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December 1, 2014

Mr. Greg Jeffries
Manager Environmental Remediation
BNSF Railway Company
80 44th Ave. N.E.
Minneapolis, MN 55421

Re: Soil Sampling Results
Right-of-Way (ROW) East of Sangamon Street Between West 21st Street to the South and West 18th Street to the North - Chicago, Illinois / Adjacent to the Former Loewenthal Metals Site

Dear Mr. Jeffries:

On behalf of BNSF Railway Company (BNSF), TRC Environmental Corporation (TRC) submits this *Soil Sampling Results Summary Letter* for subsurface soil sampling activities performed at the above-referenced Site. The Site consists of the BNSF right-of-way (ROW), east of Sangamon Street between West 21st Street to the south and West 18th Street to the north in Chicago, Illinois. Soil sampling was initially conducted on June 2013 to evaluate potential impacts attributed to former smelting activities from an adjacent property to the west (former Loewenthal Metals) in the upper four feet of soil material. Based on these initial sampling results, additional soil sampling was completed to delineate the lead impacts identified. This summary provides results of the three separate soil sampling events completed by TRC on the BNSF ROW, which includes the soil sampling that was completed on behalf of the United States Environmental Protection Agency (US EPA) on City of Chicago and BNSF property east/southeast of the former Loewenthal Metals site.

Background

US EPA conducted subsurface investigations and remediation at the former Loewenthal Metals property. The former Lowenthal Metals Site is located at 947 West Cullerton Street in Chicago, Illinois (Figure 1). Based on information obtained from the US EPA's website, a cleanup was completed beginning on September 30 to October 11, 2013 at this former smelting facility to remove high concentrations of lead in the soil for residential use in the future. A total of 4,800 tons of impacted soil and debris were excavated, treated with a stabilizer agent, and transported to Republic Services Newton County landfill in Indiana, where it was disposed of as non-hazardous material. The site was replaced with clean soil and seeded to prevent erosion.

As part of the investigation phase of the US EPA remediation project, US EPA approached BNSF to sample soil on BNSF ROW property, east of the former Loewenthal Metals facility. It was agreed that on behalf of the US EPA, BNSF would collect the necessary soil samples at the designated US EPA sampling locations. These sampling locations are shown on Figure 1 and are designated as LM-SB-24 to LM-SB-35. The LM-series samples were collected on June 21, 2013. In addition to the US EPA sampling activities, TRC collected three additional soil samples on June 21, 2013, one block north of the US EPA sampling locations (north of Cullerton Street) along the BNSF ROW and east of Sangamon Street. These samples are designated as GP-1 to GP-3. Additional information is provided below on the sampling activities on behalf of the US EPA.

Based on the results of the US EPA off-site sampling, one sample location (LM-SB-24), located on City of Chicago ROW property had a toxicity characteristic leaching procedure (TCLP) lead concentration of 56 milligrams per liter (mg/L), which is above the characteristic hazardous waste limit of 5 mg/L. According to the US EPA Loewenthal Metals website, the City of Chicago conducted its own cleanup of the area encompassing location LM-SB-24. Based on the review of City of Chicago documentation, dated January 17, 2014, and provided on the US EPA website, the cleanup was conducted between September 30 and October 11, 2013 to address the hazardous lead levels in the soil. Based on the website information, the City's contractor, SET Environmental, Inc. excavated 64 cubic yards of hazardous soil that was hauled off-site for treatment and disposal. Geotextile fabric was placed on the bottom of the excavation and the excavated areas were filled with clean soil.

Based on the results of the BNSF and US EPA initial sampling, TRC completed additional soil sampling on November 21, 2013 and again on October 7-8, 2014 to further evaluate lead impacts along the BNSF ROW.

Preliminary Activities

All personnel directly involved in the sampling activities received the appropriate health and safety and BNSF site worker training. In addition, all personnel were trained in general and site-specific health and safety procedures, as well as quality assurance (QA) and quality control (QC) procedures. TRC also contacted the BNSF underground utility locating services and the driller contacted Joint Utility Locating Information for Excavators (JULIE) to identify any underground utilities that may be located in the area of the sampling.

Soil Boring Advancement and Sampling Methodology

On June 21, 2013, TRC advanced twelve soil borings (LM-SB-24-LM-SB-35) east/southeast of the former Loewenthal Metals property to investigate potential off-site lead impacts due to the former smelting activities conducted at Loewenthal Metals (Figure 1). These soil boring locations were designated by the US EPA. In addition, three soil borings (GP-1 through GP-3) were advanced one block north of the US EPA sampling locations (north of Cullerton Street) to investigate potential impacts to the northeast of the former Loewenthal Metals site. TRC returned to the area on November 12, 2013 and advanced an additional 21 soil borings (P-1 to P-

21). On October 7-8, 2014, TRC advanced an additional 28 soil borings (A-1 to A-28) to further characterize lead levels along the BNSF ROW (Figures 1 and 2).

All soil borings were advanced to 4 feet below grade surface (bgs) utilizing a Geoprobe® Macro Core Soil Sampling System employing direct-push technology by Enviro-Dynamics, LLC of Hebron, Indiana. The soil borings were continuously sampled and the soil collected from each boring using a 48-inch stainless steel sampling tube lined with cellulose acetate butyrate (CAB) sampling sleeves. With the exception of the twelve soil samples collected on behalf of the US EPA in June 2013, as samples were collected at each soil boring, TRC characterized and logged the geology of the subsurface soils and examined them for visual evidence of potential impacts. TRC did not log the twelve samples collected on behalf of US EPA, as these samples were advanced and immediately delivered to the US EPA's consultant (Weston Solutions) for their logging and testing. The US EPA lead sampling results are summarized below and are included in the tables. The following table summarizes the soil sampling activities and associated laboratory analysis.

Date	Sample Identification / Depth	Laboratory Analysis
US EPA		
June 21, 2013	LM-SB24 (1-2)	TAL Total Metals, TCLP RCRA Metals, pH, percent (%) Moisture
	LM-SB25 (0-1)	
	LM-SB26 (0-1)	
	LM-SB27 (1-2)	
	LM-SB28 (1-2)	
	LM-SB29 (0-1)	
	LM-SB30 (0-1)	
	LM-SB31 (1-2)	
	LM-SB32 (0-1)	
	LM-SB33 (0-1)	
	LM-SB34 (0-1)	
	LM-SB35 (1-2)	
	LM-SB24 (2-3)	PAHs
	LM-SB24 (2-3) Dup	
	LM-SB26 (2-3)	VOCs
	LM-SB26 (2-3) Dup	
BNSF		
June 21, 2013	GP-1 to GP-3 (6 samples)	Total RCRA Metals, Copper, Manganese, Zinc, TCLP Lead, PAHs, pH, % Moisture
November 12, 2013	P-1 to P-21 (42 samples and 2 duplicates)	Total Lead and TCLP Lead, % Moisture
October 7-8, 2014	A-1 to A-28 (56 samples and 4 duplicates)	

Notes:

TAL	*Target Analyte List*
TCLP	*Toxicity Characteristic Leaching Procedure*
RCRA	*Resource Conservation and Recovery Act*
PAHs	*Polynuclear Aromatic Hydrocarbons*
VOCs	*Volatile Organic Compounds*
PCBs	*Polychlorinated Biphenyls*
%	*Percent*

Each soil sample interval for analysis was collected and placed within laboratory provided glass jars, labeled accordingly, packed in a cooler containing ice and maintained at a temperature of approximately 4 degrees Celsius (°C). The soil samples were submitted to Pace Analytical (Pace) in Lenexa, Kansas under chain of custody protocol. The US EPA submitted their soil samples to STAT Analysis Corporation in Chicago, Illinois. Refer to the individual laboratory reports for the parameters and associated analytical methods.

After the soil samples were collected, any excess cuttings were replaced in the corresponding borehole and filled to grade with bentonite chips.

Decontamination Procedures

To preserve the integrity of the sample collection process, TRC employed decontamination procedures designed to prevent cross-contamination between samples collected during the subsurface sampling.

- During initial soil sampling activities, all "down hole" equipment was cleaned prior to beginning each boring. The equipment cleaned included GeoProbe® rods and the sampler assembly. The equipment was cleaned with an Alconox® soap solution followed by a clean water rinse between all sampling intervals.
- New GeoProbe® CAB sampling sleeves were used for each soil boring location and sample interval.
- All samples collected for potential laboratory analysis were placed into new, laboratory-supplied sample containers.
- The individual(s) handling the samples changed into a new pair of vinyl (or other appropriate) gloves prior to handling and collecting each soil sample.

Soil Sampling Results

The analytical results were compared to the Tier 1 Soil Remediation Objectives (SROs) for both residential and industrial/commercial properties which are listed in the Illinois Pollution Control Board's *Tiered Approach to Corrective Action Objectives* "TACO" (35 Illinois Administrative Code [IAC]. 742). In addition, the TCLP analytical results were compared to 40 Code of Federal Regulations (CFR) Part 261, the US EPA's Identification and Listing of Hazardous Waste. TCLP lead samples with concentrations greater than 5 mg/L are classified as hazardous waste.

The total, TCLP lead and pH analytical results are summarized on Table 1. TCLP lead concentrations shaded in red are above the characteristic hazardous waste criteria (5 mg/L). Total lead concentrations shaded in green are above the most stringent industrial/commercial

ingestion exposure route SRO (800 milligrams per kilogram [mg/kg]). Total lead concentrations shaded in yellow are above the most stringent residential ingestion exposure route SRO (400 mg/kg). Table 1 shows the construction worker SRO exceedances above 700 mg/kg with a "cw" designation. Since the City of Chicago has a groundwater ordinance and the groundwater ingestion pathway can be excluded, the TCLP lead results were not compared to the soil component of the groundwater ingestion exposure route SROs at this time.

Characteristic Hazardous Waste TCLP Lead Soil Results

The following soil samples has TCLP lead results above the characteristic hazardous waste criteria:

Sample ID	Depth (Feet bgs)	TCLP Lead Result (mg/L)	Total Lead Result (mg/kg)
LM-SB-24 **	0-1	56	6,300
GP-3	0-2	49.8	3,190
P-5	0-2	8.0	5,010
P-19	0-2	13.6	3,180

** As noted above, according to information obtained on the US EPA website for the former Loewenthal Metals, the City of Chicago conducted its own cleanup of the area around sample location LM-SB-24 due to the hazardous waste level of lead. This area is depicted on Figure 1.

Based on the analytical results, three sample locations have TCLP lead concentrations above 5 mg/L. The elevated concentrations are limited to the upper 2 feet.

Total Lead Soil Results

Based on the results of the soil samples collected and analyzed for total lead, 33 soil boring locations on the BNSF ROW have total lead concentrations above 800 mg/kg, the industrial/commercial ingestion SRO for lead (Table 1). The sample results above 800 mg/kg are shaded in green on Figures 1 and 2. Sample results above the construction worker ingestion SRO (700 mg/kg) are depicted with a "cw" designation. Samples results identified above 400 mg/kg, the residential ingestion SRO for lead, are shaded in yellow (Figures 1 and 2).

Additional US EPA Soil Analytical Results

In addition to total and TCLP lead analyses, US EPA analyzed one soil sample (LM-SB-24 from 2 to 3 feet bgs) for PAHs analysis and one sample (LM-SB-26 from 2 to 3 feet bgs) for VOCs analysis. Based on the VOCs results, with the exception of acetone, all other parameters were found below laboratory detection limits. Acetone was detected at 0.13 mg/kg, which is below the most stringent TACO SRO of 25 mg/kg.

Based on the PAHs results, benzo(a)pyrene was detected at 2.7 mg/kg, above the Chicago background concentration of 1.3 mg/kg. Dibenzo(ah)anthracene was detected at 0.54 mg/kg which is above the most stringent residential SRO of 0.09 mg/kg and the Chicago background concentration of 0.20 mg/kg. However, the dibenzo(ah)anthracene is below the most stringent industrial/commercial SRO of 0.8 mg/kg. Indeno(123-cd)pyrene was detected at 0.96 mg/kg

which is above the most stringent residential SRO of 0.9 mg/kg, the Chicago background concentration of 0.86 mg/kg. However, it is below the most stringent industrial/commercial SRO of 8 mg/kg.

Additional TRC Soil Analytical Results

In addition to the total and TCLP lead analyses, TRC analyzed the GP-series soil boring samples for PAHs, and the remaining total RCRA metals, including copper, manganese and zinc. These compounds were analyzed because they were identified by the US EPA in their initial Loewenthal Metals investigations as contaminants of concern and documented in the *Removal Site Evaluation*, dated February 4, 2013 completed by Weston Solutions, Inc. Table 2 provides a summary of these analytical results. Based on the analytical results, several PAHs and other metals were also identified above their most stringent Tier 1 TACO SROs for residential and/or industrial/commercial properties.

Quality Assurance/Quality Control (QA/QC)

TRC performed a QA/QC review of the soil laboratory reports (June, October and November 2013), in regards to analyses, procedures, and protocols performed by Pace Analytical. Based on TRC's internal review, there were minor issues associated with the surrogate recoveries, and matrix spike/matrix spike duplicate (MS/MSD) recoveries. These minor issues do not affect the quality of the data as corresponding Laboratory Control Samples were within control limits, thus all data is considered usable. Quality control data indicate that measurement data are sufficient to meet method quality objectives, data are defensible, and quality control mechanisms were effective in ensuring measurement data reliability.

SUMMARY & CONCLUSIONS

Soil sampling was conducted in June 2013, November 2013 and October 2014 along the BNSF ROW east of Sangamon Street between West 21st Street to the south and West 18th Street to the north to evaluate potential lead impacts. A total of 190 soil samples (from 64 soil boring locations) were collected and analyzed for total lead and TCLP lead. A summary of the soil samples with lead concentrations above the characteristic hazardous waste criteria or the respective land use scenarios and associated most stringent SROs is provided in the below table.

Sample ID / Depth bgs	Residential Scenario (400 mg/kg)	Industrial / Commercial Scenario (800 mg/kg)	Construction Worker Scenario (700 mg/kg)	Hazardous Waste Characterization (5 mg/L)
LM-SB-24 / 0-1	Remediated by City of Chicago			
LM-SB-25 / 0-1	X	X	X	
LM-SB-26 / 0-1	Remediated by City of Chicago			
LM-SB-27 / 1-2	Below SROs			
LM-SB-28 / 1-2	Remediated by City of Chicago			
LM-SB-29 / 0-1	X	X	X	

Sample ID / Depth bgs	Residential Scenario (400 mg/kg)	Industrial / Commercial Scenario (800 mg/kg)	Construction Worker Scenario (700 mg/kg)	Hazardous Waste Characterization (5 mg/L)
LM-SB-30 / 0-1	Remediated by City of Chicago			
LM-SB-31 / 1-2	Below SROs			
LM-SB-32 / 0-1	X	X	X	
LM-SB-33 / 0-1	X			
LM-SB-34 / 0-1	X	X	X	
LM-SB-35 / 1-2	X			
GP-1 / 0-2	X	X	X	
GP-1 / 2-4	Below SROs			
GP-2 / 0-2	X	X	X	
GP-2 / 2-4	X	X	X	
GP-3 / 0-2	X	X	X	X
GP-3 / 2-4	Below SROs			
P-1 / 0-2	X	X	X	
P-1 / 2-4	Below SROs			
P-2 / 0-2	X			
P-2 / 2-4	Below SROs			
P-3 / 0-2	X	X	X	
P-3 / 2-4	X	X	X	
P-4 / 0-2	X	X	X	
P-4 / 2-4	X			
P-5 / 0-2	X	X	X	X
P-5 / 2-4	X			
P-6 / 0-2	Below SROs			
P-6 / 2-4	X	X	X	
P-7 / 0-2	X	X	X	
P-7 / 2-4	Below SROs			
P-8 / 0-2	X	X	X	
P-8 / 0-2 Dup-4	X	X	X	
P-8 / 2-4	Below SROs			
P-9 / 0-2	X	X	X	
P-9 / 2-4	X	X	X	
P-10 / 0-2	X	X	X	
P-10 / 2-4	Below SROs			
P-11 / 0-2	X			
P-11 / 2-4	Below SROs			
P-12 / 0-2	X	X	X	
P-12 / 2-4	Below SROs			
P-13 / 0-2				
P-13 / 2-4				

Sample ID / Depth bgs	Residential Scenario (400 mg/kg)	Industrial / Commercial Scenario (800 mg/kg)	Construction Worker Scenario (700 mg/kg)	Hazardous Waste Characterization (5 mg/L)
P-14 / 0-2	X	X	X	
P-14 / 0-2 Dup-3	X	X	X	
P-14 / 2-4	Below SROs			
P-15 / 0-2	X	X	X	
P-15 / 2-4	Below SROs			
P-16 / 0-2	X	X	X	
P-16 / 2-4	Below SROs			
P-17 / 0-2	X	X	X	
P-17 / 2-4	Below SROs			
P-18 / 0-2	X			
P-18 / 2-4	Below SROs			
P-19 / 0-2	X	X	X	X
P-19 / 2-4	Below SROs			
P-20 / 0-2				
P-20 / 2-4				
P-21 / 0-2				
P-21 / 2-4				
A-1 / 0-2	X	X	X	
A-1 / 2-4	Below SROs			
A-2 / 0-2	X			
A-2 / 2-4	Below SROs			
A-2 / 2-4 Dup-1				
A-3 / 0-2	X	X	X	
A-3 / 2-4	Below SROs			
A-4 / 0-2				
A-4 / 2-4	X	X	X	
A-5 / 0-2	Below SROs			
A-5 / 2-4				
A-6 / 0-2				
A-6 / 2-4				
A-7 / 0-2	X		X	
A-7 / 2-4	Below SROs			
A-8 / 0-2	X			
A-8 / 2-4	Below SROs			
A-9 / 0-2	X		X	
A-9 / 2-4	Below SROs			
A-10 / 0-2				
A-10 / 2-4				
A-11 / 0-2				

Sample ID / Depth bgs	Residential Scenario (400 mg/kg)	Industrial / Commercial Scenario (800 mg/kg)	Construction Worker Scenario (700 mg/kg)	Hazardous Waste Characterization (5 mg/L)
A-11 / 2-4	Below SROs			
A-12 / 0-2				
A-12 / 2-4				
A-12 / 2-4 Dup-2				
A-13 / 0-2	X	X	X	
A-13 / 2-4	Below SROs			
A-14 / 0-2	X	X	X	
A-14 / 2-4	Below SROs			
A-15 / 0-2	X	X	X	
A-15 / 2-4	Below SROs			
A-16 / 0-2	X	X	X	
A-16 / 2-4	Below SROs			
A-17 / 0-2				
A-17 / 2-4				
A-18 / 0-2	X	X	X	
A-18 / 2-4	Below SROs			
A-19 / 0-2	X			
A-19 / 2-4	Below SROs			
A-20 / 0-2	X			
A-20 / 0-2 Dup-3	X			
A-20 / 2-4	Below SROs			
A-21 / 0-2	X	X	X	
A-21 / 2-4	X			
A-22 / 0-2	X		X	
A-22 / 2-4	Below SROs			
A-23 / 0-2	X			
A-23 / 2-4	Below SROs			
A-24 / 0-2	X	X	X	
A-24 / 2-4	X		X	
A-25 / 0-2	Below SROs			
A-25 / 2-4				
A-26 / 0-2	X			
A-26 / 0-2 Dup-4	X			
A-26 / 2-4	Below SROs			
A-27 / 0-2	X			
A-27 / 2-4	Below SROs			
A-28 / 0-2	Below SROs			
A-28 / 2-4				
Totals - 122	**58**	**37**	**40**	**3**

The soil investigation and soil analytical results indicate:

- Fifty-eight of the 122 soil samples collected and analyzed exceeded the residential ingestion SRO for lead (400 mg/kg). These sample results are highlighted in yellow on the tables and figures.
- Forty of the 58 soil samples exceeding 400 mg/kg also exceeded the construction worker ingestion SRO for lead (700 mg/kg). These are depicted with a "cw" designation on the table and figures.
- Additionally, 37 of the 40 soil samples exceeding 700 mg/kg further exceeded the industrial/commercial ingestion SRO for lead (800 mg/kg). These soil sample results are highlighted in green on the tables and figures.
- Three soil samples (GP-3, P-5 and P-19) have TCLP lead concentrations above the characteristic hazardous waste criteria of 5 mg/L. These concentrations ranged between 8.0 mg/L and 49.8 mg/L. These soil sample results are highlighted in red on the tables and figures. These three hazardous areas have been delineated (Figure 2).
- Active remediation was conducted by the City of Chicago around and inclusive of sample locations LM-SB-24, LM-SB-26, LM-SB-28 and LM-SB-30.
- As noted on the figures, with the exception of boring A-27, sampling was not conducted beyond the BNSF ROW boundaries. In many cases, soil samples collected and analyzed at the boundaries still indicate industrial/commercial and/or residential ingestion SRO exceedances.

If you have any questions, please contact me at (312) 578-0870, extension 1917.

Sincerely,

TRC

Lisa Meagher, PG
Senior Project Manager

Enclosures: Table 1 Soil Analytical Results for Lead
Table 2 Additional Soil Analytical Results

Figure 1 Sampling Map (West 21st Street to Cullerton Street)
Figure 2 Sampling Map (Cullerton Street to West 18th Street)

Tables

Table 1. Soil Analytical Results for Lead
BNSF ROW Sampling East of Loewenthal Metals
Chicago, Cook County, Illinois

Analyses	TACO Exposure Route-Specific Values for Soils			Sample ID, Sample Depth, and Sample Date				
				US EPA Soil Samples				
	Residential	Industrial / Commercial	Construction Worker	LM-SB-24	LM-SB-25	LM-SB-26	LM-SB-27	LM-SB-28
				0-1'	0-1'	0-1'	1-2'	1-2'
				6/21/2013				
Lead (Total) - mg/kg	400 / NE	800 / NE	700 / NE	**6,300 cw**	**1,500 cw**	**2,100 cw**	260	**3,100 cw**
Lead (TCLP) - mg/L	5 mg/L[1]			**56**	0.35	3.6	0.018	0.55
pH	NA			7.5	7.4	7.9	6.9	7.6

Notes: Refer to Page 27 of 27.

Table 1. Soil Analytical Results for Lead
BNSF ROW Sampling East of Loewenthal Metals
Chicago, Cook County, Illinois

Analyses	TACO Exposure Route-Specific Values for Soils			Sample ID, Sample Depth, and Sample Date				
				US EPA Soil Samples				
	Residential	Industrial / Commercial	Construction Worker	LM-SB-29	LM-SB-30	LM-SB-31	LM-SB-32	LM-SB-33
				0-1'	0-1'	1-2'	0-1'	0-1'
				6/21/2013				
Lead (Total) - mg/kg	400 / NE	800 / NE	700 / NE	**1,600 cw**	**840 cw**	370	**1,700 cw**	**570**
Lead (TCLP) - mg/L	5 mg/L[1]			0.11	0.051	0.015	0.34	0.052
pH	NA			7	8.8	7.2	6.2	8

Notes: Refer to Page 27 of 27.

Table 1. Soil Analytical Results for Lead
BNSF ROW Sampling East of Loewenthal Metals
Chicago, Cook County, Illinois

Analyses	TACO Exposure Route-Specific Values for Soils			Sample ID, Sample Depth, and Sample Date				
				US EPA Soil Samples		BNSF Soil Samples		
	Residential	Industrial / Commercial	Construction Worker	LM-SB-34	LM-SB-35	GP-1		GP-2
				0-1'	1-2'	0-2'	2-4'	0-2'
				6/21/2013				
Lead (Total) - mg/kg	400 / NE	800 / NE	700 / NE	**1,000 cw**	**560**	**1,040 cw**	109	**1,220 cw**
Lead (TCLP) - mg/L	5 mg/L[1]			0.11	0.053	<0.5	<0.5	<0.5
pH	NA			7.3	7.3	7.4	6.5	7.7

Notes: Refer to Page 27 of 27.

Table 1. Soil Analytical Results for Lead
BNSF ROW Sampling East of Loewenthal Metals
Chicago, Cook County, Illinois

Analyses	TACO Exposure Route-Specific Values for Soils			Sample ID, Sample Depth, and Sample Date				
				BNSF Soil Samples				
	Residential	Industrial / Commercial	Construction Worker	GP-2	GP-3		P-1	P-1
				2-4'	0-2'	2-4'	0-2'	2-4'
				6/21/2013			11/14/2013	
Lead (Total) - mg/kg	400 / NE	800 / NE	700 / NE	**1,130 cw**	**3,190 cw**	169	**1,540 cw**	191
Lead (TCLP) - mg/L	5 mg/L[1]			<0.5	**49.8**	<0.5	0.53	<0.50
pH	NA			7.5	7.3	7.0	---	---

Notes: Refer to Page 27 of 27.

Table 1. Soil Analytical Results for Lead
BNSF ROW Sampling East of Loewenthal Metals
Chicago, Cook County, Illinois

Analyses	TACO Exposure Route-Specific Values for Soils			Sample ID, Sample Depth, and Sample Date				
				BNSF Soil Samples				
	Residential	Industrial / Commercial	Construction Worker	P-2	P-2	P-3	P-3	P-4
				0-2'	2-4'	0-2'	2-4'	0-2'
				11/14/2013				
Lead (Total) - mg/kg	400 / NE	800 / NE	700 / NE	**707 cw**	90.5	**820 cw**	**1,200 cw**	**1,350 cw**
Lead (TCLP) - mg/L	5 mg/L[1]			<0.50	<0.50	0.62	0.6	1.3
pH	NA			---	---	---	---	---

Notes: Refer to Page 27 of 27.

Table 1. Soil Analytical Results for Lead
BNSF ROW Sampling East of Loewenthal Metals
Chicago, Cook County, Illinois

Analyses	TACO Exposure Route-Specific Values for Soils			Sample ID, Sample Depth, and Sample Date				
				BNSF Soil Samples				
	Residential	Industrial / Commercial	Construction Worker	P-4	P-5	P-5	P-6	P-6
				2-4'	0-2'	2-4'	0-2'	2-4'
				11/14/2013				
Lead (Total) - mg/kg	400 / NE	800 / NE	700 / NE	**749 cw**	**5,010 cw**	**572**	120	**4,960 cw**
Lead (TCLP) - mg/L	5 mg/L[1]			<0.50	**8**	<0.50	1.9	<0.50
pH	NA			---	---	---	---	---

Notes: Refer to Page 27 of 27.

Table 1. Soil Analytical Results for Lead
BNSF ROW Sampling East of Loewenthal Metals
Chicago, Cook County, Illinois

Analyses	TACO Exposure Route-Specific Values for Soils			Sample ID, Sample Depth, and Sample Date				
				BNSF Soil Samples				
	Residential	Industrial / Commercial	Construction Worker	P-7	P-7	P-8		P-8
				0-2'	2-4'	0-2'	Dup 4	2-4'
				11/14/2013				
Lead (Total) - mg/kg	400 / NE	800 / NE	700 / NE	**2,620 cw**	353	**981 cw**	**950 cw**	144
Lead (TCLP) - mg/L	5 mg/L[1]			4.4	<0.5	1.6	0.98	<0.5
pH	NA			---	---	---	---	---

Notes: Refer to Page 27 of 27.

Table 1. Soil Analytical Results for Lead
BNSF ROW Sampling East of Loewenthal Metals
Chicago, Cook County, Illinois

Analyses	TACO Exposure Route-Specific Values for Soils			Sample ID, Sample Depth, and Sample Date				
				BNSF Soil Samples				
	Residential	Industrial / Commercial	Construction Worker	P-9	P-9	P-10	P-10	P-11
				0-2'	2-4'	0-2'	2-4'	0-2'
				11/14/2013				
Lead (Total) - mg/kg	400 / NE	800 / NE	700 / NE	**2,460 cw**	**1,040 cw**	**1,320 cw**	275	**661**
Lead (TCLP) - mg/L	5 mg/L[1]			1.1	0.74	0.64	<0.5	<0.5
pH	NA			---	---	---	---	---

Notes: Refer to Page 27 of 27.

Table 1. Soil Analytical Results for Lead
BNSF ROW Sampling East of Loewenthal Metals
Chicago, Cook County, Illinois

Analyses	TACO Exposure Route-Specific Values for Soils			Sample ID, Sample Depth, and Sample Date				
				BNSF Soil Samples				
	Residential	Industrial / Commercial	Construction Worker	P-11	P-12	P-12	P-13	P-13
				2-4'	0-2'	2-4'	0-2'	2-4'
				11/14/2013				
Lead (Total) - mg/kg	400 / NE	800 / NE	700 / NE	115	**1,280 cw**	216	343	86.9
Lead (TCLP) - mg/L	5 mg/L[1]			<0.5	0.51	<0.5	1.8	<0.5
pH	NA			---	---	---	---	---

Notes: Refer to Page 27 of 27.

Table 1. Soil Analytical Results for Lead
BNSF ROW Sampling East of Loewenthal Metals
Chicago, Cook County, Illinois

Analyses	TACO Exposure Route-Specific Values for Soils			Sample ID, Sample Depth, and Sample Date				
				BNSF Soil Samples				
	Residential	Industrial / Commercial	Construction Worker	P-14		P-14	P-15	P-15
				0-2'	Dup 3	2-4'	0-2'	2-4'
				11/14/2013				
Lead (Total) - mg/kg	400 / NE	800 / NE	700 / NE	**1,100 cw**	**1,010 cw**	309	**834 cw**	288
Lead (TCLP) - mg/L	5 mg/L[1]			<0.5	0.6	<0.5	0.53	<0.5
pH	NA			---	---	---	---	---

Notes: Refer to Page 27 of 27.

Table 1. Soil Analytical Results for Lead
BNSF ROW Sampling East of Loewenthal Metals
Chicago, Cook County, Illinois

Analyses	TACO Exposure Route-Specific Values for Soils			Sample ID, Sample Depth, and Sample Date				
				BNSF Soil Samples				
	Residential	Industrial / Commercial	Construction Worker	P-16	P-16	P-17	P-17	P-18
				0-2'	2-4'	0-2'	2-4'	0-2'
				11/14/2013				
Lead (Total) - mg/kg	400 / NE	800 / NE	700 / NE	**2,210 cw**	107	**1,370 cw**	143	**417**
Lead (TCLP) - mg/L	5 mg/L[1]			1.7	<0.5	<0.5	<0.5	<0.5
pH	NA			---	---	---	---	---

Notes: Refer to Page 27 of 27.

Table 1. Soil Analytical Results for Lead
BNSF ROW Sampling East of Loewenthal Metals
Chicago, Cook County, Illinois

Analyses	TACO Exposure Route-Specific Values for Soils			Sample ID, Sample Depth, and Sample Date				
				BNSF Soil Samples				
	Residential	Industrial / Commercial	Construction Worker	P-18	P-19	P-19	P-20	P-20
				2-4'	0-2'	2-4'	0-2'	2-4'
				11/14/2013				
Lead (Total) - mg/kg	400 / NE	800 / NE	700 / NE	201	**3,180 cw**	168	163	214
Lead (TCLP) - mg/L	5 mg/L[1]			<0.5	**13.6**	<0.5	<0.5	<0.5
pH	NA			---	---	---	---	---

Notes: Refer to Page 27 of 27.

Table 1. Soil Analytical Results for Lead
BNSF ROW Sampling East of Loewenthal Metals
Chicago, Cook County, Illinois

Analyses	TACO Exposure Route-Specific Values for Soils				Sample ID, Sample Depth, and Sample Date				
					BNSF Soil Samples				
	Residential	Industrial / Commercial	Construction Worker	P-21	P-21	P-22	A-1	A-1
				0-2'	2-4'	0-2'	0-2'	2-4'
				11/14/2013			10/7/2014	
Lead (Total) - mg/kg	400 / NE	800 / NE	700 / NE	24.5	72.2	**1,610 cw**	**1,000 cw**	52.1
Lead (TCLP) - mg/L	5 mg/L[1]			<0.5	<0.5	0.77	<0.50	<0.50
pH	NA			---	---	---	---	---

Notes: Refer to Page 27 of 27.

Table 1. Soil Analytical Results for Lead
BNSF ROW Sampling East of Loewenthal Metals
Chicago, Cook County, Illinois

Analyses	TACO Exposure Route-Specific Values for Soils			Sample ID, Sample Depth, and Sample Date				
				BNSF Soil Samples				
	Residential	Industrial / Commercial	Construction Worker	A-2	A-2		A-3	A-3
				0-2'	2-4'	Dup-1	0-2'	2-4'
				10/7/2014				
Lead (Total) - mg/kg	400 / NE	800 / NE	700 / NE	**473**	7.4	48.0	**1,050 cw**	170
Lead (TCLP) - mg/L	5 mg/L[1]			<0.50	<0.50	<0.50	<0.50	<0.50
pH	NA			---	---	---	---	---

Notes: Refer to Page 27 of 27.

Table 1. Soil Analytical Results for Lead
BNSF ROW Sampling East of Loewenthal Metals
Chicago, Cook County, Illinois

Analyses	TACO Exposure Route-Specific Values for Soils			Sample ID, Sample Depth, and Sample Date				
				BNSF Soil Samples				
	Residential	Industrial / Commercial	Construction Worker	A-4	A-4	A-5	A-5	A-6
				0-2'	2-4'	0-2'	2-4'	0-2'
				10/7/2014				
Lead (Total) - mg/kg	400 / NE	800 / NE	700 / NE	312	**11,300 cw**	282	114	22.6
Lead (TCLP) - mg/L	5 mg/L[1]			<0.50	<0.50	<0.50	<0.50	<0.50
pH	NA			---	---	---	---	---

Notes: Refer to Page 27 of 27.

Table 1. Soil Analytical Results for Lead
BNSF ROW Sampling East of Loewenthal Metals
Chicago, Cook County, Illinois

Analyses	TACO Exposure Route-Specific Values for Soils			Sample ID, Sample Depth, and Sample Date				
				BNSF Soil Samples				
	Residential	Industrial / Commercial	Construction Worker	A-6	A-7	A-7	A-8	A-8
				2-4'	0-2'	2-4'	0-2'	2-4'
				10/7/2014				
Lead (Total) - mg/kg	400 / NE	800 / NE	700 / NE	12.7	**721 cw**	75.7	**643**	24.8
Lead (TCLP) - mg/L	5 mg/L[1]			<0.50	<0.50	<0.50	<0.50	<0.50
pH	NA			---	---	---	---	---

Notes: Refer to Page 27 of 27.

Table 1. Soil Analytical Results for Lead
BNSF ROW Sampling East of Loewenthal Metals
Chicago, Cook County, Illinois

Analyses	TACO Exposure Route-Specific Values for Soils			Sample ID, Sample Depth, and Sample Date				
				BNSF Soil Samples				
	Residential	Industrial / Commercial	Construction Worker	A-9	A-9	A-10	A-10	A-11
				0-2'	2-4'	0-2'	2-4'	0-2'
				10/7/2014				
Lead (Total) - mg/kg	400 / NE	800 / NE	700 / NE	**724 cw**	38.1	165	167	115
Lead (TCLP) - mg/L	5 mg/L[1]			<0.50	<0.50	<0.50	<0.50	<0.50
pH	NA			---	---	---	---	---

Notes: Refer to Page 27 of 27.

Table 1. Soil Analytical Results for Lead
BNSF ROW Sampling East of Loewenthal Metals
Chicago, Cook County, Illinois

Analyses	TACO Exposure Route-Specific Values for Soils			Sample ID, Sample Depth, and Sample Date				
				BNSF Soil Samples				
	Residential	Industrial / Commercial	Construction Worker	A-11	A-12	A-12		A-13
				2-4'	0-2'	2-4'	Dup-2	0-2'
				10/7/2014				
Lead (Total) - mg/kg	400 / NE	800 / NE	700 / NE	25.1	377	183	255	**2,330 cw**
Lead (TCLP) - mg/L	5 mg/L[1]			<0.50	<0.50	<0.50	<0.50	1.0
pH	NA			---	---	---	---	---

Notes: Refer to Page 27 of 27.

Table 1. Soil Analytical Results for Lead
BNSF ROW Sampling East of Loewenthal Metals
Chicago, Cook County, Illinois

Analyses	TACO Exposure Route-Specific Values for Soils			Sample ID, Sample Depth, and Sample Date				
				BNSF Soil Samples				
	Residential	Industrial / Commercial	Construction Worker	A-13	A-14	A-14	A-15	A-15
				2-4'	0-2'	2-4'	0-2'	2-4'
				10/7/2014				
Lead (Total) - mg/kg	400 / NE	800 / NE	700 / NE	212	**4,770 cw**	123	**804 cw**	246
Lead (TCLP) - mg/L	5 mg/L[1]			<0.50	1.5	<0.50	<0.50	<0.50
pH	NA			---	---	---	---	---

Notes: Refer to Page 27 of 27.

Table 1. Soil Analytical Results for Lead
BNSF ROW Sampling East of Loewenthal Metals
Chicago, Cook County, Illinois

Analyses	TACO Exposure Route-Specific Values for Soils			Sample ID, Sample Depth, and Sample Date				
				BNSF Soil Samples				
	Residential	Industrial / Commercial	Construction Worker	A-16	A-16	A-17	A-17	A-18
				0-2'	2-4'	0-2'	2-4'	0-2'
				10/7/2014				
Lead (Total) - mg/kg	400 / NE	800 / NE	700 / NE	**1,650 cw**	399	**637**	**647**	**1,400 cw**
Lead (TCLP) - mg/L	5 mg/L[1]			<0.50	<0.50	1.3	2.2	3.0
pH	NA			---	---	---	---	---

Notes: Refer to Page 27 of 27.

Table 1. Soil Analytical Results for Lead
BNSF ROW Sampling East of Loewenthal Metals
Chicago, Cook County, Illinois

Analyses	TACO Exposure Route-Specific Values for Soils			Sample ID, Sample Depth, and Sample Date				
				BNSF Soil Samples				
	Residential	Industrial / Commercial	Construction Worker	A-18	A-19	A-19	A-20	
				2-4'	0-2'	2-4'	0-2'	Dup-3
				10/7/2014				
Lead (Total) - mg/kg	400 / NE	800 / NE	700 / NE	37.9	**419**	210	**631**	**534**
Lead (TCLP) - mg/L	5 mg/L[1]			<0.50	<0.50	<0.50	<0.50	<0.50
pH	NA			---	---	---	---	---

Notes: Refer to Page 27 of 27.

Table 1. Soil Analytical Results for Lead
BNSF ROW Sampling East of Loewenthal Metals
Chicago, Cook County, Illinois

Analyses	TACO Exposure Route-Specific Values for Soils			Sample ID, Sample Depth, and Sample Date				
				BNSF Soil Samples				
	Residential	Industrial / Commercial	Construction Worker	A-20	A-21	A-21	A-22	A-22
				2-4'	0-2'	2-4'	0-2'	2-4'
				10/7/2014				
Lead (Total) - mg/kg	400 / NE	800 / NE	700 / NE	335	**819 cw**	**463**	**715 cw**	139
Lead (TCLP) - mg/L	5 mg/L[1]			<0.50	<0.50	<0.50	<0.50	<0.50
pH	NA			---	---	---	---	---

Notes: Refer to Page 27 of 27.

Table 1. Soil Analytical Results for Lead
BNSF ROW Sampling East of Loewenthal Metals
Chicago, Cook County, Illinois

Analyses	TACO Exposure Route-Specific Values for Soils			Sample ID, Sample Depth, and Sample Date				
				BNSF Soil Samples				
	Residential	Industrial / Commercial	Construction Worker	A-23	A-23	A-24	A-24	A-25
				0-2'	2-4'	0-2'	2-4'	0-2'
				10/8/2014				
Lead (Total) - mg/kg	400 / NE	800 / NE	700 / NE	**699**	212	**1,320 cw**	**790 cw**	127
Lead (TCLP) - mg/L	5 mg/L[1]			<0.50	<0.50	<0.50	<0.50	<0.50
pH	NA			---	---	---	---	---

Notes: Refer to Page 27 of 27.

Table 1. Soil Analytical Results for Lead
BNSF ROW Sampling East of Loewenthal Metals
Chicago, Cook County, Illinois

Analyses	TACO Exposure Route-Specific Values for Soils			Sample ID, Sample Depth, and Sample Date				
				BNSF Soil Samples				
	Residential	Industrial / Commercial	Construction Worker	A-25	A-26		A-26	A-27
				2-4'	0-2'	Dup-4	2-4'	0-2'
				10/8/2014				
Lead (Total) - mg/kg	400 / NE	800 / NE	700 / NE	185	**639**	**505**	101	**638**
Lead (TCLP) - mg/L	5 mg/L[1]			<0.50	<0.50	<0.50	<0.50	2.0
pH	NA			---	---	---	---	---

Notes: Refer to Page 27 of 27.

Table 1. Soil Analytical Results for Lead
BNSF ROW Sampling East of Loewenthal Metals
Chicago, Cook County, Illinois

Analyses	TACO Exposure Route-Specific Values for Soils			Sample ID, Sample Depth, and Sample Date		
				BNSF Soil Samples		
	Residential	Industrial / Commercial	Construction Worker	A-27	A-28	A-28
				2-4'	0-2'	2-4'
				10/8/2014		
Lead (Total) - mg/kg	400 / NE	800 / NE	700 / NE	288	17.4	305
Lead (TCLP) - mg/L	5 mg/L[1]			<0.50	<0.50	<0.50
pH	NA			---	---	---

Notes: Refer to Page 27 of 27.

Table 1. Soil Analytical Results for Lead
BNSF ROW Sampling East of Loewenthal Metals
Chicago, Cook County, Illinois

Analyses	TACO Exposure Route-Specific Values for Soils			Sample ID, Sample Depth, and Sample Date		
				BNSF Soil Samples		
	Residential	Industrial / Commercial	Construction Worker	A-29		A-29
				0-2'	Dup-6	2-4'
				10/8/2014		
Lead (Total) - mg/kg	400 / NE	800 / NE	700 / NE	**664**	42.3	14.2
Lead (TCLP) - mg/L	5 mg/L[1]			<0.50	<0.50	<0.50
pH	NA			---	---	---

Notes: Refer to Page 27 of 27.

Table 1. Soil Analytical Results for Lead
BNSF ROW Sampling East of Loewenthal Metals
Chicago, Cook County, Illinois

Notes:

Soil depths are measured in feet below ground surface (bgs).

Dup	*Duplicate sample collected and analyzed*
mg/kg	*Milligrams per kilogram*
mg/L	*Milligrams per liter*
NA	*Not applicable.*
NE	*Tier 1 objective not established in TACO*
SRO	*Soil remediation objective*
TACO	*Tiered Approach to Corrective Action Objectives*
TCLP	*Toxicity Characteristic Leaching Procedure*
---	*Not analyzed for parameter*
<0.5	*Analyte/compound not present at concentration above laboratory reporting limit.*
56	*Indicates concentration above the characteristically hazardous waste level (5 mg/L).*
1,000	*Indicates concentration above the most stringent industrial/commercial TACO SRO.*
520	*Indicates concentration above the most stringent residential TACO SRO.*
cw	*Sample result also exceeds the construction worker SRO.*

The TCLP lead results were not compared to the soil component of groundwater ingestion route SRO because the City of Chicago has a groundwater ordinance.

[1] *According to 40 CFR Part 261, the USEPA's Identification and Listing of Hazardous Waste, TCLP lead samples with concentrations greater than 5 mg/L will be classified as hazardous waste.*

The soil borings for the LM-series samples were advanced by TRC and provided to the US EPA's consultant immediately upon advancement. As such, the analytical soil sampling depths and intervals were decided by the US EPA's consultant.

The US EPA samples were also analyzed for additional parameters; however, this data is not included in this summary table. Refer to the laboratory report in Appendix A for this information.

Table 2. Additional Soil Analytical Results
BNSF ROW Sampling East of Loewenthal Metals
Chicago, Cook County, Illinois

Analyses	Exposure Route-Specific Values for Soils[1]			TACO Soil Background Levels[2]	Sample ID, Sample Depth, and Sample Date					
	Residential	Industrial / Commercial	Construction Worker		GP-1	GP-1	GP-2	GP-2	GP-3	GP-3
					0-2'	2-4'	0-2'	2-4'	0-2'	2-4'
					6/21/2013					
PAHs (mg/kg)	**Ing / Inh**	**Ing / Inh**	**Ing / Inh**	**City of Chicago**						
Acenaphthene	**4,700** / NE	120,000 / NE	120,000 / NE	See note 2 below	0.461	< 0.0408	0.114	0.0459	0.741	0.0394
Acenaphthylene[3]	**2,300** / NE	61,000 / NE	61,000 / NE		0.379	0.0476	0.160	0.101	0.860	0.148
Anthracene	**23,000** / NE	610,000 / NE	610,000 / NE		1.7	0.0879	0.488	0.223	4.17	0.162
Benzo(a)anthracene	**0.9** / NE	**8** / NE	170 / NE		**7.38**	0.324	**2.02**	0.787	**18.0**	1.74
Benzo(a)pyrene	0.09 / NE	0.8 / NE	17 / NE	**1.3**	**6.81**	0.282	**1.53**	0.683	**15.6**	**1.50**
Benzo(b)fluoranthene	**0.9** / NE	**8** / NE	170 / NE	Background value less than most stringent TACO SRO, as such these values not shown. [2]	**12.1**	0.602	**3.66**	**1.50**	**32.9**	**2.60**
Benzo(g,h,i)perylene[3]	**2,300** / NE	61,000 / NE	61,000 / NE		3.37	0.107	0.517	0.261	5.49	0.447
Benzo(k)fluoranthene	**9** / NE	78 / NE	1,700 / NE		< 0.0402	< 0.0408	< 0.0752	< 0.041	< 0.429	0.0394
Chrysene	**88** / NE	780 / NE	17,000 / NE		6.72	0.341	2.00	0.868	16.9	1.73
Dibenzo(a,h)anthracene	**0.09** / NE	**0.8** / NE	17 / NE		**1.11**	< 0.0408	0.231	0.0841	**1.74**	0.135
Fluoranthene	**3,100** / NE	82,000 / NE	82,000 / NE		12.2	0.589	4.05	1.43	37.2	1.67
Fluorene	**3,100** / NE	82,000 / NE	82,000 / NE		0.432	< 0.0408	0.111	0.0491	0.998	0.0394
Indeno(1,2,3-cd)pyrene	**0.9** / NE	**8** / NE	170 / NE		**3.12**	0.115	0.545	0.252	**5.42**	0.391
Naphthalene	1,600 / NE	41,000 / 270	4,100 / **1.8**		0.588	0.148	0.301	0.278	0.902	0.155
Phenanthrene[3]	**2,300** / NE	61,000 / NE	61,000 / NE		6.17	0.454	2.12	1.11	16.7	0.393
Pyrene	**2,300** / NE	61,000 / NE	61,000 / NE		8.35	0.486	2.80	1.05	25.6	3.06
Metals (mg/kg)										
Arsenic	**13.0** / 750	**13.0** / 1,200	61 / 25,000	**13.0**	**125**	12.7	**107**	**39.0**	**39.8**	**15.0**
Barium	**5,550** / 690,000	140,000 / 910,000	14,000 / 870,000	See note 2 above	246	105	402	365	669	90.9
Cadmium	**78** / 1,800	2,000 / 2,800	200 / 59,000		6.5	2.0	4.9	3.1	8.2	85.0
Chromium	**230** / 270	6,100 / 420	4,100 / 690		28.1	10.6	25.2	20.3	26.9	15.6
Copper	**2,900** / NE	82,000 / NE	8,200 / NE		347	60.2	324	256	409	64.9
Lead (Total)	400 / NE	800 / NE	700 / NE		**1,040**	109	**1,220**	**1,130**	**3,190**	169
Manganese	**1,600** / 69,000	41,000 / 91,000	4,100 / 8,700	**636**	397	156	400	294	396	348
Mercury [4]	23 / **10**	610 / 16	61 / 0.1	See note 2 above	1.8	0.94	0.86	0.47	0.69	0.36
Selenium	**390** / NE	10,000 / NE	1,000 / NE		1.9	< 1.8	< 1.7	< 1.8	2.2	< 3.5
Silver	**390** / NE	10,000 / NE	1,000 / NE		< 0.83	< 0.82	< 0.81	< 0.83	0.92	< 0.81
Zinc	**23,000** / NE	610,000 / NE	61,000 / NE		1,810	639	1,880	923	1,760	8,740
TCLP Lead (mg/L)										
Lead (TCLP)	5 mg/L[5]			NE	< 0.50	< 0.50	< 0.50	< 0.50	**49.8**	< 0.50
pH					7.4	6.5	7.7	7.5	7.3	7.0

Notes: Refer to page 2 of 2

Table 2. Additional Soil Analytical Results
BNSF ROW Sampling East of Loewenthal Metals
Chicago, Cook County, Illinois

Notes:

	Soil depths are measured in feet below ground surface (bgs).
Ing	*Ingestion*
Inh	*Inhalation*
mg/kg	*Milligrams per kilogram*
mg/L	*Milligrams per liter*
NE	*Tier 1 objective not established in TACO*
TACO	*Tiered Approach to Corrective Action Objectives*
TCLP	*Toxicity Characteristic Leaching Procedure*
SROs	*Soil remediation objectives*
PAHs	*Polynuclear aromatic hydrocarbons. Soil samples were collected and analyzed for PAHs using USEPA Methods 3546, 8310 and 8270 by Selected Ion Monitoring.*
<0.83	*Analyte/compound not present at concentration above laboratory reporting limit.*
<0.50	*Laboratory reporting limit is above most stringent Tier 1 SRO.*
1.9	*Indicates detected concentration above the most stringent TACO residential Tier 1 SRO.*
6.7	*Indicates detected concentration above the most stringent TACO industrial/commercial Tier 1 SRO.*
49.8	*Indicates concentration above the characteristically hazardous waste level (5 mg/L).*

[1] *Bolded remediation objective is the most stringent of the TACO Tier 1 remediation objectives for the soil ingestion, background and/or inhalation for residential and/or industrial/commercial properties.*

[2] *The values listed are the established background concentrations for background soils for sites in Chicago, IL (35 IAC 742, Appendix A, Table H). Background values less than most stringent TACO SRO are not shown.*

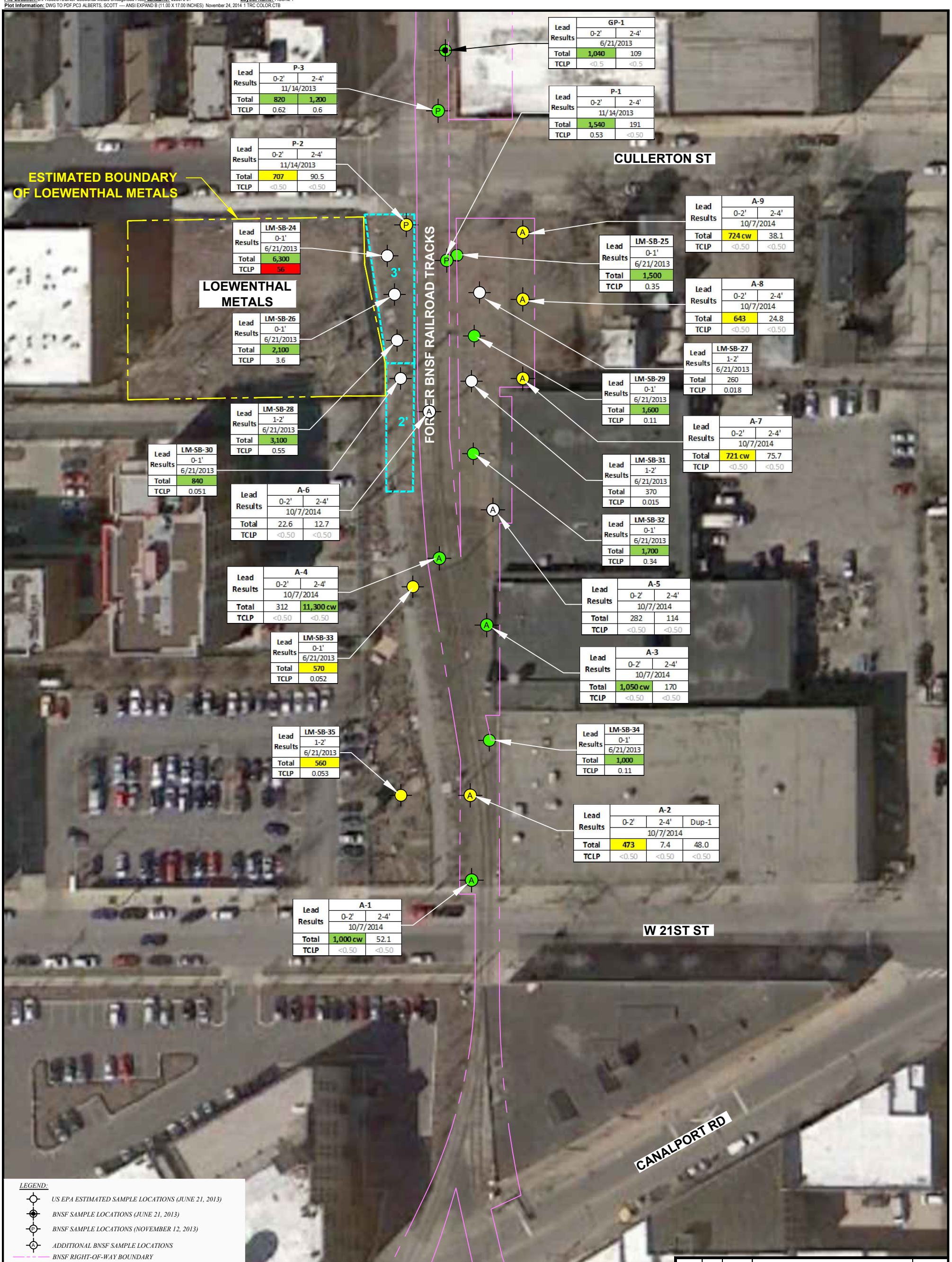
[3] *Analyte/compound is not included as a TACO Tier 1 objective. Suggested values are taken from the IEPA's "Non-TACO Chemicals" (03/14/2011).*

[4] *The inhalation SRO only applies at sites where elemental mercury is a contaminant of concern. TACO Table A, Appendix B, Footnote S.*

[5] *TACO Tier 1 SROs for soil ingestion and inhalation are not applicable to TCLP Lead. According to 40 CFR Part 261, the USEPA's Identification and Listing of Hazardous Waste, TCLP lead samples with concentrations greater than 5 mg/L will be classified as hazardous waste.*

Figures

File Location: S:\PROJECTS\BNSF\Loewental Metals Chicago\Cad Files\225578 File Name: 225578-01 Layout Name: FIGURE 1
Plot Information: DWG TO PDF.PC3 ALBERTS, SCOTT ---- ANSI EXPAND B (11.00 X 17.00 INCHES) November 24, 2014 1 TRC COLOR.CTB



Lead Results	P-3	
	0-2'	2-4'
	11/14/2013	
Total	820	1,200
TCLP	0.62	0.6

Lead Results	P-2	
	0-2'	2-4'
	11/14/2013	
Total	707	90.5
TCLP	<0.50	<0.50

Lead Results	LM-SB-24
	0-1'
	6/21/2013
Total	6,300
TCLP	56

Lead Results	LM-SB-26
	0-1'
	6/21/2013
Total	2,100
TCLP	3.6

Lead Results	LM-SB-28
	1-2'
	6/21/2013
Total	3,100
TCLP	0.55

Lead Results	LM-SB-30
	0-1'
	6/21/2013
Total	840
TCLP	0.051

Lead Results	A-6	
	0-2'	2-4'
	10/7/2014	
Total	22.6	12.7
TCLP	<0.50	<0.50

Lead Results	A-4	
	0-2'	2-4'
	10/7/2014	
Total	312	11,300 cw
TCLP	<0.50	<0.50

Lead Results	LM-SB-33
	0-1'
	6/21/2013
Total	570
TCLP	0.052

Lead Results	LM-SB-35
	1-2'
	6/21/2013
Total	560
TCLP	0.053

Lead Results	A-1	
	0-2'	2-4'
	10/7/2014	
Total	1,000 cw	52.1
TCLP	<0.50	<0.50

Lead Results	GP-1	
	0-2'	2-4'
	6/21/2013	
Total	1,040	109
TCLP	<0.5	<0.5

Lead Results	P-1	
	0-2'	2-4'
	11/14/2013	
Total	1,540	191
TCLP	0.53	<0.50

Lead Results	A-9	
	0-2'	2-4'
	10/7/2014	
Total	724 cw	38.1
TCLP	<0.50	<0.50

Lead Results	LM-SB-25
	0-1'
	6/21/2013
Total	1,500
TCLP	0.35

Lead Results	A-8	
	0-2'	2-4'
	10/7/2014	
Total	643	24.8
TCLP	<0.50	<0.50

Lead Results	LM-SB-27
	1-2'
	6/21/2013
Total	260
TCLP	0.018

Lead Results	LM-SB-29
	0-1'
	6/21/2013
Total	1,600
TCLP	0.11

Lead Results	A-7	
	0-2'	2-4'
	10/7/2014	
Total	721 cw	75.7
TCLP	<0.50	<0.50

Lead Results	LM-SB-31
	1-2'
	6/21/2013
Total	370
TCLP	0.015

Lead Results	LM-SB-32
	0-1'
	6/21/2013
Total	1,700
TCLP	0.34

Lead Results	A-5	
	0-2'	2-4'
	10/7/2014	
Total	282	114
TCLP	<0.50	<0.50

Lead Results	A-3	
	0-2'	2-4'
	10/7/2014	
Total	1,050 cw	170
TCLP	<0.50	<0.50

Lead Results	LM-SB-34
	0-1'
	6/21/2013
Total	1,000
TCLP	0.11

Lead Results	A-2		
	0-2'	2-4'	Dup-1
	10/7/2014		
Total	473	7.4	48.0
TCLP	<0.50	<0.50	<0.50

LEGEND:

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- *BNSF RIGHT-OF-WAY BOUNDARY*
- *CITY OF CHICAGO EXCAVATION AREA (WITH DEPTH)*

Soil depths are measured in feet below ground surface (bgs).

mg/L	*Milligrams per liter*
mg/kg	*Milligrams per kilogram*
TACO	*Tiered Approach to Corrective Action Objectives*
SRO	*Soil remediation objective*
TCLP	*Toxicity characteristic leaching procedure*
<	*Less than*
Dup	*Duplicate*
56	*Indicates concentration above the characteristically hazardous waste level (5 mg/L).*
1,000	*Indicates concentration above the most stringent industrial/commercial TACO SRO.*
520	*Indicates concentration above the most stringent residential TACO SRO.*

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SOURCE NOTE: AERIAL IMAGERY FROM GOOGLE EARTH AERIAL IMAGERY

0 30 60 120

SCALE IN FEET
1" = 60'

NO.	BY	DATE	REVISION	APP'D.
3.				
2.				
1.				

PROJECT:
BNSF
RIGHT-OF-WAY SAMPLING EAST OF LOEWENTHAL METALS
CHICAGO, COOK COUNTY, ILLINOIS

SHEET TITLE:
SAMPLING MAP
WEST 21ST STREET TO CULLERTON STREET

DRAWN BY:	S.ALBERTS	SCALE: AS NOTED	PROJ. NO. 225578.0000
CHECKED BY:	L.MEAGHER		FILE NO. 225578-01.dwg
APPROVED BY:	L.MEAGHER	DATE PRINTED:	**Figure 1**
DATE:	12/09/2013		

TRC
230 West Monroe St.
Suite 2300
Chicago, IL 60606
Phone: 312.578.0870

File Location: S:\PROJECTS\BNSF\Loewental Metals Chicago\Cad Files\Fig 2\225578-01 **Layout Name:** FIGURE 2
Plot Information: DWG TO PDF.PC3 ALBERTS, SCOTT ---- ANSI EXPAND B (11.00 X 17.00 INCHES) November 24, 2014 1 TRC COLOR.CTB

Lead Results	P-21	
	0-2'	2-4'
	11/14/2013	
Total	24.5	72.2
TCLP	<0.5	<0.5

Lead Results	P-20	
	0-2'	2-4'
	11/14/2013	
Total	163	214
TCLP	<0.5	<0.5

Lead Results	P-19	
	0-2'	2-4'
	11/14/2013	
Total	3,180	168
TCLP	13.6	<0.5

Lead Results	A-26		
	0-2'	Dup-4	2-4'
	10/8/2014		
Total	639	505	101
TCLP	<0.50	<0.50	<0.50

Lead Results	A-27	
	0-2'	2-4'
	10/8/2014	
Total	638	288
TCLP	2.0	<0.50

Lead Results	A-25	
	0-2'	2-4'
	10/8/2014	
Total	127	185
TCLP	<0.50	<0.50

Lead Results	A-28	
	0-2'	2-4'
	10/8/2014	
Total	17.4	305
TCLP	<0.50	<0.50

Lead Results	A-24	
	0-2'	2-4'
	10/8/2014	
Total	1,320 cw	790 cw
TCLP	<0.50	<0.50

Lead Results	P-17	
	0-2'	2-4'
	11/14/2013	
Total	1,370	143
TCLP	<0.5	<0.5

Lead Results	P-18	
	0-2'	2-4'
	11/14/2013	
Total	417	201
TCLP	<0.5	<0.5

Lead Results	A-23	
	0-2'	2-4'
	10/8/2014	
Total	699	212
TCLP	<0.50	<0.50

Lead Results	A-21	
	0-2'	2-4'
	10/7/2014	
Total	819 cw	463
TCLP	<0.50	<0.50

Lead Results	A-22	
	0-2'	2-4'
	10/7/2014	
Total	715 cw	139
TCLP	<0.50	<0.50

Lead Results	P-16	
	0-2'	2-4'
	11/14/2013	
Total	2,210	107
TCLP	1.7	<0.5

Lead Results	A-20		
	0-2'	Dup-3	2-4'
	10/7/2014		
Total	631	534	335
TCLP	<0.50	<0.50	<0.50

Lead Results	P-15	
	0-2'	2-4'
	11/14/2013	
Total	834	288
TCLP	0.53	<0.5

Lead Results	P-14		
	0-2'	0-2' Dup 3	2-4'
	11/14/2013		
Total	1,100	1,010	309
TCLP	<0.5	0.6	<0.5

Lead Results	A-19	
	0-2'	2-4'
	10/7/2014	
Total	419	210
TCLP	<0.50	<0.50

Lead Results	P-13	
	0-2'	2-4'
	11/14/2013	
Total	343	86.9
TCLP	1.8	<0.5

Lead Results	P-12	
	0-2'	2-4'
	11/14/2013	
Total	1,280	216
TCLP	0.51	<0.5

FORMER BNSF RAILROAD TRACKS

W 19TH ST

Lead Results	P-11	
	0-2'	2-4'
	11/14/2013	
Total	661	115
TCLP	<0.5	<0.5

Lead Results	A-18	
	0-2'	2-4'
	10/7/2014	
Total	1,400 cw	37.9
TCLP	3.0	<0.50

Lead Results	P-9	
	0-2'	2-4'
	11/14/2013	
Total	2,460	1,040
TCLP	1.1	0.74

Lead Results	GP-3	
	0-2'	2-4'
	6/21/2013	6/21/2013
Total	3,190	169
TCLP	49.8	<0.5

Lead Results	P-8		
	0-2'	0-2' Dup 4	2-4'
	11/14/2013		
Total	981	950	144
TCLP	1.6	0.98	<0.5

Lead Results	P-10	
	0-2'	2-4'
	11/14/2013	
Total	1,320	275
TCLP	0.64	<0.5

Lead Results	A-17	
	0-2'	2-4'
	10/7/2014	
Total	637	647
TCLP	1.3	2.2

Lead Results	P-6	
	0-2'	2-4'
	11/14/2013	
Total	120	4,960
TCLP	1.9	<0.50

Lead Results	P-7	
	0-2'	2-4'
	11/14/2013	
Total	2,620	353
TCLP	4.4	<0.5

Lead Results	A-14	
	0-2'	2-4'
	10/7/2014	
Total	4,770 cw	123
TCLP	1.5	<0.50

Lead Results	A-15	
	0-2'	2-4'
	10/7/2014	
Total	804 cw	246
TCLP	<0.50	<0.50

Lead Results	P-5	
	0-2'	2-4'
	11/14/2013	
Total	5,010	572
TCLP	8	<0.50

Lead Results	A-13	
	0-2'	2-4'
	10/7/2014	
Total	2,330 cw	212
TCLP	1.0	<0.50

Lead Results	A-16	
	0-2'	2-4'
	10/7/2014	
Total	1,650 cw	399
TCLP	<0.50	<0.50

Lead Results	A-12		
	0-2'	2-4'	Dup-2
	10/7/2014		
Total	377	183	255
TCLP	<0.50	<0.50	<0.50

SANGAMON ST

Lead Results	A-11	
	0-2'	2-4'
	10/7/2014	
Total	115	25.1
TCLP	<0.50	<0.50

Lead Results	GP-2	
	0-2'	2-4'
	6/21/2013	
Total	1,220	1,130
TCLP	<0.5	<0.5

Lead Results	A-10	
	0-2'	2-4'
	10/7/2014	
Total	165	167
TCLP	<0.50	<0.50

Lead Results	P-4	
	0-2'	2-4'
	11/14/2013	
Total	1,350	749
TCLP	1.3	<0.50

Lead Results	GP-1	
	0-2'	2-4'
	6/21/2013	
Total	1,040	109
TCLP	<0.5	<0.5

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