



NEVADA DIVISION OF
**ENVIRONMENTAL
PROTECTION**

STATE OF NEVADA
Department of Conservation & Natural Resources

Brian Sandoval, Governor
Bradley Crowell, Director
Greg Lovato, Administrator

May 10, 2018

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: *Data Validation
Summary Report October through December 2014 Soil Remedial Investigation Sampling
and Associated EDD, Nevada Environmental Response Trust (NERT), Henderson,
Nevada*

Dated: January 18, 2018 (Received on March 12, 2018)

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 07/10/2018** 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.
Bureau of Industrial Site Cleanup
NDEP-Las Vegas City Office

WD:cp

EC:
James Dotchin, NDEP BISC Las Vegas
Carlton Parker, NDEP BISC Las Vegas
Allan Delorme, Ramboll Environ
Alison Fong, U.S. Environmental Protection Agency, Region 9
Andrew Barnes, Geosyntec
Andrew Steinberg, Nevada Environmental Response Trust
Anna Springsteen, Neptune & Company Inc.
Betty Kuo Brinton, MWDH2O

Brenda Pohlmann, City of Henderson
Brian Waggle, Hargis + Associates
Carol Nagai, MWDH2O
Chinny Esakkiperumal, Olin Corporation
Chris Ritchie, Ramboll Environ
Chuck Elmendorf, Stauffer Management Company, LLC
Dan Pastor, P.E. TetraTech
Dave Share, Olin
Dave Johnson, LVVWD
David Parker, Central Arizona Water Conservation District
Derek Amidon, Tetrattech
Ebrahim Juma, Clean Water Team
Ed Modiano, de maximis, inc.
Eric Fordham, Geopentech
Gary Carter, Endeavour
George Crouse, Syngenta Crop Protection, Inc.
Harry Van Den Berg, AECOM
Jay Steinberg, Nevada Environmental Response Trust
Jeff Gibson, Endeavour
Jill Teraoka, MWDH2O
Joanne Otani
Joe Kelly, Montrose Chemical Corporation of CA
Joe Leedy, Clean Water Team
John Edgcomb, Edgcomb Law Group
John Pekala, Ramboll Environ
Kelly McIntosh, GEI Consultants
Kevin Fisher, LV Valley Water District
Kirk Stowers, Broadbent & Associates
Kirsten Lockhart, Neptune & Company Inc.
Kim Kuwabara, Ramboll Environ
Kurt Fehling, The Fehling Group
Kyle Gadley, Geosyntec
Kyle Hansen, Tetrattech
Lee Farris, BRC
Marcia Scully, Metropolitan Water District of Southern California
Maria Lopez, Water District of Southern California
Mark Duffy, U.S. Environmental Protection Agency, Region 9
Mark Paris, Landwell
Michael J. Bogle, Womble Carlyle Sandridge & Rice, LLP
Michael Long, Hargis + Associates
Micheline Fairbank, AG Office
Mickey Chaudhuri, Metropolitan Water District of Southern California
Nicholas Pogoncheff, PES Environmental, Inc.
Orestes Morfin, CAP
Paul Black, Neptune and Company, Inc.
Paul Hackenberry, Hackenberry Associates, LLC
Patti Meeks, Neptune & Company Inc.
Peggy Roefer, CRC
Ranjit Sahu, BRC
Richard Pfarrer, TIMET
Rick Kellogg, BRC
Scott Bryan, Central Arizona Project
Steve Clough, Nevada Environmental Response Trust
Steven Anderson, LVVWD
Tanya O'Neill, Foley & Lardner L
Todd Tietjen, SNWA

Attachment A

DVSR Review:

1. **Section 1, analysis list:**
 - a. Fluoride is missing from the analytes listed for Method 300.0. Please add this analyte.
 - b. Nitrite as Nitrogen is listed in the text as an analyte for Method 300.0; however, the EDD reports only nitrite. Please determine the correct reporting basis for these results and correct the EDD or text as necessary.
 - c. Nitrate as NO₃ is listed in the text as an analyte for Method 300.0. The EDD reports 11 results in the EDD for nitrate. Please determine the correct reporting basis for these results and correct the EDD or text as necessary.
 - d. Please list the calculation methods for total PCBs and total dioxins in the list of methods in this section.
2. **Section 1.0, sample counts:** The text notes there are 492 samples presented in this DVSR and the EDD samples table has 492 entries. Table 1, however lists 511 samples. Please check the contents of Table 1 and edit as necessary.

3. **Table III, validation stage percentages:** Please indicate in the header row of the table that the table presents the number of samples. Below are discrepancies noted between Table III and the EDD (listed parenthetically). As discrepancies were identified in the first few methods checked, no further checks were made. Please review and correct the number of samples validated to each stage for all methods and correct Table II as necessary. Please also identify where less than 10% of the samples were validated to Stage 4 (see later comments).

Parameter	Stage 2B	Stage 4	Total
VOCs	259 (264)	37 (33)	296 (297)
SVOC	72 (73)	10 (9)	82
PAHs	72 (73)	10 (9)	82
Organochlorine pesticides	80 (84)	11 (7)	91

4. **Section 2.0, VOC analyte list:** The samples analyzed for VOCs appear to have several different target compound lists (61, 62, 63, 68 or 69 analytes). Please explain this in the text.
5. **Section 2.1.1, calibration qualifications:** Text states that 398 qualifications were qualified for calibration outliers. The EDD has 397 results qualified (identified by filtering on reason code "c"). Please revise either the text or EDD to eliminate this discrepancy.
6. **Section 2.1.1, calibration qualification:** The nondetect result for dichlorodifluoromethane in RISB-58-GW-20141113-FB was qualified as nondetected (U) with a reason code of "c." If this result should be qualified, the qualifier should be "UJ," otherwise, the reason code should be removed.
7. **Section 2.1.7, Stage 4 validation:** Text states that results for 37 samples were validated at Stage 4; however, the EDD lists Stage 4 validation for only 33 samples. Please revise the text in Section 2.1.7 or the EDD to eliminate the discrepancy in the number of Stage 4 validated samples. Also, please see comment #34.

8. **Sections 2 and 3, duplicate results:** Samples that were analyzed by both 8270 and 8270C SIM have duplicate results for the PAHs. Also, samples that were analyzed by 8260 and 8270 have duplicate results for 1,2,4-trichlorobenzene; 1,2-dichlorobenzene; 1,3-dichlorobenzene; 1,4-dichlorobenzene; hexachlorobutadiene; and naphthalene. Using the validator's professional judgment, reject one set of duplicate results, leaving only one valid value for each analyte, for each sample. Please add text to this section to describe the qualifications and the logic behind the professional judgment.
9. **Section 3.0, SVOC analyte list:** The samples analyzed for SVOCs appear to have at least two different target compound lists (64 or 70 analytes). Please explain this in the text.
10. **Section 3.1.7, SVOC Stage 4 validation:** Text in this Section states that 10 samples were validated at Stage 4; however, the EDD has only 9 samples validated at Stage 4. Please revise the text in Section 3.1.7 or the EDD to eliminate the discrepancy in the number of Stage 4 validated samples.
11. **Section 4.1.7, PAH Stage 4 validation:** Text in this Section states that 10 samples were validated at Stage 4; however, the EDD has only 9 samples validated at Stage 4. Please revise the text in Section 4.1.7 or the EDD to eliminate the discrepancy in the number of Stage 4 validated samples.
12. **Section 4.1.3, PAH RPD text:** Text discussing MS/MSD RPDs is confusing. Please clarify if there should be qualifications for this criterion.
13. **Section 5.0, pesticide analyte list:** The samples analyzed for pesticides appear to have several different target compound lists (21, 22 or 25 analytes). Please explain this in the text.
14. **Section 5.1.2, pesticide surrogate qualification count:** Text in this section indicates that 226 results were qualified for surrogate recovery outliers. The EDD only has 211 pesticide result qualified for surrogate outliers (results with "s" reason code). Please determine the source of the discrepancy and correct the EDD or text as necessary.
15. **Section 5.1.6, pesticide Stage 4 validation:** Text in this Section states that 11 samples were validated at Stage 4; however, the EDD has only 7 samples validated at Stage 4. A total of 9.3% of the soil samples were validated at Stage 4. Please revise the text in Section 5.1.6 or the EDD to eliminate the discrepancy in the number of Stage 4 validated samples.
16. **Section 6.0, PCB sample count:** Text in this section states there were 66 soil samples analyzed for PCBs; however, the EDD has 67 soil samples. Please determine the source of the discrepancy and correct the EDD or text as necessary.
17. **Section 6.4.1, PCB LCS qualifications:** Text in this section states that several sample results were qualified as estimated; however, no results are qualified in the EDD. Please determine the source of the discrepancy and correct the EDD or text as necessary.
18. **Section 6.1.6, PAH Stage 4 validation:** Text in this Section states that 10 samples were validated at Stage 4; however, the EDD has only 9 samples validated at Stage 4. Please revise the text in Section 6.1.6 or the EDD to eliminate the discrepancy in the number of Stage 4 validated samples.

19. **Section 7.1.6, GRO Stage 4 validation:** The text in this section notes that 13 samples were validated at Stage 4; however, the EDD indicates that 9 GRO samples were validated at Stage 4. Please revise the text in Section 7.1.6 or the EDD to eliminate the discrepancy in the number of Stage 4 validated samples.
20. **Section 8.1.6, TPH Stage 4 validation:** The text in this section notes that 18 samples were validated at Stage 4; however, the EDD indicates that 14 samples were validated at Stage 4. Please revise the text in Section 8.1.6 or the EDD to eliminate the discrepancy in the number of Stage 4 validated samples.
21. **Section 9.1.7, Pesticide Stage 4 validation:** The text in this section notes that 10 samples were validated at Stage 4; however, the EDD indicates that 9 samples were validated at Stage 4. Please revise the text in Section 9.1.7 or the EDD to eliminate the discrepancy in the number of Stage 4 validated samples.
22. **Section 10.1.3, dioxin LCS/LCSD RPD qualifications:** The text in this section states that total HxCDD in samples RISB-51-5.0-20141030 and RISB-52-5.0-20141030 were qualified as estimated due to an LCS/LCSD RPD outlier. These results are not qualified (no "ld" reason code). Please add this qualification.
23. **Section 10.1.5, field duplicate qualifications:** The text states that four field duplicate pairs were qualified; however, only two pairs were qualified (four samples). Please correct the text.
24. **Section 10.1.6, dioxin Stage 4 validation:** The text in this section notes that 10 samples were validated at Stage 4; however, the EDD indicates that 9 samples were validated at Stage 4. Please revise the text in Section 10.1.6 or the EDD to eliminate the discrepancy in the number of Stage 4 validated samples.
25. **Section 10, dioxin qualification:** Nine results for sample RISB-50-0.5-20141029 were qualified as estimated with a reason code of "o." It appears these qualifications were not discussed. Please add this discussion or identify where the qualifications were discussed.
26. **Section 11.1.6, PCB congener Stage 4 validation:** The text in this section notes that 10 samples were validated at Stage 4; however, the EDD indicates that 9 samples were validated at Stage 4. Please revise the text in Section 11.1.6 or the EDD to eliminate the discrepancy in the number of Stage 4 validated samples.
27. **Section 12, metals analytes:** There are 67 results for unraium-238 by Method 6020. Please check the analysis and the analyte, as metals isotopes are not usually reported by this method.
28. **Section 12.1.8, metals Stage 4 validation:**
 - a. The text in this section notes that 52 mercury samples were validated at Stage 4; however, the EDD indicates that 37 mercury samples were validated at Stage 4, 24 of which were soils (out of 313 mercury soil samples). Please revise the text in Section 12.1.8 or the EDD to eliminate the discrepancy in the number of Stage 4 validated samples.

- b. The text states that for Methods 6010/6020 40 samples were validated at Stage 4, but the EDD has only 25 samples validated at Stage 4. This number does not meet the 10% criterion for Stage 4 validation. Please either correct the EDD or validate additional samples to meet the 10% criterion.

29. **Section 13.1.4, duplicate qualifications:** The nondetected result for carbonate alkalinity in sample RISB-58-35.0-20141113 was no qualified for the duplicate RPD outlier. As the National Functional Guidelines suggests qualifying nondetect inorganic results for RPD outliers, please consider qualifying this result.
30. **Section 13.1.7, wet chemistry Stage 4 validation:** The following table identifies discrepancies between the number of samples validated to stage 4 reported in the text and identified in the EDD. Please correct either the EDD of the text as necessary. Please note that except for perchlorate and chlorate, the 10% stage 4 validation criterion appears to have not been met.

Analyte	Text Stage 4	EDD Stage 4	Total No. Sample
Perchlorate	42	38	377
Chlorate	41	37	375
pH	4	2	26
Cyanide	1	0	1
Sulfide	1	0	1
TDS	1	0	1
Anions	18	14	163
Alkalinity	18	14	163
Ammonia	18	14	163
Hexavalent Cr	18	14	153
Phosphorus	2	0	12

31. **Section 13.2.1, alkalinity holding time:** The laboratory qualified the alkalinity results for sample RIT-3-01-20141113 as having exceeded the holding time, but these results were not qualified during validation. Please determine if these results should they be qualified.
32. **Sections 14.1.7, 15.1.7, 16.1.7, and 17.1.7 radionuclide validation:** The text in these sections notes that 10 samples were validated at Stage 4; however, the EDD indicates that 9 samples were validated at Stage 4. Please revise the text in these sections or the EDD to eliminate the discrepancy in the number of Stage 4 validated samples.
33. **Stage 4 validation:** Trip blank and field blank samples were validated at Stage 4 for VOCs, metals, chlorate and perchlorate. Field QC samples should not be chosen for Stage 4 validation as they are generally clean samples and usually provide no useful insight into the ability of the method to produce usable results. Please ascertain if sufficient field samples have been validated at Stage 4 to meet the 10% Stage 4 validation criterion.

EDD Review

1. There are no comments for the EDD. A revised EDD is only required if there are any revisions based on the DVSR comments.