

Removal Action Completion Report

Alley and Railroad
OU1 Pilsen Soil Site
Chicago, Illinois

OU1 Pilsen Soil Respondents



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1. Introduction

This document provides information on the removal and remediation of elevated lead in surface soil within the Pilsen area known as the Operational Area 1 (OU1), Alley/Railroad Area (Site). The United States Environmental Protection Agency (USEPA) has notified H Kramer & Company (H. Kramer), the City of Chicago (City), and Burlington Northern Santa Fe Railway (BNSF) (hereafter collectively the Respondents) that each is a potentially responsible party under CERCLA for alleged soil contamination at the Pilsen Soil Operable Unit 1 Railroad Spur and Alley Site in Chicago, Illinois (USEPA Site ID C5N8-01) (OU1). The Parties have worked with the USEPA to address environmental conditions at OU1 through a removal action.

GHD Services Inc. (GHD) has prepared this Removal Action Completion Report (RACR) on behalf of the Respondents. This RACR documents the actions completed to remove soil contaminated with lead from the Site and the installation of engineered barriers over the remaining soil containing lead. Removal action work was completed during the period from September 2015 through September 2016.

The removal action was completed in general accordance to the Removal Plan for Alley – Railroad (GHD, September 2015) revision 3 and approved by the USEPA. An Administrative Settlement Agreement and Order on Consent for Removal Action (AOC) was issued on October 6, 2015 (effective date). A copy of the AOC is provided in Appendix A.

1.1 Background

1.1.1 Alley and Railroad Sampling Results

The results of sampling completed by the USEPA in the alley and railroad area are presented in the following documents:

1. Site Assessment Report for Pilsen Soil Assessment Area: Rail Road/Alley Chicago, Cook County, Illinois Addendum 1; USEPA report dated November 3, 2014
2. Pilsen Soils OU1 Railroad Spur and Alley Site: Western Areas, Rail Road Spur Soil Sample Results: USEPA Memorandum dated May 22, 2015
3. Pilsen Soils OU1 Railroad Spur and Alley Site: Western Areas, Rail Road Spur Reanalysis of Soil Sample ID PA-RR26—0624 for TCLP Lead: USEPA Memorandum dated August 21, 2015

OU1 is divided into the following ten parts based generally on land ownership and use as shown on Figure 1 and listed as follows:

1. **Area 1 Revised - Railroad West of Loomis (West Part):** This part is approximately 18 feet in width (defined as 9 feet on each side of the centerline of the railroad tracks) 490 feet long between Laflin and Loomis and is owned by the City of Chicago. Excluding the adjacent parking lot access driveway, the work area of Area 1 is approximately 435 feet long. Soil in this area has lead levels above 800 milligrams per kilogram (mg/kg) but USEPA samples collected in this



area were below the Toxicity Characteristic Leaching Procedure (TCLP) lead criteria¹. The rails and ties were in place and the spur is inactive.

2. **Area 2 Revised - Railroad West of Loomis (East Part):** This part is triangular in shape and approximately 120 feet long and between 18 and 45 feet wide at its widest point (defined as 9 feet on each side of the centerline of the rail road tracks with the area between the two sets of tracks at the east end included). This area is directly adjacent to Loomis and is owned by the City of Chicago. Soil in this area had lead levels above 800 mg/kg but USEPA samples collected in this area were below the TCLP lead criteria. The rails and ties were in place and the spur is inactive.
3. **Area 3 - Loomis Crossing:** This is the paved street section of Loomis where the railroad tracks formerly crossed the road. The rails and ties have been removed and there is street pavement or concrete sidewalks covering this area.
4. **Area 4 - Railroad East of Loomis (North):** This part is approximately 95 feet long and owned by H. Kramer and was used by BNSF. This part lies between Loomis and 21st Place (entrance to H Kramer). The rails and ties are still present. Soil in this area had lead levels above 800 mg/kg and had TCLP lead above the criteria. The rail spur was inactive.
5. **Area 5- 21st Place:** - This part represents an approximate 135 foot by 75 foot area east of Loomis which is the entrance to H Kramer and is currently owned by the City. Soil in this area exceeds 800 mg/kg lead and also has TCLP lead above the criteria. The rail spur was inactive. After removal actions are completed in this area ownership of this parcel is to be transferred from the City of Chicago over to H. Kramer
6. **Area 6 - Railroad East of Loomis (South):** This part represents an area approximately 110 feet long by 15 feet wide area with a 110 feet long section of railroad tracks used by BNSF and owned by H. Kramer. This part lies between the east-west alley and 21st Place (entrance to H Kramer). The rails and ties were still present. Soil in this area had lead levels above 800 mg/kg lead but USEPA samples collected in this area were below the TCLP lead criteria. The rail spur was inactive.
7. **Area 7- North South Alley:** This part is approximately 110 feet by 25 feet in area and is owned by the City. It has a gravel/fill surface and had lead above 800 mg/kg but USEPA samples collected in this area were below the TCLP lead criteria. After removal actions are completed in this area ownership of this parcel is to be transferred from the City of Chicago over to H. Kramer.
8. **Area 8 - Unpaved East- West Alley:** This part represents an approximate 325 feet of unpaved alley along the western part and is owned by the City. Soil in this area exceeds 800 mg/kg lead and also has TCLP lead above the criteria.
9. **Area 9 - Paved East West Alley:** This part represents an approximate 175 feet of paved alley along the eastern part and is owned by the City. Soil in this area had lead levels above 800 mg/kg lead but USEPA samples collected in this area were below the TCLP lead criteria. Recent inspection of this area indicates that portions of the pavement in the western half of this

¹ The TCLP lead criterion is concentrations above 5.0 milligrams per liter (mg/L).



area was in poor shape, while pavement in the eastern portion of this Area was in good condition.

10. **Area 10 - Railroad South of Alley:** This approximately 120 feet long railroad segment is owned by DeTrinh and 1358 Cermak LLC and was used by BNSF. This part lies between the east-west alley to the north and Cermak Road to the south. The rails and ties are still present. Soil in this area had lead levels above 800 mg/kg lead but USEPA samples collected in this area were below the TCLP lead criteria. The rail spur was inactive.

Figure 1 shows the remediation areas within OU1.

1.2 Deviations from the Removal Plan

The following lists deviations from the Removal Plan. All changes were approved by the USEPA On-Scene Coordinator (OSC) and the GHD Project Manager prior to use.

- Due to the presence of a continuous layer of brick pavers and concrete below the gravel surface (engineered barrier) no treatment of soil in Area 5 was required. The USEPA OSC and GHD Project Manager agreed that the intact brick and concrete barriers are an effective cap for the lead contaminated soil underneath and no treatment of the underlying soil was necessary at this location since the route of exposure to the soil had been removed. Area 5 revised TCLP soil zone was excavated to the maximum depth allowed without removing brick pavers approximately 0 – 6 inches below grade. The remainder of Area 5 was graded only. Area 5 was covered with an asphalt cap. The originally planned 6-inch later of asphalt could not be installed due to drainage restrictions. A 3 to 4-inch layer of asphalt was installed.
- At the request of the USEPA, the gravel barrier in Area 2 was extended an additional 6 to 8 feet further to the south (beyond the asphalt), based on discussions relating to the scope in other areas of the Site.
- The treatment depth for TCLP lead soil in Area 8 was reduced to 1 foot below grade in the eastern 80 feet of the area and to 1.5 feet below grade in the western 20 feet of the area.
- Area 1 (west) - Three inches of soil were removed in the western most 50 feet of Area 1 due to previous USEPA lead sample results being below 800 mg/kg. Six inches of soil were removed across the remaining area with the exception of the eastern most 54 feet of this area (up to the parking lot) where the excavation extended to a depth of 2 feet (additional depth due to USEPA x-ray fluorescence (XRF) on-Site screening data).
- Due to wet conditions, the Area 8 TCLP lead excavation area (after TCLP soil removal) could not be backfilled with soil/gravel generated from grading Areas 6, 7, 8, and 9. Areas 6 and 7 were excavated and graded to approximately 6 inches below grade. Excavated soils from Areas 6 and 7 were stockpiled in Area 5 and transported off-site for disposal. Areas 8 and 9 were graded only and excess graded soil was transported off site for disposal. TCLP excavation areas were backfilled with clean imported gravel. The eastern most section of existing asphalt in Area 9 was in good condition and was left in place. This section received an additional skim coat of asphalt in the spring.



1.3 Remedial Objectives

The Removal Plan considered the factors identified in 40 CFR 300.415 (B) (2) (i)-(vii) to determine the appropriateness of removal action activities. The remedial objectives are as follows:

- Excavate (with off-site disposal) and/or construction of a paved engineered barrier over soils containing lead at concentrations above 800 mg/kg Removal Management Level (Ingestion Pathway) for Industrial/Commercial properties.
- Surface cover materials to be implemented will be protective of nearby human populations. Geofabric, gravel and asphalt covers will provide an engineered protective barrier² to prevent migration of contaminants from the soils. A Post Removal Plan will be developed to ensure the effectiveness and integrity of the removal action after the completion of the on-site removal action.
- High levels of hazardous substances or pollutants (i.e, TCLP lead > 5 mg/L and TCLP cadmium > 1 mg/L) will be treated in-situ removed from the Site, disposed of properly. Geofabric, gravel, and asphalt covers will provide an engineered barrier to prevent migration of contaminants remaining in the soils.
- The removal action contractor considered the daily weather conditions during removal activities and will protect stockpiled soils and exposed soils from erosion and weather effects.

2. Nature and Extent of Contamination

The results of sampling completed by the USEPA in the alley and railroad area identified levels of lead in soil at or near the surface which exceed the USEPA Removal Management Level (RML) of 800 mg/kg for industrial use. In addition to the high concentrations of total lead, two soil samples from the alley and one from the railroad spur collected from 0 to 6 inches below ground surface (bgs) contained TCLP lead at concentrations exceeding the TCLP lead regulatory limit of 5.0 mg/L stated in 40 C.F.R. § 261.24(b).

3. Removal Plan

The removal action was completed in general accordance to the Removal Plan for Alley – Railroad report (GHD, September 2015) revision 3 and approved by the USEPA (Removal Plan). The removal action involved the following general steps:

- Site surveying and development of a Site grading plan
- Collection of waste characterization samples
- Completion of a joint public utility meet
- Mobilization

² Engineered barriers consist of geofabric, compacted gravel, existing pavement (including pavers and concrete) and/or compacted gravel with an asphalt cap.



- Site facilities and controls
- Removal of railroad rails and ties
- Stabilization of lead and cadmium impacted soil (Areas 4 and 8) exceeding the TCLP lead criteria (5.0 milligrams per liter (mg/L) and cadmium (1.0 mg/L) regulatory levels (Code of Federal Regulations [CFR] Title 40 Part 261 Section 24 Toxicity Characteristics).
- Clearing, grubbing and debris removal (Areas 1 and 2)
- Excavation of contaminated soil exceeding cleanup levels: EPA industrial soil RML for lead of 800 mg/kg, CFR Toxicity Characteristics TCLP lead criteria (5.0 mg/L), and CFR Toxicity Characteristics TCLP cadmium criteria (1.0 mg/L) regulatory levels.
- Off-Site disposal of non-hazardous contaminated soil
- Backfilling excavation areas with imported gravel
- Grading of Areas to support proper drainage
- Placement of a brightly colored Geofabric
- Placement and grading of gravel
- Demobilization for winter
- Remobilization in Spring
- Pre-paving inspections
- Site paving
- Final Site survey
- Demobilization

4. Construction Activities

Compliance One of Carl Junction Missouri was contracted by BNSF to remove the railroad rails and ties. Touch up grading work and paving in Areas 5, 7, 8 and 9 was completed by the Chicago Department of Transportation (CDOT) crews. RW Collins of Chicago, Illinois was retained by H. Kramer to conduct soil stabilization, soil removal, grading and paving work. GHD provided construction management, oversight, confirmation sampling, perimeter air monitoring and documentation. Photographs of the construction activities are contained in Appendix B. An overview of the Site layout is presented on Figure 1.



4.1 Chronology of Events

The activities listed below outline the major activities associated with the remedial action. This chronology is not intended to identify every activity that occurred but is presented as a summary of the major activities.

September 25, 2015

- Gewalt Hamilton Associates Inc. of Chicago, Illinois completed an existing conditions survey of the Site to develop a Site grading plan (see Appendix C)
- GHD personnel collected waste characterization samples from Areas 4 and 5 (composite sample) and Area 8 (see Appendix D for laboratory report)

November 16 through 20, 2015

- BNSF's contractor Compliance One conducted the railroad rail and tie removal

November 23 through December 30, 2015

- Soil stabilization of lead and cadmium impacted soil in Areas 4 and 8 exceeding the CFR Toxicity Characteristics TCLP lead criteria (5.0 mg/L) and cadmium criteria (1.0 mg/L) regulatory levels, soil removal/disposal, and grading work were conducted

April 4, 2016

- Pre-paving Site inspection was conducted

May 5 through June 3, 2016

- CDOT crews graded and paved Areas 5, 7, 8, and 9

June 17 through June 27, 2016

- RW Collins' crews graded and paved Areas 2, 4, 6, and 10 (included touch up work in Area 5)

July 5 and 6, 2016

- Bollard posts were installed in Areas 1 and 2

August 22, 2016

- CDOT crew complete repairs to Area 5

September 7, 2016

- As built Site survey was conducted

4.2 Mobilization and Site Preparation

Before mobilizing to the Site, GHD prepared a Site Specific Health and Safety Plan (HASP) that outlined specific guidelines and established procedures for the protection of oversight and construction personnel at the Site. All Site workers (except for CDOT crews and paving crews³)

³ Work area soils were already covered with the brightly colored Geofabric demarcation layer and several inches of gravel prior to CDOT and paving crews working.



were required to have OSHA 40-hour training (see Appendix E for training documentation). All on-Site workers reviewed and signed off on the HASP. Daily tail gate safety meetings were held with on-Site personnel that generally included Compliance One, RW Collins, Tetra Tech (USEPA's oversight contractor), USEPA, and GHD.

Compliance One mobilized to the Site on November 16, 2015, and began preparing the Site for remediation activities. RW Collins mobilized a small crew on this day as well to begin Site preparation by erecting temporary construction fencing to restrict access to the work areas during construction. The temporary construction fencing was maintained throughout the winter to restrict access. Excavation equipment included a tracked backhoe, bobcat, front-end loader, a vibrating compactor with additional equipment and supplies mobilized during the project as needed.

4.3 Air Monitoring

During construction related activities (excluding touch up grading and paving) air monitoring was conducted to ensure the safety of workers and the surrounding neighborhood. Information regarding air monitoring was detailed in the HASP.

4.3.1 Worker Air Monitoring

As noted in the HASP, the presence of lead and arsenic in the soils at the Site represented a potential health and safety hazard for project personnel. Occupational Safety and Health Administration (OSHA) has a specific construction standard for lead (1926.62) and arsenic (1926.1118). The lead standard requires employers to treat employees as if they are being exposed to lead above the action level until such time they can demonstrate that their personnel are not. This determination was accomplished with the exposure assessment monitoring that was conducted during initial stages of the project where samples were collected during the startup of activities where personnel face the potential for exposure. Initial work activities conducted within the exclusion zones by both Compliance One and RW Collins were conducted in Level C personal protective equipment (PPE) which included respiratory protection. Work in level C PPE (including respiratory protection) continued until worker personnel air sampling analytical results confirmed the potential exposure levels were below the applicable standards.

Both Compliance One and RW Collins retained the services of Hygieneering Inc. of Willowbrook, Illinois to conduct an industrial hygiene study to quantify employee exposure to lead and arsenic during work activities within established exclusion zones and during removal operations. Personal air samples were collected using low-flow air sampling pumps. The flow rates of the pumps were calibrated with representative collection media in line before and after the sampling period. Personal air sample inlets were attached to the employee's breathing zones via tygon tubing from the pump. This sampling methodology is considered representative by OSHA to determine actual employee exposures. Air sampling was conducted in accordance with established industrial hygiene practices and OSHA standards.

Personal time weighted average (TWA) exposures were below (OSHA) Permissible Exposure Limits (PELs) and American Conference of Governmental Industrial Hygienists (ACGIH) Threshold Limit Values (TLVs) for lead and arsenic. The Industrial Hygiene Exposure Study for the Compliance One crew is provided in Appendix F1. On November 18, 2015, one Compliance One



crew member had a TWA exposure for arsenic of 0.0064 milligrams per cubic meter (mg/m^3), which is above the OSHA Action Level (AL) of 0.005 mg/m^3 for total arsenic. This concentration is well below the OSHA PEL and the ACGIH TLV of 0.01 mg/m^3 . The Industrial Hygiene Exposure Study report for the RW Collins crew is provided in Appendix F2.

4.3.2 Particulate Monitoring

During construction related activities (excluding touch up and paving) dust and particulate air monitoring was conducted by GHD personnel.

4.3.2.1 Perimeter Particulate Monitoring

Each day of construction related activities (excluding touch up grading and paving) GHD personnel setup upwind and downwind particulate monitoring stations for the active work areas. This monitoring was conducted to verify that dust/particulates were not migrating off Site during construction activities. Monitoring was conducted using a Trust Science Innovation (TSI) 8520 Dustrak aerosol monitor in a weather proof enclosure. The monitors were placed on a survey tripod and positioned at a height of approximately 4 feet above the ground. The monitors were calibrated on a daily basis. The perimeter particulate action level as detailed in the HASP was any sustained downwind reading of 0.150 mg/m^3 above background or the upwind reading. No action levels were exceeded during construction. Appendix G contains a summary of the daily perimeter particulate monitoring data.

4.3.2.2 Work Zone Particulate Monitoring

Each day of construction-related activities (excluding touch up grading and paving) GHD personnel conducted particulate monitoring around the active work zones. Monitoring was conducted using a handheld Data RAM 4 aerosol monitor. The monitors were calibrated daily. Monitoring was performed at regular periodic intervals directly adjacent to the active work area. The work zone particulate action level as detailed in the HASP was 0.480 mg/m^3 . No action levels were exceeded during construction.

4.4 Soil Stabilization

Soil stabilization was conducted to treat areas of impacted soil to below the CFR Toxicity Characteristics TCLP lead criteria (5.0 milligrams per liter (mg/L), and CFR Toxicity Characteristics TCLP cadmium criteria (1.0 mg/L) regulatory levels. This in-situ procedure allows the soil to be managed non-hazardous waste. The Removal Plan designed for in-situ stabilization using Free Flow-200⁴ heavy metals stabilizing reagent by Free Flow Technologies, Ltd. at a 4-percent application rate mixed in-situ with soil. As discussed in Section 1.2, no treatment of soil in Area 5 was required due to the presence of a continuous layer of brick pavers and concrete below the gravel surface (engineered barrier).

Soil in Area 4 (0 to 0.5 foot interval) was treated on November 23, 2015. After treatment the soil was placed into piles and covered with plastic sheeting until being removed from the Site for disposal as non-hazardous soil waste.

⁴ The final (third) treatment for the western section of Area 8 was completed using Free Flow -300.



Soil in Area 8 was treated on November 25, 2015. During stabilization the soil was placed into two piles. In Area 8 the soil in the western 80 feet were treated with in an interval of 0 to 1 feet below grade, and the soil within the eastern 20 feet were treated within an interval of 0 to 1.5 feet below grade. Soils from each of these two areas were placed into separate piles within Area 8.

Soil treatment in Areas 4 and 8 involved spreading the stabilization compound over the soil before mixing. Soils and the stabilization compound were then thoroughly mixed with the backhoe bucket.

Composite samples were collected from each of the treated Areas for TCLP lead and/or cadmium analyses to confirm treatment. On November 24, 2015 GHD collected a 5 point composite sample from each of the two stock piles of treated soil from Area 4. Two samples and one duplicate sample were collected. The USEPA collected split samples of the composite sample from Area 4. On November 25, 2015 GHD collected a 5 point composite sample from each of the two stock piles of treated soil from Area 8. One stock pile of treated soil came from the eastern 50 feet of Area 8 TCLP lead soil, the second stock pile of treated soil came from the western 50 feet of Area 8 TCLP lead soil. Two samples and one duplicate sample were collected. The USEPA collected split samples of the composite sample from Area 8.

Treated soil analytical results are summarized in Table 1 and copies of the laboratory reports are provided in Appendix H. Appendix I provide a copy of the data validation memorandum.

The analytical results from the confirmation samples collected from Area 4 and the eastern 50 feet of Area 8 TCLP lead soil showed lead and cadmium leaching concentrations below regulatory levels of 5 mg/L and 1 mg/L, respectively.

The analytical results from the confirmation samples collected from the western 50 feet of Area 8 were above the TCLP criterion for lead. The soil in the western portion of Area 8 was treated a second time on December 2, 2015, and confirmation samples were collected. The December 2nd confirmation samples included one 5-point composite collected from the eastern 30 feet and one 5-point composite collected from the western 20 feet of the western 50 feet of Area 8 TCLP soil. The analytical results from the confirmation samples collected after the second treatment from the western portion of Area 8 remained above the TCLP criterion for lead. The soil in the western 50 feet of Area 8 was treated a third time on December 8, 2015. After the third treatment, one 7-point composite confirmation sample was collected from the western 50 feet of Area 8 TCLP soil. An additional 5-point composite sample was collected approximately 24 hours after treatment on December 9, 2016. The analytical results from the confirmation sample collected on December 9th after treatment from the western portion of Area 8 showed lead concentrations below the regulatory level of 5 mg/L.

Treated soil from Area 4 was transported for off-Site disposal on December 14, 2015. Treated soil from Area 8 was transported for off-Site disposal on December 29, 2015. Soils were transported to Waste Management's Laraway Landfill located in Joliet, Illinois for disposal as a non-hazardous/non-special waste.

4.5 Rail and Tie Removal

BNSF's contractor Compliance One mobilized to the Site on November 16, 2015 and completed removal of about 1150 feet of rail and approximately 575 wooden railroad ties in Site Areas: 1, 2, 4,



5, 6, 8, and 10. The railroad ties were transported off Site to a BNSF staging area near the Site for disposition (at an energy recovery facility) at a later date. The rails were temporarily staged in a gated empty lot (property to the north of Area 1) next to the Site (after obtaining owner permission) for recycling at a later date. At all phases of the cleanup (as needed) water was discharged onto the ground in the work areas to ensure dust control. In addition, sidewalks were also cleaned to make sure that dirt tracked in and out by vehicles was removed (swept back to the Site). Work to remove the rails and ties was completed on November 19, 2015. The stage rails were picked up on December 14, 2015 and transported to Quality Metals of Chicago, Illinois for recycling.

4.6 Summary of Removal Actions

The following discussion provides an Area by Area discussion of the removal actions completed in OU1.

- **Area 1 (west)** - Trash was removed and the area was grubbed. Three inches of soil was removed in the westernmost 50 feet due to previous USEPA lead sample results below 800 mg/kg. Six inches of soil were removed across the remaining area with the exception of the easternmost 54 feet of this area (up to the parking lot) where the excavation extended to a depth of 2 feet (additional depth due to USEPA XRF data). The excavated soils were transported off Site for disposal. A geotextile fabric was placed and then gravel was filled to grade over the area, providing a 3-inch gravel cover in the western 50 feet, a 2-foot gravel cover in the easternmost 54 feet, and a 6-inch gravel cover throughout the remaining Area 1. Two bollard posts were installed at the east end of Area 1.
- **Area 2 Revised** - Trash was removed and the area was grubbed by the City Department of Sanitation (CDS). In addition, the CDS transported three loads (34.8 tons) of solid waste (trash) and vegetation collected from Areas 1 and 2 off Site to the Shred-All solid waste transfer station (43rd and Racine) in Chicago. Area 2 was then graded, a geotextile fabric was placed, and then 3-inches of gravel were placed over the area in preparation for paving in the spring. In the spring, Area 2 was covered with a 3-inch layer of asphalt. Two bollard posts were installed at the west end of Area 2 and nine bollard posts were installed at the east end of Area 2.
- **Area 4** – A portion of the soils in Area 4 were treated (in-situ) with a stabilizing agent and confirmatory TCLP analytical results came back below the TCLP criteria for lead and cadmium. The treated soil was excavated to six inches below grade and transported off Site for disposal as non-hazardous soil waste. A geotextile fabric was placed and then 6 inches of compacted gravel was placed over the area in preparation for paving in the spring. In the spring, Area 4 was covered with a 3-inch layer of asphalt.
- **Area 5** – As noted in the November 2015 Monthly Progress Report, no soil treatment and only minor soil excavation work (only around the fence lines) were completed in this area. The revised Area 5 TCLP lead soil zone was excavated to the depth of brick pavers in the area, approximately six inches below grade. The revised Area 5 TCLP lead soil zone above the brick pavers was not treated with Free Flow 200 as analytical data from samples collected above the brick pavers documented at these soil/gravel were below the TCLP criteria. Area 5 was utilized to stage soil excavated from Areas 6, 7, 8, and 9. After the staged soils were transported off Site for disposal, a load of gravel was spread over the area in preparation for paving in the



spring. In the spring, Area 5 was graded and then covered with a 3 to 4-inch layer of asphalt⁵. CDOT crews would not pave up to the fence lines in Area 5 and RW Collins crews completed touchup grading and paving work around the perimeter of Area 5 in conjunction with the other paving work. The excavated soil/gravel generated during the June 2016 touch-up excavation work completed along the fence lines in Area 5 were transported off Site for disposal as non-hazardous soil waste. These areas were filled with gravel and then covered with 3-inches of asphalt up to the fence line. CDOT crews completed some repair work to the asphalt in the northeast corner of Area 5 on August 22, 2016.

- **Areas 6** – This area was graded and some soil was excavated to approximately 6-inches below grade to allow for placement of the gravel and asphalt cover. The excavated soils were transported off Site for disposal as non-hazardous soil waste. A geotextile fabric was placed and then 6 inches of compacted gravel was placed over the area in preparation for paving in the spring. Area 6 was then covered with a 3-inch layer of asphalt.
- **Area 7** – The concrete pad in this area was broken up and transported off Site to a recycling facility. This area was graded and some soil was excavated to approximately 6-inches below grade to allow for placement of the gravel and asphalt cover. The excavated soils were transported off Site for disposal as non-hazardous soil waste. A geotextile fabric was placed and then 6 inches of compacted gravel was placed over the area in preparation for paving in the spring. In the spring, Area 7 was then covered with a 3 inch layer of asphalt.
- **Areas 8** - The soils in a portion of Area 8 were treated in-situ with a stabilizing agent, and confirmatory TCLP analytical results documented the soil in the eastern half were below the TCLP criteria for lead and cadmium. The initial results from the western half of this area were above the TCLP criterion for lead. The soil in the western half of this area was treated in-situ two additional times with a stabilizing agent until confirmatory TCLP lead results documented the soil was below the TCLP criterion for lead. The treated soil was excavated and transported off Site for disposal as non-hazardous soil waste. A geotextile fabric was placed over the area. Due to wet conditions, the TCLP excavation could not be backfilled with soil/gravel generated from grading Areas 6, 7, 8, and 9. Instead, the TCLP excavation had to be backfilled with clean imported gravel. The remaining portions of Area 8 were graded, and some soil was excavated to allow for placement of the gravel and asphalt cover. The excavated soils were transported off Site for disposal as non-hazardous soil waste. A geotextile fabric was placed and then 6 inches of gravel was placed over the area in preparation for paving in the spring. In the spring Area 8 was then covered with a 3-inch layer of asphalt.
- **Area 9** - This area was graded and some soil was excavated to allow for placement of the gravel and asphalt cover. The excavated soils were transported off Site for disposal. A geotextile fabric was placed and then 6 inches of gravel was placed over the area in preparation for paving in the spring. Area 9 was then covered with a 3-inch layer of asphalt.
- **Area 10** - This area was graded but no soil excavation was needed to allow for placement of the gravel and asphalt cover. A geotextile fabric was placed and then 6 inches of gravel was

⁵ Due to the elevation of the continuous layer of brick pavers across Area 5 the proposed 6-inches of pavement could not be placed due to drainage issues.



placed over the area in preparation for paving in the spring. Area 10 was then covered with a 3-inch layer of asphalt.

The first phase of the removal work at the Site was completed on December 30, 2015. Paving work could not be completed in 2015 as the asphalt plants had already closed for winter. Temporary construction fencing was left on Site to restrict access to Areas 1, 2, 4, 6, 7, and 10 during the winter to protect the gravel areas from damage.

4.7 Soil Disposal

During the removal action a total of 37 truckloads or 708.29 tons of soil were excavated and transported off Site for disposal. These soils included the treated TCLP lead soil from Areas 4 and 8, soil excavated from Area 1 west, and soil removed from Areas 5, 6, 7, 8, and 9 to facilitate grading for proper drainage. Due to wet conditions the Area 8 TCLP excavation could not be backfilled with soil/gravel generated from grading Areas 6, 7, 8, and 9. Instead, the TCLP excavation had to be backfilled with clean imported gravel. Therefore, the soils were transported off Site for disposal. Soils were transported to Waste Management's Laraway Landfill located in Joliet, Illinois for disposal as a non-hazardous/non-special waste. Laraway landfill was the closest disposal facility. Appendix J provides a summary of shipments to the landfill.

4.8 Backfilling and Grading

A surveyor placed stakes along the perimeter of each of the Areas with the final grade elevation marked on the stakes⁶. These stakes were placed to aid the grading process. However, the final grade elevations in some areas were modified in the field based on Site conditions. The soil cover in the areas was graded to support proper drainage, the placement of the gravel and the asphalt cap. Wherever possible, excess soils from grading were used for grading to establish the subgrade elevation of adjacent areas to minimize the volume of off-Site disposal. An orange colored geotextile fabric was placed over the graded areas before gravel was filled to grade over the areas.

As noted in section 4.6, each of the Areas was covered with gravel ranging in thickness from 3 inches (Area 2) to as much as 2 feet (Area 1). In total 59 loads or 1,228.59 tons of gravel was delivered to the Site. Table 2 provides a summary of the gravel loads transported to the Site. After placement the gravel was thoroughly compacted using a vibrating roller compactor.

4.9 Paving/Engineered Barrier

Area 1 received a geotextile fabric engineered barrier, and then compacted gravel was filled to grade over the area, providing a 3-inch gravel cover in the western 50 feet, a 2-foot gravel cover in the easternmost 54 feet, and a 6-inch gravel cover throughout the remaining Area 1. Areas 5, 7, 8, and 9 were paved by CDOT. Areas 2, 4, Area 5 (perimeter touch up work), 6, and 10 were paved by RW Collins' contractor. Figure 2 provides a cross-section view of the engineered barrier installed in Area 2 revised. Figure 3 provides a cross-section view of the engineered barrier installed in Areas 4, 6, 7, 8, 9 and 10. Compacted gravel depths were deeper in Area 8 to accommodate the

⁶ Final grade elevations from the grading and drainage plan.



increased thickness of excavation. The engineered barrier in Area 5 consists of the continuous layer of brick pavers and an asphalt cap.

4.10 As Built Survey

The As-built-Survey of OU1 was completed by Gewalt Hamilton Associates Inc. of Vernon Hills, Illinois. A copy of the As-built-Survey of OU1 is provided in Appendix K.

4.11 Removal Action Cost

As notes in the previous sections of the report the OU1 Removal Action has been successfully implemented by the respondents. A good faith estimate of the costs incurred in complying with the AOC is as follows:

City of Chicago	\$113,400
BNSF RR	\$161,300
H. Kramer	\$436,000
Total Estimated Cost	\$710,700

5. Project Coordinator Certification


"I certify that under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I have no personal knowledge that the information submitted is other than true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

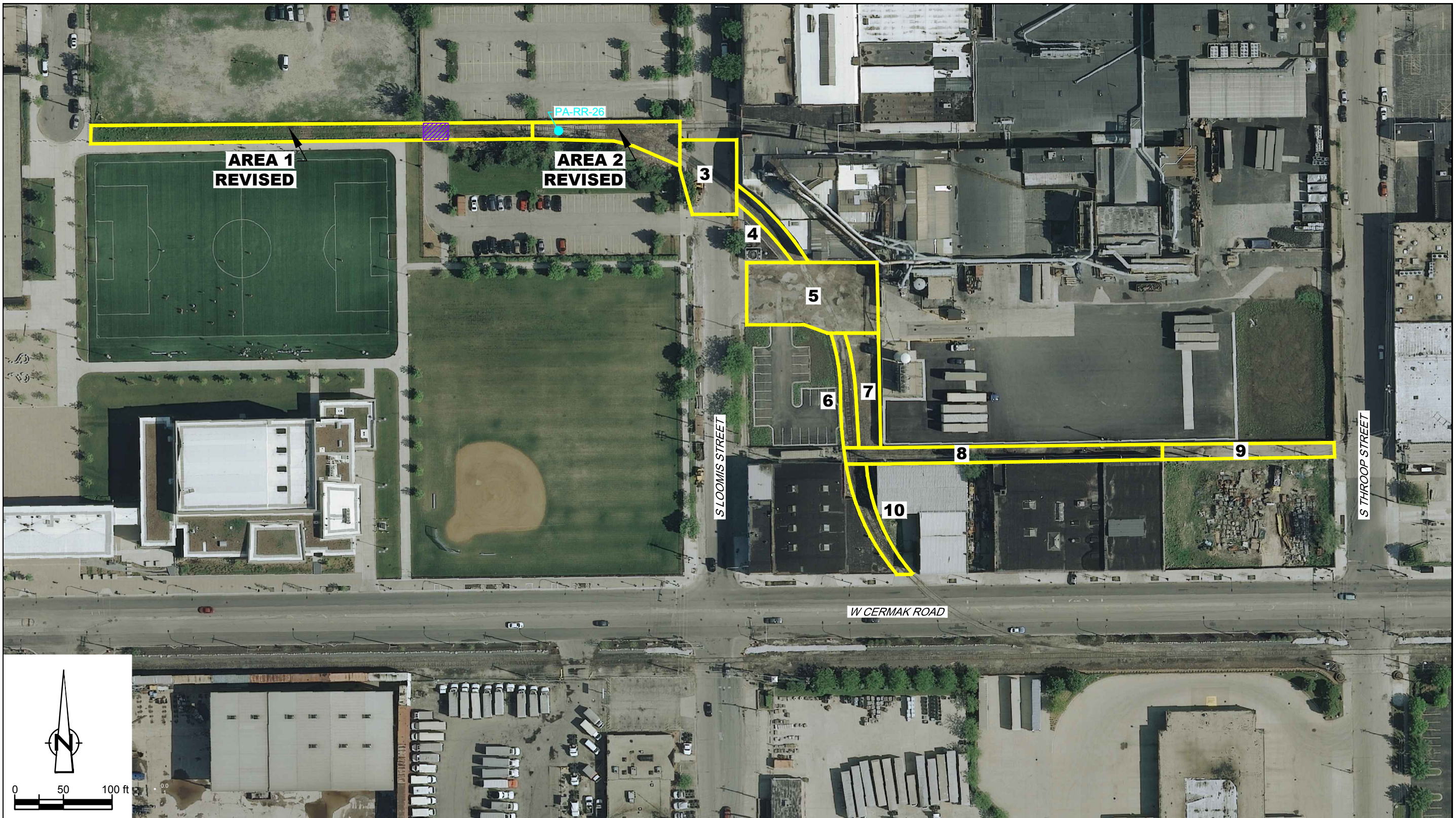
Walter J. Pochron, PG

GHD Services Inc.

Signature: _____

Date: _____


4/6/2017



LEGEND:



REMEDIATION AREA



EPA SAMPLE LOCATION AND IDENTIFIER

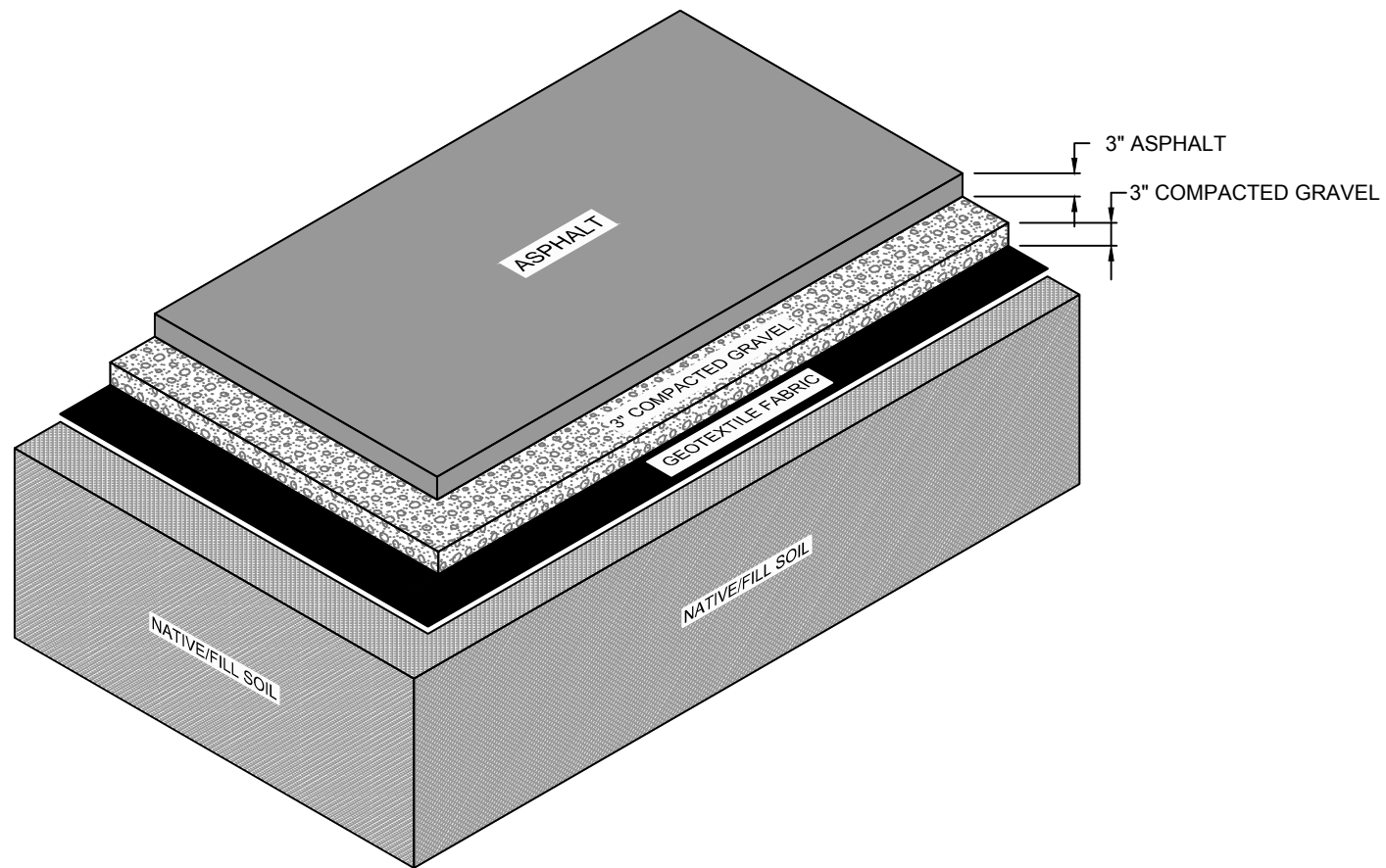


PAVED DRIVEWAY IS NOT INCLUDED IN THE OUI REMEDIATION AREA



figure 1

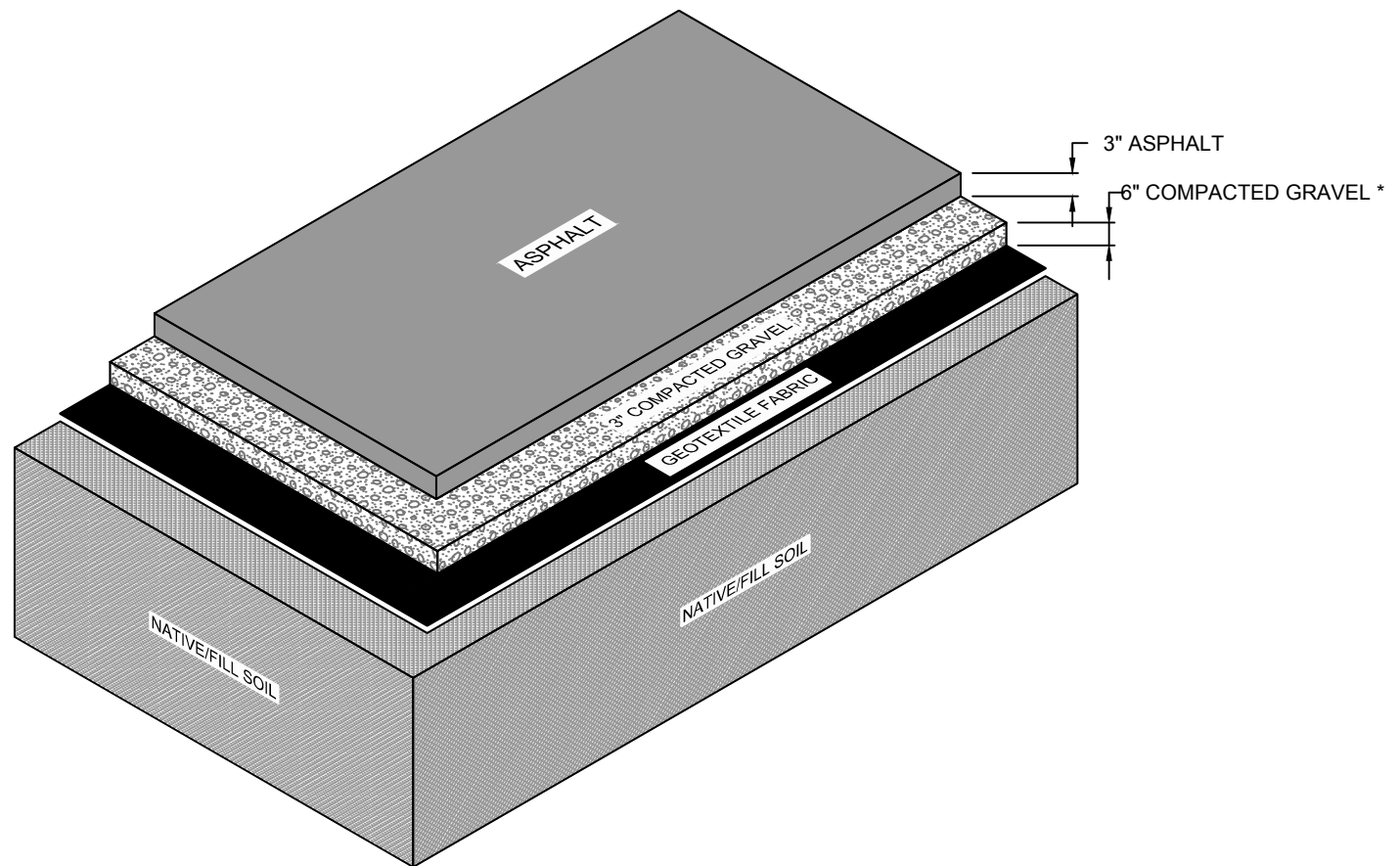
OU1 REMEDIATION AREAS
OU1 PILSEN SOIL SITE
Chicago, Illinois



NOT TO SCALE

figure 2
ENGINEERED BARRIER CROSS-SECTION
AREA 2 REVISED
OU1 PILSEN SOIL SITE
Chicago, Illinois





NOT TO SCALE

NOTE:

COMPACTED GRAVEL THICKNESS IN PORTION OF AREA 8
WERE GREATER THAN 6".

ENGINEERED BARRIER CROSS-SECTION
AREAS 4, 6, 7, 8, 9, AND 10
OU1 PILSEN SOIL
Chicago, Illinois



Table 1

**Treated Soil Results
OU1 Pilsen Soil Site
Chicago, Illinois**

Area	Date Sampled	GHD Sample Number	GHD Sample Results mg/L		USEPA Split Results mg/L	
			TCLP Lead	TCLP Cadmium	TCLP Lead	TCLP Cadmium
Area 4						
Northern Stockpile	11/24/2015	S-112415-GW-01	2.9	ND (0.005)	0.23	NA
Southern Stockpile	11/24/2015	S-112415-GW-02	1.5	ND (0.005)	0.8	NA
Southern Stockpile (duplicate)	11/24/2015	S-112415-GW-03	0.31	ND (0.005)	NA	NA
Area 8						
Eastern Stockpile	11/25/2015	S-112415-ML-004	ND (0.05)	ND (0.005)	0.029 J	NA
Western Stockpile	11/25/2015	S-112415-ML-005	11J	ND (0.005)	2.4	NA
Western Stockpile (duplicate)	11/25/2015	S-112415-ML-006	4.3J	ND (0.005)	NA	
Western Stockpile (west half)	12/2/2015	S-120215-GW-007	5.4	ND (0.005)	9.1	NA
Western Stockpile (east half)	12/2/2015	S-120215-GW-008	8.2	ND (0.005)	11	NA
Western Stockpile (east & west)	12/8/2015	S-120815-GW-009	8.3	ND (0.005)	8.1 J	0.00039 J
Western Stockpile (east & west) (24 hours after third treatment)	12/9/2015	S-120915-GW-010	4.7	ND (0.005)	NA	NA

Notes

TCLP - Toxicity Characteristic Leaching Procedure

mg/L - milligrams per liter

NA - Not Analyzed

ND - Not detected at the associated reporting limit

J - Estimated concentration

Table 2

**Gravel Load Summary
OU1 Pilsen Soil Site
Chicago, Illinois**

Date	Total Gravel Loads Delivered	Gravel Load Number	Tons of Gravel	Total Gravel Tonnage	Source	Company Placing Gravel Order	Area of Gravel Use
12/4/2015	17	1	21.90	366.62	Pershing Recycle	BNSF	A1
		2	22.09		Pershing Recycle	BNSF	A1
		3	20.91		Pershing Recycle	BNSF	A1
		4	21.49		Pershing Recycle	BNSF	A1
		5	21.98		Pershing Recycle	BNSF	A1
		6	21.60		Pershing Recycle	BNSF	A1
		7	22.38		Pershing Recycle	BNSF	A1
		8	21.21		Pershing Recycle	BNSF	A1
		9	21.06		Pershing Recycle	BNSF	A1
		10	21.42		Pershing Recycle	BNSF	A1
		11	21.42		Pershing Recycle	BNSF	A1
		12	21.41		Pershing Recycle	BNSF	A1
		13	21.67		Pershing Recycle	BNSF	A1
		14	21.36		Pershing Recycle	BNSF	A1
		15	21.71		Pershing Recycle	BNSF	A1
		16	21.37		Pershing Recycle	BNSF	A1
		17	21.64		Pershing Recycle	BNSF	A1
12/9/2015	8	1	21.55	173.86	Pershing Recycle	RW Collins	A2
		2	21.98		Pershing Recycle	RW Collins	A2
		3	21.69		Pershing Recycle	RW Collins	A2
		4	21.65		Pershing Recycle	RW Collins	A2
		5	22.00		Pershing Recycle	RW Collins	A2
		6	21.98		Pershing Recycle	RW Collins	A2
		7	21.81		Pershing Recycle	RW Collins	A2
		8	21.20		Pershing Recycle	RW Collins	A2

Table 2

**Gravel Load Summary
OU1 Pilsen Soil Site
Chicago, Illinois**

Date	Total Gravel Loads Delivered	Gravel Load Number	Tons of Gravel	Total Gravel Tonnage	Source	Company Placing Gravel Order	Area of Gravel Use
12/10/2015	1	1	12.36	12.36	Pershing Recycle	RW Collins	A2
12/11/2015	3	1	21.61	64.58	Pershing Recycle	RW Collins	A10
		2	21.41		Pershing Recycle	RW Collins	A10
		3	21.56		Pershing Recycle	RW Collins	A10
12/14/2015	2	1	19.34	38.87	Reliable Asphalt	CDOT	A4
		2	19.53		Reliable Asphalt	CDOT	A4
12/15/2015	2	1	20.24	39.13	Reliable Asphalt	CDOT	A4
		2	18.89		Reliable Asphalt	CDOT	A4
12/16/2015	6	1	19.02	120.84	Reliable Asphalt	CDOT	A6/A7
		2	20.40		Reliable Asphalt	CDOT	A6/A7
		3	19.93		Reliable Asphalt	CDOT	A6/A7
		4	20.80		Reliable Asphalt	CDOT	A6/A7
		5	20.44		Reliable Asphalt	CDOT	A6/A7
		6	20.25		Reliable Asphalt	CDOT	A6/A7
12/18/2015	3	1	20.09	62.44	Reliable Asphalt	CDOT	A6/A7
		2	21.49		Reliable Asphalt	CDOT	A6/A7
		3	20.86		Reliable Asphalt	CDOT	A6/A7

Table 2

**Gravel Load Summary
OU1 Pilsen Soil Site
Chicago, Illinois**

Date	Total Gravel Loads Delivered	Gravel Load Number	Tons of Gravel	Total Gravel Tonnage	Source	Company Placing Gravel Order	Area of Gravel Use
12/22/2015	6	1	22.60	125.54	Pershing Recycle	RW Collins	A8
		2	22.52		Pershing Recycle	RW Collins	A8
		3	20.59		Reliable Asphalt	CDOT	A8
		4	20.59		Reliable Asphalt	CDOT	A8
		5	19.55		Reliable Asphalt	CDOT	A8
		6	19.69		Reliable Asphalt	CDOT	A8
12/23/2015	4	1	20.57	82.35	Reliable Asphalt	CDOT	A8
		2	20.76		Reliable Asphalt	CDOT	A8
		3	20.73		Reliable Asphalt	CDOT	A8
		4	20.29		Reliable Asphalt	CDOT	A8
12/28/2015	4	1	21.28	81.88	Reliable Asphalt	CDOT	A8/A9
		2	20.52		Reliable Asphalt	CDOT	A8/A9
		3	20.38		Reliable Asphalt	CDOT	A8/A9
		4	19.70		Reliable Asphalt	CDOT	A8/A9
12/30/2015	1	1	20.48	20.48	Reliable Asphalt	CDOT	A8/A9
12/30/2015	2	1	39.64	39.64	Pershing Recycle	RW Collins	A5/A6

Total Overall Loads
59

Total Overall Tonnage
1228.59

Appendices

Appendix A

AOC

UNITED STATES
ENVIRONMENTAL PROTECTION AGENCY
REGION 5

IN THE MATTER OF:

Pilsen Soil Operable Unit 1 Railroad
Spur and Alley Site, Chicago, Illinois

H. Kramer & Co., the City of Chicago,
and BNSF Railway Company

Respondents.

Proceeding Under Sections 104, 106(a),
107 and 122 of the Comprehensive
Environmental Response, Compensation,
and Liability Act, 42 U.S.C. §§ 9604,
9606(a), 9607 and 9622

U.S. EPA Region 5
CERCLA Docket No.

V-W-15-C-028

**ADMINISTRATIVE SETTLEMENT
AGREEMENT AND ORDER ON
CONSENT FOR REMOVAL ACTION**

**ADMINISTRATIVE SETTLEMENT AGREEMENT AND ORDER ON CONSENT FOR
TIME CRITICAL REMOVAL ACTION**

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I. JURISDICTION AND GENERAL PROVISIONS

1. This Administrative Settlement Agreement and Order on Consent (Settlement) is entered into voluntarily by the United States Environmental Protection Agency (EPA) and H. Kramer & Co. (H. Kramer), the City of Chicago (City), and the BNSF Railway Company (BNSF) (Respondents). This Settlement provides for the performance of a removal action by Respondents at the "Pilsen Soil Operable Unit 1 Railroad Spur and Alley Site" (the "Site"). The Site is comprised of an alley and a railroad spur located in the Lower West Side (Pilsen) area of Chicago, Cook County, Illinois. See Appendix A (showing Site location and boundaries). The alley lies between address ranges 1300-1337 West Cermak Road and 1338-1344 West Cermak Road. The railroad spur has two portions. The western portion lies north of a property occupied by the Benito Juarez Community Academy located at 1450-1510 West Cermak Road, curving south towards South Loomis Street. The eastern portion of the spur, starting on the east side of South Loomis Street, extends along the western boundary of the H. Kramer facility at 1345 West 21st Street and curves southeast between a former tire service company at 1358 West Cermak Road and a former metal processing company at 1338 West Cermak Road, terminating at West Cermak Road.

2. This Settlement is issued under the authority vested in the President of the United States by Sections 104, 106(a), 107, and 122 of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980, 42 U.S.C. §§ 9604, 9606(a), 9607 and 9622 (CERCLA). This authority was delegated to the Administrator of EPA on January 23, 1987, by Executive Order 12,580, 52 Fed. Reg. 2,923 (Jan. 29, 1987), and further delegated to Regional Administrators by EPA Delegation Nos. 14-14-A (Determinations of Imminent and Substantial Endangerment, Nov. 1, 2001), 14-14-C (Administrative Actions Through Consent Orders, Apr. 15, 1994) and 14-14-D (Cost Recovery Non-Judicial Agreements and Administrative Consent Orders, May 11, 1994). These authorities were further redelegated by the Regional Administrator of EPA Region 5 to the Director of the Superfund Division of EPA Region 5 by Regional Delegation Nos. 14-14-A, 14-14-C, and 14-14-D.

3. EPA has notified the State of Illinois (the "State") of this action pursuant to Section 106(a) of CERCLA, 42 U.S.C. § 9606(a).

4. EPA and Respondents recognize that this Settlement has been negotiated in good faith and that the actions undertaken by Respondents in accordance with this Settlement do not constitute an admission of any liability. Respondents do not admit, and retain the right to controvert in any subsequent proceedings other than proceedings to implement or enforce this Settlement, the validity of the findings of facts, conclusions of law, and determinations in Sections IV (Findings of Fact) and V (Conclusions of Law and Determinations) of this Settlement. Respondents agree to comply with and be bound by the terms of this Settlement and further agree that they will not contest the basis or validity of this Settlement or its terms.

II. PARTIES BOUND

5. This Settlement is binding upon EPA and upon Respondents and their heirs, successors, and assigns. Any change in ownership or corporate status of a Respondent including,

but not limited to, any transfer of assets or real or personal property, shall not alter such Respondent's responsibilities under this Settlement.

6. Respondents are jointly and severally liable for carrying out all activities required by this Settlement. In the event of the insolvency or other failure of any Respondent to implement the requirements of this Settlement, the remaining Respondents shall complete all such requirements.

7. Respondents shall provide a copy of this Settlement to each contractor hired to perform the Work required by this Settlement and to each person representing any Respondents with respect to the Site or the Work, and shall condition all contracts entered into hereunder upon performance of the Work in conformity with the terms of this Settlement. Respondents or their contractors shall provide written notice of the Settlement to all subcontractors hired to perform any portion of the Work required by this Settlement. Respondents shall nonetheless be responsible for ensuring that their contractors and subcontractors perform the Work in accordance with the terms of this Settlement.

III. DEFINITIONS

8. Unless otherwise expressly provided in this Settlement, terms used in this Settlement that are defined in CERCLA or in regulations promulgated under CERCLA shall have the meaning assigned to them in CERCLA or in such regulations. Whenever terms listed below are used in this Settlement or its attached appendices, the following definitions shall apply:

"Action Memorandum" shall mean the EPA Action Memorandum relating to the Site signed on June 22, 2015 by the Director of the Superfund Division of EPA Region 5 and all attachments thereto. The Action Memorandum is attached as Appendix B.

"Affected Property" shall mean all real property at the Site and any other real property where EPA determines, at any time, that access, land, water, or other resource use restrictions are needed to implement the removal action, including, but not limited to, the following properties: the unparcelled (undesignated) lands comprising the alley owned by the City between address ranges 1300-1337 West Cermak Road and 1338-1344 West Cermak Road; the unparcelled (undesignated) lands comprising the railroad spur extending along the north end of the southernmost portion of parcel number 17-20-330-005; the railroad spur running through parcel numbers 17-20-330-005 and 17-20-332-002; the unparcelled lands comprising the railroad spur between parcel numbers 17-20-332-002 and 17-20-333-001 and between parcel numbers 17-20-333-001 and 17-20-333-006; and the railroad spur running through parcel numbers 17-20-333-001, 17-20-333-006, and 17-20-333-007. See Appendix A (for diagram of the Site).

"CERCLA" shall mean the Comprehensive Environmental Response, Compensation, and Liability Act, 42 U.S.C. §§ 9601-9675.

“Day” or “day” shall mean a calendar day. In computing any period of time under this Settlement, where the last day would fall on a Saturday, Sunday, or federal or State holiday, the period shall run until the close of business of the next working day.

“Effective Date” shall mean the effective date of this Settlement as provided in Section XXVII.

“EPA” shall mean the United States Environmental Protection Agency and its successor departments, agencies, or instrumentalities.

“EPA Hazardous Substance Superfund” shall mean the Hazardous Substance Superfund established by the Internal Revenue Code, 26 U.S.C. § 9507.

“Future Response Costs” shall mean all costs, including, but not limited to, direct and indirect costs, that the United States incurs in reviewing or developing deliverables submitted pursuant to this Settlement, in overseeing implementation of the Work, or otherwise implementing, overseeing, or enforcing this Settlement, including but not limited to, payroll costs, contractor costs, travel costs, laboratory costs, the costs incurred pursuant to Section IX (Property Requirements) (including, but not limited to, cost of attorney time and any monies paid to secure or enforce access or land, water, or other resource use restrictions, and the amount of just compensation), Section XIII (Emergency Response and Notification of Releases), Paragraph 66 (Work Takeover), Paragraph 22 (Community Involvement Plan) (including, but not limited to, the costs of any technical assistance grant under Section 117(e) of CERCLA, 42 U.S.C. § 9617(e)), Section XIV (Dispute Resolution), and all litigation costs. Future Response Costs shall also include Agency for Toxic Substances and Disease Registry (ATSDR) costs regarding the Site.

“Interest” shall mean interest at the rate specified for interest on investments of the EPA Hazardous Substance Superfund established by 26 U.S.C. § 9507, compounded annually on October 1 of each year, in accordance with 42 U.S.C. § 9607(a). The applicable rate of interest shall be the rate in effect at the time the interest accrues. The rate of interest is subject to change on October 1 of each year. Rates are available online at http://www.epa.gov/ocfopage/finstatement/superfund/int_rate.htm.

“Non-Respondent Owner” shall mean any person, other than a Respondent, that owns or controls any Affected Property, including De Trinh and 1358 West Cermak LLC. The clause “Non-Respondent Owner’s Affected Property” means Affected Property owned or controlled by Non-Respondent Owner.

“National Contingency Plan” or “NCP” shall mean the National Oil and Hazardous Substances Pollution Contingency Plan promulgated pursuant to Section 105 of CERCLA, 42 U.S.C. § 9605, codified at 40 C.F.R. Part 300, and any amendments thereto.

“Owner Respondent” shall mean any Respondent that owns or controls any Affected Property, including H. Kramer and the City. The clause “Owner Respondent’s Affected Property” means Affected Property owned or controlled by Owner Respondent.

"Paragraph" shall mean a portion of this Settlement identified by an Arabic numeral or an upper or lower case letter.

"Parties" shall mean EPA and Respondents.

"Post-Removal Site Control" shall mean actions necessary to ensure the effectiveness and integrity of the removal action to be performed pursuant to this Settlement consistent with Sections 300.415(I) and 300.5 of the NCP and "Policy on Management of Post-Removal Site Control" (OSWER Directive No. 9360.2-02, Dec. 3, 1990).

"RCRA" shall mean the Solid Waste Disposal Act, 42 U.S.C. §§ 6901-6992 (also known as the Resource Conservation and Recovery Act).

"Respondents" shall mean H. Kramer, the City, and BNSF.

"Section" shall mean a portion of this Settlement identified by a Roman numeral.

"Settlement" shall mean this Administrative Settlement Agreement and Order on Consent and all appendices attached hereto (listed in Section XXVI (Integration / Appendices)). In the event of conflict between this Settlement and any appendix, this Settlement shall control.

"Site" shall mean the Pilsen Soil Operable Unit 1 Railroad Spur and Alley Site, Chicago, Illinois, encompassing approximately 1.5 acres. The Site is comprised of an alley and a railroad spur located in the Lower West Side (Pilsen) area of Chicago. See Appendix A (showing Site location and boundaries). The alley lies between address ranges 1300-1337 West Cermak Road and 1338-1344 West Cermak Road. The railroad spur has two portions. The western portion lies north of a property occupied by the Benito Juarez Community Academy located at 1450-1510 West Cermak Road, curving south towards South Loomis Street. The eastern portion of the spur, starting on the east side of South Loomis Street, extends along the western boundary of the H. Kramer facility at 1345 West 21st Street and curves southeast between a former tire service company at 1358 West Cermak Road and a former metal processing company at 1338 West Cermak Road, terminating at West Cermak Road.

"State" shall mean the State of Illinois.

"Transfer" shall mean to sell, assign, convey, lease, mortgage, or grant a security interest in, or where used as a noun, a sale, assignment, conveyance, or other disposition of any interest by operation of law or otherwise.

"United States" shall mean the United States of America and each department, agency, and instrumentality of the United States, including EPA.

"Waste Material" shall mean (i) any "hazardous substance" under Section 101(14) of CERCLA, 42 U.S.C. § 9601(14); (ii) any pollutant or contaminant under Section 101(33) of

CERCLA, 42 U.S.C. § 9601(33); and (iii) any “solid waste” under Section 1004(27) of RCRA, 42 U.S.C. § 6903(27).

“Work” shall mean all activities and obligations Respondents are required to perform under this Settlement except those required by Section XI (Record Retention).

IV. FINDINGS OF FACT

9. Based on available information, including the Administrative Record in this matter, EPA hereby finds that:

- a. The Site is comprised of two areas, an alley and a railroad spur, in the Lower West Side (Pilsen) area of Chicago, in the City’s 25th Ward. See Appendix A. For the alley, the east to west portion is approximately 460 feet (ft) long and 18 ft. wide (approximately 8,280 square feet [ft²] in area) and is roughly paved with asphalt over 25% of its length from the east side. The north to south portion of the alley is about 110 feet long. The remaining 75% of the alley is soil. The alley section to be remediated is from the railroad east to South Throop Street, south of West 21st Street and north of West Cermak Road. The alley is bordered to the north by H. Kramer’s facility, the east by South Throop Street, to the south by commercial and industrial businesses, and to the west by the railroad spur (east of South Loomis Street). The railroad spur is approximately 1,120 ft. long and 28,215 ft² in total area. The railroad spur consists of an unused rail track and soil and asphalt where it is bisected by South Loomis Street. The portion of the railroad spur that crosses South Loomis Street is not included in the Site because the rails have been removed and the City has paved the street. The western portion of the railroad spur is located in the north region of a property occupied by the Benito Juarez Community Academy (Juarez), located at 1450-1510 West Cermak Road. The railroad spur curves to the south, crosses South Loomis Street, and extends along the west boundary of H. Kramer at 1345 West 21st Street. The eastern portion of the railroad spur is bordered by a former tire service company to the west (Tire Grading Company, 1358 West Cermak Road), a former metal processing company to the east (Wheeling Metal Processing Company, 1338 West Cermak Road), and West Cermak Road to the south. The Site, both the railroad spur and alley, is an industrial site in a residential neighborhood and within a 1/4-mile of two schools –Juarez and the Manuel Perez Jr. Elementary School (Perez). Two City parks are located within a 1/2-mile radius of the Site (Dvorak Park and Throop Park). The Chicago Sanitary and Ship Canal is located approximately 0.45 miles to the south.
- b. According to an historical Sanborn fire insurance map, the alley and railroad spur have existed since at least 1914. Throughout that period, the owner of the alley, as for all unparcelled lands in the city limits, has been

the City. Current ownership of the spur is complex. Starting from the west end, the spur is made up of (a) undesignated lands (owned by the City) extending along the north end of the southernmost portion of parcel number 17-20-330-005; (b) a parcel owned by the City in Trust for Use of Schools (acquired March 1, 1999) (parcel number 17-20-330-005); (c) after crossing Loomis Street (an undesignated land, owned by the City), a parcel owned by H. Kramer (acquired October 19, 1919) (parcel number 17-20-332-002); (d) after crossing an undesignated land (alley) serving as the entrance to H. Kramer's facility (but owned by the City), a parcel owned by H. Kramer (acquired June 27, 1996) (parcel number 17-20-333-001); (e) after crossing the City's alleyway, a parcel owned by 1358 W. Cermak LLC (acquired March 13, 2015) (parcel number 17-20-333-006); and (f) a parcel owned by De Trinh (acquired December 1, 2012) (parcel number 17-20-333-007). BNSF has operated on the spur since at least 1912, when its predecessor was granted a twenty (20) year right-of-way over the railroad spur.

- c. Sampling results for the Site indicated that five samples contained TCLP lead concentrations that exceeded the TCLP lead regulatory limit of 5.0 mg/L. See Appendix D. Therefore, these samples represent materials that meet the definition of hazardous waste by virtue of the characteristic of toxicity. See 40 C.F.R. § 261.24(b). Antimony, arsenic, copper, lead, and fine-grained lead were detected at concentrations above EPA Removal Management Levels (RMLs) for residential soil, hazard quotient (HQ) 3 (400 mg/kg), and for industrial soil (800 mg/kg).
- d. Several neighboring industries have operated on the Site for decades via vehicular or foot traffic, including H. Kramer. H. Kramer's secondary nonferrous metals facility has operated on and adjacent to the Site since the early 20th century. H. Kramer specializes in manufacturing brass and bronze ingots, where a portion of the facility's production capacity is devoted to lead-containing metal alloys. The nature of H. Kramer's processes contributed to high levels of metals at the Site.
- e. The threat of release at the Site is the off-site migration of soils contaminated by heavy metals, as described above, into the surrounding neighborhood, which includes residences and schools, through wind and rain runoff and through present use (such as people walking and driving vehicles over the Site). The Site is just south of a residential area, and 11,307 people live within 0.5 mile of the Site. Two schools, Juarez and Perez, are located within a 0.25-mile radius of the Site, with Juarez immediately adjacent to parts of the Site. School children may use the Site as a walkway, commuting to and from Juarez.

- f. A risk assessment conducted by EPA concluded that the soil concentrations of lead at the Site are at an unacceptable risk level to the residents in the neighborhood.
- g. H. Kramer is a corporation doing business in Illinois that generated, and therefore arranged for disposal, of the hazardous substances found at the Site; it currently operates and historically operated a portion of the Site at the time of disposal; and it owns a portion of the Site (parcel numbers 17-20-332-002 and 17-20-333-001).
- h. The City is a municipal corporation and a home rule unit under the laws of the State and under Article VII of the Illinois Constitution, and it owns a portion of the Site (parcel number 17-20-330-005 and all unparcelled, undesignated lands within the Site).
- i. BNSF is a corporation doing business in Illinois that historically operated on the Site at the time of disposal.
- j. EPA issued General Notice of Potential Liability Letters to H. Kramer, the City, and BNSF on April 15, 2014.

V. CONCLUSIONS OF LAW AND DETERMINATIONS

10. Based on the Findings of Fact set forth above, and the administrative record, EPA has determined that:

- a. The Site is a “facility” as defined by Section 101(9) of CERCLA, 42 U.S.C. § 9601(9).
- b. The contamination found at the Site, as identified in the Findings of Fact above, includes “hazardous substances” as defined by Section 101(14) of CERCLA, 42 U.S.C. § 9601(14).
- c. Each Respondent is a “person” as defined by Section 101(21) of CERCLA, 42 U.S.C. § 9601(21).
- d. Each Respondent is a responsible party under Section 107(a) of CERCLA, 42 U.S.C. § 9607(a), and is jointly and severally liable for performance of response action and for response costs incurred and to be incurred at the Site.
 - (1) Respondent H. Kramer is an “owner” and “operator” of portions of the Site, as defined by Section 101(20) of CERCLA, 42 U.S.C. § 9601(20), and within the meaning of Section 107(a)(1) of CERCLA, 42 U.S.C. § 9607(a)(1).

- (2) Respondent City is an “owner” of portions of the Site, as defined by Section 101(20) of CERCLA, 42 U.S.C. § 9601(20), and within the meaning of Section 107(a)(1) of CERCLA, 42 U.S.C. § 9607(a)(1).
 - (3) Respondent BNSF is an “operator” of portions of the Site, as defined by Section 101(20) of CERCLA, 42 U.S.C. § 9601(20), and within the meaning of Section 107(a)(1) of CERCLA, 42 U.S.C. § 9607(a)(1).
 - (4) Respondent H. Kramer was an “owner” and “operator” of portions of the Site, at the time of disposal of hazardous substances at the facility, as defined by Section 101(20) of CERCLA, 42 U.S.C. § 9601(20), and within the meaning of Section 107(a)(2) of CERCLA, 42 U.S.C. § 9607(a)(2).
 - (5) Respondent City was an “owner” of portions of the Site, at the time of disposal of hazardous substances at the facility, as defined by Section 101(20) of CERCLA, 42 U.S.C. § 9601(20), and within the meaning of Section 107(a)(2) of CERCLA, 42 U.S.C. § 9607(a)(2).
 - (6) Respondent BNSF was an “operator” of portions of the Site, at the time of disposal of hazardous substances at the facility, as defined by Section 101(20) of CERCLA, 42 U.S.C. § 9601(20), and within the meaning of Section 107(a)(2) of CERCLA, 42 U.S.C. § 9607(a)(2).
 - (7) Respondent H. Kramer arranged for disposal or treatment, or arranged with a transporter for transport for disposal or treatment, of hazardous substances at the facility, within the meaning of Section 107(a)(3) of CERCLA, 42 U.S.C. § 9607(a)(3).
- e. The conditions described in the Findings of Fact above constitute an actual or threatened “release” of a hazardous substance from the facility as defined by Section 101(22) of CERCLA, 42 U.S.C. § 9601(22).
 - f. The conditions described in the Findings of Fact above constitute an imminent and substantial endangerment to the public health or welfare or the environment because of an actual or threatened release of a hazardous substance from the facility within the meaning of Section 106(a) of CERCLA, 42 U.S.C. § 9606(a).
 - g. The removal action required by this Settlement is necessary to protect the public health, welfare, or the environment and, if carried out in

compliance with the terms of this Settlement, will be consistent with the NCP, as provided in Section 300.700(c)(3)(ii) of the NCP.

VI. SETTLEMENT AGREEMENT AND ORDER

11. Based upon the foregoing Findings of Fact, Conclusions of Law, Determinations, and the administrative record, it is hereby Ordered and Agreed that Respondents shall comply with all provisions of this Settlement, including, but not limited to, all attachments to this Settlement and all documents incorporated by reference into this Settlement.

VII. DESIGNATION OF CONTRACTOR, PROJECT COORDINATOR, AND ON-SCENE COORDINATOR

12. Respondents H. Kramer and the City have retained primary contractors to perform the Work and provided EPA their qualifications, and EPA approves Walter Pochron of GHD/Conestoga-Rovers & Assoc., Inc. as contractor for H Kramer and the Chicago Department of Transportation (CDOT) as contractor for the City. BNSF shall notify EPA of the name(s) and qualification(s) of its contractor(s) within ten (10) days after the Effective Date. EPA retains the right to disapprove of any or all of the contractors and/or subcontractors retained by BNSF. If EPA disapproves of a contractor selected by BNSF, BNSF shall retain a different contractor and shall notify EPA of that contractor's name and qualifications within five (5) days after EPA's disapproval.

13. Respondents have designated and EPA has approved Walter Pochron of GHD/Conestoga-Rovers & Assoc., Inc. as Project Coordinator who shall be responsible for administration of all actions by Respondents required by this Settlement and has provided EPA the designated Project Coordinator's name, address, telephone number, and qualifications. To the greatest extent possible, the Project Coordinator shall be present on Site or readily available during Site work. EPA retains the right to disapprove of the designated Project Coordinator. If EPA disapproves of the designated Project Coordinator, Respondents shall retain a different Project Coordinator and shall notify EPA of that person's name, address, telephone number, and qualifications within ten (10) days following EPA's disapproval. Notice or communication relating to this Settlement from EPA to Respondents' Project Coordinator shall constitute notice or communication to all Respondents.

14. EPA has designated Ramon C. Mendoza of the Emergency Response Branch #2 of EPA Region 5 as its On-Scene Coordinator (OSC). EPA and Respondents shall have the right, subject to Paragraph 13, to change their respective designated OSC or Project Coordinator. Respondents shall notify EPA ten (10) days before such a change is made. The initial notification by Respondents may be made orally, but shall be promptly followed by a written notice.

15. The OSC shall be responsible for overseeing Respondents' implementation of this Settlement. The OSC shall have the authority vested in an OSC by the NCP, including the authority to halt, conduct, or direct any Work required by this Settlement, or to direct any other removal action undertaken at the Site. Absence of the OSC from the Site shall not be cause for stoppage of work unless specifically directed by the OSC.

VIII. WORK TO BE PERFORMED

16. Respondents shall perform, at a minimum, all actions necessary to implement the work set forth in the approved Removal Work Plan attached hereto as Appendix C, which EPA has determined to be sufficient to address conditions described in the Action Memorandum. The actions to be implemented by Respondents generally include, but are not limited to, the following:

- a. Develop and implement a Site-specific Health and Safety Plan, Sampling Plan, and Work Plan (all of which Plans will include air/particulate monitoring, dust control, and traffic control);
- b. Implement Site security measures as necessary;
- c. Remove rails and railroad ties at the Site as designated in the Removal Work Plan;
- d. Remove, consolidate, and dispose (or recycle as appropriate) non-hazardous Site debris, garbage, and vegetation;
- e. **For the Western Area of the Railroad Spur (Areas 1 and 2)**
 - (1) Excavate Area 1 (excluding the RR26 sample location) down to a depth of 6 inches from the existing elevation. Soils and railroad ballast from Area 1 suitable for beneficial reuse will be placed as backfill in the excavation left by the TCLP excavation in Areas 4, 5, and 8 (and Areas 6, 7, 9 as needed). Organic soils will be transported off site for disposal (in accordance with EPA's Off-Site Rule (40 CFR § 300.440)). Soils above the RML in Area 1 will be removed (excavated) down to a depth of 6 inches from the existing grade. Excavated areas in Area 1 (excluding the RR26 sample location) will be backfilled with an engineered barrier consisting of a demarcation barrier placed on the bottom of the excavation, then backfilled with at least 6 inches of clean gravel.
 - (2) Area 2 and the RR26 locations will not be excavated. In this area an engineered cover consisting of a demarcation barrier will be placed followed by 3 inches of gravel and 3 inches of pavement.
 - (3) EPA's existing data will be used as delineation sampling data.
 - (4) Vehicle traffic barriers will be installed to prevent vehicles from driving over the graveled areas in Area 1.
- f. **For the alley and railroad spur east of South Loomis Street (except for the eastern portion of the alley with an asphalt cover, about 230 ft.):**

- (1) Excavate, treat (if applicable), transport, and properly dispose of (in accordance with EPA's Off-Site Rule (40 CFR § 300.440)) lead-contaminated soil with concentrations above the TCLP Lead Criteria of 5 mg/L. The TCLP areas and depths have been defined by EPA's sampling data and are shown on Appendix D. No additional delineation sampling will be required. After the TCLP excavation, surface soils and gravel from Areas 1, 5, 6, 7, 8, 9, or 10 can be used as backfill for the excavated area at the TCLP excavations, and for grading purposes within those same areas (1, 5, 6, 7, 8, 9, or 10). Soils above the TCLP will be removed down to a depth necessary for installation of an asphalt road including the associated sub-base;
 - (2) All TCLP excavated areas will have a demarcation barrier placed on the bottom of the excavation prior to being backfilled;
 - (3) Place a demarcation barrier in Areas 4, 5, 6, 7, 8, and 10.
 - (4) Backfill Areas 4, 5, 6, 7, 8, 9, and 10 with at least 6 inches of clean gravel and construct an asphalt cover on Areas 4, 5, 6, 7, 8, 9, and 10.
- g. **For the eastern portion of the alley that has an asphalt cover (about 230 ft. in Area 9):** Repair asphalt cover by patching any holes which expose soil or other alternative as appropriate to eliminate the ingestion exposure pathway.
- h. Take any necessary response actions to address any Site related release or threatened release of a hazardous substance, pollutant, or contaminant during the course of the Work that the EPA determines may pose an imminent and substantial endangerment to the public health or the environment.

17. For any regulation or guidance referenced in the Settlement, the reference will be read to include any subsequent modification, amendment, or replacement of such regulation or guidance. Such modifications, amendments, or replacements apply to the Work only after Respondents receive notification from EPA of the modification, amendment, or replacement.

18. Work Plan and Implementation.

- a. Respondents have submitted to EPA, and EPA has approved a work plan for performing the removal action (the "Removal Work Plan") generally described in Paragraph 16 above. The Removal Work Plan, which is attached as Appendix C includes a description of the actions required by this Settlement.

- b. Within ten (10) days after the Effective Date, in accordance with Paragraph 19 (Submission of Deliverables), Respondents shall submit to EPA for approval a schedule for the actions required by this Settlement.
- c. EPA may approve, disapprove, require revisions to, or modify any additional deliverables that require EPA approval under the Removal Work Plan in whole or in part. If EPA requires revisions, Respondents shall submit a revised deliverable within ten (10) days after receipt of EPA's notification of the required revisions. Once approved, or approved with modifications, such deliverables shall be incorporated into and become fully enforceable under this Settlement.
- d. With EPA approval, Respondents commenced the Work required by the Removal Work Plan prior to the Effective Date of this Settlement. As of the Effective Date, all such prior Work shall be deemed to have been conducted in accordance with the Removal Work Plan and in conformance with the terms of this Settlement. Respondents shall not commence any further Work except in conformance with the terms of this Settlement.

19. Submission of Deliverables.

- a. General Requirements for Deliverables.
 - (1) Except as otherwise provided in this Settlement, Respondents shall direct all submissions required by this Settlement to the OSC at: Ramon C. Mendoza (SE-5J), Superfund Division, U.S. EPA, Region 5, 77 West Jackson Boulevard, Chicago, Illinois 60604, (312) 886.4314, mendoza.ramon@epa.gov. Respondents shall submit all deliverables required by this Settlement or any approved work plan to EPA in accordance with the schedule set forth in such plan.
 - (2) Respondents shall submit all deliverables in electronic form. If any deliverable includes maps, drawings, or other exhibits that are larger than 8.5" by 11", Respondents shall also provide EPA with paper copies of such exhibits.
- b. Technical Specifications for Deliverables.
 - (1) Sampling and monitoring data should be submitted in standard regional Electronic Data Deliverable (EDD) format. Other delivery methods may be allowed if electronic direct submission presents a significant burden or as technology changes.
 - (2) Spatial data, including spatially-referenced data and geospatial data, should be submitted: (a) in the ESRI File Geodatabase format; and (b) as unprojected geographic coordinates in decimal

degree format using North American Datum 1983 (NAD83) or World Geodetic System 1984 (WGS84) as the datum. If applicable, submissions should include the collection method(s). Projected coordinates may optionally be included but must be documented. Spatial data should be accompanied by metadata, and such metadata should be compliant with the Federal Geographic Data Committee (FGDC) Content Standard for Digital Geospatial Metadata and its EPA profile, the EPA Geospatial Metadata Technical Specification. An add-on metadata editor for ESRI software, the EPA Metadata Editor (EME), complies with these FGDC and EPA metadata requirements and is available at <https://edg.epa.gov/EME/>.

- (3) Each file must include an attribute name for each site unit or sub-unit submitted. Consult <http://www.epa.gov/geospatial/policies.html> for any further available guidance on attribute identification and naming.
- (4) Spatial data submitted by Respondents does not, and is not intended to, define the boundaries of the Site.

20. Health and Safety Plan.

- a. Within five (5) days after the Effective Date, Respondents shall submit for EPA review and comment a plan that ensures the protection of the public health and safety during performance of on-site work under this Settlement. This plan shall be prepared in accordance with "OSWER Integrated Health and Safety Program Operating Practices for OSWER Field Activities," Pub. 9285.0-OIC (Nov. 2002), available on the NSCEP database at <http://www.epa.gov/nscep/index.html>, and "EPA's Emergency Responder Health and Safety Manual," OSWER Directive 9285.3-12 (July 2005 and updates), available at <http://www.epaosc.org/HealthSafetyManual/manual-index.htm>. In addition, the plan shall comply with all currently applicable Occupational Safety and Health Administration (OSHA) regulations found at 29 C.F.R. Part 1910. If EPA determines that it is appropriate, the plan shall also include contingency planning. Respondents shall incorporate all changes to the plan recommended by EPA and shall implement the plan during the pendency of the removal action.

21. Quality Assurance, Sampling, and Data Analysis.

- a. Respondents shall use quality assurance, quality control, and other technical activities and chain of custody procedures for all samples consistent with "EPA Requirements for Quality Assurance Project Plans (QA/R5)", EPA/240/B-01/003 (March 2001, reissued May 2006),

“Guidance for Quality Assurance Project Plans (QA/G-5),” EPA/240/R-02/009 (December 2002), “Uniform Federal Policy for Quality Assurance Project Plans,” Parts 1-3, EPA/505/B-04/900A-900C (March 2005).

- b. Prior to the commencement of any monitoring project under this Settlement, Respondents shall submit to EPA for approval a Quality Assurance Project Plan (QAPP) that is consistent with the Removal Work Plan, the NCP, and the Superfund Lead-Contaminated Residential Sites Handbook. Respondents shall ensure that EPA personnel and its authorized representatives are allowed access at reasonable times to all laboratories utilized by Respondents in implementing this Settlement. In addition, Respondents shall ensure that such laboratories shall analyze all samples submitted by EPA pursuant to the QAPP for quality assurance, quality control, and technical activities that will satisfy the stated performance criteria as specified in the QAPP and that sampling and field activities are conducted in accordance with EPA’s “Field Operations Group Operational Guidelines for Field Activities” (<http://www.epa.gov/region8/qa/FieldOperationsGroupOperationalGuidelinesForFieldActivities.pdf>) and “EPA QA Field Activities Procedure” (<http://www.epa.gov/irmpoli8/policies/2105-p-02.pdf>). Respondents shall ensure that the laboratories they utilize for the analysis of samples taken pursuant to this Settlement meet the competency requirements set forth in EPA’s “Policy to Assure Competency of Laboratories, Field Sampling, and Other Organizations Generating Environmental Measurement Data under Agency-Funded Acquisitions” (<http://www.epa.gov/fem/pdfs/fem-lab-competency-policy.pdf>) and that the laboratories perform all analyses according to accepted EPA methods. Accepted EPA methods consist of, but are not limited to, methods that are documented in the EPA’s Contract Laboratory Program (<http://www.epa.gov/superfund/programs/clp/>), SW 846 “Test Methods for Evaluating Solid Waste, Physical/Chemical Methods” (<http://www.epa.gov/epawaste/hazard/testmethods/sw846/online/index.htm>), “Standard Methods for the Examination of Water and Wastewater” (<http://www.standardmethods.org/>), 40 C.F.R. Part 136, “Air Toxics - Monitoring Methods” (<http://www.epa.gov/ttnamti1/airtox.html>).”. However, upon approval by EPA, Respondents may use other appropriate analytical method(s), as long as (a) quality assurance/quality control (QA/QC) criteria are contained in the method(s) and the method(s) are included in the QAPP, (b) the analytical method(s) are at least as stringent as the methods listed above, and (c) the method(s) have been approved for use by a nationally recognized organization responsible for verification and publication of analytical methods, e.g., EPA, ASTM, NIOSH, OSHA, etc. Respondents shall ensure that all laboratories they use for analysis of samples taken pursuant to this Settlement have a documented Quality System that complies with ANSI/ASQC E-4-2004, “Quality Systems for Environmental Data and Technology Programs: Requirements with

Guidance for Use” (American National Standard, 2004), and “EPA Requirements for Quality Management Plans (QA/R-2)” (EPA/240/B-01/002, March 2001, reissued May 2006), or equivalent documentation as determined by EPA. EPA may consider Environmental Response Laboratory Network (ERLN) laboratories, laboratories accredited under the National Environmental Laboratory Accreditation Program (NELAP), or laboratories that meet International Standardization Organization (ISO 17025) standards or other nationally recognized programs (<http://www.epa.gov/fem/accredit.htm>) as meeting the Quality System requirements. Respondents shall ensure that all field methodologies utilized in collecting samples for subsequent analysis pursuant to this Settlement are conducted in accordance with the procedures set forth in the QAPP approved by EPA.

- c. Upon request, Respondents shall provide split or duplicate samples to EPA or its authorized representatives. Respondents shall notify EPA not less than five (5) days in advance of any sample collection activity unless shorter notice is agreed to by EPA. In addition, EPA shall have the right to take any additional samples that EPA deems necessary. Upon request, EPA shall provide to Respondents split or duplicate samples of any samples it takes as part of EPA’s oversight of Respondents’ implementation of the Work.
- d. Respondents shall submit to EPA the results of all sampling and/or tests or other data obtained or generated by or on behalf of Respondents with respect to the Site and/or the implementation of this Settlement.
- e. Respondents waive any objections to any data gathered, generated, or evaluated by EPA, the State, or Respondents in the performance or oversight of the Work that has been verified according to the QA/QC procedures required by the Settlement or any EPA-approved Work Plans or Sampling and Analysis Plans. If Respondents object to any other data relating to the Work, Respondents shall submit to EPA a report that specifically identifies and explains their objections, describes the acceptable uses of the data, if any, and identifies any limitations to the use of the data. The report must be submitted to EPA within fifteen (15) days after the monthly progress report containing the data.
- f. Notwithstanding any provision of this Settlement, the United States retains all of its information gathering and inspection authorities and rights, including enforcement actions related thereto, under CERCLA, RCRA, and any other applicable statutes and regulations.

22. Community Involvement Plan. EPA will prepare a community involvement plan, in accordance with EPA guidance and the NCP. If requested by EPA, Respondents shall participate in community involvement activities pursuant to the plan, including participation in

(1) the preparation of information regarding the Work for dissemination to the public, with consideration given to including mass media and/or Internet notification, and (2) public meetings that may be held or sponsored by EPA to explain activities at or relating to the Site.

Respondents' support of EPA's community involvement activities may include providing online access to initial submissions and updates of deliverables to (1) any community advisory groups, (2) any technical assistance grant recipients and their advisors, and (3) other entities to provide them with a reasonable opportunity for review and comment. All community involvement activities conducted by Respondents at EPA's request are subject to EPA's oversight. At EPA's discretion, Respondents shall establish a community information repository at or near the Site to house one copy of the administrative record.

23. Post-Removal Site Control. In accordance with the Removal Work Plan schedule, or as otherwise directed by EPA, Respondents shall submit a proposal for Post-Removal Site Control which shall include, but not be limited to: institutional controls upon the parcels and lands subject to the Work. Upon EPA approval, Respondents shall either conduct Post-Removal Site Control activities, or obtain a written commitment from another party for conduct of such activities, until such time as EPA determines that no further Post-Removal Site Control is necessary. Respondents shall provide EPA with documentation of all Post-Removal Site Control commitments.

24. Progress Reports. Respondents shall submit a written progress report to EPA concerning actions undertaken pursuant to this Settlement on a monthly basis, or as otherwise requested by EPA, from the date of receipt of EPA's approval of the Removal Work Plan until issuance of Notice of Completion of Work pursuant to Section XXV, unless otherwise directed in writing by the OSC. These reports shall describe all significant developments during the preceding period, including the actions performed and any problems encountered, analytical data received during the reporting period, and the developments anticipated during the next reporting period, including a schedule of actions to be performed, anticipated problems, and planned resolutions of past or anticipated problems.

25. Final Report. Within thirty (30) days after completion of all Work required by this Settlement, other than continuing obligations listed in Paragraph 86 (notice of completion), Respondents shall submit for EPA review and approval a final report summarizing the actions taken to comply with this Settlement. The final report shall conform, at a minimum, with the requirements set forth in Section 300.165 of the NCP entitled "OSC Reports." The final report shall include a good faith estimate of total costs or a statement of actual costs incurred in complying with the Settlement, a listing of quantities and types of materials removed off-Site or handled on-Site, a discussion of removal and disposal options considered for those materials, a listing of the ultimate destination(s) of those materials, a presentation of the analytical results of all sampling and analyses performed, and accompanying appendices containing all relevant documentation generated during the removal action (e.g., manifests, invoices, bills, contracts, and permits). The final report shall also include the following certification signed by a responsible corporate official of a Respondent or Respondents' Project Coordinator: "I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons

who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I have no personal knowledge that the information submitted is other than true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.”

26. Off-Site Shipments.

- a. Respondents may ship hazardous substances, pollutants and contaminants from the Site to an off-Site facility only if they comply with Section 121(d)(3) of CERCLA, 42 U.S.C. § 9621(d)(3), and 40 C.F.R. § 300.440. Respondents will be deemed to be in compliance with CERCLA Section 121(d)(3) and 40 C.F.R. § 300.440 regarding a shipment if Respondents obtain a prior determination from EPA that the proposed receiving facility for such shipment is acceptable under the criteria of 40 C.F.R. § 300.440(b). Respondents may ship Investigation Derived Waste (IDW) from the Site to an off-Site facility only if Respondents comply with EPA’s “Guide to Management of Investigation Derived Waste,” OSWER 9345.3-03FS (Jan. 1992).
- b. Respondents may ship Waste Material from the Site to an out-of-state waste management facility only if, prior to any shipment, they provide written notice to the appropriate state environmental official in the receiving facility’s state and to the OSC. This written notice requirement shall not apply to any off-Site shipments when the total quantity of all such shipments will not exceed ten cubic yards. The written notice must include the following information, if available: (1) the name and location of the receiving facility; (2) the type and quantity of Waste Material to be shipped; (3) the schedule for the shipment; and (4) the method of transportation. Respondents also shall notify the state environmental official referenced above and the OSC of any major changes in the shipment plan, such as a decision to ship the Waste Material to a different out-of-state facility. Respondents shall provide the written notice after the award of the contract for the removal action and before the Waste Material is shipped.

IX. PROPERTY REQUIREMENTS

27. Agreements Regarding Access and Non-Interference. Respondents shall, with respect to any Non-Settling Owner’s Affected Property, use best efforts to secure from such Non-Settling Owner an agreement, enforceable by Respondents and the EPA, providing that such Non-Settling Owner and Owner Respondent shall, with respect to Owner Respondent’s Affected Property: (i) provide the EPA, Respondents, and their representatives, contractors, and subcontractors with access at all reasonable times to such Affected Property to conduct any activity regarding the Settlement, and (ii) refrain from using such Affected Property in any manner that EPA determines will pose an unacceptable risk to human health or to the

environment due to exposure to Waste Material, or interfere with or adversely affect the implementation, integrity, or protectiveness of the removal action.

28. Owner Respondent shall not transfer its Affected Property without first securing EPA's approval of, and transferee's consent to, an agreement that: (i) is enforceable by EPA; and (ii) requires the transferee to provide access to and to refrain from using the Affected Property to the same extent as is provided under Paragraph 27 (Agreements Regarding Access and Non-Interference); provided however, that the obligation of Owner Respondent to obtain such EPA and transferee approvals shall terminate as of the date that EPA provides Respondents the Notice of Completion provided for in Paragraph 87.

29. Best Efforts. As used in this Section, "best efforts" means the efforts that a reasonable person in the position of Respondents would use so as to achieve the goal in a timely manner, including the cost of employing professional assistance and the payment of reasonable sums of money to secure access and/or use restriction agreements, as required by this Section. If Respondents are unable to accomplish what is required through "best efforts" in a timely manner, they shall notify EPA, and include a description of the steps taken to comply with the requirements. If EPA deems it appropriate, it may assist Respondents or take independent action, in obtaining such access and/or use restrictions. All costs incurred by the United States in providing such assistance or taking such action, including the cost of attorney time and the amount of monetary consideration or just compensation paid, constitute Future Response Costs.

30. If EPA determines in a decision document prepared in accordance with the NCP that institutional controls in the form of state or local laws, regulations, ordinances, zoning restrictions, or other governmental controls or notices are needed, Respondents shall cooperate with EPA's efforts to secure and ensure compliance with such institutional controls.

31. In the event of any Transfer of the Affected Property, unless the United States otherwise consents in writing, Respondents shall continue to comply with their obligations under the Settlement, including their obligation to secure access and ensure compliance with any land, water, or other resource use restrictions regarding the Affected Property.

32. Notwithstanding any provision of the Settlement, EPA retains all of its access authorities and rights, including enforcement authorities related thereto under CERCLA, RCRA, and any other applicable statute or regulations.

X. ACCESS TO INFORMATION

33. Respondents shall provide to EPA, upon request, copies of all records, reports, documents, and other information (including records, reports, documents, and other information in electronic form) (hereinafter referred to as "Records") within Respondents' possession or control or that of their contractors or agents relating to activities at the Site or to the implementation of this Settlement, including, but not limited to, sampling, analysis, chain of custody records, manifests, trucking logs, receipts, reports, sample traffic routing, correspondence, or other documents or information regarding the Work. Respondents shall also make available to EPA, for purposes of investigation, information gathering, or testimony, their

employees, agents, or representatives with knowledge of relevant facts concerning the performance of the Work.

34. Privileged and Protected Claims.

- a. Respondents may assert all or part of a Record requested by EPA is privileged or protected as provided under federal law, in lieu of providing the Record, provided Respondents comply with Paragraph 34.b, and except as provided in Paragraph 34.c.
- b. If Respondents assert such a privilege or protection, they shall provide EPA with the following information regarding such Record: its title; its date; the name, title, affiliation (e.g., company or firm), and address of the author, of each addressee, and of each recipient; a description of the Record's contents; and the privilege or protection asserted. If a claim of privilege or protection applies only to a portion of a Record, Respondents shall provide the Record to EPA in redacted form to mask the privileged or protected portion only. Respondents shall retain all Records that they claim to be privileged or protected until EPA has had a reasonable opportunity to dispute the privilege or protection claim and any such dispute has been resolved in Respondents' favor.
- c. Respondents may make no claim of privilege or protection regarding: (1) any data regarding the Site, including, but not limited to, all sampling, analytical, monitoring, hydrogeologic, scientific, chemical, radiological, or engineering data, or the portion of any other Record that evidences conditions at or around the Site; or (2) the portion of any Record that Respondents are required to create or generate pursuant to this Settlement.

35. Business Confidential Claims. Respondents may assert that all or part of a Record provided to EPA under this Section or Section XI (Record Retention) is business confidential to the extent permitted by and in accordance with Section 104(e)(7) of CERCLA, 42 U.S.C. § 9604(e)(7), and 40 C.F.R. § 2.203(b). Respondents shall segregate and clearly identify all Records or parts thereof submitted under this Settlement for which Respondents assert business confidentiality claims. Records submitted to EPA determined to be confidential by EPA will be afforded the protection specified in 40 C.F.R. Part 2, Subpart B. If no claim of confidentiality accompanies Records when they are submitted to EPA, or if EPA has notified Respondents that the Records are not confidential under the standards of Section 104(e)(7) of CERCLA or 40 C.F.R. Part 2, Subpart B, the public may be given access to such Records without further notice to Respondents.

36. Notwithstanding any provision of this Settlement, EPA retains all of its information gathering and inspection authorities and rights, including enforcement actions related thereto, under CERCLA, RCRA, and any other applicable statutes or regulations.

XI. RECORD RETENTION

37. Until ten (10) years after EPA provides Respondents with notice, pursuant to Section XXV (Notice of Completion of Work), that all Work has been fully performed in accordance with this Settlement, Respondents shall preserve and retain all non-identical copies of Records (including Records in electronic form) now in their possession or control, or that come into their possession or control, that relate in any manner to their liability under CERCLA with regard to the Site, provided, however, that Respondents who are potentially liable as owners or operators of the Site must retain, in addition, all Records that relate to the liability of any other person under CERCLA with respect to the Site. Each Respondent must also retain, and instruct its contractors and agents to preserve, for the same period of time specified above all non-identical copies of the last draft or final version of any Records (including Records in electronic form) now in their possession or control or that come into their possession or control that relate in any manner to the performance of the Work, provided, however, that each Respondent (and its contractors and agents) must retain, in addition, copies of all data generated during the performance of the Work and not contained in the aforementioned Records required to be retained. Each of the above record retention requirements shall apply regardless of any corporate retention policy to the contrary.

38. At the conclusion of the document retention period, Respondents shall notify EPA at least ninety (90) days prior to the destruction of any such Records, and, upon request by EPA, and except as provided in Paragraph 34 (Privileged and Protected Claims), Respondents shall deliver any such Records to EPA.

39. Each Respondent certifies individually that, to the best of its knowledge and belief, after thorough inquiry, it has not altered, mutilated, discarded, destroyed, or otherwise disposed of any Records (other than identical copies) relating to its potential liability regarding the Site since notification of potential liability by EPA or the State and that it has fully complied with any and all EPA and State requests for information regarding the Site pursuant to Sections 104(e) and 122(e) of CERCLA, 42 U.S.C. §§ 9604(e) and 9622(e), and Section 3007 of RCRA, 42 U.S.C. § 6927, and state law.

XII. COMPLIANCE WITH OTHER LAWS

40. Nothing in this Settlement limits Respondents' obligations to comply with the requirements of all applicable state and federal laws and regulations, except as provided in Section 121(e) of CERCLA, 42 U.S.C. § 6921(e), and 40 C.F.R. § 300.400(e) and 300.415(j). In accordance with 40 C.F.R. § 300.415(j), all on-site actions required pursuant to this Settlement shall, to the extent practicable, as determined by EPA, considering the exigencies of the situation, attain applicable or relevant and appropriate requirements (ARARs) under federal environmental or state environmental or facility siting laws.

41. No local, state, or federal permit shall be required for any portion of the Work conducted entirely on-site (i.e., within the areal extent of contamination or in very close proximity to the contamination and necessary for implementation of the Work), including studies, if the action is selected and carried out in compliance with Section 121 of CERCLA, 42

U.S.C. § 9621. Where any portion of the Work that is not on-site requires a federal or state permit or approval, Respondents shall submit timely and complete applications and take all other actions necessary to obtain and to comply with all such permits or approvals. Respondents may seek relief under the provisions of Section XV (Force Majeure) for any delay in the performance of the Work resulting from a failure to obtain, or a delay in obtaining, any permit or approval required for the Work, provided that they have submitted timely and complete applications and taken all other actions necessary to obtain all such permits or approvals. This Settlement is not, and shall not be construed to be, a permit issued pursuant to any federal or state statute or regulation. .

XIII. EMERGENCY RESPONSE AND NOTIFICATION OF RELEASES

42. Emergency Response. If any event occurs during performance of the Work that causes or threatens to cause a release of Waste Material on, at, or from the Site that either constitutes an emergency situation or that may present an immediate threat to public health or welfare or the environment, Respondents shall immediately take all appropriate action to prevent, abate, or minimize such release or threat of release. Respondents shall take these actions in accordance with all applicable provisions of this Settlement, including, but not limited to, the Health and Safety Plan. Respondents shall also immediately notify the OSC or, in the event of his/her unavailability, the Regional Duty Officer at (312) 353-2318 of the incident or Site conditions.

43. Release Reporting. In addition, in the event of any release of a hazardous substance from the Site, Respondents shall immediately notify the OSC or, in the event of his/her unavailability, the Regional Duty Officer at (312) 353-2318 and the National Response Center at (800) 424-8802. Respondents shall submit a written report to EPA within seven (7) days after each release, setting forth the events that occurred and the measures taken or to be taken to mitigate any release or endangerment caused or threatened by the release and to prevent the reoccurrence of such a release. This reporting requirement is in addition to, and not in lieu of, reporting under Section 103(c) of CERCLA, 42 U.S.C. § 9603(c), and Section 304 of the Emergency Planning and Community Right-To-Know Act of 1986, 42 U.S.C. § 11004.

XIV. DISPUTE RESOLUTION

44. Unless otherwise expressly provided for in this Settlement, the dispute resolution procedures of this Section shall be the exclusive mechanism for resolving disputes arising under this Settlement. The Parties shall attempt to resolve any disagreements concerning this Settlement expeditiously and informally.

45. Informal Dispute Resolution. If Respondents object to any EPA action taken pursuant to this Settlement, they shall send EPA a written Notice of Dispute describing the objection(s) within seven (7) days after such action. EPA and Respondents shall have thirty (30) days from EPA's receipt of Respondents' Notice of Dispute to resolve the dispute through formal negotiations (the "Negotiation Period"). The Negotiation Period may be extended at the sole discretion of EPA. Any agreement reached by the Parties pursuant to this Section shall be in

writing and shall, upon signature by the Parties, be incorporated into and become an enforceable part of this Settlement.

46. Formal Dispute Resolution. If the Parties are unable to reach an agreement within the Negotiation Period, Respondents shall, within twenty (20) days after the end of the Negotiation Period, submit a statement of position to the OSC. EPA may, within twenty (20) days thereafter, submit a statement of position. Thereafter, an EPA management official at the Division Director level or higher will issue a written decision on the dispute to Respondents. EPA's decision shall be incorporated into and become an enforceable part of this Settlement. Following resolution of the dispute, as provided by this Section, Respondents shall fulfill the requirement that was the subject of the dispute in accordance with the agreement reached or with EPA's decision, whichever occurs.

47. The invocation of formal dispute resolution procedures under this Section does not extend, postpone, or affect in any way any obligation of Respondents under this Settlement. Stipulated penalties with respect to the disputed matter shall continue to accrue but payment shall be stayed pending resolution of the dispute as provided in Paragraph 56. Notwithstanding the stay of payment, stipulated penalties shall accrue from the first day of noncompliance with any applicable provision of this Settlement. In the event that Respondents do not prevail on the disputed issue, stipulated penalties shall be assessed and paid as provided in Section XVI (Stipulated Penalties).

XV. FORCE MAJEURE

48. "Force Majeure" for purposes of this Settlement, is defined as any event arising from causes beyond the control of Respondents, of any entity controlled by Respondents, or of Respondents' contractors that delays or prevents the performance of any obligation under this Settlement despite Respondents' best efforts to fulfill the obligation. The requirement that Respondents exercise "best efforts to fulfill the obligation" includes using best efforts to anticipate any potential force majeure and best efforts to address the effects of any potential force majeure (a) as it is occurring and (b) following the potential force majeure such that the delay and any adverse effects of the delay are minimized to the greatest extent possible. "Force majeure" does not include financial inability to complete the Work or increased cost of performance.

49. If any event occurs or has occurred that may delay the performance of any obligation under this Settlement for which Respondents intend or may intend to assert a claim of force majeure, Respondents shall notify EPA's OSC orally or, in his or her absence, the alternate EPA OSC, or, in the event both of EPA's designated representatives are unavailable, the Director of the Superfund Division, EPA Region 5, within seven (7) of when Respondents first knew that the event might cause a delay. Within seven (7) days thereafter, Respondents shall provide in writing to EPA an explanation and description of the reasons for the delay; the anticipated duration of the delay; all actions taken or to be taken to prevent or minimize the delay; a schedule for implementation of any measures to be taken to prevent or mitigate the delay or the effect of the delay; Respondents' rationale for attributing such delay to a force majeure; and a statement as to whether, in the opinion of Respondents, such event may cause or contribute to an

endangerment to public health or welfare, or the environment. Respondents shall include with any notice all available documentation supporting their claim that the delay was attributable to a force majeure. Respondents shall be deemed to know of any circumstance of which Respondents, any entity controlled by Respondents, or Respondents' contractors knew or should have known. Failure to comply with the above requirements regarding an event shall preclude Respondents from asserting any claim of force majeure regarding that event, provided, however, that if EPA, despite the late or incomplete notice, is able to assess to its satisfaction whether the event is a force majeure under Paragraph 48 and whether Respondents have exercised their best efforts under Paragraph 48, EPA may, in its unreviewable discretion, excuse in writing Respondents' failure to submit timely or complete notices under this Paragraph.

50. If EPA agrees that the delay or anticipated delay is attributable to a force majeure, the time for performance of the obligations under this Settlement that are affected by the force majeure will be extended by EPA for such time as is necessary to complete those obligations. An extension of the time for performance of the obligations affected by the force majeure shall not, of itself, extend the time for performance of any other obligation. If EPA does not agree that the delay or anticipated delay has been or will be caused by a force majeure, EPA will notify Respondents in writing of its decision. If EPA agrees that the delay is attributable to a force majeure, EPA will notify Respondents in writing of the length of the extension, if any, for performance of the obligations affected by the force majeure.

51. If Respondents elect to invoke the dispute resolution procedures set forth in Section XIV (Dispute Resolution), they shall do so no later than fifteen (15) days after receipt of EPA's notice. In any such proceeding, Respondents shall have the burden of demonstrating by a preponderance of the evidence that the delay or anticipated delay has been or will be caused by a force majeure, that the duration of the delay or the extension sought was or will be warranted under the circumstances, that best efforts were exercised to avoid and mitigate the effects of the delay, and that Respondents complied with the requirements of Paragraphs 48 and 49. If Respondents carry this burden, the delay at issue shall be deemed not to be a violation by Respondents of the affected obligation of this Settlement identified to EPA.

52. The failure by EPA to timely complete any obligation under the Settlement is not a violation of the Settlement, provided, however, that if such failure prevents Respondents from meeting one or more deadlines under the Settlement, Respondents may seek relief under this Section.

XVI. STIPULATED PENALTIES

53. Respondents shall be liable to EPA for stipulated penalties in the amounts set forth in Paragraph 54 for failure to comply with the requirements of this Settlement specified below, unless excused under Section XV (Force Majeure). "Compliance" by Respondents shall include completion of all activities and obligations required under this Settlement, or any deliverable approved under this Settlement, in accordance with all applicable requirements of law, this Settlement, and any deliverables approved under this Settlement and within the specified time schedules established by and approved under this Settlement.

54. Stipulated Penalty Amounts - Deliverables. The following stipulated penalties shall accrue per violation per day for failure to submit timely or adequate deliverables pursuant to this Settlement:

<u>Penalty Per Violation Per Day</u>	<u>Period of Noncompliance</u>
\$250	1st through 14th day
\$500	15th through 30th day
\$1000	31st day and beyond

55. In the event that EPA assumes performance of all or any portion(s) of the Work pursuant to Paragraph 66 (Work Takeover), Respondents shall be liable for a stipulated penalty in the amount of \$10,000.

56. All penalties shall begin to accrue on the day after the complete performance is due or the day a violation occurs and shall continue to accrue through the final day of the correction of the noncompliance or completion of the activity. However, stipulated penalties shall not accrue: (a) with respect to a deficient submission under Paragraph 18 (Work Plan and Implementation), during the period, if any, beginning on the 31st day after EPA's receipt of such submission until the date that EPA notifies Respondents of any deficiency; and (b) with respect to a decision by the EPA Management Official at the Division Director level or higher, under Paragraph 46 of Section XIV (Dispute Resolution), during the period, if any, beginning the 21st day after the Negotiation Period begins until the date that the EPA Management Official issues a final decision regarding such dispute. Nothing in this Settlement shall prevent the simultaneous accrual of separate penalties for separate violations of this Settlement. Penalties shall continue to accrue during any dispute resolution period, and shall be paid within 15 days after the agreement or the receipt of EPA's decision or order.

57. Following EPA's determination that Respondents have failed to comply with a requirement of this Settlement, EPA may give Respondents written notification of the failure and describe the noncompliance. EPA may send Respondents a written demand for payment of the penalties. However, penalties shall accrue as provided in the preceding Paragraph regardless of whether EPA has notified Respondents of a violation.

58. All penalties accruing under this Section shall be due and payable to EPA within 30 days after Respondents' receipt from EPA of a demand for payment of the penalties, unless Respondents invoke the Dispute Resolution procedures under Section XIV (Dispute Resolution) within the 30-day period. All payments to EPA under this Section shall indicate that the payment is for stipulated penalties, and Respondents shall make payment to EPA by Fedwire Electronic Funds Transfer (EFT) to:

Federal Reserve Bank of New York
ABA = 021030004
Account = 68010727
SWIFT address = FRNYUS33
33 Liberty Street
New York, NY 10045

Field Tag 4200 of the Fedwire message should read "D 68010727 Environmental Protection Agency"

and shall reference Site/Spill ID Number C5N8_01 and the EPA docket number for this action.

59. If Respondents fail to pay stipulated penalties when due, Respondents shall pay Interest on the unpaid stipulated penalties as follows: (a) if Respondents have timely invoked dispute resolution such that the obligation to pay stipulated penalties has been stayed pending the outcome of dispute resolution, Interest shall accrue from the date stipulated penalties are due pursuant to Paragraph 56 until the date of payment; and (b) if Respondents fail to timely invoke dispute resolution, Interest shall accrue from the date of demand under Paragraph 58 until the date of payment. If Respondents fail to pay stipulated penalties and Interest when due, the United States may institute proceedings to collect the penalties and Interest.

60. The payment of penalties and Interest, if any, shall not alter in any way Respondents' obligation to complete the performance of the Work required under this Settlement.

61. Nothing in this Settlement shall be construed as prohibiting, altering, or in any way limiting the ability of EPA to seek any other remedies or sanctions available by virtue of Respondents' violation of this Settlement or of the statutes and regulations upon which it is based, including, but not limited to, penalties pursuant to Sections 106(b) and 122(f) of CERCLA, 42 U.S.C. §§ 9606(b) and 9622(f), and punitive damages pursuant to Section 107(c)(3) of CERCLA, 42 U.S.C. § 9607(c)(3), provided however, that EPA shall not seek civil penalties pursuant to Section 106(b) or Section 122(f) of CERCLA or punitive damages pursuant to Section 107(c)(3) of CERCLA for any violation for which a stipulated penalty is provided in this Settlement, except in the case of a willful violation of this Settlement or in the event that EPA assumes performance of a portion or all of the Work pursuant to Paragraph 66 (Work Takeover).

62. Notwithstanding any other provision of this Section, EPA may, in its unreviewable discretion, waive any portion of stipulated penalties that have accrued pursuant to this Settlement.

XVII. COVENANTS BY EPA

63. Except as provided in Section XVIII (Reservations of Rights by EPA), EPA covenants not to sue or to take administrative action against Respondents pursuant to Sections 106 and 107(a) of CERCLA, 42 U.S.C. §§ 9606 and 9607(a), for the Work. These covenants shall take effect upon the Effective Date. These covenants are conditioned upon the complete and satisfactory performance by Respondents of their obligations under this Settlement. These covenants extend only to Respondents and do not extend to any other person.

XVIII. RESERVATIONS OF RIGHTS BY EPA

64. Except as specifically provided in this Settlement, nothing in this Settlement shall limit the power and authority of EPA or the United States to take, direct, or order all actions

necessary to protect public health, welfare, or the environment or to prevent, abate, or minimize an actual or threatened release of hazardous substances, pollutants, or contaminants, or hazardous or solid waste on, at, or from the Site. Further, nothing in this Settlement shall prevent EPA from seeking legal or equitable relief to enforce the terms of this Settlement, from taking other legal or equitable action as it deems appropriate and necessary, or from requiring Respondents in the future to perform additional activities pursuant to CERCLA or any other applicable law.

65. The covenants set forth in Section XVII (Covenants by EPA) do not pertain to any matters other than those expressly identified therein. EPA reserves, and this Settlement is without prejudice to, all rights against Respondents with respect to all other matters, including, but not limited to:

- a. liability for failure by Respondents to meet a requirement of this Settlement;
- b. liability for Future Response Costs and for costs not included within the definition of Future Response Costs;
- c. liability for performance of response action other than the Work;
- d. criminal liability;
- e. liability for violations of federal or state law that occur during or after implementation of the Work;
- f. liability for damages for injury to, destruction of, or loss of natural resources, and for the costs of any natural resource damage assessments;
- g. liability arising from the past, present, or future disposal, release or threat of release of Waste Materials outside of the Site; and
- h. liability for costs incurred or to be incurred by the Agency for Toxic Substances and Disease Registry related to the Site.

66. Work Takeover.

- a. In the event EPA determines that Respondents: (1) have ceased implementation of any portion of the Work; (2) are seriously or repeatedly deficient or late in their performance of the Work; or (3) are implementing the Work in a manner that may cause an endangerment to human health or the environment, EPA may issue a written notice ("Work Takeover Notice") to Respondents. Any Work Takeover Notice issued by EPA (which writing may be electronic) will specify the grounds upon which such notice was issued and will provide Respondents a period of five (5) business days within which to remedy the circumstances giving rise to EPA's issuance of such notice.

- b. If, after expiration of the 5-day notice period specified in Paragraph 66.a, Respondents have not remedied to EPA's satisfaction the circumstances giving rise to EPA's issuance of the relevant Work Takeover Notice, EPA may at any time thereafter assume the performance of all or any portion(s) of the Work as EPA deems necessary ("Work Takeover"). EPA will notify Respondents in writing (which writing may be electronic) if EPA determines that implementation of a Work Takeover is warranted under this Paragraph 66.b.
- c. Respondents may invoke the procedures set forth in Paragraph 46 (Formal Dispute Resolution) to dispute EPA's implementation of a Work Takeover under Paragraph 66.b. However, notwithstanding Respondents' invocation of such dispute resolution procedures, and during the pendency of any such dispute, EPA may in its sole discretion commence and continue a Work Takeover under Paragraph 66.b until the earlier of (1) the date that Respondents remedy, to EPA's satisfaction, the circumstances giving rise to EPA's issuance of the relevant Work Takeover Notice, or (2) the date that a written decision terminating such Work Takeover is rendered in accordance with Paragraph 46 (Formal Dispute Resolution).
- d. Notwithstanding any other provision of this Settlement, EPA retains all authority and reserves all rights to take any and all response actions authorized by law.

XIX. COVENANTS BY RESPONDENTS

67. Respondents covenant not to sue and agree not to assert any claims or causes of action against the United States, or its contractors or employees, with respect to the Work and this Settlement, including, but not limited to:

- a. any direct or indirect claim for reimbursement from the EPA Hazardous Substance Superfund through Sections 106(b)(2), 107, 111, 112, or 113 of CERCLA, 42 U.S.C. §§ 9606(b)(2), 9607, 9611, 9612, or 9613, or any other provision of law;
- b. any claims under Sections 107 and 113 of CERCLA, Section 7002(a) of RCRA, 42 U.S.C. § 6972(a), or state law regarding the Work and this Settlement;
- c. any claim arising out of response actions at or in connection with the Site, including any claim under the United States Constitution, the State Constitution, the Tucker Act, 28 U.S.C. § 1491, the Equal Access to Justice Act, 28 U.S.C. § 2412, or at common law.

68. These covenants not to sue shall not apply in the event the United States brings a cause of action or issues an order pursuant to any of the reservations set forth in Section XVIII (Reservations of Rights by EPA), other than in Paragraph 65.a (liability for failure to meet a

requirement of the Settlement), 65.d (criminal liability), or 65.e (violations of federal/state law during or after implementation of the Work), but only to the extent that Respondents' claims arise from the same response action, response costs, or damages that the United States is seeking pursuant to the applicable reservation.

69. Nothing in this Settlement shall be deemed to constitute approval or preauthorization of a claim within the meaning of Section 111 of CERCLA, 42 U.S.C. § 9611, or 40 C.F.R. § 300.700(d).

70. Respondents reserve, and this Settlement is without prejudice to, claims against the United States, subject to the provisions of Chapter 171 of Title 28 of the United States Code, and brought pursuant to any statute other than CERCLA or RCRA and for which the waiver of sovereign immunity is found in a statute other than CERCLA or RCRA, for money damages for injury or loss of property or personal injury or death caused by the negligent or wrongful act or omission of any employee of the United States, as that term is defined in 28 U.S.C. § 2671, while acting within the scope of his or her office or employment under circumstances where the United States, if a private person, would be liable to the claimant in accordance with the law of the place where the act or omission occurred. However, the foregoing shall not include any claim based on EPA's selection of response actions, or the oversight or approval of Respondents' deliverables or activities.

XX. OTHER CLAIMS

71. By issuance of this Settlement, the United States and EPA assume no liability for injuries or damages to persons or property resulting from any acts or omissions of Respondents. The United States or EPA shall not be deemed a party to any contract entered into by Respondents or their directors, officers, employees, agents, successors, representatives, assigns, contractors, or consultants in carrying out actions pursuant to this Settlement.

72. Except as expressly provided in Section XVII (Covenants by EPA), nothing in this Settlement constitutes a satisfaction of or release from any claim or cause of action against Respondents or any person not a party to this Settlement, for any liability such person may have under CERCLA, other statutes, or common law, including but not limited to any claims of the United States for costs, damages, and interest under Sections 106 and 107 of CERCLA, 42 U.S.C. §§ 9606 and 9607.

73. No action or decision by EPA pursuant to this Settlement shall give rise to any right to judicial review, except as set forth in Section 113(h) of CERCLA, 42 U.S.C. § 9613(h).

XXI. EFFECT OF SETTLEMENT/CONTRIBUTION

74. Nothing in this Settlement shall be construed to create any rights in, or grant any cause of action to, any person not a Party to this Settlement. Except as provided in Section XIX (Covenants by Respondents), each of the Parties expressly reserves any and all rights (including, but not limited to, pursuant to Section 113 of CERCLA, 42 U.S.C. § 9613), defenses, claims, demands, and causes of action which each Party may have with respect to any matter, transaction, or occurrence relating in any way to the Site against any person not a Party hereto.

Nothing in this Settlement diminishes the right of the United States, pursuant to Section 113(f)(2) and (3) of CERCLA, 42 U.S.C. § 9613(f)(2)-(3), to pursue any such persons to obtain additional response costs or response action and to enter into settlements that give rise to contribution protection pursuant to Section 113(f)(2).

75. The Parties agree that this Settlement constitutes an administrative settlement pursuant to which each Respondent has, as of the Effective Date, resolved liability to the United States within the meaning of Sections 113(f)(2) and 122(h)(4) of CERCLA, 42 U.S.C. §§ 9613(f)(2) and 9622(h)(4), and is entitled, as of the Effective Date, to protection from contribution actions or claims as provided by Sections 113(f)(2) and 122(h)(4) of CERCLA, or as may be otherwise provided by law, for the “matters addressed” in this Settlement. The “matters addressed” in this Settlement are the Work.

76. The Parties further agree that this Settlement constitutes an administrative settlement pursuant to which each Respondent has, as of the Effective Date, resolved liability to the United States within the meaning of Section 113(f)(3)(B) of CERCLA, 42 U.S.C. § 9613(f)(3)(B).

77. Each Respondent shall, with respect to any suit or claim brought by it for matters related to this Settlement, notify EPA in writing no later than sixty (60) days prior to the initiation of such suit or claim. Each Respondent also shall, with respect to any suit or claim brought against it for matters related to this Settlement, notify EPA in writing within ten (10) days after service of the complaint or claim upon it. In addition, each Respondent shall notify EPA within ten (10) days after service or receipt of any Motion for Summary Judgment and within ten (10) days after receipt of any order from a court setting a case for trial, for matters related to this Settlement.

78. In any subsequent administrative or judicial proceeding initiated by EPA, or by the United States on behalf of EPA, for injunctive relief, recovery of response costs, or other relief relating to the Site, Respondents shall not assert, and may not maintain, any defense or claim based upon the principles of waiver, res judicata, collateral estoppel, issue preclusion, claim-splitting, or other defenses based upon any contention that the claims raised in the subsequent proceeding were or should have been brought in the instant case; provided, however, that nothing in this Paragraph affects the enforceability of the covenant by EPA set forth in Section XVII (Covenants by EPA).

XXII. INDEMNIFICATION

79. The United States does not assume any liability by entering into this Settlement or by virtue of any designation of Respondents as EPA’s authorized representatives under Section 104(e) of CERCLA, 42 U.S.C. § 9604(e), and 40 C.F.R. 300.400(d)(3). Respondents H. Kramer and BNSF shall indemnify, save, and hold harmless the United States, its officials, agents, employees, contractors, subcontractors, and representatives for or from any and all claims or causes of action arising from, or on account of, negligent or other wrongful acts or omissions of Respondents H. Kramer and BNSF, their respective officers, directors, employees, agents, contractors, or subcontractors, and any persons acting on their behalf or under their control, in

carrying out activities pursuant to this Settlement. Further, Respondents H. Kramer and BNSF agree to pay the United States all costs it incurs, including but not limited to attorneys' fees and other expenses of litigation and settlement arising from, or on account of, claims made against the United States based on negligent or other wrongful acts or omissions of Respondents H. Kramer and BNSF, their respective officers, directors, employees, agents, contractors, subcontractors, and any persons acting on their behalf or under their control, in carrying out activities pursuant to this Settlement. The United States shall not be held out as a party to any contract entered into by or on behalf of Respondents in carrying out activities pursuant to this Settlement. Neither Respondents nor any contractor for any Respondent shall be considered an agent of the United States; and without limitation to the foregoing, neither the City, nor the City of Chicago Department of Transportation, any other agency or department of the City, or any other or any contractor doing any work for the City shall be considered an agent of the United States.

80. The United States shall give Respondents notice of any claim for which the United States plans to seek indemnification pursuant to this Section and shall consult with Respondents prior to settling such claim.

81. Respondents covenant not to sue and agree not to assert any claims or causes of action against the United States for damages or reimbursement or for set-off of any payments made or to be made to the United States, arising from or on account of any contract, agreement, or arrangement between any one or more of Respondents and any person for performance of Work on or relating to the Site, including, but not limited to, claims on account of construction delays. In addition, Respondents H. Kramer and BNSF, respectively, shall indemnify and hold harmless the United States with respect to any and all claims for damages or reimbursement arising from or on account of any respective contract, agreement, or arrangement between any one or more of Respondents and any person for performance of Work on or relating to the Site, including, but not limited to, claims on account of construction delays.

XXIII. INSURANCE

82. No later than ten (10) days before commencing any on-site Work, Respondents shall secure, and shall maintain until the first anniversary after issuance of Notice of Completion of Work pursuant to Section XXV (Notice of Completion of Work), commercial general liability insurance with limits of \$1.0 million, for any one occurrence, and automobile insurance with limits of \$1.0 million, combined single limit, naming EPA as an additional insured with respect to all liability arising out of the activities performed by or on behalf of Respondents pursuant to this Settlement. In addition, for the duration of the Settlement until Notice of Completion is issued pursuant to Paragraph 86, Respondents shall provide EPA with certificates of such insurance. Respondents shall resubmit such certificates each year on the anniversary of the Effective Date. Any Respondent that is self-insured shall provide a letter to EPA certifying Respondent's self-insured status within seven (7) days of the Effective Date and resubmit such letter each year on the anniversary of the Effective Date. In addition, for the duration of the Settlement, Respondents shall satisfy, or shall ensure that their contractors or subcontractors satisfy, all applicable laws and regulations regarding the provision of worker's compensation insurance for all persons performing the Work on behalf of Respondents in furtherance of this

Settlement. If Respondents demonstrate by evidence satisfactory to EPA that any contractor or subcontractor maintains insurance equivalent to that described above, or insurance covering some or all of the same risks but in an lesser amount, Respondents need provide only that portion of the insurance described above that is not maintained by the contractor or subcontractor.

XXIV. MODIFICATION

83. The OSC may modify any plan or schedule in writing or by oral direction. Any oral modification will be memorialized in writing by EPA promptly, but shall have as its effective date the date of the OSC's oral direction. Any other requirements of this Settlement may be modified in writing by mutual agreement of the parties.

84. If Respondents seek permission to deviate from any approved work plan or schedule, Respondents' Project Coordinator shall submit a written request to EPA for approval outlining the proposed modification and its basis. Respondents may not proceed with the requested deviation until receiving oral or written approval from the OSC pursuant to Paragraph 83.

85. No informal advice, guidance, suggestion, or comment by the OSC or other EPA representatives regarding any deliverable submitted by Respondents shall relieve Respondents of their obligation to obtain any formal approval required by this Settlement, or to comply with all requirements of this Settlement, unless it is formally modified.

XXV. NOTICE OF COMPLETION OF WORK

86. When EPA determines, after EPA's review of the Final Report, that all Work has been fully performed in accordance with this Settlement, with the exception of any continuing obligations required by this Settlement, including Post-Removal Site Controls, land, water, or other resource use restrictions, or record retention, EPA will provide written notice to Respondents. If EPA determines that such Work has not been completed in accordance with this Settlement, EPA will notify Respondents, provide a list of the deficiencies, and require that Respondents modify the Removal Work Plan if appropriate in order to correct such deficiencies. Respondents shall implement the modified and approved Removal Work Plan and shall submit a modified Final Report in accordance with the EPA notice. Failure by Respondents to implement the approved modified Removal Work Plan shall be a violation of this Settlement. Upon EPA's issuance of Notice of Completion, this Administrative Order on Consent shall be deemed to be terminated, provided that the Record Retention obligations of Section XI shall survive such termination.

XXVI. INTEGRATION/APPENDICES

87. This Settlement and its appendices constitute the final, complete, and exclusive agreement and understanding among the Parties with respect to the settlement embodied in this Settlement. The parties acknowledge that there are no representations, agreements, or understandings relating to the settlement other than those expressly contained in this Settlement. The following appendices are attached to and incorporated into this Settlement: Appendix A

(showing Site location and boundaries); Appendix B (Action Memorandum); Appendix C (Removal Work Plan); and Appendix D (TCLP Lead Location Map).

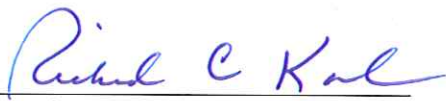
XXVII. EFFECTIVE DATE

88. This Settlement shall be effective seven (7) days after the Settlement is signed by the Director of the Superfund Division of EPA Region 5.

IT IS SO AGREED AND ORDERED:

U.S. ENVIRONMENTAL PROTECTION AGENCY:

9-29-¹⁵
Dated



Name RICHARD C KARL
Director, Superfund Division
Region 5
U.S. Environmental Protection Agency

**Signature Page for Settlement Regarding the Pilsen Soil Operable Unit 1 Railroad Spur
and Alley Site, Chicago, Illinois**

The undersigned representative of Respondent H. Kramer & Co. certifies that he is fully
authorized to enter into the terms and conditions of this Settlement and to bind the party he
represents to this document.

FOR: _____
H. Kramer & Co.

9/25/2015
Dated



Randall K. Weil
Executive Vice President
H. Kramer & Co.


**Signature Page for Settlement Regarding the Pilsen Soil Operable Unit 1 Railroad Spur
and Alley Site, Chicago, Illinois**

The undersigned representative of Respondent City of Chicago certifies that he is fully
authorized to enter into the terms and conditions of this Settlement and to bind the party he
represents to this document.

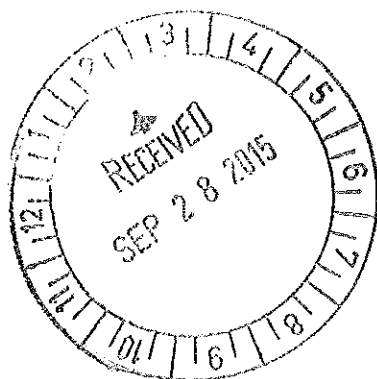
FOR: _____

City of Chicago

9/25/15
Dated



George D. Theophilus
Senior Corporation Counsel
City of Chicago




**Signature Page for Settlement Regarding the Pilsen Soil Operable Unit 1 Railroad Spur
and Alley Site, Chicago, Illinois**

The undersigned representative of Respondent BNSF Railway Company certifies that he is fully authorized to enter into the terms and conditions of this Settlement and to bind the party he represents to this document.

FOR: _____
BNSF Railway Company

9/25/15
Dated



Allen M. Stegman
General Director, Remediation and Environmental
Programs
BNSF Railway Company

Approved as to form:

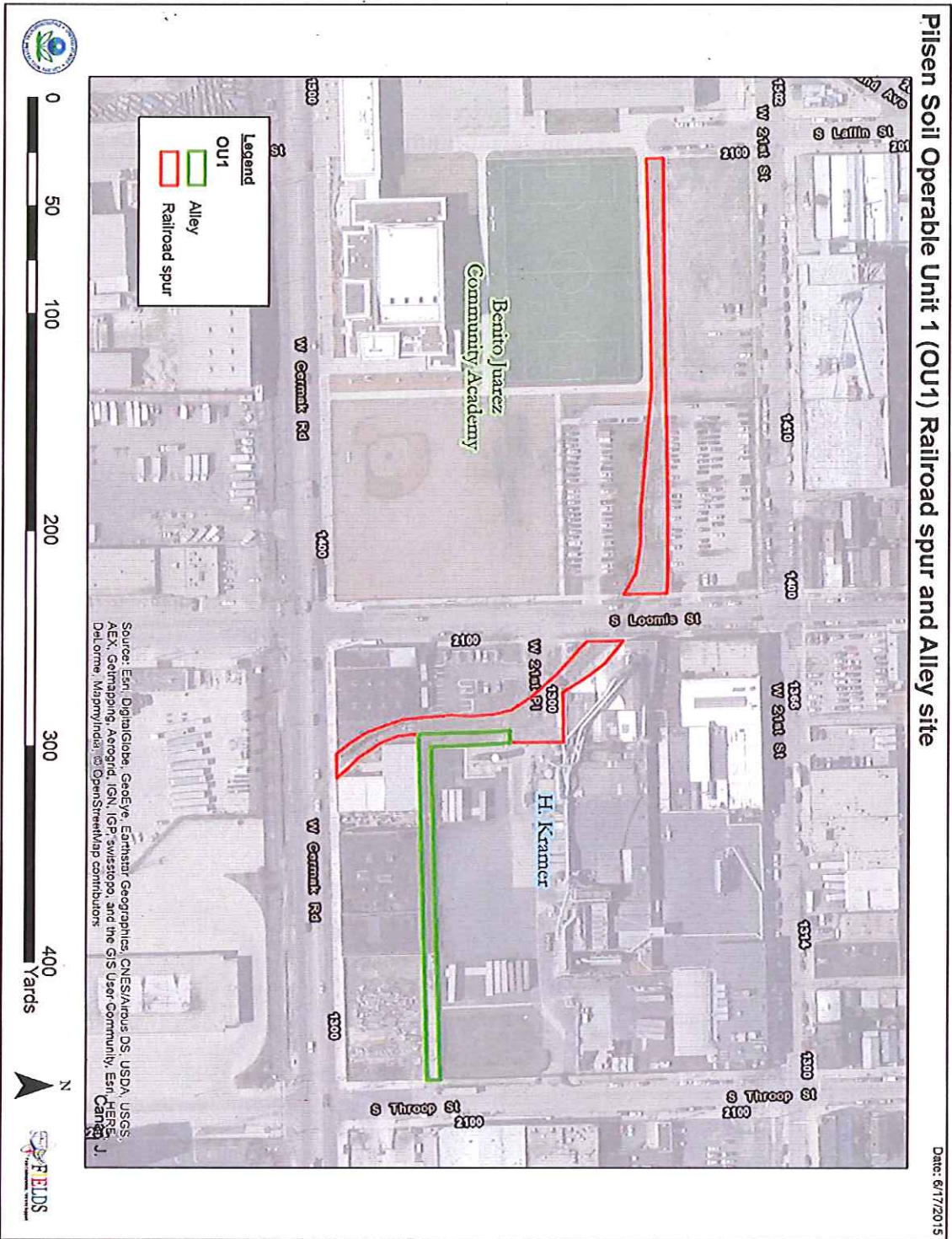


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**In the Matter of Pilsen Soil Operable Unit 1 Railroad
Spur and Alley Site, Chicago, Illinois**

**Appendix A
Site Location and Boundaries**

Figure 1-2 Pilsen Soil Operable Unit 1 Railroad Spur and Alley Site



**In the Matter of Pilsen Soil Operable Unit 1 Railroad
Spur and Alley Site, Chicago, Illinois**

**Appendix B
Action Memorandum**



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 5
77 WEST JACKSON BOULEVARD
CHICAGO, IL 60604-3590

US EPA RECORDS CENTER REGION 5



REPLY TO THE ATTENTION OF:

MEMORANDUM

SUBJECT: ACTION MEMORANDUM—Request for Approval and Funding for a Time-Critical Removal Action at the Pilsen Soil Operable Unit 1 Railroad Spur and Alley Site, Chicago, Cook County, Illinois (Site ID C5N8_01)

FROM: Ramon Mendoza, On-Scene Coordinator *RM for*
Removal Response Section 3

THRU: Samuel Borries, Chief *Sam Borries*
Emergency Response Branch 2

TO: Richard C. Karl, Director
Superfund Division

I. PURPOSE

The purpose of this Action Memorandum is to request and document your approval to expend up to \$1,144,541 to conduct a time-critical removal action at the Pilsen Soil Operable Unit (OU) 1 Railroad Spur and Alley Site, Chicago, Cook County, Illinois (Site ID C5N8_01). The proposed time-critical removal action herein will mitigate threats to public health, welfare and the environment posed by the presence of lead-contaminated surface soil on industrial properties at the Site by the capping, immobilization, and proper excavation and off-site disposal of lead contaminated soil.

This Action Memorandum serves as approval for expenditures by USEPA, as the lead technical agency, to take actions described herein to abate the imminent and substantial endangerment posed by hazardous substances at the Site. The proposed removal of hazardous substances would be taken pursuant to Section 104(a)(1) of the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA), 42 U.S.C. § 9604(a)(1), and Section 300.415 of the National Oil and Hazardous Substances Pollution Contingency Plan (NCP), 40 C.F.R. § 300.415. Based on the level of hazardous substances and the threat to the community, this removal action is considered time-critical. The project will require an estimated 45 working days to complete.

II. SITE CONDITIONS AND BACKGROUND

CERCLIS ID: ILN000504472

RCRA ID: ILD 005 067 772

State ID: None

Category: Time-Critical

A. Site Description

The Site consists of an alley (owned by the City of Chicago) and a railroad spur (historically operated by Burlington Northern Santa Fe Railway [BNSF]) located in the Lower West Side (Pilsen) area of Chicago, Cook County, Illinois (Figures 1-1 and 1-2). The Site is in the City's 25th Ward. The east to west portion of the alley is approximately 460 feet (ft) long and 18 ft wide (approximately 8,280 square feet [ft²] in area) and is roughly paved with asphalt over 25% of its length from the east side (Figure 1-2). The north to south portion of the alley is about 110 feet long. The remaining 75% of the alley is soil.¹ The alley, connects South Loomis Street and South Throop Street, south of West 21st Street and north of West Cermak Road. The alley is bordered to the north by H. Kramer and Company (H. Kramer), the east by South Throop Street, to the south by commercial and industrial businesses, and to the west by the railroad spur and then South Loomis Street.(Figure 1-2).

The railroad spur is approximately 1,120 ft long and 28,215 ft² in total area. The railroad spur consists of an unused rail track and soil² and asphalt where it is bisected by South Loomis Street (not part of the Site, Figure 1-2). The western portion of the railroad spur is located in the north region of a property occupied by the Benito Juarez Community Academy (Juarez), located at 1450-1510 West Cermak Road. The railroad spur curves to the south, crosses South Loomis Street, and extends along the west boundary of H. Kramer, located at 1345 West 21st Street. The eastern portion of the railroad spur is bordered by a former tire service company to the west (Tire Grading Company, 1358 West Cermak Road), a metal processing company to the east (Wheeling Metal Processing Company, 1338 West Cermak Road), and West Cermak Road to the south. According to a historical Sanborn fire insurance map, the railroad spur and the alley have existed since at least 1914.

The Site is an industrial site in a residential neighborhood with a portion of it (Western Area of the Railroad Spur west of Loomis Street) located within a ¼-mile of two schools - Juarez and the Manuel Perez Jr. Elementary School (Perez). Two City of Chicago parks are located within a ½-mile-radius of the Site, Dvorak Park and Throop Park. In 2010, approximately 40,983 people lived within 1 mile of the Site. Please See Figure 2-1 and Attachment II (Environmental Justice

¹ As observed during the removal site evaluation, the alley and railroad spur soil (surface soil and subsurface soil) generally consisted of silty, clayey, sandy, and gravelly fill materials. In the alley soil, some traces of wood chips, cinders, and pieces of glass, brick, plastic debris, and slag [slag was observed in eight alley soil borings and one railroad spur soil boring]. Slag is a solid-phase waste generated by secondary lead processing (USEPA 1995)]. In general, the surface and subsurface railroad soil contained more gravel than the alley soil. The western portion of the railroad spur west of Loomis street also contained vegetation (weeds) and garbage.

² Same as 1

Analysis). The Chicago Sanitary and Ship Canal is located approximately 0.45 miles to the south. According to National Oceanic and Atmospheric Administration (NOAA) meteorological data collected from 1928 to 2013, the predominant wind direction in the Chicago, Illinois area is from the southwest. Figure 2-2 presents a projected wind direction swath superimposed over the southwest region of the Site.

H. Kramer is among the suspected present and historical industrial sources of lead air emissions in the Site area. H. Kramer is a corporation that owns and operates a secondary nonferrous metals facility manufacturing primarily brass and bronze ingots, where a portion of the facility's production capacity is devoted to lead-containing metal alloys. In general, the secondary production of lead begins with the recovery of old scrap from worn-out, damaged, or obsolete products and new scrap that is made of product wastes and smelter-refinery drosses, residues, and slags. Secondary lead processing results in the generation of air emissions and solid-phase wastes. Reverberatory and blast furnaces used in smelting account for the vast majority of the total lead emissions. Other emissions from secondary smelting include oxides of sulfur and nitrogen, antimony, arsenic, copper, and tin. The solid-phase wastes generated by secondary processing include emission control dust and slag. Slag produced during lead processing is composed of iron, calcium, and silicon oxides, aluminum, and potentially several other metals in smaller amounts including antimony, arsenic, beryllium, cadmium, chromium, cobalt, copper, lead, manganese, mercury, molybdenum, silver, and zinc (EPA, 1995). H. Kramer is listed in the EPA Toxic Release Inventory (TRI) System. TRI facilities are legally required to report to EPA, and EPA has tracked both fugitive and stack emissions from H. Kramer from 1987 to 2013. Fugitive emissions are emissions that could not reasonably pass through a stack, chimney, vent, or other functionally equivalent opening, and often occur during leaks from pressurized equipment or during material transfer. From 1987, approximately 54,366 pounds of lead, 832,567 pounds of zinc, and 6,782 pounds of copper have been released via fugitive and stack emissions according to the TRI system (EPA TRI Report 2015). High levels of lead in onsite surface soil at H. Kramer was documented during the facility's voluntary soil cleanup conducted under oversight by the Illinois EPA (completed in 2011). Fugitive air emissions containing lead in violation of the Clean Air Act (CAA) from H. Kramer has also been documented by EPA during the course of its own enforcement actions which resulted in a settlement agreement in January 2013 to install state of the art air pollution controls at the facility. Based on the aforementioned history of release of zinc, copper and lead, at H. Kramer and its close proximity to the alley and railroad spur, EPA expected to find elevated levels of lead, zinc and copper in the soil in the alley and railroad spur (Site).

1. Removal Site Evaluation

In December 2012 and May 2013, EPA and its START contractors initiated its evaluation of the potential impacts of possible aerial deposition of heavy metals from historic industrial activity in the vicinity of the Site. In addition, soil samples were collected (in August 2013) in the Little Italy area about 1 mile north of the Site so that results could be compared to a reference area as part of the evaluation. Soil samples were also collected in the Western area of the railroad spur in April 2015 to evaluate areas not previously sampled. In all areas, EPA received consent to access from the known owners. Sampling was conducted in accordance with approved field sampling plans, health and safety plans, and Quality Assurance Project Plans.

Alley Sampling: On December 19, 2012, EPA conducted a field sampling event at the alley portion of the Site. The alley was divided into 10 sections of roughly equal surface area. Within each section, a Geoprobe® drill rig was used to advance two soil borings to a depth up to 4 ft below ground surface (bgs). Twenty soil borings were advanced. The 0- to 6-, 6- to 12-, 12- to 24-, 24- to 36-, and 36- to 48-inch bgs intervals from each soil boring were placed into disposable polyethylene bags, homogenized, and screened for total metals using a handheld Innov-X Delta XRF analyzer.

Based on the results of the screening, 21 investigative samples were collected as follows:

- Ten composite samples were collected from the 10 sections of the alley, one composite from each section. Composite soil samples consisted of an aliquot of soil from both borings in a section, taken from the depth interval showing the highest total lead XRF screening concentration
- One additional composite sample was collected from 0 to 6 inches bgs from location AY-03 and three step-out locations 5 ft to the west, south, and east of AY-03.
- Ten grab soil samples were also collected from the alley. One grab soil sample was collected from one of the two borings within each of the 10 sections at the depth interval showing the highest total lead XRF screening concentration.

Soils collected for grab samples were taken directly from the disposable polyethylene bag used for screening and placed into two laboratory-provided glass sample jars. Soils collected for composite samples were placed into new disposable polyethylene bags, combined with equal aliquots of other intervals making up the composite, homogenized, and placed into two glass sample jars. One of the two soil sample jars was submitted to the National Enforcement Investigation Center (NEIC) who assisted in determining the source of the lead contamination. The second soil sample jar was analyzed by STAT for at least one of the following analyses: 1) Total Resource Conservation and Recovery Act (RCRA) metals (silver, arsenic, barium, cadmium, chromium, mercury, lead, and selenium) plus antimony, copper, tin, and zinc; 2) total lead coarse-grained fraction (grain size > 250 µm); 3) total lead - fine-grained fraction³ (grain size < 250 µm); 4) bioavailable lead; 5) toxicity characteristic leaching procedure (TCLP) RCRA metals; 6) pH and 7) moisture content.

Sampling results for the alley indicated that three samples contained TCLP lead concentrations that exceeded the TCLP lead regulatory limit of 5.0 mg/L. Therefore, these samples represent materials that meet the definition of hazardous waste by virtue of the characteristic of toxicity. See 40 C.F.R. § 261.24(b). Antimony, arsenic, copper, lead, and fine-grained lead were detected at concentrations above EPA Removal Management Levels (RML) for residential soil, hazard quotient (HQ) 3. Lead concentration averages and ranges were above the residential (400 mg/kg) and industrial (800 mg/kg) EPA RMLs. Since the Site is used for industrial purposes lead was identified as the main contaminant of concern. Lead results are summarized in Table 1:

³ Fine-grained lead: Based on the recommendation of the EPA toxicologist, an additional analysis for total lead (fine grain fraction) was added to the total lead analysis. This involved screening the sample through a 250 µm sieve and the smaller particles (<250µm) being analyzed for lead. Fine-grained lead are smaller particles which can be more easily disturbed and become airborne which results in a higher incidence of exposure to the residents. The fine-grained lead results were used for the risk assessment for the Site.

Table 1	Alley Surface Soil (0-6 inches bgs) Results			Alley Subsurface Soil (6-12 and 12-24 inches bgs) Results		
	No. of Samples*	Average*	Range	No. of Samples*	Average*	Ranges
Total Lead	11	2,419 mg/kg	63 - 5,600 mg/kg	10	6,300 mg/kg	1,600 - 16,000 mg/kg
Fine-Grained Lead	11	2,662 mg/kg	180 - 6,600 mg/kg	10	4,980 mg/kg	2,000 - 9,300 mg/kg

*Number of samples and average calculations do not include duplicate samples

Surface Soil : Total Lead - 2 out of 11 samples below 800 mg/kg RML ;

Lead Fines - 1 out of 11 samples below 800 mg/kg RML;

Subsurface Soil : Total Lead - 0 of 10 samples below 800mg/kg RML

Lead Fines - 0 of 10 samples below 800mg/kg RML

Railroad Spur Sampling: On May 6, 2013 EPA used a Geoprobe® drill rig to advance 16 soil borings to 2 feet bgs at the railroad spur portion of the Site. The 0- to 6-, 6- to 12-, and 12- to 24-inch bgs intervals of each soil boring were placed into disposable polyethylene bags, homogenized, and screened for total metals using EPA's Innov-X Alpha Series XRF analyzer. Twelve investigative composite soil samples were collected from 13 locations on the railroad spur and submitted for analytical laboratory analysis. Composite samples consisted of equal aliquots collected from two or three adjacent borings, from either 0 to 6 or 6 to 24 inches bgs. Soils from composite samples were homogenized in disposable polyethylene bags before placing into one or two sample jars (two if the sample was analyzed for bioavailable lead). Soil samples were submitted for at least one of the following analyses: 1) Select total metals (antimony, copper, cadmium, chromium, mercury, lead, tin, and zinc); 2) total lead fine-grained fraction (grain size < 250 µm); 3) bioavailable lead; and 4) pH.

Two samples contained TCLP lead concentrations that exceeded the TCLP lead regulatory limits and meet the definition of hazardous waste by virtue of the characteristic of toxicity. Copper, lead, fine-grained lead, and zinc were detected at concentrations above EPA RMLs for residential soil, HQ 3. Lead concentration averages and ranges were above the residential and industrial RML and are summarized in Table 2:

Table 2	Railroad Spur Surface Soil (0-6 inches bgs) Results			Railroad Spur Subsurface Soil (6-24 inches bgs) Results		
	No. of Samples*	Average*	Range	No. of Samples*	Average*	Ranges
Total Lead	6	4,340 mg/kg	940 - 11,000 mg/kg	6	2,417 mg/kg	1,000 - 5,500 mg/kg
Fine-Grained Lead	6	6,950 mg/kg	900 - 23,000 mg/kg	6	3,297 mg/kg	980 - 9,500 mg/kg

*Number of samples and average calculations do not include duplicate samples

Surface Soil : Total Lead - 0 out of 6 samples below 800 mg/kg RML ;

Lead Fines - 0 out of 6 samples below 800 mg/kg RML;

Subsurface Soil : Total Lead - 0 of 6 samples below 800mg/kg RML

Lead Fines - 0 of 6 samples below 800mg/kg RML

Western Area of Railroad Spur Soil Sampling: On April 27, 2015, EPA conducted additional investigative activities at the location known as “Western Area” as part of the removal site evaluation for the Site. The Western Area is about a 500 foot section of the western portion of the railroad spur directly north of the soccer field and parking lot of Benito Juarez High School. Soil samples had been collected in other portions of the Site’s railroad spur in May 2013. Sample locations were set approximately 50 feet apart east and west across the railroad spur for a total of 10 sample locations. In general, soil samples were collected using steel hand augers from 0-6 inches and from 6-24 inches below ground surface. Soil was collected and composited at the 0-6 inch interval and 6-24 inch intervals for screening with an XRF. Two soil samples were collected from each sample location for a total of 20 samples which were sent to a laboratory for analysis. Lab analyses were conducted for: 1) Total metals: cadmium, copper, lead, tin, and zinc; 2) TCLP lead; and 3) lead fines.

The results indicate that lead was the only metal that exceeded the EPA industrial RML. Surface results are shown in Figure 3 and Table 4.)

Table 4	Western Area of Railroad Spur Surface Soil (0-6 inches bgs) Results			Western Area of Railroad Spur Subsurface Soil (6-24 and 6-18 inches bgs) Results		
	No. of Samples	Average	Range	No. of Samples	Average	Ranges
Total Lead	10	1,336 mg/kg	499 - 2,290 mg/kg	10	530 mg/kg	168 - 1,350 mg/kg
Fine- Grained Lead	10	2,074 mg/kg	898 - 3,540 mg/kg	10	931 mg/kg	358 - 2,730 mg/kg

*Number of samples and average calculations do not include duplicate samples

Note: Surface Soil : Total Lead - 1 out of 10 samples below 800 mg/kg RML ;
Lead fines - 0 out of 10 samples below 800 mg/kg RML;
Subsurface Soil : Total Lead - 8 of 10 samples below 800mg/kg RML
Lead Fines - 5 of 10 samples below 800mg/kg RML

In general, Western Area surface soil lead concentrations were greater than the subsurface soil, or decreased with increasing depth at each location. In addition, lead concentrations indicated a decreasing trend from east to west, as one traveled further away from H. Kramer in the predominant upwind direction. As explained below, elevated lead concentrations were co-located with elevated zinc concentrations. The zinc to lead ratios indicated a pattern greater than the Little Italy reference area (greater than 1), similar to zinc to lead ratios found on H. Kramer’s facility and further east along the railroad spur.

Little Italy Reference Area Soil Sampling: In August 2013, EPA conducted a field sampling event in the Little Italy reference area, which is located approximately 1.2 miles north of the Site (See Figure 1-1 for location). Data collected from this area served as a reference for soil suspected to be less impacted by heavy metal emitters near the Site. The results are tabulated below in Table 5.

Table 5	Little Italy Surface Soil (0-6 inches bgs) Results			Little Italy Subsurface Soil (6-24 and 6-18 inches bgs) Results		
	No. of Samples*	Average*	Range	No. of Samples*	Average*	Ranges
Total Lead	11	249	66-760 mg/kg	3	431 mg/kg	92 - 930 mg/kg
Fine- Grained Lead	11	335	66-1,300 mg/kg	3	640 mg/kg	150 - 1,400 mg/kg

*Number of samples and average calculations do not include duplicate samples

Surface Soil : Total Lead – 11 out of 11 samples below 800 mg/kg RML ;

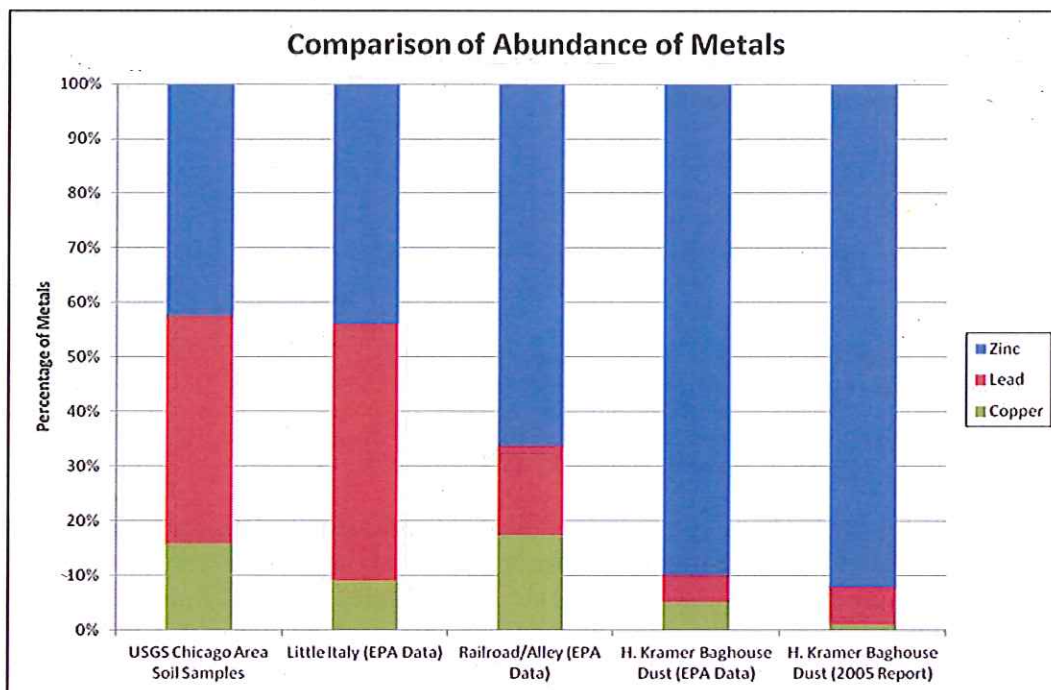
Lead Fines – 10 out of 11 samples below 800 mg/kg RML;

Subsurface Soil : Total Lead - 0 of 3 samples below 800mg/kg RML

Lead Fines - 0 of 3 samples below 800mg/kg RML

EPA FIELDS Statistical Study (Nov. 2014): EPA's Field Environmental Decision Support (FIELDS) Team used statistical software to compare analytical laboratory concentrations of cadmium, copper, lead, fine-grained lead, tin, and zinc from samples collected from 0 to 6 inches bgs at the Site, the Little Italy reference area, and the City of Chicago background study (USGS, 2003). Analytical laboratory concentrations of cadmium, copper, lead, fine-grained lead, tin, and zinc in Site soil samples were significantly higher (p -value < 0.05) than in the samples collected from the Little Italy reference area and the City of Chicago background study. These results suggest the Little Italy reference area and the City of Chicago background have not been impacted by the same emitters of heavy metals, nor to the same degree, as the alley and railroad spur.

EPA FIELDS also compared the relative abundances of lead, zinc, and copper between the Site, City of Chicago background, Little Italy reference area, and two H. Kramer baghouse datasets (See Graph: Comparison of Abundance of Metals, below). Zinc, lead, and copper were present in the City of Chicago background samples at approximately 42, 42, and 16 %, respectively. Similarly, zinc, lead, and copper were present in Little Italy reference area samples at approximately 44, 47, and 9 %, respectively. A higher relative abundance of zinc and a lower relative abundance of lead were present in surface soil samples collected from the Site at approximately 66, 16, and 17 % zinc, lead, and copper, respectively. An even higher relative abundance of zinc and lower relative abundance of lead were present in H. Kramer baghouse samples at approximately 92, 7, and 1% zinc, lead, and copper, respectively for samples analyzed by H. Kramer (2005) and 90, 5, and 5 % zinc, lead, and copper, respectively for baghouse samples analyzed by EPA. Based on the higher abundance of zinc (22-24% higher) and lower relative abundance of lead (26-31 % lower) in Site soils compared to the City of Chicago background study and the Little Italy reference area, the Site also appears to have been impacted by a release of zinc, in addition to the release of lead. H. Kramer baghouse samples contained 90-92 % zinc and approximately 832,567 pounds of zinc have been released via fugitive and stack emissions since 1987 (EPA 2013a). While this analysis does not attribute a release of lead to H. Kramer, within the City of Chicago, detections of lead and zinc have been found to be highly correlated ($R^2 = 0.91$), suggesting that two elements have been added to soil largely from the same material or process rather than independently distributed constituents (USGS 2003)



Furthermore, based on the presence of slag in Site soil borings, analytical laboratory results for Site soil samples, and EPA FIELDS comparisons to the Little Italy reference area and City of Chicago background study (USGS 2003), the Site appears to have been impacted by an industrial release of cadmium, copper, tin, zinc, and lead.

EPA NEIC Report (Feb. 2015) - NEIC evaluated the analytical results and soil samples from the alley, railroad, and reference soils from the Pilsen neighborhood and compared them to H. Kramer baghouse dust, and H. Kramer slag data. Results were consistent with brass and bronze foundry materials (emissions dust or slag) as the predominant sources of lead in the alley and railroad. Specifically: 1) Micrometer scale Zn-oxide particles were found in the railroad soil were similar to micrometer scale Zn-oxide particles observed in the baghouse dust of H. Kramer; 2) Relative elemental concentrations indicated similar relative abundances of copper, lead, and tin in H. Kramer baghouse dust and in alley and railroad soils near H. Kramer. H. Kramer is the only brass and bronze foundry to have ever operated within 0.5 miles of the Site.

1. Physical Location

The geographical coordinates for the alley portion of the Site are 41° 51' 10.38" North latitude and 87° 39' 35.54" West longitude. The geographical coordinates for the railroad portion of the Site are 41° 51' 13.58" North latitude and 87° 39' 41.66" West longitude. (See Figures 1-1, 1-2, and 2-1 for more information).

An Environmental Justice (EJ) analysis for the Site is contained in Attachment II. Screening of the surrounding area used Region 5's EJ Screen Tool. EPA has reviewed the environmental and

demographic data for the area surrounding the Site and determined there is a high potential for EJ concerns at this location. For more details, see Attachment II.

2. Site Characteristics

The alley and railroad portions of the Site are currently being used for parking, vehicle traffic, and foot traffic. The railroad spur portion of the Site is no longer operated as a railroad as of 2013. Numerous portions of the Site are unfenced and may be used as a walkway for pedestrians. Most of the pedestrian traffic consists of workers from the businesses around the immediate area. However, pedestrian traffic on Loomis street adjacent to the Site also includes students and residents in the area. The Western Area of the railroad spur, which runs about 500 feet west of Loomis, is mostly abandoned rail tracks that are fenced off and intersected by a small asphalt driveway between the north and south parking lots for Juarez.

3. Release or Threatened Release into the Environment of a Hazardous Substance, or Pollutant, or Contaminant

Analytical results from the investigation indicate that lead is the primary contaminant of concern. Lead is a "hazardous substance" by definition under Section 101(14) of CERCLA, 42 U.S.C. § 9601(14); *see also* 40 C.F.R. § 302.4. It has been released into the surface soil and at depth in the alley and railroad spur at concentrations above the industrial and residential USEPA RMLs of 800 and 400 mg/kg, respectively.

In addition, soil sample results showed TCLP lead concentrations that exceeded the TCLP lead regulatory limit. Therefore, these samples represent materials that meet the definition of hazardous waste by virtue of the characteristic of toxicity. *See* 40 C.F.R. § 261.24(b).

Average alley surface soil total lead and fine-grained lead concentrations (0-6 inches bgs, not including duplicate samples) were 2,419 and 2,662 mg/kg, respectively (N=12). Lead concentrations in surface soil samples collected in the alley ranged from 63 to 5,600 mg/kg. Fine-grained lead concentrations ranged from 180 to 6,600 mg/kg. (see Table 1)

Average railroad spur surface soil total lead and fine-grained lead concentrations (0-6 inches bgs, not including duplicate samples) were 4,340 and 6,950 mg/kg, respectively (N=6). Lead concentrations in surface soil samples collected from the railroad spur area (0-6 inches bgs) ranged from 940 to 11,000 mg/kg. Fine-grained lead concentrations ranged from 900 to 23,000 mg/kg. Fine-grained lead are smaller particles which can be more easily disturbed and become airborne which results in a higher incidence of exposure to the residents. The fine-grained lead results were used for the risk assessment for the Site. (See Table 2)

The lead from the Site has and can be released into the surrounding neighborhood, which includes residences and schools, through wind and rain runoff and through present use (such as people walking and driving vehicles over the Site, carrying lead contaminated soil off-Site).

The Site is not on the National Priorities List (NPL), and is not being proposed for inclusion on the NPL.

4. Maps, Pictures, and Other Graphic Representations

The following Figures are included as attachments:

- Figure 1 – Site Location Map;
- Figure 1-2 – Pilsen Soil OU1 Railroad Spur and Alley Site
- Figure 2-1 – Site Features Map;
- Figure 2-2 – Predominant Wind Pathway Map;
- Figure 3 – Western Area of Railroad Spur, Surface Soil Sampling Results;
- Figure 4-1 – Alley Results of Surface Soil Samples Summary;
- Figure 4-2 – Railroad Spur Results of Surface Soil Samples Summary.

5. Other Actions to Date

a. Previous Actions

BNSF installed temporary fencing at the railroad spur in April 2014 to limit access to workers and residents in the area. No other response actions have been taken at the Site since the EPA Removal Site Evaluation report was completed in April 2014.

b. Current Actions

No current actions by H. Kramer, BNSF, or local/state governments are underway at the Site.

6. State and Local Authorities' Roles

a. State and Local Actions to Date

No response actions have been taken by the State or City at the Site. However, the Illinois Environmental Protection Agency (Illinois EPA) oversaw a voluntary cleanup of H. Kramer's property adjacent to the Site. The cleanup was completed in 2012. Since the EPA Removal Site Evaluation was initiated in December 2012, the City of Chicago Department of Health (DOH) and the Aldermanic Office of Danny Solis (25th Ward) has coordinated with EPA's activities to investigate the Site and conduct community outreach to help educate and inform the residents.

b. Potential for Continued State/Local Response

EPA will continue to coordinate its enforcement and response actions at the Site with the appropriate agencies, including the Illinois EPA, Chicago DOH, and Alderman Solis's Office.

III. THREATS TO PUBLIC HEALTH, WELFARE, AND THE ENVIRONMENT, AND STATUTORY AND REGULATORY AUTHORITIES

Conditions at the Site pose an imminent and substantial endangerment to public health, welfare, and the environment and meet the criteria for a time-critical removal action provided for in Section 300.415(b)(2) of the National Oil and Hazardous Substances Pollution Contingency Plan (NCP), 40 C.F.R. § 300.415(b)(2). These criteria include, but are not limited to, the following:

1. Actual or potential exposure of nearby human populations, animals, or the food chain to hazardous substances, pollutants, or contaminants.

Analysis of soil samples collected in surface and subsurface soils confirmed the presence of lead at concentrations exceeding the residential and industrial EPA RMLs of 400 and 800 mg/kg in almost every soil sampling location. Lead is a "hazardous substance" by definition under Section 101(14) of CERCLA, 42 U.S.C. § 9601(14); *see also* 40 C.F.R. § 302.4. Furthermore, three soil samples from the alley contained TCLP lead at concentrations of 12, 12, and 9.6 mg/L, and two soil samples from the railroad spur contained TCLP lead at concentrations of 12 and 13 mg/L. These TCLP lead concentrations exceed the TCLP lead regulatory limit of 5.0 mg/L at 40 C.F.R. § 261.24 (b), indicating these soils are hazardous for the characteristic of toxicity. Besides lead, antimony, arsenic, copper, and zinc were detected in Site soil above USEPA RMLs for residential soil, HQ 3.

Average alley surface soil total lead and fine-grained lead concentrations (0-6 inches bgs, not including duplicate samples) were 2,419 and 2,662 mg/kg, respectively (N=12). Lead concentrations in surface soil samples collected in the alley ranged from 63 to 5,600 mg/kg. Fine-grained lead concentrations ranged from 180 to 6,600 mg/kg. (See Figure 4-1 and Table 1).

Average railroad spur surface soil total lead and fine-grained lead concentrations (0-6 inches bgs, not including duplicate samples) were 4,340 and 6,950 mg/kg, respectively (N=6). Lead concentrations in surface soil samples collected from the railroad spur area (0-6 inches bgs) ranged from 940 to 11,000 mg/kg. Fine-grained lead concentrations ranged from 900 to 23,000 mg/kg. (See Figure 4-2 and Table 2).

Further, the Western Area portion of the railroad spur results indicate that the average surface soil total lead and fine grained lead concentrations (0-6 inches bgs) were 1,336 mg/kg and 2,074 mg/kg respectively. Total lead concentrations in the surface soil samples ranged from 499 mg/kg to 2,290 mg/kg. Fine grain lead concentrations ranged from 898 mg/kg to 3,540 mg/kg. Potential migration pathways and exposure mechanisms for the heavy metal contamination include human and animal activities on the Site, surface drainage, and wind dispersion. Potential receptors include school children, residents, and workers at adjacent industrial and commercial businesses. Direct contact with hazardous substances is possible, and the close proximity of residential areas and schools to the Site greatly increases the likelihood of exposure of human populations. Such exposure could cause an imminent and substantial endangerment to public health, welfare, and the environment.

The Site is a particular hazard to sensitive populations such as pregnant women and children. The Site is just south of a residential area, and 11,307 people live within 0.5 mile of the Site. Two schools, Juarez and Perez are located within a ¼-mile radius of the Site, with Juarez immediately adjacent to parts of the Site. School children may use the Site as a walkway, commuting to and from Juarez.

The Agency for Toxic Substances and Disease Registry (ATSDR) has studied the health effects of lead and determined that the harmful effects of lead exposure are more severe for young children and developing fetuses (through exposure to pregnant women). These effects include

premature birth, lower birth weight, decreased mental ability in infants, learning difficulties, and reduced growth in young children. Lead can affect almost every organ and system in the body, but the main target for lead toxicity is the nervous system, both in adults and children. Long-term exposure of adults can result in decreased performance in some tests that measure functions of the nervous system. It may also cause weakness in fingers, ankles, and wrists. Lead exposure also causes small increases in blood pressure, particularly in middle-aged and older people and can cause anemia. Exposure to high lead levels 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. The Department of Health and Human Services (DHHS) has determined that lead and lead compounds are reasonably anticipated to be human carcinogens, and the EPA has determined that lead is a probable human carcinogen (ATSDR, CAS # 7439-92-1, August 2007).

A risk assessment for the railroad spur and alley was conducted by EPA which concluded that the soil concentrations of lead in the alley and railroad spur are at an unacceptable risk level to the residents in the neighborhood.

2. High levels of hazardous substances, pollutants, or contaminants in soil largely at or near the surface that may migrate.

Site assessment analytical results document high levels of hazardous substances (lead and TCLP lead concentrations) in soil at or near the surface. Average alley surface soil total lead and fine-grained lead concentrations (0-6 inches bgs, not including duplicate samples) were 2,419 and 2,662 mg/kg, respectively (N=12). Lead concentrations in surface soil samples collected in the alley ranged from 63 to 5,600 mg/kg. Fine-grained lead concentrations ranged from 180 to 6,600 mg/kg. Average railroad spur surface soil total lead and fine-grained lead concentrations (0-6 inches bgs, not including duplicate samples) were 4,340 and 6,950 mg/kg, respectively (N=6). Lead concentrations in surface soil samples collected from the railroad spur area (0-6 inches bgs) ranged from 940 to 11,000 mg/kg. Fine-grained lead concentrations ranged from 900 to 23,000 mg/kg. (See Table 1 and Table 2)

In addition to the high concentrations of total lead and fine-grained lead, two soil samples from the alley and one from the railroad spur collected from 0 to 6 inches bgs contained TCLP lead at concentrations exceeding the TCLP lead regulatory limit of 5.0 mg/L in 40 C.F.R. § 261.24(b).

Based on site assessment sampling results and the Site's unrestricted nature, hazardous substances in soil at or near the surface pose a threat of migration via wind, rain, vehicular and pedestrian traffic, or manual dispersion.

3. Weather conditions that may cause hazardous substances, pollutants, or contaminants to migrate or be released.

Cook County, Illinois receives a substantial amount of precipitation, and temperatures are normally below freezing during the winter, with regular snowfall. In the winter, the average temperature is 25.1°F and the average daily minimum temperature is 17.3°F. In the summer, the average temperature is 71.7°F, and the average daily maximum temperature is 81.7°F. The

average total annual precipitation is 38.65 inches and the average seasonal snowfall is 32.6 inches. The average wind speed is about 10.7 miles per hour (according to the National Weather Service). These weather conditions may cause water, wind, and freeze-thaw erosion of the Site's surface soil. Lead contaminated surface soil may migrate via wind and runoff off-site to other areas in the residential neighborhood.

IV. ENDANGERMENT DETERMINATION

Given the Site conditions, the nature of the hazardous substances on Site, and the potential exposure pathways to nearby populations described in Sections II, and III above, actual or threatened release of hazardous substances from the Site, if not addressed by implementing the response actions selected in this Action Memorandum, may present an imminent and substantial endangerment to public health, welfare, or the environment.

V. PROPOSED ACTIONS AND ESTIMATED COSTS

A. Proposed Actions

1. Proposed action description

The response actions described in this memorandum directly address actual or potential releases of hazardous substances on Site, which may pose an imminent and substantial endangerment to public health, or welfare, or the environment. Removal activities on Site will include:

- a) Develop and implement a Site-specific Health and Safety Plan, Sampling Plan, and Work Plan (Plans will include provisions for: air/particulate monitoring, dust control, & traffic control);
- b) Implement Site security measures as necessary;
- c) Based upon a Site-specific Sampling Plan, conduct extent of contamination sampling both on and off-site to confirm extent of contaminated soil impacted by historic Site activities, as appropriate (includes lab analyses);
- d) Conduct a treatability study (onsite) to determine if leachable metals can be treated prior to disposal (to lessen the cost of disposal) of excavated soils;
- e) Remove, consolidate, and dispose (or recycle as appropriate) non-hazardous site debris and vegetation, including the railroad rails and ties;
- f) **For the Western Area of the Railroad Spur (see Section II.A.1):**
 - i. Excavate, treat (if applicable), transport, and properly dispose of (in accordance with EPA's Off-Site Rule (40 CFR § 300.440)) lead-contaminated soil with concentrations above the industrial RML of 800 mg/kg for lead. Soils above the RML will be removed down to a depth of approximately 24 inches below ground surface to prevent direct contact with contaminated soil;

- ii. Conduct confirmatory soil screening using an XRF and collect samples for laboratory analysis to confirm that the clean-up goal [lead at 800 mg/kg] has been achieved;
 - iii. Backfill excavated areas with clean materials. Excavated areas where soil concentrations remain above the RML will have a demarcation barrier placed on the bottom of the excavation prior to being backfilled with clean material (soil or gravel);
 - iv. Restore excavated/disturbed areas and vegetate to prevent soil erosion.
- g) **For the alley and railroad spur east of South Loomis Street (except for the eastern portion of the alley with an asphalt cover, about 230 ft.):**
- i. Excavate, treat (if applicable), transport, and properly dispose of (in accordance with EPA's Off-Site Rule (40 CFR § 300.440)) lead-contaminated soil with concentrations above the industrial RML of 800 mg/kg for lead. Soils above the RML will be removed down to a depth necessary for installation of an asphalt road including the associated sub-base.
 - ii. Excavated areas where soil concentrations remain above the RML will have a demarcation barrier placed on the bottom of the excavation prior to being backfilled with clean material;
 - iii. Construct an asphalt cover in areas that were excavated within the Site alley and railroad spur.
- h) **For the eastern portion of the alley that has an asphalt cover (about 230 ft):**
Repair asphalt cover by patching any holes which expose soil or other alternative as appropriate to eliminate the ingestion exposure pathway.
- i) Take any necessary response actions to address any Site related release or threatened release of a hazardous substance, pollutant, or contaminant that the EPA determines may pose an imminent and substantial endangerment to the public health or the environment.

The removal action will be conducted in a manner not inconsistent with the NCP. EPA will also initiate planning for provisions of post-removal Site control consistent with the provisions of Section 300.415(1) of the NCP. The threats posed by uncontrolled substances considered hazardous meet the criteria listed in the NCP Section 300.415(b)(2), and the response actions proposed herein are consistent with any long-term remedial actions which may be required. The proposed removal of hazardous substances, pollutants and contaminants that pose a substantial threat of release is expected to minimize substantial requirements for post-removal Site controls.

Off-Site Rule

All hazardous substances, pollutants, or contaminants removed off-site pursuant to this removal action for treatment, storage, and disposal shall be treated, stored, or disposed of at a facility in compliance, as determined by EPA, with the EPA Off-Site Rule, 40 C.F.R. § 300.440.

2. Contribution to remedial performance

The proposed action will not impede future actions based on available information. No long-term remedial actions are anticipated for the Site.

3. Engineering Evaluation/Cost Analysis (EE/CA)

This section is not applicable.

4. Applicable or relevant and appropriate requirements (ARARs)

All applicable, relevant and appropriate requirements (ARARs) of Federal and State law will be complied with to the extent practicable considering the exigencies of the circumstances. *See* 40 C.F.R. § 300.415(j). On March 25, 2015 an email was sent to Bruce Everetts of the Illinois EPA asking for any State of Illinois ARARs which may apply. A response from Mr. Everetts was received on March 30, 2015 identifying the State requirements which apply to generators of hazardous waste.

5. Project Schedule

This project is expected to be completed in 45 working days (assuming a 5 day work week).

B. Estimated Costs

The detailed cleanup contractor cost is presented in Attachment IV and the Independent Government Cost Estimate is presented in Attachment III. The Estimated project costs are summarized:

REMOVAL ACTION PROJECT CEILING ESTIMATE	
<u>Extramural Costs:</u>	
<u>Regional Removal Allowance Costs:</u>	
Total Cleanup Contractor Costs (This cost category includes estimates for ERRS, subcontractors, Notices to Proceed, and Interagency Agreements with Other Federal Agencies. Includes a 10% contingency)	\$ 947,253
<u>Other Extramural Costs Not Funded from the Regional Allowance:</u>	
Total START Oversight, and report writing support.	\$48,000
Subtotal	\$ 995,253

Subtotal Extramural Costs	
Extramural Costs Contingency (15% of Subtotal, Extramural Costs)	\$ 149,288
TOTAL REMOVAL ACTION PROJECT CEILING	\$1,144,541

The response actions described in this memorandum directly address actual or threatened releases of hazardous substances, pollutants, or contaminants at the Site which may pose an imminent and substantial endangerment to public health and safety, and to the environment. These response actions do not impose a burden on the affected property disproportionate to the extent to which the property contributes to the conditions being addressed.

VI. EXPECTED CHANGE IN THE SITUATION SHOULD ACTION BE DELAYED OR NOT TAKEN

Given the Site conditions, the nature of the hazardous substances and pollutants or contaminants documented on Site, the potential exposure pathways to nearby populations described in Sections II, III, and IV above, and the actual or threatened release of hazardous substances and pollutants or contaminants from the Site, failing to take or delaying action may present an imminent and substantial endangerment to public health, welfare or the environment, increasing the potential that hazardous substances will be released, thereby threatening the adjacent population and the environment.

VII. OUTSTANDING POLICY ISSUES

There are no outstanding policy issues.

VIII. ENFORCEMENT

For administrative purposes, information concerning the enforcement strategy for this Site is contained in the Enforcement Confidential Addendum.

The total EPA costs for this removal action based on full-cost accounting practices that will be eligible for cost recovery are estimated to be at \$1,865,297⁴:

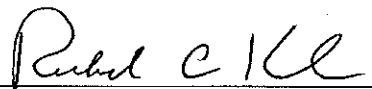
Direct Extramural and Intramural Costs	+	Indirect Costs	= Estimated EPA Costs for Removal Action
(\$1,144,541+ \$40,000)	+	(57.47% X \$1,184,541)	= \$1,865,297

⁴ 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 27, 2008. 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 total costs from this estimate will affect the United States' right to cost recovery.

IX. RECOMMENDATION

This decision document represents the selected removal action for the Pilsen Soil Operable Unit 1 Railroad Spur & Alley Site in Chicago, Illinois. It was developed in accordance with CERCLA as amended, and is not inconsistent with the NCP. This decision is based on the administrative record for the Site (Attachment 1). Conditions at the Site meet the NCP Section 300.415(b)(2) criteria for a removal action, and I recommend your approval of the removal action proposed in this Action Memorandum.

The total project ceiling if approved will be \$1,144,541, of which an estimated \$1,096,541 may be used for cleanup (ERRS) contractor costs. You may indicate your decision by signing below.

APPROVE:  DATE: 6-22-15
Director, Superfund Division

DISAPPROVE: _____ DATE: _____
Director, Superfund Division

Enforcement Addendum

Figures:

- Figure 1-1— Site Location Map (shows location of Little Italy Reference Area);
- Figure 1-2 - Site Map
- Figure 2-1-Site Features Map (shows features within ¼ mile of Site);
- Figure 2-2 Predominant Wind Pathway Map;
- Figure 3 – Western Area of Railroad Spur, Surface Soil Sampling Results
- Figure 4-1 Alley Results of Surface Soil Samples Summary;
- Figure 4-2 Railroad Spur Results of Surface Soil Samples Summary

Attachments:

1. Administrative Record Index
2. Environmental Justice Analysis
3. Independent Government Cost Estimate
4. Detailed Cleanup Contractor and START Estimate

cc: B. Schlieger, USEPA 5202 G (email: schlieger.brian@epa.gov)
L. Nelson, U.S. DOI, w/o Enf. Addendum
(email: lindy_nelson@ios.doi.gov)
B. Everetts, Illinois EPA, w/o Enf. Addendum
(email: bruce.everetts@illinois.gov)

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OF REMOVAL ACTION**

ENFORCEMENT ADDENDUM

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ENFORCEMENT CONFIDENTIAL

NOT SUBJECT TO DISCOVERY

FOIA EXEMPT

NOT RELEVANT TO SELECTION

OF REMOVAL ACTION

Figure 1-1 – Site Location Map (includes location of Little Italy Reference Area)

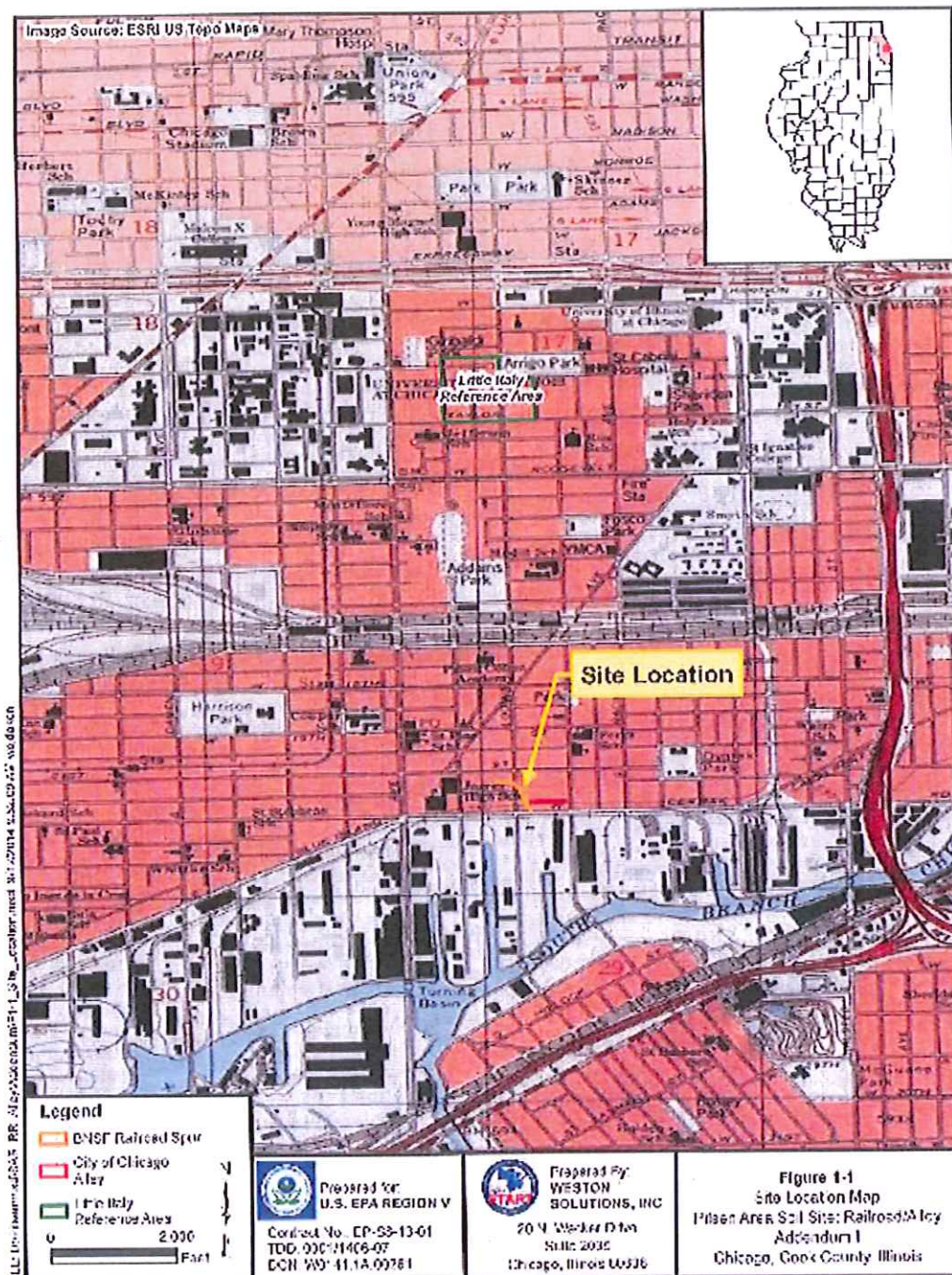


Figure 1-2 Pilsen Soil Operable Unit 1 Railroad Spur and Alley Site

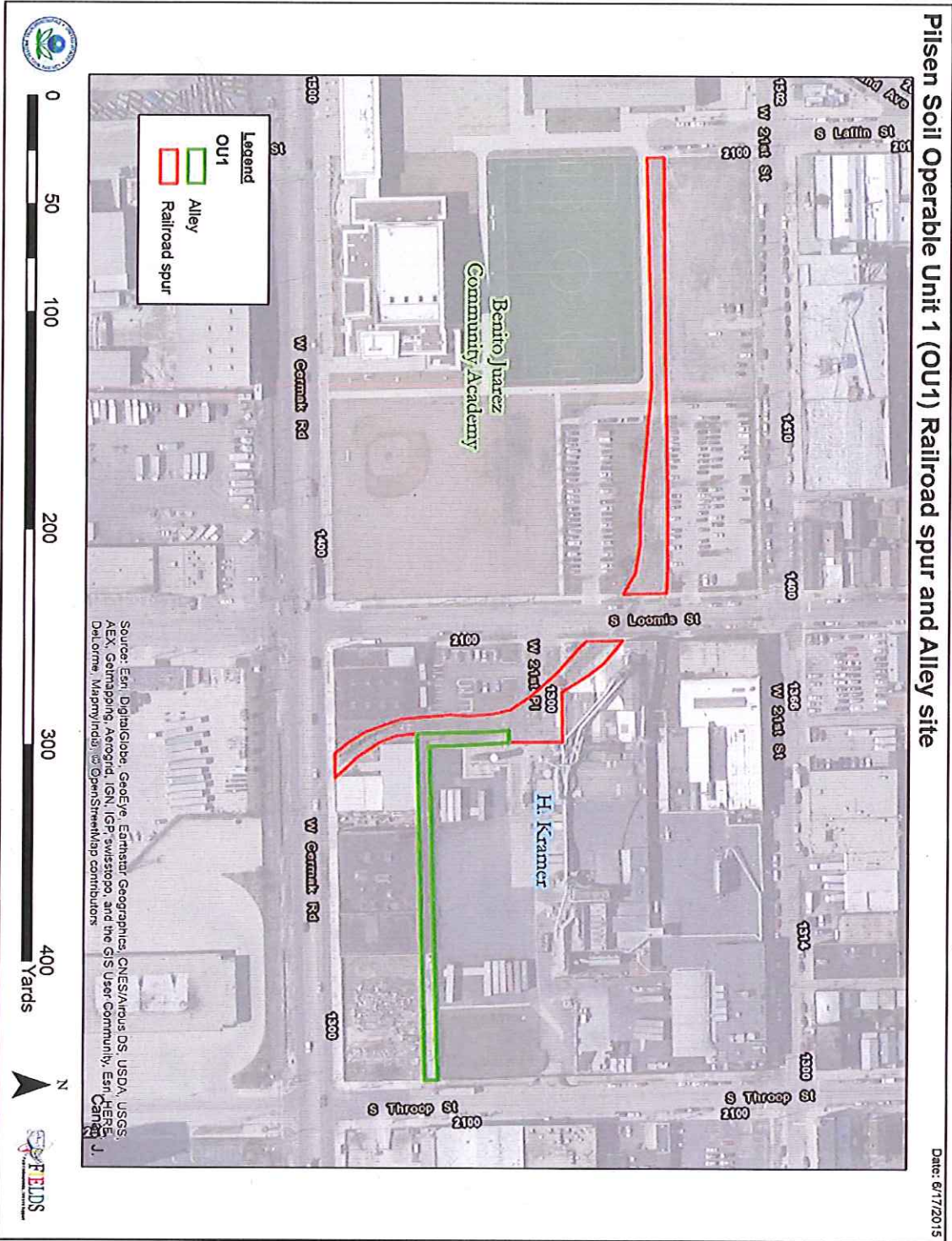


Figure 2-1 – Site Features Map



FILE: D:\Pilsen\mxd\SAR_RR_Alley\Addendum\F2-1_Site_Features.mxd 10/9/2014 12:46:11 PM vojcdakon

Figure 2-2 – Predominant Wind Pathway Map

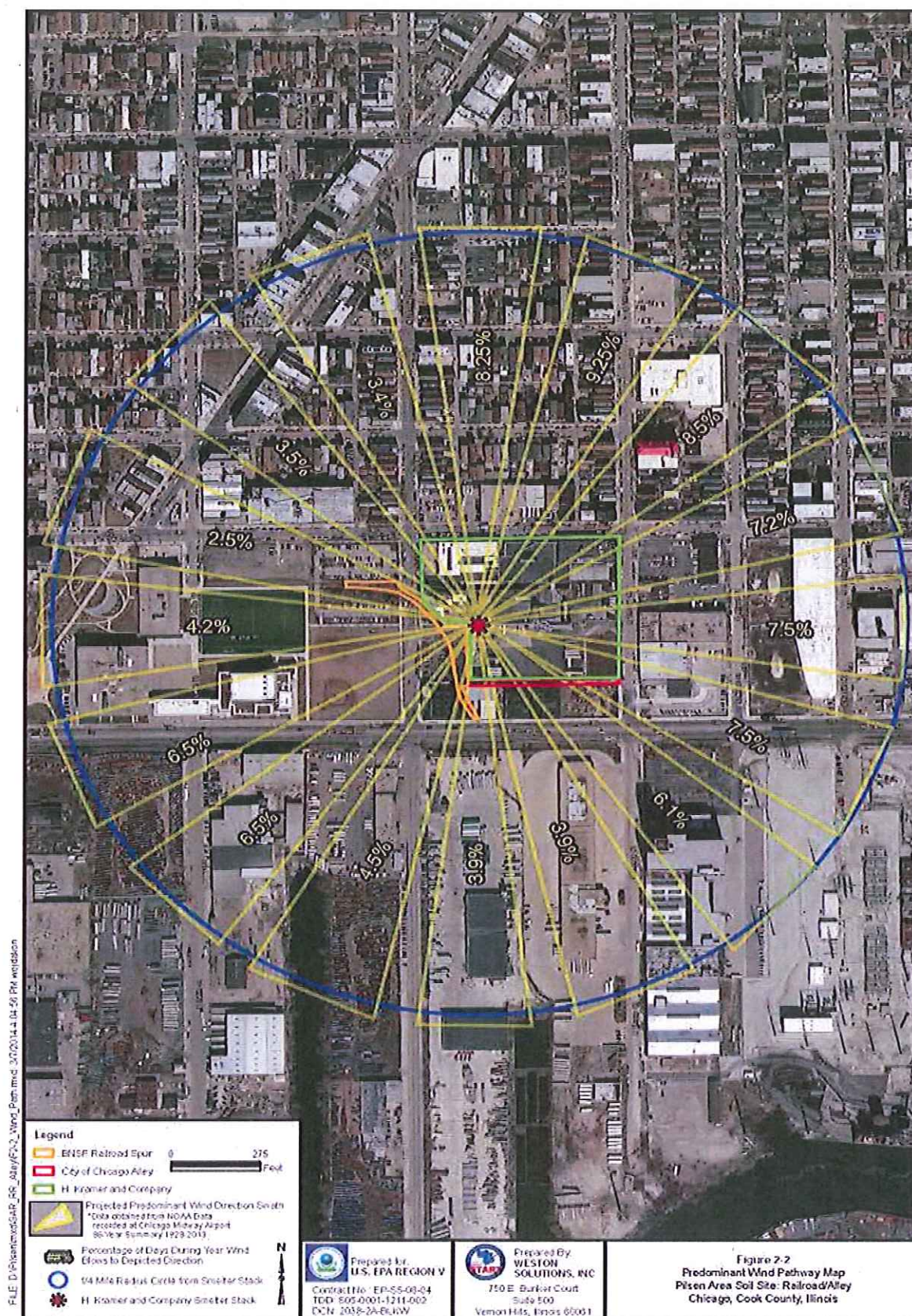


Figure 3: Western Area of Railroad Spur, Surface Soil Sample Results



FIGURE 4-1 : Alley Results of Surface Soil Samples Summary
(Figure 4-2 in USUSEPA Site Assessment Report, 2014)

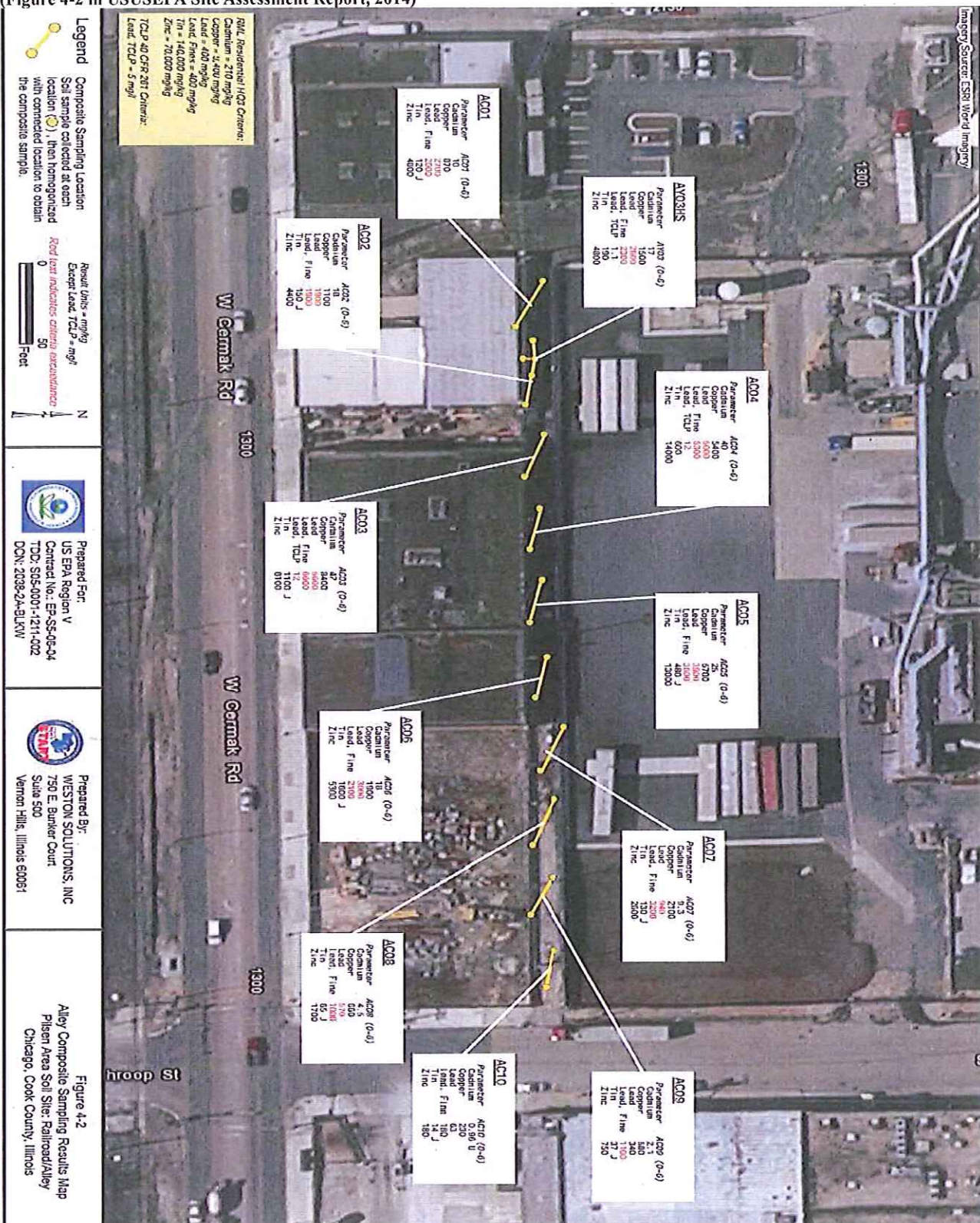
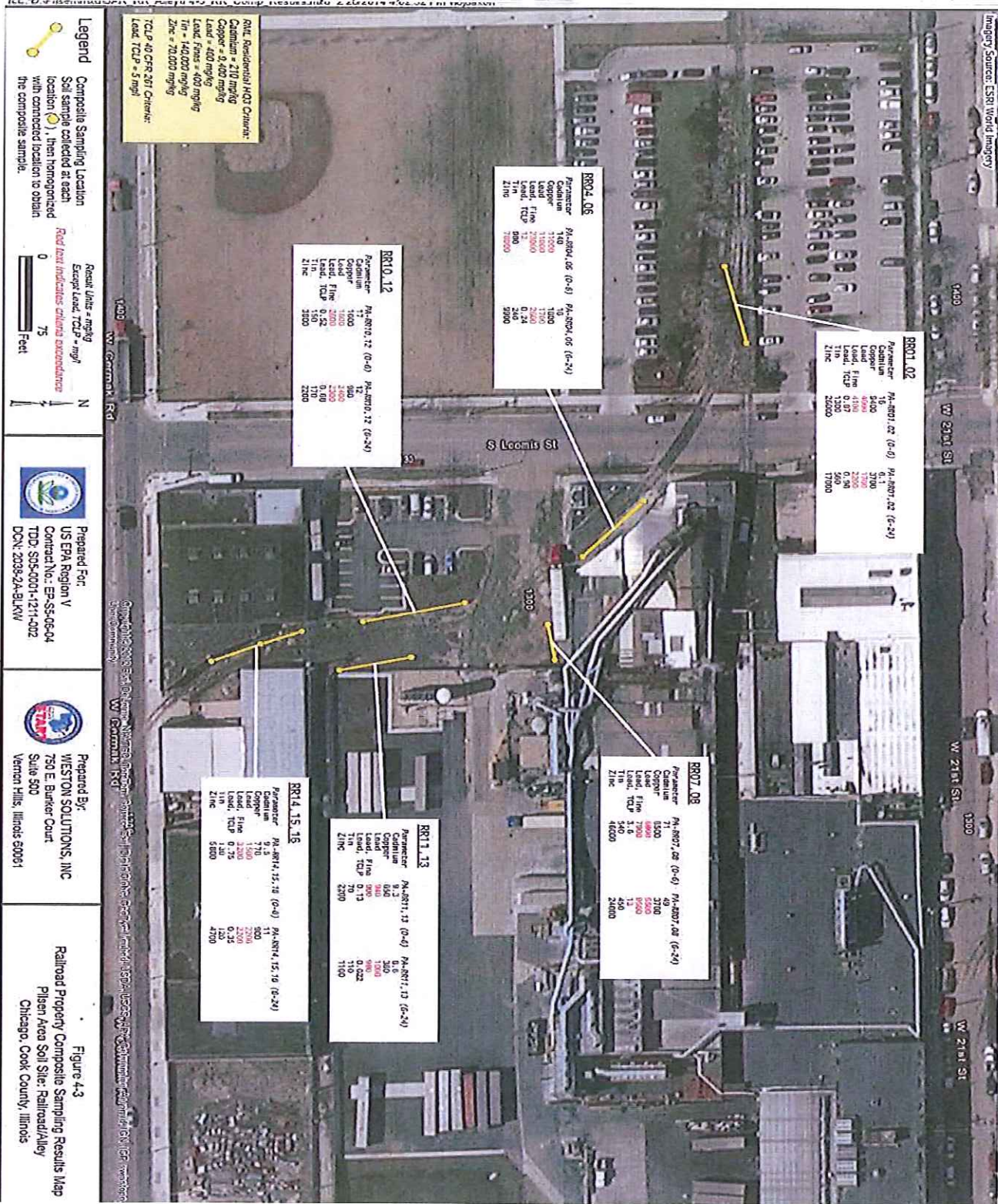


Figure 4-2: Railroad Spur Results of Surface Soil Samples Summary
(Figure 4-3 in USEPA Site Assessment Report, 2014)



ATTACHMENT I

**U.S. ENVIRONMENTAL PROTECTION AGENCY
REMOVAL ACTION**

**ADMINISTRATIVE RECORD
FOR THE
PILSEN SOILS RAILROAD AND ALLEY SITE
OPERABLE UNIT 1
CHICAGO, COOK COUNTY, ILLINOIS**

**ORIGINAL
MAY, 2015**

<u>NO.</u>	<u>SEMS ID</u>	<u>DATE</u>	<u>AUTHOR</u>	<u>RECIPIENT</u>	<u>TITLE/DESCRIPTION</u>	<u>PAGES</u>
1	918527	9/1/95	U.S. EPA Office of File Compliance		Profile of the Nonferrous Metals Industry	138
2	918533	1/1/03	USGS	File	Concentrations of Polynuclear Aromatic Hydrocarbons and Inorganic Constituents in Ambient Surface Soils, Chicago, Illinois; 2001-02	84
3	918529	3/1/14	National Enforcement Investigations Center	U.S. EPA	Interim Technical Report on the Characterization of Lead in Soils, Pilsen Neighborhood	51
4	915298	4/2/14	Weston Solutions, Inc.	U.S. EPA	Site Assessment Report (Revision 3)	433
5	918526	10/27/14	Canar, J., Jacobsen, L, and Roth, C., U.S. EPA FIELDS Group	File	Report for the Statistical Analysis of Cadmium, Copper, Lead, Tin, and Zinc Found in Soil at and near the H. Kramer Facility	18
6	918525	10/30/14	Fusinski, K., U.S. EPA	Mendoza, R., U.S. EPA	Memo re: Risk Assessment for the Pilsen Railroad and Alley Area Adjacent to the H. Kramer Smelter	20
7	918531	11/3/14	Weston Solutions, Inc.	U.S. EPA	Site Assessment Report - Addendum 1	27

<u>NO.</u>	<u>SEMS ID</u>	<u>DATE</u>	<u>AUTHOR</u>	<u>RECIPIENT</u>	<u>TITLE/DESCRIPTION</u>	<u>PAGES</u>
8	918530	2/6/15	National Enforcement Investigations Center	U.S. EPA	Final Technical Report on the Characterization of Lead in Soils, Pilsen Neighborhood	117
9	918523	3/26/15	Mendoza, R., U.S. EPA	Everetts, B., IEPA	Letter re: Request for ARARs for Operable Unit 1	4
10	918528	3/30/15	Everetts, B., IEPA	Mendoza, R., U.S. EPA	Letter re: ARARs at the Pilsen Soils Railroad Spur and Alley Site, Operable Unit 1	3
11	918532	5/15/15	U.S. EPA	File	Envirofacts Search Results for H. Kramer & Co.	61
12	918524	5/22/15	Mendoza, R., U.S. EPA	Peachey, R., U.S. EPA	Memo re: Pilsen Soils OU1 Railroad Spur and Alley Site: Western Area, Rail Road Spur Soil Sample Results	142
13	-	-	Mendoza, R., U.S. EPA	Karl, R., U.S. EPA	Action Memorandum re: Request for Approval and Funding for a Time-Critical Removal Action at the Pilsen Soil Operable Unit 1 Railroad Spur and Alley Site (PENDING)	-

ATTACHMENT II: Environmental Justice Analysis



EJSCREEN Report

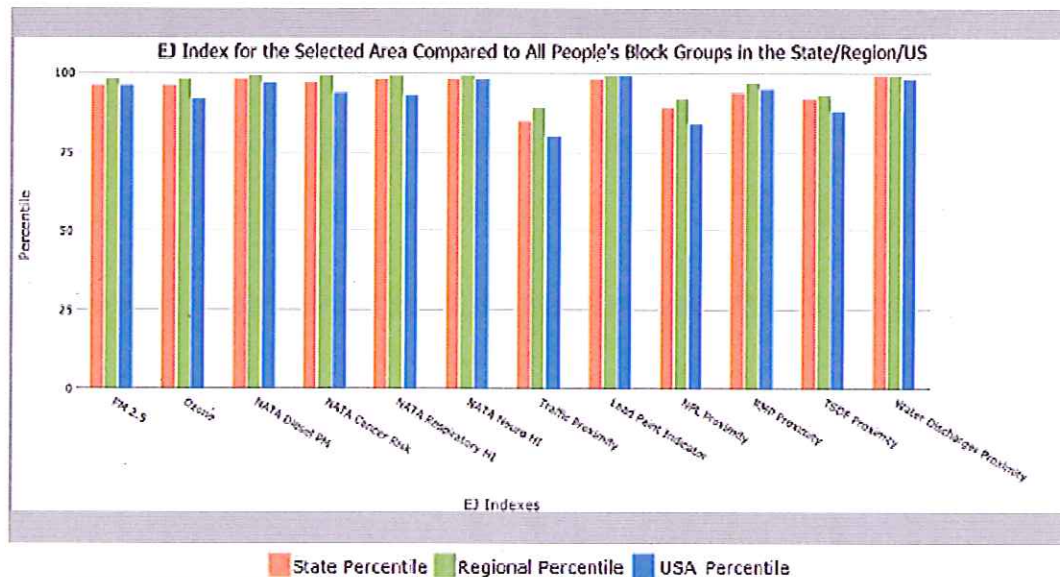


for .5 mile Ring Centered at 41.852438,-87.662395, ILLINOIS, EPA Region 5

Approximate Population: 11307

Pilsen Soils RR/Alley

Selected Variables	State Percentile	EPA Region Percentile	USA Percentile
EJ Indexes			
EJ Index for PM2.5	98	98	98
EJ Index for Ozone	98	98	92
EJ Index for NATA Diesel PM	98	99	97
EJ Index for NATA Air Toxics Cancer Risk	97	99	94
EJ Index for NATA Respiratory Hazard Index	98	99	93
EJ Index for NATA Neurological Hazard Index	98	99	98
EJ Index for Traffic Proximity and Volume	85	89	80
EJ Index for Lead Paint Indicator	98	99	99
EJ Index for Proximity to NPL sites	89	92	84
EJ Index for Proximity to RMP sites	94	97	95
EJ Index for Proximity to TSDFs	92	93	88
EJ Index for Proximity to Major Direct Dischargers	99	99	98



This report shows environmental, demographic, and EJ indicator values. It shows environmental and demographic raw data (e.g., the estimated concentration of ozone in the air), and also shows what percentile each raw data value represents. These percentiles provide perspective on how the selected block group or buffer area compares to the entire state, EPA region, or nation. For example, if a given location is at the 95th percentile nationwide, this means that only 5 percent of the US population has a higher block group value than the average person in the location being analyzed. The years for which the data are available, and the methods used, vary across these indicators. Important caveats and uncertainties apply to this screening-level information, so it is essential to understand the limitations on appropriate interpretations and applications of these indicators. Please see EJSCREEN documentation for discussion of these issues before using reports.

March 25, 2015

1/3



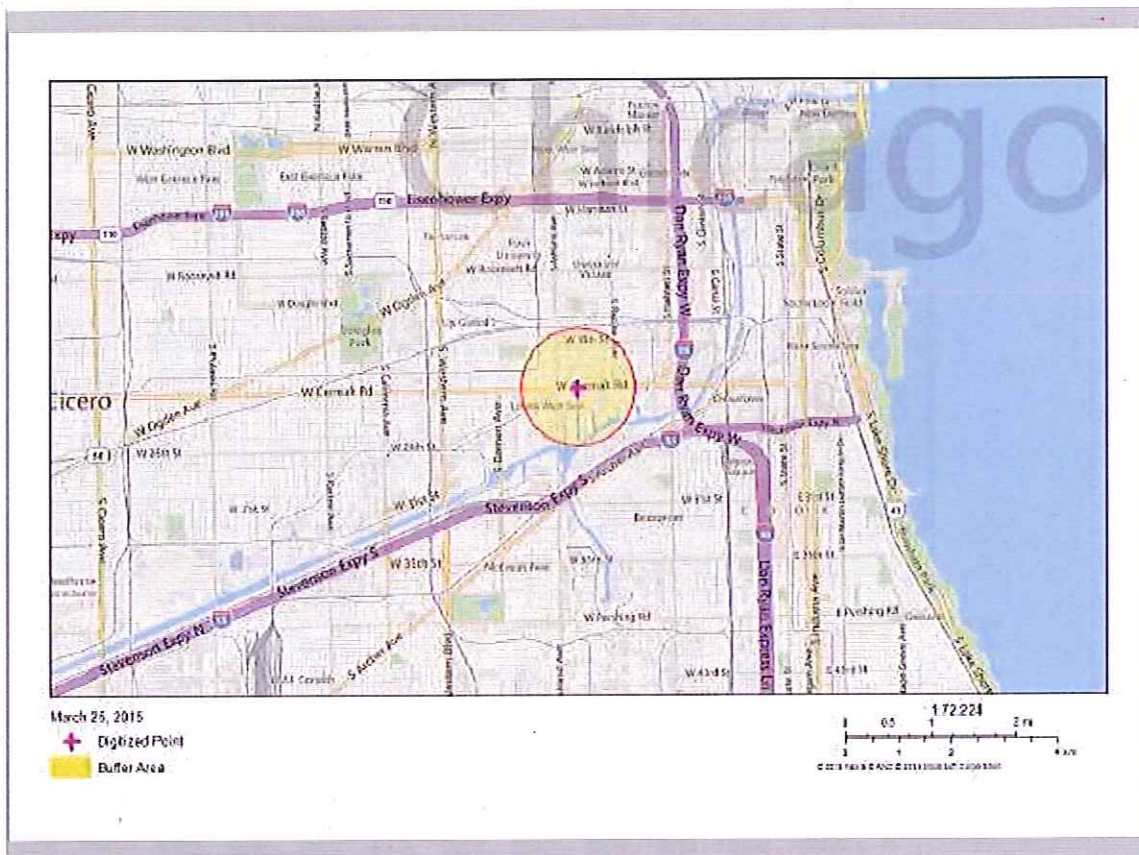
EJSCREEN Report



for .5 mile Ring Centered at 41.852438, -87.662395, ILLINOIS, EPA Region 5

Approximate Population: 11307

Pilsen Soils RR/Alley





EJSCREEN Report

for .5 mile Ring Centered at 41.852438, -87.662395, ILLINOIS, EPA Region 5

Approximate Population: 11307

Pilsen Soils RR/Alley



Selected Variables	Raw Data	State Avg.	%ile in State	EPA Region Avg.	%ile in EPA Region	USA Avg.	%ile in USA
Environmental Indicators							
Particulate Matter (PM 2.5 in $\mu\text{g}/\text{m}^3$)	14.3	13.4	91	13.3	86	10.7	98
Ozone (ppb)	40.9	42.8	5	45	7	46.3	18
NATA Diesel PM ($\mu\text{g}/\text{m}^3$) [*]	2.52	0.988	95	0.712	95-100th	0.824	90-95th
NATA Cancer Risk (lifetime risk per million) [*]	67	48	91	42	90-95th	49	80-90th
NATA Respiratory Hazard Index [*]	3.1	1.8	92	1.5	90-95th	2.3	70-80th
NATA Neurological Hazard Index [*]	0.17	0.073	95	0.087	95-100th	0.083	95-100th
Traffic Proximity and Volume (daily traffic count/distance to road)	22	69	43	69	46	110	39
Lead Paint Indicator (% Pre-1960 Housing)	0.91	0.43	94	0.39	94	0.3	98
NPL Proximity (site count/km distance)	0.034	0.089	42	0.085	41	0.096	38
RMP Proximity (facility count/km distance)	0.57	0.43	77	0.33	83	0.31	85
TSDF Proximity (facility count/km distance)	0.036	0.037	72	0.051	64	0.054	64
Water Discharger Proximity (facility count/km distance)	0.77	0.27	92	0.23	94	0.25	93
Demographic Indicators							
Demographic Index	77%	34%	92	28%	95	35%	93
Minority Population	89%	38%	87	24%	94	36%	89
Low Income Population	64%	31%	91	32%	91	34%	89
Linguistically Isolated Population	35%	8%	97	3%	99	5%	97
Population With Less Than High School Education	44%	14%	96	12%	98	15%	95
Population Under 5 years of age	7%	6%	57	6%	59	7%	58
Population over 64 years of age	8%	13%	30	13%	23	13%	27

^{*} The National-Scale Air Toxics Assessment (NATA) is EPA's ongoing, comprehensive evaluation of air toxics in the United States. EPA developed the NATA to prioritize air toxics, emission sources, and locations of interest for further study. It is important to remember that NATA provides broad estimates of health risks over geographic areas of the country, not definitive risks to specific individuals or locations. More information on the NATA analysis can be found at: <http://www.epa.gov/ttn/atw/natamain/index.html>.

ATTACHMENT III

INDEPENDENT GOVERNMENT COST ESTIMATE

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OF REMOVAL ACTION

ATTACHMENT VI

DETAILED CLEANUP CONTRACTOR ESTIMATE

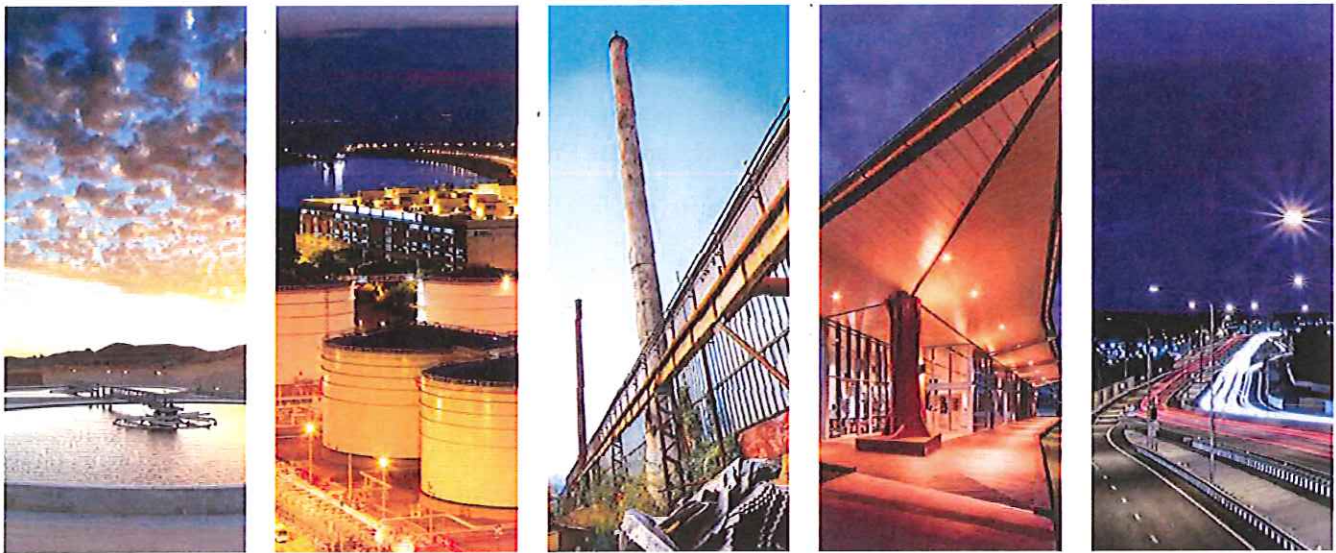
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**In the Matter of Pilsen Soil Operable Unit 1 Railroad
Spur and Alley Site, Chicago, Illinois**

**Appendix C
Removal Work Plan**



Confidential Settlement Discussion Document



Removal Plan for Alley - Railroad

Pilsen Site
Chicago, Illinois
Revision 03

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3.1	Removal Action.....	2
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Figure 2.1 OU1 Remediation Areas

Table Index

Table 4.1 Remedial Cost Estimate
Rail Road and Alley

Appendices Index

Appendix A Remedial Cost Estimate Details
Appendix B TCLP Excavation Areas
Appendix C IEPA ARARs

1. Introduction

This document provides information on the removal and remediation of elevated lead in surface soil within the Pilsen area known as the Alley/Railroad Area. The United States Environmental Protection Agency (USEPA) has notified H Kramer & Company (H Kramer), the City of Chicago (City), and Burlington Northern Santa Fe Railway (BNSF) (hereafter collectively the Parties) that each is a potentially responsible party under CERCLA for alleged soil contamination at the Pilsen Soil Operable Unit 1 Railroad Spur and Alley Site in Chicago IL (EPA Site ID C5N8-01) (OU1). The Parties have worked with USEPA to develop this Removal Work Plan for Alley-Railroad to address environmental conditions at OU1 through a removal action.

This report provides the scope and remedial cost associated with the scope of work provided herein.

2. Background

2.1 Alley and Railroad Sampling Results

The results of sampling completed in the alley and railroad area are presented in the following documents:

- Site Assessment Report for Pilsen Soil Assessment Area: Rail Road/Alley Chicago, Cook County, Illinois Addendum 1; dated November 3, 2014
- Pilsen Soils OU1 Railroad Spur and Alley Site: Western Areas, Rail Road Spur Soil Sample Results: USEPA Memorandum dated May 22, 2015
- Pilsen Soils OU1 Railroad Spur and Alley Site: Western Areas, Rail Road Spur Reanalysis of Soil Sample ID PA-RR26—0624 for TCLP Lead: USEPA Memorandum dated August 21, 2015

This area is divided into the following ten parts based generally on land ownership and use as shown of Figure 2.1 and listed as follows:

1. **Area 1 Revised - Railroad West of Loomis (West Part):** This part is approximately 18 feet in width (defined as 9 feet on each side of the centerline of the rail road tracks) 490 feet long between Laflin and Loomis and is owned by the City of Chicago. This area has lead levels above 800 mg/kg but EPA samples collected in this area were below the TCLP lead criteria within the area. The rails and ties are in place and the spur is inactive.
2. **Area 2 Revised - Railroad West of Loomis (East Part):** This part is triangular in shape and approximately 120 feet long and between 18 and 45 feet wide at its widest point (defined as 9 feet on each side of the centerline of the rail road tracks with the area between the two sets of tracks at the east end included). This area is directly adjacent to Loomis and is owned by the City of Chicago. This area has lead levels above 800 mg/kg. The rails and ties are in place and the spur is inactive.
3. **Area 3 -Loomis Crossing:** This is the paved street section of Loomis where the railroad tracks formerly crossed the road. The rails and ties have been removed and there is street pavement or concrete sidewalks covering this area.

4. **Area 4 - Railroad East of Loomis (North):** This part is approximately 95 feet long and owned by H. Kramer and was used by BNSF. This part lies between Loomis and 21st Place (entrance to H Kramer). The rails and ties are still present. This area exceeds 800 mg/kg lead and has TCLP¹ lead within the area. The rail spur is inactive.
5. **Area 5- 21st Place:** - This part represents an approximate 135 foot by 75 foot area east of Loomis which is the entrance to H Kramer and is currently owned by the City. This area exceeds 800 mg/kg lead and also has TCLP lead within the area. The rail spur is inactive.
6. **Area 6 - Railroad East of Loomis (South):** This part represents an approximate 110 foot long section of railroad tracks used by BNSF and owned by H. Kramer. This part lies between the east-west alley and 21st Place (entrance to H Kramer). The rails and ties are still present. This area exceeds 800 mg/kg lead but EPA samples collected in this area were below the TCLP lead criteria within the area. The rail spur is inactive.
7. **Area 7- North South Alley:** This part is approximately 110 feet by 25 feet in area and is owned by the City. It has a gravel/fill surface and has lead above 800 mg/kg but EPA samples collected in this area were below the TCLP lead criteria within the area.
8. **Area 8 - Unpaved East- West Alley:** This part represents an approximate 325 feet of unpaved alley along the western part and is owned by the City. This area has lead levels above 800 mg/kg and has TCLP lead within the area.
9. **Area 9 - Paved East West Alley:** This part represents an approximate 175 feet of paved alley along the eastern part and is owned by the City. This area has lead levels above 800 mg/kg. Recent inspection of this area indicates that the pavement in this area is in poor shape.
10. **Area 10 - Railroad South of Alley:** This approximately 120 feet long railroad segment is owned by DeTrinh and 1358 Cermak LLC and was used by BNSF. This part lies between the east-west alley to the north and Cermak Road to the south. The rails and ties are still present. This area exceeds 800 mg/kg lead but EPA samples collected in this area were below the TCLP lead criteria within the area. The rail spur is inactive.

Figure 2.1 shows the remediation area.

3. Removal/Remediation Objectives

3.1 Removal Action

The work will be completed as a removal action under Title 40 Code of Federal Regulations Part 300.415.

Consistent with the scope allowed under a Removal Action, the following work is included in the Removal Action

1. Fences, warning signs, or other security or site control precautions
2. Capping of contaminated soils

¹ Toxicity Characteristic Leaching Procedure (TCLP) lead concentrations above 5.0 milligrams per liter (mg/L)

3. Excavation, containment, treatment and disposal of hazardous and non-hazardous materials

3.2 Removal/Remediation Objectives

The Removal Plan has considered the factors identified in 40 CFR 300.415 (B) (2) (i)-(vii) to determine the appropriateness of removal action activities.

1. Excavate (with off-site disposal) or provision of a paved engineered barrier over soils containing lead at concentrations above 800 mg/kg Removal Management Level (Ingestion Pathway) for Industrial/Commercial properties.”
2. Surface cover materials to be implemented will be protective of nearby human populations. Geofabric and asphalt covers will provide an engineered protective barrier² to prevent migration of contaminants from the soils.
3. High levels of hazardous substances or pollutants (i.e. TCLP lead > 5 mg/L) will be treated in-situ removed from the site, disposed of properly. Geofabric and asphalt covers will provide an engineered barrier to prevent migration of contaminants remaining in the soils.
4. The removal action contractor will consider the daily weather conditions during removal activities and will protect stockpiled soils and exposed soils from erosion and weather effects.
5. Threat of fire or explosion will be considered throughout the removal action activities. Suitable precautions will be made to prevent exposure to or from these threats.

3.3 Supporting Documents

Prior to beginning the field program, a Health and Safety Plan (HASP) will be developed and implemented. The HASP will be developed in accordance with Federal Occupational Safety and Health Administration (OSHA) standards for hazardous waste operations (29 CFR 1910.120). The HASP will define the levels of personnel protective equipment (PPE) to be used and define the air monitoring to be conducted during soil removal activities.

USEPA policy requires that all work performed by or on behalf of USEPA involving the collection of environmental data be implemented in accordance with a USEPA-approved Quality Assurance Project Plan (QAPP). In addition to this Work Plan, a QAPP has been developed (GHD, September 2015) to integrate all technical and quality aspects of the project and documents, quality assurance (QA), quality control (QC), and technical activities and procedures associated with planning, implementing, and assessing environmental data collection operations. The QAPP will be submitted to the USEPA for review and approval.

The following sampling and monitoring activities will be performed for the removal action activities.

- Collecting soil samples from treated soils to ensure the treated soils are below to objective of 5 milligrams/per liter (mg/L) for lead

² Engineered barriers will consist of compacted gravel and/or compacted gravel with an asphalt cap. A pre-construction survey of the work areas (including adjacent areas) will be conducted to develop a cut and fill plan, and a grading plan to promote proper drainage and prevent ponding/flooding. A post construction survey will also be conducted to define the limits of the engineered barriers. .

- Conduct downwind particulate monitoring during earth moving activities associated with the removal action
- Conduct construction personnel air filter sampling for lead

Details regarding these sampling and monitoring activities (including monitoring action levels) are provided in the QAPP and/or HASP.

4. Evaluation of Remediation of Alley/Railroad Area

4.1 Description of Remedy

A cost estimate is provided in Appendix A. The railroad/alley work will be completed in a phased approach as described in Section 4.2. It is understood that due to the nature of this removal action under CERCLA, the City would approve the use of gravel as an engineered barrier (Area 1 Revised), would waive permit requirements, would waive storm water detention/ sewer requirements and would also waive any landscaping requirements. It is further assumed that the paving portion of the work will be completed without the requirements to develop detailed grading/design plans and any design approvals.

Given that the USEPA has already completed extensive sampling, no additional delineation or confirmation sampling will be required. Additionally, the new gravel placed in Areas 6 and 10 this past May will be excavated and staged for reuse. This gravel will utilized as backfill and grading material during the remedial scope discussed below. Additionally water will be applied to the ground surfaces during earth working activities to control dust.

Prior to implementation of the remedy, a Site Specific Health and Safety Plan (HASP) will be developed. The HASP will be developed in accordance with Federal Occupational Safety and Health Administration ("OSHA") standards for hazardous waste operations (29 CFR 1910.120). No additional delineation or confirmation sampling (excavation or sidewalls) for total lead is proposed in conjunction with the work³. Previous soil sampling efforts completed by the USEPA and/or its contractors have fully characterized the lead distribution in soil within OU1.

A description of the remedial scope for each area is presented as follows:

1. **Area 1 Revised - Railroad West of Loomis (West Part)**⁴: This part is 490 feet long between Laflin and Loomis and is owned by the City of Chicago. This area has lead levels above 800 mg/kg. The removal plan for this area is as follows:

³ USEPA will collect confirmation samples at its discretion as part of its oversight role as defined under the Administrative Order on Consent (AOC). This sampling is limited to the following:

- The USEPA may use an XRF unit to screen the soil/gravel in Area 1 and collect up to two post excavation confirmation soil samples for total lead analyses to ensure soil/gravel above 800 mg/kg are removed from this area prior to installing the gravel barrier.
- The USEPA may collect one split confirmation sample of the treated TCLP soil from Areas 4, 5, or 8 to ensure the treatment objective of 5.0 mg/L is met.
- The USEPA may collect up to two co-located downwind air samples.
- The USEPA may collect one personnel OSHA lead filter sample.
- All sample analyses will be performed on an expedited rush 24-hour turnaround basis with the exception of the TCLP analysis which will be on a 48-hour turnaround basis.

⁴ Note the size of Area 1 has been revised to end near soil sample location PA-RR-26 and Area 2 has been extended to the west.

- a. BNSF will remove the rails and ties from this area.
 - b. H. Kramer will remove the organic soils that are not suitable for backfill and dispose offsite as non-hazardous waste. Soils above the RML will be removed (excavated) down to a depth of 6 inches from the existing grade. EPA's sampling in this area below 6 inches has shown that the RML has been met below 6 inches. This excavated material will be used as backfill in Areas, 4, 5, 6, 7, 8, or 9. After the surficial materials are removed a brightly colored geotextile fabric⁵ will be placed over the area. Then 6 inches of gravel will be placed as an engineered barrier (gravel supplied by BNSF). Bollard posts will be installed at the west end of this area, and at the parking lot cross over to prevent traffic from entering the pathway⁶.
2. **Area 2 Revised - Railroad West of Loomis (East Part):** This part is approximately 120 feet long and 18 to 45 feet in width at its widest point. This area is directly adjacent to Loomis and is owned by the City of Chicago. This area has lead levels above 800 mg/kg. The rails and ties are in place and the spur is inactive. No TCLP treatment will be required. The removal plan for this area is as follows:
- a. BNSF will remove the rails and ties from this area.
 - b. H. Kramer will remove the organic soils that are not suitable for backfill and dispose offsite as non-hazardous waste. Soils above the RML will not be removed from Area 2. A brightly colored geotextile fabric will be placed over the area. Then 3 inches of gravel will be placed as part of an engineered barrier (gravel supplied by BNSF). A bollard post will be installed at the east end of this area to prevent traffic from entering the pedestrian pathway.
 - c. H. Kramer will then place a 3-inch asphalt layer as an engineered barrier.
3. **Area 3 - Loomis Crossing:** This is the paved street section of Loomis where the railroad tracks formerly crossed the road. The rails and ties have been removed and there is street pavement or concrete sidewalks covering this area. No remediation is required because the pavement and sidewalks are in good condition.
4. **Area 4 - Railroad East of Loomis (North):** This part is 95 feet long and owned by H. Kramer and was used by BNSF. This part lies between Loomis and 21st Place (entrance to H Kramer). The rails and ties are still present. This area exceeds 800 mg/kg lead and has TCLP lead within the northeast corner of the area. The rail spur is inactive. The removal plan for this area is as follows:
- a. BNSF will remove the rails and ties from this area.
 - b. H. Kramer will treat in-situ the TCLP soil in the upper 0.5 feet of material within this area with a soil reagent⁷. The limits of the TCLP excavation area within Area 4 is defined in Appendix B. After treatment a waste characterization sample will be collected of the treated material for expedited TCLP lead analysis. Once the analysis confirms the treated soil is below 5 mg/L, this material will be excavated and transported off-Site for disposal as non-hazardous material. The area will be re-graded and a brightly colored

⁵ Daylight Orange Nonwoven Geotextile or generally equivalent material

⁶ The paved portion of Area 1 which is a driveway between two parking lots is not included in the Area 1 remediation area.

⁷ Free Flow-200 heavy metals stabilizing reagent by Free Flow Technologies, Ltd. at a 4-percent application rate mixed in-situ with soil.

geotextile fabric will be placed over the area. Then a 6 inch layer of gravel will be placed and the area will be covered with a 3-inch asphalt layer as an engineered barrier.

5. **Area 5 - 21st Place:** This part represents a 135 foot by 75 foot area east of Loomis which is the entrance to H Kramer and is owned by the City. This area exceeds 800 mg/kg lead and also has TCLP lead within the area. The rail spur is inactive. The removal Plan for this area is as follows:
 - a. BNSF will removed the rails and ties from this area
 - b. H. Kramer will treat in-situ the TCLP soil within this area with a soil reagent. The limits of the TCPL excavation area within Area 5 is defined in Appendix B. After treatment a waste characterization sample of the treated material will be collected for expedited TCLP lead analysis. Once the analysis confirms the treated soil is below 5 mg/L, this material will be excavated and transported off-Site for disposal as non-hazardous material. After the TCLP excavation, surface soils and gravel from Areas 1, 5, 6, 7, 8 or 9 can be used as backfill for the excavated area. The area will be re-graded and a brightly colored geotextile fabric will be placed over the area.
 - c. The City will then place a 6-inch layer of gravel and the area will be covered with a 6-inches asphalt layer as an engineered barrier⁸.
6. **Area 6 - Railroad East of Loomis (South):** This part represents a 110 foot long section of railroad tracks used by BNSF and owned by H. Kramer. This part lies between the east-west alley and 21st Place (entrance to H Kramer). The rails and ties are still present. This area exceeds 800 mg/kg lead but EPA samples collected in this area were below the TCLP lead criteria within the area. The rail spur is inactive. The removal plan for this area is as follows:
 - a. BNSF will remove the rails and ties from this area.
 - b. H. Kramer will place a brightly colored geotextile fabric over the area. Then 6 inches of gravel will be placed and the area will be covered with a 3-inch asphalt layer as an engineered barrier.
7. **Area 7- North South Alley:** This part is 110 feet by 25 feet in area and is owned by the City. It has a gravel/fill surface and has lead above 800 mg/kg but EPA samples collected in this area were below the TCLP lead criteria within the area. The removal plan for this area is as follows:
 - a. H. Kramer will re-grade the area and then place a brightly colored geotextile fabric over the area.
 - b. The City will then place a 6-inch layer and the area will be covered with a 3-inch asphalt layer as an engineered barrier.
8. **Area 8 - Unpaved East-West Alley:** This part represents 325 feet of unpaved alley along the western part and is owned by the City. This area has lead levels above 800 mg/kg and has TCLP lead within the area. The short section of the rail spur at the west end of this area is inactive. The removal plan for this area is as follows;

⁸ The western portion of Area 5 (area west of RR tracks) is covered with brick pavers. These pavers will not be removed but instead will be incorporated into the engineered barrier. The City will place 3-inches of asphalt over the brick pavers.

- a. BNSF will remove the rails and ties from this area.
 - b. H. Kramer will treat in-situ the TCLP soil within this area with a soil reagent. The limits of the TCPL excavation area within Area 8 is defined in Appendix B. After treatment a waste characterization sample of the treated material will be collected for expedited TCLP lead analysis. Once the analysis confirms the treated soil is below 5 mg/L, this material will be excavated and transported off-Site for disposal as non-hazardous material. After the TCLP excavation, surface soils and gravel from Areas 1,,5,6,7,8, or 9 will be used as backfill for the excavated area. The area will be re-graded and a brightly colored geotextile fabric will be placed over the area
 - c. The City will then place 6 inches of gravel and the area will be covered with a 3-inch asphalt layer as an engineered barrier.
9. **Area 9 - Paved East West Alley:** This part represents 175 feet of paved alley along the eastern part and is owned by the City. This area has lead levels above 800 mg/kg. Remediation is needed in this area because the pavement is in poor condition. The removal plan for this area is as follows;
 - a. H. Kramer will re-grade this area in conjunction with Area 8 and a brightly colored geotextile fabric will be placed over the area.
 - b. The City will then place 6 inches of gravel and the area will be covered with a 3-inch asphalt layer as an engineered barrier.
10. **Area 10 - Railroad South of Alley:** This 120 feet long railroad segment is owned by DeTrinh and 1358 Cermak LLC and was used by BNSF. This part lies between the east-west alley to the north and Cermak Road to the south. The rails and ties are still present. This area exceeds 800 mg/kg lead but EPA samples collected in this area were below the TCLP lead criteria within the area. The rail spur is inactive. The removal plan for this area (pending access) is as follows:
 - a. BNSF will remove the rails and ties from this area.
 - b. H. Kramer will install a brightly colored geotextile fabric over the area. Then 6 inches of gravel will be placed and the area will be covered with a 3-inch asphalt layer as an engineered barrier.

4.2 Removal Phased Implementation

In order to implement the Removal Plan in an efficient manner, the parties have developed a phased approach to implement the scope of work described above. A schedule for implementing the work will be provided to the USEPA in a Removal Plan Addendum within 10 days after the AOC is signed. The Removal Plan will be completed in three phases as described below.

Phase I: BNSF will undertake and pay the cost of the work to remove the rails and ties, and transport and dispose of them appropriately. The railroad will also provide the gravel and materials for the required engineered barrier in Area 1 Revised 1 and Area 2 Revised that will complete the pedestrian walk way.

Phase II: H Kramer will treat in-situ the TCLP contaminated soil from Areas 4, 5 and 8 as required by the work plan. After receiving analysis confirming the treated soil are below 5 mg/L this soil will be excavated and transported off-site and disposed as a non-hazardous material. Excavate and transport surface materials from Areas 1, 5, 6, 7, 8, 9, and 10 for use as backfill material for the

Area 5 and 8 excavations, install a brightly colored geotextile fabric, lay and grade the materials to be provided by BNSF as part of Phase I, and prepare the subgrade for areas that are to be paved by the City and H Kramer as part of Phase III.

Phase III: After all the removal and preparation work for paving provided for in Phases I and II are completed:

- a. The City will provide granular base and pave the Areas it currently owns: Areas 5, 7, 8, and 9.
- b. H Kramer will pave the Areas it currently owns: Areas 4 and 6 (without sewers or storm water detention) and will pave Area 2 and 10. No permits or design approval will be required by the City. The work plan will serve as the design approval.
- c. H Kramer will pursue vacation of Areas 5 and 7 with the City, and after the work is completed and vacation is effected:
 - H Kramer will be responsible for O & M for the Areas it then owns: 4, 5, 6, and 7.
 - The City will be responsible for O & M for the Areas it then owns: 1, 2, 3, 8 and 9.

4.3 Overall Protection of Human Health and the Environment

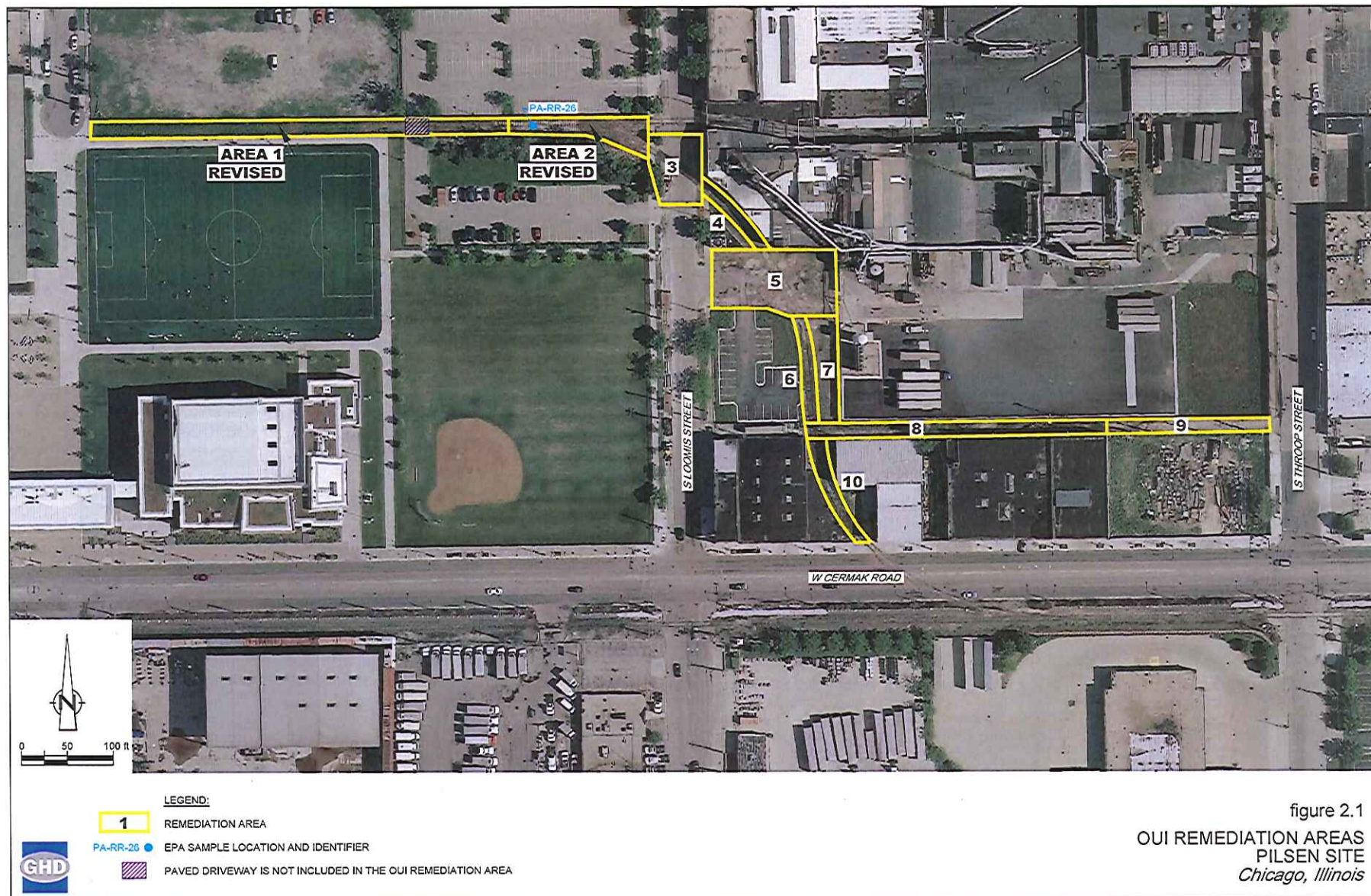
Contaminants of potential concern for the human health pathway are lead. The proposed remedial action is to excavate and dispose of soil that exceeds the TCLP criteria and to install engineered barriers over remaining soils that exceed the 800 mg/kg Removal Management Level (Ingestion Pathway) for Industrial/Commercial properties. Following remediation property owners will work closely with the USEPA to establish and implement institutional controls (Industrial commercial land use), and long-term inspection and maintenance programs to ensure that the containment remedy is maintained and undisturbed.

The Site remedy is required to meet the Illinois Environmental Protection Agency (IEPA) Applicable, Relevant, and Appropriate Requirements (ARARs). The IEPA ARARs are attached (see Appendix C) and the Site Remedy has been designed to meet these requirements.

4.4 Cost

The remedial cost estimate for the railroad- alley area is provided in Table 4.1 and details are provided in Appendix A.

Figure



Table

Table 4.1

Remedial Cost Estimate
OU1 Pilsen - Chicago, Illinois

<i>Description</i>	<i>Area</i>	<i>Unit</i>	<i>Quantity</i>	<i>Unit Price</i>	<i>Total</i>	<i>Comment</i>
Mobilization		LS	1	\$ 18,000	\$ 18,000	
Site Facilities		LS	1	\$ 16,000	\$ 16,000	
City of Chicago Permits		LS	1	\$ -	\$ -	Not applicable
Soil Removal/grading		Day	15	\$ 7,250	\$ 108,750	
Rail Removal	all RR	Day	12	\$ 7,250	\$ 87,000	
Non-regulated surface debris disposal	all RR	ton	600	\$ 65	\$ 39,000	
Non-hazardous debris transportation	all RR	ton	600	\$ 35	\$ 21,000	
TCLP soil treatment and excavation	4	ton	70	\$ 95	\$ 6,685	
	5	ton	270	\$ 95	\$ 25,650	
	8	ton	178	\$ 95	\$ 16,910	
Transport of TCLP treated soil	4	ton	70	\$ 25	\$ 1,759	
(Areas 4, 5 & 8)	5	ton	270	\$ 25	\$ 6,750	
	8	ton	178	\$ 25	\$ 4,450	
Disposal of organic soils	1	ton	105	\$ 65	\$ 6,825	Areas 1 & 2
Disposal of organic soils	2	ton	64	\$ 65	\$ 4,160	Areas 1 & 2
Transportation of organic soils	1	ton	105	\$ 35	\$ 3,675	Areas 1 & 2
Transportation of organic soils	2	ton	64	\$ 35	\$ 2,240	Areas 1 & 2
Non-regulated surface debris disposal	5	ton	200	\$ 65	\$ 13,000	
Non-hazardous debris transportation	5	ton	200	\$ 35	\$ 7,000	

Table 4.1

Remedial Cost Estimate
OU1 Pilsen - Chicago, Illinois

<i>Description</i>	<i>Area</i>	<i>Unit</i>	<i>Quantity</i>	<i>Unit Price</i>	<i>Total</i>	<i>Comment</i>
Backfill to replace TCLP excavation	4	ton	70	\$ 28	\$ 1,970	
	5	ton	270	\$ 28	incl above	From Area 1, 5, 6, 7, 8, 9, or 10
	8	ton	178	\$ 28	incl above	From Area 1, 5, 6, 7, 8, 9, or 10
Fabric Placement	1	SY	980	\$ 2.0	\$ 1,960	
	2	SY	600	\$ 2.0	\$ 1,200	
	4	SY	264	\$ 2.0	\$ 528	
	5	SY	1125	\$ 2.0	\$ 2,250	
	6	SY	306	\$ 2.0	\$ 611	
	7	SY	306	\$ 2.0	\$ 611	
	8	SY	650	\$ 2.0	\$ 1,300	
	9	SY	350	\$ 2.0	\$ 700	
	10	SY	400	\$ 2.0	\$ 800	

Table 4.1

Remedial Cost Estimate
OU1 Pilsen - Chicago, Illinois

<i>Description</i>	<i>Area</i>	<i>Unit</i>	<i>Quantity</i>	<i>Unit Price</i>	<i>Total</i>	<i>Comment</i>
Pedestrian Bollards	1&2	LS	3	\$ 1,000	\$ 3,000	
Pedestrian Gravel (6 inches)	1	ton	288	\$ 32	\$ 9,216	
Pavement with 6 inch gravel base						
	Area 2 Rev.	SY	600	\$ 40	\$ 24,000	3" gravel/3" of asphalt
	4	SY	264	\$ 50	\$ 13,194	6" gravel/3" of asphalt
	5	SY	1125	\$ 60	\$ 67,500	6" gravel/6" of asphalt
	6	SY	306	\$ 50	\$ 15,278	6" gravel/3" of asphalt
	7	SY	306	\$ 50	\$ 15,278	6" gravel/3" of asphalt
	8	SY	650	\$ 50	\$ 32,500	6" gravel/3" of asphalt
	9	SY	350	\$ 50	\$ 17,500	6" gravel/3" of asphalt
	10	SY	400	\$ 50	\$ 20,000	6" gravel/3" of asphalt
			Subtotal		\$618,251	
CRA Engineering Review, Remedial Action Plan, HASP,						
Specifications, Bid Review, QAPP, Reporting		LS	1	\$ 83,000	\$ 83,000	
Construction Oversight		LS	1	\$ 75,000	\$ 75,000	
			Sub-total		\$ 158,000	
			Subtotal		\$776,251	
			Contingency (15%)		\$116,438	
			Total		\$892,688	

Appendices

Appendix A

Remedial Cost Estimate Details

Table A.1

Remedial Cost Estimate
OU1 Pilsen - Chicago, Illinois

<i>Description</i>	<i>Area</i>	<i>Unit</i>	<i>Quantity</i>	<i>Unit Price</i>	<i>Total</i>	<i>Comment</i>
Mobilization		LS	1	\$ 18,000	\$ 18,000	
Site Facilities		LS	1	\$ 16,000	\$ 16,000	
City of Chicago Permits		LS	1	\$ -	\$ -	Not applicable
Soil Removal/grading		Day	15	\$ 7,250	\$ 108,750	
Rail Removal	all RR	Day	12	\$ 7,250	\$ 87,000	
Non-regulated surface debris disposal	all RR	ton	600	\$ 65	\$ 39,000	
Non-hazardous debris transportation	all RR	ton	600	\$ 35	\$ 21,000	
TCLP soil treatment and excavation	4	ton	70	\$ 95	\$ 6,685	
	5	ton	270	\$ 95	\$ 25,650	
	8	ton	178	\$ 95	\$ 16,910	
Transport of TCLP treated soil	4	ton	70	\$ 25	\$ 1,759	
(Areas 4, 5 & 8)	5	ton	270	\$ 25	\$ 6,750	
	8	ton	178	\$ 25	\$ 4,450	
Disposal of organic soils	1	ton	105	\$ 65	\$ 6,825	Areas 1 & 2
Disposal of organic soils	2	ton	64	\$ 65	\$ 4,160	Areas 1 & 2
Transportation of organic soils	1	ton	105	\$ 35	\$ 3,675	Areas 1 & 2
Transportation of organic soils	2	ton	64	\$ 35	\$ 2,240	Areas 1 & 2
Non-regulated surface debris disposal	5	ton	200	\$ 65	\$ 13,000	
Non-hazardous debris transportation	5	ton	200	\$ 35	\$ 7,000	

Table A.1

Remedial Cost Estimate
OU1 Pilsen - Chicago, Illinois

<i>Description</i>	<i>Area</i>	<i>Unit</i>	<i>Quantity</i>	<i>Unit Price</i>	<i>Total</i>	<i>Comment</i>
Backfill to replace TCLP excavation	4	ton	70	\$ 28	\$ 1,970	
	5	ton	270	\$ 28	incl above	From Area 1, 5, 6, 7, 8, 9, or 10
	8	ton	178	\$ 28	incl above	From Area 1, 5, 6, 7, 8, 9, or 10
Fabric Placement	1	SY	980	\$ 2.0	\$ 1,960	
	2	SY	600	\$ 2.0	\$ 1,200	
	4	SY	264	\$ 2.0	\$ 528	
	5	SY	1125	\$ 2.0	\$ 2,250	
	6	SY	306	\$ 2.0	\$ 611	
	7	SY	306	\$ 2.0	\$ 611	
	8	SY	650	\$ 2.0	\$ 1,300	
	9	SY	350	\$ 2.0	\$ 700	
	10	SY	400	\$ 2.0	\$ 800	

Table A.1

Remedial Cost Estimate
OU1 Pilsen - Chicago, Illinois

<i>Description</i>	<i>Area</i>	<i>Unit</i>	<i>Quantity</i>	<i>Unit Price</i>	<i>Total</i>	<i>Comment</i>
Pedestrian Bollards	1&2	LS	3	\$ 1,000	\$ 3,000	
Pedestrian Gravel (6 inches)	1	ton	288	\$ 32	\$ 9,216	
Pavement with 6 inch gravel base						
	Area 2 Rev.	SY	600	\$ 40	\$ 24,000	3" gravel/3" of asphalt
	4	SY	264	\$ 50	\$ 13,194	6" gravel/3" of asphalt
	5	SY	1125	\$ 60	\$ 67,500	6" gravel/6" of asphalt
	6	SY	306	\$ 50	\$ 15,278	6" gravel/3" of asphalt
	7	SY	306	\$ 50	\$ 15,278	6" gravel/3" of asphalt
	8	SY	650	\$ 50	\$ 32,500	6" gravel/3" of asphalt
	9	SY	350	\$ 50	\$ 17,500	6" gravel/3" of asphalt
	10	SY	400	\$ 50	\$ 20,000	6" gravel/3" of asphalt
			Subtotal		\$618,251	
Engineering Review, Remedial Action Plan, HASP, Specifications, Bid Review, QAPP, Reporting		LS	1	\$ 83,000	\$ 83,000	
Construction Oversight		LS	1	\$ 75,000	\$ 75,000	
			Sub-total		\$ 158,000	
			Subtotal		\$776,251	
			Contingency (15%)		\$116,438	
			Total		\$892,688	

Table A.2
Assumptions
Pilsen - Chicago, Illinois

<i>Work Summary</i>	<i>Disposal</i>	<i>Depth</i>	<i>CY</i>	<i>Ton</i>
	<u>Areas with TCLP > 5</u>			
	Area 4	RR-04 TCLP = 12 0-6 inch depth	44	70
	Area 5	PA-RR07, 08 = 13 6-24 inch depth	169	270
	Area 8	AC04 = 12 0-6 inch depth	111	178
		AC03 = 12 0-6 inch depth		
		AY05 = 9.6 6-12 inch depth		
				<u>518</u>
<u>Area 1 Revised</u>				
BNSF removes rails and ties				
H Kramer removes organic soils 0-0.2 feet				
H Kramer excavates 0.2 to 0.5 feet of contaminated soil and places in Areas 4 or 5				
H Kramer places fabric, six inches of gravel (gravel supplied by BNSF)				
<u>Area 2 + RR26 area Revised</u>				
BNSF removes rails and ties				
H Kramer removes organic soils 0-0.2 feet				
H Kramer places fabric, 3 inches of gravel and 3 inches of pavement				
<u>Area 3</u>				
No remediation, area recently paved by City				
<u>Area 4</u>				
BNSF removes rails and ties				
H Kramer treat and removes TCLP soil				
H Kramer places backfill in TCLP hole with material from Areas 1, 2, 3, 5, 6, 7, 8 or 9				
H Kramer places fabric				
H Kramer places 6 inches of gravel and 3 inches asphalt				
<u>Area 5</u>	<u>Areas with non-TCLP debris to be removed</u>	<u>area (SF)</u>	<u>debris (CY)</u>	<u>(ton)</u>
BNSF removes rails and ties	Area 5	10125	188	300
H Kramer removes 6 inches of surface debris				
H Kramer treat and removes TCLP soil				
H Kramer places backfill in TCLP hole with material from Areas 1, 2, 3, 5, 6, 7, 8 or 9				
H Kramer places fabric (or supplies to City)				
City places six inches of gravel and paves 6 inches				
	TCLP	tons	truckloads	days
	Area 1	518	32	5
	non-haz	300	19	3
		<u>818</u>		<u>8</u>
<u>Area 6</u>				
Remove tracks, grade area flat				
H Kramer places fabric				
H Kramer places 6 inches of gravel and 3 inches asphalt				
	16 tons of waste per truckload			
	8 trucks per day			

Table A.2
Assumptions
Pilsen - Chicago, Illinois

Work SummaryArea 7

Grade area flat

H Kramer places fabric (or supplies to City)

City places six inches of gravel and paves 3 inches

Area 8

H Kramer treats and removes TCLP soils

H Kramer regrades Area 8

H Kramer places fabric (or supplies to City)

City places six inches of gravel and paves 3 inches

Area 9

H Kramer regrades Area 8

H Kramer places fabric (or supplies to City)

City places six inches of gravel and paves 3 inches

Area 10

Remove tracks, grade area flat

H. Kramer places fabric, six inches of gravel

H Kramer places 6 inches of gravel and 3 inches asphalt

TCLP Soil Disposal

Characterized as D008 Waste

Disposal

Treatment and Disposal = \$95/ton

Transport = \$25/ton

Debris Disposal

Disposal

Treatment and Disposal = \$65/ton

Transport = \$35/ton

Surface Replacement Area 5

CA-6 six-inch thick Stone = \$28/ton

6 inch stone + 6 inch Asphalt = \$60/SY

DisposalContractor Equipment

Excavator

Excavator

Skid Steer

Front End Loader

Laborer

unit	rate	days	total
Day	\$ 1,600	1	\$ 1,600
Day	\$ 1,600	1	\$ 1,600
Day	\$ 1,500	1	\$ 1,500
Day	\$ 1,600	1	\$ 1,600
Day	\$ 950	1	\$ 950
			<u>\$ 7,250</u>

Depth**CY****Ton**

No Stormwater Retention Pond will be required
 No sewer upgrades will be required

place 6 inches of stone over all disturbed areas

Leave non-haz in place and cover with stone

Soil density = 1.6 ton / cubic yard

fabric to be placed at all disturbed surfaces

all areas to be completed concurrently

Table A.2

Assumptions

Pilsen - Chicago, Illinois

Work Summary	Disposal	Depth	CY	Ton
--------------	----------	-------	----	-----

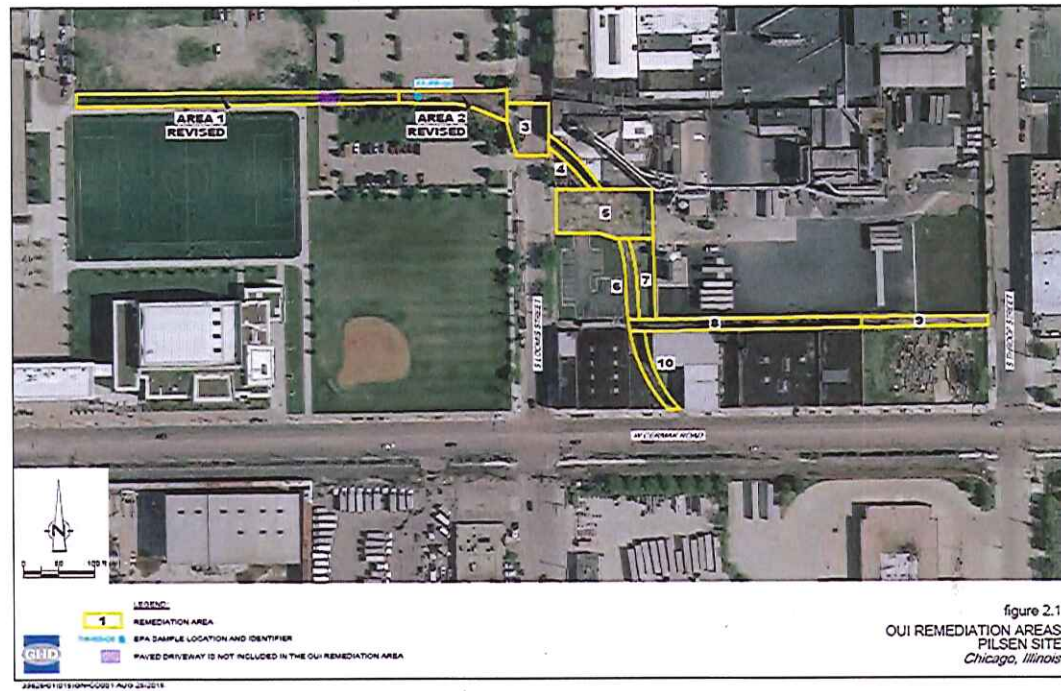
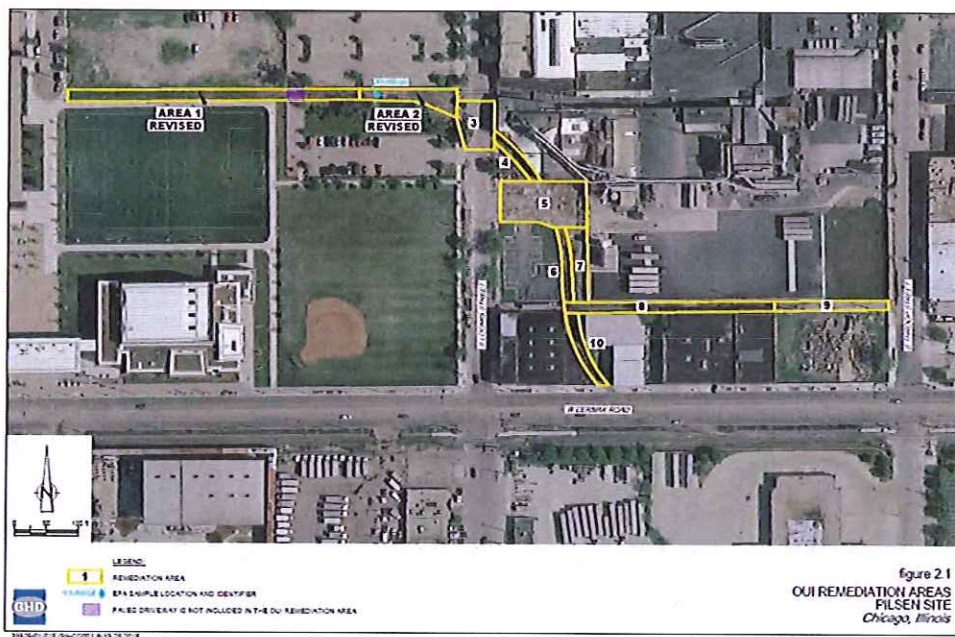


Table A.3

**Remedial Cost Estimate for Railroad and Alley Area
Pilsen - Chicago, Illinois**

Areal Extent Estimates

	N-S Width feet	E-W Length feet	Depth feet	Volume ft ³	Area ft ²	CY	Ton	
1 RR to west of Loomis	18	490	0.2	1,764	8,820	65	105	remove organic layer
2 RR west of Loomis	45	120	0.2	1,080	5,400	40	64	remove organic layer 6 inches of gravel
	45	120	0.25	1,350	5,400	50	80	
3 Loomis Crossing	78	65	0	0	5,070	0	0	
4 RR tracks north of chiller	95	25	0.5	1,188	2,375	44	70	
5 21st Place Drive (debris) (TCLP volume is 30% of area x 1.5 ft)	75	135	0.5	5,063	10,125	188	300	100 tons will come from Area 1
			1.5	4,556		169	270	
6 N-S RR Tracks East of parking lot	110	25	0.5	1,375	2,750	51	81	
7 N-S alley	110	25	0.5	1,375	2,750	51	81	
8 Unpaved W-E alley	18	325	0.5	2,925	5,850	108	173	
9 Paved W-E alley	18	175	0	0	3,150	0	0	
10 N-S RR tracks south of alley	120	30	0.5	1,800	3,600	67	107	
Totals				22,475	55,290	832	1,332	



Appendix B

TCLP Excavation Areas

Appendix B

TCLP Excavation Areas OU1 Pilsen Site Chicago, Illinois

The attached figures define the limits of the TCLP excavation in Areas 4, 5, and 8 based on the soil data collected by the EPA/Weston.

Area 4

- No additional delineation. Use Weston data.
- The TCLP area measures approximately 25' x 95' = 2,375 ft². Volume of 44 CY or 70 tons
- The plan is to treat in-situ the upper 0.5 feet of material within this area with a soil reagent¹. Once the analysis confirms the treated soil is below 5 mg/L, this material would be transported off-Site for disposal.
- No further delineation or confirmation sampling will be conducted because this has been completed through the USEPA sampling program.

Area 5

- The TCLP area measures approximately 55' x 55' = 3,025 ft². Volume of 168 CY or 269 tons.
- The upper 0.5 feet of material within this area (TCLP area as shown on the Figure) will be removed and either disposed of as non-TCLP debris or utilized as backfill in TCLP excavations.
- Then the area within the limits of the TCLP area from 0.5' to 2.0' feet below original grade as shown on the Figure will be treated in-situ with a soil reagent. After treatment a composite waste profile sample will be collected for expedited TCLP lead analysis. Once the analysis confirms the treated soil is below 5 mg/L, this material would be transported off-Site for disposal.
- No further delineation or confirmation sampling will be conducted because this has been completed through the USEPA sampling program. The western and southern limits of the TCLP area of this excavation are defined by samples RR04, 06 (6-24") and RR10, 12 (6-24").

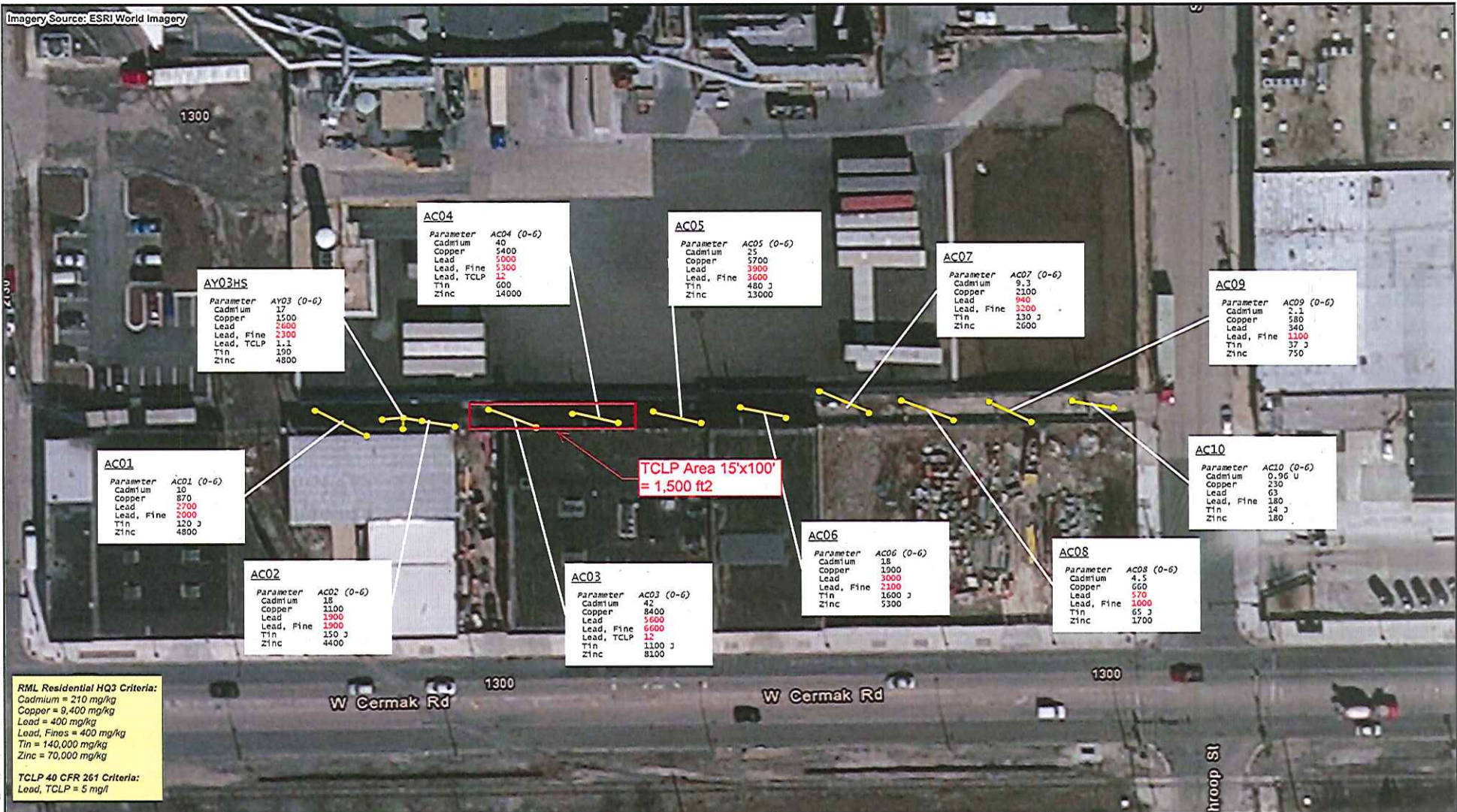
Area 8

- No additional delineation. Use Weston data.
- The TCLP area measures approximately 15' x 100' = 1,500 ft². Volume of 111 CY or 178 tons
- The area within the limits of the TCLP area as shown on the Figure will be treated in-situ from 0.0' to 2.0' with a soil reagent.
- After treatment a composite waste profile sample will be collected for expedited TCLP lead analysis.

¹ Free Flow Heavy Metals Treatment Reagent by Free Flow Technologies, Ltd. at a 4-percent application rate mixed in-situ with soil.

- Once the analysis confirms the treated soil is below 5 mg/L, this material would be transported off-Site for disposal.
- The western limit of the TCLP area is defined by samples AC02 and the eastern limit is defined by sample AC05 where the total lead concentrations is much lower and implies that the TCLP result would be less than 5 mg/L.
- No further delineation or confirmation sampling will be conducted because this has been completed through the USEPA sampling program.





Legend

Composite Sampling Location
Soil sample collected at each
location (●), then homogenized
with connected location to obtain
the composite sample.

Result Units = mg/kg
Exposure Level: TGI D = mg/d

Except Load, TCLP = mg/l
Red text indicates criteria exceedance



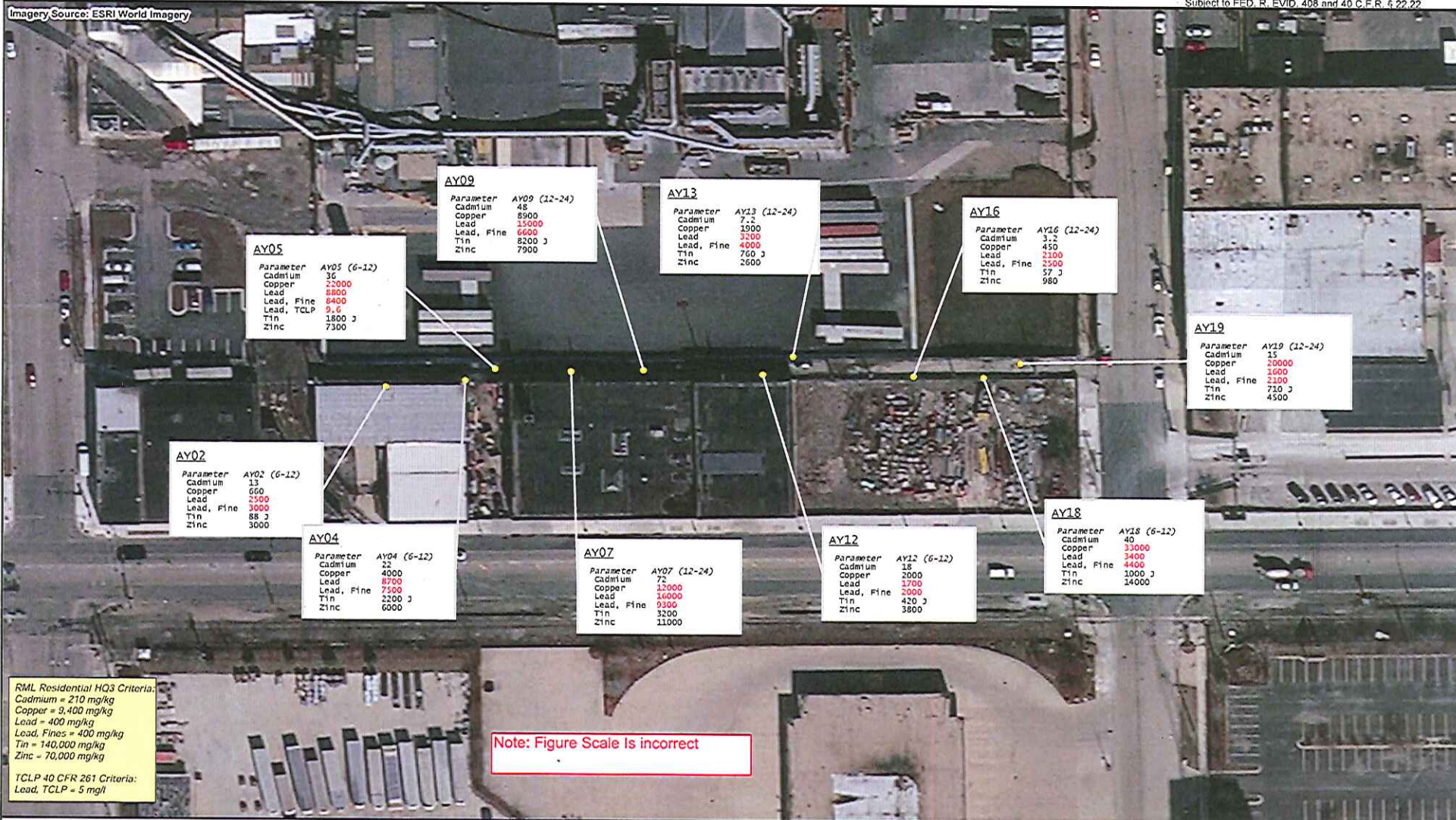
Prepared For:
US EPA Region V
Contract No.: EP-S5-06-04
TDD: S05-0001-1211-002
DCN: 2038-2A-BLKW



Prepared By:
WESTON SOLUTIONS, INC
750 E. Bunker Court
Suite 500
Vernon Hills, Illinois 60061

Figure 4-2
Alley Composite Sampling Results Map
Pilsen Area Soil Site: Railroad/Alley
Chicago, Cook County, Illinois

Imagery Source: ESRI World Imagery



Legend

● Sampling Locations

Red text indicates criteria exceedance

Result Units = mg/kg
Except Lead, TCLP = mg/l

0 100 Feet



Prepared For:
US EPA Region V
Contract No.: EP-S5-06-04
TDD: S05-0001-1211-002
DCN: 2038-2A-BLKW



Prepared By:
WESTON SOLUTIONS, INC
750 E. Bunker Court
Suite 500
Vernon Hills, Illinois 60061

Figure 4-1
Alley Grab Sampling Results Map
Pilsen Area Soil Site: Railroad/Alley
Chicago, Cook County, Illinois

Appendix C

IEPA ARARs



ILLINOIS ENVIRONMENTAL PROTECTION AGENCY

1021 NORTH GRAND AVENUE EAST, P.O. BOX 19276, SPRINGFIELD, ILLINOIS 62794-9276 • (217) 782-2829
BRUCE RAUNER, GOVERNOR LISA BONNETT, DIRECTOR

(217) 524-1663

March 30, 2015

Mr. Ramon Mendoza
Federal On-Scene Coordinator
U.S. Environmental Protection Agency, Region V
Superfund Division, Removal Branch 2 SE-5J
77 West Jackson
Chicago, IL 60604

Re: Operable Unit 1 – Pilsen Soils Railroad Spur and Alley Site
LPC# pending – Cook County
SF/Tech

Dear Mr. Mendoza:

Per your request, Illinois EPA is identifying Applicable, Relevant, and Appropriate Requirements (ARARs) for the Operable Unit 1 – Pilsen Soils Railroad Spur and Alley Site located in Chicago, Illinois. Throughout this time-critical removal activity, please forward to me the Action Memorandum, Removal Action Report(s), periodic Pollution Reports (POLREPS), and other relevant site information in order to keep the Illinois EPA Bureau of Land files current and accurate.

To assist U.S. EPA, the Illinois EPA has identified the following State ARARs for the immediate removal of containers. Containers include drums, tanks, and roll-off-boxes. For the ARARs listed in the attachment to this letter, USEPA is considered to be the generator of the waste.

In Illinois, our Resource Conservation and Recovery Act (RCRA) regulations are essentially identical to the Federal RCRA regulations. The essential difference between the Federal and State ARARs for solid wastes is the classification of Special Waste in Illinois.

As part of the removal coordination effort between Illinois EPA and U.S. EPA, please contact me at the above number if you have any additional site-specific questions or additional requests.

Sincerely,

Bruce Everetts
Office of Site Evaluation
Division of Remediation Management
Bureau of Land

bcc: Division File, w/ attachments

**STATE of ILLINOIS ARARs
for
IMMEDIATE REMOVALS of CONTAINERS**

Regulatory Citation	Requirement
	Determine the Regulatory Classification of the material
35 IAC 722.111 (40 CFR 262.11)	The generator of a solid waste must determine whether it is a hazardous waste.
35 IAC 808.110	The waste will probably be classified as a Special Waste. Special wastes are hazardous wastes, industrial process wastes, and pollution control wastes. Pollution control wastes include contaminated media.
	Obtain IEPA & USEPA Identification Numbers
35 IAC 722.112 (40 CFR 262.12)	A generator must obtain a USEPA identification number prior to transporting hazardous waste off-site.
35 IAC 809.501	A generator must obtain an IEPA identification number in order to properly complete an Illinois manifest.
	Transportation of Wastes Off-Site
35 IAC 723.120 (40 CFR 263.20)	Hazardous waste must be manifested to a facility that is permitted to accept it.
35 IAC 809.501	Special waste must be manifested to a facility that is permitted to accept it.
35 IAC 809.201	All vehicles that haul special waste on public highways in Illinois must have a Special Waste Hauling Permit.
	On-Site Management of Wastes
35 IAC 722.134 (40 CFR 262.34)	Containers of hazardous waste can be stored on-site for less than 90 days without obtaining a permit or interim status provided that they are managed in accordance with the requirements at 35 IAC Part 725, Subpart I: <ul style="list-style-type: none"> - the containers must be in good condition (non-leaking), - the containers must be compatible with the wastes placed in them,

**STATE of ILLINOIS ARARs
for
IMMEDIATE REMOVALS of CONTAINERS**

Regulatory Citation	Requirement
	<ul style="list-style-type: none"> - the containers must always be closed except when it is necessary to add or remove waste, - the containers must not be opened, or managed in a way that may cause them to rupture or leak, - the containers must be inspected weekly, - incompatible wastes must not be placed in the same container, - a container of waste that is incompatible with other wastes must be separated from the other wastes, - containers of ignitable or reactive waste must be located at least 50 feet from the property line,
35 IAC 722.134 (40 CFR 262.34)	The 90 day exclusion only applies to wastes that are managed in containers, tanks, drip pads or containment buildings. Hazardous waste that is placed on the ground is subject to all of the regulations for a waste pile as soon as it is placed on the ground.

www.ghd.com



**In the Matter of Pilsen Soil Operable Unit 1 Railroad
Spur and Alley Site, Chicago, Illinois**

**Appendix D
TCLP Lead Location Map**

Appendix B Photographs



Photo 1 - Area 1 Beforehand



Photo 2 - Area 2 Beforehand

Site Photographs OU1 Pilsen Soils





Photo 3 - Area 4 Beforehand



Photo 4 - Area 5 Beforehand

Site Photographs OU1 Pilsen Soils





Photo 5 - Areas 6 and 7 Beforehand



Photo 6 - Areas 8 and 9 Beforehand

Site Photographs OU1 Pilsen Soils





Photo 7 - Rail Removal Area 10 with Perimeter Air Monitor



Photo 8 - Rail Removal Area 10

Site Photographs OU1 Pilsen Soils





Photo 9 - Water Truck for Dust Control Area 5



Photo 10 - Rail Removal Area 4

Site Photographs OU1 Pilsen Soils





Photo 11 - Rail Removal Area 6



Photo 12 - Rail Removal Area 2

Site Photographs OU1 Pilsen Soils





Photo 13 - TCLP Soil Treatment Area 8



Photo 14 - TCLP Soil Treatment Area 4 Awaiting Results

Site Photographs OU1 Pilsen Soils





Photo 15 - Clearing Work Area 1



Photo 16 - Excavation Work Area 1

Site Photographs OU1 Pilsen Soils





Photo 17 - USEPA Testing Area 1 Soil with XRF



Photo 18 - Installing Geotextile Fabric and Gravel Area 1

Site Photographs OU1 Pilsen Soils





Photo 19 - Grading Work in Area 2



Photo 20 - Installing Geotextile Fabric and Gravel Area 2



Site Photographs OU1 Pilsen Soils



Photo 21 - Installing Geotextile Fabric and Gravel Area 2



Photo 22 - Area 2 Graded

Site Photographs OU1 Pilsen Soils





Photo 23 - Grading in Area 10



Photo 24 - Installing Geotextile Fabric and Gravel in Area 10



Site Photographs OU1 Pilsen Soils



Photo 25 - Area 10 Graded



Photo 26 - Installing Geotextile Fabric and Gravel in Area 4

Site Photographs OU1 Pilsen Soils





Photo 27 - Area 4 Graded



Photo 28 - Installing Geotextile Fabric and Gravel in Areas 6 and 7

Site Photographs OU1 Pilsen Soils





Photo 29 - Installing Geotextile Fabric and Gravel in Areas 8 and 9



Photo 30 - CDOT Grading Area 5

Site Photographs OU1 Pilsen Soils





Photo 31 - CDOT Paving Area 5



Photo 32 - CDOT Paving Areas 8 and 9

Site Photographs OU1 Pilsen Soils





Photo 33 - CDOT Paving Area 7



Photo 34 - Area 2 Paved

Site Photographs OU1 Pilsen Soils





Photo 35 - Area 10 Paved



Photo 36 - Area 6 Paved

Site Photographs OU1 Pilsen Soils





Photo 37 - Area 4 Paved



Photo 38 - Area 5 Touchup Work

Site Photographs OU1 Pilsen Soils





Photo 39 - Area 5 Touchup Work



Photo 40 - Bollard Posts East Side of Area 2

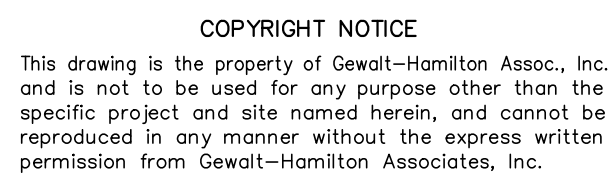
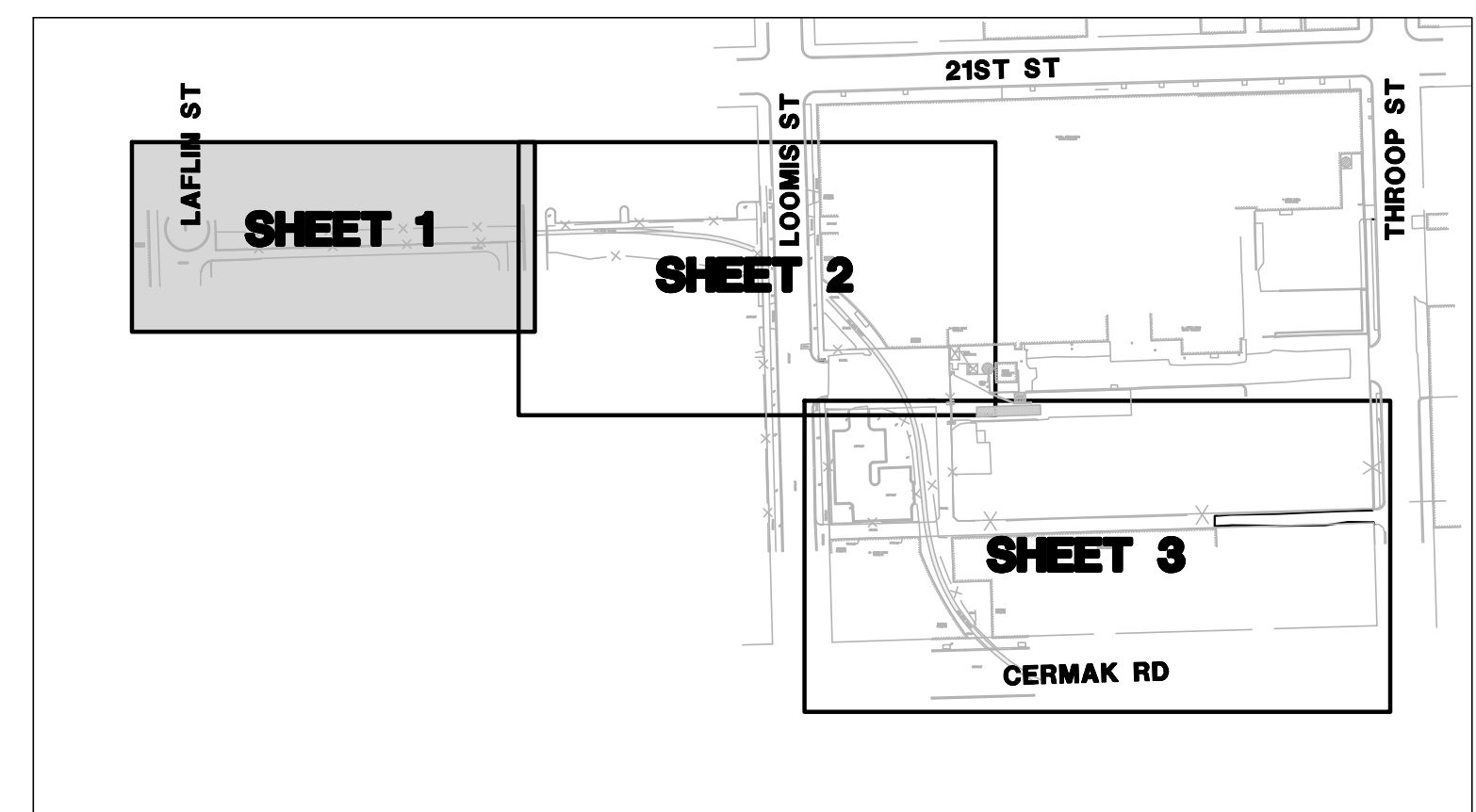
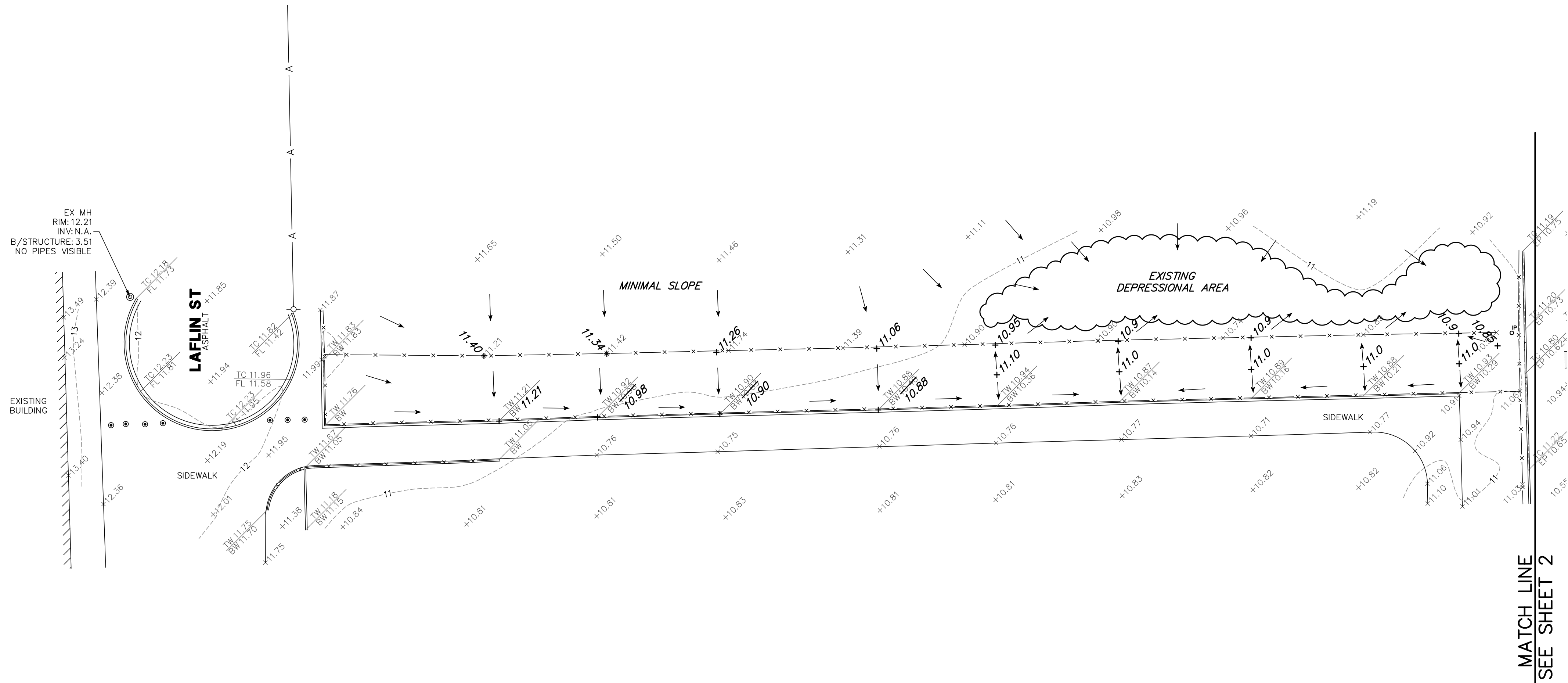
Site Photographs OU1 Pilsen Soils



Appendix C

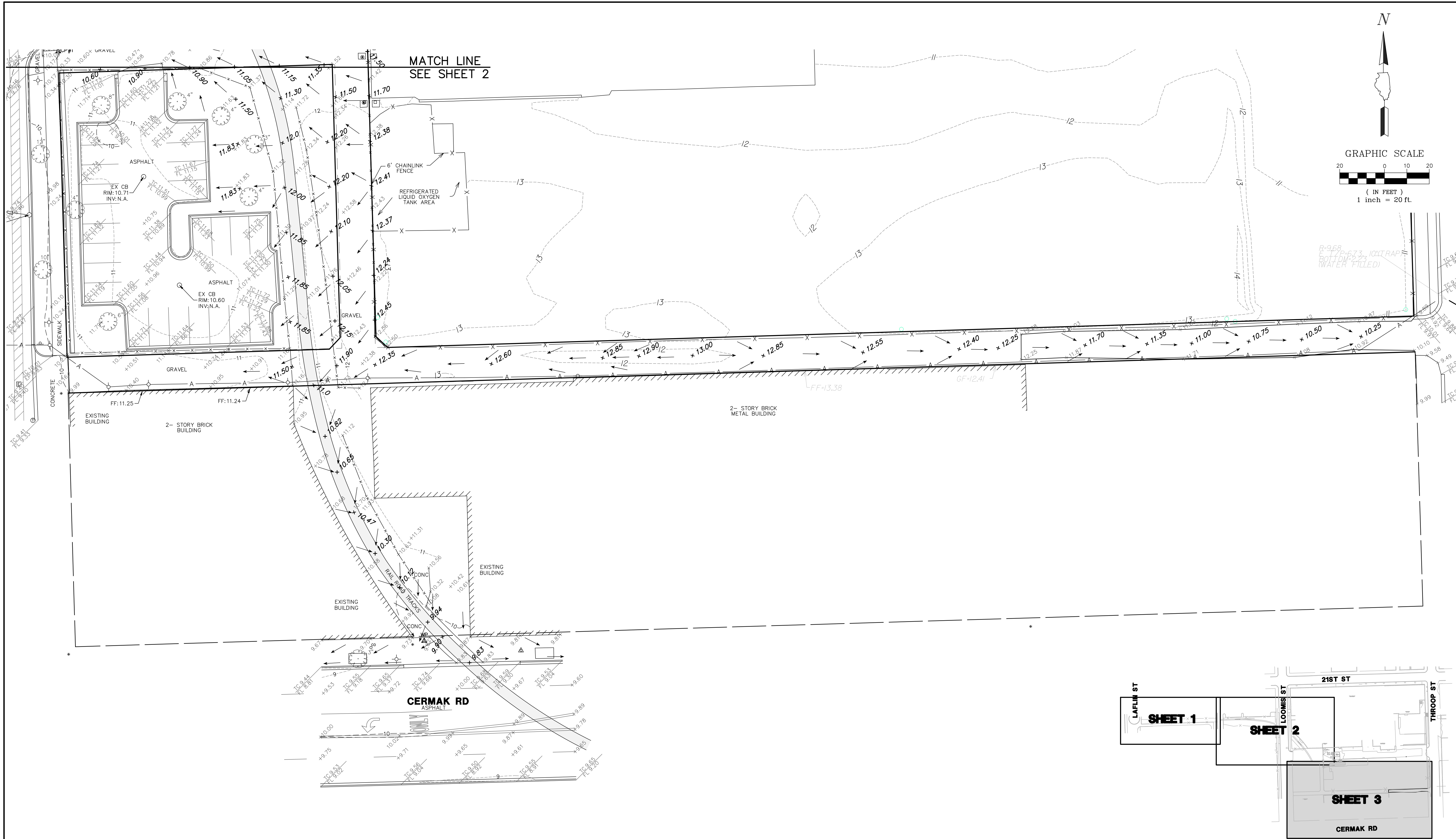
Grading and Drainage Plan

AIR CONDITIONER
 BOLLARD/POST
 BUFFALO BOX
 BUSH/SHRUB
 BRUSH LINE/BRUSH LINE
 CATCH BASIN
 CLEANOUT
 CONTOUR
 CONTROL POINT
 CONTROL VALVE
 CROSS/NOTCH
 CULVERT
 DISK
 DITCH/SWALE
 DOWNSPOUT
 DRAIN
 ELECTRIC BOX
 ELECTRIC LINE
 ELECTRIC MANHOLE
 ELECTRIC METER
 FENCE
 FIBER OPTIC LINE
 FIBER OPTIC MANHOLE
 FIRE HYDRANT
 FLAG POLE
 FLARED END SECTION
 GAS LINE
 GAS MANHOLE
 GAS METER
 GAS VALVE
 GREASE TRAP
 GROUND LIGHT FIXTURE
 GUARDRAIL
 GUY WIRE
 HANDHOLE
 HANDHOLE (HEAVY DUTY)
 INLET
 IRON PIPE
 IRON ROD
 LIGHT POLE
 MAG NAIL/P.K. NAIL
 MAILBOX
 OVERHEAD ELECTRIC LINE
 POWER POLE
 ROCK
 RIP RAP
 R.O.W MARKER
 SANITARY FORCEMAIN LINE
 SANITARY SEWER LINE
 SANITARY SEWER MANHOLE
 SIGN
 SOIL BORING
 SPOT ELEVATION
 SPRINKLER HEAD
 STORM SEWER LINE
 STORM SEWER MANHOLE
 TELEPHONE LINE
 TELEPHONE MANHOLE
 TELEPHONE BOX/PEDESTAL
 TELEVISION LINE
 TELEVISION MANHOLE
 TELEVISION BOX/PEDESTAL
 TRAFFIC SIGNAL
 TRAFFIC SIGNAL CONTROL BOX
 TREE-CONIFEROUS (SIZE/TAG#)
 TREE-DECIDUOUS (SIZE/TAG#)
 TREE STUMP
 VALVE BOX
 VALVE VAULT
 VRAD BOX
 WATER FOUNTAIN
 WATER VALVE
 WATERLINE EDGE
 WATERMAIN LINE
 WATER METER
 WATER METER PIT
 WELL HEAD
 WETLAND
 WETLAND FLAG



**GHD PILSEN ALLEY SURVEY
LOOMIS STREET AND CERMACK ROAD
CHICAGO, ILLINOIS**

[illegible]



Appendix D

Waste Characterization Lab Reports

GHD Sample Number	Area	Sample Column (feet below ground surface)	Sample ID	Sample Matrix	Date Collected	Time Collected	Analyses
S - 082615 - GW - 01	Area 4	0.0 to 0.5 feet	S-092515-039826-GW-01	Soil	9/25/2015	0842	TCLP Herbicides, TCLP Pesticides, TCLP VOCs, TCLP SVOCs, TCLP Metals, pH, Total Phenols, Local Method (9021A & 9034_Calc), PCBs, PAHs, Moisture, Free Liquid, Flashpoint, Mercury, TCL VOCs
S - 082615 - GW - 02	Area 5	0.5 to 2.0 feet		Soil	9/25/2015	0926	
S - 082615 - GW - 03	Area 8	0.0 to 2.0 feet	S-092515-039826-GW-02	Soil	9/25/2015	0926	

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.

TestAmerica Canton

4101 Shuffel Street NW

North Canton, OH 44720

Tel: (330)497-9396

TestAmerica Job ID: 240-55871-1

Client Project/Site: H. Kramer - Chicago, Illinois

For:

GHD Services Inc.

6400 Shafer Court

Suite 400

Rosemont, Illinois 60018

Attn: Nancy Bergstrom



Authorized for release by:

10/5/2015 5:48:06 PM

Patrick O'Meara, Manager of Project Management

(330)966-5725

patrick.omeara@testamericainc.com

Designee for

Amy McCormick, Project Manager II

(330)966-9787

amy.mccormick@testamericainc.com

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This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Definitions/Glossary

Client: GHD Services Inc.
Project/Site: H. Kramer - Chicago, Illinois

TestAmerica Job ID: 240-55871-1

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
*	LCS or LCSD is outside acceptance limits.
*	ISTD response or retention time outside acceptable limits

GC/MS Semi VOA

Qualifier	Qualifier Description
X	Surrogate is outside control limits

GC Semi VOA

Qualifier	Qualifier Description
X	Surrogate is outside control limits
p	The %RPD between the primary and confirmation column/detector is >40%. The lower value has been reported.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Metals

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
□	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Case Narrative

Client: GHD Services Inc.
Project/Site: H. Kramer - Chicago, Illinois

TestAmerica Job ID: 240-55871-1

Job ID: 240-55871-1

Laboratory: TestAmerica Canton

Narrative

CASE NARRATIVE

Client: GHD Services Inc.

Project: H. Kramer - Chicago, Illinois

Report Number: 240-55871-1

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

TestAmerica Canton attests to the validity of the laboratory data generated by TestAmerica facilities reported herein. All analyses performed by TestAmerica facilities were done using established laboratory SOPs that incorporate QA/QC procedures described in the application methods. TestAmerica's operations groups have reviewed the data for compliance with the laboratory QA/QC plan, and data have been found to be compliant with laboratory protocols unless otherwise noted below.

The test results in this report meet all NELAP requirements for parameters for which accreditation is required or available. Any exceptions to NELAP requirements are noted in this report. Pursuant to NELAP, this report may not be reproduced, except in full, without the written approval of the laboratory.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

All solid sample results are reported on an "as received" basis unless otherwise indicated by the presence of a % solids value in the method header.

This laboratory report is confidential and is intended for the sole use of TestAmerica and its client.

RECEIPT

The samples were received on 9/26/2015 9:45 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 2.5° C.

TCLP VOLATILE ORGANIC COMPOUNDS (GCMS)

Samples S-092515-039826-GW-01 (240-55871-1) and S-092515-039826-GW-02 (240-55871-2) were analyzed for TCLP volatile organic compounds (GCMS) in accordance with EPA SW-846 Methods 1311/8260B. The samples were leached on 09/28/2015 and analyzed on 09/29/2015.

The following volatiles sample was diluted due to foaming at the time of purging during the original sample analysis: S-092515-039826-GW-01 (240-55871-1). Elevated reporting limits (RLs) are provided.

The continuing calibration verification (CCV) associated with batch 240-199588 recovered above the upper control limit for vinyl chloride. The following samples associated with this CCV were non-detects for the affected analyte; therefore, the data have been reported: S-092515-039826-GW-01 (240-55871-1) and S-092515-039826-GW-02 (240-55871-2).

The laboratory control sample (LCS) for batch preparation batch 240-199507 and analytical batch 240-199588 recovered outside control limits for carbon tetrachloride. This analyte was biased high in the LCS and was not detected in the associated samples; therefore, the data have been reported.

Case Narrative

Client: GHD Services Inc.
Project/Site: H. Kramer - Chicago, Illinois

TestAmerica Job ID: 240-55871-1

Job ID: 240-55871-1 (Continued)

Laboratory: TestAmerica Canton (Continued)

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

VOLATILE ORGANIC COMPOUNDS (GCMS)

Samples S-092515-039826-GW-01 (240-55871-1) and S-092515-039826-GW-02 (240-55871-2) were analyzed for volatile organic compounds (GCMS) in accordance with EPA SW-846 Method 8260B. The samples were prepared on 09/26/2015 and analyzed on 09/30/2015.

Methylene Chloride was detected in method blank MB 240-199693/6 at a level exceeding the reporting limit. If the associated sample reported a result above the MDL and/or RL, the result has been flagged.

The laboratory control sample for preparation batch 240-199529 and 240-199736 and analytical batch 240-199693 recovered outside control limits for the following analyte: Methylene Chloride. Methylene Chloride is a poor performing analyte when analyzed in the lab (due to it being a common lab contaminant); therefore, re-extraction/re-analysis was not performed on these samples: S-092515-039826-GW-02 (240-55871-2), (LCS 240-199693/5), (MB 240-199693/6), (240-55880-C-12-A), (240-55880-C-12-B MS), and (240-55880-C-12-C MSD). These results have been reported and qualified.

Insufficient sample volume was available on the following sample to perform a matrix spike/matrix spike duplicate/sample duplicate (MS/MSD/DUP) associated with preparation batch 240-199529 and analytical batch 240-199631: S-092515-039826-GW-01 (240-55871-1).

Internal standard (ISTD) response for the following sample was outside control limits: S-092515-039826-GW-01 (240-55871-1). The sample was re-extracted and/or re-analyzed with concurring results, and the original set of data has been reported.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

TCLP SEMIVOLATILE ORGANIC COMPOUNDS (GCMS)

Samples S-092515-039826-GW-01 (240-55871-1) and S-092515-039826-GW-02 (240-55871-2) were analyzed for TCLP semivolatile organic compounds (GCMS) in accordance with EPA SW-846 Methods 1311/8270C. The samples were leached on 09/28/2015, prepared on 09/29/2015 and analyzed on 10/01/2015.

Surrogates are added during the extraction process prior to dilution. When the sample is diluted, surrogate recoveries are diluted out and no corrective action is required.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

SEMIVOLATILE ORGANIC COMPOUNDS (GCMS)

Samples S-092515-039826-GW-01 (240-55871-1) and S-092515-039826-GW-02 (240-55871-2) were analyzed for semivolatile organic compounds (GCMS) in accordance with EPA SW-846 Method 8270C. The samples were prepared on 09/29/2015 and analyzed on 10/01/2015.

Surrogates are added during the extraction process prior to dilution. When the sample is diluted, surrogate recoveries are diluted out and no corrective action is required.

2-Fluorobiphenyl (Surr), 2-Fluorophenol (Surr), Nitrobenzene-d5 (Surr), Phenol-d5 (Surr) and Terphenyl-d14 (Surr) failed the surrogate recovery criteria high for S-092515-039826-GW-02 (240-55871-2).

Samples S-092515-039826-GW-01 (240-55871-1)[20X] and S-092515-039826-GW-02 (240-55871-2)[50X] required dilution due to the nature of the sample matrix prior to analysis. The reporting limits have been adjusted accordingly.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

TCLP CHLORINATED PESTICIDES

Samples S-092515-039826-GW-01 (240-55871-1) and S-092515-039826-GW-02 (240-55871-2) were analyzed for TCLP chlorinated pesticides in accordance with EPA SW-846 Methods 1311/8081A. The samples were leached on 09/28/2015, prepared on 09/29/2015 and analyzed on 10/01/2015.

Case Narrative

Client: GHD Services Inc.
Project/Site: H. Kramer - Chicago, Illinois

TestAmerica Job ID: 240-55871-1

Job ID: 240-55871-1 (Continued)

Laboratory: TestAmerica Canton (Continued)

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

POLYCHLORINATED BIPHENYLS (PCBS)

Samples S-092515-039826-GW-01 (240-55871-1) and S-092515-039826-GW-02 (240-55871-2) were analyzed for polychlorinated biphenyls (PCBs) in accordance with EPA SW-846 Method 8082A. The samples were prepared on 09/29/2015 and analyzed on 10/01/2015.

Surrogates are added during the extraction process prior to dilution. When the sample dilution is 5X or greater, surrogate recoveries are diluted out and no corrective action is required. All of the samples in this data set analyzed for PCBs were subjected to the sulfuric acid cleanup procedure before instrumental analysis, per EPA Method 3665A.

DCB Decachlorobiphenyl failed the surrogate recovery criteria high for S-092515-039826-GW-01 (240-55871-1). DCB Decachlorobiphenyl and Tetrachloro-m-xylene failed the surrogate recovery criteria low for S-092515-039826-GW-02 (240-55871-2).

Sample S-092515-039826-GW-02 (240-55871-2)[200X] required dilution prior to analysis. The reporting limits have been adjusted accordingly.

Two surrogates are used for this analysis. The laboratory's SOP allows one of these surrogates to be outside acceptance criteria without performing re-extraction/re-analysis. The following sample contained an allowable number of surrogate compounds outside limits: S-092515-039826-GW-01 (240-55871-1). These results have been reported and qualified.

The following sample appears to contain polychlorinated biphenyls (PCBs); however, due to weathering or other environmental processes, the PCBs in the sample do not closely match any of the laboratory's Aroclor standards used for instrument calibration: S-092515-039826-GW-01 (240-55871-1). The sample has been quantified and reported as a mixture of Aroclors. Due to the poor match with the Aroclor standards, there is increased qualitative and quantitative uncertainty associated with this result.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

TCLP CHLORINATED HERBICIDES

Samples S-092515-039826-GW-01 (240-55871-1) and S-092515-039826-GW-02 (240-55871-2) were analyzed for TCLP chlorinated herbicides in accordance with EPA SW-846 Methods 1311/8151A. The samples were leached on 09/28/2015, prepared on 09/29/2015 and analyzed on 10/03/2015.

Surrogates are added during the extraction process prior to dilution. When the sample dilution is 5X or greater, surrogate recoveries are diluted out and no corrective action is required.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

TCLP METALS (ICP)

Samples S-092515-039826-GW-01 (240-55871-1) and S-092515-039826-GW-02 (240-55871-2) were analyzed for TCLP metals (ICP) in accordance with EPA SW-846 Methods 1311/6010B. The samples were leached on 09/28/2015, prepared on 09/29/2015 and analyzed on 09/30/2015.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

TCLP MERCURY

Samples S-092515-039826-GW-01 (240-55871-1) and S-092515-039826-GW-02 (240-55871-2) were analyzed for TCLP mercury in accordance with EPA SW-846 Methods 1311/7470A. The samples were leached on 09/28/2015, prepared on 09/29/2015 and analyzed on 10/01/2015.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

FLASHPOINT

Samples S-092515-039826-GW-01 (240-55871-1) and S-092515-039826-GW-02 (240-55871-2) were analyzed for flashpoint in

Case Narrative

Client: GHD Services Inc.
Project/Site: H. Kramer - Chicago, Illinois

TestAmerica Job ID: 240-55871-1

Job ID: 240-55871-1 (Continued)

Laboratory: TestAmerica Canton (Continued)

accordance with EPA SW-846 Method 1010. The samples were analyzed on 09/29/2015.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

TOTAL CYANIDE

Samples S-092515-039826-GW-01 (240-55871-1) and S-092515-039826-GW-02 (240-55871-2) were analyzed for total cyanide in accordance with EPA SW-846 Method 9012A. The samples were prepared and analyzed on 09/29/2015.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

SULFIDE

Samples S-092515-039826-GW-01 (240-55871-1) and S-092515-039826-GW-02 (240-55871-2) were analyzed for sulfide in accordance with EPA SW-846 Method 9034. The samples were prepared and analyzed on 10/01/2015.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

PH

Samples S-092515-039826-GW-01 (240-55871-1) and S-092515-039826-GW-02 (240-55871-2) were analyzed for pH in accordance with EPA SW-846 Method 9045C. The samples were analyzed on 09/29/2015.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

PHENOLICS, TOTAL RECOVERABLE

Samples S-092515-039826-GW-01 (240-55871-1) and S-092515-039826-GW-02 (240-55871-2) were analyzed for phenolics, total recoverable in accordance with EPA SW-846 Method 9065. The samples were prepared and analyzed on 09/29/2015.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

PAINT FILTER

Samples S-092515-039826-GW-01 (240-55871-1) and S-092515-039826-GW-02 (240-55871-2) were analyzed for paint filter in accordance with EPA SW-846 Method 9095A. The samples were analyzed on 09/29/2015.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

PERCENT SOLIDS

Samples S-092515-039826-GW-01 (240-55871-1) and S-092515-039826-GW-02 (240-55871-2) were analyzed for percent solids in accordance with EPA Method 160.3 MOD. The samples were analyzed on 09/29/2015.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Method Summary

Client: GHD Services Inc.
Project/Site: H. Kramer - Chicago, Illinois

TestAmerica Job ID: 240-55871-1

Method	Method Description	Protocol	Laboratory
8260B	Volatile Organic Compounds (GC/MS)	SW846	TAL CAN
8270C	Semivolatile Organic Compounds (GC/MS)	SW846	TAL CAN
8081A	Organochlorine Pesticides (GC)	SW846	TAL CAN
8082A	Polychlorinated Biphenyls (PCBs) by Gas Chromatography	SW846	TAL CAN
8151A	Herbicides (GC)	SW846	TAL CAN
6010B	Metals (ICP)	SW846	TAL CAN
7470A	Mercury (CVAA)	SW846	TAL CAN
1010A	Ignitability, Pensky-Martens Closed Cup Method	SW846	TAL CAN
9012A	Cyanide, Total and/or Amenable	SW846	TAL CAN
9034	Sulfide, Acid soluble and Insoluble (Titrimetric)	SW846	TAL CAN
9045C	pH	SW846	TAL CAN
9065	Phenolics, Total Recoverable	SW846	TAL CAN
9095A	Paint Filter	SW846	TAL CAN
Moisture	Percent Moisture	EPA	TAL CAN

Protocol References:

EPA = US Environmental Protection Agency

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL CAN = TestAmerica Canton, 4101 Shuffel Street NW, North Canton, OH 44720, TEL (330)497-9396

Sample Summary

Client: GHD Services Inc.
Project/Site: H. Kramer - Chicago, Illinois

TestAmerica Job ID: 240-55871-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
240-55871-1	S-092515-039826-GW-01	Solid	09/25/15 08:42	09/26/15 09:45
240-55871-2	S-092515-039826-GW-02	Solid	09/25/15 09:26	09/26/15 09:45

Detection Summary

Client: GHD Services Inc.
Project/Site: H. Kramer - Chicago, Illinois

TestAmerica Job ID: 240-55871-1

Client Sample ID: S-092515-039826-GW-01

Lab Sample ID: 240-55871-1

Analyte	Result	Qualifier	RL	Unit	Dil Fac	D	Method	Prep Type
Acenaphthylene	180		150	7.9 ug/Kg	20	☼	8270C	Total/NA
Anthracene	450		150	18 ug/Kg	20	☼	8270C	Total/NA
Benzo[a]anthracene	1800		150	14 ug/Kg	20	☼	8270C	Total/NA
Benzo[a]pyrene	2200		150	15 ug/Kg	20	☼	8270C	Total/NA
Benzo[b]fluoranthene	3400		150	13 ug/Kg	20	☼	8270C	Total/NA
Benzo[g,h,i]perylene	1100		150	7.9 ug/Kg	20	☼	8270C	Total/NA
Benzo[k]fluoranthene	1500		150	15 ug/Kg	20	☼	8270C	Total/NA
Chrysene	2000		150	25 ug/Kg	20	☼	8270C	Total/NA
Dibenzo[a,h]anthracene	400		150	15 ug/Kg	20	☼	8270C	Total/NA
Fluoranthene	3500		150	12 ug/Kg	20	☼	8270C	Total/NA
Indeno[1,2,3-cd]pyrene	1000		150	7.9 ug/Kg	20	☼	8270C	Total/NA
Naphthalene	290		150	19 ug/Kg	20	☼	8270C	Total/NA
Phenanthrene	1900		150	17 ug/Kg	20	☼	8270C	Total/NA
Pyrene	3100		150	10 ug/Kg	20	☼	8270C	Total/NA
Aroclor-1254	190		38	16 ug/Kg	1	☼	8082A	Total/NA
Aroclor-1268	97		38	15 ug/Kg	1	☼	8082A	Total/NA
Cadmium	1.0		0.10	0.00014 mg/L	1		6010B	TCLP
Lead	10		0.50	0.0019 mg/L	1		6010B	TCLP
Flashpoint	>200		1.00	1.00 Degrees F	1		1010A	Total/NA
Corrosivity	8.11		0.100	0.100 SU	1		9045C	Total/NA
pH	8.11		0.100	0.100 SU	1		9045C	Total/NA
Paint Filter	CNF		0.10	0.10 NONE	1		9095A	Total/NA

Client Sample ID: S-092515-039826-GW-02

Lab Sample ID: 240-55871-2

Analyte	Result	Qualifier	RL	Unit	Dil Fac	D	Method	Prep Type
Acenaphthene	490		430	49 ug/Kg	50	☼	8270C	Total/NA
Anthracene	1300		430	50 ug/Kg	50	☼	8270C	Total/NA
Benzo[a]anthracene	4500		430	41 ug/Kg	50	☼	8270C	Total/NA
Benzo[a]pyrene	4600		430	41 ug/Kg	50	☼	8270C	Total/NA
Benzo[b]fluoranthene	7100		430	38 ug/Kg	50	☼	8270C	Total/NA
Benzo[g,h,i]perylene	2000		430	23 ug/Kg	50	☼	8270C	Total/NA
Benzo[k]fluoranthene	3600		430	44 ug/Kg	50	☼	8270C	Total/NA
Chrysene	5000		430	71 ug/Kg	50	☼	8270C	Total/NA
Dibenzo[a,h]anthracene	970		430	43 ug/Kg	50	☼	8270C	Total/NA
Fluoranthene	9200		430	36 ug/Kg	50	☼	8270C	Total/NA
Fluorene	550		430	34 ug/Kg	50	☼	8270C	Total/NA
Indeno[1,2,3-cd]pyrene	1900		430	23 ug/Kg	50	☼	8270C	Total/NA
Naphthalene	1200		430	53 ug/Kg	50	☼	8270C	Total/NA
Phenanthrene	6400		430	47 ug/Kg	50	☼	8270C	Total/NA
Pyrene	8000		430	28 ug/Kg	50	☼	8270C	Total/NA
Aroclor-1260	43000		8600	2300 ug/Kg	200	☼	8082A	Total/NA
Cadmium	0.28		0.10	0.00014 mg/L	1		6010B	TCLP
Lead	3.6		0.50	0.0019 mg/L	1		6010B	TCLP
Flashpoint	>200		1.00	1.00 Degrees F	1		1010A	Total/NA
Cyanide, Total	0.61		0.61	0.37 mg/Kg	1	☼	9012A	Total/NA
Corrosivity	7.89		0.100	0.100 SU	1		9045C	Total/NA
pH	7.89		0.100	0.100 SU	1		9045C	Total/NA
Paint Filter	CNF		0.10	0.10 NONE	1		9095A	Total/NA

This Detection Summary does not include radiochemical test results.

TestAmerica Canton

Client Sample Results

Client: GHD Services Inc.
Project/Site: H. Kramer - Chicago, Illinois

TestAmerica Job ID: 240-55871-1

Client Sample ID: S-092515-039826-GW-01

Lab Sample ID: 240-55871-1

Date Collected: 09/25/15 08:42

Matrix: Solid

Date Received: 09/26/15 09:45

Percent Solids: 87.9

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Bromoform	ND		4.7	0.23 ug/Kg	☼	09/26/15 15:00	09/30/15 10:29	1
Carbon tetrachloride	ND		4.7	0.61 ug/Kg	☼	09/26/15 15:00	09/30/15 10:29	1
Chlorobenzene	ND		4.7	0.50 ug/Kg	☼	09/26/15 15:00	09/30/15 10:29	1
Chloroform	ND		4.7	0.34 ug/Kg	☼	09/26/15 15:00	09/30/15 10:29	1
cis-1,2-Dichloroethene	ND		4.7	0.26 ug/Kg	☼	09/26/15 15:00	09/30/15 10:29	1
cis-1,3-Dichloropropene	ND		4.7	0.67 ug/Kg	☼	09/26/15 15:00	09/30/15 10:29	1
Dichlorobromomethane	ND		4.7	0.27 ug/Kg	☼	09/26/15 15:00	09/30/15 10:29	1
1,2-Dichloroethane	ND		4.7	0.43 ug/Kg	☼	09/26/15 15:00	09/30/15 10:29	1
1,1-Dichloroethene	ND		4.7	0.75 ug/Kg	☼	09/26/15 15:00	09/30/15 10:29	1
1,2-Dichloropropane	ND		4.7	0.13 ug/Kg	☼	09/26/15 15:00	09/30/15 10:29	1
Methylene Chloride	ND		4.7	0.70 ug/Kg	☼	09/26/15 15:00	09/30/15 10:29	1
Styrene	ND		4.7	0.38 ug/Kg	☼	09/26/15 15:00	09/30/15 10:29	1
Tetrachloroethene	ND		4.7	0.75 ug/Kg	☼	09/26/15 15:00	09/30/15 10:29	1
trans-1,2-Dichloroethene	ND		4.7	0.30 ug/Kg	☼	09/26/15 15:00	09/30/15 10:29	1
trans-1,3-Dichloropropene	ND		4.7	0.27 ug/Kg	☼	09/26/15 15:00	09/30/15 10:29	1
1,1,1-Trichloroethane	ND		4.7	0.61 ug/Kg	☼	09/26/15 15:00	09/30/15 10:29	1
1,1,2-Trichloroethane	ND		4.7	0.35 ug/Kg	☼	09/26/15 15:00	09/30/15 10:29	1
Trichloroethene	ND		4.7	0.36 ug/Kg	☼	09/26/15 15:00	09/30/15 10:29	1
Vinyl chloride	ND		4.7	0.28 ug/Kg	☼	09/26/15 15:00	09/30/15 10:29	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	113	*	52 - 136	09/26/15 15:00	09/30/15 10:29	1
Dibromofluoromethane (Surr)	94		37 - 132	09/26/15 15:00	09/30/15 10:29	1
1,2-Dichloroethane-d4 (Surr)	111		58 - 123	09/26/15 15:00	09/30/15 10:29	1
Toluene-d8 (Surr)	116		67 - 125	09/26/15 15:00	09/30/15 10:29	1

Method: 8260B - Volatile Organic Compounds (GC/MS) - TCLP

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.050	0.013 mg/L			09/29/15 17:39	2
2-Butanone (MEK)	ND		0.50	0.057 mg/L			09/29/15 17:39	2
Carbon tetrachloride	ND	*	0.050	0.013 mg/L			09/29/15 17:39	2
Chlorobenzene	ND		0.050	0.015 mg/L			09/29/15 17:39	2
Chloroform	ND		0.050	0.016 mg/L			09/29/15 17:39	2
1,2-Dichloroethane	ND		0.050	0.022 mg/L			09/29/15 17:39	2
1,1-Dichloroethene	ND		0.050	0.019 mg/L			09/29/15 17:39	2
Tetrachloroethene	ND		0.050	0.029 mg/L			09/29/15 17:39	2
Trichloroethene	ND		0.050	0.017 mg/L			09/29/15 17:39	2
Vinyl chloride	ND		0.050	0.022 mg/L			09/29/15 17:39	2

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	85		70 - 124		09/29/15 17:39	2
Dibromofluoromethane (Surr)	93		80 - 128		09/29/15 17:39	2
1,2-Dichloroethane-d4 (Surr)	93		80 - 121		09/29/15 17:39	2
Toluene-d8 (Surr)	87		80 - 120		09/29/15 17:39	2

Method: 8270C - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Acenaphthene	ND		150	17 ug/Kg	☼	09/29/15 07:29	10/01/15 11:36	20
Acenaphthylene	180		150	7.9 ug/Kg	☼	09/29/15 07:29	10/01/15 11:36	20
Anthracene	450		150	18 ug/Kg	☼	09/29/15 07:29	10/01/15 11:36	20

TestAmerica Canton

Client Sample Results

Client: GHD Services Inc.
Project/Site: H. Kramer - Chicago, Illinois

TestAmerica Job ID: 240-55871-1

Client Sample ID: S-092515-039826-GW-01

Lab Sample ID: 240-55871-1

Date Collected: 09/25/15 08:42

Matrix: Solid

Date Received: 09/26/15 09:45

Percent Solids: 87.9

Method: 8270C - Semivolatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	1800		150	14 ug/Kg	☼	09/29/15 07:29	10/01/15 11:36	20
Benzo[a]pyrene	2200		150	15 ug/Kg	☼	09/29/15 07:29	10/01/15 11:36	20
Benzo[b]fluoranthene	3400		150	13 ug/Kg	☼	09/29/15 07:29	10/01/15 11:36	20
Benzo[g,h,i]perylene	1100		150	7.9 ug/Kg	☼	09/29/15 07:29	10/01/15 11:36	20
Benzo[k]fluoranthene	1500		150	15 ug/Kg	☼	09/29/15 07:29	10/01/15 11:36	20
Bis(2-chloroethyl)ether	ND		2300	45 ug/Kg	☼	09/29/15 07:29	10/01/15 11:36	20
Bis(2-ethylhexyl) phthalate	ND		1600	430 ug/Kg	☼	09/29/15 07:29	10/01/15 11:36	20
Chrysene	2000		150	25 ug/Kg	☼	09/29/15 07:29	10/01/15 11:36	20
Dibenzo[a,h]anthracene	400		150	15 ug/Kg	☼	09/29/15 07:29	10/01/15 11:36	20
1,2-Dichlorobenzene	ND		1100	220 ug/Kg	☼	09/29/15 07:29	10/01/15 11:36	20
1,4-Dichlorobenzene	ND		1100	450 ug/Kg	☼	09/29/15 07:29	10/01/15 11:36	20
Fluoranthene	3500		150	12 ug/Kg	☼	09/29/15 07:29	10/01/15 11:36	20
Fluorene	ND		150	12 ug/Kg	☼	09/29/15 07:29	10/01/15 11:36	20
Hexachlorocyclopentadiene	ND		7500	180 ug/Kg	☼	09/29/15 07:29	10/01/15 11:36	20
Indeno[1,2,3-cd]pyrene	1000		150	7.9 ug/Kg	☼	09/29/15 07:29	10/01/15 11:36	20
Naphthalene	290		150	19 ug/Kg	☼	09/29/15 07:29	10/01/15 11:36	20
N-Nitrosodi-n-propylamine	ND		1100	140 ug/Kg	☼	09/29/15 07:29	10/01/15 11:36	20
N-Nitrosodiphenylamine	ND		1100	480 ug/Kg	☼	09/29/15 07:29	10/01/15 11:36	20
Phenanthrene	1900		150	17 ug/Kg	☼	09/29/15 07:29	10/01/15 11:36	20
Pyrene	3100		150	10 ug/Kg	☼	09/29/15 07:29	10/01/15 11:36	20
1,2,4-Trichlorobenzene	ND		1100	79 ug/Kg	☼	09/29/15 07:29	10/01/15 11:36	20

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2-Fluorobiphenyl (Surr)	83		24 - 110	09/29/15 07:29	10/01/15 11:36	20
2-Fluorophenol (Surr)	82		24 - 110	09/29/15 07:29	10/01/15 11:36	20
Nitrobenzene-d5 (Surr)	73		20 - 110	09/29/15 07:29	10/01/15 11:36	20
Phenol-d5 (Surr)	74		26 - 110	09/29/15 07:29	10/01/15 11:36	20
Terphenyl-d14 (Surr)	89		36 - 110	09/29/15 07:29	10/01/15 11:36	20
2,4,6-Tribromophenol (Surr)	53		10 - 110	09/29/15 07:29	10/01/15 11:36	20

Method: 8270C - Semivolatile Organic Compounds (GC/MS) - TCLP

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dichlorobenzene	ND		0.0040	0.00034 mg/L		09/29/15 13:16	10/01/15 18:01	1
2,4,5-Trichlorophenol	ND		0.0040	0.00030 mg/L		09/29/15 13:16	10/01/15 18:01	1
2,4,6-Trichlorophenol	ND		0.0040	0.00024 mg/L		09/29/15 13:16	10/01/15 18:01	1
2,4-Dinitrotoluene	ND		0.0040	0.00025 mg/L		09/29/15 13:16	10/01/15 18:01	1
Hexachlorobenzene	ND		0.00080	0.000085 mg/L		09/29/15 13:16	10/01/15 18:01	1
Hexachlorobutadiene	ND		0.0040	0.00027 mg/L		09/29/15 13:16	10/01/15 18:01	1
Hexachloroethane	ND		0.0040	0.00019 mg/L		09/29/15 13:16	10/01/15 18:01	1
3 & 4 Methylphenol	ND		0.0040	0.00080 mg/L		09/29/15 13:16	10/01/15 18:01	1
2-Methylphenol	ND		0.0040	0.00017 mg/L		09/29/15 13:16	10/01/15 18:01	1
Nitrobenzene	ND		0.0040	0.000040 mg/L		09/29/15 13:16	10/01/15 18:01	1
Pentachlorophenol	ND		0.016	0.00027 mg/L		09/29/15 13:16	10/01/15 18:01	1
Pyridine	ND		0.0040	0.00035 mg/L		09/29/15 13:16	10/01/15 18:01	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2-Fluorobiphenyl (Surr)	63		30 - 110	09/29/15 13:16	10/01/15 18:01	1
2-Fluorophenol (Surr)	57		20 - 110	09/29/15 13:16	10/01/15 18:01	1
2,4,6-Tribromophenol (Surr)	74		23 - 110	09/29/15 13:16	10/01/15 18:01	1
Nitrobenzene-d5 (Surr)	62		28 - 110	09/29/15 13:16	10/01/15 18:01	1

TestAmerica Canton

Client Sample Results

Client: GHD Services Inc.
Project/Site: H. Kramer - Chicago, Illinois

TestAmerica Job ID: 240-55871-1

Client Sample ID: S-092515-039826-GW-01

Lab Sample ID: 240-55871-1

Date Collected: 09/25/15 08:42

Matrix: Solid

Date Received: 09/26/15 09:45

Percent Solids: 87.9

Method: 8270C - Semivolatile Organic Compounds (GC/MS) - TCLP (Continued)

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Phenol-d5 (Surr)	53		21 - 110	09/29/15 13:16	10/01/15 18:01	1
Terphenyl-d14 (Surr)	89		48 - 110	09/29/15 13:16	10/01/15 18:01	1

Method: 8081A - Organochlorine Pesticides (GC) - TCLP

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chlordane (technical)	ND		0.0050	0.00014 mg/L		09/29/15 13:19	10/01/15 20:41	1
Endrin	ND		0.00050	0.000013 mg/L		09/29/15 13:19	10/01/15 20:41	1
Heptachlor	ND		0.00050	0.000014 mg/L		09/29/15 13:19	10/01/15 20:41	1
Heptachlor epoxide	ND		0.00050	0.000015 mg/L		09/29/15 13:19	10/01/15 20:41	1
gamma-BHC (Lindane)	ND		0.00050	0.000013 mg/L		09/29/15 13:19	10/01/15 20:41	1
Methoxychlor	ND		0.0010	0.000013 mg/L		09/29/15 13:19	10/01/15 20:41	1
Toxaphene	ND		0.020	0.00020 mg/L		09/29/15 13:19	10/01/15 20:41	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Tetrachloro-m-xylene	86		34 - 121	09/29/15 13:19	10/01/15 20:41	1
Tetrachloro-m-xylene	85		34 - 121	09/29/15 13:19	10/01/15 20:41	1
DCB Decachlorobiphenyl	67		10 - 141	09/29/15 13:19	10/01/15 20:41	1
DCB Decachlorobiphenyl	63		10 - 141	09/29/15 13:19	10/01/15 20:41	1

Method: 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Aroclor-1016	ND		38	14 ug/Kg	✱	09/29/15 09:30	10/01/15 17:29	1
Aroclor-1221	ND		38	18 ug/Kg	✱	09/29/15 09:30	10/01/15 17:29	1
Aroclor-1232	ND		38	23 ug/Kg	✱	09/29/15 09:30	10/01/15 17:29	1
Aroclor-1242	ND		38	13 ug/Kg	✱	09/29/15 09:30	10/01/15 17:29	1
Aroclor-1248	ND		38	9.2 ug/Kg	✱	09/29/15 09:30	10/01/15 17:29	1
Aroclor-1254	190		38	16 ug/Kg	✱	09/29/15 09:30	10/01/15 17:29	1
Aroclor-1260	ND		38	10 ug/Kg	✱	09/29/15 09:30	10/01/15 17:29	1
Aroclor-1262	ND		38	11 ug/Kg	✱	09/29/15 09:30	10/01/15 17:29	1
Aroclor-1268	97		38	15 ug/Kg	✱	09/29/15 09:30	10/01/15 17:29	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Tetrachloro-m-xylene	82		13 - 134	09/29/15 09:30	10/01/15 17:29	1
DCB Decachlorobiphenyl	301	X	10 - 155	09/29/15 09:30	10/01/15 17:29	1

Method: 8151A - Herbicides (GC) - TCLP

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
2,4-D	ND		0.0040	0.0019 mg/L		09/29/15 13:25	10/03/15 05:26	1
Silvex (2,4,5-TP)	ND		0.0010	0.00027 mg/L		09/29/15 13:25	10/03/15 05:26	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2,4-Dichlorophenylacetic acid	104		56 - 120	09/29/15 13:25	10/03/15 05:26	1
2,4-Dichlorophenylacetic acid	62	p	56 - 120	09/29/15 13:25	10/03/15 05:26	1

Method: 6010B - Metals (ICP) - TCLP

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		0.50	0.0029 mg/L		09/29/15 09:50	09/30/15 20:32	1
Barium	ND		10	0.0010 mg/L		09/29/15 09:50	09/30/15 20:32	1
Cadmium	1.0		0.10	0.00014 mg/L		09/29/15 09:50	09/30/15 20:32	1
Chromium	ND		0.50	0.00055 mg/L		09/29/15 09:50	09/30/15 20:32	1
Lead	10		0.50	0.0019 mg/L		09/29/15 09:50	09/30/15 20:32	1

TestAmerica Canton

Client Sample Results

Client: GHD Services Inc.
Project/Site: H. Kramer - Chicago, Illinois

TestAmerica Job ID: 240-55871-1

Client Sample ID: S-092515-039826-GW-01

Lab Sample ID: 240-55871-1

Date Collected: 09/25/15 08:42

Matrix: Solid

Date Received: 09/26/15 09:45

Percent Solids: 87.9

Method: 6010B - Metals (ICP) - TCLP (Continued)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Selenium	ND		0.25	0.0040	mg/L		09/29/15 09:50	09/30/15 20:32	1
Silver	ND		0.50	0.00092	mg/L		09/29/15 09:50	09/30/15 20:32	1

Method: 7470A - Mercury (CVAA) - TCLP

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.0020	0.000090	mg/L		09/29/15 14:00	10/01/15 14:24	1

General Chemistry

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Flashpoint	>200		1.00	1.00	Degrees F			09/29/15 08:01	1
Cyanide, Total	ND		0.55	0.33	mg/Kg	☼	09/29/15 08:18	09/29/15 12:11	1
Sulfide	ND		34	25	mg/Kg	☼	10/01/15 08:15	10/01/15 10:49	1
Corrosivity	8.11		0.100	0.100	SU			09/29/15 15:02	1
pH	8.11		0.100	0.100	SU			09/29/15 15:02	1
Phenols, Total	ND		1.1	0.16	mg/Kg	☼	09/29/15 08:45	09/29/15 12:04	1
Paint Filter	CNF		0.10	0.10	NONE			09/29/15 11:03	1
Percent Solids	88		0.10	0.10	%			09/29/15 15:06	1
Percent Moisture	12		0.10	0.10	%			09/29/15 15:06	1

TestAmerica Canton

Client Sample Results

Client: GHD Services Inc.
Project/Site: H. Kramer - Chicago, Illinois

TestAmerica Job ID: 240-55871-1

Client Sample ID: S-092515-039826-GW-02

Lab Sample ID: 240-55871-2

Date Collected: 09/25/15 09:26

Matrix: Solid

Date Received: 09/26/15 09:45

Percent Solids: 77.2

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Bromoform	ND		5.4	0.26 ug/Kg	☼	09/26/15 15:00	09/30/15 16:43	1
Carbon tetrachloride	ND		5.4	0.71 ug/Kg	☼	09/26/15 15:00	09/30/15 16:43	1
Chlorobenzene	ND		5.4	0.58 ug/Kg	☼	09/26/15 15:00	09/30/15 16:43	1
Chloroform	ND		5.4	0.39 ug/Kg	☼	09/26/15 15:00	09/30/15 16:43	1
cis-1,2-Dichloroethene	ND		5.4	0.30 ug/Kg	☼	09/26/15 15:00	09/30/15 16:43	1
cis-1,3-Dichloropropene	ND		5.4	0.77 ug/Kg	☼	09/26/15 15:00	09/30/15 16:43	1
Dichlorobromomethane	ND		5.4	0.31 ug/Kg	☼	09/26/15 15:00	09/30/15 16:43	1
1,2-Dichloroethane	ND		5.4	0.50 ug/Kg	☼	09/26/15 15:00	09/30/15 16:43	1
1,1-Dichloroethene	ND		5.4	0.87 ug/Kg	☼	09/26/15 15:00	09/30/15 16:43	1
1,2-Dichloropropane	ND		5.4	0.15 ug/Kg	☼	09/26/15 15:00	09/30/15 16:43	1
Methylene Chloride	ND *		5.4	0.80 ug/Kg	☼	09/26/15 15:00	09/30/15 16:43	1
Styrene	ND		5.4	0.43 ug/Kg	☼	09/26/15 15:00	09/30/15 16:43	1
Tetrachloroethene	ND		5.4	0.87 ug/Kg	☼	09/26/15 15:00	09/30/15 16:43	1
trans-1,2-Dichloroethene	ND		5.4	0.35 ug/Kg	☼	09/26/15 15:00	09/30/15 16:43	1
trans-1,3-Dichloropropene	ND		5.4	0.31 ug/Kg	☼	09/26/15 15:00	09/30/15 16:43	1
1,1,1-Trichloroethane	ND		5.4	0.71 ug/Kg	☼	09/26/15 15:00	09/30/15 16:43	1
1,1,2-Trichloroethane	ND		5.4	0.40 ug/Kg	☼	09/26/15 15:00	09/30/15 16:43	1
Trichloroethene	ND		5.4	0.41 ug/Kg	☼	09/26/15 15:00	09/30/15 16:43	1
Vinyl chloride	ND		5.4	0.33 ug/Kg	☼	09/26/15 15:00	09/30/15 16:43	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	98		52 - 136	09/26/15 15:00	09/30/15 16:43	1
Dibromofluoromethane (Surr)	95		37 - 132	09/26/15 15:00	09/30/15 16:43	1
1,2-Dichloroethane-d4 (Surr)	80		58 - 123	09/26/15 15:00	09/30/15 16:43	1
Toluene-d8 (Surr)	94		67 - 125	09/26/15 15:00	09/30/15 16:43	1

Method: 8260B - Volatile Organic Compounds (GC/MS) - TCLP

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.025	0.0065 mg/L			09/29/15 18:00	1
2-Butanone (MEK)	ND		0.25	0.029 mg/L			09/29/15 18:00	1
Carbon tetrachloride	ND *		0.025	0.0065 mg/L			09/29/15 18:00	1
Chlorobenzene	ND		0.025	0.0075 mg/L			09/29/15 18:00	1
Chloroform	ND		0.025	0.0080 mg/L			09/29/15 18:00	1
1,2-Dichloroethane	ND		0.025	0.011 mg/L			09/29/15 18:00	1
1,1-Dichloroethene	ND		0.025	0.0095 mg/L			09/29/15 18:00	1
Tetrachloroethene	ND		0.025	0.015 mg/L			09/29/15 18:00	1
Trichloroethene	ND		0.025	0.0085 mg/L			09/29/15 18:00	1
Vinyl chloride	ND		0.025	0.011 mg/L			09/29/15 18:00	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	85		70 - 124		09/29/15 18:00	1
Dibromofluoromethane (Surr)	96		80 - 128		09/29/15 18:00	1
1,2-Dichloroethane-d4 (Surr)	97		80 - 121		09/29/15 18:00	1
Toluene-d8 (Surr)	87		80 - 120		09/29/15 18:00	1

Method: 8270C - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Acenaphthene	490		430	49 ug/Kg	☼	09/29/15 07:29	10/01/15 11:57	50
Acenaphthylene	ND		430	23 ug/Kg	☼	09/29/15 07:29	10/01/15 11:57	50
Anthracene	1300		430	50 ug/Kg	☼	09/29/15 07:29	10/01/15 11:57	50

TestAmerica Canton

Client Sample Results

Client: GHD Services Inc.
Project/Site: H. Kramer - Chicago, Illinois

TestAmerica Job ID: 240-55871-1

Client Sample ID: S-092515-039826-GW-02

Lab Sample ID: 240-55871-2

Date Collected: 09/25/15 09:26

Matrix: Solid

Date Received: 09/26/15 09:45

Percent Solids: 77.2

Method: 8270C - Semivolatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	4500		430	41 ug/Kg	☼	09/29/15 07:29	10/01/15 11:57	50
Benzo[a]pyrene	4600		430	41 ug/Kg	☼	09/29/15 07:29	10/01/15 11:57	50
Benzo[b]fluoranthene	7100		430	38 ug/Kg	☼	09/29/15 07:29	10/01/15 11:57	50
Benzo[g,h,i]perylene	2000		430	23 ug/Kg	☼	09/29/15 07:29	10/01/15 11:57	50
Benzo[k]fluoranthene	3600		430	44 ug/Kg	☼	09/29/15 07:29	10/01/15 11:57	50
Bis(2-chloroethyl)ether	ND		6500	130 ug/Kg	☼	09/29/15 07:29	10/01/15 11:57	50
Bis(2-ethylhexyl) phthalate	ND		4500	1200 ug/Kg	☼	09/29/15 07:29	10/01/15 11:57	50
Chrysene	5000		430	71 ug/Kg	☼	09/29/15 07:29	10/01/15 11:57	50
Dibenzo[a,h]anthracene	970		430	43 ug/Kg	☼	09/29/15 07:29	10/01/15 11:57	50
1,2-Dichlorobenzene	ND		3200	630 ug/Kg	☼	09/29/15 07:29	10/01/15 11:57	50
1,4-Dichlorobenzene	ND		3200	1300 ug/Kg	☼	09/29/15 07:29	10/01/15 11:57	50
Fluoranthene	9200		430	36 ug/Kg	☼	09/29/15 07:29	10/01/15 11:57	50
Fluorene	550		430	34 ug/Kg	☼	09/29/15 07:29	10/01/15 11:57	50
Hexachlorocyclopentadiene	ND		21000	520 ug/Kg	☼	09/29/15 07:29	10/01/15 11:57	50
Indeno[1,2,3-cd]pyrene	1900		430	23 ug/Kg	☼	09/29/15 07:29	10/01/15 11:57	50
Naphthalene	1200		430	53 ug/Kg	☼	09/29/15 07:29	10/01/15 11:57	50
N-Nitrosodi-n-propylamine	ND		3200	410 ug/Kg	☼	09/29/15 07:29	10/01/15 11:57	50
N-Nitrosodiphenylamine	ND		3200	1400 ug/Kg	☼	09/29/15 07:29	10/01/15 11:57	50
Phenanthrene	6400		430	47 ug/Kg	☼	09/29/15 07:29	10/01/15 11:57	50
Pyrene	8000		430	28 ug/Kg	☼	09/29/15 07:29	10/01/15 11:57	50
1,2,4-Trichlorobenzene	ND		3200	230 ug/Kg	☼	09/29/15 07:29	10/01/15 11:57	50

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2-Fluorobiphenyl (Surr)	116	X	24 - 110	09/29/15 07:29	10/01/15 11:57	50
2-Fluorophenol (Surr)	125	X	24 - 110	09/29/15 07:29	10/01/15 11:57	50
Nitrobenzene-d5 (Surr)	113	X	20 - 110	09/29/15 07:29	10/01/15 11:57	50
Phenol-d5 (Surr)	121	X	26 - 110	09/29/15 07:29	10/01/15 11:57	50
Terphenyl-d14 (Surr)	117	X	36 - 110	09/29/15 07:29	10/01/15 11:57	50
2,4,6-Tribromophenol (Surr)	97		10 - 110	09/29/15 07:29	10/01/15 11:57	50

Method: 8270C - Semivolatile Organic Compounds (GC/MS) - TCLP

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dichlorobenzene	ND		0.0040	0.00034 mg/L		09/29/15 13:16	10/01/15 18:25	1
2,4,5-Trichlorophenol	ND		0.0040	0.00030 mg/L		09/29/15 13:16	10/01/15 18:25	1
2,4,6-Trichlorophenol	ND		0.0040	0.00024 mg/L		09/29/15 13:16	10/01/15 18:25	1
2,4-Dinitrotoluene	ND		0.0040	0.00025 mg/L		09/29/15 13:16	10/01/15 18:25	1
Hexachlorobenzene	ND		0.00080	0.000085 mg/L		09/29/15 13:16	10/01/15 18:25	1
Hexachlorobutadiene	ND		0.0040	0.00027 mg/L		09/29/15 13:16	10/01/15 18:25	1
Hexachloroethane	ND		0.0040	0.00019 mg/L		09/29/15 13:16	10/01/15 18:25	1
3 & 4 Methylphenol	ND		0.0040	0.00080 mg/L		09/29/15 13:16	10/01/15 18:25	1
2-Methylphenol	ND		0.0040	0.00017 mg/L		09/29/15 13:16	10/01/15 18:25	1
Nitrobenzene	ND		0.0040	0.000040 mg/L		09/29/15 13:16	10/01/15 18:25	1
Pentachlorophenol	ND		0.016	0.00027 mg/L		09/29/15 13:16	10/01/15 18:25	1
Pyridine	ND		0.0040	0.00035 mg/L		09/29/15 13:16	10/01/15 18:25	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2-Fluorobiphenyl (Surr)	78		30 - 110	09/29/15 13:16	10/01/15 18:25	1
2-Fluorophenol (Surr)	71		20 - 110	09/29/15 13:16	10/01/15 18:25	1
2,4,6-Tribromophenol (Surr)	88		23 - 110	09/29/15 13:16	10/01/15 18:25	1
Nitrobenzene-d5 (Surr)	81		28 - 110	09/29/15 13:16	10/01/15 18:25	1

TestAmerica Canton

Client Sample Results

Client: GHD Services Inc.
Project/Site: H. Kramer - Chicago, Illinois

TestAmerica Job ID: 240-55871-1

Client Sample ID: S-092515-039826-GW-02

Lab Sample ID: 240-55871-2

Date Collected: 09/25/15 09:26

Matrix: Solid

Date Received: 09/26/15 09:45

Percent Solids: 77.2

Method: 8270C - Semivolatile Organic Compounds (GC/MS) - TCLP (Continued)

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Phenol-d5 (Surr)	60		21 - 110	09/29/15 13:16	10/01/15 18:25	1
Terphenyl-d14 (Surr)	97		48 - 110	09/29/15 13:16	10/01/15 18:25	1

Method: 8081A - Organochlorine Pesticides (GC) - TCLP

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chlordane (technical)	ND		0.0050	0.00014 mg/L		09/29/15 13:19	10/01/15 21:02	1
Endrin	ND		0.00050	0.000013 mg/L		09/29/15 13:19	10/01/15 21:02	1
Heptachlor	ND		0.00050	0.000014 mg/L		09/29/15 13:19	10/01/15 21:02	1
Heptachlor epoxide	ND		0.00050	0.000015 mg/L		09/29/15 13:19	10/01/15 21:02	1
gamma-BHC (Lindane)	ND		0.00050	0.000013 mg/L		09/29/15 13:19	10/01/15 21:02	1
Methoxychlor	ND		0.0010	0.000013 mg/L		09/29/15 13:19	10/01/15 21:02	1
Toxaphene	ND		0.020	0.00020 mg/L		09/29/15 13:19	10/01/15 21:02	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Tetrachloro-m-xylene	75		34 - 121	09/29/15 13:19	10/01/15 21:02	1
Tetrachloro-m-xylene	81		34 - 121	09/29/15 13:19	10/01/15 21:02	1
DCB Decachlorobiphenyl	63		10 - 141	09/29/15 13:19	10/01/15 21:02	1
DCB Decachlorobiphenyl	69		10 - 141	09/29/15 13:19	10/01/15 21:02	1

Method: 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Aroclor-1016	ND		8600	3100 ug/Kg	✱	09/29/15 09:30	10/01/15 17:46	200
Aroclor-1221	ND		8600	4200 ug/Kg	✱	09/29/15 09:30	10/01/15 17:46	200
Aroclor-1232	ND		8600	5200 ug/Kg	✱	09/29/15 09:30	10/01/15 17:46	200
Aroclor-1242	ND		8600	2900 ug/Kg	✱	09/29/15 09:30	10/01/15 17:46	200
Aroclor-1248	ND		8600	2100 ug/Kg	✱	09/29/15 09:30	10/01/15 17:46	200
Aroclor-1254	ND		8600	3600 ug/Kg	✱	09/29/15 09:30	10/01/15 17:46	200
Aroclor-1260	43000		8600	2300 ug/Kg	✱	09/29/15 09:30	10/01/15 17:46	200
Aroclor-1262	ND		8600	2600 ug/Kg	✱	09/29/15 09:30	10/01/15 17:46	200
Aroclor-1268	ND		8600	3400 ug/Kg	✱	09/29/15 09:30	10/01/15 17:46	200

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Tetrachloro-m-xylene	0	X	13 - 134	09/29/15 09:30	10/01/15 17:46	200
DCB Decachlorobiphenyl	0	X	10 - 155	09/29/15 09:30	10/01/15 17:46	200

Method: 8151A - Herbicides (GC) - TCLP

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
2,4-D	ND		0.0040	0.0019 mg/L		09/29/15 13:25	10/03/15 05:52	1
Silvex (2,4,5-TP)	ND		0.0010	0.00027 mg/L		09/29/15 13:25	10/03/15 05:52	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2,4-Dichlorophenylacetic acid	104		56 - 120	09/29/15 13:25	10/03/15 05:52	1
2,4-Dichlorophenylacetic acid	81		56 - 120	09/29/15 13:25	10/03/15 05:52	1

Method: 6010B - Metals (ICP) - TCLP

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		0.50	0.0029 mg/L		09/29/15 09:50	09/30/15 20:37	1
Barium	ND		10	0.0010 mg/L		09/29/15 09:50	09/30/15 20:37	1
Cadmium	0.28		0.10	0.00014 mg/L		09/29/15 09:50	09/30/15 20:37	1
Chromium	ND		0.50	0.00055 mg/L		09/29/15 09:50	09/30/15 20:37	1
Lead	3.6		0.50	0.0019 mg/L		09/29/15 09:50	09/30/15 20:37	1

TestAmerica Canton

Client Sample Results

Client: GHD Services Inc.
Project/Site: H. Kramer - Chicago, Illinois

TestAmerica Job ID: 240-55871-1

Client Sample ID: S-092515-039826-GW-02

Lab Sample ID: 240-55871-2

Date Collected: 09/25/15 09:26

Matrix: Solid

Date Received: 09/26/15 09:45

Percent Solids: 77.2

Method: 6010B - Metals (ICP) - TCLP (Continued)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Selenium	ND		0.25	0.0040	mg/L		09/29/15 09:50	09/30/15 20:37	1
Silver	ND		0.50	0.00092	mg/L		09/29/15 09:50	09/30/15 20:37	1

Method: 7470A - Mercury (CVAA) - TCLP

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.0020	0.000090	mg/L		09/29/15 14:00	10/01/15 14:25	1

General Chemistry

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Flashpoint	>200		1.00	1.00	Degrees F			09/29/15 08:42	1
Cyanide, Total	0.61		0.61	0.37	mg/Kg	☼	09/29/15 08:18	09/29/15 12:11	1
Sulfide	ND		39	28	mg/Kg	☼	10/01/15 08:15	10/01/15 10:55	1
Corrosivity	7.89		0.100	0.100	SU			09/29/15 15:08	1
pH	7.89		0.100	0.100	SU			09/29/15 15:08	1
Phenols, Total	ND		1.3	0.18	mg/Kg	☼	09/29/15 08:45	09/29/15 12:09	1
Paint Filter	CNF		0.10	0.10	NONE			09/29/15 11:03	1
Percent Solids	77		0.10	0.10	%			09/29/15 15:06	1
Percent Moisture	23		0.10	0.10	%			09/29/15 15:06	1

TestAmerica Canton

Surrogate Summary

Client: GHD Services Inc.
Project/Site: H. Kramer - Chicago, Illinois

TestAmerica Job ID: 240-55871-1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Matrix: Solid

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)			
		BFB (52-136)	DBFM (37-132)	12DCE (58-123)	TOL (67-125)
240-55871-1	S-092515-039826-GW-01	113 *	94	111	116
240-55871-2	S-092515-039826-GW-02	98	95	80	94
LCS 240-199631/5	Lab Control Sample	92	104	112	93
LCS 240-199693/5	Lab Control Sample	92	101	77	96
MB 240-199631/6	Method Blank	89	100	114	97
MB 240-199693/6	Method Blank	95	98	78	96

Surrogate Legend

BFB = 4-Bromofluorobenzene (Surr)
DBFM = Dibromofluoromethane (Surr)
12DCE = 1,2-Dichloroethane-d4 (Surr)
TOL = Toluene-d8 (Surr)

Method: 8260B - Volatile Organic Compounds (GC/MS)

Matrix: Solid

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)			
		BFB (70-124)	DBFM (80-128)	12DCE (80-121)	TOL (80-120)
LCS 240-199588/8	Lab Control Sample	88	92	94	89

Surrogate Legend

BFB = 4-Bromofluorobenzene (Surr)
DBFM = Dibromofluoromethane (Surr)
12DCE = 1,2-Dichloroethane-d4 (Surr)
TOL = Toluene-d8 (Surr)

Method: 8260B - Volatile Organic Compounds (GC/MS)

Matrix: Solid

Prep Type: TCLP

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)			
		BFB (70-124)	DBFM (80-128)	12DCE (80-121)	TOL (80-120)
240-55871-1	S-092515-039826-GW-01	85	93	93	87
240-55871-2	S-092515-039826-GW-02	85	96	97	87
LB 240-199507/1-A MB	Method Blank	82	88	88	87

Surrogate Legend

BFB = 4-Bromofluorobenzene (Surr)
DBFM = Dibromofluoromethane (Surr)
12DCE = 1,2-Dichloroethane-d4 (Surr)
TOL = Toluene-d8 (Surr)

Method: 8270C - Semivolatile Organic Compounds (GC/MS)

Matrix: Solid

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)					
		FBP (24-110)	2FP (24-110)	NBZ (20-110)	PHL (26-110)	TPH (36-110)	TBP (10-110)
240-55871-1	S-092515-039826-GW-01	83	82	73	74	89	53

TestAmerica Canton

Surrogate Summary

Client: GHD Services Inc.
Project/Site: H. Kramer - Chicago, Illinois

TestAmerica Job ID: 240-55871-1

Method: 8270C - Semivolatile Organic Compounds (GC/MS) (Continued)

Matrix: Solid

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)					
		FBP (24-110)	2FP (24-110)	NBZ (20-110)	PHL (26-110)	TPH (36-110)	TBP (10-110)
240-55871-2	S-092515-039826-GW-02	116 X	125 X	113 X	121 X	117 X	97
LCS 240-199457/24-A	Lab Control Sample	81	85	81	86	87	67
MB 240-199457/23-A	Method Blank	64	62	61	67	74	39

Surrogate Legend

FBP = 2-Fluorobiphenyl (Surr)
2FP = 2-Fluorophenol (Surr)
NBZ = Nitrobenzene-d5 (Surr)
PHL = Phenol-d5 (Surr)
TPH = Terphenyl-d14 (Surr)
TBP = 2,4,6-Tribromophenol (Surr)

Method: 8270C - Semivolatile Organic Compounds (GC/MS)

Matrix: Solid

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)					
		FBP (30-110)	2FP (20-110)	NBZ (28-110)	PHL (21-110)	TPH (48-110)	TBP (23-110)
LCS 240-199550/11-A	Lab Control Sample	74	68	78	62	89	82
MB 240-199550/10-A	Method Blank	76	66	73	54	83	82

Surrogate Legend

FBP = 2-Fluorobiphenyl (Surr)
2FP = 2-Fluorophenol (Surr)
NBZ = Nitrobenzene-d5 (Surr)
PHL = Phenol-d5 (Surr)
TPH = Terphenyl-d14 (Surr)
TBP = 2,4,6-Tribromophenol (Surr)

Method: 8270C - Semivolatile Organic Compounds (GC/MS)

Matrix: Solid

Prep Type: TCLP

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)					
		FBP (30-110)	2FP (20-110)	TBP (23-110)	NBZ (28-110)	PHL (21-110)	TPH (48-110)
240-55871-1	S-092515-039826-GW-01	63	57	74	62	53	89
240-55871-2	S-092515-039826-GW-02	78	71	88	81	60	97

Surrogate Legend

FBP = 2-Fluorobiphenyl (Surr)
2FP = 2-Fluorophenol (Surr)
TBP = 2,4,6-Tribromophenol (Surr)
NBZ = Nitrobenzene-d5 (Surr)
PHL = Phenol-d5 (Surr)
TPH = Terphenyl-d14 (Surr)

TestAmerica Canton

Surrogate Summary

Client: GHD Services Inc.
Project/Site: H. Kramer - Chicago, Illinois

TestAmerica Job ID: 240-55871-1

Method: 8081A - Organochlorine Pesticides (GC)

Matrix: Solid

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)			
		TCX1 (34-121)	TCX2 (34-121)	DCB1 (10-141)	DCB2 (10-141)
LCS 240-199552/7-A	Lab Control Sample	77	80	76	81
MB 240-199552/6-A	Method Blank	76	81	76	79

Surrogate Legend

TCX = Tetrachloro-m-xylene

DCB = DCB Decachlorobiphenyl

Method: 8081A - Organochlorine Pesticides (GC)

Matrix: Solid

Prep Type: TCLP

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)			
		TCX1 (34-121)	TCX2 (34-121)	DCB1 (10-141)	DCB2 (10-141)
240-55871-1	S-092515-039826-GW-01	86	85	67	63
240-55871-2	S-092515-039826-GW-02	75	81	63	69

Surrogate Legend

TCX = Tetrachloro-m-xylene

DCB = DCB Decachlorobiphenyl

Method: 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Matrix: Solid

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)	
		TCX2 (13-134)	DCB2 (10-155)
240-55871-1	S-092515-039826-GW-01	82	301 X
240-55871-2	S-092515-039826-GW-02	0 X	0 X
LCS 240-199494/24-A	Lab Control Sample	84	91
MB 240-199494/23-A	Method Blank	88	91

Surrogate Legend

TCX = Tetrachloro-m-xylene

DCB = DCB Decachlorobiphenyl

Method: 8151A - Herbicides (GC)

Matrix: Solid

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)	
		DCPA1 (56-120)	DCPA2 (56-120)
LCS 240-199554/9-A	Lab Control Sample	90	62
MB 240-199554/8-A	Method Blank	113	83

Surrogate Legend

DCPA = 2,4-Dichlorophenylacetic acid

TestAmerica Canton

Surrogate Summary

Client: GHD Services Inc.
Project/Site: H. Kramer - Chicago, Illinois

TestAmerica Job ID: 240-55871-1

Method: 8151A - Herbicides (GC)

Matrix: Solid

Prep Type: TCLP

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	DCPA1 (56-120)	DCPA2 (56-120)
240-55871-1	S-092515-039826-GW-01	104	62 p
240-55871-2	S-092515-039826-GW-02	104	81

Surrogate Legend

DCPA = 2,4-Dichlorophenylacetic acid

QC Sample Results

Client: GHD Services Inc.
Project/Site: H. Kramer - Chicago, Illinois

TestAmerica Job ID: 240-55871-1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Lab Sample ID: LCS 240-199588/8

Matrix: Solid

Analysis Batch: 199588

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	1.00	1.07		mg/L		107	80 - 120
2-Butanone (MEK)	2.00	2.18		mg/L		109	49 - 120
Carbon tetrachloride	1.00	1.34	*	mg/L		134	54 - 122
Chlorobenzene	1.00	1.02		mg/L		102	80 - 120
Chloroform	1.00	1.01		mg/L		101	80 - 123
1,2-Dichloroethane	1.00	1.12		mg/L		112	80 - 120
1,1-Dichloroethene	1.00	1.12		mg/L		112	71 - 133
Tetrachloroethene	1.00	1.03		mg/L		103	79 - 134
Trichloroethene	1.00	1.13		mg/L		113	78 - 130
Vinyl chloride	1.00	1.19		mg/L		119	56 - 120

Surrogate	LCS %Recovery	LCS Qualifier	Limits
4-Bromofluorobenzene (Surr)	88		70 - 124
Dibromofluoromethane (Surr)	92		80 - 128
1,2-Dichloroethane-d4 (Surr)	94		80 - 121
Toluene-d8 (Surr)	89		80 - 120

Lab Sample ID: MB 240-199631/6

Matrix: Solid

Analysis Batch: 199631

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Bromoform	ND		5.0	ug/Kg			09/30/15 02:55	1
Carbon tetrachloride	ND		5.0	ug/Kg			09/30/15 02:55	1
Chlorobenzene	ND		5.0	ug/Kg			09/30/15 02:55	1
Chloroform	ND		5.0	ug/Kg			09/30/15 02:55	1
cis-1,2-Dichloroethene	ND		5.0	ug/Kg			09/30/15 02:55	1
cis-1,3-Dichloropropene	ND		5.0	ug/Kg			09/30/15 02:55	1
Dichlorobromomethane	ND		5.0	ug/Kg			09/30/15 02:55	1
1,2-Dichloroethane	ND		5.0	ug/Kg			09/30/15 02:55	1
1,1-Dichloroethene	ND		5.0	ug/Kg			09/30/15 02:55	1
1,2-Dichloropropane	ND		5.0	ug/Kg			09/30/15 02:55	1
Methylene Chloride	ND		5.0	ug/Kg			09/30/15 02:55	1
Styrene	ND		5.0	ug/Kg			09/30/15 02:55	1
Tetrachloroethene	ND		5.0	ug/Kg			09/30/15 02:55	1
trans-1,2-Dichloroethene	ND		5.0	ug/Kg			09/30/15 02:55	1
trans-1,3-Dichloropropene	ND		5.0	ug/Kg			09/30/15 02:55	1
1,1,1-Trichloroethane	ND		5.0	ug/Kg			09/30/15 02:55	1
1,1,2-Trichloroethane	ND		5.0	ug/Kg			09/30/15 02:55	1
Trichloroethene	ND		5.0	ug/Kg			09/30/15 02:55	1
Vinyl chloride	ND		5.0	ug/Kg			09/30/15 02:55	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	89		52 - 136		09/30/15 02:55	1
Dibromofluoromethane (Surr)	100		37 - 132		09/30/15 02:55	1
1,2-Dichloroethane-d4 (Surr)	114		58 - 123		09/30/15 02:55	1
Toluene-d8 (Surr)	97		67 - 125		09/30/15 02:55	1

TestAmerica Canton

QC Sample Results

Client: GHD Services Inc.
Project/Site: H. Kramer - Chicago, Illinois

TestAmerica Job ID: 240-55871-1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 240-199631/5

Matrix: Solid

Analysis Batch: 199631

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Bromoform	20.0	15.3		ug/Kg		77	62 - 133
Carbon tetrachloride	20.0	22.8		ug/Kg		114	71 - 129
Chlorobenzene	20.0	20.7		ug/Kg		103	78 - 120
Chloroform	20.0	21.9		ug/Kg		110	77 - 120
cis-1,2-Dichloroethene	20.0	20.5		ug/Kg		102	76 - 120
cis-1,3-Dichloropropene	20.0	18.0		ug/Kg		90	74 - 128
Dichlorobromomethane	20.0	19.2		ug/Kg		96	80 - 122
1,2-Dichloroethane	20.0	23.9		ug/Kg		120	72 - 120
1,1-Dichloroethene	20.0	18.6		ug/Kg		93	75 - 135
1,2-Dichloropropane	20.0	20.3		ug/Kg		101	80 - 120
Methylene Chloride	20.0	21.6		ug/Kg		108	75 - 120
Styrene	20.0	19.4		ug/Kg		97	80 - 120
Tetrachloroethene	20.0	22.4		ug/Kg		112	79 - 120
trans-1,2-Dichloroethene	20.0	20.5		ug/Kg		102	78 - 120
trans-1,3-Dichloropropene	20.0	19.4		ug/Kg		97	73 - 131
1,1,1-Trichloroethane	20.0	22.4		ug/Kg		112	77 - 126
1,1,2-Trichloroethane	20.0	20.9		ug/Kg		105	80 - 120
Trichloroethene	20.0	21.5		ug/Kg		107	79 - 120
Vinyl chloride	20.0	19.9		ug/Kg		99	57 - 120

Surrogate	LCS %Recovery	LCS Qualifier	Limits
4-Bromofluorobenzene (Surr)	92		52 - 136
Dibromofluoromethane (Surr)	104		37 - 132
1,2-Dichloroethane-d4 (Surr)	112		58 - 123
Toluene-d8 (Surr)	93		67 - 125

Lab Sample ID: MB 240-199693/6

Matrix: Solid

Analysis Batch: 199693

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Bromoform	ND		5.0	0.24 ug/Kg			09/30/15 10:45	1
Carbon tetrachloride	ND		5.0	0.65 ug/Kg			09/30/15 10:45	1
Chlorobenzene	ND		5.0	0.53 ug/Kg			09/30/15 10:45	1
Chloroform	ND		5.0	0.36 ug/Kg			09/30/15 10:45	1
cis-1,2-Dichloroethene	ND		5.0	0.28 ug/Kg			09/30/15 10:45	1
cis-1,3-Dichloropropene	ND		5.0	0.71 ug/Kg			09/30/15 10:45	1
Dichlorobromomethane	ND		5.0	0.29 ug/Kg			09/30/15 10:45	1
1,2-Dichloroethane	ND		5.0	0.46 ug/Kg			09/30/15 10:45	1
1,1-Dichloroethene	ND		5.0	0.80 ug/Kg			09/30/15 10:45	1
1,2-Dichloropropane	ND		5.0	0.14 ug/Kg			09/30/15 10:45	1
Methylene Chloride	5.34		5.0	0.74 ug/Kg			09/30/15 10:45	1
Styrene	ND		5.0	0.40 ug/Kg			09/30/15 10:45	1
Tetrachloroethene	ND		5.0	0.80 ug/Kg			09/30/15 10:45	1
trans-1,2-Dichloroethene	ND		5.0	0.32 ug/Kg			09/30/15 10:45	1
trans-1,3-Dichloropropene	ND		5.0	0.29 ug/Kg			09/30/15 10:45	1
1,1,1-Trichloroethane	ND		5.0	0.65 ug/Kg			09/30/15 10:45	1
1,1,2-Trichloroethane	ND		5.0	0.37 ug/Kg			09/30/15 10:45	1

TestAmerica Canton

QC Sample Results

Client: GHD Services Inc.
Project/Site: H. Kramer - Chicago, Illinois

TestAmerica Job ID: 240-55871-1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 240-199693/6

Matrix: Solid

Analysis Batch: 199693

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Trichloroethene	ND		5.0	0.38 ug/Kg			09/30/15 10:45	1
Vinyl chloride	ND		5.0	0.30 ug/Kg			09/30/15 10:45	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	95		52 - 136		09/30/15 10:45	1
Dibromofluoromethane (Surr)	98		37 - 132		09/30/15 10:45	1
1,2-Dichloroethane-d4 (Surr)	78		58 - 123		09/30/15 10:45	1
Toluene-d8 (Surr)	96		67 - 125		09/30/15 10:45	1

Lab Sample ID: LCS 240-199693/5

Matrix: Solid

Analysis Batch: 199693

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Bromoform	20.0	20.0		ug/Kg		100	62 - 133
Carbon tetrachloride	20.0	17.7		ug/Kg		89	71 - 129
Chlorobenzene	20.0	20.0		ug/Kg		100	78 - 120
Chloroform	20.0	17.4		ug/Kg		87	77 - 120
cis-1,2-Dichloroethene	20.0	19.7		ug/Kg		99	76 - 120
cis-1,3-Dichloropropene	20.0	20.7		ug/Kg		103	74 - 128
Dichlorobromomethane	20.0	17.2		ug/Kg		86	80 - 122
1,2-Dichloroethane	20.0	17.3		ug/Kg		87	72 - 120
1,1-Dichloroethene	20.0	18.8		ug/Kg		94	75 - 135
1,2-Dichloropropane	20.0	20.3		ug/Kg		101	80 - 120
Methylene Chloride	20.0	25.5 *		ug/Kg		128	75 - 120
Styrene	20.0	19.6		ug/Kg		98	80 - 120
Tetrachloroethene	20.0	21.7		ug/Kg		108	79 - 120
trans-1,2-Dichloroethene	20.0	21.6		ug/Kg		108	78 - 120
trans-1,3-Dichloropropene	20.0	19.7		ug/Kg		98	73 - 131
1,1,1-Trichloroethane	20.0	16.6		ug/Kg		83	77 - 126
1,1,2-Trichloroethane	20.0	18.7		ug/Kg		94	80 - 120
Trichloroethene	20.0	20.9		ug/Kg		105	79 - 120
Vinyl chloride	20.0	15.7		ug/Kg		78	57 - 120

Surrogate	LCS %Recovery	LCS Qualifier	Limits
4-Bromofluorobenzene (Surr)	92		52 - 136
Dibromofluoromethane (Surr)	101		37 - 132
1,2-Dichloroethane-d4 (Surr)	77		58 - 123
Toluene-d8 (Surr)	96		67 - 125

Lab Sample ID: LB 240-199507/1-A MB

Matrix: Solid

Analysis Batch: 199588

Client Sample ID: Method Blank

Prep Type: TCLP

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.025	0.0065 mg/L			09/29/15 16:06	1
2-Butanone (MEK)	ND		0.25	0.029 mg/L			09/29/15 16:06	1
Carbon tetrachloride	ND		0.025	0.0065 mg/L			09/29/15 16:06	1

TestAmerica Canton

QC Sample Results

Client: GHD Services Inc.
Project/Site: H. Kramer - Chicago, Illinois

TestAmerica Job ID: 240-55871-1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LB 240-199507/1-A MB

Matrix: Solid

Analysis Batch: 199588

Client Sample ID: Method Blank

Prep Type: TCLP

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chlorobenzene	ND		0.025	0.0075 mg/L			09/29/15 16:06	1
Chloroform	ND		0.025	0.0080 mg/L			09/29/15 16:06	1
1,2-Dichloroethane	ND		0.025	0.011 mg/L			09/29/15 16:06	1
1,1-Dichloroethene	ND		0.025	0.0095 mg/L			09/29/15 16:06	1
Tetrachloroethene	ND		0.025	0.015 mg/L			09/29/15 16:06	1
Trichloroethene	ND		0.025	0.0085 mg/L			09/29/15 16:06	1
Vinyl chloride	ND		0.025	0.011 mg/L			09/29/15 16:06	1
Surrogate	MB %Recovery	MB Qualifier	Limits			Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	82		70 - 124				09/29/15 16:06	1
Dibromofluoromethane (Surr)	88		80 - 128				09/29/15 16:06	1
1,2-Dichloroethane-d4 (Surr)	88		80 - 121				09/29/15 16:06	1
Toluene-d8 (Surr)	87		80 - 120				09/29/15 16:06	1

Method: 8270C - Semivolatile Organic Compounds (GC/MS)

Lab Sample ID: MB 240-199457/23-A

Matrix: Solid

Analysis Batch: 199859

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 199457

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Acenaphthene	ND		6.7	0.76 ug/Kg		09/29/15 07:29	10/01/15 07:15	1
Acenaphthylene	ND		6.7	0.35 ug/Kg		09/29/15 07:29	10/01/15 07:15	1
Anthracene	ND		6.7	0.78 ug/Kg		09/29/15 07:29	10/01/15 07:15	1
Benzo[a]anthracene	ND		6.7	0.63 ug/Kg		09/29/15 07:29	10/01/15 07:15	1
Benzo[a]pyrene	ND		6.7	0.64 ug/Kg		09/29/15 07:29	10/01/15 07:15	1
Benzo[b]fluoranthene	ND		6.7	0.59 ug/Kg		09/29/15 07:29	10/01/15 07:15	1
Benzo[g,h,i]perylene	ND		6.7	0.35 ug/Kg		09/29/15 07:29	10/01/15 07:15	1
Benzo[k]fluoranthene	ND		6.7	0.68 ug/Kg		09/29/15 07:29	10/01/15 07:15	1
Bis(2-chloroethyl)ether	ND		100	2.0 ug/Kg		09/29/15 07:29	10/01/15 07:15	1
Bis(2-ethylhexyl) phthalate	ND		70	19 ug/Kg		09/29/15 07:29	10/01/15 07:15	1
Chrysene	ND		6.7	1.1 ug/Kg		09/29/15 07:29	10/01/15 07:15	1
Dibenzo[a,h]anthracene	ND		6.7	0.66 ug/Kg		09/29/15 07:29	10/01/15 07:15	1
1,2-Dichlorobenzene	ND		50	9.7 ug/Kg		09/29/15 07:29	10/01/15 07:15	1
1,4-Dichlorobenzene	ND		50	20 ug/Kg		09/29/15 07:29	10/01/15 07:15	1
Fluoranthene	ND		6.7	0.55 ug/Kg		09/29/15 07:29	10/01/15 07:15	1
Fluorene	ND		6.7	0.53 ug/Kg		09/29/15 07:29	10/01/15 07:15	1
Hexachlorocyclopentadiene	ND		330	8.1 ug/Kg		09/29/15 07:29	10/01/15 07:15	1
Indeno[1,2,3-cd]pyrene	ND		6.7	0.35 ug/Kg		09/29/15 07:29	10/01/15 07:15	1
Naphthalene	ND		6.7	0.82 ug/Kg		09/29/15 07:29	10/01/15 07:15	1
N-Nitrosodi-n-propylamine	ND		50	6.3 ug/Kg		09/29/15 07:29	10/01/15 07:15	1
N-Nitrosodiphenylamine	ND		50	21 ug/Kg		09/29/15 07:29	10/01/15 07:15	1
Phenanthrene	ND		6.7	0.73 ug/Kg		09/29/15 07:29	10/01/15 07:15	1
Pyrene	ND		6.7	0.44 ug/Kg		09/29/15 07:29	10/01/15 07:15	1
1,2,4-Trichlorobenzene	ND		50	3.5 ug/Kg		09/29/15 07:29	10/01/15 07:15	1

TestAmerica Canton

QC Sample Results

Client: GHD Services Inc.
Project/Site: H. Kramer - Chicago, Illinois

TestAmerica Job ID: 240-55871-1

Method: 8270C - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 240-199457/23-A

Matrix: Solid

Analysis Batch: 199859

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 199457

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
2-Fluorobiphenyl (Surr)	64		24 - 110	09/29/15 07:29	10/01/15 07:15	1
2-Fluorophenol (Surr)	62		24 - 110	09/29/15 07:29	10/01/15 07:15	1
Nitrobenzene-d5 (Surr)	61		20 - 110	09/29/15 07:29	10/01/15 07:15	1
Phenol-d5 (Surr)	67		26 - 110	09/29/15 07:29	10/01/15 07:15	1
Terphenyl-d14 (Surr)	74		36 - 110	09/29/15 07:29	10/01/15 07:15	1
2,4,6-Tribromophenol (Surr)	39		10 - 110	09/29/15 07:29	10/01/15 07:15	1

Lab Sample ID: LCS 240-199457/24-A

Matrix: Solid

Analysis Batch: 199859

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 199457

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
Acenaphthene	667	530		ug/Kg		79	38 - 110
Acenaphthylene	667	548		ug/Kg		82	40 - 110
Anthracene	667	544		ug/Kg		82	48 - 110
Benzo[a]anthracene	667	534		ug/Kg		80	50 - 110
Benzo[a]pyrene	667	595		ug/Kg		89	44 - 110
Benzo[b]fluoranthene	667	588		ug/Kg		88	43 - 110
Benzo[g,h,i]perylene	667	575		ug/Kg		86	51 - 110
Benzo[k]fluoranthene	667	573		ug/Kg		86	38 - 105
Bis(2-chloroethyl)ether	667	522		ug/Kg		78	34 - 110
Bis(2-ethylhexyl) phthalate	667	564		ug/Kg		85	50 - 110
Chrysene	667	566		ug/Kg		85	50 - 110
Dibenzo[a,h]anthracene	667	501		ug/Kg		75	51 - 110
1,2-Dichlorobenzene	667	511		ug/Kg		77	32 - 110
1,4-Dichlorobenzene	667	512		ug/Kg		77	33 - 110
Fluoranthene	667	558		ug/Kg		84	51 - 110
Fluorene	667	541		ug/Kg		81	46 - 110
Hexachlorocyclopentadiene	667	345		ug/Kg		52	12 - 110
Indeno[1,2,3-cd]pyrene	667	504		ug/Kg		76	50 - 110
Naphthalene	667	525		ug/Kg		79	36 - 110
N-Nitrosodi-n-propylamine	667	534		ug/Kg		80	38 - 110
N-Nitrosodiphenylamine	1330	1050		ug/Kg		79	46 - 110
Phenanthrene	667	540		ug/Kg		81	49 - 110
Pyrene	667	543		ug/Kg		81	49 - 110
1,2,4-Trichlorobenzene	667	555		ug/Kg		83	28 - 110

Surrogate	LCS %Recovery	LCS Qualifier	Limits
2-Fluorobiphenyl (Surr)	81		24 - 110
2-Fluorophenol (Surr)	85		24 - 110
Nitrobenzene-d5 (Surr)	81		20 - 110
Phenol-d5 (Surr)	86		26 - 110
Terphenyl-d14 (Surr)	87		36 - 110
2,4,6-Tribromophenol (Surr)	67		10 - 110

TestAmerica Canton

QC Sample Results

Client: GHD Services Inc.
Project/Site: H. Kramer - Chicago, Illinois

TestAmerica Job ID: 240-55871-1

Method: 8270C - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 240-199550/10-A

Matrix: Solid

Analysis Batch: 199898

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 199550

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
2,4,5-Trichlorophenol	ND		0.0040	0.00030 mg/L		09/29/15 13:16	10/01/15 15:38	1
2,4,6-Trichlorophenol	ND		0.0040	0.00024 mg/L		09/29/15 13:16	10/01/15 15:38	1
2,4-Dinitrotoluene	ND		0.0040	0.00025 mg/L		09/29/15 13:16	10/01/15 15:38	1
Hexachlorobenzene	ND		0.00080	0.000085 mg/L		09/29/15 13:16	10/01/15 15:38	1
Hexachlorobutadiene	ND		0.0040	0.00027 mg/L		09/29/15 13:16	10/01/15 15:38	1
Hexachloroethane	ND		0.0040	0.00019 mg/L		09/29/15 13:16	10/01/15 15:38	1
3 & 4 Methylphenol	ND		0.0040	0.00080 mg/L		09/29/15 13:16	10/01/15 15:38	1
2-Methylphenol	ND		0.0040	0.00017 mg/L		09/29/15 13:16	10/01/15 15:38	1
Nitrobenzene	ND		0.0040	0.000040 mg/L		09/29/15 13:16	10/01/15 15:38	1
Pentachlorophenol	ND		0.016	0.00027 mg/L		09/29/15 13:16	10/01/15 15:38	1
Pyridine	ND		0.0040	0.00035 mg/L		09/29/15 13:16	10/01/15 15:38	1
1,4-Dichlorobenzene	ND		0.0040	0.00034 mg/L		09/29/15 13:16	10/01/15 15:38	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
2-Fluorobiphenyl (Surr)	76		30 - 110	09/29/15 13:16	10/01/15 15:38	1
2-Fluorophenol (Surr)	66		20 - 110	09/29/15 13:16	10/01/15 15:38	1
Nitrobenzene-d5 (Surr)	73		28 - 110	09/29/15 13:16	10/01/15 15:38	1
Phenol-d5 (Surr)	54		21 - 110	09/29/15 13:16	10/01/15 15:38	1
Terphenyl-d14 (Surr)	83		48 - 110	09/29/15 13:16	10/01/15 15:38	1
2,4,6-Tribromophenol (Surr)	82		23 - 110	09/29/15 13:16	10/01/15 15:38	1

Lab Sample ID: LCS 240-199550/11-A

Matrix: Solid

Analysis Batch: 199898

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 199550

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
2,4,5-Trichlorophenol	0.0800	0.0580		mg/L		72	51 - 110
2,4,6-Trichlorophenol	0.0800	0.0627		mg/L		78	46 - 110
2,4-Dinitrotoluene	0.0800	0.0551		mg/L		69	54 - 110
Hexachlorobenzene	0.0800	0.0736		mg/L		92	50 - 110
Hexachlorobutadiene	0.0800	0.0515		mg/L		64	34 - 110
Hexachloroethane	0.0800	0.0455		mg/L		57	41 - 110
3 & 4 Methylphenol	0.0800	0.0583		mg/L		73	48 - 110
2-Methylphenol	0.0800	0.0585		mg/L		73	44 - 111
Nitrobenzene	0.0800	0.0631		mg/L		79	40 - 110
Pentachlorophenol	0.160	0.126		mg/L		79	12 - 110
Pyridine	0.0800	0.0538		mg/L		67	30 - 110
1,4-Dichlorobenzene	0.0800	0.0494		mg/L		62	52 - 110

Surrogate	LCS %Recovery	LCS Qualifier	Limits
2-Fluorobiphenyl (Surr)	74		30 - 110
2-Fluorophenol (Surr)	68		20 - 110
Nitrobenzene-d5 (Surr)	78		28 - 110
Phenol-d5 (Surr)	62		21 - 110
Terphenyl-d14 (Surr)	89		48 - 110
2,4,6-Tribromophenol (Surr)	82		23 - 110

TestAmerica Canton

QC Sample Results

Client: GHD Services Inc.
Project/Site: H. Kramer - Chicago, Illinois

TestAmerica Job ID: 240-55871-1

Method: 8081A - Organochlorine Pesticides (GC)

Lab Sample ID: MB 240-199552/6-A

Matrix: Solid

Analysis Batch: 199951

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 199552

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chlordane (technical)	ND		0.0050	0.00014 mg/L		09/29/15 13:19	10/01/15 21:24	1
Endrin	ND		0.00050	0.000013 mg/L		09/29/15 13:19	10/01/15 21:24	1
Heptachlor	ND		0.00050	0.000014 mg/L		09/29/15 13:19	10/01/15 21:24	1
Heptachlor epoxide	ND		0.00050	0.000015 mg/L		09/29/15 13:19	10/01/15 21:24	1
gamma-BHC (Lindane)	ND		0.00050	0.000013 mg/L		09/29/15 13:19	10/01/15 21:24	1
Methoxychlor	ND		0.0010	0.000013 mg/L		09/29/15 13:19	10/01/15 21:24	1
Toxaphene	ND		0.020	0.00020 mg/L		09/29/15 13:19	10/01/15 21:24	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
Tetrachloro-m-xylene	76		34 - 121	09/29/15 13:19	10/01/15 21:24	1
Tetrachloro-m-xylene	81		34 - 121	09/29/15 13:19	10/01/15 21:24	1
DCB Decachlorobiphenyl	76		10 - 141	09/29/15 13:19	10/01/15 21:24	1
DCB Decachlorobiphenyl	79		10 - 141	09/29/15 13:19	10/01/15 21:24	1

Lab Sample ID: LCS 240-199552/7-A

Matrix: Solid

Analysis Batch: 199951

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 199552

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
Endrin	0.000400	0.000307	J	mg/L		77	49 - 150
Heptachlor	0.000400	0.000291	J	mg/L		73	40 - 129
Heptachlor epoxide	0.000400	0.000307	J	mg/L		77	42 - 137
gamma-BHC (Lindane)	0.000400	0.000282	J	mg/L		71	22 - 144
Methoxychlor	0.000800	0.000608	J	mg/L		76	35 - 147

Surrogate	LCS %Recovery	LCS Qualifier	Limits
Tetrachloro-m-xylene	77		34 - 121
Tetrachloro-m-xylene	80		34 - 121
DCB Decachlorobiphenyl	76		10 - 141
DCB Decachlorobiphenyl	81		10 - 141

Method: 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Lab Sample ID: MB 240-199494/23-A

Matrix: Solid

Analysis Batch: 199848

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 199494

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Aroclor-1016	ND		33	12 ug/Kg		09/29/15 09:30	10/01/15 08:43	1
Aroclor-1221	ND		33	16 ug/Kg		09/29/15 09:30	10/01/15 08:43	1
Aroclor-1232	ND		33	20 ug/Kg		09/29/15 09:30	10/01/15 08:43	1
Aroclor-1242	ND		33	11 ug/Kg		09/29/15 09:30	10/01/15 08:43	1
Aroclor-1248	ND		33	8.0 ug/Kg		09/29/15 09:30	10/01/15 08:43	1
Aroclor-1254	ND		33	14 ug/Kg		09/29/15 09:30	10/01/15 08:43	1
Aroclor-1260	ND		33	9.0 ug/Kg		09/29/15 09:30	10/01/15 08:43	1
Aroclor-1262	ND		33	10 ug/Kg		09/29/15 09:30	10/01/15 08:43	1
Aroclor-1268	ND		33	13 ug/Kg		09/29/15 09:30	10/01/15 08:43	1

TestAmerica Canton

QC Sample Results

Client: GHD Services Inc.
Project/Site: H. Kramer - Chicago, Illinois

TestAmerica Job ID: 240-55871-1

Method: 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography (Continued)

Lab Sample ID: MB 240-199494/23-A

Matrix: Solid

Analysis Batch: 199848

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 199494

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
Tetrachloro-m-xylene	88		13 - 134	09/29/15 09:30	10/01/15 08:43	1
DCB Decachlorobiphenyl	91		10 - 155	09/29/15 09:30	10/01/15 08:43	1

Lab Sample ID: LCS 240-199494/24-A

Matrix: Solid

Analysis Batch: 199848

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 199494

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
Aroclor-1016	333	293		ug/Kg		88	51 - 120
Aroclor-1260	334	313		ug/Kg		94	48 - 120

Surrogate	LCS %Recovery	LCS Qualifier	Limits
Tetrachloro-m-xylene	84		13 - 134
DCB Decachlorobiphenyl	91		10 - 155

Method: 8151A - Herbicides (GC)

Lab Sample ID: MB 240-199554/8-A

Matrix: Solid

Analysis Batch: 200195

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 199554

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
2,4-D	ND		0.0040	mg/L		09/29/15 13:25	10/03/15 02:26	1
Silvex (2,4,5-TP)	ND		0.0010	mg/L		09/29/15 13:25	10/03/15 02:26	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
2,4-Dichlorophenylacetic acid	113		56 - 120	09/29/15 13:25	10/03/15 02:26	1
2,4-Dichlorophenylacetic acid	83		56 - 120	09/29/15 13:25	10/03/15 02:26	1

Lab Sample ID: LCS 240-199554/9-A

Matrix: Solid

Analysis Batch: 200195

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 199554

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
2,4-D	0.0200	0.0152		mg/L		76	50 - 120
Silvex (2,4,5-TP)	0.00500	0.00405		mg/L		81	45 - 129

Surrogate	LCS %Recovery	LCS Qualifier	Limits
2,4-Dichlorophenylacetic acid	90		56 - 120
2,4-Dichlorophenylacetic acid	62		56 - 120

TestAmerica Canton

QC Sample Results

Client: GHD Services Inc.
Project/Site: H. Kramer - Chicago, Illinois

TestAmerica Job ID: 240-55871-1

Method: 6010B - Metals (ICP)

Lab Sample ID: MB 240-199499/2-A

Matrix: Solid

Analysis Batch: 199876

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 199499

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		0.50	0.0029 mg/L		09/29/15 09:49	09/30/15 19:33	1
Barium	ND		10	0.0010 mg/L		09/29/15 09:49	09/30/15 19:33	1
Cadmium	ND		0.10	0.00014 mg/L		09/29/15 09:49	09/30/15 19:33	1
Chromium	ND		0.50	0.00055 mg/L		09/29/15 09:49	09/30/15 19:33	1
Lead	ND		0.50	0.0019 mg/L		09/29/15 09:49	09/30/15 19:33	1
Selenium	ND		0.25	0.0040 mg/L		09/29/15 09:49	09/30/15 19:33	1
Silver	ND		0.50	0.00092 mg/L		09/29/15 09:49	09/30/15 19:33	1

Lab Sample ID: LCS 240-199499/3-A

Matrix: Solid

Analysis Batch: 199876

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 199499

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Arsenic	2.00	2.10		mg/L		105	50 - 150
Barium	2.00	1.97	J	mg/L		98	50 - 150
Cadmium	0.0500	0.0506	J	mg/L		101	50 - 150
Chromium	0.200	0.202	J	mg/L		101	50 - 150
Lead	0.500	0.464	J	mg/L		93	50 - 150
Selenium	2.00	2.16		mg/L		108	50 - 150
Silver	0.0500	0.0540	J	mg/L		108	50 - 150

Lab Sample ID: LB 240-199373/1-B

Matrix: Solid

Analysis Batch: 199876

Client Sample ID: Method Blank

Prep Type: TCLP

Prep Batch: 199499

Analyte	LB Result	LB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		0.50	0.0029 mg/L		09/29/15 09:49	09/30/15 19:29	1
Barium	ND		10	0.0010 mg/L		09/29/15 09:49	09/30/15 19:29	1
Cadmium	ND		0.10	0.00014 mg/L		09/29/15 09:49	09/30/15 19:29	1
Chromium	ND		0.50	0.00055 mg/L		09/29/15 09:49	09/30/15 19:29	1
Lead	ND		0.50	0.0019 mg/L		09/29/15 09:49	09/30/15 19:29	1
Selenium	ND		0.25	0.0040 mg/L		09/29/15 09:49	09/30/15 19:29	1
Silver	ND		0.50	0.00092 mg/L		09/29/15 09:49	09/30/15 19:29	1

Method: 7470A - Mercury (CVAA)

Lab Sample ID: MB 240-199501/2-A

Matrix: Solid

Analysis Batch: 199976

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 199501

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.0020	0.000090 mg/L		09/29/15 14:00	10/01/15 14:06	1

Lab Sample ID: LCS 240-199501/3-A

Matrix: Solid

Analysis Batch: 199976

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 199501

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	0.00500	0.00485		mg/L		97	80 - 120

TestAmerica Canton

QC Sample Results

Client: GHD Services Inc.
Project/Site: H. Kramer - Chicago, Illinois

TestAmerica Job ID: 240-55871-1

Lab Sample ID: LB 240-199373/1-C
Matrix: Solid
Analysis Batch: 199976

Client Sample ID: Method Blank
Prep Type: TCLP
Prep Batch: 199501

Analyte	LB Result	LB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.0020	0.000090 mg/L		09/29/15 14:00	10/01/15 14:04	1

Method: 1010A - Ignitability, Pensky-Martens Closed Cup Method

Lab Sample ID: LCS 240-199534/1
Matrix: Solid
Analysis Batch: 199534

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Flashpoint	81.0	81.00		Degrees F		100	97 - 103

Method: 9012A - Cyanide, Total and/or Amenable

Lab Sample ID: MB 240-199470/1-A
Matrix: Solid
Analysis Batch: 199594

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 199470

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Cyanide, Total	ND		0.49	0.29 mg/Kg		09/29/15 08:18	09/29/15 12:11	1

Lab Sample ID: LCS 240-199470/2-A
Matrix: Solid
Analysis Batch: 199594

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 199470

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Cyanide, Total	3.89	3.84		mg/Kg		99	68 - 123

Method: 9034 - Sulfide, Acid soluble and Insoluble (Titrimetric)

Lab Sample ID: MB 240-199886/1-A
Matrix: Solid
Analysis Batch: 199927

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 199886

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfide	ND		30	22 mg/Kg		10/01/15 08:15	10/01/15 10:17	1

Lab Sample ID: LCS 240-199886/2-A
Matrix: Solid
Analysis Batch: 199927

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 199886

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Sulfide	93.0	81.0		mg/Kg		87	70 - 130

TestAmerica Canton

QC Sample Results

Client: GHD Services Inc.
Project/Site: H. Kramer - Chicago, Illinois

TestAmerica Job ID: 240-55871-1

Method: 9045C - pH

Lab Sample ID: LCS 240-199573/2

Matrix: Solid

Analysis Batch: 199573

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Corrosivity	6.15	6.230		SU		101	97 - 103
pH	6.15	6.230		SU		101	97 - 103

Method: 9065 - Phenolics, Total Recoverable

Lab Sample ID: MB 240-199472/1-A

Matrix: Solid

Analysis Batch: 199493

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 199472

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Phenols, Total	ND		0.98	mg/Kg		09/29/15 08:45	09/29/15 11:59	1

Lab Sample ID: LCS 240-199472/2-A

Matrix: Solid

Analysis Batch: 199493

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 199472

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Phenols, Total	14.0	11.2		mg/Kg		80	54 - 142

Lab Sample ID: 240-55871-1 MS

Matrix: Solid

Analysis Batch: 199493

Client Sample ID: S-092515-039826-GW-01

Prep Type: Total/NA

Prep Batch: 199472

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Phenols, Total	ND		2.27	2.52		mg/Kg	✱	111	75 - 125

Lab Sample ID: 240-55871-1 MSD

Matrix: Solid

Analysis Batch: 199493

Client Sample ID: S-092515-039826-GW-01

Prep Type: Total/NA

Prep Batch: 199472

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Phenols, Total	ND		2.28	2.32		mg/Kg	✱	102	75 - 125	8	20

Method: 9095A - Paint Filter

Lab Sample ID: 240-55871-2 DU

Matrix: Solid

Analysis Batch: 199524

Client Sample ID: S-092515-039826-GW-02

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Paint Filter	CNF		CNF		NONE		NC	20

TestAmerica Canton

QC Association Summary

Client: GHD Services Inc.
Project/Site: H. Kramer - Chicago, Illinois

TestAmerica Job ID: 240-55871-1

GC/MS VOA

Leach Batch: 199507

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-55871-1	S-092515-039826-GW-01	TCLP	Solid	1311	
240-55871-2	S-092515-039826-GW-02	TCLP	Solid	1311	
LB 240-199507/1-A MB	Method Blank	TCLP	Solid	1311	

Prep Batch: 199529

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-55871-1	S-092515-039826-GW-01	Total/NA	Solid	5035	
240-55871-2	S-092515-039826-GW-02	Total/NA	Solid	5035	

Analysis Batch: 199588

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-55871-1	S-092515-039826-GW-01	TCLP	Solid	8260B	199507
240-55871-2	S-092515-039826-GW-02	TCLP	Solid	8260B	199507
LB 240-199507/1-A MB	Method Blank	TCLP	Solid	8260B	199507
LCS 240-199588/8	Lab Control Sample	Total/NA	Solid	8260B	

Analysis Batch: 199631

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-55871-1	S-092515-039826-GW-01	Total/NA	Solid	8260B	199529
LCS 240-199631/5	Lab Control Sample	Total/NA	Solid	8260B	
MB 240-199631/6	Method Blank	Total/NA	Solid	8260B	

Analysis Batch: 199693

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-55871-2	S-092515-039826-GW-02	Total/NA	Solid	8260B	199529
LCS 240-199693/5	Lab Control Sample	Total/NA	Solid	8260B	
MB 240-199693/6	Method Blank	Total/NA	Solid	8260B	

GC/MS Semi VOA

Leach Batch: 199373

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-55871-1	S-092515-039826-GW-01	TCLP	Solid	1311	
240-55871-2	S-092515-039826-GW-02	TCLP	Solid	1311	

Prep Batch: 199457

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-55871-1	S-092515-039826-GW-01	Total/NA	Solid	3540C	
240-55871-2	S-092515-039826-GW-02	Total/NA	Solid	3540C	
LCS 240-199457/24-A	Lab Control Sample	Total/NA	Solid	3540C	
MB 240-199457/23-A	Method Blank	Total/NA	Solid	3540C	

Prep Batch: 199550

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-55871-1	S-092515-039826-GW-01	TCLP	Solid	3510C	199373
240-55871-2	S-092515-039826-GW-02	TCLP	Solid	3510C	199373
LCS 240-199550/11-A	Lab Control Sample	Total/NA	Solid	3510C	
MB 240-199550/10-A	Method Blank	Total/NA	Solid	3510C	

TestAmerica Canton

QC Association Summary

Client: GHD Services Inc.
Project/Site: H. Kramer - Chicago, Illinois

TestAmerica Job ID: 240-55871-1

GC/MS Semi VOA (Continued)

Analysis Batch: 199859

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-55871-1	S-092515-039826-GW-01	Total/NA	Solid	8270C	199457
240-55871-2	S-092515-039826-GW-02	Total/NA	Solid	8270C	199457
LCS 240-199457/24-A	Lab Control Sample	Total/NA	Solid	8270C	199457
MB 240-199457/23-A	Method Blank	Total/NA	Solid	8270C	199457

Analysis Batch: 199898

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-55871-1	S-092515-039826-GW-01	TCLP	Solid	8270C	199550
240-55871-2	S-092515-039826-GW-02	TCLP	Solid	8270C	199550
LCS 240-199550/11-A	Lab Control Sample	Total/NA	Solid	8270C	199550
MB 240-199550/10-A	Method Blank	Total/NA	Solid	8270C	199550

GC Semi VOA

Leach Batch: 199373

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-55871-1	S-092515-039826-GW-01	TCLP	Solid	1311	
240-55871-2	S-092515-039826-GW-02	TCLP	Solid	1311	

Prep Batch: 199494

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-55871-1	S-092515-039826-GW-01	Total/NA	Solid	3540C	
240-55871-2	S-092515-039826-GW-02	Total/NA	Solid	3540C	
LCS 240-199494/24-A	Lab Control Sample	Total/NA	Solid	3540C	
MB 240-199494/23-A	Method Blank	Total/NA	Solid	3540C	

Prep Batch: 199552

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-55871-1	S-092515-039826-GW-01	TCLP	Solid	3520C	199373
240-55871-2	S-092515-039826-GW-02	TCLP	Solid	3520C	199373
LCS 240-199552/7-A	Lab Control Sample	Total/NA	Solid	3520C	
MB 240-199552/6-A	Method Blank	Total/NA	Solid	3520C	

Prep Batch: 199554

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-55871-1	S-092515-039826-GW-01	TCLP	Solid	8151A	199373
240-55871-2	S-092515-039826-GW-02	TCLP	Solid	8151A	199373
LCS 240-199554/9-A	Lab Control Sample	Total/NA	Solid	8151A	
MB 240-199554/8-A	Method Blank	Total/NA	Solid	8151A	

Analysis Batch: 199848

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-55871-1	S-092515-039826-GW-01	Total/NA	Solid	8082A	199494
240-55871-2	S-092515-039826-GW-02	Total/NA	Solid	8082A	199494
LCS 240-199494/24-A	Lab Control Sample	Total/NA	Solid	8082A	199494
MB 240-199494/23-A	Method Blank	Total/NA	Solid	8082A	199494

Analysis Batch: 199951

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-55871-1	S-092515-039826-GW-01	TCLP	Solid	8081A	199552

TestAmerica Canton

QC Association Summary

Client: GHD Services Inc.
Project/Site: H. Kramer - Chicago, Illinois

TestAmerica Job ID: 240-55871-1

GC Semi VOA (Continued)

Analysis Batch: 199951 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-55871-2	S-092515-039826-GW-02	TCLP	Solid	8081A	199552
LCS 240-199552/7-A	Lab Control Sample	Total/NA	Solid	8081A	199552
MB 240-199552/6-A	Method Blank	Total/NA	Solid	8081A	199552

Analysis Batch: 200195

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-55871-1	S-092515-039826-GW-01	TCLP	Solid	8151A	199554
240-55871-2	S-092515-039826-GW-02	TCLP	Solid	8151A	199554
LCS 240-199554/9-A	Lab Control Sample	Total/NA	Solid	8151A	199554
MB 240-199554/8-A	Method Blank	Total/NA	Solid	8151A	199554

Metals

Leach Batch: 199373

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-55871-1	S-092515-039826-GW-01	TCLP	Solid	1311	
240-55871-2	S-092515-039826-GW-02	TCLP	Solid	1311	
LB 240-199373/1-B	Method Blank	TCLP	Solid	1311	
LB 240-199373/1-C	Method Blank	TCLP	Solid	1311	

Prep Batch: 199499

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-55871-1	S-092515-039826-GW-01	TCLP	Solid	3010A	199373
240-55871-2	S-092515-039826-GW-02	TCLP	Solid	3010A	199373
LB 240-199373/1-B	Method Blank	TCLP	Solid	3010A	199373
LCS 240-199499/3-A	Lab Control Sample	Total/NA	Solid	3010A	
MB 240-199499/2-A	Method Blank	Total/NA	Solid	3010A	

Prep Batch: 199501

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-55871-1	S-092515-039826-GW-01	TCLP	Solid	7470A	199373
240-55871-2	S-092515-039826-GW-02	TCLP	Solid	7470A	199373
LB 240-199373/1-C	Method Blank	TCLP	Solid	7470A	199373
LCS 240-199501/3-A	Lab Control Sample	Total/NA	Solid	7470A	
MB 240-199501/2-A	Method Blank	Total/NA	Solid	7470A	

Analysis Batch: 199876

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-55871-1	S-092515-039826-GW-01	TCLP	Solid	6010B	199499
240-55871-2	S-092515-039826-GW-02	TCLP	Solid	6010B	199499
LB 240-199373/1-B	Method Blank	TCLP	Solid	6010B	199499
LCS 240-199499/3-A	Lab Control Sample	Total/NA	Solid	6010B	199499
MB 240-199499/2-A	Method Blank	Total/NA	Solid	6010B	199499

Analysis Batch: 199976

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-55871-1	S-092515-039826-GW-01	TCLP	Solid	7470A	199501
240-55871-2	S-092515-039826-GW-02	TCLP	Solid	7470A	199501
LB 240-199373/1-C	Method Blank	TCLP	Solid	7470A	199501
LCS 240-199501/3-A	Lab Control Sample	Total/NA	Solid	7470A	199501

TestAmerica Canton

QC Association Summary

Client: GHD Services Inc.
Project/Site: H. Kramer - Chicago, Illinois

TestAmerica Job ID: 240-55871-1

Metals (Continued)

Analysis Batch: 199976 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 240-199501/2-A	Method Blank	Total/NA	Solid	7470A	199501

General Chemistry

Prep Batch: 199470

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-55871-1	S-092515-039826-GW-01	Total/NA	Solid	9012A	
240-55871-2	S-092515-039826-GW-02	Total/NA	Solid	9012A	
LCS 240-199470/2-A	Lab Control Sample	Total/NA	Solid	9012A	
MB 240-199470/1-A	Method Blank	Total/NA	Solid	9012A	

Prep Batch: 199472

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-55871-1	S-092515-039826-GW-01	Total/NA	Solid	Distill/Phenol	
240-55871-1 MS	S-092515-039826-GW-01	Total/NA	Solid	Distill/Phenol	
240-55871-1 MSD	S-092515-039826-GW-01	Total/NA	Solid	Distill/Phenol	
240-55871-2	S-092515-039826-GW-02	Total/NA	Solid	Distill/Phenol	
LCS 240-199472/2-A	Lab Control Sample	Total/NA	Solid	Distill/Phenol	
MB 240-199472/1-A	Method Blank	Total/NA	Solid	Distill/Phenol	

Analysis Batch: 199493

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-55871-1	S-092515-039826-GW-01	Total/NA	Solid	9065	199472
240-55871-1 MS	S-092515-039826-GW-01	Total/NA	Solid	9065	199472
240-55871-1 MSD	S-092515-039826-GW-01	Total/NA	Solid	9065	199472
240-55871-2	S-092515-039826-GW-02	Total/NA	Solid	9065	199472
LCS 240-199472/2-A	Lab Control Sample	Total/NA	Solid	9065	199472
MB 240-199472/1-A	Method Blank	Total/NA	Solid	9065	199472

Analysis Batch: 199524

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-55871-1	S-092515-039826-GW-01	Total/NA	Solid	9095A	
240-55871-2	S-092515-039826-GW-02	Total/NA	Solid	9095A	
240-55871-2 DU	S-092515-039826-GW-02	Total/NA	Solid	9095A	

Analysis Batch: 199534

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-55871-1	S-092515-039826-GW-01	Total/NA	Solid	1010A	
240-55871-2	S-092515-039826-GW-02	Total/NA	Solid	1010A	
LCS 240-199534/1	Lab Control Sample	Total/NA	Solid	1010A	

Analysis Batch: 199573

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-55871-1	S-092515-039826-GW-01	Total/NA	Solid	9045C	
240-55871-2	S-092515-039826-GW-02	Total/NA	Solid	9045C	
LCS 240-199573/2	Lab Control Sample	Total/NA	Solid	9045C	

Analysis Batch: 199593

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-55871-1	S-092515-039826-GW-01	Total/NA	Solid	Moisture	

TestAmerica Canton

QC Association Summary

Client: GHD Services Inc.
Project/Site: H. Kramer - Chicago, Illinois

TestAmerica Job ID: 240-55871-1

General Chemistry (Continued)

Analysis Batch: 199593 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-55871-2	S-092515-039826-GW-02	Total/NA	Solid	Moisture	

Analysis Batch: 199594

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-55871-1	S-092515-039826-GW-01	Total/NA	Solid	9012A	199470
240-55871-2	S-092515-039826-GW-02	Total/NA	Solid	9012A	199470
LCS 240-199470/2-A	Lab Control Sample	Total/NA	Solid	9012A	199470
MB 240-199470/1-A	Method Blank	Total/NA	Solid	9012A	199470

Prep Batch: 199886

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-55871-1	S-092515-039826-GW-01	Total/NA	Solid	9030B	
240-55871-2	S-092515-039826-GW-02	Total/NA	Solid	9030B	
LCS 240-199886/2-A	Lab Control Sample	Total/NA	Solid	9030B	
MB 240-199886/1-A	Method Blank	Total/NA	Solid	9030B	

Analysis Batch: 199927

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-55871-1	S-092515-039826-GW-01	Total/NA	Solid	9034	199886
240-55871-2	S-092515-039826-GW-02	Total/NA	Solid	9034	199886
LCS 240-199886/2-A	Lab Control Sample	Total/NA	Solid	9034	199886
MB 240-199886/1-A	Method Blank	Total/NA	Solid	9034	199886

Lab Chronicle

Client: GHD Services Inc.
Project/Site: H. Kramer - Chicago, Illinois

TestAmerica Job ID: 240-55871-1

Client Sample ID: S-092515-039826-GW-01

Lab Sample ID: 240-55871-1

Date Collected: 09/25/15 08:42

Matrix: Solid

Date Received: 09/26/15 09:45

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
TCLP	Leach	1311			199507	09/28/15 15:30	DRJ	TAL CAN
TCLP	Analysis	8260B		2	199588	09/29/15 17:39	TJL1	TAL CAN
TCLP	Leach	1311			199373	09/28/15 14:30	DRJ	TAL CAN
TCLP	Prep	3510C			199550	09/29/15 13:16	CS	TAL CAN
TCLP	Analysis	8270C		1	199898	10/01/15 18:01	JMG	TAL CAN
TCLP	Leach	1311			199373	09/28/15 14:30	DRJ	TAL CAN
TCLP	Prep	3520C			199552	09/29/15 13:19	JDR	TAL CAN
TCLP	Analysis	8081A		1	199951	10/01/15 20:41	BPM	TAL CAN
TCLP	Leach	1311			199373	09/28/15 14:30	DRJ	TAL CAN
TCLP	Prep	8151A			199554	09/29/15 13:25	JDR	TAL CAN
TCLP	Analysis	8151A		1	200195	10/03/15 05:26	DEB	TAL CAN
TCLP	Leach	1311			199373	09/28/15 14:30	DRJ	TAL CAN
TCLP	Prep	3010A			199499	09/29/15 09:50	WKD	TAL CAN
TCLP	Analysis	6010B		1	199876	09/30/15 20:32	WAL	TAL CAN
TCLP	Leach	1311			199373	09/28/15 14:30	DRJ	TAL CAN
TCLP	Prep	7470A			199501	09/29/15 14:00	WKD	TAL CAN
TCLP	Analysis	7470A		1	199976	10/01/15 14:24	WAL	TAL CAN
Total/NA	Analysis	1010A		1	199534	09/29/15 08:01	TPH	TAL CAN
Total/NA	Analysis	9045C		1	199573	09/29/15 15:02	GNR	TAL CAN
Total/NA	Analysis	9095A		1	199524	09/29/15 11:03	JAK	TAL CAN
Total/NA	Analysis	Moisture		1	199593	09/29/15 15:06	LCN	TAL CAN

Client Sample ID: S-092515-039826-GW-01

Lab Sample ID: 240-55871-1

Date Collected: 09/25/15 08:42

Matrix: Solid

Date Received: 09/26/15 09:45

Percent Solids: 87.9

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			199529	09/26/15 15:00	LAM	TAL CAN
Total/NA	Analysis	8260B		1	199631	09/30/15 10:29	SAM	TAL CAN
Total/NA	Prep	3540C			199457	09/29/15 07:29	SDE	TAL CAN
Total/NA	Analysis	8270C		20	199859	10/01/15 11:36	TMH	TAL CAN
Total/NA	Prep	3540C			199494	09/29/15 09:30	NAK	TAL CAN
Total/NA	Analysis	8082A		1	199848	10/01/15 17:29	HMB	TAL CAN
Total/NA	Prep	9012A			199470	09/29/15 08:18	DTN	TAL CAN
Total/NA	Analysis	9012A		1	199594	09/29/15 12:11	DTN	TAL CAN
Total/NA	Prep	9030B			199886	10/01/15 08:15	BLW	TAL CAN
Total/NA	Analysis	9034		1	199927	10/01/15 10:49	BLW	TAL CAN
Total/NA	Prep	Distill/Phenol			199472	09/29/15 08:45	JAK	TAL CAN
Total/NA	Analysis	9065		1	199493	09/29/15 12:04	JAK	TAL CAN

TestAmerica Canton

Lab Chronicle

Client: GHD Services Inc.
Project/Site: H. Kramer - Chicago, Illinois

TestAmerica Job ID: 240-55871-1

Client Sample ID: S-092515-039826-GW-02

Lab Sample ID: 240-55871-2

Date Collected: 09/25/15 09:26

Matrix: Solid

Date Received: 09/26/15 09:45

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
TCLP	Leach	1311			199507	09/28/15 15:30	DRJ	TAL CAN
TCLP	Analysis	8260B		1	199588	09/29/15 18:00	TJL1	TAL CAN
TCLP	Leach	1311			199373	09/28/15 14:30	DRJ	TAL CAN
TCLP	Prep	3510C			199550	09/29/15 13:16	CS	TAL CAN
TCLP	Analysis	8270C		1	199898	10/01/15 18:25	JMG	TAL CAN
TCLP	Leach	1311			199373	09/28/15 14:30	DRJ	TAL CAN
TCLP	Prep	3520C			199552	09/29/15 13:19	JDR	TAL CAN
TCLP	Analysis	8081A		1	199951	10/01/15 21:02	BPM	TAL CAN
TCLP	Leach	1311			199373	09/28/15 14:30	DRJ	TAL CAN
TCLP	Prep	8151A			199554	09/29/15 13:25	JDR	TAL CAN
TCLP	Analysis	8151A		1	200195	10/03/15 05:52	DEB	TAL CAN
TCLP	Leach	1311			199373	09/28/15 14:30	DRJ	TAL CAN
TCLP	Prep	3010A			199499	09/29/15 09:50	WKD	TAL CAN
TCLP	Analysis	6010B		1	199876	09/30/15 20:37	WAL	TAL CAN
TCLP	Leach	1311			199373	09/28/15 14:30	DRJ	TAL CAN
TCLP	Prep	7470A			199501	09/29/15 14:00	WKD	TAL CAN
TCLP	Analysis	7470A		1	199976	10/01/15 14:25	WAL	TAL CAN
Total/NA	Analysis	1010A		1	199534	09/29/15 08:42	TPH	TAL CAN
Total/NA	Analysis	9045C		1	199573	09/29/15 15:08	GNR	TAL CAN
Total/NA	Analysis	9095A		1	199524	09/29/15 11:03	JAK	TAL CAN
Total/NA	Analysis	Moisture		1	199593	09/29/15 15:06	LCN	TAL CAN

Client Sample ID: S-092515-039826-GW-02

Lab Sample ID: 240-55871-2

Date Collected: 09/25/15 09:26

Matrix: Solid

Date Received: 09/26/15 09:45

Percent Solids: 77.2

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			199529	09/26/15 15:00	LAM	TAL CAN
Total/NA	Analysis	8260B		1	199693	09/30/15 16:43	SAM	TAL CAN
Total/NA	Prep	3540C			199457	09/29/15 07:29	SDE	TAL CAN
Total/NA	Analysis	8270C		50	199859	10/01/15 11:57	TMH	TAL CAN
Total/NA	Prep	3540C			199494	09/29/15 09:30	NAK	TAL CAN
Total/NA	Analysis	8082A		200	199848	10/01/15 17:46	HMB	TAL CAN
Total/NA	Prep	9012A			199470	09/29/15 08:18	DTN	TAL CAN
Total/NA	Analysis	9012A		1	199594	09/29/15 12:11	DTN	TAL CAN
Total/NA	Prep	9030B			199886	10/01/15 08:15	BLW	TAL CAN
Total/NA	Analysis	9034		1	199927	10/01/15 10:55	BLW	TAL CAN
Total/NA	Prep	Distill/Phenol			199472	09/29/15 08:45	JAK	TAL CAN
Total/NA	Analysis	9065		1	199493	09/29/15 12:09	JAK	TAL CAN

Laboratory References:

TAL CAN = TestAmerica Canton, 4101 Shuffel Street NW, North Canton, OH 44720, TEL (330)497-9396

TestAmerica Canton

Certification Summary

Client: GHD Services Inc.
Project/Site: H. Kramer - Chicago, Illinois

TestAmerica Job ID: 240-55871-1

Laboratory: TestAmerica Canton

All certifications held by this laboratory are listed. Not all certifications are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
California	NELAP	9	01144CA	06-30-14 *
California	State Program	9	2927	04-30-17
Connecticut	State Program	1	PH-0590	12-31-15
Illinois	NELAP	5	200004	07-31-16
Kansas	NELAP	7	E-10336	01-31-16 *
Kentucky (UST)	State Program	4	58	02-26-16
Kentucky (WW)	State Program	4	98016	12-31-15
L-A-B	DoD ELAP		L2315	07-18-16
Minnesota	NELAP	5	039-999-348	12-31-15
Nevada	State Program	9	OH-000482008A	07-31-16
New Jersey	NELAP	2	OH001	10-30-15 *
New York	NELAP	2	10975	03-31-16
Ohio VAP	State Program	5	CL0024	10-31-15 *
Oregon	NELAP	10	4062	02-23-16
Pennsylvania	NELAP	3	68-00340	08-31-16
Texas	NELAP	6	T104704517-15-5	08-31-16
USDA	Federal		P330-13-00319	11-26-16
Virginia	NELAP	3	460175	09-14-16
Washington	State Program	10	C971	01-12-16
West Virginia DEP	State Program	3	210	12-31-15
Wisconsin	State Program	5	999518190	08-31-16

* Certification renewal pending - certification considered valid.

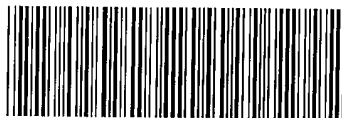
TestAmerica Canton

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Laboratories, Inc.

CHAIN OF CUSTODY AND RECEIVING DOCUMENTS



240-55871 Chain of Custody

CONESTOGA-ROVERS & ASSOCIATES



8615 W. Bryn Mawr Avenue
Chicago, Illinois 60631
(773)380-9933 phone
(773)380-6421 fax

SHIPPED TO
(Laboratory Name):

TEST America - North Canton, OHIO

REFERENCE NUMBER:

039826

PROJECT NAME:

H. Krametz - Chicago, Illinois

CHAIN-OF-CUSTODY RECORD

SAMPLER'S
SIGNATURE:

[Signature]

PRINTED
NAME:

Greg Wesley

PARAMETERS

TCLP
Hazardous
Waste
Top Vol/Solids
Flash Point
PH / PAHs
Total Dioxins
PCBs
Free Lead
Mercury
TCL Vols

REMARKS

SEQ. No.	DATE	TIME	SAMPLE IDENTIFICATION No.	SAMPLE MATRIX	No. OF CONTAINERS	TCLP	Hazardous Waste	Top Vol/Solids	Flash Point	PH / PAHs	Total Dioxins	PCBs	Free Lead	Mercury	TCL Vols	REMARKS
1	09.15.15	0842	S - 092515 - 039826 - GW - 01	Soil	8	X	X	X	X	X	X	X	X	X	X	
2	09.15.15	0926	S - 092515 - 039826 - GW - 02	Soil	8	X	X	X	X	X	X	X	X	X	X	1 WEEK TAT
TOTAL NUMBER OF CONTAINERS																

16

RELINQUISHED BY:

① *[Signature]*

DATE: 09.15.15
TIME: 1445

RECEIVED BY:

② *[Signature]*

DATE: 9/26/15
TIME: 845

RELINQUISHED BY:

②

DATE:
TIME:

RECEIVED BY:
③

DATE:
TIME:

RELINQUISHED BY:

③

DATE:
TIME:

RECEIVED BY:
④

DATE:
TIME:

METHOD OF SHIPMENT:

AIR BILL No.

White -Fully Executed Copy
Yellow -Receiving Laboratory Copy
Pink -Shipper Copy
Goldenrod -Sampler Copy

SAMPLE TEAM:

Greg Wesley

RECEIVED FOR LABORATORY BY:

DATE: TIME:

6741

1001-00(SOURCE)GN-CO004

TestAmerica Canton Sample Receipt Form/Narrative
Canton Facility

Client CND Site Name _____ Cooler unpacked by: [Signature]

Cooler Received on 9/26/15 Opened on 9/26/15

FedEx: 1st Grd Exp UPS FAS Stetson Client Drop Off TestAmerica Courier Other

Receipt After-hours: Drop-off Date/Time _____ Storage Location _____

TestAmerica Cooler # _____ Foam Box Client Cooler Box _____ Other _____

Packing material used: Bubble Wrap Foam Plastic Bag None Other _____

COOLANT: Wet Ice Blue Ice Dry Ice Water None

1. Cooler temperature upon receipt

IR GUN# A (CF +1.0 °C) Observed Cooler Temp. _____ °C Corrected Cooler Temp. _____ °C

IR GUN# 4 (CF +0.5 °C) Observed Cooler Temp. _____ °C Corrected Cooler Temp. _____ °C

IR GUN# 5 (CF +0.4 °C) Observed Cooler Temp. _____ °C Corrected Cooler Temp. _____ °C

IR GUN# 8 (CF -1.5 °C) Observed Cooler Temp. 4.0 °C Corrected Cooler Temp. 2.5 °C

2. Were custody seals on the outside of the cooler(s)? If Yes Quantity 1 Yes Yes No

-Were custody seals on the outside of the cooler(s) signed & dated? Yes Yes No NA

-Were custody seals on the bottle(s) or bottle kits (LLHg/MeHg)? Yes Yes No

3. Shippers' packing slip attached to the cooler(s)? Yes Yes No

4. Did custody papers accompany the sample(s)? Yes Yes No

5. Were the custody papers relinquished & signed in the appropriate place? Yes Yes No

6. Was/were the person(s) who collected the samples clearly identified on the COC? Yes Yes No

7. Did all bottles arrive in good condition (Unbroken)? Yes Yes No

8. Could all bottle labels be reconciled with the COC? Yes Yes No

9. Were correct bottle(s) used for the test(s) indicated? Yes Yes No

10. Sufficient quantity received to perform indicated analyses? Yes Yes No

11. Were sample(s) at the correct pH upon receipt? Yes Yes No NA pH Strip Lot# HC554612

12. Were VOAs on the COC? Yes Yes No

13. Were air bubbles >6 mm in any VOA vials? Yes Yes No NA

14. Was a trip blank present in the cooler(s)? Trip Blank Lot # _____ Yes Yes No

Contacted PM _____ Date _____ by _____ via Verbal Voice Mail Other _____

Concerning _____

14. CHAIN OF CUSTODY & SAMPLE DISCREPANCIES

Samples processed by: _____

15. SAMPLE CONDITION

Sample(s) _____ were received after the recommended holding time had expired.

Sample(s) _____ were received in a broken container.

Sample(s) _____ were received with bubble >6 mm in diameter. (Notify PM)

16. SAMPLE PRESERVATION

Sample(s) _____ were further preserved in the laboratory.

Time preserved: _____ Preservative(s) added/Lot number(s): _____

Appendix E

Training Documents

Certificate of Completion

This certifies that

BRENT NEIL

Has Successfully completed

8 Hour HAZWOPER Refresher Training

Refresher certification does NOT necessarily indicate initial 24 or 40 Hour HAZWOPER certification

In Accordance w/Federal OSHA Regulation 29 CFR 1910.120(e) & (p)

And all State OSHA and EPA Regulations As Well

This course is approved for 8 Contact Hours (0.8 CEUs) of continuing education per the California Department of Public Health for Registered Environmental Health Specialist (REHS) issued by Safety Unlimited, Inc. (Accreditation # 044)

Julius P. Griggs

Julius P. Griggs
Instructor #892

1511025110722

Certificate Number

11/2/2015

Issue Date



UNLIMITED, Inc.

OSHA Compliant Safety Training Since 1993

2139 Tapo St., Suite 228 Simi Valley, CA 93063
888 309-SAFE (7233) or 805 306-8027 866-869-7097 (fax)
www.safetyunlimited.com

Proof of initial certification and subsequent refresher training is NOT required to take refresher training
Want to be sure this certificate is valid? Visit safetyunlimited.com/verification



Jeff Asbell Excavating & Trucking, Inc./Compliance 1
Certificate of Completion

is hereby granted to
Mike Tuck

to certify that he/she has completed to satisfaction

8 Hour HAZWOPER Refresher Training

In accordance with Federal OSHA Regulation 29 CFR 1910.120 (e) (8)
And all Stat OSHA/EPA Regulations as well

Granted: December 8, 2015

Frank Geasland
Trainer

Certificate of Completion

This is to certify that

Todd Ritter

Has completed

HAZWOPER 8 hr Annual Refresher

360training.com, Inc. is authorized by IACET to offer 0.8 CEUs for this program.

Completion Date: 11/10/2015

Course Duration: 8.0



360training.com

360training.com ♦ 13801 Burnet Rd., Suite 100 ♦ Austin, TX 78727 ♦ 800-442-1149 ♦ www.360trainingsupport.com



This certifies that the person named below successfully completed a

Todd Ritter

HAZWOPER 8 hr Annual Refresher

F. Marie Athey, OHST
Trainer Name

11/10/2015
Completed

This is your pocket card which may be used for proof of completion of your training. This training is intended to provide supervisor awareness for recognizing and preventing hazards on a construction site. Workers must receive additional training as required for the specific hazards of their job or federal, state, and local requirements.

360training.com, Inc. is accredited by the International Association for Continuing Education and Training (IACET) and is authorized to issue the IACET CEU.

360training.com is a trademark of 360training.com, Inc.



Questions? Visit
www.oshacampus.com

ASHI
ARIZONA STATE
UNIVERSITY
safety@oshacampus.com
1-800-442-1149

This Card May Not Be Reproduced

Certificate of Completion

This is to certify that

Robert Blank

Has completed

HAZWOPER 8 hr Annual Refresher

360training.com, Inc. is authorized by IACET to offer 0.8 CEUs for this program.

Completion Date: 11/10/2015

Course Duration: 8.0



360training.com®

360training.com ♦ 13801 Burnet Rd., Suite 100 ♦ Austin, TX 78727 ♦ 800-442-1149 ♦ www.360trainingsupport.com



360training.com



This certifies that the person named below successfully completed a

Robert Blank

HAZWOPER 8 hr Annual Refresher

F. Marie Athey, OHST

Trainer Name

11/10/2015
Completed

This is your pocket card which may be used for proof of completion of your training. This training is intended to provide supervisor awareness for recognizing and preventing hazards on a construction site. Workers must receive additional training as required for the specific hazards of their job or federal, state, and local requirements.

360training.com, Inc. is accredited by the International Association for Continuing Education and Training (IACET) and is authorized to issue the IACET CEU.

OSHAcampus.com is a trademark of 360training.com, Inc.



Questions? Visit
www.oshacampus.com



safety@oshacampus.com
1-800-442-1149

This Card May Not Be Reproduced

(CUT HERE)



eTraining, Inc.®

Certificate of Completion

This certifies that

Brett Amen

has received 8 hours of training for successfully completing the

2015 Hazwoper 8 Hour Refresher

OSHA 29 CFR 1910.120/1926.65 - 8 Hours

November 22, 2015

Certificate Number: **54152**

www.etraintoday.com

Niall O'Malley, President

Larry A. Baylor, VP Content Development

NO. 3247 R

CERTIFICATE OF ACHIEVEMENT

42-L

This is to certify that
EDWARD M OLMOS
has successfully completed training in
HAZARDOUS WASTE REFRESHER



ANSI Accredited Program
PERSONNEL CERTIFICATION
Curriculum taught by
LIUNA Training Certified
Instructor under ANSI 17024

under The Chicagoland Laborers District Council Training & Apprenticeship Fund and passed the examination with a minimum score of at least 70%. Training was in compliance with OSHA Regulations 29CFR1910.120."

Carol Stream Facility
1200 Old Gary Avenue
Carol Stream, IL 60188
630-653-0006



Chicago Facility
5700 W. Homer Street
Chicago, IL 60639
773-413-3315

A handwritten signature in black ink, appearing to read "Thomas P. ...".

Executive Director

COURSE DATES 09/25/2015 - 09/25/2015

EXAM DATE 09/25/2015

EXPIRATION DATE 9/25/2016

A handwritten signature in black ink, appearing to read "Keith A. Vitale".

Training Director

80 Hour Hazardous Waste Worker

EDWARD M. OLMOS

S.S.#: XXX-XX-4061

Date Completed: 9/20/2013

Expiration Date: 9/20/2014



Complies with OSHA regulation 29 CFR 1910.120; 1910.1200 & GHS

Hazard Communication Training

EDWARD M. OLMOS

S.S.#: XXX-XX-4061

Instructor

Vilim

Class Date

9/9/2013



Training complies with OSHA 1926.59; 1910.1200 & GHS

Plastic Pipe Fusion

EDWARD M. OLMOS

S.S.#: XXX-XX-4061

Date Completed: 9/20/2013



Chicagoland Laborers Training & Apprentices Fund

1200 Old Garv Avenue
Carol Stream, IL 60188

630.653.0006

Toll-Free 1.888.595.FUND



CONSTRUCTION
TRAINING

Chicagoland Laborers Training & Apprentices Fund

1200 Old Garv Avenue
Carol Stream, IL 60188

630.653.0006

Toll-Free 1.888.595.FUND



CONSTRUCTION
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Chicagoland Laborers Training & Apprentices Fund

1200 Old Garv Avenue
Carol Stream, IL 60188

630.653.0006

Toll-Free 1.888.595.FUND



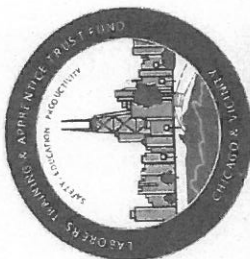
CONSTRUCTION
TRAINING

**FLAGGERS
CERTIFICATION**



**Chicago Land Laborers
Training & Apprentices Fund**
1200 Old Gary Avenue
Carol Stream, IL 60188
630.653.0006
Toll-Free 1.888.595.FUND

**Chicago Land Laborers
Training & Apprentices Fund**
1200 Old Gary Avenue
Carol Stream, IL 60188
630.653.0006
Toll-Free 1.888.595.FUND



**FLAGGERS
CERTIFICATION**

**FLAGGERS
CERTIFICATION**



**Chicago Land Laborers
Training & Apprentices Fund**
1200 Old Gary Avenue
P.O. Box 88658
Carol Stream, IL 60188
630.653.0006
Toll-Free 1.888.595.FUND

**Chicagoland Laborers
Training and Apprentices Fund**
PIPELINE SAFETY



Issued: 3/21/2011
EDWARD M. OLMOS
24655 S. EDWIN DR.
CHANNAHON, IL 60410
S.S.#: XXX-XX-4061
Instructor: Espinoza/Bobak

2010

Hazard Communication Training

EDWARD M. OLMOS
S.S.#: XXX-XX-4061



Instructor	Class Date
Bosvay	12/21/2013

Training complies with OSHA 1926.59; 1910.1200 & GHS

Construction Training

EDWARD M. OLMOS
S.S.#: XXX-XX-4061



Class	Instructor	Date
10 Hour Work Zone Safety	Espinoza	2/21/2012

**ENVIRONMENTAL
TRAINING**



**Chicagoland Laborers
Training & Apprentices Fund**
1200 Old Gary Avenue
Carol Stream, IL 60188
630.653.0006
Toll-Free 1.888.595.FUND

**Chicagoland Laborers
Training & Apprentices Fund**
1200 Old Gary Avenue
Carol Stream, IL 60188
630.653.0006
Toll-Free 1.888.595.FUND



**CONSTRUCTION
TRAINING**

**ENVIRONMENTAL
TRAINING**



**Chicagoland Laborers
Training & Apprentices Fund**
1200 Old Gary Avenue
Carol Stream, IL 60188
630.653.0006
Toll-Free 1.888.595.FUND

**Chicagoland Laborers
Training and Apprentices Fund**
FLAGGER CERTIFICATION



Identification # 2012-221-11734
Issued: 2/21/2012 Expires: 2/21/2015
EDWARD M. OLMOS
2917 BOONE COURT
JOILET, IL 60435
S.S.#: XXX-XX-4061
DL #: 0452-2336-2147
Instructor: Espinoza

**Chicagoland Laborers
Training and Apprentices Fund**
FLAGGER CERTIFICATION



Identification # 2011-330-10249
Issued: 3/30/2011 Expires: 3/30/2014
EDWARD M. OLMOS
24655 S. EDWIN DR.
CHANNAHON, IL 60410
S.S.#: XXX-XX-4061
DL #: 0452-2336-2147
Instructor: BENOIT

**Chicagoland Laborers
Training and Apprentices Fund**
FLAGGER CERTIFICATION



Identification # 2008-124-2631
Issued: 1/24/2008 Expires: 1/24/2011
EDWARD M. OLMOS
320 B. SOUTH OLD ROUTE 66
DWIGHT, IL 60402
S.S.#: XXX-XX-4061
DL #: 0452-2336-2147
Instructor: Benoit/Di Nardo

OSHA Occupational Safety and Health Administration

24-600762331

This card acknowledges that the recipient has successfully completed a 30-hour Occupational Safety and Health Training Course in
Construction Safety and Health

EDWARD M. OLMOS

T. WILSON

(Trainer name - print or type)

2/25/11

(Course end date)

OSHA Occupational Safety and Health Administration

24-004239394

This card acknowledges that the recipient has successfully completed a 10-hour Occupational Safety and Health Training Course in
Construction Safety and Health

EDWARD M. OLMOS

J. BOSVAY

(Trainer name - print or type)

09-06-13

(Course end date)

OSHA

001157503



U.S. Department of Labor
Occupational Safety and Health Administration

EDWARD M. OLMOS

has successfully completed a 10-hour Occupational Safety and Health Training Course in

Construction Safety & Health

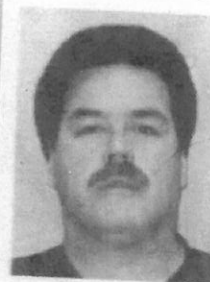
Arch A. Vitale

(Trainer)

12/6/06

(Date)

Permit Required Confined Space Entry



EDWARD M. OLMOS

S.S.#: XXX-XX-4061

Class

Instructor

Date

Vilim

9/14/2009

Complies with OSHA regulations 29 CFR 1910.146

General Construction Training



EDWARD M. OLMOS

S.S.#: XXX-XX-4061

Class

Instructor

Date

Trenching and
Excavation

Retondo

1/10/2012

Permit Required Confined Space Entry Training



EDWARD M. OLMOS

S.S.#: XXX-XX-4061

Date Completed:

9/20/2013

Complies with OSHA regulation 29 CFR 1910.146



eTraining, Inc.

Certificate of Completion

This certifies that

Jonathan Quintero

has received 8 hours of training for successfully completing the

2015 Hazwoper 8 Hour Refresher

OSHA 29 CFR 1910.120/1926.65 - 8 Hours

February 14, 2015

Certificate Number: **43931**

www.etraintoday.com

Niall O'Malley, President

Larry A. Baylor, VP Content Development

THE NATIONAL ENVIRONMENTAL TRAINERS

certify that

Jonathan Quintero

has satisfactorily passed an exam and completed a 40 hour training course entitled

Hazardous Waste Operations and Emergency Response

meeting the requirements identified in Title 29 CFR 1910.120.

This course is eligible for 3.33 Continuance of Certification (COC) points from the Board of Certified Safety Professionals.



March 01, 2006

Signature of Instructor

Clay A. Bednarczyk, MS, KPIII

**International Union of Operating Engineers
Hazmat Training Program**

Local **150**



Date Completed:

3/4/2006

This is to certify that

MIKE R. ROSE SR.

has successfully completed the 40-hour
Hazardous Waste Training Program
specifically designed for workers in
accordance with OSHA at
29 CFR 1910.120.



Receipt #



Shirley Duke
Certified Instructor



IUOE National Training Fund
National HAZMAT Program

Tel: (304) 253-8674

Refresher Expires: 02-2016

Sticker Number: 201606548

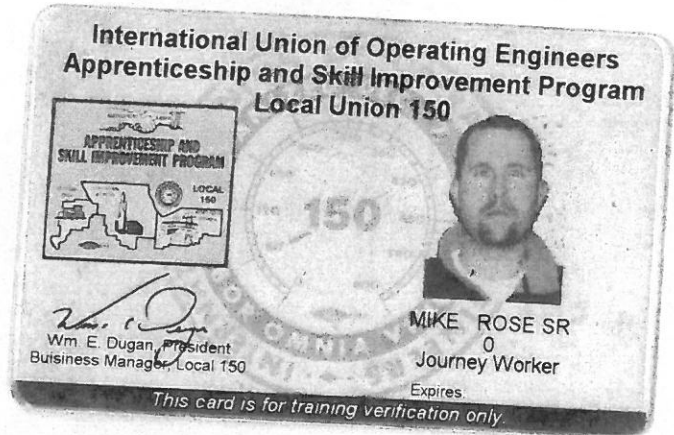
29 CFR 1910.120(e)8 HAZWOPER Refresher

Tel: (304) 253-8674

Refresher Expires: 02-2015

Sticker Number: 201505475

13



Certifications and Training	Expires
DISASTER RESPONSE AWARENESS	
HAZWOPER 29CFR1910.120/1926.64	
OSHA 10 HOUR SAFETY AWARENESS TRAINING	
PIT TRAINED 29CFR1910.178/1926.602 (CLASS 1,4,5,7)	

To verify Current Certification and Training status
call (815) 436-4150 or log onto www.aspiocal150.org



eTraining, Inc.

Certificate of Completion

This certifies that

Stephen Tedesco

has received the proper training for successfully completing

Lead Safety

OSHA 29 CFR 1926.62 - 2 Hours

November 19, 2015

Certificate Number: 54048

www.etraintoday.com

A handwritten signature in black ink, appearing to read "Niall O'Malley".

Niall O'Malley, President

A handwritten signature in black ink, appearing to read "Larry A. Baylor".

Larry A. Baylor, VP Content Development



eTraining, Inc.

Certificate of Completion

This certifies that

Mike Rose

has received the proper training for successfully completing

Lead Safety

OSHA 29 CFR 1926.62 - 2 Hours

November 20, 2015

Certificate Number: **54071**

www.etraintoday.com

Mike Rose

Larry A. Baylor

CERTIFICATE OF ACHIEVEMENT

NO. 1565

Construction and General Laborers'
District Council of Chicago and
Vicinity Training Trust Fund
1200 Old Gary Avenue
Carol Stream IL 60188
(630) 653-0006



Mailing Address:
Chicago Laborers Training Fund
1200 Old Gary Avenue
Carol Stream, IL 60188

This is to certify that EDWARD M. OLMOS has successfully completed the
5 DAY 40-HOUR LEAD ABATEMENT WORKER INITIAL TRAINING course and
passed the examination with a minimum score of at least 70%. Training was in
compliance with State and Federal Regulations. This course is EPA and Illinois
Department of Public Health accredited.

By Peter Ruff
Administrator

COURSE DATE 04/05/10 thru 04/09/10
EXAM DATE 04/09/10
EXPIRATION DATE 04/09/13

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LITHO IN U.S.A.



Chicagoland Laborers' District Council
Training and Apprenticeship Fund
Training...Empowerment with a vision to build a better future

LEAD RENOVATOR REFRESHER

EDWARD OLMOS

Trainee #: EOL40610005 1/17/2011

Class **Instructor Exp. Date**

Lead RRP Renewal 1/17/2016

(630) 653-0006



eTraining, Inc.

Certificate of Completion

This certifies that

Steve Huscher

has received the proper training for successfully completing

Lead Safety

OSHA 29 CFR 1926.62 - 2 Hours

November 20, 2015

Certificate Number: 54068

www.etraintoday.com

A handwritten signature in black ink, appearing to read "Niall O'Malley".

Niall O'Malley, President

A handwritten signature in black ink, appearing to read "Larry A. Baylor".

Larry A. Baylor, VP Content Development



Chicagoland Laborers' District Council
Training and Apprenticeship Fund
Training... Empowerment with a vision to build a better future

LEAD WORKER RENEWAL

JONATHAN QUINTERO

Trainee #: JQU76810225 4/25/2013

Class

Instructor Exp. Date

Lead Abatement Worker Renewal

4/25/2016

(630) 653-0006

Date Completed:
3/23/1990

**International Union of Operating Engineers
Hazmat Training Program**

Local **150**



Receipt #
38425

This is to certify that

STEVEN HUSCHER

has successfully completed the 40-hour
Hazardous Waste Training Program
specifically designed for workers in
accordance with OSHA at
29 CFR 1910.120.



Mark J. Gule
Certified Instructor

2/14/2004 RECERT # 200405269



**IUOE National Training Fund
National HAZMAT Program**

Tel: (304) 253-8674

Refresher Expires: **02-2016**
Sticker Number: **201606474**

29 CFR 1910.120(e)8 HAZWOPER Refresher

**REFRI
EXPIR**

Refresher Expires: **02-2015**
Sticker Number: **201505689**



B 2010

5738

SECRET

**I Training Fund
MAT Program**

253-8674

**2014
404841**



eTraining, Inc.

Certificate of Completion

This certifies that

Stephen Tedesco

has received 8 hours of training for successfully completing the

2015 Hazwoper 8 Hour Refresher

OSHA 29 CFR 1910.120/1926.65 - 8 Hours

June 28, 2015

Certificate Number: 48685

www.etraintoday.com

Niall O'Malley, President

Larry A. Baylor, VP Content Development

*James M. Sweeney / Chairman**John E. Kenny, Jr. / Secretary***Operating Engineers Local 150 Apprenticeship Fund***A Joint Effort of Labor and Management to Further the Aim of Industry*
www.asiplocal150.org

September 15, 2014

To Whom It May Concern:

This will verify that Stephen L. Tedesco S.S. #xxx-xx-4575 has successfully completed the course and examination for the 40 hour Hazardous Waste Site Operations as required in Federal Regulations in accordance with 29 CFR 1910.120, Hazardous Waste Operations and Emergency response on January 17, 1992, receipt #38471. If you have any questions please call the Training Site.

Yours truly,

Martin D. Turek,
Assistant Coordinator/Safety Administrator

MDT/cc





eTraining, Inc.

Certificate of Completion

This certifies that

Stephen Tedesco

has received 8 hours of training for successfully completing the

2014 Hazwoper 8 Hour Refresher

OSHA 29 CFR 1910.120/1926.65

August 12, 2014

Certificate Number: 38618

www.etraintoday.com

A handwritten signature in black ink, appearing to read "Niall O'Malley", is written over a horizontal line.

Niall O'Malley, President

A handwritten signature in black ink, appearing to read "Larry A. Baylor", is written over a horizontal line.

Larry A. Baylor, VP Content Development

Appendix F1

Compliance One Air Monitoring Report



INDUSTRIAL HYGIENE EXPOSURE STUDY HYGIENEERING PROJECT #: 2015-2152-IH

PREPARED FOR:

**COMPLIANCE ONE ENVIRONMENTAL SERVICES
3560 EAST EVERGREEN STREET
SPRINGFIELD, MISSOURI 65803**

NOVEMBER 16TH – NOVEMBER 19TH, 2015

PREPARED BY:

**HYGIENEERING, INC.
7575 PLAZA COURT
WILLOWBROOK, IL 60527**

DATE SUBMITTED: DECEMBER 17, 2015

Asbestos, Mold & Lead Services

Asbestos, Mold and Lead Surveys
Air and Bulk Sampling
Abatement Project Design
Bid Solicitation
Project Management
Turnkey Services
Operations & Maintenance Programs

Indoor Air Quality Services

IAQ Investigations and Testing
HVAC System Inspection
IAQ Training & Management
Programs for Facilities
Mold Management Services

Industrial Hygiene Services

Worker Exposure Assessments
Air Sampling for Chemical, Physical
& Biological Contaminants
Noise Levels Surveys
Ventilation Surveys
PPE Assessments

Safety Consulting Services

Safety Program Development
Safety Program Auditing
Safety Training for Construction
& General Industry
Process Safety Management/ Hazard
Analysis Development
Risk Management Planning & PSM
Compliance Reviews
Temporary Safety Prof. Staffing

Environmental Eng. Services

Phase I & II Env. Site Assessments
Underground Storage Tanks
Emergency Response, Testing &
Remediation
Subsurface Investigations
(Soil/Groundwater)
Hazardous Waste Management
Environmental Compliance Audits
Environmental Risk Assessments
Environmental Permitting and
Reporting
Remediation Design
Remediation Management

Training Services

OSHA Safety Topics
10-Hour Con & Gen Industry
All EPA & OSHA Topics
Asbestos/HAZWOPER & Lead

Emergency Response

Floods, Fires, Chemical Releases
Site Hazard Characterization
Project Management (Turnkey)



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- Appendix 3 – Employee Notification Letters



EXECUTIVE SUMMARY

Background

Hygieneering, Inc. (Hygieneering) was retained by Compliance One Environmental Services (Compliance One) to conduct an industrial hygiene study located at 1345 West 21st Street in Chicago, Illinois on November 16th through November 19th, 2015. Compliance One Environmental Services was engaged to remove railway railroad tracks and associated railroad ties from multiple hazardous waste sites at the Pilsen Railroad Spur & Alley remediation project.

This study was conducted to quantify employee exposure to lead and arsenic during Compliance One activities within established hot zones and during removal operations. Hygieneering and Compliance One collectively determined employees to sample for each work shift.

Daniel Roberts, Safety & Health Technician, of Hygieneering performed fieldwork. Kevin Konkey, CSP, CET, CHMM, Vice President, Safety and Industrial Hygiene Services, was the senior project manager. Brent Neil, Supervisor of Compliance One, provided on-site assistance.

Objective / Scope of Work

The objective / scope of work for this project was as follows:

- Quantify potential employee exposure to lead and arsenic.

The results of this study were to assist in determining whether hazards exist and whether existing engineering, administrative controls, and employee personal protective equipment are adequate.

Summary of Air Sampling Results – Lead & Arsenic

Personal air sample results were evaluated using the Occupational Safety and Health Administration (OSHA) Permissible Exposure Limits (PELs) to determine regulatory compliance. The American Conference of Governmental Industrial Hygienists (ACGIH) Threshold Limit Values (TLVs) were used as recommended industry guidelines.

Personal Air Samples

Personal time weighted average (TWA) exposures were below OSHA PELs and ALs and ACGIH TLVs for lead and arsenic, except for the following one sample:

- Mr. Bob Blank –LA-P-7. Had a time weighted average (TWA) exposure of 0.0064 mg/m³, which is above the OSHA AL of 0.005 mg/m³ for total arsenic.

These results are discussed in more detail within the text of this document. Detailed industrial hygiene air sampling data sheets are presented in **Appendix 1** and laboratory analytical results are in **Appendix 2**. Employee notification letters are presented in **Appendix 3**.

Recommendations

The following recommendations are provided for your consideration:

- Per 1926.62(d)(8)(i) “Lead” regulation employers must, as soon as possible but no later than 5 working days after the receipt of the results of any monitoring performed under this section, notify each affected employee of these results either individually in writing or by posting the results in an appropriate location that is accessible to employees. Employee notification letters have been provided in **Appendix 3** to assist in communicating results.



- OSHA's construction standard 1926.1118 for Arsenic is identical to those set forth in the general industry regulation 1910.1018 for Arsenic. Thus the general industry regulation must be reference to determine regulatory requirements. Per 1910.1018(e)(5)(i) "Arsenic" regulation employers must, within 15 working days after the receipt of the results of any monitoring performed under this section, notify each affected employee of these results either individually in writing or by posting the results in an appropriate location that is accessible to affected employees. Employee notification letters have been provided in **Appendix 3** to assist in communicating results.
- Based on Arsenic results being above the OSHA AL for Mr. Bob Blank, determine if this employee should be included in a medical surveillance program.
 - Per 1910.1018(n)(1)(i), an employer shall institute a medical surveillance program for the following employees:
 - ✓ 1910.1018(n)(1)(i)(A) - all employees who are or will be exposed above the action level, without regard to the use of respirators, at least 30 days per year; and
 - ✓ 1910.1018(n)(1)(i)(B) - all employees who have been exposed above the action level, without regard to respirator use, for 30 days or more per year for a total of 10 years or more of combined employment with the employer or predecessor employers prior to or after the effective date of this standard. The determination of exposures prior to the effective date of this standard shall be based upon prior exposure records, comparison with the first measurements taken after the effective date of this standard, or comparison with records of exposures in areas with similar processes, extent of engineering controls utilized and materials used by that employer.
- Consider further industrial hygiene evaluations if there are any changes in current operations, which may lead to higher or additional exposures. Additional exposure assessments during differing field conditions, weather conditions and on a periodic basis will provide further characterization of future employee exposures as well as the effectiveness of engineering controls, and employee work practices in reducing worker exposures.



DISCUSSION OF FINDINGS

Introduction

Hygieneering, Inc. (Hygieneering) was retained by Compliance One Environmental Services (Compliance One) to conduct an industrial hygiene study 1345 West 21st Street in Chicago, Illinois on November 16th through November 19th, 2015. Compliance One Environmental Services was engaged to remove railway railroad tracks and associated railroad ties from multiple hazardous waste sites at the Pilsen Railroad Spur & Alley remediation project.

This study was conducted to quantify employee exposure to lead and arsenic during Compliance One activities within the established hot zones and during removal activities. Hygieneering and Compliance One collectively determined employees to sample for each work shift.

Daniel Roberts, Safety & Health Technician, of Hygieneering performed fieldwork. Kevin Konkey, CSP, CET, CHMM, Vice President, Safety and Industrial Hygiene Services, was the senior project manager. Brent Neil, Supervisor of Compliance One, provided the on-site assistance.

Objectives / Scope of Work

The objectives / scope of work for this project was as follows:

- Quantify potential employee exposure to lead and arsenic.

The results of this study were to assist in determining whether hazards exist and whether existing engineering, administrative controls, and employee personal protective equipment are adequate.

Sampling Methodology

Sampling Strategy - Air

Personal air samples were collected using low-flow air sampling pumps. The flow rates of the pumps were calibrated with representative collection media in line before and after the sampling period. Personal air sample inlets were attached to the employee's breathing zones via tygon tubing from the pump. This sampling methodology is considered representative by OSHA to determine actual employee exposures. Air sampling was conducted in accordance with established industrial hygiene practices and Occupational Safety and Health Administration (OSHA) standards. Representative full shift samples were collected to evaluate employees' exposures to airborne contaminants determined by Compliance One and Hygieneering.

Galson Laboratories, a lab accredited by the American Industrial Hygiene Association (AIHA), analyzed the air samples. Practices and procedures used by this laboratory conform to the recommended methods developed by the National Institute of Occupational Safety and Health (NIOSH) and the Occupational Safety and Health Administration (OSHA).

The table below illustrates collection and analysis details regarding the air samples collected during this assessment:

Contaminant(s)	Media	Flow Rate	Analytical Method
Lead & Arsenic	3 Piece 37mm UW MCE Filter	2.0 liters/min	Modified NIOSH 7300 / Modified OSHA ID – 125G



Sample Evaluation Criteria - Air

Personal air sample results were evaluated using the Occupational Safety and Health Administration (OSHA) Permissible Exposure Limits (PELs) to determine regulatory compliance. The American Conference of Governmental Industrial Hygienists (ACGIH) Threshold Limit Values (TLVs) were used as recommended industry guidelines.

PELs and TLVs are airborne contaminant concentration limits that are carefully selected below the level it is believed that a healthy worker can be repeatedly exposed, eight hours a day, over a working lifetime without experiencing adverse health effects.

A PEL is a regulatory limit and represents the maximum allowable concentration of a contaminant to which an employee can be exposed during the workday. Both the PEL and TLV are comparable limits, though TLVs are recommended values, which cannot be legally enforced. PELs and TLVs can be established as a full-shift Time Weighted Average (TWA) exposure, Short Term Exposure Level (STEL), or Ceiling Limit.

TLVs are reviewed and revised annually to incorporate the latest scientific data, including; industrial experience, experimental human and animal studies and when possible, and a combination of the three. TLVs are used by professionals as guidelines and do not represent a strict separation between safe and hazardous occupational exposures.

Personal Air Sample Results – Lead & Arsenic

Personal time weighted average (TWA) exposures were below OSHA PELs and ALs and ACGIH TLVs for lead and arsenic, except for the following one sample:

- Mr. Bob Blank –LA-P-7 had a time weighted average (TWA) exposure of 0.0064 mg/m³, which is above the OSHA AL of 0.005 mg/m³ for total arsenic.

The following table provides a summary of results of the environmental air samples taken November 16, 2015:

Sample Number	Employee Name	Date	Contaminant	Measured Concentration	TWA Concentration	Exposure Standard		
						OSHA AL	OSHA PEL	ACGIH TLV
LA-P-1	Mr. Brent Neil	11/16/15	Lead	<0.0015 mg/m ³	<0.0004 mg/m ³	0.03 mg/m ³	0.05 mg/m ³	0.05 mg/m ³
			Arsenic	<0.0012 mg/m ³	<0.0003 mg/m ³	0.005 mg/m ³	0.01 mg/m ³	0.01 mg/m ³
LA-P-2	Mr. Bob Blank	11/16/15	Lead	0.023 mg/m ³	0.0052 mg/m ³	0.03 mg/m ³	0.05 mg/m ³	0.05 mg/m ³
			Arsenic	0.0052 mg/m ³	0.0012 mg/m ³	0.005 mg/m ³	0.01 mg/m ³	0.01 mg/m ³
LA-P-3	Mr. Todd Ritter	11/16/15	Lead	<0.0018 mg/m ³	<0.0004 mg/m ³	0.03 mg/m ³	0.05 mg/m ³	0.05 mg/m ³
			Arsenic	<0.0014 mg/m ³	<0.0003 mg/m ³	0.005 mg/m ³	0.01 mg/m ³	0.01 mg/m ³

OSHA – Occupational Safety & Health Administration
TWA – Time Weighted Average
ACGIH - American Conference of Industrial Hygienists
mg/m³ – milligrams per cubic meter
Bold – Exceeded a Exposure Standard

PEL - Permissible Exposure Limit
AL – Action Level
TLV - Threshold Limit Values
< - Less Than



The following table provides a summary of results of the environmental air samples taken November 17, 2015:

Sample Number	Employee Name	Date	Contaminant	Measured Concentration	TWA Concentration	Exposure Standard		
						OSHA AL	OSHA PEL	ACGIH TLV
LA-P-4	Mr. Bob Blank	11/17/15	Lead	0.022 mg/m ³	0.0094 mg/m ³	0.03 mg/m ³	0.05 mg/m ³	0.05 mg/m ³
			Arsenic	0.0043 mg/m ³	0.0018 mg/m ³	0.005 mg/m ³	0.01 mg/m ³	0.01 mg/m ³
LA-P-5	Mr. Todd Ritter	11/17/15	Lead	<0.00075 mg/m ³	<0.0003 mg/m ³	0.03 mg/m ³	0.05 mg/m ³	0.05 mg/m ³
			Arsenic	<0.00093 mg/m ³	<0.0004 mg/m ³	0.005 mg/m ³	0.01 mg/m ³	0.01 mg/m ³
LA-P-6	Mr. Mike Tuck	11/17/15	Lead	0.0027 mg/m ³	0.0011 mg/m ³	0.03 mg/m ³	0.05 mg/m ³	0.05 mg/m ³
			Arsenic	<0.00077 mg/m ³	<0.0003 mg/m ³	0.005 mg/m ³	0.01 mg/m ³	0.01 mg/m ³

OSHA – Occupational Safety & Health Administration
TWA – Time Weighted Average
ACGIH - American Conference of Industrial Hygienists
mg/m³ – milligrams per cubic meter
Bold – Exceeded a Exposure Standard

PEL - Permissible Exposure Limit
AL – Action Level
TLV - Threshold Limit Values
< - Less Than

The following table provides a summary of results of the environmental air samples taken November 18, 2015:

Sample Number	Employee Name	Date	Contaminant	Measured Concentration	TWA Concentration	Exposure Standard		
						OSHA AL	OSHA PEL	ACGIH TLV
LA-P-7	Mr. Bob Blank	11/18/15	Lead	0.019 mg/m ³	0.019 mg/m ³	0.03 mg/m ³	0.05 mg/m ³	0.05 mg/m ³
			Arsenic	0.0064 mg/m³	0.0064 mg/m³	0.005 mg/m³	0.01 mg/m³	0.01 mg/m³
LA-P-8	Mr. Mike Tuck	11/18/15	Lead	0.00049 mg/m ³	0.00049 mg/m ³	0.03 mg/m ³	0.05 mg/m ³	0.05 mg/m ³
			Arsenic	<0.0003 mg/m ³	<0.0003 mg/m ³	0.005 mg/m ³	0.01 mg/m ³	0.01 mg/m ³
LA-P-9	Mr. Todd Ritter	11/18/15	Lead	<0.0004 mg/m ³	<0.0004 mg/m ³	0.03 mg/m ³	0.05 mg/m ³	0.05 mg/m ³
			Arsenic	<0.0003 mg/m ³	<0.0003 mg/m ³	0.005 mg/m ³	0.01 mg/m ³	0.01 mg/m ³

OSHA – Occupational Safety & Health Administration
TWA – Time Weighted Average
ACGIH - American Conference of Industrial Hygienists
mg/m³ – milligrams per cubic meter
Bold – Exceeded a Exposure Standard

PEL - Permissible Exposure Limit
AL – Action Level
TLV - Threshold Limit Values
< - Less Than



The following table provides a summary of results of the environmental air samples taken November 19, 2015:

Sample Number	Employee Name	Date	Contaminant	Measured Concentration	TWA Concentration	Exposure Standard		
						OSHA AL	OSHA PEL	ACGIH TLV
LA-P-10	Mr. Bob Blank	11/19/15	Lead	<0.00046 mg/m ³	<0.0004 mg/m ³	0.03 mg/m ³	0.05 mg/m ³	0.05 mg/m ³
			Arsenic	<0.00036 mg/m ³	<0.0003 mg/m ³	0.005 mg/m ³	0.01 mg/m ³	0.01 mg/m ³
LA-P-11	Mr. Mike Tuck	11/19/15	Lead	0.00054 mg/m ³	0.00044 mg/m ³	0.03 mg/m ³	0.05 mg/m ³	0.05 mg/m ³
			Arsenic	<0.00039 mg/m ³	<0.0003 mg/m ³	0.005 mg/m ³	0.01 mg/m ³	0.01 mg/m ³
LA-P-12	Mr. Todd Ritter	11/19/15	Lead	0.00057 mg/m ³	0.0004 mg/m ³	0.03 mg/m ³	0.05 mg/m ³	0.05 mg/m ³
			Arsenic	<0.0004 mg/m ³	<0.0003 mg/m ³	0.005 mg/m ³	0.01 mg/m ³	0.01 mg/m ³

OSHA – Occupational Safety & Health Administration
TWA – Time Weighted Average
ACGIH - American Conference of Industrial Hygienists
mg/m³ – milligrams per cubic meter
Bold – Exceeded a Exposure Standard

PEL - Permissible Exposure Limit
AL – Action Level
TLV - Threshold Limit Values
< - Less Than

The following appendices present detailed sample data collection information and laboratory data:

- Appendix 1** – Industrial Hygiene Air Sampling Data Sheets
- Appendix 2** – Laboratory Analytical Results – Air Samples
- Appendix 3** – Employee Notification Letters

Recommendations

The following recommendations are provided for your consideration:

- Per 1926.62(d)(8)(i) “Lead” regulation employers must, as soon as possible but no later than 5 working days after the receipt of the results of any monitoring performed under this section, notify each affected employee of these results either individually in writing or by posting the results in an appropriate location that is accessible to employees. Employee notification letters have been provided in **Appendix 3** to assist in communicating results.
- OSHA’s construction standard 1926.1118 for Arsenic is identical to those set forth in the general industry regulation 1910.1018 for Arsenic. Thus the general industry regulation must be reference to determine regulatory requirements. Per 1910.1018(e)(5)(i) “Arsenic” regulation employers must, within 15 working days after the receipt of the results of any monitoring performed under this section, notify each affected employee of these results either individually in writing or by posting the results in an appropriate location that is accessible to affected employees. Employee notification letters have been provided in **Appendix 3** to assist in communicating results.
- Based on Arsenic results being above the OSHA AL for Mr. Bob Blank, determine if this employee should be included in a medical surveillance program.
 - Per 1910.1018(n)(1)(i), an employer shall institute a medical surveillance program for the following employees:



- ✓ 1910.1018(n)(1)(i)(A) - all employees who are or will be exposed above the action level, without regard to the use of respirators, at least 30 days per year; and
- ✓ 1910.1018(n)(1)(i)(B) - all employees who have been exposed above the action level, without regard to respirator use, for 30 days or more per year for a total of 10 years or more of combined employment with the employer or predecessor employers prior to or after the effective date of this standard. The determination of exposures prior to the effective date of this standard shall be based upon prior exposure records, comparison with the first measurements taken after the effective date of this standard, or comparison with records of exposures in areas with similar processes, extent of engineering controls utilized and materials used by that employer.
- Consider further industrial hygiene evaluations if there are any changes in current operations, which may lead to higher or additional exposures. Additional exposure assessments during differing field conditions, weather conditions and on a periodic basis will provide further characterization of future employee exposures as well as the effectiveness of engineering controls, and employee work practices in reducing worker exposures.

Report Applicability

Results of this study are based on conditions observed during this survey. Any changes in control measures, work practices, personnel, or materials may seriously alter the results of this or any industrial hygiene exposure study.

If you have any questions concerning this study, please feel free to contact us.

Respectfully submitted,
Hygieneering, Inc.

Daniel W. Roberts
Health & Safety Technician

Kevin M. Konkey, CSP, CET, CHMM
Vice President, Safety & Industrial Hygiene Services

John Feller CIH, CSP
President



APPENDICES



APPENDIX 1

INDUSTRIAL HYGIENE AIR SAMPLING DATA SHEETS



Hygieneering, Inc.

industrial hygiene, safety and environmental consulting services

Sample Number(s): LA-P-1
Related Sample Numbers: 15-0265506

INDUSTRIAL HYGIENE AIR SAMPLING DATA SHEET

Material(s) Sampled For:
Lead & Arsenic

Name Employee Sampled Mr. Brent Neil	Project # 2015-2152-IH	Shift Hours 7:00 AM - 3:30 PM
Company Compliance 1 Environmental Services	Location 1345 West 21st Street, Chicago, Illinois	Date Sampled 11/16/2015
Description of Activities During Monitoring Employee removed general debris generated from boom excavator around the rail and ties, usually conducted with shovel. The employee also assists with communication between the employee conducting torch cutting activities and the boom operator.		Additional Notes This task involves being in close proximity to torch cutting operations. During this day, Compliance 1 removed 60 linear feet of rail and 12 ties of Remediation Area 10. Brent Neil is the Compliance 1 crew supervisor.
PPE Worn During Work Activities Hardhat, 3M 6900 Full Face Piece Respirator with P100 Cartridges, Nitrile Rubber Gloves, Cut-Resistant Gloves (outer layer), DuPont Tychem QC Coveralls, Tingley Steel-toe Rubber Safety Boots, and ANSI reflective vest.	Existing Engineering/Other Exposure Control Measures Compliance 1 Environmental Services utilized a water truck to soak the work environment prior to any removal in order to control dust concentrations being generated.	Sampled By: Daniel Roberts

SAMPLE DESCRIPTION				SAMPLE MEDIA			
<input checked="" type="checkbox"/> Personal-TWA	<input type="checkbox"/> Environmental	<input type="checkbox"/> Filter (PVC)	<input type="checkbox"/> Charcoal Tube	<input type="checkbox"/> Impinger Solution			
<input type="checkbox"/> Personal-STEL	<input type="checkbox"/> Bulk	<input checked="" type="checkbox"/> Filter (MCE)	<input type="checkbox"/> Treated Charcoal Tube	<input type="checkbox"/> Other:			
<input type="checkbox"/> Personal-Ceiling	<input type="checkbox"/> Other	<input type="checkbox"/> Glass Fiber Filter	<input type="checkbox"/> Silica Gel Tube				
<input type="checkbox"/> Personal > 480 min		<input type="checkbox"/> Other Filter	<input type="checkbox"/> Other Tube				
Air Sampling Instrument SKC Airchek 224-52		Calibration Method Rotameter		Initial Flow Rate (Liters/min) 2		Final Flow Rate (Liters/min) 2	
Start Time 1:08 PM	Stop Time 3:10 PM	Start Time N/A	Stop Time N/A	Total Sampling Time (Minutes) 122	Ave. Flow Rate (Liters/min) 2	Sample Volume (Liters) 244	

TWA DETERMINATION INFORMATION	
Does this sample represent exposure over the entire shift? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No If no, explain: This sample represents exposure concentrations collected during removal process within Remediation Area 10 only. Assign zero exposure for 358 minutes of shift during period not sampled. Explain reason: Pre-Project walkthroughs and discussions / gathering materials and equipment for 5.96 hours.	<input type="checkbox"/> TWA cannot be calculated. Explain: Did any significant skin contact occur? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No If yes, explain:

CONTAMINANT	MEASURED CONCENTRATION	8-HR TWA	EXPOSURE STANDARD			
			OSHA AL	OSHA 8-HR PEL	ACGIH TLV	
Lead	<0.0015 mg/m ³	<0.0004mg/m ³	0.03 mg/m ³	0.05 mg/m ³	0.05 mg/m ³	
Arsenic	<0.0012 mg/m ³	<0.0003 mg/m ³	0.005 mg/m ³	0.01 mg/m ³	0.01 mg/m ³	

Laboratory & Login # Galson Laboratories- L361068	Analytical Method mod. NIOSH 7300/mod. OSHA ID-125G; ICP	QC By TJB	Date November 17th, 2015
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Hygieneering, Inc.

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Sample Number(s): LA-P-2
Related Sample Numbers: 15-0265510

INDUSTRIAL HYGIENE AIR SAMPLING DATA SHEET

Material(s) Sampled For:
Lead & Arsenic

Name Employee Sampled Mr. Bob Blank	Project # 2015-2152-IH	Shift Hours 7:00 AM - 3:30 PM
Company Compliance 1 Environmental Services	Location 1345 West 21st Street, Chicago, Illinois	Date Sampled 11/16/2015

Description of Activities During Monitoring Employee conducted torch cutting operations of rails and associated ties for boom extraction. The employee also assisted with general removal activities such as gathering small debris, coordinating boom removal and communication, as well as moving equipment vehicles.	Additional Notes Time spent torch cutting is only a small fraction of the removal process. The employee usually spends 3-5 minutes per torch cut if no obstacles encountered. During this day, Compliance 1 removed 60 linear feet of rail and 12 ties of Remediation Area 10.
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PPE Worn During Work Activities Hardhat, 3M 6900 Full Face Piece Respirator with P100 Cartridges, Nitrile Rubber Gloves, Fire-Resistant Leather Gloves (outer layer), DuPont Tychem QC Coveralls, Fire-Resistant Leather Chaps, Fire-Resistant Coat, Tingley Steel-toe Rubber Safety Boots, and ANSI reflective vest.	Existing Engineering/Other Exposure Control Measures Compliance 1 Environmental Services utilized a water truck to soak the work environment prior to any removal in order to control dust concentrations being generated.	Sampled By: Daniel Roberts
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SAMPLE DESCRIPTION				SAMPLE MEDIA					
<input checked="" type="checkbox"/> Personal-TWA		<input type="checkbox"/> Environmental		<input type="checkbox"/> Filter (PVC)		<input type="checkbox"/> Charcoal Tube		<input type="checkbox"/> Impinger Solution	
<input type="checkbox"/> Personal-STEL		<input type="checkbox"/> Bulk		<input checked="" type="checkbox"/> Filter (MCE)		<input type="checkbox"/> Treated Charcoal Tube		<input type="checkbox"/> Other:	
<input type="checkbox"/> Personal-Ceiling		<input type="checkbox"/> Other		<input type="checkbox"/> Glass Fiber Filter		<input type="checkbox"/> Silica Gel Tube			
<input type="checkbox"/> Personal > 480 min				<input type="checkbox"/> Other Filter		<input type="checkbox"/> Other Tube			
Air Sampling Instrument		Calibration Method		Initial Flow Rate (Liters/min)			Final Flow Rate (Liters/min)		
SKC Airchek 224-52		Rotameter		2			2		
Start Time	Stop Time	Start Time	Stop Time	Total Sampling Time (Minutes)		Ave. Flow Rate (Liters/min)		Sample Volume (Liters)	
1:14 PM	3:04 PM	N/A	N/A	110		2		220	

TWA DETERMINATION INFORMATION	
Does this sample represent exposure over the entire shift? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No If no, explain: This sample represents exposure concentrations collected during removal process within Remediation Area 10 only. Assign zero exposure for 370 minutes of shift during period not sampled. Explain reason: Pre-Project walkthroughs and discussions / gathering materials and equipment for 6.16 hours.	<input type="checkbox"/> TWA cannot be calculated. Explain: Did any significant skin contact occur? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No If yes, explain:

CONTAMINANT	MEASURED CONCENTRATION	8-HR TWA	EXPOSURE STANDARD			
			OSHA AL	OSHA 8-HR PEL	ACGIH TLV	
Lead	0.023 mg/m ³	0.0052 mg/m ³	0.03 mg/m ³	0.05 mg/m ³	0.05 mg/m ³	
Arsenic	0.0052 mg/m ³	0.0012 mg/m ³	0.005 mg/m ³	0.01 mg/m ³	0.01 mg/m ³	

Laboratory & Login # Galson Laboratories- L361068	Analytical Method mod. NIOSH 7300/mod. OSHA ID-125G; ICP	QC By TJB	Date November 17th, 2015
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Hygieneering, Inc.

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Sample Number(s): LA-P-3
Related Sample Numbers: 15-0265498

INDUSTRIAL HYGIENE AIR SAMPLING DATA SHEET

Material(s) Sampled For:
Lead & Arsenic

Name Employee Sampled Mr. Todd Ritter	Project # 2015-2152-IH	Shift Hours 7:00 AM - 3:30 PM
Company Compliance 1 Environmental Services	Location 1345 West 21st Street, Chicago, Illinois	Date Sampled 11/16/2015
Description of Activities During Monitoring Employee operated the boom excavator for physical removal of rail and associated ties after torch cutting operations. The employee was also responsible for stock piling removed material or placing in the disposal truck via means of aerial lift.		Additional Notes Employee is 15 feet in the air on the controller/operator pedestal seat, there is no cab (not enclosed). During this day, Compliance 1 removed 60 linear feet of rail and 12 ties of Remediation Area 10.
PPE Worn During Work Activities Hardhat, 3M 6900 Full Face Piece Respirator with P100 Cartridges, Nitrile Rubber Gloves, Cut-Resistant Gloves (outer layer), DuPont Tychem QC Coveralls, Tingley Steel-toe Rubber Safety Boots, and ANSI reflective vest.	Existing Engineering/Other Exposure Control Measures Compliance 1 Environmental Services utilized a water truck to soak the work environment prior to any removal in order to control dust concentrations being generated.	Sampled By: Daniel Roberts

SAMPLE DESCRIPTION				SAMPLE MEDIA			
<input checked="" type="checkbox"/> Personal-TWA	<input type="checkbox"/> Environmental	<input type="checkbox"/> Filter (PVC)	<input type="checkbox"/> Charcoal Tube	<input type="checkbox"/> Impinger Solution			
<input type="checkbox"/> Personal-STEL	<input type="checkbox"/> Bulk	<input checked="" type="checkbox"/> Filter (MCE)	<input type="checkbox"/> Treated Charcoal Tube	<input type="checkbox"/> Other:			
<input type="checkbox"/> Personal-Ceiling	<input type="checkbox"/> Other	<input type="checkbox"/> Glass Fiber Filter	<input type="checkbox"/> Silica Gel Tube				
<input type="checkbox"/> Personal > 480 min		<input type="checkbox"/> Other Filter	<input type="checkbox"/> Other Tube				
Air Sampling Instrument SKC Airchek 224-52		Calibration Method Rotameter		Initial Flow Rate (Liters/min) 2		Final Flow Rate (Liters/min) 2	
Start Time 1:18 PM	Stop Time 3:05 PM	Start Time N/A	Stop Time N/A	Total Sampling Time (Minutes) 107	Ave. Flow Rate (Liters/min) 2	Sample Volume (Liters) 214	

TWA DETERMINATION INFORMATION	
Does this sample represent exposure over the entire shift? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No If no, explain: This sample represents exposure concentrations collected during removal process within Remediation Area 10 only. Assign zero exposure for 373 minutes of shift during period not sampled. Explain reason: Pre-Project walkthroughs and discussions / gathering materials and equipment for 6.22 hours.	<input type="checkbox"/> TWA cannot be calculated. Explain: Did any significant skin contact occur? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No If yes, explain:

CONTAMINANT	MEASURED CONCENTRATION	8-HR TWA	EXPOSURE STANDARD			
			OSHA AL	OSHA 8-HR PEL	ACGIH TLV	
Lead	<0.0018 mg/m ³	<0.0004 mg/m ³	0.03 mg/m ³	0.05 mg/m ³	0.05 mg/m ³	
Arsenic	<0.0014 mg/m ³	<0.0003 mg/m ³	0.005 mg/m ³	0.01 mg/m ³	0.01 mg/m ³	

Laboratory & Login # Galson Laboratories- L361068	Analytical Method mod. NIOSH 7300/mod. OSHA ID-125G; ICP	QC By TJB	Date November 17th, 2015
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Hygieneering, Inc.

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Sample Number(s): LA-P-4
Related Sample Numbers: 15-0265509

INDUSTRIAL HYGIENE AIR SAMPLING DATA SHEET

Material(s) Sampled For:
Lead & Arsenic

Name Employee Sampled Mr. Bob Blank	Project # 2015-2152-IH	Shift Hours 7:00 AM - 3:30 PM
Company Compliance 1 Environmental Services	Location 1345 West 21st Street, Chicago, Illinois	Date Sampled 11/17/2015
Description of Activities During Monitoring Employee conducted torch cutting operations of rails and associated ties for boom extraction. The employee also assisted with general removal activities such as gathering small debris, coordinating boom removal and communication, as well as moving equipment vehicles.		Additional Notes Time spent torch cutting is only a small fraction of the removal process. The employee usually spends 3-5 minutes per torch cut if no obstacles encountered. During this day, Compliance 1 removed 600 linear feet of rail from Remediation Area 10 and 150 linear feet of rail from Remediation Area 4.
PPE Worn During Work Activities Hardhat, 3M 6900 Full Face Piece Respirator with P100 Cartridges, Nitrile Rubber Gloves, Fire-Resistant Leather Gloves (outer layer), DuPont Tychem QC Coveralls, Fire-Resistant Leather Chaps, Fire-Resistant Coat, Tingley Steel-toe Rubber Safety Boots, and ANSI reflective vest.	Existing Engineering/Other Exposure Control Measures Compliance 1 Environmental Services utilized a water truck to soak the work environment prior to any removal in order to control dust concentrations being generated. Weather conditions (light to heavy rainfall) also helps minimize airborne dust concentrations.	Sampled By: Daniel Roberts

SAMPLE DESCRIPTION				SAMPLE MEDIA			
<input checked="" type="checkbox"/> Personal-TWA	<input type="checkbox"/> Environmental	<input type="checkbox"/> Filter (PVC)	<input type="checkbox"/> Charcoal Tube	<input type="checkbox"/> Impinger Solution			
<input type="checkbox"/> Personal-STEL	<input type="checkbox"/> Bulk	<input checked="" type="checkbox"/> Filter (MCE)	<input type="checkbox"/> Treated Charcoal Tube	<input type="checkbox"/> Other:			
<input type="checkbox"/> Personal-Ceiling	<input type="checkbox"/> Other	<input type="checkbox"/> Glass Fiber Filter	<input type="checkbox"/> Silica Gel Tube				
<input type="checkbox"/> Personal > 480 min		<input type="checkbox"/> Other Filter	<input type="checkbox"/> Other Tube				
Air Sampling Instrument SKC AirChek 224-52		Calibration Method Rotameter		Initial Flow Rate (Liters/min) 2		Final Flow Rate (Liters/min) 2	
Start Time 7:46 AM	Stop Time 11:10 AM	Start Time N/A	Stop Time N/A	Total Sampling Time (Minutes) 204	Ave. Flow Rate (Liters/min) 2	Sample Volume (Liters) 408	

TWA DETERMINATION INFORMATION	
Does this sample represent exposure over the entire shift? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No If no, explain: This sample represents exposure concentrations collected during morning operations only. Assign zero exposure for 276 minutes of shift during period not sampled. Explain reason: Work was suspended for the afternoon operations due to weather conditions (heavy rainfall).	<input type="checkbox"/> TWA cannot be calculated. Explain: Did any significant skin contact occur? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No If yes, explain:

CONTAMINANT	MEASURED CONCENTRATION	8-HR TWA	EXPOSURE STANDARD			
			OSHA AL	OSHA 8-HR PEL	ACGIH TLV	
Lead	0.022 mg/m ³	0.0094 mg/m ³	0.03 mg/m ³	0.05 mg/m ³	0.05 mg/m ³	
Arsenic	0.0043 mg/m ³	0.0018 mg/m ³	0.005 mg/m ³	0.01 mg/m ³	0.01 mg/m ³	

Laboratory & Login # Galson Laboratories- L361193	Analytical Method mod. NIOSH 7300/mod. OSHA ID-125G; ICP	QC By AMD	Date November 18th, 2015
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Hygieneering, Inc.

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Sample Number(s): LA-P-5
Related Sample Numbers: 15-0265505

INDUSTRIAL HYGIENE AIR SAMPLING DATA SHEET

Material(s) Sampled For:
Lead & Arsenic

Name Employee Sampled Mr. Todd Ritter	Project # 2015-2152-IH	Shift Hours 7:00 AM - 3:30 PM
Company Compliance 1 Environmental Services	Location 1345 West 21st Street, Chicago, Illinois	Date Sampled 11/17/2015
Description of Activities During Monitoring Employee operated the boom excavator for physical removal of rail and associated ties after torch cutting operations. The employee was also responsible for stock piling removed material or placing in the disposal truck via means of aerial lift.		Additional Notes Employee is 15 feet in the air on the controller/operator pedestal seat, there is no cab (not enclosed). During this day, Compliance 1 removed 600 linear feet of rail from Remediation Area 10 and 150 linear feet of rail from Remediation Area 4.
PPE Worn During Work Activities Hardhat, 3M 6900 Full Face Piece Respirator with P100 Cartridges, Nitrile Rubber Gloves, Cut-Resistant Gloves (outer layer), DuPont Tychem QC Coveralls, Tingley Steel-toe Rubber Safety Boots, and ANSI reflective vest.	Existing Engineering/Other Exposure Control Measures Compliance 1 Environmental Services utilized a water truck to soak the work environment prior to any removal in order to control dust concentrations being generated. Weather conditions (light to heavy rainfall) also helps minimize airborne dust concentrations.	Sampled By: Daniel Roberts

SAMPLE DESCRIPTION				SAMPLE MEDIA			
<input checked="" type="checkbox"/> Personal-TWA	<input type="checkbox"/> Environmental	<input type="checkbox"/> Filter (PVC)	<input type="checkbox"/> Charcoal Tube	<input type="checkbox"/> Impinger Solution			
<input type="checkbox"/> Personal-STEL	<input type="checkbox"/> Bulk	<input checked="" type="checkbox"/> Filter (MCE)	<input type="checkbox"/> Treated Charcoal Tube	<input type="checkbox"/> Other:			
<input type="checkbox"/> Personal-Ceiling	<input type="checkbox"/> Other	<input type="checkbox"/> Glass Fiber Filter	<input type="checkbox"/> Silica Gel Tube				
<input type="checkbox"/> Personal > 480 min		<input type="checkbox"/> Other Filter	<input type="checkbox"/> Other Tube				
Air Sampling Instrument SKC Airchek 224-52		Calibration Method Rotameter		Initial Flow Rate (Liters/min) 2		Final Flow Rate (Liters/min) 2	
Start Time 7:50 AM	Stop Time 11:11 AM	Start Time N/A	Stop Time N/A	Total Sampling Time (Minutes) 201	Ave. Flow Rate (Liters/min) 2	Sample Volume (Liters) 402	

TWA DETERMINATION INFORMATION	
Does this sample represent exposure over the entire shift? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No If no, explain: This sample represents exposure concentrations collected during morning operations only. Assign zero exposure for 279 minutes of shift during period not sampled. Explain reason: Work was suspended for the afternoon operations due to weather conditions (heavy rainfall).	<input type="checkbox"/> TWA cannot be calculated. Explain: Did any significant skin contact occur? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No If yes, explain:

CONTAMINANT	MEASURED CONCENTRATION	8-HR TWA	EXPOSURE STANDARD			
			OSHA AL	OSHA 8-HR PEL	ACGIH TLV	
Lead	<0.00075 mg/m ³	<0.0003 mg/m ³	0.03 mg/m ³	0.05 mg/m ³	0.05 mg/m ³	
Arsenic	<0.00093 mg/m ³	<0.0004 mg/m ³	0.005 mg/m ³	0.01 mg/m ³	0.01 mg/m ³	

Laboratory & Login # Galson Laboratories- L361193	Analytical Method mod. NIOSH 7300/mod. OSHA ID-125G; ICP	QC By AMD	Date November 18th, 2015
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Hygieneering, Inc.

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Sample Number(s): LA-P-6
Related Sample Numbers: 15-0265513

INDUSTRIAL HYGIENE AIR SAMPLING DATA SHEET

Material(s) Sampled For:
Lead & Arsenic

Name Employee Sampled Mr. Mike Tuck	Project # 2015-2152-IH	Shift Hours 7:00 AM - 3:30 PM
Company Compliance 1 Environmental Services	Location 1345 West 21st Street, Chicago, Illinois	Date Sampled 11/17/2015
Description of Activities During Monitoring Employee removed general debris generated from boom excavator around the rail and ties, usually conducted with shovel. The employee also assists with communication between the employee conducting torch cutting activities and the boom operator.		Additional Notes This task involves being in close proximity to torch cutting operations. During this day, Compliance 1 removed 600 linear feet of rail from Remediation Area 10 and 150 linear feet of rail from Remediation Area 4.
PPE Worn During Work Activities Hardhat, 3M 6900 Full Face Piece Respirator with P100 Cartridges, Nitrile Rubber Gloves, Cut-Resistant Gloves (outer layer), DuPont Tychem QC Coveralls, Tingley Steel-toe Rubber Safety Boots, and ANSI reflective vest.	Existing Engineering/Other Exposure Control Measures Compliance 1 Environmental Services utilized a water truck to soak the work environment prior to any removal in order to control dust concentrations being generated. Weather conditions (light to heavy rainfall) also helps minimize airborne dust concentrations.	Sampled By: Daniel Roberts

SAMPLE DESCRIPTION				SAMPLE MEDIA			
<input checked="" type="checkbox"/> Personal-TWA	<input type="checkbox"/> Environmental	<input type="checkbox"/> Filter (PVC)	<input type="checkbox"/> Charcoal Tube	<input type="checkbox"/> Impinger Solution			
<input type="checkbox"/> Personal-STEL	<input type="checkbox"/> Bulk	<input checked="" type="checkbox"/> Filter (MCE)	<input type="checkbox"/> Treated Charcoal Tube	<input type="checkbox"/> Other:			
<input type="checkbox"/> Personal-Ceiling	<input type="checkbox"/> Other	<input type="checkbox"/> Glass Fiber Filter	<input type="checkbox"/> Silica Gel Tube				
<input type="checkbox"/> Personal > 480 min		<input type="checkbox"/> Other Filter	<input type="checkbox"/> Other Tube				
Air Sampling Instrument SKC Airchek 224-52		Calibration Method Rotameter		Initial Flow Rate (Liters/min) 2		Final Flow Rate (Liters/min) 2	
Start Time 7:55 AM	Stop Time 11:11 AM	Start Time N/A	Stop Time N/A	Total Sampling Time (Minutes) 196	Ave. Flow Rate (Liters/min) 2	Sample Volume (Liters) 392	

TWA DETERMINATION INFORMATION	
Does this sample represent exposure over the entire shift? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No If no, explain: This sample represents exposure concentrations collected during morning operations only. Assign zero exposure for 284 minutes of shift during period not sampled. Explain reason: Work was suspended for the afternoon operations due to weather conditions (heavy rainfall).	<input type="checkbox"/> TWA cannot be calculated. Explain: Did any significant skin contact occur? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No If yes, explain:

CONTAMINANT	MEASURED CONCENTRATION	8-HR TWA	EXPOSURE STANDARD			
			OSHA AL	OSHA 8-HR PEL	ACGIH TLV	
Lead	0.0027 mg/m ³	0.0011 mg/m ³	0.03 mg/m ³	0.05 mg/m ³	0.05 mg/m ³	
Arsenic	<0.00077 mg/m ³	<0.0003 mg/m ³	0.005 mg/m ³	0.01 mg/m ³	0.01 mg/m ³	

Laboratory & Login # Galson Laboratories- L361193	Analytical Method mod. NIOSH 7300/mod. OSHA ID-125G; ICP	QC By AMD	Date November 18th, 2015
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Hygieneering, Inc.

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Sample Number(s): LA-P-7
Related Sample Numbers: 15-0265503

INDUSTRIAL HYGIENE AIR SAMPLING DATA SHEET

Material(s) Sampled For:
Lead & Arsenic

Name Employee Sampled Mr. Bob Blank	Project # 2015-2152-IH	Shift Hours 7:00 AM - 3:30 PM
Company Compliance 1 Environmental Services	Location 1345 West 21st Street, Chicago, Illinois	Date Sampled 11/18/2015
Description of Activities During Monitoring Employee conducted torch cutting operations of rails and associated ties for boom extraction. The employee also assisted with general removal activities such as gathering small debris, coordinating boom removal and communication, as well as moving equipment vehicles.		Additional Notes Time spent torch cutting is only a small fraction of the removal process. The employee usually spends 3-5 minutes per torch cut if no obstacles encountered. During this day, Compliance 1 removed 200 linear feet of rail from Remediation Area 2 and 600 linear feet of rail from Remediation Area 1.
PPE Worn During Work Activities Hardhat, Faceshield, Fire-Resistant Leather Gloves, Fire-Resistant Leather Chaps, Fire-Resistant Coat, Steel-toe Safety Boots, and ANSI reflective vest.	Existing Engineering/Other Exposure Control Measures Compliance 1 Environmental Services utilized a water truck to soak the work environment prior to any removal in order to control dust concentrations being generated.	Sampled By: Daniel Roberts

SAMPLE DESCRIPTION				SAMPLE MEDIA			
<input type="checkbox"/> Personal-TWA	<input type="checkbox"/> Environmental	<input type="checkbox"/> Filter (PVC)	<input type="checkbox"/> Charcoal Tube	<input type="checkbox"/> Impinger Solution			
<input type="checkbox"/> Personal-STEL	<input type="checkbox"/> Bulk	<input checked="" type="checkbox"/> Filter (MCE)	<input type="checkbox"/> Treated Charcoal Tube	<input type="checkbox"/> Other:			
<input type="checkbox"/> Personal-Ceiling	<input type="checkbox"/> Other	<input type="checkbox"/> Glass Fiber Filter	<input type="checkbox"/> Silica Gel Tube				
<input checked="" type="checkbox"/> Personal > 480 min		<input type="checkbox"/> Other Filter	<input type="checkbox"/> Other Tube				
Air Sampling Instrument SKC Airchek 224-52		Calibration Method Rotameter		Initial Flow Rate (Liters/min) 2		Final Flow Rate (Liters/min) 2	
Start Time 7:27 AM	Stop Time 3:54 PM	Start Time N/A	Stop Time N/A	Total Sampling Time (Minutes) 507	Ave. Flow Rate (Liters/min) 2	Sample Volume (Liters) 1014	

TWA DETERMINATION INFORMATION	
Does this sample represent exposure over the entire shift? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No If no, explain: Assign zero exposure for <u>N/A</u> minutes of shift during period not sampled. Explain reason:	<input type="checkbox"/> TWA cannot be calculated. Explain: Did any significant skin contact occur? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No If yes, explain:

CONTAMINANT	MEASURED CONCENTRATION	8-HR TWA	EXPOSURE STANDARD			
			OSHA AL	OSHA 8-HR PEL	ACGIH TLV	
Lead	0.019 mg/m ³	0.019 mg/m ³	0.03 mg/m ³	0.05 mg/m ³	0.05 mg/m ³	
Arsenic	0.0064 mg/m ³	0.0064 mg/m ³	0.005 mg/m ³	0.01 mg/m ³	0.01 mg/m ³	

Laboratory & Login # Galson Laboratories- L361289	Analytical Method mod. NIOSH 7300/mod. OSHA ID-125G; ICP	QC By TJB	Date November 19th, 2015
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Hygieneering, Inc.

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Sample Number(s): LA-P-8
Related Sample Numbers: 15-0265516

INDUSTRIAL HYGIENE AIR SAMPLING DATA SHEET			Material(s) Sampled For: Lead & Arsenic
Name Employee Sampled Mr. Mike Tuck	Project # 2015-2152-IH	Shift Hours 7:00 AM - 3:30 PM	
Company Compliance 1 Environmental Services	Location 1345 West 21st Street, Chicago, Illinois	Date Sampled 11/18/2015	
Description of Activities During Monitoring Employee removed general debris generated from boom excavator around the rail and ties, usually conducted with shovel during morning operations. The employee also assists with communication between the employee conducting torch cutting activities and the boom operator. Once the skid-loader arrived, the employee removed and stock-piled all associated ties from previous work days.		Additional Notes This task involves being in close proximity to torch cutting operations. During this day, Compliance 1 removed 60 linear feet of rail and 12 ties of Remediation Area 10. During this day, Compliance 1 removed and stock-piled all associated ties within Remediation Area 4 & Remediation Area 10 using a skid-loader.	
PPE Worn During Work Activities Hardhat, Safety Glasses, Cut-Resistant Gloves, Steel-toe Safety Boots, and ANSI reflective vest.	Existing Engineering/Other Exposure Control Measures Compliance 1 Environmental Services utilized a water truck to soak the work environment prior to any removal in order to control dust concentrations being generated.	Sampled By: Daniel Roberts	

SAMPLE DESCRIPTION				SAMPLE MEDIA			
<input type="checkbox"/> Personal-TWA	<input type="checkbox"/> Environmental	<input type="checkbox"/> Filter (PVC)	<input type="checkbox"/> Charcoal Tube	<input type="checkbox"/> Impinger Solution			
<input type="checkbox"/> Personal-STEL	<input type="checkbox"/> Bulk	<input checked="" type="checkbox"/> Filter (MCE)	<input type="checkbox"/> Treated Charcoal Tube	<input type="checkbox"/> Other:			
<input type="checkbox"/> Personal-Ceiling	<input type="checkbox"/> Other	<input type="checkbox"/> Glass Fiber Filter	<input type="checkbox"/> Silica Gel Tube				
<input checked="" type="checkbox"/> Personal > 480 min		<input type="checkbox"/> Other Filter	<input type="checkbox"/> Other Tube				
Air Sampling Instrument SKC Airchek 224-52		Calibration Method Rotameter		Initial Flow Rate (Liters/min) 2		Final Flow Rate (Liters/min) 2	
Start Time 7:33 AM	Stop Time 3:52 PM	Start Time N/A	Stop Time N/A	Total Sampling Time (Minutes) 499	Ave. Flow Rate (Liters/min) 2	Sample Volume (Liters) 998	

TWA DETERMINATION INFORMATION	
Does this sample represent exposure over the entire shift? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> TWA cannot be calculated. Explain:
If no, explain:	
Assign zero exposure for <u>N/A</u> minutes of shift during period not sampled. Explain reason:	Did any significant skin contact occur? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
	If yes, explain:

CONTAMINANT	MEASURED CONCENTRATION	8-HR TWA	EXPOSURE STANDARD			
			OSHA AL	OSHA 8-HR PEL	ACGIH TLV	
Lead	0.00049 mg/m ³	0.0049 mg/m ³	0.03 mg/m ³	0.05 mg/m ³	0.05 mg/m ³	
Arsenic	<0.00030 mg/m ³	0.00030 mg/m ³	0.005 mg/m ³	0.01 mg/m ³	0.01 mg/m ³	

Laboratory & Login # Galson Laboratories- L361289	Analytical Method mod. NIOSH 7300/mod. OSHA ID-125G; ICP	QC By TJB	Date November 19th, 2015
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Hygieneering, Inc.

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Sample Number(s): LA-P-9
Related Sample Numbers: 15-0265508

INDUSTRIAL HYGIENE AIR SAMPLING DATA SHEET			Material(s) Sampled For: Lead & Arsenic
Name Employee Sampled Mr. Todd Ritter	Project # 2015-2152-IH	Shift Hours 7:00 AM - 3:30 PM	
Company Compliance 1 Environmental Services	Location 1345 West 21st Street, Chicago, Illinois	Date Sampled 11/18/2015	
Description of Activities During Monitoring Employee operated the boom excavator for physical removal of rail and associated ties after torch cutting operations. The employee was also responsible for stock piling removed material or placing in the disposal truck via means of aerial lift.		Additional Notes Employee is 15 feet in the air on the controller/operator pedestal seat, there is no cab (not enclosed). During this day, Compliance 1 removed 200 linear feet of rail from Remediation Area 2 and 600 linear feet of rail from Remediation Area 1.	
PPE Worn During Work Activities Hardhat, Safety Glasses, Cut-Resistant Gloves, Steel-toe Safety Boots, and ANSI reflective vest.	Existing Engineering/Other Exposure Control Measures Compliance 1 Environmental Services utilized a water truck to soak the work environment prior to any removal in order to control dust concentrations being generated.	Sampled By: Daniel Roberts	

SAMPLE DESCRIPTION				SAMPLE MEDIA			
<input type="checkbox"/> Personal-TWA	<input type="checkbox"/> Environmental	<input type="checkbox"/> Filter (PVC)	<input type="checkbox"/> Charcoal Tube	<input type="checkbox"/> Impinger Solution			
<input type="checkbox"/> Personal-STEL	<input type="checkbox"/> Bulk	<input checked="" type="checkbox"/> Filter (MCE)	<input type="checkbox"/> Treated Charcoal Tube	<input type="checkbox"/> Other:			
<input type="checkbox"/> Personal-Ceiling	<input type="checkbox"/> Other	<input type="checkbox"/> Glass Fiber Filter	<input type="checkbox"/> Silica Gel Tube				
<input checked="" type="checkbox"/> Personal > 480 min		<input type="checkbox"/> Other Filter	<input type="checkbox"/> Other Tube				
Air Sampling Instrument SKC Airchek 224-52		Calibration Method Rotameter		Initial Flow Rate (Liters/min) 2		Final Flow Rate (Liters/min) 2	
Start Time 7:29 AM	Stop Time 3:54 PM	Start Time N/A	Stop Time N/A	Total Sampling Time (Minutes) 505	Ave. Flow Rate (Liters/min) 2	Sample Volume (Liters) 1010	

TWA DETERMINATION INFORMATION	
Does this sample represent exposure over the entire shift? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> TWA cannot be calculated. Explain:
If no, explain:	
Assign zero exposure for <u>N/A</u> minutes of shift during period not sampled. Explain reason:	Did any significant skin contact occur? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
	If yes, explain:

CONTAMINANT	MEASURED CONCENTRATION	8-HR TWA	EXPOSURE STANDARD			
			OSHA AL	OSHA 8-HR PEL	ACGIH TLV	
Lead	<0.00037 mg/m ³	<0.00037 mg/m ³	0.03 mg/m ³	0.05 mg/m ³	0.05 mg/m ³	
Arsenic	<0.00030 mg/m ³	<0.00030 mg/m ³	0.005 mg/m ³	0.01 mg/m ³	0.01 mg/m ³	

Laboratory & Login # Galson Laboratories- L361289	Analytical Method mod. NIOSH 7300/mod. OSHA ID-125G; ICP	QC By TJB	Date November 19th, 2015
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Hygieneering, Inc.

industrial hygiene, safety and environmental consulting services

Sample Number(s): LA-P-10
Related Sample Numbers: 15-0265517

INDUSTRIAL HYGIENE AIR SAMPLING DATA SHEET

Material(s) Sampled For:
Lead & Arsenic

Name Employee Sampled Mr. Bob Blank	Project # 2015-2152-IH	Shift Hours 7:00 AM - 3:30 PM
Company Compliance 1 Environmental Services	Location 1345 West 21st Street, Chicago, Illinois	Date Sampled 11/19/2015
Description of Activities During Monitoring Employee conducted torch cutting operations of rails and associated ties for boom extraction. The employee also assisted with general removal activities such as gathering small debris, coordinating boom removal and communication, as well as moving equipment vehicles. Torch cutting today was minimal and only to assist removal of associated ties (all rail has been removed besides Remediation Area 5).		Additional Notes Time spent torch cutting is only a small fraction of the removal process. The employee usually spends 3-5 minutes per torch cut if no obstacles encountered. During this day, Compliance 1 removed 200 linear feet of rail from Remediation Area 2 and removed all associated ties from remaining remediation areas.
PPE Worn During Work Activities Hardhat, Faceshield, Fire-Resistant Leather Gloves, Fire-Resistant Leather Chaps, Fire-Resistant Coat, Steel-toe Safety Boots, and ANSI reflective vest. When not torch cutting, the employee would remove the Fire-Resistant Coat & Fire-Resistant Leather Chaps.	Existing Engineering/Other Exposure Control Measures Compliance 1 Environmental Services utilized a water truck to soak the work environment prior to any removal in order to control dust concentrations being generated.	Sampled By: Daniel Roberts

SAMPLE DESCRIPTION				SAMPLE MEDIA			
<input checked="" type="checkbox"/> Personal-TWA	<input type="checkbox"/> Environmental	<input type="checkbox"/> Filter (PVC)	<input type="checkbox"/> Charcoal Tube	<input type="checkbox"/> Impinger Solution			
<input type="checkbox"/> Personal-STEL	<input type="checkbox"/> Bulk	<input checked="" type="checkbox"/> Filter (MCE)	<input type="checkbox"/> Treated Charcoal Tube	<input type="checkbox"/> Other:			
<input type="checkbox"/> Personal-Ceiling	<input type="checkbox"/> Other	<input type="checkbox"/> Glass Fiber Filter	<input type="checkbox"/> Silica Gel Tube				
<input type="checkbox"/> Personal > 480 min		<input type="checkbox"/> Other Filter	<input type="checkbox"/> Other Tube				
Air Sampling Instrument SKC Airchek 224-52		Calibration Method Rotameter		Initial Flow Rate (Liters/min) 2		Final Flow Rate (Liters/min) 2	
Start Time 7:30 AM	Stop Time 11:19 AM	Start Time 12:04 PM	Stop Time 3:07 PM	Total Sampling Time (Minutes) 412	Ave. Flow Rate (Liters/min) 2	Sample Volume (Liters) 824	

TWA DETERMINATION INFORMATION	
Does this sample represent exposure over the entire shift? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No If no, explain: Assign zero exposure for <u>68</u> minutes of shift during period not sampled. Explain reason: Sampling was conducted during work operations only. Zero exposure assigned during preparation work, lunch break, and after completion of project.	<input type="checkbox"/> TWA cannot be calculated. Explain: Did any significant skin contact occur? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No If yes, explain:

CONTAMINANT	MEASURED CONCENTRATION	8-HR TWA	EXPOSURE STANDARD		
			OSHA AL	OSHA 8-HR PEL	ACGIH TLV
Lead	<0.00046 mg/m ³	<0.0004 mg/m ³	0.03 mg/m ³	0.05 mg/m ³	0.05 mg/m ³
Arsenic	<0.00036 mg/m ³	<0.0003 mg/m ³	0.005 mg/m ³	0.01 mg/m ³	0.01 mg/m ³
Laboratory & Login # Galson Laboratories- L361536					
Analytical Method mod. NIOSH 7300/mod. OSHA ID-125G; ICP		QC By CRD		Date November 25th, 2015	



Hygieneering, Inc.

industrial hygiene, safety and environmental consulting services

Sample Number(s): LA-P-11
Related Sample Numbers: 15-0265519

INDUSTRIAL HYGIENE AIR SAMPLING DATA SHEET

Material(s) Sampled For:
Lead & Arsenic

Name Employee Sampled Mr. Mike Tuck	Project # 2015-2152-IH	Shift Hours 7:00 AM - 3:30 PM
Company Compliance 1 Environmental Services	Location 1345 West 21st Street, Chicago, Illinois	Date Sampled 11/19/2015
Description of Activities During Monitoring The employee utilized the skid-loader to remove and stock-pile all remaining ties associated with removing the rail. The employee also assisted with gathering the waste and relocating it via waste vehicle. The employee also assisted with general duties including house keeping, constructing temporary barriers, etc.		Additional Notes This task involves being in close proximity to torch cutting operations. During this day, Compliance 1 removed 60 linear feet of rail and 12 ties of Remediation Area 10. During this day, Compliance 1 removed and stock-piled all remaining ties associated with the rail removal.
PPE Worn During Work Activities Hardhat, Safety Glasses, Cut-Resistant Gloves, Steel-toe Safety Boots, and ANSI reflective vest.	Existing Engineering/Other Exposure Control Measures Compliance 1 Environmental Services utilized a water truck to soak the work environment prior to any removal in order to control dust concentrations being generated.	Sampled By: Daniel Roberts

SAMPLE DESCRIPTION				SAMPLE MEDIA			
<input checked="" type="checkbox"/> Personal-TWA	<input type="checkbox"/> Environmental	<input type="checkbox"/> Filter (PVC)	<input type="checkbox"/> Charcoal Tube	<input type="checkbox"/> Impinger Solution			
<input type="checkbox"/> Personal-STEL	<input type="checkbox"/> Bulk	<input checked="" type="checkbox"/> Filter (MCE)	<input type="checkbox"/> Treated Charcoal Tube	<input type="checkbox"/> Other:			
<input type="checkbox"/> Personal-Ceiling	<input type="checkbox"/> Other	<input type="checkbox"/> Glass Fiber Filter	<input type="checkbox"/> Silica Gel Tube				
<input type="checkbox"/> Personal > 480 min		<input type="checkbox"/> Other Filter	<input type="checkbox"/> Other Tube				
Air Sampling Instrument SKC Airchek 224-52		Calibration Method Rotameter		Initial Flow Rate (Liters/min) 2		Final Flow Rate (Liters/min) 2	
Start Time 7:42 AM	Stop Time 11:19 AM	Start Time 11:58 AM	Stop Time 2:48 PM	Total Sampling Time (Minutes) 387	Ave. Flow Rate (Liters/min) 2	Sample Volume (Liters) 774	

TWA DETERMINATION INFORMATION	
Does this sample represent exposure over the entire shift? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No If no, explain: Assign zero exposure for <u>93</u> minutes of shift during period not sampled. Explain reason: Sampling was conducted during work operations only. Zero exposure assigned during preparation work, lunch break, and after completion of project.	<input type="checkbox"/> TWA cannot be calculated. Explain: Did any significant skin contact occur? <input type="checkbox"/> Yes <input type="checkbox"/> No If yes, explain:

CONTAMINANT	MEASURED CONCENTRATION	8-HR TWA	EXPOSURE STANDARD			
			OSHA AL	OSHA 8-HR PEL	ACGIH TLV	
Lead	0.00054 mg/m ³	0.00044 mg/m ³	0.03 mg/m ³	0.05 mg/m ³	0.05 mg/m ³	
Arsenic	<0.00039 mg/m ³	<0.0003 mg/m ³	0.005 mg/m ³	0.01 mg/m ³	0.01 mg/m ³	

Laboratory & Login # Galson Laboratories- L361536	Analytical Method mod. NIOSH 7300/mod. OSHA ID-125G; ICP	QC By CRD	Date November 25th, 2015
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Hygieneering, Inc.

industrial hygiene, safety and environmental consulting services

Sample Number(s): LA-P-12
Related Sample Numbers: 15-0265518

INDUSTRIAL HYGIENE AIR SAMPLING DATA SHEET			Material(s) Sampled For: Lead & Arsenic
Name Employee Sampled Mr. Todd Ritter	Project # 2015-2152-IH	Shift Hours 7:00 AM - 3:30 PM	
Company Compliance 1 Environmental Services	Location 1345 West 21st Street, Chicago, Illinois	Date Sampled 11/19/2015	
Description of Activities During Monitoring Employee operated the boom excavator for physical removal of rail and associated ties after torch cutting operations. The employee was also responsible for stock piling removed material or placing in the disposal truck via means of aerial lift. The employee also relocated and stock-piled rail and ties for reclaiming by GHD or BNSF. The employee also smoothed Remediation Area 5 with skid-loader.		Additional Notes Employee is 15 feet in the air on the controller/operator pedestal seat, there is no cab (not enclosed). During this day, Compliance 1 removed all remaining ties associated with the rail removal and relocated stock-piled waste for recycling.	
PPE Worn During Work Activities Hardhat, Safety Glasses, Cut-Resistant Gloves, Steel-toe Safety Boots, and ANSI reflective vest.	Existing Engineering/Other Exposure Control Measures Compliance 1 Environmental Services utilized a water truck to soak the work environment prior to any removal in order to control dust concentrations being generated.	Sampled By: Daniel Roberts	

SAMPLE DESCRIPTION				SAMPLE MEDIA			
<input checked="" type="checkbox"/> Personal-TWA	<input type="checkbox"/> Environmental	<input type="checkbox"/> Filter (PVC)	<input type="checkbox"/> Charcoal Tube	<input type="checkbox"/> Impinger Solution			
<input type="checkbox"/> Personal-STEL	<input type="checkbox"/> Bulk	<input checked="" type="checkbox"/> Filter (MCE)	<input type="checkbox"/> Treated Charcoal Tube	<input type="checkbox"/> Other:			
<input type="checkbox"/> Personal-Ceiling	<input type="checkbox"/> Other	<input type="checkbox"/> Glass Fiber Filter	<input type="checkbox"/> Silica Gel Tube				
<input type="checkbox"/> Personal > 480 min		<input type="checkbox"/> Other Filter	<input type="checkbox"/> Other Tube				
Air Sampling Instrument SKC Airchek 224-52		Calibration Method Rotameter		Initial Flow Rate (Liters/min) 2		Final Flow Rate (Liters/min) 2	
Start Time 8:10 AM	Stop Time 11:19 AM	Start Time 11:57 AM	Stop Time 3:00 PM	Total Sampling Time (Minutes) 372	Ave. Flow Rate (Liters/min) 2	Sample Volume (Liters) 744	

TWA DETERMINATION INFORMATION	
Does this sample represent exposure over the entire shift? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> TWA cannot be calculated. Explain:
If no, explain: Assign zero exposure for <u>108</u> minutes of shift during period not sampled. Explain reason: Sampling was conducted during work operations only. Zero exposure assigned during preperation work, lunch break, and after completion of project.	Did any significant skin contact occur? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No If yes, explain:

CONTAMINANT	MEASURED CONCENTRATION	8-HR TWA	EXPOSURE STANDARD			
			OSHA AL	OSHA 8-HR PEL	ACGIH TLV	
Lead	0.00057 mg/m ³	0.0004 mg/m ³	0.03 mg/m ³	0.05 mg/m ³	0.05 mg/m ³	
Arsenic	<0.00040 mg/m ³	<0.0003 mg/m ³	0.005 mg/m ³	0.01 mg/m ³	0.01 mg/m ³	

Laboratory & Login # Galson Laboratories- L361536	Analytical Method mod. NIOSH 7300/mod. OSHA ID-125G; ICP	QC By CRD	Date November 25th, 2015
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APPENDIX 2

LABORATORY ANALYTICAL RESULTS – AIR SAMPLES



Mr. Kevin Konkey
Hygieneering Inc.
7575 Plaza Court
Willowbrook, IL 60527

November 17, 2015

DOH ELAP #11626
AIHA-LAP #100324

Account# 14167

Login# L361068

Dear Mr. Konkey:

Enclosed are the analytical results for the samples received by our laboratory on November 17, 2015. All test results meet the quality control requirements of AIHA-LAP and NELAC unless otherwise stated in this report. All samples on the chain of custody were received in good condition unless otherwise noted.

Results in this report are based on the sampling data provided by the client and refer only to the samples as they were received at the laboratory. Unless otherwise requested, all samples will be discarded 14 days from the date of this report, with the exception of IOMs, which will be cleaned and disposed of after seven calendar days.

Current Scopes of Accreditation can be viewed at www.galsonlabs.com in the accreditations section under the "about Galson" tab.

Please contact Caroline Hudson at (888) 432-5227, if you would like any additional information regarding this report. Thank you for using Galson Laboratories.

Sincerely,

Galson Laboratories

Mary G. Unangst
Laboratory Director

Enclosure(s)

Galson Laboratories, Inc. is now a part of SGS, the world's leading inspection, verification, testing, and certification company. As part of our transition to SGS, you will begin to see some formatting changes with reports that will improve the presentation of data and allow for the transition to the new logo.



GALSON LABORATORIES

LABORATORY ANALYSIS REPORT

6601 Kirkville Road
East Syracuse, NY 13057
(315) 432-5227
FAX: (315) 437-0571
www.galsonlabs.com

Client : Hygieneering, Inc.
Site : COMPLIANCE 1
Project No. : 2015-2152-IH
Date Sampled : 16-NOV-15
Date Received : 17-NOV-15

Account No.: 14167
Login No. : L361068
Date Analyzed : 17-NOV-15
Report ID : 910074

Arsenic

<u>Sample ID</u>	<u>Lab ID</u>	<u>Air Vol</u> <u>liter</u>	<u>Total</u> <u>ug</u>	<u>Conc</u> <u>mg/m3</u>
LA-P-1 (15-0265506)	L361068-1	244	<0.30	<0.0012
LA-P-2 (15-0265510)	L361068-2	220	1.1	0.0052
LA-P-3 (15-026498)	L361068-3	214	<0.30	<0.0014
LA-BLANK-15-0265486	L361068-4	NA	<0.30	NA

COMMENTS: Please see attached lab footnote report for any applicable footnotes.

Level of quantitation: 0.30 ug	Submitted by: gjm	
Analytical Method : mod. NIOSH 7300/mod. OSHA ID-125G; ICP	Approved by : keg	
OSHA PEL : 0.01 mg/m3 (TWA)	Date : 17-NOV-15	NYS DOH # : 11626
Collection Media : MCE UW 37mm	Supervisor: KEG	QC by: TJB

< -Less Than	mg -Milligrams	m3 -Cubic Meters	kg -Kilograms	NA -Not Applicable	ND -Not Detected
> -Greater Than	ug -Micrograms	l -Liters	NS -Not Specified	ppm -Parts per Million	



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LABORATORY ANALYSIS REPORT

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East Syracuse, NY 13057
(315) 432-5227
FAX: (315) 437-0571
www.galsonlabs.com

Client : Hygieneering, Inc.
Site : COMPLIANCE 1
Project No. : 2015-2152-IH
Date Sampled : 16-NOV-15
Date Received : 17-NOV-15

Account No.: 14167
Login No. : L361068
Date Analyzed : 17-NOV-15
Report ID : 910075

Lead

Sample ID	Lab ID	Air Vol liter	Total ug	Conc mg/m3
LA-P-1 (15-0265506)	L361068-1	244	<0.38	<0.0015
LA-P-2 (15-0265510)	L361068-2	220	5.0	0.023
LA-P-3 (15-026498)	L361068-3	214	<0.38	<0.0018
LA-BLANK-15-0265486	L361068-4	NA	<0.38	NA

COMMENTS: Please see attached lab footnote report for any applicable footnotes.

Level of quantitation: 0.38 ug	Submitted by: gjm
Analytical Method : mod. NIOSH 7300/mod. OSHA ID-125G; ICP	Approved by : keg
OSHA PEL : 0.05 mg/m3 (TWA)	Date : 17-NOV-15
Collection Media : MCE UW 37mm	Supervisor: KEG
	NYS DOH # : 11626
	QC by: TJB

< -Less Than	mg -Milligrams	m3 -Cubic Meters	kg -Kilograms	NA -Not Applicable	ND -Not Detected
> -Greater Than	ug -Micrograms	l -Liters	NS -Not Specified	ppm -Parts per Million	



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LABORATORY FOOTNOTE REPORT

6601 Kirkville Road
East Syracuse, NY 13057
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FAX: (315) 437-0571
www.galsonlabs.com

Client Name : Hygieneering, Inc.
Site : COMPLIANCE 1
Project No. : 2015-2152-IH

Date Sampled : 16-NOV-15
Date Received: 17-NOV-15
Date Analyzed: 17-NOV-15

Account No.: 14167
Login No. : L361068

Unless otherwise noted below, all quality control results associated with the samples were within established control limits or did not impact reported results.

The laboratory does not have control over sampling; reported concentrations are based on client-supplied information (e.g. air volume, sampling time, area).

Unrounded results are carried through the calculations that yield the final result and the final result is rounded to the number of significant figures appropriate to the accuracy of the analytical method. Please note that results appearing in the columns preceeding the final result column may have been rounded and therefore, if carried through the calculations, may not yield an identical final result to the one reported.

The stated LOQs for each analyte represent the demonstrated LOQ concentrations prior to correction for desorption efficiency (if applicable).

Unless otherwise noted below, reported results have not been blank corrected for any field blank or method blank.

L361068 (Report ID: 910074):

Reported results reflect elemental analysis of the requested metals. Certain compounds may not be solubilized during digestion, resulting in data that is biased low.
SOPs: MT-SOP-9(27), im-mwvfilt(22)

L361068 (Report ID: 910074):

Accuracy and mean recovery data presented below is based on a 95% confidence interval (k=2). The estimated uncertainty applies to the media, technology, and SOP referenced in this report and does not account for the uncertainty associated with the sampling process.

Parameter	Accuracy	Mean Recovery
Arsenic	+/-8.9%	103%

L361068 (Report ID: 910075):

Reported results reflect elemental analysis of the requested metals. Certain compounds may not be solubilized during digestion, resulting in data that is biased low.
SOPs: MT-SOP-9(27), im-mwvfilt(22)

< -Less Than	mg -Milligrams	m3 -Cubic Meters	kg -Kilograms	ppm -Parts per Million	
> -Greater Than	ug -Micrograms	l -Liters	NS -Not Specified	ND -Not Detected	NA -Not Applicable



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East Syracuse, NY 13057
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FAX: (315) 437-0571
www.galsonlabs.com

Client Name : Hygieneering, Inc.
Site : COMPLIANCE 1
Project No. : 2015-2152-IH

Date Sampled : 16-NOV-15
Date Received: 17-NOV-15
Date Analyzed: 17-NOV-15

Account No.: 14167
Login No. : L361068

L361068 (Report ID: 910075):

Accuracy and mean recovery data presented below is based on a 95% confidence interval (k=2).
The estimated uncertainty applies to the media, technology, and SOP referenced in this report
and does not account for the uncertainty associated with the sampling process.

Parameter	Accuracy	Mean Recovery
Lead	+/-7.8%	98.3%

< -Less Than	mg -Milligrams	m3 -Cubic Meters	kg -Kilograms	ppm -Parts per Million	
> -Greater Than	ug -Micrograms	l -Liters	NS -Not Specified	ND -Not Detected	NA -Not Applicable



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LABORATORIES

6601 Kirkville Rd
East Syracuse, NY 13057-9672
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R 97

☐ New Client?

Report To*: MR. KEVIN KONKEY

Invoice To*: MR. KEVIN KONKEY

HYGIENEERING INC.

HYGIENEERING INC.

Client Account No.*:

7575 PLAZA COURT, WILLOW BROOK

7575 PLAZA COURT, WILLOW BROOK

ILLINOIS, 60527

ILLINOIS, 60527

Phone No.*: (630) 654-2550

Phone No.: (630) 654-2550

Cell No.: (630) 742-6089

Email: KKONKEY@HYGIENEERING.COM

Email Results To: MR. KEVIN KONKEY

Purchase Order No.:

Email Address: KKONKEY@HYGIENEERING.COM

Credit Card: ☒ Credit Card on File ☐ Call for Credit Card Info

☐ Samples submitted using the FreePumpLoan™ Program.

☒ Samples submitted using the FreeSamplingBadges™ Program.

Need Results By*:

(surcharge)

- ☐ Standard 0%
- ☐ 4 Business Days 35%
- ☐ 3 Business Days 50%
- ☐ 2 Business Days 75%
- ☐ Next Day by 6pm 100%
- ☐ Next Day by Noon 150%
- ☒ Same Day 200%

Site Name: COMPLIANCE 1

Project: 2015-2152-1H

Sampled By: D. ROBERTS

Comments:

PLEASE E-MAIL RESULTS TO DROBERTS@HYGIENEERING.COM IN ADDITION TO KEVIN KONKEY

List description of industry or process/interferences present in sampling area:

N/A

State samples were collected in (ex. NY):

ILLINOIS

Please indicate which OEL this data will be used for:

☒ OSHA PEL

☐ ACGIH TLV

☐ Cal OSHA

☐ MSHA

☐ Other (specify):

Sample Identification*

(Maximum of 20 characters, ID's longer than 20 characters will be abbreviated.)

Date Sampled*
(mm/dd/yy)

Collection
Medium

Sample Volume,
Sample Time,
or Sample Area*

Sample Units*:
L, ml, min.,
ln2, cm2, ft2

Analysis Requested*

Method Reference^

Hexavalent Chromium
Process (ex. welding,
plating, painting, etc.)*

Example	01/01/11	2pc UW PVC	960	L	Hexavalent Chromium (Cr6)	mod. OSHA ID-215	Welding
LA-P-1 (15-0265506)	11/16/15	37mm .8um VWMF	244	L	LEAD + ARSENIC	NIOSH 7300/OSHA 101356	N/A
LA-P-2 (15-0265510)	11/16/15		220	L	LEAD + ARSENIC		N/A
LA-P-3 (15-0265498)	11/16/15		214	L	LEAD + ARSENIC		N/A
LA-BLANK (15-0265486)	11/16/15		0	L	LEAD + ARSENIC		N/A

*Galson Laboratories will substitute our routine/preferred method if it does not match the method listed on the COC unless this box is checked: ☐ Use method(s) listed on COC

For metals analysis: If requesting an analyte with the option of a lower LOQ please indicate if the lower LOQ is required (only available for certain analytes see SAG):

For crystalline silica: form(s) of silica needed must be indicated (Quartz, Cristobalite, and/or Tridymite)*:

Chain of Custody	Print Name/Signature	Date/Time	Print Name/Signature	Date/Time
Relinquished by:	<u>DANIEL ROBERTS / Daniel W. Roberts</u>	<u>11/16/15 : 6:00 PM</u>	Received by:	
Relinquished by:			Received by:	<u>M. Krause M. Krause</u>

Samples received after 3pm will be considered as next day's business.

*Required fields, failure to complete these fields may result in a delay in your samples being processed.

Page of

LAB ORIGINAL



Mr. Kevin Konkey
Hygieneering Inc.
7575 Plaza Court
Willowbrook, IL 60527

November 18, 2015

DOH ELAP #11626
AIHA-LAP #100324

Account# 14167

Login# L361193

Dear Mr. Konkey:

Enclosed are the analytical results for the samples received by our laboratory on November 18, 2015. All test results meet the quality control requirements of AIHA-LAP and NELAC unless otherwise stated in this report. All samples on the chain of custody were received in good condition unless otherwise noted.

Results in this report are based on the sampling data provided by the client and refer only to the samples as they were received at the laboratory. Unless otherwise requested, all samples will be discarded 14 days from the date of this report, with the exception of IOMs, which will be cleaned and disposed of after seven calendar days.

Current Scopes of Accreditation can be viewed at www.galsonlabs.com in the accreditations section under the "about Galson" tab.

Please contact Caroline Hudson at (888) 432-5227, if you would like any additional information regarding this report. Thank you for using Galson Laboratories.

Sincerely,

Galson Laboratories

Mary G. Unangst
Laboratory Director

Enclosure(s)

Galson Laboratories, Inc. is now a part of SGS, the world's leading inspection, verification, testing, and certification company. As part of our transition to SGS, you will begin to see some formatting changes with reports that will improve the presentation of data and allow for the transition to the new logo.



GALSON LABORATORIES

LABORATORY ANALYSIS REPORT

6601 Kirkville Road
East Syracuse, NY 13057
(315) 432-5227
FAX: (315) 437-0571
www.galsonlabs.com

Client : Hygieneering, Inc.
Site : COMPLIANCE 1
Project No. : 2015-2152-IH
Date Sampled : 17-NOV-15
Date Received : 18-NOV-15

Account No.: 14167
Login No. : L361193
Date Analyzed : 18-NOV-15
Report ID : 910285

Client ID : LA-P-4 15-0265509 Lab ID : L361193-1 Air Volume : 408 Liter
Date Sampled : 11/17/15 Date Analyzed : 11/18/15

Parameter	LOQ ug	Total ug	Conc	Units
Arsenic	0.30	1.7	0.0043	mg/m3
Lead	0.38	9.1	0.022	mg/m3

COMMENTS: Please see attached lab footnote report for any applicable footnotes.

Collection Media: MCE UW 37mm
Date : 18-NOV-15

Submitted by: gjm
NYS DOH # : 11626

Approved by: mlh
Supervisor: KEG QC by: AMD

< -Less Than mg -Milligrams m3 -Cubic Meters kg -Kilograms NA -Not Applicable ND -Not Detected
> -Greater Than ug -Micrograms l -Liters NS -Not Specified ppm -Parts per Million LOQ-Limit of Quantitation



GALSON
LABORATORIES

LABORATORY ANALYSIS REPORT

6601 Kirkville Road
East Syracuse, NY 13057
(315) 432-5227
FAX: (315) 437-0571
www.galsonlabs.com

Client : Hygieneering, Inc.
Site : COMPLIANCE 1
Project No. : 2015-2152-IH
Date Sampled : 17-NOV-15
Date Received : 18-NOV-15

Account No.: 14167
Login No. : L361193
Date Analyzed : 18-NOV-15
Report ID : 910285

Client ID : LA-P-5 15-0265505 Lab ID : L361193-2 Air Volume : 402 Liter
Date Sampled : 11/17/15 Date Analyzed : 11/18/15

<u>Parameter</u>	<u>LOQ</u> <u>ug</u>	<u>Total</u> <u>ug</u>	<u>Conc</u>	<u>Units</u>
Arsenic	0.30	<0.30	<0.00075	mg/m3
Lead	0.38	<0.38	<0.00093	mg/m3

COMMENTS: Please see attached lab footnote report for any applicable footnotes.

Collection Media: MCE UW 37mm Submitted by: gjm Approved by: mlh
Date : 18-NOV-15 NYS DOH # : 11626 Supervisor: KEG QC by: AMD

< -Less Than mg -Milligrams m3 -Cubic Meters kg -Kilograms NA -Not Applicable ND -Not Detected
> -Greater Than ug -Micrograms l -Liters NS -Not Specified ppm -Parts per Million LOQ-Limit of Quantitation



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LABORATORY ANALYSIS REPORT

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FAX: (315) 437-0571
www.galsonlabs.com

Client : Hygieneering, Inc.
Site : COMPLIANCE 1
Project No. : 2015-2152-IH
Date Sampled : 17-NOV-15
Date Received : 18-NOV-15

Account No.: 14167
Login No. : L361193
Date Analyzed : 18-NOV-15
Report ID : 910285

Client ID : LA-P-6 15-0265313 Lab ID : L361193-3+ Air Volume : 392 Liter
Date Sampled : 11/17/15 Date Analyzed : 11/18/15

<u>Parameter</u>	<u>LOQ</u> <u>ug</u>	<u>Total</u> <u>ug</u>	<u>Conc</u>	<u>Units</u>
Arsenic	0.30	<0.30	<0.00077	mg/m3
Lead	0.38	1.1	0.0027	mg/m3

COMMENTS: Please see attached lab footnote report for any applicable footnotes.

Collection Media: MCE UW 37mm Submitted by: gjm Approved by: mlh
Date : 18-NOV-15 NYS DOH # : 11626 Supervisor: KEG QC by: AMD

< -Less Than mg -Milligrams m3 -Cubic Meters kg -Kilograms NA -Not Applicable ND -Not Detected
> -Greater Than ug -Micrograms l -Liters NS -Not Specified ppm -Parts per Million LOQ-Limit of Quantitation



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Client : Hygieneering, Inc.
Site : COMPLIANCE 1
Project No. : 2015-2152-IH
Date Sampled : 17-NOV-15
Date Received : 18-NOV-15

Account No.: 14167
Login No. : L361193
Date Analyzed : 18-NOV-15
Report ID : 910285

Client ID : LA-BLANK 15-0265514 Lab ID : L361193-4 Air Volume : NA
Date Sampled : 11/17/15 Date Analyzed : 11/18/15

<u>Parameter</u>	<u>LOQ</u> <u>ug</u>	<u>Total</u> <u>ug</u>	<u>Conc</u>	<u>Units</u>
Arsenic	0.30	<0.30	NA	mg/m3
Lead	0.38	<0.38	NA	mg/m3

COMMENTS: Please see attached lab footnote report for any applicable footnotes.

Collection Media: MCE UW 37mm Submitted by: gjm Approved by: mlh
Date : 18-NOV-15 NYS DOH # : 11626 Supervisor: KEG QC by: AMD

< -Less Than mg -Milligrams m3 -Cubic Meters kg -Kilograms NA -Not Applicable ND -Not Detected
> -Greater Than ug -Micrograms l -Liters NS -Not Specified ppm -Parts per Million LOQ-Limit of Quantitation



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LABORATORY FOOTNOTE REPORT

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Client Name : Hygieneering, Inc.
Site : COMPLIANCE 1
Project No. : 2015-2152-IH

Date Sampled : 17-NOV-15
Date Received: 18-NOV-15
Date Analyzed: 18-NOV-15

Account No.: 14167
Login No. : L361193

Unless otherwise noted below, all quality control results associated with the samples were within established control limits or did not impact reported results.

The laboratory does not have control over sampling; reported concentrations are based on client-supplied information (e.g. air volume, sampling time, area).

Unrounded results are carried through the calculations that yield the final result and the final result is rounded to the number of significant figures appropriate to the accuracy of the analytical method. Please note that results appearing in the columns preceeding the final result column may have been rounded and therefore, if carried through the calculations, may not yield an identical final result to the one reported.

The stated LOQs for each analyte represent the demonstrated LOQ concentrations prior to correction for desorption efficiency (if applicable).

Unless otherwise noted below, reported results have not been blank corrected for any field blank or method blank.

L361193 (Report ID: 910285):

Reported results reflect elemental analysis of the requested metals. Certain compounds may not be solubilized during digestion, resulting in data that is biased low.
SOPs: MT-SOP-9(27), im-mwvfilt(22)

+L361193-3 (Report ID: 910285):

The method blank prepared and analyzed with this sample contained 0.67 ug Lead. Reported Lead result may be biased high.

Accuracy and mean recovery data presented below is based on a 95% confidence interval (k=2). The estimated uncertainty applies to the media, technology, and SOP referenced in this report and does not account for the uncertainty associated with the sampling process.

Parameter	Accuracy	Mean Recovery
Arsenic	+/-8.9%	103%
Lead	+/-7.8%	98.3%

< -Less Than	mg -Milligrams	m3 -Cubic Meters	kg -Kilograms	ppm -Parts per Million	
> -Greater Than	ug -Micrograms	l -Liters	NS -Not Specified	ND -Not Detected	NA -Not Applicable



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LABORATORY FOOTNOTE REPORT

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FAX: (315) 437-0571
www.galsonlabs.com

Client Name : Hygieneering, Inc.
Site : COMPLIANCE 1
Project No. : 2015-2152-IH

Date Sampled : 17-NOV-15
Date Received: 18-NOV-15
Date Analyzed: 18-NOV-15

Account No.: 14167
Login No. : L361193

Parameter	Method	PEL
Arsenic	mod. NIOSH 7300/mod. OSHA ID-125G; ICP/I	0.01 mg/m3 (TWA)
Lead	mod. NIOSH 7300/mod. OSHA ID-125G; ICP/I	0.05 mg/m3 (TWA)

< -Less Than	mg -Milligrams	m3 -Cubic Meters	kg -Kilograms	ppm -Parts per Million	
> -Greater Than	ug -Micrograms	l -Liters	NS -Not Specified	ND -Not Detected	NA -Not Applicable



6601 Kirkville Rd
East Syracuse, NY 13057-9672
Tel: 315-432-5227
888-432-5227
Fax: 315-437-0571
www.galsonlabs.com

☐ New Client?

Report To*: MR. KEVIN KONKEY

Invoice To*: MR. KEVIN KONKEY

Client Account No.*:

HYGIENEERING INC.

HYGIENEERING INC.

7575 PLAZA COURT, WILLOWBROOK

7575 PLAZA COURT, WILLOWBROOK

ILLINOIS, 60527

ILLINOIS, 60527

Phone No.*: (630) 654-2550

Phone No.: (630) 654-2550

Cell No.: (630) 742-6089

Email: KKKONKEY@HYGIENEERING.COM

Email Results To: MR. KEVIN KONKEY

Purchase Order No.:

Email Address: KKKONKEY@HYGIENEERING.COM

Credit Card: ☒ Credit Card on File ☐ Call for Credit Card Info

☐ Samples submitted using the FreePumpLoan™ Program.

☐ Samples submitted using the FreeSamplingBadges™ Program.

Need Results By*:

(surcharge)

☐ Standard 0%

☐ 4 Business Days 35%

☐ 3 Business Days 50%

☐ 2 Business Days 75%

☐ Next Day by 6pm 100%

☐ Next Day by Noon 150%

☒ Same Day 200%

Site Name: COMPLIANCE 1

Project: 2015-2152-1H

Sampled By: D. ROBERTS

Comments:

E-MAIL RESULTS TO DROBERTS@HYGIENEERING.COM IN ADDITION TO MR. KEVIN KONKEY

List description of industry or process/interferences present in sampling area:

N/A

State samples were collected in (ex. NY):

ILLINOIS

Please indicate which OEL this data will be used for:

☒ OSHA PEL

☐ ACGIH TLV

☐ Cal OSHA

☐ MSHA

☐ Other (specify):

Sample Identification*

(Maximum of 20 characters, ID's longer than 20 characters will be abbreviated.)

Date Sampled*
(mm/dd/yy)

Collection
Medium

Sample Volume,
Sample Time,
or Sample Area*

Sample Units*:
L, ml, min.,
in2, cm2, ft2

Analysis Requested*

Method Reference^

Hexavalent Chromium
Process (ex. welding,
plating, painting, etc.)*

Example

01/01/11

2pc UW PVC

960

L

Hexavalent Chromium (Cr6)

mod. OSHA ID-215

Welding

LA-P-4 (15-0265509)

11/17/15

3pc 37mm UWMCE

408

L

LEAD + ARSENIC

NIOSH 7300 / OSHA ID 1256

N/A

LA-P-5 (15-0265505)

11/17/15

↓

402

L

LEAD + ARSENIC

↓

N/A

LA-P-6 (15-0265513)

11/17/15

↓

392

L

LEAD + ARSENIC

↓

N/A

LA-BLANK (15-0265514)

11/17/15

↓

0

L

LEAD + ARSENIC

↓

N/A

^Galson Laboratories will substitute our routine/preferred method if it does not match the method listed on the COC unless this box is checked: ☐ Use method(s) listed on COC

For metals analysis: if requesting an analyte with the option of a lower LOQ please indicate if the lower LOQ is required (only available for certain analytes see SAG):

For crystalline silica: form(s) of silica needed must be indicated (Quartz, Cristobalite, and/or Tridymite)*: ~

Chain of Custody

Print Name/Signature

Date/Time

Print Name/Signature

Date/Time

Relinquished by: DANIEL ROBERTS / Daniel W. Roberts

11/17/2015 : 3:00 PM

Received by:

Relinquished by:

Received by: M-V. Lauer M-Lauer

11/19/15 0801

Samples received after 3pm will be considered next day's business

*Required fields, failure to complete these fields may result in a delay in your samples being processed.

Page of

LAB ORIGINAL



Mr. Kevin Konkey
Hygieneering Inc.
7575 Plaza Court
Willowbrook, IL 60527

November 19, 2015

DOH ELAP #11626
AIHA-LAP #100324

Account# 14167

Login# L361289

Dear Mr. Konkey:

Enclosed are the analytical results for the samples received by our laboratory on November 19, 2015. All test results meet the quality control requirements of AIHA-LAP and NELAC unless otherwise stated in this report. All samples on the chain of custody were received in good condition unless otherwise noted.

Results in this report are based on the sampling data provided by the client and refer only to the samples as they were received at the laboratory. Unless otherwise requested, all samples will be discarded 14 days from the date of this report, with the exception of IOMs, which will be cleaned and disposed of after seven calendar days.

Current Scopes of Accreditation can be viewed at www.galsonlabs.com in the accreditations section under the "about Galson" tab.

Please contact Caroline Hudson at (888) 432-5227, if you would like any additional information regarding this report. Thank you for using Galson Laboratories.

Sincerely,

Galson Laboratories

Mary G. Unangst
Laboratory Director

Enclosure(s)

Galson Laboratories, Inc. is now a part of SGS, the world's leading inspection, verification, testing, and certification company. As part of our transition to SGS, you will begin to see some formatting changes with reports that will improve the presentation of data and allow for the transition to the new logo.



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LABORATORY ANALYSIS REPORT

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East Syracuse, NY 13057
(315) 432-5227
FAX: (315) 437-0571
www.galsonlabs.com

Client : Hygieneering, Inc.
Site : Compliance 1
Project No. : 2015-2152-IH
Date Sampled : 18-NOV-15
Date Received : 19-NOV-15

Account No.: 14167
Login No. : L361289
Date Analyzed : 19-NOV-15
Report ID : 910526

Arsenic

<u>Sample ID</u>	<u>Lab ID</u>	<u>Air Vol</u> <u>liter</u>	<u>Total</u> <u>ug</u>	<u>Conc</u> <u>mg/m3</u>
LA-P-7 (15-0265503)	L361289-1	1014	6.5	0.0064
LA-P-8 (15-0265516)	L361289-2	998	<0.30	<0.00030
LA-P-9 (15-0265508)	L361289-3	1010	<0.30	<0.00030
LA-BLANK (15-026550)	L361289-4	NA	<0.30	NA

COMMENTS: Please see attached lab footnote report for any applicable footnotes.

Level of quantitation: 0.30 ug	Submitted by: JMR	
Analytical Method : mod. NIOSH 7300/mod. OSHA ID-125G; ICP	Approved by : mlh	
OSHA PEL : 0.01 mg/m3 (TWA)	Date : 19-NOV-15	NYS DOH # : 11626
Collection Media : MCE UW 37mm	Supervisor: KEG	QC by: TJB

< -Less Than	mg -Milligrams	m3 -Cubic Meters	kg -Kilograms	NA -Not Applicable	ND -Not Detected
> -Greater Than	ug -Micrograms	l -Liters	NS -Not Specified	ppm -Parts per Million	



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Client : Hygieneering, Inc.
Site : Compliance 1
Project No. : 2015-2152-IH
Date Sampled : 18-NOV-15
Date Received : 19-NOV-15

Account No.: 14167
Login No. : L361289
Date Analyzed : 19-NOV-15
Report ID : 910527

Lead

Sample ID	Lab ID	Air Vol liter	Total ug	Conc mg/m3
\$@ LA-P-7 (15-0265503)	L361289-1	1014	19	0.019
\$@ LA-P-8 (15-0265516)	L361289-2	998	0.48	0.00049
LA-P-9 (15-0265508)	L361289-3	1010	<0.38	<0.00037
LA-BLANK (15-026550)	L361289-4	NA	<0.38	NA

COMMENTS: Please see attached lab footnote report for any applicable footnotes.

Level of quantitation: 0.38 ug	Submitted by: JMR
Analytical Method : mod. NIOSH 7300/mod. OSHA ID-125G; ICP	Approved by : mlh
OSHA PEL : 0.05 mg/m3 (TWA)	Date : 19-NOV-15
Collection Media : MCE UW 37mm	Supervisor: KEG
	NYS DOH # : 11626
	QC by: TJB

< -Less Than	mg -Milligrams	m3 -Cubic Meters	kg -Kilograms	NA -Not Applicable	ND -Not Detected
> -Greater Than	ug -Micrograms	l -Liters	NS -Not Specified	ppm -Parts per Million	



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LABORATORY FOOTNOTE REPORT

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Client Name : Hygieneering, Inc.
Site : Compliance 1
Project No. : 2015-2152-IH

Date Sampled : 18-NOV-15
Date Received: 19-NOV-15
Date Analyzed: 19-NOV-15

Account No.: 14167
Login No. : L361289

Unless otherwise noted below, all quality control results associated with the samples were within established control limits or did not impact reported results.

The laboratory does not have control over sampling; reported concentrations are based on client-supplied information (e.g. air volume, sampling time, area).

Unrounded results are carried through the calculations that yield the final result and the final result is rounded to the number of significant figures appropriate to the accuracy of the analytical method. Please note that results appearing in the columns preceeding the final result column may have been rounded and therefore, if carried through the calculations, may not yield an identical final result to the one reported.

The stated LOQs for each analyte represent the demonstrated LOQ concentrations prior to correction for desorption efficiency (if applicable).

Unless otherwise noted below, reported results have not been blank corrected for any field blank or method blank.

L361289 (Report ID: 910526):

Reported results reflect elemental analysis of the requested metals. Certain compounds may not be solubilized during digestion, resulting in data that is biased low.
SOPs: MT-SOP-9(27), im-mwvfilt(22)

L361289 (Report ID: 910526):

Accuracy and mean recovery data presented below is based on a 95% confidence interval (k=2). The estimated uncertainty applies to the media, technology, and SOP referenced in this report and does not account for the uncertainty associated with the sampling process.

Parameter	Accuracy	Mean Recovery
Arsenic	+/-8.9%	103%

L361289 (Report ID: 910527):

Reported results reflect elemental analysis of the requested metals. Certain compounds may not be solubilized during digestion, resulting in data that is biased low.
SOPs: MT-SOP-9(27), im-mwvfilt(22)

SL361289-1-2 (Report ID: 910527):

4.4 ug of Lead was found to be in the associated method blank. Sample data may be biased high.

@L361289-1-2 (Report ID: 910527):

Two out of two blank spike recovered above limits (86.7-110%) at 124% and 118% for Lead. Sample data may be biased high.

<	-Less Than	mg -Milligrams	m3 -Cubic Meters	kg -Kilograms	ppm -Parts per Million	
>	-Greater Than	ug -Micrograms	l -Liters	NS -Not Specified	ND -Not Detected	NA -Not Applicable



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Client Name : Hygieneering, Inc.
Site : Compliance 1
Project No. : 2015-2152-IH

Date Sampled : 18-NOV-15
Date Received: 19-NOV-15
Date Analyzed: 19-NOV-15

Account No.: 14167
Login No. : L361289

Accuracy and mean recovery data presented below is based on a 95% confidence interval (k=2).
The estimated uncertainty applies to the media, technology, and SOP referenced in this report
and does not account for the uncertainty associated with the sampling process.

Parameter	Accuracy	Mean Recovery
Lead	+/-7.8%	98.3%

< -Less Than	mg -Milligrams	m3 -Cubic Meters	kg -Kilograms	ppm -Parts per Million	
> -Greater Than	ug -Micrograms	l -Liters	NS -Not Specified	ND -Not Detected	NA -Not Applicable



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LABORATORIES

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East Syracuse, NY 13057-9672
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R114

☐ New Client?

Report To*: MR. KEVIN KONKEY

Invoice To*: MR. KEVIN KONKEY

Client Account No.*:

HYGIENEERING INC.

HYGIENEERING INC.

7575 PLAZA COURT, WILLOWBROOK,
ILLINOIS, 60527

7575 PLAZA COURT, WILLOWBROOK,
ILLINOIS, 60527

Phone No.*: (630) 654-2550

Phone No.: (630) 654-2550

Cell No.: (630) 742-6089

Email: KKONKEY@HYGIENEERING.COM

Email Results To: KKONKEY@HYGIENEERING.COM

Purchase Order No.:

Email Address: MR. KEVIN KONKEY

Credit Card: ☒ Credit Card on File ☐ Call for Credit Card Info

☐ Samples submitted using the FreePumpLoan™ Program.

☐ Samples submitted using the FreeSamplingBadges™ Program.

Need Results By*:	(surcharge)
<input type="checkbox"/> Standard	0%
<input type="checkbox"/> 4 Business Days	35%
<input type="checkbox"/> 3 Business Days	50%
<input type="checkbox"/> 2 Business Days	75%
<input type="checkbox"/> Next Day by 6pm	100%
<input type="checkbox"/> Next Day by Noon	150%
<input checked="" type="checkbox"/> Same Day	200%

Site Name: COMPLIANCE 1

Project: 2015-2152-IH

Sampled By: D. ROBERTS

Comments:

PLEASE E-MAIL RESULTS TO DROBERTS@HYGIENEERING.COM IN ADDITION TO MR. KEVIN KONKEY

List description of industry or process/interferences
present in sampling area:

N/A

State samples were
collected in (ex. NY):

ILLINOIS

Please indicate which OEL this data will be used for:

☒ OSHA PEL

☐ ACGIH TLV

☐ Cal OSHA

☐ MSHA

☐ Other (specify):

Sample Identification* (Maximum of 20 characters, ID's longer than 20 characters will be abbreviated.)	Date Sampled* (mm/dd/yy)	Collection Medium	Sample Volume, Sample Time, or Sample Area*	Sample Units* L, ml, min., in2, cm2, ft2	Analysis Requested*	Method Reference^	Hexavalent Chromium Process (ex. welding, plating, painting, etc.)*
Example	01/01/11	2pc UW PVC	960	L	Hexavalent Chromium (Cr6)	mod. OSHA ID-215	Welding
LA-P-7 (15-0265503)	11/18/15	3pc 37mm UWMCE	1014	L	LEAD + ARSENIC	NIOSH 7300/OSHA 101356	N/A
LA-P-8 (15-0265516)	11/18/15	↓	998	L	LEAD + ARSENIC	↓	N/A
LA-P-9 (15-0265508)	11/18/15	↓	1010	L	LEAD + ARSENIC	↓	N/A
LA-BLANK (15-0265507)	11/18/15	↓	0	L	LEAD + ARSENIC	↓	N/A

*Galson Laboratories will substitute our routine/preferred method if it does not match the method listed on the COC unless this box is checked: ☐ Use method(s) listed on COC

For metals analysis: if requesting an analyte with the option of a lower LOQ please indicate if the lower LOQ is required (only available for certain analytes see SAG):

For crystalline silica: form(s) of silica needed must be indicated (Quartz, Cristobalite, and/or Tridymite)*:

Chain of Custody	Print Name/Signature	Date/Time	Received by:	Print Name/Signature	Date/Time
Relinquished by:	<u>DANIEL ROBERTS / Daniel W. Roberts</u>	<u>11/18/15 : 5:00 PM</u>	Received by:	<u>M. Krause</u>	<u>11/19/15 0750</u>
Relinquished by:			Received by:	<u>M. Krause</u>	

Samples received after 3pm on 11/18/15. Report generated: 19-NOV-15 17:15

*Required fields, failure to complete these fields may result in a delay in your samples being processed.

Page 1 of 1

LAB ORIGINAL



GALSON
LABORATORIES

Mr. Kevin Konkey
Hygieneering Inc.
7575 Plaza Court
Willowbrook, IL 60527

November 25, 2015

DOH ELAP #11626
AIHA-LAP #100324

Account# 14167

Login# L361536

Dear Mr. Konkey:

Enclosed are the analytical results for the samples received by our laboratory on November 20, 2015. All test results meet the quality control requirements of AIHA-LAP and NELAC unless otherwise stated in this report. All samples on the chain of custody were received in good condition unless otherwise noted.

Results in this report are based on the sampling data provided by the client and refer only to the samples as they were received at the laboratory. Unless otherwise requested, all samples will be discarded 14 days from the date of this report, with the exception of IOMs, which will be cleaned and disposed of after seven calendar days.

Current Scopes of Accreditation can be viewed at www.galsonlabs.com in the accreditations section under the "about Galson" tab.

Please contact Caroline Hudson at (888) 432-5227, if you would like any additional information regarding this report. Thank you for using SGS Galson Laboratories.

Sincerely,

SGS Galson Laboratories

Lisa Swab
Laboratory Director

Enclosure(s)

Galson Laboratories, Inc. is now a part of SGS, the world's leading inspection, verification, testing, and certification company. As part of our transition to SGS, you will begin to see some formatting changes with reports that will improve the presentation of data and allow for the transition to the new logo.



GALSON LABORATORIES

LABORATORY ANALYSIS REPORT

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East Syracuse, NY 13057
(315) 432-5227
FAX: (315) 437-0571
www.galsonlabs.com

Client : Hygieneering, Inc.
Site : COMPLIANCE 1
Project No. : 2015-2152-IH
Date Sampled : 19-NOV-15
Date Received : 20-NOV-15

Account No.: 14167
Login No. : L361536
Date Analyzed : 24-NOV-15
Report ID : 911412

Client ID : LA-P-10 (15-0265517) Lab ID : L361536-1 Air Volume : 824 Liter
Date Sampled : 11/19/15 Date Analyzed : 11/24/15

Parameter	LOQ ug	Total ug	Conc	Units
Arsenic	0.30	<0.30	<0.00036	mg/m3
Lead	0.38	<0.38	<0.00046	mg/m3

COMMENTS: Please see attached lab footnote report for any applicable footnotes.

Collection Media: MCE UW 37mm
Date : 25-NOV-15

Submitted by: gjm
NYS DOH # : 11626

Approved by: JJJ
Supervisor: KEG QC by: CRD

< -Less Than mg -Milligrams m3 -Cubic Meters kg -Kilograms NA -Not Applicable ND -Not Detected
> -Greater Than ug -Micrograms l -Liters NS -Not Specified ppm -Parts per Million LOQ-Limit of Quantitation



LABORATORY ANALYSIS REPORT

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East Syracuse, NY 13057
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Client : Hygieneering, Inc.
Site : COMPLIANCE 1
Project No. : 2015-2152-IH
Date Sampled : 19-NOV-15
Date Received : 20-NOV-15

Account No.: 14167
Login No. : L361536
Date Analyzed : 24-NOV-15
Report ID : 911412

Client ID : LA-P-11 (15-0265519) Lab ID : L361536-2 Air Volume : 774 Liter
Date Sampled : 11/19/15 Date Analyzed : 11/24/15

<u>Parameter</u>	<u>LOQ</u> <u>ug</u>	<u>Total</u> <u>ug</u>	<u>Conc</u>	<u>Units</u>
Arsenic	0.30	<0.30	<0.00039	mg/m3
Lead	0.38	0.42	0.00054	mg/m3

COMMENTS: Please see attached lab footnote report for any applicable footnotes.

Collection Media: MCE UW 37mm	Submitted by: gjm	Approved by: JJL
Date : 25-NOV-15	NYS DOH # : 11626	Supervisor: KEG QC by: CRD

< -Less Than	mg -Milligrams	m3 -Cubic Meters	kg -Kilograms	NA -Not Applicable	ND -Not Detected
> -Greater Than	ug -Micrograms	l -Liters	NS -Not Specified	ppm -Parts per Million	LOQ-Limit of Quantitation



GALSON
LABORATORIES

LABORATORY ANALYSIS REPORT

6601 Kirkville Road
East Syracuse, NY 13057
(315) 432-5227
FAX: (315) 437-0571
www.galsonlabs.com

Client : Hygieneering, Inc.
Site : COMPLIANCE 1
Project No. : 2015-2152-IH
Date Sampled : 19-NOV-15
Date Received : 20-NOV-15

Account No.: 14167
Login No. : L361536
Date Analyzed : 24-NOV-15
Report ID : 911412

Client ID : LA-P-12 (15-0265518) Lab ID : L361536-3 Air Volume : 744 Liter
Date Sampled : 11/19/15 Date Analyzed : 11/24/15

<u>Parameter</u>	<u>LOQ</u> <u>ug</u>	<u>Total</u> <u>ug</u>	<u>Conc</u>	<u>Units</u>
Arsenic	0.30	<0.30	<0.00040	mg/m3
Lead	0.38	0.43	0.00057	mg/m3

COMMENTS: Please see attached lab footnote report for any applicable footnotes.

Collection Media: MCE UW 37mm	Submitted by: gjm	Approved by: JJL
Date : 25-NOV-15	NYS DOH # : 11626	Supervisor: KEG QC by: CRD

< -Less Than	mg -Milligrams	m3 -Cubic Meters	kg -Kilograms	NA -Not Applicable	ND -Not Detected
> -Greater Than	ug -Micrograms	l -Liters	NS -Not Specified	ppm -Parts per Million	LOQ-Limit of Quantitation



GALSON
LABORATORIES

LABORATORY ANALYSIS REPORT

6601 Kirkville Road
East Syracuse, NY 13057
(315) 432-5227
FAX: (315) 437-0571
www.galsonlabs.com

Client : Hygieneering, Inc.
Site : COMPLIANCE 1
Project No. : 2015-2152-IH
Date Sampled : 19-NOV-15
Date Received : 20-NOV-15

Account No.: 14167
Login No. : L361536
Date Analyzed : 24-NOV-15
Report ID : 911412

Client ID : LA-BLK (15-0265525) Lab ID : L361536-4 Air Volume : NA
Date Sampled : 11/19/15 Date Analyzed : 11/24/15

<u>Parameter</u>	<u>LOQ</u> <u>ug</u>	<u>Total</u> <u>ug</u>	<u>Conc</u>	<u>Units</u>
Arsenic	0.30	<0.30	NA	mg/m3
Lead	0.38	<0.38	NA	mg/m3

COMMENTS: Please see attached lab footnote report for any applicable footnotes.

Collection Media: MCE UW 37mm Submitted by: gjm Approved by: JJL
Date : 25-NOV-15 NYS DOH # : 11626 Supervisor: KEG QC by: CRD

< -Less Than mg -Milligrams m3 -Cubic Meters kg -Kilograms NA -Not Applicable ND -Not Detected
> -Greater Than ug -Micrograms l -Liters NS -Not Specified ppm -Parts per Million LOQ-Limit of Quantitation



GALSON LABORATORIES

LABORATORY FOOTNOTE REPORT

6601 Kirkville Road
East Syracuse, NY 13057
(315) 432-5227
FAX: (315) 437-0571
www.galsonlabs.com

Client Name : Hygieneering, Inc.
Site : COMPLIANCE 1
Project No. : 2015-2152-IH

Date Sampled : 19-NOV-15
Date Received: 20-NOV-15
Date Analyzed: 24-NOV-15

Account No.: 14167
Login No. : L361536

Unless otherwise noted below, all quality control results associated with the samples were within established control limits or did not impact reported results.

The laboratory does not have control over sampling; reported concentrations are based on client-supplied information (e.g. air volume, sampling time, area).

Unrounded results are carried through the calculations that yield the final result and the final result is rounded to the number of significant figures appropriate to the accuracy of the analytical method. Please note that results appearing in the columns preceeding the final result column may have been rounded and therefore, if carried through the calculations, may not yield an identical final result to the one reported.

The stated LOQs for each analyte represent the demonstrated LOQ concentrations prior to correction for desorption efficiency (if applicable).

Unless otherwise noted below, reported results have not been blank corrected for any field blank or method blank.

L361536 (Report ID: 911412):

Reported results reflect elemental analysis of the requested metals. Certain compounds may not be solubilized during digestion, resulting in data that is biased low.
SOPs: MT-SOP-9(28), im-mwvfilt(22)

L361536 (Report ID: 911412):

Accuracy and mean recovery data presented below is based on a 95% confidence interval (k=2). The estimated uncertainty applies to the media, technology, and SOP referenced in this report and does not account for the uncertainty associated with the sampling process.

Parameter	Accuracy	Mean Recovery
Arsenic	+/-8.9%	103%
Lead	+/-7.8%	98.3%

Parameter	Method	PEL
Arsenic	mod. NIOSH 7300/mod. OSHA ID-125G; ICP/I	0.01 mg/m3 (TWA)
Lead	mod. NIOSH 7300/mod. OSHA ID-125G; ICP/I	0.05 mg/m3 (TWA)

< -Less Than	mg -Milligrams	m3 -Cubic Meters	kg -Kilograms	ppm -Parts per Million	
> -Greater Than	ug -Micrograms	l -Liters	NS -Not Specified	ND -Not Detected	NA -Not Applicable



GALSON
LABORATORIES

6601 Kirkville Rd
East Syracuse, NY 13057-9672
Tel: 315-432-5227
888-432-5227
Fax: 315-437-0571
www.galsonlabs.com

☐ New Client?

Report To*: MR. KEVIN KONKEY

Invoice To*: MR. KEVIN KONKEY

Client Account No.*:

HYGIENEERING INC.
7575 PLAZA COURT, WILLOW BROOK,
ILLINOIS, 60527

HYGIENEERING INC.
7575 PLAZA COURT, WILLOW BROOK
ILLINOIS, 60527

Phone No.*: (630) 654-2550

Phone No.: (630) 654-2550

Cell No.: (630) 742-6089

Email: KKONKEY@HYGIENEERING.COM

Email Results To: MR. KEVIN KONKEY

Purchase Order No.:

Email Address: KKONKEY@HYGIENEERING.COM

Credit Card: ☒ Credit Card on File ☐ Call for Credit Card Info

☐ Samples submitted using the FreePumpLoan™ Program.

☐ Samples submitted using the FreeSamplingBadges™ Program.

Need Results By*:

(surcharge)

<input checked="" type="checkbox"/> Standard	0%
<input type="checkbox"/> 4 Business Days	35%
<input type="checkbox"/> 3 Business Days	50%
<input type="checkbox"/> 2 Business Days	75%
<input type="checkbox"/> Next Day by 6pm	100%
<input type="checkbox"/> Next Day by Noon	150%
<input type="checkbox"/> Same Day	200%

Site Name: COMPLIANCE 1

Project: 2015-2152-1K

Sampled By: D. ROBERTS

Comments:

PLEASE E-MAIL RESULTS TO DROBERTS@HYGIENEERING.COM IN ADDITION TO MR. KEVIN KONKEY

List description of industry or process/interferences present in sampling area:

N/A

State samples were collected in (ex. NY):

ILLINOIS

Please indicate which OEL this data will be used for:

☒ OSHA PEL

☐ ACGIH TLV

☐ Cal OSHA

☐ MSHA

☐ Other (specify):

Sample Identification*

(Maximum of 20 characters, ID's longer than 20 characters will be abbreviated.)

Date Sampled*
(mm/dd/yy)

Collection
Medium

Sample Volume,
Sample Time,
or Sample Area*

Sample Units*:
L, ml, min.,
in2, cm2, ft2

Analysis Requested*

Method Reference^

Hexavalent Chromium
Process (ex. welding,
plating, painting, etc.)*

Example	01/01/11	2pc UW PVC	960	L	Hexavalent Chromium (Cr6)	mod. OSHA ID-215	Welding
LA-P-10 (15-0265517)	11/19/15	3PC 37MM UWMCE	824	L	LEAD + ARSENIC	NIOSH 7300/OSHA 3D1256	N/A
LA-P-11 (15-0265519)	11/19/15	↓	774	L	LEAD + ARSENIC	↓	N/A
LA-P-12 (15-0265518)	11/19/15	↓	744	L	LEAD + ARSENIC	↓	N/A
LA-BLANK (15-0265525)	11/19/15	↓	0	L	LEAD + ARSENIC	↓	N/A

*Galson Laboratories will substitute our routine/preferred method if it does not match the method listed on the COC unless this box is checked: ☐ Use method(s) listed on COC

For metals analysis: if requesting an analyte with the option of a lower LOQ please indicate if the lower LOQ is required (only available for certain analytes see SAG):

For crystalline silica: form(s) of silica needed must be indicated (Quartz, Cristobalite, and/or Tridymite)*:

Chain of Custody	Print Name/Signature	Date/Time		Print Name/Signature	Date/Time
Relinquished by:	<u>DANIEL ROBERTS / Daniel W. Roberts</u>	<u>11/19/15 -</u>	Received by:		
Relinquished by:			Received by:	<u>M. V. Sam M. V. Sam</u>	<u>11/20/15 13:22</u>

Samples received after 3pm will be considered next business day. 25-NOV-15 18:41

*Required fields, failure to complete these fields may result in a delay in your samples being processed.

Page 1 of 1

LAB ORIGINAL



APPENDIX 3

EMPLOYEE NOTIFICATION LETTERS

December 17, 2015

Mr. Brent Neil
Compliance 1 Environmental Services
3560 East Evergreen Street
Springfield, Missouri 65803

RE: Personal Air Sampling Results for Lead & Arsenic

Dear Mr. Brent Neil,

On November 16th, 2015 Compliance 1 Environmental Services conducted a study to determine your personal exposure to lead and arsenic. This letter is to notify you of the results of the exposure monitoring.

Your personal exposures were below the Occupational Safety & Health Administration (OSHA) Action Limit (AL) and Permissible Exposure Limit (PEL) as well as the American Conference of Governmental Industrial Hygienists (ACGIH) Threshold Limit Values (TLVs).

The table below summarizes your personal air sampling results:

Date Sampled	CONTAMINANT (Sample ID)	8-HOUR TWA	EXPOSURE STANDARD		
			OSHA AL	OSHA PEL	ACGIH TLV
11/16/2015	Lead	<0.0004 mg/m ³	0.03 mg/m ³	0.05 mg/m ³	0.05 mg/m ³
11/16/2015	Arsenic	<0.0003 mg/m ³	0.005 mg/m ³	0.01 mg/m ³	0.01 mg/m ³

OSHA – Occupational Safety & Health Administration
TWA – Time Weighted Average
ACGIH - American Conference of Industrial Hygienists
mg/m³ – milligrams per cubic meter
Bold – Exceeded a Exposure Standard

PEL - Permissible Exposure Limit
AL – Action Level
TLV - Threshold Limit Values
< - Less Than

Continue to utilize available engineering controls and good hygiene practices to assist in reducing personal exposure to lead and arsenic. This document satisfies OSHA's employee notification requirements per 29 CFR 1926.62 for lead as well as 29 CFR 1926.1118 for Arsenic.

If you have any questions regarding this monitoring, please contact the Environmental, Safety & Health Department.

Reviewed by:
Compliance 1 Environmental Services

Acknowledged by Employee

Date

cc: Human Resources/Medical Department

December 17, 2015

Mr. Bob Blank
Compliance 1 Environmental Services
3560 East Evergreen Street
Springfield, Missouri 65803

RE: Personal Air Sampling Results for Lead & Arsenic

Dear Mr. Bob Blank,

On November 16th through November 19th, 2015 Compliance 1 Environmental Services conducted a study to determine your personal exposure to lead and arsenic. This letter is to notify you of the results of the exposure monitoring.

Your personal exposures were below the Occupational Safety & Health Administration (OSHA) Action Limit (AL) and Permissible Exposure Limit (PEL) as well as the American Conference of Governmental Industrial Hygienists (ACGIH) Threshold Limit Values (TLVs), except for activities performed on November 18th, 2015. Results on this day indicated a time weighted average (TWA) exposure of 0.0064 mg/m³ to arsenic, which is above the OSHA AL of 0.005 mg/m³ for arsenic.

The table below summarizes your personal air sampling results:

Date Sampled	CONTAMINANT (Sample ID)	8-HOUR TWA	EXPOSURE STANDARD		
			OSHA AL	OSHA PEL	ACGIH TLV
11/16/2015	Lead	0.0052 mg/m ³	0.03 mg/m ³	0.05 mg/m ³	0.05 mg/m ³
11/16/2015	Arsenic	0.0012 mg/m ³	0.005 mg/m ³	0.01 mg/m ³	0.01 mg/m ³
11/17/2015	Lead	0.0094 mg/m ³	0.03 mg/m ³	0.05 mg/m ³	0.05 mg/m ³
11/17/2015	Arsenic	0.0018 mg/m ³	0.005 mg/m ³	0.01 mg/m ³	0.01 mg/m ³
11/18/2015	Lead	0.019 mg/m ³	0.03 mg/m ³	0.05 mg/m ³	0.05 mg/m ³
11/18/2015	Arsenic	0.0064 mg/m³	0.005 mg/m³	0.01 mg/m ³	0.01 mg/m ³
11/19/2015	Lead	<0.0004 mg/m ³	0.03 mg/m ³	0.05 mg/m ³	0.05 mg/m ³
11/19/2015	Arsenic	<0.0003 mg/m ³	0.005 mg/m ³	0.01 mg/m ³	0.01 mg/m ³

OSHA – Occupational Safety & Health Administration
TWA – Time Weighted Average
ACGIH - American Conference of Industrial Hygienists
mg/m³ – milligrams per cubic meter
Bold – Exceeded a Exposure Standard

PEL - Permissible Exposure Limit
AL – Action Level
TLV - Threshold Limit Values
< - Less Than

Continue to utilize available engineering controls and good hygiene practices to assist in reducing personal exposure to lead and arsenic. This document satisfies OSHA's employee notification requirements per 29 CFR 1926.62 for lead as well as 29 CFR 1926.1118 for Arsenic. If you have any questions regarding this monitoring, please contact the Environmental, Safety & Health Department.

Reviewed by:
Compliance 1 Environmental Services

Acknowledged by Employee

Date

cc: Human Resources/Medical Department

December 17, 2015

Mr. Todd Ritter
Compliance 1 Environmental Services
3560 East Evergreen Street
Springfield, Missouri 65803

RE: Personal Air Sampling Results for Lead & Arsenic

Dear Mr. Todd Ritter,

On November 16th through November 19th, 2015 Compliance 1 Environmental Services conducted a study to determine your personal exposure to lead and arsenic. This letter is to notify you of the results of the exposure monitoring.

Your personal exposures were below the Occupational Safety & Health Administration (OSHA) Action Limit (AL) and Permissible Exposure Limit (PEL) as well as the American Conference of Governmental Industrial Hygienists (ACGIH) Threshold Limit Values (TLVs).

The table below summarizes your personal air sampling results:

Date Sampled	CONTAMINANT (Sample ID)	8-HOUR TWA	EXPOSURE STANDARD		
			OSHA AL	OSHA PEL	ACGIH TLV
11/16/2015	Lead	<0.0004 mg/m ³	0.03 mg/m ³	0.05 mg/m ³	0.05 mg/m ³
11/16/2015	Arsenic	<0.0003 mg/m ³	0.005 mg/m ³	0.01 mg/m ³	0.01 mg/m ³
11/17/2015	Lead	<0.0003 mg/m ³	0.03 mg/m ³	0.05 mg/m ³	0.05 mg/m ³
11/17/2015	Arsenic	<0.0004 mg/m ³	0.005 mg/m ³	0.01 mg/m ³	0.01 mg/m ³
11/18/2015	Lead	<0.0003 mg/m ³	0.03 mg/m ³	0.05 mg/m ³	0.05 mg/m ³
11/18/2015	Arsenic	<0.0004 mg/m ³	0.005 mg/m ³	0.01 mg/m ³	0.01 mg/m ³
11/19/2015	Lead	0.0004 mg/m ³	0.03 mg/m ³	0.05 mg/m ³	0.05 mg/m ³
11/19/2015	Arsenic	<0.0003 mg/m ³	0.005 mg/m ³	0.01 mg/m ³	0.01 mg/m ³

OSHA – Occupational Safety & Health Administration
TWA – Time Weighted Average
ACGIH - American Conference of Industrial Hygienists
mg/m³ – milligrams per cubic meter
Bold – Exceeded a Exposure Standard

PEL - Permissible Exposure Limit
AL – Action Level
TLV - Threshold Limit Values
< - Less Than

Continue to utilize available engineering controls and good hygiene practices to assist in reducing personal exposure to lead and arsenic. This document satisfies OSHA's employee notification requirements per 29 CFR 1926.62 for lead as well as 29 CFR 1926.1118 for Arsenic.

If you have any questions regarding this monitoring, please contact the Environmental, Safety & Health Department.

Reviewed by:
Compliance 1 Environmental Services

Acknowledged by Employee

Date

cc: Human Resources/Medical Department

December 17, 2015

Mr. Mike Tuck
Compliance 1 Environmental Services
3560 East Evergreen Street
Springfield, Missouri 65803

RE: Personal Air Sampling Results for Lead & Arsenic

Dear Mr. Mike Tuck,

On November 17th through November 19th, 2015 Compliance 1 Environmental Services conducted a study to determine your personal exposure to lead and arsenic. This letter is to notify you of the results of the exposure monitoring.

Your personal exposures were below the Occupational Safety & Health Administration (OSHA) Action Limit (AL) and Permissible Exposure Limit (PEL) as well as the American Conference of Governmental Industrial Hygienists (ACGIH) Threshold Limit Values (TLVs).

The table below summarizes your personal air sampling results:

Date Sampled	CONTAMINANT (Sample ID)	8-HOUR TWA	EXPOSURE STANDARD		
			OSHA AL	OSHA PEL	ACGIH TLV
11/17/2015	Lead	0.0011 mg/m ³	0.03 mg/m ³	0.05 mg/m ³	0.05 mg/m ³
11/17/2015	Arsenic	<0.0003 mg/m ³	0.005 mg/m ³	0.01 mg/m ³	0.01 mg/m ³
11/18/2015	Lead	0.00049 mg/m ³	0.03 mg/m ³	0.05 mg/m ³	0.05 mg/m ³
11/18/2015	Arsenic	<0.0003 mg/m ³	0.005 mg/m ³	0.01 mg/m ³	0.01 mg/m ³
11/19/2015	Lead	0.00044 mg/m ³	0.03 mg/m ³	0.05 mg/m ³	0.05 mg/m ³
11/19/2015	Arsenic	<0.0003 mg/m ³	0.005 mg/m ³	0.01 mg/m ³	0.01 mg/m ³

OSHA – Occupational Safety & Health Administration
TWA – Time Weighted Average
ACGIH - American Conference of Industrial Hygienists
mg/m³ – milligrams per cubic meter
Bold – Exceeded a Exposure Standard

PEL - Permissible Exposure Limit
AL – Action Level
TLV - Threshold Limit Values
< - Less Than

Continue to utilize available engineering controls and good hygiene practices to assist in reducing personal exposure to lead and arsenic. This document satisfies OSHA's employee notification requirements per 29 CFR 1926.62 for lead as well as 29 CFR 1926.1118 for Arsenic.

If you have any questions regarding this monitoring, please contact the Environmental, Safety & Health Department.

Reviewed by:
Compliance 1 Environmental Services

Acknowledged by Employee

Date

cc: Human Resources/Medical Department

Appendix F2

RW Collins Air Monitoring Report



INDUSTRIAL HYGIENE EXPOSURE STUDY HYGIENEERING PROJECT #: 2015-2117-IH

PREPARED FOR:

**R.W. COLLINS COMPANY
7225 WEST 66TH STREET
CHICAGO, ILLINOIS 60638**

NOVEMBER 23RD – 25TH AND 30TH, 2015

PREPARED BY:

**HYGIENEERING, INC.
7575 PLAZA COURT
WILLOWBROOK, IL 60527**

DATE SUBMITTED: DECEMBER 30, 2015

Asbestos, Mold & Lead Services

Asbestos, Mold and Lead Surveys
Air and Bulk Sampling
Abatement Project Design
Bid Solicitation
Project Management
Turnkey Services
Operations & Maintenance Programs

Indoor Air Quality Services

IAQ Investigations and Testing
HVAC System Inspection
IAQ Training & Management
Programs for Facilities
Mold Management Services

Industrial Hygiene Services

Worker Exposure Assessments
Air Sampling for Chemical, Physical
& Biological Contaminants
Noise Levels Surveys
Ventilation Surveys
PPE Assessments

Safety Consulting Services

Safety Program Development
Safety Program Auditing
Safety Training for Construction
& General Industry
Process Safety Management/ Hazard
Analysis Development
Risk Management Planning & PSM
Compliance Reviews
Temporary Safety Prof. Staffing

Environmental Eng. Services

Phase I & II Env. Site Assessments
Underground Storage Tanks
Emergency Response, Testing &
Remediation
Subsurface Investigations
(Soil/Groundwater)
Hazardous Waste Management
Environmental Compliance Audits
Environmental Risk Assessments
Environmental Permitting and
Reporting
Remediation Design
Remediation Management

Training Services

OSHA Safety Topics
10-Hour Con & Gen Industry
All EPA & OSHA Topics
Asbestos/HAZWOPER & Lead

Emergency Response

Floods, Fires, Chemical Releases
Site Hazard Characterization
Project Management (Turnkey)



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EXECUTIVE SUMMARY

Background

Hygieneering, Inc. (Hygieneering) was retained by R.W. Collins Company (R.W. Collins) to conduct an industrial hygiene study at 1345 West 21st Street in Chicago, Illinois on November 23rd, 24th, 25, and 30th, 2015. R.W. Collins was engaged to perform soil remediation near railway railroad tracks and associated railroad ties from multiple hazardous waste sites at the Pilsen Railroad Spur & Alley remediation project.

This study was conducted to quantify employee exposure to lead and arsenic during R.W. Collins activities within established hot zones and during remediation operations. Hygieneering and R.W. Collins collectively determined employees to sample for each work shift.

Travis Fellers, Safety & Health Technician, of Hygieneering performed fieldwork. Kevin Konkey, CSP, CET, CHMM, Vice President, Safety and Industrial Hygiene Services, was the senior project manager. Josh Bernat, Estimator for R.W. Collins, provided project coordination.

Objective / Scope of Work

The objective / scope of work for this project was as follows:

- Quantify potential employee exposure to lead and arsenic.

The results of this study were to assist in determining whether hazards exist and whether existing engineering, administrative controls, and employee personal protective equipment are adequate.

Summary of Air Sampling Results – Lead & Arsenic

Personal air sample results were evaluated using the Occupational Safety and Health Administration (OSHA) Permissible Exposure Limits (PELs) to determine regulatory compliance. The American Conference of Governmental Industrial Hygienists (ACGIH) Threshold Limit Values (TLVs) were used as recommended industry guidelines.

Personal Air Samples

Personal time weighted average (TWA) exposures were below OSHA PELs and ALs and ACGIH TLVs for lead and arsenic on all employees sampled.

These results are discussed in more detail within the text of this document. Detailed industrial hygiene air sampling data sheets are presented in **Appendix 1** and laboratory analytical results are in **Appendix 2**. Employee notification letters are presented in **Appendix 3**.

Recommendations

The following recommendations are provided for your consideration:

- Per 1926.62(d)(8)(i) “Lead” regulation employers must, as soon as possible but no later than 5 working days after the receipt of the results of any monitoring performed under this section, notify each affected employee of these results either individually in writing or by posting the results in an appropriate location that is accessible to employees. Employee notification letters have been provided in **Appendix 3** to assist in communicating results.
- OSHA’s construction standard 1926.1118 for Arsenic is identical to those set forth in the general industry regulation 1910.1018 for Arsenic. Thus the general industry regulation must be reference to determine regulatory requirements. Per 1910.1018(e)(5)(i) “Arsenic” regulation employers must, within 15 working days after the receipt of the results of any monitoring performed under this section, notify each affected employee of these results either individually in writing or by posting the results in an appropriate



location that is accessible to affected employees. Employee notification letters have been provided in **Appendix 3** to assist in communicating results.

- Consider further industrial hygiene evaluations if there are any changes in current operations, which may lead to higher or additional exposures. Additional exposure assessments during differing field conditions, weather conditions and on a periodic basis will provide further characterization of future employee exposures as well as the effectiveness of engineering controls, and employee work practices in reducing worker exposures.



DISCUSSION OF FINDINGS

Introduction

Hygieneering, Inc. (Hygieneering) was retained by R.W. Collins Company (R.W. Collins) to conduct an industrial hygiene study located at 1345 West 21st Street in Chicago, Illinois on November 23rd, 24th, 25, and 30th, 2015. R.W. Collins was engaged to perform soil remediation near railway railroad tracks and associated railroad ties from multiple hazardous waste sites at the Pilsen Railroad Spur & Alley remediation project.

This study was conducted to quantify employee exposure to lead and arsenic during R.W. Collins activities within established hot zones and during remediation operations. Hygieneering and R.W. Collins collectively determined employees to sample for each work shift.

Travis Fellers, Safety & Health Technician, of Hygieneering performed fieldwork. Kevin Konkey, CSP, CET, CHMM, Vice President, Safety and Industrial Hygiene Services, was the senior project manager. Josh Bernat, Estimator for R.W. Collins, provided project coordination.

Objectives / Scope of Work

The objectives / scope of work for this project was as follows:

- Quantify potential employee exposure to lead and arsenic.

The results of this study were to assist in determining whether hazards exist and whether existing engineering, administrative controls, and employee personal protective equipment are adequate.

Sampling Methodology

Sampling Strategy - Air

Personal air samples were collected using low-flow air sampling pumps. The flow rates of the pumps were calibrated with representative collection media in line before and after the sampling period. Personal air sample inlets were attached to the employee's breathing zones via tygon tubing from the pump. This sampling methodology is considered representative by OSHA to determine actual employee exposures. Air sampling was conducted in accordance with established industrial hygiene practices and Occupational Safety and Health Administration (OSHA) standards. Representative full shift samples were collected to evaluate employees' exposures to airborne contaminants determined by Compliance One and Hygieneering.

Galson Laboratories, a lab accredited by the American Industrial Hygiene Association (AIHA), analyzed the air samples. Practices and procedures used by this laboratory conform to the recommended methods developed by the National Institute of Occupational Safety and Health (NIOSH) and the Occupational Safety and Health Administration (OSHA).

The table below illustrates collection and analysis details regarding the air samples collected during this assessment:

Contaminant(s)	Media	Flow Rate	Analytical Method
Lead & Arsenic	3 Piece 37mm UW MCE Filter	2.0 liters/min	Modified NIOSH 7300 / Modified OSHA ID – 125G



Sample Evaluation Criteria - Air

Personal air sample results were evaluated using the Occupational Safety and Health Administration (OSHA) Permissible Exposure Limits (PELs) to determine regulatory compliance. The American Conference of Governmental Industrial Hygienists (ACGIH) Threshold Limit Values (TLVs) were used as recommended industry guidelines.

PELs and TLVs are airborne contaminant concentration limits that are carefully selected below the level it is believed that a healthy worker can be repeatedly exposed, eight hours a day, over a working lifetime without experiencing adverse health effects.

A PEL is a regulatory limit and represents the maximum allowable concentration of a contaminant to which an employee can be exposed during the workday. Both the PEL and TLV are comparable limits, though TLVs are recommended values, which cannot be legally enforced. PELs and TLVs can be established as a full-shift Time Weighted Average (TWA) exposure, Short Term Exposure Level (STEL), or Ceiling Limit.

TLVs are reviewed and revised annually to incorporate the latest scientific data, including; industrial experience, experimental human and animal studies and when possible, and a combination of the three. TLVs are used by professionals as guidelines and do not represent a strict separation between safe and hazardous occupational exposures.

Personal Air Sample Results – Lead & Arsenic

Personal time weighted average (TWA) exposures were below OSHA PELs and ALs and ACGIH TLVs for lead and arsenic for all employees sampled.

The following table provides a summary of results of the environmental air samples taken November 23, 2015:

Sample Number	Employee Name	Date	Contaminant	Measured Concentration	TWA Concentration	Exposure Standard		
						OSHA AL	OSHA PEL	ACGIH TLV
P-01	Jonathan Quintero	11/23/2015	Lead	0.00201 mg/m ³	0.0005 mg/m ³	0.03 mg/m ³	0.05 mg/m ³	0.05 mg/m ³
			Arsenic	<0.00123 mg/m ³	<0.00031 mg/m ³	0.005 mg/m ³	0.01 mg/m ³	0.01 mg/m ³
P-02	Edward Olmos	11/23/2015	Lead	0.000670 mg/m ³	0.00016 mg/m ³	0.03 mg/m ³	0.05 mg/m ³	0.05 mg/m ³
			Arsenic	0.00199 mg/m ³	0.00048 mg/m ³	0.005 mg/m ³	0.01 mg/m ³	0.01 mg/m ³

OSHA – Occupational Safety & Health Administration
TWA – Time Weighted Average
ACGIH - American Conference of Industrial Hygienists
mg/m³ – milligrams per cubic meter
Bold – Exceeded a Exposure Standard

PEL - Permissible Exposure Limit
AL – Action Level
TLV - Threshold Limit Values
< - Less Than



The following table provides a summary of results of the environmental air samples taken November 24, 2015:

Sample Number	Employee Name	Date	Contaminant	Measured Concentration	TWA Concentration	Exposure Standard		
						OSHA AL	OSHA PEL	ACGIH TLV
P-03	Jonathan Quintero	11/24/2015	Lead	0.000623 mg/m ³	0.00019 mg/m ³	0.03 mg/m ³	0.05 mg/m ³	0.05 mg/m ³
			Arsenic	0.00308 mg/m ³	0.000956 mg/m ³	0.005 mg/m ³	0.01 mg/m ³	0.01 mg/m ³
P-04	Mike Rose	11/24/2015	Lead	0.000835 mg/m ³	0.00023 mg/m ³	0.03 mg/m ³	0.05 mg/m ³	0.05 mg/m ³
			Arsenic	<0.00112 mg/m ³	<0.0003 mg/m ³	0.005 mg/m ³	0.01 mg/m ³	0.01 mg/m ³

OSHA – Occupational Safety & Health Administration
TWA – Time Weighted Average
ACGIH - American Conference of Industrial Hygienists
mg/m³ – milligrams per cubic meter
Bold – Exceeded a Exposure Standard

PEL - Permissible Exposure Limit
AL – Action Level
TLV - Threshold Limit Values
< - Less Than

The following table provides a summary of results of the environmental air samples taken November 25, 2015:

Sample Number	Employee Name	Date	Contaminant	Measured Concentration	TWA Concentration	Exposure Standard		
						OSHA AL	OSHA PEL	ACGIH TLV
P-05	Mike Rose	11/25/2015	Lead	<0.000207 mg/m ³	<0.00015 mg/m ³	0.03 mg/m ³	0.05 mg/m ³	0.05 mg/m ³
			Arsenic	<0.000438 mg/m ³	<0.00031 mg/m ³	0.005 mg/m ³	0.01 mg/m ³	0.01 mg/m ³
P-06	Jonathan Quintero	11/25/2015	Lead	0.000415 mg/m ³	0.00029 mg/m ³	0.03 mg/m ³	0.05 mg/m ³	0.05 mg/m ³
			Arsenic	0.00130 mg/m ³	0.00092 mg/m ³	0.005 mg/m ³	0.01 mg/m ³	0.01 mg/m ³

OSHA – Occupational Safety & Health Administration
TWA – Time Weighted Average
ACGIH - American Conference of Industrial Hygienists
mg/m³ – milligrams per cubic meter
Bold – Exceeded a Exposure Standard

PEL - Permissible Exposure Limit
AL – Action Level
TLV - Threshold Limit Values
< - Less Than



The following table provides a summary of results of the environmental air samples taken November 30, 2015:

Sample Number	Employee Name	Date	Contaminant	Measured Concentration	TWA Concentration	Exposure Standard		
						OSHA AL	OSHA PEL	ACGIH TLV
P-07	Edward Olmos	11/30/2015	Lead	0.00145 mg/m ³	0.00145 mg/m ³	0.03 mg/m ³	0.05 mg/m ³	0.05 mg/m ³
			Arsenic	<0.000308 mg/m ³	<0.000308 mg/m ³	0.005 mg/m ³	0.01 mg/m ³	0.01 mg/m ³
P-08	Jonathan Quintero	11/30/2015	Lead	0.000561 mg/m ³	0.000561 mg/m ³	0.03 mg/m ³	0.05 mg/m ³	0.05 mg/m ³
			Arsenic	<0.000327 mg/m ³	<0.000327 mg/m ³	0.005 mg/m ³	0.01 mg/m ³	0.01 mg/m ³

OSHA – Occupational Safety & Health Administration
TWA – Time Weighted Average
ACGIH - American Conference of Industrial Hygienists
mg/m³ – milligrams per cubic meter
Bold – Exceeded a Exposure Standard

PEL - Permissible Exposure Limit
AL – Action Level
TLV - Threshold Limit Values
< - Less Than

The following appendices present detailed sample data collection information and laboratory data:

- Appendix 1** – Industrial Hygiene Air Sampling Data Sheets
- Appendix 2** – Laboratory Analytical Results – Air Samples
- Appendix 3** – Employee Notification Letters



Recommendations

The following recommendations are provided for your consideration:

- Per 1926.62(d)(8)(i) “Lead” regulation employers must, as soon as possible but no later than 5 working days after the receipt of the results of any monitoring performed under this section, notify each affected employee of these results either individually in writing or by posting the results in an appropriate location that is accessible to employees. Employee notification letters have been provided in **Appendix 3** to assist in communicating results.
- OSHA’s construction standard 1926.1118 for Arsenic is identical to those set forth in the general industry regulation 1910.1018 for Arsenic. Thus the general industry regulation must be reference to determine regulatory requirements. Per 1910.1018(e)(5)(i) “Arsenic” regulation employers must, within 15 working days after the receipt of the results of any monitoring performed under this section, notify each affected employee of these results either individually in writing or by posting the results in an appropriate location that is accessible to affected employees. Employee notification letters have been provided in **Appendix 3** to assist in communicating results.
- Consider further industrial hygiene evaluations if there are any changes in current operations, which may lead to higher or additional exposures. Additional exposure assessments during differing field conditions, weather conditions and on a periodic basis will provide further characterization of future employee exposures as well as the effectiveness of engineering controls, and employee work practices in reducing worker exposures.

Report Applicability

Results of this study are based on conditions observed during this survey. Any changes in control measures, work practices, personnel, or materials may seriously alter the results of this or any industrial hygiene exposure study.

If you have any questions concerning this study, please feel free to contact us.

Respectfully submitted,
Hygieneering, Inc.

Travis Fellers
Health & Safety Technician

Kevin M. Konkey, CSP, CET, CHMM
Vice President, Safety & Industrial Hygiene Services

John Feller CIH, CSP
President



APPENDICES



APPENDIX 1

INDUSTRIAL HYGIENE AIR SAMPLING DATA SHEETS



Hygieneering, Inc.

industrial hygiene, safety and environmental consulting services

Sample Number(s):

310-69672-1

Related Sample Numbers:

P-01

INDUSTRIAL HYGIENE AIR SAMPLING DATA SHEET

Material(s) Sampled For:

Lead & Arsenic

Name Employee Sampled Jonathan Quintero	Project # 2015-2117	Shift Hours 7:00 AM - 3:00 PM
Facility/Location 1345 West 21st Street Chicago, IL	Area/Department Area 4	Date Sampled 11/23/2015
Description of Activities During Monitoring Jonathan was the inside laborer for the project. The beginning of the shift was spent waiting for equipment to arrive outside the hot zone. Several trucks were unloaded with equipment in the parking lot. Once the tractor arrived, the employees began donning PPE. Area 4 had 6 inches of soil removed from the top layer. Free flow mixture was added for remediation.		Additional Notes The Area 4 hot zone was properly labeled and had designated work areas. One (1) laborer and one (1) operator were inside the area 4 hot zone during remediation activities. One (1) laborer also worked outside the hot zone to assist with equipment when needed.
PPE Worn During Work Activities Tyvek suit, half face respirator with multi gas/P-100 cartridge, hard hat, gloves, boots, boot covers, and safety glasses were used for Level C PPE.	Existing Engineering/Other Exposure Control Measures Work was conducted outside and operator was inside an enclosed tractor while working.	Sampled By: Travis Fellers

SAMPLE DESCRIPTION				SAMPLE MEDIA			
<input checked="" type="checkbox"/> Personal-TWA	<input type="checkbox"/> Environmental	<input type="checkbox"/> Filter (PVC)	<input type="checkbox"/> Charcoal Tube	<input type="checkbox"/> Impinger Solution			
<input type="checkbox"/> Personal-STEL	<input type="checkbox"/> Bulk	<input checked="" type="checkbox"/> Filter (MCE)	<input type="checkbox"/> Treated Charcoal Tube	<input type="checkbox"/> Other:			
<input type="checkbox"/> Personal-Ceiling	<input type="checkbox"/> Other	<input type="checkbox"/> Glass Fiber Filter	<input type="checkbox"/> Silica Gel Tube				
<input type="checkbox"/> Personal > 480 min		<input type="checkbox"/> Other Filter	<input type="checkbox"/> Other Tube				
Air Sampling Instrument SKC Low Flow Sampling Pump		Calibration Method Rotameter		Initial Flow Rate (Liters/min) 2		Final Flow Rate (Liters/min) 2	
Start Time 12:05 PM	Stop Time 2:05 PM	Start Time N/A	Stop Time N/A	Total Sampling Time (Minutes) 120	Ave. Flow Rate (Liters/min) 2	Sample Volume (Liters) 240	

TWA DETERMINATION INFORMATION

Does this sample represent exposure over the entire shift? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No If no, explain: Employees unloading equipment for majority of the shift. Assign zero exposure for <u>360</u> minutes of shift during period not sampled. Explain reason: Employees were not conducting any remediation activities while unloading equipment in the parking lot.	<input type="checkbox"/> TWA cannot be calculated. Explain: Did any significant skin contact occur? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No If yes, explain:
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CONTAMINANT	MEASURED CONCENTRATION	8-HR TWA	EXPOSURE STANDARD			
			OSHA AL	OSHA 8-HR PEL	ACGIH TLV	
Lead	0.00201 mg/m ³	0.0005 mg/m ³	0.03 mg/m ³	0.05 mg/m ³	0.05 mg/m ³	
Arsenic	<0.00123 mg/m ³	<0.00031 mg/m ³	0.005 mg/m ³	0.01 mg/m ³	0.01 mg/m ³	

Laboratory & Login # Test America & 310-69672-1	Analytical Method NIOSH Method 7300 (Mod.)	QC By OAD	Date 11/24/2015
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Hygieneering, Inc.

industrial hygiene, safety and environmental consulting services

Sample Number(s):

310-69672-2

Related Sample Numbers:

P-02

INDUSTRIAL HYGIENE AIR SAMPLING DATA SHEET

Material(s) Sampled For:

Lead & Arsenic

Name Employee Sampled Edward Olmos	Project # 2015-2117	Shift Hours 7:00 AM - 3:00 PM
Facility/Location 1345 West 21st Street Chicago, IL	Area/Department Area 4	Date Sampled 11/23/2015
Description of Activities During Monitoring Edward was the outside laborer for the project and did not enter the hot zone. The beginning of the shift was spent waiting for equipment to arrive outside the hot zone. Several trucks were unloaded with equipment in the parking lot. Once the tractor arrived, the employees began donning PPE. Area 4 had 6 inches of soil removed from the top layer. Free flow mixture was added for remediation.		Additional Notes The Area 4 hot zone was properly labeled and had designated work areas. One (1) laborer and one (1) operator were inside the area 4 hot zone during remediation activities. One (1) laborer also worked outside the hot zone to assist with equipment when needed.
PPE Worn During Work Activities Boots, Hard Hat, Safety Glasses, and High Visibility Vest.	Existing Engineering/Other Exposure Control Measures Work was conducted outside and inside operator was inside an enclosed tractor while working.	Sampled By: Travis Fellers

SAMPLE DESCRIPTION				SAMPLE MEDIA			
<input checked="" type="checkbox"/> Personal-TWA	<input type="checkbox"/> Environmental	<input type="checkbox"/> Filter (PVC)	<input type="checkbox"/> Charcoal Tube	<input type="checkbox"/> Impinger Solution			
<input type="checkbox"/> Personal-STEL	<input type="checkbox"/> Bulk	<input checked="" type="checkbox"/> Filter (MCE)	<input type="checkbox"/> Treated Charcoal Tube	<input type="checkbox"/> Other:			
<input type="checkbox"/> Personal-Ceiling	<input type="checkbox"/> Other	<input type="checkbox"/> Glass Fiber Filter	<input type="checkbox"/> Silica Gel Tube				
<input type="checkbox"/> Personal > 480 min		<input type="checkbox"/> Other Filter	<input type="checkbox"/> Other Tube				
Air Sampling Instrument SKC Low Flow Sampling Pump		Calibration Method Rotameter		Initial Flow Rate (Liters/min) 2		Final Flow Rate (Liters/min) 2	
Start Time 12:10 PM	Stop Time 2:06 PM	Start Time N/A	Stop Time N/A	Total Sampling Time (Minutes) 116	Ave. Flow Rate (Liters/min) 2	Sample Volume (Liters) 232	

TWA DETERMINATION INFORMATION	
Does this sample represent exposure over the entire shift? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No If no, explain: Employees unloading equipment for majority of the shift. Assign zero exposure for <u>364</u> minutes of shift during period not sampled. Explain reason: Employees were not conducting any remediation activities while unloading equipment in the parking lot.	<input type="checkbox"/> TWA cannot be calculated. Explain: Did any significant skin contact occur? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No If yes, explain:

CONTAMINANT	MEASURED CONCENTRATION	8-HR TWA	EXPOSURE STANDARD			
			OSHA AL	OSHA 8-HR PEL	ACGIH TLV	
Lead	0.000670 mg/m ³	0.00016 mg/m ³	0.03 mg/m ³	0.05 mg/m ³	0.05 mg/m ³	
Arsenic	0.00199 mg/m ³	0.00048 mg/m ³	0.005 mg/m ³	0.01 mg/m ³	0.01 mg/m ³	

Laboratory & Login # Test America & 310-69672-1	Analytical Method NIOSH Method 7300 (Mod.)	QC By OAD	Date 11/24/2015
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Hygieneering, Inc.

industrial hygiene, safety and environmental consulting services

Sample Number(s):

310-69775-1

Related Sample Numbers:

P-03

INDUSTRIAL HYGIENE AIR SAMPLING DATA SHEET

Material(s) Sampled For:

Lead & Arsenic

Name Employee Sampled Jonathan Quintero	Project # 2015-2117	Shift Hours 7:00 AM - 3:00 PM
Facility/Location 1345 West 21st Street Chicago, IL	Area/Department Area 5	Date Sampled 11/24/2015
Description of Activities During Monitoring Jonathan was the inside laborer during the area 5 remediation. A morning safety briefing was conducted then the employees began to prep for area 5 remediation. Jonathan removed soil from the perimeter areas where the operator could not reach. The end of the shift was spent moving equipment to other areas for the next day. R.W. Collins also put fences up around the work areas.		Additional Notes Upon digging 6 inches into the soil, brick and concrete were found over the entire area 5 remediation area. This was deemed suitable as a control and no further remediation activities were needed for Area 5.
PPE Worn During Work Activities Tyvek suit, half face respirator with multi gas/P-100 cartridge, hard hat, gloves, boots, boot covers, and safety glasses were used for Level C PPE.	Existing Engineering/Other Exposure Control Measures Work was conducted outside and operator was inside an enclosed tractor while working.	Sampled By: Travis Fellers

SAMPLE DESCRIPTION				SAMPLE MEDIA			
<input checked="" type="checkbox"/> Personal-TWA	<input type="checkbox"/> Environmental	<input type="checkbox"/> Filter (PVC)	<input type="checkbox"/> Charcoal Tube	<input type="checkbox"/> Impinger Solution			
<input type="checkbox"/> Personal-STEL	<input type="checkbox"/> Bulk	<input checked="" type="checkbox"/> Filter (MCE)	<input type="checkbox"/> Treated Charcoal Tube	<input type="checkbox"/> Other:			
<input type="checkbox"/> Personal-Ceiling	<input type="checkbox"/> Other	<input type="checkbox"/> Glass Fiber Filter	<input type="checkbox"/> Silica Gel Tube				
<input type="checkbox"/> Personal > 480 min		<input type="checkbox"/> Other Filter	<input type="checkbox"/> Other Tube				
Air Sampling Instrument SKC Low Flow Sampling Pump		Calibration Method Rotameter		Initial Flow Rate (Liters/min) 2		Final Flow Rate (Liters/min) 2	
Start Time 8:30 AM	Stop Time 10:59 AM	Start Time N/A	Stop Time N/A	Total Sampling Time (Minutes) 149	Ave. Flow Rate (Liters/min) 2	Sample Volume (Liters) 298	

TWA DETERMINATION INFORMATION	
Does this sample represent exposure over the entire shift? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No If no, explain: Employees stoppped remediation activities in area 5 and put fences up around all the work area in the afternoon. Assign zero exposure for <u>331</u> minutes of shift during period not sampled. Explain reason: Employees stoppped remediation activities in area 5 and did not continue any remediation activities for the rest of the shift.	<input type="checkbox"/> TWA cannot be calculated. Explain: Did any significant skin contact occur? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No If yes, explain:

CONTAMINANT	MEASURED CONCENTRATION	8-HR TWA	EXPOSURE STANDARD			
			OSHA AL	OSHA 8-HR PEL	ACGIH TLV	
Lead	0.000623 mg/m ³	0.00019 mg/m ³	0.03 mg/m ³	0.05 mg/m ³	0.05 mg/m ³	
Arsenic	0.00308 mg/m ³	0.000956 mg/m ³	0.005 mg/m ³	0.01 mg/m ³	0.01 mg/m ³	

Laboratory & Login # Test America & 310-69775-1	Analytical Method NIOSH Method 7300 (Mod.)	QC By OAD	Date 11/25/2015
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Hygieneering, Inc.

industrial hygiene, safety and environmental consulting services

Sample Number(s):

310-69775-2

Related Sample Numbers:

P-04

INDUSTRIAL HYGIENE AIR SAMPLING DATA SHEET

Material(s) Sampled For:

Lead & Arsenic

Name Employee Sampled Mike Rose	Project # 2015-2117	Shift Hours 7:00 AM - 3:00 PM
Facility/Location 1345 West 21st Street Chicago, IL	Area/Department Area 5	Date Sampled 11/24/2015
Description of Activities During Monitoring Mike was the inside operator during the area 5 remediation. A morning safety briefing was conducted then the employees began to prep for area 5 remediation. Mike removed 6 inches of soil from area 5. The end of the shift was spent moving equipment to other areas for the next day. R.W. Collins also put fences up around the work areas.		Additional Notes Upon digging 6 inches into the soil, brick and concrete were found over the entire area 5 remediation area. This was deemed suitable as a control and no further remediation activities were needed for Area 5.
PPE Worn During Work Activities Tyvek suit, half face respirator with multi gas/P-100 cartridge, hard hat, gloves, boots, boot covers, and safety glasses were used for Level C PPE.	Existing Engineering/Other Exposure Control Measures Work was conducted outside and operator was inside an enclosed tractor while working.	Sampled By: Travis Fellers

SAMPLE DESCRIPTION				SAMPLE MEDIA			
<input checked="" type="checkbox"/> Personal-TWA	<input type="checkbox"/> Environmental	<input type="checkbox"/> Filter (PVC)	<input type="checkbox"/> Charcoal Tube	<input type="checkbox"/> Impinger Solution			
<input type="checkbox"/> Personal-STEL	<input type="checkbox"/> Bulk	<input checked="" type="checkbox"/> Filter (MCE)	<input type="checkbox"/> Treated Charcoal Tube	<input type="checkbox"/> Other:			
<input type="checkbox"/> Personal-Ceiling	<input type="checkbox"/> Other	<input type="checkbox"/> Glass Fiber Filter	<input type="checkbox"/> Silica Gel Tube				
<input type="checkbox"/> Personal > 480 min		<input type="checkbox"/> Other Filter	<input type="checkbox"/> Other Tube				
Air Sampling Instrument SKC Low Flow Sampling Pump		Calibration Method Rotameter		Initial Flow Rate (Liters/min) 2		Final Flow Rate (Liters/min) 2	
Start Time 8:45 AM	Stop Time 10:57 AM	Start Time N/A	Stop Time N/A	Total Sampling Time (Minutes) 132	Ave. Flow Rate (Liters/min) 2	Sample Volume (Liters) 264	

TWA DETERMINATION INFORMATION	
Does this sample represent exposure over the entire shift? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No If no, explain: Employees stoppped remediation activities in area 5 and put fences up around all the work area in the afternoon. Assign zero exposure for <u>348</u> minutes of shift during period not sampled. Explain reason: Employees stoppped remediation activities in area 5 and did not continue any remediation activities for the rest of the shift.	<input type="checkbox"/> TWA cannot be calculated. Explain: Did any significant skin contact occur? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No If yes, explain:

CONTAMINANT	MEASURED CONCENTRATION	8-HR TWA	EXPOSURE STANDARD			
			OSHA AL	OSHA 8-HR PEL	ACGIH TLV	
Lead	0.000835 mg/m ³	0.00023 mg/m ³	0.03 mg/m ³	0.05 mg/m ³	0.05 mg/m ³	
Arsenic	<0.00112 mg/m ³	<0.0003 mg/m ³	0.005 mg/m ³	0.01 mg/m ³	0.01 mg/m ³	

Laboratory & Login # Test America & 310-69775-1	Analytical Method NIOSH Method 7300 (Mod.)	QC By OAD	Date 11/25/2015
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Hygieneering, Inc.

industrial hygiene, safety and environmental consulting services

Sample Number(s):

310-69892-1

Related Sample Numbers:

P-05

INDUSTRIAL HYGIENE AIR SAMPLING DATA SHEET

Material(s) Sampled For:

Lead & Arsenic

Name Employee Sampled Mike Rose	Project # 2015-2117	Shift Hours 7:00 AM - 3:00 PM
Facility/Location 1345 West 21st Street Chicago, IL	Area/Department Area 8	Date Sampled 11/25/2015
Description of Activities During Monitoring Mike was the inside operator. On the west end of area 8 he removed 18 inches off the top of the soil for 20 feet from the end of the area. For the other 80 feet of the area, he removed 12 inches off the top of the soil to begin remediation. Free flow was added and mixed into the soil.		Additional Notes Near the end of the shift, RW Collins began clean up of the area and secured the work areas for the holiday weekend.
PPE Worn During Work Activities Tyvek suit, half face respirator with multi gas/P-100 cartridge, hard hat, gloves, boots, boot covers, and safety glasses were used for Level C PPE.	Existing Engineering/Other Exposure Control Measures Work was conducted outside and operator was inside an enclosed tractor while working.	Sampled By: Travis Fellers

SAMPLE DESCRIPTION				SAMPLE MEDIA			
<input checked="" type="checkbox"/> Personal-TWA	<input type="checkbox"/> Environmental	<input type="checkbox"/> Filter (PVC)	<input type="checkbox"/> Charcoal Tube	<input type="checkbox"/> Impinger Solution			
<input type="checkbox"/> Personal-STEL	<input type="checkbox"/> Bulk	<input checked="" type="checkbox"/> Filter (MCE)	<input type="checkbox"/> Treated Charcoal Tube	<input type="checkbox"/> Other:			
<input type="checkbox"/> Personal-Ceiling	<input type="checkbox"/> Other	<input type="checkbox"/> Glass Fiber Filter	<input type="checkbox"/> Silica Gel Tube				
<input type="checkbox"/> Personal > 480 min		<input type="checkbox"/> Other Filter	<input type="checkbox"/> Other Tube				
Air Sampling Instrument SKC Low Flow Sampling Pump		Calibration Method Rotameter		Initial Flow Rate (Liters/min) 2		Final Flow Rate (Liters/min) 2	
Start Time 7:57 AM	Stop Time 1:35 PM	Start Time N/A	Stop Time N/A	Total Sampling Time (Minutes) 338	Ave. Flow Rate (Liters/min) 2	Sample Volume (Liters) 676	

TWA DETERMINATION INFORMATION	
Does this sample represent exposure over the entire shift? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No If no, explain: Employees were not sampled during the morning safety briefing and stopped worked early because of the thanksgiving holiday. Assign zero exposure for <u>142</u> minutes of shift during period not sampled. Explain reason: Employees were not sampled during the morning safety briefing and stopped worked early because of the Thanksgiving holiday.	<input type="checkbox"/> TWA cannot be calculated. Explain: Did any significant skin contact occur? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No If yes, explain:

CONTAMINANT	MEASURED CONCENTRATION	8-HR TWA	EXPOSURE STANDARD			
			OSHA AL	OSHA 8-HR PEL	ACGIH TLV	
Lead	<0.000207 mg/m ³	<0.00015 mg/m ³	0.03 mg/m ³	0.05 mg/m ³	0.05 mg/m ³	
Arsenic	<0.000438 mg/m ³	<0.00031 mg/m ³	0.005 mg/m ³	0.01 mg/m ³	0.01 mg/m ³	

Laboratory & Login # Test America & 310-69892-1	Analytical Method NIOSH Method 7300 (Mod.)	QC By OAD	Date 11/27/2015
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Hygieneering, Inc.

industrial hygiene, safety and environmental consulting services

Sample Number(s):

310-69892-2

Related Sample Numbers:

P-06

INDUSTRIAL HYGIENE AIR SAMPLING DATA SHEET

Material(s) Sampled For:

Lead & Arsenic

Name Employee Sampled Jonathan Quintero	Project # 2015-2117	Shift Hours 7:00 AM - 3:00 PM
Facility/Location 1345 West 21st Street Chicago, IL	Area/Department Area	Date Sampled 11/25/2015
Description of Activities During Monitoring Jonathan was the inside laborer. On the west end of area 8, the operator removed 18 inches off the top of the soil for 20 feet from the end of the area. For the other 80 feet of the area, the operator removed 12 inches off the top of the soil to begin remediation. Free flow was added and mixed into the soil. Jonathan assisted in areas the operator could not reach.		Additional Notes Near the end of the shift, RW Collins began clean up of the area and secured the work areas for the holiday weekend.
PPE Worn During Work Activities Tyvek suit, half face respirator with multi gas/P-100 cartridge, hard hat, gloves, boots, boot covers, and safety glasses were used for Level C PPE.	Existing Engineering/Other Exposure Control Measures Work was conducted outside and operator was inside an enclosed tractor while working.	Sampled By: Travis Fellers

SAMPLE DESCRIPTION				SAMPLE MEDIA			
<input checked="" type="checkbox"/> Personal-TWA	<input type="checkbox"/> Environmental	<input type="checkbox"/> Filter (PVC)	<input type="checkbox"/> Charcoal Tube	<input type="checkbox"/> Impinger Solution			
<input type="checkbox"/> Personal-STEL	<input type="checkbox"/> Bulk	<input checked="" type="checkbox"/> Filter (MCE)	<input type="checkbox"/> Treated Charcoal Tube	<input type="checkbox"/> Other:			
<input type="checkbox"/> Personal-Ceiling	<input type="checkbox"/> Other	<input type="checkbox"/> Glass Fiber Filter	<input type="checkbox"/> Silica Gel Tube				
<input type="checkbox"/> Personal > 480 min		<input type="checkbox"/> Other Filter	<input type="checkbox"/> Other Tube				
Air Sampling Instrument SKC Low Flow Sampling Pump		Calibration Method Rotameter		Initial Flow Rate (Liters/min) 2		Final Flow Rate (Liters/min) 2	
Start Time 8:00 AM	Stop Time 1:43 PM	Start Time N/A	Stop Time N/A	Total Sampling Time (Minutes) 343	Ave. Flow Rate (Liters/min) 2	Sample Volume (Liters) 686	

TWA DETERMINATION INFORMATION	
Does this sample represent exposure over the entire shift? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No If no, explain: Employees were not sampled during the morning safety briefing and stopped worked early because of the thanksgiving holiday. Assign zero exposure for <u>137</u> minutes of shift during period not sampled. Explain reason: Employees were not sampled during the morning safety briefing and stopped worked early because of the Thanksgiving holiday.	<input type="checkbox"/> TWA cannot be calculated. Explain: Did any significant skin contact occur? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No If yes, explain:

CONTAMINANT	MEASURED CONCENTRATION	8-HR TWA	EXPOSURE STANDARD			
			OSHA AL	OSHA 8-HR PEL	ACGIH TLV	
Lead	0.000415 mg/m ³	0.00029 mg/m ³	0.03 mg/m ³	0.05 mg/m ³	0.05 mg/m ³	
Arsenic	0.00130 mg/m ³	0.00092 mg/m ³	0.005 mg/m ³	0.01 mg/m ³	0.01 mg/m ³	

Laboratory & Login # Test America & 310-69892-1	Analytical Method NIOSH Method 7300 (Mod.)	QC By OAD	Date 11/27/2015
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Hygieneering, Inc.

industrial hygiene, safety and environmental consulting services

Sample Number(s):

310-69964-1

Related Sample Numbers:

P-07

INDUSTRIAL HYGIENE AIR SAMPLING DATA SHEET

Material(s) Sampled For:

Lead & Arsenic

Name Employee Sampled Edward Olmos	Project # 2015-2117	Shift Hours 7:00 AM - 3:00 PM
Facility/Location 1345 West 21st Street Chicago, IL	Area/Department Area 1	Date Sampled 11/30/2015
Description of Activities During Monitoring Edward was the inside operator during the area 1 remediation. This first day consisted of removing trash and debris inside the area. Also, all the growing vegetation needed to be removed.		Additional Notes The first 2 hours of the shift was spent moving equipment to the area 1. The majority of the shift was spent inside area 1.
PPE Worn During Work Activities Hard hat, gloves, boots, boot covers, high visibility vest, and safety glasses.	Existing Engineering/Other Exposure Control Measures Work was conducted outside and operator was inside an enclosed tractor while working.	Sampled By: Travis Fellers

SAMPLE DESCRIPTION				SAMPLE MEDIA			
<input checked="" type="checkbox"/> Personal-TWA	<input type="checkbox"/> Environmental	<input type="checkbox"/> Filter (PVC)	<input type="checkbox"/> Charcoal Tube	<input type="checkbox"/> Impinger Solution			
<input type="checkbox"/> Personal-STEL	<input type="checkbox"/> Bulk	<input checked="" type="checkbox"/> Filter (MCE)	<input type="checkbox"/> Treated Charcoal Tube	<input type="checkbox"/> Other:			
<input type="checkbox"/> Personal-Ceiling	<input type="checkbox"/> Other	<input type="checkbox"/> Glass Fiber Filter	<input type="checkbox"/> Silica Gel Tube				
<input type="checkbox"/> Personal > 480 min		<input type="checkbox"/> Other Filter	<input type="checkbox"/> Other Tube				
Air Sampling Instrument SKC Low Flow Sampling Pump		Calibration Method Rotameter		Initial Flow Rate (Liters/min) 2		Final Flow Rate (Liters/min) 2	
Start Time 7:16 AM	Stop Time 3:16 PM	Start Time N/A	Stop Time N/A	Total Sampling Time (Minutes) 480	Ave. Flow Rate (Liters/min) 2	Sample Volume (Liters) 960	

TWA DETERMINATION INFORMATION

Does this sample represent exposure over the entire shift? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> TWA cannot be calculated. Explain:
If no, explain:	
Assign zero exposure for <u>N/A</u> minutes of shift during period not sampled. Explain reason:	Did any significant skin contact occur? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
	If yes, explain:

CONTAMINANT	MEASURED CONCENTRATION	8-HR TWA	EXPOSURE STANDARD			
			OSHA AL	OSHA 8-HR PEL	ACGIH TLV	
Lead	0.00145 mg/m ³	0.00145 mg/m ³	0.03 mg/m ³	0.05 mg/m ³	0.05 mg/m ³	
Arsenic	<0.000308 mg/m ³	<0.000308 mg/m ³	0.005 mg/m ³	0.01 mg/m ³	0.01 mg/m ³	

Laboratory & Login # Test America & 310-69964-1	Analytical Method NIOSH Method 7300 (Mod.)	QC By OAD	Date 12/1/2015
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Hygieneering, Inc.

industrial hygiene, safety and environmental consulting services

Sample Number(s):

310-69964-2

Related Sample Numbers:

P-08

INDUSTRIAL HYGIENE AIR SAMPLING DATA SHEET

Material(s) Sampled For:

Lead & Arsenic

Name Employee Sampled Jonathan Quintero	Project # 2015-2117	Shift Hours 7:00 AM - 3:00 PM
Facility/Location 1345 West 21st Street Chicago, IL	Area/Department Area 1	Date Sampled 11/30/2015
Description of Activities During Monitoring Jonathan was the inside operator during the area 1 remediation. This first day consisted of removing trash and debris inside the area. Also, all the growing vegetation needed to be removed.		Additional Notes The first 2 hours of the shift was spent moving equipment to the area 1. The majority of the shift was spent inside area 1.
PPE Worn During Work Activities Hard hat, gloves, boots, boot covers, high visibility vest, and safety glasses.	Existing Engineering/Other Exposure Control Measures Work was conducted outside and operator was inside an enclosed tractor while working.	Sampled By: Travis Fellers

SAMPLE DESCRIPTION				SAMPLE MEDIA			
<input checked="" type="checkbox"/> Personal-TWA	<input type="checkbox"/> Environmental	<input type="checkbox"/> Filter (PVC)	<input type="checkbox"/> Charcoal Tube	<input type="checkbox"/> Impinger Solution			
<input type="checkbox"/> Personal-STEL	<input type="checkbox"/> Bulk	<input checked="" type="checkbox"/> Filter (MCE)	<input type="checkbox"/> Treated Charcoal Tube	<input type="checkbox"/> Other:			
<input type="checkbox"/> Personal-Ceiling	<input type="checkbox"/> Other	<input type="checkbox"/> Glass Fiber Filter	<input type="checkbox"/> Silica Gel Tube				
<input type="checkbox"/> Personal > 480 min		<input type="checkbox"/> Other Filter	<input type="checkbox"/> Other Tube				
Air Sampling Instrument SKC Low Flow Sampling Pump		Calibration Method Rotameter		Initial Flow Rate (Liters/min) 2		Final Flow Rate (Liters/min) 2	
Start Time 7:18 AM	Stop Time 2:50 PM	Start Time N/A	Stop Time N/A	Total Sampling Time (Minutes) 452	Ave. Flow Rate (Liters/min) 2	Sample Volume (Liters) 904	

TWA DETERMINATION INFORMATION	
Does this sample represent exposure over the entire shift? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No If no, explain: Assign zero exposure for <u>N/A</u> minutes of shift during period not sampled. Explain reason:	<input type="checkbox"/> TWA cannot be calculated. Explain: Did any significant skin contact occur? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No If yes, explain:

CONTAMINANT	MEASURED CONCENTRATION	8-HR TWA	EXPOSURE STANDARD			
			OSHA AL	OSHA 8-HR PEL	ACGIH TLV	
Lead	0.000561 mg/m ³	0.000561 mg/m ³	0.03 mg/m ³	0.05 mg/m ³	0.05 mg/m ³	
Arsenic	<0.000327 mg/m ³	<0.000327 mg/m ³	0.005 mg/m ³	0.01 mg/m ³	0.01 mg/m ³	

Laboratory & Login # Test America & 310-69964-1	Analytical Method NIOSH Method 7300 (Mod.)	QC By OAD	Date 12/1/2015
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APPENDIX 2

LABORATORY ANALYTICAL RESULTS – AIR SAMPLES

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.

TestAmerica Cedar Falls

704 Enterprise Drive

Cedar Falls, IA 50613

Tel: (319)277-2401

TestAmerica Job ID: 310-69672-1

TestAmerica Sample Delivery Group: 2015-2117

Client Project/Site: R.W. Collins

Revision: 1

For:

Hygieneering Inc

7575 Plaza Court

Willowbrook, Illinois 60527

Attn: Kevin Konkey



Authorized for release by:

11/25/2015 12:30:02 PM

Brian Graettinger, Manager of Project Management

(319)277-2401

brian.graettinger@testamericainc.com

LINKS

Review your project
results through

TotalAccess

Have a Question?



Visit us at:

www.testamericainc.com

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

- 1
- 2
- 3
- 4
- 5
- 6
- 7

Unless otherwise noted, analyses included in this report were performed by TestAmerica Cedar Falls, 704 Enterprise Drive, Cedar Falls, IA 50613.

TestAmerica Cedar Falls (Lab ID 101044) is accredited by the American Industrial Hygiene Association Laboratory Accreditation Programs (AIHA-LAP), LLC in the industrial hygiene program for the analytical techniques noted on the scope of accreditation for the following methods: NIOSH 0500, NIOSH 0600, NIOSH 1003, NIOSH 1005, NIOSH 1022, NIOSH 1300, NIOSH 1500, NIOSH 1501, NIOSH 1615, OSHA 07, NIOSH 7300, NIOSH 7303 and NIOSH 9102. Volatile Organic Compounds accredited for Solid Sorbent Tubes and 3M Organic Vapor Monitors.

Method Modifications: TestAmerica Cedar Falls performs NIOSH 7300 Elements by ICP with the following method modification – the ashing acid and digestion acid are Nitric Acid (HNO₃) with no Perchloric Acid (HClO₄) utilized at any time during the analysis. TestAmerica Cedar Falls performs NIOSH 9102 Elements on Wipes with the following method modification – HNO₃ is used as the digestion acid with no HClO₄ utilized at any time during the analysis.

Unless otherwise noted, all method blanks and laboratory control spikes met method and/or laboratory quality control objectives for the analyses included in this report. Gravimetric analyses are not mathematically adjusted for blank values. Unless otherwise noted, all other sample results have been mathematically adjusted for blank values. The methods utilized for the analyses are fit for the intended use.



Brian Graettinger
Manager of Project Management
11/25/2015 12:30:02 PM

Case Narrative

Client: Hygieneering Inc
Project/Site: R.W. Collins

TestAmerica Job ID: 310-69672-1
SDG: 2015-2117

Job ID: 310-69672-1

Laboratory: TestAmerica Cedar Falls

Narrative

Job Narrative 310-69672-1

Comments

This report was amended on 11/25/15. The results were reported to the MDL at the request of the client. The MDL for Lead is 0.140 ug and the MDL for Arsenic is 0.296 ug.

Receipt

The samples were received on 11/24/2015 9:15 AM in good condition.

Metals

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Industrial Hygiene

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Sample Summary

Client: Hygieneering Inc
Project/Site: R.W. Collins

TestAmerica Job ID: 310-69672-1
SDG: 2015-2117

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
310-69672-1	P-01	Air	11/23/15 00:00	11/24/15 09:15
310-69672-2	P-02	Air	11/23/15 00:00	11/24/15 09:15
310-69672-3	B-01	Air	11/23/15 00:00	11/24/15 09:15

Client Sample Results

Client: Hygieneering Inc
Project/Site: R.W. Collins

TestAmerica Job ID: 310-69672-1
SDG: 2015-2117

Client Sample ID: P-01

Date Collected: 11/23/15 00:00

Date Received: 11/24/15 09:15

Sample Air Volume: 240 L

Lab Sample ID: 310-69672-1

Matrix: Air

Sample Container: IH - MCE, 0.8 micron, 37-mm Filter

Method: 7300 - NIOSH Method 7300 (Modified)

Analyte	Result ug/Sample	Result mg/m3	Result ug/m3	Qualifier	RL ug/Sample	Analyzed	Dil Fac	Analyst
Arsenic	<0.296	<0.00123	<1.23		5.00	11/24/15 18:58	1	OAD
Lead	0.483	0.00201	2.01	J	2.50	11/24/15 18:58	1	OAD

Client Sample ID: P-02

Date Collected: 11/23/15 00:00

Date Received: 11/24/15 09:15

Sample Air Volume: 232 L

Lab Sample ID: 310-69672-2

Matrix: Air

Sample Container: IH - MCE, 0.8 micron, 37-mm Filter

Method: 7300 - NIOSH Method 7300 (Modified)

Analyte	Result ug/Sample	Result mg/m3	Result ug/m3	Qualifier	RL ug/Sample	Analyzed	Dil Fac	Analyst
Arsenic	0.462	0.00199	1.99	J	5.00	11/24/15 19:02	1	OAD
Lead	0.155	0.000670	0.670	J	2.50	11/24/15 19:02	1	OAD

Client Sample ID: B-01

Date Collected: 11/23/15 00:00

Date Received: 11/24/15 09:15

Sample Air Volume: 0 L

Lab Sample ID: 310-69672-3

Matrix: Air

Sample Container: IH - MCE, 0.8 micron, 37-mm Filter

Method: 7300 - NIOSH Method 7300 (Modified)

Analyte	Result ug/Sample	Result	Result	Qualifier	RL ug/Sample	Analyzed	Dil Fac	Analyst
Arsenic	0.369			J	5.00	11/24/15 19:05	1	OAD
Lead	0.208			J	2.50	11/24/15 19:05	1	OAD

Certification and Definitions Summary

Client: Hygieneering Inc
Project/Site: R.W. Collins

TestAmerica Job ID: 310-69672-1
SDG: 2015-2117

Laboratory: TestAmerica Cedar Falls

All certifications held by this laboratory are listed. Not all certifications are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
AIHA-LAP, LLC	IHLAP		101044	11-01-16
Georgia	State Program	4	N/A	09-29-16
Illinois	NELAP	5	200024	11-29-15 *
Iowa	State Program	7	007	12-01-15 *
Kansas	NELAP	7	E-10341	01-31-15 *
Minnesota	NELAP	5	019-999-319	12-31-15
Minnesota (Petrofund)	State Program	1	3349	08-22-16
North Dakota	State Program	8	R-186	09-29-16
Oregon	NELAP	10	IA100001	09-29-16
Wisconsin	State Program	5	999917270	08-31-16

Qualifiers

IH - Metals

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
□	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

* Certification renewal pending - certification considered valid.

Method Summary

Client: Hygieneering Inc
Project/Site: R.W. Collins

TestAmerica Job ID: 310-69672-1
SDG: 2015-2117

Method	Method Description	Protocol	Laboratory
7300	NIOSH Method 7300 (Modified)	NIOSH	TAL CF

Protocol References:

NIOSH = NIOSH Manual Of Analytical Methods, National Institute For Occupational Safety And Health, 4th Edition, August 1994.

Laboratory References:

TAL CF = TestAmerica Cedar Falls, 704 Enterprise Drive, Cedar Falls, IA 50613, TEL (319)277-2401



310-69672 Chain of Custody
 Cedar Falls, IA Laboratory
 704 Enterprise Drive
 Cedar Falls, IA 50613
 Ph: 1-800-750-2401 or (319) 277-2401
 Fax: (319) 277-2425
 www.testamericainc.com

Laboratory Chain of Custody Form

Send Report To: KKonKey@hygieneering.com ; tFellers@hygieneering.com

Send Invoice To: lcarta@hygieneering.com

Company: Hygieneering Inc

Address: 7575 Plaza Ct.

City, State, Zip: Willowbrook, IL 60527

Page: 1 of 1

Phone: _____ Fax: _____ Email Address: _____

Sampler: Travis Fellers Project Name: R.W. Collins Project No.: 2015-2117 P.O. #: 2015-2117

Lab Number (Internal use Only)	Date Sampled	Sample Identification	Media Type (Filter, Tube, Passive Monitor)	Analysis Method(s)/Analytes(s)	Passive Monitor Time (Minutes)	Air Volume (Liters)	Pump ID
	11/23/15	P-01	UW MCE Filter	Lead & Arsenic CSHA-10121 / CSHA-10105	120 min.	240L	
	11/23/15	P-02	UW MCE Filter	Lead & Arsenic CSHA-10121 / CSHA-10105	116 min.	232L	
	11/23/15	B-01	UW MCE Filter	Lead & Arsenic CSHA-10121 / CSHA-10105	0 min.	0 L	

Sample Receipt	Reporting/Deliverables	Turn Around Time Requested
Temperature _____ °C Sample Seals: Yes <input checked="" type="checkbox"/> No _____ Sample Seals Intact: Yes <input checked="" type="checkbox"/> No _____ Total # of Samples: <u>3</u>	Hardcopy Results: Yes _____ No _____ E-Mail Results: Yes <input checked="" type="checkbox"/> No _____ EDD: Yes _____ No _____ Type: _____ Data Package: Standard Level II: _____ Level III: _____ Level IV: _____	<input checked="" type="checkbox"/> Next Day by 6pm _____ 2 Business Days _____ 3 Business Days _____ 4 Business Days _____ Standard 5 Business Days RUSH Charges Authorized _____ Yes _____ No Subject to scheduling and availability (RUSH surcharges apply)

Instructions / Special Requirements:

Date	Time	Samples Relinquished By	Received By
11/23/15	3:00pm	Travis Fellers	Cherie Holt 11-24-15 9:15

IH Sample Receipt Form

Client: Hygieneering Inc Project: _____

City: Willowbrook, IL

Date: 11-24-15 Receiver's Initials: CH Time (Delivered): 9:15

COC completed correctly? ☐ Yes ☐ No
(Cite inconsistencies below)

Sample Checklist (Mark non-conformance or acceptance)

<input type="checkbox"/>	Received Broken	<input type="checkbox"/>	Information Missing
<input type="checkbox"/>	Improper Media	<input type="checkbox"/>	Missing Sample
<input type="checkbox"/>	Missing Label	<input type="checkbox"/>	Sample Past Hold Date
<input type="checkbox"/>	Temperature	<input type="checkbox"/>	Extra Sample
<input type="checkbox"/>	COC Discrepancy	<input type="checkbox"/>	Insufficient Sample Volume
<input type="checkbox"/>	Other:		

☒ The samples, as received, are acceptable for analysis

Couriers

<input checked="" type="checkbox"/>	UPS	<input type="checkbox"/>	TA Courier
<input type="checkbox"/>	FedEx	<input type="checkbox"/>	Client
<input type="checkbox"/>	FedEx Ground	<input type="checkbox"/>	Other:
<input type="checkbox"/>	USPS	<input type="checkbox"/>	
<input type="checkbox"/>	Spee-Dee	<input type="checkbox"/>	

<input checked="" type="checkbox"/>	Samples not received in a cooler
<input checked="" type="checkbox"/>	Temperature not taken

Reviewed by: BCW Date: 11/24/15

Comments

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.

TestAmerica Cedar Falls

704 Enterprise Drive

Cedar Falls, IA 50613

Tel: (319)277-2401

TestAmerica Job ID: 310-69775-1

TestAmerica Sample Delivery Group: 2015-2117

Client Project/Site: R.W. Collins

For:

Hygieneering Inc

7575 Plaza Court

Willowbrook, Illinois 60527

Attn: Kevin Konkey



Authorized for release by:

11/25/2015 3:09:43 PM

Brian Graettinger, Manager of Project Management

(319)277-2401

brian.graettinger@testamericainc.com

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results through

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www.testamericainc.com

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.



Unless otherwise noted, analyses included in this report were performed by TestAmerica Cedar Falls, 704 Enterprise Drive, Cedar Falls, IA 50613.

TestAmerica Cedar Falls (Lab ID 101044) is accredited by the American Industrial Hygiene Association Laboratory Accreditation Programs (AIHA-LAP), LLC in the industrial hygiene program for the analytical techniques noted on the scope of accreditation for the following methods: NIOSH 0500, NIOSH 0600, NIOSH 1003, NIOSH 1005, NIOSH 1022, NIOSH 1300, NIOSH 1500, NIOSH 1501, NIOSH 1615, OSHA 07, NIOSH 7300, NIOSH 7303 and NIOSH 9102. Volatile Organic Compounds accredited for Solid Sorbent Tubes and 3M Organic Vapor Monitors.

Method Modifications: TestAmerica Cedar Falls performs NIOSH 7300 Elements by ICP with the following method modification – the ashing acid and digestion acid are Nitric Acid (HNO₃) with no Perchloric Acid (HClO₄) utilized at any time during the analysis. TestAmerica Cedar Falls performs NIOSH 9102 Elements on Wipes with the following method modification – HNO₃ is used as the digestion acid with no HClO₄ utilized at any time during the analysis.

Unless otherwise noted, all method blanks and laboratory control spikes met method and/or laboratory quality control objectives for the analyses included in this report. Gravimetric analyses are not mathematically adjusted for blank values. Unless otherwise noted, all other sample results have been mathematically adjusted for blank values. The methods utilized for the analyses are fit for the intended use.

Brian Graettinger
Manager of Project Management
11/25/2015 3:09:43 PM

Case Narrative

Client: Hygieneering Inc
Project/Site: R.W. Collins

TestAmerica Job ID: 310-69775-1
SDG: 2015-2117

Job ID: 310-69775-1

Laboratory: TestAmerica Cedar Falls

Narrative

Job Narrative 310-69775-1

Comments

The results were reported to the MDL at the request of the client. The MDL for Lead is 0.140 ug and the MDL for Arsenic is 0.296 ug.

Receipt

The samples were received on 11/25/2015 9:10 AM in good condition.

Metals

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Industrial Hygiene

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Sample Summary

Client: Hygieneering Inc
Project/Site: R.W. Collins

TestAmerica Job ID: 310-69775-1
SDG: 2015-2117

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
310-69775-1	P-03	Air	11/24/15 00:00	11/25/15 09:10
310-69775-2	P-04	Air	11/24/15 00:00	11/25/15 09:10
310-69775-3	B-02	Air	11/24/15 00:00	11/25/15 09:10

Client Sample Results

Client: Hygieneering Inc
Project/Site: R.W. Collins

TestAmerica Job ID: 310-69775-1
SDG: 2015-2117

Client Sample ID: P-03

Date Collected: 11/24/15 00:00

Date Received: 11/25/15 09:10

Sample Air Volume: 298 L

Lab Sample ID: 310-69775-1

Matrix: Air

Sample Container: IH - MCE, 0.8 micron, 37-mm Filter

Method: 7300 - NIOSH Method 7300 (Modified)

Analyte	Result ug/Sample	Result mg/m3	Result ug/m3	Qualifier	RL ug/Sample	Analyzed	Dil Fac	Analyst
Arsenic	0.918	0.00308	3.08	J	5.00	11/25/15 13:53	1	OAD
Lead	0.186	0.000623	0.623	J B	2.50	11/25/15 13:53	1	OAD

Client Sample ID: P-04

Date Collected: 11/24/15 00:00

Date Received: 11/25/15 09:10

Sample Air Volume: 264 L

Lab Sample ID: 310-69775-2

Matrix: Air

Sample Container: IH - MCE, 0.8 micron, 37-mm Filter

Method: 7300 - NIOSH Method 7300 (Modified)

Analyte	Result ug/Sample	Result mg/m3	Result ug/m3	Qualifier	RL ug/Sample	Analyzed	Dil Fac	Analyst
Arsenic	<0.296	<0.00112	<1.12		5.00	11/25/15 13:58	1	OAD
Lead	0.220	0.000835	0.835	J B	2.50	11/25/15 13:58	1	OAD

Client Sample ID: B-02

Date Collected: 11/24/15 00:00

Date Received: 11/25/15 09:10

Sample Air Volume: 0 L

Lab Sample ID: 310-69775-3

Matrix: Air

Sample Container: IH - MCE, 0.8 micron, 37-mm Filter

Method: 7300 - NIOSH Method 7300 (Modified)

Analyte	Result ug/Sample	Result	Result	Qualifier	RL ug/Sample	Analyzed	Dil Fac	Analyst
Arsenic	0.566			J	5.00	11/25/15 14:00	1	OAD
Lead	<0.140				2.50	11/25/15 14:00	1	OAD

Certification and Definitions Summary

Client: Hygieneering Inc
Project/Site: R.W. Collins

TestAmerica Job ID: 310-69775-1
SDG: 2015-2117

Laboratory: TestAmerica Cedar Falls

All certifications held by this laboratory are listed. Not all certifications are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
AIHA-LAP, LLC	IHLAP		101044	11-01-16
Georgia	State Program	4	N/A	09-29-16
Illinois	NELAP	5	200024	11-29-15 *
Iowa	State Program	7	007	12-01-15 *
Kansas	NELAP	7	E-10341	01-31-15 *
Minnesota	NELAP	5	019-999-319	12-31-15
Minnesota (Petrofund)	State Program	1	3349	08-22-16
North Dakota	State Program	8	R-186	09-29-16
Oregon	NELAP	10	IA100001	09-29-16
Wisconsin	State Program	5	999917270	08-31-16

Qualifiers

IH - Metals

Qualifier	Qualifier Description
B	Compound was found in the blank and sample.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
□	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

* Certification renewal pending - certification considered valid.

Method Summary

Client: Hygieneering Inc
Project/Site: R.W. Collins

TestAmerica Job ID: 310-69775-1
SDG: 2015-2117

Method	Method Description	Protocol	Laboratory
7300	NIOSH Method 7300 (Modified)	NIOSH	TAL CF

Protocol References:

NIOSH = NIOSH Manual Of Analytical Methods, National Institute For Occupational Safety And Health, 4th Edition, August 1994.

Laboratory References:

TAL CF = TestAmerica Cedar Falls, 704 Enterprise Drive, Cedar Falls, IA 50613, TEL (319)277-2401



310-69775 Chain of Custody
 Cedar Falls, IA Laboratory
 704 Enterprise Drive
 Cedar Falls, IA 50613
 Ph: 1-800-750-2401 or (319) 277-2401
 Fax: (319) 277-2425
 www.testamericainc.com

Laboratory Chain of Custody Form

Send Report To: Kevik Korkkey KKorkkey@hygieneering.com
Travis Fellers tfellers@hygieneering.com
 Send Invoice To: Laura Carta Lcarta@hygieneering.com
 Company: Hygieneering Inc.
 Address: 7575 Plaza Ct.
 City, State, Zip: Willowbrook, IL 60527

Page: 1 of 1 Phone: _____ Fax: _____ Email Address: _____
 Sampler: Travis Fellers Project Name: R.W. Collins Project No.: 2015-2117 P.O. #: 2015-2117

Lab Number (Internal use Only)	Date Sampled	Sample Identification	Media Type (Filter, Tube, Passive Monitor)	Analysis Method(s)/Analytes(s)	Passive Monitor Time (Minutes)	Air Volume (Liters)	Pump ID
	11/24/15	P-03	UW mCE filter	Lead & Arsenic	149	298 L	
	11/24/15	P-04	UW mCE filter	Lead & Arsenic	132	264 L	
	11/24/15	B-02	UW mCE filter	Lead & Arsenic	0 min	0 L	

Sample Receipt	Reporting/Deliverables	Turn Around Time Requested
Temperature _____ °C	Hardcopy Results: Yes _____ No _____	<input checked="" type="checkbox"/> Next Day by 6pm _____ 2 Business Days
Sample Seals: Yes <u>1</u> No _____	E-Mail Results: Yes <input checked="" type="checkbox"/> No _____	_____ 3 Business Days _____ 4 Business Days
Sample Seals Intact: Yes <u>1</u> No _____	EDD: Yes _____ No _____ Type: _____	_____ Standard 5 Business Days
Total # of Samples: <u>3</u>	Data Package: Standard Level II: _____	RUSH Charges Authorized _____ Yes _____ No
	Level III: _____ Level IV: _____	Subject to scheduling and availability (RUSH surcharges apply)

Instructions / Special Requirements: _____

Date	Time	Samples Relinquished By	Received By
11/24/15	2:30 pm	Travis Fellers	Annie Helot 11-25-15 9:10

IH Sample Receipt Form

Client: Hygienearring Inc Project: _____

City: _____

Date: 11-25-15 Receiver's Initials: CH Time (Delivered): 9:10

COC completed correctly? ☒ Yes ☐ No
(Cite inconsistencies below)

Sample Checklist (Mark non-conformance or acceptance)

<input type="checkbox"/>	Received Broken	<input type="checkbox"/>	Information Missing
<input type="checkbox"/>	Improper Media	<input type="checkbox"/>	Missing Sample
<input type="checkbox"/>	Missing Label	<input type="checkbox"/>	Sample Past Hold Date
<input type="checkbox"/>	Temperature	<input type="checkbox"/>	Extra Sample
<input type="checkbox"/>	COC Discrepancy	<input type="checkbox"/>	Insufficient Sample Volume
<input type="checkbox"/>	Other:		

Couriers

<input checked="" type="checkbox"/>	UPS	<input type="checkbox"/>	TA Courier
<input type="checkbox"/>	FedEx	<input type="checkbox"/>	Client
<input type="checkbox"/>	FedEx Ground	<input type="checkbox"/>	Other:
<input type="checkbox"/>	USPS	<input type="checkbox"/>	
<input type="checkbox"/>	Spee-Dee	<input type="checkbox"/>	

☒ The samples, as received, are acceptable for analysis

<input checked="" type="checkbox"/>	Samples not received in a cooler
<input checked="" type="checkbox"/>	Temperature not taken

Reviewed by: BCW Date: 11/25/15

Comments

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.

TestAmerica Cedar Falls

704 Enterprise Drive

Cedar Falls, IA 50613

Tel: (319)277-2401

TestAmerica Job ID: 310-69892-1

TestAmerica Sample Delivery Group: 2015-2117

Client Project/Site: R.W. Collins

For:

Hygieneering Inc

7575 Plaza Court

Willowbrook, Illinois 60527

Attn: Kevin Konkey



Authorized for release by:

11/30/2015 11:46:55 AM

Brian Graettinger, Manager of Project Management

(319)277-2401

brian.graettinger@testamericainc.com

LINKS

Review your project
results through

TotalAccess

Have a Question?



Visit us at:

www.testamericainc.com

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.



Unless otherwise noted, analyses included in this report were performed by TestAmerica Cedar Falls, 704 Enterprise Drive, Cedar Falls, IA 50613.

TestAmerica Cedar Falls (Lab ID 101044) is accredited by the American Industrial Hygiene Association Laboratory Accreditation Programs (AIHA-LAP), LLC in the industrial hygiene program for the analytical techniques noted on the scope of accreditation for the following methods: NIOSH 0500, NIOSH 0600, NIOSH 1003, NIOSH 1005, NIOSH 1022, NIOSH 1300, NIOSH 1500, NIOSH 1501, NIOSH 1615, OSHA 07, NIOSH 7300, NIOSH 7303 and NIOSH 9102. Volatile Organic Compounds accredited for Solid Sorbent Tubes and 3M Organic Vapor Monitors.

Method Modifications: TestAmerica Cedar Falls performs NIOSH 7300 Elements by ICP with the following method modification – the ashing acid and digestion acid are Nitric Acid (HNO₃) with no Perchloric Acid (HClO₄) utilized at any time during the analysis. TestAmerica Cedar Falls performs NIOSH 9102 Elements on Wipes with the following method modification – HNO₃ is used as the digestion acid with no HClO₄ utilized at any time during the analysis.

Unless otherwise noted, all method blanks and laboratory control spikes met method and/or laboratory quality control objectives for the analyses included in this report. Gravimetric analyses are not mathematically adjusted for blank values. Unless otherwise noted, all other sample results have been mathematically adjusted for blank values. The methods utilized for the analyses are fit for the intended use.

Brian Graettinger
Manager of Project Management
11/30/2015 11:46:55 AM

Case Narrative

Client: Hygieneering Inc
Project/Site: R.W. Collins

TestAmerica Job ID: 310-69892-1
SDG: 2015-2117

Job ID: 310-69892-1

Laboratory: TestAmerica Cedar Falls

Narrative

Job Narrative
310-69892-1

Comments

No additional comments.

Receipt

The samples were received on 11/27/2015 8:55 AM in good condition.

Metals

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Industrial Hygiene

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Sample Summary

Client: Hygieneering Inc
Project/Site: R.W. Collins

TestAmerica Job ID: 310-69892-1
SDG: 2015-2117

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
310-69892-1	P-05	Air	11/25/15 00:00	11/27/15 08:55
310-69892-2	P-06	Air	11/25/15 00:00	11/27/15 08:55
310-69892-3	B-03	Air	11/25/15 00:00	11/27/15 08:55

Client Sample Results

Client: Hygieneering Inc
Project/Site: R.W. Collins

TestAmerica Job ID: 310-69892-1
SDG: 2015-2117

Client Sample ID: P-05

Date Collected: 11/25/15 00:00

Date Received: 11/27/15 08:55

Sample Air Volume: 676 L

Lab Sample ID: 310-69892-1

Matrix: Air

Sample Container: IH - MCE, 0.8 micron, 37-mm Filter

Method: 7300 - NIOSH Method 7300 (Modified)

Analyte	Result ug/Sample	Result mg/m3	Result ug/m3	Qualifier	RL ug/Sample	Analyzed	Dil Fac	Analyst
Arsenic	<0.296	<0.000438	<0.438		5.00	11/27/15 18:08	1	OAD
Lead	<0.140	<0.000207	<0.207		2.50	11/27/15 18:08	1	OAD

Client Sample ID: P-06

Date Collected: 11/25/15 00:00

Date Received: 11/27/15 08:55

Sample Air Volume: 686 L

Lab Sample ID: 310-69892-2

Matrix: Air

Sample Container: IH - MCE, 0.8 micron, 37-mm Filter

Method: 7300 - NIOSH Method 7300 (Modified)

Analyte	Result ug/Sample	Result mg/m3	Result ug/m3	Qualifier	RL ug/Sample	Analyzed	Dil Fac	Analyst
Arsenic	0.891	0.00130	1.30	J	5.00	11/27/15 18:17	1	OAD
Lead	0.285	0.000415	0.415	J B	2.50	11/27/15 18:17	1	OAD

Client Sample ID: B-03

Date Collected: 11/25/15 00:00

Date Received: 11/27/15 08:55

Sample Air Volume: 0 L

Lab Sample ID: 310-69892-3

Matrix: Air

Sample Container: IH - MCE, 0.8 micron, 37-mm Filter

Method: 7300 - NIOSH Method 7300 (Modified)

Analyte	Result ug/Sample	Result mg/m3	Result ug/m3	Qualifier	RL ug/Sample	Analyzed	Dil Fac	Analyst
Arsenic	<0.296				5.00	11/27/15 18:22	1	OAD
Lead	0.235			J B	2.50	11/27/15 18:22	1	OAD

Certification and Definitions Summary

Client: Hygieneering Inc
Project/Site: R.W. Collins

TestAmerica Job ID: 310-69892-1
SDG: 2015-2117

Laboratory: TestAmerica Cedar Falls

All certifications held by this laboratory are listed. Not all certifications are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
AIHA-LAP, LLC	IHLAP		101044	11-01-16
Georgia	State Program	4	N/A	09-29-16
Illinois	NELAP	5	200024	11-29-16
Iowa	State Program	7	007	12-01-15 *
Kansas	NELAP	7	E-10341	01-31-15 *
Minnesota	NELAP	5	019-999-319	12-31-15
Minnesota (Petrofund)	State Program	1	3349	08-22-16
North Dakota	State Program	8	R-186	09-29-16
Oregon	NELAP	10	IA100001	09-29-16
Wisconsin	State Program	5	999917270	08-31-16

Qualifiers

IH - Metals

Qualifier	Qualifier Description
B	Compound was found in the blank and sample.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
□	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

* Certification renewal pending - certification considered valid.

Method Summary

Client: Hygieneering Inc
Project/Site: R.W. Collins

TestAmerica Job ID: 310-69892-1
SDG: 2015-2117

Method	Method Description	Protocol	Laboratory
7300	NIOSH Method 7300 (Modified)	NIOSH	TAL CF

Protocol References:

NIOSH = NIOSH Manual Of Analytical Methods, National Institute For Occupational Safety And Health, 4th Edition, August 1994.

Laboratory References:

TAL CF = TestAmerica Cedar Falls, 704 Enterprise Drive, Cedar Falls, IA 50613, TEL (319)277-2401



THE LEADER IN ENVIRONMENTAL TESTING

704 Enterprise Drive • Cedar Falls, IA 50613

Tel 319-277-2401 • Fax 319-277-2425



310-69892 Chain of Custody

IH Sample Receipt Form

Client: Hygieneering Project: RW Collins

City: Willowbrook IL

Date: 11-27-15 Receiver's Initials: afw Time (Delivered): 855

COC completed correctly? ☒ Yes ☐ No
(Cite inconsistencies below)

Sample Checklist (Mark non-conformance or acceptance)

<input type="checkbox"/>	Received Broken	<input type="checkbox"/>	Information Missing
<input type="checkbox"/>	Improper Media	<input type="checkbox"/>	Missing Sample
<input type="checkbox"/>	Missing Label	<input type="checkbox"/>	Sample Past Hold Date
<input type="checkbox"/>	Temperature	<input type="checkbox"/>	Extra Sample
<input type="checkbox"/>	COC Discrepancy	<input type="checkbox"/>	Insufficient Sample Volume
<input type="checkbox"/>	Other:		

☒ The samples, as received, are acceptable for analysis

Couriers

<input checked="" type="checkbox"/>	UPS	TA Courier
<input type="checkbox"/>	FedEx	Client
<input type="checkbox"/>	FedEx Ground	Other:
<input type="checkbox"/>	USPS	
<input type="checkbox"/>	Spee-Dee	

<input checked="" type="checkbox"/>	Samples not received in a cooler
<input checked="" type="checkbox"/>	Temperature not taken

Reviewed by: BCC Date: 11/30/15

Comments

Cedar Falls, IA Laboratory
704 Enterprise Drive
Cedar Falls, IA 50613
Ph: 1-800-750-2401 or (319) 277-2401
Fax: (319) 277-2425
www.testamericainc.com

Laboratory Chain of Custody Form

Send Report To: Kevin Konkey kkonkey@hygieneering.com
Travis Fellers tfellers@hygieneering.com

Send Invoice To: Laura Carta Lcarta@hygieneering.com

Company: Hygieneering.com

Address: 7575 Plaza Ct

City, State, Zip: Willowbrook IL 60527

Page: 1 of 1 Phone: _____ Fax: _____ Email Address: _____

Sampler: Travis Fellers Project Name: R.W. Collins Project No.: 2015-2117 P.O. #: 2015-2117

Lab Number (Internal use Only)	Date Sampled	Sample Identification	Media Type (Filter, Tube, Passive Monitor)	Analysis Method(s)/Analytes(s)	Passive Monitor Time (Minutes)	Air Volume (Liters)	Pump ID
	11/25/15	P-05	MCE filter	Lead & Arsenic	338	676 L	
	11/25/15	P-06	MCE filter	Lead & Arsenic	343	686 L	
	11/25/15	B-03	MCE filter	Lead & Arsenic	0	0 L	

Sample Receipt	Reporting/Deliverables	Turn Around Time Requested
Temperature _____ °C	Hardcopy Results: Yes _____ No _____	<input checked="" type="checkbox"/> Next Day by 6pm _____ 2 Business Days
Sample Seals: Yes <input checked="" type="checkbox"/> No _____	E-Mail Results: Yes <input checked="" type="checkbox"/> No _____	_____ 3 Business-Days _____ 4 Business Days
Sample Seals Intact: Yes <input checked="" type="checkbox"/> No _____	EDD: Yes _____ No _____ Type: _____	_____ Standard 5 Business Days
Total # of Samples: <u>3</u>	Data Package: Standard Level II: _____	RUSH Charges Authorized _____ Yes _____ No
	Level III: _____ Level IV: _____	Subject to scheduling and availability (RUSH surcharges apply)

Instructions / Special Requirements: _____

Date	Time	Samples Relinquished By	Received By
11/25/15	2:30 pm	Travis Fellers	Ashley L. Worley 11-27-15 855

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.

TestAmerica Cedar Falls

704 Enterprise Drive

Cedar Falls, IA 50613

Tel: (319)277-2401

TestAmerica Job ID: 310-69964-1

TestAmerica Sample Delivery Group: 2015-2117

Client Project/Site: R.W. Collins

For:

Hygieneering Inc

7575 Plaza Court

Willowbrook, Illinois 60527

Attn: Kevin Konkey



Authorized for release by:

12/2/2015 4:03:43 PM

Brian Graettinger, Manager of Project Management

(319)277-2401

brian.graettinger@testamericainc.com

LINKS

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results through

TotalAccess

Have a Question?



Visit us at:

www.testamericainc.com

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.



Unless otherwise noted, analyses included in this report were performed by TestAmerica Cedar Falls, 704 Enterprise Drive, Cedar Falls, IA 50613.

TestAmerica Cedar Falls (Lab ID 101044) is accredited by the American Industrial Hygiene Association Laboratory Accreditation Programs (AIHA-LAP), LLC in the industrial hygiene program for the analytical techniques noted on the scope of accreditation for the following methods: NIOSH 0500, NIOSH 0600, NIOSH 1003, NIOSH 1005, NIOSH 1022, NIOSH 1300, NIOSH 1500, NIOSH 1501, NIOSH 1615, OSHA 07, NIOSH 7300, NIOSH 7303 and NIOSH 9102. Volatile Organic Compounds accredited for Solid Sorbent Tubes and 3M Organic Vapor Monitors.

Method Modifications: TestAmerica Cedar Falls performs NIOSH 7300 Elements by ICP with the following method modification – the ashing acid and digestion acid are Nitric Acid (HNO₃) with no Perchloric Acid (HClO₄) utilized at any time during the analysis. TestAmerica Cedar Falls performs NIOSH 9102 Elements on Wipes with the following method modification – HNO₃ is used as the digestion acid with no HClO₄ utilized at any time during the analysis.

Unless otherwise noted, all method blanks and laboratory control spikes met method and/or laboratory quality control objectives for the analyses included in this report. Gravimetric analyses are not mathematically adjusted for blank values. Unless otherwise noted, all other sample results have been mathematically adjusted for blank values. The methods utilized for the analyses are fit for the intended use.

Brian Graettinger
Manager of Project Management
12/2/2015 4:03:43 PM

Case Narrative

Client: Hygieneering Inc
Project/Site: R.W. Collins

TestAmerica Job ID: 310-69964-1
SDG: 2015-2117

Job ID: 310-69964-1

Laboratory: TestAmerica Cedar Falls

Narrative

Job Narrative 310-69964-1

Comments

The results were reported to the MDL at the request of the client. The MDL for Lead is 0.140 ug and the MDL for Arsenic is 0.296 ug.

Receipt

The samples were received on 12/1/2015 10:40 AM in good condition.

Metals

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Industrial Hygiene

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Sample Summary

Client: Hygieneering Inc
Project/Site: R.W. Collins

TestAmerica Job ID: 310-69964-1
SDG: 2015-2117

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
310-69964-1	P-07	Air	11/30/15 00:00	12/01/15 10:40
310-69964-2	P-08	Air	11/30/15 00:00	12/01/15 10:40
310-69964-3	B-04	Air	11/30/15 00:00	12/01/15 10:40

Client Sample Results

Client: Hygieneering Inc
Project/Site: R.W. Collins

TestAmerica Job ID: 310-69964-1
SDG: 2015-2117

Client Sample ID: P-07

Date Collected: 11/30/15 00:00

Date Received: 12/01/15 10:40

Sample Air Volume: 960 L

Lab Sample ID: 310-69964-1

Matrix: Air

Sample Container: IH - MCE, 0.8 micron, 37-mm Filter

Method: 7300 - NIOSH Method 7300 (Modified)

Analyte	Result ug/Sample	Result mg/m3	Result ug/m3	Qualifier	RL ug/Sample	Analyzed	Dil Fac	Analyst
Arsenic	<0.296	<0.000308	<0.308		5.00	12/02/15 13:31	1	OAD
Lead	1.39	0.00145	1.45	J B	2.50	12/02/15 13:31	1	OAD

Client Sample ID: P-08

Date Collected: 11/30/15 00:00

Date Received: 12/01/15 10:40

Sample Air Volume: 904 L

Lab Sample ID: 310-69964-2

Matrix: Air

Sample Container: IH - MCE, 0.8 micron, 37-mm Filter

Method: 7300 - NIOSH Method 7300 (Modified)

Analyte	Result ug/Sample	Result mg/m3	Result ug/m3	Qualifier	RL ug/Sample	Analyzed	Dil Fac	Analyst
Arsenic	<0.296	<0.000327	<0.327		5.00	12/02/15 13:40	1	OAD
Lead	0.507	0.000561	0.561	J B	2.50	12/02/15 13:40	1	OAD

Client Sample ID: B-04

Date Collected: 11/30/15 00:00

Date Received: 12/01/15 10:40

Sample Air Volume: 0 L

Lab Sample ID: 310-69964-3

Matrix: Air

Sample Container: IH - MCE, 0.8 micron, 37-mm Filter

Method: 7300 - NIOSH Method 7300 (Modified)

Analyte	Result ug/Sample	Result	Result	Qualifier	RL ug/Sample	Analyzed	Dil Fac	Analyst
Arsenic	<0.296				5.00	12/02/15 13:45	1	OAD
Lead	<0.140				2.50	12/02/15 13:45	1	OAD

Certification and Definitions Summary

Client: Hygieneering Inc
Project/Site: R.W. Collins

TestAmerica Job ID: 310-69964-1
SDG: 2015-2117

Laboratory: TestAmerica Cedar Falls

All certifications held by this laboratory are listed. Not all certifications are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
AIHA-LAP, LLC	IHLAP		101044	11-01-16
Georgia	State Program	4	N/A	09-29-16
Illinois	NELAP	5	200024	11-29-16
Iowa	State Program	7	007	12-01-15 *
Kansas	NELAP	7	E-10341	01-31-15 *
Minnesota	NELAP	5	019-999-319	12-31-15
Minnesota (Petrofund)	State Program	1	3349	08-22-16
North Dakota	State Program	8	R-186	09-29-16
Oregon	NELAP	10	IA100001	09-29-16
Wisconsin	State Program	5	999917270	08-31-16

Qualifiers

IH - Metals

Qualifier	Qualifier Description
B	Compound was found in the blank and sample.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
□	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

* Certification renewal pending - certification considered valid.

Method Summary

Client: Hygieneering Inc
Project/Site: R.W. Collins

TestAmerica Job ID: 310-69964-1
SDG: 2015-2117

Method	Method Description	Protocol	Laboratory
7300	NIOSH Method 7300 (Modified)	NIOSH	TAL CF

Protocol References:

NIOSH = NIOSH Manual Of Analytical Methods, National Institute For Occupational Safety And Health, 4th Edition, August 1994.

Laboratory References:

TAL CF = TestAmerica Cedar Falls, 704 Enterprise Drive, Cedar Falls, IA 50613, TEL (319)277-2401



310-69964 Chain of Custody
Cedar Falls, IA Laboratory
704 Enterprise Drive
Cedar Falls, IA 50613
Ph: 1-800-750-2401 or (319) 277-2401
Fax: (319) 277-2425
www.testamericainc.com

Laboratory Chain of Custody Form

Send Report To: Kevin Monkey kmonkey@hygieneering.com
Travis Fellers tfellers@hygieneering.com

Send Invoice To: Lara Carta lcarta@hygieneering.com

Company: Hygieneering Inc.

Address: 7575 Plaza Court

City, State, Zip: Willowbrook IL 60527

Page: 1 of 1 Phone: _____ Fax: _____ Email Address: _____

Sampler: Travis Fellers Project Name: R.W. Collins Project No.: 2015-2117 P.O. #: 2015-2117

Lab Number (Internal use Only)	Date Sampled	Sample Identification	Media Type (Filter, Tube, Passive Monitor)	Analysis Method(s)/Analytes(s)	Passive Monitor Time (Minutes)	Air Volume (Liters)	Pump ID
	11/30/15	P-07	MCE Filter	Lead & Arsenic	480	960L	
	11/30/15	P-08	MCE Filter	Lead & Arsenic	452	904L	
	11/30/15	B-04	MCE Filter	Lead & Arsenic	0	0L	

Sample Receipt	Reporting/Deliverables	Turn Around Time Requested
Temperature _____ °C	Hardcopy Results: Yes _____ No _____	<input checked="" type="checkbox"/> Next Day by 6pm _____ 2 Business Days
Sample Seals: Yes <input checked="" type="checkbox"/> No _____	E-Mail Results: Yes <input checked="" type="checkbox"/> No _____	_____ 3 Business Days _____ 4 Business Days
Sample Seals Intact: Yes <input checked="" type="checkbox"/> No _____	EDD: Yes _____ No _____ Type: _____	_____ Standard 5 Business Days
Total # of Samples: <u>3</u>	Data Package: Standard Level II: _____	RUSH Charges Authorized _____ Yes _____ No
	Level III: _____ Level IV: _____	Subject to scheduling and availability (RUSH surcharges apply)

Instructions / Special Requirements: _____

Date	Time	Samples Relinquished By	Received By
11/30/15	5:00pm	Travis Fellers	Annmarie 12-1-15 10:40



THE LEADER IN ENVIRONMENTAL TESTING

704 Enterprise Drive • Cedar Falls, IA 50613

Tel 319-277-2401 • Fax 319-277-2425

IH Sample Receipt Form

Client: Hygieneering Inc Project: _____

City: _____

Date: 12-1-15 Receiver's Initials: CH Time (Delivered): 10:40

COC completed correctly? ☒ Yes ☐ No
(Cite inconsistencies below)

Sample Checklist (Mark non-conformance or acceptance)

<input type="checkbox"/>	Received Broken	<input type="checkbox"/>	Information Missing
<input type="checkbox"/>	Improper Media	<input type="checkbox"/>	Missing Sample
<input type="checkbox"/>	Missing Label	<input type="checkbox"/>	Sample Past Hold Date
<input type="checkbox"/>	Temperature	<input type="checkbox"/>	Extra Sample
<input type="checkbox"/>	COC Discrepancy	<input type="checkbox"/>	Insufficient Sample Volume
<input type="checkbox"/>	Other:		

Couriers

<input checked="" type="checkbox"/> UPS	TA Courier
<input type="checkbox"/> FedEx	Client
<input type="checkbox"/> FedEx Ground	Other:
<input type="checkbox"/> USPS	
<input type="checkbox"/> Spee-Dee	

☒ The samples, as received, are acceptable for analysis

<input checked="" type="checkbox"/> Samples not received in a cooler
<input checked="" type="checkbox"/> Temperature not taken

Reviewed by: BCG Date: 12/1/15

Comments



APPENDIX 3

EMPLOYEE NOTIFICATION LETTERS

December 30, 2015

Mr. Edward Olmos
R.W. Collins Company
7225 West 66th Street
Chicago, Illinois 60638

RE: Personal Air Sampling Results for Lead & Arsenic

Dear Mr. Edward Olmos,

On November 23rd & 30th, 2015 R.W. Collins conducted a study to determine your personal exposure to lead and arsenic. This letter is to notify you of the results of the exposure monitoring.

Your personal exposures were below the Occupational Safety & Health Administration (OSHA) Action Limit (AL) and Permissible Exposure Limit (PEL) as well as the American Conference of Governmental Industrial Hygienists (ACGIH) Threshold Limit Values (TLVs).

The table below summarizes your personal air sampling results:

Date Sampled	CONTAMINANT (Sample ID)	8-HOUR TWA	EXPOSURE STANDARD		
			OSHA AL	OSHA PEL	ACGIH TLV
11/23/2015	Lead	0.00016 mg/m ³	0.03 mg/m ³	0.05 mg/m ³	0.05 mg/m ³
11/23/2015	Arsenic	0.00048 mg/m ³	0.005 mg/m ³	0.01 mg/m ³	0.01 mg/m ³
11/30/2015	Lead	0.00145 mg/m ³	0.03 mg/m ³	0.05 mg/m ³	0.05 mg/m ³
11/30/2015	Arsenic	<0.000308 mg/m ³	0.005 mg/m ³	0.01 mg/m ³	0.01 mg/m ³

OSHA – Occupational Safety & Health Administration
TWA – Time Weighted Average
ACGIH - American Conference of Industrial Hygienists
mg/m³ – milligrams per cubic meter
Bold – Exceeded a Exposure Standard

PEL - Permissible Exposure Limit
AL – Action Level
TLV - Threshold Limit Values
< - Less Than

Continue to utilize available engineering controls and good hygiene practices to assist in reducing personal exposure to lead and arsenic. This document satisfies OSHA's employee notification requirements per 29 CFR 1926.62 for lead as well as 29 CFR 1926.1118 for Arsenic.

If you have any questions regarding this monitoring, please contact the Environmental, Safety & Health Department.

Reviewed by:
R.W. Collins Company

Acknowledged by Employee

Date

cc: Human Resources/Medical Department

December 30, 2015

Mr. Jonathan Quintero
R.W. Collins Company
7225 West 66th Street
Chicago, Illinois 60638

RE: Personal Air Sampling Results for Lead & Arsenic

Dear Mr. Jonathan Quintero,

On November 23rd, 24th, 25th, & 30th, 2015 R.W. Collins conducted a study to determine your personal exposure to lead and arsenic. This letter is to notify you of the results of the exposure monitoring.

Your personal exposures were below the Occupational Safety & Health Administration (OSHA) Action Limit (AL) and Permissible Exposure Limit (PEL) as well as the American Conference of Governmental Industrial Hygienists (ACGIH) Threshold Limit Values (TLVs).

The table below summarizes your personal air sampling results:

Date Sampled	CONTAMINANT (Sample ID)	8-HOUR TWA	EXPOSURE STANDARD		
			OSHA AL	OSHA PEL	ACGIH TLV
11/23/2015	Lead	0.0005 mg/m ³	0.03 mg/m ³	0.05 mg/m ³	0.05 mg/m ³
11/23/2015	Arsenic	<0.00031 mg/m ³	0.005 mg/m ³	0.01 mg/m ³	0.01 mg/m ³
11/24/2015	Lead	0.00019 mg/m ³	0.03 mg/m ³	0.05 mg/m ³	0.05 mg/m ³
11/24/2015	Arsenic	0.000956 mg/m ³	0.005 mg/m ³	0.01 mg/m ³	0.01 mg/m ³
11/25/2015	Lead	0.00029 mg/m ³	0.03 mg/m ³	0.05 mg/m ³	0.05 mg/m ³
11/25/2015	Arsenic	0.00092 mg/m ³	0.005 mg/m ³	0.01 mg/m ³	0.01 mg/m ³
11/30/2015	Lead	0.000561 mg/m ³	0.03 mg/m ³	0.05 mg/m ³	0.05 mg/m ³
11/30/2015	Arsenic	<0.000327 mg/m ³	0.005 mg/m ³	0.01 mg/m ³	0.01 mg/m ³

OSHA – Occupational Safety & Health Administration
TWA – Time Weighted Average
ACGIH - American Conference of Industrial Hygienists
mg/m³ – milligrams per cubic meter
Bold – Exceeded a Exposure Standard

PEL - Permissible Exposure Limit
AL – Action Level
TLV - Threshold Limit Values
< - Less Than

Continue to utilize available engineering controls and good hygiene practices to assist in reducing personal exposure to lead and arsenic. This document satisfies OSHA's employee notification requirements per 29 CFR 1926.62 for lead as well as 29 CFR 1926.1118 for Arsenic. If you have any questions regarding this monitoring, please contact the Environmental, Safety & Health Department.

Reviewed by:
R.W. Collins Company

Acknowledged by Employee

Date

cc: Human Resources/Medical Department

December 30, 2015

Mr. Mike Rose
R.W. Collins Company
7225 West 66th Street
Chicago, Illinois 60638

RE: Personal Air Sampling Results for Lead & Arsenic

Dear Mr. Mike Rose,

On November 24th & 25th, 2015 R.W. Collins conducted a study to determine your personal exposure to lead and arsenic. This letter is to notify you of the results of the exposure monitoring.

Your personal exposures were below the Occupational Safety & Health Administration (OSHA) Action Limit (AL) and Permissible Exposure Limit (PEL) as well as the American Conference of Governmental Industrial Hygienists (ACGIH) Threshold Limit Values (TLVs).

The table below summarizes your personal air sampling results:

Date Sampled	CONTAMINANT (Sample ID)	8-HOUR TWA	EXPOSURE STANDARD		
			OSHA AL	OSHA PEL	ACGIH TLV
11/24/2015	Lead	0.00023 mg/m ³	0.03 mg/m ³	0.05 mg/m ³	0.05 mg/m ³
11/24/2015	Arsenic	<0.0003 mg/m ³	0.005 mg/m ³	0.01 mg/m ³	0.01 mg/m ³
11/25/2015	Lead	<0.00015 mg/m ³	0.03 mg/m ³	0.05 mg/m ³	0.05 mg/m ³
11/25/2015	Arsenic	<0.00031 mg/m ³	0.005 mg/m ³	0.01 mg/m ³	0.01 mg/m ³

OSHA – Occupational Safety & Health Administration
TWA – Time Weighted Average
ACGIH - American Conference of Industrial Hygienists
mg/m³ – milligrams per cubic meter
Bold – Exceeded a Exposure Standard

PEL - Permissible Exposure Limit
AL – Action Level
TLV - Threshold Limit Values
< - Less Than

Continue to utilize available engineering controls and good hygiene practices to assist in reducing personal exposure to lead and arsenic. This document satisfies OSHA's employee notification requirements per 29 CFR 1926.62 for lead as well as 29 CFR 1926.1118 for Arsenic.

If you have any questions regarding this monitoring, please contact the Environmental, Safety & Health Department.

Reviewed by:
R.W. Collins Company

Acknowledged by Employee

Date

cc: Human Resources/Medical Department

Appendix G

Particulate Monitoring Summary

Dust Particulate Monitoring Data

OU1 Alley & Railroad

Date: 11/16/2015

Date	Downwind Time	Upwind Time	Downwind Average (mg/m3)	Upwind Average (mg/m3)	Difference (mg/m3)	Exceeds 0.150 mg/m3
11/16/2015	10:35:18	10:41:46	0.021	-0.062	0.021	No
11/16/2015	11:05:48	11:12:16	0.017	-0.11	0.017	No
11/16/2015	11:36:18	11:42:46	0.018	-0.113	0.018	No
11/16/2015	12:06:48	12:13:16	0.019	-0.079	0.019	No
11/16/2015	12:37:18	12:43:46	0.017	-0.061	0.017	No
11/16/2015	13:07:48	13:14:16	0.021	-0.041	0.021	No
11/16/2015	13:38:18	13:44:46	0.02	-0.026	0.02	No
11/16/2015	14:08:48	14:15:16	0.024	-0.007	0.024	No
11/16/2015	14:39:18	14:45:46	0.025	-0.003	0.025	No

Notes:

Negative reading rounded off to zero

Dust Particulate Monitoring Data

OU1 Alley & Railroad

Date: 11/17/2015

Date	Downwind Time	Upwind Time	Downwind Average (mg/m3)	Upwind Average (mg/m3)	Difference (mg/m3)	Exceeds 0.150 mg/m3
11/17/2015	7:56:46	8:04:18	0.019	0.009	0.019	No
11/17/2015	8:27:16	8:34:48	0.022	-0.001	0.022	No
11/17/2015	8:57:46	9:05:18	0.025	-0.002	0.025	No
11/17/2015	9:28:16	9:35:48	0.028	-0.006	0.028	No
11/17/2015	9:58:46	10:06:18	0.024	-0.019	0.024	No
11/17/2015	10:29:16	10:36:48	0.024	-0.025	0.024	No
11/17/2015	10:59:46	11:07:18	0.021	-0.028	0.021	No
11/17/2015	11:30:16	11:37:48	0.018	-0.037	0.018	No
11/17/2015	12:00:46	12:08:18	0.016	-0.048	0.016	No
11/17/2015	12:31:16	12:38:48	0.019	-0.045	0.019	No
11/17/2015	13:01:46	13:09:18	0.022	-0.046	0.022	No

Notes

Negative reading rounded off to zero

Upwind monitor was malfunctioning as the unit would not hold its calibration.

Dust Particulate Monitoring Data

OU1 Alley & Railroad

Date: 11/18/2015

Date	Downwind Time	Upwind Time	Downwind Average (mg/m3)	Upwind Average (mg/m3)	Difference (mg/m3)	Exceeds 0.150 mg/m3
11/18/2015	8:16:42	NA	0.014	NA	0.014	No
11/18/2015	8:47:12	NA	0.012	NA	0.012	No
11/18/2015	9:17:42	NA	0.012	NA	0.012	No
11/18/2015	9:48:12	NA	0.014	NA	0.014	No
11/18/2015	10:18:42	NA	0.012	NA	0.012	No
11/18/2015	10:49:12	NA	0.013	NA	0.013	No
11/18/2015	11:19:42	NA	0.009	NA	0.009	No
11/18/2015	11:50:12	NA	0.011	NA	0.011	No
11/18/2015	12:20:42	NA	0.011	NA	0.011	No
11/18/2015	12:51:12	NA	0.008	NA	0.008	No
11/18/2015	13:21:42	13:41:52	0.01	0.012	-0.002	No
	13:52:12	14:11:52	0.025	0.011	0.014	No
	14:22:42	14:41:52	0.009	0.009	0	No
	14:53:12	15:11:52	0.008	0.009	-0.001	No
	15:23:42	15:41:52	0.008	0.01	-0.002	No

Notes

Upwind monitor was malfunctioning and the unit was replaced in the afternoon.

NA Data not available

Dust Particulate Monitoring Data

OU1 Alley & Railroad

Date: 11/19/2015

Date	Downwind Time	Upwind Time	Downwind Average (mg/m3)	Upwind Average (mg/m3)	Difference (mg/m3)	Exceeds 0.150 mg/m3
11/19/2015	8:15:54	8:15:21	0.011	0.008	0.003	No
11/19/2015	8:45:54	8:45:21	0.015	0.009	0.006	No
11/19/2015	9:15:54	9:15:21	0.014	0.008	0.006	No
11/19/2015	9:45:54	9:45:21	0.013	0.036	-0.023	No
11/19/2015	10:15:54	10:15:21	0.012	0.009	0.003	No
11/19/2015	10:45:54	10:45:21	0.01	0.017	-0.007	No
11/19/2015	11:15:54	11:15:21	0.01	0.008	0.002	No
11/19/2015	11:45:54	11:45:21	0.009	0.007	0.002	No
11/19/2015	12:15:54	12:15:21	0.009	0.007	0.002	No
11/19/2015	12:45:54	12:45:21	0.012	0.007	0.005	No
11/19/2015	13:15:54	13:15:21	0.009	0.006	0.003	No
11/19/2015	13:45:54	13:45:21	0.012	0.007	0.005	No
11/19/2015	14:15:54	14:15:21	0.011	0.013	-0.002	No
11/19/2015	14:45:54	14:45:21	0.02	0.007	0.013	No
11/19/2015	15:15:54	15:15:21	0.009	0.008	0.001	No
11/19/2015	15:45:54	15:45:21	0.008	0.006	0.002	No

Notes

Dust Particulate Monitoring Data

OU1 Alley & Railroad

Date: 11/24/2015

Date	Downwind Time	Upwind Time	Downwind Average (mg/m3)	Upwind Average (mg/m3)	Difference (mg/m3)	Exceeds 0.150 mg/m3
11/24/2015	7:41:28	7:40:50	0.089	0.073	0.016	No
11/24/2015	8:11:28	8:10:50	0.113	0.087	0.026	No
11/24/2015	8:41:28	8:40:50	0.126	0.105	0.021	No
11/24/2015	9:11:28	9:10:50	0.116	0.099	0.017	No
11/24/2015	9:41:28	9:40:50	0.111	0.092	0.019	No
11/24/2015	10:11:28	10:10:50	0.119	0.097	0.022	No
11/24/2015	10:41:28	10:40:50	0.103	0.092	0.011	No
11/24/2015	11:11:28	11:10:50	0.099	0.083	0.016	No
11/24/2015	11:41:28	11:40:50	0.09	0.076	0.014	No
11/24/2015	12:11:28	12:10:50	0.08	0.068	0.012	No
11/24/2015	12:41:28	12:40:50	0.069	0.059	0.01	No
11/24/2015	13:11:28	13:10:50	0.055	0.053	0.002	No
11/24/2015	13:41:28	13:40:50	0.057	0.059	-0.002	No
11/24/2015	14:11:28	14:10:50	0.048	0.053	-0.005	No

Notes

Dust Particulate Monitoring Data

OU1 Alley & Railroad

Date: 11/25/2015

Date	Downwind Time	Upwind Time	Downwind Average (mg/m3)	Upwind Average (mg/m3)	Difference (mg/m3)	Exceeds 0.150 mg/m3
11/25/2015	8:11:01	8:10:22	0.035	0.029	0.006	No
11/25/2015	8:41:01	8:40:22	0.033	0.029	0.004	No
11/25/2015	9:11:01	9:10:22	0.034	0.027	0.007	No
11/25/2015	9:41:01	9:40:22	0.028	0.024	0.004	No
11/25/2015	10:11:01	10:10:22	0.028	0.025	0.003	No
11/25/2015	10:41:01	10:40:22	0.03	0.026	0.004	No
11/25/2015	11:11:01	11:10:22	0.035	0.029	0.006	No
11/25/2015	11:41:01	11:40:22	0.037	0.028	0.009	No
11/25/2015	12:11:01	12:10:22	0.036	0.029	0.007	No
11/25/2015	12:41:01	12:40:22	0.03	0.026	0.004	No
11/25/2015	13:11:01	13:10:22	0.029	0.025	0.004	No
11/25/2015	13:41:01	13:40:22	0.034	0.029	0.005	No

Notes

Dust Particulate Monitoring Data

OU1 Alley & Railroad

Date: 11/30/2015

Date	Downwind Time	Upwind Time	Downwind Average (mg/m3)	Upwind Average (mg/m3)	Difference (mg/m3)	Exceeds 0.150 mg/m3
11/30/2015	8:52:09	8:51:26	0.035	0.031	0.004	No
11/30/2015	9:22:09	9:21:26	0.035	0.032	0.003	No
11/30/2015	9:52:09	9:51:26	0.034	0.031	0.003	No
11/30/2015	10:22:09	10:21:26	0.033	0.03	0.003	No
11/30/2015	10:52:09	10:51:26	0.031	0.03	0.001	No
11/30/2015	11:22:09	11:21:26	0.03	0.029	0.001	No
11/30/2015	11:52:09	11:51:26	0.032	0.029	0.003	No
11/30/2015	12:22:09	12:21:26	0.032	0.029	0.003	No
11/30/2015	12:52:09	12:51:26	0.025	0.024	0.001	No
11/30/2015	13:22:09	13:21:26	0.024	0.023	0.001	No
11/30/2015	13:52:09	13:51:26	0.024	0.023	0.001	No
11/30/2015	14:22:09	14:21:26	0.022	0.023	-0.001	No
11/30/2015	14:52:09	14:51:26	0.022	0.023	-0.001	No

Notes

Dust Particulate Monitoring Data

OU1 Alley & Railroad

Date: 12/1/2015

Date	Downwind Time	Upwind Time	Downwind Average (mg/m3)	Upwind Average (mg/m3)	Difference (mg/m3)	Exceeds 0.150 mg/m3
12/1/2015	8:16:17	8:15:33	0.013	0.011	0.002	No
12/1/2015	8:46:17	8:45:33	0.017	0.015	0.002	No
12/1/2015	9:16:17	9:15:33	0.013	0.012	0.001	No
12/1/2015	9:46:17	9:45:33	0.01	0.011	-0.001	No
12/1/2015	10:16:17	10:15:33	0.013	0.012	0.001	No
12/1/2015	10:46:17	10:45:33	0.009	0.009	0	No
12/1/2015	11:16:17	11:15:33	0.012	0.012	0	No
12/1/2015	11:46:17	11:45:33	0.014	0.015	-0.001	No
12/1/2015	12:16:17	12:15:33	0.012	0.013	-0.001	No
12/1/2015	12:46:17	12:45:33	0.013	0.013	0	No
12/1/2015	13:16:17	13:15:33	0.014	0.014	0	No
12/1/2015	13:46:17	13:45:33	0.019	0.018	0.001	No
12/1/2015	14:16:17	14:15:33	0.017	0.017	0	No

Notes

Dust Particulate Monitoring Data

OU1 Alley & Railroad

Date: 12/2/2015

Date	Downwind Time	Upwind Time	Downwind Average (mg/m3)	Upwind Average (mg/m3)	Difference (mg/m3)	Exceeds 0.150 mg/m3
12/2/2015	9:05:11	9:04:26	0.021	0.015	0.006	No
12/2/2015	9:35:11	9:34:26	0.023	0.017	0.006	No
12/2/2015	10:05:11	10:04:26	0.025	0.02	0.005	No
12/2/2015	10:35:11	10:34:26	0.03	0.028	0.002	No
12/2/2015	11:05:11	11:04:26	0.033	0.025	0.008	No
12/2/2015	11:35:11	11:34:26	0.036	0.031	0.005	No
12/2/2015	12:05:11	12:04:26	0.03	0.025	0.005	No
12/2/2015	12:35:11	12:34:26	0.029	0.026	0.003	No
12/2/2015	13:05:11	13:04:26	0.029	0.025	0.004	No
12/2/2015	13:35:11	13:34:26	0.028	0.024	0.004	No
12/2/2015	14:05:11	14:04:26	0.022	0.019	0.003	No
12/2/2015	14:35:11	14:34:26	0.023	0.02	0.003	No

Notes

Dust Particulate Monitoring Data

OU1 Alley & Railroad

Date: 12/3/2015

Date	Downwind Time	Upwind Time	Downwind Average (mg/m3)	Upwind Average (mg/m3)	Difference (mg/m3)	Exceeds 0.150 mg/m3
12/3/2015	8:56:45	8:55:59	0.045	0.039	0.006	No
12/3/2015	9:26:45	9:25:59	0.03	0.025	0.005	No
12/3/2015	9:56:45	9:55:59	0.025	0.021	0.004	No
12/3/2015	10:26:45	10:25:59	0.026	0.023	0.003	No
12/3/2015	10:56:45	10:55:59	0.032	0.027	0.005	No
12/3/2015	11:26:45	11:25:59	0.039	0.032	0.007	No
12/3/2015	11:56:45	11:55:59	0.036	0.03	0.006	No
12/3/2015	12:26:45	12:25:59	0.041	0.034	0.007	No
12/3/2015	12:56:45	12:55:59	0.041	0.034	0.007	No
12/3/2015	13:26:45	13:25:59	0.043	0.036	0.007	No
12/3/2015	13:56:45	13:55:59	0.049	0.04	0.009	No
12/3/2015	14:26:45	14:25:59	0.038	0.031	0.007	No
12/3/2015	14:56:45	14:55:59	0.044	0.036	0.008	No

Notes

Dust Particulate Monitoring Data

OU1 Alley & Railroad

Date: 12/4/2015

Date	Downwind Time	Upwind Time	Downwind Average (mg/m3)	Upwind Average (mg/m3)	Difference (mg/m3)	Exceeds 0.150 mg/m3
12/4/2015	7:54:51	7:54:04	0.077	0.067	0.01	No
12/4/2015	8:24:51	8:24:04	0.084	0.069	0.015	No
12/4/2015	8:54:51	8:54:04	0.098	0.082	0.016	No
12/4/2015	9:24:51	9:24:04	0.097	0.08	0.017	No
12/4/2015	9:54:51	9:54:04	0.094	0.078	0.016	No
12/4/2015	10:24:51	10:24:04	0.082	0.068	0.014	No
12/4/2015	10:54:51	10:54:04	0.071	0.061	0.01	No
12/4/2015	11:24:51	11:24:04	0.067	0.055	0.012	No
12/4/2015	11:54:51	11:54:04	0.067	0.053	0.014	No
12/4/2015	12:24:51	12:24:04	0.063	0.05	0.013	No
12/4/2015	12:54:51	12:54:04	0.061	0.047	0.014	No
12/4/2015	13:24:51	13:24:04	0.064	0.048	0.016	No
12/4/2015	13:54:51	13:54:04	0.062	0.047	0.015	No
12/4/2015	14:24:51	14:24:04	0.05	0.041	0.009	No
12/4/2015	14:54:51	14:54:04	0.042	0.041	0.001	No

Notes

Dust Particulate Monitoring Data

OU1 Alley & Railroad

Date: 12/7/2015

Date	Downwind Time	Upwind Time	Downwind Average (mg/m3)	Upwind Average (mg/m3)	Difference (mg/m3)	Exceeds 0.150 mg/m3
12/7/2015	8:12:39	8:11:50	0.063	0.053	0.01	No
12/7/2015	8:42:39	8:41:50	0.07	0.058	0.012	No
12/7/2015	9:12:39	9:11:50	0.075	0.064	0.011	No
12/7/2015	9:42:39	9:41:50	0.085	0.073	0.012	No
12/7/2015	10:12:39	10:11:50	0.086	0.074	0.012	No
12/7/2015	10:42:39	10:41:50	0.081	0.072	0.009	No
12/7/2015	11:12:39	11:11:50	0.1	0.086	0.014	No
12/7/2015	11:42:39	11:41:50	0.105	0.087	0.018	No
12/7/2015	12:12:39	12:11:50	0.112	0.091	0.021	No
12/7/2015	12:42:39	12:41:50	0.114	0.094	0.02	No
12/7/2015	13:12:39	13:11:50	0.125	0.104	0.021	No
12/7/2015	13:42:39	13:41:50	0.12	0.101	0.019	No
12/7/2015	14:12:39	14:11:50	0.096	0.083	0.013	No
12/7/2015	14:42:39	14:41:50	0.088	0.073	0.015	No

Notes

Dust Particulate Monitoring Data

OU1 Alley & Railroad

Date: 12/8/2015

Date	Downwind Time	Upwind Time	Downwind Average (mg/m3)	Upwind Average (mg/m3)	Difference (mg/m3)	Exceeds 0.150 mg/m3
12/8/2015	8:02:24	8:01:33	0.072	0.047	0.025	No
12/8/2015	8:32:24	8:31:33	0.064	0.048	0.016	No
12/8/2015	9:02:24	9:01:33	0.067	0.051	0.016	No
12/8/2015	9:32:24	9:31:33	0.065	0.052	0.013	No
12/8/2015	10:02:24	10:01:33	0.064	0.05	0.014	No
12/8/2015	10:32:24	10:31:33	0.06	0.048	0.012	No
12/8/2015	11:02:24	11:01:33	0.064	0.052	0.012	No
12/8/2015	11:32:24	11:31:33	0.06	0.046	0.014	No
12/8/2015	12:02:24	12:01:33	0.07	0.055	0.015	No
12/8/2015	12:32:24	12:31:33	0.068	0.06	0.008	No
12/8/2015	13:02:24	13:01:33	0.07	0.054	0.016	No
12/8/2015	13:32:24	13:31:33	0.065	0.062	0.003	No
12/8/2015	14:02:24	14:01:33	0.065	0.063	0.002	No
12/8/2015	14:32:24	14:31:33	0.078	0.068	0.01	No
12/8/2015	15:02:24	15:01:33	0.073	0.061	0.012	No

Notes

Dust Particulate Monitoring Data

OU1 Alley & Railroad

Date: 12/9/2015

Date	Downwind Time	Upwind Time	Downwind Average (mg/m3)	Upwind Average (mg/m3)	Difference (mg/m3)	Exceeds 0.150 mg/m3
12/9/2015	8:27:22	8:26:30	0.076	0.057	0.019	No
12/9/2015	8:57:22	8:56:30	0.079	0.057	0.022	No
12/9/2015	9:27:22	9:26:30	0.078	0.057	0.021	No
12/9/2015	9:57:22	9:56:30	0.063	0.047	0.016	No
12/9/2015	10:27:22	10:26:30	0.06	0.042	0.018	No
12/9/2015	10:57:22	10:56:30	0.06	0.04	0.02	No
12/9/2015	11:27:22	11:26:30	0.046	0.03	0.016	No
12/9/2015	11:57:22	11:56:30	0.04	0.032	0.008	No
12/9/2015	12:27:22	12:26:30	0.042	0.032	0.01	No
12/9/2015	12:57:22	12:56:30	0.05	0.032	0.018	No
12/9/2015	13:27:22	13:26:30	0.046	0.033	0.013	No
12/9/2015	13:57:22	13:56:30	0.04	0.031	0.009	No
12/9/2015	14:27:22	14:26:30	0.041	0.027	0.014	No
12/9/2015	14:57:22	14:56:30	0.042	0.028	0.014	No

Notes

Dust Particulate Monitoring Data

OU1 Alley & Railroad

Date: 12/10/2015

Date	Downwind Time	Upwind Time	Downwind Average (mg/m3)	Upwind Average (mg/m3)	Difference (mg/m3)	Exceeds 0.150 mg/m3
12/10/2015	8:49:15	8:48:23	0.034	0.041	-0.007	No
12/10/2015	9:19:15	9:18:23	0.04	0.049	-0.009	No
12/10/2015	9:49:15	9:48:23	0.036	0.031	0.005	No
12/10/2015	10:19:15	10:18:23	0.04	0.036	0.004	No
12/10/2015	10:49:15	10:48:23	0.035	0.027	0.008	No
12/10/2015	11:19:15	11:18:23	0.037	0.033	0.004	No
12/10/2015	11:49:15	11:48:23	0.033	0.027	0.006	No
12/10/2015	12:19:15	12:18:23	0.041	0.027	0.014	No
12/10/2015	12:49:15	12:48:23	0.038	0.028	0.01	No
12/10/2015	13:19:15	13:18:23	0.022	0.016	0.006	No
12/10/2015	13:49:15	13:48:23	0.02	0.016	0.004	No
12/10/2015	14:19:15	14:18:23	0.021	0.016	0.005	No
12/10/2015	14:49:15	14:48:23	0.017	0.012	0.005	No

Notes

Dust Particulate Monitoring Data

OU1 Alley & Railroad

Date: 12/11/2015

Date	Downwind Time	Upwind Time	Downwind Average (mg/m3)	Upwind Average (mg/m3)	Difference (mg/m3)	Exceeds 0.150 mg/m3
12/11/2015	8:09:26	8:08:33	0.042	0.03	0.012	No
12/11/2015	8:39:26	8:38:33	0.046	0.037	0.009	No
12/11/2015	9:09:26	9:08:33	0.033	0.03	0.003	No
12/11/2015	9:39:26	9:38:33	0.032	0.031	0.001	No
12/11/2015	10:09:26	10:08:33	0.027	0.04	-0.013	No
12/11/2015	10:39:26	10:38:33	0.027	0.026	0.001	No
12/11/2015	11:09:26	11:08:33	0.026	0.026	0	No
12/11/2015	11:39:26	11:38:33	0.035	0.033	0.002	No
12/11/2015	12:09:26	12:08:33	0.034	0.032	0.002	No
12/11/2015	12:39:26	12:38:33	0.038	0.024	0.014	No
12/11/2015	13:09:26	13:08:33	0.033	0.027	0.006	No
12/11/2015	13:39:26	13:38:33	0.035	0.025	0.01	No
12/11/2015	14:09:26	14:08:33	0.032	0.027	0.005	No

Notes

Dust Particulate Monitoring Data

OU1 Alley & Railroad

Date: 12/14/2015

Date	Downwind Time	Upwind Time	Downwind Average (mg/m3)	Upwind Average (mg/m3)	Difference (mg/m3)	Exceeds 0.150 mg/m3
12/14/2015	8:28:08	8:27:12	0.016	0.007	0.009	No
12/14/2015	8:58:08	8:57:12	0.007	0.008	-0.001	No
12/14/2015	9:28:08	9:27:12	0.006	0.011	-0.005	No
12/14/2015	9:58:08	9:57:12	0.005	0.01	-0.005	No
12/14/2015	10:28:08	10:27:12	0.005	0.004	0.001	No
12/14/2015	10:58:08	10:57:12	0.008	0.004	0.004	No
12/14/2015	11:28:08	11:27:12	0.007	0.004	0.003	No
12/14/2015	11:58:08	11:57:12	0.006	0.004	0.002	No
12/14/2015	12:28:08	12:27:12	0.003	0.003	0	No
12/14/2015	12:58:08	12:57:12	0.005	0.004	0.001	No
12/14/2015	13:28:08	13:27:12	0.007	0.004	0.003	No
12/14/2015	13:58:08	13:57:12	0.004	0.004	0	No

Notes

Dust Particulate Monitoring Data

OU1 Alley & Railroad

Date: 12/15/2015

Date	Downwind Time	Upwind Time	Downwind Average (mg/m3)	Upwind Average (mg/m3)	Difference (mg/m3)	Exceeds 0.150 mg/m3
12/15/2015	8:00:42	7:59:45	0.007	0.004	0.003	No
12/15/2015	8:30:42	8:29:45	0.005	0.004	0.001	No
12/15/2015	9:00:42	8:59:45	0.005	0.003	0.002	No
12/15/2015	9:30:42	9:29:45	0.006	0.004	0.002	No
12/15/2015	10:00:42	9:59:45	0.009	0.007	0.002	No
12/15/2015	10:30:42	10:29:45	0.012	0.009	0.003	No
12/15/2015	11:00:42	10:59:45	0.017	0.014	0.003	No
12/15/2015	11:30:42	11:29:45	0.006	0.007	-0.001	No
12/15/2015	12:00:42	11:59:45	0.007	0.011	-0.004	No
12/15/2015	12:30:42	12:29:45	0.008	0.011	-0.003	No
12/15/2015	13:00:42	12:59:45	0.008	0.014	-0.006	No
12/15/2015	13:30:42	13:29:45	0.007	0.023	-0.016	No
12/15/2015	14:00:42	13:59:45	0.007	0.013	-0.006	No
12/15/2015	14:30:42	14:29:45	0.008	0.013	-0.005	No

Notes

Dust Particulate Monitoring Data

OU1 Alley & Railroad

Date: 12/17/2015

Date	Downwind Time	Upwind Time	Downwind Average (mg/m3)	Upwind Average (mg/m3)	Difference (mg/m3)	Exceeds 0.150 mg/m3
12/17/2015	7:52:27	7:51:28	0.005	0.006	-0.001	No
12/17/2015	8:22:27	8:21:28	0.006	0.008	-0.002	No
12/17/2015	8:52:27	8:51:28	0.006	0.008	-0.002	No
12/17/2015	9:22:27	9:21:28	0.006	0.009	-0.003	No
12/17/2015	9:52:27	9:51:28	0.008	0.01	-0.002	No
12/17/2015	10:22:27	10:21:28	0.006	0.008	-0.002	No
12/17/2015	10:52:27	10:51:28	0.006	0.008	-0.002	No
12/17/2015	11:22:27	11:21:28	0.01	0.011	-0.001	No
12/17/2015	11:52:27	11:51:28	0.01	0.011	-0.001	No
12/17/2015	12:22:27	12:21:28	0.009	0.01	-0.001	No
12/17/2015	12:52:27	12:51:28	0.008	0.01	-0.002	No
12/17/2015	13:22:27	13:21:28	0.008	0.01	-0.002	No
12/17/2015	13:52:27	13:51:28	0.012	0.026	-0.014	No
12/17/2015	14:22:27	14:21:28	0.012	0.013	-0.001	No
12/17/2015	14:52:27	14:51:28	0.013	0.012	0.001	

Notes

Dust Particulate Monitoring Data

OU1 Alley & Railroad

Date: 12/18/2015

Date	Downwind Time	Upwind Time	Downwind Average (mg/m3)	Upwind Average (mg/m3)	Difference (mg/m3)	Exceeds 0.150 mg/m3
12/18/2015	7:58:09	7:57:09	0.013	0.015	-0.002	No
12/18/2015	8:28:09	8:27:09	0.014	0.014	0	No
12/18/2015	8:58:09	8:57:09	0.016	0.015	0.001	No
12/18/2015	9:28:09	9:27:09	0.014	0.014	0	No
12/18/2015	9:58:09	9:57:09	0.012	0.012	0	No
12/18/2015	10:28:09	10:27:09	0.011	0.011	0	No
12/18/2015	10:58:09	10:57:09	0.012	0.011	0.001	No
12/18/2015	11:28:09	11:27:09	0.016	0.013	0.003	No
12/18/2015	11:58:09	11:57:09	0.013	0.012	0.001	No
12/18/2015	12:28:09	12:27:09	0.012	0.012	0	No
12/18/2015	12:58:09	12:57:09	0.016	0.012	0.004	No
12/18/2015	13:28:09	13:27:09	0.015	0.014	0.001	No
12/18/2015	13:58:09	13:57:09	0.016	0.015	0.001	No
12/18/2015	14:28:09	14:27:09	0.014	0.013	0.001	No
12/18/2015	14:58:09	14:57:09	0.018	0.016	0.002	No

Notes

Appendix H

Treated Soil Analytical Reports

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.

TestAmerica Chicago

2417 Bond Street

University Park, IL 60484

Tel: (708)534-5200

TestAmerica Job ID: 500-105025-1

Client Project/Site: H. Kramer - 39826

For:

GHD Services Inc.

1801 Old Highway 8 NW

Suite 114

St. Paul, Minnesota 55112

Attn: Mr. Grant Anderson



Authorized for release by:

12/14/2015 9:19:06 AM

Richard Wright, Senior Project Manager

(708)534-5200

richard.wright@testamericainc.com

LINKS

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www.testamericainc.com

The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Case Narrative

Client: GHD Services Inc.
Project/Site: H. Kramer - 39826

TestAmerica Job ID: 500-105025-1

Job ID: 500-105025-1

Laboratory: TestAmerica Chicago

Narrative

Job Narrative 500-105025-1

Comments

No additional comments.

Receipt

The sample was received on 12/9/2015 2:38 PM; the sample arrived in good condition, properly preserved and, where required, on ice.

Metals

Method(s) 6010C: The low-level CCV at line 9 in 6010C batch 500-316150 was above the method acceptance limits of 70-130% recovery for Lead. The sample S-120915-AK-010 (500-105025-1) was bracketed. The low-level standard concentration was insignificant compared with the reported sample results and the sample results were unaffected by the bias at that level. The mid-range bracketing the data were all within the 90-110% recovery limits.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

General Chemistry

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Detection Summary

Client: GHD Services Inc.
Project/Site: H. Kramer - 39826

TestAmerica Job ID: 500-105025-1

Client Sample ID: S-120915-AK-010

Lab Sample ID: 500-105025-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Lead	4.7	^	0.050	0.0075	mg/L	1		6010C	TCLP
pH	12.6		0.200	0.200	SU	1		9045C	Total/NA

This Detection Summary does not include radiochemical test results.

TestAmerica Chicago

Method Summary

Client: GHD Services Inc.
Project/Site: H. Kramer - 39826

TestAmerica Job ID: 500-105025-1

Method	Method Description	Protocol	Laboratory
6010C	Metals (ICP)	SW846	TAL CHI
9045C	pH	SW846	TAL CHI

Protocol References:

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL CHI = TestAmerica Chicago, 2417 Bond Street, University Park, IL 60484, TEL (708)534-5200

Sample Summary

Client: GHD Services Inc.
Project/Site: H. Kramer - 39826

TestAmerica Job ID: 500-105025-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
500-105025-1	S-120915-AK-010	Solid	12/09/15 13:10	12/09/15 14:38

Client Sample Results

Client: GHD Services Inc.
Project/Site: H. Kramer - 39826

TestAmerica Job ID: 500-105025-1

Client Sample ID: S-120915-AK-010

Date Collected: 12/09/15 13:10

Date Received: 12/09/15 14:38

Lab Sample ID: 500-105025-1

Matrix: Solid

Method: 6010C - Metals (ICP) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cadmium	<0.0050		0.0050	0.0020	mg/L		12/11/15 09:11	12/11/15 18:07	1
Lead	4.7	^	0.050	0.0075	mg/L		12/11/15 09:11	12/11/15 18:07	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH	12.6		0.200	0.200	SU			12/11/15 13:40	1

Definitions/Glossary

Client: GHD Services Inc.
Project/Site: H. Kramer - 39826

TestAmerica Job ID: 500-105025-1

Qualifiers

Metals

Qualifier	Qualifier Description
[^]	ICV,CCV,ICB,CCB, ISA, ISB, CRI, CRA, DLCK or MRL standard: Instrument related QC is outside acceptance limits.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

QC Association Summary

Client: GHD Services Inc.
Project/Site: H. Kramer - 39826

TestAmerica Job ID: 500-105025-1

Metals

Leach Batch: 315910

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-105025-1	S-120915-AK-010	TCLP	Solid	1311	
LB2 500-315910/1-B	Method Blank	TCLP	Solid	1311	

Prep Batch: 316031

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-105025-1	S-120915-AK-010	TCLP	Solid	3010A	315910
LB2 500-315910/1-B	Method Blank	TCLP	Solid	3010A	315910
LCS 500-316031/3-A	Lab Control Sample	Total/NA	Solid	3010A	

Analysis Batch: 316150

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-105025-1	S-120915-AK-010	TCLP	Solid	6010C	316031
LB2 500-315910/1-B	Method Blank	TCLP	Solid	6010C	316031
LCS 500-316031/3-A	Lab Control Sample	Total/NA	Solid	6010C	316031

General Chemistry

Analysis Batch: 316083

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-105025-1	S-120915-AK-010	Total/NA	Solid	9045C	

QC Sample Results

Client: GHD Services Inc.
Project/Site: H. Kramer - 39826

TestAmerica Job ID: 500-105025-1

Method: 6010C - Metals (ICP)

Lab Sample ID: LCS 500-316031/3-A
Matrix: Solid
Analysis Batch: 316150

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 316031

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
Cadmium	0.0500	0.0510		mg/L		102	80 - 120
Lead	0.100	0.104	^	mg/L		104	80 - 120

Lab Sample ID: LB2 500-315910/1-B
Matrix: Solid
Analysis Batch: 316150

Client Sample ID: Method Blank
Prep Type: TCLP
Prep Batch: 316031

Analyte	LB2 Result	LB2 Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cadmium	<0.0050		0.0050	0.0020	mg/L		12/11/15 09:11	12/11/15 17:37	1
Lead	<0.050		0.050	0.0075	mg/L		12/11/15 09:11	12/11/15 17:37	1

Lab Chronicle

Client: GHD Services Inc.
Project/Site: H. Kramer - 39826

TestAmerica Job ID: 500-105025-1

Client Sample ID: S-120915-AK-010

Date Collected: 12/09/15 13:10

Date Received: 12/09/15 14:38

Lab Sample ID: 500-105025-1

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
TCLP	Leach	1311			315910	12/10/15 14:00	RA	TAL CHI
TCLP	Prep	3010A			316031	12/11/15 09:11	JEF	TAL CHI
TCLP	Analysis	6010C		1	316150	12/11/15 18:07	KML	TAL CHI
Total/NA	Analysis	9045C		1	316083		SMO	TAL CHI
					(Start)	12/11/15 13:40		
					(End)	12/11/15 13:49		

Laboratory References:

TAL CHI = TestAmerica Chicago, 2417 Bond Street, University Park, IL 60484, TEL (708)534-5200

Certification Summary

Client: GHD Services Inc.
Project/Site: H. Kramer - 39826

TestAmerica Job ID: 500-105025-1

Laboratory: TestAmerica Chicago

Unless otherwise noted, all analytes for this laboratory were covered under each certification below.

Authority	Program	EPA Region	Certification ID	Expiration Date
Illinois	NELAP	5	100201	04-30-16
Analysis Method	Prep Method	Matrix	Analyte	

CONESTOGA-ROVERS & ASSOCIATES 6520 Corporate Drive Indianapolis, Indiana 46278 (317) 291-7007 phone (317) 328-2666 fax				SHIPPED TO (Laboratory Name): TEST AMERICA												900-105025						
				REFERENCE NUMBER: 037826-18						PROJECT NAME: H. KRAMER												
CHAIN-OF-CUSTODY RECORD																						
SAMPLER'S SIGNATURE:				PRINTED NAME: ANDREW KREEN				NO. OF CONTAINERS	PARAMETERS <div style="display: flex; justify-content: space-around; font-size: small;"> <div style="text-align: center;">TRIP - LEAD</div> <div style="text-align: center;">TRIP - CHARGE</div> <div style="text-align: center;">PH</div> </div>										REMARKS			
SEQ. No.	DATE	TIME	SAMPLE IDENTIFICATION No.				SAMPLE MATRIX															
1	12/9/15	13:10	S-120915-AK-010				S	1	X	X	X							RUSH TAT				
			 500-105025 COC																			
TOTAL NUMBER OF CONTAINERS								1														
RELINQUISHED BY:				DATE: 12/9/15 TIME: 13:50				RECEIVED BY: TA				DATE: 12/9/15 TIME: 13:50										
RELINQUISHED BY: TA				DATE: 12/9/15 TIME: 14:38				RECEIVED BY:				DATE:										
RELINQUISHED BY:				DATE:				RECEIVED BY:				DATE:										
METHOD OF SHIPMENT: LAB CARRIER																						
TRACKING No.																						
White - Fully Executed Copy Yellow - Receiving Laboratory Copy Pink - Shipper Copy Goldenrod - Sampler Copy								SAMPLE TEAM: ANDREW KREEN				RECEIVED FOR LABORATORY BY: DATE: 12/9/15 TIME: 1438										
2510																						

Login Sample Receipt Checklist

Client: GHD Services Inc.

Job Number: 500-105025-1

Login Number: 105025

List Source: TestAmerica Chicago

List Number: 1

Creator: Scott, Sherri L

Question	Answer	Comment
Radioactivity wasn't checked or is \leq background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	False	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	Unchilled
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is $<6\text{mm}$ (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.

TestAmerica Chicago

2417 Bond Street

University Park, IL 60484

Tel: (708)534-5200

TestAmerica Job ID: 500-104955-1

Client Project/Site: H. Kramer - 39826

For:

GHD Services Inc.

1801 Old Highway 8 NW

Suite 114

St. Paul, Minnesota 55112

Attn: Mr. Grant Anderson



Authorized for release by:

12/11/2015 2:09:59 PM

Richard Wright, Senior Project Manager

(708)534-5200

richard.wright@testamericainc.com

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www.testamericainc.com

The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Case Narrative

Client: GHD Services Inc.
Project/Site: H. Kramer - 39826

TestAmerica Job ID: 500-104955-1

Job ID: 500-104955-1

Laboratory: TestAmerica Chicago

Narrative

Job Narrative
500-104955-1

Comments

No additional comments.

Receipt

The sample was received on 12/8/2015 3:40 PM; the sample arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 4.3° C.
PH added per communication with Walt Pochron on 12/9.

Metals

Method(s) 6010C: The low-level CCV solutions at lines 8 and 78 in 6010C batch 500-316039 were above the method acceptance limits of 70-130% recovery for Lead. The sample S-120815-AK-009 (500-104955-1) was bracketed. The low-level standard concentration was insignificant compared with the reported sample results and the sample results were unaffected by the bias at that level. The mid-range bracketing the data were all within the 90-110% recovery limits.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

General Chemistry

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Detection Summary

Client: GHD Services Inc.
Project/Site: H. Kramer - 39826

TestAmerica Job ID: 500-104955-1

Client Sample ID: S-120815-AK-009

Lab Sample ID: 500-104955-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Lead	8.3	^	0.050	0.0075	mg/L	1		6010C	TCLP
pH	12.4		0.200	0.200	SU	1		9045C	Total/NA

This Detection Summary does not include radiochemical test results.

TestAmerica Chicago

Method Summary

Client: GHD Services Inc.
Project/Site: H. Kramer - 39826

TestAmerica Job ID: 500-104955-1

Method	Method Description	Protocol	Laboratory
6010C	Metals (ICP)	SW846	TAL CHI
9045C	pH	SW846	TAL CHI

Protocol References:

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL CHI = TestAmerica Chicago, 2417 Bond Street, University Park, IL 60484, TEL (708)534-5200

Sample Summary

Client: GHD Services Inc.
Project/Site: H. Kramer - 39826

TestAmerica Job ID: 500-104955-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
500-104955-1	S-120815-AK-009	Solid	12/08/15 13:50	12/08/15 15:40

Client Sample Results

Client: GHD Services Inc.
Project/Site: H. Kramer - 39826

TestAmerica Job ID: 500-104955-1

Client Sample ID: S-120815-AK-009

Lab Sample ID: 500-104955-1

Date Collected: 12/08/15 13:50

Matrix: Solid

Date Received: 12/08/15 15:40

Method: 6010C - Metals (ICP) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cadmium	<0.0050		0.0050	0.0020	mg/L		12/10/15 09:05	12/10/15 18:50	1
Lead	8.3	^	0.050	0.0075	mg/L		12/10/15 09:05	12/10/15 18:50	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH	12.4		0.200	0.200	SU			12/11/15 13:23	1

Definitions/Glossary

Client: GHD Services Inc.
Project/Site: H. Kramer - 39826

TestAmerica Job ID: 500-104955-1

Qualifiers

Metals

Qualifier	Qualifier Description
^	ICV,CCV,ICB,CCB, ISA, ISB, CRI, CRA, DLCK or MRL standard: Instrument related QC is outside acceptance limits.
4	MS, MSD: The analyte present in the original sample is greater than 4 times the matrix spike concentration; therefore, control limits are not applicable.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
□	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

QC Association Summary

Client: GHD Services Inc.
Project/Site: H. Kramer - 39826

TestAmerica Job ID: 500-104955-1

Metals

Leach Batch: 315713

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-104955-1	S-120815-AK-009	TCLP	Solid	1311	
500-104955-1 DU	S-120815-AK-009	TCLP	Solid	1311	
500-104955-1 MS	S-120815-AK-009	TCLP	Solid	1311	
LB 500-315713/1-B	Method Blank	TCLP	Solid	1311	

Prep Batch: 315872

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-104955-1	S-120815-AK-009	TCLP	Solid	3010A	315713
500-104955-1 DU	S-120815-AK-009	TCLP	Solid	3010A	315713
500-104955-1 MS	S-120815-AK-009	TCLP	Solid	3010A	315713
LB 500-315713/1-B	Method Blank	TCLP	Solid	3010A	315713
LCS 500-315872/3-A	Lab Control Sample	Total/NA	Solid	3010A	

Analysis Batch: 316039

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-104955-1	S-120815-AK-009	TCLP	Solid	6010C	315872
500-104955-1 DU	S-120815-AK-009	TCLP	Solid	6010C	315872
500-104955-1 MS	S-120815-AK-009	TCLP	Solid	6010C	315872
LB 500-315713/1-B	Method Blank	TCLP	Solid	6010C	315872
LCS 500-315872/3-A	Lab Control Sample	Total/NA	Solid	6010C	315872

General Chemistry

Analysis Batch: 316083

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-104955-1	S-120815-AK-009	Total/NA	Solid	9045C	

QC Sample Results

Client: GHD Services Inc.
Project/Site: H. Kramer - 39826

TestAmerica Job ID: 500-104955-1

Method: 6010C - Metals (ICP)

Lab Sample ID: LCS 500-315872/3-A
Matrix: Solid
Analysis Batch: 316039

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 315872

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Cadmium	0.0500	0.0495		mg/L		99	80 - 120
Lead	0.100	0.102	^	mg/L		102	80 - 120

Lab Sample ID: LB 500-315713/1-B
Matrix: Solid
Analysis Batch: 316039

Client Sample ID: Method Blank
Prep Type: TCLP
Prep Batch: 315872

Analyte	LB Result	LB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cadmium	<0.0050		0.0050	0.0020	mg/L		12/10/15 09:05	12/10/15 18:36	1
Lead	<0.050	^	0.050	0.0075	mg/L		12/10/15 09:05	12/10/15 18:36	1

Lab Sample ID: 500-104955-1 MS
Matrix: Solid
Analysis Batch: 316039

Client Sample ID: S-120815-AK-009
Prep Type: TCLP
Prep Batch: 315872

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Cadmium	<0.0050		0.0500	0.0581		mg/L		116	50 - 150
Lead	8.3	^	0.100	10.1	^ 4	mg/L		1789	50 - 150

Lab Sample ID: 500-104955-1 DU
Matrix: Solid
Analysis Batch: 316039

Client Sample ID: S-120815-AK-009
Prep Type: TCLP
Prep Batch: 315872

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	Limit
Cadmium	<0.0050		<0.0050		mg/L		NC	20
Lead	8.3	^	8.25	^	mg/L		1	20

Lab Chronicle

Client: GHD Services Inc.
Project/Site: H. Kramer - 39826

TestAmerica Job ID: 500-104955-1

Client Sample ID: S-120815-AK-009

Date Collected: 12/08/15 13:50

Date Received: 12/08/15 15:40

Lab Sample ID: 500-104955-1

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
TCLP	Leach	1311			315713	12/09/15 13:30	BAT	TAL CHI
TCLP	Prep	3010A			315872	12/10/15 09:05	JEF	TAL CHI
TCLP	Analysis	6010C		1	316039	12/10/15 18:50	KML	TAL CHI
Total/NA	Analysis	9045C		1	316083		SMO	TAL CHI
					(Start)	12/11/15 13:23		
					(End)	12/11/15 13:32		

Laboratory References:

TAL CHI = TestAmerica Chicago, 2417 Bond Street, University Park, IL 60484, TEL (708)534-5200

Certification Summary

Client: GHD Services Inc.
Project/Site: H. Kramer - 39826

TestAmerica Job ID: 500-104955-1

Laboratory: TestAmerica Chicago

Unless otherwise noted, all analytes for this laboratory were covered under each certification below.

Authority	Program	EPA Region	Certification ID	Expiration Date
Illinois	NELAP	5	100201	04-30-16
Analysis Method	Prep Method	Matrix	Analyte	

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14

13

Login Sample Receipt Checklist

Client: GHD Services Inc.

Job Number: 500-104955-1

Login Number: 104955

List Source: TestAmerica Chicago

List Number: 1

Creator: Kelsey, Shawn M

Question	Answer	Comment
Radioactivity wasn't checked or is \leq background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	4.3c
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is $<6\text{mm}$ (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.

TestAmerica Chicago

2417 Bond Street

University Park, IL 60484

Tel: (708)534-5200

TestAmerica Job ID: 500-104665-1

Client Project/Site: H. Kramer - 39826

For:

GHD Services Inc.

1801 Old Highway 8 NW

Suite 114

St. Paul, Minnesota 55112

Attn: Mr. Grant Anderson



Authorized for release by:

12/4/2015 3:41:37 PM

Richard Wright, Senior Project Manager

(708)534-5200

richard.wright@testamericainc.com

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Case Narrative

Client: GHD Services Inc.
Project/Site: H. Kramer - 39826

TestAmerica Job ID: 500-104665-1

Job ID: 500-104665-1

Laboratory: TestAmerica Chicago

Narrative

Job Narrative
500-104665-1

Comments

No additional comments.

Receipt

The samples were received on 12/2/2015 11:05 AM; the samples arrived in good condition, properly preserved and, where required, on ice.

TCLP Cd added per communication with GHD.

Metals

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Detection Summary

Client: GHD Services Inc.
Project/Site: H. Kramer - 39826

TestAmerica Job ID: 500-104665-1

Client Sample ID: S-120215-AK-007

Lab Sample ID: 500-104665-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Lead	5.4		0.050	0.0075	mg/L	1		6010C	TCLP

Client Sample ID: S-120215-AK-008

Lab Sample ID: 500-104665-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Lead	8.2		0.050	0.0075	mg/L	1		6010C	TCLP

This Detection Summary does not include radiochemical test results.

TestAmerica Chicago

Method Summary

Client: GHD Services Inc.
Project/Site: H. Kramer - 39826

TestAmerica Job ID: 500-104665-1

Method	Method Description	Protocol	Laboratory
6010C	Metals (ICP)	SW846	TAL CHI

Protocol References:

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL CHI = TestAmerica Chicago, 2417 Bond Street, University Park, IL 60484, TEL (708)534-5200

Sample Summary

Client: GHD Services Inc.
Project/Site: H. Kramer - 39826

TestAmerica Job ID: 500-104665-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
500-104665-1	S-120215-AK-007	Solid	12/02/15 09:25	12/02/15 11:05
500-104665-2	S-120215-AK-008	Solid	12/02/15 09:35	12/02/15 11:05

Client Sample Results

Client: GHD Services Inc.
Project/Site: H. Kramer - 39826

TestAmerica Job ID: 500-104665-1

Client Sample ID: S-120215-AK-007

Lab Sample ID: 500-104665-1

Date Collected: 12/02/15 09:25

Matrix: Solid

Date Received: 12/02/15 11:05

Method: 6010C - Metals (ICP) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cadmium	<0.0050		0.0050	0.0020	mg/L		12/03/15 16:00	12/04/15 12:45	1
Lead	5.4		0.050	0.0075	mg/L		12/03/15 16:00	12/04/15 12:45	1

Client Sample Results

Client: GHD Services Inc.
Project/Site: H. Kramer - 39826

TestAmerica Job ID: 500-104665-1

Client Sample ID: S-120215-AK-008

Lab Sample ID: 500-104665-2

Date Collected: 12/02/15 09:35

Matrix: Solid

Date Received: 12/02/15 11:05

Method: 6010C - Metals (ICP) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cadmium	<0.0050		0.0050	0.0020	mg/L		12/03/15 16:00	12/04/15 12:50	1
Lead	8.2		0.050	0.0075	mg/L		12/03/15 16:00	12/04/15 12:50	1

Definitions/Glossary

Client: GHD Services Inc.
Project/Site: H. Kramer - 39826

TestAmerica Job ID: 500-104665-1

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

QC Association Summary

Client: GHD Services Inc.
Project/Site: H. Kramer - 39826

TestAmerica Job ID: 500-104665-1

Metals

Leach Batch: 314868

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-104665-1	S-120215-AK-007	TCLP	Solid	1311	
500-104665-2	S-120215-AK-008	TCLP	Solid	1311	
LB 500-314868/1-D	Method Blank	TCLP	Solid	1311	

Prep Batch: 315082

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-104665-1	S-120215-AK-007	TCLP	Solid	3010A	314868
500-104665-2	S-120215-AK-008	TCLP	Solid	3010A	314868
LB 500-314868/1-D	Method Blank	TCLP	Solid	3010A	314868
LCS 500-315082/4-A	Lab Control Sample	Total/NA	Solid	3010A	

Analysis Batch: 315210

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-104665-1	S-120215-AK-007	TCLP	Solid	6010C	315082
500-104665-2	S-120215-AK-008	TCLP	Solid	6010C	315082
LB 500-314868/1-D	Method Blank	TCLP	Solid	6010C	315082
LCS 500-315082/4-A	Lab Control Sample	Total/NA	Solid	6010C	315082

QC Sample Results

Client: GHD Services Inc.
Project/Site: H. Kramer - 39826

TestAmerica Job ID: 500-104665-1

Method: 6010C - Metals (ICP)

Lab Sample ID: LCS 500-315082/4-A
Matrix: Solid
Analysis Batch: 315210

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 315082

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Cadmium	0.0500	0.0500		mg/L		100	80 - 120
Lead	0.100	0.0991		mg/L		99	80 - 120

Lab Sample ID: LB 500-314868/1-D
Matrix: Solid
Analysis Batch: 315210

Client Sample ID: Method Blank
Prep Type: TCLP
Prep Batch: 315082

Analyte	LB Result	LB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cadmium	<0.0050		0.0050	0.0020	mg/L		12/03/15 16:00	12/04/15 12:27	1
Lead	<0.050		0.050	0.0075	mg/L		12/03/15 16:00	12/04/15 12:27	1

Lab Chronicle

Client: GHD Services Inc.
Project/Site: H. Kramer - 39826

TestAmerica Job ID: 500-104665-1

Client Sample ID: S-120215-AK-007

Date Collected: 12/02/15 09:25

Date Received: 12/02/15 11:05

Lab Sample ID: 500-104665-1

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
TCLP	Leach	1311			314868	12/02/15 14:45	RA	TAL CHI
TCLP	Prep	3010A			315082	12/03/15 16:00	PJH	TAL CHI
TCLP	Analysis	6010C		1	315210	12/04/15 12:45	PJ1	TAL CHI

Client Sample ID: S-120215-AK-008

Date Collected: 12/02/15 09:35

Date Received: 12/02/15 11:05

Lab Sample ID: 500-104665-2

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
TCLP	Leach	1311			314868	12/02/15 14:45	RA	TAL CHI
TCLP	Prep	3010A			315082	12/03/15 16:00	PJH	TAL CHI
TCLP	Analysis	6010C		1	315210	12/04/15 12:50	PJ1	TAL CHI

Laboratory References:

TAL CHI = TestAmerica Chicago, 2417 Bond Street, University Park, IL 60484, TEL (708)534-5200

Certification Summary

Client: GHD Services Inc.
Project/Site: H. Kramer - 39826

TestAmerica Job ID: 500-104665-1

Laboratory: TestAmerica Chicago

Unless otherwise noted, all analytes for this laboratory were covered under each certification below.

Authority	Program	EPA Region	Certification ID	Expiration Date
Illinois	NELAP	5	100201	04-30-16
Analysis Method	Prep Method	Matrix	Analyte	

Login Sample Receipt Checklist

Client: GHD Services Inc.

Job Number: 500-104665-1

Login Number: 104665

List Source: TestAmerica Chicago

List Number: 1

Creator: Scott, Sherri L

Question	Answer	Comment
Radioactivity wasn't checked or is \leq background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	False	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	Unchilled
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is $<6\text{mm}$ (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.

TestAmerica Chicago

2417 Bond Street

University Park, IL 60484

Tel: (708)534-5200

TestAmerica Job ID: 500-104542-1

Client Project/Site: H. Kramer - 39826

Revision: 1

For:

GHD Services Inc.

1801 Old Highway 8 NW

Suite 114

St. Paul, Minnesota 55112

Attn: Mr. Grant Anderson



Authorized for release by:

12/4/2015 9:21:23 AM

Richard Wright, Senior Project Manager

(708)534-5200

richard.wright@testamericainc.com

LINKS

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results through

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www.testamericainc.com

The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Case Narrative

Client: GHD Services Inc.
Project/Site: H. Kramer - 39826

TestAmerica Job ID: 500-104542-1

Job ID: 500-104542-1

Laboratory: TestAmerica Chicago

Narrative

Job Narrative 500-104542-1

Revised Report

Per communication with GHD, TCLP Cd was added.

Receipt

The samples were received on 11/25/2015 2:30 PM; the samples arrived in good condition, properly preserved and, where required, on ice.

Metals

Method(s) 6010C: The result for 500-104542-3 is within 20% of the 5ppm hazardous limit for Pb. An MSA was performed and confirmed the reported result.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Detection Summary

Client: GHD Services Inc.
Project/Site: H. Kramer - 39826

TestAmerica Job ID: 500-104542-1

Client Sample ID: S-112515-ML-004

Lab Sample ID: 500-104542-1

No Detections.

Client Sample ID: S-112515-ML-005

Lab Sample ID: 500-104542-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Lead	11		0.050	0.0075	mg/L	1		6010C	TCLP

Client Sample ID: S-112515-ML-006

Lab Sample ID: 500-104542-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Lead	4.3		0.050	0.0075	mg/L	1		6010C	TCLP

This Detection Summary does not include radiochemical test results.

TestAmerica Chicago

Method Summary

Client: GHD Services Inc.
Project/Site: H. Kramer - 39826

TestAmerica Job ID: 500-104542-1

Method	Method Description	Protocol	Laboratory
6010C	Metals (ICP)	SW846	TAL CHI

Protocol References:

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL CHI = TestAmerica Chicago, 2417 Bond Street, University Park, IL 60484, TEL (708)534-5200

Sample Summary

Client: GHD Services Inc.
Project/Site: H. Kramer - 39826

TestAmerica Job ID: 500-104542-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
500-104542-1	S-112515-ML-004	Solid	11/25/15 13:00	11/25/15 14:30
500-104542-2	S-112515-ML-005	Solid	11/25/15 13:00	11/25/15 14:30
500-104542-3	S-112515-ML-006	Solid	11/25/15 13:00	11/25/15 14:30

Client Sample Results

Client: GHD Services Inc.
Project/Site: H. Kramer - 39826

TestAmerica Job ID: 500-104542-1

Client Sample ID: S-112515-ML-004

Date Collected: 11/25/15 13:00

Date Received: 11/25/15 14:30

Lab Sample ID: 500-104542-1

Matrix: Solid

Method: 6010C - Metals (ICP) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cadmium	<0.0050		0.0050	0.0020	mg/L		11/30/15 10:02	11/30/15 17:27	1
Lead	<0.050		0.050	0.0075	mg/L		11/30/15 10:02	11/30/15 17:27	1

Client Sample Results

Client: GHD Services Inc.
Project/Site: H. Kramer - 39826

TestAmerica Job ID: 500-104542-1

Client Sample ID: S-112515-ML-005

Date Collected: 11/25/15 13:00

Date Received: 11/25/15 14:30

Lab Sample ID: 500-104542-2

Matrix: Solid

Method: 6010C - Metals (ICP) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cadmium	<0.0050		0.0050	0.0020	mg/L		11/30/15 10:02	11/30/15 17:33	1
Lead	11		0.050	0.0075	mg/L		11/30/15 10:02	11/30/15 17:33	1

Client Sample Results

Client: GHD Services Inc.
Project/Site: H. Kramer - 39826

TestAmerica Job ID: 500-104542-1

Client Sample ID: S-112515-ML-006

Lab Sample ID: 500-104542-3

Date Collected: 11/25/15 13:00

Matrix: Solid

Date Received: 11/25/15 14:30

Method: 6010C - Metals (ICP) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cadmium	<0.0050		0.0050	0.0020	mg/L		11/30/15 10:02	11/30/15 17:38	1
Lead	4.3		0.050	0.0075	mg/L		11/30/15 10:02	11/30/15 17:38	1

Definitions/Glossary

Client: GHD Services Inc.
Project/Site: H. Kramer - 39826

TestAmerica Job ID: 500-104542-1

Qualifiers

Metals

Qualifier	Qualifier Description
4	MS, MSD: The analyte present in the original sample is greater than 4 times the matrix spike concentration; therefore, control limits are not applicable.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

QC Association Summary

Client: GHD Services Inc.
Project/Site: H. Kramer - 39826

TestAmerica Job ID: 500-104542-1

Metals

Leach Batch: 314362

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-104542-1	S-112515-ML-004	TCLP	Solid	1311	
500-104542-2	S-112515-ML-005	TCLP	Solid	1311	
500-104542-3	S-112515-ML-006	TCLP	Solid	1311	
500-104542-3 DU	S-112515-ML-006	TCLP	Solid	1311	
500-104542-3 MS	S-112515-ML-006	TCLP	Solid	1311	
500-104542-3 MSD	S-112515-ML-006	TCLP	Solid	1311	
LB 500-314362/1-B	Method Blank	TCLP	Solid	1311	

Prep Batch: 314484

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-104542-1	S-112515-ML-004	TCLP	Solid	3010A	314362
500-104542-2	S-112515-ML-005	TCLP	Solid	3010A	314362
500-104542-3	S-112515-ML-006	TCLP	Solid	3010A	314362
500-104542-3 DU	S-112515-ML-006	TCLP	Solid	3010A	314362
500-104542-3 MS	S-112515-ML-006	TCLP	Solid	3010A	314362
500-104542-3 MSD	S-112515-ML-006	TCLP	Solid	3010A	314362
LB 500-314362/1-B	Method Blank	TCLP	Solid	3010A	314362
LCS 500-314484/2-A	Lab Control Sample	Total/NA	Solid	3010A	

Analysis Batch: 314620

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-104542-1	S-112515-ML-004	TCLP	Solid	6010C	314484
500-104542-2	S-112515-ML-005	TCLP	Solid	6010C	314484
500-104542-3	S-112515-ML-006	TCLP	Solid	6010C	314484
500-104542-3 DU	S-112515-ML-006	TCLP	Solid	6010C	314484
500-104542-3 MS	S-112515-ML-006	TCLP	Solid	6010C	314484
500-104542-3 MSD	S-112515-ML-006	TCLP	Solid	6010C	314484
LB 500-314362/1-B	Method Blank	TCLP	Solid	6010C	314484
LCS 500-314484/2-A	Lab Control Sample	Total/NA	Solid	6010C	314484

QC Sample Results

Client: GHD Services Inc.
Project/Site: H. Kramer - 39826

TestAmerica Job ID: 500-104542-1

Method: 6010C - Metals (ICP)

Lab Sample ID: LCS 500-314484/2-A
Matrix: Solid
Analysis Batch: 314620

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 314484

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Cadmium	0.0500	0.0555		mg/L		111	80 - 120
Lead	0.100	0.111		mg/L		111	80 - 120

Lab Sample ID: LB 500-314362/1-B
Matrix: Solid
Analysis Batch: 314620

Client Sample ID: Method Blank
Prep Type: TCLP
Prep Batch: 314484

Analyte	LB Result	LB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cadmium	<0.0050		0.0050	0.0020	mg/L		11/30/15 10:02	11/30/15 17:18	1
Lead	<0.050		0.050	0.0075	mg/L		11/30/15 10:02	11/30/15 17:18	1

Lab Sample ID: 500-104542-3 MS
Matrix: Solid
Analysis Batch: 314620

Client Sample ID: S-112515-ML-006
Prep Type: TCLP
Prep Batch: 314484

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Cadmium	<0.0050		0.0500	0.0589		mg/L		118	50 - 150
Lead	4.3		0.100	4.28	4	mg/L		-25	50 - 150

Lab Sample ID: 500-104542-3 MSD
Matrix: Solid
Analysis Batch: 314620

Client Sample ID: S-112515-ML-006
Prep Type: TCLP
Prep Batch: 314484

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Cadmium	<0.0050		0.0500	0.0599		mg/L		120	50 - 150	2	20
Lead	4.3		0.100	4.47	4	mg/L		171	50 - 150	4	20

Lab Sample ID: 500-104542-3 DU
Matrix: Solid
Analysis Batch: 314620

Client Sample ID: S-112515-ML-006
Prep Type: TCLP
Prep Batch: 314484

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Cadmium	<0.0050		<0.0050		mg/L		NC	20
Lead	4.3		4.32		mg/L		0.5	20

Lab Chronicle

Client: GHD Services Inc.
Project/Site: H. Kramer - 39826

TestAmerica Job ID: 500-104542-1

Client Sample ID: S-112515-ML-004

Date Collected: 11/25/15 13:00

Date Received: 11/25/15 14:30

Lab Sample ID: 500-104542-1

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
TCLP	Leach	1311			314362	11/27/15 16:00	RA	TAL CHI
TCLP	Prep	3010A			314484	11/30/15 10:02	JEF	TAL CHI
TCLP	Analysis	6010C		1	314620	11/30/15 17:27	PJ1	TAL CHI

Client Sample ID: S-112515-ML-005

Date Collected: 11/25/15 13:00

Date Received: 11/25/15 14:30

Lab Sample ID: 500-104542-2

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
TCLP	Leach	1311			314362	11/27/15 16:00	RA	TAL CHI
TCLP	Prep	3010A			314484	11/30/15 10:02	JEF	TAL CHI
TCLP	Analysis	6010C		1	314620	11/30/15 17:33	PJ1	TAL CHI

Client Sample ID: S-112515-ML-006

Date Collected: 11/25/15 13:00

Date Received: 11/25/15 14:30

Lab Sample ID: 500-104542-3

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
TCLP	Leach	1311			314362	11/27/15 16:00	RA	TAL CHI
TCLP	Prep	3010A			314484	11/30/15 10:02	JEF	TAL CHI
TCLP	Analysis	6010C		1	314620	11/30/15 17:38	PJ1	TAL CHI

Laboratory References:

TAL CHI = TestAmerica Chicago, 2417 Bond Street, University Park, IL 60484, TEL (708)534-5200

Certification Summary

Client: GHD Services Inc.
Project/Site: H. Kramer - 39826

TestAmerica Job ID: 500-104542-1

Laboratory: TestAmerica Chicago

Unless otherwise noted, all analytes for this laboratory were covered under each certification below.

Authority	Program	EPA Region	Certification ID	Expiration Date
Illinois	NELAP	5	100201	04-30-16
Analysis Method	Prep Method	Matrix	Analyte	

Login Sample Receipt Checklist

Client: GHD Services Inc.

Job Number: 500-104542-1

Login Number: 104542

List Source: TestAmerica Chicago

List Number: 1

Creator: Sanchez, Ariel M

Question	Answer	Comment
Radioactivity wasn't checked or is \leq background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	False	Thermal preservation not required.
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	unchilled
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is $<6\text{mm}$ (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.

TestAmerica Chicago

2417 Bond Street

University Park, IL 60484

Tel: (708)534-5200

TestAmerica Job ID: 500-104455-1

Client Project/Site: H. Kramer - 39826

Revision: 1

For:

GHD Services Inc.

1801 Old Highway 8 NW

Suite 114

St. Paul, Minnesota 55112

Attn: Mr. Grant Anderson



Authorized for release by:

12/4/2015 1:37:23 PM

Richard Wright, Senior Project Manager

(708)534-5200

richard.wright@testamericainc.com

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Results relate only to the items tested and the sample(s) as received by the laboratory.



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Case Narrative

Client: GHD Services Inc.
Project/Site: H. Kramer - 39826

TestAmerica Job ID: 500-104455-1

Job ID: 500-104455-1

Laboratory: TestAmerica Chicago

Narrative

Job Narrative 500-104455-1

Revised Report

Per communication with GHD, TCLP Cadmium was added.

Receipt

The samples were received on 11/24/2015 1:21 PM; the samples arrived in good condition, properly preserved and, where required, on ice.

Metals

Method(s) 6010C: The low-level CCV in 6010C batch 500-314308 was above the method acceptance limits of 70-130% recovery for Lead. The sample S-112415-GW-01 (500-104455-1), S-112415-GW-02 (500-104455-2) and S-112415-GW-03 (500-104455-3) was bracketed. The low-level standard concentration was insignificant compared with the reported sample results and the sample results were unaffected by the bias at that level. The mid-range bracketing the data were all within the 90-110% recovery limits.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Detection Summary

Client: GHD Services Inc.
Project/Site: H. Kramer - 39826

TestAmerica Job ID: 500-104455-1

Client Sample ID: S-112415-GW-01

Lab Sample ID: 500-104455-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Lead	2.9	^	0.050	0.0075	mg/L	1		6010C	TCLP

Client Sample ID: S-112415-GW-02

Lab Sample ID: 500-104455-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Lead	1.5	^	0.050	0.0075	mg/L	1		6010C	TCLP

Client Sample ID: S-112415-GW-03

Lab Sample ID: 500-104455-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Lead	0.31	^	0.050	0.0075	mg/L	1		6010C	TCLP

This Detection Summary does not include radiochemical test results.

TestAmerica Chicago

Method Summary

Client: GHD Services Inc.
Project/Site: H. Kramer - 39826

TestAmerica Job ID: 500-104455-1

Method	Method Description	Protocol	Laboratory
6010C	Metals (ICP)	SW846	TAL CHI

Protocol References:

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL CHI = TestAmerica Chicago, 2417 Bond Street, University Park, IL 60484, TEL (708)534-5200

Sample Summary

Client: GHD Services Inc.
Project/Site: H. Kramer - 39826

TestAmerica Job ID: 500-104455-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
500-104455-1	S-112415-GW-01	Solid	11/24/15 12:02	11/24/15 13:21
500-104455-2	S-112415-GW-02	Solid	11/24/15 12:08	11/24/15 13:21
500-104455-3	S-112415-GW-03	Solid	11/24/15 12:08	11/24/15 13:21

Client Sample Results

Client: GHD Services Inc.
Project/Site: H. Kramer - 39826

TestAmerica Job ID: 500-104455-1

Client Sample ID: S-112415-GW-01

Date Collected: 11/24/15 12:02

Date Received: 11/24/15 13:21

Lab Sample ID: 500-104455-1

Matrix: Solid

Method: 6010C - Metals (ICP) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cadmium	<0.0050		0.0050	0.0020	mg/L		11/25/15 14:05	11/26/15 15:16	1
Lead	2.9	^	0.050	0.0075	mg/L		11/25/15 14:05	11/26/15 15:16	1

Client Sample Results

Client: GHD Services Inc.
Project/Site: H. Kramer - 39826

TestAmerica Job ID: 500-104455-1

Client Sample ID: S-112415-GW-02

Date Collected: 11/24/15 12:08

Date Received: 11/24/15 13:21

Lab Sample ID: 500-104455-2

Matrix: Solid

Method: 6010C - Metals (ICP) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cadmium	<0.0050		0.0050	0.0020	mg/L		11/25/15 14:05	11/26/15 15:45	1
Lead	1.5	^	0.050	0.0075	mg/L		11/25/15 14:05	11/26/15 15:45	1

Client Sample Results

Client: GHD Services Inc.
Project/Site: H. Kramer - 39826

TestAmerica Job ID: 500-104455-1

Client Sample ID: S-112415-GW-03

Date Collected: 11/24/15 12:08

Date Received: 11/24/15 13:21

Lab Sample ID: 500-104455-3

Matrix: Solid

Method: 6010C - Metals (ICP) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cadmium	<0.0050		0.0050	0.0020	mg/L		11/25/15 14:05	11/26/15 15:50	1
Lead	0.31	^	0.050	0.0075	mg/L		11/25/15 14:05	11/26/15 15:50	1

Definitions/Glossary

Client: GHD Services Inc.
Project/Site: H. Kramer - 39826

TestAmerica Job ID: 500-104455-1

Qualifiers

Metals

Qualifier	Qualifier Description
^	ICV,CCV,ICB,CCB, ISA, ISB, CRI, CRA, DLCK or MRL standard: Instrument related QC is outside acceptance limits.
4	MS, MSD: The analyte present in the original sample is greater than 4 times the matrix spike concentration; therefore, control limits are not applicable.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
□	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

QC Association Summary

Client: GHD Services Inc.
Project/Site: H. Kramer - 39826

TestAmerica Job ID: 500-104455-1

Metals

Leach Batch: 314030

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-104455-1	S-112415-GW-01	TCLP	Solid	1311	
500-104455-1 DU	S-112415-GW-01	TCLP	Solid	1311	
500-104455-1 MS	S-112415-GW-01	TCLP	Solid	1311	
500-104455-2	S-112415-GW-02	TCLP	Solid	1311	
500-104455-3	S-112415-GW-03	TCLP	Solid	1311	
LB3 500-314030/1-B	Method Blank	TCLP	Solid	1311	

Prep Batch: 314191

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-104455-1	S-112415-GW-01	TCLP	Solid	3010A	314030
500-104455-1 DU	S-112415-GW-01	TCLP	Solid	3010A	314030
500-104455-1 MS	S-112415-GW-01	TCLP	Solid	3010A	314030
500-104455-2	S-112415-GW-02	TCLP	Solid	3010A	314030
500-104455-3	S-112415-GW-03	TCLP	Solid	3010A	314030
LB3 500-314030/1-B	Method Blank	TCLP	Solid	3010A	314030
LCS 500-314191/2-A	Lab Control Sample	Total/NA	Solid	3010A	

Analysis Batch: 314308

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-104455-1	S-112415-GW-01	TCLP	Solid	6010C	314191
500-104455-1 DU	S-112415-GW-01	TCLP	Solid	6010C	314191
500-104455-1 MS	S-112415-GW-01	TCLP	Solid	6010C	314191
500-104455-2	S-112415-GW-02	TCLP	Solid	6010C	314191
500-104455-3	S-112415-GW-03	TCLP	Solid	6010C	314191
LB3 500-314030/1-B	Method Blank	TCLP	Solid	6010C	314191
LCS 500-314191/2-A	Lab Control Sample	Total/NA	Solid	6010C	314191

QC Sample Results

Client: GHD Services Inc.
Project/Site: H. Kramer - 39826

TestAmerica Job ID: 500-104455-1

Method: 6010C - Metals (ICP)

Lab Sample ID: LCS 500-314191/2-A
Matrix: Solid
Analysis Batch: 314308

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 314191

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Cadmium	0.0500	0.0493		mg/L		99	80 - 120
Lead	0.100	0.0999	^	mg/L		100	80 - 120

Lab Sample ID: LB3 500-314030/1-B
Matrix: Solid
Analysis Batch: 314308

Client Sample ID: Method Blank
Prep Type: TCLP
Prep Batch: 314191

Analyte	LB3 Result	LB3 Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cadmium	<0.0050		0.0050	0.0020	mg/L		11/25/15 14:05	11/26/15 15:07	1
Lead	<0.050	^	0.050	0.0075	mg/L		11/25/15 14:05	11/26/15 15:07	1

Lab Sample ID: 500-104455-1 MS
Matrix: Solid
Analysis Batch: 314308

Client Sample ID: S-112415-GW-01
Prep Type: TCLP
Prep Batch: 314191

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Cadmium	<0.0050		0.0500	0.0572		mg/L		114	50 - 150
Lead	2.9	^	0.100	5.16	^ 4	mg/L		2219	50 - 150

Lab Sample ID: 500-104455-1 DU
Matrix: Solid
Analysis Batch: 314308

Client Sample ID: S-112415-GW-01
Prep Type: TCLP
Prep Batch: 314191

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	Limit
Cadmium	<0.0050		<0.0050		mg/L		NC	20
Lead	2.9	^	2.81		mg/L		4	20

Lab Chronicle

Client: GHD Services Inc.
Project/Site: H. Kramer - 39826

TestAmerica Job ID: 500-104455-1

Client Sample ID: S-112415-GW-01

Date Collected: 11/24/15 12:02

Date Received: 11/24/15 13:21

Lab Sample ID: 500-104455-1

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
TCLP	Leach	1311			314030	11/24/15 15:30	BAT	TAL CHI
TCLP	Prep	3010A			314191	11/25/15 14:05	PFK	TAL CHI
TCLP	Analysis	6010C		1	314308	11/26/15 15:16	KML	TAL CHI

Client Sample ID: S-112415-GW-02

Date Collected: 11/24/15 12:08

Date Received: 11/24/15 13:21

Lab Sample ID: 500-104455-2

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
TCLP	Leach	1311			314030	11/24/15 15:30	BAT	TAL CHI
TCLP	Prep	3010A			314191	11/25/15 14:05	PFK	TAL CHI
TCLP	Analysis	6010C		1	314308	11/26/15 15:45	KML	TAL CHI

Client Sample ID: S-112415-GW-03

Date Collected: 11/24/15 12:08

Date Received: 11/24/15 13:21

Lab Sample ID: 500-104455-3

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
TCLP	Leach	1311			314030	11/24/15 15:30	BAT	TAL CHI
TCLP	Prep	3010A			314191	11/25/15 14:05	PFK	TAL CHI
TCLP	Analysis	6010C		1	314308	11/26/15 15:50	KML	TAL CHI

Laboratory References:

TAL CHI = TestAmerica Chicago, 2417 Bond Street, University Park, IL 60484, TEL (708)534-5200

Certification Summary

Client: GHD Services Inc.
Project/Site: H. Kramer - 39826

TestAmerica Job ID: 500-104455-1

Laboratory: TestAmerica Chicago

Unless otherwise noted, all analytes for this laboratory were covered under each certification below.

Authority	Program	EPA Region	Certification ID	Expiration Date
Illinois	NELAP	5	100201	04-30-16
Analysis Method	Prep Method	Matrix	Analyte	

E-Mail:

PO#/Reference#

Temperature °C of Cooler: 12.0

Top Lead

Lab Comments:

Login Sample Receipt Checklist

Client: GHD Services Inc.

Job Number: 500-104455-1

Login Number: 104455

List Source: TestAmerica Chicago

List Number: 1

Creator: Sanchez, Ariel M

Question	Answer	Comment
Radioactivity wasn't checked or is \leq background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	False	Thermal preservation not required.
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	unchilled
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is $<6\text{mm}$ (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Appendix I

Analytical Data Validation Memorandum



Memorandum

August 26, 2016

To: Walt Pochron, GHD

Ref. No.: 039826-18

From: Grant Anderson/sb/3

Tel: 651-639-0913

**Subject: Analytical Results and Reduced Validation
Treated Soil Sampling Events
OU1 Pilsen Soil Site
Chicago, Illinois
November and December 2015**

1. Introduction

The following document details a reduced validation of analytical results for soil samples collected in support of the treated soil sampling events at the OU1 Pilsen Soil Site during November and December 2015. Samples were submitted to TestAmerica Laboratories, Inc. (TestAmerica), located in Chicago, Illinois. A sample collection and analysis summary is presented in Table 1. The validated analytical results are summarized in Table 2. A summary of the analytical methodology is presented in Table 3.

Standard GHD Services, Inc. (GHD) report deliverables were submitted by the laboratory. The final results and supporting quality assurance/quality control (QA/QC) data were assessed. Evaluation of the data was based on information obtained from the chain of custody forms, finished report forms, method blank data, recovery data from laboratory control samples (LCS), matrix spikes (MS), and field QC samples.

The QA/QC criteria by which these data have been assessed are outlined in the analytical methods referenced in Table 3 and applicable documents entitled:

- i) Quality Assurance Project Plan OU1 Removal Activities, Pilsen Area of Chicago, Illinois, Report 18, October 2015
- ii) "USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review", USEPA 540 R 10 011, January 2010

Items i) and ii) will subsequently be referred to as the "Guidelines" in this Memorandum.

2. Sample Holding Time and Preservation

The sample holding time criteria for the analyses are summarized in Table 3. The sample chain of custody document and analytical report were used to determine sample holding times. The samples were prepared and analyzed within the required holding times.



The samples were properly preserved and stored by the laboratory at the required temperature.

3. Laboratory Method Blank Analyses

Method blanks are prepared from a purified matrix and analyzed with investigative samples to determine the existence and magnitude of sample contamination introduced during the analytical procedures.

Laboratory method blanks were analyzed at a minimum frequency of one per 20 investigative samples and/or one per analytical batch.

All method blank results were non-detect indicating that laboratory contamination was unlikely.

4. Laboratory Control Sample Analyses

LCS are prepared and analyzed as samples to assess the analytical efficiencies of the methods employed, independent of sample matrix effects.

LCS were analyzed at a minimum frequency of 1 per 20 investigative samples and/or 1 per analytical batch.

The LCS contained all analytes of interest. LCS recoveries were assessed per the "Guidelines". All LCS recoveries were within the control limits, demonstrating acceptable analytical accuracy.

5. Matrix Spike/Matrix Spike Duplicate (MS/MSD) Analyses

To evaluate the effects of sample matrices on the preparation process, measurement procedures, and accuracy of a particular analysis, samples are spiked with a known concentration of the analyte of concern and analyzed as MS/MSD samples. The RPD between the MS and MSD is used to assess analytical precision. If the original sample concentration is significantly greater than the spike concentration, the recovery is not assessed.

The laboratory performed site-specific MS/MSD analyses internally.

The MS/MSD samples were spiked with the analytes of interest, and the results were evaluated using the "Guidelines". Some MS/MSD results were outside of the control limits. However, in all cases the original result was significantly greater than the spike added; therefore, MS/MSD criteria/qualification did not apply. The remaining percent recoveries and RPD values were within the control limits demonstrating acceptable analytical accuracy and precision.

6. Duplicate Sample Analyses

Analytical precision is evaluated based on the analysis of laboratory duplicate samples. Duplicate samples were prepared and analyzed by the laboratory for lead analyses. The duplicate results were evaluated per



the "Guidelines". All duplicate analyses performed were acceptable (<35%), demonstrating acceptable analytical precision.

7. Field QA/QC Samples

The field QA/QC consisted of two field duplicate sample sets.

Field Duplicate Sample Analysis

To assess the analytical and sampling protocol precision, two field duplicate sample sets were collected and submitted "blind" to the laboratory, as specified in Table 1. The RPDs associated with these duplicate samples must be less than 100 percent. If the reported concentration in either the investigative sample or its duplicate is less than five times the reporting limit (RL), the evaluation criteria is two times the RL value.

With the exception of TCLP lead in samples S-112415-GW-02/S-112415-GW-03, the field duplicate results were within acceptable agreement. Table 4 lists outlying field duplicate results. Associated sample data are qualified as noted in the table.

8. Analyte Reporting

The laboratory reported detected results down to the laboratory's method detection limit (MDL) for each analyte. Positive analyte detections less than the RL but greater than the MDL were qualified as estimated (J) in Table 2 unless qualified otherwise in this memorandum. Non-detect results were presented as non-detect at the RL in Table 2.

9. Conclusion

Based on the assessment detailed in the foregoing, the data summarized in Table 2 are acceptable with the specific qualifications noted herein.

Table 1

**Sample Collection and Analysis Summary
Treated Soil Sampling Events
OU1 Pilsen Soil Site
Chicago, Illinois
November and December 2015**

Sample Identification	Location	Matrix	Collection Date (mm/dd/yyyy)	Collection Time (hr:min)	Analysis/ Parameters			Comments
					TCLP Lead	TCLP Cadmium	pH	
S-112415-GW-01	Area 4 Northern Stockpile	soil	11/24/2015	12:02	x	-	-	
S-112415-GW-02	Area 4 Southern Stockpile	soil	11/24/2015	12:08	x	-	-	
S-112415-GW-03	Area 4 Southern Stockpile	soil	11/24/2015	12:08	x	-	-	duplicate (GW-02)
S-112415-ML-004	Area 8 Eastern Stockpile	soil	11/25/2015	13:00	x	x	-	
S-112415-ML-005	Area 8 Western Stockpile	soil	11/25/2015	13:00	x	x	-	
S-112415-ML-006	Area 8 Western Stockpile	soil	11/25/2015	13:00	x	x	-	duplicate (ML-005)
S-120215-GW-007	Area 8 Western Stockpile (West half)	soil	12/02/2015	09:25	x	x	-	
S-120215-GW-008	Area 8 Western Stockpile (East half)	soil	12/02/2015	09:35	x	x	-	
S-120815-GW-009	Area 8 Western Portion	soil	12/08/2015	13:50	x	x	x	
S-120915-GW-010	Area 8 Western Portion (24 hrs post treat)	soil	12/09/2015	13:10	x	x	x	

**Validated Analytical Results Summary
Treated Soil Sampling Events
OU1 Pilsen Soil Site
Chicago, Illinois
November and December 2015**

Sample Name	Sample Location	Sample Date	TCLP Cadmium (mg/L)	TCLP Lead (mg/L)	pH (s.u.)	Comments
S-112415-GW-01	Area 4 - Northern Stockpile	11/24/2015	0.0050 U	2.9	-	
S-112415-GW-02	Area 4 - Southern Stockpile	11/24/2015	0.0050 U	1.5 J	-	
S-112415-GW-03	Area 4 - Southern Stockpile	11/24/2015	0.0050 U	0.31 J	-	Duplicate (GW-02)
S-112515-ML-004	Area 8- Eastern Stockpile	11/25/2015	0.0050 U	0.050 U	-	
S-112515-ML-005	Area 8- Western Stockpile	11/25/2015	0.0050 U	11	-	
S-112515-ML-006	Area 8- Western Stockpile	11/25/2015	0.0050 U	4.3	-	Duplicate (ML-005)
S-120815-AK-009	Area 8- Western Stockpile	12/08/2015	0.0050 U	8.3	-	
S-120915-AK-010	Area 8- Western Stockpile	12/09/2015	0.0050 U	4.7	-	
S-120215-AK-008	Area 8- Western Stockpile (east half)	12/02/2015	0.0050 U	8.2	12.4	
S-120215-AK-007	Area 8- Western Stockpile (west half)	12/02/2015	0.0050 U	5.4	12.6	

Notes:

s.u. - Standard units

J - Estimated concentration

Table 3

Analytical Methods
Treated Soil Sampling Events
OU1 Pilsen Soil Site
Chicago, Illinois
November and December 2015

Parameter	Method	Matrix	Holding Time	
			Collection to Extraction (Days)	Collection or Extraction to Analysis (Days)
TCLP Metals (Lead and Cadmium)	SW-846 6010C	soil	180	180
pH	SW-846 9045C	soil	-	NA

Notes:

Method References:

SW-846 - "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", SW-846, Third Edition, 1986, with subsequent revisions

NA - Not Applicable

Table 4

**Qualified Sample Data Due To Variability In Field Duplicate Results
Treated Soil Sampling Events
OU1 Pilsen Soil Site
Chicago, Illinois
November and December 2015**

Parameter	Analyte	RPD/Diff	Sample ID	Qualified Result	Field Duplicate Sample ID	Qualified Result	Units
Metals	TCLP Lead	131% (RPD)	S-112415-GW-02	1.5 J	S-112415-GW-03	0.31 J	mg/L

Notes:

- Diff - Difference (criteria <2x RL when result is <5x RL)
- RPD - Relative Percent Difference (criteria <100% when result is >5x RL)
- J - Estimated concentration

Appendix J

Soil Disposal Summary

15K0413

Customer Summary Report**Criteria: 12/01/2015 12:00 AM to 12/31/2015 11:59 PM****Business Unit Name: Laraway RDF - S04121 (USA)****Customer Name: RW COLLINS 613405IL (RW COLLINS 613405IL)**

Ticket Date	Ticket ID	Customer	Generator	Truck	Material	Rate Unit	Tons
12/14/2015	716436	RW COLLINS 613405IL	117-H KRAMER AND COMPANY	103	Declass Soil-Tons	TON	19.94
12/14/2015	716460	RW COLLINS 613405IL	117-H KRAMER AND COMPANY	226	Declass Soil-Tons	TON	19.80
12/14/2015	716508	RW COLLINS 613405IL	117-H KRAMER AND COMPANY	21	Declass Soil-Tons	TON	19.30
12/14/2015	716510	RW COLLINS 613405IL	117-H KRAMER AND COMPANY	59	Declass Soil-Tons	TON	17.94
12/14/2015	716524	RW COLLINS 613405IL	117-H KRAMER AND COMPANY	426	Declass Soil-Tons	TON	17.97
12/14/2015	716532	RW COLLINS 613405IL	117-H KRAMER AND COMPANY	35	Declass Soil-Tons	TON	19.89
12/14/2015	716557	RW COLLINS 613405IL	117-H KRAMER AND COMPANY	103	Declass Soil-Tons	TON	18.16
12/14/2015	716582	RW COLLINS 613405IL	117-H KRAMER AND COMPANY	226	Declass Soil-Tons	TON	18.25
12/14/2015	716626	RW COLLINS 613405IL	117-H KRAMER AND COMPANY	21	Declass Soil-Tons	TON	20.10
12/14/2015	716638	RW COLLINS 613405IL	117-H KRAMER AND COMPANY	426	Declass Soil-Tons	TON	21.99
12/14/2015	716640	RW COLLINS 613405IL	117-H KRAMER AND COMPANY	59	Declass Soil-Tons	TON	20.62
12/14/2015	716643	RW COLLINS 613405IL	117-H KRAMER AND COMPANY	35	Declass Soil-Tons	TON	17.56
12/14/2015	716665	RW COLLINS 613405IL	117-H KRAMER AND COMPANY	103	Declass Soil-Tons	TON	20.19
12/14/2015	716690	RW COLLINS 613405IL	117-H KRAMER AND COMPANY	226	Declass Soil-Tons	TON	15.91
12/14/2015	716713	RW COLLINS 613405IL	117-H KRAMER AND COMPANY	426	Declass Soil-Tons	TON	7.79
							275.41
12/17/2015	717688	RW COLLINS 613405IL	117-H KRAMER AND COMPANY	116-ALUMINUM	Declass Soil-Tons	TON	17.43
12/17/2015	717915	RW COLLINS 613405IL	117-H KRAMER AND COMPANY	116	Declass Soil-Tons	TON	17.71
12/17/2015	718112	RW COLLINS 613405IL	117-H KRAMER AND COMPANY	116	Declass Soil-Tons	TON	19.18
							54.32
12/18/2015	718276	RW COLLINS 613405IL	117-H KRAMER AND COMPANY	4952	Declass Soil-Tons	TON	19.79
12/18/2015	718483	RW COLLINS 613405IL	117-H KRAMER AND COMPANY	4952	Declass Soil-Tons	TON	20.78
12/18/2015	718671	RW COLLINS 613405IL	117-H KRAMER AND COMPANY	4952	Declass Soil-Tons	TON	25.52
							66.09
12/29/2015	720609	RW COLLINS 613405IL	117-H KRAMER AND COMPANY	150	Declass Soil-Tons	TON	19.08
12/29/2015	720611	RW COLLINS 613405IL	117-H KRAMER AND COMPANY	219	Declass Soil-Tons	TON	21.55
12/29/2015	720616	RW COLLINS 613405IL	117-H KRAMER AND COMPANY	714	Declass Soil-Tons	TON	21.64
12/29/2015	720619	RW COLLINS 613405IL	117-H KRAMER AND COMPANY	116-ALUMINUM	Declass Soil-Tons	TON	18.15
12/29/2015	720628	RW COLLINS 613405IL	117-H KRAMER AND COMPANY	175	Declass Soil-Tons	TON	20.66
12/29/2015	720735	RW COLLINS 613405IL	117-H KRAMER AND COMPANY	150	Declass Soil-Tons	TON	21.97
12/29/2015	720742	RW COLLINS 613405IL	117-H KRAMER AND COMPANY	219	Declass Soil-Tons	TON	23.36
12/29/2015	720748	RW COLLINS 613405IL	117-H KRAMER AND COMPANY	714	Declass Soil-Tons	TON	19.14
12/29/2015	720784	RW COLLINS 613405IL	117-H KRAMER AND COMPANY	175	Declass Soil-Tons	TON	25.60
12/29/2015	720796	RW COLLINS 613405IL	117-H KRAMER AND COMPANY	116-ALUMINUM	Declass Soil-Tons	TON	22.91
12/29/2015	720862	RW COLLINS 613405IL	117-H KRAMER AND COMPANY	150	Declass Soil-Tons	TON	23.09
12/29/2015	720887	RW COLLINS 613405IL	117-H KRAMER AND COMPANY	219	Declass Soil-Tons	TON	24.54
12/29/2015	720914	RW COLLINS 613405IL	117-H KRAMER AND COMPANY	175	Declass Soil-Tons	TON	23.00
12/29/2015	720954	RW COLLINS 613405IL	117-H KRAMER AND COMPANY	116-ALUMINUM	Declass Soil-Tons	TON	8.36
							293.05
Material Total	35						688.87
Customer Total	35						688.87
Ticket Totals	35						688.87

15 K0413-



Industrial Waste Tracking Receipt (Non-Special)

Profile Number: 613405IL

Expiration Date: 12/10/2016

2 Copies needed with each driver on their 1st load of each day

Section A Generator Information

Generator Name:

H. Kramer & Co.

Technical Contact and Phone:

Walt Pochron 312-226-6600

Street Address: 1345 W 21st St; Chicago, IL 60638

County: Cook

On Site Contact: Josh Bernat 708-458-6868

Waste Name: Treated Lead Impacted Soil Containing PCBs

Volume/Number of Drums: _____

Special Conditions:

NO Generator Signature Required

Section B TRANSPORTER INFORMATION

Transporter:

RPE Trucking

Driver Signature:

[Signature]

Truck Number:

926

Date:

12/14/15

Section C DISPOSAL SITE INFORMATION

Site Name: Laraway RDF

IEPA ID Number: 1970450002

Authorized Signature

Date (MM/DD/YY)

Load 1

[Signature]

Load 2

C.C.

Load 3

C.C.

Load 4

Load 5



Industrial Waste Tracking Receipt (Non-Special)

Profile Number: 613405IL

Expiration Date: 12/10/2016

2 Copies needed with each driver on their 1st load of each day

Section A Generator Information

Generator Name:

H. Kramer & Co.

Technical Contact and Phone:

Walt Pochron 312-226-6600

Street Address: 1345 W 21st St; Chicago, IL 60638

County: Cook

On Site Contact: Josh Bernat 708-458-6868

Waste Name: Treated Lead Impacted Soil Containing PCBs

Volume/Number of Drums: _____

Special Conditions:

NO Generator Signature Required

Section B TRANSPORTER INFORMATION

Transporter: J-E-D

Driver Signature: Ernesto

Truck Number: 426

Date: 12-14-15

Section C DISPOSAL SITE INFORMATION

Site Name: Laraway RDF

IEPA ID Number: 1970450002

Authorized Signature _____

Date (MM/DD/YY) _____

Load 1 X Load 2 M Load 3 C.C. Load 4 _____ Load 5 _____



Industrial Waste Tracking Receipt (Non-Special)

Profile Number: 613405IL

Expiration Date: 12/10/2016

2 Copies needed with each driver on their 1st load of each day

Section A Generator Information

Generator Name:

H. Kramer & Co.

Technical Contact and Phone:

Walt Pochron 312-226-6600

Street Address: 1345 W 21st St; Chicago, IL 60638

County: Cook

On Site Contact: Josh Bernat 708-458-6868

Waste Name: Treated Lead Impacted Soil Containing PCBs

Volume/Number of Drums: _____

Special Conditions:

NO Generator Signature Required

Section B TRANSPORTER INFORMATION

Transporter: Brian Truck Inc (Euo Inc)

Driver Signature: Arturo Perez

Truck Number: 103 Date: 12/14/15

Section C DISPOSAL SITE INFORMATION

Site Name: Laraway RDF

IEPA ID Number: 1970450002

Authorized Signature _____

Date (MM/DD/YY) _____

Load 1 J Load 2 AS Load 3 AS Load 4 _____ Load 5 _____



Industrial Waste Tracking Receipt (Non-Special)

Profile Number: 613405IL

Expiration Date: 12/10/2016

2 Copies needed with each driver on their 1st load of each day

Section A Generator Information

Generator Name:

H. Kramer & Co.

Technical Contact and Phone:

Walt Pochron 312-226-6600

Street Address: 1345 W 21st St; Chicago, IL 60638

County: Cook

On Site Contact: Josh Bernat 708-458-6868

Waste Name: Treated Lead Impacted Soil Containing PCBs

Volume/Number of Drums: _____

Special Conditions:

NO Generator Signature Required

Section B TRANSPORTER INFORMATION

Transporter: 6901

Driver Signature: C. S. A.

Truck Number: 35 Date: 12-19-15

Section C DISPOSAL SITE INFORMATION

Site Name: Laraway RDF

IEPA ID Number: 1970450002

Authorized Signature _____

Date (MM/DD/YY) _____

Load 1 M Load 2 C.C. Load 3 _____ Load 4 _____ Load 5 _____



Industrial Waste Tracking Receipt (Non-Special)

Profile Number: 613405IL

Expiration Date: 12/10/2016

2 Copies needed with each driver on their 1st load of each day

Section A Generator Information

Generator Name:

H. Kramer & Co.

Technical Contact and Phone:

Walt Pochron 312-226-6600

Street Address: 1345 W 21st St; Chicago, IL 60638

County: Cook

On Site Contact: Josh Bernat 708-458-6868

Waste Name: Treated Lead Impacted Soil Containing PCBs

Volume/Number of Drums: _____

Special Conditions:

NO Generator Signature Required

Section B TRANSPORTER INFORMATION

Transporter:

Tepa Trucking

Driver Signature:

[Signature]

Truck Number:

59

Date:

12-14-15

Section C DISPOSAL SITE INFORMATION

Site Name: Laraway RDF

IEPA ID Number: 1970450002

Authorized Signature _____

Date (MM/DD/YY) _____

Load 1 [Signature]

Load 2 [Signature]

Load 3 _____

Load 4 _____

Load 5 _____



Industrial Waste Tracking Receipt (Non-Special)

Profile Number: 613405IL

Expiration Date: 12/10/2016

2 Copies needed with each driver on their 1st load of each day

Section A

Generator Information

Generator Name:

H. Kramer & Co.

Technical Contact and Phone:

Walt Pochron 312-226-6600

Street Address: 1345 W 21st St; Chicago, IL 60638

County: Cook

On Site Contact:

Josh Bernat 708-458-6868

Waste Name: Treated Lead Impacted Soil Containing PCBs

Volume/Number of Drums: _____

Special Conditions:

NO Generator Signature Required

Section B

TRANSPORTER INFORMATION

Transporter:

LC Trucking

Driver Signature:

Gras Cudde

Truck Number:

21

Date:

12-14-15

Section C

DISPOSAL SITE INFORMATION

Site Name: Laraway RDF

IEPA ID Number: 1970450002

Authorized Signature _____

Date (MM/DD/YY) _____

Load 1 C.C.

Load 2 X

Load 3 _____

Load 4 _____

Load 5 _____

15K0413

**Industrial Waste Tracking Receipt (Non-Special)**Profile Number: 6134051LExpiration Date: 12/10/20162 Copies needed with each driver on their 1st load of each day**Section A Generator Information**

Generator Name: H. Kramer & Co. Technical Contact and Phone: Walt Pochron 312-226-6600

Street Address: 1345 W 21st St; Chicago, IL 60638

County: Cook

On Site Contact: Josh Bernat 708-458-6868

Waste Name: Treated Lead Impacted Soil Containing PCBs

Volume/Number of Drums: _____

Special Conditions:

NO Generator Signature Required**Section B TRANSPORTER INFORMATION**Transporter: M.B.B Transport CoDriver Signature: [Signature]Truck Number: 116-~~0000~~V. Date: 12-17-15**Section C DISPOSAL SITE INFORMATION**Site Name: Laraway RDF IEPA ID Number: 1970450002

Authorized Signature _____

Date (MM/DD/YY) _____

Load 1 C.C. Load 2 C.C. Load 3 [Signature] Load 4 _____ Load 5 _____

1520413

**Industrial Waste Tracking Receipt (Non-Special)**Profile Number: 613405ILExpiration Date: 12/10/20162 Copies needed with each driver on their 1st load of each day**Section A Generator Information**

Generator Name: H. Kramer & Co. Technical Contact and Phone: Walt Pochron 312-226-6600

Street Address: 1345 W 21st St; Chicago, IL 60638

County: Cook

On Site Contact: Josh Bernat 708-458-6868

Waste Name: Treated Lead Impacted Soil Containing PCBs

Volume/Number of Drums: _____

Special Conditions:

NO Generator Signature Required**Section B TRANSPORTER INFORMATION**Transporter: Pete's Transport Co. (4952)Driver Signature: Pete DwyerTruck Number: 4952Date: 12/18/2015**Section C DISPOSAL SITE INFORMATION**Site Name: Laraway RDF IEPA ID Number: 1970450002

Authorized Signature _____

Date (MM/DD/YY) _____

Load 1 [Signature] Load 2 [Signature] Load 3 [Signature] Load 4 _____ Load 5 _____

**Industrial Waste Tracking Receipt (Non-Special)**Profile Number: 613405ILExpiration Date: 12/10/2016**2 Copies needed with each driver on their 1st load of each day****Section A Generator Information**

Generator Name:

H. Kramer & Co.

Technical Contact and Phone:

Walt Pochron 312-226-6600

Street Address: 1345 W 21st St; Chicago, IL 60638

County: Cook

On Site Contact: Josh Bernat 708-458-6868

Waste Name: Treated Lead Impacted Soil Containing PCBs

Volume/Number of Drums: _____

Special Conditions:

NO Generator Signature Required**Section B TRANSPORTER INFORMATION**

Transporter:

United Lines Transport

Driver Signature:

Ryco Car 116

Truck Number:

714

Date:

R-24-15**Section C DISPOSAL SITE INFORMATION**Site Name: Laraway RDFIEPA ID Number: 1970450002

Authorized Signature _____

Date (MM/DD/YY) _____

Load 1

[Signature]

Load 2

[Signature]

Load 3

Load 4

Load 5



Industrial Waste Tracking Receipt (Non-Special)

Profile Number: 613405IL

Expiration Date: 12/10/2016

2 Copies needed with each driver on their 1st load of each day

Section A Generator Information

Generator Name:

H. Kramer & Co.

Technical Contact and Phone:

Walt Pochron 312-226-6600

Street Address: 1345 W 21st St; Chicago, IL 60638

County: Cook

On Site Contact: Josh Bernat 708-458-6868

Waste Name: Treated Lead Impacted Soil Containing PCBs

Volume/Number of Drums: _____

Special Conditions:

NO Generator Signature Required

Section B TRANSPORTER INFORMATION

Transporter:

H.B.B. Transport Co

Driver Signature:

[Signature]

Truck Number:

116 Steel Tank

Date:

12-29-15

Section C DISPOSAL SITE INFORMATION

Site Name: Laraway RDF

IEPA ID Number: 1970450002

Authorized Signature

Date (MM/DD/YY)

Load 1

C.C.

Load 2

C.C.

Load 3

C.C.

Load 4

Load 5



Industrial Waste Tracking Receipt (Non-Special)

Profile Number: 613405IL

Expiration Date: 12/10/2016

2 Copies needed with each driver on their 1st load of each day

Section A Generator Information

Generator Name:

H. Kramer & Co.

Technical Contact and Phone:

Walt Pochron 312-226-6600

Street Address: 1345 W 21st St; Chicago, IL 60638

County: Cook

On Site Contact: Josh Bernat 708-458-6868

Waste Name: Treated Lead Impacted Soil Containing PCBs

Volume/Number of Drums: _____

Special Conditions:

NO Generator Signature Required

Section B TRANSPORTER INFORMATION

Transporter: Bryan's Transportation

Driver Signature: [Signature]

Truck Number: 219 **Date:** 12/29/15

Section C DISPOSAL SITE INFORMATION

Site Name: Laraway RDF

IEPA ID Number: 1970450002

Authorized Signature _____

Date (MM/DD/YY) _____

Load 1 [Signature] Load 2 [Signature] Load 3 [Signature] Load 4 _____ Load 5 _____



Industrial Waste Tracking Receipt (Non-Special)

Profile Number: 613405IL

Expiration Date: 12/10/2016

2 Copies needed with each driver on their 1st load of each day

Section A Generator Information

Generator Name:

H. Kramer & Co.

Technical Contact and Phone:

Walt Pochron 312-226-6600

Street Address: 1345 W 21st St; Chicago, IL 60638

County: Cook

On Site Contact: Josh Bernat 708-458-6868

Waste Name: Treated Lead Impacted Soil Containing PCBs

Volume/Number of Drums: _____

Special Conditions:

NO Generator Signature Required

Section B TRANSPORTER INFORMATION

Transporter:

QJM TRUCKING INC

Driver Signature:

[Signature]

Truck Number:

175

Date:

12/29/15

Section C DISPOSAL SITE INFORMATION

Site Name: Laraway RDF

IEPA ID Number: 1970450002

Authorized Signature

Date (MM/DD/YY)

Load 1

[Signature]

Load 2

[Signature]

Load 3

C.C.

Load 4

Load 5



Industrial Waste Tracking Receipt (Non-Special)

Profile Number: 613405IL

Expiration Date: 12/10/2016

2 Copies needed with each driver on their 1st load of each day

Section A

Generator Information

Generator Name:

H. Kramer & Co.

Technical Contact and Phone:

Walt Pochron 312-226-6600

Street Address: 1345 W 21st St; Chicago, IL 60638

County: Cook

On Site Contact: Josh Bernat 708-458-6868

Waste Name: Treated Lead Impacted Soil Containing PCBs

Volume/Number of Drums: _____

Special Conditions:

NO Generator Signature Required

Section B

TRANSPORTER INFORMATION

Transporter:

RECHUC TRUCKING

Driver Signature:

[Signature]

Truck Number:

150

Date:

12/29/15

Section C

DISPOSAL SITE INFORMATION

Site Name: Laraway RDF

IEPA ID Number: 1970450002

Authorized Signature

Date (MM/DD/YY)

Load 1

C.C.

Load 2

[Signature]

Load 3

[Signature]

Load 4

Load 5

15K0413

Customer Summary Report**Criteria: 06/15/2016 12:00 AM to 07/15/2016 11:59 PM****Business Unit Name: Laraway RDF - S04121 (USA)****Customer Name: RW COLLINS 613405IL (RW COLLINS 613405IL)**

Ticket Date	Ticket ID	Customer	Generator	Truck	Material	Rate Unit	Tons
6/20/2016	783499	RW COLLINS 613405IL	117-H KRAMER AND COMPANY	76	Declass Soil-Tons	TON	17.75
7/6/2016	788076	RW COLLINS 613405IL	117-H KRAMER AND COMPANY	51	Declass Soil-Tons	TON	1.67
Material Total	2						19.42
Customer Total	2						19.42
Ticket Totals	2						19.42



15K0413
78 3499 = 17.75

Industrial Waste Tracking Receipt (Non-Special)

Profile Number: 613405IL

Expiration Date: 12/10/2016

2 Copies needed with each driver on their 1st load of each day

Section A Generator Information

Generator Name:

H. Kramer & Co.

Technical Contact and Phone:

Walt Pochron 312-226-6600

Street Address: 1345 W 21st St; Chicago, IL 60638

County: Cook

On Site Contact: Josh Bernat 708-458-6868

Waste Name: Treated Lead Impacted Soil Containing PCBs

Volume/Number of Drums: _____

Special Conditions:

NO Generator Signature Required

Section B TRANSPORTER INFORMATION

Transporter:

Russ Collins

Driver Signature:

Patty Justia

Truck Number:

76

Date:

6-20-16

Section C DISPOSAL SITE INFORMATION

Site Name: Laraway RDF

IEPA ID Number: 1970450002

Authorized Signature _____

Date (MM/DD/YY) _____

Load 1 CC Load 2 _____ Load 3 _____ Load 4 _____ Load 5 _____



15K0413

Industrial Waste Tracking Receipt (Non-Special)**Profile Number:** 613405IL**Expiration Date:** 12/10/2016**2 Copies needed with each driver on their 1st load of each day****Section A Generator Information****Generator Name:**

H. Kramer & Co.

Technical Contact and Phone:

Walt Pochron 312-226-6600

Street Address: 1345 W 21st St; Chicago, IL 60638**County:** Cook**On Site Contact:** Josh Bernat 708-458-6868**Waste Name:** Treated Lead Impacted Soil Containing PCBs**Volume/Number of Drums:** _____**Special Conditions:****NO Generator Signature Required****Section B TRANSPORTER INFORMATION****Transporter:**R.W. Collins**Driver Signature:**Thomas D. McLean**Truck Number:**51**Date:**7 6 16**Section C DISPOSAL SITE INFORMATION****Site Name:** Laraway RDF**IEPA ID Number:** 1970450002**Authorized Signature****Date (MM/DD/YY)**Load 1 *BT* Load 2 _____ Load 3 _____ Load 4 _____ Load 5 _____

Appendix K As-Built Survey

- LEGEND
- AIR CONDITIONER
 - BOLLARD/POST
 - BUFFALO BOX
 - BUSH/SHRUB
 - BUSH LINE/BRUSH LINE
 - CATCH BASIN
 - CLEANOUT
 - CONTOUR
 - CONTROL POINT
 - CONTROL VALVE
 - CROSS/NOTCH
 - CULVERT
 - DISK
 - DITCH/SWALE
 - DOWNSPOUT
 - DRAIN
 - ELECTRIC BOX
 - ELECTRIC LINE
 - ELECTRIC MANHOLE
 - ELECTRIC METER
 - FENCE
 - FIBER OPTIC LINE
 - FIBER OPTIC MANHOLE
 - FIRE HYDRANT
 - FLAG POLE
 - FLARED END SECTION
 - GAS LINE
 - GAS MANHOLE
 - GAS METER
 - GAS VALVE
 - GREASE TRAP
 - GROUND LIGHT FIXTURE
 - GUARDRAIL
 - GUY WIRE
 - HANDHOLE
 - HANDHOLE (HEAVY DUTY)
 - INLET
 - IRON PIPE
 - IRON ROD
 - LIGHT POLE
 - MAG NAIL/P.K. NAIL
 - MAILBOX
 - OVERHEAD ELECTRIC LINE
 - POWER POLE
 - ROCK
 - RIP RAP
 - R.O.W MARKER
 - SANITARY FORCEMAIN LINE
 - SANITARY SEWER LINE
 - SANITARY SEWER MANHOLE
 - SIGN
 - SOIL BORING
 - SPOT ELEVATION
 - SPRINKLER HEAD
 - STORM SEWER LINE
 - STORM SEWER MANHOLE
 - TELEPHONE LINE
 - TELEPHONE MANHOLE
 - TELEPHONE BOX/PEDESTAL
 - TELEVISION LINE
 - TELEVISION MANHOLE
 - TELEVISION BOX/PEDESTAL
 - TRAFFIC SIGNAL
 - TRAFFIC SIGNAL CONTROL BOX
 - TREE--CONIFEROUS (SIZE/TAG#)
 - TREE--DECIDUOUS (SIZE/TAG#)
 - TREE STUMP
 - VALVE BOX
 - VALVE VAULT
 - VRAD BOX
 - WATER FOUNTAIN
 - WATER VALVE
 - WATERLINE EDGE
 - WATERMAIN LINE
 - WATER METER
 - WATER METER PIT
 - WELL HEAD
 - WETLAND
 - WETLAND FLAG

EX MH
RIM: 12.21
INV: N.A.
B/STRUCTURE: 3.51
NO PIPES VISIBLE

EXISTING
BUILDING

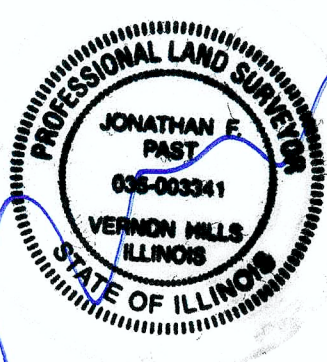
LAFLIN ST
ASPHALT

SIDEWALK

MINIMAL SLOPE

EXISTING
DEPRESSIONAL AREA

MATCH LINE
SEE SHEET 2



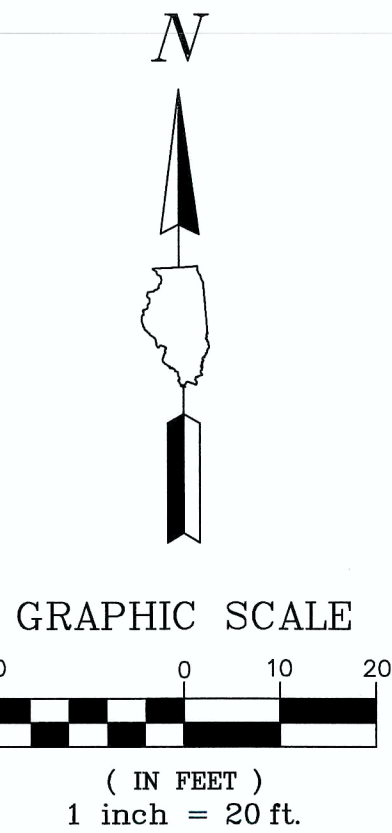
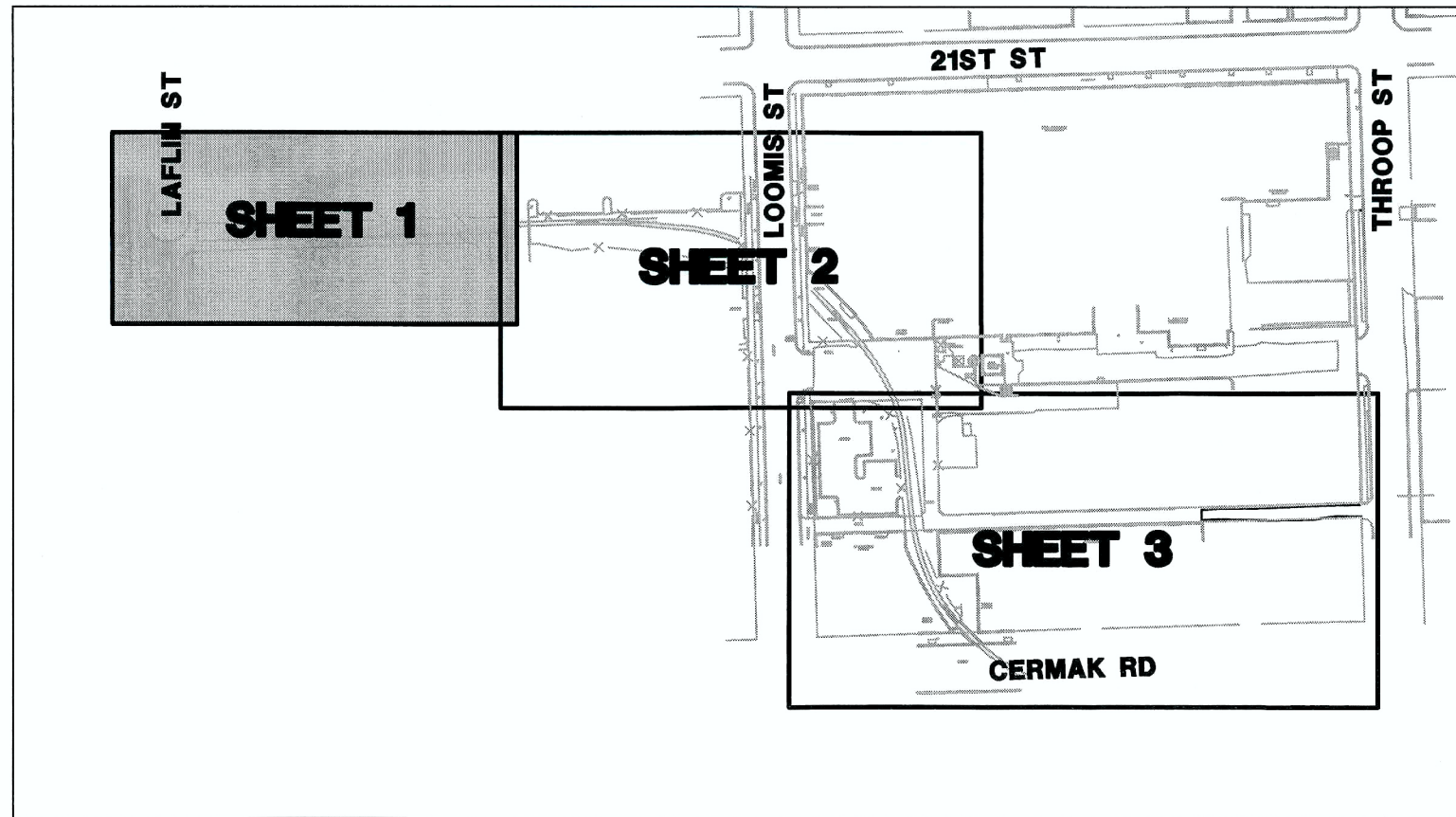
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AS-BUILT LEGEND

- GRAVEL
- ASPHALT
- PROPOSED GRADE
- AS-BUILT GRADE
- EXISTING GRADE



GHA GEWALT HAMILTON ASSOCIATES, INC.

625 Forest Edge Drive ■ Vernon Hills, IL. 60061
TEL 847.478.9700 ■ FAX 847.478.9701

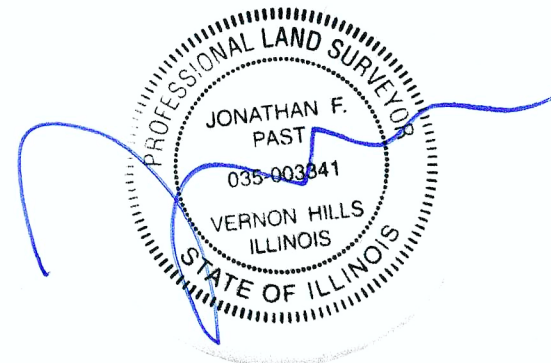
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GRADING PLAN

GHD PILSEN ALLEY SURVEY
LOOMIS STREET AND CERMAK ROAD
CHICAGO, ILLINOIS

NO.		BY	DATE	REVISION	NO.		BY	DATE	REVISION	FILE: 5058.300_ASB.dwg	DRAWN BY: ALC DATE: 09.30.15	GHA PROJECT # 5058.300	SHEET NUMBER: 1
NO.		BY	DATE	REVISION	NO.		BY	DATE	REVISION	CHECKED BY: MMH DATE: 09.30.15	SCALE: 1"=20'		OF 3 SHEETS



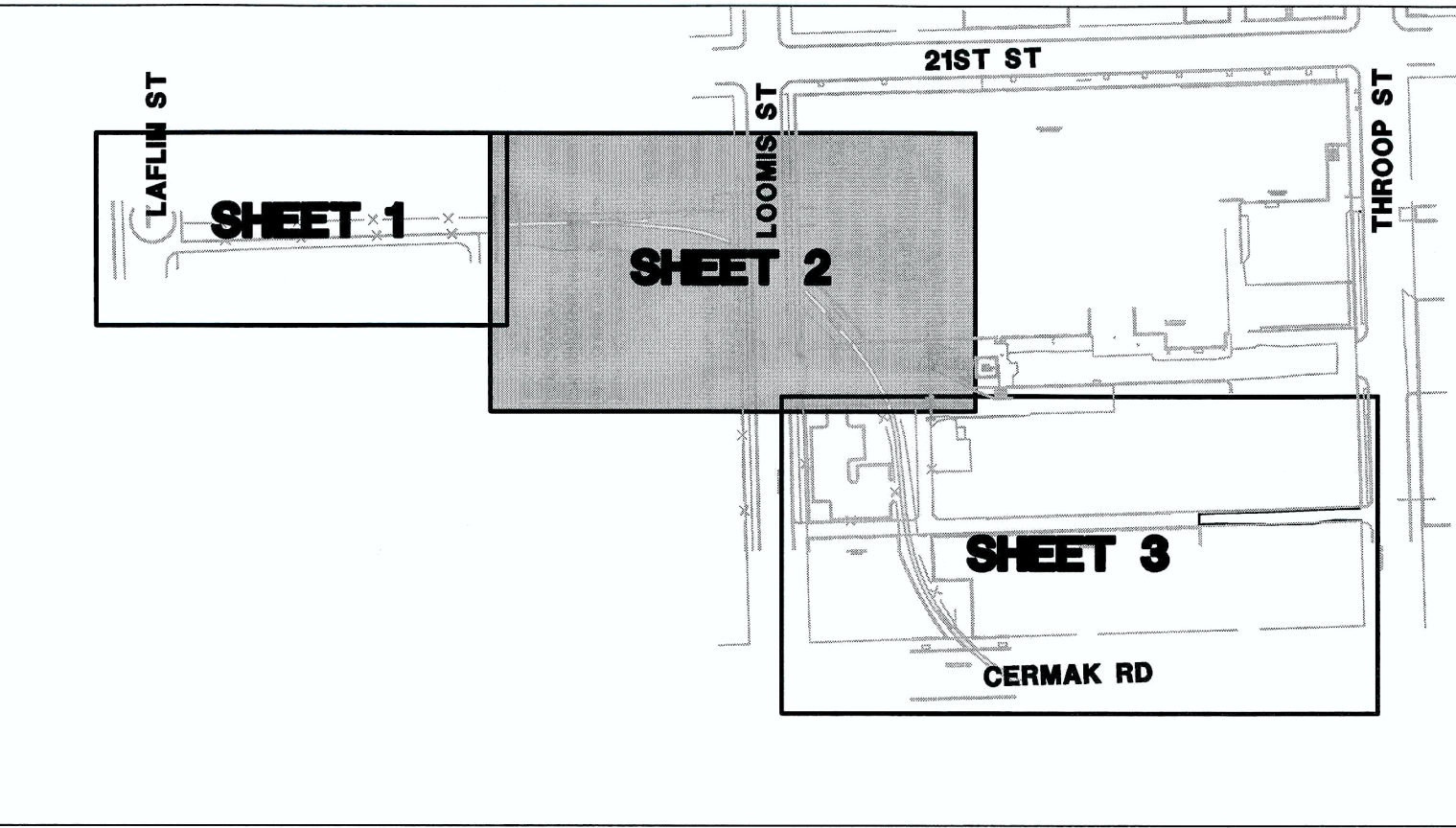
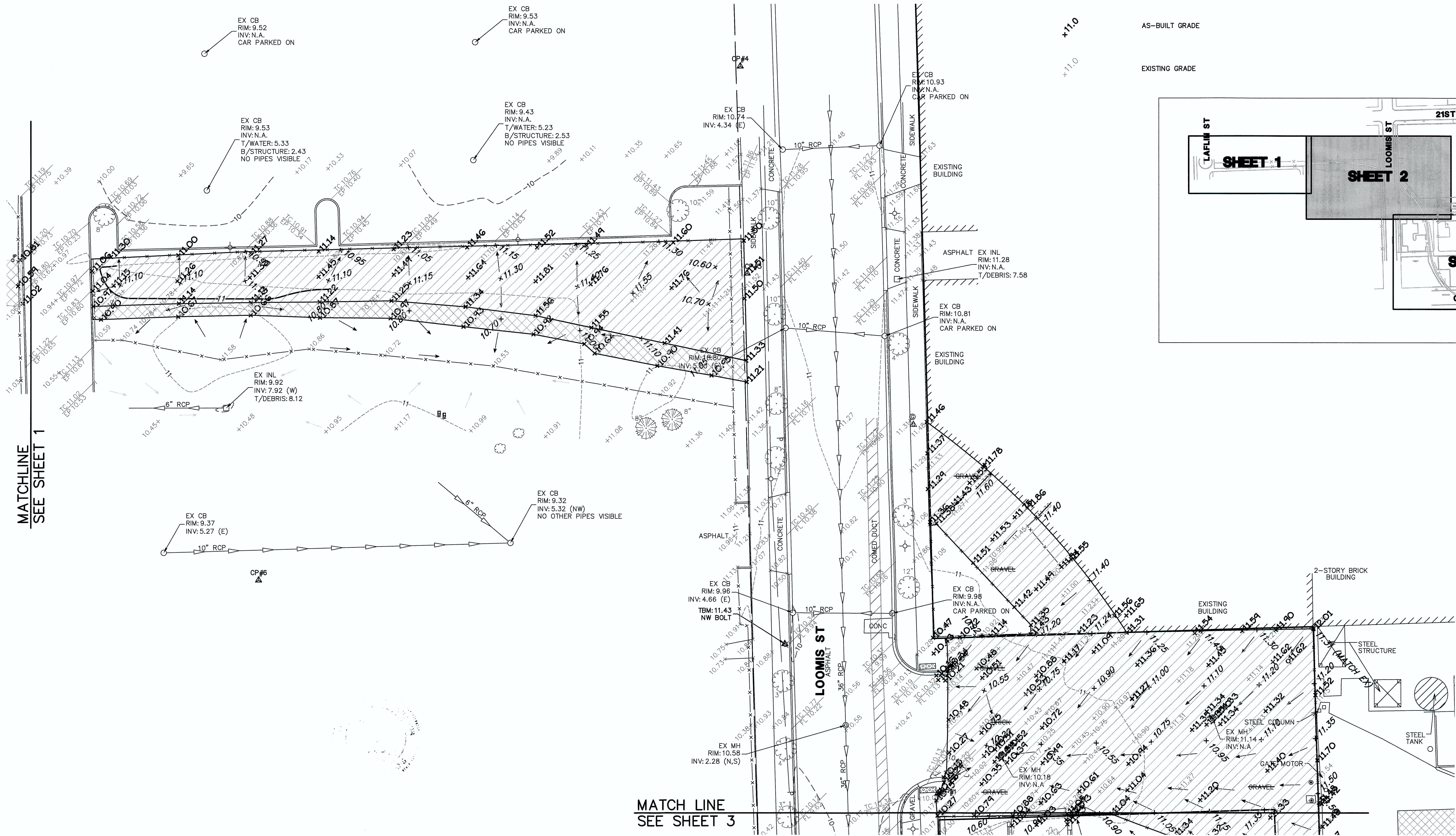
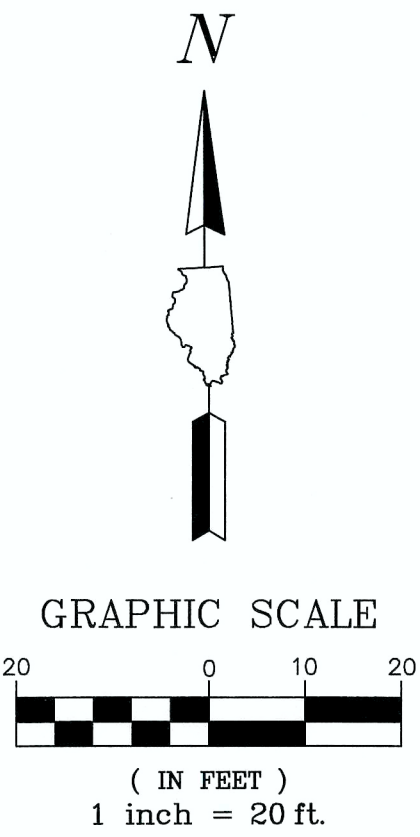
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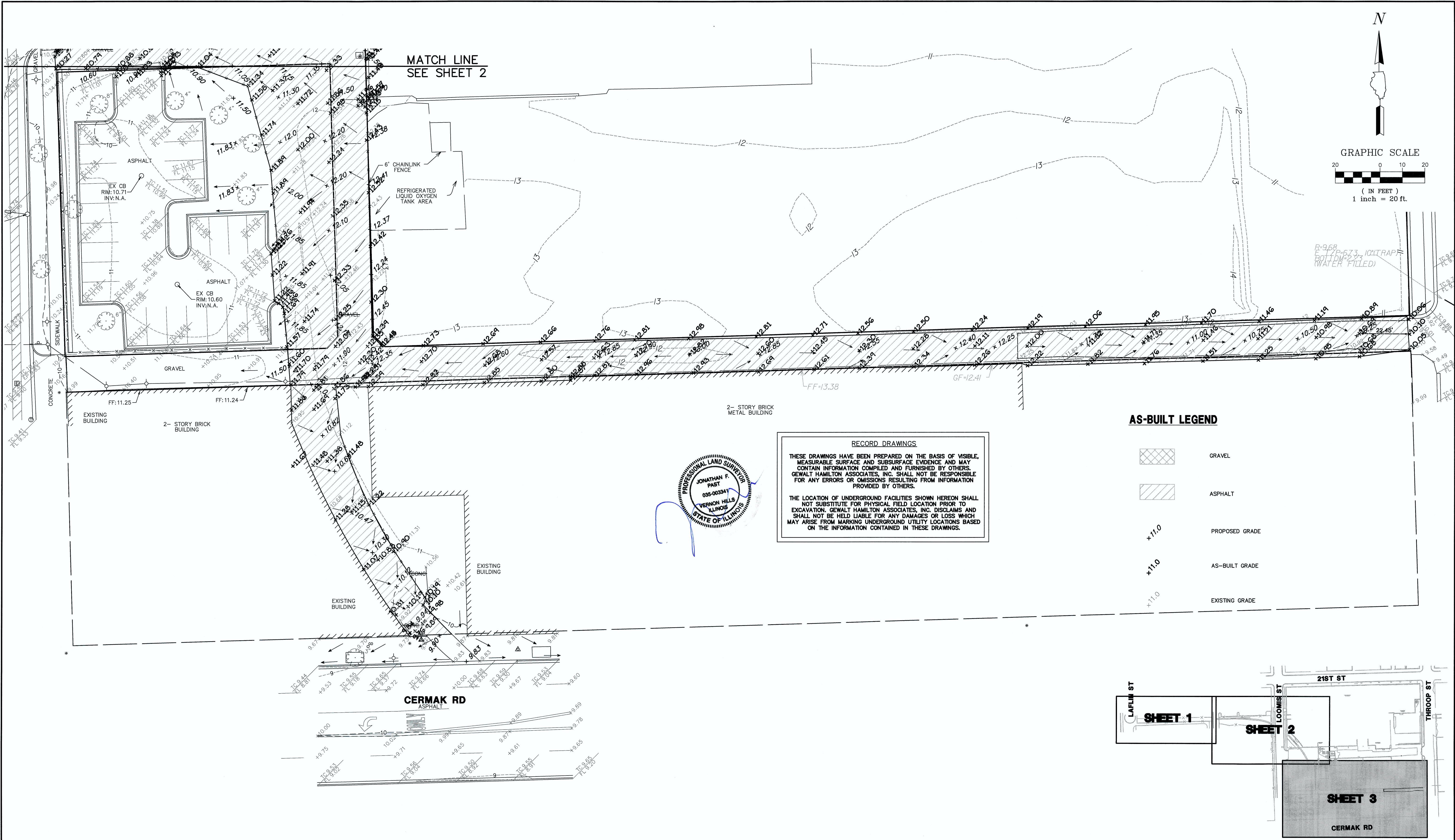
AS-BUILT LEGEND

- GRAVEL
- ASPHALT
- PROPOSED GRADE
- AS-BUILT GRADE
- EXISTING GRADE



NO.	BY	DATE	REVISION	NO.	BY	DATE	REVISION

FILE: 5058.300_ASB.dwg	SHEET NUMBER:
DRAWN BY: ALC DATE: 09.30.15	GHA PROJECT # 5058.300
CHECKED BY: MMH DATE: 09.30.15	SCALE: 1"=20'
	2 OF 3 SHEETS



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