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

Brian Sandoval, Governor
Leo M. Drozdoff, P.E., Director
Colleen Cripps, Ph.D., Administrator

January 17, 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:
Annual Remedial Performance Report for Chromium and Perchlorate
Dated: August 2012

Dear Mr. Steinberg,

The NDEP has received and reviewed the Trust's above-identified Deliverable and provides comments in Attachment A. These comments should be addressed in the next Annual Remedial Performance Report. The Trust should additionally provide an annotated response-to-comments letter as part of this Deliverable.

Please contact the undersigned with any questions at wdong@ndep.nv.gov or (702)-486-2850 x250.

Sincerely,

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

WD:sh

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Ron Zegers, Southern Nevada Water Authority
Shannon Harbour, NDEP
Stephen Tyahla, U.S. Environmental Protection Agency, Region 9
Tanya O'Neill, Foley & Lardner LLP
Teri Copeland
Victoria Tyson, TIMET

Attachment A

1. General comment, in future Deliverables, please explain any discrepancy between the combined monthly discharge rate from the three well fields and the total monthly influent rate to the GWTP and the FBR Biological Treatment Plant (FBRBTP).
2. Section 2, page 3, condense general conditions of groundwater of the site and discuss any changes from the previous Annual Performance Deliverable.
3. Section 2.1, page 5, third paragraph, the recommendation that adjusts the extraction rate of some individual wells within the Interceptor Well Field (IWF) and commences pumping at several new extraction wells (I-W, I-X, I-Y, I-AA, I-AB, I-AC, and I-AD) is likely appropriate but the analysis for this recommendation provided in Appendix E is preliminary and additional monitoring and analysis will be required to fully optimize the IWF capture zones. This also similarly applies to the Athens Well Field (AWF).
4. Section 2.4, page 8 Figure 4 reports a total influent of 842 gpm; however, the effluent reported on 901 gpm. Please discuss the 59 gpm discrepancy. Also, please clarify whether the perchlorate removed calculations are based on the influent or effluent flow rate.
5. Tables, add a table of the plume mass of perchlorate, chromium, and TDS for 2002, 2006 and 2012. The table should follow the format of the Table 4-1 of the Capture Zone Evaluation Report, Tronox LLC, Henderson, Nevada (Northgate, December 10, 2010).
6. Tables 1, 2 and 3, change annual discharge rates to monthly discharge rates. The period should same as it in Table 6 (The period of Oct. 2002 to Jun. 2012). Add perchlorate, chromium, and the total dissolved solids (TDS) mass removal rates corresponding to the monthly discharge rates for each well.
7. Figures 2A, 2B, 2C, 2D, 10 and 22, please provide discussion regarding the cycles in both hydrographs and perchlorate concentrations.
8. Figures 19A and 21A, please provide more detailed analysis on the increase of perchlorate concentration from December 2011 to June 2012 for Wells MW-K4, PC-103, PC-p8R, and MW-K5.
9. Plates, add 3D plume maps of perchlorate, chromium and TDS for 2002, 2006 and 2012. The 3D plume map should follow the format of the Figure 4-2 of the Capture Zone Evaluation Report, Tronox LLC, Henderson, Nevada (Northgate, December 10, 2010).
10. Plates 2, 6, 7 and 8, please provide these plates for each of the following years: 2002 and 2006 so that visual comparisons can be made with plume maps that are generated using consistent protocols and interpretations.
11. Appendix E, the NDEP provides the following comments:
    a. General comment, this analysis represents a preliminary analysis that is mostly based upon previous monitoring of the site conditions and expert judgment of the site conditions. It is important to reemphasize the point made in the report that additional monitoring and analysis will be required to fully optimize the IWF and AWF capture zones.

b. General comment, at the AWF site, the substantial reduction of pumping in ART-1 from 14.1 to 1.0 gpm should be reconsidered because the reduction in pumping may allow additional mass to migrate northward along the westernmost flank of the perchlorate plume. Perhaps one should consider balancing the reductions between ART-1 and ART-2 until further analysis could be performed with the groundwater model.
c. General comment, NDEP suggests that the revisions to the existing groundwater flow model be done in a timely manner so it can be used to explore various operational changes and to determine the most optimal capture strategy. Ultimately the capture zone analysis should be done using a combination of groundwater flow modeling and measured data (e.g. KT3D_H2O and measured water levels). Please clarify this in the next Deliverable.
d. Page E-3, the Deliverable states that water level contours near the barrier wall were manually corrected. Please provide additional information on exactly how this was done. More specifically, clarify whether an estimated water level was used for every pumping well location in place of the well function drift term and whether this manual adjustment was required for all wells or just those with very small pumping rates. Please state exactly how this problem was identified (e.g. KT3D_H2O predicted water levels at pumping locations were too high or too low).
e. Page E-5, please note in this section that KT3D_H2O was used to delineate the capture zones presented in Figures E-1, E-2, E-3, and E-4.
f. Page E-5, please note how the perchlorate and chromium iso-concentration contours were generated for Figures E-1, E-2, E-3, and E-4.
g. Page E-5, 2nd paragraph and Figures E-3 and E-4, the hatched area shown in the center of Figures E-3 and E-4 is not shown in the legend. Please state if this is the zone in which the alluvium is unsaturated. If this zone represents an unsaturated alluvium, then please discuss how and why the iso-concentration contours were drawn in this region.
h. Section 5.1, 2nd paragraph, please state the rational for the increase or decrease in the discharge rate for each grouping of wells.