

COMMENTS ON FANSTEEL DECOMMISSIONING PLAN OF JANUARY 2003

The following are general comments on the decommissioning plan. Because the plan is conceptual, there is not sufficient information in many sections for a detailed review. These comments are not comprehensive, and additional questions may arise from the more detailed information that should be submitted.

1. Chapter 1

- 1.1 There is no request for license amendment. A request should be submitted.
- 1.2 There is no request for an alternate decommissioning schedule; the letter of transmittal states it would be submitted by February 17. A request for the alternate schedule should be submitted.
- 1.3 The description of the site is the condition in 1993, not the present; contamination includes soluble isotopes that are expected to move in a decade, and some operations took place that are not discussed. The current condition should be described.
- 1.4 Table 1.1 lists the DCGL for the Th-232 chain as 10 pCi/g. This is the same as Condition 27 of SMB-911, and the previous decommissioning plan. This conceptual DP does not appear to support the calculated reduction in cost of decommissioning by more than half.

2. Chapter 2

- 2.1 There is no discussion of activities that caused contamination that was identified during surveys of the northwest property that the licensee originally stated was not contaminated. This discussion should be included.
- 2.2 Only a Pond 3 spill is addressed. Potential sources of elevated subsurface contamination, e.g. B-36 and MW-71S, are not discussed. All other process releases to the environment should be discussed.
- 2.3 Ponds 1/1S-1N and 4 are not discussed. Activities and residual contamination, or verification of complete remediation and current status, should be included.

Attachment

3. **Chapter 3**

- 3.1 Values for hydrologic parameters are stated, but there is no mention of numerical techniques to obtain them. A discussion of techniques should be provided.
- 3.2 Potential for vertical migration of radiological material to the bedrock aquifer is not discussed. Fansteel should provide the additional information or explain why it is not necessary.
- 3.3 There is not sufficient data to support the potentiometric contours of the bedrock aquifer in Figure 3-8. A detailed description of vertical migration should be provided. If it demonstrates that migration of isotopes of interest are not reasonably expected to reach this aquifer, additional characterization may not be necessary.
- 3.4 Values for distribution coefficients are given in the RESRAD output provided in Ch. 5; however no basis is given for the chosen values. These parameters may be important if the ground water pathway is applicable.

4. **Chapter 4**

- 4.1 1993 characterization of buildings and equipment does not include effects of “reprocessing” activities that occurred through November 2001. Fansteel should update the characterization to reflect this activity.
- 4.2 1993 characterization data between the ponds and the process buildings does not include effects of “reprocessing” activities that occurred through November 2001. Fansteel should update the characterization to reflect this activity.
- 4.3 There is insufficient data surrounding the ponds to characterize possible leakage. These areas should be characterized.
- 4.4 There are no data for process equipment or piping, either above or below grade. These areas and components should be characterized.
- 4.5 There are no data under building floors or around footings (contamination was found in these types of areas in other parts of the facility, e.g. NW property). These areas and components should be characterized.

- 4.6 Depth of penetration of contamination into structures is not defined; this affects the method of removal and total radioactive waste volume. Depth of penetration of contamination should be defined.
- 4.7 The historic site assessment does not support the classification of areas, especially those identified as non-impacted. Additional information, including characterization, should be provided to support the classification.
- 4.8 Section 2.1 of the November 1993 report states that "... radiological analyses were secured from [three] depth intervals] ... 0'-6", [at the saturation] zone, and an intermediate interval" In fact, less than ten percent of the data in the DP have samples at more than one depth in a location, and only one has all three analyses. The distribution of contamination at depth throughout the site should be well defined.
- 4.9 The number of borings is not consistent in the report: §3.5.2 states there are 96, §4.3.2 states 92, and Table 4.1 has 81 unique locations. Fansteel should provide a consistent statement of sampling locations.
- 4.10 The basis for converting cpm to pCi/g in soil scanning is not presented. Fansteel should provide this analysis.
- 4.11 Data from only two ground water sampling events is presented. Fansteel should provide all available data.
- 4.12 The elevation and location data for bore holes reported on Figure 4-11 is different from the data on Drawing OMF-GRNDS-011 (11/25/02). One example is that the reported low points on the OMF are higher than the surface topography shown, e.g. Pond 3 low point is listed as 531.3', and the topographic isopleth for the berm is 530'. Additionally, the elevations of the wells are approximately six feet higher on the OMF than that reported in the bore logs. Also, the locations of wells and topography is somewhat different between the two drawings. For example, on Figure 4-11, MW-71S is on the 534' isopleth, and south of the south berm of Pond 3; on the OMF, the well is inside (less than) the 530' isopleth and north of the Pond 3 south berm. This raises questions on what values were used to calculate waste volumes. These differences should be resolved and a consistent data set provided.

5. **Chapter 5**

- 5.1 The DP does not provide sufficient justification for not considering ground water pathways. All identifiable past, present and reasonable future uses of ground water should be identified, along with any impediments and impetuses to its use. Any information about commitments to Oklahoma Department of Environmental Quality related to ground water remediation should also be provided.
- 5.2 Additional support for the industrial land use scenario should be provided. The dose effects of alternate, reasonable land use scenarios should also be evaluated.

6. **Chapter 6**

- 6.1 Chapter 6 states that “Fansteel **will prepare** an ..[ER]”; no such information is included in this submittal. Because there is radiological ground water contamination at the site, and this contamination is subject to NRC regulatory control, NRC believes that an EIS may be necessary. Fansteel should provide information commensurate with that level of environmental analysis.

7. **Chapter 7**

- 7.1 Section 7.0 states “... Fansteel **will perform** remediation ALARA analyses” This is a necessary part of the submittal because it affects the remediation criteria and activities, and is an integral of the license termination rule requirements.

8. **Chapter 8**

- 8.1 Section 8.0 states that the DP is “A conceptual engineering plan detailed plans ... may differ”; this is not a final DP. A final plan must be submitted before it can be reviewed and approved by the staff.
- 8.2 Remediation techniques for the several types of contamination are not specified: “Specific remediation techniques **will be developed** “ (§8.1.2, 8.2.2, etc.).

- 8.3 Depth of excavation in Ponds 2 and 3 as stated in §8.3.2.2 is different from that shown in Figure 8-1 by about 10 feet; this affects the volume calculations. These differences should be resolved.
- 8.4 It is not clear whether the soils volumes include that under Ponds 2 and 3, or just adjacent to them. This should be clarified.
- 8.5 The method and configuration for gamma scanning material to determine compliance with release criteria is not specified. These should be defined.
- 8.6 The information in this chapter and in Chapter 4 is not sufficient to verify the volume that may require disposal at a licensed facility, such as Envirocare; the volume can go to other facilities such as WCS; and what can remain on site. The additional information should be submitted.

9. **Chapter 9**

- 9.1 Section 7.2 states that remediation work may not be performed by contractors, but §9.2.4 lists task and activities to be performed by contractors. These statements are not consistent. The differences should be resolved.
- 9.2 There is no information on specific contractors or work division between Fansteel and its contractors. This information should be provided.

10. **Chapter 10**

- 10.1 Section 10.0 states “The current site RHASP ... **will be revised** ... to include decommissioning activities” These activities should be identified and the RHASP revised as necessary.
- 10.2 Selection and use of surrogates should be discussed in detail.
- 10.3 Section 10.7 states “The instrumentation program **will include**” The plan should be developed fully, and include details of MDCs, especially under less than ideal conditions, such as in wet areas.

11. **Chapter 11**

- 11.1 Section 11.0 states “The current site EMP ... **will be revised** to include decommissioning activities” These activities and revised plan should be submitted.
- 11.2 There is no basis presented for using “recent sampling events”, that are not defined, as a baseline for effluent releases. Justification for baselines should be provided. Also, as of 15 Mar, 2003, the NPDES permit had not been reissued; any changes to limits in the revised permit should be identified.

12. **Chapter 12**

- 12.1 The radioactive “... solid waste management plan **will include** the following” This plan has not yet been developed, in large measure because of the status of site characterization. Both should be completed and submitted.

13. **Chapter 13**

- 13.1 This chapter states the existing plan **will be revised** to address a variety of QA issues related to decommissioning. These revisions should be made and the revised plan submitted.

14. **Chapter 14**

- 14.1 As expressed above, characterization surveys are not comprehensive. This can also affect area classification. Additional characterization to justify site conditions should be provided.
- 14.2 Section 14.4 states “An FSSP **will be prepared**” The balance of Chapter 14 reiterates the MARSSIM theory, but provides no site specific information. A comprehensive, site-specific plan should be submitted.

15. **Chapter 15**

- 15.1 Section 15.1 states cost estimates are based on the planned activities presented in this plan. However Section 8 states this is a conceptual plan and the actual plan may differ. Cost estimates should be updated to reflected current site conditions and actual remediation plans.
- 15.2 Section 15.1.1 states “No additional large-scale characterization ... is planned” The staff has concluded that significant additional characterization is necessary; see comments on Chapter 4, above. The additional information should be collected, and estimates should be updated to reflect these costs.
- 15.3 The equation in Section 15.1.2 (P 15-3) does not properly compute the volume of the truncated pyramid used to approximate the ponds. One acceptable form to calculate the volume is: $V = \int_0^h (l_0 + 6h)(w_0 + 6h)dh$.
- 15.4 There is no information on the shape of Ponds 1, 2, or 4. The drawings (e.g. Figure 4.1) show an irregular shape for Pond 2; page 15-4 states the slope for ponds 5-9 is between 1.5 and 2. There is no contingency in the volume calculations to account for potential changes in the estimated volume of Pond 2. The correct volumes of all ponds, with contingencies, should be provided.
- 15.5 Fansteel must demonstrate IUC is authorized to accept the proposed shipments.
- 15.6 There is not an acceptable funding plan for this DP. The DP cannot be accepted until there is an acceptable funding mechanism. If the proposed funding does not meet NRC regulations, requests for exemption with justification must be included.