State Form 4336

DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
INDIANAPOLIS

OFFICE MEMORANDUM

Date: August 1, 2024

To: John Morris
Brownfield Section

Thru: Steve Buckel 8/2/24

From: Sandra Roberts 8-1-24
Chemistry Services Section

Subject: Phase I Environmental Site Assessment (ESA), dated August 10, 2023, Additional Delineation Sampling, dated April 5, 2024, Analysis of Brownfield Cleanup Alternatives, dated May 6, 2024, and Remediation Work Plan (RWP) Rev. 1, dated June 28, 2024
Exide Technologies
Logansport, Cass County, Indiana
Site # 4221108
AI # 240
VFC #s 83584349, 83622702, 83635393, and 83661569

The above reports, prepared by BCA Environmental Consultants and received by Chemistry Services on July 3, 2024, has been evaluated as requested.

Historical Information

The site is a railyard that operated from 1885 to 1930s. Also, a National Steel Construction Company manufactured steel products from 1949 to 1950s, and General Tire Company operated until 1959 when Exide purchased it for lead acid battery manufacturing facility from 1960 to 1990s and limited capacity until 2009. The site is surrounded by mixed residential and commercial properties.

Phase I Environmental Site Assessment (ESA) Comments

1. The investigation found lead on-site and around the perimeter of the property.

2. Chlorinated solvent was found impacting soil and GW.

3. Coal ash, cinders, and slag were observed throughout the southern half of the property and on the former railroad adjoining to the south. According to the site boundary lines, the former railroad is not on the site property.

Additional Delineation Report Comments

4. The GW sample results for VOCs for the November 7, 2023, sampling event were reported. The GW sample results indicated TCE concentrations above the R2 GWPL with the highest TCE concentration at 468 ppb at HS-5. The results are shown in Table 4 and depicted in Figures 6a and 6b. The GW samples were collected utilizing the low-flow sampling technique and field data was included in Appendix D. The field data was in-control except for the turbidity stabilization measurements and one ORP stabilization measurement. However, the overall use of the data was not affected since the measurements for all other stabilization parameters were in-control.

5. The soil sample results for VOCs from August 21 to 24, 2023, September 6, 2023, and November 1-3, 2023, sampling events were reported. The sample results indicated TCE and lead concentrations above the R2 Excavation PLs. The highest TCE concentration was 1,040 ppm at HS-5 20W 3 ft., and the highest lead concentration was 46,900 ppm at HS-1 20E (0-1 ft.). The soil sample results are shown in Tables 1, 2a, and 2b, and depicted in Figures 5a and 5b. The VOC soil samples were selected by collecting three soil samples and if the screening did not suggest VOCs, then a sample above the first saturated zone was collected by using SW-846 Method 5035A. The lead soil samples were collected utilizing the grab method. The sampling method was acceptable.

6. The soil gas sub-slab (SGSS) and sewer conduit sample results for VOCs from August 29, 2023, sampling events were reported. The sample results indicated TCE concentrations above the R2 Commercial Sub-Slab PL with 257,000 µg/m³ at SGSS-1 and 99,700 µg/m³ at SGSS-6. The sample results are shown in Table 5 and depicted in Figures 7a and 7b. According to the narrative, the SGSS samples were collected utilizing the 1L Summa Canister for 5 minutes from stainless steel gas sample ports with tubing lowered into the borehole and surrounded by coarse sand. The sewer conduit gas samples were collected from utility corridors by suspending 6L Summa Canisters for 24 hours below the surface. The field data was included in the custody forms. However, the sampling stop times were not included. Therefore, it could not be determined if the samples were collected properly, and the soil gas sub-slab and sewer gas conduit sample results are considered estimated.

7. Laboratory reports were included in Appendices E and F. The laboratory methods for sample analysis were acceptable. Minor QA/QC problems were reported. However, the overall use of the data was not affected.

Analysis of Brownfield Cleanup Alternatives Comments

8. The report summarized various remediation approaches and selected specific remediation approaches for lead and TCE contamination soils.

9. The final selected remediation approach for lead was in-situ treatment to make a solid waste and excavation as non-hazardous wastes rather than hazardous wastes at significant cost savings.

10. The final selected remediation approach for TCE was excavation and then application of amendments.

RWP Comments

11. Lead was identified in the shallow soils to the north half of the site. Table 1 included the lead sample results from the 2021 Phase II, 2022 Phase II, 2022 2nd Supplemental Phase II, and 2023 Additional Soil Delineation investigations for VOCs and metals. The highest lead concentration was 46,900 ppm at HS1 20E (0-1 ft.). Since no laboratory reports were submitted for the sample results, the sample results from 2021 and 2022 could not be verified and the associated results are considered estimated. The proposed remediation approach included in-situ treatment with 5% TerraBond followed by excavation to the 800 ppm Lead Risk Based Closure Guide (R2) Soil Excavation Published Level (PL). The purpose of the TerraBond is to bind the lead into a solid for nonhazardous disposal. TerraBond utilizes stabilization and solidification processes for low solubility and precipitation of lead with carbonate, chromate, halides, phosphate, sulfate, and sulfur compounds. The procedure for mixing the 5% TerraBond was missing and should be specified. Confirmation sampling will be conducted at 20 ft. intervals for sidewalls and floor of the pit after the predetermined limits are reached utilizing the X-Ray Fluorescence (XRF) for lead. Confirmation sampling will continue until the average concentration is 800 ppm. However, confirmation sampling should continue until 800 ppm is reached since average concentration may leave hotspots.

12. TCE in soil and GW was identified at the east end of the former factory building. The proposed remediation approach included the removal of all TCE impacted soil at greater than the 200 ppm R2 Excavation PL with the goal of removing soil and most soil at greater than 1 ppm for TCE. Confirmation sampling will be conducted at 20 ft. intervals for sidewalls and floor of the pit after the predetermined limits are reached utilizing a Photolonizaton Detector (PID) screening methods for TCE. The excavation will continue until the 200 ppm R2 Excavation PL is reached. After excavation, an In-Situ Chemical Reduction (ISCR) including at least 15,000 pounds of zero valent iron (ZVI) will be applied to the pit. The pit will be approximately 200 ft. by 200 ft. However, there is a potential for zero valence iron to act as an interference for GW analysis and since the TCE impacted soil will be over excavated with a goal of 1 ppm, utilizing ZVI may not be needed and an alternative like bioremediation products (for example, PlumeStop, etc.) could be utilized and may be injected into the GW to address residual contamination.

13. The soil sample confirmation samples for TCE will be collected utilizing the IDEM recommended SW-846 Method 5035A and placed on ice and frozen within 48 hours. The soil sample confirmation samples for lead will be collected utilizing the grab method. These sampling methods are considered acceptable.

14. TCE was identified in the SGe and SGss which correlated with high TCE concentrations in GW at locations SB-6, HS-1 (10'E and 10'W), MW-5, and HS-5 shown in Figure 6. Exterior soil gas and soil gas sub-slab sample results were

included in Tables 6 and 7 and depicted in Figures 7 and 8. The highest TCE sample concentration was 257,000 µg/m³ at the soil gas sub-slab location SGSS-1 from August 29, 2023, sampling event. VI investigation will be conducted including post-remediation soil gas sampling in the TCE impacted area and if the concentrations exceed the R2 PLs, then the ERC will require vapor mitigation systems (VMSs) in future buildings near the affected area and at least one round of IA sampling in future structures prior to occupancy to test the VMSs. Additionally, a copy of the current ERO for the City of Logansport was included in Appendix C which requires municipal water service. The proposed ERC will be developed to address GW restrictions and installation of VMSs for future structures. However, the proposed ERC does not restrict land use. Recently, the lead EPA Residential Screening Level was revised to 200 ppm and 100 ppm if there are additional lead sources. After the excavations are completed, there may be lead concentrations for onsite soil that exceed 100 ppm yet below 800 ppm. Therefore, the proposed ERC may need to include land use restrictions.

15. The report did not discuss the slag that was noted in the Phase I ESA. However, the National Steel Construction Company manufactured steel products from 1949 to 1950s. The RWP should be revised to indicate the location of the slag and if it is included in the planned excavations.

16. Appendix I included the passive soil gas sampling results utilizing the Beacons Passive Soil Gas Sampler. Figures 2 to 4 indicate the approximate concentrations of PCE, TCE, and 1,1,1-TCE to determine delineation of the vapor. The area to the west, northwest, and southwest was not sampled. The Beacon Soil Gas Samplers are acceptable for qualitative use. The laboratory report for the samplers was included and considered acceptable.

17. GW quarterly sampling for 8 quarters was proposed to determine plume stability along with Institutional Controls to restrict GW use for the site and the existing EROs. The GW sampling method will be based on the IDEM Micro-Purge (low-flow) Sampling Option (updated May 11, 2021) and analysis for Chlorinated Aliphatic Hydrocarbons (CAHs) by SW-846 Method 8260. QA/QC samples will be collected including field duplicate and matrix spike and matrix spike duplicate samples at a rate of one per twenty samples along with trip blank samples and applicable equipment blank samples. The sampling and laboratory methods are considered acceptable.

18. A Quality Assurance Project Plan was included in Appendix K, and it was acceptable.

cc: Zachary Korst, Risk Services
Shane Schmidt, Geological Services