

## Comments on the Engineering Evaluation/Cost Analysis for the U Plant Ancillary Facilities

Richard I Smith, P.E.

9/13/04

General Comments

The document was generally quite complete and contained information appropriate for this consideration. However, several of the facility descriptions in Section 2 were incomplete in that they did not state whether or not the facility had a concrete slab floor, e.g., 211-U and 211-UA, 222-U, 2709-A, 2716-U, 2726-U. Also, for 203-UX, it was not clear whether this facility was on-grade or was set into the ground, or whether the facility was enclosed by walls and a roof or was open to the environment. As a result, it was not possible to get an understanding about the volumes of material (slabs, footings, soil) associated with each of the alternatives. From the Cost Estimates Backup report, the estimated cost for removal below slab increased by \$700K over the slab case and the estimated cost for removal below footings increased by \$1.64 M over the slab case, for an increase by a factor of 2.3. The estimated cost for waste disposal (which should be proportional to waste volume) for the below slab case increased by \$940K over the slab case, and the below footings case increased by \$1.19 M over the slab case, an increase of a factor of 1.27. I would have expected both removal and disposal costs to have increased by similar factors, since we are talking about similar activities and materials.

The annual funding arrangements used by DOE make present-value analyses for these and other DOE projects on the Hanford site nonsensical. There never is any money deposited now to pay for future expenditures, thus there is no interest earned between now and the eventual expenditure in the future. As a result, the constant-dollar estimates better represent the true cost than the present-value estimates. Neither will accurately estimate the actual costs at the future year because inflation is not considered. Expenditures forecast to occur in the future should be escalated from the current-year estimate to the expected future year. If two alternatives differ significantly in the number of years from now to complete the effort, then neglecting inflation will distort (improve) the cost appearance of the longer-term alternative.

The D&D to -1 Meter case represents an upper-bound cost. In actual practice, it would make good sense to deal with each facility on a case-by-case basis, remove the slab and characterize the soil beneath the slab before removing to the -1 meter depth, or to whatever depth was found to be necessary. I expect that a number of these facilities would have no significant contamination underneath their slabs, and the costs attributed to the removal, clean backfill, and waste disposal could be reduced significantly. In addition, not having the slabs (with whatever additional covering material might be emplaced) in place could greatly simplify the maneuvering of heavy equipment and materials associated with the future work on D&D of the 221-U facility and its servicing structures.

Specific Comments

I believe the list of contaminants given on pages 2-8, 2-9 is incomplete. Experience at the gaseous diffusion plants with the recycled uranium showed that there was a lot of  $^{236}\text{U}$  and  $^{99}\text{Tc}$  included, as well as trace amounts of  $^{237}\text{Np}$  and  $^{239}\text{Pu}$ . Thus, the potential presence of  $^{236}\text{U}$  and  $^{99}\text{Tc}$  should be considered. (Smith, R.F. 1984. Historical Impact of Reactor Tails on the Paducah Cascade. Paducah Gaseous Diffusion Plant Report KY/L-1239)

There are discrepancies between the EE/CA document and the Cost Estimates Backup report as regards the discount rates used in the analyses. The EE/CA appears to use 3.2% for all alternatives. The Backup report appears to use 3.2% for the 24-year long-term S&M. 1.9% for the 6-year D&D to Slab case without stating which rate was applied to the post-D&D S&M period, and appears to use 2.2% for the 7-year D&D to -1 meter case, again without stating the rate for the post-D&D S&M period

RECEIVED  
FEB 23 2005  
EDMC