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OAK RIDGE NATIONAL LABORATORY

MANAGED BY LOCKHEED MARTIN ENERGY SYSTEMS, INC.
FOR THE U.S. DEPARTMENT OF ENERGY

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June 5, 1995

Mr. Robert Nelson
Nuclear Regulatory Commission
Mail Stop 7C-28
11545 Rockville Pike
Rockville, Maryland 20852

Dear Bob,

While preparing the description of the proposed action and alternatives for the Shieldalloy Cambridge decommissioning project, we have identified a number of questions that we had not originally recognized. In particular, Appendix A of PTI's "Preliminary Draft Feasibility Study for the Shieldalloy Metallurgical Corporation Site, Cambridge, Ohio" discusses separation processing and onsite dilution technologies. For both separation and dilution, the report argues that these technologies are not technically feasible. Technical infeasibility is an appropriate reason for excluding potential alternatives from detailed consideration in an environmental impact statement, however the arguments presented in Appendix A do not adequately show that the alternatives are infeasible.

The discussion of separation reports that only 1.7% of the slag would require disposal as low-level waste. This estimate suggests that there should be very great gains to be achieved by separation. If sampling uncertainties led to disposal of 5% of the slag as LLW instead of the entire volume of the piles the cost could be much lower and the potential adverse impacts on the environment and the community could be considerably reduced.

Separation is dismissed because "[t]hese slags do not have a consistent radiation signature, especially with respect to gamma emission. Since the detectors that would be used in mechanical sorting operation are sensitive to gamma radiation, there is a low probability that the slag thought to be 'clean' will indeed meet the release criteria." The meaning of this statement is not clear.

The fact that slags do not have a consistent radiation signature is exactly how one would expect it to be possible to sort the slags that exceed release criteria from those that do not. PTI should explain what kind of radiation signature is needed to separate slags? Only 1.7% of the slags exceed the release limit; PTI should explain why a screening protocol could not be developed that classifies everything that measurement indicates could exceed some conservative fraction (e.g., 5 or 7 pCi/g) the release limit as above the limit. Everything else could be treated as clean fill. PTI should explain why is it possible for Shieldalloy to make radiation measurements of chunks of slag at Newfield and separate contaminated from uncontaminated slags, but not at Cambridge?

We do not understand the perceived need to grind slag into small pieces. Most pieces less than 12 to 18 inches across should be fairly homogeneous. A few surface measurements should be sufficient to characterize the piece or determine if it is too inhomogeneous to characterize. Buttons may be too large to characterize with surface samples only, but the uranium and thorium would be expected to be found

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in a predictable part of the button. Those parts could be sampled. PTI should explain why some such procedure could not be implemented.

We are not persuaded by the arguments for rejecting the dilution alternative. A table at the top of page 10 of Appendix A reports average uranium-238 and thorium-232 activities have a total of 22.7 pCi/g for the East Slag Pile. This pile would need less than a 2:1 dilution. An alternative need not be feasible for the entire site to be reasonable. PTI should explain why dilution could not be used for the East Slag Pile or for the West Slag Pile if the soil/slag layer were removed.

The table on page 10 also appears to be inconsistent with the statement on page 8 that only 1.7% of the piles should require disposal as LLW. If only 1.7% of the East Pile is contaminated above 10 pCi/g then the contaminated part must have an average concentration of uranium and thorium of over 1000 pCi/g. On the other hand, if the table on the top of page 10 should read to indicate the average concentration of the contaminated 1.7%, then no off-site material would be needed to dilute the contaminated material to less than 10 pCi/g. PTI should explain these apparent inconsistencies.

With respect to the off-site disposal alternative, PTI gives no indication of where the slag would be shipped. We will need to make some assumption. Would you suggest we assume it would go to Barnwell or to Envirocare?

As we discussed, until we receive answers to the above questions we will assume that the dilution and separation alternatives are not feasible alternatives. If you have any questions, please call me at (615) 574-5216.

Sincerely,



Lance McCold

LNM:mh

cc: J. W. Terry
M. C. Wade