



environmental management, inc.

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To: Shannon Harbour, P.E.
Nevada Division of Environmental Protection

RE: Response to Nevada Division of Environmental Protection Comments on Draft Removal Action Work Plan for Phase B Soil Remediation of Remedial Zones RZ-B through RZ-E, Tronox, Henderson, Nevada

RESPONSE TO COMMENTS

Northgate Environmental Management, Inc. (Northgate) is submitting this Response to Comments on the Draft Removal Action Work Plan for Phase B Soil Remediation of Remedial Zones RZ-B through RZ-E (RAW) on behalf of Tronox LLC (Northgate March 30, 2010). Northgate has reviewed the Nevada Division of Environmental protection (NDEP) comments and has revised the Draft RAW document accordingly. As you know, the RAW is a collection of documents including the RAW text and figures, the Perimeter Air Monitoring Plan (PAMP), the Stormwater Pollution Prevention Plan (SWPPP), the Table of Contents for the Health and Safety Plan and the Transportation Plan. NDEP prepared a separate set of comments for the RAW text and figures, the PAMP, the SWPPP, and the Transportation Plan and our responses are arranged below in a similar format:

RAW TEXT AND FIGURES

1. *Page 1, 1st paragraph, TRX should clarify that "all contaminated soil" is based on background and BCL comparisons.*

Response: Section 1.0, Introduction, Page 1, has been revised to clarify the meaning of contaminated soil.

2. *Page 7, 1st paragraph, TRX should note that delays due to the development and approval processes for Environmental Covenants will not be acceptable for areas other than the pond berms.*

Response: Section 6, Page 23, a new section has been created to further discuss institutional and engineering controls and Environmental Covenants. The use of institutional controls and/or engineering controls for direct contact in the upper 10 feet of soil is not anticipated at this time except in the vicinity of the pond berms (Remedial Zone D) and the operational areas associated with Unit Buildings 5 and 6 and the Leach Plan (Remedial Zone B). During investigation and remediation activities, if conditions are identified where it is not feasible to excavate contaminated soil, NDEP will be notified immediately.

Institutional and/ engineering controls may be recommended for soil deeper than 10 feet, if appropriate, and based on confirmatory sample results for deeper soils. Institutional and/ engineering controls will be recommended for soil-gas and groundwater use at the site and will be memorialized by environmental covenants. Remediation will not be delayed due to these restrictions.

3. *Page 8, 2nd paragraph, TRX should note that demolition delays are not an acceptable reason for delays in excavation for an entire Remediation Zone (RZ) area. Excavation within a RZ can commence in other portions of the RZ that are not associated with the demolition.*

Response: Section 2.1, Page 8, the text has been revised to incorporate the concept that the excavation can commence in portions of an RZ other than the demolition area and demolition will not be used as a basis for delaying excavation in an entire RZ.

4. *Page 9, please add well abandonment and replacement activities discussed in the RAW to the schedule commencing with the May update submittal.*

Response: The Project Schedule has been updated to include the well abandonment task and will be provided in the May update submittal.

5. *Page 10, last paragraph, please revise the visitor escorting policy so that NDEP can have someone in the field observing the excavation work daily.*

Response: Section 2.5, Page 10 has been revised to exclude NDEP personnel having completed the Tronox Safety from requiring a Tronox escort.

6. *Page 11, last paragraph, TRX should clarify whether the asbestos contaminated soils will be handled and disposed of differently than other contaminated Site soils.*

Response: Section 3.1.1, Page 11, the text has been revised to indicate that asbestos containing soil will be handled and disposed of similarly to chemically impacted soils.

7. *Page 12, TRX should add text stating that the decontamination areas will be remediated after the RZ excavation has been completed.*

Response: Section 3.1.1, Pages 12-13, the text has been revised to describe when and how the decontamination areas, for trucks, equipment, and personnel, will be remediated after Site remediation activities are complete.

8. *Page 13, Section 3.1.3, TRX should clarify where and how water will be provided for dust control.*

Response: Section 3.1.3, Page 14, text has been added to state where water for dust control will be obtained and a location for a fixed raised water tank has been added to Figure 5.

9. *Page 13, last paragraph, TRX should clarify that backfill sampling results should be reported and approved by NDEP prior to use.*



Response: Section 3.1.5, Page 14, the text has been revised to indicate that soil intended for use as backfill material will need to be approved of by NDEP prior to use at the Site.

10. Page 14, 1st paragraph, NDEP requested clarification of the following:

- a. *Whether transport trucks will be remaining outside of contaminated areas or will additionally decontamination areas will be used to prevent impacts to other areas of the Site.*
- b. *Disposal location for hazardous waste materials.*

Response:

- a. Section 3.1.1, Pages 12-13, a new discussion has been inserted into the text that discusses proposed measures to minimize the potential for cross-contamination.
- b. Section 3.2, Pages 14-15, the text has been revised to describe that hazardous waste material will be disposed at U.S. Ecology landfill, located approximately 119 miles from the Site near Beatty, Nevada.

11. Page 15, Section 3.1.1, 3.1.2, and 3.1.3, these section numbers should be 3.2.1, 3.2.2, and 3.2.3, respectively. Please revise accordingly.

Response: Subsection numbering under Section 3.0 has been corrected.

12. Figures, NDEP has the following comments:

- a. *TRX should confirm that Excavation Plans for each RZ will have Figures that have been updated with pre-confirmation data, cut-lines, and CSM constraints on the remediation polygons.*
- b. *Figure 5, the track-out pad / wheel wash area designated in RZ-C is places such that trucks leaving by this route will be driving over impacted areas. Please relocate this track-out pad / wheel wash area to a location past (when exiting Site) these impacted areas.*

Response:

- a. Section 1.2, Page 4, a statement has been added to confirm that the Excavation Plans for each RZ will have updated figures based on pre-confirmation sampling data that present cut-lines, CSM constraints and updated remediation areas.
- b. Figure 5 has been revised by realigning the proposed haul road away from the proposed excavations areas so the haul road as now located will not cross impacted areas.

APPENDIX B – PERIMETER AIR MONITORING PLAN (PAMP)

13a. Page 5, 4th bullet, please describe what is meant by “if needed”.

Response: Section 3.1, Pages 5-6, a description of the information provided by each test method is presented for explanation.



- 13b. *Page 5, Section 3.2.1 Air Monitoring Stations, as wind direction in the BMI area can be variable, TRX should describe the criteria for determining the predominant wind direction.*

Response: Sections 3.2.1 and 3.2.2, Pages 6 and 7, presents the strategy for measuring the wind direction and the schedule of wind direction evaluation.

- 13c. *Page 7, 4th paragraph, TRX states that “If VOCs are expected to be present in the Remediation Zone Work Area...” TRX should already be able to anticipate where VOCs may be released based on the soil sampling data. While the discussion in this paragraph is focused on the worker exposures, TRX should additionally indicate the potential for VOC impacts at the perimeter sampling locations, how they plan to monitor for these impacts, and what the perimeter action levels will be.*

Response: Section 2.0, Page 3 and Section 3.3.1, Page 8, additions were made to the text to reflect Northgate/Tronox’s opinions regarding the absence of VOCs and proposed actions if VOCs are detected.

- 13d. *Page 7, Section 3.3.2, TRX should specify the sampling duration for all contaminant sampling.*

Response: Sections 3.3.1, 3.3.2, 3.3.2.1, 3.3.2.2, 3.3.2.3 (Pages 8 through 10) and Table 1, the sampling durations were inserted in these sections and summarized in Table1.

- 13e. *Page 8, Section 3.3.2.3, TRX lists only contains dioxin and HCB, which is inconsistent with the list of COCs in Table 1 and also inconsistent with the COCs listed in Figure 3 of the main report. TRX should assemble a list of air contaminants that will be sampled in each RZ and include this list in its respective RZ Excavation Plan.*

Response: Section 2.0, Page 3, additional language was inserted to discuss the strategy for selecting COCs for the RZs and how they relate to reducing the potential for off-site emissions.

- 13f. *Page 9, Section 3.4.1, TRX should indicate the sampling duration (i.e., 24-hr, 8 –hr, etc.) of the perimeter samples. Additionally, TRX’s approach to determining whether the total suspended particulate (TSP) samples (after the first 5 days) will be analyzed for chemical constituents is not well supported. It is possible that the total particulate numbers at the upwind and downwind locations will not be different; however, it does not mean that the total particulate downwind will have the same chemical composition as the upwind. TRX has not set an action limit for TSP, thus there is no way to know if keeping the TSP levels equal to the upwind is protective in terms of chemical specific action levels. For example, if one assumes that the Mn soil concentration is at least 13,700 mg/kg (BCL) this is equal to 1.3% of the soil mass. One assumption could be that the PM10 generated from soil excavation would contain the same proportion of chemicals and thus 1.3% of the PM10 would be Mn. If the PM10 action level is 100 ug/m3, then the concentration of Mn would be 1.3 ug/m3, which is far above the Mn action level of 0.052 ug/m3. Therefore, TRX should consider conducting statistical testing of the data from the first 5 days of excavation in a RZ to determine if there is a difference in the chemical*



concentrations of the paired UW/DW samples. If no difference, then NDEP will consider allowing the elimination of chemical specific analysis of the TSP for that work area.

Response: For sample duration comment see response 13a above. Section 3.4.1, Page 10, the text was revised to reflect that Northgate/Tronox agree to perform statistical testing of the TSP data as suggested by NDEP.

- 13g. *Page 10, Section 3.5, change 'project screening levels' to action levels for consistency with first sentence of the paragraph.*

Response: Section 3.5, Page 11, change made.

APPENDIX C – STORMWATER POLLUTION PREVENTION PLAN (SWPPP)

- 14a. *General comment, Figure 2 of SWPPP indicates that storm drains traverse through remediation areas. TRX should clarify/identify the following:*

i. Active storm drains located within the excavation/remediation area

Response: Revised Figure 2 to include active storm drains located within the excavation/remediation area.

ii. Measures that will be employed to protect active storm drains during excavation activities

Response: Revised Section 6.3, Page 13, to include measures that will be taken to maintain active storm drain function where storm drain pipe sections need to be removed.

iii. Demolition of any active storm drains as part of excavation. And if so, the measures that will be employed to deal with stormwater that flows into these drains.

Response: See i and ii above

- 14b. *Section 6.1, pages 10 – 11, TRX may want to consider installing fabric inserts in the drop inlets as an additional line of protection to filter out sediment in stormwater.*

Response: Section 6.1, Page 10, 6.3, Page 13, added new paragraph to include the use of fabric inserts in drop inlets.

- 14c. *Section 7.1.1, page 20, NDEP has the following comments:*

i. NDEP-Bureau of Corrective Actions (BCA) is concerned with keeping stormwater or runoff that comes in contact with contaminated soil from entering a subsurface storm drain. The best management practices (BMPs) around storm drain drop inlet should be inspected during storm or runoff events to assure that they don't become fouled and allow contaminated storm water to flow over the top of the fiber rolls into the storm drain. TRX should anticipated that BMPs around storm drain drop inlets and



may require regular cleaning with fiber rolls being replaced as needed. Please revise SWPPP as necessary.

Response: Section 6.3.2, Page 15, was revised to incorporate the concept that control measures will be inspected cleaned and replaced as necessary.

- ii. *TRX should designate an individual(s) who will be responsible for inspecting and maintaining BMPs. TRX should also consider taking photographs of BMPs to be included in inspection logs. Please revise SWPPP as necessary.*

Response: Section 7.1.1, Page 20, was added to include responsible parties such as Owner Representative's Storm Water Pollution Prevention Manager for inspections and Contractor's SWPPM for SWPPP maintenance.

Revised Section 7.1.2.2.2, Page 22, revised text to include the taking of photographs of BMPs.

- 14d. *Section 7.1.1.1, page 20, TRX should conduct the inspection of storm drain outfalls during and immediately following meteoric events to assess the turbidity of the stormwater and evaluate the efficacy of the BMPs. Please revise SWPPP as necessary.*

Response: Section 7.1.2, Page 21, added the suggested language.

- 14e. *Section 7.1.1.2.2, TRX should maintain a copy of the SWPPP and associated inspection logs onsite in a central location. Please revise SWPPP as necessary.*

Response: Section 7.1.2.2.2, Page 23, added new paragraph in Inspection Report to reflect that the SWPPP and inspection logs will be kept on-site in Northgate's field office.

- 14f. *Figure 2, locations of any storm drain drop inlets are not shown; however, the SWPPP indicates that fiber rolls and rock-filled bag barriers will be placed around the storm drain inlets. Please include the locations of storm drain drop inlets on Figure 2.*

Response: Revised Figure 2 to include active storm drain drop inlets located within the remediation areas.

APPENDIX E –TRANSPORTATION PLAN

- 15a. *Section 5.2, page 7, TRX should note that NDEP will also be inspecting vehicles hauling contaminated soils and materials for quality of equipment and adequate decontamination. NDEP reserves the right to disapprove use of any vehicle based on visual inspection and require TRX to take appropriate corrective action.*

Response: Section 5.2, Page 7 a statement was inserted to reflect this comment.

- 15b. *Section 7.1, page 10, NDEP has the following comments:*

- i. *TRX should include a reference to Figure 5 of the main document.*



Response: Section 7.1, Page 10, a reference to Figure 5 was inserted

- ii. *Please clarify the purpose of the staging areas located on Figure 5 of the main document including how the soil from various contaminated work areas will be transported to these staging areas.*

Response: Section 7.1, Page 10, as noted in the revised Section, the purpose of the staging areas is to allow the contractor to consolidate recyclables and debris before being hauled from the Site.

- 15c. *Section 7.2, page 10, TRX should note that NDEP will be inspecting all hauling vehicles for quality of equipment including the tarpaulin or other covers. NDEP will have the right to disapprove use of any vehicle based on this visual observation and require TRX to take appropriate corrective action.*

Response: Section 7.2, Page 10, the requested language was inserted.

- 15d. *Section 7.3, page 10, NDEP has the following comments:*

- i. *TRX should note that NDEP will be inspecting decontamination procedures throughout the project. NDEP will have the right to require additional decontamination based on visual observation.*

Response: Section 7.3, Pages 10-11, the requested language was inserted.

- ii. *3rd paragraph, TRX should note that all excavation equipment should be decontaminated prior to leaving an impacted area and traversing a non-impacted area.*

Response: Section 7.3, Pages 10-11, the requested language was inserted.

- 15e. *Section 7.4, page 11, TRX should note that NDEP will also be providing inspections as deemed necessary during the removal process.*

Response: Section 7.4, Page 11 the requested language was inserted.

- 15f. *Section 8.1, page 12, last paragraph, Figure 5 of the main document should be referenced in this section.*

Response: Section 8.1, Pages 12-13, a reference to Figure 5 of the main RAW document was inserted.

This concludes Northgate and Tronox's responses to comments on the Draft RAW documents. If you have any questions, please contact us.

