RI/FS team -

In preparation for our FS meeting next week, here are a list of issues and items for discussion (attached). Our reviewers from EPA’s Ada lab will be participating in the meeting via conference phone. Can someone arrange a call-in number for them and distribute it? They will each call-in from their desks so they can refer to any documents on their screens that are used in the meeting.

Note that I am still reviewing the document, and may have additional big picture issues based on my ongoing review. I look forward to seeing you all next Thursday. The meeting will begin at 8am Pacific Time.

-Dante
August 24, 2007

Identification of Big Picture Issues and other items for discussion at 8/30/07 FS Meeting.

ISSUE #1: Uncertainty

The issue is how the FS handles uncertainty. The specific comments below point out the main uncertainties our FS must deal with. In general, we want to beef-up uncertainty discussions and also re-position where we raise the uncertainty issues in the report.

Different types of uncertainties are expressed throughout the FS that may have a significant effect, and the most significant ones were discussed in 10.3 “Limitations and Uncertainties.” Some of the types of uncertainties include: the inherent heterogeneity of the subsurface, limitations on sampling imposed by existing buildings and industrial features, incomplete delineation of source areas, and lack of pilot testing of the proposed alternatives. Although section 10.3 highlights many of the concerns, the reality may be that further detailed evaluation will be necessary specific to each environmental media or source area during remedy implementation. (DTSC #1)

The report indicates that the lateral and vertical extent of NAPL is not well defined at most of the documented and potential source areas. It is indicated that additional subsurface delineation would occur if active remediation is selected. The lack of detailed source characterization renders detailed evaluation of remedial alternatives for most of the source areas highly uncertain. For example, a significant, potentially problematic issue is contamination existing or potentially existing underneath buildings, potential remedial technologies for that contamination and associated implementability issues, and how such contamination affects the FS process and evaluation. (Ada 2)

ISSUE #2: Long-term Effectiveness

The agencies, in general, do not agree with the long-term effectiveness ratings. The following comments raise some specific issues in this regard. We need to discuss this issue further and decide how to proceed.

The feasibility study appears to assume that source remediation using aggressive technologies in the saturated zones under buildings is not practicable. Given that such technologies have been applied under buildings at other sites, additional discussion and rationale should be provide to support this decision. (Ada 3)

The report estimates the effectiveness of contaminant removal using aggressive remedial technologies as being relatively low (e.g., < 65% of in-situ contaminant mass). No supporting studies or other evidence is provided for these low ratings. The only rationale provided is reported to be professional judgment and experience at other sites. More documentation is needed to support the low assessment of effectiveness, particularly with respect to thermal technologies. (Ada 4)
The report indicates that subsurface conditions are not appropriate for use of steam injection. However, it is noted that the transmissivity of saturated materials at Source Area 3 was high enough to support hydraulic extraction. This implies that steam injection may be more effective than the report indicates. (Ada 5)

The report presents a very negative view of the active remedial technologies included in the evaluation. The ratings of the various alternatives reflect this negative view. The supporting data were not sufficient justification for these ratings, which appear to be largely based on professional judgment. In general, the ratings appear to be highly subjective and significantly biased in most categories. Given the lack of data to the contrary, the ratings for aggressive remedial technologies, particularly thermal technologies, appear to be biased low. (Ada 8)

**ISSUE #3: Short-term Effectiveness**

The agencies have similar issues with the Respondents’ short-term effectiveness ratings that warrant further discussion.

**ISSUE #4: Metals at Former Wastewater Treatment Area**

DTSC remains concerned about the metals in the former wastewater treatment area. We had discussed this in a past meeting, but we need to remember how we decided to handle the issue.

It appears metals data at depth below the elevated metal concentrations detected in the former water treatment area is lacking. Possible wastewater containing metals infiltrating through the unlined impoundments may have migrated deeper than the shallow detections because of the depth of the impoundments and lack of a liner. Therefore, the shallow metals may represent only a fraction of the total metals contamination in this area. Additionally, although previous investigations indicate the water treatment area is not a groundwater contamination area, it is unknown if groundwater was sampled and adequately characterized concerning metals. This represents another uncertainty regarding the distribution of contamination and protection of groundwater resources. (DTSC 2)

**ITEM #1: Submerged vs. Vadose NAPL**

The FS appears to have screened out technologies that address submerged NAPL. Why? We do not like that.

**ITEM #2: Remedial Action Objectives**

The bullet list that summarizes the RAOs from Table 4-1 goes beyond what is in the table. The table is what we established as the RAOs, and I do not want to change or add to the wording we agreed to in 2003.
ITEM #3: Chlorinated Solvents

Section 4.4 “Contaminants of Concern” says that chlorinated solvents present in groundwater are not evaluated for remedial alternative sin the FS. However, chlorinated solvents are mentioned as being addressed by the technology descriptions. Clarify and discuss.

ITEM #4: Vapor Treatment Technologies

Section 5.2.4 “Vapor Treatment” retains thermal oxidizers, catalytic oxidizers, and vapor phase GAC. We need to incorporate the technology screening that was done for the Waste Pits SVE system, reference it, and describe thoroughly any variance.

ITEM #5: Sub-slab Venting

The section 5.4.2 discussion of sub-slab venting said that it would require significant excavation and trenching work in side the building and would leave in place extended lengths of piping inside the building. I thought you could horizontally bore wells under the building from a pit adjacent to the building to install capture pipes.

ITEM #6: Institutional Control - Monitoring

Section 5.1 “Institutional Controls” includes monitoring environmental media (groundwater, soil, soil gas) as an institutional control, which it is not. However, there will be required monitoring of the institutional controls themselves over the long term. We need to clarify this.

Page 5-2, 5.1.1 Types of Institutional Controls, Monitoring: This section describes monitoring contaminants of concern as institutional controls (ICs). ICs are non-engineered instruments that can be verified as administrative and/or legal controls; therefore, monitoring ICs differs from monitoring groundwater, soil gas, indoor air, etc. Monitoring specific environmental media contains more engineering aspects requiring site-specific sampling and analysis plans, health and safety plans and other types of permits and/or access agreements that may apply. This section should indicate the types of monitoring including inspections (periodic and routine) that confirm the IC mechanisms remain in place, and reference to monitoring specific media should be deleted in this section. (DTSC 2)

Page 5-8, 5.4.1 Institutional Controls, Groundwater Monitoring: Institutional controls consist of administrative controls including deed restrictions and engineering controls including fencing, signage, etc. Whereas, groundwater monitoring is more a process options on its own requiring either long-term monitoring of groundwater plume areas or shorter term evaluation of remedial effectiveness. Therefore, groundwater monitoring is a General Response Action (GRA) required for an RAO separate from institutional controls. We recommend
deleting groundwater monitoring from this section and retaining groundwater monitoring as a GRA. (DTSC 4)

ITEM #7: Groundwater Monitoring
Page 5-8, 5.4.1 Institutional Controls, Groundwater Monitoring: Although this section indicates groundwater monitoring requirements are part of the Groundwater OU ROD, it may be specific monitoring would be needed to addresses specific sources areas and/or boundaries. Groundwater downgradient of source areas should be considered for evaluating groundwater contamination and establishing contaminant migration patterns away from sources. (DTSC 5)

ITEM #8: ARARs for Institutional Controls
There are some ARARs for Institutional Controls, pertaining to deed restrictions. Add the following citations to the ARARs list: CCR 67391.1 (certain sections), and Civil Code Section 1471.