FINAL

Meeting Minutes

Project: Tronox (TRX)
Location: NDEP – Las Vegas
Time and Date: 10:00 AM, April 5, 2007
Meeting Number: ---
In Attendance: NDEP-BCA – Brian Rakvica, Shannon Harbour
Tronox – Keith Bailey, Susan Crowley
Neptune – Paul Black (for NDEP)
Teri Copeland (for NDEP)
Hackenberry Assoc. – Paul Hackenberry (for NDEP)
ENSR – David Gerry, Lisa Bradley, Elizabeth Perry

CC: Jim Najima

1. The meeting was held to review the preliminary data generated during the Phase A Source Area Investigation (Phase A), and to discuss the framework of the Phase A Report and Phase B Work Plan (WP).
2. The Phase B WP will be included with Phase A Report.
3. Discussed Phase A Report:
    a. Phase A data validation was in process at time of meeting, and the data presented, although preliminary, is not expected to undergo significant revision when finalized. TRX presented preliminary data tables for discussion purposes.
        i. Dioxin/furans: Results of a screening evaluation resulted in 8 of 27 soil samples having detections greater than 50 ppt TEQs but less than 1,290 ppt TEQs. Seven of the 8 samples having concentrations greater than 50 ppt TEQs were also analyzed using the full EPA Method 8290. TRX noted that the screening method consistently reported concentrations approximately 10-30% higher than EPA Method 8290. TRX noted that all full 8290 method results were less than 1 ppb.
        ii. Herbicides: not detected in soil or water.
        iii. Metals: Soil and groundwater samples had detectable concentrations. Groundwater samples were collected from six open boreholes (two of which were filtered) and from 21 existing monitoring wells, which were collected with a low-flow pump (~100-500 ml/min) and not filtered. TRX noted that the sampling flow rates were within limits specified in the Work Plan; however, it appears that TRX personnel did not monitor the turbidity of the water to insure that the samples were representative. The filtered samples exhibited metals concentrations lower than the non-filtered samples for many metals. NDEP clarified that any time filtered samples are taken a duplicate unfiltered sample must betaken (per the approved SOP). In order to resolve the possibility of a bias introduced by the implementation of the sampling method, TRX proposes to resample the existing

monitoring wells using both lower flow rates to minimize turbidity, and filtered and unfiltered samples to examine the effects of turbidity. Based on these data, TRX will consider amending the existing Work Plan to specify a lower pump rate, and/or specify a stabilized target turbidity level prior to sampling. TRX will prepare a brief e-mail describing the proposed modification to the existing Work Plan and send it to the NDEP. This may occur prior to Phase A report submittal**.**
ACTION ITEM

iv. Perchlorate: Soil and groundwater samples had detectable concentrations. TRX stated that the perchlorate concentrations in the soil and groundwater tracked with the delineated groundwater plume.

v. Pesticides: BHC isomers and DDx isomers had detections in soil and groundwater mainly in the mid-western area of the plant site, which may be due to off-site sources.

vi. Radionuclides: Soil and groundwater samples had detectable concentrations with several greater than the screening level. TRX stated that secular equilibrium is generally occurring and that there doesn't seem to be much influence from the properties off-site to the east. TRX noted several thorium detections in groundwater, which may be due to turbidity. TRX will resample as discussed in 3.a.iii. It is suspected that the acidified turbid samples are biasing metals and radionuclide concentrations high.

vii. SVOCs: Soil and groundwater samples had very few detectable concentrations. In soil, no SVOCs were detected at concentrations greater than the PRG and only two constituents were detected at concentrations greater than 0.1 times the PRG. In groundwater, only 1 SVOC was detected, which exceeded the PRG.

viii. VOCs: Soil and groundwater samples had detectable concentrations. In soil, only benzene and chloroform were detected at concentrations above 0.1 PRG and both were also detected above the PRG. Other chlorinated VOCs were also noted in groundwater. Some matrix effects were observed to affect detection limits in groundwater analyses. TRX reported that there were significant chloroform concentrations in groundwater observed on the western portion of the site with some samples also containing carbon tetrachloride.

ix. TPH: Several soil samples had detectable diesel range TPH concentrations greater than 100 ppm.

x. PCBs: One soil sample had detectable concentrations of Aroclor 1260 at 20 ft bgs but was under screening level of 1 ppm. TRX had the sample reanalyzed and the PCB detection was not confirmed. TRX was unable to specify a likely PCB source, and believes the single detection is not accurate.

xi. Fuel alcohols: one groundwater sample had detectable ethanol concentrations.

xii. Manganese Ore and Tailings: TRX stated that radionuclide concentrations were comparable to background. Arsenic was detected

at a maximum concentration of 90 ppm. TCLP results were reported within acceptable limits.

xiii. For soils, detection limits for non-detect results were below the PRG and, with one exception, below 0.1 times the PRG. Matrix effects resulted in elevated detection limits for some VOC analyses in groundwater.

b. TRX presented preliminary lists of contaminants not detected in soil and groundwater, respectively. TRX proposed that compounds not detected in the Phase A data above the comparison values be considered for elimination from future characterization. For soil, the comparison value was 0.1 times the industrial soil PRG. For groundwater, TRX used 0.1 times the MCL (Nevada, then federal) or, if no MCL, the PRG (and 0.1 times the PRG) for comparison values for each constituent. The following were specifically discussed during the meeting:

i. Dioxin/furans – Due to the very low detected concentrations, TRX proposes that dioxin/furans be eliminated from consideration in subsequent Phase B Site Investigations.

ii. SVOCs – Due to very few detections and the very low detected concentrations, TRX proposes that SVOCs be eliminated from consideration in subsequent Phase B Site Investigations.

iii. TRX noted that available resources would be optimized by focusing on the drivers and compounds exceeding the screening thresholds and eliminating the inclusion of other non-detected compounds commercially available in specific laboratory analytical suites. Focusing on key compounds will save resources otherwise spent on extensive data validation and data management.

iv. The NDEP commented that if only certain analytes are eliminated from an analytical suite the situation will arise that data will be generated that is not being reported. The NDEP suggested that the analytical lab sheets be included in an appendix. TRX expressed concerns about having to address detections of a constituent that has been eliminated using comparison values.

v. NDEP expressed additional, potentially legal concerns about the potential risks of generating data and not reporting it.

vi. NDEP and TRX to consider solutions to this issue. **ACTION ITEM**

c. TRX presented summary tables of statistics for soil and groundwater, respectively, which included frequency of detection, maximum concentration detected, PRGs, and 0.1 times both the PRGs and MCLs. NDEP commented that location information and detection limits also must be considered in decision making. In addition, for report submission, columns must be added for detection limits. TRX indicated that the analytical information provided is preliminary and that the Phase A report will contain the detection limits and location information .

i. Aluminum, arsenic, total chromium, chromium VI, iron, lead, manganese and hexavalent chromium had maximum detected concentrations greater than 0.1 times their respective PRGs in soil.

ii. Arsenic additionally had a maximum detected concentration greater than the PRG. TRX noted that the aluminum and arsenic concentrations, as well as other metals, generally increased with depth.
iii. TRX noted that the reference dose for iron has been increased, which results in the iron concentrations being less than 0.1 the recalculated PRG for iron.

d. It was noted that the Phase A data should be tied to the CSM and determine what is logically needed to determine the nature and extent of contamination. Dividing the Site into logical sub-areas will allow TRX to expedite this process. TRX indicated that they were considering dividing the site into sub-areas based on exposure. NDEP commented that the exposure would have to be consistent (i.e., equal access) across the entire sub-area.

e. TRX noted that the asbestos analyses have been completed. Although TRX is well aware of the existing EPA guidance and emerging EPA strategies for dealing with asbestos risk, there remains some confusion between published techniques regarding evaluation of asbestos risks. TRX requested clarification from the NDEP on how the data are to be evaluated and reported.
i. NDEP noted that BRC has screening criteria based on dimension of fibers and that only the type and number of fibers are reported.
ii. NDEP will send EPA guidance and NDEP's summary of the guidance to TRX. **ACTION ITEM**
iii. NDEP will forward BRC contact information for asbestos evaluations (Mark Jones with ERM) to TRX. **ACTION ITEM**
iv. TRX will send a copy of an asbestos lab report to NDEP/Neptune for review. **ACTION ITEM**

f. TRX will request to have Rad^{226} or Rad^{228} as an indicator compound for radionuclides. NDEP commented that TRX will need to demonstrate secular equilibrium for approval.

4. Discussed Phase B WP:
a. NDEP requested that TRX address soil gas issues in the Phase B WP if applicable to future site uses.
b. TRX will propose preliminary exposure areas in Phase B WP as discussed above.
c. TRX noted that due to the low frequency of detection and levels of concentration reported, a 'step-out' approach to Phase B may be less useful and less productive that focusing on filling data gaps within each of the identified exposure areas.
i. It was noted by the NDEP that random sampling within an exposure area may be the most appropriate approach. This approach will be taken into consideration for the Phase B Work Plan, which will be included as part of the Phase A report.
ii. NDEP noted that data adequacy will need to be addressed as exposure areas are defined and the data is examined.
d. Once the Phase B WP is submitted, TRX noted that to meet the proposed schedule, the NDEP review must be conducted as quickly as possible to avoid delay in conducting the field work.

e. TRX noted that they may consider using a mobile lab with 10% of samples additionally sent to a certified lab for confirmation. NDEP stated that they are aware of certified mobile labs being used elsewhere on the BMI complex.

5. Discussed Upgradient Report
   a. TRX will submit a line by line response to NDEP's comments. TRX proposed that the document revisions be limited to an added discussion on the statistics and the box and whisker plots (exploratory data analysis) and revisions to the conclusions and executive summary.
   b. TRX suggested that NDEP allow the revisions be submitted as replacement pages to the Upgradient Report.
   c. Once determined, TRX will send e-mail to NDEP with the expected submittal date. **ACTION ITEM**
6. TRX noted that as iterative risk evaluations are completed, some of the more useful findings will be shared with NDEP for the purposes of preliminary discussion and review.
7. TRX clarified that future land use will remain commercial/industrial.
8. It was clarified that any database submitted will be in MS Access format.
9. NDEP found the BRC Data Usability Table useful and will send it along with related comments as an example for TRX. **ACTION ITEM**
10. TRX requested that a monthly conference call be scheduled with NDEP. It was agreed that this may be on May 8, 2007. **ACTION ITEM**
11. TRX to send 2 copies of the aerial photo with Phase A SOW and Phase A boring location maps to NDEP and NDEP's contractors to facilitate monthly conference call. Additional items should be forwarded as necessary to facilitate a productive discussion. **ACTION ITEM**
12. Phase I Report for potential TRX land sales: TRX suggested that the parcels discussed in the Phase I report may be divided into sub-areas using exposure criteria. NDEP stated that this should be discussed at another meeting.
13. Risk assessment discussion.
    a. Discussed leaching pathway. TRX noted that the numerical screening, summarized above, covers direct exposure rather than the soil to groundwater pathway. Determination of leaching pathway risk will depend on CSM, future use, and current exposure areas and will be considered in the Phase A report.
    b. NDEP noted that groundwater is a receptor and must be considered as such.
14. Discussed upgradient and background data/comparisons.
    a. Noted that the following tests should be utilized, as appropriate:
       i. T test
       ii. Wilcoxon Rank Sum test with Gehan modification.
       iii. Quantile test
       iv. Slippage test
    b. Discussed the need to perform exploratory data analysis and use the tests to support conclusions.
    c. Review of histograms shows that inclusion of the TRX data set for shallow Upgradient conditions with the BRC/TIMET data set will not likely change the background range. If this inclusion is completed, NDEP may perform the

analyses. Noted that the deep soils data is not yet available from BRC and this issue will require additional considerations.

d. Discussed adjustment of the significance level. Noted that the significance level is only a guide.
e. Noted that in the Upgradient data the concentrations increase with: depth, geology change, and % fines.
f. Discussed DVSR included in Upgradient report. NDEP noted that this report was generally acceptable.

15. Discussed tentative schedule.
    a. Phase A Report/Phase B Work Plan – June or July 2007
    b. Phase B sampling – late 2007
    c. Risk Assessment – mid-2008