The TCEQ (draft) comments on Draft SAP: Soil Study

Comments from V. Reat:

1. 1.4.2.1 Site Soil Data - The discussion on page 8 indicates that beach sediment samples were collected in 2010 as a separate component of the RI/FS and that these beach sediment samples were collected from the eastern and western shorelines of the property west of the impoundments, and at locations between the impoundments and this upland property. The discussion also describes the depth intervals for sample collection. Looking in particular at the stretch of land adjacent to IH-10 between the impoundments and the upland property, soil samples are limited to those that have been/will be collected as part of the TCRA effort. Given the tidal variations, will the beach sediment samples also be modeled as soil in the future BERA?

2. 1.4.2.2 Background Soil Data - Table 1 displays the TEQDF for soil samples collected in the Houston area by the TMDL program. If these data are used for background in the future, please verify the TEQ calculations. For instance we were not able to duplicate the TEQ calculated for transitional soil (SS-8, 5/30/2005; and SS-16; 3/15/2005). Additionally we were not able to locate the data indicated as "soil" in the report referenced.

3. 1.5 Chemicals of Potential Concern and Soil Analytes - Regarding secondary COPCs, we suggest this discussion also acknowledge that a COPC Technical Memorandum is forthcoming this fall (response to USEPA comments on the Tissue SAP).

4. 1.6.1 Nature and Extent - As reflected in the discussion, soil is being evaluated in the upland area because, based on site history, sediments from within the impoundments may have been transferred to the sand-sorting area of the upland portion of the property west of the impoundments. Is information available (aerial photographs, operator knowledge, existing infrastructure) regarding the sand mining and processing activities that may indicate areas of soil that would be potentially more impacted than others (to guide preferential sampling)? If so, this should be described in this document to compliment the proposed sampling approach.

5. 1.6.1 Nature and Extent - Is there any reason to believe (based on topography, knowledge of sand processing activities, and prevailing wind direction) that any site related contaminants could have been released to the vegetated upland area to the west of Area 2? Similarly, if the soil data collected for Area 2 indicates that soils along the western edge are impacted with COPCs, is there a plan to collect samples to the west (in the vegetated area) to satisfactorily assess the nature and extent of contamination?

6. 1.8.1.2 Sample Collection Design (Background Conditions) - The SAP proposes that 10 background stations will be sampled in one or more of the locations depicted on Figure 5 (mostly county and state parks or areas adjacent to a highway) depending on accessibility, safety, and permissions to sample soils. TCEQ is not opposed to these proposed sample locations on face value. TCEQ suggests that the Respondents research the proposed sample locations to determine if there has been any fill used or routine application of any soil additives (i.e., fertilizers, compost, sewage sludge) as this may impact the final decision to use these locations for soil background.

7. 1.8.1.2 Sample Collection Design (Background Conditions) - The document suggests that the 10 "new" background samples proposed in this document will be supplemented with the 10

existing samples for soils in residential and urban areas that were collected for the TMDL program. These samples were discussed in Section 1.4.2.2 and are comprised of soil samples collected between December 2004 and October 2005 by the TMDL program. The summary indicates that soils were collected for analysis of organic carbon and dioxins and furans from one or more of five land use types (forest, grass, urban, residential, and transitional) concurrently with runoff at ten different locations across Houston. Without more information, TCEQ does not support using the TMDL soil data to supplement the background data set. Questions such as soil depth, specific sample locations, and laboratory quality assurance information are unresolved. TCEQ recommends that the collective group (respondents and regulators) determine if this data set is appropriate to supplement the background sampling proposed, once more specific information is known. If the data set is determined to be inappropriate, TCEQ recommends that a larger number of background samples be collected from the proposed background locations (i.e., Figure 5).

8. 1.8.1.3 Analytic Approach - Regarding the second full bulleted paragraph on page 22, the discussion summarizes a plan to use a pattern-matching approach to evaluate sediments or wastes from within the impoundments, and both Site and background soil samples, to identify any pattern characteristic (using data for dioxins and furans) of the impoundment. These results, according to the discussion, will be used to determine the contribution of sediments with this pattern to soils in the upland area west of the impoundments, and in the vicinity of I-10. The Respondents should provide more details regarding the proposed pattern-matching approach (reference, example calculations, etc.) and also explain in more detail what an end member is.

9. 1.8.1.3 Analytic Approach - Regarding the last bulleted paragraph on page 22, the discussion indicates that an upper 95th percentile or upper tolerance limit will be derived to characterize background conditions. As reflected in the discussion in Section 1.8.1.2, TCEQ prefers the use of the Upper Prediction Limit for the determination of a background statistic. Also, the U.S. EPA reference indicated (USEPA 2005a) does not appear to be the correct reference for a discussion of background determinations and statistical comparisons for soil data.

10. 1.8.1.3 Analytic Approach - The discussion in the second full bulleted paragraph on page 23 reflects that analysis of some of the samples from Area 2 will be "conditioned" upon an exceedance of the USEPA's interim PRG for residential soils in the majority of both surface intervals at the initial 10 locations. How does this threshold compare with that anticipated for a terrestrial ecological receptor? If a particular exposure pathway for a terrestrial receptor/guild is more sensitive than the human health PRG, it is important that there is enough soil data to appropriately evaluate Area 2.

11. 2.1 Sampling Design (Soil Depth Intervals to be Sampled (Study Elements 1 and 2) - As discussed throughout this document, surface soil samples will be collected from 0 to 0.8 inch (0 to 2 cm), shallow subsurface samples will be collected from 0.8 to 12 inches (2 to 30 cm), and deep subsurface soil samples will be collected from 12 to 24 inches (30 to 60 cm). The text at the top of page 32 explains that in order to characterize the top 1 foot (0 to 30 cm) of soils at each station, a depth-weighted concentration will be calculated using the concentrations in each of the two individual surface intervals, weighted by the percent of the total depth represented by the interval depth. TCEQ typically requires that surface soil exposure to ecological receptors is modeled by evaluating the top 6 inches of soil (e.g., see Issue 18 of TCEQ, 2005). Given the plan here, how will this be accomplished?

TCEQ. 2005. Position Paper on Common Issues Encountered During the Review of Ecological Risk Assessments. Remediation Division. September. http://www.tceq.state.tx.us/assets/public/remediation/positionpaper.pdf

TD Comments on Draft Soil SAP – Tracie Phillips

1. Section 1.5 Chemicals of Potential Concern and Soil Analytes

   Previous comments submitted still apply here. From the Sediment SAP and Tissue SAP Comments, whether or not a secondary COPC will not be evaluated in the BLRA will depend on the relative concentrations between the secondary COPC and dioxins and furans for each sample. As stated in this section, "...is likely to be addressed..." does not prove that the secondary COPCs that correlate with dioxins/furans are/have been addressed. Secondary COPCs that are detected and fail the risk-based screens will need to be included in risk calculations to prove that they are not an issue.

2. Section 1.6.2 Human and Ecological Exposures

   The trespasser has been left out, suggesting that they do not have a complete and significant soil exposure pathway. What is the justification for this?

3. Section 1.8.1.1.2 Exposure Assessment

   Direct contact has been defined here as ingestion and dermal contact. What about inhalation?

4. Section 1.8.1.2 Sample Collection Design

   It does not appear that the site itself has been included as a soil collection area. Risk assessment to human receptors on-site will need to be included in the BLRA.

5. Section 1.8.1.2 Sample Collection Design: Number of Samples

   This section discusses the number of samples that will be collected and used to calculate an upper confidence limit (UCL) for the human health risk assessment. While the collection of at least 10 samples does meet the requirement to calculate a UCL, an important part is missing. The samples must be collected over an appropriate exposure area. TRRP §350.51(l)3 & 4 state:

   > (l) The person shall determine concentrations of COCs within the environmental media at the affected property. The executive director may approve the use of statistical or geostatistical methods to determine representative concentrations of COCs at the affected property or within areas representative of site-specific background conditions as long as the following conditions are satisfied.
   >
   > (3) The soil exposure area for existing residential yards or platted residential properties shall not exceed 1/8th acre or the size of the front or back yeard of the affected residential lot, unless it is demonstrated that a larger area, not to exceed ½ acre, is appropriate based upon the activity patterns of residents at a specific affected property...
   >
   > (4) The soil exposure area for commercial/industrial properties shall not exceed ½ acre, unless it is demonstrated that a larger area is appropriate based upon documented activity patterns for commercial/industrial workers at an active

commercial/industrial facility (the assumed exposure area should represent the smallest area over which an individual can be expected to move randomly)...

Please be sure that the proposed samples meet the appropriate exposure area requirements laid out in the TRRP Rule.

6. Section 1.8.1.2 Sample Collection Design: Background Conditions

   Since background will be used "...to determine the extent to which site soils pose an excess risk to people..." (Section 1.8.1.3), it is critically important to make sure that background is appropriately characterized. A true background mean needs to be determined, which is a background that is unaffected by the site contamination. It is also important to note that in the TRRP Rule 5 ppb is the dioxin cleanup value for commercial/industrial soil. The TD defers to the Technical Support Section Staff, who have expertise in this area, to make sure the background calculations are appropriate.

7. Table 7

   Note (a) denotes that the HHRA ACGs are the USEPA Region 3 Soil PRGs. Please note that there are numerous NA's listed in the table. Applicable TRRP values should also be considered, as there are values present for the compounds which have an NA.

8. Figure 3

   There are several human receptor pathways that are considered complete, but minor. Please note that TRRP does not distinguish between minor and significant pathways. If a pathway is considered to be complete, then it needs to be evaluated.

Comments from L. Voskov

1. Section 1.4.2.1, page 8, Site Soil Data. The statement - "There were no chemical data describing soils at the site" is not correct. In addition to the TCRA soil and beach sediment sampling data, we need to include into the site soil data two sampling locations from the Preliminary Assessment/Screening Site Inspection (PA/SSI) investigation (SSI Report, September 2006). Samples SE-09, SE-10, and SE-11 were described as a sediment samples in the PA/SSI report, but only in a reference to the historical impoundment, and not to the San Jacinto River sediments. In a reality these samples, collected from 0 to 2.5 feet, represent soil at the source location and should be referenced in this Sampling and Analysis Plan and included in the site soil characterization.

2. Section 1.5, page 11. The statement –"Information that may indicate a COPC is not expected at elevated levels in soils includes information on the persistence of a chemical in a terrestrial environment" is not clear.

3. Section 1.6.1, Nature and Extent. "There are currently no data to describe the chemistry of soils on the site."See comment #1.

4. Same section. The proposed sampling for the upland area will produce estimates of dioxin and furan concentrations only for this particular area, but not for the former waste impoundments area.

5. Section 1.6.4, Engineering Design Evaluation. Recommendation to change "potential for surface transport" to "potential horizontal and vertical transport", keeping in mind movement of colloidal suspensions, particle-bound erosion, and presence of more polar types of compounds.

6. Section 1.7, Task Description, page 15. And 1.8.1.1, nature and Extent. "Study Element 1: Nature and extent of COPCs in soil in the uplands.." Need an explanation, why the soil study will include the uplands soil only.
7. Section 1.8.1.2, Soil Collection Areas. From the document it is unclear the rationale to exclude the Original Area (impoundments area) from the soil collection activities. The Original Area should be included in consideration through the entire document (it can be described under name as Area 1 and other areas nomination will change to Area 2, 3, 4, and 5, or use Original Area an keep the proposed numeration). The TCRA soil investigation which has already been completed need to be also included and the TCRA soil boring locations should be indicated on the Figure 4. Additionally, area which is located adjacent to the western fence needs more sampling points to check soil contamination. This area was probably used in the past as a trucks parking or staging area.
8. Section 1.8.1.3, Analytical Approach. This section needs additional discussion related to the Original Area analytical approach.

Comments from S. Childress:

1) In the third paragraph of Section 2.5.2.1 "Chemistry Laboratory QA", the definition of the "U" variable following the formula (1-2) for calculating the percent recovery of the laboratory control sample or reference material should be deleted, as this formula does not require the measured concentration in the unspiked sample.

2) In the seventh paragraph of Section 2.5.2.1 "Chemistry Laboratory QA", completeness is defined and a statement is made that the data completeness will be calculated for each suite of analytes for each sample type and sampling event. However, EPA may want to consider stipulating in the SAP a completeness requirement for the soil study data as well. (For example, the TCEQ Superfund Program QAPP specifies a completeness requirement of 90 percent for soil samples.)

3) In the tenth paragraph of Section 2.5.2.1 "Chemistry Laboratory QA", please revise the second sentence to delete the reference to Table 7 of the SAP as this table does not contain the laboratory control limits for the methods (i.e. the laboratory control limits are only provided in the laboratory QA manuals).