Comments on Draft Supplemental Site-Wide Stockpile Stewardship and Management Programmatic EIS, Lawrence Livermore National Laboratory

Comments of the Institute for Energy and Environmental Research on the Draft Supplemental Site-Wide Stockpile Stewardship and Management Programmatic EIS, Lawrence Livermore National Laboratory, *DOE/EIS-0348, February 2004*

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These comments on the Livermore Draft Site-Wide Programmatic EIS on stockpile stewardship (abbreviated here as SWPEIS) are restricted to the issues of the environmental and health impacts of plutonium processing covered in the SWPEIS. IEER may submit further comments at a later time.

The proposal to vastly expand plutonium storage and processing in the preferred alternative would convert Lawrence Livermore National Laboratory into a major industrial-scale plutonium processing site. This is a risky idea anywhere, but especially in a urban/suburban community, where there are homes very close to the boundary of the site and about a quarter of a mile from the processing buildings. Even Rocky Flats, located as it was in the Denver-Boulder metropolitan corridor did not have such close proximity of processing buildings to homes. The SWPEIS does not address this problem with any detail or technical depth. Specifically, it is essential that data relating to failure frequencies of equipment, past accident frequencies, accident records from comparable processing facilities at Rocky Flats, be incorporated into the risk analysis in Appendix D and Appendix N. The failure probabilities and source terms will lack scientific foundation and credibility until that is done.

The preferred alternative would process 100 kilograms of plutonium every year, mostly in oxide form and reduced it to metal (Appendix N). This is a large-scale operation for processing enough plutonium metal for 20 to 30 nuclear bombs (depending on the design). It would be 25 times the amount processed under the “No-Action Alternative” discussed in the EIS. Such a scale-up needs to be justified in the context of existing available plutonium processing facilities at Los Alamos National Laboratory, and the expansion of that capacity that has been proposed, including the upgrade of the CMR building at LANL. This alternative does not appear to have been considered at all. No processing at LLNL should be considered as the “no-action” alternative.

The SWPEIS states that “some changes in equipment and procedure” would be needed, mostly to reduce worker radiation doses. But a detailed analysis of these changes is not presented. Without such an analysis it is impossible to evaluate the postulated accident frequencies and source terms in Appendix D, or the routine radiation doses from plutonium processing. The SWPEIS proposes to use direct reduction of plutonium oxide with calcium. This is an exothermic reaction. The risks of accidents and process upsets, derived from prior experience, need to be presented in detail, based on experience with this specific process.

THE SWPEIS assumes that Livermore will receive feed materials from which americium has been

“completely removed” (p N-16); shipments would be from Hanford and SRS. What is the basis for assuming this? For instance, there are no operating processing facilities at Hanford that would allow for completely americium-free material to be received. This assumption appears to be quite unrealistic and needs to be justified in detail or changed. Given the importance of americium for both radiation doses as well as for waste management, it is essential that the SWPEIS have a more realistic assumption about americium contamination of the feed material. As it is even with the assumption of receipt of clean material and only 2 years of storage, a waste stream of up to about 10 kilograms of americium/plutonium metal per year is expected to be generated (p. N-16)

The SWPEIS indicates that the americium/plutonium metal buttons would either be sent to LANL or to WIPP. The State of New Mexico has stated that it will not allow waste material in WIPP that was not included in the 1995 TRU Waste Baseline Inventory Report (DOE/CAO-95-1121). [1] Pure TRU metal from Livermore or any other site is not included in that inventory. The SWPEIS is silent on this issue. It also does not specify the eventual disposition of the waste that would remain in case the plutonium/americium buttons are sent to LANL and some of the plutonium is recovered. Neither does it justify why these operations should not be done at LANL, so that unnecessary transport is avoided.

The production of large amounts of plutonium metal and its processing and evaporation so as to enable the isotopes to be separated by atomic vapor laser separation may entail significant risks that must be evaluated in the context of the urban/suburban location of LLNL.

IEER will present further comments in writing before the end of the comment period. But even a preliminary review of the plutonium processing aspects of the SWPEIS has revealed profound and fundamental deficiencies in this draft document. These deficiencies are so serious that the DOE should re-do the document and re-issue it as a draft so that a more thorough public discourse and public comment on this is possible.

Notes:

1. I would like to thank Don Hancock of the Southwest Research and Information Center for the information relating to the WIPP permit. ? Return