

Meeting Minutes

Project: Tronox (TRX)
Location: Conference Call
Time and Date: 9:00 AM PDT, Thursday, July 10, 2008
In Attendance: NDEP – Brian Rakvica, Shannon Harbour
Neptune – Kelly Black (for NDEP)
Teri Copeland (for NDEP)
Kurt Fehling (for NDEP)
Tronox – Susan Crowley
Environmental Answers – Keith Bailey (for TRX)
ENSR – Lisa Bradley, Julie Kabel (for TRX)

CC: Jim Najima

1. The meeting was held to discuss the Human Health Risk Assessment (HHRA) work plan (WP).
2. Discussed ecological risk, NDEP noted that an ecological risk assessment would not be needed on-Site and that off-Site issues could be dealt with at a later time. NDEP noted that NDEP promulgated guidance in 2006 regarding how ecological risk assessments should be conducted (SLERA/GAE guidance)
3. ENSR provided 2 handouts (example tables) via email for use on the call: Table 1, Comparison of USEPA Region 6 Medium-Specific Screening Levels (MSSLs) and USEPA Screening Levels for Chemicals on the Tronox Comparison Tables and Table 2, Surface Soil, Selection of COI for the Outdoor On-Site Worker.
4. ENSR noted that they expect to follow the CSM presented as Figure 5-1 in the Phase A report. It was noted that NDEP did not comment on that figure. ENSR also confirmed that groundwater would be evaluated on a site-wide basis and that, consistent with the BRC Closure Plan, there would be a deed restriction for no potable use of groundwater on-site. NDEP clarified that the deed restriction would not apply outside of the property boundary and that demonstration of capture would be very important.
5. NDEP clarified that the Region VI MSSLs as the appropriate screening levels and contain both residential and industrial MSSLs. NDEP will provide updates as needed but no less frequently than annually, as stated in NDEP's July 8, 2008 guidance letter. NDEP is currently working on updates that include the screening values for organic acids.
6. ENSR referenced Figure 5-1 of the Phase A Report as containing TRX's basis for receptor designation.
7. Cumulative risk/hazard discussions were held regarding how to accommodate cumulative risk/hazard as follows:
 - a. ENSR walked the group through Table 2 of the ENSR agenda package.
 - b. TRX noted that Parcels A and B Technical Memorandum (Tech Memo) used 100% of the PRGs for comparison. NDEP noted that Table 1 of the Tech Memo calculated risk for each chemical using the maximum concentration detected regardless of the concentration relative to the PRG.
 - c. After discussion, NDEP and TRX agreed that using one-tenth of the MSSL to determine whether a chemical is carried into the risk assessment would result in less work for similar results and would eliminate having to revisit chemicals eliminated based on the

- Table 2 approach when the risk characterization results are close to an unacceptable risk or hazard level.
- d. NDEP requested and TRX agreed that both the straight MSSL and one-tenth of the MSSL will be presented on the COPC selection tables.
 - e. NDEP stated that TRX should present/submit clear decision logic and the use of standard terminology (e.g. COPCs instead of COIs)
8. COPC Selection: discussions on the method for COPC section were as follows:
- a. TRX stated and NDEP agreed that if all detected chemicals within an LOU or exposure area are less than one-tenth of the MSSL, then no COPCs would be identified and a quantitative risk characterization would not be warranted for that LOU or exposure area.
 - b. NDEP stated that, in addition to an exposure/toxicity screen (e.g., comparison to one-tenth of the MSSL); other COPC selection criteria should be addressed where appropriate. The BRC Closure Plan (Section 9.4) and RAGS Part A present applicable COPC selection criteria.
 - c. NDEP noted that carcinogenic PAHs should be converted to the benzo(a)pyrene (BaP) equivalents. TRX should not screen out individual congeners if there is a detection of any congeners. All should be carried forward into risk calculations using one half of the detection limit for any non-detects.
 - d. NDEP noted that screening values for non-carcinogenic PAHs (toxicological surrogates have been identified by NDEP for these chemicals) are available on the NDEP website. TRX can reference this document and will not have to provide additional rationale.
9. Decision Logic for COPC selection: NDEP and TRX had the following discussions:
- a. NDEP suggested that TRX review section 9.4 of the BRC Closure Plan and incorporate as needed.
 - b. TRX noted that ECAO (identified in the toxicity criteria hierarchy in the Closure Plan) may not currently exist. NDEP referenced the 12/5/03 Cook memo from USEPA as the basis for the hierarchy of toxicity criteria sources identified in the Closure Plan. The COPC selection criteria in the BRC Closure Plan should be reviewed by TRX and any updates should be communicated to NDEP. **ACTION ITEM.**
 - c. NDEP and TRX will contact Mark Jones to follow-up on the method for obtaining PPRTVs from EPA. **ACTION ITEM.**
10. Background comparisons: TRX stated that a discussion on background comparisons should be postponed to another conference call but did ask the following:
- a. Should the background comparison be conducted on a LOU basis or a Site-wide basis?
 - b. TRX stated that their preference is to compare the site-wide data sets to the background datasets and only carry forward the specific samples that exceed background.
 - c. NDEP will discuss internally and be prepared to discuss with TRX after the Phase B data has been received and validated. **ACTION ITEM.**
11. Exposure Areas: NDEP and TRX had the following discussions on the determination of exposure areas for risk assessment:
- a. TRX asked for direction on the determination of exposure areas.
 - b. NDEP noted that the data distributions in each LOU should be reviewed to decide if data can be grouped to produce as large of a passing area as possible and defensible.
 - c. TRX suggested site-wide comparisons first followed up by reviewing any hot spots.
 - d. NDEP defined risk based hot spot as a statistically different distribution in one area.

- e. NDEP and TRX agreed that exposure areas will be identified prior to estimating exposure point concentrations.
 - f. ENSR stated that they are looking at future land use as the primary basis for identifying exposure areas. NDEP noted the importance of the role of evaluating data distributions in identifying exposure areas.
 - g. NDEP noted that data distributions/plotting (which could be bubble plots or intensity plots) should focus on the drivers and also incorporate process information that identifies chemicals for which different distributions may be possible. The data distribution plots should address depth-specific chemicals of interest (e.g., perchlorate may indicate one population for shallower soil and multiple populations for deeper soil) and “risk driver” chemicals.
 - h. NDEP and TRX agreed to meet to further discuss optimal plotting methods once the Phase B data are validated and assimilated.
 - i. NDEP referenced the BRC/Newfields “statistics document” dated 8/16/06 (with decision rules updated 6/25/08 in the Mohawk Sub-Area SAP) was discussed (this is available on the BRC website).
 - j. NDEP stated that while geo-statistics may be used as a tool to assist in identifying exposure areas, the utility of this approach depends on what the data show. If the data are relatively clean, and sampling has not been interrupted by the presence of buildings or other current operations, then geo-statistics methods such as block kriging may be useful. The ultimate goal is to have unbiased representation of chemicals in the particular environmental medium.
12. Cyanide: TRX will analyze samples for total cyanide and assume it is all in the free form (or as HCN, if applicable). If needed, secondary analyses for free cyanide (or as HCN, if applicable) will be conducted.
13. Bioavailability: NDEP indicated that if necessary, bioavailability studies for metals can be conducted. NDEP will send ENSR the EPA OSWER guidance for bioavailability of arsenic in soil. **ACTION ITEM.**
14. Site Specific Cleanup Goals: NDEP and TRX agreed that it is premature to identify specific methods (e.g., calculations) to use for cleanup goals. These goals would depend on the outcome of the baseline HHRA(s). For now, general remedial action objectives are the target goals of 1×10^{-6} cancer risk for carcinogens, 1.0 hazard index for non-carcinogens, and predetermined concentrations for lead and dioxin/furan TEQs, as identified in the BRC Closure Plan.
15. PCB Cleanup Goals: NDEP and TRX had the following discussions:
- a. NDEP stated that the TSCA cleanup goals are based on non-standard assumptions and include soil ingestion only and did not account for cumulative risk.
 - b. NDEP stated that calculations are dependent upon whether the PCBs are an Aroclor mixture or congeners.
 - c. NDEP stated that while TSCA states a 10 ppm cleanup goal for industrial sites, NDEP does not have authority over this program and any remediation completed to the 10 ppm value will have to be submitted to the USEPA Region IX for review.
 - d. NDEP will discuss internally whether review of remediation to under the 1 ppm TSCA cleanup goal is appropriate. **ACTION ITEM**

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16. Dioxins/Furans: TRX stated that they will use a 1 ppb cleanup goal for dioxin/furan TEQs per ATSDR Guidance. NDEP noted that values greater than 50 ppt are also looked at but would not likely require clean-up.
17. NDEP requested that TRX submit a HHRA Work Plan and requested that TRX review Section 9 of the BRC Closure Plan for guidance. TRX was also requested to submit a redline/strikeout version to the NDEP for review using Section 9 of the BRC Closure Plan as the base document. **ACTION ITEM**
18. NDEP and their consultants confirmed the receipt of the Phase B Area II and Area II SAPs.