APPENDIX G – CARNOW, CONIBER & ASSOC., LTD., RESPONSE TO IEPA COMMENTS LETTER, JANUARY 30, 2024

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CARNOW CONIBEAR

January 30, 2024

Mr. Todd Hall
Bureau of Land
Illinois Environmental Protection Agency
1021 North Grand Avenue East
P.O. Box 19276
Springfield, Illinois 62794

Re: Response to IEPA Comments
0316275397/Cook County
Chicago/Resilient Corridor Fifth Avenue Eco Orchard – South Parcel
Site Remediation Program/Technical Reports

Dear Mr. Hall:

Carnow, Conibear & Assoc., Ltd. (Carnow Conibear) is providing a response to Illinois Environmental Protection Agency (IEPA) comments regarding the above referenced Remediation Site. A *Comprehensive Site Investigation Report/Remediation Objectives Report* (CSIR/ROR) was prepared by Brecheisen Engineering Inc. (BEI) on July 23, 2019. The BEI report was conditionally approved by the IEPA in a letter dated October 17, 2019.

IEPA comments are provided below in bold italics, followed by Carnow Conibear's response/proposal in normal type:

1. ***Please clarify the acreage of the Site, as the DRM-1 states 0.33 acres while the report states 0.27 acres.***

The CSI/ROR completed by BEI stated that the Remediation Site consisted of two (2) contiguous parcels totaling approximately 0.27-acres for Parcel Index Numbers (PINs) 16-13-115-010 and 16-13-115-011. PIN, 16-13-115-009 is being added to the Remediation Site. The Remediation Site now consists of 0.33-acres.

2. ***Section 1.6 mentions an additional parcel being acquired and added to the Remediation Site. If so, additional figures and investigation and/or subsequent sampling may be necessary.***

<u>Supplemental CSIR</u>

Carnow Conibear advanced soil borings on September 11th, October 31st, and December 8th, 2023, to comprehensively investigate the additional parcel associated with PIN 16-13-115-009. In addition, one two-inch permanent well was installed to further delineate the groundwater data collected in the previous CSIR. The Remediation Site location is illustrated on **Exhibit I**. All soil and groundwater boring locations are illustrated on **Exhibit II**. Details regarding the September-December 2023 soil and groundwater investigation activities are discussed in the following sections.

September, October, and December 2023 Soil Investigations

On September 11th, 2023 Earth Solutions of St. Charles, Illinois installed one-two inch permanent monitoring well; on October 31st, 2023, Carnow Conibear performed hand augering to 7 feet bgs in order to collect two additional soil samples for total petroleum hydrocarbon (TPH) analysis; and on December 8th, 2023 Carnow Conibear retained Envirodynamics of Hebron, Indiana to advance three soil borings on PIN 16-13-115-009 of the Remediation Site. Weather during the September investigation consisted of cloudy skies with rain and a temperature of approximately 70 degrees °F; the October investigation consisted of partly cloudy skies and a temperature of approximately 60 degrees °F; and the December investigation consisted of partly cloudy skies and a temperature of approximately 40 degrees °F. Borings were positioned to avoid known utilities, as achievable based upon the positioning of the drilling equipment and at locations which would provide coverage necessary to delineate previous exceedances and investigate PIN 16-13-115-009. A total of three soil borings (B-111, B-112, and B-113) were advanced on the additional PIN to depths of 15 ft. below ground surface (bgs).

Soil borings B-111, B-112, and B-113 were advanced utilizing a track-mounted Geoprobe® system. The Geoprobe® system utilizes disposable acetate liners within sampling tubes. The sampling tubes were decontaminated prior to each use with an Alconox®/water solution and were then rinsed with distilled water. The disposable liners within the sampling tube were discarded after a single use. Soil samples were collected by hydraulically advancing the sampling tube (with acetate liner) into the subsurface. Soil samples were continuously collected to the terminus of the boring. All cuttings generated during the soil boring activities were returned to the open borehole at the conclusion of the drilling activities. Any remaining void space was backfilled to grade using bentonite pellets.

Carnow Conibear's field representatives supervised the drilling operation and collected, inspected, and logged all samples. The soil samples were inspected for visible signs of contamination and were classified in terms of texture, color, and consistency in accordance with the Unified Soil Classification System (USCS). Soil boring logs can be viewed in **Attachment A**.

Samples were collected for field screening at 2-foot intervals and placed in sealable plastic bags. Once the bag was sealed, soils within the bag were disturbed and allowed to warm for a period of approximately three to five minutes to allow headspace to develop. The field screening was performed using a photoionization detector (PID) to conduct headspace analysis, which provides a qualitative measurement of volatile organic compounds (VOCs) in the soil sample. The PID was calibrated prior to its initial usage. No elevated PID readings were observed during the September, October, and December 2023 soil investigations.

September and December 2023 Groundwater Investigation

One permanent 2-inch diameter monitoring well was installed via rotary auger to a depth of 15.0 feet bgs on the conditionally approved portion of the Remediation Site on September 11th, 2023. The well was installed to acquire an in-situ hydraulic conductivity value and to collect an additional groundwater sample. The well was given the identification MW-114 and its location can be viewed in **Exhibit II**. A Solinist water level meter was utilized to determine groundwater elevation before MW-114 was developed and then purged by removing 3 well volumes on December 6th, 2023. MW-114 was allowed to return to static water level and one groundwater

sample was collected on December 6th, 2023. On October 11th, 2023, Carnow Conibear collected data from an in-situ hydraulic conductivity test. A falling head slug test was performed and a value of 3.16 $x10^{-5}$ cm/sec was calculated.

Groundwater Evaluation

In order to determine the groundwater gradient, data from the CSIR/ROR dated July 23rd, 2019 was utilized. **Table A**, below, provides a summary of the previous groundwater survey results.

Table A – Groundwater Elevations Collected by BEI on 12/19/2018

Monitoring Well	Top of Casing Elevation	Depth to Groundwater	Groundwater Elevation
(BEI) TMW-1	100.26	7.57	92.69
(BEI) TMW-2	100.18	6.73	93.45
(BEI) TMW-3	100.88	10.99	89.89
(BEI) TMW-4	100.55	7.52	93.03

Notes: 1. Each well was surveyed relative to the same arbitrary site datum of 100.00 feet.
2. All values given in feet.

Based on the survey data, groundwater flow is to the northeast. Based on data from the CSI/ROR dated July 23rd , 2019, groundwater on the Remediation Site has also been classified as Class II groundwater. Groundwater gradient and flow direction calculations, hydraulic conductivity calculations, Tier II calculations, and groundwater modeling results can be viewed in **Attachment B**.

Sampling Procedures & Analytical Methods

Carnow Conibear submitted eight soil samples and one groundwater sample for laboratory analysis. Carnow Conibear utilized Sterling Labs, an IEPA accredited laboratory.

Soil Samples

The portion of each soil sample analyzed for VOCs was collected first with a Terra Core® sampler and placed into three 40 milliliter (ml) vials (one with methanol as preservative and two with sodium bisulfate as preservative) and immediately placed in a cooler with ice. The sample portion analyzed for additional constituents was then transferred to a nine-ounce glass jar with a Teflon® lid and stored in a cooler with ice. Subsurface samples were collected from above the observed groundwater level. A portion of each 2-foot sample depth interval was placed into a resealable plastic bag for headspace screening with the PID as described above. All containers were precleaned to EPA standards and sealed with Teflon® lined plastic screw-on lids. Soil samples were analyzed by the following procedures:

- VOCs utilizing EPA Method 5035/8260B;
- Semi volatile organic compounds (SVOCs) and Polynuclear Aromatics (PNAs) utilizing EPA Method 8270C(3550B);
- Inorganics utilizing EPA Methods 6020A(3050B)/7471B (mercury)/9012A (cyanide);
- Polychlorinated Biphenyls (PCBs) utilizing EPA Method 8082A(3550B);
- Pesticides utilizing EPA Method 8081B(3550B);

- Herbicides utilizing EPA Method 8321B(3550B);
- Total Petroleum Hydrocarbons (TPH) utilizing EPA Method 8015M(3580A);
- Synthetic Precipitation Leaching Procedure (SPLP) and Toxicity Characteristic Leaching Procedure (TCLP) Metals utilizing EPA Methods 1312(6020A)/1311(6020A)/3005A/1312(7470A);
- TCLP Pesticides utilizing EPA Method 1311/8081B(3510C); and
- pH utilizing EPA Method 9045C.

The soil analytical results can be found in **Tables II – X** and laboratory reports can be found in **Attachment C**.

Groundwater Samples

Prior to collection of the groundwater sample, three well volumes were removed, and the monitoring well was allowed to recharge to its static level. All containers were precleaned to EPA standards and sealed with Teflon® lined plastic screw-on lids. Groundwater samples were collected in the following containers and analyzed by the following procedures:

- 40-ml vials preserved with hydrochloric acid for VOCs utilizing EPA Method 8260B;
- 500-ml plastic bottle preserved with nitric acid for Inorganics utilizing EPA Method 6020A(3005A), mercury utilizing EPA Method 7470A, cyanide utilizing EPA Method 9012A; and
- 2-liter amber glass bottles for SVOCs utilizing EPA Method 8270C-SIM(3510C), 8270C, pesticides utilizing EPA Method 8081B(3510C), and PCBs utilizing EPA Method 8082A(3510C).

Tables XI- XV present the analytical results for the groundwater samples. Laboratory analytical reports can be found in **Attachment C**.

Soil Sample Handling

Each soil sample was labeled with a unique identification number as it was collected during the investigation activities. The sample identification numbers consisted of the boring/well number, as applicable. Each container was labeled at the time of sampling with the following information using indelible ink:

- Project/site name;
- Date of collection;
- Sample location and depth;
- Sample times; and
- Name of sample collector.

All soil and groundwater samples were maintained in a cooler with ice for transport to the laboratory. A chain of custody form was prepared for the samples. The chain of custody form was signed and dated by Carnow Conibear's sampler and representative delivering the samples, as well as the laboratory representative who received the samples.

The soil profile encountered at the Remediation Site generally consisted of fill material comprised of crushed stone and brick within a brown clayey sandy gravel matrix to depths of about 7 to 8 feet bgs. Beneath the fill layer, native silty clay with trace fine gravel was found to a

depth of 15 feet bgs, the maximum depth explored. Native soils encountered at the Remediation Site are generally consistent with the silty clay soil types in the published geological information.

Soil Sample Analytical Results

The July 23rd, 2019 CSIR/ROR identified exceedances of Tier 1 Site Remediation Objectives (SROs) for PNAs and metals across the entire Remediation Site. The soil assessment conducted by Carnow Conibear identified additional exceedances of applicable Tier 1 SROs for PNAs and/or metals in soils throughout the majority of the Remediation Site for the residential soil ingestion, construction worker ingestion, construction worker inhalation, and/or Class II soil component of the groundwater ingestion exposure routes. Carbazole was the only additional contaminant of concern (COCs) identified within the additional PIN that was not previously identified in the July 23, 2019 CSIR/ROR. Cadmium and selenium were not identified as COCs within the additional PIN that were identified in the previous CSIR/ROR. Cadmium was identified in SB-3 (3-6) and selenium was identified in SB-1 (0-3) for the Class II soil component of groundwater ingestion exposure route. Carbazole was identified in B-112 (1-3) in exceedance of the Class II Tier 1 SRO for the soil component of groundwater ingestion exposure route only.

Based on Section 5.3 of the approved CSIR/ROR from July 2019, the groundwater beneath the Site does not meet the definition of Class I Potable Resource Groundwater. Therefore, the soil migration to Class I groundwater and the Class I groundwater direct ingestion exposure pathways can be eliminated from further consideration.

The previous assessment identified exceedances of Tier 1 SROs for PNAs and metals across the entire Site. The soil assessment conducted by BEI identified exceedances of applicable Tier 1 SROs for PNAs and/or metals in soils throughout the Remediation Site for the residential soil ingestion, construction worker ingestion, construction worker inhalation, and/or soil component of Class II groundwater ingestion exposure routes. Assessment of the additional PIN identified similar exceedances of Tier 1 SROs for PNAs and metals for the residential soil ingestion, construction worker ingestion, construction worker inhalation, and/or soil component of Class II groundwater ingestion exposure routes with the addition of carbazole for the soil component of Class II groundwater ingestion exposure route.

See **Tables II-X** for soil analytical results and **Exhibits III-VI** for amended COC plumes by exposure route based on these findings.

95th Percentile PNA Background Levels for the City of Chicago

Carnow Conibear understands that the IEPA has recently allowed the use of updated/corrected 95th percentile background concentrations for PNAs in Chicago that may be used in place of the current published Chicago background concentrations listed in 35 IAC 742, Appendix A, Table H. A memorandum from IEPA authorizing usage of these new background values is presented in **Attachment D**. Therefore, all references to Chicago background concentrations for PNAs within this report have been replaced with the new 95th percentile background concentrations provided by IEPA in **Attachment D**.

Tier 3 Evaluation

Carnow Conibear understands that the IEPA has recently allowed the use of updated/corrected background concentrations for certain inorganics in Chicago in accordance with 35 IAC

742.405(b)(2) that may be used in place of the current published Chicago background concentrations listed in 35 IAC 742, Appendix A, Table G. Carnow Conibear also understands that the use of these new/corrected background values is acceptable under a Tier 3 "Impractical Remediation" Evaluation (pursuant to 35 IAG Section 742.920) since it is considered impractical to remediate inorganics to levels below their background concentrations. Therefore, it is herein proposed that the updated/corrected Chicago background concentrations be used in place of the default Tier 1 SROs and original background values listed in 35 IAC 742, Appendix A, Table G for the residential soil ingestion exposure route.

As indicated in 35 IAC Section 742.920, "any request for site-specific remediation objectives due to impracticality of remediation shall be submitted to the Agency for review and approval." The discussion below and tables, exhibits, and details throughout this report addresses each of the elements of an impractical remediation evaluation under Tier 3, as set forth in Section 742.920.

- The reasons why the remediation is impractical;

According to correspondence with the IEPA attached in **Attachment D**, the corrected values are the 95th parametric percentile values determined by statistical analysis that were originally intended to be listed as the Chicago background concentrations in 2007. The Chicago background concentrations that are currently listed in Appendix A, Table G, were erroneously published at the 60th percentile, and will be updated to the corrected values at the 95th percentile when the Part 742 regulations are updated in the future.

Inorganics – Soil Component of Class II Groundwater Ingestion

To evaluate inorganic constituents for the soil component of groundwater ingestion (SCGW) exposure route, total concentrations of these analytes were compared to pH-Specific Tier 1 SROs for Class II groundwater. IEPA 95th percentile background concentrations provided by the IEPA were applied for constituents in which no pH-Specific Tier 1 SROs were provided. All references to Chicago background concentrations for inorganics within this report have been replaced with the new 95th percentile background concentrations provided by IEPA in **Attachment D**. If the concentration of these analytes exceeded the background concentration, they were compared to pH-Specific Tier 1 SROs for Class II groundwater.

> Calcium, magnesium, potassium, and sodium are considered nutrients and therefore are not considered COCs for the Remediation Site. To evaluate each remaining metal for the soil component of groundwater ingestion exposure route, SPLP and/or TCLP analysis was performed on the samples which exhibited total concentrations above the Class II SCGW RO's. Results showed that the SPLP and/or TCLP for all metal exceedances were below the applicable Tier 1 GROs for the Class II soil component of groundwater ingestion exposure route. **Table B,** below, lists the COCs and respective exposure routes that were exceeded within soil samples collected during all previous soil investigations at the Remediation Site.

Table B – Summary of COCs Exceeding Tier 1 SROs

Boring	Depth	Exposure Routes			
		Class II SCGW	Ingestion		Outdoor Inhalation
			Residential	CW	CW
SB-1	0-3	Selenium	Lead	Lead	Mercury
SB-2	3-6	Mercury	Dibenzo(a,h)anthracene, Lead		Mercury
SB-3	3-6	Cadmium, Mercury			Mercury
	6-9				
SB-4	0-3	Benz(a)anthracene, Benzo(b)fluoranthene, Dibenzo(a,h)anthracene, Lead	Benz(a)anthracene, Benzo(a)pyrene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Dibenzo(a,h)anthracene,.Indeno(1,2,3-c,d)pyrene, Arsenic, Lead	Benzo(a)pyrene, Lead	Mercury
	3-6		Dibenzo(a,h)anthracene		
SB-5	0-3		Dibenzo(a,h)anthracene		Mercury
SB-6	3-6		Lead		Mercury
SB-7	0-3				Mercury
	6-9		Arsenic		
SB-8	6-9				Mercury
	9-12	Lead, Mercury			Mercury
SB-9	0-3		Arsenic, Lead	Lead	Mercury
	3-6		Arsenic		
SB-10	0-3		Lead		Mercury
	3-6	Benz(a)anthracene, Benzo(b)fluoranthene	Benz(a)anthracene, Benzo(a)pyrene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Indeno(1,2,3-c,d)pyrene, Lead	Benzo(a)pyrene, Lead	Naphthalene, Mercury
B-111	1-3				Mercury
B-112	1-3	Benz(a)anthracene, Carbazole	Benz(a)anthracene, Benzo(a)pyrene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Dibenzo(a,h)anthracene, Indeno(1,2,3-c,d)pyrene, Arsenic, Lead	Benzo(a)pyrene, Lead	Naphthalene, Mercury

Notes: 1. All depths are given in feet below ground surface (bgs).
2. Class II SCGW = Soil Component of Class II Groundwater Ingestion Scenario pursuant to 35 IAC 742.
3. Residential = Residential Scenario pursuant to 35 IAC 742.
4. CW = Construction worker Scenario pursuant to 35 IAC 742.

The SCGW exceedances of benz(a)anthracene, benzo(b)fluoranthene, dibenzo(a,h)anthracene, selenium, mercury, cadmium, and lead were not modeled in the conditionally approved July 2019 CSI/ROR submitted by BEI. Additionally, carbazole was identified as a new COC in the 2023 investigations. Modeling of the 2019 SCGW exceedances along with the 2023 SCGW exceedances were performed by Carnow Conibear and may be referenced in **Attachment B**.

Groundwater Sample Analytical Results

The previous assessment collected multiple groundwater samples from temporary wells located on the Remediation Site; however, additional Target Compound List (TCL) analysis was requested by the IEPA to supplement the previous data. Carnow Conibear collected one additional groundwater sample from a permanent monitoring well located within the conditionally approved portion of the Remediation Site and analyzed for the full TCL. Iron was identified as the only direct ingestion Tier 1 GRO exceedance for Class II groundwater in the groundwater sample. See **Tables XI-XV** for groundwater results and **Attachment C** for the laboratory reports.

Updated Remedial Objectives Information

The CSI identified the following exposure routes of concern at the Remediation Site:

- Residential soil ingestion;
- Construction worker soil ingestion;
- Construction worker outdoor soil inhalation;
- SCGW for Class II groundwater; and
- Groundwater direction ingestion for Class II groundwater.

Prior to elimination of any exposure pathways at the Remediation Site, the minimum requirements outlined in 35 IAC 742.305 must be evaluated and satisfied. These requirements include the following:

- *The sum of all organic COCs shall not exceed the attenuation capacity of the soil as determined under Section 742.215 [Section 742.305(a)].*

  A default attenuation capacity value of 6,000 mg/kg was used for surface soil at the Remediation Site in accordance with Section 742.215(b)(1)(A). Sample SB-4 (0-3) exhibited the highest sum of detected organic constituent concentrations for surface samples at the Remediation Site, with a value of 406.58 mg/kg. A surface sample was also analyzed at B-112A (1-3) for TPH with a result of 234 mg/kg. Both results do not exceed the default attenuation capacity of 6,000 mg/kg. Therefore, this requirement is satisfied for surface samples. A default attenuation capacity value of 2,000 mg/kg was used for subsurface soil at the Remediation Site in accordance with Section 742.215(b)(1)(A). Sample SB-10 (3-6) exhibited the highest sum of detected organic constituent concentrations for subsurface samples at the Remediation Site, with a value of 641.8 mg/kg. A subsurface sample was also analyzed at B-112A (5-7) for TPH with a result of 184 mg/kg. Both results do not exceed the default attenuation capacity of 2,000 mg/kg. Therefore, this requirement is satisfied for subsurface samples. TPH results are presented in **Table VII**.

- *The concentration of any organic COC remaining in the soil shall not exceed the soil saturation limits as determined under Section 742.220 [Section 742.305(b)].*

  Soil saturation limits are chemical-specific and applicable only to chemicals which are in liquid phase at room temperature (less than 30°C). Applicable constituents for this requirement and their respective soil saturation limits are listed on Appendix A, Table A of

TACO. None of the applicable constituents were detected above a corresponding soil saturation limit. Therefore, this requirement is satisfied.

- *Any soil which contains COCs shall not exhibit characteristics of reactivity for hazardous waste [Section 742.305(c)].*

  Based on analytical results from the subsurface investigation, none of the COCs for the Remediation Site indicate the presence of contaminants that are strongly reactive with one another, thereby indicating that the analyte concentrations in the soil do not exhibit reactivity. Chlordane exceeded the 20x times rule in B-112 (1-3), was submitted for TCLP analysis and did not exhibit any hazardous waste characteristics. In addition, the analytical results of the composite representative soil sample (Fifth-1) submitted for Toxicity Characteristic Leaching Procedure Resource Conversation Recovery Act (TCLP RCRA) from the Remediation Site did not identify any hazardous waste characteristics. Therefore, this requirement has been satisfied. TCLP RCRA analytical results are available in **Attachment C**.

- *Any soil which contains COCs shall not exhibit a pH less than or equal to 2.0 or greater than or equal to 12.5 [Section 742.305(d)].*

  The pH of soil samples collected at the Remediation Site ranged from 7.48 to 8.51 standard units and did not fall within the range of corrosivity (less than 2.0 standard units and greater than 12.5 standard units). Therefore, this requirement has been satisfied.

- *Any soil which contains arsenic, barium, cadmium, chromium, lead, mercury, selenium or silver shall not exhibit any of the characteristics of toxicity for hazardous waste [Section 742.305(e)].*

  The soil samples exhibiting the highest detected levels of total lead were previously analyzed by BEI for TCLP lead to determine if soil at the Site exhibited hazardous toxicity characteristics. Soil samples SB-1 (0-3), SB-4 (0-3), and SB-10 (3-6) were previously analyzed for TCLP lead based upon total lead concentrations of 1,100 mg/kg, 2,000 mg/kg, and 1,300 mg/kg, respectively. The corresponding TCLP results for lead were 0.41 mg/L, 0.39 mg/L, and 0.45 mg/L, respectively, which are all lower than the toxicity characteristic threshold value of 5.0 mg/L for hazardous waste lead pursuant to 40 CFR 261. Carnow Conibear also requested TCLP analysis for all metal results from the 2023 investigations exhibiting total concentrations equal to or more than 20 times the applicable hazardous waste toxicity criteria. Lead results were identified as exceeding the 20X Rule in B-111(1-3) and B-112(1-3). The corresponding TCLP results for lead were 0.18 mg/L and 0.033 mg/L, respectively, which are all lower than the toxicity characteristic threshold value of 5.0 mg/L for hazardous waste lead pursuant to 40 CFR 261. Additionally, analytical results of the composite soil sample (Fifth-1) from the Remediation Site demonstrated TCLP results for arsenic, barium, cadmium, chromium, lead, mercury, selenium, and silver were below their respective toxicity characteristic thresholds listed in 35 IAC 721.124. Therefore, this requirement is satisfied. TCLP concentrations are presented on **Table IX, Table X** and in **Attachment C.**

- *If contaminants of concern include PCBs, the concentration of any PCBs shall not exceed 50 parts per million as determined by SW-846 Methods [Section 742.305(f)].*

  PCBs were not detected in soil samples collected at the Remediation Site. Therefore, this requirement is satisfied.

- *The concentration of any COC in soil gas shall not exceed 10% of its Lower Explosive Limit (LEL) as measured by a handheld combustible gas indicator that has been calibrated to manufacturer specifications [Section 742.305(g)].*

  Based upon groundwater sample results, soil gas samples were not collected during the subsurface investigation. Therefore, this requirement is not applicable.

Based on the evaluation, the general requirements of Section 742.305 have been satisfied, and the exposure pathways can be evaluated. All analytical data can be viewed in **Attachment C**.

Residential Soil Ingestion

Arsenic, lead, benz(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(k)fluoranthene, dibenzo(a,h)anthracene, and indeno(1,2,3-c,d)pyrene were identified as COCs for the residential ingestion exposure route. To exclude the soil ingestion exposure route, the requirements of 35 IAC 742.315 must be satisfied:

- *In accordance with 35 IAC 742.300(b) the extent of soils above Tier 1 SROs must be delineated at the site.*

  COCs for the residential ingestion exposure route were identified in various boring locations across the entire Remediation Site. **Exhibits III(a-b)** depict the estimated extent of Tier 1 ingestion SRO exceedances at the Remediation Site. Therefore, this requirement is satisfied.

- *In accordance with 35 IAC 742.305 the general requirements of Subpart C must be satisfied.*

  As discussed in the previous section, the requirements of 35 IAC 742.305 have been satisfied.

- *In accordance with 35 IAC 742.315, the soil ingestion exposure route will be excluded through the following:*

  Surface soils in the impacted areas will be excavated, removed from the Remediation Site, and properly disposed of at a permitted landfill. Subsequently, the excavated areas will be backfilled with appropriate material to meet the requirements of engineered barriers pursuant to 35 IAC 742.1105. Excavation depths will be based upon the types of barriers to be used and site development plans. Additionally, an institutional control requiring maintenance of the engineered barriers in accordance with 35 IAC 742.1100(d) will be enacted at the completion of the project.

Construction Worker Soil Ingestion

Lead and benzo(a)pyrene were detected at concentrations exceeding applicable Tier 1 construction worker SROs at the Remediation Site. To exclude the construction worker soil ingestion exposure route, the requirements of 35 IAC 742.315 must be satisfied:

- *In accordance with 35 IAC 742.300(b) the extent of soils above Tier 1 SROs must be delineated at the site.*

  As discussed in the previous section, COCs for the construction worker ingestion exposure route were delineated to include the majority of the Remediation Site. **Exhibits IV(a-b)** depict the estimated extent of Tier 1 construction worker ingestion SRO exceedances at the Remediation Site. Therefore, this requirement is satisfied.

- *In accordance with 35 IAC 742.305 the general requirements of Subpart C must be satisfied.*

  As discussed previously, the requirements of 35 IAC 742.305 have been satisfied.

- *In accordance with 35 IAC 742.315, the soil ingestion exposure route will be excluded through the following:*

  Safety precautions will be taken to reduce exposure to construction workers by implementing a site-specific health and safety plan and designating a construction worker caution area. The construction worker caution area will include the entire Remediation Site as a conservative measure. Additionally, an institutional control in accordance with 35 IAC 742.1100(d) will be enacted to prevent exposures during any potential future construction activities.

Construction Worker Outdoor Inhalation

Naphthalene and mercury were identified as COCs for the construction worker outdoor inhalation exposure route. To exclude the soil inhalation exposure route, the requirements of 35 IAC 742.310 must be satisfied:

- *In accordance with 35 IAC 742.300(b) the extent of soils above Tier 1 SROs must be delineated at the site.*

  As previously discussed, mercury and naphthalene impacts are estimated to be present throughout the majority of the Remediation Site. **Exhibits V(a-b)** depict the estimated extent of Tier 1 construction worker outdoor inhalation SRO exceedances at the Remediation Site. Therefore, this requirement is satisfied.

- *In accordance with 35 IAC 742.305 the general requirements of Subpart C must be satisfied.*

  As discussed previously, the requirements of 35 IAC 742.305 have been satisfied.

- *In accordance with 35 IAC 742.310, the soil inhalation exposure route will be excluded through the following:*

  Safety precautions will be taken to reduce exposure to construction workers by implementing a site-specific health and safety plan and designating a construction worker caution area. The caution area will include the entire Remediation Site as a conservative measure. Additionally, an institutional control in accordance with 35 IAC 742.1100(d) will be enacted to prevent exposures during any potential future construction activities.

Soil Component to Class II Groundwater Ingestion

Carbazole, cadmium, lead, mercury, selenium, benz(a)anthracene, benzo(b)fluoranthene, and dibenzo(a,h)anthracene were identified as COCs for the Class II SCGW exposure route. The estimated extent of these exceedances is depicted on **Exhibits VI(a)-VI(c)**. To exclude the Class II SCGW exposure route, Carnow Conibear conducted a Tier 2 Evaluation in accordance with 35 IAC 742 Subpart F. Site-specific Tier 2 SROs were developed for the applicable constituent utilizing RBCA equation R-12 provided in Appendix C, Table C of TACO. Tier 2 SROs were compared to the highest concentration of the COC which exceeded a Tier 1 SRO for this exposure route. Pursuant to 35 IAC 742.600(e), the following criteria must be satisfied for a Tier 2 assessment:

- *For each discrete sample, the total soil contaminant concentration of either a single contaminant or multiple contaminants of concern shall not exceed the attenuation capacity of the soil as provided in Section 742.215.*

  As described previously, a default attenuation capacity value of 6,000 mg/kg was used for surface soil at the Remediation Site in accordance with Section 742.215(b)(1)(A). Sample SB-4 (0-3) exhibited the highest sum of detected organic constituent concentrations for surface samples at the Remediation Site, with a value of 406.58 mg/kg. A surface sample was also analyzed at B-112A (1-3) for total petroleum hydrocarbons (TPH) with a result of 234 mg/kg. Both results do not exceed the default attenuation capacity of 6,000 mg/kg. Therefore, this requirement is satisfied for surface samples. A default attenuation capacity value of 2,000 mg/kg was used for subsurface soil at the Remediation Site in accordance with Section 742.215(b)(1)(A). Sample SB-10 (3-6) exhibited the highest sum of detected organic constituent concentrations for subsurface samples at the Remediation Site, with a value of 641.8 mg/kg. A subsurface sample was also analyzed at B-112A (5-7) for TPH with a result of 184 mg/kg. Both results do not exceed the default attenuation capacity of 2,000 mg/kg. Therefore, this requirement is satisfied for subsurface samples. TPH results are presented in **Table VII**.

- *Remediation objectives for noncarcinogenic compounds which affect the same target organ, organ system, or similar mode of action shall meet the requirements of Section 742.720.*

  According to Appendix A, Table E of TACO, no similar-acting noncarcinogenic chemicals were identified as a COC at the Remediation Site. Therefore, this requirement is satisfied.

- *The soil remediation objectives based on the inhalation and soil component of the groundwater ingestion routes shall not exceed the soil saturation limit as provided in Section 742.220.*

The default soil saturation limit listed on Appendix A, Table A of TACO for the SCGW exposure scenario was applied as the applicable Tier 2 SRO for any value that exceeds the soil saturation limit.

As demonstrated, the criteria for a Tier 2 evaluation have been fulfilled. To develop site-specific Tier 2 SROs, Carnow Conibear utilized the parameters detailed in the 35 IAC 742 Appendix C tables as well as site-specific variables which accounted for a conservative scenario. Exhibits, sources, parameter values, intermediate solutions, and calculated values from the Tier 2 evaluation are provided in **Attachment B**. Results of the Tier 2 evaluation are summarized in **Table C**, below:

Table C – Site-Specific Tier 2 SROs for Class II SCGW

Soil Boring (Depth)	COC	Sample Concentration	Applicable Tier 2 SRO	Tier 2 SRO Exceedance?
B-112 (1-3)	Carbazole	4.3	6,000	No
B-112 (1-3)	Cadmium	3.7	0.01	Yes
SB-4 (0-3)	Lead	2,000	77.09	Yes
SB-1 (0-3)	Mercury	2.20	1.58	Yes
SB-1 (0-3)	Selenium	8.4	0.19	Yes
SB-10 (3-6)	Benz(a)anthracene	55	18.62	Yes
SB-10 (3-6)	Benzo(b)fluoranthene	38	28.47	Yes
SB-4 (0-3)	Dibenzo(a,h)anthracene	11	151.31	No

Notes: 1. Sample concentrations and SROs are given in milligrams per kilogram of soil (mg/kg).
2. All depths are given in feet below ground surface (bgs).

As demonstrated in the evaluation, concentrations of cadmium, lead, mercury, selenium, benz(a)anthracene, and benzo(b)fluoranthene exceeded the corresponding site-specific Tier 2 SROs. Groundwater modeling was therefore required using formula R-26 per 37 IAC 742 Appendix C, Table C. See the following section.

Class II Groundwater Ingestion

One exceedance of the Tier 1 Class II GRO was identified at the Remediation Site for iron in MW-114. The SCGW COCs cadmium, lead, mercury, selenium, benz(a)anthracene, and benzo(b)fluoranthene also remain as a concern. Pursuant to Section 742.320, which includes

the soil component and direct ingestion scenarios, the groundwater ingestion exposure route may be excluded from consideration if the following criteria are satisfied:

Pursuant to Section 742.320, the groundwater ingestion exposure route may be excluded from consideration if the following criteria are satisfied:

- *Corrective action measures must be completed to remove any free product to the maximum extent practicable [Section 742.320(b)].*

  Free product was not identified at the Remediation Site. If a free product source is identified during the proposed remediation activities, the free product will be removed and documented in future correspondence.

- *The source of the release is not located within the minimum or designated maximum setback zone or within a regulated recharge area of a potable water supply well [Section 742.320(c)].*

  The source of all potable water in the City of Chicago is Lake Michigan. The City of Chicago has a groundwater ordinance and Memorandum of Understanding (MOU) with the IEPA prohibiting the installation and use of potable water wells. Well searches in Section 2.4 of the July 2019 BEI CSIR/ROR confirmed that the Remediation Site is not located within a regulated recharge area of a potable water supply well. The Remediation Site is located within the City of Chicago. The Remediation Site is not located within 2,500 feet of any area of unincorporated Cook County. Therefore, this requirement has been satisfied.

- *As demonstrated in accordance with Section 742.1015, for any area within 2,500 feet from the source of the release, an ordinance adopted by the unit of local government is in place that effectively prohibits the installation of potable water supply wells (and the use of such wells) [Section 742.320(d)];*

  As mentioned above, a groundwater ordinance prohibiting the installation and use of potable water wells is in force within the City of Chicago, and the City of Chicago has entered into an MOU with the IEPA. In accordance with Section 742.1015, a request for approval of a local ordinance as an institutional control shall provide the following:

  - *A copy of the ordinance restricting groundwater use [Section 742.1015(b)(1)].*

    The City of Chicago has a groundwater ordinance and MOU on file with the IEPA (**Attachment B**). Therefore, this requirement has been satisfied.

  - *A scaled map delineating the area and extent of groundwater contamination (measured or modeled) above the applicable remediation objectives [Section 742.1015(b)(2)].*

    Groundwater modeling was conducted for benz(a)anthracene, benzo(b)fluoranthene, cadmium, lead, mercury, selenium, and iron using formula R-26 in 35 IAC 742 Appendix C, Table C. Points of compliance were calculated for each Tier 1 Class I GRO. Site-specific data and conservative assumptions were used for the model. **Attachment B** includes all assumptions, parameter values, and solutions for the groundwater model. **Table D** below summarizes the findings:

Table D – Points of Compliance with Tier 1 Class I GROs

Analyte	Location	GRO (mg/L)	Compliance Point (feet)
Benzo(b)fluoranthene	SB-10 (3-6)	0.0009	412
Benz(a)anthracene	SB-10 (3-6)	0.00065	552
Cadmium	B-112 (1-3)	0.05	<1
Lead	SB-4 (0-3)	0.1	126
Mercury	SB-1 (0-3)	0.01	62
Selenium	SB-1 (0-3)	0.05	479
Iron	MW-114	5.0	209

Groundwater migration distances based on the calculated points of compliance are depicted in **Attachment B**.

- *Information identifying the current owner(s) of each property identified in subsection (b)(3) of this Section [Section 742.1015(b)(4)].*

  A list of landowners that have been potentially impacted by the Remediation Site will be provided with the RACR.

- *A copy of the proposed submission of the information to the current owners identified in subsection (b)(4) [Section 742.1015(b)(5)].*

  A copy of the proposed letter to be sent to the owners of potentially impacted properties is provided in **Attachment E**.

- *Demonstrate using Equation R-26 that the concentration of any COC in the groundwater within the minimum or designated maximum setback zone of an existing potable water supply well will meet the applicable Tier 1 groundwater remediation objective [Section 742.320(e)].*

  As stated previously, there are no existing potable water wells within 2,500 feet of the Remediation Site. Therefore, this requirement has been satisfied.

- *Demonstrate using Equation R-26 that the concentration of any COC in groundwater discharging to a surface waterway will meet the applicable surface water quality standard under 35 IAC 302 [Section 742.320(f)].*

  According to the R-26 model, the COC which may be traveling furthest from the Remediation Site is benz(a)anthracene, which is modeled to travel 552 feet northeast from the Remediation Site before complying with its Tier 1 Class I GRO. The nearest surface water body is a pond in Garfield Park, located approximately 0.45-miles northwest of the Site. Therefore, this requirement has been satisfied.

Based on the assessment, the soil component and direct ingestion of Class II groundwater exposure routes are eliminated from further evaluation at the Remediation Site. An institutional control, in the form of the NFR letter, will provide notification to future owners of the use of the City of Chicago groundwater ordinance and require notification of the potential migration of contamination onto off-site properties. A sample groundwater notification letter to be sent to the owners of potentially impacted properties is provided in **Attachment E.**

Remediation Objectives Report Conclusion

The Remediation Objectives determination demonstrated compliance with 35 IAC 742.305, allowing for the exclusion of pathways at the Remediation Site. The Remediation Objectives will be achieved through the following:

- The residential soil ingestion exposure route will be excluded from further consideration through a combination of soil removal, off-site disposal of soils at a licensed landfill, and installation of engineered barriers.

- The construction worker soil ingestion and inhalation exposure route will be excluded by implementation of a site-specific health and safety plan and designation of a construction worker caution area.

- The soil component and direct ingestion of Class II groundwater exposures will be eliminated by adherence to the local ordinance restricting potable water wells.

3. ***It is noted there were no exceedances of the Tier 1 Groundwater Remediation Objectives (GROs) for the indoor air inhalation exposure route as found in 35 Illinois Administrative Code (IAC) 742 Appendix B Table H. Please note use of this table is based on the assumption that any existing or future building has a full concrete slab-on-grade or full concrete basement floor and walls. If this condition is not preferred in the No Further Remediation (NFR) letter, an alternate approach may be proposed.***

No future buildings are currently planned for installation at the Remediation Site. The proposed future development will consist of landscaped areas and concrete sidewalks. It is acceptable to include a requirement in the NFR letter for a full concrete slab-on-grade or full concrete basement floor and walls on any potential future buildings that may be constructed on the Remediation Site. This institutional control will be included in the RAP.

4. ***The site specific f_{oc} values cannot be approved at this time. Analytical tables show that SB-1 0-3', SB-5 6-9', and SB-9 3-6' were co-analyzed for select volatile organic compounds (VOCs), select semi-volatile organic compounds (SVOCs), and RCRA metals. f_{oc} samples must be collected from uncontaminated areas of the site. To support this demonstration, the Illinois EPA requires co-sampling of the f_{oc} sample locations for VOCs and SVOCs listed in 35 IAC 740 Appendix A Tables A and B.***

FoC analysis was not performed for the additional parcel because the soil attenuation capacity was not exceeded in any of the surface and subsurface samples at the Remediation Site.

5. ***Analytical Results identify dibenzo(a,h)anthracene at a concentration of 11 mg/kg (measured at SB-4 0-3'), above the soil component of the groundwater ingestion route remediation objective for Class II groundwater. This Contaminant of Concern was not included on Table 5.1 "Remaining Soil Exceedances of the Tier 1 SROs."***

Dibenzo(a,h)anthracene is recognized as an exceedance for the Class II soil component of the groundwater ingestion exposure route at SB-4 (0-3).

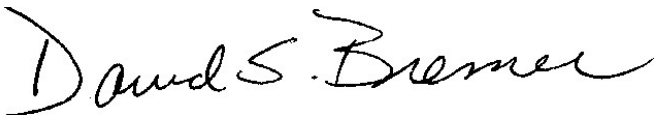
6. ***Section 6.2 mentions the possible excavation and disposal of impacted soil and the construction of an engineered barrier of three (3) feet of clean fill. Please note, any clean fill imported to the site must be analyzed at a rate of one (1) sample per 500 cubic yards of material for the 35 IAC 740 Target Compound List and Results must meet their respective 35 IAC 742 Tier 1 residential remediation objectives. If an engineered barrier not identified in 35 IAC 742.1105 is planned (i.e. 18 inches of clean fill material couples with geotextile), it is suggested the Remedial Action Plan be approved by the Illinois EPA prior to beginning construction.***

The Remediation Action Plan will be submitted under separate cover for this Remediation Site with this Response to Comments letter for IEPA's review and approval prior to beginning construction.

Based upon this Response to Comments Letter, Carnow Conibear is requesting unconditional approval of the CSIR/ROR. If you have any questions regarding this letter, please contact David Bremer at (312) 762-2915.

Sincerely,

CARNOW, CONIBEAR & ASSOC., LTD.

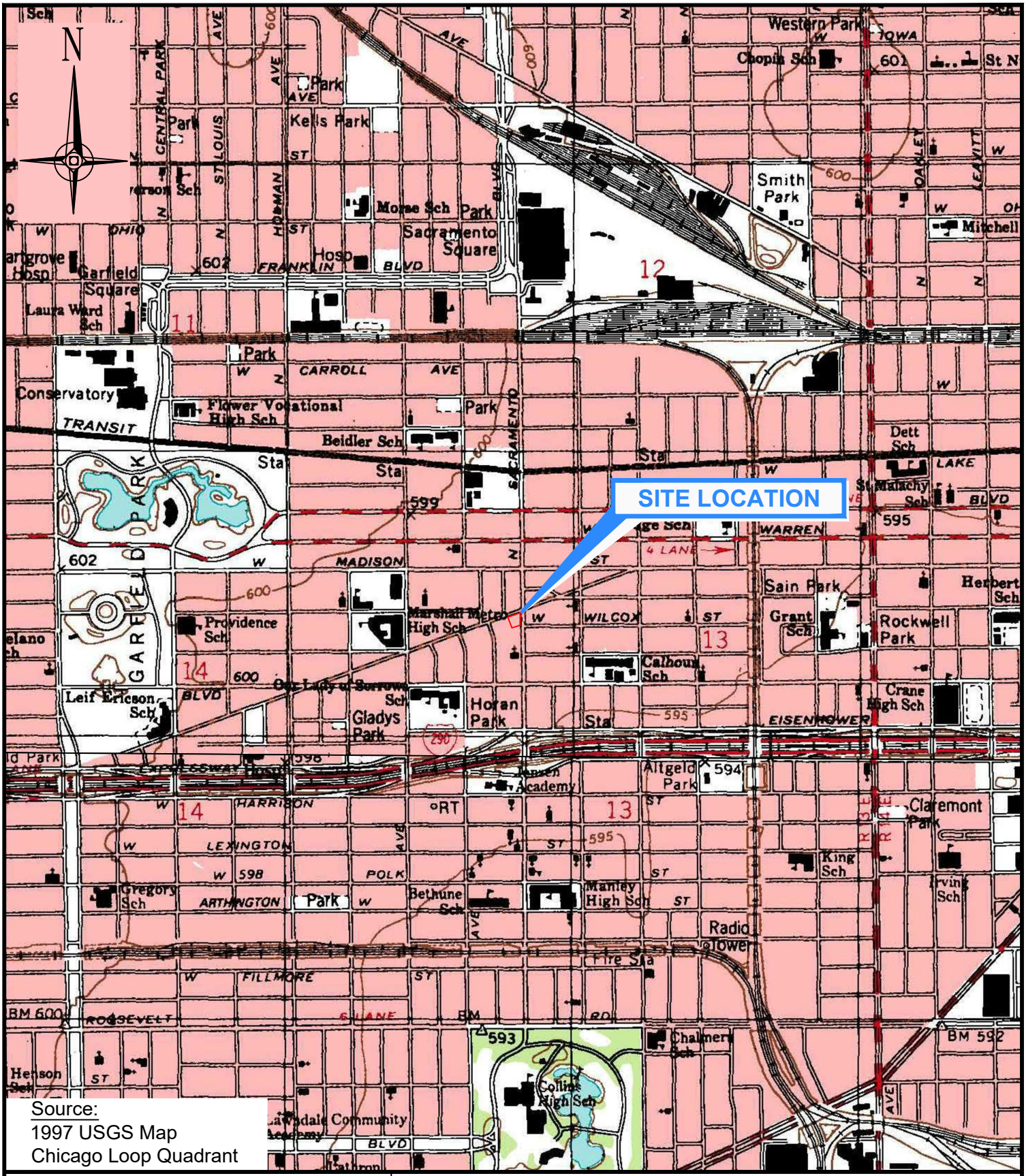


Chad Adams, PG
Senior Project Manager

David Bremer, CHMM, REM
Vice President, Environmental Engineering

Exhibits

Exhibit I	Site Location Map
Exhibit II	Sample Location Map
Exhibit III(a)	Tier 1 SRO Exceedances – Residential Soil Ingestion - Arsenic & Lead
Exhibit III(b)	Tier 1 SRO Exceedances – Residential Soil Ingestion - PNAs
Exhibit IV(a)	Tier 1 SRO Exceedances – Construction Worker Soil Ingestion - Lead
Exhibit IV(b)	Tier 1 SRO Exceedances – Construction Worker Soil Ingestion - Benzo(a)pyrene
Exhibit V(a)	Tier 1 SRO Exceedances – Construction Worker Inhalation- Mercury
Exhibit V(b)	Tier 1 SRO Exceedances – Construction Worker Inhalation - Naphthalene
Exhibit VI(a)	Tier 1 SRO Exceedances – Soil Component of Class II Groundwater Ingestion - Inorganics
Exhibit VI(b)	Tier 1 SRO Exceedances – Soil Component of Class II Groundwater Ingestion - PNAs
Exhibit VI(c)	Tier 1 SRO Exceedances – Soil Component of Class II Groundwater Ingestion - Carbazole
Exhibit VII	Tier 1 GRO Exceedances – Class II Groundwater Direct Ingestion - Iron
Exhibit VIII	Construction Worker Caution Area



Date:	December 2023
Scale:	1"=1,500'
Drawn by:	LT
Checked by:	DSB

Exhibit I: Site Location Map
3001-13 W. Fifth Avenue
Chicago, Illinois 60612

Your Environmental Resource

T:\AIS\2021 SE Zone Phase I&IIESA, SRP and Oversight\3001-3013 W 5th Ave\SRP\CSIRORRAP\Drawings\Chicago Reference

Carnow, Conibear & Assoc., Ltd.
Environmental Consulting Services
600 W. Van Buren St., Suite 500, Chicago, IL 60607
t: 312.782.4486 f: 312.782.5145
www.ccaltd.com

CARNOW CONIBEAR

Date:	January 2024
Scale:	1"=30'
Drawn by:	LT
Checked by:	DSB

Your Environmental Resource

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LEGEND

- Remediation Site Boundary
- PIN 16-13-115-009 Boundary
- B-100 — CCA Soil Borings
- MW-100 — CCA Permanent Monitoring Well
- SB-# — 2018 Soil Borings
- TMW-# — 2018 Temporary Monitoring Wells

Exhibit II: Sample Location Map
3001-13 W. Fifth Avenue
Chicago, Illinois 60612

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Environmental Consulting Services
600 W. Van Buren St., Suite 500, Chicago, IL 60607
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www.ccaltd.com

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SB-8		
Depth	COC	(mg/kg)
0-3	Arsenic	3.7
	Lead	33
6-9	Arsenic	5.6
	Lead	160
9-12	Arsenic	NA
	Lead	140
12-15	Arsenic	NA
	Lead	16

SB-6		
Depth	COC	(mg/kg)
0-3	Arsenic	9.9
	Lead	18
3-6	Arsenic	13
	Lead	430
6-9	Arsenic	NA
	Lead	23

SB-7		
Depth	COC	(mg/kg)
0-3	Arsenic	5.2
	Lead	290
6-9	Arsenic	27
	Lead	18
9-12	Arsenic	9.6
	Lead	NA

SB-1		
Depth	COC	(mg/kg)
0-3	Arsenic	7.4
	Lead	1100
3-6	Arsenic	10
	Lead	23
6-9	Arsenic	NA
	Lead	NA

B-111		
Depth	COC	(mg/kg)
1-3	Arsenic	6.4
	Lead	130
5-7	Arsenic	6.3
	Lead	22

SB-2		
Depth	COC	(mg/kg)
0-3	Arsenic	3
	Lead	15
3-6	Arsenic	6
	Lead	530
6-9	Arsenic	NA
	Lead	17

SB-9		
Depth	COC	(mg/kg)
0-3	Arsenic	24
	Lead	830
3-6	Arsenic	16
	Lead	23
6-9	Arsenic	5.9
	Lead	NA

SB-3		
Depth	COC	(mg/kg)
0-3	Arsenic	NA
	Lead	NA
3-6	Arsenic	13
	Lead	330
6-9	Arsenic	11
	Lead	20
9-12	Arsenic	NA
	Lead	NA

B-112		
Depth	COC	(mg/kg)
1-3	Arsenic	41
	Lead	1300
5-7	Arsenic	11
	Lead	17

B-112A		
Depth	COC	(mg/kg)
1-3	Arsenic	NA
	Lead	NA
5-7	Arsenic	NA
	Lead	NA

SB-5		
Depth	COC	(mg/kg)
0-3	Arsenic	6.9
	Lead	170
6-9	Arsenic	11
	Lead	19

B-113		
Depth	COC	(mg/kg)
1-3	Arsenic	9.3
	Lead	14
5-7	Arsenic	7.6
	Lead	16

SB-10		
Depth	COC	(mg/kg)
0-3	Arsenic	8
	Lead	420
3-6	Arsenic	7.5
	Lead	1300
6-9	Arsenic	NA
	Lead	20

SB-4		
Depth	COC	(mg/kg)
0-3	Arsenic	25
	Lead	2000
3-6	Arsenic	13
	Lead	120
6-9	Arsenic	NA
	Lead	18

N

SB-1
SB-7
SB-2/ TMW-1
B-111
SB-8/ TMW-4
SB-6/ TMW-3
SB-3
SB-5/ TMW-2
SB-9
B-112/ B-112A
MW-114
SB-4
SB-10
B-113

0 15 30
SCALE IN FEET

Date:	January 2024
Scale:	1"=30'
Drawn by:	LT
Checked by:	DSB

Your Environmental Resource

T:\AIS\2021 SE Zone Phase I&IIESA, SRP and Oversight\3001-3013 W 5th Ave\SRP\CSIRORRAP\Drawings\3001-13 W Fifth_All Exhibits.dwg

LEGEND

- Remediation Site Boundary
- PIN 16-13-115-009 Boundary
- B-100 CCA Soil Borings
- MW-100 CCA Permanent Monitoring Well
- SB-# 2018 Soil Borings
- TMW-# 2018 Temporary Monitoring Wells

Soil Boring		
Depth	COC	(mg/kg)

Tier 1 SROs	
COC	(mg/kg)
Arsenic	13
Lead	400

Estimated Extent of Soils Exceeding Tier 1 SRO

[Shaded] = Soil Sample Exceeding Tier 1 Soil Remediation Objective (SRO)

Notes:
1. COC= Contaminant of Concern
2. Tier 1 SROs have been adjusted for 2022 95th percentile background concentrations, as applicable.
3. All depths provided in feet below ground surface (bgs)

Exhibit III(a): Tier 1 SRO Exceedances
Residential Soil Ingestion - Arsenic & Lead
3001-13 W. Fifth Avenue
Chicago, Illinois 60612

Carnow, Conibear & Assoc., Ltd.
Environmental Consulting Services
600 W. Van Buren St., Suite 500, Chicago, IL 60607
t: 312.782.4486 f: 312.782.5145
www.ccaltd.com

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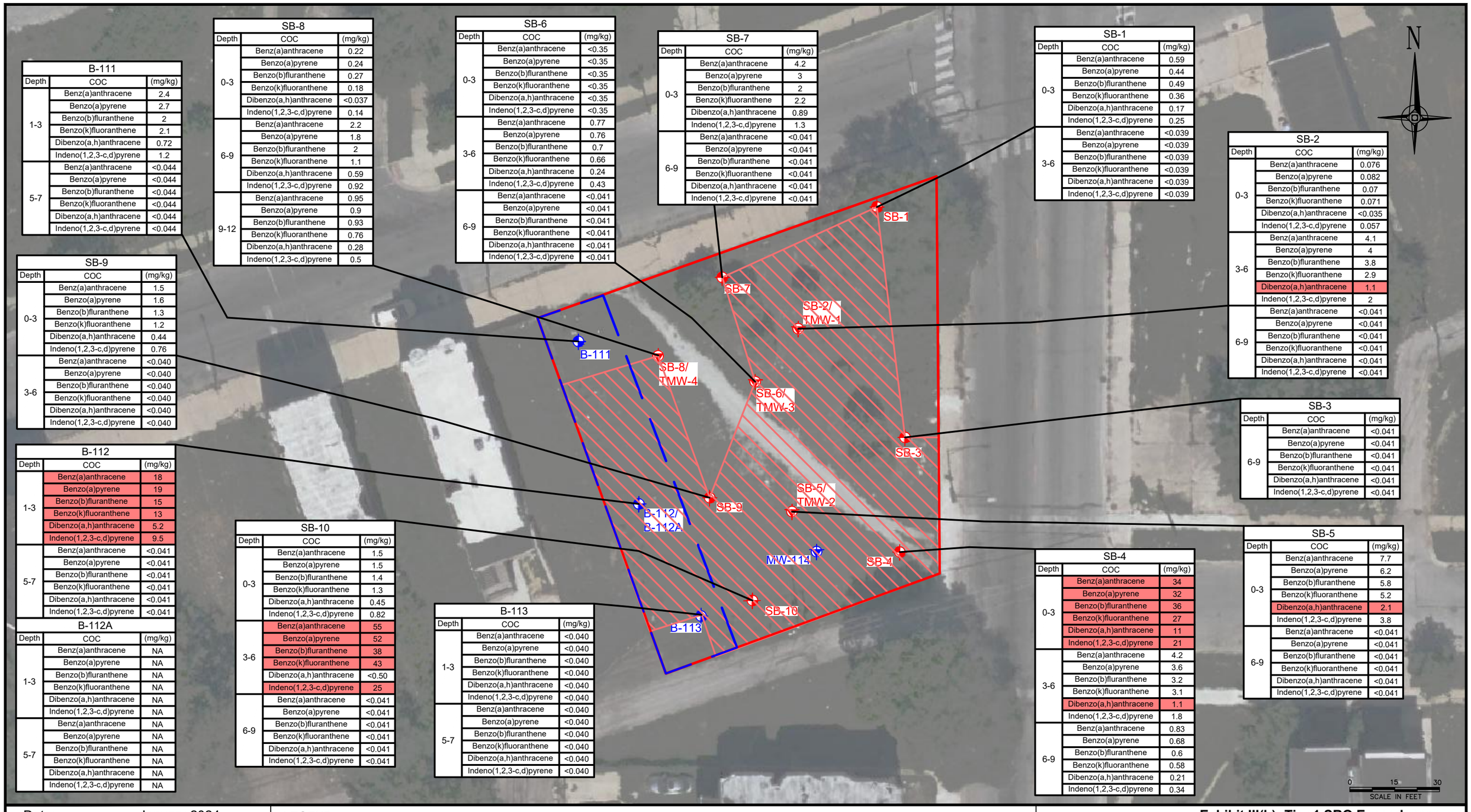

B-111		
Depth	COC	(mg/kg)
1-3	Benz(a)anthracene	2.4
	Benzo(a)pyrene	2.7
	Benzo(b)fluranthene	2
	Benzo(k)fluoranthene	2.1
	Dibenzo(a,h)anthracene	0.72
	Indeno(1,2,3-c,d)pyrene	1.2
5-7	Benz(a)anthracene	<0.044
	Benzo(a)pyrene	<0.044
	Benzo(b)fluranthene	<0.044
	Benzo(k)fluoranthene	<0.044
	Dibenzo(a,h)anthracene	<0.044
	Indeno(1,2,3-c,d)pyrene	<0.044

SB-8		
Depth	COC	(mg/kg)
0-3	Benz(a)anthracene	0.22
	Benzo(a)pyrene	0.24
	Benzo(b)fluranthene	0.27
	Benzo(k)fluoranthene	0.18
	Dibenzo(a,h)anthracene	<0.037
	Indeno(1,2,3-c,d)pyrene	0.14
6-9	Benz(a)anthracene	2.2
	Benzo(a)pyrene	1.8
	Benzo(b)fluranthene	2
	Benzo(k)fluoranthene	1.1
	Dibenzo(a,h)anthracene	0.59
	Indeno(1,2,3-c,d)pyrene	0.92
9-12	Benz(a)anthracene	0.95
	Benzo(a)pyrene	0.9
	Benzo(b)fluranthene	0.93
	Benzo(k)fluoranthene	0.76
	Dibenzo(a,h)anthracene	0.28
	Indeno(1,2,3-c,d)pyrene	0.5

SB-6		
Depth	COC	(mg/kg)
0-3	Benz(a)anthracene	<0.35
	Benzo(a)pyrene	<0.35
	Benzo(b)fluranthene	<0.35
	Benzo(k)fluoranthene	<0.35
	Dibenzo(a,h)anthracene	<0.35
	Indeno(1,2,3-c,d)pyrene	<0.35
3-6	Benz(a)anthracene	0.77
	Benzo(a)pyrene	0.76
	Benzo(b)fluranthene	0.7
	Benzo(k)fluoranthene	0.66
	Dibenzo(a,h)anthracene	0.24
	Indeno(1,2,3-c,d)pyrene	0.43
6-9	Benz(a)anthracene	<0.041
	Benzo(a)pyrene	<0.041
	Benzo(b)fluranthene	<0.041
	Benzo(k)fluoranthene	<0.041
	Dibenzo(a,h)anthracene	<0.041
	Indeno(1,2,3-c,d)pyrene	<0.041

SB-7		
Depth	COC	(mg/kg)
0-3	Benz(a)anthracene	4.2
	Benzo(a)pyrene	3
	Benzo(b)fluranthene	2
	Benzo(k)fluoranthene	2.2
	Dibenzo(a,h)anthracene	0.89
	Indeno(1,2,3-c,d)pyrene	1.3
6-9	Benz(a)anthracene	<0.041
	Benzo(a)pyrene	<0.041
	Benzo(b)fluranthene	<0.041
	Benzo(k)fluoranthene	<0.041
	Dibenzo(a,h)anthracene	<0.041
	Indeno(1,2,3-c,d)pyrene	<0.041

SB-1		
Depth	COC	(mg/kg)
0-3	Benz(a)anthracene	0.59
	Benzo(a)pyrene	0.44
	Benzo(b)fluranthene	0.49
	Benzo(k)fluoranthene	0.36
	Dibenzo(a,h)anthracene	0.17
	Indeno(1,2,3-c,d)pyrene	0.25
3-6	Benz(a)anthracene	<0.039
	Benzo(a)pyrene	<0.039
	Benzo(b)fluranthene	<0.039
	Benzo(k)fluoranthene	<0.039
	Dibenzo(a,h)anthracene	<0.039
	Indeno(1,2,3-c,d)pyrene	<0.039

SB-2		
Depth	COC	(mg/kg)
0-3	Benz(a)anthracene	0.076
	Benzo(a)pyrene	0.082
	Benzo(b)fluranthene	0.07
	Benzo(k)fluoranthene	0.071
	Dibenzo(a,h)anthracene	<0.035
	Indeno(1,2,3-c,d)pyrene	0.057
3-6	Benz(a)anthracene	4.1
	Benzo(a)pyrene	4
	Benzo(b)fluranthene	3.8
	Benzo(k)fluoranthene	2.9
	Dibenzo(a,h)anthracene	1.1
	Indeno(1,2,3-c,d)pyrene	2
6-9	Benz(a)anthracene	<0.041
	Benzo(a)pyrene	<0.041
	Benzo(b)fluranthene	<0.041
	Benzo(k)fluoranthene	<0.041
	Dibenzo(a,h)anthracene	<0.041
	Indeno(1,2,3-c,d)pyrene	<0.041

SB-9		
Depth	COC	(mg/kg)
0-3	Benz(a)anthracene	1.5
	Benzo(a)pyrene	1.6
	Benzo(b)fluranthene	1.3
	Benzo(k)fluoranthene	1.2
	Dibenzo(a,h)anthracene	0.44
	Indeno(1,2,3-c,d)pyrene	0.76
3-6	Benz(a)anthracene	<0.040
	Benzo(a)pyrene	<0.040
	Benzo(b)fluranthene	<0.040
	Benzo(k)fluoranthene	<0.040
	Dibenzo(a,h)anthracene	<0.040
	Indeno(1,2,3-c,d)pyrene	<0.040

B-112		
Depth	COC	(mg/kg)
1-3	Benz(a)anthracene	18
	Benzo(a)pyrene	19
	Benzo(b)fluranthene	15
	Benzo(k)fluoranthene	13
	Dibenzo(a,h)anthracene	5.2
	Indeno(1,2,3-c,d)pyrene	9.5
5-7	Benz(a)anthracene	<0.041
	Benzo(a)pyrene	<0.041
	Benzo(b)fluranthene	<0.041
	Benzo(k)fluoranthene	<0.041
	Dibenzo(a,h)anthracene	<0.041
	Indeno(1,2,3-c,d)pyrene	<0.041

B-112A		
Depth	COC	(mg/kg)
1-3	Benz(a)anthracene	NA
	Benzo(a)pyrene	NA
	Benzo(b)fluranthene	NA
	Benzo(k)fluoranthene	NA
	Dibenzo(a,h)anthracene	NA
	Indeno(1,2,3-c,d)pyrene	NA
5-7	Benz(a)anthracene	NA
	Benzo(a)pyrene	NA
	Benzo(b)fluranthene	NA
	Benzo(k)fluoranthene	NA
	Dibenzo(a,h)anthracene	NA
	Indeno(1,2,3-c,d)pyrene	NA

SB-10		
Depth	COC	(mg/kg)
0-3	Benz(a)anthracene	1.5
	Benzo(a)pyrene	1.5
	Benzo(b)fluranthene	1.4
	Benzo(k)fluoranthene	1.3
	Dibenzo(a,h)anthracene	0.45
	Indeno(1,2,3-c,d)pyrene	0.82
3-6	Benz(a)anthracene	55
	Benzo(a)pyrene	52
	Benzo(b)fluranthene	38
	Benzo(k)fluoranthene	43
	Dibenzo(a,h)anthracene	<0.50
	Indeno(1,2,3-c,d)pyrene	25
6-9	Benz(a)anthracene	<0.041
	Benzo(a)pyrene	<0.041
	Benzo(b)fluranthene	<0.041
	Benzo(k)fluoranthene	<0.041
	Dibenzo(a,h)anthracene	<0.041
	Indeno(1,2,3-c,d)pyrene	<0.041

B-113		
Depth	COC	(mg/kg)
1-3	Benz(a)anthracene	<0.040
	Benzo(a)pyrene	<0.040
	Benzo(b)fluranthene	<0.040
	Benzo(k)fluoranthene	<0.040
	Dibenzo(a,h)anthracene	<0.040
	Indeno(1,2,3-c,d)pyrene	<0.040
5-7	Benz(a)anthracene	<0.040
	Benzo(a)pyrene	<0.040
	Benzo(b)fluranthene	<0.040
	Benzo(k)fluoranthene	<0.040
	Dibenzo(a,h)anthracene	<0.040
	Indeno(1,2,3-c,d)pyrene	<0.040

SB-3		
Depth	COC	(mg/kg)
6-9	Benz(a)anthracene	<0.041
	Benzo(a)pyrene	<0.041
	Benzo(b)fluranthene	<0.041
	Benzo(k)fluoranthene	<0.041
	Dibenzo(a,h)anthracene	<0.041
	Indeno(1,2,3-c,d)pyrene	<0.041

SB-5		
Depth	COC	(mg/kg)
0-3	Benz(a)anthracene	7.7
	Benzo(a)pyrene	6.2
	Benzo(b)fluranthene	5.8
	Benzo(k)fluoranthene	5.2
	Dibenzo(a,h)anthracene	2.1
	Indeno(1,2,3-c,d)pyrene	3.8
6-9	Benz(a)anthracene	<0.041
	Benzo(a)pyrene	<0.041
	Benzo(b)fluranthene	<0.041
	Benzo(k)fluoranthene	<0.041
	Dibenzo(a,h)anthracene	<0.041
	Indeno(1,2,3-c,d)pyrene	<0.041

SB-4		
Depth	COC	(mg/kg)
0-3	Benz(a)anthracene	34
	Benzo(a)pyrene	32
	Benzo(b)fluranthene	36
	Benzo(k)fluoranthene	27
	Dibenzo(a,h)anthracene	11
	Indeno(1,2,3-c,d)pyrene	21
3-6	Benz(a)anthracene	4.2
	Benzo(a)pyrene	3.6
	Benzo(b)fluranthene	3.2
	Benzo(k)fluoranthene	3.1
	Dibenzo(a,h)anthracene	1.1
	Indeno(1,2,3-c,d)pyrene	1.8
6-9	Benz(a)anthracene	0.83
	Benzo(a)pyrene	0.68
	Benzo(b)fluranthene	0.6
	Benzo(k)fluoranthene	0.58
	Dibenzo(a,h)anthracene	0.21
	Indeno(1,2,3-c,d)pyrene	0.34

Date:	January 2024
Scale:	1"=30'
Drawn by:	LT
Checked by:	DSB

Your Environmental Resource

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LEGEND

- Remediation Site Boundary
- PIN 16-13-115-009 Boundary
- B-100 — CCA Soil Borings
- MW-100 — CCA Permanent Monitoring Well
- SB-# — 2018 Soil Borings
- TMW-# — 2018 Temporary Monitoring Wells

Soil Boring	
Depth	COC (mg/kg)

Tier 1 SROs	
COC	(mg/kg)
Benz(a)anthracene	11
Benzo(a)pyrene	11
Benzo(b)fluranthene	13
Benzo(k)fluoranthene	9.0
Dibenzo(a,h)anthracene	1
Indeno(1,2,3-c,d)pyrene	5.8

Estimated Extent of Soils Exceeding Tier 1 SRO

[Shaded] = Soil Sample Exceeding Tier 1 Soil Remediation Objective (SRO)

Notes:
1. COC= Contaminant of Concern
2. Tier 1 SROs have been adjusted for 2022 95th percentile background concentrations, as applicable.
3. All depths provided in feet below ground surface (bgs)

Exhibit III(b): Tier 1 SRO Exceedances
Residential Soil Ingestion - PNAs
3001-13 W. Fifth Avenue
Chicago, Illinois 60612

Carnow, Conibear & Assoc., Ltd.
Environmental Consulting Services
600 W. Van Buren St., Suite 500, Chicago, IL 60607
t: 312.782.4486 f: 312.782.5145
www.ccaltd.com

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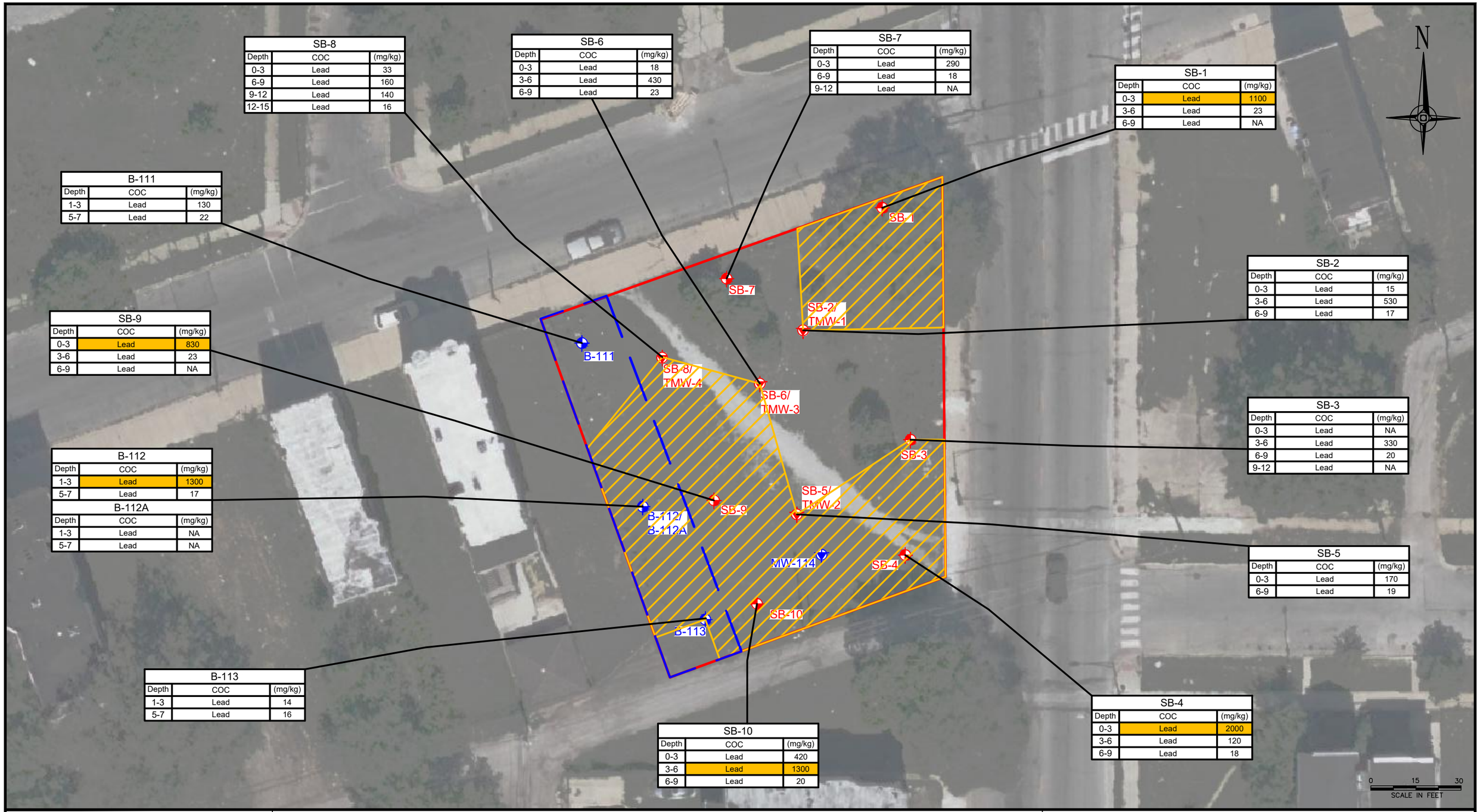

Date:	January 2024
Scale:	1"=30'
Drawn by:	LT
Checked by:	DSB

Your Environmental Resource

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LEGEND

- Remediation Site Boundary
- PIN 16-13-115-009 Boundary
- B-100 CCA Soil Borings
- MW-100 CCA Permanent Monitoring Well
- SB-# 2018 Soil Borings
- TMW-# 2018 Temporary Monitoring Wells

Soil Boring		
Depth	COC	(mg/kg)

Tier 1 SROs	
COC	(mg/kg)
Lead	700

Estimated Extent of Soils Exceeding Tier 1 SRO

[Shaded] = Soil Sample Exceeding Tier 1 Soil Remediation Objective (SRO)

Notes:
1. COC= Contaminant of Concern
2. Tier 1 SROs have been adjusted for 2022 95th percentile background concentrations, as applicable.
3. All depths provided in feet below ground surface (bgs)

Exhibit IV(a): Tier 1 SRO Exceedances
Construction Worker Soil Ingestion - Lead
3001-13 W. Fifth Avenue
Chicago, Illinois 60612

Carnow, Conibear & Assoc., Ltd.
Environmental Consulting Services
600 W. Van Buren St., Suite 500, Chicago, IL 60607
t: 312.782.4486 f: 312.782.5145
www.ccaltd.com

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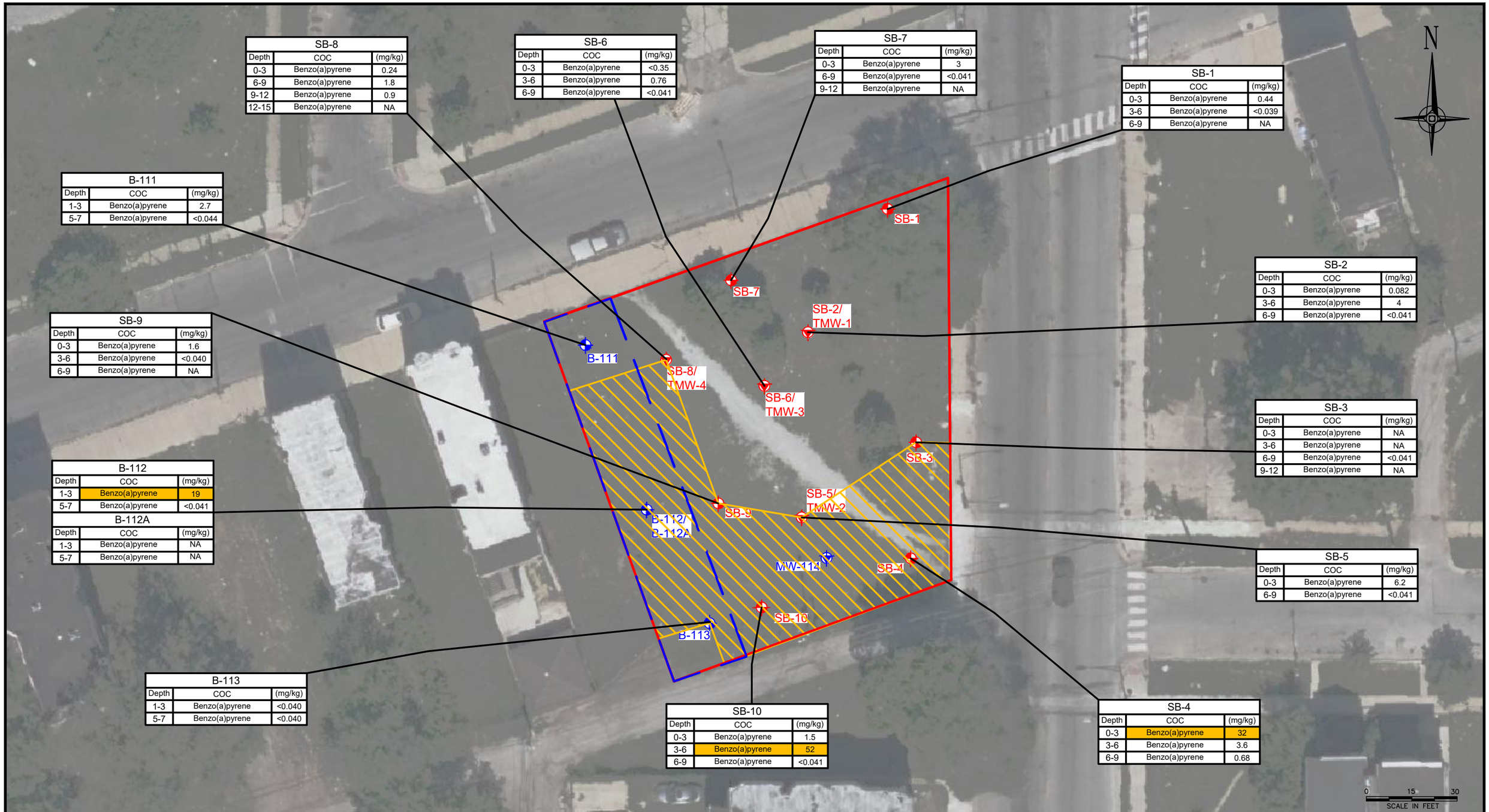

SB-8		
Depth	COC	(mg/kg)
0-3	Benzo(a)pyrene	0.24
6-9	Benzo(a)pyrene	1.8
9-12	Benzo(a)pyrene	0.9
12-15	Benzo(a)pyrene	NA

SB-6		
Depth	COC	(mg/kg)
0-3	Benzo(a)pyrene	<0.35
3-6	Benzo(a)pyrene	0.76
6-9	Benzo(a)pyrene	<0.041

SB-7		
Depth	COC	(mg/kg)
0-3	Benzo(a)pyrene	3
6-9	Benzo(a)pyrene	<0.041
9-12	Benzo(a)pyrene	NA

SB-1		
Depth	COC	(mg/kg)
0-3	Benzo(a)pyrene	0.44
3-6	Benzo(a)pyrene	<0.039
6-9	Benzo(a)pyrene	NA

B-111		
Depth	COC	(mg/kg)
1-3	Benzo(a)pyrene	2.7
5-7	Benzo(a)pyrene	<0.044

SB-2		
Depth	COC	(mg/kg)
0-3	Benzo(a)pyrene	0.082
3-6	Benzo(a)pyrene	4
6-9	Benzo(a)pyrene	<0.041

SB-9		
Depth	COC	(mg/kg)
0-3	Benzo(a)pyrene	1.6
3-6	Benzo(a)pyrene	<0.040
6-9	Benzo(a)pyrene	NA

SB-3		
Depth	COC	(mg/kg)
0-3	Benzo(a)pyrene	NA
3-6	Benzo(a)pyrene	NA
6-9	Benzo(a)pyrene	<0.041
9-12	Benzo(a)pyrene	NA

B-112		
Depth	COC	(mg/kg)
1-3	Benzo(a)pyrene	19
5-7	Benzo(a)pyrene	<0.041

B-112A		
Depth	COC	(mg/kg)
1-3	Benzo(a)pyrene	NA
5-7	Benzo(a)pyrene	NA

SB-5		
Depth	COC	(mg/kg)
0-3	Benzo(a)pyrene	6.2
6-9	Benzo(a)pyrene	<0.041

B-113		
Depth	COC	(mg/kg)
1-3	Benzo(a)pyrene	<0.040
5-7	Benzo(a)pyrene	<0.040

SB-10		
Depth	COC	(mg/kg)
0-3	Benzo(a)pyrene	1.5
3-6	Benzo(a)pyrene	52
6-9	Benzo(a)pyrene	<0.041

SB-4		
Depth	COC	(mg/kg)
0-3	Benzo(a)pyrene	32
3-6	Benzo(a)pyrene	3.6
6-9	Benzo(a)pyrene	0.68

Date:	January 2024
Scale:	1"=30'
Drawn by:	LT
Checked by:	DSB

Your Environmental Resource

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LEGEND

- Remediation Site Boundary
- PIN 16-13-115-009 Boundary
- B-100 CCA Soil Borings
- MW-100 CCA Permanent Monitoring Well
- SB-# 2018 Soil Borings
- TMW-# 2018 Temporary Monitoring Wells

Soil Boring		
Depth	COC	(mg/kg)

Tier 1 SROs	
COC	(mg/kg)
Benzo(a)pyrene	17

Estimated Extent of Soils Exceeding Tier 1 SRO

[Shaded] = Soil Sample Exceeding Tier 1 Soil Remediation Objective (SRO)

Notes:
1. COC= Contaminant of Concern
2. Tier 1 SROs have been adjusted for 2022 95th percentile background concentrations, as applicable.
3. All depths provided in feet below ground surface (bgs)

Exhibit IV(b): Tier 1 SRO Exceedances
Construction Worker Soil Ingestion - Benzo(a)pyrene
3001-13 W. Fifth Avenue
Chicago, Illinois 60612

Carnow, Conibear & Assoc., Ltd.
Environmental Consulting Services
600 W. Van Buren St., Suite 500, Chicago, IL 60607
t: 312.782.4486 f: 312.782.5145
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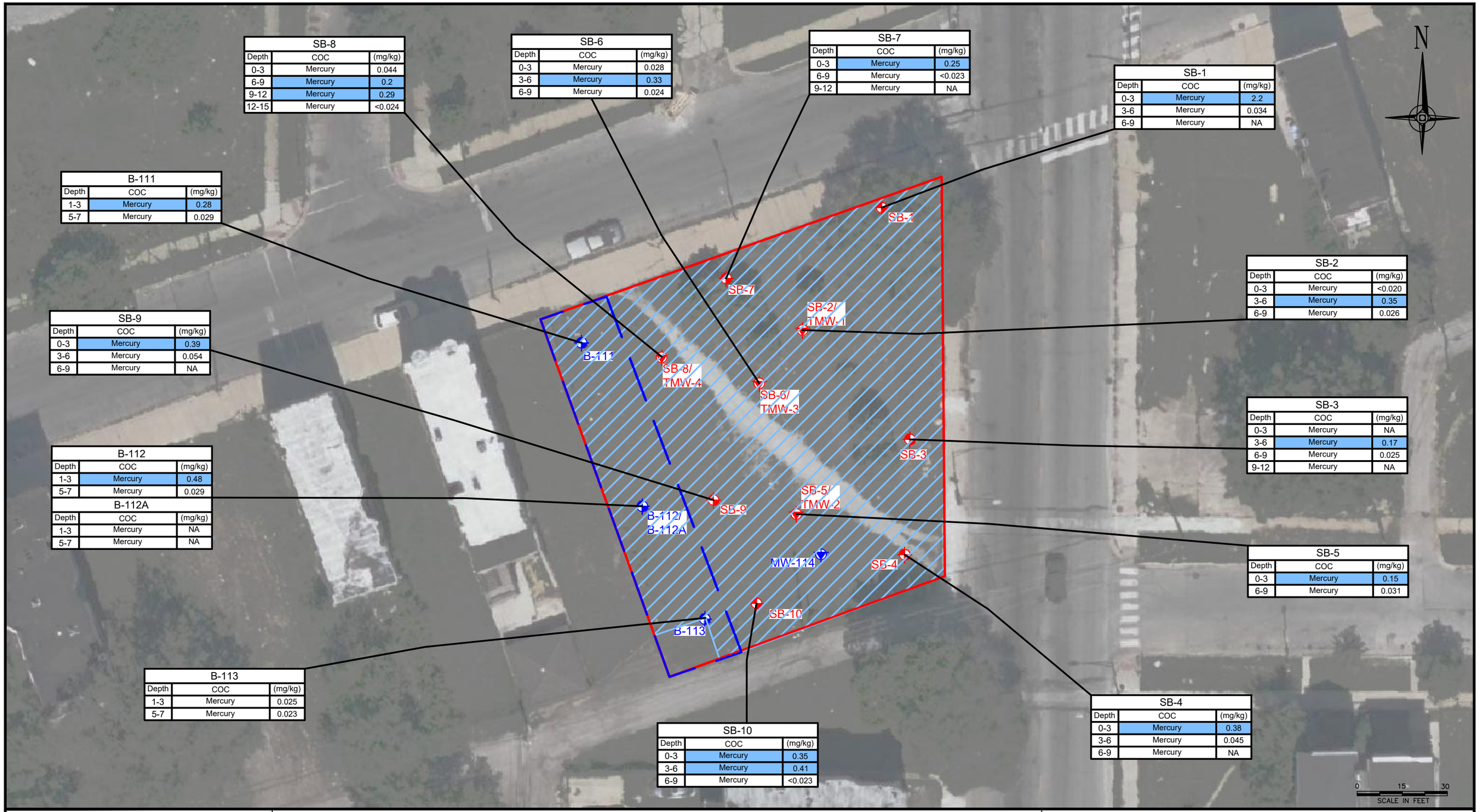

Date:	January 2024
Scale:	1"=30'
Drawn by:	LT
Checked by:	DSB

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LEGEND

- Remediation Site Boundary
- PIN 16-13-115-009 Boundary
- B-100 — CCA Soil Borings
- MW-100 — CCA Permanent Monitoring Well
- SB-# — 2018 Soil Borings
- TMW-# — 2018 Temporary Monitoring Wells

Soil Boring		
Depth	COC	(mg/kg)

Tier 1 SROs	
COC	(mg/kg)
Mercury	0.10

Estimated Extent of Soils Exceeding Tier 1 SRO

[Shaded] = Soil Sample Exceeding Tier 1 Soil Remediation Objective (SRO)

Notes:
1. COC= Contaminant of Concern
2. Tier 1 SROs have been adjusted for 2022 95th percentile background concentrations, as applicable.
3. All depths provided in feet below ground surface (bgs).

Exhibit V(a): Tier 1 SRO Exceedances
Construction Worker Soil Inhalation - Mercury
3001-13 W. Fifth Avenue
Chicago, Illinois 60612

Carnow, Conibear & Assoc., Ltd.
Environmental Consulting Services
600 W. Van Buren St., Suite 500, Chicago, IL 60607
t: 312.782.4486 f: 312.782.5145
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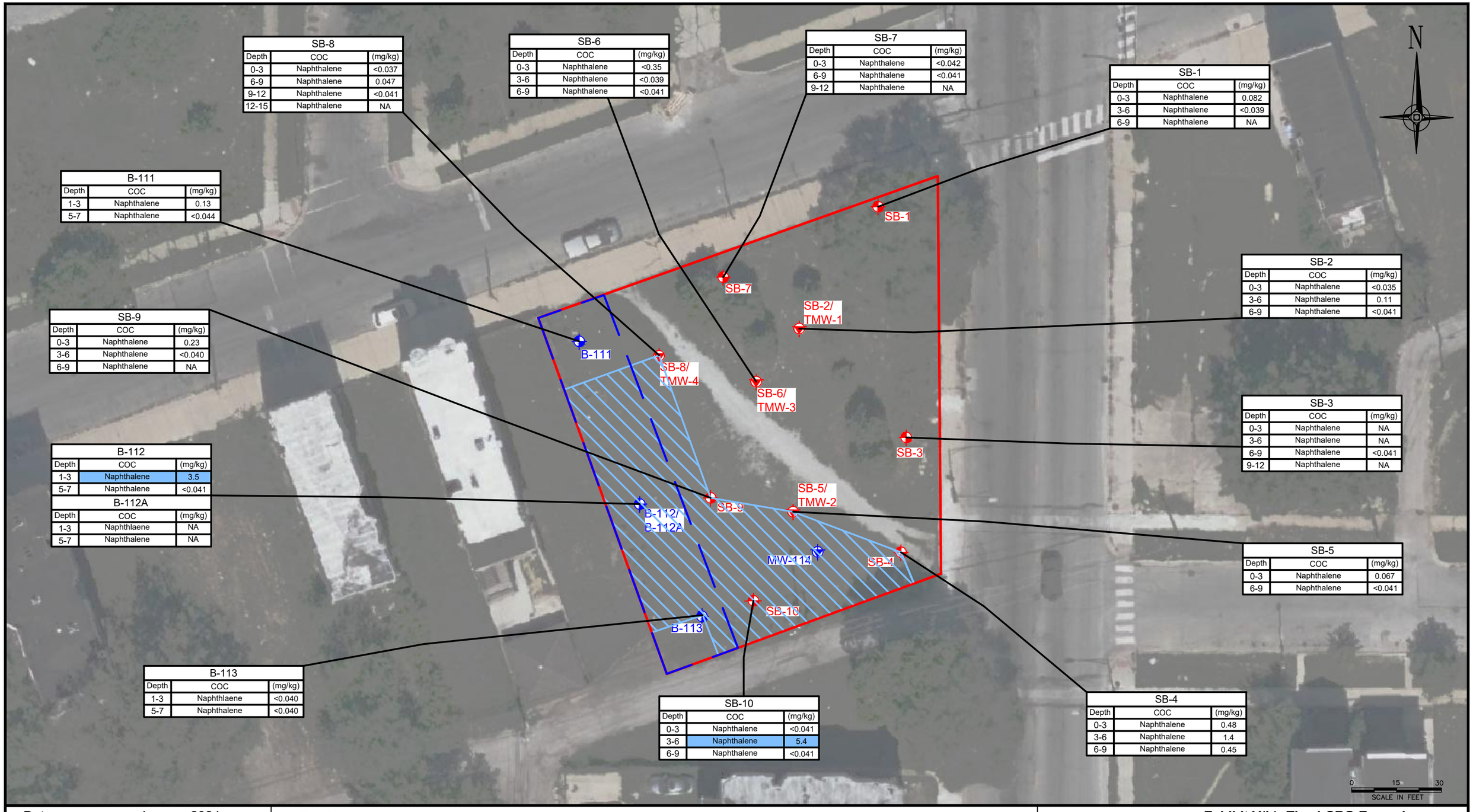

Date:	January 2024
Scale:	1"=30'
Drawn by:	LT
Checked by:	DSB

Your Environmental Resource

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LEGEND

- Remediation Site Boundary
- PIN 16-13-115-009 Boundary
- B-100 — CCA Soil Borings
- MW-100 — CCA Permanent Monitoring Well
- SB-# — 2018 Soil Borings
- TMW-# — 2018 Temporary Monitoring Wells

Estimated Extent of Soils Exceeding Tier 1 SRO

Soil Boring		
Depth	COC	(mg/kg)

Tier 1 SROs	
COC	(mg/kg)
Naphthalene	1.8

[Shaded] = Soil Sample Exceeding Tier 1 Soil Remediation Objective (SRO)

Notes:
1. COC= Contaminant of Concern
2. Tier 1 SROs have been adjusted for 2022 95th percentile background concentrations, as applicable.
3. All depths provided in feet below ground surface (bgs)

Exhibit V(b): Tier 1 SRO Exceedances
Construction Worker Soil Inhalation - Naphthalene
3001-13 W. Fifth Avenue
Chicago, Illinois 60612

Carnow, Conibear & Assoc., Ltd.
Environmental Consulting Services
600 W. Van Buren St., Suite 500, Chicago, IL 60607
t: 312.782.4486 f: 312.782.5145
www.ccaltd.com

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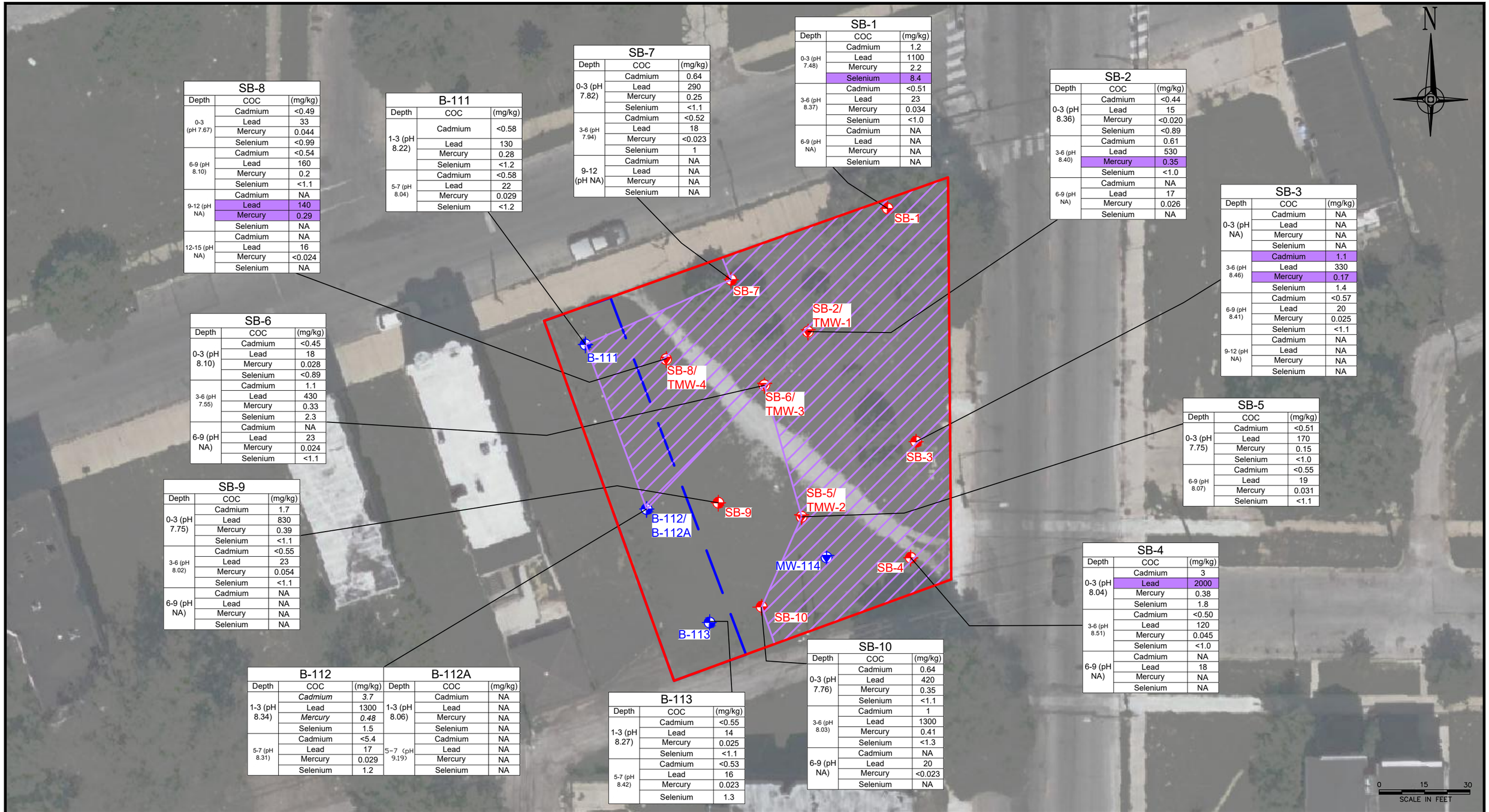

SB-8		
Depth	COC	(mg/kg)
0-3 (pH 7.67)	Cadmium	<0.49
	Lead	33
	Mercury	0.044
	Selenium	<0.99
6-9 (pH 8.10)	Cadmium	<0.54
	Lead	160
	Mercury	0.2
	Selenium	<1.1
9-12 (pH NA)	Cadmium	NA
	Lead	140
	Mercury	0.29
	Selenium	NA
12-15 (pH NA)	Cadmium	NA
	Lead	16
	Mercury	<0.024
	Selenium	NA

B-111		
Depth	COC	(mg/kg)
1-3 (pH 8.22)	Cadmium	<0.58
	Lead	130
	Mercury	0.28
	Selenium	<1.2
5-7 (pH 8.04)	Cadmium	<0.58
	Lead	22
	Mercury	0.029
	Selenium	<1.2

SB-7		
Depth	COC	(mg/kg)
0-3 (pH 7.82)	Cadmium	0.64
	Lead	290
	Mercury	0.25
	Selenium	<1.1
3-6 (pH 7.94)	Cadmium	<0.52
	Lead	18
	Mercury	<0.023
	Selenium	1
9-12 (pH NA)	Cadmium	NA
	Lead	NA
	Mercury	NA
	Selenium	NA

SB-1		
Depth	COC	(mg/kg)
0-3 (pH 7.48)	Cadmium	1.2
	Lead	1100
	Mercury	2.2
	Selenium	8.4
3-6 (pH 8.37)	Cadmium	<0.51
	Lead	23
	Mercury	0.034
	Selenium	<1.0
6-9 (pH NA)	Cadmium	NA
	Lead	NA
	Mercury	NA
	Selenium	NA

SB-2		
Depth	COC	(mg/kg)
0-3 (pH 8.36)	Cadmium	<0.44
	Lead	15
	Mercury	<0.020
	Selenium	<0.89
3-6 (pH 8.40)	Cadmium	0.61
	Lead	530
	Mercury	0.35
	Selenium	<1.0
6-9 (pH NA)	Cadmium	NA
	Lead	17
	Mercury	0.026
	Selenium	NA

SB-3		
Depth	COC	(mg/kg)
0-3 (pH NA)	Cadmium	NA
	Lead	NA
	Mercury	NA
	Selenium	NA
3-6 (pH 8.46)	Cadmium	1.1
	Lead	330
	Mercury	0.17
	Selenium	1.4
6-9 (pH 8.41)	Cadmium	<0.57
	Lead	20
	Mercury	0.025
	Selenium	<1.1
9-12 (pH NA)	Cadmium	NA
	Lead	NA
	Mercury	NA
	Selenium	NA

SB-6		
Depth	COC	(mg/kg)
0-3 (pH 8.10)	Cadmium	<0.45
	Lead	18
	Mercury	0.028
	Selenium	<0.89
3-6 (pH 7.55)	Cadmium	1.1
	Lead	430
	Mercury	0.33
	Selenium	2.3
6-9 (pH NA)	Cadmium	NA
	Lead	23
	Mercury	0.024
	Selenium	<1.1

SB-5		
Depth	COC	(mg/kg)
0-3 (pH 7.75)	Cadmium	<0.51
	Lead	170
	Mercury	0.15
	Selenium	<1.0
6-9 (pH 8.07)	Cadmium	<0.55
	Lead	19
	Mercury	0.031
	Selenium	<1.1

SB-9		
Depth	COC	(mg/kg)
0-3 (pH 7.75)	Cadmium	1.7
	Lead	830
	Mercury	0.39
	Selenium	<1.1
3-6 (pH 8.02)	Cadmium	<0.55
	Lead	23
	Mercury	0.054
	Selenium	<1.1
6-9 (pH NA)	Cadmium	NA
	Lead	NA
	Mercury	NA
	Selenium	NA

SB-4		
Depth	COC	(mg/kg)
0-3 (pH 8.04)	Cadmium	3
	Lead	2000
	Mercury	0.38
	Selenium	1.8
3-6 (pH 8.51)	Cadmium	<0.50
	Lead	120
	Mercury	0.045
	Selenium	<1.0
6-9 (pH NA)	Cadmium	NA
	Lead	18
	Mercury	NA
	Selenium	NA

B-112			B-112A		
Depth	COC	(mg/kg)	Depth	COC	(mg/kg)
1-3 (pH 8.34)	*Cadmium*	*3.7*	1-3 (pH 8.06)	Cadmium	NA
	Lead	1300		Lead	NA
	Mercury	*0.48*		Mercury	NA
	Selenium	1.5		Selenium	NA
5-7 (pH 8.31)	Cadmium	<5.4	5-7 (pH 9.19)	Cadmium	NA
	Lead	17		Lead	NA
	Mercury	0.029		Mercury	NA
	Selenium	1.2		Selenium	NA

B-113		
Depth	COC	(mg/kg)
1-3 (pH 8.27)	Cadmium	<0.55
	Lead	14
	Mercury	0.025
	Selenium	<1.1
5-7 (pH 8.42)	Cadmium	<0.53
	Lead	16
	Mercury	0.023
	Selenium	1.3

SB-10		
Depth	COC	(mg/kg)
0-3 (pH 7.76)	Cadmium	0.64
	Lead	420
	Mercury	0.35
	Selenium	<1.1
3-6 (pH 8.03)	Cadmium	1
	Lead	1300
	Mercury	0.41
	Selenium	<1.3
6-9 (pH NA)	Cadmium	NA
	Lead	20
	Mercury	<0.023
	Selenium	NA

Date:	January 2024
Scale:	1"=30'
Drawn by:	LT
Checked by:	DSB

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LEGEND

- Remediation Site Boundary
- PIN 16-13-115-009 Boundary
- B-100 CCA Soil Borings
- MW-100 CCA Permanent Monitoring Well
- SB-# 2018 Soil Borings
- TMW-# 2018 Temporary Monitoring Wells

Soil Boring						
Depth	COC	pH 7.25-7.74 (mg/kg)	pH 7.75-8.24 (mg/kg)	pH 8.25-8.74 (mg/kg)	pH 8.75-9.0 (mg/kg)	2022 Background
	Cadmium	590	4,300	NE	NE	0.8
	Lead	1,420	1,420	1,420	3,760	45.1
	Mercury	32	40	NE	NE	0.08
	Selenium	3.3	2.4	1.8	1.3	0.7

Estimated Extent of Soils Exceeding Tier 1 SROs

Notes:
1. COC = Contaminant of Concern
2. Tier 1 SROs have been adjusted for 2022 95th percentile background concentrations, as applicable.
3. All depths provided in feet below ground surface (bgs)

Exhibit VI(a): Tier 1 SRO Exceedances
Soil Component of Class II Groundwater Ingestion- Inorganics
3001-13 W. Fifth Avenue
Chicago, Illinois 60612

Carnow, Conibear & Assoc., Ltd.
Environmental Consulting Services
600 W. Van Buren St., Suite 500, Chicago, IL 60607
t: 312.782.4486 f: 312.782.5145
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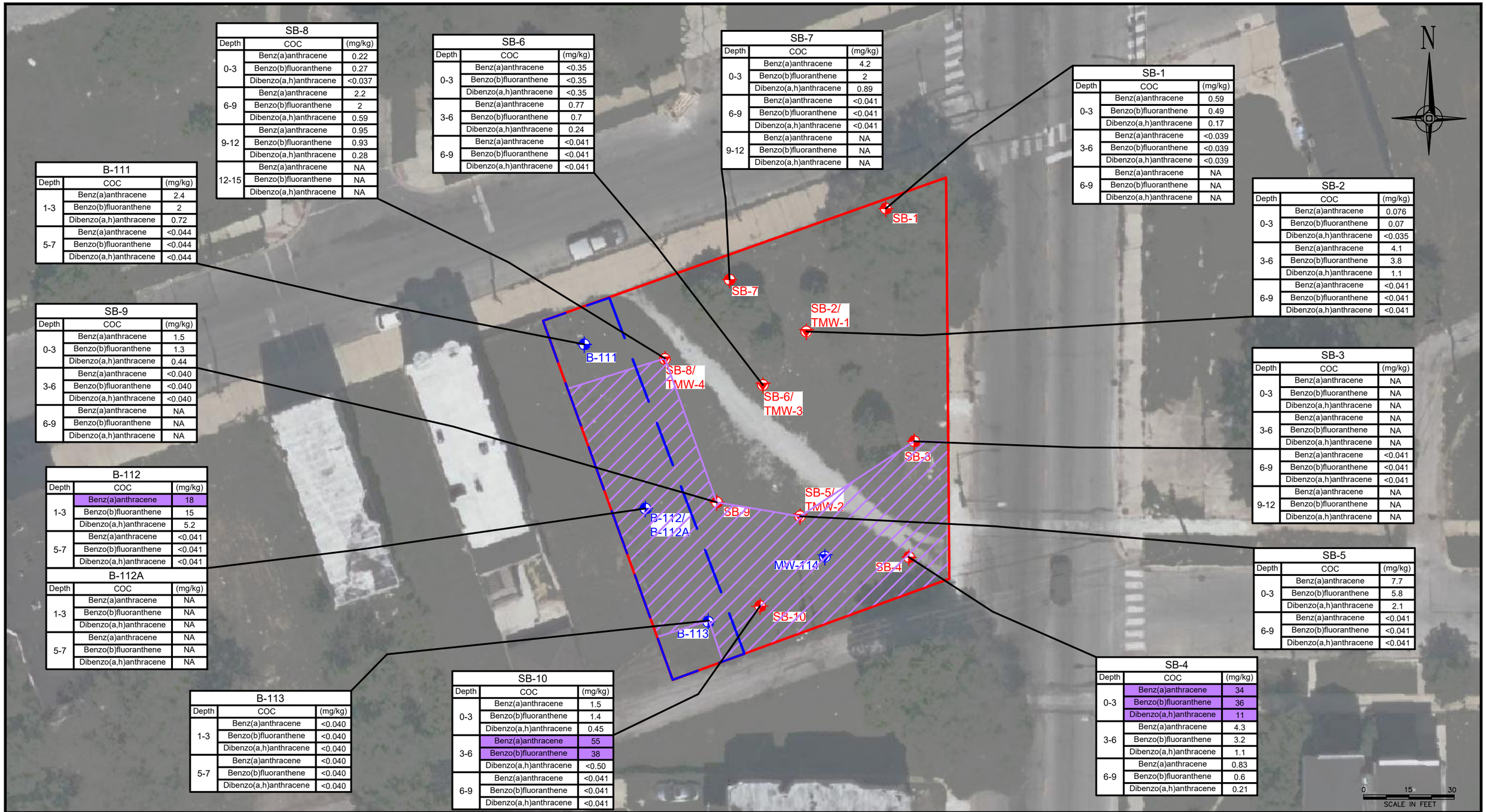

SB-8		
Depth	COC	(mg/kg)
0-3	Benz(a)anthracene	0.22
	Benzo(b)fluoranthene	0.27
	Dibenzo(a,h)anthracene	<0.037
6-9	Benz(a)anthracene	2.2
	Benzo(b)fluoranthene	2
	Dibenzo(a,h)anthracene	0.59
9-12	Benz(a)anthracene	0.95
	Benzo(b)fluoranthene	0.93
	Dibenzo(a,h)anthracene	0.28
12-15	Benz(a)anthracene	NA
	Benzo(b)fluoranthene	NA
	Dibenzo(a,h)anthracene	NA

SB-6		
Depth	COC	(mg/kg)
0-3	Benz(a)anthracene	<0.35
	Benzo(b)fluoranthene	<0.35
	Dibenzo(a,h)anthracene	<0.35
3-6	Benz(a)anthracene	0.77
	Benzo(b)fluoranthene	0.7
	Dibenzo(a,h)anthracene	0.24
6-9	Benz(a)anthracene	<0.041
	Benzo(b)fluoranthene	<0.041
	Dibenzo(a,h)anthracene	<0.041

SB-7		
Depth	COC	(mg/kg)
0-3	Benz(a)anthracene	4.2
	Benzo(b)fluoranthene	2
	Dibenzo(a,h)anthracene	0.89
6-9	Benz(a)anthracene	<0.041
	Benzo(b)fluoranthene	<0.041
	Dibenzo(a,h)anthracene	<0.041
9-12	Benz(a)anthracene	NA
	Benzo(b)fluoranthene	NA
	Dibenzo(a,h)anthracene	NA

SB-1		
Depth	COC	(mg/kg)
0-3	Benz(a)anthracene	0.59
	Benzo(b)fluoranthene	0.49
	Dibenzo(a,h)anthracene	0.17
3-6	Benz(a)anthracene	<0.039
	Benzo(b)fluoranthene	<0.039
	Dibenzo(a,h)anthracene	<0.039
6-9	Benz(a)anthracene	NA
	Benzo(b)fluoranthene	NA
	Dibenzo(a,h)anthracene	NA

B-111		
Depth	COC	(mg/kg)
1-3	Benz(a)anthracene	2.4
	Benzo(b)fluoranthene	2
	Dibenzo(a,h)anthracene	0.72
5-7	Benz(a)anthracene	<0.044
	Benzo(b)fluoranthene	<0.044
	Dibenzo(a,h)anthracene	<0.044

SB-2		
Depth	COC	(mg/kg)
0-3	Benz(a)anthracene	0.076
	Benzo(b)fluoranthene	0.07
	Dibenzo(a,h)anthracene	<0.035
3-6	Benz(a)anthracene	4.1
	Benzo(b)fluoranthene	3.8
	Dibenzo(a,h)anthracene	1.1
6-9	Benz(a)anthracene	<0.041
	Benzo(b)fluoranthene	<0.041
	Dibenzo(a,h)anthracene	<0.041

SB-9		
Depth	COC	(mg/kg)
0-3	Benz(a)anthracene	1.5
	Benzo(b)fluoranthene	1.3
	Dibenzo(a,h)anthracene	0.44
3-6	Benz(a)anthracene	<0.040
	Benzo(b)fluoranthene	<0.040
	Dibenzo(a,h)anthracene	<0.040
6-9	Benz(a)anthracene	NA
	Benzo(b)fluoranthene	NA
	Dibenzo(a,h)anthracene	NA

SB-3		
Depth	COC	(mg/kg)
0-3	Benz(a)anthracene	NA
	Benzo(b)fluoranthene	NA
	Dibenzo(a,h)anthracene	NA
3-6	Benz(a)anthracene	NA
	Benzo(b)fluoranthene	NA
	Dibenzo(a,h)anthracene	NA
6-9	Benz(a)anthracene	<0.041
	Benzo(b)fluoranthene	<0.041
	Dibenzo(a,h)anthracene	<0.041
9-12	Benz(a)anthracene	NA
	Benzo(b)fluoranthene	NA
	Dibenzo(a,h)anthracene	NA

B-112		
Depth	COC	(mg/kg)
1-3	Benz(a)anthracene	18
	Benzo(b)fluoranthene	15
	Dibenzo(a,h)anthracene	5.2
5-7	Benz(a)anthracene	<0.041
	Benzo(b)fluoranthene	<0.041
	Dibenzo(a,h)anthracene	<0.041

B-112A		
Depth	COC	(mg/kg)
1-3	Benz(a)anthracene	NA
	Benzo(b)fluoranthene	NA
	Dibenzo(a,h)anthracene	NA
5-7	Benz(a)anthracene	NA
	Benzo(b)fluoranthene	NA
	Dibenzo(a,h)anthracene	NA

SB-5		
Depth	COC	(mg/kg)
0-3	Benz(a)anthracene	7.7
	Benzo(b)fluoranthene	5.8
	Dibenzo(a,h)anthracene	2.1
6-9	Benz(a)anthracene	<0.041
	Benzo(b)fluoranthene	<0.041
	Dibenzo(a,h)anthracene	<0.041

B-113		
Depth	COC	(mg/kg)
1-3	Benz(a)anthracene	<0.040
	Benzo(b)fluoranthene	<0.040
	Dibenzo(a,h)anthracene	<0.040
5-7	Benz(a)anthracene	<0.040
	Benzo(b)fluoranthene	<0.040
	Dibenzo(a,h)anthracene	<0.040

SB-10		
Depth	COC	(mg/kg)
0-3	Benz(a)anthracene	1.5
	Benzo(b)fluoranthene	1.4
	Dibenzo(a,h)anthracene	0.45
3-6	Benz(a)anthracene	55
	Benzo(b)fluoranthene	38
	Dibenzo(a,h)anthracene	<0.50
6-9	Benz(a)anthracene	<0.041
	Benzo(b)fluoranthene	<0.041
	Dibenzo(a,h)anthracene	<0.041

SB-4		
Depth	COC	(mg/kg)
0-3	Benz(a)anthracene	34
	Benzo(b)fluoranthene	36
	Dibenzo(a,h)anthracene	11
3-6	Benz(a)anthracene	4.3
	Benzo(b)fluoranthene	3.2
	Dibenzo(a,h)anthracene	1.1
6-9	Benz(a)anthracene	0.83
	Benzo(b)fluoranthene	0.6
	Dibenzo(a,h)anthracene	0.21

Date:	January 2024
Scale:	1"=30'
Drawn by:	LT
Checked by:	DSB

Your Environmental Resource

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LEGEND

- Remediation Site Boundary
- PIN 16-13-115-009 Boundary
- B-100 CCA Soil Borings
- MW-100 CCA Permanent Monitoring Well
- SB-# 2018 Soil Borings
- TMW-# 2018 Temporary Monitoring Wells

Soil Boring		
Depth	COC	(mg/kg)

Tier 1 SROs	
COC	(mg/kg)
Benz(a)anthracene	11
Benzo(b)fluoranthene	25
Dibenzo(a,h)anthracene	7.6

Estimated Extent of Soils Exceeding Tier 1 SRO

[Shaded] = Soil Sample Exceeding Tier 1 Soil Remediation Objective (SRO)

Notes:
1. COC= Contaminant of Concern
2. Tier 1 SROs have been adjusted for 2022 95th percentile background concentrations, as applicable.
3. All depths provided in feet below ground surface (bgs)

Exhibit VI(b): Tier 1 SRO Exceedances - Soil Component of Class II Groundwater Ingestion - PNAs

3001-13 W. Fifth Avenue
Chicago, Illinois 60612

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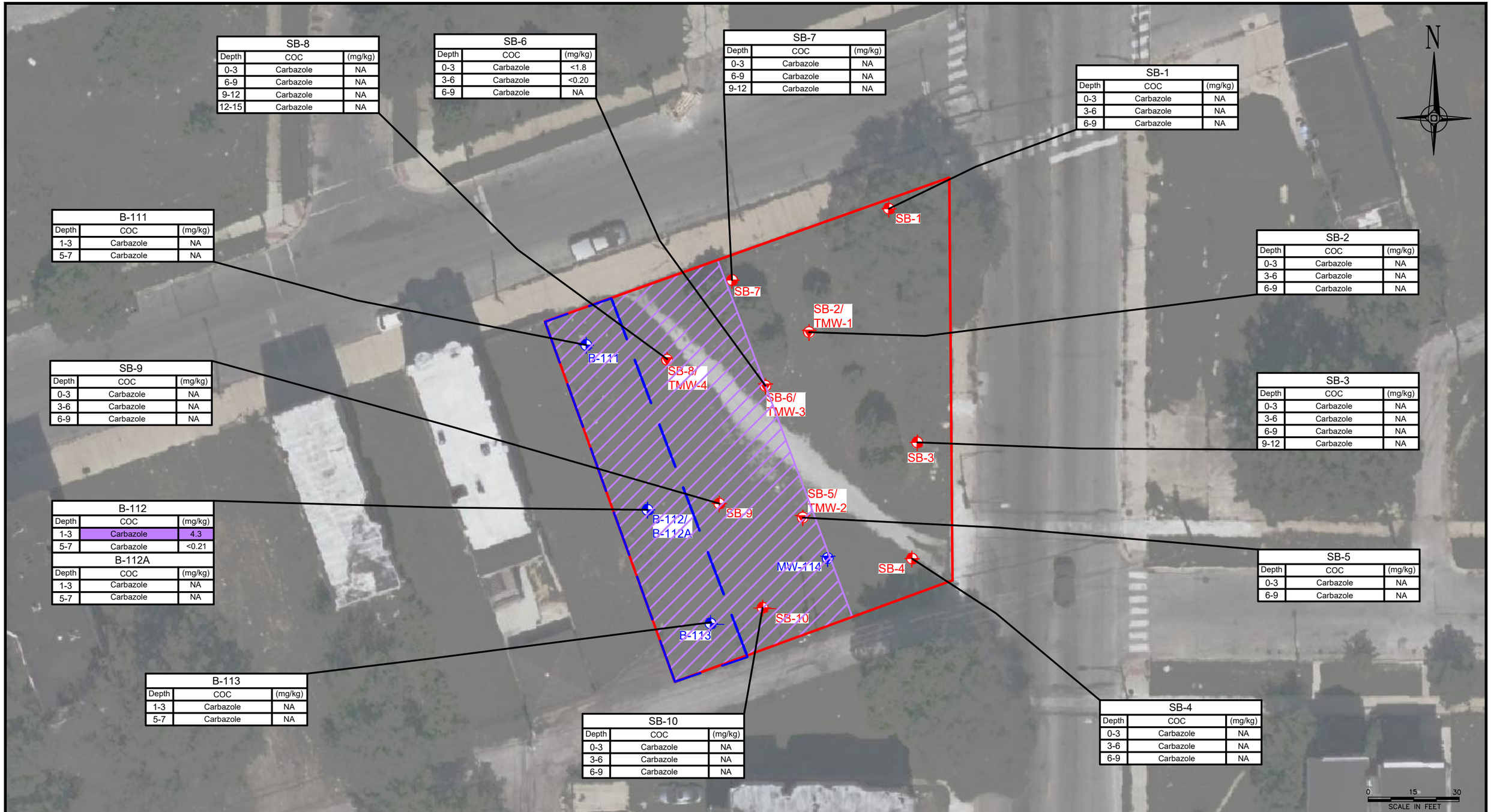

Date:	January 2024
Scale:	1"=30'
Drawn by:	LT
Checked by:	DSB

Your Environmental Resource

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LEGEND

- Remediation Site Boundary
- PIN 16-13-115-0000 Boundary
- B-100 — CCA Soil Borings
- MW-100 — CCA Permanent Monitoring Well
- SB-# — 2018 Soil Borings
- TMW-# — 2018 Temporary Monitoring Wells

Estimated Extent of Soils Exceeding Tier 1 SRO

Soil Boring		
Depth	COC	(mg/kg)

Tier 1 SROs	
COC	(mg/kg)
Carbazole	2.8

[Shaded] = Soil Sample Exceeding Tier 1 Soil Remediation Objective (SRO)

Notes:
1. COC= Contaminant of Concern
2. Tier 1 SROs have been adjusted for background concentrations, as applicable.
3. All depths provided in feet below ground surface (bgs)

Exhibit VI(c): Tier 1 SRO Exceedances - Soil Component of Class II Groundwater Ingestion - Carbazole

3001-13 W. Fifth Avenue
Chicago, Illinois 60612

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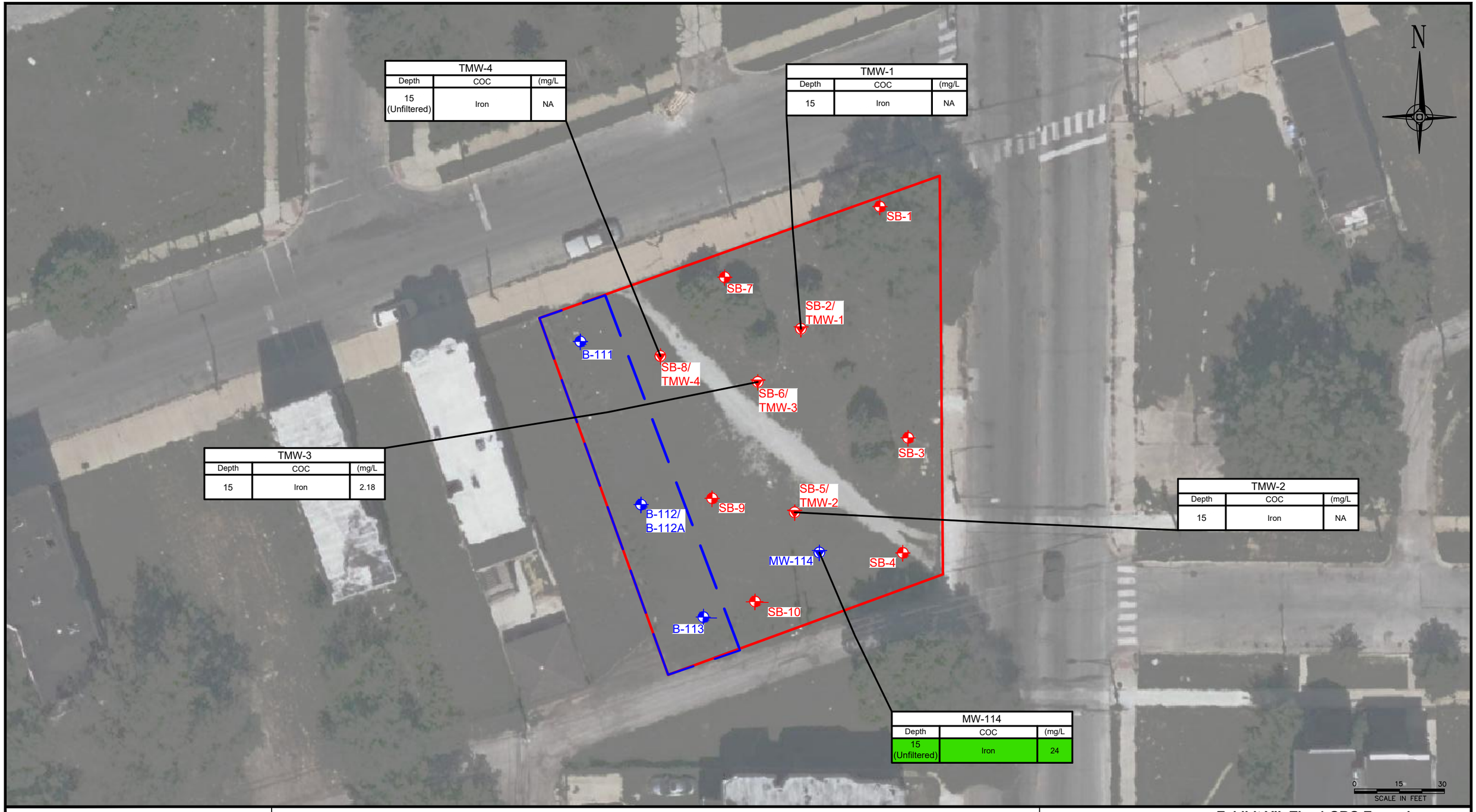

Date:	January 2024
Scale:	1"=30'
Drawn by:	LT
Checked by:	DSB

Your Environmental Resource

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LEGEND

- Remediation Site Boundary
- PIN 16-13-115-009 Boundary
- B-100 — CCA Soil Borings
- MW-100 — CCA Permanent Monitoring Well
- SB-# — 2018 Soil Borings
- TMW-# — 2018 Temporary Monitoring Wells

Well Number		
Depth	COC	(mg/L)

Tier 1 GROs	
COC	(mg/L)
Iron	5

[Shaded] = Groundwater Sample Exceeding Tier 1 Groundwater Remediation Objective (GRO)

Notes:
1. COC= Contaminant of Concern
2. Tier 1 GROs have been adjusted for background concentrations, as applicable.
3. All depths provided in feet below ground surface (bgs)

Exhibit VII: Tier 1 GRO Exceedances
Class II Direct Ingestion - Iron
3001-13 W. Fifth Avenue
Chicago, Illinois 60612

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Date:	January 2024
Scale:	1"=30'
Drawn by:	LT
Checked by:	DSB

Your Environmental Resource

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LEGEND

- Site Boundary
- PIN 16-13-115-009 Boundary
- B-100 CCA Soil Borings
- MW-100 CCA Permanent Monitoring Well
- SB-# 2018 Soil Borings
- TMW-# 2018 Temporary Monitoring Wells

Construction Worker Caution Area

Exhibit VIII: Construction Worker Caution Area
3001-13 W. Fifth Avenue
Chicago, Illinois 60612

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Tables

Table I

Analytical Parameters of Soil Samples

3001-13 W. 5th Avenue, Chicago, Illinois

Analysis		Sample	SB-1	SB-1	SB-1	SB-2	SB-2	SB-2	SB-3	SB-3	SB-3	SB-3
		Date	12/13/2018	12/13/2018	12/13/2018	12/13/2018	12/13/2018	12/13/2018	12/13/2018	12/13/2018	12/13/2018	12/13/2018
		Depth (ft)	0-3	3-6	6-9	0-3	3-6	6-9	0-3	3-6	6-9	9-12
TCL												
VOCs												
BTEX			x	x		x	x		x		x	
PNAs			x	x		x	x				x	
RCRA Metals			x	x		x	x			x	x	
Herbicides												
pH			x	x		x	x			x	x	
TPH												
Total Chromium					x							x
Total Lead								x				
Total Mercury								x				
Total Selenium												
Total Arsenic												
SPLP	Mercury											
	Cadmium											
	Copper											
	Nickel											
	Zinc											
	Barium											
	Lead											
TCLP	Chlordane											
	Lead											

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Table I

Analytical Parameters of Soil Samples

3001-13 W. 5th Avenue, Chicago, Illinois

Analysis		Sample	SB-4	SB-4	SB-4	SB-5	SB-5	SB-6	SB-6	SB-6	SB-7	SB-7
		Date	12/13/2018	12/13/2018	12/13/2018	12/13/2018	12/13/2018	12/13/2018	12/13/2018	12/13/2018	12/13/2018	12/13/2018
		Depth (ft)	0-3	3-6	6-9	0-3	6-9	0-3	3-6	6-9	0-3	6-9
TCL								x	x			
VOCs												
BTEX			x	x		x	x				x	x
PNAs			x	x	x	x	x			x	x	x
RCRA Metals			x	x		x	x				x	x
Herbicides								x	x			
pH			x	x		x	x				x	x
TPH												
Total Chromium												
Total Lead					x							
Total Mercury										x		
Total Selenium										x		
Total Arsenic												
SPLP	Mercury											
	Cadmium											
	Copper											
	Nickel											
	Zinc											
	Barium											
	Lead											
TCLP	Chlordane											
	Lead		x									

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Table I

Analytical Parameters of Soil Samples

3001-13 W. 5th Avenue, Chicago, Illinois

Analysis		Sample	SB-7	SB-8	SB-8	SB-8	SB-8	SB-9	SB-9	SB-9	SB-10	SB-10
		Date	12/13/2018	12/13/2018	12/13/2018	12/13/2018	12/13/2018	12/13/2018	12/13/2018	12/13/2018	12/13/2018	12/13/2018
		Depth (ft)	9-12	0-3	6-9	9-12	12-15	0-3	3-6	6-9	0-3	3-6
TCL												
VOCs												
BTEX				x	x			x	x		x	x
PNAs				x	x	x		x	x		x	x
RCRA Metals				x	x			x	x		x	x
Herbicides												
pH				x	x			x	x		x	x
TPH												
Total Chromium												
Total Lead						x	x					
Total Mercury						x	x					
Total Selenium												
Total Arsenic			x							x		
SPLP	Mercury											
	Cadmium											
	Copper											
	Nickel											
	Zinc											
	Barium											
	Lead											
TCLP	Chlordane											
	Lead											x

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Table I

Analytical Parameters of Soil Samples

3001-13 W. 5th Avenue, Chicago, Illinois

Analysis		Sample	SB-10	B-111	B-111	B-112	B-112A	B-112	B-112A	B-113	B-113
		Date	12/13/2018	12/8/2023	12/8/2023	12/8/2023	10/31/23	12/8/2023	10/31/23	12/8/2023	12/8/2023
		Depth (ft)	6-9	1-3	5-7	1-3	1-3	5-7	5-7	1-3	5-7
TCL						x		x			
VOCs											
BTEX											
PNAs			x	x	x					x	x
RCRA Metals				x	x					x	x
Herbicides						x					
pH				x	x	x		x		x	x
TPH							x		x		
Total Chromium											
Total Lead			x								
Total Mercury			x								
Total Selenium											
Total Arsenic											
SPLP	Mercury					x					
	Cadmium					x					
	Copper					x					
	Nickel					x		x			
	Zinc					x					
	Barium					x					
	Lead										
TCLP	Chlordane					x					
	Lead			x		x					

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Table II

Soil Analytical Results - VOCs

	Analyte	IEPA SROs						C_{SAT} Outdoor Inhalation	C_{SAT} SC of GW Ing	Sample Date	SB-1	SB-1	SB-1	SB-2	SB-2
		Residential		Construction Worker		G.W. Ing.	ADL				12/13/2018	12/13/2018	12/13/2018	12/13/2018	12/13/2018
		Ingestion	Inhalation	Ingestion	Inhalation	Class II				Depth (ft)	0-3	3-6	6-9	0-3	3-6
VOCs	**Acetone**	70,000	100,000	NC	100,000	25	*	100,000	200,000		NA	NA	NA	NA	NA
	Benzene	12	0.8	2,300	2.2	0.17	*	800	580		<0.0070	<0.0044	NA	<0.0055	<0.0048
	Bromodichloromethane	10	3,000	2,000	3,000	0.6	*	2,800	2,000		NA	NA	NA	NA	NA
	Bromoform	81	53	16,000	140	0.8	*	2,000	1,200		NA	NA	NA	NA	NA
	Bromomethane	110	10	1,000	3.9	1.2	*	3,100	3,600		NA	NA	NA	NA	NA
	2-Butanone (MEK)	47,000	25,000	120,000	730	17	NE	25,000	45,000		NA	NA	NA	NA	NA
	Carbon Disulfide	7,800	720	20,000	9.0	160	*	850	520		NA	NA	NA	NA	NA
	Carbon Tetrachloride	5.0	0.3	410	0.9	0.33	*	1,200	560		NA	NA	NA	NA	NA
	Chlorobenzene	1,600	130	4,100	1.3	6.5	*	620	290		NA	NA	NA	NA	NA
	Chloroethane	NC	NC	NC	NC	NC	NE	NE	NE		NA	NA	NA	NA	NA
	Chloroform	100	0.3	2,000	0.76	2.9	*	3,400	2,500		NA	NA	NA	NA	NA
	Chloromethane	NC	NC	NC	NC	NC	NE	NE	NE		NA	NA	NA	NA	NA
	Dibromochloromethane	1,600	1,300	41,000	1,300	0.4	*	1,400	890		NA	NA	NA	NA	NA
	1,1-Dichloroethane	7,800	1,300	200,000	130	110	*	1,700	1,400		NA	NA	NA	NA	NA
	1,2-Dichloroethane	7.0	0.4	1,400	0.99	0.1	*	1,900	2,100		NA	NA	NA	NA	NA
	1,1-Dichloroethene	3,900	290	10,000	3.0	0.3	*	1,400	910		NA	NA	NA	NA	NA
	cis-1,2-Dichloroethene	780	1,200	20,000	1,200	1.1	*	1,300	1,000		NA	NA	NA	NA	NA
	trans-1,2-Dichloroethene	1,600	3,100	41,000	3,100	3.4	*	3,000	2,100		NA	NA	NA	NA	NA
	1,2-Dichloropropane	9.0	15	1,800	0.5	0.15	*	1,200	870		NA	NA	NA	NA	NA
	cis-1,3-Dichloropropene	6.4	1.1	1,200	0.39	0.02	0.005	1,000	850		NA	NA	NA	NA	NA
	trans-1,3-Dichloropropene	6.4	1.1	1,200	0.39	0.02	0.005	1,000	850		NA	NA	NA	NA	NA
	Ethylbenzene	7,800	400	20,000	58	19	*	350	150		<0.0070	<0.0044	NA	<0.0055	<0.0048
	2-Hexanone	NE	NE	NE	NE	NE	NE	NE	NE		NA	NA	NA	NA	NA
	Methylene Chloride	85	13	12,000	34	0.2	*	2,500	3,000		NA	NA	NA	NA	NA
	Methyl-tertiary-butyl ether (MTBE)	780	8,800	2,000	140	0.32	*	8,400	1,100		NA	NA	NA	NA	NA
	Styrene	16,000	1,500	41,000	430	18	*	630	260		NA	NA	NA	NA	NA
	1,1,2,2-Tetrachloroethane	NC	NC	NC	NC	NC	*	NE	NE		NA	NA	NA	NA	NA
	Tetrachloroethene	12	11	2,400	28	0.3	*	800	310		NA	NA	NA	NA	NA
	Toluene	16,000	650	410,000	42	29	*	580	290		<0.0070	<0.0044	NA	<0.0055	<0.0048
	1,1,1-Trichloroethane	NC	1,200	NC	1,200	9.6	*	1,300	670		NA	NA	NA	NA	NA
	1,1,2-Trichloroethane	310	1,800	8,200	1,800	0.3	*	1,800	890		NA	NA	NA	NA	NA
	Trichloroethene	58	5.0	1,200	12	0.3	*	1,200	650		NA	NA	NA	NA	NA
	Vinyl Chloride	0.46	0.28	170	1.1	0.07	*	2,600	2,900		NA	NA	NA	NA	NA
	Xylenes, Total	16,000	320	41,000	5.6	150	*	280	110		<0.022	<0.013	NA	<0.017	<0.014

NOTES:

1. All results expressed in milligrams per kilogram (mg/kg).
2. NA = Not analyzed for this constituent.
3. NC = No toxicity criteria for this exposure route.
4. NE = No established IEPA SRO for this analyte.
5. Samples were analyzed by EPA Method SW-5035/8260B.
6. G.W. Ing. = Soil Component of the Groundwater Ingestion Exposure Route.
7. **Bold values** = Concentration exceeds soil ing. and/or inh. exposure route for residential Tier 1 SROs.
8. O = Concentration exceeds soil ing. and/or inh. exposure route for construction worker Tier 1 SROs.
9. = Concentration exceeds soil component of the groundwater ing. exposure route for Class I and/or Class II Tier 1 SROs.
10. * = The ADL is less than or equal to the specified remediation objective.
11. SS = Site-specific based upon wet weight of soil.

Table II

Soil Analytical Results - VOCs

	Analyte	IEPA SROs						C_{SAT} Outdoor Inhalation	C_{SAT} SC of GW Ing	Sample Date	SB-2	SB-3	SB-3	SB-3	SB-3
		Residential		Construction Worker		G.W. Ing.	ADL				12/13/2018	12/13/2018	12/13/2018	12/13/2018	12/13/2018
		Ingestion	Inhalation	Ingestion	Inhalation	Class II				Depth (ft)	6-9	0-3	3-6	6-9	9-12
VOCs	**Acetone**	70,000	100,000	NC	100,000	25	*	100,000	200,000		NA	NA	NA	NA	NA
	Benzene	12	0.8	2,300	2.2	0.17	*	800	580		NA	<0.0037	NA	<0.0047	NA
	Bromodichloromethane	10	3,000	2,000	3,000	0.6	*	2,800	2,000		NA	NA	NA	NA	NA
	Bromoform	81	53	16,000	140	0.8	*	2,000	1,200		NA	NA	NA	NA	NA
	Bromomethane	110	10	1,000	3.9	1.2	*	3,100	3,600		NA	NA	NA	NA	NA
	2-Butanone (MEK)	47,000	25,000	120,000	730	17	NE	25,000	45,000		NA	NA	NA	NA	NA
	Carbon Disulfide	7,800	720	20,000	9.0	160	*	850	520		NA	NA	NA	NA	NA
	Carbon Tetrachloride	5.0	0.3	410	0.9	0.33	*	1,200	560		NA	NA	NA	NA	NA
	Chlorobenzene	1,600	130	4,100	1.3	6.5	*	620	290		NA	NA	NA	NA	NA
	Chloroethane	NC	NC	NC	NC	NC	NE	NE	NE		NA	NA	NA	NA	NA
	Chloroform	100	0.3	2,000	0.76	2.9	*	3,400	2,500		NA	NA	NA	NA	NA
	Chloromethane	NC	NC	NC	NC	NC	NE	NE	NE		NA	NA	NA	NA	NA
	Dibromochloromethane	1,600	1,300	41,000	1,300	0.4	*	1,400	890		NA	NA	NA	NA	NA
	1,1-Dichloroethane	7,800	1,300	200,000	130	110	*	1,700	1,400		NA	NA	NA	NA	NA
	1,2-Dichloroethane	7.0	0.4	1,400	0.99	0.1	*	1,900	2,100		NA	NA	NA	NA	NA
	1,1-Dichloroethene	3,900	290	10,000	3.0	0.3	*	1,400	910		NA	NA	NA	NA	NA
	cis-1,2-Dichloroethene	780	1,200	20,000	1,200	1.1	*	1,300	1,000		NA	NA	NA	NA	NA
	trans-1,2-Dichloroethene	1,600	3,100	41,000	3,100	3.4	*	3,000	2,100		NA	NA	NA	NA	NA
	1,2-Dichloropropane	9.0	15	1,800	0.5	0.15	*	1,200	870		NA	NA	NA	NA	NA
	cis-1,3-Dichloropropene	6.4	1.1	1,200	0.39	0.02	0.005	1,000	850		NA	NA	NA	NA	NA
	trans-1,3-Dichloropropene	6.4	1.1	1,200	0.39	0.02	0.005	1,000	850		NA	NA	NA	NA	NA
	Ethylbenzene	7,800	400	20,000	58	19	*	350	150		NA	<0.0037	NA	<0.0047	NA
	2-Hexanone	NE	NE	NE	NE	NE	NE	NE	NE		NA	NA	NA	NA	NA
	Methylene Chloride	85	13	12,000	34	0.2	*	2,500	3,000		NA	NA	NA	NA	NA
	Methyl-tertiary-butyl ether (MTBE)	780	8,800	2,000	140	0.32	*	8,400	1,100		NA	NA	NA	NA	NA
	Styrene	16,000	1,500	41,000	430	18	*	630	260		NA	NA	NA	NA	NA
	1,1,2,2-Tetrachloroethane	NC	NC	NC	NC	NC	*	NE	NE		NA	NA	NA	NA	NA
	Tetrachloroethene	12	11	2,400	28	0.3	*	800	310		NA	NA	NA	NA	NA
	Toluene	16,000	650	410,000	42	29	*	580	290		NA	<0.0037	NA	<0.0047	NA
	1,1,1-Trichloroethane	NC	1,200	NC	1,200	9.6	*	1,300	670		NA	NA	NA	NA	NA
	1,1,2-Trichloroethane	310	1,800	8,200	1,800	0.3	*	1,800	890		NA	NA	NA	NA	NA
	Trichloroethene	58	5.0	1,200	12	0.3	*	1,200	650		NA	NA	NA	NA	NA
	Vinyl Chloride	0.46	0.28	170	1.1	0.07	*	2,600	2,900		NA	NA	NA	NA	NA
	Xylenes, Total	16,000	320	41,000	5.6	150	*	280	110		NA	<0.011	NA	<0.014	NA

NOTES:

1. All results expressed in milligrams per kilogram (mg/kg).
2. NA = Not analyzed for this constituent.
3. NC = No toxicity criteria for this exposure route.
4. NE = No established IEPA SRO for this analyte.
5. Samples were analyzed by EPA Method SW-5035/8260B.
6. G.W. Ing. = Soil Component of the Groundwater Ingestion Exposure Route.
7. **Bold values** = Concentration exceeds soil ing. and/or inh. exposure route for residential Tier 1 SROs.
8. **O** = Concentration exceeds soil ing. and/or inh. exposure route for construction worker Tier 1 SROs.
9. = Concentration exceeds soil component of the groundwater ing. exposure route for Class I and/or Class II Tier 1 SROs.
10. * = The ADL is less than or equal to the specified remediation objective.
11. SS = Site-specific based upon wet weight of soil.

Table II

Soil Analytical Results - VOCs

	Analyte	IEPA SROs						C_{SAT} Outdoor Inhalation	C_{SAT} SC of GW Ing	Sample Date	SB-4	SB-4	SB-4	SB-5	SB-5
		Residential		Construction Worker		G.W. Ing.	ADL				12/13/2018	12/13/2018	12/13/2018	12/13/2018	12/13/2018
		Ingestion	Inhalation	Ingestion	Inhalation	Class II				Depth (ft)	0-3	3-6	6-9	0-3	6-9
VOCs	**Acetone**	70,000	100,000	NC	100,000	25	*	100,000	200,000		NA	NA	NA	NA	NA
	Benzene	12	0.8	2,300	2.2	0.17	*	800	580		<0.0055	<0.0047	NA	<0.0054	<0.0047
	Bromodichloromethane	10	3,000	2,000	3,000	0.6	*	2,800	2,000		NA	NA	NA	NA	NA
	Bromoform	81	53	16,000	140	0.8	*	2,000	1,200		NA	NA	NA	NA	NA
	Bromomethane	110	10	1,000	3.9	1.2	*	3,100	3,600		NA	NA	NA	NA	NA
	2-Butanone (MEK)	47,000	25,000	120,000	730	17	NE	25,000	45,000		NA	NA	NA	NA	NA
	Carbon Disulfide	7,800	720	20,000	9.0	160	*	850	520		NA	NA	NA	NA	NA
	Carbon Tetrachloride	5.0	0.3	410	0.9	0.33	*	1,200	560		NA	NA	NA	NA	NA
	Chlorobenzene	1,600	130	4,100	1.3	6.5	*	620	290		NA	NA	NA	NA	NA
	Chloroethane	NC	NC	NC	NC	NC	NE	NE	NE		NA	NA	NA	NA	NA
	Chloroform	100	0.3	2,000	0.76	2.9	*	3,400	2,500		NA	NA	NA	NA	NA
	Chloromethane	NC	NC	NC	NC	NC	NE	NE	NE		NA	NA	NA	NA	NA
	Dibromochloromethane	1,600	1,300	41,000	1,300	0.4	*	1,400	890		NA	NA	NA	NA	NA
	1,1-Dichloroethane	7,800	1,300	200,000	130	110	*	1,700	1,400		NA	NA	NA	NA	NA
	1,2-Dichloroethane	7.0	0.4	1,400	0.99	0.1	*	1,900	2,100		NA	NA	NA	NA	NA
	1,1-Dichloroethene	3,900	290	10,000	3.0	0.3	*	1,400	910		NA	NA	NA	NA	NA
	cis-1,2-Dichloroethene	780	1,200	20,000	1,200	1.1	*	1,300	1,000		NA	NA	NA	NA	NA
	trans-1,2-Dichloroethene	1,600	3,100	41,000	3,100	3.4	*	3,000	2,100		NA	NA	NA	NA	NA
	1,2-Dichloropropane	9.0	15	1,800	0.5	0.15	*	1,200	870		NA	NA	NA	NA	NA
	cis-1,3-Dichloropropene	6.4	1.1	1,200	0.39	0.02	0.005	1,000	850		NA	NA	NA	NA	NA
	trans-1,3-Dichloropropene	6.4	1.1	1,200	0.39	0.02	0.005	1,000	850		NA	NA	NA	NA	NA
	Ethylbenzene	7,800	400	20,000	58	19	*	350	150		<0.0055	<0.0047	NA	<0.0054	<0.0047
	2-Hexanone	NE	NE	NE	NE	NE	NE	NE	NE		NA	NA	NA	NA	NA
	Methylene Chloride	85	13	12,000	34	0.2	*	2,500	3,000		NA	NA	NA	NA	NA
	Methyl-tertiary-butyl ether (MTBE)	780	8,800	2,000	140	0.32	*	8,400	1,100		NA	NA	NA	NA	NA
	Styrene	16,000	1,500	41,000	430	18	*	630	260		NA	NA	NA	NA	NA
	1,1,2,2-Tetrachloroethane	NC	NC	NC	NC	NC	*	NE	NE		NA	NA	NA	NA	NA
	Tetrachloroethene	12	11	2,400	28	0.3	*	800	310		NA	NA	NA	NA	NA
	Toluene	16,000	650	410,000	42	29	*	580	290		<0.0055	<0.0047	NA	<0.0054	<0.0047
	1,1,1-Trichloroethane	NC	1,200	NC	1,200	9.6	*	1,300	670		NA	NA	NA	NA	NA
	1,1,2-Trichloroethane	310	1,800	8,200	1,800	0.3	*	1,800	890		NA	NA	NA	NA	NA
	Trichloroethene	58	5.0	1,200	12	0.3	*	1,200	650		NA	NA	NA	NA	NA
	Vinyl Chloride	0.46	0.28	170	1.1	0.07	*	2,600	2,900		NA	NA	NA	NA	NA
	Xylenes, Total	16,000	320	41,000	5.6	150	*	280	110		<0.017	<0.014	NA	<0.016	<0.015

NOTES:

1. All results expressed in milligrams per kilogram (mg/kg).
2. NA = Not analyzed for this constituent.
3. NC = No toxicity criteria for this exposure route.
4. NE = No established IEPA SRO for this analyte.
5. Samples were analyzed by EPA Method SW-5035/8260B.
6. G.W. Ing. = Soil Component of the Groundwater Ingestion Exposure Route.
7. **Bold values** = Concentration exceeds soil ing. and/or inh. exposure route for residential Tier 1 SROs.
8. **O** = Concentration exceeds soil ing. and/or inh. exposure route for construction worker Tier 1 SROs.
9. = Concentration exceeds soil component of the groundwater ing. exposure route for Class I and/or Class II Tier 1 SROs.
10. * = The ADL is less than or equal to the specified remediation objective.
11. SS = Site-specific based upon wet weight of soil.

Table II

Soil Analytical Results - VOCs

	Analyte	IEPA SROs						C_{SAT} Outdoor Inhalation	C_{SAT} SC of GW Ing	Sample Date	SB-6	SB-6	SB-6	SB-7	SB-7
		Residential		Construction Worker		G.W. Ing.	ADL				12/13/2018	12/13/2018	12/13/2018	12/13/2018	12/13/2018
		Ingestion	Inhalation	Ingestion	Inhalation	Class II				Depth (ft)	0-3	3-6	6-9	0-3	6-9
VOCs	**Acetone**	70,000	100,000	NC	100,000	25	*	100,000	200,000		<0.073	<0.071	NA	NA	NA
	Benzene	12	0.8	2,300	2.2	0.17	*	800	580		<0.0049	<0.0047	NA	<0.0072	<0.0048
	Bromodichloromethane	10	3,000	2,000	3,000	0.6	*	2,800	2,000		<0.0049	<0.0047	NA	NA	NA
	Bromoform	81	53	16,000	140	0.8	*	2,000	1,200		<0,0049	<0.0047	NA	NA	NA
	Bromomethane	110	10	1,000	3.9	1.2	*	3,100	3,600		<0.0098	<0.0093	NA	NA	NA
	2-Butanone (MEK)	47,000	25,000	120,000	730	17	NE	25,000	45,000		<0.073	<0.071	NA	NA	NA
	Carbon Disulfide	7,800	720	20,000	9.0	160	*	850	520		<0.049	<0.047	NA	NA	NA
	Carbon Tetrachloride	5.0	0.3	410	0.9	0.33	*	1,200	560		<0.0049	<0.0047	NA	NA	NA
	Chlorobenzene	1,600	130	4,100	1.3	6.5	*	620	290		<0.0049	<0.0047	NA	NA	NA
	Chloroethane	NC	NC	NC	NC	NC	NE	NE	NE		<0.0098	<0.0093	NA	NA	NA
	Chloroform	100	0.3	2,000	0.76	2.9	*	3,400	2,500		<0.0049	<0.0047	NA	NA	NA
	Chloromethane	NC	NC	NC	NC	NC	NE	NE	NE		<0.0098	<0.0093	NA	NA	NA
	Dibromochloromethane	1,600	1,300	41,000	1,300	0.4	*	1,400	890		<0.0049	<0.0047	NA	NA	NA
	1,1-Dichloroethane	7,800	1,300	200,000	130	110	*	1,700	1,400		<0.0049	<0.0047	NA	NA	NA
	1,2-Dichloroethane	7.0	0.4	1,400	0.99	0.1	*	1,900	2,100		<0.0049	<0.0047	NA	NA	NA
	1,1-Dichloroethene	3,900	290	10,000	3.0	0.3	*	1,400	910		<0.0049	<0.0047	NA	NA	NA
	cis-1,2-Dichloroethene	780	1,200	20,000	1,200	1.1	*	1,300	1,000		<0.0049	<0.0047	NA	NA	NA
	trans-1,2-Dichloroethene	1,600	3,100	41,000	3,100	3.4	*	3,000	2,100		<0.0049	<0.0047	NA	NA	NA
	1,2-Dichloropropane	9.0	15	1,800	0.5	0.15	*	1,200	870		<0.0049	<0.0047	NA	NA	NA
	cis-1,3-Dichloropropene	6.4	1.1	1,200	0.39	0.02	0.005	1,000	850		<0.0019	<0.0019	NA	NA	NA
	trans-1,3-Dichloropropene	6.4	1.1	1,200	0.39	0.02	0.005	1,000	850		<0.0019	<0.0019	NA	NA	NA
	Ethylbenzene	7,800	400	20,000	58	19	*	350	150		<0.0049	<0.0047	NA	<0.0072	<0.0048
	2-Hexanone	NE	NE	NE	NE	NE	NE	NE	NE		<0.019	<0.019	NA	NA	NA
	Methylene Chloride	85	13	12,000	34	0.2	*	2,500	3,000		<0.0098	<0.0093	NA	NA	NA
	Methyl-tertiary-butyl ether (MTBE)	780	8,800	2,000	140	0.32	*	8,400	1,100		<0.0049	<0.0047	NA	NA	NA
	Styrene	16,000	1,500	41,000	430	18	*	630	260		<0.0049	<0.0047	NA	NA	NA
	1,1,2,2-Tetrachloroethane	NC	NC	NC	NC	NC	*	NE	NE		<0.0049	<0.0047	NA	NA	NA
	Tetrachloroethene	12	11	2,400	28	0.3	*	800	310		<0.0049	<0.0047	NA	NA	NA
	Toluene	16,000	650	410,000	42	29	*	580	290		<0.0049	<0.0047	NA	<0.0072	<0.0048
	1,1,1-Trichloroethane	NC	1,200	NC	1,200	9.6	*	1,300	670		<0.0049	<0.0047	NA	NA	NA
	1,1,2-Trichloroethane	310	1,800	8,200	1,800	0.3	*	1,800	890		<0.0049	<0.0047	NA	NA	NA
	Trichloroethene	58	5.0	1,200	12	0.3	*	1,200	650		<0.0049	<0.0047	NA	NA	NA
	Vinyl Chloride	0.46	0.28	170	1.1	0.07	*	2,600	2,900		<0.0049	<0.0047	NA	NA	NA
	Xylenes, Total	16,000	320	41,000	5.6	150	*	280	110		<0.015	<0.014	NA	<0.022	<0.015

NOTES:

1. All results expressed in milligrams per kilogram (mg/kg).
2. NA = Not analyzed for this constituent.
3. NC = No toxicity criteria for this exposure route.
4. NE = No established IEPA SRO for this analyte.
5. Samples were analyzed by EPA Method SW-5035/8260B.
6. G.W. Ing. = Soil Component of the Groundwater Ingestion Exposure Route.
7. **Bold values** = Concentration exceeds soil ing. and/or inh. exposure route for residential Tier 1 SROs.
8. O = Concentration exceeds soil ing. and/or inh. exposure route for construction worker Tier 1 SROs.
9. = Concentration exceeds soil component of the groundwater ing. exposure route for Class I and/or Class II Tier 1 SROs.
10. * = The ADL is less than or equal to the specified remediation objective.
11. SS = Site-specific based upon wet weight of soil.

Table II

Soil Analytical Results - VOCs

	Analyte	IEPA SROs						C_{SAT} Outdoor Inhalation	C_{SAT} SC of GW Ing	Sample Date	SB-7	SB-8	SB-8	SB-8	SB-8
		Residential		Construction Worker		G.W. Ing.	ADL				12/13/2018	12/13/2018	12/13/2018	12/13/2018	12/13/2018
		Ingestion	Inhalation	Ingestion	Inhalation	Class II				Depth (ft)	9-12	0-3	6-9	9-12	12-15
VOCs	**Acetone**	70,000	100,000	NC	100,000	25	*	100,000	200,000		NA	NA	NA	NA	NA
	Benzene	12	0.8	2,300	2.2	0.17	*	800	580		NA	<0.0046	<0.0048	NA	NA
	Bromodichloromethane	10	3,000	2,000	3,000	0.6	*	2,800	2,000		NA	NA	NA	NA	NA
	Bromoform	81	53	16,000	140	0.8	*	2,000	1,200		NA	NA	NA	NA	NA
	Bromomethane	110	10	1,000	3.9	1.2	*	3,100	3,600		NA	NA	NA	NA	NA
	2-Butanone (MEK)	47,000	25,000	120,000	730	17	NE	25,000	45,000		NA	NA	NA	NA	NA
	Carbon Disulfide	7,800	720	20,000	9.0	160	*	850	520		NA	NA	NA	NA	NA
	Carbon Tetrachloride	5.0	0.3	410	0.9	0.33	*	1,200	560		NA	NA	NA	NA	NA
	Chlorobenzene	1,600	130	4,100	1.3	6.5	*	620	290		NA	NA	NA	NA	NA
	Chloroethane	NC	NC	NC	NC	NC	NE	NE	NE		NA	NA	NA	NA	NA
	Chloroform	100	0.3	2,000	0.76	2.9	*	3,400	2,500		NA	NA	NA	NA	NA
	Chloromethane	NC	NC	NC	NC	NC	NE	NE	NE		NA	NA	NA	NA	NA
	Dibromochloromethane	1,600	1,300	41,000	1,300	0.4	*	1,400	890		NA	NA	NA	NA	NA
	1,1-Dichloroethane	7,800	1,300	200,000	130	110	*	1,700	1,400		NA	NA	NA	NA	NA
	1,2-Dichloroethane	7.0	0.4	1,400	0.99	0.1	*	1,900	2,100		NA	NA	NA	NA	NA
	1,1-Dichloroethene	3,900	290	10,000	3.0	0.3	*	1,400	910		NA	NA	NA	NA	NA
	cis-1,2-Dichloroethene	780	1,200	20,000	1,200	1.1	*	1,300	1,000		NA	NA	NA	NA	NA
	trans-1,2-Dichloroethene	1,600	3,100	41,000	3,100	3.4	*	3,000	2,100		NA	NA	NA	NA	NA
	1,2-Dichloropropane	9.0	15	1,800	0.5	0.15	*	1,200	870		NA	NA	NA	NA	NA
	cis-1,3-Dichloropropene	6.4	1.1	1,200	0.39	0.02	0.005	1,000	850		NA	NA	NA	NA	NA
	trans-1,3-Dichloropropene	6.4	1.1	1,200	0.39	0.02	0.005	1,000	850		NA	NA	NA	NA	NA
	Ethylbenzene	7,800	400	20,000	58	19	*	350	150		NA	<0.0046	<0.0048	NA	NA
	2-Hexanone	NE	NE	NE	NE	NE	NE	NE	NE		NA	NA	NA	NA	NA
	Methylene Chloride	85	13	12,000	34	0.2	*	2,500	3,000		NA	NA	NA	NA	NA
	Methyl-tertiary-butyl ether (MTBE)	780	8,800	2,000	140	0.32	*	8,400	1,100		NA	NA	NA	NA	NA
	Styrene	16,000	1,500	41,000	430	18	*	630	260		NA	NA	NA	NA	NA
	1,1,2,2-Tetrachloroethane	NC	NC	NC	NC	NC	*	NE	NE		NA	NA	NA	NA	NA
	Tetrachloroethene	12	11	2,400	28	0.3	*	800	310		NA	NA	NA	NA	NA
	Toluene	16,000	650	410,000	42	29	*	580	290		NA	<0.0046	<0.0048	NA	NA
	1,1,1-Trichloroethane	NC	1,200	NC	1,200	9.6	*	1,300	670		NA	NA	NA	NA	NA
	1,1,2-Trichloroethane	310	1,800	8,200	1,800	0.3	*	1,800	890		NA	NA	NA	NA	NA
	Trichloroethene	58	5.0	1,200	12	0.3	*	1,200	650		NA	NA	NA	NA	NA
	Vinyl Chloride	0.46	0.28	170	1.1	0.07	*	2,600	2,900		NA	NA	NA	NA	NA
	Xylenes, Total	16,000	320	41,000	5.6	150	*	280	110		NA	<0.013	<0.015	NA	NA

NOTES:

1. All results expressed in milligrams per kilogram (mg/kg).
2. NA = Not analyzed for this constituent.
3. NC = No toxicity criteria for this exposure route.
4. NE = No established IEPA SRO for this analyte.
5. Samples were analyzed by EPA Method SW-5035/8260B.
6. G.W. Ing. = Soil Component of the Groundwater Ingestion Exposure Route.
7. **Bold values** = Concentration exceeds soil ing. and/or inh. exposure route for residential Tier 1 SROs.
8. **O** = Concentration exceeds soil ing. and/or inh. exposure route for construction worker Tier 1 SROs.
9. = Concentration exceeds soil component of the groundwater ing. exposure route for Class I and/or Class II Tier 1 SROs.
10. * = The ADL is less than or equal to the specified remediation objective.
11. SS = Site-specific based upon wet weight of soil.

Table II

Soil Analytical Results - VOCs

	Analyte	IEPA SROs						C_{SAT} Outdoor Inhalation	C_{SAT} SC of GW Ing	Sample Date	SB-9	SB-9	SB-9	SB-10	SB-10
		Residential		Construction Worker		G.W. Ing.	ADL				12/13/2018	12/13/2018	12/13/2018	12/13/2018	12/13/2018
		Ingestion	Inhalation	Ingestion	Inhalation	Class II				Depth (ft)	0-3	3-6	6-9	0-3	3-6
VOCs	**Acetone**	70,000	100,000	NC	100,000	25	*	100,000	200,000		NA	NA	NA	NA	NA
	Benzene	12	0.8	2,300	2.2	0.17	*	800	580		<0.0056	<0.0046	NA	<0.0053	<0.0070
	Bromodichloromethane	10	3,000	2,000	3,000	0.6	*	2,800	2,000		NA	NA	NA	NA	NA
	Bromoform	81	53	16,000	140	0.8	*	2,000	1,200		NA	NA	NA	NA	NA
	Bromomethane	110	10	1,000	3.9	1.2	*	3,100	3,600		NA	NA	NA	NA	NA
	2-Butanone (MEK)	47,000	25,000	120,000	730	17	NE	25,000	45,000		NA	NA	NA	NA	NA
	Carbon Disulfide	7,800	720	20,000	9.0	160	*	850	520		NA	NA	NA	NA	NA
	Carbon Tetrachloride	5.0	0.3	410	0.9	0.33	*	1,200	560		NA	NA	NA	NA	NA
	Chlorobenzene	1,600	130	4,100	1.3	6.5	*	620	290		NA	NA	NA	NA	NA
	Chloroethane	NC	NC	NC	NC	NC	NE	NE	NE		NA	NA	NA	NA	NA
	Chloroform	100	0.3	2,000	0.76	2.9	*	3,400	2,500		NA	NA	NA	NA	NA
	Chloromethane	NC	NC	NC	NC	NC	NE	NE	NE		NA	NA	NA	NA	NA
	Dibromochloromethane	1,600	1,300	41,000	1,300	0.4	*	1,400	890		NA	NA	NA	NA	NA
	1,1-Dichloroethane	7,800	1,300	200,000	130	110	*	1,700	1,400		NA	NA	NA	NA	NA
	1,2-Dichloroethane	7.0	0.4	1,400	0.99	0.1	*	1,900	2,100		NA	NA	NA	NA	NA
	1,1-Dichloroethene	3,900	290	10,000	3.0	0.3	*	1,400	910		NA	NA	NA	NA	NA
	cis-1,2-Dichloroethene	780	1,200	20,000	1,200	1.1	*	1,300	1,000		NA	NA	NA	NA	NA
	trans-1,2-Dichloroethene	1,600	3,100	41,000	3,100	3.4	*	3,000	2,100		NA	NA	NA	NA	NA
	1,2-Dichloropropane	9.0	15	1,800	0.5	0.15	*	1,200	870		NA	NA	NA	NA	NA
	cis-1,3-Dichloropropene	6.4	1.1	1,200	0.39	0.02	0.005	1,000	850		NA	NA	NA	NA	NA
	trans-1,3-Dichloropropene	6.4	1.1	1,200	0.39	0.02	0.005	1,000	850		NA	NA	NA	NA	NA
	Ethylbenzene	7,800	400	20,000	58	19	*	350	150		<0.0056	<0.0046	NA	<0.0053	<0.0070
	2-Hexanone	NE	NE	NE	NE	NE	NE	NE	NE		NA	NA	NA	NA	NA
	Methylene Chloride	85	13	12,000	34	0.2	*	2,500	3,000		NA	NA	NA	NA	NA
	Methyl-tertiary-butyl ether (MTBE)	780	8,800	2,000	140	0.32	*	8,400	1,100		NA	NA	NA	NA	NA
	Styrene	16,000	1,500	41,000	430	18	*	630	260		NA	NA	NA	NA	NA
	1,1,2,2-Tetrachloroethane	NC	NC	NC	NC	NC	*	NE	NE		NA	NA	NA	NA	NA
	Tetrachloroethene	12	11	2,400	28	0.3	*	800	310		NA	NA	NA	NA	NA
	Toluene	16,000	650	410,000	42	29	*	580	290		<0.0056	<0.0046	NA	<0.0053	<0.0070
	1,1,1-Trichloroethane	NC	1,200	NC	1,200	9.6	*	1,300	670		NA	NA	NA	NA	NA
	1,1,2-Trichloroethane	310	1,800	8,200	1,800	0.3	*	1,800	890		NA	NA	NA	NA	NA
	Trichloroethene	58	5.0	1,200	12	0.3	*	1,200	650		NA	NA	NA	NA	NA
	Vinyl Chloride	0.46	0.28	170	1.1	0.07	*	2,600	2,900		NA	NA	NA	NA	NA
	Xylenes, Total	16,000	320	41,000	5.6	150	*	280	110		<0.017	<0.013	NA	<0.016	<0.021

NOTES:

1. All results expressed in milligrams per kilogram (mg/kg).
2. NA = Not analyzed for this constituent.
3. NC = No toxicity criteria for this exposure route.
4. NE = No established IEPA SRO for this analyte.
5. Samples were analyzed by EPA Method SW-5035/8260B.
6. G.W. Ing. = Soil Component of the Groundwater Ingestion Exposure Route.
7. **Bold values** = Concentration exceeds soil ing. and/or inh. exposure route for residential Tier 1 SROs.
8. **O** = Concentration exceeds soil ing. and/or inh. exposure route for construction worker Tier 1 SROs.
9. = Concentration exceeds soil component of the groundwater ing. exposure route for Class I and/or Class II Tier 1 SROs.
10. * = The ADL is less than or equal to the specified remediation objective.
11. SS = Site-specific based upon wet weight of soil.

Table II

Soil Analytical Results - VOCs

	Analyte	IEPA SROs						C_{SAT} Outdoor Inhalation	C_{SAT} SC of GW Ing	Sample Date	SB-10	B-111	B-111	B-112	B-112
		Residential		Construction Worker		G.W. Ing.	ADL				12/13/2018	12/8/2023	12/8/2023	12/8/2023	12/8/2023
		Ingestion	Inhalation	Ingestion	Inhalation	Class II				Depth (ft)	6-9	1-3	5-7	1-3	5-7
VOCs	**Acetone**	70,000	100,000	NC	100,000	25	*	100,000	200,000		NA	NA	NA	< 0.12	< 0.086
	Benzene	12	0.8	2,300	2.2	0.17	*	800	580		NA	NA	NA	< 0.0081	< 0.0050
	Bromodichloromethane	10	3,000	2,000	3,000	0.6	*	2,800	2,000		NA	NA	NA	< 0.0081	< 0.0050
	Bromoform	81	53	16,000	140	0.8	*	2,000	1,200		NA	NA	NA	< 0.0081	< 0.0050
	Bromomethane	110	10	1,000	3.9	1.2	*	3,100	3,600		NA	NA	NA	< 0.016	< 0.010
	2-Butanone (MEK)	47,000	25,000	120,000	730	17	NE	25,000	45,000		NA	NA	NA	< 0.12	< 0.075
	Carbon Disulfide	7,800	720	20,000	9.0	160	*	850	520		NA	NA	NA	< 0.081	< 0.050
	Carbon Tetrachloride	5.0	0.3	410	0.9	0.33	*	1,200	560		NA	NA	NA	< 0.0081	< 0.0050
	Chlorobenzene	1,600	130	4,100	1.3	6.5	*	620	290		NA	NA	NA	< 0.0081	< 0.0050
	Chloroethane	NC	NC	NC	NC	NC	NE	NE	NE		NA	NA	NA	< 0.016	< 0.010
	Chloroform	100	0.3	2,000	0.76	2.9	*	3,400	2,500		NA	NA	NA	< 0.0081	< 0.0050
	Chloromethane	NC	NC	NC	NC	NC	NE	NE	NE		NA	NA	NA	< 0.016	< 0.010
	Dibromochloromethane	1,600	1,300	41,000	1,300	0.4	*	1,400	890		NA	NA	NA	< 0.0081	< 0.0050
	1,1-Dichloroethane	7,800	1,300	200,000	130	110	*	1,700	1,400		NA	NA	NA	< 0.0081	< 0.0050
	1,2-Dichloroethane	7.0	0.4	1,400	0.99	0.1	*	1,900	2,100		NA	NA	NA	< 0.0081	< 0.0050
	1,1-Dichloroethene	3,900	290	10,000	3.0	0.3	*	1,400	910		NA	NA	NA	< 0.0081	< 0.0050
	cis-1,2-Dichloroethene	780	1,200	20,000	1,200	1.1	*	1,300	1,000		NA	NA	NA	< 0.0081	< 0.0050
	trans-1,2-Dichloroethene	1,600	3,100	41,000	3,100	3.4	*	3,000	2,100		NA	NA	NA	< 0.0081	< 0.0050
	1,2-Dichloropropane	9.0	15	1,800	0.5	0.15	*	1,200	870		NA	NA	NA	< 0.0081	< 0.0050
	cis-1,3-Dichloropropene	6.4	1.1	1,200	0.39	0.02	0.005	1,000	850		NA	NA	NA	< 0.0033	< 0.0020
	trans-1,3-Dichloropropene	6.4	1.1	1,200	0.39	0.02	0.005	1,000	850		NA	NA	NA	< 0.0033	< 0.0020
	Ethylbenzene	7,800	400	20,000	58	19	*	350	150		NA	NA	NA	< 0.0081	< 0.0050
	2-Hexanone	NE	NE	NE	NE	NE	NE	NE	NE		NA	NA	NA	< 0.033	< 0.020
	Methylene Chloride	85	13	12,000	34	0.2	*	2,500	3,000		NA	NA	NA	< 0.016	< 0.010
	Methyl-tertiary-butyl ether (MTBE)	780	8,800	2,000	140	0.32	*	8,400	1,100		NA	NA	NA	< 0.0081	< 0.0050
	Styrene	16,000	1,500	41,000	430	18	*	630	260		NA	NA	NA	< 0.0081	< 0.0050
	1,1,2,2-Tetrachloroethane	NC	NC	NC	NC	NC	*	NE	NE		NA	NA	NA	< 0.0081	< 0.0050
	Tetrachloroethene	12	11	2,400	28	0.3	*	800	310		NA	NA	NA	< 0.0081	< 0.0050
	Toluene	16,000	650	410,000	42	29	*	580	290		NA	NA	NA	< 0.0081	< 0.0050
	1,1,1-Trichloroethane	NC	1,200	NC	1,200	9.6	*	1,300	670		NA	NA	NA	< 0.0081	< 0.0050
	1,1,2-Trichloroethane	310	1,800	8,200	1,800	0.3	*	1,800	890		NA	NA	NA	< 0.0081	< 0.0050
	Trichloroethene	58	5.0	1,200	12	0.3	*	1,200	650		NA	NA	NA	< 0.0081	< 0.0050
	Vinyl Chloride	0.46	0.28	170	1.1	0.07	*	2,600	2,900		NA	NA	NA	< 0.0081	< 0.0050
	Xylenes, Total	16,000	320	41,000	5.6	150	*	280	110		NA	NA	NA	< 0.024	< 0.015

NOTES:

1. All results expressed in milligrams per kilogram (mg/kg).
2. NA = Not analyzed for this constituent.
3. NC = No toxicity criteria for this exposure route.
4. NE = No established IEPA SRO for this analyte.
5. Samples were analyzed by EPA Method SW-5035/8260B.
6. G.W. Ing. = Soil Component of the Groundwater Ingestion Exposure Route.
7. **Bold values** = Concentration exceeds soil ing. and/or inh. exposure route for residential Tier 1 SROs.
8. **O** = Concentration exceeds soil ing. and/or inh. exposure route for construction worker Tier 1 SROs.
9. = Concentration exceeds soil component of the groundwater ing. exposure route for Class I and/or Class II Tier 1 SROs.
10. * = The ADL is less than or equal to the specified remediation objective.
11. SS = Site-specific based upon wet weight of soil.

Table II

Soil Analytical Results - VOCs

	Analyte	IEPA SROs						C_{SAT} Outdoor Inhalation	C_{SAT} SC of GW Ing	Sample Date	B-113 12/8/2023	B-113 12/8/2023
		Residential		Construction Worker		G.W. Ing.	ADL					
		Ingestion	Inhalation	Ingestion	Inhalation	Class II				Depth (ft)	1-3	5-7
VOCs	**Acetone**	70,000	100,000	NC	100,000	25	*	100,000	200,000		NA	NA
	Benzene	12	0.8	2,300	2.2	0.17	*	800	580		NA	NA
	Bromodichloromethane	10	3,000	2,000	3,000	0.6	*	2,800	2,000		NA	NA
	Bromoform	81	53	16,000	140	0.8	*	2,000	1,200		NA	NA
	Bromomethane	110	10	1,000	3.9	1.2	*	3,100	3,600		NA	NA
	2-Butanone (MEK)	47,000	25,000	120,000	730	17	NE	25,000	45,000		NA	NA
	Carbon Disulfide	7,800	720	20,000	9.0	160	*	850	520		NA	NA
	Carbon Tetrachloride	5.0	0.3	410	0.9	0.33	*	1,200	560		NA	NA
	Chlorobenzene	1,600	130	4,100	1.3	6.5	*	620	290		NA	NA
	Chloroethane	NC	NC	NC	NC	NC	NE	NE	NE		NA	NA
	Chloroform	100	0.3	2,000	0.76	2.9	*	3,400	2,500		NA	NA
	Chloromethane	NC	NC	NC	NC	NC	NE	NE	NE		NA	NA
	Dibromochloromethane	1,600	1,300	41,000	1,300	0.4	*	1,400	890		NA	NA
	1,1-Dichloroethane	7,800	1,300	200,000	130	110	*	1,700	1,400		NA	NA
	1,2-Dichloroethane	7.0	0.4	1,400	0.99	0.1	*	1,900	2,100		NA	NA
	1,1-Dichloroethene	3,900	290	10,000	3.0	0.3	*	1,400	910		NA	NA
	cis-1,2-Dichloroethene	780	1,200	20,000	1,200	1.1	*	1,300	1,000		NA	NA
	trans-1,2-Dichloroethene	1,600	3,100	41,000	3,100	3.4	*	3,000	2,100		NA	NA
	1,2-Dichloropropane	9.0	15	1,800	0.5	0.15	*	1,200	870		NA	NA
	cis-1,3-Dichloropropene	6.4	1.1	1,200	0.39	0.02	0.005	1,000	850		NA	NA
	trans-1,3-Dichloropropene	6.4	1.1	1,200	0.39	0.02	0.005	1,000	850		NA	NA
	Ethylbenzene	7,800	400	20,000	58	19	*	350	150		NA	NA
	2-Hexanone	NE	NE	NE	NE	NE	NE	NE	NE		NA	NA
	Methylene Chloride	85	13	12,000	34	0.2	*	2,500	3,000		NA	NA
	Methyl-tertiary-butyl ether (MTBE)	780	8,800	2,000	140	0.32	*	8,400	1,100		NA	NA
	Styrene	16,000	1,500	41,000	430	18	*	630	260		NA	NA
	1,1,2,2-Tetrachloroethane	NC	NC	NC	NC	NC	*	NE	NE		NA	NA
	Tetrachloroethene	12	11	2,400	28	0.3	*	800	310		NA	NA
	Toluene	16,000	650	410,000	42	29	*	580	290		NA	NA
	1,1,1-Trichloroethane	NC	1,200	NC	1,200	9.6	*	1,300	670		NA	NA
	1,1,2-Trichloroethane	310	1,800	8,200	1,800	0.3	*	1,800	890		NA	NA
	Trichloroethene	58	5.0	1,200	12	0.3	*	1,200	650		NA	NA
	Vinyl Chloride	0.46	0.28	170	1.1	0.07	*	2,600	2,900		NA	NA
	Xylenes, Total	16,000	320	41,000	5.6	150	*	280	110		NA	NA

NOTES:

1. All results expressed in milligrams per kilogram (mg/kg).
2. NA = Not analyzed for this constituent.
3. NC = No toxicity criteria for this exposure route.
4. NE = No established IEPA SRO for this analyte.
5. Samples were analyzed by EPA Method SW-5035/8260B.
6. G.W. Ing. = Soil Component of the Groundwater Ingestion Exposure Route.
7. **Bold values** = Concentration exceeds soil ing. and/or inh. exposure route for residential Tier 1 SROs.
8. O = Concentration exceeds soil ing. and/or inh. exposure route for construction worker Tier 1 SROs.
9. = Concentration exceeds soil component of the groundwater ing. exposure route for Class I and/or Class II Tier 1 SROs.
10. * = The ADL is less than or equal to the specified remediation objective.
11. SS = Site-specific based upon wet weight of soil.

Table III

Soil Analytical Results - SVOCs

	Analyte	IEPA SROs						C_{SAT} Outdoor Inhalation	C_{SAT} SC of GW Ing	Sample Date	SB-1	SB-1	SB-1	SB-2	SB-2
		Residential		Construction Worker		G.W. Ing.	ADL				12/13/2018	12/13/2018	12/13/2018	12/13/2018	12/13/2018
		Ingestion	Inhalation	Ingestion	Inhalation	Class II				Depth (ft)	0-3	3-6	6-9	0-3	3-6
SVOCs	**Aniline**	NC	NC	NC	NC	NC	NC	NE	NE		NA	NA	NA	NA	NA
	Benzidine	NC	NC	NC	NC	NC	NC	NE	NE		NA	NA	NA	NA	NA
	Benzoic Acid	310,000	NC	820,000	NC	400	*	NE	NE		NA	NA	NA	NA	NA
	Benzyl Alcohol	NC	NC	NC	NC	NC	NC	NE	NE		NA	NA	NA	NA	NA
	Bis(2-chloroethoxy)methane	NE	NE	NE	NE	NE	NE	NE	NE		NA	NA	NA	NA	NA
	Bis(2-chloroethyl)ether	0.6	0.2	75	0.66	0.0004	0.66	3,000	3,900		NA	NA	NA	NA	NA
	Bis(2-ethylhexyl)phthalate	46	31,000	4,100	31,000	31,000	*	200	68		NA	NA	NA	NA	NA
	4-Bromophenyl Phenyl Ether	NE	NE	NE	NE	NE	NE	NE	NE		NA	NA	NA	NA	NA
	Butyl Benzyl Phthalate	16,000	930	410,000	930	930	*	1,000	340		NA	NA	NA	NA	NA
	Carbazole	32	NE	6,200	NE	2.8	NE	NE	NE		NA	NA	NA	NA	NA
	4-Chloroaniline	310	NC	820	NC	0.7	*	NE	NE		NA	NA	NA	NA	NA
	4-Chloro-3-Methylphenol	NE	NE	NE	NE	NE	NE	NE	NE		NA	NA	NA	NA	NA
	2-Chloronaphthalene	NC	NC	NC	NC	NC	NC	NE	NE		NA	NA	NA	NA	NA
	2-Chlorophenol	390	53,000	10,000	53,000	1.5	*	10,000	7,100		NA	NA	NA	NA	NA
	4-Chlorophenyl Phenyl Ether	NE	NE	NE	NE	NE	NE	NE	NE		NA	NA	NA	NA	NA
	Dibenzofuran	NC	NC	820	NC	NC	*	NE	NE		NA	NA	NA	NA	NA
	1,2-Dichlorobenzene	7,000	560	18,000	310	43	*	560	210		NA	NA	NA	NA	NA
	1,3-Dichlorobenzene	NE	NE	NE	NE	NE	NE	NE	NE		NA	NA	NA	NA	NA
	1,4-Dichlorobenzene	NC	11,000	NC	340	11	*	NE	NE		NA	NA	NA	NA	NA
	3,3-Dichlorobenzidine	1.0	NC	280	NC	0.033	1.3	NE	NE		NA	NA	NA	NA	NA
	2,4-Dichlorophenol	230	NC	610	NC	0.48	*	NE	NE		NA	NA	NA	NA	NA
	Diethyl Phthalate	63,000	2,000	1,000,000	2,000	470	*	2,200	920		NA	NA	NA	NA	NA
	2,4-Dimethylphenol	1,600	NC	41,000	NC	9.0	*	10,000	4,700		NA	NA	NA	NA	NA
	Dimethyl Phthalate	NE	NE	NE	NE	NE	NE	NE	NE		NA	NA	NA	NA	NA
	4,6-Dinitro-2-Methylphenol	NC	NC	NC	NC	NC	NC	NE	NE		NA	NA	NA	NA	NA
	2,4-Dinitrophenol	160	NC	410	NC	0.2	3.3	NE	NE		NA	NA	NA	NA	NA
	2,4-Dinitrotoluene	0.9	NC	180	NC	0.0008	0.25	NE	NE		NA	NA	NA	NA	NA
	2,6-Dinitrotoluene	0.9	NC	180	NC	0.0007	0.26	NE	NE		NA	NA	NA	NA	NA
	Di-n-Butyl Phthalate	7,800	2,300	200,000	2,300	2,300	*	2,600	880		NA	NA	NA	NA	NA
	Di-n-Octylphthalate	1,600	10,000	4,100	10,000	10,000	*	16	5		NA	NA	NA	NA	NA
	Hexachlorobenzene	0.4	1.0	78	2.6	11	*	NE	NE		NA	NA	NA	NA	NA

NOTES:

1. All results expressed in milligrams per kilogram (mg/kg).
2. NA = Not analyzed for this constituent.
3. NC = No toxicity criteria for this exposure route.
4. NE = No established IEPA SRO for this analyte.
5. Samples were analyzed utilizing EPA Method SW-8270C.
6. G.W. Ing. = Soil Component of the Groundwater Ingestion Exposure Route.
7. **Bold values** = Concentration exceeds soil ing. and/or inh. exposure route for residential Tier 1 SROs.
8. O = Concentration exceeds soil ing. and/or inh. exposure route for construction worker Tier 1 SROs.
9. = Concentration exceeds soil component of the groundwater ing. exposure route for Class I and/or Class II Tier 1 SROs.
10. * = The ADL is less than or equal to the specified remediation objective.
11. SS = Site-specific based upon wet weight of soil.

Table III

Soil Analytical Results - SVOCs

	Analyte	IEPA SROs						C_{SAT} Outdoor Inhalation	C_{SAT} SC of GW Ing	Sample Date	SB-1 12/13/2018	SB-1 12/13/2018	SB-1 12/13/2018	SB-2 12/13/2018	SB-2 12/13/2018
		Residential		Construction Worker		G.W. Ing.	ADL								
		Ingestion	Inhalation	Ingestion	Inhalation	Class II				Depth (ft)	0-3	3-6	6-9	0-3	3-6
SVOCs	**Hexachlorobutadiene**	NC	NC	NC	NC	NC	NE	NE	NE		NA	NA	NA	NA	NA
	Hexachlorocyclopentadiene	550	10	14,000	1.1	2,200	*	130	44		NA	NA	NA	NA	NA
	Hexachloroethane	78	NC	2,000	NC	2.6	*	NE	NE		NA	NA	NA	NA	NA
	Isophorone	15,600	4,600	410,000	4,600	8.0	*	3,000	3,000		NA	NA	NA	NA	NA
	2-Methylnaphthalene	310	NC	820	NC	10	SS	NE	NE		NA	NA	NA	NA	NA
	2-Methylphenol (o-Cresol)	3,900	NC	100,000	NC	15	*	NE	NE		NA	NA	NA	NA	NA
	4-Methylphenol (m,p-Cresols)	NC	NC	NC	NC	NC	SS	NE	NE		NA	NA	NA	NA	NA
	2-Nitroaniline	NC	NC	NC	NC	NC	SS	NE	NE		NA	NA	NA	NA	NA
	3-Nitroaniline	NC	NC	NC	NC	NC	SS	NE	NE		NA	NA	NA	NA	NA
	4-Nitroaniline	NC	NC	NC	NC	NC	SS	NE	NE		NA	NA	NA	NA	NA
	2-Nitrophenol	NE	NE	NE	NE	NE	NE	NE	NE		NA	NA	NA	NA	NA
	4-Nitrophenol	NC	NC	NC	NC	NC	NE	NE	NE		NA	NA	NA	NA	NA
	Nitrobenzene	39	92	1,000	9.4	0.1	0.26	710	590		NA	NA	NA	NA	NA
	n-Nitrosodimethylamine	NC	NC	NC	NC	NC	NE	NE	NE		NA	NA	NA	NA	NA
	n-Nitroso-di-n-Propylamine	0.09	NC	18	NC	0.00005	0.0018	1,900	2,300		NA	NA	NA	NA	NA
	n-Nitrosodiphenylamine	130	NC	25,000	NC	5.6	*	NE	NE		NA	NA	NA	NA	NA
	2,2'-oxybis(1-Chloropropane) (Bis(2-chloroisopropyl)ether)	NC	NC	NC	NC	NC	SS	NE	NE		NA	NA	NA	NA	NA
	Pentachlorophenol	3	NC	520	NC	0.1	*	NE	NE		NA	NA	NA	NA	NA
	Phenol	23,000	NC	61,000	NC	100	*	NE	NE		NA	NA	NA	NA	NA
	Pyridine	NC	NC	NC	NC	NC	NE	NE	NE		NA	NA	NA	NA	NA
	1,2,4-Trichlorobenzene	780	3,200	2,000	920	53	*	340	120		NA	NA	NA	NA	NA
	2,4,5-Trichlorophenol	7,800	NC	200,000	NC	26	*	NE	NE		NA	NA	NA	NA	NA
	2,4,6-Trichlorophenol	58	200	11,000	540	0.07	0.66	NE	NE		NA	NA	NA	NA	NA

NOTES:

1. All results expressed in milligrams per kilogram (mg/kg).
2. NA = Not analyzed for this constituent.
3. NC = No toxicity criteria for this exposure route.
4. NE = No established IEPA SRO for this analyte.
5. Samples were analyzed utilizing EPA Method SW-8270C.
6. G.W. Ing. = Soil Component of the Groundwater Ingestion Exposure Route.
7. **Bold values** = Concentration exceeds soil ing. and/or inh. exposure route for residential Tier 1 SROs.
8. O = Concentration exceeds soil ing. and/or inh. exposure route for construction worker Tier 1 SROs.
9. = Concentration exceeds soil component of the groundwater ing. exposure route for Class I and/or Class II Tier 1 SROs.
10. * = The ADL is less than or equal to the specified remediation objective.
11. SS = Site-specific based upon wet weight of soil.

Table III

Soil Analytical Results - SVOCs

	Analyte	IEPA SROs						C_{SAT} Outdoor Inhalation	C_{SAT} SC of GW Ing	Sample Date	SB-2	SB-3	SB-3	SB-3	SB-3
		Residential		Construction Worker		G.W. Ing.	ADL				12/13/2018	12/13/2018	12/13/2018	12/13/2018	12/13/2018
		Ingestion	Inhalation	Ingestion	Inhalation	Class II				Depth (ft)	6-9	0-3	3-6	6-9	9-12
SVOCs	**Aniline**	NC	NC	NC	NC	NC	NC	NE	NE		NA	NA	NA	NA	NA
	Benzidine	NC	NC	NC	NC	NC	NC	NE	NE		NA	NA	NA	NA	NA
	Benzoic Acid	310,000	NC	820,000	NC	400	*	NE	NE		NA	NA	NA	NA	NA
	Benzyl Alcohol	NC	NC	NC	NC	NC	NC	NE	NE		NA	NA	NA	NA	NA
	Bis(2-chloroethoxy)methane	NE	NE	NE	NE	NE	NE	NE	NE		NA	NA	NA	NA	NA
	Bis(2-chloroethyl)ether	0.6	0.2	75	0.66	0.0004	0.66	3,000	3,900		NA	NA	NA	NA	NA
	Bis(2-ethylhexyl)phthalate	46	31,000	4,100	31,000	31,000	*	200	68		NA	NA	NA	NA	NA
	4-Bromophenyl Phenyl Ether	NE	NE	NE	NE	NE	NE	NE	NE		NA	NA	NA	NA	NA
	Butyl Benzyl Phthalate	16,000	930	410,000	930	930	*	1,000	340		NA	NA	NA	NA	NA
	Carbazole	32	NE	6,200	NE	2.8	NE	NE	NE		NA	NA	NA	NA	NA
	4-Chloroaniline	310	NC	820	NC	0.7	*	NE	NE		NA	NA	NA	NA	NA
	4-Chloro-3-Methylphenol	NE	NE	NE	NE	NE	NE	NE	NE		NA	NA	NA	NA	NA
	2-Chloronaphthalene	NC	NC	NC	NC	NC	NC	NE	NE		NA	NA	NA	NA	NA
	2-Chlorophenol	390	53,000	10,000	53,000	1.5	*	10,000	7,100		NA	NA	NA	NA	NA
	4-Chlorophenyl Phenyl Ether	NE	NE	NE	NE	NE	NE	NE	NE		NA	NA	NA	NA	NA
	Dibenzofuran	NC	NC	820	NC	NC	*	NE	NE		NA	NA	NA	NA	NA
	1,2-Dichlorobenzene	7,000	560	18,000	310	43	*	560	210		NA	NA	NA	NA	NA
	1,3-Dichlorobenzene	NE	NE	NE	NE	NE	NE	NE	NE		NA	NA	NA	NA	NA
	1,4-Dichlorobenzene	NC	11,000	NC	340	11	*	NE	NE		NA	NA	NA	NA	NA
	3,3-Dichlorobenzidine	1.0	NC	280	NC	0.033	1.3	NE	NE		NA	NA	NA	NA	NA
	2,4-Dichlorophenol	230	NC	610	NC	0.48	*	NE	NE		NA	NA	NA	NA	NA
	Diethyl Phthalate	63,000	2,000	1,000,000	2,000	470	*	2,200	920		NA	NA	NA	NA	NA
	2,4-Dimethylphenol	1,600	NC	41,000	NC	9.0	*	10,000	4,700		NA	NA	NA	NA	NA
	Dimethyl Phthalate	NE	NE	NE	NE	NE	NE	NE	NE		NA	NA	NA	NA	NA
	4,6-Dinitro-2-Methylphenol	NC	NC	NC	NC	NC	NC	NE	NE		NA	NA	NA	NA	NA
	2,4-Dinitrophenol	160	NC	410	NC	0.2	3.3	NE	NE		NA	NA	NA	NA	NA
	2,4-Dinitrotoluene	0.9	NC	180	NC	0.0008	0.25	NE	NE		NA	NA	NA	NA	NA
	2,6-Dinitrotoluene	0.9	NC	180	NC	0.0007	0.26	NE	NE		NA	NA	NA	NA	NA
	Di-n-Butyl Phthalate	7,800	2,300	200,000	2,300	2,300	*	2,600	880		NA	NA	NA	NA	NA
	Di-n-Octylphthalate	1,600	10,000	4,100	10,000	10,000	*	16	5		NA	NA	NA	NA	NA
	Hexachlorobenzene	0.4	1.0	78	2.6	11	*	NE	NE		NA	NA	NA	NA	NA

NOTES:

1. All results expressed in milligrams per kilogram (mg/kg).
2. NA = Not analyzed for this constituent.
3. NC = No toxicity criteria for this exposure route.
4. NE = No established IEPA SRO for this analyte.
5. Samples were analyzed utilizing EPA Method SW-8270C.
6. G.W. Ing. = Soil Component of the Groundwater Ingestion Exposure Route.
7. **Bold values** = Concentration exceeds soil ing. and/or inh. exposure route for residential Tier 1 SROs.
8. O = Concentration exceeds soil ing. and/or inh. exposure route for construction worker Tier 1 SROs.
9. = Concentration exceeds soil component of the groundwater ing. exposure route for Class I and/or Class II Tier 1 SROs.
10. * = The ADL is less than or equal to the specified remediation objective.
11. SS = Site-specific based upon wet weight of soil.

Table III

Soil Analytical Results - SVOCs

	Analyte	IEPA SROs						C_{SAT} Outdoor Inhalation	C_{SAT} SC of GW Ing	Sample Date	SB-2 12/13/2018	SB-3 12/13/2018	SB-3 12/13/2018	SB-3 12/13/2018	SB-3 12/13/2018
		Residential		Construction Worker		G.W. Ing.	ADL			Depth (ft)	6-9	0-3	3-6	6-9	9-12
		Ingestion	Inhalation	Ingestion	Inhalation	Class II									
SVOCs	**Hexachlorobutadiene**	NC	NC	NC	NC	NC	NE	NE	NE		NA	NA	NA	NA	NA
	Hexachlorocyclopentadiene	550	10	14,000	1.1	2,200	*	130	44		NA	NA	NA	NA	NA
	Hexachloroethane	78	NC	2,000	NC	2.6	*	NE	NE		NA	NA	NA	NA	NA
	Isophorone	15,600	4,600	410,000	4,600	8.0	*	3,000	3,000		NA	NA	NA	NA	NA
	2-Methylnaphthalene	310	NC	820	NC	10	SS	NE	NE		NA	NA	NA	NA	NA
	2-Methylphenol (o-Cresol)	3,900	NC	100,000	NC	15	*	NE	NE		NA	NA	NA	NA	NA
	4-Methylphenol (m,p-Cresols)	NC	NC	NC	NC	NC	SS	NE	NE		NA	NA	NA	NA	NA
	2-Nitroaniline	NC	NC	NC	NC	NC	SS	NE	NE		NA	NA	NA	NA	NA
	3-Nitroaniline	NC	NC	NC	NC	NC	SS	NE	NE		NA	NA	NA	NA	NA
	4-Nitroaniline	NC	NC	NC	NC	NC	SS	NE	NE		NA	NA	NA	NA	NA
	2-Nitrophenol	NE	NE	NE	NE	NE	NE	NE	NE		NA	NA	NA	NA	NA
	4-Nitrophenol	NC	NC	NC	NC	NC	NE	NE	NE		NA	NA	NA	NA	NA
	Nitrobenzene	39	92	1,000	9.4	0.1	0.26	710	590		NA	NA	NA	NA	NA
	n-Nitrosodimethylamine	NC	NC	NC	NC	NC	NE	NE	NE		NA	NA	NA	NA	NA
	n-Nitroso-di-n-Propylamine	0.09	NC	18	NC	0.00005	0.0018	1,900	2,300		NA	NA	NA	NA	NA
	n-Nitrosodiphenylamine	130	NC	25,000	NC	5.6	*	NE	NE		NA	NA	NA	NA	NA
	2,2'-oxybis(1-Chloropropane) (Bis(2-chloroisopropyl)ether)	NC	NC	NC	NC	NC	SS	NE	NE		NA	NA	NA	NA	NA
	Pentachlorophenol	3	NC	520	NC	0.1	*	NE	NE		NA	NA	NA	NA	NA
	Phenol	23,000	NC	61,000	NC	100	*	NE	NE		NA	NA	NA	NA	NA
	Pyridine	NC	NC	NC	NC	NC	NE	NE	NE		NA	NA	NA	NA	NA
	1,2,4-Trichlorobenzene	780	3,200	2,000	920	53	*	340	120		NA	NA	NA	NA	NA
	2,4,5-Trichlorophenol	7,800	NC	200,000	NC	26	*	NE	NE		NA	NA	NA	NA	NA
	2,4,6-Trichlorophenol	58	200	11,000	540	0.07	0.66	NE	NE		NA	NA	NA	NA	NA

NOTES:

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2. NA = Not analyzed for this constituent.
3. NC = No toxicity criteria for this exposure route.
4. NE = No established IEPA SRO for this analyte.
5. Samples were analyzed utilizing EPA Method SW-8270C.
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9. = Concentration exceeds soil component of the groundwater ing. exposure route for Class I and/or Class II Tier 1 SROs.
10. * = The ADL is less than or equal to the specified remediation objective.
11. SS = Site-specific based upon wet weight of soil.

Table III

Soil Analytical Results - SVOCs

	Analyte	IEPA SROs						C_{SAT} Outdoor Inhalation	C_{SAT} SC of GW Ing	Sample Date	SB-4	SB-4	SB-4	SB-5	SB-5
		Residential		Construction Worker		G.W. Ing.	ADL				12/13/2018	12/13/2018	12/13/2018	12/13/2018	12/13/2018
		Ingestion	Inhalation	Ingestion	Inhalation	Class II				Depth (ft)	0-3	3-6	6-9	0-3	6-9
SVOCs	**Aniline**	NC	NC	NC	NC	NC	NC	NE	NE		NA	NA	NA	NA	NA
	Benzidine	NC	NC	NC	NC	NC	NC	NE	NE		NA	NA	NA	NA	NA
	Benzoic Acid	310,000	NC	820,000	NC	400	*	NE	NE		NA	NA	NA	NA	NA
	Benzyl Alcohol	NC	NC	NC	NC	NC	NC	NE	NE		NA	NA	NA	NA	NA
	Bis(2-chloroethoxy)methane	NE	NE	NE	NE	NE	NE	NE	NE		NA	NA	NA	NA	NA
	Bis(2-chloroethyl)ether	0.6	0.2	75	0.66	0.0004	0.66	3,000	3,900		NA	NA	NA	NA	NA
	Bis(2-ethylhexyl)phthalate	46	31,000	4,100	31,000	31,000	*	200	68		NA	NA	NA	NA	NA
	4-Bromophenyl Phenyl Ether	NE	NE	NE	NE	NE	NE	NE	NE		NA	NA	NA	NA	NA
	Butyl Benzyl Phthalate	16,000	930	410,000	930	930	*	1,000	340		NA	NA	NA	NA	NA
	Carbazole	32	NE	6,200	NE	2.8	NE	NE	NE		NA	NA	NA	NA	NA
	4-Chloroaniline	310	NC	820	NC	0.7	*	NE	NE		NA	NA	NA	NA	NA
	4-Chloro-3-Methylphenol	NE	NE	NE	NE	NE	NE	NE	NE		NA	NA	NA	NA	NA
	2-Chloronaphthalene	NC	NC	NC	NC	NC	NC	NE	NE		NA	NA	NA	NA	NA
	2-Chlorophenol	390	53,000	10,000	53,000	1.5	*	10,000	7,100		NA	NA	NA	NA	NA
	4-Chlorophenyl Phenyl Ether	NE	NE	NE	NE	NE	NE	NE	NE		NA	NA	NA	NA	NA
	Dibenzofuran	NC	NC	820	NC	NC	*	NE	NE		NA	NA	NA	NA	NA
	1,2-Dichlorobenzene	7,000	560	18,000	310	43	*	560	210		NA	NA	NA	NA	NA
	1,3-Dichlorobenzene	NE	NE	NE	NE	NE	NE	NE	NE		NA	NA	NA	NA	NA
	1,4-Dichlorobenzene	NC	11,000	NC	340	11	*	NE	NE		NA	NA	NA	NA	NA
	3,3-Dichlorobenzidine	1.0	NC	280	NC	0.033	1.3	NE	NE		NA	NA	NA	NA	NA
	2,4-Dichlorophenol	230	NC	610	NC	0.48	*	NE	NE		NA	NA	NA	NA	NA
	Diethyl Phthalate	63,000	2,000	1,000,000	2,000	470	*	2,200	920		NA	NA	NA	NA	NA
	2,4-Dimethylphenol	1,600	NC	41,000	NC	9.0	*	10,000	4,700		NA	NA	NA	NA	NA
	Dimethyl Phthalate	NE	NE	NE	NE	NE	NE	NE	NE		NA	NA	NA	NA	NA
	4,6-Dinitro-2-Methylphenol	NC	NC	NC	NC	NC	NC	NE	NE		NA	NA	NA	NA	NA
	2,4-Dinitrophenol	160	NC	410	NC	0.2	3.3	NE	NE		NA	NA	NA	NA	NA
	2,4-Dinitrotoluene	0.9	NC	180	NC	0.0008	0.25	NE	NE		NA	NA	NA	NA	NA
	2,6-Dinitrotoluene	0.9	NC	180	NC	0.0007	0.26	NE	NE		NA	NA	NA	NA	NA
	Di-n-Butyl Phthalate	7,800	2,300	200,000	2,300	2,300	*	2,600	880		NA	NA	NA	NA	NA
	Di-n-Octylphthalate	1,600	10,000	4,100	10,000	10,000	*	16	5		NA	NA	NA	NA	NA
	Hexachlorobenzene	0.4	1.0	78	2.6	11	*	NE	NE		NA	NA	NA	NA	NA

NOTES:

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Table III

Soil Analytical Results - SVOCs

	Analyte	IEPA SROs						C_{SAT} Outdoor Inhalation	C_{SAT} SC of GW Ing	Sample Date	SB-4 12/13/2018	SB-4 12/13/2018	SB-4 12/13/2018	SB-5 12/13/2018	SB-5 12/13/2018
		Residential		Construction Worker		G.W. Ing.	ADL			Depth (ft)	0-3	3-6	6-9	0-3	6-9
		Ingestion	Inhalation	Ingestion	Inhalation	Class II									
SVOCs	**Hexachlorobutadiene**	NC	NC	NC	NC	NC	NE	NE	NE		NA	NA	NA	NA	NA
	Hexachlorocyclopentadiene	550	10	14,000	1.1	2,200	*	130	44		NA	NA	NA	NA	NA
	Hexachloroethane	78	NC	2,000	NC	2.6	*	NE	NE		NA	NA	NA	NA	NA
	Isophorone	15,600	4,600	410,000	4,600	8.0	*	3,000	3,000		NA	NA	NA	NA	NA
	2-Methylnaphthalene	310	NC	820	NC	10	SS	NE	NE		NA	NA	NA	NA	NA
	2-Methylphenol (o-Cresol)	3,900	NC	100,000	NC	15	*	NE	NE		NA	NA	NA	NA	NA
	4-Methylphenol (m,p-Cresols)	NC	NC	NC	NC	NC	SS	NE	NE		NA	NA	NA	NA	NA
	2-Nitroaniline	NC	NC	NC	NC	NC	SS	NE	NE		NA	NA	NA	NA	NA
	3-Nitroaniline	NC	NC	NC	NC	NC	SS	NE	NE		NA	NA	NA	NA	NA
	4-Nitroaniline	NC	NC	NC	NC	NC	SS	NE	NE		NA	NA	NA	NA	NA
	2-Nitrophenol	NE	NE	NE	NE	NE	NE	NE	NE		NA	NA	NA	NA	NA
	4-Nitrophenol	NC	NC	NC	NC	NC	NE	NE	NE		NA	NA	NA	NA	NA
	Nitrobenzene	39	92	1,000	9.4	0.1	0.26	710	590		NA	NA	NA	NA	NA
	n-Nitrosodimethylamine	NC	NC	NC	NC	NC	NE	NE	NE		NA	NA	NA	NA	NA
	n-Nitroso-di-n-Propylamine	0.09	NC	18	NC	0.00005	0.0018	1,900	2,300		NA	NA	NA	NA	NA
	n-Nitrosodiphenylamine	130	NC	25,000	NC	5.6	*	NE	NE		NA	NA	NA	NA	NA
	2,2'-oxybis(1-Chloropropane) (Bis(2-chloroisopropyl)ether)	NC	NC	NC	NC	NC	SS	NE	NE		NA	NA	NA	NA	NA
	Pentachlorophenol	3	NC	520	NC	0.1	*	NE	NE		NA	NA	NA	NA	NA
	Phenol	23,000	NC	61,000	NC	100	*	NE	NE		NA	NA	NA	NA	NA
	Pyridine	NC	NC	NC	NC	NC	NE	NE	NE		NA	NA	NA	NA	NA
	1,2,4-Trichlorobenzene	780	3,200	2,000	920	53	*	340	120		NA	NA	NA	NA	NA
	2,4,5-Trichlorophenol	7,800	NC	200,000	NC	26	*	NE	NE		NA	NA	NA	NA	NA
	2,4,6-Trichlorophenol	58	200	11,000	540	0.07	0.66	NE	NE		NA	NA	NA	NA	NA

NOTES:

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Table III

Soil Analytical Results - SVOCs

	Analyte	IEPA SROs						C_{SAT} Outdoor Inhalation	C_{SAT} SC of GW Ing	Sample Date	SB-6	SB-6	SB-6	SB-7	SB-7
		Residential		Construction Worker		G.W. Ing.	ADL				12/13/2018	12/13/2018	12/13/2018	12/13/2018	12/13/2018
		Ingestion	Inhalation	Ingestion	Inhalation	Class II				Depth (ft)	0-3	3-6	6-9	0-3	6-9
SVOCs	**Aniline**	NC	NC	NC	NC	NC	NC	NE	NE		<3.6	<0.39	NA	NA	NA
	Benzidine	NC	NC	NC	NC	NC	NC	NE	NE		<3.5	<0.39	NA	NA	NA
	Benzoic Acid	310,000	NC	820,000	NC	400	*	NE	NE		<8.9	<0.98	NA	NA	NA
	Benzyl Alcohol	NC	NC	NC	NC	NC	NC	NE	NE		<1.8	<0.20	NA	NA	NA
	Bis(2-chloroethoxy)methane	NE	NE	NE	NE	NE	NE	NE	NE		<1.8	<0.20	NA	NA	NA
	Bis(2-chloroethyl)ether	0.6	0.2	75	0.66	0.0004	0.66	3,000	3,900		<1.8	<0.20	NA	NA	NA
	Bis(2-ethylhexyl)phthalate	46	31,000	4,100	31,000	31,000	*	200	68		<1.8	<0.98	NA	NA	NA
	4-Bromophenyl Phenyl Ether	NE	NE	NE	NE	NE	NE	NE	NE		<1.8	<0.20	NA	NA	NA
	Butyl Benzyl Phthalate	16,000	930	410,000	930	930	*	1,000	340		<1.8	<0.20	NA	NA	NA
	Carbazole	32	NE	6,200	NE	2.8	NE	NE	NE		<1.8	<0.20	NA	NA	NA
	4-Chloroaniline	310	NC	820	NC	0.7	*	NE	NE		<1.8	<0.20	NA	NA	NA
	4-Chloro-3-Methylphenol	NE	NE	NE	NE	NE	NE	NE	NE		<3.5	<0.39	NA	NA	NA
	2-Chloronaphthalene	NC	NC	NC	NC	NC	NC	NE	NE		<1.8	<0.20	NA	NA	NA
	2-Chlorophenol	390	53,000	10,000	53,000	1.5	*	10,000	7,100		<1.8	<0.20	NA	NA	NA
	4-Chlorophenyl Phenyl Ether	NE	NE	NE	NE	NE	NE	NE	NE		<1.8	<0.20	NA	NA	NA
	Dibenzofuran	NC	NC	820	NC	NC	*	NE	NE		<1.8	<0.20	NA	NA	NA
	1,2-Dichlorobenzene	7,000	560	18,000	310	43	*	560	210		<1.8	<0.20	NA	NA	NA
	1,3-Dichlorobenzene	NE	NE	NE	NE	NE	NE	NE	NE		<1.8	<0.20	NA	NA	NA
	1,4-Dichlorobenzene	NC	11,000	NC	340	11	*	NE	NE		<1.8	<0.20	NA	NA	NA
	3,3-Dichlorobenzidine	1.0	NC	280	NC	0.033	1.3	NE	NE		<1.8	<0.20	NA	NA	NA
	2,4-Dichlorophenol	230	NC	610	NC	0.48	*	NE	NE		<1.8	<0.20	NA	NA	NA
	Diethyl Phthalate	63,000	2,000	1,000,000	2,000	470	*	2,200	920		<1.8	<0.20	NA	NA	NA
	2,4-Dimethylphenol	1,600	NC	41,000	NC	9.0	*	10,000	4,700		<1.8	<0.20	NA	NA	NA
	Dimethyl Phthalate	NE	NE	NE	NE	NE	NE	NE	NE		<1.8	<0.20	NA	NA	NA
	4,6-Dinitro-2-Methylphenol	NC	NC	NC	NC	NC	NC	NE	NE		<3.5	<0.20	NA	NA	NA
	2,4-Dinitrophenol	160	NC	410	NC	0.2	3.3	NE	NE		<8.9	<0.98	NA	NA	NA
	2,4-Dinitrotoluene	0.9	NC	180	NC	0.0008	0.25	NE	NE		<0.35	<0.039	NA	NA	NA
	2,6-Dinitrotoluene	0.9	NC	180	NC	0.0007	0.26	NE	NE		<0.35	<0.039	NA	NA	NA
	Di-n-Butyl Phthalate	7,800	2,300	200,000	2,300	2,300	*	2,600	880		<1.8	<0.20	NA	NA	NA
	Di-n-Octylphthalate	1,600	10,000	4,100	10,000	10,000	*	16	5		<1.8	<0.20	NA	NA	NA
	Hexachlorobenzene	0.4	1.0	78	2.6	11	*	NE	NE		<1.8	<0.20	NA	NA	NA

NOTES:

1. All results expressed in milligrams per kilogram (mg/kg).
2. NA = Not analyzed for this constituent.
3. NC = No toxicity criteria for this exposure route.
4. NE = No established IEPA SRO for this analyte.
5. Samples were analyzed utilizing EPA Method SW-8270C.
6. G.W. Ing. = Soil Component of the Groundwater Ingestion Exposure Route.
7. **Bold values** = Concentration exceeds soil ing. and/or inh. exposure route for residential Tier 1 SROs.
8. O = Concentration exceeds soil ing. and/or inh. exposure route for construction worker Tier 1 SROs.
9. = Concentration exceeds soil component of the groundwater ing. exposure route for Class I and/or Class II Tier 1 SROs.
10. * = The ADL is less than or equal to the specified remediation objective.
11. SS = Site-specific based upon wet weight of soil.

Table III

Soil Analytical Results - SVOCs

	Analyte	IEPA SROs						C_{SAT} Outdoor Inhalation	C_{SAT} SC of GW Ing	Sample Date	SB-6	SB-6	SB-6	SB-7	SB-7
		Residential		Construction Worker		G.W. Ing.	ADL				12/13/2018	12/13/2018	12/13/2018	12/13/2018	12/13/2018
		Ingestion	Inhalation	Ingestion	Inhalation	Class II				Depth (ft)	0-3	3-6	6-9	0-3	6-9
SVOCs	**Hexachlorobutadiene**	NC	NC	NC	NC	NC	NE	NE	NE		<1.8	<0.20	NA	NA	NA
	Hexachlorocyclopentadiene	550	10	14,000	1.1	2,200	*	130	44		<1.8	<0.20	NA	NA	NA
	Hexachloroethane	78	NC	2,000	NC	2.6	*	NE	NE		<1.8	<0.20	NA	NA	NA
	Isophorone	15,600	4,600	410,000	4,600	8.0	*	3,000	3,000		<1.8	<0.20	NA	NA	NA
	2-Methylnaphthalene	310	NC	820	NC	10	SS	NE	NE		<1.8	<0.20	NA	NA	NA
	2-Methylphenol (o-Cresol)	3,900	NC	100,000	NC	15	*	NE	NE		<1.8	<0.20	NA	NA	NA
	4-Methylphenol (m,p-Cresols)	NC	NC	NC	NC	NC	SS	NE	NE		<1.8	<0.20	NA	NA	NA
	2-Nitroaniline	NC	NC	NC	NC	NC	SS	NE	NE		<1.8	<0.20	NA	NA	NA
	3-Nitroaniline	NC	NC	NC	NC	NC	SS	NE	NE		<1.8	<0.20	NA	NA	NA
	4-Nitroaniline	NC	NC	NC	NC	NC	SS	NE	NE		<1.8	<0.20	NA	NA	NA
	2-Nitrophenol	NE	NE	NE	NE	NE	NE	NE	NE		<1.8	<0.20	NA	NA	NA
	4-Nitrophenol	NC	NC	NC	NC	NC	NE	NE	NE		<3.5	<0.39	NA	NA	NA
	Nitrobenzene	39	92	1,000	9.4	0.1	0.26	710	590		<0.35	<0.039	NA	NA	NA
	n-Nitrosodimethylamine	NC	NC	NC	NC	NC	NE	NE	NE		NA	NA	NA	NA	NA
	n-Nitroso-di-n-Propylamine	0.09	NC	18	NC	0.00005	0.0018	1,900	2,300		<0.35	<0.039	NA	NA	NA
	n-Nitrosodiphenylamine	130	NC	25,000	NC	5.6	*	NE	NE		<0.35	<0.039	NA	NA	NA
	2,2'-oxybis(1-Chloropropane) (Bis(2-chloroisopropyl)ether)	NC	NC	NC	NC	NC	SS	NE	NE		<1.8	<0.20	NA	NA	NA
	Pentachlorophenol	3	NC	520	NC	0.1	*	NE	NE		<0.35	<0.039	NA	NA	NA
	Phenol	23,000	NC	61,000	NC	100	*	NE	NE		<1.8	<0.20	NA	NA	NA
	Pyridine	NC	NC	NC	NC	NC	NE	NE	NE		<7.2	<0.79	NA	NA	NA
	1,2,4-Trichlorobenzene	780	3,200	2,000	920	53	*	340	120		<1.8	<0.20	NA	NA	NA
	2,4,5-Trichlorophenol	7,800	NC	200,000	NC	26	*	NE	NE		<1.8	<0.20	NA	NA	NA
	2,4,6-Trichlorophenol	58	200	11,000	540	0.07	0.66	NE	NE		<1.8	<0.20	NA	NA	NA

NOTES:

1. All results expressed in milligrams per kilogram (mg/kg).
2. NA = Not analyzed for this constituent.
3. NC = No toxicity criteria for this exposure route.
4. NE = No established IEPA SRO for this analyte.
5. Samples were analyzed utilizing EPA Method SW-8270C.
6. G.W. Ing. = Soil Component of the Groundwater Ingestion Exposure Route.
7. **Bold values** = Concentration exceeds soil ing. and/or inh. exposure route for residential Tier 1 SROs.
8. O = Concentration exceeds soil ing. and/or inh. exposure route for construction worker Tier 1 SROs.
9. = Concentration exceeds soil component of the groundwater ing. exposure route for Class I and/or Class II Tier 1 SROs.
10. * = The ADL is less than or equal to the specified remediation objective.
11. SS = Site-specific based upon wet weight of soil.

Table III

Soil Analytical Results - SVOCs

	Analyte	IEPA SROs						C_{SAT} Outdoor Inhalation	C_{SAT} SC of GW Ing	Sample Date	SB-7	SB-8	SB-8	SB-8	SB-8
		Residential		Construction Worker		G.W. Ing.	ADL				12/13/2018	12/13/2018	12/13/2018	12/13/2018	12/13/2018
		Ingestion	Inhalation	Ingestion	Inhalation	Class II				Depth (ft)	9-12	0-3	6-9	9-12	12-15
SVOCs	**Aniline**	NC	NC	NC	NC	NC	NC	NE	NE		NA	NA	NA	NA	NA
	Benzidine	NC	NC	NC	NC	NC	NC	NE	NE		NA	NA	NA	NA	NA
	Benzoic Acid	310,000	NC	820,000	NC	400	*	NE	NE		NA	NA	NA	NA	NA
	Benzyl Alcohol	NC	NC	NC	NC	NC	NC	NE	NE		NA	NA	NA	NA	NA
	Bis(2-chloroethoxy)methane	NE	NE	NE	NE	NE	NE	NE	NE		NA	NA	NA	NA	NA
	Bis(2-chloroethyl)ether	0.6	0.2	75	0.66	0.0004	0.66	3,000	3,900		NA	NA	NA	NA	NA
	Bis(2-ethylhexyl)phthalate	46	31,000	4,100	31,000	31,000	*	200	68		NA	NA	NA	NA	NA
	4-Bromophenyl Phenyl Ether	NE	NE	NE	NE	NE	NE	NE	NE		NA	NA	NA	NA	NA
	Butyl Benzyl Phthalate	16,000	930	410,000	930	930	*	1,000	340		NA	NA	NA	NA	NA
	Carbazole	32	NE	6,200	NE	2.8	NE	NE	NE		NA	NA	NA	NA	NA
	4-Chloroaniline	310	NC	820	NC	0.7	*	NE	NE		NA	NA	NA	NA	NA
	4-Chloro-3-Methylphenol	NE	NE	NE	NE	NE	NE	NE	NE		NA	NA	NA	NA	NA
	2-Chloronaphthalene	NC	NC	NC	NC	NC	NC	NE	NE		NA	NA	NA	NA	NA
	2-Chlorophenol	390	53,000	10,000	53,000	1.5	*	10,000	7,100		NA	NA	NA	NA	NA
	4-Chlorophenyl Phenyl Ether	NE	NE	NE	NE	NE	NE	NE	NE		NA	NA	NA	NA	NA
	Dibenzofuran	NC	NC	820	NC	NC	*	NE	NE		NA	NA	NA	NA	NA
	1,2-Dichlorobenzene	7,000	560	18,000	310	43	*	560	210		NA	NA	NA	NA	NA
	1,3-Dichlorobenzene	NE	NE	NE	NE	NE	NE	NE	NE		NA	NA	NA	NA	NA
	1,4-Dichlorobenzene	NC	11,000	NC	340	11	*	NE	NE		NA	NA	NA	NA	NA
	3,3-Dichlorobenzidine	1.0	NC	280	NC	0.033	1.3	NE	NE		NA	NA	NA	NA	NA
	2,4-Dichlorophenol	230	NC	610	NC	0.48	*	NE	NE		NA	NA	NA	NA	NA
	Diethyl Phthalate	63,000	2,000	1,000,000	2,000	470	*	2,200	920		NA	NA	NA	NA	NA
	2,4-Dimethylphenol	1,600	NC	41,000	NC	9.0	*	10,000	4,700		NA	NA	NA	NA	NA
	Dimethyl Phthalate	NE	NE	NE	NE	NE	NE	NE	NE		NA	NA	NA	NA	NA
	4,6-Dinitro-2-Methylphenol	NC	NC	NC	NC	NC	NC	NE	NE		NA	NA	NA	NA	NA
	2,4-Dinitrophenol	160	NC	410	NC	0.2	3.3	NE	NE		NA	NA	NA	NA	NA
	2,4-Dinitrotoluene	0.9	NC	180	NC	0.0008	0.25	NE	NE		NA	NA	NA	NA	NA
	2,6-Dinitrotoluene	0.9	NC	180	NC	0.0007	0.26	NE	NE		NA	NA	NA	NA	NA
	Di-n-Butyl Phthalate	7,800	2,300	200,000	2,300	2,300	*	2,600	880		NA	NA	NA	NA	NA
	Di-n-Octylphthalate	1,600	10,000	4,100	10,000	10,000	*	16	5		NA	NA	NA	NA	NA
	Hexachlorobenzene	0.4	1.0	78	2.6	11	*	NE	NE		NA	NA	NA	NA	NA

NOTES:

1. All results expressed in milligrams per kilogram (mg/kg).
2. NA = Not analyzed for this constituent.
3. NC = No toxicity criteria for this exposure route.
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9. = Concentration exceeds soil component of the groundwater ing. exposure route for Class I and/or Class II Tier 1 SROs.
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11. SS = Site-specific based upon wet weight of soil.

Table III

Soil Analytical Results - SVOCs

	Analyte	IEPA SROs						C_{SAT} Outdoor Inhalation	C_{SAT} SC of GW Ing	Sample Date	SB-7 12/13/2018	SB-8 12/13/2018	SB-8 12/13/2018	SB-8 12/13/2018	SB-8 12/13/2018
		Residential		Construction Worker		G.W. Ing.	ADL			Depth (ft)	9-12	0-3	6-9	9-12	12-15
		Ingestion	Inhalation	Ingestion	Inhalation	Class II									
SVOCs	**Hexachlorobutadiene**	NC	NC	NC	NC	NC	NE	NE	NE		NA	NA	NA	NA	NA
	Hexachlorocyclopentadiene	550	10	14,000	1.1	2,200	*	130	44		NA	NA	NA	NA	NA
	Hexachloroethane	78	NC	2,000	NC	2.6	*	NE	NE		NA	NA	NA	NA	NA
	Isophorone	15,600	4,600	410,000	4,600	8.0	*	3,000	3,000		NA	NA	NA	NA	NA
	2-Methylnaphthalene	310	NC	820	NC	10	SS	NE	NE		NA	NA	NA	NA	NA
	2-Methylphenol (o-Cresol)	3,900	NC	100,000	NC	15	*	NE	NE		NA	NA	NA	NA	NA
	4-Methylphenol (m,p-Cresols)	NC	NC	NC	NC	NC	SS	NE	NE		NA	NA	NA	NA	NA
	2-Nitroaniline	NC	NC	NC	NC	NC	SS	NE	NE		NA	NA	NA	NA	NA
	3-Nitroaniline	NC	NC	NC	NC	NC	SS	NE	NE		NA	NA	NA	NA	NA
	4-Nitroaniline	NC	NC	NC	NC	NC	SS	NE	NE		NA	NA	NA	NA	NA
	2-Nitrophenol	NE	NE	NE	NE	NE	NE	NE	NE		NA	NA	NA	NA	NA
	4-Nitrophenol	NC	NC	NC	NC	NC	NE	NE	NE		NA	NA	NA	NA	NA
	Nitrobenzene	39	92	1,000	9.4	0.1	0.26	710	590		NA	NA	NA	NA	NA
	n-Nitrosodimethylamine	NC	NC	NC	NC	NC	NE	NE	NE		NA	NA	NA	NA	NA
	n-Nitroso-di-n-Propylamine	0.09	NC	18	NC	0.00005	0.0018	1,900	2,300		NA	NA	NA	NA	NA
	n-Nitrosodiphenylamine	130	NC	25,000	NC	5.6	*	NE	NE		NA	NA	NA	NA	NA
	2,2'-oxybis(1-Chloropropane) (Bis(2-chloroisopropyl)ether)	NC	NC	NC	NC	NC	SS	NE	NE		NA	NA	NA	NA	NA
	Pentachlorophenol	3	NC	520	NC	0.1	*	NE	NE		NA	NA	NA	NA	NA
	Phenol	23,000	NC	61,000	NC	100	*	NE	NE		NA	NA	NA	NA	NA
	Pyridine	NC	NC	NC	NC	NC	NE	NE	NE		NA	NA	NA	NA	NA
	1,2,4-Trichlorobenzene	780	3,200	2,000	920	53	*	340	120		NA	NA	NA	NA	NA
	2,4,5-Trichlorophenol	7,800	NC	200,000	NC	26	*	NE	NE		NA	NA	NA	NA	NA
	2,4,6-Trichlorophenol	58	200	11,000	540	0.07	0.66	NE	NE		NA	NA	NA	NA	NA

NOTES:

1. All results expressed in milligrams per kilogram (mg/kg).
2. NA = Not analyzed for this constituent.
3. NC = No toxicity criteria for this exposure route.
4. NE = No established IEPA SRO for this analyte.
5. Samples were analyzed utilizing EPA Method SW-8270C.
6. G.W. Ing. = Soil Component of the Groundwater Ingestion Exposure Route.
7. **Bold values** = Concentration exceeds soil ing. and/or inh. exposure route for residential Tier 1 SROs.
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9. = Concentration exceeds soil component of the groundwater ing. exposure route for Class I and/or Class II Tier 1 SROs.
10. * = The ADL is less than or equal to the specified remediation objective.
11. SS = Site-specific based upon wet weight of soil.

Table III

Soil Analytical Results - SVOCs

	Analyte	IEPA SROs						C_{SAT} Outdoor Inhalation	C_{SAT} SC of GW Ing	Sample Date	SB-9	SB-9	SB-9	SB-10	SB-10
		Residential		Construction Worker		G.W. Ing.	ADL				12/13/2018	12/13/2018	12/13/2018	12/13/2018	12/13/2018
		Ingestion	Inhalation	Ingestion	Inhalation	Class II				Depth (ft)	0-3	3-6	6-9	0-3	3-6
SVOCs	**Aniline**	NC	NC	NC	NC	NC	NC	NE	NE		NA	NA	NA	NA	NA
	Benzidine	NC	NC	NC	NC	NC	NC	NE	NE		NA	NA	NA	NA	NA
	Benzoic Acid	310,000	NC	820,000	NC	400	*	NE	NE		NA	NA	NA	NA	NA
	Benzyl Alcohol	NC	NC	NC	NC	NC	NC	NE	NE		NA	NA	NA	NA	NA
	Bis(2-chloroethoxy)methane	NE	NE	NE	NE	NE	NE	NE	NE		NA	NA	NA	NA	NA
	Bis(2-chloroethyl)ether	0.6	0.2	75	0.66	0.0004	0.66	3,000	3,900		NA	NA	NA	NA	NA
	Bis(2-ethylhexyl)phthalate	46	31,000	4,100	31,000	31,000	*	200	68		NA	NA	NA	NA	NA
	4-Bromophenyl Phenyl Ether	NE	NE	NE	NE	NE	NE	NE	NE		NA	NA	NA	NA	NA
	Butyl Benzyl Phthalate	16,000	930	410,000	930	930	*	1,000	340		NA	NA	NA	NA	NA
	Carbazole	32	NE	6,200	NE	2.8	NE	NE	NE		NA	NA	NA	NA	NA
	4-Chloroaniline	310	NC	820	NC	0.7	*	NE	NE		NA	NA	NA	NA	NA
	4-Chloro-3-Methylphenol	NE	NE	NE	NE	NE	NE	NE	NE		NA	NA	NA	NA	NA
	2-Chloronaphthalene	NC	NC	NC	NC	NC	NC	NE	NE		NA	NA	NA	NA	NA
	2-Chlorophenol	390	53,000	10,000	53,000	1.5	*	10,000	7,100		NA	NA	NA	NA	NA
	4-Chlorophenyl Phenyl Ether	NE	NE	NE	NE	NE	NE	NE	NE		NA	NA	NA	NA	NA
	Dibenzofuran	NC	NC	820	NC	NC	*	NE	NE		NA	NA	NA	NA	NA
	1,2-Dichlorobenzene	7,000	560	18,000	310	43	*	560	210		NA	NA	NA	NA	NA
	1,3-Dichlorobenzene	NE	NE	NE	NE	NE	NE	NE	NE		NA	NA	NA	NA	NA
	1,4-Dichlorobenzene	NC	11,000	NC	340	11	*	NE	NE		NA	NA	NA	NA	NA
	3,3-Dichlorobenzidine	1.0	NC	280	NC	0.033	1.3	NE	NE		NA	NA	NA	NA	NA
	2,4-Dichlorophenol	230	NC	610	NC	0.48	*	NE	NE		NA	NA	NA	NA	NA
	Diethyl Phthalate	63,000	2,000	1,000,000	2,000	470	*	2,200	920		NA	NA	NA	NA	NA
	2,4-Dimethylphenol	1,600	NC	41,000	NC	9.0	*	10,000	4,700		NA	NA	NA	NA	NA
	Dimethyl Phthalate	NE	NE	NE	NE	NE	NE	NE	NE		NA	NA	NA	NA	NA
	4,6-Dinitro-2-Methylphenol	NC	NC	NC	NC	NC	NC	NE	NE		NA	NA	NA	NA	NA
	2,4-Dinitrophenol	160	NC	410	NC	0.2	3.3	NE	NE		NA	NA	NA	NA	NA
	2,4-Dinitrotoluene	0.9	NC	180	NC	0.0008	0.25	NE	NE		NA	NA	NA	NA	NA
	2,6-Dinitrotoluene	0.9	NC	180	NC	0.0007	0.26	NE	NE		NA	NA	NA	NA	NA
	Di-n-Butyl Phthalate	7,800	2,300	200,000	2,300	2,300	*	2,600	880		NA	NA	NA	NA	NA
	Di-n-Octylphthalate	1,600	10,000	4,100	10,000	10,000	*	16	5		NA	NA	NA	NA	NA
	Hexachlorobenzene	0.4	1.0	78	2.6	11	*	NE	NE		NA	NA	NA	NA	NA

NOTES:

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3. NC = No toxicity criteria for this exposure route.
4. NE = No established IEPA SRO for this analyte.
5. Samples were analyzed utilizing EPA Method SW-8270C.
6. G.W. Ing. = Soil Component of the Groundwater Ingestion Exposure Route.
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9. = Concentration exceeds soil component of the groundwater ing. exposure route for Class I and/or Class II Tier 1 SROs.
10. * = The ADL is less than or equal to the specified remediation objective.
11. SS = Site-specific based upon wet weight of soil.

Table III

Soil Analytical Results - SVOCs

	Analyte	IEPA SROs						C_{SAT} Outdoor Inhalation	C_{SAT} SC of GW Ing	Sample Date	SB-9 12/13/2018	SB-9 12/13/2018	SB-9 12/13/2018	SB-10 12/13/2018	SB-10 12/13/2018
		Residential		Construction Worker		G.W. Ing.	ADL								
		Ingestion	Inhalation	Ingestion	Inhalation	Class II				Depth (ft)	0-3	3-6	6-9	0-3	3-6
SVOCs	**Hexachlorobutadiene**	NC	NC	NC	NC	NC	NE	NE	NE		NA	NA	NA	NA	NA
	Hexachlorocyclopentadiene	550	10	14,000	1.1	2,200	*	130	44		NA	NA	NA	NA	NA
	Hexachloroethane	78	NC	2,000	NC	2.6	*	NE	NE		NA	NA	NA	NA	NA
	Isophorone	15,600	4,600	410,000	4,600	8.0	*	3,000	3,000		NA	NA	NA	NA	NA
	2-Methylnaphthalene	310	NC	820	NC	10	SS	NE	NE		NA	NA	NA	NA	NA
	2-Methylphenol (o-Cresol)	3,900	NC	100,000	NC	15	*	NE	NE		NA	NA	NA	NA	NA
	4-Methylphenol (m,p-Cresols)	NC	NC	NC	NC	NC	SS	NE	NE		NA	NA	NA	NA	NA
	2-Nitroaniline	NC	NC	NC	NC	NC	SS	NE	NE		NA	NA	NA	NA	NA
	3-Nitroaniline	NC	NC	NC	NC	NC	SS	NE	NE		NA	NA	NA	NA	NA
	4-Nitroaniline	NC	NC	NC	NC	NC	SS	NE	NE		NA	NA	NA	NA	NA
	2-Nitrophenol	NE	NE	NE	NE	NE	NE	NE	NE		NA	NA	NA	NA	NA
	4-Nitrophenol	NC	NC	NC	NC	NC	NE	NE	NE		NA	NA	NA	NA	NA
	Nitrobenzene	39	92	1,000	9.4	0.1	0.26	710	590		NA	NA	NA	NA	NA
	n-Nitrosodimethylamine	NC	NC	NC	NC	NC	NE	NE	NE		NA	NA	NA	NA	NA
	n-Nitroso-di-n-Propylamine	0.09	NC	18	NC	0.00005	0.0018	1,900	2,300		NA	NA	NA	NA	NA
	n-Nitrosodiphenylamine	130	NC	25,000	NC	5.6	*	NE	NE		NA	NA	NA	NA	NA
	2,2'-oxybis(1-Chloropropane) (Bis(2-chloroisopropyl)ether)	NC	NC	NC	NC	NC	SS	NE	NE		NA	NA	NA	NA	NA
	Pentachlorophenol	3	NC	520	NC	0.1	*	NE	NE		NA	NA	NA	NA	NA
	Phenol	23,000	NC	61,000	NC	100	*	NE	NE		NA	NA	NA	NA	NA
	Pyridine	NC	NC	NC	NC	NC	NE	NE	NE		NA	NA	NA	NA	NA
	1,2,4-Trichlorobenzene	780	3,200	2,000	920	53	*	340	120		NA	NA	NA	NA	NA
	2,4,5-Trichlorophenol	7,800	NC	200,000	NC	26	*	NE	NE		NA	NA	NA	NA	NA
	2,4,6-Trichlorophenol	58	200	11,000	540	0.07	0.66	NE	NE		NA	NA	NA	NA	NA

NOTES:

1. All results expressed in milligrams per kilogram (mg/kg).
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3. NC = No toxicity criteria for this exposure route.
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Table III

Soil Analytical Results - SVOCs

	Analyte	IEPA SROs						C_{SAT} Outdoor Inhalation	C_{SAT} SC of GW Ing	Sample Date	SB-10	B-111	B-111	B-112	B-112
		Residential		Construction Worker		G.W. Ing.	ADL				12/13/2018	12/8/2023	12/8/2023	12/8/2023	12/8/2023
		Ingestion	Inhalation	Ingestion	Inhalation	Class II				Depth (ft)	6-9	1-3	5-7	1-3	5-7
SVOCs	**Aniline**	NC	NC	NC	NC	NC	NC	NE	NE		NA	NA	NA	< 0.41	< 0.41
	Benzidine	NC	NC	NC	NC	NC	NC	NE	NE		NA	NA	NA	< 0.41	< 0.41
	Benzoic Acid	310,000	NC	820,000	NC	400	*	NE	NE		NA	NA	NA	< 1.0	< 1.0
	Benzyl Alcohol	NC	NC	NC	NC	NC	NC	NE	NE		NA	NA	NA	< 0.21	< 0.21
	Bis(2-chloroethoxy)methane	NE	NE	NE	NE	NE	NE	NE	NE		NA	NA	NA	< 0.21	< 0.21
	Bis(2-chloroethyl)ether	0.6	0.2	75	0.66	0.0004	0.66	3,000	3,900		NA	NA	NA	< 0.21	< 0.21
	Bis(2-ethylhexyl)phthalate	46	31,000	4,100	31,000	31,000	*	200	68		NA	NA	NA	< 1.0	< 1.0
	4-Bromophenyl Phenyl Ether	NE	NE	NE	NE	NE	NE	NE	NE		NA	NA	NA	< 0.21	< 0.21
	Butyl Benzyl Phthalate	16,000	930	410,000	930	930	*	1,000	340		NA	NA	NA	< 1.0	< 1.0
	Carbazole	32	NE	6,200	NE	2.8	NE	NE	NE		NA	NA	NA	4.3	< 0.21
	4-Chloroaniline	310	NC	820	NC	0.7	*	NE	NE		NA	NA	NA	< 0.21	< 0.21
	4-Chloro-3-Methylphenol	NE	NE	NE	NE	NE	NE	NE	NE		NA	NA	NA	< 0.41	< 0.41
	2-Chloronaphthalene	NC	NC	NC	NC	NC	NC	NE	NE		NA	NA	NA	< 0.21	< 0.21
	2-Chlorophenol	390	53,000	10,000	53,000	1.5	*	10,000	7,100		NA	NA	NA	< 0.21	< 0.21
	4-Chlorophenyl Phenyl Ether	NE	NE	NE	NE	NE	NE	NE	NE		NA	NA	NA	< 0.21	< 0.21
	Dibenzofuran	NC	NC	820	NC	NC	*	NE	NE		NA	NA	NA	1.3	< 0.21
	1,2-Dichlorobenzene	7,000	560	18,000	310	43	*	560	210		NA	NA	NA	< 0.21	< 0.21
	1,3-Dichlorobenzene	NE	NE	NE	NE	NE	NE	NE	NE		NA	NA	NA	< 0.21	< 0.21
	1,4-Dichlorobenzene	NC	11,000	NC	340	11	*	NE	NE		NA	NA	NA	< 0.21	< 0.21
	3,3-Dichlorobenzidine	1.0	NC	280	NC	0.033	1.3	NE	NE		NA	NA	NA	< 0.21	< 0.21
	2,4-Dichlorophenol	230	NC	610	NC	0.48	*	NE	NE		NA	NA	NA	< 0.21	< 0.21
	Diethyl Phthalate	63,000	2,000	1,000,000	2,000	470	*	2,200	920		NA	NA	NA	< 1.0	< 1.0
	2,4-Dimethylphenol	1,600	NC	41,000	NC	9.0	*	10,000	4,700		NA	NA	NA	< 1.0	< 1.0
	Dimethyl Phthalate	NE	NE	NE	NE	NE	NE	NE	NE		NA	NA	NA	< 0.21	< 0.21
	4,6-Dinitro-2-Methylphenol	NC	NC	NC	NC	NC	NC	NE	NE		NA	NA	NA	< 1.0	< 1.0
	2,4-Dinitrophenol	160	NC	410	NC	0.2	3.3	NE	NE		NA	NA	NA	< 0.41	< 0.41
	2,4-Dinitrotoluene	0.9	NC	180	NC	0.0008	0.25	NE	NE		NA	NA	NA	< 1.0	< 1.0
	2,6-Dinitrotoluene	0.9	NC	180	NC	0.0007	0.26	NE	NE		NA	NA	NA	< 0.041	< 0.041
	Di-n-Butyl Phthalate	7,800	2,300	200,000	2,300	2,300	*	2,600	880		NA	NA	NA	< 0.041	< 0.041
	Di-n-Octylphthalate	1,600	10,000	4,100	10,000	10,000	*	16	5		NA	NA	NA	< 1.0	< 1.0
	Hexachlorobenzene	0.4	1.0	78	2.6	11	*	NE	NE		NA	NA	NA	< 0.21	< 0.21

NOTES:

1. All results expressed in milligrams per kilogram (mg/kg).
2. NA = Not analyzed for this constituent.
3. NC = No toxicity criteria for this exposure route.
4. NE = No established IEPA SRO for this analyte.
5. Samples were analyzed utilizing EPA Method SW-8270C.
6. G.W. Ing. = Soil Component of the Groundwater Ingestion Exposure Route.
7. **Bold values** = Concentration exceeds soil ing. and/or inh. exposure route for residential Tier 1 SROs.
8. O = Concentration exceeds soil ing. and/or inh. exposure route for construction worker Tier 1 SROs.
9. = Concentration exceeds soil component of the groundwater ing. exposure route for Class I and/or Class II Tier 1 SROs.
10. * = The ADL is less than or equal to the specified remediation objective.
11. SS = Site-specific based upon wet weight of soil.

Table III

Soil Analytical Results - SVOCs

	Analyte	IEPA SROs						C_{SAT} Outdoor Inhalation	C_{SAT} SC of GW Ing	Sample Date	SB-10	B-111	B-111	B-112	B-112
		Residential		Construction Worker		G.W. Ing.	ADL				12/13/2018	12/8/2023	12/8/2023	12/8/2023	12/8/2023
		Ingestion	Inhalation	Ingestion	Inhalation	Class II				Depth (ft)	6-9	1-3	5-7	1-3	5-7
SVOCs	**Hexachlorobutadiene**	NC	NC	NC	NC	NC	NE	NE	NE		NA	NA	NA	< 0.21	< 0.21
	Hexachlorocyclopentadiene	550	10	14,000	1.1	2,200	*	130	44		NA	NA	NA	< 0.21	< 0.21
	Hexachloroethane	78	NC	2,000	NC	2.6	*	NE	NE		NA	NA	NA	< 0.21	< 0.21
	Isophorone	15,600	4,600	410,000	4,600	8.0	*	3,000	3,000		NA	NA	NA	< 0.21	< 0.21
	2-Methylnaphthalene	310	NC	820	NC	10	SS	NE	NE		NA	NA	NA	1.9	< 0.21
	2-Methylphenol (o-Cresol)	3,900	NC	100,000	NC	15	*	NE	NE		NA	NA	NA	< 0.21	< 0.21
	4-Methylphenol (m,p-Cresols)	NC	NC	NC	NC	NC	SS	NE	NE		NA	NA	NA	< 0.21	< 0.21
	2-Nitroaniline	NC	NC	NC	NC	NC	SS	NE	NE		NA	NA	NA	< 0.21	< 0.21
	3-Nitroaniline	NC	NC	NC	NC	NC	SS	NE	NE		NA	NA	NA	< 0.21	< 0.21
	4-Nitroaniline	NC	NC	NC	NC	NC	SS	NE	NE		NA	NA	NA	< 0.21	< 0.21
	2-Nitrophenol	NE	NE	NE	NE	NE	NE	NE	NE		NA	NA	NA	< 0.041	< 0.041
	4-Nitrophenol	NC	NC	NC	NC	NC	NE	NE	NE		NA	NA	NA	< 0.21	< 0.21
	Nitrobenzene	39	92	1,000	9.4	0.1	0.26	710	590		NA	NA	NA	< 0.41	< 0.41
	n-Nitrosodimethylamine	NC	NC	NC	NC	NC	NE	NE	NE		NA	NA	NA	< 0.21	< 0.21
	n-Nitroso-di-n-Propylamine	0.09	NC	18	NC	0.00005	0.0018	1,900	2,300		NA	NA	NA	< 0.041	< 0.041
	n-Nitrosodiphenylamine	130	NC	25,000	NC	5.6	*	NE	NE		NA	NA	NA	< 0.21	< 0.041
	2,2'-oxybis(1-Chloropropane) (Bis(2-chloroisopropyl)ether)	NC	NC	NC	NC	NC	SS	NE	NE		NA	NA	NA	< 0.21	< 0.21
	Pentachlorophenol	3	NC	520	NC	0.1	*	NE	NE		NA	NA	NA	< 0.083	< 0.041
	Phenol	23,000	NC	61,000	NC	100	*	NE	NE		NA	NA	NA	< 0.21	< 0.21
	Pyridine	NC	NC	NC	NC	NC	NE	NE	NE		NA	NA	NA	< 0.83	< 0.82
	1,2,4-Trichlorobenzene	780	3,200	2,000	920	53	*	340	120		NA	NA	NA	< 0.21	< 0.21
	2,4,5-Trichlorophenol	7,800	NC	200,000	NC	26	*	NE	NE		NA	NA	NA	< 0.21	< 0.21
	2,4,6-Trichlorophenol	58	200	11,000	540	0.07	0.66	NE	NE		NA	NA	NA	< 0.21	< 0.21

NOTES:

1. All results expressed in milligrams per kilogram (mg/kg).
2. NA = Not analyzed for this constituent.
3. NC = No toxicity criteria for this exposure route.
4. NE = No established IEPA SRO for this analyte.
5. Samples were analyzed utilizing EPA Method SW-8270C.
6. G.W. Ing. = Soil Component of the Groundwater Ingestion Exposure Route.
7. **Bold values** = Concentration exceeds soil ing. and/or inh. exposure route for residential Tier 1 SROs.
8. O = Concentration exceeds soil ing. and/or inh. exposure route for construction worker Tier 1 SROs.
9. = Concentration exceeds soil component of the groundwater ing. exposure route for Class I and/or Class II Tier 1 SROs.
10. * = The ADL is less than or equal to the specified remediation objective.
11. SS = Site-specific based upon wet weight of soil.

Table III

Soil Analytical Results - SVOCs

	Analyte	IEPA SROs						C_{SAT} Outdoor Inhalation	C_{SAT} SC of GW Ing	Sample Date	B-113 12/8/2023	B-113 12/8/2023
		Residential		Construction Worker		G.W. Ing.	ADL					
		Ingestion	Inhalation	Ingestion	Inhalation	Class II				Depth (ft)	1-3	5-7
SVOCs	**Aniline**	NC	NC	NC	NC	NC	NC	NE	NE		NA	NA
	Benzidine	NC	NC	NC	NC	NC	NC	NE	NE		NA	NA
	Benzoic Acid	310,000	NC	820,000	NC	400	*	NE	NE		NA	NA
	Benzyl Alcohol	NC	NC	NC	NC	NC	NC	NE	NE		NA	NA
	Bis(2-chloroethoxy)methane	NE	NE	NE	NE	NE	NE	NE	NE		NA	NA
	Bis(2-chloroethyl)ether	0.6	0.2	75	0.66	0.0004	0.66	3,000	3,900		NA	NA
	Bis(2-ethylhexyl)phthalate	46	31,000	4,100	31,000	31,000	*	200	68		NA	NA
	4-Bromophenyl Phenyl Ether	NE	NE	NE	NE	NE	NE	NE	NE		NA	NA
	Butyl Benzyl Phthalate	16,000	930	410,000	930	930	*	1,000	340		NA	NA
	Carbazole	32	NE	6,200	NE	2.8	NE	NE	NE		NA	NA
	4-Chloroaniline	310	NC	820	NC	0.7	*	NE	NE		NA	NA
	4-Chloro-3-Methylphenol	NE	NE	NE	NE	NE	NE	NE	NE		NA	NA
	2-Chloronaphthalene	NC	NC	NC	NC	NC	NC	NE	NE		NA	NA
	2-Chlorophenol	390	53,000	10,000	53,000	1.5	*	10,000	7,100		NA	NA
	4-Chlorophenyl Phenyl Ether	NE	NE	NE	NE	NE	NE	NE	NE		NA	NA
	Dibenzofuran	NC	NC	820	NC	NC	*	NE	NE		NA	NA
	1,2-Dichlorobenzene	7,000	560	18,000	310	43	*	560	210		NA	NA
	1,3-Dichlorobenzene	NE	NE	NE	NE	NE	NE	NE	NE		NA	NA
	1,4-Dichlorobenzene	NC	11,000	NC	340	11	*	NE	NE		NA	NA
	3,3-Dichlorobenzidine	1.0	NC	280	NC	0.033	1.3	NE	NE		NA	NA
	2,4-Dichlorophenol	230	NC	610	NC	0.48	*	NE	NE		NA	NA
	Diethyl Phthalate	63,000	2,000	1,000,000	2,000	470	*	2,200	920		NA	NA
	2,4-Dimethylphenol	1,600	NC	41,000	NC	9.0	*	10,000	4,700		NA	NA
	Dimethyl Phthalate	NE	NE	NE	NE	NE	NE	NE	NE		NA	NA
	4,6-Dinitro-2-Methylphenol	NC	NC	NC	NC	NC	NC	NE	NE		NA	NA
	2,4-Dinitrophenol	160	NC	410	NC	0.2	3.3	NE	NE		NA	NA
	2,4-Dinitrotoluene	0.9	NC	180	NC	0.0008	0.25	NE	NE		NA	NA
	2,6-Dinitrotoluene	0.9	NC	180	NC	0.0007	0.26	NE	NE		NA	NA
	Di-n-Butyl Phthalate	7,800	2,300	200,000	2,300	2,300	*	2,600	880		NA	NA
	Di-n-Octylphthalate	1,600	10,000	4,100	10,000	10,000	*	16	5		NA	NA
	Hexachlorobenzene	0.4	1.0	78	2.6	11	*	NE	NE		NA	NA

NOTES:

1. All results expressed in milligrams per kilogram (mg/kg).
2. NA = Not analyzed for this constituent.
3. NC = No toxicity criteria for this exposure route.
4. NE = No established IEPA SRO for this analyte.
5. Samples were analyzed utilizing EPA Method SW-8270C.
6. G.W. Ing. = Soil Component of the Groundwater Ingestion Exposure Route.
7. **Bold values** = Concentration exceeds soil ing. and/or inh. exposure route for residential Tier 1 SROs.
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11. SS = Site-specific based upon wet weight of soil.

Table III

Soil Analytical Results - SVOCs

	Analyte	IEPA SROs						C_{SAT} Outdoor Inhalation	C_{SAT} SC of GW Ing	Sample Date	B-113 12/8/2023	B-113 12/8/2023
		Residential		Construction Worker		G.W. Ing.	ADL					
		Ingestion	Inhalation	Ingestion	Inhalation	Class II				Depth (ft)	1-3	5-7
SVOCs	**Hexachlorobutadiene**	NC	NC	NC	NC	NC	NE	NE	NE		NA	NA
	Hexachlorocyclopentadiene	550	10	14,000	1.1	2,200	*	130	44		NA	NA
	Hexachloroethane	78	NC	2,000	NC	2.6	*	NE	NE		NA	NA
	Isophorone	15,600	4,600	410,000	4,600	8.0	*	3,000	3,000		NA	NA
	2-Methylnaphthalene	310	NC	820	NC	10	SS	NE	NE		NA	NA
	2-Methylphenol (o-Cresol)	3,900	NC	100,000	NC	15	*	NE	NE		NA	NA
	4-Methylphenol (m,p-Cresols)	NC	NC	NC	NC	NC	SS	NE	NE		NA	NA
	2-Nitroaniline	NC	NC	NC	NC	NC	SS	NE	NE		NA	NA
	3-Nitroaniline	NC	NC	NC	NC	NC	SS	NE	NE		NA	NA
	4-Nitroaniline	NC	NC	NC	NC	NC	SS	NE	NE		NA	NA
	2-Nitrophenol	NE	NE	NE	NE	NE	NE	NE	NE		NA	NA
	4-Nitrophenol	NC	NC	NC	NC	NC	NE	NE	NE		NA	NA
	Nitrobenzene	39	92	1,000	9.4	0.1	0.26	710	590		NA	NA
	n-Nitrosodimethylamine	NC	NC	NC	NC	NC	NE	NE	NE		NA	NA
	n-Nitroso-di-n-Propylamine	0.09	NC	18	NC	0.00005	0.0018	1,900	2,300		NA	NA
	n-Nitrosodiphenylamine	130	NC	25,000	NC	5.6	*	NE	NE		NA	NA
	2,2'-oxybis(1-Chloropropane) (Bis(2-chloroisopropyl)ether)	NC	NC	NC	NC	NC	SS	NE	NE		NA	NA
	Pentachlorophenol	3	NC	520	NC	0.1	*	NE	NE		NA	NA
	Phenol	23,000	NC	61,000	NC	100	*	NE	NE		NA	NA
	Pyridine	NC	NC	NC	NC	NC	NE	NE	NE		NA	NA
	1,2,4-Trichlorobenzene	780	3,200	2,000	920	53	*	340	120		NA	NA
	2,4,5-Trichlorophenol	7,800	NC	200,000	NC	26	*	NE	NE		NA	NA
	2,4,6-Trichlorophenol	58	200	11,000	540	0.07	0.66	NE	NE		NA	NA

NOTES:

1. All results expressed in milligrams per kilogram (mg/kg).
2. NA = Not analyzed for this constituent.
3. NC = No toxicity criteria for this exposure route.
4. NE = No established IEPA SRO for this analyte.
5. Samples were analyzed utilizing EPA Method SW-8270C.
6. G.W. Ing. = Soil Component of the Groundwater Ingestion Exposure Route.
7. **Bold values** = Concentration exceeds soil ing. and/or inh. exposure route for residential Tier 1 SROs.
8. O = Concentration exceeds soil ing. and/or inh. exposure route for construction worker Tier 1 SROs.
9. = Concentration exceeds soil component of the groundwater ing. exposure route for Class I and/or Class II Tier 1 SROs.
10. * = The ADL is less than or equal to the specified remediation objective.
11. SS = Site-specific based upon wet weight of soil.

Table IV

Soil Analytical Results - PNAs

	Analyte	IEPA SROs					2022 Bkgd.	Sample	SB-1	SB-1	SB-1	SB-2	SB-2
		Residential		Construction Worker		G.W. Ing.	Conc.	Date	12/13/2018	12/13/2018	12/13/2018	12/13/2018	12/13/2018
		Ingestion	Inhalation	Ingestion	Inhalation	Class II	Level	Depth (ft)	0-3	3-6	6-9	0-3	3-6
PNAs	Acenaphthene	4,700	NC	120,000	NC	2,900	0.94		0.1	<0.039	NA	<0.035	0.41
	Acenaphthylene	NC	NC	NC	NC	NC	0.25		<0.042	<0.039	NA	<0.035	0.04
	Anthracene	23,000	NC	610,000	NC	59,000	2.6		0.38	<0.039	NA	<0.035	1.6
	Benz(a)anthracene	0.9	NC	170	NC	8.0	11		0.59	<0.039	NA	0.076	4.1
	Benzo(a)pyrene	0.09	NC	17	NC	82	11		0.44	<0.039	NA	0.082	4
	Benzo(b)fluoranthene	0.9	NC	170	NC	25	13		0.49	<0.039	NA	0.07	3.8
	Benzo(g,h,i)perylene	NC	NC	NC	NC	NC	4.4		0.29	<0.039	NA	0.12	2.3
	Benzo(k)fluoranthene	9.0	NC	1,700	NC	250	8.1		0.36	<0.039	NA	0.071	2.9
	Chrysene	88	NC	17,000	NC	800	11		0.62	<0.039	NA	0.086	4.1
	Dibenzo(a,h)anthracene	0.09	NC	17	NC	7.6	1.0		0.17	<0.039	NA	<0.035	**1.1**
	Fluoranthene	3,100	NC	82,000	NC	21,000	28		1.4	<0.039	NA	0.14	8.1
	Fluorene	3,100	NC	82,000	NC	2,800	1.1		0.15	<0.039	NA	<0.035	0.57
	Indeno(1,2,3-c,d)pyrene	0.9	NC	170	NC	69	5.8		0.25	<0.039	NA	0.057	2
	Naphthalene	1,600	170	4,100	1.8	18	0.26		0.082	<0.039	NA	<0.035	0.11
	Phenanthrene	NC	NC	NC	NC	NC	15		1.7	<0.039	NA	0.091	5.7
	Pyrene	2,300	NC	61,000	NC	21,000	18		1.1	<0.039	NA	0.14	7.6

NOTES:

1. All results expressed in milligrams per kilogram (mg/kg).
2. NA = Not analyzed for this constituent.
3. NC = No toxicity criteria for this exposure route.
4. NE = No established IEPA SRO for this analyte.
5. Samples were analyzed utilizing EPA Method SW-8270C/3550B.
6. G.W. Ing. = Soil Component of the Groundwater Ingestion Exposure Route.
7. **Bold values** = Concentration exceeds soil ing. and/or inh. exposure route for residential Tier 1 SROs ***and*** Chicago background concentration level, if applicable.
8. O = Concentration exceeds soil ing. and/or inh. exposure route for construction worker Tier 1 SROs.
9. = Concentration exceeds soil component of the groundwater ing. exposure route for Class I and/or Class II Tier 1 SROs.
10. * = The ADL is less than or equal to the specified remediation objective.
11. SS = Site-specific based upon wet weight of soil.

Table IV

Soil Analytical Results - PNAs

	Analyte	IEPA SROs					2022 Bkgd.	Sample	SB-2	SB-3	SB-3	SB-3	SB-3
		Residential		Construction Worker		G.W. Ing.	Conc.	Date	12/13/2018	12/13/2018	12/13/2018	12/13/2018	12/13/2018
		Ingestion	Inhalation	Ingestion	Inhalation	Class II	Level	Depth (ft)	6-9	0-3	3-6	6-9	9-12
PNAs	Acenaphthene	4,700	NC	120,000	NC	2,900	0.94		<0.041	NA	NA	<0.041	NA
	Acenaphthylene	NC	NC	NC	NC	NC	0.25		<0.041	NA	NA	<0.041	NA
	Anthracene	23,000	NC	610,000	NC	59,000	2.6		<0.041	NA	NA	<0.041	NA
	Benz(a)anthracene	0.9	NC	170	NC	8.0	11		<0.041	NA	NA	<0.041	NA
	Benzo(a)pyrene	0.09	NC	17	NC	82	11		<0.041	NA	NA	<0.041	NA
	Benzo(b)fluoranthene	0.9	NC	170	NC	25	13		<0.041	NA	NA	<0.041	NA
	Benzo(g,h,i)perylene	NC	NC	NC	NC	NC	4.4		<0.041	NA	NA	<0.041	NA
	Benzo(k)fluoranthene	9.0	NC	1,700	NC	250	8.1		<0.041	NA	NA	<0.041	NA
	Chrysene	88	NC	17,000	NC	800	11		<0.041	NA	NA	<0.041	NA
	Dibenzo(a,h)anthracene	0.09	NC	17	NC	7.6	1.0		<0.041	NA	NA	<0.041	NA
	Fluoranthene	3,100	NC	82,000	NC	21,000	28		<0.041	NA	NA	<0.041	NA
	Fluorene	3,100	NC	82,000	NC	2,800	1.1		<0.041	NA	NA	<0.041	NA
	Indeno(1,2,3-c,d)pyrene	0.9	NC	170	NC	69	5.8		<0.041	NA	NA	<0.041	NA
	Naphthalene	1,600	170	4,100	1.8	18	0.26		<0.041	NA	NA	<0.041	NA
	Phenanthrene	NC	NC	NC	NC	NC	15		<0.041	NA	NA	<0.041	NA
	Pyrene	2,300	NC	61,000	NC	21,000	18		<0.041	NA	NA	<0.041	NA

NOTES:

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4. NE = No established IEPA SRO for this analyte.
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6. G.W. Ing. = Soil Component of the Groundwater Ingestion Exposure Route.
7. **Bold values** = Concentration exceeds soil ing. and/or inh. exposure route for residential Tier 1 SROs ***and*** Chicago background concentration level, if applicable.
8. O = Concentration exceeds soil ing. and/or inh. exposure route for construction worker Tier 1 SROs.
9. = Concentration exceeds soil component of the groundwater ing. exposure route for Class I and/or Class II Tier 1 SROs.
10. * = The ADL is less than or equal to the specified remediation objective.
11. SS = Site-specific based upon wet weight of soil.

Table IV

Soil Analytical Results - PNAs

	Analyte	IEPA SROs					2022 Bkgd.	Sample	SB-4	SB-4	SB-4	SB-5	SB-5
		Residential		Construction Worker		G.W. Ing.	Conc.	Date	12/13/2018	12/13/2018	12/13/2018	12/13/2018	12/13/2018
		Ingestion	Inhalation	Ingestion	Inhalation	Class II	Level	Depth (ft)	0-3	3-6	6-9	0-3	6-9
PNAs	Acenaphthene	4,700	NC	120,000	NC	2,900	0.94		2.2	0.95	0.22	0.76	<0.041
	Acenaphthylene	NC	NC	NC	NC	NC	0.25		1.7	0.42	0.065	<0.0040	<0.041
	Anthracene	23,000	NC	610,000	NC	59,000	2.6		9.2	2.5	0.59	4	<0.041
	Benz(a)anthracene	0.9	NC	170	NC	8.0	11		**34**	4.2	0.83	7.7	<0.041
	Benzo(a)pyrene	0.09	NC	17	NC	82	11		**32**	3.6	0.68	6.2	<0.041
	Benzo(b)fluoranthene	0.9	NC	170	NC	25	13		**36**	3.2	0.6	5.8	<0.041
	Benzo(g,h,i)perylene	NC	NC	NC	NC	NC	4.4		22	2	0.39	4	<0.041
	Benzo(k)fluoranthene	9.0	NC	1,700	NC	250	8.1		**27**	3.1	0.58	5.2	<0.041
	Chrysene	88	NC	17,000	NC	800	11		36	4.2	0.82	7.9	<0.041
	Dibenzo(a,h)anthracene	0.09	NC	17	NC	7.6	1.0		**11**	**1.1**	0.21	**2.1**	<0.041
	Fluoranthene	3,100	NC	82,000	NC	21,000	28		73	9.1	2	17	<0.041
	Fluorene	3,100	NC	82,000	NC	2,800	1.1		3	1.4	0.36	1.1	<0.041
	Indeno(1,2,3-c,d)pyrene	0.9	NC	170	NC	69	5.8		**21**	1.8	0.34	3.8	<0.041
	Naphthalene	1,600	170	4,100	1.8	18	0.26		0.48	1.4	0.45	0.067	<0.041
	Phenanthrene	NC	NC	NC	NC	NC	15		35	9.6	2.3	16	<0.041
	Pyrene	2,300	NC	61,000	NC	21,000	18		63	7.6	1.6	16	<0.041

NOTES:

1. All results expressed in milligrams per kilogram (mg/kg).
2. NA = Not analyzed for this constituent.
3. NC = No toxicity criteria for this exposure route.
4. NE = No established IEPA SRO for this analyte.
5. Samples were analyzed utilizing EPA Method SW-8270C/3550B.
6. G.W. Ing. = Soil Component of the Groundwater Ingestion Exposure Route.
7. **Bold values** = Concentration exceeds soil ing. and/or inh. exposure route for residential Tier 1 SROs ***and*** Chicago background concentration level, if applicable.
8. O = Concentration exceeds soil ing. and/or inh. exposure route for construction worker Tier 1 SROs.
9. = Concentration exceeds soil component of the groundwater ing. exposure route for Class I and/or Class II Tier 1 SROs.
10. * = The ADL is less than or equal to the specified remediation objective.
11. SS = Site-specific based upon wet weight of soil.

Table IV

Soil Analytical Results - PNAs

	Analyte	IEPA SROs					2022 Bkgd.	Sample	SB-6	SB-6	SB-6	SB-7	SB-7
		Residential		Construction Worker		G.W. Ing.	Conc.	Date	12/13/2018	12/13/2018	12/13/2018	12/13/2018	12/13/2018
		Ingestion	Inhalation	Ingestion	Inhalation	Class II	Level	Depth (ft)	0-3	3-6	6-9	0-3	6-9
PNAs	Acenaphthene	4,700	NC	120,000	NC	2,900	0.94		<0.35	0.057	<0.041	0.076	<0.041
	Acenaphthylene	NC	NC	NC	NC	NC	0.25		<0.35	0.097	<0.041	0.87	<0.041
	Anthracene	23,000	NC	610,000	NC	59,000	2.6		<0.35	0.24	<0.041	1.7	<0.041
	Benz(a)anthracene	0.9	NC	170	NC	8.0	11		<0.35	0.77	<0.041	4.2	<0.041
	Benzo(a)pyrene	0.09	NC	17	NC	82	11		<0.35	0.76	<0.041	3	<0.041
	Benzo(b)fluoranthene	0.9	NC	170	NC	25	13		<0.35	0.7	<0.041	2	<0.041
	Benzo(g,h,i)perylene	NC	NC	NC	NC	NC	4.4		<0.35	0.5	<0.041	1.5	<0.041
	Benzo(k)fluoranthene	9.0	NC	1,700	NC	250	8.1		<0.35	0.66	<0.041	2.2	<0.041
	Chrysene	88	NC	17,000	NC	800	11		<0.35	0.82	<0.041	4.7	<0.041
	Dibenzo(a,h)anthracene	0.09	NC	17	NC	7.6	1.0		<0.35	0.24	<0.041	0.89	<0.041
	Fluoranthene	3,100	NC	82,000	NC	21,000	28		<0.35	1.6	<0.041	5.6	<0.041
	Fluorene	3,100	NC	82,000	NC	2,800	1.1		<0.35	0.087	<0.041	0.18	<0.041
	Indeno(1,2,3-c,d)pyrene	0.9	NC	170	NC	69	5.8		<0.35	0.43	<0.041	1.3	<0.041
	Naphthalene	1,600	170	4,100	1.8	18	0.26		<0.35	<0.039	<0.041	<0.042	<0.041
	Phenanthrene	NC	NC	NC	NC	NC	15		<0.35	0.98	<0.041	11	<0.041
	Pyrene	2,300	NC	61,000	NC	21,000	18		<0.35	1.4	<0.041	9	<0.041

NOTES:

1. All results expressed in milligrams per kilogram (mg/kg).
2. NA = Not analyzed for this constituent.
3. NC = No toxicity criteria for this exposure route.
4. NE = No established IEPA SRO for this analyte.
5. Samples were analyzed utilizing EPA Method SW-8270C/3550B.
6. G.W. Ing. = Soil Component of the Groundwater Ingestion Exposure Route.
7. **Bold values** = Concentration exceeds soil ing. and/or inh. exposure route for residential Tier 1 SROs ***and*** Chicago background concentration level, if applicable.
8. O = Concentration exceeds soil ing. and/or inh. exposure route for construction worker Tier 1 SROs.
9. = Concentration exceeds soil component of the groundwater ing. exposure route for Class I and/or Class II Tier 1 SROs.
10. * = The ADL is less than or equal to the specified remediation objective.
11. SS = Site-specific based upon wet weight of soil.

Table IV

Soil Analytical Results - PNAs

	Analyte	IEPA SROs					2022 Bkgd.	Sample	SB-7	SB-8	SB-8	SB-8	SB-8
		Residential		Construction Worker		G.W. Ing.	Conc.	Date	12/13/2018	12/13/2018	12/13/2018	12/13/2018	12/13/2018
		Ingestion	Inhalation	Ingestion	Inhalation	Class II	Level	Depth (ft)	9-12	0-3	6-9	9-12	12-15
PNAs	Acenaphthene	4,700	NC	120,000	NC	2,900	0.94		NA	<0.037	0.2	0.045	NA
	Acenaphthylene	NC	NC	NC	NC	NC	0.25		NA	<0.037	0.11	0.074	NA
	Anthracene	23,000	NC	610,000	NC	59,000	2.6		NA	0.04	0.69	0.24	NA
	Benz(a)anthracene	0.9	NC	170	NC	8.0	11		NA	0.22	2.2	0.95	NA
	Benzo(a)pyrene	0.09	NC	17	NC	82	11		NA	0.24	1.8	0.9	NA
	Benzo(b)fluoranthene	0.9	NC	170	NC	25	13		NA	0.27	2	0.93	NA
	Benzo(g,h,i)perylene	NC	NC	NC	NC	NC	4.4		NA	0.18	0.98	0.56	NA
	Benzo(k)fluoranthene	9.0	NC	1,700	NC	250	8.1		NA	0.18	1.1	0.76	NA
	Chrysene	88	NC	17,000	NC	800	11		NA	0.22	2	0.98	NA
	Dibenzo(a,h)anthracene	0.09	NC	17	NC	7.6	1.0		NA	<0.037	0.59	0.28	NA
	Fluoranthene	3,100	NC	82,000	NC	21,000	28		NA	0.37	4	1.8	NA
	Fluorene	3,100	NC	82,000	NC	2,800	1.1		NA	<0.037	0.26	0.063	NA
	Indeno(1,2,3-c,d)pyrene	0.9	NC	170	NC	69	5.8		NA	0.14	0.92	0.5	NA
	Naphthalene	1,600	170	4,100	1.8	18	0.26		NA	<0.037	0.047	<0.041	NA
	Phenanthrene	NC	NC	NC	NC	NC	15		NA	0.14	2.3	0.96	NA
	Pyrene	2,300	NC	61,000	NC	21,000	18		NA	0.33	3.3	1.6	NA

NOTES:

1. All results expressed in milligrams per kilogram (mg/kg).
2. NA = Not analyzed for this constituent.
3. NC = No toxicity criteria for this exposure route.
4. NE = No established IEPA SRO for this analyte.
5. Samples were analyzed utilizing EPA Method SW-8270C/3550B.
6. G.W. Ing. = Soil Component of the Groundwater Ingestion Exposure Route.
7. **Bold values** = Concentration exceeds soil ing. and/or inh. exposure route for residential Tier 1 SROs ***and*** Chicago background concentration level, if applicable.
8. O = Concentration exceeds soil ing. and/or inh. exposure route for construction worker Tier 1 SROs.
9. = Concentration exceeds soil component of the groundwater ing. exposure route for Class I and/or Class II Tier 1 SROs.
10. * = The ADL is less than or equal to the specified remediation objective.
11. SS = Site-specific based upon wet weight of soil.

Table IV

Soil Analytical Results - PNAs

	Analyte	IEPA SROs					2022 Bkgd.	Sample	SB-9	SB-9	SB-9	SB-10	SB-10
		Residential		Construction Worker		G.W. Ing.	Conc.	Date	12/13/2018	12/13/2018	12/13/2018	12/13/2018	12/13/2018
		Ingestion	Inhalation	Ingestion	Inhalation	Class II	Level	Depth (ft)	0-3	3-6	6-9	0-3	3-6
PNAs	Acenaphthene	4,700	NC	120,000	NC	2,900	0.94		0.2	<0.040	NA	0.095	5.8
	Acenaphthylene	NC	NC	NC	NC	NC	0.25		0.11	<0.040	NA	0.081	4.6
	Anthracene	23,000	NC	610,000	NC	59,000	2.6		0.54	<0.040	NA	0.43	25
	Benz(a)anthracene	0.9	NC	170	NC	8.0	11		1.5	<0.040	NA	1.5	**55**
	Benzo(a)pyrene	0.09	NC	17	NC	82	11		1.6	<0.040	NA	1.5 O	**52**
	Benzo(b)fluoranthene	0.9	NC	170	NC	25	13		1.3	<0.040	NA	1.4	**38**
	Benzo(g,h,i)perylene	NC	NC	NC	NC	NC	4.4		0.89	<0.040	NA	0.94	25
	Benzo(k)fluoranthene	9.0	NC	1,700	NC	250	8.1		1.2	<0.040	NA	1.3	**43**
	Chrysene	88	NC	17,000	NC	800	11		1.5	<0.040	NA	1.5	50
	Dibenzo(a,h)anthracene	0.09	NC	17	NC	7.6	1.0		0.44	<0.040	NA	0.45	<0.50
	Fluoranthene	3,100	NC	82,000	NC	21,000	28		3.4	<0.040	NA	3	110
	Fluorene	3,100	NC	82,000	NC	2,800	1.1		0.3	<0.040	NA	0.12	12
	Indeno(1,2,3-c,d)pyrene	0.9	NC	170	NC	69	5.8		0.76	<0.040	NA	0.82	**25**
	Naphthalene	1,600	170	4,100	1.8	18	0.26		0.23	<0.040	NA	<0.041 O	5.4
	Phenanthrene	NC	NC	NC	NC	NC	15		3.2	<0.040	NA	1.7	92
	Pyrene	2,300	NC	61,000	NC	21,000	18		3.3	<0.040	NA	2.6	99

NOTES:

1. All results expressed in milligrams per kilogram (mg/kg).
2. NA = Not analyzed for this constituent.
3. NC = No toxicity criteria for this exposure route.
4. NE = No established IEPA SRO for this analyte.
5. Samples were analyzed utilizing EPA Method SW-8270C/3550B.
6. G.W. Ing. = Soil Component of the Groundwater Ingestion Exposure Route.
7. **Bold values** = Concentration exceeds soil ing. and/or inh. exposure route for residential Tier 1 SROs ***and*** Chicago background concentration level, if applicable.
8. O = Concentration exceeds soil ing. and/or inh. exposure route for construction worker Tier 1 SROs.
9. = Concentration exceeds soil component of the groundwater ing. exposure route for Class I and/or Class II Tier 1 SROs.
10. * = The ADL is less than or equal to the specified remediation objective.
11. SS = Site-specific based upon wet weight of soil.

Table IV

Soil Analytical Results - PNAs

	Analyte	IEPA SROs					2022 Bkgd.	Sample	SB-10	B-111	B-111	B-112	B-112
		Residential		Construction Worker		G.W. Ing.	Conc.	Date	12/13/2018	12/8/2023	12/8/2023	12/8/2023	12/8/2023
		Ingestion	Inhalation	Ingestion	Inhalation	Class II	Level	Depth (ft)	6-9	1-3	5-7	1-3	5-7
PNAs	Acenaphthene	4,700	NC	120,000	NC	2,900	0.94		<0.041	0.28	< 0.044	2.4	< 0.041
	Acenaphthylene	NC	NC	NC	NC	NC	0.25		<0.041	0.14	< 0.044	0.48	< 0.041
	Anthracene	23,000	NC	610,000	NC	59,000	2.6		<0.041	0.92	< 0.044	8	< 0.041
	Benz(a)anthracene	0.9	NC	170	NC	8.0	11		<0.041	2.4	< 0.044	**18**	< 0.041
	Benzo(a)pyrene	0.09	NC	17	NC	82	11		<0.041	2.7	< 0.044	O **19**	< 0.041
	Benzo(b)fluoranthene	0.9	NC	170	NC	25	13		<0.041	2	< 0.044	**15**	< 0.041
	Benzo(g,h,i)perylene	NC	NC	NC	NC	NC	4.4		<0.041	1.3	< 0.044	11	< 0.041
	Benzo(k)fluoranthene	9.0	NC	1,700	NC	250	8.1		<0.041	2.1	< 0.044	**13**	< 0.041
	Chrysene	88	NC	17,000	NC	800	11		<0.041	2.4	< 0.044	19	< 0.041
	Dibenzo(a,h)anthracene	0.09	NC	17	NC	7.6	1.0		<0.041	0.72	< 0.044	**5.2**	< 0.041
	Fluoranthene	3,100	NC	82,000	NC	21,000	28		<0.041	4.4	< 0.044	39	0.046
	Fluorene	3,100	NC	82,000	NC	2,800	1.1		<0.041	0.38	< 0.044	3	< 0.041
	Indeno(1,2,3-c,d)pyrene	0.9	NC	170	NC	69	5.8		<0.041	1.2	< 0.044	**9.5**	< 0.041
	Naphthalene	1,600	170	4,100	1.8	18	0.26		<0.041	0.13	< 0.044	O 3.5	< 0.041
	Phenanthrene	NC	NC	NC	NC	NC	15		0.087	2.7	< 0.044	32	< 0.041
	Pyrene	2,300	NC	61,000	NC	21,000	18		0.075	4	< 0.044	33	0.05

NOTES:

1. All results expressed in milligrams per kilogram (mg/kg).
2. NA = Not analyzed for this constituent.
3. NC = No toxicity criteria for this exposure route.
4. NE = No established IEPA SRO for this analyte.
5. Samples were analyzed utilizing EPA Method SW-8270C/3550B.
6. G.W. Ing. = Soil Component of the Groundwater Ingestion Exposure Route.
7. **Bold values** = Concentration exceeds soil ing. and/or inh. exposure route for residential Tier 1 SROs ***and*** Chicago background concentration level, if applicable.
8. O = Concentration exceeds soil ing. and/or inh. exposure route for construction worker Tier 1 SROs.
9. = Concentration exceeds soil component of the groundwater ing. exposure route for Class I and/or Class II Tier 1 SROs.
10. * = The ADL is less than or equal to the specified remediation objective.
11. SS = Site-specific based upon wet weight of soil.

Table IV

Soil Analytical Results - PNAs

	Analyte	IEPA SROs					2022 Bkgd.	Sample	B-113	B-113
		Residential		Construction Worker		G.W. Ing.	Conc.	Date	12/8/2023	12/8/2023
		Ingestion	Inhalation	Ingestion	Inhalation	Class II	Level	Depth (ft)	1-3	5-7
PNAs	Acenaphthene	4,700	NC	120,000	NC	2,900	0.94		< 0.040	< 0.040
	Acenaphthylene	NC	NC	NC	NC	NC	0.25		< 0.040	< 0.040
	Anthracene	23,000	NC	610,000	NC	59,000	2.6		< 0.040	< 0.040
	Benz(a)anthracene	0.9	NC	170	NC	8.0	11		< 0.040	< 0.040
	Benzo(a)pyrene	0.09	NC	17	NC	82	11		< 0.040	< 0.040
	Benzo(b)fluoranthene	0.9	NC	170	NC	25	13		< 0.040	< 0.040
	Benzo(g,h,i)perylene	NC	NC	NC	NC	NC	4.4		< 0.040	< 0.040
	Benzo(k)fluoranthene	9.0	NC	1,700	NC	250	8.1		< 0.040	< 0.040
	Chrysene	88	NC	17,000	NC	800	11		< 0.040	< 0.040
	Dibenzo(a,h)anthracene	0.09	NC	17	NC	7.6	1.0		< 0.040	< 0.040
	Fluoranthene	3,100	NC	82,000	NC	21,000	28		< 0.040	< 0.040
	Fluorene	3,100	NC	82,000	NC	2,800	1.1		< 0.040	< 0.040
	Indeno(1,2,3-c,d)pyrene	0.9	NC	170	NC	69	5.8		< 0.040	< 0.040
	Naphthalene	1,600	170	4,100	1.8	18	0.26		< 0.040	< 0.040
	Phenanthrene	NC	NC	NC	NC	NC	15		< 0.040	< 0.040
	Pyrene	2,300	NC	61,000	NC	21,000	18		< 0.040	< 0.040

NOTES:

1. All results expressed in milligrams per kilogram (mg/kg).
2. NA = Not analyzed for this constituent.
3. NC = No toxicity criteria for this exposure route.
4. NE = No established IEPA SRO for this analyte.
5. Samples were analyzed utilizing EPA Method SW-8270C/3550B.
6. G.W. Ing. = Soil Component of the Groundwater Ingestion Exposure Route.
7. **Bold values** = Concentration exceeds soil ing. and/or inh. exposure route for residential Tier 1 SROs ***and*** Chicago background concentration level, if applicable.
8. O = Concentration exceeds soil ing. and/or inh. exposure route for construction worker Tier 1 SROs.
9. = Concentration exceeds soil component of the groundwater ing. exposure route for Class I and/or Class II Tier 1 SROs.
10. * = The ADL is less than or equal to the specified remediation objective.
11. SS = Site-specific based upon wet weight of soil.

Table V

Soil Analytical Results - Inorganics

	Analyte	IEPA SROs				Bkgd.	2022 Bkgd.	Sample	SB-1	SB-1	SB-1	SB-2	SB-2
		Residential		Construction Worker		Conc.	Conc.	Date	12/13/2018	12/13/2018	12/13/2018	12/13/2018	12/13/2018
		Ingestion	Inhalation	Ingestion	Inhalation	Level	Level	Depth (ft)	0-3	3-6	6-9	0-3	3-6
pH									7.5	8.4	NA	8.4	8.4
Inorganics	**Aluminum**	NC	NC	NC	NC	*9,500*	*61,500*		NA	NA	NA	NA	NA
	Antimony	31	NC	82	NC	*4*	*1.04*		NA	NA	NA	NA	NA
	Arsenic	13	750	61	25,000	*13*	*11.9*		7.4	10	NA	3	6
	Barium	5,500	690,000	14,000	870,000	*110*	*792*		310	100	NA	11	150
	Beryllium	160	1,300	410	44,000	*0.59*	*1.6*		NA	NA	NA	NA	NA
	Cadmium	78	1,800	200	59,000	*0.6*	*0.8*		1.2	<0.51	NA	<0.44	0.61
	Calcium	NE	NE	NE	NE	*9,300*	*21,520*		NA	NA	NA	NA	NA
	Chromium	230	270	4,100	690	*16.2*	*54*		25	30	23	4.1	22
	Chromium, hexavalent	230	270	4,100	690	*NE*	*NE*		NA	NA	NA	NA	NA
	Cobalt	4,700	NC	12,000	NC	*8.9*	*15.4*		NA	NA	NA	NA	NA
	Copper	2,900	NC	8,200	NC	*19.6*	*44.9*		NA	NA	NA	NA	NA
	Cyanide	1,600	NC	4,100	NC	*0.51*	*NE*		NA	NA	NA	NA	NA
	Iron	55,000	NE	140,000	NE	*15,900*	*35,700*		NA	NA	NA	NA	NA
	Lead	400	NC	700	NC	*36*	*45.1*		O **1100**	23	NA	15	**530**
	Magnesium	325,000	NC	730,000	NC	*4,820*	*10,450*		NA	NA	NA	NA	NA
	Manganese	1,600	69,000	4,100	8,700	*636*	*1924*		NA	NA	NA	NA	NA
	Mercury	23	10	61	0.10	*0.06*	*0.08*		O 2.2	0.034	NA	<0.020	O 0.35
	Nickel	1,600	13,000	4,100	440,000	*18*	*23.3*		NA	NA	NA	NA	NA
	Potassium	NE	NE	NE	NE	*1,268*	*22,075*		NA	NA	NA	NA	NA
	Selenium	390	NC	1,000	NC	*0.48*	*0.7*		8.4	<1.0	NA	<0.89	<1.0
	Silver	390	NC	1,000	NC	*0.55*	*<1*		<1	<1	NA	<1	<1
	Sodium	NE	NE	NE	NE	*130*	*8300*		NA	NA	NA	NA	NA
	Thallium	6.3	NC	160	NC	*0.32*	*0.7*		NA	NA	NA	NA	NA
	Vanadium	550	NC	1,400	NC	*25.2*	*104*		NA	NA	NA	NA	NA
	Zinc	23,000	NC	61,000	NC	*95*	*141*		NA	NA	NA	NA	NA

NOTES:

1. All results expressed in milligrams per kilogram (mg/kg).
2. NA = Not analyzed for this constituent.
3. NC = No toxicity criteria for this exposure route.
4. NE = No established IEPA SRO for this analyte.
5. Samples were analyzed utilizing EPA Methods 6020A/3050B/7471B/9012A/and 9045C.
6. **Bold values** = Concentration exceeds soil ingestion and/or inhalation exposure route for residential Tier 1 SROs.
7. O = Concentration exceeds soil ingestion and/or inhalation exposure route for construction worker Tier 1 SROs.
8. * = The ADL is less than or equal to the specified remediation objective.

Table V

Soil Analytical Results - Inorganics

	Analyte	IEPA SROs				Bkgd.	2022 Bkgd.	Sample	SB-2	SB-3	SB-3	SB-3	SB-3
		Residential		Construction Worker		Conc.	Conc.	Date	12/13/2018	12/13/2018	12/13/2018	12/13/2018	12/13/2018
		Ingestion	Inhalation	Ingestion	Inhalation	Level	Level	Depth (ft)	6-9	0-3	3-6	6-9	9-12
pH									NA	NA	8.5	8.4	NA
Inorganics	**Aluminum**	NC	NC	NC	NC	*9,500*	*61,500*		NA	NA	NA	NA	NA
	Antimony	31	NC	82	NC	*4*	*1.04*		NA	NA	NA	NA	NA
	Arsenic	13	750	61	25,000	*13*	*11.9*		NA	NA	13	11	NA
	Barium	5,500	690,000	14,000	870,000	*110*	*792*		NA	NA	190	77	NA
	Beryllium	160	1,300	410	44,000	*0.59*	*1.6*		NA	NA	NA	NA	NA
	Cadmium	78	1,800	200	59,000	*0.6*	*0.8*		NA	NA	1.1	<0.57	NA
	Calcium	NE	NE	NE	NE	*9,300*	*21,520*		NA	NA	NA	NA	NA
	Chromium	230	270	4,100	690	*16.2*	*54*		NA	NA	34	27	22
	Chromium, hexavalent	230	270	4,100	690	*NE*	*NE*		NA	NA	NA	NA	NA
	Cobalt	4,700	NC	12,000	NC	*8.9*	*15.4*		NA	NA	NA	NA	NA
	Copper	2,900	NC	8,200	NC	*19.6*	*44.9*		NA	NA	NA	NA	NA
	Cyanide	1,600	NC	4,100	NC	*0.51*	*NE*		NA	NA	NA	NA	NA
	Iron	55,000	NE	140,000	NE	*15,900*	*35,700*		NA	NA	NA	NA	NA
	Lead	400	NC	700	NC	*36*	*45.1*		17	NA	330	20	NA
	Magnesium	325,000	NC	730,000	NC	*4,820*	*10,450*		NA	NA	NA	NA	NA
	Manganese	1,600	69,000	4,100	8,700	*636*	*1924*		NA	NA	NA	NA	NA
	Mercury	23	10	61	0.10	*0.06*	*0.08*		0.026	NA	O 0.17	0.025	NA
	Nickel	1,600	13,000	4,100	440,000	*18*	*23.3*		NA	NA	NA	NA	NA
	Potassium	NE	NE	NE	NE	*1,268*	*22,075*		NA	NA	NA	NA	NA
	Selenium	390	NC	1,000	NC	*0.48*	*0.7*		NA	NA	1.4	<1.1	NA
	Silver	390	NC	1,000	NC	*0.55*	*<1*		NA	NA	<1	<1	NA
	Sodium	NE	NE	NE	NE	*130*	*8300*		NA	NA	NA	NA	NA
	Thallium	6.3	NC	160	NC	*0.32*	*0.7*		NA	NA	NA	NA	NA
	Vanadium	550	NC	1,400	NC	*25.2*	*104*		NA	NA	NA	NA	NA
	Zinc	23,000	NC	61,000	NC	*95*	*141*		NA	NA	NA	NA	NA

NOTES:

1. All results expressed in milligrams per kilogram (mg/kg).
2. NA = Not analyzed for this constituent.
3. NC = No toxicity criteria for this exposure route.
4. NE = No established IEPA SRO for this analyte.
5. Samples were analyzed utilizing EPA Methods 6020A/3050B/7471B/9012A/and 9045C.
6. **Bold values** = Concentration exceeds soil ingestion and/or inhalation exposure route for residential Tier 1 SROs.
7. O = Concentration exceeds soil ingestion and/or inhalation exposure route for construction worker Tier 1 SROs.
8. * = The ADL is less than or equal to the specified remediation objective.

Table V

Soil Analytical Results - Inorganics

	Analyte	IEPA SROs				Bkgd.	2022 Bkgd.	Sample	SB-4	SB-4	SB-4	SB-5	SB-5
		Residential		Construction Worker		Conc.	Conc.	Date	12/13/2018	12/13/2018	12/13/2018	12/13/2018	12/13/2018
		Ingestion	Inhalation	Ingestion	Inhalation	Level	Level	Depth (ft)	0-3	3-6	6-9	0-3	6-9
pH									8.0	8.5	NA	7.8	8.1
Inorganics	**Aluminum**	NC	NC	NC	NC	*9,500*	*61,500*		NA	NA	NA	NA	NA
	Antimony	31	NC	82	NC	*4*	*1.04*		NA	NA	NA	NA	NA
	Arsenic	13	750	61	25,000	*13*	*11.9*		**25**	13	NA	6.9	11
	Barium	5,500	690,000	14,000	870,000	*110*	*792*		920	75	NA	92	54
	Beryllium	160	1,300	410	44,000	*0.59*	*1.6*		NA	NA	NA	NA	NA
	Cadmium	78	1,800	200	59,000	*0.6*	*0.8*		3	<0.50	NA	<0.51	<0.55
	Calcium	NE	NE	NE	NE	*9,300*	*21,520*		NA	NA	NA	NA	NA
	Chromium	230	270	4,100	690	*16.2*	*54*		37	23	NA	9.2	22
	Chromium, hexavalent	230	270	4,100	690	*NE*	*NE*		NA	NA	NA	NA	NA
	Cobalt	4,700	NC	12,000	NC	*8.9*	*15.4*		NA	NA	NA	NA	NA
	Copper	2,900	NC	8,200	NC	*19.6*	*44.9*		NA	NA	NA	NA	NA
	Cyanide	1,600	NC	4,100	NC	*0.51*	*NE*		NA	NA	NA	NA	NA
	Iron	55,000	NE	140,000	NE	*15,900*	*35,700*		NA	NA	NA	NA	NA
	Lead	400	NC	700	NC	*36*	*45.1*		O **2000**	120	18	170	19
	Magnesium	325,000	NC	730,000	NC	*4,820*	*10,450*		NA	NA	NA	NA	NA
	Manganese	1,600	69,000	4,100	8,700	*636*	*1924*		NA	NA	NA	NA	NA
	Mercury	23	10	61	0.10	*0.06*	*0.08*		O 0.38	0.045	NA	O 0.15	0.031
	Nickel	1,600	13,000	4,100	440,000	*18*	*23.3*		NA	NA	NA	NA	NA
	Potassium	NE	NE	NE	NE	*1,268*	*22,075*		NA	NA	NA	NA	NA
	Selenium	390	NC	1,000	NC	*0.48*	*0.7*		1.8	<1.0	NA	<1.0	<1.1
	Silver	390	NC	1,000	NC	*0.55*	*<1*		<1	<1	NA	<1	<1
	Sodium	NE	NE	NE	NE	*130*	*8300*		NA	NA	NA	NA	NA
	Thallium	6.3	NC	160	NC	*0.32*	*0.7*		NA	NA	NA	NA	NA
	Vanadium	550	NC	1,400	NC	*25.2*	*104*		NA	NA	NA	NA	NA
	Zinc	23,000	NC	61,000	NC	*95*	*141*		NA	NA	NA	NA	NA

NOTES:

1. All results expressed in milligrams per kilogram (mg/kg).
2. NA = Not analyzed for this constituent.
3. NC = No toxicity criteria for this exposure route.
4. NE = No established IEPA SRO for this analyte.
5. Samples were analyzed utilizing EPA Methods 6020A/3050B/7471B/9012A/and 9045C.
6. **Bold values** = Concentration exceeds soil ingestion and/or inhalation exposure route for residential Tier 1 SROs.
7. O = Concentration exceeds soil ingestion and/or inhalation exposure route for construction worker Tier 1 SROs.
8. * = The ADL is less than or equal to the specified remediation objective.

Table V

Soil Analytical Results - Inorganics

	Analyte	IEPA SROs				Bkgd.	2022 Bkgd.	Sample	SB-6	SB-6	SB-6	SB-7	SB-7
		Residential		Construction Worker		Conc.	Conc.	Date	12/13/2018	12/13/2018	12/13/2018	12/13/2018	12/13/2018
		Ingestion	Inhalation	Ingestion	Inhalation	Level	Level	Depth (ft)	0-3	3-6	6-9	0-3	6-9
pH									8.1	7.6	NA	7.8	7.9
Inorganics	**Aluminum**	NC	NC	NC	NC	*9,500*	*61,500*		1900	15000	NA	NA	NA
	Antimony	31	NC	82	NC	*4*	*1.04*		<1.8	<2.0	NA	NA	NA
	Arsenic	13	750	61	25,000	*13*	*11.9*		9.9	13	NA	5.2	**27**
	Barium	5,500	690,000	14,000	870,000	*110*	*792*		12	220	NA	98	64
	Beryllium	160	1,300	410	44,000	*0.59*	*1.6*		<0.45	1.2	NA	NA	NA
	Cadmium	78	1,800	200	59,000	*0.6*	*0.8*		<0.45	1.1	NA	0.64	<0.52
	Calcium	NE	NE	NE	NE	*9,300*	*21,520*		220000	36000	NA	NA	NA
	Chromium	230	270	4,100	690	*16.2*	*54*		4	29	NA	37	23
	Chromium, hexavalent	230	270	4,100	690	*NE*	*NE*		NA	NA	NA	NA	NA
	Cobalt	4,700	NC	12,000	NC	*8.9*	*15.4*		5	12	NA	NA	NA
	Copper	2,900	NC	8,200	NC	*19.6*	*44.9*		5.3	92	NA	NA	NA
	Cyanide	1,600	NC	4,100	NC	*0.51*	*NE*		<0.27	<0.3	NA	NA	NA
	Iron	55,000	NE	140,000	NE	*15,900*	*35,700*		5300	32000	NA	NA	NA
	Lead	400	NC	700	NC	*36*	*45.1*		18	**430**	23	290	18
	Magnesium	325,000	NC	730,000	NC	*4,820*	*10,450*		130000	20000	NA	NA	NA
	Manganese	1,600	69,000	4,100	8,700	*636*	*1924*		210	350	NA	NA	NA
	Mercury	23	10	61	0.10	*0.06*	*0.08*		0.028	O 0.33	0.024	O 0.25	<0.023
	Nickel	1,600	13,000	4,100	440,000	*18*	*23.3*		9.6	35	NA	NA	NA
	Potassium	NE	NE	NE	NE	*1,268*	*22,075*		850	2700	NA	NA	NA
	Selenium	390	NC	1,000	NC	*0.48*	*0.7*		<0.89	2.3	<1.1	<1.1	1
	Silver	390	NC	1,000	NC	*0.55*	*<1*		<1	<1	NA	<1	<1
	Sodium	NE	NE	NE	NE	*130*	*8300*		<540	480	NA	NA	NA
	Thallium	6.3	NC	160	NC	*0.32*	*0.7*		<0.89	<1.0	NA	NA	NA
	Vanadium	550	NC	1,400	NC	*25.2*	*104*		8.5	32	NA	NA	NA
	Zinc	23,000	NC	61,000	NC	*95*	*141*		15	340	NA	NA	NA

NOTES:

1. All results expressed in milligrams per kilogram (mg/kg).
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5. Samples were analyzed utilizing EPA Methods 6020A/3050B/7471B/9012A/and 9045C.
6. **Bold values** = Concentration exceeds soil ingestion and/or inhalation exposure route for residential Tier 1 SROs.
7. O = Concentration exceeds soil ingestion and/or inhalation exposure route for construction worker Tier 1 SROs.
8. * = The ADL is less than or equal to the specified remediation objective.

Table V

Soil Analytical Results - Inorganics

	Analyte	IEPA SROs				Bkgd.	2022 Bkgd.	Sample	SB-7	SB-8	SB-8	SB-8	SB-8
		Residential		Construction Worker		Conc.	Conc.	Date	12/13/2018	12/13/2018	12/13/2018	12/13/2018	12/13/2018
		Ingestion	Inhalation	Ingestion	Inhalation	Level	Level	Depth (ft)	9-12	0-3	6-9	9-12	12-15
pH									NA	7.7	8.1	NA	NA
Inorganics	**Aluminum**	NC	NC	NC	NC	*9,500*	*61,500*		NA	NA	NA	NA	NA
	Antimony	31	NC	82	NC	*4*	*1.04*		NA	NA	NA	NA	NA
	Arsenic	13	750	61	25,000	*13*	*11.9*		9.6	3.7	5.6	NA	NA
	Barium	5,500	690,000	14,000	870,000	*110*	*792*		NA	20	130	NA	NA
	Beryllium	160	1,300	410	44,000	*0.59*	*1.6*		NA	NA	NA	NA	NA
	Cadmium	78	1,800	200	59,000	*0.6*	*0.8*		NA	<0.49	<0.54	NA	NA
	Calcium	NE	NE	NE	NE	*9,300*	*21,520*		NA	NA	NA	NA	NA
	Chromium	230	270	4,100	690	*16.2*	*54*		NA	5.4	13	NA	NA
	Chromium, hexavalent	230	270	4,100	690	*NE*	*NE*		NA	NA	NA	NA	NA
	Cobalt	4,700	NC	12,000	NC	*8.9*	*15.4*		NA	NA	NA	NA	NA
	Copper	2,900	NC	8,200	NC	*19.6*	*44.9*		NA	NA	NA	NA	NA
	Cyanide	1,600	NC	4,100	NC	*0.51*	*NE*		NA	NA	NA	NA	NA
	Iron	55,000	NE	140,000	NE	*15,900*	*35,700*		NA	NA	NA	NA	NA
	Lead	400	NC	700	NC	*36*	*45.1*		NA	33	160	140	16
	Magnesium	325,000	NC	730,000	NC	*4,820*	*10,450*		NA	NA	NA	NA	NA
	Manganese	1,600	69,000	4,100	8,700	*636*	*1924*		NA	NA	NA	NA	NA
	Mercury	23	10	61	0.10	*0.06*	*0.08*		NA	0.044	O 0.2	O 0.29	<0.024
	Nickel	1,600	13,000	4,100	440,000	*18*	*23.3*		NA	NA	NA	NA	NA
	Potassium	NE	NE	NE	NE	*1,268*	*22,075*		NA	NA	NA	NA	NA
	Selenium	390	NC	1,000	NC	*0.48*	*0.7*		NA	<0.99	<1.1	NA	NA
	Silver	390	NC	1,000	NC	*0.55*	*<1*		NA	<1	<1	NA	NA
	Sodium	NE	NE	NE	NE	*130*	*8300*		NA	NA	NA	NA	NA
	Thallium	6.3	NC	160	NC	*0.32*	*0.7*		NA	NA	NA	NA	NA
	Vanadium	550	NC	1,400	NC	*25.2*	*104*		NA	NA	NA	NA	NA
	Zinc	23,000	NC	61,000	NC	*95*	*141*		NA	NA	NA	NA	NA

NOTES:

1. All results expressed in milligrams per kilogram (mg/kg).
2. NA = Not analyzed for this constituent.
3. NC = No toxicity criteria for this exposure route.
4. NE = No established IEPA SRO for this analyte.
5. Samples were analyzed utilizing EPA Methods 6020A/3050B/7471B/9012A/and 9045C.
6. **Bold values** = Concentration exceeds soil ingestion and/or inhalation exposure route for residential Tier 1 SROs.
7. O = Concentration exceeds soil ingestion and/or inhalation exposure route for construction worker Tier 1 SROs.
8. * = The ADL is less than or equal to the specified remediation objective.

Table V

Soil Analytical Results - Inorganics

	Analyte	IEPA SROs				Bkgd.	2022 Bkgd.	Sample	SB-9	SB-9	SB-9	SB-10	SB-10
		Residential		Construction Worker		Conc.	Conc.	Date	12/13/2018	12/13/2018	12/13/2018	12/13/2018	12/13/2018
		Ingestion	Inhalation	Ingestion	Inhalation	Level	Level	Depth (ft)	0-3	3-6	6-9	0-3	3-6
pH									7.8	8.0	NA	7.8	8.0
Inorganics	**Aluminum**	NC	NC	NC	NC	*9,500*	*61,500*		NA	NA	NA	NA	NA
	Antimony	31	NC	82	NC	*4*	*1.04*		NA	NA	NA	NA	NA
	Arsenic	13	750	61	25,000	*13*	*11.9*		**24**	**16**	5.9	8	7.5
	Barium	5,500	690,000	14,000	870,000	*110*	*792*		190	91	NA	110	150
	Beryllium	160	1,300	410	44,000	*0.59*	*1.6*		NA	NA	NA	NA	NA
	Cadmium	78	1,800	200	59,000	*0.6*	*0.8*		1.7	<0.55	NA	0.64	1
	Calcium	NE	NE	NE	NE	*9,300*	*21,520*		NA	NA	NA	NA	NA
	Chromium	230	270	4,100	690	*16.2*	*54*		27	27	NA	17	13
	Chromium, hexavalent	230	270	4,100	690	*NE*	*NE*		NA	NA	NA	NA	NA
	Cobalt	4,700	NC	12,000	NC	*8.9*	*15.4*		NA	NA	NA	NA	NA
	Copper	2,900	NC	8,200	NC	*19.6*	*44.9*		NA	NA	NA	NA	NA
	Cyanide	1,600	NC	4,100	NC	*0.51*	*NE*		NA	NA	NA	NA	NA
	Iron	55,000	NE	140,000	NE	*15,900*	*35,700*		NA	NA	NA	NA	NA
	Lead	400	NC	700	NC	*36*	*45.1*		O **830**	23	NA	**420**	O **1300**
	Magnesium	325,000	NC	730,000	NC	*4,820*	*10,450*		NA	NA	NA	NA	NA
	Manganese	1,600	69,000	4,100	8,700	*636*	*1924*		NA	NA	NA	NA	NA
	Mercury	23	10	61	0.10	*0.06*	*0.08*		O 0.39	0.054	NA	O 0.35	O 0.41
	Nickel	1,600	13,000	4,100	440,000	*18*	*23.3*		NA	NA	NA	NA	NA
	Potassium	NE	NE	NE	NE	*1,268*	*22,075*		NA	NA	NA	NA	NA
	Selenium	390	NC	1,000	NC	*0.48*	*0.7*		<1.1	<1.1	NA	<1.1	<1.3
	Silver	390	NC	1,000	NC	*0.55*	*<1*		<1	<1	NA	<1	<1
	Sodium	NE	NE	NE	NE	*130*	*8300*		NA	NA	NA	NA	NA
	Thallium	6.3	NC	160	NC	*0.32*	*0.7*		NA	NA	NA	NA	NA
	Vanadium	550	NC	1,400	NC	*25.2*	*104*		NA	NA	NA	NA	NA
	Zinc	23,000	NC	61,000	NC	*95*	*141*		NA	NA	NA	NA	NA

NOTES:

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2. NA = Not analyzed for this constituent.
3. NC = No toxicity criteria for this exposure route.
4. NE = No established IEPA SRO for this analyte.
5. Samples were analyzed utilizing EPA Methods 6020A/3050B/7471B/9012A/and 9045C.
6. **Bold values** = Concentration exceeds soil ingestion and/or inhalation exposure route for residential Tier 1 SROs.
7. O = Concentration exceeds soil ingestion and/or inhalation exposure route for construction worker Tier 1 SROs.
8. * = The ADL is less than or equal to the specified remediation objective.

Table V

Soil Analytical Results - Inorganics

	Analyte	IEPA SROs				Bkgd.	2022 Bkgd.	Sample	SB-10	B-111	B-111	B-112	B-112
		Residential		Construction Worker		Conc.	Conc.	Date	12/13/2018	12/8/2023	12/8/2023	12/8/2023	12/8/2023
		Ingestion	Inhalation	Ingestion	Inhalation	Level	Level	Depth (ft)	6-9	1-3	5-7	1-3	5-7
pH									NA	8.2	8.0	8.3	8.3
Inorganics	**Aluminum**	NC	NC	NC	NC	*9,500*	*61,500*		NA	NA	NA	8100	11000
	Antimony	31	NC	82	NC	*4*	*1.04*		NA	NA	NA	< 2.5	< 2.2
	Arsenic	13	750	61	25,000	*13*	*11.9*		NA	6.4	6.3	**41**	11
	Barium	5,500	690,000	14,000	870,000	*110*	*792*		NA	83	44	800	58
	Beryllium	160	1,300	410	44,000	*0.59*	*1.6*		NA	NA	NA	1.2	0.64
	Cadmium	78	1,800	200	59,000	*0.6*	*0.8*		NA	< 0.58	< 0.58	3.7	< 0.54
	Calcium	NE	NE	NE	NE	*9,300*	*21,520*		NA	NA	NA	34000	58000
	Chromium	230	270	4,100	690	*16.2*	*54*		NA	11	25	32	22
	Chromium, hexavalent	230	270	4,100	690	*NE*	*NE*		NA	NA	NA	NA	NA
	Cobalt	4,700	NC	12,000	NC	*8.9*	*15.4*		NA	NA	NA	9	15
	Copper	2,900	NC	8,200	NC	*19.6*	*44.9*		NA	NA	NA	200	32
	Cyanide	1,600	NC	4,100	NC	*0.51*	*NE*		NA	NA	NA	< 0.64	< 0.62
	Iron	55,000	NE	140,000	NE	*15,900*	*35,700*		NA	NA	NA	23000	27000
	Lead	400	NC	700	NC	*36*	*45.1*		20	130	22	O **1300**	17
	Magnesium	325,000	NC	730,000	NC	*4,820*	*10,450*		NA	NA	NA	9600	26000
	Manganese	1,600	69,000	4,100	8,700	*636*	*1924*		NA	NA	NA	710	480
	Mercury	23	10	61	0.10	*0.06*	*0.08*		<0.023	O 0.28	0.029	O 0.48	0.029
	Nickel	1,600	13,000	4,100	440,000	*18*	*23.3*		NA	NA	NA	27	38
	Potassium	NE	NE	NE	NE	*1,268*	*22,075*		NA	NA	NA	1200	2700
	Selenium	390	NC	1,000	NC	*0.48*	*0.7*		NA	< 1.2	< 1.2	1.5	1.2
	Silver	390	NC	1,000	NC	*0.55*	*<1*		NA	<1	<1	<1	<1
	Sodium	NE	NE	NE	NE	*130*	*8300*		NA	NA	NA	350	150
	Thallium	6.3	NC	160	NC	*0.32*	*0.7*		NA	NA	NA	< 1.1	< 1.2
	Vanadium	550	NC	1,400	NC	*25.2*	*104*		NA	NA	NA	24	25
	Zinc	23,000	NC	61,000	NC	*95*	*141*		NA	NA	NA	1100	60

NOTES:

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3. NC = No toxicity criteria for this exposure route.
4. NE = No established IEPA SRO for this analyte.
5. Samples were analyzed utilizing EPA Methods 6020A/3050B/7471B/9012A/and 9045C.
6. **Bold values** = Concentration exceeds soil ingestion and/or inhalation exposure route for residential Tier 1 SROs.
7. O = Concentration exceeds soil ingestion and/or inhalation exposure route for construction worker Tier 1 SROs.
8. * = The ADL is less than or equal to the specified remediation objective.

Table V

Soil Analytical Results - Inorganics

	Analyte	IEPA SROs				Bkgd.	2022 Bkgd.	Sample	B-113	B-113
		Residential		Construction Worker		Conc.	Conc.	Date	12/8/2023	12/8/2023
		Ingestion	Inhalation	Ingestion	Inhalation	Level	Level	Depth (ft)	1-3	5-7
pH									8.3	8.4
Inorganics	**Aluminum**	NC	NC	NC	NC	*9,500*	*61,500*		NA	NA
	Antimony	31	NC	82	NC	*4*	*1.04*		NA	NA
	Arsenic	13	750	61	25,000	*13*	*11.9*		9.3	7.6
	Barium	5,500	690,000	14,000	870,000	*110*	*792*		32	34
	Beryllium	160	1,300	410	44,000	*0.59*	*1.6*		NA	NA
	Cadmium	78	1,800	200	59,000	*0.6*	*0.8*		< 0.55	< 0.53
	Calcium	NE	NE	NE	NE	*9,300*	*21,520*		NA	NA
	Chromium	230	270	4,100	690	*16.2*	*54*		25	20
	Chromium, hexavalent	230	270	4,100	690	*NE*	*NE*		NA	NA
	Cobalt	4,700	NC	12,000	NC	*8.9*	*15.4*		NA	NA
	Copper	2,900	NC	8,200	NC	*19.6*	*44.9*		NA	NA
	Cyanide	1,600	NC	4,100	NC	*0.51*	*NE*		NA	NA
	Iron	55,000	NE	140,000	NE	*15,900*	*35,700*		NA	NA
	Lead	400	NC	700	NC	*36*	*45.1*		14	16
	Magnesium	325,000	NC	730,000	NC	*4,820*	*10,450*		NA	NA
	Manganese	1,600	69,000	4,100	8,700	*636*	*1924*		NA	NA
	Mercury	23	10	61	0.10	*0.06*	*0.08*		0.025	0.023
	Nickel	1,600	13,000	4,100	440,000	*18*	*23.3*		NA	NA
	Potassium	NE	NE	NE	NE	*1,268*	*22,075*		NA	NA
	Selenium	390	NC	1,000	NC	*0.48*	*0.7*		< 1.1	1.3
	Silver	390	NC	1,000	NC	*0.55*	*<1*		<1	<1
	Sodium	NE	NE	NE	NE	*130*	*8300*		NA	NA
	Thallium	6.3	NC	160	NC	*0.32*	*0.7*		NA	NA
	Vanadium	550	NC	1,400	NC	*25.2*	*104*		NA	NA
	Zinc	23,000	NC	61,000	NC	*95*	*141*		NA	NA

NOTES:

1. All results expressed in milligrams per kilogram (mg/kg).
2. NA = Not analyzed for this constituent.
3. NC = No toxicity criteria for this exposure route.
4. NE = No established IEPA SRO for this analyte.
5. Samples were analyzed utilizing EPA Methods 6020A/3050B/7471B/9012A/and 9045C.
6. **Bold values** = Concentration exceeds soil ingestion and/or inhalation exposure route for residential Tier 1 SROs.
7. **O** = Concentration exceeds soil ingestion and/or inhalation exposure route for construction worker Tier 1 SROs.
8. * = The ADL is less than or equal to the specified remediation objective.

Table VI

Soil Analytical Results - pH-Specific Inorganics

	Analyte	IEPA SROs				Bkgd.	2022 Bkgd.	Sample	SB-1	SB-1	SB-1	SB-2	SB-2
		G.W. Ing. - pH-Specific SROs				Conc.	Conc.	Date	12/13/2018	12/13/2018	12/13/2018	12/13/2018	12/13/2018
		Class II				Level	Level	Depth (ft)	0-3	3-6	6-9	0-3	3-6
pH		7.25-7.74	7.75-8.24	8.25-8.74	8.75-9.0	-	-		7.48	8.37	NA	8.36	8.40
Inorganics	**Aluminum**	NE	NE	NE	NE	*9,500*	*61,500*		NA	NA	NA	NA	NA
	Antimony	20	20	20	20	*4*	*1.04*		NA	NA	NA	NA	NA
	Arsenic	120	120	130	130	*13*	*11.9*		7.4	10	NA	3	6
	Barium	1800	2100	NE	NE	*110*	*792*		310	100	NA	11	150
	Beryllium	130000	1000000	NE	NE	*0.59*	*1.6*		NA	NA	NA	NA	NA
	Cadmium	590	4300	NE	NE	*0.6*	*0.8*		1.2	<0.51	NA	<0.44	0.61
	Calcium	NE	NE	NE	NE	*9,300*	*21,520*		NA	NA	NA	NA	NA
	Chromium**	NE	NE	NE	NE	*16.2*	*54*		25	30	23	4.1	22
	Chromium, hexavalent	NE	NE	NE	NE	*NE*	*NE*		NA	NA	NA	NA	NA
	Cobalt	NE	NE	NE	NE	*8.9*	*15.4*		NA	NA	NA	NA	NA
	Copper	330,000	330,000	NE	NE	*19.6*	*44.9*		NA	NA	NA	NA	NA
	Cyanide	120	120	120	120	*0.51*	*NE*		NA	NA	NA	NA	NA
	Iron	NE	NE	NE	NE	*15,900*	*35,700*		NA	NA	NA	NA	NA
	Lead	1,420	1,420	1,420	3,760	*36*	*45.1*		1100	23	NA	15	530
	Magnesium	NE	NE	NE	NE	*4,820*	*10,450*		NA	NA	NA	NA	NA
	Manganese	NE	NE	NE	NE	*636*	*1924*		NA	NA	NA	NA	NA
	Mercury	32	40	NE	NE	*0.06*	*0.08*		2.2	0.034	NA	<0.020	0.35
	Nickel	14000	76000	NE	NE	*18*	*23.3*		NA	NA	NA	NA	NA
	Potassium	NE	NE	NE	NE	*1,268*	*22,075*		NA	NA	NA	NA	NA
	Selenium	3.3	2.4	1.8	1.3	*0.48*	*0.7*		8.4	<1.0	NA	<0.89	<1.0
	Silver	NE	NE	NE	NE	*0.55*	*<1*		<1	<1	NA	<1	<1
	Sodium	NE	NE	NE	NE	*130*	*8300*		NA	NA	NA	NA	NA
	Thallium	34	38	44	49	*0.32*	*0.7*		NA	NA	NA	NA	NA
	Vanadium	NE	NE	NE	NE	*25.2*	*104*		NA	NA	NA	NA	NA
	Zinc	32000	110000	NE	NE	*95*	*141*		NA	NA	NA	NA	NA

NOTES:

1. All results expressed in milligrams per kilogram (mg/kg).
2. NA = Not analyzed for this constituent.
3. NE = No established IEPA SRO for this analyte.
4. Samples were analyzed utilizing EPA Methods 6020A/3050B/7471B/9012A/and 9045C.
5. G.W. Ing. = Soil Component of the Groundwater Ingestion Exposure Route.
6. Bkgd. Conc. Level = IEPA-established background concentration within Metropolitan Statistical Areas (MSAs).
7. = Concentration exceeds soil component of the groundwater ing. exposure route for applicable Class II Tier 1 SRO.
8. = **Chromium pH-specific SROs from migration to Class II groundwater for Chromium VI .

Table VI

Soil Analytical Results - pH-Specific Inorganics

	Analyte	IEPA SROs				Bkgd.	2022 Bkgd.	Sample	SB-2	SB-3	SB-3	SB-3	SB-3
		G.W. Ing. - pH-Specific SROs				Conc.	Conc.	Date	12/13/2018	12/13/2018	12/13/2018	12/13/2018	12/13/2018
		Class II				Level	Level	Depth (ft)	6-9	0-3	3-6	6-9	9-12
pH		7.25-7.74	7.75-8.24	8.25-8.74	8.75-9.0	-	-		NA	NA	8.46	8.41	NA
Inorganics	**Aluminum**	NE	NE	NE	NE	*9,500*	*61,500*		NA	NA	NA	NA	NA
	Antimony	20	20	20	20	*4*	*1.04*		NA	NA	NA	NA	NA
	Arsenic	120	120	130	130	*13*	*11.9*		NA	NA	13	11	NA
	Barium	1800	2100	NE	NE	*110*	*792*		NA	NA	190	77	NA
	Beryllium	130000	1000000	NE	NE	*0.59*	*1.6*		NA	NA	NA	NA	NA
	Cadmium	590	4300	NE	NE	*0.6*	*0.8*		NA	NA	1.1	<0.57	NA
	Calcium	NE	NE	NE	NE	*9,300*	*21,520*		NA	NA	NA	NA	NA
	Chromium**	NE	NE	NE	NE	*16.2*	*54*		NA	NA	34	27	22
	Chromium, hexavalent	NE	NE	NE	NE	*NE*	*NE*		NA	NA	NA	NA	NA
	Cobalt	NE	NE	NE	NE	*8.9*	*15.4*		NA	NA	NA	NA	NA
	Copper	330,000	330,000	NE	NE	*19.6*	*44.9*		NA	NA	NA	NA	NA
	Cyanide	120	120	120	120	*0.51*	*NE*		NA	NA	NA	NA	NA
	Iron	NE	NE	NE	NE	*15,900*	*35,700*		NA	NA	NA	NA	NA
	Lead	1,420	1,420	1,420	3,760	*36*	*45.1*		17	NA	330	20	NA
	Magnesium	NE	NE	NE	NE	*4,820*	*10,450*		NA	NA	NA	NA	NA
	Manganese	NE	NE	NE	NE	*636*	*1924*		NA	NA	NA	NA	NA
	Mercury	32	40	NE	NE	*0.06*	*0.08*		0.026	NA	0.17	0.025	NA
	Nickel	14000	76000	NE	NE	*18*	*23.3*		NA	NA	NA	NA	NA
	Potassium	NE	NE	NE	NE	*1,268*	*22,075*		NA	NA	NA	NA	NA
	Selenium	3.3	2.4	1.8	1.3	*0.48*	*0.7*		NA	NA	1.4	<1.1	NA
	Silver	NE	NE	NE	NE	*0.55*	*<1*		NA	NA	<1	<1	NA
	Sodium	NE	NE	NE	NE	*130*	*8300*		NA	NA	NA	NA	NA
	Thallium	34	38	44	49	*0.32*	*0.7*		NA	NA	NA	NA	NA
	Vanadium	NE	NE	NE	NE	*25.2*	*104*		NA	NA	NA	NA	NA
	Zinc	32000	110000	NE	NE	*95*	*141*		NA	NA	NA	NA	NA

NOTES:

1. All results expressed in milligrams per kilogram (mg/kg).
2. NA = Not analyzed for this constituent.
3. NE = No established IEPA SRO for this analyte.
4. Samples were analyzed utilizing EPA Methods 6020A/3050B/7471B/9012A/and 9045C.
5. G.W. Ing. = Soil Component of the Groundwater Ingestion Exposure Route.
6. Bkgd. Conc. Level = IEPA-established background concentration within Metropolitan Statistical Areas (MSAs).
7. = Concentration exceeds soil component of the groundwater ing. exposure route for applicable Class II Tier 1 SRO.
8. = **Chromium pH-specific SROs from migration to Class II groundwater for Chromium VI .

Table VI

Soil Analytical Results - pH-Specific Inorganics

	Analyte	IEPA SROs				Bkgd.	2022 Bkgd.	Sample	SB-4	SB-4	SB-4	SB-5	SB-5
		G.W. Ing. - pH-Specific SROs				Conc.	Conc.	Date	12/13/2018	12/13/2018	12/13/2018	12/13/2018	12/13/2018
		Class II				Level	Level	Depth (ft)	0-3	3-6	6-9	0-3	6-9
pH		7.25-7.74	7.75-8.24	8.25-8.74	8.75-9.0	-	-		8.04	8.51	NA	7.75	8.07
Inorganics	**Aluminum**	NE	NE	NE	NE	*9,500*	*61,500*		NA	NA	NA	NA	NA
	Antimony	20	20	20	20	*4*	*1.04*		NA	NA	NA	NA	NA
	Arsenic	120	120	130	130	*13*	*11.9*		25	13	NA	6.9	11
	Barium	1800	2100	NE	NE	*110*	*792*		920	75	NA	92	54
	Beryllium	130000	1000000	NE	NE	*0.59*	*1.6*		NA	NA	NA	NA	NA
	Cadmium	590	4300	NE	NE	*0.6*	*0.8*		3	<0.50	NA	<0.51	<0.55
	Calcium	NE	NE	NE	NE	*9,300*	*21,520*		NA	NA	NA	NA	NA
	Chromium**	NE	NE	NE	NE	*16.2*	*54*		37	23	NA	9.2	22
	Chromium, hexavalent	NE	NE	NE	NE	*NE*	*NE*		NA	NA	NA	NA	NA
	Cobalt	NE	NE	NE	NE	*8.9*	*15.4*		NA	NA	NA	NA	NA
	Copper	330,000	330,000	NE	NE	*19.6*	*44.9*		NA	NA	NA	NA	NA
	Cyanide	120	120	120	120	*0.51*	*NE*		NA	NA	NA	NA	NA
	Iron	NE	NE	NE	NE	*15,900*	*35,700*		NA	NA	NA	NA	NA
	Lead	1,420	1,420	1,420	3,760	*36*	*45.1*		2000	120	18	170	19
	Magnesium	NE	NE	NE	NE	*4,820*	*10,450*		NA	NA	NA	NA	NA
	Manganese	NE	NE	NE	NE	*636*	*1924*		NA	NA	NA	NA	NA
	Mercury	32	40	NE	NE	*0.06*	*0.08*		0.38	0.045	NA	0.15	0.031
	Nickel	14000	76000	NE	NE	*18*	*23.3*		NA	NA	NA	NA	NA
	Potassium	NE	NE	NE	NE	*1,268*	*22,075*		NA	NA	NA	NA	NA
	Selenium	3.3	2.4	1.8	1.3	*0.48*	*0.7*		1.8	<1.0	NA	<1.0	<1.1
	Silver	NE	NE	NE	NE	*0.55*	*<1*		<1	<1	NA	<1	<1
	Sodium	NE	NE	NE	NE	*130*	*8300*		NA	NA	NA	NA	NA
	Thallium	34	38	44	49	*0.32*	*0.7*		NA	NA	NA	NA	NA
	Vanadium	NE	NE	NE	NE	*25.2*	*104*		NA	NA	NA	NA	NA
	Zinc	32000	110000	NE	NE	*95*	*141*		NA	NA	NA	NA	NA

NOTES:

1. All results expressed in milligrams per kilogram (mg/kg).
2. NA = Not analyzed for this constituent.
3. NE = No established IEPA SRO for this analyte.
4. Samples were analyzed utilizing EPA Methods 6020A/3050B/7471B/9012A/and 9045C.
5. G.W. Ing. = Soil Component of the Groundwater Ingestion Exposure Route.
6. Bkgd. Conc. Level = IEPA-established background concentration within Metropolitan Statistical Areas (MSAs).
7. = Concentration exceeds soil component of the groundwater ing. exposure route for applicable Class II Tier 1 SRO.
8. = **Chromium pH-specific SROs from migration to Class II groundwater for Chromium VI .

Table VI

Soil Analytical Results - pH-Specific Inorganics

	Analyte	IEPA SROs				Bkgd.	2022 Bkgd.	Sample	SB-6	SB-6	SB-6	SB-7	SB-7
		G.W. Ing. - pH-Specific SROs				Conc.	Conc.	Date	12/13/2018	12/13/2018	12/13/2018	12/13/2018	12/13/2018
		Class II				Level	Level	Depth (ft)	0-3	3-6	6-9	0-3	6-9
pH		7.25-7.74	7.75-8.24	8.25-8.74	8.75-9.0	-	-		8.10	7.55	NA	7.82	7.94
Inorganics	**Aluminum**	NE	NE	NE	NE	*9,500*	*61,500*		1900	15000	NA	NA	NA
	Antimony	20	20	20	20	*4*	*1.04*		<1.8	<2.0	NA	NA	NA
	Arsenic	120	120	130	130	*13*	*11.9*		9.9	13	NA	5.2	27
	Barium	1800	2100	NE	NE	*110*	*792*		12	220	NA	98	64
	Beryllium	130000	1000000	NE	NE	*0.59*	*1.6*		<0.45	1.2	NA	NA	NA
	Cadmium	590	4300	NE	NE	*0.6*	*0.8*		<0.45	1.1	NA	0.64	<0.52
	Calcium	NE	NE	NE	NE	*9,300*	*21,520*		220000	36000	NA	NA	NA
	Chromium**	NE	NE	NE	NE	*16.2*	*54*		4	29	NA	37	23
	Chromium, hexavalent	NE	NE	NE	NE	*NE*	*NE*		NA	NA	NA	NA	NA
	Cobalt	NE	NE	NE	NE	*8.9*	*15.4*		5	12	NA	NA	NA
	Copper	330,000	330,000	NE	NE	*19.6*	*44.9*		5.3	92	NA	NA	NA
	Cyanide	120	120	120	120	*0.51*	*NE*		<0.27	<0.3	NA	NA	NA
	Iron	NE	NE	NE	NE	*15,900*	*35,700*		5300	32000	NA	NA	NA
	Lead	1,420	1,420	1,420	3,760	*36*	*45.1*		18	430	23	290	18
	Magnesium	NE	NE	NE	NE	*4,820*	*10,450*		130000	20000	NA	NA	NA
	Manganese	NE	NE	NE	NE	*636*	*1924*		210	350	NA	NA	NA
	Mercury	32	40	NE	NE	*0.06*	*0.08*		0.028	0.33	0.024	0.25	<0.023
	Nickel	14000	76000	NE	NE	*18*	*23.3*		9.6	35	NA	NA	NA
	Potassium	NE	NE	NE	NE	*1,268*	*22,075*		850	2700	NA	NA	NA
	Selenium	3.3	2.4	1.8	1.3	*0.48*	*0.7*		<0.89	2.3	<1.1	<1.1	1
	Silver	NE	NE	NE	NE	*0.55*	*<1*		<1	<1	NA	<1	<1
	Sodium	NE	NE	NE	NE	*130*	*8300*		<540	480	NA	NA	NA
	Thallium	34	38	44	49	*0.32*	*0.7*		<0.89	<1.0	NA	NA	NA
	Vanadium	NE	NE	NE	NE	*25.2*	*104*		8.5	32	NA	NA	NA
	Zinc	32000	110000	NE	NE	*95*	*141*		15	340	NA	NA	NA

NOTES:

1. All results expressed in milligrams per kilogram (mg/kg).
2. NA = Not analyzed for this constituent.
3. NE = No established IEPA SRO for this analyte.
4. Samples were analyzed utilizing EPA Methods 6020A/3050B/7471B/9012A/and 9045C.
5. G.W. Ing. = Soil Component of the Groundwater Ingestion Exposure Route.
6. Bkgd. Conc. Level = IEPA-established background concentration within Metropolitan Statistical Areas (MSAs).
7. = Concentration exceeds soil component of the groundwater ing. exposure route for applicable Class II Tier 1 SRO.
8. = **Chromium pH-specific SROs from migration to Class II groundwater for Chromium VI .

Table VI

Soil Analytical Results - pH-Specific Inorganics

	Analyte	IEPA SROs				Bkgd.	2022 Bkgd.	Sample	SB-7	SB-8	SB-8	SB-8	SB-8
		G.W. Ing. - pH-Specific SROs				Conc.	Conc.	Date	12/13/2018	12/13/2018	12/13/2018	12/13/2018	12/13/2018
		Class II				Level	Level	Depth (ft)	9-12	0-3	6-9	9-12	12-15
pH		7.25-7.74	7.75-8.24	8.25-8.74	8.75-9.0	-	-		NA	7.67	8.10	NA	NA
Inorganics	**Aluminum**	NE	NE	NE	NE	*9,500*	*61,500*		NA	NA	NA	NA	NA
	Antimony	20	20	20	20	*4*	*1.04*		NA	NA	NA	NA	NA
	Arsenic	120	120	130	130	*13*	*11.9*		9.6	3.7	5.6	NA	NA
	Barium	1800	2100	NE	NE	*110*	*792*		NA	20	130	NA	NA
	Beryllium	130000	1000000	NE	NE	*0.59*	*1.6*		NA	NA	NA	NA	NA
	Cadmium	590	4300	NE	NE	*0.6*	*0.8*		NA	<0.49	<0.54	NA	NA
	Calcium	NE	NE	NE	NE	*9,300*	*21,520*		NA	NA	NA	NA	NA
	Chromium**	NE	NE	NE	NE	*16.2*	*54*		NA	5.4	13	NA	NA
	Chromium, hexavalent	NE	NE	NE	NE	*NE*	*NE*		NA	NA	NA	NA	NA
	Cobalt	NE	NE	NE	NE	*8.9*	*15.4*		NA	NA	NA	NA	NA
	Copper	330,000	330,000	NE	NE	*19.6*	*44.9*		NA	NA	NA	NA	NA
	Cyanide	120	120	120	120	*0.51*	*NE*		NA	NA	NA	NA	NA
	Iron	NE	NE	NE	NE	*15,900*	*35,700*		NA	NA	NA	NA	NA
	Lead	1,420	1,420	1,420	3,760	*36*	*45.1*		NA	33	160	140	16
	Magnesium	NE	NE	NE	NE	*4,820*	*10,450*		NA	NA	NA	NA	NA
	Manganese	NE	NE	NE	NE	*636*	*1924*		NA	NA	NA	NA	NA
	Mercury	32	40	NE	NE	*0.06*	*0.08*		NA	0.044	0.2	0.29	<0.024
	Nickel	14000	76000	NE	NE	*18*	*23.3*		NA	NA	NA	NA	NA
	Potassium	NE	NE	NE	NE	*1,268*	*22,075*		NA	NA	NA	NA	NA
	Selenium	3.3	2.4	1.8	1.3	*0.48*	*0.7*		NA	<0.99	<1.1	NA	NA
	Silver	NE	NE	NE	NE	*0.55*	*<1*		NA	<1	<1	NA	NA
	Sodium	NE	NE	NE	NE	*130*	*8300*		NA	NA	NA	NA	NA
	Thallium	34	38	44	49	*0.32*	*0.7*		NA	NA	NA	NA	NA
	Vanadium	NE	NE	NE	NE	*25.2*	*104*		NA	NA	NA	NA	NA
	Zinc	32000	110000	NE	NE	*95*	*141*		NA	NA	NA	NA	NA

NOTES:

1. All results expressed in milligrams per kilogram (mg/kg).
2. NA = Not analyzed for this constituent.
3. NE = No established IEPA SRO for this analyte.
4. Samples were analyzed utilizing EPA Methods 6020A/3050B/7471B/9012A/and 9045C.
5. G.W. Ing. = Soil Component of the Groundwater Ingestion Exposure Route.
6. Bkgd. Conc. Level = IEPA-established background concentration within Metropolitan Statistical Areas (MSAs).
7. = Concentration exceeds soil component of the groundwater ing. exposure route for applicable Class II Tier 1 SRO.
8. = **Chromium pH-specific SROs from migration to Class II groundwater for Chromium VI .

Table VI

Soil Analytical Results - pH-Specific Inorganics

	Analyte	IEPA SROs				Bkgd.	2022 Bkgd.	Sample	SB-9	SB-9	SB-9	SB-10	SB-10
		G.W. Ing. - pH-Specific SROs				Conc.	Conc.	Date	12/13/2018	12/13/2018	12/13/2018	12/13/2018	12/13/2018
		Class II				Level	Level	Depth (ft)	0-3	3-6	6-9	0-3	3-6
pH		7.25-7.74	7.75-8.24	8.25-8.74	8.75-9.0	-	-		7.75	8.02	NA	7.76	8.03
Inorganics	**Aluminum**	NE	NE	NE	NE	*9,500*	*61,500*		NA	NA	NA	NA	NA
	Antimony	20	20	20	20	*4*	*1.04*		NA	NA	NA	NA	NA
	Arsenic	120	120	130	130	*13*	*11.9*		24	16	5.9	8	7.5
	Barium	1800	2100	NE	NE	*110*	*792*		190	91	NA	110	150
	Beryllium	130000	1000000	NE	NE	*0.59*	*1.6*		NA	NA	NA	NA	NA
	Cadmium	590	4300	NE	NE	*0.6*	*0.8*		1.7	<0.55	NA	0.64	1
	Calcium	NE	NE	NE	NE	*9,300*	*21,520*		NA	NA	NA	NA	NA
	Chromium**	NE	NE	NE	NE	*16.2*	*54*		27	27	NA	17	13
	Chromium, hexavalent	NE	NE	NE	NE	*NE*	*NE*		NA	NA	NA	NA	NA
	Cobalt	NE	NE	NE	NE	*8.9*	*15.4*		NA	NA	NA	NA	NA
	Copper	330,000	330,000	NE	NE	*19.6*	*44.9*		NA	NA	NA	NA	NA
	Cyanide	120	120	120	120	*0.51*	*NE*		NA	NA	NA	NA	NA
	Iron	NE	NE	NE	NE	*15,900*	*35,700*		NA	NA	NA	NA	NA
	Lead	1,420	1,420	1,420	3,760	*36*	*45.1*		830	23	NA	420	1300
	Magnesium	NE	NE	NE	NE	*4,820*	*10,450*		NA	NA	NA	NA	NA
	Manganese	NE	NE	NE	NE	*636*	*1924*		NA	NA	NA	NA	NA
	Mercury	32	40	NE	NE	*0.06*	*0.08*		0.39	0.054	NA	0.35	0.41
	Nickel	14000	76000	NE	NE	*18*	*23.3*		NA	NA	NA	NA	NA
	Potassium	NE	NE	NE	NE	*1,268*	*22,075*		NA	NA	NA	NA	NA
	Selenium	3.3	2.4	1.8	1.3	*0.48*	*0.7*		<1.1	<1.1	NA	<1.1	<1.3
	Silver	NE	NE	NE	NE	*0.55*	*<1*		<1	<1	NA	<1	<1
	Sodium	NE	NE	NE	NE	*130*	*8300*		NA	NA	NA	NA	NA
	Thallium	34	38	44	49	*0.32*	*0.7*		NA	NA	NA	NA	NA
	Vanadium	NE	NE	NE	NE	*25.2*	*104*		NA	NA	NA	NA	NA
	Zinc	32000	110000	NE	NE	*95*	*141*		NA	NA	NA	NA	NA

NOTES:

1. All results expressed in milligrams per kilogram (mg/kg).
2. NA = Not analyzed for this constituent.
3. NE = No established IEPA SRO for this analyte.
4. Samples were analyzed utilizing EPA Methods 6020A/3050B/7471B/9012A/and 9045C.
5. G.W. Ing. = Soil Component of the Groundwater Ingestion Exposure Route.
6. Bkgd. Conc. Level = IEPA-established background concentration within Metropolitan Statistical Areas (MSAs).
7. = Concentration exceeds soil component of the groundwater ing. exposure route for applicable Class II Tier 1 SRO.
8. = **Chromium pH-specific SROs from migration to Class II groundwater for Chromium VI .

Table VI

Soil Analytical Results - pH-Specific Inorganics

	Analyte	IEPA SROs				Bkgd.	2022 Bkgd.	Sample	SB-10	B-111	B-111	B-112	B-112
		G.W. Ing. - pH-Specific SROs				Conc.	Conc.	Date	12/13/2018	12/8/2023	12/8/2023	12/8/2023	12/8/2023
		Class II				Level	Level	Depth (ft)	6-9	1-3	5-7	1-3	5-7
pH		7.25-7.74	7.75-8.24	8.25-8.74	8.75-9.0	-	-		NA	8.22	8.04	8.34	8.31
Inorganics	**Aluminum**	NE	NE	NE	NE	*9,500*	*61,500*		NA	NA	NA	8100	11000
	Antimony	20	20	20	20	*4*	*1.04*		NA	NA	NA	< 2.5	< 2.2
	Arsenic	120	120	130	130	*13*	*11.9*		NA	6.4	6.3	41	11
	Barium	1800	2100	NE	NE	*110*	*792*		NA	83	44	800	58
	Beryllium	130000	1000000	NE	NE	*0.59*	*1.6*		NA	NA	NA	1.2	0.64
	Cadmium	590	4300	NE	NE	*0.6*	*0.8*		NA	< 0.58	< 0.58	3.7	< 0.54
	Calcium	NE	NE	NE	NE	*9,300*	*21,520*		NA	NA	NA	34000	58000
	Chromium**	NE	NE	NE	NE	*16.2*	*54*		NA	11	25	32	22
	Chromium, hexavalent	NE	NE	NE	NE	*NE*	*NE*		NA	NA	NA	NA	NA
	Cobalt	NE	NE	NE	NE	*8.9*	*15.4*		NA	NA	NA	9	15
	Copper	330,000	330,000	NE	NE	*19.6*	*44.9*		NA	NA	NA	200	32
	Cyanide	120	120	120	120	*0.51*	*NE*		NA	NA	NA	< 0.64	< 0.62
	Iron	NE	NE	NE	NE	*15,900*	*35,700*		NA	NA	NA	23000	27000
	Lead	1,420	1,420	1,420	3,760	*36*	*45.1*		20	130	22	1300	17
	Magnesium	NE	NE	NE	NE	*4,820*	*10,450*		NA	NA	NA	9600	26000
	Manganese	NE	NE	NE	NE	*636*	*1924*		NA	NA	NA	710	480
	Mercury	32	40	NE	NE	*0.06*	*0.08*		<0.023	0.28	0.029	0.48	0.029
	Nickel	14000	76000	NE	NE	*18*	*23.3*		NA	NA	NA	27	38
	Potassium	NE	NE	NE	NE	*1,268*	*22,075*		NA	NA	NA	1200	2700
	Selenium	3.3	2.4	1.8	1.3	*0.48*	*0.7*		NA	< 1.2	< 1.2	1.5	1.2
	Silver	NE	NE	NE	NE	*0.55*	*<1*		NA	<1	<1	<1	<1
	Sodium	NE	NE	NE	NE	*130*	*8300*		NA	NA	NA	350	150
	Thallium	34	38	44	49	*0.32*	*0.7*		NA	NA	NA	< 1.1	< 1.2
	Vanadium	NE	NE	NE	NE	*25.2*	*104*		NA	NA	NA	24	25
	Zinc	32000	110000	NE	NE	*95*	*141*		NA	NA	NA	1100	60

NOTES:

1. All results expressed in milligrams per kilogram (mg/kg).
2. NA = Not analyzed for this constituent.
3. NE = No established IEPA SRO for this analyte.
4. Samples were analyzed utilizing EPA Methods 6020A/3050B/7471B/9012A/and 9045C.
5. G.W. Ing. = Soil Component of the Groundwater Ingestion Exposure Route.
6. Bkgd. Conc. Level = IEPA-established background concentration within Metropolitan Statistical Areas (MSAs).
7. = Concentration exceeds soil component of the groundwater ing. exposure route for applicable Class II Tier 1 SRO.
8. = **Chromium pH-specific SROs from migration to Class II groundwater for Chromium VI .

Table VI

Soil Analytical Results - pH-Specific Inorganics

	Analyte	IEPA SROs G.W. Ing. - pH-Specific SROs Class II				Bkgd. Conc. Level	2022 Bkgd. Conc. Level	Sample Date Depth (ft)	B-113 12/8/2023 1-3	B-113 12/8/2023 5-7
pH		7.25-7.74	7.75-8.24	8.25-8.74	8.75-9.0	-	-		8.27	8.42
Inorganics	**Aluminum**	NE	NE	NE	NE	*9,500*	*61,500*		NA	NA
	Antimony	20	20	20	20	*4*	*1.04*		NA	NA
	Arsenic	120	120	130	130	*13*	*11.9*		9.3	7.6
	Barium	1800	2100	NE	NE	*110*	*792*		32	34
	Beryllium	130000	1000000	NE	NE	*0.59*	*1.6*		NA	NA
	Cadmium	590	4300	NE	NE	*0.6*	*0.8*		< 0.55	< 0.53
	Calcium	NE	NE	NE	NE	*9,300*	*21,520*		NA	NA
	Chromium**	NE	NE	NE	NE	*16.2*	*54*		25	20
	Chromium, hexavalent	NE	NE	NE	NE	*NE*	*NE*		NA	NA
	Cobalt	NE	NE	NE	NE	*8.9*	*15.4*		NA	NA
	Copper	330,000	330,000	NE	NE	*19.6*	*44.9*		NA	NA
	Cyanide	120	120	120	120	*0.51*	*NE*		NA	NA
	Iron	NE	NE	NE	NE	*15,900*	*35,700*		NA	NA
	Lead	1,420	1,420	1,420	3,760	*36*	*45.1*		14	16
	Magnesium	NE	NE	NE	NE	*4,820*	*10,450*		NA	NA
	Manganese	NE	NE	NE	NE	*636*	*1924*		NA	NA
	Mercury	32	40	NE	NE	*0.06*	*0.08*		0.025	0.023
	Nickel	14000	76000	NE	NE	*18*	*23.3*		NA	NA
	Potassium	NE	NE	NE	NE	*1,268*	*22,075*		NA	NA
	Selenium	3.3	2.4	1.8	1.3	*0.48*	*0.7*		< 1.1	1.3
	Silver	NE	NE	NE	NE	*0.55*	*<1*		<1	<1
	Sodium	NE	NE	NE	NE	*130*	*8300*		NA	NA
	Thallium	34	38	44	49	*0.32*	*0.7*		NA	NA
	Vanadium	NE	NE	NE	NE	*25.2*	*104*		NA	NA
	Zinc	32000	110000	NE	NE	*95*	*141*		NA	NA

NOTES:

1. All results expressed in milligrams per kilogram (mg/kg).
2. NA = Not analyzed for this constituent.
3. NE = No established IEPA SRO for this analyte.
4. Samples were analyzed utilizing EPA Methods 6020A/3050B/7471B/9012A/and 9045C.
5. G.W. Ing. = Soil Component of the Groundwater Ingestion Exposure Route.
6. Bkgd. Conc. Level = IEPA-established background concentration within Metropolitan Statistical Areas (MSAs).
7. = Concentration exceeds soil component of the groundwater ing. exposure route for applicable Class II Tier 1 SRO.
8. = **Chromium pH-specific SROs from migration to Class II groundwater for Chromium VI .

Table VII

Soil Analytical Results - TPH

Analyte		Default Soil Attenuation Capacity Surface (Subsurface)	Sample Date Depth (ft)	B-111 12/8/2023 1-3	B-111 12/8/2023 5-7	B-112 12/8/2023 1-3	B-112A 10/31/23 1-3	B-112 12/8/2023 5-7	B-112A 10/31/23 5-7	B-113 12/8/2023 1-3	B-113 12/8/2023 5-7
TPH	**Gasoline Range Organics (GRO)**	NE		NA	NA	NA	65	NA	58	NA	NA
	Diesel Range Organics (DRO)	NE		NA	NA	NA	94	NA	69	NA	NA
	Extended Range Organics (ERO)	NE		NA	NA	NA	75	NA	57	NA	NA
	Total	6000 (2000)		0	0	0	234	0	184	0	0

NOTES:

1. All results expressed in milligrams per kilogram (mg/kg).
2. NE = No established IEPA SRO for this analyte.
3. Samples were analyzed by EPA Method SW-8015M/3580A.
4. **Bold values** = Concentration exceeds default attenuation capacity.

Table VIII

Soil Analytical Results - Pesticides, PCBs & Herbicides

	Analyte	IEPA SROs						Sample	SB-1	SB-1	SB-1	SB-2	SB-2
		Residential		Construction Worker		G.W. Ing.	ADL	Date	12/13/2018	12/13/2018	12/13/2018	12/13/2018	12/13/2018
		Ingestion	Inhalation	Ingestion	Inhalation	Class II		Depth (ft)	0-3	3-6	6-9	0-3	3-6
Pesticides	**4,4'-DDD**	3	NC	520	NC	80	*		NA	NA	NA	NA	NA
	4,4'-DDE	2	NC	370	NC	270	*		NA	NA	NA	NA	NA
	4,4'-DDT	2	NC	100	2100	160	*		NA	NA	NA	NA	NA
	Aldrin	0.04	3	6.1	9.3	2.5	0.94		NA	NA	NA	NA	NA
	alpha-BHC	0.1	0.8	20	2.1	0.003	0.0074		NA	NA	NA	NA	NA
	alpha-Chlordane	NE	NE	NE	NE	NE	NE		NA	NA	NA	NA	NA
	beta-BHC	NE	NE	NE	NE	NE	NE		NA	NA	NA	NA	NA
	Chlordane	1.8	72	100	22	48	*		NA	NA	NA	NA	NA
	delta-BHC	NE	NE	NE	NE	NE	NE		NA	NA	NA	NA	NA
	Dieldrin	0.04	1	7.8	3.1	0.02	0.603		NA	NA	NA	NA	NA
	Endosulfan I	NE	NE	NE	NE	NE	NE		NA	NA	NA	NA	NA
	Endosulfan II	NE	NE	NE	NE	NE	NE		NA	NA	NA	NA	NA
	Endosulfan Sulfate	NE	NE	NE	NE	NE	NE		NA	NA	NA	NA	NA
	Endrin	23	NC	61	NC	5	*		NA	NA	NA	NA	NA
	Endrin Aldehyde	NE	NE	NE	NE	NE	NE		NA	NA	NA	NA	NA
	Endrin Ketone	NE	NE	NE	NE	NE	NE		NA	NA	NA	NA	NA
	gamma-BHC (Lindane)	0.5	NC	96	NC	0.047	*		NA	NA	NA	NA	NA
	gamma-Chlordane	NE	NE	NE	NE	NE	NE		NA	NA	NA	NA	NA
	Heptachlor	0.1	0.1	28	16	110	0.871		NA	NA	NA	NA	NA
	Heptachlor Epoxide	0.07	5	2.7	13	3.3	1.005		NA	NA	NA	NA	NA
	Methoxychlor	390	NC	1000	NC	780	*		NA	NA	NA	NA	NA
	Toxaphene	0.6	89	110	240	150	*		NA	NA	NA	NA	NA
PCBs	**PCB-1016**	1	NC	1	NC	NC	*		NA	NA	NA	NA	NA
	PCB-1221	1	NC	1	NC	NC	*		NA	NA	NA	NA	NA
	PCB-1232	1	NC	1	NC	NC	*		NA	NA	NA	NA	NA
	PCB-1242	1	NC	1	NC	NC	*		NA	NA	NA	NA	NA
	PCB-1248	1	NC	1	NC	NC	*		NA	NA	NA	NA	NA
	PCB-1254	1	NC	1	NC	NC	*		NA	NA	NA	NA	NA
	PCB-1260	1	NC	1	NC	NC	*		NA	NA	NA	NA	NA
Herbicides	**2,4,5-TP (Silvex)**	630	NC	1,600	NC	55	*		NA	NA	NA	NA	NA
	2,4-D	780	NC	2,000	NC	7.7	*		NA	NA	NA	NA	NA
	Dalapon	2,300	NC	6,100	NC	8.5	*		NA	NA	NA	NA	NA
	Dinoseb	78	NE	200	NC	2.5	*		NA	NA	NA	NA	NA
	Pentachlorophenol	3	NC	520	NC	0.1	*		NA	NA	NA	NA	NA
	Picloram	5,500	NC	14,000	NC	20	NE		NA	NA	NA	NA	NA

NOTES:

1. Results expressed in milligrams per kilogram (mg/kg).
2. NA = Not analyzed for this constituent.
3. NC = No toxicity criteria for this exposure route.
4. NE = No established IEPA SRO for this analyte.
5. Samples were analyzed by EPA Methods 8081B(Pesticides)/8082A(PCBs) and 8321B/3550B(Herbicides).
6. G.W. Ing. = Soil Component of the Groundwater Ingestion Exposure Route.
7. **Bold values** = Concentration exceeds soil ing. and/or inh. exposure route for residential Tier 1 SROs.
8. O = Concentration exceeds soil ing. and/or inh. exposure route for construction worker Tier 1 SROs.
9. = Concentration exceeds soil component of the groundwater ing. exposure route for Class II Tier 1 SROs.
10. * = The ADL is less than or equal to the specified remediation objective.

Table VIII

Soil Analytical Results - Pesticides, PCBs & Herbicides

	Analyte	IEPA SROs						Sample	SB-2	SB-3	SB-3	SB-3	SB-3
		Residential		Construction Worker		G.W. Ing.	ADL	Date	12/13/2018	12/13/2018	12/13/2018	12/13/2018	12/13/2018
		Ingestion	Inhalation	Ingestion	Inhalation	Class II		Depth (ft)	6-9	0-3	3-6	6-9	9-12
Pesticides	**4,4'-DDD**	3	NC	520	NC	80	*		NA	NA	NA	NA	NA
	4,4'-DDE	2	NC	370	NC	270	*		NA	NA	NA	NA	NA
	4,4'-DDT	2	NC	100	2100	160	*		NA	NA	NA	NA	NA
	Aldrin	0.04	3	6.1	9.3	2.5	0.94		NA	NA	NA	NA	NA
	alpha-BHC	0.1	0.8	20	2.1	0.003	0.0074		NA	NA	NA	NA	NA
	alpha-Chlordane	NE	NE	NE	NE	NE	NE		NA	NA	NA	NA	NA
	beta-BHC	NE	NE	NE	NE	NE	NE		NA	NA	NA	NA	NA
	Chlordane	1.8	72	100	22	48	*		NA	NA	NA	NA	NA
	delta-BHC	NE	NE	NE	NE	NE	NE		NA	NA	NA	NA	NA
	Dieldrin	0.04	1	7.8	3.1	0.02	0.603		NA	NA	NA	NA	NA
	Endosulfan I	NE	NE	NE	NE	NE	NE		NA	NA	NA	NA	NA
	Endosulfan II	NE	NE	NE	NE	NE	NE		NA	NA	NA	NA	NA
	Endosulfan Sulfate	NE	NE	NE	NE	NE	NE		NA	NA	NA	NA	NA
	Endrin	23	NC	61	NC	5	*		NA	NA	NA	NA	NA
	Endrin Aldehyde	NE	NE	NE	NE	NE	NE		NA	NA	NA	NA	NA
	Endrin Ketone	NE	NE	NE	NE	NE	NE		NA	NA	NA	NA	NA
	gamma-BHC (Lindane)	0.5	NC	96	NC	0.047	*		NA	NA	NA	NA	NA
	gamma-Chlordane	NE	NE	NE	NE	NE	NE		NA	NA	NA	NA	NA
	Heptachlor	0.1	0.1	28	16	110	0.871		NA	NA	NA	NA	NA
	Heptachlor Epoxide	0.07	5	2.7	13	3.3	1.005		NA	NA	NA	NA	NA
	Methoxychlor	390	NC	1000	NC	780	*		NA	NA	NA	NA	NA
	Toxaphene	0.6	89	110	240	150	*		NA	NA	NA	NA	NA
PCBs	**PCB-1016**	1	NC	1	NC	NC	*		NA	NA	NA	NA	NA
	PCB-1221	1	NC	1	NC	NC	*		NA	NA	NA	NA	NA
	PCB-1232	1	NC	1	NC	NC	*		NA	NA	NA	NA	NA
	PCB-1242	1	NC	1	NC	NC	*		NA	NA	NA	NA	NA
	PCB-1248	1	NC	1	NC	NC	*		NA	NA	NA	NA	NA
	PCB-1254	1	NC	1	NC	NC	*		NA	NA	NA	NA	NA
	PCB-1260	1	NC	1	NC	NC	*		NA	NA	NA	NA	NA
Herbicides	**2,4,5-TP (Silvex)**	630	NC	1,600	NC	55	*		NA	NA	NA	NA	NA
	2,4-D	780	NC	2,000	NC	7.7	*		NA	NA	NA	NA	NA
	Dalapon	2,300	NC	6,100	NC	8.5	*		NA	NA	NA	NA	NA
	Dinoseb	78	NE	200	NC	2.5	*		NA	NA	NA	NA	NA
	Pentachlorophenol	3	NC	520	NC	0.1	*		NA	NA	NA	NA	NA
	Picloram	5,500	NC	14,000	NC	20	NE		NA	NA	NA	NA	NA

NOTES:

1. Results expressed in milligrams per kilogram (mg/kg).
2. NA = Not analyzed for this constituent.
3. NC = No toxicity criteria for this exposure route.
4. NE = No established IEPA SRO for this analyte.
5. Samples were analyzed by EPA Methods 8081B(Pesticides)/8082A(PCBs) and 8321B/3550B(Herbicides).
6. G.W. Ing. = Soil Component of the Groundwater Ingestion Exposure Route.
7. **Bold values** = Concentration exceeds soil ing. and/or inh. exposure route for residential Tier 1 SROs.
8. O = Concentration exceeds soil ing. and/or inh. exposure route for construction worker Tier 1 SROs.
9. = Concentration exceeds soil component of the groundwater ing. exposure route for Class II Tier 1 SROs.
10. * = The ADL is less than or equal to the specified remediation objective.

Table VIII

Soil Analytical Results - Pesticides, PCBs & Herbicides

	Analyte	IEPA SROs						Sample	SB-4	SB-4	SB-4	SB-5	SB-5
		Residential		Construction Worker		G.W. Ing.	ADL	Date	12/13/2018	12/13/2018	12/13/2018	12/13/2018	12/13/2018
		Ingestion	Inhalation	Ingestion	Inhalation	Class II		Depth (ft)	0-3	3-6	6-9	0-3	6-9
Pesticides	**4,4'-DDD**	3	NC	520	NC	80	*		NA	NA	NA	NA	NA
	4,4'-DDE	2	NC	370	NC	270	*		NA	NA	NA	NA	NA
	4,4'-DDT	2	NC	100	2100	160	*		NA	NA	NA	NA	NA
	Aldrin	0.04	3	6.1	9.3	2.5	0.94		NA	NA	NA	NA	NA
	alpha-BHC	0.1	0.8	20	2.1	0.003	0.0074		NA	NA	NA	NA	NA
	alpha-Chlordane	NE	NE	NE	NE	NE	NE		NA	NA	NA	NA	NA
	beta-BHC	NE	NE	NE	NE	NE	NE		NA	NA	NA	NA	NA
	Chlordane	1.8	72	100	22	48	*		NA	NA	NA	NA	NA
	delta-BHC	NE	NE	NE	NE	NE	NE		NA	NA	NA	NA	NA
	Dieldrin	0.04	1	7.8	3.1	0.02	0.603		NA	NA	NA	NA	NA
	Endosulfan I	NE	NE	NE	NE	NE	NE		NA	NA	NA	NA	NA
	Endosulfan II	NE	NE	NE	NE	NE	NE		NA	NA	NA	NA	NA
	Endosulfan Sulfate	NE	NE	NE	NE	NE	NE		NA	NA	NA	NA	NA
	Endrin	23	NC	61	NC	5	*		NA	NA	NA	NA	NA
	Endrin Aldehyde	NE	NE	NE	NE	NE	NE		NA	NA	NA	NA	NA
	Endrin Ketone	NE	NE	NE	NE	NE	NE		NA	NA	NA	NA	NA
	gamma-BHC (Lindane)	0.5	NC	96	NC	0.047	*		NA	NA	NA	NA	NA
	gamma-Chlordane	NE	NE	NE	NE	NE	NE		NA	NA	NA	NA	NA
	Heptachlor	0.1	0.1	28	16	110	0.871		NA	NA	NA	NA	NA
	Heptachlor Epoxide	0.07	5	2.7	13	3.3	1.005		NA	NA	NA	NA	NA
	Methoxychlor	390	NC	1000	NC	780	*		NA	NA	NA	NA	NA
	Toxaphene	0.6	89	110	240	150	*		NA	NA	NA	NA	NA
PCBs	**PCB-1016**	1	NC	1	NC	NC	*		NA	NA	NA	NA	NA
	PCB-1221	1	NC	1	NC	NC	*		NA	NA	NA	NA	NA
	PCB-1232	1	NC	1	NC	NC	*		NA	NA	NA	NA	NA
	PCB-1242	1	NC	1	NC	NC	*		NA	NA	NA	NA	NA
	PCB-1248	1	NC	1	NC	NC	*		NA	NA	NA	NA	NA
	PCB-1254	1	NC	1	NC	NC	*		NA	NA	NA	NA	NA
	PCB-1260	1	NC	1	NC	NC	*		NA	NA	NA	NA	NA
Herbicides	**2,4,5-TP (Silvex)**	630	NC	1,600	NC	55	*		NA	NA	NA	NA	NA
	2,4-D	780	NC	2,000	NC	7.7	*		NA	NA	NA	NA	NA
	Dalapon	2,300	NC	6,100	NC	8.5	*		NA	NA	NA	NA	NA
	Dinoseb	78	NE	200	NC	2.5	*		NA	NA	NA	NA	NA
	Pentachlorophenol	3	NC	520	NC	0.1	*		NA	NA	NA	NA	NA
	Picloram	5,500	NC	14,000	NC	20	NE		NA	NA	NA	NA	NA

NOTES:

1. Results expressed in milligrams per kilogram (mg/kg).
2. NA = Not analyzed for this constituent.
3. NC = No toxicity criteria for this exposure route.
4. NE = No established IEPA SRO for this analyte.
5. Samples were analyzed by EPA Methods 8081B(Pesticides)/8082A(PCBs) and 8321B/3550B(Herbicides).
6. G.W. Ing. = Soil Component of the Groundwater Ingestion Exposure Route.
7. **Bold values** = Concentration exceeds soil ing. and/or inh. exposure route for residential Tier 1 SROs.
8. O = Concentration exceeds soil ing. and/or inh. exposure route for construction worker Tier 1 SROs.
9. = Concentration exceeds soil component of the groundwater ing. exposure route for Class II Tier 1 SROs.
10. * = The ADL is less than or equal to the specified remediation objective.

Table VIII

Soil Analytical Results - Pesticides, PCBs & Herbicides

	Analyte	IEPA SROs						Sample	SB-6	SB-6	SB-6	SB-7	SB-7
		Residential		Construction Worker		G.W. Ing.	ADL	Date	12/13/2018	12/13/2018	12/13/2018	12/13/2018	12/13/2018
		Ingestion	Inhalation	Ingestion	Inhalation	Class II		Depth (ft)	0-3	3-6	6-9	0-3	6-9
Pesticides	**4,4'-DDD**	3	NC	520	NC	80	*		<0.0017	<0.0019	NA	NA	NA
	4,4'-DDE	2	NC	370	NC	270	*		<0.0017	<0.0019	NA	NA	NA
	4,4'-DDT	2	NC	100	2100	160	*		<0.0017	<0.0019	NA	NA	NA
	Aldrin	0.04	3	6.1	9.3	2.5	0.94		<0.0017	<0.0019	NA	NA	NA
	alpha-BHC	0.1	0.8	20	2.1	0.003	0.0074		<0.0017	<0.0019	NA	NA	NA
	alpha-Chlordane	NE	NE	NE	NE	NE	NE		<0.0017	<0.0019	NA	NA	NA
	beta-BHC	NE	NE	NE	NE	NE	NE		<0.0017	<0.0019	NA	NA	NA
	Chlordane	1.8	72	100	22	48	*		<0.017	<0.019	NA	NA	NA
	delta-BHC	NE	NE	NE	NE	NE	NE		<0.0017	<0.0019	NA	NA	NA
	Dieldrin	0.04	1	7.8	3.1	0.02	0.603		<0.0017	<0.0019	NA	NA	NA
	Endosulfan I	NE	NE	NE	NE	NE	NE		<0.0034	<0.0038	NA	NA	NA
	Endosulfan II	NE	NE	NE	NE	NE	NE		<0.0034	<0.0038	NA	NA	NA
	Endosulfan Sulfate	NE	NE	NE	NE	NE	NE		<0.0017	<0.0019	NA	NA	NA
	Endrin	23	NC	61	NC	5	*		<0.0017	<0.0019	NA	NA	NA
	Endrin Aldehyde	NE	NE	NE	NE	NE	NE		<0.0017	<0.0019	NA	NA	NA
	Endrin Ketone	NE	NE	NE	NE	NE	NE		<0.0017	<0.0019	NA	NA	NA
	gamma-BHC (Lindane)	0.5	NC	96	NC	0.047	*		<0.0017	<0.0019	NA	NA	NA
	gamma-Chlordane	NE	NE	NE	NE	NE	NE		<0.0017	<0.0019	NA	NA	NA
	Heptachlor	0.1	0.1	28	16	110	0.871		<0.0017	<0.0019	NA	NA	NA
	Heptachlor Epoxide	0.07	5	2.7	13	3.3	1.005		<0.0017	<0.0019	NA	NA	NA
	Methoxychlor	390	NC	1000	NC	780	*		<0.0017	<0.0019	NA	NA	NA
	Toxaphene	0.6	89	110	240	150	*		<0.035	<0.039	NA	NA	NA
PCBs	**PCB-1016**	1	NC	1	NC	NC	*		<0.085	<0.094	NA	NA	NA
	PCB-1221	1	NC	1	NC	NC	*		<0.085	<0.094	NA	NA	NA
	PCB-1232	1	NC	1	NC	NC	*		<0.085	<0.094	NA	NA	NA
	PCB-1242	1	NC	1	NC	NC	*		<0.085	<0.094	NA	NA	NA
	PCB-1248	1	NC	1	NC	NC	*		<0.085	<0.094	NA	NA	NA
	PCB-1254	1	NC	1	NC	NC	*		<0.085	<0.094	NA	NA	NA
	PCB-1260	1	NC	1	NC	NC	*		<0.085	<0.094	NA	NA	NA
Herbicides	**2,4,5-TP (Silvex)**	630	NC	1,600	NC	55	*		<0.0035	<0.0039	NA	NA	NA
	2,4-D	780	NC	2,000	NC	7.7	*		<0.0035	<0.0039	NA	NA	NA
	Dalapon	2,300	NC	6,100	NC	8.5	*		<0.035	<0.039	NA	NA	NA
	Dinoseb	78	NE	200	NC	2.5	*		<0.0071	<0.0079	NA	NA	NA
	Pentachlorophenol	3	NC	520	NC	0.1	*		<0.011	<0.012	NA	NA	NA
	Picloram	5,500	NC	14,000	NC	20	NE		<0.0071	<0.0079	NA	NA	NA

NOTES:

1. Results expressed in milligrams per kilogram (mg/kg).
2. NA = Not analyzed for this constituent.
3. NC = No toxicity criteria for this exposure route.
4. NE = No established IEPA SRO for this analyte.
5. Samples were analyzed by EPA Methods 8081B(Pesticides)/8082A(PCBs) and 8321B/3550B(Herbicides).
6. G.W. Ing. = Soil Component of the Groundwater Ingestion Exposure Route.
7. **Bold values** = Concentration exceeds soil ing. and/or inh. exposure route for residential Tier 1 SROs.
8. O = Concentration exceeds soil ing. and/or inh. exposure route for construction worker Tier 1 SROs.
9. = Concentration exceeds soil component of the groundwater ing. exposure route for Class II Tier 1 SROs.
10. * = The ADL is less than or equal to the specified remediation objective.

Table VIII

Soil Analytical Results - Pesticides, PCBs & Herbicides

	Analyte	IEPA SROs						Sample	SB-7	SB-8	SB-8	SB-8	SB-8
		Residential		Construction Worker		G.W. Ing.	ADL	Date	12/13/2018	12/13/2018	12/13/2018	12/13/2018	12/13/2018
		Ingestion	Inhalation	Ingestion	Inhalation	Class II		Depth (ft)	9-12	0-3	6-9	9-12	12-15
Pesticides	**4,4'-DDD**	3	NC	520	NC	80	*		NA	NA	NA	NA	NA
	4,4'-DDE	2	NC	370	NC	270	*		NA	NA	NA	NA	NA
	4,4'-DDT	2	NC	100	2100	160	*		NA	NA	NA	NA	NA
	Aldrin	0.04	3	6.1	9.3	2.5	0.94		NA	NA	NA	NA	NA
	alpha-BHC	0.1	0.8	20	2.1	0.003	0.0074		NA	NA	NA	NA	NA
	alpha-Chlordane	NE	NE	NE	NE	NE	NE		NA	NA	NA	NA	NA
	beta-BHC	NE	NE	NE	NE	NE	NE		NA	NA	NA	NA	NA
	Chlordane	1.8	72	100	22	48	*		NA	NA	NA	NA	NA
	delta-BHC	NE	NE	NE	NE	NE	NE		NA	NA	NA	NA	NA
	Dieldrin	0.04	1	7.8	3.1	0.02	0.603		NA	NA	NA	NA	NA
	Endosulfan I	NE	NE	NE	NE	NE	NE		NA	NA	NA	NA	NA
	Endosulfan II	NE	NE	NE	NE	NE	NE		NA	NA	NA	NA	NA
	Endosulfan Sulfate	NE	NE	NE	NE	NE	NE		NA	NA	NA	NA	NA
	Endrin	23	NC	61	NC	5	*		NA	NA	NA	NA	NA
	Endrin Aldehyde	NE	NE	NE	NE	NE	NE		NA	NA	NA	NA	NA
	Endrin Ketone	NE	NE	NE	NE	NE	NE		NA	NA	NA	NA	NA
	gamma-BHC (Lindane)	0.5	NC	96	NC	0.047	*		NA	NA	NA	NA	NA
	gamma-Chlordane	NE	NE	NE	NE	NE	NE		NA	NA	NA	NA	NA
	Heptachlor	0.1	0.1	28	16	110	0.871		NA	NA	NA	NA	NA
	Heptachlor Epoxide	0.07	5	2.7	13	3.3	1.005		NA	NA	NA	NA	NA
	Methoxychlor	390	NC	1000	NC	780	*		NA	NA	NA	NA	NA
	Toxaphene	0.6	89	110	240	150	*		NA	NA	NA	NA	NA
PCBs	**PCB-1016**	1	NC	1	NC	NC	*		NA	NA	NA	NA	NA
	PCB-1221	1	NC	1	NC	NC	*		NA	NA	NA	NA	NA
	PCB-1232	1	NC	1	NC	NC	*		NA	NA	NA	NA	NA
	PCB-1242	1	NC	1	NC	NC	*		NA	NA	NA	NA	NA
	PCB-1248	1	NC	1	NC	NC	*		NA	NA	NA	NA	NA
	PCB-1254	1	NC	1	NC	NC	*		NA	NA	NA	NA	NA
	PCB-1260	1	NC	1	NC	NC	*		NA	NA	NA	NA	NA
Herbicides	**2,4,5-TP (Silvex)**	630	NC	1,600	NC	55	*		NA	NA	NA	NA	NA
	2,4-D	780	NC	2,000	NC	7.7	*		NA	NA	NA	NA	NA
	Dalapon	2,300	NC	6,100	NC	8.5	*		NA	NA	NA	NA	NA
	Dinoseb	78	NE	200	NC	2.5	*		NA	NA	NA	NA	NA
	Pentachlorophenol	3	NC	520	NC	0.1	*		NA	NA	NA	NA	NA
	Picloram	5,500	NC	14,000	NC	20	NE		NA	NA	NA	NA	NA

NOTES:

1. Results expressed in milligrams per kilogram (mg/kg).
2. NA = Not analyzed for this constituent.
3. NC = No toxicity criteria for this exposure route.
4. NE = No established IEPA SRO for this analyte.
5. Samples were analyzed by EPA Methods 8081B(Pesticides)/8082A(PCBs) and 8321B/3550B(Herbicides).
6. G.W. Ing. = Soil Component of the Groundwater Ingestion Exposure Route.
7. **Bold values** = Concentration exceeds soil ing. and/or inh. exposure route for residential Tier 1 SROs.
8. O = Concentration exceeds soil ing. and/or inh. exposure route for construction worker Tier 1 SROs.
9. = Concentration exceeds soil component of the groundwater ing. exposure route for Class II Tier 1 SROs.
10. * = The ADL is less than or equal to the specified remediation objective.

Table VIII

Soil Analytical Results - Pesticides, PCBs & Herbicides

	Analyte	IEPA SROs						Sample	SB-9	SB-9	SB-9	SB-10	SB-10
		Residential		Construction Worker		G.W. Ing.	ADL	Date	12/13/2018	12/13/2018	12/13/2018	12/13/2018	12/13/2018
		Ingestion	Inhalation	Ingestion	Inhalation	Class II		Depth (ft)	0-3	3-6	6-9	0-3	3-6
Pesticides	**4,4'-DDD**	3	NC	520	NC	80	*		NA	NA	NA	NA	NA
	4,4'-DDE	2	NC	370	NC	270	*		NA	NA	NA	NA	NA
	4,4'-DDT	2	NC	100	2100	160	*		NA	NA	NA	NA	NA
	Aldrin	0.04	3	6.1	9.3	2.5	0.94		NA	NA	NA	NA	NA
	alpha-BHC	0.1	0.8	20	2.1	0.003	0.0074		NA	NA	NA	NA	NA
	alpha-Chlordane	NE	NE	NE	NE	NE	NE		NA	NA	NA	NA	NA
	beta-BHC	NE	NE	NE	NE	NE	NE		NA	NA	NA	NA	NA
	Chlordane	1.8	72	100	22	48	*		NA	NA	NA	NA	NA
	delta-BHC	NE	NE	NE	NE	NE	NE		NA	NA	NA	NA	NA
	Dieldrin	0.04	1	7.8	3.1	0.02	0.603		NA	NA	NA	NA	NA
	Endosulfan I	NE	NE	NE	NE	NE	NE		NA	NA	NA	NA	NA
	Endosulfan II	NE	NE	NE	NE	NE	NE		NA	NA	NA	NA	NA
	Endosulfan Sulfate	NE	NE	NE	NE	NE	NE		NA	NA	NA	NA	NA
	Endrin	23	NC	61	NC	5	*		NA	NA	NA	NA	NA
	Endrin Aldehyde	NE	NE	NE	NE	NE	NE		NA	NA	NA	NA	NA
	Endrin Ketone	NE	NE	NE	NE	NE	NE		NA	NA	NA	NA	NA
	gamma-BHC (Lindane)	0.5	NC	96	NC	0.047	*		NA	NA	NA	NA	NA
	gamma-Chlordane	NE	NE	NE	NE	NE	NE		NA	NA	NA	NA	NA
	Heptachlor	0.1	0.1	28	16	110	0.871		NA	NA	NA	NA	NA
	Heptachlor Epoxide	0.07	5	2.7	13	3.3	1.005		NA	NA	NA	NA	NA
	Methoxychlor	390	NC	1000	NC	780	*		NA	NA	NA	NA	NA
	Toxaphene	0.6	89	110	240	150	*		NA	NA	NA	NA	NA
PCBs	**PCB-1016**	1	NC	1	NC	NC	*		NA	NA	NA	NA	NA
	PCB-1221	1	NC	1	NC	NC	*		NA	NA	NA	NA	NA
	PCB-1232	1	NC	1	NC	NC	*		NA	NA	NA	NA	NA
	PCB-1242	1	NC	1	NC	NC	*		NA	NA	NA	NA	NA
	PCB-1248	1	NC	1	NC	NC	*		NA	NA	NA	NA	NA
	PCB-1254	1	NC	1	NC	NC	*		NA	NA	NA	NA	NA
	PCB-1260	1	NC	1	NC	NC	*		NA	NA	NA	NA	NA
Herbicides	**2,4,5-TP (Silvex)**	630	NC	1,600	NC	55	*		NA	NA	NA	NA	NA
	2,4-D	780	NC	2,000	NC	7.7	*		NA	NA	NA	NA	NA
	Dalapon	2,300	NC	6,100	NC	8.5	*		NA	NA	NA	NA	NA
	Dinoseb	78	NE	200	NC	2.5	*		NA	NA	NA	NA	NA
	Pentachlorophenol	3	NC	520	NC	0.1	*		NA	NA	NA	NA	NA
	Picloram	5,500	NC	14,000	NC	20	NE		NA	NA	NA	NA	NA

NOTES:

1. Results expressed in milligrams per kilogram (mg/kg).
2. NA = Not analyzed for this constituent.
3. NC = No toxicity criteria for this exposure route.
4. NE = No established IEPA SRO for this analyte.
5. Samples were analyzed by EPA Methods 8081B(Pesticides)/8082A(PCBs) and 8321B/3550B(Herbicides).
6. G.W. Ing. = Soil Component of the Groundwater Ingestion Exposure Route.
7. **Bold values** = Concentration exceeds soil ing. and/or inh. exposure route for residential Tier 1 SROs.
8. O = Concentration exceeds soil ing. and/or inh. exposure route for construction worker Tier 1 SROs.
9. = Concentration exceeds soil component of the groundwater ing. exposure route for Class II Tier 1 SROs.
10. * = The ADL is less than or equal to the specified remediation objective.

Table VIII

Soil Analytical Results - Pesticides, PCBs & Herbicides

	Analyte	IEPA SROs						Sample	SB-10	B-111	B-111	B-112	B-112
		Residential		Construction Worker		G.W. Ing.	ADL	Date	12/13/2018	12/8/2023	12/8/2023	12/8/2023	12/8/2023
		Ingestion	Inhalation	Ingestion	Inhalation	Class II		Depth (ft)	6-9	1-3	5-7	1-3	5-7
Pesticides	**4,4'-DDD**	3	NC	520	NC	80	*		NA	NA	NA	< 0.0020	< 0.0020
	4,4'-DDE	2	NC	370	NC	270	*		NA	NA	NA	< 0.0020	< 0.0020
	4,4'-DDT	2	NC	100	2100	160	*		NA	NA	NA	< 0.0020	< 0.0020
	Aldrin	0.04	3	6.1	9.3	2.5	0.94		NA	NA	NA	< 0.0020	< 0.0020
	alpha-BHC	0.1	0.8	20	2.1	0.003	0.0074		NA	NA	NA	< 0.0020	< 0.0020
	alpha-Chlordane	NE	NE	NE	NE	NE	NE		NA	NA	NA	0.11	< 0.0020
	beta-BHC	NE	NE	NE	NE	NE	NE		NA	NA	NA	< 0.0020	< 0.0020
	Chlordane	1.8	72	100	22	48	*		NA	NA	NA	1.2	< 0.020
	delta-BHC	NE	NE	NE	NE	NE	NE		NA	NA	NA	< 0.0020	< 0.0020
	Dieldrin	0.04	1	7.8	3.1	0.02	0.603		NA	NA	NA	< 0.0020	< 0.0020
	Endosulfan I	NE	NE	NE	NE	NE	NE		NA	NA	NA	< 0.0020	< 0.0020
	Endosulfan II	NE	NE	NE	NE	NE	NE		NA	NA	NA	< 0.0020	< 0.0020
	Endosulfan Sulfate	NE	NE	NE	NE	NE	NE		NA	NA	NA	< 0.0020	< 0.0020
	Endrin	23	NC	61	NC	5	*		NA	NA	NA	< 0.0020	< 0.0020
	Endrin Aldehyde	NE	NE	NE	NE	NE	NE		NA	NA	NA	< 0.0020	< 0.0020
	Endrin Ketone	NE	NE	NE	NE	NE	NE		NA	NA	NA	< 0.0020	< 0.0020
	gamma-BHC (Lindane)	0.5	NC	96	NC	0.047	*		NA	NA	NA	< 0.0020	< 0.0020
	gamma-Chlordane	NE	NE	NE	NE	NE	NE		NA	NA	NA	0.034	< 0.0020
	Heptachlor	0.1	0.1	28	16	110	0.871		NA	NA	NA	< 0.0020	< 0.0020
	Heptachlor Epoxide	0.07	5	2.7	13	3.3	1.005		NA	NA	NA	< 0.0020	< 0.0020
	Methoxychlor	390	NC	1000	NC	780	*		NA	NA	NA	< 0.0020	< 0.0020
	Toxaphene	0.6	89	110	240	150	*		NA	NA	NA	< 0.042	< 0.041
PCBs	**PCB-1016**	1	NC	1	NC	NC	*		NA	NA	NA	< 0.10	< 0.098
	PCB-1221	1	NC	1	NC	NC	*		NA	NA	NA	< 0.10	< 0.098
	PCB-1232	1	NC	1	NC	NC	*		NA	NA	NA	< 0.10	< 0.098
	PCB-1242	1	NC	1	NC	NC	*		NA	NA	NA	< 0.10	< 0.098
	PCB-1248	1	NC	1	NC	NC	*		NA	NA	NA	< 0.10	< 0.098
	PCB-1254	1	NC	1	NC	NC	*		NA	NA	NA	< 0.10	< 0.098
	PCB-1260	1	NC	1	NC	NC	*		NA	NA	NA	< 0.10	< 0.098
Herbicides	**2,4,5-TP (Silvex)**	630	NC	1,600	NC	55	*		NA	NA	NA	< 0.0041	NA
	2,4-D	780	NC	2,000	NC	7.7	*		NA	NA	NA	< 0.0041	NA
	Dalapon	2,300	NC	6,100	NC	8.5	*		NA	NA	NA	< 0.041	NA
	Dinoseb	78	NE	200	NC	2.5	*		NA	NA	NA	< 0.0084	NA
	Pentachlorophenol	3	NC	520	NC	0.1	*		NA	NA	NA	< 0.012	NA
	Picloram	5,500	NC	14,000	NC	20	NE		NA	NA	NA	< 0.0084	NA

NOTES:

1. Results expressed in milligrams per kilogram (mg/kg).
2. NA = Not analyzed for this constituent.
3. NC = No toxicity criteria for this exposure route.
4. NE = No established IEPA SRO for this analyte.
5. Samples were analyzed by EPA Methods 8081B(Pesticides)/8082A(PCBs) and 8321B/3550B(Herbicides).
6. G.W. Ing. = Soil Component of the Groundwater Ingestion Exposure Route.
7. **Bold values** = Concentration exceeds soil ing. and/or inh. exposure route for residential Tier 1 SROs.
8. O = Concentration exceeds soil ing. and/or inh. exposure route for construction worker Tier 1 SROs.
9. = Concentration exceeds soil component of the groundwater ing. exposure route for Class II Tier 1 SROs.
10. * = The ADL is less than or equal to the specified remediation objective.

Table VIII

Soil Analytical Results - Pesticides, PCBs & Herbicides

	Analyte	IEPA SROs						Sample	B-113	B-113
		Residential		Construction Worker		G.W. Ing.	ADL	Date	12/8/2023	12/8/2023
		Ingestion	Inhalation	Ingestion	Inhalation	Class II		Depth (ft)	1-3	5-7
Pesticides	**4,4'-DDD**	3	NC	520	NC	80	*		NA	NA
	4,4'-DDE	2	NC	370	NC	270	*		NA	NA
	4,4'-DDT	2	NC	100	2100	160	*		NA	NA
	Aldrin	0.04	3	6.1	9.3	2.5	0.94		NA	NA
	alpha-BHC	0.1	0.8	20	2.1	0.003	0.0074		NA	NA
	alpha-Chlordane	NE	NE	NE	NE	NE	NE		NA	NA
	beta-BHC	NE	NE	NE	NE	NE	NE		NA	NA
	Chlordane	1.8	72	100	22	48	*		NA	NA
	delta-BHC	NE	NE	NE	NE	NE	NE		NA	NA
	Dieldrin	0.04	1	7.8	3.1	0.02	0.603		NA	NA
	Endosulfan I	NE	NE	NE	NE	NE	NE		NA	NA
	Endosulfan II	NE	NE	NE	NE	NE	NE		NA	NA
	Endosulfan Sulfate	NE	NE	NE	NE	NE	NE		NA	NA
	Endrin	23	NC	61	NC	5	*		NA	NA
	Endrin Aldehyde	NE	NE	NE	NE	NE	NE		NA	NA
	Endrin Ketone	NE	NE	NE	NE	NE	NE		NA	NA
	gamma-BHC (Lindane)	0.5	NC	96	NC	0.047	*		NA	NA
	gamma-Chlordane	NE	NE	NE	NE	NE	NE		NA	NA
	Heptachlor	0.1	0.1	28	16	110	0.871		NA	NA
	Heptachlor Epoxide	0.07	5	2.7	13	3.3	1.005		NA	NA
	Methoxychlor	390	NC	1000	NC	780	*		NA	NA
	Toxaphene	0.6	89	110	240	150	*		NA	NA
PCBs	**PCB-1016**	1	NC	1	NC	NC	*		NA	NA
	PCB-1221	1	NC	1	NC	NC	*		NA	NA
	PCB-1232	1	NC	1	NC	NC	*		NA	NA
	PCB-1242	1	NC	1	NC	NC	*		NA	NA
	PCB-1248	1	NC	1	NC	NC	*		NA	NA
	PCB-1254	1	NC	1	NC	NC	*		NA	NA
	PCB-1260	1	NC	1	NC	NC	*		NA	NA
Herbicides	**2,4,5-TP (Silvex)**	630	NC	1,600	NC	55	*		NA	NA
	2,4-D	780	NC	2,000	NC	7.7	*		NA	NA
	Dalapon	2,300	NC	6,100	NC	8.5	*		NA	NA
	Dinoseb	78	NE	200	NC	2.5	*		NA	NA
	Pentachlorophenol	3	NC	520	NC	0.1	*		NA	NA
	Picloram	5,500	NC	14,000	NC	20	NE		NA	NA

NOTES:

1. Results expressed in milligrams per kilogram (mg/kg).
2. NA = Not analyzed for this constituent.
3. NC = No toxicity criteria for this exposure route.
4. NE = No established IEPA SRO for this analyte.
5. Samples were analyzed by EPA Methods 8081B(Pesticides)/8082A(PCBs) and 8321B/3550B(Herbicides).
6. G.W. Ing. = Soil Component of the Groundwater Ingestion Exposure Route.
7. **Bold values** = Concentration exceeds soil ing. and/or inh. exposure route for residential Tier 1 SROs.
8. O = Concentration exceeds soil ing. and/or inh. exposure route for construction worker Tier 1 SROs.
9. = Concentration exceeds soil component of the groundwater ing. exposure route for Class II Tier 1 SROs.
10. * = The ADL is less than or equal to the specified remediation objective.

Table IX

Soil Analytical Results - SPLP & TCLP Inorganics

	Analyte	IEPA SROs G.W. Ing. Class II	Toxicity Characteristic	Sample Date Depth (ft)	SB-1 12/13/2018 0-3	SB-4 12/13/2018 0-3	SB-10 12/13/2018 3-6	SB-10 12/13/2018 6-9	B-111 12/8/2023 1-3	B-112 12/8/2023 1-3	B-112 12/8/2023 5-7
pH					**7.48**	**8.04**	**8.03**	**NA**	**8.22**	**8.34**	**8.31**
SPLP	**Barium**	2.0	NE		NA	NA	NA	NA	NA	0.066	NA
SPLP	**Cadmium**	0.05	NE		NA	NA	NA	NA	NA	<0.002	NA
SPLP	**Copper**	0.65	NE		NA	NA	NA	NA	NA	0.063	NA
SPLP	**Lead**	0.1	NE		NA	NA	NA	NA	NA	NA	NA
SPLP	**Mercury**	0.01	NE		NA	NA	NA	NA	NA	< 0.0002	NA
SPLP	**Nickel**	2.0	NE		NA	NA	NA	NA	NA	0.045	0.015
SPLP	**Selenium**	0.05	NE		NA	NA	NA	NA	NA	NA	NA
SPLP	**Zinc**	10	NE		NA	NA	NA	NA	NA	0.2	NA
TCLP	**Lead**	0.1	5.0		0.41	0.39	0.45	NA	0.18	0.033	NA
TCLP	**Selenium**	0.05	1.0		NA	NA	NA	NA	NA	NA	NA

NOTES:

1. All results expressed in milligrams per liter (mg/L).
2. NA = Not analyzed for this constituent.
3. NE = No established IEPA SRO for this analyte.
4. Samples were analyzed utilizing EPA Methods 6020A/1311/1312/7470A and 9045C.
5. G.W. Ing. = Soil Component of the Groundwater Ingestion Exposure Route.
6. = Concentration exceeds the Tier 1 SRO for Class II G.W. Ing.
7. SPLP = Synthetic Precipitation Leaching Procedure inorganic analyte concentration.
8. TCLP = Toxicity Characteristic Leaching Procedure inorganic analyte concentration.
9. "-" = G.W. Ing. was addressed through SPLP; TCLP used for toxicity determination.

Table X

Soil Analytical Results - TCLP Chlordane

Analyte		IEPA SROs G.W. Ing. Class II	Toxicity Characteristic	Sample Date Depth (ft)	B-112 12/8/2023 1-3
TCLP	Chlordane	0.01	1		<0.0050

NOTES:

1. All results expressed in milligrams per liter (mg/L).
2. NA = Not analyzed for this constituent.
3. NE = No established IEPA SRO for this analyte.
4. Samples were analyzed utilizing EPA Methods 1311/8081B.
5. G.W. Ing. = Soil Component of the Groundwater Ingestion Exposure Route.
6. = Concentration exceeds the Tier 1 SRO for Class II G.W. Ing.
7. TCLP = Toxicity Characteristic Leaching Procedure inorganic analyte concentration.
8. "-" = G.W. Ing. was addressed through SPLP; TCLP used for toxicity determination.

Table XI

Groundwater Analytical Results - VOCs

	Analyte	IEPA GRO's					ADL	Sample	TMW-1	TMW-2	TMW-3	TMW-4	MW-114
		G.W. Ing.	Diffusion & Advection		Diffusion Only			Date	12/17/18	12/17/18	12/17/18	12/17/18	12/06/23
		Class II	Residential	Ind./Com.	Residential	Ind./Com.		-	Unfiltered	Unfiltered	Unfiltered	Unfiltered	Unfiltered
VOCs	Acetone	6.3	1000000	1000000	1000000	1000000	NE		NA	NA	<0.100	NA	< 0.020
	Benzene	0.025	0.11	0.41	0.41	2.6	NE		<0.002	<0.002	<0.002	<0.002	< 0.0050
	Bromodichloromethane	0.0002	6700	6700	6700	6700	NE		NA	NA	<0.002	NA	< 0.0050
	Bromoform	0.001	3.1	12	170	1300	NE		NA	NA	<0.002	NA	< 0.0010
	Bromomethane	0.049	1.5	4.8	6.1	33	NE		NA	NA	<0.005	NA	< 0.0050
	2-Butanone (MEK)	4.2	10000	48000	220000	220000	NE		NA	NA	<0.005	NA	< 0.020
	Carbon disulfide	3.5	67	210	170	820	NE		NA	NA	<0.005	NA	< 0.010
	Carbon tetrachloride	0.025	0.02	0.076	0.052	0.31	0.0001		NA	NA	<0.005	NA	< 0.0050
	Chlorobenzene	0.5	26	82	130	470	NE		NA	NA	<0.005	NA	< 0.0050
	Chloroethane	NE	NE	NE	NE	NE	NE		NA	NA	<0.005	NA	< 0.010
	Chloroform	0.001	0.07	0.15	0.17	1.1	NE		NA	NA	<0.005	NA	< 0.0010
	Chloromethane	NE	NE	NE	NE	NE	NE		NA	NA	<0.005	NA	< 0.010
	Dibromochloromethane	0.14	2600	2600	2600	2600	NE		NA	NA	<0.005	NA	< 0.0050
	1,1-Dichloroethane	3.5	180	580	750	4100	NE		NA	NA	<0.005	NA	< 0.0050
	1,2-Dichloroethane	0.025	0.054	0.22	0.5	3.5	0.0003		NA	NA	<0.005	NA	< 0.0050
	1,1-Dichloroethene	0.035	24	74	61	300	NE		NA	NA	<0.005	NA	< 0.0050
	cis-1,2-Dichloroethene	0.2	3500	3500	3500	3500	NE		NA	NA	<0.005	NA	< 0.0050
	trans-1,2-Dichloroethene	0.5	16	51	58	310	NE		NA	NA	<0.005	NA	< 0.0050
	1,2-Dichloropropane	0.025	0.12	0.48	0.67	4.5	0.00006		NA	NA	<0.005	NA	< 0.0050
	cis-1,3-Dichloropropene	0.005	0.14	0.52	0.42	2.6	NE		NA	NA	<0.004	NA	< 0.0010
	trans-1,3-Dichloropropene	0.005	0.14	0.52	0.42	2.6	NE		NA	NA	<0.004	NA	< 0.0010
	Ethylbenzene	1	0.37	1.4	1.3	8.1	NE		<0.005	<0.005	<0.005	<0.005	< 0.0050
	2-Hexanone	NE	NE	NE	NE	NE	NE		NA	NA	<0.005	NA	< 0.020
	4-Methyl-2-pentanone (Methyl isobutyl ketone)	NE	NE	NE	NE	NE	NE		NA	NA	<0.005	NA	< 0.020
	Methylene chloride	0.05	2.1	8.2	12	84	NE		NA	NA	<0.005	NA	< 0.0050
	Methyl tert-butyl ether	0.07	1900	6800	30000	51000	NE		NA	NA	<0.005	NA	< 0.0050
	Styrene	0.5	310	310	310	310	NE		NA	NA	<0.005	NA	< 0.0050
	1,1,2,2-Tetrachloroethane	0.42	NE	NE	0	0	NE		NA	NA	<0.005	NA	< 0.0050
	Tetrachloroethene	0.025	0.091	0.34	0.26	1.6	0.0004		NA	NA	<0.002	NA	< 0.0050
	Toluene	2.5	530	530	530	530	NE		<0.005	<0.005	<0.005	<0.005	< 0.0050
	1,1,1-Trichloroethane	1	1000	1300	1300	1300	NE		NA	NA	<0.005	NA	< 0.0050
	1,1,2-Trichloroethane	0.05	4400	4400	4400	4400	NE		NA	NA	<0.005	NA	< 0.0050
	Trichloroethene	0.025	0.34	1.3	1.1	6.7	NE		NA	NA	<0.002	NA	< 0.0050
	Vinyl chloride	0.01	0.028	0.21	0.065	0.75	0.0002		NA	NA	<0.002	NA	< 0.0020
	Xylenes, Total	10	30	93	96	110	NE		<0.005	<0.005	<0.005	<0.005	< 0.015

Notes:

1. All results expressed in milligrams per liter (mg/L).
2. NA = Not analyzed for this constituent.
3. NE = No established IEPA GRO for this analyte.
4. Samples were analyzed by EPA Method 8260B/5030B.
5. *Diffusion & Advection* and *Diffusion Only* GROs apply to Indoor Inhalation exposure route.
6. Ind./Com. = Industrial/Commercial property use scenario.
7. = Concentration exceeds IEPA Class II G.W. Ing. GRO.
8. ▲ = Concentration exceeds IEPA Indoor Inhalation GRO(s).

Table XII

Groundwater Analytical Results - SVOCs

	Analyte	IEPA GRO's					ADL	Sample	TMW-1	TMW-2	TMW-3	TMW-4	MW-114
		G.W. Ing.	Diffusion & Advection		Diffusion Only			Date	12/17/18	12/17/18	12/17/18	12/17/18	12/06/23
		Class II	Residential	Ind./Com.	Residential	Ind./Com.		-	Unfiltered	Unfiltered	Unfiltered	Unfiltered	Unfiltered
SVOCs	Aniline	0.023	NE	NE	NE	NE	NE		NA	NA	NA	NA	< 0.0050
	Benzidine	3.7E-07	NE	NE	NE	NE	NE		NA	NA	NA	NA	< 0.0050
	Benzoic acid	28	NE	NE	NE	NE	NE		NA	NA	<0.050	NA	< 0.025
	Benzyl alcohol	3.5	NE	NE	NE	NE	NE		NA	NA	<0.020	NA	< 0.0050
	Bis(2-chloroethoxy)methane	NE	NE	NE	NE	NE	NE		NA	NA	<0.010	NA	< 0.0050
	Bis(2-chloroethyl)ether	0.01	0.083	0.43	6.6	48	0.01		NA	NA	<0.010	NA	< 0.0050
	Bis(2-ethylhexyl)phthalate	0.06	NE	NE	NE	NE	0.0027		NA	NA	<0.005	NA	< 0.0050
	4-Bromophenyl phenyl ether	NE	NE	NE	NE	NE	NE		NA	NA	<0.010	NA	< 0.0050
	Butyl benzyl phthalate	7	NE	NE	NE	NE	NE		NA	NA	<0.010	NA	< 0.0050
	Carbazole	---	NE	NE	NE	NE	NA		NA	NA	<0.010	NA	< 0.00050
	4-Chloroaniline	0.028	NE	NE	NE	NE	NE		NA	NA	<0.020	NA	< 0.0050
	4-Chloro-3-methylphenol	NE	NE	NE	NE	NE	NE		NA	NA	<0.020	NA	< 0.0050
	2-Chloronaphthalene (beta-Chloronaphthalene)	2.8	NE	NE	NE	NE	NE		NA	NA	<0.010	NA	< 0.0050
	2-Chlorophenol	0.035	22000	22000	22000	22000	NE		NA	NA	<0.010	NA	< 0.0050
	4-Chlorophenyl phenyl ether	NE	NE	NE	NE	NE	NE		NA	NA	<0.010	NA	< 0.0050
	Dibenzofuran	NE	NE	NE	NE	NE	NE		NA	NA	<0.010	NA	< 0.0050
	1,2-Dichlorobenzene	1.5	140	160	160	160	NE		NA	NA	<0.010	NA	< 0.0050
	1,3-Dichlorobenzene	NE	NE	NE	NE	NE	NE		NA	NA	<0.010	NA	< 0.0050
	1,4-Dichlorobenzene	0.375	79	79	79	79	NE		NA	NA	<0.010	NA	< 0.0050
	3,3´-Dichlorobenzidine	0.1	NE	NE	NE	NE	0.02		NA	NA	<0.020	NA	< 0.010
	2,4-Dichlorophenol	0.021	NE	NE	NE	NE	NE		NA	NA	<0.010	NA	< 0.0050
	Diethyl phthalate	5.6	NE	NE	NE	NE	NE		NA	NA	<0.010	NA	< 0.0050
	2,4-Dimethylphenol	0.14	NE	NE	NE	NE	NE		NA	NA	<0.010	NA	< 0.0050
	Dimethyl phthalate	NE	NE	NE	NE	NE	NE		NA	NA	<0.050	NA	< 0.0050
	4,6-Dinitro-2-methylphenol (4,6-Dinitro-o-cresol)	0.0007	NE	NE	NE	NE	NE		NA	NA	<0.050	NA	< 0.025
	2,4-Dinitrophenol	0.014	NE	NE	NE	NE	NE		NA	NA	<0.010	NA	< 0.025
	2,4-Dinitrotoluene	0.00002	NE	NE	NE	NE	NE		NA	NA	<0.0004	NA	< 0.00010
	2,6-Dinitrotoluene	0.00031	NE	NE	NE	NE	0.00031		NA	NA	<0.0007	NA	< 0.00010
	Di-n-butyl phthalate	3.5	NE	NE	NE	NE	NE		NA	NA	<0.010	NA	< 0.0050
	Di-n-octyl phthalate	0.7	NE	NE	NE	NE	NE		NA	NA	<0.010	NA	< 0.0050
	Hexachlorobenzene	0.0003	0.0059	0.0062	0.0062	0.0062	0.00006		NA	NA	<0.003	NA	< 0.0050

Notes:

1. All results expressed in milligrams per liter (mg/L).
2. NA = Not analyzed for this constituent.
3. NE = No established IEPA GRO for this analyte.
4. Samples were analyzed by EPA Method 8270C (3510C).
5. *Diffusion & Advection* and *Diffusion Only* GROs apply to Indoor Inhalation exposure route.
6. Ind./Com. = Industrial/Commercial property use scenario.
7. = Concentration exceeds IEPA Class II G.W. Ing. GRO.
8. ▲ = Concentration exceeds IEPA Indoor Inhalation GRO(s).

Table XII

Groundwater Analytical Results - SVOCs

	Analyte	IEPA GRO's					ADL	Sample	TMW-1	TMW-2	TMW-3	TMW-4	MW-114
		G.W. Ing.	Diffusion & Advection		Diffusion Only			Date	12/17/18	12/17/18	12/17/18	12/17/18	12/06/23
		Class II	Residential	Ind./Com.	Residential	Ind./Com.		-	Unfiltered	Unfiltered	Unfiltered	Unfiltered	Unfiltered
SVOCs	**Hexachlorobutadiene**	0.035	NE	NE	NE	NE	NE		NA	NA	<0.010	NA	< 0.0050
	Hexachlorocyclopentadiene	0.5	0.084	0.26	0.29	1.5	NE		NA	NA	<0.010	NA	< 0.0050
	Hexachloroethane	0.035	50	50	50	50	NE		NA	NA	<0.0008	NA	< 0.0050
	Isophorone	1.4	12000	12000	12000	12000	NE		NA	NA	<0.010	NA	< 0.0050
	2-Methylnaphthalene	0.14	25	25	25	25	NE		NA	NA	<0.010	NA	< 0.0050
	2-Methylphenol	0.35	26000	26000	26000	26000	NE		NA	NA	<0.010	NA	< 0.0050
	4-Methylphenol	0.035	NE	NE	NE	NE	NE		NA	NA	<0.010	NA	< 0.0050
	2-Nitroaniline	0.105	NE	NE	NE	NE	NE		NA	NA	<0.050	NA	< 0.025
	3-Nitroaniline	0.0021	NE	NE	NE	NE	NE		NA	NA	<0.050	NA	< 0.025
	4-Nitroaniline	0.021	NE	NE	NE	NE	NE		NA	NA	<0.020	NA	< 0.025
	2-Nitrophenol	NE	NE	NE	NE	NE	NE		NA	NA	<0.010	NA	< 0.0050
	4-Nitrophenol	0.056	NE	NE	NE	NE	NE		NA	NA	<0.050	NA	< 0.025
	Nitrobenzene	0.0035	0.34	2	23	170	NE		NA	NA	<0.010	NA	< 0.0010
	N-Nitrosodi-n-propylamine	0.0018	0.044	0.27	3.3	24	0.0018		NA	NA	<0.0007	NA	< 0.00010
	N-Nitrosodimethylamine	0.0006	NE	NE	NE	NE	NE		NA	NA	NA	NA	< 0.0050
	N-Nitrosodiphenylamine	0.016	NE	NE	NE	NE	NE		NA	NA	<0.004	NA	< 0.0050
	2, 2'-oxybis(1-Chloropropane) (Bis(2-chloroisopropyl)ether)	0.28	NE	NE	NE	NE	NE		NA	NA	<0.010	NA	< 0.0050
	Pentachlorophenol	0.005	NE	NE	NE	NE	0.000076		NA	NA	<0.002	NA	< 0.00050
	Phenol	0.1	28000	83000	83000	83000	NE		NA	NA	<0.010	NA	< 0.0050
	Pyridine	0.007	NE	NE	NE	NE	NE		NA	NA	NA	NA	< 0.0050
	1,2,4-Trichlorobenzene	0.7	1.8	5.9	35	35	NE		NA	NA	<0.010	NA	< 0.0050
	2,4,5-Trichlorophenol	0.7	NE	NE	NE	NE	NE		NA	NA	<0.010	NA	< 0.010
	2,4,6-Trichlorophenol	0.01	NE	NE	NE	NE	0.01		NA	NA	<0.010	NA	< 0.0050

Notes:

1. All results expressed in milligrams per liter (mg/L).
2. NA = Not analyzed for this constituent.
3. NE = No established IEPA GRO for this analyte.
4. Samples were analyzed by EPA Method 8270C (3510C).
5. *Diffusion & Advection* and *Diffusion Only* GROs apply to Indoor Inhalation exposure route.
6. Ind./Com. = Industrial/Commercial property use scenario.
7. = Concentration exceeds IEPA Class II G.W. Ing. GRO.
8. ▲ = Concentration exceeds IEPA Indoor Inhalation GRO(s).

Table XIII

Groundwater Analytical Results - PNAs

	Analyte	IEPA GRO's					ADL	Sample	TMW-1	TMW-2	TMW-3	TMW-4	MW-114
		G.W. Ing.	Diffusion & Advection		Diffusion Only			Date	12/17/18	12/17/18	12/17/18	12/17/18	12/06/23
		Class II	Residential	Ind./Com.	Residential	Ind./Com.		-	Unfiltered	Unfiltered	Unfiltered	Unfiltered	Unfiltered
PNAs	Acenaphthene	2.1	NE	NE	NE	NE	NE		0.001	<0.001	<0.010	<0.001	0.0021
	Acenaphthylene	1.05	NE	NE	NE	NE	NE		<0.001	<0.001	<0.010	<0.001	< 0.0010
	Anthracene	10.5	NE	NE	NE	NE	NE		<0.0005	<0.0005	<0.010	<0.0005	< 0.0010
	Benz(a)anthracene	0.00065	NE	NE	NE	NE	0.00013		<0.0001	<0.0001	<0.002	<0.0001	< 0.00010
	Benzo(a)pyrene	0.002	NE	NE	NE	NE	0.00023		<0.0002	<0.0002	<0.003	<0.0002	< 0.00010
	Benzo(b)fluoranthene	0.0009	NE	NE	NE	NE	0.00018		<0.00018	<0.00018	<0.002	<0.00018	< 0.00010
	Benzo(g,h,i)perylene	1.05	NE	NE	NE	NE	NE		<0.0003	<0.0003	<0.010	<0.0003	< 0.0010
	Benzo(k)fluoranthene	0.00085	NE	NE	NE	NE	NE		<0.00017	<0.00017	<0.005	<0.00017	< 0.00010
	Chrysene	0.0075	NE	NE	NE	NE	NE		<0.0002	<0.0002	<0.003	<0.0002	< 0.00010
	Dibenz(a,h)anthracene	0.0015	NE	NE	NE	NE	0.0003		<0.0002	<0.0002	<0.010	<0.0002	< 0.00010
	Fluoranthene	1.4	NE	NE	NE	NE	NE		<0.0002	<0.0002	<0.010	<0.0002	< 0.0010
	Fluorene	1.4	NE	NE	NE	NE	NE		<0.002	<0.002	<0.010	<0.002	0.0019
	Indeno(1,2,3-cd)pyrene	0.00215	NE	NE	NE	NE	NE		<0.0003	<0.0003	<0.010	<0.0003	< 0.00010
	Naphthalene	0.22	0.075	0.32	1.8	13	NE		<0.001	<0.001	<0.010	<0.001	< 0.0010
	Phenanthrene	1.05	NE	NE	NE	NE	NE		<0.0005	<0.0005	<0.010	<0.0005	< 0.0010
	Pyrene	1.05	NE	NE	NE	NE	NE		<0.0002	<0.0002	<0.010	<0.0002	< 0.0010

Notes:

1. All results expressed in milligrams per liter (mg/L).
2. NA = Not analyzed for this constituent.
3. NE = No established IEPA GRO for this analyte.
4. Samples were analyzed by EPA Method 8270C (3510C).
5. *Diffusion & Advection* and *Diffusion Only* GROs apply to Indoor Inhalation exposure route.
6. Ind./Com. = Industrial/Commercial property use scenario.
7. = Concentration exceeds IEPA Class II G.W. Ing. GRO.
8. ▲ = Concentration exceeds IEPA Indoor Inhalation GRO(s).

Table XIV

Groundwater Analytical Results - Inorganics

	Analyte	IEPA GRO's					ADL	Sample	TMW-1	TMW-2	TMW-3	TMW-4	MW-114
		G.W. Ing.	Diffusion & Advection		Diffusion Only			Date	12/17/18	12/17/18	12/17/18	12/17/18	12/06/23
		Class II	Residential	Ind./Com.	Residential	Ind./Com.		-	Unfiltered	Unfiltered	Unfiltered	Unfiltered	Unfiltered
Inorganics	Aluminum	5	NE	NE	NE	NE	NE		NA	NA	1.62	NA	< 0.040
	Antimony	0.024	NE	NE	NE	NE	NE		NA	NA	<0.006	NA	< 0.0060
	Arsenic	0.2	NE	NE	NE	NE	0.001		<0.01	<0.01	<0.01	<0.01	< 0.0040
	Barium	2	NE	NE	NE	NE	NE		0.077	0.022	0.041	0.033	0.052
	Beryllium	0.5	NE	NE	NE	NE	NE		NA	NA	<0.004	NA	< 0.0020
	Cadmium	0.05	NE	NE	NE	NE	NE		<0.005	<0.005	<0.005	<0.005	< 0.0020
	Calcium	NE	NE	NE	NE	NE	NE		NA	NA	416	NA	520
	Chromium	1	NE	NE	NE	NE	NE		<0.005	<0.005	<0.005	<0.005	< 0.0040
	Cobalt	1	NE	NE	NE	NE	NE		NA	NA	0.011	NA	< 0.0040
	Copper	0.65	NE	NE	NE	NE	NE		NA	NA	0.009	NA	< 0.010
	Cyanide	0.6	NE	NE	NE	NE	NE		NA	NA	<0.005	NA	< 0.010
	Iron	5	NE	NE	NE	NE	NE		NA	NA	2.18	NA	24
	Lead	0.1	NE	NE	NE	NE	NE		<0.005	0.013	0.035	0.008	0.0038
	Magnesium	NE	NE	NE	NE	NE	NE		NA	NA	234	NA	310
	Manganese	10	NE	NE	NE	NE	NE		NA	NA	0.214	NA	0.71
	Mercury	0.01	0.053	0.06	0.06	0.06	NE		<0.0005	<0.0005	<0.0005	<0.0005	< 0.00020
	Nickel	2	NE	NE	NE	NE	NE		NA	NA	0.048	NA	0.0059
	Potassium	NE	NE	NE	NE	NE	NE		NA	NA	14.8	NA	46
	Selenium	0.05	NE	NE	NE	NE	NE		<0.01	<0.01	<0.01	<0.01	< 0.0040
	Silver	NE	NE	NE	NE	NE	NE		<0.005	<0.005	<0.005	<0.005	< 0.0040
	Sodium	NE	NE	NE	NE	NE	NE		NA	NA	79.3	NA	69
	Thallium	0.02	NE	NE	NE	NE	NE		NA	NA	<0.002	NA	< 0.0020
	Vanadium	0.1	NE	NE	NE	NE	NE		NA	NA	<0.01	NA	< 0.0040
	Zinc	10	NE	NE	NE	NE	NE		NA	NA	1.62	NA	< 0.020

Notes:

1. All results expressed in milligrams per liter (mg/L).
2. NA = Not analyzed for this constituent.
3. NE = No established IEPA GRO for this analyte.
4. Samples were analyzed by EPA Method 6020A/3005A/7470A/9012A.
5. *Diffusion & Advection* and *Diffusion Only* GROs apply to Indoor Inhalation exposure route.
6. Ind./Com. = Industrial/Commercial property use scenario.
7. = Concentration exceeds IEPA Class II G.W. Ing. GRO.
8. ▲ = Concentration exceeds IEPA Indoor Inhalation GRO(s).

Table XV

Groundwater Analytical Results - Pesticides & PCBs

	Analyte	IEPA GRO's					ADL	Sample	TMW-1	TMW-2	TMW-3	TMW-4	MW-114
		G.W. Ing.	Diffusion & Advection		Diffusion Only			Date	12/17/18	12/17/18	12/17/18	12/17/18	12/06/23
		Class II	Residential	Ind./Com.	Residential	Ind./Com.		-	Unfiltered	Unfiltered	Unfiltered	Unfiltered	Unfiltered
Pesticides	4,4´-DDD	0.07	NE	NE	NE	NE	0.014		NA	NA	<0.00016	NA	< 0.000050
	4,4´-DDE	0.05	NE	NE	NE	NE	0.01		NA	NA	<0.00016	NA	< 0.000050
	4,4´-DDT	0.03	NE	NE	NE	NE	0.006		NA	NA	<0.00016	NA	< 0.000050
	Aldrin	0.07	NE	NE	NE	NE	0.014		NA	NA	<0.00008	NA	< 0.000050
	alpha-BHC	0.00055	NE	NE	NE	NE	0.000111		NA	NA	<0.00008	NA	< 0.000050
	alpha-Chlordane	NE	NE	NE	NE	NE	NE		NA	NA	NA	NA	< 0.000050
	beta-BHC	NE	NE	NE	NE	NE	NE		NA	NA	<0.00008	NA	< 0.000050
	Chlordane	0.01	NE	NE	NE	NE	0.00014 (NA)		NA	NA	<0.00008	NA	< 0.0010
	delta-BHC	NE	NE	NE	NE	NE	NE		NA	NA	<0.00008	NA	< 0.000050
	Dieldrin	0.045	NE	NE	NE	NE	0.009		NA	NA	<0.00008	NA	< 0.000050
	Endosulfan Ia	0.21	NE	NE	NE	NE	NE		NA	NA	<0.00024	NA	< 0.000050
	Endosulfan IIa	0.21	NE	NE	NE	NE	NE		NA	NA	<0.00024	NA	< 0.000050
	Endosulfan sulfate	NE	NE	NE	NE	NE	NE		NA	NA	<0.00016	NA	< 0.000050
	Endrin	0.01	NE	NE	NE	NE	NE		NA	NA	<0.00016	NA	< 0.000050
	Endrin aldehyde	NE	NE	NE	NE	NE	NE		NA	NA	<0.00016	NA	< 0.000050
	Endrin ketone	NE	NE	NE	NE	NE	NE		NA	NA	<0.00016	NA	< 0.000050
	gamma-BHC	0.001	NE	NE	NE	NE	0.014		NA	NA	<0.00008	NA	< 0.000050
	gamma-Chlordane	NE	NE	NE	NE	NE	NE		NA	NA	NA	NA	< 0.000050
	Heptachlor	0.002	0.0025	0.0096	0.058	0.18	0.013		NA	NA	<0.00008	NA	< 0.000050
	Heptachlor epoxide	0.001	NE	NE	NE	NE	0.015		NA	NA	<0.00008	NA	< 0.000050
	Methoxychlor	0.2	NE	NE	NE	NE	NE		NA	NA	<0.0008	NA	< 0.000050
	Toxaphene	0.015	NE	NE	NE	NE	0.00086 (NA)		NA	NA	<0.00016	NA	< 0.0010
PCBs	Aroclor 1016	0.0025	NE	NE	NE	NE	NE		NA	NA	<0.0008	NA	< 0.00050
	Aroclor 1221	0.0025	NE	NE	NE	NE	NE		NA	NA	<0.0008	NA	< 0.00050
	Aroclor 1232	0.0025	NE	NE	NE	NE	NE		NA	NA	<0.0008	NA	< 0.00050
	Aroclor 1242	0.0025	NE	NE	NE	NE	NE		NA	NA	<0.0008	NA	< 0.00050
	Aroclor 1248	0.0025	NE	NE	NE	NE	NE		NA	NA	<0.0008	NA	< 0.00050
	Aroclor 1254	0.0025	NE	NE	NE	NE	NE		NA	NA	<0.0016	NA	< 0.00050
	Aroclor 1260	0.0025	NE	NE	NE	NE	NE		NA	NA	<0.0016	NA	< 0.00050

Notes:

1. All results expressed in milligrams per liter (mg/L).
2. NA = Not analyzed for this constituent.
3. NE = No established IEPA GRO for this analyte.
4. Samples were analyzed by EPA Method 8081B/8082A/3510C.
5. *Diffusion & Advection* and *Diffusion Only* GROs apply to Indoor Inhalation exposure route.
6. Ind./Com. = Industrial/Commercial property use scenario.
7. = Concentration exceeds IEPA Class II G.W. Ing. GRO.
8. ▲ = Concentration exceeds IEPA Indoor Inhalation GRO(s).

ATTACHMENT A

Boring Logs

CARNOW CONIBEAR

Client:	**AIS**
Project:	**3001-3013 Fifth Ave**
Address:	**3001-3013 W Fifth Avenue, Chicago, IL**

BORING LOG

Boring No. **B-111**

Page: **1 of 1**

Drilling Start Date:	**12/08/2023**	Boring Depth (ft):	**15**
Drilling End Date:	**12/08/2023**	Boring Diameter (in):	**1.0**
Drilling Company:	**Envirodynamics**	Sampling Method(s):	**Direct Push**
Drilling Method:	**Direct Push**	DTW During Drilling (ft):	**N/A**
Drilling Equipment:	**Geoprobe**	DTW After Drilling (ft):	**N/A**
Driller:	**Rob**	Ground Surface Elev. (ft):	**N/A**
Logged By:	**Chad Adams P.G.**	Location (Lat, Long):	**N/A**

DEPTH (ft)	LITHOLOGY	WATER LEVEL	BORING COMPLETION	COLLECT: Sample Type	COLLECT: Penetrometer (TSF)	COLLECT: Time	COLLECT: Recovery (ft)	SOIL/ROCK VISUAL DESCRIPTION	MEASURE: PID (ppm)	MEASURE: Lab Sample	DEPTH (ft)
0				DP			4.25	(0.00') Topsoil: from 0.0'-0.5'			0
								(0.50') Fill: Clayey sandy gravel with aggregate and bricks; moist	0	B-111 (1-3)	
5				DP			2.65		0	B-111 (5-7)	5
					1.5				0		
10				DP			4.65	(8.00') Silty CLAY (CL); Brown mottled to gray; moist with trace fine gravel	0		10
					1.0				0		
								(12.00') Silty CLAY (CL); moist, gray, with trace fine gravel.	0		
15					1.0			(15.00') Boring terminated			15
									0		
20											20

NOTES: Hole precleared using GPRS.

CARNOW CONIBEAR

Client:	**AIS**
Project:	**3001-3013 Fifth Ave**
Address:	**3001-3013 W FifthAvenue, Chicago, IL**

BORING LOG

Boring No. **B-112**

Page: **1 of 1**

Drilling Start Date:	**12/08/2023**	Boring Depth (ft):	**15**
Drilling End Date:	**12/08/2023**	Boring Diameter (in):	**1.0**
Drilling Company:	**Envirodynamics**	Sampling Method(s):	**Direct Push**
Drilling Method:	**Direct Push**	DTW During Drilling (ft):	**N/A**
Drilling Equipment:	**Geoprobe**	DTW After Drilling (ft):	**N/A**
Driller:	**Rob**	Ground Surface Elev. (ft):	**N/A**
Logged By:	**Chad Adams P.G.**	Location (Lat, Long):	**N/A**

DEPTH (ft)	LITHOLOGY	WATER LEVEL	BORING COMPLETION	COLLECT: Sample Type	COLLECT: Penetrometer (TSF)	COLLECT: Time	COLLECT: Recovery (ft)	SOIL/ROCK VISUAL DESCRIPTION	MEASURE: PID (ppm)	MEASURE: Lab Sample	DEPTH (ft)
0				DP			2.50	(0.00') Topsoil: from 0.0'-0.5'			0
								(0.50') Fill: Clayey fine sand with wood, brick layers; moist	0	B-112 (1-3)	
									0		
5				DP	1.5		4.40	(5') As Above: Black and transition to brown at base	0	B-112 (5-7)	5
								(7.00') Silty CLAY (CL-ML); Brown mottled to gray; moist with trace fine gravel	0		
					1.0				0		
10				DP			2.85		0		10
					1.0				0		
								(12.00') Silty CLAY (CL-ML); moist, gray, with trace fine gravel.	0		
					1.0						
15								(15.00') Boring terminated	0		15
20											20

NOTES: Hole precleared using GPRS.

CARNOW CONIBEAR

Client:	**AIS**
Project:	**3001-3013 Fifth Ave**
Address:	**3001-3013 W Fifth Avenue, Chicago, IL**

BORING LOG

Boring No. **B-112A**

Page: **1 of 1**

Drilling Start Date:	**10/31/2023**	Boring Depth (ft):	**7**
Drilling End Date:	**10/31/2023**	Boring Diameter (in):	**0.3**
Drilling Company:	**N/A**	Sampling Method(s):	**Grab**
Drilling Method:	**Manual**	DTW During Drilling (ft):	**N/A**
Drilling Equipment:	**Hand Auger**	DTW After Drilling (ft):	**N/A**
Driller:	**Chad Adams/Jimmy Papadopoulos**	Ground Surface Elev. (ft):	**N/A**
Logged By:	**Chad Adams PG**	Location (Lat, Long):	**N/A**

DEPTH (ft)	LITHOLOGY	WATER LEVEL	BORING COMPLETION	COLLECT: Sample Type	COLLECT: Time	COLLECT: Blow Counts	COLLECT: Recovery (ft)	SOIL/ROCK VISUAL DESCRIPTION	MEASURE: PID (ppm)	MEASURE: Lab Sample	DEPTH (ft)
0				GR			7.00	(0.00') Topsoil: from 0.0'-0.5'	0	B-112A (1-3)	0
								(0.50') Fill: Clayey sandy gravel, with crushed brick; moist	0		
5									0	B-112A (5-7)	5
								(7.00') Boring terminated			
10											10
15									0		15
20											20

Hand auger location was 1 foot west of B-112

CARNOW CONIBEAR

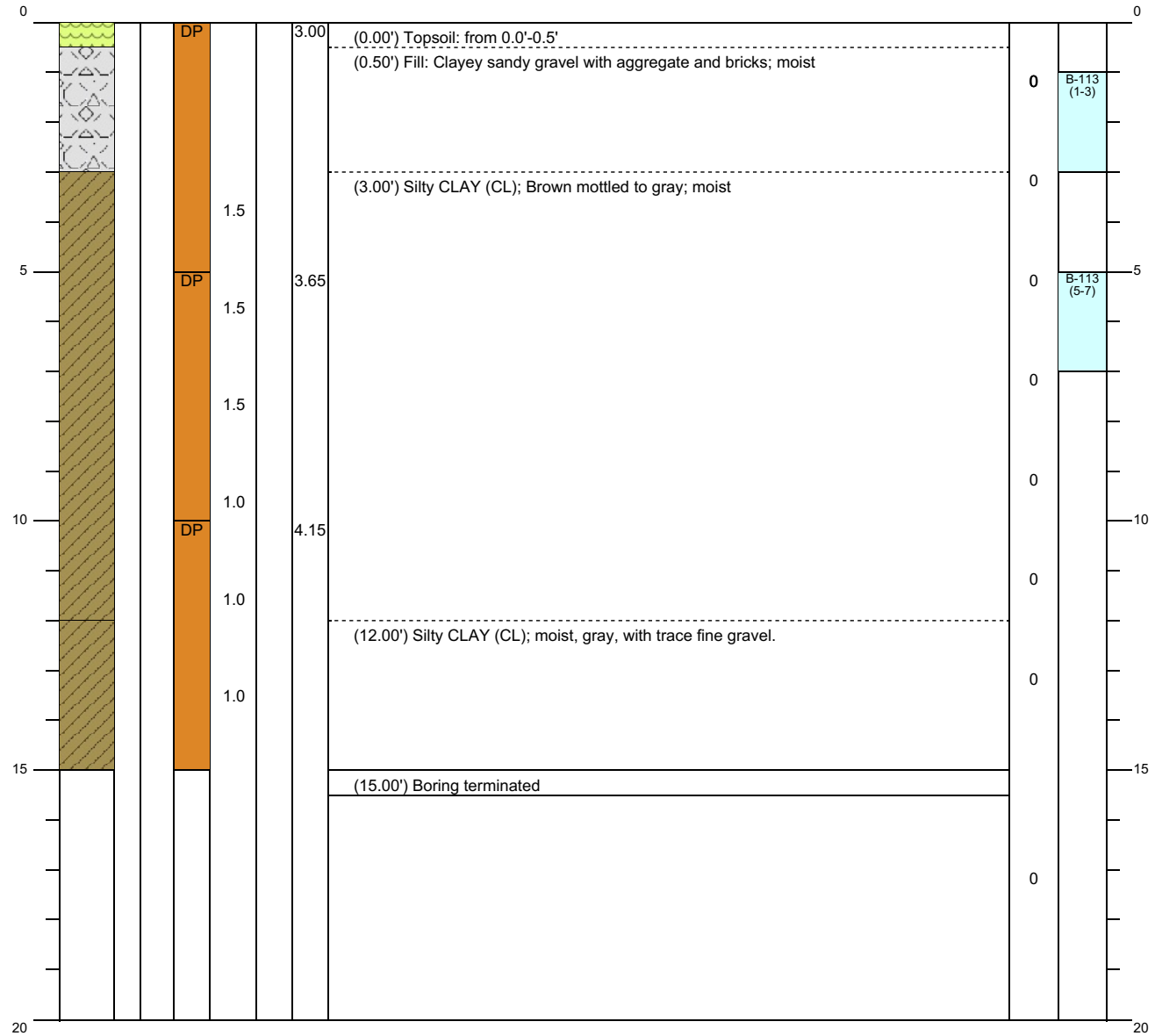
Client:	**AIS**
Project:	**3001-3013 Fifth Ave**
Address:	**3001-3013 W Fifth Avenue, Chicago, IL**

BORING LOG

Boring No. **B-113**

Page: **1 of 1**

Drilling Start Date:	**12/08/2023**	Boring Depth (ft):	**15**
Drilling End Date:	**12/08/2023**	Boring Diameter (in):	**1.0**
Drilling Company:	**Envirodynamics**	Sampling Method(s):	**Direct Push**
Drilling Method:	**Direct Push**	DTW During Drilling (ft):	**N/A**
Drilling Equipment:	**Geoprobe**	DTW After Drilling (ft):	**N/A**
Driller:	**Rob**	Ground Surface Elev. (ft):	**N/A**
Logged By:	**Chad Adams P.G.**	Location (Lat, Long):	**N/A**



NOTES: Hole precleared using GPRS.

CARNOW CONIBEAR	Client: AIS	WELL LOG
	Project: 3001-3013 Fifth Ave	Well No. B/MW-114
	Address: 3001-3013 W Fifth Avenue, Chicago, IL	Page: 1 of 1

Drilling Start Date:	9/11/2023	Boring Depth (ft):	15	Well Depth (ft):	15
Drilling End Date:	9/11/2023	Boring Diameter (in):	1.0	Well Diameter (in):	2
Drilling Company:	Earth Solutions	Sampling Method(s):	Direct Push	Screen Slot (in):	0.010
Drilling Method:	Direct Push	DTW During Drilling (ft):	N/A	Riser Material:	Sch 40 PVC
Drilling Equipment:	Geoprobe	DTW After Drilling (ft):	7.92	Screen Material:	Sch 40 PVC Slotted
Driller:	Juan	Ground Surface Elev. (ft):	N/A	Seal Material(s):	Bent. Pellets
Logged By:	Chad Adams P.G.	Location (Lat, Long):	N/A	Filter Pack:	Sand Pack

DEPTH (ft)	LITHOLOGY	WATER LEVEL	WELL COMPLETION	COLLECT: Sample Type	COLLECT: Penetrometer (TSF)	COLLECT: Time	COLLECT: Recovery (ft)	SOIL/ROCK VISUAL DESCRIPTION	MEASURE: PID (ppm)	MEASURE: Lab Sample	DEPTH (ft)
0				DP			2.25	(0.00') Topsoil: from 0.0'-0.5'			0
								(0.50') Fill: Fine to medium sand with red bricks, wood fragments with silty clay matrix and course gravel; moist	0		
5				DP			4.75		0		5
									0		
									0		
					1.5			(8.00') Silty CLAY (CL-ML); Brown mottled to gray; moist	0		
10				DP			3.35		0		10
					1.0				0		
								(12.00') Silty CLAY (CL-ML); moist, gray, with trace fine gravel.			
					1.0				0		
15								(15.00') Boring terminated			15
									0		
20											20

NOTES: Hole precleared using GPRS.

CARNOW CONIBEAR

BORING AND WELL LOG LEGEND

SURFACE
- ASPHALT
- CONCRETE
- FILL
- TOPSOIL
- AIR
- ICE

USCS
- Well-graded GRAVEL (GW)
- Poorly graded GRAVEL (GP)
- Silty GRAVEL (GM)
- Clayey GRAVEL (GC)
- Silty, Clayey GRAVEL (GC-GM)
- Well-graded GRAVEL with silt (GW-GM)
- Poorly graded GRAVEL with silt (GP-GM)
- Well-graded GRAVEL with clay (GW-GC)
- Poorly graded GRAVEL with clay (GP-GC)
- Well-graded SAND (SW)
- Poorly graded SAND (SP)
- Silty SAND (SM)
- Clayey SAND (SC)
- Silty, Clayey SAND (SC-SM)
- Well-graded SAND with silt (SW-SM)
- Poorly graded SAND with silt (SP-SM)
- Well-graded SAND with clay (SW-SC)
- Poorly graded SAND with clay (SP-SC)
- SILT (ML)
- Lean CLAY (CL)
- Silty CLAY (CL-ML)
- Organic SOIL (OL)
- Elastic SILT (MH)
- Fat CLAY (CH)
- Organic SOIL (OH)
- Organic SOIL (OL/OH)
- PEAT (PT)
- BEDROCK
- IGNEOUS Rock
- METAMORPHIC Rock
- SEDIMENTARY Rock
- WATER

Non-USCS
- Gravel
- Sand
- Silt
- Clayey Silt
- Silt & Clay
- Clay & Silt
- Silty Clay
- Clay
- Boulders
- Cobbles
- Peastone
- Glacial Till
- Iron Ore
- Wood
- Peat
- Saprolite
- Ash
- Waste

Volume Descriptors
- Trace = <5%
- Few = 5-10%
- Little = 15-25%
- Some = 30-45%
- Mostly = >=50%

Water Levels
- Water Level During Drilling
- Water Level at End of Drilling/in Completed Well

Well/Boring Completion
- Cap
- Riser
- Screen
- End Plug
- Annular Seal
- Sanitary Seal (Bentonite Slurry/Chips/Pellets/Powder, Other)
- Filter Pack (Sand, Gravel, Other)
- Backfill

Sample Type
- GR — Grab
- EN — Encore
- SS — Split Spoon
- SH — Shelby Tube
- CO — Core Barrel
- DP — Direct Push
- ID — Lab Sample and ID

Brecheisen Engineering, Inc.

Site Name and Location:
Vacant Land
3001-11 W. Fifth Ave.
Chicago, Illinois 60612

Boring No.
SB-1

DEPTH (ft)	PID (ppm)	RECOVERY (%)	SOIL DESCRIPTION	OBSERVATIONS
			SURFACE GRADE = Topsoil	
0	0.0	33	Topsoil underlain with some crushed concrete FILL material grading to brown silty clay with trace gravel at 3-feet; Loose, Moist. (GP/CL)	No visual or olfactory evidence of contamination
3	0.0	100	Light brown silty clay with trace gravel Firm to stiff, Moist. (CL)	
6	0.0	100	Light brown clay with trace gravel Firm, Moist (CH)	
9	0.0	33	Brown/gray clay with trace gravel; Soft, Moist. (CH)	
12	0.0	100	Gray clay with trace gravel; Very soft, Moist. (CH)	
15			End of boring 15-feet below grade.	
20				
25				

NOTES:

Shaded interval submitted for laboratory analysis.

Logging Method: ASTM D-2488	Logged By: Tom Brecheisen
Depth to Groundwater: Not encountered	Method: Geoprobe Macrocore
BEI Project No: 16-2FMEHS-00013	Date: December 13, 2018
Started: 8:10 am	Finished: 8:40 am

Brecheisen Engineering, Inc.	Site Name and Location: Vacant Land 3001-11 W. Fifth Ave. Chicago, Illinois 60612	Boring No. **SB-2**

DEPTH (ft)	PID (ppm)	RECOVERY (%)	SOIL DESCRIPTION	OBSERVATIONS
			SURFACE GRADE = Topsoil	
0	0.0	33	Topsoil underlain by brown sand, gravel and FILL material; Loose, Moist. (GP/SP)	No visual or olfactory evidence of contamination
3	0.0	33	FILL sand and gravel underlain by brick FILL with some dark brown silty clay at 4-feet; Loose, Firm, Moist. (GP/SP/CL)	
6	0.0	50	FILL material underlain by brown/gray clay with trace gravel at 8-feet; Soft, Moist. (CH)	
9	0.0	33	Brown/gray clay with trace gravel; Soft, Moist. (CH)	
12	0.0	100	Gray clay with trace gravel; Very soft, Moist. (CH)	
15			End of boring 15-feet below grade.	
20				
25				

NOTES:

Shaded interval submitted for laboratory analysis.

Logging Method: ASTM D-2488	Logged By: Tom Brecheisen
Depth to Groundwater: Not encountered	Method: Geoprobe Macrocore
BEI Project No: 16-2FMEHS-00013	Date: December 13, 2018
Started: 8:50 am	Finished: 9:15 am

Brecheisen Engineering, Inc.	Site Name and Location: Vacant Land, 3001-11 W. Fifth Ave., Chicago, Illinois 60612	Boring No. **SB-3**

DEPTH (ft)	PID (ppm)	RECOVERY (%)	SOIL DESCRIPTION	OBSERVATIONS
			SURFACE GRADE = Topsoil	
0	0.0	33	Topsoil underlain by FILL sand and gravel with some dark brown silty clay; Loose, Moist. (GP/SP/CL)	No visual or olfactory evidence of contamination
3	0.0	33	FILL sand, gravel, crushed concrete and brick with some dark brown silty clay at 4-feet; Loose, Moist. (GP/SP/CL)	
6	0.0	100	Brown/gray clay with trace gravel; Soft to firm, Moist. (CH)	
9	0.0	33	Brown/gray clay with trace gravel; Soft to firm, Moist. (CH)	
12	0.0	100	Gray clay with trace gravel; Very soft, Moist. (CH)	
15			End of boring 15-feet below grade.	
20				
25				

NOTES:

Shaded interval submitted for laboratory analysis.

Logging Method: ASTM D-2488	Logged By: Tom Brecheisen
Depth to Groundwater: Not encountered	Method: Geoprobe Macrocore
BEI Project No: 16-2FMEHS-00013	Date: December 13, 2018
Started: 9:20 am	Finished: 9:45 am

Brecheisen Engineering, Inc.

Site Name and Location:
Vacant Land
3001-11 W. Fifth Ave.
Chicago, Illinois 60612

Boring No.
SB-4

DEPTH (ft)	PID (ppm)	RECOVERY (%)	SOIL DESCRIPTION	OBSERVATIONS
			SURFACE GRADE = Topsoil	
0 – 3	0.0	50	Topsoil underlain by FILL sand, brick and gravel with some dark brown silty clay; Loose, Firm, Moist. (GP/SP/CL)	No visual or olfactory evidence of contamination
3 – 6	0.0	67	Dark gray FILL sand and gravel with some brick and wood FILL grading to brown/gray silty clay with trace gravel at 4-feet; Loose, Moist. (GP/SP/CL)	
6 – 9	0.0	100	Brown/gray clay with trace gravel; Soft to firm, Moist. (CH)	
9 – 12	0.0	33	Brown/gray clay with trace gravel; Soft, Moist. (CH)	
12 – 15	0.0	100	Gray clay with trace gravel; Very soft, Moist. (CH)	
15 – 20			End of boring 15-feet below grade.	
20 – 25				

NOTES:

Shaded interval submitted for laboratory analysis.

Logging Method: ASTM D-2488	Logged By: Tom Brecheisen
Depth to Groundwater: Not encountered	Method: Geoprobe Macrocore
BEI Project No: 16-2FMEHS-00013	Date: December 13, 2018
Started: 9:55 am	Finished: 10:20 am

Brecheisen Engineering, Inc.

Site Name and Location:
Vacant Land
3001-11 W. Fifth Ave.
Chicago, Illinois 60612

Boring No.
SB-5

DEPTH (ft)	PID (ppm)	RECOVERY (%)	SOIL DESCRIPTION	OBSERVATIONS
			SURFACE GRADE = Topsoil	
0	0.0	67	Topsoil underlain by FILL sand, brick, wood and gravel with some dark brown silty clay; Loose, Firm, Moist. (GP/SP/CL)	No visual or olfactory evidence of contamination
3	0.0	67	Dark brown FILL sand, gravel, brick, crushed concrete and wood with some dark brown silt clay; Loose, firm, Moist. (GP/SP/CL)	
6	0.0	33	FILL materials underlain by brown clay with trace gravel at 8-feet; Soft to firm, Moist. (CH)	
9	0.0	33	Brown clay with trace gravel; Soft, Moist. (CH)	
12	0.0	100	Gray clay with trace gravel; Very soft, Moist. (CH)	
15			End of boring 15-feet below grade.	
20				
25				

NOTES:

Shaded interval submitted for laboratory analysis.

Logging Method: ASTM D-2488	Logged By: Tom Brecheisen
Depth to Groundwater: Not encountered	Method: Geoprobe Macrocore
BEI Project No: 16-2FMEHS-00013	Date: December 13, 2018
Started: 10:25 am	Finished: 10:50 am

Brecheisen Engineering, Inc.

Site Name and Location:
Vacant Land
3001-11 W. Fifth Ave.
Chicago, Illinois 60612

Boring No.
SB-6

DEPTH (ft)	PID (ppm)	RECOVERY (%)	SOIL DESCRIPTION	OBSERVATIONS
			SURFACE GRADE = Topsoil	
0 – 3	0.0	50	Topsoil underlain by FILL sand and gravel with some brick FILL Loose, Moist. (GP/SP)	No visual or olfactory evidence of contamination
3 – 6	0.0	50	Dark brown silty clay with some FILL sand, gravel, brick, wood, glass and textiles Loose, firm, Moist. (GP/SP/CL)	
6 – 9	0.0	33	FILL materials underlain by brown/gray clay with trace gravel at 8-feet; Large void space encountered from 7 to 8-feet; Soft to firm, Moist. (CH)	
9 – 12	0.0	33	Brown/gray clay with trace gravel; Soft to firm, Moist. (CH)	
12 – 15	0.0	100	Soft brown/gray clay grading to gray clay with trace gravel at 13-feet; Very soft, Moist. (CH)	
15 – 20			End of boring 15-feet below grade.	
20 – 25				

NOTES:

Shaded interval submitted for laboratory analysis.

Logging Method: ASTM D-2488	Logged By: Tom Brecheisen
Depth to Groundwater: Not encountered	Method: Geoprobe Macrocore
BEI Project No: 16-2FMEHS-00013	Date: December 13, 2018
Started: 11:00 am	Finished: 11:25 am

Brecheisen Engineering, Inc.

Site Name and Location:
Vacant Land
3001-11 W. Fifth Ave.
Chicago, Illinois 60612

Boring No.
SB-7

DEPTH (ft)	PID (ppm)	RECOVERY (%)	SOIL DESCRIPTION	OBSERVATIONS
			SURFACE GRADE = Topsoil	
0	0.0	50	Topsoil underlain by dark brown FILL sand and gravel; Loose, Moist. (GP/SP)	No visual or olfactory evidence of contamination
3	0.0	33	Brick FILL with crushed stone; Not suitable for sampling (no soil); Loose, Moist. (GP)	
6	0.0	33	FILL materials underlain by brown/gray clay with trace gravel at 8-feet; Soft to firm, Moist. (CH)	
9	0.0	33	Brown clay with trace gravel; Soft, Moist. (CH)	
12	0.0	100	Gray clay with trace gravel; Very soft, Moist. (CH)	
15			End of boring 15-feet below grade.	
20				
25				

NOTES:

Shaded interval submitted for laboratory analysis.

Logging Method: ASTM D-2488	Logged By: Tom Brecheisen
Depth to Groundwater: Not encountered	Method: Geoprobe Macrocore
BEI Project No: 16-2FMEHS-00013	Date: December 13, 2018
Started: 11:30 am	Finished: 12:00 pm

Brecheisen Engineering, Inc.	Site Name and Location: Vacant Land 3001-11 W. Fifth Ave. Chicago, Illinois 60612	Boring No. **SB-8**

DEPTH (ft)	PID (ppm)	RECOVERY (%)	SOIL DESCRIPTION	OBSERVATIONS
			SURFACE GRADE = Topsoil	
0 – 3	0.0	33	Topsoil underlain by dark brown FILL sand and gravel; Loose, Moist. (GP/SP)	No visual or olfactory evidence of contamination
3 – 6	0.0	67	Dark brown FILL sand, gravel, bricks and wood; Loose, Moist. (GP/SP)	
6 – 9	0.0	33	Dark brown FILL sand, gravel, bricks and wood; Loose, Moist. (GP/SP)	
9 – 12	0.0	<10	FILL material underlain by brown clay at 10-feet; Soft, Moist. (CH)	
12 – 15	0.0	<10	Gray clay with trace gravel; Very soft, Moist. (CH)	
15 – 20			End of boring 15-feet below grade.	
20 – 25				

NOTES:

Shaded interval submitted for laboratory analysis.

Logging Method: ASTM D-2488	Logged By: Tom Brecheisen
Depth to Groundwater: Not encountered	Method: Geoprobe Macrocore
BEI Project No: 16-2FMEHS-00013	Date: December 13, 2018
Started: 12:05 pm	Finished: 12:30 pm

Brecheisen Engineering, Inc.

Site Name and Location:
Vacant Land
3001-11 W. Fifth Ave.
Chicago, Illinois 60612

Boring No.
SB-9

DEPTH (ft)	PID (ppm)	RECOVERY (%)	SOIL DESCRIPTION	OBSERVATIONS
			SURFACE GRADE = Topsoil	
0	0.0	33	Topsoil underlain with some FILL sand and gravel grading to brown silty clay with some gravel at 2-feet; Loose, Stiff, Moist. (GP/SP/CL)	No visual or olfactory evidence of contamination
3	0.0	100	Brown silty clay with trace gravel; Firm to stiff, Moist. (CH)	
6	0.0	100	Brown/gray clay with trace gravel; Firm, Moist (CH)	
9	0.0	33	Brown/gray clay with trace gravel; Soft, Moist. (CH)	
12	0.0	100	Gray clay with trace gravel; Very soft, Moist. (CH)	
15			End of boring 15-feet below grade.	
20				
25				

NOTES:

Shaded interval submitted for laboratory analysis.

Logging Method: ASTM D-2488	Logged By: Tom Brecheisen
Depth to Groundwater: Not encountered	Method: Geoprobe Macrocore
BEI Project No: 16-2FMEHS-00013	Date: December 13, 2018
Started: 12:35 pm	Finished: 1:00 pm

Brecheisen Engineering, Inc.

Site Name and Location:
Vacant Land
3001-11 W. Fifth Ave.
Chicago, Illinois 60612

Boring No.
SB-10

DEPTH (ft)	PID (ppm)	RECOVERY (%)	SOIL DESCRIPTION	OBSERVATIONS
			SURFACE GRADE = Topsoil	
0	0.0	33	Topsoil underlain by FILL sand, gravel and bricks with some dark brown silty clay; Loose, Stiff, Moist. (GP/SP/CL)	No visual or olfactory evidence of contamination
3	0.0	33	FILL sand, gravel, bricks and wood; Loose, Moist. (GP/SP)	
6	0.0	100	Brown clay with trace gravel; Soft to firm, Moist. (CH)	
9	0.0	33	Brown clay with trace gravel; Soft to firm, Moist. (CH)	
12	0.0	100	Gray clay with trace gravel; Very soft, Moist. (CH)	
15			End of boring 15-feet below grade.	
20				
25				

NOTES:

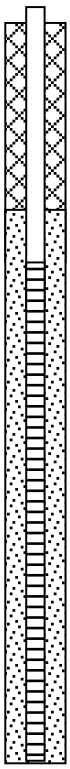
Shaded interval submitted for laboratory analysis.

Logging Method: ASTM D-2488	Logged By: Tom Brecheisen
Depth to Groundwater: Not encountered	Method: Geoprobe Macrocore
BEI Project No: 16-2FMEHS-00013	Date: December 13, 2018
Started: 1:05 pm	Finished: 1:30 pm

Brecheisen Engineering, Inc.

Site Name and Location:
Vacant Land
3001-11 W. Fifth Ave.
Chicago, Illinois 60612

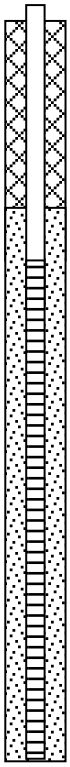
Well No.
SB-2/TMW-1

DEPTH	SCHEMATIC	ELEVATIONS	DETAILS	PID (ppm)	OBSERVATIONS
0		100.26' Top of Casing 100.01' Top of Seal 3.75' Total Seal Interval 96.26' Top of Sand 95.26' Top of Screen 10.0' Total Screen Interval 85.26' Bottom of Screen	Well Vault: None Surface Seal: Bentonite Annular Sealant: Bentonite Bentonite Type: 1/4" Pellets Type of Sand Pack: No. 5 quartz		
				0.0	Topsoil underlain by brown sand, gravel and FILL material; Loose, Moist. (GP/SP)
3				0.0	FILL sand and gravel underlain by brick FILL with some dark brown silty clay at 4-feet; Loose, Firm, Moist. (GP/SP/CL)
6				0.0	FILL material underlain by brown/gray clay with trace gravel at 8-feet; Soft, Moist. (CH)
9				0.0	Brown/gray clay with trace gravel; Soft, Moist. (CH)
12				0.0	Gray clay with trace gravel; Very soft, Moist. (CH)
16	End of boring 15-feet below grade.				

Well Construction Materials		Measurements	
Riser Pipe	Sch. 40 PVC	Riser pipe length	5-feet
Riser Coupling Joint	Sch. 40 PVC	Screen length	10-feet
Screen	Sch. 40 PVC	Screen Slot Size	0.010-inch
Screen-Riser Coupling	Sch. 40 PVC	Depth to Water while Drilling	NA
Protective Casing	None	Depth to Water after Drilling	7.57'

Driller:	D. Stefansson	Engineer:	T. Brecheisen
Drilling Method:	Geoprobe	Date Started:	13-Dec-18
Drilling Fluids	None	Date Completed:	13-Dec-18

Brecheisen Engineering, Inc.	Site Name and Location: Vacant Land 3001-11 W. Fifth Ave. Chicago, Illinois 60612	Well No. **SB-5/TMW-2**

DEPTH	SCHEMATIC	ELEVATIONS	DETAILS	PID (ppm)	OBSERVATIONS
0		100.18' Top of Casing 99.93' Top of Seal 3.75' Total Seal Interval 96.18' Top of Sand 95.18' Top of Screen 10.0' Total Screen Interval 85.18' Bottom of Screen	Well Vault: None Surface Seal: Bentonite Annular Sealant: Bentonite Bentonite Type: 1/4" Pellets Type of Sand Pack: No. 5 quartz		
3				0.0	Topsoil underlain by FILL sand, brick, wood and gravel with some dark brown silty clay; Loose, Firm, Moist. (GP/SP/CL)
6				0.0	Dark brown FILL sand, gravel, brick, crushed concrete and wood with some dark brown silt clay; Loose, firm, Moist. (GP/SP/CL)
9				0.0	FILL materials underlain by brown clay with trace gravel at 8-feet; Soft to firm, Moist. (CH)
12				0.0	Brown clay with trace gravel; Soft, Moist. (CH)
16				0.0	Gray clay with trace gravel; Very soft, Moist. (CH)
	End of boring 15-feet below grade.				

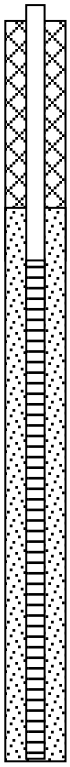
Well Construction Materials		Measurements	
Riser Pipe	Sch. 40 PVC	Riser pipe length	5-feet
Riser Coupling Joint	Sch. 40 PVC	Screen length	10-feet
Screen	Sch. 40 PVC	Screen Slot Size	0.010-inch
Screen-Riser Coupling	Sch. 40 PVC	Depth to Water while Drilling	NA
Protective Casing	None	Depth to Water after Drilling	6.73'

Driller:	D. Stefansson	Engineer:	T. Brecheisen
Drilling Method:	Geoprobe	Date Started:	13-Dec-18
Drilling Fluids	None	Date Completed:	13-Dec-18

Brecheisen Engineering, Inc.

Site Name and Location:
Vacant Land
3001-11 W. Fifth Ave.
Chicago, Illinois 60612

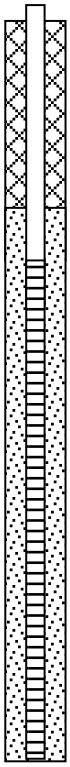
Well No.
SB-6/TMW-3

DEPTH	SCHEMATIC	ELEVATIONS	DETAILS	PID (ppm)	OBSERVATIONS
0		100.88' Top of Casing 100.63' Top of Seal 3.75' Total Seal Interval 96.88' Top of Sand 95.88' Top of Screen 10.0' Total Screen Interval 85.88' Bottom of Screen	Well Vault: None Surface Seal: Bentonite Annular Sealant: Bentonite Bentonite Type: 1/4" Pellets Type of Sand Pack: No. 5 quartz		
3				0.0	Topsoil underlain by FILL sand and gravel with some brick FILL. Loose, Moist. (GP/SP)
6				0.0	Dark brown silty clay with some FILL sand, gravel, brick, wood, glass and textiles; Loose, firm, Moist. (GP/SP/CL)
9				0.0	FILL materials underlain by brown/gray clay with trace gravel at 8-feet; Soft to firm, Moist. (CH)
12				0.0	Brown/gray clay with trace gravel; Soft to firm, Moist. (CH)
16				0.0	Soft brown/gray clay grading to gray clay with trace gravel at 13-feet; Very soft, Moist. (CH)
	End of boring 15-feet below grade.				

Well Construction Materials		Measurements	
Riser Pipe	Sch. 40 PVC	Riser pipe length	5-feet
Riser Coupling Joint	Sch. 40 PVC	Screen length	10-feet
Screen	Sch. 40 PVC	Screen Slot Size	0.010-inch
Screen-Riser Coupling	Sch. 40 PVC	Depth to Water while Drilling	NA
Protective Casing	None	Depth to Water after Drilling	10.99'

Driller:	D. Stefansson	Engineer:	T. Brecheisen
Drilling Method:	Geoprobe	Date Started:	13-Dec-18
Drilling Fluids	None	Date Completed:	13-Dec-18

Brecheisen Engineering, Inc.	Site Name and Location: Vacant Land 3001-11 W. Fifth Ave. Chicago, Illinois 60612	Well No. **SB-8/TMW-4**

DEPTH	SCHEMATIC	ELEVATIONS	DETAILS	PID (ppm)	OBSERVATIONS
0		100.55' Top of Casing 100.30' Top of Seal 3.75' Total Seal Interval 96.55' Top of Sand 95.55' Top of Screen 10.0' Total Screen Interval 85.55' Bottom of Screen	Well Vault: None Surface Seal: Bentonite Annular Sealant: Bentonite Bentonite Type: 1/4" Pellets Type of Sand Pack: No. 5 quartz		
3				0.0	Topsoil underlain by dark brown FILL sand and gravel; Loose, Moist. (GP/SP)
6				0.0	Dark brown FILL sand, gravel, bricks and wood; Loose, Moist. (GP/SP)
9				0.0	Dark brown FILL sand, gravel, bricks and wood; Loose, Moist. (GP/SP)
12				0.0	FILL material underlain by brown clay at 10-feet; Soft, Moist. (CH)
16				0.0	Gray clay with trace gravel; Very soft, Moist. (CH)
	End of boring 15-feet below grade.				

Well Construction Materials		**Measurements**	
Riser Pipe	Sch. 40 PVC	Riser pipe length	5-feet
Riser Coupling Joint	Sch. 40 PVC	Screen length	10-feet
Screen	Sch. 40 PVC	Screen Slot Size	0.010-inch
Screen-Riser Coupling	Sch. 40 PVC	Depth to Water while Drilling	NA
Protective Casing	None	Depth to Water after Drilling	7.52'

Driller:	D. Stefansson	Engineer:	T. Brecheisen
Drilling Method:	Geoprobe	Date Started:	13-Dec-18
Drilling Fluids	None	Date Completed:	13-Dec-18

ATTACHMENT B

Tier II Calculations, Groundwater Modeling, and Groundwater Well Ordinance

Tier 2 Evaluation & Groundwater Modeling

3001-13 W. 5th Avenue
Chicago, Illinois 60623

Site-specific Tier 2 SROs were calculated for benz(a)anthracene, benzo(b)fluoranthene, dibenzo(a,h)anthracene, cadmium, carbazole, lead, mercury, and selenium using RBCA equation R-12 to evaluate the soil component of Class II groundwater ingestion (SCGW) exposure route. The highest concentration of each COC encountered at the Remediation Site was compared to site specific Tier 2 SROs. Results indicated that the sample concentrations for dibenzo(a,h)anthracene and carbazole did not exceed site-specific Tier 2 SROs. Results indicated that groundwater modeling was required for benz(a)anthracene, benzo(b)fluoranthene, cadmium, lead, mercury, and selenium. RBCA equation R-26 was used for groundwater modeling to calculate groundwater migration distances of these COCs as well as iron direct ingestion GRO exceedances and determine points of compliance with Tier 1 Class I GROs.

A majority of the parameters used for the calculations are default or chemical-specific values provided in TACO. Exhibits, sources, calculations, and the basis for site-specific variables are provided as follows.

Site-Specific Variables

Fractional Organic Carbon (f_{oc})

The default value 0.006 g/g for surface soils and 0.002 mg/kg for subsurface soils was used.

Hydraulic Gradient (i)

A site-specific hydraulic gradient of 0.02227 ft/ft was calculated using well measurements through the USEPA tool on the following website:
https://www3.epa.gov/ceampubl/learn2model/part-two/onsite/gradient3ns.html

The well measurements and groundwater elevations were obtained from the Comprehensive Site Investigation Report and Remedial Objectives Report (CSI-ROR) completed by Brecheisen Engineering, Inc. on July 23, 2019.

Hydraulic Conductivity (K)

Carnow Conibear conducted slug testing at MW-114 on October 18, 2023 and recorded data at specific time and intervals. The results of the slug test indicated a hydraulic conductivity for MW-114 of 3.16E-05 centimeters per second (cm/sec). This was converted to cm/day for a value of 2.73E-00 cm/day and was applied for the Tier 2 evaluation and equation R-26 groundwater modeling.

Width of Source Parallel to Groundwater Flow Direction (W) & Width of Source Perpendicular to Groundwater Flow Direction in Horizontal Plane (S_w)

Based on the well elevations measured by Brecheisen Engineering in 2019, general groundwater flow direction at the Remediation Site was determined to be to the northeast at 28° from North. The longest width perpendicular *(S_w)* values were equal to 117 feet or 3536 cm for

mercury; 117 feet or 3566 cm for PNAs; 92 feet or 2804 cm for carbazole; 55 feet or 1676 cm for cadmium; 60 feet or 1829 cm for lead; 64 feet or 1951 cm for selenium. The longest width parallel (W) values were equal to 70 feet or 2134 cm for mercury; 70 feet or 2134 cm for PNAs; 81.5 feet or 2484 cm for carbazole; 76 feet or 2316 cm for cadmium; 70 feet or 2134 cm for lead; 49 feet or 1494 cm for selenium. See corresponding Tier 2 Exhibits in this appendix.

Distance Along Centerline of Groundwater Plume in Direction of Groundwater Flow (X)

The distance used for the "X" variable in the R-12 calculations in the determination of Tier 2 SROs represents the distance from the contaminant plume to a receptor that could potentially consume the groundwater and become exposed. This parameter depends on the groundwater flow direction. Since the groundwater flow direction was determined to be to the northeast at the Remediation Site, the shortest distance in this direction from borings with exceedances to the Remediation Site boundary was applied to R-12 as a conservative assumption. The "X" value is equal to 23 feet or 701 cm for mercury; 27 feet or 823 cm for PNAs; 105 feet or 3200 cm for carbazole; 23 feet or 701 cm for cadmium; 27 feet or 823 cm for lead; 5 feet or 152 cm for selenium.

Carbazole Parameters

A Class II Tier I GRO of 0.02 mg/L was obtained from 35 IAC 742 Appendix B, table F values used to calculate the Tier 1 Soil Remediation Objectives for the Soil Component of the Groundwater Ingestion Route.

A degradation constant of 0.0063 day^{-1} was obtained from *Natural Attenuation of Polycyclic Aromatic Hydrocarbon-Contaminated Sites: Review*, by Rogers, et al., which was published in Practical Periodical of Hazardous, Toxic, and Radioactive Waste Management, Vol. 6, No. 3, July 2002. The degradation factor accounts for decreases in concentration due to natural processes (i.e., biodegradation by naturally occurring microbes) based on review of previously collected data. The journal articles presenting and reviewing the data are included in this appendix.

RBCA Tier 2 SRO Calculations
R-12: Soil Component of Class II Groundwater Ingestion

3001-13 W. 5th Avenue, Chicago, Illinois

Soil Boring/Sample (Depth)	SB-1 (0-3)	SB-10 (3-6)	SB-4 (0-3)	SB-10 (3-6)	B-112 (1-3)	B-112 (1-3)	SB-4 (0-3)	SB-1 (0-3)	
Contaminant of Concern	**Mercury**	**Benzo(b)fluoranthene**	**Dibenzo(a,h)anthracene**	**Benz(a)anthracene**	**Carbazole**	**Cadmium**	**Lead**	**Selenium**	**Notes:**
Organic Carbon Content of Soil Site-Specific or App. C, Table D (f_{oc}) - g/g:	Default Surface 0.006	Default Suburface 0.002	Default Surface 0.006	Default Surface 0.006	Default Surface 0.006	Default Surface 0.006	Default Surface 0.006	Default Surface 0.006	The default value 0.006 g/g for surface soils and 0.002 mg/kg for subsurface soils was used.
Class II Groundwater Remediation Objective -- GW_{obj} - mg/L:	Tier 1 GRO 0.01	Tier 1 GRO 0.0009	Tier 1 GRO 0.0015	Tier 1 GRO 0.00065	Tier 1 GRO 0.02	Tier 1 GRO 0.05	Tier 1 GRO 0.1	Tier 1 GRO 0.05	Carbazole value obtained from 35 IAC 742 Appendix B, Table F;
Henry's Law Constant App. C, Table E (H') - cm^3_{water}/cm^3_{air}:	Chem. Specific 4.51E-01	Chem. Specific 4.55E-03	Chem. Specific 6.10E-07	Chem. Specific 1.39E-04	Chem. Specific 3.60E-06	Chem. Specific 0.00E+00	Chem. Specific 0.00E+00	Chem. Specific 0.00E+00	
Hydraulic gradient (i) - cm/cm:	Site Specific 0.02227	Site Specific 0.02227	Site Specific 0.02227	Site Specific 0.02227	Site Specific 0.02227	Site Specific 0.02227	Site Specific 0.02227	Site Specific 0.02227	Site-Specific based on well measurements from 2019 CSI conducted by Brecheisen Engineering, Inc.
Infiltration Rate App. C, Table D (I) - cm/year:	Default 30	Default 30	Default 30	Default 30	Default 30	Default 30	Default 30	Default 30	
Hydraulic Conductivity (K) - cm/day:	Site Specific 2.73E+00	Site Specific 2.73E+00	Site Specific 2.73E+00	Site Specific 2.73E+00	Site Specific 2.73E+00	Site Specific 2.73E+00	Site Specific 2.73E+00	Site Specific 2.73E+00	Value obtained from slug test for MW-114 on 10/18/2023.
Organic Carbon Partition Coefficient App. C, Table E or I (K_{oc}) - cm^3/g:	Chem. Specific 8.70E+03	Chem. Specific 1.05E+06	Chem. Specific 2.50E+06	Chem. Specific 4.00E+05	Chem. Specific 4.00E+03	Chem. Specific 0.00E+00	Chem. Specific 0.00E+00	Chem. Specific 0.00E+00	
Source width perpendicular to gw flow direction in vert. plane (S_d) - cm:	Default 200.00	Default 200.00	Default 200.00	Default 200.00	Default 200.00	Default 200.00	Default 200.00	Default 200.00	Default depth of 200.00 cm
Source width perpendicular to gw flow direction in horiz. plane (S_w) - cm:	Site Specific 3,536	Site Specific 3,566	Site Specific 3,566	Site Specific 3,566	Site Specific 2,804	Site Specific 1,676	Site Specific 1,829	Site Specific 1,951	The longest width perpendicular values were equal to 117 feet or 3536 cm for mercury; 117 feet or 3566 cm for PNAs; 92 feet or 2804 cm for carbazole; 55 feet or 1676 cm for cadmium; 60 feet or 1829 cm for lead; 64 feet or 1951 cm for selenium. - See Tier 2 Exhibits.
Width of Source Area Parallel to Direction of Groundwater Movement (W) - cm:	Site Specific 3,261	Site Specific 2,134	Site Specific 2,134	Site Specific 2,134	Site Specific 2,484	Site Specific 2,316	Site Specific 2,134	Site Specific 1,494	The longest width parallel (W) values were equal to 70 feet or 2134 cm for mercury; 70 feet or 2134 cm for PNAs; 81.5 feet or 2484 cm for carbazole; 76 feet or 2316 cm for cadmium; 70 feet or 2134 cm for lead; 49 feet or 1494 cm for selenium. - See Tier 2 Exhibits.
Dist. along centerline of gw plume in direction of gw flow (X) - cm:	Site Specific 701.0	Site Specific 823.0	Site Specific 823.0	Site Specific 823.0	Site Specific 3,200.0	Site Specific 701.0	Site Specific 823.0	Site Specific 152.0	Shortest distance in direction of groundwater flow to boundary. The "X" value is equal to 23 feet or 701 cm for mercury; 27 feet or 823 cm for PNAs; 105 feet or 3200 cm for carbazole; 23 feet or 701 cm for cadmium; 27 feet or 823 cm for lead; 5 feet or 152 cm for selenium. - See Tier 2 Exhibits.
Groundwater Mixing Zone Thickness App. C, Table D (δ_{gw}) - cm:	Default 200	Default 200	Default 200	Default 200	Default 200	Default 200	Default 200	Default 200	
Volumetric Air Content in Vadose Zone Soils App. C, Table D (θ_{as}) - cm^3_{air}/cm^3_{soil}:	Default Surface 0.28	Default Subsurface 0.13	Default Surface 0.28	Default Subsurface 0.13	Default Surface 0.28	Default Surface 0.28	Default Surface 0.28	Default Surface 0.28	
Volumetric Water Content in Vadose Zone Soils App. C, Table D (θ_{ws}) - cm^3_{water}/cm^3_{soil}:	Default Surface 0.15	Default Subsurface 0.3	Default Surface 0.15	Default Subsurface 0.3	Default Surface 0.15	Default Surface 0.15	Default Surface 0.15	Default Surface 0.15	
Total Soil Porosity App. C, Table D (θ_T) - cm^3/cm^3_{soil}:	Default 0.43	Default 0.43	Default 0.43	Default 0.43	Default 0.43	Default 0.43	Default 0.43	Default 0.43	
First Order Degradation Constant App. C, Table E (λ) - day^{-1}:	Chem. Specific 0.00E+00	Chem. Specific 5.70E-04	Chem. Specific 3.70E-04	Chem. Specific 5.10E-04	Chem. Specific 6.30E-03	Chem. Specific 0.00E+00	Chem. Specific 0.00E+00	Chem. Specific 0.00E+00	
Dry Soil Bulk Density App. C, Table B (ρ_s) - cm^3/cm^3_{soil}:	Soil Default 1.5	Soil Default 1.5	Soil Default 1.5	Soil Default 1.5	Soil Default 1.5	Soil Default 1.5	Soil Default 1.5	Soil Default 1.5	

RBCA Tier 2 SRO Calculations
R-12: Soil Component of Class II Groundwater Ingestion

3001-13 W. 5th Avenue, Chicago, Illinois

Soil Boring/Sample (Depth)	SB-1 (0-3)	SB-10 (3-6)	SB-4 (0-3)	SB-10 (3-6)	B-112 (1-3)	B-112 (1-3)	SB-4 (0-3)	SB-1 (0-3)	
Contaminant of Concern	**Mercury**	**Benzo(b)fluoranthene**	**Dibenzo(a,h)anthracene**	**Benz(a)anthracene**	**Carbazole**	**Cadmium**	**Lead**	**Selenium**	**Notes:**
Longitudinal Dispersivity (a_x) - cm **R-16** a_x=0.10*X :	70.10	82.30	82.30	82.30	320.00	70.10	82.30	15.20	
Transverse Dispersivity (a_y) - cm **R-17** a_y=a_x/3 :	23.37	27.43	27.43	27.43	106.67	23.37	27.43	5.07	
Vertical Dispersivity (a_z) - cm **R-18** a_z=a_x/20 :	3.51	4.12	4.12	4.12	16.00	3.51	4.12	0.76	
Error Functions: B_1 = S_w/(4*SQRT(a_y*X))	6.91	5.93	5.93	5.93	1.20	3.27	3.04	17.58	
From App. C, Table G enter corresp. error function value -- erf(B_1):	1	1	1	1.0000	0.9103	0.999996342	0.999983194	1	
B_2 = S_d/(2*SQRT(a_z*X))	2.02	1.72	1.72	1.72	0.44	2.02	1.72	9.30	
From App. C, Table G enter corresp. error function value -- erf(B_2):	1.0	1.0	1.0	1.0	0.5	1.0	1.0	1.0	
Specific Discharge (U) - cm/day **R-19** U=K*i/Q_T :	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	
Steady-State Attenuation - unitless **R-15** $C_{(x)}$/C_{source}:	9.96E-01	7.10E-02	1.59E-01	8.96E-02	1.77E-15	1.00	0.98	1.00	
Class II Steady-State Attenuation - unitless **R-13** GW_{source}:	1.00E-02	1.27E-02	9.43E-03	7.26E-03	1.13E+13	5.02E-02	1.02E-01	5.00E-02	
Soil Water Sorption Coefficient (k_s) - cm^3_{water}/g_{soil} **R-20** k_s=K_{oc}*f_{oc} :	Chem. Specific 1.5E+02	Calculated 2.1E+03	Calculated 1.5E+04	Calculated 2.4E+03	Calculated 2.40E+01	Chem. Specific 0.00E+00	Chem. Specific 7.1E+02	Chem. Specific 3.3E+00	Mercury, Cadmium, Lead, and Selenium values obtained from Appendix C, Table J.
Groundwater Darcy Velocity (U_{gw}) - cm/year **R-24** U_{gw}=K*i :	22.16	22.16	22.16	22.16	22.16	22.16	22.16	22.16	
R-14 Leaching Factor LF_{sw} - (mg/L_{water})/(mg/kg_{soil}):	6.37E-03	4.45E-04	6.23E-05	3.90E-04	3.92E-02	9.40E+00	1.32E-03	2.68E-01	
Predicted Concentration in Water C_{Source} - mg/L:	0.014014	0.016922	0.000686	0.021431	0.168405	34.780910	2.634110	2.248226	SPLP Values from B-112 (1-3) for Cadmium and SB-1 (0-3) for Lead were used in R-26 calculation.
Sample Concentration - mg/kg	**2.20**	**38**	**11**	**55.0**	**4.3**	**3.7**	**2000**	**8.4**	
R-12 Class II Remediation Objective - mg/kg	**1.57672**	**28.47**	**151.31**	**18.62**	**2.88E+14**	**0.01**	**77.09**	**0.19**	Site-Specific Tier 2 SRO.
Soil Saturation Limit (C_{sat}) - mg/kg	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	Applicable SRO if less than value above. NE = No established value
Soil Attenuation Capacity - mg/kg	**6,000**	**2,000**	**6,000**	**2,000**	**6,000**	**6,000**	**6,000**	**6,000**	Applicable SRO if less than value above.

Intermediate Solutions:

Contaminant of Concern	**Mercury**	**Benzo(b)fluoranthene**	**Dibenzo(a,h)anthracene**	**Benz(a)anthracene**	**Carbazole**	**Cadmium**	**Lead**	**Selenium**	
Equation R-14									
a = Q_{ws}+(k_s*r_s)+(H'*Q_{as}) =	2.25E+02	3.15E+03	2.25E+04	3.60E+03	3.62E+01	1.50E-01	1.07E+03	5.10E+00	
b = (U_{gw}*d_{gw})/(I*W) =	4.53E-02	6.92E-02	6.92E-02	6.92E-02	5.95E-02	6.38E-02	6.92E-02	9.89E-02	
c = a*(1+b) =	2.35E+02	3.37E+03	2.41E+04	3.85E+03	3.83E+01	1.60E-01	1.14E+03	5.60E+00	
Equation R-12									
a = X/(2*a_x) =	5	5	5	5	5	5	5	5	
b = SQRT (1+(4*I*a_x/U) =	1.00	1.53	1.36	1.48	7.62	1.000E+00	1.000E+00	1.000E+00	
c = (1-b)*a =	0.00	-2.63	-1.82	-2.40	-33.11	0.000E+00	0.000E+00	0.000E+00	
d = EXP(c) =	1.00E+00	7.21E-02	1.61E-01	9.10E-02	4.16E-15	1.00E+00	1.00E+00	1.00E+00	
$C_{(x)}$ = d*erf(B2)*erf(B1)*$C_{(source)}$ =	1.40E-02	1.20E-03	1.09E-04	1.92E-03	2.99E-16	3.46E+01	2.59E+00	2.25E+00	

R-26 Points of Compliance

Class II Groundwater

3001-13 W. 5th Avenue, Chicago, Illinois

		Units	mg/L	mg/L	cm	***feet***	cm	d^{-1}	cm/d	cm	cm	cm	cm
		Origin	*chem-specific calc.*	*site-specific field measure*	*site-specific iteration*	***site-specific calc.***	*RBCA calc. R-16*	*chem-specific Appx C, Tbl E*	*site-specific calc.*	***site-specific field measure***	*RBCA calc. R-17*	***site-specific field measure***	*RBCA calc. R-18*
Analyte	**Well**	**Tier 1 Class II GRO (mg/L)**	**$C_{(x)}$**	**C_{source}**	**X**	**X**	**α_x**	**λ**	**U**	**S_w**	**α_y**	**S_d**	**α_z**
Benzo(b)fluoranthene	SB-10 (3-6)	0.0009	0.00089	0.0169	12552	**412**	1,255.2	0.00	4.53E-01	3,566	418.400	200.0	62.760
Benz(a)anthracene	SB-10 (3-6)	0.00065	0.00064	0.0214	16837	**552**	1,683.7	0.00	4.53E-01	3,566	561.233	200.0	84.185
Cadmium	B-112 (1-3)	0.05	0.0020	0.002	1	**0**	0.1	0.00	4.53E-01	1,676	0.033	200.0	0.005
Lead	SB-4 (0-3)	0.1	0.0999	0.390	3837	**126**	384	0.00	4.53E-01	1,829	127.9	200.0	19.19
Mercury	SB-1 (0-3)	0.01	0.0099	0.0140	1890	**62**	189.0	0.00	4.53E-01	3,536	63.000	200.0	9.450
Selenium	SB-1 (0-3)	0.05	0.0499	2.2482	14611	**479**	1,461	0.00	4.53E-01	1,951	487.0	200.0	73.06
Iron	MW-114	5.0	4.9995	24.00	6362	**209**	636	0.00	4.53E-01	4,663	212.1	200.0	31.81

Hydraulic Conductivity
cm/s
site-specific
Field Measure
K (cm/s)
3.16E-05

R-19

Specific Discharge	Hydraulic Conductivity	Hydraulic Gradient	Total Soil Porosity
cm/d	cm/d	unitless	cm^3/cm^3_{soil}
site-specific	site-specific	site-specific	Default
calc.	calc.	conservative value	RBCA / field measure
U	**K (cm/d)**	**i**	**θ_T**
4.53E-01	2.73E+00	0.07137	0.43

Groundwater Modeling Notes & Assumptions:

1. The hydraulic conductivity (K) used was a laboratory calculated value of 3.16E-05 cm/s obtained from MW-114 using a slug test.
2. The hydraulic gradient (i) used was a site-specific value of 0.02227.
3. The source width perpendicular to groundwater flow in the vertical plane (S_d) is the default of 200 cm.
4. C_{source} for Cadmium and Lead were taken from the corresponding boring SPLP/TCLP analysis.
5. GRO = Tier 1 Groundwater Remediation Objective for Class II Groundwater - applied for all.

Groundwater COCs:

1. The source width perpendicular to groundwater flow in the vertical plane (S_d) is the default of 200.0 cm.
2. The source width perpendicular to groundwater flow in the horizontal plane (S_w) is 153 feet (4663 cm) - the largest approximate distance across the Tier 1 GRO exceedance plume.

CARNOW CONIBEAR

EPA On-line Tools for Site Assessment Calculation

Hydraulic Gradient -- Magnitude and Direction

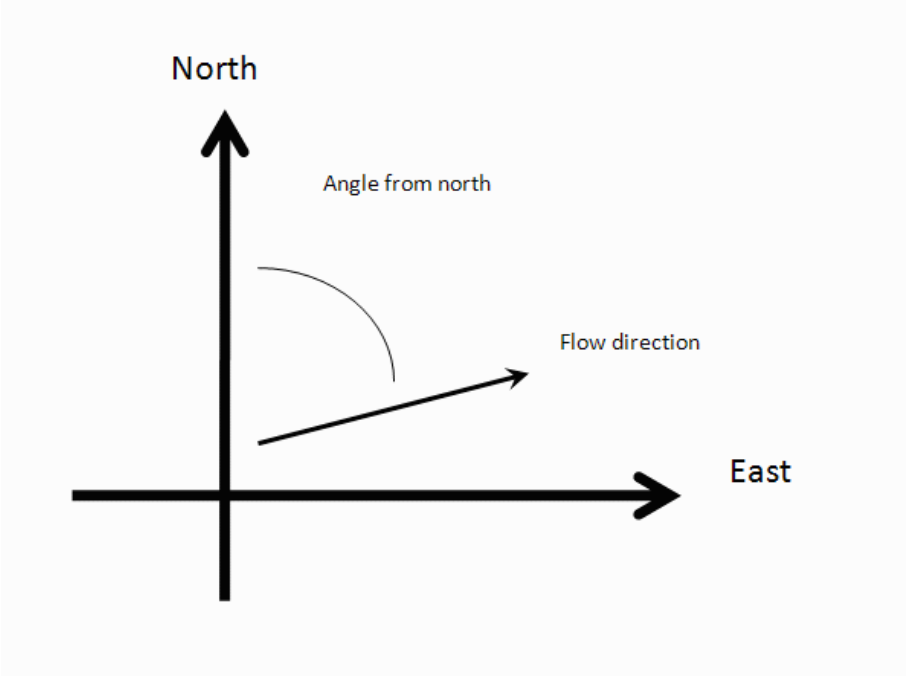
Gradient Calculation from fitting a plane to as many as thirty points

$a x_1 + b y_1 + c = h_1$
$a x_2 + b y_2 + c = h_2$
$a x_3 + b y_3 + c = h_3$
. . .
$a x_{30} + b y_{30} + c = h_{30}$

where (x_i,y_i) are the coordinates of the well and
h_i is the head

i = 1,2,3, ... , 30
The coefficients a, b, and c are calculated by a least-squares fitting of the the data to a plane

The gradient is calculated from the square root of $(a^2 + b^2)$ and the angle from the arctangent of a/b or b/a depending on the quadrant



Inputs

Example Data Set 1 | Example Data Set 2 | Calculate | Clear
Save Data | Recall Data | Go Back

Site Name: 3001-13 W 5th
Date: 10/19/2023 Current Date
Calculation basis: Head
Coordinates: ft

I.D.		x-coordinate	y-coordinate	head ft
1)	TMW-1	89.91	115.3	92.69
2)	TMW-2	87.09	54.14	93.45
3)	TMW-3	74.78	97.57	89.89
4)	TMW-4	42.35	106.21	93.03
5)				
6)				
7)				
8)				
9)				
10)				
11)				
12)				
13)				
14)				
15)				
16)				

17)				
18)				
19)				
20)				
21)				
22)				
23)				
24)				
25)				
26)				
27)				
28)				
29)				
30)				

Results

Number of Points Used in Calculation	4
Max. Difference Between Head Values	1.085
Gradient Magnitude (i)	0.02227
Flow direction as degrees from North (positive y axis)	28.08
Coefficient of Determination (R^2)	0.0990

WCMS

Last updated on 8/31/2021

Natural Attenuation of Polycyclic Aromatic Hydrocarbon-Contaminated Sites: Review

S. W. Rogers[1]; S. K. Ong[2]; B. H. Kjartanson[3]; J. Golchin[4]; and G. A. Stenback[5]

Abstract: Natural attenuation is currently being applied as a remedial technology at many petroleum hydrocarbon and chlorinated compound contaminated sites. Although information on the use of natural attenuation at these sites is abundant, information on sites contaminated with polycyclic aromatic hydrocarbons (PAH) is limited. An assessment report by the National Research Council on natural attenuation indicates that the current understanding of the fate and transport of PAH compounds at contaminated sites is "moderate" and the likelihood of success in the application of natural attenuation at these sites is expected to be "low," given the current level of understanding. The purpose of this paper is to review documented work on natural attenuation of PAH-contaminated sites and summarize information to improve our level of understanding and address important issues for the implementation of natural attenuation at these sites. The main processes affecting the attenuation of PAH compounds are sorption and biodegradation. The relative contribution of each of the two attenuation processes is unclear. The few studies available tend to focus on the degradation of low molecular weight PAHs such as naphthalene, acenaphthylene, and phenanthrene. The estimated first-order decay rates of naphthalene, acenaphthylene, and phenanthrene from the various studies were 0.00057–0.0063 day^{-1}, 0.00027 day^{-1}, and 0.000027 to 0.063 day^{-1}, respectively. Some of the issues that need further investigation include: (1) an understanding of the solubility and dissolution of PAH NAPLs; (2) the interactions and effects of the more soluble low molecular weight PAHs on the sparingly soluble high molecular weight PAHs; and (3) the utilization of electron acceptors other than oxygen during microbial degradation of PAHs under complex mixture conditions. Overall, the natural attenuation of low molecular weight PAHs appears to be promising for the sites investigated.

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CE Database keywords: Attenuation; Biodegradation; Aromatic hydrocarbons.

Introduction

Over the last decade, there has been an increase in the application of natural attenuation as a remedial alternative for the cleanup of contaminated groundwater. The increase is generally in response to the high capital and operating costs and technical limitations of some of the engineered cleanup technologies for remediation of these contaminated sites. A survey of state underground storage tank programs indicates that as many as 15,780 sites are applying monitored natural attenuation as a remedial technology (MacDonald 2000). Correspondingly, the number of publications appearing on this subject has increased recently with several noteworthy publications such as that of Wiedemeier et al. (1999). However, most of the literature is centered on two of the more commonly found classes of contaminants, petroleum hydrocarbons and chlorinated compounds. Nevertheless, there are several completed studies and some that are in progress extending the concept of natural attenuation to other pollutants such as heavy metals and polycyclic aromatic hydrocarbon compounds (PAH). PAH compounds are common byproducts of petroleum and chemical industries and are the third most commonly found class of contaminants at Superfund sites (U.S. EPA 2000). A recent assessment of natural attenuation indicates that current understanding of the fate and transport of PAH compounds at contaminated sites is "moderate" and that the likelihood of success in the application of natural attenuation at these sites is expected to be "low," given the current level of understanding (NRC 2000). With that in mind, this article reviews the current literature on natural attenuation of sites contaminated with PAHs and highlights some of the issues involved in implementing natural attenuation as a remedial technology at PAH-contaminated sites.

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Note. Discussion open until December 1, 2002. Separate discussions must be submitted for individual papers. To extend the closing date by one month, a written request must be filed with the ASCE Managing Editor. The manuscript for this paper was submitted for review and possible publication on March 1, 2002; approved on March 1, 2002. This paper is part of the ***Practice Periodical of Hazardous, Toxic, and Radioactive Waste Management***, Vol. 6, No. 3, July 1, 2002. ©ASCE, ISSN 1090-025X/2002/3-141–155/$8.00+$.50 per page.

PAH-Contaminated Sites

PAH-contaminated sites are generally associated with industrial activities such as wood preservation, petroleum refining, transportation, former manufactured gas plants (FMGPs), lignite pyrolysis sites, military installations, and municipal and hazardous waste landfills. In many cases, PAHs at these sites are found with other contaminants such as heterocyclic compounds, monoaromatic compounds, cyanides, pesticides, pentachlorophenol, and arsenic-based wood preservatives. Of the 1,226 sites currently registered

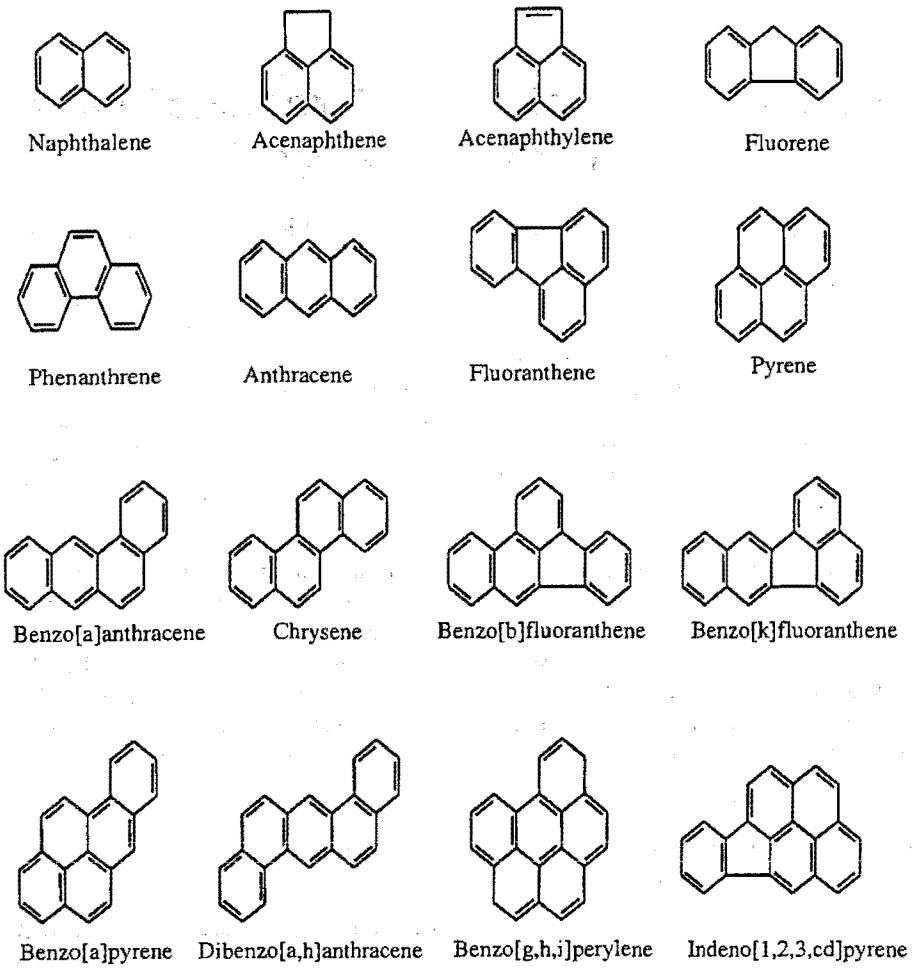


Fig. 1. Structure of 16 U.S. EPA priority pollutant PAH compounds

on the Superfund National Priority List (NPL), 598 are contaminated with PAH compounds (48.8%). The number of Superfund sites with PAHs as contaminants is only surpassed by sites containing volatile organic compounds, which include chlorinated solvents, benzene, toluene, ethylbenzene, and xylene (BTEX) [849 sites (69.2%)], and metals [794 sites (64.8%)] (U.S. EPA 2000).

Although there are many PAH-contaminated sites with different sources of contamination, much remedial work has been placed on sites originating from creosote works, wood treatment industries, coking industries, and FMGPs, as they comprise the largest fraction of PAH-contaminated sites. Burton et al. (1988) reported that there were approximately 700 sites in the United States alone where wood preservation is currently conducted or has been conducted in the past. The number of creosote-contaminated sites was estimated to be approximately 700 by Mueller et al. (1989). In 1984, Edison Electric Institute estimated that the number of FMGP sites that pose an environmental threat was approximately 1,500 (Edison Electric Institute 1984). According to Hatheway (1997), this estimate is conservative, as it did not include potentially contaminated FMGP sites. Hatheway asserts that the number of contaminated FMGP sites in North America alone may reach beyond 32,000, considering that there were similar gas manufacturing facilities located at rail yards, military posts, arsenals, institutes, and large residential estates that were not reported. Creosote and coal tar compounds have been cited as a widespread problem in nearly all industrialized countries (Broholm et al. 1999). According to Delorme and Carlier (1998), the French National Gas Company alone owns 467 FMGP plants. In Germany, the total number of FMGP sites is estimated to reach about 1,000 (Knopp et al. 2000), and in Denmark, Arvin and Flyvbjerg (1992) estimated that there are 35–45 creosote waste sites per million people.

Contamination at these sites has resulted from leaking tanks and pipe networks, incomplete separation of tar from aqueous liquids, drippings from treated lumber (wood treatment facilities), spills, decommissioning activities, and leachate from unlined storage ponds or shallow wells. In any case, the nonaqueous phase liquids (NAPLs) released from these sites that contained these compounds tend to be denser than water and usually migrate downward and laterally into the subsurface by gravity and capillary forces. In many of these sites, the NAPLs may pool on the confining layer of the aquifer and move along its geologic gradient. Given the physical-chemical properties of PAH compounds, they can be very challenging to remediate.

PAH Compounds of Concern

Of the many PAH compounds, the U.S. Environmental Protection Agency (U.S. EPA) has identified 16 PAH compounds as priority

Table 1. Physical-Chemical Properties of Polycyclic Aromatic Hydrocarbons (LaGrega et al. 1994; World Health Organization 1998)

PAH compound	Chemical formula	CAS RN	Pure solid aqueous solubility[a] (μg/L)	Molecular weight (g/mol)	Melting temperature (°C)	Vapor pressure (Pa)	Henry's Law constant (kPa m^3 mol^{-1})	n-Octanol water partition coefficient (log K_{ow})	Organic carbon partition coefficient[a] (log K_{oc})
Naphthalene	$C_{10}H_8$	91-20-3	31690	128.18	81.0	10.4	4.89E−2	3.37	3.11
Acenaphthene	$C_{12}H_{10}$	83-32-9	3420	154.21	95.0	2.9E−1	1.48E−2	4.00	3.65
Acenaphthylene	$C_{12}H_{10}$	208-96-8	3930	152.20	93.0	8.9E−1	1.14E−3	3.70	3.40
Anthracene	$C_{14}H_{10}$	120-12-7	45	178.24	216.4	8.0E−4	7.30E−2	4.45	4.15
Fluorene	$C_{13}H_{10}$	86-73-7	1690	166.22	116.0	8.0E−2	1.01E−2	4.18	3.86
Phenanthrene	$C_{14}H_{10}$	85-01-8	1000	178.24	100.5	1.6E−2	3.98E−3	4.46	4.15
Fluoranthene	$C_{16}H_{10}$	206-44-0	206	202.26	108.8	1.2E−3	6.5E−4[b]	4.90	4.58
Pyrene	$C_{16}H_{10}$	129-00-0	130	202.26	150.4	6.0E−4	1.1E−3	4.88	4.58
Chrysene[c]	$C_{18}H_{12}$	218-01-9	1.8	228.30	253.8	8.4E−5[b]	NA	5.61	5.30
Benz(a)anthracene[c]	$C_{18}H_{12}$	56-55-3	5.7	228.30	160.7	2.8E−5	NA	5.60	6.14
Benzo(b)fluoranthene[c]	$C_{20}H_{12}$	205-99-2	14	252.32	168.3	6.7E−5[b]	5.1E−5	6.06	5.74
Benzo(k)fluoranthene[c]	$C_{20}H_{12}$	207-08-9	4.3	252.32	215.7	1.3E−8[b]	4.4E−5[b]	6.06	5.74
Benzo(a)pyrene[c]	$C_{20}H_{12}$	50-32-8	3.8	252.32	178.1	7.3E−7	3.4E−5[b]	6.06	6.74
Dibenz(a,h)anthracene[c]	$C_{22}H_{14}$	53-70-3	0.5	278.36	266.6	1.3E−8[b]	7.0E−6	6.80	6.52
Indeno(1,2,3-cd)pyrene[c]	$C_{22}H_{12}$	193-39-5	0.53	276.34	163.6	1.3E−8[b]	2.9E−5[b]	6.50	6.20
Benzo(g,h,i)perylene[c]	$C_{22}H_{12}$	101-24-2	0.26	276.34	278.3	1.4E−8	2.7E−5[b]	6.51	6.20

Note: NA = data not available

[a]From LaGrega et al. (1994).

[b]At 20°C, others at 25°C.

[c]Carcinogenic PAHs.

pollutants that are of environmental concern. Fig. 1 shows the structure of the 16 PAH compounds. A summary of their physical and chemical properties is provided in Table 1. As can be seen from Table 1, some of these compounds have very low water solubility and are solid at most temperatures found in the environment. These compounds tend to have a moderate to low volatility that decreases with increasing molar mass (Brown et al. 1994). Furthermore, PAH compounds have a high adsorption tendency (due to their nonpolar nature) and moderate to low biodegradability, which again is directly related to the molecular size and shape of the compounds. A summary of the solid-water partition coefficients (K_{oc}) of the 16 priority PAH pollutants is also given in Table 1. Because of these properties, PAH compounds tend to be relatively immobile and persistent in soil.

The hydrophobic nature of these compounds lends to rapid partitioning onto particulate matter or tissue, suggesting bioaccumulation potential (LaGrega et al. 1994). Some of the PAH compounds have been shown to be acutely toxic to aquatic organisms at concentrations ranging from 0.2 to 10 mg/L, with acute toxicity increasing with increasing molecular weight to a point at which compound solubilities become too low to elicit a response (Neff 1985). In humans, acute toxic responses may include liver damage or dermatitis; however, metabolites of PAH compounds, which are more water soluble and reactive, can bind to protein, DNA, and other macromolecules, leading to cell damage, mutagenesis, or possible cancers of the stomach, lung, or skin (LaGrega et al. 1994). Chrysene, benzo(a)anthracene, benzo (b)fluoranthene, benzo(k)fluoranthene, benzo(a)pyrene, dibenz(a, h)anthracene, indeno(1,2,3-cd)pyrene, and benzo(g,h,i)perylene have been identified by the U.S. EPA as carcinogenic PAH compounds.

PAH compounds at contaminated sites are likely to be found in complex mixtures that vary in composition with depth and distance from the source region. Novotny et al. (1981) studied the composition of several coal tar samples derived from coals of different geographical origin and determined that the major constituents were similar. Priddle and MacQuarrie (1994), however, compared the chemical composition of four creosote samples and one coal tar sample and found that they all varied significantly. Barbé et al. (1998) studied PAH concentration profiles with depth at a former coke plant and determined that lighter PAH compounds were typically present in shallower depths with heavier compounds (for example, benzo(a)pyrene), becoming increasingly predominant at greater depths in the unsaturated zone and into the saturated region of the subsurface. Delorme and Carlier (1998) studied several former manufactured gas plant sites in France and determined that, in the majority of cases, silts and clays tend to be more polluted at these sites than the coarser sands. Furthermore, they determined that the presence of coal tars tended to decrease soil permeability, and that many PAH components in residues showed little mobility and were naturally stabilized in soil.

In complex mixtures, PAH compounds may exhibit properties that differ from their pure phase properties. For example, naphthalene sorption to soil organic matter was not affected by the presence of other PAH compounds in solution, but when coal tar was added, soil sorption of naphthalene dropped significantly as the naphthalene was preferably partitioned into the coal tar NAPL in lieu of the natural organic matter (Bayard et al. 1998).

In addition to changes in their sorptive behavior, it is expected that the solubility of PAHs in liquid mixtures of organic compounds will be much different from the solubilities expressed in their natural solid form. Raoult's law has been shown to adequately predict equilibrium PAH solubilities (within a factor of 2–4) in complex organic mixtures such as diesel fuel, gasoline, coal tar, and creosote (Cline et al. 1991; Lee et al. 1992a,b; King and Barker 1999). Based on this, a comparison of the pure aqueous solubility of the 16 priority PAH compounds and the effective solubilities calculated with Raoult's law for two coal tar mixtures and a coal tar creosote is shown in Table 2. It is interesting to note

Table 2. Composition of Several PAH Mixtures and Predicted Effective Solubilities of PAH Compounds

PAH compound	Pure solid aqueous solubility[d] (μg/L)	Fugacity ratio[e] (f^L/f^S)	Coal tar (Peters and Luthy 1993)[a] Mass Fraction (% by Weight)	Coal tar (Peters and Luthy 1993)[a] Estimated Solubility[f] (μg/L)	Coal tar (Ghoshal et al. 1996)[b] Mass Fraction (% by Weight)	Coal tar (Ghoshal et al. 1996)[b] Estimated Solubility[f] (μg/L)	Coal tar creosote (Mueller et al. 1989)[c] Mass Fraction (% by Weight)	Coal tar creosote (Mueller et al. 1989)[c] Estimated Solubility[f] (μg/L)
Naphthalene	31,690	3.57	2.16	4,010	10	2,000	11.05	15,400
Acenaphthene	3,420	5.0	1.52	410	1.3	370	3.4	690
Acenaphthylene	3,930	4.55	0.68	150	0.37	86	NA	—
Anthracene	45	100	0.59	31	2	114	11.05	440
Fluorene	1,690	7.69	1.4	230	NA	—	6.8	840
Phenanthrene	1,000	5.56	2.12	140	0.16	11.3	11.05	550
Fluoranthene	206	7.14	0.3	4.6	0.55	9	3.4	39
Pyrene	130	20.0	0.5	14	NA	—	1.7	35
Chrysene	1.8	200	0.27	0.9	0.36	1.3	1.7	4.2
Benz(a)anthracene	5.7	25.0	0.31	0.4	NA	—	NA	—
Benzo(b)fluoranthene	14	26.6	NA	—	0.4	1.3	NA	—
Benzo(k)fluoranthene	4.3	76.9	NA	—	0.16	0.47	NA	—
Benzo(a)pyrene	3.8	33.3	1.8	1.9	0.36	0.41	0.85	0.67
Dibenz(a,h)anthracene	0.5	250	NA	—	0.04	NA	NA	—
Indeno(1,2,3-cd)pyrene	0.53	NA	NA	—	NA	—	NA	—
Benzo(g,h,i)perylene	0.26	333	NA	—	NA	—	NA	—

Note: NA = Data not available.

[a]Estimated source molecular weight = 210 g/mol.

[b]Estimated source molecular weight = 226 g/mol.

[c]Estimated source molecular weight = 158 g/mol.

[d]At 25°C.

[e]Adapted from Peters et al. (1996).

[f]Based on Raoult's Law.

that the effective solubility of a compound expressed in mixed liquid state may not necessarily be lower than its solubility in pure solid form (as in anthracene and chrysene). Effective solubilities of PAH compounds based upon Raoult's law have been used in numerical models to simulate steady-state PAH dissolution from complex mixtures of nonaqueous phase liquids (NAPLs) over time with some success (King and Barker 1999). However, Priddle and MacQuarrie (1994) studied the efficacy of such models in columns of glass beads and determined that these models predicted the trends in dissolution but overpredicted aqueous concentrations by factors ranging from 1.5 to 8. These researchers suggested using a reduction factor as an extra model fitting parameter to account for the lower observed aqueous concentrations. Because of the uncertainty in PAH solubilities in the presence of complex mixtures and NAPLs, model prediction on the fate and transport of PAHs in the presence of NAPLs should be carefully evaluated.

Attenuation Processes of PAH Compounds

Attenuation processes that may influence the fate of hydrocarbons in the subsurface include dilution, dispersion, volatilization, hydrolysis, sorption, and biodegradation. Volatilization losses in the vadose zone and at the capillary fringe of the subsurface environment may be one of the attenuation processes for low molecular weight PAH compounds such as naphthalene. Bioremediation studies conducted by Bossert and Bartha (1986) and Park et al. (1990) indicated that two- and three-ring PAH compounds may be lost from soil samples through volatilization. No significant volatilization losses were found for PAH compounds containing more than three benzene rings. An inverse correlation between the number of rings in PAHs and their volatilization losses is generally assumed. However, quantification of losses of PAHs by volatilization from the subsurface environment under field conditions is not available.

PAHs are chemically stable and are not hydrolyzed by reactive groups under subsurface environmental conditions. Therefore, hydrolysis does not contribute to the abiotic change in the PAHs (Radding et al. 1976; Howard et al. 1991). PAHs can be photodegraded, but this effect is minimal in a subsurface environment (Sims and Overcash 1983).

Sorption of PAH compounds is an area of intense research. As indicated in Table 1, sorption onto the organic matter and mineral surfaces of soils may be one of the major attenuation processes for PAH compounds in the subsurface. For example, the $\log K_{oc}$ value for naphthalene, the most soluble of the 16 priority PAHs, is approximately two times larger than that of benzene. Although the K_{oc} values may provide a basis for comparison, several researchers have shown that specific subsurface geosorbents such as natural organic matter (NOM), soot, and mineral surfaces have very different affinities for PAH. In fact, the equilibrium partitioning coefficients may vary as much as several orders of magnitude in materials such as soot; NAPLs; bacterial biomass; mineral surfaces; recent amorphous NOM that is relatively more oxidized; and aged, increasingly condensed, highly microcrystalline, and relatively more reduced NOM (Young and Weber 1995; Huang and Weber 1997; Weber et al. 1998; Stringfellow and Alvarez-Cohen 1999; Bayard et al. 2000; Chiou et al. 2000; Ghosh et al. 2000; Jonker and Smedes 2000; Karapanagioti et al. 2000; Leuking et al. 2000; Xia and Ball 2000). Furthermore, the location of

Table 3. Half-Lives and First-Order Decay Rate of 16 PAHs in Soil

PAH compounds	Half-life (days)	First order decay rate, $k(d^{-1})$	Experimental condition	Reference
Naphthalene	0.277	2.5	Soil slurry	Simpkin and Griesbrecht (1994)
Acenaphthene	134	0.0052	Soil[L]	Park et al. (1990)
Acenaphthylene	42–60	0.012–0.017	Soil[L]	Kincannon and Lin (1985)
Anthracene	55	0.012	Soil[F]	Kastemer et al. (1999)
Fluorene	7–8	0.087–0.099	Soil slurry	Durate et al. (1997)
Phenanthrene	37	0.019	Sediment	Michel et al. (1995)
Fluoranthene	7–8	0.087–0.099	Soil slurry	Durate et al. (1997)
Pyrene	4.5	0.15	Soil[F]	Schwab et al. (1995)
Chrysene	33	0.021	Sediment	Michel et al. (1995)
Benzo(a)anthracene	75–80	0.0087–0.0092	Soil[F]	Pott and Henrysson (1995)
Benzo(b)fluoranthene	39	0.018	Sediment	Michel et al. (1995)
Benzo(k)fluoranthene	46	0.015	Sediment	Michel et al. (1995)
Benzo(a)pyrene	25	0.028	Soil[F]	Kanaly et al. (1997)
Dibenzo(a,h)anthracene	420	0.0017	Soil[L]	Park et al. (1990)
Indeno(1,2,3-cd)pyrene	232	0.003	Soil[L]	Park et al. (1990)
Benzo(g,h,i)perylene	590–650	0.0011–0.0012	Soil[L]	Coover and Sims (1987)

Note: [F] = field study; [L] = laboratory study.

sorption sites may have an impact on the desorption of PAH compounds in the aqueous-soil environment, as diffusion from micropores and intraorganic matter may strongly influence contaminant mass transfer to the aqueous phase (Brusseau et al. 1991; Luthy et al. 1997). For these reasons, PAH sorption exhibits strong isotherm nonlinearities and hysteresis that become more prominent with the age of contamination (Hatzinger and Alexander 1995; Carmichael et al. 1997; MacLeod and Semple 2000). In addition to sorption, sorbed PAHs may be redistributed and incorporated within the humic materials by covalent binding, or they may be irreversibly bound by oxidative coupling to microbial enzymes and metal-oxide surfaces (Bollag 1992). Consequently, the use of linear and reversible sorption models with lumped distribution coefficients may not be suitable for modeling sorption of individual PAHs to the subsurface media.

Because of the low solubilities and high partition coefficients of the PAHs, the issue of bioavailability is important if biodegradation is to be demonstrated for natural attenuation to be acceptable. Soils that have been contaminated with PAHs for a long time (aged soils) typically hold less bioavailable compounds than soils that are recently contaminated (Erickson et al. 1993; Hatzinger and Alexander 1995; Carmichael et al. 1997). However, in some instances, PAH compounds sorbed to soil or sediment surfaces may be more bioavailable, as they may be brought into closer proximity to microorganisms that are similarly sorbed on the surfaces (Laor et al. 1999; Poeton et al. 1999). Some soil organisms have been shown to be capable of producing biosurfactants that may enhance mass transfer rates from the sorbed or NAPL phases, resulting in different bioavailability as compared to microorganisms that rely strictly on physical-chemical mass transfer from these phases (Stucki and Alexander 1987; Guerin and Boyd 1992; Burd and Ward 1996; Deschênes et al. 1996; Daghler et al. 1997; Aitken et al. 1998; Mata-Sandoval et al. 2000; Voparil and Mayer 2000). The overall influence these biosurfactant producing organisms have on the rate and extent of biodegradation in the subsurface remains to be determined (Guerin and Boyd 1992; Volkering et al. 1992, 1993; Bouchez et al. 1995a,b; Aitken et al. 1998; Wick et al. 2001). At the present time, there are no suitable test methods to quantify the bioavailability or the amount of PAH that is available for biodegradation in a given soil.

All of the 16 priority PAH compounds have been shown to be susceptible to biodegradation. Several researchers have demonstrated that two- to three-ring PAH compounds can be removed completely by microorganisms as a sole source of carbon and energy under aerobic conditions (Davis and Evans 1964; Dean-Raymond and Bartha 1975; Heitkamp and Cerniglia 1989; Mueller et al. 1989; Weissenfels et al. 1990). In laboratory studies, Park et al. (1990) showed that the degradation of two-ring PAHs in sandy soils was extensive, with half-lives of approximately two days. In comparison, the half-lives for three-ring PAHs such as anthracene and phenanthrene were 16 and 134 days, respectively. The work of Heitkamp and Cerniglia (1987) showed similar results for PAH degradation in sediment/water microcosms. McGinnis et al. (1988) conducted laboratory treatability studies on creosote-contaminated soils from wood treatment sites and found that PAHs with two rings generally exhibited half-lives of less than 10 days and PAHs with three rings had half-lives of less than 100 days. Several researchers have isolated microorganisms that have the ability to mineralize four-ring PAHs as their sole carbon and energy sources from contaminated soils (Mueller et al. 1990; Walter et al. 1991; Weissennfels et al. 1991). Typically, an organism capable of degrading a higher-ring PAH compound has the ability to degrade PAHs with fewer rings. However, microbial mineralization of PAHs with four or more rings has generally been reported to occur via cometabolism (Bouchez et al. 1995a,b; Ye et al. 1996; Aitken et al. 1998). This cometabolic process seems to be stimulated by the presence of lower molecular weight PAH compounds or their byproducts of biodegradation (Keck et al. 1989; Kanaly et al. 1997; Chen and Aitken 1999). However, at PAH-contaminated sites, there is no clear indication on how the presence of low molecular weight PAHs influences the biodegradation of higher molecular weight PAHs or vice versa. Generally, four-, five-, and six-ring PAHs tend to be recalcitrant, with reported half-lives that were over 200 days. The half-lives and degradation rates of 16 PAHs for various conditions in the soil are summarized in Table 3. The half-lives and first-order degradation rates presented are only representative and should be used with care, as the estimated degradation rates in these studies may differ due to environmental conditions (e.g., electron acceptors, nutrient, etc.) present at a given site.

Table 4. Representative PAHs Metabolized by Different Microorganisms

Compounds	Rings	Microorganism(s)	Comments[a]	References
Naphthalene	2	*Rhodococcus* sp.	S	Bouchez et al. (1996)
		Pseudomonas sp.	S	Bouchez et al. (1996); Aitken et al. (1998)
Acenaphthene	3	*Pseudomonas* sp.	S	Komatsu et al. (1993)
		Neptunomonas naphthovorans	C	Hedlund et al. (1999)
Acenaphthylene	3	*Pseudomonas* sp.	S	Komatsu et al. (1993)
Anthracene	3	*Rhodococcus* sp.	S	Bouchez et al. (1996)
		Pseudomonas sp.	S	Bouchez et al. (1996)
		Bjerkandera sp.	S	Field et al. (1995)
Fluorene	3	*Pseudomonas* sp.	S	Foght and Westlake (1988)
		Rhodococcus sp.	S	Bouchez et al. (1996)
		Pseudomonas saccharophila	C	Stringfellow and Aitken (1995)
		Mycobacterium sp.	C	Boldrin et al. (1993)
Phenanthrene	3	*Rhodococcus* sp.	S	Bouchez et al. (1996)
		Pseudomonas sp.	S	Bouchez et al. (1996)
		Mycobacterium flavescens	S	Dean-Ross and Cerniglia (1996)
		Mycobacterium sp.	S	Boldrin et al. (1993)
		Flavobacterium sp.	S	Stucki and Alexander (1987)
		Beijerinckia sp.	S	Stucki and Alexander (1987)
Fluoranthene	4	*Rhodococcus* sp.	S	Bouchez et al. (1996)
		Pseudomonas sp.	S	Bouchez et al. (1996)
		Mycobacterium flavescens	S	Dean-Ross and Cerniglia (1996)
		Mycobacterium sp.	S	Boldrin et al. (1993)
		Pseudomona paucimobilis	S	Mueller et al. (1990)
Pyrene	4	*Rhodococcus* sp.	S	Bouchez et al. (1996)
		Pseudomonas sp.	S	Bouchez et al. (1996)
		Mycobacterium flavescens	S	Dean-Ross and Cerniglia (1996)
		Rhodococcus sp.	S	Walter et al. (1991)
		Xanthamonas sp.	S	Grosser et al. (1991)
		Mycobacterium sp.	C	Ye et al. (1996)
		Mycobacterium sp.	S	Boldrin et al. (1993); Heitkamp et al. (1988); Heitkamp and Cerniglia (1989)
Chrysene	4	*Sphingomonas paucimobilis*	C	Ye et al. (1996)
		Pseudomona fluorescens	S	Caldini et al. (1995)
		Achromobacter sp.	S	Cutright and Lee (1994)
Benzo(a)anthracene	4	*Sphingomonas paucimobilis*	C	Ye et al. (1996)
		Pseudomona fluorescens	C	Caldini et al. (1995)
		Pleurotus sp. *Florida*	C	Wolter et al. (1997)
Benzo(b)fluoranthene	5	*Sphingomonas paucimobilis*	C	Ye et al. (1996)
Benzo(k)fluoranthene	5	*Achromobacter* sp.	C	Cutright and Lee (1994)
Benzo(a)pyrene	5	*Pseudomona saccharophila* P15	C	Chen and Aitken (1999)
		Bjerkandera sp. BOS55	C	Kotterman et al. (1998)
		Sphingomonas paucimobilis	C	Ye et al. (1996)
		Xanthamonas sp.	C	Grosser et al. (1991)
		Mycobacterium sp.	C	Heitkamp and Cerniglia (1989)
Dibenzo(a,h)anthracene	5	*Sphingomonas paucimobilis*	C	Ye et al. (1996)
		Achromobacter sp.	C	Cutright and Lee (1994)

[a]Comments indicate whether microorganism utilized PAH compound as sole carbon source (S) or via cometabolism (C).

Many bacterial, fungal, and algal strains have been shown to degrade a wide variety of two- to five-ring PAH compounds. A partial list of PAH-degrading microorganisms that have been isolated from contaminated soils is presented in Table 4. Although all of these organisms degrade PAH compounds under aerobic conditions, degradation of some of the PAH compounds has been shown to occur under nitrate reducing, sulfidogenic, manganogenic, and ferrogenic conditions (Mihelcic and Luthy 1988, 1991; Nielsen and Christensen 1994; Coates et al. 1996; McNally et al. 1998). However, not much is known about PAH biodegradation under conditions other than aerobic conditions. Consequently, the impact of each electron acceptor environment on the biodegradation of PAHs of mixed electron acceptor environments at these sites is unclear and needs further investigation.

Table 5. Summary of Various Case Studies

Contamination site location	Site geology: depth to water (DTW); average pore velocity, v_x; hydraulic conductivity, K_h	Method used for rate estimation	Compounds	Approximate contaminant concentration	Electron acceptor conditions	Linear distribution coefficient, K_d (L/kg)	First-order decay rate, k (day^{-1})	References
FMGP Tar Burial Site, South Glenn Falls, N.Y.	Graded sand over a confining clay layer; DTW = 2.7 m; v_x = 0.096 m/day; K_h = 0.09–8.16 m/day	Whole field modeling	Naphthalene	7 mg/kg	Mixed	0.81	0.00027	EPRI (1996)
			Acenapththylene	NR	Mixed	0.46	0.00027	
			Phenanthrene	NR	Mixed	2.43	0.000027	
			Toluene	NR	Mixed	0.19	0.00068	
Emplaced Creosote Source Material, Borden, Ontario	Unconsolidated sand aquifer underlain by silts and clays: DTW = 1.5 m; v_x = 0.066–0.0947 m/day; K_h = 6.05–8.24 m/day	Whole field modeling	Naphthalene	1,200 mg/kg	Mixed	0.221.8	0.00057	King et al. (1999)
			Phenanthrene	1,200 mg/kg	Mixed	0.83	0.014-0.063	
			Carbazole	40 mg/kg	Mixed	0.24	0.0063	
			1-methylnaphthalene	240 mg/kg	Mixed		0.0040	
FMGP Waste, Charleston, S.C.	Soft organic clay overlain by sand and artificial fill: DTW = 0.46 m; v_x = NR; K_h = 0.0305–3.05 m/day (fill), K_h = 4.88 m/day (sand)	Laboratory batch studies on core samples	Naphthalene	NR	Aerobic	1.37	0.88	Campbell et al. (1996); Landmeyer et al. (1998)
			Naphthalene	NR	Anaerobic	1.37	0.000046	
			Toluene	NR	Aerobic	0.94	0.84	
		Whole field modeling	Toluene	NR	Anacrobic	0.94	0.0020	
			Napthalene	NR	Anaerobic	0.62	0.00009	
			Toluene	NR	Anaerobic	0.62	0.00009	
Pulsed injection of aqueous compounds, MADE Site, Columbus AFB, Columbus, Miss.	Fluvial sedimentation: DTW = NR; v_x = NR; K_h = 0.086–864 m/day	Whole field modeling	Naphthalene	7.23 mg/L	Acrobic	0.085	0.0063	MacIntyre et al. (1993)
			O-dichlorobenzene	32.8 mg/L	Aerobic	0.065	0.0059	
			p-Xylene	51.5 mg/L	Aerobic	0.048	0.0141	
			Benzene	68.1 mg/L	Aerobic	0.059	0.0066	
Landfill Leachate, Vejen Landfill, Vejen, Denmark	Clay deposit overlain by sandy alluvial aquifer: DTW = NR; v_x = 150–200 m/year; K_h = NR	Whole field modeling of steady-state plume	Naphthalene	NR	Iron(III) reducing	NR	0.013–0.015	Lyngkilde and Christensen (1992)
			BTEX	NR	Iron(III) reducing	NR	0.009-0.011	
FMGP Waste, Baltimore Gas and Electric Spring Gardens Facility, Baltimore	Shallow unconfined aquifer with fill material underlain by sand and gravel interbedded with silt and clay lenses: DTW = 1.6–5 m; v_x = NR; K_h = NR	Gravel: laboratory batch studies on core samples	Naphthalene	1,000 µg/L	Aerobic	NR	0.0014–0.0069	Durant et al. (1994); MacFarlane et al. (1994)
			Phenanthrene	1,000 µg/L	Aerobic	NR	0.0050-0.0053	
		Sand: laboratory batch studies on core samples	Naphthalene	1,000 µg/L	Aerobic	NR	0.039-0.0084	
			Phenanthrene	1,000 µg/L	Aerobic	NR	0.0015-0.0092	
		Clayey silt: laboratory batch studies on core samples	Naphthalene	1,000 µg/L	Aerobic	NR	0.0046	
			Phenanthrene	1,000 µg/L	Aerobic	NR	0.0053	

Table 5. (*Continued*)

Contamination site location	Site geology: depth to water (DTW); average pore velocity, v_x; hydraulic conductivity, K_h	Method used for rate estimation	Compounds	Approximate contaminant concentration	Electron acceptor conditions	Linear distribution coefficient, K_d (L/kg)	First-order decay rate, k (day^{-1})	References
		Silty clay: laboratory batch studies on core samples	Naphthalene	1,000 μg/L	Aerobic	NR	0.010	
Gasoline leakage, Former Gas Station, Perth, Australia	Thick clay aquitard overlain by 7–12 m fine dune sand: DTW=1–1.8 m; v_x=0.27–0.47 m/day; K_h=8.6 to 29 m/day	In-situ tracer test	Naphthalene, tracer test		Sulfate reducing	NR	0.018–0.026	Davis *etal.*(1999); Thierrin *etal.* (1993); Thierrin *etal.* (1995)
		Whole plume modeling on plume	Naphthalene, whole plume	33 mg/kg; 1,100 μg/L	Sulfate reducing	NR	0.0039–0.0050	
		Partial plume modeling on steady-state plume	Naphthalene, partial plume	33 mg/kg; 1,100 μg/L	Sulfate reducing	NR	0.00095–0.0027	
		In-situ tracer test	Toluene, tracer test		Sulfate reducing	NR	0.0050–0.012	
		Whole plume modeling on steady-state plume	Toluene, whole plume	670 mg/kg; 75 mg/L	Sulfate reducing	NR	0.0048–0.0073	
		Partial plume modeling on steady-state plume	Toluene, partial plume	670 mg/kg; 75 mg/L	Sulfate reducing	NR	0.0027–0.0063	
FMGP Site, Dubuque, Iowa	Shallow unconfined aquifer with fine to medium grained sand: DTW=2.7–5.8 m; v_x=0.15–0.23 m/day; K_h=1.50–623 m/day	Centerline transect of plume	Benzene	1 mg/L	Anaerobic	NR	0.0063*	Ong *etal.* (2001); Kjartanson *etal.* (2001)
			Naphthalene	1 mg/L	Anaerobic	NR	0.0081*	
			Acenaphthene	0.15 mg/L	Anaerobic	NR	0.0033*	
			Phenanthrene	0.1 mg/L	Anaerobic	NR	0.0043*	
			Acenaphthylene	0.1 mg/L	Anaerobic	NR	0.0029*	

Note: NR=not reported; *=overall attenuation rate.

Natural Attenuation of PAH-Contaminated Sites: Case Studies

The difficulties associated with the removal of residual contamination at PAH-contaminated sites and the relatively limited spatial distribution of PAH compounds from the source areas in an aquifer have prompted several researchers to investigate the application of natural attenuation as a viable remedial alternative. Given that the biodegradation of many PAH compounds has been demonstrated in laboratory and field settings and that the PAH compounds have low solubilities and are highly sorbed by soil organic matter, the use of attenuation principles as a remedial alternative may have some merit. Several studies are available in the literature on the natural attenuation of sites contaminated with PAH compounds. The following is a summary of the results of some of the case studies in which critical site parameters and degradation rates were reported. These results are also tabulated in Table 5 along with results from other studies that had limited data.

Case Study 1: Electric Power Research Institute (EPRI) Site No. 24, South Glenn Falls, Saratoga County, N.Y.

This study was conducted to demonstrate and document the effectiveness of the removal of FMGP tar source material and natural attenuation of the contaminant plume as a remediation alternative for FMGP sites (EPRI 1996). The 4.5 acre site is approximately 0.8 km northwest of the Hudson River and west of South Glenn Falls, N.Y. In the 1960s, several 200 L drums of gas main sealant along with 15,000–60,000 L of coal tar were pumped into a shallow, unlined trench at the site. The FMGP waste has contaminated approximately 5,500 m^3 of soil, forming a dissolved phase plume stretching approximately 430 m downgradient. The geology of the site consists of a shallow (0.5 m) top soil layer underlain by 4.6 m of coarse to medium grained sands. Silt and clay to very fine-grained sands become predominant between 4.6 and 6 m below ground surface (BGS). Soil borings revealed a confining clay to silty clay layer between 6 and 7.3 m BGS. The sands were well sorted and stratified, characteristic of a glacial outwash deposit (EPRI 1996). Hydraulic conductivities, measured by several slug tests and pumping tests, were found to range from 0.09 to 8.16 m/day in the various silts and sediments. The average groundwater velocity through the site was estimated to be 0.096 m/day, with an average horizontal hydraulic gradient of 0.0086 m/m. The average bulk density and porosity of the site soils were determined to be 1,997 kg/m^3 and 0.35, respectively.

Remediation activities were initiated in 1987, which included source soil removal; groundwater contaminant, geochemistry, and microorganism sampling; laboratory batch biodegradation studies; and plume-scale modeling efforts with the numerical code MYGRT. The focus of the monitoring program was the natural attenuation of the dissolved-phase plume following source removal. Transects of the contaminant plume down the centerline and across the plume in several locations showed clearly that dissolved oxygen concentrations were depleted in regions of high PAH contamination, suggesting that active bioremediation of the contaminant plume was occurring. Laboratory studies of site soils showed increased numbers of PAH-degrading organisms in the contaminated cores and elevated protozoa counts down-gradient of the source, supporting the premise that active bioattenuation was occurring in the contaminant plume (EPRI 1996).

Investigations of the site soils within the dissolved-phase contaminant plume yielded organic carbon contents of the site soils between 0.5 and 2.1%, but in general less than 1%. Based on these results, the retardation coefficients for naphthalene, acenaphthylene, phenanthrene, and toluene were estimated to be 4.0, 2.7, 10, and 1.7, respectively. Using these coefficients with the MYGRT transport code and field sampling data, estimates of the first-order decay rate coefficients for naphthalene, acenaphthylene, phenanthrene, and toluene were found to be 2.7×10^{-4} day^{-1}, 2.7×10^{-4} day^{-1}, 2.7×10^{-5} day^{-1}, and 6.8×10^{-4} day^{-1}, respectively. Over the course of three years of monitoring the dissolved-phase plume after source removal, extensive dissipation in the naphthalene, acenaphthylene, and toluene plume sizes and concentrations were observed. No detectable phenanthrene was observed in any groundwater sample from any well three years after source removal. Modeling and monitoring results suggest that no naphthalene will be present at any location in the groundwater above the 10 μg/L detection limit by the year 2030.

Case Study 2: Former Manufacturing Gas Plant (FMGP) site, Charleston, S.C.

This study was conducted to assess whether contamination from a FMGP site that operated from 1855 to 1957 in downtown Charleston, South Carolina, would impact the adjacent Cooper River. The path of the plume from the FMGP site to the Cooper River transverses an 8 acre National Park Service property (Campbell et al. 1996). According to Landmeyer et al. (1998), the geology of the property consists of two Quaternary lithostratigraphic marine units, the Wando Formation and Holocene deposits, overlain by fill. The fill is composed of sand, silt, wood, sawdust, concrete, bricks, cinders, and various other scrap materials. The depth of the fill varies from 3 to 6.1 m deep and is considered to be an unconfined (fill) aquifer. The Wando Formation consists of soft organic clay overlain by gray sand with a lower depth of about 23 m below ground level, while the upper depth varied between 10.6 and 16.8 m below ground level (Campbell et al. 1996). It is considered to be the lower confined aquifer at the site. The Holocene deposits provide a confining layer between the upper unconfined fill aquifer and the lower confined sand aquifer. These deposits are composed of clayey to silty sand and soft, organic-rich clay with a thickness that varies from 1.5 m to as much as 12.2 m (Landmeyer et al. 1998). The hydraulic conductivities were from 0.03 to 3 m/day for the upper unconfined fill aquifer and 4.9 m/day for the lower confined sand aquifer. The depth to water at the site is approximately 0.5 m below ground level.

An intrinsic bioremediation study was initiated in 1993 which included sampling of groundwater contaminants and geochemical parameters, laboratory analysis of adsorption coefficients and biodegradation rates with aquifer materials, and modeling efforts of the plumes with the numerical code SUTRA (Campbell et al. 1996). The focus of the study was on the unconfined fill aquifer. During two sampling events of redox parameters in 1994 and again in 1997, dissolved oxygen was not present in any of the wells. High dissolved ferrous iron concentrations were observed in some wells. However, the presence of hydrogen at concentrations between 0.95 and 4.34 nM in these wells suggested that the ferrous iron was produced in earlier times of iron reducing conditions and that the aquifer was experiencing sulfate-reducing conditions (Landmeyer et al. 1998). This was evidenced by the concentrations of hydrogen sulfide and dissolved sulfate of up to

5.11 and 633 mg/L, respectively. The presence of methane up to 13.4 mg/L indicated that methanogenic bacteria were present within the contaminant plume as well. Campbell et al. (1996) determined through laboratory analyses that the first-order biodegradation rates of toluene using aquifer sediments were 0.84 and 0.0020 day^{-1} for aerobic and anaerobic environments, respectively, while the laboratory adsorption coefficient was determined to be 0.94 L/kg. In the case of naphthalene, the first-order laboratory microbial degradation rates were 0.88 and 4.6×10^{-5} day^{-1} for aerobic and anaerobic environments, respectively. The naphthalene linear sorption coefficient for the sediments was estimated in the laboratory to be equal to or greater than 137 L/kg. Using site modeling techniques and field sampling data, these researchers reported best estimates for toluene first-order degradation rate constant and linear sorption coefficient to be 9×10^{-5} day^{-1} and 0.62 L/kg, respectively, using hydraulic conductivities between 0.12 and 1.2 m/day. Using the same hydraulic conductivities, the best-fit model estimates for the first-order degradation rate constant and linear sorption coefficient for naphthalene were 6.9×10^{-5} day^{-1} and 0.0014 L/kg, respectively. These results showed that field degradation rates for these compounds were more closely related to anaerobic lab degradation rates. The model simulations using the modeled best estimates indicated that toluene will not impact the Cooper River within 150 years but naphthalene will impact the Cooper River within this time period at a concentration of less than 5 mg/L.

Case Study 3: Creosote Source Emplacement, Borden, Ontario

The natural attenuation study at the Borden site was initiated on August 8, 1991. Coal tar creosote compounds were placed below the water table in two 1.5-m long by 5-m wide by 1.5-m deep excavations of an unused sand pit at Borden, Ontario, Canada (Fowler et al. 1994; King and Barker 1999). The source material consisted of 74 kg of creosote mixed with approximately 5,800 kg of sand and several kilograms of sodium chloride, with a resulting residual creosote content of approximately 7% of the source pore volume. The geology of the site consisted of an unconsolidated aquifer of medium to fine sand of glacio-lacustrine origin with a hydraulic conductivity of approximately 6–8.4 m/day longitudinal dispersivity between 0.08 and 0.036 m, and transverse dispersivity of 0.03–0.039 m. The sand aquifer grades into silts and clays at a depth of approximately 9 m and the water table fluctuates between the ground surface and a depth of 1.5 m. The groundwater velocities were estimated to range between 0.081 and 0.0947 m/day. The quality of the background groundwater was considered to be hard, with oxygen contents ranging up to 8.5 mg/L and averaging 2.47 mg/L, nitrate concentrations ranging from 0.6 to 6 mg/L, and sulfate concentrations between 10 and 30 mg/L. The groundwater contained low dissolved organic carbon (<0.7 mg/L), and the temperature and pH varied from 6 to 15°C and from 7.1 to 7.9, respectively. The aquifer material had organic carbon contents ranging from 0.01 to 0.09%, with an average of 0.02%. The porosity, bulk density, and solids density of the aquifer material taken as the volume-weighted arithmetic means of 36 samples were estimated to be 0.33, 1.81 g/cm^3, and 2.71 g/cm^3, respectively.

Groundwater samples were obtained from various multilevel samplers over the course of four years. Retardation coefficients were estimated from field data (based on chloride migration) for phenol (1.05), m-xylene (2.5 at 5.9 m from the source and 3.7 at 24.05 m from the source), naphthalene (2.6 at 5.9 m from the source and 3.5 at 24.05 m from the source), and dibenzofuran (3.12 at 5.9 m from the source) (King et al. 1999; King and Barker 1999). Laboratory batch sorption experiments yielded linear distribution coefficients (liters per kilogram) of 0.22 for naphthalene, 1.80 for phenanthrene, 0.67 for dibenzofuran, 0.83 for carbazole, and 0.24 for 1-methylnaphthalene, resulting in estimates of the linear retardation coefficients based solely on sorption of 2.2, 10.87, 4.67, 5.55, and 2.31, respectively. Batch sorption experiments for phenol and m-xylene yielded linear distribution coefficients equal to zero. Therefore, estimates of the linear distribution coefficients were made based on the octanol-water partition coefficients and equaled 0.01 for phenol and 0.11 for m-xylene, resulting in retardation coefficients of 1.05 and 1.6, respectively (King et al. 1999).

Redox parameters were monitored at 1,008 and 1,357 days after source emplacement both inside and outside the creosote plume. Average dissolved oxygen concentrations dropped from 2.47 mg/L outside the plume to 0.13 mg/L inside the plume. Nitrate and ammonia concentrations were greatly variable; however, the average values decreased from 2.35 to 1.51 mg/L and 0.62 to 0.21 mg/L, respectively, from outside to inside the contaminant plume. In addition, anaerobic degradation of the compounds was suggested by increases in reduced iron (0 to 0.2 mg/L), reduced manganese (<0.05 to 0.13 mg/L), and methane (0.001 to 0.036 mg/L) and a decrease in sulfate (14.1 to 11.6 mg/L) from outside to inside the contaminant plume. Phospholipid fatty acids analysis of aquifer cores indicated a higher concentration of microorganisms inside the contaminant plume than outside the plume.

Phenol was observed to deplete quickly from the source material and migrate as a discrete slug after 439 days, at which time the peak concentration was only 7% of the 55 day concentration as compared to 44% for chloride, suggesting significant transformation, given its low sorptivity. In contrast, dibenzofuran, naphthalene, phenanthrene, carbazole, 1-methylnaphthalene, and m-xylene were not completely released from the source. m-Xylene was observed to increase in extent from zero to 626 days followed by recession back to the source at 1,008 days and 1,357 days due to transformation. The dibenzofuran plume was observed to reach steady state by 1,008 days, as the mass flux into the plume was balanced by mass transformation within the plume. Phenanthrene was observed to rapidly expand into the aquifer from 626 to 1,008 days, then receded and decreased in mass at 1,357 days. Like dibenzofuran, carbazole was observed to reach steady state between 1,008 and 1,357 days, but this was attributed to a decrease in source loading. The naphthalene and 1-methylnaphthalene plumes steadily increased in extent and mass over the time course of the sampling, while the source fluxes decreased. All compounds were observed to be transformed in the contaminant plume, with half-lives of 78, 1,215, 11–49, 173, 99, 41, and 110 days for m-xylene, naphthalene, phenanthrene, 1-methylnaphthalene, phenol, dibenzofuran, and carbazole, respectively; the estimated first-order decay coefficients were 8.9×10^{-3}, 5.7×10^{-4}, 0.014–0.063, 4.0×10^{-3}, 7×10^{-3}, 0.017×10^{-3}, and 6.3×10^{-3} day^{-1}, respectively. However, the phenanthrene half-life may be subjected to significant error due to the assumption of linearity between sampling events and the large changes in phenanthrene concentration. Based upon the modeling results, it was expected that the naphthalene plume would continue to advance for at least two more years before reaching steady state.

Case Study 4: Pulse Injection, Columbus Air Force Base, Macrodispersion Experiment Site (MADE), Columbus, Miss.

This natural attenuation study was initiated on June 26, 1990. The objective of this study was to measure degradation due to natural attenuation of a pulse injection of tritiated water, benzene, p-xylene, naphthalene, and o-dichlorobenzene in the saturated region of an unconfined aquifer at the macrodispersion experiment (MADE) site of Columbus Air Force Base, Columbus, Mississippi. At approximately 40 m down-gradient of the injection source, lower hydraulic conductivity regions prevail (0.86 m/day). From 40 m to approximately 200 m down-gradient of the injection source, the upper 3 m of the aquifer has an average hydraulic conductivity of 86 m/day, while the hydraulic conductivity of the soil underlying this region remains low. Three hundred and twenty eight sampling wells were on the site, most of which contained multilevel samplers (Boggs et al. 1992).

A mass balance based on spatial moment analysis and compared with tritium migration was used to estimate biodegradation rates. A pulse of 9,600 L of dilute tracer and the organic compounds was released over 47.5 h through 0.6 m screened intervals, 4 m below the phreatic surface, in five injection wells spaced at 1 m intervals forming a line normal to the direction of the hydraulic gradient. Concentrations in the injection fluid were 55.6 μCi/L tritium, 51.5 mg/L p-xylene containing 2.77 μCi/L ^{14}C radiolabeled p-xylene, 68.1 mg/L benzene, 7.23 mg/L naphthalene, and 32.8 mg/L o-dichlorobenzene. Aqueous samples were taken from multilevel samplers at 27, 132, 224, 328, and 440 days after injection, and dissolved oxygen concentrations were monitored 8 days prior to and 48, 111, 161, 264, and 330 days after injection.

Linear distribution coefficients estimated from batch studies on the aquifer material for naphthalene, o-dichlorobenzene, p-xylene, and benzene were 0.085, 0.065, 0.048, and 0.059 L/kg, respectively. However, because of the strong influence of degradation, the effects of sorption on organic solute distributions were considered minimal and therefore ignored in assessing degradation rates. The temporal average dissolved oxygen concentration in the contaminant plume was determined to be 3.8 mg/L with a minimum individual value of 2.6 mg/L, suggesting aerobic conditions. Degradation in the Columbus aquifer material was observed to be approximately first order with an initial lag period attributed to microbial adaptation, cell growth, and substrate limitation. The maximum first-order degradation plus dilution rates were taken directly from plots of contaminant concentration versus time. The degradation rates were then corrected to yield degradation rates for the four compounds by subtracting the first-order rate of migration of tritium out of the region of interest from these maximum values. The resulting approximate first order degradation rate constants obtained from this method were 0.0066, 0.0141, 0.0063, and 0.0059 day^{-1} for benzene, p-xylene, naphthalene, and o-dichlorobenzene, respectively.

Case Study 5: Unlined Municipal and Industrial Landfill, Vejen, Denmark

The objective of this study was to identify specific redox environments controlling the fate of specific xenobiotic organic contaminants in a contaminant plume resulting from leachate leaking from an unlined municipal and industrial landfill in Vejen, Denmark. The landfill operated between 1962 and 1981. The leachate has been characterized and determined to contain BTEX, herbicides, phenols, substituted benzenes, and naphthalene (Lyngkilde and Christensen 1992). The site geology consists of a shallow, unconfined, sandy glacioalluvial aquifer, confined at the bottom by a clay deposit at a depth of 20 m close to the landfill and rising to a depth of 10 m at a distance of 400–500 m down-gradient of the landfill. Small clay lenses can be found within the aquifer with a single substantial clay lens stretching out into the aquifer from below the landfill. The pore water velocity in the landfill was estimated to be 0.41–0.55 m/day.

Monitoring of the site was conducted at 41 well nests of two monitoring wells, each with a 10 cm sampling screen set at different depths, all within 130 m of the landfill and set upon the plume centerline. Prior to initiation of the study, redox sensitive parameters were monitored and it was estimated that the groundwater within the contaminant plume was primarily anaerobic. A methanogenic region stretching to less than 50 m from the landfill was followed by sulfidogenic, ferro-/manganogenic, and nitrate-reducing redox zones. Aerobic conditions were again observed at about 300 m down-gradient of the landfill.

Using chloride as a conservative tracer, the site was monitored for 285 days to observe the leachate plume characteristics. It was observed that the contaminant plume was stationary; therefore, the rate of source influx was balanced by degradation, dilution, and dispersion. Changes in the chloride concentration were used to estimate dispersive losses and thus allowed for the estimation of degradative losses by subtracting dispersive losses from the overall change in concentration with distance for a specific compound. Utilizing this method, it was observed that the compounds studied completely degraded under anaerobic (ferrogenic) conditions. First-order degradation rate constants estimated from half lives taken from the plots of corrected compound disappearance versus distance for BTEX and naphthalene were 0.009–0.013 day^{-1} and 0.011–0.015 day^{-1}, respectively (Lyngkilde and Christensen 1992). Further studies of indigenous microcosms in aerobic, denitrifying, ferrogenic, and methanogenic conditions showed that naphthalene could only be degraded under aerobic or ferrogenic conditions (Nielsen and Christensen 1994).

Case Study 6: Former Manufacturing Gas Plant (FMGP) site, Dubuque, Iowa

The Dubuque Key City FMGP site is located on the south side of downtown Dubuque, Iowa, approximately 0.8 km west of the Mississippi River. The site originally operated as a coking facility (prior to 1862 until 1907), then was converted to and operated as a manufactured gas and peaking facility from 1907 to 1939. After plant closure, the site and the property directly to the west of the site housed petroleum service stations that operated between 1950 and 1993. Historic manufactured gas plant operations, waste disposal practice, and leaking storage tanks in the manufactured gas plant facility resulted in contamination of the site with coal tar and FMGP residuals. Leaking gasoline tanks at the petroleum service stations further complicated the contamination at the site and possibly increased the mobility and extent of migration of higher molecular weight PAHs that may be solubilized by the gasoline. Natural attenuation as a remedial technology was investigated at this site (Ong et al. 2001).

The geology of the site may be divided into four units: a mixed fill, cohesive and granular alluvium, a granular alluvial aquifer, and bedrock. The mixed fill is from 0.6- to 4.8-m thick and consists of sand, silt, clay, gravel, and debris in varying proportions. The fill is underlain by a 1.5–5.8-m thick unit of interbedded cohesive and granular alluvium. The cohesive and granular alluvium is in turn underlain by an alluvial aquifer that ranges

from 1.5 m to about 24.4-m thick. The alluvial aquifer is primarily composed of fine to medium grained sand and is underlain by sedimentary bedrock. The depth to groundwater at the site varies from 2.7 m to greater than 5.8 m BGS. The estimated hydraulic conductivities of the aquifer based upon slug tests in monitoring wells ranged from 1.5 to 623 m/day. Hydraulic gradients on the site range from 0.004 to 0.006 m/m, with slight downward vertical gradients. Groundwater flows primarily from west-northwest to east-southeast through the site and towards the Mississippi River with a seepage velocity of between 56 and 84 m/year.

Depleted dissolved oxygen, manganese, sulfate, and nitrate, and increased sulfide, nitrite, total and ferrous iron, and ammonia were measured in various monitoring wells located within the contaminant plume. These results indicate that various microbial processes are occurring within the plume. Utilizing a section of wells bisecting the plume and extending from the source region, reduction of several PAH and BTEX compounds with distance was observed. Assuming a steady-state plume and first-order decay, the overall attenuation rate coefficients for several PAH and BTEX compounds were estimated. The overall attenuation rates were 0.0063, 0.0081, 0.0029, 0.0028, and 0.0043 day^{-1} for benzene, naphthalene, acenaphthylene, anthracene, and phenanthrene, respectively.

Summary and Outstanding Issues

There are not many studies on natural attenuation of PAH-contaminated sites. In the studies above, the first-order decay rates of naphthalene, acenaphthylene, and phenanthrene based on modeling of field data were estimated to be 0.00057–0.0063 day^{-1}, 0.00027 day^{-1}, and 0.000027–0.063 day^{-1}, respectively. These studies tended to focus on the degradation of low molecular weight PAH compounds. The fate of higher molecular weight PAHs (more than three rings) was not documented and remains unknown. Laboratory studies have indicated that higher molecular weight PAH compounds may be used as carbon and energy sources or biodegraded via cometabolism that is stimulated by the addition of low molecular weight PAH compounds or their metabolites. Organisms that can directly degrade higher molecular weight PAH compounds typically have the ability to use lower molecular weight PAH compounds. However, because of the complex nature of the pollution at many of the PAH-contaminated sites, it is unclear how the presence of low molecular weight PAHs will impact the biodegradation of the high molecular weight PAHs and vice versa.

The above studies have focused on merely showing a depletion of the PAH compounds at the field scale, albeit from changes in source loading, sorption, degradation, or dispersion (dilution), and the use of simple models and laboratory studies to estimate the fate of PAHs in the environment. Modeling attenuation of these compounds typically involves several assumptions that may include steady-state plumes or rapid degradation rates (allowing the neglect of sorption), linear and reversible sorption models, and assumed source dissolution rates that remain constant. Aside from obvious limitations associated with characterizing source terms and hydraulic modeling, modeling limitations imposed by these assumptions may preclude their usefulness, as recent evidence has suggested that PAH sorption and desorption are highly nonlinear and hysteric processes, and the strength of sorption can vary greatly with different geosorbents.

There is evidence from the measurement of geochemical parameters in the above studies that alternate electron acceptors (other than dissolved oxygen) are being consumed in PAH-contaminated plumes at various sites. At the field scale, geochemical environments tend to intertwine and lose clear definition. Laboratory studies of PAH degradation with soils under different electron acceptor conditions display a diversity of conditions under which PAH compounds may biodegrade including aerobic, nitrate reducing, ferrogenic, and sulfidogenic conditions. However, these studies are performed in strictly isolated geochemical environments, not allowing for the study of the relative importance of each electron acceptor in a complex mixed geochemical environment such as those commonly observed at the field scale. Degradation of PAH compounds at a contaminated site may well take place in microaerophillic regions interbedded in anaerobic regions or sulfidogenic regions interbedded in ferrogenic regions, etc. It is reasonable to assume not all geochemical environments may be important at a particular site, and the relative importance of each may change from site to site. Furthermore, there is no direct evidence that the existence of a particular geochemical environment even correlates with the biodegradation of PAH rather than non-PAH compounds such as degradation byproducts or co-contaminating compounds. This makes delineation of important redox conditions for microbial degradation of PAH compounds at the site level difficult with current methods, complicating modeling and monitoring efforts, as all geochemical environments must be considered. Elucidating the dominant electron acceptor conditions for the biodegradation of PAHs in PAH-contaminated plumes will assist in formulating strategies to stimulate and enhance the attenuation processes at these sites. Without an understanding of the biodegradation of PAHs in complex mixtures and the role of each electron acceptor, better models cannot be developed to predict the fate of PAH compounds during natural attenuation.

Some of the field conditions that were not addressed in the cited studies include the impact of residual contamination (in the form of nonaqueous phase liquids or coating of the soils with contaminants such as coal tar) on the solubilities and the final fate and transport of the PAHs. Furthermore, the impact of cocontaminating compounds such as volatile organic carbons and cyanide on the degradation, solubility, and transport of PAHs were not studied. Soils taken from several different environments have been shown to contain organisms capable of PAH degradation in different geochemical environments that are not consistent from site to site. Studies of natural attenuation of PAH compounds, however, have continued to regard natural microbial communities as a homogeneous "black box." Natural microbial communities are dynamic in composition and activity in time and space; therefore, the microbial "black box" of these complex sites should not be assumed homogeneous and consistent.

As the trend in natural attenuation policy shifts from merely displaying disappearance of contaminants at the field scale to determining precisely the fate of the compounds (the definitive reasons for the depletion), the circumstantial evidences of attenuation processes will need to be supported by direct evidence. Future studies will require a shift toward methods that better describe source releases and specifically track the fate and attenuation of PAH compounds from dilution, sorption, and biodegradation processes. These methods must have the capability of opening the microbial "black box" at contaminated sites and allow the study of the specific microbiological fate of contaminants under hypoxic and changing heterogeneous conditions. Based on the few studies presented above, natural attenuation of low molecular weight PAHs appears to be promising for these sites. The exact fate of PAH compounds in general, especially the higher molecular weight PAHs, needs further investigation.

Data Set: C:\Users\cadams\Desktop\Slug Test\3001-13 5th\MW-114.aqt
Date: 10/18/23
Time: 22:59:13

PROJECT INFORMATION

Company: Carnow Conibear
Client: AIS
Location: 3001-13 5th Ave
Test Date: 10/11/23
Test Well: Falling Head Test

AQUIFER DATA

Saturated Thickness: 3. ft
Anisotropy Ratio (Kz/Kr): 1.

SLUG TEST WELL DATA

Test Well: MW-114

X Location: 0. ft
Y Location: 0. ft

Initial Displacement: 3. ft
Static Water Column Height: 4.98 ft
Casing Radius: 0.16 ft
Well Radius: 0.16 ft
Well Skin Radius: 1.6 ft
Screen Length: 10. ft
Total Well Penetration Depth: 10. ft
Corrected Casing Radius (Bouwer-Rice Method): 0.1386 ft
Gravel Pack Porosity: 0.

No. of Observations: 114

Observation Data

Time (sec)	Displacement (ft)	Time (sec)	Displacement (ft)
1.	2.904	58.	2.66
2.	2.891	59.	2.66
3.	2.886	60.	2.655
4.	2.887	61.	2.653
5.	2.881	62.	2.65
6.	2.876	63.	2.648
7.	2.868	64.	2.649
8.	2.863	65.	2.644
9.	2.859	66.	2.644
10.	2.852	67.	2.642
11.	2.846	68.	2.64
12.	2.842	69.	2.638
13.	2.837	70.	2.638
14.	2.854	71.	2.635
15.	2.832	72.	2.632
16.	2.827	73.	2.63
17.	2.821	74.	2.628
18.	2.813	75.	2.626
19.	2.81	76.	2.624
20.	2.807	77.	2.621
21.	2.804	78.	2.618
22.	2.8	79.	2.617
23.	2.798	80.	2.613
24.	2.813	81.	2.613
25.	2.828	82.	2.611
26.	2.78	83.	2.607
27.	2.781	84.	2.606
28.	2.778	85.	2.606
29.	2.776	86.	2.604

Time (sec)	Displacement (ft)	Time (sec)	Displacement (ft)
30.	2.774	146.	2.499
31.	2.769	206.	2.414
32.	2.762	266.	2.361
33.	2.759	326.	2.319
34.	2.754	386.	2.269
35.	2.75	446.	2.214
36.	2.748	506.	2.165
37.	2.743	566.	2.115
38.	2.737	626.	2.074
39.	2.736	686.	2.034
40.	2.731	746.	2.
41.	2.727	806.	1.937
42.	2.721	866.	1.91
43.	2.718	926.	1.889
44.	2.715	986.	1.866
45.	2.712	1046.	1.842
46.	2.707	1106.	1.825
47.	2.705	1166.	1.802
48.	2.699	1226.	1.784
49.	2.696	1286.	1.767
50.	2.692	1346.	1.751
51.	2.689	1406.	1.737
52.	2.683	1466.	1.721
53.	2.679	1526.	1.711
54.	2.677	1586.	1.699
55.	2.673	1646.	1.69
56.	2.669	1706.	1.68
57.	2.664	1766.	1.67

SOLUTION

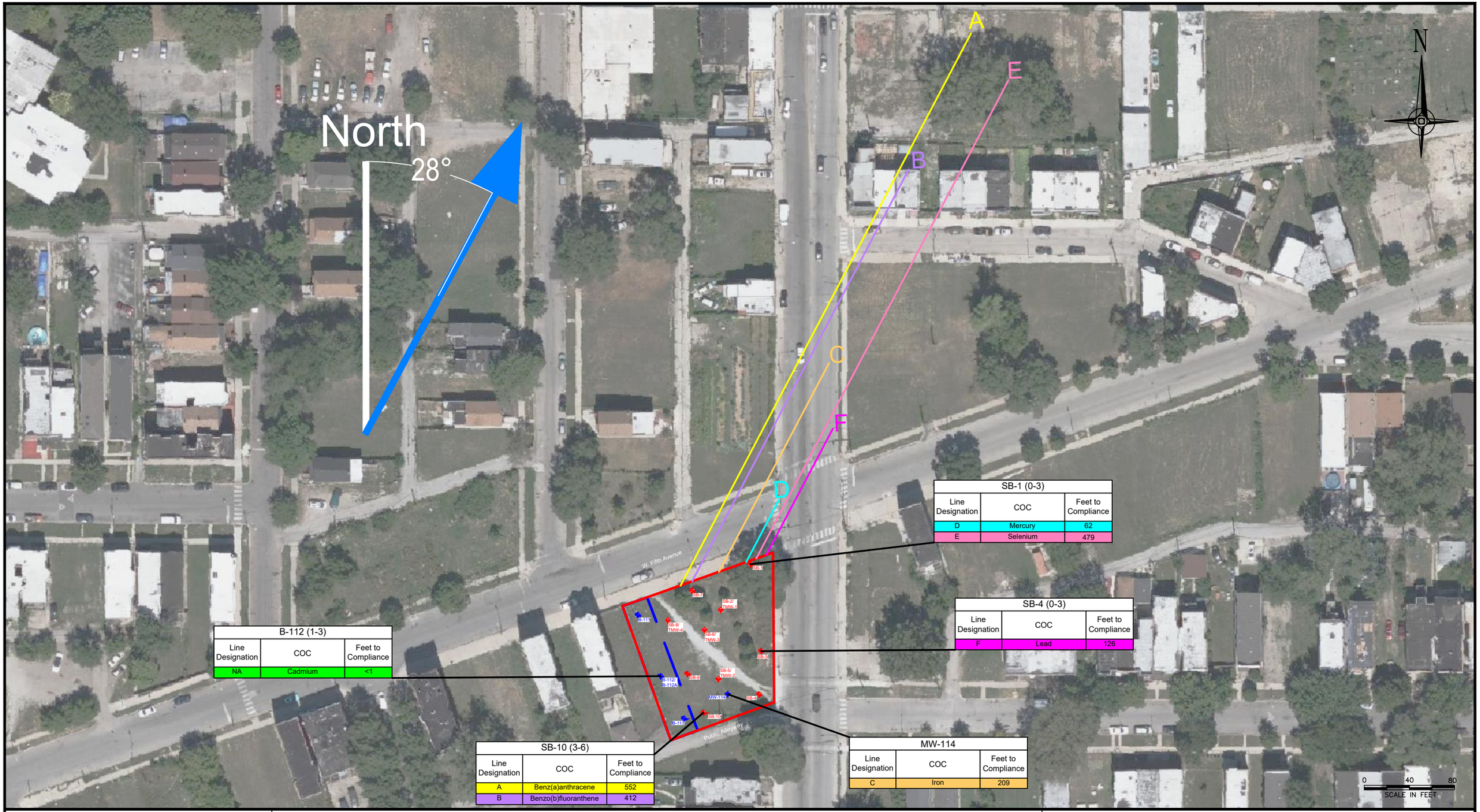
Slug Test
Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
ln(Re/rw): 3.172

VISUAL ESTIMATION RESULTS

Estimated Parameters

Parameter	Estimate	
K	2.727	cm/day
y0	2.747	ft

K = 3.156E-5 cm/sec
T = K*b = 249.3 cm²/day (0.002886 sq. cm/sec)



SB-1 (0-3)		
Line Designation	COC	Feet to Compliance
D	Mercury	62
E	Selenium	479

SB-4 (0-3)		
Line Designation	COC	Feet to Compliance
F	Lead	126

B-112 (1-3)		
Line Designation	COC	Feet to Compliance
NA	Cadmium	<1

SB-10 (3-6)		
Line Designation	COC	Feet to Compliance
A	Benz(a)anthracene	552
B	Benzo(b)fluoranthene	412

MW-114		
Line Designation	COC	Feet to Compliance
C	Iron	209

Date:	January 2024
Scale:	1"=80'
Drawn by:	LT
Checked by:	DSB

Your Environmental Resource

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LEGEND

- Site Boundary
- PIN 16-13-115-009 Boundary
- B-100 CCA Soil Borings
- MW-100 CCA Permanent Monitoring Well
- SB-# 2018 Soil Borings
- TMW-# 2018 Temporary Monitoring Wells

Tier 2 Exhibit : Points of Compliance - Tier I Class II GROs
3001-13 W. 5th Avenue
Chicago, Illinois 60623

Carnow, Conibear & Assoc., Ltd.
Environmental Consulting Services
600 W. Van Buren St., Suite 500, Chicago, IL 60607
t: 312.782.4486 f: 312.782.5145
www.ccaltd.com

CARNOW CONIBEAR

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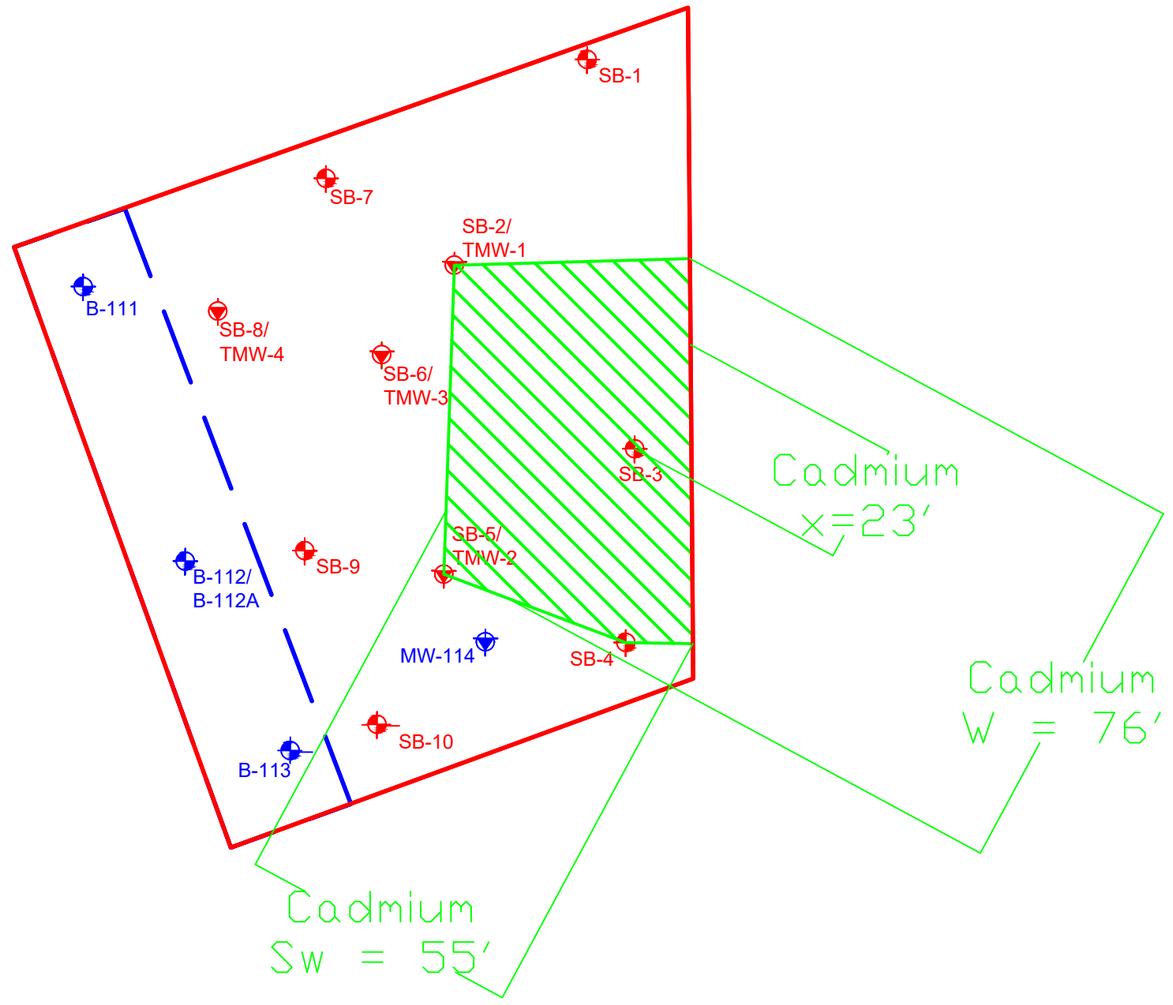

0 15 30
SCALE IN FEET

Date:	January 2024
Scale:	1"=30'
Drawn by:	LT
Checked by:	DSB

Your Environmental Resource

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LEGEND

- Site Boundary
- PIN 16-13-115-009 Boundary
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- MW-100 CCA Permanent Monitoring Well
- SB-# 2018 Soil Borings
- TMW-# 2018 Temporary Monitoring Wells

[Shaded] = Estimated Extent of Soils Exceeding Tier 1 SROs

Tier 2 Exhibit: Cadmium
3001-13 W. 5th Avenue
Chicago, Illinois 60623

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Environmental Consulting Services
600 W. Van Buren St., Suite 500, Chicago, IL 60607
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www.ccaltd.com

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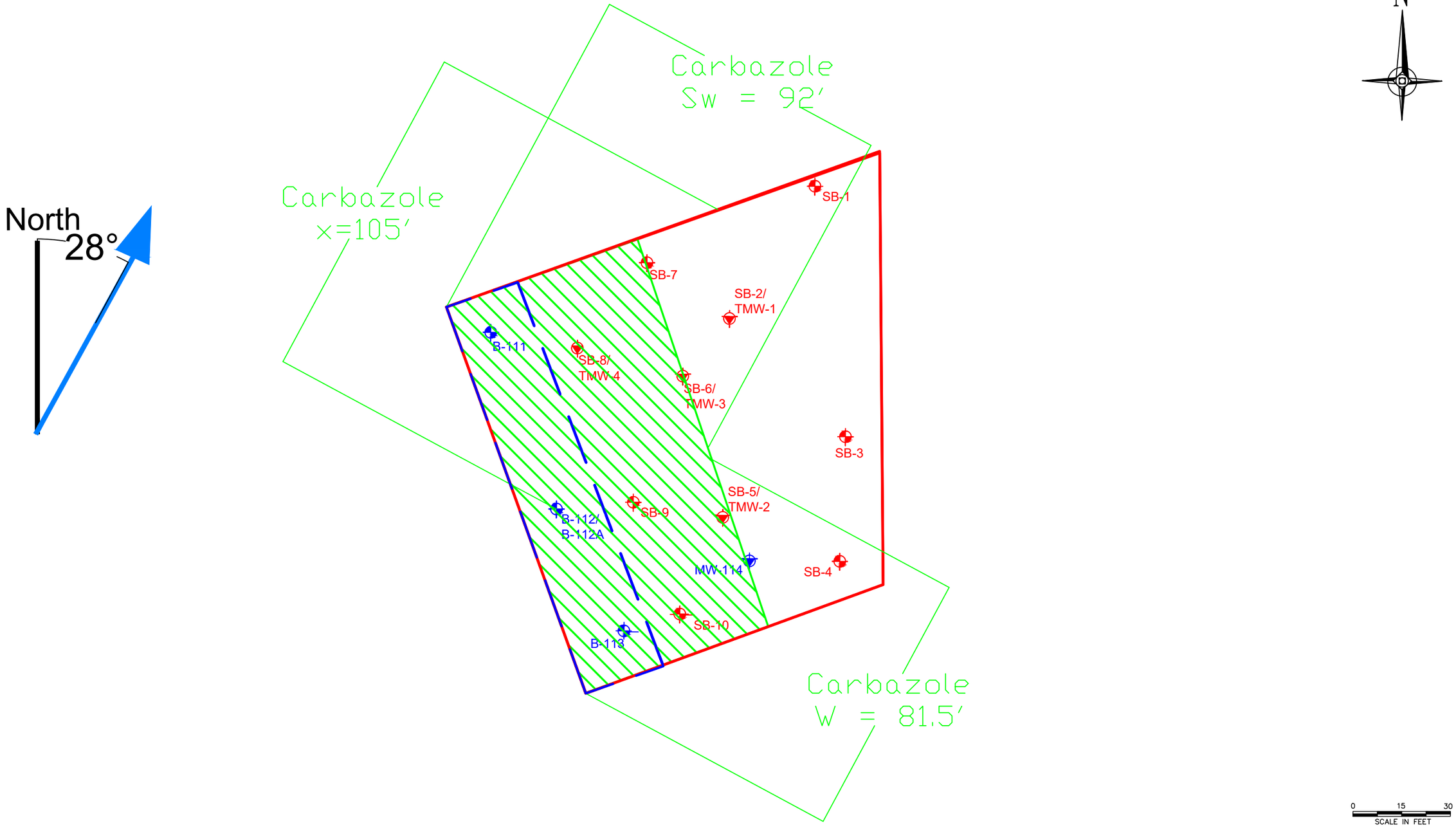

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Your Environmental Resource

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LEGEND

- Site Boundary
- PIN 16-13-115-009 Boundary
- B-100 CCA Soil Borings
- MW-100 CCA Permanent Monitoring Well
- SB-# 2018 Soil Borings
- TMW-# 2018 Temporary Monitoring Wells

[Shaded] = Estimated Extent of Soils Exceeding Tier 1 SROs

Tier 2 Exhibit: Carbazole
3001-13 W. 5th Avenue
Chicago, Illinois 60623

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600 W. Van Buren St., Suite 500, Chicago, IL 60607
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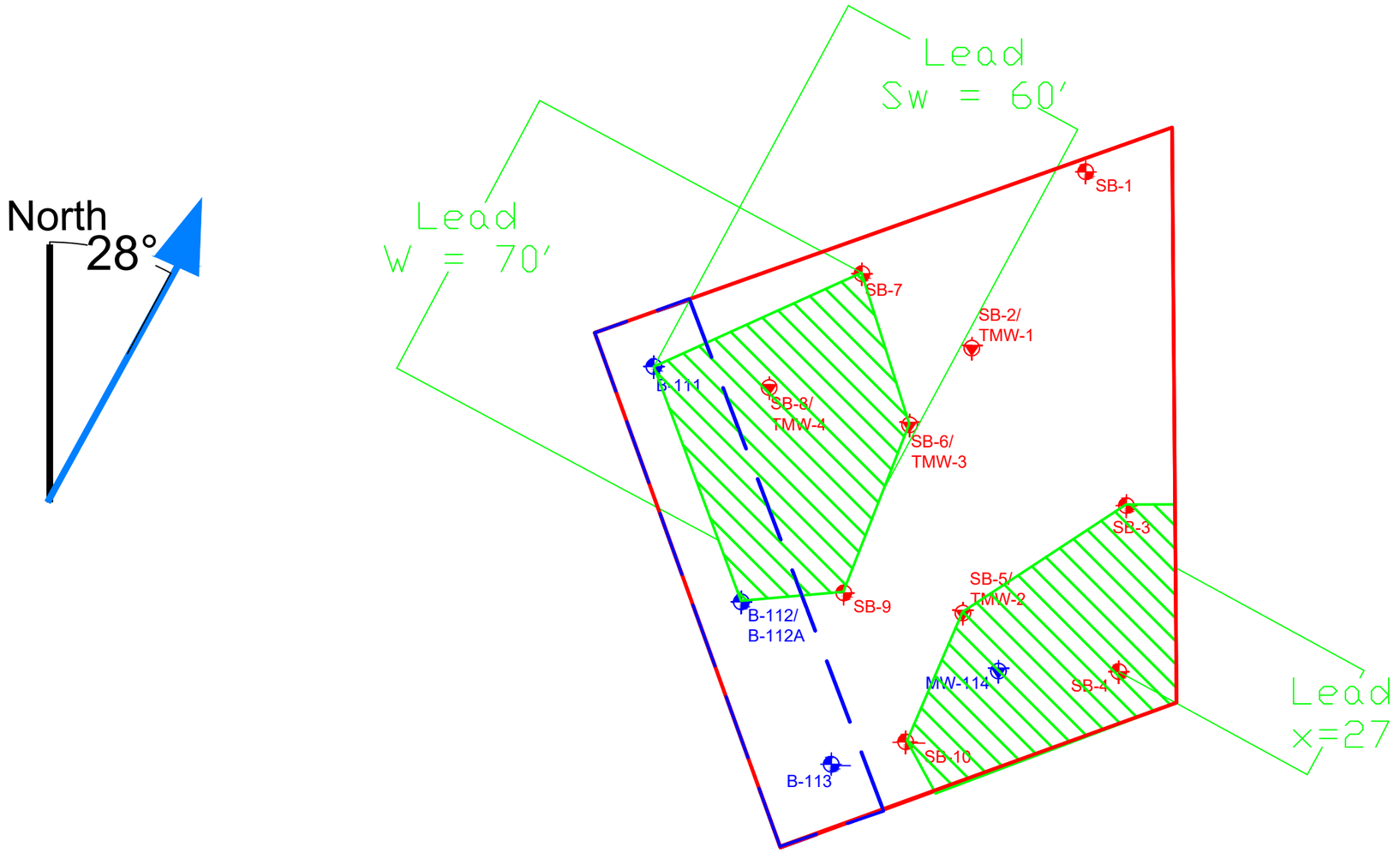
www.ccaltd.com

CARNOW CONIBEAR



Date:	January 2024
Scale:	1"=30'
Drawn by:	LT
Checked by:	DSB

Your Environmental Resource

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LEGEND

- Site Boundary
- PIN 16-13-115-009 Boundary
- B-100 — CCA Soil Borings
- MW-100 — CCA Permanent Monitoring Well
- SB-# — 2018 Soil Borings
- TMW-# — 2018 Temporary Monitoring Wells

[Shaded] = Estimated Extent of Soils Exceeding Tier 1 SROs

Tier 2 Exhibit: Lead
3001-13 W. 5th Avenue
Chicago, Illinois 60623

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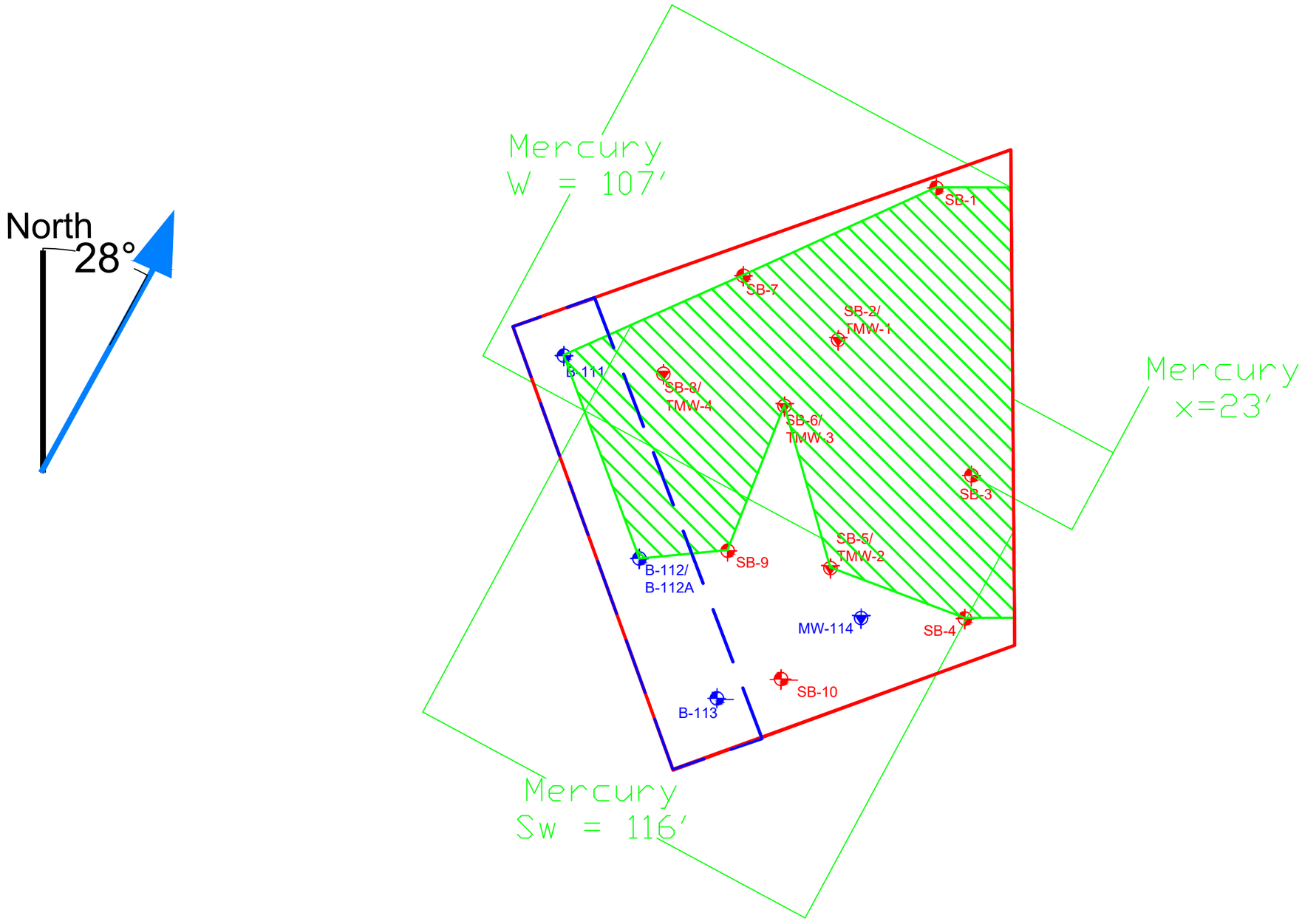
www.ccaltd.com

CARNOW CONIBEAR



Date:	January 2024
Scale:	1"=30'
Drawn by:	LT
Checked by:	DSB

Your Environmental Resource

T:\AIS\2021 SE Zone Phase I&IIESA, SRP and Oversight\3001-3013 W 5th Ave\SRP\CSIRORRAP\Drawings\3001-13 W Fifth_All Exhibits.dwg

LEGEND

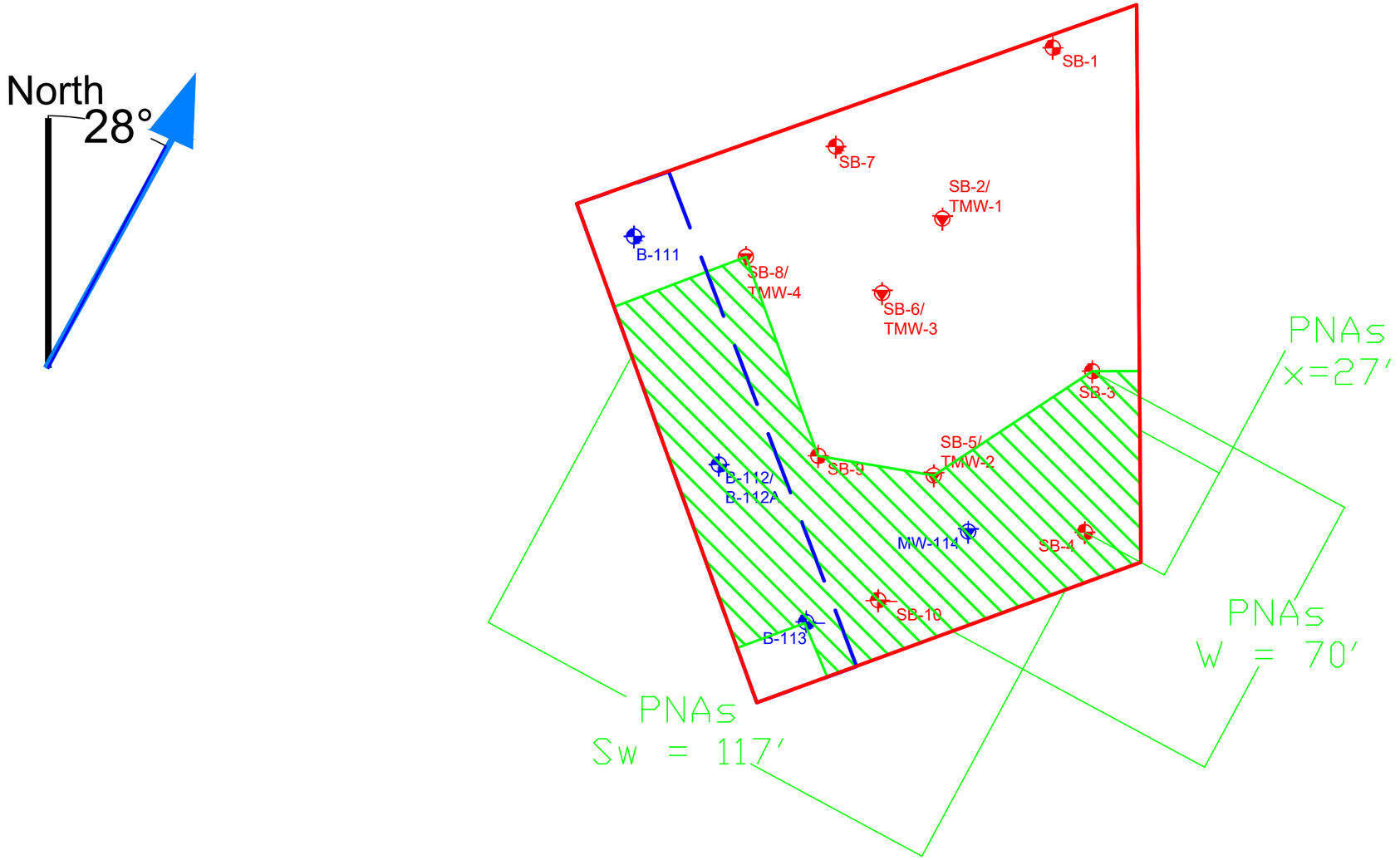
- Site Boundary
- PIN 16-13-115-009 Boundary
- B-100 — CCA Soil Borings
- MW-100 — CCA Permanent Monitoring Well
- SB-# — 2018 Soil Borings
- TMW-# — 2018 Temporary Monitoring Wells

[Shaded] = Estimated Extent of Soils Exceeding Tier 1 SROs

Tier 2 Exhibit: Mercury
3001-13 W. 5th Avenue
Chicago, Illinois 60623

Carnow, Conibear & Assoc., Ltd.
Environmental Consulting Services
600 W. Van Buren St., Suite 500, Chicago, IL 60607
t: 312.782.4486 f: 312.782.5145
www.ccaltd.com

CARNOW CONIBEAR



Date:	January 2024
Scale:	1"=30'
Drawn by:	LT
Checked by:	DSB

Your Environmental Resource

T:\AIS\2021 SE Zone Phase I&IIESA, SRP and Oversight\3001-3013 W 5th Ave\SRP\CSIRORRAP\Drawings\3001-13 W Fifth_All Exhibits.dwg

LEGEND

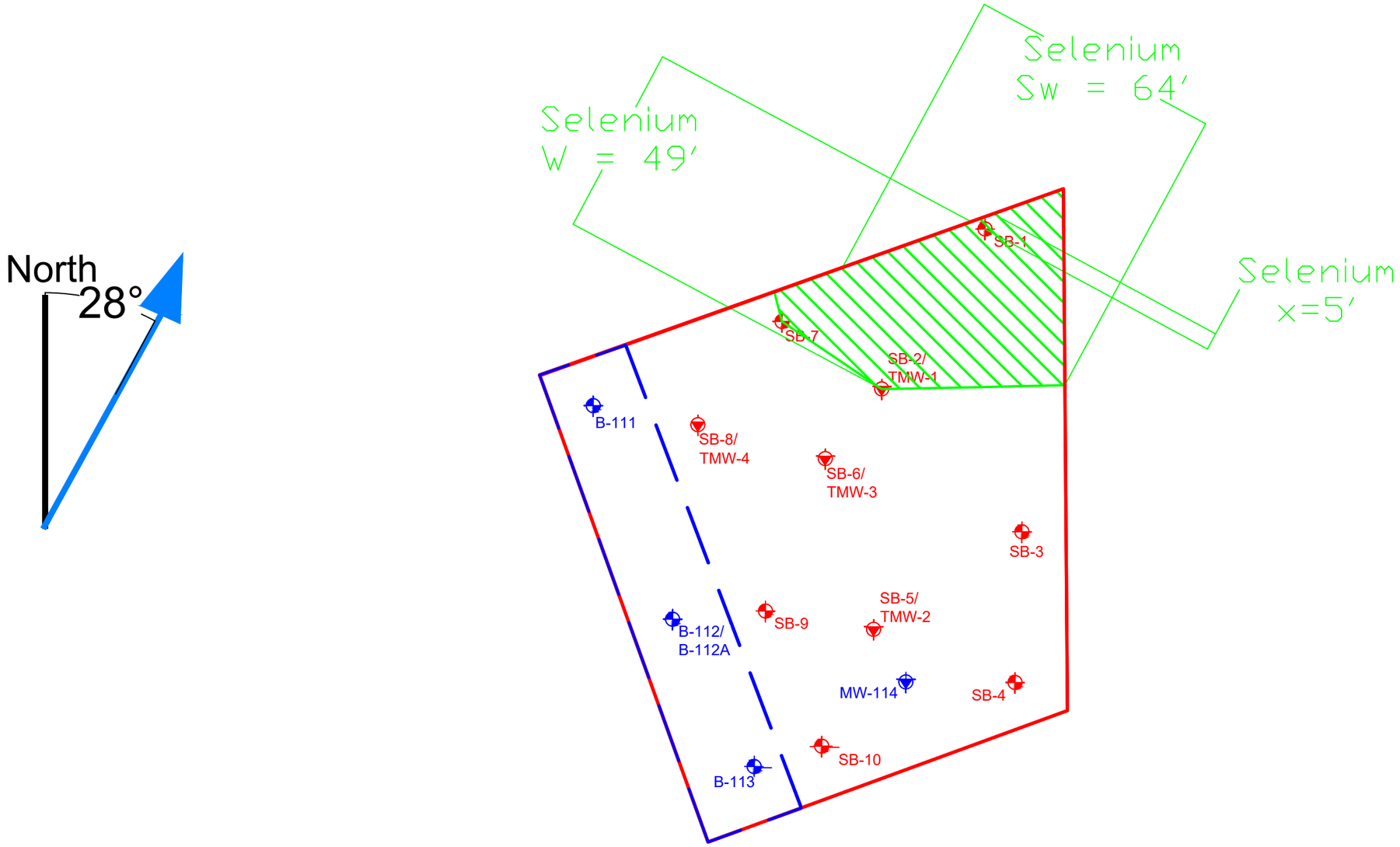
- Site Boundary
- PIN 16-13-115-009 Boundary
- B-100 — CCA Soil Borings
- MW-100 — CCA Permanent Monitoring Well
- SB-# — 2018 Soil Borings
- TMW-# — 2018 Temporary Monitoring Wells

[Shaded] = Estimated Extent of Soils Exceeding Tier 1 SROs

Tier 2 Exhibit: PNAs
3001-13 W. 5th Avenue
Chicago, Illinois 60623

Carnow, Conibear & Assoc., Ltd.
Environmental Consulting Services
600 W. Van Buren St., Suite 500, Chicago, IL 60607
t: 312.782.4486 f: 312.782.5145
www.ccaltd.com

CARNOW CONIBEAR



Date:	January 2024
Scale:	1"=30'
Drawn by:	LT
Checked by:	DSB

Your Environmental Resource

T:\AIS\2021 SE Zone Phase I&IIESA, SRP and Oversight\3001-3013 W 5th Ave\SRP\CSIRORRAP\Drawings\3001-13 W Fifth_All Exhibits.dwg

LEGEND

- Site Boundary
- PIN 16-13-115-009 Boundary
- B-100 — CCA Soil Borings
- MW-100 — CCA Permanent Monitoring Well
- SB-# — 2018 Soil Borings
- TMW-# — 2018 Temporary Monitoring Wells

[Shaded] = Estimated Extent of Soils Exceeding Tier 1 SROs

Tier 2 Exhibit: Selenium
3001-13 W. 5th Avenue
Chicago, Illinois 60623

Carnow, Conibear & Assoc., Ltd.
Environmental Consulting Services
600 W. Van Buren St., Suite 500, Chicago, IL 60607
t: 312.782.4486 f: 312.782.5145
www.ccaltd.com

CARNOW CONIBEAR

The following is said ordinance as passed:

Be It Ordained by the City Council of the City of Chicago:

SECTION 1. Chapter 11-8 of the Municipal Code of Chicago is hereby amended by adding a new Section 11-8-385 and by amending Section 11-8-390 by inserting the language in italics, as follows:

11-8-385 Potable Water Defined.

Potable water is any water used for human consumption, including, but not limited to water used for drinking, bathing, washing dishes, preparing foods and watering gardens in which produce intended for human consumption is grown.

11-8-390 Prohibited Use Of Secondary Water; *Prohibited Installation Of New Potable Water Supply Wells.*

No secondary water shall overflow into or be discharged into any surge tank, storage tank, or reservoir, or shall in any way be piped or conveyed into the water supply system of any building, structure, or premises to become a part of or be mixed with the fresh water supply from the mains of the Chicago Waterworks System either inside of the premises or in the water service pipe. Secondary water shall not be piped to or used in any plumbing fixture, or for cooling crushers, rollers, or mixers where foods, candies, liquids or materials are manufactured for human or animal consumption. No connection, tap, or opening shall be made in a water distribution system other than an approved water distribution system which will permit such water being used for drinking.

Wherever the fire-protective equipment in any building, structure or premises has service from the Chicago Waterworks System, no pipe or other conduit which conveys secondary water shall be cross-connected to the fire-protective equipment. All fire-protective equipment connected to the Chicago Waterworks System shall be constructed in such manner that

all tanks, pipes, pumps, surge tanks, and fire hydrants can be thoroughly drained, flushed and cleaned by the owners of such equipment and premises and there shall be no direct connections from the tanks, pipes and other equipment to any drainage pipes or sewers. *No groundwater well, cistern or other groundwater collection device installed after the effective date of this amendatory ordinance may be used to supply any potable water supply system, except at points of withdrawal by the City of Chicago or by units of local government pursuant to intergovernmental agreement with the City of Chicago.*

SECTION 2. Section 2-30-030 of the Municipal Code of Chicago is hereby amended by deleting the language in brackets and inserting the language in italics, as follows:

2-30-030 Commissioner -- Powers And Duties Designated.

The commissioner of the environment shall have the following powers and duties:

* * * * *

(21) To enter into grant agreements, cooperation agreements and other agreements or contracts with governmental entities, private business and civic and community groups necessary to implement the Green Streets Program and other urban forestry, beautification and environmental enhancement programs; *and agreements to implement the State of Illinois Site Remediation Program;*

SECTION 3. This ordinance shall be in full force and effect from and after its passage and approval.

ORIGINAL

116 Form C.C. 19 3M 7-14-64 (17265)

STATE OF ILLINOIS, }
County of Cook. } ss.

I, JAMES J. LASKI, City Clerk of the City of Chicago in the County of Cook and State of Illinois, DO HEREBY CERTIFY that the annexed and foregoing is a true and correct copy of that certain ordinance now on file in my office amending Title 11, Chapter 8 and Title 2, Chapter 30 of Municipal Code of Chicago by establishing the definition and regulation of the potable water supply system and Empowerment of Commissioner of Environment for Implementation of State of Illinois Site Remediation Program.

I DO FURTHER CERTIFY that the said ordinance was passed by the City Council of the said City of Chicago on the fourteenth (14th) day of May, A.D. 1997 and deposited in my office on the fourteenth (14th) day of May, A.D. 19 97.

I DO FURTHER CERTIFY that the vote on the question of the passage of the said ordinance by the said City Council was taken by yeas and nays and recorded in the Journal of the Proceedings of the said City Council, and that the result of said vote so taken was as follows, to wit: Yeas 47, Nays none.

I DO FURTHER CERTIFY that the said ordinance was delivered to the Mayor of the said City of Chicago after the passage thereof by the said City Council, without delay, by the City Clerk of the said City of Chicago, and that the said Mayor did approve and sign the said ordinance on the fourteenth (14th) day of May, A.D. 19 97

I DO FURTHER CERTIFY that the original, of which the foregoing is a true copy, is entrusted to my care for safe keeping, and that I am the lawful keeper of the same.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed the corporate seal of the City of Chicago aforesaid, at the said City, in the [L. S.] County and State aforesaid, this third (3rd) day of February, A.D. 19 98

ORIGINAL

JAMES J. LASKI, City Clerk.

ORIGINAL

City of Chicago
Richard M. Daley, Mayor

Department of Environment

Henry L. Henderson
Commissioner

Twenty-fifth Floor
30 North LaSalle Street
Chicago, Illinois 60602-2575
(312) 744-7606 (Voice)
(312) 744-6451 (FAX)
(312) 744-3586 (TTY)

http://www.ci.chi.il.us

July 1, 1997

Mr. Gary P. King
Manager, Division of Remediation Management
Bureau of Land
Illinois Environmental Protection Agency
1001 N. Grand Avenue, East
Springfield, IL 62702

Re: Chicago Ordinance No. 097990

Dear Mr. King:

Pursuant to 35 Ill. Adm. Code 742.1015(I)(2), Section 11-8-385 and 11-8-390 of the Municipal Code of Chicago, as amended by Ordinance No. 097990, apply to all areas within the corporate limits of the City of Chicago.

Sincerely,

Henry L. Henderson
Commissioner

cc: Mort Ames
Asst. Corp. Counsel

EXHIBIT
B

MEMORANDUM OF UNDERSTANDING BETWEEN THE CITY OF CHICAGO, ILLINOIS AND THE ILLINOIS ENVIRONMENTAL PROTECTION AGENCY REGARDING (A) THE USE OF A LOCAL POTABLE WATER SUPPLY WELL ORDINANCE AS AN ENVIRONMENTAL INSTITUTIONAL CONTROL AND (B) THE PROVISION OF INFORMATION RELATING TO "NO FURTHER REMEDIATION" DETERMINATIONS BY THE ILLINOIS ENVIRONMENTAL PROTECTION AGENCY TO THE CITY OF CHICAGO

I. PURPOSE AND INTENT

A. This Memorandum of Understanding ("MOU") is entered into between the City of Chicago, Illinois ("the City") and the Illinois Environmental Protection Agency ("Illinois EPA") for the purpose of (a) satisfying the requirements of 35 Ill. Adm. Code 742.1015 for the use of potable water supply well ordinances as environmental institutional controls and (b) ensuring that the City will be provided with copies of all "No Further Remediation" letters or determinations issued by the Illinois EPA pursuant to specific programs for sites located within the boundaries of Chicago, Illinois, in order to enable the City to maintain a complete and up-to-date registry of sites as required by 35 Ill. Adm. Code 742.1015(i)(5). The Illinois EPA has reviewed Sections 11-8-385 and 11-8-390 of the Municipal Code of Chicago as amended by Ordinance Number 097990 ("Potable Water Supply Well Ordinance"), attached as Attachment A, and has determined that the Municipal Code of Chicago prohibits the installation and use of new potable water supply wells by private entities but will allow the installation of potable water supply wells by the City and other units of local government pursuant to intergovernmental agreements with the City. In such cases, 35 Ill. Adm. Code 742.1015(a) provides that the City may enter into an MOU with the Illinois EPA to allow the use of the ordinance as an institutional control.

B. The intent of this Memorandum of Understanding is to (a) specify the responsibilities that must be assumed by the City to satisfy the requirements for MOUs as set forth at 35 Ill. Adm. Code 742.1015(i), and (b) require the Illinois EPA to provide the City with copies of all "No Further Remediation" letters or determinations that the Illinois EPA issues for sites located within the City of Chicago to enable the City to maintain a registry of sites pursuant to 35 Ill. Adm. Code 742.1015(i)(5).

II. DECLARATIONS AND ASSUMPTION OF RESPONSIBILITY

A. In order to ensure the long-term integrity of the Potable Water Supply Well Ordinance as an environmental institutional control and that risk to human health and the environment from contamination left in place in reliance on the Potable Water Supply Well Ordinance is effectively managed, the City hereby assumes the following responsibilities pursuant to 35 Ill. Adm. Code 742.1015(i):

1. The City will notify the Illinois EPA Bureau of Land of any changes to or requests for variance from the Potable Water Supply Well Ordinance at least 30 days prior to the date the local government is scheduled to take action on the proposed change or request (35 Ill. Adm. Code 742.1015(i)(4));

2. The City will maintain a registry of all sites within its corporate limits that have received "No Further Remediation" determinations from the Illinois EPA pursuant to specific programs (35 Ill. Adm. Code 742.1015(i)(5));

3. If the City determines to install a new potable water supply well(s), the City will review the registry of sites established under paragraph II.A.2. prior to siting such potable water supply well(s) within the area covered by the Potable Water Supply Well Ordinance, pursuant to 35 Ill. Adm. Code 742.1015(i)(6)(A);

4. If the City determines to install a new potable water supply well(s), the City will determine whether the potential source of potable water has been or may be affected by contamination left in place at the sites tracked and reviewed under paragraphs II.A.2. and 3. (35 Ill. Adm. Code 742.1015(i)(6)(B)); and

5. If the City determines to install a new potable water supply well(s), the City will take action as necessary to ensure that the potential source of potable water is protected from contamination or treated before it is used as a potable water supply (35 Ill. Adm. Code 742.1015(i)(6)(C));

6. If the City enters into intergovernmental agreements under Section 11-8-390 of the Municipal Code of Chicago to allow other units of local government to install new potable water supply well(s) within the corporate limits of the City, the City will require compliance with the procedures set forth in paragraphs II.A.3., 4., and 5. as a part of such agreements.

7. Notification under paragraph II.A.1. above, or other communications concerning this MOU directed to the Illinois EPA, shall be addressed to:

Manager, Division of Remediation Management
Bureau of Land
Illinois Environmental Protection Agency
P.O. Box 19276
Springfield, IL 62794-9276

B. In order to ensure the long-term integrity of the Potable Water Supply Well Ordinance as an environmental institutional control and that risk to human health and the environment from contamination left in place in reliance on the Potable Water Supply Well Ordinance or other specific programs can be effectively managed, the Illinois EPA hereby assumes

the following responsibilities:

1. The Illinois EPA will provide the City with copies of all "No Further Remediation" letters or determinations that it issues pursuant to 35 Ill. Adm. Code 742, and other specific programs, for sites located within the boundaries of the City at the time said letters or determinations are provided to remediation applicants.

2. Copies of "No Further Remediation" letters or determinations provided to the City pursuant to paragraph II.B.1. above, or other communications concerning this MOU directed to the City, shall be addressed to:

Commissioner
Chicago Department of Environment
25th Floor
30 North LaSalle Street
Chicago, IL 60602-2575

III. SUPPORTING DOCUMENTATION

The following documentation is required by 35 Ill. Adm. Code 742.1015(i) and is attached to this MOU:

A. Attachment A: A copy of the Potable Water Supply Well Ordinance certified by the city clerk or other official as the current, controlling law (35 Ill. Adm. Code 742.1015(i)(3)) and a statement of the authority of the City to enter into the MOU (35 Ill. Adm. Code 742.1015(i)(1)).;

B. Attachment B: Identification of the legal boundaries within which the Potable Water Supply Well Ordinance is applicable (35 Ill. Adm. Code 742.1015(i)(2)); and

IN WITNESS WHEREOF, the lawful representatives of the parties have caused this MOU to be signed as follows:

FOR: The City of Chicago, Illinois

BY: _____ DATE: July 1, 1997

Commissioner
Department of Environment
City of Chicago

FOR: Illinois Environmental Protection Agency

BY: Gary P. King DATE: July 3, 1997

(Name and title of signatory)
Mgr, Division of Remediation Management
Bureau of Land

Version 6/27/97

DEPARTMENT OF FLEET AND FACILITY MANAGEMENT
CITY OF CHICAGO

March 2, 2012

Kyle Rominger
Deputy Counsel
Illinois Environmental Protection Agency
1021 North Grand Avenue East, P.O. Box 19276
Springfield, IL 62794-9276

Dear Mr. Rominger:

Enclosed is the executed original of the amendment to the agreement between the Illinois Environmental Protection Agency and the City of Chicago regarding the Use of a Local Potable Water Supply Well Ordinance.

Thank you for your assistance with these changes.

Sincerely,

Kimberly Worthington, P.E., LEED AP
Deputy Commissioner
Bureau of Environmental Management

Enclosure

AGREEMENT TO AMEND THE MEMORANDUM OF UNDERSTANDING BETWEEN THE CITY OF CHICAGO ILLINOIS AND THE ILLINOIS ENVIRONMENTAL PROTECTION AGENCY REGARDING (A) THE USE OF A LOCAL POTABLE WATER SUPPLY WELL ORDINANCE AS AN ENVIRONMENTAL INSITUTIONAL CONTROL AND (B) THE PROVISION OF INFORMATION RELATING TO "NO FURTHER REMEDIATION" DETERMINATIONS BY THE ILLINOS ENVIRONMENTAL PROTECTION AGENCY TO THE CITY OF CHICAGO

This agreement is made and entered into by and between the Illinois Environmental Protection Agency ("IEPA") and the City of Chicago ("CITY") to amend the above referenced Memorandum of Understanding dated July 1997 ("1997 MOU").

WHEREAS, the IEPA and CITY entered into the 1997 MOU for the purpose of (a) satisfying the requirements of 35 Ill. Adm. Code 742.1015 for the use of potable water supply well ordinances as environmental institutional controls and (b) ensuring that CITY will be provided copies of all "No Further Remediation" letters or determinations issued by IEPA pursuant to specific programs for sites located within the boundaries of Chicago, Illinois, in order to enable CITY to maintain a complete and up-to-date registry of sites as required by 35 Ill. Adm. Code 742.1015(i)(5); and

WHEREAS, the 1997 MOU provided at Section II B. 2. the address for copies of "No Further Remediation" letters, determinations, or other communications concerning the MOU to be directed to the CITY's Department of Environment at 25th Floor, 30 North LaSalle Street, Chicago, Illinois 60602; and

WHEREAS, a portion of the CITY's Department of Environment has been merged into the CITY's Department of Fleet and Facility Management as of January 1, 2012, and the 1997 MOU is now being administered by the CITY under its Department of Fleet and Facility Management; and

WHEREAS, the IEPA and CITY desire to correct the address to send copies of "No Further Remediation" letters, determinations, or other communications to the CITY listed at Section II B. 2. of the 1997 MOU; and

WHEREAS, the IEPA and CITY desire for all other provisions of the 1997 MOU to remain the same.

NOW, THEREFORE, IEPA and CITY hereby agree to amend that part of Section II B. 2. of the 1997 MOU that provides the address to send copies of "No Further Remediation" letters, determinations, or other communications to the CITY as follows, with all other parts of Section II B. 2. to remain the same:

Commissioner
Chicago Department of Fleet and Facility Management
30 North LaSalle Street
Suite 300
Chicago, Illinois 60602

~~Commissioner~~
~~Chicago Department of Environment~~
~~25th Floor~~
~~30 North LaSalle Street~~
~~Chicago, Illinois 60602-2575~~

By the signatures of their authorized representatives below, the IEPA and CITY acknowledge they have read and understand this agreement and intend for this agreement to take effect upon execution.

City of Chicago, by and through the Department of Fleet and Facility Management:

David J. Reynolds
Commissioner
Department of Fleet and Facility Management

Date: 02/02/12

Illinois Environmental Protection Agency

John L. Kim
Interim Director

Date: 2/22/12

AGREEMENT TO AMEND THE MEMORANDUM OF UNDERSTANDING BETWEEN THE CITY OF CHICAGO ILLINOIS AND THE ILLINOIS ENVIRONMENTAL PROTECTION AGENCY REGARDING (A) THE USE OF A LOCAL POTABLE WATER SUPPLY WELL ORDINANCE AS AN ENVIRONMENTAL INSTITUTIONAL CONTROL AND (B) THE PROVISION OF INFORMATION RELATING TO "NO FURTHER REMEDIATION" DETERMINATIONS BY THE ILLINOIS ENVIRONMENTAL PROTECTION AGENCY TO THE CITY OF CHICAGO

This agreement is made and entered into by and between the Illinois Environmental Protection Agency ("Illinois EPA") and the City of Chicago ("City") with the sole purpose to amend the notice provisions within the above referenced Memorandum of Understanding dated July 1997 ("1997 MOU") and the February 2012 amendment ("2012 Amendment") thereto.

WHEREAS, the Illinois EPA and City entered into the 1997 MOU for the purpose of (a) satisfying the requirements of 35 Ill. Adm. Code 742.1015 for the use of potable water supply well ordinances as environmental institutional controls and (b) ensuring that the City will be provided copies of all "No Further Remediation" letters or determinations issued by Illinois EPA pursuant to specific programs for sites located within the boundaries of Chicago, Illinois, in order to enable City to maintain a complete and up-to-date registry of sites as required by 35 Ill. Adm. Code 742.1015(i)(5);

WHEREAS the 1997 MOU provided at Section II B. 2. the address for copies of "No Further Remediation" letters, determinations, or other communications concerning the MOU to be directed to the City's Department of Environment at 25th Floor, 30 North LaSalle Street, Chicago, Illinois 60602 and the 2012 Amendment identified the address as the City's Department of Fleet and Facility Management at 30 North LaSalle Street, Suite 300, Chicago, Illinois 60602;

WHEREAS, a portion of the City's Department of Fleet and Facility Management has been merged into the City's Department of Assets, Information and Services as of January 1, 2020, and the 1997 MOU is now being administered by the City under its Department of Assets, Information and Services;

WHEREAS, the Illinois EPA and City desire to correct the address to send copies of "No Further Remediation" letters, determinations, or other communications to the City listed at Section II B. 2. of the 1997 MOU and as amended by the 2012 Agreement;

WHEREAS, the Illinois EPA and City desire for all other provisions of the 1997 MOU to remain the same. Further, the Illinois EPA and City agree to revoke the 2012 Agreement and upon execution by signature below replace it with this 2020 Agreement for purposes of notice; and

NOW, THEREFORE, Illinois EPA and City hereby agree to amend that part of Section II B. 2. of the 1997 MOU that provides the address to send copies of "No Further Remediation" letters as follows:

By e-mail address to:

AIS_NFR_LETTERS@CITYOFCHICAGO.ORG

All other determinations, or other communications to the City as follows, with all other parts of Section II B. 2. to:

Commissioner
City of Chicago Department of Assets, Information and Services
Bureau of Environmental, Health and Safety Management
2 North LaSalle Street
Suite 200
Chicago, Illinois 60602

By the signatures of their authorized representatives below, the Illinois EPA and City acknowledge they have read and understand this agreement and intend for this agreement to take effect upon execution.

City of Chicago, by and through the Department of Assets, Information and Services

David J. Reynolds 11/20/2020
Commissioner
Department of Assets, Information and Services

Illinois Environmental Protection Agency,

John J. Kim
Director
Illinois EPA

ATTACHMENT C

Laboratory Analytical Reports

2242 West Harrison St., Suite 200, Chicago, IL 60612-3766
Tel: (312) 733-0551 Fax: (312) 733-2386 Info@TheSterlingLab.com

January 12, 2024

Carnow, Conibear, & Associates
600 W. Van Buren Street
Chicago, IL 60607

Telephone: (312) 782-4486
Fax: (312) 782-5145

Analytical Report for Work Order: 23120236 Revision 1

RE: 3001-13 W. Fifth Ave. Chicago

Dear Carnow, Conibear, & Associates:

Sterling Labs received 10 samples for the referenced project on 12/8/2023 1:47:00 PM. The analytical results are presented in the following report.

This report is revised to reflect additional analysis requested after the last report revision.

All analyses were performed in accordance with the requirements of 35 IAC Part 186 / TNI standards. Analyses were performed in accordance with methods as referenced on the analytical report. Those analytical results expressed on a dry weight basis are also noted on the analytical report.

All analyses were performed within established holding time criteria, and all Quality Control criteria met EPA or laboratory specifications except when noted in the Case Narrative or Analytical Report. If required, an estimate of uncertainty for the analyses can be provided. A listing of accredited methods/parameters can also be provided.

Thank you for the opportunity to serve you and I look forward to working with you in the future. If you have any questions regarding the enclosed materials, please contact me at (312) 733-0551.

Sincerely,

Craig Chawla

Project Manager

Date: January 12, 2024

Customer: Carnow, Conibear, & Associates
Project: 3001-13 W. Fifth Ave. Chicago
Work Order: 23120236 Revision 1

Work Order Sample Summary

Lab Sample ID	Customer Sample ID	Tag Number	Collection Date	Date Received
23120236-001A	B-111 (1-3)		12/8/2023 7:45:00 AM	12/8/2023
23120236-002A	B-111 (5-7)		12/8/2023 7:48:00 AM	12/8/2023
23120236-003A	B-111 (10-12)		12/8/2023 7:51:00 AM	12/8/2023
23120236-004A	B-112 (1-3)		12/8/2023 7:56:00 AM	12/8/2023
23120236-004B	B-112 (1-3)		12/8/2023 7:56:00 AM	12/8/2023
23120236-005A	B-112 (5-7)		12/8/2023 8:00:00 AM	12/8/2023
23120236-005B	B-112 (5-7)		12/8/2023 8:00:00 AM	12/8/2023
23120236-006A	B-112 (10-12)		12/8/2023 8:04:00 AM	12/8/2023
23120236-006B	B-112 (10-12)		12/8/2023 8:04:00 AM	12/8/2023
23120236-007A	B-113 (1-3)		12/8/2023 8:09:00 AM	12/8/2023
23120236-008A	B-113 (5-7)		12/8/2023 8:12:00 AM	12/8/2023
23120236-009A	B-113 (10-12)		12/8/2023 8:15:00 AM	12/8/2023
23120236-010A	Fifth-1		12/8/2023 8:20:00 AM	12/8/2023

sterling labs
2242 West Harrison St., Suite 200, Chicago, IL 60612-3766
Tel: (312) 733-0551 Fax: (312) 733-2386 Info@TheSterlingLab.com

Report Date: January 12, 2024
Print Date: January 12, 2024

Analytical Results

Customer: Carnow, Conibear, & Associates
Work Order: 23120236 Revision 1
Project: 3001-13 W. Fifth Ave. Chicago
Lab ID: 23120236-001A

Customer Sample ID: B-111 (1-3)
Tag Number:
Collection Date: 12/8/2023 7:45:00 AM
Matrix: Soil

Analyses	Result	RL	Qualifier	Units	DF	Date Analyzed
Polynuclear Aromatic Hydrocarbons by GC/MS **SW8270C (SW3550B)** Prep Date: **12/15/2023** Analyst: **DM**						
IEPA ELAP 100445						
Acenaphthene	0.28	0.038		mg/Kg-dry	1	12/18/2023
Acenaphthylene	0.14	0.038		mg/Kg-dry	1	12/18/2023
Anthracene	0.92	0.038		mg/Kg-dry	1	12/18/2023
Benz(a)anthracene	2.4	0.038		mg/Kg-dry	1	12/18/2023
Benzo(a)pyrene	2.7	0.038		mg/Kg-dry	1	12/18/2023
Benzo(b)fluoranthene	2.0	0.038		mg/Kg-dry	1	12/18/2023
Benzo(g,h,i)perylene	1.3	0.038		mg/Kg-dry	1	12/18/2023
Benzo(k)fluoranthene	2.1	0.038		mg/Kg-dry	1	12/18/2023
Chrysene	2.4	0.038		mg/Kg-dry	1	12/18/2023
Dibenz(a,h)anthracene	0.72	0.038		mg/Kg-dry	1	12/18/2023
Fluoranthene	4.4	0.038		mg/Kg-dry	1	12/18/2023
Fluorene	0.38	0.038		mg/Kg-dry	1	12/18/2023
Indeno(1,2,3-cd)pyrene	1.2	0.038		mg/Kg-dry	1	12/18/2023
Naphthalene	0.13	0.038		mg/Kg-dry	1	12/18/2023
Phenanthrene	2.7	0.038		mg/Kg-dry	1	12/18/2023
Pyrene	4.0	0.038		mg/Kg-dry	1	12/18/2023
Metals by ICP/MS **SW6020A (SW3050B)** Prep Date: **12/14/2023** Analyst: **MDS**						
IEPA ELAP 100445						
Arsenic	6.4	1.2		mg/Kg-dry	10	12/14/2023
Barium	83	1.2		mg/Kg-dry	10	12/14/2023
Cadmium	ND	0.58		mg/Kg-dry	10	12/14/2023
Chromium	11	1.2		mg/Kg-dry	10	12/14/2023
Lead	130	0.58		mg/Kg-dry	10	12/14/2023
Selenium	ND	1.2		mg/Kg-dry	10	12/14/2023
Silver	ND	1.2		mg/Kg-dry	10	12/14/2023
TCLP Metals by ICP/MS **SW1311/6020A (SW3005A)** Prep Date: **1/12/2024** Analyst: **MDS**						
IEPA ELAP 100445						
Lead	0.18	0.0050		mg/L	5	1/12/2024
Mercury **SW7471B** Prep Date: **12/18/2023** Analyst: **JB2**						
IEPA ELAP 100445						
Mercury	0.28	0.019		mg/Kg-dry	1	12/18/2023
pH (25 °C) **SW9045C** Prep Date: **12/13/2023** Analyst: **LJ1**						
IEPA ELAP 100445						
pH	8.22			pH Units	1	12/13/2023
Percent Moisture **D2974** Prep Date: **12/13/2023** Analyst: **EPD**						
Percent Moisture	15.9	0.2	*	wt%	1	12/14/2023

Qualifiers:

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Report Date: January 12, 2024
Print Date: January 12, 2024

Analytical Results

Customer: Carnow, Conibear, & Associates
Work Order: 23120236 Revision 1
Project: 3001-13 W. Fifth Ave. Chicago
Lab ID: 23120236-002A

Customer Sample ID: B-111 (5-7)
Tag Number:
Collection Date: 12/8/2023 7:48:00 AM
Matrix: Soil

Analyses	Result	RL	Qualifier	Units	DF	Date Analyzed
Polynuclear Aromatic Hydrocarbons by GC/MS **SW8270C (SW3550B)** Prep Date: **12/15/2023** Analyst: **DM**						
IEPA ELAP 100445						
Acenaphthene	ND	0.044		mg/Kg-dry	1	12/18/2023
Acenaphthylene	ND	0.044		mg/Kg-dry	1	12/18/2023
Anthracene	ND	0.044		mg/Kg-dry	1	12/18/2023
Benz(a)anthracene	ND	0.044		mg/Kg-dry	1	12/18/2023
Benzo(a)pyrene	ND	0.044		mg/Kg-dry	1	12/18/2023
Benzo(b)fluoranthene	ND	0.044		mg/Kg-dry	1	12/18/2023
Benzo(g,h,i)perylene	ND	0.044		mg/Kg-dry	1	12/18/2023
Benzo(k)fluoranthene	ND	0.044		mg/Kg-dry	1	12/18/2023
Chrysene	ND	0.044		mg/Kg-dry	1	12/18/2023
Dibenz(a,h)anthracene	ND	0.044		mg/Kg-dry	1	12/18/2023
Fluoranthene	ND	0.044		mg/Kg-dry	1	12/18/2023
Fluorene	ND	0.044		mg/Kg-dry	1	12/18/2023
Indeno(1,2,3-cd)pyrene	ND	0.044		mg/Kg-dry	1	12/18/2023
Naphthalene	ND	0.044		mg/Kg-dry	1	12/18/2023
Phenanthrene	ND	0.044		mg/Kg-dry	1	12/18/2023
Pyrene	ND	0.044		mg/Kg-dry	1	12/18/2023
Metals by ICP/MS **SW6020A (SW3050B)** Prep Date: **12/14/2023** Analyst: **MDS**						
IEPA ELAP 100445						
Arsenic	6.3	1.2		mg/Kg-dry	10	12/14/2023
Barium	44	1.2		mg/Kg-dry	10	12/14/2023
Cadmium	ND	0.58		mg/Kg-dry	10	12/14/2023
Chromium	25	1.2		mg/Kg-dry	10	12/14/2023
Lead	22	0.58		mg/Kg-dry	10	12/14/2023
Selenium	ND	1.2		mg/Kg-dry	10	12/14/2023
Silver	ND	1.2		mg/Kg-dry	10	12/14/2023
Mercury **SW7471B** Prep Date: **12/18/2023** Analyst: **JB2**						
IEPA ELAP 100445						
Mercury	0.029	0.026		mg/Kg-dry	1	12/18/2023
pH (25 °C) **SW9045C** Prep Date: **12/13/2023** Analyst: **LJ1**						
IEPA ELAP 100445						
pH	8.04			pH Units	1	12/13/2023
Percent Moisture **D2974** Prep Date: **12/13/2023** Analyst: **EPD**						
Percent Moisture	25.4	0.2	*	wt%	1	12/14/2023

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Report Date: January 12, 2024
Print Date: January 12, 2024

Analytical Results

Customer: Carnow, Conibear, & Associates
Work Order: 23120236 Revision 1
Project: 3001-13 W. Fifth Ave. Chicago
Lab ID: 23120236-004A

Customer Sample ID: B-112 (1-3)
Tag Number:
Collection Date: 12/8/2023 7:56:00 AM
Matrix: Soil

Analyses	Result	RL	Qualifier	Units	DF	Date Analyzed
Volatile Organic Compounds by GC/MS	**SW5035/8260B**			Prep Date: **12/12/2023**	Analyst: **CBG**	
IEPA ELAP 100445						
Acetone	ND	0.12		mg/Kg-dry	1	12/14/2023
Benzene	ND	0.0081		mg/Kg-dry	1	12/14/2023
Bromodichloromethane	ND	0.0081		mg/Kg-dry	1	12/14/2023
Bromoform	ND	0.0081		mg/Kg-dry	1	12/14/2023
Bromomethane	ND	0.016		mg/Kg-dry	1	12/14/2023
2-Butanone	ND	0.12		mg/Kg-dry	1	12/14/2023
Carbon disulfide	ND	0.081		mg/Kg-dry	1	12/14/2023
Carbon tetrachloride	ND	0.0081		mg/Kg-dry	1	12/14/2023
Chlorobenzene	ND	0.0081		mg/Kg-dry	1	12/14/2023
Chloroethane	ND	0.016		mg/Kg-dry	1	12/14/2023
Chloroform	ND	0.0081		mg/Kg-dry	1	12/14/2023
Chloromethane	ND	0.016		mg/Kg-dry	1	12/14/2023
Dibromochloromethane	ND	0.0081		mg/Kg-dry	1	12/14/2023
1,1-Dichloroethane	ND	0.0081		mg/Kg-dry	1	12/14/2023
1,2-Dichloroethane	ND	0.0081		mg/Kg-dry	1	12/14/2023
1,1-Dichloroethene	ND	0.0081		mg/Kg-dry	1	12/14/2023
cis-1,2-Dichloroethene	ND	0.0081		mg/Kg-dry	1	12/14/2023
trans-1,2-Dichloroethene	ND	0.0081		mg/Kg-dry	1	12/14/2023
1,2-Dichloropropane	ND	0.0081		mg/Kg-dry	1	12/14/2023
cis-1,3-Dichloropropene	ND	0.0033		mg/Kg-dry	1	12/14/2023
trans-1,3-Dichloropropene	ND	0.0033		mg/Kg-dry	1	12/14/2023
Ethylbenzene	ND	0.0081		mg/Kg-dry	1	12/14/2023
2-Hexanone	ND	0.033		mg/Kg-dry	1	12/14/2023
4-Methyl-2-pentanone	ND	0.033		mg/Kg-dry	1	12/14/2023
Methylene chloride	ND	0.016		mg/Kg-dry	1	12/14/2023
Methyl tert-butyl ether	ND	0.0081		mg/Kg-dry	1	12/14/2023
Styrene	ND	0.0081		mg/Kg-dry	1	12/14/2023
1,1,2,2-Tetrachloroethane	ND	0.0081		mg/Kg-dry	1	12/14/2023
Tetrachloroethene	ND	0.0081		mg/Kg-dry	1	12/14/2023
Toluene	ND	0.0081		mg/Kg-dry	1	12/14/2023
1,1,1-Trichloroethane	ND	0.0081		mg/Kg-dry	1	12/14/2023
1,1,2-Trichloroethane	ND	0.0081		mg/Kg-dry	1	12/14/2023
Trichloroethene	ND	0.0081		mg/Kg-dry	1	12/14/2023
Vinyl chloride	ND	0.0081		mg/Kg-dry	1	12/14/2023
Xylenes, Total	ND	0.024		mg/Kg-dry	1	12/14/2023

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Report Date: January 12, 2024
Print Date: January 12, 2024

Analytical Results

Customer: Carnow, Conibear, & Associates
Work Order: 23120236 Revision 1
Project: 3001-13 W. Fifth Ave. Chicago
Lab ID: 23120236-004B

Customer Sample ID: B-112 (1-3)
Tag Number:
Collection Date: 12/8/2023 7:56:00 AM
Matrix: Soil

Analyses	Result	RL	Qualifier	Units	DF	Date Analyzed
Semivolatile Organic Compounds by GC/MS	**SW8270C (SW3550B)**		Prep Date: **12/15/2023**	Analyst: **DM**		
IEPA ELAP 100445						
Acenaphthene	2.4	0.041		mg/Kg-dry	1	12/18/2023
Acenaphthylene	0.48	0.041		mg/Kg-dry	1	12/18/2023
Aniline	ND	0.41		mg/Kg-dry	1	12/18/2023
Anthracene	8.0	0.41		mg/Kg-dry	10	12/20/2023
Benz(a)anthracene	18	0.41		mg/Kg-dry	10	12/20/2023
Benzidine	ND	0.41		mg/Kg-dry	1	12/18/2023
Benzo(a)pyrene	19	0.41		mg/Kg-dry	10	12/20/2023
Benzo(b)fluoranthene	15	0.41		mg/Kg-dry	10	12/20/2023
Benzo(g,h,i)perylene	11	0.41		mg/Kg-dry	10	12/20/2023
Benzo(k)fluoranthene	13	0.41		mg/Kg-dry	10	12/20/2023
Benzoic acid	ND	1.0		mg/Kg-dry	1	12/18/2023
Benzyl alcohol	ND	0.21		mg/Kg-dry	1	12/18/2023
Bis(2-chloroethoxy)methane	ND	0.21		mg/Kg-dry	1	12/18/2023
Bis(2-chloroethyl)ether	ND	0.21		mg/Kg-dry	1	12/18/2023
Bis(2-ethylhexyl)phthalate	ND	1.0		mg/Kg-dry	1	12/18/2023
4-Bromophenyl phenyl ether	ND	0.21		mg/Kg-dry	1	12/18/2023
Butyl benzyl phthalate	ND	1.0		mg/Kg-dry	1	12/18/2023
Carbazole	4.3	0.21		mg/Kg-dry	1	12/18/2023
4-Chloroaniline	ND	0.21		mg/Kg-dry	1	12/18/2023
4-Chloro-3-methylphenol	ND	0.41		mg/Kg-dry	1	12/18/2023
2-Chloronaphthalene	ND	0.21		mg/Kg-dry	1	12/18/2023
2-Chlorophenol	ND	0.21		mg/Kg-dry	1	12/18/2023
4-Chlorophenyl phenyl ether	ND	0.21		mg/Kg-dry	1	12/18/2023
2, 2'-oxybis(1-Chloropropane)	ND	0.21		mg/Kg-dry	1	12/18/2023
Chrysene	19	0.41		mg/Kg-dry	10	12/20/2023
Dibenz(a,h)anthracene	5.2	0.041		mg/Kg-dry	1	12/18/2023
Dibenzofuran	1.3	0.21		mg/Kg-dry	1	12/18/2023
1,2-Dichlorobenzene	ND	0.21		mg/Kg-dry	1	12/18/2023
1,3-Dichlorobenzene	ND	0.21		mg/Kg-dry	1	12/18/2023
1,4-Dichlorobenzene	ND	0.21		mg/Kg-dry	1	12/18/2023
3,3´-Dichlorobenzidine	ND	0.21		mg/Kg-dry	1	12/18/2023
2,4-Dichlorophenol	ND	0.21		mg/Kg-dry	1	12/18/2023
Diethyl phthalate	ND	1.0		mg/Kg-dry	1	12/18/2023
Dimethyl phthalate	ND	1.0		mg/Kg-dry	1	12/18/2023
2,4-Dimethylphenol	ND	0.21		mg/Kg-dry	1	12/18/2023
Di-n-butyl phthalate	ND	1.0		mg/Kg-dry	1	12/18/2023
4,6-Dinitro-2-methylphenol	ND	0.41		mg/Kg-dry	1	12/18/2023
2,4-Dinitrophenol	ND	1.0		mg/Kg-dry	1	12/18/2023
2,4-Dinitrotoluene	ND	0.041		mg/Kg-dry	1	12/18/2023
2,6-Dinitrotoluene	ND	0.041		mg/Kg-dry	1	12/18/2023

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Report Date: January 12, 2024
Print Date: January 12, 2024

Analytical Results

Customer: Carnow, Conibear, & Associates
Work Order: 23120236 Revision 1
Project: 3001-13 W. Fifth Ave. Chicago
Lab ID: 23120236-004B

Customer Sample ID: B-112 (1-3)
Tag Number:
Collection Date: 12/8/2023 7:56:00 AM
Matrix: Soil

Analyses	Result	RL	Qualifier	Units	DF	Date Analyzed
Semivolatile Organic Compounds by GC/MS	**SW8270C (SW3550B)**			Prep Date: **12/15/2023**		Analyst: **DM**
IEPA ELAP 100445						
Di-n-octyl phthalate	ND	1.0		mg/Kg-dry	1	12/18/2023
Fluoranthene	39	0.41		mg/Kg-dry	10	12/20/2023
Fluorene	3.0	0.041		mg/Kg-dry	1	12/18/2023
Hexachlorobenzene	ND	0.21		mg/Kg-dry	1	12/18/2023
Hexachlorobutadiene	ND	0.21		mg/Kg-dry	1	12/18/2023
Hexachlorocyclopentadiene	ND	0.21		mg/Kg-dry	1	12/18/2023
Hexachloroethane	ND	0.21		mg/Kg-dry	1	12/18/2023
Indeno(1,2,3-cd)pyrene	9.5	0.41		mg/Kg-dry	10	12/20/2023
Isophorone	ND	0.21		mg/Kg-dry	1	12/18/2023
2-Methylnaphthalene	1.9	0.21		mg/Kg-dry	1	12/18/2023
2-Methylphenol	ND	0.21		mg/Kg-dry	1	12/18/2023
4-Methylphenol	ND	0.21		mg/Kg-dry	1	12/18/2023
Naphthalene	3.5	0.041		mg/Kg-dry	1	12/18/2023
2-Nitroaniline	ND	0.21		mg/Kg-dry	1	12/18/2023
3-Nitroaniline	ND	0.21		mg/Kg-dry	1	12/18/2023
4-Nitroaniline	ND	0.21		mg/Kg-dry	1	12/18/2023
Nitrobenzene	ND	0.041		mg/Kg-dry	1	12/18/2023
2-Nitrophenol	ND	0.21		mg/Kg-dry	1	12/18/2023
4-Nitrophenol	ND	0.41		mg/Kg-dry	1	12/18/2023
N-Nitrosodimethylamine	ND	0.21		mg/Kg-dry	1	12/18/2023
N-Nitrosodi-n-propylamine	ND	0.041		mg/Kg-dry	1	12/18/2023
N-Nitrosodiphenylamine	ND	0.21		mg/Kg-dry	1	12/18/2023
Pentachlorophenol	ND	0.083		mg/Kg-dry	1	12/18/2023
Phenanthrene	32	0.41		mg/Kg-dry	10	12/20/2023
Phenol	ND	0.21		mg/Kg-dry	1	12/18/2023
Pyrene	33	0.41		mg/Kg-dry	10	12/20/2023
Pyridine	ND	0.83		mg/Kg-dry	1	12/18/2023
1,2,4-Trichlorobenzene	ND	0.21		mg/Kg-dry	1	12/18/2023
2,4,5-Trichlorophenol	ND	0.21		mg/Kg-dry	1	12/18/2023
2,4,6-Trichlorophenol	ND	0.21		mg/Kg-dry	1	12/18/2023
PCBs	**SW8082A (SW3550B)**			Prep Date: **12/14/2023**		Analyst: **GVC**
IEPA ELAP 100445						
Aroclor 1016	ND	0.10		mg/Kg-dry	1	12/14/2023
Aroclor 1221	ND	0.10		mg/Kg-dry	1	12/14/2023
Aroclor 1232	ND	0.10		mg/Kg-dry	1	12/14/2023
Aroclor 1242	ND	0.10		mg/Kg-dry	1	12/14/2023
Aroclor 1248	ND	0.10		mg/Kg-dry	1	12/14/2023
Aroclor 1254	ND	0.10		mg/Kg-dry	1	12/14/2023
Aroclor 1260	ND	0.10		mg/Kg-dry	1	12/14/2023

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Report Date: January 12, 2024
Print Date: January 12, 2024

Analytical Results

Customer: Carnow, Conibear, & Associates
Work Order: 23120236 Revision 1
Project: 3001-13 W. Fifth Ave. Chicago
Lab ID: 23120236-004B

Customer Sample ID: B-112 (1-3)
Tag Number:
Collection Date: 12/8/2023 7:56:00 AM
Matrix: Soil

Analyses	Result	RL	Qualifier	Units	DF	Date Analyzed
Pesticides	**SW8081B (SW3550B)**			Prep Date: **12/14/2023**		Analyst: **GVC**
IEPA ELAP 100445						
4,4´-DDD	ND	0.0020		mg/Kg-dry	1	12/14/2023
4,4´-DDE	ND	0.0020		mg/Kg-dry	1	12/14/2023
4,4´-DDT	ND	0.0020		mg/Kg-dry	1	12/14/2023
Aldrin	ND	0.0020		mg/Kg-dry	1	12/14/2023
alpha-BHC	ND	0.0020		mg/Kg-dry	1	12/14/2023
alpha-Chlordane	0.11	0.020		mg/Kg-dry	10	12/21/2023
beta-BHC	ND	0.0020		mg/Kg-dry	1	12/14/2023
Chlordane	1.2	0.20		mg/Kg-dry	10	12/21/2023
delta-BHC	ND	0.0020		mg/Kg-dry	1	12/14/2023
Dieldrin	ND	0.0020		mg/Kg-dry	1	12/14/2023
Endosulfan I	ND	0.0020		mg/Kg-dry	1	12/14/2023
Endosulfan II	ND	0.0020		mg/Kg-dry	1	12/14/2023
Endosulfan sulfate	ND	0.0020		mg/Kg-dry	1	12/14/2023
Endrin	ND	0.0020		mg/Kg-dry	1	12/14/2023
Endrin aldehyde	ND	0.0020		mg/Kg-dry	1	12/14/2023
Endrin ketone	ND	0.0020		mg/Kg-dry	1	12/14/2023
gamma-BHC	ND	0.0020		mg/Kg-dry	1	12/14/2023
gamma-Chlordane	0.034	0.0020		mg/Kg-dry	1	12/14/2023
Heptachlor	ND	0.0020		mg/Kg-dry	1	12/14/2023
Heptachlor epoxide	ND	0.0020		mg/Kg-dry	1	12/14/2023
Methoxychlor	ND	0.0020		mg/Kg-dry	1	12/14/2023
Toxaphene	ND	0.042		mg/Kg-dry	1	12/14/2023
TCLP Pesticides	**SW1311/8081B (SW3510C)**			Prep Date: **1/2/2024**		Analyst: **GVC**
IEPA ELAP 100445						
Chlordane	ND	0.0050		mg/L	1	1/2/2024
Herbicides in Soil	**SW8321B (SW3550B)**			Prep Date: **12/13/2023**		Analyst: **MEP**
IEPA ELAP 100445						
2,4,5-TP (Silvex)	ND	0.0041		mg/Kg-dry	1	12/14/2023
2,4-D	ND	0.0041		mg/Kg-dry	1	12/14/2023
Dalapon	ND	0.041		mg/Kg-dry	1	12/14/2023
Dinoseb	ND	0.0084		mg/Kg-dry	1	12/14/2023
Pentachlorophenol	ND	0.012	*	mg/Kg-dry	1	12/14/2023
Picloram	ND	0.0084	*	mg/Kg-dry	1	12/14/2023
Metals by ICP/MS	**SW6020A (SW3050B)**			Prep Date: **12/18/2023**		Analyst: **MMR**
IEPA ELAP 100445						
Aluminum	8100	25		mg/Kg-dry	10	12/18/2023
Antimony	ND	2.5		mg/Kg-dry	10	12/18/2023
Arsenic	41	1.3		mg/Kg-dry	10	12/18/2023

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Report Date: January 12, 2024
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Analytical Results

Customer: Carnow, Conibear, & Associates
Work Order: 23120236 Revision 1
Project: 3001-13 W. Fifth Ave. Chicago
Lab ID: 23120236-004B

Customer Sample ID: B-112 (1-3)
Tag Number:
Collection Date: 12/8/2023 7:56:00 AM
Matrix: Soil

Analyses	Result	RL	Qualifier	Units	DF	Date Analyzed
Metals by ICP/MS	**SW6020A (SW3050B)**			Prep Date: **12/18/2023**		Analyst: **MMR**
IEPA ELAP 100445						
Barium	800	1.3		mg/Kg-dry	10	12/18/2023
Beryllium	1.2	0.63		mg/Kg-dry	10	12/18/2023
Cadmium	3.7	0.63		mg/Kg-dry	10	12/18/2023
Calcium	34000	76		mg/Kg-dry	10	12/18/2023
Chromium	32	1.3		mg/Kg-dry	10	12/18/2023
Cobalt	9.0	1.3		mg/Kg-dry	10	12/18/2023
Copper	200	3.2		mg/Kg-dry	10	12/18/2023
Iron	23000	38		mg/Kg-dry	10	12/18/2023
Lead	1300	0.55		mg/Kg-dry	10	12/14/2023
Magnesium	9600	38		mg/Kg-dry	10	12/18/2023
Manganese	710	1.3		mg/Kg-dry	10	12/18/2023
Nickel	27	1.3		mg/Kg-dry	10	12/18/2023
Potassium	1200	38		mg/Kg-dry	10	12/18/2023
Selenium	1.5	1.3		mg/Kg-dry	10	12/18/2023
Silver	ND	1.3		mg/Kg-dry	10	12/18/2023
Sodium	350	76		mg/Kg-dry	10	12/18/2023
Thallium	ND	1.1		mg/Kg-dry	10	12/14/2023
Vanadium	24	1.3		mg/Kg-dry	10	12/18/2023
Zinc	1100	6.3		mg/Kg-dry	10	12/18/2023
SPLP Metals by ICP/MS	**SW1312/6020A (SW3005A)**			Prep Date: **1/2/2024**		Analyst: **MMR**
IEPA ELAP 100445						
Barium	0.066	0.020		mg/L	2	1/3/2024
Cadmium	ND	0.0020		mg/L	2	1/3/2024
Copper	0.063	0.020	*	mg/L	2	1/3/2024
Nickel	0.045	0.0080	*	mg/L	2	1/3/2024
Zinc	0.20	0.020		mg/L	2	1/3/2024
TCLP Metals by ICP/MS	**SW1311/6020A (SW3005A)**			Prep Date: **1/12/2024**		Analyst: **MDS**
IEPA ELAP 100445						
Lead	0.033	0.0050		mg/L	5	1/12/2024
Mercury	**SW7471B**			Prep Date: **12/18/2023**		Analyst: **JB2**
IEPA ELAP 100445						
Mercury	0.48	0.023		mg/Kg-dry	1	12/18/2023
SPLP Mercury	**SW1312/7470A**			Prep Date: **1/2/2024**		Analyst: **JB2**
IEPA ELAP 100445						
Mercury	ND	0.00020		mg/L	1	1/2/2024
Cyanide, Total	**SW9012A**			Prep Date: **12/13/2023**		Analyst: **MD**
IEPA ELAP 100445						
Cyanide	ND	0.64		mg/Kg-dry	1	12/13/2023

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Report Date: January 12, 2024
Print Date: January 12, 2024

Analytical Results

Customer: Carnow, Conibear, & Associates
Work Order: 23120236 Revision 1
Project: 3001-13 W. Fifth Ave. Chicago
Lab ID: 23120236-004B

Customer Sample ID: B-112 (1-3)
Tag Number:
Collection Date: 12/8/2023 7:56:00 AM
Matrix: Soil

Analyses	Result	RL	Qualifier	Units	DF	Date Analyzed
pH (25 °C)	**SW9045C**			Prep Date: **12/13/2023**		Analyst: **LJ1**
IEPA ELAP 100445						
pH	8.34			pH Units	1	12/13/2023
Percent Moisture	**D2974**			Prep Date: **12/13/2023**		Analyst: **EPD**
Percent Moisture	21.4	0.2	*	wt%	1	12/14/2023

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Report Date: January 12, 2024
Print Date: January 12, 2024

Analytical Results

Customer: Carnow, Conibear, & Associates
Work Order: 23120236 Revision 1
Project: 3001-13 W. Fifth Ave. Chicago
Lab ID: 23120236-005A

Customer Sample ID: B-112 (5-7)
Tag Number:
Collection Date: 12/8/2023 8:00:00 AM
Matrix: Soil

Analyses	Result	RL	Qualifier	Units	DF	Date Analyzed
Volatile Organic Compounds by GC/MS	**SW5035/8260B**			Prep Date: **12/12/2023**	Analyst: **CBG**	
IEPA ELAP 100445						
Acetone	ND	0.086		mg/Kg-dry	1	12/14/2023
Benzene	ND	0.0050		mg/Kg-dry	1	12/14/2023
Bromodichloromethane	ND	0.0050		mg/Kg-dry	1	12/14/2023
Bromoform	ND	0.0050		mg/Kg-dry	1	12/14/2023
Bromomethane	ND	0.010		mg/Kg-dry	1	12/14/2023
2-Butanone	ND	0.075		mg/Kg-dry	1	12/14/2023
Carbon disulfide	ND	0.050		mg/Kg-dry	1	12/14/2023
Carbon tetrachloride	ND	0.0050		mg/Kg-dry	1	12/14/2023
Chlorobenzene	ND	0.0050		mg/Kg-dry	1	12/14/2023
Chloroethane	ND	0.010		mg/Kg-dry	1	12/14/2023
Chloroform	ND	0.0050		mg/Kg-dry	1	12/14/2023
Chloromethane	ND	0.010		mg/Kg-dry	1	12/14/2023
Dibromochloromethane	ND	0.0050		mg/Kg-dry	1	12/14/2023
1,1-Dichloroethane	ND	0.0050		mg/Kg-dry	1	12/14/2023
1,2-Dichloroethane	ND	0.0050		mg/Kg-dry	1	12/14/2023
1,1-Dichloroethene	ND	0.0050		mg/Kg-dry	1	12/14/2023
cis-1,2-Dichloroethene	ND	0.0050		mg/Kg-dry	1	12/14/2023
trans-1,2-Dichloroethene	ND	0.0050		mg/Kg-dry	1	12/14/2023
1,2-Dichloropropane	ND	0.0050		mg/Kg-dry	1	12/14/2023
cis-1,3-Dichloropropene	ND	0.0020		mg/Kg-dry	1	12/14/2023
trans-1,3-Dichloropropene	ND	0.0020		mg/Kg-dry	1	12/14/2023
Ethylbenzene	ND	0.0050		mg/Kg-dry	1	12/14/2023
2-Hexanone	ND	0.020		mg/Kg-dry	1	12/14/2023
4-Methyl-2-pentanone	ND	0.020		mg/Kg-dry	1	12/14/2023
Methylene chloride	ND	0.010		mg/Kg-dry	1	12/14/2023
Methyl tert-butyl ether	ND	0.0050		mg/Kg-dry	1	12/14/2023
Styrene	ND	0.0050		mg/Kg-dry	1	12/14/2023
1,1,2,2-Tetrachloroethane	ND	0.0050		mg/Kg-dry	1	12/14/2023
Tetrachloroethene	ND	0.0050		mg/Kg-dry	1	12/14/2023
Toluene	ND	0.0050		mg/Kg-dry	1	12/14/2023
1,1,1-Trichloroethane	ND	0.0050		mg/Kg-dry	1	12/14/2023
1,1,2-Trichloroethane	ND	0.0050		mg/Kg-dry	1	12/14/2023
Trichloroethene	ND	0.0050		mg/Kg-dry	1	12/14/2023
Vinyl chloride	ND	0.0050		mg/Kg-dry	1	12/14/2023
Xylenes, Total	ND	0.015		mg/Kg-dry	1	12/14/2023

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Report Date: January 12, 2024
Print Date: January 12, 2024

Analytical Results

Customer: Carnow, Conibear, & Associates
Work Order: 23120236 Revision 1
Project: 3001-13 W. Fifth Ave. Chicago
Lab ID: 23120236-005B

Customer Sample ID: B-112 (5-7)
Tag Number:
Collection Date: 12/8/2023 8:00:00 AM
Matrix: Soil

Analyses	Result	RL	Qualifier	Units	DF	Date Analyzed
Semivolatile Organic Compounds by GC/MS	**SW8270C (SW3550B)**		Prep Date: **12/15/2023**	Analyst: **DM**		
IEPA ELAP 100445						
Acenaphthene	ND	0.041		mg/Kg-dry	1	12/18/2023
Acenaphthylene	ND	0.041		mg/Kg-dry	1	12/18/2023
Aniline	ND	0.41		mg/Kg-dry	1	12/18/2023
Anthracene	ND	0.041		mg/Kg-dry	1	12/18/2023
Benz(a)anthracene	ND	0.041		mg/Kg-dry	1	12/18/2023
Benzidine	ND	0.41		mg/Kg-dry	1	12/18/2023
Benzo(a)pyrene	ND	0.041		mg/Kg-dry	1	12/18/2023
Benzo(b)fluoranthene	ND	0.041		mg/Kg-dry	1	12/18/2023
Benzo(g,h,i)perylene	ND	0.041		mg/Kg-dry	1	12/18/2023
Benzo(k)fluoranthene	ND	0.041		mg/Kg-dry	1	12/18/2023
Benzoic acid	ND	1.0		mg/Kg-dry	1	12/18/2023
Benzyl alcohol	ND	0.21		mg/Kg-dry	1	12/18/2023
Bis(2-chloroethoxy)methane	ND	0.21		mg/Kg-dry	1	12/18/2023
Bis(2-chloroethyl)ether	ND	0.21		mg/Kg-dry	1	12/18/2023
Bis(2-ethylhexyl)phthalate	ND	1.0		mg/Kg-dry	1	12/18/2023
4-Bromophenyl phenyl ether	ND	0.21		mg/Kg-dry	1	12/18/2023
Butyl benzyl phthalate	ND	1.0		mg/Kg-dry	1	12/18/2023
Carbazole	ND	0.21		mg/Kg-dry	1	12/18/2023
4-Chloroaniline	ND	0.21		mg/Kg-dry	1	12/18/2023
4-Chloro-3-methylphenol	ND	0.41		mg/Kg-dry	1	12/18/2023
2-Chloronaphthalene	ND	0.21		mg/Kg-dry	1	12/18/2023
2-Chlorophenol	ND	0.21		mg/Kg-dry	1	12/18/2023
4-Chlorophenyl phenyl ether	ND	0.21		mg/Kg-dry	1	12/18/2023
2, 2'-oxybis(1-Chloropropane)	ND	0.21		mg/Kg-dry	1	12/18/2023
Chrysene	ND	0.041		mg/Kg-dry	1	12/18/2023
Dibenz(a,h)anthracene	ND	0.041		mg/Kg-dry	1	12/18/2023
Dibenzofuran	ND	0.21		mg/Kg-dry	1	12/18/2023
1,2-Dichlorobenzene	ND	0.21		mg/Kg-dry	1	12/18/2023
1,3-Dichlorobenzene	ND	0.21		mg/Kg-dry	1	12/18/2023
1,4-Dichlorobenzene	ND	0.21		mg/Kg-dry	1	12/18/2023
3,3´-Dichlorobenzidine	ND	0.21		mg/Kg-dry	1	12/18/2023
2,4-Dichlorophenol	ND	0.21		mg/Kg-dry	1	12/18/2023
Diethyl phthalate	ND	1.0		mg/Kg-dry	1	12/18/2023
Dimethyl phthalate	ND	1.0		mg/Kg-dry	1	12/18/2023
2,4-Dimethylphenol	ND	0.21		mg/Kg-dry	1	12/18/2023
Di-n-butyl phthalate	ND	1.0		mg/Kg-dry	1	12/18/2023
4,6-Dinitro-2-methylphenol	ND	0.41		mg/Kg-dry	1	12/18/2023
2,4-Dinitrophenol	ND	1.0		mg/Kg-dry	1	12/18/2023
2,4-Dinitrotoluene	ND	0.041		mg/Kg-dry	1	12/18/2023
2,6-Dinitrotoluene	ND	0.041		mg/Kg-dry	1	12/18/2023

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Report Date: January 12, 2024
Print Date: January 12, 2024

Analytical Results

Customer: Carnow, Conibear, & Associates
Work Order: 23120236 Revision 1
Project: 3001-13 W. Fifth Ave. Chicago
Lab ID: 23120236-005B

Customer Sample ID: B-112 (5-7)
Tag Number:
Collection Date: 12/8/2023 8:00:00 AM
Matrix: Soil

Analyses	Result	RL	Qualifier	Units	DF	Date Analyzed
Semivolatile Organic Compounds by GC/MS	**SW8270C (SW3550B)**			Prep Date: **12/15/2023**		Analyst: **DM**
IEPA ELAP 100445						
Di-n-octyl phthalate	ND	1.0		mg/Kg-dry	1	12/18/2023
Fluoranthene	0.046	0.041		mg/Kg-dry	1	12/18/2023
Fluorene	ND	0.041		mg/Kg-dry	1	12/18/2023
Hexachlorobenzene	ND	0.21		mg/Kg-dry	1	12/18/2023
Hexachlorobutadiene	ND	0.21		mg/Kg-dry	1	12/18/2023
Hexachlorocyclopentadiene	ND	0.21		mg/Kg-dry	1	12/18/2023
Hexachloroethane	ND	0.21		mg/Kg-dry	1	12/18/2023
Indeno(1,2,3-cd)pyrene	ND	0.041		mg/Kg-dry	1	12/18/2023
Isophorone	ND	0.21		mg/Kg-dry	1	12/18/2023
2-Methylnaphthalene	ND	0.21		mg/Kg-dry	1	12/18/2023
2-Methylphenol	ND	0.21		mg/Kg-dry	1	12/18/2023
4-Methylphenol	ND	0.21		mg/Kg-dry	1	12/18/2023
Naphthalene	ND	0.041		mg/Kg-dry	1	12/18/2023
2-Nitroaniline	ND	0.21		mg/Kg-dry	1	12/18/2023
3-Nitroaniline	ND	0.21		mg/Kg-dry	1	12/18/2023
4-Nitroaniline	ND	0.21		mg/Kg-dry	1	12/18/2023
Nitrobenzene	ND	0.041		mg/Kg-dry	1	12/18/2023
2-Nitrophenol	ND	0.21		mg/Kg-dry	1	12/18/2023
4-Nitrophenol	ND	0.41		mg/Kg-dry	1	12/18/2023
N-Nitrosodimethylamine	ND	0.21		mg/Kg-dry	1	12/18/2023
N-Nitrosodi-n-propylamine	ND	0.041		mg/Kg-dry	1	12/18/2023
N-Nitrosodiphenylamine	ND	0.041		mg/Kg-dry	1	12/18/2023
Pentachlorophenol	ND	0.041		mg/Kg-dry	1	12/18/2023
Phenanthrene	ND	0.041		mg/Kg-dry	1	12/18/2023
Phenol	ND	0.21		mg/Kg-dry	1	12/18/2023
Pyrene	0.050	0.041		mg/Kg-dry	1	12/18/2023
Pyridine	ND	0.82		mg/Kg-dry	1	12/18/2023
1,2,4-Trichlorobenzene	ND	0.21		mg/Kg-dry	1	12/18/2023
2,4,5-Trichlorophenol	ND	0.21		mg/Kg-dry	1	12/18/2023
2,4,6-Trichlorophenol	ND	0.21		mg/Kg-dry	1	12/18/2023
PCBs	**SW8082A (SW3550B)**			Prep Date: **12/14/2023**		Analyst: **GVC**
IEPA ELAP 100445						
Aroclor 1016	ND	0.098		mg/Kg-dry	1	12/14/2023
Aroclor 1221	ND	0.098		mg/Kg-dry	1	12/14/2023
Aroclor 1232	ND	0.098		mg/Kg-dry	1	12/14/2023
Aroclor 1242	ND	0.098		mg/Kg-dry	1	12/14/2023
Aroclor 1248	ND	0.098		mg/Kg-dry	1	12/14/2023
Aroclor 1254	ND	0.098		mg/Kg-dry	1	12/14/2023
Aroclor 1260	ND	0.098		mg/Kg-dry	1	12/14/2023

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Report Date: January 12, 2024
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Analytical Results

Customer: Carnow, Conibear, & Associates
Work Order: 23120236 Revision 1
Project: 3001-13 W. Fifth Ave. Chicago
Lab ID: 23120236-005B

Customer Sample ID: B-112 (5-7)
Tag Number:
Collection Date: 12/8/2023 8:00:00 AM
Matrix: Soil

Analyses	Result	RL	Qualifier	Units	DF	Date Analyzed
Pesticides	**SW8081B (SW3550B)**			Prep Date: **12/14/2023**		Analyst: **GVC**
IEPA ELAP 100445						
4,4´-DDD	ND	0.0020		mg/Kg-dry	1	12/14/2023
4,4´-DDE	ND	0.0020		mg/Kg-dry	1	12/14/2023
4,4´-DDT	ND	0.0020		mg/Kg-dry	1	12/14/2023
Aldrin	ND	0.0020		mg/Kg-dry	1	12/14/2023
alpha-BHC	ND	0.0020		mg/Kg-dry	1	12/14/2023
alpha-Chlordane	ND	0.0020		mg/Kg-dry	1	12/14/2023
beta-BHC	ND	0.0020		mg/Kg-dry	1	12/14/2023
Chlordane	ND	0.020		mg/Kg-dry	1	12/14/2023
delta-BHC	ND	0.0020		mg/Kg-dry	1	12/14/2023
Dieldrin	ND	0.0020		mg/Kg-dry	1	12/14/2023
Endosulfan I	ND	0.0020		mg/Kg-dry	1	12/14/2023
Endosulfan II	ND	0.0020		mg/Kg-dry	1	12/14/2023
Endosulfan sulfate	ND	0.0020		mg/Kg-dry	1	12/14/2023
Endrin	ND	0.0020		mg/Kg-dry	1	12/14/2023
Endrin aldehyde	ND	0.0020		mg/Kg-dry	1	12/14/2023
Endrin ketone	ND	0.0020		mg/Kg-dry	1	12/14/2023
gamma-BHC	ND	0.0020		mg/Kg-dry	1	12/14/2023
gamma-Chlordane	ND	0.0020		mg/Kg-dry	1	12/14/2023
Heptachlor	ND	0.0020		mg/Kg-dry	1	12/14/2023
Heptachlor epoxide	ND	0.0020		mg/Kg-dry	1	12/14/2023
Methoxychlor	ND	0.0020		mg/Kg-dry	1	12/14/2023
Toxaphene	ND	0.041		mg/Kg-dry	1	12/14/2023
Metals by ICP/MS	**SW6020A (SW3050B)**			Prep Date: **12/18/2023**		Analyst: **MMR**
IEPA ELAP 100445						
Aluminum	11000	22		mg/Kg-dry	10	12/18/2023
Antimony	ND	2.2		mg/Kg-dry	10	12/18/2023
Arsenic	11	1.1		mg/Kg-dry	10	12/18/2023
Barium	58	1.1		mg/Kg-dry	10	12/18/2023
Beryllium	0.64	0.54		mg/Kg-dry	10	12/18/2023
Cadmium	ND	0.54		mg/Kg-dry	10	12/18/2023
Calcium	58000	65		mg/Kg-dry	10	12/18/2023
Chromium	22	1.1		mg/Kg-dry	10	12/18/2023
Cobalt	15	1.1		mg/Kg-dry	10	12/18/2023
Copper	32	2.7		mg/Kg-dry	10	12/18/2023
Iron	27000	32		mg/Kg-dry	10	12/18/2023
Lead	17	0.59		mg/Kg-dry	10	12/14/2023
Magnesium	26000	32		mg/Kg-dry	10	12/18/2023
Manganese	480	1.1		mg/Kg-dry	10	12/18/2023
Nickel	38	1.1		mg/Kg-dry	10	12/18/2023

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Report Date: January 12, 2024
Print Date: January 12, 2024

Analytical Results

Customer: Carnow, Conibear, & Associates
Work Order: 23120236 Revision 1
Project: 3001-13 W. Fifth Ave. Chicago
Lab ID: 23120236-005B

Customer Sample ID: B-112 (5-7)
Tag Number:
Collection Date: 12/8/2023 8:00:00 AM
Matrix: Soil

Analyses	Result	RL	Qualifier	Units	DF	Date Analyzed
Metals by ICP/MS	**SW6020A (SW3050B)**			Prep Date: **12/18/2023**		Analyst: **MMR**
IEPA ELAP 100445						
Potassium	2700	32		mg/Kg-dry	10	12/18/2023
Selenium	1.2	1.1		mg/Kg-dry	10	12/18/2023
Silver	ND	1.1		mg/Kg-dry	10	12/18/2023
Sodium	150	65		mg/Kg-dry	10	12/18/2023
Thallium	ND	1.2		mg/Kg-dry	10	12/14/2023
Vanadium	25	1.1		mg/Kg-dry	10	12/18/2023
Zinc	60	5.4		mg/Kg-dry	10	12/18/2023
SPLP Metals by ICP/MS	**SW1312/6020A (SW3005A)**			Prep Date: **1/2/2024**		Analyst: **MMR**
IEPA ELAP 100445						
Nickel	0.015	0.0080	*	mg/L	2	1/3/2024
Mercury	**SW7471B**			Prep Date: **12/18/2023**		Analyst: **JB2**
IEPA ELAP 100445						
Mercury	0.029	0.020		mg/Kg-dry	1	12/18/2023
Cyanide, Total	**SW9012A**			Prep Date: **12/13/2023**		Analyst: **MD**
IEPA ELAP 100445						
Cyanide	ND	0.62		mg/Kg-dry	1	12/13/2023
pH (25 °C)	**SW9045C**			Prep Date: **12/13/2023**		Analyst: **LJ1**
IEPA ELAP 100445						
pH	8.31			pH Units	1	12/13/2023
Percent Moisture	**D2974**			Prep Date: **12/13/2023**		Analyst: **EPD**
Percent Moisture	18.9	0.2	*	wt%	1	12/14/2023

Qualifiers:

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
HT - Sample received past holding time
* - Non-accredited parameter
RL - Reporting / Quantitation Limit for the analysis
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R - RPD outside accepted recovery limits
E - Value above quantitation range
H - Holding time exceeded

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Report Date: January 12, 2024
Print Date: January 12, 2024

Analytical Results

Customer: Carnow, Conibear, & Associates
Work Order: 23120236 Revision 1
Project: 3001-13 W. Fifth Ave. Chicago
Lab ID: 23120236-007A

Customer Sample ID: B-113 (1-3)
Tag Number:
Collection Date: 12/8/2023 8:09:00 AM
Matrix: Soil

Analyses	Result	RL	Qualifier	Units	DF	Date Analyzed
Polynuclear Aromatic Hydrocarbons by GC/MS **SW8270C (SW3550B)** Prep Date: **12/15/2023** Analyst: **DM**						
IEPA ELAP 100445						
Acenaphthene	ND	0.040		mg/Kg-dry	1	12/18/2023
Acenaphthylene	ND	0.040		mg/Kg-dry	1	12/18/2023
Anthracene	ND	0.040		mg/Kg-dry	1	12/18/2023
Benz(a)anthracene	ND	0.040		mg/Kg-dry	1	12/18/2023
Benzo(a)pyrene	ND	0.040		mg/Kg-dry	1	12/18/2023
Benzo(b)fluoranthene	ND	0.040		mg/Kg-dry	1	12/18/2023
Benzo(g,h,i)perylene	ND	0.040		mg/Kg-dry	1	12/18/2023
Benzo(k)fluoranthene	ND	0.040		mg/Kg-dry	1	12/18/2023
Chrysene	ND	0.040		mg/Kg-dry	1	12/18/2023
Dibenz(a,h)anthracene	ND	0.040		mg/Kg-dry	1	12/18/2023
Fluoranthene	ND	0.040		mg/Kg-dry	1	12/18/2023
Fluorene	ND	0.040		mg/Kg-dry	1	12/18/2023
Indeno(1,2,3-cd)pyrene	ND	0.040		mg/Kg-dry	1	12/18/2023
Naphthalene	ND	0.040		mg/Kg-dry	1	12/18/2023
Phenanthrene	ND	0.040		mg/Kg-dry	1	12/18/2023
Pyrene	ND	0.040		mg/Kg-dry	1	12/18/2023
Metals by ICP/MS **SW6020A (SW3050B)** Prep Date: **12/14/2023** Analyst: **MDS**						
IEPA ELAP 100445						
Arsenic	9.3	1.1		mg/Kg-dry	10	12/14/2023
Barium	32	1.1		mg/Kg-dry	10	12/14/2023
Cadmium	ND	0.55		mg/Kg-dry	10	12/14/2023
Chromium	25	1.1		mg/Kg-dry	10	12/14/2023
Lead	14	0.55		mg/Kg-dry	10	12/14/2023
Selenium	ND	1.1		mg/Kg-dry	10	12/14/2023
Silver	ND	1.1		mg/Kg-dry	10	12/14/2023
Mercury **SW7471B** Prep Date: **12/18/2023** Analyst: **JB2**						
IEPA ELAP 100445						
Mercury	0.025	0.022		mg/Kg-dry	1	12/18/2023
pH (25 °C) **SW9045C** Prep Date: **12/13/2023** Analyst: **LJ1**						
IEPA ELAP 100445						
pH	8.27			pH Units	1	12/13/2023
Percent Moisture **D2974** Prep Date: **12/13/2023** Analyst: **EPD**						
Percent Moisture	17.3	0.2	*	wt%	1	12/14/2023

Qualifiers:

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
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HT - Sample received past holding time
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R - RPD outside accepted recovery limits
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H - Holding time exceeded

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Report Date: January 12, 2024
Print Date: January 12, 2024

Analytical Results

Customer: Carnow, Conibear, & Associates
Work Order: 23120236 Revision 1
Project: 3001-13 W. Fifth Ave. Chicago
Lab ID: 23120236-008A

Customer Sample ID: B-113 (5-7)
Tag Number:
Collection Date: 12/8/2023 8:12:00 AM
Matrix: Soil

Analyses	Result	RL	Qualifier	Units	DF	Date Analyzed
Polynuclear Aromatic Hydrocarbons by GC/MS **SW8270C (SW3550B)** Prep Date: **12/15/2023** Analyst: **DM**						
IEPA ELAP 100445						
Acenaphthene	ND	0.040		mg/Kg-dry	1	12/18/2023
Acenaphthylene	ND	0.040		mg/Kg-dry	1	12/18/2023
Anthracene	ND	0.040		mg/Kg-dry	1	12/18/2023
Benz(a)anthracene	ND	0.040		mg/Kg-dry	1	12/18/2023
Benzo(a)pyrene	ND	0.040		mg/Kg-dry	1	12/18/2023
Benzo(b)fluoranthene	ND	0.040		mg/Kg-dry	1	12/18/2023
Benzo(g,h,i)perylene	ND	0.040		mg/Kg-dry	1	12/18/2023
Benzo(k)fluoranthene	ND	0.040		mg/Kg-dry	1	12/18/2023
Chrysene	ND	0.040		mg/Kg-dry	1	12/18/2023
Dibenz(a,h)anthracene	ND	0.040		mg/Kg-dry	1	12/18/2023
Fluoranthene	ND	0.040		mg/Kg-dry	1	12/18/2023
Fluorene	ND	0.040		mg/Kg-dry	1	12/18/2023
Indeno(1,2,3-cd)pyrene	ND	0.040		mg/Kg-dry	1	12/18/2023
Naphthalene	ND	0.040		mg/Kg-dry	1	12/18/2023
Phenanthrene	ND	0.040		mg/Kg-dry	1	12/18/2023
Pyrene	ND	0.040		mg/Kg-dry	1	12/18/2023
Metals by ICP/MS **SW6020A (SW3050B)** Prep Date: **12/14/2023** Analyst: **MDS**						
IEPA ELAP 100445						
Arsenic	7.6	1.1		mg/Kg-dry	10	12/14/2023
Barium	34	1.1		mg/Kg-dry	10	12/14/2023
Cadmium	ND	0.53		mg/Kg-dry	10	12/14/2023
Chromium	20	1.1		mg/Kg-dry	10	12/14/2023
Lead	16	0.53		mg/Kg-dry	10	12/14/2023
Selenium	1.3	1.1		mg/Kg-dry	10	12/14/2023
Silver	ND	1.1		mg/Kg-dry	10	12/14/2023
Mercury **SW7471B** Prep Date: **12/18/2023** Analyst: **JB2**						
IEPA ELAP 100445						
Mercury	0.023	0.018		mg/Kg-dry	1	12/18/2023
pH (25 °C) **SW9045C** Prep Date: **12/13/2023** Analyst: **LJ1**						
IEPA ELAP 100445						
pH	8.42			pH Units	1	12/13/2023
Percent Moisture **D2974** Prep Date: **12/13/2023** Analyst: **EPD**						
Percent Moisture	17.6	0.2	*	wt%	1	12/14/2023

Qualifiers:

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
HT - Sample received past holding time
* - Non-accredited parameter
RL - Reporting / Quantitation Limit for the analysis
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
E - Value above quantitation range
H - Holding time exceeded

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Report Date: January 12, 2024
Print Date: January 12, 2024

Analytical Results

Customer: Carnow, Conibear, & Associates
Work Order: 23120236 Revision 1
Project: 3001-13 W. Fifth Ave. Chicago
Lab ID: 23120236-010A

Customer Sample ID: Fifth-1
Tag Number:
Collection Date: 12/8/2023 8:20:00 AM
Matrix: Soil

Analyses	Result	RL	Qualifier	Units	DF	Date Analyzed
TCLP Metals by ICP/MS	**SW1311/6020A (SW3005A)**			Prep Date: **12/15/2023**		Analyst: **MDS**
IEPA ELAP 100445						
Arsenic	ND	0.010		mg/L	5	12/15/2023
Barium	0.47	0.050		mg/L	5	12/15/2023
Cadmium	ND	0.0050		mg/L	5	12/15/2023
Chromium	ND	0.010		mg/L	5	12/15/2023
Lead	0.0099	0.0050		mg/L	5	12/15/2023
Selenium	ND	0.010		mg/L	5	12/15/2023
Silver	ND	0.010		mg/L	5	12/15/2023
TCLP Mercury	**SW1311/7470A**			Prep Date: **12/18/2023**		Analyst: **JB2**
IEPA ELAP 100445						
Mercury	ND	0.00050		mg/L	1	12/18/2023

Qualifiers:

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
HT - Sample received past holding time
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RL - Reporting / Quantitation Limit for the analysis
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
E - Value above quantitation range
H - Holding time exceeded

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Report Date: January 12, 2024
Print Date: January 12, 2024

Analytical Results

Customer: Carnow, Conibear, & Associates
Work Order: 23120236 Revision 1
Project: 3001-13 W. Fifth Ave. Chicago
Lab ID: 23120236-001A

Customer Sample ID: B-111 (1-3)
Tag Number:
Collection Date: 12/8/2023 7:45:00 AM
Matrix: Soil

Analyses	Result	RL	Qualifier	Units	DF	Date Analyzed
Polynuclear Aromatic Hydrocarbons by GC/MS **SW8270C (SW3550B)** Prep Date: **12/15/2023** Analyst: **DM**						
IEPA ELAP 100445						
Acenaphthene	0.28	0.038		mg/Kg-dry	1	12/18/2023
Acenaphthylene	0.14	0.038		mg/Kg-dry	1	12/18/2023
Anthracene	0.92	0.038		mg/Kg-dry	1	12/18/2023
Benz(a)anthracene	2.4	0.038		mg/Kg-dry	1	12/18/2023
Benzo(a)pyrene	2.7	0.038		mg/Kg-dry	1	12/18/2023
Benzo(b)fluoranthene	2.0	0.038		mg/Kg-dry	1	12/18/2023
Benzo(g,h,i)perylene	1.3	0.038		mg/Kg-dry	1	12/18/2023
Benzo(k)fluoranthene	2.1	0.038		mg/Kg-dry	1	12/18/2023
Chrysene	2.4	0.038		mg/Kg-dry	1	12/18/2023
Dibenz(a,h)anthracene	0.72	0.038		mg/Kg-dry	1	12/18/2023
Fluoranthene	4.4	0.038		mg/Kg-dry	1	12/18/2023
Fluorene	0.38	0.038		mg/Kg-dry	1	12/18/2023
Indeno(1,2,3-cd)pyrene	1.2	0.038		mg/Kg-dry	1	12/18/2023
Naphthalene	0.13	0.038		mg/Kg-dry	1	12/18/2023
Phenanthrene	2.7	0.038		mg/Kg-dry	1	12/18/2023
Pyrene	4.0	0.038		mg/Kg-dry	1	12/18/2023
Metals by ICP/MS **SW6020A (SW3050B)** Prep Date: **12/14/2023** Analyst: **MDS**						
IEPA ELAP 100445						
Arsenic	6.4	1.2		mg/Kg-dry	10	12/14/2023
Barium	83	1.2		mg/Kg-dry	10	12/14/2023
Cadmium	ND	0.58		mg/Kg-dry	10	12/14/2023
Chromium	11	1.2		mg/Kg-dry	10	12/14/2023
Lead	130	0.58		mg/Kg-dry	10	12/14/2023
Selenium	ND	1.2		mg/Kg-dry	10	12/14/2023
Silver	ND	1.2		mg/Kg-dry	10	12/14/2023
TCLP Metals by ICP/MS **SW1311/6020A (SW3005A)** Prep Date: **1/12/2024** Analyst: **MDS**						
IEPA ELAP 100445						
Lead	0.18	0.0050		mg/L	5	1/12/2024
Mercury **SW7471B** Prep Date: **12/18/2023** Analyst: **JB2**						
IEPA ELAP 100445						
Mercury	0.28	0.019		mg/Kg-dry	1	12/18/2023
pH (25 °C) **SW9045C** Prep Date: **12/13/2023** Analyst: **LJ1**						
IEPA ELAP 100445						
pH	8.22			pH Units	1	12/13/2023
Percent Moisture **D2974** Prep Date: **12/13/2023** Analyst: **EPD**						
Percent Moisture	15.9	0.2	*	wt%	1	12/14/2023

Qualifiers:

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R - RPD outside accepted recovery limits
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H - Holding time exceeded

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Report Date: January 12, 2024
Print Date: January 12, 2024

Analytical Results

Customer: Carnow, Conibear, & Associates
Work Order: 23120236 Revision 1
Project: 3001-13 W. Fifth Ave. Chicago
Lab ID: 23120236-002A

Customer Sample ID: B-111 (5-7)
Tag Number:
Collection Date: 12/8/2023 7:48:00 AM
Matrix: Soil

Analyses	Result	RL	Qualifier	Units	DF	Date Analyzed
Polynuclear Aromatic Hydrocarbons by GC/MS **SW8270C (SW3550B)** Prep Date: **12/15/2023** Analyst: **DM**						
IEPA ELAP 100445						
Acenaphthene	ND	0.044		mg/Kg-dry	1	12/18/2023
Acenaphthylene	ND	0.044		mg/Kg-dry	1	12/18/2023
Anthracene	ND	0.044		mg/Kg-dry	1	12/18/2023
Benz(a)anthracene	ND	0.044		mg/Kg-dry	1	12/18/2023
Benzo(a)pyrene	ND	0.044		mg/Kg-dry	1	12/18/2023
Benzo(b)fluoranthene	ND	0.044		mg/Kg-dry	1	12/18/2023
Benzo(g,h,i)perylene	ND	0.044		mg/Kg-dry	1	12/18/2023
Benzo(k)fluoranthene	ND	0.044		mg/Kg-dry	1	12/18/2023
Chrysene	ND	0.044		mg/Kg-dry	1	12/18/2023
Dibenz(a,h)anthracene	ND	0.044		mg/Kg-dry	1	12/18/2023
Fluoranthene	ND	0.044		mg/Kg-dry	1	12/18/2023
Fluorene	ND	0.044		mg/Kg-dry	1	12/18/2023
Indeno(1,2,3-cd)pyrene	ND	0.044		mg/Kg-dry	1	12/18/2023
Naphthalene	ND	0.044		mg/Kg-dry	1	12/18/2023
Phenanthrene	ND	0.044		mg/Kg-dry	1	12/18/2023
Pyrene	ND	0.044		mg/Kg-dry	1	12/18/2023
Metals by ICP/MS **SW6020A (SW3050B)** Prep Date: **12/14/2023** Analyst: **MDS**						
IEPA ELAP 100445						
Arsenic	6.3	1.2		mg/Kg-dry	10	12/14/2023
Barium	44	1.2		mg/Kg-dry	10	12/14/2023
Cadmium	ND	0.58		mg/Kg-dry	10	12/14/2023
Chromium	25	1.2		mg/Kg-dry	10	12/14/2023
Lead	22	0.58		mg/Kg-dry	10	12/14/2023
Selenium	ND	1.2		mg/Kg-dry	10	12/14/2023
Silver	ND	1.2		mg/Kg-dry	10	12/14/2023
Mercury **SW7471B** Prep Date: **12/18/2023** Analyst: **JB2**						
IEPA ELAP 100445						
Mercury	0.029	0.026		mg/Kg-dry	1	12/18/2023
pH (25 °C) **SW9045C** Prep Date: **12/13/2023** Analyst: **LJ1**						
IEPA ELAP 100445						
pH	8.04			pH Units	1	12/13/2023
Percent Moisture **D2974** Prep Date: **12/13/2023** Analyst: **EPD**						
Percent Moisture	25.4	0.2	*	wt%	1	12/14/2023

Qualifiers:

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E - Value above quantitation range
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Report Date: January 12, 2024
Print Date: January 12, 2024

Analytical Results

Customer: Carnow, Conibear, & Associates
Work Order: 23120236 Revision 1
Project: 3001-13 W. Fifth Ave. Chicago
Lab ID: 23120236-004A

Customer Sample ID: B-112 (1-3)
Tag Number:
Collection Date: 12/8/2023 7:56:00 AM
Matrix: Soil

Analyses	Result	RL	Qualifier	Units	DF	Date Analyzed
Volatile Organic Compounds by GC/MS	**SW5035/8260B**			Prep Date: **12/12/2023**	Analyst: **CBG**	
IEPA ELAP 100445						
Acetone	ND	0.12		mg/Kg-dry	1	12/14/2023
Benzene	ND	0.0081		mg/Kg-dry	1	12/14/2023
Bromodichloromethane	ND	0.0081		mg/Kg-dry	1	12/14/2023
Bromoform	ND	0.0081		mg/Kg-dry	1	12/14/2023
Bromomethane	ND	0.016		mg/Kg-dry	1	12/14/2023
2-Butanone	ND	0.12		mg/Kg-dry	1	12/14/2023
Carbon disulfide	ND	0.081		mg/Kg-dry	1	12/14/2023
Carbon tetrachloride	ND	0.0081		mg/Kg-dry	1	12/14/2023
Chlorobenzene	ND	0.0081		mg/Kg-dry	1	12/14/2023
Chloroethane	ND	0.016		mg/Kg-dry	1	12/14/2023
Chloroform	ND	0.0081		mg/Kg-dry	1	12/14/2023
Chloromethane	ND	0.016		mg/Kg-dry	1	12/14/2023
Dibromochloromethane	ND	0.0081		mg/Kg-dry	1	12/14/2023
1,1-Dichloroethane	ND	0.0081		mg/Kg-dry	1	12/14/2023
1,2-Dichloroethane	ND	0.0081		mg/Kg-dry	1	12/14/2023
1,1-Dichloroethene	ND	0.0081		mg/Kg-dry	1	12/14/2023
cis-1,2-Dichloroethene	ND	0.0081		mg/Kg-dry	1	12/14/2023
trans-1,2-Dichloroethene	ND	0.0081		mg/Kg-dry	1	12/14/2023
1,2-Dichloropropane	ND	0.0081		mg/Kg-dry	1	12/14/2023
cis-1,3-Dichloropropene	ND	0.0033		mg/Kg-dry	1	12/14/2023
trans-1,3-Dichloropropene	ND	0.0033		mg/Kg-dry	1	12/14/2023
Ethylbenzene	ND	0.0081		mg/Kg-dry	1	12/14/2023
2-Hexanone	ND	0.033		mg/Kg-dry	1	12/14/2023
4-Methyl-2-pentanone	ND	0.033		mg/Kg-dry	1	12/14/2023
Methylene chloride	ND	0.016		mg/Kg-dry	1	12/14/2023
Methyl tert-butyl ether	ND	0.0081		mg/Kg-dry	1	12/14/2023
Styrene	ND	0.0081		mg/Kg-dry	1	12/14/2023
1,1,2,2-Tetrachloroethane	ND	0.0081		mg/Kg-dry	1	12/14/2023
Tetrachloroethene	ND	0.0081		mg/Kg-dry	1	12/14/2023
Toluene	ND	0.0081		mg/Kg-dry	1	12/14/2023
1,1,1-Trichloroethane	ND	0.0081		mg/Kg-dry	1	12/14/2023
1,1,2-Trichloroethane	ND	0.0081		mg/Kg-dry	1	12/14/2023
Trichloroethene	ND	0.0081		mg/Kg-dry	1	12/14/2023
Vinyl chloride	ND	0.0081		mg/Kg-dry	1	12/14/2023
Xylenes, Total	ND	0.024		mg/Kg-dry	1	12/14/2023

Qualifiers:

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Report Date: January 12, 2024
Print Date: January 12, 2024

Analytical Results

Customer: Carnow, Conibear, & Associates
Work Order: 23120236 Revision 1
Project: 3001-13 W. Fifth Ave. Chicago
Lab ID: 23120236-004B

Customer Sample ID: B-112 (1-3)
Tag Number:
Collection Date: 12/8/2023 7:56:00 AM
Matrix: Soil

Analyses	Result	RL	Qualifier	Units	DF	Date Analyzed
Semivolatile Organic Compounds by GC/MS	**SW8270C (SW3550B)**			Prep Date: **12/15/2023**	Analyst: **DM**	
IEPA ELAP 100445						
Acenaphthene	2.4	0.041		mg/Kg-dry	1	12/18/2023
Acenaphthylene	0.48	0.041		mg/Kg-dry	1	12/18/2023
Aniline	ND	0.41		mg/Kg-dry	1	12/18/2023
Anthracene	8.0	0.41		mg/Kg-dry	10	12/20/2023
Benz(a)anthracene	18	0.41		mg/Kg-dry	10	12/20/2023
Benzidine	ND	0.41		mg/Kg-dry	1	12/18/2023
Benzo(a)pyrene	19	0.41		mg/Kg-dry	10	12/20/2023
Benzo(b)fluoranthene	15	0.41		mg/Kg-dry	10	12/20/2023
Benzo(g,h,i)perylene	11	0.41		mg/Kg-dry	10	12/20/2023
Benzo(k)fluoranthene	13	0.41		mg/Kg-dry	10	12/20/2023
Benzoic acid	ND	1.0		mg/Kg-dry	1	12/18/2023
Benzyl alcohol	ND	0.21		mg/Kg-dry	1	12/18/2023
Bis(2-chloroethoxy)methane	ND	0.21		mg/Kg-dry	1	12/18/2023
Bis(2-chloroethyl)ether	ND	0.21		mg/Kg-dry	1	12/18/2023
Bis(2-ethylhexyl)phthalate	ND	1.0		mg/Kg-dry	1	12/18/2023
4-Bromophenyl phenyl ether	ND	0.21		mg/Kg-dry	1	12/18/2023
Butyl benzyl phthalate	ND	1.0		mg/Kg-dry	1	12/18/2023
Carbazole	4.3	0.21		mg/Kg-dry	1	12/18/2023
4-Chloroaniline	ND	0.21		mg/Kg-dry	1	12/18/2023
4-Chloro-3-methylphenol	ND	0.41		mg/Kg-dry	1	12/18/2023
2-Chloronaphthalene	ND	0.21		mg/Kg-dry	1	12/18/2023
2-Chlorophenol	ND	0.21		mg/Kg-dry	1	12/18/2023
4-Chlorophenyl phenyl ether	ND	0.21		mg/Kg-dry	1	12/18/2023
2, 2'-oxybis(1-Chloropropane)	ND	0.21		mg/Kg-dry	1	12/18/2023
Chrysene	19	0.41		mg/Kg-dry	10	12/20/2023
Dibenz(a,h)anthracene	5.2	0.041		mg/Kg-dry	1	12/18/2023
Dibenzofuran	1.3	0.21		mg/Kg-dry	1	12/18/2023
1,2-Dichlorobenzene	ND	0.21		mg/Kg-dry	1	12/18/2023
1,3-Dichlorobenzene	ND	0.21		mg/Kg-dry	1	12/18/2023
1,4-Dichlorobenzene	ND	0.21		mg/Kg-dry	1	12/18/2023
3,3´-Dichlorobenzidine	ND	0.21		mg/Kg-dry	1	12/18/2023
2,4-Dichlorophenol	ND	0.21		mg/Kg-dry	1	12/18/2023
Diethyl phthalate	ND	1.0		mg/Kg-dry	1	12/18/2023
Dimethyl phthalate	ND	1.0		mg/Kg-dry	1	12/18/2023
2,4-Dimethylphenol	ND	0.21		mg/Kg-dry	1	12/18/2023
Di-n-butyl phthalate	ND	1.0		mg/Kg-dry	1	12/18/2023
4,6-Dinitro-2-methylphenol	ND	0.41		mg/Kg-dry	1	12/18/2023
2,4-Dinitrophenol	ND	1.0		mg/Kg-dry	1	12/18/2023
2,4-Dinitrotoluene	ND	0.041		mg/Kg-dry	1	12/18/2023
2,6-Dinitrotoluene	ND	0.041		mg/Kg-dry	1	12/18/2023

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Report Date: January 12, 2024
Print Date: January 12, 2024

Analytical Results

Customer: Carnow, Conibear, & Associates
Work Order: 23120236 Revision 1
Project: 3001-13 W. Fifth Ave. Chicago
Lab ID: 23120236-004B

Customer Sample ID: B-112 (1-3)
Tag Number:
Collection Date: 12/8/2023 7:56:00 AM
Matrix: Soil

Analyses	Result	RL	Qualifier	Units	DF	Date Analyzed
Semivolatile Organic Compounds by GC/MS	**SW8270C (SW3550B)**			Prep Date: **12/15/2023**		Analyst: **DM**
IEPA ELAP 100445						
Di-n-octyl phthalate	ND	1.0		mg/Kg-dry	1	12/18/2023
Fluoranthene	39	0.41		mg/Kg-dry	10	12/20/2023
Fluorene	3.0	0.041		mg/Kg-dry	1	12/18/2023
Hexachlorobenzene	ND	0.21		mg/Kg-dry	1	12/18/2023
Hexachlorobutadiene	ND	0.21		mg/Kg-dry	1	12/18/2023
Hexachlorocyclopentadiene	ND	0.21		mg/Kg-dry	1	12/18/2023
Hexachloroethane	ND	0.21		mg/Kg-dry	1	12/18/2023
Indeno(1,2,3-cd)pyrene	9.5	0.41		mg/Kg-dry	10	12/20/2023
Isophorone	ND	0.21		mg/Kg-dry	1	12/18/2023
2-Methylnaphthalene	1.9	0.21		mg/Kg-dry	1	12/18/2023
2-Methylphenol	ND	0.21		mg/Kg-dry	1	12/18/2023
4-Methylphenol	ND	0.21		mg/Kg-dry	1	12/18/2023
Naphthalene	3.5	0.041		mg/Kg-dry	1	12/18/2023
2-Nitroaniline	ND	0.21		mg/Kg-dry	1	12/18/2023
3-Nitroaniline	ND	0.21		mg/Kg-dry	1	12/18/2023
4-Nitroaniline	ND	0.21		mg/Kg-dry	1	12/18/2023
Nitrobenzene	ND	0.041		mg/Kg-dry	1	12/18/2023
2-Nitrophenol	ND	0.21		mg/Kg-dry	1	12/18/2023
4-Nitrophenol	ND	0.41		mg/Kg-dry	1	12/18/2023
N-Nitrosodimethylamine	ND	0.21		mg/Kg-dry	1	12/18/2023
N-Nitrosodi-n-propylamine	ND	0.041		mg/Kg-dry	1	12/18/2023
N-Nitrosodiphenylamine	ND	0.21		mg/Kg-dry	1	12/18/2023
Pentachlorophenol	ND	0.083		mg/Kg-dry	1	12/18/2023
Phenanthrene	32	0.41		mg/Kg-dry	10	12/20/2023
Phenol	ND	0.21		mg/Kg-dry	1	12/18/2023
Pyrene	33	0.41		mg/Kg-dry	10	12/20/2023
Pyridine	ND	0.83		mg/Kg-dry	1	12/18/2023
1,2,4-Trichlorobenzene	ND	0.21		mg/Kg-dry	1	12/18/2023
2,4,5-Trichlorophenol	ND	0.21		mg/Kg-dry	1	12/18/2023
2,4,6-Trichlorophenol	ND	0.21		mg/Kg-dry	1	12/18/2023
PCBs	**SW8082A (SW3550B)**			Prep Date: **12/14/2023**		Analyst: **GVC**
IEPA ELAP 100445						
Aroclor 1016	ND	0.10		mg/Kg-dry	1	12/14/2023
Aroclor 1221	ND	0.10		mg/Kg-dry	1	12/14/2023
Aroclor 1232	ND	0.10		mg/Kg-dry	1	12/14/2023
Aroclor 1242	ND	0.10		mg/Kg-dry	1	12/14/2023
Aroclor 1248	ND	0.10		mg/Kg-dry	1	12/14/2023
Aroclor 1254	ND	0.10		mg/Kg-dry	1	12/14/2023
Aroclor 1260	ND	0.10		mg/Kg-dry	1	12/14/2023

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Print Date: January 12, 2024

Analytical Results

Customer: Carnow, Conibear, & Associates
Work Order: 23120236 Revision 1
Project: 3001-13 W. Fifth Ave. Chicago
Lab ID: 23120236-004B

Customer Sample ID: B-112 (1-3)
Tag Number:
Collection Date: 12/8/2023 7:56:00 AM
Matrix: Soil

Analyses	Result	RL	Qualifier	Units	DF	Date Analyzed
Pesticides	**SW8081B (SW3550B)**			Prep Date: **12/14/2023**		Analyst: **GVC**
IEPA ELAP 100445						
4,4´-DDD	ND	0.0020		mg/Kg-dry	1	12/14/2023
4,4´-DDE	ND	0.0020		mg/Kg-dry	1	12/14/2023
4,4´-DDT	ND	0.0020		mg/Kg-dry	1	12/14/2023
Aldrin	ND	0.0020		mg/Kg-dry	1	12/14/2023
alpha-BHC	ND	0.0020		mg/Kg-dry	1	12/14/2023
alpha-Chlordane	0.11	0.020		mg/Kg-dry	10	12/21/2023
beta-BHC	ND	0.0020		mg/Kg-dry	1	12/14/2023
Chlordane	1.2	0.20		mg/Kg-dry	10	12/21/2023
delta-BHC	ND	0.0020		mg/Kg-dry	1	12/14/2023
Dieldrin	ND	0.0020		mg/Kg-dry	1	12/14/2023
Endosulfan I	ND	0.0020		mg/Kg-dry	1	12/14/2023
Endosulfan II	ND	0.0020		mg/Kg-dry	1	12/14/2023
Endosulfan sulfate	ND	0.0020		mg/Kg-dry	1	12/14/2023
Endrin	ND	0.0020		mg/Kg-dry	1	12/14/2023
Endrin aldehyde	ND	0.0020		mg/Kg-dry	1	12/14/2023
Endrin ketone	ND	0.0020		mg/Kg-dry	1	12/14/2023
gamma-BHC	ND	0.0020		mg/Kg-dry	1	12/14/2023
gamma-Chlordane	0.034	0.0020		mg/Kg-dry	1	12/14/2023
Heptachlor	ND	0.0020		mg/Kg-dry	1	12/14/2023
Heptachlor epoxide	ND	0.0020		mg/Kg-dry	1	12/14/2023
Methoxychlor	ND	0.0020		mg/Kg-dry	1	12/14/2023
Toxaphene	ND	0.042		mg/Kg-dry	1	12/14/2023
TCLP Pesticides	**SW1311/8081B (SW3510C)**			Prep Date: **1/2/2024**		Analyst: **GVC**
IEPA ELAP 100445						
Chlordane	ND	0.0050		mg/L	1	12/26/2023
Herbicides in Soil	**SW8321B (SW3550B)**			Prep Date: **12/13/2023**		Analyst: **MEP**
IEPA ELAP 100445						
2,4,5-TP (Silvex)	ND	0.0041		mg/Kg-dry	1	12/14/2023
2,4-D	ND	0.0041		mg/Kg-dry	1	12/14/2023
Dalapon	ND	0.041		mg/Kg-dry	1	12/14/2023
Dinoseb	ND	0.0084		mg/Kg-dry	1	12/14/2023
Pentachlorophenol	ND	0.012	*	mg/Kg-dry	1	12/14/2023
Picloram	ND	0.0084	*	mg/Kg-dry	1	12/14/2023
Metals by ICP/MS	**SW6020A (SW3050B)**			Prep Date: **12/18/2023**		Analyst: **MMR**
IEPA ELAP 100445						
Aluminum	8100	25		mg/Kg-dry	10	12/18/2023
Antimony	ND	2.5		mg/Kg-dry	10	12/18/2023
Arsenic	41	1.3		mg/Kg-dry	10	12/18/2023

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Analytical Results

Customer: Carnow, Conibear, & Associates
Work Order: 23120236 Revision 1
Project: 3001-13 W. Fifth Ave. Chicago
Lab ID: 23120236-004B

Customer Sample ID: B-112 (1-3)
Tag Number:
Collection Date: 12/8/2023 7:56:00 AM
Matrix: Soil

Analyses	Result	RL	Qualifier	Units	DF	Date Analyzed
Metals by ICP/MS	**SW6020A (SW3050B)**			Prep Date: **12/18/2023**		Analyst: **MMR**
IEPA ELAP 100445						
Barium	800	1.3		mg/Kg-dry	10	12/18/2023
Beryllium	1.2	0.63		mg/Kg-dry	10	12/18/2023
Cadmium	3.7	0.63		mg/Kg-dry	10	12/18/2023
Calcium	34000	76		mg/Kg-dry	10	12/18/2023
Chromium	32	1.3		mg/Kg-dry	10	12/18/2023
Cobalt	9.0	1.3		mg/Kg-dry	10	12/18/2023
Copper	200	3.2		mg/Kg-dry	10	12/18/2023
Iron	23000	38		mg/Kg-dry	10	12/18/2023
Lead	1300	0.55		mg/Kg-dry	10	12/14/2023
Magnesium	9600	38		mg/Kg-dry	10	12/18/2023
Manganese	710	1.3		mg/Kg-dry	10	12/18/2023
Nickel	27	1.3		mg/Kg-dry	10	12/18/2023
Potassium	1200	38		mg/Kg-dry	10	12/18/2023
Selenium	1.5	1.3		mg/Kg-dry	10	12/18/2023
Silver	ND	1.3		mg/Kg-dry	10	12/18/2023
Sodium	350	76		mg/Kg-dry	10	12/18/2023
Thallium	ND	1.1		mg/Kg-dry	10	12/14/2023
Vanadium	24	1.3		mg/Kg-dry	10	12/18/2023
Zinc	1100	6.3		mg/Kg-dry	10	12/18/2023
SPLP Metals by ICP/MS	**SW1312/6020A (SW3005A)**			Prep Date: **1/2/2024**		Analyst: **MMR**
IEPA ELAP 100445						
Barium	0.066	0.020		mg/L	2	1/3/2024
Cadmium	ND	0.0020		mg/L	2	1/3/2024
Copper	0.063	0.020	*	mg/L	2	1/3/2024
Nickel	0.045	0.0080	*	mg/L	2	1/3/2024
Zinc	0.20	0.020		mg/L	2	1/3/2024
TCLP Metals by ICP/MS	**SW1311/6020A (SW3005A)**			Prep Date: **1/12/2024**		Analyst: **MDS**
IEPA ELAP 100445						
Lead	0.033	0.0050		mg/L	5	1/12/2024
Mercury	**SW7471B**			Prep Date: **12/18/2023**		Analyst: **JB2**
IEPA ELAP 100445						
Mercury	0.48	0.023		mg/Kg-dry	1	12/18/2023
SPLP Mercury	**SW1312/7470A**			Prep Date: **1/2/2024**		Analyst: **JB2**
IEPA ELAP 100445						
Mercury	ND	0.00020		mg/L	1	1/2/2024
Cyanide, Total	**SW9012A**			Prep Date: **12/13/2023**		Analyst: **MD**
IEPA ELAP 100445						
Cyanide	ND	0.64		mg/Kg-dry	1	12/13/2023

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Analytical Results

Customer: Carnow, Conibear, & Associates
Work Order: 23120236 Revision 1
Project: 3001-13 W. Fifth Ave. Chicago
Lab ID: 23120236-004B

Customer Sample ID: B-112 (1-3)
Tag Number:
Collection Date: 12/8/2023 7:56:00 AM
Matrix: Soil

Analyses	Result	RL	Qualifier	Units	DF	Date Analyzed
pH (25 °C)	**SW9045C**			Prep Date: **12/13/2023**		Analyst: **LJ1**
IEPA ELAP 100445						
pH	8.34			pH Units	1	12/13/2023
Percent Moisture	**D2974**			Prep Date: **12/13/2023**		Analyst: **EPD**
Percent Moisture	21.4	0.2	*	wt%	1	12/14/2023

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Analytical Results

Customer: Carnow, Conibear, & Associates
Work Order: 23120236 Revision 1
Project: 3001-13 W. Fifth Ave. Chicago
Lab ID: 23120236-005A

Customer Sample ID: B-112 (5-7)
Tag Number:
Collection Date: 12/8/2023 8:00:00 AM
Matrix: Soil

Analyses	Result	RL	Qualifier	Units	DF	Date Analyzed
Volatile Organic Compounds by GC/MS	**SW5035/8260B**			Prep Date: **12/12/2023**	Analyst: **CBG**	
IEPA ELAP 100445						
Acetone	ND	0.086		mg/Kg-dry	1	12/14/2023
Benzene	ND	0.0050		mg/Kg-dry	1	12/14/2023
Bromodichloromethane	ND	0.0050		mg/Kg-dry	1	12/14/2023
Bromoform	ND	0.0050		mg/Kg-dry	1	12/14/2023
Bromomethane	ND	0.010		mg/Kg-dry	1	12/14/2023
2-Butanone	ND	0.075		mg/Kg-dry	1	12/14/2023
Carbon disulfide	ND	0.050		mg/Kg-dry	1	12/14/2023
Carbon tetrachloride	ND	0.0050		mg/Kg-dry	1	12/14/2023
Chlorobenzene	ND	0.0050		mg/Kg-dry	1	12/14/2023
Chloroethane	ND	0.010		mg/Kg-dry	1	12/14/2023
Chloroform	ND	0.0050		mg/Kg-dry	1	12/14/2023
Chloromethane	ND	0.010		mg/Kg-dry	1	12/14/2023
Dibromochloromethane	ND	0.0050		mg/Kg-dry	1	12/14/2023
1,1-Dichloroethane	ND	0.0050		mg/Kg-dry	1	12/14/2023
1,2-Dichloroethane	ND	0.0050		mg/Kg-dry	1	12/14/2023
1,1-Dichloroethene	ND	0.0050		mg/Kg-dry	1	12/14/2023
cis-1,2-Dichloroethene	ND	0.0050		mg/Kg-dry	1	12/14/2023
trans-1,2-Dichloroethene	ND	0.0050		mg/Kg-dry	1	12/14/2023
1,2-Dichloropropane	ND	0.0050		mg/Kg-dry	1	12/14/2023
cis-1,3-Dichloropropene	ND	0.0020		mg/Kg-dry	1	12/14/2023
trans-1,3-Dichloropropene	ND	0.0020		mg/Kg-dry	1	12/14/2023
Ethylbenzene	ND	0.0050		mg/Kg-dry	1	12/14/2023
2-Hexanone	ND	0.020		mg/Kg-dry	1	12/14/2023
4-Methyl-2-pentanone	ND	0.020		mg/Kg-dry	1	12/14/2023
Methylene chloride	ND	0.010		mg/Kg-dry	1	12/14/2023
Methyl tert-butyl ether	ND	0.0050		mg/Kg-dry	1	12/14/2023
Styrene	ND	0.0050		mg/Kg-dry	1	12/14/2023
1,1,2,2-Tetrachloroethane	ND	0.0050		mg/Kg-dry	1	12/14/2023
Tetrachloroethene	ND	0.0050		mg/Kg-dry	1	12/14/2023
Toluene	ND	0.0050		mg/Kg-dry	1	12/14/2023
1,1,1-Trichloroethane	ND	0.0050		mg/Kg-dry	1	12/14/2023
1,1,2-Trichloroethane	ND	0.0050		mg/Kg-dry	1	12/14/2023
Trichloroethene	ND	0.0050		mg/Kg-dry	1	12/14/2023
Vinyl chloride	ND	0.0050		mg/Kg-dry	1	12/14/2023
Xylenes, Total	ND	0.015		mg/Kg-dry	1	12/14/2023

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Analytical Results

Customer: Carnow, Conibear, & Associates
Work Order: 23120236 Revision 1
Project: 3001-13 W. Fifth Ave. Chicago
Lab ID: 23120236-005B

Customer Sample ID: B-112 (5-7)
Tag Number:
Collection Date: 12/8/2023 8:00:00 AM
Matrix: Soil

Analyses	Result	RL	Qualifier	Units	DF	Date Analyzed
Semivolatile Organic Compounds by GC/MS	**SW8270C (SW3550B)**		Prep Date: **12/15/2023**	Analyst: **DM**		
IEPA ELAP 100445						
Acenaphthene	ND	0.041		mg/Kg-dry	1	12/18/2023
Acenaphthylene	ND	0.041		mg/Kg-dry	1	12/18/2023
Aniline	ND	0.41		mg/Kg-dry	1	12/18/2023
Anthracene	ND	0.041		mg/Kg-dry	1	12/18/2023
Benz(a)anthracene	ND	0.041		mg/Kg-dry	1	12/18/2023
Benzidine	ND	0.41		mg/Kg-dry	1	12/18/2023
Benzo(a)pyrene	ND	0.041		mg/Kg-dry	1	12/18/2023
Benzo(b)fluoranthene	ND	0.041		mg/Kg-dry	1	12/18/2023
Benzo(g,h,i)perylene	ND	0.041		mg/Kg-dry	1	12/18/2023
Benzo(k)fluoranthene	ND	0.041		mg/Kg-dry	1	12/18/2023
Benzoic acid	ND	1.0		mg/Kg-dry	1	12/18/2023
Benzyl alcohol	ND	0.21		mg/Kg-dry	1	12/18/2023
Bis(2-chloroethoxy)methane	ND	0.21		mg/Kg-dry	1	12/18/2023
Bis(2-chloroethyl)ether	ND	0.21		mg/Kg-dry	1	12/18/2023
Bis(2-ethylhexyl)phthalate	ND	1.0		mg/Kg-dry	1	12/18/2023
4-Bromophenyl phenyl ether	ND	0.21		mg/Kg-dry	1	12/18/2023
Butyl benzyl phthalate	ND	1.0		mg/Kg-dry	1	12/18/2023
Carbazole	ND	0.21		mg/Kg-dry	1	12/18/2023
4-Chloroaniline	ND	0.21		mg/Kg-dry	1	12/18/2023
4-Chloro-3-methylphenol	ND	0.41		mg/Kg-dry	1	12/18/2023
2-Chloronaphthalene	ND	0.21		mg/Kg-dry	1	12/18/2023
2-Chlorophenol	ND	0.21		mg/Kg-dry	1	12/18/2023
4-Chlorophenyl phenyl ether	ND	0.21		mg/Kg-dry	1	12/18/2023
2, 2'-oxybis(1-Chloropropane)	ND	0.21		mg/Kg-dry	1	12/18/2023
Chrysene	ND	0.041		mg/Kg-dry	1	12/18/2023
Dibenz(a,h)anthracene	ND	0.041		mg/Kg-dry	1	12/18/2023
Dibenzofuran	ND	0.21		mg/Kg-dry	1	12/18/2023
1,2-Dichlorobenzene	ND	0.21		mg/Kg-dry	1	12/18/2023
1,3-Dichlorobenzene	ND	0.21		mg/Kg-dry	1	12/18/2023
1,4-Dichlorobenzene	ND	0.21		mg/Kg-dry	1	12/18/2023
3,3´-Dichlorobenzidine	ND	0.21		mg/Kg-dry	1	12/18/2023
2,4-Dichlorophenol	ND	0.21		mg/Kg-dry	1	12/18/2023
Diethyl phthalate	ND	1.0		mg/Kg-dry	1	12/18/2023
Dimethyl phthalate	ND	1.0		mg/Kg-dry	1	12/18/2023
2,4-Dimethylphenol	ND	0.21		mg/Kg-dry	1	12/18/2023
Di-n-butyl phthalate	ND	1.0		mg/Kg-dry	1	12/18/2023
4,6-Dinitro-2-methylphenol	ND	0.41		mg/Kg-dry	1	12/18/2023
2,4-Dinitrophenol	ND	1.0		mg/Kg-dry	1	12/18/2023
2,4-Dinitrotoluene	ND	0.041		mg/Kg-dry	1	12/18/2023
2,6-Dinitrotoluene	ND	0.041		mg/Kg-dry	1	12/18/2023

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Report Date: January 12, 2024
Print Date: January 12, 2024

Analytical Results

Customer: Carnow, Conibear, & Associates
Work Order: 23120236 Revision 1
Project: 3001-13 W. Fifth Ave. Chicago
Lab ID: 23120236-005B

Customer Sample ID: B-112 (5-7)
Tag Number:
Collection Date: 12/8/2023 8:00:00 AM
Matrix: Soil

Analyses	Result	RL	Qualifier	Units	DF	Date Analyzed
Semivolatile Organic Compounds by GC/MS	**SW8270C (SW3550B)**			Prep Date: **12/15/2023**		Analyst: **DM**
IEPA ELAP 100445						
Di-n-octyl phthalate	ND	1.0		mg/Kg-dry	1	12/18/2023
Fluoranthene	0.046	0.041		mg/Kg-dry	1	12/18/2023
Fluorene	ND	0.041		mg/Kg-dry	1	12/18/2023
Hexachlorobenzene	ND	0.21		mg/Kg-dry	1	12/18/2023
Hexachlorobutadiene	ND	0.21		mg/Kg-dry	1	12/18/2023
Hexachlorocyclopentadiene	ND	0.21		mg/Kg-dry	1	12/18/2023
Hexachloroethane	ND	0.21		mg/Kg-dry	1	12/18/2023
Indeno(1,2,3-cd)pyrene	ND	0.041		mg/Kg-dry	1	12/18/2023
Isophorone	ND	0.21		mg/Kg-dry	1	12/18/2023
2-Methylnaphthalene	ND	0.21		mg/Kg-dry	1	12/18/2023
2-Methylphenol	ND	0.21		mg/Kg-dry	1	12/18/2023
4-Methylphenol	ND	0.21		mg/Kg-dry	1	12/18/2023
Naphthalene	ND	0.041		mg/Kg-dry	1	12/18/2023
2-Nitroaniline	ND	0.21		mg/Kg-dry	1	12/18/2023
3-Nitroaniline	ND	0.21		mg/Kg-dry	1	12/18/2023
4-Nitroaniline	ND	0.21		mg/Kg-dry	1	12/18/2023
Nitrobenzene	ND	0.041		mg/Kg-dry	1	12/18/2023
2-Nitrophenol	ND	0.21		mg/Kg-dry	1	12/18/2023
4-Nitrophenol	ND	0.41		mg/Kg-dry	1	12/18/2023
N-Nitrosodimethylamine	ND	0.21		mg/Kg-dry	1	12/18/2023
N-Nitrosodi-n-propylamine	ND	0.041		mg/Kg-dry	1	12/18/2023
N-Nitrosodiphenylamine	ND	0.041		mg/Kg-dry	1	12/18/2023
Pentachlorophenol	ND	0.041		mg/Kg-dry	1	12/18/2023
Phenanthrene	ND	0.041		mg/Kg-dry	1	12/18/2023
Phenol	ND	0.21		mg/Kg-dry	1	12/18/2023
Pyrene	0.050	0.041		mg/Kg-dry	1	12/18/2023
Pyridine	ND	0.82		mg/Kg-dry	1	12/18/2023
1,2,4-Trichlorobenzene	ND	0.21		mg/Kg-dry	1	12/18/2023
2,4,5-Trichlorophenol	ND	0.21		mg/Kg-dry	1	12/18/2023
2,4,6-Trichlorophenol	ND	0.21		mg/Kg-dry	1	12/18/2023
PCBs	**SW8082A (SW3550B)**			Prep Date: **12/14/2023**		Analyst: **GVC**
IEPA ELAP 100445						
Aroclor 1016	ND	0.098		mg/Kg-dry	1	12/14/2023
Aroclor 1221	ND	0.098		mg/Kg-dry	1	12/14/2023
Aroclor 1232	ND	0.098		mg/Kg-dry	1	12/14/2023
Aroclor 1242	ND	0.098		mg/Kg-dry	1	12/14/2023
Aroclor 1248	ND	0.098		mg/Kg-dry	1	12/14/2023
Aroclor 1254	ND	0.098		mg/Kg-dry	1	12/14/2023
Aroclor 1260	ND	0.098		mg/Kg-dry	1	12/14/2023

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Report Date: January 12, 2024
Print Date: January 12, 2024

Analytical Results

Customer: Carnow, Conibear, & Associates
Work Order: 23120236 Revision 1
Project: 3001-13 W. Fifth Ave. Chicago
Lab ID: 23120236-005B

Customer Sample ID: B-112 (5-7)
Tag Number:
Collection Date: 12/8/2023 8:00:00 AM
Matrix: Soil

Analyses	Result	RL	Qualifier	Units	DF	Date Analyzed
Pesticides	**SW8081B (SW3550B)**			Prep Date: **12/14/2023**		Analyst: **GVC**
IEPA ELAP 100445						
4,4´-DDD	ND	0.0020		mg/Kg-dry	1	12/14/2023
4,4´-DDE	ND	0.0020		mg/Kg-dry	1	12/14/2023
4,4´-DDT	ND	0.0020		mg/Kg-dry	1	12/14/2023
Aldrin	ND	0.0020		mg/Kg-dry	1	12/14/2023
alpha-BHC	ND	0.0020		mg/Kg-dry	1	12/14/2023
alpha-Chlordane	ND	0.0020		mg/Kg-dry	1	12/14/2023
beta-BHC	ND	0.0020		mg/Kg-dry	1	12/14/2023
Chlordane	ND	0.020		mg/Kg-dry	1	12/14/2023
delta-BHC	ND	0.0020		mg/Kg-dry	1	12/14/2023
Dieldrin	ND	0.0020		mg/Kg-dry	1	12/14/2023
Endosulfan I	ND	0.0020		mg/Kg-dry	1	12/14/2023
Endosulfan II	ND	0.0020		mg/Kg-dry	1	12/14/2023
Endosulfan sulfate	ND	0.0020		mg/Kg-dry	1	12/14/2023
Endrin	ND	0.0020		mg/Kg-dry	1	12/14/2023
Endrin aldehyde	ND	0.0020		mg/Kg-dry	1	12/14/2023
Endrin ketone	ND	0.0020		mg/Kg-dry	1	12/14/2023
gamma-BHC	ND	0.0020		mg/Kg-dry	1	12/14/2023
gamma-Chlordane	ND	0.0020		mg/Kg-dry	1	12/14/2023
Heptachlor	ND	0.0020		mg/Kg-dry	1	12/14/2023
Heptachlor epoxide	ND	0.0020		mg/Kg-dry	1	12/14/2023
Methoxychlor	ND	0.0020		mg/Kg-dry	1	12/14/2023
Toxaphene	ND	0.041		mg/Kg-dry	1	12/14/2023
Metals by ICP/MS	**SW6020A (SW3050B)**			Prep Date: **12/18/2023**		Analyst: **MMR**
IEPA ELAP 100445						
Aluminum	11000	22		mg/Kg-dry	10	12/18/2023
Antimony	ND	2.2		mg/Kg-dry	10	12/18/2023
Arsenic	11	1.1		mg/Kg-dry	10	12/18/2023
Barium	58	1.1		mg/Kg-dry	10	12/18/2023
Beryllium	0.64	0.54		mg/Kg-dry	10	12/18/2023
Cadmium	ND	0.54		mg/Kg-dry	10	12/18/2023
Calcium	58000	65		mg/Kg-dry	10	12/18/2023
Chromium	22	1.1		mg/Kg-dry	10	12/18/2023
Cobalt	15	1.1		mg/Kg-dry	10	12/18/2023
Copper	32	2.7		mg/Kg-dry	10	12/18/2023
Iron	27000	32		mg/Kg-dry	10	12/18/2023
Lead	17	0.59		mg/Kg-dry	10	12/14/2023
Magnesium	26000	32		mg/Kg-dry	10	12/18/2023
Manganese	480	1.1		mg/Kg-dry	10	12/18/2023
Nickel	38	1.1		mg/Kg-dry	10	12/18/2023

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Report Date: January 12, 2024
Print Date: January 12, 2024

Analytical Results

Customer: Carnow, Conibear, & Associates
Work Order: 23120236 Revision 1
Project: 3001-13 W. Fifth Ave. Chicago
Lab ID: 23120236-005B

Customer Sample ID: B-112 (5-7)
Tag Number:
Collection Date: 12/8/2023 8:00:00 AM
Matrix: Soil

Analyses	Result	RL	Qualifier	Units	DF	Date Analyzed
Metals by ICP/MS	**SW6020A (SW3050B)**			Prep Date: **12/18/2023**		Analyst: **MMR**
IEPA ELAP 100445						
Potassium	2700	32		mg/Kg-dry	10	12/18/2023
Selenium	1.2	1.1		mg/Kg-dry	10	12/18/2023
Silver	ND	1.1		mg/Kg-dry	10	12/18/2023
Sodium	150	65		mg/Kg-dry	10	12/18/2023
Thallium	ND	1.2		mg/Kg-dry	10	12/14/2023
Vanadium	25	1.1		mg/Kg-dry	10	12/18/2023
Zinc	60	5.4		mg/Kg-dry	10	12/18/2023
SPLP Metals by ICP/MS	**SW1312/6020A (SW3005A)**			Prep Date: **1/2/2024**		Analyst: **MMR**
IEPA ELAP 100445						
Nickel	0.015	0.0080	*	mg/L	2	1/3/2024
Mercury	**SW7471B**			Prep Date: **12/18/2023**		Analyst: **JB2**
IEPA ELAP 100445						
Mercury	0.029	0.020		mg/Kg-dry	1	12/18/2023
Cyanide, Total	**SW9012A**			Prep Date: **12/13/2023**		Analyst: **MD**
IEPA ELAP 100445						
Cyanide	ND	0.62		mg/Kg-dry	1	12/13/2023
pH (25 °C)	**SW9045C**			Prep Date: **12/13/2023**		Analyst: **LJ1**
IEPA ELAP 100445						
pH	8.31			pH Units	1	12/13/2023
Percent Moisture	**D2974**			Prep Date: **12/13/2023**		Analyst: **EPD**
Percent Moisture	18.9	0.2	*	wt%	1	12/14/2023

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R - RPD outside accepted recovery limits
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Report Date: January 12, 2024
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Analytical Results

Customer: Carnow, Conibear, & Associates
Work Order: 23120236 Revision 1
Project: 3001-13 W. Fifth Ave. Chicago
Lab ID: 23120236-007A

Customer Sample ID: B-113 (1-3)
Tag Number:
Collection Date: 12/8/2023 8:09:00 AM
Matrix: Soil

Analyses	Result	RL	Qualifier	Units	DF	Date Analyzed
Polynuclear Aromatic Hydrocarbons by GC/MS **SW8270C (SW3550B)** Prep Date: **12/15/2023** Analyst: **DM**						
IEPA ELAP 100445						
Acenaphthene	ND	0.040		mg/Kg-dry	1	12/18/2023
Acenaphthylene	ND	0.040		mg/Kg-dry	1	12/18/2023
Anthracene	ND	0.040		mg/Kg-dry	1	12/18/2023
Benz(a)anthracene	ND	0.040		mg/Kg-dry	1	12/18/2023
Benzo(a)pyrene	ND	0.040		mg/Kg-dry	1	12/18/2023
Benzo(b)fluoranthene	ND	0.040		mg/Kg-dry	1	12/18/2023
Benzo(g,h,i)perylene	ND	0.040		mg/Kg-dry	1	12/18/2023
Benzo(k)fluoranthene	ND	0.040		mg/Kg-dry	1	12/18/2023
Chrysene	ND	0.040		mg/Kg-dry	1	12/18/2023
Dibenz(a,h)anthracene	ND	0.040		mg/Kg-dry	1	12/18/2023
Fluoranthene	ND	0.040		mg/Kg-dry	1	12/18/2023
Fluorene	ND	0.040		mg/Kg-dry	1	12/18/2023
Indeno(1,2,3-cd)pyrene	ND	0.040		mg/Kg-dry	1	12/18/2023
Naphthalene	ND	0.040		mg/Kg-dry	1	12/18/2023
Phenanthrene	ND	0.040		mg/Kg-dry	1	12/18/2023
Pyrene	ND	0.040		mg/Kg-dry	1	12/18/2023
Metals by ICP/MS **SW6020A (SW3050B)** Prep Date: **12/14/2023** Analyst: **MDS**						
IEPA ELAP 100445						
Arsenic	9.3	1.1		mg/Kg-dry	10	12/14/2023
Barium	32	1.1		mg/Kg-dry	10	12/14/2023
Cadmium	ND	0.55		mg/Kg-dry	10	12/14/2023
Chromium	25	1.1		mg/Kg-dry	10	12/14/2023
Lead	14	0.55		mg/Kg-dry	10	12/14/2023
Selenium	ND	1.1		mg/Kg-dry	10	12/14/2023
Silver	ND	1.1		mg/Kg-dry	10	12/14/2023
Mercury **SW7471B** Prep Date: **12/18/2023** Analyst: **JB2**						
IEPA ELAP 100445						
Mercury	0.025	0.022		mg/Kg-dry	1	12/18/2023
pH (25 °C) **SW9045C** Prep Date: **12/13/2023** Analyst: **LJ1**						
IEPA ELAP 100445						
pH	8.27			pH Units	1	12/13/2023
Percent Moisture **D2974** Prep Date: **12/13/2023** Analyst: **EPD**						
Percent Moisture	17.3	0.2	*	wt%	1	12/14/2023

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R - RPD outside accepted recovery limits
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Report Date: January 12, 2024
Print Date: January 12, 2024

Analytical Results

Customer: Carnow, Conibear, & Associates
Work Order: 23120236 Revision 1
Project: 3001-13 W. Fifth Ave. Chicago
Lab ID: 23120236-008A

Customer Sample ID: B-113 (5-7)
Tag Number:
Collection Date: 12/8/2023 8:12:00 AM
Matrix: Soil

Analyses	Result	RL	Qualifier	Units	DF	Date Analyzed
Polynuclear Aromatic Hydrocarbons by GC/MS **SW8270C (SW3550B)** Prep Date: **12/15/2023** Analyst: **DM**						
IEPA ELAP 100445						
Acenaphthene	ND	0.040		mg/Kg-dry	1	12/18/2023
Acenaphthylene	ND	0.040		mg/Kg-dry	1	12/18/2023
Anthracene	ND	0.040		mg/Kg-dry	1	12/18/2023
Benz(a)anthracene	ND	0.040		mg/Kg-dry	1	12/18/2023
Benzo(a)pyrene	ND	0.040		mg/Kg-dry	1	12/18/2023
Benzo(b)fluoranthene	ND	0.040		mg/Kg-dry	1	12/18/2023
Benzo(g,h,i)perylene	ND	0.040		mg/Kg-dry	1	12/18/2023
Benzo(k)fluoranthene	ND	0.040		mg/Kg-dry	1	12/18/2023
Chrysene	ND	0.040		mg/Kg-dry	1	12/18/2023
Dibenz(a,h)anthracene	ND	0.040		mg/Kg-dry	1	12/18/2023
Fluoranthene	ND	0.040		mg/Kg-dry	1	12/18/2023
Fluorene	ND	0.040		mg/Kg-dry	1	12/18/2023
Indeno(1,2,3-cd)pyrene	ND	0.040		mg/Kg-dry	1	12/18/2023
Naphthalene	ND	0.040		mg/Kg-dry	1	12/18/2023
Phenanthrene	ND	0.040		mg/Kg-dry	1	12/18/2023
Pyrene	ND	0.040		mg/Kg-dry	1	12/18/2023
Metals by ICP/MS **SW6020A (SW3050B)** Prep Date: **12/14/2023** Analyst: **MDS**						
IEPA ELAP 100445						
Arsenic	7.6	1.1		mg/Kg-dry	10	12/14/2023
Barium	34	1.1		mg/Kg-dry	10	12/14/2023
Cadmium	ND	0.53		mg/Kg-dry	10	12/14/2023
Chromium	20	1.1		mg/Kg-dry	10	12/14/2023
Lead	16	0.53		mg/Kg-dry	10	12/14/2023
Selenium	1.3	1.1		mg/Kg-dry	10	12/14/2023
Silver	ND	1.1		mg/Kg-dry	10	12/14/2023
Mercury **SW7471B** Prep Date: **12/18/2023** Analyst: **JB2**						
IEPA ELAP 100445						
Mercury	0.023	0.018		mg/Kg-dry	1	12/18/2023
pH (25 °C) **SW9045C** Prep Date: **12/13/2023** Analyst: **LJ1**						
IEPA ELAP 100445						
pH	8.42			pH Units	1	12/13/2023
Percent Moisture **D2974** Prep Date: **12/13/2023** Analyst: **EPD**						
Percent Moisture	17.6	0.2	*	wt%	1	12/14/2023

Qualifiers:

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Report Date: January 12, 2024
Print Date: January 12, 2024

Analytical Results

Customer: Carnow, Conibear, & Associates
Work Order: 23120236 Revision 1
Project: 3001-13 W. Fifth Ave. Chicago
Lab ID: 23120236-010A

Customer Sample ID: Fifth-1
Tag Number:
Collection Date: 12/8/2023 8:20:00 AM
Matrix: Soil

Analyses	Result	RL	Qualifier	Units	DF	Date Analyzed
TCLP Metals by ICP/MS	**SW1311/6020A (SW3005A)**			Prep Date: **12/15/2023**		Analyst: **MDS**
IEPA ELAP 100445						
Arsenic	ND	0.010		mg/L	5	12/15/2023
Barium	0.47	0.050		mg/L	5	12/15/2023
Cadmium	ND	0.0050		mg/L	5	12/15/2023
Chromium	ND	0.010		mg/L	5	12/15/2023
Lead	0.0099	0.0050		mg/L	5	12/15/2023
Selenium	ND	0.010		mg/L	5	12/15/2023
Silver	ND	0.010		mg/L	5	12/15/2023
TCLP Mercury	**SW1311/7470A**			Prep Date: **12/18/2023**		Analyst: **JB2**
IEPA ELAP 100445						
Mercury	ND	0.00050		mg/L	1	12/18/2023

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RL - Reporting / Quantitation Limit for the analysis
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
E - Value above quantitation range
H - Holding time exceeded

sterling labs
2242 W. Harrison St., Suite 200, Chicago, IL 60612 Phone: (312) 733-0551
509 N. 3rd Ave., Des Plaines, IL 60016 Phone: (800) 246-0663
info@thesterlinglab.com

CHAIN OF CUSTODY RECORD

№ 101180 Page : 1 of 1

Company: Carnow Conibear
Project Number: Client Tracking No.:
Project Name: 3001-13 Fifth
Project Location: 3001-13 W. Fifth Ave, Chicago
Sampler(s): CA
Report To: Chad Adams Phone: 312-446-0761
Fax:
QC Level: 1 ___ 2 ___ 3 ___ 4 ___ e-mail: cadams@ccaltd.com

P.O. No.:
Quote No.:
Turn Around Time (Days): 1 2 3 4 5-7 (10)
Results Needed: 12 / 22 / 23 (am)/pm

Client Sample Number/Description:	Date Taken	Time Taken	Matrix	Comp.	Grab	Preserv.	No. of Containers	TCL	Herbicide	BCBA	PNA	PH	TCLP BCBA	Remarks	Lab No.:
B-111 (1-3)	12/8/23	0745	S		X		1			X	X	X			001
B-111 (5-7)		0748			X		1			X	X	X			002
B-111 (10-12)		0751			X		1							HOLD	003
B-112 (1-3)		0756			X		4	X	X			X			~~004~~ 009
B-112 (5-7)		0800			X		4	X				X			005
B-112 (10-12)		0804			X		4							HOLD	006
B-113 (1-3)		0809			X		1			X	X	X			007
B-113 (5-7)		0812			X		1			X	X	X			008
B-113 (10-12)		0815			X		1							HOLD	009
Fifth-1	12/8/23	0820	S	X			1						X		010

JH 12-8-23

Relinquished by: (Signature) Date/Time: 12/8/23 1342
Received by: (Signature) Date/Time: 12-8-2023 13:47
Relinquished by: (Signature) Date/Time:
Received by: (Signature) Date/Time:
Relinquished by: (Signature) Date/Time:
Received by: (Signature) Date/Time:

Comments: AIS Project

Preservation Code: A = None B = HNO_3 C = NaOH D = H_2SO_4 E = HCl F = 5035/EnCore G = Other

Laboratory Work Order No.: 23120236

Received on Ice: Yes [✓] No [ ]
Temperature: 3.8 °C

sterling labs

Sample Receipt Checklist

Customer: CCA

Date and Time Received: 12/8/2023 1:47:00 PM

Work Order Number 23120236

Received by: JMH

Checklist completed by: _____ 12-8-2023 (Signature / Date)

Reviewed by: _____ 12/08/2023 (Initials / Date)

Matrix: Carrier name Client Delivered

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☐	No ☐	Not Present ☑
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels/containers?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time?	Yes ☑	No ☐	
Container or Temp Blank temperature in compliance?	Yes ☑	No ☐	Temperature 3.8 °C
Water - VOA vials have zero headspace?	No VOA vials submitted ☐	Yes ☐	No ☐
Water - Samples pH checked?	Yes ☐	No ☐	Checked by: _____
Water - Samples properly preserved?	Yes ☐	No ☐	pH Adjusted? _____

Any No response must be detailed in the comments section below.

Comments: _____

Customer / Person contacted: _____ Date contacted: _____ Contacted by: _____

Response: _____

RE: [External] 3001-13 W. Fifth Ave. Chicago 23120236

Kristen Gruca <kgruca@ccaltd.com>

Thu 12/28/2023 1:30 PM

To:Craig Chawla <cchawla@TheSterlingLab.com>
Cc:Chad Adams <cadams@ccaltd.com>;Nohemi Melero <nmelero@ccaltd.com>

Hello again Craig,

Thank you for the confirmation, sorry for the additional change, but I would also like to add TCLP lead to B-111(1-3) and B-112(1-3) as shown in the updated table below on a 10-day TAT as well.

3001-3013 Fifth Ave - Samples Submitted December 8, 2023
SPLP and TCLP Analysis Requested to Date as of 12/28/2023

Sample ID	Additional Analysis Requested (previously requested in Italics)
B-111 (1-3)	TCLP Lead
B-112 (1-3)	*TCLP Chlordane, SPLP Mercury,* TCLP Lead, SPLP Barium, SPLP Cadmium, SPLP Copper, SPLP Nickel, SPLP Zinc
B-112 (5-7)	SPLP Nickel

Thanks in advance,

CARNOW CONIBEAR

Kristen Gruca, CHMM
Senior Department Manager

600 West Van Buren Street, Suite 500
Chicago, Illinois 60607
c: 312.617.5177
e: kgruca@ccaltd.com w: ccaltd.com

From: Craig Chawla <cchawla@TheSterlingLab.com>
Sent: Thursday, December 28, 2023 12:59 PM
To: Kristen Gruca <kgruca@ccaltd.com>
Cc: Chad Adams <cadams@ccaltd.com>; Nohemi Melero <nmelero@ccaltd.com>
Subject: Re: [External] 3001-13 W. Fifth Ave. Chicago 23120236

Hi Kristen,

We have added the analysis.

Craig Chawla

Sterling Labs
312-733-0551
cchawla@thesterlinglab.com
TheSterlingLab.com

From: Kristen Gruca <kgruca@ccaltd.com>
Sent: Thursday, December 28, 2023 12:52 PM
To: Craig Chawla <cchawla@TheSterlingLab.com>
Cc: Chad Adams <cadams@ccaltd.com>; Nohemi Melero <nmelero@ccaltd.com>
Subject: RE: [External] 3001-13 W. Fifth Ave. Chicago 23120236

Hi Craig,

Can you please run the following additional SPLPs on a 10-Day TAT for the 3001-13 W. Fifth Ave. samples collected on 12/8/2023? The items italicized were requested previously just to summarize requests to date.

3001-3013 Fifth Ave - Samples Submitted December 8, 2023
SPLP and TCLP Analysis Requested to Date as of 12/28/2023

Sample ID	Additional Analysis Requested (previously requested in Italics)
B-112 (1-3)	*TCLP Chlordane, SPLP Mercury,* SPLP Barium, SPLP Cadmium, SPLP Copper, SPLP Nickel, SPLP Zinc
B-112 (5-7)	SPLP Nickel

Thanks in advance,

CARNOW CONIBEAR

Kristen Gruca, CHMM
Senior Department Manager

600 West Van Buren Street, Suite 500
Chicago, Illinois 60607
c: 312.617.5177
e: kgruca@ccaltd.com w: ccaltd.com

From: Craig Chawla <cchawla@TheSterlingLab.com>
Sent: Friday, December 22, 2023 3:48 PM
To: Chad Adams <cadams@ccaltd.com>; Kristen Gruca <kgruca@ccaltd.com>; Nohemi Melero

<nmelero@ccaltd.com>
Subject: Re: [External] 3001-13 W. Fifth Ave. Chicago 23120236

Chad - TCLP Chlordane has been added.

Craig Chawla

Sterling Labs
312-733-0551
cchawla@thesterlinglab.com
TheSterlingLab.com

From: Chad Adams <cadams@ccaltd.com>
Sent: Friday, December 22, 2023 3:24 PM
To: Craig Chawla <cchawla@TheSterlingLab.com>; Kristen Gruca <kgruca@ccaltd.com>; Nohemi Melero <nmelero@ccaltd.com>
Subject: Re: [External] 3001-13 W. Fifth Ave. Chicago 23120236

Craig,

For Fifth Ave run TCLP Chlordane for B-112 (1-3) also.

Thanks

Chad Adams

Licensed Professional Geologist

CARNOW CONIBEAR

312.446.0761

Sent from iPhone

From: Craig Chawla <cchawla@TheSterlingLab.com>
Sent: Friday, December 22, 2023 3:03:07 PM
To: Chad Adams <cadams@ccaltd.com>; Kristen Gruca <kgruca@ccaltd.com>; Nohemi Melero <nmelero@ccaltd.com>
Subject: Re: [External] 3001-13 W. Fifth Ave. Chicago 23120236

Hi Chad,

Attached is the final report with Pesticide data for B-112 (1-3).

I have added SPLP Mercury.

Craig Chawla

Sterling Labs
312-733-0551
cchawla@thesterlinglab.com
TheSterlingLab.com

From: Chad Adams <cadams@ccaltd.com>
Sent: Friday, December 22, 2023 2:52 PM
To: Craig Chawla <cchawla@TheSterlingLab.com>; Kristen Gruca <kgruca@ccaltd.com>; Nohemi Melero <nmelero@ccaltd.com>
Subject: Re: 3001-13 W. Fifth Ave. Chicago 23120236

Craig,

Please run Mercury SPLP for B-112 (1-3) for Fifth Street

Chad Adams

Licensed Professional Geologist

CARNOW CONIBEAR

312.446.0761

Sent from iPhone

From: Craig Chawla <cchawla@TheSterlingLab.com>
Sent: Friday, December 22, 2023 1:51:55 PM
To: Chad Adams <cadams@ccaltd.com>; Kristen Gruca <kgruca@ccaltd.com>; Nohemi Melero <nmelero@ccaltd.com>
Subject: [External] 3001-13 W. Fifth Ave. Chicago 23120236

Hi Chad,

2242 West Harrison St., Suite 200, Chicago, IL 60612-3766
Tel: (312) 733-0551 Fax: (312) 733-2386 Info@TheSterlingLab.com

November 08, 2023

Carnow, Conibear, & Associates
600 W. Van Buren Street
Chicago, IL 60607

Telephone: (312) 782-4486
Fax: (312) 782-5145

Analytical Report for Work Order: 23100992 Revision 0

RE: 3001-13 W. 5th Ave., Chicago

Dear Carnow, Conibear, & Associates:

Sterling Labs received 2 samples for the referenced project on 10/31/2023 11:38:00 AM. The analytical results are presented in the following report.

All analyses were performed in accordance with the requirements of 35 IAC Part 186 / TNI standards. Analyses were performed in accordance with methods as referenced on the analytical report. Those analytical results expressed on a dry weight basis are also noted on the analytical report.

All analyses were performed within established holding time criteria, and all Quality Control criteria met EPA or laboratory specifications except when noted in the Case Narrative or Analytical Report. If required, an estimate of uncertainty for the analyses can be provided. A listing of accredited methods/parameters can also be provided.

Thank you for the opportunity to serve you and I look forward to working with you in the future. If you have any questions regarding the enclosed materials, please contact me at (312) 733-0551.

Sincerely,

Justice Kwateng
Project Manager

Date: November 08, 2023

Customer: Carnow, Conibear, & Associates
Project: 3001-13 W. 5th Ave., Chicago
Work Order: 23100992 Revision 0

Work Order Sample Summary

Lab Sample ID	Customer Sample ID	Tag Number	Collection Date	Date Received
23100992-001A	B-112A (1-3)		10/31/2023 10:15:00 AM	10/31/2023
23100992-002A	B-112A (5-7)		10/31/2023 11:20:00 AM	10/31/2023

sterling labs
2242 West Harrison St., Suite 200, Chicago, IL 60612-3766
Tel: (312) 733-0551 Fax: (312) 733-2386 Info@TheSterlingLab.com

Date Reported: November 08, 2023
Date Printed: November 08, 2023

Analytical Results

Customer: Carnow, Conibear, & Associates
Project: 3001-13 W. 5th Ave., Chicago **Work Order:** 23100992 Revision 0

Lab ID: 23100992-001 **Collection Date:** 10/31/2023 10:15:00 AM
Customer Sample ID: B-112A (1-3) **Matrix:** Soil

Analyses	Result	RL	Qualifier	Units	DF	Date Analyzed
Total Petroleum Hydrocarbons	**SW8015M (SW3580A)**			Prep Date: **11/1/2023**		Analyst: **GVC**
IEPA ELAP 100445						
TPH (GRO)	65	23		mg/Kg-dry	1	11/2/2023
TPH (DRO)	94	23		mg/Kg-dry	1	11/2/2023
TPH (ERO)	75	23	*	mg/Kg-dry	1	11/2/2023
Percent Moisture	**D2974**			Prep Date: **11/2/2023**		Analyst: **EPD**
Percent Moisture	14.0	0.2	*	wt%	1	11/3/2023

Lab ID: 23100992-002 **Collection Date:** 10/31/2023 11:20:00 AM
Customer Sample ID: B-112A (5-7) **Matrix:** Soil

Analyses	Result	RL	Qualifier	Units	DF	Date Analyzed
Total Petroleum Hydrocarbons	**SW8015M (SW3580A)**			Prep Date: **11/1/2023**		Analyst: **GVC**
IEPA ELAP 100445						
TPH (GRO)	58	25		mg/Kg-dry	1	11/2/2023
TPH (DRO)	69	25		mg/Kg-dry	1	11/2/2023
TPH (ERO)	57	25	*	mg/Kg-dry	1	11/2/2023
Percent Moisture	**D2974**			Prep Date: **11/2/2023**		Analyst: **EPD**
Percent Moisture	20.0	0.2	*	wt%	1	11/3/2023

Qualifiers:

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
HT - Sample received past holding time
* - Non-accredited parameter
RL - Reporting / Quantitation Limit for the analysis
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
E - Value above quantitation range
H - Holding time exceeded

sterling labs
2242 W. Harrison St., Suite 200, Chicago, IL 60612 Phone: (312) 733-0551
509 N. 3rd Ave., Des Plaines, IL 60016 Phone: (800) 246-0663
info@thesterlinglab.com

CHAIN OF CUSTODY RECORD

№ 100250 Page : 1 of 1

Company: Carnow Conibear
Project Number: Client Tracking No.:
Project Name: 3001-13 W 5th Ave
Project Location: 3001-13 W 5th Ave, Chicago
Sampler(s): CA/uP
Report To: Chad Adams PG Phone: 312-446-0761
Fax:
QC Level: 1 ___ 2 ___ 3 ___ 4 ___ e-mail: cadamseccaltd.com

P.O. No.:
Quote No.:
Turn Around Time (Days): 1 2 3 4 (5-7) 10
Results Needed: 11 / 7 / 23 am/pm

Client Sample Number/Description:	Date Taken	Time Taken	Matrix	Comp.	Grab	Preserv.	No. of Containers	TPH	Remarks	Lab No.:
B-112A (1-3)	10/31/23	1015	S		X	-	1	X		001
B-112A (5-7)	10/31/23	1120	S		X	-	1	X		002

Relinquished by: (Signature) Jimmy Papadopoulos Date/Time: 10/31/2023 11:38
Received by: (Signature) Date/Time: 10/31/23 +5 11:38
Relinquished by: (Signature) Date/Time:
Received by: (Signature) Date/Time:
Relinquished by: (Signature) Date/Time:
Received by: (Signature) Date/Time:

Comments:

Laboratory Work Order No.: 2310092

Received on Ice: Yes ☑ No ☐
Temperature: on ice °C

Preservation Code: A = None B = HNO_3 C = NaOH
D = H_2SO_4 E = HCl F = 5035/EnCore G = Other

sterling labs

Sample Receipt Checklist

Customer: CCA

Date and Time Received: 10/31/2023 11:38:00 AM

Work Order Number 23100992

Received by: JMH

Checklist completed by: _____ 10/31/23
Signature | Date

Reviewed by: _____ 10/31/2023
Initials | Date

Matrix:

Carrier name: Client Delivered

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☐	No ☐	Not Present ☑
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels/containers?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time?	Yes ☑	No ☐	
Container or Temp Blank temperature in compliance?	Yes ☑	No ☐	Temperature On Ice °C
Water - VOA vials have zero headspace?	No VOA vials submitted ☐	Yes ☐	No ☐
Water - Samples pH checked?	Yes ☐	No ☐	Checked by: _____
Water - Samples properly preserved?	Yes ☐	No ☐	pH Adjusted? _____

Any No response must be detailed in the comments section below.

Comments: _____

Customer / Person contacted: _____ Date contacted: _____ Contacted by: _____

Response: _____

2242 West Harrison St., Suite 200, Chicago, IL 60612-3766
Tel: (312) 733-0551 Fax: (312) 733-2386 Info@TheSterlingLab.com

December 23, 2023

Carnow, Conibear, & Associates
600 W. Van Buren Street
Chicago, IL 60607

Telephone: (312) 782-4486
Fax: (312) 782-5145

Analytical Report for Work Order: 23120183 Revision 0

RE: 3001-13 Fifth, Chicago

Dear Carnow, Conibear, & Associates:

Sterling Labs received 1 sample for the referenced project on 12/6/2023 12:50:00 PM. The analytical results are presented in the following report.

All analyses were performed in accordance with the requirements of 35 IAC Part 186 / TNI standards. Analyses were performed in accordance with methods as referenced on the analytical report. Those analytical results expressed on a dry weight basis are also noted on the analytical report.

All analyses were performed within established holding time criteria, and all Quality Control criteria met EPA or laboratory specifications except when noted in the Case Narrative or Analytical Report. If required, an estimate of uncertainty for the analyses can be provided. A listing of accredited methods/parameters can also be provided.

Thank you for the opportunity to serve you and I look forward to working with you in the future. If you have any questions regarding the enclosed materials, please contact me at (312) 733-0551.

Sincerely,

Craig Chawla
Project Manager

Date: December 23, 2023

Customer: Carnow, Conibear, & Associates
Project: 3001-13 Fifth, Chicago
Work Order: 23120183 Revision 0

Work Order Sample Summary

Lab Sample ID	Customer Sample ID	Tag Number	Collection Date	Date Received
23120183-001A	MW-114		12/6/2023 12:00:00 PM	12/6/2023
23120183-001B	MW-114		12/6/2023 12:00:00 PM	12/6/2023
23120183-001C	MW-114		12/6/2023 12:00:00 PM	12/6/2023
23120183-001D	MW-114		12/6/2023 12:00:00 PM	12/6/2023

Date: December 23, 2023

Customer: Carnow, Conibear, & Associates
Project: 3001-13 Fifth, Chicago
Work Order: 23120183 Revision 0

Case Narrative

Sample MW-114 (23120183-001) had recovery of SVOC/PNA surrogate 4-Terphenyl-d14 outside of control limits (28.4% recovery, QC Limits 33-141%). Recoveries of all other surrogates were within control limits.

QC - Quality Control
MB - Method Blank
LCS(D) - Lab Control Sample (Duplicate)
MS(D) - Matrix Spike (Duplicate)
RPD - Relative Percent Difference

VOC - Volatile Organic Compound
SVOC - Semi-Volatile Organic Compound
PNA/PAH - Polynuclear Aromatic Hydrocarbon
PCB - Polychlorinated Biphenyls

sterling labs
2242 West Harrison St., Suite 200, Chicago, IL 60612-3766
Tel: (312) 733-0551 Fax: (312) 733-2386 Info@TheSterlingLab.com

Date Reported: December 23, 2023
Date Printed: December 23, 2023

Analytical Results

Customer: Carnow, Conibear, & Associates
Work Order: 23120183 Revision 0
Project: 3001-13 Fifth, Chicago
Lab ID: 23120183-001

Customer Sample ID: MW-114
Collection Date: 12/6/2023 12:00:00 PM
Matrix: Aqueous

Analyses	Result	RL	Qualifier	Units	DF	Date Analyzed
Volatile Organic Compounds by GC/MS	**SW8260B (SW5030B)**			Prep Date:		Analyst: **CBG**
IEPA ELAP 100445						
Acetone	ND	0.020		mg/L	1	12/13/2023
Benzene	ND	0.0050		mg/L	1	12/13/2023
Bromodichloromethane	ND	0.0050		mg/L	1	12/13/2023
Bromoform	ND	0.0010		mg/L	1	12/13/2023
Bromomethane	ND	0.0050		mg/L	1	12/13/2023
2-Butanone	ND	0.020		mg/L	1	12/13/2023
Carbon disulfide	ND	0.010		mg/L	1	12/13/2023
Carbon tetrachloride	ND	0.0050		mg/L	1	12/13/2023
Chlorobenzene	ND	0.0050		mg/L	1	12/13/2023
Chloroethane	ND	0.010		mg/L	1	12/13/2023
Chloroform	ND	0.0010		mg/L	1	12/13/2023
Chloromethane	ND	0.010		mg/L	1	12/13/2023
Dibromochloromethane	ND	0.0050		mg/L	1	12/13/2023
1,1-Dichloroethane	ND	0.0050		mg/L	1	12/13/2023
1,2-Dichloroethane	ND	0.0050		mg/L	1	12/13/2023
1,1-Dichloroethene	ND	0.0050		mg/L	1	12/13/2023
cis-1,2-Dichloroethene	ND	0.0050		mg/L	1	12/13/2023
trans-1,2-Dichloroethene	ND	0.0050		mg/L	1	12/13/2023
1,2-Dichloropropane	ND	0.0050		mg/L	1	12/13/2023
cis-1,3-Dichloropropene	ND	0.0010		mg/L	1	12/13/2023
trans-1,3-Dichloropropene	ND	0.0010		mg/L	1	12/13/2023
Ethylbenzene	ND	0.0050		mg/L	1	12/13/2023
2-Hexanone	ND	0.020		mg/L	1	12/13/2023
4-Methyl-2-pentanone	ND	0.020		mg/L	1	12/13/2023
Methylene chloride	ND	0.0050		mg/L	1	12/13/2023
Methyl tert-butyl ether	ND	0.0050		mg/L	1	12/13/2023
Styrene	ND	0.0050		mg/L	1	12/13/2023
1,1,2,2-Tetrachloroethane	ND	0.0050		mg/L	1	12/13/2023
Tetrachloroethene	ND	0.0050		mg/L	1	12/13/2023
Toluene	ND	0.0050		mg/L	1	12/13/2023
1,1,1-Trichloroethane	ND	0.0050		mg/L	1	12/13/2023
1,1,2-Trichloroethane	ND	0.0050		mg/L	1	12/13/2023
Trichloroethene	ND	0.0050		mg/L	1	12/13/2023
Vinyl chloride	ND	0.0020		mg/L	1	12/13/2023
Xylenes, Total	ND	0.015		mg/L	1	12/13/2023
Semivolatile Organic Compounds by GC/MS	**SW8270C-SIM (SW3510C)**			Prep Date: **12/8/2023**		Analyst: **DM**
IEPA ELAP 100445						
Acenaphthene	0.0021	0.0010		mg/L	1	12/11/2023
Acenaphthylene	ND	0.0010		mg/L	1	12/11/2023

Qualifiers:

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
HT - Sample received past holding time
* - Non-accredited parameter
RL - Reporting / Quantitation Limit for the analysis
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
E - Value above quantitation range
H - Holding time exceeded

sterling labs
2242 West Harrison St., Suite 200, Chicago, IL 60612-3766
Tel: (312) 733-0551 Fax: (312) 733-2386 Info@TheSterlingLab.com

Date Reported: December 23, 2023
Date Printed: December 23, 2023

Analytical Results

Customer: Carnow, Conibear, & Associates
Work Order: 23120183 Revision 0
Project: 3001-13 Fifth, Chicago
Lab ID: 23120183-001

Customer Sample ID: MW-114
Collection Date: 12/6/2023 12:00:00 PM
Matrix: Aqueous

Analyses	Result	RL	Qualifier	Units	DF	Date Analyzed
Semivolatile Organic Compounds by GC/MS	**SW8270C-SIM (SW3510C)**		Prep Date: **12/8/2023**		Analyst: **DM**	
IEPA ELAP 100445						
Anthracene	ND	0.0010		mg/L	1	12/11/2023
Benz(a)anthracene	ND	0.00010		mg/L	1	12/11/2023
Benzo(a)pyrene	ND	0.00010		mg/L	1	12/11/2023
Benzo(b)fluoranthene	ND	0.00010		mg/L	1	12/11/2023
Benzo(g,h,i)perylene	ND	0.0010		mg/L	1	12/11/2023
Benzo(k)fluoranthene	ND	0.00010	*	mg/L	1	12/11/2023
Carbazole	ND	0.00050		mg/L	1	12/11/2023
Chrysene	ND	0.00010		mg/L	1	12/11/2023
Dibenz(a,h)anthracene	ND	0.00010		mg/L	1	12/11/2023
2,4-Dinitrotoluene	ND	0.00010		mg/L	1	12/11/2023
2,6-Dinitrotoluene	ND	0.00010		mg/L	1	12/11/2023
Fluoranthene	ND	0.0010		mg/L	1	12/11/2023
Fluorene	0.0019	0.0010		mg/L	1	12/11/2023
Naphthalene	ND	0.0010		mg/L	1	12/11/2023
Indeno(1,2,3-cd)pyrene	ND	0.00010		mg/L	1	12/11/2023
Nitrobenzene	ND	0.0010		mg/L	1	12/11/2023
N-Nitrosodi-n-propylamine	ND	0.00010		mg/L	1	12/11/2023
Pentachlorophenol	ND	0.00050		mg/L	1	12/11/2023
Phenanthrene	ND	0.0010		mg/L	1	12/11/2023
Pyrene	ND	0.0010		mg/L	1	12/11/2023
Semivolatile Organic Compounds by GC/MS	**SW8270C (SW3510C)**		Prep Date: **12/8/2023**		Analyst: **DM**	
IEPA ELAP 100445						
Aniline	ND	0.0050		mg/L	1	12/11/2023
Benzidine	ND	0.0050		mg/L	1	12/11/2023
Benzoic acid	ND	0.025		mg/L	1	12/11/2023
Benzyl alcohol	ND	0.0050		mg/L	1	12/11/2023
Bis(2-chloroethoxy)methane	ND	0.0050		mg/L	1	12/11/2023
Bis(2-chloroethyl)ether	ND	0.0050		mg/L	1	12/11/2023
Bis(2-ethylhexyl)phthalate	ND	0.0050		mg/L	1	12/11/2023
4-Bromophenyl phenyl ether	ND	0.0050		mg/L	1	12/11/2023
Butyl benzyl phthalate	ND	0.0050		mg/L	1	12/11/2023
4-Chloroaniline	ND	0.0050		mg/L	1	12/11/2023
4-Chloro-3-methylphenol	ND	0.0050		mg/L	1	12/11/2023
2-Chloronaphthalene	ND	0.0050		mg/L	1	12/11/2023
2-Chlorophenol	ND	0.0050		mg/L	1	12/11/2023
4-Chlorophenyl phenyl ether	ND	0.0050		mg/L	1	12/11/2023
Dibenzofuran	ND	0.0050		mg/L	1	12/11/2023
1,2-Dichlorobenzene	ND	0.0050		mg/L	1	12/11/2023
1,3-Dichlorobenzene	ND	0.0050		mg/L	1	12/11/2023

Qualifiers:
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RL - Reporting / Quantitation Limit for the analysis
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
E - Value above quantitation range
H - Holding time exceeded

sterling labs
2242 West Harrison St., Suite 200, Chicago, IL 60612-3766
Tel: (312) 733-0551 Fax: (312) 733-2386 Info@TheSterlingLab.com

Date Reported: December 23, 2023
Date Printed: December 23, 2023

Analytical Results

Customer: Carnow, Conibear, & Associates
Work Order: 23120183 Revision 0
Project: 3001-13 Fifth, Chicago
Lab ID: 23120183-001

Customer Sample ID: MW-114
Collection Date: 12/6/2023 12:00:00 PM
Matrix: Aqueous

Analyses	Result	RL	Qualifier	Units	DF	Date Analyzed
Semivolatile Organic Compounds by GC/MS	**SW8270C (SW3510C)**			Prep Date: **12/8/2023**	Analyst: **DM**	
IEPA ELAP 100445						
1,4-Dichlorobenzene	ND	0.0050		mg/L	1	12/11/2023
3,3´-Dichlorobenzidine	ND	0.010		mg/L	1	12/11/2023
2,4-Dichlorophenol	ND	0.0050		mg/L	1	12/11/2023
Diethyl phthalate	ND	0.0050		mg/L	1	12/11/2023
2,4-Dimethylphenol	ND	0.0050		mg/L	1	12/11/2023
Dimethyl phthalate	ND	0.0050		mg/L	1	12/11/2023
4,6-Dinitro-2-methylphenol	ND	0.025		mg/L	1	12/11/2023
2,4-Dinitrophenol	ND	0.025		mg/L	1	12/11/2023
Di-n-butyl phthalate	ND	0.0050		mg/L	1	12/11/2023
Di-n-octyl phthalate	ND	0.0050		mg/L	1	12/11/2023
Hexachlorobenzene	ND	0.0050		mg/L	1	12/11/2023
Hexachlorobutadiene	ND	0.0050		mg/L	1	12/11/2023
Hexachlorocyclopentadiene	ND	0.0050		mg/L	1	12/11/2023
Hexachloroethane	ND	0.0050		mg/L	1	12/11/2023
Isophorone	ND	0.0050		mg/L	1	12/11/2023
2-Methylnaphthalene	ND	0.0050		mg/L	1	12/11/2023
2-Methylphenol	ND	0.0050		mg/L	1	12/11/2023
4-Methylphenol	ND	0.0050		mg/L	1	12/11/2023
2-Nitroaniline	ND	0.025		mg/L	1	12/11/2023
3-Nitroaniline	ND	0.025		mg/L	1	12/11/2023
4-Nitroaniline	ND	0.025		mg/L	1	12/11/2023
2-Nitrophenol	ND	0.0050		mg/L	1	12/11/2023
4-Nitrophenol	ND	0.025		mg/L	1	12/11/2023
N-Nitrosodimethylamine	ND	0.0050		mg/L	1	12/11/2023
N-Nitrosodiphenylamine	ND	0.0050		mg/L	1	12/11/2023
2, 2'-oxybis(1-Chloropropane)	ND	0.0050		mg/L	1	12/11/2023
Phenol	ND	0.0050		mg/L	1	12/11/2023
Pyridine	ND	0.0050		mg/L	1	12/11/2023
1,2,4-Trichlorobenzene	ND	0.0050		mg/L	1	12/11/2023
2,4,5-Trichlorophenol	ND	0.010		mg/L	1	12/11/2023
2,4,6-Trichlorophenol	ND	0.0050		mg/L	1	12/11/2023
PCBs	**SW8082A (SW3510C)**			Prep Date: **12/8/2023**	Analyst: **GVC**	
IEPA ELAP 100445						
Aroclor 1016	ND	0.00050		mg/L	1	12/11/2023
Aroclor 1221	ND	0.00050	*	mg/L	1	12/11/2023
Aroclor 1232	ND	0.00050	*	mg/L	1	12/11/2023
Aroclor 1242	ND	0.00050	*	mg/L	1	12/11/2023
Aroclor 1248	ND	0.00050		mg/L	1	12/11/2023
Aroclor 1254	ND	0.00050		mg/L	1	12/11/2023

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R - RPD outside accepted recovery limits
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H - Holding time exceeded

sterling labs
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Date Reported: December 23, 2023
Date Printed: December 23, 2023

Analytical Results

Customer: Carnow, Conibear, & Associates
Work Order: 23120183 Revision 0
Project: 3001-13 Fifth, Chicago
Lab ID: 23120183-001

Customer Sample ID: MW-114
Collection Date: 12/6/2023 12:00:00 PM
Matrix: Aqueous

Analyses	Result	RL	Qualifier	Units	DF	Date Analyzed
PCBs	**SW8082A (SW3510C)**			Prep Date: **12/8/2023**		Analyst: **GVC**
IEPA ELAP 100445						
Aroclor 1260	ND	0.00050		mg/L	1	12/11/2023
Pesticides	**SW8081B (SW3510C)**			Prep Date: **12/8/2023**		Analyst: **GVC**
IEPA ELAP 100445						
4,4´-DDD	ND	0.000050		mg/L	1	12/11/2023
4,4´-DDE	ND	0.000050		mg/L	1	12/11/2023
4,4´-DDT	ND	0.000050		mg/L	1	12/11/2023
Aldrin	ND	0.000050		mg/L	1	12/11/2023
alpha-BHC	ND	0.000050		mg/L	1	12/11/2023
alpha-Chlordane	ND	0.000050		mg/L	1	12/11/2023
beta-BHC	ND	0.000050		mg/L	1	12/11/2023
Chlordane	ND	0.0010		mg/L	1	12/11/2023
delta-BHC	ND	0.000050		mg/L	1	12/11/2023
Dieldrin	ND	0.000050		mg/L	1	12/11/2023
Endosulfan I	ND	0.000050		mg/L	1	12/11/2023
Endosulfan II	ND	0.000050		mg/L	1	12/11/2023
Endosulfan sulfate	ND	0.000050		mg/L	1	12/11/2023
Endrin	ND	0.000050		mg/L	1	12/11/2023
Endrin aldehyde	ND	0.000050		mg/L	1	12/11/2023
Endrin ketone	ND	0.000050		mg/L	1	12/11/2023
gamma-BHC	ND	0.000050		mg/L	1	12/11/2023
gamma-Chlordane	ND	0.000050		mg/L	1	12/11/2023
Heptachlor	ND	0.000050		mg/L	1	12/11/2023
Heptachlor epoxide	ND	0.000050		mg/L	1	12/11/2023
Methoxychlor	ND	0.000050		mg/L	1	12/11/2023
Toxaphene	ND	0.0010		mg/L	1	12/11/2023
Metals by ICP/MS	**SW6020A (SW3005A)**			Prep Date: **12/12/2023**		Analyst: **MMR**
IEPA ELAP 100445						
Aluminum	ND	0.040		mg/L	2	12/12/2023
Antimony	ND	0.0060	*	mg/L	2	12/14/2023
Arsenic	ND	0.0040		mg/L	2	12/12/2023
Barium	0.052	0.0040		mg/L	2	12/12/2023
Beryllium	ND	0.0020		mg/L	2	12/14/2023
Cadmium	ND	0.0020		mg/L	2	12/12/2023
Calcium	520	0.20	*	mg/L	2	12/12/2023
Chromium	ND	0.0040		mg/L	2	12/12/2023
Cobalt	ND	0.0040		mg/L	2	12/12/2023
Copper	ND	0.010	*	mg/L	2	12/18/2023
Iron	24	0.10	*	mg/L	2	12/12/2023
Lead	0.0038	0.0020		mg/L	2	12/12/2023

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Date Reported: December 23, 2023
Date Printed: December 23, 2023

Analytical Results

Customer: Carnow, Conibear, & Associates
Work Order: 23120183 Revision 0
Project: 3001-13 Fifth, Chicago
Lab ID: 23120183-001

Customer Sample ID: MW-114
Collection Date: 12/6/2023 12:00:00 PM
Matrix: Aqueous

Analyses	Result	RL	Qualifier	Units	DF	Date Analyzed
Metals by ICP/MS	**SW6020A (SW3005A)**			Prep Date: **12/12/2023**		Analyst: **MMR**
IEPA ELAP 100445						
Magnesium	310	0.10		mg/L	2	12/12/2023
Manganese	0.71	0.0040		mg/L	2	12/12/2023
Nickel	0.0059	0.0040	*	mg/L	2	12/12/2023
Potassium	46	0.10		mg/L	2	12/12/2023
Selenium	ND	0.0040		mg/L	2	12/12/2023
Silver	ND	0.0040		mg/L	2	12/12/2023
Sodium	69	0.90		mg/L	2	12/12/2023
Thallium	ND	0.0020		mg/L	2	12/12/2023
Vanadium	ND	0.0040		mg/L	2	12/12/2023
Zinc	ND	0.020		mg/L	2	12/12/2023
Mercury	**SW7470A**			Prep Date: **12/22/2023**		Analyst: **JB2**
IEPA ELAP 100445						
Mercury	ND	0.00020		mg/L	1	12/22/2023
Cyanide, Total	**SW9012A**			Prep Date: **12/12/2023**		Analyst: **MD**
IEPA ELAP 100445						
Cyanide	ND	0.010		mg/L	1	12/12/2023
pH	**SM4500-H+ B**			Prep Date: **12/8/2023**		Analyst: **LJ1**
IEPA ELAP 100445						
pH	6.84		HT	pH Units	1	12/8/2023

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sterling labs
2242 W. Harrison St., Suite 200, Chicago, IL 60612 Phone: (312) 733-0551
509 N. 3rd Ave., Des Plaines, IL 60016 Phone: (800) 246-0663
info@thesterlinglab.com

CHAIN OF CUSTODY RECORD

№ 100824 Page : 1 of 1

Company: Carnow Conibear
Project Number: Client Tracking No.:
Project Name: 3001-13 Fifth
Project Location: 3001-13 Fifth, Chicago
Sampler(s): CA
Report To: Chad Adams Phone: 312-446-0761
Kristen Gruca Fax:
QC Level: 1 ___ 2 ___ 3 ___ 4 ___ e-mail: cadams@eccaltd.com

P.O. No.:
Quote No.:
Turn Around Time (Days): 1 2 3 4 5-7 (10)
Results Needed: 12/20/23 am/pm

Client Sample Number/Description:	Date Taken	Time Taken	Matrix	Comp.	Grab	Preserv.	No. of Containers	TCL	Remarks	Lab No.:
MW-104	12/6/23	1200	G		X		8	X		001

Relinquished by: (Signature) Date/Time: 12/6/23 1250
Received by: (Signature) Date/Time: 12/6/23 12.50
Relinquished by: (Signature) Date/Time:
Received by: (Signature) Date/Time:
Relinquished by: (Signature) Date/Time:
Received by: (Signature) Date/Time:

Comments:
Kristen Gruca
KGruca@eccaltd.com

Laboratory Work Order No.: 23120183

Received on Ice: Yes ~~No~~

Temperature: On Ice °C

Preservation Code: A = None B = HNO_3 C = NaOH
D = H_2SO_4 E = HCl F = 5035/EnCore G = Other

sterling labs

Sample Receipt Checklist

Customer: CCA

Work Order Number 23120183

Date and Time Received: 12/6/2023 12:50:00 PM

Received by: JOK

Checklist completed by: _____ 12-6-2023
Signature / Date

Reviewed by: MP 12/07/2023
Initials / Date

Matrix:

Carrier name Client Delivered

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☐	No ☐	Not Present ☑
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels/containers?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time?	Yes ☐	No ☑	
Container or Temp Blank temperature in compliance?	Yes ☑	No ☐	Temperature On Ice °C
Water - VOA vials have zero headspace?	No VOA vials submitted ☐	Yes ☑	No ☐
Water - Samples pH checked?	Yes ☑	No ☐	Checked by: _____
Water - Samples properly preserved?	Yes ☑	No ☐	pH Adjusted? no

Any No response must be detailed in the comments section below.

Comments: Sample was received past hold for ph in water analysis

Customer / Person contacted: _____ Date contacted: _____ Contacted by: _____

Response: _____

STAT Analysis Corporation
2242 West Harrison St., Suite 200, Chicago, IL 60612-3766
Tel: (312) 733-0551 Fax: (312) 733-2386 STATinfo@STATAnalysis.com
Accreditations: IEPA ELAP 100445; ORELAP IL300001; AIHA-LAP, LLC 101160; NVLAP LabCode 101202-0

January 11, 2019

Brecheisen Engineering, Inc.
516 W. Briar, Suite 12A
Chicago, IL 60614-
Telephone: (312) 659-0052
Fax: (312) 640-0115

Analytical Report for STAT Work Order: 18120406 Revision 2

RE: 16-2FMEHS-00013, Fifth Ave. Eco Orchard, 3001-11 W. Fifth Ave.

Dear Tom Brecheisen:

STAT Analysis received 49 samples for the referenced project on 12/13/2018 4:08:00 PM. The analytical results are presented in the following report.

All analyses were performed in accordance with the requirements of 35 IAC Part 186 / NELAP standards. Analyses were performed in accordance with methods as referenced on the analytical report. Those analytical results expressed on a dry weight basis are also noted on the analytical report.

All analyses were performed within established holding time criteria, and all Quality Control criteria met EPA or laboratory specifications except when noted in the Case Narrative or Analytical Report. If required, an estimate of uncertainty for the analyses can be provided. A listing of accredited methods/parameters can also be provided.

Thank you for the opportunity to serve you and I look forward to working with you in the future. If you have any questions regarding the enclosed materials, please contact me at (312) 733-0551.

Sincerely,

Brandon Young
Project Manager

Client: Brecheisen Engineering, Inc.
Project: 16-2FMEHS-00013, Fifth Ave. Eco Orchard, 3001-11
Work Order: 18120406 Revision 2

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Tag Number	Collection Date	Date Received
18120406-001A	SB-1 (0-3)		12/13/2018 8:15:00 AM	12/13/2018
18120406-001B	SB-1 (0-3)		12/13/2018 8:15:00 AM	12/13/2018
18120406-002A	SB-1 (3-6)		12/13/2018 8:20:00 AM	12/13/2018
18120406-002B	SB-1 (3-6)		12/13/2018 8:20:00 AM	12/13/2018
18120406-003A	SB-1 (6-9)		12/13/2018 8:30:00 AM	12/13/2018
18120406-003B	SB-1 (6-9)		12/13/2018 8:30:00 AM	12/13/2018
18120406-004A	SB-1 (9-12)		12/13/2018 8:35:00 AM	12/13/2018
18120406-004B	SB-1 (9-12)		12/13/2018 8:35:00 AM	12/13/2018
18120406-005A	SB-1 (12-15)		12/13/2018 8:40:00 AM	12/13/2018
18120406-005B	SB-1 (12-15)		12/13/2018 8:40:00 AM	12/13/2018
18120406-006A	SB-2 (0-3)		12/13/2018 8:55:00 AM	12/13/2018
18120406-006B	SB-2 (0-3)		12/13/2018 8:55:00 AM	12/13/2018
18120406-007A	SB-2 (3-6)		12/13/2018 9:00:00 AM	12/13/2018
18120406-007B	SB-2 (3-6)		12/13/2018 9:00:00 AM	12/13/2018
18120406-008A	SB-2 (6-9)		12/13/2018 9:05:00 AM	12/13/2018
18120406-008B	SB-2 (6-9)		12/13/2018 9:05:00 AM	12/13/2018
18120406-009A	SB-2 (9-12)		12/13/2018 9:10:00 AM	12/13/2018
18120406-009B	SB-2 (9-12)		12/13/2018 9:10:00 AM	12/13/2018
18120406-010A	SB-2 (12-15)		12/13/2018 9:15:00 AM	12/13/2018
18120406-010B	SB-2 (12-15)		12/13/2018 9:15:00 AM	12/13/2018
18120406-011A	SB-3 (0-3)		12/13/2018 9:25:00 AM	12/13/2018
18120406-011B	SB-3 (0-3)		12/13/2018 9:25:00 AM	12/13/2018
18120406-012A	SB-3 (3-6)		12/13/2018 9:30:00 AM	12/13/2018
18120406-012B	SB-3 (3-6)		12/13/2018 9:30:00 AM	12/13/2018
18120406-013A	SB-3 (6-9)		12/13/2018 9:35:00 AM	12/13/2018
18120406-013B	SB-3 (6-9)		12/13/2018 9:35:00 AM	12/13/2018
18120406-014A	SB-3 (9-12)		12/13/2018 9:40:00 AM	12/13/2018
18120406-014B	SB-3 (9-12)		12/13/2018 9:40:00 AM	12/13/2018
18120406-015A	SB-3 (12-15)		12/13/2018 9:45:00 AM	12/13/2018
18120406-015B	SB-3 (12-15)		12/13/2018 9:45:00 AM	12/13/2018
18120406-016A	SB-4 (0-3)		12/13/2018 10:00:00 AM	12/13/2018
18120406-016B	SB-4 (0-3)		12/13/2018 10:00:00 AM	12/13/2018
18120406-017A	SB-4 (3-6)		12/13/2018 10:05:00 AM	12/13/2018
18120406-017B	SB-4 (3-6)		12/13/2018 10:05:00 AM	12/13/2018
18120406-018A	SB-4 (6-9)		12/13/2018 10:10:00 AM	12/13/2018
18120406-018B	SB-4 (6-9)		12/13/2018 10:10:00 AM	12/13/2018
18120406-019A	SB-4 (9-12)		12/13/2018 10:15:00 AM	12/13/2018
18120406-019B	SB-4 (9-12)		12/13/2018 10:15:00 AM	12/13/2018

Client:	Brecheisen Engineering, Inc.
Project:	16-2FMEHS-00013, Fifth Ave. Eco Orchard, 3001-11
Work Order:	18120406 Revision 2

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Tag Number	Collection Date	Date Received
18120406-020A	SB-4 (12-15)		12/13/2018 10:20:00 AM	12/13/2018
18120406-020B	SB-4 (12-15)		12/13/2018 10:20:00 AM	12/13/2018
18120406-021A	SB-5 (0-3)		12/13/2018 10:30:00 AM	12/13/2018
18120406-021B	SB-5 (0-3)		12/13/2018 10:30:00 AM	12/13/2018
18120406-022A	SB-5 (3-6)		12/13/2018 10:35:00 AM	12/13/2018
18120406-022B	SB-5 (3-6)		12/13/2018 10:35:00 AM	12/13/2018
18120406-023A	SB-5 (6-9)		12/13/2018 10:40:00 AM	12/13/2018
18120406-023B	SB-5 (6-9)		12/13/2018 10:40:00 AM	12/13/2018
18120406-024A	SB-5 (9-12)		12/13/2018 10:45:00 AM	12/13/2018
18120406-024B	SB-5 (9-12)		12/13/2018 10:45:00 AM	12/13/2018
18120406-025A	SB-5 (12-15)		12/13/2018 10:50:00 AM	12/13/2018
18120406-025B	SB-5 (12-15)		12/13/2018 10:50:00 AM	12/13/2018
18120406-026A	SB-6 (0-3)		12/13/2018 11:05:00 AM	12/13/2018
18120406-026B	SB-6 (0-3)		12/13/2018 11:05:00 AM	12/13/2018
18120406-027A	SB-6 (3-6)		12/13/2018 11:10:00 AM	12/13/2018
18120406-027B	SB-6 (3-6)		12/13/2018 11:10:00 AM	12/13/2018
18120406-028A	SB-6 (6-9)		12/13/2018 11:15:00 AM	12/13/2018
18120406-028B	SB-6 (6-9)		12/13/2018 11:15:00 AM	12/13/2018
18120406-029A	SB-6 (9-12)		12/13/2018 11:20:00 AM	12/13/2018
18120406-029B	SB-6 (9-12)		12/13/2018 11:20:00 AM	12/13/2018
18120406-030A	SB-6 (12-15)		12/13/2018 11:25:00 AM	12/13/2018
18120406-030B	SB-6 (12-15)		12/13/2018 11:25:00 AM	12/13/2018
18120406-031A	SB-7 (0-3)		12/13/2018 11:35:00 AM	12/13/2018
18120406-031B	SB-7 (0-3)		12/13/2018 11:35:00 AM	12/13/2018
18120406-032A	SB-7 (6-9)		12/13/2018 11:45:00 AM	12/13/2018
18120406-032B	SB-7 (6-9)		12/13/2018 11:45:00 AM	12/13/2018
18120406-033A	SB-7 (9-12)		12/13/2018 11:50:00 AM	12/13/2018
18120406-033B	SB-7 (9-12)		12/13/2018 11:50:00 AM	12/13/2018
18120406-034A	SB-7 (12-15)		12/13/2018 12:00:00 PM	12/13/2018
18120406-034B	SB-7 (12-15)		12/13/2018 12:00:00 PM	12/13/2018
18120406-035A	SB-8 (0-3)		12/13/2018 12:10:00 PM	12/13/2018
18120406-035B	SB-8 (0-3)		12/13/2018 12:10:00 PM	12/13/2018
18120406-036A	SB-8 (3-6)		12/13/2018 12:15:00 PM	12/13/2018
18120406-036B	SB-8 (3-6)		12/13/2018 12:15:00 PM	12/13/2018
18120406-037A	SB-8 (6-9)		12/13/2018 12:20:00 PM	12/13/2018
18120406-037B	SB-8 (6-9)		12/13/2018 12:20:00 PM	12/13/2018
18120406-038A	SB-8 (9-12)		12/13/2018 12:25:00 PM	12/13/2018
18120406-038B	SB-8 (9-12)		12/13/2018 12:25:00 PM	12/13/2018
18120406-039A	SB-8 (12-15)		12/13/2018 12:30:00 PM	12/13/2018
18120406-039B	SB-8 (12-15)		12/13/2018 12:30:00 PM	12/13/2018

Client: Brecheisen Engineering, Inc.
Project: 16-2FMEHS-00013, Fifth Ave. Eco Orchard, 3001-11
Work Order: 18120406 Revision 2

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Tag Number	Collection Date	Date Received
18120406-040A	SB-9 (0-3)		12/13/2018 12:40:00 PM	12/13/2018
18120406-040B	SB-9 (0-3)		12/13/2018 12:40:00 PM	12/13/2018
18120406-041A	SB-9 (3-6)		12/13/2018 12:45:00 PM	12/13/2018
18120406-041B	SB-9 (3-6)		12/13/2018 12:45:00 PM	12/13/2018
18120406-042A	SB-9 (6-9)		12/13/2018 12:50:00 PM	12/13/2018
18120406-042B	SB-9 (6-9)		12/13/2018 12:50:00 PM	12/13/2018
18120406-043A	SB-9 (9-12)		12/13/2018 12:55:00 PM	12/13/2018
18120406-043B	SB-9 (9-12)		12/13/2018 12:55:00 PM	12/13/2018
18120406-044A	SB-9 (12-15)		12/13/2018 1:00:00 PM	12/13/2018
18120406-044B	SB-9 (12-15)		12/13/2018 1:00:00 PM	12/13/2018
18120406-045A	SB-10 (0-3)		12/13/2018 1:10:00 PM	12/13/2018
18120406-045B	SB-10 (0-3)		12/13/2018 1:10:00 PM	12/13/2018
18120406-046A	SB-10 (3-6)		12/13/2018 1:15:00 PM	12/13/2018
18120406-046B	SB-10 (3-6)		12/13/2018 1:15:00 PM	12/13/2018
18120406-047A	SB-10 (6-9)		12/13/2018 1:20:00 PM	12/13/2018
18120406-047B	SB-10 (6-9)		12/13/2018 1:20:00 PM	12/13/2018
18120406-048A	SB-10 (9-12)		12/13/2018 1:25:00 PM	12/13/2018
18120406-048B	SB-10 (9-12)		12/13/2018 1:25:00 PM	12/13/2018
18120406-049A	SB-10 (12-15)		12/13/2018 1:30:00 PM	12/13/2018
18120406-049B	SB-10 (12-15)		12/13/2018 1:30:00 PM	12/13/2018

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Date Reported: January 11, 2019
Date Printed: January 11, 2019

ANALYTICAL RESULTS

Client: Brecheisen Engineering, Inc.
Work Order: 18120406 Revision 2
Project: 16-2FMEHS-00013, Fifth Ave. Eco Orchard, 3001-
Lab ID: 18120406-001

Client Sample ID: SB-1 (0-3)
Collection Date: 12/13/2018 8:15:00 AM
Matrix: Soil

Analyses	Result	RL	Qualifier	Units	DF	Date Analyzed
BTEX by GC/MS	**SW5035/8260B**			Prep Date: **12/14/2018**		Analyst: **AET**
Benzene	ND	0.0070		mg/Kg-dry	1	12/15/2018
Ethylbenzene	ND	0.0070		mg/Kg-dry	1	12/15/2018
Toluene	ND	0.0070		mg/Kg-dry	1	12/15/2018
Xylenes, Total	ND	0.022		mg/Kg-dry	1	12/15/2018
Polynuclear Aromatic Hydrocarbons by GC/MS	**SW8270C (SW3550B)**			Prep Date: **12/19/2018**		Analyst: **FP**
Acenaphthene	0.10	0.042		mg/Kg-dry	1	12/19/2018
Acenaphthylene	ND	0.042		mg/Kg-dry	1	12/19/2018
Anthracene	0.38	0.042		mg/Kg-dry	1	12/19/2018
Benz(a)anthracene	0.59	0.042		mg/Kg-dry	1	12/19/2018
Benzo(a)pyrene	0.44	0.042		mg/Kg-dry	1	12/19/2018
Benzo(b)fluoranthene	0.49	0.042		mg/Kg-dry	1	12/19/2018
Benzo(g,h,i)perylene	0.29	0.042		mg/Kg-dry	1	12/19/2018
Benzo(k)fluoranthene	0.36	0.042		mg/Kg-dry	1	12/19/2018
Chrysene	0.62	0.042		mg/Kg-dry	1	12/19/2018
Dibenz(a,h)anthracene	0.17	0.042		mg/Kg-dry	1	12/19/2018
Fluoranthene	1.4	0.042		mg/Kg-dry	1	12/19/2018
Fluorene	0.15	0.042		mg/Kg-dry	1	12/19/2018
Indeno(1,2,3-cd)pyrene	0.25	0.042		mg/Kg-dry	1	12/19/2018
Naphthalene	0.082	0.042		mg/Kg-dry	1	12/19/2018
Phenanthrene	1.7	0.042		mg/Kg-dry	1	12/19/2018
Pyrene	1.1	0.042		mg/Kg-dry	1	12/19/2018
Metals by ICP/MS	**SW6020A (SW3050B)**			Prep Date: **12/18/2018**		Analyst: **JG**
Arsenic	7.4	1.1		mg/Kg-dry	10	12/18/2018
Barium	310	1.1		mg/Kg-dry	10	12/18/2018
Cadmium	1.2	0.57		mg/Kg-dry	10	12/18/2018
Chromium	25	1.1		mg/Kg-dry	10	12/18/2018
Lead	1100	0.57		mg/Kg-dry	10	12/18/2018
Selenium	ND	1.1		mg/Kg-dry	10	12/18/2018
Silver	ND	1.1		mg/Kg-dry	10	12/18/2018
TCLP Metals by ICP/MS	**SW1311/6020A (SW3005A)**			Prep Date: **12/27/2018**		Analyst: **JG**
Lead	0.41	0.0050		mg/L	5	12/27/2018
Mercury	**SW7471B**			Prep Date: **12/18/2018**		Analyst: **LB**
Mercury	2.2	0.44		mg/Kg-dry	20	12/19/2018
pH (25 °C)	**SW9045C**			Prep Date: **12/17/2018**		Analyst: **JT**
pH	7.48			pH Units	1	12/17/2018

Qualifiers:
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RL - Reporting / Quantitation Limit for the analysis
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
E - Value above quantitation range
H - Holding time exceeded

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Date Reported: January 11, 2019
Date Printed: January 11, 2019

ANALYTICAL RESULTS

Client: Brecheisen Engineering, Inc.
Work Order: 18120406 Revision 2
Project: 16-2FMEHS-00013, Fifth Ave. Eco Orchard, 3001-
Lab ID: 18120406-001

Client Sample ID: SB-1 (0-3)
Collection Date: 12/13/2018 8:15:00 AM
Matrix: Soil

Analyses	Result	RL	Qualifier	Units	DF	Date Analyzed
Organic Matter / Carbon	**D2974**			Prep Date: **1/2/2019**		Analyst: **RW**
Organic Carbon Content	6.87	0.01	*	wt%	1	1/3/2019
Organic Matter	11.8	0.01	*	wt%	1	1/3/2019
Percent Moisture	**D2974**			Prep Date: **12/17/2018**		Analyst: **RW**
Percent Moisture	21.7	0.2	*	wt%	1	12/18/2018

Qualifiers:
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Date Reported: January 11, 2019
Date Printed: January 11, 2019

ANALYTICAL RESULTS

Client: Brecheisen Engineering, Inc.
Work Order: 18120406 Revision 2
Project: 16-2FMEHS-00013, Fifth Ave. Eco Orchard, 3001-
Lab ID: 18120406-002

Client Sample ID: SB-1 (3-6)
Collection Date: 12/13/2018 8:20:00 AM
Matrix: Soil

Analyses	Result	RL	Qualifier	Units	DF	Date Analyzed
BTEX by GC/MS	**SW5035/8260B**			Prep Date: **12/14/2018**		Analyst: **AET**
Benzene	ND	0.0044		mg/Kg-dry	1	12/15/2018
Ethylbenzene	ND	0.0044		mg/Kg-dry	1	12/15/2018
Toluene	ND	0.0044		mg/Kg-dry	1	12/15/2018
Xylenes, Total	ND	0.013		mg/Kg-dry	1	12/15/2018
Polynuclear Aromatic Hydrocarbons by GC/MS	**SW8270C (SW3550B)**			Prep Date: **12/19/2018**		Analyst: **FP**
Acenaphthene	ND	0.039		mg/Kg-dry	1	12/19/2018
Acenaphthylene	ND	0.039		mg/Kg-dry	1	12/19/2018
Anthracene	ND	0.039		mg/Kg-dry	1	12/19/2018
Benz(a)anthracene	ND	0.039		mg/Kg-dry	1	12/19/2018
Benzo(a)pyrene	ND	0.039		mg/Kg-dry	1	12/19/2018
Benzo(b)fluoranthene	ND	0.039		mg/Kg-dry	1	12/19/2018
Benzo(g,h,i)perylene	ND	0.039		mg/Kg-dry	1	12/19/2018
Benzo(k)fluoranthene	ND	0.039		mg/Kg-dry	1	12/19/2018
Chrysene	ND	0.039		mg/Kg-dry	1	12/19/2018
Dibenz(a,h)anthracene	ND	0.039		mg/Kg-dry	1	12/19/2018
Fluoranthene	ND	0.039		mg/Kg-dry	1	12/19/2018
Fluorene	ND	0.039		mg/Kg-dry	1	12/19/2018
Indeno(1,2,3-cd)pyrene	ND	0.039		mg/Kg-dry	1	12/19/2018
Naphthalene	ND	0.039		mg/Kg-dry	1	12/19/2018
Phenanthrene	ND	0.039		mg/Kg-dry	1	12/19/2018
Pyrene	ND	0.039		mg/Kg-dry	1	12/19/2018
Metals by ICP/MS	**SW6020A (SW3050B)**			Prep Date: **12/18/2018**		Analyst: **JG**
Arsenic	10	1.0		mg/Kg-dry	10	12/18/2018
Barium	100	1.0		mg/Kg-dry	10	12/18/2018
Cadmium	ND	0.51		mg/Kg-dry	10	12/18/2018
Chromium	30	1.0		mg/Kg-dry	10	12/18/2018
Lead	23	0.51		mg/Kg-dry	10	12/18/2018
Selenium	ND	1.0		mg/Kg-dry	10	12/18/2018
Silver	ND	1.0		mg/Kg-dry	10	12/18/2018
Mercury	**SW7471B**			Prep Date: **12/18/2018**		Analyst: **LB**
Mercury	0.034	0.019		mg/Kg-dry	1	12/19/2018
pH (25 °C)	**SW9045C**			Prep Date: **12/17/2018**		Analyst: **JT**
pH	8.37			pH Units	1	12/17/2018
Percent Moisture	**D2974**			Prep Date: **12/17/2018**		Analyst: **RW**
Percent Moisture	15.7	0.2	*	wt%	1	12/18/2018

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
HT - Sample received past holding time
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Date Reported: January 11, 2019
Date Printed: January 11, 2019

ANALYTICAL RESULTS

Client: Brecheisen Engineering, Inc.
Work Order: 18120406 Revision 2
Project: 16-2FMEHS-00013, Fifth Ave. Eco Orchard, 3001-
Lab ID: 18120406-003

Client Sample ID: SB-1 (6-9)
Collection Date: 12/13/2018 8:30:00 AM
Matrix: Soil

Analyses	Result	RL	Qualifier	Units	DF	Date Analyzed
Metals by ICP/MS	**SW6020A**	**(SW3050B)**		Prep Date: **1/3/2019**		Analyst: **JG**
Chromium	23	1.1		mg/Kg-dry	10	1/4/2019
Percent Moisture	**D2974**			Prep Date: **12/17/2018**		Analyst: **RW**
Percent Moisture	19.2	0.2	*	wt%	1	12/18/2018

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
HT - Sample received past holding time
* - Non-accredited parameter
RL - Reporting / Quantitation Limit for the analysis
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
E - Value above quantitation range
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Date Reported: January 11, 2019
Date Printed: January 11, 2019

ANALYTICAL RESULTS

Client: Brecheisen Engineering, Inc.
Work Order: 18120406 Revision 2
Project: 16-2FMEHS-00013, Fifth Ave. Eco Orchard, 3001-
Lab ID: 18120406-006

Client Sample ID: SB-2 (0-3)
Collection Date: 12/13/2018 8:55:00 AM
Matrix: Soil

Analyses	Result	RL	Qualifier	Units	DF	Date Analyzed
BTEX by GC/MS	**SW5035/8260B**			Prep Date: **12/14/2018**		Analyst: **AET**
Benzene	ND	0.0055		mg/Kg-dry	1	12/15/2018
Ethylbenzene	ND	0.0055		mg/Kg-dry	1	12/15/2018
Toluene	ND	0.0055		mg/Kg-dry	1	12/15/2018
Xylenes, Total	ND	0.017		mg/Kg-dry	1	12/15/2018
Polynuclear Aromatic Hydrocarbons by GC/MS	**SW8270C (SW3550B)**			Prep Date: **12/19/2018**		Analyst: **FP**
Acenaphthene	ND	0.035		mg/Kg-dry	1	12/19/2018
Acenaphthylene	ND	0.035		mg/Kg-dry	1	12/19/2018
Anthracene	ND	0.035		mg/Kg-dry	1	12/19/2018
Benz(a)anthracene	0.076	0.035		mg/Kg-dry	1	12/19/2018
Benzo(a)pyrene	0.082	0.035		mg/Kg-dry	1	12/19/2018
Benzo(b)fluoranthene	0.070	0.035		mg/Kg-dry	1	12/19/2018
Benzo(g,h,i)perylene	0.12	0.035		mg/Kg-dry	1	12/19/2018
Benzo(k)fluoranthene	0.071	0.035		mg/Kg-dry	1	12/19/2018
Chrysene	0.086	0.035		mg/Kg-dry	1	12/19/2018
Dibenz(a,h)anthracene	ND	0.035		mg/Kg-dry	1	12/19/2018
Fluoranthene	0.14	0.035		mg/Kg-dry	1	12/19/2018
Fluorene	ND	0.035		mg/Kg-dry	1	12/19/2018
Indeno(1,2,3-cd)pyrene	0.057	0.035		mg/Kg-dry	1	12/19/2018
Naphthalene	ND	0.035		mg/Kg-dry	1	12/19/2018
Phenanthrene	0.091	0.035		mg/Kg-dry	1	12/19/2018
Pyrene	0.14	0.035		mg/Kg-dry	1	12/19/2018
Metals by ICP/MS	**SW6020A (SW3050B)**			Prep Date: **12/18/2018**		Analyst: **JG**
Arsenic	3.0	0.89		mg/Kg-dry	10	12/18/2018
Barium	11	0.89		mg/Kg-dry	10	12/18/2018
Cadmium	ND	0.44		mg/Kg-dry	10	12/18/2018
Chromium	4.1	0.89		mg/Kg-dry	10	12/18/2018
Lead	15	0.44		mg/Kg-dry	10	12/18/2018
Selenium	ND	0.89		mg/Kg-dry	10	12/18/2018
Silver	ND	0.89		mg/Kg-dry	10	12/18/2018
Mercury	**SW7471B**			Prep Date: **12/18/2018**		Analyst: **LB**
Mercury	ND	0.020		mg/Kg-dry	1	12/19/2018
pH (25 °C)	**SW9045C**			Prep Date: **12/17/2018**		Analyst: **JT**
pH	8.36			pH Units	1	12/17/2018
Percent Moisture	**D2974**			Prep Date: **12/17/2018**		Analyst: **RW**
Percent Moisture	6.2	0.2	*	wt%	1	12/18/2018

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
HT - Sample received past holding time
* - Non-accredited parameter
RL - Reporting / Quantitation Limit for the analysis
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Date Reported: January 11, 2019
Date Printed: January 11, 2019

ANALYTICAL RESULTS

Client: Brecheisen Engineering, Inc.
Work Order: 18120406 Revision 2
Project: 16-2FMEHS-00013, Fifth Ave. Eco Orchard, 3001-
Lab ID: 18120406-007

Client Sample ID: SB-2 (3-6)
Collection Date: 12/13/2018 9:00:00 AM
Matrix: Soil

Analyses	Result	RL	Qualifier	Units	DF	Date Analyzed
BTEX by GC/MS	**SW5035/8260B**			Prep Date: **12/14/2018**		Analyst: **AET**
Benzene	ND	0.0048		mg/Kg-dry	1	12/15/2018
Ethylbenzene	ND	0.0048		mg/Kg-dry	1	12/15/2018
Toluene	ND	0.0048		mg/Kg-dry	1	12/15/2018
Xylenes, Total	ND	0.014		mg/Kg-dry	1	12/15/2018
Polynuclear Aromatic Hydrocarbons by GC/MS	**SW8270C (SW3550B)**			Prep Date: **12/19/2018**		Analyst: **FP**
Acenaphthene	0.41	0.039		mg/Kg-dry	1	12/19/2018
Acenaphthylene	0.40	0.039		mg/Kg-dry	1	12/19/2018
Anthracene	1.6	0.039		mg/Kg-dry	1	12/19/2018
Benz(a)anthracene	4.1	0.039		mg/Kg-dry	1	12/19/2018
Benzo(a)pyrene	4.0	0.039		mg/Kg-dry	1	12/19/2018
Benzo(b)fluoranthene	3.8	0.039		mg/Kg-dry	1	12/19/2018
Benzo(g,h,i)perylene	2.3	0.039		mg/Kg-dry	1	12/19/2018
Benzo(k)fluoranthene	2.9	0.039		mg/Kg-dry	1	12/19/2018
Chrysene	4.1	0.039		mg/Kg-dry	1	12/19/2018
Dibenz(a,h)anthracene	1.1	0.039		mg/Kg-dry	1	12/19/2018
Fluoranthene	8.1	0.19		mg/Kg-dry	5	12/20/2018
Fluorene	0.57	0.039		mg/Kg-dry	1	12/19/2018
Indeno(1,2,3-cd)pyrene	2.0	0.039		mg/Kg-dry	1	12/19/2018
Naphthalene	0.11	0.039		mg/Kg-dry	1	12/19/2018
Phenanthrene	5.7	0.19		mg/Kg-dry	5	12/20/2018
Pyrene	7.6	0.19		mg/Kg-dry	5	12/20/2018
Metals by ICP/MS	**SW6020A (SW3050B)**			Prep Date: **12/18/2018**		Analyst: **JG**
Arsenic	6.0	1.0		mg/Kg-dry	10	12/18/2018
Barium	150	1.0		mg/Kg-dry	10	12/18/2018
Cadmium	0.61	0.51		mg/Kg-dry	10	12/18/2018
Chromium	22	1.0		mg/Kg-dry	10	12/18/2018
Lead	530	0.51		mg/Kg-dry	10	12/18/2018
Selenium	ND	1.0		mg/Kg-dry	10	12/18/2018
Silver	ND	1.0		mg/Kg-dry	10	12/18/2018
Mercury	**SW7471B**			Prep Date: **12/18/2018**		Analyst: **LB**
Mercury	0.35	0.021		mg/Kg-dry	1	12/19/2018
pH (25 °C)	**SW9045C**			Prep Date: **12/17/2018**		Analyst: **JT**
pH	8.40			pH Units	1	12/17/2018
Percent Moisture	**D2974**			Prep Date: **12/17/2018**		Analyst: **RW**
Percent Moisture	15.1	0.2	*	wt%	1	12/18/2018

Qualifiers:
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Date Reported: January 11, 2019
Date Printed: January 11, 2019

ANALYTICAL RESULTS

Client: Brecheisen Engineering, Inc.
Work Order: 18120406 Revision 2
Project: 16-2FMEHS-00013, Fifth Ave. Eco Orchard, 3001-
Lab ID: 18120406-008

Client Sample ID: SB-2 (6-9)
Collection Date: 12/13/2018 9:05:00 AM
Matrix: Soil

Analyses	Result	RL	Qualifier	Units	DF	Date Analyzed
Polynuclear Aromatic Hydrocarbons by GC/MS	**SW8270C (SW3550B)**			Prep Date: **12/26/2018**		Analyst: **FP**
Acenaphthene	ND	0.041		mg/Kg-dry	1	12/26/2018
Acenaphthylene	ND	0.041		mg/Kg-dry	1	12/26/2018
Anthracene	ND	0.041		mg/Kg-dry	1	12/26/2018
Benz(a)anthracene	ND	0.041		mg/Kg-dry	1	12/26/2018
Benzo(a)pyrene	ND	0.041		mg/Kg-dry	1	12/26/2018
Benzo(b)fluoranthene	ND	0.041		mg/Kg-dry	1	12/26/2018
Benzo(g,h,i)perylene	ND	0.041		mg/Kg-dry	1	12/26/2018
Benzo(k)fluoranthene	ND	0.041		mg/Kg-dry	1	12/26/2018
Chrysene	ND	0.041		mg/Kg-dry	1	12/26/2018
Dibenz(a,h)anthracene	ND	0.041		mg/Kg-dry	1	12/26/2018
Fluoranthene	ND	0.041		mg/Kg-dry	1	12/26/2018
Fluorene	ND	0.041		mg/Kg-dry	1	12/26/2018
Indeno(1,2,3-cd)pyrene	ND	0.041		mg/Kg-dry	1	12/26/2018
Naphthalene	ND	0.041		mg/Kg-dry	1	12/26/2018
Phenanthrene	ND	0.041		mg/Kg-dry	1	12/26/2018
Pyrene	ND	0.041		mg/Kg-dry	1	12/26/2018
Metals by ICP/MS	**SW6020A (SW3050B)**			Prep Date: **1/2/2019**		Analyst: **JG**
Lead	17	1.2		mg/Kg-dry	10	1/3/2019
Mercury	**SW7471B**			Prep Date: **1/2/2019**		Analyst: **LB**
Mercury	0.026	0.023		mg/Kg-dry	1	1/2/2019
Percent Moisture	**D2974**			Prep Date: **12/17/2018**		Analyst: **RW**
Percent Moisture	20.2	0.2	*	wt%	1	12/18/2018

Qualifiers:

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Date Reported: January 11, 2019
Date Printed: January 11, 2019

ANALYTICAL RESULTS

Client: Brecheisen Engineering, Inc.
Work Order: 18120406 Revision 2
Project: 16-2FMEHS-00013, Fifth Ave. Eco Orchard, 3001-
Lab ID: 18120406-011

Client Sample ID: SB-3 (0-3)
Collection Date: 12/13/2018 9:25:00 AM
Matrix: Soil

Analyses	Result	RL	Qualifier	Units	DF	Date Analyzed
BTEX by GC/MS	**SW5035/8260B**			Prep Date: **12/14/2018**		Analyst: **AET**
Benzene	ND	0.0037		mg/Kg	1	12/15/2018
Ethylbenzene	ND	0.0037		mg/Kg	1	12/15/2018
Toluene	ND	0.0037		mg/Kg	1	12/15/2018
Xylenes, Total	ND	0.011		mg/Kg	1	12/15/2018

Qualifiers:
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HT - Sample received past holding time
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Date Reported: January 11, 2019
Date Printed: January 11, 2019

ANALYTICAL RESULTS

Client: Brecheisen Engineering, Inc.
Work Order: 18120406 Revision 2
Project: 16-2FMEHS-00013, Fifth Ave. Eco Orchard, 3001-
Lab ID: 18120406-012

Client Sample ID: SB-3 (3-6)
Collection Date: 12/13/2018 9:30:00 AM
Matrix: Soil

Analyses	Result	RL	Qualifier	Units	DF	Date Analyzed
Metals by ICP/MS	**SW6020A (SW3050B)**			Prep Date: **1/9/2019**		Analyst: **JG**
Arsenic	13	1.1		mg/Kg-dry	10	1/10/2019
Barium	190	1.1		mg/Kg-dry	10	1/10/2019
Cadmium	1.1	0.55		mg/Kg-dry	10	1/10/2019
Chromium	34	1.1		mg/Kg-dry	10	1/10/2019
Lead	330	0.55		mg/Kg-dry	10	1/10/2019
Selenium	1.4	1.1		mg/Kg-dry	10	1/10/2019
Silver	ND	1.1		mg/Kg-dry	10	1/10/2019
Mercury	**SW7471B**			Prep Date: **1/9/2019**		Analyst: **LB**
Mercury	0.17	0.024		mg/Kg-dry	1	1/9/2019
pH (25 °C)	**SW9045C**			Prep Date: **1/9/2019**		Analyst: **RW**
pH	8.46		H	pH Units	1	1/9/2019
Percent Moisture	**D2974**			Prep Date: **12/17/2018**		Analyst: **RW**
Percent Moisture	17.0	0.2	*	wt%	1	12/18/2018

Qualifiers:

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J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
HT - Sample received past holding time
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Date Reported: January 11, 2019
Date Printed: January 11, 2019

ANALYTICAL RESULTS

Client: Brecheisen Engineering, Inc.
Work Order: 18120406 Revision 2
Project: 16-2FMEHS-00013, Fifth Ave. Eco Orchard, 3001-
Lab ID: 18120406-013

Client Sample ID: SB-3 (6-9)
Collection Date: 12/13/2018 9:35:00 AM
Matrix: Soil

Analyses	Result	RL	Qualifier	Units	DF	Date Analyzed
BTEX by GC/MS	**SW5035/8260B**			Prep Date: **12/14/2018**		Analyst: **AET**
Benzene	ND	0.0047		mg/Kg-dry	1	12/15/2018
Ethylbenzene	ND	0.0047		mg/Kg-dry	1	12/15/2018
Toluene	ND	0.0047		mg/Kg-dry	1	12/15/2018
Xylenes, Total	ND	0.014		mg/Kg-dry	1	12/15/2018
Polynuclear Aromatic Hydrocarbons by GC/MS	**SW8270C (SW3550B)**			Prep Date: **12/19/2018**		Analyst: **FP**
Acenaphthene	ND	0.041		mg/Kg-dry	1	12/19/2018
Acenaphthylene	ND	0.041		mg/Kg-dry	1	12/19/2018
Anthracene	ND	0.041		mg/Kg-dry	1	12/19/2018
Benz(a)anthracene	ND	0.041		mg/Kg-dry	1	12/19/2018
Benzo(a)pyrene	ND	0.041		mg/Kg-dry	1	12/19/2018
Benzo(b)fluoranthene	ND	0.041		mg/Kg-dry	1	12/19/2018
Benzo(g,h,i)perylene	ND	0.041		mg/Kg-dry	1	12/19/2018
Benzo(k)fluoranthene	ND	0.041		mg/Kg-dry	1	12/19/2018
Chrysene	ND	0.041		mg/Kg-dry	1	12/19/2018
Dibenz(a,h)anthracene	ND	0.041		mg/Kg-dry	1	12/19/2018
Fluoranthene	ND	0.041		mg/Kg-dry	1	12/19/2018
Fluorene	ND	0.041		mg/Kg-dry	1	12/19/2018
Indeno(1,2,3-cd)pyrene	ND	0.041		mg/Kg-dry	1	12/19/2018
Naphthalene	ND	0.041		mg/Kg-dry	1	12/19/2018
Phenanthrene	ND	0.041		mg/Kg-dry	1	12/19/2018
Pyrene	ND	0.041		mg/Kg-dry	1	12/19/2018
Metals by ICP/MS	**SW6020A (SW3050B)**			Prep Date: **12/18/2018**		Analyst: **JG**
Arsenic	11	1.1		mg/Kg-dry	10	12/18/2018
Barium	77	1.1		mg/Kg-dry	10	12/18/2018
Cadmium	ND	0.57		mg/Kg-dry	10	12/18/2018
Chromium	27	1.1		mg/Kg-dry	10	12/18/2018
Lead	20	0.57		mg/Kg-dry	10	12/18/2018
Selenium	ND	1.1		mg/Kg-dry	10	12/18/2018
Silver	ND	1.1		mg/Kg-dry	10	12/18/2018
Mercury	**SW7471B**			Prep Date: **12/18/2018**		Analyst: **LB**
Mercury	0.025	0.020		mg/Kg-dry	1	12/19/2018
pH (25 °C)	**SW9045C**			Prep Date: **12/17/2018**		Analyst: **JT**
pH	8.41			pH Units	1	12/17/2018
Percent Moisture	**D2974**			Prep Date: **12/17/2018**		Analyst: **RW**
Percent Moisture	19.9	0.2	*	wt%	1	12/18/2018

Qualifiers:
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Date Reported: January 11, 2019
Date Printed: January 11, 2019

ANALYTICAL RESULTS

Client: Brecheisen Engineering, Inc.
Work Order: 18120406 Revision 2
Project: 16-2FMEHS-00013, Fifth Ave. Eco Orchard, 3001-
Lab ID: 18120406-014

Client Sample ID: SB-3 (9-12)
Collection Date: 12/13/2018 9:40:00 AM
Matrix: Soil

Analyses	Result	RL	Qualifier	Units	DF	Date Analyzed
Metals by ICP/MS	**SW6020A (SW3050B)**			Prep Date: **1/3/2019**		Analyst: **JG**
Chromium	22	1.0		mg/Kg-dry	10	1/4/2019
pH (25 °C)	**SW9045C**			Prep Date: **12/31/2018**		Analyst: **JT**
pH	8.69			pH Units	1	12/31/2018
Percent Moisture	**D2974**			Prep Date: **12/17/2018**		Analyst: **RW**
Percent Moisture	20.4	0.2	*	wt%	1	12/18/2018

Qualifiers:

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Date Reported: January 11, 2019
Date Printed: January 11, 2019

ANALYTICAL RESULTS

Client: Brecheisen Engineering, Inc.
Work Order: 18120406 Revision 2
Project: 16-2FMEHS-00013, Fifth Ave. Eco Orchard, 3001-
Lab ID: 18120406-016

Client Sample ID: SB-4 (0-3)
Collection Date: 12/13/2018 10:00:00 AM
Matrix: Soil

Analyses	Result	RL	Qualifier	Units	DF	Date Analyzed
BTEX by GC/MS	**SW5035/8260B**			Prep Date: **12/14/2018**		Analyst: **AET**
Benzene	ND	0.0055		mg/Kg-dry	1	12/15/2018
Ethylbenzene	ND	0.0055		mg/Kg-dry	1	12/15/2018
Toluene	ND	0.0055		mg/Kg-dry	1	12/15/2018
Xylenes, Total	ND	0.017		mg/Kg-dry	1	12/15/2018
Polynuclear Aromatic Hydrocarbons by GC/MS	**SW8270C (SW3550B)**			Prep Date: **12/19/2018**		Analyst: **FP**
Acenaphthene	2.2	0.42		mg/Kg-dry	1	12/19/2018
Acenaphthylene	1.7	0.42		mg/Kg-dry	1	12/19/2018
Anthracene	9.2	0.42		mg/Kg-dry	1	12/19/2018
Benz(a)anthracene	34	0.42		mg/Kg-dry	1	12/19/2018
Benzo(a)pyrene	32	0.42		mg/Kg-dry	1	12/19/2018
Benzo(b)fluoranthene	36	0.42		mg/Kg-dry	1	12/19/2018
Benzo(g,h,i)perylene	22	0.42		mg/Kg-dry	1	12/19/2018
Benzo(k)fluoranthene	27	0.42		mg/Kg-dry	1	12/19/2018
Chrysene	36	0.42		mg/Kg-dry	1	12/19/2018
Dibenz(a,h)anthracene	11	0.42		mg/Kg-dry	1	12/19/2018
Fluoranthene	73	2.1		mg/Kg-dry	5	12/20/2018
Fluorene	3.0	0.42		mg/Kg-dry	1	12/19/2018
Indeno(1,2,3-cd)pyrene	21	0.42		mg/Kg-dry	1	12/19/2018
Naphthalene	0.48	0.42		mg/Kg-dry	1	12/19/2018
Phenanthrene	35	0.42		mg/Kg-dry	1	12/19/2018
Pyrene	63	2.1		mg/Kg-dry	5	12/20/2018
Metals by ICP/MS	**SW6020A (SW3050B)**			Prep Date: **12/18/2018**		Analyst: **JG**
Arsenic	25	1.2		mg/Kg-dry	10	12/18/2018
Barium	920	1.2		mg/Kg-dry	10	12/18/2018
Cadmium	3.0	0.58		mg/Kg-dry	10	12/18/2018
Chromium	37	1.2		mg/Kg-dry	10	12/18/2018
Lead	2000	0.58		mg/Kg-dry	10	12/18/2018
Selenium	1.8	1.2		mg/Kg-dry	10	12/18/2018
Silver	ND	1.2		mg/Kg-dry	10	12/18/2018
TCLP Metals by ICP/MS	**SW1311/6020A (SW3005A)**			Prep Date: **12/27/2018**		Analyst: **JG**
Lead	0.39	0.0050		mg/L	5	12/27/2018
Mercury	**SW7471B**			Prep Date: **12/18/2018**		Analyst: **LB**
Mercury	0.38	0.025		mg/Kg-dry	1	12/19/2018
pH (25 °C)	**SW9045C**			Prep Date: **12/17/2018**		Analyst: **JT**
pH	8.04			pH Units	1	12/17/2018

Qualifiers:
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Date Reported: January 11, 2019
Date Printed: January 11, 2019

ANALYTICAL RESULTS

Client: Brecheisen Engineering, Inc.
Work Order: 18120406 Revision 2
Project: 16-2FMEHS-00013, Fifth Ave. Eco Orchard, 3001-
Lab ID: 18120406-016

Client Sample ID: SB-4 (0-3)
Collection Date: 12/13/2018 10:00:00 AM
Matrix: Soil

Analyses	Result	RL	Qualifier	Units	DF	Date Analyzed
Percent Moisture	**D2974**			Prep Date: **12/17/2018**		Analyst: **RW**
Percent Moisture	22.2	0.2	*	wt%	1	12/18/2018

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
HT - Sample received past holding time
* - Non-accredited parameter
RL - Reporting / Quantitation Limit for the analysis
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Date Reported: January 11, 2019
Date Printed: January 11, 2019

ANALYTICAL RESULTS

Client: Brecheisen Engineering, Inc.
Work Order: 18120406 Revision 2
Project: 16-2FMEHS-00013, Fifth Ave. Eco Orchard, 3001-
Lab ID: 18120406-017

Client Sample ID: SB-4 (3-6)
Collection Date: 12/13/2018 10:05:00 AM
Matrix: Soil

Analyses	Result	RL	Qualifier	Units	DF	Date Analyzed
BTEX by GC/MS	**SW5035/8260B**			Prep Date: **12/14/2018**		Analyst: **AET**
Benzene	ND	0.0047		mg/Kg-dry	1	12/15/2018
Ethylbenzene	ND	0.0047		mg/Kg-dry	1	12/15/2018
Toluene	ND	0.0047		mg/Kg-dry	1	12/15/2018
Xylenes, Total	ND	0.014		mg/Kg-dry	1	12/15/2018
Polynuclear Aromatic Hydrocarbons by GC/MS	**SW8270C (SW3550B)**			Prep Date: **12/19/2018**		Analyst: **FP**
Acenaphthene	0.95	0.039		mg/Kg-dry	1	12/19/2018
Acenaphthylene	0.42	0.039		mg/Kg-dry	1	12/19/2018
Anthracene	2.5	0.039		mg/Kg-dry	1	12/19/2018
Benz(a)anthracene	4.2	0.039		mg/Kg-dry	1	12/19/2018
Benzo(a)pyrene	3.6	0.039		mg/Kg-dry	1	12/19/2018
Benzo(b)fluoranthene	3.2	0.039		mg/Kg-dry	1	12/19/2018
Benzo(g,h,i)perylene	2.0	0.039		mg/Kg-dry	1	12/19/2018
Benzo(k)fluoranthene	3.1	0.039		mg/Kg-dry	1	12/19/2018
Chrysene	4.2	0.039		mg/Kg-dry	1	12/19/2018
Dibenz(a,h)anthracene	1.1	0.039		mg/Kg-dry	1	12/19/2018
Fluoranthene	9.1	0.19		mg/Kg-dry	5	12/20/2018
Fluorene	1.4	0.039		mg/Kg-dry	1	12/19/2018
Indeno(1,2,3-cd)pyrene	1.8	0.039		mg/Kg-dry	1	12/19/2018
Naphthalene	1.4	0.039		mg/Kg-dry	1	12/19/2018
Phenanthrene	9.6	0.19		mg/Kg-dry	5	12/20/2018
Pyrene	7.6	0.19		mg/Kg-dry	5	12/20/2018
Metals by ICP/MS	**SW6020A (SW3050B)**			Prep Date: **12/18/2018**		Analyst: **JG**
Arsenic	13	1.0		mg/Kg-dry	10	12/18/2018
Barium	75	1.0		mg/Kg-dry	10	12/18/2018
Cadmium	ND	0.50		mg/Kg-dry	10	12/18/2018
Chromium	23	1.0		mg/Kg-dry	10	12/18/2018
Lead	120	0.50		mg/Kg-dry	10	12/18/2018
Selenium	ND	1.0		mg/Kg-dry	10	12/18/2018
Silver	ND	1.0		mg/Kg-dry	10	12/18/2018
Mercury	**SW7471B**			Prep Date: **12/18/2018**		Analyst: **LB**
Mercury	0.045	0.021		mg/Kg-dry	1	12/19/2018
pH (25 °C)	**SW9045C**			Prep Date: **12/17/2018**		Analyst: **JT**
pH	8.51			pH Units	1	12/17/2018
Percent Moisture	**D2974**			Prep Date: **12/17/2018**		Analyst: **RW**
Percent Moisture	15.7	0.2	*	wt%	1	12/18/2018

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
HT - Sample received past holding time
* - Non-accredited parameter
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Date Reported: January 11, 2019
Date Printed: January 11, 2019

ANALYTICAL RESULTS

Client: Brecheisen Engineering, Inc.
Work Order: 18120406 Revision 2
Project: 16-2FMEHS-00013, Fifth Ave. Eco Orchard, 3001-
Lab ID: 18120406-018

Client Sample ID: SB-4 (6-9)
Collection Date: 12/13/2018 10:10:00 AM
Matrix: Soil

Analyses	Result	RL	Qualifier	Units	DF	Date Analyzed
Polynuclear Aromatic Hydrocarbons by GC/MS SW8270C (SW3550B)				Prep Date: **12/26/2018**		Analyst: **FP**
Acenaphthene	0.22	0.041		mg/Kg-dry	1	12/26/2018
Acenaphthylene	0.065	0.041		mg/Kg-dry	1	12/26/2018
Anthracene	0.59	0.041		mg/Kg-dry	1	12/26/2018
Benz(a)anthracene	0.83	0.041		mg/Kg-dry	1	12/26/2018
Benzo(a)pyrene	0.68	0.041		mg/Kg-dry	1	12/26/2018
Benzo(b)fluoranthene	0.60	0.041		mg/Kg-dry	1	12/26/2018
Benzo(g,h,i)perylene	0.39	0.041		mg/Kg-dry	1	12/26/2018
Benzo(k)fluoranthene	0.58	0.041		mg/Kg-dry	1	12/26/2018
Chrysene	0.82	0.041		mg/Kg-dry	1	12/26/2018
Dibenz(a,h)anthracene	0.21	0.041		mg/Kg-dry	1	12/26/2018
Fluoranthene	2.0	0.041		mg/Kg-dry	1	12/26/2018
Fluorene	0.36	0.041		mg/Kg-dry	1	12/26/2018
Indeno(1,2,3-cd)pyrene	0.34	0.041		mg/Kg-dry	1	12/26/2018
Naphthalene	0.45	0.041		mg/Kg-dry	1	12/26/2018
Phenanthrene	2.3	0.041		mg/Kg-dry	1	12/26/2018
Pyrene	1.6	0.041		mg/Kg-dry	1	12/26/2018
Metals by ICP/MS SW6020A (SW3050B)				Prep Date: **1/3/2019**		Analyst: **JG**
Lead	18	0.61		mg/Kg-dry	10	1/4/2019
Percent Moisture D2974				Prep Date: **12/17/2018**		Analyst: **RW**
Percent Moisture	19.4	0.2	*	wt%	1	12/18/2018

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Date Reported: January 11, 2019
Date Printed: January 11, 2019

ANALYTICAL RESULTS

Client: Brecheisen Engineering, Inc.
Work Order: 18120406 Revision 2
Project: 16-2FMEHS-00013, Fifth Ave. Eco Orchard, 3001-
Lab ID: 18120406-021

Client Sample ID: SB-5 (0-3)
Collection Date: 12/13/2018 10:30:00 AM
Matrix: Soil

Analyses	Result	RL	Qualifier	Units	DF	Date Analyzed
BTEX by GC/MS	**SW5035/8260B**			Prep Date: **12/14/2018**		Analyst: **AET**
Benzene	ND	0.0054		mg/Kg-dry	1	12/15/2018
Ethylbenzene	ND	0.0054		mg/Kg-dry	1	12/15/2018
Toluene	ND	0.0054		mg/Kg-dry	1	12/15/2018
Xylenes, Total	ND	0.016		mg/Kg-dry	1	12/15/2018
Polynuclear Aromatic Hydrocarbons by GC/MS	**SW8270C (SW3550B)**			Prep Date: **12/19/2018**		Analyst: **FP**
Acenaphthene	0.76	0.040		mg/Kg-dry	1	12/19/2018
Acenaphthylene	ND	0.040		mg/Kg-dry	1	12/19/2018
Anthracene	4.0	0.040		mg/Kg-dry	1	12/19/2018
Benz(a)anthracene	7.7	0.20		mg/Kg-dry	5	12/20/2018
Benzo(a)pyrene	6.2	0.20		mg/Kg-dry	5	12/20/2018
Benzo(b)fluoranthene	5.8	0.20		mg/Kg-dry	5	12/20/2018
Benzo(g,h,i)perylene	4.0	0.040		mg/Kg-dry	1	12/19/2018
Benzo(k)fluoranthene	5.2	0.20		mg/Kg-dry	5	12/20/2018
Chrysene	7.9	0.20		mg/Kg-dry	5	12/20/2018
Dibenz(a,h)anthracene	2.1	0.040		mg/Kg-dry	1	12/19/2018
Fluoranthene	17	0.20		mg/Kg-dry	5	12/20/2018
Fluorene	1.1	0.040		mg/Kg-dry	1	12/19/2018
Indeno(1,2,3-cd)pyrene	3.8	0.040		mg/Kg-dry	1	12/19/2018
Naphthalene	0.067	0.040		mg/Kg-dry	1	12/19/2018
Phenanthrene	16	0.20		mg/Kg-dry	5	12/20/2018
Pyrene	16	0.20		mg/Kg-dry	5	12/20/2018
Metals by ICP/MS	**SW6020A (SW3050B)**			Prep Date: **12/18/2018**		Analyst: **JG**
Arsenic	6.9	1.0		mg/Kg-dry	10	12/18/2018
Barium	92	1.0		mg/Kg-dry	10	12/18/2018
Cadmium	ND	0.51		mg/Kg-dry	10	12/18/2018
Chromium	9.2	1.0		mg/Kg-dry	10	12/18/2018
Lead	170	0.51		mg/Kg-dry	10	12/18/2018
Selenium	ND	1.0		mg/Kg-dry	10	12/18/2018
Silver	ND	1.0		mg/Kg-dry	10	12/18/2018
Mercury	**SW7471B**			Prep Date: **12/18/2018**		Analyst: **LB**
Mercury	0.15	0.023		mg/Kg-dry	1	12/19/2018
pH (25 °C)	**SW9045C**			Prep Date: **12/17/2018**		Analyst: **JT**
pH	7.75			pH Units	1	12/17/2018
Percent Moisture	**D2974**			Prep Date: **12/17/2018**		Analyst: **RW**
Percent Moisture	17.8	0.2	*	wt%	1	12/18/2018

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Date Reported: January 11, 2019
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ANALYTICAL RESULTS

Client: Brecheisen Engineering, Inc.
Work Order: 18120406 Revision 2
Project: 16-2FMEHS-00013, Fifth Ave. Eco Orchard, 3001-
Lab ID: 18120406-023

Client Sample ID: SB-5 (6-9)
Collection Date: 12/13/2018 10:40:00 AM
Matrix: Soil

Analyses	Result	RL	Qualifier	Units	DF	Date Analyzed
BTEX by GC/MS	**SW5035/8260B**			Prep Date: **12/14/2018**		Analyst: **AET**
Benzene	ND	0.0047		mg/Kg-dry	1	12/15/2018
Ethylbenzene	ND	0.0047		mg/Kg-dry	1	12/15/2018
Toluene	ND	0.0047		mg/Kg-dry	1	12/15/2018
Xylenes, Total	ND	0.015		mg/Kg-dry	1	12/15/2018
Polynuclear Aromatic Hydrocarbons by GC/MS	**SW8270C (SW3550B)**			Prep Date: **12/19/2018**		Analyst: **FP**
Acenaphthene	ND	0.041		mg/Kg-dry	1	12/19/2018
Acenaphthylene	ND	0.041		mg/Kg-dry	1	12/19/2018
Anthracene	ND	0.041		mg/Kg-dry	1	12/19/2018
Benz(a)anthracene	ND	0.041		mg/Kg-dry	1	12/19/2018
Benzo(a)pyrene	ND	0.041		mg/Kg-dry	1	12/19/2018
Benzo(b)fluoranthene	ND	0.041		mg/Kg-dry	1	12/19/2018
Benzo(g,h,i)perylene	ND	0.041		mg/Kg-dry	1	12/19/2018
Benzo(k)fluoranthene	ND	0.041		mg/Kg-dry	1	12/19/2018
Chrysene	ND	0.041		mg/Kg-dry	1	12/19/2018
Dibenz(a,h)anthracene	ND	0.041		mg/Kg-dry	1	12/19/2018
Fluoranthene	ND	0.041		mg/Kg-dry	1	12/19/2018
Fluorene	ND	0.041		mg/Kg-dry	1	12/19/2018
Indeno(1,2,3-cd)pyrene	ND	0.041		mg/Kg-dry	1	12/19/2018
Naphthalene	ND	0.041		mg/Kg-dry	1	12/19/2018
Phenanthrene	ND	0.041		mg/Kg-dry	1	12/19/2018
Pyrene	ND	0.041		mg/Kg-dry	1	12/19/2018
Metals by ICP/MS	**SW6020A (SW3050B)**			Prep Date: **12/18/2018**		Analyst: **JG**
Arsenic	11	1.1		mg/Kg-dry	10	12/18/2018
Barium	54	1.1		mg/Kg-dry	10	12/18/2018
Cadmium	ND	0.55		mg/Kg-dry	10	12/18/2018
Chromium	22	1.1		mg/Kg-dry	10	12/18/2018
Lead	19	0.55		mg/Kg-dry	10	12/18/2018
Selenium	ND	1.1		mg/Kg-dry	10	12/18/2018
Silver	ND	1.1		mg/Kg-dry	10	12/18/2018
Mercury	**SW7471B**			Prep Date: **12/18/2018**		Analyst: **LB**
Mercury	0.031	0.021		mg/Kg-dry	1	12/19/2018
pH (25 °C)	**SW9045C**			Prep Date: **12/17/2018**		Analyst: **JT**
pH	8.07			pH Units	1	12/17/2018
Organic Matter / Carbon	**D2974**			Prep Date: **1/2/2019**		Analyst: **RW**
Organic Carbon Content	1.13	0.01	*	wt%	1	1/3/2019
Organic Matter	1.95	0.01	*	wt%	1	1/3/2019

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ANALYTICAL RESULTS

Client: Brecheisen Engineering, Inc.
Work Order: 18120406 Revision 2
Project: 16-2FMEHS-00013, Fifth Ave. Eco Orchard, 3001-
Lab ID: 18120406-023

Client Sample ID: SB-5 (6-9)
Collection Date: 12/13/2018 10:40:00 AM
Matrix: Soil

Analyses	Result	RL	Qualifier	Units	DF	Date Analyzed
Percent Moisture	**D2974**			Prep Date: **12/17/2018**		Analyst: **RW**
Percent Moisture	19.8	0.2	*	wt%	1	12/18/2018

Qualifiers:
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ANALYTICAL RESULTS

Client: Brecheisen Engineering, Inc.
Work Order: 18120406 Revision 2
Project: 16-2FMEHS-00013, Fifth Ave. Eco Orchard, 3001-
Lab ID: 18120406-026

Client Sample ID: SB-6 (0-3)
Collection Date: 12/13/2018 11:05:00 AM
Matrix: Soil

Analyses	Result	RL	Qualifier	Units	DF	Date Analyzed
Volatile Organic Compounds by GC/MS	**SW5035/8260B**			Prep Date: **12/14/2018**		Analyst: **CBG**
Acetone	ND	0.073		mg/Kg-dry	1	12/17/2018
Benzene	ND	0.0049		mg/Kg-dry	1	12/17/2018
Bromodichloromethane	ND	0.0049		mg/Kg-dry	1	12/17/2018
Bromoform	ND	0.0049		mg/Kg-dry	1	12/17/2018
Bromomethane	ND	0.0098		mg/Kg-dry	1	12/17/2018
2-Butanone	ND	0.073		mg/Kg-dry	1	12/17/2018
Carbon disulfide	ND	0.049		mg/Kg-dry	1	12/17/2018
Carbon tetrachloride	ND	0.0049		mg/Kg-dry	1	12/17/2018
Chlorobenzene	ND	0.0049		mg/Kg-dry	1	12/17/2018
Chloroethane	ND	0.0098		mg/Kg-dry	1	12/17/2018
Chloroform	ND	0.0049		mg/Kg-dry	1	12/17/2018
Chloromethane	ND	0.0098		mg/Kg-dry	1	12/17/2018
Dibromochloromethane	ND	0.0049		mg/Kg-dry	1	12/17/2018
1,1-Dichloroethane	ND	0.0049		mg/Kg-dry	1	12/17/2018
1,2-Dichloroethane	ND	0.0049		mg/Kg-dry	1	12/17/2018
1,1-Dichloroethene	ND	0.0049		mg/Kg-dry	1	12/17/2018
cis-1,2-Dichloroethene	ND	0.0049		mg/Kg-dry	1	12/17/2018
trans-1,2-Dichloroethene	ND	0.0049		mg/Kg-dry	1	12/17/2018
1,2-Dichloropropane	ND	0.0049		mg/Kg-dry	1	12/17/2018
cis-1,3-Dichloropropene	ND	0.0019		mg/Kg-dry	1	12/17/2018
trans-1,3-Dichloropropene	ND	0.0019		mg/Kg-dry	1	12/17/2018
Ethylbenzene	ND	0.0049		mg/Kg-dry	1	12/17/2018
2-Hexanone	ND	0.019		mg/Kg-dry	1	12/17/2018
4-Methyl-2-pentanone	ND	0.019		mg/Kg-dry	1	12/17/2018
Methylene chloride	ND	0.0098		mg/Kg-dry	1	12/17/2018
Methyl tert-butyl ether	ND	0.0049		mg/Kg-dry	1	12/17/2018
Styrene	ND	0.0049		mg/Kg-dry	1	12/17/2018
1,1,2,2-Tetrachloroethane	ND	0.0049		mg/Kg-dry	1	12/17/2018
Tetrachloroethene	ND	0.0049		mg/Kg-dry	1	12/17/2018
Toluene	ND	0.0049		mg/Kg-dry	1	12/17/2018
1,1,1-Trichloroethane	ND	0.0049		mg/Kg-dry	1	12/17/2018
1,1,2-Trichloroethane	ND	0.0049		mg/Kg-dry	1	12/17/2018
Trichloroethene	ND	0.0049		mg/Kg-dry	1	12/17/2018
Vinyl chloride	ND	0.0049		mg/Kg-dry	1	12/17/2018
Xylenes, Total	ND	0.015		mg/Kg-dry	1	12/17/2018
Semivolatile Organic Compounds by GC/MS	**SW8270C (SW3550B)**			Prep Date: **12/19/2018**		Analyst: **FP**
Acenaphthene	ND	0.35		mg/Kg-dry	1	12/19/2018
Acenaphthylene	ND	0.35		mg/Kg-dry	1	12/19/2018

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Date Reported: January 11, 2019
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ANALYTICAL RESULTS

Client: Brecheisen Engineering, Inc.
Work Order: 18120406 Revision 2
Project: 16-2FMEHS-00013, Fifth Ave. Eco Orchard, 3001-
Lab ID: 18120406-026

Client Sample ID: SB-6 (0-3)
Collection Date: 12/13/2018 11:05:00 AM
Matrix: Soil

Analyses	Result	RL	Qualifier	Units	DF	Date Analyzed
Semivolatile Organic Compounds by GC/MS	**SW8270C (SW3550B)**			Prep Date: **12/19/2018**		Analyst: **FP**
Aniline	ND	3.6		mg/Kg-dry	1	12/19/2018
Anthracene	ND	0.35		mg/Kg-dry	1	12/19/2018
Benz(a)anthracene	ND	0.35		mg/Kg-dry	1	12/19/2018
Benzidine	ND	3.5		mg/Kg-dry	1	12/19/2018
Benzo(a)pyrene	ND	0.35		mg/Kg-dry	1	12/19/2018
Benzo(b)fluoranthene	ND	0.35		mg/Kg-dry	1	12/19/2018
Benzo(g,h,i)perylene	ND	0.35		mg/Kg-dry	1	12/19/2018
Benzo(k)fluoranthene	ND	0.35		mg/Kg-dry	1	12/19/2018
Benzoic acid	ND	8.9		mg/Kg-dry	1	12/19/2018
Benzyl alcohol	ND	1.8		mg/Kg-dry	1	12/19/2018
Bis(2-chloroethoxy)methane	ND	1.8		mg/Kg-dry	1	12/19/2018
Bis(2-chloroethyl)ether	ND	1.8		mg/Kg-dry	1	12/19/2018
Bis(2-ethylhexyl)phthalate	ND	8.9		mg/Kg-dry	1	12/19/2018
4-Bromophenyl phenyl ether	ND	1.8		mg/Kg-dry	1	12/19/2018
Butyl benzyl phthalate	ND	1.8		mg/Kg-dry	1	12/19/2018
Carbazole	ND	1.8		mg/Kg-dry	1	12/19/2018
4-Chloroaniline	ND	1.8		mg/Kg-dry	1	12/19/2018
4-Chloro-3-methylphenol	ND	3.5		mg/Kg-dry	1	12/19/2018
2-Chloronaphthalene	ND	1.8		mg/Kg-dry	1	12/19/2018
2-Chlorophenol	ND	1.8		mg/Kg-dry	1	12/19/2018
4-Chlorophenyl phenyl ether	ND	1.8		mg/Kg-dry	1	12/19/2018
Chrysene	ND	0.35		mg/Kg-dry	1	12/19/2018
Dibenz(a,h)anthracene	ND	0.35		mg/Kg-dry	1	12/19/2018
Dibenzofuran	ND	1.8		mg/Kg-dry	1	12/19/2018
1,2-Dichlorobenzene	ND	1.8		mg/Kg-dry	1	12/19/2018
1,3-Dichlorobenzene	ND	1.8		mg/Kg-dry	1	12/19/2018
1,4-Dichlorobenzene	ND	1.8		mg/Kg-dry	1	12/19/2018
3,3´-Dichlorobenzidine	ND	1.8		mg/Kg-dry	1	12/19/2018
2,4-Dichlorophenol	ND	1.8		mg/Kg-dry	1	12/19/2018
Diethyl phthalate	ND	1.8		mg/Kg-dry	1	12/19/2018
2,4-Dimethylphenol	ND	1.8		mg/Kg-dry	1	12/19/2018
Dimethyl phthalate	ND	1.8		mg/Kg-dry	1	12/19/2018
4,6-Dinitro-2-methylphenol	ND	3.5		mg/Kg-dry	1	12/19/2018
2,4-Dinitrophenol	ND	8.9		mg/Kg-dry	1	12/19/2018
2,4-Dinitrotoluene	ND	0.35		mg/Kg-dry	1	12/19/2018
2,6-Dinitrotoluene	ND	0.35		mg/Kg-dry	1	12/19/2018
Di-n-butyl phthalate	ND	1.8		mg/Kg-dry	1	12/19/2018
Di-n-octyl phthalate	ND	1.8		mg/Kg-dry	1	12/19/2018

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Date Reported: January 11, 2019
Date Printed: January 11, 2019

ANALYTICAL RESULTS

Client: Brecheisen Engineering, Inc.
Work Order: 18120406 Revision 2
Project: 16-2FMEHS-00013, Fifth Ave. Eco Orchard, 3001-
Lab ID: 18120406-026

Client Sample ID: SB-6 (0-3)
Collection Date: 12/13/2018 11:05:00 AM
Matrix: Soil

Analyses	Result	RL	Qualifier	Units	DF	Date Analyzed
Semivolatile Organic Compounds by GC/MS	**SW8270C (SW3550B)**			Prep Date: **12/19/2018**		Analyst: **FP**
Fluoranthene	ND	0.35		mg/Kg-dry	1	12/19/2018
Fluorene	ND	0.35		mg/Kg-dry	1	12/19/2018
Hexachlorobenzene	ND	1.8		mg/Kg-dry	1	12/19/2018
Hexachlorobutadiene	ND	1.8		mg/Kg-dry	1	12/19/2018
Hexachlorocyclopentadiene	ND	1.8		mg/Kg-dry	1	12/19/2018
Hexachloroethane	ND	1.8		mg/Kg-dry	1	12/19/2018
Indeno(1,2,3-cd)pyrene	ND	0.35		mg/Kg-dry	1	12/19/2018
Isophorone	ND	1.8		mg/Kg-dry	1	12/19/2018
2-Methylnaphthalene	ND	1.8		mg/Kg-dry	1	12/19/2018
2-Methylphenol	ND	1.8		mg/Kg-dry	1	12/19/2018
4-Methylphenol	ND	1.8		mg/Kg-dry	1	12/19/2018
Naphthalene	ND	0.35		mg/Kg-dry	1	12/19/2018
2-Nitroaniline	ND	1.8		mg/Kg-dry	1	12/19/2018
3-Nitroaniline	ND	1.8		mg/Kg-dry	1	12/19/2018
4-Nitroaniline	ND	1.8		mg/Kg-dry	1	12/19/2018
2-Nitrophenol	ND	1.8		mg/Kg-dry	1	12/19/2018
4-Nitrophenol	ND	3.5		mg/Kg-dry	1	12/19/2018
Nitrobenzene	ND	0.35		mg/Kg-dry	1	12/19/2018
N-Nitrosodi-n-propylamine	ND	0.35		mg/Kg-dry	1	12/19/2018
N-Nitrosodimethylamine	ND	1.8		mg/Kg-dry	1	12/19/2018
N-Nitrosodiphenylamine	ND	0.35		mg/Kg-dry	1	12/19/2018
2, 2'-oxybis(1-Chloropropane)	ND	1.8		mg/Kg-dry	1	12/19/2018
Pentachlorophenol	ND	0.35		mg/Kg-dry	1	12/19/2018
Phenanthrene	ND	0.35		mg/Kg-dry	1	12/19/2018
Phenol	ND	1.8		mg/Kg-dry	1	12/19/2018
Pyrene	ND	0.35		mg/Kg-dry	1	12/19/2018
Pyridine	ND	7.2		mg/Kg-dry	1	12/19/2018
1,2,4-Trichlorobenzene	ND	1.8		mg/Kg-dry	1	12/19/2018
2,4,5-Trichlorophenol	ND	1.8		mg/Kg-dry	1	12/19/2018
2,4,6-Trichlorophenol	ND	1.8		mg/Kg-dry	1	12/19/2018
PCBs	**SW8082A (SW3550B)**			Prep Date: **12/18/2018**		Analyst: **GVC**
Aroclor 1016	ND	0.085		mg/Kg-dry	1	12/18/2018
Aroclor 1221	ND	0.085		mg/Kg-dry	1	12/18/2018
Aroclor 1232	ND	0.085		mg/Kg-dry	1	12/18/2018
Aroclor 1242	ND	0.085		mg/Kg-dry	1	12/18/2018
Aroclor 1248	ND	0.085		mg/Kg-dry	1	12/18/2018
Aroclor 1254	ND	0.085		mg/Kg-dry	1	12/18/2018
Aroclor 1260	ND	0.085		mg/Kg-dry	1	12/18/2018

Qualifiers:
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Date Reported: January 11, 2019
Date Printed: January 11, 2019

ANALYTICAL RESULTS

Client: Brecheisen Engineering, Inc.
Work Order: 18120406 Revision 2
Project: 16-2FMEHS-00013, Fifth Ave. Eco Orchard, 3001-
Lab ID: 18120406-026

Client Sample ID: SB-6 (0-3)
Collection Date: 12/13/2018 11:05:00 AM
Matrix: Soil

Analyses	Result	RL	Qualifier	Units	DF	Date Analyzed
Pesticides		**SW8081B (SW3550B)**		Prep Date: **12/18/2018**		Analyst: **GVC**
4,4´-DDD	ND	0.0017		mg/Kg-dry	1	12/18/2018
4,4´-DDE	ND	0.0017		mg/Kg-dry	1	12/18/2018
4,4´-DDT	ND	0.0017		mg/Kg-dry	1	12/18/2018
Aldrin	ND	0.0017		mg/Kg-dry	1	12/18/2018
alpha-BHC	ND	0.0017		mg/Kg-dry	1	12/18/2018
alpha-Chlordane	ND	0.0017		mg/Kg-dry	1	12/18/2018
beta-BHC	ND	0.0017		mg/Kg-dry	1	12/18/2018
Chlordane	ND	0.017		mg/Kg-dry	1	12/18/2018
delta-BHC	ND	0.0017		mg/Kg-dry	1	12/18/2018
Dieldrin	ND	0.0017		mg/Kg-dry	1	12/18/2018
Endosulfan I	ND	0.0017		mg/Kg-dry	1	12/18/2018
Endosulfan II	ND	0.0017		mg/Kg-dry	1	12/18/2018
Endosulfan sulfate	ND	0.0017		mg/Kg-dry	1	12/18/2018
Endrin	ND	0.0017		mg/Kg-dry	1	12/18/2018
Endrin aldehyde	ND	0.0017		mg/Kg-dry	1	12/18/2018
Endrin ketone	ND	0.0017		mg/Kg-dry	1	12/18/2018
gamma-BHC	ND	0.0017		mg/Kg-dry	1	12/18/2018
gamma-Chlordane	ND	0.0017		mg/Kg-dry	1	12/18/2018
Heptachlor	ND	0.0017		mg/Kg-dry	1	12/18/2018
Heptachlor epoxide	ND	0.0017		mg/Kg-dry	1	12/18/2018
Methoxychlor	ND	0.0017		mg/Kg-dry	1	12/18/2018
Toxaphene	ND	0.035		mg/Kg-dry	1	12/18/2018
Herbicides in Soil		**SW8321B (SW3550B)**		Prep Date: **12/17/2018**		Analyst: **MEP**
2,4,5-TP (Silvex)	ND	0.0035		mg/Kg-dry	1	12/18/2018
2,4-D	ND	0.0035		mg/Kg-dry	1	12/18/2018
Dalapon	ND	0.035		mg/Kg-dry	1	12/18/2018
Dinoseb	ND	0.0071		mg/Kg-dry	1	12/18/2018
Pentachlorophenol	ND	0.011	*	mg/Kg-dry	1	12/18/2018
Picloram	ND	0.0071	*	mg/Kg-dry	1	12/18/2018
Metals by ICP/MS		**SW6020A (SW3050B)**		Prep Date: **12/18/2018**		Analyst: **JG**
Aluminum	1900	18		mg/Kg-dry	10	12/18/2018
Antimony	ND	1.8		mg/Kg-dry	10	12/18/2018
Arsenic	9.9	0.89		mg/Kg-dry	10	12/18/2018
Barium	12	0.89		mg/Kg-dry	10	12/18/2018
Beryllium	ND	0.45		mg/Kg-dry	10	12/18/2018
Cadmium	ND	0.45		mg/Kg-dry	10	12/18/2018
Calcium	220000	540		mg/Kg-dry	100	12/19/2018

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Date Reported: January 11, 2019
Date Printed: January 11, 2019

ANALYTICAL RESULTS

Client: Brecheisen Engineering, Inc.
Work Order: 18120406 Revision 2
Project: 16-2FMEHS-00013, Fifth Ave. Eco Orchard, 3001-
Lab ID: 18120406-026

Client Sample ID: SB-6 (0-3)
Collection Date: 12/13/2018 11:05:00 AM
Matrix: Soil

Analyses	Result	RL	Qualifier	Units	DF	Date Analyzed
Metals by ICP/MS	**SW6020A (SW3050B)**			Prep Date: **12/18/2018**		Analyst: **JG**
Chromium	4.0	0.89		mg/Kg-dry	10	12/18/2018
Cobalt	5.0	0.89		mg/Kg-dry	10	12/18/2018
Copper	5.3	2.2		mg/Kg-dry	10	12/18/2018
Iron	5300	27		mg/Kg-dry	10	12/18/2018
Lead	18	0.45		mg/Kg-dry	10	12/18/2018
Magnesium	130000	270		mg/Kg-dry	100	12/19/2018
Manganese	210	0.89		mg/Kg-dry	10	12/18/2018
Nickel	9.6	0.89		mg/Kg-dry	10	12/18/2018
Potassium	850	27		mg/Kg-dry	10	12/18/2018
Selenium	ND	0.89		mg/Kg-dry	10	12/18/2018
Silver	ND	0.89		mg/Kg-dry	10	12/18/2018
Sodium	ND	540		mg/Kg-dry	100	12/19/2018
Thallium	ND	0.89		mg/Kg-dry	10	12/18/2018
Vanadium	8.5	0.89		mg/Kg-dry	10	12/18/2018
Zinc	15	4.5		mg/Kg-dry	10	12/18/2018
Mercury	**SW7471B**			Prep Date: **12/18/2018**		Analyst: **LB**
Mercury	0.028	0.020		mg/Kg-dry	1	12/19/2018
Cyanide, Total	**SW9012A**			Prep Date: **12/18/2018**		Analyst: **CAB**
Cyanide	ND	0.27		mg/Kg-dry	1	12/18/2018
pH (25 °C)	**SW9045C**			Prep Date: **12/17/2018**		Analyst: **JT**
pH	8.10			pH Units	1	12/17/2018
Percent Moisture	**D2974**			Prep Date: **12/17/2018**		Analyst: **RW**
Percent Moisture	6.9	0.2	*	wt%	1	12/18/2018

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Date Reported: January 11, 2019
Date Printed: January 11, 2019

ANALYTICAL RESULTS

Client: Brecheisen Engineering, Inc.
Work Order: 18120406 Revision 2
Project: 16-2FMEHS-00013, Fifth Ave. Eco Orchard, 3001-
Lab ID: 18120406-027

Client Sample ID: SB-6 (3-6)
Collection Date: 12/13/2018 11:10:00 AM
Matrix: Soil

Analyses	Result	RL	Qualifier	Units	DF	Date Analyzed
Volatile Organic Compounds by GC/MS	**SW5035/8260B**			Prep Date: **12/14/2018**		Analyst: **CBG**
Acetone	ND	0.071		mg/Kg-dry	1	12/17/2018
Benzene	ND	0.0047		mg/Kg-dry	1	12/17/2018
Bromodichloromethane	ND	0.0047		mg/Kg-dry	1	12/17/2018
Bromoform	ND	0.0047		mg/Kg-dry	1	12/17/2018
Bromomethane	ND	0.0093		mg/Kg-dry	1	12/17/2018
2-Butanone	ND	0.071		mg/Kg-dry	1	12/17/2018
Carbon disulfide	ND	0.047		mg/Kg-dry	1	12/17/2018
Carbon tetrachloride	ND	0.0047		mg/Kg-dry	1	12/17/2018
Chlorobenzene	ND	0.0047		mg/Kg-dry	1	12/17/2018
Chloroethane	ND	0.0093		mg/Kg-dry	1	12/17/2018
Chloroform	ND	0.0047		mg/Kg-dry	1	12/17/2018
Chloromethane	ND	0.0093		mg/Kg-dry	1	12/17/2018
Dibromochloromethane	ND	0.0047		mg/Kg-dry	1	12/17/2018
1,1-Dichloroethane	ND	0.0047		mg/Kg-dry	1	12/17/2018
1,2-Dichloroethane	ND	0.0047		mg/Kg-dry	1	12/17/2018
1,1-Dichloroethene	ND	0.0047		mg/Kg-dry	1	12/17/2018
cis-1,2-Dichloroethene	ND	0.0047		mg/Kg-dry	1	12/17/2018
trans-1,2-Dichloroethene	ND	0.0047		mg/Kg-dry	1	12/17/2018
1,2-Dichloropropane	ND	0.0047		mg/Kg-dry	1	12/17/2018
cis-1,3-Dichloropropene	ND	0.0019		mg/Kg-dry	1	12/17/2018
trans-1,3-Dichloropropene	ND	0.0019		mg/Kg-dry	1	12/17/2018
Ethylbenzene	ND	0.0047		mg/Kg-dry	1	12/17/2018
2-Hexanone	ND	0.019		mg/Kg-dry	1	12/17/2018
4-Methyl-2-pentanone	ND	0.019		mg/Kg-dry	1	12/17/2018
Methylene chloride	ND	0.0093		mg/Kg-dry	1	12/17/2018
Methyl tert-butyl ether	ND	0.0047		mg/Kg-dry	1	12/17/2018
Styrene	ND	0.0047		mg/Kg-dry	1	12/17/2018
1,1,2,2-Tetrachloroethane	ND	0.0047		mg/Kg-dry	1	12/17/2018
Tetrachloroethene	ND	0.0047		mg/Kg-dry	1	12/17/2018
Toluene	ND	0.0047		mg/Kg-dry	1	12/17/2018
1,1,1-Trichloroethane	ND	0.0047		mg/Kg-dry	1	12/17/2018
1,1,2-Trichloroethane	ND	0.0047		mg/Kg-dry	1	12/17/2018
Trichloroethene	ND	0.0047		mg/Kg-dry	1	12/17/2018
Vinyl chloride	ND	0.0047		mg/Kg-dry	1	12/17/2018
Xylenes, Total	ND	0.014		mg/Kg-dry	1	12/17/2018
Semivolatile Organic Compounds by GC/MS	**SW8270C (SW3550B)**			Prep Date: **12/19/2018**		Analyst: **FP**
Acenaphthene	0.057	0.039		mg/Kg-dry	1	12/19/2018
Acenaphthylene	0.097	0.039		mg/Kg-dry	1	12/19/2018

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Date Reported: January 11, 2019
Date Printed: January 11, 2019

ANALYTICAL RESULTS

Client: Brecheisen Engineering, Inc.
Work Order: 18120406 Revision 2
Project: 16-2FMEHS-00013, Fifth Ave. Eco Orchard, 3001-
Lab ID: 18120406-027

Client Sample ID: SB-6 (3-6)
Collection Date: 12/13/2018 11:10:00 AM
Matrix: Soil

Analyses	Result	RL	Qualifier	Units	DF	Date Analyzed
Semivolatile Organic Compounds by GC/MS	**SW8270C (SW3550B)**			Prep Date: **12/19/2018**		Analyst: **FP**
Aniline	ND	0.39		mg/Kg-dry	1	12/19/2018
Anthracene	0.24	0.039		mg/Kg-dry	1	12/19/2018
Benz(a)anthracene	0.77	0.039		mg/Kg-dry	1	12/19/2018
Benzidine	ND	0.39		mg/Kg-dry	1	12/19/2018
Benzo(a)pyrene	0.76	0.039		mg/Kg-dry	1	12/19/2018
Benzo(b)fluoranthene	0.70	0.039		mg/Kg-dry	1	12/19/2018
Benzo(g,h,i)perylene	0.50	0.039		mg/Kg-dry	1	12/19/2018
Benzo(k)fluoranthene	0.66	0.039		mg/Kg-dry	1	12/19/2018
Benzoic acid	ND	0.98		mg/Kg-dry	1	12/19/2018
Benzyl alcohol	ND	0.20		mg/Kg-dry	1	12/19/2018
Bis(2-chloroethoxy)methane	ND	0.20		mg/Kg-dry	1	12/19/2018
Bis(2-chloroethyl)ether	ND	0.20		mg/Kg-dry	1	12/19/2018
Bis(2-ethylhexyl)phthalate	ND	0.98		mg/Kg-dry	1	12/19/2018
4-Bromophenyl phenyl ether	ND	0.20		mg/Kg-dry	1	12/19/2018
Butyl benzyl phthalate	ND	0.20		mg/Kg-dry	1	12/19/2018
Carbazole	ND	0.20		mg/Kg-dry	1	12/19/2018
4-Chloroaniline	ND	0.20		mg/Kg-dry	1	12/19/2018
4-Chloro-3-methylphenol	ND	0.39		mg/Kg-dry	1	12/19/2018
2-Chloronaphthalene	ND	0.20		mg/Kg-dry	1	12/19/2018
2-Chlorophenol	ND	0.20		mg/Kg-dry	1	12/19/2018
4-Chlorophenyl phenyl ether	ND	0.20		mg/Kg-dry	1	12/19/2018
Chrysene	0.82	0.039		mg/Kg-dry	1	12/19/2018
Dibenz(a,h)anthracene	0.24	0.039		mg/Kg-dry	1	12/19/2018
Dibenzofuran	ND	0.20		mg/Kg-dry	1	12/19/2018
1,2-Dichlorobenzene	ND	0.20		mg/Kg-dry	1	12/19/2018
1,3-Dichlorobenzene	ND	0.20		mg/Kg-dry	1	12/19/2018
1,4-Dichlorobenzene	ND	0.20		mg/Kg-dry	1	12/19/2018
3,3´-Dichlorobenzidine	ND	0.20		mg/Kg-dry	1	12/19/2018
2,4-Dichlorophenol	ND	0.20		mg/Kg-dry	1	12/19/2018
Diethyl phthalate	ND	0.20		mg/Kg-dry	1	12/19/2018
2,4-Dimethylphenol	ND	0.20		mg/Kg-dry	1	12/19/2018
Dimethyl phthalate	ND	0.20		mg/Kg-dry	1	12/19/2018
4,6-Dinitro-2-methylphenol	ND	0.39		mg/Kg-dry	1	12/19/2018
2,4-Dinitrophenol	ND	0.98		mg/Kg-dry	1	12/19/2018
2,4-Dinitrotoluene	ND	0.039		mg/Kg-dry	1	12/19/2018
2,6-Dinitrotoluene	ND	0.039		mg/Kg-dry	1	12/19/2018
Di-n-butyl phthalate	ND	0.20		mg/Kg-dry	1	12/19/2018
Di-n-octyl phthalate	ND	0.20		mg/Kg-dry	1	12/19/2018

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Date Reported: January 11, 2019
Date Printed: January 11, 2019

ANALYTICAL RESULTS

Client: Brecheisen Engineering, Inc.
Work Order: 18120406 Revision 2
Project: 16-2FMEHS-00013, Fifth Ave. Eco Orchard, 3001-
Lab ID: 18120406-027

Client Sample ID: SB-6 (3-6)
Collection Date: 12/13/2018 11:10:00 AM
Matrix: Soil

Analyses	Result	RL	Qualifier	Units	DF	Date Analyzed
Semivolatile Organic Compounds by GC/MS	**SW8270C (SW3550B)**			Prep Date: **12/19/2018**		Analyst: **FP**
Fluoranthene	1.6	0.039		mg/Kg-dry	1	12/19/2018
Fluorene	0.087	0.039		mg/Kg-dry	1	12/19/2018
Hexachlorobenzene	ND	0.20		mg/Kg-dry	1	12/19/2018
Hexachlorobutadiene	ND	0.20		mg/Kg-dry	1	12/19/2018
Hexachlorocyclopentadiene	ND	0.20		mg/Kg-dry	1	12/19/2018
Hexachloroethane	ND	0.20		mg/Kg-dry	1	12/19/2018
Indeno(1,2,3-cd)pyrene	0.43	0.039		mg/Kg-dry	1	12/19/2018
Isophorone	ND	0.20		mg/Kg-dry	1	12/19/2018
2-Methylnaphthalene	ND	0.20		mg/Kg-dry	1	12/19/2018
2-Methylphenol	ND	0.20		mg/Kg-dry	1	12/19/2018
4-Methylphenol	ND	0.20		mg/Kg-dry	1	12/19/2018
Naphthalene	ND	0.039		mg/Kg-dry	1	12/19/2018
2-Nitroaniline	ND	0.20		mg/Kg-dry	1	12/19/2018
3-Nitroaniline	ND	0.20		mg/Kg-dry	1	12/19/2018
4-Nitroaniline	ND	0.20		mg/Kg-dry	1	12/19/2018
2-Nitrophenol	ND	0.20		mg/Kg-dry	1	12/19/2018
4-Nitrophenol	ND	0.39		mg/Kg-dry	1	12/19/2018
Nitrobenzene	ND	0.039		mg/Kg-dry	1	12/19/2018
N-Nitrosodi-n-propylamine	ND	0.039		mg/Kg-dry	1	12/19/2018
N-Nitrosodimethylamine	ND	0.20		mg/Kg-dry	1	12/19/2018
N-Nitrosodiphenylamine	ND	0.039		mg/Kg-dry	1	12/19/2018
2, 2'-oxybis(1-Chloropropane)	ND	0.20		mg/Kg-dry	1	12/19/2018
Pentachlorophenol	ND	0.039		mg/Kg-dry	1	12/19/2018
Phenanthrene	0.98	0.039		mg/Kg-dry	1	12/19/2018
Phenol	ND	0.20		mg/Kg-dry	1	12/19/2018
Pyrene	1.4	0.039		mg/Kg-dry	1	12/19/2018
Pyridine	ND	0.79		mg/Kg-dry	1	12/19/2018
1,2,4-Trichlorobenzene	ND	0.20		mg/Kg-dry	1	12/19/2018
2,4,5-Trichlorophenol	ND	0.20		mg/Kg-dry	1	12/19/2018
2,4,6-Trichlorophenol	ND	0.20		mg/Kg-dry	1	12/19/2018
PCBs	**SW8082A (SW3550B)**			Prep Date: **12/18/2018**		Analyst: **GVC**
Aroclor 1016	ND	0.094		mg/Kg-dry	1	12/18/2018
Aroclor 1221	ND	0.094		mg/Kg-dry	1	12/18/2018
Aroclor 1232	ND	0.094		mg/Kg-dry	1	12/18/2018
Aroclor 1242	ND	0.094		mg/Kg-dry	1	12/18/2018
Aroclor 1248	ND	0.094		mg/Kg-dry	1	12/18/2018
Aroclor 1254	ND	0.094		mg/Kg-dry	1	12/18/2018
Aroclor 1260	ND	0.094		mg/Kg-dry	1	12/18/2018

Qualifiers:
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Date Reported: January 11, 2019
Date Printed: January 11, 2019

ANALYTICAL RESULTS

Client: Brecheisen Engineering, Inc.
Work Order: 18120406 Revision 2
Project: 16-2FMEHS-00013, Fifth Ave. Eco Orchard, 3001-
Lab ID: 18120406-027

Client Sample ID: SB-6 (3-6)
Collection Date: 12/13/2018 11:10:00 AM
Matrix: Soil

Analyses	Result	RL	Qualifier	Units	DF	Date Analyzed
Pesticides		**SW8081B (SW3550B)**		Prep Date: **12/18/2018**		Analyst: **GVC**
4,4´-DDD	ND	0.0019		mg/Kg-dry	1	12/18/2018
4,4´-DDE	ND	0.0019		mg/Kg-dry	1	12/18/2018
4,4´-DDT	ND	0.0019		mg/Kg-dry	1	12/18/2018
Aldrin	ND	0.0019		mg/Kg-dry	1	12/18/2018
alpha-BHC	ND	0.0019		mg/Kg-dry	1	12/18/2018
alpha-Chlordane	ND	0.0019		mg/Kg-dry	1	12/18/2018
beta-BHC	ND	0.0019		mg/Kg-dry	1	12/18/2018
Chlordane	ND	0.019		mg/Kg-dry	1	12/18/2018
delta-BHC	ND	0.0019		mg/Kg-dry	1	12/18/2018
Dieldrin	ND	0.0019		mg/Kg-dry	1	12/18/2018
Endosulfan I	ND	0.0019		mg/Kg-dry	1	12/18/2018
Endosulfan II	ND	0.0019		mg/Kg-dry	1	12/18/2018
Endosulfan sulfate	ND	0.0019		mg/Kg-dry	1	12/18/2018
Endrin	ND	0.0019		mg/Kg-dry	1	12/18/2018
Endrin aldehyde	ND	0.0019		mg/Kg-dry	1	12/18/2018
Endrin ketone	ND	0.0019		mg/Kg-dry	1	12/18/2018
gamma-BHC	ND	0.0019		mg/Kg-dry	1	12/18/2018
gamma-Chlordane	ND	0.0019		mg/Kg-dry	1	12/18/2018
Heptachlor	ND	0.0019		mg/Kg-dry	1	12/18/2018
Heptachlor epoxide	ND	0.0019		mg/Kg-dry	1	12/18/2018
Methoxychlor	ND	0.0019		mg/Kg-dry	1	12/18/2018
Toxaphene	ND	0.039		mg/Kg-dry	1	12/18/2018
Herbicides in Soil		**SW8321B (SW3550B)**		Prep Date: **12/17/2018**		Analyst: **MEP**
2,4,5-TP (Silvex)	ND	0.0039		mg/Kg-dry	1	12/18/2018
2,4-D	ND	0.0039		mg/Kg-dry	1	12/18/2018
Dalapon	ND	0.039		mg/Kg-dry	1	12/18/2018
Dinoseb	ND	0.0079		mg/Kg-dry	1	12/18/2018
Pentachlorophenol	ND	0.012	*	mg/Kg-dry	1	12/18/2018
Picloram	ND	0.0079	*	mg/Kg-dry	1	12/18/2018
Metals by ICP/MS		**SW6020A (SW3050B)**		Prep Date: **12/18/2018**		Analyst: **JG**
Aluminum	15000	20		mg/Kg-dry	10	12/18/2018
Antimony	ND	2.0		mg/Kg-dry	10	12/18/2018
Arsenic	13	1.0		mg/Kg-dry	10	12/18/2018
Barium	220	1.0		mg/Kg-dry	10	12/18/2018
Beryllium	1.2	0.50		mg/Kg-dry	10	12/18/2018
Cadmium	1.1	0.50		mg/Kg-dry	10	12/18/2018
Calcium	36000	60		mg/Kg-dry	10	12/18/2018

Qualifiers:
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Date Reported: January 11, 2019
Date Printed: January 11, 2019

ANALYTICAL RESULTS

Client: Brecheisen Engineering, Inc.
Work Order: 18120406 Revision 2
Project: 16-2FMEHS-00013, Fifth Ave. Eco Orchard, 3001-
Lab ID: 18120406-027

Client Sample ID: SB-6 (3-6)
Collection Date: 12/13/2018 11:10:00 AM
Matrix: Soil

Analyses	Result	RL	Qualifier	Units	DF	Date Analyzed
Metals by ICP/MS	**SW6020A (SW3050B)**			Prep Date: **12/18/2018**		Analyst: **JG**
Chromium	29	1.0		mg/Kg-dry	10	12/18/2018
Cobalt	12	1.0		mg/Kg-dry	10	12/18/2018
Copper	92	2.5		mg/Kg-dry	10	12/18/2018
Iron	32000	30		mg/Kg-dry	10	12/18/2018
Lead	430	0.50		mg/Kg-dry	10	12/18/2018
Magnesium	20000	30		mg/Kg-dry	10	12/18/2018
Manganese	350	1.0		mg/Kg-dry	10	12/18/2018
Nickel	35	1.0		mg/Kg-dry	10	12/18/2018
Potassium	2700	30		mg/Kg-dry	10	12/18/2018
Selenium	2.3	1.0		mg/Kg-dry	10	12/18/2018
Silver	ND	1.0		mg/Kg-dry	10	12/18/2018
Sodium	480	60		mg/Kg-dry	10	12/19/2018
Thallium	ND	1.0		mg/Kg-dry	10	12/18/2018
Vanadium	32	1.0		mg/Kg-dry	10	12/18/2018
Zinc	340	5.0		mg/Kg-dry	10	12/18/2018
Mercury	**SW7471B**			Prep Date: **12/18/2018**		Analyst: **LB**
Mercury	0.33	0.023		mg/Kg-dry	1	12/19/2018
Cyanide, Total	**SW9012A**			Prep Date: **12/18/2018**		Analyst: **CAB**
Cyanide	ND	0.30		mg/Kg-dry	1	12/18/2018
pH (25 °C)	**SW9045C**			Prep Date: **12/17/2018**		Analyst: **JT**
pH	7.55			pH Units	1	12/17/2018
Percent Moisture	**D2974**			Prep Date: **12/17/2018**		Analyst: **RW**
Percent Moisture	15.3	0.2	*	wt%	1	12/18/2018

Qualifiers:
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HT - Sample received past holding time
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Date Reported: January 11, 2019
Date Printed: January 11, 2019

ANALYTICAL RESULTS

Client: Brecheisen Engineering, Inc.
Work Order: 18120406 Revision 2
Project: 16-2FMEHS-00013, Fifth Ave. Eco Orchard, 3001-
Lab ID: 18120406-028

Client Sample ID: SB-6 (6-9)
Collection Date: 12/13/2018 11:15:00 AM
Matrix: Soil

Analyses	Result	RL	Qualifier	Units	DF	Date Analyzed
Polynuclear Aromatic Hydrocarbons by GC/MS	**SW8270C (SW3550B)**			Prep Date: **12/26/2018**		Analyst: **FP**
Acenaphthene	ND	0.041		mg/Kg-dry	1	12/26/2018
Acenaphthylene	ND	0.041		mg/Kg-dry	1	12/26/2018
Anthracene	ND	0.041		mg/Kg-dry	1	12/26/2018
Benz(a)anthracene	ND	0.041		mg/Kg-dry	1	12/26/2018
Benzo(a)pyrene	ND	0.041		mg/Kg-dry	1	12/26/2018
Benzo(b)fluoranthene	ND	0.041		mg/Kg-dry	1	12/26/2018
Benzo(g,h,i)perylene	ND	0.041		mg/Kg-dry	1	12/26/2018
Benzo(k)fluoranthene	ND	0.041		mg/Kg-dry	1	12/26/2018
Chrysene	ND	0.041		mg/Kg-dry	1	12/26/2018
Dibenz(a,h)anthracene	ND	0.041		mg/Kg-dry	1	12/26/2018
Fluoranthene	ND	0.041		mg/Kg-dry	1	12/26/2018
Fluorene	ND	0.041		mg/Kg-dry	1	12/26/2018
Indeno(1,2,3-cd)pyrene	ND	0.041		mg/Kg-dry	1	12/26/2018
Naphthalene	ND	0.041		mg/Kg-dry	1	12/26/2018
Phenanthrene	ND	0.041		mg/Kg-dry	1	12/26/2018
Pyrene	ND	0.041		mg/Kg-dry	1	12/26/2018
Metals by ICP/MS	**SW6020A (SW3050B)**			Prep Date: **1/2/2019**		Analyst: **JG**
Lead	23	1.1		mg/Kg-dry	10	1/3/2019
Mercury	**SW7471B**			Prep Date: **1/2/2019**		Analyst: **LB**
Mercury	ND	0.024		mg/Kg-dry	1	1/2/2019
Percent Moisture	**D2974**			Prep Date: **12/17/2018**		Analyst: **RW**
Percent Moisture	19.4	0.2	*	wt%	1	12/18/2018

Qualifiers:
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Date Reported: January 11, 2019
Date Printed: January 11, 2019

ANALYTICAL RESULTS

Client: Brecheisen Engineering, Inc.
Work Order: 18120406 Revision 2
Project: 16-2FMEHS-00013, Fifth Ave. Eco Orchard, 3001-
Lab ID: 18120406-031

Client Sample ID: SB-7 (0-3)
Collection Date: 12/13/2018 11:35:00 AM
Matrix: Soil

Analyses	Result	RL	Qualifier	Units	DF	Date Analyzed
BTEX by GC/MS	**SW5035/8260B**			Prep Date: **12/14/2018**		Analyst: **AET**
Benzene	ND	0.0072		mg/Kg-dry	1	12/15/2018
Ethylbenzene	ND	0.0072		mg/Kg-dry	1	12/15/2018
Toluene	ND	0.0072		mg/Kg-dry	1	12/15/2018
Xylenes, Total	ND	0.022		mg/Kg-dry	1	12/15/2018
Polynuclear Aromatic Hydrocarbons by GC/MS	**SW8270C (SW3550B)**			Prep Date: **12/19/2018**		Analyst: **DM**
Acenaphthene	0.076	0.042		mg/Kg-dry	1	12/19/2018
Acenaphthylene	0.87	0.042		mg/Kg-dry	1	12/19/2018
Anthracene	1.7	0.042		mg/Kg-dry	1	12/19/2018
Benz(a)anthracene	4.2	0.042		mg/Kg-dry	1	12/19/2018
Benzo(a)pyrene	3.0	0.042		mg/Kg-dry	1	12/19/2018
Benzo(b)fluoranthene	2.0	0.042		mg/Kg-dry	1	12/19/2018
Benzo(g,h,i)perylene	1.5	0.042		mg/Kg-dry	1	12/19/2018
Benzo(k)fluoranthene	2.2	0.042		mg/Kg-dry	1	12/19/2018
Chrysene	4.7	0.042		mg/Kg-dry	1	12/19/2018
Dibenz(a,h)anthracene	0.89	0.042		mg/Kg-dry	1	12/19/2018
Fluoranthene	5.6	0.21		mg/Kg-dry	5	12/20/2018
Fluorene	0.18	0.042		mg/Kg-dry	1	12/19/2018
Indeno(1,2,3-cd)pyrene	1.3	0.042		mg/Kg-dry	1	12/19/2018
Naphthalene	ND	0.042		mg/Kg-dry	1	12/19/2018
Phenanthrene	11	0.21		mg/Kg-dry	5	12/20/2018
Pyrene	9.0	0.21		mg/Kg-dry	5	12/20/2018
Metals by ICP/MS	**SW6020A (SW3050B)**			Prep Date: **12/18/2018**		Analyst: **JG**
Arsenic	5.2	1.1		mg/Kg-dry	10	12/18/2018
Barium	98	1.1		mg/Kg-dry	10	12/18/2018
Cadmium	0.64	0.53		mg/Kg-dry	10	12/18/2018
Chromium	37	1.1		mg/Kg-dry	10	12/18/2018
Lead	290	0.53		mg/Kg-dry	10	12/18/2018
Selenium	ND	1.1		mg/Kg-dry	10	12/18/2018
Silver	ND	1.1		mg/Kg-dry	10	12/18/2018
Mercury	**SW7471B**			Prep Date: **12/18/2018**		Analyst: **LB**
Mercury	0.25	0.022		mg/Kg-dry	1	12/19/2018
pH (25 °C)	**SW9045C**			Prep Date: **12/17/2018**		Analyst: **JT**
pH	7.82			pH Units	1	12/17/2018
Percent Moisture	**D2974**			Prep Date: **12/17/2018**		Analyst: **RW**
Percent Moisture	22.0	0.2	*	wt%	1	12/18/2018

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Date Reported: January 11, 2019
Date Printed: January 11, 2019

ANALYTICAL RESULTS

Client: Brecheisen Engineering, Inc.
Work Order: 18120406 Revision 2
Project: 16-2FMEHS-00013, Fifth Ave. Eco Orchard, 3001-
Lab ID: 18120406-032

Client Sample ID: SB-7 (6-9)
Collection Date: 12/13/2018 11:45:00 AM
Matrix: Soil

Analyses	Result	RL	Qualifier	Units	DF	Date Analyzed
BTEX by GC/MS	**SW5035/8260B**			Prep Date: **12/14/2018**		Analyst: **AET**
Benzene	ND	0.0048		mg/Kg-dry	1	12/15/2018
Ethylbenzene	ND	0.0048		mg/Kg-dry	1	12/15/2018
Toluene	ND	0.0048		mg/Kg-dry	1	12/15/2018
Xylenes, Total	ND	0.015		mg/Kg-dry	1	12/15/2018
Polynuclear Aromatic Hydrocarbons by GC/MS	**SW8270C (SW3550B)**			Prep Date: **12/19/2018**		Analyst: **DM**
Acenaphthene	ND	0.041		mg/Kg-dry	1	12/19/2018
Acenaphthylene	ND	0.041		mg/Kg-dry	1	12/19/2018
Anthracene	ND	0.041		mg/Kg-dry	1	12/19/2018
Benz(a)anthracene	ND	0.041		mg/Kg-dry	1	12/19/2018
Benzo(a)pyrene	ND	0.041		mg/Kg-dry	1	12/19/2018
Benzo(b)fluoranthene	ND	0.041		mg/Kg-dry	1	12/19/2018
Benzo(g,h,i)perylene	ND	0.041		mg/Kg-dry	1	12/19/2018
Benzo(k)fluoranthene	ND	0.041		mg/Kg-dry	1	12/19/2018
Chrysene	ND	0.041		mg/Kg-dry	1	12/19/2018
Dibenz(a,h)anthracene	ND	0.041		mg/Kg-dry	1	12/19/2018
Fluoranthene	ND	0.041		mg/Kg-dry	1	12/19/2018
Fluorene	ND	0.041		mg/Kg-dry	1	12/19/2018
Indeno(1,2,3-cd)pyrene	ND	0.041		mg/Kg-dry	1	12/19/2018
Naphthalene	ND	0.041		mg/Kg-dry	1	12/19/2018
Phenanthrene	ND	0.041		mg/Kg-dry	1	12/19/2018
Pyrene	ND	0.041		mg/Kg-dry	1	12/19/2018
Metals by ICP/MS	**SW6020A (SW3050B)**			Prep Date: **12/18/2018**		Analyst: **JG**
Arsenic	27	1.0		mg/Kg-dry	10	12/18/2018
Barium	64	1.0		mg/Kg-dry	10	12/18/2018
Cadmium	ND	0.52		mg/Kg-dry	10	12/18/2018
Chromium	23	1.0		mg/Kg-dry	10	12/18/2018
Lead	18	0.52		mg/Kg-dry	10	12/18/2018
Selenium	1.0	1.0		mg/Kg-dry	10	12/18/2018
Silver	ND	1.0		mg/Kg-dry	10	12/18/2018
Mercury	**SW7471B**			Prep Date: **12/18/2018**		Analyst: **LB**
Mercury	ND	0.023		mg/Kg-dry	1	12/19/2018
pH (25 °C)	**SW9045C**			Prep Date: **12/17/2018**		Analyst: **JT**
pH	7.94			pH Units	1	12/17/2018
Percent Moisture	**D2974**			Prep Date: **12/17/2018**		Analyst: **RW**
Percent Moisture	20.0	0.2	*	wt%	1	12/18/2018

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Date Reported: January 11, 2019
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ANALYTICAL RESULTS

Client: Brecheisen Engineering, Inc.
Work Order: 18120406 Revision 2
Project: 16-2FMEHS-00013, Fifth Ave. Eco Orchard, 3001-
Lab ID: 18120406-033

Client Sample ID: SB-7 (9-12)
Collection Date: 12/13/2018 11:50:00 AM
Matrix: Soil

Analyses	Result	RL	Qualifier	Units	DF	Date Analyzed
Metals by ICP/MS	**SW6020A**	**(SW3050B)**		Prep Date: **1/3/2019**		Analyst: **JG**
Arsenic	9.6	1.2		mg/Kg-dry	10	1/4/2019
Percent Moisture	**D2974**			Prep Date: **12/17/2018**		Analyst: **RW**
Percent Moisture	20.3	0.2	*	wt%	1	12/18/2018

Qualifiers:
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B - Analyte detected in the associated Method Blank
HT - Sample received past holding time
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Date Reported: January 11, 2019
Date Printed: January 11, 2019

ANALYTICAL RESULTS

Client: Brecheisen Engineering, Inc.
Work Order: 18120406 Revision 2
Project: 16-2FMEHS-00013, Fifth Ave. Eco Orchard, 3001-
Lab ID: 18120406-035

Client Sample ID: SB-8 (0-3)
Collection Date: 12/13/2018 12:10:00 PM
Matrix: Soil

Analyses	Result	RL	Qualifier	Units	DF	Date Analyzed
BTEX by GC/MS	**SW5035/8260B**			Prep Date: **12/14/2018**		Analyst: **AET**
Benzene	ND	0.0046		mg/Kg-dry	1	12/15/2018
Ethylbenzene	ND	0.0046		mg/Kg-dry	1	12/15/2018
Toluene	ND	0.0046		mg/Kg-dry	1	12/15/2018
Xylenes, Total	ND	0.013		mg/Kg-dry	1	12/15/2018
Polynuclear Aromatic Hydrocarbons by GC/MS	**SW8270C (SW3550B)**			Prep Date: **12/19/2018**		Analyst: **DM**
Acenaphthene	ND	0.037		mg/Kg-dry	1	12/19/2018
Acenaphthylene	ND	0.037		mg/Kg-dry	1	12/19/2018
Anthracene	0.040	0.037		mg/Kg-dry	1	12/19/2018
Benz(a)anthracene	0.22	0.037		mg/Kg-dry	1	12/19/2018
Benzo(a)pyrene	0.24	0.037		mg/Kg-dry	1	12/19/2018
Benzo(b)fluoranthene	0.27	0.037		mg/Kg-dry	1	12/19/2018
Benzo(g,h,i)perylene	0.18	0.037		mg/Kg-dry	1	12/19/2018
Benzo(k)fluoranthene	0.18	0.037		mg/Kg-dry	1	12/19/2018
Chrysene	0.22	0.037		mg/Kg-dry	1	12/19/2018
Dibenz(a,h)anthracene	ND	0.037		mg/Kg-dry	1	12/19/2018
Fluoranthene	0.37	0.037		mg/Kg-dry	1	12/19/2018
Fluorene	ND	0.037		mg/Kg-dry	1	12/19/2018
Indeno(1,2,3-cd)pyrene	0.14	0.037		mg/Kg-dry	1	12/19/2018
Naphthalene	ND	0.037		mg/Kg-dry	1	12/19/2018
Phenanthrene	0.14	0.037		mg/Kg-dry	1	12/19/2018
Pyrene	0.33	0.037		mg/Kg-dry	1	12/19/2018
Metals by ICP/MS	**SW6020A (SW3050B)**			Prep Date: **12/18/2018**		Analyst: **JG**
Arsenic	3.7	0.99		mg/Kg-dry	10	12/18/2018
Barium	20	0.99		mg/Kg-dry	10	12/18/2018
Cadmium	ND	0.49		mg/Kg-dry	10	12/18/2018
Chromium	5.4	0.99		mg/Kg-dry	10	12/18/2018
Lead	33	0.49		mg/Kg-dry	10	12/18/2018
Selenium	ND	0.99		mg/Kg-dry	10	12/18/2018
Silver	ND	0.99		mg/Kg-dry	10	12/18/2018
Mercury	**SW7471B**			Prep Date: **12/18/2018**		Analyst: **LB**
Mercury	0.044	0.021		mg/Kg-dry	1	12/19/2018
pH (25 °C)	**SW9045C**			Prep Date: **12/17/2018**		Analyst: **JT**
pH	7.67			pH Units	1	12/17/2018
Percent Moisture	**D2974**			Prep Date: **12/17/2018**		Analyst: **RW**
Percent Moisture	11.0	0.2	*	wt%	1	12/18/2018

Qualifiers:
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Date Reported: January 11, 2019
Date Printed: January 11, 2019

ANALYTICAL RESULTS

Client: Brecheisen Engineering, Inc.
Work Order: 18120406 Revision 2
Project: 16-2FMEHS-00013, Fifth Ave. Eco Orchard, 3001-
Lab ID: 18120406-037

Client Sample ID: SB-8 (6-9)
Collection Date: 12/13/2018 12:20:00 PM
Matrix: Soil

Analyses	Result	RL	Qualifier	Units	DF	Date Analyzed
BTEX by GC/MS	**SW5035/8260B**			Prep Date: **12/14/2018**		Analyst: **AET**
Benzene	ND	0.0048		mg/Kg-dry	1	12/15/2018
Ethylbenzene	ND	0.0048		mg/Kg-dry	1	12/15/2018
Toluene	ND	0.0048		mg/Kg-dry	1	12/15/2018
Xylenes, Total	ND	0.015		mg/Kg-dry	1	12/15/2018
Polynuclear Aromatic Hydrocarbons by GC/MS	**SW8270C (SW3550B)**			Prep Date: **12/19/2018**		Analyst: **DM**
Acenaphthene	0.20	0.039		mg/Kg-dry	1	12/19/2018
Acenaphthylene	0.11	0.039		mg/Kg-dry	1	12/19/2018
Anthracene	0.69	0.039		mg/Kg-dry	1	12/19/2018
Benz(a)anthracene	2.2	0.039		mg/Kg-dry	1	12/19/2018
Benzo(a)pyrene	1.8	0.039		mg/Kg-dry	1	12/19/2018
Benzo(b)fluoranthene	2.0	0.039		mg/Kg-dry	1	12/19/2018
Benzo(g,h,i)perylene	0.98	0.039		mg/Kg-dry	1	12/19/2018
Benzo(k)fluoranthene	1.1	0.039		mg/Kg-dry	1	12/19/2018
Chrysene	2.0	0.039		mg/Kg-dry	1	12/19/2018
Dibenz(a,h)anthracene	0.59	0.039		mg/Kg-dry	1	12/19/2018
Fluoranthene	4.0	0.039		mg/Kg-dry	1	12/19/2018
Fluorene	0.26	0.039		mg/Kg-dry	1	12/19/2018
Indeno(1,2,3-cd)pyrene	0.92	0.039		mg/Kg-dry	1	12/19/2018
Naphthalene	0.047	0.039		mg/Kg-dry	1	12/19/2018
Phenanthrene	2.3	0.039		mg/Kg-dry	1	12/19/2018
Pyrene	3.3	0.039		mg/Kg-dry	1	12/19/2018
Metals by ICP/MS	**SW6020A (SW3050B)**			Prep Date: **12/18/2018**		Analyst: **JG**
Arsenic	5.6	1.1		mg/Kg-dry	10	12/18/2018
Barium	130	1.1		mg/Kg-dry	10	12/18/2018
Cadmium	ND	0.54		mg/Kg-dry	10	12/18/2018
Chromium	13	1.1		mg/Kg-dry	10	12/18/2018
Lead	160	0.54		mg/Kg-dry	10	12/18/2018
Selenium	ND	1.1		mg/Kg-dry	10	12/18/2018
Silver	ND	1.1		mg/Kg-dry	10	12/18/2018
Mercury	**SW7471B**			Prep Date: **12/18/2018**		Analyst: **LB**
Mercury	0.20	0.023		mg/Kg-dry	1	12/19/2018
pH (25 °C)	**SW9045C**			Prep Date: **12/17/2018**		Analyst: **JT**
pH	8.10			pH Units	1	12/17/2018
Percent Moisture	**D2974**			Prep Date: **12/17/2018**		Analyst: **RW**
Percent Moisture	17.5	0.2	*	wt%	1	12/18/2018

Qualifiers:
ND - Not Detected at the Reporting Limit
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Date Reported: January 11, 2019
Date Printed: January 11, 2019

ANALYTICAL RESULTS

Client: Brecheisen Engineering, Inc.
Work Order: 18120406 Revision 2
Project: 16-2FMEHS-00013, Fifth Ave. Eco Orchard, 3001-
Lab ID: 18120406-038

Client Sample ID: SB-8 (9-12)
Collection Date: 12/13/2018 12:25:00 PM
Matrix: Soil

Analyses	Result	RL	Qualifier	Units	DF	Date Analyzed
Polynuclear Aromatic Hydrocarbons by GC/MS SW8270C (SW3550B)				Prep Date: **12/26/2018**		Analyst: **FP**
Acenaphthene	0.045	0.041		mg/Kg-dry	1	12/26/2018
Acenaphthylene	0.074	0.041		mg/Kg-dry	1	12/26/2018
Anthracene	0.24	0.041		mg/Kg-dry	1	12/26/2018
Benz(a)anthracene	0.95	0.041		mg/Kg-dry	1	12/26/2018
Benzo(a)pyrene	0.90	0.041		mg/Kg-dry	1	12/26/2018
Benzo(b)fluoranthene	0.93	0.041		mg/Kg-dry	1	12/26/2018
Benzo(g,h,i)perylene	0.56	0.041		mg/Kg-dry	1	12/26/2018
Benzo(k)fluoranthene	0.76	0.041		mg/Kg-dry	1	12/26/2018
Chrysene	0.98	0.041		mg/Kg-dry	1	12/26/2018
Dibenz(a,h)anthracene	0.28	0.041		mg/Kg-dry	1	12/26/2018
Fluoranthene	1.8	0.041		mg/Kg-dry	1	12/26/2018
Fluorene	0.063	0.041		mg/Kg-dry	1	12/26/2018
Indeno(1,2,3-cd)pyrene	0.50	0.041		mg/Kg-dry	1	12/26/2018
Naphthalene	ND	0.041		mg/Kg-dry	1	12/26/2018
Phenanthrene	0.96	0.041		mg/Kg-dry	1	12/26/2018
Pyrene	1.6	0.041		mg/Kg-dry	1	12/26/2018
Metals by ICP/MS SW6020A (SW3050B)				Prep Date: **1/2/2019**		Analyst: **JG**
Lead	140	1.2		mg/Kg-dry	10	1/3/2019
Mercury SW7471B				Prep Date: **1/2/2019**		Analyst: **LB**
Mercury	0.29	0.021		mg/Kg-dry	1	1/2/2019
Percent Moisture D2974				Prep Date: **12/17/2018**		Analyst: **RW**
Percent Moisture	18.7	0.2	*	wt%	1	12/18/2018

Qualifiers:
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Date Reported: January 11, 2019
Date Printed: January 11, 2019

ANALYTICAL RESULTS

Client: Brecheisen Engineering, Inc.
Work Order: 18120406 Revision 2
Project: 16-2FMEHS-00013, Fifth Ave. Eco Orchard, 3001-
Lab ID: 18120406-039

Client Sample ID: SB-8 (12-15)
Collection Date: 12/13/2018 12:30:00 PM
Matrix: Soil

Analyses	Result	RL	Qualifier	Units	DF	Date Analyzed
Metals by ICP/MS	**SW6020A (SW3050B)**			Prep Date: **1/9/2019**		Analyst: **MDT**
Lead	16	0.54		mg/Kg-dry	10	1/10/2019
Mercury	**SW7471B**			Prep Date: **1/9/2019**		Analyst: **LB**
Mercury	ND	0.024		mg/Kg-dry	1	1/9/2019
Percent Moisture	**D2974**			Prep Date: **12/17/2018**		Analyst: **RW**
Percent Moisture	21.0	0.2	*	wt%	1	12/18/2019

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Date Reported: January 11, 2019
Date Printed: January 11, 2019

ANALYTICAL RESULTS

Client: Brecheisen Engineering, Inc.
Work Order: 18120406 Revision 2
Project: 16-2FMEHS-00013, Fifth Ave. Eco Orchard, 3001-
Lab ID: 18120406-040

Client Sample ID: SB-9 (0-3)
Collection Date: 12/13/2018 12:40:00 PM
Matrix: Soil

Analyses	Result	RL	Qualifier	Units	DF	Date Analyzed
BTEX by GC/MS	**SW5035/8260B**			Prep Date: **12/14/2018**		Analyst: **AET**
Benzene	ND	0.0056		mg/Kg-dry	1	12/15/2018
Ethylbenzene	ND	0.0056		mg/Kg-dry	1	12/15/2018
Toluene	ND	0.0056		mg/Kg-dry	1	12/15/2018
Xylenes, Total	ND	0.017		mg/Kg-dry	1	12/15/2018
Polynuclear Aromatic Hydrocarbons by GC/MS	**SW8270C (SW3550B)**			Prep Date: **12/19/2018**		Analyst: **DM**
Acenaphthene	0.20	0.040		mg/Kg-dry	1	12/19/2018
Acenaphthylene	0.11	0.040		mg/Kg-dry	1	12/19/2018
Anthracene	0.54	0.040		mg/Kg-dry	1	12/19/2018
Benz(a)anthracene	1.5	0.040		mg/Kg-dry	1	12/19/2018
Benzo(a)pyrene	1.6	0.040		mg/Kg-dry	1	12/19/2018
Benzo(b)fluoranthene	1.3	0.040		mg/Kg-dry	1	12/19/2018
Benzo(g,h,i)perylene	0.89	0.040		mg/Kg-dry	1	12/19/2018
Benzo(k)fluoranthene	1.2	0.040		mg/Kg-dry	1	12/19/2018
Chrysene	1.5	0.040		mg/Kg-dry	1	12/19/2018
Dibenz(a,h)anthracene	0.44	0.040		mg/Kg-dry	1	12/19/2018
Fluoranthene	3.4	0.040		mg/Kg-dry	1	12/19/2018
Fluorene	0.30	0.040		mg/Kg-dry	1	12/19/2018
Indeno(1,2,3-cd)pyrene	0.76	0.040		mg/Kg-dry	1	12/19/2018
Naphthalene	0.23	0.040		mg/Kg-dry	1	12/19/2018
Phenanthrene	3.2	0.040		mg/Kg-dry	1	12/19/2018
Pyrene	3.3	0.040		mg/Kg-dry	1	12/19/2018
Metals by ICP/MS	**SW6020A (SW3050B)**			Prep Date: **12/18/2018**		Analyst: **JG**
Arsenic	24	1.1		mg/Kg-dry	10	12/18/2018
Barium	190	1.1		mg/Kg-dry	10	12/18/2018
Cadmium	1.7	0.55		mg/Kg-dry	10	12/18/2018
Chromium	27	1.1		mg/Kg-dry	10	12/18/2018
Lead	830	0.55		mg/Kg-dry	10	12/18/2018
Selenium	ND	1.1		mg/Kg-dry	10	12/18/2018
Silver	ND	1.1		mg/Kg-dry	10	12/18/2018
Mercury	**SW7471B**			Prep Date: **12/18/2018**		Analyst: **LB**
Mercury	0.39	0.024		mg/Kg-dry	1	12/19/2018
pH (25 °C)	**SW9045C**			Prep Date: **12/17/2018**		Analyst: **JT**
pH	7.75			pH Units	1	12/17/2018
Percent Moisture	**D2974**			Prep Date: **12/17/2018**		Analyst: **RW**
Percent Moisture	17.8	0.2	*	wt%	1	12/18/2018

Qualifiers:
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Date Reported: January 11, 2019
Date Printed: January 11, 2019

ANALYTICAL RESULTS

Client: Brecheisen Engineering, Inc.
Work Order: 18120406 Revision 2
Project: 16-2FMEHS-00013, Fifth Ave. Eco Orchard, 3001-
Lab ID: 18120406-041

Client Sample ID: SB-9 (3-6)
Collection Date: 12/13/2018 12:45:00 PM
Matrix: Soil

Analyses	Result	RL	Qualifier	Units	DF	Date Analyzed
BTEX by GC/MS	**SW5035/8260B**			Prep Date: **12/14/2018**		Analyst: **AET**
Benzene	ND	0.0046		mg/Kg-dry	1	12/15/2018
Ethylbenzene	ND	0.0046		mg/Kg-dry	1	12/15/2018
Toluene	ND	0.0046		mg/Kg-dry	1	12/15/2018
Xylenes, Total	ND	0.013		mg/Kg-dry	1	12/15/2018
Polynuclear Aromatic Hydrocarbons by GC/MS	**SW8270C (SW3550B)**			Prep Date: **12/19/2018**		Analyst: **DM**
Acenaphthene	ND	0.040		mg/Kg-dry	1	12/19/2018
Acenaphthylene	ND	0.040		mg/Kg-dry	1	12/19/2018
Anthracene	ND	0.040		mg/Kg-dry	1	12/19/2018
Benz(a)anthracene	ND	0.040		mg/Kg-dry	1	12/19/2018
Benzo(a)pyrene	ND	0.040		mg/Kg-dry	1	12/19/2018
Benzo(b)fluoranthene	ND	0.040		mg/Kg-dry	1	12/19/2018
Benzo(g,h,i)perylene	ND	0.040		mg/Kg-dry	1	12/19/2018
Benzo(k)fluoranthene	ND	0.040		mg/Kg-dry	1	12/19/2018
Chrysene	ND	0.040		mg/Kg-dry	1	12/19/2018
Dibenz(a,h)anthracene	ND	0.040		mg/Kg-dry	1	12/19/2018
Fluoranthene	ND	0.040		mg/Kg-dry	1	12/19/2018
Fluorene	ND	0.040		mg/Kg-dry	1	12/19/2018
Indeno(1,2,3-cd)pyrene	ND	0.040		mg/Kg-dry	1	12/19/2018
Naphthalene	ND	0.040		mg/Kg-dry	1	12/19/2018
Phenanthrene	ND	0.040		mg/Kg-dry	1	12/19/2018
Pyrene	ND	0.040		mg/Kg-dry	1	12/19/2018
Metals by ICP/MS	**SW6020A (SW3050B)**			Prep Date: **12/18/2018**		Analyst: **JG**
Arsenic	16	1.1		mg/Kg-dry	10	12/18/2018
Barium	91	1.1		mg/Kg-dry	10	12/18/2018
Cadmium	ND	0.55		mg/Kg-dry	10	12/18/2018
Chromium	27	1.1		mg/Kg-dry	10	12/18/2018
Lead	23	0.55		mg/Kg-dry	10	12/18/2018
Selenium	ND	1.1		mg/Kg-dry	10	12/18/2018
Silver	ND	1.1		mg/Kg-dry	10	12/18/2018
Mercury	**SW7471B**			Prep Date: **12/18/2018**		Analyst: **LB**
Mercury	0.054	0.022		mg/Kg-dry	1	12/19/2018
pH (25 °C)	**SW9045C**			Prep Date: **12/17/2018**		Analyst: **JT**
pH	8.02			pH Units	1	12/17/2018
Organic Matter / Carbon	**D2974**			Prep Date: **1/2/2019**		Analyst: **RW**
Organic Carbon Content	1.51	0.01	*	wt%	1	1/3/2019
Organic Matter	2.60	0.01	*	wt%	1	1/3/2019

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Date Reported: January 11, 2019
Date Printed: January 11, 2019

ANALYTICAL RESULTS

Client: Brecheisen Engineering, Inc.
Work Order: 18120406 Revision 2
Project: 16-2FMEHS-00013, Fifth Ave. Eco Orchard, 3001-
Lab ID: 18120406-041

Client Sample ID: SB-9 (3-6)
Collection Date: 12/13/2018 12:45:00 PM
Matrix: Soil

Analyses	Result	RL	Qualifier	Units	DF	Date Analyzed
Percent Moisture	**D2974**			Prep Date: **12/17/2018**	Analyst: **RW**	
Percent Moisture	17.2	0.2	*	wt%	1	12/18/2018

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
HT - Sample received past holding time
* - Non-accredited parameter
RL - Reporting / Quantitation Limit for the analysis
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R - RPD outside accepted recovery limits
E - Value above quantitation range
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Date Reported: January 11, 2019
Date Printed: January 11, 2019

ANALYTICAL RESULTS

Client: Brecheisen Engineering, Inc.
Work Order: 18120406 Revision 2
Project: 16-2FMEHS-00013, Fifth Ave. Eco Orchard, 3001-
Lab ID: 18120406-042

Client Sample ID: SB-9 (6-9)
Collection Date: 12/13/2018 12:50:00 PM
Matrix: Soil

Analyses	Result	RL	Qualifier	Units	DF	Date Analyzed
Metals by ICP/MS	**SW6020A (SW3050B)**			Prep Date: **1/3/2019**		Analyst: **JG**
Arsenic	5.9	1.1		mg/Kg-dry	10	1/4/2019
Percent Moisture	**D2974**			Prep Date: **12/17/2018**		Analyst: **RW**
Percent Moisture	18.4	0.2	*	wt%	1	12/18/2018

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
HT - Sample received past holding time
* - Non-accredited parameter
RL - Reporting / Quantitation Limit for the analysis
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Date Reported: January 11, 2019
Date Printed: January 11, 2019

ANALYTICAL RESULTS

Client: Brecheisen Engineering, Inc.
Work Order: 18120406 Revision 2
Project: 16-2FMEHS-00013, Fifth Ave. Eco Orchard, 3001-
Lab ID: 18120406-045

Client Sample ID: SB-10 (0-3)
Collection Date: 12/13/2018 1:10:00 PM
Matrix: Soil

Analyses	Result	RL	Qualifier	Units	DF	Date Analyzed
BTEX by GC/MS	**SW5035/8260B**			Prep Date: **12/14/2018**		Analyst: **AET**
Benzene	ND	0.0053		mg/Kg-dry	1	12/15/2018
Ethylbenzene	ND	0.0053		mg/Kg-dry	1	12/15/2018
Toluene	ND	0.0053		mg/Kg-dry	1	12/15/2018
Xylenes, Total	ND	0.016		mg/Kg-dry	1	12/15/2018
Polynuclear Aromatic Hydrocarbons by GC/MS	**SW8270C (SW3550B)**			Prep Date: **12/19/2018**		Analyst: **DM**
Acenaphthene	0.095	0.041		mg/Kg-dry	1	12/19/2018
Acenaphthylene	0.081	0.041		mg/Kg-dry	1	12/19/2018
Anthracene	0.43	0.041		mg/Kg-dry	1	12/19/2018
Benz(a)anthracene	1.5	0.041		mg/Kg-dry	1	12/19/2018
Benzo(a)pyrene	1.5	0.041		mg/Kg-dry	1	12/19/2018
Benzo(b)fluoranthene	1.4	0.041		mg/Kg-dry	1	12/19/2018
Benzo(g,h,i)perylene	0.94	0.041		mg/Kg-dry	1	12/19/2018
Benzo(k)fluoranthene	1.3	0.041		mg/Kg-dry	1	12/19/2018
Chrysene	1.5	0.041		mg/Kg-dry	1	12/19/2018
Dibenz(a,h)anthracene	0.45	0.041		mg/Kg-dry	1	12/19/2018
Fluoranthene	3.0	0.041		mg/Kg-dry	1	12/19/2018
Fluorene	0.12	0.041		mg/Kg-dry	1	12/19/2018
Indeno(1,2,3-cd)pyrene	0.82	0.041		mg/Kg-dry	1	12/19/2018
Naphthalene	ND	0.041		mg/Kg-dry	1	12/19/2018
Phenanthrene	1.7	0.041		mg/Kg-dry	1	12/19/2018
Pyrene	2.6	0.041		mg/Kg-dry	1	12/19/2018
Metals by ICP/MS	**SW6020A (SW3050B)**			Prep Date: **12/18/2018**		Analyst: **JG**
Arsenic	8.0	1.1		mg/Kg-dry	10	12/18/2018
Barium	110	1.1		mg/Kg-dry	10	12/18/2018
Cadmium	0.64	0.57		mg/Kg-dry	10	12/18/2018
Chromium	17	1.1		mg/Kg-dry	10	12/18/2018
Lead	420	0.57		mg/Kg-dry	10	12/18/2018
Selenium	ND	1.1		mg/Kg-dry	10	12/18/2018
Silver	ND	1.1		mg/Kg-dry	10	12/18/2018
Mercury	**SW7471B**			Prep Date: **12/18/2018**		Analyst: **LB**
Mercury	0.35	0.025		mg/Kg-dry	1	12/19/2018
pH (25 °C)	**SW9045C**			Prep Date: **12/17/2018**		Analyst: **JT**
pH	7.76			pH Units	1	12/17/2018
Percent Moisture	**D2974**			Prep Date: **12/17/2018**		Analyst: **RW**
Percent Moisture	20.1	0.2	*	wt%	1	12/18/2018

Qualifiers:
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Date Reported: January 11, 2019
Date Printed: January 11, 2019

ANALYTICAL RESULTS

Client: Brecheisen Engineering, Inc.
Work Order: 18120406 Revision 2
Project: 16-2FMEHS-00013, Fifth Ave. Eco Orchard, 3001-
Lab ID: 18120406-046

Client Sample ID: SB-10 (3-6)
Collection Date: 12/13/2018 1:15:00 PM
Matrix: Soil

Analyses	Result	RL	Qualifier	Units	DF	Date Analyzed
BTEX by GC/MS	**SW5035/8260B**			Prep Date: **12/14/2018**		Analyst: **AET**
Benzene	ND	0.0070		mg/Kg-dry	1	12/15/2018
Ethylbenzene	ND	0.0070		mg/Kg-dry	1	12/15/2018
Toluene	ND	0.0070		mg/Kg-dry	1	12/15/2018
Xylenes, Total	ND	0.021		mg/Kg-dry	1	12/15/2018
Polynuclear Aromatic Hydrocarbons by GC/MS	**SW8270C (SW3550B)**			Prep Date: **12/19/2018**		Analyst: **DM**
Acenaphthene	5.8	0.50		mg/Kg-dry	1	12/19/2018
Acenaphthylene	4.6	0.50		mg/Kg-dry	1	12/19/2018
Anthracene	25	0.50		mg/Kg-dry	1	12/19/2018
Benz(a)anthracene	55	0.50		mg/Kg-dry	1	12/19/2018
Benzo(a)pyrene	52	0.50		mg/Kg-dry	1	12/19/2018
Benzo(b)fluoranthene	38	0.50		mg/Kg-dry	1	12/19/2018
Benzo(g,h,i)perylene	25	0.50		mg/Kg-dry	1	12/19/2018
Benzo(k)fluoranthene	43	0.50		mg/Kg-dry	1	12/19/2018
Chrysene	50	0.50		mg/Kg-dry	1	12/19/2018
Dibenz(a,h)anthracene	ND	0.50		mg/Kg-dry	1	12/19/2018
Fluoranthene	110	2.5		mg/Kg-dry	5	12/20/2018
Fluorene	12	0.50		mg/Kg-dry	1	12/19/2018
Indeno(1,2,3-cd)pyrene	25	0.50		mg/Kg-dry	1	12/19/2018
Naphthalene	5.4	0.50		mg/Kg-dry	1	12/19/2018
Phenanthrene	92	2.5		mg/Kg-dry	5	12/20/2018
Pyrene	99	2.5		mg/Kg-dry	5	12/20/2018
Metals by ICP/MS	**SW6020A (SW3050B)**			Prep Date: **12/18/2018**		Analyst: **JG**
Arsenic	7.5	1.3		mg/Kg-dry	10	12/18/2018
Barium	150	1.3		mg/Kg-dry	10	12/18/2018
Cadmium	1.0	0.66		mg/Kg-dry	10	12/18/2018
Chromium	13	1.3		mg/Kg-dry	10	12/18/2018
Lead	1300	0.66		mg/Kg-dry	10	12/18/2018
Selenium	ND	1.3		mg/Kg-dry	10	12/18/2018
Silver	ND	1.3		mg/Kg-dry	10	12/18/2018
TCLP Metals by ICP/MS	**SW1311/6020A (SW3005A)**			Prep Date: **12/27/2018**		Analyst: **JG**
Lead	0.45	0.0050		mg/L	5	12/27/2018
Mercury	**SW7471B**			Prep Date: **12/18/2018**		Analyst: **LB**
Mercury	0.41	0.026		mg/Kg-dry	1	12/19/2018
pH (25 °C)	**SW9045C**			Prep Date: **12/17/2018**		Analyst: **JT**
pH	8.03			pH Units	1	12/17/2018

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
HT - Sample received past holding time
* - Non-accredited parameter
RL - Reporting / Quantitation Limit for the analysis
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
E - Value above quantitation range
H - Holding time exceeded

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Date Reported: January 11, 2019
Date Printed: January 11, 2019

ANALYTICAL RESULTS

Client: Brecheisen Engineering, Inc.
Work Order: 18120406 Revision 2
Project: 16-2FMEHS-00013, Fifth Ave. Eco Orchard, 3001-
Lab ID: 18120406-046

Client Sample ID: SB-10 (3-6)
Collection Date: 12/13/2018 1:15:00 PM
Matrix: Soil

Analyses	Result	RL	Qualifier	Units	DF	Date Analyzed
Percent Moisture	**D2974**			Prep Date: **12/17/2018**		Analyst: **RW**
Percent Moisture	34.2	0.2	*	wt%	1	12/18/2018

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
HT - Sample received past holding time
* - Non-accredited parameter
RL - Reporting / Quantitation Limit for the analysis
S - Spike Recovery outside accepted recovery limits
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E - Value above quantitation range
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Date Reported: January 11, 2019
Date Printed: January 11, 2019

ANALYTICAL RESULTS

Client: Brecheisen Engineering, Inc.
Work Order: 18120406 Revision 2
Project: 16-2FMEHS-00013, Fifth Ave. Eco Orchard, 3001-
Lab ID: 18120406-047

Client Sample ID: SB-10 (6-9)
Collection Date: 12/13/2018 1:20:00 PM
Matrix: Soil

Analyses	Result	RL	Qualifier	Units	DF	Date Analyzed
Polynuclear Aromatic Hydrocarbons by GC/MS SW8270C (SW3550B)				Prep Date: **12/26/2018**		Analyst: **FP**
Acenaphthene	ND	0.041		mg/Kg-dry	1	12/26/2018
Acenaphthylene	ND	0.041		mg/Kg-dry	1	12/26/2018
Anthracene	ND	0.041		mg/Kg-dry	1	12/26/2018
Benz(a)anthracene	0.041	0.041		mg/Kg-dry	1	12/26/2018
Benzo(a)pyrene	ND	0.041		mg/Kg-dry	1	12/26/2018
Benzo(b)fluoranthene	ND	0.041		mg/Kg-dry	1	12/26/2018
Benzo(g,h,i)perylene	ND	0.041		mg/Kg-dry	1	12/26/2018
Benzo(k)fluoranthene	ND	0.041		mg/Kg-dry	1	12/26/2018
Chrysene	ND	0.041		mg/Kg-dry	1	12/26/2018
Dibenz(a,h)anthracene	ND	0.041		mg/Kg-dry	1	12/26/2018
Fluoranthene	0.093	0.041		mg/Kg-dry	1	12/26/2018
Fluorene	ND	0.041		mg/Kg-dry	1	12/26/2018
Indeno(1,2,3-cd)pyrene	ND	0.041		mg/Kg-dry	1	12/26/2018
Naphthalene	ND	0.041		mg/Kg-dry	1	12/26/2018
Phenanthrene	0.087	0.041		mg/Kg-dry	1	12/26/2018
Pyrene	0.075	0.041		mg/Kg-dry	1	12/26/2018
Metals by ICP/MS SW6020A (SW3050B)				Prep Date: **1/2/2019**		Analyst: **JG**
Lead	20	1.1		mg/Kg-dry	10	1/3/2019
Mercury SW7471B				Prep Date: **1/2/2019**		Analyst: **LB**
Mercury	ND	0.023		mg/Kg-dry	1	1/2/2019
Percent Moisture D2974				Prep Date: **12/17/2018**		Analyst: **RW**
Percent Moisture	20.4	0.2	*	wt%	1	12/18/2018

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
HT - Sample received past holding time
* - Non-accredited parameter
RL - Reporting / Quantitation Limit for the analysis
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
E - Value above quantitation range
H - Holding time exceeded

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CHAIN OF CUSTODY RECORD

Nº: 866210 **Page :** 1 **of** 3

Company: BEI
Project Number: 16-2FMEHS-00073 Client Tracking No.:
Project Name: Fifth Ave Eco Orchard
Project Location: 3001-11 W. Fifth Ave.
Sampler(s): Tom Brechbiesen
Report To: Tom Brechbiesen Phone: 773-334-3944
Fax:
QC Level: 1 ____ 2 ____ 3 ____ 4 ____ e-mail: tom@beichicago.com

P.O. No.:
Quote No.:

Turn Around:
Results Needed: / / am/pm

Client Sample Number/Description:	Date Taken	Time Taken	Matrix	Comp.	Grab	Preserv.	No. of Containers	Remarks	Lab No.:
SB-1 (0-3)	12/13/18	8:15	S		✓	F	4		001
SB-1 (3-6)	12/13/18	8:20	S		✓	F	4		002
SB-1 (6-9)	12/13/18	8:30	S		✓	F	4		003
SB-1 (9-12)	12/13/18	8:35	S		✓	F	4		004
SB-1 (12-15)	12/13/18	8:40	S		✓	F	4		005
SB-2 (0-3)	12/13/18	8:55	S		✓	F	5		006
SB-2 (3-6)	12/13/18	9:00	S		✓	F	5		007
SB-2 (6-9)	12/13/18	9:05	S		✓	F	4		008
SB-2 (9-12)	12/13/18	9:10	S		✓	F	4		009
SB-2 (12-15)	12/13/18	9:15	S		✓	F	4		010
SB-3 (0-3)	12/13/18	9:25	S		✓	F	4		011
SB-3 (3-6)	12/13/18	9:30	S		✓	F	4		012
SB-3 (6-9)	12/13/18	9:35	S		✓	F	4		013
SB-3 (9-12)	12/13/18	9:40	S		✓	F	4		014
SB-3 (12-15)	12/13/18	9:45	S		✓	F	4		015
SB-4 (0-3)	12/13/18	10:00	S		✓	F	4		016
SB-4 (3-6)	12/13/18	10:05	S		✓	F	4		017
SB-4 (6-9)	12/13/18	10:10	S		✓	F	4		018
SB-4 (9-12)	12/13/18	10:15	S		✓	F	4		019
SB-4 (12-15)	12/13/18	10:20	S		✓	F	4		020

Relinquished by: (Signature) Thomas A. Brechbiesen Date/Time: 12-13-18/16:08
Received by: (Signature) [signature] Date/Time: 12/13/18 16:08
Relinquished by: (Signature) Date/Time:
Received by: (Signature) Date/Time:
Relinquished by: (Signature) Date/Time:
Received by: (Signature) Date/Time:

Comments: HOLD All Samples

Preservation Code: A = None B = HNO_3 C = NaOH D = H_2SO_4 E = HCl F = 5035/EnCore G = Other

Laboratory Work Order No.: 18120406

Received on Ice: Yes ✓ No

Temperature: 4.4 °C

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CHAIN OF CUSTODY RECORD

Nº: 866211 **Page :** 2 of 3

Company: BEI
Project Number: 16-2FMEHS-00013 Client Tracking No.:
Project Name: Fifth Ave Eco Orchard
Project Location: 3001-11 W. Fifth Ave
Sampler(s): Tom Brechbiel
Report To: Tom Brechbiel Phone: 773-334-3944
Fax:
QC Level: 1 ____ 2 ____ 3 ____ 4 ____ e-mail: tom@beichicago.com

P.O. No.:
Quote No.:

Turn Around:
Results Needed: / / am/pm

Client Sample Number/Description:	Date Taken	Time Taken	Matrix	Comp.	Grab	Preserv.	No. of Containers	Remarks	Lab No.:
SB-5 (0-3)	12/13/18	10:30	S		✓	F	5		021
SB-5 (3-6)	12/13/18	10:35	S		✓	F	5		022
SB-5 (6-9)	12/13/18	10:40	S		✓	F	4		023
SB-5 (9-12)	12/13/18	10:45	S		✓	F	4		024
SB-5 (12-15)	12/13/18	10:50	S		✓	F	4		025
SB-6 (0-3)	12/13/18	11:05	S		✓	F	5		026
SB-6 (3-6)	12/13/18	11:10	S		✓	F	5		027
SB-6 (6-9)	12/13/18	11:15	S		✓	F	4		028
SB-6 (9-12)	12/13/18	11:20	S		✓	F	4		029
SB-6 (12-15)	12/13/18	11:25	S		✓	F	4		030
SB-7 (0-3)	12/13/18	11:35	S		✓	F	4		031
~~SB-7 (3-6)~~							0		032
SB-7 (6-9)	12/13/18	11:45	S		✓	F	4		032
SB-7 (9-12)	12/13/18	11:50	S		✓	F	4		033
SB-7 (12-15)	12/13/18	12:00	S		✓	F	4		034
SB-8 (0-3)	12/13/18	12:10	S		✓	F	5		035
SB-8 (3-6)	12/13/18	12:15	S		✓	F	5		036
SB-8 (6-9)	12/13/18	12:20	S		✓	F	5		037
SB-8 (9-12)	12/13/18	12:25	S		✓	F	4		038
SB-8 (12-15)	12/13/18	12:30	S		✓	F	4		039

Relinquished by: (Signature) Thomas A. Brechbiel Date/Time: 12-13-18/16:08
Received by: (Signature) Date/Time: 12/13/18/16:08
Relinquished by: (Signature) Date/Time:
Received by: (Signature) Date/Time:
Relinquished by: (Signature) Date/Time:
Received by: (Signature) Date/Time:

Comments: HOLD All Samples

Preservation Code: A = None B = HNO_3 C = NaOH D = H_2SO_4 E = HCl F = 5035/EnCore G = Other

Laboratory Work Order No.: 14120406

Received on Ice: Yes ✓ No

Temperature: 4.4°C

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CHAIN OF CUSTODY RECORD

Nº: 866212 **Page :** 3 **of** 3

Company: BEI
Project Number: 16-2EMEHS-000013 Client Tracking No.:
Project Name: Fifth Ave Eco Orchard
Project Location: 3001-11 W. Fifth Ave.
Sampler(s): Tom Brecheisen
Report To: Tom Brecheisen Phone: 773-334-3944
Fax:
QC Level: 1 ____ 2 ____ 3 ____ 4 ____ e-mail: tom@beichicago.com

P.O. No.:
Quote No.:

Turn Around:
Results Needed:
/ / am/pm

Client Sample Number/Description:	Date Taken	Time Taken	Matrix	Comp.	Grab	Preserv.	No. of Containers	Remarks	Lab No.:
SB-9 (0-3)	12/13/18	12:40	S		✓	F	4		040
SB-9 (3-6)	12/13/18	12:45	S		✓	F	4		041
SB-9 (6-9)	12/13/18	12:50	S		✓	F	4		042
SB-9 (9-12)	12/13/18	12:55	S		✓	F	4		043
SB-9 (12-15)	12/13/18	13:00	S		✓	F	4		044
SB-10 (0-3)	12/13/18	13:10	S		✓	F	4		045
SB-10 (3-6)	12/13/18	13:15	S		✓	F	4		046
SB-10 (6-9)	12/13/18	13:20	S		✓	F	4		047
SB-10 (9-12)	12/13/18	13:25	S		✓	F	4		048
SB-10 (12-15)	12/13/18	13:30	S		✓	F	4		049

Relinquished by: (Signature) Thomas A. Brecheisen Date/Time: 12-13-18 / 16:08
Received by: (Signature) Date/Time: 12/13/18 16:08
Relinquished by: (Signature) Date/Time:
Received by: (Signature) Date/Time:
Relinquished by: (Signature) Date/Time:
Received by: (Signature) Date/Time:

Comments: HOLD All Samples

Preservation Code: A = None B = HNO_3 C = NaOH D = H_2SO_4 E = HCl F = 5035/EnCore G = Other

Laboratory Work Order No.: 18120406

Received on Ice: Yes ✓ No

Temperature: 4.4 °C

STAT Analysis Corporation

Sample Receipt Checklist

Client Name BEI | Date and Time Received: 12/13/2018 4:08:00 PM

Work Order Number 18120406 | Received by: EAA

Checklist completed by: _____ 12/13/18 (Signature / Date) | Reviewed by: JOK 12/17/18 (Initials / Date)

Matrix: | Carrier name | Client Delivered

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shippping container/cooler?	Yes ☐	No ☐	Not Present ☑
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels/containers?	Yes ☐	No ☑	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time?	Yes ☑	No ☐	
Container or Temp Blank temperature in compliance?	Yes ☑	No ☐	Temperature 4.4 °C
Water - VOA vials have zero headspace?	No VOA vials submitted ☐	Yes ☐	No ☐
Water - Samples pH checked?	Yes ☐	No ☐	Checked by:
Water - Samples properly preserved?	Yes ☐	No ☐	pH Adjusted?

Any No response must be detailed in the comments section below.

Comments: The 40z container labeled SB-3 (0-3) was received empty.

Client / Person contacted: _____ Date contacted: _____ Contacted by: _____

Response: _____

Craig Chawla

From: Tom Brecheisen <tom@beichicago.com>
Sent: Monday, December 24, 2018 10:05 AM
To: Craig Chawla
Subject: Re: 16-2FMEHS-00013, Fifth Ave. Eco Orchard, 3001-11 W. Fifth Ave. 18120406

Hi Craig,

Please analyze the following soil samples for PNAs:

SB-2 (6-9)
SB-4 (6-9)
SB-6 (6-9)
SB-8 (9-12)
SB-10 (6-9)

Please also note that the hold time for these samples will expire beginning Thursday morning, December 27th.

Thank you and regards,

Tom

On Fri, Dec 21, 2018 at 6:31 PM Craig Chawla <cchawla@statanalysis.com> wrote:

> Tom,
>
> Attached is the report for project 16-2FMEHS-00013, Fifth Ave. Eco Orchard, 3001-11 W. Fifth Ave. received 12/13/2018.
>
> Please let me know if additional analysis is needed, if not, I will issue the invoice.
>
> Craig Chawla
>
> STAT Analysis Corporation
>
> (312)733-0551
>
>

Sebastian Slazyk

From: Tom Brecheisen <tom@beichicago.com>
Sent: Wednesday, December 26, 2018 10:17 AM
To: Craig Chawla; Sebastian Slazyk; Justice Kwateng
Subject: Re: 16-2FMEHS-00013, Fifth Ave. Eco Orchard, 3001-11 W. Fifth Ave. 18120406

Hi Sebastian,

Per our recent conversation, please CANCEL the previously ordered TCLP SVOC extractions and PROCEED with the TCLP LEAD analyses.

Please let me know if you have any questions.

Thank you and regards,

Tom

On Wed, Dec 26, 2018 at 9:52 AM Tom Brecheisen <tom@beichicago.com> wrote:

> Thank you Craig,
>
> Please extract the following samples for possible TCLP SVOC analyses in order to extend the hold time for an additional 7 days (per Sebastian):
>
> SB-4 (0-3)
> SB-10 (3-6)
>
> I will also need the following soil samples analyzed for TCLP Lead:
>
> SB-1 (0-3)
> SB-4 (0-3)
> SB-10 (3-6)
>
> Please call me if you have any questions or concerns.
>
> Thanks again and regards,
>
> Tom
>
> On Wed, Dec 26, 2018 at 8:02 AM Craig Chawla <cchawla@statanalysis.com> wrote:
>
>> Hi Tom,
>>
>> We have added the analysis and will make sure to get the extractions done before the expiration of hold time.

Justice Kwateng

From: Tom Brecheisen <tom@beichicago.com>
Sent: Friday, December 28, 2018 5:05 PM
To: Craig Chawla
Cc: Sebastian Slazyk; Justice Kwateng
Subject: Re: 16-2FMEHS-00013, Fifth Ave. Eco Orchard, 3001-11 W. Fifth Ave. 18120406

Hi Craig,

Please analyze the following samples that were submitted on hold:

SB-1 (6-9): Chromium
SB-2 (6-9): Lead and mercury
SB-3 (9-12): Chromium/pH
SB-4 (6-9): Lead
SB-6 (6-9): Lead and mercury
SB-7 (9-12): Arsenic
SB-8 (9-12): Lead and mercury
SB-9 (6-9): Arsenic
SB-10 (6-9): Lead and mercury

Please analyze the following samples for Foc:

SB-1 (0-3)
SB-5 (6-9)
SB-9 (3-6)

Let me know if you have any questions or concerns.

Thank you and regards,

Tom

> On Dec 26, 2018, at 11:35 AM, Craig Chawla <cchawla@statanalysis.com> wrote:
>
> Got it – No problem Tom. We have added the TCLP lead analysis.
>
> Craig Chawla
> STAT Analysis Corporation
> (312)733-0551
>
>
>
> **From:** Tom Brecheisen [mailto:tom@beichicago.com]
> **Sent:** Wednesday, December 26, 2018 10:17 AM

Craig Chawla

From: Tom Brecheisen <tom@beichicago.com>
Sent: Wednesday, January 09, 2019 2:31 PM
To: Craig Chawla
Subject: Re: 16-2FMEHS-00013, Fifth Ave. Eco Orchard, 3001-11 W. Fifth Ave. 18120406

Hi Craig,

Please analyze the following samples that were previously submitted on Hold:

SB-3 (3-6): RCRA metals/pH
SB-8 (12-15): Lead, mercury

Thank you and regards,

Tom

Brecheisen Engineering, Inc.
5430 N. Sheridan Rd., Suite 807
Chicago, Illinois 60640
773-334-3944
tom@beichicago.com

STAT Analysis Corporation
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Tel: (312) 733-0551 Fax: (312) 733-2386 STATinfo@STATAnalysis.com
Accreditations: IEPA ELAP 100445; ORELAP IL300001; AIHA-LAP, LLC 101160; NVLAP LabCode 101202-0

December 27, 2018

Brecheisen Engineering, Inc.
516 W. Briar, Suite 12A
Chicago, IL 60614-
Telephone: (312) 659-0052
Fax: (312) 640-0115

Analytical Report for STAT Work Order: 18120407 Revision 0

RE: 16-2FMEHS-00013, Fifth Ave. Eco Orchard, 3001-11 W. Fifth Ave.

Dear Tom Brecheisen:

STAT Analysis received 2 samples for the referenced project on 12/13/2018 4:08:00 PM. The analytical results are presented in the following report.

All analyses were conducted at the University of Illinois at Chicago, Department of Civil Engineering under the supervision of Dr. Krishna Reddy. All analyses were performed in accordance with methods as referenced on the analytical report.

Thank you for the opportunity to serve you and I look forward to working with you in the future. If you have any questions regarding the enclosed materials, please contact me at (312) 733-0551.

Sincerely,

Brandon Young
Project Manager

STAT Analysis Corporation

Date: December 27, 2018

Client: Brecheisen Engineering, Inc.
Project: 16-2FMEHS-00013, Fifth Ave. Eco Orchard, 3001-11
Work Order: 18120407 Revision 0

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Tag Number	Collection Date	Date Received
18120407-001A	SB-3 (6-9)		12/13/2018 9:35:00 AM	12/13/2018
18120407-002A	SB-9 (12-15)		12/13/2018 1:00:00 PM	12/13/2018

STAT Analysis Corporation
2242 West Harrison St., Suite 200, Chicago, IL 60612-3766
Tel: (312) 733-0551 Fax: (312) 733-2386 STATinfo@STATAnalysis.com
Accreditations:IEPA ELAP 100445;ORELAP IL300001;AIHA-LAP, LLC 101160;NVLAP LabCode 101202-0

Date Reported: December 27, 2018
Date Printed: December 27, 2018

ANALYTICAL RESULTS

Client: Brecheisen Engineering, Inc.
Work Order: 18120407 Revision 0
Project: 16-2FMEHS-00013, Fifth Ave. Eco Orchard, 3001-
Lab ID: 18120407-002

Client Sample ID: SB-9 (12-15)
Collection Date: 12/13/2018 1:00:00 PM
Matrix: Soil

Analyses	Result	RL	Qualifier	Units	DF	Date Analyzed
Hydraulic Conductivity	**D5084**			Prep Date:		Analyst: **SUB**
Hydraulic Conductivity	2.5E-08		*	cm/s	1	12/22/2018

Qualifiers:

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
HT - Sample received past holding time
* - Non-accredited parameter
RL - Reporting / Quantitation Limit for the analysis
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
E - Value above quantitation range
H - Holding time exceeded

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CHAIN OF CUSTODY RECORD

N°: 866213 **Page :** 1 **of** 1

Company: BEI
Project Number: 16-2FMELHS-00013 Client Tracking No.:
Project Name: Fifth Ave. Eco Orchard
Project Location: 3001-11 W. Fifth Ave.
Sampler(s): Tom Brecheisen
Report To: Tom Brecheisen Phone: 773-334-3944
Fax:
QC Level: 1 ____ 2 ____ 3 ____ 4 ____ e-mail: tom@beichicago.com

P.O. No.:
Quote No.:

Turn Around:
Results Needed:
/ / am/pm

Client Sample Number/Description:	Date Taken	Time Taken	Matrix	Comp.	Grab	Preserv.	No. of Containers	Remarks	Lab No.:
SB-3(6-9)	12/13/18	9:35	S		✓	A	1		001
SB-9(12-15)	12/13/18	13:00	S		✓	A	1		002

Relinquished by: (Signature) Thomas A. Brecheisen Date/Time: 12-13-18/16:28
Received by: (Signature) Date/Time: 12/13/18 16:08
Relinquished by: (Signature) Date/Time:
Received by: (Signature) Date/Time:
Relinquished by: (Signature) Date/Time:
Received by: (Signature) Date/Time:

Comments: HOLD All Samples

Preservation Code: A = None B = HNO_3 C = NaOH
D = H_2SO_4 E = HCl F = 5035/EnCore G = Other

Laboratory Work Order No.: 18120407

Received on Ice: Yes X No ____
Temperature: Ambient °C

STAT Analysis Corporation

Sample Receipt Checklist

Client Name BEI | Date and Time Received: 12/13/2018 4:08:00 PM

Work Order Number 18120407 | Received by: EAA

Checklist completed by: _____ 12/13/18 (Signature / Date) | Reviewed by: _____ 12/17/18 (Initials / Date)

Matrix: | Carrier name | Client Delivered

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐	
Custody seals intact on shippping container/cooler?	Yes ☐	No ☐	Not Present ☑	
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑	
Chain of custody present?	Yes ☑	No ☐		
Chain of custody signed when relinquished and received?	Yes ☑	No ☐		
Chain of custody agrees with sample labels/containers?	Yes ☑	No ☐		
Samples in proper container/bottle?	Yes ☑	No ☐		
Sample containers intact?	Yes ☑	No ☐		
Sufficient sample volume for indicated test?	Yes ☑	No ☐		
All samples received within holding time?	Yes ☑	No ☐		
Container or Temp Blank temperature in compliance?	Yes ☑	No ☐	Temperature Ambient °C	
Water - VOA vials have zero headspace?	No VOA vials submitted ☒	Yes ☒	No ☒	
Water - Samples pH checked?	Yes ☒	No ☒	Checked by: _____	
Water - Samples properly preserved?	Yes ☒	No ☒	pH Adjusted? _____	

Any No response must be detailed in the comments section below.

Comments: _____

Client / Person contacted: _____ Date contacted: _____ Contacted by: _____

Response: _____

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CHAIN OF CUSTODY RECORD

No: 866210 **Page:** 1 of 3

Company: BEI
Project Number: 16-2FMEHS-00073 Client Tracking No.:
Project Name: Fifth Ave Eco Overlayed
Project Location: 3001-11 W. Fifth Ave.
Sampler(s): Tom Brechlisen
Report To: Tom Brechlisen Phone: 773-334-3944
Fax:
QC Level: 1 2 3 4 e-mail: tom@beichicago.com

P.O. No.:
Quote No.:

Turn Around: Std.
Results Needed: / / am/pm

Client Sample Number/Description:	Date Taken	Time Taken	Matrix	Comp.	Grab	Preserv.	No. of Containers	VOCs	SVOCs	TAL Inorganics/pH	PCBs/pesticides/Herbicides	RCRA Metals/pH	PNAs	BETX	HOLD	Remarks	Lab No.:
SB-1 (0-3)	12/13/18	8:15	S		✓	F	4			✓	✓	✓					001
SB-1 (3-6)	12/13/18	8:20	S		✓	F	4			✓	✓	✓					002
SB-1 (6-9)	12/13/18	8:30	S		✓	F	4								✓		003
SB-1 (9-12)	12/13/18	8:35	S		✓	F	4								✓		004
SB-1 (12-15)	12/13/18	8:40	S		✓	F	4								✓		005
SB-2 (0-3)	12/13/18	8:55	S		✓	F	5			✓	✓	✓					006
SB-2 (3-6)	12/13/18	9:00	S		✓	F	5			✓	✓	✓					007
SB-2 (6-9)	12/13/18	9:05	S		✓	F	4								✓		008
SB-2 (9-12)	12/13/18	9:10	S		✓	F	4								✓		009
SB-2 (12-15)	12/13/18	9:15	S		✓	F	4								✓		010
SB-3 (0-3)	12/13/18	9:25	S		✓	F	4			✓	✓	✓					011
SB-3 (3-6)	12/13/18	9:30	S		✓	F	4								✓		012
SB-3 (6-9)	12/13/18	9:35	S		✓	F	4			✓	✓	✓					013
SB-3 (9-12)	12/13/18	9:40	S		✓	F	4								✓		014
SB-3 (12-15)	12/13/18	9:45	S		✓	F	4								✓		015
SB-4 (0-3)	12/13/18	10:00	S		✓	F	4			✓	✓	✓					016
SB-4 (3-6)	12/13/18	10:05	S		✓	F	4			✓	✓	✓					017
SB-4 (6-9)	12/13/18	10:10	S		✓	F	4								✓		018
SB-4 (9-12)	12/13/18	10:15	S		✓	F	4								✓		019
SB-4 (12-15)	12/13/18	10:20	S		✓	F	4								✓		020

Relinquished by: (Signature) Thomas A. Brechlisen Date/Time: 12-13-18/16:08
Received by: (Signature) [illegible] Date/Time: 12/13/18 16:08
Relinquished by: (Signature) Date/Time:
Received by: (Signature) Date/Time:
Relinquished by: (Signature) Date/Time:
Received by: (Signature) Date/Time:

Comments: HOLD All Samples

Preservation Code: A = None B = HNO_3 C = NaOH D = H_2SO_4 E = HCl F = 5035/EnCore G = Other

Laboratory Work Order No.: 18C20406

Received on Ice: Yes ✓ No

Temperature: 4.4 °C

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CHAIN OF CUSTODY RECORD

No.: 866211 Page: 2 of 3

Company: BEI
Project Number: 16-2FMEIIS-00013 Client Tracking No.:
Project Name: Fifth Ave Eco Gardens
Project Location: 3001-11 W. Fifth Ave
Sampler(s): Tom Brechbiesen
Report To: Tom Brechbiesen Phone: 773-334-3944
Fax:
QC Level: 1 2 3 4 e-mail: tom@beichicago.com

P.O. No.:
Quote No.:

Turn Around: Std.
Results Needed: / / am/pm

Client Sample Number/Description:	Date Taken	Time Taken	Matrix	Comp.	Grab	Preserv.	No. of Containers	VOCs	SVOCs	TAL Inorganics/pH	PCBs/Pesticides/Herbicides	BETX	PNAs	RCRA Metals/pH	HOLD	Remarks	Lab No.:
SB-5 (0-3)	12/13/18	10:30	S		✓	F	5					✓	✓	✓			021
SB-5 (3-6)	12/13/18	10:35	S		✓	F	5								✓		022
SB-5 (6-9)	12/13/18	10:40	S		✓	F	4					✓	✓	✓			023
SB-5 (9-12)	12/13/18	10:45	S		✓	F	4								✓		024
SB-5 (12-15)	12/13/18	10:50	S		✓	F	4								✓		025
SB-6 (0-3)	12/13/18	11:05	S		✓	F	5	✓	✓	✓	✓	✓					026
SB-6 (3-6)	12/13/18	11:10	S		✓	F	5	✓	✓	✓	✓	✓					027
SB-6 (6-9)	12/13/18	11:15	S		✓	F	4								✓		028
SB-6 (9-12)	12/13/18	11:20	S		✓	F	4								✓		029
SB-6 (12-15)	12/13/18	11:25	S		✓	F	4								✓		030
SB-7 (0-3)	12/13/18	11:35	S		✓	F	4					✓	✓	✓			031
~~SB-7 (3-6)~~							0								✓		~~033~~
SB-7 (6-9)	12/13/18	11:45	S		✓	F	4					✓	✓	✓			032
SB-7 (9-12)	12/13/18	11:50	S		✓	F	4								✓		033
SB-7 (12-15)	12/13/18	12:00	S		✓	F	4								✓		034
SB-8 (0-3)	12/13/18	12:10	S		✓	F	5					✓	✓	✓			035
SB-8 (3-6)	12/13/18	12:15	S		✓	F	5								✓		036
SB-8 (6-9)	12/13/18	12:20	S		✓	F	5					✓	✓	✓			037
SB-8 (9-12)	12/13/18	12:25	S		✓	F	4								✓		038
SB-8 (12-15)	12/13/18	12:30	S		✓	F	4								✓		039

Relinquished by: (Signature) Thomas A. Brechbiesen Date/Time: 12-13-18/16:08
Received by: (Signature) Elsa Date/Time: 12/13/18/16:08
Relinquished by: (Signature) Date/Time:
Received by: (Signature) Date/Time:
Relinquished by: (Signature) Date/Time:
Received by: (Signature) Date/Time:

Comments: HOLD All Samples

Preservation Code: A = None B = HNO_3 C = NaOH D = H_2SO_4 E = HCl F = 5035/EnCore G = Other

Laboratory Work Order No.: 18120406

Received on Ice: Yes ✓ No

Temperature: 4.4°C

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CHAIN OF CUSTODY RECORD

Nº: 866212 **Page:** 3 of 3

Company: BEI
Project Number: 16-2EMGHS-00013 Client Tracking No.:
Project Name: Fifth Ave Eco Orchard
Project Location: 3001-11 W. Fifth Ave.
Sampler(s): Tom Brecheisen
Report To: Tom Brecheisen Phone: 773-334-3944
Fax:
QC Level: 1 2 3 4 e-mail: tom@beichicago.com

P.O. No.:
Quote No.:

Turn Around: Std.
Results Needed: / / am/pm

Client Sample Number/Description:	Date Taken	Time Taken	Matrix	Comp.	Grab	Preserv.	No. of Containers	BETX	PNAs	RCRA Metals/pH	HOLD	Remarks	Lab No.:
SB-9 (0-3)	12/13/18	12:40	S		✓	F	4	✓	✓	✓			040
SB-9 (3-6)	12/13/18	12:45	S		✓	F	4	✓	✓	✓			041
SB-9 (6-9)	12/13/18	12:50	S		✓	F	4				✓		042
SB-9 (9-12)	12/13/18	12:55	S		✓	F	4				✓		043
SB-9 (12-15)	12/13/18	13:00	S		✓	F	4				✓		044
SB-10 (0-3)	12/13/18	13:10	S		✓	F	4	✓	✓	✓			045
SB-10 (3-6)	12/13/18	13:15	S		✓	F	4	✓	✓	✓			046
SB-10 (6-9)	12/13/18	13:20	S		✓	F	4				✓		047
SB-10 (9-12)	12/13/18	13:25	S		✓	F	4				✓		048
SB-10 (12-15)	12/13/18	13:30	S		✓	F	4				✓		049

Relinquished by: (Signature) Thomas A. Brecheisen Date/Time: 12-13-18 / 16:08
Received by: (Signature) Date/Time: 12/13/18 16:08
Relinquished by: (Signature) Date/Time:
Received by: (Signature) Date/Time:
Relinquished by: (Signature) Date/Time:
Received by: (Signature) Date/Time:

Comments: HOLD All Samples

Preservation Code: A = None B = HNO_3 C = NaOH D = H_2SO_4 E = HCl F = 5035/EnCore G = Other

Laboratory Work Order No.: 18120406

Received on Ice: Yes ✓ No

Temperature: 4.4 °C

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CHAIN OF CUSTODY RECORD

Nº: 866213 **Page:** 1 of 1

Company: BEI
Project Number: 16-2FMEHS-00013 Client Tracking No.:
Project Name: Fifth Ave. Eco Orchard
Project Location: 3001-11 W. Fifth Ave.
Sampler(s): Tom Brecheisen
Report To: Tom Brecheisen Phone: 773-334-3944
Fax:
QC Level: 1 ____ 2 ____ 3 ____ 4 ____ e-mail: tom@beichicago.com

P.O. No.:
Quote No.:

Turn Around:
Results Needed: / / am/pm

Client Sample Number/Description:	Date Taken	Time Taken	Matrix	Comp.	Grab	Preserv.	No. of Containers	Hydraulic Conductivity by D5084	HOLD	Remarks	Lab No.:
SB-3(6-9)	12/13/18	9:35	S		✓	A	1		✓		001
SB-9(12-15)	12/13/18	13:00	S		✓	A	1	✓			002

Relinquished by: (Signature) Thomas A. Brecheisen	Date/Time: 12-13-18/16:08	Comments: HOLD All Samples
Received by: (Signature) Ellen	Date/Time: 12/13/18 16:08	
Relinquished by: (Signature)	Date/Time:	
Received by: (Signature)	Date/Time:	
Relinquished by: (Signature)	Date/Time:	
Received by: (Signature)	Date/Time:	

Preservation Code: A = None B = HNO_3 C = NaOH D = H_2SO_4 E = HCl F = 5035/EnCore G = Other

Laboratory Work Order No.: 18120407

Received on Ice: Yes [X] No [ ]
Temperature: Ambient

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January 08, 2019

Tom Brecheisen
Brecheisen Engineering, Inc.
1700 N. North Park Ave, S-B
Chicago, IL 60614

Project ID: 16-2FMEHS-00013
Grace Analytical Job ID: 8121803

The above referenced project was analyzed as directed on the enclosed Chain of Custody record. Analyses were performed in accordance with requirements of 35 IAC 186(Accreditation #100246) and within holding time. Quality control criteria as outlined in the methods and current IL ELAP/NELAP have been met unless otherwise noted. QA/QC documentation and raw data will remain on file for future reference.

Request for duplications or reproductions of these analytical reports must be made in writing to GAL and signed by an authorized agent. The analytical results relate only to the samples analyzed.
GAL seeks you feedback, both positive and negative, on our performance. Please contact us for a copy of our feedback form or submit your comments to us at feedback@gracelabinc.com.

Should you have any questions regarding any of the enclosed analytical data or need additional information, please contact me at (708) 449-9449 or e-mail skim@gracelabinc.com.

Sincerely,

Steven Kim, Ph.D.
Laboratory Director
Grace Analytical Lab, Inc.

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Brecheisen Engineering, Inc.
1700 N. North Park Ave, S-B
Chicago IL, 60614

Project Name: 3001-11 W. Fifth Ave
Project Number: 16-2FMEHS-00013
Project Manager: Tom Brecheisen

SN: 201918161356
Reported By: AM
01/08/19 16:13

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
TMW-1	8121803-01	Ground Water	12/17/18 15:15	12/18/18 12:50
TMW-2	8121803-02	Ground Water	12/17/18 15:30	12/18/18 12:50
TMW-3	8121803-03	Ground Water	12/17/18 15:45	12/18/18 12:50
TMW-4	8121803-04	Ground Water	12/17/18 16:00	12/18/18 12:50

CASE NARRATIVES

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Brecheisen Engineering, Inc.	Project Name: 3001-11 W. Fifth Ave	SN: 201918161356
1700 N. North Park Ave, S-B	Project Number: 16-2FMEHS-00013	Reported By: AM
Chicago IL, 60614	Project Manager: Tom Brecheisen	01/08/19 16:13

Client Sample ID: TMW-1

Lab Sample ID: 8121803-01 (Ground Water)

Grace Analytical Lab, Inc.

Analyte	Result	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Qualifiers
Volatile Organic Compounds by EPA Method 8260B								
Benzene	ND	2	ug/L	1	12/20/18	12/21/18	EPA 8260B	
Ethyl Alcohol	ND	10	ug/L	1	12/20/18	12/21/18	EPA 8260B	
Ethylbenzene	ND	5	ug/L	1	12/20/18	12/21/18	EPA 8260B	
Hexane	ND	1	ug/L	1	12/20/18	12/21/18	EPA 8260B	
Toluene	ND	5	ug/L	1	12/20/18	12/21/18	EPA 8260B	
Xylenes, total	ND	5	ug/L	1	12/20/18	12/21/18	EPA 8260B	
Polynuclear Aromatic Compounds by GC/MS with Selected Ion Monitoring								
Acenaphthene	ND	1.00	ug/L	1	12/21/18	12/22/18	EPA 8270C	
Acenaphthylene	ND	1.00	ug/L	1	12/21/18	12/22/18	EPA 8270C	
Anthracene	ND	0.50	ug/L	1	12/21/18	12/22/18	EPA 8270C	
Benzo (a) anthracene	ND	0.10	ug/L	1	12/21/18	12/22/18	EPA 8270C	
Benzo (a) pyrene	ND	0.20	ug/L	1	12/21/18	12/22/18	EPA 8270C	
Benzo (b) fluoranthene	ND	0.18	ug/L	1	12/21/18	12/22/18	EPA 8270C	
Benzo (g,h,i) perylene	ND	0.30	ug/L	1	12/21/18	12/22/18	EPA 8270C	
Benzo (k) fluoranthene	ND	0.17	ug/L	1	12/21/18	12/22/18	EPA 8270C	
Chrysene	ND	0.20	ug/L	1	12/21/18	12/22/18	EPA 8270C	
Dibenz (a,h) anthracene	ND	0.20	ug/L	1	12/21/18	12/22/18	EPA 8270C	
Fluoranthene	ND	0.20	ug/L	1	12/21/18	12/22/18	EPA 8270C	
Fluorene	ND	2.00	ug/L	1	12/21/18	12/22/18	EPA 8270C	
Indeno(1,2,3-cd)pyrene	ND	0.30	ug/L	1	12/21/18	12/22/18	EPA 8270C	
Naphthalene	ND	1.00	ug/L	1	12/21/18	12/22/18	EPA 8270C	
Phenanthrene	ND	0.50	ug/L	1	12/21/18	12/22/18	EPA 8270C	
Pyrene	ND	0.20	ug/L	1	12/21/18	12/22/18	EPA 8270C	

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Brecheisen Engineering, Inc.	Project Name: 3001-11 W. Fifth Ave	SN: 201918161356
1700 N. North Park Ave, S-B	Project Number: 16-2FMEHS-00013	Reported By: AM
Chicago IL, 60614	Project Manager: Tom Brecheisen	01/08/19 16:13

Client Sample ID: TMW-2

Lab Sample ID: 8121803-02 (Ground Water)

Analyte	Result	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Qualifiers
Grace Analytical Lab, Inc.								
Volatile Organic Compounds by EPA Method 8260B								
Benzene	ND	2	ug/L	1	12/20/18	12/21/18	EPA 8260B	
Ethyl Alcohol	ND	10	ug/L	1	12/20/18	12/21/18	EPA 8260B	
Ethylbenzene	ND	5	ug/L	1	12/20/18	12/21/18	EPA 8260B	
Hexane	ND	1	ug/L	1	12/20/18	12/21/18	EPA 8260B	
Toluene	ND	5	ug/L	1	12/20/18	12/21/18	EPA 8260B	
Xylenes, total	ND	5	ug/L	1	12/20/18	12/21/18	EPA 8260B	
Polynuclear Aromatic Compounds by GC/MS with Selected Ion Monitoring								
Acenaphthene	ND	1.00	ug/L	1	12/21/18	12/22/18	EPA 8270C	
Acenaphthylene	ND	1.00	ug/L	1	12/21/18	12/22/18	EPA 8270C	
Anthracene	ND	0.50	ug/L	1	12/21/18	12/22/18	EPA 8270C	
Benzo (a) anthracene	ND	0.10	ug/L	1	12/21/18	12/22/18	EPA 8270C	
Benzo (a) pyrene	ND	0.20	ug/L	1	12/21/18	12/22/18	EPA 8270C	
Benzo (b) fluoranthene	ND	0.18	ug/L	1	12/21/18	12/22/18	EPA 8270C	
Benzo (g,h,i) perylene	ND	0.30	ug/L	1	12/21/18	12/22/18	EPA 8270C	
Benzo (k) fluoranthene	ND	0.17	ug/L	1	12/21/18	12/22/18	EPA 8270C	
Chrysene	ND	0.20	ug/L	1	12/21/18	12/22/18	EPA 8270C	
Dibenz (a,h) anthracene	ND	0.20	ug/L	1	12/21/18	12/22/18	EPA 8270C	
Fluoranthene	ND	0.20	ug/L	1	12/21/18	12/22/18	EPA 8270C	
Fluorene	ND	2.00	ug/L	1	12/21/18	12/22/18	EPA 8270C	
Indeno(1,2,3-cd)pyrene	ND	0.30	ug/L	1	12/21/18	12/22/18	EPA 8270C	
Naphthalene	ND	1.00	ug/L	1	12/21/18	12/22/18	EPA 8270C	
Phenanthrene	ND	0.50	ug/L	1	12/21/18	12/22/18	EPA 8270C	
Pyrene	ND	0.20	ug/L	1	12/21/18	12/22/18	EPA 8270C	
First Environmental Laboratories Inc.								
Total Mercury								
Mercury	ND	0.0005	mg/L	1	12/17/18	12/28/18	7470A	

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Brecheisen Engineering, Inc.	Project Name: 3001-11 W. Fifth Ave	SN: 201918161356
1700 N. North Park Ave, S-B	Project Number: 16-2FMEHS-00013	Reported By: AM
Chicago IL, 60614	Project Manager: Tom Brecheisen	01/08/19 16:13

Client Sample ID: TMW-2

Lab Sample ID: 8121803-02 (Ground Water)

First Environmental Laboratories Inc.

Analyte	Result	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Qualifiers
Total Metals								
Arsenic	ND	0.01	mg/L	1	12/26/18	12/27/18	6010C	
Barium	**0.022**	0.005	mg/L	1	12/26/18	12/27/18	6010C	
Cadmium	ND	0.005	mg/L	1	12/26/18	12/27/18	6010C	
Chromium	ND	0.005	mg/L	1	12/26/18	12/27/18	6010C	
Lead	**0.013**	0.005	mg/L	1	12/26/18	12/27/18	6010C	
Selenium	ND	0.01	mg/L	1	12/26/18	12/27/18	6010C	
Silver	ND	0.005	mg/L	1	12/26/18	12/27/18	6010C	

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Brecheisen Engineering, Inc.	Project Name: 3001-11 W. Fifth Ave	SN: 201918161356
1700 N. North Park Ave, S-B	Project Number: 16-2FMEHS-00013	Reported By: AM
Chicago IL, 60614	Project Manager: Tom Brecheisen	01/08/19 16:13

Client Sample ID: TMW-3

Lab Sample ID: 8121803-03 (Ground Water)

Grace Analytical Lab, Inc.

Analyte	Result	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Qualifiers
Volatile Organic Compounds (GC/MS)								
1,1,1-Trichloroethane	ND	5	ug/L	1	12/20/18	12/21/18	EPA 8260C	
1,1,2,2-Tetrachloroethane	ND	5	ug/L	1	12/20/18	12/21/18	EPA 8260C	
1,1,2-Trichloroethane	ND	5	ug/L	1	12/20/18	12/21/18	EPA 8260C	
1,1-Dichloroethane	ND	5	ug/L	1	12/20/18	12/21/18	EPA 8260C	
1,1-Dichloroethylene	ND	5	ug/L	1	12/20/18	12/21/18	EPA 8260C	
1,2-Dichloroethane	ND	5	ug/L	1	12/20/18	12/21/18	EPA 8260C	
1,2-Dichloropropane	ND	5	ug/L	1	12/20/18	12/21/18	EPA 8260C	
2-Butanone	ND	5	ug/L	1	12/20/18	12/21/18	EPA 8260C	
2-Hexanone	ND	5	ug/L	1	12/20/18	12/21/18	EPA 8260C	
Acetone	ND	100	ug/L	1	12/20/18	12/21/18	EPA 8260C	
Benzene	ND	2	ug/L	1	12/20/18	12/21/18	EPA 8260C	
Bromodichloromethane	ND	2	ug/L	1	12/20/18	12/21/18	EPA 8260C	
Bromoform	ND	2	ug/L	1	12/20/18	12/21/18	EPA 8260C	
Bromomethane	ND	5	ug/L	1	12/20/18	12/21/18	EPA 8260C	
Carbon disulfide	ND	5	ug/L	1	12/20/18	12/21/18	EPA 8260C	
Carbon Tetrachloride	ND	5	ug/L	1	12/20/18	12/21/18	EPA 8260C	
Chlorobenzene	ND	5	ug/L	1	12/20/18	12/21/18	EPA 8260C	
Chloroethane	ND	5	ug/L	1	12/20/18	12/21/18	EPA 8260C	
Chloroform	ND	5	ug/L	1	12/20/18	12/21/18	EPA 8260C	
Chloromethane	ND	5	ug/L	1	12/20/18	12/21/18	EPA 8260C	
cis-1,2-Dichloroethylene	ND	5	ug/L	1	12/20/18	12/21/18	EPA 8260C	
cis-1,3-Dichloropropylene	ND	2	ug/L	1	12/20/18	12/21/18	EPA 8260C	
Dibromochloromethane	ND	5	ug/L	1	12/20/18	12/21/18	EPA 8260C	
Ethylbenzene	ND	5	ug/L	1	12/20/18	12/21/18	EPA 8260C	
Methyl Isobutyl Ketone	ND	5	ug/L	1	12/20/18	12/21/18	EPA 8260C	
Methylene Chloride	ND	5	ug/L	1	12/20/18	12/21/18	EPA 8260C	
Methyl-tert-Butyl Ether	ND	5	ug/L	1	12/20/18	12/21/18	EPA 8260C	
Styrene	ND	5	ug/L	1	12/20/18	12/21/18	EPA 8260C	
Tetrachloroethene	ND	2	ug/L	1	12/20/18	12/21/18	EPA 8260C	
Toluene	ND	5	ug/L	1	12/20/18	12/21/18	EPA 8260C	
trans-1,2-Dichloroethylene	ND	5	ug/L	1	12/20/18	12/21/18	EPA 8260C	
trans-1,3-Dichloropropylene	ND	2	ug/L	1	12/20/18	12/21/18	EPA 8260C	
Trichloroethene	ND	2	ug/L	1	12/20/18	12/21/18	EPA 8260C	
Vinyl chloride	ND	2	ug/L	1	12/20/18	12/21/18	EPA 8260C	
Xylenes, total	ND	5	ug/L	1	12/20/18	12/21/18	EPA 8260C	

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Brecheisen Engineering, Inc.	Project Name: 3001-11 W. Fifth Ave	SN: 201918161356
1700 N. North Park Ave, S-B	Project Number: 16-2FMEHS-00013	Reported By: AM
Chicago IL, 60614	Project Manager: Tom Brecheisen	01/08/19 16:13

Client Sample ID: TMW-4

Lab Sample ID: 8121803-04 (Ground Water)

Grace Analytical Lab, Inc.

Analyte	Result	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Qualifiers
Volatile Organic Compounds by EPA Method 8260B								
Benzene	ND	2	ug/L	1	12/20/18	12/21/18	EPA 8260B	
Ethyl Alcohol	ND	10	ug/L	1	12/20/18	12/21/18	EPA 8260B	
Ethylbenzene	ND	5	ug/L	1	12/20/18	12/21/18	EPA 8260B	
Hexane	ND	1	ug/L	1	12/20/18	12/21/18	EPA 8260B	
Toluene	ND	5	ug/L	1	12/20/18	12/21/18	EPA 8260B	
Xylenes, total	ND	5	ug/L	1	12/20/18	12/21/18	EPA 8260B	
Polynuclear Aromatic Compounds by GC/MS with Selected Ion Monitoring								
Acenaphthene	ND	1.00	ug/L	1	12/21/18	12/22/18	EPA 8270C	
Acenaphthylene	ND	1.00	ug/L	1	12/21/18	12/22/18	EPA 8270C	
Anthracene	ND	0.50	ug/L	1	12/21/18	12/22/18	EPA 8270C	
Benzo (a) anthracene	ND	0.10	ug/L	1	12/21/18	12/22/18	EPA 8270C	
Benzo (a) pyrene	ND	0.20	ug/L	1	12/21/18	12/22/18	EPA 8270C	
Benzo (b) fluoranthene	ND	0.18	ug/L	1	12/21/18	12/22/18	EPA 8270C	
Benzo (g,h,i) perylene	ND	0.30	ug/L	1	12/21/18	12/22/18	EPA 8270C	
Benzo (k) fluoranthene	ND	0.17	ug/L	1	12/21/18	12/22/18	EPA 8270C	
Chrysene	ND	0.20	ug/L	1	12/21/18	12/22/18	EPA 8270C	
Dibenz (a,h) anthracene	ND	0.20	ug/L	1	12/21/18	12/22/18	EPA 8270C	
Fluoranthene	ND	0.20	ug/L	1	12/21/18	12/22/18	EPA 8270C	
Fluorene	ND	2.00	ug/L	1	12/21/18	12/22/18	EPA 8270C	
Indeno(1,2,3-cd)pyrene	ND	0.30	ug/L	1	12/21/18	12/22/18	EPA 8270C	
Naphthalene	ND	1.00	ug/L	1	12/21/18	12/22/18	EPA 8270C	
Phenanthrene	ND	0.50	ug/L	1	12/21/18	12/22/18	EPA 8270C	
Pyrene	ND	0.20	ug/L	1	12/21/18	12/22/18	EPA 8270C	

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Brecheisen Engineering, Inc.	Project Name: 3001-11 W. Fifth Ave	SN: 201918161356
1700 N. North Park Ave, S-B	Project Number: 16-2FMEHS-00013	Reported By: AM
Chicago IL, 60614	Project Manager: Tom Brecheisen	01/08/19 16:13

Notes and Definitions

DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference

Grace Analytical lab, inc.

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GRACE ANALYTICAL LAB, INC.

CHAIN OF CUSTODY PAGE 1 OF 1

PHONE (708) 449-9449 FAX (708) 449-3663
5300-B McDermott Drive Berkeley, IL 60163

8121803

CLIENT INFORMATION	
Project Manager:	Tom Brechbiesen
Company:	Brechbiesen Engineering, Inc. 5430 N. Sheridan Rd. #807 Chicago, IL 60640
Phone: 773-334-3944 Fax:	
Project Name:	3001-11 W. Fifth Ave.
Project ID#:	16-2FMEHS-00013
Sampler:	Tom Brechbiesen

SAMPLE RECEIVING RECORDS
Samples Received On Ice ☑ YES ☐ NO
Sample Temperature(If not On Ice) 3.7 c
Samples Intact/Not Leaking ☑ YES ☐ NO

SAMPLE CHARACTERISTICS
☐ NONHAZARDOUS
☐ Special Handling Required (Please Describe:)

TURNAROUND Standard
Date Required:
Schedule in advance to insure RUSH Processing
Comments / Special Instructions

QC Levels: ___ None ___ Level 2 ___ Level 3 ___ Level 4

GAL SAMPLE ID	FIELD ID, LOCATION / DESCRIPTION	DATE	TIME	MATRIX	Number of Containers	PRESERVATIVE	ANALYSIS NEEDED:	VOCs	BETX	PNAs	RCRA metals				REMARKS
8121803-01	TMW-1	12/17/18	15:15	GW	3				✓	✓					
-02	TMW-2	12/17/18	15:30	GW	4				✓	✓	✓				
-03	TMW-3	12/17/18	15:45	GW	2			✓							
-04	TMW-4	12/17/18	16:00	GW	3				✓	✓					

MATRIX: Soil (S), Surface Water (SW), Ground Water (GW), Waste Water (WW), Waste/Solid (W/S), Waste/Liquid (W/L), Drinking Water (DW), Air Cassettes (AC); Note if COMPOSITE (C) or GRAB (G)
PRESERVATIVE: Nitric Acid (HNO_3), Hydrochloric Acid (HCl), Sodium Hydroxide (NaOH), Sulfuric Acid (H_2SO_4), Sodium Bisulfate ($NaHSO_4$), Methanol(CH_3OH), None

Relinquished By (Signature):	Date/Time:	Received By (Signature):	Date/Time:	Relinquished By (Signature):	Date/Time:	Received For Lab By (Signature):	Date/Time:
Thomas A. Brechbiesen	12-18-18/12:50						12-18-18 12:50
Relinquished By (Signature):	Date/Time	Received By (Signature):	Date/Time	Relinquished By (Signature):	Date/Time	Received For Lab By (Signature):	Date/Time

WHITE - ORIGINAL FILE COPY CANARY - LAB COPY

Grace Analytical lab, inc.

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SAMPLE/COOLER RECEIPT FORM GAL JOB ID#: 8121803
Client Name: Brecheisen Engineering, Inc. Cooler Received/Opened: 12/18/2018 at 12:50
Project ID: 16-2FMEHS-00013

Signed by: _____
Log-In Personnel Signature

		Yes	No	NA
1.	Temperature of Cooler when triaged: 3.7 C			
2.	Were custody seals on outside of cooler?...	☐	☐	☒
3.	Were custody seals on containers intact?	☐	☐	☒
	If YES: Were the seals intact, signed, and dated correctly?	☐	☐	☐
4.	Were Chain of Custody form inside cooler?	☒	☐	☐
5.	Were Chain of Custody form properly filled out (ink, signed, etc)?.	☒	☐	☐
6.	Did you sign the Chain of Custody form in the appropriate place?	☒	☐	☐
7.	Was there packing material used	☐	☒	☐
	If YES: ☐Bubblewrap ☐Peanuts ☐Vermiculite ☐Other ☐ None			
8.	Cooling process: ☒Ice ☐Icepack ☐Ice(direct contact) ☐Dry ice ☐other ☐None			
9.	Did all containers arrive in good condition (unbroken)?	☒	☐	☐
10.	Were all container labels complete (ID #, data, signed, preserv., etc	☒	☐	☐
11.	Did all container labels and tags agree with Chain of Custody form	☒	☐	☐
12.	Were correct containers used for the analysis requested	☒	☐	☐
13.	a. Were Water VOA vials received	☒	☐	☐
	b. Was there any observable head space present in any VOA vial	☐	☒	☐
14.	Was sufficient amount of sample sent in each container	☒	☐	☐
15.	Were correct preservatives used	☒	☐	☐
	If not, record _____			
16.	Was residual chlorine present	☐	☐	☒

17. Indicate the Airbill Tracking Number and Name of Courier below:
☐Fed-Ex ☐UPS ☐Velocity ☐Airborne ☐Route ☐Misc. ☒Hand delivered ☐Picked Up

18. If a Non-Conformance exists, record reason: _____

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January 08, 2019

Tom Brecheisen
Brecheisen Engineering, Inc.
1700 N. North Park Ave, S-B
Chicago, IL 60614

Project ID: 16-2FMEHS-00013
Grace Analytical Job ID: 8122103

The above referenced project was analyzed as directed on the enclosed Chain of Custody record. Analyses were performed in accordance with requirements of 35 IAC 186(Accreditation #100246) and within holding time. Quality control criteria as outlined in the methods and current IL ELAP/NELAP have been met unless otherwise noted. QA/QC documentation and raw data will remain on file for future reference.

Request for duplications or reproductions of these analytical reports must be made in writing to GAL and signed by an authorized agent. The analytical results relate only to the samples analyzed.
GAL seeks you feedback, both positive and negative, on our performance. Please contact us for a copy of our feedback form or submit your comments to us at feedback@gracelabinc.com.

Should you have any questions regarding any of the enclosed analytical data or need additional information, please contact me at (708) 449-9449 or e-mail skim@gracelabinc.com.

Sincerely,

Steven Kim, Ph.D.
Laboratory Director
Grace Analytical Lab, Inc.

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Brecheisen Engineering, Inc.
1700 N. North Park Ave, S-B
Chicago IL, 60614

Project Name: 3001-11 W. Fifth Ave
Project Number: 16-2FMEHS-00013
Project Manager: Tom Brecheisen

SN: 201918162304
Reported By: AM
01/08/19 16:22

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
TMW-1	8122103-01	Ground Water	12/20/18 14:00	12/21/18 11:15
TMW-3	8122103-02	Ground Water	12/20/18 14:10	12/21/18 11:15
TMW-4	8122103-03	Ground Water	12/20/18 14:20	12/21/18 11:15

CASE NARRATIVES

GRACE ANALYTICAL LAB, INC.
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Brecheisen Engineering, Inc.	Project Name: 3001-11 W. Fifth Ave	SN: 201918162304
1700 N. North Park Ave, S-B	Project Number: 16-2FMEHS-00013	Reported By: AM
Chicago IL, 60614	Project Manager: Tom Brecheisen	01/08/19 16:22

Client Sample ID: TMW-1

Lab Sample ID: 8122103-01 (Ground Water)

First Environmental Laboratories Inc.

Analyte	Result	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Qualifiers
Total Mercury								
Mercury	ND	0.0005	mg/L	1	12/20/18	01/07/19	7470A	
Total Metals								
Arsenic	ND	0.01	mg/L	1	01/02/19	01/03/19	6010C	
Barium	**0.077**	0.005	mg/L	1	01/02/19	01/03/19	6010C	
Cadmium	ND	0.005	mg/L	1	01/02/19	01/03/19	6010C	
Chromium	ND	0.005	mg/L	1	01/02/19	01/03/19	6010C	
Lead	ND	0.005	mg/L	1	01/02/19	01/03/19	6010C	
Selenium	ND	0.01	mg/L	1	01/02/19	01/03/19	6010C	
Silver	ND	0.005	mg/L	1	01/02/19	01/03/19	6010C	

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Brecheisen Engineering, Inc.	Project Name: 3001-11 W. Fifth Ave	SN: 201918162304
1700 N. North Park Ave, S-B	Project Number: 16-2FMEHS-00013	Reported By: AM
Chicago IL, 60614	Project Manager: Tom Brecheisen	01/08/19 16:22

Client Sample ID: TMW-3

Lab Sample ID: 8122103-02 (Ground Water)

Grace Analytical Lab, Inc.

Semivolatile Organic Compounds

Analyte	Result	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Qualifiers
1,2,4-Trichlorobenzene	ND	0.01	mg/L	1	12/27/18	01/03/19	EPA 8270D	
1,2-Dichlorobenzene	ND	0.01	mg/L	1	12/27/18	01/03/19	EPA 8270D	
1,3-Dichlorobenzene	ND	0.01	mg/L	1	12/27/18	01/03/19	EPA 8270D	
1,3-Dinitrobenzene	ND	0.01	mg/L	1	12/27/18	01/03/19	EPA 8270D	
1,4-Dichlorobenzene	ND	0.01	mg/L	1	12/27/18	01/03/19	EPA 8270D	
2,4,5-Trichlorophenol	ND	0.01	mg/L	1	12/27/18	01/03/19	EPA 8270D	
2,4,6-Trichlorophenol	ND	0.01	mg/L	1	12/27/18	01/03/19	EPA 8270D	
2,4-Dichlorophenol	ND	0.01	mg/L	1	12/27/18	01/03/19	EPA 8270D	
2,4-Dimethylphenol	ND	0.01	mg/L	1	12/27/18	01/03/19	EPA 8270D	
2,4-Dinitrophenol	ND	0.01	mg/L	1	12/27/18	01/03/19	EPA 8270D	
2,4-Dinitrotoluene	ND	0.0004	mg/L	1	12/27/18	01/03/19	EPA 8270D	
2,6-Dinitrotoluene	ND	0.0007	mg/L	1	12/27/18	01/03/19	EPA 8270D	
2-Chloronaphthalene	ND	0.01	mg/L	1	12/27/18	01/03/19	EPA 8270D	
2-Chlorophenol	ND	0.01	mg/L	1	12/27/18	01/03/19	EPA 8270D	
2-Methylnaphthalene	ND	0.01	mg/L	1	12/27/18	01/03/19	EPA 8270D	
2-Methylphenol	ND	0.01	mg/L	1	12/27/18	01/03/19	EPA 8270D	
2-Nitroaniline	ND	0.05	mg/L	1	12/27/18	01/03/19	EPA 8270D	
2-Nitrophenol	ND	0.01	mg/L	1	12/27/18	01/03/19	EPA 8270D	
3,3´-Dichlorobenzidine	ND	0.02	mg/L	1	12/27/18	01/03/19	EPA 8270D	
3/4-Methylphenol	ND	0.01	mg/L	1	12/27/18	01/03/19	EPA 8270D	
3-Nitroaniline	ND	0.05	mg/L	1	12/27/18	01/03/19	EPA 8270D	
4,6-Dinitro-2-methylphenol	ND	0.05	mg/L	1	12/27/18	01/03/19	EPA 8270D	
4-Bromophenyl phenyl ether	ND	0.01	mg/L	1	12/27/18	01/03/19	EPA 8270D	
4-Chloro-3-methylphenol	ND	0.02	mg/L	1	12/27/18	01/03/19	EPA 8270D	
4-Chloroaniline	ND	0.02	mg/L	1	12/27/18	01/03/19	EPA 8270D	
4-Chlorophenyl phenyl ether	ND	0.01	mg/L	1	12/27/18	01/03/19	EPA 8270D	
4-Nitroaniline	ND	0.02	mg/L	1	12/27/18	01/03/19	EPA 8270D	
4-Nitrophenol	ND	0.05	mg/L	1	12/27/18	01/03/19	EPA 8270D	
Acenaphthene	ND	0.01	mg/L	1	12/27/18	01/03/19	EPA 8270D	
Acenaphthylene	ND	0.01	mg/L	1	12/27/18	01/03/19	EPA 8270D	
Anthracene	ND	0.01	mg/L	1	12/27/18	01/03/19	EPA 8270D	
Benzo (a) anthracene	ND	0.002	mg/L	1	12/27/18	01/03/19	EPA 8270D	
Benzo (a) pyrene	ND	0.003	mg/L	1	12/27/18	01/03/19	EPA 8270D	
Benzo (b) fluoranthene	ND	0.002	mg/L	1	12/27/18	01/03/19	EPA 8270D	
Benzo (g,h,i) perylene	ND	0.01	mg/L	1	12/27/18	01/03/19	EPA 8270D	
Benzo (k) fluoranthene	ND	0.005	mg/L	1	12/27/18	01/03/19	EPA 8270D	
Benzoic acid	ND	0.05	mg/L	1	12/27/18	01/03/19	EPA 8270D	
Benzyl alcohol	ND	0.02	mg/L	1	12/27/18	01/03/19	EPA 8270D	

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Brecheisen Engineering, Inc.	Project Name: 3001-11 W. Fifth Ave	SN: 201918162304
1700 N. North Park Ave, S-B	Project Number: 16-2FMEHS-00013	Reported By: AM
Chicago IL, 60614	Project Manager: Tom Brecheisen	01/08/19 16:22

Client Sample ID: TMW-3

Lab Sample ID: 8122103-02 (Ground Water)

Grace Analytical Lab, Inc.

Analyte	Result	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Qualifiers
Semivolatile Organic Compounds								
Bis(2-chloroethoxy)methane	ND	0.01	mg/L	1	12/27/18	01/03/19	EPA 8270D	
Bis(2-chloroethyl)ether	ND	0.01	mg/L	1	12/27/18	01/03/19	EPA 8270D	
Bis(2-chloroisopropyl)ether	ND	0.01	mg/L	1	12/27/18	01/03/19	EPA 8270D	
Bis(2-ethylhexyl)phthalate	ND	0.005	mg/L	1	12/27/18	01/03/19	EPA 8270D	
Butyl benzyl phthalate	ND	0.01	mg/L	1	12/27/18	01/03/19	EPA 8270D	
Carbazole	ND	0.01	mg/L	1	12/27/18	01/03/19	EPA 8270D	
Chrysene	ND	0.003	mg/L	1	12/27/18	01/03/19	EPA 8270D	
Dibenz (a,h) anthracene	ND	0.01	mg/L	1	12/27/18	01/03/19	EPA 8270D	
Dibenzofuran	ND	0.01	mg/L	1	12/27/18	01/03/19	EPA 8270D	
Diethyl phthalate	ND	0.01	mg/L	1	12/27/18	01/03/19	EPA 8270D	
Dimethyl phthalate	ND	0.05	mg/L	1	12/27/18	01/03/19	EPA 8270D	
Di-n-butyl phthalate	ND	0.01	mg/L	1	12/27/18	01/03/19	EPA 8270D	
Di-n-octyl phthalate	ND	0.01	mg/L	1	12/27/18	01/03/19	EPA 8270D	
Fluoranthene	ND	0.01	mg/L	1	12/27/18	01/03/19	EPA 8270D	
Fluorene	ND	0.01	mg/L	1	12/27/18	01/03/19	EPA 8270D	
Hexachlorobenzene	ND	0.003	mg/L	1	12/27/18	01/03/19	EPA 8270D	
Hexachlorobutadiene	ND	0.01	mg/L	1	12/27/18	01/03/19	EPA 8270D	
Hexachlorocyclopentadiene	ND	0.01	mg/L	1	12/27/18	01/03/19	EPA 8270D	
Hexachloroethane	ND	0.0008	mg/L	1	12/27/18	01/03/19	EPA 8270D	
Indeno(1,2,3-cd)pyrene	ND	0.01	mg/L	1	12/27/18	01/03/19	EPA 8270D	
Isophorone	ND	0.01	mg/L	1	12/27/18	01/03/19	EPA 8270D	
Naphthalene	ND	0.01	mg/L	1	12/27/18	01/03/19	EPA 8270D	
Nitrobenzene	ND	0.01	mg/L	1	12/27/18	01/03/19	EPA 8270D	
N-Nitrosodi-n-propylamine	ND	0.0007	mg/L	1	12/27/18	01/03/19	EPA 8270D	
N-Nitrosodiphenylamine	ND	0.004	mg/L	1	12/27/18	01/03/19	EPA 8270D	
Pentachlorophenol	ND	0.002	mg/L	1	12/27/18	01/03/19	EPA 8270D	
Phenanthrene	ND	0.01	mg/L	1	12/27/18	01/03/19	EPA 8270D	
Phenol	ND	0.01	mg/L	1	12/27/18	01/03/19	EPA 8270D	
Pyrene	ND	0.01	mg/L	1	12/27/18	01/03/19	EPA 8270D	

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IL ELAP / NELAC Accreditation # 100292

Brecheisen Engineering, Inc.	Project Name: 3001-11 W. Fifth Ave	SN: 201918162304
1700 N. North Park Ave, S-B	Project Number: 16-2FMEHS-00013	Reported By: AM
Chicago IL, 60614	Project Manager: Tom Brecheisen	01/08/19 16:22

Client Sample ID: TMW-4

Lab Sample ID: 8122103-03 (Ground Water)

First Environmental Laboratories Inc.

Analyte	Result	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Qualifiers
Total Mercury								
Mercury	ND	0.0005	mg/L	1	12/20/18	01/07/19	7470A	
Total Metals								
Arsenic	ND	0.01	mg/L	1	01/02/19	01/03/19	6010C	
Barium	**0.033**	0.005	mg/L	1	01/02/19	01/03/19	6010C	
Cadmium	ND	0.005	mg/L	1	01/02/19	01/03/19	6010C	
Chromium	ND	0.005	mg/L	1	01/02/19	01/03/19	6010C	
Lead	**0.008**	0.005	mg/L	1	01/02/19	01/03/19	6010C	
Selenium	ND	0.01	mg/L	1	01/02/19	01/03/19	6010C	
Silver	ND	0.005	mg/L	1	01/02/19	01/03/19	6010C	

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Brecheisen Engineering, Inc.	Project Name: 3001-11 W. Fifth Ave	SN: 201918162304
1700 N. North Park Ave, S-B	Project Number: 16-2FMEHS-00013	Reported By: AM
Chicago IL, 60614	Project Manager: Tom Brecheisen	01/08/19 16:22

Notes and Definitions

DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference

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CHAIN OF CUSTODY PAGE 1 OF 1

8122103

PHONE (708) 449-9449 FAX (708) 449-3663
5300-B McDermott Drive Berkeley, IL 60163

TURNAROUND Standard
Date Required:
Schedule in advance to insure RUSH Processing
Comments / Special Instructions

CLIENT INFORMATION

Project Manager: Tom Brechtisen
Company: Brechtisen Engineering, Inc. 5430 N. Sheridan Rd. #807 Chicago, IL 60640
Phone: 773-334-3944 Fax:
Project Name: 3001-11 W. Fifth Ave.
Project ID#: 16-2EMEHS-00013
Sampler: Tom Brechtisen

SAMPLE RECEIVING RECORDS

Samples Received On Ice ☑ YES ☐ NO
Sample Temperature(If not On Ice) 2.1 c
Samples Intact/Not Leaking ☑ YES ☐ NO

SAMPLE CHARACTERISTICS

☐ NONHAZARDOUS
☐ Special Handling Required (Please Describe:)

QC Levels
___ None
___ Level 2
___ Level 3
___ Level 4

GAL SAMPLE ID	FIELD ID, LOCATION / DESCRIPTION	DATE	TIME	MATRIX	Number of Containers	PRESERVATIVE	RCRA metals	SVOCs							REMARKS
8122103-01	TMW-1	12/20/18	14:00	GW	1	HNO_3	✓								
-02	TMW-3	12/20/18	14:10	GW	1	None		✓							
-03	TMW-4	12/20/18	14:20	GW	1	HNO_3	✓								

MATRIX: Soil (S), Surface Water (SW), Ground Water (GW), Waste Water (WW), Waste/Solid (W/S), Waste/Liquid (W/L), Drinking Water (DW), Air Cassettes (AC); Note if COMPOSITE (C) or GRAB (G)
PRESERVATIVE: Nitric Acid (HNO_3), Hydrochloric Acid (HCl), Sodium Hydroxide (NaOH), Sulfuric Acid (H_2SO_4), Sodium Bisulfate ($NaHSO_4$), Methanol(CH_3OH), None

Relinquished By (Signature):	Date/Time:	Received By (Signature):	Date/Time:
Thomas A. Brechtisen	12-21-18/11:15		
Relinquished By (Signature):	Date/Time	Received By (Signature):	Date/Time

Relinquished By (Signature):	Date/Time:	Received For Lab By (Signature):	Date/Time:
			12/21/18 11:15
Relinquished By (Signature):	Date/Time	Received For Lab By (Signature):	Date/Time

WHITE - ORIGINAL FILE COPY CANARY - LAB COPY PINK - SAMPLER COPY

Grace Analytical lab, inc.

5300-B McDermott Dr. Berkeley, IL 60163 . Tel. (708) 449-9449 . . Fax (708) 449-3663

SAMPLE/COOLER RECEIPT FORM GAL JOB ID#: 8122103
Client Name: Brecheisen Engineering, Inc. Cooler Received/Opened: 12/21/2018 at 11:15
Project ID: 16-2FMEHS-00013

Signed by: _____
Log-In Personnel Signature

		Yes	No	NA
1.	Temperature of Cooler when triaged: 2.1 C			
2.	Were custody seals on outside of cooler?...	☐	☐	☒
3.	Were custody seals on containers intact?	☐	☐	☒
	If YES: Were the seals intact, signed, and dated correctly?	☐	☐	☐
4.	Were Chain of Custody form inside cooler?	☒	☐	☐
5.	Were Chain of Custody form properly filled out (ink, signed, etc)?.	☒	☐	☐
6.	Did you sign the Chain of Custody form in the appropriate place?	☒	☐	☐
7.	Was there packing material used	☐	☒	☐
	If YES: ☐Bubblewrap ☐Peanuts ☐Vermiculite ☐Other ☐ None			
8.	Cooling process: ☒Ice ☐Icepack ☐Ice(direct contact) ☐Dry ice ☐other ☐None			
9.	Did all containers arrive in good condition (unbroken)?	☒	☐	☐
10.	Were all container labels complete (ID #, data, signed, preserv., etc	☒	☐	☐
11.	Did all container labels and tags agree with Chain of Custody form	☒	☐	☐
12.	Were correct containers used for the analysis requested	☒	☐	☐
13.	a. Were Water VOA vials received	☒	☐	☐
	b. Was there any observable head space present in any VOA vial	☐	☒	☐
14.	Was sufficient amount of sample sent in each container	☒	☐	☐
15.	Were correct preservatives used	☒	☐	☐
	If not, record _____			
16.	Was residual chlorine present	☐	☐	☒

17. Indicate the Airbill Tracking Number and Name of Courier below:
☐Fed-Ex ☐UPS ☐Velocity ☐Airborne ☐Route ☐Misc. ☒Hand delivered ☐Picked Up

18. If a Non-Conformance exists, record reason: _____

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January 09, 2019

Tom Brecheisen
Brecheisen Engineering, Inc.
1700 N. North Park Ave, S-B
Chicago, IL 60614

Project ID: 16-2FMEHS-00013
Grace Analytical Job ID: 8122802

The above referenced project was analyzed as directed on the enclosed Chain of Custody record. Analyses were performed in accordance with requirements of 35 IAC 186(Accreditation #100246) and within holding time. Quality control criteria as outlined in the methods and current IL ELAP/NELAP have been met unless otherwise noted. QA/QC documentation and raw data will remain on file for future reference.

Request for duplications or reproductions of these analytical reports must be made in writing to GAL and signed by an authorized agent. The analytical results relate only to the samples analyzed.
GAL seeks you feedback, both positive and negative, on our performance. Please contact us for a copy of our feedback form or submit your comments to us at feedback@gracelabinc.com.

Should you have any questions regarding any of the enclosed analytical data or need additional information, please contact me at (708) 449-9449 or e-mail skim@gracelabinc.com.

Sincerely,

Steven Kim, Ph.D.
Laboratory Director
Grace Analytical Lab, Inc.

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Brecheisen Engineering, Inc.	Project Name: 3001-11 W. Fifth Ave	SN: 201919162727
1700 N. North Park Ave, S-B	Project Number: 16-2FMEHS-00013	Reported By: AM
Chicago IL, 60614	Project Manager: Tom Brecheisen	01/09/19 16:27

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
TMW-3	8122802-01	Ground Water	12/27/18 11:30	12/28/18 12:12
TMW-3	8122802-02	Ground Water	12/28/18 11:45	12/28/18 12:12

CASE NARRATIVES

GRACE ANALYTICAL LAB, INC.
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Brecheisen Engineering, Inc.	Project Name: 3001-11 W. Fifth Ave	SN: 201919162727
1700 N. North Park Ave, S-B	Project Number: 16-2FMEHS-00013	Reported By: AM
Chicago IL, 60614	Project Manager: Tom Brecheisen	01/09/19 16:27

Client Sample ID: TMW-3

Lab Sample ID: 8122802-01 (Ground Water)

Grace Analytical Lab, Inc.

Chlorinated Pesticides and PCBs

Analyte	Result	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Qualifiers
4,4´-DDD	ND	0.16	ug/L	1	01/03/19	01/09/19	EPA 8081B/8082A	
4,4´-DDE	ND	0.16	ug/L	1	01/03/19	01/09/19	EPA 8081B/8082A	
4,4´-DDT	ND	0.16	ug/L	1	01/03/19	01/09/19	EPA 8081B/8082A	
Aldrin	ND	0.08	ug/L	1	01/03/19	01/09/19	EPA 8081B/8082A	
alpha-BHC	ND	0.08	ug/L	1	01/03/19	01/09/19	EPA 8081B/8082A	
Aroclor-1016	ND	0.80	ug/L	1	01/03/19	01/09/19	EPA 8081B/8082A	
Aroclor-1221	ND	0.80	ug/L	1	01/03/19	01/09/19	EPA 8081B/8082A	
Aroclor-1232	ND	0.80	ug/L	1	01/03/19	01/09/19	EPA 8081B/8082A	
Aroclor-1242	ND	0.80	ug/L	1	01/03/19	01/09/19	EPA 8081B/8082A	
Aroclor-1248	ND	0.80	ug/L	1	01/03/19	01/09/19	EPA 8081B/8082A	
Aroclor-1254	ND	1.60	ug/L	1	01/03/19	01/09/19	EPA 8081B/8082A	
Aroclor-1260	ND	1.60	ug/L	1	01/03/19	01/09/19	EPA 8081B/8082A	
beta-BHC	ND	0.08	ug/L	1	01/03/19	01/09/19	EPA 8081B/8082A	
Chlordane	ND	0.08	ug/L	1	01/03/19	01/09/19	EPA 8081B/8082A	
delta-BHC	ND	0.08	ug/L	1	01/03/19	01/09/19	EPA 8081B/8082A	
Dieldrin	ND	0.16	ug/L	1	01/03/19	01/09/19	EPA 8081B/8082A	
Endosulfan I	ND	0.08	ug/L	1	01/03/19	01/09/19	EPA 8081B/8082A	
Endosulfan II	ND	0.16	ug/L	1	01/03/19	01/09/19	EPA 8081B/8082A	
Endosulfan sulfate	ND	0.16	ug/L	1	01/03/19	01/09/19	EPA 8081B/8082A	
Endrin	ND	0.16	ug/L	1	01/03/19	01/09/19	EPA 8081B/8082A	
Endrin aldehyde	ND	0.16	ug/L	1	01/03/19	01/09/19	EPA 8081B/8082A	
Endrin ketone	ND	0.16	ug/L	1	01/03/19	01/09/19	EPA 8081B/8082A	
gamma-BHC (Lindane)	ND	0.08	ug/L	1	01/03/19	01/09/19	EPA 8081B/8082A	

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Brecheisen Engineering, Inc.	Project Name: 3001-11 W. Fifth Ave	SN: 201919162727
1700 N. North Park Ave, S-B	Project Number: 16-2FMEHS-00013	Reported By: AM
Chicago IL, 60614	Project Manager: Tom Brecheisen	01/09/19 16:27

Client Sample ID: TMW-3

Lab Sample ID: 8122802-01 (Ground Water)

Grace Analytical Lab, Inc.

Chlorinated Pesticides and PCBs

Analyte	Result	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Qualifiers
Heptachlor	ND	0.08	ug/L	1	01/03/19	01/09/19	EPA 8081B/8082A	
Heptachlor epoxide	ND	0.08	ug/L	1	01/03/19	01/09/19	EPA 8081B/8082A	
Methoxychlor	ND	0.80	ug/L	1	01/03/19	01/09/19	EPA 8081B/8082A	
Toxaphene	ND	0.16	ug/L	1	01/03/19	01/09/19	EPA 8081B/8082A	

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Brecheisen Engineering, Inc.	Project Name: 3001-11 W. Fifth Ave	SN: 201919162727
1700 N. North Park Ave, S-B	Project Number: 16-2FMEHS-00013	Reported By: AM
Chicago IL, 60614	Project Manager: Tom Brecheisen	01/09/19 16:27

Client Sample ID: TMW-3

Lab Sample ID: 8122802-02 (Ground Water)

First Environmental Laboratories Inc.

Analyte	Result	Reporting Limit	Units	Dilution	Prepared	Analyzed	Method	Qualifiers
Cyanide, Total								
Cyanide, Total	ND	0.005	mg/L	1	12/28/18	01/04/19	4500CN,E	
Total Mercury								
Mercury	ND	0.0005	mg/L	1	12/28/18	01/07/19	7470A	
Total Metals								
Aluminum	**1.62**	0.1	mg/L	1	01/04/19	01/04/19	6010C	
Antimony	ND	0.006	mg/L	1	01/04/19	01/04/19	6010C	
Arsenic	ND	0.01	mg/L	1	01/04/19	01/04/19	6010C	
Barium	**0.041**	0.005	mg/L	1	01/04/19	01/04/19	6010C	
Beryllium	ND	0.004	mg/L	1	01/04/19	01/04/19	6010C	
Cadmium	ND	0.005	mg/L	1	01/04/19	01/04/19	6010C	
Calcium	**416**	0.5	mg/L	1	01/04/19	01/04/19	6010C	
Chromium	ND	0.005	mg/L	1	01/04/19	01/04/19	6010C	
Cobalt	**0.011**	0.005	mg/L	1	01/04/19	01/04/19	6010C	
Copper	**0.009**	0.005	mg/L	1	01/04/19	01/04/19	6010C	
Iron	**2.18**	0.05	mg/L	1	01/04/19	01/04/19	6010C	
Lead	**0.035**	0.005	mg/L	1	01/04/19	01/04/19	6010C	
Magnesium	**234**	0.5	mg/L	1	01/04/19	01/04/19	6010C	
Manganese	**0.214**	0.005	mg/L	1	01/04/19	01/04/19	6010C	
Nickel	**0.048**	0.005	mg/L	1	01/04/19	01/04/19	6010C	
Potassium	**14.8**	0.5	mg/L	1	01/04/19	01/04/19	6010C	
Selenium	ND	0.01	mg/L	1	01/04/19	01/04/19	6010C	
Silver	ND	0.005	mg/L	1	01/04/19	01/04/19	6010C	
Sodium	**79.3**	0.5	mg/L	1	01/04/19	01/04/19	6010C	
Thallium	ND	0.002	mg/L	1	01/04/19	01/04/19	6010C	J
Vanadium	ND	0.01	mg/L	1	01/04/19	01/04/19	6010C	
Zinc	**1.62**	0.01	mg/L	1	01/04/19	01/04/19	6010C	

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Brecheisen Engineering, Inc.	Project Name: 3001-11 W. Fifth Ave	SN: 201919162727
1700 N. North Park Ave, S-B	Project Number: 16-2FMEHS-00013	Reported By: AM
Chicago IL, 60614	Project Manager: Tom Brecheisen	01/09/19 16:27

Notes and Definitions

J	Detected but below Reporting Limit; therefore, result is an estimated concentration.
DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference

GRACE ANALYTICAL LAB, INC.

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5300-B McDermott Drive Berkeley, IL 60163

CHAIN OF CUSTODY PAGE 1 OF 1

8122802

TURNAROUND Standard
Date Required:
Schedule in advance to insure RUSH Processing
Comments / Special Instructions

CLIENT INFORMATION
Project Manager: Tom Brecheisen
Company: Brecheisen Engineering, Inc. 5430 N. Sheridan Rd. #807 Chicago, IL 60640
Phone: 773-334-3944 Fax:
Project Name: 3001-11 W. Fifth Ave.
Project ID#: 16-2FMEHS-00013
Sampler: Tom Brecheisen

SAMPLE RECEIVING RECORDS
Samples Received On Ice ☑ YES ☐ NO
Sample Temperature(If not On Ice) 3.4 c
Samples Intact/Not Leaking ☑ YES ☐ NO

SAMPLE CHARACTERISTICS
☐ NONHAZARDOUS
☐ Special Handling Required (Please Describe:)

QC Levels
___ None
___ Level 2
___ Level 3
___ Level 4

GAL SAMPLE ID	FIELD ID, LOCATION / DESCRIPTION	DATE	TIME	MATRIX	Number of Containers	PRESERVATIVE	PCBs	Pesticides	Herbicides	TAL Inorganics					REMARKS
							ANALYSIS NEEDED								
8122802-01	TMW-3	12/27/18	11:30	GW	1	None	✓	✓	✓						
-02	TMW-3	12/28/18	11:45	GW	2	NaOH HNO_3				✓					

MATRIX: Soil (S), Surface Water (SW), Ground Water (GW), Waste Water (WW), Waste/Solid (W/S), Waste/Liquid (W/L), Drinking Water (DW), Air Cassettes (AC); Note if COMPOSITE (C) or GRAB (G)
PRESERVATIVE: Nitric Acid (HNO_3), Hydrochloric Acid (HCl), Sodium Hydroxide (NaOH), Sulfuric Acid (H_2SO_4), Sodium Bisulfate ($NaHSO_4$), Methanol(CH_3OH), None

Relinquished By (Signature):	Date/Time:	Received By (Signature):	Date/Time:	Relinquished By (Signature):	Date/Time:	Received For Lab By (Signature):	Date/Time:
Thomas A. Brecheisen	12-28-18/12:12						12-28-18 14:12
Relinquished By (Signature):	Date/Time	Received By (Signature):	Date/Time	Relinquished By (Signature):	Date/Time	Received For Lab By (Signature):	Date/Time

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Grace Analytical lab, inc.

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SAMPLE/COOLER RECEIPT FORM GAL JOB ID#: 8122802
Client Name: Brecheisen Engineering, Inc. Cooler Received/Opened: 12/28/2018 at 12:12
Project ID: 16-2FMEHS-00013

Signed by: _____
Log-In Personnel Signature

		Yes	No	NA
1.	Temperature of Cooler when triaged: 3.4 C			
2.	Were custody seals on outside of cooler?...	☐	☐	☒
3.	Were custody seals on containers intact?	☐	☐	☒
	If YES: Were the seals intact, signed, and dated correctly?	☐	☐	☐
4.	Were Chain of Custody form inside cooler?	☒	☐	☐
5.	Were Chain of Custody form properly filled out (ink, signed, etc)?.	☒	☐	☐
6.	Did you sign the Chain of Custody form in the appropriate place?	☒	☐	☐
7.	Was there packing material used	☐	☒	☐
	If YES: ☐Bubblewrap ☐Peanuts ☐Vermiculite ☐Other ☐ None			
8.	Cooling process: ☒Ice ☐Icepack ☐Ice(direct contact) ☐Dry ice ☐other ☐None			
9.	Did all containers arrive in good condition (unbroken)?	☒	☐	☐
10.	Were all container labels complete (ID #, data, signed, preserv., etc	☒	☐	☐
11.	Did all container labels and tags agree with Chain of Custody form	☒	☐	☐
12.	Were correct containers used for the analysis requested	☒	☐	☐
13.	a. Were Water VOA vials received	☒	☐	☐
	b. Was there any observable head space present in any VOA vial	☐	☒	☐
14.	Was sufficient amount of sample sent in each container	☒	☐	☐
15.	Were correct preservatives used	☒	☐	☐
	If not, record _____			
16.	Was residual chlorine present	☐	☐	☒

17. Indicate the Airbill Tracking Number and Name of Courier below:
☐Fed-Ex ☐UPS ☐Velocity ☐Airborne ☐Route ☐Misc. ☒Hand delivered ☐Picked Up

18. If a Non-Conformance exists, record reason: _____

STAT Analysis Corporation
2242 West Harrison St., Suite 200, Chicago, IL 60612-3766
Tel: (312) 733-0551 Fax: (312) 733-2386 STATinfo@STATAnalysis.com
Accreditations: IEPA ELAP 100445; ORELAP IL300001; AIHA-LAP, LLC 101160; NVLAP LabCode 101202-0

January 10, 2019

Grace Analytical Laboratory, Inc.
5300 McDermott Drive - Suite A
Berkeley, IL 60163
Telephone: (708) 449-9449
Fax: (708) 449-3663

Analytical Report for STAT Work Order: 19010071 Revision 0

RE: 8122802

Dear Grace Kim:

STAT Analysis received 1 sample for the referenced project on 1/4/2019 10:23:00 AM. The analytical results are presented in the following report.

All analyses were performed in accordance with the requirements of 35 IAC Part 186 / NELAP standards. Analyses were performed in accordance with methods as referenced on the analytical report. Those analytical results expressed on a dry weight basis are also noted on the analytical report.

All analyses were performed within established holding time criteria, and all Quality Control criteria met EPA or laboratory specifications except when noted in the Case Narrative or Analytical Report. If required, an estimate of uncertainty for the analyses can be provided. A listing of accredited methods/parameters can also be provided.

Thank you for the opportunity to serve you and I look forward to working with you in the future. If you have any questions regarding the enclosed materials, please contact me at (312) 733-0551.

Sincerely,

Brandon Young
Project Manager

STAT Analysis Corporation

Date: January 10, 2019

Client: Grace Analytical Laboratory, Inc.
Project: 8122802
Work Order: 19010071 Revision 0

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Tag Number	Collection Date	Date Received
19010071-001A	8122802-01			1/4/2019

STAT Analysis Corporation
2242 West Harrison St., Suite 200, Chicago, IL 60612-3766
Tel: (312) 733-0551 Fax: (312) 733-2386 STATinfo@STATAnalysis.com
Accreditations:IEPA ELAP 100445;ORELAP IL300001;AIHA-LAP, LLC 101160;NVLAP LabCode 101202-0

Date Reported: January 10, 2019
Date Printed: January 10, 2019

ANALYTICAL RESULTS

Client: Grace Analytical Laboratory, Inc.
Work Order: 19010071 Revision 0
Project: 8122802
Lab ID: 19010071-001

Client Sample ID: 8122802-01
Collection Date:
Matrix: Aqueous

Analyses	Result	RL	Qualifier	Units	DF	Date Analyzed
Herbicides	**SW8321B (SW3510C)**			Prep Date: **1/8/2019**		Analyst: **MEP**
2,4,5-TP (Silvex)	ND	0.00010		mg/L	1	1/8/2019
2,4-D	ND	0.00020		mg/L	1	1/8/2019
Dalapon	ND	0.0010		mg/L	1	1/8/2019
Dinoseb	ND	0.00030		mg/L	1	1/8/2019
Pentachlorophenol	ND	0.00020	*	mg/L	1	1/8/2019
Picloram	ND	0.00010	*	mg/L	1	1/8/2019

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
HT - Sample received past holding time
* - Non-accredited parameter
RL - Reporting / Quantitation Limit for the analysis
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
E - Value above quantitation range
H - Holding time exceeded

SUBCONTRACT ORDER 1901007I

Grace Analytical Lab, Inc.

8122802

SENDING LABORATORY:

Grace Analytical Lab, Inc.
5300A&B McDermott Drive
Berkeley, IL 60163
Phone: 708-449-9449
Fax: 888-467-9287
Project Manager: Adrian Moise

RECEIVING LABORATORY:

STAT Analysis Corp
2242 W. Harrison St.
Naperville, IL 60612
Phone :(312) 733-0551
Fax: (312) 733-2386

Analysis	Due Date	Laboratory ID
Sample ID: 8122802-01	**Sampled: 12/27/18 11:30**	
8151A Herb		
Containers Supplied:		001

3/01/19 UPS

Released By Date Received By Date

1Z F0R13903 9255 3755 1/4/19 10:23

Released By Date Received By Date

STAT Analysis Corporation

Sample Receipt Checklist

Client Name GRACE

Date and Time Received: 1/4/2019 10:23:00 AM

Work Order Number 19010071

Received by: CHB

Checklist completed by: _____ 1/4/19
Signature Date

Reviewed by: _____ 1/4/19
Initials Date

Matrix:

Carrier name UPS

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shippping container/cooler?	Yes ☐	No ☐	Not Present ☑
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels/containers?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time?	Yes ☑	No ☐	
Container or Temp Blank temperature in compliance?	Yes ☑	No ☐	Temperature Ambient °C
Water - VOA vials have zero headspace?	No VOA vials submitted ☐	Yes ☐	No ☐
Water - Samples pH checked?	Yes ☐	No ☐	Checked by: _____
Water - Samples properly preserved?	Yes ☐	No ☐	pH Adjusted? _____

Any No response must be detailed in the comments section below.

Comments: _____

Client / Person contacted: _____ Date contacted: _____ Contacted by: _____

Response: _____

ATTACHMENT D

IEPA Correspondence Regarding 95% Percentile Background Values for Inorganics and PNAs

ILLINOIS ENVIRONMENTAL PROTECTION AGENCY
1021 NORTH GRAND AVENUE EAST, P.O. BOX 19276, SPRINGFIELD, ILLINOIS 62794-9276 • (217) 782-3397
JB PRITZKER, GOVERNOR JOHN J. KIM, DIRECTOR

City of Chicago Polynuclear Aromatic Hydrocarbon Concentrations in Background Soils

Following the adoption of soil area background concentrations for Polynuclear Aromatic Hydrocarbons (PAHs) in 35 Illinois Administrative Code Part 742 Appendix A, Table H (Table H), it was discovered the PAH background concentrations listed for the City of Chicago are incorrect. The concentrations were inadvertently calculated for the 60th parametric percentile rather than the 95th parametric percentile as intended. The background concentrations set forth in Table H for metropolitan and non-metropolitan areas correctly reflect the 95th parametric percentile.

The Illinois EPA's contractor that originally calculated the PAH background concentrations for Table H re-calculated the background concentrations for the City of Chicago to properly reflect the 95th parametric percentile. Those concentrations are set forth below.

Until Table H is amended to reflect these concentrations, sites located within the City of Chicago may be able to use these concentrations to determine area background levels as follows: A person required or electing to perform investigative or remedial activities under 35 Ill. Adm. Code 742 can request the concentrations be approved for use in determining area background levels pursuant to 35 Ill. Code 742.405(b)(2). If approved by the Illinois EPA, the concentrations may then be used as area background levels in accordance with 35 Ill. Adm. Code 742.415.

Chemical Name	Published Table H Background for Chicago[a] (mg/kg)	Corrected Table H Background (at 95th Percentile) for Chicago[a] (mg/kg)
Acenaphthene	0.09	0.94
Acenaphthylene	0.03	0.25
Anthracene	0.25	2.6
Benzo(a)anthracene	1.1	11
Benzo(a)pyrene	1.3	11
Benzo(b)fluoranthene	1.5	13
Benzo(g,h,i)perylene	0.68	4.4
Benzo(k)fluoranthene	0.99	8.1
Chrysene	1.2	11
Dibenzo(a,h)anthracene	0.20	1.0

Fluoranthene	2.7	28
Fluorene	0.10	1.1
Indeno(1,2,3-c,d)pyrene	0.86	5.8
Naphthalene	0.04	0.26
Phenanthrene	1.3	15
Pyrene	1.9	18
[a] Chicago means within the corporate limits of the City of Chicago.		

ILLINOIS ENVIRONMENTAL PROTECTION AGENCY
1021 NORTH GRAND AVENUE EAST, P.O. BOX 19276, SPRINGFIELD, ILLINOIS 62794-9276 • (217) 782-3397
JB PRITZKER, GOVERNOR JOHN J. KIM, DIRECTOR

217/524-3300

September 1, 2022

Harvest Food Group
Attn: Mr. Jason Eckert
1600 Pebblewood Lane
Naperville, IL 60563

Re: 0316610022-Cook County
Chicago/Ari Technologies
Site Remediation Program/Technical Reports

Dear Mr. Eckert:

The Illinois Environmental Protection Agency (Illinois EPA) has completed review of the *Comprehensive Site Investigation Report / Remediation Objectives Report / Remedial Action Plan, Vacant Land, 1924 W. 46th Street, Chicago, Illinois 60609 (CSIR/ROR/RAP)*, dated June 29, 2022 (received July 07, 2022/Log No. 22-75013), as prepared by Carnow, Conibear & Assoc., Ltd. on behalf of the above referenced site. Based on the Illinois EPA review, the *CSIR/ROR/RAP* is disapproved and the following comments are made:

1. The 2021 Phase I Environmental Site Assessment (ESA) described the subject site as being comprised of a vacant lot bisected by S. Damen Avenue totaling 10.68 acres. From the figures provided, it appears only the east portion (vacant lot east of S. Damen Avenue, Property Identification Number: 20-06-400-008-0000) of the Phase I ESA subject site was enrolled in the Site Remediation Program (SRP). The west portion (vacant lot west of S. Damen Avenue, Property Identification Number: 20-06-303-011-0000) of the Phase I ESA subject site does not appear to be included. The DRM-1 form states the approximate site size enrolled in the SRP is 10.68 acres. Please confirm the correct lot size and Property Identification Number for the parcel of land enrolled in the SRP.

2. The analytical data from 2006 is not recognized for site evaluation purposes as the sixteen (16) year length of time since sample collection and analysis cannot reliably demonstrate current site conditions. Section 3.2 Site History of the report states the site has been vacant, vegetated land since 1993. However, aerial photographs show various containers, such as shipping containers, trailers, and vehicles being stored at the site.

   In 2022, twenty soil boring locations were completed, and 43 soil samples were collected (20 surface samples and 23 subsurface samples). The site has requested a Comprehensive No Further Remediation (NFR) letter. However, only 15 of the 43 soil samples were

analyzed for the Target Compound List found in 35 Illinois Administrative Code (IAC) 740.Appendix A.

In addition, the deepest soil samples collected in 2022 were from 8-10 feet below ground surface (ft bgs), and only two of those soil samples were analyzed for the Target Compound List. Previous environmental investigations show polynuclear aromatic hydrocarbon (PNA) soil impacts at depths of 14-16 ft bgs. Also, documentation provided indicates there were two former solvent wash booths located in the southwest quadrant of the site, and boreholes that were abandoned due to "strong solvent odors".

Additional surface and subsurface soil samples are required to be collected and analyzed for this site to be considered eligible for a Comprehensive NFR letter. Please collect some subsurface soil samples in the 14-16 ft bgs interval for analysis of the Target Compound List to demonstrate current chemical concentrations. Based on the results of the investigation, additional sampling may be required pursuant to 35 Illinois Administrative Code (35 IAC) 740.420(b).

3. Appendix A Soil Boring Logs of the report identified several boring locations where staining and petroleum odors noted on the boring logs. Soil boring B23 indicated a slight sheen with a strong petroleum odor was observed from approximately 3.5-7 feet ft bgs. In addition, a piece of metal was observed in soil boring B9 with a note indicating a possible UST. A list of borings where impacts were observed is provided in the table below.

Boring	Depth (feet)	Impacts Observed
B2	12-16	Slight petroleum odor
B9	4-8	Piece of metal found in empty liner, possible UST
B14	7.2-8	Black staining
B15	8-10	Petroleum odor
	10-16	Black staining throughout
B16	8-8.3	Black staining and slight petroleum odor
B18	3.5-7	Petroleum odor
B19	2.5-6.5	Strong petroleum odor
B20	4-10.5	Petroleum odor
B21	2-14	Petroleum odor
	4-7.5	Strong petroleum odor
B22	3.5-16	Petroleum odor
B23	3.5-7	Slight sheen with strong petroleum odor
B25	3.5-14	Petroleum odor, grades black with a strong petroleum odor at 4 feet
B-108	1-5	Strong petroleum odor
B-112	2.5-5	Strong petroleum odor
B-115	3-5	Strong petroleum odor
B-116	3-5	Strong petroleum odor

As a result of the staining and petroleum odors, Illinois EPA requests total petroleum hydrocarbon (TPH) analysis be conducted at select locations where staining and/or petroleum odors were noted to comply with 35 IAC 742.215(b)(2).

4. Section 4.1.3 Monitoring Wells of the report indicates groundwater flow direction to be to the east-southeast (220.2° from North). As shown on Exhibit III, 220.2° from North is in the southwest direction. Please clarify the groundwater flow direction and discuss why monitoring well MW-15 was not used to determine groundwater flow direction. Also provide the inputs used to determine groundwater flow direction and hydraulic gradient.

5. Illinois EPA requests groundwater samples be collected downgradient of the former wash booths and UST vault and analyzed for the Target Compound List to demonstrate current chemical concentrations near the downgradient remediation site boundary.

6. Section 4.2.1 Soils (TACO Tier 1 & Hazardous Waste Assessment) of the report states the following, "*...SPLP and TCLP analysis was performed on the soil samples exhibiting the highest total respective analyte concentration in the 2022 data set.*"

   It is acceptable to compare TCLP or SPLP sample-specific analytical results to the values listed in 35 IAC 742.Appendix B, Table B to determine if a chemical meets or exceeds the soil component of the groundwater ingestion exposure route remediation objective for a discrete sample. It is not acceptable to use the sample-specific TCLP/SPLP analytical result obtained from the highest total analyte concentration and determine that all samples with lower total analyte concentrations will have a lower TCLP/SPLP result.

   As an example, soil sample B-102 (8-10) with a pH of 7.6 had a total lead concentration of 1,700 milligram/kilogram (mg/kg) and a SPLP lead concentration of < 0.002 milligram/liter (mg/L), which is below the Class I remediation objective of 0.0075 mg/L. Whereas, soil sample B-102 (1-3) with a pH of 7.8 had a total lead concentration of 210 mg/kg and a SPLP lead concentration of 0.013 mg/L, which is above the Class I remediation objective of 0.0075 mg/L. This example shows the lack of direct correlation between a total analyte concentration to a SPLP analyte concentration.

   The table provided below lists the sample location and depth and analyte that exceeds the Tier 1 Class I soil component of the groundwater ingestion exposure route remediation objectives provided in 35 IAC 742.Appendix B, Table B.

Boring	Depth (feet)	Chemical Exceeding Tier 1 SRO for Class I SCGW
B-101	1-3	Barium, Cadmium, Chromium, Lead, Mercury
	3-5	Lead
B-102	1-3	Dibenzofuran, Iron, Lead
	5-7	Iron, Manganese
	8-10	Chromium, Iron
B-103	1-3	Selenium, Silver
B-105	1-3	Silver
	5-7	Chromium, Lead
B-106	1-3	Chromium, Lead
	8-10	Silver
B-107	1-3	Barium, Cadmium, Chromium, Lead, Mercury, Silver
	6-8	Silver
B-109	1-3	Iron

Boring	Depth (feet)	Chemical Exceeding Tier 1 SRO for Class I SCGW
	6-8	Beryllium, Cobalt, Copper, Iron, Nickel, Silver
	8-10	Beryllium, Chromium, Cobalt, Copper, Iron, Nickel, Silver
B-110	1-3	Chromium, Lead, Selenium, Silver
B-111	1-3	Barium, Cadmium, Chromium, Cobalt, Copper, Mercury, Nickel, Silver
	5-7	Cobalt, Copper, Iron, Nickel, Silver
B-112	1-3	Antimony, Cyanide, Selenium, Silver, Thallium
	5-7	Cobalt, Iron
B-113	5-7	Selenium, Silver
B-114	1-3	Selenium, Silver
B-115	1-3	Dibenzofuran, Mercury, Selenium, Silver, Thallium
	3-5	Dibenzofuran
	5-7	Iron
B-116	1-3	Beryllium, Selenium, Silver
B-117	1-3	Lead
	8-10	Silver
B-118	1-3	Mercury, Selenium, Silver
	5-7	Mercury, Silver
B-119	1-3	Chromium, Mercury, Silver
B-120	1-3	Cadmium, Lead, Mercury, Silver

7. The Illinois EPA has provided 95th Percentile Background numbers for inorganics (see table below) and may be used in place of the numbers published in 35 IAC 742. Appendix A, Table G. Use of the 95th Percentile Background numbers is considered a Tier 3 evaluation. If the 95th Percentile Background numbers are used, please provide a table that lists the soil sample location and soil sample concentration being compared to the 95th Percentile Background number. A figure showing the sample locations is also required.

CASRN	Chemical	Current Appendix A, Table G		Background at 95th Percentile (mg/kg)
		MSA (mg/kg)	Non-MSA (mg/kg)	
7429-90-5	Aluminum	9,500	9,200	61,500
7440-36-0	Antimony	4	3.3	1.04
7440-38-2	Arsenic	13	11.3	11.9
7440-39-3	Barium	110	122	792
7440-41-7	Beryllium	0.59	0.56	1.6
7440-43-9	Cadmium	0.6	0.5	0.8
7440-70-2	Calcium	9,300	5,525	21,520
7440-47-3	Chromium (Total)	16.2	13	54.0
7440-48-4	Cobalt	8.9	8.9	15.4
7440-50-8	Copper	19.6	12	44.9
143-33-9	Cyanide	0.51	0.5	----

CASRN	Chemical	Current Appendix A, Table G		Background at 95th Percentile (mg/kg)
		MSA (mg/kg)	Non-MSA (mg/kg)	
7439-89-6	Iron	15,900	15,000	35,700
7439-92-1	Lead	36	20.9	45.1
7439-95-4	Magnesium	4,820	2,700	10,450
7439-96-5	Manganese	636	630	1,924
7487-94-7	Mercury	0.06	0.05	0.08
7440-02-0	Nickel	18	13	23.3
7440-09-7	Potassium	1,268	1,100	22,075
7782-49-2	Selenium	0.48	0.37	0.7
7440-22-4	Silver	0.55	0.5	<1
7440-23-5	Sodium	130	130	8,300
7704-34-9	Sulfur	----	----	880
14808-79-8	Sulfate	85.5	110	----
18496-25-8	Sulfide	3.1	2.9	----
7440-28-0	Thallium	0.32	0.42	0.7
7440-62-2	Vanadium	25.2	25	104
7440-66-6	Zinc	95	60.2	141

8. Metals detected in soil samples were compared to TACO Tier 1 pH-specific remediation objectives to evaluate the soil component of the groundwater ingestion exposure pathway. However, for some metals there is no established TACO pH-specific remediation objective for a given pH range. Thus, the soil component to groundwater ingestion exposure pathway for metals with no pH-specific remediation objective will need to be addressed using a procedure other than 35 IAC 742, Appendix B, Tables C or D.

9. Dibenzofuran is not listed in the lookup tables provided in 35 IAC 742; however, it is listed on 35 IAC 740. Appendix A. Table B and a remediation objective for the soil component of the groundwater ingestion exposure route should be determined. Please follow the procedures for determining soil remediation objectives for chemicals not listed in 35 IAC 742 regulations at: https://www2.illinois.gov/epa/topics/cleanup-programs/taco/Pages/procedures-for-determining-soil-remediation.aspx. Please provide calculations used to obtain the SROs.

10. Section 4.2.2 Groundwater (TACO Tier 1 Assessment) of the report provides the following statements. "*The monitoring wells were purged prior to sampling to obtain stabilized water conditions. The monitoring wells took several hours to recharge due to the confining silty clay soils.*" Please provide a discussion regarding the groundwater sampling procedures (i.e., bailer or low-flow) used to collect the groundwater samples. Also discuss if the groundwater monitoring wells were purged dry prior to collecting the groundwater samples.

11. Section 6.3 Engineered Barriers of the report states imported soil used for engineered barriers will be sampled at a rate of one sample per 1,000 cubic yards of imported

material. Imported fill material must be sampled for the entire suite of Target Compound List parameters at the rate of one sample for every 500 cubic yards per sourced material. Sample results must meet the Tier 1 residential remediation objectives to demonstrate the fill material is suitable for use onsite as clean backfill.

12. Section 6.5 UST Removal of the report discussed the possibility of encountering a leaking underground storage tank (LUST). If a LUST incident is encountered, please follow the appropriate procedures, and notify the Illinois EPA as soon as possible to discuss how the incident may have to be addressed.

13. The document titled *Documentation Report for Removal of Underground Structures* dated January 1989 by RMT discussed unidentified pipes on the north wall of the underground storage tank (UST) vault. The pipes were broken during excavation activities and an oily sheen was observed on water discharging from the broken pipes. The report states the iron pipe was cemented, but the tile pipe was not due to the large 12-inch diameter. Another pipe containing oily water was noted in conjunction with the south wash booth. The report states a portion of the pipe was removed and the remaining portion was plugged with concrete. Please describe the remedial action that will be taken if these or additional pipes are encountered and their contents impact site soils or groundwater.

14. Appendix E Tier 2 Evaluation & Groundwater Modeling of the report states the fraction organic carbon content (f_{oc}) value was obtained from the waste characterization soil sample (WC-1). The f_{oc} value of 0.0638 g/g is not recognized as a valid input parameter for Tier 2 modeling. If another site-specific f_{oc} sample is collected, it must be demonstrated that the f_{oc} sample was collected from an uncontaminated area of the site by co-sampling for volatile organic compounds (VOCs), and semi-volatile organic compounds (SVOCs) listed in 35 IAC 740 Appendix A, Tables A and B, as well as TPH. It must also be demonstrated that the location of the f_{oc} sample collected correlates to the same depth and geologic unit as the contamination that is being modeled. As an alternative to a site-specific f_{oc} sample, default values of 0.002 g/g for surface samples and 0.006 g/g for subsurface samples may be used. Please update Tier 2 modeling once a f_{oc} value is determined.

15. The request to use alternative barriers will be evaluated after additional investigative work has been completed.

Please address the above comments and provide two (2) paper and one (1) electronic copy of all correspondence to the Illinois EPA for review.

If you have questions, contact me at the above phone number, or directly at 217/785-3961 or Suzanne.Dale@illinois.gov.

Sincerely,

Suzanne Dale by TH

TH Suzanne Dale
Voluntary Site Remediation Unit
Remedial Project Management Section
Division of Remediation Management
Bureau of Land

cc: Mr. Dave Bremer
Carnow, Conibear & Assoc., Ltd.
dbremer@ccaltd.com

Bureau of Land File

ATTACHMENT E

Model Groundwater Notification Letter

NOTICE

[Date]

Property Owner
Site Address
Chicago, Illinois 60612

Dear [Affected Property Owner] [Unit of Local Government]:

The City of Chicago Assets, Information, and Services (AIS) is performing an environmental response action for the Resilient Corridor 5th Avenue Eco Orchard – South project located at 3001-13 5th Ave. in Chicago, Illinois 60612. The response action is being performed to address residual surface, soil, and groundwater constituents associated with the historical uses of the site. The response action consists of removal and off-site disposal of impacted soil, installation of engineered barriers, and implementation of institutional controls.

To protect human health, Illinois regulations require that AIS either clean up groundwater contamination or demonstrate that the groundwater in the area of the release will not be used as potable water. (Groundwater is the water beneath the ground stored in the pores of soil and rock; some communities and homeowners pump this water out of wells to supply potable water. Potable means fit for human consumption including drinking, bathing, preparing food, washing dishes, and so forth.)

The City of Chicago has an ordinance that strictly prohibits the human and domestic consumption of the groundwater beneath your property. Under Illinois regulations, a local ordinance that effectively prohibits the installation and use of potable water supply wells may be used as an institutional control to allow contamination above the groundwater ingestion remediation objectives to remain in the groundwater (35 Illinois Administrative Code 742.1015). (An institutional control is a legal mechanism for imposing a restriction on land use.) The Illinois Environmental Protection Agency (Illinois EPA) has determined that the ordinance adopted by the City of Chicago meets the regulatory requirements for use as an institutional control. Habitat has requested and has been granted approval from the Illinois EPA to use the groundwater ordinance as an institutional control.

Your property, [legal description, reference to a plat showing boundaries of the property, or accurate street address], is included in the area affected by the ordinance. This means that you cannot install or use a private, potable water well on your property. Based on the remediation objectives established in reliance on this ordinance, groundwater beneath your property may not be suitable for human or domestic consumption. Illinois regulations require that you be notified of these facts.

The ordinance is identified as Ordinance No. 097990 in the Municipal Code of Chicago. If you wish to obtain a copy of the ordinance, please visit the following Illinois EPA Groundwater Ordinance website:

http://epadata.epa.state.il.us/land/gwordinance/docs/97070701.pdf

To learn more about the site, please contact the undersigned at 312-527-5400 or the Illinois EPA, Bureau of Land project manager, [to be determined].

You may also obtain a copy of the complete Illinois EPA file on this site by submitting a request with your signature to the following:

Freedom of Information Act (FOIA) Officer
Illinois EPA
Bureau of Land
1021 North Grand Avenue East
P.O. Box 19276
Springfield, Illinois 62794-9276

When requesting a copy of the file, please reference the file heading shown below:

[LPC Number—Cook County
Chicago/Resilient Corridor 5th Avenue Eco Orchard - South
3001-13 W. 5th Ave.
Chicago, Illinois 60612]

FOIA requests may also be requested through the Illinois EPA's Web page www.epa.state.il.us/foia.

Sincerely,

City of Chicago, Assets, Information, and Services