# SITE ASSESSMENT REPORT
# FOR
# PILSEN SOIL ASSESSMENT AREA: RAILROAD/ALLEY
# CHICAGO, COOK COUNTY, ILLINOIS

**Addendum 1**

Prepared for:

**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY**
Emergency Response Branch
Region 5
77 West Jackson Boulevard
Chicago, IL 60604-3507

Prepared by:

**WESTON SOLUTIONS, INC.**
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| | |
|---|---|
| µm | Micrometer |
| Addendum 1 | Site Assessment Report Addendum 1 |
| bgs | Below ground surface |
| BNSF | Burlington Northern Santa Fe Railway |
| CDOE | Chicago Department of Environment |
| Century | Century Smelting & Refining |
| CERCLA | Comprehensive Environmental Compensation, Response, and Liability Act |
| CFR | *Code of Federal Regulation* |
| CRA | Conestoga-Rovers & Associates Engineering, Inc. |
| FIELDS | Field Environmental Decision Support |
| Fisk Station | Midwest Generation Fisk Station |
| ft | Feet, foot |
| H. Kramer | H. Kramer and Company |
| HQ | Hazard quotient |
| IEPA | Illinois Environmental Protection Agency |
| IVBA | *In vitro* bioaccessibility |
| Loewenthal | Loewenthal Metal Corp. |
| mg/kg | Milligram per kilogram |
| N | Sample size |
| NAAQS | National Ambient Air Quality Standards |
| NEIC | National Enforcement Investigations Center |
| NFR | No Further Remediation |
| NL | National Lead/Southern White Lead Works |
| OSC | On-Scene Coordinator |
| PCS | Pre-CERCLIS Screening |
| Pioneer | Pioneer Environmental, Inc. |
| RBA | Relative bioavailability |
| RCRA | Resource Conservation and Recovery Act |
| REC | Recognized environmental condition |
| RML | Removal Management Level |
| SRO | Soil Remediation Objective |
| SRP | Site Remediation Program |
| START | Superfund Technical Assessment and Response Team |
| TCLP | Toxicity characteristic leaching procedure |
| TDD | Technical Direction Document |
| USGS | United States Geological Survey |
| WESTON | Weston Solutions, Inc. |

# 1. INTRODUCTION

This Site Assessment Report Addendum (Addendum 1) was prepared as a supplement to the "Site Assessment Report for Pilsen Area Soil Site: Railroad/Alley, Revision 3" (Site Assessment Report; Weston Solutions, Inc., April 2014) for an alley (owned by the City of Chicago) and a railroad spur (operated by Burlington Northern Santa Fe Railway [BNSF]) located adjacent to the H. Kramer and Company (H. Kramer) facility in the Lower West Side neighborhood (Pilsen neighborhood) of Chicago, Cook County, IL (the Site; **Figure 1-1**). Under Technical Direction Document (TDD) No. 0001/1406-07, the United States Environmental Protection Agency tasked the Weston Solutions, Inc. (WESTON®), Superfund Technical Assessment and Response Team (START) to assist EPA On-Scene Coordinator (OSC) Ramon Mendoza with further documenting the impact of present and historical industrial sources of heavy metal air emissions on the Site and to evaluate potential contributing sources. **Appendix A** of this addendum provides revised soil boring logs.

# 2. SITE BACKGROUND

The overall Pilsen Soil Assessment Area consists of a railroad spur, alley, and residential area. This Addendum 1 describes assessment work conducted in the railroad spur and alley portions of the Pilsen Soil Assessment Area.

## 2.1 SITE DESCRIPTION (RAILROAD SPUR & ALLEY)

Section 2.1 of the WESTON Site Assessment Report (WESTON, 2014a) erroneously states that the railroad spur is owned by BNSF. BNSF historically operated on the railroad spur property but it does not appear to be the owner.

# 3. SITE ASSESSMENT ACTIVITIES

Section 3.1 of the WESTON Site Assessment Report (WESTON, 2014a) erroneously states that soil samples collected from the alley and railroad spur were analyzed for bioavailable lead. These soil samples were actually analyzed for *in vitro* lead bioaccessibility (IVBA). IVBA is a

measure of the physiological solubility of the metal that may be available for absorption into the body (EPA, 2012). The IVBA assay provides a rapid and relatively inexpensive alternative to *in vivo* assays for predicting relative bioavailability (RBA) of lead in soils and soil-like materials (EPA, 2012). The method measures the extent of lead solubilization in an extraction solvent that resembles gastric fluid. Measurements of IVBA have been shown to be a reliable predictor of *in vivo* RBA of lead in a wide range of soil types and lead phases from a variety of different sites (EPA, 2007). Knowledge of lead bioavailability is important because the amount of lead that actually enters the blood and body tissues from an ingested medium depends on the physical-chemical properties of the lead and of the medium (EPA, 2012).

# 4. ANALYTICAL RESULTS

## 4.1 ALLEY SAMPLING RESULTS

This section provides additional information on the analytical results not provided in the Section 4.1 of the WESTON Site Assessment Report (WESTON, 2014a).

Total Metal Averages and Ranges

- 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 (sample size [N]=12). Lead concentrations in surface soil samples collected in the ranged from 63 to 5,600 mg/kg. Fine-grained lead concentrations ranged from 180 to 6,600 mg/kg.

- Average alley **subsurface soil** total lead and fine-grained lead concentrations (6-12 and 12-24 inches bgs, not including duplicate samples) were 6,300 and 4,980 mg/kg, respectively (N=10). Lead concentrations in subsurface soil samples collected in the alley ranged from 1,600 to 16,000 mg/kg. Fine-grained lead concentrations ranged from 2,000 to 9,300 mg/kg.

- The average zinc/lead ratios in for surface and subsurface soil samples collected in the alley were 2.4 and 1.4, respectively.

Bioaccessibility

Section 4.1 of the WESTON Site Assessment Report (WESTON, 2014a) erroneously reports soil sampling results for lead bioavailability rather than *in vitro* lead bioaccessibility. *In vitro* lead bioaccessibility ranged from 30.2% to 99.5% in the 23 samples collected from the alley. Average *in vitro* lead bioaccessibility for samples collected from the alley (not including duplicate samples) was 63.1%.

## 4.2 RAILROAD SPUR AREA SAMPLING RESULTS

This section provides additional information on the analytical results not provided in the Section 4.2 of the WESTON Site Assessment Report (WESTON, 2014a).

Total Metal Averages and Ranges

- 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.

- Average railroad spur **subsurface soil** total lead and fine-grained lead concentrations (6-24 inches bgs, not including duplicate samples) were 2,417 and 3,296 mg/kg, respectively (N=7). Lead concentrations in subsurface soil samples collected from the railroad spur area (0-6 inches bgs) ranged from 1,000 to 5,500 mg/kg. Fine-grained lead concentrations ranged from 980 to 9,500 mg/kg.

- The average zinc/lead ratios in for surface and subsurface soil samples collected in the railroad spur were 4.8 and 4.1, respectively.

Bioaccessibility

Section 4.2 of the WESTON Site Assessment Report (WESTON, 2014a) erroneously reports the result for sample PA-RR04,06(0-6)-050613 for lead bioavailability rather than *in vitro* lead bioaccessibility. *In vitro* lead bioaccessibility for soil sample PA-RR04,06(0-6)-050613 was

78.3%.

# 5. EVALUATION OF POTENTIAL INDUSTRIAL SOURCES OF LEAD CONTAMINATION IN SOIL AT THE SITE

From 2013-2014, EPA investigated present and historical entities that may have contributed to heavy metal contamination in soil in the Pilsen neighborhood. Investigation activities involved facility reconnaissance, including a visual inspection of the exterior and interior of the facility when possible, and interviews with facility personnel, local business representatives, and residents to the extent possible to determine current and historical ownership and operations at each facility. Based on the information available such as facility type, location, operational history, environmental compliance/characterization, remedial or removal reports; and wind data, EPA identified that Loewenthal Metal Corp. (Loewenthal), National Lead/Southern White Lead Works (NL), Century Smelting & Refining (Century), Midwest Generation Fisk Station (Fisk Station), and H. Kramer & Company (H. Kramer) were the most likely industrial large-scale contributors to lead contamination in soil at the Assessment Area. These facilities may have contributed through historical stack air emissions and/or fugitive/uncontrolled dust emissions which contained lead. An evaluation of these five facilities is provided in the following subsections.

## 5.1 LOEWENTHAL METALS CORPORATION

The Loewenthal property is located approximately 0.5 mile east of the Site at 947 West Cullerton Street in Chicago, IL (**Figure 2-1**). In the *1940 Standard Metal Directory*, Loewenthal is listed as an aluminum, antimonial lead, and zinc smelter; a babbitt metal and solder manufacturer; and an ingot metal and scrap metal dealer. Loewenthal is also listed in the *1948-49 Standard Metal Directory* as an aluminum and battery lead smelter, scrap iron and metal dealer, and importer and exporter of scrap metal (Standard Metal Directory, 1940; 1948-1949). The exact date when the smelter operations ceased is unknown.

In November 2012, EPA, EPA FIELDS, and WESTON START conducted a Removal Assessment at the Loewenthal property (WESTON, 2013). Lead was detected above 400 mg/kg in 19 of 21 total soil samples collected at various depths (0-6, 0-10, 6-16, 12-23, and 24-36

inches bgs) from 11 sampling locations. The average and median zinc/lead ratio (duplicate samples excluded) of these soil samples was 2.83 and 1.24, respectively. From June 2013 to September 2013, EPA conducted a removal action at the Loewenthal property. As part of the removal action, BNSF collected seven surface soil samples along a BNSF railroad right-of-way up to 330 feet south of the Loewenthal property. These samples were collected in the predominantly crosswind direction of Loewenthal. WESTON START collected split samples with BNSF and submitted them to STAT Analysis Corporation in Chicago, IL for total metals analysis. All seven surface soil samples contained lead above the 2014 EPA Removal Management Level (RML) for residential soil of 400 mg/kg. Six of seven samples contained lead above the 2014 EPA RML for industrial soil of 800 mg/kg. The average zinc/lead ratio (no duplicates collected) of these soil samples was 1.29, which is less than the average zinc/lead ratio of surface soil samples collected from the railroad spur (4.8), alley (2.4), and City of Chicago background (1.66)(United States Geological Survey [USGS], 2003).

Loewenthal is not suspected to be the primary contributor to lead contamination in surface soils at the Site based on the following reasons: (1) average zinc/lead ratios of surface soil samples collected in the nearby vicinity of Loewenthal were below the average zinc/lead ratios of surface samples collected at the alley and railroad spur and do not appear to have been impacted by zinc deposition beyond what is typical City of Chicago background; and (2) Loewenthal is located approximately 0.5 mile east in the predominantly downwind vicinity of the Site.

## 5.2 NATIONAL LEAD/SOUTHERN WHITE LEAD WORKS

The NL property is located approximately 0.7 mile northeast of the Site at 900 West 18$^{th}$ Street, Chicago, IL (**Figure 2-1**). Historical industrial operations at the NL property generally occurred from 1886 to 1985 and have included white lead, paint, aluminum brake piston, and automobile part manufacturing (Atwell-Hicks, LLC, 2006).

In 2000 and 2001, Pioneer Environmental, Inc. (Pioneer) conducted a focused site investigation to fully characterize recognized environmental conditions (REC) previously identified at the NL property (Pioneer, 2001). Pioneer advanced 67 soil borings at specific locations throughout the NL property. Total metals were analyzed in 38 samples collected from these borings. Based on

the sampling results, Pioneer identified lead as a contaminant of concern because numerous samples contained lead in concentrations above the Illinois Environmental Protection Agency (IEPA) Tier I Soil Remediation Objective (SRO) of 400 mg/kg. On September 4, 2001, the NL property was enrolled into the IEPA Site Remediation Program (SRP) and underwent cleanup activities including the excavation and off-site disposal of 2,130 tons of soil from four impacted areas where the levels of lead were greater than the Resource Conservation and Recovery Act (RCRA) toxicity characteristic leaching procedure (TCLP) concentration set forth in Title 40 of the *Code of Federal Regulation* (CFR) Part 261, Subpart C, 261.24 (b), thereby representing a hazardous waste by virtue of the characteristic of toxicity (Pioneer, 2002). The cleanup action also included the use of existing and newly constructed impervious surfaces as an engineered barrier to eliminate the ingestion exposure route for contaminants of concern detected above the IEPA Tier I SROs (including lead). The NL property was issued a No Further Remediation (NFR) letter by the IEPA on September 16, 2002 (IEPA, 2002).

During an inspection of the NL Property in November 2007, IEPA found that the engineered barrier had been removed and that there were on-site piles of excavated soil and gravel (IEPA, 2007). The 2007 Illinois EPA inspection report stated that the NL property was in noncompliance with the September 2002 NFR because the engineered barriers were removed and multiple piles of soil and coarse aggregate were staged on-site. IEPA also indicated that the current owner of the NL property had re-enrolled in the IEPA SRP and had plans for redevelopment.

WESTON START collected three surface soil samples within 0.15 mile of the NL property as part of its Pilsen Soil Assessment Area: Downwind Residential Report (WESTON, 2014b). These samples were collected in the predominantly upwind direction of NL. Total lead concentrations of these three samples were 930; 1,200; and 390 mg/kg. The zinc/lead ratio of these three samples was 0.46, 0.42, and 0.62, respectively, which is less than the average zinc/lead ratio of surface soil samples collected from railroad spur (4.8), alley (2.4), and City of Chicago background (1.66)(USGS, 2003).

NL is not suspected to be the primary contributor to lead contamination in surface soils at the

Site based on the following reasons: (1) average zinc/lead ratios of surface soil samples collected in the nearby vicinity of NL were below the average zinc/lead ratios of surface samples collected at the alley and railroad spur and do not appear to have been impacted by zinc deposition beyond what is typical City of Chicago background; and (2) NL is located 0.7 mile in the predominantly downwind vicinity of the Site.

## 5.3 CENTURY SMELTING & REFINING

The Century property is located adjacent to the railroad spur to the southwest at 2135 South Loomis Street, Chicago, IL (**Figure 2-1**). The Century property is situated in the location of the present-day H. Kramer southwest parking lot and H. Kramer is the present owner of the Century property (IEPA, 2007; Cook County Recorder of Deeds, 2014). Century was a babbitt and solder manufacturer, and a scrap iron and metal dealer from sometime before 1940 to sometime between 1950 and 1963.

In 2007, IEPA conducted a Pre-CERCLIS Screening (PCS) investigation of the Century property. IEPA reviewed historical Sanborn Fire Insurance maps from the years 1914, 1950, and 1975. IEPA found that in 1914, 2135 South Loomis Street was occupied by a vacant building. In 1950, a building was present at 2135 South Loomis Street identified by the historical Sanborn Fire Insurance maps as “Soft Metal Smelting.” In 1975, no buildings were present at 2135 South Loomis Street. Based on the size of the property IEPA concluded that Century was relatively small-scale operation (IEPA, 2007). IEPA also reviewed three editions of the Standard Metal Directory (1940, 1948-1949, and approximately 1963-1964). IEPA found that the Century Smelting & Refining Co. is referenced at the 2135 South Loomis Street address in the 1940 edition as a Babbitt & Solder Manufacturer, and a Scrap Iron &Metal Dealer specializing in scrap metal (Standard Metal Directory, 1940). Century Smelting & Refining Co. is listed again in the 1948 edition as a Babbitt & Solder Manufacturer, and as a Scrap Iron & Metal Dealer (Standard Metal Directory, 1948-1949). There is no mention of the Century Smelting & Refining Co. in the 1963-1964 edition.

In 2005 and 2006, Conestoga-Rovers & Associates Engineering, Inc. (CRA) conducted a focused site investigation at the H. Kramer property, which included the Century property, on

behalf of H. Kramer (CRA, 2007). During this investigation, four soil borings were installed to a depth of approximately 8 ft bgs on the Century property. Ten soil samples were collected from the four soil borings and were analyzed for total lead and TCLP lead. Samples from three of the four boring locations were below the 2014 EPA RML for residential soil and the IEPA Tier I SRO for lead of 400 mg/kg. However, two soil samples collected from the boring location closest to the H. Kramer facility, at depths of 0.3-0.6 ft bgs and 2.5-3.0 ft bgs, contained total lead concentrations of 8,590 mg/kg and 2,140 mg/kg, respectively. In its PCS investigation, IEPA concluded that it was unclear whether the lead contamination identified on the Century property was a result of Century's operations or another source because the only soil boring location with lead above 400 mg/kg was closest to the H. Kramer property, whereon the CRA 2005-2006 investigation also identified elevated lead concentrations (IEPA, 2007).

Antimony is suspected to be a metal unique to Century's historical emissions because antimony is component in babbit (Yockey, 1906) and solder (Tomlinson and Bryan, 1986). Lead contamination in soil from antimonial lead sources will indicate a higher concentration of antimony relative to non-antimonial sources. Of samples collected by WESTON in the railroad spur, antimony was detected at maximum estimated concentrations of 19 and 34 mg/kg in surface and subsurface soil samples, respectively. These concentrations are below the EPA RML for residential soil of 94 mg/kg. However, concentrations of antimony above the EPA RML for residential soil of 94 mg/kg were detected in subsurface soil samples (6-12 or 12-24 inches bgs) at five locations in the middle to western part of the alley. Antimony concentrations at these locations ranged from 110 to 1,200 mg/kg. Lead concentrations at these locations ranged from 3,200 to 16,000 mg/kg. The source of lead at these depths in the alley may be at least partially attributable to Century based on the elevated concentrations of antimony also detected in these samples.

## 5.4 FISK STATION

Fisk Station is a 66-acre, former coal-fired power plant located 1111 West Cermak Road (**Figure 2-1**). The plant ceased electricity generation operations in August 2012. From 1998 to 2012, approximately 1,197 pounds of lead, 236 pounds of zinc, 373 pounds of copper, and 805 pounds

of mercury were released via fugitive and stack emissions from Fisk Station (EPA, 2013). As a result, mercury is suspected to be a metal unique to Fisk's historical emissions. Mercury was not detected above the 2014 EPA RML for residential soil of 28 mg/kg in any sample collected from the Site. The average mercury concentration of all surface soil samples collected from the Site was 0.98 mg/kg. This average concentration is only slightly higher than the average mercury concentration observed in the USGS City of Chicago background investigation of 0.6 mg/kg (USGS, 2003). This may suggest that the Site has not been heavily impacted by Fisk Station emissions.

Fisk is not suspected to be the primary contributor to lead contamination in surface soils at the Site based on the following reasons: (1) the 2011 and 2012 NEIC investigations concluded that Fisk Station contributed insignificant quantities of lead-bearing particulate matter relative to H. Kramer during (and outside) the National Ambient Air Quality Standards (NAAQS) exceedance period of October 2010 to February 2011; and (2) mercury, which was estimated to have been released by Fisk in similar quantities as lead from 1998 to 2012 (EPA, 2013) was detected in Site soils only slightly above the USGS City of Chicago background concentration (USGS, 2003).

## 5.5 H. KRAMER & COMPANY

This subsection is intended to further detail previous environmental investigations conducted regarding H. Kramer. H. Kramer was introduced in Section 2.1 of the WESTON Site Assessment Report (WESTON, 2014a). H. Kramer's enrollment in the IEPA SRP was described in Section 2.2.2 of the Site Assessment Report. IEPA and National Enforcement Investigations Center (NEIC) investigations regarding the impact of H. Kramer and ambient air concentrations of lead in the Pilsen neighborhood were described in Sections 2.2.3 and 2.2.4 of the WESTON Site Assessment Report, respectively. Finally, litigation and emission control implementation that took place at H. Kramer in 2011 was described in Section 2.2.5 of the WESTON Site Assessment Report. The following text is intended to provide additional information regarding H. Kramer.

Additional Operational Information Regarding H. Kramer and the Secondary Brass and Bronze Smelting Process

H. Kramer primarily manufactures brass and bronze ingots and a portion of the facility's production capacity is devoted to lead-containing metal alloy. Brass is a copper alloy that contains zinc (5 to 45%) as the principal alloying element, as well as tin, iron, aluminum, nickel, silicon, and lead. Bronze is an alloy that consists mainly of cooper combined most often with tin, but sometimes with other elements, including phosphorus, manganese, aluminum, silicon, and lead. Brass and bronze ingots made by H. Kramer generally contain less than 10% lead but may contain as much as 25% lead (High Leaded Tin Bronze, 70-5-25)(H. Kramer, undated).

H. Kramer receives scrap metals from many sources and in various forms, including solids, wire, borings, and grindings (Chicago Department of Environment [CDOE], 2005). H. Kramer sorts scrap metals into grades of purity and then melts them down using three different types of furnaces (gas-fired rotary furnaces, coreless electric induction furnaces, and electric induction furnaces). Slag produced as a result of impurities from the melted scraps is skimmed off the molten metal alloy, collected, and then shipped to customers for further recycling. The molten metal alloy is poured into ingot molds and water is poured on the hot ingots to cool them. The cooling operation generates steam that is vented through a stack.

At H. Kramer, lead emissions are the result of the melting operation (CDOE, 2005). In general, at secondary brass and bronze smelters, as the scrap is placed into a furnace and subjected to intense heat to melt down the metal, some metal vaporizes and is emitted as particulate matter in the form of dust and oxide fumes (Licht, 1973). Constituents of the fumes include zinc, lead, tin, copper, cadmium, silicon, and carbon (Licht, 1973). As much as 98% of the particulate matter contained in furnace stack gases may be zinc oxide and lead oxide depending on the composition of the alloy (Licht, 1973).

In May 2013, H. Kramer responded to an EPA RCRA request for information regarding its zinc oxide baghouse dust. H. Kramer indicated the zinc oxide baghouse dust is collected in Super Sack containers beneath each baghouse and stored inside the Number Two Baghouse Building

until sale and shipment to purchasers. H. Kramer also provided analytical laboratory results of the zinc oxide material, which indicated the following concentrations of metals: antimony (47 mg/kg); arsenic (38 mg/kg); barium (20 mg/kg); cadmium (2,200 mg/kg); chromium (150 (mg/kg); copper (17,000 mg/kg); lead (61,000 mg/kg); mercury (0.98 mg/kg); selenium (96 mg/kg); silver (37 mg/kg); and zinc (640,000 mg/kg).

The particle size of the zinc and other oxide fumes are in the range of 0.03 to 0.5 micrometers (µm) and requires the use of extremely efficient air pollution control equipment (U.S. Department of Health, Education, and Welfare, 1969). In 2005, emissions generated at H. Kramer from rotary furnaces 1 and 2 were controlled by Baghouses 2 and 6 (CDOE, 2005). Fugitive emissions from these furnaces were captured and routed to Baghouses 1 and 5. The emissions from the coreless furnaces were controlled by Baghouse 4. The emissions from the channel furnaces were controlled by a Venturi scrubber and a mist eliminator.

Pre-2005 H. Kramer Inspection and Violation History

H. Kramer currently has a "Lifetime Operating Permit" from IEPA (IEPA, 2005). This lifetime permit does not require renewal or reapplication unless requested by IEPA. The permit establishes hourly and annual emissions limits for particulate matter, nitrogen oxides and carbon monoxide. IEPA also enforces opacity standards (which measure the darkness of the emissions) to capture potential short-term, heavy releases of particulate matter emissions. High opacity levels can be an indicator that the facility is having excess emissions and/or that its pollution controls are not working properly.

H. Kramer also holds installation permits and a certificate of operation from CDOE. CDOE's permitting scheme is focused on preventing environmental nuisances such as smoke, odors, and particulate emissions and ensuring equipment that creates or controls emissions is properly installed and documented.

Between 1998 and May 31, 2005, CDOE received a total of 51 complaints against H. Kramer. In this time period, CDOE conducted 126 inspections (CDOE, 2005). From 1991 to 2005, CDOE issued 14 "Notice of Violations" (citations) to H. Kramer. These citations were primarily for

atmospheric pollution and general nuisance (Municipal Code §7-28-080, and §11-4-630). H. Kramer was found liable in 13 counts of these citations. During this time period, CDOE referred H. Kramer to the EPA twice. These citations prompted major infrastructure changes. Some notable violations outlined by CDOE (CDOE, 2005) include:

- On September 19, 1990, EPA issued a "Finding of Violation" to H. Kramer. EPA found that the roof vents above its rotary furnace on the west side of the facility were a source of visible particulate emissions. H. Kramer violated the opacity limits in its IEPA air permit.
- On August 27, 1996, EPA issued a "Notice of Violation" alleging that H. Kramer violated the opacity limits set forth in the Illinois Pollution Control Board Regulations.

In 1997, EPA issued an order requiring H. Kramer do the following:

- Implement managerial controls to reduce fugitive emissions
- Implement institutional controls to reduce the fugitive emissions from emissions sources that are routed to the Baghouse 5
- Reconstruct Baghouse 6
- Increase the capture efficiency of pour hood of Rotary Furnace 2 by enlarging it and if possible positioning it closer to the pouring area
- Complete a survey of duct work disturbances and leaks and complete repairs; and
- Develop a maintenance schedule, based on the current predictive maintenance program

In 1999, CDOE identified that H. Kramer's fugitive emissions were the result of aged equipment, leaking ducts, and a leaking roof (CDOE, 2005). H. Kramer addressed these fugitive emissions by replacing aged furnaces and replacing or repairing most of its roof (CDOE, 2005). H. Kramer also installed a mist eliminator to control the fugitive emissions (CDOE, 2005). New baghouses were also installed and the leaking ducts were replaced or repaired (CDOE, 2005).

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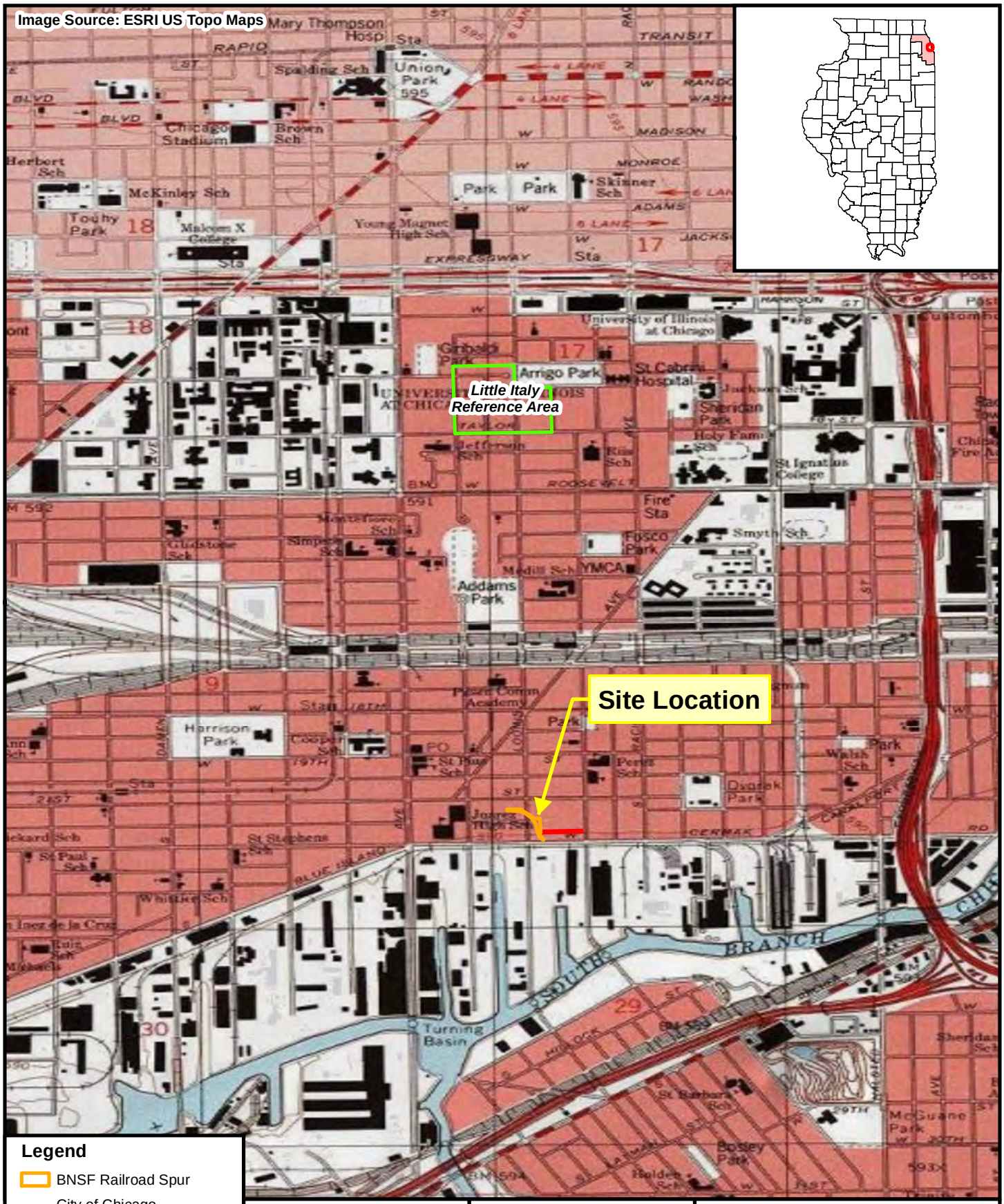
# REVISED FIGURES

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Prepared for:
**U.S. EPA REGION V**

Contract No.: EP-S8-13-01
TDD: 0001/1406-07
DCN: W0141.1A.00261

Prepared By:
**WESTON SOLUTIONS, INC**
20 N. Wacker Drive
Suite 2035
Chicago, Illinois 60606

**Figure 1-1**
Site Location Map
Pilsen Area Soil Site: Railroad/Alley Addendum I
Chicago, Cook County, Illinois


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Prepared for:
**U.S. EPA REGION V**

Contract No.: EP-SB-13-01
TDD: 0001/1406-07
DCN: W0141.1A.00261

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**Figure 2-1**
Site Features Map
Pilsen Area Soil Site: Railroad/Alley Addendum I
Chicago, Cook County, Illinois

# APPENDIX A
# REVISED SOIL BORING LOGS

# RR-06



EPA Region V
Contract: EP-S5-06-04

Pilsen Soil Site: Railroad/Alley
Chicago, Cook County, Illinois

| | | | |
|---|---|---|---|
| Date | : 5/6/2013 | Latitude | : 41.853449864 |
| Drill Rig Type | : Geoprobe | Longitude | : -87.660871336 |
| Drilling Company | : EPA FIELDS | | |
| Weston Geoscientist | : David Sena | | |
| Total Depth | : 24 inches bgs | | |

Sample Comments
- Investigative Soil Sample
- Investigative Soil Sample and Duplicate Sample

| Depth in Inches | USCS | GRAPHIC | DESCRIPTION | Sample | Recovery (%) | REMARKS |
|---|---|---|---|---|---|---|
| 0–6 | FL | | SILTY SAND FILL - Grayish black, dry, some medium-grained angular gravel, well graded | | | Composite soil sample PA-RR04,06(0-6)-050613 collected from 0-6 inches bgs |
| 6–12 | FL | | SANDY SILT FILL - Grayish black, dry, some coarse-grained angular gravel, well graded | | 80% | |
| 12–24 | FL | | SILTY SAND FILL - Tannish black, dry to moist, some medium-grained angular gravel, well graded, some brick pieces<br>As above | | | Composite soil sample PA-RR04,06(6-24)-050613 collected from 6-24 inches bgs |
| 24 | | | End of boring at 24 inches bgs. | | | |

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# AY-18



EPA Region V
Contract: EP-S5-06-04

Pilsen Soil Site: Railroad/Alley
Chicago, Cook County, Illinois

| | | | |
|---|---|---|---|
| Date | : 12/19/2012 | Latitude | : 41.85287599 |
| Drill Rig Type | : Geoprobe | Longitude | : -87.65905847 |
| Drilling Company | : Cabeno | | |
| Weston Geoscientist | : David Sena | | |
| Total Depth | : 4.0 ft bgs | | |

Sample Comments
- Investigative Soil Sample
- Investigative Soil Sample and Duplicate Sample

| Depth in Feet | USCS | GRAPHIC | DESCRIPTION | Sample | Recovery (percent) | REMARKS |
|---|---|---|---|---|---|---|
| 0 | FL | | ASPHALT - Black, bituminous | | | |
| | | | SANDY SILT FILL - Black, brown, and gray, soft, dry, some fine-grained angular gravel, well graded | | | Composite soil sample PA-AC09(0-6)-121912 collected from 0 to 6 inches bgs |
| 1 | FL | | | | | |
| | | | SILT FILL - Black, medium firm, moist, some sand, some clay, trace slag | | | Grab soil sample PA-AY18(6-12)-121912 collected from 6 to 12 inches bgs |
| 2 | | | | | 60% | |
| 3 | FL | | As above | | | |
| 4 | | | End of boring at 4.0 ft bgs | | | |
| 5 | | | | | | |
| 6 | | | | | | |

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# AY-08



EPA Region V
Contract: EP-S5-06-04

Pilsen Soil Site: Railroad/Alley
Chicago, Cook County, Illinois

| | | | |
|---|---|---|---|
| Date | : 12/19/2012 | Latitude | : 41.85287076 |
| Drill Rig Type | : Geoprobe | Longitude | : -87.6598927 |
| Drilling Company | : Cabeno | | |
| Weston Geoscientist | : David Sena | | |
| Total Depth | : 4.0 ft bgs | | |

Sample Comments
- Investigative Soil Sample
- Investigative Soil Sample and Duplicate Sample

| Depth in Feet | USCS | GRAPHIC | DESCRIPTION | Sample | Recovery (percent) | REMARKS |
|---|---|---|---|---|---|---|
| 0 | FL | | GRAVELLY SILT FILL - Blackish brown, medium firm, dry, well graded, some sand, gravel is fine-grained and subangular | | 60% | Composite soil sample PA-AC04(0-6)-121912 collected from 0 to 6 inches bgs |
| 1 | | | | | | |
| 2 | | | As above | | | |
| 3 | | | | | | |
| 4 | | | End of boring at 4.0 ft bgs. | | | |
| 5 | | | | | | |
| 6 | | | | | | |

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# AY-06



EPA Region V
Contract: EP-S5-06-04

Pilsen Soil Site: Railroad/Alley
Chicago, Cook County, Illinois

| | | | |
|---|---|---|---|
| Date | : 12/19/2012 | Latitude | : 41.85286302 |
| Drill Rig Type | : Geoprobe | Longitude | : -87.66005877 |
| Drilling Company | : Cabeno | | |
| Weston Geoscientist | : David Sena | | |
| Total Depth | : 4.0 ft bgs | | |

Sample Comments
- Investigative Soil Sample
- Investigative Soil Sample and Duplicate Sample

| Depth in Feet | USCS | GRAPHIC | DESCRIPTION | Sample | Recovery (percent) | REMARKS |
|---|---|---|---|---|---|---|
| 0 | | | SILT FILL - Black, medium firm, dry, some sand, trace medium-grained subangular gravel, poorly graded, brick layer at 2 ft bgs | | | Composite soil sample PA-AC03(0-6)-121912 collected from 0 to 6 inches bgs |
| 1 | | | As above | | | |
| 2 | FL | | | | 90% | |
| 3 | | | As above | | | |
| 4 | | | End of boring at 4.0 ft bgs. | | | |
| 5 | | | | | | |
| 6 | | | | | | |

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