northgate
environmental management, inc.

From: Deni Chambers
Derrick Willis
Ted Splitter

Date: August 31, 2010

To: Shannon Harbour, NDEP

RE: Response to NDEP's August 15, 2010 Comments on *Excavation Plan for Phase B Soil Remediation of RZ-D, Addendum to the Removal Action Work Plan* dated July 26, 2010

Northgate Environmental Management, Inc. (Northgate) submits this Response to Comments on the *Excavation Plan for Phase B Soil Remediation of RZ-D* (EP) on behalf of Tronox LLC (Tronox). Tronox has reviewed the August 15, 2010 Nevada Division of Environmental Protection (NDEP) comments and responds accordingly.

1. *General comment, TRX states throughout this Deliverable that excavation will not be conducted in excess of 10 feet below ground surface (fbgs). NDEP does not believe that this statement meets the intention of the December 14, 2010 Order issued by NDEP to TRX. The Deliverable should be revised to address source control and leaching. Please note that the following comments do not address each instance this topic is mentioned in the Deliverable. Please see NDEP's Removal Action Work Plan response letter dated July 23, 2010 for further guidance.*

   Response: Tronox has removed text references that limit excavations to 10 feet. Additional text has been added to reflect that excavations will be extended to remove contaminated soil for source control. Further discussion has been added to the text to address remediation of deeper contaminated soil through soil flushing and bioremediation.

2. *RTC 22.a, NDEP has listed the analyses that are required for any additional samples associated with particular excavation polygons in the comments for Table 1 for this revised Deliverable.*

   Response: Tronox has noted this comment and is responding to the comments on Table 1.

3. *Section 1.3, page 3, last full paragraph, TRX should note that environmental covenants, engineering controls, institutional controls, etc. have not been approved by NDEP. Additionally, NDEP does not necessarily agree that the roadways are a cap for contaminated soil. TRX has not provided data or specific rationale to NDEP for approval on any controls or limitations to excavation. Please remove all language that insinuates that NDEP has approved any of these proposals.*

   Response: Section 1.3 text has been changed to state that NDEP has not approved any control on limitations to excavation.

4. *Section 2.1.1, page 7, to date NDEP has not received any information or data for the buffer strip for ponds GW-11, WC-West, and WC-East. TRX should note that restrictions to excavation cutlines will not be accepted until NDEP has approved the buffer strip and/or setback from the berms.*

   Response: Tronox has submitted an informational memorandum to NDEP presenting slope stability evaluations performed by Tronox (*Engineering Evaluation of Slope Stability GW-11 and WC Pond Embankments*, August 18, 2010). NDEP has commented on the memorandum and Tronox is in the process of responding to NDEP comments. Section 2.1.1 has been changed to state that NDEP has not yet approved the buffer strips.

5. *Section 2.1.2, page 7, last sentence, TRX should revise this sentence to state "for the chemical(s) driving the excavation in the vicinity of the boring as shown in Table 1." This would include chemical drivers from adjacent borings. Please note that a chemical driver would be any chemical greater than or equal to the comparison levels established for the Site.*

   Response: Section 2.1.2 has been revised in accordance with the comment.

6. *Section 2.1.5, page 8, TRX should provide specific information and opinions based on data not generalities and opinions based on general information. Based on the information provided, NDEP does not approve the roadway asphalt as a justification for limiting excavation cutlines.*

   Response: Section 2.1.5 has been revised in accordance with the comment. Figure 1 has also been revised to show the excavation in 9th Street and the excavation area has been consolidated into one excavation area.

7. *Table 1, NDEP has the following comments:*
   a. *TRX should note that the "Chemicals Driving Remediation" for a particular excavation polygon will apply to any "new" polygons that are subdivided from the original polygon listed in this Table.*
   b. *As previously requested by NDEP in a response letter dated July 2, 2010, TRX should additionally revise references of "dioxin" to "dioxins/furans" in this Table.*
   c. *Any additional samples collected for the following excavation polygons should be analyzed for the chemicals listed below:*
      i. *RZ-D-05: dioxins/furans*
      ii. *RZ-D-07: HCB*
      iii. *RZ-D-11: HCB*
      iv. *RZ-D-14: dioxins/furans, HCB*
      v. *RZ-D-20: HCB*
      vi. *RZ-D-24: HCB*
      vii. *RZ-D-27: dioxins/furans*

   Response:
   a. Table 1 has been revised to include the new subdivided excavation areas, and the chemicals driving the new polygons include those that influenced the original polygon.
   b. This change has been made throughout the document.

c.

i. Adjacent samples (SSAI3-03-SW-E, SSAI3-07, SSAI3-04-SW-E) are being analyzed for HCB and dioxin/furans.
ii. HCB and dioxin data are available for the adjacent sample (SSAJ2-05).
iii. Adjacent samples (SSAJ3-08, SSAK3-05) are being analyzed for surface dioxin/furans and HCB.
iv. No additional dioxin/furans or HCB sampling is proposed in this area, as surrounding soil samples indicate low dioxin/furan and HCB concentrations. Sample location SSAL3-06 was obtained to define OCPs.
v. HCB and dioxin/furan data are available for adjacent sample SSAK6-06.
vi. Adjacent samples are being analyzed for surface dioxin/furans and HCB (SSAK8-08, SSAK8-10).
vii. Neither dioxins/furans nor HCB sampling is proposed for this polygon, as it is driven by asbestos and there are no high concentrations of either dioxins/furans or HCB surrounding the polygon.

8. *Figure 1, NDEP has the following comments:*

a. TRX should note that NDEP used the data provided in the errata (Figure and Tables) to review and provide cutlines for the excavation polygons based on Voronoi diagrams/Thiessen polygons as proposed in the NDEP-approved Remedial Action Work Plan dated May 4, 2010. The basis for deriving the excavation polygon lateral and vertical extents is summarized below; however, these comments may not be comprehensive and TRX should notes [sic] that the lack of an NDEP comment on specific instances where this methodology was not followed does not relieve TRX's obligation under the Order to complete the excavation in accordance with these criteria:

i. The depth of the excavation polygon was determined by the depth to a non-contaminated (i.e. less than BCLs or background) sample in the contaminated sampling location.
ii. The lateral limits of excavation for the Voronoi diagrams/Thiessen polygons were generated by determining the half-way point between defining contaminated sampling location(s) and adjacent non-contaminated sampling locations or adjacent contaminated sampling locations with a different depth of excavation determination.
iii. Upon NDEP approval, conceptual site model (CSM) rationale may be used to constrain the limits of excavation; however, TRX must present the justification and receive approval for the constraint prior to implementation.

Response: This description of the construction procedures for the Voronoi diagrams/Thiessen polygons has been added to the text to describe Tronox's excavation area construction methods.

b. Please see Attachment B for a table of the specific excavation polygon cutline comments.

Response: Attachment B has been reviewed and, where appropriate, modified slightly based on the project data; these revisions are included as Table 2 of the EP.

c. *RZ-D-01A (Hazardous Waste Landfill), TRX is currently conducting sampling underneath the Hazardous Waste Landfill for pre-confirmation sampling purposes in addition to collecting samples within the landfill in order to profile the waste to be removed from this area for disposal purposes. The results of this sampling effort will determine the depth of this excavation polygon. Currently TRX has determined that the Landfill depth is 24 feet below ground surface (fbgs) or less; therefore the depth for this polygon is set at 24 fbgs. TRX will advise NDEP as soon as possible if the pre-confirmation sampling results indicate deeper contamination; thereby, requiring the depth cutline to be revised. The lateral cutlines for this polygon are set at the landfill boundaries.*

Response: Tronox will comply with these comments and provide the data from the sampling when it becomes available.

d. *TRX must submit rationale, technical back-up information, and data for the assignment of the setback (buffer strip) from the active pond berms. Until a setback is approved, excavation polygons adjacent to the active ponds should have cutlines to the toe of these berms. This comment currently affects polygons: RZ-D-04, RZ-D-05, RZ-D-08, RZ-D-10, RZ-D-11, RZ-D-15, RZ-D-16, RZ-D-17, RZ-D-18, RZ-D-21, RZ-D-22, and RZ-D-23.*

Response: See response to Comment No. 4. The stated polygons have been modified to extend to the toe of the embankment or the assumed toe of the embankment, where the toe is unclear. A discussion of this issue is presented in Section 2.1.1.

e. *RZ-D-07: TRX should note that SSAJ2-03 should not be used to determine the cutline for this polygon since dioxins/furans TEQ is a contaminant driver for this polygon but was not reported for SSAJ2-03. The cutline should be determined by SA206 instead.*

Response: The cutline shown in the July 26 plan was not based on SSAJ2-03, but was based on a Conceptual Site Model observation of the limits of fill. The cutline has been revised based on this NDEP comment and is now based on SA206.