



NEVADA DIVISION OF  
**ENVIRONMENTAL  
PROTECTION**

**STATE OF NEVADA**  
Department of Conservation & Natural Resources

Brian Sandoval, Governor  
Bradley Crowell, Director  
David Emme, Administrator

January 6, 2017

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:

Dated: November 25, 2016

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 03/06/2017** 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](mailto: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  
Adam Baas, Edgcomb Law Group  
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  
Chris Ritchie, Ramboll Environ  
Chuck Elmendorf, Stauffer Management Company, LLC  
Dave Share, Olin  
David Johnson, Central Arizona Water Conservation District  
Dave Johnson, LVVWD  
Derek Amidon, Tetratech  
Ebrahim Juma, Clean Water Team  
Ed Modiano, de maximis, inc.  
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George Crouse, Syngenta Crop Protection, Inc.  
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Patti Meeks, Neptune & Company Inc.  
Peggy Roefer, CRC  
Ranajit 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

1. Section 1.0 and EDD: 876 results for field blanks and equipment blanks do not have a valid value for the field "validation\_stage". Per NDEP April 2009 guidance, "all data collected at the BMI Complex and Common Areas should be validated at least to Stage 2B." Please validate these samples at Stage 2B or Stage 4 (as necessary to achieve 10% Stage 4 validation) and populate the "validation\_stage" field. Text in this section and Table 2 will require revision to update the number of total results and the number of results validated to each stage.
2. Section 1.0 and EDD: 217 results are noted to have been validated at Stage 2A. Per NDEP April 2009 guidance, "all data collected at the BMI Complex and Common Areas should be validated at least to Stage 2B." Please validate these samples at Stage 2B or Stage 4 (as necessary to achieve 10% Stage 4 validation) and revise the "validation\_stage" field. Text in this section and Table 2 will require revision to update the number of total results and the number of results validated to each stage.
3. Section 1.0 and EDD: The "parameter" field is null for 104 results associated with "analytical\_method". Presumably these are the results for total nitrogen, which is listed in Section 1.0 as associated with the method "NTOTAL". "Calculation" or "CALC" is an appropriate method for total nitrogen, but please populate the "parameter" field.
4. EDD, results between the SQL and PQL: Please correct the following issues.
  - a. 60 analytical results qualified "J" by the laboratory do not have reason code "sp" in the "final\_validation"reason\_code" field. Please add this reason code.
  - b. Tungsten in sample BP-MW09-EM08 was coded with reason code "sp" but the result is a nondetect. Please correct his inconsistency.
5. Section 1.0 and EDD: There is one analysis in the EDD by method 9045. Please list this in Table 1 (methods) or change the EDD method to "FIELD" if the analysis was actually performed in the field. If the analysis was performed in the field, the validation stage should be changed from "2A" to null.
6. Section 2.1: Text indicates RPD is calculated from recoveries; however, the equation indicates RPD is calculated from concentrations. Please standardize to one or the other, or indicate RPD can be calculated either recoveries or concentrations, depending on the parameter being assessed.
7. Section 3.0, hierarchy: Per the National Functional Guidelines (NFG), bias is not applied to nondetected results. Please remove the UJ- from the hierarchy.
8. EDD, nondetects: All results with a qualification code, including "U," require a reason code. Please add the "nd" reason code defined in Table 12 to the 2,274 results qualified as nondetected (U).
9. Sections 3.1.2 and 3.2.2, MS/MSD Samples: The inorganic NFG advises qualifying "all samples of the same matrix if the samples are considered sufficiently similar," for matrix spike recovery and RPD outliers. Qualifications for recovery and RPD appear to have been applied only to the parent samples. Please, either qualify all samples of the same matrix in the SDG or explain the professional judgment used to determine the additional qualifications

were not required.

10. Section 3.1.2 MS/MSD Samples: The inorganic NFG also advises qualifying nondetects for RPD outliers. Lactic acid is an organic analyte but it was analyzed by ion chromatography, a traditionally inorganic method. Please either qualify the nondetected lactic acid result(s) or explain the professional judgment used to determine the qualification was not required.
11. Section 3.1.4, FD Samples: Due to the inherent variability of results near the reporting limit, assessing RPDs for nondetect and low-level concentration results can result in a significant number of qualifications. If an assessment of nondetects and low-concentration results is determined to be necessary, we recommend using a criterion of  $\pm$  the reporting limit for results  $\leq$  the reporting limit, instead of an RPD.

Alternatively, the DVSR for the July through December 2015 Semi-Annual Remedial Performance Sampling took the following approach for assessing field duplicates: "field duplicate samples were evaluated for acceptable precision with RPDs in instances the results were less than five times the reporting limit for the analytes."

Please consider an alternate approach for evaluating nondetect or low-concentration field duplicate results.

12. Table 6: Please check and correct the methods listed in this table, as only the first row has the correct method associated with the analyte.
13. Table 7: The calibration outliers listed in Table 6 all have high recoveries, but qualifications applied in Table 7 are to nondetects. As nondetects are generally not qualified for high recoveries, please review these qualifications.
14. Table 14: To shorten and clarify this table, we suggest eliminating outliers where the spike was  $<4\times$  the spike sample concentration, as these do not require qualification of the associated results.
15. Table 14 and EDD:
  - a. A number of detects, qualified only for MS/MSD outliers, do not have bias applied. Please add an explanation of this use of professional judgment to the text.
  - b. The inorganic NFG advises rejecting nondetects with recoveries below 30%. Chlorite in sample BP-MW07-EM08 was not recovered in either the MS or the MSD, but the nondetected sample was estimated instead of rejected. Please, either reject nondetect results associated with recoveries less than 30% or add an explanation of this use of professional judgment to the text. Other instances of nondetect results being estimated instead of rejected were also noted. If results are rejected, completeness in Section 3.5 will need to be revised.
  - c. Formic acid in sample BP-MW07-EM10 has a low MS recovery and a high MSD recovery. The nondetected sample result was not qualified; however, this is similar to having one acceptable recovery and one outlier recovery. In these cases, qualifications were applied. Please, either qualify this sample (and other samples with the same recovery issues) or add an explanation of the professional judgment used.

- d. Table 14 did not list MS/MSD outliers for the following sample/analyte pairs qualified for MS/MSD outliers in the EDD:
  - i. BP-MW07-EM11: COD, nitrite, phosphorus, iron, acetic acid, formic acid, lactic acid, n-butyric acid
  - ii. BP-MW08-EM02: nitrite – it appears nitrate should be listed instead
  - iii. BP-MW01-EM11: formic acid, lactic acid, n-butyric acid
  - iv. BP-MW01-EM07: tungsten
- 16. Section 3.2.4 Interference Check Samples: The first sentence, which was to list the methods for which the interference check sample is analyzed, is incomplete. Please, either list the methods or delete the sentence. Also, please list the acceptance criteria or note where the acceptance criteria can be found.
- 17. Section 3.3.1, preservation and Table 9: The inorganic NFG advises rejecting nondetect results not properly preserved. Please, either reject these nondetect chlorite and COD results or add an explanation of the professional judgment used. If results are rejected, completeness in Section 3.5 will need to be revised. Also, no bias was added to the detected results. Please, either add the bias to the qualifier or add an explanation of the professional judgment used.
- 18. Section 3.3.2 Blanks: Please explain the professional judgment used to not add bias to results less than the PQL.
- 19. Tables 15 and 16 and EDD: Neither of these tables list blank detects for the following sample/analyte pairs qualified in the EDD:
  - a. Iron: BP-MW01-EM10, BP-MW02-EM10, BP-MW05-EM10, BP-MW08-EM10, BP-MW09-EM10, BP-MW09-EMBL
  - b. Phosphorus: BP-MW01-EM09
- 20. Table 17 and EDD: The following results were qualified for detects in the equipment blank (coded with reason code “be”), but were identified in Table 17 as associated with field blank detects. Do these reason codes need to be changed to “bf”? If so, the qualified sample counts in Section 3.3.2.2 will need to be corrected.
  - a. Acetic acid in BP-MW08-EM08
  - b. Chromium in BP-MW01-EM09, BP-MW05-EM09, BP-MW09-EM09, MW-K5-EM09
- 21. Table 17 and EDD: Total iron in BP-MW08-EM08 was qualified for a blank detect; however, it had no associated detect listed in Table 17. Please correct this inconsistency.
- 22. Section 3.2.6, Analyte Quantitation and Target Identification: Text in this section indicates there were no issues with analyte quantitation; however, results for tungsten in samples BP-MW03-EM08, BP-MW04-EM08, BP-MW06-EM08 and BP-MW07-EM09 were estimated for quantitation (reason code “q”). Please correct this inconsistency.
- 23. Other EDD issues: The following qualifications identified in the EDD and Table 13 were not discussed in the text. Please include a discussion of all qualifications in the body of the report.

- a. Results for tungsten in samples BP-MW03-EM08, BP-MW04-EM08, BP-MW06-EM08, BP-MW07-EM08, and BP-MW09-EM08 were estimated for "other" (reason code "o").
- b. Arsenic in sample BP-MW05-EM09 was estimated for serial dilution (reason code "sd").
- c. Thallium in samples BP-MW03-EM06 and BP-MW08-EM06 were qualified for internal standard outliers (reason code "i").

## **EDD Review**

1. As noted in DVSR comment 1, the field blanks and equipment blanks should be validated. When these samples are validated, please update the validation\_flag field as well as the validation\_stage field for these records.
2. As noted in DVSR comment 3, there are 104 records in the results table where the parameter and parameter\_id are null. Please identify the appropriate parameter and parameter\_id for these records.
3. There were 8 results in the results table where the matrix is SO (soil) and the result\_units are mg/L. These results are associated with methods appended with "soluble". As this creates a matrix/units mismatch in the database, please change the analytical method to include "soluble," as this would provide sufficient information to verify the units are correct.
4. There are 174 records in the results table where the parameter "Perchlorate" has the analytical\_suite="Other Inorganic". This option is not listed in Appendix E of the EDD guidance. The appropriate analytical\_suite would be "GENERAL", which includes perchlorate in the list of wet chemistry type measurements.
5. Note that the field "asbestos\_sensitivity\_units" was misspelled. Please correct for future EDD files.

**From:** [Weiquan Dong](#)  
**To:** [Christa Smaling](#); [Adam Bass](#); [Alison Fong](#); [Allan DeLorme](#); [Andrew Barnes](#); [Andrew Steinberg](#); [Anna Springsteen \(aspringsteen@neptuneinc.org\)](#); [Betty Kuo Brinton](#); [Brenda Pohlman](#); [Brian Waggle](#); [Carol Nagai](#); [Charles N. Elmendorf \(Charles.elmendorf@astrazeneca.com\)](#); [Chaudhuri.Mickey](#); [Dave Johnson](#); [Dave Share](#); [David Johnson](#); [Derek Amidon](#); [Ebrahim Juma](#); [Ed Modiano](#); [Eric Fordham](#); [Frank Johns](#); [Gary carter](#); [George Crouse](#); [Harry Van Den Berg \(Harry.VanDenBerg@AECOM.com\)](#); [James Carlton Parker](#); [James Dotchin](#); [Jay A Steinberg](#); [Jeff Gibson](#); [Jill Teraoka](#); [Joanne Otani](#); [Joe Kelly](#); [Joe Leedy](#); [John Pekala](#); [Katherine Baylor](#); [Kelly McIntosh](#); [Kevin Fisher](#); [Kimberly Schmidt Kuwabara](#); [Kirk Stowers](#); [Kirsten Lockhart \(kristen@neptuneinc.org\)](#); [Kurt Fehling](#); [Kyle Gadley](#); [Lee Farris](#); [Marcia Scully](#); [Maria Lopez](#); [Mark Paris](#); [Michael J. Bogle](#); [Michael Long](#); [Micheline Fairbank](#); [Nicholas Pogoncheff](#); [Patti Meeks \(pmeeks@neptuneinc.org\)](#); [Paul Black](#); [Paul S. Hackenberry](#); [Peggy Roefer](#); [Ranjit Sahu](#); [Richard Pfarrer](#); [Rick Kellogg](#); [Ron Zegers](#); [Scott Bryan](#); [Steve Clough](#); [Steven Anderson \(SC.Anderson@lvvwd.com\)](#); [Tanya O'Neil](#); [Todd Tietjen](#)  
**Subject:** RE: 2017 01 09 Facility ID # H-000539 NERT-TRX  
**Date:** Tuesday, January 10, 2017 10:49:27 AM  
**Attachments:** [image004.jpg](#)  
[image001.jpg](#)

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All,

The report title for the letter (2017 01 09 Facility ID # H-000539 NERT-TRX) sent on January 9, 2017 was left out. The letter is for the **Appendix F Data Validation Report of the Groundwater Bioremediation Treatability Study Report**.

Thanks,  
Weiquan



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Bureau of Industrial Site Cleanup  
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**From:** Christa Smaling  
**Sent:** Monday, January 09, 2017 7:22 AM  
**To:** Adam Bass ; Alison Fong; Allan Delorme ; Andrew Barnes; Andrew Steinberg ; Anna Springsteen (aspringsteen@neptuneinc.org); Betty Kuo Brinton ; Brenda Pohlman; Brian Waggle; Carol Nagai ; Charles N. Elmendorf (Charles.elmendorf@astrazeneca.com); Chaudhuri,Mickey; Dave Johnson ; Dave Share ; David Johnson; Derek Amidon ; Ebrahim Juma; Ed Modiano; Eric Fordham ; Frank Johns ; Gary carter ; George Crouse; Harry Van Den Berg (Harry.VanDenBerg@AECOM.com); James Carlton Parker; James Dotchin; Jay A Steinberg; Jeff Gibson ; Jill Teraoka ; Joanne Otani; Joe Kelly ; Joe Leedy; John Pekala (jpekala@ramboll.com); Katherine Baylor; Kelly McIntosh ; Kevin Fisher ; Kimberly Kuwabara ; Kirk Stowers; Kirsten Lockhart (kristen@neptuneinc.org); Kurt Fehling; Kyle Gadley; Lee Farris; Marcia Scully; Maria Lopez ; Mark Paris; Michael J. Bogle; Michael Long; Micheline Fairbank ; Nicholas Pogoncheff; Patti Meeks (pmeeks@neptuneinc.org); Paul Black; Paul S. Hackenberry; Peggy Roefer; Ranajit Sahu; Richard Pfarrer; Rick Kellogg; Ron Zegers; Scott Bryan ; Steve Clough ; Steven Anderson (SC.Anderson@lvvwd.com); Tanya O'Neil ; Todd Tietjen  
**Cc:** Weiquan Dong  
**Subject:** 2017 01 09 Facility ID # H-000539 NERT-TRX

**Jay Steinberg:** This is an advance notification. The original letter will be delivered via USPS.

**ALL OTHERS PLEASE NOTE:** This is your "Official Copy" ....you will not be receiving a hard copy of this letter . Should you need a hard copy, please print one for your files. This file is a pdf version of the "signed original" letter.

**Should you have any questions regarding this letter, please contact Weiquan Dong at (702) 486-2850 ext. 252.**

**Christa Smaling**

***Bureau of Industrial Site Cleanup***

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