NEVADA DIVISION OF
ENVIRONMENTAL
PROTECTION

STATE OF NEVADA
Department of Conservation & Natural Resources
Joe Lombardo, Governor
James A. Settelmeyer, Director
Jennifer Carr, Administrator

November 26, 2024

Jay A. Steinberg
Nevada Environmental Response Trust
35 East Wacker Drive, Suite 690
Chicago, IL 60601

Re: **Tronox LLC (TRX) Facility**
Nevada Environmental Response Trust (Trust) Property
NDEP Facility ID #H-000539
Nevada Division of Environmental Protection (NDEP) Response to: *Seep Well Field Area Bioremediation Treatability Study 2022 Annual Progress Report*

Dated: August 15, 2024

Dear Mr. Steinberg,

The NDEP has received and reviewed the above-identified Deliverable and finds that the document is acceptable with the comments noted for the Administrative Record in Attachment A.

Please contact the undersigned with any questions at cschoop@ndep.nv.gov or 702-668-3926.

Sincerely,

Chad Schoop, P.E.
Bureau of Industrial Site Cleanup
NDEP-Las Vegas Office

Attachment: *Attachment A*

ec: Rick Perdomo, Deputy Administrator, NDEP, Carson City
James Dotchin, NDEP-BISC, Las Vegas
Alan Pineda, NDEP-BISC
Esther Franco, NDEP-BISC Las Vegas
Aaron Welch, Central Arizona Project
Adam Schwartz, Central Arizona Project
Andrew Steinberg, Nevada Environmental Response Trust
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Chuck Frey, GHD
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William Carson, Terraphase Engineering
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Zeitel Senitz, de maximis inc.

Attachment A
General Comments

Essential Corrections

Essential Correction 1: Section 3.1 Effectiveness Monitoring Activities Page 5

Total phosphorus and nitrogen are not included in the parameter list in this section. It might have been helpful to include nitrogen and phosphorus monitoring in order to verify the nutrient levels in the aquifer and the extent to which conditions may have become nutrient limiting due to the bioremediation activities. Section 3.3.5.3 seems to indicate that phosphorus was analyzed. If this is the case, it should be added to this parameter list.

Essential Correction 2: Section 3.3.5.1.1 Dissolved Oxygen and Oxidation Reduction Potential Page 19

The report states that dissolved oxygen (DO) concentrations in the four monitoring wells located between the injection well transects (SWFTS-MW02, SWFTS-MW14, SWFTS-MW15, and SWFTS-MW16) increased to an average of 3.14 mg/L during the December 2022 monitoring event however the oxidation reduction potential (ORP) remained low. What could be possible reasons for this apparent contradiction?

Essential Correction 3: Section 3.3.5.2 Sulfate and Sulfide Page 21

The last paragraph in this section states that sulfate reduction was limited because the slow-release carbon source did not produce strong reducing conditions. This statement appears to be contradicted by the methane concentrations reported in Section 3.3.5.4. Since methanogenesis requires more highly reducing conditions than sulfate reduction, and methanogenesis is occurring, it appears that conditions must be reducing enough for sulfate reduction therefore the stabilization of sulfate concentrations may be due to another factor.

Essential Correction 4: Section 3.4.1.2 Analysis of Microbial Results Page 24

Please provide the rationale for the selection of well SWFTS-MW09B for the deployment of a Biotrap since the screened interval for monitoring well SWFTS-MW09B is only 5 feet and extends below the maximum depth treated within the upgradient injection well transect.

Essential Correction 5: Section 3.4.1.2 Analysis of Microbial Results Page 24

Please explain why the placement of the well screen for monitoring SWFTS-MW09B means that there are low microbial numbers in this well.

Essential Correction 6: Section 3.4.1.2 Analysis of Microbial Results Page 24

Were Firmicutes detected in well SWFTS-MW07A? If not, this should be stated as it shows the microbial shift produced by the injections.

Essential Correction 7: Section 3.4.1.2 Analysis of Microbial Results Page 24

This section cites low concentrations of perchlorate in the Biotrap wells as the reason that the pcrA gene was not detected in the Biotraps. Perchlorate was not monitored in the injection well however all the other Biotrap wells had perchlorate concentrations of 7,000 µg/L or higher in December 2022. This concentration should be high enough to support a population of perchlorate degrading bacteria. Please address.

Essential Correction 8: Section 4.2.2.4 Microbial Analysis Page 30

Please provide a description of the visible biomass observed in the soil cores or indicate on the photographs in Appendix G what is considered to be visible biomass

Essential Correction 9: Section 4.2.2.4 Microbial Analysis Page 30

In order to compare the total biomass in soil to total biomass on beads in the Biotrap, the size of the bead versus the size of soil particles and the relative surface area should be taken into account. Please add this information to the comparison.

Essential Correction 10: Section 4.2.2.4 Microbial Analysis Page 30

For the 8 soil samples that did not contain Proteobacteria, what was the bacterial community structure of these samples?

Essential Correction 11: Section 5.1 Summary of Key Findings Page 33

The second bullet under the "Effectiveness Monitoring" bullet states that reductions in perchlorate were sustained to below the preliminary remediation goal (PRG) of 15 micrograms per liter (µg/L) in groundwater samples collected from multiple downgradient monitoring wells approximately 13 months after the final injection event, however a review of the data tables in Appendix D shows concentrations below 15 µg/L in 2022 in wells PC-91 and SWFTS-MW20 only, therefore this statement should be revised.

Essential Correction 12: Figure 4A Perchlorate Distribution in Groundwater

The white color indicating low concentrations of perchlorate on this figure appears to be in areas where no monitoring wells are located. As noted above there were only 2 wells with perchlorate concentrations below 15 µg/L in 2022. Please review the use of this white color on these figures and determine if it can be justified.

Essential Correction 13: Appendix E

Given the effect of water level and the impacts from City of Henderson (CoH) Pond 13 on concentrations of chemicals of concern, a water level graph or indicators of high/low groundwater levels should be included in Appendix E

Minor Corrections

Minor Correction 1: Appendix E

It would be helpful to indicate on each page where the well shown on the page is located (upgradient, between injection well transects, downgradient).