



December 30, 2015

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, Nevada Environmental Response Trust Site, Henderson, Nevada

Dated: October 30, 2015

Dear Mr. Steinberg,

The NDEP has received and reviewed the Trust's above-identified Deliverable and finds that the document is acceptable with the following comments noted for the Administrative Record:

1. This letter doesn't cover the Attachment A—Phase III model report.
2. The NERT should update the perchlorate mass estimates for the years of 2002, 2006, 2012 and 2014 in Table 9 with the same way to calculate the perchlorate mass for 2015. Please include this in next performance report.
3. Section 2.3 Seep Area Well Field, page 10, last paragraph. The Deliverable states that "Since the middle of 2012, groundwater elevations at the SWF appear to be trending higher, although seasonal patterns are also apparent." Inspection of the groundwater level trends on Figure 4, indicate that the upward trend in levels started earlier in 2010. Please clarify this explanation in next performance report.
4. Section 4.1 Perchlorate Plume Configuration, the last paragraph, page 18: "An initial evaluation of available RI data in conjunction with additional data from the BMI Complex Parties indicates the AMPAC plume to the west commingles with NERT's perchlorate plume." Because the plume commingling of the AMPAC and NERT plumes has been argued since 1999 and the plume commingling may be induced by the groundwater extraction, NERT should make conclusion based on more through evaluations. Please notice that NDEP will have a letter about the plume commingling of the AMPAC and NERT plumes on the NERT's Perchlorate Source Identification Work Plan.
5. Section 6.4.2 Capture Zone Evaluation and Estimated Mass Flux, 3rd paragraph, page 31. "The capture efficiencies of the IWF, AWF, and SWF were calculated as 99.9%, 98.1%, and 95.3%, respectively." These high capture efficiencies appear not well supported by

- downgradient groundwater perchlorate concentration and mass fluxes. Please clarify this calculation in next performance report.
6. Section 6.4.2 Capture Zone Evaluation and Estimated Mass Flux, page 31, top of page and 2nd paragraph. Please specify the estimated mass flux calculated for the capture zone and outside the capture zone. Please clarify this estimate in next performance report.
 7. Section 6.4.3 Perchlorate Mass Loading to Las Vegas Wash, page 32 last paragraph and page 33, the first two paragraphs. The Deliverable states that “Perchlorate mass entering the Las Vegas Wash at any point will include groundwater discharge, as well as other sources (e.g., bank storage, wash gravels). This analysis does not attempt to identify the various sources of perchlorate, but is intended only to identify the general areas where perchlorate may be entering the Las Vegas Wash.” Conceptually, the only way for perchlorate to get to surface water flow would be via either surface runoff to the wash and/or groundwater discharge. The perchlorate in “wash gravels” and/or “bank storage” would be sources to groundwater discharge. Thus, in Figure 33b the accretion of perchlorate down gradient would be due to groundwater discharge.
 8. Section 6.4.4 Surface Water and Groundwater Interaction Near the SWF, 1st paragraph, page 34. Although groundwater table elevation of PC-97 is below the Pabco Road weir USGS stream gauging height at most time, the continuous water level data of PC-97 did respond to peak flow recorded in the stream gauge, which supports some connection between groundwater of SWF and surface water in the Las Vegas Wash.
 9. Section 6.4.4 Surface Water and Groundwater Interaction Near the SWF, 4th paragraph, page 34. “An initial analysis of these data suggests that three distinct water types (groundwater, Las Vegas Wash water, and water from the COH Bird Viewing Ponds) are likely mixing at the SWF.” The groundwater source to SWF may be a mixing water of shallow and deep groundwater and the water chemistry of these two sources of groundwater may be different. High Na+K of PC-62, PC-117 and PC-119 in Figure 35b can’t be explained with mixing AWF groundwater and surface water (Las Vegas Wash water and the COH Bird Viewing Ponds water), which may indicate additional source to the SWF water.
 10. Section 7. Conclusions, 4th paragraph, page 40: “For the same 12-month period, the capture of perchlorate-contaminated groundwater from all three well fields, and biological treatment in the on-site FBRs, has removed a total of approximately 508,200 pounds of perchlorate from the environment. This was a 3.1% decrease from 524,500 pounds of perchlorate removed during 12-month period ending in June 2014.” NDEP suggests the perchlorate mass removal for the period from July 1 to June 30, 2014 as the baseline comparison for the mass removal metric in the remediation performance report and the COP program based on following facts: 1) NERT took over the project in 2011; 2) The perchlorate mass removal was relatively high due to relatively high precipitation in 2012 and 4) There were many shut-downs of well extractions due to the operation interruptions and the implementation of the enhanced metrics project in 2015.
 11. Section 7. Conclusions, 4th paragraph, page 40: “The decrease in removal is primarily the result of decreasing average perchlorate concentrations, particularly in groundwater extracted from the AWF.” but Figures 26 shows that average perchlorate concentration of AWF had upward trend in 2015. Please clarify this explanation in next performance report.

12. Plates 2, 6, 7, 7a, and 8 show via hatchured lines the location of a Muddy Creek topographic high where alluvium is presumed unsaturated. The OSSM Companies have identified and mapped the same feature oriented north-south between the OSSM and NERT GWETS. The latter feature (Muddy Creek high) extends from west of the NERT GWETS northward to Warm Springs Road. The NDEP requests that the OSSM mapped Muddy Creek high be included because this feature occurs between the two GWETS and likely affects capture at both the OSSM and NERT GWETS. Please show this feature in next performance report.

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

Sincerely,



Weiquan Dong, P.E.
Bureau of Industrial Site Cleanup
NDEP-Las Vegas City Office

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