles.
- Reduce speed and exercise extreme caution on slopes or on rough ground.
- Do not overload vehicle and avoid shifting loads. Reduce load when operating over rough or hilly terrain.
- Do not stop or start suddenly when going uphill or downhill. Be especially cautious when changing direction on slopes.
- Stay alert for holes, rocks, and other hidden hazards in the terrain.
- Keep away from drop-offs, ditches, embankments, as well as ponds and other bodies of water. The machine could suddenly turn over if a wheel is over the edge of a cliff or ditch, or if an edge caves in.
- Keep front wheels straight at crest of hill or going over bumps.
- When descending a hill, remove foot from accelerator and apply brakes to reduce speed and maintain control.

## **Transport Loads Safely**

- Be sure load is evenly distributed.
- Do not load above the load guard.
- Securely anchor all loads in cargo box.
- Reduce cargo box capacity when operating on rough or hilly terrain.
- Use existing trails. Avoid terrain such as dangerous slopes and impassable swamps. Watch carefully for sharp bumps, holes, ruts, or obstacles.
- Look ahead at terrain. Know what is coming and be prepared to react. Be alert for hazards.
- Keep front wheels straight at the crest of a hill or going over bumps.
- Reduce speed according to trail, terrain, and visibility conditions.
- The passenger should always use the hand holds.

### **Climbing or Descending a Hill**

- Always use the brakes when going down slopes, the utility vehicle can speed up (freewheel) going down a slope. Engine or clutch braking effect is minimal.
- Balance loads evenly and secure them. Braking could shift the load and affect vehicle stability.
- Sit on the center of the seat and keep both feet within the foot platform.
- Never drive past the limit of visibility. Slow down near the crest of a hill until getting a clear view of the other side.
- If the vehicle stops or loses power going up a hill, lock the park brake to hold the vehicle on slope. Maintain direction of travel and release the brake slowly. Back straight down hill slowly while maintaining control. Do not turn the vehicle sideways. The vehicle is more stable in a straight forward or rearward position.
- If the utility vehicle begins to tip, turn the front wheel downhill to gain control before proceeding.

### **Riding Through Water**

- Avoid water whenever possible. If the drive belt becomes wet, slippage will occur and the vehicle will lose power.
- Never cross any body of water where the depth may be unknown to the operator. As an operational guideline, deep water is considered anything in excess of 152 mm (6 in.) in depth. Tires may float, making it difficult to maintain control.
- Choose a course within the waterway where both banks have a gradual incline. Cross at a point known to be safe.
- Proceed at a slow steady speed to avoid submerged obstacles and slippery rocks.
- Avoid water crossings where the operation of a utility vehicle may cause damage to waterway beds or erode waterway shoreline.

## **FLD 22 EARTH MOVING EQUIPMENT/MATERIAL HANDLING EQUIPMENT**

### **REFERENCES**

*29 CFR Part 1926 Subparts 600-602*

### **RELATED FLDs**

*FLD 23 – Cranes, Rigging, and Slings*

*FLD 24 – Aerial Lifts/Manlifts*

*FLD 34 – Utilities*

*FLD 35 – Electrical Safety*

### **PROCEDURE**

These rules apply to the following types of earthmoving equipment: scrapers, loaders, crawler or wheel tractors, bulldozers, off-highway trucks, graders, agricultural and industrial tractors, and similar equipment.

#### **Machinery and Mechanized Equipment Safety**

Before any machinery or mechanized equipment is placed in use, it will be inspected and tested by a competent mechanic and certified to be in safe operating condition.

WESTON will designate a competent person to be responsible for the inspection of all machinery and equipment daily and during use to make sure it is in safe operating condition. Tests will be made at the beginning of each shift during which the equipment is to be used to determine that the brakes and operating systems are in proper working condition.

Preventative maintenance procedures recommended by the manufacturer will be followed.

Any machinery or equipment found to be unsafe shall be removed from service and its use prohibited until unsafe conditions have been repaired or corrected.

Inspections or determinations of road conditions and structures will be made in advance to ensure that clearances and load capacities are safe for the passing or placement of any machinery or equipment.

Machinery and mechanized equipment will be operated only by designated personnel. Equipment deficiencies observed at any time that affect safe operation will be corrected before continuing operation.

Seat belts shall be provided on all equipment covered by this section and shall meet the requirements of the Society of Automotive Engineers (J386-1969) and Seat Belts for Construction Equipment. Seat belts for agricultural and light industrial tractors shall meet the seat belt requirements of Society of Automotive Engineers (J333a-1970), Operator Protection for Agricultural and Light Industrial Tractors.

Seat belts shall be worn when provided by the manufacturer. Passengers shall not be allowed to ride on equipment unless equipment is designed with additional seats with safety belts.

**Audible alarms.** All bi-directional machines, such as rollers, compactors, front-end loaders, bulldozers, and similar equipment, shall be equipped with a horn, distinguishable from the surrounding noise level, which shall be operated as needed when the machine is moving in either direction. The horn shall be maintained in an operative condition.



Getting off or on any equipment while it is in motion is prohibited.

Machinery or equipment requiring an operator will not be permitted to run unattended.

Machinery or equipment will not be operated in a manner that will endanger persons or property, nor will the safe operating speeds or loads be exceeded.

All machinery or equipment will be shut down and positive means taken to prevent its operation while repairs or manual lubrications are being done. The only exemption is equipment designed to be serviced or maintained while running.

All repairs on machinery or equipment will be made at a location that will provide protection from traffic or other hazards to maintenance personnel.

Machinery and equipment, or parts thereof, that are suspended or held apart by slings, hoists, or jacks also will be substantially blocked or cribbed before personnel are permitted to work underneath or between them.

Bulldozer and scraper blades, front end-loader buckets, dump bodies, and similar equipment will be either fully lowered or blocked when being repaired or when not in use. All controls will be in a neutral position, with the engines stopped and brakes set, unless work being performed on the machine requires otherwise.

Stationary machinery and equipment will be placed on a firm foundation and secured before being operated.

All points requiring lubrication during operation will have fittings so located or guarded to be accessible without hazardous exposure.

When necessary, all mobile equipment and the operating area will be adequately illuminated while work is in progress.

Mechanized equipment will be shut down prior to and during fueling operations. Closed systems, with automatic shutoff that will prevent spillage if connections are broken, may be used to fuel diesel powered equipment left running.

All towing devices used on any combinations of equipment will be securely mounted and structurally adequate for the weight drawn.

Persons will not be permitted to get between a piece of towing equipment and the item being towed until the towing equipment has come to a complete stop.

All equipment with windshields will be equipped with powered wipers. Vehicles that operate under conditions that cause fogging or frosting of windshields will be equipped with operable defogging or defrosting devices.

All equipment left unattended at night, adjacent to a highway in normal use, or adjacent to construction areas where work is in progress, will have lights or reflectors, or barricades equipped with lights or reflectors, to identify the location of the equipment.

Whenever the equipment is parked, the parking brake will be set. Equipment parked on inclines will have the wheels chocked or track mechanism blocked and the parking brake set. Equipment such as lift trucks and stackers will have the rated capacity posted on the vehicle so as to be clearly visible to the operator. When auxiliary removable counterweights are provided by the manufacturer, corresponding alternate rated capacities also will be clearly shown on the vehicle. The ratings will not be exceeded.

Steering or spinner knobs will not be attached to the steering wheel unless the steering mechanism prevents road reactions from causing the steering hand wheel to spin. When permitted, the steering knob will be mounted within the periphery of the wheel.

All industrial trucks in use will meet the requirements of design, construction, stability, inspection, testing, maintenance, and operation, defined in American National Standards Institute (ANSI) B56.1, Safety Standards for Powered Industrial Trucks.

The installation of live booms on material and personnel hoists is prohibited.

The controls of loaders, excavators, or similar equipment with folding booms or lift arms will not be operated from a ground position unless so designed.

Personnel will not work or pass under the buckets or booms of loaders in operation.

Cranes and any other equipment used for lifting must be inspected as required and records of inspection must be maintained.

### **Drill Rigs**

See FLD 56, *Drilling Safety*

## **FLD 28 EXCAVATING/TRENCHING**

This procedure identifies the basic requirements for the protection of personnel working in and around excavations and trenches, including identification of hazards, classification of soils, protective systems, and inspections. Trenching and excavation work will be done in conformance with this procedure, and with 29 Code of Federal Regulations (CFR), 1926 Subpart P (Excavations) as well as any state, local, and client requirements.

### **REFERENCES**

29 CFR 1926 Subpart P (Excavations)

### **ATTACHMENTS**

Attachment 1 – Inspection-Permit Checklist

Attachment 2 – Audit Checklist

### **RESPONSIBILITIES**

The responsibilities of the personnel involved in any trenching and excavation work are:

- Project Manager (PM)/Site Manager (SM): In addition to their normal safety responsibilities as described in the Safety Program Implementation Plan, the PM or SM will be responsible for identifying and checking the qualifications of the competent persons whom they designate for excavation or trenching activities at their project site.

Competent Person: For the purpose of this procedure, the competent person is one who is capable of identifying existing and predictable hazards in the surroundings, or working conditions which are unsanitary, hazardous or dangerous to employees and who has authorization to take prompt corrective actions to eliminate them. The competent person in excavations must have knowledge of regulatory requirements and the necessary technical skills (e.g., soils classification, use of protective systems) to implement this operating practice and address any necessary client concerns or requirements. The competent person must be a Registered Professional Engineer (PE) with experience in soil classification and stability analysis for excavations in excess of 20 feet in depth, excavations that intersect, excavations close enough to buildings, or other surface appurtenances that they could exert stress on the excavation side walls.

The competent person may be the Field Safety Officer (FSO), a subcontractor representative or other site person. The competent person must be identified in writing and understand the role and responsibilities of the competent person.

### **Hazard Assessment and Evaluation**

Prior to any excavation activity the FSO and the competent person must evaluate the site for known or potential hazards. Potential hazards affecting trench safety can include the following:

- Excess water from rainfall, snowmelt or frozen soils, and temperature extremes affecting soil moisture content.
- Previous excavation area (requires Type C soils classification).
- Depth of excavation (influences soil stability by increased weight; average soils weigh approximately 100 pounds per cubic foot).

- Surcharge loads (e.g., evaluate location of buildings, spoils piles, poles, pavement, other structural objects).
- Location of personnel and equipment.
- Vibration by equipment, traffic, railroads, explosives, etc.
- Undermining of structures.
- Duration of exposure (limit the time-frame of the excavation to the minimum possible).

Prior to excavation or trenching, utility companies or owners shall be contacted and requested to identify the exact location of installations in the area. WESTON FLD 34, "Utilities" must be followed. If the companies or owners do not respond within 24 hours or the period established by law or ordinance, or if they cannot establish the exact location of underground installations, WESTON or a subcontractor may proceed with the excavation following WESTON FLD 34 to determine other acceptable means to locate utility installations. The known or estimated location of utilities must be marked or staked for identification purposes. Workers and equipment operators must also be aware of overhead utilities.

When excavation operations approach the estimated location of underground installations, the exact location is to be determined by safe and acceptable means.

The stability of adjacent structures is to be assured in any event (whether employees will enter an excavation or not).

All surface encumbrances that are located to create a hazard to employees shall be removed or supported, as necessary. Structures near the excavation shall be underpinned or provided with a support system to prevent collapse.

If the excavation is in an area known or suspected to be contaminated with unexploded munitions or military ordnance, clearance by qualified explosive ordnance disposal (EOD) personnel shall be accomplished prior to excavation work. Work will be performed in accordance with an approved unexploded ordnance (UXO) plan.

### **Pre-Entry Requirements**

While not required as documentation by Occupational Safety and Health Administration (OSHA) regulations (with the exception the utility clearances noted above and in certain states, e.g., California where a permit is required from the State for certain excavations), the Excavation Inspection-Permit (Attachment 1) should be utilized as a guideline in preparation for excavation activities. This checklist or similar approved form, subcontractor form, or site-specific form shall be completed by the competent person prior to the start of operations each day and as needed throughout the shift (See Inspections and Enforcement Section) to document required inspections. The SM shall ensure that monitoring and inspections are performed periodically to verify compliance. Note that clients, in particular Department of Defense (DoD) may require dig or excavation permits as well. These must be in-hand and posted if required before excavation begins and must be renewed as specified by the client.

The competent person shall classify the type of soil using at least one visual and one manual test in accordance with 29 CFR 1926 Subpart P, Appendix A or assume all soils are class C and stipulate appropriate protection methods as for Class C soil. Where tests are performed, the tests shall be documented, including the date(s) of the tests, type of tests, any instrumentation used for testing, location of the excavation tested, the results of the tests and type of soil (A, B, C, or stable rock) indicated by the



test, and the name of the person performing the tests or the report must state that soils will be treated as Class C soils.

The competent person must test the atmosphere in any excavation greater than 4 feet in depth where the potential exists for a known or potential hazardous atmosphere (e.g., landfills, spills before employees are allowed to enter the excavation). Emergency rescue equipment shall be provided and readily available, properly functioning, and attended by qualified personnel when hazardous atmospheric conditions exist or may develop. Based upon the direction of the competent person or the FSO an excavation less than 4 feet deep may require monitoring.

## **Entry Procedures**

While the excavation is open, underground installations shall be protected, supported, or removed as necessary to safeguard employees.

A barricade or other suitable warning system shall be used to alert workers, equipment, and vehicle operators of an excavation's location if the edge of the excavation is not readily apparent. Consult Corps of Engineers EM 385-1-1, (current edition), Section 25 for special requirements related to excavation guarding requirements. If the edge of an excavation is adjacent to a public roadway or an area of high volume site traffic it shall have a suitable barricade, such as a 2- to 3-foot (ft) high berm or jersey barriers, installed along the exposed side of the route. Appropriate barricades shall not interfere with placing overburden a safe distance from the excavation, but they shall have sufficient strength to prevent vehicles from entering the excavation.

Excavations located in areas subject to public traffic must be protected by fencing or barricades constructed with equivalent strength to standard guardrails. The location of fencing or guardrails must be such that risk to the public is minimal.

If the excavation is not subject to public exposure, but is routinely exposed to employees and is either 1) deeper than 6 feet or 2) contains hazards (e.g., impalement, hazardous substances) then perimeter protection is to consist of warning barricades or flagging placed no closer than 6 feet from the excavation edge. Warning barricades or flagging should be between 3 and 4 feet in height.

If the excavation edge is not readily visible and does not meet any of the criteria identified above, perimeter protection of warning flags or barricades (see above) located between 2 and 6 feet from the excavation edge is required.

Working at the edge of the excavation must be minimized. Based upon the hazard evaluation, fall protection in the form of harnesses and lifelines, may be required if workers must observe activities at the edge of an excavation greater than 6 feet deep.

Lighting for excavations and barricades during nighttime or low visibility situations must be in accordance with state or local requirements.

All shafts, pits, wells, etc., where no work is being performed shall be covered with material of sufficient strength to support foreseeable loads, or shall have a standard guardrail or equivalent protection installed around the perimeter, or shall be backfilled.

Walkways and bridges with standard guardrail systems shall be provided where people or equipment are required or permitted to cross over excavations.

Employees in excavations or trenches shall not be permitted to work in the immediate vicinity of excavation equipment nor to work under loads handled by such equipment. Employees shall not be allowed to work above other employees in the excavation unless the employees working below are adequately protected.

Employees shall not be allowed to work in excavations where water has accumulated or is accumulating unless diversion ditches, dikes, or other means shall be used to prevent surface water from entering an excavation and to provide drainage to the adjacent area. Pumps, if used to control water accumulation, must be monitored continuously.

Only authorized personnel are allowed within excavations. The number of workers within an excavation must be maintained to the minimum necessary to accomplish the assigned work.

A ladder, stairway, ramp or other means of exiting excavations 4-feet deep or more will be provided for employees within 25 feet of lateral travel of any location within the excavations. Ramps used for employee access or egress must be sloped to allow the employee to walk in an upright manner without assistance. Ramps for equipment access or egress must be designed by a registered PE.

Spoils and other materials are to be placed at sufficient distance from the edge of the excavation to prevent excessive loading on the face of the excavation. In no event is any material to be placed closer than 2 feet from the edge.

Personnel will be evacuated from any excavation when the walls show signs of distress and personnel are potentially impacted.

### **Protective Support Systems**

Employees in an excavation shall be protected from cave-ins by an adequate protective system designed in accordance with the following. Exceptions to the requirement for employee protective systems include; excavations entirely in stable rock and excavations which are less than 5 feet deep and examination by the competent person provides no indication of a potential cave-in. Protective system options include:

- Proper sloping or benching of the sides of the excavation (benching is not permitted for Class C soils). Follow specific requirements of 29 CFR 1926 Subpart P, specifically 1926.652.
- Supporting the sides of the excavation with a properly designed and installed shoring or shielding system (e.g., hydraulic shoring, trench jacks, air shores, or trench boxes/shields).

Follow specific requirements of 29 CFR 1926 Subpart P, specifically 1926.652. Protective systems outlined within the OSHA standard are minimum requirements. In the event soil conditions change, re-inspect the system. Additional cut backs on the slope angle may be necessary based upon conditions encountered.

Protective systems for use: in excavations greater than 20 feet in depth; where trenches intersect; or where buildings or other surface structures or appurtenances can exert stress on the excavation, walls must be designed by a Registered PE.

### **Inspections and Enforcement**

The competent person must inspect the excavation and the adjacent area frequently for possible cave-ins, for failure of protective systems and equipment, for hazardous atmospheres, or for other hazardous

conditions. Inspections are also required after any occurrence that could increase the potential hazard to employees. The minimal inspection requirement is daily. Competent persons must be on site or immediately available when persons are working in or directly adjacent (within the prescribed safety zone). Natural events, such as rain, freezing or thawing weather, or man-made events, such as blasting and vibration, are examples of situations requiring more frequent inspection.

Daily and as-needed inspections must be documented on applicable portions of the Inspection-Permit (Attachment 1), the Audit Checklist (Attachment 2), or an approved documentation form. The Audit Checklist is designed as a more comprehensive inspection/audit document. All inspections shall be documented.

During inspections, danger signs that should be evaluated can include the following:

- Bulges in the side walls.
- Cracks running parallel to the excavation edge.
- Material sloughing into the excavation.
- Exposed utilities.
- Loose chunks of the excavation edge or lip breaking up.
- Rocks, or refuse from earlier work or any other material that could fall from the excavation walls.
- Undermined structures, poles, or trees.
- Water seepage.
- Spoils piles or other materials too close to the excavation edge.
- Apparent changes in soil classification.

Failure to follow procedures outlined within this FLD will result in documented noncompliance with the requirements of this FLD. Such noncompliance will result in a management-imposed suspension of the activity and may include disciplinary action.

### **Emergency Operations**

The Health and Safety Plan (HASP) must indicate names and phone numbers for any potentially affected utility (e.g., phone, gas, electric, pipelines, public works). The HASP must include a plan for rescuing persons trapped within an excavation.

If a utility is damaged due to the excavation operation, and damage has occurred, operations are to cease. Personnel are to move to a safe location until the hazard has been resolved. The owner of the utility and any other necessary emergency resources are to be contacted immediately.

In the event of a trench failure with subsequent employee entrapment the following procedures should be followed:

- Immediately contact the local rescue agency listed in the HASP. Give the agency the exact location, number of victims, trench measurements, and any special hazards encountered.
- Keep all life-support and de-watering systems operating.
- Clear workers away from the excavation.
- Shut down any heavy equipment nearby.
- Be prepared to meet and brief rescue personnel.
- Never attempt to dig out victims with heavy equipment.

**Records/Reports/Notifications**

The following records shall be maintained in the site files:

- Excavation inspection records.
- Soil classification test records.
- Evaluations of need to stabilize adjacent structures.
- Structural ramp designs.
- Approved tabulated data used for protective systems.
- Protective system designed by a PE



**ATTACHMENT 1**  
**INSPECTION-PERMIT CHECKLIST**

## WESTON EXCAVATION INSPECTION-PERMIT CHECKLIST

DATE: \_\_\_\_\_ TIME: \_\_\_\_\_ LOCATION: \_\_\_\_\_

DESCRIPTION OF EXCAVATION: \_\_\_\_\_

PERSON IN CHARGE OF WORK: (SAFETY WATCH, If applicable) \_\_\_\_\_

Item	Y	N	Comment
Is there a competent person on site?			
Have utilities been located?			
Will excavation be less than 5 ft in depth? If yes, has competent person determined appropriate worker protection?			
Will excavation be greater than 5 ft in depth? If yes, complete remainder.			
Will workers in or near top or face of excavation be adequately protected?			
What is expected soil type? _____ Is protection (sloping, benching, shoring, sheeting, or shielding) according to 29 CFR Part 1926.652?			
If sloping/benching used: Angle no greater than 1½ horizontal to 1 vertical (34°)? Conforms to Appendix B, 29 CFR Part 1926.652 for type C soils? Conforms to Appendix A or B? Conforms to other published tables that are onsite? Is designed by competent PE?			
If shoring, sheeting, or shielding is used: Designs based on Appendices A, C, D, or G of 29 CFR Part 1926.652? Designed and used according to manufacturer's specifications and instructions? Design is according to published tables that are onsite? Design is by a competent PE?			
If Appendix A of 29 CFR Part 1926.652 is used, indicate soil classification _____. Is classification based on at least one manual and one visual test?			
Is plan for installation and removal of support systems appropriate?			
Is planned protection for surface encumbrances appropriate?			
Are there adequate provisions for access and egress?			
Is plan for protection from vehicular traffic adequate?			
Are barriers and lighting provided for pedestrian and vehicle protection?			
Is plan adequate for protection from exposure to falling loads?			
Is there an adequate proximity warning system for mobile equipment?			
Does plan adequately address hazards of/protection from accumulating water?			
Does plan adequately take into account stability and potential impact of adjacent structures?			
Is plan for protection from loose soil or rock adequate?			

Item	Y	N	Comment
Inspections will be conducted of excavation and adjacent areas: Prior to start of work? Daily? After rain storms or other hazard increasing occurrences? Are inspections documented?			
Is fall protection adequate?			
Is there a potentially hazardous environment? If yes, complete the following table.			
Is appropriate emergency/rescue equipment available?			

Testing	PEL/Action Level	Concentration/Time			
Percent Oxygen	19.5-23.5%				
Percent LEL	> 20%				
*Carbon monoxide	35 ppm				
*Hydrogen sulfide	10 ppm				

\*If applicable

#### ADDITIONAL REQUIREMENTS

Item	Y	N	Comment
Hot work permit required?			
Confined entry procedures and permits required?			
Have all employees reviewed and signed HASP?			

#### EMERGENCY PLAN EMERGENCY TELEPHONE NUMBERS:

Fire Department: \_\_\_\_\_ Police Department: \_\_\_\_\_  
Ambulance: \_\_\_\_\_ Medical: \_\_\_\_\_

#### EMERGENCY EQUIPMENT

Fire Extinguisher - Type: _____ Location: _____	First Aid Kit - Locations: _____ _____
Rescue Breathing Apparatus - Location: _____ _____	Non-powered digging tools - Location: _____ _____
Life Line Systems - Location: _____ _____	

Field Safety Officer: \_\_\_\_\_ Competent Person: \_\_\_\_\_

Registered Professional Engineer: \_\_\_\_\_

**EMPLOYEES:**

<b>Name (Please Print)</b>	<b>Signature</b>	<b>Duties</b>



**ATTACHMENT 2**  
**AUDIT CHECKLIST**

## WESTON EXCAVATING/TRENCHING AUDIT CHECKLIST

Project: \_\_\_\_\_ Date: \_\_\_\_\_ Time: \_\_\_\_\_

Inspector: \_\_\_\_\_ Excavation Location: \_\_\_\_\_

Excavation Depth: \_\_\_\_\_ Anticipated Maximum Depth: \_\_\_\_\_

	Y	N	Comment
All excavations inspected?			If no, why not? _____
Soil type verified for each excavation?			Indicate Type: _____
Competent person identified?			Name: _____
PE involved?			Name: _____

**NOTE:** For California operations, a trenching permit issued by the Division of Occupational Safety and Health (DOSH) is required prior to beginning work on any excavation or trench 5 ft deep or deeper in which employees will be required to work.

This inspection list is designed to assist in verifying inspection requirements established in 29 CFR Part 1926.560-562 Subpart P and Cal/OSHA 8 CCR 341, 1540 and 1541.

### A. TRAINING

	Y	N	Comments
1. Have employees been trained in hazard recognition and safe work practices associated with excavation work?			
2. Have employees been trained in excavation emergency procedures?			

### B. SURFACE ENCUMBRANCES (Trees, Boulders, Telephone Poles, Heavy Equipment)

	Y	N	Comments
1. Are all surface encumbrances posing a threat to employees identified, removed, or supported?			

### C. UNDERGROUND UTILITIES/INSTALLATIONS (Electric, Gas, Fuel, Product, Water, Telecommunication, Sewer, Lines, etc.)

	Y	N	Comments
1. Are utility searches completed and documented?			
2. Have the appropriate agencies/client representatives been contacted?			
3. Are local permits obtained and on file?			
4. If excavation will impinge on underground utilities: Are procedures in place to detect/protect as utilities are neared? Are procedures in place to guard/support exposed utility lines?			

#### D. ACCESS AND EGRESS

	Y	N	Comments
1. Are ladders, stairways, or ramps provided every 25 ft of linear travel in excavations 4 ft deep or deeper?			
2. Are ladders appropriately secured and extend at least 3 ft above the top landing area?			
3. Are personnel and equipment access and egress ramps designed by a competent person?			
4. Are ramps/runways of two or more structural members joined so as to prevent displacement?			
5. Are structural members of ramps/runways of two or more members of uniform thickness?			
6. Are the cleats or other appropriate means used to connect runway structural members attached to the bottom of the runway or in a manner to prevent tripping?			
7. Are all structural members slip-resistant?			

#### E. EXPOSURE TO VEHICULAR TRAFFIC

	Y	N	Comments
1. Are appropriate warning signs or barriers used to protect employees who are exposed to vehicular traffic?			
2. Are employees exposed to vehicular traffic provided with and wearing warning vests or other suitable garments marked with or made of reflective or high-visibility material?			

#### F. EXPOSURE TO FALLING LOADS

	Y	N	Comments
1. Are employees permitted underneath loads handled by lifting or digging equipment?			
2. Are employees required to stand away from any vehicle being loaded or unloaded to avoid being stuck by any spillage or falling materials?			
3. Operators should remain in the cabs of vehicles being loaded or unloaded only if the vehicles are equipped, according to 29 CFR Part 1926.601(b)(6), to provide adequate protection for the operator during loading/unloading operations. Are said vehicles so equipped?			

#### G. WARNING SYSTEM FOR MOBILE EQUIPMENT

	Y	N	Comments
1. Does the operator of mobile equipment operated adjacent to an excavation have a clear and direct view of the edge of the excavation?			
2. Is the grade away from the excavation?			
3. If not, and if this such equipment is required to approach the edge of an excavation, is a warning system used (barricades, hand or mechanical signals, or stop logs)?			

## H. HAZARDOUS ATMOSPHERES

	Y	N	Comments
1. Is there potential for hazardous atmosphere in excavations?			
2. If yes, has the atmosphere in the excavations been tested before employees enter?			
3. Is atmosphere monitored at established frequency and documented in Section U, Atmospheric Monitoring Record?			
4. Are adequate precautions taken to prevent employee exposure to atmospheres containing less than 19.5% oxygen and other hazardous atmospheres?			
5. Are adequate precautions are taken to ensure employee exposure is less than 20% lower exposure limit (LEL)?			
6. Is testing conducted as often as necessary to ensure that the atmosphere remains safe?			

## I. EMERGENCY RESCUE EQUIPMENT

	Y	N	Comments
1. Is emergency rescue equipment (breathing apparatus, safety harness and line, basket stretcher, etc.) readily available where hazardous atmospheric conditions exist or may the equipment reasonably be expected to be available during work in an excavation?  Is equipment attended when in use?			
2. Do employees entering bell-bottom pier holes or other similar deep and confined footing excavations wear a harness with a lifeline securely attached? Is the lifeline separate from any line used to handle materials, and is it attended at all times while the employee wearing the lifeline is in the excavation?			

## J. PROTECTION FROM HAZARDS ASSOCIATED WITH WATER ACCUMULATION

	Y	N	Comments
1. Do employees work in excavations in which there is accumulated water, or in excavations in which water is accumulating?  Have adequate precautions been taken to protect employees against the hazards posed by water accumulation?			
2. If water is controlled or prevented from accumulating by the use of water removal equipment, is the water removal equipment and operation monitored by a competent person to ensure proper operation?			
3. If excavation work interrupts the natural drainage of surface water (such as streams), are diversion ditches, dikes, or other suitable means used to prevent surface water from entering the excavation and to provide adequate drainage of the area adjacent to the excavation?			
4. Are excavations subject to runoff from heavy rains inspected by a competent person and are they in compliance with paragraphs 29 CFR 1926.651(h)(1) and (h)(2)?			



## K. STABILITY OF ADJACENT STRUCTURES

	Y	N	Comments
1. Are support systems (shoring, bracing, or underpinning) provided to ensure the stability of such structures where the stability of adjoining buildings, walls, or other structures is endangered by excavation operation?			
2. Excavation below the level of the base or footing of any foundation or retaining wall is not permitted unless:			
- A support system, such as underpinning, is provided to ensure the safety of employees and the stability of the structure.			
- The excavation is in stable rock.			
- A PE has determined that the structure is sufficiently removed from the excavation so as to be unaffected by the excavation activity.			
- A PE has determined that such excavation work will not pose a hazard to employees.			
3. Are sidewalks, pavements, and appurtenant structures stable? If they are undermined, is a support system or another method of protection provided to protect employees from the possible collapse of such structures?			

## L. PROTECTION OF EMPLOYEES FROM LOOSE ROCK OR SOIL

	Y	N	Comments
1. Are employees protected from excavated or other materials or equipment that could pose a hazard by falling or rolling into excavations?			
2. Is adequate protection (such as scaling to remove loose material or installation of protective barricades) provided to protect employees from loose rock or soil falling or rolling from an excavation face?			

## M. INSPECTIONS

	Y	N	Comments
1. Are inspections conducted prior to the start of work and as needed throughout the shift by a competent person?			
2. Are daily inspections of excavations, the adjacent areas, and protective systems made by a competent person for evidence of a situation that could result in possible cave-ins, indications of failure of protective systems, hazardous atmospheres, or other hazardous conditions?			
3. Are inspections made after every rainstorm or other hazard-increasing occurrence (freezing, thawing, increased vibration, or new traffic pattern)?			
4. Are inspections documented?			

## N. FALL PROTECTION

	Y	N	Comments
1. Are walkways or bridges with standard guardrails provided where employees or equipment are required or permitted to cross over excavations?			
2. Are adequate barrier physical protection (sufficient to provide protection for vehicles or pedestrians as appropriate) and lighting provided at all remotely located excavations?			
3. Are all wells, pits, shafts, etc., barricaded or covered?			

## O. PROTECTION OF EMPLOYEES IN EXCAVATIONS

	Y	N	Comments
1. Each employee in an excavation is protected from cave-ins by an adequate protective system designed in accordance with paragraphs (b) or (c) of 29 CFR Part 1926.652 unless:			
- Excavations are made entirely in stable rock.			
- Excavations are less than 5 ft (1.52 m) in depth and examination of the ground by a competent person provides no indication of a potential cave-in.			
2. Are employees permitted to work on the faces of sloped/benched excavations at levels above other employees except when employees at the lower levels are adequately protected from the hazard of falling, rolling, or sliding material or equipment?			
3. Do the protective systems have the capacity to resist, without failure, all loads that are intended or could reasonably be expected to be applied or transmitted to the system?			

## P. DESIGN OF SLOPING AND BENCHING SYSTEMS.

	Y	N	Comments
1. Are slopes and configurations of sloping and benching systems selected and constructed in accordance with the requirements of 29 CFR Part 1926.652:			
- Paragraph (b)(1) (slope angles no greater than 1 1/2:1 [75%] or conforms to slopes and configurations required in Appendix B for type C soils)?			
- Paragraph (b)(2) (slopes and configurations are according to Appendices A and B)?			
- Paragraph (b)(3) (slopes and configurations are according to other published tables that are available onsite)?			
- Paragraph (b)(4) (slopes and configurations are designed by a PE and a copy of the design is onsite)?			

**Q. DESIGN OF SUPPORT SYSTEMS, SHIELD SYSTEMS, AND OTHER PROTECTIVE SYSTEMS.**

	Y	N	Comments
1. Designs of support systems, shield systems, and other protective systems shall be selected and constructed by the employer or a designee and shall be in accordance with the requirements of 29 CFR Part 1926.652:			
- Paragraph (c)(1) (designs are based on Appendices A, C, and D)?			
- Paragraph (c)(2) (design is in accordance with manufacturer's tabulated data, specifications, or instructions and a copy of the data is onsite.)?			
- Paragraph (c)(3) (designs use other tabulated data and a copy of the data is onsite)?			
- Paragraph (c)(4) (designed by a PE and a copy of the design is onsite)?			

**R. INSTALLATION AND REMOVAL OF SUPPORT**

	Y	N	Comments
1. Are members of support systems securely connected together to prevent sliding, falling, kickouts, or other predictable failure?			
2. Is installation of a support system closely coordinated with the excavation of trenches?			
3. Are support systems installed and removed in a manner that protects employees from cave-ins, structural collapses, or from being struck by members of the support system?			
4. Are individual members of support systems subjected to loads exceeding those they were designed to withstand?			
5. Before temporary removal of individual members begins, are additional precautions taken to ensure the safety of employees, such as installing other structural members to carry the loads imposed on the support system?			
6. Removal begins at, and progresses from, the bottom of the excavation. Are members released slowly so as to note any indication of possible failure of the remaining members of the structure or possible cave-in of the sides of the excavation?			
7. Does backfilling progress together with the removal of support systems from excavations?			
8. Excavation of material to a level no greater than 2 ft (.61 m) below the bottom of the members of a support system is permitted only if: - The system is designed to resist the forces calculated for the full depth of the trench. - There are no indications while the trench is open of a possible loss of soil from behind or below the bottom of the support system.			

## S. SHIELD SYSTEMS

	Y	N	Comments
1. Are shield systems subjected to loads exceeding those the system was designed to withstand?			
2. Are shields installed in a manner to restrict lateral or other hazardous movement of the shield in the event of application of sudden lateral loads?			
3. Are employees protected from the hazard of cave-ins when entering or exiting the areas protected by shields?			
4. Are employees allowed in areas when shields are being installed, removed, or moved vertically?			
5. Excavation of earth material to a level not greater than 2 ft (.61 m) below the bottom of a shield is permitted only if the shield is designed to resist the forces calculated for the full depth of the trench, and if there are no indications, while the trench is open, of a possible loss of soil from behind or below the bottom of the shield.			

## T. ADDITIONAL COMMENTS

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## U. ATMOSPHERIC MONITORING RECORD

Testing	PEL/Action Level	Conc./Time	Conc./Time	Conc./Time
Percent Oxygen	19.5-23.5% (D)			
Percent LEL	> 20% (withdraw)			
Toxic-	Refer to HASP			

## **FLD 34 UNDERGROUND UTILITIES**

### **REFERENCES**

29 CFR 1926.651, *Specific Excavation Requirements*  
ANSI Standard Z 535.1, *American National Standard for Safety Color Code*

### **RELATED FLDs**

*FLD 42 – Lockout/Tagout*

This Field Operation Procedure (FLD) provides requirements for identification, location, and avoidance of underground utilities, appurtenances, and structures during intrusive activities. These requirements are applicable to all Weston Solutions, Inc. (WESTON) operations. The procedures address the requirements and recommendations for identifying and locating, working around, and encountering or contacting underground utilities. The FLD also addresses actions to be taken in response to encountering or contacting underground utilities.

### **DEFINITIONS**

#### **Aggressive Methods**

The use of mechanized equipment such as (but not limited to) excavators, backhoes, drill rigs, directional drilling, Geoprobe operations (including all direct push techniques), or road saws.

#### **Buffer Zone**

As defined in this procedure, the area around a utility where only non-aggressive excavation methods may be utilized, unless specific conditions are met.

The definition cited above, and the excavation requirements and restrictions associated with it, will vary depending on the particular state regulations. WESTON requires the imposition of a **three-foot** Buffer Zone on all sides of the utility as measured from the outside edges of the utility, both horizontally and vertically. State and/or local buffer zone requirements must be verified by consulting the applicable state regulations in the event buffer zones greater than three feet are required.

The term “Buffer Zone” may be referred to as the “Tolerance Zone”, “Safety Zone”, or “Approximate Location of Underground Utilities” in some jurisdictions.

#### **Competent Person**

A Competent Person has the ability to recognize hazards associated with underground utilities and the authority to stop or direct operations to ensure the safety of personnel and conformance with this procedure. The Competent Person has an understanding of this procedure, and the “One-Call” system requirements for the jurisdiction where excavation is occurring. The Competent Person must be capable of notifying One-Call agencies and maintaining and tracking One-Call Locate Numbers. Additionally, they must have knowledge of methods and work practices for excavation work and the identification, avoidance, and protection of underground utilities.

The designation of a Competent Person will be made by the Site Manager (SM) or Project Manager (PM) and documented in the site-specific Health and Safety Plan (HASP) or attachment to the HASP. Each WESTON Competent Person is required to successfully complete WESTON’s internal training program on the use and application of this FLD and possess appropriate and relevant field experience.

The names of Subcontractor Competent Persons will be documented in the Site-Specific *Subcontractor Acknowledgment: Supervisor Personnel, Competence of Personnel, and Task Understanding* form. Subcontractor Competent Persons will be expected to follow this FLD or their company's procedures, whichever is more restrictive.

### **Damage**

Damage may be considered as any undesired impact or unanticipated removal of support from an underground utility as a result of excavation or demolition. Damage may be as simple as minor contact (by any means) resulting in displacement of protective coating. The utility owner must be contacted regarding any damage or question of damage.

### **De-Energize**

As applicable to a utility, to physically eliminate and/or prevent the presence, transmission, flow, or release of energy or materials which may cause harm to personnel or property.

### **Excavation (Intrusive Activity)**

An operation using mechanized equipment for the purpose of movement or removal of earth, rock, or the materials in the ground, including but not limited to: digging, blasting, augering, test boring, drilling, pile driving, directional drilling, grading, plowing-in, hammering (including hammer-drill soil gas sampling tube installation), pulling-in, jacking-in, trenching, tunneling, structural demolition, milling, scraping, tree and root removal (grubbing), and fence or sign post installation. Note that in some States or jurisdictions, excavation may include hand augering or use of other hand tools.

### **Jurisdiction**

The Authority having legal jurisdiction for establishing and/or enforcing regulations and requirements for notification of excavation activities and associated identification and marking of underground utilities. In the United States, the States have jurisdiction, and most consider the regulations applicable when excavation is to be performed in any location, including any public or private way, any company right-of-way or easement, or any public or privately owned land or way. Note: One caveat to remember – Jurisdiction may flow to the “owner” on private or government-owned property because the State One-Call Agencies may not clear utilities on such facilities.

Note that easement boundaries may require differing methods for compliance assurance. Railroads and certain above ground utilities have easements that require specific procedures for excavation (including shoring and shielding of both the utility as well as for the track and/or poles). In these cases it may be required that an inspector or representative of the railroad or utility is present at all phases of the activity.

### **Locate**

To indicate the existence of a utility by establishing a mark through the use of flags, pins, stakes, paint, or some other customary manner, that *approximately* determines the location of a line or facility.

### **Locate Request**

A communication between an entity performing intrusive activities and a utility marking agency (One-Call, etc).

## Non-Aggressive Methods

Non-Aggressive methods involve the use of manual methods such as hand digging with shovels or by potholing or daylighting methods.

## Observer

The person assigned to visually monitor and, as needed, signal the operator during mechanized intrusive activity when the activity is occurring within three feet of the outside edge of the buffer zone. The observer remains in close communication with the equipment operator(s) and will stop the activity if needed.

## One-Call Agency

An entity that administers a system through which a person can notify owners/operators of underground lines or utilities of the intent to perform intrusive activities in proposed public areas. **It is important to note that not all underground utility owners may be required to join the One-Call system. Additionally, some underground utility owners may not comply with State registration requirements.** The SM or Competent Person is responsible to determine additional utilities that may need to be contacted individually.

## Positive Response

Verification prior to the intrusive activity, to ensure that all contacted (typically via the One-Call Agency) owner/operators have located and marked the underground utilities. The SM or Competent Person is responsible to determine/verify ownership of the property where the intrusive activity will occur, including any easements.

## Potholing or Daylighting

The practice of exposing an underground facility by safe, *non-aggressive* excavation methods in order to determine the precise horizontal and vertical position and orientation of underground lines or utilities. potholing or daylighting are terms used to describe the excavating of buried facilities using an air or water “knife” coupled with vacuum excavation that exposes underground utilizes to the “daylight” – a positive and safe means of identification and confirmation of exact utility location.

## Target Rich Environment

Areas where multiple utilities are known or suspected of being located, areas where utility locations are in question and/or difficult to obtain information on, or areas with known or suspect high-risk utilities. **Note: Military Bases (active or inactive) are to be considered “Target Rich Environments”.**

## Underground Utility

An underground or submerged conductor, pipe, or structure used in transporting or providing electric, communications service, gas, oil or oil product, sewage, storm drainage, water, or other service and appurtenances thereto. As used in this procedure, utility includes all underground appurtenances and structures.

The following are examples of the types of underground utilities that may be present in a given location:

- Natural gas pipelines
- Electric cables



- Water pipelines
- Fiber optic telecommunications lines
- Telephone cable lines
- Steam pipelines
- Gasoline, oil, or other fuels
- Sewer pipelines
- Vents for sewer and gasoline/diesel fueling systems
- Underground Storage Tanks (USTs)
- Abandoned underground structures containing hazardous materials, hazardous wastes, and radioactive materials

### **Underground Utility Owner**

Any person, utility, municipality, authority, political subdivision or other person or entity who owns, operates, or controls the operation of an underground line/facility.

### **White Lining**

The practice whereby the person (in this case WESTON or a Subcontractor) who intends to perform intrusive activities, pre-marks the site with an outline of the area where intrusive activities will occur. This involves the use of white paint, flags, stakes, or a combination thereof to mark the extent of where work is to be performed. The marking may vary depending on what intrusive activities are to be conducted. For example, for general excavation, an areal outline of the excavation shall be marked, while for drilling, the individual boreholes shall be marked. Studies have shown that pre-marking is a practice that does prevent utility contact incidents. Check State or local regulatory requirements to ensure compliance.

## **RESPONSIBILITIES**

### **Competent Person**

The Competent Person shall be responsible for:

- Obtaining a copy of, and understanding the applicable regulations for the state of jurisdiction where the excavation activities are to be performed.
- Contacting the appropriate One-Call Agency or private locating service, as applicable.
- Recording One-Call locate numbers.
- If necessary, renewing One-Call locate numbers before expiration.
- Ensuring that white-lining of the area to be excavated is performed; if another equal or better protective measure is necessary because of the nature of the work, state/local regulation, or client requirements, the HASP should be amended to reflect the change.
- Ensuring that a “positive response” has been received from every utility owner/operator identified by the One-Call Agency (and any non-member utility as necessary) and that they have located their underground utilities and have appropriately marked any potential conflicts with the areas of planned intrusive activities prior to the start of intrusive work.

- Ensuring that appropriate means for supporting and protecting any exposed utility have been discussed with the utility owner and such means are available on-site.
- Ensuring that above-ground utilities and other appurtenances will not create a problem, or be impacted by WESTON activities. In all cases provisions for protection of any utility, structure, or appurtenance must be made.
- Ensuring that provisions for emergency actions and emergency shut-off/mitigation of utilities have been discussed with utility owners and field personnel.
- Ensuring that pictures are taken before, during, and after intrusive activities and placing such pictures in the project file. Pictures should provide visual documentation of actual site conditions, including but not limited to exposed utilities, methods used for bracing utilities and markings placed on the surface by utility locating services. Consideration should also include placing of a known object in the picture field to provide a “scale” for size/distance comparison.
- Completion and maintenance of the Underground Utilities Locating and Marking Checklist (Attachment A) and the Underground Utilities Management Checklist (Attachment B).
- Reviewing applicable Activity Hazard Analyses (AHAs) with all project members before work begins.
- Conducting training on communication protocols to be used by the excavation observer and equipment operator.
- Ensuring implementation of appropriate work practices during intrusive activities (including maintaining the prescribed buffer zone for use of aggressive methods).
- Conducting daily or more frequent (due to changes in conditions) inspections of the excavation area to make sure that all markings are intact.
- Providing the Field Safety Officer (FSO) with all required documentation on a daily basis.

## **Observer**

Whenever intrusive operations with mechanized equipment are being conducted *within three feet of the outside edge of the buffer zone*, horizontally and vertically, an observer must be assigned to monitor the activities. The observer is responsible for:

- Maintaining a safe vantage point relative to digging machinery, excavation edge, and proximity to the hazard posed by the utility.
- Observing the operation to ensure that the operator stops operations if utilities are observed.
- Reviewing hand signals and other forms of communication with the operator. Note: hand signals should be as those identified under ANSI, OSHA, or the Corps of Engineers for Crane Hand Signals, or another, equally effective and understood system.
- Properly signaling the operator.
- Stopping the operation immediately if the observer’s attention must be diverted even momentarily.
- Stopping the operation immediately if a hand signal or other directive is not followed. Operations will not resume until the observer and operator mutually agree that the reason(s) for not complying with the directive(s) are/is identified and fully corrected.
- Maintaining required records, such as logbook entries, or other, as requested by line management.

## Line Management

The PM or SM shall be responsible for:

- Establishing the site culture with the assistance of the FSO that ensures compliance with this FLD, as well as providing the leadership to “do the right thing” whenever unanticipated circumstances arise.
- Providing the necessary resources, including sufficient schedule for compliance with this FLD.
- Designating a Competent Person or ensuring that a subcontractor Competent Person is designated, prior to the start of work.
- Discussing intrusive activity liability with the Client prior to the start of work. Best practices for identification of underground utilities must be included with the proposal and/or HASP, as well as WESTON’s requirement for Client sign-off (if the Client is the property owner or if the Client selects the drilling/intrusive action location) when identifying specific work locations for intrusive activities. In cases where the client, such as EPA, will or cannot sign off on liability or provide indemnification, discussions with the appropriate client representatives on intrusive activities will be documented in the project file.

**Note: In any ‘target-rich’ work environment, best practices must include the requirement for potholing/daylighting or careful hand-digging – whenever possible (at least 5 feet below grade) – since these are recognized processes for visually verifying the exact location of underground utilities while minimizing the potential for utility damage.**

- **For excavations using aggressive methods in target-rich environments**, consideration should be given for establishing an agreement with an Emergency Response Contractor and/or the specific utility owner prior to the start of intrusive activities. This agreement should include specific emergency notification procedures for each utility identified to ensure that timely response can be accomplished in the event of a utility strike.
- Determining/verifying ownership of the property where the intrusive activity will occur, including any easements.
- Contacting all utilities not notified directly by the utility notification center, including those known to local personnel and the property owner.
- Obtaining Profit Center Manager approval for any deviations from this FLD, including best practices, or for addressing any set of circumstances not specifically addressed in this FLD that may place WESTON or its employees at risk.

## Environmental, Health, and Safety Personnel

The FSO shall be responsible for:

- Providing oversight on the implementation of the requirements contained in this FLD.
- Consulting with the PM, SM, Competent Person, and the appropriate Division Environmental, Health, and Safety Manager (DEHSM) (or Corporate EHS) on underground utility issues.
- Acting as the Competent Person or Observer as necessary and qualified.

## Procedure

The following sections provide the requirements and recommendations, which are intended to prevent injury to personnel, damage to infrastructure, and associated indirect effects associated with encountering

or contacting underground utilities during intrusive work. Underground utilities present multiple potential hazards that must be recognized before and during work which occurs near them, therefore, this procedure is divided into sections addressing underground utility identification and location, working around or near underground utilities, and actions to be taken in the event that underground utilities are encountered or contacted. Hazards that may be presented by underground utilities include explosion and fire, electrocution, toxic exposures, pathogens, and drowning.

### Identifying and Locating Underground Utilities

The potential for underground utilities or other subsurface feature (e.g., subsurface mines) must be evaluated as early as possible in the planning phase for any project which involves intrusive activities. The following sections describe various methods for identifying and locating utilities on a site. The *Underground Utilities Locating and Marking Checklist* (Attachment A) and the *Underground Utilities Management Checklist* (Attachment B) must be completed before any activities meeting the definition of excavation are conducted. Attachment A is intended to be used as a guide during the process of locating and marking utilities in the area to be excavated. Attachment B is intended to be used as a guide in the overall process of underground utilities management during the course of the project.

**Note:** Attachments A and B or their equivalents must be used to document compliance with this FLD and will be subject to audit.

Prior to excavation all underground utilities must be located and identified by at least two of the following:

- The Utility Owner
- The Property Owner
- A Private or Public Utility Locating Service
- Review of the most current utility drawing, maps or other available records by an approved WESTON Competent Person
- Use of utility locating technology by a WESTON Competent Person or subcontractor – this includes the use of potholing or daylighting in a “target-rich” work environment or whenever a full clearance (without restrictions) cannot be obtained from a utility locating service.

As an aid in determining the potential for or existence of utilities follow the criteria outlined in Attachment C (Utilities Research Options).

### Pre-Planning and the Site HASP

The site-specific HASP developed for the project must:

- Identify the location and types of underground utilities that are believed to be present on the site.
- Reference this procedure (FLD 34), and describe how it will be implemented on the project.
- Contain an AHA in which the hazards associated with underground utilities are identified, as well as the measures used to control them.
- Contain any site or contract-specific requirements (e.g., Corps of Engineers, EM 385-1-1, Section 25) that may be applicable.
- Contain clear and concise procedures to be followed in the event that contact with underground utilities occurs.



- Address underground utilities and potential associated scenarios in the emergency response section of the HASP.








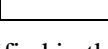
#### “One-Call” Locating and Marking Services

Every state has utility marking service programs that have various names such as “One-Call”, “Dig-Safe”, “Call-Before-You-Dig”, “Dig-Safely”, and many others. These services will identify the types and locations of any utility that may exist in an area to be excavated, as long as the property is in the public domain.

- The appropriate One-Call service for the jurisdiction where the project is located must be contacted prior to beginning excavation work. The One-Call Agency should be given as detailed a description of the property as possible; address, cross street, utility pole numbers, physical description, etc.
- Notification to the One-Call service shall allow sufficient lead-time for the Agency to mark the utilities before excavation begins. The lead times vary, but range from two to ten days, depending on the state of jurisdiction.
- In the event the State or Local One-Call service number is in question call "811" (the Federal Call before You Dig Number) for access to the appropriate locator service.
- A complete listing of One-Call agencies and telephone numbers for all states is available in the “*Call-Before-You-Dig Call Center Directory*”, which can be accessed on the Internet at the WebPage (<http://underspace.com/index.htm>) sponsored by “*Underground Focus*” magazine.
- Once notified, the One-Call Agency will provide the contractor with a unique “locate number” or “reference number”. This reference number must be kept in the project files by the Competent Person or designee. Additionally, the reference numbers have expiration dates, which may vary depending on the particular One-Call Agency. The valid period of the locate number and required renew notification date shall be requested from the One-Call Agency.
- On a project with multiple contractors, each contractor must request a separate locate number. Under no circumstances will any other contractor or entity be allowed to “work under our locate number”. Subcontractors to WESTON may excavate under the locate number secured by WESTON, provided that they are excavating within the area which was previously white-lined by WESTON and subsequently marked. **However, the One-Call Agency must be contacted and notified of this arrangement so that the subcontractor can be recorded as working under the existing locate number.** If a WESTON subcontractor will be excavating in an area not white-lined by WESTON, then the WESTON subcontractor must request a new locate. **Note: State and local requirements must be checked for local application of this procedure.**
- The area where work is to be performed shall be white-lined before the locating service goes to the site.
- It is good practice to arrange a pre-excavation meeting at the project site with the personnel performing the utility location and marking. This meeting will facilitate communications, coordinate the marking with actual excavation, and assure identification of high-priority utilities.
- The One-Call Agency should provide the identities of the utility owners that will be notified of the locate request. This information shall be recorded on the Underground Utilities Locating and Marking Checklist (Appendix A) and maintained in the project files. The contact person and phone number for each utility owner shall also be recorded. ***Note that all utility owners are not members of the One-Call system.*** This does not eliminate the need to contact a non-member owner if you have knowledge or suspect that excavation will impact their utility.

- The utility owners should provide a “positive response” relative to the locate request, which can consist of two types of action by the utility owner. The facility owner or operator is required to 1) mark its underground utilities with stakes, paint, or flags, or 2) notify the excavator that the utility owner/operator has no underground utilities in the area of the excavation.
- The positive responses shall be recorded on the Underground Utilities Locating and Marking Checklist (Attachment A) and crosschecked with the list of utility owners that the One-Call Agency stated they would notify. If it is discovered that a utility owner has not provided a positive response, then the One-Call Agency must be notified.
- Excavation shall not be conducted until positive responses have been received from all utility owners identified by the One-Call Agency as having underground utilities on the property.
- Before beginning excavation, the excavator must verify that the location marked was correct, and the distinct, color-coded markings of all utility owners are present.
- Examine the site to check for any visible signs of underground utilities that have not been located and marked such as pedestals, risers, meters, warning signs, manholes, pull boxes, valve boxes, patched asphalt or concrete pavement, areas of subsidence, fresh sod or grass, lack of grass or vegetation, and new trench lines.
- The markings placed by the utility owners should be documented by WESTON using a still, digital, or video camera, whenever practical and reasonable. The photo-documentation shall be maintained with the project files.
- The markings placed by the utility owners or marking services typically follow the American Public Works Association Uniform Color Code as described in ANSI Standard Z 535.1. This code follows:

#### American Public Works Association Uniform Color Code

Red		Electric Power Lines, Cables, Conduit
Orange		Communications, Telephone, Cable TV
Yellow		Gas, Oil, Steam, Petroleum or Gaseous Materials
Green		Sewers and Drains
Blue		Potable Water Systems
Purple		Reclaimed Water, Irrigation, Slurry Lines
Pink		Temporary Survey Markings
White		Proposed Excavation

**Note:** Unless otherwise specified in the utility clearance, such clearance will not be considered valid after 30 days from the date it was issued.

#### Private Utility Locating and Marking Services

- **One-Call agencies arrange for the identification and marking of underground utilities only on public property, up to the point of contact with private property.** In the event that activities are to be conducted on non-public properties, the presence, location, depth, and orientation of all underground utilities shall be ascertained through records review, including any site plot plans, utility layout plans, and as-built drawings available from the property owner, as well as through interviews with knowledgeable personnel associated with the property (See Attachment C). Additionally, for excavations using aggressive methods in target-rich

environments or other situations where utility locations are in question, the information gathered from these sources shall be verified by physical detection methods (non-aggressive), performance of a geophysical survey, or by procuring the services of a private utility locating and marking service. If any detection methods are to be self-performed, the requirements within this FLD must be followed. **A list of vendors providing this service can be found in the “Network of Underground Damage Prevention Professionals” which can be accessed on the Internet at the “Underspace” WebPage (<http://underspace.com/index.htm>).**

#### Self-Performance of Utility Locating and Marking

The techniques and instruments used to locate and characterize underground utilities can be extremely complicated and difficult to use effectively. Additionally, interpretation of the data generated by this instrumentation can be difficult. The utility marking services, as previously described are staffed by well-trained, experienced professionals who perform locating activities on a regular basis. For these reasons, it is most desirable that these professional services are used for utility location and marking on projects.

- In some instances on private property or in other areas not served by One-Call agencies (e.g., long-term projects where excavation is a primary task, and the presence of underground utilities is extensive) it may be prudent to self-perform locating and marking activities.
- If locating and marking is to be self-performed, all personnel using instrumentation will be trained on the use of the equipment that will be used, and the interpretation of the data.
- There are a variety of locating methods which may be utilized for self-performance of utility locating as categorized below:
  - Magnetic field-based locators or path tracers
  - Buried electronic marker systems (EMS)
  - Ground penetration radar-based buried –structure detectors
  - Acoustics-based plastic pipe locators
  - Active probes, beacons, or sondes for non-metallic pipes
  - Magnetic polyethylene pipe
- Before self-performing any underground utility locating on a project, approval must be obtained from the appropriate WESTON DEHSM or the Corporate EHS Director.

#### **Working Near or Around Underground Utilities**

After the site has been properly evaluated for the presence of aboveground utilities, underground utilities, and other appurtenances, intrusive activities may begin. Because there is no perfect way of eliminating the hazards presented by underground utilities, an effort must be made to perform the tasks following the direction and guidance as described by the following best practices that should be implemented during the execution of the project.

#### Work Site Review

Before beginning intrusive activities, a meeting shall be held between all members of the project team. This shall consist of a review of the marked utility locations with the equipment operators, observers, laborers, etc.

#### Preservation of Marks

During excavation, efforts must be made to preserve the markings placed by the utility owners until they are no longer required. If any markings are obliterated, the One-Call Agency must be contacted for re-marking. No intrusive activities are to take place if markings are not visible.

### Excavation Observer

Whenever intrusive operations are being conducted within three feet of the edge of the buffer zone, an observer must be assigned to monitor the activities. The observer will be designated each day, and a review of hand signals and other forms of communication between the observer and operator will be conducted. The directives of the observer will be followed precisely and immediately by those operating equipment.

### Excavation Within The Buffer Zone

Mechanical means of excavation may not be used within 36 inches (see Buffer Zone) of any marked or suspect utility until the utility has been exposed. Mechanical methods may be used, as necessary, for initial penetration and removal of pavement, rock or other materials requiring use of mechanical means of excavation provided a spotter is used. Once the underground utility has been exposed, further excavation must be performed, employing reasonable precautions to avoid damage to the utility, including but not limited to any substantial weakening of structural or lateral support, or penetration or destruction of the utility or its protective coatings. For purposes of this section, “mechanical means of excavation” means excavation using any device or tool powered by an engine except air vacuum or like methods of excavation.

A request to utilize aggressive excavation methods in the buffer zone may be made if:

- There is no other appropriate and reasonable alternative to using aggressive methods in the buffer zone; and
- The utility has been de-energized (and purged if necessary), verified as de-energized, and locked-out; or
- The depth and orientation of the utility has been adequately and visually determined through the use of non-aggressive methods such as air/hydro/vacuum excavation, potholing, probing, hand-digging, or a combination thereof; and
- For utilities containing electrical energy, the depth of the existing water table is below the location of the utility; and
- Request for the exemption has been submitted to the appropriate DEHSM and Profit Center Manager for approval.

The following conditions will apply to this request:

- Aggressive methods may be used in the buffer zone only to the extent allowed by the applicable state or other jurisdictional regulations.
- Appropriate physical protection measures for exposed utilities shall be implemented to eliminate the potential for equipment contact with utilities.
- The extent of the project excavation area to be covered by the exemption request must be specified in the request for exemption.
- When evaluating the use of aggressive excavation methods in the buffer zone, the DEHSM will consider the type of utility involved and the associated risk potential. Based on this evaluation, the Profit Center Manager and/or DEHSM may impose further conditions and requirements. Even if the above exemption conditions are met, the DEHSM has authority to deny the request.



Unless exempted according to the above provisions of this procedure, only non-aggressive methods may be used within the buffer zone. These methods are used in order to prevent mechanical contact with underground utilities, which could result in damage to the utility and create the potential for personal injury and property damage. Following are examples of non-aggressive excavation methods:

- Hand-digging
  - Non-conductive hand tools must be used when digging within the buffer zone surrounding underground electrical utilities.
  - If conductive hand tools must be used near electrical lines, then the FSO and/or DEHSM shall be consulted to determine additional requirements relative to safe electrical practices, procedures, and equipment.
- Hydro-excavation (water pressure).
- Air excavation (air pressure).
- Vacuum extraction (soil excavation/removal).
- Air excavation/vacuum extraction combination.
- Aggressive methods may be used for the removal of pavement over a utility, if allowed by the state regulations.

#### Protection of Underground Utilities

It is very important that consideration be given to the protection of underground utilities when performing adjacent intrusive activities. This is necessary not only to prevent physical damage and associated indirect effects, but also to prevent the potential for injury to employees and the public.

- When using aggressive excavation methods within the buffer zone around exposed underground utilities, physical protection must be used as required by OSHA in 29 CFR 1926.651. Basically, this involves creation of a physical barrier between the mechanized operation and the utility. The following are some possible types of physical protective measures:
  - Heavy timbers, similar to swamp or crane mats.
  - Sheets of plywood.
  - Blasting mats.
- Once exposed, underground utilities no longer have the support provided by surrounding soil and may need to be physically supported to prevent shifting, bending, separation, or collapse, which could result in damage to the utility, and possibly personnel. Following are suggested support methods:
  - Timber shoring underneath the utility.
  - Timbers or girders over the top of the excavation fitted with hangers that support the utility.
  - Design by a Professional Engineer for complicated or large applications.
- Utilities must also be protected from objects that may fall into the excavation such as rocks and equipment. This can be accomplished by following these guidelines:
  - Cast spoils as far away from the excavation as possible. Excavated and loose materials shall be kept a minimum of two feet from the edge of excavations.
  - Relocate large rocks, cobbles, and boulders away from the excavation and sloped spoils piles.

- When vehicles and machinery are operating adjacent to excavations, warning systems such as soil berms, stop logs or barricades shall be utilized to prevent vehicles from entering the excavation or trench.
- Scaling or barricades shall be used to prevent rock and soils from falling into the excavation.
- Barriers shall be provided to prevent personnel from inadvertently falling into an excavation.

### De-Energizing Utilities

Utilities can carry many types of potential energy, including electricity, flowing liquids, liquids under pressure, or gasses under pressure. A release may happen if a utility conveyance is compromised and could result in personal injury, property damage, and other indirect effects. If the white lines of the proposed excavation area overlaps or extends into the buffer zone of a known underground utility, then if at all possible, that utility should be de-energized to physically prevent the transmission, flow, or release of energy. Conversely, if the buffer zone of the known utility lies outside of the white-lined, proposed excavation area, then de-energizing is not required.

- The owner of the utility shall be contacted to determine the feasibility and methodology of de-energizing the utility. Plenty of lead-time should be provided for this since it may take utility companies weeks to de-energize some utilities.
- Depending on the utility and the material being conveyed, isolation points which may be suitable for de-energizing include but are not limited to the following:
  - Electrical circuit breakers
  - Slide gate
  - Disconnect switches
  - Piping flanges
  - Other similar devices
- When utilities are de-energized, it must be verified by demonstration. This can be accomplished by methods such as, testing equipment, switching on a machine or lighting, or opening a valve. For any current-carrying electrical equipment, such as cables or electrical panels, successful de-energizing must be certified through the use of appropriate electrical testing equipment and qualified personnel.
- Whenever a utility is de-energized, a means of ensuring that the energy isolation device and equipment cannot be operated until the device is removed must be provided.
- When de-energizing and locking out of utilities is practiced, the provisions of FLD 42 Lockout/Tagout shall be followed, as applicable.

### Damage Discovery

During excavation, utility damage may be discovered which is pre-existing or otherwise not related to a known contact. Disclosure to the utility owner is very important because the possibility of utility failure or endangerment of the surrounding population increases when damage has occurred. The utility may not immediately fail as a result of damage, but the utility owner or operator must be afforded the opportunity to inspect the utility and make a damage assessment and effect repairs if necessary. The following guidance applies:

- Observe and photograph the utility from a safe distance and determine if there is damage. Damage would be all breaks, leaks, nicks, dents, gouges, grooves, or other damages to utility lines, conduits, coatings, or cathodic protection systems.

- The owner of the affected utility must be contacted immediately.
- The One-Call Agency or private location service must be contacted immediately.
- A Notification of Incident (NOI) Report will be used to document such a discovery.

#### Encountering Unexpected Underground Utilities

It is possible that underground utilities will be encountered in locations that have previously been “cleared” of having underground utilities by the locating service, or are found outside of the area, which has been marked as having underground utilities. In either case, if this occurs, the following applies:

- Site personnel must be warned and moved to a safe location; equipment engines and ignition sources should be turned off, if possible, as the operator is exiting his/her equipment.
- Intrusive activities must be stopped.
- The owner of the affected utility must be immediately contacted.
- The One-Call Agency or private location service must be contacted immediately.
- The PM, SM, and FSO must be notified.
- No further intrusive activities may be conducted until:
  - The One-Call Agency/private location service and/or the subject utility owner visit the site;
  - Identification of the utility owner and the type of material/energy being conveyed by the utility has been made; and
  - The orientation and depth of the subject utility has been determined and suitably marked.
- A NOI Report must be completed. The report should be accompanied by photographs clearly showing the marking(s), and the actual location, with a distance gauge to document how far off the mark the utility was encountered.

#### Contacting Underground Utilities

If excavation or other equipment being used for intrusive activities makes contact with an underground utility, the following guidelines apply:

- Site personnel must be warned and moved to a safe location; equipment engines and ignition sources should be turned off, if possible, as the operator is exiting his/her equipment.
- Intrusive activities must be stopped immediately.
- Observe the utility from a safe distance and determine if there is damage. Damage would be all breaks, leaks, nicks, dents, gouges, grooves, scratched coatings, cathodic protection compromise, material leakage, obvious electrical energy.
- Move all personnel to the evacuation meeting point as described in the HASP.

***EXCEPTION:*** *If an electrical line has been contacted and it is your belief that equipment (such as an excavator) is electrically energized, do not approach the equipment. Order the operator to remain in the equipment until emergency personnel can de-energize the source (unless the equipment is on fire, at which time the operator should jump off of the vehicle and shuffle along the ground to a safe area). Shuffling is required because current flows outward through the soil in a ripple pattern called a power gradient, creating a pattern of high and low potential, Shuffling decreases the chance that these gradients could be bridged, causing current to flow through the body, resulting in electrocution.*

- Secure the area to prevent the public from entering.
- Contact emergency responders as specified in the HASP.
- Immediately contact the One-Call Agency or if known, the utility owner.
- Notify the PM, SM, FSO and DEHSM.
- No further intrusive activities may be conducted until:
  - The utility owner inspects the scene and after repairs, verifies that all danger has passed.
  - The orientation and depth of the subject utility has been determined and suitably marked.
  - Permission from the emergency responders to resume work has been given.
- A WESTON NOI Report must be completed. The report should be accompanied by photographs clearly showing the marking(s), and the actual location, with a distance gauge to document how far off the mark the utility was encountered.
- State and Local regulations must be reviewed to determine if reporting to any additional agencies is required.

## **ATTACHMENTS**

Attachment A – Underground Utilities Locating and Marking Checklist

Attachment B – Underground Utilities Management Checklist

Attachment C – Utilities Research Options

Attachment D – Sources of Information

Informational Addendum 16 June 2010



**ATTACHMENT A**  
**UNDERGROUND UTILITIES LOCATING AND MARKING CHECKLIST**

*Weston Solutions, Inc.*

To be Completed by PM and/or "Competent Person"  
 Complete Form as Location/Marking Progresses and Maintain in Site Files

<b>PROJECT INFORMATION:</b>	<b>Location:</b>
<b>Project Name:</b>	Task/Activity:
WESTON Competent Person:	Start Date of Work:
WESTON Subcontractor: <input type="checkbox"/> No <input type="checkbox"/> Yes:	Private Locating Service Required: <input type="checkbox"/> Yes <input type="checkbox"/> No
Subcontractor Competent Person:	If Not, Explain:
Property Owner:	
<b>NOTIFICATION:</b>	
<b>Locating Service Name:</b>	Locating Service Tel. Number:
Date Locating Service Notified:	Locate Ticket Number:
Address of Property to be Marked:	Locate Ticket Expiration Date:
Nearest Intersecting Street:	
Are There Any Utilities on the Properties That the Locating Service Will Not Contact? <input type="checkbox"/> Yes <input type="checkbox"/> No	
Specify:	

*Enter Utility Information in Table 1 Below. In Addition to Utility Locating Services, Consult Client, Utility Owners, Drawings, Facility Personnel, Maintenance Personnel, Municipalities (See Appendix C).*

**Table 1. On-Site Utility Information**

Name of Utility Company	Type of Utility	Color Code	Utility Present On-Site?	Emergency Phone Number	Date Marks Completed
	Electric	RED			
	Communications, Phone, CATV	ORANGE			
	Gas, Oil, Steam, Petroleum	YELLOW			
	Sewers, Drains	GREEN			
	Potable Water	BLUE			
	Reclaimed Water, Irrigation	PURPLE			
	Temporary Survey Markings	PINK			
To be performed by excavator prior to utility mark-out.	Proposed Excavation	WHITE			

White-Lining Completed?

☐ No Explain: \_\_\_\_\_ ☐ Yes: Date: \_\_\_\_\_ By Whom? \_\_\_\_\_

**LOCATING AND MARKING:**

Have All Utilities Identified in Table 1 Been Marked?

☐ Yes ☐ No (If No, Contact Locating Service for Resolution)

Problem(s) With Markings?

☐ Yes ☐ No ☐ No Marks ☐ Incorrect Location ☐ Too Wide

☐ Other: \_\_\_\_\_ ☐ Not All Utilities Marked Per Table 1 (notify marking service)

Measurements Taken: ☐ Yes ☐ No

Documentation of Marks: ☐ Photos ☐ Video ☐ Other: \_\_\_\_\_

**EXCAVATION:**

Utilities Accurately Marked? ☐ Yes ☐ No

If no, describe: \_\_\_\_\_

Were Unmarked or Mis-Marked Utilities Encountered? ☐ Yes ☐ No

If Yes, Specify: \_\_\_\_\_

Locating Service Notified? ☐ Yes ☐ No

Will Excavation Continue Past Locate Number Expiration? ☐ Yes ☐ No

If Yes, Locate Number Renewed? ☐ Yes ☐ No New Expiration Date: \_\_\_\_\_

Any Other Problems/Concerns? Specify: \_\_\_\_\_

Form Completed By:	Signature:	Date:
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**ATTACHMENT B**  
**UNDERGROUND UTILITIES MANAGEMENT CHECKLIST**

*Weston Solutions, Inc.*

To be Completed by PM and/or “Competent Person”

Complete Form as Project Progresses and Maintain in Site Files.

PHASE	TASK		YES	NO	NA	COMMENTS Required if Response is No or NA. (Reference Item Number)
<b>Pre-Planning</b>	1	Excavation/Best Practices in Work Scope?				
	2	Underground Utilities Identified?				
	3	Competent Person Assigned?				
	4	Has a Copy of the Applicable State Regulations Been Obtained, Read, Understood?				
	5	EHS Plan Addresses Underground Utilities? (AHAs, Contingency Plan, State Regulations Appendix)				
<b>Identifying, Locating and Marking</b>	6	Locating and Marking Checklist Initiated? (Attachment A)				
	7	Identification and Address of Property Determined, Including Nearest Intersection?				
	8	One-Call Agency Contacted?				
	9	Additional Locating and Marking Required on Property? (One-Call agency marks to public property line only)				
	10	Additional Marker/Locator Identified?				
	11	Additional Marker/Locator Qualified?				
	12	Weston Self-Performing Location and Marking?				
	13	If Yes to 12 Above, Approval From Division EHS Manager?				
	14	Area of Excavation “White-Lined” by WESTON?				
	15	WESTON Present When Markings Completed?				
	16	All Utilities Marked? (Refer to Attachment A, Table 1)				
	17	All Markings Photo/Video Documented?				

PHASE	TASK		YES	NO	NA	COMMENTS Required if Response is No or NA. (Reference Item Number)
<b>Identifying, Locating and Marking – Continued</b>	18	Area Checked for Signs of Previous Excavation? (Subsidence, new grass, patching, etc)				
	19	All Applicable Information Recorded on Attachment A?				
	20	Multiple Contractors Excavating On-Site?				
	21	Separate Locate Requests for All Contractors?				
	22	WESTON Subcontractors Excavating in WESTON White- Lined Area(s)?				
	23	If Yes to 22 Above, One-Call Agency Contacted to Determine if WESTON Subcontractor Can be Added to Existing Locate Ticket?				
<b>Excavation Activities</b>	24	Meeting and Site Walkover Conducted with Project Personnel?  (Managers, Equipment Operators, Laborers, Competent Person, Excavation Observer, etc)				
	25	AHA and HASP Review Conducted With Personnel?				
	26	Do Site Activities Have Potential to Obliterate Utility Markings?				
	27	If Yes to 26 Above, Have Provisions Been Made to Preserve Markings?				
	28	Has an Excavation Observer Been Designated to Monitor Excavation When Occurring within 3 Feet of the Buffer Zone?				
	29	Have Operator and Observer Reviewed Commands and Signals?				
	30	Has WESTON-Required Buffer Zone Been Marked on Either Side of Markings Placed by Locator?				

PHASE	TASK		YES	NO	NA	COMMENTS Required if Response is No or NA. (Reference Item Number)
<b>Excavation Within Buffer Zone</b>	31	Is Excavation Within The Buffer Zone Absolutely Necessary?				
	32	If Yes to 31 Above, Can Non-Aggressive Methods Be Used For Excavation In The Buffer Zone? If Yes, Identify Appropriate Non-Aggressive Methods.				
	33	If No to 32 Above, Has a Buffer Zone Exemption Request Been Approved? If No, then Aggressive Methods May Not Be Used in The Buffer Zone.				
	34	If Yes to 33 Above, Has the Utility Been De-Energized, Purged, Verified/Tested, and Locked-Out? Or,  Has The Depth and Orientation of the Utility Been Adequately and Visually Determined Through The Use of Non-Aggressive Methods?				
	35	If Yes to 34 Above, Have All of The Following Conditions Been Met?  For Utilities Containing Electrical Energy, Is The Depth of The Water Table Below The Depth of The Utility?  Have Regulations Been Consulted to Determine Specific State Requirements Relative to Excavating in The Buffer Zone?  Have Appropriate Physical Protection Measures Been Implemented to Prevent Equipment Contact With Utilities and to Prevent Damage to Utilities?  If No to Any of The Above Conditions, Then Only Non-Aggressive Excavation Methods May Conducted in The Buffer Zone, Since The Conditions of The Exemption Have Not Been Satisfied.				
<b>Working Around Exposed Utilities</b>	36	If Necessary, Have Provisions Been Made to Support the Utility During Work Activities?				
	37	Have Spoils Been Placed as far Away From the Excavation as Feasible?				



PHASE	TASK		YES	NO	NA	COMMENTS Required if Response is No or NA. (Reference Item Number)
<b>Working Around Exposed Utilities – Continued</b>	38	Has the Utility Been De-Energized? (If Any Portion of the Buffer Zone around a Utility is Inside of the White-Lined Area)				
	39	Has the Isolation Point for the De-Energized Utility Been Physically Locked-Out?				
	40	If No to 39 Above, Has a Spotter Been Assigned to Monitor Isolation Point?				
	41	If Yes to 40 Above, Does the Spotter Have Adequate Communications? (Radio, Telephone, etc)				
	42	Has the Isolation Point Been Tagged?				
<b>Damage Discovery</b>	43	Has Pre-Existing Damage to a Utility Been Discovered During Excavation?				
	44	If Yes to 43 Above, Has the One-Call Agency and/or Utility Owner Been Notified?				
	45	If Yes to 43 Above, Have Photographs Been taken?				
<b>Encountering or Contacting Underground Utilities</b>	46	Have Utilities Been Encountered in Locations That Have Not Been Marked?				
	47	If Yes to 46 Above, Has the One-Call Agency or Other Locating Service Been Contacted?				
	48	If Yes to 46 Above, Has the PM and Appropriate DSM Been Notified?				
	49	If Yes to 46 Above, Has a WESTON Notification of Incident (NOI) Report Been Completed? (Include Photographs)				
	50	Have Excavation Equipment Come In Contact With Underground utilities?				
	51	If Yes to 50 Above, Were Intrusive Activities Immediately Curtailed?				

PHASE	TASK		YES	NO	NA	COMMENTS
						Required if Response is No or NA. (Reference Item Number)
<b>Encountering or Contacting Underground Utilities – Continued</b>	52	If Yes to 50 Above, Has a Damage Determination Been Made From a Safe Distance?				
	53	If Yes to 50 Above, Has the Area Been Secured?				
	54	If Yes to 50 Above, Have Emergency Responders Been Notified?				
	55	If Yes to 50 Above, Has the Locating Agency and/or Utility Owner Been Notified?				
	56	If Yes to 50 Above, Have State and Local Reporting Requirements Been Met?				
	57	If Yes to 50 Above, Were Intrusive Activities Curtailed Until Inspection From Utility Owner, Orientation and Depth of Utility Was Determined and Marked, Permission From Emergency Responders Given?				
	58	If Yes to 50 Above, Has a WESTON Notification of Incident (NOI) Report Been Completed? (Include Photographs)				

CHECKLIST COMPLETED BY:

\_\_\_\_\_

NAME

\_\_\_\_\_

SIGNATURE

\_\_\_\_\_

DATE

\_\_\_\_\_

NAME

\_\_\_\_\_

SIGNATURE

\_\_\_\_\_

DATE

**ATTACHMENT C**  
**UTILITY RESEARCH OPTIONS**

In the course of determining and verifying underground utility location it is expected that a minimum of two resources will be used. As a means of assisting the search for sources, the following is offered.

Records Sources:

- ☐ Utility Section of the State DOT or other Public Agency
- ☐ One-Call Center
- ☐ Public Service Commission or similar organization
- ☐ County Clerks Office
- ☐ Landowner
- ☐ Internet or Computer database
- ☐ Visual Site Inspection
- ☐ Utility Owner

From the Above Collect:

- ☐ Previous construction plans in the area
- ☐ Conduit maps
- ☐ Direct-Buried Cable records
- ☐ Distribution maps
- ☐ Service record maps
- ☐ As-built and record drawings
- ☐ Field notes
- ☐ County, city, utility owner or other geographic information system database
- ☐ Circuit diagrams
- ☐ Oral histories (current or previous employees, residents).

Review Records and Obtain Information For:

- ☐ Indications of additional and/or other available records
- ☐ Duplicate information that lends credibility to data
- ☐ Any additional need for clarifications from owners/others

## **ATTACHMENT D SOURCES OF INFORMATION**

### Organizations

- Common Ground Alliance  
<http://www.commongroundalliance.com/wc.dll?cga~toppage>
- Center for Subsurface Strategic Action (CSSA)  
<http://underspace.com/cs/index.htm>
- DigSafely  
<http://www.digsafely.com/digsafely/default.asp>
- National Utility Contractors Association (NUCA)  
<http://www.nuca.com/>
- National Utility Locating Contractors Association (NULCA)  
<http://underspace.com/nu/index.htm>
- Underground Focus Magazine  
<http://underspace.com/uf/index.htm>
- NUCA State Listing of One-Call centers  
<http://www.nuca.com/>
- Utility Safety Magazine  
<http://www.utilitysafety.com/>

### Vendors and Commercial Sites

- RadioDetection, Inc. (Detection Instruments)  
<http://www.radiodee.com/>
- Heath Consultants (Detection Instruments)  
<http://www.heathus.com/>
- Ben Meadows Company (Detection Instruments)  
<http://www.benmeadows.com/cgi-bin/SoftCart.exe/index.html?E+scstore>
- So-Deep, Inc. (Complete Utilities Services)  
<http://www.sodeep.com/>
- Concept Engineering Group, Inc. (Air Excavation Equipment)  
<http://www.air-spade.com/index.html>
- Rycom Instruments, Inc. (Detection Instruments)  
<http://www.rycominstruments.com/>

- Schonstedt Instrument Company (Detection Instruments)  
<http://www.schonstedt.com/>
- Forestry Suppliers, Inc. (Fiberglass Probe – “Fiberglass Tile Probe”, Part #77543,  
Approx. \$20.00, Telephone 800-647-5368)  
<http://www.forestry-suppliers.com/>

## **REFERENCES**

Common Ground Study of One-Call Systems and Damage Prevention Best Practices, August 1999,  
Sponsored by US DOT.



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**INFORMATIONAL ADDENDUM**  
**16 JUNE 2010**

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# **Overview of Underground Utility Detection Methods**

## **Induction Utility Locators**

Induction utility locators operate by locating either a background signal or by locating a signal introduced into the utility line using a transmitter. There are three sources of background signals that can be located. A utility line can act like a radio antenna, transmitting electromagnetic signals that can be picked up with a receiver. AC power lines have a 50HZ signal associated with them. This signal occurs in all active AC power lines regardless of voltage. Utilities in close proximity to AC power lines or used as grounds may also have a 50HZ signal that can be located with a receiver. A signal can be indirectly induced onto a utility line by placing the transmitter above the line. Through a process of trial and error, the exact above position can be determined. A direct induced signal can be generated using an induction clamp. The inductor clamp induces a signal on specific utilities. This is the preferred method of tracing, where possible. By virtue of the closed loop, there is little chance of interference with the resulting signals. When access can be gained to a conduit, a flexible insulated trace wire can be used. The resulting signal loop can be traced. This is very useful for non-metallic conduits. Finally, these signals can be located horizontally on the surface using a receiver. The receiver is moved across the estimated location of the utility line until the highest signal strength is achieved. This is the approximate horizontal location of the utility. The receiver is then rotated until minimal signal strength is achieved. This will give the approximate orientation of the utility. Vertical depth, however, derived from this equipment is subject to gross error.

## **Magnetic Locators**

Ferrous Metal or Magnetic locators operate by indicating the relative amounts of buried ferrous metals. They have limited application to locating and identifying utility lines but can be very useful for locating underground storage tanks (UST's) and buried manhole covers or other subsurface objects with a large ferrous metal content.

## **Electromagnetic Surveys**

Electromagnetic survey equipment is used to locate metallic utilities. This method pulses the ground and records the signal retransmitted back to the unit from subsurface metal. Particularly useful for locating metal pipelines and conduit, this device also can help locate other subsurface objects such as UST's, buried foundations (that contain structural steel), and pilings and pile caps (that also contain steel).

## **Ground Penetrating Radar**

Ground Penetrating Radar (GPR) is an electromagnetic method that detects interfaces between subsurface materials with differing dielectric constants (a term that describes an electrical parameter of a material). The GPR system consists of an antenna, which houses the transmitter and receiver; and a profiling recorder, which processes the received signal and produces a graphic display of the data. The transmitter radiates repetitive short-duration EM signals into the earth from an antenna moving across the ground surface. Electromagnetic waves are reflected back to the receiver by interfaces between materials with differing dielectric constants. The intensity of the reflected signal is a function of the contrast in the dielectric constant at the interface, the conductivity of the material, which the wave is traveling through, and the frequency of the signal. Subsurface features which may cause such reflections are: 1) natural geologic conditions such as changes in sediment composition, bedding and cementation horizons, voids, and water content; or 2) man-introduced materials or changes to the subsurface such as soil backfill, buried debris, tanks, pipelines, and utilities. The profiling recorder receives the signal from the antennae and produces a continuous cross section of the subsurface interface reflections, referred to as reflectors.

Depth of investigation of the GPR signal is highly site specific, and is limited by signal attenuation (absorption) of the subsurface materials. Signal attenuation is dependent upon the electrical conductivity of the subsurface materials. Signal attenuation is greatest in materials with relatively high electrical conductivity such as clays and brackish groundwater, and lowest in relatively low conductivity materials such as unsaturated sand or rock. Maximum depth of investigation is also dependent on antennae frequency and generally increases with decreasing frequency; however, the ability to identify smaller features is diminished as frequency decreases.

The various GPR antennas used are internally shielded from aboveground interference sources. Accordingly, the GPR signal is minimally affected by nearby aboveground conductive objects such as metal fences, overhead power lines, and vehicles.

A GPR survey is performed by towing an antenna across the ground along predetermined transect lines. The antennae is either pulled by a person or towed behind a vehicle. Preliminary GPR transects are performed over random areas of the site to calibrate the GPR equipment and characterize overall site conditions. The optimum time range settings are selected to provide the best combination of depth of investigation and data resolution for the subsurface conditions at the site. Ideally, the survey is performed along a pre-selected system of perpendicular or parallel transect lines. The configuration of the transect lines is designed based on the geometry and size of the target and the dimensions of the site. The beginning and ending points of the transect lines and grid intersection points, or nodes, are marked on the ground with spray paint or survey flags. A grid system is used to increase the probability of crossing the short axis of a target providing a more definitive signature in the data. The location of the antenna along a transect line is electronically marked on the cross section at each grid intersection point to allow correlation of the data to actual ground locations. The location of the targets can be marked on the ground surface using spray paint or survey flags.

### **Acoustic Location Methods**

Acoustic location methods generally apply to waterlines. A highly sensitive Acoustic Receiver listens for background sounds of water flowing; (at joints, leaks, etc.) or to sounds introduced into the water main using a transducer. This method may have good identification results, but can be inaccurate. Acoustics can also be utilized to determine the location of plastic gas lines.

## **FLD 38 HAND AND POWER HAND TOOLS**

### **REFERENCES**

29 CFR 1926 Subpart I

29 CFR 1910 Subpart P

ANSI Standard A10.3-1970, Safety Requirements for Explosive-Actuated Fastening Tools

### **RELATED FLDs**

*FLD 06 – Cold Stress*

*FLD 10 – Manual Lifting and Handling of Heavy Objects*

*FLD 16 – Pressure Systems: Compressed Gas Systems*

*FLD 35 – Electrical Safety*

### **INTRODUCTION**

Injuries from hand tools are often caused by improper use, using the wrong tool for the job, or from using a defective tool. Workers often assume that they know how to use a common hand tool. Working with something other than the simplest non-powered hand tools shall be performed only by those persons competent or qualified through formal training or documented experience.

Like all tools, hand and power tools must be maintained properly for effective use and safety. This Field Operating Procedure describes general safety guidelines for the four major categories of hand tools: cutting tools, torsion tools, impact tools, and power tools.

The use of any machinery, tool, material, or equipment which is not in compliance with any applicable OSHA 1910/1926 requirement is prohibited. Any tools or equipment identified as unsafe or defective will be “tagged or locked-out.” Controls shall be applied rendering the unsafe or defective tool or equipment inoperable. Any damaged or defective equipment shall be removed from its place of operation. Weston shall be responsible for the safe condition of tools and equipment used by employees, including tools and equipment that may be furnished by employees.

Tags shall be used as a means to prevent accidental injury or illness to employees who are exposed to hazardous or potentially hazardous conditions, equipment or operations, which are out of the ordinary, unexpected, or not readily apparent. Tags shall be used until the identified hazard is eliminated or the hazardous operation is completed. Tags need not be used where signs, guarding, or other positive means of protection are being used.

### **GENERAL SAFETY RULES – APPLICABLE TO USE OF ALL TOOLS**

- Tools will be inspected prior to each use. Tools found to be unsafe will be tagged by the inspector “Do Not Use” and either repaired or removed from the site.
- Keep the work area clear of clutter.
- Keep the work area properly illuminated.
- Maintain and keep tools sharpened, oiled, and stored in a safe, dry place.
- Wear ear and eye protection when cutting, sawing, drilling, or grinding.
- Supervisor should instruct everyone using equipment on safe procedures before they use them.
- Inspect tools, cords, and accessories regularly and document any repairs.

- Repair or replace problem equipment immediately.
- Electric power tools must have a 3-wire cord plugged into a grounded receptacle, be double-insulated or powered by a low-voltage isolation transformer, and fitted with guards and safety switches.
- Machine guards must be in-place and not removed during equipment operation.
- Do not alter factory-supplied safety features on tools.
- Install and repair equipment only if you are qualified.
- Use the right tool for the job; for instance, do not use a screwdriver as a chisel or a wrench as a hammer.
- Carry a sharp tool pointed downward or place in a tool belt or toolbox.
- Protect a sharp blade with a shield.
- Store tools in drawers or chests with cutting edge down.
- When using power tools, wear long hair in a protective manner, do not wear jewelry or loose clothing, use safety glasses, respiratory protection, hard hats, etc., as needed/specified by the manufacturer. Note that protective gloves should not be worn when operating powered woodworking tools because of the possibility of the work piece snagging the glove and pulling the hand to the cutting surface.
- All hand-held power-driven tools must be equipped with one of the following: a constant pressure switch that shuts off the power upon release (e.g., circular saws, hand-held power drills, chain saws) or an on-off switch (e.g., routers, planers scrolls saws, jigsaws).
- Never leave a running tool unattended.
- All workers using hand and power tools must be properly trained, and training must be documented.
- Tools of a non-sparking material must be used if fire/explosion hazards exist.
- All fuel-operated tools shall be stopped and allowed to cool prior to being refueled, serviced, or maintained, and proper ventilation provided when used in enclosed spaces.
- Bench grinders shall be properly grounded. Work rests must be kept at a distance not to exceed 1/8 inch from the grinding wheel surface.
- All persons using grinders or abrasive wheels shall use approved eye-protective devices.
- Hand held grinders shall have grinding wheel guards in place during operation.
- Train personnel to recognize that tasks involving lifting, repetitive motion, excess pressure, vibration, awkward positions, and remaining stationary for prolonged periods and work in cold conditions increase the risk of musculoskeletal injury. Procedures for avoiding or minimizing risk include: using mechanical devices for lifting, following procedures in FLD 10 when manual lifting is necessary, using shock absorbing gloves when using vibrating tools, choosing tools that reduce gripping force and align joints in a neutral position or holding tools in an ergonomically neutral position, taking breaks or alternating repetitive jobs, and following procedures in FLD 06.
- Hand tools such as chisels and punches, which develop mushroomed heads during use must be taken out of service and reconditioned by qualified persons or replaced, as necessary.
- Broken or fractured handles on hammers, axes and similar equipment must be replaced promptly.
- Worn or bent wrenches must be replaced.



- Handles designed for use on files and similar tools must be used.
- Jacks must be checked periodically to ensure they are in good operating condition

## **TORSION TOOLS**

Torsion tools are used to grip, fasten, and turn. These include wrenches, pliers, screwdrivers, vises, and clamps. There is a variety of each type of these tools. Selection is very important. Here are a few safety precautions for common torsion tools:

- Wrenches should always be pulled and not pushed. Pushing a wrench can cause a loss of control if there is a sudden release of pressure. A short, steady pull should be used rather than quick, jerky motions. Where available, use a socket wrench instead of an adjustable or open-ended wrench. Socket wrenches are generally easier to control, are more convenient, and are less likely to damage a bolt or nut. When using an adjustable wrench, the pressure should be applied to the fixed jaw
- Pipe wrenches can easily slip on pipes or fittings, causing injury. To prevent slipping, make sure that the pipe or fitting is clean and the wrench jaws are sharp and kept clean of oil and debris.
- Pliers should never be substituted for a wrench. They do not have the same gripping power and can easily slip on a tight object. When using cutting pliers, the object being cut can fly off and cause injury. Wear safety glasses when cutting with pliers.
- Screwdrivers are often misused. They should not be used for prying, or as punches or wedges. These misuses can damage the head of the screwdriver. A dull tip can cause the screwdriver to slip. The tip must be flat at the tip and tapered for a snug fit on the screw.
- When using vises, make sure that the vise is bolted solidly to a base (e.g., work bench). When cutting material in a vise, try to cut as close to the vise as possible to minimize vibration.
- Oil vises regularly.

## **Screwdrivers**

- Most screwdrivers are not designed to be used on electrical equipment. Use an insulated screwdriver.
- Do not hold an object in the palm of one hand and press a screwdriver into it; place the object on a bench or a table.
- Never hammer with a screwdriver.
- Check for broken handles, bent blade, etc.
- Select a screwdriver of the proper size to fit the screw.
- Screwdrivers with a split or splintered handle shall not be used.
- The point shall be kept in proper shape with a file or grinding wheel.
- Screwdrivers shall not be used as a substitute punch, chisel, nail-puller, etc.

## **Pliers**

- Do not use pliers as a substitute for hammers or wrenches.
- Use insulated pliers when doing electrical work.

- Inspect pliers frequently to make certain that they are free of breaks or cracks.
- Pliers shall be kept free from grease and oil and- the teeth or cutting edges shall be kept clean and sharp.
- The fulcrum pin, rivet or bolt shall be snug but not tight.

## **Wrenches**

- Select the correct size of wrench for the job.
- Never use a piece of pipe or another wrench as a wrench handle extension.
- Too much leverage can ruin a tool and cause injury.
- To avoid sudden slips, stand in a balanced position and always pull on the wrench instead of pushing against the fixed jaw.
- Only wrenches in good condition shall be used; a bent wrench, if straightened, has been weakened and shall not be used.
- Watch for sprung jaws on adjustable wrenches.
- Always pull toward yourself, never push, since it is easier to brace against a sudden lunge toward you should the tool slip or break.
- When using a wrench on a tight nut - first use some penetrating oil, use the largest wrench available that fits the nut, when possible pull on the wrench handle rather than pushing, and when possible apply force to the wrench with both hands while both feet are firmly placed. Always assume that you may lose your footing - check the place where you may fall for sharp objects.
- Keep all pipe wrenches clean and in good repair. The jaws of pipe wrenches should be wire brushed frequently to prevent an accumulation of dirt and grease that would otherwise build up and cause wrenches to slip.
- Never use pipe wrenches in place of a rod holding device.
- Replace hook and heel jaws when they become visibly worn.
- Position your hands so that your fingers will not be smashed between the wrench handle and the ground or other work surface; when breaking joints the wrench may slip or the joint may suddenly let go.

## **IMPACT TOOLS**

Impact tools include various types of hammers such as riveting hammers, carpenter's claw hammers, and sledgehammers. The main hazard associated with all these tools is damage to the hands and arms. The following safety procedures should be employed when using hammers:

- The handle shall be securely fitted and suited for the type of job and type of hammerhead. The striking face of the hammer shall be kept well dressed according to the application.
- The handle shall be smooth and free of oil to prevent slippage.
- Safety goggles shall be worn at all times when hammering to protect from flying nails, wood chips, and metal or plastic fragments.

- To properly drive a nail, hold the hammer near the end of the handle and start off with a light blow. Increase power after the nail is set.
- To avoid chipping or spalling of the hammerhead, use the lightest swing possible, hammer straight and not on an angle. Inspect the head of the hammer for potential chipping and spalling.

## **Hammers**

- Use the correct hammer for the type of work to be done.
- Have an unobstructed swing when using a hammer and watch for overhead interference.
- Check for defects before using.
- The head of a hammer shall be wedged securely and squarely on the handle and neither the head nor the handle shall be chipped or broken.

## **CUTTING TOOLS**

The main hazard associated with cutting tools is tool slippage. A dull tool or poor tool technique can cause a slip, which can redirect the cutting part of the tool toward the body. In addition, a sudden release or change in the force applied to a tool can throw the user off balance, possibly falling into another object, which may cause injury. To prevent slippage, tools shall be kept sharp and handled in such a way that, if a slip occurs, the direction of force will be away from the body. In addition, cutting along the grain of a material can help prevent changes in the pressure applied to the tool, thereby preventing slippage.

## **Chisels**

- Always wear safety goggles or a face shield when using a chisel.
- Drive wood chisel outward and away from your body.
- Do not use chisels to pry.
- Keep edges sharp for most effective work and protect when not in use.

## **Knives**

- Always cut away from the body.
- Keep hands and body clear of the knife stroke.
- Use a locking blade knife when possible.
- Keep blades sharp.
  - Knives and other sharp or edged tools must be maintained in proper condition. A sharp edged tool, used properly, is safer than a dull or improperly maintained tool.
  - When not in immediate use edged tools must be properly secured via, sheathing, closing, capping or covering.
  - Any task involving the use of an edged tool must be properly evaluated, alternatives to edged tools reviewed and training in the proper use, maintenance and handling verified by management and/or the site safety officer.
  - Knives, box cutters or like tools will not be authorized for cutting plastic wire ties or tubing. Use appropriately shaped and sized wire cutters or snips.
  - Remove knives from carry on luggage and place in checked baggage.

## **POWERED TOOLS**

- Portable power tools shall be carefully inspected before use and shall be kept repaired.
- Switches and plugs must operate properly, and the cords must be clean and free from defects.
- Portable powered tools capable of receiving guards and/or designed to accommodate guards shall be equipped with guards to prevent the operator from having any part of his body in the danger zone during the operating cycle.
- Electric powered portable tools with exposed conducting parts shall be grounded. Portable tools protected by an approved system of double insulation, or its equivalent, need not be grounded. Where such an approved system is employed, the equipment shall be distinctively marked.
- Hand-held powered tools of a hazardous nature such as circular saws having a blade diameter greater than two inches, chain saws, percussion tools, drills, tappers, fasteners, drivers, grinders with wheels greater than two inches in diameter, disc sanders, belt sanders, reciprocating saws, saber scroll saws and jig saws with blade shanks greater than one-fourth inch, and other similarly operating powered tools shall be equipped with a constant pressure switch or control ("dead-man switch") that will shut the power off when the pressure is released.
- Portable circular saws having a blade diameter over two inches shall be equipped with guards or hoods which will automatically adjust themselves to the work when the saw is in use, so that none of the teeth are exposed to contact above the work. When withdrawn from the work, the guard shall completely cover the saw to at least the depth of the teeth. The saw shall not be used without a shoe or guide.
- Pneumatic powered portable tools shall be equipped with automatic air shut-off valves that stop the tool when the operators hand is no longer in contact with the tool. Safety clips, retainers, or other effective means shall be installed on pneumatic tools to prevent the tools from accidentally misfiring.
- Abrasive wheels with a diameter of more than two inches shall be used only on machines provided with safety guards. The guards shall cover the spindle end, nut, and flange projections. Guards on operations where the work provides a suitable measure of protection to the operator may be so constructed that the spindle end, nut, and other flanges are exposed.
- Explosive-actuated fastening tools' muzzle ends shall have a protective shield or guard designed to confine any flying fragments or particles. The tool shall be so designed that it cannot be fired unless it is equipped with a protective shield or guard. Weston Solutions, Inc. employees are not permitted to use a power-actuated tool until properly trained as prescribed by the manufacturer.

### **Extension Cords**

See FLD 35, Electric Safety, for requirements and procedures for using extension cords.

## **SPECIALTY TOOLS**

### **Pneumatic Powered Tools**

Tools powered by air must be inspected and maintained as described above. Hose or tubing used to deliver air to pneumatic tools must be used as required and according to procedures in FLD 16, Pressure Systems: Compressed Gas Systems.

## **Powder-Actuated Tools**

- Only employees who have been trained in the operation of the particular tool in use shall be allowed to operate a powder-actuated tool.
- Powder-actuated tools shall be tested each day before loading to see that safety devices are in proper working condition. The method of testing shall be in accordance with the manufacturer's recommended procedure.
- Any tool found not in proper working order, or that develops a defect during use, shall be immediately removed from service and not used until properly repaired.
- Personal protective equipment shall be selected in accordance with manufacturer's recommendations and in consideration of the potential hazards of the task.
- Tools shall not be loaded until just prior to the intended firing time. Neither loaded nor empty tools are to be pointed at any employees. Hands shall be kept clear of the open barrel end.
- Loaded tools shall not be left unattended.
- Fasteners shall not be driven into very hard or brittle materials including, but not limited to, cast iron, glazed tile, surface-hardened steel, glass block, live rock, face brick, or hollow tile.
- Driving into materials easily penetrated shall be avoided unless such materials are backed by a substance that will prevent the pin or fastener from passing completely through and creating a flying missile hazard on the other side.
- No fastener shall be driven into a spalled area caused by an unsatisfactory fastening.
- Tools shall not be used in an explosive or flammable atmosphere.
- All tools shall be used with the correct shield, guard, or attachment recommended by the manufacturer.
- Powder-actuated tools used by employees shall meet all other applicable requirements of American National Standards Institute, A10.3-1970, Safety Requirements for Explosive-Actuated Fastening Tools.



## **RST 2 FLD 43A      ANIMALS**

Animals represent hazards because of their poisons or venoms, size and aggressiveness, diseases transmitted, or the insects they may carry.

### **Feral Animals**

Landfills and abandoned buildings often attract stray or abandoned dogs. These animals often become pack-oriented, very aggressive, and represent serious risk of harm to unprotected workers.

Workers entering abandoned buildings should be alert for such animals and avoid approaching them since this may provoke aggressive behavior. Avoidance and protection protocols include watching for animal dens, using good housekeeping, and using repellents.

### **Dangerous Wild Animals**

Work in remote areas inhabited by wild animals that have been known to cause injury and kill human beings, requires that companies working in these areas carefully plan for wildlife encounters. This FLD outlines actions that, when properly implemented, should provide a high degree of protection for WESTON employees and wildlife.

See Wildlife Hazard Recognition and Protection Procedure (Attached).

### **Venomous Snakes and Lizards**

#### Venomous Snakes

Venomous snakes are common around the world. The major variables are the likelihood of encounter and the snake that is likely to be encountered. Encounters with snakes may be caused by moving containers, reaching into holes, or just walking through high grass, swampy areas, or rocks. **Do not attempt to catch any snakes.**

Symptom of venomous snake bites:

- Bloody wound discharge, blurred vision, burning, convulsions, diarrhea, dizziness, excessive sweating, fainting, fang marks in the skin, fever, increased thirst, local tissue death, loss of muscle coordination, nausea and vomiting, numbness and tingling, rapid pulse, severe pain, skin discoloration, swelling at the site of the bite, weakness.

Venom from venomous snakes and lizards can be divided into three types of toxins, however, there are some indications that snake venom may have more than one toxin and characteristics may change as a snake ages. The three types of toxins and their effects are:

**Hemotoxins** destroy blood cells and affect the circulatory system. The site of the bite rapidly becomes swollen, discolored, and painful. This is usually accompanied by swelling, discoloration, and pain progressing toward the heart.

**Neurotoxins** affect the nervous system and symptoms vary from foggy vision, dizziness, and other comparatively mild symptoms to rigid or flaccid paralysis, shortness of breath, weakness or paralysis of the lower limbs, double vision, inability to speak or swallow, drooping eyelids, and involuntary tremors of the facial muscles. Death can occur in as little as ten minutes, usually due to abrupt cessation of respiration.

**Myotoxins** destroy cells and cause muscle necrosis.

In the US, with the exception of the coral snakes which tend to have neuron-toxic venom, most venomous snakes have been categorized as having hemotoxic venom (in some areas Mojave rattlesnakes are found to have neuron-toxic venom). There is some indication that some species of rattlesnakes have both hemotoxic and neuron-toxic venom. It is also reported that venom of younger snakes may be more neuron-toxic

There are many highly venomous snakes worldwide, some are deadly and most can be deadly without proper care.

## **Geographical Listing of Venomous Snakes**

Following is a list of poisonous snakes by geographic area. This list is extensive but may not be all inclusive. In planning for work around the world, also contact local agencies to determine whether there may be additional venomous snakes or lizards.

### **North America**

**Copperheads** (Broad-banded, Northern, Osage, Southern, Trans-Pecos)

**Rattlesnakes** Diamondback (eastern and western), Massasauga (eastern and western)

**Cottonmouth or water moccasin** (Eastern)

### **Prevention of Bites**

Key factors to working safely in areas where snakes or lizards may be encountered include:

- Be alert
- Use care when reaching into or moving containers
- Use sticks or long-handled tools when reaching where you cannot see
- Be familiar with the habits and habitats of snakes in the vicinity of an incident or site
- In areas or activities where encounters with snakes are likely, wear sturdy leather or rubber work boots and snake chaps
- Do not attempt to catch snakes unless required and qualified

A snake bite warrants medical attention after administration of proper first-aid procedures. It is important to contact local medical facilities to determine where anti-venoms are located.

## **First-Aid**

1. Keep the person calm. Restrict movement, and keep the affected area below heart level to reduce the flow of venom.
2. Remove any rings or constricting items because the affected area may swell. Create a loose splint to help restrict movement of the area.
3. If the area of the bite begins to swell and change color, the snake was probably venomous.
4. Monitor the person's vital signs -- temperature, pulse, rate of breathing, and blood pressure if possible. If there are signs of shock (such as paleness), lay the person flat, raise the feet about a foot, and cover the person with a blanket.
5. Get medical help immediately.
6. Try to photograph or identify the snake. Do not waste time hunting for the snake, and do not risk another bite. Be careful of the head of a dead snake. A snake can actually bite for up to an hour after it is dead (from a reflex).
  - DO NOT allow the person to become over-exerted. If necessary, carry the person to safety.
  - DO NOT apply a tourniquet.
  - DO NOT apply cold compresses to a snake bite.
  - DO NOT cut into a snake bite with a knife or razor.
  - DO NOT try to suction the venom by mouth.
  - DO NOT give stimulants or pain medications unless instructed to do so by a doctor.
  - DO NOT give the person anything by mouth.
  - DO NOT raise the site of the bite above the level of the person's heart
  - Transport the victim to medical attention immediately

## **Animal Borne Diseases**

### **Rabies**

Animal borne diseases include rabies (generally found in dogs, skunks, raccoons, bats, and foxes). Rabies varies from area to area as do the animals most likely to be rabid.

### **Questions and Answers about Rabies**

*Q. What is Rabies and how is it transmitted?*

A. Rabies is a viral infection most often transmitted by bites of animals infected with the virus.

*Q. What animals are most likely to be infected?*

A. Skunks, raccoons, foxes, and bats are wild animals most frequently found to be infected with rabies; however, any warm blooded animal can be infected. Squirrels, groundhogs, horses, cattle, and rabbits have been tested positive for rabies. Dogs and cats are frequently rabies-infected if not immunized.

*Q. How can you tell if an animal is rabies-infected?*

A. Rabies infection is not always apparent. Signs to look for in wild animals are over-aggressiveness or passivity. Spotting animals which are normally nocturnal (active at night) during the day and being able to approach them would be an example of unusual behavior. Finding a bat alive and on the ground is abnormal. The best precaution, however, is to observe wild animals from a safe distance, even if they are injured. Avoid dogs and cats that you do not know.

*Q. What should you do if bitten by an animal you suspect is infected with rabies?*

A. As quickly as possible, wash the bite area with soap and water, then disinfect with 70% alcohol and seek medical attention for follow-up. Try to capture the animal. Avoid being bitten again or contacting the mouth or any saliva of the animal. Keep the animal under surveillance and call the police for assistance to capture it. Have the animal tested.

A dead animal believed to be infected should be preserved and tested for rabies. Health departments are often sources where information can be found regarding testing.

*Q. Is there a cure for rabies?*

A. Rabies is preventable, even after being bitten, if treatment is begun soon enough. Getting prompt medical attention and confirming the rabies infection of an animal are very important. **Rabies is not curable once symptoms or signs of rabies appear.**

There are vaccines available that should be considered if a work assignment involves trapping animals likely to carry rabies. Medical consultants must be involved in decisions to immunize workers against rabies.

## **Hantavirus**

WESTON employees or contractors/subcontractors conducting field work in areas where there is evidence of a rodent population should be aware of an increased level of concern regarding the transmission of “Hantavirus”-associated diseases. Hantavirus is associated with rodents, especially the deer mouse (*Peromyscus maniculans*) as a primary reservoir host. Hantavirus has resulted in several deaths in the U.S.

The Hantavirus can be transmitted by infected rodents through their saliva, urine, and feces. Human infection may occur when infected wastes are inhaled as a result of aerosols produced directly from the animals. They also may come from dried materials introduced into broken skin or onto mucous membranes. Infections in humans occur most in adults and are associated with

activities that provide contact with infected rodents in rural/semi-rural areas. Hantavirus begins with one or more flu-like symptoms (i.e., fever, muscle aches, headache, and/or cough) and progresses rapidly to severe lung disease. Early diagnosis and treatment are vital.

## **Prevention**

Personnel involved in work areas where rodents and the presence of the Hantavirus are known or suspected will need to take personal protective measures and to develop an expanded site safety plan.

Field personnel involved in trapping or contacting rodents or their waste products will need to wear respirators with high-efficiency particulate air (HEPA) filters, eye protection, Tyvek coveralls, chemical-resistant gloves, and disposable boot covers. Strict decontamination requirements are needed. Double-bag, label, and specific handling, packaging, shipping, storage, and analytical procedures are required to minimize the risks of exposure from collected mice. More detailed procedures can be obtained from WESTON Corporate Health and Safety.

For employees and facilities in rural/semi-rural areas, the following risk-reduction strategies are appropriate:

- Eliminate rodents and reduce availability of food sources and nesting sites used by rodents.
- Store trash/garbage in rodent-proof metal or thick plastic containers with tight lids.
- Cut all grass/underbrush in proximity to buildings.
- Prevent rodents from entering buildings (e.g., use steel wool, screen, etc., to eliminate openings).

## **Plague**

Described under Insects (Fleas)

## **Anthrax**

Anthrax is an acute infectious disease caused by the spore-forming bacterium *Bacillus anthracis*. Anthrax most commonly occurs in wild and domestic lower vertebrates (cattle, sheep, goats, and other herbivores), but it can also occur in humans when they are exposed to infected animals or tissue from infected animals.

Anthrax is most common in agricultural regions where it occurs in animals. When anthrax affects humans, it is usually due to an occupational exposure to infected animals or their products. Workers who are exposed to dead animals and animal products from other countries where anthrax is more common may become infected with *B. anthracis* (industrial anthrax). Anthrax in wild livestock has occurred in the U.S.



Anthrax infection can occur in three forms: cutaneous (skin), inhalation, and gastrointestinal. *B. anthracis* spores can live in the soil for many years, and humans can become infected with anthrax by handling products from infected animals or by inhaling anthrax spores from contaminated animal products. Anthrax can also be spread by eating undercooked meat from infected animals. It is rare to find infected animals in the U.S.

**Cutaneous:** Most (about 95%) anthrax infections occur when the bacterium enters a cut or abrasion on the skin, such as when handling contaminated wool, hides, leather, or hair products (especially goat hair) of infected animals. Skin infection begins as a raised itchy bump that resembles an insect bite but within 1-2 days develops into a vesicle and then a painless ulcer, usually 1-3 cm in diameter, with a characteristic black necrotic (dying) area in the center. Lymph glands in the adjacent area may swell. About 20% of untreated cases of cutaneous anthrax will result in death. Deaths are rare with appropriate antimicrobial therapy.

**Inhalation:** Initial symptoms may resemble a common cold. After several days, the symptoms may progress to severe breathing problems and shock. Inhalation anthrax is usually fatal.

**Intestinal:** The intestinal disease form of anthrax may follow the consumption of contaminated meat and is characterized by an acute inflammation of the intestinal tract. Initial signs of nausea, loss of appetite, vomiting, and fever are followed by abdominal pain, vomiting of blood, and severe diarrhea. Intestinal anthrax results in death in 25% to 60% of cases.

Anthrax is not known to spread from one person to another person. Communicability is not a concern in managing or visiting patients with inhalation anthrax.

## **Prevention**

In countries where anthrax is common and vaccination levels of animal herds are low, humans should avoid contact with livestock and animal products and avoid eating meat that has not been properly slaughtered and cooked. Also, an anthrax vaccine has been licensed for use in humans. The vaccine is reported to be 93% effective in protecting against anthrax.

Doctors can prescribe effective antibiotics. To be effective, treatment should be initiated early. If left untreated, the disease can be fatal.

Direct person-to-person spread of anthrax is extremely unlikely; however, a patient's clothing and body may be contaminated with anthrax spores. Effective decontamination of people can be accomplished by a thorough wash down with anti-microbe effective soap and water. Waste water should be treated with bleach or other anti-microbial agent. Effective decontamination of articles can be accomplished by boiling contaminated articles in water for 30 minutes or longer and using common disinfectants. Chlorine is effective in destroying spores and vegetative cells on surfaces. Burning the clothing is also effective. After decontamination, there is no need to immunize, treat, or isolate contacts of people ill with anthrax unless they also were also exposed to the same source of infection. Early antibiotic treatment of anthrax is essential—delay seriously lessens chances for survival. Treatment for anthrax infection and other bacterial infections

includes large doses of intravenous and oral antibiotics, such as fluoroquinolones, like ciprofloxacin (cipro), doxycycline, erythromycin, vancomycin, or penicillin. In possible cases of inhalation anthrax exposure to unvaccinated personnel, early antibiotic prophylaxis treatment is crucial to prevent possible death.

No skin, especially if it has any wounds or scratches, should be exposed. Disposable personal protective equipment is preferable, but if not available, decontamination can be achieved by washing any exposed equipment in hot water, bleach and detergent. Disposable personal protective equipment and filters should be burned and buried. The size of *Bacillus anthracis* bacilli ranges from 0.5  $\mu\text{m}$  to 5.0  $\mu\text{m}$ . Anyone working with anthrax in a suspected or confirmed victim should wear respiratory equipment capable of filtering this size of particle or smaller. The U.S. National Institute for Occupational Safety and Health (NIOSH) and Mine Safety and Health Administration (MSHA) approved high efficiency-respirator, such as a half-face disposable respirator with a HEPA filter, is recommended. All possibly contaminated bedding or clothing should be isolated in double plastic bags and treated as possible bio-hazard waste. Dead victims that are opened and not burned provide an ideal source of anthrax spores; the victim should be sealed in an airtight body bag. Cremating victims is the preferred way of handling body disposal. No embalming or autopsy should be attempted without a fully equipped biohazard lab and trained and knowledgeable personnel.

Delays of only a few days may make the disease untreatable and treatment should be started even without symptoms if possible contamination or exposure is suspected. Animals with anthrax often just die without any apparent symptoms. Initial symptoms may resemble a common cold – sore throat, mild fever, muscle aches and malaise. After a few days, the symptoms may progress to severe breathing problems and shock and ultimately death. Death can occur from about two days to a month after exposure with deaths apparently peaking at about 8 days after exposure. [8] Antibiotic-resistant strains of anthrax are known.

Aerial spores can be trapped by a simple HEPA or P100 filter. Inhalation of anthrax spores can be prevented with a full-face mask using appropriate filtration. Unbroken skin can be decontaminated by washing with simple soap and water. All of these procedures do not kill the spores which are very hard to kill and require extensive treatment to eradicate them. Filters, clothes, etc. exposed to possible anthrax contaminated environments should be treated with chemicals or destroyed by fire to minimize the possibility of spreading the contamination.

In recent years there have been many attempts to develop new drugs against anthrax; but the existing supply still works fine if treatment is started soon enough.

Prevention can also be accomplished through early detection. In response to the U.S. Postal Service (USPS) anthrax attacks of October 2001, the USPS has installed BioDetection Systems (BDS) in their large-scale mail cancellation facilities. BDS response plans have been formulated by the USPS in conjunction with local responders including fire, police, hospitals, and public health. Employees of these facilities have been educated about anthrax, response actions and prophylactic medication. Because of the time delay inherent in getting final verification that anthrax has been used, prophylactic antibiotics for possibly exposed personnel should commence as soon as possible.

The ultimate in prevention is vaccination against infection but this has to be done well in advance of exposure.

Anthrax spores can survive for long periods of time in the environment after release. Methods for cleaning anthrax contaminated sites commonly use oxidizing agents such as peroxides, ethylene Oxide, Sandia Foam, chlorine dioxide (used in the Hart Senate office building), and liquid bleach products containing sodium hypochlorite. These agents slowly destroy bacterial spores. A bleach solution for treating hard surfaces has been approved by the EPA and can be prepared by mixing one part bleach (5.25%-6.00%) to one part white vinegar to eight parts water. Bleach and vinegar must not be combined together directly, rather some water must first be added to the bleach (e.g., two cups water to one cup of bleach), then vinegar (e.g., one cup), and then the rest of the water (e.g., six cups). The pH of the solution should be tested with a paper test strip; and treated surfaces must remain in contact with the bleach solution for 60 minutes (repeated applications will be necessary to keep the surfaces wet).

Chlorine dioxide has emerged as the preferred biocide against anthrax-contaminated sites, having been employed in the treatment of numerous government buildings over the past decade. Its chief drawback is the need for in situ processes to have the reactant on demand.

To speed the process, trace amounts of a non-toxic catalyst composed of iron and tetra-amido macrocyclic ligands are combined with sodium carbonate and bicarbonate and converted into a spray. The spray formula is applied to an infested area and is followed by another spray containing tertiary-butyl hydroperoxide

Using the catalyst method, a complete destruction of all anthrax spores takes 30 minutes. A standard catalyst-free spray destroys fewer than half the spores in the same amount of time. They can be heated, exposed to the harshest chemicals, and they do not easily die.

## **Brucellosis**

Brucellosis, also called undulant fever or Malta fever, is a zoonosis (infectious disease transmitted from animals to humans) caused by bacteria of the genus *Brucella*. It is primarily a disease of domestic animals (goats, pigs, cattle, dogs, etc.) and humans and has a worldwide distribution.

Although brucellosis can be found worldwide, it is more common in countries that do not have good standardized and effective public health and domestic animal health programs. Areas currently listed as high risk include the Caribbean.

The disease is transmitted either through contaminated or untreated milk (and its derivatives) or through direct contact with infected animals, which may include dogs, pigs, camels, and ruminants, primarily sheep, goats, cattle, and bison. This also includes contact with their carcasses.

Leftovers from parturition are also extremely rich in highly virulent brucellae. Brucellae, along with leptospira have the unique property of being able to penetrate through intact human skin, so infection by mere hand contact with infectious material is likely to occur.

The disease is now usually associated with the consumption of un-pasteurized milk and soft cheeses made from the milk of infected animals and with occupational exposure of veterinarians and slaughterhouse workers. Some vaccines used in livestock, most notably *B. abortus* strain 19 also cause disease in humans if accidentally injected. Problems with vaccine induced cases in the United States declined after the release of the RB-51 strain developed in the 1990s and the relaxation of laws requiring vaccination of cattle in many states.

The incubation period of brucellosis is, usually, of one to three weeks, but some rare instances may take several months to surface.

Brucellosis induces inconstant fevers, sweating, weakness, anemia, headaches, depression and muscular and bodily pain.

The symptoms are like those associated with many other febrile diseases, but with emphasis on muscular pain and sweating. The duration of the disease can vary from a few weeks to many months or even years. In first stage of the disease, septicaemia occurs and leads to the classic triad of undulant fevers, sweating (often with characteristic smell, likened to wet hay) and migratory arthralgia and myalgia.

## **Prevention**

The main way of preventing brucellosis is by using fastidious hygiene in producing raw milk products, or by pasteurization of all milk that is to be ingested by human beings, either in its pure form or as a derivate, such as cheese.

Provide protection from skin contact when handling potentially infected animals.

## **Q fever**

**Q fever** is caused by infection with *Coxiella burnetii*. This organism is uncommon but may be found in cattle, sheep, goats and other domestic mammals, including cats and dogs. The infection results from inhalation of contaminated particles in the air, and from contact with the vaginal mucus, milk, feces, urine or semen of infected animals. The incubation period is 9-40 days. It is considered possibly the most infectious disease in the world, as a human being can be infected by a single bacterium.

The most common manifestation is flu-like symptoms with abrupt onset of fever, malaise, profuse perspiration, severe headache, myalgia (muscle pain), joint pain, loss of appetite, upper respiratory problems, dry cough, pleuritic pain, chills, confusion and gastro-intestinal symptoms such as nausea, vomiting and diarrhea. The fever lasts approximately 7-14 days.

During the course, the disease can progress to an atypical pneumonia, which can result in a life threatening acute respiratory distress syndrome (ARDS), whereby such symptoms usually occur during the first 4-5 days of infection.

Less often the Q fever causes (granulomatous) hepatitis which becomes symptomatic with malaise, fever, liver enlargement (hepatomegaly), pain in the right upper quadrant of the abdomen and jaundice (icterus).

The chronic form of the Q fever is virtually identical with the inflammation of the inner lining of the heart (endocarditis), which can occur after months or decades following the infection. It is usually deadly if untreated. However, with appropriate treatment this lethality is around 10%.

The common way of infection is inhalation of contaminated dust, contact with contaminated milk, meat, wool and particularly birthing products. Ticks can transfer the pathogenic agent to other animals. Transfer between humans seems extremely rare and has so far been described in very few cases.

## **Prevention**

Q fever is effectively prevented by intradermal vaccination with a vaccine composed of killed *Coxiella burnetii* organisms. Skin and blood tests should be done before vaccination to identify preexisting immunity; the reason is that vaccinating subjects who already have immunity can result in a severe local reaction. After a single dose of vaccine, protective immunity lasts for many years. Revaccination is not generally required. Annual screening is typically recommended.

Wear appropriate PPE when handling potentially infected animals or materials.

## **Leptospirosis**

Leptospirosis is a bacterial disease that affects humans and animals. It is caused by bacteria of the genus *Leptospira*.

The time between a person's exposure to a contaminated source and becoming sick is 2 days to 4 weeks. Illness usually begins abruptly with fever and other symptoms. Leptospirosis may occur in two phases; after the first phase, with fever, chills, headache, muscle aches, vomiting, or diarrhea, the patient may recover for a time but become ill again. If a second phase occurs, it is more severe; the person may have kidney or liver failure or meningitis. This phase is also called Weil's disease.

The illness lasts from a few days to 3 weeks or longer. Without treatment, recovery may take several months. In rare cases death occurs.

Many of these symptoms can be mistaken for other diseases. Leptospirosis is confirmed by laboratory testing of a blood or urine sample.



*Leptospira* organisms have been found in cattle, pigs, horses, dogs, rodents, and wild animals. Humans become infected through contact with water, food, or soil containing waste from these infected animals. This may happen by consuming contaminated food or water or through skin contact, especially with mucosal surfaces, such as the eyes or nose, or with broken skin. The disease is not known to be spread from person to person.

Leptospirosis occurs worldwide but is most common in temperate or tropical climates. It is an occupational hazard for many people who work outdoors or with animals, for example, farmers, sewer workers, veterinarians, fish workers, dairy farmers, or military personnel. It is a recreational hazard for campers or those who participate in outdoor sports in contaminated areas and has been associated with swimming, wading, and whitewater rafting in contaminated lakes and rivers. The incidence is also increasing among urban children.

The risk of acquiring leptospirosis can be greatly reduced by not swimming or wading in water that might be contaminated with animal urine.

Protective clothing or footwear should be worn by those exposed to contaminated water or soil because of their job or recreational activities.

## **Prevention**

Avoid risky foods and drinks.

Buy it bottled or bring it to a rolling boil for 1 minute before drink it. Bottled carbonated water is safer than non-carbonated water.

Ask for drinks without ice unless the ice is made from bottled or boiled water. Avoid popsicles and flavored ices that may have been made with contaminated water.

Eat foods that have been thoroughly cooked and that are still hot and steaming

Avoid raw vegetables and fruits that cannot be peeled. Vegetables like lettuce are easily contaminated and are very hard to wash well. When eating raw fruit or vegetables that can be peeled, peel them yourself. (Wash your hands with soap first.) Do not eat the peelings.

Avoid foods and beverages from street vendors. It is difficult for food to be kept clean on the street, and many travelers get sick from food bought from street vendors.

Leptospirosis is treated with antibiotics, such as doxycycline or penicillin, which should be given early in the course of the disease. Intravenous antibiotics may be required for persons with more severe symptoms. Persons with symptoms suggestive of leptospirosis should contact a health care provider.

## **Ebola**

Ebola is both the common term used to describe a group of viruses belonging to genus Ebolavirus, family Filoviridae, and the common name for the disease which they cause, Ebola hemorrhagic fever. Ebola viruses are morphologically similar to the Marburg virus, also in the family Filoviridae, and share similar disease symptoms. Ebola has caused a number of serious and highly publicized outbreaks since its discovery.

Despite considerable effort by the World Health Organization, no animal reservoir capable of sustaining the virus between outbreaks has been identified. However, it has been hypothesized that the most likely candidate is the fruit bat.

Ebola hemorrhagic fever is potentially lethal and encompasses a range of symptoms including fever, vomiting, diarrhea, generalized pain or malaise, and sometimes internal and external bleeding. Mortality rates are extremely high, with the human case-fatality rate ranging from 50% - 89%, according to viral subtype. <sup>[2]</sup> The cause of death is usually due to hypovolemic shock or organ failure.

Because Ebola is potentially lethal and since no approved vaccine or treatment is available, Ebola is classified as a biosafety level 4 agent, as well as a Category A bioterrorism agent by the Centers for Disease Control and Prevention.

Symptoms are varied and often appear suddenly. Initial symptoms include high fever (at least 38.8°C), severe headache, muscle joint, or abdominal pain, severe weakness and exhaustion, sore throat, nausea, and dizziness. Before an outbreak is suspected, these early symptoms are easily mistaken for malaria, typhoid fever, dysentery, influenza, or various bacterial infections, which are all far more common and less reliably fatal.

Ebola may progress to cause more serious symptoms, such as diarrhea, dark or bloody feces, vomiting blood, red eyes due to distention and hemorrhage of sclerotic arterioles, petechia, maculopapular rash, and purpura. Other secondary symptoms include hypotension (less than 90 mm Hg systolic /60 mm Hg diastolic), hypovolemia, tachycardia, organ damage (especially the kidneys, spleen, and liver) as a result of disseminated systemic necrosis, and proteinuria. The interior bleeding is caused by a chemical reaction between the virus and the platelets which creates a chemical that will cut cell sized holes into the capillary walls.

Among humans, the virus is transmitted by direct contact with infected body fluids, or to a lesser extent, skin or mucus membrane contact. The incubation period can be anywhere from 2 to 21 days, but is generally between 5 and 10 days.

Although airborne transmission between monkeys has been demonstrated by an accidental outbreak in a laboratory located in Virginia, USA, there is very limited evidence for human-to-human airborne transmission in any reported epidemics.

The infection of human cases with Ebola virus has been documented through the handling of infected chimpanzees, and gorillas--both dead and alive.

So far, all epidemics of Ebola have occurred in sub-optimal hospital conditions, where practices of basic hygiene and sanitation are often either luxuries or unknown to caretakers and where disposable needles and autoclaves are unavailable or too expensive. In modern hospitals with disposable needles and knowledge of basic hygiene and barrier nursing techniques, Ebola rarely spreads on such a large scale.

## **Prevention**

Prevention methods include good hygiene in medical settings and awareness of the virus in travel areas. There is no known effective vaccine for humans.

Prevention efforts should concentrate on avoiding contact with host or vector species. Travelers should not visit locations where an outbreak is occurring. Contact with rodents should be avoided. Minimize exposure to arthropod bites by using permethrin-impregnated bed nets and insect repellents.

Strict compliance with infection control precautions (i.e., use of disposable gloves, face shields, and disposable gowns to prevent direct contact with body fluids and splashes to mucous membranes when caring for patients or handling clinical specimens; appropriate use and disposal of sharp instruments; hand washing and use of disinfectants) is recommended to avoid health care-associated infections.

Contact with dead primates should be avoided.

## **Bird and Bat Borne or Enhanced Diseases**

**See also under Molds and Fungus**

### **Histoplasmosis**

Histoplasmosis is a fungal infection which enters the body through the lungs. The infection enters the body through the lungs. The fungus grows as a mold in the soil, and infection results from breathing in airborne particles. Soil contaminated with bird or bat droppings are known to have a higher concentration of histoplasmosis.

There may be a short period of active infection, or it can become chronic and spread throughout the body. Most people who do develop symptoms will have a flu-like syndrome (acute-fever, chills cough, and chest pain; chronic-chest pain, cough with blood, fever, shortness of breath, sweating) and lung complaints related to pneumonia or other lung involvement. Approximately 10% of the population will develop inflammation in response to the initial infection. This can affect the skin, bones or joints, or the lining of the heart (pericardium). These symptoms are not due to fungal infection of those body parts, but due to inflammation.

In a small number of patients, histoplasmosis may become widespread (disseminated) and involve the blood, brain, adrenal glands, or other organs. Very young or old are at a higher risk for

disseminated histoplasmosis. Symptoms include fevers, headache, neck stiffness, mouth sores, skin lesions.

Histoplasmosis may be prevented by reducing dust exposure in areas containing bird or bat droppings. Wear PPE and respirator when working within this environment. Institute work practices and dust control measures, i.e. moist/wet area, that eliminate or reduce dust generation which will reduce risks of infection and subsequent development of disease.

## Treatment

The main treatment for histoplasmosis is antifungal drugs. Amphotericin B, itraconazole, and ketoconazole are the usual treatments. Long-term treatment with antifungal drugs may be needed.

## Psittacosis

Psittacosis is a disease caused by a bacteria that is found in bird droppings and other secretions (often carried by pet birds). The bacteria is found worldwide.

Symptoms of psittacosis infection may include a low-grade fever that often becomes worse as the disease progresses, including anorexia, sore throat, light sensitivity, and a severe headache.

Ammonia and sodium hypochlorite based disinfectants are effective disinfectants for Psittacosis.

Where it is necessary to remove bat droppings from buildings prior to renovation or demolition it is prudent to assume infection and use the following precautions:

- Avoid areas that may harbor the bacteria, e.g., accumulations of bird or bat droppings.
- Areas known or suspected of being contaminated by *the organisms causing* Psittacosis such as bird roosts, attics, or even entire buildings that contain accumulations of bat or bird manure, should be posted with signs warning of the health risk. The building or area should be secured
- Before an activity is started that may disturb any material that might be contaminated by Psittacosis, workers should be informed in writing of the personal risk factors that increase an individual's chances of developing these diseases. Such a written communication should include a warning that individuals with weakened immune systems are at the greatest risk of developing severe forms of these diseases become infected. These people should seek advice from their health care provider about whether they should avoid exposure to materials that might be contaminated with these organisms.

The best way to prevent exposure is to avoid situations where material that might be contaminated can become aerosolized and subsequently inhaled. A brief inhalation exposure to

highly contaminated dust may be all that is needed to cause infection and subsequent development of psittacosis. Therefore, work practices and dust control measures that eliminate or reduce dust generation during the removal of bat manure from a building will also reduce risks of infection and subsequent development of disease. For example, instead of shoveling or sweeping dry, dusty material, carefully wetting it with a water spray can reduce the amount of dust aerosolized during an activity. Adding a surfactant or wetting agent to the water might reduce further the amount of aerosolized dust.

Once the material is wetted, it can be collected in double, heavy-duty plastic bags, a 55-gallon drum, or some other secure container for immediate disposal. An alternative method is use of an industrial vacuum cleaner with a high-efficiency filter to *bag* contaminated material. Truck-mounted or trailer-mounted vacuum systems are recommended for buildings with large accumulations of bat or bird manure. These high-volume systems can remove tons of contaminated material in a short period. Using long, large-diameter hoses, such a system can also remove contaminated material located several stories above its waste hopper. This advantage eliminates the risk of dust exposure that can happen when bags tear accidentally or containers break during their transfer to the ground.

The removal of all material that might be contaminated from a building and immediate waste disposal will eliminate any further risk that someone might be exposed to aerosolized spores. Air sampling, surface sampling, or the use of any other method intended to confirm that no infectious agents remain following removal of bat manure is unnecessary in most cases. However, before a removal activity is considered finished, the cleaned area should be inspected visually to ensure that no residual dust or debris remains.

Spraying 1:10 bleach to water mixture on droppings and allowing it to dry is also a recommended practice for the psittacosis organisms.

Because work practices and dust control measures to reduce worker exposures to these organisms have not been fully evaluated, using personal protective equipment is still necessary during some activities. During removal of an accumulation of bat or bird manure from an enclosed area such as an attic, dust control measures should be used, but wearing a NIOSH-approved respirator and other items of personal protective equipment is also recommended to reduce further the risk of exposure to the organisms that cause Psittacosis.

## Treatment

Psittacosis is often hard to diagnoses and while a concern, it does not occur with great frequency. Knowledge of the symptoms and of potential exposure is important when seeking medical follow-up for potential exposure.

There are various medical treatments for psittacosis based on extent of infection. The sooner the disease is diagnosed and treatment is begun the more effective the treatment will be.



## **APPENDIX A**

### **Dangerous Animals - Wildlife Hazard Recognition and Protection**

#### **GENERAL**

Work in remote areas inhabited by wild animals that have been known to cause injury and kill human beings, requires that companies working in these areas carefully plan for wildlife encounters. This procedure outlines actions that when properly implemented should provide a high degree of protection for employees and wildlife.

These procedures apply to employees who prepare Health and Safety Plans or perform fieldwork in environments in which wild animals may be encountered. However, due to the unpredictable nature of wild animals this single document cannot possibly cover all potential risks or protective measures. Therefore, prior to entering remote areas inhabited by dangerous wildlife, contact local wildlife agencies to gather additional information concerning local risks and protective measures.

#### **ATTACHMENTS**

Attachments 1 and 2 outline behavioral characteristics of and outline controls that will minimize human injury, loss of property, and unnecessary destruction of wildlife, while ensuring a safe work environment.

#### **WILDLIFE AVOIDANCE AND BASIC PROTECTIVE MEASURES**

The best protective measure is simply avoidance. Large numbers of humans present deterrence to wild animals; therefore, whenever possible teams in the field should work together in groups of four or more. Whenever practical, fieldwork should be scheduled around the seasonal cycles of wildlife in the area. When wild animal avoidance cannot be achieved through scheduling, personnel involved in field activities in which encounters with wild animals may result, will take the following steps and will be equipped and trained, as set forth below.

#### **CLEAR THE AREA**

Evaluate and control the area before entry by

- Determine areas of recent sightings through local Fish and Game, state troopers, etc.;
- Conduct a site observation from an off-site elevated point, if possible;
- Conduct a controlled walk through in the area by a trained observer;
- Arrange a briefing by a local specialist, e. g., Fish and Game, etc.; and
- Utilizing appropriate noisemakers.

#### **BASIC EQUIPMENT**

Employees entering an environment where encounters with wild animals are possible should be provided, as a minimum:

- Noisemakers, such as air horns, bells, etc.; and
- Bear spray of not less than 16-ounce capacity (with holster), equivalent to capsicum pepper (red pepper extract), which is capable of spraying at least 15 feet. (Notes: Normally cannot be transported in side aircraft passenger compartments and may be

considered a hazardous material, check with airlines and hazardous material shippers for current information).

## **TRAINING**

Prior to entering and / or working in areas inhabited by dangerous wildlife each employee should receive training as outlined in this procedure. At a minimum, training must include information related to:

- Wildlife present, habitat, behavior patterns, including when wild animals are most active, etc.
- Warning signs, such as tracks, bedding areas, scat, claw marks, offspring, paths, etc.,
- Avoidance measures
- Other hazards, precautions, and protective measures as outlined in the Attachments,
- (At the jobsite) spray demonstration and safety instructions which include location of and persons designated as “bear watch”

An outline of the training content should be reviewed and approved by the Divisional EHS manager and should be documented. A record of the training will be maintained at the job site, filed with the SSHSP and in the employee’s training records.

## **VEHICLE SAFETY**

Use extreme caution, particularly in darkness, when operating vehicles in areas where wild animals may be present. Collisions with large animals have been known to cause significant property damage and personal injuries to vehicle passengers, including fatalities.

## **ATTACHMENT 1**

### **BEAR SAFETY – HAZARD RECOGNITION AND PRECAUTIONS**

On occasion fieldwork may be conducted in a location where bears may be encountered. The following technical information, precautions, and guidelines for operations in which bears could be encountered are based on experience and conditions for field work. Bears are intelligent, wild animals and are potentially dangerous, and would rather be left alone. The more bears are understood the less they will be feared. This attachment is intended to provide information that will enable Weston to plan for bear encounters and to properly address face-to-face encounters.

### **Bear Life History**

Although bears are creatures of habit, they are also intelligent, and each has its own personality. The way a bear reacts is often dictated by what it has learned from its mother, the experience it has had on its own, and the instincts nature has provided. Like other intelligent animals, we can make general statements about bears, but few people can accurately predict their behavior.

Bears have an incredible sense of smell, and seem to trust it more than any other sense. Hearing and sight are also important, but to a lesser degree. A bear's hearing is probably better than ours, but not as keen as a dog's hearing. Their sight is probably comparable to that of a human. Black bears tend to favor forested habitats.

Bears are opportunists, relying on their intelligence and their senses to find food. They use different habitats throughout the year, depending on the availability of food and other necessities. The area a bear covers in a given year is partially dependent on how far it has to go to satisfy these basic needs. In some areas, individual bears have home ranges of less than a square mile; in other areas ranges can encompass hundreds of square miles. Males usually range over larger areas than females.

In spring, bears begin coming out of hibernation. Males are usually the first bears to emerge, usually in April, and females with new cubs are usually the last, sometimes as late as late June. When bears emerge from their dens, they are lethargic for the first few days, frequently sleeping near their dens and not eating. When they do start eating, they seek carrion (deer, etc.), roots, and emerging vegetation. In coastal areas, beaches become travel corridors as bears seek these foods.

In early summer, bears eat new grasses and forage as they develop in higher elevations. In coastal areas, salmon are the most important food from June through September. This period is one of the few times that bears are found in large groups, and it is the time that most people see bears. Bears often travel, eat, and sleep along streams for weeks at a time.

Other summer foods for bears include grasses and ground squirrels. When bears kill or scavenge large prey, they commonly cover the portions they cannot eat with sticks and duff. A bear may remain near a food cache for days and it will defend it from intruders.

During the late summer and early fall, bears move inland and consume large amounts of blueberries, and other succulent fruits. As the seasons progress towards winter, a bear's diet becomes more varied. This is the time that bears are adding final deposits of fat before their long winter naps.

In October and November, bears move into their denning areas and begin preparing a suitable den. Black bears usually den in holes under large trees or rock outcrops, or in small natural cavities. Dens are just large enough for the bears to squeeze into. Bears rarely eat, drink, urinate, or defecate while they are denning. They sleep deeply, but do not truly hibernate, and they can be awakened by loud noises or disturbances.

Cubs are born in the den, usually in January. Black bear cubs usually stay with their mothers for a year and a half. Black bears are sexually mature at age 2. Mating season is in the spring (May or June) and both species are polygamous (multiple mates). Black bears can live for 25 – 30 years, although most live less than 20 years.

### **BEAR AND HUMAN INTERACTIONS**

Bears generally prefer to be left alone, but they share their homes with other creatures, including humans, who intrude on virtually every aspect of the bear's life. Bears are normally tolerant of these activities and generally find a secure way to avoid them. Humans can help bears make a graceful retreat and avoid many close encounters by letting them know we are coming. Walking in groups, talking, and wearing noise making devices, such as bear bells, all serve to warn a bear of your approach. When possible, avoid hiking and camping in areas where bears are common, such as bear trails through heavy brush or along salmon streams. Always keep an eye out for bears and bear signs. If you happen upon a dead animal, especially one that is covered with sticks and duff (a bear cache), immediately retreat the way you came, but do not run, and make a detour around the area. If you see a cub up a tree or a small bear walking alone, immediately retreat and detour around the area. Like all young animals, cubs wander away from their mothers, but females are furiously protective when they believe their cubs are threatened. Even if we do everything possible to avoid meeting a bear, sometimes bears come to us.

Bears are both intelligent and opportunistic, and they express these qualities through their curiosity. This curiosity frequently brings them into "human habitat." When this happens, we often feel vulnerable, and the bear is sometimes viewed as a threat or nuisance. In most cases, a curious bear will investigate a "human sign," perhaps test it out (chew on a raft, bite into some cans, etc.), and leave, never to return. If the bear was rewarded during his investigation by finding something to eat, it is hard to stop them from returning once they have had a food-reward. That is why we emphasize the importance of keeping human food and garbage away from bears. When in bear country, always think about the way you store, cook, and dispose of your food. **Never feed bears!** This is both illegal and foolish. Food should be stored in airtight containers, preferably away from living and sleeping areas. Garbage should be thoroughly incinerated as soon as possible. Fish and game should be cleaned well away from camp, and clothing that smells of fish and game should be stored away from sleeping areas. Menstruating women should take extra precautions to keep themselves as clean as possible, and soiled tampons and pads should

be treated as another form of organic garbage. Once a bear has obtained food from people, it may continue to frequent areas occupied by people. If a bear does not find food or garbage after the next few tries, it may give up and move back into a more natural feeding pattern. Occasionally, though, the bear will continue to seek human foods and can become a “problem bear.” Some bears become bold enough to raid campsites and break into cabins to search for human food. Shooting bears in the rump with cracker shells, flares, rubber bullets, and birdshot are common methods of “aversive conditioning.” These are also very dangerous techniques, because they may seriously injure a bear if not done properly and/or they may cause a bear to attack the shooter.

## **BLACK BEARS**

Black Bear Identification: Black bears are the smallest and most abundant of the bear species. They are five to six feet long and stand about two to three feet high at the shoulders. They weigh from 200 to 500 pounds. While they are most commonly black, other color phases include brown (cinnamon), and, rarely, gray (blue), and white. Muzzles are usually brown. Black bears can be distinguished from brown bears by:

- Their head shape (a black bear’s nose is straight in profile, a brown bear’s is dished);
- Their claws (black bear’s claws are curved and smaller, brown bears are relatively straight and longer);
- Their body shape (when standing, a black bear’s rump seems to be higher than its shoulders; a brown bear’s shoulders are usually higher than its rump); and

Typical Habitat: Black bears occupy a wide range of habitats, but seem to be most common in forested areas.

## **AVOIDING BEAR ENCOUNTERS WHEN**

- The Bear sees you but you do not know the bear is around: The bear will likely avoid detection people and will simply move away when they sense a human.
- You see a bear and it does not know you are there: Move away slowly. Avoid intercepting the bear if it is walking. If possible, detour around the bear. If the bear is close to you, stand where you are or back away slowly. Do not act threateningly toward the bear, it may know you are there but it has chosen to ignore you as long as you are not a threat.
- You see the bear and the bear sees you: Do not act threateningly, but let the bear know you are human. Wave your arms slowly, talk in a calm voice, and walk away slowly in a lateral direction, keeping an eye on the bear. Unless you are very close to a car or a building, never run from bears. In a bear’s world, when something runs it is an open invitation to chase it. Bears will chase a running object even if they have no previous intention of catching it. Bears can run as fast as a racehorse, so humans have little or no chance of outrunning a bear.
- You see a bear; the bear sees you and stands on its hind legs: This means that the bear is seeking more information. Bears stand on their hind legs to get a better look, or smell, at something they are uncertain of. It is your cue to help it figure



out what you are. Help the bear by waving your arms slowly and talking to it. Standing is not a precursor to an attack. Bears do not attack on their hind legs. It is also important to remember that when a bear goes back down on all fours from a standing position, it may come towards you a few steps. This is normal, and probably not an aggressive act.

- The bear sees you, recognizes you as a human, but continues to come towards you slowly: This may mean several things, depending on the bear and the situation. It may mean that the bear does not see you as a threat, and just wants to get by you (especially if the bear is used to humans, as in a National Park); the bear wants to get food from you (if it has gotten food from people before); the bear wants to test your dominance (it views you as another bear); or may be stalking you as food (more common with black bear, but a rare occurrence). In all cases, your reaction should be to back off the trail very slowly, stand abreast if you are in a group, talk loudly, and/or use a noise-making device. If the bear continues to advance, you should stop. At this point, it is important to give the bear the message that if he continues to advance it will cost him. Continue to make loud noises and present a large visual image to the bear (standing abreast, open your coat). In bear language, bears assert themselves by showing their size. If an adult brown bear continues to come at you, climbing 20 feet or higher up a tree may also be an option if one is next to you (remember, never run from bears). Keep in mind, though, black bears can climb trees.
- The bear recognizes you as a human and acts nervous or aggressive: When bears are nervous or stressed they can be extremely dangerous. This is when it is important to try to understand what is going on in the bears mind. Nervous bears growl, woof, make popping sounds with their teeth, rock back and forth on their front legs, and often stand sideways to their opponent. A universal sign of a nervous bear is excessive salivation (sometimes it looks like they have white lips). When a bear shows any of these signs, stand where you are and talk in a calm voice. Do not try to imitate bear sounds, this may only serve to confuse and further agitate the bear. If you are in a group, stand abreast.
- The bear charges: If all other signals fail, a bear will charge. Surprisingly, most bear charges are just another form of their language. The majority of these are “bluff charges,” that is; the bear stops before making contact with their opponent. There are many different types of bluff charges ranging from a loping uncertain gait to a full-blown charge. If a bear charges, stand still.
- The bear attacks: When all else fails, a bear may attack. Attacks may be preceded by all of the behaviors previously described or they may be sudden. Seemingly unprovoked attacks are often the result of a bear being surprised (and feeling threatened), a bear defending its food cache, or a female defending her cubs. When a bear attacks, it typically runs with its body low to the ground, legs are stiff, ears are flattened, hair on the nape of the neck is up, and the bear moves in a fast, determined way. Front paws are often used to knock the opponent down and jaws are used to subdue it.

### **AFTER A BEAR ENCOUNTER**

Black bears have been known to view humans as prey, and if you struggle with the attacking black bear, it will probably go elsewhere for its meal.

- Bear Sprays: Are easy to carry and use, little risk of permanent damage to bears and humans, effective in many situations. However, using a spray may change a false charge into a real charge, they are ineffective at ranges greater than 20 feet, ineffective in windy conditions, dangerous if accidentally discharged in a closed area such as an aircraft cockpit.

The most effective tool you have against an attacking bear is your brain. Although bears are intelligent animals, we are smarter and can often think our way out of a bad situation if we try.

## **ATTACHMENT 2**

### **HAZARDS AND PRECAUTIONS – DEER**

The following technical information, precautions, and guidelines for operations in which Deer may be encountered. The more the species are understood, the easier it will be to avoid contact with them thus preventing injury to ourselves and to the animals. All big game species are unpredictable and can be dangerous under certain conditions. This attachment is intended to provide information that will enable Weston to plan for encounters and to properly address face-to-face encounters.

### **WHITE-TAILED DEER**

The White-tailed deer found throughout the eastern and western part of the United States have been known to attack people on many occasions. It is unknown whether Black-tailed deer have made any such attacks, but it is possible for someone to be injured by an irate buck in the breeding season (late fall). Deer are well equipped to injure humans. They are very fast. Bucks have sharp antlers and can clear amazingly high obstacles with graceful, arching leaps. They can run with remarkable speed, even in dense cover, and have excellent camouflage. When working in areas populated with deer, it is just common sense not to approach any large wild animal too closely. It is unlikely that an attack from a deer would be fatal but it is possible and serious injury is likely.

## APPENDIX B - PICTURES OF POISONOUS SNAKES AND LIZARDS

### Americas



American copperhead



Cotton Mouth – East and Southeast US



Timber Rattlesnake – Eastern US





## **FLD 43 B     INSECTS**

### **Sting and Biting Insects**

Contact with stinging insects may result in site personnel experiencing adverse health affects that range from being mildly uncomfortable to being life threatening. Therefore, stinging insects present a serious hazard to site personnel and extreme caution must be exercised whenever site and weather conditions increase the risk of encountering stinging insects. These include the following:

- Bees (Honeybees, bumble bees, wasps, and hornets and wingless wasps)
- Scorpions
- Fire ants
- Spiders
- Ticks
- Deer Flies
- Mosquito
- Fleas
- Bed Bugs

### **Bees, Wasps, Hornets and Yellow Jackets**

The severity of an insect sting reaction varies from person to person. A normal reaction will result in pain, swelling and redness confined to the sting site. Simply disinfect the area (washing with soap and water will do) and apply ice to reduce the swelling.

A large local reaction will result in swelling that extends beyond the sting site. For example, a sting on the forearm could result in the entire arm swelling twice its normal size.

Although alarming in appearance, this condition is often treated the same as a normal reaction. An unusually painful or very large local reaction may need medical attention. Because this condition may persist for two to three days, antihistamines and corticosteroids are sometimes prescribed to lessen the discomfort.

Yellow jackets, hornets and wasps can sting repeatedly. Honeybees have barbed stingers that are left behind in their victim's skin. These stingers are best removed by a scraping action, rather than a pulling motion, which may actually squeeze more venom into the skin.

### **Scorpions (Caribbean)**

Scorpion stings are a major public health problem in many underdeveloped tropical countries. For every person killed by a poisonous snake, 10 are killed by a poisonous scorpion. In the United States, only 4 deaths in 11 years have occurred as a result of scorpion stings. Furthermore, scorpions can be found outside their normal range of distribution, ie, when they

accidentally crawl into luggage, boxes, containers, or shoes and are unwittingly transported home via human travelers.

Out of 1,500 scorpion species, 50 are dangerous to humans. Scorpion stings cause a wide range of conditions, from severe local skin reactions to neurologic, respiratory, and cardiovascular collapse.

Almost all of these lethal scorpions belong to the scorpion family called the Buthidae. The Buthidae are small to mid-size scorpions (0.8 inch to 5.0 inches) and normally uniformly colored without patterns or shapes. Poisonous scorpions also tend to have weak-looking pincers, thin bodies, and thick tails, as opposed to the strong heavy pincers, thick bodies, and thin tails seen in nonlethal scorpions. The lethal members of the Buthidae family include the genera of *Tityus* which can be found in the Caribbean.

A scorpion has a flattened elongated body and can easily hide in cracks. Scorpions are members of the Arachnid (spider) family. The bodies consist of 3-segments, they also have 4 pairs of legs, a pair of claws, and a segmented tail that has a poisonous spike at the end. Scorpions vary in size from 1-20 cm in length.

However, scorpions may be found outside their habitat range of distribution when inadvertently transported with luggage and cargo.

## **Prevention**

Preventive measures include awareness of scorpions, shaking out clothing and boots before putting them on looking before reaching into likely hiding places and wearing gloves, long sleeved shirts and pants.

## **Symptoms**

In mild cases, the only symptom may be a mild tingling or burning at site of sting.

In severe cases, symptoms may include:

- Eyes and ears - Double vision
- Lungs - Difficulty breathing, No breathing, Rapid breathing,
- Nose, mouth, and throat – Drooling, Spasm of the voice box, Thick-feeling tongue
- Heart and blood - High blood pressure, Increased or decreased heart rate, Irregular heartbeat
- Kidneys and bladder Urinary incontinence, Urine output, decreased
- Muscles and joints - Muscle spasms
- Nervous system – Paralysis, Random movements of head, eye, or neck, Restlessness, Seizures, Stiffness
- Stomach and intestinal tract - Abdominal cramps, Fecal incontinence
- Other -Convulsions

## **Treatment**

1. Recognize scorpion sting symptoms:
2. Wash the area with soap and water.
3. Apply a cool compress on the area of the scorpion sting. Ice (wrapped in a washcloth or other suitable covering) may be applied to the sting location for 10 minutes. Remove compress for 10 minutes and repeat as necessary.
4. Call the Poison Control Center. If you develop symptoms of a poisonous scorpion sting, go to the nearest emergency care facility.
5. Keep your tetanus shots and boosters current.

## **Fire Ants (Caribbean)**

Fire ants are aggressive, reddish-brown to black ants that are 1/8 inch to 1/4 inch long. They construct nests, which are often visible as dome-shaped mounds of soil, sometimes as large as 3 feet across and 1 1/2 feet in height. In sandy soils, mounds are flatter and less visible. Fire ants usually build mounds in sunny, open areas such as lawns, pastures, cultivated fields and meadows, but they are not restricted to these areas. Mounds or nests may be located in rotting logs, around trees and stumps, under pavement and buildings, and occasionally indoors.

Fire ants use their stingers to immobilize or kill prey and to defend ant mounds from disturbance by larger animals, such as humans. Any disturbance sends hundreds of workers out to attack anything that moves. The ant grabs its victim with its mandibles (mouthparts) and then inserts its stinger. The process of stinging releases a chemical, which alerts other ants, inducing them to sting. In addition, one ant can sting several times without letting go with its mandibles.

Once stung, humans experience a sharp pain that lasts a couple of minutes, then after a while the sting starts itching and a welt appears. Fire ant venom contains alkaloids and a relatively small amount of protein. The alkaloids kill skin cells; this attracts white blood cells, which form a pustule within a few hours of being stung. The fluid in the pustule is sterile, but if the pustule is broken, the wound may become infected. The protein in the venom can cause allergic reactions that may require medical attention.

Some of the factors related to stinging insects that increase the risk associated with accidental contact are:

- The nests for these insects are frequently found in remote wooded or grassy areas and hidden in cavities
- The nests can be situated in trees, rocks, bushes or in the ground, and are usually difficult to see
- Accidental contact with these insects is highly probable, especially during warm weather conditions when the insects are most active
- If a site worker accidentally disturbs a nest, the worker may be inflicted with multiple stings, causing extreme pain and swelling which can leave the worker incapacitated and in need of medical attention

- Some people are hypersensitive to the toxins injected by a sting, and when stung, experience a violent and immediate allergic reaction resulting in a life-threatening condition known as anaphylactic shock
- Anaphylactic shock manifests itself very rapidly and is characterized by extreme swelling of the body, eyes, face, mouth and respiratory passages
- The hypersensitivity needed to cause anaphylactic shock, can in some people, accumulate over time and exposure, therefore, even if someone has been stung previously, and not experienced an allergic reaction, there is no guarantee that they will not have an allergic reaction if they are stung again

With these things in mind, and with the high probability of contact with stinging insects, use the following safe work practices:

- If a worker knows that he is hypersensitive to bee, wasp or hornet stings, inform the site Safety officer of this condition prior to participation in site activities
- All site personnel will be watchful for the presence of stinging insects and their nests, and will advise the Site Safety officer if a stinging insect nest is located or suspected in the area
- Any nests located on site will be flagged off and site personnel will be notified of its presence
- If attacked, site personnel will immediately seek shelter and stay there. Do not jump in water (bees will still be in the area when you come up). Once safe, remove stings from your skin, it does not matter how you do it, but do it as quickly as possible to reduce the amount of venom they inject. Obtain first aid treatment and contact the safety officer who will observe for signs of allergic reaction

Treatment for fire ant stings is aimed at preventing secondary bacterial infection, which may occur if the pustule is scratched or broken. Clean the blisters with soap and water to prevent secondary infection. Do not break the blister. Topical corticosteroid ointments and oral antihistamines may relieve the itching associated with these reactions.

Site personnel with a known hypersensitivity to stinging insects will keep required emergency medication on or near their person at all times

## Spiders

A large variety of spiders may be encountered during site activities. Extreme caution must be used when lifting logs and debris, since spiders are typically found in these areas.

While most spider bites merely cause localized pain, swelling, reddening, and in some cases, tissue damage, there are a few spiders that, due to the severity of the physiological affects caused by their venom, are dangerous.

**Black Widow:** The black widow is a coal-black bulbous spider 3/4 to 1 1/2 inches in length, with a bright red hourglass on the under side of the abdomen. The black widow is usually found in dark moist locations, especially under rocks, rotting logs and may even be found in outdoor toilets where they inhabit the underside of the seat. Victims of a black widow bite may exhibit the following signs or symptoms:



- Sensation of pinprick or minor burning at the time of the bite
- Appearance of small punctures (but sometimes none are visible)
- After 15 to 60 minutes, intense pain is felt at the site of the bite which spreads quickly, and is followed by profuse sweating, rigid abdominal muscles, muscle spasms, breathing difficulty, slurred speech, poor coordination, dilated pupils and generalized swelling of face and extremities

**Brown Recluse:** The brown or violin spider is brownish to tan in color, rather flat, and 1/2 to 5/8 inches long. However, unlike the typical species, this spider has been encountered without a violin or “fiddle” shaped mark on the top of the head. Of the brown spider, there are three varieties found in the United States that present a problem to site personnel. These are the brown recluse, the desert violin and the Arizona violin. These spiders may be found in a variety of locations including trees, rocks or in dark locations. Victims of a brown or violin spider bite may exhibit the following signs or symptoms:

- Blistering at the site of the bite, followed by a local burning at the site 30 to 60 minutes after the bite
- Formation of a large, red, swollen, postulating lesion with a bull's-eye appearance
- Systemic affects may include a generalized rash, joint pain, chills, fever, nausea and vomiting
- Pain may become severe after 8 hours, with the onset of tissue necrosis

There is no effective first aid treatment for either of these bites. Except for very young, very old or weak victims, spider bites are not considered to be life threatening. However, medical treatment must be sought to reduce the extent of damage caused by the injected toxins.

#### **Brown Recluse Spider**



#### **Black Widow Spider**



First aid should include:

- If possible, catch the spider to confirm its identity. Even if the body is crushed, save it for identification
- Clean the bitten area with soap and water or rubbing alcohol
- To relieve pain, place an ice pack over the bite
- Keep the victim quiet and monitor breathing

Seek immediate medical attention

### **Sensitivity Reaction to Insect Stings or Bites**

A sensitivity reaction is one of the more dangerous and acute effects of insect bites or stings. It is the most common cause of fatalities from bites, particularly from bees, wasps, and spiders. Anaphylactic shock due to stings can lead to severe reactions in the circulatory, respiratory, and central nervous system. This can also result in death.

Site personnel must be questioned regarding their allergic reaction to insect bites. Anyone knowingly allergic should be required to carry and know how to use a response kit (e.g., Epi-Kit). First aid providers must be instructed on how to use the kit also. The kit must be inspected to ensure it is updated.

Administer first aid and observe persons reporting stings for signs of allergic reaction, such as unusual swelling, nausea, dizziness, and shock. At the first sign of these symptoms, take the individual to a medical facility for attention.

### **Insect Borne Diseases**

Diseases that are spread by insects include the following: Lyme Disease (tick); Bubonic and other forms of Plague (fleas); Malaria, West Nile Virus and Equine Encephalitis (mosquito).

### **Tick Borne Diseases**

Lyme disease is the second most rapidly spreading disease in the U.S.

### **Lyme Disease**

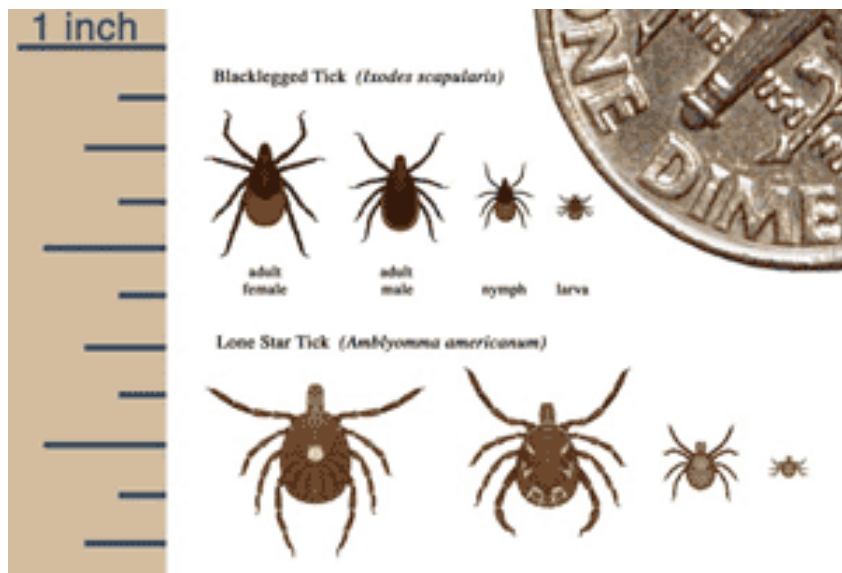
#### **1. Facts**

Definition:

- Bacterial infection transmitted by the bite of an infected black-legged tick more popularly known as the deer tick.
- Prevalence (nationwide and other countries).
- Three stages/sizes of deer ticks:
  - Larvae
  - Nymph
  - Adult

Tick season is May through October.

Not all ticks transmit Lyme disease (Black legged or deer tick [upper] compared to the Lone Star tick [lower])



- Ticks must be attached for several hours before Lyme disease can be transmitted.
- Being bitten by a tick does not mean you will get Lyme disease.

## 2. Prevention and Protection:

- Wear light-colored, tight-knit clothing.
- Wear long pants and long-sleeved shirts.
- Tuck pant legs into shoes or boots.
- Wear a hat.
- Use insect repellent containing DEET ((follow manufacturer's instructions for use).
- Check yourself daily for ticks after being in grassy, wooded areas.
- Request information from the Health and Safety Medical Section regarding Lyme Disease.

## 3. If Bitten:

- Remove the tick immediately with fine-tipped tweezers. Grasp the tick as close to the skin as possible. Pull gently but firmly without twisting or crushing the tick.
- Wash your hands and dab the bite with an antiseptic.

- Save the tick in a jar in some alcohol. Label the jar with the date of the bite, the area where you picked up the tick and the spot on your body where you were bitten.
- Monitor the bite for any signs of infection or rash.

#### 4. Symptoms:

Early Signs (may vary from person to person)

- Expanding skin rash.
- Flu-like symptoms during summer or early fall that include the following:
  - Chills, fever, headache, swollen lymph nodes.
  - Stiff neck, aching joints, and muscles.
  - Fatigue.
- Later signs
  - Nervous system problems.
  - Heart problems.
  - Arthritis, especially in knees.

#### 5. Upon Onset of Symptoms:

- Notify your Safety Officer (SO) and your supervisor.

### **Ehrlichiosis**

Ehrlichiosis is the general name used to describe several bacterial diseases that affect animals and humans. These diseases are caused by the organisms in the genus *Ehrlichia*. Worldwide, there are currently four ehrlichial species that are known to cause disease in humans.

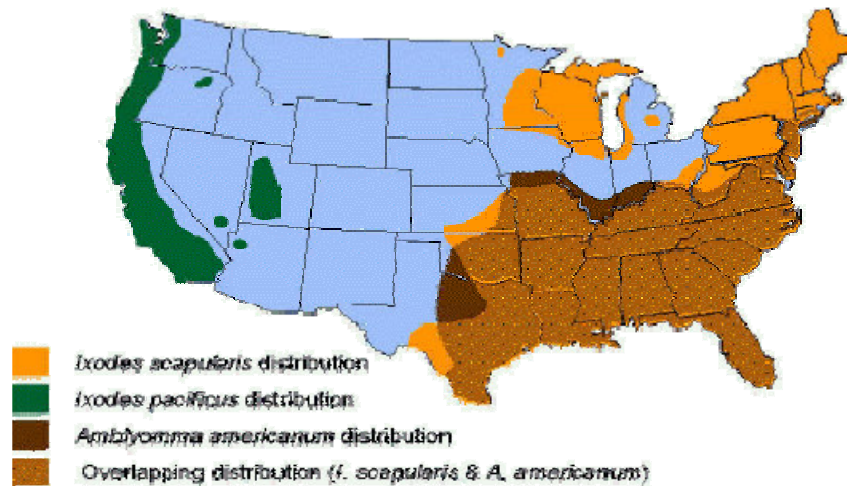
In the United States, ehrlichiae are transmitted by the bite of an infected tick. The lone star tick (*Amblyomma americanum*) and the blacklegged tick (*Ixodes scapularis*) are known vectors of ehrlichiosis.

The symptoms of ehrlichiosis may resemble symptoms of various other infectious and non-infectious diseases. These clinical features generally include fever, headache, fatigue, and muscle aches. Other signs and symptoms may include nausea, vomiting, diarrhea, cough, joint pains, confusion, and occasionally rash. Symptoms typically appear after an incubation period of 5-10 days following the tick bite. It is possible that many individuals who become infected with ehrlichiae do not become ill or they develop only very mild symptoms.

Most cases of ehrlichiosis are reported within the geographic distribution of the vector ticks (see map below). Occasionally, cases are reported from areas outside the distribution of the tick vector. In most instances, these cases have involved persons who traveled to areas where the diseases are endemic, and who had been bitten by an infected tick and developed symptoms after

returning home. Therefore, if you traveled to an ehrlichiosis-endemic area 2 weeks prior to becoming ill, you should tell your doctor where you traveled.

**Figure 20. Areas where human ehrlichiosis may occur based on approximate distribution of vector tick species**



A diagnosis of ehrlichiosis is based on a combination of clinical signs and symptoms and confirmatory laboratory tests. Blood samples can be sent to a reference laboratory for testing. However, the availability of the different types of laboratory tests varies considerably. Other laboratory findings indicative of ehrlichiosis include low white blood cell count, low platelet count, and elevated liver enzymes.

Ehrlichiosis is treated with a tetracycline antibiotic, usually doxycycline.

Very little is known about immunity to ehrlichial infections. Although it has been proposed that infection with ehrlichiae confers long-term protection against reinfection, there have been occasional reports of laboratory-confirmed reinfection. Short-term protection has been described in animals infected with some *Ehrlichia* species and this protection wanes after about 1 year. Clearly, more studies are needed to determine the extent and duration of protection against reinfection in humans.

Limiting exposure to ticks reduces the likelihood of infection in persons exposed to tick-infested habitats. Prompt careful inspection of your body and removal of crawling or attached ticks is an important method of preventing disease. It may take 24–48 hours of attachment before microorganisms are transmitted from the tick to you.

### **Preventive measures - Follow protection protocols for Lyme disease**

#### **Babesiosis**

Babesiosis is an intraerythrocytic parasitic infection caused by protozoa of the genus *Babesia* and transmitted through the bite of the *Ixodes* tick, the same vector responsible for transmission of Lyme disease. While most cases are tick-borne, transfusion and transplacental transmission



have been reported. In the United States, babesiosis is usually an asymptomatic infection in healthy individuals. Several groups of patients become symptomatic, and, within these subpopulations, significant morbidity and mortality occur. The disease most severely affects patients who are elderly, immunocompromised, or asplenic. Among those symptomatically infected, the mortality rate is 10% in the United States.

The primary vectors of the parasite are ticks of the genus *Ixodes*. In the United States, the black-legged tick, *Ixodes scapularis* (also known as *Ixodes dammini*) is the primary vector for the parasite. The *Ixodes* tick vector for *Babesia* is the same vector that locally transmits *Borrelia burgdorferi*, the agent implicated in Lyme disease. The primary US animal reservoir is the white-footed mouse, *Peromyscus leucopus*. Additionally, white-tailed deer serve as transport hosts for the adult tick vector, *I. scapularis*.

The Ixodid ticks ingest *Babesia* during feeding from the host, multiply the protozoa in their gut wall, and concentrate it in their salivary glands. The tick inoculates a new host when feeding again. The parasite then infects red blood cells (RBCs) and differentiated and undifferentiated trophozoites are produced. The former produce 2-4 merozoites that disrupt the RBC and go on to invade other RBCs. This leads to hemolytic anemia, thrombocytopenia, and atypical lymphocyte formation. Alterations in RBC membranes cause decreased conformability and increased red cell adherence, which can lead to development of acute respiratory distress syndrome (ARDS) among those severely affected.

The signs and symptoms mimic malaria and range in severity from asymptomatic to septic shock.

Symptoms include: Generalized weakness, fatigue, depression, fever, anorexia and weight loss, CNS - Headache, photophobia, neck stiffness, altered sensorium, pulmonary - Cough, shortness of breath, GI - Nausea, vomiting, abdominal pain, Musculoskeletal - Arthralgia and myalgia and Renal - Dark urine

## **Prevention**

Prevention measures are the same as for Lyme and other insect borne diseases

## **Tularemia**

**Tularemia** (also known as "rabbit fever") is a serious infectious disease caused by the bacterium *Francisella tularensis*. The disease is endemic in North America. The primary vectors are ticks and deer flies, but the disease can also be spread through other arthropods. Animals such as rabbits, prairie dogs, hares and muskrats serve as reservoir hosts.

Depending on the site of infection, tularemia has six characteristic clinical syndromes: ulceroglandular, glandular, oropharyngeal, pneumonic, oculoglandular, and typhoidal.

The disease has a very rapid onset, with headache, fatigue, dizziness, muscle pains, loss of appetite and nausea. Face and eyes redden and become inflamed. Inflammation spreads to the

lymph nodes, which enlarge and may suppurate (mimicking bubonic plague). Lymph node involvement is accompanied by a high fever. Death may result.

*Francisella tularensis* is one of the most infective bacteria known; fewer than ten organisms can cause disease leading to severe illness. The bacteria penetrate into the body through damaged skin and mucous membranes, or through inhalation. Humans are most often infected by tick bite or through handling an infected animal. Ingesting infected water, soil, or food can also cause infection. Tularemia can also be acquired by inhalation; hunters are at a higher risk for this disease because of the potential of inhaling the bacteria during the skinning process. Tularemia is not spread directly from person to person.

No vaccine is available to the general public. The best way to prevent tularemia infection is to wear rubber gloves when handling or skinning rodents or lagomorphs (as rabbits), avoid ingesting uncooked wild game and untreated water sources, and wearing long-sleeved clothes and using an insect repellent to prevent tick bites.

### **Prevention**

No vaccine is available to the general public. The best way to prevent tularemia infection is to wear rubber gloves when handling or skinning rodents or lagomorphs (as rabbits), avoid ingesting uncooked wild game and untreated water sources, and wearing long-sleeved clothes and using an insect repellent to prevent tick bites.

### **Other diseases primarily transmitted by Arthropods (Ticks, mites, lice etc.)**

**Typhus** (Not to be confused with Typhoid Fever [discussed in these FLDs])

*For the unrelated disease caused by *Salmonella typhi*, see Typhoid fever. For the unrelated disease caused by *Salmonella paratyphi*, please refer to Paratyphoid fever. For the monster of Greek mythology, see Typhus (monster).*

**Typhus** is any one of several similar diseases caused by louse-borne bacteria. The name comes from the Greek *typhos*, meaning smoky or lazy, describing the state of mind of those affected with typhus. *Rickettsia* is endemic in rodent hosts, including mice and rats, and spreads to humans through mites, fleas and body lice. The arthropod vector flourishes under conditions of poor hygiene, such as those found in prisons or refugee camps, amongst the homeless, or until the middle of the 20th century, in armies in the field. In tropical countries, typhus is often mistaken for dengue fever.

### **Endemic typhu**

Endemic typhus (also called "flea-borne typhus" and "murine typhus" or "rat flea typhus") is caused by the bacteria *Rickettsia typhi*, and is transmitted by the flea that infest rats. Symptoms of endemic typhus include headache, fever, chills, myalgia, nausea, vomiting, and cough.

Endemic typhus is highly treatable with antibiotics. Most people recover fully, but death may occur in the elderly, severely disabled or patients with a depressed immune system.

## **Encephalitis Arboviral Encephalitides**

### **Perspectives**

Arthropod-borne viruses, i.e., arboviruses, are viruses that are maintained in nature through biological transmission between susceptible vertebrate hosts by blood feeding arthropods (mosquitoes, psychodids, ceratopogonids, and ticks). Vertebrate infection occurs when the infected arthropod takes a blood meal. The term 'arbovirus' has no taxonomic significance. Arboviruses that cause human encephalitis are members of three virus families: the *Togaviridae* (genus Alphavirus, *Flaviviridae*, and *Bunyaviridae*).

All arboviral encephalitides are zoonotic, being maintained in complex life cycles involving a nonhuman primary vertebrate host and a primary arthropod vector. These cycles usually remain undetected until humans encroach on a natural focus, or the virus escapes this focus via a secondary vector or vertebrate host as the result of some ecologic change. Humans and domestic animals can develop clinical illness but usually are "dead-end" hosts because they do not produce significant viremia, and do not contribute to the transmission cycle. Many arboviruses that cause encephalitis have a variety of different vertebrate hosts and some are transmitted by more than one vector. Maintenance of the viruses in nature may be facilitated by vertical transmission (e.g., the virus is transmitted from the female through the eggs to the offspring).

Arboviral encephalitides have a global distribution, but there are four main virus agents of encephalitis in the United States, all of which are transmitted by mosquitoes. A new Powassan-like virus has recently been isolated from deer ticks. Its relatedness to Powassan virus and its ability to cause disease has not been well documented. Most cases of arboviral encephalitis occur from June through September, when arthropods are most active. In milder (i.e., warmer) parts of the country, where arthropods are active late into the year, cases can occur into the winter months.

**There is expanded discussion of several of these diseases (West Nile and Eastern Equine Encephalitis elsewhere in this document. A more general discussion is found in Attachment 2.**

## Mosquito Borne Diseases

### Malaria

**Malaria** is a mosquito-borne disease caused by a parasite. Four kinds of malaria parasites can infect humans: *Plasmodium falciparum*, *P. vivax*, *P. ovale*, and *P. malariae*.



People with malaria often experience fever, chills, and flu-like illness. Left untreated, they may develop severe complications and die. Each year 350-500 million cases of malaria occur worldwide. Infection with any of the malaria species can make a person feel very ill; infection with *P. falciparum*, if not promptly treated, may be fatal. Although malaria can be a fatal disease, illness and death from malaria are largely preventable.

This sometimes fatal disease can be prevented and cured. Bed nets, insecticides, and anti-malarial drugs are effective tools to fight malaria in areas where it is transmitted. Travelers to a malaria-risk area should avoid mosquito bites and take a preventive anti-malarial drug. Malaria was eradicated from the United States in the early 1950s. However, malaria is common in many developing countries and travelers who visit these areas risk getting malaria.

Returning travelers and arriving immigrants could also reintroduce the disease in the United States if they are infected with malaria when they return. The mosquito that transmits malaria, *Anopheles*, is found throughout much of the United States. If local mosquitoes bite an infected person, those mosquitoes can, in turn, infect local residents (*introduced malaria*).

Because the malaria parasite is found in red blood cells, malaria can also be transmitted through blood transfusion, organ transplant, or the shared use of needles or syringes contaminated with blood. Malaria may also be transmitted from a mother to her fetus before or during delivery ("congenital" malaria).

Malaria is not transmitted from person to person like a cold or the flu. You cannot get malaria from casual contact with malaria-infected people.

## **Prevention and control**

You can prevent malaria by:

- keeping mosquitoes from biting you, especially at night
- taking anti-malarial drugs to kill the parasites
- eliminating places where mosquitoes breed
- spraying insecticides on walls to kill adult mosquitoes that come inside
- sleeping under bed nets - especially effective if they have been treated with insecticide,
- wearing insect repellent and long-sleeved clothing if out of doors at night

The surest way for you and your health-care provider to know whether you have malaria is to have a diagnostic test where a drop of your blood is examined under the microscope for the presence of malaria parasites. If you are sick and there is any suspicion of malaria (for example, if you have recently traveled in a malaria-risk area) the test should be performed without delay.

The disease should be treated early in its course, before it becomes severe and poses a risk to the patient's life. Several good anti-malarial drugs are available, and should be administered early on. The most important step is to think about malaria, so that the disease is diagnosed and treated in time.

## **West Nile Virus**

West Nile virus (WNV) is a potentially serious illness. Experts believe WNV is established as a seasonal epidemic in North America that flares up in the summer and continues into the fall. This fact sheet contains important information that can help you recognize and prevent WNV.

The easiest and best way to avoid WNV is to prevent mosquito bites.

- When you are outdoors, use insect repellent containing an EPA-registered active ingredient. Follow the directions on the package.
- Many mosquitoes are most active at dusk and dawn. Be sure to use insect repellent and wear long sleeves and pants at these times or consider staying indoors during these hours.
- Make sure you have good screens on your windows and doors to keep mosquitoes out.
- Get rid of mosquito breeding sites by emptying standing water from buckets, barrels and drainage ditches.

About one in 150 people infected with WNV will develop severe illness. The severe symptoms can include high fever, headache, neck stiffness, stupor, disorientation, coma, tremors, convulsions, muscle weakness, vision loss, numbness and paralysis. These symptoms may last several weeks, and neurological effects may be permanent.



Up to 20 percent of the people who become infected have symptoms such as fever, headache, and body aches, nausea, vomiting, and sometimes swollen lymph glands or a skin rash on the chest, stomach and back. Symptoms can last for as short as a few days, though even healthy people have become sick for several weeks.

Approximately 80 percent of people (about 4 out of 5) who are infected with WNV will not show any symptoms at all. Most often, WNV is spread by the bite of an infected mosquito. Mosquitoes become infected when they feed on infected birds. Infected mosquitoes can then spread WNV to humans and other animals when they bite.

In a very small number of cases, WNV also has been spread through blood transfusions, organ transplants, breastfeeding and even during pregnancy from mother to baby.

WNV is not spread through casual contact such as touching or kissing a person with the virus.

Symptoms typically develop between 3 - 14 days after being bitten by an infected mosquito.

There is no specific treatment for WNV infection. In cases with milder symptoms, people experience symptoms such as fever and aches that pass on their own, although even healthy people have become sick for several weeks. In more severe cases, people usually need to go to the hospital where they can receive supportive treatment including intravenous fluids, help with breathing and nursing care.

Milder WNV illness improves on its own, and people do not necessarily need to seek medical attention for this infection though they may choose to do so. If you develop symptoms of severe WNV illness, such as unusually severe headaches or confusion, seek medical attention immediately. Severe WNV illness usually requires hospitalization. Pregnant women and nursing mothers are encouraged to talk to their doctor if they develop symptoms that could be WNV. People over the age of 50 are more likely to develop serious symptoms of WNV if they do get sick and should take special care to avoid mosquito bites.

The more time you're outdoors, the more time you could be bitten by an infected mosquito. Pay attention to avoiding mosquito bites if you spend a lot of time outside, either working or playing.

All donated blood is checked for WNV before being used. The risk of getting WNV through blood transfusions and organ transplants is very small, and should not prevent people who need surgery from having it. If you have concerns, talk to your doctor.

## **Equine Encephalitis**

Eastern equine encephalitis (EEE) is a mosquito-borne viral disease. EEE virus (EEEV) occurs in the eastern half of the United States where it causes disease in humans, horses, and some bird species. Because of the high mortality rate, EEE is regarded as one of the most serious mosquito-borne diseases in the United States.

EEEV is transmitted to humans through the bite of an infected mosquito. It generally takes from 3 to 10 days to develop symptoms of EEE after being bitten by an infected mosquito. The main EEEV transmission cycle is between birds and mosquitoes.

Many species of mosquitoes can become infected with EEEV. The most important mosquito species in maintaining the bird-mosquito transmission cycle is *Culiseta melanura*, which reproduces in freshwater hardwood swamps. *Culiseta melanura*, however, is not considered to be an important vector of EEEV to horses or humans because it feeds almost exclusively on birds.

Transmission to horses or humans requires mosquito species capable of creating a “bridge” between infected birds and uninfected mammals such as some *Aedes*, *Coquillettidia*, and *Culex* species.

Horses are susceptible to EEE and some cases are fatal. EEEV infections in horses, however, are not a significant risk factor for human infection because horses are considered to be “dead-end” hosts for the virus (i.e., the amount of EEEV in their bloodstreams is usually insufficient to infect mosquitoes).

Eastern equine encephalitis virus is a member of the family Togaviridae, genus *Alphavirus* closely related to Western equine encephalitis virus and Venezuelan equine encephalitis virus

Many persons infected with EEEV have no apparent illness. In those persons who do develop illness, symptoms range from mild flu-like illness to inflammation of the brain, coma and death.

The mortality rate from EEE is approximately one-third, making it one of the most deadly mosquito-borne diseases in the United States.

There is no specific treatment for EEE; optimal medical care includes hospitalization and supportive care (for example, expert nursing care, respiratory support, prevention of secondary bacterial infections, and physical therapy, depending on the situation).

Approximately half of those persons who survive EEE will have mild to severe permanent neurologic damage.

Incidence rate includes:

- Approximately 220 confirmed cases in the US 1964-2004, Average of 5 cases/year, with a range from 0-15 cases
- States with largest number of cases includes New Jersey.
- EEEV transmission is most common in and around freshwater hardwood swamps in the Atlantic Coast states and the Great Lakes region.

- Human cases occur relatively infrequently, largely because the primary transmission cycle takes place in and around swampy areas where human populations tend to be limited.

### **Risk Groups:**

- Residents of and visitors to endemic areas (areas with an established presence of the virus)
- People who engage in outdoor work and recreational activities in endemic areas.
- Persons over age 50 and younger than age 15 seem to be at greatest risk for developing severe EEE when infected with the virus.

### **Prevention**

- A vaccine is available to protect equines.
- People should avoid mosquito bites by employing personal and workplace protection measures, such as using an EPA-registered repellent according to manufacturers' instructions, wearing protective clothing, avoiding outdoor activity when mosquitoes are active (some bridge vectors of EEEV are aggressive day-biters), and removing standing water that can provide mosquito breeding sites.
- There are laboratory tests to diagnosis EEEV infection including serology, especially IgM testing of serum and cerebrospinal fluid (CSF), and neutralizing antibody testing of acute- and convalescent-phase serum.

### **Meningitis**

Meningitis is a viral disease that can affect the central nervous system that is transmitted through the bite from an infected mosquito.

Symptoms can be nonexistent or severe and flu-like, with fever, chills, tiredness, headache, nausea and vomiting. If not treated promptly the disease can be fatal.

### **Prevention**

- A vaccine is available. It's 80% effective after a single dose and 97.5% effective after a second dose.

Use precautions as for other mosquito borne diseases. Avoid mosquito bites by employing personal and workplace protection measures, such as using an EPA-registered repellent according to manufacturers' instructions, wearing protective clothing, avoiding outdoor activity when mosquitoes are active and removing standing water that can provide mosquito breeding sites.

### **Deer Flies (See Tularemia above)**

## **Fleas**

Flea is a common name for insects of the order Siphonaptera which are wingless insects with mouthparts adapted for piercing skin and sucking blood. Fleas are external parasites, living by hematophagy off the blood of mammals (including humans). Some species include the cat flea (*Ctenocephalides felis*), dog flea (*Ctenocephalides canis*), and human flea (*Pulex irritans*).

Fleas are small (1.5 to 3.3 mm) long, agile, dark-colored, wingless insect with tube-like mouth parts adapted to feeding on the blood of their hosts. Their legs are long, with the hind pair well adapted for jumping. A flea can jump vertically up to seven inches and horizontally up to 13 inches. The flea body is hard, polished, and covered with many hairs and short spines directed backwards which assists its movement on the host. The body is able to withstand great pressure. Hard squeezing between the fingers is not normally sufficient to kill a flea.

Fleas lay tiny white oval-shaped eggs. The larva is small, pale, has bristles covering its worm-like body, lacks eyes, and has mouthparts adapted to chewing.

Fleas can cause medical problems include flea allergy dermatitis, secondary skin irritations and, in extreme cases, anemia, tapeworms, and stomach flu. Fleas can transmit murine typhus (endemic typhus) fever among animals and from animal to humans. Fleas can also transmit bubonic plague. Tapeworms normally infest in human severe cases. Although the bite is rarely felt, it is the resulting irritation caused by the flea salivary secretions that varies among individuals. Some result in a severe reaction including a general rash or inflammation resulting in secondary infections caused by scratching the irritated skin. Most bites are found on the feet and legs with the formation of small, hard, red, slightly raised itching spots with a single puncture point in the center of each spot.

### **Treatment**

Flea bites can be treated with anti-itch creams, usually antihistamines or hydrocortisone.

## **Bed Bugs**

Bed bugs are small parasitic insects that feed on human blood. A number of health effects may occur due to bed bugs including skin rashes, prominent blisters, psychological effects and allergic symptoms. Diagnosis involves finding the bed bugs and the occurrence of compatible symptoms. Treatment is otherwise symptomatic.

Adult bed bugs are reddish-brown, flattened, oval and wingless. Bed bugs have microscopic hairs that give them a banded appearance. Adults grow to 4-5mm in length and 1.5-3 mm wide. A bed bug pierces the skin of its host with two hollow feeding tubes shaped like tongues. The one tube injects its saliva, which contains anticoagulants and anesthetics, while the other draws blood of its host. After feeding for approximately five minutes, the bug returns to its hiding place. Although bed bugs can live for a year without feeding, they normally feed every five to ten days.

Eradication of bed bugs frequently requires a combination of pesticide and non-pesticide approaches. Pyrethroids, dichlorvos, and malathion have historically been effective. Mechanical approaches include vacuuming and heat treating or wrapping mattresses have also been recommended.



**ATTACHMENT 1**  
**RICKETTSIAL INFECTIONS**

## **Rickettsial Infections**

### **Description**

Many species of *Rickettsia* can cause illnesses in humans (Table below). The term “rickettsiae” conventionally embraces a polyphyletic group of microorganisms in the class Proteobacteria, comprising species belonging to the genera *Rickettsia*, *Ehrlichia*, *Coxiella*, and *Bartonella*. These agents are usually not transmissible directly from person to person except by blood transfusion or organ transplantation, although sexual and placental transmission has been proposed for *Coxiella*. Transmission generally occurs via an infected arthropod vector or through exposure to an infected animal reservoir host. However, sennetsu fever is acquired following consumption of raw fish products. The clinical severity and duration of illnesses associated with different rickettsial infections vary considerably, even within a given antigenic group. Rickettsioses range in severity from diseases that are usually relatively mild (cat scratch disease) to those that can be life-threatening (murine typhus) and they vary in duration from those that can be self-limiting to chronic (Q fever and bartonellosis) or recrudescent (Brill-Zinsser disease). Most patients with rickettsial infections recover with timely use of appropriate antibiotic therapy.

Travelers may be at risk for exposure to agents of rickettsial diseases if they engage in occupational or recreational activities which bring them into contact with habitats that support the vectors or animal reservoir species associated with these pathogens.

The geographic distribution and the risks for exposure to rickettsial agents are described below and in the Table below.

### **Trench Fever**

Trench fever, which is caused by *Bartonella quintana*, is transmitted from one person to another by the human body louse. Contemporary outbreaks of both diseases are rare in most developed countries and generally occur only in communities and populations in which body louse infestations are frequent, especially during the colder months when louse-infested clothing is not laundered. Foci of trench fever have also been recognized among homeless populations in urban centers of industrialized countries. Travelers who are not at risk of exposure to body lice or to persons with lice are unlikely to acquire these illnesses. However, health-care workers who care for these patients may be at risk for acquiring louse-borne illnesses through inhalation or inoculation of infectious louse feces into the skin or conjunctiva.

## Murine Typhus

Murine typhus, which is caused by infection with *Rickettsia typhi*, is transmitted to humans by rat fleas, particularly during exposure in rat-infested buildings (3). Flea-infested rats can be found throughout the year in humid tropical environments, especially in harbor or riverine environments. In temperate regions, they are most common during the warm summer months.

Travelers who participate in outdoor activities in grassy or wooded areas (e.g., trekking, camping, or going on safari) may be at risk for acquiring tick-borne illnesses, including those caused by *Rickettsia*, and *Ehrlichia* species (see below).

**TABLE Epidemiologic features and symptoms of rickettsial diseases**

ANTIGENIC GROUP	DISEASE	AGENT	PREDOMINANT SYMPTOMS*	VECTOR OR ACQUISITION MECHANISM	ANIMAL RESERVOIR	GEOGRAPHIC DISTRIBUTION OUTSIDE THE US
Typhus fevers	Murine typhus	<i>R. typhi</i>	As above, generally less severe	Rat flea	Rats, mice	Worldwide
Spotted fevers						
Coxiella	Q fever	<i>Coxiella burnetii</i>	Fever, headache, chills, sweating, pneumonia, hepatitis, endocarditis	Most human infections are acquired by inhalation of infectious aerosols; tick	Goats, sheep, cattle, domestic cats, other	Worldwide
Bartonella	Cat-scratch disease	<i>Bartonella henselae</i>	Fever, adenopathy, neuroretinitis, encephalitis	Cat flea	Domestic cats	Worldwide
	Trench fever	<i>B. quintana</i>	Fever, headache, pain in shins, splenomegaly, disseminated rash	Human body louse	Humans	Worldwide
Ehrlichia	Ehrlichiosis	<i>Ehrlichia chaffeensis</i> <sup>#</sup>	Fever, headache, nausea, occasionally rash	Tick	Various large and small mammals, including deer and rodents	Worldwide

This represents only a partial list of symptoms. Patients may have different symptoms or only a few of those listed.

## Anaplasmosis and Ehrlichiosis

Human ehrlichiosis and anaplasmosis are acute tick-borne diseases, associated with the lone star tick, *Amblyomma americanum*, and *Ixodes* ticks, respectively. Because one tick may be infected with more than one tick-borne pathogen (e.g. *Borrelia burgdorferi*, the causative agent of Lyme disease, or various *Babesia* species, agent of human babesiosis), patients may be present with

atypical clinical symptoms that complicate treatment. Ehrlichioses and anaplasmosis are characterized by infection of different types of leukocytes, where the causative agent multiplies in cytoplasmic membrane-bound vacuole called morulae. Morulae can sometimes be detected in Giemsa-stained blood smears.

## **Q FEVER**

Q fever occurs worldwide, most often in persons who have contact with infected goat, sheep, cat and cattle, particularly parturient animals (especially farmers, veterinarians, butchers, meat packers, and seasonal workers). Travelers who visit farms or rural communities can be exposed to *Coxiella burnetii*, the agent of Q fever, through airborne transmission (via animal-contaminated soil and dust) or less commonly through consumption of unpasteurized milk products or by exposure to infected ticks. These infections may initially result in only mild and self-limiting influenza-like illnesses, but if untreated, infections may become chronic, particularly in persons with preexisting heart valve abnormalities or with prosthetic valves. Such persons can develop chronic and potentially fatal endocarditis.

## **Cat-Scratch Disease**

Cat-scratch disease is contracted through scratches and bites from domestic cats, particularly kittens, infected with *Bartonella henselae*, and possibly from their fleas (3, 4). Exposure can therefore occur wherever cats are found.

## **Symptoms**

Clinical presentations of rickettsial illnesses vary (Table above), but common early symptoms, including fever, headache, and malaise, are generally nonspecific. Illnesses resulting from infection with rickettsial agents may go unrecognized or are attributed to other causes. Atypical presentations are common and may be expected with poorly characterized non-indigenous agents, so appropriate samples for examination by specialized reference laboratories should be obtained. A diagnosis of rickettsial diseases is based on two or more of the following: 1) clinical symptoms and an epidemiologic history compatible with a rickettsial disease, 2) the development of specific convalescent-phase antibodies reactive with a given pathogen or antigenic group, 3) a positive polymerase chain reaction test result, 4) specific immunohistologic detection of rickettsial agent, or 5) isolation of a rickettsial agent. Ascertaining the likely place and the nature of potential exposures is particularly helpful for accurate diagnostic testing.

## Prevention

With the exception of the louse-borne diseases described above, for which contact with infectious arthropod feces is the primary mode of transmission (through autoinoculation into a wound, conjunctiva, or inhalation), travelers and health-care providers are generally not at risk for becoming infected via exposure to an ill person. Limiting exposures to vectors or animal reservoirs remains the best means for reducing the risk for disease. Travelers and persons working in areas where organisms may be present should implement prevention based on avoidance of vector-infested habitats, use of repellents and protective clothing, prompt detection and removal of arthropods from clothing and skin, and attention to hygiene.

Q fever and *Bartonella* group diseases may pose a special risk for persons with abnormal or prosthetic heart valves, and *Rickettsia*, *Ehrlichia*, and *Bartonella* for persons who are immunocompromised.



## **ATTACHMENT 2**

### **ENCEPHALITIS ARBOVIRAL ENCEPHALITIDES**

## Encephalitis Arboviral Encephalitides

### Perspectives

Arthropod-borne viruses, i.e., arboviruses, are viruses that are maintained in nature through biological transmission between susceptible vertebrate hosts by blood feeding arthropods (mosquitoes, psychodids, ceratopogonids, and ticks). Vertebrate infection occurs when the infected arthropod takes a blood meal. The term 'arbovirus' has no taxonomic significance. Arboviruses that cause human encephalitis are members of three virus families: the *Togaviridae* (genus Alphavirus, *Flaviviridae*, and *Bunyaviridae*).

All arboviral encephalitides are zoonotic, being maintained in complex life cycles involving a nonhuman primary vertebrate host and a primary arthropod vector. These cycles usually remain undetected until humans encroach on a natural focus, or the virus escapes this focus via a secondary vector or vertebrate host as the result of some ecologic change. Humans and domestic animals can develop clinical illness but usually are "dead-end" hosts because they do not produce significant viremia, and do not contribute to the transmission cycle. Many arboviruses that cause encephalitis have a variety of different vertebrate hosts and some are transmitted by more than one vector. Maintenance of the viruses in nature may be facilitated by vertical transmission (e.g., the virus is transmitted from the female through the eggs to the offspring).

Arboviral encephalitides have a global distribution which is transmitted by mosquitoes. Powassan, is a minor cause of encephalitis in the northern United States, and is transmitted by ticks. A new Powassan-like virus has recently been isolated from deer ticks. Its relatedness to Powassan virus and its ability to cause disease has not been well documented. Most cases of arboviral encephalitis occur from June through September, when arthropods are most active. In milder (i.e., warmer) parts of the country, where arthropods are active late into the year, cases can occur into the winter months.

The majority of human infections is asymptomatic or may result in a nonspecific flu-like syndrome. Onset may be insidious or sudden with fever, headache, myalgias, malaise and occasionally prostration. Infection may, however, lead to encephalitis, with a fatal outcome or permanent neurologic sequelae. Fortunately, only a small proportion of infected persons progress to frank encephalitis.

Experimental studies have shown that invasion of the central nervous system (CNS), generally follows initial virus replication in various peripheral sites and a period of viremia. Viral transfer from the blood to the CNS through the olfactory tract has been suggested. Because the arboviral encephalitides are viral diseases, antibiotics are not effective for treatment and no effective antiviral drugs have yet been discovered.

## Prevention

Arboviral encephalitis can be prevented in two major ways: personal protective measures and public health measures to reduce the population of infected mosquitoes. Personal measures include reducing time outdoors particularly in early evening hours, wearing long pants and long sleeved shirts and applying mosquito repellent to exposed skin areas. Public health measures often require spraying of insecticides to kill juvenile (larvae) and adult mosquitoes.

Selection of mosquito control methods depends on what needs to be achieved; but, in most emergency situations, the preferred method to achieve maximum results over a wide area is aerial spraying. In many states aerial spraying may be available in certain locations as a means to control nuisance mosquitoes. Such resources can be redirected to areas of virus activity. When aerial spraying is not routinely used, such services are usually contracted for a given time period. Financing of aerial spraying costs during large outbreaks is usually provided by state emergency contingency funds. Federal funding of emergency spraying is rare and almost always requires a federal disaster declaration. Such disaster declarations usually occur when the vector-borne disease has the potential to infect large numbers of people, when a large population is at risk and when the area requiring treatment is extensive. Special large planes maintained by the United States Air Force can be called upon to deliver the insecticide(s) chosen for such emergencies. Federal disaster declarations have relied heavily on risk assessment by the CDC.

There are no commercially available human vaccines for these U.S. diseases.

## **Powassan Encephalitis**

Powassan (POW) virus is a flavivirus and currently the only well documented tick-borne transmitted arbovirus occurring in the United States and Canada. Recently a Powassan-like virus was isolated from the deer tick, *Ixodes scapularis*. Its relationship to POW and its ability to cause human disease has not been fully elucidated. POW's range in the United States is primarily in the upper tier States. In addition to isolations from man, the virus has been recovered from ticks (*Ixodes marxi*, *I. cookei* and *Dermacentor andersoni*) and from the tissues of a skunk (*Spilogale putorius*). It is a rare cause of acute viral encephalitis. POW virus was first isolated from the brain of a 5-year-old child who died in Ontario in 1958. Patients who recover may have residual neurological problems.

## **Other Arboviral Encephalitides**

Many other arboviral encephalitides occur throughout the world. Most of these diseases are problems only for those individuals traveling to countries where the viruses are endemic.

## **West Nile Encephalitis**

Discussed elsewhere in this document

## FLD 43 D HAZARDOUS PLANTS

A number of hazardous plants may be encountered during field operations. The ailments associated with these plants range from mild hay fever to contact dermatitis. Plants that present the greatest risk to site workers are those that produce allergic reactions and tissue injury.

### Plants That Cause Skin and Tissue Injury

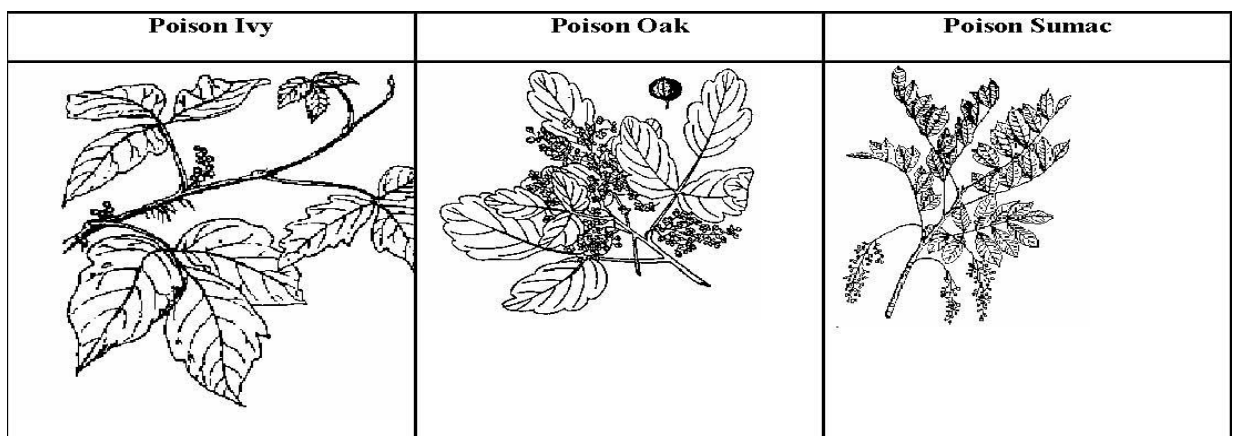
Contact with sharp leaves and thorns are of special concern to site personnel. This concern stems from the fact that punctures, cuts, and even minor scrapes caused by accidental contact may result in skin lesions and the introduction of fungi or bacteria through the skin. This is especially important in light of the fact that the warm moist environment created inside protective clothing is ideal for the propagation of fungal and bacterial infection. Personnel receiving any of the injuries listed above, even minor scrapes shall report immediately for continued observation and care. Keeping the skin covered as much as possible (i.e., long pants and long sleeved shirts) in areas where these plants are known to exist will limit much of the potential exposure.

### Plants That Cause an Allergic Reaction

The poisonous plants of greatest concern are poison ivy, poison oak, and poison sumac. Contact with the poisonous sap of these plants produces a severe rash characterized by redness, blisters, swelling, and intense burning and itching. The victim also may develop a high fever and may be very ill. Ordinarily, the rash begins within a few hours after exposure, but it may be delayed for 24 to 48 hours.

The most distinctive features of poison ivy and poison oak are their leaves, which are composed of three leaflets each. In certain seasons, both plants also have greenish-white flowers and berries that grow in clusters. Poison sumac is a tall shrub or small tree with 6 to 12 leaflets arranged in pairs with a single leaflet at the end. This plant grows in wooded, swampy areas.

**Poison Ivy/Poison Oak/Poison Sumac**



The reaction associated with exposure to these plants will generally cause the following signs and symptoms:

- Blistering at the site of contact, usually occurring within 12 to 48 hours after contact
- Reddening, swelling, itching and burning at the site of contact
- Pain, if the reaction is severe
- Conjunctivitis, asthma, and other allergic reactions if the person is extremely sensitive to the poisonous plant toxin

If the rash is scratched, secondary infections can occur. Preventive measures that are effective for most site personnel include:

- Avoid contact with any poisonous plants on site, and keep a steady watch to identify, report and mark poisonous plants found on site
- Wash hands, face or other exposed areas at the beginning of each break period and at the end of each workday
- Avoid contact with, and wash on a daily basis, contaminated tools, equipment and clothing
- Barrier creams, detoxification/wash solutions and orally administered desensitization may prove effective and should be tried to find the best preventive solution

Keeping the skin covered as much as possible (i.e., long pants and long sleeved shirts) in areas where these plants are known to exist will limit much of the potential exposure.

### **Plants That are Poisonous**

There are a number of plants worldwide beside poison ivy, oak and sumac which have poisonous properties. In many cases consumption of these plants or parts of these plants can result in poisoning. In other cases, contact with the plants may be poisonous. The following is a listing with pertinent information on poisonous properties and locations of a number of plants.

In general, when working in the outdoors or where you may come in contact with household plants or where your families may come in contact with these plants, it is important that as soon as possible after contact the area or areas should be thoroughly washed and hands must be thoroughly washed before eating drinking, smoking or any other hand to mouth contact.

In keeping with our 24/7 BBS concept, it is important to remember that children are particularly vulnerable to many of the poisonous parts of these plants. Many of these poisonous parts resemble non-poisonous food items such as berries and are attractive.

As with most lists there is extensive information but the list may not include all poisonous plants.

It is important to remember that this document is a starting point to be supplemented with local information. The majority of this information is from a list found in Wikipedia an on line Dictionary readily accessible via Google. The website has pictures of these plants as well as links to other information sources.



# POISONOUS PLANTS

From Wikipedia,

This is a list of plants containing poisonous parts that pose a serious risk of illness, injury, or death to humans.

## Poisonous Food Plants

- Apple (*Malus domestica*) **Found worldwide in cooler climates.** Seeds contain cyanogenic glycosides; although the amount found in most apples won't kill a person.
- Cherry (*Prunus cerasus*), as well as other species (*Prunus spp*) such as peach (*Prunus persica*), plum (*Prunus domestica*), almond (*Prunus dulcis*) and apricot (*Prunus armeninaca*). **There are around 430 species of *Prunus*, spread throughout the northern temperate regions of the globe.** Leaves and seeds contain cyanogenic glycosides
- Rhubarb (*Rheum rhaponticum*) **Found worldwide.** Leaves, but not stems, contain oxalic acid salts, causing kidney disorders, convulsions, and coma. Rarely fatal.
- Tomato (*Solanum lycopersicum*) **Found worldwide.** Foliage and vines contain alkaloid poisons which cause digestive upset and nervous excitement.

## Other Poisonous Plants

- Autumn crocus. **Found in North America.** The bulbs are poisonous and cause nausea, vomiting, diarrhea. **Can be fatal.**
- Azalea **Found Worldwide.** All parts of the plant are poisonous and cause nausea, vomiting, depression, breathing difficulties, and coma. Rarely fatal.
- Bittersweet nightshade **Naturalized in North America.** All parts are poisonous, containing solanine and causing fatigue, paralysis, convulsions and diarrhea. Rarely fatal.
- Bleeding heart / Dutchman's breeches. **Found in North America.** Leaves and roots are poisonous and cause convulsions and other nervous symptoms.
- Black locust. **Naturalized in North America.** Pods are toxic
- Caladium / Elephant ear. **Ornamental plants in North America.** All parts of the plant are poisonous. Symptoms are generally irritation, pain, and swelling of tissues. If the mouth or tongue swells, breathing may be fatally blocked.

- Castor Oil Plant (*Ricinus communis*) Castor Oil Plant. **Found Worldwide.** The phytotoxin is **ricin**, an extremely toxic water soluble protein, which is concentrated in the seed. Also present are ricinine, an alkaloid, and an irritant oil. Causes burning in mouth and throat, convulsions, and is **often fatal**.
- Daffodil. **Found worldwide.** The bulbs are poisonous and cause nausea, vomiting, and diarrhea. **Can be fatal.**
- Daphne (*Daphne sp.*) **Ornamental plant worldwide.** The berries (either red or yellow) are poisonous, causing burns to mouth and digestive tract, followed by coma. **Often fatal.**
- Darnel/Poison Ryegrass (*Lolium temulentum*) **Usually grows in the same production zones as wheat and is considered a weed.** The seeds and seed heads of this common garden weed may contain the alkaloids temuline and loline. Some experts also point to the fungus ergot or fungi of the genus endoconidium both of which grow on the seed heads of rye grasses as an additional source of toxicity.
- Deadly nightshade (*Atropa belladonna*) **Naturalized in parts of North America.** All parts of the plant contain the toxic alkaloid atropine. The young plants and seeds are especially poisonous, causing nausea, muscle twitches, paralysis; **often fatal**.
- Dumbcane / dieffenbachia. **Found in tropical areas and popular as house plants.** All parts are poisonous, causing intense burning, irritation, and immobility of the tongue, mouth, and throat. Swelling can be severe enough to block breathing leading to death.
- Ivy. **Native to North America** where winters are not severe. The leaves and berries are poisonous, causing stomach pains, labored breathing, possible coma.
- Jerusalem cherry **United States** All parts, especially the berries, are poisonous, causing nausea and vomiting. **Looks like a cherry tomato.** It is occasionally fatal, especially to children.
- Lilies **Worldwide** There are some 3500 species that comprise the lily (Lilaceae) family. Some are beneficial including (foods such as onion, shallot, garlic, chives [all *Allium* spp] and asparagus) and some with medicinal uses (colchicine and red squill) Many produce alkalids which are poisonous, especially to cats.
- Manchineel (*Hippomane mancinella*) **Native to the Caribbean (including Puerto Rico and the Virgin Islands).** It is one of the most poisonous trees in the world All parts of this tree including the fruit contain toxic phorbol esters typical of the Euphorbiacea. Sap may cause burning of the skin and smoke from burning may cause eye irritation and blindness. Fruits, which are similar in appearance to an apple, are green or greenish-yellow when ripe.
- Oak Worldwide Most species foliage and acorns are mildly poisonous, causing digestive upset, heart trouble, contact dermatitis. Rarely fatal.

- Poison-ivy (*Toxicodendron radicans*), Poison-oak (*T. diversilobum*), and Poison Sumac (*T. vernix*) **North America** All parts of these plants contain a highly irritating oil with urushiol (this is actually not a poison but an allergen). Skin reactions can include blisters and rashes. It spreads readily to clothes and back again, and has a very long life. Infections can follow scratching.
- Pokeweed (*Phytolacca sp.*) **Native to North America.** Leaves, berries and roots contain phytolaccatoxin and phytolaccigenin - toxin in young leaves is reduced with each boiling and draining.

## **FLD 46 CONTROL OF EXPOSURE TO LEAD**

### **REFERENCES**

29 CFR 1926.62

### **RELATED FLDs AND PROGRAMS:**

*Occupational Medical Monitoring Program*

*Personal Protective Equipment Program*

*Respiratory Protection Program*

This FLD provides guidelines for controlling exposure to lead in the workplace. This WESTON-specific instruction applies corporate-wide and may require consultation and interpretation by a Certified Industrial Hygienist for unique applications.

Managers shall ensure employees are properly trained in the provisions of the standard prior to performing activities involving exposure to lead or lead compounds.

### **INTRODUCTION**

Based upon limited differences in compliance requirements between the General Industry and the Construction Industry Standards WESTON policy is to follow compliance requirements as determined in 29 CFR 1926.62, "Lead Exposure in Construction" for all activities which involve occupational exposure to lead. The forms of lead to which the standard applies is defined to include metallic lead, all inorganic lead compounds, and organic lead soaps.

This practice applies to occupational exposure to lead at or above the Action Level (AL). Specific requirements for medical monitoring, respiratory protection, hygiene facilities, etc. are not mandated until exposure reaches the AL or the Permissible Exposure Level (PEL).

The lead standard includes requirements addressing exposure assessment, methods of compliance, respiratory protection, protective clothing and equipment, hygiene facilities and practices, medical surveillance, medical removal protection, employee information and training, signs, recordkeeping, and observation of monitoring.

The lead standard lists specific tasks which require conformance with the most restrictive portions of the standard until monitoring indicates otherwise. The tasks include; abrasive blasting, welding, cutting and burning of steel or structures containing or coated with lead or lead products.

### **Permissible Exposure Level (PEL) and Action Level (AL)**

For both the general industry and the construction industry, the PEL for lead exposure is 50 $\mu$ g/m<sup>3</sup> and the AL is 30 $\mu$ g/m<sup>3</sup>.

For exposures greater than an 8-hour day, the time-weighted average (TWA) for that day must be reduced according to the formula:

- Allowable employee exposure (in  $\mu$ g/m<sup>3</sup>) = 400 divided by the hours worked that day.

## Potential Sources of Exposure

For WESTON operations, potential sources of exposure include, but are not limited to; industrial hygiene surveys, wet-process paint chip sampling, and drilling operations where lead is present as a contaminant.

In addition, certain "Trigger Tasks" such as; welding and cutting on lead paint or lead-contaminated structures, dry sanding or scraping, soldering and pipe-fitting operations involving lead-containing materials and dry cleanup of lead contaminated surfaces are potential exposure operations. Specific monitoring and protection requirements follow.

## Exposure Assessment and Initial Requirements

Each task conducted by WESTON personnel must be evaluated as to the potential for exposure to lead. In accordance with the standard, exposure is that which would occur regardless of the use of respiratory protection. Therefore, any concentration must be evaluated as to the potential for employee exposure at or above the AL.

## Hygiene Surveys and Sampling Tasks

Previous data less than 12 months old may be used as the initial exposure assessment in order to determine appropriate levels of protection. This data must have been collected under workplace and environmental conditions closely resembling current task activities.

Defensible data from previous soil sampling efforts may be utilized for determining preliminary levels of protection, by inserting soils concentration data into the action levels formula. Refer to the Corporate Environmental Health and Safety Portal Site under "Technical Resources" for guidance on calculating Action Levels. Personal air sampling must still be performed in order to verify exposure until and/or unless comprehensive background data (reviewed by an industrial hygienist) are available to justify omitting personal sampling.

Other objective data may be utilized in lieu of initial monitoring provided the objective data is documented and appropriate for the materials and work processes/activities conducted.

## Trigger Tasks

Until such time as an exposure assessment (either through personal air sample results or approved and documented historic data) has been conducted which indicates actual exposures, the following task-specific guidelines are applicable.

- Where lead-containing coatings or paint are present: Manual demolition of structures (e.g., dry wall), manual scraping, manual sanding, heat gun applications, and power tool cleaning with dust collection systems; and/or spray painting with lead paint. It will be presumed that the level of lead in the air is above the PEL but, below  $500 \mu\text{g}/\text{m}^3$ . The minimum respiratory protection for these activities is a properly fitted half-face respirator with N, R, or P100 filter cartridges. Respirators providing higher levels of protection may be used and an employee has the right to request a powered air-purifying respirator (PAPR) with N, R, or P100 Cartridges.
- Where activities involve using lead-containing mortar; lead burning where lead-containing coatings or paint are present: rivet busting; power tool cleaning without dust collection systems; cleanup activities where dry expendable abrasives are used; and abrasive blasting enclosure movement and removal, it will be presumed that the level of lead in the air is above the  $500 \mu\text{g}/\text{m}^3$  but below  $1250 \mu\text{g}/\text{m}^3$ . The minimum respiratory protection for these activities is a loose-



fitting hood or helmet PAPR with N, R, or P100 filter cartridges; a hood or helmet supplied air respirator operated in continuous flow mode (e.g. type CE abrasive blasting helmet operated in continuous flow mode). A Quantitative Fit Test is required for use of respiratory protection for these activities. Respirators providing higher levels of protection may be used. For WESTON personnel the minimum respiratory protection is a tight fitting full face respirator with N, R, or P100 filter cartridges unless an exception is approved by a WESTON Certified Industrial Hygienist.

**Note:** An employee has the right to request a PAPR with N, R, or P 100 Cartridges.

- Where activities involve: Abrasive blasting, welding, cutting, or torch burning, the respiratory protection required is any supplied air respirator operated in positive pressure mode.
- For any activity where it is reasonably believed that exposure over the PEL will result, the respiratory protection is: Half- or Full-Face air purifying respirator (APR) with appropriate high efficiency filters; PAPRs with appropriate cartridges; or Supplied Air Respirators. Actual selection is dependent upon the potential for exposure.

Until the employee exposure assessment (personnel monitoring or approved historic data) has been performed and actual employee exposure has been determined, all employees performing the tasks described in the paragraphs above in this section must be supplied with interim protection as follows:

- Appropriate respiratory protection.
- Appropriate personal protective clothing and equipment.
- Change areas.
- Hand washing facilities.
- Biological monitoring.
- Training.

## **Monitoring**

### Initial Monitoring Requirements

The exposure assessment results will be used to determine whether any employee is being exposed to lead at or above the action level of  $30\mu\text{g}/\text{m}^3$ .

With the exception of allowances described below, monitoring for worker exposure requires collection of personal air samples which are representative of a full shift for each task involving known or potential exposure and any of the following, relevant considerations:

- Any information, observations, or calculations which would indicate employee exposure to lead;
- Any previous measurements of airborne lead; and
- Any employee complaints of symptoms which may be attributable to exposure to lead.

**Note:** Monitoring for the initial determination, where performed, may be limited to a representative sample of the exposed employees who the employer reasonably believes are exposed to the greatest airborne concentrations of lead in the workplace.

## **Historical Data**

Where WESTON has previously monitored for lead exposures, such earlier monitoring results may be used to satisfy the requirements of initial monitoring and monitoring frequency, if the sampling and analytical methods meet the accuracy and confidence levels as indicated in paragraph of 29 CFR

1926.62(d)(9). Additionally, the data must have been obtained within the past 12 months during work operations conducted under workplace conditions closely resembling the processes, type of material, control methods, work practices, and environmental conditions used and prevailing in the current operations.

### **Objective Data**

Where objective data demonstrates that a particular product or material containing lead or a specific process, operation or activity involving lead cannot result in employee exposure to lead at or above the AL during processing, use, or handling, such data may be relied upon instead of performing initial monitoring.

An accurate record documenting the nature and relevancy of objective data used in assessing employee exposure in lieu of exposure monitoring, must be maintained.

**Exception:** Objective data, as described above, is not permitted to be used for exposure assessment in connection with the specific activities previously discussed as "Trigger Tasks".

### **Positive Initial Determination and Initial Monitoring**

Where a determination shows the possibility of any employee exposure at or above the AL, monitoring must be conducted which is representative of the exposure for each employee in the workplace who is exposed to lead.

### **Negative Initial Determination**

Where a determination is made that no employee is exposed to airborne concentrations of lead at or above the AL a written record of such determination must be made.

### **Frequency**

If the initial determination reveals employee exposure to be below the AL, further exposure determination need not be repeated except as otherwise provided in the last paragraph of this section.

If the initial determination or subsequent determination reveals employee exposure to be at or above the AL, but at or below the PEL monitoring must be conducted at least every 6 months.

If the initial determination reveals that employee exposure is above the PEL, monitoring must be performed quarterly.

Whenever there has been a change of equipment, process, control, or personnel or a new task has been initiated that may result in additional employees being exposed to lead at or above the AL or may result in employees already exposed at or above the AL being exposed above the PEL, additional monitoring must be conducted in accordance with this practice.

### **Employee Notification**

Each employee shall be notified in writing of the results which represent that employee's exposure within five working days after completion of the exposure assessment.

Whenever the results indicate that the representative employee exposure, without regard to respirators, is at or above the PEL a written notice is required stating that the employee's exposure was at or above that

level and includes a description of the corrective action taken or to be taken to reduce exposure to below that level.

Exposure monitoring records must be maintained as required in 29 CFR 1926.62(n)(1). Minimum information includes:

- Sampling data and procedures utilized.
- Description of sampling and analytical methods used.
- Type of respiratory protection used.
- Name, social security number, job classification for specific persons monitored and/or representative groups.
- Any environmental variables which could impact measurements.

### **Engineering Controls**

As in all cases of potential or known exposure to a hazardous environment, engineering controls are to be evaluated as to effectiveness and appropriateness under the site-specific circumstances. Controls must be listed in the site-specific Health and Safety Plan (HASP) and implemented as appropriate or feasible. Appropriate engineering controls include dust suppression, use of longer torches in cutting operations, use of mechanical shears in lieu of torches, vacuum blasting methods, and local ventilation.

### **Ventilation**

When mechanical ventilation is used to control lead exposure, the mechanical performance of the system must be evaluated and documented as to its effectiveness in controlling exposure.

### **Work Practice Controls**

WESTON will not use administrative controls such as worker rotation as a means of reducing employees' TWA exposure to lead unless expressly approved by a qualified safety professional.

### **General Housekeeping**

All surfaces shall be maintained as free as practicable of accumulations of lead.

Floors and other surfaces where lead accumulates shall, wherever possible, be cleaned by vacuuming or other methods that minimize the likelihood of lead becoming airborne.

Shoveling, dry or wet sweeping, and brushing may be used only where vacuuming or other equally effective methods have been tried and found ineffective.

Where vacuuming methods are selected, the vacuums shall be equipped with HEPA filters and used and emptied in a manner which minimizes the reentry of lead into the workplace.

Compressed air shall not be used to remove lead from any surface unless the compressed air is used in conjunction with a ventilation system designed to capture the airborne dust created by the compressed air.

## **Hygiene Facilities and Practices**

In control zone areas where employees are exposed to lead above the PEL without regard to the use of respirators, food or beverage shall not be present or consumed, tobacco products shall not be present or used, and cosmetics shall not be applied.

Clean change areas shall be provided for employees whose airborne exposure to lead is above the PEL, without regard to the use of respirators.

To prevent cross-contamination, change areas, as needed, shall be equipped with separate storage facilities for protective work clothing and equipment and for street clothes.

Employees exposed to lead concentrations greater than the AL shall not leave the workplace wearing any protective clothing or equipment that is required to be worn during the work shift.

Shower facilities shall be provided, where feasible, for use by employees whose airborne exposure to lead is above the PEL. Adequate supplies, cleansing agents, and towels shall be provided.

Lunchroom facilities or eating areas shall be as free as practicable from lead contamination and readily accessible to employees.

Employees whose airborne exposure to lead is above the PEL, without regard to the use of a respirator, must wash their hands and face prior to eating, drinking, smoking or applying cosmetics.

Employees shall not enter lunchroom facilities or eating areas with protective work clothing or equipment which has been contaminated by surface lead dust in concentrations exceeding the AL.

Adequate hand washing facilities shall be provided for use by employees exposed to lead in concentrations exceeding the AL. These facilities must be designed in accordance with 29 CFR 1926.51(f). Where showers are not provided, employees must wash their hands and face at the end of the work-shift.

**Note:** Short-term (less than one week) field activities may utilize appropriate personal decontamination sequences such as those allowed under 29 CFR 1910.120 (HAZWOPER) in lieu of contained clean rooms, showers and change facilities.

## **Personal Protective Clothing and Equipment**

Where exposures to lead above the AL (without regard to the use of respirators) have been validated by monitoring or where employees are exposed to lead compounds which may cause skin or eye irritation (e.g. lead arsenate, lead azide), and as interim protection for employees performing tasks as specified as “Trigger Tasks”, affected employees must use appropriate protective work clothing and equipment that prevents contamination of the employee and the employee's garments such as, but not limited to:

- Coveralls or similar full-body work clothing;
- Gloves, hats, and shoes or disposable shoe coverlets; and
- Face shields, vented goggles, or other appropriate protective equipment as necessary.
- Change areas in accordance with 29 CFR 1926.62(i)(2).
- Hand washing facilities in accordance with 29 CFR 1926.62(i)(5).

- Biological monitoring in accordance with 29 CFR 1926.62(j)(1)(i), to consist of blood sampling and analysis for lead and zinc protoporphyrin levels, and;
- Training as required under 29 CFR 1926.62(l)(1)(i) regarding 29 CFR 1926.59, Hazard Communication; training as required under 29 CFR 1926.62(l)(2)(ii)(C), regarding use of respirators; and training in accordance with 29 CFR 1926.21, Safety training and education.

The HASPs and fixed facility operating procedures must list specific and appropriate PPE that will be utilized for each task involving known or potential exposure to lead or lead compounds.

PPE utilized will be disposable garments. Personnel in maintenance or fixed operations may use re-useable garments only under the direction and approval of a qualified safety professional.

Garments will be disposed of at the end of a shift or upon leaving a controlled zone whichever comes first. Under no conditions will any employee be allowed to take contaminated garments with the employee to his or her home.

Proper decontamination of re-usable equipment/PPE must be conducted prior to allowing these materials to leave the site.

Contaminated protective clothing which is to be cleaned, laundered, or disposed of, must be placed in a closed container in the change area which prevents dispersion of lead outside the container.

Containers of contaminated (defined as when exposures are greater than or equal to the PEL) protective clothing and equipment must be labeled as follows:

"Caution: Clothing contaminated with lead. Do not remove dust by blowing or shaking. Dispose of lead contaminated wash water in accordance with applicable local, state, or federal regulations."

The removal of lead from protective clothing or equipment by blowing, shaking, or any other means which disperses lead into the air shall be prohibited.

## **Respirators**

For WESTON operations, respirators shall be used in accordance with WESTON's Respiratory Protection Program in the following circumstances:

- Whenever an employee's exposure to lead exceeds the AL;
- In work situations in which engineering controls and work practices are not sufficient to reduce exposures to or below the AL;
- Whenever an employee requests a respirator; and
- As interim protection for employees performing "Trigger-tasks".

Respirators approved for use are limited to:

- Properly fitted half-face APRs with high-efficiency filters for concentrations not exceeding 500µg/m<sup>3</sup>.



- A loose fitting hood or helmet PAPR with N, R, or P100 filter cartridges; a hood or helmet supplied air respirator operated in continuous flow mode (e.g. type CE abrasive blasting helmet operated in continuous flow mode for concentrations not to exceed 1250  $\mu\text{g}/\text{m}^3$ ).
- Properly fitted full-face APRs with high efficiency filters for concentrations not in excess of 2,500  $\mu\text{g}/\text{m}^3$ .
- Tight fitting full-facepiece PAPRs with high-efficiency filters for concentrations not in excess of 2,500  $\mu\text{g}/\text{m}^3$ .
- Full-facepiece, positive-pressure supplied air respirators (SARs) for concentrations not in excess of 100,000  $\mu\text{g}/\text{m}^3$ .
- Full-facepiece self-contained breathing apparatus (SCBA) for concentrations greater than 100,000  $\mu\text{g}/\text{m}^3$  or for unknown concentrations.

Respirators specified for higher concentrations can be used at lower concentrations of lead.

A full facepiece is required if the lead aerosols cause eye or skin irritation at the use concentrations.

Fit-testing must be conducted in accordance with WESTON's Respiratory Protection Program and 29 CFR 1910.134.

### **Signs and Labels**

The following warning signs shall be posted in each work area where exposure to lead is above the PEL.

WARNING

LEAD WORK AREA

POISON

NO SMOKING OR EATING

Signs required by this paragraph must be illuminated and cleaned as necessary so that the legend is readily visible from all areas of approach to the work area.

### **Medical Surveillance**

Initial medical surveillance in the form of blood testing shall be made available to employees occupationally exposed on any day to lead at or above the AL.

Biological monitoring in the form of blood sampling and analysis for lead and zinc protoporphyrin levels will be performed during initial medical surveillance and must be performed on the following schedule:

- For any employee anticipating work at a site or operation where the known or potential exposure (without regard to the use of respiratory equipment) equals or exceeds the AL, biological monitoring must be conducted prior to the start of that person's work on site or within 48 hours of such determination. Post-site work monitoring must be conducted within one week of that person's completion of site work. NOTE: This initial determination and need for blood testing should be reviewed by a Certified Industrial Hygienist; particularly if a negative determination is made. Appropriate documentation must be placed in the site files for future reference.

- During long-term (greater than 30 days) site activities for each employee with known or potential exposure to or greater than the AL for 30 or more days per year, at least every 2 months for the first 6 months and every 6 months thereafter.

Within 5 working days after the receipt of biological monitoring results, WESTON's medical consultant will notify each employee in writing of his or her blood lead level. The content of and review mechanisms for medical examinations made available shall be pursuant to 29 CFR 1926.62(j).

For any employee found to have a blood lead level at or above 40µg/100g of whole blood, testing will be performed every 2 months until two consecutive blood samples and analysis indicate a blood lead level below 40µg/100g of whole blood.

### **Medical Removal and Protection**

WESTON will temporarily remove an employee from work having an exposure to lead at or above the AL on each occasion that a periodic and a follow-up blood sampling test conducted pursuant to 29 CFR 1926.62(k) indicate that the employee's blood lead level is at or above 50 µg/dl.

WESTON will remove an employee from work having an exposure to lead at or above the AL on each occasion that a final medical determination results in a medical finding, determination, or opinion that the employee has a detected medical condition which places the employee at increased risk of material impairment to health from exposure to lead.

**Note:** Medical removal protections shall be strictly as interpreted under 29 CFR 1926.62(k) and other applicable Acts or Standards.

In the event any employee must be removed from work activities due to blood lead levels records and documents must be maintained in the project files as required in 29 CFR 1910.1025(n) or 1926.62(n).

### **Education and Training**

All WESTON personnel with potential occupational exposure to lead will be provided with training, initially and annually thereafter, as to:

- Content of the standards 29 CFR 1910.1025 and 1926.62.
- The nature of operations which could result in exposure at or above the action level on any one day.
- Respirator use, selection and maintenance.
- Medical surveillance and medical removal requirements and protections.
- Health effects of lead.
- Engineering and work practice controls.
- WESTON's Lead Exposure Compliance Program and associated site specific plans.

### **Recordkeeping and Training**

Documentation of training records in the form of training materials and attendance sheets will be maintained in the project files.

## **Exposure Assessments**

Monitoring and data sheets used to determine employee exposures must be maintained on all sites with lead exposure. As required under 29 CFR 1910.20, copies of all documentation must be maintained in the project files.

Exposure assessment and monitoring records must include:

- The date(s), number, location and results of samples taken.
- The determination that the sampling procedures are representative of employee exposure.
- A description of the sampling and analytical procedures used.
- The type of respiratory protection used, if any.
- The name, employee number, and job classification of the employee(s) monitored.
- Environmental conditions encountered.

Objective data which is or will be used for determining exemption from initial monitoring as allowed under 29 CFR 1926.62(d)(3) must be maintained in the project files. Objective data utilized is required to be maintained for a period of at least 30 years.

## **Medical Surveillance**

Medical surveillance will be conducted and records will be maintained in accordance with WESTON's Occupational Medical Monitoring Program requirements as indicated in 29 CFR 1910.1025(n) and/or 1026.62(n).

## **Task Specific Methods of Control**

Based upon WESTON policy, each site activity involving potential exposure to lead must be identified and analyzed through a Task/Risk Analysis as a part of the site-specific HASP. This Task/Risk Analysis must identify methods, materials and equipment utilized in limiting exposure. Appendix 1 provides Actions/Requirements Based on Task. Appendix 2 provides a Task/Risk Analysis Inspection Checklist.

Current HASP forms can be obtained through the Division Environmental Health and Safety Manager, Corporate Environmental Health and Safety or on the WESTON EHS Portal Site.

## **Hazard Communication and Multi-Employer Sites**

On multi-employer sites where the activities of one contractor/employer will or may have a direct impact with potential exposure to other contractors/employers, the Site Manager is responsible for contacting a representative of the potentially affected parties. The Site Manager will inform them of the lead exposure potential, control methods utilized, protective procedures to be followed, and the limits of lead contamination as known.

## **Inspections and Audits**

The Project Manager is responsible for providing (at a minimum) weekly documented inspections of the work site. In accordance with the requirements of the lead standard these inspections must encompass all areas of the site where exposure to lead is at or above the PEL (Appendix 2). Additionally, any equipment, PPE, signs, and decontamination or disposal operations must be evaluated as to compliance with the standard and WESTON Policy regardless of the exposure concentration. Any non-compliance must be noted and corrected.

## **APPENDIX 1**

### **ACTIONS/REQUIREMENTS BASED UPON TASK:**

**1. Exposure Less than Action Level (AL):**

- Initial Exposure Assessment
- Hand Washing Facilities
- Proper Housekeeping
- Medical Removal Protection

**2. Exposure at or over AL but less than Permissible Exposure Limit (PEL):**

- Initial Exposure Assessment
- Hand Washing Facilities
- Periodic Exposure Monitoring
- Biological Monitoring and Recordkeeping
- Annual Training
- Proper Housekeeping
- Medical Removal Protection

**3. Exposure at or over AL but less than the PEL (30 or more days/year):**

- As above and
- Medical Examinations and Recordkeeping

**4. Exposure at or greater than the PEL:**

- Initial Exposure Assessment
- Hand Washing Facilities
- Periodic Exposure Monitoring
- Biological Monitoring and Recordkeeping
- Annual Training
- Proper Housekeeping
- Appropriate Respiratory Protection
- Warning Signs
- Proper PPE
- Proper Change Areas
- Decontamination Facilities/Shower as feasible
- Separate Eating Areas
- Medical Examinations and Recordkeeping
- Medical Removal Protection

**5. Exposure to Trigger Tasks (until exposure is verified):**

- See requirements under greater than PEL exposure

**APPENDIX 2**  
**TASK/RISK ANALYSIS AND INSPECTION CHECKLIST**  
**FOR ACTIVITIES WITH POTENTIAL FOR LEAD EXPOSURE**

This task involves the known or potential risk of exposure to lead or lead-containing materials. As such, requirements as indicated in 29 CFR 1910.1025 or 29 CFR 1926.62 and WESTON's Written Lead Exposure Compliance Program (FLD 46) will be followed.

**Task Description:**


**Equipment Required/Used:**


**Training Required/Used:**


**Initial Exposure Determination: (Indicate Method[s] Used)**

	Personal Sampling
	Objective Data (attach or indicate location of data)
	Historical Data (attach or indicate location of data)



**PPE Includes:**

	Respiratory Protection (specify)		Shoes or Shoe Covers (specify)
	Coveralls (disposable)		Face Shield, Goggles or Safety Glasses (specify)
	Coveralls (reusable)		Other (specify)
	Gloves (specify)		
	Head Covering (specify)		

**Inspection Items:**

<b>Y/N</b>	<b>Item/Action</b>
	Personnel are wearing appropriate PPE.
	PPE is in good condition.
	PPE is removed and disposed of in a manner to preclude airborne release of lead or lead compounds.
	Will clothing be laundered?
	If yes, then ensure notification of vendor as required.
	Will clothing be disposed of?
	If yes, container of disposable clothing and contaminated materials is closed and appropriately labeled.
	All surfaces are maintained (as practicable) free of lead or lead compounds.
	Appropriate methods and procedures are used for cleanup of surfaces with lead contamination.
	If vacuum is utilized, it is equipped with appropriate HEPA filter.
	If exposure is known or suspect to be at or greater than the PEL, then:
	There is no eating, drinking, cosmetic application, or tobacco consumption in contaminated areas.
	Change areas are available.
	Change areas are maintained to prevent cross-contamination of work and street clothing.
	No work clothing which has been known or is potentially contaminated is allowed to be worn off-site or in on-site clean areas.
	Clean, sanitary showers (where feasible) are maintained.
	All personnel shower prior to leaving the site at end of shift.
	Clean, sanitary eating areas are provided.
	Hand washing facilities are provided in all cases.
	Personnel are required to wash hands and face upon leaving the contaminated area.

**Comments:**

## **FLD 49 SAFE STORAGE OF SAMPLES**

### **REFERENCE**

DOT Emergency Response Guide (ERG)

To ensure that multi-media samples collected in the course of WESTON work assignments are not stored in a manner that creates undue hazard to WESTON employees or others.

### **PROCEDURE**

Samples that are transported from a WESTON work location must be classified and packaged in compliance with U.S. Department of Transportation (DOT) regulations or alternatively in accordance with International Air Transport Association (IATA) regulations. WESTON's manual of Procedures for Shipping and Transporting Dangerous Goods must be consulted to determine if the samples will be classified as either "environmental" or "hazardous materials" samples.

#### **Environmental Samples**

Environmental samples are not subject to DOT or IATA dangerous goods regulations and must be packaged to protect their integrity during transportation and temporary storage and should have appropriate chain-of-custody documentation. These samples may be brought to a WESTON office location or rented space to verify sample documentation and repackaging (e.g., with ice or cold packs). Minor spill clean-up capability is required.

Once secured for shipment, these samples can be temporarily stored for the next day ground or air shipment pick-up. Under no circumstances are samples to be stored beyond the time necessary to arrange for transportation to a laboratory.

#### **Hazardous Materials Samples**

These samples are subject to DOT and/or IATA dangerous goods regulations and must be packaged and labeled according to the appropriate regulations, including completed chain-of-custody documentation prior to being transported from the WESTON work site. WESTON drivers must have the documentation for the samples and a DOT Emergency Response Guide (ERG) readily available in the vehicle. The ERG is available on-line at: <http://hazmat.dot.gov/pubs/erg/gydebook.htm> and appropriate sections can be copied to accompany samples being transported by vehicles driven by WESTON employees.

Under normal circumstances these samples should be shipped from the field and never brought back to a WESTON office location or into a rented space. If it is not possible to ship the samples from the field during the same day they are collected, a properly packaged, labeled, and sealed sample shipping container may be brought back to a WESTON office location for shipment to a laboratory the next business day - provided the temporary storage location is secure from access by any personnel who are not trained in shipping hazardous materials. Under no circumstances are samples to be stored in rented space; if necessary, secure temporary storage in a locked vehicle may be authorized. Note that some office leases do not permit the storage of hazardous materials and the lease will govern whether such materials can be stored overnight.

## **INSPECTION FOLLOW-UP**

Shipping procedures for samples should be included in the site-specific health and safety plan (HASP) and reviewed for compliance with these procedures prior to approval. EHS audits will include a review to sample shipping and storage procedures.



*The Trusted Integrator for Sustainable Solutions*

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REMOVAL SUPPORT TEAM 3  
EPA CONTRACT EP-S2-14-01

July 9, 2014

Mr. Cris D'Onofrio, On-Scene Coordinator  
U.S. Environmental Protection Agency, Region II  
Response & Prevention Branch  
2890 Woodbridge Avenue  
Edison, NJ 08837

**EPA CONTRACT No.: EP-S2-14-01**  
**TDD No.: TO-0001-0002**  
**DOCUMENT CONTROL No.: RST 2-02-F-2855**

**SUBJECT: DRAFT SITE-SPECIFIC UFP QUALITY ASSURANCE PROJECT PLAN  
M.C. CANFIELD & SONS SITE, CORNERSTONE LANE & MARROW  
STREET, NEWARK, ESSEX COUNTY, NEW JERSEY**

Dear Mr. D'Onofrio,

Enclosed please find the Draft Site-Specific Uniform Federal Policy (UFP) Quality Assurance Project Plan (QAPP) for the Removal Action to be conducted at the M.C. Canfield & Sons Site located at Cornerstone Lane/Marrow Street, Newark, New Jersey beginning on July 7, 2014.

If you have any questions or comments, please do not hesitate to contact me at (732) 585-4413.

Sincerely,  
Weston Solutions, Inc.

Bernard Nwosu  
RST 3 Site Project Manager

Enclosure  
cc:

TDD File No.: TO-0001-0002

*an employee-owned company*

In association with Scientific and Environmental Associates, Inc.,  
Environmental Compliance Consultants, Inc., Avatar Environmental, LLC,  
On-Site Environmental, Inc., and Sovereign Consulting, Inc.





**SITE-SPECIFIC UFP QUALITY ASSURANCE PROJECT PLAN**  
**M.C. CANFIELD & SONS SITE,**  
**CORNERSTONE LANE & MARROW STREET,**  
**NEWARK, ESSEX COUNTY, NEW JERSEY**

Prepared for:

U.S. Environmental Protection Agency  
Region II – Response & Prevention Branch  
Edison, New Jersey 08837

Prepared by:

Removal Support Team 3  
Weston Solutions, Inc.  
East Division  
Edison, New Jersey 08837

DC No.: RST 2-02-F-2855  
TDD No.: TO-0001-0002  
EPA Contract No.: EP-S2-14-01

July 2014

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## LIST OF ATTACHMENTS

ATTACHMENT A: Site Location Map

ATTACHMENT B: Sampling SOPs

- EPA/ERT SOP# 2001
- EPA/ERT SOP# 2008
- EPA/ERT SOP# 2012
- EPA/ERT SOP# 2119

## LIST OF ACRONYMS

ADR	Automated Data Review
ANSETS	Analytical Services Tracking System
AOC	Acknowledgment of Completion
ASTM	American Society for Testing and Materials
CEO	Chief Executive Officer
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act
CLP	Contract Laboratory Program
CFM	Contract Financial Manager
CO	Contract Officer
COI	Conflict of Interest
COO	Chief Operations Officer
CRDL	Contract Required Detection Limit
CRTL	Core Response Team Leader
CRQL	Contract Required Quantitation Limit
CQLOSS	Corporate Quality Leadership and Operations Support Services
CWA	Clean Water Act
DCN	Document Control Number
DESA	Division of Environmental Science and Assessment
DI	Deionized Water
DPO	Deputy Project Officer
DQI	Data Quality Indicator
DQO	Data Quality Objective
EM	Equipment Manager
EDD	Electronic Data deliverable
ENVL	Environmental Unit Leader
EPA	Environmental Protection Agency
ERT	Environmental Response Team
FASTAC	Field and Analytical Services Teaming Advisory Committee
GC/ECD	Gas Chromatography/Electron Capture Detector
GC/MS	Gas Chromatography/Mass Spectrometry
HASP	Health and Safety Plan
HRS	Hazard Ranking System
HSO	Health and Safety Officer
ITM	Information Technology Manager
LEL	Lower Explosive Limit
MSA	Mine Safety Appliances
MS/MSD	Matrix Spike/Matrix Spike Duplicate
NELAC	National Environmental Laboratory Accreditation Conference
NELAP	National Environmental Laboratory Accreditation Program
NIOSH	National Institute for Occupational Safety and Health
NIST	National Institute of Standards and Technology
OSC	On-Scene Coordinator
OSHA	Occupational Safety and Health Administration

### **LIST OF ACRONYMS (Concluded)**

OSWER	Office of Solid Waste and Emergency Response
PARCCS	Precision, Accuracy, Representativeness, Completeness, Comparability, Sensitivity
PAH	Polynuclear Aromatic Hydrocarbons
PCB	Polychlorinated Biphenyls
PIO	Public Information Officer
PM	Program Manager
PO	Project Officer
PRP	Potentially Responsible Party
PT	Proficiency Testing
QA	Quality Assurance
QAL	Quality Assurance Leader
QAPP	Quality Assurance Project Plan
QMP	Quality Management Plan
QA/QC	Quality Assurance/Quality Control
QC	Quality Control
RC	Readiness Coordinator
RCRA	Resource Conservation and Recovery Act
RPD	Relative Percent Difference
RSCC	Regional Sample Control Coordinator
RST	Removal Support Team
SARA	Superfund Amendments and Reauthorization Act
SEDD	Staged Electronic Data Deliverable
SOP	Standard Operating Practice
SOW	Statement of Work
SPM	Site Project Manager
START	Superfund Technical Assessment and Response Team
STR	Sampling Trip Report
TAL	Target Analyte List
TCL	Total Compound List
TDD	Technical Direction Document
TDL	Technical Direction Letter
TO	Task Order
TQM	Total Quality Management
TSCA	Toxic Substances Control Act
UFP	Uniform Federal Policy
VOA	Volatile Organic Analysis



## CROSSWALK

The following table provides a “cross-walk” between the QAPP elements outlined in the Uniform Federal Policy for Quality Assurance Project Plans (UFP-QAPP Manual), the necessary information, and the location of the information within the text document and corresponding QAPP Worksheet. Any QAPP elements and required information that are not applicable to the project are circled.

QAPP Element(s) and Corresponding Section(s) of UFP-QAPP Manual		Required Information	Crosswalk to QAPP Section	Crosswalk to QAPP Worksheet No.
<b>Project Management and Objectives</b>				
2.1	Title and Approval Page	- Title and Approval Page	Approval Page	1
2.2	Document Format and Table of Contents	- Table of Contents	TOC	2
2.2.1	Document Control Format	- QAPP Identifying Information	Approval Page	
2.2.2	Document Control Numbering System			
2.2.3	Table of Contents			
2.2.4	QAPP Identifying Information			
2.3	Distribution List and Project Personnel Sign-Off Sheet	- Distribution List	Approval Page	3
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2.3.2	Project Personnel Sign-Off Sheet			
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2.4.4	Special Training Requirements and Certification			
2.5	Project Planning/Problem Definition	- Project Planning Session Documentation (including Data Needs tables)	1	
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		- Problem Definition, Site History, and Background		
		- Site Maps (historical and present)		
2.6	Project Quality Objectives and Measurement Performance Criteria	- Site-Specific PQOs	3	11
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Site-Specific QAPP  
M.C. Canfield & Sons Site  
Revision 00

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Site-Specific QAPP  
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QAPP Element(s) and Corresponding Section(s) of UFP-QAPP Manual		Required Information	Crosswalk to QAPP Section	Crosswalk to QAPP Worksheet No.
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5.2.3.2	Activities			

### QAPP Worksheet #1: Title and Approval Page

**Title:** Site-Specific UFP Quality Assurance Project Plan (QAPP)  
**Site Name/Project Name:** M.C. Canfield & Sons Site  
**Site Location:** Cornerstone Lane/Marrow Street, Newark, New Jersey  
**Revision Number:** 00  
**Revision Date:** Not Applicable

Weston Solutions, Inc.

---

**Lead Organization**

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---

**Preparer's Name and Organizational Affiliation**

July 9, 2014

---

**Preparation Date (Day/Month/Year)**

Site Project Manager:

\_\_\_\_\_  
Signature

Bernard Nwosu /Weston Solutions, Inc.

---

**Printed Name/Organization/Date**

QA Officer/Technical Reviewer:

\_\_\_\_\_  
Signature

Smita Sumbaly/Weston Solution, Inc.

---

**Printed Name/Organization/Date**

EPA, Region II On-Scene Coordinator (OSC):

\_\_\_\_\_  
Signature

Cris D'Onofrio /EPA, Region II

---

**Printed Name/Organization/Date**

EPA, Region II Quality Assurance Officer (QAO):

\_\_\_\_\_  
Signature

---

**Printed Name/Organization/Date**

---

Document Control Number: RST 2-02-F-2855

## **QAPP Worksheet #2: QAPP Identifying Information**

**Site Name/Project Name:** M.C. Canfield & Sons Site

**Site Location:** Cornerstone Lane/Marrow Street, Newark, New Jersey

**Operable Unit:** 00

**Title:** Site-Specific UFP QAPP

**Revision Number:** 00

**Revision Date:** Not Applicable

### **1. Identify guidance used to prepare QAPP:**

Uniform Federal Policy for Quality Assurance Project Plans. U.S. Environmental Protection Agency (EPA) Division of Environmental Science and Assessment (DESA) and CLP Methods.

### **2. Identify regulatory program:** EPA, Region II

### **3. Identify approval entity:** EPA, Region II

### **4. Indicate whether the QAPP is a generic or a site-specific QAPP.**

### **5. List dates of scoping sessions that were held:** 6/26/2014, 7/1/2014

### **6. List dates and titles of QAPP documents written for previous site work, if applicable:**

August 2012 – Site-Specific UFP QAPP – M.C. Canfield & Sons Site

April 2013 – Site-Specific UFP QAPP – M.C. Canfield & Sons Site

### **7. List organizational partners (stakeholders) and connection with lead organization:**

New Jersey Department of Environmental Protection (NJDEP)-Previous Investigation Agency

### **9. If any required QAPP elements and required information are not applicable to the project, then provide an explanation for their exclusion below:**

None

### **10. Document Control Number:** RST 3-02-F-2855

### QAPP Worksheet #3: Distribution List

**[List those entities to which copies of the approved site-specific QAPP, subsequent QAPP revisions, addenda, and amendments are sent]**

<b>QAPP Recipient</b>	<b>Title</b>	<b>Organization</b>	<b>Telephone Number</b>	<b>Fax Number</b>	<b>E-mail Address</b>	<b>Document Control Number</b>
Cris D'Onofrio	OSC	EPA, Region II	(732) 321-6920	(732) 906-6920	<a href="mailto:DOnofrio.Cris@epa.gov">DOnofrio.Cris@epa.gov</a>	RST 2-02-F-2855
Timothy Benton	HSO	Weston Solutions, Inc., RST 3	(732) 585-4425	(732) 225-7037	<a href="mailto:Tim.Benton@westonsolutions.com">Tim.Benton@westonsolutions.com</a>	RST 2-02-F-2855
Smita Sumbaly	QAO	Weston Solutions, Inc., RST 3	(732) 585-4410	(732) 225-7037	<a href="mailto:S.Sumbaly@westonsolutions.com">S.Sumbaly@westonsolutions.com</a>	RST 2-02-F-2855
Bernard Nwosu	SPM	Weston Solutions, Inc., RST 3	(732) 585-4413	(732) 225-7037	<a href="mailto:Ben.Nwosu@westonsolutions.com">Ben.Nwosu@westonsolutions.com</a>	RST 2-02-F-2855
Site TDD File	RST 3 Site TDD File	Weston Solutions, Inc., RST 3	Not Applicable	Not Applicable	Not Applicable	RST 2-02-F-2855



**QAPP Worksheet #4: Project Personnel Sign-Off Sheet**

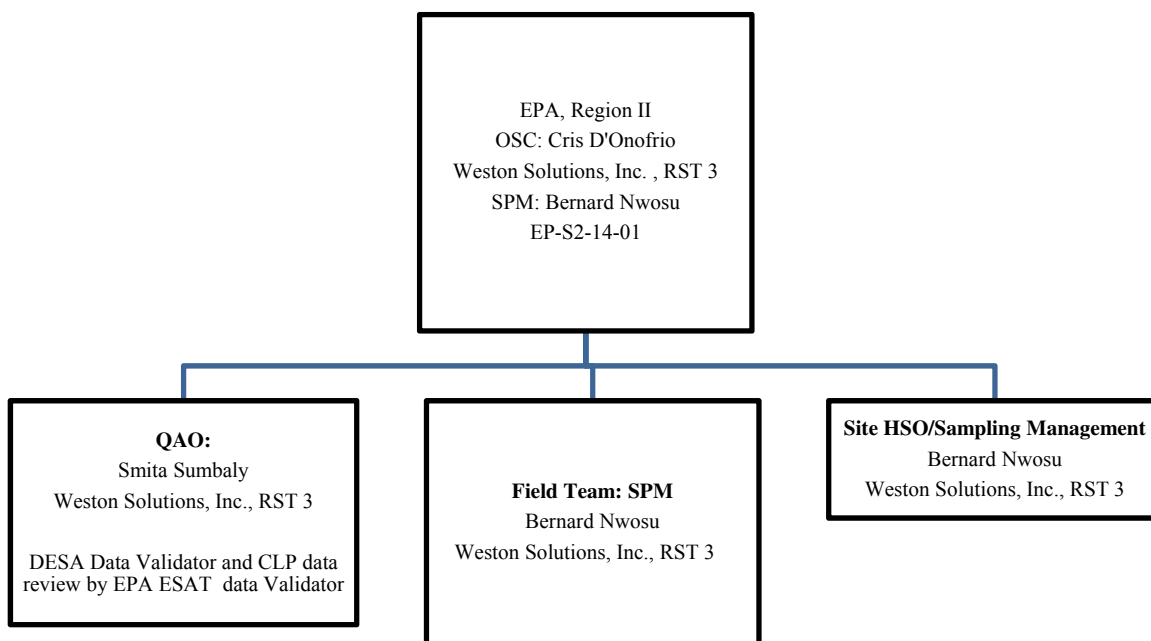
[Copies of this form signed by key project personnel from each organization to indicate that they have read the applicable sections of the site-specific QAPP and will perform the tasks as described; add additional sheets as required. Ask each organization to forward signed sheets to the central project file.]

**Organization:** Weston Solutions, Inc., RST 3

<b>Project Personnel</b>	<b>Title</b>	<b>Telephone Number</b>	<b>Signature</b>	<b>Date QAPP Read</b>
Cris D'Onofrio	EPA, Region II, OSC	(732) 906-6920		
Timothy Benton	HSO, RST 3	(732) 585-4425		
Smita Sumbaly	QAO, RST 3	(732) 585-4410		
Bernard Nwosu	SPM, Field Personnel, RST 3	(732) 585-4413		

### QAPP Worksheet #5: Project Organizational Chart

Identify reporting relationship between all organizations involved in the project, including the lead organization and all contractor and subcontractor organizations. Identify the organizations providing field sampling, on-site and off-site analysis, and data review services, including the names and telephone numbers of all project managers, project team members, and/or project contacts for each organization.



#### Acronyms:

EPA – U.S. Environmental Protection Agency  
HSO – Health & Safety Officer  
OSC – On-Scene Coordinator  
QAQ – Quality Assurance Officer  
RST – Removal Support Team  
SPM – Site Project Manager  
DESA - Division of Environmental Science and Assessment  
ESAT – Environmental Services Assistance Team

### QAPP Worksheet #6: Communication Pathways

Communication Drivers	Responsible Entity	Name	Phone Number	Procedure
Point of contact with EPA OSC	SPM, Weston Solutions, Inc., RST 3	Bernard Nwosu	(732) 585-4413	All technical, QA and decision-making matters in regard to the project (verbal, written or electronic)
Adjustments to QAPP	SPM, Weston Solutions, Inc., RST 3	Bernard Nwosu	(732) 585-4413	QAPP approval dialogue
Health and Safety On-Site Meeting	HSO, Weston Solutions, Inc., RST 3	Bernard Nwosu	(732) 585-4413	Explain/review site hazards, personnel protective equipment, hospital location, etc.

EPA – U.S. Environmental Protection Agency  
 HSO – Health and Safety Officer  
 OSC – On-Scene Coordinator  
 QA – Quality Assurance  
 QAPP – Quality Assurance Project Plan  
 RST – Removal Support Team  
 SPM – Site Project Manager

**QAPP Worksheet #7: Personnel Responsibilities and Qualifications Table**

<b>Name</b>	<b>Title</b>	<b>Organizational Affiliation</b>	<b>Responsibilities</b>	<b>Education and Experience Qualifications</b>
Cris D'Onofrio	EPA OSC	EPA, Region II	All project coordination, direction and decision making.	NA
Bernard Nwosu	SPM, HSO, Technical Reviewer, RST 3	Weston Solutions, Inc.	Implementing and executing the technical, QA and health and safety during sampling event and sample collection and management.	15 years+

\*All RST 3 members, including subcontractor's resumes are in possession of RST 3 Program Manager, EPA Project Officer, and Contracting Officers.

**QAPP Worksheet #8: Special Personnel Training Requirements Table**

<b>Project Function</b>	<b>Specialized Training By Title or Description of Course</b>	<b>Training Provider</b>	<b>Training Date</b>	<b>Personnel / Groups Receiving Training</b>	<b>Personnel Titles / Organizational Affiliation</b>	<b>Location of Training Records / Certificates<sup>1</sup></b>
<b>[Specify location of training records and certificates for samplers]</b>						
QAPP Training	This training is presented to all RST 3 personnel to introduce the provisions, requirements, and responsibilities detailed in the UFP QAPP. The training presents the relationship between the site-specific QAPPs, SOPs, work plans, and the Generic QAPP. QAPP refresher training will be presented to all employees following a major QAPP revision.	Weston Solutions, Inc., QAO	As needed	All RST 3 field personnel upon initial employment and as refresher training	Weston Solutions, Inc.	Weston Solutions, Inc., EHS Database
Health and Safety Training	Health and safety training will be provided to ensure compliance with Occupational Safety and Health Administration (OSHA) as established in 29 CFR 1910.120.	Weston Solutions, Inc., HSO	Yearly at a minimum	All Employees upon initial employment and as refresher training every year	Weston Solutions, Inc.	Weston Solutions, Inc., EHS Database
Others	Scribe, ICS 100 and 200, and Air Monitoring Equipment Trainings provided to all employees	Weston Solutions, Inc., QAO/Group Leader's	Upon initial employment and as needed			
	Dangerous Goods Shipping	Weston Solutions, Inc., HSO	Every 2 years			

All team members are trained in the concepts and procedures in recognizing opportunities for continual improvement, and the approaches required to improve procedures while maintaining conformance with legal, technical, and contractual obligations.

<sup>1</sup> All RST 3 members, including subcontractor's certifications are in possession of RST 3 HSO.

**QAPP Worksheet #9: Project Scoping Session Participants Sheet**

**Site Name/Project Name:** M.C. Canfield & Sons Site

**Site Location:** Cornerstone Lane/Marrow Street, Newark, New Jersey

**Operable Unit:** 00

**Date of Sessions:** 6/26/2014

**Scoping Session Purpose:** To discuss questions, comments, and assumptions regarding technical issues involved with the Removal Action for the Site.

Name	Title	Affiliation	Phone #	E-mail Address	*Project Role
Cris D'Onofrio	EPA OSC	EPA, Region II	(732) 906-6920	<a href="mailto:DOnofrio.Cris@epa.gov">DOnofrio.Cris@epa.gov</a>	OSC
Bernard Nwosu	Project Scientist	Weston Solutions, Inc., RST 3	(732) 585-4413	<a href="mailto:Ben.Nwosu@westonsolutions.com">Ben.Nwosu@westonsolutions.com</a>	SPM
Joel Petty	Team Leader	Weston Solutions, Inc., RST 3	(732) 585-4412	<a href="mailto:Joel.Petty@westonsolutions.com">Joel.Petty@westonsolutions.com</a>	SPM (Previous)

**Comments/Decisions:**

Removal Action activities will begin on July 10, 2014, at the M.C. Canfield & Sons Site (the Site). Weston Solutions Inc., Removal Support Team 3 (RST 3), has been tasked by EPA with daily work zone and perimeter air monitoring/sampling. In accordance with EPA/Environmental Response Team (ERT) air sampling Standard Operating Procedures (SOP)# 2008 & 2119, up to 50 air samples will be collected via low volume sample pumps throughout the duration of the Removal Action. Baseline air monitoring/sampling will be conducted on July 10, 2014. Air sample locations will be co-located with air monitoring equipment. Air monitoring/sampling will be conducted upwind, at areas of intrusive site activity, and downwind. Air monitoring/sampling locations will be determined by the EPA On-Scene Coordinator (OSC) based on time current meteorological data. Baseline air samples collected prior to excavation of the site will be submitted to a Contract Laboratory Program (CLP) laboratory for total lead analysis on the first week of Removal Action activities. Thereafter, air samples collected after excavation of the site begins will be submitted to the CLP laboratory for lead analysis only if particulate air monitoring concentrations exceed the site-specific action level [0.150 milligram per cubic meter (mg/m<sup>3</sup>)]. All sample submission schedules to designated laboratories will be at the discretion of the OSC. RST 3 is also tasked with collecting up to 260 post-excavation soil samples from three areas of concern (AOC) at the Site referred to as Area 1, Area 2, and Area 3 which were delineated during two Removal Assessments conducted in August 2012 and April 2013. Post-excavation soil sampling will begin on July 14, 2014. The soil sample locations will be determined by the EPA OSC and collected in accordance with EPA/ERT Soil Sampling SOP #2012. Soil samples will be collected at a frequency of one sidewall soil sample per 30 linear feet of the excavation perimeter and one bottom soil



**QAPP Worksheet #9: Project Scoping Session Participants Sheet (Concluded)**

**Comments/Decisions:** sample at a frequency of one per 900 square feet (sq. ft.). All soil samples will be field screened for lead on-site using an X-ray fluorescent (XRF) analyzer. The soil samples will be collected in a 6 x 9 inch plastic bag. Organic debris will be removed from the bagged sample, homogenized, and screened three times at an interval lasting no less than 60 seconds. The data obtained for each screening interval will be averaged to determine the concentration of lead in the soil sample. The field screening data will be documented in a site field log book. All soil samples will be collected for a definitive data quality assurance/quality control (QA/QC) objective. Therefore, field duplicates and matrix spike/matrix spike duplicate (MS/MSD) samples will be collected at a rate of one per every 20 samples collected. All soil samples including QA/QC samples will be stored in ice-packed sample coolers and submitted once a week to EPA DESA laboratory for total lead analysis.

**Action Items:** The CLP Request Form was submitted by RST 3 for laboratory procurement on July 2, 2014.

**Consensus Decision:** Baseline air sampling activities will be conducted on July 10, 2014. Baseline air samples will be submitted for laboratory analysis the first week of site activities. Thereafter air samples collected after excavation of the site begins will be submitted for laboratory analysis only if particulate concentrations exceed the site-specific action level. All air samples will be submitted to a CLP laboratory for total lead analysis with a 24-hour turn-around-time (TAT). Soil sampling activities will begin on July 14, 2014. Air sampling will be conducted throughout site work activities. Soil sampling locations will be determined on-site by the EPA OSC. Air sample locations will be co-located with air monitoring equipment and determined by the OSC.

## **QAPP Worksheet #10: Problem Definition**

### **PROBLEM DEFINITION**

The primary contaminant of concern at the Site is elemental lead in soils. Historical operations on the Site included the smelting of lead. Analytical results of surface and subsurface soil samples collected from the Site indicated the presence of elemental lead at concentrations exceeding the EPA residential soil screening level of 400 mg/kg. As part of the Removal Action activities beginning on July 10, 2014, RST 3 has been tasked with conducting perimeter air monitoring for fugitive dust, air sampling for lead dust and post-excavation soil sampling. The analytical results from air sampling activities will be used by EPA to evaluate the effectiveness of established engineering controls for the protection of on-site personnel and residents from potential airborne contaminants during site work activities. EPA plans to excavate contaminated soils at the Site to depths ranging from 6-inches to 24-inches below ground surface (bgs). At these depths EPA assumes that lead contamination in the soils may not be fully addressed. However, EPA plans to backfill the excavated AOC with clean pre-analyzed soils and install grass cover to prevent potential contaminant from becoming airborne. Therefore the analytical results obtained from post-excavation soil sampling will be used to determine the concentration of lead in the soils left-in-place at the different on-site AOC.

### **SITE HISTORY/CONDITIONS**

The Site is located within the Society Hill at University Heights III condominium complex which is bounded by Norfolk, Wickliff, West Market and Warren Streets in Newark, Essex County, New Jersey. There is a church directly adjacent to the Site in the center of the northern portion, an unused school on the northeast corner and an abandoned warehouse adjacent to the eastern edge of the Site. The area is an urban, mixed residential, light industrial neighborhood and is located adjacent to the University Heights District that includes the Rutgers University, New Jersey Institute of Technology, the University of Medicine and Dentistry and the Essex County College campuses. The Essex County Vocational-Technical High School borders the southeast corner of the Site.

M.C. Canfield & Sons was a lead solder and babbitt metal manufacturer that operated at 93 Wilsey Street and 196 Newark Street from at least 1907 to approximately 1970. M.C. Canfield & Sons transferred ownership of the Site to Salem Trucking, Inc. in March 1974. The City of Newark foreclosed on the property encompassing the Site in September 1976 for non-payment of taxes. The former M.C. Canfield & Sons Site was redeveloped for residential use during the early 1990's by K. Hovnanian at Newark, Urban Renewal Corporation II, Inc. ("K. Hovnanian"). The City of Newark transferred ownership to K. Hovnanian in December 1993. Ownership of a number of other surrounding lots was also transferred to K. Hovnanian and the Site was redeveloped into a residential condominium complex known as Society Hill at University Heights III circa 1993. A portion of Wilsey Street in Newark was renamed during the redevelopment and is now known as Cornerstone Lane. The condominiums were sold to individual owners as single family residences, but the complex, including the outdoor grounds, is managed by Impac Property Management. The Site is currently well maintained by the Society Hill at University Heights

### **QAPP Worksheet #10: Problem Definition (Continued)**

Condominium Association and is well landscaped with ornamental trees, shrub and flower plantings, and good grass cover in most areas. Some turf damage in a very few areas of high foot traffic has led to soil erosion and loss of integrity to what is normally a protective turf cover.

#### **PROJECT DESCRIPTION**

RST 3 is tasked with work zone/community air monitoring and the collection of up to 50 air samples via low volume sample pumps. Air samples will be collected at upwind locations, at areas of intrusive site activity, and downwind. Air sample locations will be co-located with air monitoring equipment. Field blank samples will be collected daily and Lot blank samples will be included with every air sample shipment. MS/MSD and field duplicates will not be collected for air samples. Air samples collected will be submitted to a CLP laboratory for total lead analysis only if particulate concentrations exceed  $0.150 \text{ mg/m}^3$ . RST 3 is also tasked with collecting up to 260 post-excavation soil samples from three on-site AOC, including Area 1, Area 2, and Area 3. The soil sample locations will be determined by the EPA OSC and collected at a frequency of one sidewall soil sample per 30 linear feet of the excavation perimeter and one bottom soil sample at a frequency of one per 900 sq. ft. All soil samples will be field screened for lead using an XRF analyzer. All soil samples will be collected for a definitive data QA/QC objective. Field duplicates and MS/MSD samples will be collected at a rate of one per every 20 samples collected. All soil samples including QA/QC samples will be submitted to the EPA DESA laboratory for total lead analysis.

#### **OBSERVATION FROM ANY SITE RECONNAISSANCE REPORT**

In May 2012, EPA Removal Action Branch was requested to assess residential properties for the presence of lead in the vicinity of the Site. The justification for the Removal Assessments was based upon analytical results provided to EPA as a result of previous NJDEP soil investigations conducted in 2010 and 2011 of other properties in the area of the Site. The previous investigations indicated that there was lead contamination in the soil at residential properties in the vicinity of the Site at concentrations ranging from 753 parts per million (ppm) to 4,860 ppm. As a result, Phase I of the Removal Assessment was conducted in August 2012 to determine if any additional properties had been impacted by previous operations conducted at the Site.

The highest concentrations of lead were found in the area of the previous M.C. Canfield & Sons smelter (referred to as Area 1). A significant majority of the samples from Area 1 indicate concentrations of lead exceeding the EPA residential screening level of 400 milligram per kilogram (mg/kg). Lead concentrations in this area ranged from background to 13,000 mg/kg and tend to increase with depth, suggesting that Area 1 contains the main source of lead contamination at the Site. A total of 31 of 44 locations sampled in Area 2 contained lead at concentrations in excess of the EPA residential screening level, with concentrations ranging from background to 2,163 ppm XRF analyzer. Soil erosion where turf coverage has been compromised by foot traffic is evident in some portions of Area 2, creating a direct pathway for exposure to lead contaminated soils. Lead contamination in Area 3 was detected at

### **QAPP Worksheet #10: Problem Definition (Concluded)**

concentrations ranging from background to 855 ppm. A total of 69 of the 87 sample locations in Area 3 showed lead concentrations in excess of the EPA residential screening level in at least one of the depth intervals sampled.

In April and May 2013, EPA conducted Phase II of the Removal Assessment to further delineate the Site based upon the results of Phase I conducted in August 2012. Results from this sampling event confirmed elevated concentrations of lead above EPA residential screening level.

### **PROJECT DECISION STATEMENTS**

The analytical results from air sampling activities will be used by EPA to evaluate the effectiveness of established engineering controls for the protection of on-site personnel and residents from potential airborne contaminants during site work activities. The analytical results obtained from post-excavation soil sampling will be used to determine the concentration of lead in the soils left-in-place at the different on-site AOC.

## **QAPP Worksheet #11: Project Quality Objectives/Systematic Planning Process Statement**

**Overall project objectives include:** RST 3 will collect up to 50 air samples to be submitted to a CLP laboratory for total lead analysis. In addition, RST 3 will collect up to 260 post-excavation soil samples. The soil samples will be pre-screened with an XRF analyzer before they are submitted to EPA DESA laboratory for total lead analysis.

**Who will use the data?** Data will be used by the EPA, Region II OSC.

**What will the data be used for?** The EPA will use the analytical data from the air samples to evaluate the effectiveness of established engineering controls for the protection of on-site personnel and residents from potential airborne contaminants during site work activities. The analytical results obtained from post-excavation soil sampling will be used to determine the concentration of lead in the soils left-in-place at the different on-site AOCs.

### **What types of data are needed?**

Matrix:	Air and soil samples
Type of Data:	Definitive data for air and soil samples
Analytical Techniques:	<u>Air:</u> Total lead analysis via CLP SOW ISMO 1.3 (NIOSH 7300) <u>Soil:</u> Samples will be pre-screened for lead using an XRF analyzer. Soil samples will be analyzed for total lead via DESA Method C-109 (Ref. EPA 200.7)
Type of sampling equipment:	<u>Air:</u> MCE filters (0.8-µm, cellulose ester membrane) <u>Soil:</u> Plastic scoops, sample jars, Ziploc bags
Access Agreement:	Obtained by EPA, Region II OSC.
Sampling locations:	<u>Air:</u> Sample locations will be co-located with air monitoring equipment. Air sample locations will be determined by the OSC. <u>Soil:</u> samples (sidewall and base samples) will be collected from within the excavated AOC. Soil sample locations will be determined by the OSC.

**How much data are needed?** Up to 50 air samples and 260 soil samples are anticipated to be collected from sample locations throughout the Site. The soil samples collected will be pre-screened with an XRF analyzer before they are submitted for laboratory analysis.

### **How “good” does the data need to be in order to support the environmental decision?**

Sampling/analytical measurement performance criteria for Precision, Accuracy, Representativeness, Completeness, and Comparability (PARCC) parameters will be established. Refer to Worksheet #12, criteria for performance measurement for definitive data.

**QAPP Worksheet #11: Project Quality Objectives/Systematic Planning Process Statement  
(Concluded)**

**Where, when, and how should the data be collected/generated?** The air and soil samples will be collected from the various AOC at the Site. Baseline air samples will be collected on July 10, 2014. Thereafter air samples and soil samples will be collected during excavation of the site beginning on July 14, 2014. All air and soil sampling locations will be determined on-site by the OSC. All samples will be collected using methods outlined in the Standard Operating Procedures (SOPs).

**Who will collect and generate the data?** The air and soil samples will be collected by RST 3. Air samples will be analyzed by EPA CLP laboratory and validated by EPA's ESTA data validators. Soil samples will be analyzed by the EPA DESA laboratory and validated by EPA DESA data validators.

**How will the data be reported?** All data will be reported by the assigned laboratory (Preliminary, Electronic, and Hard Copy format). The SPM will provide a STR, Status Reports, Maps/Figures, Analytical Report, and Data Validation Report to the EPA OSC.

**How will the data be archived?** Electronic data deliverables (EDDs) will be archived in a Scribe database.



**QAPP Worksheet #12: Measurement Performance Criteria Table**  
**Worksheet # 12A: Total Lead - Air**

**(UFP-QAPP Manual Section 2.6.2)**

Complete this worksheet for each matrix, analytical group, and concentration level. Identify the data quality indicators (DQI), measurement performance criteria (MPC) and QC sample and/or activity used to assess the measurement performance for both the sampling and analytical measurement systems. Use additional worksheets if necessary. If MPC for specific DQI vary within an analytical parameter, *i.e.*, MPC are analyte-specific, then provide analyte-specific MPC on an additional worksheet.

<b>Matrix</b>		Air			
<b>Analytical Group</b>		Total Lead			
<b>Concentration Level</b>		ICP-Low (mg/m <sup>3</sup> )			
<b>Sampling Procedure<sup>1</sup></b>	<b>Analytical Method/SOP<sup>2</sup></b>	<b>Data Quality Indicators (DQIs)</b>	<b>Measurement Performance Criteria</b>	<b>QC Sample and/or Activity Used to Assess Measurement Performance</b>	<b>QC Sample Assesses Error for Sampling (S), Analytical (A) or both (S&amp;A)</b>
SOP# 2008	ISMO 1.4 (NIOSH 7300)	Precision (field)	NR	NR	S & A
		Accuracy (Field)	No analyte > LOD	Field Blank	S & A

<sup>1</sup>Reference number from QAPP Worksheet #21.

<sup>2</sup>Reference number from QAPP Worksheet #23.

NR – Not Required

Note: Matrix spike/matrix spike duplicate and field duplicate samples are not required for air filter samples.

**QAPP Worksheet #12: Measurement Performance Criteria Table**  
**Worksheet # 12B: Total Lead - Soil**

Complete this worksheet for each matrix, analytical group, and concentration level. Identify the data quality indicators (DQI), measurement performance criteria (MPC) and QC sample and/or activity used to assess the measurement performance for both the sampling and analytical measurement systems. Use additional worksheets if necessary. If MPC for specific DQI vary within an analytical parameter, i.e., MPC are analyte-specific, then provide analyte-specific MPC on an additional worksheet.

<b>Matrix</b>	Soil				
<b>Analytical Group</b>	Total Lead				
<b>Sampling Procedure</b>	<b>Analytical Method/SOP<sup>1</sup></b>	<b>Data Quality Indicators (DQIs)</b>	<b>Measurement Performance Criteria</b>	<b>QC Sample and/or Activity Used to Assess Measurement Performance</b>	<b>QC Sample Assesses Error for Sampling (S), Analytical (A) or both (S&amp;A)</b>
EPA ERT SOP# 2012	C-109 (Ref. EPA 200.7)	Precision	% RPD <25	LCS Duplicate	A
		Accuracy	Limits: Average Recovery $\pm$ 25%	LCS	A
		Accuracy	25%	Matrix spike	A
		Precision	< RL	Interference Check Sample(ICP/AES)	A
		Accuracy	< RL	Method Blank	A
		Precision	RPD < 20 %	Serial Dilution Test( ICP/AES)	A
		Accuracy	Range of 0.60-1.87 of the original response in the calibration blank	InternalStandards( ICP-MS)	A

<sup>1</sup> Reference number from QAPP Worksheet #2 & #23

### QAPP Worksheet #13: Secondary Data Criteria and Limitations Table

Any data needed for project implementation or decision making that are obtained from non-direct measurement sources such as computer databases, background information, technologies and methods, environmental indicator data, publications, photographs, topographical maps, literature files and historical data bases will be compared to the DQOs for the project to determine the acceptability of the data. Thus, for example, analytical data from historical surveys will be evaluated to determine whether they satisfy the validation criteria for the project and to determine whether sufficient data was provided to allow an appropriate validation to be done. If not, then a decision to conduct additional sampling for the site may be necessary.

<b>Secondary Data</b>	<b>Data Source (Originating Organization, Report Title, and Date)</b>	<b>Data Generator(s) (Originating Org., Data Types, Data Generation/ Collection Dates)</b>	<b>How Data May Be Used (if deemed usable during data assessment stage)</b>	<b>Limitations on Data Use</b>
RST 2 Removal Assessment, August 2012.  RST 2 Removal Assessment, April 2013	RST 2 Final Sampling Trip Report, November 2012.  RST 2 Final Sampling Trip Report (Phase II), June 2013.	Weston Solutions, Inc., RST 2 Removal Assessment, August 2012.  RST 2 Removal Assessment, April 2013	Air sample data will be used to evaluate the effectiveness of established engineering controls for the protection of on-site personnel and residents from potential airborne contaminants during site work activities. Soil sample data will be used to determine the concentration of lead in the soils left-in-place at the different on-site AOCs.	NA

## **QAPP Worksheet #14: Summary of Project Tasks**

### **Sampling Tasks:**

As part of the Removal Action, RST 3 is tasked with work zone/community air monitoring and the collection of up to 50 air samples via low volume sample pumps. Air samples will be collected at upwind locations, at areas of intrusive site activity, and downwind. Air sample locations will be co-located with monitoring equipment. Air samples collected will be submitted to a CLP laboratory for total lead analysis only if particulate concentrations exceed  $0.150 \text{ mg/m}^3$ .

RST 3 is also tasked with collecting up to 260 post-excavation soil samples from three on-site AOC including, Area-1, Area-2, and Area-3. The soil sample locations will be determined by the EPA OSC and collected at a frequency of one sidewall soil sample per 30 linear feet of the excavation perimeter and one bottom soil sample at a frequency of one per 900 square feet (sq. ft.). All soil samples will be field screened for lead using an XRF analyzer. All soil samples will be submitted to the EPA DESA laboratory for total lead analysis.

### **Analysis Tasks:**

Air – Total Lead Analysis – CLP SOW ISMO 1.3 (NIOSH 7300)

Soil – Total Lead Analysis – DESA Method C-109 (Ref. EPA 200.7)

### **Quality Control Tasks:**

A field blank air sample will be collected daily and a Lot blank air sample will be included with every air sample shipment to the laboratory. MS/MSD and field duplicates will not be collected for air samples. All soil samples will be collected for a definitive data QA/QC objective. Field duplicates and MS/MSD samples will be collected at a rate of one per every 20 samples collected. All soil samples including QA/QC samples will be submitted to the EPA DESA laboratory for total lead analysis.

### **Data Management Tasks:**

Activities under this project will be reported in status and trip reports and other deliverables (e.g., analytical reports, final reports) described herein. Activities will also be summarized in appropriate format for inclusion in monthly and annual reports.

The following deliverables will be provided under this project:

Trip Report: A trip report will be prepared to provide a detailed accounting of what occurred during each sampling mobilization. The trip report will be prepared within two weeks of the last day of each sampling mobilization. Information will be provided on time of major events, dates, and personnel on-site (including affiliations).

Maps/Figures: Maps depicting site layout, contaminant source areas, and sample locations will be included in the trip report, as appropriate.

### **QAPP Worksheet #14: Summary of Project Tasks (Continued)**

Analytical Report: An analytical report will be prepared for samples analyzed under this plan. Information regarding the analytical methods or procedures employed, sample results, QA/QC results, chain-of-custody (COC) documentation, laboratory correspondence, and raw data will be provided within this deliverable.

Data Review: A review of the data generated under this plan will be undertaken. The assessment of data acceptability or usability will be provided separately, or as part of the analytical report.

#### **Documentation and Records:**

All sample documents will be completed legibly, in ink. Any corrections or revisions will be made by lining through the incorrect entry and by initialing the error.

Field Logbook: The field logbook is essentially a descriptive notebook detailing site activities and observations so that an accurate account of field procedures can be reconstructed in the writer's absence. Field logbook will be bound and paginated. All entries will be dated and signed by the individuals making the entries, and should include (at a minimum) the following

1. Site name and project number
2. Name(s) of personnel on-site
3. Dates and times of all entries (military time preferred)
4. Descriptions of all site activities, site entry and exit times
5. Noteworthy events and discussions
6. Weather conditions
7. Site observations
8. Sample and sample location identification and description \*
9. Subcontractor information and names of on-site personnel
10. Date and time of sample collections, along with COC information
11. Record of photographs
12. Site sketches

\* The description of the sample location will be noted in such a manner as to allow the reader to reproduce the location in the field at a later date.

Sample Labels: Sample labels will clearly identify the particular sample, and should include the following:

1. Site/project number.
2. Sample identification number.
3. Sample collection date and time.
4. Designation of sample (grab or composite).
5. Sample preservation.
6. Analytical parameters.
7. Name of sampler.

#### **QAPP Worksheet #14: Summary of Project Tasks (Concluded)**

Sample labels will be written in indelible ink and securely affixed to the sample container. Tie-on labels can be used if properly secured.

Custody Seals: Custody seals demonstrate that a sample container has not been tampered with or opened. The individual in possession of the sample(s) will sign and date the seal, affixing it in such a manner that the container cannot be opened without breaking the seal. The name of this individual, along with a description of the sample packaging, will be noted in the field logbook.

**Assessment/Audit Tasks:** No performance audit of field operations is anticipated at this time. If conducted, performance and system audit will be in accordance with the project plan.

**Data Review Tasks:** Soil data will be validated by EPA DESA validators and Air data will be validated by ESAT data validators.

Definitive data projects: The data generated under this QA/QC Sampling Plan will be evaluated according to guidance in the Uniform Federal Policy for Implementing Environmental Quality Systems: Evaluating, Assessing and Documenting Environmental Data Collection and Use Programs Part 1: UFP-QAPP (EPA-505-B-04-900A, March 2005); Part 2B: Quality Assurance/Quality Control Compendium: Minimum QA/QC Activities (EPA-505-B-04-900B, March 2005).

Laboratory analytical results will be assessed by the data reviewer for compliance with required precision, accuracy, completeness, representativeness, and sensitivity.



### QAPP Worksheet #15A: Reference Limits and Evaluation Tables

**Matrix:** Air  
**Analytical Group:** Total Lead  
**Concentration Level:** Low

<b>Analyte</b>	<b>CAS Number</b>	<b>Project Quantitation Limit (ug/m<sup>3</sup>)</b>	<b>Analytical Method Reporting Limits (µg)</b>	<b>Lab Achievable Reporting Limits (µg)</b>	<b>EPA Lead PEL (mg/m<sup>3</sup>)</b>	<b>Site Action Level * (mg/m<sup>3</sup>)</b>
Total Lead	7439-92-1	NS	0.1	0.10	0.050	0.150

\*OSHA PEL for Lead, as specified in site-specific Community Air Monitoring Plan

**QAPP Worksheet #15B: Reference Limits and Evaluation Table**

**Matrix:** Soil  
**Analytical Group:** Total Lead  
**Concentration Level:** Low

Analyte	CAS Number	EPA Soil Screening Criteria Residential (mg/kg)**	Project Quantitation Limit (mg/kg)	Method CRQLs (mg/kg)	Achievable Laboratory (DESA) Limits	
					MDLs (mg/kg)	RLs (mg/kg)
Total Lead	7439-92-1	400	--	1	0.23	0.8

\*\*United States Environmental Protection Agency (EPA) – Direct Contact Soil Screening Criteria. July 1996  
<http://www.epa.gov/superfund/health/conmedia/soil/index.htm>

**QAPP Worksheet #16: Project Schedule/Timeline Table**

Activities	Organization	Dates (MM/DD/YY)		Deliverable	Deliverable Due Date
		Anticipated Date(s) of Initiation	Anticipated Date of Completion		
Preparation of QAPP	RST 3 Contractor SPM	Prior to sampling date	7/4/2014	QAPP	7/8/2014
Review of QAPP	RST 3 Contractor QAO and/or Group Leader	Prior to sampling date	7/8/2014	Approved QAPP	7/10/2014
Preparation of HASP	RST 3 Contractor SPM	Prior to sampling date	7/3/2014	HASP	7/10/2014
Procurement of Field Equipment	RST 3 Contractor SPM and/or Equipment Officer	Prior to sampling date	7/2/2014	NA	NA
Laboratory Request	Not Applicable	Prior to sampling date	7/3/2014	CLP Request Form	NA
Field Reconnaissance/Access	RST 3 Contractor SPM; or EPA Region II OSC	7/10/2014	7/10/2014	NA	NA
Collection of Field Samples	RST 3 Contractor SPM	7/10/2014	9/26/2014	NA	NA
Laboratory Electronic Data Received	RST 3 Contractor and CLP Laboratory	24 Hours (Air) 21 Days (Soil) from sampling date	7/11 – 9/27/2014	Preliminary Data	7/11 – 9/27/14
Laboratory Package Received	RST 3 Contractor and CLP Laboratory	7/10 – 9/20/2014	7/21 – 10/13/2014	--	11/3/2014
Validation of Laboratory Results	RST 3 Contractor and CLP Laboratory	7/11 – 9/26/2014	7/21 – 11/3/2014	Validation Report	11/3/2014
Data Evaluation/ Preparation of Final Report	RST 3 Contractor SPM	11/3/2014	11/17/2014	Trip Report	11/17/2014

CLP Sampling Trip Report will be completed at the end of every week

### **QAPP Worksheet #17: Sampling Design and Rationale**

RST 3 is tasked with the collection of up to 50 air samples throughout the duration of the Removal Action. Air sample locations determined by the OSC based on meteorological data, will be upwind, at areas of intrusive site activity, and downwind. Air sample locations will be co-located with air monitoring equipment. Air sampling will be conducted in accordance with EPA/ERT air sampling SOP# 2008 and 2119. Each air sampling setup will consist of one MCE filter (0.8- $\mu$ m, cellulose ester membrane) connected to a personal sampling pump (SKC PCXR8<sup>®</sup>) via Teflon<sup>®</sup> tubing. The sampling pump will be calibrated with a Bios Dry Cell DC lite to collect ambient air at approximately 2.0 liters per minute (L/min) through the MCE filter. Sampling will be conducted for an 8-hour period with a target volume of 960 liters (L). Once the sampling period is completed, the flow rate will be checked again. The duration of the sampling period and the flow rate will be entered onto an Air Sampling Worksheet. The total volume of air will be calculated and entered onto the worksheet. If the sample pump fails to run for the pre-selected period of time, this will be noted on the air sampling worksheet. All sample information will be transcribed into EPA's SCRIBE sample management database. Sample labels and COC documents will be generated from the SCRIBE database using the SCRIBE software. Baseline air samples collected prior to excavation of the site including one field blank and one Lot blank (both blanks are unused MCE filter) will be submitted to a CLP laboratory for total lead analysis on the first week of Removal Action activities. Thereafter, air samples collected after excavation of the site begins including field blanks and Lot blanks will be submitted to the CLP laboratory for lead analysis only if particulate air concentrations exceed 0.150 mg/m<sup>3</sup>. MS/MSD and field duplicate samples are not required for air matrix. All air samples will be preserved in ice-packed sample coolers and submission schedules to CLP laboratories will be at the discretion of the OSC.

Soil sampling activities will be conducted in accordance with guidelines outlined in EPA/ERT Soil Sampling SOP #2012. Up to 260 post-excavation soil samples will be collected from Area-1, Area-2, and Area-3. The soil sample locations will be determined by the EPA OSC. Soil samples will be collected at a frequency of one sidewall soil sample per 30 linear feet of the excavation perimeter and one bottom soil sample at a frequency of one per 900 sq. ft. All soil samples will be field screened for lead on-site using an XRF analyzer. The soil samples will be collected in a 6 x 9 inch plastic bag. Organic debris will be removed from the bagged sample, homogenized, and screened three times at an interval lasting no less than 60 seconds. The data obtained for each screening interval will be averaged to determine the concentration of lead in the soil sample. The field screening data will be documented in a site field log book. All selected pre-screened soil samples will be placed in 4 ounce (oz) glass sample jars. Soil samples will be collected for a definitive data QA/QC objective. Field duplicates and MS/MSD samples will be collected at a rate of one per every 20 samples collected. All soil samples including QA/QC samples will be stored in ice-packed sample coolers and submitted once a week to the EPA DESA laboratory for total lead analysis.

The following sampling design is in accordance with EPA Superfund Lead-Contaminated Residential Sites Handbook, OSWER Directive 9285.7-50, August 2003, and also based on information currently available and may be modified on-site in light of field-screening results and other acquired information. Where possible, air and soil sampling location data will be collected using a Trimble<sup>®</sup> Global Positioning System (GPS).

**QAPP Worksheet #17: Sampling Design and Rationale (Concluded)**

The following laboratory will provide the analyses indicated:

<b>Lab Name/Location</b>	<b>Lab Contact</b>	<b>Sample Type</b>	<b>Parameters</b>
CLP (TBD)	TBD	Air	Total Lead
EPA DESA Laboratory 2890 Woodbridge Ave. Bldg. 209, MS-230 Edison, NJ 08837 732-906-6886	John Birri	Soil	Total Lead

Refer to Worksheet #20 for QA/QC samples, sampling methods, and SOPs.

**QAPP Worksheet #18: Sampling Locations and Methods/SOP Requirements Table**

Matrix	Sampling Location(s)	Units	Analytical Group(s)	Concentration Level	No. of Samples (identify field duplicates)	Sampling SOP Reference	Rationale for Sampling Location
Air	50	µg	Total Lead	Low	50 samples	SOP 2008 and 2119	Site work zones/perimeter as determined by the OSC
Soil	247	mg/kg	Total Lead	Low	247 samples and 13 duplicates	SOP 2001 and 2012	As determined by the OSC to assess the lead concentration of soils left-in-place

SOP – Standard Operating Procedure

The website for EPA-ERT SOPs is: <http://www.ert.org/mainContent.asp?section=Products&subsection=List>

**QAPP Worksheet #19: Analytical SOP Requirements Table**

Matrix	No. of Samples	Analytical Group [Lab Assignment]	Concentration Level	Analytical and Preparation Method/SOP Reference	Sample Volume	Containers (number, size, and type)	Preservation Requirements	Maximum Holding Time (preparation/analysis)
Air	50	Total lead	Low	ISMO 1.3 (NIOSH 7300)	Est. 960 Liters	0.8-µm, MCE Filters	Cool to 4 <sup>0</sup> C	180 days
Soil	260	Total Lead	Low	C-109 (Ref. EPA 200.7)	1 X 500ml 1 X 250ml(QC)	4-oz. glass jar	Cool to 4 <sup>0</sup> C	180 days

ISMO – Inorganic Superfund Method

NIOSH – National Institute for Occupational Safety and Health

NA – Not Applicable



**QAPP Worksheet #20: Field Quality Control Sample Summary Table**

<b>Matrix</b>	<b>Analytical Group</b>	<b>Concentration Level</b>	<b>Analytical and Preparation SOP Reference</b>	<b>No. of Sampling Locations</b>	<b>No. of Field Duplicate Pairs</b>	<b>No. of Extra Volume Laboratory QC (e.g., MS/MSD) Samples<sup>1</sup></b>	<b>No. of Rinsate Blanks<sup>1</sup></b>	<b>No. of Trip. Blanks</b>	<b>No. of PE Samples</b>
Air	Total Lead	Low	ISMO 1.3 (NIOSH 7300)	50	NR	NR	NR	NR	50
Soil	Total Lead	Low/medium	C-109 (Ref. EPA 200.7)	247	1 per 20 samples (13 duplicates)	1 per 20 samples	NR	NR	260

<sup>1</sup> Only required if non-dedicated sampling equipment to be used.

ISMO – Inorganic Superfund Method

NIOSH – National Institute for Occupational Safety and Health

MS/MSD analysis not required for total lead analysis for air samples

NR – Not Required

Note: For each sampling event additional 2-3 MCE filter (0.8-µm, cellulose ester membrane) will be provided to the laboratory for QC purpose.

**QAPP Worksheet #21: Project Sampling SOP References Table**

<b>Reference Number</b>	<b>Title, Revision Date and/or Number</b>	<b>Originating Organization</b>	<b>Equipment Type</b>	<b>Modified for Project Work? (Y/N)</b>	<b>Comments</b>
<u>SOP #2001</u>	General Field Sampling Guidelines, Rev.0.0 August 1994	EPA/OSWER/ERT	--	N	--
<u>SOP#2008</u>	General Air Sampling Guidelines, Rev. 0.0 November 1994	EPA/OSWER/ERT	SKC 224-PCXR8	N	--
<u>SOP#2012</u>	Soil Sampling	EPA/OSWER/ERT	Styrene Scoops	N	--
<u>SOP#2119</u>	Air Sampling for Metals Guidelines, Rev. 0.0 October 1994	EPA/OSWER/ERT	DataRAM	N	--

Note: The website for EPA-ERT SOPs is: [www.ert.org/mainContent.asp?section=Products&subsection=List](http://www.ert.org/mainContent.asp?section=Products&subsection=List)

**QAPP Worksheet #22: Field Equipment Calibration, Maintenance, Testing, and Inspection Table**

<b>Field Equipment</b>	<b>Calibration Activity</b>	<b>Maintenance Activity</b>	<b>Testing/ Inspection Activity</b>	<b>Frequency</b>	<b>Acceptance Criteria</b>	<b>Corrective Action</b>	<b>Responsible Person</b>	<b>SOP Reference</b>
SKC Pumps	Daily calibration	AC is primary power. Keep Internal trickle-charged battery with an approximate life of 8 hours.	Visually inspect the unit	Yearly	Follow equipment instruction	Replace batteries or replace unit if not working correctly	Equipment Vendor	--
DataRam	Select auto 0/initialize	Change Dust Filter	NA	Annual factory cleaning and calibration required	Follow equipment instruction	Factory Service and Calibration	Equipment Vendor	--
Niton XL3T600 XRF	Calibrate using NIST Standard Reference Materials (SRMs) (No. 2702 and 2781) and SiO <sub>2</sub> (silicon dioxide) blank	Check and replace battery daily	Clean mylar testing window daily and/or as needed	Calibrate prior to day's activities; anytime anomaly suspected	20% or less difference between the value of the NIST standard and the XRF result for an element	Change battery; perform energy calibration check, standardize and calibrate using NIST standards	Equipment Vendor	Niton Systems Operating Manual for XL3T666 Series XRF Analyzer-
Trimble® GeoXT™ handheld								

**QAPP Worksheet #23: Analytical SOP References Table**

<b>Reference Number</b>	<b>Title, Revision Date, and/or Number</b>	<b>Definitive or Screening Data</b>	<b>Analytical Group</b>	<b>Instrument</b>	<b>Organization Performing Analysis</b>	<b>Modified for Project Work? (Y/N)</b>
ISMO 1.3 (NIOSH 7300)	EPA CLP statement of work for inorganic analysis superfund method (multimedia, multi-concentration) ISMO 1.3 January 2012	Definitive	Total Lead	ICP-AES	CLP TBD	N
DESA Method C-109 (Ref. EPA 200.7)	Trace metals in aqueous/soil/sediment/sludge ICP-AES	Definitive	Total Lead	ICP-AES	EPA DESA Laboratory 2890 Woodbridge Ave. Bldg. 209, MS-230 Edison, NJ 08837	N

ICP-AES – inductively coupled plasma – atomic emission spectroscopy  
USEPA – United States Environmental Protection Agency  
DESA - Division of Environmental Science and Assessment  
NIOSH - National Institute of Occupational Safety and Health  
ISMO – Inorganic Superfund Method

### QAPP Worksheet #24: Analytical Instrument Calibration Table

<b>Instrument</b>	<b>Calibration Procedure</b>	<b>Frequency of Calibration</b>	<b>Acceptance Criteria</b>	<b>Corrective Action (CA)</b>	<b>Person Responsible for CA</b>	<b>SOP Reference<sup>1</sup></b>
ICP-AES	ISMO 1.3 (NIOSH 7300)	ISMO 1.3 (NIOSH 7300)	ISMO 1.3 (NIOSH 7300)	ISMO 1.3 (NIOSH 7300)	CLP Laboratory Personnel	ISMO 1.3 (NIOSH 7300)
ICP-AES	See C-109 (Ref. EPA 200.7)	See C-109 (Ref. EPA 200.7)	See C-109 (Ref. EPA 200.7)	See C-109 (Ref. EPA 200.7)	Assigned EPA DESA Laboratory personnel	See C-109 (Ref. EPA 200.7)

<sup>1</sup> Specify the appropriate letter or number from the Analytical SOP References table (Worksheet #23)

CA – corrective action

DESA – Division of Environmental Science and Assessment

EPA – U.S. Environmental Protection Agency

ICP-AES – inductively coupled plasma atomic emission spectroscopy

SOP – standard operating procedure

NIOSH - National Institute of Occupational Safety and Health

ISMO – Inorganic Superfund Method

**QAPP Worksheet #25: Analytical Instrument and Equipment Maintenance, Testing, and Inspection Table**

<b>Instrument/ Equipment</b>	<b>Maintenance Activity</b>	<b>Testing/Inspection Activity</b>	<b>Frequency</b>	<b>Acceptance Criteria</b>	<b>Corrective Action</b>	<b>Responsible Person</b>	<b>SOP Reference<sup>1</sup></b>
ICP-AES	As per instrument manufacturer's recommendations	As per instrument manufacturer's recommendations; check connections	As per instrument manufacturer's recommendations	Acceptable re-calibration; see ISMO 1.3 (NIOSH method 7300)	Inspect the system, correct problem, re-calibrate and/or reanalyze samples.	EPA CLP Laboratory ICP-AES / Technician	ISMO 1.3 (NIOSH 7300)
ICP-AES	As per instrument manufacturer's recommendations	As per instrument manufacturer's recommendations; check connections	As per instrument manufacturer's recommendations	Acceptable re-calibration; see EPA method 200.7	Inspect the system, correct problem, re-calibrate and/or reanalyze samples.	EPA DESA Laboratory ICP-AES / Technician	See C-109 (Ref. EPA 200.7)

<sup>1</sup> Specify the appropriate letter or number from the Analytical SOP References table (Worksheet #23)

DESA – Division of Environmental Science and Assessment

EPA – U.S. Environmental Protection Agency

ICP-AES – inductively coupled plasma atomic emission spectroscopy

SOP – standard operating procedure

NIOSH - National Institute of Occupational Safety and Health

ISMO – Inorganic Superfund Method

CLP – Contract Laboratory Program



### QAPP Worksheet #26: Sample Handling System

<b>SAMPLE COLLECTION, PACKAGING, AND SHIPMENT</b>
<b>Sample Collection (Personnel/Organization):</b> RST 3 Site Project Manager, Weston Solutions, Inc., Region II
<b>Sample Packaging (Personnel/Organization):</b> RST 3 Site Project Manager, Weston Solutions, Inc., Region II
<b>Coordination of Shipment (Personnel/Organization):</b> RST 3 Site Project Manager, Weston Solutions, Inc., Region II
<b>Type of Shipment/Carrier:</b> FedEx and/or hand-delivery
<b>SAMPLE RECEIPT AND ANALYSIS</b>
<b>Sample Receipt (Personnel/Organization):</b> OSCAR/DESA Laboratory and EPA CLP Laboratory Sample Custodians
<b>Sample Custody and Storage (Personnel/Organization):</b> OSCAR/DESA Laboratory and EPA CLP Laboratory Sample Custodians
<b>Sample Preparation (Personnel/Organization):</b> OSCAR/DESA Laboratory and EPA CLP Laboratory Sample Custodians
<b>Sample Determinative Analysis (Personnel/Organization):</b> OSCAR/DESA Laboratory and EPA CLP Laboratory Sample Custodians
<b>SAMPLE ARCHIVING</b>
<b>Field Sample Storage (No. of days from sample collection):</b> Air samples to be shipped in ice-packed sample coolers same day of collection only if particulate concentrations exceed 0.150 mg/m <sup>3</sup> , and arrive at laboratory within 24 hours (1 day) of sample shipment. Soil samples will be stored on-site in an ice-packed sample cooler and submitted once a week to EPA DESA laboratory.
<b>Sample Extract/Digestate Storage (No. of days from extraction/digestion):</b> As per analytical methodology; see Worksheet #19
<b>SAMPLE DISPOSAL</b>
<b>Personnel/Organization:</b> OSCAR/DESA LAB, Sample Custodian and EPA RAS Laboratory Sample Custodian
<b>Number of Days from Analysis:</b> 60 days, until analysis and QA/QC checks are completed; as per analytical methodology; see Worksheet #19.

### QAPP Worksheet #27: Sample Custody Requirements

**Sample Identification Procedures:** Each sample collected by Region II RST 3 will be designated by a code that will identify the site. The code will be a site-specific property number. The media type will follow the numeric code. A hyphen will separate the site code and media type. Specific media types are as follows: SS – Soil Sample AA – Ambient Air Sample. After the media type, the sequential sample numbers will be listed; duplicate samples will be identified in the same manner as other samples and will be distinguished and documented in the field logbook.

e.g. P001-AA012-A-071014; where P001 = Property 001, AA012 = Air sample in quadrant 12, A = Sample location, 071014 = Collected on July 10, 2014.

e.g. P001-SS012-SW1218-01; where P001 = Property 001, SS012 = Soil sample in quadrant 12, SW1218 = Excavation sidewall sample collected from sample depth of 12 to 18 inches bgs, 01 = Sample number. A field duplicate will have the next available sample number.

e.g. P001-SS012-BS1218-01; where P001 = Property 001, SS012 = Soil sample in quadrant 12, BS1218 = Excavation base sample collected from sample depth of 12 to 18 inches bgs, 01 = Sample number. A field duplicate will have the next available sample number.

**Field Sample Custody Procedures (sample collection, packaging, shipment, and delivery to laboratory):** Each sample will be individually identified and labeled after collection, then sealed with custody seals and enclosed in a plastic cooler. The sample information will be recorded on chain-of custody (COC) forms, and the samples shipped to the appropriate laboratory via overnight delivery service or courier. Chain-of-custody records must be prepared in Scribe to accompany samples from the time of collection and throughout the shipping process. Each individual in possession of the samples must sign and date the sample COC Record. The chain-of-custody record will be considered completed upon receipt at the laboratory. A traffic report and chain-of-custody record will be maintained from the time the sample is taken to its final deposition. Every transfer of custody must be noted and signed for, and a copy of this record kept by each individual who has signed. When samples are not under direct control of the individual responsible for them, they must be stored in a locked container sealed with a custody seal. Specific information regarding custody of the samples projected to be collected on the weekend will be noted in the field logbook. The chain-of-custody record should include (at minimum) the following: 1) Sample identification number; 2) Sample information; 3) Sample location; 4) Sample date; 5) Sample Time; 6) Sample Type Matrix; 7) Sample Container Type; 8) Sample Analysis Requested; 9) Name(s) and signature(s) of sampler(s); and 10) Signature(s) of any individual(s) with custody of samples.

**For this event each parcel will have its own chain-of custody.** A separate chain-of-custody form must accompany each cooler for each daily shipment. The chain-of-custody form must address all samples in that cooler, but not address samples in any other cooler. This practice maintains the chain-of-custody for all samples in case of mis-shipment.

**Laboratory Sample Custody Procedures (receipt of samples, archiving, and disposal):** A sample custodian at the laboratory will accept custody of the shipped samples, and check them for discrepancies, proper preservation, integrity, etc. If noted, issues will be forwarded to the laboratory manager for corrective action. The sample custodian will relinquish custody to the appropriate department for analysis. At this time, no samples will be archived at the laboratory. Disposal of the samples will occur only after analyses and QA/QC checks are completed.

**QAPP Worksheet #28: QC Samples Table**  
**QAPP Worksheet # 28A: Total Lead - Air**

**(UFP-QAPP Manual Section 3.4)**

Complete a separate worksheet for each sampling technique, analytical method/SOP, matrix, analytical group, and concentration level. If method/SOP QC acceptance limit exceed the measurement performance criteria, the data obtained may be unusable for making project decisions.

<b>Matrix</b>	Air
<b>Analytical Group</b>	Total Lead
<b>Concentration Level</b>	Low
<b>Sampling SOP(s)</b>	ERT SOP #2008 & 2119
<b>Analytical Method/SOP Reference</b>	ISMO 1.3 (NIOSH 7300)
<b>Sampler's Name</b>	Bernard Nwosu
<b>Field Sampling Organization</b>	Weston Solutions, Inc.
<b>Analytical Organization</b>	CLP Laboratory
<b>No. of Sample Locations</b>	50

Lab QC Sample:	Frequency/Number	Method/SOP QC Acceptance Limits	Corrective Action	Person(s) Responsible for Corrective Action	Data Quality Indicator (DQI)	Measurement Performance Criteria
Field Blank	1 per week	No analyte>LOD	Suspend analysis until source recertified	Analyst	Accuracy	No analyte> LOD
Preparation Blank	1 per $\leq$ 20 samples	No constituent > CRQL	Suspend analysis until source rectified; redigest and reanalyze affected samples	EPA CLP RAS Laboratory ICP-AES/ICP-MS Technicians	Accuracy	No constituent > CRQL
Interference Check Sample [ICP Analysis Only]	beginning, end and periodically during run (2 times every 8 hours)	Within $\pm$ 2 times CRQL of true value or $\pm$ 20% of true value, whichever is greater	Check calculations and instruments, reanalyze affected samples	EPA CLP RAS Laboratory ICP-AES/ICP-MS Technicians	Sensitivity	Within $\pm$ 2 times CRQL of true value or $\pm$ 20% of true value, whichever is greater
Laboratory Control Sample	1 per $\leq$ 20 samples	Control limits established by EPA*	Suspend analysis until source rectified; redigest and reanalyze affected samples	EPA CLP RAS Laboratory ICP-AES/ICP-MS Technicians	Accuracy	Control limits established by EPA*

\*except when the sample concentration is greater than 4 times the spike concentration, then disregard the recoveries; no data validation action taken

\*\*Reference USEPA Region 2 SOP No. HW-2, Revision 13/Evaluation of Metals Data for CLP - (include absolute difference criteria)

\*\*except when the sample and/or duplicate concentration is less than 5 times the CRQL, then  $\pm$  CRQL.

Note: Field duplicate sample not required for air samples and Matrix spike and lab duplicate analysis will not be performed for air samples.

**QAPP Worksheet #28: QC Samples Table**  
**DESA Worksheet # 28B: Total Lead - Soil**

**(UFP-QAPP Manual Section 3.4)**

Complete a separate worksheet for each sampling technique, analytical method/SOP, matrix, analytical group, and concentration level. If method/SOP QC acceptance limit exceed the measurement performance criteria, the data obtained may be unusable for making project decisions.

Matrix	Soil
Analytical Group	Total Lead
Concentration Level	Low
Sampling SOP	ERT SOP # 2001 & 2012
Analytical Method/ SOP Reference	C-109 (Ref: EPA 200.7)
Sampler's Name	Bernard Nwosu
Field Sampling Organization	Weston Solutions, Inc., RST 3
Analytical Organization	EPA DESA Laboratory
No. of Sample Locations	247

<b>QC Sample:</b>	<b>Frequency/Number</b>	<b>Method/SOP QC Acceptance Limits</b>	<b>Corrective Action</b>	<b>Person(s) Responsible for Corrective Action</b>	<b>Data Quality Indicator (DQI)</b>	<b>Measurement Performance Criteria</b>
Tuning/System Stability(ICP-MS)	As per C-109	Pass all the tune/stability criteria	Check Instrument Reanalyze, Retune	Lab personnel	Sensitivity	Pass all the tune/stability criteria
Initial Calibration Verification	Immediately following each calibration ,after every 10 samples and at the end of each analytical run	90%-110%	Check Instrument, Reanalyze	Lab personnel	Accuracy	90%-110%
Continuing Calibration Check Standard (Alternate check standard)	Every 10 samples and at the end of each analytical run	80%-120%	Reanalyze, Qualify data	Lab personnel	Accuracy	80%-120%
Initial Calibration Blank(ICB)	After ICV	< RL	Investigate source of contamination	Lab personnel	Sensitivity Contamination	< RL
Continuing Calibration Blank(CCB)	After every CCV	< RL	Investigate source of contamination	Lab personnel	Sensitivity Contamination	< RL
Low Level Check Standard	At Beginning and end of each analytical run	± 30% of the true value	Check Instrument, Re-calibrate	Lab personnel	Accuracy	± 30% of the true value

**QAPP Worksheet #28: QC Samples Table**  
**QAPP Worksheet # 28B: Total Lead - Soil (Concluded)**

**(UFP-QAPP Manual Section 3.4)**

Complete a separate worksheet for each sampling technique, analytical method/SOP, matrix, analytical group, and concentration level. If method/SOP QC acceptance limit exceed the measurement performance criteria, the data obtained may be unusable for making project decisions.

Matrix	Soil
Analytical Group	Total Lead
Concentration Level	Low
Sampling SOP	ERT SOP # 2001 & 2012
Analytical Method/ SOP Reference	C-109 (Ref: EPA 200.7)
Sampler's Name	Bernard Nwosu
Field Sampling Organization	Weston Solutions, Inc., RST 3
Analytical Organization	EPA DESA Laboratory
No. of Sample Locations	247

QC Sample:	Frequency/Number	Method/SOP QC Acceptance Limits	Corrective Action	Person(s) Responsible for Corrective Action	Data Quality Indicator (DQI)	Measurement Performance Criteria
Interference Check Sample( ICP-200.7)	At Beginning and end of each analytical run	< RL Except Al ,Fe, Ca, K, Mg and Na	As per C-109	Lab personnel	Precision	< RL Except Al ,Fe, Ca, K, Mg and Na
Method blank	1 per extraction batch of ≤ 20 samples	< RL	Investigate source of contamination	Lab personnel	Sensitivity Contamination	< RL
LCS/LFB	2 per extraction batch of ≤ 20 samples	Limits: Average Recovery ± 20% aqueous, ± 25% Soil) % RPD < 20( Aq), % RPD <25(Soil)	Qualify data	Lab personnel	Accuracy/ Precision	Limits: Average Recovery ± 20% aqueous, ± 25% Solids) % RPD < 20( Aq), % RPD <25(Soil)
Laboratory Matrix spikes	1 per extraction batch of ≤ 20 samples	Limits ± 20% aqueous, ± 25% Soil)	Qualify data	Lab personnel	Accuracy	Limits ± 20% aqueous, ± 25% Soil)
Serial Dilution Test ( ICP-200.7)	Matrix spike sample	RPD < 20 %	Qualify data	Lab personnel	Precision	RPD < 20 %

**QAPP Worksheet #29: Project Documents and Records Table**

<b>Sample Collection Documents and Records</b>	<b>Analysis Documents and Records</b>	<b>Data Assessment Documents and Records</b>	<b>Other</b>
<ul style="list-style-type: none"> <li>• Field logbooks</li> <li>• COC forms</li> <li>• Field Data Sheets</li> <li>• Photo-document</li> <li>• CLP Sample Numbers</li> </ul>	<ul style="list-style-type: none"> <li>• Sample receipt logs</li> <li>• Internal and external COC forms</li> <li>• Equipment calibration logs</li> <li>• Sample preparation worksheets/logs</li> <li>• Sample analysis worksheets/run logs</li> <li>• Telephone/email logs</li> <li>• Corrective action documentation</li> </ul>	<ul style="list-style-type: none"> <li>• Data validation reports</li> <li>• Field inspection checklist(s)</li> <li>• Review forms for electronic entry of data into database</li> <li>• Corrective action documentation</li> </ul>	CLP Request Form

CLP – Contract Laboratory Program  
COC – Chain of Custody



**QAPP Worksheet #30: Analytical Services Table**

<b>Matrix</b>	<b>Analytical Group</b>	<b>Concentration Level</b>	<b>Analytical SOP</b>	<b>Data Package Turnaround Time</b>	<b>Laboratory/Organization (Name and Address, Contact Person and Telephone Number)</b>	<b>Backup Laboratory/Organization (Name and Address, Contact Person and Telephone Number)</b>
Air	Total Lead	Low	ISMO 1.3 (NIOSH 7300)	7 Days	CLP (TBD)	NA
Soil	Total Lead	Low/medium	C-109 (Ref. EPA 200.7)	2 Weeks	EPA DESA Laboratory 2890 Woodbridge Ave. Bldg. 209, MS-230 Edison, NJ 08837 John Birri: 732-906-6886	NA

SOP – Standard Operation Procedure

NA – Not Applicable

ISMO – Inorganic Superfund Method

NIOSH - National Institute of Occupational Safety and Health

CLP – Contract Laboratory Program

**QAPP Worksheet #31: Planned Project Assessments Table**

<b>Assessment Type</b>	<b>Frequency</b>	<b>Internal or External</b>	<b>Organization Performing Assessment</b>	<b>Person(s) Responsible for Performing Assessment (Title and Organizational Affiliation)</b>	<b>Person(s) Responsible for Responding to Assessment Findings (Title and Organizational Affiliation)</b>	<b>Person(s) Responsible for Identifying and Implementing Corrective Actions (CA) (Title and Organizational Affiliation)</b>	<b>Person(s) Responsible for Monitoring Effectiveness of CA (Title and Organizational Affiliation)</b>
<b>DESA Laboratory</b>							
PT	Semiannually	External	NELAC	PT provider	Lab Personnel	Lab Personnel	Lab QA Officer
NELAC	Every two years	External	NELAC	Florida DOH	Lab QA Officer	Lab Personnel	Florida DOH
INTERNALAUDIT	Monthly	Internally	DESA Lab	Lab QA Officer	Lab Personnel	Lab Personnel	Lab QA Officer
<b>CLP Laboratory</b>							
Laboratory Technical Systems/ Performance Audits	Every year	External	Regulatory Agency	Regulatory Agency	EPA CLP RAS Laboratory	EPA CLP RAS Laboratory	EPA or other Regulatory Agency
Performance Evaluation Samples	---	External	Regulatory Agency	Regulatory Agency	EPA CLP RAS Laboratory	EPA CLP RAS Laboratory	EPA or other Regulatory Agency

**QAPP Worksheet #32: Assessment Findings and Corrective Action Responses**

<b>Assessment Type</b>	<b>Nature of Deficiencies Documentation</b>	<b>Individual(s) Notified of Findings (Name, Title, Organization)</b>	<b>Timeframe of Notification</b>	<b>Nature of Corrective Action Response Documentation</b>	<b>Individual(s) Receiving Corrective Action Response (Name, Title, Org.)</b>	<b>Timeframe for Response</b>
Project Readiness Review	Checklist or logbook entry	RST 3 Site Project Manager, Weston Solutions, Inc.	Immediately to within 24 hours of review	Checklist or logbook entry	RST 3 Site Project Leader	Immediately to within 24 hours of review
Field Observations/ Deviations from Work Plan	Logbook	RST 3 Site Project Manager, Weston Solutions, Inc. and EPA OSC	Immediately to within 24 hours of deviation	Logbook	RST 3 Site Project Manager and EPA OSC	Immediately to within 24 hours of deviation
Proficiency Testing	Letter with PT failure indicated	Lab QA Officer	30 days after the audit	Investigate the reason for the PT failure	Lab QA Officer	45 days after the CA report
NELAC	Audit Report with Non-conformance to QAPP, SOPs, NELAC+LQMP	Lab Management	30 days after the audit	Investigate and have a corrective action plan for the deficiencies	Florida DOH	30 days after receiving notification
Internal	Audit Report with Non-conformance to QAPP, SOPs, NELAC Regulations	Lab Management	30 days after the audit	Investigate and have a corrective action plan for the deficiencies	Lab QA Officer	45 days after the CA report

**QAPP Worksheet #33: QA Management Reports Table**

<b>Type of Report</b>	<b>Frequency (Daily, weekly, monthly, quarterly, annually, etc.)</b>	<b>Projected Delivery Date(s)</b>	<b>Person(s) Responsible for Report Preparation (Title and Organizational Affiliation)</b>	<b>Report Recipient(s) (Title and Organizational Affiliation)</b>
EPA-DESA and CLP Laboratory (preliminary)	As performed	2 weeks from the sampling date	EPA DESA Laboratory and CLP Laboratory	Adly Michael, RSCC, EPA Region II, RST 3 Data Validator and RST 3 SPM, Weston Solutions, Inc.
EPA-DESA and CLP Laboratory (validated)	As performed	Up to 21 days after receipt of preliminary data	EPA Region II DESA & ESAT Data Validators	RST 3 SPM, Weston Solutions, Inc., and OSC, EPA Region II
On-Site Field Inspection	As performed	7 calendar days after completion of the inspection	RST 3 HSO	RST 3 SPM, Weston Solutions, Inc.
Field Change Request	As required per field change	3 days after identification of need for field change	RST 3 SPM	EPA OSC
Final Report	As performed	2 weeks after receipt of EPA approval of data package	RST 3 SPM	EPA OSC

**QAPP Worksheet #34: Verification (Step I) Process Table**

<b>Verification Input</b>	<b>Description</b>	<b>Internal/ External</b>	<b>Responsible for Verification (Name, Organization)</b>
Site/field logbooks	Field notes will be prepared daily by the RST 3 Site Project Manager and will be complete, appropriate, legible and pertinent. Upon completion of field work, logbooks will be placed in the project files.	I	RST 3 Site Project Manager
Chains of custody	COC forms will be reviewed against the samples packed in the specific cooler prior to shipment. The reviewer will initial the form. An original COC will be sent with the samples to the laboratory, while copies are retained for (1) the Sampling Trip Report and (2) the project files.	I	RST 3 Site Project Manager
Sampling Trip Reports	STRs will be prepared for each week of field sampling. Information in the STR will be reviewed against the COC forms, and potential discrepancies will be discussed with field personnel to verify locations, dates, etc.	I	RST 3 Site Project Manager
Laboratory analytical data package	Data packages will be reviewed/verified internally by the laboratory performing the work for completeness and technical accuracy prior to submittal.	E	EPA DESA and EPA CLP Laboratory
Laboratory analytical data package	Data packages will be reviewed as to content and sample information upon receipt by EPA.	I	DESA and CLP Data Validation Personnel
Final Sample Report	The project data results will be compiled in a sample report for the project. Entries will be reviewed/verified against hardcopy information.	I	RST 3 Site Project Manager
<b>EPA DESA Laboratory</b>			
Chain of Custody	Chain-of-custody forms will be verified against the sample cooler they represent. Sample Acceptance Checklist is completed. The OSCAR staff supervisor utilizes the analyses request information and the external COC to review the accuracy and completeness of LIMS log-in entries, as reflected on the LIMS Sample Receipt Form Details can be found in Laboratory Quality Management Plan, SOP G-25	I	OSCAR Personnel  DESA LAB

**QAPP Worksheet #34: Verification (Step I) Process Table (Concluded)**

<b>Verification Input</b>	<b>Description</b>	<b>Internal/ External</b>	<b>Responsible for Verification (Name, Organization)</b>
Analytical data package/ Final Report	<u>The procedures for data review :</u> 1- Data reduction/review by Primary Analyst. 2- Review complete data package (raw data) by independent Peer Reviewer 3- The Sample Project Coordinator reviews the project documentation for completeness followed by a QA review by the QAO 4- Final review by Branch Chief/Section Chief prior to release, this review is to ensure completeness and general compliance with the objectives of the project. This final review typically does not include a review of raw data. Details can be found in Laboratory Quality Management Plan.	I	Primary Analyst, Peer Reviewer, Sample Project Coordinator, Quality Assurance Officer, Section Chief/ Branch Chief.  DESA LAB



**QAPP Worksheet #35: Validation (Steps IIa and IIb) Process Table**

Step IIa/IIb	Validation Input	Description	Responsible for Validation (Name, Organization)
IIa	SOPs	Ensure that the sampling methods/procedures outlined in QAPP were followed, and that any deviations were noted/approved.	RST 3 Site Project Manager
IIb	SOPs	Determine potential impacts from noted/approved deviations, in regard to PQOs.	RST 3 Site Project Manager
	Chain of Custody	Chain-of-custody forms will be verified against the sample cooler they represent. Sample Acceptance Checklist is completed. The OSCAR staff supervisor utilizes the analyses request information and the external COC to review the accuracy and completeness of LIMS log-in entries, as reflected on the LIMS Sample Receipt Form Details can be found in Laboratory Quality Management Plan, SOP G-25	OSCAR Personnel  DESA & CLP (TBD) Laboratories
	Analytical data package/ Final Report	<u>The procedures for data review:</u> 1- Data reduction/review by Primary Analyst. 2- Review complete data package (raw data) by independent Peer Reviewer 3- The Sample Project Coordinator reviews the project documentation for completeness followed by a QA review by the QAO 4- Final review by Branch Chief/Section Chief prior to release, this review is to ensure completeness and general compliance with the objectives of the project. This final review typically does not include a review of raw data. _an be found in Laboratory Quality Management Plan.	Primary Analyst, Peer Reviewer, Sample Project Coordinator, Quality Assurance Officer, Section Chief/ Branch Chief.  DESA Laboratory

**QAPP Worksheet #35: Validation (Steps IIa and IIb) Process Table (Concluded)**

<b>Step IIa/IIb</b>	<b>Validation Input</b>	<b>Description</b>	<b>Responsible for Validation (Name, Organization)</b>
<b>EPA DESA Laboratory</b>			
IIa	Chains of custody	Examine COC forms against QAPP and laboratory contract requirements (e.g., analytical methods, sample identification, etc.).	DESA Data Validation Personnel
IIa	Laboratory data package	Examine packages against QAPP and laboratory contract requirements, and against COC forms (e.g., holding times, sample handling, analytical methods, sample identification, data qualifiers, QC samples, etc.).	DESA Data Validation Personnel
IIb	Laboratory data package	Determine potential impacts from noted/approved deviations, in regard to PQOs. Examples include PQLs and QC sample limits (precision/accuracy).	DESA Data Validation Personnel
IIb	Field duplicates	Compare results of field duplicate (or replicate) analyses with RPD criteria	DESA Data Validation Personnel

**QAPP Worksheet #36: Validation (Steps IIa and IIb) Summary Table**

<b>Step IIa/IIb</b>	<b>Matrix</b>	<b>Analytical Group</b>	<b>Concentration Level</b>	<b>Validation Criteria</b>	<b>Data Validator (title and organizational affiliation)</b>
IIa / IIb	Air	Total Lead	Low	CLP Hazardous Waste Support Section. SOP # HW-2a Revision 15 ICP-AES data validation.	ESAT Data Validation Personnel
IIa / IIb	Soil	Total Lead	Low/medium	DESA Data Validation SOP and Sampling Method for Total Lead	DESA Data Validation Personnel

### QAPP Worksheet #37: Usability Assessment

**Summarize the usability assessment process and all procedures, including interim steps and any statistics, equations, and computer algorithms that will be used:** Data, whether generated in the field or by the laboratory, are tabulated and reviewed for Precision, Accuracy, Representativeness, Completeness, and Comparability (PARCCS) by the SPM for field data or the data validator for laboratory data. The review of the PARCC DQIs will compare with the DQO detailed in the site-specific QAPP, the analytical methods used and impact of any qualitative and quantitative trends will be examined to determine if bias exists. A hard copy of field data is maintained in a designated field or site logbook. Laboratory data packages are validated, and final data reports are generated. All documents and logbooks are assigned unique and specific control numbers to allow tracking and management. Questions about Non-CLP data, as observed during the data review process, are resolved by contacting the respective site personnel and laboratories as appropriate for resolution. All communications are documented in the data validation record with comments as to the resolution to the observed deficiencies.

Where applicable, the following documents will be followed to evaluate data for fitness in decision making: EPA QA/G-4, Guidance on Systematic Planning using the Data Quality Objectives Process, EPA/240/B-06/001, February 2006, and EPA QA/G-9R, Guidance for Data Quality Assessment, A reviewer's Guide EPA/240/B-06/002, February 2006.

**Describe the evaluative procedures used to assess overall measurement error associated with the project:**

As delineated in the *Uniform Federal Policy for Implementing Environmental Quality Systems: Evaluating, Assessing and Documenting Environmental Data Collection and Use Programs Part 1: UFP-QAPP (EPA-505-B-04-900A, March 2005); Part 2A: UFP-QAPP Workbook (EPA-505-B-04-900C, March 2005); Part 2B: Quality Assurance/Quality Control Compendium: Non-Time Critical QA/QC Activities (EPA-505-B-04-900B, March 2005)*; "Graded Approach" will be implemented for data collection activities that are either exploratory or where specific decisions cannot be identified, since this guidance indicates that the formal DQO process is not necessary.

The data will be evaluated to determine whether they satisfy the PQO for the project. The validation process determines if the data satisfy the QA criteria. After the data pass the data validation process, comparison results with the PQO is done.

**QAPP Worksheet #37: Usability Assessment (Concluded)**

The EPA will use the analytical data from air samples to evaluate the effectiveness of established engineering controls for the protection of on-site personnel and residents from potential airborne contaminants during site work activities. The analytical results obtained from post-excavation soil samples will be used to determine the concentration of lead in the soils left-in-place at the different on-site AOCs

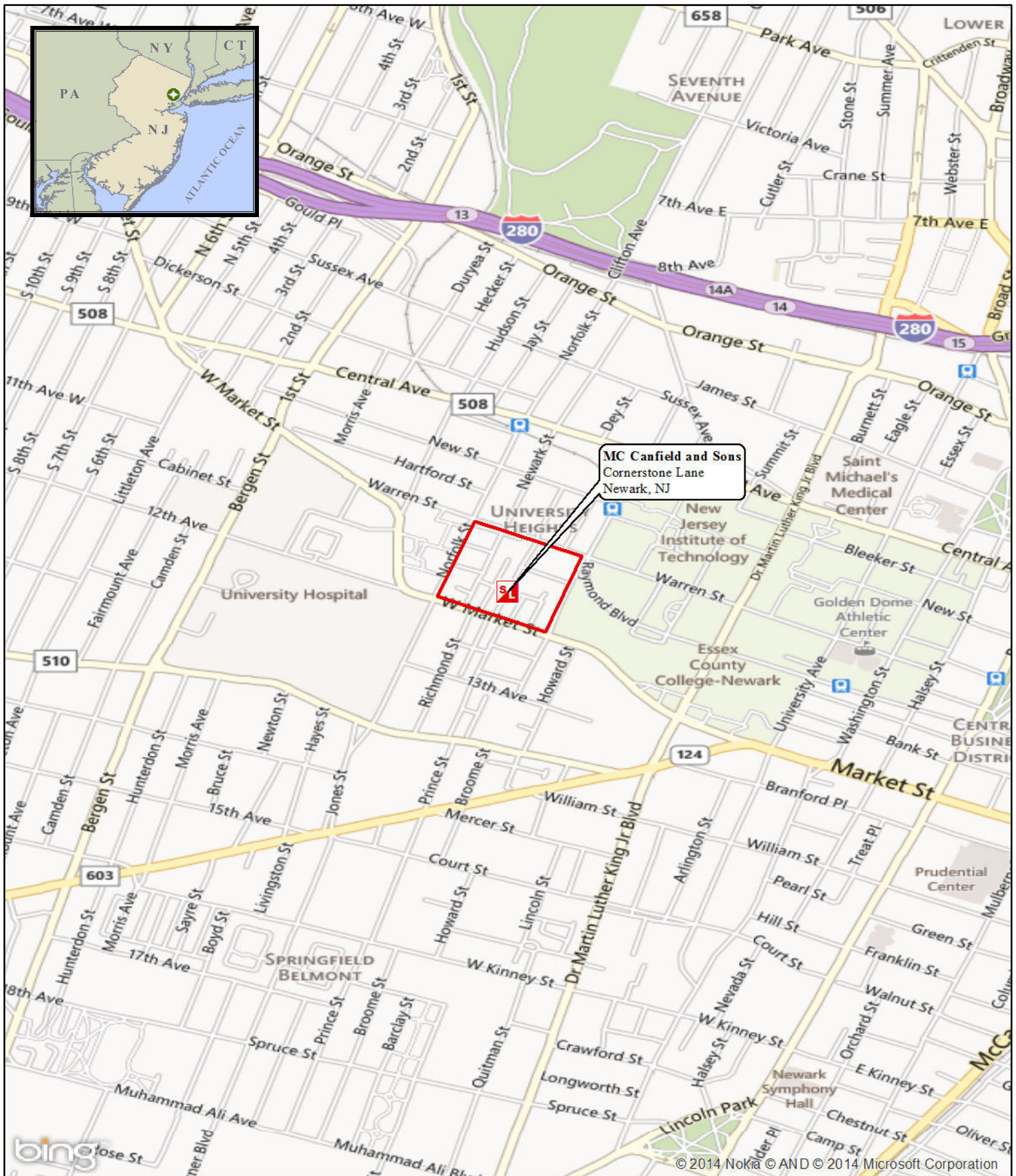
**Identify the personnel responsible for performing the usability assessment:** SPM, Data Validation Personnel, and EPA, Region II OSC

**Describe the documentation that will be generated during usability assessment and how usability assessment results will be presented so that they identify trends, relationships (correlations), and anomalies:** A copy of the most current approved QAPP, including any graphs, maps and text reports developed will be provided to all personnel identified on the distribution list.

## **ATTACHMENT A**

### **Site Location Map**





## **ATTACHMENT B**

### **Sampling SOPs**

**EPA/ERT SOP # 2001**  
**EPA/ERT SOP # 2008**  
**EPA/ERT SOP # 2012**  
**EPA/ERT SOP # 2119**



# GENERAL FIELD SAMPLING GUIDELINES

SOP#: 2001  
DATE: 08/11/94  
REV. #: 0.0

## 1.0 SCOPE AND APPLICATION

The purpose of this Standard Operating Procedure (SOP) is to provide general field sampling guidelines that will assist REAC personnel in choosing sampling strategies, location, and frequency for proper assessment of site characteristics. This SOP is applicable to all field activities that involve sampling.

These are standard (i.e., typically applicable) operating procedures which may be varied or changed as required, dependent on site conditions, equipment limitations or limitations imposed by the procedure. In all instances, the ultimate procedures employed should be documented and associated with the final report.

Mention of trade names or commercial products does not constitute U.S. EPA endorsement or recommendation for use.

## 2.0 METHOD SUMMARY

Sampling is the selection of a representative portion of a larger population, universe, or body. Through examination of a sample, the characteristics of the larger body from which the sample was drawn can be inferred. In this manner, sampling can be a valuable tool for determining the presence, type, and extent of contamination by hazardous substances in the environment.

The primary objective of all sampling activities is to characterize a hazardous waste site accurately so that its impact on human health and the environment can be properly evaluated. It is only through sampling and analysis that site hazards can be measured and the job of cleanup and restoration can be accomplished effectively with minimal risk. The sampling itself must be conducted so that every sample collected retains its original physical form and chemical composition. In this way, sample integrity is insured, quality assurance standards are maintained, and the sample can accurately represent the larger body of

material under investigation.

The extent to which valid inferences can be drawn from a sample depends on the degree to which the sampling effort conforms to the project's objectives. For example, as few as one sample may produce adequate, technically valid data to address the project's objectives. Meeting the project's objectives requires thorough planning of sampling activities, and implementation of the most appropriate sampling and analytical procedures. These issues will be discussed in this procedure.

## 3.0 SAMPLE PRESERVATION, CONTAINERS, HANDLING, AND STORAGE

The amount of sample to be collected, and the proper sample container type (i.e., glass, plastic), chemical preservation, and storage requirements are dependent on the matrix being sampled and the parameter(s) of interest. Sample preservation, containers, handling, and storage for air and waste samples are discussed in the specific SOPs for air and waste sampling techniques.

## 4.0 INTERFERENCES AND POTENTIAL PROBLEMS

The nature of the object or materials being sampled may be a potential problem to the sampler. If a material is homogeneous, it will generally have a uniform composition throughout. In this case, any sample increment can be considered representative of the material. On the other hand, heterogeneous samples present problems to the sampler because of changes in the material over distance, both laterally and vertically.

Samples of hazardous materials may pose a safety threat to both field and laboratory personnel. Proper health and safety precautions should be implemented when handling this type of sample.

Environmental conditions, weather conditions, or non-target chemicals may cause problems and/or interferences when performing sampling activities or when sampling for a specific parameter. Refer to the specific SOPs for sampling techniques.

## **5.0 EQUIPMENT/APPARATUS**

The equipment/apparatus required to collect samples must be determined on a site specific basis. Due to the wide variety of sampling equipment available, refer to the specific SOPs for sampling techniques which include lists of the equipment/apparatus required for sampling.

## **6.0 REAGENTS**

Reagents may be utilized for preservation of samples and for decontamination of sampling equipment. The preservatives required are specified by the analysis to be performed. Decontamination solutions are specified in ERT SOP #2006, Sampling Equipment Decontamination.

## **7.0 PROCEDURE**

### **7.1 Types of Samples**

In relation to the media to be sampled, two basic types of samples can be considered: the environmental sample and the hazardous sample.

Environmental samples are those collected from streams, ponds, lakes, wells, and are off-site samples that are not expected to be contaminated with hazardous materials. They usually do not require the special handling procedures typically used for concentrated wastes. However, in certain instances, environmental samples can contain elevated concentrations of pollutants and in such cases would have to be handled as hazardous samples.

Hazardous or concentrated samples are those collected from drums, tanks, lagoons, pits, waste piles, fresh spills, or areas previously identified as contaminated, and require special handling procedures because of their potential toxicity or hazard. These samples can be further subdivided based on their degree of hazard; however, care should be taken when handling and shipping any wastes believed to be concentrated regardless of the degree.

The importance of making the distinction between environmental and hazardous samples is two-fold:

- (1) Personnel safety requirements: Any sample thought to contain enough hazardous materials to pose a safety threat should be designated as hazardous and handled in a manner which ensures the safety of both field and laboratory personnel.
- (2) Transportation requirements: Hazardous samples must be packaged, labeled, and shipped according to the International Air Transport Association (IATA) Dangerous Goods Regulations or Department of Transportation (DOT) regulations and U.S. EPA guidelines.

### **7.2 Sample Collection Techniques**

In general, two basic types of sample collection techniques are recognized, both of which can be used for either environmental or hazardous samples.

#### Grab Samples

A grab sample is defined as a discrete aliquot representative of a specific location at a given point in time. The sample is collected all at once at one particular point in the sample medium. The representativeness of such samples is defined by the nature of the materials being sampled. In general, as sources vary over time and distance, the representativeness of grab samples will decrease.

#### Composite Samples

Composites are nondiscrete samples composed of more than one specific aliquot collected at various sampling locations and/or different points in time. Analysis of this type of sample produces an average value and can in certain instances be used as an alternative to analyzing a number of individual grab samples and calculating an average value. It should be noted, however, that compositing can mask problems by diluting isolated concentrations of some hazardous compounds below detection limits.

Compositing is often used for environmental samples and may be used for hazardous samples under certain conditions. For example, compositing of hazardous waste is often performed after compatibility tests have

been completed to determine an average value over a number of different locations (group of drums). This procedure generates data that can be useful by providing an average concentration within a number of units, can serve to keep analytical costs down, and can provide information useful to transporters and waste disposal operations.

For sampling situations involving hazardous wastes, grab sampling techniques are generally preferred because grab sampling minimizes the amount of time sampling personnel must be in contact with the wastes, reduces risks associated with compositing unknowns, and eliminates chemical changes that might occur due to compositing.

### 7.3 Types of Sampling Strategies

The number of samples that should be collected and analyzed depends on the objective of the investigation. There are three basic sampling strategies: random, systematic, and judgmental sampling.

Random sampling involves collection of samples in a nonsystematic fashion from the entire site or a specific portion of a site. Systematic sampling involves collection of samples based on a grid or a pattern which has been previously established. When judgmental sampling is performed, samples are collected only from the portion(s) of the site most likely to be contaminated. Often, a combination of these strategies is the best approach depending on the type of the suspected/known contamination, the uniformity and size of the site, the level/type of information desired, etc.

### 7.4 QA Work Plans (QAWP)

A QAWP is required when it becomes evident that a field investigation is necessary. It should be initiated in conjunction with, or immediately following, notification of the field investigation. This plan should be clear and concise and should detail the following basic components, with regard to sampling activities:

- C Objective and purpose of the investigation.
- C Basis upon which data will be evaluated.
- C Information known about the site including location, type and size of the facility, and length of operations/abandonment.
- C Type and volume of contaminated material, contaminants of concern (including

concentration), and basis of the information/data.

- C Technical approach including media/matrix to be sampled, sampling equipment to be used, sample equipment decontamination (if necessary), sampling design and rationale, and SOPs or description of the procedure to be implemented.
- C Project management and reporting, schedule, project organization and responsibilities, manpower and cost projections, and required deliverables.
- C QA objectives and protocols including tables summarizing field sampling and QA/QC analysis and objectives.

Note that this list of QAWP components is not all-inclusive and that additional elements may be added or altered depending on the specific requirements of the field investigation. It should also be recognized that although a detailed QAWP is quite important, it may be impractical in some instances. Emergency responses and accidental spills are prime examples of such instances where time might prohibit the development of site-specific QAWPs prior to field activities. In such cases, investigators would have to rely on general guidelines and personal judgment, and the sampling or response plans might simply be a strategy based on preliminary information and finalized on site. In any event, a plan of action should be developed, no matter how concise or informal, to aid investigators in maintaining a logical and consistent order to the implementation of their task.

### 7.5 Legal Implications

The data derived from sampling activities are often introduced as critical evidence during litigation of a hazardous waste site cleanup. Legal issues in which sampling data are important may include cleanup cost recovery, identification of pollution sources and responsible parties, and technical validation of remedial design methodologies. Because of the potential for involvement in legal actions, strict adherence to technical and administrative SOPs is essential during both the development and implementation of sampling activities.

Technically valid sampling begins with thorough planning and continues through the sample collection and analytical procedures. Administrative requirements involve thorough, accurate

documentation of all sampling activities. Documentation requirements include maintenance of a chain of custody, as well as accurate records of field activities and analytical instructions. Failure to observe these procedures fully and consistently may result in data that are questionable, invalid and non-defensible in court, and the consequent loss of enforcement proceedings.

## **8.0 CALCULATIONS**

Refer to the specific SOPs for any calculations which are associated with sampling techniques.

## **9.0 QUALITY ASSURANCE/ QUALITY CONTROL**

Refer to the specific SOPs for the type and frequency of QA/QC samples to be analyzed, the acceptance criteria for the QA/QC samples, and any other QA/QC activities which are associated with sampling techniques.

## **10.0 DATA VALIDATION**

Refer to the specific SOPs for data validation activities that are associated with sampling techniques.

## **11.0 HEALTH AND SAFETY**

When working with potentially hazardous materials, follow U.S. EPA, OSHA, and corporate health and safety procedures.





# GENERAL AIR SAMPLING GUIDELINES

SOP#: 2008  
DATE: 11/16/94  
REV. #: 0.0

## 1.0 SCOPE AND APPLICATION

This Standard Operating Procedure (SOP) provides guidance in developing and implementing sampling plans to assess the impact of hazardous waste sites on ambient air. It presents the United States Environmental Protection Agency/Environmental Response Team's (U.S. EPA/ERT's) approach to air sampling and monitoring and identifies equipment requirements. It is not within the scope of this SOP to provide a generic air sampling plan. Experience, objectives, site characteristics, and chemical characteristics will dictate sampling strategy. This SOP does not address indoor air sampling.

Two basic approaches can be used to assess ambient air (also referred to as air pathway assessments): modeling and measurements. The modeling approach initially estimates or measures the overall site emission rate(s) and pattern(s). These data are input into an appropriate air dispersion model, which predicts either the maximum or average air concentrations at selected locations or distances during the time period of concern. This overall modeling strategy is presented in the first three volumes of the Air Superfund National Technical Guidance Series on Air Pathway Assessments<sup>(1,2,3)</sup>. Specific applications of this strategy are presented in several additional Air Superfund Technical Guidance documents<sup>(4)</sup>.

The measurement approach involves actually measuring the air impact at selected locations during specific time periods. These measurements can be used to document actual air impacts during specific time intervals (i.e., during cleanup operations) or to extrapolate the probable "worst case" concentrations at that and similar locations over a longer time period than was sampled.

This SOP addresses issues associated with this second assessment strategy. This SOP also discusses the U.S. EPA/ERT's monitoring instruments, air sampling

kits, and approach to air sampling and monitoring at hazardous waste sites.

These are standard (i.e., typically applicable) operating procedures which may be varied or changed as required, depending on site conditions, equipment limitations, or limitations imposed by the procedure. In all instances, the ultimate procedures employed should be documented and associated with the final report.

Mention of trade names or commercial products does not constitute U.S. EPA endorsement or recommendation for use.

## 2.0 METHOD SUMMARY

*Air monitoring* is defined as the use of direct-reading instruments and other screening or monitoring equipment and techniques that provide instantaneous (real-time) data on the levels of airborne contaminants. The U.S. EPA/ERT maintains numerous monitors for real-time measurements. Examples of air monitoring equipment are hand-held photoionization detectors (PID), flame ionization detectors (FID), oxygen/combustible gas detectors, and remote optical sensors.

*Air sampling* is defined as those sampling and analytical techniques that require either off- or on-site laboratory analysis and therefore do not provide immediate results. Typically, air sampling occurs after use of real-time air monitoring equipment has narrowed the number of possible contaminants and has provided some qualitative measurement of contaminant concentration. Air sampling techniques are used to more accurately detect, identify and quantify specific chemical compounds relative to the majority of air monitoring technologies.

In the Superfund Removal Program, On-Scene Coordinators (OSCs) may request the U.S. EPA/ERT to conduct air monitoring and sampling during the

following situations: emergency responses, site assessments, and removal activities. Each of these activities has a related air monitoring/sampling objective that is used to determine the potential hazards to workers and/or the community.

**C Emergency Response**

Emergency responses are immediate responses to a release or threatened release of hazardous substances presenting an imminent danger to public health, welfare, or the environment (i.e., chemical spills, fires, or chemical process failures resulting in a controlled release of hazardous substances). Generally these situations require rapid on-site investigation and response. A major part of this investigation consists of assessing the air impact of these releases.

**C Removal Site Assessment**

Removal site assessments (referred to as site assessments) are defined as any of several activities undertaken to determine the extent of contamination at a site and which help to formulate the appropriate response to a release or threatened release of hazardous substances. These activities may include a site inspection, multimedia sampling, and other data collection.

**C Removal Actions**

Removal actions clean up or remove hazardous substances released into the environment. Removal actions include any activity conducted to abate, prevent, minimize, stabilize, or eliminate a threat to public health or welfare, or to the environment.

Personal risk from airborne contaminants can be determined by comparing the results of on-site monitoring and sampling to health-based action levels such as the American Conference of Governmental Industrial Hygienists (ACGIH) Threshold Limit Values (TLVs) and the Occupational Safety and Health Administration (OSHA) Permissible Exposure Limits (PELs). Residential risk can be determined by comparing the results of off-site monitoring or sampling to health-based action levels such as those developed by the Agency for Toxic Substance and

Disease Registry (ATSDR).

The extent to which valid inferences can be drawn from air monitoring/sampling depends on the degree to which the monitoring/sampling effort conforms to the objectives of the event. Meeting the project's objectives requires thorough planning of the monitoring/sampling activities, and implementation of the most appropriate monitoring/sampling and analytical procedures. These issues will be discussed in this SOP.

### **3.0 SAMPLE PRESERVATION, CONTAINERS, HANDLING, AND STORAGE**

Preservation, containers, handling and storage for air samples are discussed in the specific SOPs for the technique selected. In addition, the analytical method (i.e., U.S. EPA, National Institute for Occupational Safety and Health [NIOSH], and OSHA Methods) may be consulted for storage temperature, holding times and packaging requirements. After sample collection, the sampling media (i.e., cassettes or tubes) are immediately sealed. The samples are then placed into suitable containers (i.e., whirl bags, resealable bags or culture tubes) which are then placed into a shipping container.

Use bubble wrap or styrofoam peanuts when packing air samples for shipment. DO NOT USE VERMICULITE.

### **4.0 INTERFERENCES AND POTENTIAL PROBLEMS**

Upwind sources can contribute to sample concentration. Natural sources, such as biological waste, can produce hydrogen sulfide and methane which may contribute to the overall contaminant level. Extraneous anthropogenic contaminants (i.e., burning of fossil fuels; emissions from vehicular traffic, especially diesel; volatile compounds from petrochemical facilities; and effluvia from smoke stacks) may also contribute. Air sampling stations should be strategically placed to identify contributing sources.

Photoreactivity or reaction of the parameters of concern may occur with nonrelated compounds [i.e., nitrogen compounds and polyaromatic hydrocarbons

(PAHs)]. Some sorbent media/samples should not be exposed to light during or after sampling due to photochemical effects (i.e., PAHs).

Various environmental factors, including humidity, temperature and pressure, also impact the air sampling methodology, collection efficiency and detection limit. Since the determination of air contaminants is specifically dependent on the collection parameters and efficiencies, the collection procedure is an integral part of the analytical method.

Detection limits depend on the contaminants being investigated and the particular site situation. It is important to know why the data are needed and how the data will be used. Care should be taken to ensure the detection limits are adequate for the intended use of the final results.

Some equipment may be sensitive to humidity and temperature extremes.

## **5.0 EQUIPMENT/APPARATUS**

### **5.1 Direct Reading Instruments (Air Monitoring Instruments)**

There are two general types of direct reading instruments: portable screening devices and specialized analytical instruments. Generally all these techniques involve acquiring, for a specific location or area, continuous or sequential direct air concentrations in either a real-time or semi-real-time mode. None of these instruments acquires true time-weighted average concentrations. In addition, these instruments are not capable of acquiring simultaneous concentration readings at multiple locations, although several are able to sequentially analyze samples taken remotely from different locations. The document, "Guide to Portable Instruments for Assessing Airborne Pollutants Arising from Hazardous Waste Sites<sup>(5)</sup>," provides additional information about air sampling and monitoring. The hazard levels for airborne contaminants vary. See the ACGIH TLVs and the OSHA PELs for safe working levels. Common screening devices and analytical instruments are described in Appendix A.

### **5.2 Air Sampling Equipment and Media/Devices**

The U.S. EPA/ERT uses the following analytical

methods for sampling: *NIOSH Manual of Analytical Methods*<sup>(6)</sup>, *American Society for Testing and Materials (ASTM) Methods*<sup>(7)</sup>, *U.S. EPA Compendium of Methods for the Determination of Toxic Organic Compounds in Ambient Air*<sup>(8,9)</sup>, and *OSHA Methods*<sup>(10)</sup>. Additional air sampling references include *Industrial Hygiene and Toxicology* (3rd Ed.)<sup>(11)</sup> and *Air Sampling Instruments for Evaluation of Atmospheric Contaminants*<sup>(12)</sup>. These methods typically specify equipment requirements for sampling. Since air sampling is such a diverse technology, no single method or reference is best for all applications. Common sampling equipment and media/devices are described in Appendix B.

## **5.3 Tools/Material and Equipment List**

In addition to equipment and materials identified in Appendices A and B, the following equipment and materials may be required to conduct air sampling and monitoring at hazardous waste sites:

- C Camera
- C Site logbook
- C Clipboard
- C Chain of custody records
- C Custody seals
- C Air sampling worksheets
- C Sample labels
- C Small screwdriver set
- C Aluminum foil
- C Extension cords
- C Glass cracker
- C Multiple plug outlet
- C Whirl bags or culture tubes
- C Teflon tape
- C Calibration devices
- C Tygon and/or Teflon<sup>R</sup> tubing
- C Surgical gloves
- C Lint-free gloves
- C Ice
- C Sample container

Use the following additional equipment when decontaminating glassware on site:

- C Protective equipment (i.e., gloves, splash goggles, etc.)
- C Appropriate solvent(s)
- C Spray bottles
- C Liquinox (soap)
- C Paper towels

- C Distilled/deionized water
- C Five-gallon buckets
- C Scrub brushes and bottle brushes

## 6.0 REAGENTS

Impinger sampling involves using reagents contained in a glass vial to absorb contaminants of concern (for example, NIOSH Method 3500 for formaldehyde uses 1% sodium bisulfite solution). Impinger solutions vary and are method-dependent.

Reagents such as acetone and hexane are required to decontaminate glassware and some air sampling equipment. Decontamination solutions are specified in the Sampling Equipment Decontamination SOP.

## 7.0 PROCEDURES

### 7.1 Air Monitoring Design

#### 7.1.1 Initial Surveys

In general, the initial survey is considered to be a relatively rapid screening process for collecting preliminary data at hazardous waste sites. However, initial surveys may require many hours to complete and may consist of more than one entry.

Some information is generally known about the site; therefore, real-time instrumentation for specific compounds (i.e., detector tubes and electrochemical sensors) can be used to identify hot spots. Sufficient data should be obtained with real-time instruments during the initial entry to screen the site for various contaminants. When warranted, intrinsically safe or explosion-proof instruments should be used. An organic vapor analyzer (OVA) is typically used during this survey. These gross measurements may be used on a preliminary basis to (1) determine levels of personal protection, (2) establish site work zones, and (3) map candidate areas for more thorough qualitative and quantitative studies involving air sampling.

In some situations, the information obtained may be sufficient to preclude additional monitoring. Materials detected during the initial survey may call for a more comprehensive evaluation of hazards and analyses for specific compounds. Since site activities and weather conditions change, a continuous program to monitor the ambient atmosphere must be established.

### 7.1.2 Off-Site Monitoring

Typically, perimeter monitoring with the same instruments employed for on-site monitoring is utilized to determine site boundaries. Because air is a dynamic matrix, physical boundaries like property lines and fences do not necessarily delineate the site boundary or area influenced by a release. Whenever possible, atmospheric hazards in the areas adjacent to the on-site zone should be monitored with direct-reading instruments. Monitoring at the fenceline or at varying locations off site provides useful information regarding pollutant migration. Three to four locations downwind of the source (i.e., plume) at breathing-zone height, provide a basic fingerprint of the plume. Negative instrument readings off site should not be interpreted as the complete absence of airborne toxic substances; rather, they should be considered another piece of information to assist in the preliminary evaluation. The interpretation of negative readings is instrument-dependent. The lack of instrument readings off site should not be interpreted as the complete absence of all airborne toxic substances; rather, it is possible that the particular compound or class of compounds to which the monitoring instrument responds is not present or that the concentration of the compound(s) is below the instrument's detection limit.

## 7.2 Air Sampling Design

### 7.2.1 Sampling Plan Design

The goal of air sampling is to accurately assess the impact of a contaminant source(s) on ambient air quality. This impact is expressed in terms of overall average and/or maximum air concentrations for the time period of concern and may be affected by the transport and release of pollutants from both on- and off-site sources. The location of these sources must be taken into account as they impact the selection of sampling locations. Unlike soil and groundwater concentrations, air concentrations at points of interest can easily vary by orders of magnitude over the period of concern. This variability plays a major role in designing an air sampling plan.

Downwind air concentration is determined by the amount of material being released from the site into the air (the emission rate) and by the degree that the contamination is diluted as it is transported. Local

meteorology and topography govern downwind dilution. Contaminant emission rates can also be heavily influenced by on-site meteorology and on-site activities. All of these concerns must be incorporated into an air sampling plan.

A sampling strategy can be simple or complex, depending on the sampling program objectives. Programs involving characterization of the pollutant contribution from a single point source tend to be simple, whereas sampling programs investigating fate and transport characteristics of components from diverse sources require a more complex sampling strategy. In addition, resource constraints may affect the complexity of the sampling design.

An optimal sampling strategy accounts for the following site parameters:

- C Location of stationary as well as mobile sources
- C Analytes of concern
- C Analytical detection limit to be achieved
- C Rate of release and transport of pollutants from sources
- C Availability of space and utilities for operating sampling equipment
- C Meteorological monitoring data
- C Meteorological conditions in which sampling is to be conducted

The sampling strategy typically requires that the concentration of contaminants at the source or area of concern as well as background contributions be quantified. It is important to establish background levels of contaminants in order to develop a reference point from which to evaluate the source data. Field blanks and lot blanks, as well as various other types of QA/QC samples, can be utilized to determine other sources. The impact of extraneous sources on sampling results can frequently be accounted for by placing samplers upwind, downwind and crosswind from the subject source. The analytical data from these different sampling locations may be compared to determine statistical differences.

### 7.2.2 Sampling Objectives

The objectives of the sampling must be determined prior to developing the sampling plan. Does the sampling plan verify adequate levels of protection for on-site personnel, or address potential off-site impacts

associated with the site or with site activities? In addition, the assumptions associated with the sampling program must be defined. These assumptions include whether the sampling is to take place under "typical," "worst case," or "one-time" conditions. If the conditions present at the time of sampling are different from those assumed during the development of the sampling plan, then quality of the data collected may be affected. The following definitions have been established:

- C Typical: routine daily sampling or routine scheduled sampling at pre-established locations.
- C Worst case: sampling conducted under the worst meteorological and/or site conditions which would result in elevated ambient concentrations.
- C One-time: only one chance is given to collect a sample without regard to time or conditions.

Qualitative data acquired under these conditions are usually applicable only to the time period during which the data were collected and may not provide accurate information to be used in estimating the magnitude of an air impact during other periods or over a long time interval.

The sampling objectives also dictate the detection limits. Sampling methods for airborne contaminants will depend upon the nature and state (solid, liquid or gas) of the contaminant. Gases and vapors may be collected in aqueous media or adsorbents, in molecular sieves, or in suitable containers. Particulates are collected by filters or impactors. The volume of sample to be collected is dependent upon an estimate of the contaminant concentration in the air, the sensitivity of the analytical method, and the standard or desired detection limit. A sufficient amount of sample must be collected to achieve the desired detection limit without interference from other contaminants. In addition, the selected method must be able to detect the target compound(s).

### 7.2.3 Location and Number of Individual Sampling Points

Choose the number and location of sampling points according to the variability, or sensitivity, of the

sampling and analytical methods being utilized, the variability of contaminant concentration over time at the site, the level of precision required and cost limitations. In addition, determine the number of locations and placement of samplers by considering the nature of the response, local terrain, meteorological conditions, location of the site (with respect to other conflicting background sources), size of the site, and the number, size, and relative proximity of separate on-site emission sources and upwind sources. The following are several considerations for sampler placement:

- C Location of potential on-site emission sources, as identified from the review of site background information or from preliminary on-site inspections.
- C Location of potential off-site emission sources upwind of the sampling location(s). Review local wind patterns to determine the location of off-site sources relative to wind direction.
- C Topographic features that affect the dispersion and transport of airborne toxic constituents.

Avoid natural obstructions when choosing air sampling station locations, and account for channelization around those obstructions.

- C Large water bodies, which affect atmospheric stability and the dispersion of air contaminants.
- C Roadways (dirt or paved), which may generate dust that could mask site contaminants.
- C Vegetation, such as trees and shrubs, which stabilizes soil and retards subsurface contaminants from becoming airborne. It also affects air flow and scrubs some contaminants from the air. Sometimes thick vegetation can make an otherwise ideal air monitoring location inaccessible.

Consider the duration of sampling activities when choosing the location and number of samples to be collected. For example, if the sampling period is limited to a few hours, one or two upwind and several downwind samples would typically be adequate,

especially around major emission sources.

A short-term monitoring program ranges from several days to a few weeks and generally includes gathering data for site assessments, removal actions, and source determination data (for further modeling). Activities involved in a short-term sampling strategy must make the most of the limited possibilities for data collection. Consider moving upwind/downwind locations daily based on National Oceanic and Atmospheric Administration (NOAA) weather forecasts. Weather monitoring becomes critical where complex terrain and local meteorological effects frequently change wind direction. Often, a number of alternatives can fulfill the same objective.

Prevailing winds running the length of a valley usually require a minimum number of sampler locations; however, a complex valley may require more sampler locations to account for the wide variety of winds. Ocean/lake effects may require a radical plan to collect enough samples to reach a low detection limit. Two sets of samplers may be placed next to each other: one set would be activated during the sea breeze while the other set is turned off, and vice versa when there is no sea breeze. After the sampling event, the respective upwind and downwind samples would be combined. Another alternative for sampling near a large body of water may be to use automatic, wind-vector-operated samplers, which turn the sampler on only when the wind comes from a specified vector. At sites located on hillsides, wind will move down a valley and produce an upward fetch at the same time. Sampling locations may have to ring the site to measure the wind's impact.

Off-site sources may affect on-site monitoring. In this case, on-site meteorological data, concurrent with sampling data, is essential to interpreting the acquired data. Also, additional upwind sampling sites may be needed to fully characterize ambient background contaminant levels. Multiple off-site sources may require several monitoring locations, but if the sources are at a sufficient distance, only one monitoring location is needed.

Topography and weather are not the only factors in sampler location; the sampling sites must be secure from vandals and mishap. Secure all sampling locations to maintain chain of custody, and to prevent tampering with samples or loss of sampling units. High-volume sampling methods often require the use of 110 VAC electric power. When portable



generators are used, the power quality may affect sampler operation. Also, be aware that the generators themselves could be a potential pollution source if their placement is not carefully considered.

Air quality dispersion models can be used to place samplers. The models incorporate source information, surrounding topography, and meteorological data to predict the general distance and directions of maximum ambient concentrations. Modeling results should be used to select sampling locations in areas of maximum pollutant concentrations.

#### 7.2.4 Time, Duration and Frequency of Sampling Events

After choosing appropriate sampling or monitoring locations, determine the sampling frequency and the number of samples to be collected. The time of day, duration and frequency of sampling events is governed by:

- C The effects of site activities and meteorology on emission rates
- C The diurnal effect of the meteorology on downwind dispersion
- C The time period(s) of concern as defined by the objective
- C The variability in the impact from other non-site-related sources
- C If defined, the degree of confidence needed for either the mean or maximum downwind concentrations observed
- C The precision requirements for single measurements
- C Cost and other logistical considerations

The duration of the removal action and the number of hours per day that site work is conducted determine the time, duration, and frequency of samples. Short-term sampling programs may require daily sampling, while long-term programs may require 24-hour sampling every sixth or twelfth day. If the site will be undergoing removal activities 24 hours a day, continuous air sampling may be warranted. However, if the site activities will be conducted for only eight hours a day, and there are no emissions likely to occur during the remaining 16 hours, then sampling would be appropriate prior to the start of daily activities, would continue during operations, and end at the conclusion of the daily activities. An off-peak sample collection can ensure that emissions are not persisting

after the conclusion of daily cleanup activities. For some sites, emissions are still a factor several hours after daily site activities have been completed. Because of the typically decreased downwind dispersion in the evening, higher downwind concentrations than were present during daytime site activities may be detected. For sites where this is possible, the sampling duration needs to be lengthened accordingly.

Sampling duration and flow rate dictate the volume of air collected, and to a major degree, the detection limit. The analytical method selected will provide a reference to flow rate and volume. Flow rates are limited to the capacity of the pumps being employed and the contact time required by the collection media.

The duration or period of air sampling is commonly divided into two categories (1) samples collected over a brief time period are referred to as "instantaneous" or "grab" samples and are usually collected in less than five minutes and (2) average or integrated samples are collected over a significantly longer period of time. Integrated samples provide an average concentration over the entire sampling period. Integrated samples are not suited to determining cyclical releases of contaminants because periodic or cyclical events are averaged out by the proportionally long sampling duration.

Air quality dispersion models can predict the maximum air contaminant concentration expected from a source. The meteorological and site conditions expected to cause the highest concentration are known as worst-case conditions and can be identified by analyzing the modeling results. Depending upon the objective, one may sample when the model predicts worst-case conditions will exist.

#### 7.2.5 Meteorological and Physical/Chemical Considerations

A meteorological monitoring program is an integral part of site monitoring activities. Meteorological data, which define local terrain impacts on air flow paths, are needed to interpret air concentration data. Meteorological data may be available from an existing station located near the site (i.e., at a local airport), otherwise a station should be set up at the site. This data will document the degree that samples actually were downwind and verify whether other worst-case assumptions were met. Meteorological parameters to

be monitored are, at a minimum, wind speed, wind direction, and sigma theta (which is the horizontal wind direction standard deviation and an indicator of atmospheric stability). The remaining parameters primarily affect the amount of a contaminant available in the air.

**C Wind Speed**

When the contaminant of concern is a particulate, wind speed is critical in determining whether the particulate will become airborne, the quantity of the particulate that becomes airborne, and the distance the particulate will travel from the source. Wind speed also contributes to the volatilization of contaminants from liquid sources.

**C Wind Direction**

Wind direction highly influences the path of airborne contaminants. In addition, variations in wind direction increase the dispersion of pollutants from a given source.

**C Atmospheric Stability**

Atmospheric stability refers to the degree to which the atmosphere tends to dampen vertical and horizontal motion. Stable atmospheric conditions (i.e., evenings) result in low dispersion, and unstable atmospheric conditions (i.e., hot sunny days) result in higher dispersion.

**C Temperature**

Higher temperatures increase the rate of volatilization of organic and some inorganic compounds and affect the initial rise of gaseous or vapor contaminants. Therefore, worst-case emission of volatiles and semivolatiles occurs at the hottest time of day, or on the hottest day.

**C Humidity**

High humidity affects water-soluble chemicals and particulates. Humid conditions may dictate the sampling media used to collect the air sample, or limit the volume of air sampled and thereby increase

the detection limit.

**C Atmospheric Pressure**

Migration of landfill gases through the landfill surface and through surrounding soils are governed by changes in atmospheric pressure. Atmospheric pressure will influence upward migration of gaseous contaminants from shallow aquifers into the basements of overlying structures.

In many cases, the transport and dispersion of air pollutants is complicated by local meteorology. Normal diurnal variations (i.e., temperature inversions) affect dispersion of airborne contaminants. Terrain features can enhance or create air inversions and can also influence the path and speed of air flow, complicating transport and dispersion patterns.

The chemical characteristics of a contaminant (i.e., molecular weight, physical state, vapor pressure, aerodynamic size, temperature, reactive compounds, and photodegradation) affects its behavior and can influence the method used to sample and analyze it.

## **8.0 CALCULATIONS**

Volume is obtained by multiplying the sample time in minutes by the flow rate. Sample volume should be indicated on the chain of custody record. Adjustments for temperature and pressure differences may be required.

Results are usually provided in parts per million (ppm), parts per billion (ppb), milligrams per cubic meter (mg/m<sup>3</sup>) or micrograms per cubic meter (µg/m<sup>3</sup>).

Refer to the analytical method or regulatory guidelines for other applicable calculations.

## **9.0 QUALITY ASSURANCE/ QUALITY CONTROL**

The manufacturer's instructions should be reviewed prior to instrument use. Instruments must be utilized in accordance with manufacturer's instructions. Equipment checkout and calibration activities must

occur prior to and after monitoring and sampling and must be documented.

## 9.1 QA/QC Samples

QA/QC samples provide information on the variability and usability of environmental sample results. Various QA/QC samples may be collected to detect error. QA/QC samples are submitted with the field samples for analysis to aid in identifying the origin of analytical discrepancies; then a determination can be made as to how the analytical results should be used. Collocated samples, background samples, field blanks, and lot blanks are the most commonly collected QA/QC field samples. Performance evaluation (PE) samples and matrix spikes provide additional measures of data QA/QC control. QA/QC results may suggest the need for modifying sample collection, preparation, handling, or analytical procedures if the resultant data do not meet site-specific QA or data quality objectives.

## 9.2 Sample Documentation

All sample and monitoring activities should be documented legibly, in ink. Any corrections or revisions should be made by lining through the incorrect entry and by initialing the error. All samples must be recorded on an Air Sampling Worksheet. A chain of custody record must be maintained from the time a sample is taken to the final deposition of the sample. Custody seals demonstrate that a sample container has not been opened or tampered with during transport or storage of samples.

## 10.0 DATA VALIDATION

Results for QA/QC samples should be evaluated for contamination. This information should be utilized to qualify the environmental sample results accordingly with data quality objectives.

## 11.0 HEALTH AND SAFETY

Personal protection equipment (PPE) requirements identified in federal and/or state regulations and 29 Code of Federal Regulations (CFR) 1910.120 for hazardous waste site work must be followed.

The majority of physical precautions involved in air sampling are related to the contaminant sampled. Attention should be given when sampling in

potentially explosive, flammable or acidic atmospheres. On rare occasions, the collection media may be hazardous; for example, in the instance where an acidic or basic solution is utilized in an impinger.

When working with potentially hazardous materials, follow U.S. EPA, OSHA and corporate health and safety procedures.

## 12.0 REFERENCES

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## APPENDIX A

### Portable Screening Devices and Specialized Analytical Instruments

#### PORTABLE SCREENING DEVICES

Where possible, a datalogger should be used to minimize the length of time required for site personnel to be in a potentially contaminated area. Datalogger cable is available from manufacturers for linear output instruments and some nonlinear output instruments. U.S. EPA ERT/REAC has output cables for organic vapor analyzers (i.e., HNU and OVA), toxic gas analyzers (i.e., monitox) and real-time aerosol monitors (i.e., RAM and miniram).

##### C Total Hydrocarbon Analyzers

Total hydrocarbon analyzers used to detect a variety of volatile organic compounds (VOCs) at hazardous waste sites principally employ either a photoionization detector (PID) or a flame ionization detector (FID). Compounds are ionized by a flame or an ultraviolet lamp. PIDs depend on the ionization potential of the compounds. PIDs are sensitive to aromatic and olefinic (unsaturated) compounds such as benzene, toluene, styrene, xylenes, and acetylene. Greater selectivity is possible by using low-voltage lamps. The ionization potential of individual compounds can be found in the NIOSH Pocket Guide to Chemical Hazards. These instruments are not compound-specific and are typically used as screening instruments. FIDs are sensitive to volatile organic vapor compounds such as methane, propanol, benzene and toluene. They respond poorly to organic compounds lacking hydrocarbon characteristics.

##### C Oxygen and Combustible Gas Indicators

Combustible Gas Indicators (CGIs) provide efficient and reliable methods to test for potentially explosive atmospheres. CGI meters measure the concentration of a flammable vapor or gas in air and present these measurements as a percentage of the

lower explosive limit (LEL).

The measurements are temperature-dependent. The property of the calibration gas determines sensitivity.

LELs for individual compounds can be found in the NIOSH Pocket Guide to Chemical Hazards. If readings approach or exceed 10% of the LEL, extreme caution should be exercised in continuing the investigation. If readings approach or exceed 25% LEL, personnel should be withdrawn immediately.

CGIs typically house an electrochemical sensor to determine the oxygen concentration in ambient air. Normally, air contains approximately 20.9% oxygen by volume. Oxygen measurements are of particular importance for work in enclosed spaces, low-lying areas, or in the vicinity of accidents that have produced heavier-than-air vapors which could displace ambient air. The meters are calibrated for sea level and may indicate a false negative (i.e., O<sub>2</sub> content) at higher altitudes. Since the air has been displaced by other substances, these oxygen-deficient areas are also prime locations for taking additional organic vapor and combustible gas measurements. Oxygen-enriched atmospheres increase the potential for fires by their ability to contribute to combustion or to chemically react with flammable compounds and promote auto-ignition.

##### C Toxic Atmosphere Analyzers

The toxic atmosphere analyzer is a compound-specific instrument, designed and calibrated to identify and quantify a specific compound or class of compounds in either gaseous or vapor form. Cross-sensitivity to air pollutants not of interest may be lead to erroneous results.

U.S. EPA/ERT has the following toxic atmosphere analyzers: carbon monoxide, phosgene, nitrous oxide, hydrogen cyanide, sulfur dioxide, hydrogen sulfide, and chlorine gas.

## C Aerosol/Particulate Monitors

A Real-Time Aerosol/Particulate Monitor (RAM) displays readings for total particulates. The instrument employs a pulse light emitting diode which generates a narrow band emission in conjunction with a photovoltaic cell to detect light scattered from particulates.

The U.S. EPA/ERT uses the RAM when the contaminant of concern is associated with particulates, and when responding to fires involving hazardous materials, to identify plume levels. The instrument is very useful in determining the presence of a plume when it is not visible. The U.S. EPA/ERT typically uses RAMs on tripods to obtain particulate concentrations at the breathing zone level. Personal dataloggers are used with the RAMs to document minimum, average and maximum concentrations. This provides real-time data without requiring those in personal protective equipment to be constantly present in the plume.

## C Chemical Detector Tubes (Colorimetric Tubes)

A chemical detector tube is a hollow, tube-shaped, glass body containing one or more layers of chemically impregnated inert material. To use, the fused ends are broken off and a manufacturer-specified volume of air is drawn through the tube with a pump to achieve a given detection limit. The chemicals contained within the packing material undergo a chemical reaction with the airborne pollutant present, producing a color change during the intake of each pump stroke. The concentration of a pollutant is indicated by the length of discoloration on a calibrated scale printed on the detector tube.

## C Radiation Meters

Radiation meters determine the presence and level of radiation. The meters use a gas or solid ion detection media which becomes ionized when radiation is present. The meters are normally calibrated to one probe. Meters that detect alpha, beta, and gamma radiation are available.

## C Gold Film (Hydrogen Sulfide and Mercury Vapor) Monitors

Hydrogen sulfide (H<sub>2</sub>S) and Mercury (Hg) monitors operate on the principle that electric resistivity increases across a gold film as a function of H<sub>2</sub>S and Hg concentration. The monitors provide rapid and relatively low detection limits for H<sub>2</sub>S and Hg in air. After extensive sampling periods or high concentrations of H<sub>2</sub>S and Hg, the gold film must be heated to remove contamination and return the monitor to its original sensitivity.

## C Infrared Detectors

Infrared detectors such as the Miniature Infrared Analyzer (MIRAN) use infrared (IR) absorption as a function of specific compounds. MIRAN instruments apply to situations where the contaminants are identified but concentrations are not. MIRAN instruments generally require AC power.

# SPECIALIZED ANALYTICAL INSTRUMENTS

The continuous monitors described above provide qualitative measurement of air contaminants. Quantitative measurements in the field can be obtained using more sophisticated instruments, such as portable Gas Chromatographs, to analyze grab samples.

## C Direct Air Sampling Portable Gas Chromatographs (GCs)

Portable GCs use gas chromatography to identify and quantify compounds. The time it takes for a compound to move through a chromatographic column is a function of that specific compound or group of compounds. A trained technician with knowledge of the range of expected concentrations of compounds can utilize a portable GC in the field to analyze grab samples. GCs generally require AC power and shelter to operate. This method is limited by its reliance on a short-term grab sample to be representative of the air quality at a site.



## C Remote Optical Sensing

This technique, also referred to as long-path or open-path monitoring, involves transmitting either an infrared or ultraviolet light beam across a long open path and measuring the absorbance at specific wavelengths. The technique is capable of analyzing any preselected organic or inorganic volatile compound that can be resolved from compounds naturally occurring in ambient air. Current projected removal applications include perimeter monitoring during site cleanups and measurement of emission source strengths during site assessments.

## C TAGA Direct Air Sampling Mass Spectrometer/Mass Spectrometer

The Trace Atmospheric Gas Analyzer (TAGA), which is operated by the U.S. EPA/ERT, is capable of real-time detection of preselected organic compounds at low parts-per-billion concentrations. The instrument has been successfully used by the U.S. EPA/ERT for isolating individual emission plumes and tracking those plumes back to their sources.

## APPENDIX B

### Air Sampling Equipment and Media/Devices

#### AIR SAMPLING EQUIPMENT

**C High-Volume, Total Suspended Particulate (TSP) Samplers**

High-volume TSP samplers collect all suspended particles by drawing air across an 8- by 10-inch glass-quartz filter. The sample rate is adjusted to 40 cubic feet per minute (CFM), or 1134 liters per minute (L/min), and it is held constant by a flow controller over the sample period. The mass of TSPs can be determined by weighing the filter before and after sampling. The composition of the filter varies according to the analytical method and the detection limit required.

**C PM-10 Samplers**

PM-10 samplers collect particulates with a diameter of 10 microns or less from ambient air. Particulates of this size represent the respirable fraction, and thus are of special significance. PM-10 samplers can be high-volume or low-volume. The high-volume sampler operates in the same manner as the TSP sampler at a constant flow rate of 40 CFM; it draws the sample through a special impactor head which collects particulates of 10 microns or less. The particulate is collected on an 8- by 10-inch filter. The low-volume sampler operates at a rate of approximately 17 L/min. The flow must remain constant through the impactor head to maintain the 10-micron cut-off point. The low-volume PM-10 collects the sample on 37-mm Teflon filters.

**C High-Volume PS-1 Samplers**

High-volume PS-1 samplers draw a sample through polyurethane foam (PUF) or a combination foam and XAD-2 resin plug, and a glass quartz filter at a rate of 5-10 CFM (144 to 282 L/min). This system is

excellent for measuring low concentrations of semivolatiles, PCBs, pesticides, or chlorinated dioxins in ambient air.

**C Area Sampling Pumps**

These pumps provide flow-rate ranges of 2-20 L/min and have a telescopic sampling mast with the sampling train. Because of the higher volume, this pump is suitable for sampling low concentrations of airborne contaminants (i.e., asbestos sampling). These pumps are also used for metals, pesticides and PAH sampling which require large sample volumes.

**C Personal Sampling Pumps**

Personal sampling pumps are reliable portable sampling devices that draw air samples through a number of sampling media including resin tubes, impingers, and filters. Flow rates are usually adjustable from 0.1 to 4 L/min (or 0.01 to .75 L/min with a restrictive orifice) and can remain constant for up to 8 hours on one battery charge or continuously with an AC charger/converter.

**C Canister Samplers**

Evacuated canister sampling systems use the pressure differential between the evacuated canister and ambient pressure to bleed air into the canister. The sample is bled into the canister at a constant rate over the sampling period using a critical orifice, a mechanically compensated regulator, or a mass flow control device until the canister is near atmospheric pressure.

Pressure canister sampling systems use a pump to push air into the canister. To maintain a higher, more controlled flow, the pump typically controls the pressure differential across a critical orifice at the

inlet of the canister, resulting in a pressurized canister at the completion of sampling.

## AIR SAMPLING MEDIA/DEVICES

If possible, before employing a specific sampling method, consult the laboratory that will conduct the analyses. Many of the methods can be modified to provide better results or a wider range of results.

### C Summa<sup>R</sup> Canisters

Summa canisters are highly polished passivated stainless steel cylinders. The Summa polishing process brings chrome and nickel to the surface of the canisters, which results in an inert surface. This surface restricts adsorption or reactions that occur on the canister's inner surface after collection. At the site, the canister is either placed in a sampler to control sample collection rate, or opened to collect a grab sample. Samples can be collected by allowing air to bleed into or be pumped into the canister. U.S. EPA/ERT uses 6-liter Summa canisters for VOC and permanent gas analysis.

### C Passive Dosimeters

Passive dosimeters are clip-on vapor monitors (samplers) in which the diffused contaminants are absorbed on specially prepared active surfaces. Industrial hygienists commonly use dosimeters to obtain time-weighted averages or concentrations of chemical vapors, as they can trap over 130 organic compounds. Selective dosimeters have also been developed for a number of chemicals including formaldehyde, ethylene oxide, hydrogen sulfide, mercury vapor, nitrogen dioxide, sulfur dioxide, and ozone. Dosimeters must be sent to a laboratory for analysis.

### C Polyurethane Foam (PUF)

PUF is a sorbent used with a glass filter for the collection of semivolatile organic compounds such as pesticides, PCBs, chlorinated dioxins and furans, and PAHs. Fewer artifacts (chemical changes that occur

to collected compounds) are produced than with some other solid sorbents. PUF is used with the PS-1 sampler and U.S. EPA Method TO13. PUF can also be used with personal sampling pumps when sampling for PAHs using the Lewis/McCloud method. Breakthrough of the more volatile PCBs and PAHs may occur when using PUF.

### C Sampling Bags (Tedlar<sup>R</sup>)

Sampling bags, like canisters, transport air samples to the laboratory for analysis. Samples are generally pumped into the bags, but sometimes a lung system is used, in which a pump creates a vacuum around the bag in a vacuum box. Then the sample flows from a source into the bag. This method is used for VOCs, fixed gases (CO<sub>2</sub>, O<sub>2</sub>, and N<sub>2</sub>) and methane.

### C Impingers

An impinger allows an air sample to be bubbled through a solution, which collects a specific contaminant by either chemical reaction or absorption. For long sampling periods, the impinger may need to be kept in an ice bath to prevent the solution from evaporating during sampling. The sample is drawn through the impinger by using a sampling pump or more elaborate sampling trains with multiple impingers.

### C Sorbent Tubes/Cartridges

A variety of sampling media are available in sorbent tubes, which are used primarily for industrial hygiene. A few examples are carbon cartridges, carbon molecular sieves, Tenax tubes and tube containing the XAD-2 polymer. Depending upon the sorbent material, tubes can be analyzed using either a solvent extraction or thermal desorption. The former technique uses standard laboratory equipment and allows for multiple analyses of the same sample. The latter technique requires special, but readily available, laboratory equipment and allows only one analysis per sample. In addition, thermal desorption typically allows for lower detection limits by two or more orders of magnitude. Whenever sorbent tubes are

being used for thermal desorption, they should be certified as "clean" by the laboratory doing the analysis.

#### Thermally Desorbed Media

During thermal desorption, high-temperature gas streams are used to remove the compounds collected on a sorbent medium. The gas stream is injected and often cryofocused into an analytical instrument, such as a GC, for compound analysis:

##### C Tenax Tubes

Tenax tubes are made from commercially available polymer (p-phenylene oxide) packed in glass or stainless steel tubes through which air samples are drawn or sometimes pumped. These tubes are used in U.S. EPA Method TO1 and VOST for volatile nonpolar organic, some polar organic, and some of the more volatile semivolatile organics. Tenax is not appropriate for many of the highly volatile organics (with vapor pressure greater than approximately 200 mm Hg).

##### C Carbonized Polymers

The carbonized molecular sieve (CMS), a carbonized polymer, is a commercially available, carbon sorbent packed in stainless-steel sampling tubes through which air samples are drawn or sometimes pumped. These are used in U.S. EPA Method TO2 for highly volatile nonpolar compounds which have low-breakthrough volumes on other sorbents. When high-thermal desorption temperatures are used with CMS, more variability in analysis may occur than with other sorbents.

##### C Mixed Sorbent Tubes

Sorbent tubes can contain two type of sorbents. Combining the advantages of each sorbent into one tube increases the possible types of compounds to be sampled. The combination of two sorbents can also reduce the chance that highly volatile compounds will break through the sorbent media. An example of a mixed sorbent tube is the combination of Tenax and charcoal with a

carbonized molecular sieve. A potential problem with mixed sorbent tubes is the breakthrough of a compound from an earlier sorbent to a later sorbent from which it cannot be desorbed.

#### Solvent-Extracted Media

Solvent-extracted media use the principle of chemical extraction to remove compounds collected on a sorbent media. The chemical solvent is injected into an instrument, such as a GC, for analysis of compounds. Examples of solvent-extracted media follow:

##### C Chemically Treated Silica Gel

Silica gel is a sorbent which can be treated with various chemicals. The chemically treated silica gel can then be used to sample for specific compounds in air. Examples include the DNPH-coated silica gel cartridge used with U.S. EPA Method TO11.

##### C XAD-2 Polymers

XAD-2 polymers usually are placed in tubes, custom-packed sandwich-style with polyurethane foam, and prepared for use with U.S. EPA Method TO13 or the semi-VOST method. The polymers are used for the collection of semivolatile polar and nonpolar organic compounds. The compounds collected on the XAD-2 polymer are chemically extracted for analysis.

##### C Charcoal Cartridges

Charcoal cartridges, consisting of primary and backup sections, trap compounds by adsorption. Ambient air is drawn through them so that the backup section verifies that breakthrough of the analytes on the first section did not occur, and the sample collection was therefore quantitative. Quantitative sample collection is evident by the presence of target chemicals on the first charcoal section and the absence on the second section. Next, the adsorbed compounds must be eluted, usually with a solvent extraction, and analyzed by GC with a detector, such as a Mass Spectrometer (MS).

C      Tenax Tubes

Cartridges are used in OSHA and NIOSH methods in a manner similar to charcoal cartridges but typically for less volatile compounds.

Particulate Filters

Particulate filters are used by having a sampling pump pass air through them. The filter collects the particulates present in the air and is then analyzed for particulate mass or chemical or radiological composition. Particulate filters are made from different materials which are described below.

C      Mixed Cellulose Ester (MCE)

MCE is manufactured from mixed esters of cellulose which are a blend of nitro-cellulose and cellulose acetate. MCE filters are used often for particulate sampling.

C      Glass Fiber

Glass fiber is manufactured from glass fibers without a binder. Particulate filters with glass fiber provide high flow rates, wet strength, and high, solid holding capacity. Generally, the filters are used for gravimetric analysis of particulates.

C      Polyvinyl Chloride

Particulate filters with polyvinyl chloride are resistant to concentrated acids and alkalis. Their low moisture pickup and light tare weight make them ideal for gravimetric analysis.

C      Teflon

Teflon is manufactured from polytetrafluorethylene (PTFE). Particulate filters with Teflon are easy to handle and exceptionally durable. Teflon filters are used for metal collection.

C      Silver

Particulate filters manufactured from pure silver have high collection efficiency and uniform pore size. These filters are used for mercury collection and analysis.

C      Cellulose

Particulate filters with cellulose contain less than 0.01% ash. These filters are used to collect particulates.



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#### 1.0 SCOPE AND APPLICATION

The purpose of this standard operating procedure (SOP) is to describe the procedures for the collection of representative soil samples. Sampling depths are assumed to be those that can be reached without the use of a drill rig, direct-push, or other mechanized equipment (except for a back-hoe). Analysis of soil samples may determine whether concentrations of specific pollutants exceed established action levels, or if the concentrations of pollutants present a risk to public health, welfare, or the environment.

These are standard (i.e., typically applicable) operating procedures which may be varied or changed as required, dependent upon site conditions, equipment limitations or limitations imposed by the procedure. In all instances, the actual procedures used should be documented and described in an appropriate site report.

Mention of trade names or commercial products does not constitute U.S. Environmental Protection Agency (EPA) endorsement or recommendation for use.

#### 2.0 METHOD SUMMARY

Soil samples may be collected using a variety of methods and equipment depending on the depth of the desired sample, the type of sample required (disturbed vs. undisturbed), and the soil type. Near-surface soils may be easily sampled using a spade, trowel, and scoop. Sampling at greater depths may be performed using a hand auger, continuous flight auger, a trier, a split-spoon, or, if required, a backhoe.

#### 3.0 SAMPLE PRESERVATION, CONTAINERS, HANDLING, AND STORAGE

Chemical preservation of solids is not generally recommended. Samples should, however, be cooled and protected from sunlight to minimize any potential reaction. The amount of sample to be collected and proper sample container type are discussed in ERT/REAC SOP #2003 Rev. 0.0 08/11/94, *Sample Storage, Preservation and Handling*.

#### 4.0 INTERFERENCES AND POTENTIAL PROBLEMS

There are two primary potential problems associated with soil sampling - cross contamination of samples and improper sample collection. Cross contamination problems can be eliminated or minimized through the use of dedicated sampling equipment. If this is not possible or practical, then decontamination of sampling equipment is necessary. Improper sample collection can involve using contaminated equipment, disturbance of the matrix resulting in compaction of the sample, or inadequate homogenization of the samples where required, resulting in variable, non-representative results.

#### 5.0 EQUIPMENT



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Soil sampling equipment includes the following:

- c Maps/plot plan
- c Safety equipment, as specified in the site-specific Health and Safety Plan
- c Survey equipment or global positioning system (GPS) to locate sampling points
- c Tape measure
- c Survey stakes or flags
- c Camera and film
- c Stainless steel, plastic, or other appropriate homogenization bucket, bowl or pan
- c Appropriate size sample containers
- c Ziplock plastic bags
- c Logbook
- c Labels
- c Chain of Custody records and custody seals
- c Field data sheets and sample labels
- c Cooler(s)
- c Ice
- c Vermiculite
- c Decontamination supplies/equipment
- c Canvas or plastic sheet
- c Spade or shovel
- c Spatula
- c Scoop
- c Plastic or stainless steel spoons
- c Trowel(s)
- c Continuous flight (screw) auger
- c Bucket auger
- c Post hole auger
- c Extension rods
- c T-handle
- c Sampling trier
- c Thin wall tube sampler
- c Split spoons
- c Vehimeyer soil sampler outfit
  - Tubes
  - Points
  - Drive head
  - Drop hammer
  - Puller jack and grip
- c Backhoe



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Reagents are not used for the preservation of soil samples. Decontamination solutions are specified in ERT/REAC SOP #2006 Rev. 0.0 08/11/94, *Sampling Equipment Decontamination*, and the site specific work plan.

#### 7.0 PROCEDURES

##### 7.1 Preparation

1. Determine the extent of the sampling effort, the sampling methods to be employed, and the types and amounts of equipment and supplies required.
2. Obtain necessary sampling and monitoring equipment.
3. Decontaminate or pre-clean equipment, and ensure that it is in working order.
4. Prepare schedules and coordinate with staff, client, and regulatory agencies, if appropriate.
5. Perform a general site survey prior to site entry in accordance with the site specific Health and Safety Plan.
6. Use stakes, flagging, or buoys to identify and mark all sampling locations. Specific site factors, including extent and nature of contaminant, should be considered when selecting sample location. If required, the proposed locations may be adjusted based on site access, property boundaries, and surface obstructions. All staked locations should be utility-cleared by the property owner or the On-Scene-Coordinator (OSC) prior to soil sampling; and utility clearance should always be confirmed before beginning work.

##### 7.2 Sample Collection

###### 7.2.1 Surface Soil Samples

Collection of samples from near-surface soil can be accomplished with tools such as spades, shovels, trowels, and scoops. Surface material is removed to the required depth and a stainless steel or plastic scoop is then used to collect the sample.

This method can be used in most soil types but is limited to sampling at or near the ground surface. Accurate, representative samples can be collected with this procedure depending on the care and precision demonstrated by the sample team member. A flat, pointed mason trowel to cut a block of the desired soil is helpful when undisturbed profiles are required. Tools plated with chrome or other materials should not be used. Plating is particularly common with garden implements such as potting trowels.

The following procedure is used to collect surface soil samples:



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1. Carefully remove the top layer of soil or debris to the desired sample depth with a pre-cleaned spade.
2. Using a pre-cleaned, stainless steel scoop, plastic spoon, or trowel, remove and discard a thin layer of soil from the area which came in contact with the spade.
3. If volatile organic analysis is to be performed, transfer the sample directly into an appropriate, labeled sample container with a stainless steel lab spoon, or equivalent and secure the cap tightly. Place the remainder of the sample into a stainless steel, plastic, or other appropriate homogenization container, and mix thoroughly to obtain a homogenous sample representative of the entire sampling interval. Then, either place the sample into appropriate, labeled containers and secure the caps tightly; or, if composite samples are to be collected, place a sample from another sampling interval or location into the homogenization container and mix thoroughly. When compositing is complete, place the sample into appropriate, labeled containers and secure the caps tightly.

#### 7.2.2 Sampling at Depth with Augers and Thin Wall Tube Samplers

This system consists of an auger, or a thin-wall tube sampler, a series of extensions, and a "T" handle (Figure 1, Appendix A). The auger is used to bore a hole to a desired sampling depth, and is then withdrawn. The sample may be collected directly from the auger. If a core sample is to be collected, the auger tip is then replaced with a thin wall tube sampler. The system is then lowered down the borehole, and driven into the soil to the completion depth. The system is withdrawn and the core is collected from the thin wall tube sampler.

Several types of augers are available; these include: bucket type, continuous flight (screw), and post-hole augers. Bucket type augers are better for direct sample recovery because they provide a large volume of sample in a short time. When continuous flight augers are used, the sample can be collected directly from the flights. The continuous flight augers are satisfactory when a composite of the complete soil column is desired. Post-hole augers have limited utility for sample collection as they are designed to cut through fibrous, rooted, swampy soil and cannot be used below a depth of approximately three feet.

The following procedure is used for collecting soil samples with the auger:

1. Attach the auger bit to a drill rod extension, and attach the "T" handle to the drill rod.



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2. Clear the area to be sampled of any surface debris (e.g., twigs, rocks, litter). It may be advisable to remove the first three to six inches of surface soil for an area approximately six inches in radius around the drilling location.
3. Begin augering, periodically removing and depositing accumulated soils onto a plastic sheet spread near the hole. This prevents accidental brushing of loose material back down the borehole when removing the auger or adding drill rods. It also facilitates refilling the hole, and avoids possible contamination of the surrounding area.
4. After reaching the desired depth, slowly and carefully remove the auger from the hole. When sampling directly from the auger, collect the sample after the auger is removed from the hole and proceed to Step 10.
5. Remove auger tip from the extension rods and replace with a pre-cleaned thin wall tube sampler. Install the proper cutting tip.
6. Carefully lower the tube sampler down the borehole. Gradually force the tube sampler into the soil. Do not scrape the borehole sides. Avoid hammering the rods as the vibrations may cause the boring walls to collapse.
7. Remove the tube sampler, and unscrew the drill rods.
8. Remove the cutting tip and the core from the device.
9. Discard the top of the core (approximately 1 inch), as this possibly represents material collected before penetration of the layer of concern. Place the remaining core into the appropriate labeled sample container. Sample homogenization is not required.
10. If volatile organic analysis is to be performed, transfer the sample into an appropriate, labeled sample container with a stainless steel lab spoon, or equivalent and secure the cap tightly. Place the remainder of the sample into a stainless steel, plastic, or other appropriate homogenization container, and mix thoroughly to obtain a homogenous sample representative of the entire sampling interval. Then, either place the sample into appropriate, labeled containers and secure the caps tightly; or, if composite samples are to be collected, place a sample from another sampling interval into the homogenization container and mix thoroughly.

When compositing is complete, place the sample into appropriate, labeled containers and secure the caps tightly.



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11. If another sample is to be collected in the same hole, but at a greater depth, reattach the auger bit to the drill and assembly, and follow steps 3 through 11, making sure to decontaminate the auger and tube sampler between samples.
12. Abandon the hole according to applicable state regulations. Generally, shallow holes can simply be backfilled with the removed soil material.

#### 7.2.3 Sampling with a Trier

The system consists of a trier, and a "T" handle. The auger is driven into the soil to be sampled and used to extract a core sample from the appropriate depth.

The following procedure is used to collect soil samples with a sampling trier:

1. Insert the trier (Figure 2, Appendix A) into the material to be sampled at a 0° to 45° angle from horizontal. This orientation minimizes the spillage of sample.
2. Rotate the trier once or twice to cut a core of material.
3. Slowly withdraw the trier, making sure that the slot is facing upward.
4. If volatile organic analyses are required, transfer the sample into an appropriate, labeled sample container with a stainless steel lab spoon, or equivalent and secure the cap tightly. Place the remainder of the sample into a stainless steel, plastic, or other appropriate homogenization container, and mix thoroughly to obtain a homogenous sample representative of the entire sampling interval. Then, either place the sample into appropriate, labeled containers and secure the caps tightly; or, if composite samples are to be collected, place a sample from another sampling interval into the homogenization container and mix thoroughly. When compositing is complete, place the sample into appropriate, labeled containers and secure the caps tightly.

#### 7.2.4 Sampling at Depth with a Split Spoon (Barrel) Sampler

Split spoon sampling is generally used to collect undisturbed soil cores of 18 or 24 inches in length. A series of consecutive cores may be extracted with a split spoon sampler to give a complete soil column profile, or an auger may be used to drill down to the desired depth for sampling. The split spoon is then driven to its sampling depth through the bottom of the augured hole and the core extracted.

When split spoon sampling is performed to gain geologic information, all work should





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be performed in accordance with ASTM D1586-98, "Standard Test Method for Penetration Test and Split-Barrel Sampling of Soils".

The following procedures are used for collecting soil samples with a split spoon:

1. Assemble the sampler by aligning both sides of barrel and then screwing the drive shoe on the bottom and the head piece on top.
2. Place the sampler in a perpendicular position on the sample material.
3. Using a well ring, drive the tube. Do not drive past the bottom of the head piece or compression of the sample will result.
4. Record in the site logbook or on field data sheets the length of the tube used to penetrate the material being sampled, and the number of blows required to obtain this depth.
5. Withdraw the sampler, and open by unscrewing the bit and head and splitting the barrel. The amount of recovery and soil type should be recorded on the boring log. If a split sample is desired, a cleaned, stainless steel knife should be used to divide the tube contents in half, longitudinally. This sampler is typically available in 2 and 3 1/2 inch diameters. A larger barrel may be necessary to obtain the required sample volume.
6. Without disturbing the core, transfer it to appropriate labeled sample container(s) and seal tightly.

#### 7.2.5 Test Pit/Trench Excavation

A backhoe can be used to remove sections of soil, when detailed examination of soil characteristics are required. This is probably the most expensive sampling method because of the relatively high cost of backhoe operation.

The following procedures are used for collecting soil samples from test pits or trenches:

1. Prior to any excavation with a backhoe, it is important to ensure that all sampling locations are clear of overhead and buried utilities.
2. Review the site specific Health & Safety plan and ensure that all safety precautions including appropriate monitoring equipment are installed as required.



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3. Using the backhoe, excavate a trench approximately three feet wide and approximately one foot deep below the cleared sampling location. Place excavated soils on plastic sheets. Trenches greater than five feet deep must be sloped or protected by a shoring system, as required by OSHA regulations.
4. A shovel is used to remove a one to two inch layer of soil from the vertical face of the pit where sampling is to be done.
5. Samples are taken using a trowel, scoop, or coring device at the desired intervals. Be sure to scrape the vertical face at the point of sampling to remove any soil that may have fallen from above, and to expose fresh soil for sampling. In many instances, samples can be collected directly from the backhoe bucket.
6. If volatile organic analyses are required, transfer the sample into an appropriate, labeled sample container with a stainless steel lab spoon, or equivalent and secure the cap tightly. Place the remainder of the sample into a stainless steel, plastic, or other appropriate homogenization container, and mix thoroughly to obtain a homogenous sample representative of the entire sampling interval. Then, either place the sample into appropriate, labeled containers and secure the caps tightly; or, if composite samples are to be collected, place a sample from another sampling interval into the homogenization container and mix thoroughly. When compositing is complete, place the sample into appropriate, labeled containers and secure the caps tightly.
7. Abandon the pit or excavation according to applicable state regulations. Generally, shallow excavations can simply be backfilled with the removed soil material.

#### 8.0 CALCULATIONS

This section is not applicable to this SOP.

#### 9.0 QUALITY ASSURANCE/QUALITY CONTROL

There are no specific quality assurance (QA) activities which apply to the implementation of these procedures. However, the following QA procedures apply:

1. All data must be documented on field data sheets or within site logbooks.
2. All instrumentation must be operated in accordance with operating instructions as supplied by the manufacturer, unless otherwise specified in the work plan. Equipment checkout and calibration



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activities must occur prior to sampling/operation, and they must be documented.

#### 10.0 DATA VALIDATION

This section is not applicable to this SOP.

#### 11.0 HEALTH AND SAFETY

When working with potentially hazardous materials, follow U.S. EPA, OHSA and corporate health and safety procedures, in addition to the procedures specified in the site specific Health & Safety Plan..

#### 12.0 REFERENCES

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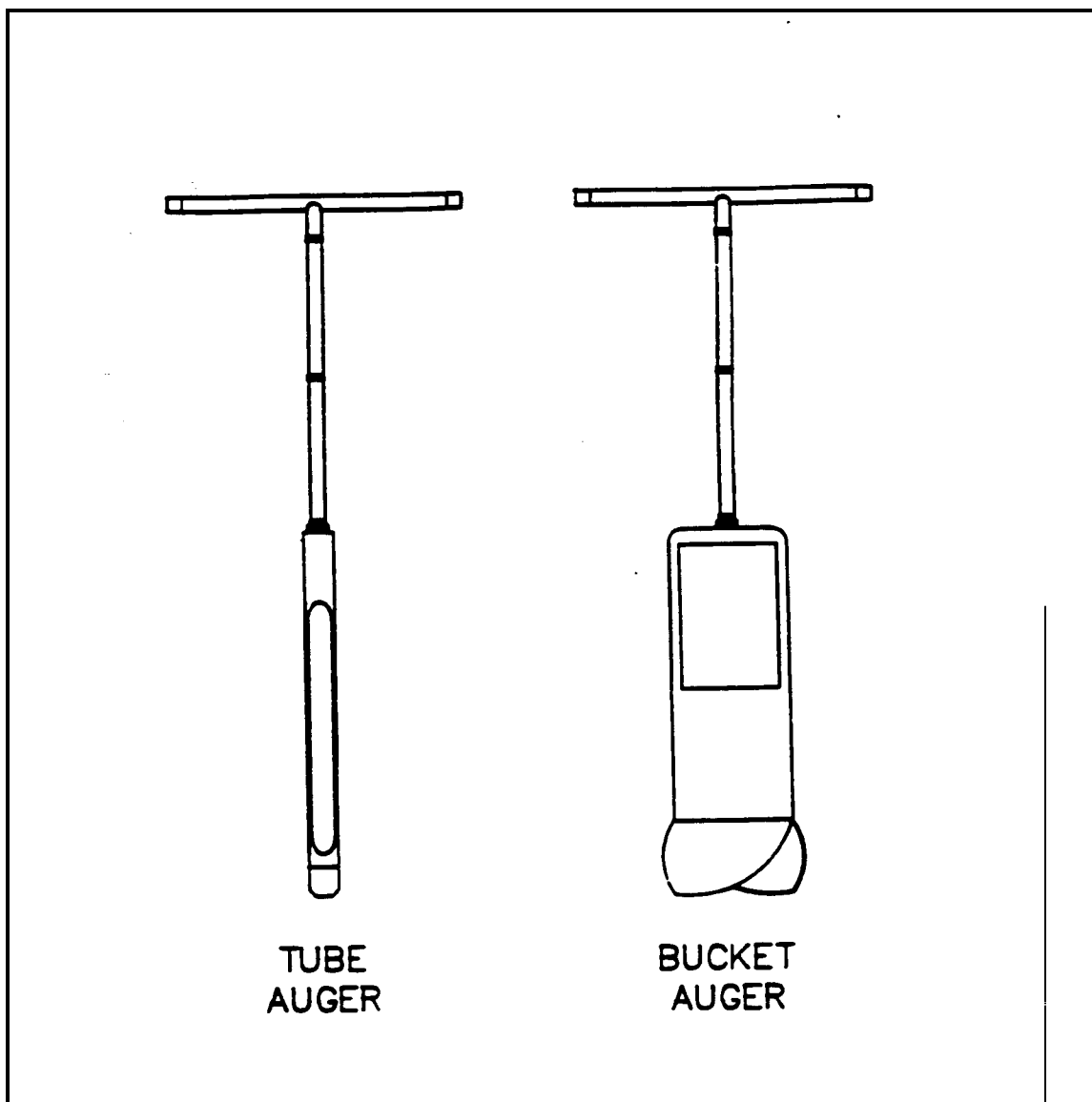
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FIGURE 1. Sampling Augers





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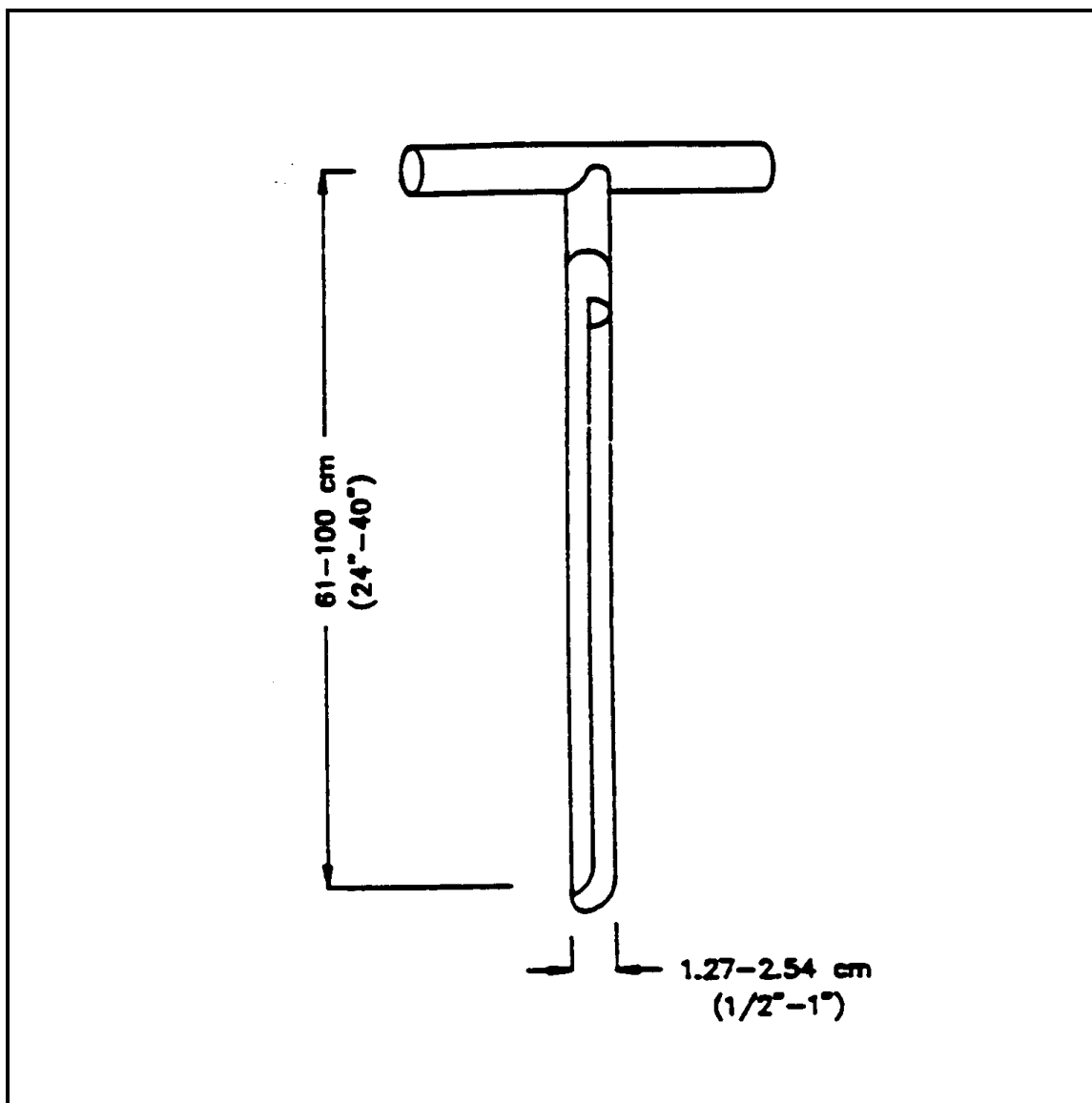
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FIGURE 2. Sampling Trier







## AIR SAMPLING FOR METALS [NIOSH Method 7300, Elements]

SOP#: 2119  
DATE: 10/07/94  
REV. #: 0.0

### 1.0 SCOPE AND APPLICATION

The purpose of this standard operating procedure (SOP) is to define the proper sample collection technique for air sampling for elements (metals), as well as delineate the typical working range of the method and indicate potential interferences. Elements covered by this method include the metals listed in Table 1 (Appendix A).

These are standard (i.e., typically applicable) operating procedures which may be varied or changed as required, dependent upon site conditions, equipment limitations or limitations imposed by the procedure. In all instances, the ultimate procedures employed should be documented and associated with the final report.

Mention of trade names or commercial products does not constitute U.S. Environmental Protection Agency (U.S. EPA) endorsement or recommendation for use.

### 2.0 METHOD SUMMARY

Air sampling for elements (metals) involves passing a known quantity of air across a mixed cellulose ester (MCE) filter. The particulate phase of the air, with a nominal size of greater than or equal to 0.8 microns ( $\mu\text{m}$ ), is trapped in the filter.

This method requires air sampling utilizing 37 millimeter (mm), 3-stage cassettes loaded with 0.8  $\mu\text{m}$  MCE filters and support pads. The approximate minimum and maximum sample volumes required for detection of the metals of interest are listed in Table 1 (Appendix A).

### 3.0 SAMPLE PRESERVATION, CONTAINERS, HANDLING, AND STORAGE

No preservatives or special storage conditions are required. However, the samples should be stored with

the filter upright and transported at or near ambient conditions to prevent significant deterioration of the samples. When transporting and handling the samples, prevent impact and vibrations which would dislodge particulates from the filters.

### 4.0 INTERFERENCES AND POTENTIAL PROBLEMS

A potential problem with the sampling method is over-loading of the filter. This can disrupt flow, consequently producing falsely low analytical results. Periodic checking of the filter and pump can predict this condition and sample cassettes can be changed during the sampling period. The multiple filters would be analyzed as one sample with the total volume indicated on the Chain of Custody record.

### 5.0 EQUIPMENT/APPARATUS

The following equipment is required for air sampling for elements:

- C Low or medium volume air pumps
- C Tygon tubing
- C 0.8  $\mu\text{m}$  MCE filters with support pads
- C 37 mm 3-stage cassettes
- C Hose-barb filter adapters
- C Air flow calibration standard (calibrated rotameter or bubble meter)
- C Screw driver set
- C Air Sampling Worksheets and sample labels
- C Chain of Custody records
- C Particulate monitoring equipment (RAM)
- C Protective clothing
- C Whirl bags

### 6.0 REAGENTS

This section is not applicable to this SOP.

## **7.0 PROCEDURE**

### **7.1 Preparation**

1. Determine the extent of the sampling effort, the sampling methods to be employed, and the types and amounts of equipment and supplies needed.
2. Obtain and organize the necessary sampling and monitoring equipment.
3. Decontaminate or pre-clean equipment, and ensure that it is in working order. Precalibrate sampling equipment, if possible.
4. Prepare scheduling and coordinate with staff, client, and regulatory agency, if appropriate.
5. Perform a general site survey prior to site entry in accordance with the site-specific Health and Safety Plan.
6. Use stakes, flagging tape, or other appropriate means to mark all sampling locations. If necessary, the proposed locations may be adjusted based on site access, property boundaries, and surface obstructions.
7. Make an estimate of the airborne concentrations of the elements of concern. It may be possible to extrapolate the concentration of particulates by assuming similar percentages of metals are present in the airborne particulates as in the soils. However, it should be noted that this is only a rough estimate. If estimation of the airborne concentration of metals is not possible, then sample volumes should remain within the limits recommended in Table 1 (Appendix A).
8. Arrange for sample analysis by an appropriately certified laboratory and check with the laboratory for any special requirements (e.g., additional lot blanks).

### **7.2 Calibration**

Calibrate the required number of sampling pumps in the following manner:

1. Assemble the calibration train as shown in

Figure 1 (Appendix A) using a representative 37 mm, 3-stage filter cassette loaded with a 0.8  $\mu$ m MCE filter and support pad (outlet plug removed), tygon tubing, a hose-barb filter adapter, a rotameter, and an air sampling pump. Depending on the required flow rate, a low volume or a medium volume sampling pump may be required. Refer to Figure 2 (Appendix A) for an illustration of the components of the filter cassette.

2. Turn on the pump and adjust the flow using the flow adjust mechanism until the float ball on the rotameter is aligned with the rotameter's precalibrated flow rate value. A sticker on the rotameter should indicate this value.
3. Affix a sticker to the pump indicating flow rate and media.

### **7.3 Sampling**

1. Assemble the sampling trains with clean filter cassettes (Figures 3 and 4, Appendix A).
2. Verify the pump calibration by removing the inlet plug from the cassette, attaching a rotameter with Tygon tubing and turning on the sampling pump. Ensure that all connections are tight. Record the actual flow rate on the Air Sampling Worksheet. Replace the inlet plug until ready to sample.
3. Set the sampling pump timer (low volume pumps) for the appropriate sampling time as determined by the Work Assignment Manager, or record the elapsed timer readings (medium volume pumps) on the Air Sampling Worksheet. This will be dictated by the type of sampling pump being utilized.
4. Deploy the sampling pumps as indicated in the sampling plan, following site health and safety procedures.
5. Remove the cassette cap or inlet plug from the cassette. Sampling for elements can be conducted with the cassettes open-faced (cassette cap removed) or closed-faced (only inlet port plug removed). Open-faced is preferred because it permits an even loading of the filter cassette and should be used

whenever high particulate concentrations are expected. This allows greater particulate loading of the filter. However, either method is acceptable since the entire filter is used during sample analysis. Closed-faced sampling is typically performed when there is a possibility that the sample may be shaken and particulates may be lost.

6. Turn on the sampling pump and allow it to run for the sampling period determined by the Work Assignment Manager.

## **7.4 Post Sampling**

1. Verify the sampling period by reading the sample run time (low volume pumps) or by checking the elapsed time on the counter (medium volume pumps). Record the sampling time on the Air Sampling Worksheet and turn off the pump.
2. Verify the pump calibration by attaching a rotameter with Tygon tubing and turning on the sampling pump. Record the actual flow rate on the Air Sampling Worksheet. Insert the inlet plug.
3. Remove the sampling cassette from the sampling train and insert the outlet plug.
4. Complete the Air Sampling Worksheet and calculate the sample volume.
5. Label the sample and place it in a whirl bag for transport to the laboratory for analysis.
6. Prepare the samples (including QC samples) for transport by packing them in a shipping container with bubble wrap or styrofoam pieces. Complete a Chain of Custody record in accordance with applicable Chain of Custody Procedures.

## **8.0 CALCULATIONS**

The total volume of a sample is calculated by multiplying the total sample time by the flow rate. The total volume for each sample must be indicated on the Chain of Custody Record.

## **9.0 QUALITY ASSURANCE/ QUALITY CONTROL**

The following general QA procedures apply:

1. All data must be documented on Air Sampling Worksheets or within site logbooks.
2. All instrumentation must be operated in accordance with operating instructions as supplied by the manufacturer, unless otherwise specified in the work plan. Equipment checkout and calibration activities must occur prior to sampling/operation and they must be documented.

The following specific QC activities apply:

1. Provide one field blank per sampling event or per 20 samples, whichever is greater. The field blank should be handled in the same manner as the sampling cassette (remove/replace cap and plug, and transport) except that no air is drawn through it.
2. Collect one collocated sample per sampling event or per 10 samples, whichever is greater. Collocated samples are two samples collected adjacent to each other during the same time period at the same flow rates.
3. Include a minimum of two lot blanks per manufacturer's lot of sampling cassettes utilized per sampling event. Consult with the analytical laboratory to determine if additional lot blanks are required.

## **10.0 DATA VALIDATION**

Results of the QA/QC samples will be evaluated for contamination. This information will be utilized to qualify the environmental sample results accordingly with the project's data quality objectives.

## **11.0 HEALTH AND SAFETY**

When working with potentially hazardous materials, follow U.S. EPA, OSHA, or corporate health and safety procedures.

## **12.0 REFERENCES**

<sup>(1)</sup>NIOSH Manual of Analytical Methods, NIOSH Method 7300, Elements (ICP) (Issued 02/15/84).

## APPENDIX A

Table

TABLE 1. Metal Concentrations are Anticipated to be at or Near  
the Threshold Limit Value (TLV)

Element (Symbol)	Minimum Air Volume to be collected - Liters	Maximum Air Volume to be collected - Liters
Silver (Ag)	250	2000
Aluminum (Al)	5 <sup>(1)</sup>	100 <sup>(1)</sup>
Arsenic (As)	5	2000
Beryllium (Be)	1250	2000
Calcium (Ca)	5	200
Cadmium (Cd)	13	2000
Cobalt (Co)	25	2000
Chromium (Cr)	5	1000
Copper (Cu)	5	1000
Iron (Fe)	5	100
Lithium (Li)	100	2000
Magnesium (Mg)	5	67
Manganese (Mn)	5	200
Molybdenum (Mo)	5	67
Sodium (Na)	13	2000
Nickel (Ni)	5	1000
Phosphorus (P)	25 <sup>(1)</sup>	2000 <sup>(1)</sup>
Lead (Pb)	50	2000
Platinum (Pt)	1250	2000
Selenium (Se)	13	2000
Tin (Sn)	5	500
Tellurium (Te)	25	2000
Titanium (Ti)	5	100
Thallium (Tl)	25	2000
Vanadium (V)	5	2000
Tungsten (W)	5 <sup>(1)</sup>	200 <sup>(1)</sup>
Yttrium (Y)	5	1000
Zinc (Zn)	5	200
Zirconium (Zr)	5	200

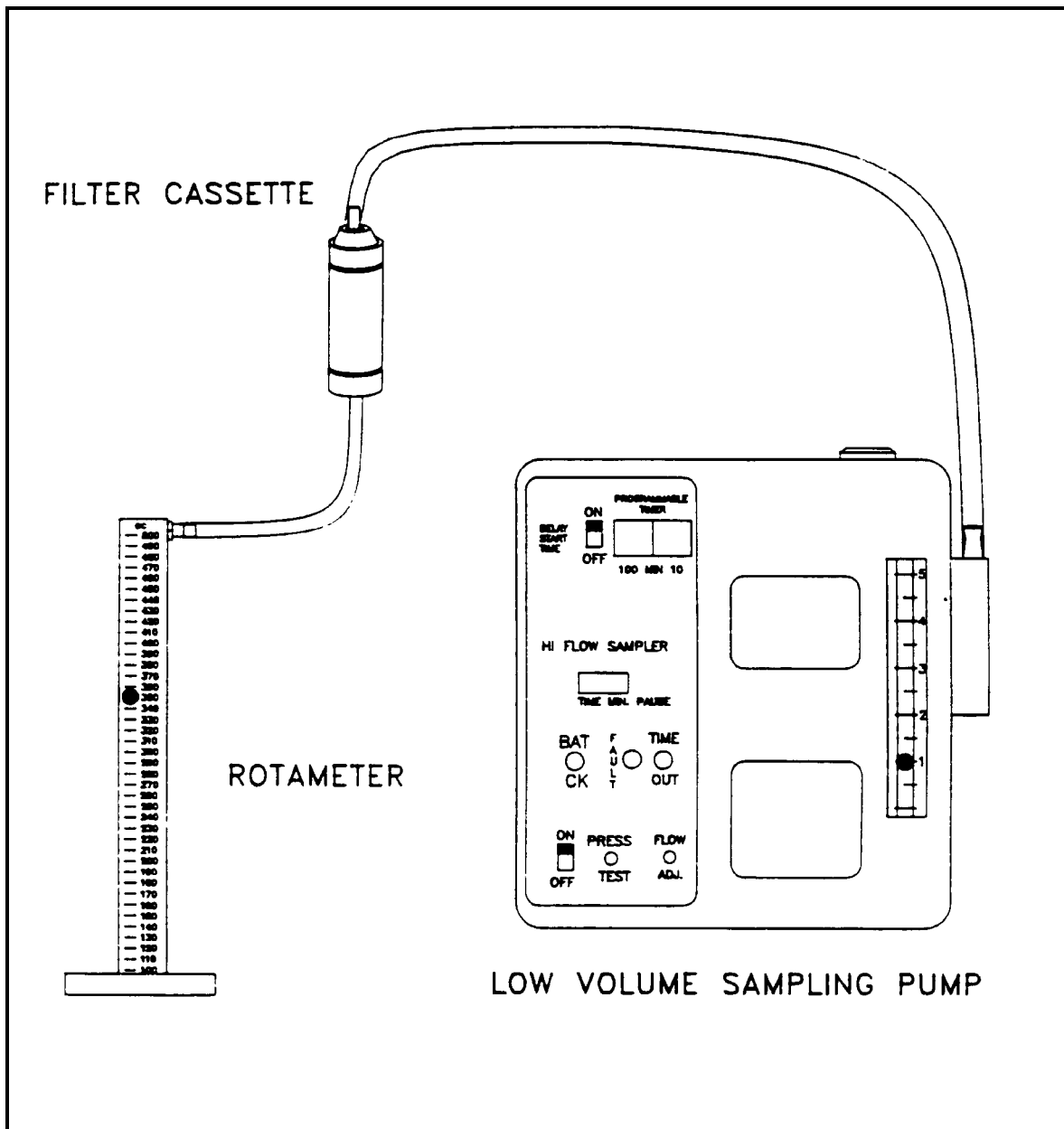
NOTE: Do not exceed a filter loading of approximately 2mg total dust.

<sup>(1)</sup> Greater volumes may be required if the anticipated concentration is less than the ACGIH TLV.

## APPENDIX B

### Figures

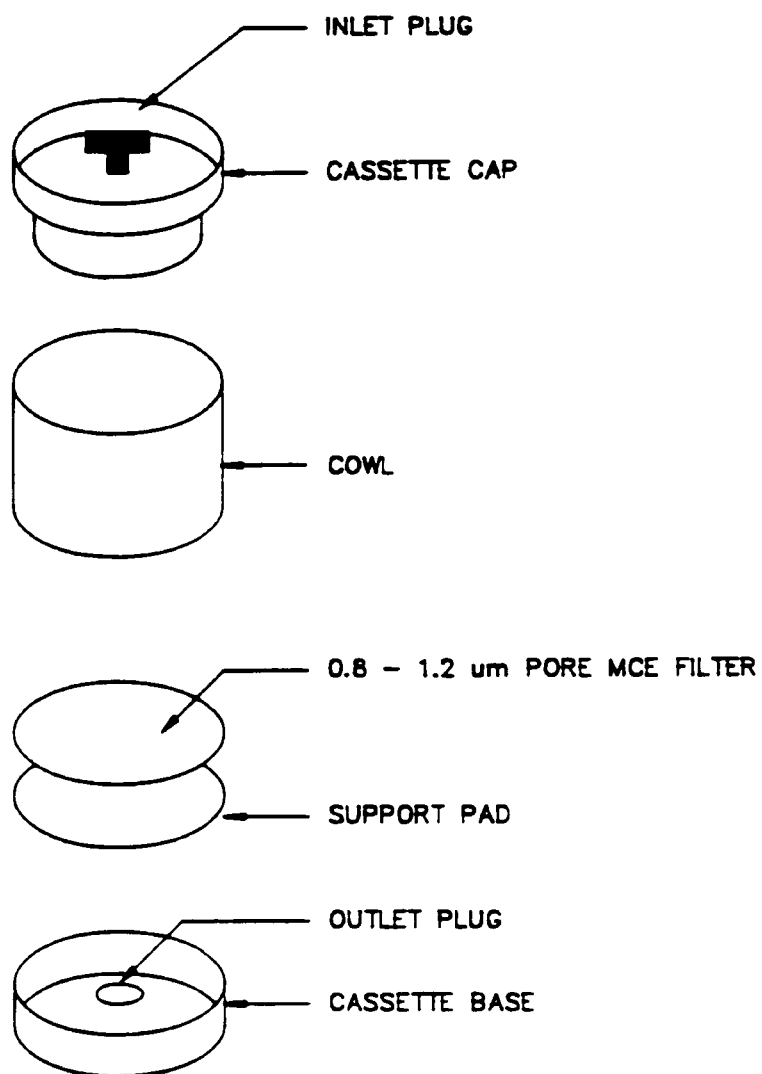
FIGURE 1. Calibration Train with Low Volume Sampling Pump



## APPENDIX B (Cont'd)

### Figures

FIGURE 2. Filter Cassette Assembly

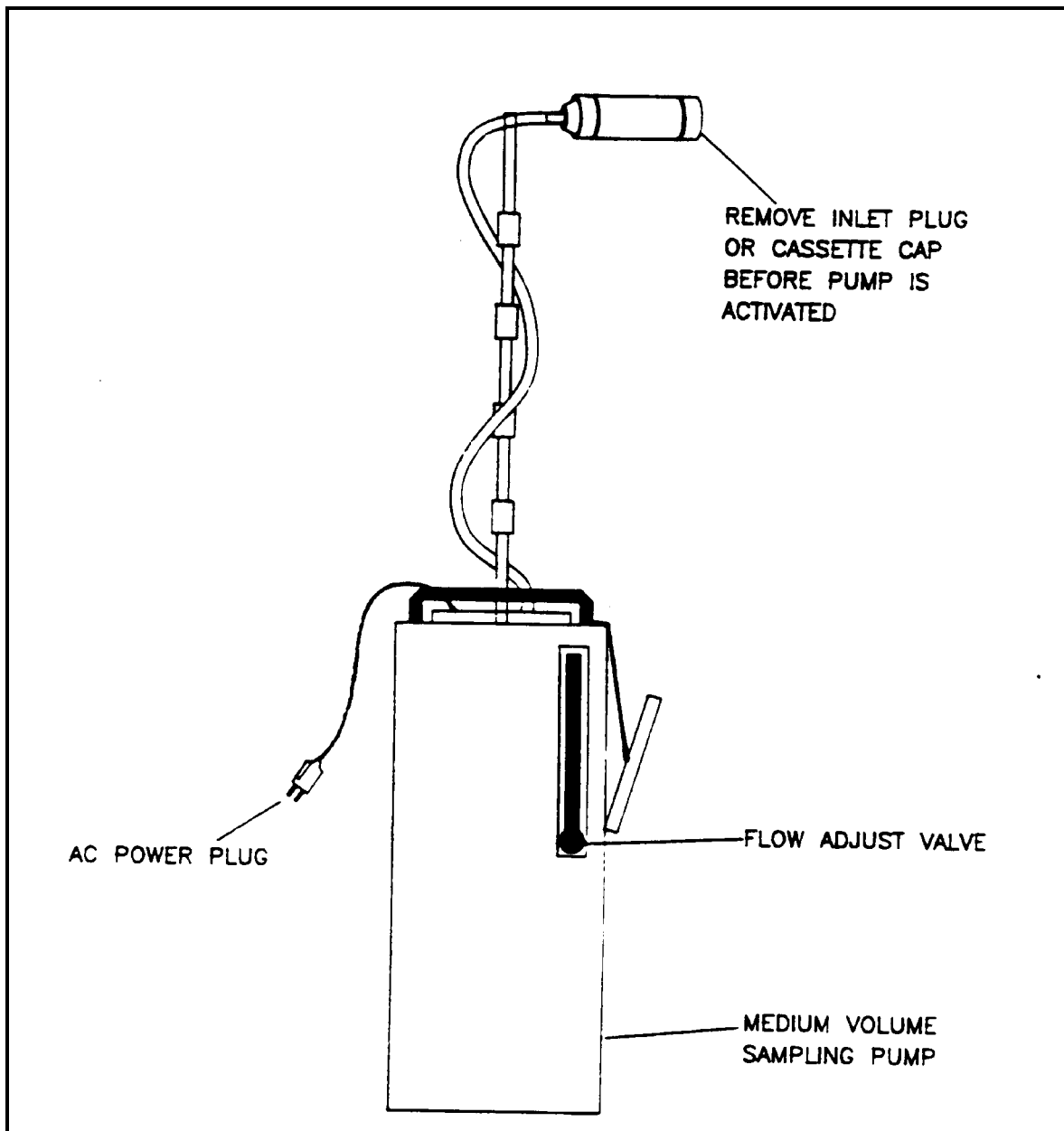




## APPENDIX B (Cont'd)

### Figures

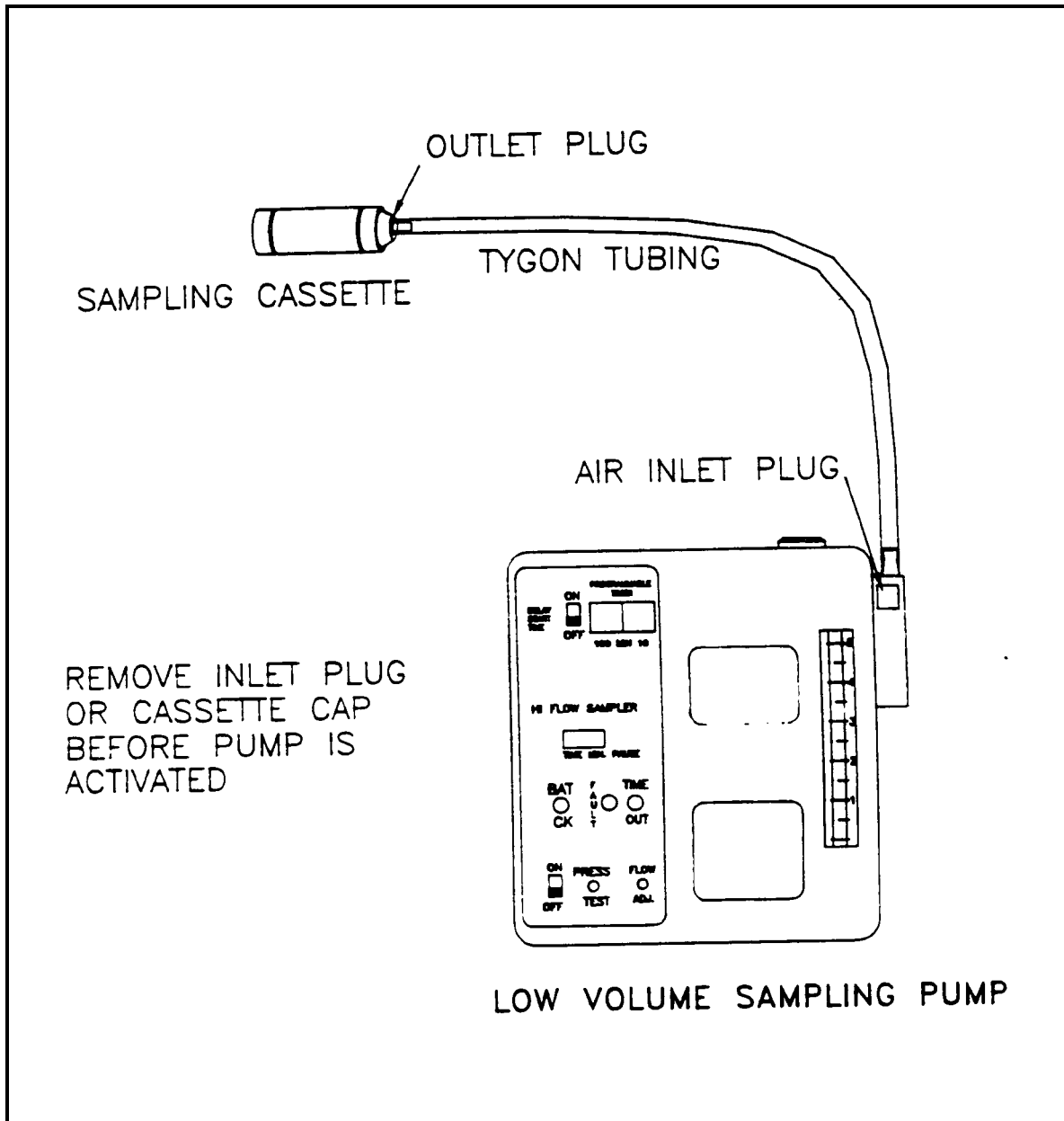
FIGURE 3. Medium Volume Sampling Train



## APPENDIX B (Cont'd)

### Figures

FIGURE 4. Sampling Train with Low Volume Sampling Pump



# Sample Summary Report

Case No:	44509	Contract:	EPW09039	SDG No:	MBASJ3	Lab Code:	MITKEM
Sample Number:	LCS65	Method:	ICP_AES	Matrix:	Filter	MA Number:	DEFAULT
Sample Location:		pH:		Sample Date:	07/14/2014	Sample Time:	15:22:20
% Moisture :				% Solids :			

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Lead	Spike	0.22		ug	0.22		1.0	Yes	S2BVEM

Case No:	44509	Contract:	EPW09039	SDG No:	MBASJ3	Lab Code:	MITKEM
Sample Number:	MBASJ3	Method:	ICP_AES	Matrix:	Filter	MA Number:	DEFAULT
Sample Location:	Station 1	pH:		Sample Date:	07/10/2014	Sample Time:	15:38:00
% Moisture :				% Solids :			

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Lead	Target	0.10	U	ug	0.10	U	1.0	Yes	S2BVEM

Case No:	44509	Contract:	EPW09039	SDG No:	MBASJ3	Lab Code:	MITKEM
Sample Number:	MBASJ4	Method:	ICP_AES	Matrix:	Filter	MA Number:	DEFAULT
Sample Location:	Station 2	pH:		Sample Date:	07/10/2014	Sample Time:	15:43:00
% Moisture :				% Solids :			

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Lead	Target	0.10	U	ug	0.10	U	1.0	Yes	S2BVEM

Case No:	44509	Contract:	EPW09039	SDG No:	MBASJ3	Lab Code:	MITKEM
Sample Number:	MBASJ5	Method:	ICP_AES	Matrix:	Filter	MA Number:	DEFAULT
Sample Location:	Station 3	pH:		Sample Date:	07/10/2014	Sample Time:	15:42:00
% Moisture :				% Solids :			

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Lead	Target	0.10	U	ug	0.10	U	1.0	Yes	S2BVEM



Case No:	44509	Contract:	EPW09039	SDG No:	MBASJ3	Lab Code:	MITKEM
Sample Number:	MBASJ6	Method:	ICP_AES	Matrix:	Filter	MA Number:	DEFAULT
Sample Location:	Station 4	pH:		Sample Date:	07/10/2014	Sample Time:	15:32:00
% Moisture :				% Solids :			

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Lead	Target	0.10	U	ug	0.10	U	1.0	Yes	S2BVEM

Case No:	44509	Contract:	EPW09039	SDG No:	MBASJ3	Lab Code:	MITKEM
Sample Number:	MBASJ7	Method:	ICP_AES	Matrix:	Filter	MA Number:	DEFAULT
Sample Location:	Station 5	pH:		Sample Date:	07/10/2014	Sample Time:	15:30:00
% Moisture :				% Solids :			

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Lead	Target	0.10	U	ug	0.10	U	1.0	Yes	S2BVEM

Case No:	44509	Contract:	EPW09039	SDG No:	MBASJ3	Lab Code:	MITKEM
Sample Number:	MBASJ8	Method:	ICP_AES	Matrix:	Filter	MA Number:	DEFAULT
Sample Location:	Field Blank	pH:		Sample Date:	07/10/2014	Sample Time:	16:00:00
% Moisture :				% Solids :			

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Lead	Target	0.10	U	ug	0.10	U	1.0	Yes	S2BVEM

Case No:	44509	Contract:	EPW09039	SDG No:	MBASJ3	Lab Code:	MITKEM
Sample Number:	MBASJ9	Method:	ICP_AES	Matrix:	Filter	MA Number:	DEFAULT
Sample Location:	Lot Blank	pH:		Sample Date:	07/10/2014	Sample Time:	16:00:00
% Moisture :				% Solids :			

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Lead	Target	0.10	U	ug	0.10	U	1.0	Yes	S2BVEM

Case No:	44509	Contract:	EPW09039	SDG No:	MBASJ3	Lab Code:	MITKEM
Sample Number:	PBF65	Method:	ICP_AES	Matrix:	Filter	MA Number:	DEFAULT
Sample Location:		pH:		Sample Date:	07/14/2014	Sample Time:	15:18:41
% Moisture :				% Solids :			

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Lead	Target	0.10	U	ug	0.1	U	1.0	Yes	S2BVEM



Sample Summary Report

Case No:	44509	Contract:	EPW09039	SDG No:	MBASK0	Lab Code:	MITKEM
Sample Number:	LCS68	Method:	ICP_AES	Matrix:	Filter	MA Number:	DEFAULT
Sample Location:		pH:		Sample Date:	07/18/2014	Sample Time:	14:32:12
% Moisture :				% Solids :			

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Lead	Spike	0.22		ug	0.22		1.0	Yes	S2BVEM



Case No:	44509	Contract:	EPW09039	SDG No:	MBASK0	Lab Code:	MITKEM
Sample Number:	MBASK0	Method:	ICP_AES	Matrix:	Filter	MA Number:	DEFAULT
Sample Location:	Station 1	pH:		Sample Date:	07/17/2014	Sample Time:	15:32:00
% Moisture :				% Solids :			

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Lead	Target	0.10	U	ug	0.10	U	1.0	Yes	S2BVE

Case No:	44509	Contract:	EPW09039	SDG No:	MBASK0	Lab Code:	MITKEM
Sample Number:	MBASK1	Method:	ICP_AES	Matrix:	Filter	MA Number:	DEFAULT
Sample Location:	Station 2	pH:		Sample Date:	07/17/2014	Sample Time:	15:33:00
% Moisture :				% Solids :			

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Lead	Target	0.10	U	ug	0.043	J	1.0	Yes	S2BVEM

Case No:	44509	Contract:	EPW09039	SDG No:	MBASK0	Lab Code:	MITKEM
Sample Number:	MBASK2	Method:	ICP_AES	Matrix:	Filter	MA Number:	DEFAULT
Sample Location:	Station 3	pH:		Sample Date:	07/17/2014	Sample Time:	15:34:00
% Moisture :				% Solids :			

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Lead	Target	0.10	U	ug	0.048	J	1.0	Yes	S2BVEM

Case No:	44509	Contract:	EPW09039	SDG No:	MBASK0	Lab Code:	MITKEM
Sample Number:	MBASK3	Method:	ICP_AES	Matrix:	Filter	MA Number:	DEFAULT
Sample Location:	Station 4	pH:		Sample Date:	07/17/2014	Sample Time:	15:35:00
% Moisture :				% Solids :			

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Lead	Target	0.10	U	ug	0.034	J	1.0	Yes	S2BVEM

Case No:	44509	Contract:	EPW09039	SDG No:	MBASK0	Lab Code:	MITKEM
Sample Number:	MBASK4	Method:	ICP_AES	Matrix:	Filter	MA Number:	DEFAULT
Sample Location:	Station 5	pH:		Sample Date:	07/17/2014	Sample Time:	15:36:00
% Moisture :				% Solids :			

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Lead	Target	0.10	U	ug	0.10	U	1.0	Yes	S2BVEM

Case No:	44509	Contract:	EPW09039	SDG No:	MBASK0	Lab Code:	MITKEM
Sample Number:	MBASK5	Method:	ICP_AES	Matrix:	Filter	MA Number:	DEFAULT
Sample Location:	Field Blank	pH:		Sample Date:	07/17/2014	Sample Time:	16:00:00
% Moisture :				% Solids :			

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Lead	Target	0.10	U	ug	0.10	U	1.0	Yes	S2BVEM

Case No:	44509	Contract:	EPW09039	SDG No:	MBASK0	Lab Code:	MITKEM
Sample Number:	MBASK6	Method:	ICP_AES	Matrix:	Filter	MA Number:	DEFAULT
Sample Location:	Lot Blank	pH:		Sample Date:	07/17/2014	Sample Time:	16:00:00
% Moisture :				% Solids :			

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Lead	Target	0.10	U	ug	0.10	U	1.0	Yes	S2BVEM



Case No:	44509	Contract:	EPW09039	SDG No:	MBASK0	Lab Code:	MITKEM
Sample Number:	PBF68	Method:	ICP_AES	Matrix:	Filter	MA Number:	DEFAULT
Sample Location:		pH:		Sample Date:	07/18/2014	Sample Time:	14:28:13
% Moisture :				% Solids :			

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Lead	Target	0.043	J	ug	0.043	J	1.0	Yes	S2BVEM





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9/11/2014

The following analytical report covers the analysis performed on samples submitted to EMSL Analytical, Inc. on 9/10/2014. The results are tabulated on the attached data pages for the following client designated project:

**RFP No:312, 2-090914-124224-0012**

The reference number for these samples is EMSL Order #011404822. Please use this reference when calling about these samples. If you have any questions, please do not hesitate to contact me at (856) 303-2500.

Reviewed and Approved By:

Julie Smith - Laboratory Director



Accreditation #100194 NELAP Certification: NJ 03036,  
NY 10872

The samples associated with this report were received in good condition unless otherwise noted. This report relates only to those items tested as received by the laboratory. The QC data associated with the sample results meet the recovery and precision requirements established by the AIHA, unless specifically indicated. The final results are not field blank corrected. The laboratory is not responsible for final results calculated using air volumes that have been provided by non-laboratory personnel. This report may not be reproduced except in full and without written approval by EMSL Analytical, Inc.

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Phone: (732) 585-4400  
 Fax:  
 Received: 09/10/14 9:40 AM

Project: RFP No:312, 2-090914-124224-0012

**Analytical Results**

**Client Sample Description** FB-090914 **Collected:** 9/9/2014 **Lab ID:** 0001

Method	Parameter	Result	RL	Units	Prep Date	Analyst	Analysis Date	Analyst
7300 Modified	Lead	ND	0.000050	mg/filter	9/10/2014	JO	9/10/2014	KB

**Client Sample Description** LB-090914 **Collected:** 9/9/2014 **Lab ID:** 0002

Method	Parameter	Result	RL	Units	Prep Date	Analyst	Analysis Date	Analyst
7300 Modified	Lead	ND	0.000050	mg/filter	9/10/2014	JO	9/10/2014	KB

**Client Sample Description** P001-AA013-A090914 **Collected:** 9/9/2014 **Lab ID:** 0003

Method	Parameter	Result	RL	Units	Prep Date	Analyst	Analysis Date	Analyst
7300 Modified	Lead	ND	0.000058	mg/m <sup>3</sup>	9/10/2014	JO	9/10/2014	KB

**Client Sample Description** P001-AA015-A090914 **Collected:** 9/9/2014 **Lab ID:** 0004

Method	Parameter	Result	RL	Units	Prep Date	Analyst	Analysis Date	Analyst
7300 Modified	Lead	ND	0.000058	mg/m <sup>3</sup>	9/10/2014	JO	9/10/2014	KB

**Client Sample Description** P001-AA012-A090914 **Collected:** 9/9/2014 **Lab ID:** 0005

Method	Parameter	Result	RL	Units	Prep Date	Analyst	Analysis Date	Analyst
7300 Modified	Lead	ND	0.000059	mg/m <sup>3</sup>	9/10/2014	JO	9/10/2014	KB

**Client Sample Description** P001-AA014-A090914 **Collected:** 9/9/2014 **Lab ID:** 0006

Method	Parameter	Result	RL	Units	Prep Date	Analyst	Analysis Date	Analyst
7300 Modified	Lead	ND	0.000058	mg/m <sup>3</sup>	9/10/2014	JO	9/10/2014	KB

**Client Sample Description** P001-AA012-B090914 **Collected:** 9/9/2014 **Lab ID:** 0007

Method	Parameter	Result	RL	Units	Prep Date	Analyst	Analysis Date	Analyst
7300 Modified	Lead	ND	0.000060	mg/m <sup>3</sup>	9/10/2014	JO	9/10/2014	KB

**Definitions:**

ND - indicates that the analyte was not detected at the reporting limit

RL - Reporting Limit



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10/30/2014

The following analytical report covers the analysis performed on samples submitted to EMSL Analytical, Inc. on 10/29/2014. The results are tabulated on the attached data pages for the following client designated project:

**Project ID: RFP 312**  
**2-102814-155502-0019**

The reference number for these samples is EMSL Order #011405969. Please use this reference when calling about these samples. If you have any questions, please do not hesitate to contact me at (856) 303-2500.

Reviewed and Approved By:

Julie Smith - Laboratory Director



Accreditation #100194 NELAP Certification: NJ 03036,  
NY 10872

The samples associated with this report were received in good condition unless otherwise noted. This report relates only to those items tested as received by the laboratory. The QC data associated with the sample results meet the recovery and precision requirements established by the AIHA, unless specifically indicated. The final results are not field blank corrected. The laboratory is not responsible for final results calculated using air volumes that have been provided by non-laboratory personnel. This report may not be reproduced except in full and without written approval by EMSL Analytical, Inc.

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Phone: (732) 585-4400

Fax:

Received: 10/29/14 9:30 AM

Project: 2-102814-155502-0019

**Analytical Results**

**Client Sample Description** FB-102814  
Field Blank  
**Collected:** 10/28/2014 **Lab ID:** 0001

Method	Parameter	Result	RL	Units	Prep Date	Analyst	Analysis Date	Analyst
7300 Modified	Lead	ND	0.000050	mg/filter	10/29/2014	JS	10/29/2014	KB

**Client Sample Description** LB-102814  
Lot Blank  
**Collected:** 10/28/2014 **Lab ID:** 0002

Method	Parameter	Result	RL	Units	Prep Date	Analyst	Analysis Date	Analyst
7300 Modified	Lead	ND	0.000050	mg/filter	10/29/2014	JS	10/29/2014	KB

**Client Sample Description** P001-AA031-A-102814  
Station 1  
**Collected:** 10/28/2014 **Lab ID:** 0003

Method	Parameter	Result	RL	Units	Prep Date	Analyst	Analysis Date	Analyst
7300 Modified	Lead	ND	0.000057	mg/m <sup>3</sup>	10/29/2014	JS	10/29/2014	KB

**Client Sample Description** P001-AA031-B-102814  
Station 2  
**Collected:** 10/28/2014 **Lab ID:** 0004

Method	Parameter	Result	RL	Units	Prep Date	Analyst	Analysis Date	Analyst
7300 Modified	Lead	ND	0.000057	mg/m <sup>3</sup>	10/29/2014	JS	10/29/2014	KB

**Client Sample Description** P001-AA031-C-102814  
Station 3  
**Collected:** 10/28/2014 **Lab ID:** 0005

Method	Parameter	Result	RL	Units	Prep Date	Analyst	Analysis Date	Analyst
7300 Modified	Lead	ND	0.000057	mg/m <sup>3</sup>	10/29/2014	JS	10/29/2014	KB

**Client Sample Description** P001-AA026-A-102814  
Station 4  
**Collected:** 10/28/2014 **Lab ID:** 0006

Method	Parameter	Result	RL	Units	Prep Date	Analyst	Analysis Date	Analyst
7300 Modified	Lead	ND	0.000056	mg/m <sup>3</sup>	10/29/2014	JS	10/29/2014	KB

**Client Sample Description** P001-AA026-B-102814  
Station 5  
**Collected:** 10/28/2014 **Lab ID:** 0007

Method	Parameter	Result	RL	Units	Prep Date	Analyst	Analysis Date	Analyst
7300 Modified	Lead	ND	0.000055	mg/m <sup>3</sup>	10/29/2014	JS	10/29/2014	KB

**Definitions:**

ND - indicates that the analyte was not detected at the reporting limit

RL - Reporting Limit

**EMSL Analytical, Inc.**

200 Route 130 North, Cinnaminson, NJ 08077

Phone/Fax: (856) 303-2500 / (856) 858-4571

<http://www.EMSL.com>[EnvChemistry2@emsl.com](mailto:EnvChemistry2@emsl.com)

EMSL Order: 011403991

CustomerID: EVMR26

CustomerPO:

ProjectID:

Attn: **Joe Galioto**  
**Environmental Restoration, LLC**  
**110 Granby St.**  
**Bloomfield, CT 06002**

Phone: (860) 769-7356  
Fax: (860) 769-7357  
Received: 07/31/14 9:20 AM

Project: MC2-79 / MC Canfield, Newark, NJ

**Analytical Results**

**Client Sample Description** 729-01  
Eric Williams

**Collected:** 7/29/2014 **Lab ID:** 0001

Method	Parameter	Result	RL	Units	Prep Date	Analyst	Analysis Date	Analyst
7300 Modified	Lead	ND	0.00011	mg/m <sup>3</sup>	8/4/2014	JO	8/4/2014	KB

**Client Sample Description** 729-02  
Patrick Sommers

**Collected:** 7/29/2014 **Lab ID:** 0002

Method	Parameter	Result	RL	Units	Prep Date	Analyst	Analysis Date	Analyst
7300 Modified	Lead	0.00015	0.00011	mg/m <sup>3</sup>	8/4/2014	JO	8/4/2014	KB

**Client Sample Description** 729-03  
George Smith

**Collected:** 7/29/2014 **Lab ID:** 0003

Method	Parameter	Result	RL	Units	Prep Date	Analyst	Analysis Date	Analyst
7300 Modified	Lead	ND	0.00011	mg/m <sup>3</sup>	8/4/2014	JO	8/4/2014	KB

**Client Sample Description** 729-00  
Field Blank

**Collected:** 7/29/2014 **Lab ID:** 0004

Method	Parameter	Result	RL	Units	Prep Date	Analyst	Analysis Date	Analyst
7300 Modified	Lead	ND	0.000050	mg/filter	8/4/2014	JO	8/4/2014	KB

**Definitions:**

ND - indicates that the analyte was not detected at the reporting limit

RL - Reporting Limit



**ENVIRONMENTAL**  
**RESTORATION**  
Headquarters:  
1686 Fabick Drive  
Fenton, MO 65256  
Tel: 636-227-7477  
Fax: 636-227-6447

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Address: 110 Green by St  
City: Bloomfield State: CT Zip: 06526  
Email: 404-353-7051  
J. Reilly@erml.com  
City: Address:  
State: City:  
Contact: Zip:  
Email: Phone:

Lab Info:  
Lab: Address:  
City: State:  
Contact: Zip:  
Email: Phone:

**CHAIN OF CUSTODY**  
COC No. ER \_\_\_\_\_  
Page \_\_\_\_\_ of \_\_\_\_\_

Project Name: MC CAFEFIELD  
City/State: NEWARK, NJ  
Project Number: MC2-79  
Project Manager: Joe Gualardo  
Phone/Email: J. Gualardo @ ER LLC.com  
Compliance Monitoring? ☐ Yes ☐ No  
Sampler(s) Name(s)/Sign/Phone: \_\_\_\_\_

Deliverable:  
Check all that apply:  
☐ SF form is  
☐ Level II  
☐ Level III  
☐ Level IV  
☐ EDD  
☐ CLP-like  
☐ Add:  
Billing Information (if different):  
Contact: \_\_\_\_\_  
Address: \_\_\_\_\_  
City: \_\_\_\_\_ State: \_\_\_\_\_ Zip: \_\_\_\_\_  
PO # MC2-79 Email: \_\_\_\_\_

Turn Around Time:  
☒ 5 Business days ☐ 24 Hours ☐ Other:  
☐ 10 Business days ☐ 48 Hours  
Date needed: \_\_\_\_\_  
Notify Lab if Rush

Matrix:  
S. Solid Soil  
P. Product  
W. Waste  
GW. Groundwater  
SW. Surface Water  
DW. Drinking Water  
WW. Waste water  
WP. Waste  
Air (Use Medium)  
C. Charcoal  
SG. Sludge Gel  
F. Filter 0.3 Micron  
CY. Cyclone  
B. Bag  
L. Liner  
User Defined: \_\_\_\_\_

ER Sample ID	Date	Time	Air	Matrix*	Volume (L)	Comment	# of Pres. Bottles	Total # Containers	Grab (G)/Composite (C)	Lab Use
729-01	ERL Ouellet	7-29-2014	232	F	PS	466	P82			
729-02	PATRICIA SENECA	7-29-2014	225	F	PS	455	P82			
729-03	GEORGE SMITH	7-29-2014	231	F	PS	462	P82			
729-00	FIELD BLANK									
Comments/Special Instructions:										
Relinquished by (signature):			Date/Time		Received by (signature):		Date/Time		Received by (signature):	
Relinquished by (signature):			7/29/14 15:30		Received by (signature):		7/29/14 15:30		Received by (signature):	
Relinquished by (signature):			7/29/14 1700		Received by (signature):		7/29/14 1700		Received by (signature):	
Relinquished by (signature):			Date/Time		Received by (signature):		Date/Time		Received by (signature):	

7/29/14 11:17 AM - 10:00 AM in the field (with 2nd person) 7/29/14 11:17 AM - 10:00 AM in the field (with 2nd person) 7/29/14 11:17 AM - 10:00 AM in the field (with 2nd person)



# Mid-Atlantic

Environmental Laboratories, Inc.

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New Castle, DE 19720

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[www.maelinc.com](http://www.maelinc.com)

[mael@maelinc.com](mailto:mael@maelinc.com)



## Analytical Report

**Project Name:** MC Canfield

**MAEL Job Number:** 41159

**Client:** Environmental Restoration LLC  
1666 Fabick Drive  
Fenton, MO 63026

**Contact Name:** Amy Riggott

**Date Received:** 07/24/2014

**Date Reported:** 8/5/2014

Analytical test results for methods listed on the laboratory's scope of accreditation meet all requirements of NELAC unless otherwise noted. All sample holding times and preservation requirements were met unless otherwise noted. Test results relate only to the sample tested. This report shall not be reproduced, except in full, without prior written authorization of Mid-Atlantic Environmental Laboratories, Inc.



# ANALYTICAL REPORT

**Project Name:** MC Canfield

**Date Sampled:** 7/24/2014 5:05 PM

**Sampled By:** JG

**Sample Matrix:** Soil

**Sample Type:** Composite

**Lab Project #:** 41159

**Lab Sample #:** 41159-1

**Client Sample ID:** #002 Backfill

Analyte	CASRN	Result	Q	Units	Method	RL	Analyst	Date / Time Analysis
<b>Chromium, Hexavalent - Non-aqueous</b>								
Chromium, hexavalent	18540-29-9	ND		mg/kg	7196A	0.2	R B	7/28/2014 1:48 PM
<b>Chromium, Trivalent - non-aqueous</b>								
Chromium, Trivalent	16065-83-1	17.3		mg/kg	calc	1.25	W W	8/4/2014 9:12 AM
<b>Cyanide, Total - non-aqueous</b>								
Cyanide, Total	57-12-5	ND		mg/kg	9010C/9014	0.20	R B	7/28/2014 2:32 PM
<b>Herbicides - Non-aqueous</b>								
2,4-D	94-75-7	ND		mg/kg	8151A	0.01	B C	8/4/2014 3:54 PM
Dicamba	1918-00-9	ND		mg/kg	8151A	0.01	B C	8/4/2014 3:54 PM
Dichloroprop	120-36-5	ND		mg/kg	8151A	0.01	B C	8/4/2014 3:54 PM
Dinoseb	88-85-7	ND		mg/kg	8151A	0.01	B C	8/4/2014 3:54 PM
2,4,5-T	93-76-5	ND		mg/kg	8151A	0.01	B C	8/4/2014 3:54 PM
2,4,5-TP (Silvex)	93-72-1	ND		mg/kg	8151A	0.01	B C	8/4/2014 3:54 PM
<b>Mercury - Non-aqueous</b>								
Mercury	7439-97-6	ND		mg/kg	7471A	0.10	K S	8/4/2014 3:16 PM
<b>Metals (Total - TAL) - non-aqueous</b>								
Aluminum	7429-90-5	9270		mg/kg	6010B	50.0	K S	7/31/2014 3:59 PM
Antimony	7440-36-0	ND		mg/kg	6010B	0.50	K S	7/31/2014 3:59 PM
Arsenic	7440-38-2	ND		mg/kg	6010B	0.50	K S	7/31/2014 3:59 PM
Barium	7440-39-3	98.5		mg/kg	6010B	0.50	K S	7/31/2014 3:59 PM
Beryllium	7440-41-7	ND		mg/kg	6010B	0.50	K S	7/31/2014 3:59 PM
Cadmium	7440-43-9	ND		mg/kg	6010B	0.50	K S	7/31/2014 3:59 PM
Calcium	7440-70-2	4660		mg/kg	6010B	50.0	K S	7/31/2014 3:59 PM
Chromium	7440-47-3	17.3		mg/kg	6010B	0.50	K S	7/31/2014 3:59 PM
Cobalt	7440-48-4	9.27		mg/kg	6010B	0.50	K S	7/31/2014 3:59 PM
Copper	7440-50-8	16.7		mg/kg	6010B	0.50	K S	7/31/2014 3:59 PM
Iron	7439-89-6	18300		mg/kg	6010B	50.0	K S	7/31/2014 3:59 PM
Lead	7439-92-1	8.74		mg/kg	6010B	0.50	K S	7/31/2014 3:59 PM
Magnesium	7439-95-4	5980		mg/kg	6010B	50.0	K S	7/31/2014 3:59 PM

# ANALYTICAL REPORT

**Project Name:** MC Canfield

**Date Sampled:** 7/24/2014 5:05 PM

**Sampled By:** JG

**Sample Matrix:** Soil

**Sample Type:** Composite

**Lab Project #:** 41159

**Lab Sample #:** 41159-1

**Client Sample ID:** #002 Backfill

Analyte	CASRN	Result	Q	Units	Method	RL	Analyst	Date / Time Analysis
<b>Metals (Total - TAL) - non-aqueous</b>								
Manganese	7439-96-5	185		mg/kg	6010B	0.50	K S	7/31/2014 3:59 PM
Nickel	7440-02-0	15.2		mg/kg	6010B	0.50	K S	7/31/2014 3:59 PM
Potassium	7440-09-7	6380		mg/kg	6010B	500	K S	7/31/2014 3:59 PM
Selenium	7782-49-2	ND		mg/kg	6010B	0.50	K S	7/31/2014 3:59 PM
Silver	7440-22-4	ND		mg/kg	6010B	0.50	K S	7/31/2014 3:59 PM
Sodium	7440-23-5	204		mg/kg	6010B	0.50	K S	7/31/2014 3:59 PM
Thallium	7440-28-0	ND		mg/kg	6010B	0.50	K S	7/31/2014 3:59 PM
Vanadium	7440-62-2	26.9		mg/kg	6010B	0.50	K S	7/31/2014 3:59 PM
Zinc	7440-66-6	41.4		mg/kg	6010B	0.50	K S	7/31/2014 3:59 PM
<b>Methanol - Non-Aqueous</b>								
Methanol	67-56-1	ND		mg/kg	8015B - M	22.4	SU B	7/31/2014 10:04 PM
<b>NJ EPH Screen (C9 - C40)</b>								
Total EPH		ND		mg/kg	NJDEP EPH 10/08, Rev 3	200	S M	8/1/2014 12:06 PM
<b>PCBs - Non-aqueous</b>								
PCB-1016	12674-11-2	ND		mg/kg	8082A	0.025	B C	7/31/2014 2:03 AM
PCB-1221	11104-28-2	ND		mg/kg	8082A	0.025	B C	7/31/2014 2:03 AM
PCB-1232	11141-16-5	ND		mg/kg	8082A	0.025	B C	7/31/2014 2:03 AM
PCB-1242	53469-21-9	ND		mg/kg	8082A	0.025	B C	7/31/2014 2:03 AM
PCB-1248	12672-29-6	ND		mg/kg	8082A	0.025	B C	7/31/2014 2:03 AM
PCB-1254	11097-69-1	ND		mg/kg	8082A	0.025	B C	7/31/2014 2:03 AM
PCB-1260	11096-82-5	ND		mg/kg	8082A	0.025	B C	7/31/2014 2:03 AM
PCB-1262	37324-23-5	ND		mg/kg	8082A	0.025	B C	7/31/2014 2:03 AM
PCB-1268	11100-14-4	ND		mg/kg	8082A	0.025	B C	7/31/2014 2:03 AM
<b>Percent Moisture/Percent Solid</b>								
Total Moisture		6.32		%	2540B	0.10	josh walls	7/30/2014 10:47 AM
<b>Pesticides (TCL) - non-aqueous</b>								
Aldrin	309-00-2	ND		mg/kg	8081B	0.00125	B C	7/31/2014 2:03 AM
alpha BHC	319-84-6	ND		mg/kg	8081B	0.00125	B C	7/31/2014 2:03 AM
beta BHC	319-85-7	ND		mg/kg	8081B	0.00125	B C	7/31/2014 2:03 AM
delta BHC	319-86-8	ND		mg/kg	8081B	0.00125	B C	7/31/2014 2:03 AM

# ANALYTICAL REPORT

**Project Name:** MC Canfield

**Date Sampled:** 7/24/2014 5:05 PM

**Sampled By:** JG

**Sample Matrix:** Soil

**Sample Type:** Composite

**Lab Project #:** 41159

**Lab Sample #:** 41159-1

**Client Sample ID:** #002 Backfill

Analyte	CASRN	Result	Q	Units	Method	RL	Analyst	Date / Time Analysis
<b>Pesticides (TCL) - non-aqueous</b>								
gamma BHC (Lindane)	58-89-9	ND		mg/kg	8081B	0.00125	B C	7/31/2014 2:03 AM
alpha-Chlordane	5103-71-9	ND		mg/kg	8081B	0.00125	B C	7/31/2014 2:03 AM
4,4'-DDD	72-54-8	ND		mg/kg	8081B	0.00250	B C	7/31/2014 2:03 AM
4,4'-DDE	72-55-9	ND		mg/kg	8081B	0.00250	B C	7/31/2014 2:03 AM
4,4'-DDT	50-29-3	ND		mg/kg	8081B	0.00250	B C	7/31/2014 2:03 AM
Dieldrin	60-57-1	ND		mg/kg	8081B	0.00250	B C	7/31/2014 2:03 AM
Endosulfan I	959-98-8	ND		mg/kg	8081B	0.00125	B C	7/31/2014 2:03 AM
Endosulfan II	33213-65-9	ND		mg/kg	8081B	0.00250	B C	7/31/2014 2:03 AM
Endosulfan sulfate	1031-07-8	ND		mg/kg	8081B	0.00250	B C	7/31/2014 2:03 AM
Endrin	72-20-8	ND		mg/kg	8081B	0.00250	B C	7/31/2014 2:03 AM
Endrin aldehyde	7421-93-4	ND		mg/kg	8081B	0.00250	B C	7/31/2014 2:03 AM
Endrin ketone	53494-70-5	ND		mg/kg	8081B	0.00250	B C	7/31/2014 2:03 AM
Heptachlor	76-44-8	ND		mg/kg	8081B	0.00125	B C	7/31/2014 2:03 AM
Heptachlor epoxide	1024-57-3	ND		mg/kg	8081B	0.00125	B C	7/31/2014 2:03 AM
Methoxychlor	72-43-5	ND		mg/kg	8081B	0.01250	B C	7/31/2014 2:03 AM
Toxaphene	8001-35-2	ND		mg/kg	8081B	0.02500	B C	7/31/2014 2:03 AM
Chlordane	57-74-9	ND		mg/kg	8081B	0.02500	B C	7/31/2014 2:03 AM
<b>pH - non-aqueous</b>								
Corrosivity (pH)		10.4		S.U.	9045D		R B	7/28/2014 11:00 AM
<b>Semi Volatile Organics (TCL) - non-aqueous</b>								
4-Chloro-3-methylphenol	59-50-7	ND		mg/kg	8270D	0.100	R C	7/30/2014 10:42 PM
2-Chlorophenol	95-57-8	ND		mg/kg	8270D	0.100	R C	7/30/2014 10:42 PM
2,4-Dichlorophenol	120-83-2	ND		mg/kg	8270D	0.100	R C	7/30/2014 10:42 PM
2,4-Dimethylphenol	105-67-9	ND		mg/kg	8270D	0.100	R C	7/30/2014 10:42 PM
4,6-Dinitro-2-methylphenol	534-52-1	ND		mg/kg	8270D	0.100	R C	7/30/2014 10:42 PM
2,4-Dinitrophenol	51-28-5	ND		mg/kg	8270D	0.250	R C	7/30/2014 10:42 PM
2-Methylphenol	95-48-7	ND		mg/kg	8270D	0.100	R C	7/30/2014 10:42 PM
2-Nitrophenol	88-75-5	ND		mg/kg	8270D	0.100	R C	7/30/2014 10:42 PM
4-Nitrophenol	100-02-7	ND		mg/kg	8270D	0.100	R C	7/30/2014 10:42 PM
Phenol	108-95-2	ND		mg/kg	8270D	0.100	R C	7/30/2014 10:42 PM
Pentachlorophenol	87-86-5	ND		mg/kg	8270D	0.100	R C	7/30/2014 10:42 PM
2,4,6-Trichlorophenol	88-06-2	ND		mg/kg	8270D	0.100	R C	7/30/2014 10:42 PM



# ANALYTICAL REPORT

**Project Name:** MC Canfield

**Date Sampled:** 7/24/2014 5:05 PM

**Lab Project #:** 41159

**Sampled By:** JG

**Lab Sample #:** 41159-1

**Sample Matrix:** Soil

**Client Sample ID:** #002 Backfill

**Sample Type:** Composite

Analyte	CASRN	Result	Q	Units	Method	RL	Analyst	Date / Time Analysis
<b>Semi Volatile Organics (TCL) - non-aqueous</b>								
2,4,5-Trichlorophenol	95-95-4	ND		mg/kg	8270D	0.100	R C	7/30/2014 10:42 PM
Acenaphthene	83-32-9	ND		mg/kg	8270D	0.100	R C	7/30/2014 10:42 PM
Acenaphthylene	208-96-8	ND		mg/kg	8270D	0.100	R C	7/30/2014 10:42 PM
Anthracene	120-12-7	ND		mg/kg	8270D	0.100	R C	7/30/2014 10:42 PM
Benzo[a]anthracene	56-55-3	ND		mg/kg	8270D	0.100	R C	7/30/2014 10:42 PM
Benzo[a]pyrene	50-32-8	ND		mg/kg	8270D	0.100	R C	7/30/2014 10:42 PM
Benzo[b]fluoranthene	205-99-2	ND		mg/kg	8270D	0.100	R C	7/30/2014 10:42 PM
Benzo[g,h,i]perylene	191-24-2	ND		mg/kg	8270D	0.100	R C	7/30/2014 10:42 PM
Benzo[k]fluoranthene	207-08-9	ND		mg/kg	8270D	0.100	R C	7/30/2014 10:42 PM
bis (2-Chloroethoxy) methane	111-91-1	ND		mg/kg	8270D	0.100	R C	7/30/2014 10:42 PM
bis (2-Chloroethyl) ether	111-44-4	ND		mg/kg	8270D	0.100	R C	7/30/2014 10:42 PM
bis (2-chloroisopropyl) ether	108-60-1	ND		mg/kg	8270D	0.100	R C	7/30/2014 10:42 PM
bis (2-Ethylhexyl) phthalate	117-81-7	ND		mg/kg	8270D	0.100	R C	7/30/2014 10:42 PM
Butylbenzylphthalate	85-68-7	ND		mg/kg	8270D	0.100	R C	7/30/2014 10:42 PM
4-Bromophenyl-phenylether	101-55-3	ND		mg/kg	8270D	0.100	R C	7/30/2014 10:42 PM
Carbazole	86-74-8	ND		mg/kg	8270D	0.100	R C	7/30/2014 10:42 PM
4-Chloroaniline	106-47-8	ND		mg/kg	8270D	0.100	R C	7/30/2014 10:42 PM
2-Chloronaphthalene	91-58-7	ND		mg/kg	8270D	0.100	R C	7/30/2014 10:42 PM
4-Chlorophenyl-phenylether	7005-72-3	ND		mg/kg	8270D	0.100	R C	7/30/2014 10:42 PM
Chrysene	218-01-9	ND		mg/kg	8270D	0.100	R C	7/30/2014 10:42 PM
Dibenz[a,h]anthracene	53-70-3	ND		mg/kg	8270D	0.100	R C	7/30/2014 10:42 PM
Dibenzofuran	132-64-9	ND		mg/kg	8270D	0.100	R C	7/30/2014 10:42 PM
3,3'-Dichlorobenzidine	91-94-1	ND		mg/kg	8270D	0.200	R C	7/30/2014 10:42 PM
1,4-Dichlorobenzene	106-46-7	ND		mg/kg	8270D	0.100	R C	7/30/2014 10:42 PM
Diethylphthalate	84-66-2	ND		mg/kg	8270D	0.100	R C	7/30/2014 10:42 PM
Dimethylphthalate	131-11-3	ND		mg/kg	8270D	0.100	R C	7/30/2014 10:42 PM
Di-n-butylphthalate	84-74-2	ND		mg/kg	8270D	0.100	R C	7/30/2014 10:42 PM
Di-n-octylphthalate	117-84-0	ND		mg/kg	8270D	0.100	R C	7/30/2014 10:42 PM
2,4-Dinitrotoluene	121-14-2	ND		mg/kg	8270D	0.100	R C	7/30/2014 10:42 PM
2,6-Dinitrotoluene	606-20-2	ND		mg/kg	8270D	0.100	R C	7/30/2014 10:42 PM
Fluoranthene	206-44-0	ND		mg/kg	8270D	0.100	R C	7/30/2014 10:42 PM
Fluorene	86-73-7	ND		mg/kg	8270D	0.100	R C	7/30/2014 10:42 PM
Hexachlorobenzene	118-74-1	ND		mg/kg	8270D	0.100	R C	7/30/2014 10:42 PM

# ANALYTICAL REPORT

**Project Name:** MC Canfield

**Date Sampled:** 7/24/2014 5:05 PM

**Lab Project #:** 41159

**Sampled By:** JG

**Lab Sample #:** 41159-1

**Sample Matrix:** Soil

**Client Sample ID:** #002 Backfill

**Sample Type:** Composite

Analyte	CASRN	Result	Q	Units	Method	RL	Analyst	Date / Time Analysis
<b>Semi Volatile Organics (TCL) - non-aqueous</b>								
Hexachlorobutadiene	87-68-3	ND		mg/kg	8270D	0.100	R C	7/30/2014 10:42 PM
Hexachlorocyclopentadiene	77-47-4	ND		mg/kg	8270D	0.250	R C	7/30/2014 10:42 PM
Hexachloroethane	67-72-1	ND		mg/kg	8270D	0.100	R C	7/30/2014 10:42 PM
Indeno[1,2,3-cd]pyrene	193-39-5	ND		mg/kg	8270D	0.100	R C	7/30/2014 10:42 PM
Isophorone	78-59-1	ND		mg/kg	8270D	0.100	R C	7/30/2014 10:42 PM
2-Methylnaphthalene	91-57-6	ND		mg/kg	8270D	0.100	R C	7/30/2014 10:42 PM
Naphthalene	91-20-3	ND		mg/kg	8270D	0.100	R C	7/30/2014 10:42 PM
2-Nitroaniline	88-74-4	ND		mg/kg	8270D	0.100	R C	7/30/2014 10:42 PM
3-Nitroaniline	99-09-2	ND		mg/kg	8270D	0.100	R C	7/30/2014 10:42 PM
4-Nitroaniline	100-01-6	ND		mg/kg	8270D	0.100	R C	7/30/2014 10:42 PM
Nitrobenzene	98-95-3	ND		mg/kg	8270D	0.100	R C	7/30/2014 10:42 PM
n-Nitrosodiphenylamine	86-30-6	ND		mg/kg	8270D	0.100	R C	7/30/2014 10:42 PM
n-Nitroso-di-n-propylamine	621-64-7	ND		mg/kg	8270D	0.100	R C	7/30/2014 10:42 PM
Phenanthrene	85-01-8	ND		mg/kg	8270D	0.100	R C	7/30/2014 10:42 PM
Pyrene	129-00-0	ND		mg/kg	8270D	0.100	R C	7/30/2014 10:42 PM
1,2,4-Trichlorobenzene	120-82-1	ND		mg/kg	8270D	0.100	R C	7/30/2014 10:42 PM
3- & 4- Methylphenol	61379-65-5	ND		mg/kg	8270D	0.100	R C	7/30/2014 10:42 PM
Pyridine	110-86-1	ND		mg/kg	8270D	0.100	R C	7/30/2014 10:42 PM
<b>Volatile Organics (TCL) - non-aqueous</b>								
Acetone	67-64-1	ND		mg/kg	8260C	0.050	I R	7/25/2014 1:20 PM
Benzene	71-43-2	ND		mg/kg	8260C	0.005	I R	7/25/2014 1:20 PM
Bromoform (Tribromomethane)	75-25-2	ND		mg/kg	8260C	0.005	I R	7/25/2014 1:20 PM
Bromodichloromethane	75-27-4	ND		mg/kg	8260C	0.005	I R	7/25/2014 1:20 PM
Bromomethane	74-83-9	ND		mg/kg	8260C	0.005	I R	7/25/2014 1:20 PM
2-Butanone (MEK)	78-93-3	ND		mg/kg	8260C	0.050	I R	7/25/2014 1:20 PM
Carbon disulfide	75-15-0	ND		mg/kg	8260C	0.005	I R	7/25/2014 1:20 PM
Carbon Tetrachloride	56-23-5	ND		mg/kg	8260C	0.005	I R	7/25/2014 1:20 PM
Chlorobenzene	108-90-7	ND		mg/kg	8260C	0.005	I R	7/25/2014 1:20 PM
Chloroethane	75-00-3	ND		mg/kg	8260C	0.005	I R	7/25/2014 1:20 PM
Chloroform	67-66-3	ND		mg/kg	8260C	0.005	I R	7/25/2014 1:20 PM
Chloromethane (Methyl Chloride)	74-87-3	ND		mg/kg	8260C	0.005	I R	7/25/2014 1:20 PM



# ANALYTICAL REPORT

**Project Name:** MC Canfield

**Date Sampled:** 7/24/2014 5:05 PM

**Lab Project #:** 41159

**Sampled By:** JG

**Lab Sample #:** 41159-1

**Sample Matrix:** Soil

**Client Sample ID:** #002 Backfill

**Sample Type:** Composite

Analyte	CASRN	Result	Q	Units	Method	RL	Analyst	Date / Time Analysis
<b>Volatile Organics (TCL) - non-aqueous</b>								
Dibromochloromethane	124-48-1	ND		mg/kg	8260C	0.005	I R	7/25/2014 1:20 PM
1,1-Dichloroethane	75-34-3	ND		mg/kg	8260C	0.005	I R	7/25/2014 1:20 PM
1,2-Dichloroethane	107-06-2	ND		mg/kg	8260C	0.005	I R	7/25/2014 1:20 PM
Ethylbenzene	100-41-4	ND		mg/kg	8260C	0.005	I R	7/25/2014 1:20 PM
2-Hexanone	591-78-6	ND		mg/kg	8260C	0.050	I R	7/25/2014 1:20 PM
Methylene Chloride (Dichloromethane)	75-09-2	ND		mg/kg	8260C	0.010	I R	7/25/2014 1:20 PM
4-methyl-2-pentanone (MIBK)	108-10-1	ND		mg/kg	8260C	0.050	I R	7/25/2014 1:20 PM
Styrene	100-42-5	ND		mg/kg	8260C	0.005	I R	7/25/2014 1:20 PM
1,1,2,2-Tetrachloroethane	79-34-5	ND		mg/kg	8260C	0.005	I R	7/25/2014 1:20 PM
Tetrachloroethene (PCE)	127-18-4	ND		mg/kg	8260C	0.005	I R	7/25/2014 1:20 PM
Toluene	108-88-3	ND		mg/kg	8260C	0.005	I R	7/25/2014 1:20 PM
1,1,1-Trichloroethane	71-55-6	ND		mg/kg	8260C	0.005	I R	7/25/2014 1:20 PM
1,1,2-Trichloroethane	79-00-5	ND		mg/kg	8260C	0.005	I R	7/25/2014 1:20 PM
Trichloroethene (TCE)	79-01-6	ND		mg/kg	8260C	0.005	I R	7/25/2014 1:20 PM
Vinyl Chloride	75-01-4	ND		mg/kg	8260C	0.005	I R	7/25/2014 1:20 PM
Dichlorodifluoromethane	75-71-8	ND		mg/kg	8260C	0.005	I R	7/25/2014 1:20 PM
Trichlorofluoromethane	75-69-4	ND		mg/kg	8260C	0.005	I R	7/25/2014 1:20 PM
trans-1,2-Dichloroethene	156-60-5	ND		mg/kg	8260C	0.005	I R	7/25/2014 1:20 PM
cis-1,2-Dichloroethene	156-59-2	ND		mg/kg	8260C	0.005	I R	7/25/2014 1:20 PM
Methyl tert-butyl ether (MTBE)	1634-04-4	ND		mg/kg	8260C	0.005	I R	7/25/2014 1:20 PM
1,2-Dibromoethane (EDB)	106-93-4	ND		mg/kg	8260C	0.005	I R	7/25/2014 1:20 PM
Isopropylbenzene (Cumene)	98-82-8	ND		mg/kg	8260C	0.005	I R	7/25/2014 1:20 PM
1,2-Dichlorobenzene	95-50-1	ND		mg/kg	8260C	0.005	I R	7/25/2014 1:20 PM
1,3-Dichlorobenzene	541-73-1	ND		mg/kg	8260C	0.005	I R	7/25/2014 1:20 PM
1,4-Dichlorobenzene	106-46-7	ND		mg/kg	8260C	0.005	I R	7/25/2014 1:20 PM
1,2-Dibromo-3-chloropropane (DBCP)	96-12-8	ND		mg/kg	8260C	0.005	I R	7/25/2014 1:20 PM
1,2,3-Trichlorobenzene	87-61-6	ND		mg/kg	8260C	0.005	I R	7/25/2014 1:20 PM
1,1,-Dichloroethene	75-35-4	ND		mg/kg	8260C	0.005	I R	7/25/2014 1:20 PM
1,2-Dichloropropane	78-87-5	ND		mg/kg	8260C	0.005	I R	7/25/2014 1:20 PM
cis-1,3-Dichloropropene	10061-01-5	ND		mg/kg	8260C	0.005	I R	7/25/2014 1:20 PM
trans-1,3-Dichloropropene	10061-02-6	ND		mg/kg	8260C	0.005	I R	7/25/2014 1:20 PM

# ANALYTICAL REPORT

**Project Name:** MC Canfield**Date Sampled:** 7/24/2014 5:05 PM**Sampled By:** JG**Sample Matrix:** Soil**Sample Type:** Composite**Lab Project #:** 41159**Lab Sample #:** 41159-1**Client Sample ID:** #002 Backfill

Analyte	CASRN	Result	Q	Units	Method	RL	Analyst	Date / Time Analysis
<b>Volatile Organics (TCL) - non-aqueous</b>								
Bromochloromethane	74-97-5	ND		mg/kg	8260C	0.005	I R	7/25/2014 1:20 PM
1,2,4-Trichlorobenzene	120-82-1	ND		mg/kg	8260C	0.005	I R	7/25/2014 1:20 PM
1,1,2-Trichloro-1,2, 2-Trifluoroethane	76-13-1	ND		mg/kg	8260C	0.005	I R	7/25/2014 1:20 PM
Xylenes, Total	1330-20-7	ND		mg/kg	8260C	0.005	I R	7/25/2014 1:20 PM



Akhter Mehmood  
Lab Director



Charles Morrow  
QAQC Director

# ANALYTICAL REPORT

## Methodology

All analyses are adapted from one or more of the following reference methods:

"Guidelines Establishing Test Procedures for the Analysis of Pollutants" Code of Federal Regulations, Vol. 40, Part 136

"Test Methods for Evaluating Solid Waste", SW846 Third Edition, September 1986, USEPA.

Code of Federal Regulations Vol. 40, Part 261, "Appendix II Method 1311 Toxicity Characteristic Leaching Procedure."

Standard Methods for the Examination of Water and Wastewater", 18th & 21st editions

"Methods for the Chemical Analysis of Water and Wastes", EPA600/4-79-020, March 1983, U.S. EPA, EMSL

"Annual Book of Standards, Section 11-Water", American Society for Testing and Materials (ASTM)

"Methods for the Determination of Organic Compounds in Drinking Water", EPA 600/4-88/039, December 1988

## Qualifiers

B	Detected in method blank	E	Detected above calibration limits, result estimated
H	Parameter run out of hold time	J	Detected below PQL, result estimated
P	Incorrect Preservative	R	See report notes
SUB	Sub-Contracted to Certified Lab	N	Not NELAP/TNI certified for parameter
C	NELAP/TNI certification Not Available		

## Abbreviations

ppm	Parts Per Million (mg/kg or mg/L)	PQL	Practical Quantitation Level
ppb	Parts Per Billion (ug/kg or ug/L)	attached	Subcontract Lab Report Attached
g	gram (1000 g = 1Kg)	ND	Not Detected
kg	kilogram (1 kg = 1000 g)	NA	Not Applicable
mg	milligram (1000 mg = 1 g)	NS	Not Spiked
mg/kg	milligram per kilogram (ppm)	NP	No PCB pattern detected
ug/kg	microgram per kilogram (ppb)	NR	Not Requested
ug	microgram (1000 ug = 1 mg)	NI	Not Ignitable
L	liter (1 L = 1000 mL)	NFL	No Free Liquid
ml	milliliter (1000 ml = 1 L)	NTU	Nephelometric Turbidity Units
ul	microliter (1000 ul = 1 ml)	S.U.	Standard Unit
mg/L	milligram per liter (ppm)	RPD	Relative Percent Difference
ug/L	microgram per liter (ppb)	RSD	Relative Standard Deviation
ng/kg	nanogram per kilogram	MS/MSD	Matrix Spike/Matrix Spike Duplicate
BTU/lb	British Thermal Units per pound	LCS	Laboratory Control Sample
CFU/mL	Colony Forming Units per milliliter	BS	Blank Spike (Method Spike)
MPN/100 ml	Most Probable Number per 100 mL	o F	degrees Fahrenheit
mS/cm	milli Siemens per centimeter	o C	degrees Celsius
uS/cm	micro Siemens per centimeter	umhos	Conductivity Units
ug/sq cm	microgram per square centimeter	ohms	Resistivity Units
ug/sq ft	microgram per square feet	RL	Reporting Limit
ug/wipe	microgram per wipe	P/N	Positive / Negative

Note: All non-aqueous samples, with the exception of oils, wipes, and paint chips are dry weight corrected

PQL-The Practical Quantitation Limit (PQL) is the lowest level that can be reliably achieved within specified limits of precision and accuracy during routine laboratory operating conditions.

RL-Reporting Limit is greater than or equal to PQL.





**Environmental  
Restoration, L.L.C.**  
1666 Fabick Drive  
Fenton, MO 63026  
(636) 227-7477  
Fax (636) 227-6447

Alternate billing information:  
**Environmental Restoration**  
1666 Fabick Drive  
Fenton, MO 63026  
Attn: Amy Riggott  
Report to: Amy Riggott  
Email to: a.riggott@erllc.com

**MC Canfield**

City/State  
**Newark, NJ**

Descriptor soil sample

Collected:

Phone: 404-353-7031  
Fax: 636-680-2593

Client Project #: **MC2-79**

ESC Key:

Collected by J Galioto

Site/Facility ID#: **MC2-79**

P.O. #: **MC**

Collected by (signature):

Rush (Lab MUST Be Notified)

Date Results Needed:

No.

Packed on Ice N Y

Same Day  
Next Day  
five Day

Email? No ☒ Yes  
Fax? No ☒ Yes

Containers

Sample ID

Comp/Grab

Matrix\*

Depth

Date

Time

No.

2

X

X

X

X

X

X

Sample # (lab only)

41159-1

#002 Backfill

Comp

soil

7/24/2014

900

2

X

X

X

X

X

X

X

see attach sheet

41159-1

5 Day  
TAT

\*Matrix

SS - Soil/Sollic

GW - GroundWater

WW - WasteWater

DW - Drinking Water

OT - Other

pH

Temp

Remarks:

\*For any constituents that exceed the 20X rule, please run TCLP of that constituent.

Relinquished by: (Signature)

Date: 7/24/14

Time: 12:20

Received by: (Signature)

Time:

Samples returned via:

UPS

Condition: (lab use only)

Relinquished by: (Signature)

Date: 7/24/14

Time: 15:25

Received by: (Signature)

Time:

Bottles Received:

Time:

pH Checked: NCF:

DA Charles Moore 8/5/14



# Mid-Atlantic

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[mael@maelinc.com](mailto:mael@maelinc.com)



## Analytical Report

**Project Name:** MC Canfield

**MAEL Job Number:** 41077

**Client:** Environmental Restoration LLC  
1666 Fabick Drive  
Fenton, MO 63026

**Contact Name:** Amy Riggott

**Date Received:** 07/14/2014

**Date Reported:** 7/21/2014

Analytical test results for methods listed on the laboratory's scope of accreditation meet all requirements of NELAC unless otherwise noted. All sample holding times and preservation requirements were met unless otherwise noted. Test results relate only to the sample tested. This report shall not be reproduced, except in full, without prior written authorization of Mid-Atlantic Environmental Laboratories, Inc.



# ANALYTICAL REPORT

**Project Name:** MC Canfield

**Date Sampled:** 7/14/2014 8:00 AM

**Sampled By:** JG

**Sample Matrix:** Soil

**Sample Type:** Composite

**Lab Project #:** 41077

**Lab Sample #:** 41077-1

**Client Sample ID:** #001-topsoil

Analyte	CASRN	Result	Q	Units	Method	RL	Analyst	Date / Time Analysis
<b>Flashpoint</b>								
Flashpoint		>100		o C	1010A		R B	7/16/2014 2:38 PM
<b>Herbicides - Non-aqueous</b>								
2,4-D	94-75-7	ND		mg/kg	8151A	0.01	B C	7/21/2014 4:05 PM
Dicamba	1918-00-9	ND		mg/kg	8151A	0.01	B C	7/21/2014 4:05 PM
Dichloroprop	120-36-5	ND		mg/kg	8151A	0.01	B C	7/21/2014 4:05 PM
Dinoseb	88-85-7	ND		mg/kg	8151A	0.01	B C	7/21/2014 4:05 PM
2,4,5-T	93-76-5	ND		mg/kg	8151A	0.01	B C	7/21/2014 4:05 PM
2,4,5-TP (Silvex)	93-72-1	ND		mg/kg	8151A	0.01	B C	7/21/2014 4:05 PM
<b>Mercury - Non-aqueous</b>								
Mercury	7439-97-6	ND		mg/kg	7471A	0.10	K S	7/21/2014 10:15 AM
<b>Metals (RCRA) - non-aqueous</b>								
Arsenic	7440-38-2	0.86		mg/kg	6010B	0.50	K S	7/18/2014 1:24 PM
Barium	7440-39-3	25.5		mg/kg	6010B	0.50	K S	7/18/2014 1:24 PM
Cadmium	7440-43-9	ND		mg/kg	6010B	0.50	K S	7/18/2014 1:24 PM
Chromium	7440-47-3	5.77		mg/kg	6010B	0.50	K S	7/18/2014 1:24 PM
Lead	7439-92-1	18.0		mg/kg	6010B	0.50	K S	7/18/2014 1:24 PM
Selenium	7782-49-2	ND		mg/kg	6010B	0.50	K S	7/18/2014 1:24 PM
Silver	7440-22-4	ND		mg/kg	6010B	0.50	K S	7/18/2014 1:24 PM
<b>PCBs - Non-aqueous</b>								
PCB-1016	12674-11-2	ND		mg/kg	8082A	0.025	B C	7/18/2014 8:52 PM
PCB-1221	11104-28-2	ND		mg/kg	8082A	0.025	B C	7/18/2014 8:52 PM
PCB-1232	11141-16-5	ND		mg/kg	8082A	0.025	B C	7/18/2014 8:52 PM
PCB-1242	53469-21-9	ND		mg/kg	8082A	0.025	B C	7/18/2014 8:52 PM
PCB-1248	12672-29-6	ND		mg/kg	8082A	0.025	B C	7/18/2014 8:52 PM
PCB-1254	11097-69-1	ND		mg/kg	8082A	0.025	B C	7/18/2014 8:52 PM
PCB-1260	11096-82-5	ND		mg/kg	8082A	0.025	B C	7/18/2014 8:52 PM
PCB-1262	37324-23-5	ND		mg/kg	8082A	0.025	B C	7/18/2014 8:52 PM
PCB-1268	11100-14-4	ND		mg/kg	8082A	0.025	B C	7/18/2014 8:52 PM

**Percent Moisture/Percent Solid**



# ANALYTICAL REPORT

**Project Name:** MC Canfield

**Date Sampled:** 7/14/2014 8:00 AM

**Lab Project #:** 41077

**Sampled By:** JG

**Lab Sample #:** 41077-1

**Sample Matrix:** Soil

**Client Sample ID:** #001-topsoil

**Sample Type:** Composite

Analyte	CASRN	Result	Q	Units	Method	RL	Analyst	Date / Time Analysis
Total Moisture		11.8		%	2540B	0.10	W W	7/17/2014 11:05 AM
<b>Pesticides (TCL) - non-aqueous</b>								
Aldrin	309-00-2	ND		mg/kg	8081B	0.00125	B C	7/18/2014 8:52 PM
alpha BHC	319-84-6	ND		mg/kg	8081B	0.00125	B C	7/18/2014 8:52 PM
beta BHC	319-85-7	ND		mg/kg	8081B	0.00125	B C	7/18/2014 8:52 PM
delta BHC	319-86-8	ND		mg/kg	8081B	0.00125	B C	7/18/2014 8:52 PM
gamma BHC (Lindane)	58-89-9	ND		mg/kg	8081B	0.00125	B C	7/18/2014 8:52 PM
alpha-Chlordane	5103-71-9	ND		mg/kg	8081B	0.00125	B C	7/18/2014 8:52 PM
4,4'-DDD	72-54-8	ND		mg/kg	8081B	0.00250	B C	7/18/2014 8:52 PM
4,4'-DDE	72-55-9	ND		mg/kg	8081B	0.00250	B C	7/18/2014 8:52 PM
4,4'-DDT	50-29-3	ND		mg/kg	8081B	0.00250	B C	7/18/2014 8:52 PM
Dieldrin	60-57-1	ND		mg/kg	8081B	0.00250	B C	7/18/2014 8:52 PM
Endosulfan I	959-98-8	ND		mg/kg	8081B	0.00125	B C	7/18/2014 8:52 PM
Endosulfan II	33213-65-9	ND		mg/kg	8081B	0.00250	B C	7/18/2014 8:52 PM
Endosulfan sulfate	1031-07-8	ND		mg/kg	8081B	0.00250	B C	7/18/2014 8:52 PM
Endrin	72-20-8	ND		mg/kg	8081B	0.00250	B C	7/18/2014 8:52 PM
Endrin aldehyde	7421-93-4	ND		mg/kg	8081B	0.00250	B C	7/18/2014 8:52 PM
Endrin ketone	53494-70-5	ND		mg/kg	8081B	0.00250	B C	7/18/2014 8:52 PM
Heptachlor	76-44-8	ND		mg/kg	8081B	0.00125	B C	7/18/2014 8:52 PM
Heptachlor epoxide	1024-57-3	ND		mg/kg	8081B	0.00125	B C	7/18/2014 8:52 PM
Methoxychlor	72-43-5	ND		mg/kg	8081B	0.01250	B C	7/18/2014 8:52 PM
Toxaphene	8001-35-2	ND		mg/kg	8081B	0.02500	B C	7/18/2014 8:52 PM
Chlordane	57-74-9	ND		mg/kg	8081B	0.02500	B C	7/18/2014 8:52 PM
<b>pH - non-aqueous</b>								
Corrosivity (pH)		5.90		S.U.	9045D		R B	7/17/2014 9:23 AM
<b>Reactive Cyanide</b>								
Reactive Cyanide	57-12-5	ND		mg/kg	7.3.3.2	0.20	R B	7/16/2014 3:49 PM
<b>Reactive Sulfide</b>								
Reactive Sulfide	18496-25-8	ND		mg/kg	7.3.4.2	0.20	R B	7/16/2014 3:02 PM
<b>Semi Volatile Organics (TCL) - non-aqueous</b>								
4-Chloro-3-methylphenol	59-50-7	ND		mg/kg	8270D	0.100	R C	7/18/2014 4:08 PM
2-Chlorophenol	95-57-8	ND		mg/kg	8270D	0.100	R C	7/18/2014 4:08 PM



# ANALYTICAL REPORT

**Project Name:** MC Canfield

**Date Sampled:** 7/14/2014 8:00 AM

**Sampled By:** JG

**Sample Matrix:** Soil

**Sample Type:** Composite

**Lab Project #:** 41077

**Lab Sample #:** 41077-1

**Client Sample ID:** #001-topsoil

Analyte	CASRN	Result	Q	Units	Method	RL	Analyst	Date / Time Analysis
<b>Semi Volatile Organics (TCL) - non-aqueous</b>								
2,4-Dichlorophenol	120-83-2	ND		mg/kg	8270D	0.100	R C	7/18/2014 4:08 PM
2,4-Dimethylphenol	105-67-9	ND		mg/kg	8270D	0.100	R C	7/18/2014 4:08 PM
4,6-Dinitro-2-methylphenol	534-52-1	ND		mg/kg	8270D	0.100	R C	7/18/2014 4:08 PM
2,4-Dinitrophenol	51-28-5	ND		mg/kg	8270D	0.250	R C	7/18/2014 4:08 PM
2-Methylphenol	95-48-7	ND		mg/kg	8270D	0.100	R C	7/18/2014 4:08 PM
2-Nitrophenol	88-75-5	ND		mg/kg	8270D	0.100	R C	7/18/2014 4:08 PM
4-Nitrophenol	100-02-7	ND		mg/kg	8270D	0.100	R C	7/18/2014 4:08 PM
Phenol	108-95-2	ND		mg/kg	8270D	0.100	R C	7/18/2014 4:08 PM
Pentachlorophenol	87-86-5	ND		mg/kg	8270D	0.100	R C	7/18/2014 4:08 PM
2,4,6-Trichlorophenol	88-06-2	ND		mg/kg	8270D	0.100	R C	7/18/2014 4:08 PM
2,4,5-Trichlorophenol	95-95-4	ND		mg/kg	8270D	0.100	R C	7/18/2014 4:08 PM
Acenaphthene	83-32-9	ND		mg/kg	8270D	0.100	R C	7/18/2014 4:08 PM
Acenaphthylene	208-96-8	ND		mg/kg	8270D	0.100	R C	7/18/2014 4:08 PM
Anthracene	120-12-7	ND		mg/kg	8270D	0.100	R C	7/18/2014 4:08 PM
Benzo[a]anthracene	56-55-3	0.284		mg/kg	8270D	0.100	R C	7/18/2014 4:08 PM
Benzo[a]pyrene	50-32-8	0.290		mg/kg	8270D	0.100	R C	7/18/2014 4:08 PM
Benzo[b]fluoranthene	205-99-2	0.301		mg/kg	8270D	0.100	R C	7/18/2014 4:08 PM
Benzo[g,h,i]perylene	191-24-2	0.227		mg/kg	8270D	0.100	R C	7/18/2014 4:08 PM
Benzo[k]fluoranthene	207-08-9	0.189		mg/kg	8270D	0.100	R C	7/18/2014 4:08 PM
bis (2-Chloroethoxy) methane	111-91-1	ND		mg/kg	8270D	0.100	R C	7/18/2014 4:08 PM
bis (2-Chloroethyl) ether	111-44-4	ND		mg/kg	8270D	0.100	R C	7/18/2014 4:08 PM
bis (2-chloroisopropyl) ether	108-60-1	ND		mg/kg	8270D	0.100	R C	7/18/2014 4:08 PM
bis (2-Ethylhexyl) phthalate	117-81-7	ND		mg/kg	8270D	0.100	R C	7/18/2014 4:08 PM
Butylbenzylphthalate	85-68-7	ND		mg/kg	8270D	0.100	R C	7/18/2014 4:08 PM
4-Bromophenyl-phenylether	101-55-3	ND		mg/kg	8270D	0.100	R C	7/18/2014 4:08 PM
Carbazole	86-74-8	ND		mg/kg	8270D	0.100	R C	7/18/2014 4:08 PM
4-Chloroaniline	106-47-8	ND		mg/kg	8270D	0.100	R C	7/18/2014 4:08 PM
2-Chloronaphthalene	91-58-7	ND		mg/kg	8270D	0.100	R C	7/18/2014 4:08 PM
4-Chlorophenyl-phenylether	7005-72-3	ND		mg/kg	8270D	0.100	R C	7/18/2014 4:08 PM
Chrysene	218-01-9	0.310		mg/kg	8270D	0.100	R C	7/18/2014 4:08 PM
Dibenz[a,h]anthracene	53-70-3	ND		mg/kg	8270D	0.100	R C	7/18/2014 4:08 PM
Dibenzofuran	132-64-9	ND		mg/kg	8270D	0.100	R C	7/18/2014 4:08 PM
3,3'-Dichlorobenzidine	91-94-1	ND		mg/kg	8270D	0.200	R C	7/18/2014 4:08 PM

# ANALYTICAL REPORT

**Project Name:** MC Canfield

**Date Sampled:** 7/14/2014 8:00 AM

**Lab Project #:** 41077

**Sampled By:** JG

**Lab Sample #:** 41077-1

**Sample Matrix:** Soil

**Client Sample ID:** #001-topsoil

**Sample Type:** Composite

Analyte	CASRN	Result	Q	Units	Method	RL	Analyst	Date / Time Analysis
<b>Semi Volatile Organics (TCL) - non-aqueous</b>								
1,4-Dichlorobenzene	106-46-7	ND		mg/kg	8270D	0.100	R C	7/18/2014 4:08 PM
Diethylphthalate	84-66-2	ND		mg/kg	8270D	0.100	R C	7/18/2014 4:08 PM
Dimethylphthalate	131-11-3	ND		mg/kg	8270D	0.100	R C	7/18/2014 4:08 PM
Di-n-butylphthalate	84-74-2	ND		mg/kg	8270D	0.100	R C	7/18/2014 4:08 PM
Di-n-octylphthalate	117-84-0	ND		mg/kg	8270D	0.100	R C	7/18/2014 4:08 PM
2,4-Dinitrotoluene	121-14-2	ND		mg/kg	8270D	0.100	R C	7/18/2014 4:08 PM
2,6-Dinitrotoluene	606-20-2	ND		mg/kg	8270D	0.100	R C	7/18/2014 4:08 PM
Fluoranthene	206-44-0	0.556		mg/kg	8270D	0.100	R C	7/18/2014 4:08 PM
Fluorene	86-73-7	ND		mg/kg	8270D	0.100	R C	7/18/2014 4:08 PM
Hexachlorobenzene	118-74-1	ND		mg/kg	8270D	0.100	R C	7/18/2014 4:08 PM
Hexachlorobutadiene	87-68-3	ND		mg/kg	8270D	0.100	R C	7/18/2014 4:08 PM
Hexachlorocyclopentadiene	77-47-4	ND		mg/kg	8270D	0.250	R C	7/18/2014 4:08 PM
Hexachloroethane	67-72-1	ND		mg/kg	8270D	0.100	R C	7/18/2014 4:08 PM
Indeno[1,2,3-cd]pyrene	193-39-5	0.187		mg/kg	8270D	0.100	R C	7/18/2014 4:08 PM
Isophorone	78-59-1	ND		mg/kg	8270D	0.100	R C	7/18/2014 4:08 PM
2-Methylnaphthalene	91-57-6	ND		mg/kg	8270D	0.100	R C	7/18/2014 4:08 PM
Naphthalene	91-20-3	ND		mg/kg	8270D	0.100	R C	7/18/2014 4:08 PM
2-Nitroaniline	88-74-4	ND		mg/kg	8270D	0.100	R C	7/18/2014 4:08 PM
3-Nitroaniline	99-09-2	ND		mg/kg	8270D	0.100	R C	7/18/2014 4:08 PM
4-Nitroaniline	100-01-6	ND		mg/kg	8270D	0.100	R C	7/18/2014 4:08 PM
Nitrobenzene	98-95-3	ND		mg/kg	8270D	0.100	R C	7/18/2014 4:08 PM
n-Nitrosodiphenylamine	86-30-6	ND		mg/kg	8270D	0.100	R C	7/18/2014 4:08 PM
n-Nitroso-di-n-propylamine	621-64-7	ND		mg/kg	8270D	0.100	R C	7/18/2014 4:08 PM
Phenanthrene	85-01-8	0.227		mg/kg	8270D	0.100	R C	7/18/2014 4:08 PM
Pyrene	129-00-0	0.492		mg/kg	8270D	0.100	R C	7/18/2014 4:08 PM
1,2,4-Trichlorobenzene	120-82-1	ND		mg/kg	8270D	0.100	R C	7/18/2014 4:08 PM
3- & 4- Methylphenol	61379-65-5	ND		mg/kg	8270D	0.100	R C	7/18/2014 4:08 PM
Pyridine	110-86-1	ND		mg/kg	8270D	0.100	R C	7/18/2014 4:08 PM

**TCLP Herbicides**

2,4-D	94-75-7	ND		mg/L	1311/8151A	0.002	B C	7/21/2014 2:35 PM
2,4,5-TP (Silvex)	93-72-1	ND		mg/L	1311/8151A	0.002	B C	7/21/2014 2:35 PM

**TCLP Mercury**

# ANALYTICAL REPORT

**Project Name:** MC Canfield

**Date Sampled:** 7/14/2014 8:00 AM

**Sampled By:** JG

**Sample Matrix:** Soil

**Sample Type:** Composite

**Lab Project #:** 41077

**Lab Sample #:** 41077-1

**Client Sample ID:** #001-topsoil

Analyte	CASRN	Result	Q	Units	Method	RL	Analyst	Date / Time Analysis
<b>TCLP Mercury</b>								
Mercury	7439-97-6	ND		mg/L	1311/245.1	0.001	K S	7/17/2014 1:20 PM
<b>TCLP Metals</b>								
Arsenic	7440-38-2	ND		mg/L	1311/6010B	0.05	K S	7/17/2014 8:30 PM
Barium	7440-39-3	0.61		mg/L	1311/6010B	0.05	K S	7/17/2014 8:30 PM
Cadmium	7440-43-9	ND		mg/L	1311/6010B	0.05	K S	7/17/2014 8:30 PM
Chromium	7440-47-3	ND		mg/L	1311/6010B	0.05	K S	7/17/2014 8:30 PM
Lead	7439-92-1	ND		mg/L	1311/6010B	0.05	K S	7/17/2014 8:30 PM
Selenium	7782-49-2	ND		mg/L	1311/6010B	0.05	K S	7/17/2014 8:30 PM
Silver	7440-22-4	ND		mg/L	1311/6010B	0.05	K S	7/17/2014 8:30 PM
<b>TCLP Pesticides</b>								
Chlordane	57-74-9	ND		mg/L	1311/8081A	0.00100	B C	7/21/2014 3:00 PM
Endrin	72-20-8	ND		mg/L	1311/8081A	0.00010	B C	7/21/2014 3:00 PM
gamma BHC (Lindane)	58-89-9	ND		mg/L	1311/8081A	0.00005	B C	7/21/2014 3:00 PM
Heptachlor	76-44-8	ND		mg/L	1311/8081A	0.00005	B C	7/21/2014 3:00 PM
Heptachlor epoxide	1024-57-3	ND		mg/L	1311/8081A	0.00005	B C	7/21/2014 3:00 PM
Methoxychlor	72-43-5	ND		mg/L	1311/8081A	0.00050	B C	7/21/2014 3:00 PM
Toxaphene	8001-35-2	ND		mg/L	1311/8081A	0.00100	B C	7/21/2014 3:00 PM
<b>TCLP Semivolatiles</b>								
1,4-Dichlorobenzene	106-46-7	ND		mg/L	1311/8270D	0.10	R C	7/17/2014 6:00 PM
2,4-Dinitrotoluene	121-14-2	ND		mg/L	1311/8270D	0.10	R C	7/17/2014 6:00 PM
Hexachlorobenzene	118-74-1	ND		mg/L	1311/8270D	0.10	R C	7/17/2014 6:00 PM
Hexachlorobutadiene	87-68-3	ND		mg/L	1311/8270D	0.10	R C	7/17/2014 6:00 PM
Hexachloroethane	67-72-1	ND		mg/L	1311/8270D	0.10	R C	7/17/2014 6:00 PM
2-Methylphenol	95-48-7	ND		mg/L	1311/8270D	0.10	R C	7/17/2014 6:00 PM
3- & 4- Methylphenol	61379-65-5	ND		mg/L	1311/8270D	0.10	R C	7/17/2014 6:00 PM
Nitrobenzene	98-95-3	ND		mg/L	1311/8270D	0.10	R C	7/17/2014 6:00 PM
Pentachlorophenol	87-86-5	ND		mg/L	1311/8270D	0.10	R C	7/17/2014 6:00 PM
Pyridine	110-86-1	ND		mg/L	1311/8270D	0.10	R C	7/17/2014 6:00 PM
2,4,5-Trichlorophenol	95-95-4	ND		mg/L	1311/8270D	0.10	R C	7/17/2014 6:00 PM
2,4,6-Trichlorophenol	88-06-2	ND		mg/L	1311/8270D	0.10	R C	7/17/2014 6:00 PM
<b>TCLP Volatiles</b>								

# ANALYTICAL REPORT

**Project Name:** MC Canfield

**Date Sampled:** 7/14/2014 8:00 AM

**Sampled By:** JG

**Sample Matrix:** Soil

**Sample Type:** Composite

**Lab Project #:** 41077

**Lab Sample #:** 41077-1

**Client Sample ID:** #001-topsoil

Analyte	CASRN	Result	Q	Units	Method	RL	Analyst	Date / Time Analysis
<b>TCLP Volatiles</b>								
Benzene	71-43-2	ND		mg/L	1311/8260C	0.02	I R	7/17/2014 5:43 PM
Carbon Tetrachloride	56-23-5	ND		mg/L	1311/8260C	0.02	I R	7/17/2014 5:43 PM
Chlorobenzene	108-90-7	ND		mg/L	1311/8260C	0.02	I R	7/17/2014 5:43 PM
Chloroform	67-66-3	ND		mg/L	1311/8260C	0.02	I R	7/17/2014 5:43 PM
1,2-Dichloroethane	107-06-2	ND		mg/L	1311/8260C	0.02	I R	7/17/2014 5:43 PM
1,1-Dichloroethene	75-35-4	ND		mg/L	1311/8260C	0.02	I R	7/17/2014 5:43 PM
Methyl Ethyl Ketone (MEK)	78-93-3	ND		mg/L	1311/8260C	0.10	I R	7/17/2014 5:43 PM
Tetrachloroethene (PCE)	127-18-4	ND		mg/L	1311/8260C	0.02	I R	7/17/2014 5:43 PM
Trichloroethene (TCE)	79-01-6	ND		mg/L	1311/8260C	0.02	I R	7/17/2014 5:43 PM
Vinyl Chloride	75-01-4	ND		mg/L	1311/8260C	0.02	I R	7/17/2014 5:43 PM
<b>Total Petroleum Hydrocarbons (C-40) - non-aqueous</b>								
Total Petroleum Hydrocarbons (C-40)		ND		mg/kg	8015B	50.0	S M	7/16/2014 10:00 PM
<b>Volatile Organics (TCL) - non-aqueous</b>								
Acetone	67-64-1	ND		mg/kg	8260C	0.050	I R	7/14/2014 11:04 PM
Benzene	71-43-2	ND		mg/kg	8260C	0.005	I R	7/14/2014 11:04 PM
Bromoform (Tribromomethane)	75-25-2	ND		mg/kg	8260C	0.005	I R	7/14/2014 11:04 PM
Bromodichloromethane	75-27-4	ND		mg/kg	8260C	0.005	I R	7/14/2014 11:04 PM
Bromomethane	74-83-9	ND		mg/kg	8260C	0.005	I R	7/14/2014 11:04 PM
2-Butanone (MEK)	78-93-3	ND		mg/kg	8260C	0.050	I R	7/14/2014 11:04 PM
Carbon disulfide	75-15-0	ND		mg/kg	8260C	0.005	I R	7/14/2014 11:04 PM
Carbon Tetrachloride	56-23-5	ND		mg/kg	8260C	0.005	I R	7/14/2014 11:04 PM
Chlorobenzene	108-90-7	ND		mg/kg	8260C	0.005	I R	7/14/2014 11:04 PM
Chloroethane	75-00-3	ND		mg/kg	8260C	0.005	I R	7/14/2014 11:04 PM
Chloroform	67-66-3	ND		mg/kg	8260C	0.005	I R	7/14/2014 11:04 PM
Chloromethane (Methyl Chloride)	74-87-3	ND		mg/kg	8260C	0.005	I R	7/14/2014 11:04 PM
Dibromochloromethane	124-48-1	ND		mg/kg	8260C	0.005	I R	7/14/2014 11:04 PM
1,1-Dichloroethane	75-34-3	ND		mg/kg	8260C	0.005	I R	7/14/2014 11:04 PM
1,2-Dichloroethane	107-06-2	ND		mg/kg	8260C	0.005	I R	7/14/2014 11:04 PM
Ethylbenzene	100-41-4	ND		mg/kg	8260C	0.005	I R	7/14/2014 11:04 PM
2-Hexanone	591-78-6	ND		mg/kg	8260C	0.050	I R	7/14/2014 11:04 PM



# ANALYTICAL REPORT

**Project Name:** MC Canfield

**Date Sampled:** 7/14/2014 8:00 AM

**Lab Project #:** 41077

**Sampled By:** JG

**Lab Sample #:** 41077-1

**Sample Matrix:** Soil

**Client Sample ID:** #001-topsoil

**Sample Type:** Composite

Analyte	CASRN	Result	Q	Units	Method	RL	Analyst	Date / Time Analysis
<b>Volatile Organics (TCL) - non-aqueous</b>								
Methylene Chloride (Dichloromethane)	75-09-2	ND		mg/kg	8260C	0.010	I R	7/14/2014 11:04 PM
4-methyl-2-pentanone (MIBK)	108-10-1	ND		mg/kg	8260C	0.050	I R	7/14/2014 11:04 PM
Styrene	100-42-5	ND		mg/kg	8260C	0.005	I R	7/14/2014 11:04 PM
1,1,2,2-Tetrachloroethane	79-34-5	ND		mg/kg	8260C	0.005	I R	7/14/2014 11:04 PM
Tetrachloroethene (PCE)	127-18-4	ND		mg/kg	8260C	0.005	I R	7/14/2014 11:04 PM
Toluene	108-88-3	ND		mg/kg	8260C	0.005	I R	7/14/2014 11:04 PM
1,1,1-Trichloroethane	71-55-6	ND		mg/kg	8260C	0.005	I R	7/14/2014 11:04 PM
1,1,2-Trichloroethane	79-00-5	ND		mg/kg	8260C	0.005	I R	7/14/2014 11:04 PM
Trichloroethene (TCE)	79-01-6	ND		mg/kg	8260C	0.005	I R	7/14/2014 11:04 PM
Vinyl Chloride	75-01-4	ND		mg/kg	8260C	0.005	I R	7/14/2014 11:04 PM
Dichlorodifluoromethane	75-71-8	ND		mg/kg	8260C	0.005	I R	7/14/2014 11:04 PM
Trichlorofluoromethane	75-69-4	ND		mg/kg	8260C	0.005	I R	7/14/2014 11:04 PM
trans-1,2-Dichloroethene	156-60-5	ND		mg/kg	8260C	0.005	I R	7/14/2014 11:04 PM
cis-1,2-Dichloroethene	156-59-2	ND		mg/kg	8260C	0.005	I R	7/14/2014 11:04 PM
Methyl tert-butyl ether (MTBE)	1634-04-4	ND		mg/kg	8260C	0.005	I R	7/14/2014 11:04 PM
1,2-Dibromoethane (EDB)	106-93-4	ND		mg/kg	8260C	0.005	I R	7/14/2014 11:04 PM
Isopropylbenzene (Cumene)	98-82-8	ND		mg/kg	8260C	0.005	I R	7/14/2014 11:04 PM
1,2-Dichlorobenzene	95-50-1	ND		mg/kg	8260C	0.005	I R	7/14/2014 11:04 PM
1,3-Dichlorobenzene	541-73-1	ND		mg/kg	8260C	0.005	I R	7/14/2014 11:04 PM
1,4-Dichlorobenzene	106-46-7	ND		mg/kg	8260C	0.005	I R	7/14/2014 11:04 PM
1,2-Dibromo-3-chloropropane (DBCP)	96-12-8	ND		mg/kg	8260C	0.005	I R	7/14/2014 11:04 PM
1,2,3-Trichlorobenzene	87-61-6	ND		mg/kg	8260C	0.005	I R	7/14/2014 11:04 PM
1,1,-Dichloroethene	75-35-4	ND		mg/kg	8260C	0.005	I R	7/14/2014 11:04 PM
1,2-Dichloropropane	78-87-5	ND		mg/kg	8260C	0.005	I R	7/14/2014 11:04 PM
cis-1,3-Dichloropropene	10061-01-5	ND		mg/kg	8260C	0.005	I R	7/14/2014 11:04 PM
trans-1,3-Dichloropropene	10061-02-6	ND		mg/kg	8260C	0.005	I R	7/14/2014 11:04 PM
Bromochloromethane	74-97-5	ND		mg/kg	8260C	0.005	I R	7/14/2014 11:04 PM
1,2,4-Trichlorobenzene	120-82-1	ND		mg/kg	8260C	0.005	I R	7/14/2014 11:04 PM
1,1,2-Trichloro-1,2, 2-Trifluoroethane	76-13-1	ND		mg/kg	8260C	0.005	I R	7/14/2014 11:04 PM
Xylenes, Total	1330-20-7	ND		mg/kg	8260C	0.005	I R	7/14/2014 11:04 PM

# ANALYTICAL REPORT

**Project Name:** MC Canfield

**Date Sampled:** 7/14/2014 8:00 AM

**Sampled By:** JG

**Sample Matrix:** Soil

**Sample Type:** Composite

**Lab Project #:** 41077

**Lab Sample #:** 41077-1

**Client Sample ID:** #001-topsoil



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Akhter Mehmood  
Lab Director



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Charles Morrow  
QAQC Director

# ANALYTICAL REPORT

## Methodology

All analyses are adapted from one or more of the following reference methods:

"Guidelines Establishing Test Procedures for the Analysis of Pollutants" Code of Federal Regulations, Vol. 40, Part 136

"Test Methods for Evaluating Solid Waste", SW846 Third Edition, September 1986, USEPA.

Code of Federal Regulations Vol. 40, Part 261, "Appendix II Method 1311 Toxicity Characteristic Leaching Procedure."

Standard Methods for the Examination of Water and Wastewater", 18th & 21st editions

"Methods for the Chemical Analysis of Water and Wastes", EPA600/4-79-020, March 1983, U.S. EPA, EMSL

"Annual Book of Standards, Section 11-Water", American Society for Testing and Materials (ASTM)

"Methods for the Determination of Organic Compounds in Drinking Water", EPA 600/4-88/039, December 1988

## Qualifiers

B	Detected in method blank	E	Detected above calibration limits, result estimated
H	Parameter run out of hold time	J	Detected below PQL, result estimated
P	Incorrect Preservative	R	See report notes
SUB	Sub-Contracted to Certified Lab	N	Not NELAP/TNI certified for parameter
C	NELAP/TNI certification Not Available		

## Abbreviations

ppm	Parts Per Million (mg/kg or mg/L)	PQL	Practical Quantitation Level
ppb	Parts Per Billion (ug/kg or ug/L)	attached	Subcontract Lab Report Attached
g	gram (1000 g = 1Kg)	ND	Not Detected
kg	kilogram (1 kg = 1000 g)	NA	Not Applicable
mg	milligram (1000 mg = 1 g)	NS	Not Spiked
mg/kg	milligram per kilogram (ppm)	NP	No PCB pattern detected
ug/kg	microgram per kilogram (ppb)	NR	Not Requested
ug	microgram (1000 ug = 1 mg)	NI	Not Ignitable
L	liter (1 L = 1000 mL)	NFL	No Free Liquid
ml	milliliter (1000 ml = 1 L)	NTU	Nephelometric Turbidity Units
ul	microliter (1000 ul = 1 ml)	S.U.	Standard Unit
mg/L	milligram per liter (ppm)	RPD	Relative Percent Difference
ug/L	microgram per liter (ppb)	RSD	Relative Standard Deviation
ng/kg	nanogram per kilogram	MS/MSD	Matrix Spike/Matrix Spike Duplicate
BTU/lb	British Thermal Units per pound	LCS	Laboratory Control Sample
CFU/mL	Colony Forming Units per milliliter	BS	Blank Spike (Method Spike)
MPN/100 ml	Most Probable Number per 100 mL	o F	degrees Fahrenheit
mS/cm	milli Siemens per centimeter	o C	degrees Celsius
uS/cm	micro Siemens per centimeter	umhos	Conductivity Units
ug/sq cm	microgram per square centimeter	ohms	Resistivity Units
ug/sq ft	microgram per square feet	RL	Reporting Limit
ug/wipe	microgram per wipe	P/N	Positive / Negative

Note: All non-aqueous samples, with the exception of oils, wipes, and paint chips are dry weight corrected

PQL-The Practical Quantitation Limit (PQL) is the lowest level that can be reliably achieved within specified limits of precision and accuracy during routine laboratory operating conditions.

RL-Reporting Limit is greater than or equal to PQL.



<b>Environmental Restoration</b> <b>Environmental Restoration, L.L.C.</b> 1666 Fabick Drive Fenton, MO 63026 (636) 227-7477 Fax (636) 227-6447		<b>Environmental Restoration</b> 1666 Fabick Drive Fenton, MO 63026 Attn: Amy Riggott Report to: Amy Riggott Email to: <a href="mailto:ariggott@erllc.com">ariggott@erllc.com</a>		Alternate billing information: <b>Environmental Restoration</b> 1666 Fabick Drive Fenton, MO 63026	
Project: <b>MC Canfield</b> Description: soil sample		City/State: <b>Newark, NJ</b> Collected:		Chain of Custody Page 1 of 1 Prepared by: <b>J Galioto</b>	
Phone: 404-353-7031 Fax: 636-680-2593	Client Project #: <b>MC2-79</b> Site/Facility ID#: <b>MC2-79</b>	ESC Key: P.O. #: <b>MC2-79</b> Date Results Needed: <b>10/19/99</b>	Analysis/Container/Preservative Total & TCLP RCRA 8 metals Total PCBs Reactive Cyanide/Sulfide Total & TCLP VOC/SVOC Total & TCLP Pesticide/Herbicide TPH		
Collected by (signature): Packed on Ice N Y	Rush (Lab MUST Be Notified) Same Day Next Day five Day Email? No <input checked="" type="checkbox"/> Yes Fax? <input checked="" type="checkbox"/> No <input type="checkbox"/> Yes	No. of Containers Date 7/14/2014 Time 800	CoCode Template/Prelogin Shipped Via: Remarks/Containment Sample # (lab use only) <b>SDA47WT 4/1077-1</b>		
Sample ID <b>4/1077-1 #001-topsoil</b>	Comp/Grab Comp	Matrix* soil	pH, Flashpoint Total & TCLP Pesticide/Herbicide Total PCBs Reactive Cyanide/Sulfide Total & TCLP VOC/SVOC Total & TCLP Pesticide/Herbicide TPH		
Matrix SS - Soil/Solic GW - GroundWater WW - WasteWater DW - Drinking Water OT - Other			pH Flow Temp Other		
Remarks: *For any constituents that exceed the 20X rule, please run TCLP of that constituent.					
Relinquished by: (Signature) Relinquished by: (Signature) Relinquished by: (Signature)	Date: 7/14/14 Date: 7/14/14 Date: 7/14/14	Time: 11:27 Time: Time: 13:52	Samples returned via: <input type="checkbox"/> Fed Ex <input type="checkbox"/> Courier <input type="checkbox"/> UPS Bottles Received: Temp: Time:		
Received by: (Signature) Received by: (Signature) Received for lab by: (Signature)			Condition: (lab use only) pH Checked: NCF:		



**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY**

**Region 2 Laboratory  
2890 Woodbridge Avenue  
Edison , New Jersey 08837  
732-906-6886 Phone  
732-906-6165 Fax**

December 11, 2014

Smita Sumbaly  
Weston Solutions Inc.  
205 Campus Drive  
Edison, NJ 08837

RE: MC Canfield & Sons - 1407047

Enclosed are the results of analyses for samples received by the laboratory between 7/17/2014 and 11/14/2014. The signature below reflects the laboratory's approval of the reported results. If you have any questions concerning this report, please refer to Project Number 1407047 and contact John Birri by phone at 732-906-6886, or via Email at [birri.john@epa.gov](mailto:birri.john@epa.gov).

Sincerely,

A handwritten signature in black ink, which appears to read "James Ferretti", is positioned above the printed name and title.

James Ferretti  
Acting Chief, DESA/LB



**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY**  
**Region 2 Laboratory**

**Project:MC Canfield & Sons - 1407047**

**Project Number: 1407047**

**Project Narrative:**

The National Environmental Laboratory Accreditation Conference Institute (TNI) is a voluntary environmental laboratory accreditation association of State and Federal agencies. TNI established and promoted a National Environmental Laboratory Accreditation Program (NELAP) that provides a uniform set of standards for the generation of environmental data that are of known and defensible quality. The EPA Region 2 Laboratory is NELAP accredited. The Laboratory tests that are accredited have met all the requirements established under the TNI Standards.

**Condition Comments**

None

**Comment(s):**

None

**Data Qualifier(s):**

- U- The analyte was not detected at or above the Reporting Limit.
- J- The identification of the analyte is acceptable; the reported value is an estimate.
- K- The identification of the analyte is acceptable; the reported value may be biased high.
- L- The identification of the analyte is acceptable; the reported value may be biased low.
- NJ- There is presumptive evidence that the analyte is present; the analyte is reported as a tentative identification. The reported value is an estimate.

**Reporting Limit(s):**

The Laboratory was able to achieve the appropriate limits for each analyte requested.



**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY**  
**Region 2 Laboratory**

**Project:MC Canfield & Sons - 1407047**

**Project Number: 1407047**

**SUMMARY REPORT FOR SAMPLES**

Field ID	Laboratory ID	Matrix	Date Sampled	Date Received
P001-SS013A-BS24-001-01	1407047-01	Solid	07/15/2014 15:36	07/17/2014 12:55
P001-SS013A-SW1824-001-01	1407047-02	Solid	07/15/2014 15:30	07/17/2014 12:55
P001-SS013A-SW1824-002-01	1407047-03	Solid	07/15/2014 15:32	07/17/2014 12:55
P001-SS013A-SW1824-003-01	1407047-04	Solid	07/15/2014 15:34	07/17/2014 12:55
P001-SS013A-SW1824-004-01	1407054-01	Solid	07/17/2014 13:15	07/22/2014 16:55
P001-SS013A-BS24-002-01	1407054-02	Solid	07/17/2014 13:25	07/22/2014 16:55
P001-SS013A-SW1824-011-01	1407054-03	Solid	07/21/2014 14:00	07/22/2014 16:55
P001-SS013A-BS24-004-01	1407054-04	Solid	07/21/2014 14:02	07/22/2014 16:55
P001-SS013A-SW1824-009-01	1407054-05	Solid	07/21/2014 14:04	07/22/2014 16:55
P001-SS013A-SW1824-008-01	1407054-06	Solid	07/21/2014 14:06	07/22/2014 16:55
P001-SS013A-SW1824-007-01	1407054-07	Solid	07/21/2014 14:08	07/22/2014 16:55
P001-SS013A-BS24-003-01	1407054-08	Solid	07/21/2014 14:10	07/22/2014 16:55
P001-SS013A-SW1824-010-01	1407054-09	Solid	07/21/2014 14:16	07/22/2014 16:55
P001-SS013A-SW1824-005-01	1407054-10	Solid	07/22/2014 09:54	07/22/2014 16:55
P001-SS013A-SW1824-006-01	1407054-11	Solid	07/22/2014 09:56	07/22/2014 16:55
P001-SS012A-SW1824-001-01	1407087-01	Solid	07/23/2014 13:40	07/30/2014 16:20
P001-SS012A-SW1824-002-01	1407087-02	Solid	07/23/2014 13:42	07/30/2014 16:20
P001-SS012A-SW1824-003-01	1407087-03	Solid	07/23/2014 13:44	07/30/2014 16:20
P001-SS012A-BS24-001-02	1407087-04	Solid	07/23/2014 13:46	07/30/2014 16:20
P001-SS012A-BS24-001-01	1407087-05	Solid	07/23/2014 13:46	07/30/2014 16:20
P001-SS012A-SW1824-004-01	1407087-06	Solid	07/24/2014 14:18	07/30/2014 16:20
P001-SS012A-BS24-002-01	1407087-07	Solid	07/24/2014 14:20	07/30/2014 16:20
P001-SS012A-SW1824-005-01	1407087-08	Solid	07/25/2014 11:10	07/30/2014 16:20
P001-SS012A-SW1824-006-01	1407087-09	Solid	07/25/2014 11:15	07/30/2014 16:20
P001-SS012A-SW1824-007-01	1407087-10	Solid	07/25/2014 11:20	07/30/2014 16:20
P001-SS012A-SW1824-008-01	1407087-11	Solid	07/25/2014 11:25	07/30/2014 16:20
P001-SS012A-BS24-003-01	1407087-12	Solid	07/28/2014 11:40	07/30/2014 16:20
P001-SS012A-SW1824-009-01	1407087-13	Solid	07/28/2014 11:42	07/30/2014 16:20
P001-SS012A-BS24-004-01	1407087-14	Solid	07/29/2014 10:46	07/30/2014 16:20



**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY**  
**Region 2 Laboratory**

**Project:MC Canfield & Sons - 1407047**

**Project Number: 1407047**

**SUMMARY REPORT FOR SAMPLES**

Field ID	Laboratory ID	Matrix	Date Sampled	Date Received
P001-SS012A-SW1824-010-01	1407087-15	Solid	07/29/2014 10:48	07/30/2014 16:20
P001-SS012A-SW1824-012-01	1407087-16	Solid	07/29/2014 10:50	07/30/2014 16:20
P001-SS012A-SW1824-011-01	1407087-17	Solid	07/29/2014 13:30	07/30/2014 16:20
P001-SS012B-BS24-001-01	1408001-01	Solid	07/30/2014 09:24	07/31/2014 17:00
P001-SS012B-SW1824-001-01	1408001-02	Solid	07/30/2014 09:16	07/31/2014 17:00
P001-SS012B-SW1824-002-01	1408001-03	Solid	07/30/2014 09:18	07/31/2014 17:00
P001-SS012B-SW1824-003-01	1408001-04	Solid	07/30/2014 09:20	07/31/2014 17:00
P001-SS012B-SW1824-004-01	1408001-05	Solid	07/30/2014 09:22	07/31/2014 17:00
P001-SS012D-BS24-001-01	1408001-06	Solid	07/30/2014 12:24	07/31/2014 17:00
P001-SS012D-SW1824-001-01	1408001-07	Solid	07/30/2014 12:16	07/31/2014 17:00
P001-SS012D-SW1824-001-02	1408001-08	Solid	07/30/2014 12:16	07/31/2014 17:00
P001-SS012D-SW1824-002-01	1408001-09	Solid	07/30/2014 12:18	07/31/2014 17:00
P001-SS012D-SW1824-003-01	1408001-10	Solid	07/30/2014 12:20	07/31/2014 17:00
P001-SS012D-SW1824-004-01	1408001-11	Solid	07/30/2014 12:22	07/31/2014 17:00
P001-SS012E-BS24-001-01	1408001-12	Solid	07/30/2014 12:58	07/31/2014 17:00
P001-SS012E-SW1824-001-01	1408001-13	Solid	07/30/2014 12:50	07/31/2014 17:00
P001-SS012E-SW1824-002-01	1408001-14	Solid	07/30/2014 12:52	07/31/2014 17:00
P001-SS012E-SW1824-003-01	1408001-15	Solid	07/30/2014 12:54	07/31/2014 17:00
P001-SS012E-SW1824-004-01	1408001-16	Solid	07/30/2014 12:56	07/31/2014 17:00
P001-SS012C-BS24-001-01	1408005-01	Solid	07/31/2014 11:40	08/01/2014 17:20
P001-SS012C-SW1824-001-01	1408005-02	Solid	07/31/2014 11:32	08/01/2014 17:20
P001-SS012C-SW1824-002-01	1408005-03	Solid	07/31/2014 11:34	08/01/2014 17:20
P001-SS012C-SW1824-003-01	1408005-04	Solid	07/31/2014 11:36	08/01/2014 17:20
P001-SS012C-SW1824-004-01	1408005-05	Solid	07/31/2014 11:40	08/01/2014 17:20
P001-SS012F-BS24-001-01	1408005-06	Solid	07/31/2014 10:38	08/01/2014 17:20
P001-SS012F-SW1824-002-01	1408005-07	Solid	07/31/2014 10:32	08/01/2014 17:20
P001-SS012F-SW1824-003-01	1408005-08	Solid	07/31/2014 10:34	08/01/2014 17:20
P001-SS012F-SW1824-004-01	1408005-09	Solid	07/31/2014 10:36	08/01/2014 17:20
P001-SS012F-SW24-001-01	1408005-10	Solid	07/31/2014 10:30	08/01/2014 17:20





**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY**  
**Region 2 Laboratory**

**Project:MC Canfield & Sons - 1407047**

**Project Number: 1407047**

**SUMMARY REPORT FOR SAMPLES**

Field ID	Laboratory ID	Matrix	Date Sampled	Date Received
P001-SS012G-BS24-001-01	1408005-11	Solid	07/31/2014 14:08	08/01/2014 17:20
P001-SS012G-SW1824-001-01	1408005-12	Solid	07/31/2014 14:00	08/01/2014 17:20
P001-SS012G-SW1824-002-01	1408005-13	Solid	07/31/2014 14:02	08/01/2014 17:20
P001-SS012G-SW1824-003-01	1408005-14	Solid	07/31/2014 14:04	08/01/2014 17:20
P001-SS012G-SW1824-003-02	1408005-15	Solid	07/31/2014 14:04	08/01/2014 17:20
P001-SS012G-SW1824-004-01	1408005-16	Solid	07/31/2014 14:06	08/01/2014 17:20
P001-SS014B-BS24-001-01	1408005-17	Solid	08/01/2014 10:08	08/01/2014 17:20
P001-SS014B-SW1824-001-01	1408005-18	Solid	08/01/2014 10:00	08/01/2014 17:20
P001-SS014B-SW1824-002-01	1408005-19	Solid	08/01/2014 10:02	08/01/2014 17:20
P001-SS014B-SW1824-003-01	1408005-20	Solid	08/01/2014 10:04	08/01/2014 17:20
P001-SS014B-SW1824-004-01	1408005-21	Solid	08/01/2014 10:06	08/01/2014 17:20
P001-SS014C-SW1824-001-01	1408015-01	Solid	08/01/2014 13:10	08/07/2014 15:24
P001-SS014C-SW1824-002-01	1408015-02	Solid	08/01/2014 13:12	08/07/2014 15:24
P001-SS014C-SW1824-003-01	1408015-03	Solid	08/01/2014 13:14	08/07/2014 15:24
P001-SS014C-SW1824-004-01	1408015-04	Solid	08/01/2014 13:16	08/07/2014 15:24
P001-SS014C-BS24-001-01	1408015-05	Solid	08/01/2014 13:18	08/07/2014 15:24
P001-SS014C-BS24-001-02	1408015-06	Solid	08/01/2014 13:18	08/07/2014 15:24
P001-SS014F-SW1824-001-01	1408015-07	Solid	08/04/2014 12:04	08/07/2014 15:24
P001-SS014F-SW1824-002-01	1408015-08	Solid	08/04/2014 12:06	08/07/2014 15:24
P001-SS014F-SW1824-003-01	1408015-09	Solid	08/04/2014 12:08	08/07/2014 15:24
P001-SS014F-SW1824-004-01	1408015-10	Solid	08/04/2014 12:10	08/07/2014 15:24
P001-SS014F-BS24-001-01	1408015-11	Solid	08/04/2014 12:12	08/07/2014 15:24
P001-SS014G-SW1824-001-01	1408015-12	Solid	08/04/2014 12:16	08/07/2014 15:24
P001-SS014G-SW1824-002-01	1408015-13	Solid	08/04/2014 12:18	08/07/2014 15:24
P001-SS014G-SW1824-003-01	1408015-14	Solid	08/04/2014 12:20	08/07/2014 15:24
P001-SS014G-SW1824-004-01	1408015-15	Solid	08/04/2014 12:22	08/07/2014 15:24
P001-SS014G-BS24-001-01	1408015-16	Solid	08/04/2014 12:24	08/07/2014 15:24
P001-SS014D-SW1824-001-01	1408015-17	Solid	08/05/2014 09:14	08/07/2014 15:24
P001-SS014D-SW1824-002-01	1408015-18	Solid	08/05/2014 09:16	08/07/2014 15:24



**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY**  
**Region 2 Laboratory**

**Project:MC Canfield & Sons - 1407047**

**Project Number: 1407047**

**SUMMARY REPORT FOR SAMPLES**

Field ID	Laboratory ID	Matrix	Date Sampled	Date Received
P001-SS014D-SW1824-003-01	1408015-19	Solid	08/05/2014 09:18	08/07/2014 15:24
P001-SS014D-SW1824-004-01	1408015-20	Solid	08/05/2014 09:20	08/07/2014 15:24
P001-SS014D-BS24-001-01	1408015-21	Solid	08/05/2014 09:22	08/07/2014 15:24
P001-SS014E-SW1824-001-01	1408015-22	Solid	08/05/2014 09:32	08/07/2014 15:24
P001-SS014E-SW1824-002-01	1408015-23	Solid	08/05/2014 09:35	08/07/2014 15:24
P001-SS014E-SW1824-003-01	1408015-24	Solid	08/05/2014 09:38	08/07/2014 15:24
P001-SS014E-SW1824-004-01	1408015-25	Solid	08/05/2014 09:40	08/07/2014 15:24
P001-SS014E-BS24-001-01	1408015-26	Solid	08/05/2014 09:42	08/07/2014 15:24
P001-SS014H-SW1824-001-01	1408015-27	Solid	08/06/2014 15:30	08/07/2014 15:24
P001-SS014H-SW1824-001-02	1408015-28	Solid	08/06/2014 15:31	08/07/2014 15:24
P001-SS014H-SW1824-002-01	1408015-29	Solid	08/06/2014 15:32	08/07/2014 15:24
P001-SS014H-SW1824-004-01	1408015-30	Solid	08/06/2014 15:34	08/07/2014 15:24
P001-SS014H-BS24-001-01	1408015-31	Solid	08/06/2014 15:36	08/07/2014 15:24
P001-SS014H-SW1824-003-01	1408015-32	Solid	08/07/2014 09:00	08/07/2014 15:24
P001-SS013C-SW1824-001-01	1408028-01	Solid	08/08/2014 11:04	08/15/2014 16:00
P001-SS013C-BS24-001-01	1408028-02	Solid	08/08/2014 11:08	08/15/2014 16:00
P001-SS013B-BS24-001-01	1408028-03	Solid	08/11/2014 11:22	08/15/2014 16:00
P001-SS013B-SW1824-001-01	1408028-04	Solid	08/11/2014 11:24	08/15/2014 16:00
P001-SS013B-SW1824-002-01	1408028-05	Solid	08/11/2014 11:26	08/15/2014 16:00
P001-SS013B-SW1824-003-01	1408028-06	Solid	08/11/2014 11:28	08/15/2014 16:00
P001-SS013B-SW1824-004-01	1408028-07	Solid	08/11/2014 11:30	08/15/2014 16:00
P001-SS014J-SW1824-001-01	1408028-08	Solid	08/12/2014 09:24	08/15/2014 16:00
P001-SS014J-SW1824-002-01	1408028-09	Solid	08/12/2014 09:26	08/15/2014 16:00
P001-SS014J-SW1824-003-01	1408028-10	Solid	08/12/2014 09:28	08/15/2014 16:00
P001-SS014J-BS24-001-01	1408028-11	Solid	08/12/2014 09:30	08/15/2014 16:00
P001-SS014I-SW1824-001-01	1408028-12	Solid	08/12/2014 12:02	08/15/2014 16:00
P001-SS014I-SW1824-002-01	1408028-13	Solid	08/12/2014 12:04	08/15/2014 16:00
P001-SS014I-BS24-001-01	1408028-14	Solid	08/12/2014 12:06	08/15/2014 16:00
P001-SS014I-BS24-001-02	1408028-15	Solid	08/12/2014 12:08	08/15/2014 16:00





**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY**  
**Region 2 Laboratory**

**Project:MC Canfield & Sons - 1407047**

**Project Number: 1407047**

**SUMMARY REPORT FOR SAMPLES**

Field ID	Laboratory ID	Matrix	Date Sampled	Date Received
P001-SS012J-SW1824-001-01	1408028-16	Solid	08/13/2014 11:30	08/15/2014 16:00
P001-SS012J-SW1824-002-01	1408028-17	Solid	08/13/2014 11:32	08/15/2014 16:00
P001-SS012J-SW1824-003-01	1408028-18	Solid	08/13/2014 11:34	08/15/2014 16:00
P001-SS012J-BS24-001-01	1408028-19	Solid	08/13/2014 11:36	08/15/2014 16:00
P001-SS012I-SW1824-001-01	1408028-20	Solid	08/14/2014 11:50	08/15/2014 16:00
P001-SS012I-SW1824-002-01	1408028-21	Solid	08/14/2014 11:52	08/15/2014 16:00
P001-SS012I-BS24-001-01	1408028-22	Solid	08/14/2014 11:54	08/15/2014 16:00
P001-SS015B-SW1824-001-01	1408028-23	Solid	08/15/2014 11:10	08/15/2014 16:00
P001-SS015B-SW1824-002-01	1408028-24	Solid	08/15/2014 11:12	08/15/2014 16:00
P001-SS015B-BS24-001-01	1408028-25	Solid	08/15/2014 11:14	08/15/2014 16:00
P001-SS015C-SW1824-001-01	1408028-26	Solid	08/15/2014 12:50	08/15/2014 16:00
P001-SS015C-SW1824-002-01	1408028-27	Solid	08/15/2014 12:52	08/15/2014 16:00
P001-SS015C-SW1824-003-01	1408028-28	Solid	08/15/2014 12:54	08/15/2014 16:00
P001-SS015C-BS24-001-01	1408028-29	Solid	08/15/2014 12:56	08/15/2014 16:00
P001-SS015E-SW1824-001-01	1408036-01	Solid	08/18/2014 10:42	08/22/2014 14:40
P001-SS015E-SW1824-002-01	1408036-02	Solid	08/18/2014 10:44	08/22/2014 14:40
P001-SS015E-SW1824-003-01	1408036-03	Solid	08/18/2014 10:46	08/22/2014 14:40
P001-SS015E-BS24-001-01	1408036-04	Solid	08/18/2014 10:48	08/22/2014 14:40
P001-SS015F-SW1824-001-01	1408036-05	Solid	08/18/2014 13:40	08/22/2014 14:40
P001-SS015F-SW1824-002-01	1408036-06	Solid	08/18/2014 13:42	08/22/2014 14:40
P001-SS015F-BS24-001-01	1408036-07	Solid	08/18/2014 13:44	08/22/2014 14:40
P001-SS013E-SW1824-001-01	1408036-08	Solid	08/19/2014 10:30	08/22/2014 14:40
P001-SS013E-SW1824-002-01	1408036-09	Solid	08/19/2014 10:32	08/22/2014 14:40
P001-SS013E-SW1824-003-01	1408036-10	Solid	08/19/2014 10:34	08/22/2014 14:40
P001-SS013E-BS24-001-01	1408036-11	Solid	08/19/2014 10:36	08/22/2014 14:40
P001-SS013F-SW1824-001-01	1408036-12	Solid	08/19/2014 13:22	08/22/2014 14:40
P001-SS013F-SW1824-002-01	1408036-13	Solid	08/19/2014 13:24	08/22/2014 14:40
P001-SS013F-BS24-001-01	1408036-14	Solid	08/19/2014 13:26	08/22/2014 14:40
P001-SS023A-SW1824-001-01	1408036-15	Solid	08/20/2014 13:24	08/22/2014 14:40



**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY**  
**Region 2 Laboratory**

**Project:MC Canfield & Sons - 1407047**

**Project Number: 1407047**

**SUMMARY REPORT FOR SAMPLES**

Field ID	Laboratory ID	Matrix	Date Sampled	Date Received
P001-SS023A-SW1824-001-02	1408036-16	Solid	08/20/2014 13:26	08/22/2014 14:40
P001-SS023A-BS24-001-01	1408036-17	Solid	08/20/2014 13:30	08/22/2014 14:40
P001-SS023A-SW1824-002-01	1408036-18	Solid	08/21/2014 12:40	08/22/2014 14:40
P001-SS023A-SW1824-003-01	1408036-19	Solid	08/21/2014 12:42	08/22/2014 14:40
P001-SS023B-SW1824-001-01	1408052-01	Solid	08/25/2014 14:32	08/29/2014 10:00
P001-SS023B-SW1824-002-01	1408052-02	Solid	08/25/2014 14:34	08/29/2014 10:00
P001-SS023B-BS24-001-01	1408052-03	Solid	08/26/2014 14:28	08/29/2014 10:00
P001-SS023B-SW1824-003-01	1408052-04	Solid	08/26/2014 14:30	08/29/2014 10:00
P001-SS023B-SW1824-004-01	1408052-05	Solid	08/27/2014 11:30	08/29/2014 10:00
P001-SS014A-SW1824-001-01	1409018-01	Solid	09/08/2014 13:20	09/12/2014 16:20
P001-SS014A-SW1824-002-01	1409018-02	Solid	09/08/2014 13:22	09/12/2014 16:20
P001-SS014A-SW1824-003-01	1409018-03	Solid	09/08/2014 13:24	09/12/2014 16:20
P001-SS012H-SW1824-001-01	1409018-04	Solid	09/08/2014 13:26	09/12/2014 16:20
P001-SS012H-SW1824-002-01	1409018-05	Solid	09/08/2014 13:28	09/12/2014 16:20
P001-SS012H-SW1824-003-01	1409018-06	Solid	09/08/2014 13:50	09/12/2014 16:20
P001-SS014A-SW1824-004-01	1409018-07	Solid	09/09/2014 14:32	09/12/2014 16:20
P001-SS014A-BS24-001-01	1409018-08	Solid	09/09/2014 14:34	09/12/2014 16:20
P001-SS012H-SW1824-004-01	1409018-09	Solid	09/09/2014 14:36	09/12/2014 16:20
P001-SS012H-BS24-001-01	1409018-10	Solid	09/09/2014 14:38	09/12/2014 16:20
P001-SS014A-BS24-002-01	1409018-11	Solid	09/10/2014 15:02	09/12/2014 16:20
P001-SS014A-BS24-002-02	1409018-12	Solid	09/10/2014 15:04	09/12/2014 16:20
P001-SS012H-BS24-002-01	1409018-13	Solid	09/10/2014 15:06	09/12/2014 16:20
P001-SS012H-SW1824-005-01	1409018-14	Solid	09/11/2014 14:00	09/12/2014 16:20
P001-SS012H-BS24-003-01	1409018-15	Solid	09/11/2014 14:02	09/12/2014 16:20
P001-SS012H-SW1824-007-01	1409018-16	Solid	09/11/2014 14:04	09/12/2014 16:20
P001-SS012H-SW1824-006-01	1409018-17	Solid	09/12/2014 09:45	09/12/2014 16:20
P001-SS012H-SW1824-005-02	1409018-18	Solid	09/12/2014 11:06	09/12/2014 16:20
P001-SS014A-SW1824-005-01	1409018-19	Solid	09/12/2014 11:52	09/12/2014 16:20
P001-SS014A-SW1824-006-01	1409018-20	Solid	09/12/2014 11:54	09/12/2014 16:20



**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY**  
**Region 2 Laboratory**

**Project:MC Canfield & Sons - 1407047**

**Project Number: 1407047**

**SUMMARY REPORT FOR SAMPLES**

Field ID	Laboratory ID	Matrix	Date Sampled	Date Received
P001-SS014A-SW1824-007-01	1409018-21	Solid	09/12/2014 11:56	09/12/2014 16:20
P001-SS014A-BS24-003-01	1409018-22	Solid	09/12/2014 12:00	09/12/2014 16:20
P001-SS012H-SW1824-008-01	1409034-01	Solid	09/16/2014 13:52	09/19/2014 16:10
P001-SS012H-SW1824-009-01	1409034-02	Solid	09/16/2014 13:54	09/19/2014 16:10
P001-SS012H-BS24-004-01	1409034-03	Solid	09/16/2014 13:56	09/19/2014 16:10
P001-SS012H-SW1824-011-01	1409034-04	Solid	09/16/2014 13:58	09/19/2014 16:10
P001-SS012H-SW1824-010-01	1409034-05	Solid	09/16/2014 15:16	09/19/2014 16:10
P001-SS014A-SW1824-008-01	1409034-06	Solid	09/17/2014 13:22	09/19/2014 16:10
P001-SS014A-SW1824-009-01	1409034-07	Solid	09/17/2014 13:24	09/19/2014 16:10
P001-SS014A-BS24-004-01	1409034-08	Solid	09/17/2014 13:26	09/19/2014 16:10
P001-SS014A-SW1824-011-01	1409034-09	Solid	09/17/2014 13:28	09/19/2014 16:10
P001-SS014A-SW1824-010-01	1409034-10	Solid	09/18/2014 08:36	09/19/2014 16:10
P001-SS015D-SW1824-001-01	1409055-01	Solid	09/19/2014 13:02	09/26/2014 15:32
P001-SS015D-SW1824-002-01	1409055-02	Solid	09/19/2014 13:04	09/26/2014 15:32
P001-SS015D-SW1824-003-01	1409055-03	Solid	09/19/2014 13:06	09/26/2014 15:32
P001-SS015D-BS24-001-01	1409055-04	Solid	09/19/2014 13:08	09/26/2014 15:32
P001-SS013D-SW1824-001-01	1409055-05	Solid	09/23/2014 14:34	09/26/2014 15:32
P001-SS013D-SW1824-002-01	1409055-06	Solid	09/23/2014 14:36	09/26/2014 15:32
P001-SS013D-SW1824-003-01	1409055-07	Solid	09/23/2014 14:38	09/26/2014 15:32
P001-SS013D-BS24-001-01	1409055-08	Solid	09/23/2014 14:40	09/26/2014 15:32
P001-SS015A-SW1824-001-01	1409055-09	Solid	09/23/2014 14:42	09/26/2014 15:32
P001-SS015A-SW1824-002-01	1409055-10	Solid	09/23/2014 14:44	09/26/2014 15:32
P001-SS015A-SW1824-002-02	1409055-11	Solid	09/23/2014 14:46	09/26/2014 15:32
P001-SS015A-SW1824-003-01	1409055-12	Solid	09/23/2014 14:48	09/26/2014 15:32
P001-SS015A-BS24-001-01	1409055-13	Solid	09/23/2014 14:50	09/26/2014 15:32
P001-SS013D-SW1824-004-01	1409055-14	Solid	09/24/2014 14:06	09/26/2014 15:32
P001-SS013D-BS24-002-01	1409055-15	Solid	09/24/2014 14:08	09/26/2014 15:32
P001-SS015A-SW1824-004-01	1409055-16	Solid	09/24/2014 14:10	09/26/2014 15:32
P001-SS015A-BS24-002-01	1409055-17	Solid	09/24/2014 14:12	09/26/2014 15:32



**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY**  
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**Project:MC Canfield & Sons - 1407047**

**Project Number: 1407047**

**SUMMARY REPORT FOR SAMPLES**

Field ID	Laboratory ID	Matrix	Date Sampled	Date Received
P001-SS013D-SW1824-005-01	1409055-18	Solid	09/25/2014 12:10	09/26/2014 15:32
P001-SS015A-SW1824-005-01	1409055-19	Solid	09/25/2014 12:14	09/26/2014 15:32
P001-SS015A-SW1824-006-01	1409055-20	Solid	09/25/2014 12:16	09/26/2014 15:32
P001-SS013D-SW1824-006-01	1409055-21	Solid	09/26/2014 08:00	09/26/2014 15:32
P001-SS015A-SW1824-007-01	1410013-01	Solid	09/30/2014 14:08	10/03/2014 15:53
P001-SS015A-SW1824-007-02	1410013-02	Solid	09/30/2014 14:10	10/03/2014 15:53
P001-SS015A-SW1824-008-01	1410013-03	Solid	09/30/2014 14:12	10/03/2014 15:53
P001-SS015A-SW1824-009-01	1410013-04	Solid	09/30/2014 14:14	10/03/2014 15:53
P001-SS015A-SW1824-010-01	1410013-05	Solid	09/30/2014 14:16	10/03/2014 15:53
P001-SS015A-BS24-003-01	1410013-06	Solid	09/30/2014 14:18	10/03/2014 15:53
P001-SS013D-SW1824-007-01	1410013-07	Solid	10/01/2014 12:54	10/03/2014 15:53
P001-SS013D-SW1824-008-01	1410013-08	Solid	10/01/2014 12:56	10/03/2014 15:53
P001-SS013D-SW1824-009-01	1410013-09	Solid	10/01/2014 12:58	10/03/2014 15:53
P001-SS013D-SW1824-010-01	1410013-10	Solid	10/01/2014 13:00	10/03/2014 15:53
P001-SS013D-BS24-003-01	1410013-11	Solid	10/01/2014 13:02	10/03/2014 15:53
P001-SS026A-SW1824-001-01	1410029-01	Solid	10/08/2014 14:30	10/10/2014 16:20
P001-SS026A-SW1824-002-01	1410029-02	Solid	10/08/2014 14:32	10/10/2014 16:20
P001-SS026A-SW1824-003-01	1410029-03	Solid	10/08/2014 14:34	10/10/2014 16:20
P001-SS026A-BS24-001-01	1410029-04	Solid	10/08/2014 14:40	10/10/2014 16:20
P001-SS026A-SW1824-004-01	1410029-05	Solid	10/08/2014 14:44	10/10/2014 16:20
P001-SS026A-SW1824-005-01	1410029-06	Solid	10/08/2014 14:48	10/10/2014 16:20
P001-SS026A-BS24-002-01	1410029-07	Solid	10/08/2014 14:52	10/10/2014 16:20
P001-SS026A-SW1824-006-01	1410029-08	Solid	10/09/2014 13:22	10/10/2014 16:20
P001-SS026A-BS24-003-01	1410029-09	Solid	10/09/2014 13:24	10/10/2014 16:20
P001-SS026B-SW1824-001-01	1410029-10	Solid	10/09/2014 13:30	10/10/2014 16:20
P001-SS026B-SW1824-002-01	1410029-11	Solid	10/09/2014 13:32	10/10/2014 16:20
P001-SS026B-SW1824-003-01	1410029-12	Solid	10/09/2014 13:34	10/10/2014 16:20
P001-SS026B-SW1824-004-01	1410029-13	Solid	10/09/2014 13:36	10/10/2014 16:20
P001-SS026B-SW1824-004-02	1410029-14	Solid	10/09/2014 13:38	10/10/2014 16:20



**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY**  
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**Project:MC Canfield & Sons - 1407047**

**Project Number: 1407047**

**SUMMARY REPORT FOR SAMPLES**

Field ID	Laboratory ID	Matrix	Date Sampled	Date Received
P001-SS026B-BS24-001-01	1410029-15	Solid	10/09/2014 13:44	10/10/2014 16:20
P001-SS026A-SW1824-007-01	1410046-01	Solid	10/14/2014 14:20	10/17/2014 16:04
P001-SS026A-SW1824-008-01	1410046-02	Solid	10/14/2014 14:22	10/17/2014 16:04
P001-SS026A-SW1824-009-01	1410046-03	Solid	10/14/2014 14:24	10/17/2014 16:04
P001-SS026A-SW1824-010-01	1410046-04	Solid	10/14/2014 14:26	10/17/2014 16:04
P001-SS026A-BS24-004-01	1410046-05	Solid	10/14/2014 14:28	10/17/2014 16:04
P001-SS026A-BS24-005-01	1410046-06	Solid	10/14/2014 14:30	10/17/2014 16:04
P001-SS026C-BS24-001-01	1410073-01	Solid	10/20/2014 09:20	10/31/2014 15:12
P001-SS031A-SW1824-001-01	1410073-02	Solid	10/21/2014 11:16	10/31/2014 15:12
P001-SS031A-SW1824-002-01	1410073-03	Solid	10/21/2014 11:18	10/31/2014 15:12
P001-SS031A-SW1824-003-01	1410073-04	Solid	10/27/2014 13:18	10/31/2014 15:12
P001-SS031A-BS24-001-01	1410073-05	Solid	10/27/2014 13:20	10/31/2014 15:12
P001-SS031A-BS24-002-01	1410073-06	Solid	10/29/2014 14:15	10/31/2014 15:12
P001-SS031A-BS24-002-02	1410073-07	Solid	10/29/2014 14:18	10/31/2014 15:12
P001-SS031A-BS24-003-01	1410073-08	Solid	10/30/2014 14:30	10/31/2014 15:12
P001-SS031A-SW0612-004-01	1411029-01	Solid	11/03/2014 15:04	11/14/2014 15:15
P001-SS026N-SW0612-001-01	1411029-02	Solid	11/04/2014 11:32	11/14/2014 15:15
P001-SS026N-BS12-001-01	1411029-03	Solid	11/04/2014 11:40	11/14/2014 15:15
P001-SS026A-SW1824-011-01	1411029-04	Solid	11/13/2014 09:00	11/14/2014 15:15
P001-SS026A-SW1824-012-01	1411029-05	Solid	11/13/2014 09:02	11/14/2014 15:15
P001-SS026A-SW1824-013-01	1411029-06	Solid	11/13/2014 09:04	11/14/2014 15:15
P001-SS026A-BS24-006-01	1411029-07	Solid	11/13/2014 09:06	11/14/2014 15:15
P001-SS026A-BS24-006-02	1411029-08	Solid	11/13/2014 09:08	11/14/2014 15:15
P001-SS026A-BS24-007-01	1411029-09	Solid	11/13/2014 09:10	11/14/2014 15:15



**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY**  
**Region 2 Laboratory**

**Project:MC Canfield & Sons - 1407047**

**Project Number: 1407047**

**SUMMARY REPORT FOR METHODS**

<b>Analysis</b>	<b>Method</b>	<b>Certification</b>	<b>Matrix</b>
Lead	EPA 200.7 SOP C-109 Rev3.2	NELAP	Solid



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
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Project:MC Canfield & Sons - 1407047

Project Number: 1407047

Analyte	Result	Qualifier	Reporting Limit	Units
Field ID: P001-SS013A-BS24-001-01			Sample ID: 1407047-01	
Metals ICP				
Lead	660		0.75	mg/kg dry
Field ID: P001-SS013A-SW1824-001-01			Sample ID: 1407047-02	
Metals ICP				
Lead	610		0.70	mg/kg dry
Field ID: P001-SS013A-SW1824-002-01			Sample ID: 1407047-03	
Metals ICP				
Lead	970		0.69	mg/kg dry
Field ID: P001-SS013A-SW1824-003-01			Sample ID: 1407047-04	
Metals ICP				
Lead	560		0.70	mg/kg dry
Field ID: P001-SS013A-SW1824-004-01			Sample ID: 1407054-01	
Metals ICP				
Lead	360		0.71	mg/kg dry
Field ID: P001-SS013A-BS24-002-01			Sample ID: 1407054-02	
Metals ICP				
Lead	610		0.71	mg/kg dry
Field ID: P001-SS013A-SW1824-011-01			Sample ID: 1407054-03	
Metals ICP				
Lead	710		0.66	mg/kg dry





UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
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Project: MC Canfield & Sons - 1407047

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Analyte	Result	Qualifier	Reporting Limit	Units
Field ID: P001-SS013A-BS24-004-01			Sample ID: 1407054-04	
Metals ICP				
Lead	4.1		0.64	mg/kg dry
Field ID: P001-SS013A-SW1824-009-01			Sample ID: 1407054-05	
Metals ICP				
Lead	250		0.67	mg/kg dry
Field ID: P001-SS013A-SW1824-008-01			Sample ID: 1407054-06	
Metals ICP				
Lead	260		0.66	mg/kg dry
Field ID: P001-SS013A-SW1824-007-01			Sample ID: 1407054-07	
Metals ICP				
Lead	500		0.69	mg/kg dry
Field ID: P001-SS013A-BS24-003-01			Sample ID: 1407054-08	
Metals ICP				
Lead	340		0.65	mg/kg dry
Field ID: P001-SS013A-SW1824-010-01			Sample ID: 1407054-09	
Metals ICP				
Lead	220		0.65	mg/kg dry
Field ID: P001-SS013A-SW1824-005-01			Sample ID: 1407054-10	
Metals ICP				
Lead	540		0.72	mg/kg dry



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
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Project Number: 1407047

Analyte		Result	Qualifier	Reporting Limit	Units
Field ID: P001-SS013A-SW1824-006-01			Sample ID: 1407054-11		
Metals ICP					
Lead		130		0.63	mg/kg dry
Field ID: P001-SS012A-SW1824-001-01			Sample ID: 1407087-01		
Metals ICP					
Lead		600		0.67	mg/kg dry
Field ID: P001-SS012A-SW1824-002-01			Sample ID: 1407087-02		
Metals ICP					
Lead		250		0.77	mg/kg dry
Field ID: P001-SS012A-SW1824-003-01			Sample ID: 1407087-03		
Metals ICP					
Lead		440		0.70	mg/kg dry
Field ID: P001-SS012A-BS24-001-02			Sample ID: 1407087-04		
Metals ICP					
Lead		290		0.61	mg/kg dry
Field ID: P001-SS012A-BS24-001-01			Sample ID: 1407087-05		
Metals ICP					
Lead		330		0.71	mg/kg dry
Field ID: P001-SS012A-SW1824-004-01			Sample ID: 1407087-06		
Metals ICP					
Lead		330		0.64	mg/kg dry



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Analyte	Result	Qualifier	Reporting Limit	Units
Field ID: P001-SS012A-BS24-002-01			Sample ID: 1407087-07	
Metals ICP				
Lead	450		0.72	mg/kg dry
Field ID: P001-SS012A-SW1824-005-01			Sample ID: 1407087-08	
Metals ICP				
Lead	1100		0.66	mg/kg dry
Field ID: P001-SS012A-SW1824-006-01			Sample ID: 1407087-09	
Metals ICP				
Lead	860		0.70	mg/kg dry
Field ID: P001-SS012A-SW1824-007-01			Sample ID: 1407087-10	
Metals ICP				
Lead	520		0.63	mg/kg dry
Field ID: P001-SS012A-SW1824-008-01			Sample ID: 1407087-11	
Metals ICP				
Lead	360		0.76	mg/kg dry
Field ID: P001-SS012A-BS24-003-01			Sample ID: 1407087-12	
Metals ICP				
Lead	3000		0.66	mg/kg dry
Field ID: P001-SS012A-SW1824-009-01			Sample ID: 1407087-13	
Metals ICP				
Lead	540		0.65	mg/kg dry



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Analyte		Result	Qualifier	Reporting Limit	Units
Field ID: P001-SS012A-BS24-004-01				Sample ID: 1407087-14	
Metals ICP					
Lead		620		0.61	mg/kg dry
Field ID: P001-SS012A-SW1824-010-01				Sample ID: 1407087-15	
Metals ICP					
Lead		760		0.63	mg/kg dry
Field ID: P001-SS012A-SW1824-012-01				Sample ID: 1407087-16	
Metals ICP					
Lead		550		0.69	mg/kg dry
Field ID: P001-SS012A-SW1824-011-01				Sample ID: 1407087-17	
Metals ICP					
Lead		290		0.66	mg/kg dry
Field ID: P001-SS012B-BS24-001-01				Sample ID: 1408001-01	
Metals ICP					
Lead		540		0.69	mg/kg dry
Field ID: P001-SS012B-SW1824-001-01				Sample ID: 1408001-02	
Metals ICP					
Lead		120		0.70	mg/kg dry
Field ID: P001-SS012B-SW1824-002-01				Sample ID: 1408001-03	
Metals ICP					
Lead		710		0.60	mg/kg dry



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Analyte	Result	Qualifier	Reporting Limit	Units
Field ID: P001-SS012B-SW1824-003-01			Sample ID: 1408001-04	
Metals ICP				
Lead	45		0.72	mg/kg dry
Field ID: P001-SS012B-SW1824-004-01			Sample ID: 1408001-05	
Metals ICP				
Lead	380		0.64	mg/kg dry
Field ID: P001-SS012D-BS24-001-01			Sample ID: 1408001-06	
Metals ICP				
Lead	1100		0.68	mg/kg dry
Field ID: P001-SS012D-SW1824-001-01			Sample ID: 1408001-07	
Metals ICP				
Lead	270		0.69	mg/kg dry
Field ID: P001-SS012D-SW1824-001-02			Sample ID: 1408001-08	
Metals ICP				
Lead	330		0.67	mg/kg dry
Field ID: P001-SS012D-SW1824-002-01			Sample ID: 1408001-09	
Metals ICP				
Lead	380		0.68	mg/kg dry
Field ID: P001-SS012D-SW1824-003-01			Sample ID: 1408001-10	
Metals ICP				
Lead	240		0.71	mg/kg dry



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Analyte	Result	Qualifier	Reporting Limit	Units
Field ID: P001-SS012D-SW1824-004-01			Sample ID: 1408001-11	
Metals ICP				
Lead	460		0.64	mg/kg dry
Field ID: P001-SS012E-BS24-001-01			Sample ID: 1408001-12	
Metals ICP				
Lead	210		0.66	mg/kg dry
Field ID: P001-SS012E-SW1824-001-01			Sample ID: 1408001-13	
Metals ICP				
Lead	320		0.65	mg/kg dry
Field ID: P001-SS012E-SW1824-002-01			Sample ID: 1408001-14	
Metals ICP				
Lead	320		0.59	mg/kg dry
Field ID: P001-SS012E-SW1824-003-01			Sample ID: 1408001-15	
Metals ICP				
Lead	310		0.67	mg/kg dry
Field ID: P001-SS012E-SW1824-004-01			Sample ID: 1408001-16	
Metals ICP				
Lead	170		0.60	mg/kg dry
Field ID: P001-SS012C-BS24-001-01			Sample ID: 1408005-01	
Metals ICP				
Lead	68		0.62	mg/kg dry



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Analyte	Result	Qualifier	Reporting Limit	Units
Field ID: P001-SS012C-SW1824-001-01			Sample ID: 1408005-02	
Metals ICP				
Lead	350		0.60	mg/kg dry
Field ID: P001-SS012C-SW1824-002-01			Sample ID: 1408005-03	
Metals ICP				
Lead	520		0.71	mg/kg dry
Field ID: P001-SS012C-SW1824-003-01			Sample ID: 1408005-04	
Metals ICP				
Lead	2100		0.60	mg/kg dry
Field ID: P001-SS012C-SW1824-004-01			Sample ID: 1408005-05	
Metals ICP				
Lead	310		0.67	mg/kg dry
Field ID: P001-SS012F-BS24-001-01			Sample ID: 1408005-06	
Metals ICP				
Lead	350		0.65	mg/kg dry
Field ID: P001-SS012F-SW1824-002-01			Sample ID: 1408005-07	
Metals ICP				
Lead	420		0.66	mg/kg dry
Field ID: P001-SS012F-SW1824-003-01			Sample ID: 1408005-08	
Metals ICP				
Lead	550		0.61	mg/kg dry





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Project Number: 1407047

Analyte	Result	Qualifier	Reporting Limit	Units
Field ID: P001-SS012F-SW1824-004-01			Sample ID: 1408005-09	
Metals ICP				
Lead	420		0.70	mg/kg dry
Field ID: P001-SS012F-SW24-001-01			Sample ID: 1408005-10	
Metals ICP				
Lead	480		0.72	mg/kg dry
Field ID: P001-SS012G-BS24-001-01			Sample ID: 1408005-11	
Metals ICP				
Lead	52		0.65	mg/kg dry
Field ID: P001-SS012G-SW1824-001-01			Sample ID: 1408005-12	
Metals ICP				
Lead	530		0.62	mg/kg dry
Field ID: P001-SS012G-SW1824-002-01			Sample ID: 1408005-13	
Metals ICP				
Lead	750		0.70	mg/kg dry
Field ID: P001-SS012G-SW1824-003-01			Sample ID: 1408005-14	
Metals ICP				
Lead	64		0.66	mg/kg dry
Field ID: P001-SS012G-SW1824-003-02			Sample ID: 1408005-15	
Metals ICP				
Lead	77		0.60	mg/kg dry



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Project:MC Canfield & Sons - 1407047

Project Number: 1407047

Analyte	Result	Qualifier	Reporting Limit	Units
Field ID: P001-SS012G-SW1824-004-01			Sample ID: 1408005-16	
Metals ICP				
Lead	150		0.66	mg/kg dry
Field ID: P001-SS014B-BS24-001-01			Sample ID: 1408005-17	
Metals ICP				
Lead	290		0.71	mg/kg dry
Field ID: P001-SS014B-SW1824-001-01			Sample ID: 1408005-18	
Metals ICP				
Lead	1400		0.68	mg/kg dry
Field ID: P001-SS014B-SW1824-002-01			Sample ID: 1408005-19	
Metals ICP				
Lead	170		0.62	mg/kg dry
Field ID: P001-SS014B-SW1824-003-01			Sample ID: 1408005-20	
Metals ICP				
Lead	29		0.74	mg/kg dry
Field ID: P001-SS014B-SW1824-004-01			Sample ID: 1408005-21	
Metals ICP				
Lead	810		0.64	mg/kg dry
Field ID: P001-SS014C-SW1824-001-01			Sample ID: 1408015-01	
Metals ICP				
Lead	1500		0.72	mg/kg dry



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Project:MC Canfield & Sons - 1407047

Project Number: 1407047

Analyte	Result	Qualifier	Reporting Limit	Units
Field ID: P001-SS014C-SW1824-002-01			Sample ID: 1408015-02	
Metals ICP				
Lead	670		0.77	mg/kg dry
Field ID: P001-SS014C-SW1824-003-01			Sample ID: 1408015-03	
Metals ICP				
Lead	430		0.78	mg/kg dry
Field ID: P001-SS014C-SW1824-004-01			Sample ID: 1408015-04	
Metals ICP				
Lead	2900		0.75	mg/kg dry
Field ID: P001-SS014C-BS24-001-01			Sample ID: 1408015-05	
Metals ICP				
Lead	780		0.73	mg/kg dry
Field ID: P001-SS014C-BS24-001-02			Sample ID: 1408015-06	
Metals ICP				
Lead	730		0.75	mg/kg dry
Field ID: P001-SS014F-SW1824-001-01			Sample ID: 1408015-07	
Metals ICP				
Lead	1200		0.73	mg/kg dry
Field ID: P001-SS014F-SW1824-002-01			Sample ID: 1408015-08	
Metals ICP				
Lead	170		0.66	mg/kg dry



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Project Number: 1407047

Analyte	Result	Qualifier	Reporting Limit	Units
Field ID: P001-SS014F-SW1824-003-01			Sample ID: 1408015-09	
Metals ICP				
Lead	510		0.71	mg/kg dry
Field ID: P001-SS014F-SW1824-004-01			Sample ID: 1408015-10	
Metals ICP				
Lead	1000		0.67	mg/kg dry
Field ID: P001-SS014F-BS24-001-01			Sample ID: 1408015-11	
Metals ICP				
Lead	62		0.61	mg/kg dry
Field ID: P001-SS014G-SW1824-001-01			Sample ID: 1408015-12	
Metals ICP				
Lead	180		0.66	mg/kg dry
Field ID: P001-SS014G-SW1824-002-01			Sample ID: 1408015-13	
Metals ICP				
Lead	800		0.70	mg/kg dry
Field ID: P001-SS014G-SW1824-003-01			Sample ID: 1408015-14	
Metals ICP				
Lead	200		0.62	mg/kg dry
Field ID: P001-SS014G-SW1824-004-01			Sample ID: 1408015-15	
Metals ICP				
Lead	200		0.66	mg/kg dry



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Project Number: 1407047

Analyte	Result	Qualifier	Reporting Limit	Units
Field ID: P001-SS014G-BS24-001-01			Sample ID: 1408015-16	
Metals ICP				
Lead	270		0.69	mg/kg dry
Field ID: P001-SS014D-SW1824-001-01			Sample ID: 1408015-17	
Metals ICP				
Lead	2800		0.70	mg/kg dry
Field ID: P001-SS014D-SW1824-002-01			Sample ID: 1408015-18	
Metals ICP				
Lead	320		0.62	mg/kg dry
Field ID: P001-SS014D-SW1824-003-01			Sample ID: 1408015-19	
Metals ICP				
Lead	840		0.69	mg/kg dry
Field ID: P001-SS014D-SW1824-004-01			Sample ID: 1408015-20	
Metals ICP				
Lead	540		0.68	mg/kg dry
Field ID: P001-SS014D-BS24-001-01			Sample ID: 1408015-21	
Metals ICP				
Lead	240		0.68	mg/kg dry
Field ID: P001-SS014E-SW1824-001-01			Sample ID: 1408015-22	
Metals ICP				
Lead	440		0.74	mg/kg dry



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Project Number: 1407047

Analyte	Result	Qualifier	Reporting Limit	Units
Field ID: P001-SS014E-SW1824-002-01			Sample ID: 1408015-23	
Metals ICP				
Lead	390		0.70	mg/kg dry
Field ID: P001-SS014E-SW1824-003-01			Sample ID: 1408015-24	
Metals ICP				
Lead	590		0.67	mg/kg dry
Field ID: P001-SS014E-SW1824-004-01			Sample ID: 1408015-25	
Metals ICP				
Lead	190		0.69	mg/kg dry
Field ID: P001-SS014E-BS24-001-01			Sample ID: 1408015-26	
Metals ICP				
Lead	160		0.68	mg/kg dry
Field ID: P001-SS014H-SW1824-001-01			Sample ID: 1408015-27	
Metals ICP				
Lead	490		0.81	mg/kg dry
Field ID: P001-SS014H-SW1824-001-02			Sample ID: 1408015-28	
Metals ICP				
Lead	690		0.75	mg/kg dry
Field ID: P001-SS014H-SW1824-002-01			Sample ID: 1408015-29	
Metals ICP				
Lead	420		0.64	mg/kg dry



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Project Number: 1407047

Analyte	Result	Qualifier	Reporting Limit	Units
Field ID: P001-SS014H-SW1824-004-01			Sample ID: 1408015-30	
Metals ICP				
Lead	3900		0.64	mg/kg dry
Field ID: P001-SS014H-BS24-001-01			Sample ID: 1408015-31	
Metals ICP				
Lead	180		0.60	mg/kg dry
Field ID: P001-SS014H-SW1824-003-01			Sample ID: 1408015-32	
Metals ICP				
Lead	270		0.63	mg/kg dry
Field ID: P001-SS013C-SW1824-001-01			Sample ID: 1408028-01	
Metals ICP				
Lead	1900		0.70	mg/kg dry
Field ID: P001-SS013C-BS24-001-01			Sample ID: 1408028-02	
Metals ICP				
Lead	950		0.70	mg/kg dry
Field ID: P001-SS013B-BS24-001-01			Sample ID: 1408028-03	
Metals ICP				
Lead	900		0.68	mg/kg dry
Field ID: P001-SS013B-SW1824-001-01			Sample ID: 1408028-04	
Metals ICP				
Lead	850		0.64	mg/kg dry





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Project Number: 1407047

Analyte	Result	Qualifier	Reporting Limit	Units
Field ID: P001-SS013B-SW1824-002-01			Sample ID: 1408028-05	
Metals ICP				
Lead	1100		0.71	mg/kg dry
Field ID: P001-SS013B-SW1824-003-01			Sample ID: 1408028-06	
Metals ICP				
Lead	850		0.69	mg/kg dry
Field ID: P001-SS013B-SW1824-004-01			Sample ID: 1408028-07	
Metals ICP				
Lead	1700		0.71	mg/kg dry
Field ID: P001-SS014J-SW1824-001-01			Sample ID: 1408028-08	
Metals ICP				
Lead	360		0.63	mg/kg dry
Field ID: P001-SS014J-SW1824-002-01			Sample ID: 1408028-09	
Metals ICP				
Lead	850		0.67	mg/kg dry
Field ID: P001-SS014J-SW1824-003-01			Sample ID: 1408028-10	
Metals ICP				
Lead	2100		0.64	mg/kg dry
Field ID: P001-SS014J-BS24-001-01			Sample ID: 1408028-11	
Metals ICP				
Lead	1000		0.68	mg/kg dry



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Analyte	Result	Qualifier	Reporting Limit	Units
Field ID: P001-SS014I-SW1824-001-01			Sample ID: 1408028-12	
Metals ICP				
Lead	400		0.63	mg/kg dry
Field ID: P001-SS014I-SW1824-002-01			Sample ID: 1408028-13	
Metals ICP				
Lead	990		0.70	mg/kg dry
Field ID: P001-SS014I-BS24-001-01			Sample ID: 1408028-14	
Metals ICP				
Lead	400		0.69	mg/kg dry
Field ID: P001-SS014I-BS24-001-02			Sample ID: 1408028-15	
Metals ICP				
Lead	440		0.67	mg/kg dry
Field ID: P001-SS012J-SW1824-001-01			Sample ID: 1408028-16	
Metals ICP				
Lead	770		0.71	mg/kg dry
Field ID: P001-SS012J-SW1824-002-01			Sample ID: 1408028-17	
Metals ICP				
Lead	500		0.68	mg/kg dry
Field ID: P001-SS012J-SW1824-003-01			Sample ID: 1408028-18	
Metals ICP				
Lead	690		0.65	mg/kg dry



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Project Number: 1407047

Analyte	Result	Qualifier	Reporting Limit	Units
Field ID: P001-SS012J-BS24-001-01			Sample ID: 1408028-19	
Metals ICP				
Lead	930		0.67	mg/kg dry
Field ID: P001-SS012I-SW1824-001-01			Sample ID: 1408028-20	
Metals ICP				
Lead	1600		0.67	mg/kg dry
Field ID: P001-SS012I-SW1824-002-01			Sample ID: 1408028-21	
Metals ICP				
Lead	2100		0.68	mg/kg dry
Field ID: P001-SS012I-BS24-001-01			Sample ID: 1408028-22	
Metals ICP				
Lead	2800		0.67	mg/kg dry
Field ID: P001-SS015B-SW1824-001-01			Sample ID: 1408028-23	
Metals ICP				
Lead	990		0.62	mg/kg dry
Field ID: P001-SS015B-SW1824-002-01			Sample ID: 1408028-24	
Metals ICP				
Lead	1000		0.63	mg/kg dry
Field ID: P001-SS015B-BS24-001-01			Sample ID: 1408028-25	
Metals ICP				
Lead	1400		0.66	mg/kg dry



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Analyte	Result	Qualifier	Reporting Limit	Units
Field ID: P001-SS015C-SW1824-001-01			Sample ID: 1408028-26	
Metals ICP				
Lead	230		0.69	mg/kg dry
Field ID: P001-SS015C-SW1824-002-01			Sample ID: 1408028-27	
Metals ICP				
Lead	600		0.64	mg/kg dry
Field ID: P001-SS015C-SW1824-003-01			Sample ID: 1408028-28	
Metals ICP				
Lead	520		0.66	mg/kg dry
Field ID: P001-SS015C-BS24-001-01			Sample ID: 1408028-29	
Metals ICP				
Lead	190		0.68	mg/kg dry
Field ID: P001-SS015E-SW1824-001-01			Sample ID: 1408036-01	
Metals ICP				
Lead	4400		0.68	mg/kg dry
Field ID: P001-SS015E-SW1824-002-01			Sample ID: 1408036-02	
Metals ICP				
Lead	1100		0.69	mg/kg dry
Field ID: P001-SS015E-SW1824-003-01			Sample ID: 1408036-03	
Metals ICP				
Lead	390		0.63	mg/kg dry



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Project Number: 1407047

Analyte	Result	Qualifier	Reporting Limit	Units
Field ID: P001-SS015E-BS24-001-01			Sample ID: 1408036-04	
Metals ICP				
Lead	1100		0.68	mg/kg dry
Field ID: P001-SS015F-SW1824-001-01			Sample ID: 1408036-05	
Metals ICP				
Lead	450		0.66	mg/kg dry
Field ID: P001-SS015F-SW1824-002-01			Sample ID: 1408036-06	
Metals ICP				
Lead	4900		0.68	mg/kg dry
Field ID: P001-SS015F-BS24-001-01			Sample ID: 1408036-07	
Metals ICP				
Lead	2100		0.64	mg/kg dry
Field ID: P001-SS013E-SW1824-001-01			Sample ID: 1408036-08	
Metals ICP				
Lead	880		0.63	mg/kg dry
Field ID: P001-SS013E-SW1824-002-01			Sample ID: 1408036-09	
Metals ICP				
Lead	200		0.61	mg/kg dry
Field ID: P001-SS013E-SW1824-003-01			Sample ID: 1408036-10	
Metals ICP				
Lead	2000		0.67	mg/kg dry



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Analyte	Result	Qualifier	Reporting Limit	Units
Field ID: P001-SS013E-BS24-001-01			Sample ID: 1408036-11	
Metals ICP				
Lead	360		0.64	mg/kg dry
Field ID: P001-SS013F-SW1824-001-01			Sample ID: 1408036-12	
Metals ICP				
Lead	270		0.62	mg/kg dry
Field ID: P001-SS013F-SW1824-002-01			Sample ID: 1408036-13	
Metals ICP				
Lead	690		0.67	mg/kg dry
Field ID: P001-SS013F-BS24-001-01			Sample ID: 1408036-14	
Metals ICP				
Lead	330		0.67	mg/kg dry
Field ID: P001-SS023A-SW1824-001-01			Sample ID: 1408036-15	
Metals ICP				
Lead	480		0.65	mg/kg dry
Field ID: P001-SS023A-SW1824-001-02			Sample ID: 1408036-16	
Metals ICP				
Lead	360		0.65	mg/kg dry
Field ID: P001-SS023A-BS24-001-01			Sample ID: 1408036-17	
Metals ICP				
Lead	350		0.70	mg/kg dry



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Analyte	Result	Qualifier	Reporting Limit	Units
Field ID: P001-SS023A-SW1824-002-01			Sample ID: 1408036-18	
Metals ICP				
Lead	940		0.65	mg/kg dry
Field ID: P001-SS023A-SW1824-003-01			Sample ID: 1408036-19	
Metals ICP				
Lead	900		0.69	mg/kg dry
Field ID: P001-SS023B-SW1824-001-01			Sample ID: 1408052-01	
Metals ICP				
Lead	420		0.67	mg/kg dry
Field ID: P001-SS023B-SW1824-002-01			Sample ID: 1408052-02	
Metals ICP				
Lead	220		0.67	mg/kg dry
Field ID: P001-SS023B-BS24-001-01			Sample ID: 1408052-03	
Metals ICP				
Lead	200		0.66	mg/kg dry
Field ID: P001-SS023B-SW1824-003-01			Sample ID: 1408052-04	
Metals ICP				
Lead	280		0.64	mg/kg dry
Field ID: P001-SS023B-SW1824-004-01			Sample ID: 1408052-05	
Metals ICP				
Lead	510		0.72	mg/kg dry





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Analyte	Result	Qualifier	Reporting Limit	Units
Field ID: P001-SS014A-SW1824-001-01			Sample ID: 1409018-01	
Metals ICP				
Lead	2600		0.64	mg/kg dry
Field ID: P001-SS014A-SW1824-002-01			Sample ID: 1409018-02	
Metals ICP				
Lead	3.8		0.59	mg/kg dry
Field ID: P001-SS014A-SW1824-003-01			Sample ID: 1409018-03	
Metals ICP				
Lead	1600		0.68	mg/kg dry
Field ID: P001-SS012H-SW1824-001-01			Sample ID: 1409018-04	
Metals ICP				
Lead	410		0.64	mg/kg dry
Field ID: P001-SS012H-SW1824-002-01			Sample ID: 1409018-05	
Metals ICP				
Lead	15		0.60	mg/kg dry
Field ID: P001-SS012H-SW1824-003-01			Sample ID: 1409018-06	
Metals ICP				
Lead	720		0.75	mg/kg dry
Field ID: P001-SS014A-SW1824-004-01			Sample ID: 1409018-07	
Metals ICP				
Lead	1400		0.63	mg/kg dry



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Project Number: 1407047

Analyte	Result	Qualifier	Reporting Limit	Units
Field ID: P001-SS014A-BS24-001-01			Sample ID: 1409018-08	
Metals ICP				
Lead	1400		0.64	mg/kg dry
Field ID: P001-SS012H-SW1824-004-01			Sample ID: 1409018-09	
Metals ICP				
Lead	1700		0.70	mg/kg dry
Field ID: P001-SS012H-BS24-001-01			Sample ID: 1409018-10	
Metals ICP				
Lead	950		0.63	mg/kg dry
Field ID: P001-SS014A-BS24-002-01			Sample ID: 1409018-11	
Metals ICP				
Lead	1800		0.66	mg/kg dry
Field ID: P001-SS014A-BS24-002-02			Sample ID: 1409018-12	
Metals ICP				
Lead	1100		0.67	mg/kg dry
Field ID: P001-SS012H-BS24-002-01			Sample ID: 1409018-13	
Metals ICP				
Lead	1500		0.66	mg/kg dry
Field ID: P001-SS012H-SW1824-005-01			Sample ID: 1409018-14	
Metals ICP				
Lead	20000		6.7	mg/kg dry



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Analyte	Result	Qualifier	Reporting Limit	Units
Field ID: P001-SS012H-BS24-003-01			Sample ID: 1409018-15	
Metals ICP				
Lead	650		0.70	mg/kg dry
Field ID: P001-SS012H-SW1824-007-01			Sample ID: 1409018-16	
Metals ICP				
Lead	1800		0.67	mg/kg dry
Field ID: P001-SS012H-SW1824-006-01			Sample ID: 1409018-17	
Metals ICP				
Lead	360		0.65	mg/kg dry
Field ID: P001-SS012H-SW1824-005-02			Sample ID: 1409018-18	
Metals ICP				
Lead	9100		6.5	mg/kg dry
Field ID: P001-SS014A-SW1824-005-01			Sample ID: 1409018-19	
Metals ICP				
Lead	7000		6.4	mg/kg dry
Field ID: P001-SS014A-SW1824-006-01			Sample ID: 1409018-20	
Metals ICP				
Lead	560		0.62	mg/kg dry
Field ID: P001-SS014A-SW1824-007-01			Sample ID: 1409018-21	
Metals ICP				
Lead	410		0.64	mg/kg dry



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Analyte	Result	Qualifier	Reporting Limit	Units
Field ID: P001-SS014A-BS24-003-01			Sample ID: 1409018-22	
Metals ICP				
Lead	540		0.65	mg/kg dry
Field ID: P001-SS012H-SW1824-008-01			Sample ID: 1409034-01	
Metals ICP				
Lead	1700		0.64	mg/kg dry
Field ID: P001-SS012H-SW1824-009-01			Sample ID: 1409034-02	
Metals ICP				
Lead	2100		0.65	mg/kg dry
Field ID: P001-SS012H-BS24-004-01			Sample ID: 1409034-03	
Metals ICP				
Lead	1300		0.67	mg/kg dry
Field ID: P001-SS012H-SW1824-011-01			Sample ID: 1409034-04	
Metals ICP				
Lead	370		0.65	mg/kg dry
Field ID: P001-SS012H-SW1824-010-01			Sample ID: 1409034-05	
Metals ICP				
Lead	1700		0.59	mg/kg dry
Field ID: P001-SS014A-SW1824-008-01			Sample ID: 1409034-06	
Metals ICP				
Lead	2400		0.64	mg/kg dry



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Project Number: 1407047

Analyte	Result	Qualifier	Reporting Limit	Units
Field ID: P001-SS014A-SW1824-009-01			Sample ID: 1409034-07	
Metals ICP				
Lead	1200		0.65	mg/kg dry
Field ID: P001-SS014A-BS24-004-01			Sample ID: 1409034-08	
Metals ICP				
Lead	810		0.64	mg/kg dry
Field ID: P001-SS014A-SW1824-011-01			Sample ID: 1409034-09	
Metals ICP				
Lead	27000		8.1	mg/kg dry
Field ID: P001-SS014A-SW1824-010-01			Sample ID: 1409034-10	
Metals ICP				
Lead	1700		0.66	mg/kg dry
Field ID: P001-SS015D-SW1824-001-01			Sample ID: 1409055-01	
Metals ICP				
Lead	360		0.60	mg/kg dry
Field ID: P001-SS015D-SW1824-002-01			Sample ID: 1409055-02	
Metals ICP				
Lead	650		0.64	mg/kg dry
Field ID: P001-SS015D-SW1824-003-01			Sample ID: 1409055-03	
Metals ICP				
Lead	250		0.60	mg/kg dry



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Project Number: 1407047

Analyte	Result	Qualifier	Reporting Limit	Units
Field ID: P001-SS015D-BS24-001-01			Sample ID: 1409055-04	
Metals ICP				
Lead	460		0.66	mg/kg dry
Field ID: P001-SS013D-SW1824-001-01			Sample ID: 1409055-05	
Metals ICP				
Lead	4700		0.73	mg/kg dry
Field ID: P001-SS013D-SW1824-002-01			Sample ID: 1409055-06	
Metals ICP				
Lead	7100		7.4	mg/kg dry
Field ID: P001-SS013D-SW1824-003-01			Sample ID: 1409055-07	
Metals ICP				
Lead	3500		0.67	mg/kg dry
Field ID: P001-SS013D-BS24-001-01			Sample ID: 1409055-08	
Metals ICP				
Lead	4800		0.69	mg/kg dry
Field ID: P001-SS015A-SW1824-001-01			Sample ID: 1409055-09	
Metals ICP				
Lead	4500		0.69	mg/kg dry
Field ID: P001-SS015A-SW1824-002-01			Sample ID: 1409055-10	
Metals ICP				
Lead	620		0.61	mg/kg dry



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
Region 2 Laboratory

Project: MC Canfield & Sons - 1407047

Project Number: 1407047

Analyte	Result	Qualifier	Reporting Limit	Units
Field ID: P001-SS015A-SW1824-002-02			Sample ID: 1409055-11	
Metals ICP				
Lead	390		0.61	mg/kg dry
Field ID: P001-SS015A-SW1824-003-01			Sample ID: 1409055-12	
Metals ICP				
Lead	2200		0.63	mg/kg dry
Field ID: P001-SS015A-BS24-001-01			Sample ID: 1409055-13	
Metals ICP				
Lead	210		0.67	mg/kg dry
Field ID: P001-SS013D-SW1824-004-01			Sample ID: 1409055-14	
Metals ICP				
Lead	2300		0.68	mg/kg dry
Field ID: P001-SS013D-BS24-002-01			Sample ID: 1409055-15	
Metals ICP				
Lead	630		0.66	mg/kg dry
Field ID: P001-SS015A-SW1824-004-01			Sample ID: 1409055-16	
Metals ICP				
Lead	2400		0.64	mg/kg dry
Field ID: P001-SS015A-BS24-002-01			Sample ID: 1409055-17	
Metals ICP				
Lead	2900		0.63	mg/kg dry





UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
Region 2 Laboratory

Project: MC Canfield & Sons - 1407047

Project Number: 1407047

Analyte	Result	Qualifier	Reporting Limit	Units
Field ID: P001-SS013D-SW1824-005-01			Sample ID: 1409055-18	
Metals ICP				
Lead	2800		0.65	mg/kg dry
Field ID: P001-SS015A-SW1824-005-01			Sample ID: 1409055-19	
Metals ICP				
Lead	1600		0.66	mg/kg dry
Field ID: P001-SS015A-SW1824-006-01			Sample ID: 1409055-20	
Metals ICP				
Lead	1600		0.66	mg/kg dry
Field ID: P001-SS013D-SW1824-006-01			Sample ID: 1409055-21	
Metals ICP				
Lead	1500		0.67	mg/kg dry
Field ID: P001-SS015A-SW1824-007-01			Sample ID: 1410013-01	
Metals ICP				
Lead	530		0.60	mg/kg dry
Field ID: P001-SS015A-SW1824-007-02			Sample ID: 1410013-02	
Metals ICP				
Lead	710		0.61	mg/kg dry
Field ID: P001-SS015A-SW1824-008-01			Sample ID: 1410013-03	
Metals ICP				
Lead	4500		0.66	mg/kg dry



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
Region 2 Laboratory

Project: MC Canfield & Sons - 1407047

Project Number: 1407047

Analyte	Result	Qualifier	Reporting Limit	Units
Field ID: P001-SS015A-SW1824-009-01			Sample ID: 1410013-04	
Metals ICP				
Lead	8400		3.2	mg/kg dry
Field ID: P001-SS015A-SW1824-010-01			Sample ID: 1410013-05	
Metals ICP				
Lead	9300		3.3	mg/kg dry
Field ID: P001-SS015A-BS24-003-01			Sample ID: 1410013-06	
Metals ICP				
Lead	13		0.62	mg/kg dry
Field ID: P001-SS013D-SW1824-007-01			Sample ID: 1410013-07	
Metals ICP				
Lead	6600		3.2	mg/kg dry
Field ID: P001-SS013D-SW1824-008-01			Sample ID: 1410013-08	
Metals ICP				
Lead	3900		0.64	mg/kg dry
Field ID: P001-SS013D-SW1824-009-01			Sample ID: 1410013-09	
Metals ICP				
Lead	1100		0.68	mg/kg dry
Field ID: P001-SS013D-SW1824-010-01			Sample ID: 1410013-10	
Metals ICP				
Lead	8100		3.3	mg/kg dry



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
Region 2 Laboratory

Project: MC Canfield & Sons - 1407047

Project Number: 1407047

Analyte	Result	Qualifier	Reporting Limit	Units
Field ID: P001-SS013D-BS24-003-01			Sample ID: 1410013-11	
Metals ICP				
Lead	770		0.61	mg/kg dry
Field ID: P001-SS026A-SW1824-001-01			Sample ID: 1410029-01	
Metals ICP				
Lead	160		0.64	mg/kg dry
Field ID: P001-SS026A-SW1824-002-01			Sample ID: 1410029-02	
Metals ICP				
Lead	470		0.62	mg/kg dry
Field ID: P001-SS026A-SW1824-003-01			Sample ID: 1410029-03	
Metals ICP				
Lead	170		0.70	mg/kg dry
Field ID: P001-SS026A-BS24-001-01			Sample ID: 1410029-04	
Metals ICP				
Lead	420		0.68	mg/kg dry
Field ID: P001-SS026A-SW1824-004-01			Sample ID: 1410029-05	
Metals ICP				
Lead	140		0.66	mg/kg dry
Field ID: P001-SS026A-SW1824-005-01			Sample ID: 1410029-06	
Metals ICP				
Lead	160		0.60	mg/kg dry



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
Region 2 Laboratory

Project: MC Canfield & Sons - 1407047

Project Number: 1407047

Analyte	Result	Qualifier	Reporting Limit	Units
Field ID: P001-SS026A-BS24-002-01			Sample ID: 1410029-07	
Metals ICP				
Lead	200		0.58	mg/kg dry
Field ID: P001-SS026A-SW1824-006-01			Sample ID: 1410029-08	
Metals ICP				
Lead	820		0.66	mg/kg dry
Field ID: P001-SS026A-BS24-003-01			Sample ID: 1410029-09	
Metals ICP				
Lead	930		0.62	mg/kg dry
Field ID: P001-SS026B-SW1824-001-01			Sample ID: 1410029-10	
Metals ICP				
Lead	450		0.61	mg/kg dry
Field ID: P001-SS026B-SW1824-002-01			Sample ID: 1410029-11	
Metals ICP				
Lead	290		0.68	mg/kg dry
Field ID: P001-SS026B-SW1824-003-01			Sample ID: 1410029-12	
Metals ICP				
Lead	190		0.64	mg/kg dry
Field ID: P001-SS026B-SW1824-004-01			Sample ID: 1410029-13	
Metals ICP				
Lead	510		0.60	mg/kg dry



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
Region 2 Laboratory

Project: MC Canfield & Sons - 1407047

Project Number: 1407047

Analyte	Result	Qualifier	Reporting Limit	Units
Field ID: P001-SS026B-SW1824-004-02			Sample ID: 1410029-14	
Metals ICP				
Lead	290		0.68	mg/kg dry
Field ID: P001-SS026B-BS24-001-01			Sample ID: 1410029-15	
Metals ICP				
Lead	440		0.67	mg/kg dry
Field ID: P001-SS026A-SW1824-007-01			Sample ID: 1410046-01	
Metals ICP				
Lead	1100		0.66	mg/kg dry
Field ID: P001-SS026A-SW1824-008-01			Sample ID: 1410046-02	
Metals ICP				
Lead	310		0.65	mg/kg dry
Field ID: P001-SS026A-SW1824-009-01			Sample ID: 1410046-03	
Metals ICP				
Lead	650		0.78	mg/kg dry
Field ID: P001-SS026A-SW1824-010-01			Sample ID: 1410046-04	
Metals ICP				
Lead	710		0.58	mg/kg dry
Field ID: P001-SS026A-BS24-004-01			Sample ID: 1410046-05	
Metals ICP				
Lead	1200		0.68	mg/kg dry



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
Region 2 Laboratory

Project:MC Canfield & Sons - 1407047

Project Number: 1407047

Analyte	Result	Qualifier	Reporting Limit	Units
Field ID: P001-SS026A-BS24-005-01			Sample ID: 1410046-06	
Metals ICP				
Lead	420		0.58	mg/kg dry
Field ID: P001-SS026C-BS24-001-01			Sample ID: 1410073-01	
Metals ICP				
Lead	100		0.56	mg/kg dry
Field ID: P001-SS031A-SW1824-001-01			Sample ID: 1410073-02	
Metals ICP				
Lead	1500		0.65	mg/kg dry
Field ID: P001-SS031A-SW1824-002-01			Sample ID: 1410073-03	
Metals ICP				
Lead	360		0.74	mg/kg dry
Field ID: P001-SS031A-SW1824-003-01			Sample ID: 1410073-04	
Metals ICP				
Lead	1800		0.70	mg/kg dry
Field ID: P001-SS031A-BS24-001-01			Sample ID: 1410073-05	
Metals ICP				
Lead	50		0.56	mg/kg dry
Field ID: P001-SS031A-BS24-002-01			Sample ID: 1410073-06	
Metals ICP				
Lead	1200		0.68	mg/kg dry



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
Region 2 Laboratory

Project: MC Canfield & Sons - 1407047

Project Number: 1407047

Analyte	Result	Qualifier	Reporting Limit	Units
Field ID: P001-SS031A-BS24-002-02			Sample ID: 1410073-07	
Metals ICP				
Lead	1200		0.70	mg/kg dry
Field ID: P001-SS031A-BS24-003-01			Sample ID: 1410073-08	
Metals ICP				
Lead	740		0.64	mg/kg dry
Field ID: P001-SS031A-SW0612-004-01			Sample ID: 1411029-01	
Metals ICP				
Lead	260		0.78	mg/kg dry
Field ID: P001-SS026N-SW0612-001-01			Sample ID: 1411029-02	
Metals ICP				
Lead	250		0.73	mg/kg dry
Field ID: P001-SS026N-BS12-001-01			Sample ID: 1411029-03	
Metals ICP				
Lead	170		0.72	mg/kg dry
Field ID: P001-SS026A-SW1824-011-01			Sample ID: 1411029-04	
Metals ICP				
Lead	600		0.71	mg/kg dry
Field ID: P001-SS026A-SW1824-012-01			Sample ID: 1411029-05	
Metals ICP				
Lead	120		0.68	mg/kg dry





UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
Region 2 Laboratory

Project:MC Canfield & Sons - 1407047

Project Number: 1407047

Analyte	Result	Qualifier	Reporting Limit	Units
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Field ID: P001-SS026A-SW1824-013-01

Sample ID: 1411029-06

Metals ICP

Lead	410		0.70	mg/kg dry
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Field ID: P001-SS026A-BS24-006-01

Sample ID: 1411029-07

Metals ICP

Lead	960		0.85	mg/kg dry
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Field ID: P001-SS026A-BS24-006-02

Sample ID: 1411029-08

Metals ICP

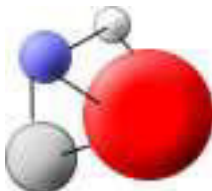
Lead	1000		0.68	mg/kg dry
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Field ID: P001-SS026A-BS24-007-01

Sample ID: 1411029-09

Metals ICP

Lead	560		0.66	mg/kg dry
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# Mid-Atlantic

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[mael@maelinc.com](mailto:mael@maelinc.com)



## Analytical Report

**Project Name:** MC Canfield & Son Site

**MAEL Job Number:** 40784

**Client:** Environemental Restoration LLC  
1666 Fabick Drive  
Fenton, MO 63026

**Contact Name:** Amy Riggott

**Date Received:** 05/28/2014

**Date Reported:** 6/5/2014

Analytical test results for methods listed on the laboratory's scope of accreditation meet all requirements of NELAC unless otherwise noted. All sample holding times and preservation requirements were met unless otherwise noted. Test results relate only to the sample tested. This report shall not be reproduced, except in full, without prior written authorization of Mid-Atlantic Environmental Laboratories, Inc.



# ANALYTICAL REPORT

**Project Name:** MC Canfield & Son Site

**Date Sampled:** 5/27/2014 10:55 AM

**Sampled By:**
**Lab Project #:** 40784

**Sample Matrix:** Soil

**Lab Sample #:** 40784-1

**Sample Type:** Composite

**Client Sample ID:** Area 1-D5-052714

Analyte	CASRN	Result	Q	Units	Method	RL	Analyst	Date / Time Analysis
<b>Diesel Range Organics - Non-aqueous (8015D)</b>								
Diesel Range Organics	-----	ND		mg/kg	8015D	50.0	S M	6/4/2014 11:30 AM
<b>Flashpoint</b>								
Flashpoint		>100		o C	1010A		R B	6/2/2014 2:55 PM
<b>Gasoline Range Organics - Non-aqueous (8015D)</b>								
Gasoline Range Organics	-----	ND		mg/kg	8015D	0.10	S M	6/5/2014 12:45 AM
<b>Herbicides - Non-aqueous</b>								
2,4-D	94-75-7	ND		mg/kg	8151A	0.01	B C	6/4/2014 6:25 PM
Dicamba	1918-00-9	ND		mg/kg	8151A	0.01	B C	6/4/2014 6:25 PM
Dichloroprop	120-36-5	ND		mg/kg	8151A	0.01	B C	6/4/2014 6:25 PM
Dinoseb	88-85-7	ND		mg/kg	8151A	0.01	B C	6/4/2014 6:25 PM
2,4,5-T	93-76-5	ND		mg/kg	8151A	0.01	B C	6/4/2014 6:25 PM
2,4,5-TP (Silvex)	93-72-1	ND		mg/kg	8151A	0.01	B C	6/4/2014 6:25 PM
<b>Mercury - Non-aqueous</b>								
Mercury	7439-97-6	1.3577		mg/kg	7471A	0.0167	S M	6/3/2014 10:44 AM
<b>Metals (RCRA) - non-aqueous</b>								
Arsenic	7440-38-2	1.02		mg/kg	6010B	0.50	S M	6/3/2014 1:15 PM
Barium	7440-39-3	37.3		mg/kg	6010B	0.50	S M	6/3/2014 1:15 PM
Cadmium	7440-43-9	0.61		mg/kg	6010B	0.50	S M	6/3/2014 1:15 PM
Chromium	7440-47-3	2.87		mg/kg	6010B	0.50	S M	6/3/2014 1:15 PM
Lead	7439-92-1	861		mg/kg	6010B	0.50	S M	6/3/2014 1:15 PM
Selenium	7782-49-2	ND		mg/kg	6010B	0.50	S M	6/3/2014 1:15 PM
Silver	7440-22-4	3.49		mg/kg	6010B	0.50	S M	6/3/2014 1:15 PM
<b>PCBs - Non-aqueous</b>								
PCB-1016	12674-11-2	ND		mg/kg	8082A	0.025	B C	6/4/2014 3:44 PM
PCB-1221	11104-28-2	ND		mg/kg	8082A	0.025	B C	6/4/2014 3:44 PM
PCB-1232	11141-16-5	ND		mg/kg	8082A	0.025	B C	6/4/2014 3:44 PM
PCB-1242	53469-21-9	ND		mg/kg	8082A	0.025	B C	6/4/2014 3:44 PM
PCB-1248	12672-29-6	ND		mg/kg	8082A	0.025	B C	6/4/2014 3:44 PM

# ANALYTICAL REPORT

**Project Name:** MC Canfield & Son Site

**Date Sampled:** 5/27/2014 10:55 AM

**Lab Project #:** 40784

**Sampled By:**
**Lab Sample #:** 40784-1

**Sample Matrix:** Soil

**Client Sample ID:** Area 1-D5-052714

**Sample Type:** Composite

Analyte	CASRN	Result	Q	Units	Method	RL	Analyst	Date / Time Analysis
<b>PCBs - Non-aqueous</b>								
PCB-1254	11097-69-1	ND		mg/kg	8082A	0.025	B C	6/4/2014 3:44 PM
PCB-1260	11096-82-5	ND		mg/kg	8082A	0.025	B C	6/4/2014 3:44 PM
PCB-1262	37324-23-5	ND		mg/kg	8082A	0.025	B C	6/4/2014 3:44 PM
PCB-1268	11100-14-4	ND		mg/kg	8082A	0.025	B C	6/4/2014 3:44 PM
<b>Percent Moisture/Percent Solid</b>								
Total Moisture		12.9		%	2540B	0.10	josh walls	6/4/2014 3:44 PM
<b>Pesticides - non-aqueous</b>								
Aldrin	309-00-2	ND		mg/kg	8081B	0.00125	B C	6/4/2014 3:44 PM
alpha BHC	319-84-6	ND		mg/kg	8081B	0.00125	B C	6/4/2014 3:44 PM
beta BHC	319-85-7	ND		mg/kg	8081B	0.00125	B C	6/4/2014 3:44 PM
delta BHC	319-86-8	ND		mg/kg	8081B	0.00125	B C	6/4/2014 3:44 PM
gamma BHC (Lindane)	58-89-9	ND		mg/kg	8081B	0.00125	B C	6/4/2014 3:44 PM
Chlordane	57-74-9	ND		mg/kg	8081B	0.02500	B C	6/4/2014 3:44 PM
alpha-Chlordane	5103-71-9	ND		mg/kg	8081B	0.00125	B C	6/4/2014 3:44 PM
gamma-Chlordane	5103-74-2	ND		mg/kg	8081B	0.00125	B C	6/4/2014 3:44 PM
4,4'-DDD	72-54-8	ND		mg/kg	8081B	0.00250	B C	6/4/2014 3:44 PM
4,4'-DDE	72-55-9	ND		mg/kg	8081B	0.00250	B C	6/4/2014 3:44 PM
4,4'-DDT	50-29-3	ND		mg/kg	8081B	0.00250	B C	6/4/2014 3:44 PM
Dieldrin	60-57-1	ND		mg/kg	8081B	0.00250	B C	6/4/2014 3:44 PM
Endosulfan I	959-98-8	ND		mg/kg	8081B	0.00125	B C	6/4/2014 3:44 PM
Endosulfan II	33213-65-9	ND		mg/kg	8081B	0.00250	B C	6/4/2014 3:44 PM
Endosulfan sulfate	1031-07-8	ND		mg/kg	8081B	0.00250	B C	6/4/2014 3:44 PM
Endrin	72-20-8	ND		mg/kg	8081B	0.00250	B C	6/4/2014 3:44 PM
Endrin aldehyde	7421-93-4	ND		mg/kg	8081B	0.00250	B C	6/4/2014 3:44 PM
Endrin ketone	53494-70-5	ND		mg/kg	8081B	0.00250	B C	6/4/2014 3:44 PM
Heptachlor	76-44-8	ND		mg/kg	8081B	0.00125	B C	6/4/2014 3:44 PM
Heptachlor epoxide	1024-57-3	ND		mg/kg	8081B	0.00125	B C	6/4/2014 3:44 PM
Methoxychlor	72-43-5	ND		mg/kg	8081B	0.01250	B C	6/4/2014 3:44 PM
Toxaphene	8001-35-2	ND		mg/kg	8081B	0.02500	B C	6/4/2014 3:44 PM
<b>pH - non-aqueous</b>								
Corrosivity (pH)		7.60		S.U.	9045D		R B	6/2/2014 2:51 PM

**Reactive Cyanide**

# ANALYTICAL REPORT

**Project Name:** MC Canfield & Son Site

**Date Sampled:** 5/27/2014 10:55 AM

**Sampled By:**
**Sample Matrix:** Soil

**Sample Type:** Composite

**Lab Project #:** 40784

**Lab Sample #:** 40784-1

**Client Sample ID:** Area 1-D5-052714

Analyte	CASRN	Result	Q	Units	Method	RL	Analyst	Date / Time Analysis
Reactive Cyanide	57-12-5	ND		mg/kg	7.3.3.2	0.20	R B	6/2/2014 12:59 PM
<b>Reactive Sulfide</b>								
Reactive Sulfide	18496-25-8	ND		mg/kg	7.3.4.2	0.20	R B	6/2/2014 12:07 PM
<b>Semi Volatile Organics (8270D) - non-aqueous</b>								
1,1-Biphenyl	92-52-4	ND		mg/kg	8270D	0.100	W W II	6/2/2014 4:42 PM
1,2,4,5-Tetrachlorobenzene	95-94-3	ND		mg/kg	8270D	0.100	W W II	6/2/2014 4:42 PM
1,2,4-Trichlorobenzene	120-82-1	ND		mg/kg	8270D	0.100	W W II	6/2/2014 4:42 PM
1,2-Dichlorobenzene	95-50-1	ND		mg/kg	8270D	0.100	W W II	6/2/2014 4:42 PM
1,3-Dichlorobenzene	541-73-1	ND		mg/kg	8270D	0.100	W W II	6/2/2014 4:42 PM
1,3-Hexachlorobutadiene	87-68-3	ND		mg/kg	8270D	0.100	W W II	6/2/2014 4:42 PM
1,4-Dichlorobenzene	106-46-7	ND		mg/kg	8270D	0.100	W W II	6/2/2014 4:42 PM
1-Methylnaphthalene	90-12-0	ND		mg/kg	8270D	0.100	W W II	6/2/2014 4:42 PM
2,3,4,6-Tetrachlorophenol	58-90-2	ND		mg/kg	8270D	0.100	W W II	6/2/2014 4:42 PM
2,4,5-Trichlorophenol	95-95-4	ND		mg/kg	8270D	0.100	W W II	6/2/2014 4:42 PM
2,4,6-Trichlorophenol	88-06-2	ND		mg/kg	8270D	0.100	W W II	6/2/2014 4:42 PM
2,4-Dichlorophenol	120-83-2	ND		mg/kg	8270D	0.100	W W II	6/2/2014 4:42 PM
2,4-Dimethylphenol	105-67-9	ND		mg/kg	8270D	0.100	W W II	6/2/2014 4:42 PM
2,4-Dinitrophenol	51-28-5	ND		mg/kg	8270D	0.100	W W II	6/2/2014 4:42 PM
2,4-Dinitrotoluene	121-14-2	ND		mg/kg	8270D	0.100	W W II	6/2/2014 4:42 PM
2,6-Dichlorophenol	87-65-0	ND		mg/kg	8270D	0.100	W W II	6/2/2014 4:42 PM
2,6-Dinitrotoluene	606-20-2	ND		mg/kg	8270D	0.100	W W II	6/2/2014 4:42 PM
2-Chloronaphthalene	91-58-7	ND		mg/kg	8270D	0.100	W W II	6/2/2014 4:42 PM
2-Chlorophenol	95-57-8	ND		mg/kg	8270D	0.100	W W II	6/2/2014 4:42 PM
2-Methylnaphthalene	91-57-6	ND		mg/kg	8270D	0.100	W W II	6/2/2014 4:42 PM
2-Methylphenol	95-48-7	ND		mg/kg	8270D	0.100	W W II	6/2/2014 4:42 PM
2-Nitroaniline	88-74-4	ND		mg/kg	8270D	0.100	W W II	6/2/2014 4:42 PM
2-Nitrophenol	88-75-5	ND		mg/kg	8270D	0.100	W W II	6/2/2014 4:42 PM
3,3'-Dichlorobenzidine	91-94-1	ND		mg/kg	8270D	0.200	W W II	6/2/2014 4:42 PM
3-Nitroaniline	99-09-2	ND		mg/kg	8270D	0.100	W W II	6/2/2014 4:42 PM
4,6-Dinitro-2-methylphenol	534-52-1	ND		mg/kg	8270D	0.100	W W II	6/2/2014 4:42 PM
4-Bromophenyl-phenylether	101-55-3	ND		mg/kg	8270D	0.100	W W II	6/2/2014 4:42 PM
4-Chloro-3-methylphenol	59-50-7	ND		mg/kg	8270D	0.100	W W II	6/2/2014 4:42 PM
4-Chloroaniline	106-47-8	ND		mg/kg	8270D	0.100	W W II	6/2/2014 4:42 PM

# ANALYTICAL REPORT

**Project Name:** MC Canfield & Son Site

**Date Sampled:** 5/27/2014 10:55 AM

**Lab Project #:** 40784

**Sampled By:**
**Lab Sample #:** 40784-1

**Sample Matrix:** Soil

**Client Sample ID:** Area 1-D5-052714

**Sample Type:** Composite

Analyte	CASRN	Result	Q	Units	Method	RL	Analyst	Date / Time Analysis
<b>Semi Volatile Organics (8270D) - non-aqueous</b>								
4-Chlorophenyl-phenylether	7005-72-3	ND		mg/kg	8270D	0.100	W W II	6/2/2014 4:42 PM
4-Nitroaniline	100-01-6	ND		mg/kg	8270D	0.100	W W II	6/2/2014 4:42 PM
4-Nitrophenol	100-02-7	ND		mg/kg	8270D	0.100	W W II	6/2/2014 4:42 PM
Acenaphthene	83-32-9	ND		mg/kg	8270D	0.100	W W II	6/2/2014 4:42 PM
Acenaphthylene	208-96-8	ND		mg/kg	8270D	0.100	W W II	6/2/2014 4:42 PM
Acetophenone	98-86-2	ND		mg/kg	8270D	0.100	W W II	6/2/2014 4:42 PM
Aniline	62-53-3	ND		mg/kg	8270D	0.100	W W II	6/2/2014 4:42 PM
Anthracene	120-12-7	ND		mg/kg	8270D	0.100	W W II	6/2/2014 4:42 PM
Atrazine	1912-24-9	ND		mg/kg	8270D	0.100	W W II	6/2/2014 4:42 PM
Benzaldehyde	100-52-7	ND		mg/kg	8270D	0.100	W W II	6/2/2014 4:42 PM
Benzidine	92-87-5	ND		mg/kg	8270D	0.200	W W II	6/2/2014 4:42 PM
Benzo[a]pyrene	50-32-8	0.290		mg/kg	8270D	0.100	W W II	6/2/2014 4:42 PM
Benzo[a]anthracene	56-55-3	0.359		mg/kg	8270D	0.100	W W II	6/2/2014 4:42 PM
Benzo[b]fluoranthene	205-99-2	0.401		mg/kg	8270D	0.100	W W II	6/2/2014 4:42 PM
Benzo[g,h,i]perylene	191-24-2	0.198		mg/kg	8270D	0.100	W W II	6/2/2014 4:42 PM
Benzo[k]fluoranthene	207-08-9	0.132		mg/kg	8270D	0.100	W W II	6/2/2014 4:42 PM
Benzoic Acid	65-85-0	ND		mg/kg	8270D	0.200	W W II	6/2/2014 4:42 PM
Benzyl Alcohol	100-51-6	ND		mg/kg	8270D	0.100	W W II	6/2/2014 4:42 PM
bis (2-Chloroethoxy) methane	111-91-1	ND		mg/kg	8270D	0.100	W W II	6/2/2014 4:42 PM
bis (2-Chloroethyl) ether	111-44-4	ND		mg/kg	8270D	0.100	W W II	6/2/2014 4:42 PM
bis (2-chloroisopropyl) ether	108-60-1	ND		mg/kg	8270D	0.100	W W II	6/2/2014 4:42 PM
bis (2-Ethylhexyl) phthalate	117-81-7	ND		mg/kg	8270D	0.100	W W II	6/2/2014 4:42 PM
Butylbenzylphthalate	85-68-7	ND		mg/kg	8270D	0.100	W W II	6/2/2014 4:42 PM
Caprolactam	105-60-2	ND		mg/kg	8270D	0.100	W W II	6/2/2014 4:42 PM
Carbazole	86-74-8	ND		mg/kg	8270D	0.100	W W II	6/2/2014 4:42 PM
Chrysene	218-01-9	0.233		mg/kg	8270D	0.100	W W II	6/2/2014 4:42 PM
Dibenz[a,h]anthracene	53-70-3	ND		mg/kg	8270D	0.100	W W II	6/2/2014 4:42 PM
Dibenzofuran	132-64-9	ND		mg/kg	8270D	0.100	W W II	6/2/2014 4:42 PM
Diethylphthalate	84-66-2	ND		mg/kg	8270D	0.100	W W II	6/2/2014 4:42 PM
Dimethylphthalate	131-11-3	ND		mg/kg	8270D	0.100	W W II	6/2/2014 4:42 PM
Di-n-butylphthalate	84-74-2	ND		mg/kg	8270D	0.100	W W II	6/2/2014 4:42 PM
Di-n-octylphthalate	117-84-0	ND		mg/kg	8270D	0.100	W W II	6/2/2014 4:42 PM
Fluoranthene	206-44-0	0.428		mg/kg	8270D	0.100	W W II	6/2/2014 4:42 PM



# ANALYTICAL REPORT

**Project Name:** MC Canfield & Son Site

**Date Sampled:** 5/27/2014 10:55 AM

**Lab Project #:** 40784

**Sampled By:**
**Lab Sample #:** 40784-1

**Sample Matrix:** Soil

**Client Sample ID:** Area 1-D5-052714

**Sample Type:** Composite

Analyte	CASRN	Result	Q	Units	Method	RL	Analyst	Date / Time Analysis
<b>Semi Volatile Organics (8270D) - non-aqueous</b>								
Fluorene	86-73-7	ND		mg/kg	8270D	0.100	W W II	6/2/2014 4:42 PM
Hexachlorobenzene	118-74-1	ND		mg/kg	8270D	0.100	W W II	6/2/2014 4:42 PM
Hexachlorocyclopentadiene	77-47-4	ND		mg/kg	8270D	0.100	W W II	6/2/2014 4:42 PM
Hexachloroethane	67-72-1	ND		mg/kg	8270D	0.100	W W II	6/2/2014 4:42 PM
Indeno[1,2,3-cd]pyrene	193-39-5	0.184		mg/kg	8270D	0.100	W W II	6/2/2014 4:42 PM
Isophorone	78-59-1	ND		mg/kg	8270D	0.100	W W II	6/2/2014 4:42 PM
Naphthalene	91-20-3	ND		mg/kg	8270D	0.100	W W II	6/2/2014 4:42 PM
n-Decane	124-18-5	ND		mg/kg	8270D	0.200	W W II	6/2/2014 4:42 PM
Nitrobenzene	98-95-3	ND		mg/kg	8270D	0.100	W W II	6/2/2014 4:42 PM
N-nitrosodimethylamine	62-75-9	ND		mg/kg	8270D	0.100	W W II	6/2/2014 4:42 PM
n-Nitroso-di-n-propylamine	621-64-7	ND		mg/kg	8270D	0.100	W W II	6/2/2014 4:42 PM
n-Octadecane	593-45-3	ND		mg/kg	8270D	0.200	W W II	6/2/2014 4:42 PM
Pentachlorophenol	87-86-5	ND		mg/kg	8270D	0.100	W W II	6/2/2014 4:42 PM
Phenanthrene	85-01-8	0.208		mg/kg	8270D	0.100	W W II	6/2/2014 4:42 PM
Phenol	108-95-2	ND		mg/kg	8270D	0.100	W W II	6/2/2014 4:42 PM
Pyridine	110-86-1	ND		mg/kg	8270D	0.200	W W II	6/2/2014 4:42 PM
Pyrene	129-00-0	0.391		mg/kg	8270D	0.100	W W II	6/2/2014 4:42 PM
1,2-Diphenylhydrazine / Azobenzene	122-66-7 / 17082-12-1	ND		mg/kg	8270D	0.100	W W II	6/2/2014 4:42 PM
N-nitrosodiphenylamine / Diphenylamine	86-30-6 / 122-39-4	ND		mg/kg	8270D	0.100	W W II	6/2/2014 4:42 PM
Hexachlorobutadiene	87-68-3	ND		mg/kg	8270D	0.100	W W II	6/2/2014 4:42 PM
<b>TCLP Herbicides</b>								
2,4-D	94-75-7	ND		mg/L	1311/8151A	0.002	B C	6/4/2014 5:33 PM
2,4,5-TP (Silvex)	93-72-1	ND		mg/L	1311/8151A	0.002	B C	6/4/2014 5:33 PM
<b>TCLP Mercury</b>								
Mercury	7439-97-6	ND		mg/L	1311/245.1	0.001	S M	6/2/2014 2:24 PM
<b>TCLP Metals</b>								
Arsenic	7440-38-2	ND		mg/L	1311/6010B	0.05	S M	6/2/2014 4:05 PM
Barium	7440-39-3	0.72		mg/L	1311/6010B	0.05	S M	6/2/2014 4:05 PM
Cadmium	7440-43-9	ND		mg/L	1311/6010B	0.05	S M	6/2/2014 4:05 PM
Chromium	7440-47-3	ND		mg/L	1311/6010B	0.05	S M	6/2/2014 4:05 PM



# ANALYTICAL REPORT

**Project Name:** MC Canfield & Son Site

**Date Sampled:** 5/27/2014 10:55 AM

**Sampled By:**
**Sample Matrix:** Soil

**Sample Type:** Composite

**Lab Project #:** 40784

**Lab Sample #:** 40784-1

**Client Sample ID:** Area 1-D5-052714

Analyte	CASRN	Result	Q	Units	Method	RL	Analyst	Date / Time Analysis
<b>TCLP Metals</b>								
Lead	7439-92-1	0.38		mg/L	1311/6010B	0.05	S M	6/2/2014 4:05 PM
Selenium	7782-49-2	ND		mg/L	1311/6010B	0.05	S M	6/2/2014 4:05 PM
Silver	7440-22-4	ND		mg/L	1311/6010B	0.05	S M	6/2/2014 4:05 PM
<b>TCLP Pesticides</b>								
Chlordane	57-74-9	ND		mg/L	1311/8081A	0.00100	B C	6/4/2014 2:51 PM
Endrin	72-20-8	ND		mg/L	1311/8081A	0.00010	B C	6/4/2014 2:51 PM
gamma BHC (Lindane)	58-89-9	ND		mg/L	1311/8081A	0.00005	B C	6/4/2014 2:51 PM
Heptachlor	76-44-8	ND		mg/L	1311/8081A	0.00005	B C	6/4/2014 2:51 PM
Heptachlor epoxide	1024-57-3	ND		mg/L	1311/8081A	0.00005	B C	6/4/2014 2:51 PM
Methoxychlor	72-43-5	ND		mg/L	1311/8081A	0.00050	B C	6/4/2014 2:51 PM
Toxaphene	8001-35-2	ND		mg/L	1311/8081A	0.00100	B C	6/4/2014 2:51 PM
<b>TCLP Semivolatiles</b>								
1,4-Dichlorobenzene	106-46-7	ND		mg/L	1311/8270D	0.10	W W II	6/3/2014 12:56 PM
2,4-Dinitrotoluene	121-14-2	ND		mg/L	1311/8270D	0.10	W W II	6/3/2014 12:56 PM
Hexachlorobenzene	118-74-1	ND		mg/L	1311/8270D	0.10	W W II	6/3/2014 12:56 PM
Hexachlorobutadiene	87-68-3	ND		mg/L	1311/8270D	0.10	W W II	6/3/2014 12:56 PM
Hexachloroethane	67-72-1	ND		mg/L	1311/8270D	0.10	W W II	6/3/2014 12:56 PM
2-Methylphenol	95-48-7	ND		mg/L	1311/8270D	0.10	W W II	6/3/2014 12:56 PM
3- & 4- Methylphenol	61379-65-5	ND		mg/L	1311/8270D	0.10	W W II	6/3/2014 12:56 PM
Nitrobenzene	98-95-3	ND		mg/L	1311/8270D	0.10	W W II	6/3/2014 12:56 PM
Pentachlorophenol	87-86-5	ND		mg/L	1311/8270D	0.10	W W II	6/3/2014 12:56 PM
Pyridine	110-86-1	ND		mg/L	1311/8270D	0.10	W W II	6/3/2014 12:56 PM
2,4,5-Trichlorophenol	95-95-4	ND		mg/L	1311/8270D	0.10	W W II	6/3/2014 12:56 PM
2,4,6-Trichlorophenol	88-06-2	ND		mg/L	1311/8270D	0.10	W W II	6/3/2014 12:56 PM
<b>TCLP Volatiles</b>								
Benzene	71-43-2	ND		mg/L	1311/8260C	0.02	S M	6/4/2014 10:18 AM
Carbon Tetrachloride	56-23-5	ND		mg/L	1311/8260C	0.02	S M	6/4/2014 10:18 AM
Chlorobenzene	108-90-7	ND		mg/L	1311/8260C	0.02	S M	6/4/2014 10:18 AM
Chloroform	67-66-3	ND		mg/L	1311/8260C	0.02	S M	6/4/2014 10:18 AM
1,2-Dichloroethane	107-06-2	ND		mg/L	1311/8260C	0.02	S M	6/4/2014 10:18 AM
1,1-Dichloroethene	75-35-4	ND		mg/L	1311/8260C	0.02	S M	6/4/2014 10:18 AM
Methyl Ethyl Ketone (MEK)	78-93-3	ND		mg/L	1311/8260C	0.10	S M	6/4/2014 10:18 AM

# ANALYTICAL REPORT

**Project Name:** MC Canfield & Son Site

**Date Sampled:** 5/27/2014 10:55 AM

**Sampled By:**
**Sample Matrix:** Soil

**Sample Type:** Composite

**Lab Project #:** 40784

**Lab Sample #:** 40784-1

**Client Sample ID:** Area 1-D5-052714

Analyte	CASRN	Result	Q	Units	Method	RL	Analyst	Date / Time Analysis
<b>TCLP Volatiles</b>								
Tetrachloroethene (PCE)	127-18-4	ND		mg/L	1311/8260C	0.02	S M	6/4/2014 10:18 AM
Trichloroethene (TCE)	79-01-6	ND		mg/L	1311/8260C	0.02	S M	6/4/2014 10:18 AM
Vinyl Chloride	75-01-4	ND		mg/L	1311/8260C	0.02	S M	6/4/2014 10:18 AM
<b>Total Petroleum Hydrocarbons (C-40) - non-aqueous</b>								
Total Petroleum Hydrocarbons (C-40)		ND		mg/kg	8015B	50.0	S M	6/3/2014 1:25 PM
<b>Volatile Organics (8260C) - non-aqueous</b>								
Acetone	67-64-1	ND		mg/kg	8260C	0.050	S M	6/2/2014 3:56 PM
Acrolein	107-02-8	ND		mg/kg	8260C	0.050	S M	6/2/2014 3:56 PM
Acrylonitrile	107-13-1	ND		mg/kg	8260C	0.005	S M	6/2/2014 3:56 PM
Benzene	71-43-2	ND		mg/kg	8260C	0.005	S M	6/2/2014 3:56 PM
Bromodichloromethane	75-27-4	ND		mg/kg	8260C	0.005	S M	6/2/2014 3:56 PM
Bromoform (Tribromomethane)	75-25-2	ND		mg/kg	8260C	0.005	S M	6/2/2014 3:56 PM
Bromomethane	74-83-9	ND		mg/kg	8260C	0.005	S M	6/2/2014 3:56 PM
2-Butanone (MEK)	78-93-3	ND		mg/kg	8260C	0.050	S M	6/2/2014 3:56 PM
Carbon disulfide	75-15-0	ND		mg/kg	8260C	0.005	S M	6/2/2014 3:56 PM
Carbon Tetrachloride	56-23-5	ND		mg/kg	8260C	0.005	S M	6/2/2014 3:56 PM
Chlorobenzene	108-90-7	ND		mg/kg	8260C	0.005	S M	6/2/2014 3:56 PM
Chloroethane	75-00-3	ND		mg/kg	8260C	0.005	S M	6/2/2014 3:56 PM
2-Chloroethylvinylether	110-75-8	ND		mg/kg	8260C	0.005	S M	6/2/2014 3:56 PM
Chloroform	67-66-3	ND		mg/kg	8260C	0.005	S M	6/2/2014 3:56 PM
Chloromethane (Methyl Chloride)	74-87-3	ND		mg/kg	8260C	0.005	S M	6/2/2014 3:56 PM
1,2-Dichlorobenzene	95-50-1	ND		mg/kg	8260C	0.005	S M	6/2/2014 3:56 PM
1,3-Dichlorobenzene	541-73-1	ND		mg/kg	8260C	0.005	S M	6/2/2014 3:56 PM
1,4-Dichlorobenzene	106-46-7	ND		mg/kg	8260C	0.005	S M	6/2/2014 3:56 PM
Dichlorodifluoromethane	75-71-8	ND		mg/kg	8260C	0.005	S M	6/2/2014 3:56 PM
1,1-Dichloroethane	75-34-3	ND		mg/kg	8260C	0.005	S M	6/2/2014 3:56 PM
1,2-Dichloroethane	107-06-2	ND		mg/kg	8260C	0.005	S M	6/2/2014 3:56 PM
1,1-Dichloroethene	75-35-4	ND		mg/kg	8260C	0.005	S M	6/2/2014 3:56 PM
cis-1,2-Dichloroethene	156-59-2	ND		mg/kg	8260C	0.005	S M	6/2/2014 3:56 PM
trans-1,2-Dichloroethene	156-60-5	ND		mg/kg	8260C	0.005	S M	6/2/2014 3:56 PM

# ANALYTICAL REPORT

**Project Name:** MC Canfield & Son Site

**Date Sampled:** 5/27/2014 10:55 AM

**Lab Project #:** 40784

**Sampled By:**
**Lab Sample #:** 40784-1

**Sample Matrix:** Soil

**Client Sample ID:** Area 1-D5-052714

**Sample Type:** Composite

Analyte	CASRN	Result	Q	Units	Method	RL	Analyst	Date / Time Analysis
<b>Volatile Organics (8260C) - non-aqueous</b>								
1,2-Dichloropropane	78-87-5	ND		mg/kg	8260C	0.005	S M	6/2/2014 3:56 PM
cis-1,3-Dichloropropene	10061-01-5	ND		mg/kg	8260C	0.005	S M	6/2/2014 3:56 PM
trans-1,3-Dichloropropene	10061-02-6	ND		mg/kg	8260C	0.005	S M	6/2/2014 3:56 PM
Ethylbenzene	100-41-4	ND		mg/kg	8260C	0.005	S M	6/2/2014 3:56 PM
Hexachlorobutadiene	87-68-3	ND		mg/kg	8260C	0.005	S M	6/2/2014 3:56 PM
2-Hexanone	591-78-6	ND		mg/kg	8260C	0.050	S M	6/2/2014 3:56 PM
Methyl tert-butyl ether (MTBE)	1634-04-4	ND		mg/kg	8260C	0.005	S M	6/2/2014 3:56 PM
Methylene Chloride (Dichloromethane)	75-09-2	ND		mg/kg	8260C	0.005	S M	6/2/2014 3:56 PM
tert-Butyl alcohol (TBA)	75-65-0	ND		mg/kg	8260C	0.050	S M	6/2/2014 3:56 PM
1,1,2,2-Tetrachloroethane	79-34-5	ND		mg/kg	8260C	0.005	S M	6/2/2014 3:56 PM
4-methyl-2-pentanone (MIBK)	108-10-1	ND		mg/kg	8260C	0.050	S M	6/2/2014 3:56 PM
Tetrachloroethene (PCE)	127-18-4	ND		mg/kg	8260C	0.005	S M	6/2/2014 3:56 PM
Toluene	108-88-3	ND		mg/kg	8260C	0.005	S M	6/2/2014 3:56 PM
1,1,1-Trichloroethane	71-55-6	ND		mg/kg	8260C	0.005	S M	6/2/2014 3:56 PM
1,1,2-Trichloroethane	79-00-5	ND		mg/kg	8260C	0.005	S M	6/2/2014 3:56 PM
Trichlorofluoromethane	75-69-4	ND		mg/kg	8260C	0.005	S M	6/2/2014 3:56 PM
Vinyl Chloride	75-01-4	ND		mg/kg	8260C	0.005	S M	6/2/2014 3:56 PM
Xylenes, Total	1330-20-7	ND		mg/kg	8260C	0.015	S M	6/2/2014 3:56 PM
Naphthalene	91-20-3	ND		mg/kg	8260C	0.020	S M	6/2/2014 3:56 PM
Nitrobenzene	98-95-3	ND		mg/kg	8260C	0.050	S M	6/2/2014 3:56 PM
Styrene	100-42-5	ND		mg/kg	8260C	0.005	S M	6/2/2014 3:56 PM
1,1,1,2-Tetrachloroethane	630-20-6	ND		mg/kg	8260C	0.005	S M	6/2/2014 3:56 PM
1,2,4-Trichlorobenzene	120-82-1	ND		mg/kg	8260C	0.005	S M	6/2/2014 3:56 PM
Trichloroethene (TCE)	79-01-6	ND		mg/kg	8260C	0.005	S M	6/2/2014 3:56 PM
Dibromochloromethane	124-48-1	ND		mg/kg	8260C	0.005	S M	6/2/2014 3:56 PM
1,3-Dichloropropane	142-28-9	ND		mg/kg	8260C	0.005	S M	6/2/2014 3:56 PM
Hexachloroethane	67-72-1	ND		mg/kg	8260C	0.005	S M	6/2/2014 3:56 PM
Methyl Acetate	79-20-9	ND		mg/kg	8260C	0.050	S M	6/2/2014 3:56 PM

# ANALYTICAL REPORT

**Project Name:** MC Canfield & Son Site

**Date Sampled:** 5/27/2014 10:55 AM

**Sampled By:**

**Sample Matrix:** Soil

**Sample Type:** Composite

**Lab Project #:** 40784

**Lab Sample #:** 40784-1

**Client Sample ID:** Area 1-D5-052714



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Akhter Mehmood  
Lab Director



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Charles Morrow  
QAQC Director

# ANALYTICAL REPORT

**Project Name:** MC Canfield & Son Site

**Date Sampled:** 5/27/2014 11:30 AM

**Sampled By:**
**Sample Matrix:** Soil

**Sample Type:** Composite

**Lab Project #:** 40784

**Lab Sample #:** 40784-2

**Client Sample ID:** Area 2-D5-052714

Analyte	CASRN	Result	Q	Units	Method	RL	Analyst	Date / Time Analysis
<b>Diesel Range Organics - Non-aqueous (8015D)</b>								
Diesel Range Organics	-----	ND		mg/kg	8015D	50.0	S M	6/4/2014 11:50 AM
<b>Flashpoint</b>								
Flashpoint		>100		o C	1010A		R B	6/2/2014 3:20 PM
<b>Gasoline Range Organics - Non-aqueous (8015D)</b>								
Gasoline Range Organics	-----	ND		mg/kg	8015D	0.10	S M	6/5/2014 1:12 AM
<b>Herbicides - Non-aqueous</b>								
2,4-D	94-75-7	ND		mg/kg	8151A	0.01	B C	6/4/2014 6:50 PM
Dicamba	1918-00-9	ND		mg/kg	8151A	0.01	B C	6/4/2014 6:50 PM
Dichloroprop	120-36-5	ND		mg/kg	8151A	0.01	B C	6/4/2014 6:50 PM
Dinoseb	88-85-7	ND		mg/kg	8151A	0.01	B C	6/4/2014 6:50 PM
2,4,5-T	93-76-5	ND		mg/kg	8151A	0.01	B C	6/4/2014 6:50 PM
2,4,5-TP (Silvex)	93-72-1	ND		mg/kg	8151A	0.01	B C	6/4/2014 6:50 PM
<b>Mercury - Non-aqueous</b>								
Mercury	7439-97-6	0.6278		mg/kg	7471A	0.0167	S M	6/3/2014 10:46 AM
<b>Metals (RCRA) - non-aqueous</b>								
Arsenic	7440-38-2	0.52		mg/kg	6010B	0.50	S M	6/3/2014 1:20 PM
Barium	7440-39-3	113		mg/kg	6010B	0.50	S M	6/3/2014 1:20 PM
Cadmium	7440-43-9	ND		mg/kg	6010B	0.50	S M	6/3/2014 1:20 PM
Chromium	7440-47-3	5.06		mg/kg	6010B	0.50	S M	6/3/2014 1:20 PM
Lead	7439-92-1	143		mg/kg	6010B	0.50	S M	6/3/2014 1:20 PM
Selenium	7782-49-2	ND		mg/kg	6010B	0.50	S M	6/3/2014 1:20 PM
Silver	7440-22-4	ND		mg/kg	6010B	0.50	S M	6/3/2014 1:20 PM
<b>PCBs - Non-aqueous</b>								
PCB-1016	12674-11-2	ND		mg/kg	8082A	0.025	B C	6/4/2014 4:28 PM
PCB-1221	11104-28-2	ND		mg/kg	8082A	0.025	B C	6/4/2014 4:28 PM
PCB-1232	11141-16-5	ND		mg/kg	8082A	0.025	B C	6/4/2014 4:28 PM
PCB-1242	53469-21-9	ND		mg/kg	8082A	0.025	B C	6/4/2014 4:28 PM
PCB-1248	12672-29-6	ND		mg/kg	8082A	0.025	B C	6/4/2014 4:28 PM
PCB-1254	11097-69-1	ND		mg/kg	8082A	0.025	B C	6/4/2014 4:28 PM
PCB-1260	11096-82-5	ND		mg/kg	8082A	0.025	B C	6/4/2014 4:28 PM
PCB-1262	37324-23-5	ND		mg/kg	8082A	0.025	B C	6/4/2014 4:28 PM



# ANALYTICAL REPORT

**Project Name:** MC Canfield & Son Site

**Date Sampled:** 5/27/2014 11:30 AM

**Lab Project #:** 40784

**Sampled By:**
**Lab Sample #:** 40784-2

**Sample Matrix:** Soil

**Client Sample ID:** Area 2-D5-052714

**Sample Type:** Composite

Analyte	CASRN	Result	Q	Units	Method	RL	Analyst	Date / Time Analysis
<b>PCBs - Non-aqueous</b>								
PCB-1268	11100-14-4	ND		mg/kg	8082A	0.025	B C	6/4/2014 4:28 PM
<b>Percent Moisture/Percent Solid</b>								
Total Moisture		15.7		%	2540B	0.10	josh walls	6/4/2014 3:44 PM
<b>Pesticides - non-aqueous</b>								
Aldrin	309-00-2	ND		mg/kg	8081B	0.00125	B C	6/4/2014 4:28 PM
alpha BHC	319-84-6	ND		mg/kg	8081B	0.00125	B C	6/4/2014 4:28 PM
beta BHC	319-85-7	ND		mg/kg	8081B	0.00125	B C	6/4/2014 4:28 PM
delta BHC	319-86-8	ND		mg/kg	8081B	0.00125	B C	6/4/2014 4:28 PM
gamma BHC (Lindane)	58-89-9	ND		mg/kg	8081B	0.00125	B C	6/4/2014 4:28 PM
Chlordane	57-74-9	ND		mg/kg	8081B	0.02500	B C	6/4/2014 4:28 PM
alpha-Chlordane	5103-71-9	ND		mg/kg	8081B	0.00125	B C	6/4/2014 4:28 PM
gamma-Chlordane	5103-74-2	ND		mg/kg	8081B	0.00125	B C	6/4/2014 4:28 PM
4,4'-DDD	72-54-8	ND		mg/kg	8081B	0.00250	B C	6/4/2014 4:28 PM
4,4'-DDE	72-55-9	ND		mg/kg	8081B	0.00250	B C	6/4/2014 4:28 PM
4,4'-DDT	50-29-3	ND		mg/kg	8081B	0.00250	B C	6/4/2014 4:28 PM
Dieldrin	60-57-1	ND		mg/kg	8081B	0.00250	B C	6/4/2014 4:28 PM
Endosulfan I	959-98-8	ND		mg/kg	8081B	0.00125	B C	6/4/2014 4:28 PM
Endosulfan II	33213-65-9	ND		mg/kg	8081B	0.00250	B C	6/4/2014 4:28 PM
Endosulfan sulfate	1031-07-8	ND		mg/kg	8081B	0.00250	B C	6/4/2014 4:28 PM
Endrin	72-20-8	ND		mg/kg	8081B	0.00250	B C	6/4/2014 4:28 PM
Endrin aldehyde	7421-93-4	ND		mg/kg	8081B	0.00250	B C	6/4/2014 4:28 PM
Endrin ketone	53494-70-5	ND		mg/kg	8081B	0.00250	B C	6/4/2014 4:28 PM
Heptachlor	76-44-8	ND		mg/kg	8081B	0.00125	B C	6/4/2014 4:28 PM
Heptachlor epoxide	1024-57-3	ND		mg/kg	8081B	0.00125	B C	6/4/2014 4:28 PM
Methoxychlor	72-43-5	ND		mg/kg	8081B	0.01250	B C	6/4/2014 4:28 PM
Toxaphene	8001-35-2	ND		mg/kg	8081B	0.02500	B C	6/4/2014 4:28 PM
<b>pH - non-aqueous</b>								
Corrosivity (pH)		8.43		S.U.	9045D		R B	6/2/2014 2:56 PM
<b>Reactive Cyanide</b>								
Reactive Cyanide	57-12-5	ND		mg/kg	7.3.3.2	0.20	R B	6/2/2014 12:59 PM
<b>Reactive Sulfide</b>								

# ANALYTICAL REPORT

**Project Name:** MC Canfield & Son Site

**Date Sampled:** 5/27/2014 11:30 AM

**Sampled By:**
**Sample Matrix:** Soil

**Sample Type:** Composite

**Lab Project #:** 40784

**Lab Sample #:** 40784-2

**Client Sample ID:** Area 2-D5-052714

Analyte	CASRN	Result	Q	Units	Method	RL	Analyst	Date / Time Analysis
<b>Reactive Sulfide</b>								
Reactive Sulfide	18496-25-8	1.60		mg/kg	7.3.4.2	0.20	R B	6/2/2014 12:08 PM
<b>Semi Volatile Organics (8270D) - non-aqueous</b>								
1,1-Biphenyl	92-52-4	ND		mg/kg	8270D	0.100	W W II	6/2/2014 6:09 PM
1,2,4,5-Tetrachlorobenzene	95-94-3	ND		mg/kg	8270D	0.100	W W II	6/2/2014 6:09 PM
1,2,4-Trichlorobenzene	120-82-1	ND		mg/kg	8270D	0.100	W W II	6/2/2014 6:09 PM
1,2-Dichlorobenzene	95-50-1	ND		mg/kg	8270D	0.100	W W II	6/2/2014 6:09 PM
1,3-Dichlorobenzene	541-73-1	ND		mg/kg	8270D	0.100	W W II	6/2/2014 6:09 PM
1,3-Hexachlorobutadiene	87-68-3	ND		mg/kg	8270D	0.100	W W II	6/2/2014 6:09 PM
1,4-Dichlorobenzene	106-46-7	ND		mg/kg	8270D	0.100	W W II	6/2/2014 6:09 PM
1-Methylnaphthalene	90-12-0	ND		mg/kg	8270D	0.100	W W II	6/2/2014 6:09 PM
2,3,4,6-Tetrachlorophenol	58-90-2	ND		mg/kg	8270D	0.100	W W II	6/2/2014 6:09 PM
2,4,5-Trichlorophenol	95-95-4	ND		mg/kg	8270D	0.100	W W II	6/2/2014 6:09 PM
2,4,6-Trichlorophenol	88-06-2	ND		mg/kg	8270D	0.100	W W II	6/2/2014 6:09 PM
2,4-Dichlorophenol	120-83-2	ND		mg/kg	8270D	0.100	W W II	6/2/2014 6:09 PM
2,4-Dimethylphenol	105-67-9	ND		mg/kg	8270D	0.100	W W II	6/2/2014 6:09 PM
2,4-Dinitrophenol	51-28-5	ND		mg/kg	8270D	0.100	W W II	6/2/2014 6:09 PM
2,4-Dinitrotoluene	121-14-2	ND		mg/kg	8270D	0.100	W W II	6/2/2014 6:09 PM
2,6-Dichlorophenol	87-65-0	ND		mg/kg	8270D	0.100	W W II	6/2/2014 6:09 PM
2,6-Dinitrotoluene	606-20-2	ND		mg/kg	8270D	0.100	W W II	6/2/2014 6:09 PM
2-Chloronaphthalene	91-58-7	ND		mg/kg	8270D	0.100	W W II	6/2/2014 6:09 PM
2-Chlorophenol	95-57-8	ND		mg/kg	8270D	0.100	W W II	6/2/2014 6:09 PM
2-Methylnaphthalene	91-57-6	ND		mg/kg	8270D	0.100	W W II	6/2/2014 6:09 PM
2-Methylphenol	95-48-7	ND		mg/kg	8270D	0.100	W W II	6/2/2014 6:09 PM
2-Nitroaniline	88-74-4	ND		mg/kg	8270D	0.100	W W II	6/2/2014 6:09 PM
2-Nitrophenol	88-75-5	ND		mg/kg	8270D	0.100	W W II	6/2/2014 6:09 PM
3,3'-Dichlorobenzidine	91-94-1	ND		mg/kg	8270D	0.200	W W II	6/2/2014 6:09 PM
3-Nitroaniline	99-09-2	ND		mg/kg	8270D	0.100	W W II	6/2/2014 6:09 PM
4,6-Dinitro-2-methylphenol	534-52-1	ND		mg/kg	8270D	0.100	W W II	6/2/2014 6:09 PM
4-Bromophenyl-phenylether	101-55-3	ND		mg/kg	8270D	0.100	W W II	6/2/2014 6:09 PM
4-Chloro-3-methylphenol	59-50-7	ND		mg/kg	8270D	0.100	W W II	6/2/2014 6:09 PM
4-Chloroaniline	106-47-8	ND		mg/kg	8270D	0.100	W W II	6/2/2014 6:09 PM
4-Chlorophenyl-phenylether	7005-72-3	ND		mg/kg	8270D	0.100	W W II	6/2/2014 6:09 PM



# ANALYTICAL REPORT

**Project Name:** MC Canfield & Son Site

**Date Sampled:** 5/27/2014 11:30 AM

**Sampled By:**
**Sample Matrix:** Soil

**Sample Type:** Composite

**Lab Project #:** 40784

**Lab Sample #:** 40784-2

**Client Sample ID:** Area 2-D5-052714

Analyte	CASRN	Result	Q	Units	Method	RL	Analyst	Date / Time Analysis
<b>Semi Volatile Organics (8270D) - non-aqueous</b>								
4-Nitroaniline	100-01-6	ND		mg/kg	8270D	0.100	W W II	6/2/2014 6:09 PM
4-Nitrophenol	100-02-7	ND		mg/kg	8270D	0.100	W W II	6/2/2014 6:09 PM
Acenaphthene	83-32-9	0.180		mg/kg	8270D	0.100	W W II	6/2/2014 6:09 PM
Acenaphthylene	208-96-8	ND		mg/kg	8270D	0.100	W W II	6/2/2014 6:09 PM
Acetophenone	98-86-2	ND		mg/kg	8270D	0.100	W W II	6/2/2014 6:09 PM
Aniline	62-53-3	ND		mg/kg	8270D	0.100	W W II	6/2/2014 6:09 PM
Anthracene	120-12-7	0.326		mg/kg	8270D	0.100	W W II	6/2/2014 6:09 PM
Atrazine	1912-24-9	ND		mg/kg	8270D	0.100	W W II	6/2/2014 6:09 PM
Benzaldehyde	100-52-7	ND		mg/kg	8270D	0.100	W W II	6/2/2014 6:09 PM
Benidine	92-87-5	ND		mg/kg	8270D	0.200	W W II	6/2/2014 6:09 PM
Benzo[a]pyrene	50-32-8	0.843		mg/kg	8270D	0.100	W W II	6/2/2014 6:09 PM
Benzo[a]anthracene	56-55-3	1.021		mg/kg	8270D	0.100	W W II	6/2/2014 6:09 PM
Benzo[b]fluoranthene	205-99-2	0.936		mg/kg	8270D	0.100	W W II	6/2/2014 6:09 PM
Benzo[g,h,i]perylene	191-24-2	0.498		mg/kg	8270D	0.100	W W II	6/2/2014 6:09 PM
Benzo[k]fluoranthene	207-08-9	0.577		mg/kg	8270D	0.100	W W II	6/2/2014 6:09 PM
Benzoic Acid	65-85-0	ND		mg/kg	8270D	0.200	W W II	6/2/2014 6:09 PM
Benzyl Alcohol	100-51-6	ND		mg/kg	8270D	0.100	W W II	6/2/2014 6:09 PM
bis (2-Chloroethoxy) methane	111-91-1	ND		mg/kg	8270D	0.100	W W II	6/2/2014 6:09 PM
bis (2-Chloroethyl) ether	111-44-4	ND		mg/kg	8270D	0.100	W W II	6/2/2014 6:09 PM
bis (2-chloroisopropyl) ether	108-60-1	ND		mg/kg	8270D	0.100	W W II	6/2/2014 6:09 PM
bis (2-Ethylhexyl) phthalate	117-81-7	ND		mg/kg	8270D	0.100	W W II	6/2/2014 6:09 PM
Butylbenzylphthalate	85-68-7	ND		mg/kg	8270D	0.100	W W II	6/2/2014 6:09 PM
Caprolactam	105-60-2	ND		mg/kg	8270D	0.100	W W II	6/2/2014 6:09 PM
Carbazole	86-74-8	0.126		mg/kg	8270D	0.100	W W II	6/2/2014 6:09 PM
Chrysene	218-01-9	0.983		mg/kg	8270D	0.100	W W II	6/2/2014 6:09 PM
Dibenz[a,h]anthracene	53-70-3	0.169		mg/kg	8270D	0.100	W W II	6/2/2014 6:09 PM
Dibenzofuran	132-64-9	0.122		mg/kg	8270D	0.100	W W II	6/2/2014 6:09 PM
Diethylphthalate	84-66-2	ND		mg/kg	8270D	0.100	W W II	6/2/2014 6:09 PM
Dimethylphthalate	131-11-3	ND		mg/kg	8270D	0.100	W W II	6/2/2014 6:09 PM
Di-n-butylphthalate	84-74-2	ND		mg/kg	8270D	0.100	W W II	6/2/2014 6:09 PM
Di-n-octylphthalate	117-84-0	ND		mg/kg	8270D	0.100	W W II	6/2/2014 6:09 PM
Fluoranthene	206-44-0	1.768		mg/kg	8270D	0.100	W W II	6/2/2014 6:09 PM
Fluorene	86-73-7	0.148		mg/kg	8270D	0.100	W W II	6/2/2014 6:09 PM

# ANALYTICAL REPORT

**Project Name:** MC Canfield & Son Site

**Date Sampled:** 5/27/2014 11:30 AM

**Sampled By:**
**Sample Matrix:** Soil

**Sample Type:** Composite

**Lab Project #:** 40784

**Lab Sample #:** 40784-2

**Client Sample ID:** Area 2-D5-052714

Analyte	CASRN	Result	Q	Units	Method	RL	Analyst	Date / Time Analysis
<b>Semi Volatile Organics (8270D) - non-aqueous</b>								
Hexachlorobenzene	118-74-1	ND		mg/kg	8270D	0.100	W W II	6/2/2014 6:09 PM
Hexachlorocyclopentadiene	77-47-4	ND		mg/kg	8270D	0.100	W W II	6/2/2014 6:09 PM
Hexachloroethane	67-72-1	ND		mg/kg	8270D	0.100	W W II	6/2/2014 6:09 PM
Indeno[1,2,3-cd]pyrene	193-39-5	0.500		mg/kg	8270D	0.100	W W II	6/2/2014 6:09 PM
Isophorone	78-59-1	ND		mg/kg	8270D	0.100	W W II	6/2/2014 6:09 PM
Naphthalene	91-20-3	ND		mg/kg	8270D	0.100	W W II	6/2/2014 6:09 PM
n-Decane	124-18-5	ND		mg/kg	8270D	0.200	W W II	6/2/2014 6:09 PM
Nitrobenzene	98-95-3	ND		mg/kg	8270D	0.100	W W II	6/2/2014 6:09 PM
N-nitrosodimethylamine	62-75-9	ND		mg/kg	8270D	0.100	W W II	6/2/2014 6:09 PM
n-Nitroso-di-n-propylamine	621-64-7	ND		mg/kg	8270D	0.100	W W II	6/2/2014 6:09 PM
n-Octadecane	593-45-3	ND		mg/kg	8270D	0.200	W W II	6/2/2014 6:09 PM
Pentachlorophenol	87-86-5	ND		mg/kg	8270D	0.100	W W II	6/2/2014 6:09 PM
Phenanthrene	85-01-8	1.547		mg/kg	8270D	0.100	W W II	6/2/2014 6:09 PM
Phenol	108-95-2	ND		mg/kg	8270D	0.100	W W II	6/2/2014 6:09 PM
Pyridine	110-86-1	ND		mg/kg	8270D	0.200	W W II	6/2/2014 6:09 PM
Pyrene	129-00-0	1.574		mg/kg	8270D	0.100	W W II	6/2/2014 6:09 PM
1,2-Diphenylhydrazine / Azobenzene	122-66-7 / 17082-12-1	ND		mg/kg	8270D	0.100	W W II	6/2/2014 6:09 PM
N-nitrosodiphenylamine / Diphenylamine	86-30-6 / 122-39-4	ND		mg/kg	8270D	0.100	W W II	6/2/2014 6:09 PM
Hexachlorobutadiene	87-68-3	ND		mg/kg	8270D	0.100	W W II	6/2/2014 6:09 PM
<b>TCLP Herbicides</b>								
2,4-D	94-75-7	ND		mg/L	1311/8151A	0.002	B C	6/4/2014 5:59 PM
2,4,5-TP (Silvex)	93-72-1	ND		mg/L	1311/8151A	0.002	B C	6/4/2014 5:59 PM
<b>TCLP Mercury</b>								
Mercury	7439-97-6	ND		mg/L	1311/245.1	0.001	S M	6/2/2014 2:33 PM
<b>TCLP Metals</b>								
Arsenic	7440-38-2	ND		mg/L	1311/6010B	0.05	S M	6/2/2014 4:08 PM
Barium	7440-39-3	0.76		mg/L	1311/6010B	0.05	S M	6/2/2014 4:08 PM
Cadmium	7440-43-9	ND		mg/L	1311/6010B	0.05	S M	6/2/2014 4:08 PM
Chromium	7440-47-3	ND		mg/L	1311/6010B	0.05	S M	6/2/2014 4:08 PM
Lead	7439-92-1	0.05		mg/L	1311/6010B	0.05	S M	6/2/2014 4:08 PM

# ANALYTICAL REPORT

**Project Name:** MC Canfield & Son Site

**Date Sampled:** 5/27/2014 11:30 AM

**Sampled By:**
**Sample Matrix:** Soil

**Sample Type:** Composite

**Lab Project #:** 40784

**Lab Sample #:** 40784-2

**Client Sample ID:** Area 2-D5-052714

Analyte	CASRN	Result	Q	Units	Method	RL	Analyst	Date / Time Analysis
<b>TCLP Metals</b>								
Selenium	7782-49-2	ND		mg/L	1311/6010B	0.05	S M	6/2/2014 4:08 PM
Silver	7440-22-4	ND		mg/L	1311/6010B	0.05	S M	6/2/2014 4:08 PM
<b>TCLP Pesticides</b>								
Chlordane	57-74-9	ND		mg/L	1311/8081A	0.00100	B C	6/4/2014 3:18 PM
Endrin	72-20-8	ND		mg/L	1311/8081A	0.00010	B C	6/4/2014 3:18 PM
gamma BHC (Lindane)	58-89-9	ND		mg/L	1311/8081A	0.00005	B C	6/4/2014 3:18 PM
Heptachlor	76-44-8	ND		mg/L	1311/8081A	0.00005	B C	6/4/2014 3:18 PM
Heptachlor epoxide	1024-57-3	ND		mg/L	1311/8081A	0.00005	B C	6/4/2014 3:18 PM
Methoxychlor	72-43-5	ND		mg/L	1311/8081A	0.00050	B C	6/4/2014 3:18 PM
Toxaphene	8001-35-2	ND		mg/L	1311/8081A	0.00100	B C	6/4/2014 3:18 PM
<b>TCLP Semivolatiles</b>								
1,4-Dichlorobenzene	106-46-7	ND		mg/L	1311/8270D	0.10	W W II	6/2/2014 3:29 PM
2,4-Dinitrotoluene	121-14-2	ND		mg/L	1311/8270D	0.10	W W II	6/2/2014 3:29 PM
Hexachlorobenzene	118-74-1	ND		mg/L	1311/8270D	0.10	W W II	6/2/2014 3:29 PM
Hexachlorobutadiene	87-68-3	ND		mg/L	1311/8270D	0.10	W W II	6/2/2014 3:29 PM
Hexachloroethane	67-72-1	ND		mg/L	1311/8270D	0.10	W W II	6/2/2014 3:29 PM
2-Methylphenol	95-48-7	ND		mg/L	1311/8270D	0.10	W W II	6/2/2014 3:29 PM
3- & 4- Methylphenol	61379-65-5	ND		mg/L	1311/8270D	0.10	W W II	6/2/2014 3:29 PM
Nitrobenzene	98-95-3	ND		mg/L	1311/8270D	0.10	W W II	6/2/2014 3:29 PM
Pentachlorophenol	87-86-5	ND		mg/L	1311/8270D	0.10	W W II	6/2/2014 3:29 PM
Pyridine	110-86-1	ND		mg/L	1311/8270D	0.10	W W II	6/2/2014 3:29 PM
2,4,5-Trichlorophenol	95-95-4	ND		mg/L	1311/8270D	0.10	W W II	6/2/2014 3:29 PM
2,4,6-Trichlorophenol	88-06-2	ND		mg/L	1311/8270D	0.10	W W II	6/2/2014 3:29 PM
<b>TCLP Volatiles</b>								
Benzene	71-43-2	ND		mg/L	1311/8260C	0.02	S M	6/4/2014 10:48 AM
Carbon Tetrachloride	56-23-5	ND		mg/L	1311/8260C	0.02	S M	6/4/2014 10:48 AM
Chlorobenzene	108-90-7	ND		mg/L	1311/8260C	0.02	S M	6/4/2014 10:48 AM
Chloroform	67-66-3	ND		mg/L	1311/8260C	0.02	S M	6/4/2014 10:48 AM
1,2-Dichloroethane	107-06-2	ND		mg/L	1311/8260C	0.02	S M	6/4/2014 10:48 AM
1,1-Dichloroethene	75-35-4	ND		mg/L	1311/8260C	0.02	S M	6/4/2014 10:48 AM
Methyl Ethyl Ketone (MEK)	78-93-3	ND		mg/L	1311/8260C	0.10	S M	6/4/2014 10:48 AM
Tetrachloroethene (PCE)	127-18-4	ND		mg/L	1311/8260C	0.02	S M	6/4/2014 10:48 AM

# ANALYTICAL REPORT

**Project Name:** MC Canfield & Son Site

**Date Sampled:** 5/27/2014 11:30 AM

**Sampled By:**
**Sample Matrix:** Soil

**Sample Type:** Composite

**Lab Project #:** 40784

**Lab Sample #:** 40784-2

**Client Sample ID:** Area 2-D5-052714

Analyte	CASRN	Result	Q	Units	Method	RL	Analyst	Date / Time Analysis
<b>TCLP Volatiles</b>								
Trichloroethene (TCE)	79-01-6	ND		mg/L	1311/8260C	0.02	S M	6/4/2014 10:48 AM
Vinyl Chloride	75-01-4	ND		mg/L	1311/8260C	0.02	S M	6/4/2014 10:48 AM
<b>Total Petroleum Hydrocarbons (C-40) - non-aqueous</b>								
Total Petroleum Hydrocarbons (C-40)		ND		mg/kg	8015B	50.0	S M	6/3/2014 1:25 PM
<b>Volatile Organics (8260C) - non-aqueous</b>								
Acetone	67-64-1	ND		mg/kg	8260C	0.050	S M	6/2/2014 4:25 PM
Acrolein	107-02-8	ND		mg/kg	8260C	0.050	S M	6/2/2014 4:25 PM
Acrylonitrile	107-13-1	ND		mg/kg	8260C	0.005	S M	6/2/2014 4:25 PM
Benzene	71-43-2	ND		mg/kg	8260C	0.005	S M	6/2/2014 4:25 PM
Bromodichloromethane	75-27-4	ND		mg/kg	8260C	0.005	S M	6/2/2014 4:25 PM
Bromoform (Tribromomethane)	75-25-2	ND		mg/kg	8260C	0.005	S M	6/2/2014 4:25 PM
Bromomethane	74-83-9	ND		mg/kg	8260C	0.005	S M	6/2/2014 4:25 PM
2-Butanone (MEK)	78-93-3	ND		mg/kg	8260C	0.050	S M	6/2/2014 4:25 PM
Carbon disulfide	75-15-0	ND		mg/kg	8260C	0.005	S M	6/2/2014 4:25 PM
Carbon Tetrachloride	56-23-5	ND		mg/kg	8260C	0.005	S M	6/2/2014 4:25 PM
Chlorobenzene	108-90-7	ND		mg/kg	8260C	0.005	S M	6/2/2014 4:25 PM
Chloroethane	75-00-3	ND		mg/kg	8260C	0.005	S M	6/2/2014 4:25 PM
2-Chloroethylvinylether	110-75-8	ND		mg/kg	8260C	0.005	S M	6/2/2014 4:25 PM
Chloroform	67-66-3	ND		mg/kg	8260C	0.005	S M	6/2/2014 4:25 PM
Chloromethane (Methyl Chloride)	74-87-3	ND		mg/kg	8260C	0.005	S M	6/2/2014 4:25 PM
1,2-Dichlorobenzene	95-50-1	ND		mg/kg	8260C	0.005	S M	6/2/2014 4:25 PM
1,3-Dichlorobenzene	541-73-1	ND		mg/kg	8260C	0.005	S M	6/2/2014 4:25 PM
1,4-Dichlorobenzene	106-46-7	ND		mg/kg	8260C	0.005	S M	6/2/2014 4:25 PM
Dichlorodifluoromethane	75-71-8	ND		mg/kg	8260C	0.005	S M	6/2/2014 4:25 PM
1,1-Dichloroethane	75-34-3	ND		mg/kg	8260C	0.005	S M	6/2/2014 4:25 PM
1,2-Dichloroethane	107-06-2	ND		mg/kg	8260C	0.005	S M	6/2/2014 4:25 PM
1,1-Dichloroethene	75-35-4	ND		mg/kg	8260C	0.005	S M	6/2/2014 4:25 PM
cis-1,2-Dichloroethene	156-59-2	ND		mg/kg	8260C	0.005	S M	6/2/2014 4:25 PM
trans-1,2-Dichloroethene	156-60-5	ND		mg/kg	8260C	0.005	S M	6/2/2014 4:25 PM
1,2-Dichloropropane	78-87-5	ND		mg/kg	8260C	0.005	S M	6/2/2014 4:25 PM



# ANALYTICAL REPORT

**Project Name:** MC Canfield & Son Site

**Date Sampled:** 5/27/2014 11:30 AM

**Sampled By:**
**Sample Matrix:** Soil

**Sample Type:** Composite

**Lab Project #:** 40784

**Lab Sample #:** 40784-2

**Client Sample ID:** Area 2-D5-052714

Analyte	CASRN	Result	Q	Units	Method	RL	Analyst	Date / Time Analysis
<b>Volatile Organics (8260C) - non-aqueous</b>								
cis-1,3-Dichloropropene	10061-01-5	ND		mg/kg	8260C	0.005	S M	6/2/2014 4:25 PM
trans-1,3-Dichloropropene	10061-02-6	ND		mg/kg	8260C	0.005	S M	6/2/2014 4:25 PM
Ethylbenzene	100-41-4	ND		mg/kg	8260C	0.005	S M	6/2/2014 4:25 PM
Hexachlorobutadiene	87-68-3	ND		mg/kg	8260C	0.005	S M	6/2/2014 4:25 PM
2-Hexanone	591-78-6	ND		mg/kg	8260C	0.050	S M	6/2/2014 4:25 PM
Methyl tert-butyl ether (MTBE)	1634-04-4	ND		mg/kg	8260C	0.005	S M	6/2/2014 4:25 PM
Methylene Chloride (Dichloromethane)	75-09-2	ND		mg/kg	8260C	0.005	S M	6/2/2014 4:25 PM
tert-Butyl alcohol (TBA)	75-65-0	ND		mg/kg	8260C	0.050	S M	6/2/2014 4:25 PM
1,1,2,2-Tetrachloroethane	79-34-5	ND		mg/kg	8260C	0.005	S M	6/2/2014 4:25 PM
4-methyl-2-pentanone (MIBK)	108-10-1	ND		mg/kg	8260C	0.050	S M	6/2/2014 4:25 PM
Tetrachloroethene (PCE)	127-18-4	ND		mg/kg	8260C	0.005	S M	6/2/2014 4:25 PM
Toluene	108-88-3	ND		mg/kg	8260C	0.005	S M	6/2/2014 4:25 PM
1,1,1-Trichloroethane	71-55-6	ND		mg/kg	8260C	0.005	S M	6/2/2014 4:25 PM
1,1,2-Trichloroethane	79-00-5	ND		mg/kg	8260C	0.005	S M	6/2/2014 4:25 PM
Trichlorofluoromethane	75-69-4	ND		mg/kg	8260C	0.005	S M	6/2/2014 4:25 PM
Vinyl Chloride	75-01-4	ND		mg/kg	8260C	0.005	S M	6/2/2014 4:25 PM
Xylenes, Total	1330-20-7	ND		mg/kg	8260C	0.015	S M	6/2/2014 4:25 PM
Naphthalene	91-20-3	ND		mg/kg	8260C	0.020	S M	6/2/2014 4:25 PM
Nitrobenzene	98-95-3	ND		mg/kg	8260C	0.050	S M	6/2/2014 4:25 PM
Styrene	100-42-5	ND		mg/kg	8260C	0.005	S M	6/2/2014 4:25 PM
1,1,1,2-Tetrachloroethane	630-20-6	ND		mg/kg	8260C	0.005	S M	6/2/2014 4:25 PM
1,2,4-Trichlorobenzene	120-82-1	ND		mg/kg	8260C	0.005	S M	6/2/2014 4:25 PM
Trichloroethene (TCE)	79-01-6	ND		mg/kg	8260C	0.005	S M	6/2/2014 4:25 PM
Dibromochloromethane	124-48-1	ND		mg/kg	8260C	0.005	S M	6/2/2014 4:25 PM
1,3-Dichloropropane	142-28-9	ND		mg/kg	8260C	0.005	S M	6/2/2014 4:25 PM
Hexachloroethane	67-72-1	ND		mg/kg	8260C	0.005	S M	6/2/2014 4:25 PM
Methyl Acetate	79-20-9	ND		mg/kg	8260C	0.050	S M	6/2/2014 4:25 PM

# ANALYTICAL REPORT

**Project Name:** MC Canfield & Son Site

**Date Sampled:** 5/27/2014 11:30 AM

**Sampled By:**

**Sample Matrix:** Soil

**Sample Type:** Composite

**Lab Project #:** 40784

**Lab Sample #:** 40784-2

**Client Sample ID:** Area 2-D5-052714



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Akhter Mehmood  
Lab Director



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Charles Morrow  
QAQC Director

# ANALYTICAL REPORT

## Methodology

All analyses are adapted from one or more of the following reference methods:

"Guidelines Establishing Test Procedures for the Analysis of Pollutants" Code of Federal Regulations, Vol. 40, Part 136  
 "Test Methods for Evaluating Solid Waste", SW846 Third Edition, September 1986, USEPA.  
 Code of Federal Regulations Vol. 40, Part 261, "Appendix II Method 1311 Toxicity Characteristic Leaching Procedure."  
 Standard Methods for the Examination of Water and Wastewater", 18th & 21st editions  
 "Methods for the Chemical Analysis of Water and Wastes", EPA600/4-79-020, March 1983, U.S. EPA, EMSL  
 "Annual Book of Standards, Section 11-Water", American Society for Testing and Materials (ASTM)  
 "Methods for the Determination of Organic Compounds in Drinking Water", EPA 600/4-88/039, December 1988

## Qualifiers

B	Detected in method blank	E	Detected above calibration limits, result estimated
H	Parameter run out of hold time	J	Detected below PQL, result estimated
P	Incorrect Preservative	R	See report notes
SUB	Sub-Contracted to Certified Lab	N	Not NELAP/TNI certified for parameter

## Abbreviations

ppm	Parts Per Million (mg/kg or mg/L)	PQL	Practical Quantitation Level
ppb	Parts Per Billion (ug/kg or ug/L)	attached	Subcontract Lab Report Attached
g	gram (1000 g = 1Kg)	ND	Not Detected
kg	kilogram (1 kg = 1000 g)	NA	Not Applicable
mg	milligram (1000 mg = 1 g)	NS	Not Spiked
mg/kg	milligram per kilogram (ppm)	NP	No PCB pattern detected
ug/kg	microgram per kilogram (ppb)	NR	Not Requested
ug	microgram (1000 ug = 1 mg)	NI	Not Ignitable
L	liter (1 L = 1000 mL)	NFL	No Free Liquid
ml	milliliter (1000 ml = 1 L)	NTU	Nephelometric Turbidity Units
ul	microliter (1000 ul = 1 ml)	S.U.	Standard Unit
mg/L	milligram per liter (ppm)	RPD	Relative Percent Difference
ug/L	microgram per liter (ppb)	RSD	Relative Standard Deviation
ng/kg	nanogram per kilogram	MS/MSD	Matrix Spike/Matrix Spike Duplicate
BTU/lb	British Thermal Units per pound	LCS	Laboratory Control Sample
CFU/mL	Colony Forming Units per milliliter	BS	Blank Spike (Method Spike)
MPN/100 ml	Most Probable Number per 100 mL	o F	degrees Fahrenheit
mS/cm	milli Siemens per centimeter	o C	degrees Celsius
uS/cm	micro Siemens per centimeter	umhos	Conductivity Units
ug/sq cm	microgram per square centimeter	ohms	Resistivity Units
ug/sq ft	microgram per square feet	RL	Reporting Limit
ug/wipe	microgram per wipe		

Note: All non-aqueous samples, with the exception of oils, wipes, and paint chips are dry weight corrected

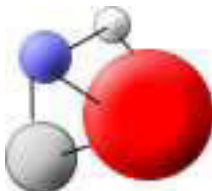
PQL-The Practical Quantitation Limit (PQL) is the lowest level that can be reliably achieved within specified limits of precision and accuracy during routine laboratory operating conditions.

RL-Reporting Limit is greater than or equal to PQL.









# **Mid-Atlantic**

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[mael@maelinc.com](mailto:mael@maelinc.com)

## **Analytical Report**

**Project Name:** MC Canfield

**MAEL Job Number:** 41520

**Client:** Environmental Restoration LLC  
1666 Fabick Drive  
Fenton, MO 63026

**Contact Name:** Amy Riggott

**Date Received:** 10/02/2014

**Date Reported:** 10/10/2014

Analytical test results for methods listed on the laboratory's scope of accreditation meet all requirements of NELAC unless otherwise noted. All sample holding times and preservation requirements were met unless otherwise noted. Test results relate only to the sample tested. This report shall not be reproduced, except in full, without prior written authorization of Mid-Atlantic Environmental Laboratories, Inc.



# ANALYTICAL REPORT

**Project Name:** MC Canfield

**Date Sampled:** 9/30/2014 1:30 PM

**Sampled By:** JG

**Lab Project #:** 41520

**Sample Matrix:** Soil

**Lab Sample #:** 41520-1

**Sample Type:** Composite

**Client Sample ID:** Area 2-001

Analyte	CASRN	Result	Q	Units	Method	RL	Analyst	Date / Time Analysis
<b>Flashpoint</b>								
Flashpoint		>100		o C	1010A		R B	10/7/2014 1:37 PM
<b>Herbicides - Non-aqueous</b>								
2,4-D	94-75-7	ND		mg/kg	8151A	0.01	B C	10/8/2014 5:24 PM
Dicamba	1918-00-9	ND		mg/kg	8151A	0.01	B C	10/8/2014 5:24 PM
Dichloroprop	120-36-5	ND		mg/kg	8151A	0.01	B C	10/8/2014 5:24 PM
Dinoseb	88-85-7	ND		mg/kg	8151A	0.01	B C	10/8/2014 5:24 PM
2,4,5-T	93-76-5	ND		mg/kg	8151A	0.01	B C	10/8/2014 5:24 PM
2,4,5-TP (Silvex)	93-72-1	ND		mg/kg	8151A	0.01	B C	10/8/2014 5:24 PM
<b>Mercury - Non-aqueous</b>								
Mercury	7439-97-6	0.90		mg/kg	7471A	0.10	K S	10/6/2014 2:27 PM
<b>Metals (RCRA) - non-aqueous</b>								
Arsenic	7440-38-2	2.16		mg/kg	6010B	0.50	K S	10/6/2014 10:36 AM
Barium	7440-39-3	136		mg/kg	6010B	0.50	K S	10/6/2014 10:36 AM
Cadmium	7440-43-9	ND		mg/kg	6010B	0.50	K S	10/6/2014 10:36 AM
Chromium	7440-47-3	7.88		mg/kg	6010B	0.50	K S	10/6/2014 10:36 AM
Lead	7439-92-1	221		mg/kg	6010B	0.50	K S	10/6/2014 10:36 AM
Selenium	7782-49-2	ND		mg/kg	6010B	0.50	K S	10/6/2014 10:36 AM
Silver	7440-22-4	ND		mg/kg	6010B	0.50	K S	10/6/2014 10:36 AM
<b>PCBs - Non-aqueous</b>								
PCB-1016	12674-11-2	ND		mg/kg	8082A	0.025	B C	10/7/2014 9:11 PM
PCB-1221	11104-28-2	ND		mg/kg	8082A	0.025	B C	10/7/2014 9:11 PM
PCB-1232	11141-16-5	ND		mg/kg	8082A	0.025	B C	10/7/2014 9:11 PM
PCB-1242	53469-21-9	ND		mg/kg	8082A	0.025	B C	10/7/2014 9:11 PM
PCB-1248	12672-29-6	ND		mg/kg	8082A	0.025	B C	10/7/2014 9:11 PM
PCB-1254	11097-69-1	ND		mg/kg	8082A	0.025	B C	10/7/2014 9:11 PM
PCB-1260	11096-82-5	ND		mg/kg	8082A	0.025	B C	10/7/2014 9:11 PM
PCB-1262	37324-23-5	ND		mg/kg	8082A	0.025	B C	10/7/2014 9:11 PM





# ANALYTICAL REPORT

**Project Name:** MC Canfield

**Date Sampled:** 9/30/2014 1:30 PM

**Lab Project #:** 41520

**Sampled By:** JG

**Lab Sample #:** 41520-1

**Sample Matrix:** Soil

**Client Sample ID:** Area 2-001

**Sample Type:** Composite

Analyte	CASRN	Result	Q	Units	Method	RL	Analyst	Date / Time Analysis
<b>PCBs - Non-aqueous</b>								
PCB-1268	11100-14-4	ND		mg/kg	8082A	0.025	B C	10/7/2014 9:11 PM
<b>Percent Moisture/Percent Solid</b>								
Total Moisture		18.4		%	2540B	0.10	josh walls	10/7/2014 8:38 AM
<b>Pesticides _ non-aqueous</b>								
Aldrin	309-00-2	ND		mg/kg	8081B	0.005	B C	10/7/2014 9:11 PM
alpha BHC	319-84-6	ND		mg/kg	8081B	0.005	B C	10/7/2014 9:11 PM
beta BHC	319-85-7	ND		mg/kg	8081B	0.005	B C	10/7/2014 9:11 PM
delta BHC	319-86-8	ND		mg/kg	8081B	0.005	B C	10/7/2014 9:11 PM
gamma BHC (Lindane)	58-89-9	ND		mg/kg	8081B	0.005	B C	10/7/2014 9:11 PM
Chlordane	57-74-9	ND		mg/kg	8081B	0.10	B C	10/7/2014 9:11 PM
alpha-Chlordane	5103-71-9	ND		mg/kg	8081B	0.005	B C	10/7/2014 9:11 PM
gamma-Chlordane	5103-74-2	ND		mg/kg	8081B	0.005	B C	10/7/2014 9:11 PM
4,4'-DDD	72-54-8	ND		mg/kg	8081B	0.010	B C	10/7/2014 9:11 PM
4,4'-DDE	72-55-9	ND		mg/kg	8081B	0.010	B C	10/7/2014 9:11 PM
4,4'-DDT	50-29-3	ND		mg/kg	8081B	0.010	B C	10/7/2014 9:11 PM
Dieldrin	60-57-1	ND		mg/kg	8081B	0.010	B C	10/7/2014 9:11 PM
Endosulfan I	959-98-8	ND		mg/kg	8081B	0.005	B C	10/7/2014 9:11 PM
Endosulfan II	33213-65-9	ND		mg/kg	8081B	0.010	B C	10/7/2014 9:11 PM
Endosulfan sulfate	1031-07-8	ND		mg/kg	8081B	0.010	B C	10/7/2014 9:11 PM
Endrin	72-20-8	ND		mg/kg	8081B	0.010	B C	10/7/2014 9:11 PM
Endrin aldehyde	7421-93-4	ND		mg/kg	8081B	0.010	B C	10/7/2014 9:11 PM
Endrin ketone	53494-70-5	ND		mg/kg	8081B	0.010	B C	10/7/2014 9:11 PM
Heptachlor	76-44-8	ND		mg/kg	8081B	0.50	B C	10/7/2014 9:11 PM
Heptachlor epoxide	1024-57-3	ND		mg/kg	8081B	0.005	B C	10/7/2014 9:11 PM
Methoxychlor	72-43-5	ND		mg/kg	8081B	0.50	B C	10/7/2014 9:11 PM
Toxaphene	8001-35-2	ND		mg/kg	8081B	0.10	B C	10/7/2014 9:11 PM
<b>pH - non-aqueous</b>								
Corrosivity (pH)		7.36		S.U.	9045D		R B	10/6/2014 12:31 PM
<b>Reactive Cyanide</b>								
Reactive Cyanide	57-12-5	ND		mg/kg	7.3.3.2	0.20	R B	10/6/2014 2:52 PM



# ANALYTICAL REPORT

**Project Name:** MC Canfield

**Date Sampled:** 9/30/2014 1:30 PM

**Sampled By:** JG

**Sample Matrix:** Soil

**Sample Type:** Composite

**Lab Project #:** 41520

**Lab Sample #:** 41520-1

**Client Sample ID:** Area 2-001

Analyte	CASRN	Result	Q	Units	Method	RL	Analyst	Date / Time Analysis
<b>Reactive Sulfide</b>								
Reactive Sulfide	18496-25-8	2.40		mg/kg	7.3.4.2	0.20	R B	10/6/2014 1:36 PM
<b>Semi Volatile Organics (8270D) - non-aqueous</b>								
1,1-Biphenyl	92-52-4	ND		mg/kg	8270D	0.100	R C	10/7/2014 1:37 PM
1,2,4,5-Tetrachlorobenzene	95-94-3	ND		mg/kg	8270D	0.100	R C	10/7/2014 1:37 PM
1,2,4-Trichlorobenzene	120-82-1	ND		mg/kg	8270D	0.100	R C	10/7/2014 1:37 PM
1,2-Dichlorobenzene	95-50-1	ND		mg/kg	8270D	0.100	R C	10/7/2014 1:37 PM
1,3-Dichlorobenzene	541-73-1	ND		mg/kg	8270D	0.100	R C	10/7/2014 1:37 PM
1,3-Hexachlorobutadiene	87-68-3	ND		mg/kg	8270D	0.100	R C	10/7/2014 1:37 PM
1,4-Dichlorobenzene	106-46-7	ND		mg/kg	8270D	0.100	R C	10/7/2014 1:37 PM
1-Methylnaphthalene	90-12-0	ND		mg/kg	8270D	0.100	R C	10/7/2014 1:37 PM
2,3,4,6-Tetrachlorophenol	58-90-2	ND		mg/kg	8270D	0.100	R C	10/7/2014 1:37 PM
2,4,5-Trichlorophenol	95-95-4	ND		mg/kg	8270D	0.100	R C	10/7/2014 1:37 PM
2,4,6-Trichlorophenol	88-06-2	ND		mg/kg	8270D	0.100	R C	10/7/2014 1:37 PM
2,4-Dichlorophenol	120-83-2	ND		mg/kg	8270D	0.100	R C	10/7/2014 1:37 PM
2,4-Dimethylphenol	105-67-9	ND		mg/kg	8270D	0.100	R C	10/7/2014 1:37 PM
2,4-Dinitrophenol	51-28-5	ND		mg/kg	8270D	0.100	R C	10/7/2014 1:37 PM
2,4-Dinitrotoluene	121-14-2	ND		mg/kg	8270D	0.100	R C	10/7/2014 1:37 PM
2,6-Dichlorophenol	87-65-0	ND		mg/kg	8270D	0.100	R C	10/7/2014 1:37 PM
2,6-Dinitrotoluene	606-20-2	ND		mg/kg	8270D	0.100	R C	10/7/2014 1:37 PM
2-Chloronaphthalene	91-58-7	ND		mg/kg	8270D	0.100	R C	10/7/2014 1:37 PM
2-Chlorophenol	95-57-8	ND		mg/kg	8270D	0.100	R C	10/7/2014 1:37 PM
2-Methylnaphthalene	91-57-6	ND		mg/kg	8270D	0.100	R C	10/7/2014 1:37 PM
2-Methylphenol	95-48-7	ND		mg/kg	8270D	0.100	R C	10/7/2014 1:37 PM
2-Nitroaniline	88-74-4	ND		mg/kg	8270D	0.100	R C	10/7/2014 1:37 PM
2-Nitrophenol	88-75-5	ND		mg/kg	8270D	0.100	R C	10/7/2014 1:37 PM
3,3'-Dichlorobenzidine	91-94-1	ND		mg/kg	8270D	0.200	R C	10/7/2014 1:37 PM
3-Nitroaniline	99-09-2	ND		mg/kg	8270D	0.100	R C	10/7/2014 1:37 PM
4,6-Dinitro-2-methylphenol	534-52-1	ND		mg/kg	8270D	0.100	R C	10/7/2014 1:37 PM
4-Bromophenyl-phenylether	101-55-3	ND		mg/kg	8270D	0.100	R C	10/7/2014 1:37 PM
4-Chloro-3-methylphenol	59-50-7	ND		mg/kg	8270D	0.100	R C	10/7/2014 1:37 PM
4-Chloroaniline	106-47-8	ND		mg/kg	8270D	0.100	R C	10/7/2014 1:37 PM
4-Chlorophenyl-phenylether	7005-72-3	ND		mg/kg	8270D	0.100	R C	10/7/2014 1:37 PM



# ANALYTICAL REPORT

**Project Name:** MC Canfield

**Date Sampled:** 9/30/2014 1:30 PM

**Lab Project #:** 41520

**Sampled By:** JG

**Lab Sample #:** 41520-1

**Sample Matrix:** Soil

**Client Sample ID:** Area 2-001

**Sample Type:** Composite

Analyte	CASRN	Result	Q	Units	Method	RL	Analyst	Date / Time Analysis
<b>Semi Volatile Organics (8270D) - non-aqueous</b>								
4-Nitroaniline	100-01-6	ND		mg/kg	8270D	0.100	R C	10/7/2014 1:37 PM
4-Nitrophenol	100-02-7	ND		mg/kg	8270D	0.100	R C	10/7/2014 1:37 PM
Acenaphthene	83-32-9	ND		mg/kg	8270D	0.100	R C	10/7/2014 1:37 PM
Acenaphthylene	208-96-8	ND		mg/kg	8270D	0.100	R C	10/7/2014 1:37 PM
Acetophenone	98-86-2	ND		mg/kg	8270D	0.100	R C	10/7/2014 1:37 PM
Aniline	62-53-3	ND		mg/kg	8270D	0.100	R C	10/7/2014 1:37 PM
Anthracene	120-12-7	ND		mg/kg	8270D	0.100	R C	10/7/2014 1:37 PM
Atrazine	1912-24-9	ND		mg/kg	8270D	0.100	R C	10/7/2014 1:37 PM
Benzaldehyde	100-52-7	ND		mg/kg	8270D	0.100	R C	10/7/2014 1:37 PM
Benidine	92-87-5	ND		mg/kg	8270D	0.200	R C	10/7/2014 1:37 PM
Benzo[a]pyrene	50-32-8	0.364		mg/kg	8270D	0.100	R C	10/7/2014 1:37 PM
Benzo[a]anthracene	56-55-3	0.374		mg/kg	8270D	0.100	R C	10/7/2014 1:37 PM
Benzo[b]fluoranthene	205-99-2	0.395		mg/kg	8270D	0.100	R C	10/7/2014 1:37 PM
Benzo[g,h,i]perylene	191-24-2	0.200		mg/kg	8270D	0.100	R C	10/7/2014 1:37 PM
Benzo[k]fluoranthene	207-08-9	0.208		mg/kg	8270D	0.100	R C	10/7/2014 1:37 PM
Benzoic Acid	65-85-0	ND		mg/kg	8270D	0.200	R C	10/7/2014 1:37 PM
Benzyl Alcohol	100-51-6	ND		mg/kg	8270D	0.100	R C	10/7/2014 1:37 PM
bis (2-Chloroethoxy) methane	111-91-1	ND		mg/kg	8270D	0.100	R C	10/7/2014 1:37 PM
bis (2-Chloroethyl) ether	111-44-4	ND		mg/kg	8270D	0.100	R C	10/7/2014 1:37 PM
bis (2-chloroisopropyl) ether	108-60-1	ND		mg/kg	8270D	0.100	R C	10/7/2014 1:37 PM
bis (2-Ethylhexyl) phthalate	117-81-7	0.232		mg/kg	8270D	0.100	R C	10/7/2014 1:37 PM
Butylbenzylphthalate	85-68-7	ND		mg/kg	8270D	0.100	R C	10/7/2014 1:37 PM
Caprolactam	105-60-2	ND		mg/kg	8270D	0.100	R C	10/7/2014 1:37 PM
Carbazole	86-74-8	ND		mg/kg	8270D	0.100	R C	10/7/2014 1:37 PM
Chrysene	218-01-9	0.375		mg/kg	8270D	0.100	R C	10/7/2014 1:37 PM
Dibenz[a,h]anthracene	53-70-3	ND		mg/kg	8270D	0.100	R C	10/7/2014 1:37 PM
Dibenzofuran	132-64-9	ND		mg/kg	8270D	0.100	R C	10/7/2014 1:37 PM
Diethylphthalate	84-66-2	ND		mg/kg	8270D	0.100	R C	10/7/2014 1:37 PM
Dimethylphthalate	131-11-3	ND		mg/kg	8270D	0.100	R C	10/7/2014 1:37 PM
Di-n-butylphthalate	84-74-2	ND		mg/kg	8270D	0.100	R C	10/7/2014 1:37 PM
Di-n-octylphthalate	117-84-0	ND		mg/kg	8270D	0.100	R C	10/7/2014 1:37 PM
Fluoranthene	206-44-0	0.481		mg/kg	8270D	0.100	R C	10/7/2014 1:37 PM





# ANALYTICAL REPORT

**Project Name:** MC Canfield

**Date Sampled:** 9/30/2014 1:30 PM

**Lab Project #:** 41520

**Sampled By:** JG

**Lab Sample #:** 41520-1

**Sample Matrix:** Soil

**Client Sample ID:** Area 2-001

**Sample Type:** Composite

Analyte	CASRN	Result	Q	Units	Method	RL	Analyst	Date / Time Analysis
<b>Semi Volatile Organics (8270D) - non-aqueous</b>								
Fluorene	86-73-7	ND		mg/kg	8270D	0.100	R C	10/7/2014 1:37 PM
Hexachlorobenzene	118-74-1	ND		mg/kg	8270D	0.100	R C	10/7/2014 1:37 PM
Hexachlorocyclopentadiene	77-47-4	ND		mg/kg	8270D	0.100	R C	10/7/2014 1:37 PM
Hexachloroethane	67-72-1	ND		mg/kg	8270D	0.100	R C	10/7/2014 1:37 PM
Indeno[1,2,3-cd]pyrene	193-39-5	0.153		mg/kg	8270D	0.100	R C	10/7/2014 1:37 PM
Isophorone	78-59-1	ND		mg/kg	8270D	0.100	R C	10/7/2014 1:37 PM
Naphthalene	91-20-3	ND		mg/kg	8270D	0.100	R C	10/7/2014 1:37 PM
n-Decane	124-18-5	ND		mg/kg	8270D	0.200	R C	10/7/2014 1:37 PM
Nitrobenzene	98-95-3	ND		mg/kg	8270D	0.100	R C	10/7/2014 1:37 PM
N-nitrosodimethylamine	62-75-9	ND		mg/kg	8270D	0.100	R C	10/7/2014 1:37 PM
n-Nitroso-di-n-propylamine	621-64-7	ND		mg/kg	8270D	0.100	R C	10/7/2014 1:37 PM
n-Octadecane	593-45-3	ND		mg/kg	8270D	0.200	R C	10/7/2014 1:37 PM
Pentachlorophenol	87-86-5	ND		mg/kg	8270D	0.100	R C	10/7/2014 1:37 PM
Phenanthrene	85-01-8	0.376		mg/kg	8270D	0.100	R C	10/7/2014 1:37 PM
Phenol	108-95-2	ND		mg/kg	8270D	0.100	R C	10/7/2014 1:37 PM
Pyridine	110-86-1	ND		mg/kg	8270D	0.200	R C	10/7/2014 1:37 PM
Pyrene	129-00-0	0.449		mg/kg	8270D	0.100	R C	10/7/2014 1:37 PM
1,2-Diphenylhydrazine / Azobenzene	122-66-7 / 17082-12-1	ND		mg/kg	8270D	0.100	R C	10/7/2014 1:37 PM
N-nitrosodiphenylamine / Diphenylamine	86-30-6 / 122-39-4	ND		mg/kg	8270D	0.100	R C	10/7/2014 1:37 PM
Hexachlorobutadiene	87-68-3	ND		mg/kg	8270D	0.100	R C	10/7/2014 1:37 PM
3- & 4- Methylphenol	61379-65-5	ND		mg/kg	8270D	0.100	R C	10/7/2014 1:37 PM
<b>TCLP Herbicides</b>								
2,4-D	94-75-7	ND		mg/L	1311/8151A	0.002	B C	10/9/2014 2:01 PM
2,4,5-TP (Silvex)	93-72-1	ND		mg/L	1311/8151A	0.002	B C	10/9/2014 2:01 PM
<b>TCLP Mercury</b>								
Mercury	7439-97-6	ND		mg/L	1311/245.1	0.001	K S	10/7/2014 3:42 PM
<b>TCLP Metals</b>								
Arsenic	7440-38-2	ND		mg/L	1311/6010B	0.05	K S	10/7/2014 4:38 PM
Barium	7440-39-3	0.14		mg/L	1311/6010B	0.05	K S	10/7/2014 4:38 PM
Cadmium	7440-43-9	ND		mg/L	1311/6010B	0.05	K S	10/7/2014 4:38 PM



# ANALYTICAL REPORT

**Project Name:** MC Canfield

**Date Sampled:** 9/30/2014 1:30 PM

**Lab Project #:** 41520

**Sampled By:** JG

**Lab Sample #:** 41520-1

**Sample Matrix:** Soil

**Client Sample ID:** Area 2-001

**Sample Type:** Composite

Analyte	CASRN	Result	Q	Units	Method	RL	Analyst	Date / Time Analysis
<b>TCLP Metals</b>								
Chromium	7440-47-3	ND		mg/L	1311/6010B	0.05	K S	10/7/2014 4:38 PM
Lead	7439-92-1	ND		mg/L	1311/6010B	0.05	K S	10/7/2014 4:38 PM
Selenium	7782-49-2	ND		mg/L	1311/6010B	0.05	K S	10/7/2014 4:38 PM
Silver	7440-22-4	ND		mg/L	1311/6010B	0.05	K S	10/7/2014 4:38 PM
<b>TCLP Pesticides</b>								
Chlordane	57-74-9	ND		mg/L	1311/8081A	0.00100	B C	10/9/2014 1:07 PM
Endrin	72-20-8	ND		mg/L	1311/8081A	0.00010	B C	10/9/2014 1:07 PM
gamma BHC (Lindane)	58-89-9	ND		mg/L	1311/8081A	0.00005	B C	10/9/2014 1:07 PM
Heptachlor	76-44-8	ND		mg/L	1311/8081A	0.00005	B C	10/9/2014 1:07 PM
Heptachlor epoxide	1024-57-3	ND		mg/L	1311/8081A	0.00005	B C	10/9/2014 1:07 PM
Methoxychlor	72-43-5	ND		mg/L	1311/8081A	0.00050	B C	10/9/2014 1:07 PM
Toxaphene	8001-35-2	ND		mg/L	1311/8081A	0.00100	B C	10/9/2014 1:07 PM
<b>TCLP Semivolatiles</b>								
1,4-Dichlorobenzene	106-46-7	ND		mg/L	1311/8270D	0.10	R C	10/8/2014 2:09 PM
2,4-Dinitrotoluene	121-14-2	ND		mg/L	1311/8270D	0.10	R C	10/8/2014 2:09 PM
Hexachlorobenzene	118-74-1	ND		mg/L	1311/8270D	0.10	R C	10/8/2014 2:09 PM
Hexachlorobutadiene	87-68-3	ND		mg/L	1311/8270D	0.10	R C	10/8/2014 2:09 PM
Hexachloroethane	67-72-1	ND		mg/L	1311/8270D	0.10	R C	10/8/2014 2:09 PM
2-Methylphenol	95-48-7	ND		mg/L	1311/8270D	0.10	R C	10/8/2014 2:09 PM
3- & 4- Methylphenol	61379-65-5	ND		mg/L	1311/8270D	0.10	R C	10/8/2014 2:09 PM
Nitrobenzene	98-95-3	ND		mg/L	1311/8270D	0.10	R C	10/8/2014 2:09 PM
Pentachlorophenol	87-86-5	ND		mg/L	1311/8270D	0.10	R C	10/8/2014 2:09 PM
Pyridine	110-86-1	ND		mg/L	1311/8270D	0.10	R C	10/8/2014 2:09 PM
2,4,5-Trichlorophenol	95-95-4	ND		mg/L	1311/8270D	0.10	R C	10/8/2014 2:09 PM
2,4,6-Trichlorophenol	88-06-2	ND		mg/L	1311/8270D	0.10	R C	10/8/2014 2:09 PM
<b>TCLP Volatiles</b>								
Benzene	71-43-2	ND		mg/L	1311/8260C	0.02	I R	10/10/2014 11:16 AM
Carbon Tetrachloride	56-23-5	ND		mg/L	1311/8260C	0.02	I R	10/10/2014 11:16 AM
Chlorobenzene	108-90-7	ND		mg/L	1311/8260C	0.02	I R	10/10/2014 11:16 AM
Chloroform	67-66-3	ND		mg/L	1311/8260C	0.02	I R	10/10/2014 11:16 AM
1,2-Dichloroethane	107-06-2	ND		mg/L	1311/8260C	0.02	I R	10/10/2014 11:16 AM



# ANALYTICAL REPORT

**Project Name:** MC Canfield

**Date Sampled:** 9/30/2014 1:30 PM

**Sampled By:** JG

**Sample Matrix:** Soil

**Sample Type:** Composite

**Lab Project #:** 41520

**Lab Sample #:** 41520-1

**Client Sample ID:** Area 2-001

Analyte	CASRN	Result	Q	Units	Method	RL	Analyst	Date / Time Analysis
<b>TCLP Volatiles</b>								
1,1-Dichloroethene	75-35-4	ND		mg/L	1311/8260C	0.02	I R	10/10/2014 11:16 AM
Methyl Ethyl Ketone (MEK)	78-93-3	ND		mg/L	1311/8260C	0.10	I R	10/10/2014 11:16 AM
Tetrachloroethene (PCE)	127-18-4	ND		mg/L	1311/8260C	0.02	I R	10/10/2014 11:16 AM
Trichloroethene (TCE)	79-01-6	ND		mg/L	1311/8260C	0.02	I R	10/10/2014 11:16 AM
Vinyl Chloride	75-01-4	ND		mg/L	1311/8260C	0.02	I R	10/10/2014 11:16 AM
<b>Total Petroleum Hydrocarbons (C-40) - non-aqueous</b>								
Total Petroleum Hydrocarbons (C-40)		89.4		mg/kg	8015B	50.0	S M	10/6/2014 8:38 PM
<b>Volatile Organics (8260C) - non-aqueous</b>								
Acetone	67-64-1	ND		mg/kg	8260C	0.050	I R	10/3/2014 5:53 PM
Acrolein	107-02-8	ND		mg/kg	8260C	0.050	I R	10/3/2014 5:53 PM
Acrylonitrile	107-13-1	ND		mg/kg	8260C	0.005	I R	10/3/2014 5:53 PM
Benzene	71-43-2	ND		mg/kg	8260C	0.005	I R	10/3/2014 5:53 PM
Bromobenzene	108-86-1	ND		mg/kg	8260C	0.005	I R	10/3/2014 5:53 PM
Bromochloromethane	74-97-5	ND		mg/kg	8260C	0.005	I R	10/3/2014 5:53 PM
Bromodichloromethane	75-27-4	ND		mg/kg	8260C	0.005	I R	10/3/2014 5:53 PM
Bromoform (Tribromomethane)	75-25-2	ND		mg/kg	8260C	0.005	I R	10/3/2014 5:53 PM
Bromomethane	74-83-9	ND		mg/kg	8260C	0.005	I R	10/3/2014 5:53 PM
2-Butanone (MEK)	78-93-3	ND		mg/kg	8260C	0.050	I R	10/3/2014 5:53 PM
Carbon disulfide	75-15-0	ND		mg/kg	8260C	0.005	I R	10/3/2014 5:53 PM
Carbon Tetrachloride	56-23-5	ND		mg/kg	8260C	0.005	I R	10/3/2014 5:53 PM
Chlorobenzene	108-90-7	ND		mg/kg	8260C	0.005	I R	10/3/2014 5:53 PM
Chloroethane	75-00-3	ND		mg/kg	8260C	0.005	I R	10/3/2014 5:53 PM
2-Chloroethylvinylether	110-75-8	ND		mg/kg	8260C	0.005	I R	10/3/2014 5:53 PM
Chloroform	67-66-3	ND		mg/kg	8260C	0.005	I R	10/3/2014 5:53 PM
Chloromethane (Methyl Chloride)	74-87-3	ND		mg/kg	8260C	0.005	I R	10/3/2014 5:53 PM
1,2-Dibromo-3-chloropropane (DBCP)	96-12-8	ND		mg/kg	8260C	0.005	I R	10/3/2014 5:53 PM
1,2-Dibromoethane (EDB)	106-93-4	ND		mg/kg	8260C	0.005	I R	10/3/2014 5:53 PM
1,2-Dichlorobenzene	95-50-1	ND		mg/kg	8260C	0.005	I R	10/3/2014 5:53 PM
1,3-Dichlorobenzene	541-73-1	ND		mg/kg	8260C	0.005	I R	10/3/2014 5:53 PM



# ANALYTICAL REPORT

**Project Name:** MC Canfield

**Date Sampled:** 9/30/2014 1:30 PM

**Lab Project #:** 41520

**Sampled By:** JG

**Lab Sample #:** 41520-1

**Sample Matrix:** Soil

**Client Sample ID:** Area 2-001

**Sample Type:** Composite

Analyte	CASRN	Result	Q	Units	Method	RL	Analyst	Date / Time Analysis
<b>Volatile Organics (8260C) - non-aqueous</b>								
1,4-Dichlorobenzene	106-46-7	ND		mg/kg	8260C	0.005	I R	10/3/2014 5:53 PM
Dichlorodifluoromethane	75-71-8	ND		mg/kg	8260C	0.005	I R	10/3/2014 5:53 PM
1,1-Dichloroethane	75-34-3	ND		mg/kg	8260C	0.005	I R	10/3/2014 5:53 PM
1,2-Dichloroethane	107-06-2	ND		mg/kg	8260C	0.005	I R	10/3/2014 5:53 PM
1,1-Dichloroethene	75-35-4	ND		mg/kg	8260C	0.005	I R	10/3/2014 5:53 PM
cis-1,2-Dichloroethene	156-59-2	ND		mg/kg	8260C	0.005	I R	10/3/2014 5:53 PM
trans-1,2-Dichloroethene	156-60-5	ND		mg/kg	8260C	0.005	I R	10/3/2014 5:53 PM
1,2-Dichloropropane	78-87-5	ND		mg/kg	8260C	0.005	I R	10/3/2014 5:53 PM
cis-1,3-Dichloropropene	10061-01-5	ND		mg/kg	8260C	0.005	I R	10/3/2014 5:53 PM
trans-1,3-Dichloropropene	10061-02-6	ND		mg/kg	8260C	0.005	I R	10/3/2014 5:53 PM
Ethylbenzene	100-41-4	ND		mg/kg	8260C	0.005	I R	10/3/2014 5:53 PM
Hexachlorobutadiene	87-68-3	ND		mg/kg	8260C	0.005	I R	10/3/2014 5:53 PM
2-Hexanone	591-78-6	ND		mg/kg	8260C	0.050	I R	10/3/2014 5:53 PM
Isopropylbenzene (Cumene)	98-82-8	ND		mg/kg	8260C	0.005	I R	10/3/2014 5:53 PM
Methyl tert-butyl ether (MTBE)	1634-04-4	ND		mg/kg	8260C	0.005	I R	10/3/2014 5:53 PM
Methylene Chloride (Dichloromethane)	75-09-2	ND		mg/kg	8260C	0.005	I R	10/3/2014 5:53 PM
tert-Butyl alcohol (TBA)	75-65-0	ND		mg/kg	8260C	0.050	I R	10/3/2014 5:53 PM
1,1,2,2-Tetrachloroethane	79-34-5	ND		mg/kg	8260C	0.005	I R	10/3/2014 5:53 PM
4-methyl-2-pentanone (MIBK)	108-10-1	ND		mg/kg	8260C	0.050	I R	10/3/2014 5:53 PM
Tetrachloroethene (PCE)	127-18-4	ND		mg/kg	8260C	0.005	I R	10/3/2014 5:53 PM
Toluene	108-88-3	ND		mg/kg	8260C	0.005	I R	10/3/2014 5:53 PM
1,1,1-Trichloroethane	71-55-6	ND		mg/kg	8260C	0.005	I R	10/3/2014 5:53 PM
1,1,2-Trichloroethane	79-00-5	ND		mg/kg	8260C	0.005	I R	10/3/2014 5:53 PM
Dibromomethane	74-95-3	ND		mg/kg	8260C	0.005	I R	10/3/2014 5:53 PM
Trichlorofluoromethane	75-69-4	ND		mg/kg	8260C	0.005	I R	10/3/2014 5:53 PM
Vinyl acetate	108-05-4	ND		mg/kg	8260C	0.005	I R	10/3/2014 5:53 PM
Vinyl Chloride	75-01-4	ND		mg/kg	8260C	0.005	I R	10/3/2014 5:53 PM
Xylenes, Total	1330-20-7	ND		mg/kg	8260C	0.015	I R	10/3/2014 5:53 PM
Naphthalene	91-20-3	ND		mg/kg	8260C	0.020	I R	10/3/2014 5:53 PM
Nitrobenzene	98-95-3	ND		mg/kg	8260C	0.050	I R	10/3/2014 5:53 PM
Styrene	100-42-5	ND		mg/kg	8260C	0.005	I R	10/3/2014 5:53 PM





# ANALYTICAL REPORT

**Project Name:** MC Canfield

**Date Sampled:** 9/30/2014 1:30 PM

**Sampled By:** JG

**Sample Matrix:** Soil

**Sample Type:** Composite

**Lab Project #:** 41520

**Lab Sample #:** 41520-1

**Client Sample ID:** Area 2-001

Analyte	CASRN	Result	Q	Units	Method	RL	Analyst	Date / Time Analysis
<b>Volatile Organics (8260C) - non-aqueous</b>								
1,1,1,2-Tetrachloroethane	630-20-6	ND		mg/kg	8260C	0.005	I R	10/3/2014 5:53 PM
1,2,4-Trichlorobenzene	120-82-1	ND		mg/kg	8260C	0.005	I R	10/3/2014 5:53 PM
1,2,3-Trichloropropane (TCP)	96-18-4	ND		mg/kg	8260C	0.005	I R	10/3/2014 5:53 PM
Trichloroethene (TCE)	79-01-6	ND		mg/kg	8260C	0.005	I R	10/3/2014 5:53 PM
Ethanol	64-17-5	ND		mg/kg	8260C	0.050	I R	10/3/2014 5:53 PM
1,1,2-Trichloro-1,2,2-Trifluoroethane	76-13-1	ND		mg/kg	8260C	0.005	I R	10/3/2014 5:53 PM
Dibromochloromethane	124-48-1	ND		mg/kg	8260C	0.005	I R	10/3/2014 5:53 PM
n-Butylbenzene	104-51-8	ND		mg/kg	8260C	0.005	I R	10/3/2014 5:53 PM
sec-Butylbenzene	135-98-8	ND		mg/kg	8260C	0.005	I R	10/3/2014 5:53 PM
t-Amyl methyl ether (TAME)	994-05-8	ND		mg/kg	8260C	0.010	I R	10/3/2014 5:53 PM
tert-Butylbenzene	98-06-6	ND		mg/kg	8260C	0.005	I R	10/3/2014 5:53 PM
1,3-Dichloropropane	142-28-9	ND		mg/kg	8260C	0.005	I R	10/3/2014 5:53 PM
4-Chlorotoluene	106-43-4	ND		mg/kg	8260C	0.005	I R	10/3/2014 5:53 PM
2-Chlorotoluene	95-49-8	ND		mg/kg	8260C	0.005	I R	10/3/2014 5:53 PM
2,2-Dichloropropane	594-20-7	ND		mg/kg	8260C	0.005	I R	10/3/2014 5:53 PM
Diisopropylether (DIPE)	108-20-3	ND		mg/kg	8260C	0.005	I R	10/3/2014 5:53 PM
1,1-Dichloropropene	563-58-6	ND		mg/kg	8260C	0.005	I R	10/3/2014 5:53 PM
Ethyl Ether	60-29-7	ND		mg/kg	8260C	0.005	I R	10/3/2014 5:53 PM
Hexachloroethane	67-72-1	ND		mg/kg	8260C	0.005	I R	10/3/2014 5:53 PM
Ethyl tert-butyl ether (ETBE)	637-92-3	ND		mg/kg	8260C	0.005	I R	10/3/2014 5:53 PM
Iodomethane	74-88-4	ND		mg/kg	8260C	0.005	I R	10/3/2014 5:53 PM
n-Propylbenzene	103-65-1	ND		mg/kg	8260C	0.005	I R	10/3/2014 5:53 PM
p-Isopropyltoluene	99-87-6	ND		mg/kg	8260C	0.005	I R	10/3/2014 5:53 PM
Tetrahydrofuran	109-99-9	ND		mg/kg	8260C	0.005	I R	10/3/2014 5:53 PM
1,2,3-Trichlorobenzene	87-61-6	ND		mg/kg	8260C	0.005	I R	10/3/2014 5:53 PM
1,2,4-Trimethylbenzene	95-63-6	ND		mg/kg	8260C	0.005	I R	10/3/2014 5:53 PM
1,3,5-Trimethylbenzene	108-67-8	ND		mg/kg	8260C	0.005	I R	10/3/2014 5:53 PM
Methyl Acetate	79-20-9	ND		mg/kg	8260C	0.050	I R	10/3/2014 5:53 PM



# ANALYTICAL REPORT

**Project Name:** MC Canfield

**Date Sampled:** 9/30/2014 1:30 PM

**Sampled By:** JG

**Sample Matrix:** Soil

**Sample Type:** Composite

**Lab Project #:** 41520

**Lab Sample #:** 41520-1

**Client Sample ID:** Area 2-001



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Akhter Mehmood  
Lab Director



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Charles Morrow  
QAQC Director



# ANALYTICAL REPORT

**Project Name:** MC Canfield

**Date Sampled:** 9/30/2014 2:00 PM

**Sampled By:** JG

**Sample Matrix:** Soil

**Sample Type:** Composite

**Lab Project #:** 41520

**Lab Sample #:** 41520-2

**Client Sample ID:** Area 2-002

Analyte	CASRN	Result	Q	Units	Method	RL	Analyst	Date / Time Analysis
<b>Flashpoint</b>								
Flashpoint		>100		o C	1010A		R B	10/7/2014 1:50 PM
<b>Herbicides - Non-aqueous</b>								
2,4-D	94-75-7	ND		mg/kg	8151A	0.01	B C	10/8/2014 5:39 PM
Dicamba	1918-00-9	ND		mg/kg	8151A	0.01	B C	10/8/2014 5:39 PM
Dichloroprop	120-36-5	ND		mg/kg	8151A	0.01	B C	10/8/2014 5:39 PM
Dinoseb	88-85-7	ND		mg/kg	8151A	0.01	B C	10/8/2014 5:39 PM
2,4,5-T	93-76-5	ND		mg/kg	8151A	0.01	B C	10/8/2014 5:39 PM
2,4,5-TP (Silvex)	93-72-1	ND		mg/kg	8151A	0.01	B C	10/8/2014 5:39 PM
<b>Mercury - Non-aqueous</b>								
Mercury	7439-97-6	1.38		mg/kg	7471A	0.10	K S	10/6/2014 2:29 PM
<b>Metals (RCRA) - non-aqueous</b>								
Arsenic	7440-38-2	2.55		mg/kg	6010B	0.50	K S	10/6/2014 10:41 AM
Barium	7440-39-3	84.8		mg/kg	6010B	0.50	K S	10/6/2014 10:41 AM
Cadmium	7440-43-9	0.76		mg/kg	6010B	0.50	K S	10/6/2014 10:41 AM
Chromium	7440-47-3	5.35		mg/kg	6010B	0.50	K S	10/6/2014 10:41 AM
Lead	7439-92-1	584		mg/kg	6010B	5.00	K S	10/6/2014 10:41 AM
Selenium	7782-49-2	ND		mg/kg	6010B	0.50	K S	10/6/2014 10:41 AM
Silver	7440-22-4	0.82		mg/kg	6010B	0.50	K S	10/6/2014 10:41 AM
<b>PCBs - Non-aqueous</b>								
PCB-1016	12674-11-2	ND		mg/kg	8082A	0.025	B C	10/7/2014 9:33 PM
PCB-1221	11104-28-2	ND		mg/kg	8082A	0.025	B C	10/7/2014 9:33 PM
PCB-1232	11141-16-5	ND		mg/kg	8082A	0.025	B C	10/7/2014 9:33 PM
PCB-1242	53469-21-9	ND		mg/kg	8082A	0.025	B C	10/7/2014 9:33 PM
PCB-1248	12672-29-6	ND		mg/kg	8082A	0.025	B C	10/7/2014 9:33 PM
PCB-1254	11097-69-1	ND		mg/kg	8082A	0.025	B C	10/7/2014 9:33 PM
PCB-1260	11096-82-5	ND		mg/kg	8082A	0.025	B C	10/7/2014 9:33 PM
PCB-1262	37324-23-5	ND		mg/kg	8082A	0.025	B C	10/7/2014 9:33 PM
PCB-1268	11100-14-4	ND		mg/kg	8082A	0.025	B C	10/7/2014 9:33 PM
<b>Percent Moisture/Percent Solid</b>								
Total Moisture		19.0		%	2540B	0.10	josh walls	10/7/2014 8:38 AM





# ANALYTICAL REPORT

**Project Name:** MC Canfield

**Date Sampled:** 9/30/2014 2:00 PM

**Lab Project #:** 41520

**Sampled By:** JG

**Lab Sample #:** 41520-2

**Sample Matrix:** Soil

**Client Sample ID:** Area 2-002

**Sample Type:** Composite

Analyte	CASRN	Result	Q	Units	Method	RL	Analyst	Date / Time Analysis
<b>Pesticides _ non-aqueous</b>								
Aldrin	309-00-2	ND		mg/kg	8081B	0.005	B C	10/7/2014 9:33 PM
alpha BHC	319-84-6	ND		mg/kg	8081B	0.005	B C	10/7/2014 9:33 PM
beta BHC	319-85-7	ND		mg/kg	8081B	0.005	B C	10/7/2014 9:33 PM
delta BHC	319-86-8	ND		mg/kg	8081B	0.005	B C	10/7/2014 9:33 PM
gamma BHC (Lindane)	58-89-9	ND		mg/kg	8081B	0.005	B C	10/7/2014 9:33 PM
Chlordane	57-74-9	ND		mg/kg	8081B	0.10	B C	10/7/2014 9:33 PM
alpha-Chlordane	5103-71-9	ND		mg/kg	8081B	0.005	B C	10/7/2014 9:33 PM
gamma-Chlordane	5103-74-2	ND		mg/kg	8081B	0.005	B C	10/7/2014 9:33 PM
4,4'-DDD	72-54-8	ND		mg/kg	8081B	0.010	B C	10/7/2014 9:33 PM
4,4'-DDE	72-55-9	ND		mg/kg	8081B	0.010	B C	10/7/2014 9:33 PM
4,4'-DDT	50-29-3	ND		mg/kg	8081B	0.010	B C	10/7/2014 9:33 PM
Dieldrin	60-57-1	ND		mg/kg	8081B	0.010	B C	10/7/2014 9:33 PM
Endosulfan I	959-98-8	ND		mg/kg	8081B	0.005	B C	10/7/2014 9:33 PM
Endosulfan II	33213-65-9	ND		mg/kg	8081B	0.010	B C	10/7/2014 9:33 PM
Endosulfan sulfate	1031-07-8	ND		mg/kg	8081B	0.010	B C	10/7/2014 9:33 PM
Endrin	72-20-8	ND		mg/kg	8081B	0.010	B C	10/7/2014 9:33 PM
Endrin aldehyde	7421-93-4	ND		mg/kg	8081B	0.010	B C	10/7/2014 9:33 PM
Endrin ketone	53494-70-5	ND		mg/kg	8081B	0.010	B C	10/7/2014 9:33 PM
Heptachlor	76-44-8	ND		mg/kg	8081B	0.50	B C	10/7/2014 9:33 PM
Heptachlor epoxide	1024-57-3	ND		mg/kg	8081B	0.005	B C	10/7/2014 9:33 PM
Methoxychlor	72-43-5	ND		mg/kg	8081B	0.50	B C	10/7/2014 9:33 PM
Toxaphene	8001-35-2	ND		mg/kg	8081B	0.10	B C	10/7/2014 9:33 PM
<b>pH - non-aqueous</b>								
Corrosivity (pH)		7.33		S.U.	9045D		R B	10/6/2014 12:33 PM
<b>Reactive Cyanide</b>								
Reactive Cyanide	57-12-5	ND		mg/kg	7.3.3.2	0.20	R B	10/6/2014 2:52 PM
<b>Reactive Sulfide</b>								
Reactive Sulfide	18496-25-8	ND		mg/kg	7.3.4.2	0.20	R B	10/6/2014 1:37 PM
<b>Semi Volatile Organics (8270D) - non-aqueous</b>								
1,1-Biphenyl	92-52-4	ND		mg/kg	8270D	0.100	R C	10/7/2014 2:06 PM



# ANALYTICAL REPORT

**Project Name:** MC Canfield

**Date Sampled:** 9/30/2014 2:00 PM

**Lab Project #:** 41520

**Sampled By:** JG

**Lab Sample #:** 41520-2

**Sample Matrix:** Soil

**Client Sample ID:** Area 2-002

**Sample Type:** Composite

Analyte	CASRN	Result	Q	Units	Method	RL	Analyst	Date / Time Analysis
<b>Semi Volatile Organics (8270D) - non-aqueous</b>								
1,2,4,5-Tetrachlorobenzene	95-94-3	ND		mg/kg	8270D	0.100	R C	10/7/2014 2:06 PM
1,2,4-Trichlorobenzene	120-82-1	ND		mg/kg	8270D	0.100	R C	10/7/2014 2:06 PM
1,2-Dichlorobenzene	95-50-1	ND		mg/kg	8270D	0.100	R C	10/7/2014 2:06 PM
1,3-Dichlorobenzene	541-73-1	ND		mg/kg	8270D	0.100	R C	10/7/2014 2:06 PM
1,3-Hexachlorobutadiene	87-68-3	ND		mg/kg	8270D	0.100	R C	10/7/2014 2:06 PM
1,4-Dichlorobenzene	106-46-7	ND		mg/kg	8270D	0.100	R C	10/7/2014 2:06 PM
1-Methylnaphthalene	90-12-0	ND		mg/kg	8270D	0.100	R C	10/7/2014 2:06 PM
2,3,4,6-Tetrachlorophenol	58-90-2	ND		mg/kg	8270D	0.100	R C	10/7/2014 2:06 PM
2,4,5-Trichlorophenol	95-95-4	ND		mg/kg	8270D	0.100	R C	10/7/2014 2:06 PM
2,4,6-Trichlorophenol	88-06-2	ND		mg/kg	8270D	0.100	R C	10/7/2014 2:06 PM
2,4-Dichlorophenol	120-83-2	ND		mg/kg	8270D	0.100	R C	10/7/2014 2:06 PM
2,4-Dimethylphenol	105-67-9	ND		mg/kg	8270D	0.100	R C	10/7/2014 2:06 PM
2,4-Dinitrophenol	51-28-5	ND		mg/kg	8270D	0.100	R C	10/7/2014 2:06 PM
2,4-Dinitrotoluene	121-14-2	ND		mg/kg	8270D	0.100	R C	10/7/2014 2:06 PM
2,6-Dichlorophenol	87-65-0	ND		mg/kg	8270D	0.100	R C	10/7/2014 2:06 PM
2,6-Dinitrotoluene	606-20-2	ND		mg/kg	8270D	0.100	R C	10/7/2014 2:06 PM
2-Chloronaphthalene	91-58-7	ND		mg/kg	8270D	0.100	R C	10/7/2014 2:06 PM
2-Chlorophenol	95-57-8	ND		mg/kg	8270D	0.100	R C	10/7/2014 2:06 PM
2-Methylnaphthalene	91-57-6	ND		mg/kg	8270D	0.100	R C	10/7/2014 2:06 PM
2-Methylphenol	95-48-7	ND		mg/kg	8270D	0.100	R C	10/7/2014 2:06 PM
2-Nitroaniline	88-74-4	ND		mg/kg	8270D	0.100	R C	10/7/2014 2:06 PM
2-Nitrophenol	88-75-5	ND		mg/kg	8270D	0.100	R C	10/7/2014 2:06 PM
3,3'-Dichlorobenzidine	91-94-1	ND		mg/kg	8270D	0.200	R C	10/7/2014 2:06 PM
3-Nitroaniline	99-09-2	ND		mg/kg	8270D	0.100	R C	10/7/2014 2:06 PM
4,6-Dinitro-2-methylphenol	534-52-1	ND		mg/kg	8270D	0.100	R C	10/7/2014 2:06 PM
4-Bromophenyl-phenylether	101-55-3	ND		mg/kg	8270D	0.100	R C	10/7/2014 2:06 PM
4-Chloro-3-methylphenol	59-50-7	ND		mg/kg	8270D	0.100	R C	10/7/2014 2:06 PM
4-Chloroaniline	106-47-8	ND		mg/kg	8270D	0.100	R C	10/7/2014 2:06 PM
4-Chlorophenyl-phenylether	7005-72-3	ND		mg/kg	8270D	0.100	R C	10/7/2014 2:06 PM
4-Nitroaniline	100-01-6	ND		mg/kg	8270D	0.100	R C	10/7/2014 2:06 PM
4-Nitrophenol	100-02-7	ND		mg/kg	8270D	0.100	R C	10/7/2014 2:06 PM
Acenaphthene	83-32-9	ND		mg/kg	8270D	0.100	R C	10/7/2014 2:06 PM



# ANALYTICAL REPORT

**Project Name:** MC Canfield

**Date Sampled:** 9/30/2014 2:00 PM

**Sampled By:** JG

**Sample Matrix:** Soil

**Sample Type:** Composite

**Lab Project #:** 41520

**Lab Sample #:** 41520-2

**Client Sample ID:** Area 2-002

Analyte	CASRN	Result	Q	Units	Method	RL	Analyst	Date / Time Analysis
<b>Semi Volatile Organics (8270D) - non-aqueous</b>								
Acenaphthylene	208-96-8	ND		mg/kg	8270D	0.100	R C	10/7/2014 2:06 PM
Acetophenone	98-86-2	ND		mg/kg	8270D	0.100	R C	10/7/2014 2:06 PM
Aniline	62-53-3	ND		mg/kg	8270D	0.100	R C	10/7/2014 2:06 PM
Anthracene	120-12-7	ND		mg/kg	8270D	0.100	R C	10/7/2014 2:06 PM
Atrazine	1912-24-9	ND		mg/kg	8270D	0.100	R C	10/7/2014 2:06 PM
Benzaldehyde	100-52-7	ND		mg/kg	8270D	0.100	R C	10/7/2014 2:06 PM
Benidine	92-87-5	ND		mg/kg	8270D	0.200	R C	10/7/2014 2:06 PM
Benzo[a]pyrene	50-32-8	ND		mg/kg	8270D	0.100	R C	10/7/2014 2:06 PM
Benzo[a]anthracene	56-55-3	ND		mg/kg	8270D	0.100	R C	10/7/2014 2:06 PM
Benzo[b]fluoranthene	205-99-2	ND		mg/kg	8270D	0.100	R C	10/7/2014 2:06 PM
Benzo[g,h,i]perylene	191-24-2	ND		mg/kg	8270D	0.100	R C	10/7/2014 2:06 PM
Benzo[k]fluoranthene	207-08-9	ND		mg/kg	8270D	0.100	R C	10/7/2014 2:06 PM
Benzoic Acid	65-85-0	ND		mg/kg	8270D	0.200	R C	10/7/2014 2:06 PM
Benzyl Alcohol	100-51-6	ND		mg/kg	8270D	0.100	R C	10/7/2014 2:06 PM
bis (2-Chloroethoxy) methane	111-91-1	ND		mg/kg	8270D	0.100	R C	10/7/2014 2:06 PM
bis (2-Chloroethyl) ether	111-44-4	ND		mg/kg	8270D	0.100	R C	10/7/2014 2:06 PM
bis (2-chloroisopropyl) ether	108-60-1	ND		mg/kg	8270D	0.100	R C	10/7/2014 2:06 PM
bis (2-Ethylhexyl) phthalate	117-81-7	ND		mg/kg	8270D	0.100	R C	10/7/2014 2:06 PM
Butylbenzylphthalate	85-68-7	ND		mg/kg	8270D	0.100	R C	10/7/2014 2:06 PM
Caprolactam	105-60-2	ND		mg/kg	8270D	0.100	R C	10/7/2014 2:06 PM
Carbazole	86-74-8	ND		mg/kg	8270D	0.100	R C	10/7/2014 2:06 PM
Chrysene	218-01-9	ND		mg/kg	8270D	0.100	R C	10/7/2014 2:06 PM
Dibenz[a,h]anthracene	53-70-3	ND		mg/kg	8270D	0.100	R C	10/7/2014 2:06 PM
Dibenzofuran	132-64-9	ND		mg/kg	8270D	0.100	R C	10/7/2014 2:06 PM
Diethylphthalate	84-66-2	ND		mg/kg	8270D	0.100	R C	10/7/2014 2:06 PM
Dimethylphthalate	131-11-3	ND		mg/kg	8270D	0.100	R C	10/7/2014 2:06 PM
Di-n-butylphthalate	84-74-2	ND		mg/kg	8270D	0.100	R C	10/7/2014 2:06 PM
Di-n-octylphthalate	117-84-0	ND		mg/kg	8270D	0.100	R C	10/7/2014 2:06 PM
Fluoranthene	206-44-0	ND		mg/kg	8270D	0.100	R C	10/7/2014 2:06 PM
Fluorene	86-73-7	ND		mg/kg	8270D	0.100	R C	10/7/2014 2:06 PM
Hexachlorobenzene	118-74-1	ND		mg/kg	8270D	0.100	R C	10/7/2014 2:06 PM
Hexachlorocyclopentadiene	77-47-4	ND		mg/kg	8270D	0.100	R C	10/7/2014 2:06 PM



# ANALYTICAL REPORT

**Project Name:** MC Canfield

**Date Sampled:** 9/30/2014 2:00 PM

**Lab Project #:** 41520

**Sampled By:** JG

**Lab Sample #:** 41520-2

**Sample Matrix:** Soil

**Client Sample ID:** Area 2-002

**Sample Type:** Composite

Analyte	CASRN	Result	Q	Units	Method	RL	Analyst	Date / Time Analysis
<b>Semi Volatile Organics (8270D) - non-aqueous</b>								
Hexachloroethane	67-72-1	ND		mg/kg	8270D	0.100	R C	10/7/2014 2:06 PM
Indeno[1,2,3-cd]pyrene	193-39-5	ND		mg/kg	8270D	0.100	R C	10/7/2014 2:06 PM
Isophorone	78-59-1	ND		mg/kg	8270D	0.100	R C	10/7/2014 2:06 PM
Naphthalene	91-20-3	ND		mg/kg	8270D	0.100	R C	10/7/2014 2:06 PM
n-Decane	124-18-5	ND		mg/kg	8270D	0.200	R C	10/7/2014 2:06 PM
Nitrobenzene	98-95-3	ND		mg/kg	8270D	0.100	R C	10/7/2014 2:06 PM
N-nitrosodimethylamine	62-75-9	ND		mg/kg	8270D	0.100	R C	10/7/2014 2:06 PM
n-Nitroso-di-n-propylamine	621-64-7	ND		mg/kg	8270D	0.100	R C	10/7/2014 2:06 PM
n-Octadecane	593-45-3	ND		mg/kg	8270D	0.200	R C	10/7/2014 2:06 PM
Pentachlorophenol	87-86-5	ND		mg/kg	8270D	0.100	R C	10/7/2014 2:06 PM
Phenanthrene	85-01-8	ND		mg/kg	8270D	0.100	R C	10/7/2014 2:06 PM
Phenol	108-95-2	ND		mg/kg	8270D	0.100	R C	10/7/2014 2:06 PM
Pyridine	110-86-1	ND		mg/kg	8270D	0.200	R C	10/7/2014 2:06 PM
Pyrene	129-00-0	ND		mg/kg	8270D	0.100	R C	10/7/2014 2:06 PM
1,2-Diphenylhydrazine / Azobenzene	122-66-7 / 17082-12-1	ND		mg/kg	8270D	0.100	R C	10/7/2014 2:06 PM
N-nitrosodiphenylamine / Diphenylamine	86-30-6 / 122-39-4	ND		mg/kg	8270D	0.100	R C	10/7/2014 2:06 PM
Hexachlorobutadiene	87-68-3	ND		mg/kg	8270D	0.100	R C	10/7/2014 2:06 PM
3- & 4- Methylphenol	61379-65-5	ND		mg/kg	8270D	0.100	R C	10/7/2014 2:06 PM
<b>TCLP Herbicides</b>								
2,4-D	94-75-7	ND		mg/L	1311/8151A	0.002	B C	10/9/2014 2:28 PM
2,4,5-TP (Silvex)	93-72-1	ND		mg/L	1311/8151A	0.002	B C	10/9/2014 2:28 PM
<b>TCLP Mercury</b>								
Mercury	7439-97-6	ND		mg/L	1311/245.1	0.001	K S	10/7/2014 3:43 PM
<b>TCLP Metals</b>								
Arsenic	7440-38-2	ND		mg/L	1311/6010B	0.05	K S	10/7/2014 4:41 PM
Barium	7440-39-3	0.14		mg/L	1311/6010B	0.05	K S	10/7/2014 4:41 PM
Cadmium	7440-43-9	ND		mg/L	1311/6010B	0.05	K S	10/7/2014 4:41 PM
Chromium	7440-47-3	ND		mg/L	1311/6010B	0.05	K S	10/7/2014 4:41 PM
Lead	7439-92-1	0.13		mg/L	1311/6010B	0.05	K S	10/7/2014 4:41 PM
Selenium	7782-49-2	ND		mg/L	1311/6010B	0.05	K S	10/7/2014 4:41 PM





# ANALYTICAL REPORT

**Project Name:** MC Canfield

**Date Sampled:** 9/30/2014 2:00 PM

**Lab Project #:** 41520

**Sampled By:** JG

**Lab Sample #:** 41520-2

**Sample Matrix:** Soil

**Client Sample ID:** Area 2-002

**Sample Type:** Composite

Analyte	CASRN	Result	Q	Units	Method	RL	Analyst	Date / Time Analysis
<b>TCLP Metals</b>								
Silver	7440-22-4	ND		mg/L	1311/6010B	0.05	K S	10/7/2014 4:41 PM
<b>TCLP Pesticides</b>								
Chlordane	57-74-9	ND		mg/L	1311/8081A	0.00100	B C	10/9/2014 1:21 PM
Endrin	72-20-8	ND		mg/L	1311/8081A	0.00010	B C	10/9/2014 1:21 PM
gamma BHC (Lindane)	58-89-9	ND		mg/L	1311/8081A	0.00005	B C	10/9/2014 1:21 PM
Heptachlor	76-44-8	ND		mg/L	1311/8081A	0.00005	B C	10/9/2014 1:21 PM
Heptachlor epoxide	1024-57-3	ND		mg/L	1311/8081A	0.00005	B C	10/9/2014 1:21 PM
Methoxychlor	72-43-5	ND		mg/L	1311/8081A	0.00050	B C	10/9/2014 1:21 PM
Toxaphene	8001-35-2	ND		mg/L	1311/8081A	0.00100	B C	10/9/2014 1:21 PM
<b>TCLP Semivolatiles</b>								
1,4-Dichlorobenzene	106-46-7	ND		mg/L	1311/8270D	0.10	R C	10/8/2014 2:34 PM
2,4-Dinitrotoluene	121-14-2	ND		mg/L	1311/8270D	0.10	R C	10/8/2014 2:34 PM
Hexachlorobenzene	118-74-1	ND		mg/L	1311/8270D	0.10	R C	10/8/2014 2:34 PM
Hexachlorobutadiene	87-68-3	ND		mg/L	1311/8270D	0.10	R C	10/8/2014 2:34 PM
Hexachloroethane	67-72-1	ND		mg/L	1311/8270D	0.10	R C	10/8/2014 2:34 PM
2-Methylphenol	95-48-7	ND		mg/L	1311/8270D	0.10	R C	10/8/2014 2:34 PM
3- & 4- Methylphenol	61379-65-5	ND		mg/L	1311/8270D	0.10	R C	10/8/2014 2:34 PM
Nitrobenzene	98-95-3	ND		mg/L	1311/8270D	0.10	R C	10/8/2014 2:34 PM
Pentachlorophenol	87-86-5	ND		mg/L	1311/8270D	0.10	R C	10/8/2014 2:34 PM
Pyridine	110-86-1	ND		mg/L	1311/8270D	0.10	R C	10/8/2014 2:34 PM
2,4,5-Trichlorophenol	95-95-4	ND		mg/L	1311/8270D	0.10	R C	10/8/2014 2:34 PM
2,4,6-Trichlorophenol	88-06-2	ND		mg/L	1311/8270D	0.10	R C	10/8/2014 2:34 PM
<b>TCLP Volatiles</b>								
Benzene	71-43-2	ND		mg/L	1311/8260C	0.02	I R	10/10/2014 11:50 AM
Carbon Tetrachloride	56-23-5	ND		mg/L	1311/8260C	0.02	I R	10/10/2014 11:50 AM
Chlorobenzene	108-90-7	ND		mg/L	1311/8260C	0.02	I R	10/10/2014 11:50 AM
Chloroform	67-66-3	ND		mg/L	1311/8260C	0.02	I R	10/10/2014 11:50 AM
1,2-Dichloroethane	107-06-2	ND		mg/L	1311/8260C	0.02	I R	10/10/2014 11:50 AM
1,1-Dichloroethene	75-35-4	ND		mg/L	1311/8260C	0.02	I R	10/10/2014 11:50 AM
Methyl Ethyl Ketone (MEK)	78-93-3	ND		mg/L	1311/8260C	0.10	I R	10/10/2014 11:50 AM
Tetrachloroethene (PCE)	127-18-4	ND		mg/L	1311/8260C	0.02	I R	10/10/2014 11:50 AM



# ANALYTICAL REPORT

**Project Name:** MC Canfield

**Date Sampled:** 9/30/2014 2:00 PM

**Sampled By:** JG

**Sample Matrix:** Soil

**Sample Type:** Composite

**Lab Project #:** 41520

**Lab Sample #:** 41520-2

**Client Sample ID:** Area 2-002

Analyte	CASRN	Result	Q	Units	Method	RL	Analyst	Date / Time Analysis
<b>TCLP Volatiles</b>								
Trichloroethene (TCE)	79-01-6	ND		mg/L	1311/8260C	0.02	I R	10/10/2014 11:50 AM
Vinyl Chloride	75-01-4	ND		mg/L	1311/8260C	0.02	I R	10/10/2014 11:50 AM
<b>Total Petroleum Hydrocarbons (C-40) - non-aqueous</b>								
Total Petroleum Hydrocarbons (C-40)		138		mg/kg	8015B	50.0	S M	10/6/2014 9:12 PM
<b>Volatile Organics (8260C) - non-aqueous</b>								
Acetone	67-64-1	ND		mg/kg	8260C	0.050	I R	10/3/2014 6:27 PM
Acrolein	107-02-8	ND		mg/kg	8260C	0.050	I R	10/3/2014 6:27 PM
Acrylonitrile	107-13-1	ND		mg/kg	8260C	0.005	I R	10/3/2014 6:27 PM
Benzene	71-43-2	ND		mg/kg	8260C	0.005	I R	10/3/2014 6:27 PM
Bromobenzene	108-86-1	ND		mg/kg	8260C	0.005	I R	10/3/2014 6:27 PM
Bromochloromethane	74-97-5	ND		mg/kg	8260C	0.005	I R	10/3/2014 6:27 PM
Bromodichloromethane	75-27-4	ND		mg/kg	8260C	0.005	I R	10/3/2014 6:27 PM
Bromoform (Tribromomethane)	75-25-2	ND		mg/kg	8260C	0.005	I R	10/3/2014 6:27 PM
Bromomethane	74-83-9	ND		mg/kg	8260C	0.005	I R	10/3/2014 6:27 PM
2-Butanone (MEK)	78-93-3	ND		mg/kg	8260C	0.050	I R	10/3/2014 6:27 PM
Carbon disulfide	75-15-0	ND		mg/kg	8260C	0.005	I R	10/3/2014 6:27 PM
Carbon Tetrachloride	56-23-5	ND		mg/kg	8260C	0.005	I R	10/3/2014 6:27 PM
Chlorobenzene	108-90-7	ND		mg/kg	8260C	0.005	I R	10/3/2014 6:27 PM
Chloroethane	75-00-3	ND		mg/kg	8260C	0.005	I R	10/3/2014 6:27 PM
2-Chloroethylvinylether	110-75-8	ND		mg/kg	8260C	0.005	I R	10/3/2014 6:27 PM
Chloroform	67-66-3	ND		mg/kg	8260C	0.005	I R	10/3/2014 6:27 PM
Chloromethane (Methyl Chloride)	74-87-3	ND		mg/kg	8260C	0.005	I R	10/3/2014 6:27 PM
1,2-Dibromo-3-chloropropane (DBCP)	96-12-8	ND		mg/kg	8260C	0.005	I R	10/3/2014 6:27 PM
1,2-Dibromoethane (EDB)	106-93-4	ND		mg/kg	8260C	0.005	I R	10/3/2014 6:27 PM
1,2-Dichlorobenzene	95-50-1	ND		mg/kg	8260C	0.005	I R	10/3/2014 6:27 PM
1,3-Dichlorobenzene	541-73-1	ND		mg/kg	8260C	0.005	I R	10/3/2014 6:27 PM
1,4-Dichlorobenzene	106-46-7	ND		mg/kg	8260C	0.005	I R	10/3/2014 6:27 PM
Dichlorodifluoromethane	75-71-8	ND		mg/kg	8260C	0.005	I R	10/3/2014 6:27 PM
1,1-Dichloroethane	75-34-3	ND		mg/kg	8260C	0.005	I R	10/3/2014 6:27 PM



# ANALYTICAL REPORT

**Project Name:** MC Canfield

**Date Sampled:** 9/30/2014 2:00 PM

**Lab Project #:** 41520

**Sampled By:** JG

**Lab Sample #:** 41520-2

**Sample Matrix:** Soil

**Client Sample ID:** Area 2-002

**Sample Type:** Composite

Analyte	CASRN	Result	Q	Units	Method	RL	Analyst	Date / Time Analysis
<b>Volatile Organics (8260C) - non-aqueous</b>								
1,2-Dichloroethane	107-06-2	ND		mg/kg	8260C	0.005	I R	10/3/2014 6:27 PM
1,1-Dichloroethene	75-35-4	ND		mg/kg	8260C	0.005	I R	10/3/2014 6:27 PM
cis-1,2-Dichloroethene	156-59-2	ND		mg/kg	8260C	0.005	I R	10/3/2014 6:27 PM
trans-1,2-Dichloroethene	156-60-5	ND		mg/kg	8260C	0.005	I R	10/3/2014 6:27 PM
1,2-Dichloropropane	78-87-5	ND		mg/kg	8260C	0.005	I R	10/3/2014 6:27 PM
cis-1,3-Dichloropropene	10061-01-5	ND		mg/kg	8260C	0.005	I R	10/3/2014 6:27 PM
trans-1,3-Dichloropropene	10061-02-6	ND		mg/kg	8260C	0.005	I R	10/3/2014 6:27 PM
Ethylbenzene	100-41-4	ND		mg/kg	8260C	0.005	I R	10/3/2014 6:27 PM
Hexachlorobutadiene	87-68-3	ND		mg/kg	8260C	0.005	I R	10/3/2014 6:27 PM
2-Hexanone	591-78-6	ND		mg/kg	8260C	0.050	I R	10/3/2014 6:27 PM
Isopropylbenzene (Cumene)	98-82-8	ND		mg/kg	8260C	0.005	I R	10/3/2014 6:27 PM
Methyl tert-butyl ether (MTBE)	1634-04-4	ND		mg/kg	8260C	0.005	I R	10/3/2014 6:27 PM
Methylene Chloride (Dichloromethane)	75-09-2	ND		mg/kg	8260C	0.005	I R	10/3/2014 6:27 PM
tert-Butyl alcohol (TBA)	75-65-0	ND		mg/kg	8260C	0.050	I R	10/3/2014 6:27 PM
1,1,2,2-Tetrachloroethane	79-34-5	ND		mg/kg	8260C	0.005	I R	10/3/2014 6:27 PM
4-methyl-2-pentanone (MIBK)	108-10-1	ND		mg/kg	8260C	0.050	I R	10/3/2014 6:27 PM
Tetrachloroethene (PCE)	127-18-4	ND		mg/kg	8260C	0.005	I R	10/3/2014 6:27 PM
Toluene	108-88-3	ND		mg/kg	8260C	0.005	I R	10/3/2014 6:27 PM
1,1,1-Trichloroethane	71-55-6	ND		mg/kg	8260C	0.005	I R	10/3/2014 6:27 PM
1,1,2-Trichloroethane	79-00-5	ND		mg/kg	8260C	0.005	I R	10/3/2014 6:27 PM
Dibromomethane	74-95-3	ND		mg/kg	8260C	0.005	I R	10/3/2014 6:27 PM
Trichlorofluoromethane	75-69-4	ND		mg/kg	8260C	0.005	I R	10/3/2014 6:27 PM
Vinyl acetate	108-05-4	ND		mg/kg	8260C	0.005	I R	10/3/2014 6:27 PM
Vinyl Chloride	75-01-4	ND		mg/kg	8260C	0.005	I R	10/3/2014 6:27 PM
Xylenes, Total	1330-20-7	ND		mg/kg	8260C	0.015	I R	10/3/2014 6:27 PM
Naphthalene	91-20-3	ND		mg/kg	8260C	0.020	I R	10/3/2014 6:27 PM
Nitrobenzene	98-95-3	ND		mg/kg	8260C	0.050	I R	10/3/2014 6:27 PM
Styrene	100-42-5	ND		mg/kg	8260C	0.005	I R	10/3/2014 6:27 PM
1,1,1,2-Tetrachloroethane	630-20-6	ND		mg/kg	8260C	0.005	I R	10/3/2014 6:27 PM
1,2,4-Trichlorobenzene	120-82-1	ND		mg/kg	8260C	0.005	I R	10/3/2014 6:27 PM
1,2,3-Trichloropropane (TCP)	96-18-4	ND		mg/kg	8260C	0.005	I R	10/3/2014 6:27 PM





# ANALYTICAL REPORT

**Project Name:** MC Canfield

**Date Sampled:** 9/30/2014 2:00 PM

**Sampled By:** JG

**Sample Matrix:** Soil

**Sample Type:** Composite

**Lab Project #:** 41520

**Lab Sample #:** 41520-2

**Client Sample ID:** Area 2-002

Analyte	CASRN	Result	Q	Units	Method	RL	Analyst	Date / Time Analysis
<b>Volatile Organics (8260C) - non-aqueous</b>								
Trichloroethene (TCE)	79-01-6	ND		mg/kg	8260C	0.005	I R	10/3/2014 6:27 PM
Ethanol	64-17-5	ND		mg/kg	8260C	0.050	I R	10/3/2014 6:27 PM
1,1,2-Trichloro-1,2,2-Trifluoroethane	76-13-1	ND		mg/kg	8260C	0.005	I R	10/3/2014 6:27 PM
Dibromochloromethane	124-48-1	ND		mg/kg	8260C	0.005	I R	10/3/2014 6:27 PM
n-Butylbenzene	104-51-8	ND		mg/kg	8260C	0.005	I R	10/3/2014 6:27 PM
sec-Butylbenzene	135-98-8	ND		mg/kg	8260C	0.005	I R	10/3/2014 6:27 PM
t-Amyl methyl ether (TAME)	994-05-8	ND		mg/kg	8260C	0.010	I R	10/3/2014 6:27 PM
tert-Butylbenzene	98-06-6	ND		mg/kg	8260C	0.005	I R	10/3/2014 6:27 PM
1,3-Dichloropropane	142-28-9	ND		mg/kg	8260C	0.005	I R	10/3/2014 6:27 PM
4-Chlorotoluene	106-43-4	ND		mg/kg	8260C	0.005	I R	10/3/2014 6:27 PM
2-Chlorotoluene	95-49-8	ND		mg/kg	8260C	0.005	I R	10/3/2014 6:27 PM
2,2-Dichloropropane	594-20-7	ND		mg/kg	8260C	0.005	I R	10/3/2014 6:27 PM
Diisopropylether (DIPE)	108-20-3	ND		mg/kg	8260C	0.005	I R	10/3/2014 6:27 PM
1,1-Dichloropropene	563-58-6	ND		mg/kg	8260C	0.005	I R	10/3/2014 6:27 PM
Ethyl Ether	60-29-7	ND		mg/kg	8260C	0.005	I R	10/3/2014 6:27 PM
Hexachloroethane	67-72-1	ND		mg/kg	8260C	0.005	I R	10/3/2014 6:27 PM
Ethyl tert-butyl ether (ETBE)	637-92-3	ND		mg/kg	8260C	0.005	I R	10/3/2014 6:27 PM
Iodomethane	74-88-4	ND		mg/kg	8260C	0.005	I R	10/3/2014 6:27 PM
n-Propylbenzene	103-65-1	ND		mg/kg	8260C	0.005	I R	10/3/2014 6:27 PM
p-Isopropyltoluene	99-87-6	ND		mg/kg	8260C	0.005	I R	10/3/2014 6:27 PM
Tetrahydrofuran	109-99-9	ND		mg/kg	8260C	0.005	I R	10/3/2014 6:27 PM
1,2,3-Trichlorobenzene	87-61-6	ND		mg/kg	8260C	0.005	I R	10/3/2014 6:27 PM
1,2,4-Trimethylbenzene	95-63-6	ND		mg/kg	8260C	0.005	I R	10/3/2014 6:27 PM
1,3,5-Trimethylbenzene	108-67-8	ND		mg/kg	8260C	0.005	I R	10/3/2014 6:27 PM
Methyl Acetate	79-20-9	ND		mg/kg	8260C	0.050	I R	10/3/2014 6:27 PM



# ANALYTICAL REPORT

**Project Name:** MC Canfield

**Date Sampled:** 9/30/2014 2:00 PM

**Sampled By:** JG

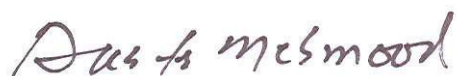
**Sample Matrix:** Soil

**Sample Type:** Composite

**Lab Project #:** 41520

**Lab Sample #:** 41520-2

**Client Sample ID:** Area 2-002



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Akhter Mehmood  
Lab Director



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Charles Morrow  
QAQC Director



# ANALYTICAL REPORT

## Methodology

All analyses are adapted from one or more of the following reference methods:

"Guidelines Establishing Test Procedures for the Analysis of Pollutants" Code of Federal Regulations, Vol. 40, Part 136  
 "Test Methods for Evaluating Solid Waste", SW846 Third Edition, September 1986, USEPA.  
 Code of Federal Regulations Vol. 40, Part 261, "Appendix II Method 1311 Toxicity Characteristic Leaching Procedure."  
 Standard Methods for the Examination of Water and Wastewater", 18th & 21st editions  
 "Methods for the Chemical Analysis of Water and Wastes", EPA600/4-79-020, March 1983, U.S. EPA, EMSL  
 "Annual Book of Standards, Section 11-Water", American Society for Testing and Materials (ASTM)  
 "Methods for the Determination of Organic Compounds in Drinking Water", EPA 600/4-88/039, December 1988

## Qualifiers

B	Detected in method blank	E	Detected above calibration limits, result estimated
H	Parameter run out of hold time	J	Detected below PQL, result estimated
P	Incorrect Preservative	R	See report notes
SUB	Sub-Contracted to Certified Lab	N	Not NELAP/TNI certified for parameter

## Abbreviations

ppm	Parts Per Million (mg/kg or mg/L)	PQL	Practical Quantitation Level
ppb	Parts Per Billion (ug/kg or ug/L)	attached	Subcontract Lab Report Attached
g	gram (1000 g = 1Kg)	ND	Not Detected
kg	kilogram (1 kg = 1000 g)	NA	Not Applicable
mg	milligram (1000 mg = 1 g)	NS	Not Spiked
mg/kg	milligram per kilogram (ppm)	NP	No PCB pattern detected
ug/kg	microgram per kilogram (ppb)	NR	Not Requested
ug	microgram (1000 ug = 1 mg)	NI	Not Ignitable
L	liter (1 L = 1000 mL)	NFL	No Free Liquid
ml	milliliter (1000 ml = 1 L)	NTU	Nephelometric Turbidity Units
ul	microliter (1000 ul = 1 ml)	S.U.	Standard Unit
mg/L	milligram per liter (ppm)	RPD	Relative Percent Difference
ug/L	microgram per liter (ppb)	RSD	Relative Standard Deviation
ng/kg	nanogram per kilogram	MS/MSD	Matrix Spike/Matrix Spike Duplicate
BTU/lb	British Thermal Units per pound	LCS	Laboratory Control Sample
CFU/mL	Colony Forming Units per milliliter	BS	Blank Spike (Method Spike)
MPN/100 ml	Most Probable Number per 100 mL	o F	degrees Fahrenheit
mS/cm	milli Siemens per centimeter	o C	degrees Celsius
uS/cm	micro Siemens per centimeter	umhos	Conductivity Units
ug/sq cm	microgram per square centimeter	ohms	Resistivity Units
ug/sq ft	microgram per square feet	RL	Reporting Limit
ug/wipe	microgram per wipe		


Note: All non-aqueous samples, with the exception of oils, wipes, and paint chips are dry weight corrected

PQL-The Practical Quantitation Limit (PQL) is the lowest level that can be reliably achieved within specified limits of precision and accuracy during routine laboratory operating conditions.

RL-Reporting Limit is greater than or equal to PQL.







Environmental Restoration

Restoration, L.L.C.

1666 Fabick Drive

Fenton, MO 63026

(636) 227-7477

Fax (636) 227-6447

Alternate billing information:

Environmental Restoration

1666 Fabick Drive

Fenton, MO 63026

Attn: Amy Riggott

Report to: Amy Riggott

Email to: [a.riggott@erllc.com](mailto:a.riggott@erllc.com)

Project

MC Canfield

City/State

Newark, NJ

Descriptor soil sample

Phone: 404-353-7031

Fax: 636-680-2593

Client Project #:

MC2-79

Collected by (signature):

Site/Facility ID#:

MC2-79

ESC Key:

P.O. #:

MC:

Date Results Needed:

Email? ☐ No ☒ Yes

Fax? ☒ No ☐ Yes

Packed on Ice

N

Y

Same Day

Next Day

five Day

Sample ID

Area 2-001

Comp/Grab

Comp

Depth

soil

Date

9/30/2014

Time

1330

No. of Containers

1

\*Matrix

SS - Soil/Sollic

GW - GroundWater

WW - WasteWater

DW - Drinking Water

OT - Other

pH

Temp

Remarks:

\*For any constituents that exceed the 20X rule, please run TCLP of that constituent.

Relinquished by: (Signature)

Relinquished by: (Signature)

Relinquished by: (Signature)

Date:

10/2/14

Time:

11:48

Date:

10/2/14

Time:

15:00

Date:

10/2/14

Time:

15:00

Received by: (Signature)

Received by: (Signature)

Received for lab by: (Signature)

Received by: (Signature)

Received by: (Signature)

Received for lab by: (Signature)

Samples returned via:

☐ UPS

☐ Fed Ex

☐ Courier

Bottles Received:

Time:

1500

Condition: (lab use only)

pH Checked: NCF:

10/2/14

7477

If waste is asbestos waste, complete Sections I, II, III and IV  
If waste is NOT asbestos waste, complete Sections I, II and III

## I. GENERATOR (Generator completes Ia-r)

a. Generator's US EPA ID Number		b. Manifest Document Number 014		c. Page 1 of	
d. Generator's Name and Location: US EPA Region II-MC Canfield and Sons 2800 Woodbridge Ave Edison, NJ 08837			e. Generator's Mailing Address: US EPA Region II-MC Canfield and Sons 2800 Woodbridge Ave Edison, NJ 08837		
f. Phone: 908-420-4475			g. Phone: 908-420-4475		
h. Owner's Name: US EPA Region II-MC Canfield and Sons					
i. Owner's Phone No: 908-420-4475					
j. Waste Profile #	k. Exp. Date	l. Waste Shipping Name and Description		m. Containers No.	n. Total Quantity
5081 1411403	7/10/2015	Metals Impacted Soils and Debris (lead)		001	18
				cm	T
<p>GENERATOR'S CERTIFICATION: I hereby certify that the above named material is not a hazardous waste as defined by 40 CFR 261 or any applicable state law, has been properly described, classified and packaged, and is in proper condition for transportation according to applicable regulations; AND, if this waste is a treatment residue of a previously restricted hazardous waste, subject to the Land Disposal Restrictions, I certify and warrant that the waste has been treated in accordance with the requirements of 40 CFR 268 and is no longer a hazardous waste as defined by 40 CFR 261.</p>					
p. Generator Authorized Agent Name (Print): C. D. D'Amico			q. Signature: [Signature]		r. Date: 7/14/14

## II. TRANSPORTER (Generator completes IIa-b and Transporter completes IIc-e)

a. Transporter's Name and Address: INX 1700 Clarks St Reading, PA 19601		b. Phone: 610-372-6511
c. Driver Name (Print): Gary W. H. L.	d. Signature: [Signature]	e. Date: 7-14-14

## III. DESTINATION (Generator complete IIIa-c and Destination Site completes IIId-g)

a. Disposal Facility and Site Address: Conestoga Landfill 420 Quarry Road Morgantown, PA 15443	b. Phone: 717-263-5543	c. US EPA Number: PA0000016887	d. Discrepancy Indication Space: 13.89
<p>I hereby certify that the above named material has been accepted and to the best of my knowledge the foregoing is true and accurate.</p>			
e. Name of Authorized Agent (Print): [Signature]	f. Signature: [Signature]	g. Date: 7/22/14	

## IV. ASBESTOS (Generator completes IVa-f and Operator complete IVg-i)

a. Operator's Name and Address:		c. Responsible Agency Name and Address:	
b. Phone:		d. Phone:	
e. Special Handling Instructions and Additional Information:			
<p>f. <input type="checkbox"/> Friable <input type="checkbox"/> Non-Friable <input type="checkbox"/> Both % Friable % Non-Friable</p>			
<p>OPERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked and labeled and are in all respects in proper condition for transport by highway according to applicable international and national governmental regulations.</p>			
g. Operator's Name and Title (Print):		h. Signature:	
i. Date:		j. Date:	
<p>*Operator refers to the company which owns, leases, operates, controls, or supervises the facility being demolished or renovated, or the demolition or renovation operation or both</p>			

CONESTOGA LF  
420 QUARRY ROAD

Morgantown, PA 19543 610-286-6844

**CUSTOMER**

042375  
AMERICAN WASTE OF NJ, LLC  
ONE AMERICAN WAY  
WARREN, OH 44485  
50811411403

**CUSTOMER COPY**

**LICENSE:**  
**TYPE:** Miscellaneous

SITE CL CELL 22X 60029

WEIGHMASTER Mike M.

Ticket 945522

**DATE IN**  
7/23/14 2:06 pm

**DATE OUT**  
7/23/14 2:32 pm

**VEHICLE**  
SPECIAL

**CONTAINER**

**REFERENCE**  
278

**INVOICE**

**BILL OF LADING** 34693

SCALE IN **GROSS WEIGHT** 71,180  
SCALE OUT **TARE WEIGHT** 43,400  
**VEHICLE DESC** SPECIAL WASTE

**NET TONS** 13.89  
**NET WEIGHT** 27,780

**CONTAINER DESC**

**INBOUND**

QTY.	UNIT.	DESCRIPTION	RATE.	EXTENSION.	TAX.	TOTAL
0.00	YD	TRACKING QTY				
13.89	TN	SW-CONT SOIL				
		NEW JERSEY				

**NET AMOUNT**

**TENDERED**

**CHANGE**

**CHECK**

5/31

**DRIVER :**

**WEIGHMASTER**



If waste is asbestos waste, complete Sections I, II, III and IV  
If waste is NOT asbestos waste, complete Sections I, II and III

**I. GENERATOR (Generator completes I a-f)**

a. Generator's US EPA ID Number		b. Manifest Document Number <b>002</b>		c. Page 1 of	
d. Generator's Name and Location: US EPA Region II-MO Canfield and Sons 2300 Woodbridge Ave Edison, NJ 08837			e. Generator's Mailing Address: US EPA Region II-MO Canfield and Sons 2300 Woodbridge Ave Edison, NJ 08837		
f. Phone: 800-420-4476			g. Phone:		
h. Owner's Name:			i. Owner's Phone No:		

j. Waste Profile #	k. Exp. Date	l. Waste Shipping Name and Description	m. Containers No.	n. Total Quantity	o. Unit Wt/Vol
6081 1411403	7/10/2015	Metals Impacted Soils and Debris (Lead)	001 CM	EST 18	T

GENERATOR'S CERTIFICATION: I hereby certify that the above named material is not a hazardous waste as defined by 40 CFR 261 or any applicable state law, has been properly described, classified and packaged, and is in proper condition for transportation according to applicable regulations; AND, if this waste is a treatment residue of a previously restricted hazardous waste subject to the Land Disposal Restrictions, I certify and warrant that the waste has been treated in accordance with the requirements of 40 CFR 268 and is no longer a hazardous waste as defined by 40 CFR 261.

p. Generator Authorized Agent Name (Print): <b>CRIS D'ONOFRIO</b>	q. Signature: <i>[Signature]</i>	r. Date: <b>7/16/15</b>
---	----------------------------------	-------------------------

**II. TRANSPORTER (Generator completes II a-b and Transporter completes II c-e)**

a. Transporter's Name and Address: DUC 1520 Clarissa St Reading PA 19610		
b. Phone: 610-372-6511		
c. Driver Name (Print): <i>[Signature]</i>	d. Signature: <i>[Signature]</i>	e. Date: <b>7-16-15</b>

**III. DESTINATION (Generator complete III a-c and Destination Site completes III d-g)**

a. Disposal Facility and Site Address: Conestoga Landfill 420 Quarry Road Morgantown, PA 15043		b. US EPA Number: PA0000015887	c. Discrepancy Indication Space: <b>24.23</b>
d. I hereby certify that the above named material has been accepted and to the best of my knowledge the foregoing is true and accurate.			
e. Name of Authorized Agent (Print):	f. Signature: <i>[Signature]</i>	g. Date: <b>7/16/15</b>	

**IV. ASBESTOS (Generator completes IV a-f and Operator completes IV g-i)**

a. Operator's Name and Address:		c. Responsible Agency Name and Address:	
b. Phone:		d. Phone:	
e. Special Handling Instructions and Additional Information:			

f. ☐ Friable ☐ Non-Friable ☐ Both % Friable % Non-Friable

OPERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked and labeled and are in all respects in proper condition for transport by highway according to applicable international and national governmental regulations.

g. Operator's Name and Title (Print):	h. Signature:	i. Date:
---------------------------------------	---------------	----------

\*Operator refers to the company which owns, leases, operates, controls, or supervises the facility being demolished or renovated, or the demolition or renovation operation or both



CONESTOGA LF  
420 QUARRY ROAD

Morgantown, PA 19543 610-286-6844

**CUSTOMER**

042375  
AMERICAN WASTE OF NJ, LLC  
ONE AMERICAN WAY  
WARREN, OH 44485  
50811411403

**CUSTOMER COPY**

**LICENSE:**

TYPE: Miscellaneous

SITE CL CELL 22X 60029

WEIGHMASTER Mike M.

Ticket 944521

DATE IN 7/16/14 3:16 pm

DATE OUT 7/16/14 3:16 pm

VEHICLE  
SPECIAL

CONTAINER

REFERENCE  
278

INVOICE

BILL OF LADING 34715

SCALE IN GROSS WEIGHT  
MANUAL OUT TARE WEIGHT  
VEHICLE DESC SPECIAL WASTE

92,960  
43,500

NET TONS  
NET WEIGHT

24.73  
49,460

CONTAINER DESC

INBOUND

QTY. UNIT.  
0.00 YD TRACKING QTY  
24.73 TN SW-CONT SOIL

DESCRIPTION

RATE.

EXTENSION.

TAX.

TOTAL

NEW JERSEY

*PO# W1049411*

NET AMOUNT

TENDERED

CHANGE

CHECK

3/31 DRIVER:

WEIGHMASTER

If waste is asbestos waste, complete Sections I, II, III and IV.  
If waste is **NOT** asbestos waste, complete Sections I, II and III

### I. GENERATOR (Generator completes Ia-f)

a. Generator's US EPA ID Number		b. Manifest Document Number		c. Page 1 of	
d. Generator's Name and Location: US EPA Region II-MC Canfield and Sons 2880 Woodbridge Ave. Edison, NJ 08837			e. Generator's Mailing Address: US EPA Region II-MC Canfield and Sons 2880 Woodbridge Ave. Edison, NJ 08837		
f. Phone: 609-420-1475			g. Phone: 609-420-1475		
h. Owner's Name:			i. Owner's Phone No.		
j. Waste Profile #	k. Exp. Date	l. Waste Shipping Name and Description		m. Containers No.	n. Total Quantity
5081-1431403	7/10/2015	Metals Impacted Soils and Debris (Lead)		001 CM	EST 18
<p>GENERATOR'S CERTIFICATION: I hereby certify that the above named material is not a hazardous waste as defined by 40 CFR 261 or any applicable state law; has been properly described, classified and packaged and is in proper condition for transportation according to applicable regulations; AND, if this waste is a treatment residue of a previously restricted hazardous waste subject to the Land Disposal Restrictions, I certify and warrant that the waste has been treated in accordance with the requirements of 40 CFR 268 and is no longer a hazardous waste as defined by 40 CFR 261.</p>					
p. Generator Authorized Agent Name (Print)			q. Signature		r. Date

### II. TRANSPORTER (Generator completes IIa-b and Transporter completes IIc-e)

a. Transporter's Name and Address: DVC 1420 Clanton St Rdg Pa 17610		
b. Phone: 610-372-6511		
c. Driver Name (Print)	d. Signature	e. Date

### III. DESTINATION (Generator complete IIIa-c and Destination Site completes IIId-g)

a. Disposal Facility and Site Address: Conestoga Landfill 420 Quarry Road Morgantown, PA 15643		b. Phone: 800-222-6144	c. US EPA Number PA000015867	d. Discrepancy Indication Space: 18-88
<p>I hereby certify that the above named material has been accepted and to the best of my knowledge the foregoing is true and accurate.</p>				
e. Name of Authorized Agent (Print)		f. Signature		g. Date

### IV. ASBESTOS (Generator completes IVa-f and Operator complete IVg-i)

a. Operator's Name and Address:		c. Responsible Agency Name and Address:	
b. Phone:		d. Phone:	
e. Special Handling Instructions and Additional Information:			
<p>f. <input type="checkbox"/> Friable <input type="checkbox"/> Non-Friable <input type="checkbox"/> Both % Friable % Non-Friable</p>			
<p>OPERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked and labeled and are in all respects in proper condition for transport by highway according to applicable international and national governmental regulations.</p>			
g. Operator's Name and Title (Print)		h. Signature	
		i. Date	

\*Operator refers to the company which owns, leases, operates, controls, or supervises the facility being demolished or renovated, or the demolition or renovation operation or both

CONESTOGA LF  
420 QUARRY ROAD  
Morgantown, PA 19543 610-286-6844

SITE CL Cell 22X 77564

WEIGHMASTER Bruce E.

Ticket 944426

CUSTOMER  
042375  
AMERICAN WASTE OF NJ, LLC  
ONE AMERICAN WAY  
WARREN, OH 44485

**SCALEHOUSE COPY**

LICENSE:  
TYPE: Miscellaneous

DATE IN 7/16/14 10:03 am DATE OUT 7/16/14 10:23 am  
VEHICLE SPECIAL CONTAINER  
REFERENCE 278 INVOICE  
BILL OF LADING 34716

50811411403

SCALE IN GROSS WEIGHT 81,460

NET TONS 18.88

SCALE OUT TARE WEIGHT 43,700

NET WEIGHT 37,760

INBOUND

VEHICLE DESC: SPECIAL WASTE

CONTAINER DESC

QTY. UNIT.  
0.00 YD TRACKING QTY  
18.88 TN SW-CONT SOIL

DESCRIPTION RATE EXTENSION TAX TOTAL

NEW JERSEY

*PO # AND 49411*

NET AMOUNT  
TENDERED  
CHANGE  
CHECK

DRIVER:

WEIGHMASTER

If waste is asbestos waste, complete Sections I, II, III and IV  
If waste is NOT asbestos waste, complete Sections I, II and III

### I. GENERATOR (Generator completes Ia-f)

a. Generator's US EPA ID Number		b. Manifest Document Number <b>4003</b>		c. Page 1 of	
d. Generator's Name and Location: US EPA Region II-MC Canfield and Sons <b>Sir</b> <b>2890 Woodbridge Ave</b> <b>Edison, NJ 08837</b>			e. Generator's Mailing Address: US EPA Region II-MC Canfield and Sons <b>2890 Woodbridge Ave</b> <b>Edison, NJ 08837</b>		
f. Phone: <b>908-420-3476</b>			g. Phone: <b>908-420-3476</b>		
h. Owner's Name: <b>US EPA Region II-MC Canfield and Sons</b>					
i. Owner's Phone No: <b>908-420-3476</b>					
j. Waste Profile #	k. Exp. Date	l. Waste Shipping Name and Description		m. Containers No.	n. Total Quantity
5081 1411403	7/10/2015	Metals Impacted Soils and Debris <b>(lead)</b>		001 CM	EST 18 T
<p>GENERATOR'S CERTIFICATION: I hereby certify that the above named material is not a hazardous waste as defined by 40 CFR 261 or any applicable state law, has been properly described, classified and packaged and is in proper condition for transportation according to applicable regulations. AND: If this waste is a treatment residue of a previously restricted hazardous waste subject to the Land Disposal Restrictions, I certify and warrant that the waste has been treated in accordance with the requirements of 40 CFR 263 and is no longer a hazardous waste as defined by 40 CFR 261.</p>					
p. Generator Authorized Agent Name (Print): <b>Cris Donofrio (EPA 42)</b>		q. Signature: <b>[Signature]</b>		r. Date: <b>07-17-14</b>	

### II. TRANSPORTER (Generator completes IIa-b and Transporter completes IIc-e)

a. Transporter's Name and Address: <b>DVC</b> <b>1920 Edison St</b> <b>Edison, NJ 08837</b>	
b. Phone: <b>609-372-6511</b>	
c. Driver Name (Print): <b>GARY WENTZEL</b>	d. Signature: <b>[Signature]</b>
e. Date: <b>07-17-2014</b>	

### III. DESTINATION (Generator complete IIIa-c and Destination Site completes IIId-g)

a. Disposal Facility and Site Address: <b>Conestoga Landfill</b> <b>420 Quarry Road</b> <b>Morgantown, PA 15063</b>		c. US EPA Number: <b>PA0000015867</b>	d. Discrepancy Indication Space: <b>26.80</b>
b. Phone: <b>717-263-1111</b>			
f. I hereby certify that the above named material has been accepted and to the best of my knowledge the foregoing is true and accurate.			
e. Name of Authorized Agent (Print): <b>[Signature]</b>		g. Date: <b>7/17/14</b>	

### IV. ASBESTOS (Generator completes IVa-f and Operator complete IVg-i)

a. Operator's Name and Address:		c. Responsible Agency Name and Address:	
b. Phone:		d. Phone:	
e. Special Handling Instructions and Additional Information:			
f. <input type="checkbox"/> Friable <input type="checkbox"/> Non-Friable <input type="checkbox"/> Both % Friable % Non-Friable			
OPERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked and labeled and are in all respects in proper condition for transport by highway according to applicable international and national governmental regulations.			
g. Operator's Name and Title (Print):		h. Signature	
i. Date:			

\*Operator refers to the company which owns, leases, operates, controls, or supervises the facility being demolished or renovated, or the demolition or renovation operation or both

CONESTOGA LF  
420 QUARRY ROAD

Morgantown, PA 19543 610-286-6844

CUSTOMER:  
042375  
AMERICAN WASTE OF NJ, LLC  
ONE AMERICAN WAY  
WARREN, OH 44485  
50811411403

**CUSTOMER COPY**

LICENSE:  
TYPE: Miscellaneous

SITE CL CELL 22X 60029

WEIGHMASTER Mike M.

Ticket 944634

DATE IN  
7/17/14 10:13 am

DATE OUT  
7/17/14 10:34 am

VEHICLE  
SPECIAL

CONTAINER

REFERENCE  
278

INVOICE

BILL OF LADING 34709

SCALE IN GROSS WEIGHT  
SCALE OUT TARE WEIGHT  
VEHICLE DESC SPECIAL WASTE

97,060  
43,460

NET TONS  
NET WEIGHT

26.80  
53,600

CONTAINER DESC

INBOUND

QTY.	UNIT.	DESCRIPTION	RATE.	EXTENSION.	TAX.	TOTAL
0.00	YD	TRACKING QTY				
26.80	TN	SW-CONT SOIL				
		NEW JERSEY				

NET AMOUNT

TENDERED

CHANGE

CHECK

5/31 DRIVER:

WEIGHMASTER

If waste is asbestos waste, complete Sections I, II, III and IV  
If waste is NOT asbestos waste, complete Sections I, II and III

### I. GENERATOR (Generator completes (a-r))

a. Generator's US EPA ID Number	b. Manifest Document Number <b>004</b>	c. Page 1 of
d. Generator's Name and Location: US EPA Region II-MC Canfield and Sons 2800 Woodbridge Ave Edison, NJ 08837		e. Generator's Mailing Address: US EPA Region II-MC Canfield and Sons 2800 Woodbridge Ave Edison, NJ 08837
f. Phone: 609-420-4470	g. Phone: 609-420-4470	
h. Owner's Name:		i. Owner's Phone No.:

j. Waste Profile #	k. Exp. Date	l. Waste Shipping Name and Description	m. Containers No.	n. Total Quantity	o. Unit Wt/Vol
6081 1411403	7/10/2015	Metals Impacted Soils and Debris (Lead)	001 CM	18	T

GENERATOR'S CERTIFICATION: I hereby certify that the above named material is not a hazardous waste as defined by 40 CFR 261 or any applicable state law, has been properly described, classified and packaged, and is in proper condition for transportation according to applicable regulations. AND, if this waste is a treatment residue of a previously restricted hazardous waste subject to the Land Disposal Restrictions, I certify and warrant that the waste has been treated in accordance with the requirements of 40 CFR 268 and is no longer a hazardous waste as defined by 40 CFR 261.

p. Generator/Authorized Agent Name (Print): **Cris D. Onofre (owner)**  
q. Signature: *[Signature]*  
r. Date: **7-17-2014**

### II. TRANSPORTER (Generator completes (a,b) and Transporter completes (c-e))

a. Transporter's Name and Address: BVC 1420 Glendon St Reading, Pa 19661	b. Phone: 610-372-6511
c. Driver Name (Print): <b>Gary Wendel</b>	d. Signature: <i>[Signature]</i> e. Date: <b>7-17-2014</b>

### III. DESTINATION (Generator complete IIIa-c and Destination Site completes III d-g)

a. Disposal Facility and Site Address: Conestoga Landfill 420 Quarry Road Morgantown, PA 19543	b. Phone: 717-264-0114	c. US EPA Number: PA0000016807	d. Discrepancy Indication Space: <b>24.67</b>
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I hereby certify that the above named material has been accepted and to the best of my knowledge the foregoing is true and accurate.

e. Name of Authorized Agent (Print): **[Signature]**  
f. Signature: *[Signature]*  
g. Date: **7-17-2014**

### IV. ASBESTOS (Generator completes IVa-f and Operator complete IVg-i)

a. Operator's Name and Address:	c. Responsible Agency Name and Address:
b. Phone:	d. Phone:
e. Special Handling Instructions and Additional Information:	

f. ☐ Friable ☐ Non-Friable ☐ Both % Friable % Non-Friable

OPERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked and labeled and are in all respects in proper condition for transport by highway according to applicable international and national governmental regulations.

g. Operator's Name and Title (Print)	h. Signature	i. Date
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\*Operator refers to the company which owns, leases, operates, controls, or supervises the facility being demolished or renovated, or the demolition or renovation operation or both.

CONESTOGA LF  
420 QUARRY ROAD

Morgantown, PA 19543 610-286-6844

**CUSTOMER**

042375  
AMERICAN WASTE OF NJ, LLC  
ONE AMERICAN WAY  
WARREN, OH 44485  
50811411403

**CUSTOMER COPY**

LICENSE:  
TYPE: Miscellaneous

SITE CL CELL 22X 60029

WEIGHMASTER Mike M.

Ticket 944733

DATE IN  
7/17/14 3:56 pm

DATE OUT  
7/17/14 4:12 pm

VEHICLE  
SPECIAL

CONTAINER

REFERENCE  
278

INVOICE

BILL OF LADING 34710

SCALE IN GROSS WEIGHT  
SCALE OUT TARE WEIGHT  
VEHICLE DESC SPECIAL WASTE

92,420  
43,080

NET TONS  
NET WEIGHT

24.67  
49,340

CONTAINER DESC

INBOUND

QTY.	UNIT.	DESCRIPTION	RATE.	EXTENSION.	TAX.	TOTAL
0.00	YD	TRACKING QTY				
24.67	TN	SW-CONT SOIL				

NEW JERSEY

NET AMOUNT

TENDERED

CHANGE

CHECK

5/31 DRIVER :

WEIGHMASTER



If waste is asbestos waste, complete Sections I, II, III and IV  
If waste is NOT asbestos waste, complete Sections I, II and III.

### I. GENERATOR (Generator completes Ia-r)

a. Generator's US EPA ID Number		b. Manifest Document Number <b>005</b>		c. Page 1 of	
d. Generator's Name and Location: US EPA Region II-MC Canfield and Sons 2890 Woodbridge Ave Edison, NJ 08837 Phone: 800-420-1470			e. Generator's Mailing Address: US EPA Region II-MC Canfield and Sons 2890 Woodbridge Ave Edison, NJ 08837 Phone: 800-420-1470		
f. If owner of the generating facility differs from the generator, provide:					
g. Owner's Name					
h. Owner's Phone No.					
i. Waste Profile #	j. Exp. Date	k. Waste Shipping Name and Description		l. Containers No.	m. Total Quantity
0081 1411403	7/10/2014	Metals Impacted Soils and Debris (Lead)		001 CM	EST 18
n. Unit Wt/Vol T					
<p>GENERATOR'S CERTIFICATION: I hereby certify that the above named material is not a hazardous waste as defined by 40 CFR 261 or any applicable state law, has been properly described, classified and packaged, and is in proper condition for transportation according to applicable regulations. AND, if this waste is a treatment residue of a previously regulated hazardous waste subject to the Land Disposal Restrictions, I certify and warrant that the waste has been treated in accordance with the requirements of 40 CFR 268 and is no longer a hazardous waste as defined by 40 CFR 261.</p>					
p. Generator Authorized Agent Name (Print)				q. Signature	r. Date

### II. TRANSPORTER (Generator completes IIa-b and Transporter completes IIc-e)

a. Transporter's Name and Address: DVC 1978 Clarks St READING PA 19601		
b. Phone	c. Driver Name (Print)	
610-372-6511	Garry W. H. L.	
d. Signature	e. Date	
[Signature]	07-18-2014	

### III. DESTINATION (Generator complete IIIa-c and Destination Site completes IIId-g)

a. Disposal Facility and Site Address: Conestoga Landfill 420 Quarry Road Morgantown, PA 15063 Phone: 412-238-0044		b. US EPA Number PA000016007	c. Discrepancy Indication Space 21-18
I hereby certify that the above named material has been accepted and to the best of my knowledge the foregoing is true and accurate.			
d. Name of Authorized Agent (Print)	e. Signature	f. Date	
[Signature]	[Signature]	7/18/14	

### IV. ASBESTOS (Generator completes IVa-f and Operator complete IVg-l)

a. Operator's Name and Address:		c. Responsible Agency Name and Address:	
b. Phone:		d. Phone:	
e. Special Handling Instructions and Additional Information:			
f. <input type="checkbox"/> Friable <input type="checkbox"/> Non-Friable <input type="checkbox"/> Both      % Friable      % Non-Friable			
OPERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked and labeled and are in all respects in proper condition for transport by highway according to applicable international and national governmental regulations.			
g. Operator's Name and Title (Print)		h. Signature	
i. Date		j. Date	
*Operator refers to the company which owns, leases, operates, controls, or supervises the facility being demolished or renovated, or the demolition or renovation operation or both.			

CONESTOGA, LE  
420 QUARRY ROAD  
Morgantown, PA 19543 610-286-6844

CUSTOMER  
042375

AMERICAN WASTE OF NJ, LLC  
ONE AMERICAN WAY  
WARREN, OH 44485

50811411403

SCALE IN GROSS WEIGHT 85,160 NET TONS  
SCALE OUT TARE WEIGHT 44,800 NET WEIGHT  
VEHICLE DESC: SPECIAL WASTE

**SCALEHOUSE COPY**

LICENSE:  
TYPE: Miscellaneous

SITE CL Cell 22X 77564

WEIGHMASTER Bruce E.

Ticket 944842

DATE IN 7/18/14 10:35 am DATE OUT 7/18/14 11:18 am

VEHICLE SPECIAL CONTAINER  
REFERENCE 278 126 INVOICE  
BILL OF LADING 34712

QTY.	UNIT.	DESCRIPTION	RATE.	EXTENSION.	TAX.	TOTAL
0.00	YD	TRACKING QTY				
20.18	TN	SW-CONT SOIL				

NEW JERSEY

NET AMOUNT  
TENDERED  
CHANGE  
CHECK

WEIGHMASTER

If waste is asbestos waste, complete Sections I, II, III, and IV.  
If waste is NOT asbestos waste, complete Sections I, II and III

### I. GENERATOR (Generator completes Ia-r)

a. Generator's US EPA ID Number		b. Manifest Document Number <b>006</b>		c. Page 1 of	
d. Generator's Name and Location: US EPA Region II-MC Canfield and Sons 2890 Woodbridge Ave. Edison, NJ 08837		e. Generator's Mailing Address: US EPA Region II-MC Canfield and Sons 2890 Woodbridge Ave. Edison, NJ 08837			
f. Phone:		g. Phone:			
h. Owner's Name:		i. Owner's Phone No.:			
j. Waste Profile # 5081.1411403		k. Exp. Date 7/10/2015	l. Waste Shipping Name and Description Metals Impacted Soils and Debris (lead)		m. Containers No. Type CM
					n. Total Quantity EST. 18
					o. Unit T

GENERATOR'S CERTIFICATION: I hereby certify that the above named material is not a hazardous waste as defined by 40 CFR 261 or any applicable state law, has been properly described, classified and packaged, and is in proper condition for transportation according to applicable regulations; AND, if this waste is a treatment residue of a previously restricted hazardous waste subject to the Land Disposal Restrictions, I certify and warrant that the waste has been treated in accordance with the requirements of 40 CFR 268 and is no longer a hazardous waste as defined by 40 CFR 261.

p. Generator Authorized Agent Name (Print): Chris Dondura	q. Signature: (Signature)	r. Date: 7-18-2014
--	------------------------------	-----------------------

### II. TRANSPORTER (Generator completes IIa-b and Transporter completes IIc-e)

a. Transporter's Name and Address: THOMAS YELK 1000 E. 10th St Piquette, MI		b. Phone: 508-372-6311
c. Driver Name (Print): THOMAS YELK	d. Signature: (Signature)	e. Date: 7-18-2014

### III. DESTINATION (Generator complete IIIa-c and Destination Site completes IIId-g)

a. Disposal Facility and Site Address: Conestoga Landfill 420 Quarry Road Morgantown, PA 15543	b. Phone:	c. US EPA Number: AC000016887	d. Discrepancy Indication Space: 0432
I hereby certify that the above named material has been accepted and to the best of my knowledge the foregoing is true and accurate.			
e. Name of Authorized Agent (Print): (Signature)	f. Signature: (Signature)	g. Date: 7/18/14	

### IV. ASBESTOS (Generator completes IVa-f and Operator complete IVg-i)

a. Operator's Name and Address:		c. Responsible Agency Name and Address:	
b. Phone:		d. Phone:	
e. Special Handling Instructions and Additional Information:			
f. <input type="checkbox"/> Friable <input type="checkbox"/> Non-Friable <input checked="" type="checkbox"/> Both % Friable % Non-Friable			
OPERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked and labeled and are in all respects in proper condition for transport by highway according to applicable international and national governmental regulations.			
g. Operator's Name and Title (Print):		i. Date:	
h. Signature:		i. Date:	

\*Operator refers to the company which owns, leases, operates, controls, or supervises the facility being demolished or renovated, or the demolition or renovation operation or both

CONESTOGA LF

420 QUARRY ROAD

Morgantown, PA 19543 610-286-6844

CUSTOMER  
042375

AMERICAN WASTE OF NJ, LLC  
ONE AMERICAN WAY  
WARREN, OH 44485

50811411403

SCALE IN

GROSS WEIGHT

87,660

NET TONS

24.32

SCALE OUT

TARE WEIGHT

39,020

NET WEIGHT

48,640

VEHICLE DESC: SPECIAL WASTE

CONTAINER DESC

SITE CL

Cell 22X 77564

WEIGHMASTER Bruce E.

Ticket 944843

DATE IN  
7/18/14 10:37 am

DATE OUT  
7/18/14 11:20 am

VEHICLE  
SPECIAL

CONTAINER

REFERENCE  
245 202

INVOICE

BILL OF LADING 34713

INBOUND

QTY. UNIT:

0.00 YD TRACKING QTY

24.32 TN SW-CONT SOIL

NEW JERSEY

DESCRIPTION

RATE.

EXTENSION.

TAX.

TOTAL

DRIVER:

WEIGHMASTER

NET AMOUNT  
TENDERED  
CHANGE  
CHECK

If waste is asbestos waste, complete Sections I, II, III and IV  
If waste is NOT asbestos waste, complete Sections I, II and III

### I. GENERATOR (Generator completes Ia-f)

a. Generator's US EPA ID Number		b. Manifest Document Number <b>008</b>		c. Page 1 of	
d. Generator's Name and Location: US EPA Region II-MC Canfield and Sons 2890 Woodbridge Ave. Edison, NJ 08837			e. Generator's Mailing Address: US EPA Region II-MC Canfield and Sons 2890 Woodbridge Ave Edison, NJ 08837		
f. Phone: 608-420-1470			g. Phone: 608-420-1470		
h. Owner's Name:			i. Owner's Phone No:		
j. Waste Profile #	k. Exp. Date	l. Waste Shipping Name and Description		m. Containers No. Type	n. Total Quantity
6081-1411403	7/10/2015	Metals Impacted Soils and Debris (road)		001 LM	FST 18 T
<p>GENERATOR'S CERTIFICATION: I hereby certify that the above named material is not a hazardous waste as defined by 40 CFR 261 or any applicable state law has been properly described, classified and packaged, and is in proper condition for transportation according to applicable regulations; AND, if this waste is a treatment residue of a previously restricted hazardous waste subject to the Land Disposal Restrictions, I certify and warrant that the waste has been treated in accordance with the requirements of 40 CFR 265 and is no longer a hazardous waste as defined by 40 CFR 261.</p>					
p. Generator Authorized Agent Name (Print)			q. Signature	r. Date	

### II. TRANSPORTER (Generator completes IIa-b and Transporter completes IIc-e)

a. Transporter's Name and Address		
b. Phone		
c. Driver Name (Print)	d. Signature	e. Date

### III. DESTINATION (Generator complete IIIa-c and Destination Site completes IIId-g)

a. Disposal Facility and Site Address:		b. US EPA Number	c. Discrepancy Indication Space
Conestoga Landfill 420 Quarry Road Morgantown, PA 15043		PA0000015467	1722
d. Phone:			
I hereby certify that the above named material has been accepted and to the best of my knowledge the foregoing is true and accurate.			
e. Name of Authorized Agent (Print)	f. Signature	g. Date	

### IV. ASBESTOS (Generator completes IVa-f and Operator complete IVg-i)

a. Operator's Name and Address:		c. Responsible Agency Name and Address:	
b. Phone:		d. Phone:	
e. Special Handling Instructions and Additional Information:			
f. <input type="checkbox"/> Friable <input type="checkbox"/> Non-Friable <input type="checkbox"/> Both      % Friable      % Non-Friable			
OPERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked and labeled and are in all respects in proper condition for transport by highway according to applicable international and national governmental regulations.			
g. Operator's Name and Title (Print)		h. Signature	
		i. Date	

\*Operator refers to the company which owns, leases, operates, controls, or supervises the facility being demolished or renovated, or the demolition or renovation operation or both

CONESTOGA LF

420 QUARRY ROAD

Morgantown, PP 19543 610-286-6844

CUSTOMER  
042375

AMERICAN WASTE OF NJ, LLC  
ONE AMERICAN WAY  
WARREN, OH 44485

50811411403

SCALE IN

GROSS WEIGHT

73,700

NET TONS

17.22

SCALE OUT

TARE WEIGHT

39,260

NET WEIGHT

34,440

VEHICLE DESC: SPECIAL WASTE

CONTAINER DESC

SITE CL

Cell 22X 60029

WEIGHMASTER IN - Mike M. OUT - Bruce E

Ticket 945050

DATE IN

7/21/14 10:00 am

DATE OUT

7/21/14 10:28 am

VEHICLE

SPECIAL

CONTAINER

REFERENCE  
245

INVOICE

BILL OF LADING 34687

INBOUND

QTY. UNIT.  
0.00 YD TRACKING QTY  
17.22 TN SW-CONT SOIL

NEW JERSEY

DESCRIPTION RATE EXTENSION TAX TOTAL

DRIVER:

WEIGHMASTER

NET AMOUNT  
TENDERED  
CHANGE  
CHECK



If waste is asbestos waste, complete Sections I, II, III and IV  
If waste is **NOT** asbestos waste, complete Sections I, II and III

### I. GENERATOR (Generator completes Ia-r)

a. Generator's US EPA ID Number		b. Manifest Document Number <b>009</b>		c. Page 1 of	
d. Generator's Name and Location: US EPA Region II-MC Canfield and Sons 2890 Woodbridge Ave Edison, NJ 08837			e. Generator's Mailing Address: US EPA Region II-MC Canfield and Sons 2890 Woodbridge Ave Edison, NJ 08837		
f. Phone: 732-440-4470			g. Phone: 732-440-4470		
h. Owner's Name:			i. Owner's Phone No.:		
j. Waste Profile # 5081-1411403	k. Exp. Date 7/10/2014	l. Waste Shipping Name and Description Metals Impacted Soils and Debris (Lead)		m. Containers No. Type 001 CM	n. Total Quantity FST 18 F
o. Unit WT/VOL T					

GENERATOR'S CERTIFICATION: I hereby certify that the above named material is not a hazardous waste as defined by 40 CFR 261 or any applicable state law, has been properly described, classified and packaged, and is in proper condition for transportation according to applicable regulations AND if this waste is a treatment residue of a previously restricted hazardous waste subject to the Land Disposal Restrictions, I certify and warrant that the waste has been treated in accordance with the requirements of 40 CFR 268 and is no longer a hazardous waste as defined by 40 CFR 261.

p. Generator Authorized Agent Name (Print) D. J. D. (Region 2)	q. Signature (Signature)	r. Date 7/2/2014
---	-----------------------------	---------------------

### II. TRANSPORTER (Generator completes IIa-b and Transporter completes IIc-e)

a. Transporter's Name and Address DUC 1400 Clarissa St Reading, Pa 19601		b. Phone 610-372-6511
c. Driver Name (Print) Bobby Winkler	d. Signature (Signature)	e. Date 7-21-14

### III. DESTINATION (Generator complete IIIa-c and Destination Site completes IIId-g)

a. Disposal Facility and Site Address: Consolida Landfill 400 Quarry Road Morgantown, PA 15043	b. Phone:	c. US EPA Number PA0000010887	d. Discrepancy Indication Space: 1547
---	-----------	----------------------------------	--

I hereby certify that the above named material has been accepted and to the best of my knowledge the foregoing is true and accurate.

e. Name of Authorized Agent (Print) (Signature)	f. Signature (Signature)	g. Date 7/2/14
--	-----------------------------	-------------------

### IV. ASBESTOS (Generator completes IVa-f and Operator complete IVg-j)

a. Operator's Name and Address:	c. Responsible Agency Name and Address:
b. Phone:	d. Phone:
e. Special Handling Instructions and Additional Information:	

f. ☐ Friable ☐ Non-Friable ☐ Both % Friable % Non-Friable

OPERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name, and are classified, packed, marked and labeled and are in all respects in proper condition for transport by highway according to applicable international and national governmental regulations.

g. Operator's Name and Title (Print)	h. Signature	i. Date
--------------------------------------	--------------	---------

\*Operator refers to the company which owns, leases, operates, controls, or supervises the facility being demolished or renovated, or the demolition or renovation operation or both.



CONESTOGA LF  
420 QUARRY ROAD

Morgantown, PA 19543 610-286-6844

CUSTOMER  
042375  
AMERICAN WASTE OF NJ, LLC  
ONE AMERICAN WAY  
WARREN, OH 44485  
50811411403

**CUSTOMER COPY**

LICENSE:  
TYPE: Miscellaneous

SITE CL CELL 22X 60029

WEIGHMASTER Mike M.

Ticket 945136

DATE IN 7/21/14 3:11 pm

DATE OUT 7/21/14 3:30 pm

VEHICLE  
SPECIAL

CONTAINER

REFERENCE  
278

INVOICE

BILL OF LADING 34688

SCALE IN GROSS WEIGHT  
SCALE OUT TARE WEIGHT  
VEHICLE DESC SPECIAL WASTE

75,720 NET TONS  
44,780 NET WEIGHT

15.47  
30,940  
CONTAINER DESC

INBOUND

QTY. UNIT.  
0.00 YD TRACKING QTY  
15.47 TN SW-CONT SOIL

DESCRIPTION RATE. EXTENSION. TAX. TOTAL

NEW JERSEY

NET AMOUNT

TENDERED

CHANGE

CHECK

3/31 DRIVER:

WEIGHMASTER

If waste is asbestos waste, complete Sections I, II, III and IV  
If waste is NOT asbestos waste, complete Sections I, II and III

### I. GENERATOR (Generator completes Ia-r)

a. Generator's US EPA ID Number	b. Manifest Document Number <b>010</b>	c. Page 1 of
d. Generator's Name and Location: US EPA Region II-MC Canfield and Sons 2890 Woodlawn Ave Edison, NJ 08837		e. Generator's Mailing Address: US EPA Region II-MC Canfield and Sons 2890 Woodlawn Ave Edison, NJ 08837
f. Phone: 800-420-4476	g. Phone: 800-420-4476	
h. Owner's Name: <b>MC Canfield and Sons</b>		
i. Owner's Phone No.: <b>800-420-4476</b>		

j. Waste Profile #	k. Exp. Date	l. Waste Shipping Name and Description	m. Containers No.	n. Total Quantity	o. Unit Wt/Vol
5081-1411403	7/10/2015	Metals Impacted Soils and Debris (Lead)	001 CM	18	T

GENERATOR'S CERTIFICATION: I hereby certify that the above named material is not a hazardous waste as defined by 40 CFR 261 or any applicable state law, has been properly described, classified and packaged, and is in proper condition for transportation according to applicable regulations; AND, if this waste is a treatment residue of a previously restricted hazardous waste subject to the Land Disposal Restrictions, I certify and warrant that the waste has been treated in accordance with the requirements of 40 CFR 268 and is no longer a hazardous waste as defined by 40 CFR 261.

p. Generator/Authorized Agent Name (Print): <b>Chris D. Canfield (RASC)</b>	q. Signature: <i>[Signature]</i>	r. Date: <b>7/21/14</b>
---	----------------------------------	-------------------------

### II. TRANSPORTER (Generator completes IIa-b and Transporter completes IIc-e)

a. Transporter's Name and Address: EMPIRE 1430 CLARION ST CLARION, PA	b. Phone: 814-324-6511
c. Driver Name (Print): <b>Thomas York</b>	d. Signature: <i>[Signature]</i>
e. Date: <b>7/21/14</b>	

### III. DESTINATION (Generator complete IIIa-c and Destination Site completes IIId-g)

a. Disposal Facility and Site Address: Conestoga Landfill 420 Quarry Road Morgantown, PA 15064	b. Phone:	c. US EPA Number: PA0000015287	d. Discrepancy Indication Space: <b>12.28</b>
I hereby certify that the above named material has been accepted and to the best of my knowledge the foregoing is true and accurate.			
e. Name of Authorized Agent (Print): <b>[Signature]</b>	f. Signature: <i>[Signature]</i>	g. Date: <b>7/22/14</b>	

### IV. ASBESTOS (Generator completes IVa-f and Operator complete IVg-i)

a. Operator's Name and Address:	c. Responsible Agency Name and Address:
b. Phone:	d. Phone:
e. Special Handling Instructions and Additional Information:	
f. <input type="checkbox"/> Friable <input type="checkbox"/> Non-Friable <input type="checkbox"/> Both % Friable % Non-Friable	
OPERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked and labeled and are in all respects in proper condition for transport by highway according to applicable international and national governmental regulations.	
g. Operator's Name and Title (Print):	h. Signature
i. Date	

\*Operator refers to the company which owns, leases, operates, controls, or supervises the facility being demolished or renovated, or the demolition or renovation operation or both

CONESTOGA LF  
420 QUARRY ROAD

Morgantown, PA 19543 610-286-6844

CUSTOMER  
042375  
AMERICAN WASTE OF NJ, LLC  
ONE AMERICAN WAY  
WARREN, OH 44485  
50811411403

**CUSTOMER COPY**

LICENSE:  
TYPE: Miscellaneous

SITE CL CELL 22X 60029  
WEIGHMASTER IN - Bruce E. OUT - Mike M.  
Ticket 945294  
DATE IN 7/22/14 12:49 pm DATE OUT 7/22/14 1:11 pm  
VEHICLE SPECIAL CONTAINER  
REFERENCE 267 INVOICE  
BILL OF LADING 34689

SCALE IN	GROSS WEIGHT	71,700	NET TONS	17.78	
SCALE OUT	TARE WEIGHT	36,140	NET WEIGHT	35,560	INBOUND
VEHICLE DESC	SPECIAL WASTE		CONTAINER DESC		

QTY.	UNIT.	DESCRIPTION	RATE.	EXTENSION.	TAX.	TOTAL
0.00	YD	TRACKING QTY				
17.78	TN	SW-CONT SOIL				
		NEW JERSEY				

NET AMOUNT

TENDERED

CHANGE

CHECK

5/31

DRIVER:

WEIGHMASTER

5081 - 34714

If waste is asbestos waste, complete Sections I, II, III and IV.  
If waste is NOT asbestos waste, complete Sections I, II and III

## I. GENERATOR (Generator completes I a-r)

a. Generator's US EPA ID Number		b. Manifest Document Number <b>003</b>		c. Page 1 of	
d. Generator's Name and Location: US EPA Region II-MC Canfield and Sons 2890 Woodbridge Ave Edison, NJ 08837			e. Generator's Mailing Address: US EPA Region II-MC Canfield and Sons 2890 Woodbridge Ave Edison, NJ 08837		
f. Phone: 609-420-1470			g. Phone: 609-420-1470		
If owner of the generating facility differs from the generator, provide:					
h. Owner's Name:			i. Owner's Phone No.:		
j. Waste Profile #	k. Exp. Date	l. Waste Shipping Name and Description	m. Containers No.	n. Total Quantity	o. Unit Wt/Vol
5081 1411403	7/10/2018	Metals Impacted Soils and Debris (LEADS)	001 CM	EST 18	T

GENERATOR'S CERTIFICATION: I hereby certify that the above named material is not a hazardous waste as defined by 40 CFR 261 or any applicable state law, has been properly described, classified and packaged, and is in proper condition for transportation according to applicable regulations; AND, if this waste is a treatment residue of a previously restricted hazardous waste subject to the Land Disposal Restrictions, I certify and warrant that the waste has been treated in accordance with the requirements of 40 CFR 268 and is no longer a hazardous waste as defined by 40 CFR 261.

p. Generator Authorized Agent Name (Print):	q. Signature:	r. Date:
C. S. Donofrio (USE Reg 2)	[Signature]	07-21-2018

## II. TRANSPORTER (Generator completes II a-b and Transporter completes II c-e)

a. Transporter's Name and Address: D/C 1420 Clancy St Reading, Pa 19601		
b. Phone: 610-372-6311		
c. Driver Name (Print):	d. Signature:	e. Date:
Gunn, [Signature]	[Signature]	07-21-2018

## III. DESTINATION (Generator complete III a-c and Destination Site completes III d-g)

a. Disposal Facility and Site Address: Cobleskill Landfill 420 Quarry Road Morgantown, PA 19643	b. Phone: 610-298-0111	c. US EPA Number: PA0000015867	d. Discrepancy Indication Space: 13.72
I hereby certify that the above named material has been accepted and to the best of my knowledge the foregoing is true and accurate.			
e. Name of Authorized Agent (Print):	f. Signature:	g. Date:	
[Signature]	[Signature]	5/21/18	

## IV. ASBESTOS (Generator completes IV a-f and Operator complete IV g-i)

a. Operator's Name and Address:		c. Responsible Agency Name and Address:	
b. Phone:		d. Phone:	
e. Special Handling Instructions and Additional Information:			
f. <input type="checkbox"/> Friable <input type="checkbox"/> Non-Friable <input type="checkbox"/> Both % Friable % Non-Friable			
OPERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked and labeled and are in all respects in proper condition for transport by highway according to applicable international and national governmental regulations.			
g. Operator's Name and Title (Print):		h. Signature:	
i. Date:		j. Date:	

\*Operator refers to the company which owns, leases, operates, controls, or supervises the facility being demolished or renovated, or the demolition or renovation operation or both

CONESTOGA LF  
420 QUARRY ROAD

Morgantown, PA 19543 610-286-6844

CUSTOMER  
042375  
AMERICAN WASTE OF NJ, LLC  
ONE AMERICAN WAY  
WARREN, OH 44485  
50811411403

**CUSTOMER COPY**

LICENSE:  
TYPE: Miscellaneous

SITE CL CELL 22X 60029

WEIGHMASTER Mike M.

Ticket 945037

DATE IN 7/21/14 9:22 am

DATE OUT 7/21/14 9:43 am

VEHICLE  
SPECIAL

CONTAINER

REFERENCE  
278

INVOICE

BILL OF LADING 34714

SCALE IN GROSS WEIGHT  
SCALE OUT TARE WEIGHT  
VEHICLE DESC SPECIAL WASTE

72,760  
45,320

NET TONS  
NET WEIGHT

13.72  
27,440

CONTAINER DESC

INBOUND

QTY.	UNIT.	DESCRIPTION	RATE.	EXTENSION.	TAX.	TOTAL
0.00	YD	TRACKING QTY				
13.72	TN	SW-CONT SOIL				
		NEW JERSEY				

NET AMOUNT

TENDERED

CHANGE

CHECK

3/31 DRIVER :

WEIGHMASTER

5081 - 34690

 If waste is asbestos waste, complete Sections I, II, III and IV  
 If waste is NOT asbestos waste, complete Sections I, II and III

**I. GENERATOR** (Generator completes Ia-f)

a. Generator's US EPA ID Number		b. Manifest Document Number 011		c. Page 1 of	
d. Generator's Name and Location: US EPA Region II-MC Canfield and Sons 2890 Woodbridge Ave Edison, NJ 08837			e. Generator's Mailing Address: US EPA Region II-MC Canfield and Sons 2890 Woodbridge Ave Edison, NJ 08837		
f. Phone: 609-420-1475			g. Phone: 609-420-1475		
h. Owner's Name:			i. Owner's Phone No.:		
j. Waste Profile # 6001-1411403	k. Exp. Date 7/10/2014	l. Waste Shipping Name and Description Metals Impacted Soil and Debris (Leach)		m. Containers No. Type 001 CM	n. Total Quantity 18
					o. Unit T
GENERATOR'S CERTIFICATION: I hereby certify that the above named material is not a hazardous waste as defined by 40 CFR 261 or any applicable state law, has been properly described, classified and packaged, and is in proper condition for transportation according to applicable regulations; AND, if this waste is a treatment residue of a previously restricted hazardous waste subject to the Land Disposal Restrictions, I certify and warrant that the waste has been treated in accordance with the requirements of 40 CFR 268 and is no longer a hazardous waste as defined by 40 CFR 261.					
p. Generator Authorized Agent Name (Print): CAL DONNELLY (R2 OSC)				r. Date: 7-22-2014	
q. Signature: [Signature]					

**II. TRANSPORTER** (Generator completes Ia-b and Transporter completes IIc-e)

a. Transporter's Name and Address: DVC 1425 Clayton St Camden, NJ 08101		
b. Phone: 610-372-6511		
c. Driver Name (Print): Gary Whetzel	d. Signature: [Signature]	e. Date: 7-22-2014

**III. DESTINATION** (Generator complete IIIa-c and Destination Site completes III d-g)

a. Disposal Facility and Site Address: Conestoga Landfill 420 Quarry Road Morgantown, PA 19543		b. Phone: 610-210-0014
c. US EPA Number: PA0000015867		d. Discrepancy Indication Space: 11.97
I hereby certify that the above named material has been accepted and to the best of my knowledge the foregoing is true and accurate.		
e. Name of Authorized Agent (Print): [Signature]	f. Signature: [Signature]	g. Date: 7/22/14

**IV. ASBESTOS** (Generator completes IVa-f and Operator complete IVg-i)

a. Operator's Name and Address:		c. Responsible Agency Name and Address:	
b. Phone:		d. Phone:	
e. Special Handling Instructions and Additional Information:			
f. <input type="checkbox"/> Friable <input type="checkbox"/> Non-Friable <input type="checkbox"/> Both % Friable % Non-Friable			
OPERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked and labeled and are in all respects in proper condition for transport by highway according to applicable international and national governmental regulations.			
g. Operator's Name and Title (Print):		i. Date:	
h. Signature:			
*Operator refers to the company which owns, leases, operates, controls, or supervises the facility being demolished or renovated, or the demolition or renovation operation or both			

CONESTOGA LF  
420 QUARRY ROAD

Morgantown, PA 19543 610-286-6844

CUSTOMER  
042375

AMERICAN WASTE OF NJ, LLC  
ONE AMERICAN WAY  
WARREN, OH 44485

50811411403

SCALE IN	GROSS WEIGHT	69,220
SCALE OUT	TARE WEIGHT	45,280

VEHICLE DESC: SPECIAL WASTE

**SCALEHOUSE COPY**

LICENSE:

TYPE: Miscellaneous

SITE CL Cell 22X 77564

WEIGHMASTER Bruce E.

Ticket 945213

DATE IN	DATE OUT
7/22/14 9:00 am	7/22/14 9:23 am

VEHICLE SPECIAL CONTAINER

REFERENCE  
278

INVOICE

BILL OF LADING 34690

NET TONS	11.97	INBOUND
NET WEIGHT	23,940	

CONTAINER DESC

QTY.	UNIT.	DESCRIPTION	RATE.	EXTENSION.	TAX.	TOTAL
0.00	YD	TRACKING QTY				
11.97	TN	SW-CONT SOIL				
		NEW JERSEY				

DRIVER:

WEIGHMASTER

NET AMOUNT  
TENDERED  
CHANGE  
CHECK



If waste is asbestos waste, complete Sections I, II, III and IV  
If waste is NOT asbestos waste, complete Sections I, II and III

Envine Trainers

**I. GENERATOR** (Generator completes I a-r)

a. Generator's US EPA ID Number		b. Manifest Document Number 012		c. Page 1 of 2	
d. Generator's Name and Location: US EPA Region II-MC Canfield and Sons 2800 Woodbridge Ave Edison, NJ 08837		e. Generator's Mailing Address: US EPA Region II-MC Canfield and Sons 2800 Woodbridge Ave Edison, NJ 08837			
f. Phone: 908-420-4476		g. Phone: 908-420-4476			
h. Owner's Name: i. Owner's Phone No.					
j. Waste Profile # 5081.1411403	k. Exp. Date 7/10/2013	l. Waste Shipping Name and Description Metals Impacted Soils and Debris (Lead)		m. Containers No. Type 001 LM 18	n. Total Quantity 18
o. Unit T					

GENERATOR'S CERTIFICATION: I hereby certify that the above named material is not a hazardous waste as defined by 40 CFR 261 or any applicable state law; has been properly described, classified and packaged, and is in proper condition for transportation according to applicable regulations. AND, if this waste is a treatment residue of a previously restricted hazardous waste subject to the Land Disposal Restrictions, I certify and warrant that the waste has been treated in accordance with the requirements of 40 CFR 268 and is no longer a hazardous waste as defined by 40 CFR 261.

p. Generator Authorized Agent Name (Print) C. P. D. D. D.	q. Signature (Signature)	r. Date 7-22-14
--	-----------------------------	--------------------

**II. TRANSPORTER** (Generator completes II a-b and Transporter completes II c-e)

a. Transporter's Name and Address: 1420 Clarion St Reading, PA 19601		b. Phone: 610-377-6511	
c. Driver Name (Print) C. P. D. D.	d. Signature (Signature)	e. Date 7-22-14	

**III. DESTINATION** (Generator complete III a-c and Destination Site completes III d-g)

a. Disposal Facility and Site Address: Conestoga Landfill 420 Quarry Road Morgantown, PA 15063	b. Phone	c. US EPA Number PA000001687	d. Discrepancy Indication Space: 17.60
I hereby certify that the above named material has been accepted and to the best of my knowledge the foregoing is true and accurate.			
e. Name of Authorized Agent (Print) (Signature)	f. Signature (Signature)	g. Date 7-22-14	

**IV. ASBESTOS** (Generator completes IV a-f and Operator complete IV g-i)

a. Operator's Name and Address:		c. Responsible Agency Name and Address:	
b. Phone:		d. Phone:	
e. Special Handling Instructions and Additional Information:			
f. <input type="checkbox"/> Friable <input type="checkbox"/> Non-Friable <input type="checkbox"/> Both % Friable % Non-Friable			
OPERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked and labeled and are in all respects in proper condition for transport by highway according to applicable international and national governmental regulations.			
g. Operator's Name and Title (Print)		h. Signature	
i. Date		j. Date	

\*Operator refers to the company which owns, leases, operates, controls, or supervises the facility being demolished or renovated, or the demolition or renovation operation or both

CONESTOGA LF  
420 QUARRY ROAD

Morgantown, PA 19543 610-286-6844

**CUSTOMER**

042375  
AMERICAN WASTE OF NJ, LLC  
ONE AMERICAN WAY  
WARREN, OH 44485  
50811411403

**CUSTOMER COPY**

**LICENSE:**

TYPE: Miscellaneous

SITE CL CELL 22X: 60029

WEIGHMASTER Mike M.

Ticket 945322

DATE IN  
7/22/14 2:12 pm

DATE OUT  
7/22/14 2:34 pm

VEHICLE  
SPECIAL

CONTAINER

REFERENCE  
278-126

INVOICE

BILL OF LADING 34691

SCALE IN GROSS WEIGHT  
SCALE OUT TARE WEIGHT  
VEHICLE DESC SPECIAL WASTE

79,700  
44,500

NET TONS  
NET WEIGHT

17.60  
35,200

CONTAINER DESC

INBOUND

QTY.	UNIT.	DESCRIPTION	RATE	EXTENSION	TAX	TOTAL
0.00	YD	TRACKING QTY				
17.60	TN	SW-CONT SOIL				
		NEW JERSEY				

NET AMOUNT

TENDERED

CHANGE

CHECK

5/31 DRIVER: WEIGHMASTER



## NON-HAZARDOUS SPECIAL WASTE &amp; ASBESTOS MANIFEST

5081 - 34692

If waste is asbestos waste, complete Sections I, II, III and IV  
If waste is NOT asbestos waste, complete Sections I, II and III

## I. GENERATOR (Generator completes Ia-r)

a. Generator's US EPA ID Number		b. Manifest Document Number 013		c. Page 1 of	
d. Generator's Name and Location: US EPA Region II-MC Canfield and Sons 2890 Woodbridge Ave. Edison, NJ 08837		e. Generator's Mailing Address: US EPA Region II-MC Canfield and Sons 2890 Woodbridge Ave Edison, NJ 08837			
f. Phone: 908-420-4476		g. Phone: 908-420-4476			
If owner of the generating facility differs from the generator, provide:					
h. Owner's Name:		i. Owner's Phone No.:			
j. Waste Profile #	k. Exp. Date	l. Waste Shipping Name and Description	m. Containers No. Type	n. Total Quantity	o. Unit Wt/Vol
6081-1411403	7/10/2014	Metals Impacted Soils and Debris (Lead)	001 em	18	T

GENERATOR'S CERTIFICATION: I hereby certify that the above named material is not a hazardous waste as defined by 40 CFR 261 or any applicable state law, has been properly described, classified and packaged, and is in proper condition for transportation according to applicable regulations. AND, if this waste is a treatment residue of a previously restricted hazardous waste subject to the Land Disposal Restrictions, I certify and warrant that the waste has been treated in accordance with the requirements of 40 CFR 268 and is no longer a hazardous waste as defined by 40 CFR 261.

Cris Donato (R-OSC, EPA) (2-881) 7/23/2014  
p. Generator Authorized Agent Name (Print) q. Signature r. Date

## II. TRANSPORTER (Generator completes IIa-b and Transporter completes IIc-e)

a. Transporter's Name and Address: DNC 1420 Clarion St Reading Pa 19601		b. Phone: 610-372-6511
c. Driver Name (Print) Cory W. H. 12-1	d. Signature	e. Date: 7/23-2014

## III. DESTINATION (Generator complete IIIa-c and Destination Site completes III d-g)

a. Disposal Facility and Site Address: Conestoga Landfill 420 Quarry Road Morgantown, PA 15064		c. US EPA Number: PA0000015487	d. Discrepancy Indication Space: 1573
b. Phone: 717-266-0111			
I hereby certify that the above named material has been accepted and to the best of my knowledge the foregoing is true and accurate.			
e. Name of Authorized Agent (Print)		f. Signature	g. Date: 7/23/14

## IV. ASBESTOS (Generator completes IVa-f and Operator complete IVg-i)

a. Operator's Name and Address:		c. Responsible Agency Name and Address:	
b. Phone:		d. Phone:	
e. Special Handling Instructions and Additional Information:			
f. <input type="checkbox"/> Friable <input type="checkbox"/> Non-Friable <input type="checkbox"/> Both % Friable % Non-Friable			
OPERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked and labeled and are in all respects in proper condition for transport by highway according to applicable international and national governmental regulations.			
g. Operator's Name and Title (Print)		h. Signature	
i. Date		j. Date	
*Operator refers to the company which owns, leases, operates, controls, or supervises the facility being demolished or renovated, or the demolition or renovation operation or both.			

CONESTOGA LF  
420 QUARRY ROAD

Morgantown, PA 19543 610-286-6844

**CUSTOMER**

042375  
AMERICAN WASTE OF NJ, LLC  
ONE AMERICAN WAY  
WARREN, OH 44485  
50811411403

**CUSTOMER COPY**

**LICENSE:**

**TYPE:** Miscellaneous

**SITE CL CELL 22X 77564**

**WEIGHMASTER IN - Bruce E. OUT - Mike M.**

**Ticket 945418**

**DATE IN**

7/23/14 8:55 am

**DATE OUT**

7/23/14 9:11 am

**VEHICLE  
SPECIAL**

**CONTAINER**

**REFERENCE  
278**

**INVOICE**

**BILL OF LADING 34692**

**SCALE IN GROSS WEIGHT**  
**SCALE OUT TARE WEIGHT**  
**VEHICLE DESC SPECIAL WASTE**

75,080  
43,620

**NET TONS**  
**NET WEIGHT**

15.73  
31,460

**CONTAINER DESC**

**INBOUND**

QTY.	UNIT.	
0.00	YD	TRACKING QTY
15.73	TN	SW-CONT SOIL

**DESCRIPTION**

**RATE.**

**EXTENSION.**

**TAX.**

**TOTAL**

NEW JERSEY

**NET AMOUNT**

**TENDERED**

**CHANGE**

**CHECK**

5/31 **DRIVER:**

**WEIGHMASTER**

If waste is asbestos waste, complete Sections I, II, III and IV  
 If waste is **NOT** asbestos waste, complete Sections I, II and III

**I. GENERATOR** (Generator completes Ia-r)

a. Generator's US EPA ID Number		b. Manifest Document Number <b>015</b>		c. Page 1 of	
d. Generator's Name and Location: US EPA Region II-MC Canfield and Sons 2890 Woodbridge Ave Edison, NJ 08837			e. Generator's Mailing Address: US EPA Region II-MC Canfield and Sons 2890 Woodbridge Ave Edison, NJ 08837		
f. Phone: <b>908-420-1479</b>			g. Phone: <b>908-420-1479</b>		
h. Owner's Name:			i. Owner's Phone No.:		
j. Waste Profile #	k. Exp. Date	l. Waste Shipping Name and Description	m. Containers No.	n. Total Quantity	o. Unit Wt/Vol
5081 1411403	7/10/2019	Metals Impacted Soils and Debris (Lead)	001 CM	18	T

**GENERATOR'S CERTIFICATION:** I hereby certify that the above named material is not a hazardous waste as defined by 40 CFR 261 or any applicable state law, has been properly described, classified and packaged, and is in proper condition for transportation according to applicable regulations; AND, if this waste is a treatment residue of a previously restricted hazardous waste subject to the Land Disposal Restrictions, I certify and warrant that the waste has been treated in accordance with the requirements of 40 CFR 268 and is no longer a hazardous waste as defined by 40 CFR 261.

p. Generator Authorized Agent Name (Print)	q. Signature	r. Date <b>7-24-14</b>
--	--------------	---------------------------

**II. TRANSPORTER** (Generator completes IIa-b and Transporter completes IIc-e)

a. Transporter's Name and Address: DVC 1420 E. Landon St Reading Pa 19601		b. Phone: <b>610-372-6511</b>
c. Driver Name (Print) <b>Gary White</b>	d. Signature	e. Date <b>7-24-2014</b>

**III. DESTINATION** (Generator complete IIIa-c and Destination Site completes IIId-g)

a. Disposal Facility and Site Address: Conestoga Landfill 420 Quarry Road Morgantown, PA 15443	b. Phone: <b>717-261-1111</b>	c. US EPA Number <b>PA000015007</b>	d. Discrepancy Indication Space: <b>15.50</b>
I hereby certify that the above named material has been accepted and to the best of my knowledge the foregoing is true and accurate.			
e. Name of Authorized Agent (Print) <b>Bruce</b>	f. Signature	g. Date <b>7-24-14</b>	

**IV. ASBESTOS** (Generator completes IVa-f and Operator complete IVg-i)

a. Operator's Name and Address:		c. Responsible Agency Name and Address:	
b. Phone:		d. Phone:	
e. Special Handling Instructions and Additional Information:			
f. <input type="checkbox"/> Friable <input type="checkbox"/> Non-Friable <input type="checkbox"/> Both % Friable % Non-Friable			
<b>OPERATOR'S CERTIFICATION:</b> I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked and labeled and are in all respects in proper condition for transport by highway according to applicable international and national governmental regulations.			
g. Operator's Name and Title (Print)		i. Date	
*Operator refers to the company which owns, leases, operates, controls, or supervises the facility being demolished or renovated, or the demolition or renovation operation or both			

CONESTOGA LF  
420 QUARRY ROAD

Morgantown, PA 19543 610-286-6844

CUSTOMER  
042375

AMERICAN WASTE OF NJ, LLC  
ONE AMERICAN WAY  
WARREN, OH 44485

50811411403

SCALE IN GROSS WEIGHT 75,180  
SCALE OUT TARE WEIGHT 44,180

VEHICLE DESC: SPECIAL WASTE

**SCALEHOUSE COPY**

LICENSE:  
TYPE: Miscellaneous

SITE CL Cell 22X 77564

WEIGHMASTER Bruce E.

Ticket 945621

DATE IN 7/24/14 9:05 am

VEHICLE  
SPECIAL

REFERENCE  
278 40

BILL OF LADING 34696

DATE OUT 7/24/14 9:25 am

CONTAINER

INVOICE

NET TONS 15.50  
NET WEIGHT 31,000  
CONTAINER DESC INBOUND

QTY.	UNIT.	DESCRIPTION	RATE.	EXTENSION.	TAX.	TOTAL
0.00	YD	TRACKING QTY				
15.50	TN	SW-CONT SOIL NEW JERSEY				

DRIVER:

WEIGHMASTER

NET AMOUNT  
TENDERED  
CHANGE  
CHECK





## NON-HAZARDOUS SPECIAL WASTE &amp; ASBESTOS MANIFEST

5081 - 34700

If waste is asbestos waste, complete Sections I, II, III and IV  
If waste is NOT asbestos waste, complete Sections I, II and III

## I. GENERATOR (Generator completes Ia-r)

a. Generator's US EPA ID Number		b. Manifest Document Number <b>016</b>		c. Page 1 of	
d. Generator's Name and Location: US EPA Region II-MC Canfield and Sons 2800 Woodbridge Ave Edison, NJ 08837		e. Generator's Mailing Address: US EPA Region II-MC Canfield and Sons 2800 Woodbridge Ave Edison, NJ 08837			
f. Phone: 609-420-4476		g. Phone: 609-420-4476			
If owner of the generating facility differs from the generator, provide:					
h. Owner's Name:		i. Owner's Phone No:			
j. Waste Profile # 5081.141.1403	k. Exp. Date 7/10/2013	l. Waste Shipping Name and Description Metals Impacted Soils and Debris (Lead)		m. Containers No. Type 001 CM	n. Total Quantity 18
				o. Unit Wt/Vol T	

GENERATOR'S CERTIFICATION: I hereby certify that the above named material is not a hazardous waste as defined by 40 CFR 261 or any applicable state law, has been properly described, classified and packaged, and is in proper condition for transportation according to applicable regulations; AND, if this waste is a treatment residue of a previously restricted hazardous waste subject to the Land Disposal Restrictions, I certify and warrant that the waste has been treated in accordance with the requirements of 40 CFR 268 and is no longer a hazardous waste as defined by 40 CFR 261.

US EPA ID (EPA ID) **PA000015867** Signature **[Signature]** Date **7/24/2014**

## II. TRANSPORTER (Generator completes IIa-b and Transporter completes IIc-e)

a. Transporter's Name and Address: D & C 1410 Clearview St Reading, Pa 19601		b. Phone: 610-371-6511	
c. Driver Name (Print): GARY W. DRAP		d. Signature: [Signature]	
		e. Date: 7/24-2014	

## III. DESTINATION (Generator complete IIIa-c and Destination Site completes IIId-g)

a. Disposal Facility and Site Address: Correstoga Landfill 420 Quarry Road Morgantown, PA 15043		c. US EPA Number: PA000015867		d. Discrepancy Indication Space: 11.65	
b. Phone: 717-263-0747					

I hereby certify that the above named material has been accepted and to the best of my knowledge the foregoing is true and accurate.

Signature **[Signature]** Date **7/24/2014**

## IV. ASBESTOS (Generator completes IVa-f and Operator complete IVg-i)

a. Operator's Name and Address:		c. Responsible Agency Name and Address:	
b. Phone:		d. Phone:	
e. Special Handling Instructions and Additional Information:			
f. <input type="checkbox"/> Friable <input type="checkbox"/> Non-Friable <input type="checkbox"/> Both % Friable % Non-Friable			
OPERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked and labeled and are in all respects in proper condition for transport by highway according to applicable international and national governmental regulations.			
g. Operator's Name and Title (Print):		h. Signature:	
		i. Date:	
*Operator refers to the company which owns, leases, operates, controls, or supervises the facility being demolished or renovated, or the demolition or renovation operation or both			



CONESTOGA LF  
420 QUARRY ROAD

Morgantown, PA 19543 610-286-6844

CUSTOMER  
042375

AMERICAN WASTE OF NJ, LLC  
ONE AMERICAN WAY  
WARREN, OH 44485  
50811411403

**CUSTOMER COPY**

LICENSE:  
TYPE: Miscellaneous

SITE CL CELL 22X 60029

WEIGHMASTER Mike M.

Ticket 945727

DATE IN  
7/24/14 2:14 pm

DATE OUT  
7/24/14 2:29 pm

VEHICLE  
SPECIAL

CONTAINER

REFERENCE  
278

INVOICE

BILL OF LADING 34700

SCALE IN GROSS WEIGHT  
SCALE OUT TARE WEIGHT  
VEHICLE DESC SPECIAL WASTE

66,620  
43,320

NET TONS  
NET WEIGHT

11.65  
23,300

INBOUND

CONTAINER DESC

QTY.	UNIT.	DESCRIPTION	RATE.	EXTENSION.	TAX.	TOTAL
0.00	YD	TRACKING QTY				
11.65	TN	SW-CONT SOIL				
		NEW JERSEY				

NET AMOUNT

TENDERED

CHANGE

CHECK

DRIVER :

WEIGHMASTER



## NON-HAZARDOUS SPECIAL WASTE &amp; ASBESTOS MANIFEST

5081 - 34698

If waste is asbestos waste, complete Sections I, II, III and IV  
If waste is NOT asbestos waste, complete Sections I, II and III

## I. GENERATOR (Generator completes Ia-r)

a. Generator's US EPA ID Number		b. Manifest Document Number 017		c. Page 1 of	
d. Generator's Name and Location US EPA Region II-MC Canfield and Sons 2800 Woodbridge Ave Edison, NJ 08837		e. Generator's Mailing Address US EPA Region II-MC Canfield and Sons 2800 Woodbridge Ave Edison, NJ 08837			
f. Phone: 732-421-1470		g. Phone: 732-421-1470			
If owner of the generating facility differs from the generator, provide:					
h. Owner's Name:		i. Owner's Phone No.:			
j. Waste Profile # 5081 1411403	k. Exp. Date 7/10/2015	l. Waste Shipping Name and Description Metals Impacted Soils and Debris (Lead)		m. Containers No. Type 001 CM	n. Total Quantity 18 T
o. Unit Wt/Vol					
GENERATOR'S CERTIFICATION: I hereby certify that the above named material is not a hazardous waste as defined by 40 CFR 261 or any applicable state law, has been properly described, classified and packaged, and is in proper condition for transportation according to applicable regulations; AND, if this waste is a treatment residue of a previously restricted hazardous waste subject to the Land Disposal Restrictions, I certify and warrant that the waste has been treated in accordance with the requirements of 40 CFR 268 and is no longer a hazardous waste as defined by 40 CFR 261.					
p. Generator/Authorized Agent Name (Print) Chris Donofrio (EPA05)		q. Signature <i>Chris Donofrio</i>		r. Date 7-25-2014	

## II. TRANSPORTER (Generator completes IIa-b and Transporter completes IIc-e)

a. Transporter's Name and Address DVC 1420 Clarian St Reading PA 19601		b. Phone: 610-372-6511	
c. Driver Name (Print) Gary Wentzel		d. Signature <i>Gary Wentzel</i>	
e. Date 7-25-2014			

## III. DESTINATION (Generator complete IIIa-c and Destination Site completes IIId-g)

a. Disposal Facility and Site Address Conestoga Landfill 420 Quarry Road Morgantown, PA 19643		c. US EPA Number PA0000016807	d. Discrepancy Indication Space 16.39
b. Phone: 717-261-1111			
I hereby certify that the above named material has been accepted and to the best of my knowledge the foregoing is true and accurate.			
e. Name of Authorized Agent (Print) Paul D		f. Signature <i>Paul D</i>	
g. Date 7-25-2014			

## IV. ASBESTOS (Generator completes IVa-f and Operator complete IVg-i)

a. Operator's Name and Address		c. Responsible Agency Name and Address:	
b. Phone:		d. Phone:	
e. Special Handling Instructions and Additional Information:			
f. <input type="checkbox"/> Friable <input type="checkbox"/> Non-Friable <input type="checkbox"/> Both % Friable % Non-Friable			
OPERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked and labeled and are in all respects in proper condition for transport by highway according to applicable international and national governmental regulations.			
g. Operator's Name and Title (Print)		h. Signature	
i. Date			
*Operator refers to the company which owns, leases, operates, controls, or supervises the facility being demolished or renovated, or the demolition or renovation operation or both			

CONESTOGA LF  
420 QUARRY ROAD

Morgantown, PA 19543 610-286-6844

CUSTOMER

042375  
AMERICAN WASTE OF NJ, LLC  
ONE AMERICAN WAY  
WARREN, OH 44485  
50811411403

CUSTOMER COPY

LICENSE:  
TYPE: Miscellaneous

SITE CL CELL 22X 77564

WEIGHMASTER IN - Bruce E. OUT - Mike M.

Ticket 945829

DATE IN  
7/25/14 8:55 am

DATE OUT  
7/25/14 9:11 am

VEHICLE  
SPECIAL

CONTAINER

REFERENCE  
278

INVOICE

BILL OF LADING 34698

SCALE IN GROSS WEIGHT  
SCALE OUT TARE WEIGHT  
VEHICLE DESC SPECIAL WASTE

76,560  
43,780

NET TONS  
NET WEIGHT

16.39  
32,780

INBOUND

CONTAINER DESC

QTY.	UNIT.	DESCRIPTION	RATE.	EXTENSION.	TAX.	TOTAL
0.00	YD	TRACKING QTY				
16.39	TN	SW-CONT SOIL				

NEW JERSEY

NET AMOUNT

TENDERED

CHANGE

CHECK

3/31

DRIVER:

WEIGHMASTER

**REPUBLIC**  
SERVICES**NON-HAZARDOUS SPECIAL WASTE & ASBESTOS MANIFEST**If waste is asbestos waste, complete Sections I, II, III and IV  
If waste is **NOT** asbestos waste, complete Sections I, II and III

5081 - 34958

**I. GENERATOR** (Generator completes I a-f)

a. Generator's US EPA ID Number		b. Manifest Document Number <b>018</b>		c. Page 1 of	
d. Generator's Name and Location US EPA Region II-MC Canfield and Sons 1 Commercial Lane Newark, NJ 07102		e. Generator's Mailing Address US EPA Region II-MC Canfield and Sons 2890 Woodbridge Ave Edison, NJ 08817			
f. Phone: 908-420-1475		g. Phone: 908-420-1475			
h. Owner's Name		i. Owner's Phone No.			
j. Waste Profile # 5081 1411403	k. Exp. Date 7/10/2019	l. Waste Shipping Name and Description Metals Impacted Soils and Debris (Lead)		m. Containers No. Type 001 CM	n. Total Quantity 18
				o. Unit T	
<b>GENERATOR'S CERTIFICATION:</b> I hereby certify that the above named material is not a hazardous waste as defined by 40 CFR 261 or any applicable state law, has been properly described, classified and packaged, and is in proper condition for transportation according to applicable regulations, AND, if this waste is a treatment residue of a previously restricted hazardous waste subject to the Land Disposal Restrictions, I certify and warrant that the waste has been treated in accordance with the requirements of 40 CFR 268 and is no longer a hazardous waste as defined by 40 CFR 261.					
p. Generator Authorized Agent Name (Print) CARL DONERAN (EPA OSC)		q. Signature <i>[Signature]</i>		r. Date 07-28-2019	

**II. TRANSPORTER** (Generator completes II a-b and Transporter completes II c-e)

a. Transporter's Name and Address 1420 Clarksburg READING PA 19601		b. Phone: 610-325-6511	
c. Driver Name (Print) GARY WILSON	d. Signature <i>[Signature]</i>	e. Date 07-28-2019	

**III. DESTINATION** (Generator complete III a-c and Destination Site completes III d-g)

a. Disposal Facility and Site Address Conestoga Landfill 420 Quarry Road		b. Phone: 610-281-1134	c. US EPA Number PA0000015397	d. Discrepancy Indication Space 19-46
I hereby certify that the above named material has been accepted and to the best of my knowledge the foregoing is true and accurate.				
e. Name of Authorized Agent (Print) BUTLER		f. Signature <i>[Signature]</i>		g. Date 7/28/19

**IV. ASBESTOS** (Generator completes IV a-f and Operator complete IV g-i)

a. Operator's Name and Address		c. Responsible Agency Name and Address	
b. Phone		d. Phone	
e. Special Handling Instructions and Additional Information			
f. <input type="checkbox"/> Friable <input type="checkbox"/> Non-Friable <input type="checkbox"/> Both % Friable % Non-Friable			
<b>OPERATOR'S CERTIFICATION:</b> I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked and labeled and are in all respects in proper condition for transport by highway according to applicable international and national governmental regulations.			
g. Operator's Name and Title (Print)		h. Signature	
i. Date			
*Operator refers to the company which owns, leases, operates, controls, or supervises the facility being demolished or renovated, or the demolition or renovation operation or both.			

CONESTOGA LF  
420 QUARRY ROAD

Morgantown, PA 19543 610-286-6844

**CUSTOMER**

042375  
AMERICAN WASTE OF NJ, LLC  
ONE AMERICAN WAY  
WARREN, OH 44485  
50811411403

**CUSTOMER COPY**

LICENSE:  
TYPE: Miscellaneous

SITE CL CELL 22X 77564

WEIGHMASTER IN - Bruce E. OUT - Mike M.

Ticket 946049

DATE IN  
7/28/14 9:06 am

DATE OUT  
7/28/14 9:41 am

VEHICLE  
SPECIAL

CONTAINER

REFERENCE  
278

INVOICE

BILL OF LADING 34958

SCALE IN GROSS WEIGHT  
SCALE OUT TARE WEIGHT  
VEHICLE DESC SPECIAL WASTE

83,160  
44,240

NET TONS  
NET WEIGHT

19.46  
38,920

INBOUND

CONTAINER DESC

QTY.	UNIT.	DESCRIPTION	RATE	EXTENSION.	TAX.	TOTAL
0.00	YD	TRACKING QTY				
19.46	TN	SW-CONT SOIL				
		NEW JERSEY				

NET AMOUNT

TENDERED

CHANGE

CHECK

5/31 DRIVER:

WEIGHMASTER

<b>NON-HAZARDOUS WASTE MANIFEST</b>		1. Generator ID Number	2. Page 1 of 1	3. Emergency Response Phone	4. Waste Tracking Number <div style="text-align: right; font-size: 1.2em;">019</div>
5. Generator's Name and Mailing Address <b>US EPA REGION II 2600 WOODBRIDGE AVENUE EDISON, NJ 08837</b>			Generator's Site Address (if different than mailing address) <b>19 C CANFIELD 1 CORNERSTONE LANE BETHLEHEM PA 18015</b>		
Generator's Phone: <b>908 440-4476</b>			U.S. EPA ID Number		
6. Transporter 1 Company Name			U.S. EPA ID Number		
7. Transporter 2 Company Name			U.S. EPA ID Number		
8. Designated Facility Name and Site Address <b>TESI BETHLEHEM 2335 APPLEBUTTEN ROAD BETHLEHEM PA 18015</b>					
Facility's Phone: <b>708 1662-0104</b>					
9. Waste Shipping Name and Description		10. Containers		11. Total Quantity, Unit Vol.	
		No.	Type	Quantity	Unit Vol.
1. Non Haz Non Regulated Soil & Debris		001	CM	231 18	T
2.					
3.					
4.					
13. Special Handling Instructions and Additional Information <b>LEAD: 49411 METALS IMPACTED SOIL &amp; DEBRIS #704</b> <b>APP 900 264</b>					
14. GENERATOR'S/OFFEROR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations.					
Generator's/Officer's Printed/Typed Name <b>Cris D Donato (EPA OSC)</b>		Signature <i>[Signature]</i>		Month Day Year <b>07/29/14</b>	
15. International Shipments <input type="checkbox"/> Import to U.S. <input type="checkbox"/> Export from U.S. Port of entry/exit: Date leaving U.S.					
16. Transporter Acknowledgment of Receipt of Materials					
Transporter 1 Printed/Typed Name <b>Gary W...</b>		Signature <i>[Signature]</i>		Month Day Year <b>07/29/14</b>	
Transporter 2 Printed/Typed Name		Signature		Month Day Year	
17. Discrepancy					
17a. Discrepancy Indication Space <input type="checkbox"/> Quantity <input type="checkbox"/> Type <input type="checkbox"/> Residue <input type="checkbox"/> Partial Rejection <input type="checkbox"/> Full Rejection					
17b. Alternate Facility (or Generator) Manifest Reference Number: U.S. EPA ID Number					
Facility's Phone: 17c. Signature of Alternate Facility (or Generator) Month Day Year					
18. Designated Facility Owner or Operator: Certification of receipt of materials covered by the manifest except as noted in Item 17a					
Printed/Typed Name <b>Donato</b>		Signature <i>[Signature]</i>		Month Day Year <b>07/29/14</b>	

OVERWEIGHT  
RETURN DATE 12345

GENERATOR  
TRANSPORTER  
DESIGNATED FACILITY

IESI PA BETHLEHEM LANDFILL CORP.  
2335 APPLEBUTTER RD. BETHLEHEM, PA 18015  
PH: (610) 317-3200 FAX: (610) 317-8799  
HOURS: M-F 7-4 / SAT 7-12

TICKET: 590707  
DATE: 07/29/2014  
TIME: 07:51-08:37

CUSTOMER: 2005 / American Waste Manageme  
1 American Way, Warren, OH 44484

P.O.:

GENERATOR: 704 / USEPA M. C. CANFIE PROFILE #: 704  
GRID: 4E/F-1  
TRUCK: DVC278 LICENSE: TEMP  
TRAILER: DVC40 MANIFEST: 019  
COMMENT:

Gross: 80660 LBS  
Tare: 43500 LBS  
Net: 37160 LBS

Origin	Wastes & Services	Quantity
NEW JERSEY	08 / CONTAMINATED SOIL	18.58 Tons

OVERWEIGHT  
2345  
RETURN DATE

DRIVER:

WEIGHMASTER:

PADEP IDs  
C: 16697  
T:  
K: Y3BM001303  
L: 2652128FRG

IN: DEE L RAISNER 058890 B: Beth-Pescale OUT: DEE L RAISNER 058890 B: Beth-Pescale

Customer Copy



GENERATOR

TRANSPORTER

DESIGNATED FACILITY

**NON-HAZARDOUS  
WASTE MANIFEST**

1. Generator ID Number

2. Page 1 of

3. Emergency Response Phone

4. Waste Tracking Number

020

5. Generator's Name and Mailing Address

Generator's Site Address (if different than mailing address)

US EPA REGION II

N C CARFIELD

2890 WOODBRIDGE AVENUE EDISON, NJ 08837

1 CORNERSTONE LANE

Generator's Phone: (201) 228-6475

DELRHIC DE 07103

6. Transporter 1 Company Name

U.S. EPA ID Number

7. Transporter 2 Company Name

U.S. EPA ID Number

**OVERWEIGHT**

8. Designated Facility Name and Site Address

U.S. EPA ID Number

**RETURN DATE Sat**

IESI BETHLEHEM

2235 APPLEBUTTER ROAD

BETHLEHEM PA 18015

**AUG 22 2014**

Facility's Phone: (201) 228-0104

9. Waste Shipping Name and Description

10. Containers

11. Total Quantity

12. Unit Wt/Vol.

No.

Type

1. Non-Haz Non-Regulated Soil & Debris

001

cm

EST

18

T

13. Special Handling Instructions and Additional Information

DID: 49411

DETRLS IMPACTED SOIL & DEBRIS

(LEAD)

IESI Profile # 704

# 704

APP 900254

14. GENERATOR'S/OFFEROR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations.

Generator/Offeror's Printed/Typed Name

Signature

Month Day Year

CRIS DONATRO (EPA OSC)

*CRIS DONATRO*

15. International Shipments

☐ Import to U.S.

☐ Export from U.S.

Port of entry/exit:

Transporter Signature (for exports only):

Date leaving U.S.:

16. Transporter Acknowledgment of Receipt of Materials

Transporter 1 Printed/Typed Name

Signature

Month Day Year

GRAN W...

*GRAN W...*

7 29 14

Transporter 2 Printed/Typed Name

Signature

Month Day Year

17. Discrepancy

17a. Discrepancy Indication Space

☐ Quantity

☐ Type

☐ Residue

☐ Partial Rejection

☐ Full Rejection

Manifest Reference Number:

17b. Alternate Facility (or Generator)

U.S. EPA ID Number

Facility's Phone:

17c. Signature of Alternate Facility (or Generator)

Month Day Year

18. Designated Facility Owner or Operator: Certification of receipt of materials covered by the manifest except as noted in Item 17a

Printed/Typed Name

Signature

Month Day Year

D. R. KAISER

*D. R. KAISER*

7 29 14

IESI PA BETHLEHEM LANDFILL CORP.  
2335 APPLEBUTTER RD. BETHLEHEM, PA 18015  
PH: (610) 317-3200 FAX: (610) 317-8799  
HOURS: M-F 7-4 / SAT 7-12

TICKET: 590769  
DATE: 07/29/2014  
TIME: 12:00-13:02

CUSTOMER: 2005 / AMERICAN WASTE MANAGEME  
1 AMERICAN WAY, WARREN, OH 44484

P.O.:

GENERATOR: 704 / USEPA M. C. CANFIE PROFILE #: 704  
GRID: 4E/F-1  
TRUCK: DVC278  
LICENSE: TEMP  
TRAILER:  
MANIFEST: 020  
COMMENT:

Gross: 81400 LBS  
Tare: 43200 LBS  
Net: 38120 LBS

Origin	Wastes & Services	Quantity
NEW JERSEY	08 / CONTAMINATED SOIL	19.06 Tons

OVERWEIGHT  
RETURN DATE SAT AUG. 2

DRIVER:

WEIGHMASTER:

PADEP IDs 2  
C: 16697  
T:  
K: Y3BM001303  
L:

IN: DEE L RAISNER 050890 B: Beth-Pcscale OUT: DEE L RAISNER 050890 B: Beth-Pcscale

Customer Copy

## CERTIFICATE OF DESTRUCTION

This document certifies that the contents transported by

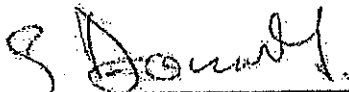
Delaware Valley Contractors Inc.  
(insert waste transporter name)

to IESI Bethlehem Landfill were disposed of on this date.  
To the knowledge of IESI Bethlehem Landfill, the contents  
disposed of were generated at the following facility

**M C CANFIELD PROJECT,  
NEWARK, NJ**

(insert waste generator's name)

A copy of the disposal transaction ticket is also attached for  
reference. The IESI Bethlehem Landfill is a permitted  
municipal waste disposal facility that operates under Permit  
No. 100020 issued by the Pennsylvania Department of  
Environmental Protection.

  
(signature)

Samuel J. Donato Jr.  
District Manager

7/29/14  
(date)



## NON-HAZARDOUS SPECIAL WASTE &amp; ASBESTOS MANIFEST

5081 - 34960

If waste is asbestos waste, complete Sections I, II, III and IV  
If waste is NOT asbestos waste, complete Sections I, II and III

## I. GENERATOR (Generator completes I a-f)

a. Generator's US EPA ID Number		b. Manifest Document Number		c. Page 1 of		
d. Generator's Name and Location: US EPA Region II MC Canfield and Sons Comerstone Lane Newark NJ 07102		e. Generator's Mailing Address: US EPA Region II MC Canfield and Sons 2890 Woodbridge Ave Edison NJ 08817				
f. Phone:		g. Phone:				
If owner of the generating facility differs from the generator, provide:		h. Owner's Name:				
h. Owner's Name:		i. Owner's Phone No.:				
Waste Profile #		k. Exp. Date	l. Waste Shipping Name and Description	m. Containers No.	n. Total Quantity	o. Unit Wt/Vol
5081 1411403	7/10/2013	Metal Impacted Soils and Debris (Lead)	001 CM	261 18	T	
GENERATOR'S CERTIFICATION: I hereby certify that the above named material is not a hazardous waste as defined by 40 CFR 261 or any applicable state law, has been properly described, classified and packaged, and is in proper condition for transportation according to applicable regulations. AND if this waste is a treatment residue of a previously restricted hazardous waste subject to the Land Disposal Restrictions, I certify and warrant that the waste has been treated in accordance with the requirements of 40 CFR 268 and is no longer a hazardous waste as defined by 40 CFR 261.						
p. Generator Authorized Agent Name (Print)		q. Signature		r. Date		

## II. TRANSPORTER (Generator completes II a-b and Transporter completes II c-e)

a. Transporter's Name and Address: DUC 1420 E 16th St Reading PA 19601		b. Phone:	
c. Driver Name (Print)		d. Signature	e. Date

## III. DESTINATION (Generator complete III a-c and Destination Site completes III d-g)

a. Disposal Facility and Site Address: Comerstone Landfill 420 Quarry Road Edison NJ 08817		c. US EPA Number	d. Discrepancy Indication Space:
b. Phone:			
I hereby certify that the above named material has been accepted and to the best of my knowledge the foregoing is true and accurate.			
e. Name of Authorized Agent (Print)		f. Signature	g. Date

## IV. ASBESTOS (Generator completes IV a-f and Operator complete IV g-i)

a. Operator's Name and Address:		c. Responsible Agency Name and Address:	
b. Phone:		d. Phone:	
e. Special Handling Instructions and Additional Information:			
f. <input type="checkbox"/> Friable <input type="checkbox"/> Non-Friable <input type="checkbox"/> Both % Friable % Non-Friable			
OPERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked and labeled and are in all respects in proper condition for transport by highway according to applicable international and national governmental regulations.			
g. Operator's Name and Title (Print)		h. Signature	
i. Date			
*Operator refers to the company which owns, leases, operates, controls, or supervises the facility being demolished or renovated, or the demolition or renovation operation or both			

CONESTOGA LF 420 QUARRY ROAD Morgantown, PA 19543 610-286-6844		SITE CL Cell 22X 77564 WEIGHMASTER Bruce E. Ticket 946369
CUSTOMER 042375 AMERICAN WASTE OF NJ, LLC ONE AMERICAN WAY WARREN, OH 44485 50811411403	<b>SCALEHOUSE COPY</b> LICENSE: TYPE: Miscellaneous	
	DATE IN 7/30/14 6:32 am VEHICLE SPECIAL REFERENCE 278 BILL OF LADING 34960	DATE OUT 7/30/14 6:55 am CONTAINER INVOICE
SCALE IN GROSS WEIGHT 76,580 SCALE OUT TARE WEIGHT 44,380 VEHICLE DESC: SPECIAL WASTE	NET TONS 16.10 NET WEIGHT 32,200 CONTAINER DESC	INBOUND

QTY.	UNIT.	DESCRIPTION	RATE.	EXTENSION.	TAX.	TOTAL
0.00	YD	TRACKING QTY				
16.10	TN	SW-CONT SOIL				
		NEW JERSEY				

DRIVER:

WEIGHMASTER

NET AMOUNT  
TENDERED  
CHANGE  
CHECK



## NON-HAZARDOUS SPECIAL WASTE &amp; ASBESTOS MANIFEST

5081 - 34991

If waste is asbestos waste, complete Sections I, II, III and IV  
If waste is NOT asbestos waste, complete Sections I, II and III

## I. GENERATOR (Generator completes I a-r)

a. Generator's US EPA ID Number		b. Manifest Document Number 022		c. Page 1 of	
d. Generator's Name and Location: US EPA Region II MC Canfield and Sons 1 Cornerstone Lane Newark, NJ 07103		e. Generator's Mailing Address: US EPA Region II MC Canfield and Sons 2880 Woodbridge Ave Edison, NJ 08837			
f. Phone: 908-420-4476		g. Phone: 908-420-4476			
h. Owner's Name:		i. Owner's Phone No.:			
j. Waste Profile #	k. Exp. Date	l. Waste Shipping Name and Description	m. Containers No. / Type	n. Total Quantity	o. Unit Wt/Vol
6001 1411403	7/10/2014	Mining Impacted Soils and Ucons (Lead)	200 / CM	257 / 18	T
GENERATOR'S CERTIFICATION: I hereby certify that the above named material is not a hazardous waste as defined by 40 CFR 261 or any applicable state law, has been properly described, classified and packaged, and is in proper condition for transportation according to applicable regulations; AND, if this waste is a treatment residue of a previously restricted hazardous waste subject to the Land Disposal Restrictions, I certify and warrant that the waste has been treated in accordance with the requirements of 40 CFR 268 and is no longer a hazardous waste as defined by 40 CFR 261.					
p. Generator Authorized Agent Name (Print) Chris D. O'Neil		q. Signature Chris D. O'Neil		r. Date 7-31-2014	

## II. TRANSPORTER (Generator completes II a-b and Transporter completes II c-e)

a. Transporter's Name and Address: DVC 1420 Clarks St Reading, Pa 19601		
b. Phone: 610-372-6111		
c. Driver Name (Print) Chris D. O'Neil	d. Signature Chris D. O'Neil	e. Date 7/31/14

## III. DESTINATION (Generator complete III a-c and Destination Site completes III d-g)

a. Disposal Facility and Site Address: Conestoga Landfill 420 Quarry Road		b. US EPA Number	c. Discrepancy Indication Space
b. Phone: 610-240-0844		1686	
I hereby certify that the above named material has been accepted and to the best of my knowledge the foregoing is true and accurate.			
e. Name of Authorized Agent (Print) Chris D. O'Neil		f. Signature Chris D. O'Neil	g. Date 7-31-14

## IV. ASBESTOS (Generator completes IV a-f and Operator complete IV g-i)

a. Operator's Name and Address:		c. Responsible Agency Name and Address:	
b. Phone:		d. Phone:	
e. Special Handling Instructions and Additional Information:			
f. <input type="checkbox"/> Friable <input type="checkbox"/> Non-Friable <input type="checkbox"/> Both % Friable % Non-Friable			
OPERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked and labeled and are in all respects in proper condition for transport by highway according to applicable international and national governmental regulations.			
g. Operator's Name and Title (Print)		h. Signature	
i. Date		j. Date	
Operator refers to the company which owns, leases, operates, controls, or supervises the facility being demolished or renovated, or the demolition or renovation operation or both.			

CONESTOGA LF 420 QUARRY ROAD Morgantown, PA 19543 610-286-6844		SITE CL CELL 22X 77564 WEIGHMASTER IN - Bruce E. OUT - Mike M. Ticket 946569	
CUSTOMER 042375 AMERICAN WASTE OF NJ, LLC ONE AMERICAN WAY WARREN, OH 44485 50811411403	<b>CUSTOMER COPY</b> LICENSE: TYPE: Miscellaneous		DATE IN 7/31/14 8:37 am VEHICLE SPECIAL REFERENCE 278 BILL OF LADING 34991
SCALE IN SCALE OUT VEHICLE DESC SPECIAL WASTE	GROSS WEIGHT TARE WEIGHT SPECIAL WASTE	77,320 43,600	NET TONS 16.86 NET WEIGHT 33,720 CONTAINER DESC
			INVOICE INBOUND

QTY.	UNIT.	DESCRIPTION	RATE.	EXTENSION.	TAX.	TOTAL
0.00	YD	TRACKING QTY				
16.86	TN	SW-CONT SOIL				
		NEW JERSEY				

NET AMOUNT  
 TENDERED  
 CHANGE  
 CHECK

5/31 DRIVER: WEIGHMASTER



If waste is asbestos waste, complete Sections I, II, III and IV  
If waste is NOT asbestos waste, complete Sections I, II and III

**I. GENERATOR (Generator completes Ia-r)**

a. Generator's US EPA ID Number		b. Manifest Document Number <b>023</b>		c. Page 1 of	
d. Generator's Name and Location: <b>US EPA Region II MC Canfield and Sons 1 Cornerstone Lane Newark, NJ 07103</b>			e. Generator's Mailing Address: <b>US EPA Region II MC Canfield and Sons 2890 Woodbridge Ave Edison, NJ 08837</b>		
f. Phone:			g. Phone:		
If owner of the generating facility differs from the generator, provide:			<b>008-420-4476</b>		
h. Owner's Name:			i. Owner's Phone No.:		
j. Waste Profile #	k. Exp. Date	l. Waste/Shipping Name and Description	m. Containers No.	n. Total Quantity	o. Unit Wt/Vol
<b>5081-1411403</b>	<b>7/10/2015</b>	<b>Metal Impacted Soils and Debris (Lead)</b>	<b>001 CM</b>	<b>EST 18</b>	<b>T</b>

GENERATOR'S CERTIFICATION: I hereby certify that the above named material is not a hazardous waste as defined by 40 CFR 261 or any applicable state law, has been properly described, classified and packaged, and is in proper condition for transportation according to applicable regulations. AND, if this waste is a treatment residue of a previously restricted hazardous waste subject to the Land Disposal Restrictions, I certify and warrant that the waste has been treated in accordance with the requirements of 40 CFR 268 and is no longer a hazardous waste as defined by 40 CFR 261.

p. Generator Authorized Agent Name (Print)	q. Signature	r. Date
<b>Chris D'Amico (EPA OSC)</b>	<i>[Signature]</i>	<b>7/31/14</b>

**II. TRANSPORTER (Generator completes IIa-b and Transporter completes IIc-e)**

a. Transporter's Name and Address: <b>DVC 10720 Clarendon Rd</b>		
b. Phone: <b>610-372-6511</b> <b>Reading Pa 19601</b>		
c. Driver Name (Print)	d. Signature	e. Date
<b>GARY WINTER</b>	<i>[Signature]</i>	<b>7/31/2014</b>

**III. DESTINATION (Generator complete IIIa-c and Destination Site completes IIId-g)**

a. Disposal Facility and Site Address: <b>Conestoga Landfill 420 Quarry Road</b>	b. Phone:	c. US EPA Number: <b>PA0100016887</b>	d. Discrepancy Indication Space: <b>1740</b>
I hereby certify that the above named material has been accepted and to the best of my knowledge the foregoing is true and accurate.			
e. Name of Authorized Agent (Print)	f. Signature	g. Date	
<b>[Signature]</b>	<i>[Signature]</i>	<b>7/31/14</b>	

**IV. ASBESTOS (Generator completes IVa-f and Operator complete IVg-i)**

a. Operator's Name and Address:		c. Responsible Agency Name and Address:	
b. Phone:		d. Phone:	
e. Special Handling Instructions and Additional Information:			
f. <input type="checkbox"/> Friable <input type="checkbox"/> Non-Friable <input type="checkbox"/> Both % Friable % Non-Friable			
OPERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked and labeled and are in all respects in proper condition for transport by highway according to applicable international and national governmental regulations.			
g. Operator's Name and Title (Print)		i. Date	
h. Signature		f. Date	
*Operator refers to the company which owns, leases, operates, controls, or supervises the facility being demolished or renovated, or the demolition or renovation operation of both			

CONESTOGA LF 420 QUARRY ROAD Morgantown, PA 19543 610-286-6844		SITE CL CELL 22X 60029 WEIGHMASTER Mike M. Ticket 946664	
CUSTOMER 042375 AMERICAN WASTE OF NJ, LLC ONE AMERICAN WAY WARREN, OH 44485 50811411403	<b>CUSTOMER COPY</b> LICENSE: TYPE: Miscellaneous		DATE IN 7/31/14 1:52 pm VEHICLE SPECIAL REFERENCE 278-210 BILL OF LADING 34992
SCALE IN SCALE OUT VEHICLE DESC SPECIAL WASTE	GROSS WEIGHT TARE WEIGHT	78,220 43,300	NET TONS 17.46 NET WEIGHT 34,920 CONTAINER DESC
			DATE OUT 7/31/14 2:13 pm CONTAINER INVOICE INBOUND

QTY.	UNIT.	DESCRIPTION	RATE.	EXTENSION.	TAX.	TOTAL
0.00	YD	TRACKING QTY				
17.46	TN	SW-CONT SOIL				
		NEW JERSEY				

NET AMOUNT  
 TENDERED  
 CHANGE  
 CHECK

5/31 DRIVER : WEIGHMASTER

If waste is asbestos waste, complete Sections I, II, III and IV  
If waste is NOT asbestos waste, complete Sections I, II and III

5081 - 34993

## I. GENERATOR (Generator completes Ia-r)

a. Generator's US EPA ID Number		b. Manifest Document Number <b>024</b>		c. Page 1 of	
d. Generator's Name and Location: US EPA Region II-MC Canfield and Sons 1 Cornerstone Lane Newark, NJ 07103			e. Generator's Mailing Address: US EPA Region II-MC Canfield and Sons 2880 Woodbridge Ave Edison, NJ 08837		
f. Phone: 908-420-4475			g. Phone: 908-420-4475		
If owner of the generating facility differs from the generator, provide:					
h. Owner's Name:			i. Owner's Phone No.:		
j. Waste Profile #	k. Exp. Date	l. Waste Shipping Name and Description	m. Containers No.	n. Total Quantity	o. Unit Wt/Vol
5081 1411403	7/10/2015	Metals Impacted Soils and Debris (Lead)	001 CM	25T 18	T
GENERATOR'S CERTIFICATION: I hereby certify that the above named material is not a hazardous waste as defined by 40 CFR 261 or any applicable state law, has been properly described, classified and packaged, and is in proper condition for transportation according to applicable regulations; AND, if this waste is a treatment residue of a previously restricted hazardous waste subject to the Land Disposal Restrictions. I certify and warrant that the waste has been treated in accordance with the requirements of 40 CFR 268 and is no longer a hazardous waste as defined by 40 CFR 261.					
p. Generator Authorized Agent Name (Print) Chris D'Onofrio (EPA 08)			q. Signature <i>Chris D'Onofrio</i>		r. Date 08-01-2014

## II. TRANSPORTER (Generator completes IIa-b and Transporter completes IIc-e)

a. Transporter's Name and Address: DVC 1420 Clarion ST Reading Pa 19601		
b. Phone: 610-372-6511		
c. Driver Name (Print) Gary Wenzel	d. Signature <i>Gary Wenzel</i>	e. Date 08-01-2014

## III. DESTINATION (Generator complete IIIa-c and Destination Site completes IIId-g)

a. Disposal Facility and Site Address: Conestoga Landfill 420 Quarry Road Morgantown, PA 15061		c. US EPA Number PA0000015867	d. Discrepancy Indication Space: 18.30
b. Phone: 717-266-0044			
I hereby certify that the above named material has been accepted and to the best of my knowledge the foregoing is true and accurate.			
e. Name of Authorized Agent (Print) <i>[Signature]</i>		f. Signature <i>[Signature]</i>	g. Date 8/1/2014

## IV. ASBESTOS (Generator completes IVa-f and Operator complete IVg-i)

a. Operator's Name and Address:		c. Responsible Agency Name and Address:	
b. Phone:		d. Phone:	
e. Special Handling Instructions and Additional Information:			
f. <input type="checkbox"/> Friable <input type="checkbox"/> Non-Friable <input type="checkbox"/> Both % Friable % Non-Friable			
OPERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked and labeled and are in all respects in proper condition for transport by highway according to applicable international and national governmental regulations.			
g. Operator's Name and Title (Print)		h. Signature	
		i. Date	
*Operator refers to the company which owns, leases, operates, controls, or supervises the facility being demolished or renovated, or the demolition or renovation operation or both			

CONESTOGA LF  
420 QUARRY ROAD

Morgantown, PA 19543 610-286-6844

**CUSTOMER**

042375

AMERICAN WASTE OF NJ, LLC

ONE AMERICAN WAY

WARREN, OH 44485

50811411403

SCALE IN

**GROSS WEIGHT**

81,140

**NET TONS**

18.30

SCALE OUT

**TARE WEIGHT**

44,540

**NET WEIGHT**

36,600

**VEHICLE DESC** SPECIAL WASTE

**CUSTOMER COPY**

**LICENSE:**

**TYPE:** Miscellaneous

**SITE CL CELL** 22X 77564

**WEIGHMASTER** IN - Bruce E. OUT - Mike M.

**Ticket** 946751

**DATE IN**  
8/1/14 8:37 am

**DATE OUT**  
8/1/14 8:55 am

**VEHICLE**  
SPECIAL

**CONTAINER**

**REFERENCE**  
278

**INVOICE**

**BILL OF LADING** 34993

**CONTAINER DESC**

**INBOUND**

**QTY. UNIT.**  
0.00 YD TRACKING QTY  
18.30 TN SW-CONT SOIL

**DESCRIPTION**

**RATE**

**EXTENSION**

**TAX**

**TOTAL**

NEW JERSEY

**NET AMOUNT**

**TENDERED**

**CHANGE**

**CHECK**

3/31 **DRIVER:**

**WEIGHMASTER**

**5081 - 34962**

 If waste is asbestos waste, complete Sections I, II, III and IV  
 If waste is NOT asbestos waste, complete Sections I, II and III

**I. GENERATOR (Generator completes Ia-r)**

a. Generator's US EPA ID Number		b. Manifest Document Number <b>026</b>		c. Page 1 of	
d. Generator's Name and Location: <b>US EPA Region II-MC Canfield and Sons 1 Cornerstone Lane Newark, NJ 07103</b>			e. Generator's Mailing Address: <b>US EPA Region II-MC Canfield and Sons 2890 Woodbridge Ave Edison, NJ 08837</b>		
f. Phone: <b>908-420-4476</b>			g. Phone: <b>908-420-4476</b>		
h. Owner's Name:			i. Owner's Phone No.:		
j. Waste Profile #	k. Exp. Date	l. Waste Shipping Name and Description	m. Containers No.	n. Total Quantity	o. Unit Wt/Vol
<b>5081 1411403</b>	<b>7/10/2013</b>	<b>Metals Impacted Soils and Debris (Lead)</b>	<b>201 CM</b>	<b>EST 18</b>	<b>T</b>

GENERATOR'S CERTIFICATION: I hereby certify that the above named material is not a hazardous waste as defined by 40 CFR 261 or any applicable state law, has been properly described, classified and packaged, and is in proper condition for transportation according to applicable regulations; AND, if this waste is a treatment residue of a previously restricted hazardous waste subject to the Land Disposal Restrictions. I certify and warrant that the waste has been treated in accordance with the requirements of 40 CFR 268 and is no longer a hazardous waste as defined by 40 CFR 261.

p. Generator Authorized Agent Name (Print) <b>Car. Donadio (EPA OSC)</b>	q. Signature <i>[Signature]</i>	r. Date <b>8-9-14</b>
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**II. TRANSPORTER (Generator completes IIa-b and Transporter completes IIc-e)**

a. Transporter's Name and Address: <b>DVC 1420 Clarion St READING Pa 19601</b>		
b. Phone:		
c. Driver Name (Print) <b>GARY WINTER</b>	d. Signature <i>[Signature]</i>	e. Date <b>8-9-14</b>

**III. DESTINATION (Generator complete IIIa-c and Destination Site completes IIId-g)**

a. Disposal Facility and Site Address: <b>Conestoga Landfill 428 Quarry Road 610-288-8844</b>	b. Phone:	c. US EPA Number <b>PA0000016887</b>	d. Discrepancy Indication Space: <b>18.54</b>
I hereby certify that the above named material has been accepted and to the best of my knowledge the foregoing is true and accurate.			
e. Name of Authorized Agent (Print) <i>[Signature]</i>	f. Signature <i>[Signature]</i>	g. Date <b>8/4/14</b>	

**IV. ASBESTOS (Generator completes IVa-f and Operator complete IVg-i)**

a. Operator's Name and Address:		c. Responsible Agency Name and Address:	
b. Phone:		d. Phone:	
e. Special Handling Instructions and Additional Information:			
f. <input type="checkbox"/> Friable <input type="checkbox"/> Non-Friable <input type="checkbox"/> Both % Friable % Non-Friable			
OPERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked and labeled and are in all respects in proper condition for transport by highway according to applicable International and national governmental regulations.			
g. Operator's Name and Title (Print)		h. Signature	
		i. Date	
*Operator refers to the company which owns, leases, operates, controls, or supervises the facility being demolished or renovated, or the demolition or renovation operation or both			

CONESTOGA LF  
420 QUARRY ROAD  
Morgantown, PA 19543 610-286-6844

SITE CL Cell 22X 77564  
WEIGHMASTER Bruce E.

Ticket 947032

DATE IN 8/4/14 2:38 pm DATE OUT 8/4/14 2:59 pm  
CONTAINER

VEHICLE  
SPECIAL  
REFERENCE  
278

BILL OF LADING 34962

INVOICE

CUSTOMER  
042375

AMERICAN WASTE OF NJ, LLC  
ONE AMERICAN WAY  
WARREN, OH 44485

50811411403

SCALE IN GROSS WEIGHT 80,480  
SCALE OUT TARE WEIGHT 43,400  
VEHICLE DESC: SPECIAL WASTE

### SCALEHOUSE COPY

LICENSE:  
TYPE: Miscellaneous

NET TONS 18.54  
NET WEIGHT 37,080  
CONTAINER DESC

INBOUND

QTY. UNIT.

0.00 YD TRACKING QTY  
18.54 TN SW-CONT SOIL

DESCRIPTION	RATE	EXTENSION	TAX	TOTAL
-------------	------	-----------	-----	-------

NEW JERSEY

DRIVER:

WEIGHMASTER

NET AMOUNT  
TENDERED  
CHANGE  
CHECK



## NON-HAZARDOUS SPECIAL WASTE &amp; ASBESTOS MANIFEST

If waste is asbestos waste, complete Sections I, II, III and IV  
If waste is NOT asbestos waste, complete Sections I, II and III

5081 - 34963

## I. GENERATOR (Generator completes Ia-r)

a. Generator's US EPA ID Number		b. Manifest Document Number 025		c. Page 1 of	
d. Generator's Name and Location: US EPA Region II-MC Canfield and Sons 1 Cornerstone Lane Newark, NJ 07103			e. Generator's Mailing Address: US EPA Region II-MC Canfield and Sons 2890 Woodbridge Ave Edison, NJ 08837		
f. Phone:			g. Phone:		
If owner of the generating facility is not the generator, provide:			908-420-4475		
h. Owner's Name:			i. Owner's Phone No.:		
j. Waste Profile #	k. Exp. Date	l. Waste Shipping Name and Description	m. Containers No.	n. Total Quantity	o. Unit
6081 1411403	7/10/2015	Metals Impacted Soils and Debris (Lead)	001 CM	18	T
GENERATOR'S CERTIFICATION: I hereby certify that the above named material is not a hazardous waste as defined by 40 CFR 261 or any applicable state law, has been properly described, classified and packaged, and is in proper condition for transportation according to applicable regulations; AND, if this waste is a treatment residue of a previously restricted hazardous waste subject to the Land Disposal Restrictions. I certify and warrant that the waste has been treated in accordance with the requirements of 40 CFR 268 and is no longer a hazardous waste as defined by 40 CFR 261.					
p. Generator Authorized Agent Name (Print) CRIS D'ONOFRIO (EPA OSC)			q. Signature		r. Date 8-9-14

## II. TRANSPORTER (Generator completes IIa-b and Transporter completes IIc-e)

a. Transporter's Name and Address: DUC 1420 Clavon ST READING PA 19601		
b. Phone:		
c. Driver Name (Print) GARY WANKEL	d. Signature	e. Date 8-4-12

## III. DESTINATION (Generator complete IIIa-c and Destination Site completes IIId-g)

a. Disposal Facility and Site Address: Conestoga Landfill 420 Quarry Road Morgantown PA 15063		c. US EPA Number PA0000015887	d. Discrepancy Indication Space: 15.54
b. Phone:			
I hereby certify that the above named material has been accepted and to the best of my knowledge the foregoing is true and accurate.			
e. Name of Authorized Agent (Print) GARY WANKEL		f. Signature	g. Date 8/4/14

## IV. ASBESTOS (Generator completes IVa-f and Operator complete IVg-i)

a. Operator's Name and Address:		c. Responsible Agency Name and Address:	
b. Phone:		d. Phone:	
e. Special Handling Instructions and Additional Information:			
f. <input type="checkbox"/> Friable <input type="checkbox"/> Non-Friable <input type="checkbox"/> Both % Friable % Non-Friable			
OPERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked and labeled and are in all respects in proper condition for transport by highway according to applicable international and national governmental regulations.			
g. Operator's Name and Title (Print)		h. Signature	
i. Date		i. Date	
*Operator refers to the company which owns, leases, operates, controls, or supervises the facility being demolished or renovated, or the demolition or renovation operation or both			



CONESTOGA LF 420 QUARRY ROAD Morgantown, PA 19543 610-286-6844		SITE CL Cell 22X 77564 WEIGHMASTER Bruce E. Ticket 946951
CUSTOMER 042375 AMERICAN WASTE OF NJ, LLC ONE AMERICAN WAY WARREN, OH 44485 50811411403	<b>SCALEHOUSE COPY</b> LICENSE: TYPE: Miscellaneous	
SCALE IN SCALE OUT VEHICLE DESC: SPECIAL WASTE	GROSS WEIGHT 74,760 TARE WEIGHT 43,680	DATE IN 8/4/14 8:54 am VEHICLE SPECIAL REFERENCE 278 BILL OF LADING 34963 NET TONS 15.54 NET WEIGHT 31,080 CONTAINER DESC
		DATE OUT 8/4/14 9:20 am CONTAINER INVOICE INBOUND

QTY.	UNIT.	DESCRIPTION	RATE.	EXTENSION.	TAX.	TOTAL
0.00	YD	TRACKING QTY				
15.54	TN	SW-CONT SOIL				
		NEW JERSEY				

DRIVER:

WEIGHMASTER

NET AMOUNT  
TENDERED  
CHANGE  
CHECK

If waste is asbestos waste, complete Sections I, II, III and IV  
 If waste is **NOT** asbestos waste, complete Sections I, II and III

5081 - 34961

**I. GENERATOR** (Generator completes Ia-r)

a. Generator's US EPA ID Number		b. Manifest Document Number <b>027</b>		c. Page 1 of	
d. Generator's Name and Location: <b>US EPA Region II-MC Canfield and Sons 1 Cornerstone Lane Newark, NJ 07103</b>			e. Generator's Mailing Address: <b>US EPA Region II-MC Canfield and Sons 2880 Woodbridge Ave Edison, NJ 08837</b>		
f. Phone: <b>908-420-4475</b>			g. Phone: <b>908-420-4475</b>		
If owner of the generating facility is not the generator, provide:					
h. Owner's Name:			i. Owner's Phone No.:		
j. Waste Profile #	k. Exp. Date	l. Waste Shipping Name and Description	m. Containers No.	n. Total Quantity	o. Unit Wt/Vol
5081 1411403	7/10/2015	Metals Impacted Soils and Debris (Lead)	001 CM	21.23	T
GENERATOR'S CERTIFICATION: I hereby certify that the above named material is not a hazardous waste as defined by 40 CFR 261 or any applicable state law, has been properly described, classified and packaged, and is in proper condition for transportation according to applicable regulations; AND, if this waste is a treatment residue of a previously restricted hazardous waste subject to the Land Disposal Restrictions, I certify and warrant that the waste has been treated in accordance with the requirements of 40 CFR 261 and is no longer a hazardous waste as defined by 40 CFR 261.					
p. Generator Authorized Agent Name (Print) <b>CRIS D'ONOFRA (OSC)</b>			q. Signature <i>[Signature]</i>		r. Date <b>8-5-14</b>

**II. TRANSPORTER** (Generator completes IIa-b and Transporter completes IIc-e)

a. Transporter's Name and Address: <b>DUC 1420 Clarion St Reading Pa 19601</b>		
b. Phone: <b>610-372-6511</b>		
c. Driver Name (Print) <b>Gary W. [Signature]</b>	d. Signature <i>[Signature]</i>	e. Date <b>8-5-14</b>

**III. DESTINATION** (Generator complete IIIa-c and Destination Site completes IIId-g)

a. Disposal Facility and Site Address: <b>Conestoga Landfill 420 Quarry Road</b>		c. US EPA Number <b>PA0000015887</b>	d. Discrepancy Indication Space:
b. Phone: <b>610-208-6844</b>			
I hereby certify that the above named material has been accepted and to the best of my knowledge the foregoing is true and accurate.			
e. Name of Authorized Agent (Print) <b>R. [Signature]</b>	f. Signature <i>[Signature]</i>	g. Date <b>8/5/14</b>	

**IV. ASBESTOS** (Generator completes IVa-f and Operator complete IVg-i)

a. Operator's Name and Address:		c. Responsible Agency Name and Address:	
b. Phone:		d. Phone:	
e. Special Handling Instructions and Additional Information:			
f. <input type="checkbox"/> Friable <input type="checkbox"/> Non-Friable <input type="checkbox"/> Both % Friable % Non-Friable			
OPERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked and labeled and are in all respects in proper condition for transport by highway according to applicable international and national governmental regulations.			
g. Operator's Name and Title (Print)		h. Signature	
		i. Date	
*Operator refers to the company which owns, leases, operates, controls, or supervises the facility being demolished or renovated, or the demolition or renovation operation or both			

CONESTOGA LF  
420 QUARRY ROAD

Morgantown, PA 19543 610-286-6844

**CUSTOMER**

042375

AMERICAN WASTE OF NJ, LLC

ONE AMERICAN WAY

WARREN, OH 44485

50811411403

SCALE IN

GROSS WEIGHT

86,440

NET TONS

21.23

SCALE OUT

TARE WEIGHT

43,980

NET WEIGHT

42,460

VEHICLE DESC SPECIAL WASTE

**CUSTOMER COPY**

LICENSE:

TYPE: Miscellaneous

SITE CL CELL 22X 77564

WEIGHMASTER Karyn F.

Ticket 947109

DATE IN 8/5/14 9:25 am

DATE OUT 8/5/14 9:45 am

VEHICLE SPECIAL

CONTAINER

REFERENCE 278

INVOICE

BILL OF LADING 34961

CONTAINER DESC

INBOUND

QTY.	UNIT.	
0.00	YD	TRACKING QTY
21.23	TN	SW-CONT SOIL

DESCRIPTION	RATE	EXTENSION	TAX	TOTAL
-------------	------	-----------	-----	-------

NEW JERSEY

NET AMOUNT

TENDERED

CHANGE

CHECK

3/31 DRIVER :

WEIGHMASTER

If waste is asbestos waste, complete Sections I, II, III and IV  
If waste is **NOT** asbestos waste, complete Sections I, II and III

5081 - 34968

## I. GENERATOR (Generator completes Ia-r)

a. Generator's US EPA ID Number		b. Manifest Document Number <b>028</b>		c. Page 1 of	
d. Generator's Name and Location: US EPA Region II-MC Canfield and Sons 1 Cornerstone Lane Newark, NJ 07103			e. Generator's Mailing Address: US EPA Region II-MC Canfield and Sons 2890 Woodbridge Ave Edison, NJ 08837		
f. Phone: 908-420-4476			g. Phone: 908-420-4476		
If owner of the generating facility differs from the generator, provide:					
h. Owner's Name:			i. Owner's Phone No.:		
j. Waste Profile #	k. Exp. Date	l. Waste Shipping Name and Description	m. Containers No.	n. Total Quantity	o. Unit Wt/Vol
5081 1411403	7/10/2015	Metals Impacted Soils and Debris (Lead)	001 CM	18	T

GENERATOR'S CERTIFICATION: I hereby certify that the above named material is not a hazardous waste as defined by 40 CFR 261 or any applicable state law, has been properly described, classified and packaged, and is in proper condition for transportation according to applicable regulations; AND, if this waste is a treatment residue of a previously restricted hazardous waste subject to the Land Disposal Restrictions, I certify and warrant that the waste has been treated in accordance with the requirements of 40 CFR 268 and is no longer a hazardous waste as defined by 40 CFR 261.

p. Generator Authorized Agent Name (Print) <b>Kelli Lucarino</b>	q. Signature <i>Kelli Lucarino</i>	r. Date <b>8-6-14</b>
---	---------------------------------------	--------------------------

## II. TRANSPORTER (Generator completes IIa-b and Transporter completes IIc-e)

a. Transporter's Name and Address: <b>DVC</b> <b>1420 Clarion St</b> <b>READING PA 19661</b>		
b. Phone: <b>610-372-6511</b>	c. Signature <i>[Signature]</i>	
d. Signature <i>[Signature]</i>	e. Date <b>8-6-14</b>	

## III. DESTINATION (Generator complete IIIa-c and Destination Site completes IIId-g)

a. Disposal Facility and Site Address: <b>Conestoga Landfill</b> <b>420 Quarry Road</b> <b>Monaca, PA 17043</b>		b. Phone: <b>717-261-1111</b>	c. US EPA Number <b>PA0000015867</b>	d. Discrepancy Indication Space: <b>21.17</b>
I hereby certify that the above named material has been accepted and to the best of my knowledge the foregoing is true and accurate.				
e. Name of Authorized Agent (Print) <i>[Signature]</i>	f. Signature <i>[Signature]</i>	g. Date <b>8/6/14</b>		

## IV. ASBESTOS (Generator completes Va-f and Operator complete IVg-i)

a. Operator's Name and Address:		c. Responsible Agency Name and Address:	
b. Phone:		d. Phone:	
e. Special Handling Instructions and Additional Information:			
f. <input type="checkbox"/> Friable <input type="checkbox"/> Non-Friable <input type="checkbox"/> Both % Friable % Non-Friable			
OPERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked and labeled and are in all respects in proper condition for transport by highway according to applicable international and national governmental regulations.			
g. Operator's Name and Title (Print)		h. Signature	
		i. Date	
*Operator refers to the company which owns, leases, operates, controls, or supervises the facility being demolished or renovated, or the demolition or renovation operation or both			

CONESTOGA LF  
420 QUARRY ROAD  
Morgantown, PA 19543 610-286-6844

SITE CL Cell 22X 77564

WEIGHMASTER Bruce E.

Ticket 947288

DATE IN  
8/6/14 8:46 am

DATE OUT  
8/6/14 9:04 am

VEHICLE  
SPECIAL

CONTAINER

REFERENCE  
278

INVOICE

BILL OF LADING 34968

NET TONS 21.17  
NET WEIGHT 42,340

INBOUND

CONTAINER DESC

CUSTOMER  
042375

AMERICAN WASTE OF NJ, LLC  
ONE AMERICAN WAY  
WARREN, OH 44485

50811411403

SCALE IN

GROSS WEIGHT

86,040

SCALE OUT

TARE WEIGHT

43,700

VEHICLE DESC: SPECIAL WASTE

QTY. UNIT.

0.00 YD TRACKING QTY

21.17 TN SW-CONT SOIL

DESCRIPTION

RATE.

EXTENSION.

TAX.

TOTAL

NEW JERSEY

DRIVER :

WEIGHMASTER

NET AMOUNT  
TENDERED  
CHANGE  
CHECK

If waste is asbestos waste, complete Sections I, II, III and IV  
If waste is **NOT** asbestos waste, complete Sections I, II and III

5081 - 34969

## I. GENERATOR (Generator completes Ia-r)

a. Generator's US EPA ID Number		b. Manifest Document Number <b>029</b>		c. Page 1 of	
d. Generator's Name and Location: <b>US EPA Region II-MC Canfield and Sons 1 Cornerstone Lane Newark, NJ 07103</b>			e. Generator's Mailing Address: <b>US EPA Region II-MC Canfield and Sons 2890 Woodbridge Ave Edison, NJ 08837</b>		
f. Phone: <b>908-420-4475</b>			g. Phone: <b>908-420-4475</b>		
h. Owner's Name:			i. Owner's Phone No.:		
j. Waste Profile # <b>6081 1411403</b>		k. Exp. Date <b>7/19/2015</b>	l. Waste Shipping Name and Description <b>Metals Impacted Soils and Debris (Lead)</b>		m. Containers No. Type <b>001 CM</b>
					n. Total Quantity <b>18</b>
					o. Unit <b>T</b>

GENERATOR'S CERTIFICATION: I hereby certify that the above named material is not a hazardous waste as defined by 40 CFR 261 or any applicable state law, has been properly described, classified and packaged, and is in proper condition for transportation according to applicable regulations; AND, if this waste is a treatment residue of a previously restricted hazardous waste subject to the Land Disposal Restrictions. I certify and warrant that the waste has been treated in accordance with the requirements of 40 CFR 268 and is no longer a hazardous waste as defined by 40 CFR 261.

p. Generator Authorized Agent Name (Print) <b>Kelli Lucarino</b>		q. Signature <i>Kelli Lucarino</i>	r. Date <b>8-6-14</b>
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## II. TRANSPORTER (Generator completes IIa-b and Transporter completes IIc-e)

a. Transporter's Name and Address: <b>DVC 1420 Clarion St Reading Pa 19601</b>		
b. Phone: <b>610-377-6511</b>		
c. Driver Name (Print) <b>Sam</b>	d. Signature <i>Sam</i>	e. Date <b>8-6-14</b>

## III. DESTINATION (Generator complete IIIa-c and Destination Site completes IIId-g)

a. Disposal Facility and Site Address: <b>Cornerstone Landfill 420 Quarry Road Morristown, NJ 07960</b>		c. US EPA Number <b>PA0000015867</b>	d. Discrepancy Indication Space: <b>18.59</b>
b. Phone: <b>908-281-0044</b>		I hereby certify that the above named material has been accepted and to the best of my knowledge the foregoing is true and accurate.	
e. Name of Authorized Agent (Print) <b>Sam</b>	f. Signature <i>Sam</i>	g. Date <b>8/6/14</b>	

## IV. ASBESTOS (Generator completes IVa-f and Operator complete IVg-i)

a. Operator's Name and Address:		c. Responsible Agency Name and Address:	
b. Phone:		d. Phone:	
e. Special Handling Instructions and Additional Information:			
f. <input type="checkbox"/> Friable <input type="checkbox"/> Non-Friable <input type="checkbox"/> Both % Friable % Non-Friable			
OPERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked and labeled and are in all respects in proper condition for transport by highway according to applicable international and national governmental regulations.			
g. Operator's Name and Title (Print)		h. Signature	
		i. Date	
*Operator refers to the company which owns, leases, operates, controls, or supervises the facility being demolished or renovated, or the demolition or renovation operation or both			

CONESTOGA LF  
420 QUARRY ROAD  
Morgantown, PA 19543 610-286-6844

SITE CL Cell 22X 77564  
WEIGHMASTER Bruce E.

CUSTOMER  
042375

AMERICAN WASTE OF NJ, LLC  
ONE AMERICAN WAY  
WARREN, OH 44485

**SCALEHOUSE COPY**

LICENSE:  
TYPE: Miscellaneous

Ticket 947384

DATE IN 8/6/14 2:02 pm

DATE OUT 8/6/14 2:20 pm  
CONTAINER

VEHICLE  
SPECIAL  
REFERENCE  
278

INVOICE

BILL OF LADING 34969

50811411403

SCALE IN

GROSS WEIGHT

80,800

NET TONS

18.59

SCALE OUT

TARE WEIGHT

43,620

NET WEIGHT

37,180

INBOUND

VEHICLE DESC: SPECIAL WASTE

CONTAINER DESC

QTY. UNIT.

0.00 YD TRACKING QTY  
18.59 TN SW-CONT SOIL

DESCRIPTION	RATE	EXTENSION	TAX	TOTAL
-------------	------	-----------	-----	-------

NEW JERSEY

DRIVER:

WEIGHMASTER

NET AMOUNT  
TENDERED  
CHANGE  
CHECK



If waste is asbestos waste, complete Sections I, II, III and IV  
 If waste is **NOT** asbestos waste, complete Sections I, II and III

**5081 - 34970**
**I. GENERATOR (Generator completes Ia-r)**

a. Generator's US EPA ID Number		b. Manifest Document Number <b>*30</b>		c. Page 1 of	
d. Generator's Name and Location: US EPA Region II-MC Canfield and Sons 1 Cornerstone Lane Newark, NJ 07103			e. Generator's Mailing Address: US EPA Region II-MC Canfield and Sons 2890 Woodbridge Ave Edison, NJ 08837		
f. Phone: 908-420-4475			g. Phone: 908-420-4475		
h. Owner's Name:			i. Owner's Phone No.:		
j. Waste Profile #		k. Exp. Date	l. Waste Shipping Name and Description	m. Containers No.	n. Total Quantity
5081 1411403		7/10/2015	Metals Impacted Soils and Debris (Lead)	001 CM	EST 18
<p><b>GENERATOR'S CERTIFICATION:</b> I hereby certify that the above named material is not a hazardous waste as defined by 40 CFR 261 or any applicable state law, has been properly described, classified and packaged, and is in proper condition for transportation according to applicable regulations; AND, if this waste is a treatment residue of a previously restricted hazardous waste subject to the Land Disposal Restrictions, I certify and warrant that the waste has been treated in accordance with the requirements of 40 CFR 268 and is no longer a hazardous waste as defined by 40 CFR 261.</p>					
p. Generator Authorized Agent Name (Print) <b>Kelli Lucarino</b>			q. Signature <i>[Signature]</i>		r. Date <b>08-07-2015</b>

**II. TRANSPORTER (Generator completes IIa-b and Transporter completes IIc-e)**

a. Transporter's Name and Address: <b>DVC</b> 1420 Clarion St READING Pa 19601		
b. Phone: <b>610-372-6511</b>		
c. Driver Name (Print) <b>GARY WINTER</b>	d. Signature <i>[Signature]</i>	e. Date <b>08-07-2014</b>

**III. DESTINATION (Generator complete IIIa-c and Destination Site completes IIId-g)**

a. Disposal Facility and Site Address: Cornerstone Landfill 420 Quarry Road Morristown, NJ 07960		c. US EPA Number <b>PA1000005867</b>	d. Discrepancy Indication Space: <b>19.22</b>
b. Phone: <b>908-261-0211</b>		I hereby certify that the above named material has been accepted and to the best of my knowledge the foregoing is true and accurate.	
e. Name of Authorized Agent (Print) <b>[Signature]</b>	f. Signature <i>[Signature]</i>	g. Date <b>8/7/14</b>	

**IV. ASBESTOS (Generator completes IVa-f and Operator complete IVg-i)**

a. Operator's Name and Address:		c. Responsible Agency Name and Address:	
b. Phone:		d. Phone:	
e. Special Handling Instructions and Additional Information:			
f. <input type="checkbox"/> Friable <input type="checkbox"/> Non-Friable <input type="checkbox"/> Both % Friable % Non-Friable			
<p><b>OPERATOR'S CERTIFICATION:</b> I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked and labeled and are in all respects in proper condition for transport by highway according to applicable international and national governmental regulations.</p>			
g. Operator's Name and Title (Print)		h. Signature	
		i. Date	
*Operator refers to the company which owns, leases, operates, controls, or supervises the facility being demolished or renovated, or the demolition or renovation operation or both			

CONESTOGA LF  
420 QUARRY ROAD  
Morgantown, PA 19543 610-286-6844

CUSTOMER  
042375  
AMERICAN WASTE OF NJ, LLC  
ONE AMERICAN WAY  
WARREN, OH 44485

**SCALEHOUSE COPY**

LICENSE:  
TYPE: Miscellaneous

SITE CL Cell 22X 77564

WEIGHMASTER Bruce E.

Ticket 947470

DATE IN  
8/7/14 8:48 am

DATE OUT  
8/7/14 9:05 am  
CONTAINER

VEHICLE  
SPECIAL  
REFERENCE  
278

INVOICE

BILL OF LADING 34970

50811411403

SCALE IN

GROSS WEIGHT

82,060

NET TONS

19.22

SCALE OUT

TARE WEIGHT

43,620

NET WEIGHT

38,440

INBOUND

VEHICLE DESC: SPECIAL WASTE

CONTAINER DESC

QTY. UNIT.

0.00 YD TRACKING QTY  
19.22 TN SW-CONT SOIL

DESCRIPTION

RATE

EXTENSION

TAX

TOTAL

NEW JERSEY

DRIVER:

WEIGHMASTER

NET AMOUNT

TENDERED

CHANGE

CHECK



## CERTIFICATE OF DESTRUCTION

I, Joanne Schulze, of Republic Services, hereby certifies to American Waste of NJ, LLC that all the product described in Section A has been properly and legally disposed of in Conestoga Landfill between 7/1 thru 8/9/14.

American Waste of NJ, LLC agrees to indemnify and hold Republic Services and it subsidiary and affiliated corporations harmless from any and all liabilities, claims, damage or cost incurred in connection with any claims related to the destruction of this waste stream

By: Joanne Schulze  
Name: Joanne Schulze  
Title: Environmental Coordinator  
Date: 8/11/14

### **Section A- Products Destroyed (attached additional sheets if needed):**

Description of Product

Quantity or Weight

**Metals Impacted Soil & Debris (Lead)**

**508.97 Tons**

- See attached listing by manifest & ticket numbers

**Contract - 50811411403**

<b>Manifest #</b>	<b>Ticket #</b>	<b>Date</b>	<b>Tonnage</b>
34716	944426	7/16/14	18.88
	944521	7/16/14	24.73
34715	944634	7/17/14	26.80
34709	944733	7/17/14	24.67
34710	944842	7/18/14	20.18
34712	944843	7/18/14	24.32
34713	945037	7/21/14	13.72
34714	945050	7/21/14	17.22
34687	945136	7/21/14	15.47
34688	945213	7/22/14	11.97
34690	945294	7/22/14	17.78
34689	945322	7/22/14	17.60
34691	945418	7/23/14	15.73
34692	945522	7/23/14	13.89
34693	945621	7/24/14	15.50
34696	945727	7/24/14	11.65
34700	945829	7/25/14	16.39
34698	946049	7/28/14	19.46
34958	946369	7/30/14	16.10
34960	946569	7/31/14	16.86
34991	946664	7/31/14	17.46
34992	946751	8/1/14	18.30
34993	946951	8/4/14	15.54
34963	947032	8/4/14	18.54
34962	947109	8/5/14	21.23
34961	947288	8/6/14	21.17
34968	947384	8/6/14	18.59
34969	947470	8/7/14	19.22
34970			

**Grand Total Ticket Count/Tons****29****508.97**



## NON-HAZARDOUS SPECIAL WASTE &amp; ASBESTOS MANIFEST

If waste is asbestos waste, complete Sections I, II, III and IV  
If waste is **NOT** asbestos waste, complete Sections I, II and III

5081 - 34964

## I. GENERATOR (Generator completes Ia-r)

a. Generator's US EPA ID Number		b. Manifest Document Number <b>031</b>		c. Page 1 of	
d. Generator's Name and Location: US EPA Region II-MC Canfield and Sons 1 Comersione Lane Newark, NJ 07103			e. Generator's Mailing Address: US EPA Region II-MC Canfield and Sons 2890 Woodbridge Ave Edison, NJ 08837		
f. Phone: 908-220-4475			g. Phone: 908-420-4475		
If owner of the generating facility differs from the generator, provide:					
h. Owner's Name:			i. Owner's Phone No.:		
j. Waste Profile #	k. Exp. Date	l. Waste Shipping Name and Description		m. Containers No.	n. Total Quantity
5081 1411403	7/10/2014	Metals Impacted Soils and Debris (Lead)		001 CM	ESF 18
					T
GENERATOR'S CERTIFICATION: I hereby certify that the above named material is not a hazardous waste as defined by 40 CFR 261 or any applicable state law, has been properly described, classified and packaged, and is in proper condition for transportation according to applicable regulations; AND, if this waste is a treatment residue of a previously restricted hazardous waste subject to the Land Disposal Restrictions, I certify and warrant that the waste has been treated in accordance with the requirements of 40 CFR 268 and is no longer a hazardous waste as defined by 40 CFR 261.					
p. Generator Authorized Agent Name (Print) Kelli Lucarino			q. Signature <i>Kelli Lucarino</i>		r. Date 8-12-14

## II. TRANSPORTER (Generator completes IIa-b and Transporter completes IIc-e)

a. Transporter's Name and Address: DELAWARE VALLEY COIT 1720 CLARKSON ST. RLY, PA		
b. Phone: 610-372-6511		
c. Driver Name (Print) Stew Rivers	d. Signature <i>Stew Rivers</i>	e. Date 8-12-14

## III. DESTINATION (Generator complete IIIa-c and Destination Site completes IIId-g)

a. Disposal Facility and Site Address: Conestoga Landfill 420 Quarry Road PA 19000015867		b. Phone: 610-260-0044	c. US EPA Number	d. Discrepancy Indication Space: 14-45
I hereby certify that the above information has been accepted and to the best of my knowledge the foregoing is true and accurate.				
e. Name of Authorized Agent (Print) <i>[Signature]</i>		f. Signature <i>[Signature]</i>		g. Date 8/12/14

## IV. ASBESTOS (Generator completes IVa-f and Operator complete IVg-i)

a. Operator's Name and Address:		c. Responsible Agency Name and Address:	
b. Phone:		d. Phone:	
e. Special Handling Instructions and Additional Information:			
f. <input type="checkbox"/> Friable <input type="checkbox"/> Non-Friable <input type="checkbox"/> Both % Friable % Non-Friable			
OPERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked and labeled and are in all respects in proper condition for transport by highway according to applicable international and national governmental regulations.			
g. Operator's Name and Title (Print)		h. Signature	
i. Date		j. Date	
*Operator refers to the company which owns, leases, operates, controls, or supervises the facility being demolished or renovated, or the demolition or renovation operation of both.			

CONESTOGA LE  
420 QUARRY ROAD  
Morgantown, PA 19543 610-286-6844

CUSTOMER  
042375  
AMERICAN WASTE OF NJ, LLC  
ONE AMERICAN WAY  
WARREN, OH 44485  
50811411403

**CUSTOMER COPY**

LICENSE:  
TYPE: Miscellaneous

SITE CL CELL 22X 60029

WEIGHMASTER Mike M.

Ticket 948100

DATE IN  
8/12/14 10:07 am

DATE OUT  
8/12/14 10:31 am

VEHICLE  
SPECIAL

CONTAINER

REFERENCE  
267

INVOICE

BILL OF LADING 34964

SCALE IN GROSS WEIGHT  
SCALE OUT TARE WEIGHT  
VEHICLE DESC SPECIAL WASTE

64,780  
35,880

NET TONS  
NET WEIGHT

14.45  
28,900

CONTAINER DESC

INBOUND

QTY. UNIT.  
0.00 YD TRACKING QTY  
14.45 TN SW-CONT SOIL

DESCRIPTION RATE EXTENSION TAX TOTAL

NEW JERSEY

NET AMOUNT

TENDERED

CHANGE

CHECK

331 DRIVER:

WEIGHMASTER

If waste is asbestos waste, complete Sections I, II, III and IV  
If waste is NOT asbestos waste, complete Sections I, II and III

**5081 - 34965**
**I. GENERATOR** (Generator completes Ia-r)

a. Generator's US EPA ID Number		b. Manifest Document Number <b>032</b>		c. Page 1 of	
d. Generator's Name and Location: US EPA Region II-MC Canfield and Sons 1 Cornerstone Lane Newark, NJ 07103			e. Generator's Mailing Address: US EPA Region II-MC Canfield and Sons 2880 Woodbridge Ave Edison, NJ 08837		
f. Phone: 908-420-4475			g. Phone: 908-420-4475		
h. Owner's Name:			i. Owner's Phone No.:		
j. Waste Profile #		k. Exp. Date	l. Waste Shipping Name and Description	m. Containers No.	n. Total Quantity
5081 1411403		7/10/2015	Metals Impacted Soils and Debris (Lead)	001	251 18
<p>GENERATOR'S CERTIFICATION: I hereby certify that the above named material is not a hazardous waste as defined by 40 CFR 261 or any applicable state law, has been properly described, classified and packaged, and is in proper condition for transportation according to applicable regulations; AND, if this waste is a treatment residue of a previously restricted hazardous waste subject to the Land Disposal Restrictions. I certify and warrant that the waste has been treated in accordance with the requirements of 40 CFR 268 and is no longer a hazardous waste as defined by 40 CFR 261.</p>					
p. Generator Authorized Agent Name (Print) <b>Belli Lucarino</b>			q. Signature <i>Belli Lucarino</i>		r. Date <b>8/12-14</b>

**II. TRANSPORTER** (Generator completes IIa-b and Transporter completes IIc-e)

a. Transporter's Name and Address: DVC 1420 Clavon St READING PA 19601		
b. Phone: 610-372-6511		
c. Driver Name (Print) <i>James Whitford</i>	d. Signature <i>[Signature]</i>	e. Date <b>8/12-14</b>

**III. DESTINATION** (Generator complete IIIa-c and Destination Site completes IIId-g)

a. Disposal Facility and Site Address: Conestoga Landfill 420 Quarry Road MIDDLETOWN, PA 17055		c. US EPA Number PA000015882	d. Discrepancy Indication Space: <b>15.25</b>
b. Phone: 610-283-0844			
I hereby certify that the above named material has been accepted and to the best of my knowledge the foregoing is true and accurate.			
e. Name of Authorized Agent (Print) <i>[Signature]</i>	f. Signature <i>[Signature]</i>	g. Date <b>8/12/14</b>	

**IV. ASBESTOS** (Generator completes IVa-f and Operator complete IVg-i)

a. Operator's Name and Address:		c. Responsible Agency Name and Address:	
b. Phone:		d. Phone:	
e. Special Handling Instructions and Additional Information:			
f. <input type="checkbox"/> Friable <input type="checkbox"/> Non-Friable <input type="checkbox"/> Both % Friable % Non-Friable			
OPERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked and labeled and are in all respects in proper condition for transport by highway according to applicable international and national governmental regulations.			
g. Operator's Name and Title (Print)		h. Signature	
		i. Date	
*Operator refers to the company which owns, leases, operates, controls, or supervises the facility being demolished or renovated, or the demolition or renovation operation or both			



CONESTOGA LF  
420 QUARRY ROAD  
Morgantown, PA 19543 610-286-6844

CUSTOMER  
042375  
AMERICAN WASTE OF NJ, LLC  
ONE AMERICAN WAY  
WARREN, OH 44485  
50811411403

**CUSTOMER COPY**

LICENSE:  
TYPE: Miscellaneous

SITE CL CELL 22X 60029

WEIGHMASTER Mike M.

Ticket 948097

DATE IN  
8/12/14 10:06 am

DATE OUT  
8/12/14 10:26 am

VEHICLE  
SPECIAL

CONTAINER

REFERENCE  
278

INVOICE

BILL OF LADING 34965

SCALE IN GROSS WEIGHT  
SCALE OUT TARE WEIGHT  
VEHICLE DESC SPECIAL WASTE

74,180  
43,680

NET TONS  
NET WEIGHT

15.25  
30,500

CONTAINER DESC

INBOUND

QTY.	UNIT.	DESCRIPTION	RATE.	EXTENSION.	TAX.	TOTAL
0.00	YD	TRACKING QTY				
15.25	TN	SW-CONT SOIL				
		NEW JERSEY				

NET AMOUNT

TENDERED

CHANGE

CHECK

3/31 DRIVER :

WEIGHMASTER

If waste is asbestos waste, complete Sections I, II, III and IV  
 If waste is NOT asbestos waste, complete Sections I, II and III

**5081 - 34966**
**I. GENERATOR (Generator completes Ia-r)**

a. Generator's US EPA ID Number		b. Manifest Document Number <b>033</b>		c. Page 1 of	
d. Generator's Name and Location: US EPA Region II-MC Canfield and Sons 1 Cornerstone Lane Newark, NJ 07103		e. Generator's Mailing Address: US EPA Region II-MC Canfield and Sons 2890 Woodbridge Ave Edison, NJ 08837			
f. Phone:		g. Phone:			
908-420-4475		908-420-4475			
h. Owner's Name:		i. Owner's Phone No.:			
j. Waste Profile #		k. Exp. Date	l. Waste Shipping Name and Description	m. Containers No.	n. Total Quantity
5081 1411403	7/10/2015		Metals Impacted Soils and Debris (Lead)	001 CM	2.5 18
					T
<p>GENERATOR'S CERTIFICATION: I hereby certify that the above named material is not a hazardous waste as defined by 40 CFR 261 or any applicable state law, has been properly described, classified and packaged, and is in proper condition for transportation according to applicable regulations; AND, if this waste is a treatment residue of a previously restricted hazardous waste subject to the Land Disposal Restrictions. I certify and warrant that the waste has been treated in accordance with the requirements of 40 CFR 261 and is no longer a hazardous waste as defined by 40 CFR 261.</p>					
k. Generator Authorized Agent Name (Print)		l. Signature		m. Date	
Kelli Lucarino		Kelli Lucarino		8/12/2014	

**II. TRANSPORTER (Generator completes IIa-b and Transporter completes IIc-e)**

a. Transporter's Name and Address:		b. Phone:	
1502 1420 Clavon St Reading Pa 19601		610-372-6511	
c. Driver Name (Print)	d. Signature	e. Date	
		8/12/2014	

**III. DESTINATION (Generator complete IIIa-c and Destination Site completes IIId-g)**

a. Disposal Facility and Site Address:	b. US EPA Number	c. Discrepancy Indication Space:
Conestoga Landfill 420 Quarry Road Middletown, PA 17057	PA000005887	13.66
d. I hereby certify that the above material has been accepted and to the best of my knowledge the foregoing is true and accurate.		
e. Name of Authorized Agent (Print)	f. Signature	g. Date
		8/12/14

**IV. ASBESTOS (Generator completes IVa-f and Operator complete IVg-i)**

a. Operator's Name and Address:	b. Responsible Agency Name and Address:
c. Phone:	d. Phone:
e. Special Handling Instructions and Additional Information:	
f. <input type="checkbox"/> Friable <input type="checkbox"/> Non-Friable <input type="checkbox"/> Both % Friable % Non-Friable	
<p>OPERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked and labeled and are in all respects in proper condition for transport by highway according to applicable international and national governmental regulations.</p>	
g. Operator's Name and Title (Print)	h. Signature
i. Date	
<p>*Operator refers to the company which owns, leases, operates, controls, or supervises the facility being demolished or renovated, or the demolition or renovation operation or both.</p>	

CONESTOGA LF  
420 QUARRY ROAD

Morgantown, PA 19543 610-286-6844

**CUSTOMER**

042375  
AMERICAN WASTE OF NJ, LLC  
ONE AMERICAN WAY  
WARREN, OH 44485  
50811411403

**CUSTOMER COPY**

LICENSE:  
TYPE: Miscellaneous

SITE CL CELL 22X 60029

WEIGHMASTER Mike M.

Ticket 948208

DATE IN  
8/12/14 3:07 pm

DATE OUT  
8/12/14 3:27 pm

VEHICLE  
SPECIAL

CONTAINER

REFERENCE  
278

INVOICE

BILL OF LADING 34966

SCALE IN GROSS WEIGHT  
SCALE OUT TARE WEIGHT  
VEHICLE DESC SPECIAL WASTE

72,300  
44,980

NET TONS  
NET WEIGHT

13.66  
27,320

CONTAINER DESC

INBOUND

QTY.	UNIT.	DESCRIPTION	RATE.	EXTENSION.	TAX.	TOTAL
0.00	YD	TRACKING QTY				
13.66	TN	SW-CONT SOIL				

NEW JERSEY

NET AMOUNT

TENDERED

CHANGE

CHECK

5/31

DRIVER :

WEIGHMASTER

**NON-HAZARDOUS  
WASTE MANIFEST**

Generator ID Number

2. Page 1 of 1

3. Emergency Response Phone

4. Waste Tracking Number

34

5. Generator's Name and Mailing Address

ATTN: CRIS D ONOFIO

Generator's Site Address (if different than mailing address)

US EPA REGION 11

2890 WOODBRIDGE AVENUE EDISON, NJ 08637

M C CANFIELD

1 CORNERSTONE LANE

NEWARK NJ 07103

Generator's Phone:

(908) 420-4475

6. Transporter 1 Company Name

U.S. EPA ID Number

7. Transporter 2 Company Name

U.S. EPA ID Number

8. Designated Facility Name and Site Address

U.S. EPA ID Number

IESI BETHLEHEM

2335 APPLEBUTTER ROAD

BETHLEHEM PA 18015

Facility's Phone:

(201) 988-0106

9. Waste Shipping Name and Description

10. Containers

11. Total Quantity

12. Unit

No.

Type

WE/VOL

Non Haz Non Regulated Soil & Debris

801.0m

EST 18

TI

13. Special Handling Instructions and Additional Information

WID: 49411 METALS IMPACTED SOIL & DEBRIS

(LEAD) IES Profile # 709

App. 900254

14. GENERATOR'S/OFFEROR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations.

Generator's/Officer's Printed/Typed Name

Signature

Month Day Year

CRIS D ONOFIO (USEPA Reg 2)

CRIS D ONOFIO

8 14 14

15. International Shipments

☐ Import to U.S.

☐ Export from U.S.

Port of entry/exit

Date leaving U.S.

Transporter Signature (for exports only):

16. Transporter Acknowledgment of Receipt of Materials

Transporter 1 Printed/Typed Name

Signature

Month Day Year

GARY WATKINS

GARY WATKINS

8 14 14

Transporter 2 Printed/Typed Name

Signature

Month Day Year

17. Discrepancy

17a. Discrepancy Indication Space

☐ Quantity

☐ Type

☐ Residue

☐ Partial Rejection

☐ Full Rejection

17b. Alternate Facility (or Generator)

Manifest Reference Number:

U.S. EPA ID Number

Facility's Phone:

17c. Signature of Alternate Facility (or Generator)

Month Day Year

18. Designated Facility Owner or Operator Certification of receipt of materials covered by the manifest except as noted in item 17a

Printed/Typed Name

Signature

Month Day Year

Dec Raimis

Dec Raimis

8 14 14

IESI PA BETHLEHEM LANDFILL CORP.  
2335 APPLEBUTTER RD. BETHLEHEM, PA 18015  
PH: (610) 317-3200 FAX: (610) 317-8799  
HOURS: M-F 7-4 / SAT 7-12

TICKET: 592264  
DATE: 08/14/2014  
TIME: 09:24-09:53

CUSTOMER: 2005 / AW OF NJ LLC  
1 AMERICAN WAY, WARREN, OH 44484  
GENERATOR: 704 / USEPA MC CANFIELDS PROFILE #: 704  
GRID: 4E/D-2  
TRUCK: DVC270 LICENSE: TEMP  
TRAILER: DVC40 MANIFEST: 34  
COMMENT:

P.O.:

Gross: 76100 LBS  
Tare: 43600 LBS  
Net: 32500 LBS

Origin	Wastes & Services	Quantity
NEW JERSEY	08 / CONTAMINATED SOIL	16.29 Tons

DRIVER:

WEIGHMASTER:

PADEP IDs

C: 16697

T:

K: Y3BM001303

L: 2652120FRG

H: DEE L RAISNER 058890

R: Beth-Pescale

OUT: DEE L RAISNER 058890

R: Beth-Pescale

R: Beth-Pescale

**VOID - Customer Do Not Accept**

<b>NON-HAZARDOUS WASTE MANIFEST</b>		1. Generator ID Number NJ 200400018		2. Page 1 of 2	3. Emergency Response Phone	4. Waste Tracking Number <b>035</b>	
		5. Generator's Name and Mailing Address US EPA REGION II 2890 WOODBRIDGE AVENUE EDISON, NJ 08817 Generator's Phone: (908) 420-4475		Generator's Site Address (if different than mailing address) M C CANFIELD 1 CORNERSTONE LANE NEWARK, NJ 07103		U.S. EPA ID Number	
6. Transporter 1 Company Name		7. Transporter 2 Company Name		U.S. EPA ID Number		U.S. EPA ID Number	
8. Designated Facility Name and Site Address IESI BETHLEHEM 2335 APPLEBUTTER ROAD BETHLEHEM PA 18015 Facility's Phone: (201) 988-0106		U.S. EPA ID Number					
9. Waste Shipping Name and Description Non Haz Non Regulated Soil & Debris		10. Containers		11. Total Quantity	12. Unit		
		No.	Type				
		001	CM	EST 10	T		
13. Special Handling Instructions and Additional Information: WID: 49411 METALS IMPACTED SOIL & DEBRIS (LEAD) APP 900254 IES Profile # 704							
14. GENERATOR/OFFEROR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations.							
Generator's/Offlor's Printed/Typed Name Cris D Onofrio (OSC, EPA 12)		Signature <i>Cris D Onofrio</i>		Month Day Year 8/14/14			
15. International Shipments <input type="checkbox"/> Import to U.S. <input type="checkbox"/> Export from U.S.		Port of entry/exit: Date leaving U.S.					
16. Transporter Acknowledgment of Receipt of Materials Transporter 1 Printed/Typed Name <i>Gary Wentzel</i>		Signature <i>Gary Wentzel</i>		Month Day Year 8/14/14			
Transporter 2 Printed/Typed Name		Signature					
17. Discrepancy							
17a. Discrepancy Indication Space <input type="checkbox"/> Quantity <input type="checkbox"/> Type <input type="checkbox"/> Residue <input type="checkbox"/> Partial Rejection <input type="checkbox"/> Full Rejection							
17b. Alternate Facility (or Generator)		Manifest Reference Number:		U.S. EPA ID Number			
Facility's Phone:							
17c. Signature of Alternate Facility (or Generator)				Month Day Year			
18. Designated Facility Owner or Operator: Certification of receipt of materials covered by the manifest except as noted in Item 17a							
Printed/Typed Name <i>De Rosa</i>		Signature <i>De Rosa</i>		Month Day Year 8/14/14			

IESI PA BETHLEHEM LANDFILL CORP.  
2335 APPLEBUTTER RD. BETHLEHEM, PA 18015  
PH: (610) 317-3200 FAX: (610) 317-8799  
HOURS: M-F 7-4 / SAT 7-12

TICKET: 592349  
DATE: 08/14/2014  
TIME: 13:27-14:21

CUSTOMER: 2005 / AW OF NJ LLC  
1 AMERICAN WAY, WARREN, OH 44484

P.O.:

GENERATOR: 704 / USEPA NC CANFIELDS PROFILE #: 704

Gross: 70260 LBS

TRUCK: DVC278

GRID: 4E/D-2

Tare: 43200 LBS

TRAILER: DVC40

LICENSE: TEMP

Net: 27060 LBS

COMMENT:

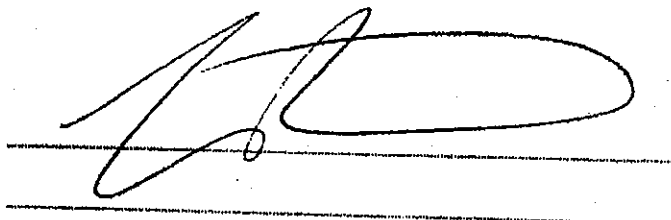
MANIFEST: 035

Origin	Wastes & Services	Quantity
NEW JERSEY	00 / CONTAMINATED SOIL	13.53 Tons

DRIVER:

WEIGHMASTER:

IN: ADAM DEAN



B: Beth-Pcscale

OUT: DEE L RAISNER 058890 B: Beth-Pcscale

PADEP IDs

C: 16697

T:

K: Y3BM001303

L: 2652128FRG

**Void - Customer Do Not Accept**



## **CERTIFICATE OF DESTRUCTION**

This document certifies that the contents transported by

Delaware Valley Contractors  
(insert waste transporter name)

to IESI Bethlehem Landfill were disposed of on this date.  
To the knowledge of IESI Bethlehem Landfill, the contents  
disposed of were generated at the following facility

**M C CANFIELD PROJECT,  
NEWARK, NJ**  
(insert waste generator's name)

A copy of the disposal transaction ticket is also attached for  
reference. The IESI Bethlehem Landfill is a permitted  
municipal waste disposal facility that operates under Permit  
No. 100020 issued by the Pennsylvania Department of  
Environmental Protection.

S. Donato Jr.  
(signature)

Samuel J. Donato Jr.  
District Manager

8/14/14  
(date)

<b>NON-HAZARDOUS WASTE MANIFEST</b>		1. Generator ID Number <b>1000400018</b>		2. Page 1 of 1		3. Emergency Response Phone		4. Waste Tracking Number <b>036</b>	
		5. Generator's Name and Mailing Address <b>ATIN: CRIS D ONOFRIO</b>		Generator's Site Address (if different than mailing address) <b>11 C'CANFIELD 1 CORNERSTONE LANE NEWARK, NJ 07103</b>					
US EPA REGION II <b>2890 WOODBRIDGE AVENUE EDISON, NJ 08837</b>		Generator's Phone: <b>(908) 426-4475</b>						U.S. EPA ID Number	
6. Transporter 1 Company Name		7. Transporter 2 Company Name						U.S. EPA ID Number	
8. Designated Facility Name and Site Address <b>IESI BETHLEHEM 2335 APPLEBUTTER ROAD BETHLEHEM PA 18015</b>		Facility's Phone: <b>(201) 988-0106</b>						U.S. EPA ID Number	
9. Waste Shipping Name and Description <b>Non Haz Non Regulated Soil &amp; Debris</b>				10. Containers		11. Total Quantity <b>EST 18</b>	12. Unit Wt/Vol <b>T</b>		
				No.	Type				
				<b>001</b>	<b>CM</b>				
				<b>OVERWEIGHT SUSPENSION TRUCK/TRAILER/DRIVER RETURN DATE: 8/22/14</b>					
13. Special Handling Instructions and Additional Information  <b>UID: 49411 METALS IMPACTED SOIL &amp; DEBRIS (LEAD) IES Profile # 704 APP 900254</b>									
14. GENERATOR'S/OFFEROR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations.									
Generator's/Offor's Printed/Typed Name <b>CRIS D ONOFRIO (OSC, EPA Reg)</b>									
Signature <i>[Signature]</i>									
Month Day Year <b>8 18 14</b>									
15. International Shipments <input type="checkbox"/> Import to U.S. <input type="checkbox"/> Export from U.S.									
Transporter Signature (for exports only):									
Port of entry/exit: Date leaving U.S.:									
16. Transporter Acknowledgment of Receipt of Materials									
Transporter 1 Printed/Typed Name <b>GARY WENTZEL</b>									
Signature <i>[Signature]</i>									
Month Day Year <b>8 18 14</b>									
Transporter 2 Printed/Typed Name									
Signature									
Month Day Year									
17. Discrepancy									
17a. Discrepancy Indication Space <input type="checkbox"/> Quantity <input type="checkbox"/> Type <input type="checkbox"/> Residue <input type="checkbox"/> Partial Rejection <input type="checkbox"/> Full Rejection									
17b. Alternate Facility (or Generator) Manifest Reference Number: U.S. EPA ID Number									
Facility's Phone:									
17c. Signature of Alternate Facility (or Generator)									
Month Day Year									
18. Designated Facility Owner or Operator: Certification of receipt of materials covered by the manifest except as noted in Item 17a									
Printed/Typed Name									
Signature									
Month Day Year									

IESI PA BETHLEHEM LANDFILL CORP.  
2335 APPLEBUTTER RD. BETHLEHEM, PA 18015  
PH: (610) 317-3200 FAX: (610) 317-8799  
HOURS: M-F 7-4 / SAT 7-12

TICKET: 592560  
DATE: 08/18/2014  
TIME: 08:58-09:28

CUSTOMER: 2005 / AW OF NJ LLC  
1 AMERICAN WAY, WARREN, OH 44484

GENERATOR: 704 / USEPA MC CANFIELDS PROFILE #: 704

GRID: 4E/D-2

TRUCK: DVC278

LICENSE: TEMP

TRAILER: DVC40

MANIFEST: 036

COMMENT:

P.O.:

Gross: 83440 LBS

Tare: 43740 LBS

Net: 39700 LBS

Origin	Wastes & Services	Quantity
NEW JERSEY	08 / CONTAMINATED SOIL	19.85 Tons

OVERWEIGHT SUSPENSION  
TRUCK/TRAILER/DRIVER  
RETURN DATE: Fri  
8/22/14

DRIVER:

WEIGHMASTER:

PADEF IDs

C: 16697

T:

K: Y3BM001303

L: 2652128FRG

IN: DEE L RAISNER 058890 B: Beth-Pcscale OUT: DEE L RAISNER 058890 B: Beth-Pcscale

**Void - Customer Do Not Accept**

## CERTIFICATE OF DESTRUCTION

This document certifies that the contents transported by

Delaware Valley Contractors  
(insert waste transporter name)

to IESI Bethlehem Landfill were disposed of on this date.  
To the knowledge of IESI Bethlehem Landfill, the contents  
disposed of were generated at the following facility

**M C CANFIELD PROJECT,  
NEWARK, NJ**

(insert waste generator's name)

A copy of the disposal transaction ticket is also attached for  
reference. The IESI Bethlehem Landfill is a permitted  
municipal waste disposal facility that operates under Permit  
No. 100020 issued by the Pennsylvania Department of  
Environmental Protection.

S. Donato Jr.

(signature)

Samuel J. Donato Jr.  
District Manager

8/18/14

(date)

If waste is asbestos waste, complete Sections I, II, III and IV  
 If waste is **NOT** asbestos waste, complete Sections I, II and III

**5081 - 34701**
**I. GENERATOR (Generator completes Ia-r)**

a. Generator's US EPA ID Number		b. Manifest Document Number <b>37</b>		c. Page 1 of	
d. Generator's Name and Location: US EPA Region II-MC Canfield and Sons 2890 Woodbridge Ave Edison, NJ 08837			e. Generator's Mailing Address: US EPA Region II-MC Canfield and Sons 2890 Woodbridge Ave Edison, NJ 08837		
f. Phone: <b>908-420-4476</b>		g. Phone: <b>908-420-4476</b>			
If owner of the generating facility differs from the generator, provide:					
h. Owner's Name:			i. Owner's Phone No.:		
j. Waste Profile #	k. Exp. Date	l. Waste Shipping Name and Description		m. Containers No.	n. Total Quantity
5081 1411403	7/10/2015	Metals Impacted Soils and Debris (lead)		001 LM	18 T

GENERATOR'S CERTIFICATION: I hereby certify that the above named material is not a hazardous waste as defined by 40 CFR 261 or any applicable state law, has been properly described, classified and packaged, and is in proper condition for transportation according to applicable regulations; AND, if this waste is a treatment residue of a previously restricted hazardous waste subject to the Land Disposal Restrictions. I certify and warrant that the waste has been treated in accordance with the requirements of 40 CFR 268 and is no longer a hazardous waste as defined by 40 CFR 261.

p. Generator Authorized Agent Name (Print) <b>Cris Donato (EPA OGC)</b>	q. Signature <i>[Signature]</i>	r. Date <b>8-18/14</b>
--	------------------------------------	---------------------------

**II. TRANSPORTER (Generator completes IIa-b and Transporter completes IIc-e)**

a. Transporter's Name and Address: <b>DVC</b> <b>1420 CLARION ST</b> <b>READING PA 19601</b>		
b. Phone: <b>610-372-6511</b>		
c. Transporter's Name (Print) <b>GARY WHITNEY</b>	d. Signature <i>[Signature]</i>	e. Date <b>8/18/14</b>

**III. DESTINATION (Generator complete IIIa-c and Destination Site completes IIId-g)**

a. Disposal Facility and Site Address: <b>Conestoga Landfill</b> <b>420 Quarry Road</b> <b>Morgantown, PA 18543</b>	b. Phone: <b>717-266-8844</b>	c. US EPA Number <b>PA0000015887</b>	d. Discrepancy Indication Space: <b>18.42</b>
--	-------------------------------	---	--

I hereby certify that the above named material has been accepted and to the best of my knowledge the foregoing is true and accurate.

e. Name of Authorized Agent (Print) <i>[Signature]</i>	f. Signature <i>[Signature]</i>	g. Date <b>8/18/14</b>
---	------------------------------------	---------------------------

**IV. ASBESTOS (Generator completes IVa-f and Operator complete IVg-i)**

a. Operator's Name and Address:		c. Responsible Agency Name and Address:	
b. Phone:		d. Phone:	
e. Special Handling Instructions and Additional Information:			
f. <input type="checkbox"/> Friable <input type="checkbox"/> Non-Friable <input type="checkbox"/> Both % Friable % Non-Friable			
OPERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked and labeled and are in all respects in proper condition for transport by highway according to applicable international and national governmental regulations.			
g. Operator's Name and Title (Print)		h. Signature	
		i. Date	
*Operator refers to the company which owns, leases, operates, controls, or supervises the facility being demolished or renovated, or the demolition or renovation operation or both			

CONESTOGA LF  
420 QUARRY ROAD  
Morgantown, PA 19543 610-286-6844

CUSTOMER  
042375  
AMERICAN WASTE OF NJ, LLC  
ONE AMERICAN WAY  
WARREN, OH 44485  
50811411403

**CUSTOMER COPY**

LICENSE:  
TYPE: Miscellaneous

SCALE IN  
SCALE OUT  
VEHICLE DESC SPECIAL WASTE

GROSS WEIGHT  
TARE WEIGHT

80,140  
43,300

NET TONS  
NET WEIGHT

SITE CL CELL 22X 60029

WEIGHMASTER Mike M.

Ticket 948925

DATE IN  
8/18/14 1:48 pm

DATE OUT  
8/18/14 2:12 pm

VEHICLE  
SPECIAL

CONTAINER

REFERENCE  
278

INVOICE

BILL OF LADING 34701

18.42  
36,840

CONTAINER DESC

INBOUND

QTY. UNIT.  
0.00 YD TRACKING QTY  
18.42 TN SW-CONT SOIL

DESCRIPTION RATE. EXTENSION. TAX. TOTAL

NEW JERSEY

NET AMOUNT

TENDERED

CHANGE

CHECK

3/31 DRIVER :

WEIGHMASTER



## CERTIFICATE OF DESTRUCTION

I, Joanne Schulze, of Republic Services, hereby certifies to American Waste of NJ, LLC that all the product described in Section A has been properly and legally disposed of in Conestoga Landfill between 8/12 thru 8/18/14.

American Waste of NJ, LLC agrees to indemnify and hold Republic Services and its subsidiary and affiliated corporations harmless from any and all liabilities, claims, damage or cost incurred in connection with any claims related to the destruction of this waste stream

By: Joanne Schulze  
Name: Joanne Schulze  
Title: Environmental Coordinator  
Date: 8/18/14

### **Section A- Products Destroyed (attached additional sheets if needed):**

<u>Description of Product</u>	<u>Quantity or Weight</u>
<b>Metals Impacted Soil &amp; Debris (Lead)</b>	<b>15.25 Tons ✓</b>
<b>Metals Impacted Soil &amp; Debris (Lead)</b>	<b>14.45 Tons ✓</b>
<b>Metals Impacted Soil &amp; Debris (Lead)</b>	<b>13.66 Tons ✓</b>
<b>Metals Impacted Soil &amp; Debris (Lead)</b>	<b>18.42 Tons ✓</b>



**5081 - 34706**

 If waste is asbestos waste, complete Sections I, II, III and IV  
 If waste is **NOT** asbestos waste, complete Sections I, II and III

**I. GENERATOR (Generator completes Ia-r)**

a. Generator's US EPA ID Number		b. Manifest Document Number <b>#238</b>		c. Page 1 of	
d. Generator's Name and Location: <b>US EPA Region II-MC Canfield and Sons 2890 Woodbridge Ave Edison, NJ 08837</b>			e. Generator's Mailing Address: <b>US EPA Region II-MC Canfield and Sons 2890 Woodbridge Ave Edison, NJ 08837</b>		
f. Phone: <b>908-420-4475</b>			g. Phone: <b>908-420-4475</b>		
If owner of the generating facility differs from the generator, provide:					
h. Owner's Name:			i. Owner's Phone No.:		
j. Waste Profile #	k. Exp. Date	l. Waste Shipping Name and Description	m. Containers No.	n. Total Quantity	o. Unit Wt/Vol
5081 1411403	7/10/2015	Metals Impacted Soils and Debris	001 CM	EST 18	T

GENERATOR'S CERTIFICATION: I hereby certify that the above named material is not a hazardous waste as defined by 40 CFR 261 or any applicable state law, has been properly described, classified and packaged, and is in proper condition for transportation according to applicable regulations; AND, if this waste is a treatment residue of a previously restricted hazardous waste subject to the Land Disposal Restrictions. I certify and warrant that the waste has been treated in accordance with the requirements of 40 CFR 268 and is no longer a hazardous waste as defined by 40 CFR 261.

p. Generator Authorized Agent Name (Print) <b>RICHARD J. DELERA</b>	q. Signature 	r. Date <b>08-19-2014</b>
--	------------------	------------------------------

**II. TRANSPORTER (Generator completes IIa-b and Transporter completes IIc-e)**

a. Transporter's Name and Address: <b>DVC 1420 CLARION ST READING PA 19601</b>		
b. Phone: <b>610-372-6511</b>		
c. Driver Name (Print) <b>GARY WINTERF</b>	d. Signature 	e. Date <b>08-19-2014</b>

**III. DESTINATION (Generator complete IIIa-c and Destination Site completes IIId-g)**

a. Disposal Facility and Site Address: <b>Conestoga Landfill 420 Quarry Road Morgantown, PA 15643</b>		c. US EPA Number <b>PA0000015887</b>	d. Discrepancy Indication Space: <b>17.34</b>
b. Phone: <b>810-285-8844</b>		I hereby certify that the above named material has been accepted and to the best of my knowledge the foregoing is true and accurate.	
e. Name of Authorized Agent (Print) 	f. Signature 	g. Date <b>8/19/14</b>	

**IV. ASBESTOS (Generator completes IVa-f and Operator complete IVg-i)**

a. Operator's Name and Address:		c. Responsible Agency Name and Address:	
b. Phone:		d. Phone:	
e. Special Handling Instructions and Additional Information:			
f. <input type="checkbox"/> Friable <input type="checkbox"/> Non-Friable <input type="checkbox"/> Both % Friable % Non-Friable			
OPERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked and labeled and are in all respects in proper condition for transport by highway according to applicable international and national governmental regulations.			
g. Operator's Name and Title (Print)		h. Signature	
i. Date			

\*Operator refers to the company which owns, leases, operates, controls, or supervises the facility being demolished or renovated, or the demolition or renovation operation or both

CONESTOGA LF  
420 QUARRY ROAD

Morgantown, PA 19543 610-286-6844

CUSTOMER  
042375

AMERICAN WASTE OF NJ, LLC  
ONE AMERICAN WAY  
WARREN, OH. 44485

50811411403

**CUSTOMER COPY**

LICENSE:

TYPE: Miscellaneous

SITE CL CELL 22X 77564

WEIGHMASTER IN - Bruce E. OUT - Mike M.

Ticket 949022

DATE IN  
8/19/14 8:44 am

DATE OUT  
8/19/14 9:04 am

VEHICLE  
SPECIAL

CONTAINER

REFERENCE  
278 40

INVOICE

BILL OF LADING 34706

SCALE IN GROSS WEIGHT  
SCALE OUT TARE WEIGHT  
VEHICLE DESC SPECIAL WASTE

78,260  
43,580

NET TONS  
NET WEIGHT

17.34  
34,680

CONTAINER DESC

INBOUND

QTY.	UNIT.	
0.00	YD	TRACKING QTY
17.34	TN	SW-CONT SOIL

DESCRIPTION	RATE.	EXTENSION.	TAX.	TOTAL
-------------	-------	------------	------	-------

NEW JERSEY

NET AMOUNT

TENDERED

CHANGE

CHECK

3/31 DRIVER :

WEIGHMASTER



## NON-HAZARDOUS SPECIAL WASTE &amp; ASBESTOS MANIFEST

5081 - 34707

If waste is asbestos waste, complete Sections I, II, III and IV  
If waste is NOT asbestos waste, complete Sections I, II and III

## I. GENERATOR (Generator completes Ia-r)

a. Generator's US EPA ID Number		b. Manifest Document Number 039		c. Page 1 of		
d. Generator's Name and Location: US EPA Region II-MC Canfield and Sons 2890 Woodbridge Ave Edison, NJ 08837			e. Generator's Mailing Address: US EPA Region II-MC Canfield and Sons 2890 Woodbridge Ave Edison, NJ 08837			
f. Phone: 908-420-4475			g. Phone: 908-420-4475			
If owner of the generating facility differs from the generator, provide:			908-420-4475			
h. Owner's Name:			i. Owner's Phone No.:			
j. Waste Profile #	k. Exp. Date	l. Waste Shipping Name and Description		m. Containers No. Type	n. Total Quantity	o. Unit Wt/Vol
5081 1411403	7/10/2014	Metals Impacted Soils and Debris		001 CM	18	T
GENERATOR'S CERTIFICATION: I hereby certify that the above named material is not a hazardous waste as defined by 40 CFR 261 or any applicable state law, has been properly described, classified and packaged, and is in proper condition for transportation according to applicable regulations; AND, if this waste is a treatment residue of a previously restricted hazardous waste subject to the Land Disposal Restrictions, I certify and warrant that the waste has been treated in accordance with the requirements of 40 CFR 268 and is no longer a hazardous waste as defined by 40 CFR 261.						
p. Generator Authorized Agent Name (Print) DUSHAD J. PERERA			q. Signature 		r. Date 8/19/2014	

## II. TRANSPORTER (Generator completes IIa-b and Transporter completes IIc-e)

a. Transporter's Name and Address: DUC 1420 CLAYTON ST READING PA 19661		
b. Phone: 610-372-6511		
c. Driver Name (Print) Gary Winkler	d. Signature 	e. Date 8/19/2014

## III. DESTINATION (Generator complete IIIa-c and Destination Site completes IIId-g)

a. Disposal Facility and Site Address: Conestoga Landfill 420 Quarry Road Morgantown, PA 15543		c. US EPA Number PA0000015887	d. Discrepancy Indication Space: 15.48
b. Phone: 810-288-8844			
I hereby certify that the above named material has been accepted and to the best of my knowledge the foregoing is true and accurate.			
e. Name of Authorized Agent (Print) 		f. Signature 	
g. Date 8/19/17			

## IV. ASBESTOS (Generator completes IVa-f and Operator complete IVg-i)

a. Operator's Name and Address:		c. Responsible Agency Name and Address:	
b. Phone:		d. Phone:	
e. Special Handling Instructions and Additional Information:			
f. <input type="checkbox"/> Friable <input type="checkbox"/> Non-Friable <input type="checkbox"/> Both % Friable % Non-Friable			
OPERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked and labeled and are in all respects in proper condition for transport by highway according to applicable international and national governmental regulations.			
g. Operator's Name and Title (Print)		h. Signature	
i. Date			
*Operator refers to the company which owns, leases, operates, controls, or supervises the facility being demolished or renovated, or the demolition or renovation operation or both			

CONESTOGA LF  
420 QUARRY ROAD  
Morgantown, PA 19543 610-286-6844

SITE CL CELL 22X 60029

WEIGHMASTER Mike M.

Ticket 949137

DATE IN 8/19/14 2:12 pm

DATE OUT 8/19/14 2:34 pm

VEHICLE  
SPECIAL

CONTAINER

REFERENCE  
278-40

INVOICE

BILL OF LADING 34707

**CUSTOMER**

042375

AMERICAN WASTE OF NJ, LLC

ONE AMERICAN WAY

WARREN, OH 44485

50811411403

**CUSTOMER COPY**

LICENSE:

TYPE: Miscellaneous

SCALE IN GROSS WEIGHT

82,380

NET TONS

19.48

SCALE OUT TARE WEIGHT

43,420

NET WEIGHT

38,960

VEHICLE DESC SPECIAL WASTE

CONTAINER DESC

INBOUND

QTY.	UNIT.	DESCRIPTION	RATE.	EXTENSION.	TAX.	TOTAL
0.00	YD	TRACKING QTY				
19.48	TN	SW-CONT SOIL				
		NEW JERSEY				

NET AMOUNT

TENDERED

CHANGE

CHECK

331 DRIVER:

WEIGHMASTER

**NON-HAZARDOUS SPECIAL WASTE & ASBESTOS MANIFEST**

If waste is asbestos waste, complete Sections I, II, III and IV  
 If waste is **NOT** asbestos waste, complete Sections I, II and III

**5081- 34971**
**I. GENERATOR (Generator completes Ia-r)**

a. Generator's US EPA ID Number		b. Manifest Document Number		c. Page 1 of	
d. Generator's Name and Location: US EPA Region II-MC Canfield and Sons 1 Omeratons Lane Newark, NJ 07103		e. Generator's Mailing Address: US EPA Region II-MC Canfield and Sons 2800 Woodbridge Ave Edison, NJ 08837			
f. Phone: 908-420-4475		g. Phone: 908-420-4475			
h. Owner's Name:					
i. Owner's Phone No.:					
j. Waste Profile #	k. Exp. Date	l. Waste Shipping Name and Description	m. Containers	n. Total Quantity	o. Unit
5081 1411403	7/10/2015	Metals Impacted Soils and Debris (Lead)	No. Type	EST	W/Vol
			001 CM	18	T
GENERATOR'S CERTIFICATION: I hereby certify that the above named material is not a hazardous waste as defined by 40 CFR 261 or any applicable state law, has been properly described, classified and packaged, and is in proper condition for transportation according to applicable regulations; AND, if this waste is a treatment residue of a previously restricted hazardous waste subject to the Land Disposal Restrictions. I certify and warrant that the waste has been treated in accordance with the requirements of 40 CFR 261 and is no longer a hazardous waste as defined by 40 CFR 261.					
p. Generator Authorized Agent Name (Print)		q. Signature		r. Date	
CRISTO VANDERLO (EPA USE)		[Signature]		8-20-2014	

**II. TRANSPORTER (Generator completes IIa-b and Transporter completes IIc-e)**

a. Transporter's Name and Address:		b. Phone:	
DVC 1420 clarkson St READING Pa 19601		610-372-6511	
c. Driver Name (Print)	d. Signature	e. Date	
GARY WENTZEL	[Signature]	8/20/14	

**III. DESTINATION (Generator complete IIIa-c and Destination Site completes IIId-g)**

a. Disposal Facility and Site Address:		c. US EPA Number		d. Discrepancy Indication Space:	
Conestoga Landfill 420 Quarry Road Morgantown, PA 15060		PA0000015887		17-23	
I hereby certify that the above named material has been accepted and to the best of my knowledge the foregoing is true and accurate.					
e. Name of Authorized Agent (Print)		f. Signature		g. Date	
[Signature]		[Signature]		8/20/14	

**IV. ASBESTOS (Generator completes IVa-f and Operator complete IVg-i)**

a. Operator's Name and Address:		c. Responsible Agency Name and Address:	
b. Phone:		d. Phone:	
e. Special Handling Instructions and Additional Information:			
f. <input type="checkbox"/> Friable <input type="checkbox"/> Non-Friable <input type="checkbox"/> Both % Friable % Non-Friable			
OPERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked and labeled and are in all respects in proper condition for transport by highway according to applicable international and national governmental regulations.			
g. Operator's Name and Title (Print)		h. Signature	
*Operator refers to the company which owns, leases, operates, controls, or supervises the facility being demolished or renovated, or the demolition or renovation operation or both		i. Date	

CONESTOGA LF 420 QUARRY ROAD Morgantown, PA 19543 610-286-6844		SITE CL CELL 22X 77564 WEIGHMASTER IN - Bruce E. OUT - Mike M. Ticket 949237	
<b>CUSTOMER</b> 042375 AMERICAN WASTE OF NJ, LLC ONE AMERICAN WAY WARREN, OH 44485 50811411403		<b>CUSTOMER COPY</b> LICENSE: TYPE: Miscellaneous	
SCALE IN      GROSS WEIGHT SCALE OUT      TARE WEIGHT VEHICLE DESC SPECIAL WASTE		DATE IN      DATE OUT 8/20/14      8/20/14 8:33 am      8:51 am VEHICLE      CONTAINER SPECIAL REFERENCE 278 210 BILL OF LADING 34971 INVOICE NET TONS      17.23 NET WEIGHT      34,460 CONTAINER DESC      INBOUND	

QTY.	UNIT.	DESCRIPTION	RATE.	EXTENSION.	TAX.	TOTAL
0.00	YD	TRACKING QTY				
17.23	TN	SW-CONT SOIL				
		NEW JERSEY				

NET AMOUNT

TENDERED

CHANGE

CHECK

331 DRIVER:

WEIGHMASTER

# NON-HAZARDOUS SPECIAL WASTE & ASBESTOS MANIFEST

If waste is asbestos waste, complete Sections I, II, III and IV  
If waste is **NOT** asbestos waste, complete Sections I, II and III

5081 - 34972

## I. GENERATOR (Generator completes Ia-r)

a. Generator's US EPA ID Number		b. Manifest Document Number <b>041</b>		c. Page 1 of	
d. Generator's Name and Location: US EPA Region II-MC Canfield and Sons 1 Comerstone Lane Newark, NJ 07103 f. Phone: 908-420-4476		e. Generator's Mailing Address: US EPA Region II-MC Canfield and Sons 2800 Woodbridge Ave Edison, NJ 08837 g. Phone: 908-420-4476			
h. Owner's Name:		i. Owner's Phone No.:			
j. Waste Profile #	k. Exp. Date	l. Waste Shipping Name and Description		m. Containers No. & Type	n. Total Quantity
5081 1411403	7/10/2015	Metals Impacted Soil and Debris (Lead)		001 CM	18
					T

GENERATOR'S CERTIFICATION: I hereby certify that the above named material is not a hazardous waste as defined by 40 CFR 261 or any applicable state law, has been properly described, classified and packaged, and is in proper condition for transportation according to applicable regulations; AND, if this waste is a treatment residue of a previously restricted hazardous waste subject to the Land Disposal Restrictions, I certify and warrant that the waste has been treated in accordance with the requirements of 40 CFR 268 and is no longer a hazardous waste as defined by 40 CFR 261.

Generator Authorized Agent Name (Print) **PAUL DONOFIO (EPA OSC)** Signature **[Signature]** Date **08-20-2014**

## II. TRANSPORTER (Generator completes IIa-b and Transporter completes IIc-e)

a. Transporter's Name and Address: DVC 1420 Clarion St Reading Pa 19661	b. Phone: 610-372-1511
c. Driver Name (Print) Garry Winkler	d. Signature <b>[Signature]</b> Date <b>8/20/2014</b>

## III. DESTINATION (Generator complete IIIa-c and Destination Site completes IIId-g)

a. Disposal Facility and Site Address: Conestoga Landfill 420 Quarry Road Middletown, PA 19841 b. Phone: 610-260-0044	c. US EPA Number PA0000015867	d. Discrepancy Indication Space: 15.99
e. Name of Authorized Agent (Print) <b>[Signature]</b> f. Signature <b>[Signature]</b> g. Date <b>8/20/14</b>		

## IV. ASBESTOS (Generator completes IVa-f and Operator complete IVg-i)

a. Operator's Name and Address:	b. Phone:	c. Responsible Agency Name and Address:
e. Special Handling Instructions and Additional Information:		d. Phone:

<input type="checkbox"/> Friable <input type="checkbox"/> Non-Friable <input type="checkbox"/> Both	% Friable	% Non-Friable
OPERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked and labeled and are in all respects in proper condition for transport by highway according to applicable international and national governmental regulations.		
i. Operator's Name and Title (Print)	h. Signature	i. Date
Operator refers to the company which owns, leases, operates, controls, or supervises the facility being demolished or renovated, or the demolition or innovation operation or both		



CONESTOGA LF  
420 QUARRY ROAD  
Morgantown, PA 19543 610-286-6844

SITE CL CELL 22X 60029

WEIGHMASTER Mike M.

Ticket 949332

DATE IN  
8/20/14 1:45 pm

DATE OUT  
8/20/14 2:04 pm

VEHICLE  
SPECIAL

CONTAINER

REFERENCE  
278-40

BILL OF LADING 34972

INVOICE

CUSTOMER  
042375  
AMERICAN WASTE OF NJ, LLC  
ONE AMERICAN WAY  
WARREN, OH 44485  
50811411403

**CUSTOMER COPY**

LICENSE:

TYPE: Miscellaneous

SCALE IN GROSS WEIGHT  
SCALE OUT TARE WEIGHT  
VEHICLE DESC SPECIAL WASTE

75,420  
43,440

NET TONS  
NET WEIGHT

15.99  
31,980

CONTAINER DESC

INBOUND

QTY. UNIT.  
0.00 YD TRACKING QTY  
15.99 TN SW-CONT SOIL

DESCRIPTION RATE EXTENSION TAX TOTAL

NEW JERSEY

NET AMOUNT

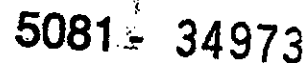
TENDERED

CHANGE

CHECK

531 DRIVER:

WEIGHMASTER




If waste is **asbestos** waste, complete Sections I, II, III and IV  
If waste is **NOT** asbestos waste, complete Sections I, II and III

**1. GENERATOR** (Generator completes 1a-r)

a. Generator's US EPA ID Number		b. Manifest Document Number <b>043</b>		c. Page 1 of	
d. Generator's Name and Location: US EPA Region II-MC Canfield and Sons 1 Cornerstone Lane Newark, NJ 07103 908-420-4475		e. Generator's Mailing Address: US EPA Region II-MC Canfield and Sons 2880 Woodbridge Ave Edison, NJ 08837 908-420-4475			
f. Phone:		g. Phone:			
h. Owner's Name:		i. Owner's Phone No.:			
j. Waste Profile #		k. Exp. Date		l. Waste Shipping Name and Description	
5081 1411403		7/10/2015		Metals Impacted Soils and Debris (Lead)	
				m. Containers No. Type	
				001 CM	
				n. Total Quantity EST 18	
				o. Unit Wt/Vol T	
<p>GENERATOR'S CERTIFICATION: I hereby certify that the above named material is not a hazardous waste as defined by 40 CFR 261 or any applicable state law, has been properly described, classified and packaged, and is in proper condition for transportation according to applicable regulations; AND, if this waste is a treatment residue of a previously restricted hazardous waste subject to the Land Disposal Restrictions. I certify and warrant that the waste has been treated in accordance with the requirements of 40 CFR 268 and is no longer a hazardous waste as defined by 40 CFR 261.</p>					
<p>Generator Authorized Agent Name (Print) <b>Chris D'Onofrio (EPA OSC)</b></p>					

II. **TRANSPORTER** (Generator completes IIa-b and Transporter completes IIc-e)  
a. Transporter's Name and Address:

b. Phone: 610-372-6511		DVC 1420 Claxton St Reading Pa 19601		f. Date	
c. Driver Name (Print) Gary Winters		d. Signature 		e. Date 8/21/2014	
III. DESTINATION (Generator complete IIIa-c and Destination Site completes III d-g)					
a. Disposal Facility and Site Address:		c. US EPA Number			


III. **DESTINATION** (Generator complete IIIa-c and Destination Site completes III d-g)

a. Disposal Facility and Site Address:

c. US EPA Number

d. Signature

e.

c. US EPA Number PA0000015867		d. Discrepancy Indication Space: 18-68	
e. Phone: 420 Quarry Road Monterey, CA 93940 415-280-8844		f. Signature 	
g. Date 8/21/14		h. Operator's Name and Address: ASBESTOS (Generator completes IVa-f and Operator complete IVg-i)	

ASBESTOS (Generator completes IVa-f and Operator complete IVg-i)

Complete (Vg-1)

Phone: \_\_\_\_\_

Special Handling Instructions and Additional Information: \_\_\_\_\_

c. Responsible Agency Name and Address: \_\_\_\_\_

d. Phone: \_\_\_\_\_

☒ Friable ☐ Non-Friable ☐ Both

ERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name are classified, packed, marked and labeled and are in all respects in proper condition for transport by highway according to applicable international and national governmental regulations.

% Friable \_\_\_\_\_ % Non-Friable \_\_\_\_\_

erator's Name and Title (Print) \_\_\_\_\_

erator refers to the company which owns, leases, operates, controls, or supervises the facility being demolished or renovated, or the demolition or renovation operation or both

h. Signature \_\_\_\_\_

i. Date \_\_\_\_\_

CONESTOGA LF  
420 QUARRY ROAD  
Morgantown, PA 19543 610-286-6844

CUSTOMER  
042375  
AMERICAN WASTE OF NJ, LLC  
ONE AMERICAN WAY  
WARREN, OH 44485  
50811411403

**CUSTOMER COPY**

LICENSE:  
TYPE: Miscellaneous

SCALE IN GROSS WEIGHT  
SCALE OUT TARE WEIGHT  
VEHICLE DESC SPECIAL WASTE

80,940  
43,580

NET TONS  
NET WEIGHT

SITE CL CELL 22X 60029

WEIGHMASTER Mike M.

Ticket 949536

DATE IN 8/21/14 2:16 pm

DATE OUT 8/21/14 2:37 pm

VEHICLE  
SPECIAL

CONTAINER

REFERENCE  
278-40

INVOICE

BILL OF LADING 34973

18.68  
37,360

CONTAINER DESC

INBOUND

QTY.	UNIT.	
0.00	YD	TRACKING QTY
18.68	TN	SW-CONT SOIL

DESCRIPTION	RATE	EXTENSION	TAX	TOTAL
-------------	------	-----------	-----	-------

NEW JERSEY

NET AMOUNT

TENDERED

CHANGE

CHECK

3/31 DRIVER:

WEIGHMASTER



# NON-HAZARDOUS SPECIAL WASTE & ASBESTOS MANIFEST

If waste is asbestos waste, complete Sections I, II, III and IV  
If waste is NOT asbestos waste, complete Sections I, II and III

5081 - 34989

## I. GENERATOR (Generator completes Ia-r)

a. Generator's US EPA ID Number		b. Manifest Document Number #042		c. Page 1 of	
d. Generator's Name and Location: US EPA Region II-MC Canfield and Sons 1 Cornerstone Lane Newark, NJ 07103			e. Generator's Mailing Address: US EPA Region II-MC Canfield and Sons 2890 Woodbridge Ave Edison, NJ 08837		
f. Phone: 908-420-4475			g. Phone: 908-420-4475		
If owner of the generating facility differs from the generator, provide:					
h. Owner's Name:			i. Owner's Phone No.:		
j. Waste Profile #	k. Exp. Date	l. Waste Shipping Name and Description		m. Containers No. Type	n. Total Quantity
6081 1411403	7/10/2015	Metals Impacted Soils and Debris (Lead)		001 CM	18
					T

GENERATOR'S CERTIFICATION: I hereby certify that the above named material is not a hazardous waste as defined by 40 CFR 261 or any applicable state law, has been properly described, classified and packaged, and is in proper condition for transportation according to applicable regulations; AND, if this waste is a treatment residue of a previously restricted hazardous waste subject to the Land Disposal Restrictions. I certify and warrant that the waste has been treated in accordance with the requirements of 40 CFR 268 and is no longer a hazardous waste as defined by 40 CFR 261.

p. Generator Authorized Agent Name (Print) CRISTO DONDERIO (EPA OSC)		q. Signature 	r. Date 8/21/2014
---	--	------------------	----------------------

## II. TRANSPORTER (Generator completes IIa-b and Transporter completes IIc-e)

a. Transporter's Name and Address: DVC 1470 CLARKSON ST READING PA 19601		b. Phone: 610-372-6511
c. Driver Name (Print) GARY WHELAN	d. Signature 	e. Date 08/21/2014

## III. DESTINATION (Generator complete IIIa-c and Destination Site completes IIId-g)

a. Disposal Facility and Site Address: Conestoga Landfill 420 Quarry Road Morgantown, PA 17043 610-263-0844		b. Phone:	c. US EPA Number PA0000015867	d. Discrepancy Indication Space: 2146
I hereby certify that the above named material has been accepted and to the best of my knowledge the foregoing is true and accurate.				
e. Name of Authorized Agent (Print) 		f. Signature 		g. Date 8/21/14

## IV. ASBESTOS (Generator completes IVa-f and Operator complete IVg-i)

a. Operator's Name and Address:		c. Responsible Agency Name and Address:	
b. Phone:		d. Phone:	
e. Special Handling Instructions and Additional Information:			
f. <input type="checkbox"/> Friable <input type="checkbox"/> Non-Friable <input type="checkbox"/> Both % Friable % Non-Friable			
OPERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked and labeled and are in all respects in proper condition for transport by highway according to applicable international and national governmental regulations.			
g. Operator's Name and Title (Print)		h. Signature	
*Operator refers to the company which owns, leases, operates, controls, or supervises the facility being demolished or renovated, or the demolition or renovation operation or both		i. Date	

CONESTOGA LF  
420 QUARRY ROAD  
Morgantown, PA 19543 610-286-6844

CUSTOMER  
042375

AMERICAN WASTE OF NJ, LLC  
ONE AMERICAN WAY  
WARREN, OH 44485

50811411403

SCALE IN

GROSS WEIGHT

86,520

SCALE OUT

TARE WEIGHT

43,600

VEHICLE DESC SPECIAL WASTE

**CUSTOMER COPY**

LICENSE:

TYPE: Miscellaneous

SITE CL CELL 22X 77564

WEIGHMASTER IN - Bruce E. OUT - Mike M.

Ticket 949425

DATE IN

8/21/14 8:44 am

DATE OUT

8/21/14 9:05 am

VEHICLE

SPECIAL

CONTAINER

REFERENCE

278 210

INVOICE

BILL OF LADING 34989

21.46

NET TONS

NET WEIGHT

42,920

CONTAINER DESC

INBOUND

QTY.	UNIT.	
0.00	YD	TRACKING QTY
21.46	TN	SW-CONT SOIL

DESCRIPTION

RATE

EXTENSION

TAX

TOTAL

NEW JERSEY

NET AMOUNT

TENDERED

CHANGE

CHECK

5/31 DRIVER:

WEIGHMASTER



## CERTIFICATE OF DESTRUCTION

I, Joanne Schulze, of Republic Services, hereby certifies to American Waste of NJ, LLC that all the product described in Section A has been properly and legally disposed of in Conestoga Landfill between 8/19 thru 8/21/14.

American Waste of NJ, LLC agrees to indemnify and hold Republic Services and its subsidiary and affiliated corporations harmless from any and all liabilities, claims, damage or cost incurred in connection with any claims related to the destruction of this waste stream

By: Joanne Schulze  
Name: Joanne Schulze  
Title: Environmental Coordinator  
Date: 8/21/14

### Section A- Products Destroyed (attached additional sheets if needed):

<u>Description of Product</u>	<u>Quantity or Weight</u>
Metals Impacted Soil & Debris (Lead)	17.34 Tons
Metals Impacted Soil & Debris (Lead)	19.48 Tons
Metals Impacted Soil & Debris (Lead)	17.23 Tons
Metals Impacted Soil & Debris (Lead)	15.99 Tons
Metals Impacted Soil & Debris (Lead)	21.46 Tons
Metals Impacted Soil & Debris (Lead)	18.68 Tons

**NON-HAZARDOUS  
WASTE MANIFEST**

1. Generator ID Number

2. Page 1 of

3. Emergency Response Phone

4. Waste Tracking Number

5. Generator's Name and Mailing Address

ATTN: CRIS D DONOFIO

Generator's Site Address (if different than mailing address)

US EPA REGION II

2890 WOODBRIDGE AVENUE EDISON, NJ 08837

Generator's Phone:

(908) 420-4475

M C CANFIELD

1 CORNERSTONE LANE

NEWARK NJ 07103

6. Transporter 1 Company Name

U.S. EPA ID Number

7. Transporter 2 Company Name

U.S. EPA ID Number

8. Designated Facility Name and Site Address

U.S. EPA ID Number

IESI BETHLEHEM

2335 APPLEBUTTER ROAD

BETHLEHEM PA 18015

Facility's Phone:

(201) 980-6106

9. Waste Shipping Name and Description

10. Containers

11. Total  
Quantity

12. Unit  
WL/Vol.

No.

Type

1. Non Haz Non Regulated Soil & Debris

081 CM

EST

18

T

13. Special Handling Instructions and Additional Information

1. WID: 49411 METALS IMPACTED SOIL & DEBRIS  
(LEAD)

APP 900254 - IES Profile # 709

14. GENERATOR/OFFEROR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations.

Generator's/Offor's Printed/Typed Name

CRIS DONOFIO (USEPA REG 2)

Signature

Month Day Year

8 25 14

15. International Shipments

☐ Import to U.S.

☐ Export from U.S.

Port of entry/exit:

Date leaving U.S.:

Transporter Signature (for exports only):

18. Transporter Acknowledgment of Receipt of Materials

Transporter 1 Printed/Typed Name

MARK DANIEL

Signature

Month Day Year

8 25 14

Transporter 2 Printed/Typed Name

Signature

Month Day Year

17. Discrepancy

17a. Discrepancy Indication Space

☐ Quantity

☐ Type

☐ Residue

☐ Partial Rejection

☐ Full Rejection

17b. Alternate Facility (or Generator)

Manifest Reference Number:

U.S. EPA ID Number

Facility's Phone:

17c. Signature of Alternate Facility (or Generator)

Month Day Year

18. Designated Facility Owner or Operator: Certification of receipt of materials covered by the manifest except as noted in item 17a

Printed/Typed Name

Dee Raism

Signature

Dee Raism

Month Day Year

8 26 14



PA BETHLEHEM LANDFILL CORP.  
2335 APPLEBUTTER RD. BETHLEHEM, PA 18015  
PH: (610) 317-3200 FAX: (610) 317-8799  
HOURS: M-F 7-4 / SAT 7-12

CUSTOMER: 2005 / AW OF NJ LLC  
1 AMERICAN WAY, WARREN, OH 44484  
GENERATOR: 704 / USEPA MC CANFIELDS PROFILE #: 704  
TRUCK: DVC280 GRID: 4E/C-2  
TRAILER: DVC40 LICENSE: 507061 TEN  
COMMENT: MANIFEST: 014

DATE: 08/20/2007  
TIME: 07:43-08:30

P.O.:

Gross: 78260 LBS  
Tare: 41800 LBS  
Net: 36460 LBS

Origin	Wastes & Services	Quantity
NEW JERSEY	08 / CONTAMINATED SOIL	18.23 Tons

DRIVER:

WEIGHMASTER:

IN: DEE L RAISNER 050890 B: Beth-Pcscale

OUT: DEE L RAISNER 050890

**Void - Customer Do Not Accept**

PADEP IDs  
C: 16697  
T:  
K: 0X4FD74776  
L: 2652120FRG  
B: Beth-Pcscale

## CERTIFICATE OF DESTRUCTION

This document certifies that the contents transported by

Delaware Valley Contractors  
(insert waste transporter name)

to IESI Bethlehem Landfill were disposed of on this date.  
To the knowledge of IESI Bethlehem Landfill, the contents  
disposed of were generated at the following facility

**M C CANFIELD PROJECT,  
NEWARK, NJ**

(insert waste generator's name)

A copy of the disposal transaction ticket is also attached for  
reference. The IESI Bethlehem Landfill is a permitted  
municipal waste disposal facility that operates under Permit  
No. 100020 issued by the Pennsylvania Department of  
Environmental Protection.

S. Donato Jr.  
(signature)

Samuel J. Donato Jr.  
District Manager

8/26/14  
(date)

If waste is asbestos waste, complete Sections I, II, III and IV  
If waste is **NOT** asbestos waste, complete Sections I, II and III

**I. GENERATOR (Generator completes Ia-r)**

a. Generator's US EPA ID Number <b>5081 1411403</b>		b. Manifest Document Number <b>046</b>		c. Page 1 of	
d. Generator's Name and Location: <b>US EPA Region II-MC Canfield and Sons 1 Cornerstone Lane Newark, NJ 07103 908-420-4476</b>			e. Generator's Mailing Address: <b>US EPA Region II-MC Canfield and Sons 2880 Woodbridge Ave Edison, NJ 08837 908-420-4476</b>		
f. Phone:			g. Phone:		
If owner of the generating facility differs from the generator, provide:					
h. Owner's Name:			i. Owner's Phone No.:		
j. Waste Profile #	k. Exp. Date	l. Waste Shipping Name and Description	m. Containers No.	n. Total Quantity	o. Unit Wt/Vol
5081 1411403	7/10/2013	Metals Impacted Soils and Debris (Lead)	001 CM	18 EST	T
<p><b>GENERATOR'S CERTIFICATION:</b> I hereby certify that the above named material is not a hazardous waste as defined by 40 CFR 261 or any applicable state law, has been properly described, classified and packaged, and is in proper condition for transportation according to applicable regulations; AND, if this waste is a treatment residue of a previously restricted hazardous waste subject to the Land Disposal Restrictions. I certify and warrant that the waste has been treated in accordance with the requirements of 40 CFR 268 and is no longer a hazardous waste as defined by 40 CFR 261.</p>					
p. Generator Authorized Agent Name (Print) <i>Cris... (EPA 08)</i>			q. Signature <i>[Signature]</i>		
			r. Date <b>8/26/14</b>		

**II. TRANSPORTER (Generator completes IIa-b and Transporter completes IIc-e)**

a. Transporter's Name and Address:		c. US EPA Number		d. Discrepancy Indication Space:	
b. Phone:		PA0000015887		22-11	
c. Driver Name (Print)		e. Date		8/26/14	
d. Signature					

**III. DESTINATION (Generator completes IIIa-c and Destination Site completes IIId-g)**

a. Disposal Facility and Site Address: <b>Conestoga Landfill 420 Quarry Road Monroeville, PA 15146 910-220-0000</b>		c. US EPA Number		d. Discrepancy Indication Space:	
b. Phone:		PA0000015887		22-11	
I hereby certify that the above named material has been accepted and to the best of my knowledge the foregoing is true and accurate.					
e. Name of Authorized Agent (Print)		f. Signature		g. Date	
				8/26/14	

**IV. ASBESTOS (Generator completes IVa-f and Operator complete IVg-i)**

a. Operator's Name and Address:		c. Responsible Agency Name and Address:	
b. Phone:		d. Phone:	
e. Special Handling Instructions and Additional Information:			
<input type="checkbox"/> Friable <input type="checkbox"/> Non-Friable <input type="checkbox"/> Both % Friable % Non-Friable			
<p><b>OPERATOR'S CERTIFICATION:</b> I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked and labeled and are in all respects in proper condition for transport by highway according to applicable international and national governmental regulations.</p>			
Operator's Name and Title (Print)		h. Signature	
Operator refers to the company which owns, leases, operates, controls, or supervises the facility being demolished or renovated, or the demolition or renovation operation or both		i. Date	

CONESTOGA LF  
420 QUARRY ROAD  
Morgantown, PA 19543 610-286-6844

SITE CL CELL 22X 60029

WEIGHMASTER Mike M.

Ticket 950088

DATE IN 8/26/14 1:32 pm

DATE OUT 8/26/14 2:05 pm

VEHICLE SPECIAL

CONTAINER

REFERENCE 249-126

INVOICE

BILL OF LADING 34974

NET TONS 22.11  
NET WEIGHT 44,220

CONTAINER DESC

INBOUND

**CUSTOMER**

042375

AMERICAN WASTE OF NJ, LLC

ONE AMERICAN WAY

WARREN, OH 44485

50811411403

SCALE IN

GROSS WEIGHT

84,760

SCALE OUT

TARE WEIGHT

40,540

NET TONS 22.11  
NET WEIGHT 44,220

VEHICLE DESC SPECIAL WASTE

**CUSTOMER COPY**

LICENSE:

TYPE: Miscellaneous

QTY. UNIT.  
0.00 YD TRACKING QTY  
22.11 TN SW-CONT SOIL

DESCRIPTION RATE EXTENSION TAX TOTAL

NEW JERSEY

NET AMOUNT

TENDERED

CHANGE

CHECK

331 DRIVER:

WEIGHMASTER



## NON-HAZARDOUS SPECIAL WASTE &amp; ASBESTOS MANIFEST

5081 - 34975

If waste is asbestos waste, complete Sections I, II, III and IV  
If waste is **NOT** asbestos waste, complete Sections I, II and III

## I. GENERATOR (Generator completes Ia-r)

a. Generator's US EPA ID Number		b. Manifest Document Number 045		c. Page 1 of	
d. Generator's Name and Location: US EPA Region II-MC Canfield and Sons 1 Cornerstone Lane Newark, NJ 07103			e. Generator's Mailing Address: US EPA Region II-MC Canfield and Sons 2890 Woodbridge Ave Edison, NJ 08817		
f. Phone: 908-420-4475			g. Phone: 908-420-4475		
h. Owner's Name:			i. Owner's Phone No.:		
j. Waste Profile #	k. Exp. Date	l. Waste Shipping Name and Description	m. Containers No. Type	n. Total Quantity	o. Unit Wt/Vol
5081 1411403	7/10/2015	Metals Impacted Soils and Debris (Lead)	001 CM	EST 18	T
GENERATOR'S CERTIFICATION: I hereby certify that the above named material is not a hazardous waste as defined by 40 CFR 261 or any applicable state law, has been properly described, classified and packaged, and is in proper condition for transportation according to applicable regulations; AND, if this waste is a treatment residue of a previously restricted hazardous waste subject to the Land Disposal Restrictions, I certify and warrant that the waste has been treated in accordance with the requirements of 40 CFR 268 and is no longer a hazardous waste as defined by 40 CFR 261.					
p. Generator Authorized Agent Name (Print) CRIS DONOFRIO (EPA OSC)			q. Signature 		r. Date 8/26/14

## II. TRANSPORTER (Generator completes IIa-b and Transporter completes IIc-e)

a. Transporter's Name and Address: DVC - 1420 CLARION ST Reading, Pa 19601		
b. Phone: Mark Danish		
c. Driver Name (Print) Mark Danish	d. Signature 	e. Date 8/26/14

## III. DESTINATION (Generator complete IIIa-c and Destination Site completes IIId-g)

a. Disposal Facility and Site Address: Conestoga Landfill 420 Quarry Road		c. US EPA Number PA0000015667	d. Discrepancy Indication Space: 23.23
b. Phone: 610-268-8844			
I hereby certify that the above named material has been accepted and to the best of my knowledge the foregoing is true and accurate.			
e. Name of Authorized Agent (Print) 		f. Signature 	g. Date 8/26/14

## IV. ASBESTOS (Generator completes IVa-f and Operator complete IVg-i)

a. Operator's Name and Address:		c. Responsible Agency Name and Address:	
b. Phone:		d. Phone:	
e. Special Handling Instructions and Additional Information:			
f. <input type="checkbox"/> Friable <input type="checkbox"/> Non-Friable <input type="checkbox"/> Both % Friable % Non-Friable			
OPERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked and labeled and are in all respects in proper condition for transport by highway according to applicable international and national governmental regulations.			
g. Operator's Name and Title (Print)		h. Signature	
i. Date		i. Date	
*Operator refers to the company which owns, leases, operates, controls, or supervises the facility being demolished or renovated, or the demolition or renovation operation or both			

CONESTOGA LF  
420 QUARRY ROAD  
Morgantown, PA 19543 610-286-6844

SITE CL CELL 22X 60029

WEIGHMASTER Mike M.

Ticket 950087

DATE IN 8/26/14 1:31 pm

DATE OUT 8/26/14 2:03 pm

VEHICLE  
SPECIAL

CONTAINER

REFERENCE  
280-40

INVOICE

BILL OF LADING 34975

**CUSTOMER**

042375

AMERICAN WASTE OF NJ, LLC

ONE AMERICAN WAY

WARREN, OH 44485

50811411403

SCALE IN

GROSS WEIGHT

88,080

NET TONS

23.23

SCALE OUT

TARE WEIGHT

41,620

NET WEIGHT

46,460

VEHICLE DESC SPECIAL WASTE

CONTAINER DESC

INBOUND

QTY.	UNIT.	DESCRIPTION	RATE.	EXTENSION.	TAX.	TOTAL
0.00	YD	TRACKING QTY				
23.23	TN	SW-CONT SOIL				
		NEW JERSEY				

NET AMOUNT

TENDERED

CHANGE

CHECK

9/31 DRIVER :

WEIGHMASTER

**NON-HAZARDOUS SPECIAL WASTE & ASBESTOS MANIFEST**

 If waste is asbestos waste, complete Sections I, II, III and IV  
 If waste is NOT asbestos waste, complete Sections I, II and III

**5081 - 34967**
**I. GENERATOR (Generator completes Ia-r)**

a. Generator's US EPA ID Number		b. Manifest Document Number <b>047</b>		c. Page 1 of	
d. Generator's Name and Location: US EPA Region II-MC Canfield and Sons 1 Cornerstone Lane Newark, NJ 07103			e. Generator's Mailing Address: US EPA Region II-MC Canfield and Sons 2880 Woodbridge Ave Edison, NJ 08837		
f. Phone: 908-420-4475			g. Phone: 908-420-4475		
If owner of the generating facility differs from the generator, provide:					
h. Owner's Name:			i. Owner's Phone No.:		
j. Waste Profile #		k. Exp. Date	l. Waste Shipping Name and Description	m. Containers No.	n. Total Quantity
6081 1411403		7/10/2015	Metals Impacted Soils and Debris (Lead)	201 CM	EST 18 T
GENERATOR'S CERTIFICATION: I hereby certify that the above named material is not a hazardous waste as defined by 40 CFR 261 or any applicable state law, has been properly described, classified and packaged, and is in proper condition for transportation according to applicable regulations; AND, if this waste is a treatment residue of a previously restricted hazardous waste subject to the Land Disposal Restrictions, I certify and warrant that the waste has been treated in accordance with the requirements of 40 CFR 268 and is no longer a hazardous waste as defined by 40 CFR 261.					
p. Generator Authorized Agent Name (Print)			q. Signature		r. Date
Belli Lucarino			[Signature]		08-27-2014

**II. TRANSPORTER (Generator completes IIa-b and Transporter completes IIc-e)**

a. Transporter's Name and Address: Delaware Valley Contractors 1020 CLARION ST. Reading, PA 19601		
b. Phone:		
c. Driver Name (Print)	d. Signature	e. Date
Mark Danis	[Signature]	08-27-2014

**III. DESTINATION (Generator complete IIIa-c and Destination Site completes IIId-g)**

a. Disposal Facility and Site Address: Conestoga Landfill 420 Quarry Road Morgantown, PA 17053 610-288-6644		c. US EPA Number PA0000015887	d. Discrepancy Indication Space: 13-66
b. Phone:			
I hereby certify that the above information has been accepted and to the best of my knowledge the foregoing is true and accurate.			
e. Name of Authorized Agent (Print)	f. Signature	g. Date	
[Signature]	[Signature]	8/22/17	

**IV. ASBESTOS (Generator completes IVa-f and Operator complete IVg-i)**

a. Operator's Name and Address:		c. Responsible Agency Name and Address:	
b. Phone:		d. Phone:	
e. Special Handling Instructions and Additional Information:			
f. <input type="checkbox"/> Friable <input type="checkbox"/> Non-Friable <input type="checkbox"/> Both % Friable % Non-Friable			
OPERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked and labeled and are in all respects in proper condition for transport by highway according to applicable international and national governmental regulations.			
g. Operator's Name and Title (Print)		h. Signature	
Operator refers to the company which owns, leases, operates, controls, or supervises the facility being demolished or renovated, or the demolition or renovation operation or both		i. Date	



CONESTOGA LF  
420 QUARRY ROAD  
Morgantown, PA 19543 610-286-6844

**CUSTOMER**

042375  
AMERICAN WASTE OF NJ, LLC  
ONE AMERICAN WAY  
WARREN, OH 44485  
50811411403

**CUSTOMER COPY**

**LICENSE:**  
**TYPE:** Miscellaneous

**SITE CL CELL 22X 60029**

**WEIGHMASTER Mike M.**

**Ticket 950219**

**DATE IN**  
8/27/14 10:13 am

**DATE OUT**  
8/27/14 10:56 am

**VEHICLE**  
SPECIAL

**CONTAINER**

**REFERENCE**  
280-40

**INVOICE**

**BILL OF LADING 34967**

**SCALE IN** **GROSS WEIGHT**  
**SCALE OUT** **TARE WEIGHT**  
**VEHICLE DESC SPECIAL WASTE**

69,000  
41,680

**NET TONS**  
**NET WEIGHT**

13.66  
27,320

**CONTAINER DESC**

**INBOUND**

QTY.	UNIT.	
0.00	YD	TRACKING QTY
13.66	TN	SW-CONT SOIL

**DESCRIPTION**

**RATE.**

**EXTENSION.**

**TAX.**

**TOTAL**

NEW JERSEY

**NET AMOUNT**

**TENDERED**

**CHANGE**

**CHECK**

5/31 **DRIVER :**

**WEIGHMASTER**



# NON-HAZARDOUS SPECIAL WASTE & ASBESTOS MANIFEST

5081 - 34990

If waste is asbestos waste, complete Sections I, II, III and IV  
If waste is NOT asbestos waste, complete Sections I, II and III

## I. GENERATOR (Generator completes Ia-i)

a. Generator's US EPA ID Number		b. Manifest Document Number <b>048</b>		c. Page 1 of	
d. Generator's Name and Location: US EPA Region II-MC Canfield and Sons 1 Cornerstone Lane Newark, NJ 07103			e. Generator's Mailing Address: US EPA Region II-MC Canfield and Sons 2880 Woodbridge Ave Edison, NJ 08837		
f. Phone: 908-420-4475			g. Phone: 908-420-4475		
h. Owner's Name:			i. Owner's Phone No.:		
j. Waste Profile #	k. Exp. Date	l. Waste Shipping Name and Description	m. Containers No.	n. Total Quantity	o. Unit Wt/Vol
5081 1411403	7/10/2015	Metals Impacted Soils and Debris (Lead)	001 CM	EST 18	T
GENERATOR'S CERTIFICATION: I hereby certify that the above named material is not a hazardous waste as defined by 40 CFR 261 or any applicable state law, has been properly described, classified and packaged, and is in proper condition for transportation according to applicable regulations; AND, if this waste is a treatment residue of a previously restricted hazardous waste subject to the Land Disposal Restrictions, I certify and warrant that the waste has been treated in accordance with the requirements of 40 CFR 268 and is no longer a hazardous waste as defined by 40 CFR 261.					
p. Generator Authorized Agent Name (Print) Chris D'Amico (EPA OSC)		q. Signature <i>[Signature]</i>		r. Date 08-27-14	

## II. TRANSPORTER (Generator completes IIa-b and Transporter completes IIc-e)

a. Transporter's Name and Address:		
b. Phone:		
c. Driver Name (Print) Scott Goodman	d. Signature <i>[Signature]</i>	e. Date 08-27-14

## III. DESTINATION (Generator complete IIIa-c and Destination Site completes IIId-g)

a. Disposal Facility and Site Address: Conestoga Landfill 420 Quarry Road Morgantown, PA 15066		c. US EPA Number PA0000015867	d. Discrepancy Indication Space: 20-96
I hereby certify that the above information has been accepted and to the best of my knowledge the foregoing is true and accurate.			
e. Name of Authorized Agent (Print) <i>[Signature]</i>		f. Signature <i>[Signature]</i>	
g. Date 8/27/14			

## IV. ASBESTOS (Generator completes IVa-f and Operator complete IVg-i)

a. Operator's Name and Address:		c. Responsible Agency Name and Address:	
b. Phone:		d. Phone:	
e. Special Handling Instructions and Additional Information:			
f. <input type="checkbox"/> Friable <input type="checkbox"/> Non-Friable <input type="checkbox"/> Both % Friable % Non-Friable			
OPERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked and labeled and are in all respects in proper condition for transport by highway according to applicable international and national governmental regulations.			
g. Operator's Name and Title (Print)		h. Signature	
i. Date			
*Operator refers to the company which owns, leases, operates, controls, or supervises the facility being demolished or renovated, or the demolition or renovation operation or both.			

CONESTOGA LF  
420 QUARRY ROAD  
Morgantown, PA 19543 610-286-6844

**CUSTOMER**

042375  
AMERICAN WASTE OF NJ, LLC  
ONE AMERICAN WAY  
WARREN, OH 44485  
50811411403

**CUSTOMER COPY**

**LICENSE:**

**TYPE:** Miscellaneous

**SITE CL CELL 22X 60029**

**WEIGHMASTER Mike M.**

**Ticket 950220**

**DATE IN**  
8/27/14 10:14 am

**DATE OUT**  
8/27/14 10:57 am

**VEHICLE**  
SPECIAL

**CONTAINER**

**REFERENCE**  
262-299

**INVOICE**

**BILL OF LADING 34990**

**SCALE IN GROSS WEIGHT**  
**SCALE OUT TARE WEIGHT**  
**VEHICLE DESC SPECIAL WASTE**

83,360  
41,440

**NET TONS**  
**NET WEIGHT**

20.96  
41,920

**CONTAINER DESC**

**INBOUND**

QTY.	UNIT.	DESCRIPTION	RATE.	EXTENSION.	TAX.	TOTAL
0.00	YD	TRACKING QTY				
20.96	TN	SW-CONT SOIL				
		NEW JERSEY				

**NET AMOUNT**

**TENDERED**

**CHANGE**

**CHECK**

5/31 **DRIVER:**

**WEIGHMASTER**



## NON-HAZARDOUS SPECIAL WASTE &amp; ASBESTOS MANIFEST

5081 - 34699

If waste is asbestos waste, complete Sections I, II, III and IV  
If waste is NOT asbestos waste, complete Sections I, II and III

## I. GENERATOR (Generator completes Ia-r)

a. Generator's US EPA ID Number		b. Manifest Document Number		c. Page 1 of	
d. Generator's Name and Location: US EPA Region II-MC Canfield and Sons 2890 Woodbridge Ave Edison, NJ 08837		e. Generator's Mailing Address: US EPA Region II-MC Canfield and Sons 2890 Woodbridge Ave Edison, NJ 08837			
f. Phone: 800-420-4475		g. Phone: 808-420-4475			
h. Owner's Name:		i. Owner's Phone No.:			
j. Waste Profile #		k. Exp. Date	l. Waste Shipping Name and Description	m. Containers No. Type	n. Total Quantity
5081 1411403		7/10/2015	Metals Impacted Soils and Debris (Lead)	001 CM	EST 18 T
GENERATOR'S CERTIFICATION: I hereby certify that the above named material is not a hazardous waste as defined by 40 CFR 261 or any applicable state law, has been properly described, classified and packaged, and is in proper condition for transportation according to applicable regulations; AND, if this waste is a treatment residue of a previously restricted hazardous waste subject to the Land Disposal Restrictions. I certify and warrant that the waste has been treated in accordance with the requirements of 40 CFR 268 and is no longer a hazardous waste as defined by 40 CFR 261.					
p. Generator Authorized Agent Name (Print)		q. Signature		r. Date	
CRISTOPHER O. GEPAC OSC		[Signature]		8-28-14	

## II. TRANSPORTER (Generator completes IIa-b and Transporter completes IIc-e)

a. Transporter's Name and Address: DVC 1420 CLEGG ST READING PA 19601		b. Phone: 610-372-6511	
c. Driver Name (Print)	d. Signature	e. Date	
GARY WENTZEL	[Signature]	8-28-14	

## III. DESTINATION (Generator complete IIIa-c and Destination Site completes IIId-g)

a. Disposal Facility and Site Address: Conestoga Landfill 420 Quarry Road Morgantown, PA 15643		c. US EPA Number	d. Discrepancy Indication Space:
b. Phone: 810-240-8844		PA0000015867	22-45
I hereby certify that the above named material has been accepted and to the best of my knowledge the foregoing is true and accurate.			
e. Name of Authorized Agent (Print)	f. Signature	g. Date	
[Signature]	[Signature]	8/28/14	

## IV. ASBESTOS (Generator completes IVa-f and Operator complete IVg-i)

a. Operator's Name and Address:		c. Responsible Agency Name and Address:	
b. Phone:		d. Phone:	
e. Special Handling Instructions and Additional Information:			
f. <input type="checkbox"/> Friable <input type="checkbox"/> Non-Friable <input type="checkbox"/> Both % Friable % Non-Friable			
OPERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked and labeled and are in all respects in proper condition for transport by highway according to applicable international and national governmental regulations.			
g. Operator's Name and Title (Print)		h. Signature	
i. Date		j. Date	
*Operator refers to the company which owns, leases, operates, controls, or supervises the facility being demolished or renovated, or the demolition or renovation operation or both			

CONESTOGA LF  
420 QUARRY ROAD  
Morgantown, PA 19543 610-286-6844

CUSTOMER  
042375

AMERICAN WASTE OF NJ, LLC  
ONE AMERICAN WAY  
WARREN, OH 44485  
50811411403

**CUSTOMER COPY**

LICENSE:  
TYPE: Miscellaneous

SITE CL CELL 22X 77564

WEIGHMASTER IN - Bruce E. OUT - Mike M.  
Ticket 950418

DATE IN  
8/28/14 11:51 am

DATE OUT  
8/28/14 12:08 pm  
CONTAINER

VEHICLE  
SPECIAL

REFERENCE  
278

INVOICE

BILL OF LADING 34699

SCALE IN GROSS WEIGHT  
SCALE OUT TARE WEIGHT  
VEHICLE DESC SPECIAL WASTE

87,520  
43,420

NET TONS  
NET WEIGHT

22.05  
44,100

CONTAINER DESC

INBOUND

QTY.	UNIT.	
0.00	YD	TRACKING QTY
22.05	TN	SW-CONT SOIL

DESCRIPTION	RATE.	EXTENSION.	TAX.	TOTAL
-------------	-------	------------	------	-------

NEW JERSEY

NET AMOUNT

TENDERED

CHANGE

CHECK

331 DRIVER:

WEIGHMASTER



## CERTIFICATE OF DESTRUCTION

I, Joanne Schulze, of Republic Services, hereby certifies to American Waste of NJ, LLC that all the product described in Section A has been properly and legally disposed of in Conestoga Landfill between 8/26 thru 8/28/14.

American Waste of NJ, LLC agrees to indemnify and hold Republic Services and it subsidiary and affiliated corporations harmless from any and all liabilities, claims, damage or cost incurred in connection with any claims related to the destruction of this waste stream

By: Joanne Schulze  
Name: Joanne Schulze  
Title: Environmental Coordinator  
Date: 8/28/14

### **Section A- Products Destroyed (attached additional sheets if needed):**

<u>Description of Product</u>	<u>Quantity or Weight</u>
Metals Impacted Soil & Debris (Lead)	23.23 Tons
Metals Impacted Soil & Debris (Lead)	22.11 Tons
Metals Impacted Soil & Debris (Lead)	13.66 Tons
Metals Impacted Soil & Debris (Lead)	20.96 Tons
Metals Impacted Soil & Debris (Lead)	22.05 Tons



## NON-HAZARDOUS SPECIAL WASTE &amp; ASBESTOS MANIFEST

5081 - 34704

If waste is asbestos waste, complete Sections I, II, III and IV  
If waste is NOT asbestos waste, complete Sections I, II and III

## I. GENERATOR (Generator completes Ia-r)

a. Generator's US EPA ID Number		b. Manifest Document Number #050		c. Page 1 of	
d. Generator's Name and Location: US EPA Region II-MC Canfield and Sons 2890 Woodbridge Ave Edison, NJ 08837			e. Generator's Mailing Address: US EPA Region II-MC Canfield and Sons 2890 Woodbridge Ave Edison, NJ 08837		
f. Phone: 908-420-4475			g. Phone: 908-420-4475		
If owner of the generating facility differs from the generator, provide:			908-420-4475		
h. Owner's Name:			i. Owner's Phone No.:		
j. Waste Profile #	k. Exp. Date	l. Waste Shipping Name and Description	m. Containers No.	n. Total Quantity	o. Unit Wt/Vol
5081 1411403	7/10/2015	Metals Impacted Soils and Debris	001 CM	EST 18	T
GENERATOR'S CERTIFICATION: I hereby certify that the above named material is not a hazardous waste as defined by 40 CFR 261 or any applicable state law, has been properly described, classified and packaged, and is in proper condition for transportation according to applicable regulations; AND, if this waste is a treatment residue of a previously restricted hazardous waste subject to the Land Disposal Restrictions. I certify and warrant that the waste has been treated in accordance with the requirements of 40 CFR 268 and is no longer a hazardous waste as defined by 40 CFR 261.					
p. Generator Authorized Agent Name (Print): CRK DRONARDI (EPA OSC)			q. Signature: [Signature]		r. Date: 9-9-2014

## II. TRANSPORTER (Generator completes IIa-b and Transporter completes IIc-e)

a. Transporter's Name and Address: DNC 1420 Clarry St READING, Pa 19601		
b. Phone:		
c. Driver Name (Print): GARY Wentzel	d. Signature: [Signature]	e. Date: 9/9/2014

## III. DESTINATION (Generator complete IIIa-g and Destination Site completes IIId-g)

a. Disposal Facility and Site Address: Conestoga Landfill 420 Quarry Road Morgantown, PA 19543		c. US EPA Number: PA0000015867	d. Discrepancy Indication Space: 16.69
b. Phone: 810-208-8244		I hereby certify that the above named material has been accepted and to the best of my knowledge the foregoing is true and accurate.	
e. Name of Authorized Agent (Print): [Signature]		f. Signature: [Signature]	g. Date: 9/9/2014

## IV. ASBESTOS (Generator completes IVa-f and Operator complete IVg-i)

a. Operator's Name and Address:		c. Responsible Agency Name and Address:	
b. Phone:		d. Phone:	
e. Special Handling Instructions and Additional Information:			
f. <input type="checkbox"/> Friable <input type="checkbox"/> Non-Friable <input type="checkbox"/> Both % Friable % Non-Friable			
OPERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked and labeled and are in all respects in proper condition for transport by highway according to applicable international and national governmental regulations.			
g. Operator's Name and Title (Print):		h. Signature	
i. Date		*Operator refers to the company which owns, leases, operates, controls, or supervises the facility being demolished or renovated, or the demolition or renovation operation or both	



CONESTOGA LF  
420 QUARRY ROAD  
Morgantown, PA 19543 610-286-6844

CUSTOMER  
042375  
AMERICAN WASTE OF NJ, LLC  
ONE AMERICAN WAY  
WARREN, OH 44485  
50811411403

**CUSTOMER COPY**

LICENSE:  
TYPE: Miscellaneous

SITE CL CELL 22X 77564  
WEIGHMASTER IN - Bruce E. OUT - Mike M.  
Ticket 951729  
DATE IN 9/9/14 8:49 am DATE OUT 9/9/14 9:06 am  
VEHICLE SPECIAL CONTAINER  
REFERENCE 278 INVOICE  
BILL OF LADING 34704

SCALE IN GROSS WEIGHT  
SCALE OUT TARE WEIGHT  
VEHICLE DESC SPECIAL WASTE

76,680  
43,300

NET TONS  
NET WEIGHT

16.69  
33,380  
CONTAINER DESC

INBOUND

QTY.	UNIT.	DESCRIPTION	RATE.	EXTENSION.	TAX.	TOTAL
0.00	YD	TRACKING QTY				
16.69	TN	SW-CONT SOIL				

NEW JERSEY

*PO # W1049411*

NET AMOUNT

TENDERED

CHANGE

CHECK

331 DRIVER :

WEIGHMASTER



## NON-HAZARDOUS SPECIAL WASTE &amp; ASBESTOS MANIFEST

5081 - 34705

If waste is asbestos waste, complete Sections I, II, III and IV  
If waste is NOT asbestos waste, complete Sections I, II and III

## I. GENERATOR (Generator completes Ia-r)

a. Generator's US EPA ID Number		b. Manifest Document Number		c. Page 1 of	
d. Generator's Name and Location: US EPA Region II-MC Canfield and Sons 2890 Woodbridge Ave Edison, NJ 08837		e. Generator's Mailing Address: US EPA Region II-MC Canfield and Sons 2890 Woodbridge Ave Edison, NJ 08837			
f. Phone: 908-420-4475		g. Phone: 908-420-4475			
h. Owner's Name:		i. Owner's Phone No.:			
j. Waste Profile #	k. Exp. Date	l. Waste Shipping Name and Description	m. Containers No.	n. Total Quantity	o. Unit Wt/Vol
5081 1411403	7/10/2015	Metals Impacted Soils and Debris	DDI CM	EST 7.8	T
GENERATOR'S CERTIFICATION: I hereby certify that the above named material is not a hazardous waste as defined by 40 CFR 261 or any applicable state law, has been properly described, classified and packaged, and is in proper condition for transportation according to applicable regulations; AND, if this waste is a treatment residue of a previously restricted hazardous waste subject to the Land Disposal Restrictions. I certify and warrant that the waste has been treated in accordance with the requirements of 40 CFR 261 and is no longer a hazardous waste as defined by 40 CFR 261.					
p. Generator Authorized Agent Name (Print)		q. Signature		r. Date	

## II. TRANSPORTER (Generator completes IIa-b and Transporter completes IIc-e)

a. Transporter's Name and Address: PVC 1426 Clavion St Reading Pa 19601		b. Phone:	
c. Driver Name (Print)	d. Signature	e. Date	

## III. DESTINATION (Generator complete IIIa-c and Destination Site completes IIId-g)

a. Disposal Facility and Site Address: Conestoga Landfill 420 Quarry Road Morgantown, PA 19543		b. Phone: 610-266-8844	c. US EPA Number PA0000015887	d. Discrepancy Indication Space: 20.11
I hereby certify that the above named material has been accepted and to the best of my knowledge the foregoing is true and accurate.				
e. Name of Authorized Agent (Print)		f. Signature		g. Date

## IV. ASBESTOS (Generator completes IVa-f and Operator complete IVg-i)

a. Operator's Name and Address:		c. Responsible Agency Name and Address:	
b. Phone:		d. Phone:	
e. Special Handling Instructions and Additional Information:			
f. <input type="checkbox"/> Friable <input type="checkbox"/> Non-Friable <input type="checkbox"/> Both % Friable % Non-Friable			
OPERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked and labeled and are in all respects in proper condition for transport by highway according to applicable international and national governmental regulations.			
g. Operator's Name and Title (Print)		h. Signature	
i. Date		j. Date	
*Operator refers to the company which owns, leases, operates, controls, or supervises the facility being demolished or renovated, or the demolition or renovation operation or both			

CONESTOGA LF  
420 QUARRY ROAD

Morgantown, PA 19543 610-286-6844

**CUSTOMER**

042375  
AMERICAN WASTE OF NJ, LLC  
ONE AMERICAN WAY  
WARREN, OH 44485  
50811411403

**CUSTOMER COPY**

LICENSE :  
TYPE: Miscellaneous

SITE CL CELL 22X 60029

WEIGHMASTER Mike M.

Ticket 951841

DATE IN 9/9/14 2:11 pm

DATE OUT 9/9/14 2:28 pm

VEHICLE  
SPECIAL

CONTAINER

REFERENCE  
278-210

INVOICE

BILL OF LADING 34705

SCALE IN GROSS WEIGHT  
SCALE OUT TARE WEIGHT  
VEHICLE DESC SPECIAL WASTE

83,180  
42,960

NET TONS  
NET WEIGHT

20.11  
40,220

CONTAINER DESC

INBOUND

QTY. UNIT.  
0.00 YD TRACKING QTY  
20.11 TN SW-CONT SOIL

DESCRIPTION RATE EXTENSION TAX TOTAL

NEW JERSEY

NET AMOUNT

TENDERED

CHANGE

CHECK

5/31 DRIVER : WEIGHMASTER

**5081 - 34702**

If waste is asbestos waste, complete Sections I, II, III and IV  
If waste is NOT asbestos waste, complete Sections I, II and III

**I. GENERATOR** (Generator completes Ia-r)

a. Generator's US EPA ID Number		b. Manifest Document Number <b>052</b>		c. Page 1 of	
d. Generator's Name and Location: US EPA Region II-MC Canfield and Sons 2890 Woodbridge Ave Edison, NJ 08837 f. Phone: 908-420-4475			e. Generator's Mailing Address: US EPA Region II-MC Canfield and Sons 2890 Woodbridge Ave Edison, NJ 08837 g. Phone: 908-420-4475		
If owner of the generating facility differs from the generator, provide:			h. Owner's Name:		
i. Owner's Phone No.:			j. Waste Profile #		
k. Exp. Date		l. Waste Shipping Name and Description		m. Containers	
				n. Total Quantity	
				o. Unit Wt/Vol	
5081 1411403		7/10/2015 Metals Impacted Soils and Debris		EST 18 T	
GENERATOR'S CERTIFICATION: I hereby certify that the above named material is not a hazardous waste as defined by 40 CFR 261 or any applicable state law, has been properly described, classified and packaged, and is in proper condition for transportation according to applicable regulations; AND, if this waste is a treatment residue of a previously restricted hazardous waste subject to the Land Disposal Restrictions. I certify and warrant that the waste has been treated in accordance with the requirements of 40 CFR 268 and is no longer a hazardous waste as defined by 40 CFR 261.					
p. Generator Authorized Agent Name (Print) <b>CRIS DONORIO (EPA OSC)</b>				q. Signature <b>[Signature]</b>	
				r. Date <b>9/10/14</b>	

**II. TRANSPORTER** (Generator completes IIa-b and Transporter completes IIc-e)

a. Transporter's Name and Address: DVC 1420 CLORION ST LEADING PA 19661		
b. Phone:		
c. Driver Name (Print) <b>GARY WATKINS</b>	d. Signature <b>[Signature]</b>	e. Date <b>9/10/14</b>

**III. DESTINATION** (Generator complete IIIa-c and Destination Site completes IIId-g)

a. Disposal Facility and Site Address: Conesloga Landfill 420 Quarry Road Morgantown, PA 19543 b. Phone: 610-288-8844		c. US EPA Number PA0000015867	d. Discrepancy Indication Space: 15.25
I hereby certify that the above named material has been accepted and to the best of my knowledge the foregoing is true and accurate.			
e. Name of Authorized Agent (Print) <b>[Signature]</b>		f. Signature <b>[Signature]</b>	
		g. Date <b>9/10/14</b>	

**IV. ASBESTOS** (Generator completes IVa-f and Operator complete IVg-i)

a. Operator's Name and Address:		c. Responsible Agency Name and Address:	
b. Phone:		d. Phone:	
e. Special Handling Instructions and Additional Information:			
f. <input type="checkbox"/> Friable <input type="checkbox"/> Non-Friable <input type="checkbox"/> Both % Friable % Non-Friable			
OPERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked and labeled and are in all respects in proper condition for transport by highway according to applicable international and national governmental regulations.			
g. Operator's Name and Title (Print)		h. Signature	
		i. Date	
*Operator refers to the company which owns, leases, operates, controls, or supervises the facility being demolished or renovated, or the demolition or renovation operation or both			

CONESTOGA LF  
420 QUARRY ROAD  
Morgantown, PA 19543 610-286-6844

CUSTOMER  
042375  
AMERICAN WASTE OF NJ, LLC  
ONE AMERICAN WAY  
WARREN, OH 44485  
50811411403

**CUSTOMER COPY**

LICENSE:  
TYPE: Miscellaneous

SITE CL CELL 22X 77564  
WEIGHMASTER IN - Bruce E. OUT - Mike M.  
Ticket 951938  
DATE IN 9/10/14 8:47 am DATE OUT 9/10/14 9:06 am  
VEHICLE SPECIAL CONTAINER  
REFERENCE 278  
BILL OF LADING 34702  
INVOICE

SCALE IN GROSS WEIGHT  
SCALE OUT TARE WEIGHT  
VEHICLE DESC SPECIAL WASTE

74,620 NET TONS  
43,120 NET WEIGHT

15.75  
31,500  
CONTAINER DESC INBOUND

QTY.	UNIT.	DESCRIPTION	RATE.	EXTENSION.	TAX.	TOTAL
0.00	YD	TRACKING QTY				
15.75	TN	SW-CONT SOIL				

NEW JERSEY

NET AMOUNT

TENDERED

CHANGE

CHECK

3/31 DRIVER:

WEIGHMASTER

If waste is asbestos waste, complete Sections I, II, III and IV  
If waste is **NOT** asbestos waste, complete Sections I, II and III

5081 - 34703

## I. GENERATOR (Generator completes Ia-r)

a. Generator's US EPA ID Number		b. Manifest Document Number <b>053</b>		c. Page 1 of	
d. Generator's Name and Location: US EPA Region II-MC Canfield and Sons 2880 Woodbridge Ave Edison, NJ 08837			e. Generator's Mailing Address: US EPA Region II-MC Canfield and Sons 2880 Woodbridge Ave Edison, NJ 08837		
f. Phone: 800-420-4475			g. Phone: 908-420-4475		
If owner of the generating facility differs from the generator, provide:					
h. Owner's Name:			i. Owner's Phone No.:		
j. Waste Profile # <b>1</b>	k. Exp. Date <b>7/10/2015</b>	l. Waste Shipping Name and Description <b>Metals Impacted Soils and Debris</b>		m. Containers No. <b>001</b> Type <b>CM</b>	n. Total Quantity <b>EST 15</b>
5081 1411403					o. Unit <b>T</b>
GENERATOR'S CERTIFICATION: I hereby certify that the above named material is not a hazardous waste as defined by 40 CFR 261 or any applicable state law, has been properly described, classified and packaged, and is in proper condition for transportation according to applicable regulations; AND, if this waste is a treatment residue of a previously restricted hazardous waste subject to the Land Disposal Restrictions. I certify and warrant that the waste has been treated in accordance with the requirements of 40 CFR 268 and is no longer a hazardous waste as defined by 40 CFR 261.					
p. Generator Authorized Agent Name (Print) <b>Cris D'Onofrio (EPA 08)</b>				q. Signature <i>[Signature]</i>	
				r. Date <b>9/10/14</b>	

## II. TRANSPORTER (Generator completes IIa-b and Transporter completes IIc-e)

a. Transporter's Name and Address: <b>DVC</b> <b>1420 Claron St</b> <b>READING PA 19601</b>	
b. Phone:	
c. Driver Name (Print) <b>GARY Wentzel</b>	d. Signature <i>[Signature]</i>
e. Date <b>9/10/14</b>	

## III. DESTINATION (Generator complete IIIa-c and Destination Site completes IIId-g)

a. Disposal Facility and Site Address: Conestoga Landfill 420 Quarry Road Morgantown, PA 18543		b. Phone: 810-280-8811
c. US EPA Number <b>PA0000015887</b>	d. Discrepancy Indication Space: <b>17.87</b>	
I hereby certify that the above named material has been accepted and to the best of my knowledge the foregoing is true and accurate.		
e. Name of Authorized Agent (Print) <i>[Signature]</i>	f. Signature <i>[Signature]</i>	
g. Date <b>9/10/14</b>		

## IV. ASBESTOS (Generator completes IVa-f and Operator complete IVg-i)

a. Operator's Name and Address:		c. Responsible Agency Name and Address:	
b. Phone:		d. Phone:	
e. Special Handling Instructions and Additional Information:			
f. <input type="checkbox"/> Friable <input type="checkbox"/> Non-Friable <input type="checkbox"/> Both % Friable % Non-Friable			
OPERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked and labeled and are in all respects in proper condition for transport by highway according to applicable international and national governmental regulations.			
g. Operator's Name and Title (Print)		h. Signature	
		i. Date	
*Operator refers to the company which owns, leases, operates, controls, or supervises the facility being demolished or renovated, or the demolition or renovation operation or both			

CONESTOGA LF  
420 QUARRY ROAD

Morgantown, PA 19543 610-286-6844

**CUSTOMER**

042375  
AMERICAN WASTE OF NJ, LLC  
ONE AMERICAN WAY  
WARREN, OH 44485  
50811411403

**CUSTOMER COPY**

**LICENSE:**

**TYPE:** Miscellaneous

**SITE CL CELL 22X 60029**

**WEIGHMASTER Mike M.**

**Ticket 952057**

**DATE IN**  
9/10/14 2:19 pm

**DATE OUT**  
9/10/14 2:34 pm

**VEHICLE**  
SPECIAL

**CONTAINER**

**REFERENCE**  
278-210

**INVOICE**

**BILL OF LADING 34703**

**SCALE IN** **GROSS WEIGHT**  
**SCALE OUT** **TARE WEIGHT**  
**VEHICLE DESC SPECIAL WASTE**

78,700  
42,960

**NET TONS**  
**NET WEIGHT**

17.87  
35,740

**CONTAINER DESC**

**INBOUND**

**QTY. UNIT.**  
0.00 YD TRACKING QTY  
17.87 TN SW-CONT SOIL

**DESCRIPTION RATE. EXTENSION. TAX. TOTAL**

NEW JERSEY

**NET AMOUNT**

**TENDERED**

**CHANGE**

**CHECK**

3/31 **DRIVER:**

**WEIGHMASTER**



**5081 - 34959**

 If waste is asbestos waste, complete Sections I, II, III and IV  
 If waste is NOT asbestos waste, complete Sections I, II and III

**I. GENERATOR (Generator completes Ia-r)**

a. Generator's US EPA ID Number		b. Manifest Document Number <b>055</b>		c. Page 1 of	
d. Generator's Name and Location:  US EPA Region II-MC Canfield and Sons 1 Cornerstone Lane Newark, NJ 07103 908-420-4475			e. Generator's Mailing Address:  US EPA Region II-MC Canfield and Sons 2890 Woodbridge Ave Edison, NJ 08837 908-420-4475		
f. Phone:			g. Phone:		
If owner of the generating facility differs from the generator, provide:			i. Owner's Phone No.:		
h. Owner's Name:		j. Waste Profile #			
k. Exp. Date		l. Waste Shipping Name and Description		m. Containers No.	n. Total Quantity
				Type	o. Unit Wt/Vol
5081 1411403		Metals Impacted Soils and Debris (Lead)		001 CM	257 18 T
GENERATOR'S CERTIFICATION: I hereby certify that the above named material is not a hazardous waste as defined by 40 CFR 261 or any applicable state law, has been properly described, classified and packaged, and is in proper condition for transportation according to applicable regulations; AND, if this waste is a treatment residue of a previously restricted hazardous waste subject to the Land Disposal Restrictions. I certify and warrant that the waste has been treated in accordance with the requirements of 40 CFR 268 and is no longer a hazardous waste as defined by 40 CFR 261.					
p. Generator Authorized Agent Name (Print) <b>C. DONOFIO (EPA OSC)</b>			q. Signature 		r. Date <b>9/11/14</b>

**II. TRANSPORTER (Generator completes IIa-b and Transporter completes IIc-e)**

a. Transporter's Name and Address: <b>DVC</b> <b>1420 Clarion St</b> <b>READING Pa 19601</b>		
b. Phone:		
c. Driver Name (Print) <b>Gary Wentzel</b>	d. Signature 	e. Date <b>9/11/14</b>

**III. DESTINATION (Generator complete IIIa-c and Destination Site completes IIId-g)**

a. Disposal Facility and Site Address:  Conestoga Landfill 420 Quarry Road Reading, PA 19601 610-785-8844		c. US EPA Number <b>PA0000015887</b>	d. Discrepancy Indication Space:  <b>18.85</b>
b. Phone:			
I hereby certify that the above named material has been accepted and to the best of my knowledge the foregoing is true and accurate.			
e. Name of Authorized Agent (Print) 		f. Signature 	g. Date <b>9/11/14</b>

**IV. ASBESTOS (Generator completes IVa-f and Operator complete IVg-i)**

a. Operator's Name and Address:		c. Responsible Agency Name and Address:	
b. Phone:		d. Phone:	
e. Special Handling Instructions and Additional Information:			
f. <input type="checkbox"/> Friable <input type="checkbox"/> Non-Friable <input type="checkbox"/> Both % Friable % Non-Friable			
OPERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked and labeled and are in all respects in proper condition for transport by highway according to applicable international and national governmental regulations.			
g. Operator's Name and Title (Print):		h. Signature	
		i. Date	
*Operator refers to the company which owns, leases, operates, controls, or supervises the facility being demolished or renovated, or the demolition or renovation operation or both			

CONESTOGA LF  
420 QUARRY ROAD

Morgantown, PA 19543 610-286-6844

**CUSTOMER**

042375  
AMERICAN WASTE OF NJ, LLC  
ONE AMERICAN WAY  
WARREN, OH 44485  
50811411403

**CUSTOMER COPY**

LICENSE:  
TYPE: Miscellaneous

SITE CL CELL 22X 60029

WEIGHMASTER Mike M.

Ticket 952226

DATE IN  
9/11/14 1:10 pm

DATE OUT  
9/11/14 1:25 pm

VEHICLE  
SPECIAL

CONTAINER

REFERENCE  
278-40

INVOICE

BILL OF LADING 34959

SCALE IN GROSS WEIGHT  
SCALE OUT TARE WEIGHT  
VEHICLE DESC SPECIAL WASTE

80,940  
43,240

NET TONS  
NET WEIGHT

18.85  
37,700

CONTAINER DESC

INBOUND

QTY.	UNIT.	DESCRIPTION	RATE.	EXTENSION.	TAX.	TOTAL
0.00	YD	TRACKING QTY				
18.85	TN	SW-CONT SOIL				
		NEW JERSEY				

NET AMOUNT

TENDERED

CHANGE

CHECK

3/31 DRIVER :

WEIGHMASTER

If waste is asbestos waste, complete Sections I, II, III and IV  
If waste is NOT asbestos waste, complete Sections I, II and III

5081 - 34981

## I. GENERATOR (Generator completes Ia-r)

a. Generator's US EPA ID Number		b. Manifest Document Number <b>054</b>		c. Page 1 of	
d. Generator's Name and Location: US EPA Region II-MC Canfield and Sons 1 Cornerstone Lane Newark, NJ 07103			e. Generator's Mailing Address: US EPA Region II-MC Canfield and Sons 2890 Woodbridge Ave Edison, NJ 08837		
f. Phone: 908-420-1475			g. Phone: 908-420-4475		
If owner of the generating facility differs from the generator, provide:					
h. Owner's Name:			i. Owner's Phone No.:		
j. Waste Profile #	k. Exp. Date	l. Waste Shipping Name and Description	m. Containers No.	n. Total Quantity	o. Unit Wt/Vol
5081 1411403	7/10/2015	Metals Impacted Soils and Debris (Lead)	001 LM	EST 18	T
GENERATOR'S CERTIFICATION: I hereby certify that the above named material is not a hazardous waste as defined by 40 CFR 261 or any applicable state law, has been properly described, classified and packaged, and is in proper condition for transportation according to applicable regulations; AND, if this waste is a treatment residue of a previously restricted hazardous waste subject to the Land Disposal Restrictions. I certify and warrant that the waste has been treated in accordance with the requirements of 40 CFR 268 and is no longer a hazardous waste as defined by 40 CFR 261.					
p. Generator Authorized Agent Name (Print) <b>Kelli Lucarino</b>		q. Signature <i>Kelli Lucarino</i>		r. Date 9/11/2014	

## II. TRANSPORTER (Generator completes IIa-b and Transporter completes IIc-e)

a. Transporter's Name and Address: <b>INC 1420 CLARION ST READING PA 19601</b>		
b. Phone:		
c. Driver Name (Print) <b>Gary Wentzel</b>	d. Signature <i>Gary Wentzel</i>	e. Date 9/11/2014

## III. DESTINATION (Generator complete IIIa-c and Destination Site completes IIId-g)

a. Disposal Facility and Site Address: Conestoga Landfill 420 Quarry Road Morgantown, PA 15064		c. US EPA Number PA0000015867	d. Discrepancy Indication Space: <b>16-85</b>
b. Phone: 717-269-6844			
I hereby certify that the above named material has been accepted and to the best of my knowledge the foregoing is true and accurate.			
e. Name of Authorized Agent (Print) <i>[Signature]</i>		f. Signature <i>[Signature]</i>	
		g. Date 9/11/14	

## IV. ASBESTOS (Generator completes IVa-f and Operator complete IVg-i)

a. Operator's Name and Address:		c. Responsible Agency Name and Address:	
b. Phone:		d. Phone:	
e. Special Handling Instructions and Additional Information:			
f. <input type="checkbox"/> Friable <input type="checkbox"/> Non-Friable <input type="checkbox"/> Both % Friable % Non-Friable			
OPERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked and labeled and are in all respects in proper condition for transport by highway according to applicable international and national governmental regulations.			
g. Operator's Name and Title (Print)		h. Signature	
		i. Date	
*Operator refers to the company which owns, leases, operates, controls, or supervises the facility being demolished or renovated, or the demolition or renovation operation or both			

CONESTOGA LF  
420 QUARRY ROAD  
Morgantown, PA 19543 610-286-6844

CUSTOMER  
042375  
AMERICAN WASTE OF NJ, LLC  
ONE AMERICAN WAY  
WARREN, OH 44485  
50811411403

**CUSTOMER COPY**

LICENSE:  
TYPE: Miscellaneous

SITE CL CELL 22X 60029

WEIGHMASTER Mike M.

Ticket 952136

DATE IN  
9/11/14 8:20 am

DATE OUT  
9/11/14 8:34 am

VEHICLE  
SPECIAL

CONTAINER

REFERENCE  
278-40

INVOICE

BILL OF LADING 34981

SCALE IN GROSS WEIGHT  
SCALE OUT TARE WEIGHT  
VEHICLE DESC SPECIAL WASTE

77,080  
43,380

NET TONS  
NET WEIGHT

16.85  
33,700

CONTAINER DESC

INBOUND

QTY. UNIT.  
0.00 YD TRACKING QTY  
16.85 TN SW-CONT SOIL

DESCRIPTION RATE. EXTENSION. TAX. TOTAL

NEW JERSEY

NET AMOUNT

TENDERED

CHANGE

CHECK

5/31 DRIVER:

WEIGHMASTER

If waste is asbestos waste, complete Sections I, II, III and IV  
If waste is **NOT** asbestos waste, complete Sections I, II and III

**5081 - 34708**
**I. GENERATOR** (Generator completes Ia-r)

a. Generator's US EPA ID Number		b. Manifest Document Number <b>56</b>		c. Page 1 of	
d. Generator's Name and Location: US EPA Region II-MC Canfield and Sons 2890 Woodbridge Ave Edison NJ 08837			e. Generator's Mailing Address: US EPA Region II-MC Canfield and Sons 2890 Woodbridge Ave Edison, NJ 08837		
f. Phone: 908-420-4475			g. Phone: 908-420-4475		
If owner of the generating facility differs from the generator, provide:					
h. Owner's Name:			i. Owner's Phone No.:		
j. Waste Profile #	k. Exp. Date	l. Waste Shipping Name and Description	m. Containers No.	n. Total Quantity	o. Unit Wt/Vol
5081 1411403	7/10/2015	Metals Impacted Soils and Debris	001 CM	EST 18	T
GENERATOR'S CERTIFICATION: I hereby certify that the above named material is not a hazardous waste as defined by 40 CFR 261 or any applicable state law, has been properly described, classified and packaged, and is in proper condition for transportation according to applicable regulations; AND, if this waste is a treatment residue of a previously restricted hazardous waste subject to the Land Disposal Restrictions. I certify and warrant that the waste has been treated in accordance with the requirements of 40 CFR 268 and is no longer a hazardous waste as defined by 40 CFR 261.					
p. Generator Authorized Agent Name (Print) <b>DILSHAD J. PERERA</b>			q. Signature <i>[Signature]</i>		r. Date <b>9/12/2014</b>

**II. TRANSPORTER** (Generator completes IIa-b and Transporter completes IIc-e)

a. Transporter's Name and Address: 1426 Clarion Rd READING PA 19601		
b. Phone: 610-377-6511		
c. Driver Name (Print) <b>Gary Wentzel</b>	d. Signature <i>[Signature]</i>	e. Date <b>9/12/14</b>

**III. DESTINATION** (Generator complete IIIa-c and Destination Site completes IIId-g)

a. Disposal Facility and Site Address: Conestoga Landfill 420 Quarry Road Morgantown, PA 19543		c. US EPA Number <b>PA0000015867</b>	d. Discrepancy Indication Space: <b>18.66</b>
b. Phone: 810-288-8044		I hereby certify that the above named material has been accepted and to the best of my knowledge the foregoing is true and accurate.	
e. Name of Authorized Agent (Print) <i>[Signature]</i>	f. Signature <i>[Signature]</i>	g. Date <b>9/12/14</b>	

**IV. ASBESTOS** (Generator completes IVa-f and Operator complete IVg-i)

a. Operator's Name and Address:		c. Responsible Agency Name and Address:	
b. Phone:		d. Phone:	
e. Special Handling Instructions and Additional Information:			
f. <input type="checkbox"/> Friable <input type="checkbox"/> Non-Friable <input type="checkbox"/> Both % Friable % Non-Friable			
OPERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked and labeled and are in all respects in proper condition for transport by highway according to applicable international and national governmental regulations.			
g. Operator's Name and Title (Print)		h. Signature	
		i. Date	
*Operator refers to the company which owns, leases, operates, controls, or supervises the facility being demolished or renovated, or the demolition or renovation operation or both			

CONESTOGA LF  
420 QUARRY ROAD  
Morgantown, PA 19543 610-286-6844

**CUSTOMER**

042375  
AMERICAN WASTE OF NJ, LLC  
ONE AMERICAN WAY  
WARREN, OH 44485  
50811411403

**CUSTOMER COPY**

LICENSE:  
TYPE: Miscellaneous

SITE CL CELL 22X 77564

WEIGHMASTER IN - Bruce E. OUT - Mike M.

Ticket 952331

DATE IN 9/12/14 8:48 am DATE OUT 9/12/14 9:04 am  
VEHICLE SPECIAL CONTAINER

REFERENCE  
278

BILL OF LADING 34708

INVOICE

SCALE IN GROSS WEIGHT 80,720  
SCALE OUT TARE WEIGHT 43,400  
VEHICLE DESC SPECIAL WASTE

NET TONS 18.66  
NET WEIGHT 37,320

CONTAINER DESC

INBOUND

QTY.	UNIT.	DESCRIPTION	RATE.	EXTENSION.	TAX.	TOTAL
0.00	YD	TRACKING QTY				
18.66	TN	SW-CONT SOIL				
		NEW JERSEY				

NET AMOUNT

TENDERED

CHANGE

CHECK

331 DRIVER :

WEIGHMASTER

If waste is asbestos waste, complete Sections I, II, III and IV  
If waste is **NOT** asbestos waste, complete Sections I, II and III

5081 - 34980

## I. GENERATOR (Generator completes Ia-r)

a. Generator's US EPA ID Number		b. Manifest Document Number <b>057</b>		c. Page 1 of	
d. Generator's Name and Location: US EPA Region II-MC Canfield and Sons 1 Cornerstone Lane Newark, NJ 07103			e. Generator's Mailing Address: US EPA Region II-MC Canfield and Sons 2890 Woodbridge Ave Edison, NJ 08837		
f. Phone: 908-420-4475			g. Phone: 908-420-4475		
If owner of the generating facility differs from the generator, provide:					
h. Owner's Name:			i. Owner's Phone No.:		
j. Waste Profile #	k. Exp. Date	l. Waste Shipping Name and Description	m. Containers No.	n. Total Quantity	o. Unit Wt/Vol
5081 1411403	7/10/2015	Metals Impacted Soils and Debris (Lead)	001	EST 18	T
GENERATOR'S CERTIFICATION: I hereby certify that the above named material is not a hazardous waste as defined by 40 CFR 261 or any applicable state law, has been properly described, classified and packaged, and is in proper condition for transportation according to applicable regulations; AND, if this waste is a treatment residue of a previously restricted hazardous waste subject to the Land Disposal Restrictions. I certify and warrant that the waste has been treated in accordance with the requirements of 40 CFR 261 and is no longer a hazardous waste as defined by 40 CFR 261.					
p. Generator Authorized Agent Name (Print) Kelli Lucarino		q. Signature <i>Kelli Lucarino</i>		r. Date 9/12/14	

## II. TRANSPORTER (Generator completes IIa-b and Transporter completes IIc-e)

a. Transporter's Name and Address: DVC 1420 CLAYTON ST READING PA 19601		
b. Phone:		
c. Driver Name (Print) Gary Wentzel	d. Signature <i>[Signature]</i>	e. Date 9/12/14

## III. DESTINATION (Generator complete IIIa-c and Destination Site completes IIId-g)

a. Disposal Facility and Site Address: Conestoga Landfill 420 Quarry Road Morgantown, PA 15060		c. US EPA Number PA000005667	d. Discrepancy Indication Space: 1665
b. Phone: 800-200-6867			
I hereby certify that the above named material has been accepted and to the best of my knowledge the foregoing is true and accurate.			
e. Name of Authorized Agent (Print) <i>[Signature]</i>		f. Signature <i>[Signature]</i>	
		g. Date 9/12/14	

## IV. ASBESTOS (Generator completes IVa-f and Operator complete IVg-i)

a. Operator's Name and Address:		c. Responsible Agency Name and Address:	
b. Phone:		d. Phone:	
e. Special Handling Instructions and Additional Information:			
f. <input type="checkbox"/> Friable <input type="checkbox"/> Non-Friable <input type="checkbox"/> Both % Friable % Non-Friable			
OPERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked and labeled and are in all respects in proper condition for transport by highway according to applicable international and national governmental regulations.			
g. Operator's Name and Title (Print)		h. Signature	
		i. Date	
*Operator refers to the company which owns, leases, operates, controls, or supervises the facility being demolished or renovated, or the demolition or renovation operation or both			



CONESTOGA LF  
420 QUARRY ROAD

Morgantown, PA 19543 610-286-6844

**CUSTOMER**

042375  
AMERICAN WASTE OF NJ, LLC  
ONE AMERICAN WAY  
WARREN, OH 44485  
50811411403

**CUSTOMER COPY**

LICENSE:  
TYPE: Miscellaneous

SCALE IN GROSS WEIGHT  
SCALE OUT TARE WEIGHT  
VEHICLE DESC SPECIAL WASTE

77,020  
43,720

NET TONS  
NET WEIGHT

SITE CL CELL 22X 60029

WEIGHMASTER Mike M.

Ticket 952417

DATE IN  
9/12/14 2:04 pm

DATE OUT  
9/12/14 2:21 pm

VEHICLE  
SPECIAL

CONTAINER

REFERENCE  
278-40

INVOICE

BILL OF LADING 34980

16.65  
33,300  
CONTAINER DESC

INBOUND

QTY. UNIT.  
0.00 YD TRACKING QTY  
16.65 TN SW-CONT SOIL

DESCRIPTION RATE. EXTENSION. TAX. TOTAL

NEW JERSEY

NET AMOUNT

TENDERED

CHANGE

CHECK

331 DRIVER :

WEIGHMASTER



## CERTIFICATE OF DESTRUCTION

I, Joanne Schulze, of Republic Services, hereby certifies to American Waste of NJ, LLC that all the product described in Section A has been properly and legally disposed of in Conestoga Landfill between 9/09 thru 9/12/14.

American Waste of NJ, LLC agrees to indemnify and hold Republic Services and it subsidiary and affiliated corporations harmless from any and all liabilities, claims, damage or cost incurred in connection with any claims related to the destruction of this waste stream

By: Joanne Schulze  
Name: Joanne Schulze  
Title: Environmental Coordinator  
Date: 9/12/14

### **Section A- Products Destroyed (attached additional sheets if needed):**

<u>Description of Product</u>	<u>Quantity or Weight</u>
<b>Metals Impacted Soil &amp; Debris (Lead)</b>	<b>16.69 Tons</b>
<b>Metals Impacted Soil &amp; Debris (Lead)</b>	<b>20.11 Tons</b>
<b>Metals Impacted Soil &amp; Debris (Lead)</b>	<b>15.75 Tons</b>
<b>Metals Impacted Soil &amp; Debris (Lead)</b>	<b>17.87 Tons</b>
<b>Metals Impacted Soil &amp; Debris (Lead)</b>	<b>16.85 Tons</b>
<b>Metals Impacted Soil &amp; Debris (Lead)</b>	<b>18.85 Tons</b>
<b>Metals Impacted Soil &amp; Debris (Lead)</b>	<b>18.66 Tons</b>
<b>Metals Impacted Soil &amp; Debris (Lead)</b>	<b>16.65 Tons</b>



## CERTIFICATE OF DESTRUCTION

I, Joanne Schulze, of Republic Services, hereby certifies to American Waste of NJ, LLC that all the product described in Section A has been properly and legally disposed of in Conestoga Landfill between 9/09 thru 9/12/14.

American Waste of NJ, LLC agrees to indemnify and hold Republic Services and it subsidiary and affiliated corporations harmless from any and all liabilities, claims, damage or cost incurred in connection with any claims related to the destruction of this waste stream

By: \_\_\_\_\_

Name: \_\_\_\_\_

Title: \_\_\_\_\_

Date: \_\_\_\_\_

### **Section A- Products Destroyed (attached additional sheets if needed):**

#### Description of Product

#### Quantity or Weight

<b>Metals Impacted Soil &amp; Debris (Lead)</b>	<b>16.69 Tons</b>
<b>Metals Impacted Soil &amp; Debris (Lead)</b>	<b>20.11 Tons</b>
<b>Metals Impacted Soil &amp; Debris (Lead)</b>	<b>15.75 Tons</b>
<b>Metals Impacted Soil &amp; Debris (Lead)</b>	<b>17.87 Tons</b>
<b>Metals Impacted Soil &amp; Debris (Lead)</b>	<b>16.85 Tons</b>
<b>Metals Impacted Soil &amp; Debris (Lead)</b>	<b>18.85 Tons</b>
<b>Metals Impacted Soil &amp; Debris (Lead)</b>	<b>18.66 Tons</b>
<b>Metals Impacted Soil &amp; Debris (Lead)</b>	<b>16.65 Tons</b>

If waste is asbestos waste, complete Sections I, II, III and IV  
If waste is NOT asbestos waste, complete Sections I, II and III

5081 - 34979

## I. GENERATOR (Generator completes Ia-r)

a. Generator's US EPA ID Number		b. Manifest Document Number <b>058</b>		c. Page 1 of	
d. Generator's Name and Location: US EPA Region II-MC Canfield and Sons 1 Cornerstone Lane Newark, NJ 07103			e. Generator's Mailing Address: US EPA Region II-MC Canfield and Sons 2890 Woodbridge Ave Edison, NJ 08837		
f. Phone: 908-420-4475			g. Phone: 908-420-4475		
h. Owner's Name:			i. Owner's Phone No.:		
j. Waste Profile #	k. Exp. Date	l. Waste Shipping Name and Description	m. Containers No. Type	n. Total Quantity	o. Unit Wt/Vol
5081 1411403	7/10/2015	Metals Impacted Soils and Debris (Lead)	011 LM	EST 18	T
<p>GENERATOR'S CERTIFICATION: I hereby certify that the above named material is not a hazardous waste as defined by 40 CFR 261 or any applicable state law, has been properly described, classified and packaged, and is in proper condition for transportation according to applicable regulations; AND, if this waste is a treatment residue of a previously restricted hazardous waste subject to the Land Disposal Restrictions. I certify and warrant that the waste has been treated in accordance with the requirements of 40 CFR 268 and is no longer a hazardous waste as defined by 40 CFR 261.</p>					
p. Generator Authorized Agent Name (Print) <b>Kelli Lucarino</b>			q. Signature <i>Kelli Lucarino</i>		r. Date <b>9-15-2014</b>

## II. TRANSPORTER (Generator completes IIa-b and Transporter completes IIc-e)

a. Transporter's Name and Address: DVC 1420 CLARION ST READING PA 19601		
b. Phone: 610-372-6511		
c. Driver Name (Print) <b>Gary Wentzel</b>	d. Signature <i>Gary Wentzel</i>	e. Date <b>9-15-2014</b>

## III. DESTINATION (Generator complete IIIa-c and Destination Site completes IIId-g)

a. Disposal Facility and Site Address: Conestoga Landfill 420 Quarry Road Morgantown, PA 17053 610-280-0844		c. US EPA Number PA0000015867	d. Discrepancy Indication Space: <b>16.58</b>
I hereby certify that the above named material has been accepted and to the best of my knowledge the foregoing is true and accurate.			
e. Name of Authorized Agent (Print) <i>[Signature]</i>	f. Signature <i>[Signature]</i>	g. Date <b>9/15/14</b>	

## IV. ASBESTOS (Generator completes IVa-f and Operator complete IVg-i)

a. Operator's Name and Address:		c. Responsible Agency Name and Address:	
b. Phone:		d. Phone:	
e. Special Handling Instructions and Additional Information:			
f. <input type="checkbox"/> Friable <input type="checkbox"/> Non-Friable <input type="checkbox"/> Both      % Friable      % Non-Friable			
OPERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked and labeled and are in all respects in proper condition for transport by highway according to applicable international and national governmental regulations.			
g. Operator's Name and Title (Print)		h. Signature	
i. Date			
*Operator refers to the company which owns, leases, operates, controls, or supervises the facility being demolished or renovated, or the demolition or renovation operation or both			

CONESTOGA LF  
420 QUARRY ROAD

Morgantown, PA 19543 610-286-6844

**CUSTOMER**

042375  
AMERICAN WASTE OF NJ, LLC  
ONE AMERICAN WAY  
WARREN, OH 44485  
50811411403

**CUSTOMER COPY**

**LICENSE:**  
**TYPE:** Miscellaneous

**SITE CL CELL 22X 60029**

**WEIGHMASTER Mike M.**

**Ticket 952543**

**DATE IN** 9/15/14 9:42 am **DATE OUT** 9/15/14 9:58 am

**VEHICLE** SPECIAL **CONTAINER**

**REFERENCE** 278-40 **INVOICE**

**BILL OF LADING** 34979

**SCALE IN** **GROSS WEIGHT**  
**SCALE OUT** **TARE WEIGHT**  
**VEHICLE DESC** SPECIAL WASTE

76,760  
43,600

**NET TONS**  
**NET WEIGHT**

16.58  
33,160

**CONTAINER DESC**

**INBOUND**

QTY.	UNIT.	DESCRIPTION	RATE.	EXTENSION.	TAX.	TOTAL
0.00	YD	TRACKING QTY				
16.58	TN	SW-CONT SOIL				
		NEW JERSEY				

**NET AMOUNT**

**TENDERED**

**CHANGE**

**CHECK**

331 **DRIVER:**

**WEIGHMASTER**

5081 - 34977

If waste is asbestos waste, complete Sections I, II, III and IV  
If waste is NOT asbestos waste, complete Sections I, II and III

## I. GENERATOR (Generator completes Ia-r)

a. Generator's US EPA ID Number		b. Manifest Document Number <b>059</b>		c. Page 1 of	
d. Generator's Name and Location: US EPA Region II-MC Canfield and Sons 1 Cornerstone Lane Newark, NJ 07103			e. Generator's Mailing Address: US EPA Region II-MC Canfield and Sons 2890 Woodbridge Ave Edison, NJ 08837		
f. Phone: 908-420-4476			g. Phone: 908-420-4476		
If owner of the generating facility differs from the generator, provide:					
h. Owner's Name:			i. Owner's Phone No.:		
j. Waste Profile #	k. Exp. Date	l. Waste Shipping Name and Description	m. Containers No.	n. Total Quantity	o. Unit Wt/Vol
5081 1411403	7/10/2015	Metals Impacted Soils and Debris (Lead)	001 CM	16.30	T
<p>GENERATOR'S CERTIFICATION: I hereby certify that the above named material is not a hazardous waste as defined by 40 CFR 261 or any applicable state law, has been properly described, classified and packaged, and is in proper condition for transportation according to applicable regulations; AND, if this waste is a treatment residue of a previously restricted hazardous waste subject to the Land Disposal Restrictions. I certify and warrant that the waste has been treated in accordance with the requirements of 40 CFR 261 and is no longer a hazardous waste as defined by 40 CFR 261.</p>					
p. Generator Authorized Agent Name (Print) <i>Cris Donofrio (EPA OSC)</i>			q. Signature <i>[Signature]</i>		r. Date 9/16/2014

## II. TRANSPORTER (Generator completes IIa-b and Transporter completes IIc-e)

a. Transporter's Name and Address: DVC 1470 Claville St READING Pa 19601		
b. Phone: 610-372-6511		
c. Driver Name (Print) <i>Gary Winkler</i>	d. Signature <i>[Signature]</i>	e. Date 9/16/2014

## III. DESTINATION (Generator complete IIIa-c and Destination Site completes IIId-g)

a. Disposal Facility and Site Address: Conestoga Landfill 420 Quarry Road Morgantown, PA 17053 410-766-5844		c. US EPA Number PA0000015887	d. Discrepancy Indication Space:
b. Phone: 410-766-5844			
I hereby certify that the above named material has been accepted and to the best of my knowledge the foregoing is true and accurate.			
e. Name of Authorized Agent (Print) <i>[Signature]</i>	f. Signature <i>[Signature]</i>	g. Date 9/16/14	

## IV. ASBESTOS (Generator completes IVa-f and Operator complete IVg-i)

a. Operator's Name and Address:		c. Responsible Agency Name and Address:	
b. Phone:		d. Phone:	
e. Special Handling Instructions and Additional Information:			
<input type="checkbox"/> Friable <input type="checkbox"/> Non-Friable <input type="checkbox"/> Both   % Friable   % Non-Friable			
OPERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked and labeled and are in all respects in proper condition for transport by highway according to applicable international and national governmental regulations.			
g. Operator's Name and Title (Print)		h. Signature	
		i. Date	
*Operator refers to the company which owns, leases, operates, controls, or supervises the facility being demolished or renovated, or the demolition or renovation operation or both			

CONESTOGA LF  
420 QUARRY ROAD  
Morgantown, PA 19543 610-286-6844

CUSTOMER  
042375  
AMERICAN WASTE OF NJ, LLC  
ONE AMERICAN WAY  
WARREN, OH 44485  
50811411403

**CUSTOMER COPY**

LICENSE:  
TYPE: Miscellaneous

SITE CL CELL 22X 77564  
WEIGHMASTER IN - Bruce E. OUT - Karyn F  
Ticket 952782  
DATE IN 9/16/14 12:55 pm DATE OUT 9/16/14 1:12 pm  
VEHICLE SPECIAL CONTAINER  
REFERENCE 245 129 INVOICE  
BILL OF LADING 34977

SCALE IN GROSS WEIGHT 71,880  
SCALE OUT TARE WEIGHT 39,280  
VEHICLE DESC SPECIAL WASTE

NET TONS 16.30  
NET WEIGHT 32,600

CONTAINER DESC

INBOUND

QTY.	UNIT.	DESCRIPTION	RATE.	EXTENSION.	TAX.	TOTAL
0.00	YD	TRACKING QTY				
16.30	TN	SW-CONT SOIL				

NEW JERSEY

NET AMOUNT

TENDERED

CHANGE

CHECK

3/31 DRIVER :

WEIGHMASTER



If waste is asbestos waste, complete Sections I, II, III and IV  
 If waste is **NOT** asbestos waste, complete Sections I, II and III

**5081 - 34976**
**I. GENERATOR (Generator completes Ia-r)**

a. Generator's US EPA ID Number		b. Manifest Document Number <b>060</b>		c. Page 1 of	
d. Generator's Name and Location: US EPA Region II-MC Canfield and Sons 1 Cornerstone Lane Newark, NJ 07103			e. Generator's Mailing Address: US EPA Region II-MC Canfield and Sons 2890 Woodbridge Ave Edison, NJ 08837		
f. Phone: 908-420-4475			g. Phone: 908-420-4475		
h. Owner's Name:			i. Owner's Phone No.:		
j. Waste Profile # 5081 1411403		k. Exp. Date 7/10/2015	l. Waste Shipping Name and Description Metals Impacted Soils and Debris (Lead)		o. Unit WT/Vol
			m. Containers No. Type		n. Total Quantity
			001 CM		155
					18
					T
GENERATOR'S CERTIFICATION: I hereby certify that the above named material is not a hazardous waste as defined by 40 CFR 261 or any applicable state law, has been properly described, classified and packaged, and is in proper condition for transportation according to applicable regulations; AND, if this waste is a treatment residue of a previously restricted hazardous waste subject to the Land Disposal Restrictions. I certify and warrant that the waste has been treated in accordance with the requirements of 40 CFR 268 and is no longer a hazardous waste as defined by 40 CFR 261.					
p. Generator Authorized Agent Name (Print) Cris D. Dondra (EPA OSC)			q. Signature <i>[Signature]</i>		r. Date 9/17/2014

**II. TRANSPORTER (Generator completes IIa-b and Transporter completes IIc-e)**

a. Transporter's Name and Address: DVC 1420 Clavion St Reading Pa 19601		
b. Phone:		
c. Driver Name (Print) Gary Wark	d. Signature <i>[Signature]</i>	e. Date 9/17/2014

**III. DESTINATION (Generator complete IIIa-c and Destination Site completes IIId-g)**

a. Disposal Facility and Site Address: Conestoga Landfill 420 Quarry Road Reading, PA 19601 610-260-0044		c. US EPA Number PA0000015887	d. Discrepancy Indication Space: 15.30
b. Phone:			
I hereby certify that the above named material has been accepted and to the best of my knowledge the foregoing is true and accurate.			
e. Name of Authorized Agent (Print) <i>[Signature]</i>		f. Signature <i>[Signature]</i>	g. Date 9/17/14

**IV. ASBESTOS (Generator completes IVa-f and Operator complete IVg-i)**

a. Operator's Name and Address:		c. Responsible Agency Name and Address:	
b. Phone:		d. Phone:	
e. Special Handling Instructions and Additional Information:			
f. <input type="checkbox"/> Friable <input type="checkbox"/> Non-Friable <input type="checkbox"/> Both % Friable % Non-Friable			
OPERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked and labeled and are in all respects in proper condition for transport by highway according to applicable international and national governmental regulations.			
g. Operator's Name and Title (Print)		h. Signature	
		i. Date	
*Operator refers to the company which owns, leases, operates, controls, or supervises the facility being demolished or renovated, or the demolition or renovation operation or both			

CONESTOGA LF  
420 QUARRY ROAD  
Morgantown, PA 19543 610-286-6844

CUSTOMER  
042375  
AMERICAN WASTE OF NJ, LLC  
ONE AMERICAN WAY  
WARREN, OH 44485  
50811411403

**CUSTOMER COPY**

LICENSE:  
TYPE: Miscellaneous

SCALE IN GROSS WEIGHT  
SCALE OUT TARE WEIGHT  
VEHICLE DESC SPECIAL WASTE

72,440  
41,840  
NET TONS  
NET WEIGHT

SITE CL CELL 77564  
WEIGHMASTER IN - Bruce E. OUT - Mike M.  
Ticket 952891  
DATE IN 9/17/14 8:58 am DATE OUT 9/17/14 9:16 am  
VEHICLE SPECIAL CONTAINER  
REFERENCE 280 210 INVOICE  
BILL OF LADING 34976  
CONTAINER DESC INBOUND

QTY.	UNIT.	DESCRIPTION	RATE.	EXTENSION.	TAX.	TOTAL
0.00	YD	TRACKING QTY				
15.30	TN	SW-CONT SOIL				

NEW JERSEY

NET AMOUNT  
TENDERED  
CHANGE  
CHECK

3/31 DRIVER :

WEIGHMASTER

5081 - 34978

If waste is asbestos waste, complete Sections I, II, III and IV  
If waste is **NOT** asbestos waste, complete Sections I, II and III

## I. GENERATOR (Generator completes Ia-r)

a. Generator's US EPA ID Number		b. Manifest Document Number <b>061</b>		c. Page 1 of	
d. Generator's Name and Location: US EPA Region II-MC Canfield and Sons 1 Cornerstone Lane Newark, NJ 07103		e. Generator's Mailing Address: US EPA Region II-MC Canfield and Sons 2880 Woodbridge Ave Edison, NJ 08837			
f. Phone: 908-420-4475		g. Phone: 908-420-4475			
If owner of the generating facility differs from the generator, provide:					
h. Owner's Name:		i. Owner's Phone No.:			
j. Waste Profile #	k. Exp. Date	l. Waste Shipping Name and Description	m. Containers No.	n. Total Quantity	o. Unit Wt/Vol
5081 1411403	7/10/2015	Metals Impacted Soils and Debris (Lead)	001 CM	EST 18	T
GENERATOR'S CERTIFICATION: I hereby certify that the above named material is not a hazardous waste as defined by 40 CFR 261 or any applicable state law, has been properly described, classified and packaged, and is in proper condition for transportation according to applicable regulations; AND, if this waste is a treatment residue of a previously restricted hazardous waste subject to the Land Disposal Restrictions, I certify and warrant that the waste has been treated in accordance with the requirements of 40 CFR 265 and is no longer a hazardous waste as defined by 40 CFR 261.					
p. Generator Authorized Agent Name (Print) <b>Kelli Lucarino</b>		q. Signature <i>Kelli Lucarino</i>		r. Date 09-17-2014	

## II. TRANSPORTER (Generator completes IIa-b and Transporter completes IIc-e)

a. Transporter's Name and Address: DVC 1420 CLAVION ST READING PA 19601		b. Phone: 610-372-6511	
c. Driver Name (Print) <b>GARY WINTER</b>	d. Signature <i>[Signature]</i>	e. Date 09-17-2014	

## III. DESTINATION (Generator complete IIIa-c and Destination Site completes IIId-g)

a. Disposal Facility and Site Address: Conestoga Landfill 420 Quarry Road Morgantown, PA 17053		c. US EPA Number PA0000015887	d. Discrepancy Indication Space: 17-41
b. Phone: 610-285-8844			
I hereby certify that the above named material has been accepted and to the best of my knowledge the foregoing is true and accurate.			
f. Name of Authorized Agent (Print) <i>[Signature]</i>		g. Date 09-17-2014	

## IV. ASBESTOS (Generator completes IVa-f and Operator complete IVg-i)

a. Operator's Name and Address:		c. Responsible Agency Name and Address:	
b. Phone:		d. Phone:	
e. Special Handling Instructions and Additional Information:			
f. <input type="checkbox"/> Friable <input type="checkbox"/> Non-Friable <input type="checkbox"/> Both % Friable % Non-Friable			
OPERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked and labeled and are in all respects in proper condition for transport by highway according to applicable international and national governmental regulations.			
g. Operator's Name and Title (Print)		h. Signature	
i. Date			
*Operator refers to the company which owns, leases, operates, controls, or supervises the facility being demolished or renovated, or the demolition or renovation operation or both			

CONESTOGA LF  
420 QUARRY ROAD  
Morgantown, PA 19543 610-286-6844

CUSTOMER

042375

AMERICAN WASTE OF NJ, LLC

ONE AMERICAN WAY

WARREN, OH 44485

50811411403

SCALE IN

GROSS WEIGHT

76,500

SCALE OUT

TARE WEIGHT

41,680

**CUSTOMER COPY**

LICENSE:

TYPE: Miscellaneous

SITE CL CELL 60029

WEIGHMASTER Mike M.

Ticket 952982

DATE IN

9/17/14 2:16 pm

DATE OUT

9/17/14 2:37 pm

VEHICLE

SPECIAL

CONTAINER

REFERENCE

280-40

INVOICE

BILL OF LADING 34978

17.41

NET TONS

NET WEIGHT

34,820

CONTAINER DESC

INBOUND

QTY. UNIT.  
0.00 YD TRACKING QTY  
17.41 TN SW-CONT SOIL

DESCRIPTION

RATE.

EXTENSION.

TAX.

TOTAL

NEW JERSEY

NET AMOUNT

TENDERED

CHANGE

CHECK

5/31

DRIVER:

WEIGHMASTER

If waste is asbestos waste, complete Sections I, II, III and IV  
If waste is NOT asbestos waste, complete Sections I, II and III

5081 - 34987

## I. GENERATOR (Generator completes Ia-r)

a. Generator's US EPA ID Number		b. Manifest Document Number <b>063</b>		c. Page 1 of	
d. Generator's Name and Location: US EPA Region II-MC Canfield and Sons 1 Cornerstone Lane Newark, NJ 07103			e. Generator's Mailing Address: US EPA Region II-MC Canfield and Sons 2890 Woodbridge Ave Edison, NJ 08817		
f. Phone: 908-420-1175			g. Phone: 908-420-4475		
If owner of the generating facility is not the generator, provide:					
h. Owner's Name:			i. Owner's Phone No.:		
j. Waste Profile #	k. Exp. Date	l. Waste Shipping Name and Description	m. Containers No.	n. Total Quantity	o. Unit Wt/Vol
5081 1411403	7/10/2015	Metals Impacted Soils and Debris (Lead)	001 CM	EST 18	T
GENERATOR'S CERTIFICATION: I hereby certify that the above named material is not a hazardous waste as defined by 40 CFR 261 or any applicable state law, has been properly described, classified and packaged, and is in proper condition for transportation according to applicable regulations; AND, if this waste is a treatment residue of a previously restricted hazardous waste subject to the Land Disposal Restrictions. I certify and warrant that the waste has been treated in accordance with the requirements of 40 CFR 269 and is no longer a hazardous waste as defined by 40 CFR 261.					
p. Generator Authorized Agent Name (Print) <b>Kelli Lucarino</b>			q. Signature <i>Kelli Lucarino</i>		r. Date <b>9/18/2014</b>

## II. TRANSPORTER (Generator completes IIa-b and Transporter completes IIc-e)

a. Transporter's Name and Address: DVC 1420 Clarkson St Reading, PA 19601		
b. Phone: 610-372-6511		
c. Driver Name (Print) <b>GARY WENTZEL</b>	d. Signature <i>Gary Wentzel</i>	e. Date <b>9/18/2014</b>

## III. DESTINATION (Generator complete IIIa-c and Destination Site completes IIId-g)

a. Disposal Facility and Site Address: Conestoga Landfill 420 Quarry Road Reading, PA 19601		b. Phone: 610-288-0844	c. US EPA Number PA0000015867	d. Discrepancy Indication Space: <b>18.47</b>
I hereby certify that the above named material has been accepted and to the best of my knowledge the foregoing is true and accurate.				
e. Name of Authorized Agent (Print)		f. Signature <i>[Signature]</i>		g. Date <b>9/18/14</b>

## IV. ASBESTOS (Generator completes IVa-f and Operator complete IVg-i)

a. Operator's Name and Address:		c. Responsible Agency Name and Address:	
b. Phone:		d. Phone:	
e. Special Handling Instructions and Additional Information:			
f. <input type="checkbox"/> Friable <input type="checkbox"/> Non-Friable <input type="checkbox"/> Both % Friable % Non-Friable			
OPERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked and labeled and are in all respects in proper condition for transport by highway according to applicable international and national governmental regulations.			
g. Operator's Name and Title (Print)		h. Signature	
		i. Date	
*Operator refers to the company which owns, leases, operates, controls, or supervises the facility being demolished or renovated, or the demolition or renovation operation or both			

CONESTOGA LF  
420 QUARRY ROAD

Morgantown, PA 19543 610-286-6844

**CUSTOMER**

042375  
AMERICAN WASTE OF NJ, LLC  
ONE AMERICAN WAY  
WARREN, OH 44485  
50811411403

**CUSTOMER COPY**

LICENSE :  
TYPE: Miscellaneous

SITE CL CELL 60029

WEIGHMASTER Mike M.

Ticket 953157

DATE IN 9/18/14 2:24 pm

DATE OUT 9/18/14 2:44 pm

VEHICLE  
SPECIAL

CONTAINER

REFERENCE  
280-40

INVOICE

BILL OF LADING 34987

SCALE IN GROSS WEIGHT  
SCALE OUT TARE WEIGHT  
VEHICLE DESC SPECIAL WASTE

78,340  
41,400

NET TONS  
NET WEIGHT

18.47  
36,940

CONTAINER DESC

INBOUND

QTY. UNIT.  
0.00 YD TRACKING QTY  
18.47 TN SW-CONT SOIL

DESCRIPTION	RATE.	EXTENSION.	TAX.	TOTAL
-------------	-------	------------	------	-------

NEW JERSEY

NET AMOUNT

TENDERED

CHANGE

CHECK

3/31 DRIVER :

WEIGHMASTER

If waste is asbestos waste, complete Sections I, II, III and IV  
If waste is NOT asbestos waste, complete Sections I, II and III

5081 - 34988

## I. GENERATOR (Generator completes Ia-r)

a. Generator's US EPA ID Number		b. Manifest Document Number <b>062</b>		c. Page 1 of	
d. Generator's Name and Location: US EPA Region II-MC Canfield and Sons 1 Cornerstone Lane Newark, NJ 07103			e. Generator's Mailing Address: US EPA Region II-MC Canfield and Sons 2880 Woodbridge Ave Edison, NJ 08837		
f. Phone: 908-420-4475			g. Phone: 908-420-4475		
If owner of the generating facility differs from the generator, provide:					
h. Owner's Name:			i. Owner's Phone No.:		
j. Waste Profile #	k. Exp. Date	l. Waste Shipping Name and Description	m. Containers No.	n. Total Quantity	o. Unit Wt/Vol
5081 1411403	7/10/2015	Metals Impacted Soils and Debris (Lead)	001	18T	T
<p>GENERATOR'S CERTIFICATION: I hereby certify that the above named material is not a hazardous waste as defined by 40 CFR 261 or any applicable state law, has been properly described, classified and packaged, and is in proper condition for transportation according to applicable regulations; AND, if this waste is a treatment residue of a previously restricted hazardous waste subject to the Land Disposal Restrictions. I certify and warrant that the waste has been treated in accordance with the requirements of 40 CFR 265 and is no longer a hazardous waste as defined by 40 CFR 261.</p>					
p. Generator Authorized Agent Name (Print) Kelli Lucarino			q. Signature <i>Kelli Lucarino</i>		r. Date 9-18-2014

## II. TRANSPORTER (Generator completes IIa-b and Transporter completes IIc-e)

a. Transporter's Name and Address: 1420 Clavon ST READING PA 19601		
b. Phone: 610-372-6511		
c. Driver Name (Print) Gail-372-6511	d. Signature <i>Gail-372-6511</i>	e. Date 9/18-2014

## III. DESTINATION (Generator complete IIIa-c and Destination Site completes IIId-g)

a. Disposal Facility and Site Address: Conestoga Landfill 420 Quarry Road Reading, PA 19601		c. US EPA Number PA0000015887	d. Discrepancy Indication Space: 16.96
b. Phone: 610-266-6844			
I hereby certify that the above named material has been accepted and to the best of my knowledge the foregoing is true and accurate.			
e. Name of Authorized Agent (Print) <i>[Signature]</i>		f. Signature <i>[Signature]</i>	
		g. Date 9/18/14	

## IV. ASBESTOS (Generator completes IVa-f and Operator complete IVg-i)

a. Operator's Name and Address:		c. Responsible Agency Name and Address:	
b. Phone:		d. Phone:	
e. Special Handling Instructions and Additional Information:			
f. <input type="checkbox"/> Friable <input type="checkbox"/> Non-Friable <input type="checkbox"/> Both      % Friable      % Non-Friable			
OPERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked and labeled and are in all respects in proper condition for transport by highway according to applicable international and national governmental regulations.			
g. Operator's Name and Title (Print)		h. Signature	
		i. Date	
*Operator refers to the company which owns, leases, operates, controls, or supervises the facility being demolished or renovated, or the demolition or renovation operation or both			



CONESTOGA LF  
420 QUARRY ROAD

Morgantown, PA 19543 610-286-6844

**CUSTOMER**

042375  
AMERICAN WASTE OF NJ, LLC  
ONE AMERICAN WAY  
WARREN, OR 44485  
50811411403

**CUSTOMER COPY**

**LICENSE:**

**TYPE:** Miscellaneous

**SITE CL CELL 77564**

**WEIGHMASTER IN - Bruce E. OUT - Mike M.**

**Ticket 953073**

**DATE IN**  
9/18/14 9:07 am

**DATE OUT**  
9/18/14 9:30 am

**VEHICLE**  
SPECIAL

**CONTAINER**

**REFERENCE**  
280 244

**INVOICE**

**BILL OF LADING 34988**

**GROSS WEIGHT**  
75,420  
**TARE WEIGHT**  
41,500

**NET TONS**  
**NET WEIGHT**

16.96  
33,920

**CONTAINER DESC**

**INBOUND**

**QTY. UNIT.**  
0.00 YD TRACKING QTY  
16.96 TN SW-CONT SOIL

**DESCRIPTION**

**RATE**

**EXTENSION**

**TAX**

**TOTAL**

NEW JERSEY

**NET AMOUNT**

**TENDERED**

**CHANGE**

**CHECK**

5/31 **DRIVER:**

**WEIGHMASTER**

If waste is asbestos waste, complete Sections I, II, III and IV  
 If waste is NOT asbestos waste, complete Sections I, II and III

5081 - 34985

**I. GENERATOR** (Generator completes Ia-r)

a. Generator's US EPA ID Number		b. Manifest Document Number <b>065</b>		c. Page 1 of	
d. Generator's Name and Location:  US EPA Region II-MC Canfield and Sons 1 Comerstone Lane Newark, NJ 07103			e. Generator's Mailing Address:  US EPA Region II-MC Canfield and Sons 2890 Woodbridge Ave Edison, NJ 08837		
f. Phone: 908-420-4475			g. Phone: 908-420-4475		
If owner of the generating facility differs from the generator, provide:					
h. Owner's Name:			i. Owner's Phone No.:		
j. Waste Profile #	k. Exp. Date	l. Waste Shipping Name and Description	m. Containers No.	n. Total Quantity	o. Unit Wt/Vol
5081 1411403	7/10/2015	Metals Impacted Soils and Debris (Lead)	001 CM	EST 18	T

GENERATOR'S CERTIFICATION: I hereby certify that the above named material is not a hazardous waste as defined by 40 CFR 261 or any applicable state law, has been properly described, classified and packaged, and is in proper condition for transportation according to applicable regulations; AND, if this waste is a treatment residue of a previously restricted hazardous waste subject to the Land Disposal Restrictions. I certify and warrant that the waste has been treated in accordance with the requirements of 40 CFR 268 and is no longer a hazardous waste as defined by 40 CFR 261.

p. Generator Authorized Agent Name (Print) <b>Kelli Lucarino</b>	q. Signature <i>Kelli Lucarino</i>	r. Date <b>9/22/2014</b>
---	---------------------------------------	-----------------------------

**II. TRANSPORTER** (Generator completes IIa-b and Transporter completes IIc-e)

a. Transporter's Name and Address: <b>Duc 1420 Clifton St LDC PC 19661</b>		
b. Phone: 610-372-6511		
c. Driver Name (Print) <b>Gary Winkler</b>	d. Signature <i>Gary Winkler</i>	e. Date <b>9/22/2014</b>

**III. DESTINATION** (Generator complete IIIa-c and Destination Site completes IIId-g)

a. Disposal Facility and Site Address: <b>Conestoga Landfill 420 Quarry Road</b>		b. Phone: 610-288-6844	c. US EPA Number <b>PA0000015867</b>	d. Discrepancy Indication Space: <b>15.39</b>
I hereby certify that the above named material has been accepted and to the best of my knowledge the foregoing is true and accurate.				
e. Name of Authorized Agent (Print) <b>[Signature]</b>		f. Signature <i>[Signature]</i>		g. Date <b>9/22/14</b>

**IV. ASBESTOS** (Generator completes IVa-f and Operator complete IVg-i)

a. Operator's Name and Address:		c. Responsible Agency Name and Address:	
b. Phone:		d. Phone:	
e. Special Handling Instructions and Additional Information:			
f. <input type="checkbox"/> Friable <input type="checkbox"/> Non-Friable <input type="checkbox"/> Both      % Friable      % Non-Friable			
OPERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked and labeled and are in all respects in proper condition for transport by highway according to applicable international and national governmental regulations.			
g. Operator's Name and Title (Print)		h. Signature	
		i. Date	
*Operator refers to the company which owns, leases, operates, controls, or supervises the facility being demolished or renovated, or the demolition or renovation operation or both			

CONESTOGA LF  
420 QUARRY ROAD  
Morgantown, PA 19543 610-286-6844

**CUSTOMER**

042375  
AMERICAN WASTE OF NJ, LLC  
ONE AMERICAN WAY  
WARREN, OH 44485  
50811411403

**CUSTOMER COPY**

LICENSE:  
TYPE: Miscellaneous

SITE CL CELL 22X 60029

WEIGHMASTER Mike M.

Ticket 953505

DATE IN  
9/22/14 1:50 pm

DATE OUT  
9/22/14 2:06 pm

VEHICLE  
SPECIAL

CONTAINER

REFERENCE  
278-40

INVOICE

BILL OF LADING 34985

SCALE IN GROSS WEIGHT  
SCALE OUT TARE WEIGHT  
VEHICLE DESC SPECIAL WASTE

74,020  
43,240

NET TONS  
NET WEIGHT

15.39  
30,780

CONTAINER DESC

INBOUND

QTY.	UNIT.	DESCRIPTION	RATE.	EXTENSION.	TAX.	TOTAL
0.00	YD	TRACKING QTY				
15.39	TN	SW-CONT SOIL				
		NEW JERSEY				

NET AMOUNT

TENDERED

CHANGE

CHECK

3/31 DRIVER : WEIGHMASTER

5081 - 34986

If waste is asbestos waste, complete Sections I, II, III and IV  
If waste is NOT asbestos waste, complete Sections I, II and III

## I. GENERATOR (Generator completes Ia-r)

a. Generator's US EPA ID Number		b. Manifest Document Number <b>064</b>		c. Page 1 of	
d. Generator's Name and Location: US EPA Region II-MC Canfield and Sons 1 Cornerstone Lane Newark, NJ 07103			e. Generator's Mailing Address: US EPA Region II-MC Canfield and Sons 2880 Woodbridge Ave Edison, NJ 08837		
f. Phone:			g. Phone:		
If owner of the generating facility differs from the generator, provide:			908-420-4475		
h. Owner's Name:			i. Owner's Phone No.:		
j. Waste Profile #	k. Exp. Date	l. Waste Shipping Name and Description	m. Containers No. Type	n. Total Quantity	o. Unit Wt/Vol
5081 1411403	7/10/2015	Metals Impacted Soils and Debris (Lead)	001 CM	FSR 18	T
<p>GENERATOR'S CERTIFICATION: I hereby certify that the above named material is not a hazardous waste as defined by 40 CFR 261 or any applicable state law, has been properly described, classified and packaged, and is in proper condition for transportation according to applicable regulations; AND, if this waste is a treatment residue of a previously restricted hazardous waste subject to the Land Disposal Restrictions. I certify and warrant that the waste has been treated in accordance with the requirements of 40 CFR 268 and is no longer a hazardous waste as defined by 40 CFR 261.</p>					
p. Generator Authorized Agent Name (Print) <b>Kelli Lucarino</b>		q. Signature <i>Kelli Lucarino</i>		r. Date <b>9/22/14</b>	

## II. TRANSPORTER (Generator completes IIa-b and Transporter completes IIc-e)

a. Transporter's Name and Address: DNC 1420 C/O Union St RDG Pk 19661		
b. Phone: 610-372-6511		
c. Driver Name (Print) <b>Gary Wentzel</b>	d. Signature <i>Gary Wentzel</i>	e. Date <b>9/22/14</b>

## III. DESTINATION (Generator complete IIIa-c and Destination Site completes IIId-g)

a. Disposal Facility and Site Address: Conestoga Landfill 420 Quarry Road Morristown, PA 18444 610-266-0844		c. US EPA Number PA0000015667	d. Discrepancy Indication Space: 17.55
b. Phone:			
I hereby certify that the above named material has been accepted and to the best of my knowledge the foregoing is true and accurate.			
e. Name of Authorized Agent (Print) <b>Bruce</b>	f. Signature <i>Bruce</i>	g. Date <b>9/22/14</b>	

## IV. ASBESTOS (Generator completes IVa-f and Operator complete IVg-i)

a. Operator's Name and Address:		c. Responsible Agency Name and Address:	
b. Phone:		d. Phone:	
e. Special Handling Instructions and Additional Information:			
f. <input type="checkbox"/> Friable <input type="checkbox"/> Non-Friable <input type="checkbox"/> Both % Friable % Non-Friable			
OPERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked and labeled and are in all respects in proper condition for transport by highway according to applicable international and national governmental regulations.			
g. Operator's Name and Title (Print)		h. Signature	
i. Date			
*Operator refers to the company which owns, leases, operates, controls, or supervises the facility being demolished or renovated, or the demolition or renovation operation or both			

CONESTOGA LF  
420 QUARRY ROAD

Morgantown, PA 19543 610-286-6844

**CUSTOMER**

042375  
AMERICAN WASTE OF NJ, LLC  
ONE AMERICAN WAY  
WARREN, OH 44485  
50811411403

**CUSTOMER COPY**

LICENSE:  
TYPE: Miscellaneous

SITE CL CELL 22X 77564

WEIGHMASTER IN - Bruce E. OUT - Mike M.

Ticket 953423

DATE IN  
9/22/14 8:39 am

DATE OUT  
9/22/14 8:55 am

VEHICLE  
SPECIAL

CONTAINER

REFERENCE  
278 244

INVOICE

BILL OF LADING 34986

SCALE IN GROSS WEIGHT  
SCALE OUT TARE WEIGHT  
VEHICLE DESC SPECIAL WASTE

78,380  
43,280

NET TONS  
NET WEIGHT

17.55  
35,100

CONTAINER DESC

INBOUND

QTY. UNIT.  
0.00 YD TRACKING QTY  
17.55 TN SW-CONT SOIL

DESCRIPTION RATE. EXTENSION. TAX. TOTAL

NEW JERSEY

NET AMOUNT

TENDERED

CHANGE

CHECK

5/31 DRIVER :

WEIGHMASTER

5081 - 34983

If waste is asbestos waste, complete Sections I, II, III and IV  
If waste is NOT asbestos waste, complete Sections I, II and III

## I. GENERATOR (Generator completes Ia-r)

a. Generator's US EPA ID Number		b. Manifest Document Number <b>066</b>		c. Page 1 of	
d. Generator's Name and Location: US EPA Region II-MC Canfield and Sons 1 Cornerstone Lane Newark, NJ 07103			e. Generator's Mailing Address: US EPA Region II-MC Canfield and Sons 2890 Woodbridge Ave Edison, NJ 08837		
f. Phone: 908-420-4475			g. Phone: 908-420-4475		
If owner of the generating facility differs from the generator, provide:					
h. Owner's Name:			i. Owner's Phone No.:		
j. Waste Profile #	k. Exp. Date	l. Waste Shipping Name and Description		m. Containers	n. Total Quantity
5081 1411403	7/10/2015	Metals Impacted Soils and Debris (Lead)		No. Type	EST
				001 CM	18 T
GENERATOR'S CERTIFICATION: I hereby certify that the above named material is not a hazardous waste as defined by 40 CFR 261 or any applicable state law, has been properly described, classified and packaged, and is in proper condition for transportation according to applicable regulations; AND, if this waste is a treatment residue of a previously restricted hazardous waste subject to the Land Disposal Restrictions. I certify and warrant that the waste has been treated in accordance with the requirements of 40 CFR 268 and is no longer a hazardous waste as defined by 40 CFR 261.					
p. Generator Authorized Agent Name (Print) <b>Kelli Lucarino</b>		q. Signature <i>Kelli Lucarino</i>		r. Date <b>9/23/14</b>	

## II. TRANSPORTER (Generator completes IIa-b and Transporter completes IIc-e)

a. Transporter's Name and Address: <b>DUC 1420 Clarion St Reading PA 19601</b>	
b. Phone: <b>610-372-6511</b>	
c. Driver Name (Print) <b>GARY WINTER</b>	d. Signature <i>[Signature]</i>
e. Date <b>9/23/2014</b>	

## III. DESTINATION (Generator complete IIIa-c and Destination Site completes IIId-g)

a. Disposal Facility and Site Address: Conestoga Landfill 420 Quarry Road Morgantown, PA 15063 610-266-0844		c. US EPA Number <b>PA0000015867</b>	d. Discrepancy Indication Space: <b>18.53</b>
b. Phone:			
I hereby certify that the above named material has been accepted and to the best of my knowledge the foregoing is true and accurate.			
e. Name of Authorized Agent (Print) <i>[Signature]</i>		f. Signature <i>[Signature]</i>	
		g. Date <b>9/23/14</b>	

## IV. ASBESTOS (Generator completes IVa-f and Operator complete IVg-i)

a. Operator's Name and Address:		c. Responsible Agency Name and Address:	
b. Phone:		d. Phone:	
e. Special Handling Instructions and Additional Information:			
f. <input type="checkbox"/> Friable <input type="checkbox"/> Non-Friable <input type="checkbox"/> Both % Friable % Non-Friable			
OPERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked and labeled and are in all respects in proper condition for transport by highway according to applicable international and national governmental regulations.			
g. Operator's Name and Title (Print)		h. Signature	
		i. Date	
*Operator refers to the company which owns, leases, operates, controls, or supervises the facility being demolished or renovated, or the demolition or renovation operation or both			

CONESTOGA LF  
420 QUARRY ROAD

Morgantown, PA 19543 610-286-6844

**CUSTOMER**

042375  
AMERICAN WASTE OF NJ, LLC  
ONE AMERICAN WAY  
WARREN, OH 44485  
50811411403

**CUSTOMER COPY**

**LICENSE:**

**TYPE:** Miscellaneous

**SITE CL CELL 22X 77564**

**WEIGHMASTER IN - Bruce E. OUT - Mike M.**

**Ticket 953593**

**DATE IN**

9/23/14

9:19 am

**DATE OUT**

9/23/14

9:33 am

**VEHICLE  
SPECIAL**

**CONTAINER**

**REFERENCE**

278 210

**INVOICE**

**BILL OF LADING 34983**

**SCALE IN GROSS WEIGHT**  
**SCALE OUT TARE WEIGHT**  
**VEHICLE DESC SPECIAL WASTE**

80,240  
43,180

**NET TONS  
NET WEIGHT**

18.53  
37,060

**CONTAINER DESC**

**INBOUND**

**QTY. UNIT.**  
0.00 YD TRACKING QTY  
18.53 TN SW-CONT SOIL

**DESCRIPTION**

**RATE**

**EXTENSION**

**TAX**

**TOTAL**

NEW JERSEY

**NET AMOUNT**

**TENDERED**

**CHANGE**

**CHECK**

3/31 **DRIVER:** WEIGHMASTER





## NON-HAZARDOUS SPECIAL WASTE &amp; ASBESTOS MANIFEST

5081 - 34984

If waste is asbestos waste, complete Sections I, II, III and IV  
If waste is NOT asbestos waste, complete Sections I, II and III

## I. GENERATOR (Generator completes Ia-r)

a. Generator's US EPA ID Number		b. Manifest Document Number <b>67</b>		c. Page 1 of	
d. Generator's Name and Location: US EPA Region II-MC Canfield and Sons 1 Cornerstone Lane Newark, NJ 07103		e. Generator's Mailing Address: US EPA Region II-MC Canfield and Sons 2880 Woodbridge Ave Edison, NJ 08837			
f. Phone: 908-420-4475		g. Phone: 908-420-4475			
h. Owner's Name:		i. Owner's Phone No.:			
j. Waste Profile #		k. Exp. Date	l. Waste Shipping Name and Description	m. Containers No.	n. Total Quantity
5081 1411403		7/10/2015	Metals Impacted Soils and Debris (Lead)	001 CM	EST 18
GENERATOR'S CERTIFICATION: I hereby certify that the above named material is not a hazardous waste as defined by 40 CFR 261 or any applicable state law, has been properly described, classified and packaged, and is in proper condition for transportation according to applicable regulations; AND, if this waste is a treatment residue of a previously restricted hazardous waste subject to the Land Disposal Restrictions. I certify and warrant that the waste has been treated in accordance with the requirements of 40 CFR 268 and is no longer a hazardous waste as defined by 40 CFR 261.					
Kelli Lucarino		Kelli Lucarino		9/24/14	
p. Generator Authorized Agent Name (Print)		q. Signature		r. Date	

## II. TRANSPORTER (Generator completes IIa-b and Transporter completes IIc-e)

a. Transporter's Name and Address: Empire Services Reading PA	
b. Phone:	
c. Driver Name (Print)	d. Signature
Justin Canfield	
e. Date: 9/24/14	

## III. DESTINATION (Generator complete IIIa-c and Destination Site completes IIId-g)

a. Disposal Facility and Site Address: Conestoga Landfill 420 Quarry Road Morgantown, PA 15064		c. US EPA Number PA0000015887	d. Discrepancy Indication Space: 16.31
b. Phone:			
I hereby certify that the above named material has been accepted and to the best of my knowledge the foregoing is true and accurate.			
e. Name of Authorized Agent (Print)		g. Date	
Kelli Lucarino		9/24/14	
f. Signature			

## IV. ASBESTOS (Generator completes IVa-f and Operator complete IVg-i)

a. Operator's Name and Address:		c. Responsible Agency Name and Address:	
b. Phone:		d. Phone:	
e. Special Handling Instructions and Additional Information:			
f. <input type="checkbox"/> Friable <input type="checkbox"/> Non-Friable <input type="checkbox"/> Both % Friable % Non-Friable			
OPERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked and labeled and are in all respects in proper condition for transport by highway according to applicable international and national governmental regulations.			
g. Operator's Name and Title (Print)		i. Date	
h. Signature			
*Operator refers to the company which owns, leases, operates, controls, or supervises the facility being demolished or renovated, or the demolition or renovation operation or both			

CONESTOGA LF 420 QUARRY ROAD Morgantown, PA 19543 610-286-6844		SITE CL <del>CALL</del> 22X 77564 WEIGHMASTER IN - Bruce E. OUT - Mike M. Ticket 953806	
CUSTOMER 042375 AMERICAN WASTE OF NJ, LLC ONE AMERICAN WAY WARREN, OH 44485 50811411403		<b>CUSTOMER COPY</b> LICENSE: TYPE: Miscellaneous	
SCALE IN SCALE OUT VEHICLE DESC SPECIAL WASTE		GROSS WEIGHT 71,860 TARE WEIGHT 39,240 NET TONS 16.31 NET WEIGHT 32,620 CONTAINER DESC	
		DATE IN 9/24/14 11:17 am VEHICLE SPECIAL REFERENCE 245 129 BILL OF LADING 34984 DATE OUT 9/24/14 11:45 am CONTAINER INVOICE INBOUND	

QTY.	UNIT.	DESCRIPTION	RATE.	EXTENSION.	TAX.	TOTAL
0.00	YD	TRACKING QTY				
16.31	TN	SW-CONT SOIL				
		NEW JERSEY				

5/31 DRIVER:
 

WEIGHMASTER

NET AMOUNT  
 TENDERED  
 CHANGE  
 CHECK

<b>NON-HAZARDOUS WASTE MANIFEST</b>		1. Generator ID Number NJIC200400018	2. Page 1 of 1	3. Emergency Response Phone	4. Waste Tracking Number <b>068</b>
5. Generator's Name and Mailing Address <b>US EPA REGION II 2890 WOODBRIDGE AVENUE EDISON, NJ 08837</b> Generator's Phone: (908) 420-4475			Generator's Site Address (if different than mailing address) <b>M C CANFIELD 1 CORNERSTONE LANE NEWARK NJ 07103</b>		
6. Transporter 1 Company Name <b>Empire Services</b>			U.S. EPA ID Number		
7. Transporter 2 Company Name			U.S. EPA ID Number		
8. Designated Facility Name and Site Address <b>REPUBLIC SERVICES/CONESTOGA 420 QUARRY RD MORGANTOWN PA 19543</b> Facility's Phone: (610) 288-7876			U.S. EPA ID Number		
9. Waste Shipping Name and Description		10. Containers		11. Total Quantity	12. Unit Wt./Vol.
		No.	Type		
1. Non Haz Non Regulated Soil & Debris		001	CM	EST 18 T	
2.					
3.					
4.					
13. Special Handling Instructions and Additional Information 1. 5081 1411 403 WID: 49411 METALS IMPACTED SOIL & DEBRIS (LEAD)					
14. GENERATOR'S/OFFEROR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations.					
Generator's/Offor's Printed/Typed Name <b>Chris D'Donofrio (USEPA OSC)</b>			Signature <i>Chris D'Donofrio</i>		Month Day Year <b>9 25 14</b>
15. International Shipments <input type="checkbox"/> Import to U.S. <input type="checkbox"/> Export from U.S. Port of entry/exit: Date leaving U.S.:					
16. Transporter Acknowledgment of Receipt of Materials					
Transporter 1 Printed/Typed Name <b>Julia Burfield</b>			Signature <i>Julia Burfield</i>		Month Day Year <b>9 25 14</b>
Transporter 2 Printed/Typed Name			Signature		Month Day Year
17. Discrepancy					
17a. Discrepancy Indication Space <input type="checkbox"/> Quantity <input type="checkbox"/> Type <input type="checkbox"/> Residue <input type="checkbox"/> Partial Rejection <input type="checkbox"/> Full Rejection					
17b. Alternate Facility (or Generator)			Manifest Reference Number: U.S. EPA ID Number		
Facility's Phone:					
17c. Signature of Alternate Facility (or Generator)					Month Day Year
18. Designated Facility Owner or Operator: Certification of receipt of materials covered by the manifest except as noted in item 17a					
Printed/Typed Name <i>[Signature]</i>			Signature <i>[Signature]</i>		Month Day Year <b>9 25 14</b>

CONESTOGA LF.  
420 QUARRY ROAD  
Morgantown, PA 19543 610-286-6844

**CUSTOMER**

042375

AMERICAN WASTE OF NJ, LLC  
ONE AMERICAN WAY  
WARREN, OH 44485

50811411403

SCALE IN

GROSS WEIGHT

73,180

SCALE OUT

TARE WEIGHT

39,320

NET TONS  
NET WEIGHT

SITE CL CELL 22X 77564

WEIGHMASTER IN - Bruce E. OUT - Mike M.

Ticket 954021

DATE IN  
9/25/14 12:38 pm

DATE OUT  
9/25/14 1:10 pm

VEHICLE  
SPECIAL

CONTAINER

REFERENCE  
245 129

BILL OF LADING 068

INVOICE

16.93  
33,860

CONTAINER DESC

INBOUND

QTY. UNIT.  
0.00 YD TRACKING QTY  
16.93 TN SW-CONT SOIL

DESCRIPTION

RATE

EXTENSION

TAX

TOTAL

NEW JERSEY

NET AMOUNT

TENDERED

CHANGE

CHECK

331 DRIVER :

WEIGHMASTER

<b>NON-HAZARDOUS WASTE MANIFEST</b>		1. Generator ID Number NJ0200400018	2. Page 1 of 1	3. Emergency Response Phone	4. Waste Tracking Number <b>069</b>
5. Generator's Name and Mailing Address <b>ATIN: ERIS D ONOFRIO</b> <b>US EPA REGION II</b> <b>2890 WOODBRIDGE AVENUE EDISON, NJ 08837</b>			Generator's Site Address (if different than mailing address) <b>M C CANFIELD</b> <b>1 CORNERSTONE LANE</b> <b>NEWARK NJ 07103</b>		
6. Generator's Phone: <b>(908) 420-4475</b>			U.S. EPA ID Number		
7. Transporter 1 Company Name <b>Empire</b>			U.S. EPA ID Number		
8. Designated Facility Name and Site Address <b>REPUBLIC SERVICES/CONESTOGA</b> <b>420 QUARRY RD MORGANTOWN PA 19543</b>			U.S. EPA ID Number		
Facility's Phone: <b>(610) 288-7876</b>					
9. Waste Shipping Name and Description <b>Non Haz Non Regulated Soil &amp; Debris</b>		10. Containers		11. Total Quantity	12. Unit Wt/Vol.
		No.	Type		
1		<b>001</b>	<b>CM</b>	<b>EST 18</b>	<b>T</b>
2					
3					
4					
13. Special Handling Instructions and Additional Information <b>1. 5081 1411 403 WID: 49411 METALS IMPACTED SOIL &amp; DEBRIS (LEAD)</b>					
14. GENERATOR'S/OFFEROR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations.					
Generator's/Offor's Printed/Typed Name <b>Chris D'Onofrio (USEPH)</b>			Signature <i>[Signature]</i>		Month Day Year <b>19 12 11</b>
15. International Shipments <input type="checkbox"/> Import to U.S. <input type="checkbox"/> Export from U.S. Port of entry/exit: Date leaving U.S.:					
16. Transporter Acknowledgment of Receipt of Materials					
Transporter 1 Printed/Typed Name <b>SWH Goodman</b>			Signature <i>[Signature]</i>		Month Day Year <b>19 12 11</b>
Transporter 2 Printed/Typed Name <b>SWH</b>			Signature <i>[Signature]</i>		Month Day Year
17. Discrepancy					
17a. Discrepancy Indication Space <input type="checkbox"/> Quantity <input type="checkbox"/> Type <input type="checkbox"/> Residue <input type="checkbox"/> Partial Rejection <input type="checkbox"/> Full Rejection					
Manifest Reference Number: U.S. EPA ID Number					
17b. Alternate Facility (or Generator)					
Facility's Phone: U.S. EPA ID Number					
17c. Signature of Alternate Facility (or Generator) Month Day Year					
18. Designated Facility Owner or Operator: Certification of receipt of materials covered by the manifest except as noted in Item 17a					
Printed/Typed Name <b>[Signature]</b>			Signature <i>[Signature]</i>		Month Day Year <b>19 12 11</b>

CONESTOGA LF  
420 QUARRY ROAD  
Morgantown, PA 19543 610-286-6844

CUSTOMER  
042375  
AMERICAN WASTE OF NJ, LLC  
ONE AMERICAN WAY  
WARREN, OH 44485  
50811411403

**CUSTOMER COPY**

LICENSE:  
TYPE: Miscellaneous

SCALE IN GROSS WEIGHT  
SCALE OUT TARE WEIGHT  
VEHICLE DESC SPECIAL WASTE

77,300  
42,580

NET TONS  
NET WEIGHT

SITE CL CELL 22X 77564  
WEIGHMASTER IN - Bruce E. OUT - Mike M.  
Ticket 954022  
DATE IN 9/25/14 12:39 pm DATE OUT 9/25/14 1:11 pm  
VEHICLE SPECIAL CONTAINER  
REFERENCE 262 126  
BILL OF LADING 069  
INVOICE  
CONTAINER DESC 17.36 34,720  
INBOUND

QTY. UNIT.  
0.00 YD TRACKING QTY  
17.36 TN SW-CONT SOIL

DESCRIPTION RATE EXTENSION TAX TOTAL

NEW JERSEY

NET AMOUNT

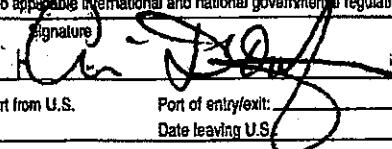
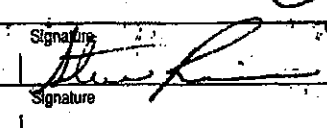
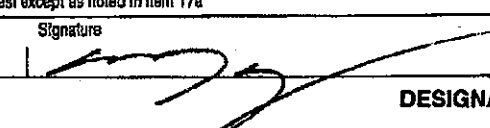
TENDERED

CHANGE

CHECK

3/31 DRIVER:

WEIGHMASTER

<b>NON-HAZARDOUS WASTE MANIFEST</b>		1. Generator ID Number <b>NJC200400018</b>		2. Page 1 of 1	3. Emergency Response Phone	4. Waste Tracking Number <div style="text-align: right; font-size: 1.5em;">070</div>	
		5. Generator's Name and Mailing Address <b>ATTN: CRIS D DONTRIO</b> <b>US EPA REGION II</b> <b>2290 WOODBRIDGE AVENUE EDISON, NJ 08837</b> Generator's Phone: <b>(908) 420-4475</b>		Generator's Site Address (If different than mailing address) <b>M C CAMFIELD</b> <b>1 CORNERSTONE LANE</b> <b>NEWARK NJ 07103</b>			
6. Transporter 1 Company Name <b>DELAWARE VALLEY CORP</b>				U.S. EPA ID Number			
7. Transporter 2 Company Name				U.S. EPA ID Number			
8. Designated Facility Name and Site Address <b>REPUBLIC SERVICES/CONESTOGA</b> <b>420 QUARRY RD MORGANTOWN PA 19543</b> Facility's Phone: <b>(610) 288-7876</b>				U.S. EPA ID Number			
9. Waste Shipping Name and Description		10. Containers		11. Total Quantity	12. Unit		
		No.	Type		WR/Vol.		
1. Non Haz Non Regulated Soil & Debris		001	CM	EST 18	T		
2.							
3.							
4.							
13. Special Handling Instructions and Additional Information <b>1. 5081 1411 403 WID: 45411 METALS IMPACTED SOIL &amp; DEBRIS (LEAD)</b>							
14. GENERATOR'S/OFFEROR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations.							
Generator's/Offoror's Printed/Typed Name <b>CRIS D'ONTRIO (OSC)</b>		Signature 		Month Day Year <b>9 25 14</b>			
15. International Shipments <input type="checkbox"/> Import to U.S. <input type="checkbox"/> Export from U.S.		Port of entry/exit: Date leaving U.S.					
16. Transporter Acknowledgment of Receipt of Materials							
Transporter 1 Printed/Typed Name <b>STEVE RIVERS</b>		Signature 		Month Day Year <b>9 25 14</b>			
Transporter 2 Printed/Typed Name		Signature		Month Day Year			
17. Discrepancy							
17a. Discrepancy Indication Space		<input type="checkbox"/> Quantity	<input type="checkbox"/> Type	<input type="checkbox"/> Residue	<input type="checkbox"/> Partial Rejection	<input type="checkbox"/> Full Rejection	
				Manifest Reference Number:			
17b. Alternate Facility (or Generator)				U.S. EPA ID Number:			
Facility's Phone:							
17c. Signature of Alternate Facility (or Generator)				Month Day Year			
1983							
18. Designated Facility Owner or Operator: Certification of receipt of materials covered by the manifest except as noted in Item 17a							
Printed/Typed Name		Signature 		Month Day Year <b>9 25 14</b>			



Morgantown, PA 19543 610-286-6844

**CUSTOMER**

042375  
AMERICAN WASTE OF NJ, LLC  
ONE AMERICAN WAY  
WARREN, OH 44485  
50611411403

**CUSTOMER COPY**

LICENSE:  
TYPE: Miscellaneous

WEIGHMASTER Mike M.

Ticket 954352

DATE IN 9/29/14 9:25 am

DATE OUT 9/29/14 9:47 am

VEHICLE  
SPECIAL

CONTAINER

REFERENCE  
267

INVOICE

BILL OF LADING 070

SCALE IN GROSS WEIGHT  
SCALE OUT TARE WEIGHT  
VEHICLE DESC SPECIAL WASTE

75,360  
35,700

NET TONS  
NET WEIGHT

19.83  
39,660

CONTAINER DESC

INBOUND

QTY. UNIT.  
0.00 YD TRACKING QTY  
19.83 TN SW-CONT SOIL

DESCRIPTION

RATE

EXTENSION

TAX

TOTAL

NEW JERSEY

NET AMOUNT

TENDERED

CHANGE

CHECK

331 DRIVER:

WEIGHMASTER

# NON-HAZARDOUS WASTE MANIFEST

1. Generator ID Number

2. Page 1 of

3. Emergency Response Phone

4. Waste Tracking Number

071

5. Generator's Name and Mailing Address

US EPA REGION II

Generator's Site Address (if different than mailing address)

2890 WOODBRIDGE AVENUE

ROCKY HILL, CT 06867

1 CORNED-STONE LANE

ROCKY HILL, CT 06867

Generator's Phone: (203) 420-4411

6. Transporter 1 Company Name

U.S. EPA ID Number

L9015 EXPRESS INC

7. Transporter 2 Company Name

U.S. EPA ID Number

8. Designated Facility Name and Site Address

U.S. EPA ID Number

REPUBLIC SERVICES/CONES

420 QUARRY RD

MORGANTOWN PA 19543

Facility's Phone: (610) 298-7876

9. Waste Shipping Name and Description

10. Containers

No.

Type

11. Total Quantity

12. Unit WL/Vol.

1. Non Haz Non Regulated Soil & Debris

001

CM

FST  
18

T

13. Special Handling Instructions and Additional Information

1. 5081 1411 403

WID: 49411

METALS IMPACTED SOIL & DEBRIS

(LEAD)

14. GENERATOR'S/OFFEROR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations.

Generator's/Offor's Printed/Typed Name

Signature

Month Day Year

Cris D'Antonio (USEPA OSC)

[Signature]

19 | 29 | 14

15. International Shipments

☐ Import to U.S.

☐ Export from U.S.

Port of entry/exit:

Date leaving U.S.:

Transporter Signature (for exports only):

16. Transporter Acknowledgment of Receipt of Materials

Transporter 1 Printed/Typed Name

Signature

Month Day Year

Brent Alexander

[Signature]

19 | 29 | 14

Transporter 2 Printed/Typed Name

Signature

Month Day Year

17. Discrepancy

17a. Discrepancy Indication Space

☐ Quantity

☐ Type

☐ Residue

☐ Partial Rejection

☐ Full Rejection

Manifest Reference Number:

U.S. EPA ID Number

17b. Alternate Facility (or Generator)

Facility's Phone:

17c. Signature of Alternate Facility (or Generator)

Month Day Year

18. Designated Facility Owner or Operator: Certification of receipt of materials covered by the manifest except as noted in Item 17a

Printed/Typed Name

Signature

Month Day Year

[Signature]

[Signature]

19 | 29 | 14

GENERATOR

NTL

TRANSPORTER

DESIGNATED FACILITY

CONESTOGA LF 420 QUARRY ROAD Morgantown, PA 19543 610-286-6844		SITE CL Cell 22X 77564 WEIGHMASTER Bruce E. Ticket 954398	
CUSTOMER 042375 AMERICAN WASTE OF NJ, LLC ONE AMERICAN WAY WARREN, OH 44485 50811411403		<b>SCALEHOUSE COPY</b> LICENSE: TYPE: Miscellaneous DATE IN 9/29/14 11:27 am VEHICLE SPECIAL REFERENCE 142 BILL OF LADING 071	
SCALE IN GROSS WEIGHT 59,000 SCALE OUT TARE WEIGHT 33,920 VEHICLE DESC: SPECIAL WASTE		DATE OUT 9/29/14 11:56 am CONTAINER INVOICE NET TONS 12.54 NET WEIGHT 25,080 CONTAINER DESC INBOUND	

QTY.	UNIT.	DESCRIPTION	RATE.	EXTENSION.	TAX.	TOTAL
0.00	YD	TRACKING QTY				
12.54	TN	SW-CONT SOIL				
		NEW JERSEY				

DRIVER:

WEIGHMASTER

NET AMOUNT  
TENDERED  
CHANGE  
CHECK

**NON-HAZARDOUS  
WASTE MANIFEST**

1. Generator ID Number

NYC200400018

2. Page 1 of 1

3. Emergency Response Phone

4. Waste Tracking Number

072

5. Generator's Name and Mailing Address

ATTN: CRIS D'ONOFRIO

Generator's Site Address (if different than mailing address)

US EPA REGION II

2870 WOODBRIDGE AVENUE EDISON, NJ 08837

W C CANFIELD

1 CORNERSTONE LANE

NEWARK, NJ 07103

Generator's Phone: (908) 420-4475

6. Transporter 1 Company Name

U.S. EPA ID Number

7. Transporter 2 Company Name

U.S. EPA ID Number

8. Designated Facility Name and Site Address

U.S. EPA ID Number

REPUBLIC SERVICES/CONESTOGA

420 QUARRY RD

MORGANTOWN PA 19543

Facility's Phone: (610) 288-7576

9. Waste Shipping Name and Description

10. Containers

No.

Type

11. Total  
Quantity

12. Unit  
Wt./Vol.

1. Non Haz Non Regulated Soil & Debris

001

CM

EST  
18 T

2.

3.

4.

13. Special Handling Instructions and Additional Information

1. 5081 1411 403 WID: 49411 METALS IMPACTED SOIL & DEBRIS  
(LEAD)

14. GENERATOR'S/OFFEROR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations.

Generator's/Offoror's Printed/Typed Name

Cris D'Onofrio (USEPA)

Signature

[Signature]

Month Day Year

9 29 14

15. International Shipments

☐ Import to U.S.

☐ Export from U.S.

Port of entry/exit:

Date leaving U.S.:

Transporter Signature (for exports only):

16. Transporter Acknowledgment of Receipt of Materials

Transporter 1 Printed/Typed Name

Steve Rivers Driver

Signature

[Signature]

Month Day Year

9 29 14

Transporter 2 Printed/Typed Name

Signature

Month Day Year

17. Discrepancy

17a. Discrepancy Indication Space

☐ Quantity

☐ Type

☐ Residue

☐ Partial Rejection

☐ Full Rejection

Manifest Reference Number:

U.S. EPA ID Number

17b. Alternate Facility (or Generator)

Facility's Phone:

17c. Signature of Alternate Facility (or Generator)

Month Day Year

18. Designated Facility Owner or Operator: Certification of receipt of materials covered by the manifest except as noted in item 17a

Printed/Typed Name

Signature

[Signature]

Month Day Year

9 29 14

CONESTOGA LF  
420 QUARRY ROAD  
Morgantown, PA 19543 610-286-6844

CUSTOMER  
042375  
AMERICAN WASTE OF NJ, LLC  
ONE AMERICAN WAY  
WARREN, OH 44485  
50811411403

**CUSTOMER COPY**

LICENSE:  
TYPE: Miscellaneous

SCALE IN GROSS WEIGHT  
SCALE OUT TARE WEIGHT  
VEHICLE DESC SPECIAL WASTE

73,220  
37,480

NET TONS  
NET WEIGHT

SITE CL CELL 22X 60029

WEIGHMASTER Mike M.

Ticket 954436

DATE IN  
9/29/14 3:03 pm

DATE OUT  
9/29/14 3:21 pm

VEHICLE  
SPECIAL

CONTAINER

REFERENCE  
267

INVOICE

BILL OF LADING 072

17.87  
35,740

INBOUND

CONTAINER DESC

QTY. UNIT.  
0.00 YD TRACKING QTY  
17.87 TN SW-CONT SOIL

DESCRIPTION RATE. EXTENSION. TAX. TOTAL

NEW JERSEY

NET AMOUNT

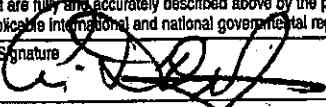
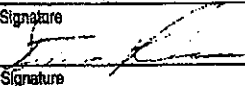
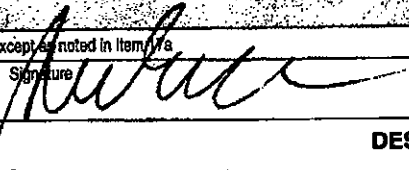
TENDERED

CHANGE

CHECK

331 DRIVER :

WEIGHMASTER

<b>NON-HAZARDOUS WASTE MANIFEST</b>		1. Generator ID Number NJ 1001000013	2. Page 1 of 1	3. Emergency Response Phone	4. Waste Tracking Number 073
5. Generator's Name and Mailing Address ATTN: CRIS D D'ONOFIO US EPA REGION II 2890 WOODBRIDGE AVENUE EDISON, NJ 08837 Generator's Phone: (908) 420-4475			Generator's Site Address (if different than mailing address) M C CAMFIELD 1 CORNERSTONE LANE NEWARK, NJ 07103		
6. Transporter 1 Company Name DELAWARE VALLEY CVT			U.S. EPA ID Number		
7. Transporter 2 Company Name			U.S. EPA ID Number		
8. Designated Facility Name and Site Address REPUBLIC SERVICES/CORSETOGA 420 QUARRY RD MORGANTOWN PA 19543 Facility's Phone: (610) 288-7874			U.S. EPA ID Number		
9. Waste Shipping Name and Description		10. Containers		11. Total Quantity	12. Unit Wt./Vol.
		No.	Type		
1. Non Haz Non Regulated Soil & Debris		001	CM	EST 18	T
2.					
3.					
4.					
13. Special Handling Instructions and Additional Information 1. 5081 1411 403 WTD: 49411 METALS IMPACTED SOIL & DEBRIS (LEAD)					
14. GENERATOR'S/OFFEROR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations.					
Generator's/Offor's Printed/Typed Name Cris D'Onofrio (USEPA OSC)			Signature 		Month Day Year 9 30 14
15. International Shipments <input type="checkbox"/> Import to U.S. <input type="checkbox"/> Export from U.S. Port of entry exit Date leaving U.S.					
16. Transporter Acknowledgment of Receipt of Materials					
Transporter 1 Printed/Typed Name Steve Rivers Driver			Signature 		Month Day Year 9 30 14
Transporter 2 Printed/Typed Name			Signature		Month Day Year
17. Discrepancy					
17a. Discrepancy Indication Space <input type="checkbox"/> Quantity <input type="checkbox"/> Type <input type="checkbox"/> Residue <input type="checkbox"/> Partial Rejection <input type="checkbox"/> Full Rejection					
Manifest Reference Number:				U.S. EPA ID Number	
17b. Alternate Facility (or Generator)					
Facility's Phone:					
17c. Signature of Alternate Facility (or Generator)					
18. Designated Facility Owner or Operator: Certification of receipt of materials covered by the manifest except as noted in Item 17a					
Printed/Typed Name [Signature]			Signature 		Month Day Year 9 30 14

CONESTOGA LF  
420 QUARRY ROAD

Morgantown, PA 19543 610-286-6844

**CUSTOMER**

042375

AMERICAN WASTE OF NJ, LLC

ONE AMERICAN WAY

WARREN, OH 44485

50811411403

SCALE IN

GROSS WEIGHT

72,840

NET TONS

18.60

SCALE OUT

TARE WEIGHT

35,640

NET WEIGHT

37,200

VEHICLE DESC SPECIAL WASTE

**CUSTOMER COPY**

LICENSE:

TYPE: Miscellaneous

SITE CL CELL 22X 77564

WEIGHMASTER IN - Bruce E. OUT - Mike M.

Ticket 954548

DATE IN  
9/30/14 10:17 am

DATE OUT  
9/30/14 10:37 am

VEHICLE  
SPECIAL

CONTAINER

REFERENCE  
267

INVOICE

BILL OF LADING 073

CONTAINER DESC

INBOUND

QTY.	UNIT.	DESCRIPTION	RATE.	EXTENSION.	TAX.	TOTAL
0.00	YD	TRACKING QTY				
18.60	TN	SW-CONT SOIL				
		NEW JERSEY				

NET AMOUNT

TENDERED

CHANGE

CHECK

531 DRIVER:

WEIGHMASTER





## CERTIFICATE OF DESTRUCTION

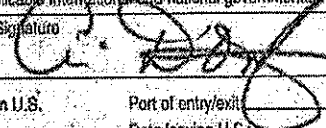
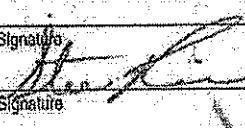
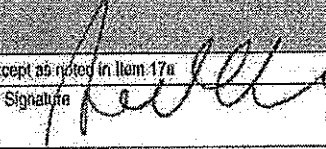
I, Joanne Schulze, of Republic Services, hereby certifies to American Waste of NJ, LLC that all the product described in Section A has been properly and legally disposed of in Conestoga Landfill between 9/24 thru 9/30/14.

American Waste of NJ, LLC agrees to indemnify and hold Republic Services and it subsidiary and affiliated corporations harmless from any and all liabilities, claims, damage or cost incurred in connection with any claims related to the destruction of this waste stream

By: Joanne Schulze  
Name: JOANNE Schulze  
Title: Environmental Co-ordinator  
Date: 9/30/14

### **Section A- Products Destroyed (attached additional sheets if needed):**

<u>Description of Product</u>	<u>Quantity or Weight</u>
<b>Metals Impacted Soil &amp; Debris (Lead)</b>	<b>16.31 Tons ✓</b>
<b>Metals Impacted Soil &amp; Debris (Lead)</b>	<b>16.93 Tons ✓</b>
<b>Metals Impacted Soil &amp; Debris (Lead)</b>	<b>17.36 Tons ✓</b>
<b>Metals Impacted Soil &amp; Debris (Lead)</b>	<b>5.69 Tons</b>
<b>Metals Impacted Soil &amp; Debris (Lead)</b>	<b>19.83 Tons ✓</b>
<b>Metals Impacted Soil &amp; Debris (Lead)</b>	<b>12.54 Tons ✓</b>
<b>Metals Impacted Soil &amp; Debris (Lead)</b>	<b>11.50 Tons</b>
<b>Metals Impacted Soil &amp; Debris (Lead)</b>	<b>17.87 Tons ✓</b>
<b>Metals Impacted Soil &amp; Debris (Lead)</b>	<b>18.60 Tons ✓</b>

<b>NON-HAZARDOUS WASTE MANIFEST</b>		1. Generator ID Number BLC900400018		2. Page 1 of 1		3. Emergency Response Phone		4. Waste Tracking Number 074	
		5. Generator's Name and Mailing Address US EPA REGION II 2870 WOODBRIDGE AVENUE EDISON, NJ 08837 Generator's Phone: (908) 420-4475		Generator's Site Address (if different than mailing address) M C CAMFIELD 1 CORNERSTONE LANE NEWARK, NJ 07103					
6. Transporter 1 Company Name DELAWARE VALLEY CONT.		U.S. EPA ID Number		7. Transporter 2 Company Name		U.S. EPA ID Number		8. Designated Facility Name and Site Address REPUBLIC SERVICES/CONESTOGA 420 QUARRY RD MORGANTOWN PA 17943 Facility's Phone: (717) 268-7876	
9. Waste Shipping Name and Description 1. Non Haz Non Regulated Soil & Debris		10. Containers		11. Total Quantity		12. Unit Wt./Vol.			
		No.	Type						
		001 CM		157 18		T			
13. Special Handling Instructions and Additional Information 1. 5081 1411 403 (LEAD) UID: 49411 METALS IMPACTED SOIL & DEBRIS									
14. GENERATOR'S/OFFEROR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations.									
Generator's/Officer's Printed/Typed Name Chris D'Amotrio (USEPA) (OSC)		Signature 		Month 10		Day 1		Year 14	
15. International Shipments <input type="checkbox"/> Import to U.S. <input type="checkbox"/> Export from U.S.		Port of entry/exit Date leaving U.S.							
16. Transporter Acknowledgment of Receipt of Materials		Transporter Signature (for exports only):							
Transporter 1 Printed/Typed Name Stew Rivers Driver		Signature 		Month 10		Day 1		Year 14	
Transporter 2 Printed/Typed Name		Signature		Month		Day		Year	
17. Discrepancy									
17a. Discrepancy Indication Space <input type="checkbox"/> Quantity <input type="checkbox"/> Type <input type="checkbox"/> Residue <input type="checkbox"/> Partial Rejection <input type="checkbox"/> Full Rejection									
17b. Alternate Facility (or Generator)		Manifest Reference Number:		U.S. EPA ID Number					
Facility's Phone:									
17c. Signature of Alternate Facility (or Generator)				Month		Day		Year	
18. Designated Facility Owner or Operator: Certification of receipt of materials covered by the manifest except as noted in Item 17a									
Printed/Typed Name [Signature]		Signature 		Month 10		Day 1		Year 14	

CONESTOGA LF  
420 QUARRY ROAD

Morgantown, PA 19543 610-286-6844

CUSTOMER  
042375  
AMERICAN WASTE OF NJ, LLC  
ONE AMERICAN WAY  
WARREN, OH 44485

**SCALEHOUSE COPY**

LICENSE:  
TYPE: Miscellaneous

SITE CL Cell 22X 77564

WEIGHMASTER Bruce E.

Ticket 954777

DATE IN 10/1/14 12:31 pm DATE OUT 10/1/14 12:51 pm

VEHICLE SPECIAL CONTAINER

REFERENCE 267 INVOICE

BILL OF LADING 074

50811411403

SCALE IN GROSS WEIGHT 69,900 NET TONS 17.07 INBOUND

SCALE OUT TARE WEIGHT 35,760 NET WEIGHT 34,140

VEHICLE DESC: SPECIAL WASTE CONTAINER DESC

QTY.	UNIT.	DESCRIPTION	RATE.	EXTENSION.	TAX.	TOTAL
0.00	YD	TRACKING QTY				
17.07	TN	SW-CONT SOIL				
		NEW JERSEY				

NET AMOUNT  
TENDERED  
CHANGE  
CHECK

DRIVER:

WEIGHMASTER

NON-HAZARDOUS WASTE MANIFEST		1. Generator ID Number NJ 1000440018	2. Page 1 of 1	3. Emergency Response Phone	4. Waste Tracking Number 075	
5. Generator's Name and Mailing Address ATTN: CRIS D ONOFIO US EPA REGION II 2890 WOODBRIDGE AVENUE EDISON, NJ 08837 Generator's Phone: (908) 400-4475			Generator's Site Address (if different than mailing address) H C CAMFIELD 1 CORNERSTONE LANE NEWARK, NJ 07103			
6. Transporter 1 Company Name Empire			U.S. EPA ID Number			
7. Transporter 2 Company Name			U.S. EPA ID Number			
8. Designated Facility Name and Site Address REPUBLIC SERVICES/CONESTOGA 420 QUARRY RD MORGANTOWN PA 17543 Facility's Phone: (410) 282-7074			U.S. EPA ID Number			
GENERATOR	9. Waste Shipping Name and Description		10. Containers		11. Total Quantity	12. Unit Wt./Vol.
			No.	Type		
	1. Non Haz Non Regulated Soil & Debris		001	CM	EST 10	T
	2.					
	3.					
4.						
13. Special Handling Instructions and Additional Information E-5001-1411-403 QID# 49411 METALS IMPACTED SOIL & DEBRIS (LEAD)						
14. GENERATOR'S/OFFEROR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled in accordance, and are in all respects in proper condition for transport according to applicable international and national governmental regulations. Generator's/Offeror's Printed/Typed Name: CRIS D'ONOFIO (USE PH) Signature: [Signature] Month: 10 Day: 6 Year: 14						
TRANSPORTER - INTL	15. International Shipments <input type="checkbox"/> Import to U.S. <input type="checkbox"/> Export from U.S. Port of entry/exit: Date leaving U.S.:					
	16. Transporter Acknowledgment of Receipt of Materials Transporter 1 Printed/Typed Name: Empire Services Signature: [Signature] Month: 10 Day: 6 Year: 14 Transporter 2 Printed/Typed Name: Justin M Benfield Signature: [Signature] Month: 10 Day: 6 Year: 14					
DESIGNATED FACILITY	17. Discrepancy 17a. Discrepancy Indication Space <input type="checkbox"/> Quantity <input type="checkbox"/> Type <input type="checkbox"/> Residual <input type="checkbox"/> Partial Rejection <input type="checkbox"/> Full Rejection Manifest Reference Number: 1831					
	17b. Alternate Facility (or Generator) Facility's Phone: U.S. EPA ID Number:					
	17c. Signature of Alternate Facility (or Generator) Month: Day: Year:					
18. Designated Facility Owner or Operator: Certification of receipt of materials covered by the manifest except as noted in Item 17a Printed/Typed Name: Signature: [Signature] Month: 10 Day: 6 Year: 14						

CONESTOGA LF  
420 QUARRY ROAD

Morgantown, PA 19543 610-286-6844

CUSTOMER  
042375  
AMERICAN WASTE OF NJ, LLC  
ONE AMERICAN WAY  
WARREN, OH 44485  
50811411403

**CUSTOMER COPY**

LICENSE:  
TYPE: Miscellaneous

SITE CL CELL 22X 60029

WEIGHMASTER Mike M.

Ticket 955335

DATE IN 10/6/14 1:04 pm

DATE OUT 10/6/14 1:22 pm

VEHICLE  
SPECIAL

CONTAINER

REFERENCE  
245-292

INVOICE

BILL OF LADING 075

SCALE IN GROSS WEIGHT 77,440  
SCALE OUT TARE WEIGHT 40,820  
VEHICLE DESC SPECIAL WASTE

NET TONS 18.31  
NET WEIGHT 36,620

CONTAINER DESC

INBOUND

QTY.	UNIT.	DESCRIPTION	RATE.	EXTENSION.	TAX.	TOTAL
0.00	YD	TRACKING QTY				
18.31	TN	SW-CONT SOIL				
		NEW JERSEY				

NET AMOUNT

TENDERED

CHANGE

CHECK

31 DRIVER:

WEIGHMASTER



## CERTIFICATE OF DESTRUCTION

I, Joanne Schulze, of Republic Services, hereby certifies to American Waste of NJ, LLC that all the product described in Section A has been properly and legally disposed of in Conestoga Landfill between 10/01 thru 10/06/14.

American Waste of NJ, LLC agrees to indemnify and hold Republic Services and it subsidiary and affiliated corporations harmless from any and all liabilities, claims, damage or cost incurred in connection with any claims related to the destruction of this waste stream

By: Joanne Schulze  
Name: Joanne Schulze  
Title: Environmental Coordinator  
Date: 10/6/14

### **Section A- Products Destroyed (attached additional sheets if needed):**

#### Description of Product

#### Quantity or Weight

**Metals Impacted Soil & Debris (Lead)**  
**Metals Impacted Soil & Debris (Lead)**

**17.07 Tons**  
**18.31 Tons**

NON-HAZARDOUS WASTE MANIFEST		1. Generator ID Number NJ 052004000112		2. Page 1 of 2		3. Emergency Response Phone		4. Waste Tracking Number 076	
5. Generator's Name and Mailing Address US EPA REGION II 2890 WOODBRIDGE AVENUE EDISON, NJ 08837 Generator's Phone: (908) 420-4475						Generator's Site Address (if different than mailing address) H C CANFIELD 1 CORNERSTONE LANE NEWARK NJ 07103			
6. Transporter 1 Company Name EPA Serv, Inc.						U.S. EPA ID Number			
7. Transporter 2 Company Name						U.S. EPA ID Number			
8. Designated Facility Name and Site Address REPUBLIC SERVICES/CONESTOGA 420 QUARRY RD MORGANTOWN PA 17943 Facility's Phone: (410) 298-7876						U.S. EPA ID Number			
9. Waste Shipping Name and Description 1. Non Haz Non Regulated Soil & Debris					10. Containers		11. Total Quantity EST 18	12. Unit Wt./Vol. T	
					No.	Type			
					001	CM			
2.									
3.									
4.									
13. Special Handling Instructions and Additional Information 1. 5001 1411 403 WID: 49411 METALS IMPACTED SOIL & DEBRIS (LEAD)									
14. GENERATOR'S/OFFEROR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations.									
Generator's/Officer's Printed/Typed Name: CRIS D'ONOFRIO (U-SEP 0-56)						Signature <i>[Signature]</i>		Month Day Year 10 7 14	
15. International Shipments: <input type="checkbox"/> Import to U.S. <input type="checkbox"/> Export from U.S. Port of entry/exit: Date leaving U.S.:									
16. Transporter Acknowledgment of Receipt of Materials									
Transporter 1 Printed/Typed Name: Justin Macleod						Signature <i>[Signature]</i>		Month Day Year 10 7 14	
Transporter 2 Printed/Typed Name:						Signature		Month Day Year	
17. Discrepancy									
17a. Discrepancy Indication Space: <input type="checkbox"/> Quantity <input type="checkbox"/> Type <input type="checkbox"/> Residue <input type="checkbox"/> Partial Rejection <input type="checkbox"/> Full Rejection									
17b. Alternate Facility (or Generator) Manifest Reference Number: U.S. EPA ID Number									
Facility's Phone:									
17c. Signature of Alternate Facility (or Generator) Month Day Year									
18. Designated Facility Owner or Operator: Certification of receipt of materials covered by the manifest except as noted in Item 17a									
Printed/Typed Name <i>[Signature]</i>						Signature <i>[Signature]</i>		Month Day Year 10 7 14	



CONESTOGA LF  
420 QUARRY ROAD

Morgantown, PA 19543 610-286-6844

**CUSTOMER**

042375  
AMERICAN WASTE OF NJ, LLC  
ONE AMERICAN WAY  
WARREN, OH 44485  
50811411403

**CUSTOMER COPY**

**LICENSE:**

**TYPE:**Miscellaneous

SITE CL CELL 22X 77564

WEIGHMASTER IN - Bruce E. OUT - Mike M.

Ticket 955436

**DATE IN**

10/7/14 9:22 am

**DATE OUT**

10/7/14 9:42 am

**VEHICLE**  
SPECIAL

**CONTAINER**

**REFERENCE**

245 291

**INVOICE**

**BILL OF LADING** 076

**SCALE IN**

**GROSS WEIGHT**

78,240

**NET TONS**

18.75

**SCALE OUT**

**TARE WEIGHT**

40,740

**NET WEIGHT**

37,500

**VEHICLE DESC** SPECIAL WASTE

**CONTAINER DESC**

**INBOUND**

QTY.	UNIT.	DESCRIPTION	RATE.	EXTENSION.	TAX.	TOTAL
0.00	YD	TRACKING QTY				
18.75	TN	SW-CONT SOIL				
		NEW JERSEY				

**NET AMOUNT**

**TENDERED**

**CHANGE**

**CHECK**

131 **DRIVER:**

**WEIGHMASTER**

NON-HAZARDOUS WASTE MANIFEST		1. Generator ID Number 16100045015	2. Page 1 of 1	3. Emergency Response Phone	4. Waste Tracking Number 077
5. Generator's Name and Mailing Address US EPA REGION II 2890 WOODBRIDGE AVENUE EDISON, NJ 08837 Generator's Phone: (908) 420-4475			Generator's Site Address (if different than mailing address) M C CANFIELD 1 CORNERSTONE LANE MELARK NJ 07103		
6. Transporter 1 Company Name Empire Services			U.S. EPA ID Number		
7. Transporter 2 Company Name			U.S. EPA ID Number		
8. Designated Facility Name and Site Address REPUBLIC SERVICES/CONESTOGA 420 QUARRY RD MORGANTOWN PA 19543 Facility's Phone: (610) 288-7876			U.S. EPA ID Number		
9. Waste Shipping Name and Description		10. Containers		11. Total Quantity	12. Unit Wt./Vol.
		No.	Type		
1. Non Haz Non-Regulated Soil & Debris		001	CM	FS7 18	T
2.					
3.					
4.					
13. Special Handling Instructions and Additional Information 1. 5081 1411 403 WID: 49411 METALS IMPACTED SOIL & DEBRIS (LEAD)					
14. GENERATOR'S/OFFEROR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations.					
Generator's/Offaror's Printed/Typed Name Cris D Onofrio (LSEPA 85C)			Signature 		Month Day Year 10/07/14
15. International Shipments <input type="checkbox"/> Import to U.S. <input type="checkbox"/> Export from U.S.			Port of entry/exit Date leaving U.S.		
16. Transporter Acknowledgment of Receipt of Materials Transporter 1 Printed/Typed Name Justin M Benfield			Signature 		Month Day Year 10/07/14
Transporter 2 Printed/Typed Name			Signature		Month Day Year
17. Discrepancy					
17a. Discrepancy Indication Space <input type="checkbox"/> Quantity <input type="checkbox"/> Type <input type="checkbox"/> Residue <input type="checkbox"/> Partial Rejection <input type="checkbox"/> Full Rejection					
17b. Alternate Facility (or Generator)			Manifest Reference Number: U.S. EPA ID Number		
Facility's Phone:					
17c. Signature of Alternate Facility (or Generator)			Month Day Year 19/93		
18. Designated Facility Owner or Operator: Certification of receipt of materials covered by the manifest except as noted in Item 17a					
Printed/Typed Name 			Signature 		Month Day Year 10/8/14

CONESTOGA LF  
420 QUARRY ROAD

Morgantown, PA 19543 610-286-6844

CUSTOMER  
042375  
AMERICAN WASTE OF NJ, LLC  
ONE AMERICAN WAY  
WARREN, OH 44485

50811411403

SCALE IN GROSS WEIGHT  
SCALE OUT TARE WEIGHT  
VEHICLE DESC: SPECIAL WASTE

**SCALEHOUSE COPY**

LICENSE:  
TYPE: Miscellaneous

78,300

39,440

NET TONS

NET WEIGHT

19.43

38,860

CONTAINER DESC

SITE CL Cell 22X 77564

WEIGHMASTER Bruce E.

Ticket 955598

DATE IN 10/8/14 6:52 am DATE OUT 10/8/14 7:20 am

VEHICLE SPECIAL CONTAINER

REFERENCE  
245 129

INVOICE

BILL OF LADING 077

INBOUND

QTY.	UNIT.	DESCRIPTION	RATE.	EXTENSION.	TAX.	TOTAL
0.00	YD	TRACKING QTY				
19.43	TN	SW-CONT SOIL				
		NEW JERSEY				

DRIVER:

WEIGHMASTER

NET AMOUNT  
TENDERED  
CHANGE  
CHECK

<b>NON-HAZARDOUS WASTE MANIFEST</b>		1. Generator ID Number NJ0200400010	2. Page 1 of 1	3. Emergency Response Phone	4. Waste Tracking Number 0718
5. Generator's Name and Mailing Address US EPA REGION II 2890 WOODBRIDGE AVENUE EDISON, NJ 08837 Generator's Phone: (908) 426-4475			Generator's Site Address (if different than mailing address) M C CAMFIELD 1 CORNERSTONE LANE NEWARK NJ 07103		
6. Transporter 1 Company Name Empire Services TRK 245			U.S. EPA ID Number		
7. Transporter 2 Company Name			U.S. EPA ID Number		
8. Designated Facility Name and Site Address REPUBLIC SERVICES/CONESTOGA 420 QUARRY RD MORGANTOWN PA 19543 Facility's Phone: (610) 289-7076			U.S. EPA ID Number		
9. Waste Shipping Name and Description 1. Non Haz Non Regulated Soil & Debris		10. Containers		11. Total Quantity EST 18	12. Unit Wt./Vol. T
		No.	Type CM		
2.					
3.					
4.					
13. Special Handling Instructions and Additional Information 1. E081 1411 403 WID: 49411 METALS IMPACTED SOIL & DEBRIS (LEAD)					
14. GENERATOR'S/OFFEROR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations.					
Generator's/Officer's Printed/Typed Name Chris D'Onofrio (VSEPH OSC)		Signature 		Month Day Year 10 7 14	
15. International Shipments <input type="checkbox"/> Import to U.S. <input type="checkbox"/> Export from U.S.		Port of entry/exit: Date leaving U.S.:			
16. Transporter Acknowledgment of Receipt of Materials Transporter 1 Printed/Typed Name Justin Benfield		Signature 		Month Day Year 10 7 14	
Transporter 2 Printed/Typed Name		Signature		Month Day Year	
17. Discrepancy 17a. Discrepancy Indication Space <input type="checkbox"/> Quantity <input type="checkbox"/> Type <input type="checkbox"/> Residue <input type="checkbox"/> Partial Rejection <input type="checkbox"/> Full Rejection					
17b. Alternate Facility (or Generator)			Manifest Reference Number: U.S. EPA ID Number		
Facility's Phone:					
17c. Signature of Alternate Facility (or Generator)			Month Day Year		
18. Designated Facility Owner or Operator: Certification of receipt of materials covered by the manifest except as noted in item 17a Printed/Typed Name: Signature: Month Day Year 10 13 14					

CONESTOGA LF  
420 QUARRY ROAD

Morgantown, PA 19543 610-286-6844

SITE CL CELL 22X 60029

WEIGHMASTER Mike M.

Ticket 955718

DATE IN 10/8/14 1:05 pm

DATE OUT 10/8/14 1:24 pm

VEHICLE  
SPECIAL

CONTAINER

REFERENCE  
245-292

INVOICE

BILL OF LADING 078

CUSTOMER

042375  
AMERICAN WASTE OF NJ, LLC  
ONE AMERICAN WAY  
WARREN, OH 44485  
50811411403

CUSTOMER COPY

LICENSE:

TYPE: Miscellaneous

SCALE IN GROSS WEIGHT 76,720  
SCALE OUT TARE WEIGHT 41,380

NET TONS 17.67  
NET WEIGHT 35,340

VEHICLE DESC SPECIAL WASTE

CONTAINER DESC

INBOUND

QTY.	UNIT.	DESCRIPTION	RATE.	EXTENSION.	TAX.	TOTAL
0.00	YD	TRACKING QTY				
17.67	TN	SW-CONT SOIL				
		NEW JERSEY				

NET AMOUNT

TENDERED

CHANGE

CHECK

31 DRIVER :

WEIGHMASTER

<b>NON-HAZARDOUS WASTE MANIFEST</b>		1. Generator ID Number <b>15-73040012</b>		2. Page 1 of <b>1</b>		3. Emergency Response Phone		4. Waste Tracking Number <b>079</b>	
		5. Generator's Name and Mailing Address <b>ATTN: CRIS D ONOFRO US EPA REGION II 2290 WOODBRIDGE AVENUE EDISON, NJ 08837</b>				Generator's Site Address (if different than mailing address) <b>N C CANFIELD 1 CORNERSTONE LANE NEWARK, NJ 07103</b>			
6. Transporter 1 Company Name <b>Engine Services Reading PA</b>		U.S. EPA ID Number		7. Transporter 2 Company Name		U.S. EPA ID Number		8. Designated Facility Name and Site Address <b>REPUBLIC SERVICES/CONESTOGA 420 QUARRY RD MORGANTOWN PA 19543</b>	
Facility's Phone: <b>(610) 286-7876</b>		U.S. EPA ID Number		9. Waste Shipping Name and Description <b>1. Non Haz Non Regulated Soil &amp; Debris</b>		10. Containers No. Type <b>001 CM</b>		11. Total Quantity <b>FST 18</b>	
								12. Unit. Wt/Vol. <b>T</b>	
13. Special Handling Instructions and Additional Information <b>1. 5081 1411 403 MID: 49411 METALS IMPACTED SOIL &amp; DEBRIS (LEAD)</b>									
14. GENERATOR'S/OFFEROR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations.									
Generator's/Officer's Printed/Typed Name <b>CRIS D'ONOFRO (USEPA)</b>						Signature <i>[Signature]</i>		Month Day Year <b>10 9 14</b>	
15. International Shipments <input type="checkbox"/> Import to U.S. <input type="checkbox"/> Export from U.S.						Port of entry/exit: Date leaving U.S.:			
16. Transporter Acknowledgment of Receipt of Materials									
Transporter 1 Printed/Typed Name <b>Justin Benfield</b>						Signature <i>[Signature]</i>		Month Day Year <b>10 9 14</b>	
Transporter 2 Printed/Typed Name						Signature		Month Day Year	
17. Discrepancy									
17a. Discrepancy Indication Space <input type="checkbox"/> Quantity <input type="checkbox"/> Type <input type="checkbox"/> Residue <input type="checkbox"/> Partial Rejection <input type="checkbox"/> Full Rejection									
17b. Alternate Facility (or Generator)						Manifest Reference Number: U.S. EPA ID Number			
Facility's Phone:									
17c. Signature of Alternate Facility (or Generator)						Month Day Year			
18. Designated Facility Owner or Operator: Certification of receipt of materials covered by the manifest except as noted in Item 7a									
Printed/Typed Name <i>[Signature]</i>						Signature <i>[Signature]</i>		Month Day Year <b>10 9 14</b>	

CONESTOGA LF  
420 QUARRY ROAD

Morgantown, PA 19543 610-286-6844

CUSTOMER  
042375  
AMERICAN WASTE OF NJ, LLC  
ONE AMERICAN WAY  
WARREN, OH 44485  
50811411403

**CUSTOMER COPY**

LICENSE:  
TYPE: Miscellaneous

SITE CL CELL 22X 77564  
WEIGHMASTER IN - Bruce E. OUT - Mike M.  
Ticket 955846  
DATE IN 10/9/14 10:18 am DATE OUT 10/9/14 10:40 am  
VEHICLE SPECIAL CONTAINER  
REFERENCE 245 40 INVOICE  
BILL OF LADING 079

SCALE IN GROSS WEIGHT  
SCALE OUT TARE WEIGHT  
VEHICLE DESC SPECIAL WASTE

82,360  
40,820

NET TONS 20.77  
NET WEIGHT 41,540

CONTAINER DESC

INBOUND

QTY.	UNIT.	DESCRIPTION	RATE.	EXTENSION.	TAX.	TOTAL
0.00	YD	TRACKING QTY				
20.77	TN	SW-CONT SOIL				
		NEW JERSEY				

NET AMOUNT

TENDERED

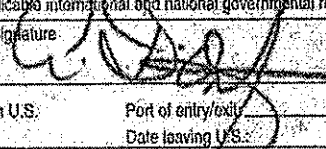
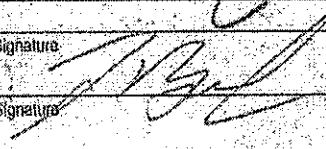
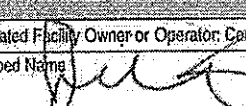
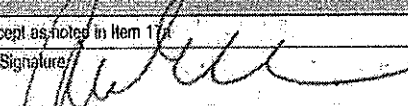
CHANGE

CHECK

5/31 DRIVER :

WEIGHMASTER



<b>NON-HAZARDOUS WASTE MANIFEST</b>		1. Generator ID Number NJ IC200400019		2. Page 1 of 1		3. Emergency Response Phone		4. Waste Tracking Number 080	
		5. Generator's Name and Mailing Address ATTN: CRIS D ONOFIRO US EPA REGION II 2890 WOODBRIDGE AVENUE EDISON, NJ 08837 Generator's Phone: (908) 420-4475		Generator's Site Address (if different than mailing address) H C CANFIELD 1 CORNERSTONE LANE MELMARK, NJ 07103					
6. Transporter 1 Company Name Ermine Services Recycling PA		U.S. EPA ID Number							
7. Transporter 2 Company Name		U.S. EPA ID Number							
8. Designated Facility Name and Site Address REPUBLIC SERVICES/CONESTOGA 420 QUARRY RD MERCANTOWN PA 19543 Facility's Phone: (610) 289-7874		U.S. EPA ID Number							
9. Waste Shipping Name and Description 1. Non Haz Non Regulated Soil & Debris		10. Containers		11. Total Quantity FST 18	12. Unit Wt./Vol. T				
		No.	Type						
		001 CM							
13. Special Handling Instructions and Additional Information 1. 5081 1411 403 WID: 49411 METALS IMPACTED SOIL & DEBRIS (LEAD)									
14. GENERATOR'S/OFFEROR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations.									
Generator's/Offeror's Printed/Typed Name CRIS D ONOFIRO (WSEPH)		Signature 				Month Day Year 10 10 14			
15. International Shipments <input type="checkbox"/> Import to U.S. <input type="checkbox"/> Export from U.S.		Port of entry/exit Date leaving U.S.							
16. Transporter Acknowledgment of Receipt of Materials									
Transporter 1 Printed/Typed Name Justin Benfield		Signature 				Month Day Year 10 10 14			
Transporter 2 Printed/Typed Name		Signature				Month Day Year			
17. Discrepancy									
17a. Discrepancy Indication Space <input type="checkbox"/> Quantity <input type="checkbox"/> Type <input type="checkbox"/> Residue <input type="checkbox"/> Partial Rejection <input type="checkbox"/> Full Rejection									
17b. Alternate Facility (or Generator)		Manifest Reference Number:				U.S. EPA ID Number			
Facility's Phone:									
17c. Signature of Alternate Facility (or Generator)						Month Day Year 10 10 14			
18. Designated Facility Owner or Operator: Certification of receipt of materials covered by the manifest except as noted in Item 17a Printed/Typed Name:  Signature:  Month Day Year: 10 10 14									

CONESTOGA LF 420 QUARRY ROAD Morgantown, PA 19543 610-286-6844		SITE CL Cell 22X 77564 WEIGHMASTER Bruce E. Ticket 956037
CUSTOMER 042375 AMERICAN WASTE OF NJ, LLC ONE AMERICAN WAY WARREN, OH 44485 50811411403	<b>SCALEHOUSE COPY</b> LICENSE: TYPE: Miscellaneous	DATE IN 10/10/14 10:10 am DATE OUT 10/10/14 10:34 am VEHICLE SPECIAL REFERENCE 245 40 BILL OF LADING 080 CONTAINER
SCALE IN SCALE OUT VEHICLE DESC: SPECIAL WASTE	GROSS WEIGHT 81,280 TARE WEIGHT 39,200	NET TONS 21.04 NET WEIGHT 42,080 INBOUND INVOICE

QTY.	UNIT.	DESCRIPTION	RATE.	EXTENSION.	TAX.	TOTAL
0.00	YD	TRACKING QTY				
21.04	TN	SW-CONT SOIL				
		NEW JERSEY				

NET AMOUNT  
 TENDERED  
 CHANGE  
 CHECK

DRIVER: WEIGHMASTER

NON-HAZARDOUS WASTE MANIFEST		1. Generator ID Number NJC200400018	2. Page 1 of 1	3. Emergency Response Phone	4. Waste Tracking Number 081
5. Generator's Name and Mailing Address US EPA REGION II 2290 WOODBRIDGE AVENUE EDISON, NJ 08837 Generator's Phone: (908) 420-1475			Generator's Site Address (if different than mailing address) H C CANFIELD 1 CORNERSTONE LANE NEWARK, NJ 07103		
6. Transporter 1 Company Name Empire Services			U.S. EPA ID Number		
7. Transporter 2 Company Name			U.S. EPA ID Number		
8. Designated Facility Name and Site Address REPUBLIC SERVICES/CONESTOGA 420 QUARRY RD FORSYTH, PA 19543 Facility's Phone: (610) 282-7876			U.S. EPA ID Number		
9. Waste Shipping Name and Description		10. Containers		11. Total Quantity	12. Unit Wt./Vol.
		No.	Type		
1. Non Haz Non Regulated Soil & Debris		201	CM	Est 18	T
2.					
3.					
4.					
13. Special Handling Instructions and Additional Information 1. 5081 1411 403 WID: 49411 METALS IMPACTED SOIL & DEBRIS (LEAD)					
14. GENERATOR'S/OFFEROR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations.					
Generator's/Officer's Printed/Typed Name Cris D'Onofrio (USEPA DSI)		Signature Cris D'Onofrio		Month Day Year 10/13/14	
15. International Shipments <input type="checkbox"/> Import to U.S. <input type="checkbox"/> Export from U.S.		Port of entry/exit: Date leaving U.S.:			
Transporter Signature (for exports only):					
16. Transporter Acknowledgment of Receipt of Materials					
Transporter 1 Printed/Typed Name Tasha Barfield		Signature Tasha Barfield		Month Day Year 10/13/14	
Transporter 2 Printed/Typed Name		Signature		Month Day Year	
17. Discrepancy					
17a. Discrepancy Indication Space <input type="checkbox"/> Quantity <input type="checkbox"/> Type <input type="checkbox"/> Residue <input type="checkbox"/> Partial Rejection <input type="checkbox"/> Full Rejection					
17b. Alternate Facility (or Generator)				Manifest Reference Number: U.S. EPA ID Number	
Facility's Phone:					
17c. Signature of Alternate Facility (or Generator)				Month Day Year	
18. Designated Facility Owner or Operator: Certification of receipt of materials covered by the manifest except as noted in item 17a					
Printed/Typed Name		Signature		Month Day Year 12/13/14	

CONESTOGA LF  
420 QUARRY ROAD

Morgantown, PA 19543 610-286-6844

CUSTOMER  
042375  
AMERICAN WASTE OF NJ, LLC  
ONE AMERICAN WAY  
WARREN, OH 44485  
50811411403

**CUSTOMER COPY**

LICENSE:  
TYPE: Miscellaneous

SITE CL CELL 22X 60029

WEIGHMASTER Mike M.

Ticket 956226

DATE IN 10/13/14 9:22 am DATE OUT 10/13/14 9:42 am

VEHICLE SPECIAL CONTAINER

REFERENCE 245-292 INVOICE

BILL OF LADING 081

SCALE IN	GROSS WEIGHT	86,240	NET TONS	22.56	
SCALE OUT	TARE WEIGHT	41,120	NET WEIGHT	45,120	INBOUND
VEHICLE DESC	SPECIAL WASTE		CONTAINER DESC		

QTY.	UNIT.	DESCRIPTION	RATE.	EXTENSION.	TAX.	TOTAL
0.00	YD	TRACKING QTY				
22.56	TN	SW-CONT SOIL				
		NEW JERSEY				

NET AMOUNT

TENDERED

CHANGE

CHECK

DRIVER :

WEIGHMASTER



## CERTIFICATE OF DESTRUCTION

I, Joanne Schulze, of Republic Services, hereby certifies to American Waste of NJ, LLC that all the product described in Section A has been properly and legally disposed of in Conestoga Landfill between 10/07 thru 10/13/14.

American Waste of NJ, LLC agrees to indemnify and hold Republic Services and it subsidiary and affiliated corporations harmless from any and all liabilities, claims, damage or cost incurred in connection with any claims related to the destruction of this waste stream

By: \_\_\_\_\_

Name: \_\_\_\_\_

Title: \_\_\_\_\_

Date: \_\_\_\_\_

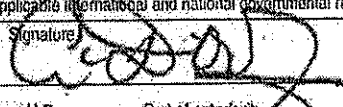
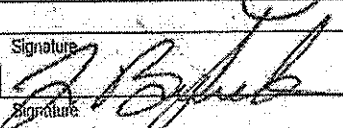
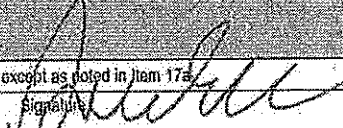
### **Section A- Products Destroyed (attached additional sheets if needed):**

#### Description of Product

#### Quantity or Weight

Metals Impacted Soil & Debris (Lead)  
Metals Impacted Soil & Debris (Lead)  
Metals Impacted Soil & Debris (Lead)  
Metals Impacted Soil & Debris (Lead)  
Metals Impacted Soil & Debris (Lead)  
Metals Impacted Soil & Debris (Lead)

18.75 Tons  
19.43 Tons  
17.67 Tons  
20.77 Tons  
21.04 Tons  
22.56 Tons

<b>NON-HAZARDOUS WASTE MANIFEST</b>		1. Generator ID Number NJ 10200400018	2. Page 1 of 1	3. Emergency Response Phone	4. Waste Tracking Number <b>982</b>
5. Generator's Name and Mailing Address <b>US EPA REGION II 2890 WOODBRIDGE AVENUE EDISON, NJ 08837</b> Generator's Phone: (908) 490-4475			Generator's Site Address (if different than mailing address) <b>M C CANFIELD 1 CORNERSTONE LANE LISUARK NJ 07103</b>		
6. Transporter 1 Company Name <b>Empire Services</b>			U.S. EPA ID Number		
7. Transporter 2 Company Name			U.S. EPA ID Number		
8. Designated Facility Name and Site Address <b>REPUBLIC SERVICES/CONESTOGA 420 QUARRY RD MORGANTOWN PA 19543</b> Facility's Phone: (610) 228-7876			U.S. EPA ID Number		
9. Waste Shipping Name and Description		10. Containers		11. Total Quantity	12. Unit Wt./Vol.
		No.	Type		
1. Non Haz Non Regulated Soil & Debris		001	CM	FSI 18	T
2.					
3.					
4.					
13. Special Handling Instructions and Additional Information <b>1. 5081 1411 403 UNID: 49411 METALS IMPACTED SOIL &amp; DEBRIS (LEAD)</b>					
14. GENERATOR'S/OFFEROR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations.					
Generator's/Offlor's Printed/Typed Name <b>Chris D'Amico (USEPA)</b>			Signature 		Month Day Year <b>10/13/14</b>
15. International Shipments <input type="checkbox"/> Import to U.S. <input type="checkbox"/> Export from U.S.			Port of entry/exit: Date leaving U.S.:		
16. Transporter Acknowledgment of Receipt of Materials					
Transporter 1 Printed/Typed Name <b>Justin Bonfield</b>			Signature 		Month Day Year <b>10/13/14</b>
Transporter 2 Printed/Typed Name			Signature		Month Day Year
17. Discrepancy					
17a. Discrepancy Indication Space <input type="checkbox"/> Quantity <input type="checkbox"/> Type <input type="checkbox"/> Residue <input type="checkbox"/> Partial Rejection <input type="checkbox"/> Full Rejection					
17b. Alternate Facility (or Generator)			Manifest Reference Number: U.S. EPA ID Number		
Facility's Phone:					
17c. Signature of Alternate Facility (or Generator)			Month Day Year		
18. Designated Facility Owner or Operator: Certification of receipt of materials covered by the manifest except as noted in Item 17a					
Printed/Typed Name <b>Justin Bonfield</b>			Signature 		Month Day Year <b>10/14/14</b>

CONESTOGA LF  
420 QUARRY ROAD

Morgantown, PA 19543 610-286-6844

CUSTOMER  
042375  
AMERICAN WASTE OF NJ, LLC  
ONE AMERICAN WAY  
WARREN, OH 44485

**SCALEHOUSE COPY**

LICENSE:  
TYPE: Miscellaneous

SITE CL Cell 22X 77564

WEIGHMASTER Bruce E.

Ticket 956343

DATE IN 10/14/14 5:27 am DATE OUT 10/14/14 5:51 am

VEHICLE SPECIAL CONTAINER

REFERENCE  
245 40

INVOICE

BILL OF LADING 082

50811411403

SCALE IN GROSS WEIGHT  
SCALE OUT TARE WEIGHT  
VEHICLE DESC: SPECIAL WASTE

76,840  
41,520

NET TONS 17.66  
NET WEIGHT 35,320

INBOUND

CONTAINER DESC

QTY.	UNIT.	DESCRIPTION	RATE.	EXTENSION.	TAX.	TOTAL
0.00	YD	TRACKING QTY				
17.66	TN	SW-CONT SOIL				

NEW JERSEY

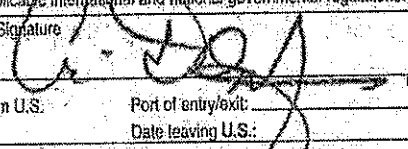
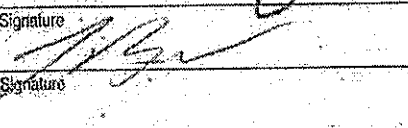

*10# W104411*

DRIVER:

WEIGHMASTER

NET AMOUNT  
TENDERED  
CHANGE  
CHECK



<b>NON-HAZARDOUS WASTE MANIFEST</b>		1. Generator ID Number <b>N 10200400018</b>		2. Page 1 of 1		3. Emergency Response Phone		4. Waste Tracking Number <b>083</b>	
		5. Generator's Name and Mailing Address <b>ATTN: CRIS D ONOFRO</b> <b>US EPA REGION II</b> <b>2890 WOODBRIDGE AVENUE EDISON, NJ 08837</b> Generator's Phone: <b>(908) 420-4475</b>		Generator's Site Address (if different than mailing address) <b>H C CANFIELD</b> <b>1 CORNERSTONE LANE</b> <b>NEWARK NJ 07103</b>					
6. Transporter 1 Company Name <b>Empire Services Reading PA</b>		U.S. EPA ID Number							
7. Transporter 2 Company Name		U.S. EPA ID Number							
8. Designated Facility Name and Site Address <b>REPUBLIC SERVICES/CONESTOGA</b> <b>420 QUARRY RD</b> <b>MORGANTOWN PA 19543</b> Facility's Phone: <b>(610) 288-7876</b>		U.S. EPA ID Number							
9. Waste Shipping Name and Description		10. Containers		11. Total Quantity		12. Unit WL/Vol.			
		No.	Type						
1. Non Haz Non Regulated Soil & Debris		001 CM		EST 18		T			
2.									
3.									
4.									
13. Special Handling Instructions and Additional Information <b>1. 5081 1411 403 WID: 49411 METALS IMPACTED SOIL &amp; DEBRIS (LEAD)</b>									
14. GENERATOR'S/OFFEROR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable International and national governmental regulations.									
Generator's/Officer's Printed/Typed Name <b>CRIS D'ONOFRO (USEPA OSC)</b>		Signature 				Month Day Year <b>10 14 11</b>			
15. International Shipments <input type="checkbox"/> Import to U.S. <input type="checkbox"/> Export from U.S.		Port of entry/exit: Date leaving U.S.:							
16. Transporter Acknowledgment of Receipt of Materials									
Transporter 1 Printed/Typed Name <b>Justin Benfield</b>		Signature 				Month Day Year <b>10 14 11</b>			
Transporter 2 Printed/Typed Name		Signature				Month Day Year			
17. Discrepancy									
17a. Discrepancy Indication Space <input type="checkbox"/> Quantity <input type="checkbox"/> Type <input type="checkbox"/> Residue <input type="checkbox"/> Partial Rejection <input type="checkbox"/> Full Rejection									
Manifest Reference Number:						U.S. EPA ID Number			
17b. Alternate Facility (or Generator)									
Facility's Phone:						Month Day Year			
17c. Signature of Alternate Facility (or Generator)									
18. Designated Facility Owner or Operator: Certification of receipt of materials covered by the manifest except as noted in item 17a									
Printed/Typed Name		Signature 				Month Day Year <b>10 14 11</b>			

CONESTOGA LF 420 QUARRY ROAD Morgantown, PA 19543 610-286-6844		SITE CL Cell 22X 60029 WEIGHMASTER IN - Mike M. OUT - Bruce E Ticket 956465
CUSTOMER 042375 AMERICAN WASTE OF NJ, LLC ONE AMERICAN WAY WARREN, OH 44485 50811411403	<b>SCALEHOUSE COPY</b> LICENSE: TYPE: Miscellaneous	
SCALE IN SCALE OUT VEHICLE DESC: SPECIAL WASTE	GROSS WEIGHT 72,540 TARE WEIGHT 39,480	DATE IN 10/14/14 12:01 pm DATE OUT 10/14/14 12:34 pm VEHICLE SPECIAL REFERENCE 245-40 BILL OF LADING 083 NET TONS 16.53 NET WEIGHT 33,060 CONTAINER INBOUND

QTY.	UNIT.	DESCRIPTION	RATE.	EXTENSION.	TAX.	TOTAL
0.00	YD	TRACKING QTY				
16.53	TN	SW-CONT SOIL				
		NEW JERSEY				

01049411

NET AMOUNT  
TENDERED  
CHANGE  
CHECK

DRIVER: WEIGHMASTER

**NON-HAZARDOUS  
WASTE MANIFEST**

1. Generator ID Number

IN 1000000018

2. Page 1 of

3. Emergency Response Phone No.

4. Waste Tracking Number

084

5. Generator's Name and Mailing Address

ATTN: CRIS D ONOFIO

Generator's Site Address (if different than mailing address)

US EPA REGION II

2890 WOODBRIDGE AVENUE EDISON, NJ 08837

W D CARFIELD

1 CORNERSTONE LANE

NEWARK, NJ 07103

Generator's Phone: (908) 420-4475

6. Transporter 1 Company Name

U.S. EPA ID Number

7. Transporter 2 Company Name

U.S. EPA ID Number

8. Designated Facility Name and Site Address

U.S. EPA ID Number

REPUBLIC SERVICES/CONESTOGA

420 QUARRY RD MORGANTOWN PA 19543

Facility's Phone: (610) 286-7676

9. Waste Shipping Name and Description

10. Containers

No.

Type

11. Total Quantity

12. Unit Wt./Vol.

1. Non Haz Non Regulated Soil & Debris

001 CM

EST 18

T

13. Special Handling Instructions and Additional Information

1. 5081 1411 403 WID: 49411 METALS IMPACTED SOIL & DEBRIS (LEAD)

14. GENERATOR'S/OFFEROR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations.

Generator's/Officer's Printed/Typed Name

Cris DiMatteo (USEPA OSC)

Signature

[Signature]

Month Day Year

10 15 14

15. International Shipments

☐ Import to U.S.

☐ Export from U.S.

Port of entry/exit

Date leaving U.S.:

Transporter Signature (for exports only):

16. Transporter Acknowledgment of Receipt of Materials

Transporter 1 Printed/Typed Name

[Signature]

Signature

[Signature]

Month Day Year

10 15 14

Transporter 2 Printed/Typed Name

Signature

17. Discrepancy

17a. Discrepancy Indication Space

☐ Quantity

☐ Type

☐ Residue

☐ Partial Rejection

☐ Full Rejection

Manifest Reference Number:

17b. Alternate Facility (or Generator)

U.S. EPA ID Number

Facility's Phone:

17c. Signature of Alternate Facility (or Generator)

Month Day Year

18. Designated Facility Owner or Operator: Certification of receipt of materials covered by the manifest except as noted in Item 17a

Printed/Typed Name

Signature

[Signature]

Month Day Year

12 15 17

CONESTOGA LF  
420 QUARRY ROAD

Morgantown, PA 19543 610-286-6844

SITE CL CELL 22X 60029

WEIGHMASTER Mike M.

Ticket 956603

DATE IN 10/15/14 9:44 am

DATE OUT 10/15/14 10:08 am

VEHICLE  
SPECIAL

CONTAINER

REFERENCE  
245-292

INVOICE

BILL OF LADING 084

**CUSTOMER**

042375  
AMERICAN WASTE OF NJ, LLC  
ONE AMERICAN WAY  
WARREN, OH 44485  
50811411403

**CUSTOMER COPY**

LICENSE:

TYPE: Miscellaneous

SCALE IN GROSS WEIGHT  
SCALE OUT TARE WEIGHT  
VEHICLE DESC SPECIAL WASTE

75,260  
41,340

NET TONS  
NET WEIGHT

16.96  
33,920

CONTAINER DESC

INBOUND

QTY.	UNIT.	DESCRIPTION	RATE.	EXTENSION.	TAX.	TOTAL
0.00	YD	TRACKING QTY				
16.96	TN	SW-CONT SOIL				
		NEW JERSEY				

NET AMOUNT

TENDERED

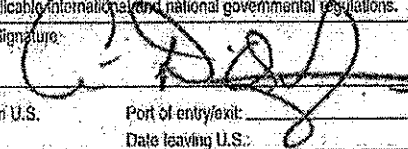
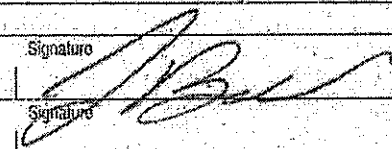
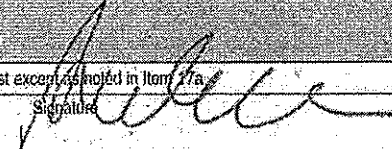
CHANGE

CHECK

DRIVER:

WEIGHMASTER

031

NON-HAZARDOUS WASTE MANIFEST		1. Generator ID Number NJ 020400018		2. Page 1 of 1		3. Emergency Response Phone		4. Waste Tracking Number 085			
5. Generator's Name and Mailing Address ATTN: CRIS D DONOFIO US EPA REGION II 2890 WOODBRIDGE AVENUE EDISON, NJ 08837 Generator's Phone: (908) 420-4475				Generator's Site Address (if different than mailing address) H C CANFIELD 1 CORNERSTONE LANE NEWARK, N.J. 07103							
6. Transporter 1 Company Name Empire Recycling PA				U.S. EPA ID Number							
7. Transporter 2 Company Name				U.S. EPA ID Number							
8. Designated Facility Name and Site Address REPUBLIC SERVICES/CONESTOGA 420 QUARRY RD MORGANTHAU PA 19543 Facility's Phone: (610) 288-7876				U.S. EPA ID Number							
9. Waste Shipping Name and Description 1. Non Haz Non Regulated Soil & Debris				10. Containers		11. Total Quantity EST 18 T	12. Unit T				
				No.	Type						
				001 CM							
2.											
3.											
4.											
13. Special Handling Instructions and Additional Information 1. 5081 1411 403    VID: 49411    METALS IMPACTED SOIL & DEBRIS (LEAD)											
14. GENERATOR'S/OFFEROR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations.											
Generator's/Offeror's Printed/Typed Name Cris D Donofio (USEPA OSI)				Signature 		Month 10		Day 16		Year 14	
15. International Shipments <input type="checkbox"/> Import to U.S. <input type="checkbox"/> Export from U.S.    Port of entry/exit:    Date leaving U.S.:											
16. Transporter Acknowledgment of Receipt of Materials Transporter 1 Printed/Typed Name: Justin Beck    Signature:  Month: 10    Day: 16    Year: 14 Transporter 2 Printed/Typed Name:    Signature:    Month:    Day:    Year:											
17. Discrepancy 17a. Discrepancy Indication Space <input type="checkbox"/> Quantity <input type="checkbox"/> Type <input type="checkbox"/> Residue <input type="checkbox"/> Partial Rejection <input type="checkbox"/> Full Rejection Manifest Reference Number: 17b. Alternate Facility (or Generator)    U.S. EPA ID Number: Facility's Phone: 17c. Signature of Alternate Facility (or Generator)    Month:    Day:    Year:											
18. Designated Facility Owner or Operator: Certification of receipt of materials covered by the manifest except as noted in Item 17a Printed/Typed Name: Julie    Signature:  Month: 10    Day: 16    Year: 14											

CONESTOGA LF  
420 QUARRY ROAD

Morgantown, PA 19543 610-286-6844

CUSTOMER

042375  
AMERICAN WASTE OF NJ, LLC  
ONE AMERICAN WAY  
WARREN, OH 44485  
50811411403

CUSTOMER COPY

LICENSE:

TYPE: Miscellaneous

SITE CL CELL 22X 77564

WEIGHMASTER IN - Bruce E. OUT - Mike M.

Ticket 956791

DATE IN

10/16/14 10:15 am

DATE OUT

10/16/14 11:02 am

VEHICLE

SPECIAL

CONTAINER

REFERENCE

245 40

INVOICE

BILL OF LADING 085

SCALE IN

GROSS WEIGHT

77,440

NET TONS

18.78

SCALE OUT

TARE WEIGHT

39,880

NET WEIGHT

37,560

INBOUND

VEHICLE DESC SPECIAL WASTE

CONTAINER DESC

QTY.	UNIT.	DESCRIPTION	RATE.	EXTENSION.	TAX.	TOTAL
0.00	YD	TRACKING QTY				
18.78	TN	SW-CONT SOIL				
		NEW JERSEY				

NET AMOUNT


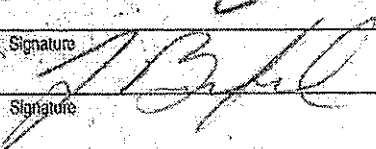
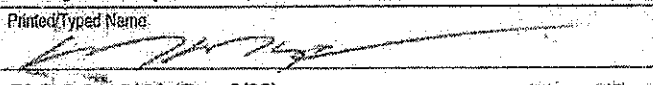
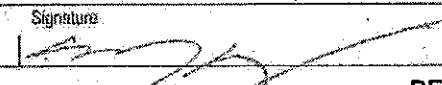
TENDERED

CHANGE

CHECK

DRIVER :

WEIGHMASTER

<b>NON-HAZARDOUS WASTE MANIFEST</b>		1. Generator ID Number <b>N 100000019</b>		2. Page <b>1</b> of <b>1</b>	3. Emergency Response Phone	4. Waste Tracking Number <b>086</b>	
		5. Generator's Name and Mailing Address <b>US EPA REGION II 2890 WOODBRIDGE AVENUE EDISON, NJ 08837</b>		Generator's Site Address (if different than mailing address) <b>11 C CAMFIELD 1 CONQUESTOR LANE NEWARK NJ 07103</b>			
6. Transporter 1 Company Name <b>Emine Reading PA</b>		7. Transporter 2 Company Name		U.S. EPA ID Number			
8. Designated Facility Name and Site Address <b>REPUBLIC SERVICES/CONESTOGA 420 QUARRY RD MERCANTOWN PA 19543</b>		Facility's Phone: <b>(610) 298-7876</b>		U.S. EPA ID Number			
9. Waste Shipping Name and Description		10. Containers		11. Total Quantity	12. Unit Wt./Vol.		
		No.	Type				
1. <b>Non Haz Non Regulated Soil &amp; Debris</b>		<b>001</b>	<b>UM</b>	<b>EST 18</b>	<b>T</b>		
2.							
3.							
4.							
13. Special Handling Instructions and Additional Information <b>13 5081 1411 403 MID: 49411 METALS IMPACTED SOIL &amp; DEBRIS (LEAD)</b>							
14. GENERATOR'S/OFFEROR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations.							
Generator's/Officer's Printed/Typed Name <b>Cris D'Onofrio (USEPA OSC)</b>				Signature 		Date <b>10/20/14</b>	
15. International Shipments <input type="checkbox"/> Import to U.S. <input type="checkbox"/> Export from U.S.				Port of entry/exit Date leaving U.S.			
16. Transporter Acknowledgment of Receipt of Materials				Signature 		Date <b>10/20/14</b>	
Transporter 1 Printed/Typed Name <b>Justin Benfield</b>				Signature		Date	
Transporter 2 Printed/Typed Name				Signature		Date	
17. Discrepancy							
17a. Discrepancy Indication Space <input type="checkbox"/> Quantity <input type="checkbox"/> Type <input type="checkbox"/> Residue <input type="checkbox"/> Partial Rejection <input type="checkbox"/> Full Rejection							
17b. Alternate Facility (or Generator)				Manifest Reference Number: <b>17 Sko</b>			
Facility's Phone:				U.S. EPA ID Number			
17c. Signature of Alternate Facility (or Generator)				Date Month Day Year			
18. Designated Facility Owner or Operator: Certification of receipt of materials covered by the manifest except as noted in item 17a							
Printed/Typed Name 				Signature 		Date <b>10/20/14</b>	



CONESTOGA LF  
420 QUARRY ROAD

Morgantown, PA 19543 610-286-6844

CUSTOMER  
042375  
AMERICAN WASTE OF NJ, LLC  
ONE AMERICAN WAY  
WARREN, OH 44485  
50811411403

**CUSTOMER COPY**

LICENSE:  
TYPE: Miscellaneous

SITE CL CELL 22X 60029

WEIGHMASTER Mike M.

Ticket 957192

DATE IN 10/20/14 10:27 am DATE OUT 10/20/14 10:47 am

VEHICLE SPECIAL CONTAINER

REFERENCE 245-40

INVOICE

BILL OF LADING 086

SCALE IN	GROSS WEIGHT	75,900	NET TONS	17.56	
SCALE OUT	TARE WEIGHT	40,780	NET WEIGHT	35,120	INBOUND
VEHICLE DESC	SPECIAL WASTE		CONTAINER DESC		

QTY.	UNIT.	DESCRIPTION	RATE.	EXTENSION.	TAX.	TOTAL
0.00	YD	TRACKING QTY				
17.56	TN	SW-CONT SOIL				
		NEW JERSEY				

NET AMOUNT

TENDERED

CHANGE

CHECK

31 DRIVER:

WEIGHMASTER



## CERTIFICATE OF DESTRUCTION

I, Joanne Schulze, of Republic Services, hereby certifies to American Waste of NJ, LLC that all the product described in Section A has been properly and legally disposed of in Conestoga Landfill between 10/14 thru 10/20/14.

American Waste of NJ, LLC agrees to indemnify and hold Republic Services and it subsidiary and affiliated corporations harmless from any and all liabilities, claims, damage or cost incurred in connection with any claims related to the destruction of this waste stream

By: Joanne Schulze  
Name: Joanne Schulze  
Title: Environmental Coordinator  
Date: 10/20/14


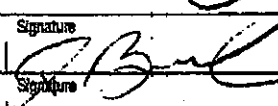
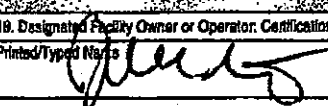
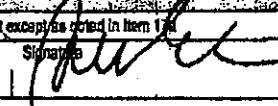
### **Section A- Products Destroyed (attached additional sheets if needed):**

#### Description of Product

#### Quantity or Weight

**Metals Impacted Soil & Debris (Lead)**  
**Metals Impacted Soil & Debris (Lead)**  
**Metals Impacted Soil & Debris (Lead)**  
**Metals Impacted Soil & Debris (Lead)**  
**Metals Impacted Soil & Debris (Lead)**

**17.66 Tons**  
**16.53 Tons**  
**16.96 Tons**  
**18.78 Tons**  
**17.56 Tons**

<b>NON-HAZARDOUS WASTE MANIFEST</b>		1. Generator ID Number <b>NIC200400019</b>		2. Page 1 of 1		3. Emergency Response Phone		4. Waste Tracking Number <b>087</b>	
		5. Generator's Name and Mailing Address <b>US EPA REGION II 2890 WOODBRIDGE AVENUE EDISON, NJ 08837</b>		Generator's Site Address (if different than mailing address) <b>M C CANFIELD 1 CORNERSTONE LANE NEWARK NJ 07103</b>					
6. Generator's Phone: <b>(908) 670-4475</b>		6. Transporter 1 Company Name <b>Engel Service</b>		U.S. EPA ID Number					
7. Transporter 2 Company Name		U.S. EPA ID Number							
8. Designated Facility Name and Site Address <b>REPUBLIC SERVICES/CUNESTOCA 420 QUARRY RD MORGANTOWN PA 19543</b>		U.S. EPA ID Number							
Facility's Phone: <b>(610) 288-7876</b>									
9. Waste Shipping Name and Description		10. Containers		11. Total Quantity		12. Unit Wt./Vol.			
		No.	Type						
1. Non Haz Non Regulated Soil & Debris		<b>000 CM</b>		<b>EST 18</b>		<b>T</b>			
2.									
3.									
4.									
13. Special Handling Instructions and Additional Information									
1. 5081 1411 403 WID: 49411 METALS IMPACTED SOIL & DEBRIS (LEAD)									
14. GENERATOR'S/OFFEROR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable federal, national and national governmental regulations.									
Generator's/Officer's Printed/Typed Name <b>Cris D'Antonio (USEPA USE)</b>		Signature 		Month Day Year <b>10/22/14</b>					
15. International Shipments <input type="checkbox"/> Import to U.S. <input type="checkbox"/> Export from U.S.		Port of origin/exit: Date leaving U.S.:							
16. Transporter Acknowledgment of Receipt of Materials		Signature 		Month Day Year <b>10/22/14</b>					
Transporter 1 Printed/Typed Name <b>Canfield</b>		Signature		Month Day Year					
Transporter 2 Printed/Typed Name				Month Day Year					
17. Discrepancy									
17a. Discrepancy Indication Space <input type="checkbox"/> Quantity <input type="checkbox"/> Type <input type="checkbox"/> Residue <input type="checkbox"/> Partial Rejection <input type="checkbox"/> Full Rejection									
Manifest Reference Number:									
17b. Alternate Facility (or Generator)		U.S. EPA ID Number							
Facility's Phone:									
17c. Signature of Alternate Facility (or Generator)		Month Day Year							
18. Designated Facility Owner or Operator. Certification of receipt of materials covered by the manifest except as noted in Item 13.									
Printed/Typed Name 		Signature 		Month Day Year <b>10/22/14</b>					

CONESTOGA LF  
420 QUARRY ROAD  
Morgantown, PA 19543 610-286-6844

CUSTOMER  
042375  
AMERICAN WASTE OF NJ, LLC  
ONE AMERICAN WAY  
WARREN, OH 44485  
50811411403

**CUSTOMER COPY**

LICENSE:  
TYPE: Miscellaneous

SITE CL CELL 22X 77564  
WEIGHMASTER IN - Bruce E. OUT - Mike M.  
Ticket 957595  
DATE IN 10/22/14 11:14 am DATE OUT 10/22/14 11:34 am  
VEHICLE SPECIAL  
REFERENCE 245 292  
BILL OF LADING 087  
CONTAINER

SCALE IN GROSS WEIGHT  
SCALE OUT TAKE WEIGHT  
VEHICLE DESC SPECIAL WASTE

82,480  
41,180

NET TONS  
NET WEIGHT

20.65  
41,300

CONTAINER DESC

INVOICE

INBOUND

QTY. UNIT.  
0.00 YD TRACKING QTY  
20.65 TN SW-CONT SOIL

NEW JERSEY

DESCRIPTION	RATE	EXTENSION	TAX	TOTAL
-------------	------	-----------	-----	-------

NET AMOUNT

TENDERED

CHANGE

CHECK

331 DRIVER :

WEIGHMASTER



## CERTIFICATE OF DESTRUCTION

I, Joanne Schulze, of Republic Services, hereby certifies to American Waste of NJ, LLC that all the product described in Section A has been properly and legally disposed of in Conestoga Landfill between 10/22/14.

American Waste of NJ, LLC agrees to indemnify and hold Republic Services and it subsidiary and affiliated corporations harmless from any and all liabilities, claims, damage or cost incurred in connection with any claims related to the destruction of this waste stream

By: \_\_\_\_\_

Name: \_\_\_\_\_

Title: \_\_\_\_\_

Date: \_\_\_\_\_

**Section A- Products Destroyed (attached additional sheets if needed):**

Description of Product

Quantity or Weight

**Metals Impacted Soil & Debris (Lead)**

**20.65 Tons**

<b>NON-HAZARDOUS WASTE MANIFEST</b>		1. Generator ID Number NJIC200400018		2. Page 1 of 1	3. Emergency Response Phone	4. Waste Tracking Number 088	
		5. Generator's Name and Mailing Address ATTN: CRIS D D'AMICO US EPA REGION II 2890 WOODBRIDGE AVENUE EDISON, NJ 08837 Generator's Phone: (908) 426-4475		Generator's Site Address (if different than mailing address) M C CANFIELD 1 CORNERSTONE LANE NEWARK, NJ 07103			
GENERATOR	6. Transporter 1 Company Name DVC				U.S. EPA ID Number		
	7. Transporter 2 Company Name				U.S. EPA ID Number		
	8. Designated Facility Name and Site Address REPUBLIC SERVICES/CONESTOGA 420 QUARRY RD MORGANTOWN PA 15543 Facility's Phone: (410) 288-7876				U.S. EPA ID Number		
	9. Waste Shipping Name and Description		10. Containers		11. Total Quantity	12. Unit Wt/Vol	
	1. Non Haz Non Regulated Soil & Debris		No.	Type	EST 18	T	
	2.		001	LM			
	3.						
	4.						
13. Special Handling Instructions and Additional Information 1. 5081 1411 403 WID: 49411 METALS IMPACTED SOIL & DEBRIS (LEAD)							
14. GENERATOR'S/OFFEROR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations.							
Generator's/Officer's Printed/Typed Name Cris D'Amico (USEPA OSC)		Signature <i>[Signature]</i>		Month Day Year 10 29 14			
TRANSPORTER	15. International Shipments <input type="checkbox"/> Import to U.S. <input type="checkbox"/> Export from U.S.		Part of entry/exit Date leaving U.S.				
	16. Transporter Acknowledgment of Receipt of Materials Transporter 1 Printed/Typed Name Stew Rivers Driver		Signature <i>[Signature]</i>		Month Day Year 10 29 14		
DESIGNATED FACILITY	17. Discrepancy 17a. Discrepancy Indication Space <input type="checkbox"/> Quantity <input type="checkbox"/> Type <input type="checkbox"/> Residue <input type="checkbox"/> Partial Rejection <input type="checkbox"/> Full Rejection		Manifest Reference Number:				
	17b. Alternate Facility (or Generator) Facility's Phone:		U.S. EPA ID Number				
	17c. Signature of Alternate Facility (or Generator)		Month Day Year				
	18. Designated Facility Owner or Operator: Certification of receipt of materials covered by the manifest except as noted in item 17a Printed/Typed Name <i>[Signature]</i>		Month Day Year 10 29 14				

<b>CONESTOGA LF</b> <b>420 QUARRY ROAD</b> <b>Morgantown, PA 19543 610-286-6844</b>		<b>SITE CL CELL 22X 77564</b> <b>WEIGHMASTER IN - Bruce E. OUT - Mike M.</b> <b>Ticket 958551</b>	
<b>CUSTOMER</b> <b>042375</b> <b>AMERICAN WASTE OF NJ, LLC</b> <b>ONE AMERICAN WAY</b> <b>WARREN, OH 44485</b> <b>50811411403</b>	<b>CUSTOMER COPY</b> <b>LICENSE:</b> <b>TYPE: Miscellaneous</b>		<b>DATE IN</b> <b>10/29/14 9:01 am</b> <b>DATE OUT</b> <b>10/29/14 9:18 am</b> <b>VEHICLE</b> <b>SPECIAL</b> <b>REFERENCE</b> <b>267</b> <b>BILL OF LADING 098</b>
<b>SCALE IN</b> <b>SCALE OUT</b> <b>VEHICLE DESC SPECIAL WASTE</b>	<b>GROSS WEIGHT</b> <b>TARE WEIGHT</b>	<b>74,400</b> <b>35,680</b>	<b>NET TONS</b> <b>NET WEIGHT</b> <b>19.36</b> <b>38,720</b> <b>CONTAINER DESC</b>
			<b>INVOICE</b> <b>INBOUND</b>

QTY.	UNIT.	DESCRIPTION	RATE.	EXTENSION.	TAX.	TOTAL
0.00	YD	TRACKING QTY				
19.36	TN	SW-CONT SOIL				
		NEW JERSEY				

331

DRIVER:

WEIGHMASTER

NET AMOUNT

TENDERED

CHANGE

CHECK



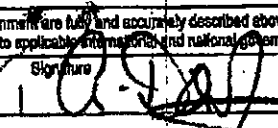
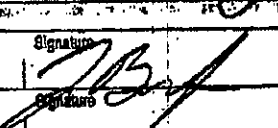
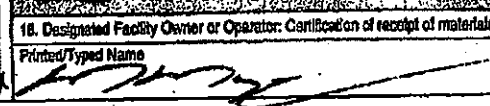
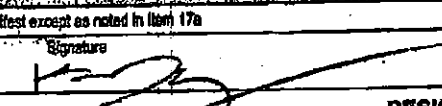
<b>NON-HAZARDOUS WASTE MANIFEST</b>		1. Generator ID Number NJ0500400018		2. Page 1 of 1	3. Emergency Response Phone	4. Waste Tracking Number 089
		5. Generator's Name and Mailing Address ATTN: CRIS D'ONOFRIO US EPA REGION II 2890 WOODBRIDGE AVENUE EDISON, NJ 08837 Generator's Phone: (908) 426-4475		Generator's Site Address (if different than mailing address) M C DANFIELD 1 CURRIERSTONE LANE MELARK NJ 07107		
GENERATOR	6. Transporter 1 Company Name DVC					U.S. EPA ID Number
	7. Transporter 2 Company Name					U.S. EPA ID Number
	8. Designated Facility Name and Site Address REPUBLIC SERVICES/CONESTOGA 420 QUARRY RD MORGANTOWN PA 19543 Facility's Phone: (610) 288-7376					U.S. EPA ID Number
	9. Waste Shipping Name and Description					
					10. Containers	11. Total Quantity
					No.	Type
1. Non Haz Non Regulated Soil & Debris					001	CM
					18	EST
						T
13. Special Handling Instructions and Additional Information E: 5081 1411 403 UTD: 49411 METALS IMPACTED SOIL & DEBRIS (LEAD)						
14. GENERATOR'S/OFFEROR'S CERTIFICATION: I hereby declare that the contents of this consignment are truly and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations.						
Generator's/Officer's Printed/Typed Name: Cris D'Onofrio (USEPA) Signature: [Signature] Month: 10 Day: 29 Year: 14						
INTL	15. International Shipments <input type="checkbox"/> Import to U.S. <input type="checkbox"/> Export from U.S. Port of entry/exit: Date leaving U.S.:					
	16. Transporter Acknowledgment of Receipt of Materials					
TRANSPORTER	Transporter 1 Printed/Typed Name: Shaw Rivers Driver Signature: [Signature] Month: 10 Day: 29 Year: 14					
	Transporter 2 Printed/Typed Name: Signature: Month: Day: Year:					
DESIGNATED FACILITY	17. Discrepancy					
	17a. Discrepancy Indication Space <input type="checkbox"/> Quantity <input type="checkbox"/> Type <input type="checkbox"/> Residue <input type="checkbox"/> Partial Rejection <input type="checkbox"/> Full Rejection					
	Manifest Reference Number:					
	17b. Alternate Facility (or Generator) U.S. EPA ID Number:					
Facility's Phone: Month: Day: Year:						
17c. Signature of Alternate Facility (or Generator) Signature: Month: Day: Year:						
18. Designated Facility Owner or Operator: Certification of receipt of materials covered by the manifest except as noted in item 17a						
Printed/Typed Name: Signature: Month: Day: Year: 12/29/14						

<b>CONESTOGA LF</b> <b>420 QUARRY ROAD</b> <b>Morgantown, PA 19543 610-286-6844</b>		<b>SITE CL CELL 22X 60029</b> <b>WEIGHMASTER Mike M.</b> <b>Ticket 958673</b>	
<b>CUSTOMER</b> <b>042375</b> <b>AMERICAN WASTE OF NJ, LLC</b> <b>ONE AMERICAN WAY</b> <b>WARREN, OH 44485</b> <b>50811411403</b>		<b>CUSTOMER COPY</b> <b>LICENSE:</b> <b>TYPE: Miscellaneous</b>	
<b>SCALE IN</b> <b>SCALE OUT</b> <b>VEHICLE DESC SPECIAL WASTE</b>		<b>GROSS WEIGHT</b> <b>TARE WEIGHT</b> <b>NET TONS</b> <b>NET WEIGHT</b> <b>CONTAINER DESC</b>	
		<b>72,960</b> <b>35,480</b> <b>18.74</b> <b>37,480</b> <b>INBOUND</b>	
		<b>DATE IN</b> <b>10/29/14 3:18 pm</b> <b>DATE OUT</b> <b>10/29/14 3:33 pm</b> <b>VEHICLE</b> <b>SPECIAL</b> <b>REFERENCE</b> <b>267</b> <b>BILL OF LADING 089</b> <b>INVOICE</b>	

QTY.	UNIT.	DESCRIPTION	RATE.	EXTENSION.	TAX.	TOTAL
0.00	YD	TRACKING QTY				
18.74	TN	SW-CONT SOIL				
		NEW JERSEY				

**NET AMOUNT**  
**TENDERED**  
**CHANGE**  
**CHECK**

**DRIVER :**  
**WEIGHMASTER**

<b>NON-HAZARDOUS WASTE MANIFEST</b> 1. Generator ID Number NJ 10200400018		2. Page 1 of 1		3. Emergency Response Phone		4. Waste Tracking Number 090	
		5. Generator's Name and Mailing Address <b>US EPA REGION II</b> 2890 WOODBRIDGE AVENUE EDISON, NJ 08837 Generator's Phone: (908) 420-4475					
Generator's Site Address (if different than mailing address) M C CANFIELD 1 CONNERSTONE LANE NEWARK, NJ 07103						U.S. EPA ID Number	
6. Transporter 1 Company Name Empire Service						U.S. EPA ID Number	
7. Transporter 2 Company Name						U.S. EPA ID Number	
8. Designated Facility Name and Site Address REPUBLIC SERVICES/CONESTOGA 420 QUARRY RD MORGANTOWN PA 19543 Facility's Phone: (610) 285-7576						U.S. EPA ID Number	
9. Waste Shipping Name and Description 1. Non Haz Non Regulated Soil & Debris		10. Containers No. Type 001 CM 18		11. Total Quantity 151		12. Unit Wt/Vol. T	
13. Special Handling Instructions and Additional Information 1. 5081 1411 403 WID: 49411 METALS IMPACTED SOIL & DEBRIS (LEAD)							
14. GENERATOR'S/OFFEROR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations.							
Generator's/Officer's Printed/Typed Name Chris D'Donofrio (USEPA OSL)						Signature 	
15. International Shipments <input type="checkbox"/> Import to U.S. <input type="checkbox"/> Export from U.S.						Port of entry/exit Date leaving U.S.	
16. Transporter Acknowledgment of Receipt of Materials Transporter 1 Printed/Typed Name Julia B. Buehler						Signature 	
Transporter 2 Printed/Typed Name						Signature	
17. Discrepancy 17a. Discrepancy Indication Space <input type="checkbox"/> Quantity <input type="checkbox"/> Type <input type="checkbox"/> Residue <input type="checkbox"/> Partial Rejection <input type="checkbox"/> Full Rejection							
17b. Alternate Facility (or Generator) Facility's Phone:						Manifest Reference Number: U.S. EPA ID Number	
17c. Signature of Alternate Facility (or Generator)						Month Day Year 10 31 14	
18. Designated Facility Owner or Operator: Certification of receipt of materials covered by the manifest except as noted in item 17a Printed/Typed Name 							
Signature 						Month Day Year 12 31 15	

<b>CONESTOGA LF</b> <b>420 QUARRY ROAD</b> <b>Morgantown, PA 19543 610-286-6844</b>		<b>SITE CL CELL 22X 60029</b> <b>WEIGHMASTER Mike M.</b> <b>Ticket 958906</b>	
<b>CUSTOMER</b> <b>042375</b> <b>AMERICAN WASTE OF NJ, LLC</b> <b>ONE AMERICAN WAY</b> <b>WARREN, OH 44485</b> <b>50811411403</b>	<b>CUSTOMER COPY</b> <b>LICENSE:</b> <b>TYPE: Miscellaneous</b>		<b>DATE IN</b> <b>10/31/14 10:09 am</b> <b>DATE OUT</b> <b>10/31/14 10:31 am</b> <b>VEHICLE</b> <b>SPECIAL</b> <b>REFERENCE</b> <b>245-40</b> <b>BILL OF LADING 090</b>
<b>SCALE IN</b> <b>SCALE OUT</b> <b>VEHICLE DESC SPECIAL WASTE</b>	<b>GROSS WEIGHT</b> <b>TARE WEIGHT</b>	<b>77,020</b> <b>40,920</b>	<b>NET TONS</b> <b>NET WEIGHT</b> <b>18.05</b> <b>36,100</b> <b>CONTAINER DESC</b>
			<b>INVOICE</b> <b>INBOUND</b>

QTY.	UNIT.	DESCRIPTION	RATE.	EXTENSION.	TAX.	TOTAL
0.00	YD	TRACKING QTY				
18.05	TN	SW-CONT SOIL				
		NEW JERSEY				

NET AMOUNT

TENDERED

CHANGE

CHECK

531 DRIVER:

WEIGHMASTER



## **CERTIFICATE OF DESTRUCTION**

I, Joanne Schulze, of Republic Services, hereby certifies to American Waste of NJ, LLC that all the product described in Section A has been properly and legally disposed of in Conestoga Landfill between 10/29 thru 10-31-2014.

American Waste of NJ, LLC agrees to indemnify and hold Republic Services and it subsidiary and affiliated corporations harmless from any and all liabilities, claims, damage or cost incurred in connection with any claims related to the destruction of this waste stream

By: Joanne Schulze  
Name: Joanne Schulze  
Title: Environmental Co-ordinator  
Date: 10/31/14

### **Section A- Products Destroyed (attached additional sheets if needed):**

Description of Product

Quantity or Weight

**Metals Impacted Soil & Debris (Lead)**

**56.15 Tons**

**NON-HAZARDOUS  
WASTE MANIFEST**

1. Generator ID Number

2. Page 1 of 1

3. Emergency Response Phone

4. Waste Tracking Number

WIC200400018

091

5. Generator's Name and Mailing Address

ATTN: CRIS D ONOFIRO

Generator's Address (if different than mailing address)

US EPA REGION II

2890 WOODBRIDGE AVENUE EDISON, NJ 08837

M C CANFIELD

1 CORNERSTONE LANE

NEWARK NJ 07103

Generator's Phone: (908) 420-4475

6. Transporter 1 Company Name

U.S. EPA ID Number

7. Transporter 2 Company Name

U.S. EPA ID Number

8. Designated Facility Name and Site Address

U.S. EPA ID Number

REPUBLIC SERVICES/CONESTOGA

420 QUARRY RD MORGANTOWN PA 19543

Facility's Phone: (610) 288-7876

9. Waste Shipping Name and Description

10. Containers

11. Total Quantity

12. Unit Wt./Vol.

No.

Type

1. Non Haz Non Regulated Soil & Debris

001 CM

EST 18

T

13. Special Handling Instructions and Additional Information

1. 5081 1411 403 WID: 49411 METALS IMPACTED SOIL & DEBRIS (LEAD)

14. GENERATOR'S/OFFEROR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations.

Generator's/Offetor's Printed/Typed Name

Criss D Onofrio (USEPA OSL)

Signature

Month Day Year

11 3 14

15. International Shipments

☐ Import to U.S.

☐ Export from U.S.

Port of entry/exi.

Date leaving U.S.

Transporter Signature (for exports only):

16. Transporter Acknowledgment of Receipt of Materials

Transporter 1 Printed/Typed Name

Signature

Month Day Year

Transporter 2 Printed/Typed Name

Signature

Month Day Year

17. Discrepancy

17a. Discrepancy Indication Space

☐ Quantity

☐ Type

☐ Residue

☐ Partial Rejection

☐ Full Rejection

Manifest Reference Number:

17b. Alternate Facility (or Generator)

U.S. EPA ID Number

Facility's Phone:

17c. Signature of Alternate Facility (or Generator)

Month Day Year

18. Designated Facility Owner or Operator: Certification of receipt of materials covered by the manifest except as noted in item 17a

Printed/Typed Name

Signature

Month Day Year

11 3 14

GENERATOR

TRANSPORTER (INT'L)

DESIGNATED FACILITY

CONESTOGA LF  
420 QUARRY ROAD  
Morgantown, PA 19543 610-286-6844

SITE CL Cell 22X 77564

WEIGHMASTER Bruce E.

Ticket 959083

CUSTOMER  
042375

AMERICAN WASTE OF NJ, LLC  
ONE AMERICAN WAY  
WARREN, OH 44485

**SCALEHOUSE COPY**

LICENSE:

TYPE: Miscellaneous

DATE IN

11/3/14 9:36 am

DATE OUT

11/3/14 9:59 am

VEHICLE

SPECIAL

REFERENCE

245

CONTAINER

INVOICE

BILL OF LADING 091

50811411403

SCALE IN

GROSS WEIGHT

77,240

NET TONS

19.12

SCALE OUT

TARE WEIGHT

39,000

NET WEIGHT

38,240

INBOUND

VEHICLE DESC: SPECIAL WASTE

CONTAINER DESC

QTY.	UNIT.	DESCRIPTION	RATE.	EXTENSION.	TAX.	TOTAL
0.00	YD	TRACKING QTY				
19.12	TN	SW-CONT SOIL				
		NEW JERSEY				

*PO # W112 44411*

DRIVER:

WEIGHMASTER

NET AMOUNT  
TENDERED  
CHANGE  
CHECK



**NON-HAZARDOUS  
WASTE MANIFEST**

1. Generator ID Number

NJC200400018

2. Page 1 of 1

3. Emergency Response Phone

4. Waste Tracking Number

#092

5. Generator's Name and Mailing Address

ATTN: CRIS D ONOFIRO

Generator's Site Address (if different than mailing address)

US EPA REGION II

2890 WOODBRIDGE AVENUE EDISON, NJ 08837

M C CAMFIELD

1 CORNERSTONE LANE

NEWARK NJ 07103

Generator's Phone:

(908) 420-4475

6. Transporter 1 Company Name

U.S. EPA ID Number

DELAWARE VALLEY CONT

7. Transporter 2 Company Name

U.S. EPA ID Number

8. Designated Facility Name and Site Address

U.S. EPA ID Number

REPUBLIC SERVICES/CONESTOGA

420 QUARRY RD

MORGANTOWN PA 19543

Facility's Phone: (610) 288-7876

9. Waste Shipping Name and Description

10. Containers

11. Total Quantity

12. Unit Wt./Vol.

1. Non Haz Non Regulated Soil & Debris

No.

Type

001

CM

EST

18 T

2.

3.

4.

13. Special Handling Instructions and Additional Information

1. 5081 1411 403 WID: 49411 METALS IMPACTED SOIL & DEBRIS (LEAD)

14. GENERATOR'S/OFFEROR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations.

Generator's/Offor's Printed/Typed Name

Signature

Month Day Year

CRIS D'ONOFIRO (USEPA-NC)

[Signature]

11 5 14

15. International Shipments

☐ Import to U.S.

☐ Export from U.S.

Port of entry/exit:

Date leaving U.S.:

Transporter Signature (for exports only):

16. Transporter Acknowledgment of Receipt of Materials

Transporter 1 Printed/Typed Name

Signature

Month Day Year

Steve Rivers

[Signature]

11 5 14

Transporter 2 Printed/Typed Name

Signature

Month Day Year

17. Discrepancy

17a. Discrepancy Indication Space

☐ Quantity

☐ Type

☐ Residue

☐ Partial Rejection

☐ Full Rejection

Manifest Reference Number:

17b. Alternate Facility (or Generator)

U.S. EPA ID Number

Facility's Phone:

17c. Signature of Alternate Facility (or Generator)

Month Day Year

18. Designated Facility Owner or Operator: Certification of receipt of materials covered by the manifest except as noted in Item 17a

Printed/Typed Name

Signature

Month Day Year

[Signature]

[Signature]

11 5 14

CONESTOGA LF  
420 QUARRY ROAD

Morgantown, PA 19543 610-286-6844

CUSTOMER  
042375  
AMERICAN WASTE OF NJ, LLC  
ONE AMERICAN WAY  
WARREN, OH 44485  
50811411403

**CUSTOMER COPY**

LICENSE:  
TYPE: Miscellaneous

SITE CL CELL 22X 77564  
WEIGHMASTER IN - Bruce E. OUT - Mike M.  
Ticket 959414

DATE IN 11/5/14 8:26 am DATE OUT 11/5/14 8:46 am  
VEHICLE SPECIAL CONTAINER  
REFERENCE 267 INVOICE

BILL OF LADING 092

SCALE IN GROSS WEIGHT  
SCALE OUT TARE WEIGHT  
VEHICLE DESC SPECIAL WASTE

70,740  
34,300

NET TONS  
NET WEIGHT

18.22  
36,440

CONTAINER DESC

INBOUND

QTY.	UNIT.	DESCRIPTION	RATE.	EXTENSION.	TAX.	TOTAL
0.00	YD	TRACKING QTY				
18.22	TN	SW-CONT SOIL				

NEW JERSEY

NET AMOUNT

TENDERED

CHANGE

CHECK

531 DRIVER:

WEIGHMASTER

# NON-HAZARDOUS WASTE MANIFEST

1. Generator ID Number

NY 200400012

2. Page 1 of

1

3. Emergency Response Phone

4. Waste Tracking Number

093

5. Generator's Name and Mailing Address

ATTN: CRIS D ONOFIRO

Generator's Site Address (if different than mailing address)

US EPA REGION II

2890 WOODBRIDGE AVENUE EDISON, NJ 08837

M C CANFIELD

1 CORNERSTONE LANE

NEWARK NJ 07103

Generator's Phone: (908) 420-4475

6. Transporter 1 Company Name

DELAWARE VALLEY CONT.

U.S. EPA ID Number

7. Transporter 2 Company Name

U.S. EPA ID Number

8. Designated Facility Name and Site Address

REPUBLIC SERVICES/CONESTOGA

420 QUARRY RD

MORGANTOWN PA 19543

U.S. EPA ID Number

Facility's Phone: (610) 298-7876

9. Waste Shipping Name and Description

10. Containers

No.

Type

11. Total  
Quantity

12. Unit  
Wt./Vol.

1. Non Haz Non Regulated Soil & Debris

001 CM

EST  
18 T

2.

3.

4.

13. Special Handling Instructions and Additional Information

1. 5081 1411 403

WID: 49411

METALS IMPACTED SOIL & DEBRIS

(LEAD)

14. GENERATOR'S/OFFEROR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations.

Generator's/Officer's Printed/Typed Name

Criss D Onofrio (USEPA OSC)

Signature

Month Day Year

11 6 14

15. International Shipments

☐ Import to U.S.

☐ Export from U.S.

Port of entry/exit:

Date leaving U.S.

16. Transporter Acknowledgment of Receipt of Materials

Transporter 1 Printed/Typed Name

Stew Rivers

Signature

Month Day Year

11 6 14

Transporter 2 Printed/Typed Name

Signature

17. Discrepancy

17a. Discrepancy Indication Space

☐ Quantity

☐ Type

☐ Residue

☐ Partial Rejection

☐ Full Rejection

17b. Alternate Facility (or Generator)

Manifest Reference Number:

U.S. EPA ID Number

Facility's Phone:

17c. Signature of Alternate Facility (or Generator)

Month Day Year

18. Designated Facility Owner or Operator: Certification of receipt of materials covered by the manifest except as noted in Item 17a

Printed/Typed Name

Signature

Month Day Year

11 6 14

CONESTOGA LF  
420 QUARRY ROAD

Morgantown, PA 19543 610-286-6844

CUSTOMER  
042375

AMERICAN WASTE OF NJ, LLC  
ONE AMERICAN WAY  
WARREN, OH 44485

50811411403

SCALE IN GROSS WEIGHT  
SCALE OUT TARE WEIGHT  
VEHICLE DESC: SPECIAL WASTE

74,120  
37,220

**SCALEHOUSE COPY**

LICENSE:

TYPE: Miscellaneous

SITE CL Cell 22X 77564

WEIGHMASTER Bruce E.

Ticket 959602

DATE IN  
11/6/14 8:52 am

DATE OUT  
11/6/14 9:12 am

VEHICLE  
SPECIAL  
REFERENCE  
267

CONTAINER

BILL OF LADING 093

INVOICE

NET TONS 18.45  
NET WEIGHT 36,900

INBOUND

CONTAINER DESC

QTY.	UNIT.	DESCRIPTION	RATE.	EXTENSION.	TAX.	TOTAL
0.00	YD	TRACKING QTY				
18.45	TN	SW-CONT SOIL				
		NEW JERSEY				

DRIVER:

WEIGHMASTER

NET AMOUNT  
TENDERED  
CHANGE  
CHECK

NON-HAZARDOUS  
WASTE MANIFEST

1. Generator ID Number

NJIC200400018

2. Page 1 of

1

3. Emergency Response Phone

4. Waste Tracking Number

094

5. Generator's Name and Mailing Address

ATTN: CRIS D ONOFRO

Generator's Site Address (if different than mailing address)

US EPA REGION II

2890 WOODBRIDGE AVENUE EDISON, NJ 08837

H C CANFIELD

1 CORNERSTONE LANE

NEWARK NJ 07103

Generator's Phone:

(908) 420-4475

6. Transporter 1 Company Name

U.S. EPA ID Number

7. Transporter 2 Company Name

U.S. EPA ID Number

8. Designated Facility Name and Site Address

U.S. EPA ID Number

REPUBLIC SERVICES/CONESTOGA

420 QUARRY RD

MORGANTOWN PA 19543

Facility's Phone: (610) 288-7876

9. Waste Shipping Name and Description

10. Containers

No.

Type

11. Total  
Quantity12. Unit,  
WL/Vol.

1. Non Haz Non Regulated Soil &amp; Debris

DB, CM EST  
18 T

2.

3.

4.

13. Special Handling Instructions and Additional Information

14. 5081 1411 403 WID: 49411 METALS IMPACTED SOIL & DEBRIS  
(LEAD)

14. GENERATOR'S/OFFEROR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations.

Generator's/Officer's Printed/Typed Name

Signature

Month Day Year

15. International Shipments

☐ Import to U.S.☐ Export from U.S.Port of entry/exit:  
Date leaving U.S.

11 7 14

Transporter Signature (for exports only):

16. Transporter Acknowledgment of Receipt of Materials

Transporter 1 Printed/Typed Name

Signature

Month Day Year

Transporter 2 Printed/Typed Name

Signature

Month Day Year

17. Discrepancy

17a. Discrepancy Indication Space

☐ Quantity☐ Type☐ Residue☐ Partial Rejection☐ Full Rejection

Manifest Reference Number:

17b. Alternate Facility (or Generator)

U.S. EPA ID Number

Facility's Phone:

17c. Signature of Alternate Facility (or Generator)

Month Day Year

18. Designated Facility Owner or Operator: Certification of receipt of materials covered by the manifest except as noted in Item 17a

Printed/Typed Name

Signature

Month Day Year

GENERATOR

TRANSPORTER, INT'L

DESIGNATED FACILITY

CONESTOGA LF  
420 QUARRY ROAD

Morgantown, PA 19543 610-286-6844

CUSTOMER  
042375

AMERICAN WASTE OF NJ, LLC  
ONE AMERICAN WAY  
WARREN, OH 44485

50811411403

SCALE IN GROSS WEIGHT 54,700  
SCALE OUT TARE WEIGHT 35,780  
VEHICLE DESC: SPECIAL WASTE

**SCALEHOUSE COPY**

LICENSE:

TYPE: Miscellaneous

SITE CL Cell 22X 77564

WEIGHMASTER Bruce E.

Ticket 959771

DATE IN

11/7/14 8:26 am

VEHICLE  
SPECIAL

REFERENCE  
267

BILL OF LADING 094

DATE OUT

11/7/14 8:43 am

CONTAINER

INVOICE

INBOUND

QTY.	UNIT.	DESCRIPTION	RATE.	EXTENSION.	TAX.	TOTAL
0.00	YD	TRACKING QTY				
9.46	TN	SW-CONT SOIL				
		NEW JERSEY				

DRIVER:

WEIGHMASTER

NET AMOUNT  
TENDERED  
CHANGE  
CHECK



## CERTIFICATE OF DESTRUCTION

I, Joanne Schulze, of Republic Services, hereby certifies to American Waste of NJ, LLC that all the product described in Section A has been properly and legally disposed of in Conestoga Landfill between 11/3 thru 11/7/2014.

American Waste of NJ, LLC agrees to indemnify and hold Republic Services and its subsidiary and affiliated corporations harmless from any and all liabilities, claims, damage or cost incurred in connection with any claims related to the destruction of this waste stream

By: Joanne Schulze  
Name: Joanne Schulze  
Title: Environmental Coordinator  
Date: 11/7/14

### **Section A- Products Destroyed (attached additional sheets if needed):**

Description of Product

Quantity or Weight

**Metals Impacted Soil & Debris (Lead)**

**65.25 Tons**



GENERATOR  
TRANSPORTER INT'L  
DESIGNATED FACILITY

<b>NON-HAZARDOUS WASTE MANIFEST</b>		1. Generator ID Number NJ0200400018	2. Page 1 of 1	3. Emergency Response Phone	4. Waste Tracking Number 095	
5. Generator's Name and Mailing Address US EPA REGION II 2890 WOODBRIDGE AVENUE EDISON, NJ 08837 Generator's Phone: (908) 420-4475			Generator's Site Address (if different than mailing address) M C CANFIELD 1 CORNERSTONE LANE NEWARK NJ 07103			
6. Transporter 1 Company Name DELAWARE VALLEY CORP.			U.S. EPA ID Number			
7. Transporter 2 Company Name			U.S. EPA ID Number			
8. Designated Facility Name and Site Address REPUBLIC SERVICES/CONESTOGA 420 QUARRY RD MORGANTOWN PA 19543 Facility's Phone: (610) 288-7876			U.S. EPA ID Number			
9. Waste Shipping Name and Description		10. Containers		11. Total Quantity	12. Unit Wt./Vol.	
		No.	Type			
1. Non Haz Non Regulated Soil & Debris		001	CM	EST 18	T	
2.						
3.						
4.						
13. Special Handling Instructions and Additional Information 1. 5081 1411 403 WID: 49411 METALS IMPACTED SOIL & DEBRIS (LEAD)						
14. GENERATOR'S/OFFEROR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations.						
Generator's/Offeror's Printed/Typed Name Cris D Delfrio (V-EPA)			Signature Cris Delfrio		Month Day Year 11 11 14	
15. International Shipments <input type="checkbox"/> Import to U.S. <input type="checkbox"/> Export from U.S.			Port of entry/exit Date leaving U.S.			
16. Transporter Acknowledgment of Receipt of Materials						
Transporter 1 Printed/Typed Name Steve Rivers			Signature Steve Rivers		Month Day Year 11 11 14	
Transporter 2 Printed/Typed Name			Signature		Month Day Year	
17. Discrepancy						
17a. Discrepancy Indication Space <input type="checkbox"/> Quantity <input type="checkbox"/> Type <input type="checkbox"/> Residue <input type="checkbox"/> Partial Rejection <input type="checkbox"/> Full Rejection						
17b. Alternate Facility (or Generator)			Manifest Reference Number: U.S. EPA ID Number			
Facility's Phone:						
17c. Signature of Alternate Facility (or Generator)			Month Day Year			
18. Designated Facility Owner or Operator: Certification of receipt of materials covered by the manifest except as noted in Item 17a						
Printed/Typed Name [Signature]			Signature [Signature]		Month Day Year 11 11 14	

CONESTOGA LF

420 QUARRY ROAD

Morgantown, PA 19543 610-286-6844

**CUSTOMER**

042375

AMERICAN WASTE OF NJ, LLC

ONE AMERICAN WAY

WARREN, OH 44485

50811411403

SCALE IN

GROSS WEIGHT

64,940

SCALE OUT

TARE WEIGHT

37,120

VEHICLE DESC SPECIAL WASTE

**CUSTOMER COPY**

LICENSE:

TYPE: Miscellaneous

SITE CL CELL 22X 77564

WEIGHMASTER IN - Bruce E. OUT - Mike M.

Ticket 960152

DATE IN

11/11/14 8:53 am

DATE OUT

11/11/14 9:17 am

VEHICLE  
SPECIAL

CONTAINER

REFERENCE  
267

INVOICE

BILL OF LADING 095

13.91

NET TONS

27,820

NET WEIGHT

CONTAINER DESC

INBOUND

QTY.	UNIT.	DESCRIPTION	RATE.	EXTENSION.	TAX.	TOTAL
0.00	YD	TRACKING QTY				
13.91	TN	SW-CONT SOIL				
		NEW JERSEY				

NET AMOUNT

TENDERED

CHANGE

CHECK

3/31 DRIVER:

WEIGHMASTER

GENERATOR

TRANSPORTER

DESIGNATED FACILITY

<b>NON-HAZARDOUS WASTE MANIFEST</b>		1. Generator ID Number <b>NJ0200400018</b>	2. Page 1 of <b>1</b>	3. Emergency Response Phone	4. Waste Tracking Number <b>096</b>
5. Generator's Name and Mailing Address <b>US EPA REGION II 2890 WOODBRIDGE AVENUE EDISON, NJ 08837</b>		Generator's Site Address (if different than mailing address) <b>M C CANFIELD 1 CORNERSTONE LANE NEWARK NJ 07103</b>			
6. Transporter 1 Company Name <b>Delaware Valley Co. Inc.</b>		U.S. EPA ID Number			
7. Transporter 2 Company Name		U.S. EPA ID Number			
8. Designated Facility Name and Site Address <b>REPUBLIC SERVICES/CONESTOGA 420 QUARRY RD MORGANTOWN PA 19543</b>		U.S. EPA ID Number			
Facility's Phone: <b>(610)288-7876</b>					
9. Waste Shipping Name and Description		10. Containers		11. Total Quantity	12. Unit Wt./Vol.
		No.	Type		
1. Non Haz Non Regulated Soil & Debris		001	CM	18	T
2.					
3.					
4.					
13. Special Handling Instructions and Additional Information <b>1. 5081 1411 403 WID: 49411 METALS IMPACTED SOIL &amp; DEBRIS (LEAD)</b>					
14. GENERATOR'S/OFFEROR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations.					
Generator's/Officer's Printed/Typed Name <b>Cris D Onofrio (USEPA-ISC)</b>		Signature <i>[Signature]</i>		Month <b>11</b>	Day <b>19</b>
15. International Shipments <input type="checkbox"/> Import to U.S. <input checked="" type="checkbox"/> Export from U.S.		Port of entry/exit: Date leaving U.S.		Year <b>14</b>	
16. Transporter Acknowledgment of Receipt of Materials					
Transporter 1 Printed/Typed Name <b>Stew Rivers</b>		Signature <i>[Signature]</i>		Month <b>11</b>	Day <b>11</b>
Transporter 2 Printed/Typed Name		Signature		Year <b>14</b>	
17. Discrepancy					
17a. Discrepancy Indication Space <input type="checkbox"/> Quantity <input type="checkbox"/> Type <input type="checkbox"/> Residue <input type="checkbox"/> Partial Rejection <input type="checkbox"/> Full Rejection					
17b. Alternate Facility (or Generator)		Manifest Reference Number:		U.S. EPA ID Number	
Facility's Phone:					
17c. Signature of Alternate Facility (or Generator)				Month	Day
				Year	
18. Designated Facility Owner or Operator: Certification of receipt of materials covered by the manifest except as noted in Item 17a					
Printed/Typed Name		Signature		Month <b>11</b>	Day <b>11</b>
				Year <b>14</b>	

CONESTOGA LF  
420 QUARRY ROAD  
Morgantown, PA 19543 610-286-6844

CUSTOMER  
042375  
AMERICAN WASTE OF NJ, LLC  
ONE AMERICAN WAY  
WARREN, OH 44485  
50811411403

**CUSTOMER COPY**

LICENSE:  
TYPE: Miscellaneous

SITE CL CELL 22X 60029

WEIGHMASTER Mike M.

Ticket 960246

DATE IN 11/11/14 2:27 pm

DATE OUT 11/11/14 2:42 pm

VEHICLE  
SPECIAL

CONTAINER

REFERENCE  
267

INVOICE

BILL OF LADING 096

SCALE IN GROSS WEIGHT  
SCALE OUT TARE WEIGHT  
VEHICLE DESC SPECIAL WASTE

71,420  
35,460

NET TONS  
NET WEIGHT

17.98  
35,960

CONTAINER DESC

INBOUND

QTY.	UNIT.	DESCRIPTION	RATE.	EXTENSION.	TAX.	TOTAL
0.00	YD	TRACKING QTY				
17.98	TN	SW-CONT SOIL				
		NEW JERSEY				

NET AMOUNT

TENDERED

CHANGE

CHECK

531 DRIVER : WEIGHMASTER

**NON-HAZARDOUS  
WASTE MANIFEST**

1. Generator ID Number

**NJC200400018**

2. Page 1 of

1

3. Emergency Response Phone

4. Waste Tracking Number

**097**

5. Generator's Name and Mailing Address

**ATTN: CRIS D ONOFIRO**

Generator's Site Address (if different than mailing address)

**US EPA REGION II**

**2890 WOODBRIDGE AVENUE EDISON, NJ 08837**

**M C CANFIELD**

**1 CORNERSTONE LANE**

**MELARK NJ 07103**

Generator's Phone:

**(908) 420-4475**

6. Transporter 1 Company Name

U.S. EPA ID Number

**DELAWARE VALLEY CONT.**

7. Transporter 2 Company Name

U.S. EPA ID Number

8. Designated Facility Name and Site Address

U.S. EPA ID Number

**REPUBLIC SERVICES/CONESTOGA**

**420 QUARRY RD**

**MORGANTOWN PA 19543**

Facility's Phone: **(610) 288-7876**

9. Waste Shipping Name and Description

10. Containers

No.

Type

11. Total Quantity

12. Unit Wt/Vol.

**1. Non Haz Non Regulated Soil & Debris**

**001 CM**

**EST**

**18**

**T**

13. Special Handling Instructions and Additional Information

**1. 5081 1411 403 (LEAD)**

**WID: 42411**

**METALS IMPACTED SOIL & DEBRIS**

14. GENERATOR'S/OFFEROR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations.

Generator's/Offere's Printed/Typed Name

Signature

Month Day Year

**CRIS D ONOFIRO (USEPA-ISC)**

*[Signature]*

**11/12/14**

15. International Shipments

☐ Import to U.S.

☒ Export from U.S.

Port of entry/exit

Date leaving U.S.

16. Transporter Acknowledgment of Receipt of Materials

Transporter 1 Printed/Typed Name

Signature

Month Day Year

**Steve Rivers**

*[Signature]*

**11/12/14**

Transporter 2 Printed/Typed Name

Signature

Month Day Year

17. Discrepancy

17a. Discrepancy Indication Space

☐ Quantity

☐ Type

☐ Residue

☐ Partial Rejection

☐ Full Rejection

Manifest Reference Number:

17b. Alternate Facility (or Generator)

U.S. EPA ID Number

Facility's Phone:

17c. Signature of Alternate Facility (or Generator)

Month Day Year

18. Designated Facility Owner or Operator: Certification of receipt of materials covered by the manifest except as noted in Item 17a

Printed/Typed Name

Signature

Month Day Year

*[Signature]*

*[Signature]*

**11/12/14**

CONESTOGA LF  
420 QUARRY ROAD

Morgantown, PA 19543 610-286-6844

**CUSTOMER**

042375  
AMERICAN WASTE OF NJ, LLC  
ONE AMERICAN WAY  
WARREN, OR 97146  
50811411403

**CUSTOMER COPY**

LICENSE:  
TYPE: Miscellaneous

SITE CL CELL 22X 60029

WEIGHMASTER Mike M.

Ticket 960430

DATE IN  
11/12/14 2:05 pm

DATE OUT  
11/12/14 2:23 pm

VEHICLE  
SPECIAL

CONTAINER

REFERENCE  
267

INVOICE

BILL OF LADING 097

SCALE IN GROSS WEIGHT  
SCALE OUT TARE WEIGHT  
VEHICLE DESC SPECIAL WASTE

69,660  
35,620

NET TONS  
NET WEIGHT

17.02  
34,040

CONTAINER DESC

INBOUND

QTY.	UNIT.	DESCRIPTION	RATE.	EXTENSION.	TAX.	TOTAL
0.00	YD	TRACKING QTY				
17.02	TN	SW-CONT SOIL				
		NEW JERSEY				

NET AMOUNT

TENDERED

CHANGE

CHECK

DRIVER :

WEIGHMASTER

GENERATOR  
TRANSPORTER  
DESIGNATED FACILITY

<b>NON-HAZARDOUS WASTE MANIFEST</b>		1. Generator ID Number <b>NJC200400018</b>	2. Page 1 of <b>1</b>	3. Emergency Response Phone	4. Waste Tracking Number <b>098</b>
5. Generator's Name and Mailing Address <b>US EPA REGION II 2890 WOODBRIDGE AVENUE EDISON, NJ 08837</b> Generator's Phone: <b>(908) 420-4475</b>			Generator's Site Address (if different than mailing address) <b>M. C. CANFIELD 1 CORNERSTONE LANE NEWARK, NJ 07103</b>		
6. Transporter 1 Company Name <b>DELAWARE VALLEY CONT.</b>			U.S. EPA ID Number		
7. Transporter 2 Company Name			U.S. EPA ID Number		
8. Designated Facility Name and Site Address <b>REPUBLIC SERVICES/CONESTOGA 420 QUARRY RD MORGANTOWN PA 19543</b> Facility's Phone: <b>(610) 288-7876</b>			U.S. EPA ID Number		
9. Waste Shipping Name and Description		10. Containers		11. Total Quantity	12. Unit Wt/Vol
		No.	Type		
1. Non Haz Non Regulated Soil & Debris		001	CM	257	T
2.					
3.					
4.					
13. Special Handling Instructions and Additional Information <b>5081 1411 403 WID: 49411 METALS IMPACTED SOIL &amp; DEBRIS (LEAD)</b>					
14. GENERATOR'S/OFFEROR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded; and are in all respects in proper condition for transport according to applicable international and national governmental regulations.					
Generator's/Officer's Printed/Typed Name <b>Cris D'Onofrio (USEPA-OSC)</b>		Signature <i>[Signature]</i>		Month Day Year <b>11/14/14</b>	
15. <input checked="" type="checkbox"/> International Shipments <input type="checkbox"/> Import to U.S. <input type="checkbox"/> Export from U.S.		Port of entry/exit		Date leaving U.S.	
16. Transporter Acknowledgment of Receipt of Materials					
Transporter 1 Printed/Typed Name <b>Stew Rivers</b>		Signature <i>[Signature]</i>		Month Day Year <b>11/14/14</b>	
Transporter 2 Printed/Typed Name		Signature		Month Day Year	
17. Discrepancy					
17a. Discrepancy Indication Space <input type="checkbox"/> Quantity <input type="checkbox"/> Type <input type="checkbox"/> Residue <input type="checkbox"/> Partial Rejection <input checked="" type="checkbox"/> Full Rejection					
Manifest Reference Number:					
17b. Alternate Facility (or Generator)			U.S. EPA ID Number		
Facility's Phone:					
17c. Signature of Alternate Facility (or Generator)			Month Day Year		
18. Designated Facility Owner or Operator: Certification of receipt of materials covered by the manifest except as noted in Item 17a.					
Printed/Typed Name <i>[Signature]</i>		Signature <i>[Signature]</i>		Month Day Year <b>11/14/14</b>	



CONESTOGA LF  
420 QUARRY ROAD

Morgantown, PA 19543 610-286-6844

**CUSTOMER**

042375  
AMERICAN WASTE OF NJ, LLC  
ONE AMERICAN WAY  
WARREN, OH 44485  
50811411403

**CUSTOMER COPY**

LICENSE:

TYPE: Miscellaneous

SITE CL CELL 22X 77564

WEIGHMASTER IN - Bruce E. OUT - Mike M.

Ticket 960696

DATE IN

11/14/14 8:45 am

DATE OUT

11/14/14 9:01 am

VEHICLE  
SPECIAL

CONTAINER

REFERENCE  
267

INVOICE

BILL OF LADING 098

SCALE IN GROSS WEIGHT  
SCALE OUT TARE WEIGHT  
VEHICLE DESC SPECIAL WASTE

65,840  
35,560

NET TONS  
NET WEIGHT

15.14  
30,280

CONTAINER DESC

INBOUND

QTY.	UNIT.	DESCRIPTION	RATE.	EXTENSION.	TAX.	TOTAL
0.00	YD	TRACKING QTY				
15.14	TN	SW-CONT SOIL				
		NEW JERSEY				

NET AMOUNT

TENDERED

CHANGE

CHECK

331 DRIVER:

WEIGHMASTER

GENERATOR

INFIL

TRANSPORTER

DESIGNATED FACILITY

NON-HAZARDOUS  
WASTE MANIFEST

1. Generator ID Number

NJIC200400018

2. Page 1 of

1

3. Emergency Response Phone

4. Waste Tracking Number

099

5. Generator's Name and Mailing Address

ATTN: CRIS D ONOFIRO

Generator's Site Address (if different than mailing address)

US EPA REGION II

2890 WOODBRIDGE AVENUE EDISON, NJ 08837

M C CANFIELD

1 CORNERSTONE LANE

Generator's Phone: (908) 420-4475

NEWARK, NJ 07103

6. Transporter 1 Company Name

Delaware Valley Corp.

U.S. EPA ID Number

7. Transporter 2 Company Name

U.S. EPA ID Number

8. Designated Facility Name and Site Address

U.S. EPA ID Number

REPUBLIC SERVICES/CONESTOGA

420 QUARRY RD MORGANTOWN PA 19543

Facility's Phone: (610) 289-7876

9. Waste Shipping Name and Description

10. Containers

No. Type

11. Total  
Quantity12. Unit  
Wt./Vol.

1. Non Haz Non Regulated Soil &amp; Debris

DBI

CM

EST  
18

T

13. Special Handling Instructions and Additional Information

1. 5081-1411-403 - MID: 49411- METALS IMPACTED SOIL & DEBRIS  
(LEAD)

14. GENERATOR'S/OFFEROR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled, placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations.

Generator's/Offendor's Printed/Typed Name

CRIS D ONOFIRO (USEPA-DC)

Signature

[Signature]

Month Day Year

11 17 14

15. Import to U.S. ☐ Export from U.S. ☐

Port of entry/exit:

Date leaving U.S.:

Transporter Signature (for exports only):

16. Transporter Acknowledgment of Receipt of Materials

Transporter 1 Printed/Typed Name

Stew Rivers

Signature

[Signature]

Month Day Year

11 17 14

Transporter 2 Printed/Typed Name

Signature

Month Day Year

17. Discrepancy

17a. Discrepancy Indication Space

☐ Quantity☐ Type☐ Residue☐ Partial Rejection☒ Full Rejection

Manifest Reference Number:

17b. Alternate Facility (or Generator)

U.S. EPA ID Number

Facility's Phone:

17c. Signature of Alternate Facility (or Generator)

Month Day Year

18. Designated Facility Owner or Operator: Certification of receipt of materials covered by the manifest except as noted in Item 17.

Printed/Typed Name

[Signature]

Signature

[Signature]

Month Day Year

11 17 14

CONESTOGA LF  
420 QUARRY ROAD  
Morgantown, PA 19543 610-286-6844

CUSTOMER  
042375  
AMERICAN WASTE OF NJ, LLC  
ONE AMERICAN WAY  
WARREN, OH 44485  
50811411403

**CUSTOMER COPY**

LICENSE :  
TYPE: Miscellaneous

SITE CL CELL 22X 77564  
WEIGHMASTER IN - Bruce E. OUT - Mike M.  
Ticket 960899  
DATE IN 11/17/14 9:03 am DATE OUT 11/17/14 9:19 am  
VEHICLE SPECIAL CONTAINER  
REFERENCE 267 INVOICE  
BILL OF LADING 099  
NET TONS 20.14  
NET WEIGHT 40,280  
CONTAINER DESC INBOUND

SCALE IN GROSS WEIGHT 77,640  
SCALE OUT TARE WEIGHT 37,360  
VEHICLE DESC SPECIAL WASTE

QTY.	UNIT.	DESCRIPTION	RATE.	EXTENSION.	TAX.	TOTAL
0.00	YD	TRACKING QTY				
20.14	TN	SW-CONT SOIL				
		NEW JERSEY				

NET AMOUNT

TENDERED

CHANGE

CHECK

331 DRIVER :

WEIGHMASTER

NON-HAZARDOUS  
WASTE MANIFEST

1. Generator ID-Number

NJIC200400018

2. Page 1 of 1

3. Emergency Response Phone

4. Waste Tracking Number

HDD

5. Generator's Name and Mailing Address

ATTN: CRIS D ONOFIRO

Generator's Site Address (if different than mailing address)

US EPA REGION II

2890 WOODBRIDGE AVENUE EDISON, NJ 08837

M C CANFIELD

1 CORNERSTONE LANE

NEWARK NJ 07103

Generator's Phone:

(908) 420-4475

6. Transporter 1 Company Name

U.S. EPA ID Number

7. Transporter 2 Company Name

U.S. EPA ID Number

8. Designated Facility Name and Site Address

U.S. EPA ID Number

REPUBLIC SERVICES/CONESTOGA

420 QUARRY RD MORGANTOWN PA 19543

Facility's Phone: (610) 288-7876

9. Waste Shipping Name and Description

10. Containers

No. Type

11. Total

Quantity

12. Unit

WL/Vol.

1 Non Haz Non Regulated Soil &amp; Debris

001

CM

EST

18

T

13. Special Handling Instructions and Additional Information

5081 1411 403 \*UID: 49411  
(LEAD)

METALS IMPACTED SOIL &amp; DEBRIS

14. GENERATOR'S/OFFEROR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations.

Generator's/Officer's Printed/Typed Name

Signature

Month Day Year

Eric D Onofiro LOSEPH-DSC

11/17/14

15. International Shipments ☐ Import to U.S.☐ Export from U.S.

Port of entry/ext:

Date leaving U.S.:

Transporter Signature (for exports only):

16. Transporter Acknowledgment of Receipt of Materials

Transporter 1 Printed/Typed Name

Signature

Month Day Year

Stew Rivers

11/17/14

Transporter 2 Printed/Typed Name

Signature

Month Day Year

17. Discrepancy

17a. Discrepancy Indication Space

☐ Quantity☐ Type☐ Residue☐ Partial Rejection☐ Full Rejection

Manifest Reference Number:

17b. Alternate Facility (or Generator)

U.S. EPA ID Number

Facility's Phone:

17c. Signature of Alternate Facility (or Generator)

Month Day Year

18. Designated Facility Owner or Operator: Certification of receipt of materials covered by the manifest except as noted in Item 17a

Printed/Typed Name

Signature

Month Day Year

CONESTOGA LF  
420 QUARRY ROAD

Morgantown, PA 19543 610-286-6844

**CUSTOMER**

042375  
AMERICAN WASTE OF NJ, LLC  
ONE AMERICAN WAY  
WARREN, OH 44485  
50811411403

**CUSTOMER COPY**

LICENSE:  
TYPE: Miscellaneous

SITE CL CELL 22X 60029

WEIGHMASTER Mike M.

Ticket 960999

DATE IN 11/17/14 3:04 pm DATE OUT 11/17/14 3:20 pm

VEHICLE SPECIAL CONTAINER

REFERENCE 267

INVOICE

BILL OF LADING 100

SCALE IN GROSS WEIGHT  
SCALE OUT TARE WEIGHT  
VEHICLE DESC SPECIAL WASTE

77,440  
35,880

NET TONS  
NET WEIGHT

20.78  
41,560

CONTAINER DESC

INBOUND

QTY.	UNIT.	DESCRIPTION	RATE.	EXTENSION.	TAX.	TOTAL
0.00	YD	TRACKING QTY				
20.78	TN	SW-CONT SOIL				
		NEW JERSEY				

NET AMOUNT

TENDERED

CHANGE

CHECK

331 DRIVER:

WEIGHMASTER



## CERTIFICATE OF DESTRUCTION

I, Joanne Schulze, of Republic Services, hereby certifies to American Waste of NJ, LLC that all the product described in Section A has been properly and legally disposed of in Conestoga Landfill between 11/11 thru 11/22/2014.

American Waste of NJ, LLC agrees to indemnify and hold Republic Services and it subsidiary and affiliated corporations harmless from any and all liabilities, claims, damage or cost incurred in connection with any claims related to the destruction of this waste stream

By: Joanne Schulze  
\*Name: Joanne Schulze  
Title: Environmental Coordinator  
Date: 11/22/14

### Section A- Products Destroyed (attached additional sheets if needed):

Description of Product

Quantity or Weight

**Metals Impacted Soil & Debris (Lead)**

**104.97 Tons**

# Attachment B

Photographic Documentation of Site Activities



**Attachment B**  
Photographic Documentation of Site Activities  
M.C. Canfield & Sons Site  
July 10, 2014 through November 14, 2014



**Photograph 1:** On July 10, 2014, RST 3 conducted baseline particulate monitoring using DataRam 4™ particulate monitors and ambient air sampling using filter media connected to SKC air sampling pumps. From July 17, 2014 through November 14, 2014, RST 3 conducted daily particulate monitoring and air sampling during the Removal Action at the Site.



**Photograph 2:** During the excavation of on-site AOCs, particulate levels were suppressed by wetting the excavation area with water.

## Attachment B

### Photographic Documentation of Site Activities

M.C. Canfield & Sons Site

July 10, 2014 through November 14, 2014



**Photograph 3:** Particulate exceedances occurred sometimes due to the use of a blower to clean up spilled backfill material from the roadway. Dust suppression with water spray was implanted to address the issue.



**Photograph 4:** The majority of on-site AOCs were excavated to a target depth of 2-feet bgs. Some locations could not be excavated due to their proximity to permanent structures, including sidewalks and utility pads.



**Attachment B**  
Photographic Documentation of Site Activities  
M.C. Canfield & Sons Site  
July 10, 2014 through November 14, 2014



**Photograph 5:** Hand digging around underground utilities.



**Photograph 6:** Tree cutting operations caused an increase in particulate levels. Particulate spikes were sometimes observed at the air monitoring stations during these operations. Lead contaminant migration was not a concern during these particulate spikes.

## Attachment B

### Photographic Documentation of Site Activities

M.C. Canfield & Sons Site

July 10, 2014 through November 14, 2014



**Photograph 7:** Tree branches and shrubs were mulched using a wood chipper; the debris was placed directly into roll-off containers.



**Photograph 8:** A skid-steer loader was used to transport and deposit excavated soils directly into polyethylene-lined mobile roll-off containers which were staged close to the work area at each AOC. Soils around A/C units were not excavated to avoid service disruption. Using an XRF analyzer, soil screening around A/C units and surface utility boxes was conducted to document the concentration of lead in the soils.



**Attachment B**  
Photographic Documentation of Site Activities  
M.C. Canfield & Sons Site  
July 10, 2014 through November 14, 2014



**Photograph 9:** The landscaping contractor installed and replaced sprinkler lines as part of Site restoration. The sprinkler lines at each AOC were tested after installation.



**Photograph 10:** An inventory was developed showing landscape vegetation and locations of pre-existing physical structures at each AOC through photo documentation. The inventory was used to facilitate restoration of disturbed areas to their original condition.

## Attachment B

### Photographic Documentation of Site Activities

M.C. Canfield & Sons Site

July 10, 2014 through November 14, 2014



**Photograph 11:** Sod grass, flowering plants, ornamental plants, shrubs and trees were replaced at each AOC in accordance with the pre-excavation inventory.



**Photograph 12:** Prior to backfilling each AOC, orange safety fence was installed on the excavation floor as a warning barrier demarcating where the concentration of lead in soils was above the EPA RSL of 400 mg/kg for residential soils.



## Attachment B

### Photographic Documentation of Site Activities

M.C. Canfield & Sons Site

July 10, 2014 through November 14, 2014



**Photograph 13:** Each excavated AOC was backfilled with pre-analyzed clean fill (quarry dust) to 12-inches bgs. A vibrating compactor was used to compact the clean fill.



**Photograph 14:** 12-inches of pre-analyzed topsoil was placed on top of the clean fill and compacted to bring the ground level to its pre-existing surface elevation while ensuring that the original landscape was maintained.



**Attachment B**  
Photographic Documentation of Site Activities  
M.C. Canfield & Sons Site  
July 10, 2014 through November 14, 2014



**Photograph 15:** The crew compacting backfill materials. Particulate exceedance spikes were sometimes observed on the air monitors during backfill operations. Although lead contaminant migration was not a concern the established engineering controls were implemented as a corrective action.



**Photograph 16:** Post-excavation restoration activities.

**Attachment B**  
Photographic Documentation of Site Activities  
M.C. Canfield & Sons Site  
July 10, 2014 through November 14, 2014



**Photograph 17:** A view of AOC 15B before it was excavated.

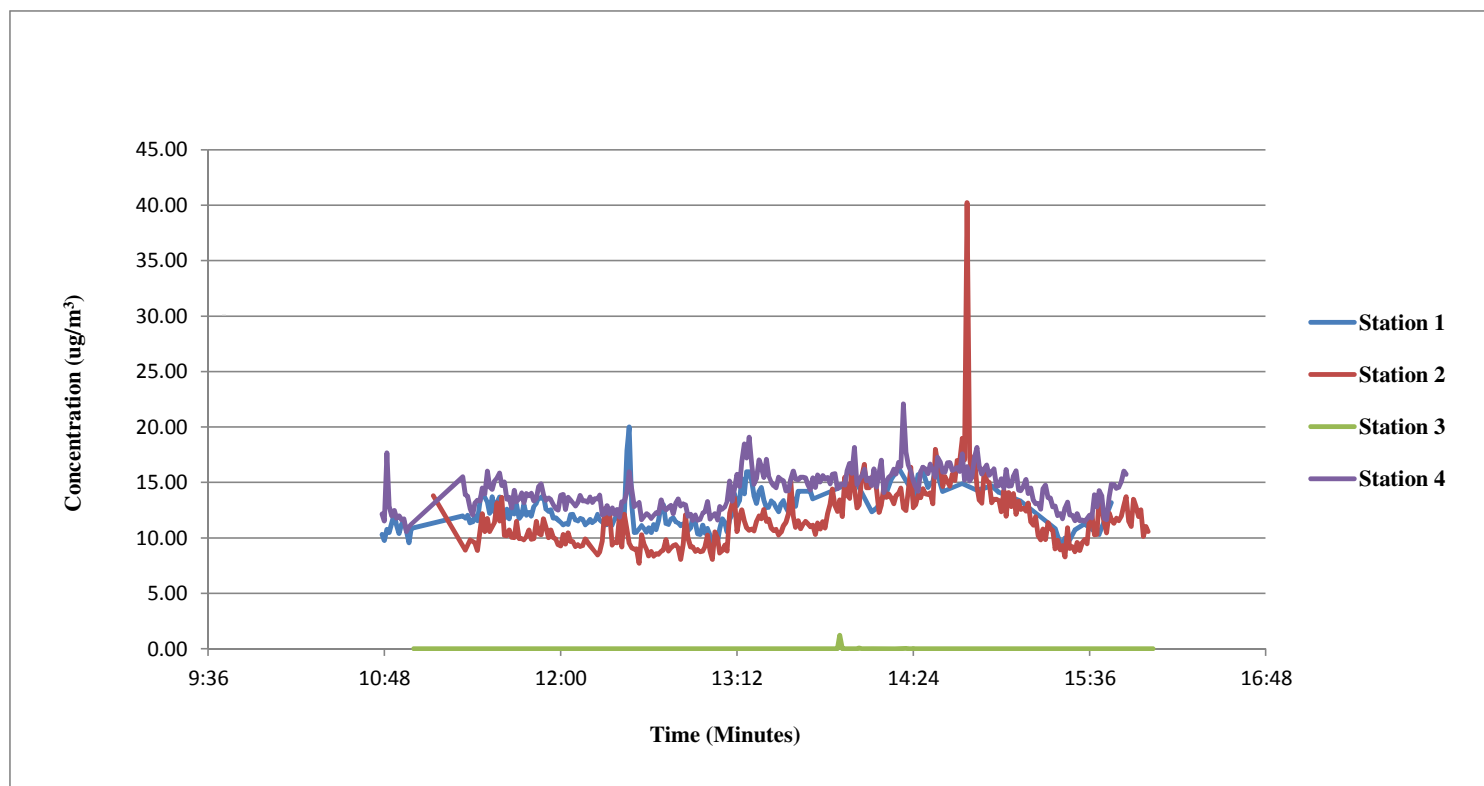


**Photograph 18:** A view of AOC 15B after excavation and restoration was completed. Site restoration of each AOC was based on the pre-excavation inventory.

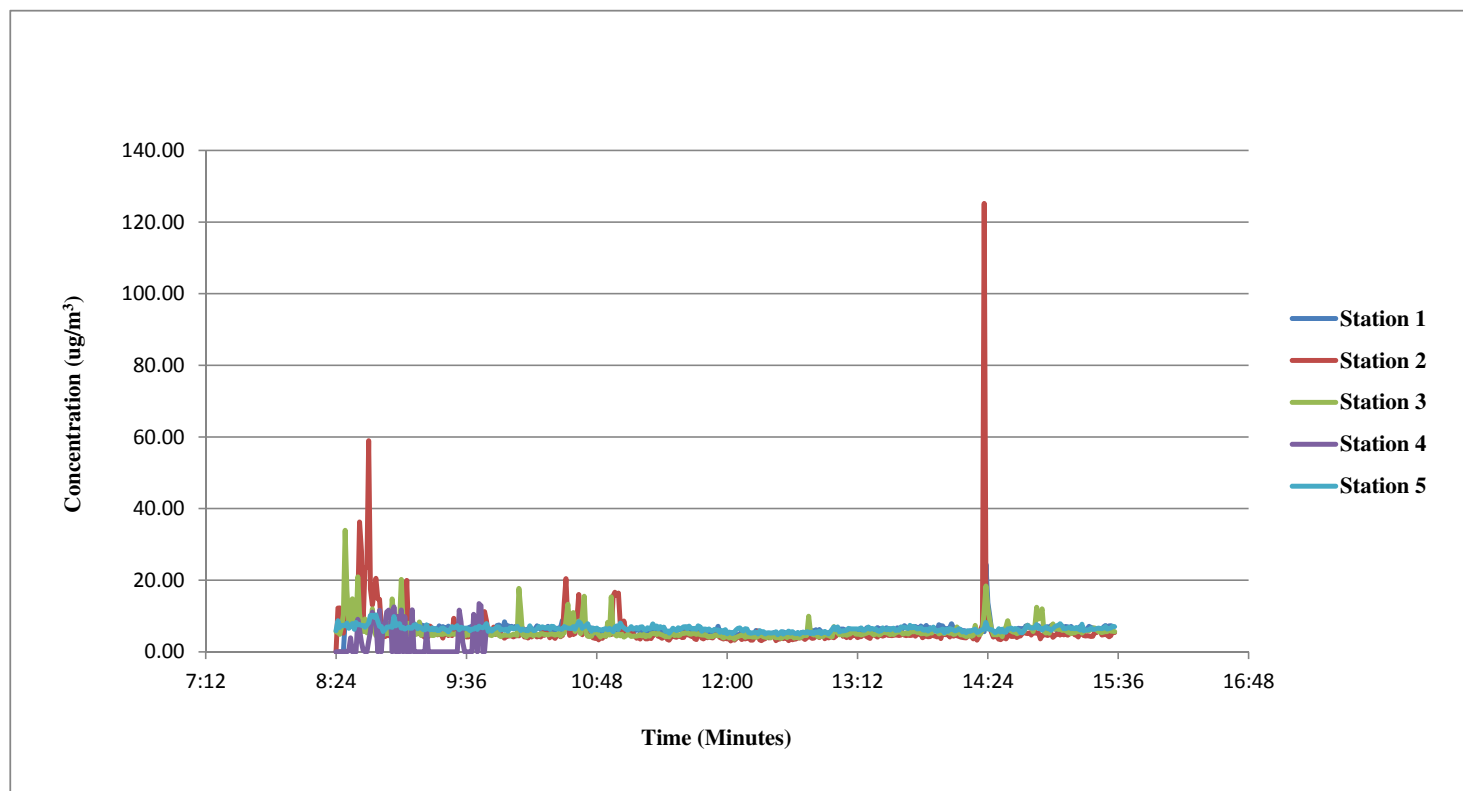
# Attachment C

Particulate Monitoring Graphs

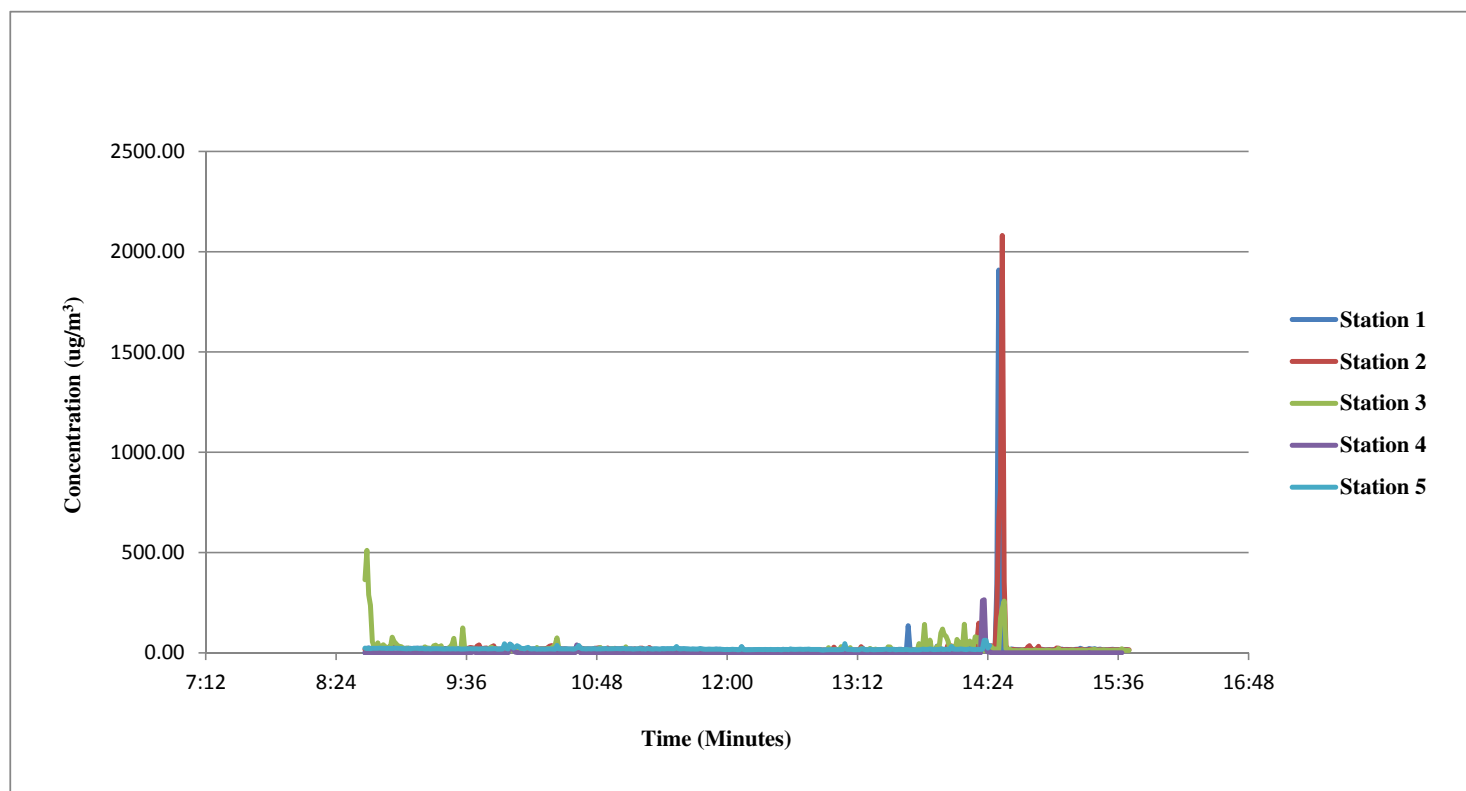
**Graph 1**  
**Particulate Matter (PM-10) Concentrations - July 10, 2014**  
**M.C. Canfield & Sons Site**



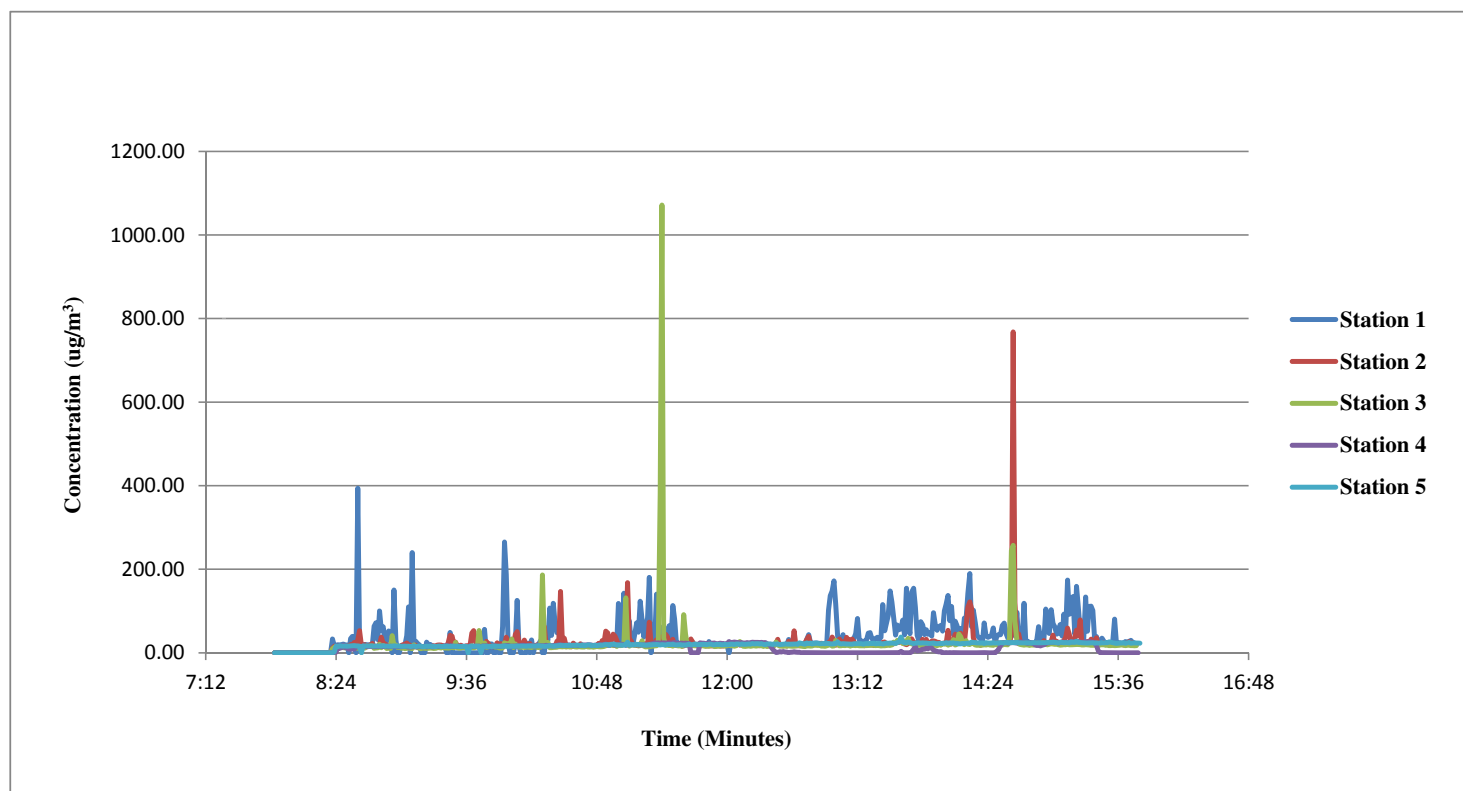
**Graph 2**  
**Particulate Matter (PM-10) Concentrations - July 17, 2014**  
**M.C. Canfield & Sons Site**



**Graph 3**  
**Particulate Matter (PM-10) Concentrations - July 22, 2014**  
**M.C. Canfield & Sons Site**

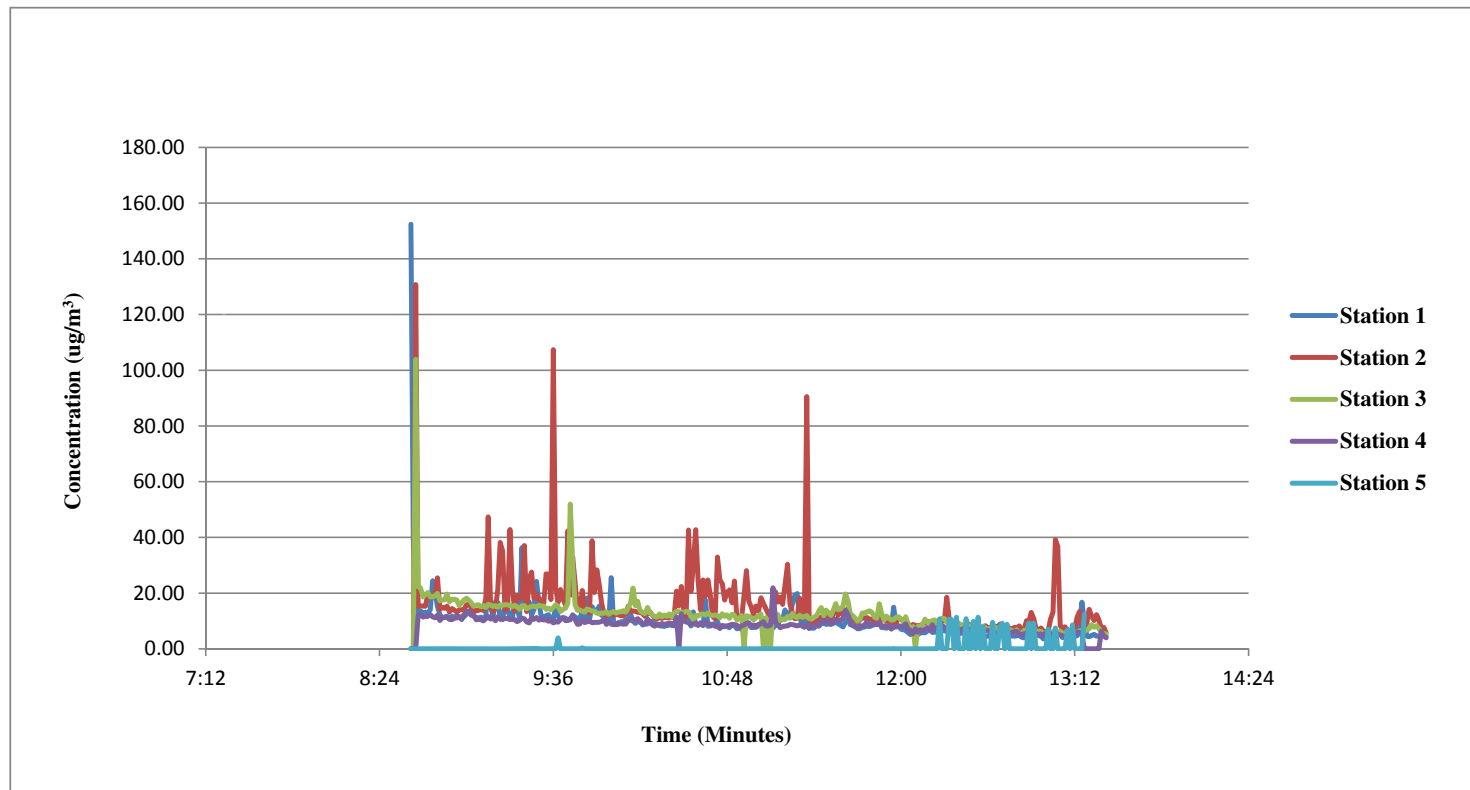


**Graph 4**  
**Particulate Matter (PM-10) Concentrations - July 23, 2014**  
**M.C. Canfield & Sons Site**

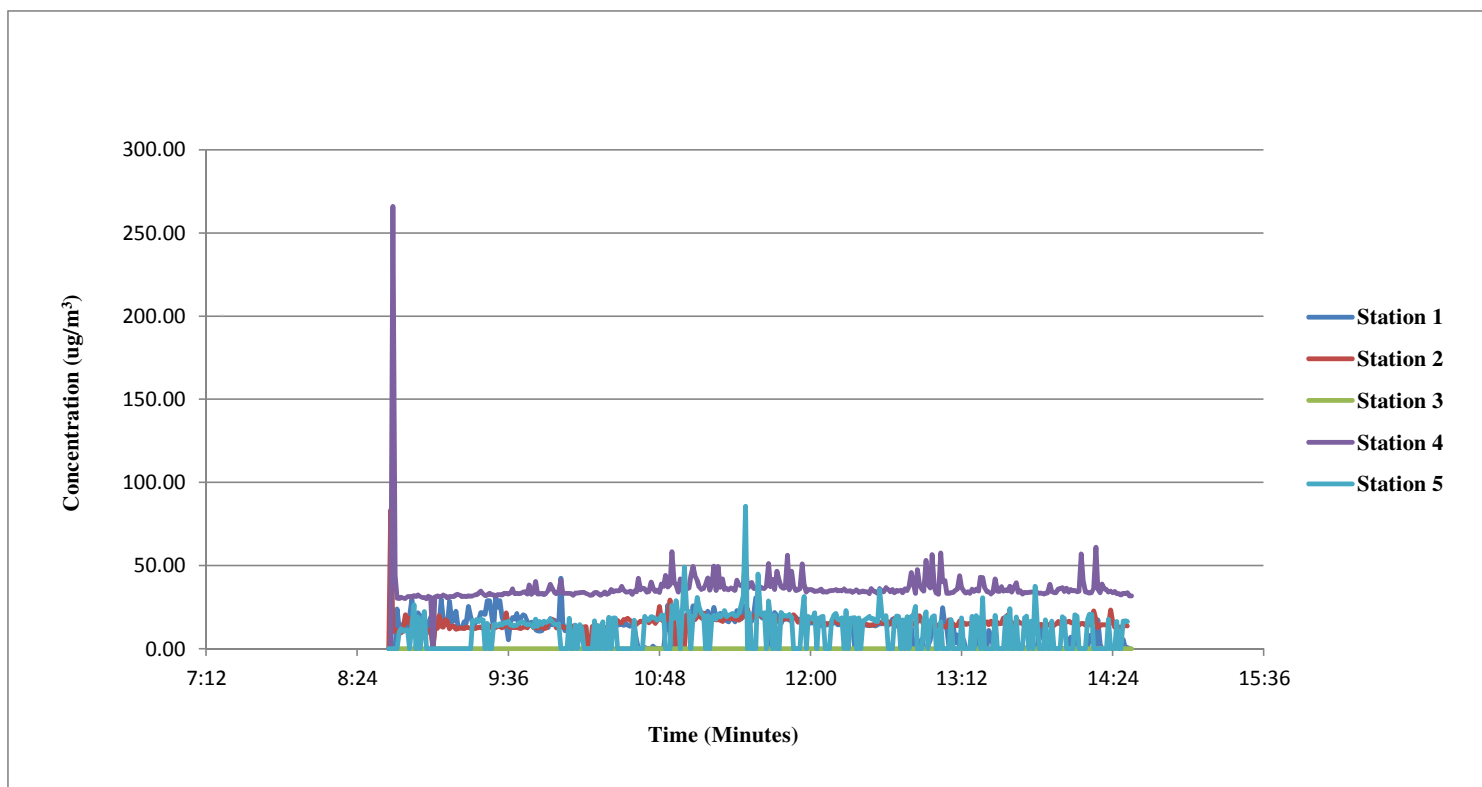




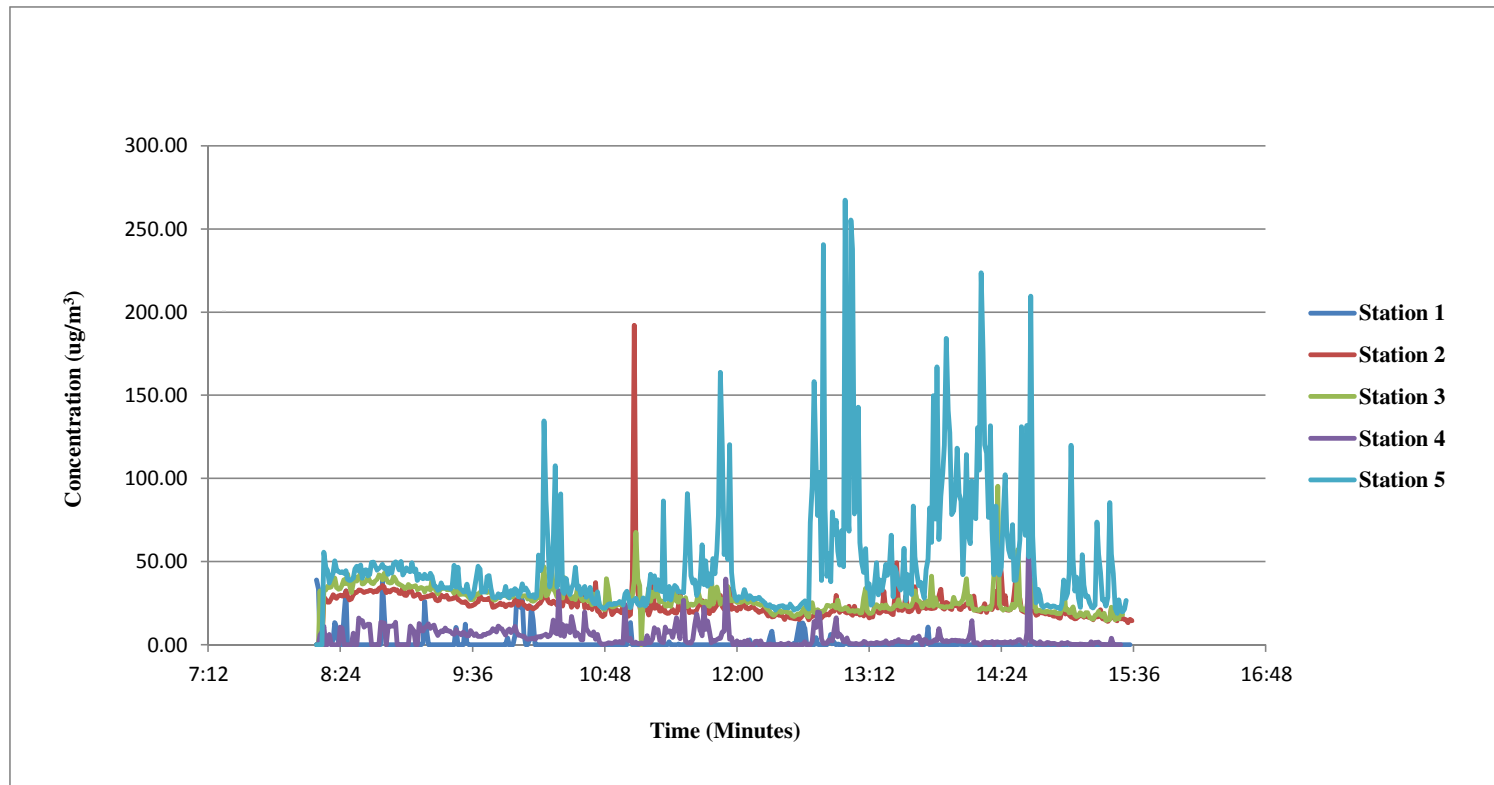
**Graph 5**  
**Particulate Matter (PM-10) Concentrations - August 8, 2014**  
**M.C. Canfield & Sons Site**



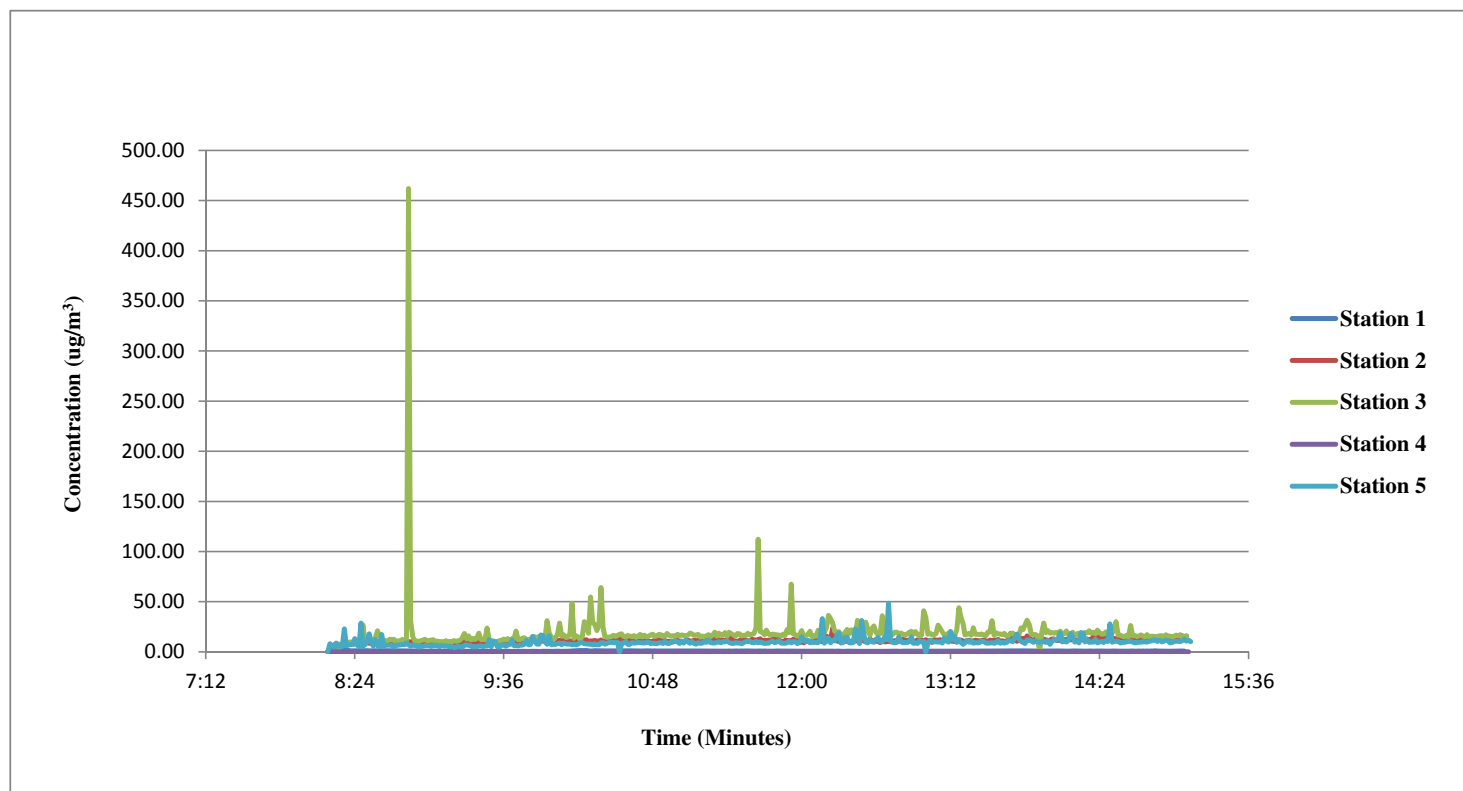
**Graph 6**  
**Particulate Matter (PM-10) Concentrations - August 19, 2014**  
**M.C. Canfield & Sons Site**



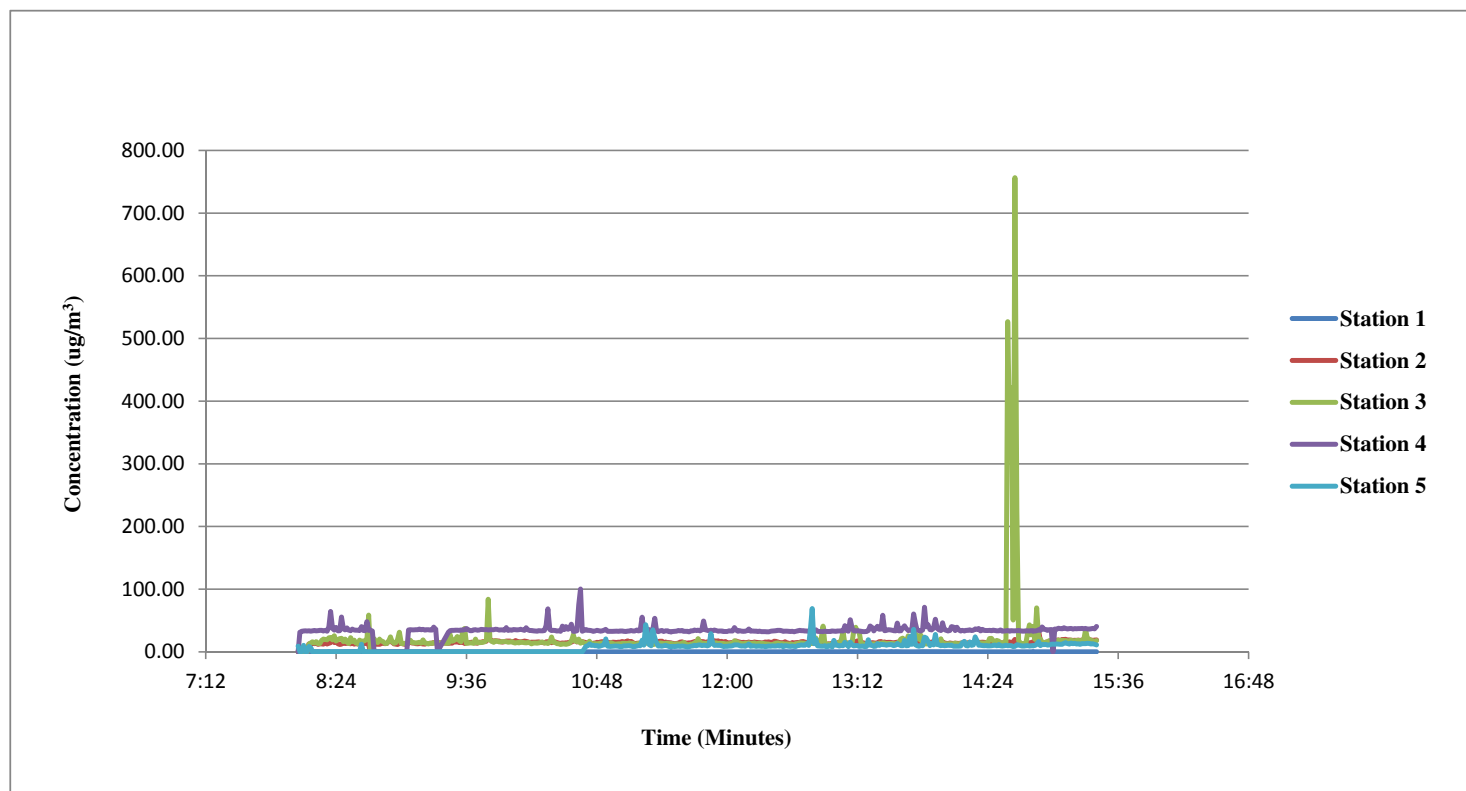
**Graph 7**  
**Particulate Matter (PM-10) Concentrations - August 26, 2014**  
**M.C. Canfield & Sons Site**



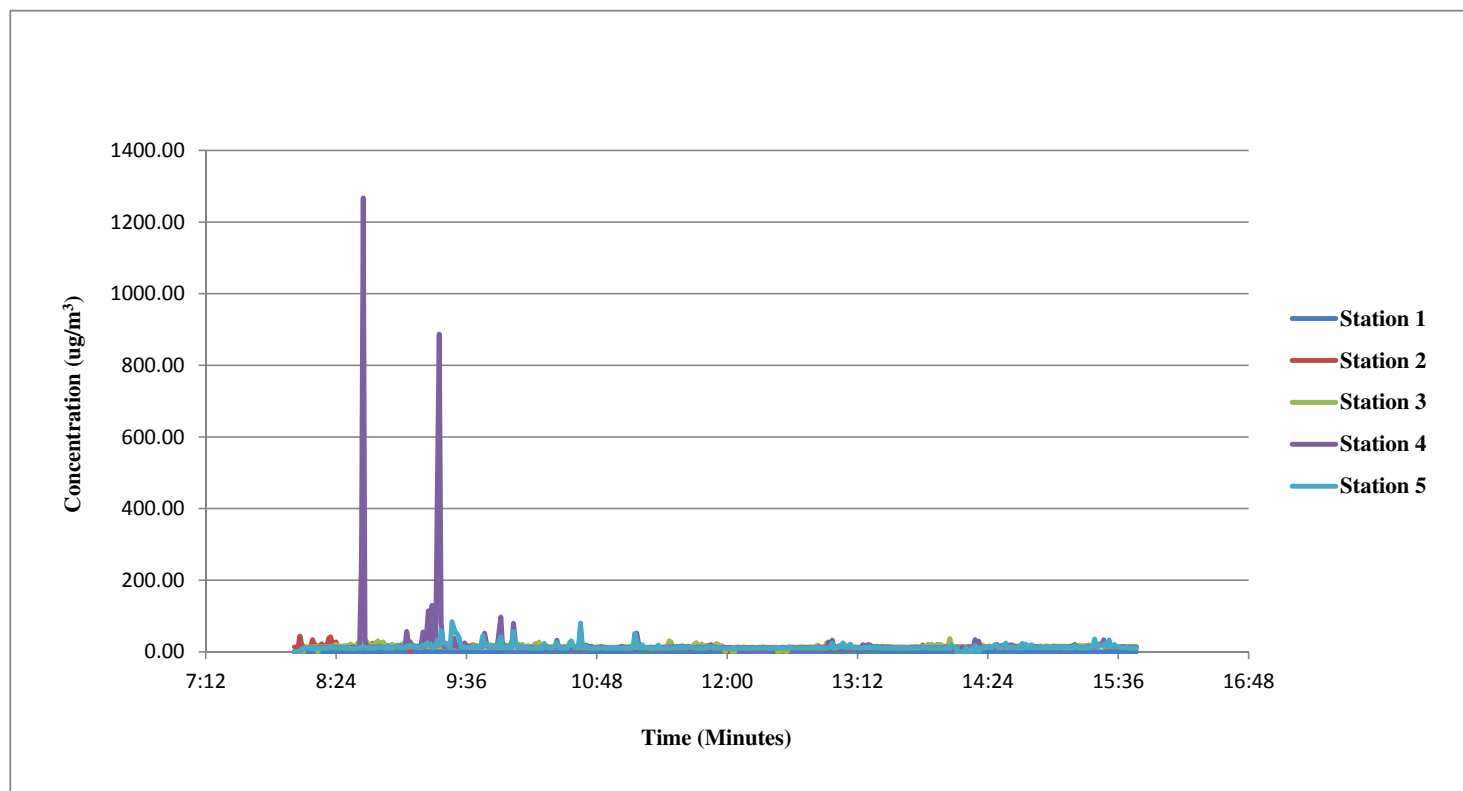
**Graph 8**  
**Particulate Matter (PM-10) Concentrations - September 9, 2014**  
**M.C. Canfield & Sons Site**



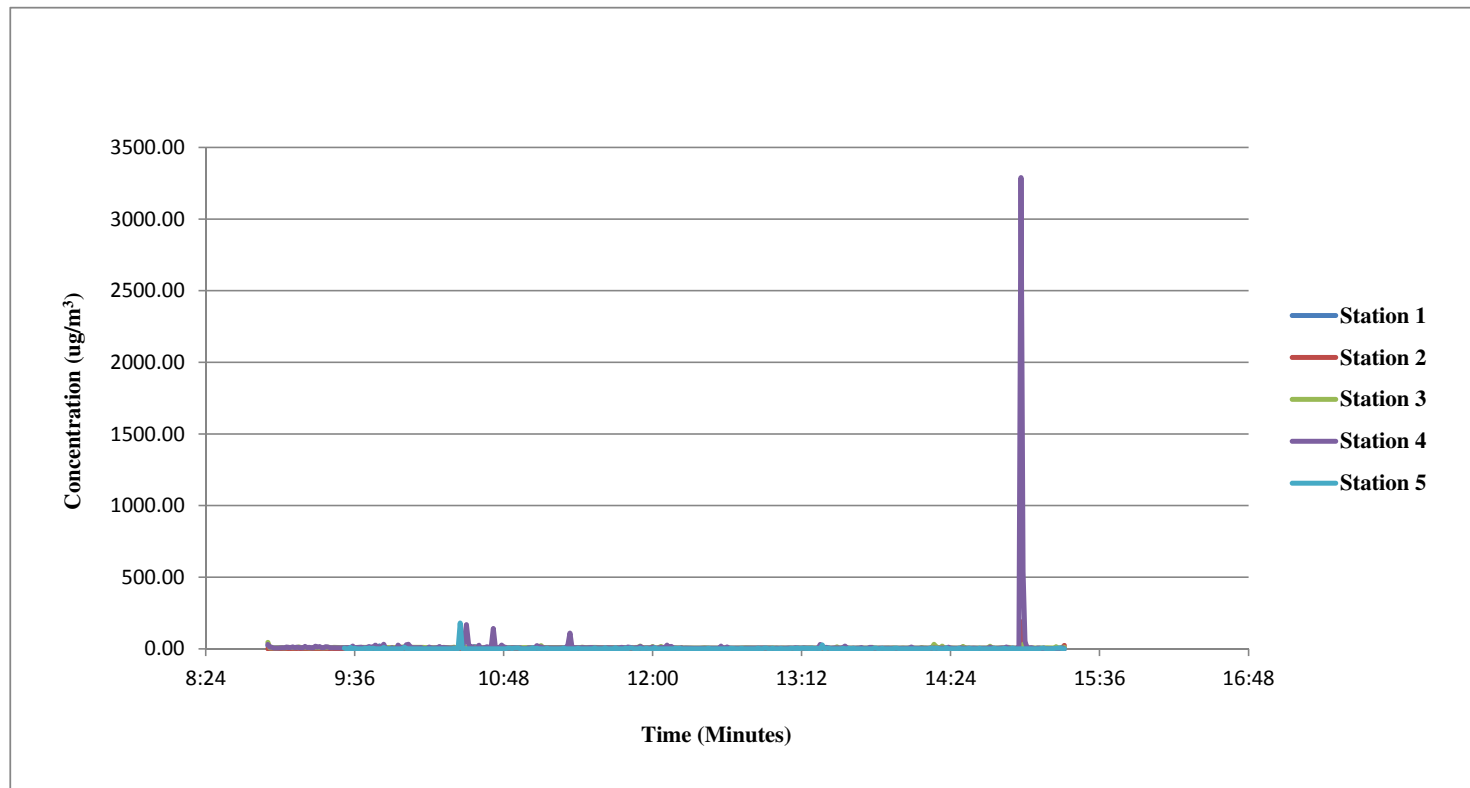
**Graph 9**  
**Particulate Matter (PM-10) Concentrations - September 10, 2014**  
**M.C. Canfield & Sons Site**



**Graph 10**  
**Particulate Matter (PM-10) Concentrations - September 24, 2014**  
**M.C. Canfield & Sons Site**

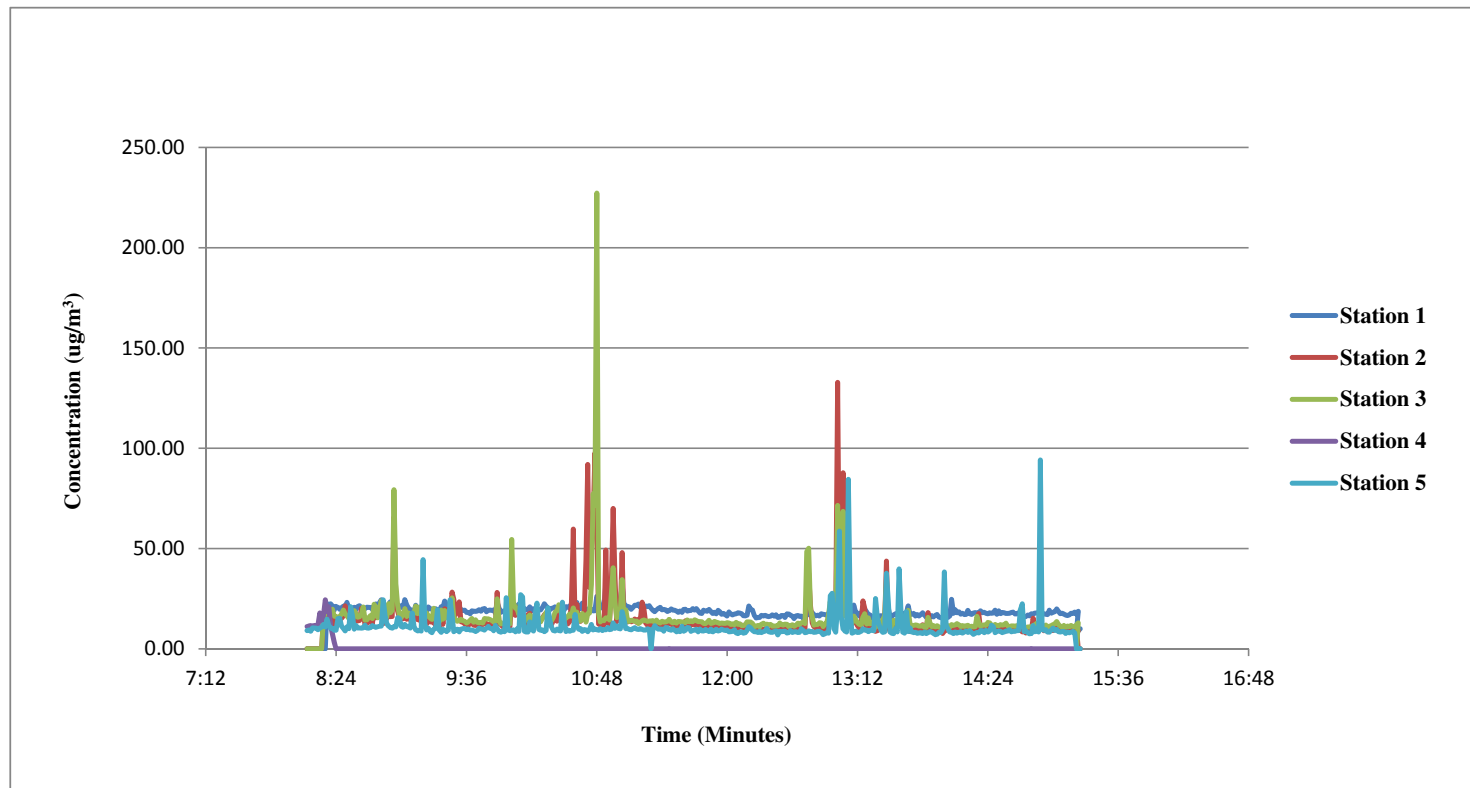


**Graph 11**  
**Particulate Matter (PM-10) Concentrations - October 20, 2014**  
**M.C. Canfield & Sons Site**

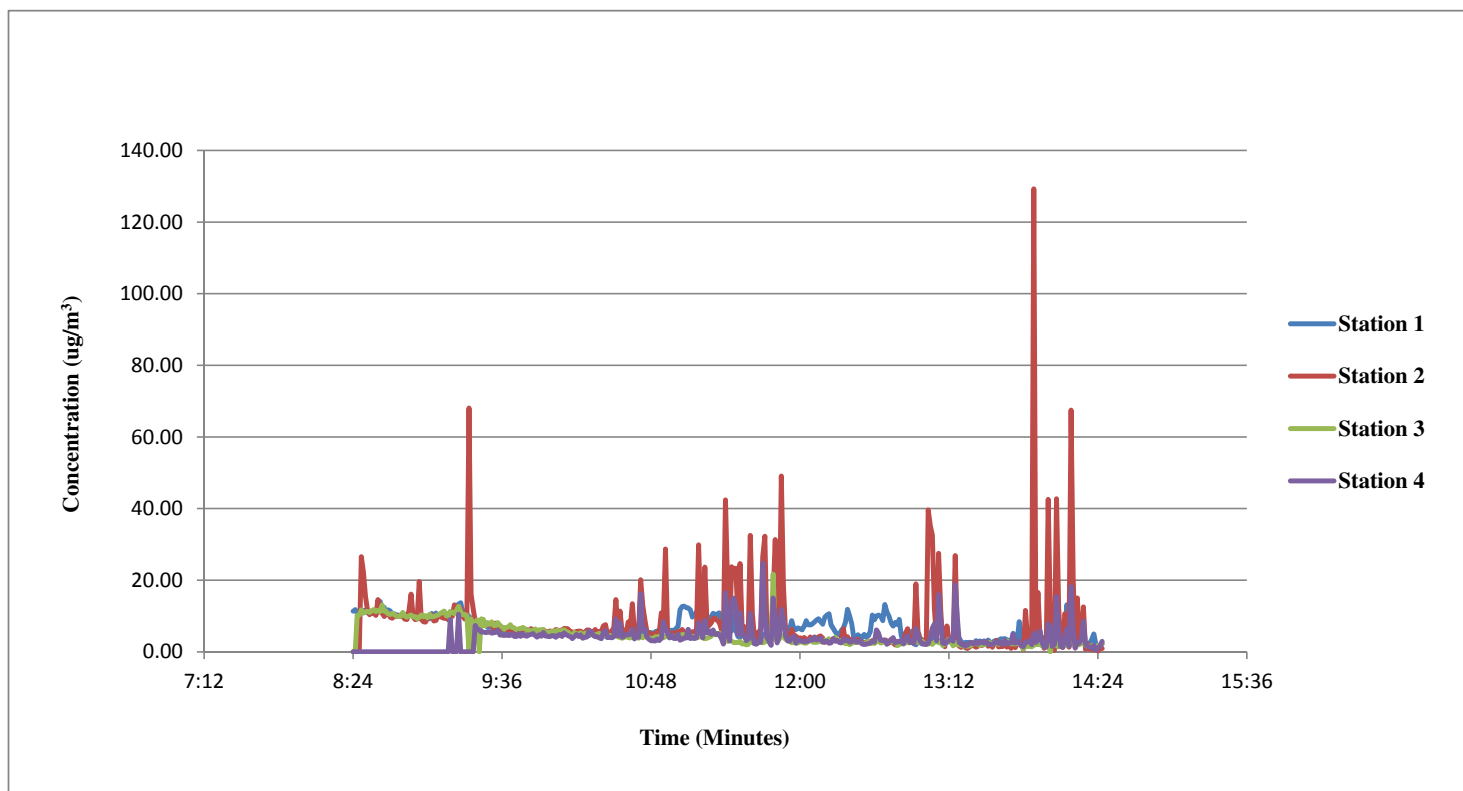




**Graph 12**  
**Particulate Matter (PM-10) Concentrations - October 28, 2014**  
**M.C. Canfield & Sons Site**



**Graph 13**  
**Particulate Matter (PM-10) Concentrations - October 30, 2014**  
**M.C. Canfield & Sons Site**



**Graph 14**  
**Particulate Matter (PM-10) Concentrations - November 14, 2014**  
**M.C. Canfield & Sons Site**

