

**From:** Deni Chambers  
Renee Kalmes  
Greg Brorby

**Date:** Revised April 22, 2010

**To:** Shannon Harbour, P.E.  
Nevada Division of Environmental Protection (NDEP)

**RE:** Revised Technical Memorandum Regarding General Comment #1 of NDEP's  
March 17, 2010 Comments on *Pre-Confirmation Sampling Work Plan*

---

## COMMENTS:

As indicated in Tronox's March 19, 2010 Response to Comments, this technical memorandum presents Tronox's proposed approach for identifying data to be included in the post-remediation risk assessment. This revised memorandum addresses NDEP's March 29<sup>th</sup> comments on Tronox's initial March 22, 2010 memorandum on the subject matter. Specifically, this memorandum addresses the fact that soil will be excavated from some areas of the site and pre-confirmation samples will be analyzed for a limited number of analytes. The proposed approach takes into account the following:

- The post-remediation risk assessment will address potential direct exposure to the upper 10 feet of soil.
- Existing soil data relevant to the upper 10 feet soil depth interval are limited to samples collected between 0 and 2 feet below ground surface (bgs) and samples collected between 10 and 11.5 feet bgs, with some samples collected at 8 to 10 feet bgs.
- The majority of the excavations are expected to be limited to the upper few feet of soil; therefore, data for the near-surface samples (0 to 2 feet bgs samples) will primarily be affected. Limited exceptions, where deeper excavations will be necessary, exist in areas such as the vicinity of the landfill, located in the northwest portion of the site and adjacent to the trade effluent ponds. In these localized areas, excavations may occur to 10 feet bgs or deeper.
- Excavations may or may not be filled with clean soil. Regardless, for purposes of this approach, it is assumed that soil at the bottom of the excavation, prior to fill, will represent surface soil.





retaining all other chemical concentrations in the surface samples is likely a conservative assumption.

There will be exceptions to these general rules depending on the depth of the excavation and the analytes included in the pre-confirmation sampling. The following examples are intended to illustrate how this approach will be implemented given a variety of circumstances. It is worthwhile to note that it is expected there will be relatively few chemicals of potential concern (COPCs) identified for any one of the proposed remediation zones (RZs) after excavation has been completed, as remediation will be conducted to meet the cumulative incremental risk and hazard index goals, chemical-specific goals, and background concentrations for arsenic, as outlined in the HRA Work Plan.

**Example #1** – Excavation to approximately 3 feet bgs for dioxin only

In this case, a pre-confirmation sample will have been collected at 3 feet bgs (or deeper until cut line has been identified) and analyzed for dioxin. The data from this sample will be substituted for the dioxin data collected in shallower samples from this location. For the remaining chemicals, the existing soil data will be used and assumed to be representative of the shallow soil that remains.

**Example #2** – Excavation to approximately 3 feet bgs for dioxin and hexachlorobenzene (HCB)

In this case, a pre-confirmation sample will have been collected at 3 feet bgs (or deeper until cut line has been identified) and analyzed for dioxin and the full suite of SVOCs, which includes HCB. The data from this sample will be substituted for the dioxin and SVOC data collected in shallower samples from this location. For the remaining chemicals, the existing soil data will be used and assumed to be representative of the shallow soil that remains.

**Example #3** – Excavation to 8 feet bgs for HCB

In this case, a pre-confirmation sample will have been collected at 8 feet bgs and analyzed for the full suite of SVOCs. The data from this sample will be substituted for the SVOC data collected in shallower samples from this location. However, unlike the previous two examples, in this case, the existing soil data collected in shallower samples for the remaining chemicals will be eliminated from consideration, and the existing data from samples collected 10 feet bgs will be used to represent the concentration in what will be near-surface soil (i.e., the upper 2 feet of soil) after the excavation is complete. Further, data from samples collected down to 18-to 20 feet bgs will be used to estimate the concentration in what will now be the 0 to 10-foot interval. If no data were collected at 20 feet bgs, the existing data from samples collected 10 feet bgs will be used to represent the entire 0 to 10-foot bgs interval.



**Example #4** – Excavation to approximately 3 feet bgs for arsenic only

In this case, a pre-confirmation sample will have been collected at 3 feet bgs and analyzed for arsenic. The data from this sample will be substituted for the arsenic data collected in shallower samples from this location. For the remaining chemicals, including all other metals, the existing soil data will be used and assumed to be representative of the shallow soil that remains.

