FINAL

Meeting Minutes

Project: Tronox (TRX)
Location: Conference Call
Time and Date: 10:30 AM, Friday, December 14, 2007
In Attendance: NDEP – Brian Rakvica, Shannon Harbour
                    Neptune – Paul Black, Dave Gratson (For NDEP)
                    Tronox –Susan Crowley
                    Env. Answers (for TRX) – Keith Bailey
                    BEC: Ranajit Sahu
                    ERM: Mark Jones (for BEC)

CC: Jim Najima

1. The meeting was held to discuss the asbestos, radionuclide, and other issues concerning Parcels A/B.
2. BEC and TRX have submitted a Soil Screening Level table and probability and box plots for Parcels A/B data. Additionally, the asbestos results will be formatted and submitted to the NDEP.
3. TRX reported that field activities for Parcels A/B have been completed, including the soil scraping activities for asbestos abatement. All asbestos confirmation sampling results have been received. One of the ten original confirmation samples had a detection of one amphibole fiber and was scraped again (an additional 3-6") and a confirmation sample was collected. This confirmation sample resulted in a non-detect. Approximately 3-6 inches of soil was removed for each polygon defined by the Phase II sampling.
4. Radionuclides
   a. BEC stated that the uranium radionuclide data for Parcels A/B are significantly lower than the background dataset.
   b. The uranium radionuclide data seems to be biased low compared to the background dataset because of a difference in the laboratory digestion methods (HF for thorium nuclides versus nitric acid for uranium nuclides).
   c. TRX timeline does not allow for reanalysis using a comparable digestion method.
   d. TRX proposes to use the ratio of uranium metal (from ICP analyses) to uranium isotopes($U^{233/234}$, $U^{235/236}$, and U^{238})
   e. Thorium metal data do not exist for a similar calculation of a ratio for the thorium isotopes but the existing thorium data are already similar to background concentrations.
   f. NDEP stated that differences between the Parcels A/B and TRX Phase A datasets have been noted. More specifically, that Parcels A/B data show uranium having a leaching severity issue while the Phase A data show both uranium and thorium having leaching severity issues. The uranium data for Parcels A/B appears to have used nitric for digestion while the thorium appears to not have this issue. The Phase A data appears to have a low bias for both uranium and thorium. NDEP believes that this disparity is from a difference in lab digestion methods for thorium between the two data sets.
   g. NDEP stated that gamma speciation has been shown to be biased as much as 10-20% low for radium isotopes at lower activities (like the activities observed in the Parcels A/B dataset.) This is a concern for the NDEP.

h. STL-Richmond confirmed that different digestion methods are used for uranium and thorium isotope analysis. Thorium isotope analysis uses hydrofluoric acid for complete digestion while the uranium isotope analysis uses a weaker acid resulting less than complete digestion. TRX to provide the SOP for confirmation. **ACTION ITEM.**

i. TRX will contact laboratory for Phase A dataset to discover if different digestion methods were used for the uranium and thorium isotopes analyses. **ACTION ITEM.**

j. TRX and BEC proposed a ratio approach for addressing the leaching severity issue.

    i. BEC stated that they had calculated initial results using this approach.

    ii. BEC explained the ratio approach and will email the steps used in this approach to the NDEP for review. The ratio approach uses the background dataset to calculate the ratios between uranium as a metal and uranium isotopes. **ACTION ITEM.**

    iii. BEC stated that one problem with this approach on the Parcel A/B dataset is that the maximum calculated value for $U^{233/234}$ were less than the maximum reported value for $U^{233/234}$. BEC proposes to use not only the calculated uranium isotope activities but also the maximum value of $U^{233/234}$ for risk calculations. **[Subsequent to the conference call, ERM discovered a small error in a spreadsheet cell for their calculation, which resolved the problem with the $U_{233/234}$ maximum calculated value.]**