STATE OF NEVADA
Department of Conservation & Natural Resources
DIVISION OF ENVIRONMENTAL PROTECTION

Brian Sandoval, Governor
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NEVADA DIVISION OF ENVIRONMENTAL PROTECTION
protecting the future for generations

September 30, 2013

Jay A. Steinberg
Nevada Environmental Response Trust
35 East Wacker Drive, Suite 1550
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: *DVSR, Post-Remediation Screening Health Risk Assessment Report for Parcels C, D, F, G, and H, Revision 2*

     Dated: June 27, 2013

Dear Mr. Steinberg,

The NDEP has received and reviewed the Trust's above-identified Deliverable and provides comments in Attachment A. A revised Deliverable should be submitted **by 10/30/2013** based on the comments found in Attachment A. The Trust should additionally provide an annotated response-to-comments letter as part of the revised Deliverable.

Please contact the undersigned with any questions at wdong@ndep.nv.gov or 702-486-2850 x252.

Sincerely,

Weiquan Dong, P.E.
Special Projects Branch
Bureau of Corrective Actions
NDEP-Las Vegas City Office

WD:jd

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Tanya O'Neill, Foley & Lardner LLP
Teri Copeland
Wayne Klomp, AG's Office

Attachment A

1. Section 5.2.1, Evaluation of Site Concentrations Relative to Background. The reasoning by which all radionuclides were dismissed as COPCs appears flawed. The results of secular equilibrium testing indicates that both the thorium and uranium series radionuclides were in approximate secular equilibrium in soils between 0 and 10 ft bgs. In Parcel H, all of the uranium series radionuclides were identified as being present at concentrations above background based on failure of multiple statistical comparison tests. The decision logic in the last paragraph of Section 5.2.1 states that even if only one radionuclide in a decay chain were above background, all members of the chain "generally would be carried forward in the risk assessment". In the case of Parcel H, not just one but all four radionuclides in the uranium series were clearly elevated with respect to background. The analysis of Parcel H radionuclide data would seem to provide a reason to suspect a release of natural uranium. And yet the conclusion presented in the last paragraph of Section 5.2.1 is that "there is no reason to believe that the Parcels have been affected by thorium or uranium isotopes". Note also that uranium as a metal also fails background comparisons in all parcels.

2. Figures. Spatial intensity plots showing the spatial distribution of analytes are needed to evaluate the implicit assumption that there is no spatial structure to the soil samples and therefore it is appropriate to pool values. These plots would also allow the identification of hot spots or point sources of contaminants.

3. Executive Summary, Page 2; 2nd paragraph, 3rd and 4th sentences. Amphibole asbestos upper-bound cancer risk results are qualified as "...based on constant lifetime exposures, not short-term exposure such as construction activities". Construction worker risk calculations assume exposure of 8 hr/day, 250 d/yr, for 1 year rather than constant lifetime exposure. Please revise this paragraph as necessary. (See also comment on Section 5.5.3)

4. Section 2.1, page 8; last paragraph. "Asbestos remediation goals for the Parcels were established by NDEP as four or more long chrysotile fibers and one or more long amphibole fibers (>10 microns [μm] in length and <0.4 μm in width)." This is incorrectly worded, and we are not aware of any source or basis for such a decision rule by NDEP. At the very least some context about sample size and analytical sensitivity would be needed. The source of the NDEP standard should be cited and checked.

5. Section 3.1, page 13, paragraph 2. In our files, Appendix C only contains J- and other qualified samples. Are files missing?

6. Section 3.7, page 15; second paragraph. In the sentence "At each remediation polygon, the trigger sample point was surveyed and marked by LVP before and after the parcel was scraped and graded," please define trigger sample.

7. Section 4.2, pages 18-19. There needs to be a discussion about asbestos data. This should include any data validation results, issues found and how the data was reviewed (e.g., SOP for validation). Asbestos data should be validated per NDEP 2012 asbestos data validation guidance.

8. Section 4.2, page 19. Under Criterion III-Data Sources, there needs to be a discussion about the laboratories' accreditation or certification to provide indication that the labs meet minimum QC requirements.

9. Section 4.2, page 20. Provide more details about the detection limits above BCLs for benzo(a)payrene and dibenz(a,h)anthracene. For example, indicate how many samples were affected and if the analytes were detected in every sample.

10. Section 4.2, page 20. More information needs to be provided about the RPD exceedances (e.g., number and name of samples affected and how they were qualified). This information should be summarized in a table.

11. Section 4.2, pages 21 and 22. Provide the total number of results evaluated and the number of results rejected to calculate the percent completeness for combined DVSRs.

12. Section 4.2, pages 21 and Table C-1. Section 4.2 and Table C-1 do not provide enough information about the result qualifications made. Table C-1 only discusses J- qualifiers, when all data qualifications (J, J+, U) should be discussed for data usability and validity. Additionally, Table C-1 needs to provide: limits and recoveries for the QC issues found, definition of reason codes, holding time vs. exceeded time, LCS/LCSD issues, and an explanation for the yellow highlighting. Presently, the table cannot stand alone and the text in the report does not provide enough support. The text on page 21, with respect to "instances" for MS/MSD issues and holding time exceedances, does not agree with Table C-1. Table C-1 shows ~650 results qualified due to MS/MSD issues, whereas the report indicates 570. For holding time issues, Table C-1 shows ~200 and the report lists 75.

13. Section 4.2, page 22. There needs to be more information about how blank contamination was handled for DVSRs. The additional information should include: the type of contamination found (i.e., metals, organics), number and names of samples affected, and levels of blank contamination found. This information should either be included in the text or a table.

14. Section 5.2.1, pages 30 and 31; last and third paragraphs. For metals "NDEP has requested that the Site soil concentrations from Remediation Zone A (RZ-A)" while "For radionuclides, Parcel soil concentrations were compared to background levels using the existing soils background data presented in the Background Shallow Soil Summary Report, BMI Complex and Common Area Vicinity...". Please clarify why data from two different locations are used as background.

15. Section 5.2.1, page 33, first paragraph. "Non-detect results were set equal to one-half of the limit of detection for purpose of the parametric test and set to the detection limit for purpose of the non-parametric tests." The reason for using different values for substitution should be discussed. The non-parametric tests use the Gehan ranking scheme to rank the non-detects with the rest of the data. Parametric tests cannot do that, so ½ DL is preferred as a reasonable alternative.

16. Section 5.2.1, page 33, first paragraph. The PQL was used for the detection limits for the Parcels data. This causes many problems with the statistical analysis, even more so considering SQLs are used for the background data. NDEP has provided guidance indicating the need to use SQLs for all data analyses. This issue is addressed in the RTCs, but also needs to be addressed in the main text of the report.

17. Section 5.2.2, Evaluation of Site Concentrations Relative to Toxicity Screen. Long chrysotile fibers were identified as a COPC, but not amphibole asbestos. However, the asbestos risk characterization in Section 5.5.3 includes assessment of amphibole asbestos.

18. Section 5.5.3, Asbestos, page 52; 3rd paragraph, 5th and 6th sentences. These sentences incorrectly infer that the asbestos unit risk factor used in the assessment has a high level of conservative bias when applied to short-term exposures. In NDEP's asbestos guidance, a lifetime-exposure asbestos unit risk factor is multiplied by an adjustment factor that addresses fractional exposure within the 70-year effects averaging time, which is a standard approach for carcinogenic chemical risk assessment. Alternatively, unit risk factors based on

life table analysis may be developed for different combinations of exposure duration and time of first exposure (as in EPA's Framework for Investigating Asbestos-Contaminated Superfund Sites, OSWER Directive 9200.0-68, September 2008), but in this case exposure duration and effects averaging time are integrated within each unit risk factor. Please revise this paragraph as necessary.

19. Section 5.6, Uncertainty Analysis – Uncertainty Associated with Exposure Point Concentrations, page 55. The discussion of uncertainty in upper-bound air asbestos concentrations is incomplete and potentially misleading because it ignores the matter of sample size, except to mention that fiber counts are multiplied by the pooled analytical sensitivity (AS). Please add a discussion of the relationship between sample size and pooled AS such that it is clear that upper-bound air asbestos concentrations when no fibers are detected are a function of sample size (pooled analytical sensitivity).

20. RTC 4, page 3. The discussion of the rationale and distinction between parcel level comparisons and site wide comparisons is discussed in the RTC Item 4 where it references section 5.2.1. This is an important topic and should more fully be incorporated into the main report.

21. Tables F5A and F5B. Please explain what is meant in the column "Number Missing". If this refers to negative values that are now included in the analysis, please remove this column. Otherwise, please explain.

22. Section 5.5.3, Asbestos, page 52; 3rd paragraph, 3rd and 4th sentences. The variation in the upper-bound risk estimates among the five parcels is a function of differences in sample size and should be explained in that context.

23. Table 5. Add a footnote explaining why some results are shaded blue.

24. Appendix F, Box Plots figures. The points outside of the 1.5x Inter-Quartile Range (IQR) are not necessarily outliers. It would be better to have a description of what a box plot is, and then just acknowledge that these points are beyond 1.5 x IQR – sometimes as detects and sometimes as non-detects. The terms "outlier" often carries a different connotation that is not meant here (that the value does not belong with the rest of the dataset).