January 12, 2024

Jeffrey Crawford, Environmental Scientist III
RIDEM Office of LRSMM
235 Promenade Street
Providence, RI 02908

RE: Response to Department Comments Letter (December 27, 2023)
Rhode Island Recycled Metals - 434 Allen's Avenue
Providence, Rhode Island
Plat Map 47 / Lot 601 & Plat Map 55, Lot 10
RIDEM File No. SR-28-0143

Dear Mr. Crawford:

This correspondence is provided in response to the Department's December 27, 2023 comments regarding the Rhode Island Recycled Metals (RIRM) Site Investigation Report (SIR) prepared by Lake Shore Environmental's (LSE) dated December 13, 2023. Department comments shown below are in italics.

1. Soil Gas Sampling

a. *Sections 2.11 and 2.12.1 of the SIR refers to "concentrations of contaminants in soil gas." The response to this Comment Letter should acknowledge that exact concentrations of VOCs in soil gas were not obtained but rather field screening via jar headspace method with a photo ionization detector (PID) was utilized.*

Under the report heading "concentrations of contaminants in soil gas", the report states: Soil samples were initially field screened for the presence of volatile compounds using jar headspace methods with a photoionization detector (PID). In Section 2.12.1, the report states: In total, 34 soil samples were field screened for VOCs using jar headspace techniques. However, for additional clarity, this response acknowledges that the PID screening results provide relative PID responses to VOCs and not a precise analytical result.

b. *In one portion of the report, LSE states that Soil Gas samples were collected in plastic bags, allowed to equilibrate for 5 minutes, and then sampled. In another portion of the report, LSE states that Soil Gas samples were collected in jars, allowed to stabilize, then sampled. Please explain the discrepancy in the sample collection method description. Also describe any additional details with regard to sample collection such as outdoor temperature, how long samples were allowed to equilibrate and where, etc.*

In report Sections 2.11 and 2.12.1 the generic term "Jar Headspace" is used to describe a VOC field screening procedure and does not necessarily imply the vessel used to allow soil to

equilibrate prior to PID screening. The PID screening method used was the same for every soil sample collected at the Site. Additional details of LSE's PID screening are provided below.

For each soil sample, soil was taken from the target depth (for borings, either 0-2ft-bg or 5-7 ft-bg, for surficial soil samples, from 0-2 ft-bg, and from soil pile samples, from 0-1 foot within the soil pile at each location). An equal volume of soil at each sampling location was placed in plastic zip-lock bags and sealed to allow VOCs to equilibrate for 5 minutes, at which time the PID probe was inserted through a small corner of the seal such that no vapor within the bag could mix with ambient air. Jars were only used to collect laboratory samples.

Soil boring samples and soil pile samples were collected on 11/3/2023; the weather was partly cloudy with temperatures around 40 degrees Fahrenheit. Surficial soil samples were collected on 11/8/2023; the weather was partly cloudy and windy, with temperatures around the high 30s to low 40s in degrees Fahrenheit.

c. *LSE states that "elevated readings" were not recorded. Explain this in detail.*

The majority of PID responses using field screening techniques were less than 1.0 parts per million by volume (ppmv) which is within the range of background responses that can be caused by moisture or ambient PID sources. Only 7 out of 34 samples screened provided a response above 1 ppmv and the highest PID response was 4.4 ppmv. In LSE's experience, a PID response greater than 10 ppm (used as a screening threshold by the Department's Underground Storage Tank Program to be indicative of a release) would approach what LSE would consider elevated.

2. Chain of Custody

In the Chain of Custody provided in the SIR Report, it appears that surface soils and groundwater samples were obtained on 11/8/2023, delivered to the laboratory on 11/9/2023, analyzed between 11/10/2023-11/14/2023, and reported out by the lab in a Report dated 11/16/2023. However, the report states that the Metals were analyzed on 11/16/2023. Please explain.

The above dates are correct; it is not unusual for a laboratory to issue the data report on the same day that some analyses are run as long as analytical quality assurance/control standards are verified and the report is first reviewed by the laboratory director.

3. Analytical Results: Soil Boring Samples

a. The SIR states that of "two of the samples, detected lead concentrations exceeded the I/C-DEC." The surficial sampling ("SS-" series) detected two additional locations where lead exceeds the I/C DEC, bringing the total number of locations containing lead above the I/C DEC to four. The response to this Comment Letter should provide a summary that addresses the results from all sampling collectively.

To provide clarity, analytical results were presented as categories by sample type (soil boring, surficial or soil pile). This is more appropriate than lumping all soil results together since possible sources of contaminants and mobility for each soil type are different. The summary,

color-coded data tables in the SIR provide the reader a quick summary of regulatory exceedances. However, in order to be responsive to the Department's comment the following data summary is provided:

- A total of 34 soil samples were collected from the RIRM facility as part of this SIR.
- Of the 22 soil samples submitted for VOC analysis, no sample contained a VOC concentration that exceeded the Method 1 Soil Objectives.
- Of the 22 soil samples submitted for semi-VOC analysis, 13 samples contained semi-VOC constituents at concentrations that exceeded Industrial/Commercial Direct Exposure Criteria (I/C-DEC).
- Of the 34 samples submitted for metals analysis, 11 soil samples contained arsenic concentrations that exceeds the I/C-DEC and 4 soil samples contained lead at a concentration that exceeds the I/C-DEC.
- Of the 22 samples submitted for PCB analysis, no sample contained a PCB concentration that exceeded the I/C-DEC.
- Of the 34 samples submitted for TPH analysis, 5 samples contained a TPH concentration that exceeds the I/C-DEC.

b. *Please have soil samples containing the highest concentrations of total lead analyzed for TCLP-Lead via EPA Method 1311. Samples should include, but not be limited to, B1-S2, B7-S1, SS-9, and SS10. In the event that the lab no longer has possession of these samples, please submit a plan for Department approval to collect new soil samples to be analyzed for TCLP-Lead.*

The above listed samples were the only samples that contained a Lead concentration in exceedance of the I/C-DEC with values ranging from 625-1830 mg/kg. The requested TCLP testing for lead is unwarranted since there is no leachability standard for GB classified groundwater areas. In LSE's experience, the lead levels detected would not leach during a TCLP extraction at concentrations that would exceed EPA EP Toxicity limits and therefore be considered a characteristic hazardous waste. On the basis of these considerations, LSE is of the opinion that TCLP analyses are unnecessary for this Site.

c. *Several metals were detected in Site soils at total concentrations above their respective "20 times" concentration, at which TCLP analysis is recommended to determine if the material is characteristically Hazardous Waste. In addition to the TCLP-lead analysis mentioned in the previous comment, the Department is requiring that the following samples, based on the results of the total metals analysis, be analyzed via TCLP for the respective metals listed:*
   i. *B3-S2 – TCLP Mercury (total mercury – 4.07 mg/kg)*
   ii. *B4-S1 – TCLP Selenium (total selenium – 56.7 mg/kg)*
   iii. *B7-S1 – TCLP Chromium (total chromium – 284 mg/kg)*

The EPA EP Toxicity limits for Mercury, Selenium, and Chromium for Hazardous Waste are exceedingly higher than what would be expected based on the detected mass concentrations of these metals and in fact, none of these metals concentrations even exceed residential standards.

Furthermore, the "20 times" rule referenced by the Department conservatively assumes that 100 percent of the metals are leached from the soil which is not realistic since metals bind strongly to soil. As such, LSE is of the opinion that the detected metals concentrations are not sufficiently high to have the potential to leach at levels above EP Toxicity limits.

4. Remedial Alternatives

LSE has identified Alternative #1 as their client's preferred remedial alternative. The Department finds Alternative #1 will not properly remediate the Site. In order to protect the site soils and groundwater, a permanent impermeable cap with a storm water treatment/collection system that meets all applicable Federal and State Rules and Regulations is warranted, in addition to prior removal and disposal of the two soil piles. In order to avoid the need to modify the stormwater collection and treatment system, it should be designed based on consideration of future site uses, which may be subject to industrial stormwater permitting requirements under the Rhode Island Pollutant Discharge Elimination System (RIPDES) Program and/or the Coastal Resources Management Council (CRMC).

The identified exceedances of the Industrial/Commercial in soil are the drivers for requiring a permanent impermeable cap. VOCs were identified in the soils and groundwater in low concentrations (constituents of gasoline, Trichlorofluoromethane (Freon 11), 1,2,2 Trichloro propane (degreasing solvent), and total petroleum hydrocarbons), along with SVOCs, Inorganic Metals, PCBs, and TPH. Although LSE identified low concentrations of VOCs, their presence along with SVOCs, Metals, and TPH in surface soils and subsurface soils at concentrations above the industrial/commercial criteria from the surface to approximately eight feet in depth must be factored into the selection of a remedy that will prevent contaminants from actually and potentially impacting soil and groundwater.

Based on soil testing completed as part of this SIR, the only DEM soil standard that was exceeded was the I/C-DEC and therefore, the only pathway for potential human exposure is through direct contact that can be mitigated with either a pervious or impervious engineered barrier. In fact, the only contaminants detected at the Site for which GB-LC exist are VOCs and TPH. No VOCs were detected in any sample at levels exceeding the GB-LC. For TPH, only three samples (all from 0-2 feet below grade) exceed the GB-LC. In addition, none of the groundwater samples contained any exceedance of the GB Groundwater Objectives. Therefore, a mandatory Site-wide impermeable cap does not appear necessary, especially if on-site infiltration of stormwater is contemplated. Areas of the Site that, for stormwater purposes, are required to allow infiltration would be further assessed to determine that leaching of constituents would not pose a risk to groundwater quality at the Site.

Relative to the soil pile disposal, LSE is of the opinion that the soil piles should be returned to the adjacent excavation from which they were derived. Considering that the contaminant types and concentrations are closely comparable to those in adjacent in-situ soils, the cost of off-site

disposal is unwarranted and would result in no meaningful reduction of risk at the Site. Furthermore, the costs of off-site disposal of these piles would be further inflated by the cost of importing replacement backfill. If the soil piles are returned to their original excavation, the soil would be capped under the proposed remedy to prevent any potential for exposure to contaminants in the soil.

If you have any questions regarding these responses to Department comments or the project in general, please feel free to contact the undersigned.

Sincerely,

David J. Hazebrouck

David J. Hazebrouck, P.G., LSP, LEP
Principal

Attachments

C: Richard Nicholson, Nicholson & Associates, LLC