

**Comments on DOE/RL-2001-29, Rev. 0, Proposed Plan for Remediation of the 221-U Facility  
(Canyon Disposition Initiative)**

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1/30/05

This document is essentially the same as Preliminary (Draft E) of the subject report, which I reviewed in February of 2004. Only one significant bit of information has been added, a partial paragraph stating that the cumulative occupational exposure for Alternative 1 was about 6 times higher than Alternatives 3 and 4, and was about 8 times higher than Alternative 6. However, no actual values of exposure are given for each alternative, which leaves the reader wondering about the actual magnitudes of these exposures, and are they important.

The principal problem with this document is that it does not contain all of the information needed, nor is it assembled in a format useful to a decision-maker. There is no executive summary wherein the alternatives are defined and the preferred alternative is identified. In fact, the reader is not made aware of what alternatives are considered in the plan until Page 7 of the report, and the preferred alternative is not identified until Page 21. The critical information needed by the decision-maker should be presented in the executive summary. The values of the various parameters arising from each alternative should be presented for a side-by-side comparison in the executive summary. The values of those parameters for each alternative that are given in the document don't start appearing until Page 12 of the report, and are dispersed throughout the next 7 pages of discussion on the performance of the alternatives under the nine CERCLA criteria. In my previous comments, I provided a suggested table of information important for the decision-maker to see in order to understand the full scope of impacts of each alternative, for inclusion in the executive summary. This table is presented again, below, with that information available from the current report inserted. Obviously, there is quite a bit of useful information that has not been presented in the subject report, and it leads to the question: were any of these parameters evaluated in the study?

Table ES-1 Information Pertinent to the Comparison of the Considered Alternatives

Parameter	Alternative 1	Alternative 3	Alternative 4	Alternative 6
Net ERDF Volume Used (m <sup>3</sup> )	78,000	(3,500)	(63,600)	6,200
Borrow Volume Used (m <sup>3</sup> )	86,900	1,500,000	1,400,000	460,000
Area of Containment Cap (m <sup>2</sup> )	0	107,874	107,874	58,830
Cum. Occup. Radiation Dose (man-rem)	342	58	58	42
Cum. Post-Closure Dose (man-rem)				
Industrial Scenario	?	?	?	?
Intruder Scenario	?	?	?	?
Active Remediation Period (years)	?	?	?	?
Post-Remediation Period (years)	?	?	?	?
Undiscounted Total Life-cycle Cost (millions of 2001 \$)	\$95.8	\$174.9	\$177.4	\$125.9

A subjective comparison of the performance of the alternatives under the nine CERCLA should also be provided in the executive summary, to help support the selection of the preferred alternative. One way to do this is illustrated in the table below. In this subjective comparison, the first two and the last two CERCLA criteria were postulated to be satisfied by all alternatives, leaving the relative performance of each alternative under the five balancing criteria to be evaluated. In the analysis given in the table, each criterion was assigned an equal weight (1), and the performance of each alternative under each of the balancing criteria was assigned a value of (1) if inferior, (2) if about equal, and (3) if superior. Obviously, the values given in the table are mine, and someone else may arrive at different performance values from reading the text in the document. The important thing is that such a comparison should appear in the executive summary. Of course, the decision-maker can also examine the text information and arrive at his own conclusions about what values are appropriate, and which alternative should be preferred.

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**Subjective Comparison of CDI Alternatives**

Alternative	CERCLA Balancing Criteria					Score
	Long-Term	Reduction	Short-Term	Implement	Cost	
Remove (1)	3	2	1	3	3	12
Intact w/o (3)	2	2	2	2	1	9
Intact w/ (4)	2	2	2	2	1	9
Partial dism. (6)	2	2	2	3	2	11

The cost information given in the report suggests that the present-value costs should be used to compare the estimated costs for the alternatives. Given the annual authorization nature of DOE funding, wherein no funds can be received and invested to provide for future expenditures, present-value costs are not an appropriate way to look at total life-cycle costs for a DOE project. Rather, the future expenditures should probably be escalated from current-year dollars to the year of expenditure, instead of discounted, when calculating life-cycle costs.

Another parameter that might be of interest to examine, when considering the disposition alternatives, would be the total amounts of cap area required ( in ERDF for disposition in Alternative 1, and the cap area required to cover the residual structure in Alternatives 3, 4, and 6). This comparison would provide a feel for the amount of 200 Area surface that would be permanently removed from future use by each alternative.

The large occupational radiation dose estimated for the removal alternative (1) made me wonder whether other reasonable scenarios for removal that would result in lower occupational dose had been considered. As a result, I developed two additional scenarios for removal and evaluated them using the data provided in the FFS for this project. The results of that analysis is provided in a file separate from these comments, for your examination (Considerations on the Proposed Plan for Remediation of the 221-U Facility).

The strong, safe environment within the lower portion of the canyon suggests that an alternative scenario for Alternative 6 might be to seal up the canyon cells, place an impervious concrete cover over the canyon floor level, and leave the lower structure standing, without an earthen cap. The upper portions of the canyon walls and the roof would be sent to ERDF for disposition. This approach would, however, necessitate cleanup of the waste sites presently planned to be covered by the wall and roof debris and the 221-U cap. An evaluation of this scenario might lead to an better preferred alternative.

ERRATA: There is a small discrepancy between the quantity of backfill material needed for Alternative 1 given on Page 13 and the quantity given on Page 20.