



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

Jim Gibbons, Governor

Allen Biaggi, Director

Leo M. Drozdoff, P.E., Administrator

July 20, 2010

Matt Paque  
Tronox LLC  
PO BOX 268859  
Oklahoma City, OK 73134

Re: **Tronox LLC (TRX)**  
**NDEP Facility ID #H-000539**  
Nevada Division of Environmental Protection (NDEP) Response to:  
*Excavation Plan for Phase B Soil Remediation of RZ-C, Addendum to the Removal  
Action Work Plan, Tronox LLC, Henderson, Nevada*  
Dated: July 1, 2010

Dear Mr. Paque,

The NDEP has received and reviewed TRX's above-identified Deliverable and provides comments in Attachment A. A revised Deliverable should be submitted **by August 3, 2010** based on the comments found in Attachment A. TRX should additionally provide an annotated response-to-comments letter as part of the revised Deliverable.

Please contact the undersigned with any questions at [sharbour@ndep.nv.gov](mailto:sharbour@ndep.nv.gov) or 775-687-9332.

Sincerely,

Shannon Harbour, P.E.  
Staff Engineer III  
Bureau of Corrective Actions  
Special Projects Branch  
NDEP-Carson City Office  
Fax: 775-687-8335

SH:sh

EC: Jim Najima, Bureau of Corrective Actions, NDEP  
Greg Lovato, Bureau of Corrective Actions, NDEP  
Mike Skromyda, Tronox LLC  
Michael J. Foster, Tronox LLC  
Keith Bailey, Environmental Answers LLC  
Susan Crowley, Tronox LLC (Contractor)  
Deni Chambers, Northgate Environmental  
Brian Rakvica, McGinley and Associates



Barry Conaty, Holland & Hart LLP  
Brenda Pohlmann, City of Henderson  
Mitch Kaplan, U.S. Environmental Protection Agency, Region 9  
Ebrahim Juma, Planning Manager, Air Quality and Environmental Management  
Joe McGinley, McGinley & Associates  
Ranajit Sahu, BRC  
Rick Kellogg, BRC  
Mark Paris, Landwell  
Craig Wilkinson, TIMET  
Kirk Stowers, Broadbent & Associates  
Victoria Tyson, Tyson Contracting  
George Crouse, Syngenta Crop Protection, Inc.  
Nick Pogoncheff, PES Environmental  
Lee Erickson, Stauffer Management Company  
Michael Bellotti, Olin Corporation  
Curt Richards, Olin Corporation  
Paul Sundberg, Montrose Chemical Corporation  
Joe Kelly, Montrose Chemical Corporation of CA  
Jeff Gibson, AMPAC  
Larry Cummings, AMPAC  
Teri Copeland, Neptune and Company, Inc.  
Kurt Fehling, The Fehling Group, LLC  
Joanne Otani

CC: Ebrahim Juma, Planning Manager, Air Quality and Environmental Management  
Susan Crowley, C/O Tronox LLC, PO Box 55, Henderson, NV 89009  
Lee Erickson, Stauffer Management Company

## Attachment A

1. General comment, TRX references “dioxins” throughout the document; this should be changed to dioxins/furans. This is a global comment and will not be repeated for specific instances.
2. Section 1.0, page 1, 1<sup>st</sup> paragraph, NDEP has the following comments:
  - a. TRX should remove the statement that this Deliverable only addresses the top 10 feet of soil at the Site.
  - b. 2<sup>nd</sup> paragraph, TRX references “modified risk-based goals agreed upon by NDEP.” Please clarify what is being referenced here (e.g. dioxins/furans, lead, etc.).
  - c. 2<sup>nd</sup> paragraph, TRX should clarify and explicitly state that this document does not address all soil-to-groundwater leaching issues and include soil-to-groundwater leaching in the definitions of “contaminated soil”.
3. Section 1.1, page 2, TRX should also note the presence of the historic cooling tower and related hexavalent chromium contamination in RZ-C. This issue should also be considered with regards to the *Perimeter Air Monitoring Plan* and *Health and Safety Plan* as hexavalent chromium has very low thresholds for worker safety.
4. Section 2.1.3, last paragraph, TRX should state add “pending NDEP approval of Environmental Covenants” to the end of the last sentence.
5. Section 2.1.4, page 5, NDEP believes that very deliberate remediation could occur at the Equalization (BT) Tanks area without interrupting the groundwater treatment system. NDEP requests that TRX contact NDEP for further discussion on this matter as soon as possible.
6. Section 2.1.5, page 6, TRX indicates that some excavation may be inhibited by the existence of active utilities and that TRX will discuss any impacts to excavation limits as “situations arise”. TRX should be able to make a preliminary determination as to which excavation polygons will be impacted by the location of utility lines and discuss the impacts to the effected polygons with NDEP now instead of after excavation has commenced. Please modify Figures 1 and 3 as necessary to address this comment and contact NDEP to discuss any changes to excavation limits.
7. Section 3.1, page 7, TRX should note that any imported fill material should have supporting analytical sampling data to support a Health Risk Assessment (HRA).
8. Section 3.2, page 7, it is suggested that TRX discuss specific wells with NDEP in parallel with implementation of the scope of work as some of these wells may no longer be needed and plugging and abandonment may be a more cost-effective option than protection in place or replacement.
9. Section 3.3, page 8, NDEP provides the following comments:
  - a. TRX needs to address the issue of areas that are not proposed for backfill versus the pending HRA. If TRX chooses to not backfill some areas, this will result in a new 0-10 fbg soil horizon for these areas. It is not clear that sufficient data exists to complete the HRA in these areas. TRX should consider backfilling all of the excavations. Please develop and submit a sampling and analysis plan to address any data gaps for the HRA **by August 3, 2010**. Please note that this comment also applies to Table 1.
  - b. 2<sup>nd</sup> paragraph, please clarify how excavations will be sloped when an excavation is adjacent another excavation or clean soils. That is, will the lateral boundaries be expanded to accommodate the 1:1 side slopes so that the bottom of the excavation encompasses the entire excavation polygon? Please clarify.

10. Section 4.0, page 10, NDEP has the following comments:
  - a. NDEP does not necessarily agree that the areas listed should have engineering and/or institutional controls.
  - b. NDEP has previously commented in a July 2, 2010 response letter to the RZ-D Excavation Plan that “NDEP disagrees with TRX’s decision logic for restricting excavation to unpaved areas only.” TRX should contact NDEP as soon as possible to discuss this issue.
  - c. For confirmation purposes and to assist in development of any controls determined to be appropriate, NDEP requests that TRX collect and analyze soil samples immediately adjacent to areas with soil contamination that are not excavated due to surface obstructions.
  - d. Last paragraph, TRX is referencing an “NDEP-approved *Revised Environmental Covenants, Institutional and Engineering Control Plan* submitted by Tronox on June 9, 2010 for NDEP review and comment.” NDEP has the following comments:
    - i. Please revise for clarity by providing the Deliverable date instead of the submittal date.
    - ii. NDEP has not responded to the referenced Deliverable; therefore, it cannot be “NDEP-approved”. Please revise accordingly.
11. Table 1, NDEP provides the following comments:
  - a. Please review and revise this Table as necessary based on the comments contained in this letter.
  - b. RZ-C-09, TRX states that the eastern end of this excavation area conforms to Old Pond P-3 boundary; however, based on review of Figure 2b, the excavation area does not conform with the Old Pond P-3 boundary. Please revise as necessary.
  - c. RZ-C-24, arsenic and benzo(a)pyrene should be added to the Chemicals Group Driving Excavation Depth column for this excavation area.
  - d. RZ-C-33, according to Appendix A, hydrochlorobenzene was not analyzed for this boring; however, arsenic was elevated and should be listed as a driver for excavation. Please revise the Chemicals Group Driving Excavation Depth column for this excavation area as needed.
12. Figure 2a, NDEP provides the following comments:
  - a. Sample location SA57, it appears that a 5 fbgs excavation depth should be applied to this location. Please revise the figure accordingly or explain why this sample is proposed to be left in place.
  - b. RZ-C-04 and RZ-C-06, TRX should additionally post and use Parcel F data for the development of these polygons.
  - c. RZ-C-05, NDEP provides the following comments:
    - i. Sample location SA207, please increase the related excavation depth to 11.5 fbgs in this area as this nominal 1.5’ increase in excavation depth will resolve the magnesium contamination in this location.
    - ii. Sample location SSAO3-02, please clarify why a 10 fbgs excavation is planned for this location.
13. Figure 2b, NDEP provides the following comments:
  - a. Sample location SSAO6-03, it appears that at least a 0.33 fbgs excavation depth should be applied to this location. Please revise the figure accordingly or explain why this sample is proposed to be left in place.

- b. RZ-C-09, NDEP provides the following comments:
    - i. Sampling location SA-11, this sampling location is within LOU8 (P-3 Pond and Associated Conveyance Facilities) and was not analyzed for dioxin. The adjacent sampling location within LOU8, SA108, exhibited dioxins/furans concentrations ranging from 4,500 – 10,723 ppt TEQ. As such, NDEP believes that SA-11 should either be sampled for dioxins/furans or excavated to 3 fbgs based on dioxins/furans concentration data from SA108. Please revise as necessary.
    - ii. Sampling location DDAO4-03, the dioxins/furans concentration at this location is 200 ppt TEQ at the 3.0-4.0 fbgs interval. TRX should either collect a 0.0-0.5 fbgs sample or excavate to 3 fbgs in this area. Please revise the Figure as necessary.
  - c. RZ-C-10, NDEP suggests that TRX increase the excavation depth in this location to remove as much of the perchlorate source material as practical. NDEP suggests that TRX consider the incremental cost of removing this material versus long-term soil flushing, monitoring and remediation in this soil location.
  - d. RZ-C-12, please increase the excavation depth to 11 fbgs in this location as this nominal 1' increase in excavation depth will resolve the hexachlorobenzene contamination in this location.
  - e. RZ-C-12 and RZ-C-13, TRX should include the sampling data and locations for RZ-B that influenced the limits of these excavation polygons.
  - f. RZ-C-17, TRX should clarify why the excavation depth for this polygon is 0.5 fbgs instead of 0.33 fbgs.
  - g. RZ-C-23 and RZ-C-27, please clarify how the Conceptual Site Model (CSM) for LOU34W is being used to constrain these excavation polygons.
  - h. RZ-C-24, based on the arsenic data provided, the depth of this excavation area should be 2 fbgs.
  - i. RX-C-25, NDEP provides the following comments:
    - i. Please review and revise, as necessary, the northern cutline for this excavation area so that the cutline is equidistant from each sampling point.
    - ii. Based on the arsenic data provided, the depth of this excavation area should be 4 fbgs.
14. Figure 2c, NDEP provides the following comments;
- a. Sampling location SA105, the dioxins/furans concentration at this location is 1402 ppt TEQ for the 0.5 – 2 fbgs interval. Based on the approved dioxins/furans sampling protocol, a 0.0 – 0.5 fbgs sample should have been collected at this sampling location. Please have this location sampled and revise the figure accordingly.
  - b. Sample location SSAN6-05, it appears that at least a 0.17 fbgs excavation depth should be applied to this location. Per TRX's approved sampling rationale for asbestos, additional sampling at 0.33 fbgs should be collected to determine the final depth of excavation. Please revise the figure accordingly or explain why this sample is proposed to be left in place.
  - c. RZ-C-28, NDEP provides the following comments:
    - i. Sample location SSAM5-02, it appears that a 5 fbgs excavation polygon could be drawn for this location. Please revise the Figure as appropriate.
    - ii. Sample locations SA15 and RSAM5, NDEP suggests that TRX increase the excavation depth in this location to remove as much of the perchlorate source material as practical. NDEP suggests that TRX consider the incremental cost of

- removing this material versus long-term soil flushing, monitoring and remediation in this soil location.
- iii. Sample location SA65, TRX should consider tying the final depth of the excavation for this sampling location with the depth determined for locations SA15 and RSAM5 as the contamination in location SA65 exceeds 21.5 fbgs.
  - d. RZ-C-30, sample location SSAM6-02, based on TRX's pre-confirmation sampling rationale, TRX should collect additional samples to determine the final depth for this excavation polygon. Please modify the Figure as appropriate.
  - e. RZ-C-31, NDEP provides the following comments:
    - i. Sample location SA198, please clarify the depth of excavation associated with this sample location as it appears that the 10 fbgs excavation is excessive. In addition, it appears that there may be conceptual site model (CSM) constraints associated with this location.
    - ii. Sample location SSAM6-01, NDEP suggests that TRX increase the excavation depth in this location to remove as much of the perchlorate source material as practical. NDEP suggests that TRX consider the incremental cost of removing this material versus long-term soil flushing, monitoring and remediation in this soil location.
  - f. RZ-C-32, it appears that this excavation can be reduced to 2 fbgs; please clarify.
  - g. RZ-C-36, based on the dioxins/furans data at SSAN6-01 and other adjacent sampling locations, TRX should either collect additional samples for dioxins/furans or excavate to 3 fbgs.
  - h. RZ-C-39, TRX should either collect additional samples per the approved sampling protocol for dioxins/furans or excavate to 0.5 fbgs.
  - i. While NDEP does not necessarily agree that BT Tank area should be excluded from excavation, this area should be labeled and demarked.
15. Figure 2d, according to Table 1, RZ-C 46 and RZ-C-47 will not be excavated to below BCLs. Please provide justification for not excavating these areas or documentation that the manganese tailings removal activities excavated to the required depths.
16. Appendix A, please review and revise this table as necessary as not all data included on the Figures were included in this Table. For example, SA139 and SSAN8-01 are not listed.