



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 20, 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: *Leasehold Unit 4 and 5 Buildings Investigation Work Plan, Henderson, Nevada*

Dated: November 20, 2014

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 **03/20/2015** 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

EC: Greg Lovato, NDEP, Dpty Admin., Carson City
James Dotchin, NDEP, BCA LV
Adam Baas, Edgcomb Law Group
Allan Delorme, ENVIRON
Alison Fong, U.S. Environmental Protection Agency, Region 9
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Scott Bryan, Central Arizona Project
Susan Crowley, Crowley Environ.
Tanya O'Neill, Foley & Lardner LLP
Wayne Klomp, AG's Office

Attachment A

1. The Unit Building 4/5 area is potentially one of the most significant source areas for the entire NERT site. As such, a comprehensive investigation with high-resolution site characterization (HRSC) strategies and techniques is more important than a fast investigation. Field analytical methods should be a supplement to (rather than an alternative to) fixed laboratory methods. The results from these investigations should provide accurate information on:
 - a. Contaminant mass and spatial distribution, especially perchlorate and chromium in both vadose zone and groundwater;
 - b. Migration pathways and velocity of perchlorate and chromium.
2. Section 3.0, Overview of Investigation Strategy: The proposed strategy includes elements of EPA's Triad approach to site investigation, but the workplan does not include the other two elements of Triad: systematic work project planning and dynamic work strategies. It may be more worthwhile to move forward with the investigation generally as planned and delete the references to Triad.
3. Section 5.2, Soil Boring and Monitoring Well Locations: Paragraph six of this section indicates 12 perimeter borings and then, in the same paragraph, discusses 21 soil borings. It is not clear if either 12 or 21 are typographical errors, but if they are referencing the same set of borings, the number of borings should be consistent. This section also indicates that the railroad spur (south side of the Bldg 4/5 footprint) is a targeted area. If specific spill areas visually identifiable, they should be targeted for sampling.
4. Section 5.2, Soil Boring and Monitoring Well Locations: this section indicates that eight soil borings will be advanced within the Bldg 4 footprint to identify and delineate potential sources and more precisely target excavation boundaries. Given the limited historical subsurface data at this location and the high likelihood that Bldg 4 is a significant perchlorate source area, eight borings is likely to be the bare minimum number needed to accomplish the stated goals. The locations of the proposed 8 soil borings are evenly distributed. The NDEP suggests that more soil borings should be located in high potential sites. Equipment/personnel mobilization is a major part of the cost of any site investigation; as such, the workplan should include 'next steps' if high perchlorate concentrations are found in the subsurface, and have flexibility in the schedule so that additional borings can be advanced if needed as part of this field mobilization.
5. Section 5.3, Soil Boring Advancement Decision Matrix:
 - a. The 'decision matrix' referenced in this section is a simple flowchart with go / no-go decisions based on field screening of soil samples collected at five foot depth intervals in the borings. The plan should consider additional/alternative sample depths based on field observations such as soil color and lithology changes.
 - b. Likewise, the throughput of the field instruments should be considered. It may be feasible to collect and test soil samples at two- or three-foot intervals for perchlorate (ion-specific electrode), but XRF screening for chromium may be slower.

- c. If field instrument data will be a significant part of the decision-making process, the field data must be correlated to the fixed laboratory data. The workplan does not specify how the field instruments will be correlated to fixed lab data.
 - d. The NDEP Basic Comparison levels (BCL) for indoor industrial/commercial worker field screening values are 1,230 mg/kg for Cr (VI), 100,000 mg/kg for Cr (III) and 795 mg/kg for perchlorate, respectively (http://ndep.nv.gov/bmi/docs/bcl_calculations_august_2013.pdf). The NDEP suggests that the NERT considers chemical-specific dilution attenuation factors (DAF) for studying the potential migration to groundwater. These comments are also applied to Figure 9 – Leasehold Investigation Decision Matrix.
6. Section 5.4.3, COPC Field Screening:
- a. As indicated in comment 6a above, the workplan should reconsider the planned five-foot depth intervals. Additional/alternative depths should be considered based on subsurface conditions.
 - b. The workplan indicates that “Tetra Tech will screen soil samples for perchlorate and hexavalent chromium.” The workplan should be corrected to indicate that soil samples will be screened for perchlorate and total chromium.
 - c. The workplan indicates that the Thomas ISE instrument will be calibrated on a weekly basis with perchlorate reference standards. If field screening data will be used for decision-making (as indicated in figure 9 of the workplan), the field data should be correlated to fixed lab data in addition to the calibration with perchlorate reference standards.
 - d. X-ray fluorescence (XRF) field screening for chromium should be field-tested prior to project mobilization if the data will be used for decision-making purposes (as indicated in Figure 9 of the workplan). XRF is not a point-and-shoot technology when used for metals analysis in soil. Soil moisture, grain size, and sample preparation are all significant issues that may impact the field screening results, instrument through-put and, ultimately, usability of the data for decision-making purposes.
7. Section 5.4.5, Grab Groundwater Sampling: the description of temporary wells for grab groundwater samples includes the installation of a filter pack within the annular space of the six-inch borehole (i.e., around the two-inch diameter casing), but there is no indication of any purging prior to sample collection with a narrow-gauge bailer. The workplan should include a sufficient purge volume to ensure that the groundwater sample is representative of the formation and not of the filter pack.