



RAS 11043

JAN 12 1993

MEMORANDUM FOR: Richard E. Cunningham, Director
Division of Industrial and
Medical Nuclear Safety, NMSS

FROM: Richard L. Bangart, Director
Division of Low-Level Waste Management
and Decommissioning, NMSS

SUBJECT: DISPOSITION OF DEPLETED URANIUM FROM LOUISIANA ENERGY
SERVICES (LES) LICENSE APPLICATION

I am responding to your request to review Louisiana Energy Services' (LES's) proposed plans for disposing of depleted uranium tails that would be generated from the proposed enrichment facility in Claiborne Parish, Louisiana. We focused our review on the cost estimate for disposing the depleted uranium tails that would be generated by the LES facility.

In the December 14, 1992 letter from Peter G. LeRoy (LES) to John Hickey (NMSS/IMNS), LES responded positively to several of the suggestions made in NRC's letter to LES on September 22, 1992 and the meeting between LES and NRC on November 13, 1992. In particular, the applicant has responded constructively to two of the Division of Low-Level Waste Management and Decommissioning's (LLWM's) stated concerns by presenting an additional option for disposal of the depleted uranium tailings (DUF₆) from the Claiborne Enrichment Center (CEC).

LLWM had expressed its concern about the relative instability of UF₆ as a waste form, and indicated that U₃O₈ would be preferable as a waste form because of its physical and chemical characteristics. We also stated that near-surface disposal was not acceptable for the large quantities of depleted uranium that would be generated at the CEC. In response to these comments, the new option presented by LES in the December 14, 1992 letter involves conversion of the DU tailings to U₃O₈. It also implies¹ that the depleted U₃O₈ would be disposed of in a facility other than a near-surface facility. The applicant did not, however, state that this option was the preferred approach for disposal, but simply added it to the options previously presented. Following the suggestion in John Hickey's September 22, 1992 letter to W. Howard Arnold (LES) and NRC's meeting with LES on November 13, 1992, the applicant has also begun to pursue the option of working with the Department of Energy, which has large quantities of depleted uranium.

¹ Although p. 2 of the letter states that for the purpose of the decommissioning cost estimate, "LES assumes that the depleted U₃O₈ would be disposed of in a facility, other than a near-surface disposal facility," the cost estimates in Tables 1 and 2 were in fact based on costs for above-ground disposal.

U.S. NUCLEAR REGULATORY COMMISSION

In the Matter of Louisiana Energy Services, L.P.

Docket No. 70-3103-M Official Exhibit No. NRS/PC 277

OFFERED by: Applicant/Licensee Intervenor NRS/PC
NRC Staff Other

IDENTIFIED on 10/27/05 Witness/Panel Staff Disposal

Action Taken: ADMITTED REJECTED WITHDRAWN

Reporter/Clerk Bethany Egan

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ADJUDICATIONS STAFF 11

However, our review of LES's December 14 letter identified three significant deficiencies:

1) Inadequate Cost Estimate

The cost estimate provided by LES for disposal of the DU_3O_8 tails is inadequate. LES provided a cost estimate of \$5.50/ton for disposal of DU_3O_8 in Table 2 of the December 14 letter based on Title X of the Energy Policy Act of 1992. In fact, that cost is a "reimbursement" granted to operators of uranium mills under Title II of the Uranium Mill Tailings Radiation Control Act. The \$5.40/ton cost cited for the Union Carbide Uravan Mill is also based on a disposal option that involves stabilization of the tailings at the land surface in accordance with requirements that are compatible with 10 CFR Part 40, Appendix A.

The type of operation that will be required to dispose of the depleted uranium tails from CEC is not comparable to the reclamation activities for stabilizing uranium mill tailings. There are three important differences between the two situations:

- ◆ Neither of the cost estimates for mill tailings cited by LES is relevant to proposed disposal options that involve deep mine disposal of DU_3O_8 , as proposed in NRC's September 22, 1992 letter and the November 13, 1992 meeting with LES.
- ◆ Most of the uranium mill tailings will be stabilized in place or on the site where they were originally deposited, rather than disposing them offsite at a facility that has been designed and constructed for the purpose of deep mine disposal.
- ◆ Mill tailings are much lower in uranium concentration than the depleted tails that would be generated by LES.

We anticipate that the cost for disposal of the depleted uranium tails that would be generated by the CEC would be considerably in excess of the cost estimates presented by LES. LES's estimate is so low that it is below the cost for disposal of municipal waste in many parts of the United States. It is difficult to envision a situation where it will be less expensive to dispose of a radioactive waste than municipal waste.

More realistic estimates of disposal costs could be developed based on the present costs for disposing of low-level radioactive waste. NRC has already stated that the quantities of DU to be generated by LES would be unsuitable for a facility licensed under 10 CFR Part 61. Since disposal costs generally increase with the level of activity of the waste, it is reasonable to assume that disposal costs for the LES wastes will exceed anticipated costs for low-level waste disposal in a Part 61 facility. Another example that could be used to provide an upper bound to the cost of disposing the depleted tails would be the unit costs for disposing of contact-handled transuranic waste at the Department of Energy's Waste Isolation Pilot Plant.

Therefore, LES needs to reconsider its cost estimates for disposal of the depleted uranium tails and propose more realistic estimates that reasonably reflect the anticipated costs for disposal.

2) Lack of Financial Assurance Mechanism

LES has not proposed a financial mechanism to assure that adequate funds will be available for disposal of the wastes, no matter what the method of disposal. As an operating cost, LES needs to set aside sufficient funds to cover the cost of waste disposal and to accumulate these funds as the waste is generated. The costs also need to include the additional expenses of conversion and transportation. The funds to cover these costs should be segregated from LES's assets and deposited in an external account that would not be administratively controlled by LES. The nature of the external fund could vary in form, but it should be available for the disposal of wastes at the appropriate time.

Therefore, LES needs to propose a specific financial mechanism to assure that the financial resources are available to cover the expenses of converting, transporting, and disposing of the depleted uranium tails from the CEC facility.

3) No Contingency Plan for Disposal

The NRC currently lacks assurance that LES can safely dispose of the wastes from the CEC if it cannot convince DOE to accept the CEC wastes.

Because of the similarity of wastes from LES with the significant stockpiles of depleted uranium wastes owned by DOE, it would be advantageous to LES if DOE accepted responsibility for disposal of the LES wastes (assuming a mutually-agreeable arrangement could be worked out). However, LES's proposed approach for disposal of the DU_2O_3 does not include a schedule for working with the Department of Energy and the U.S. Enrichment Corporation on developing a disposal alternative for the depleted uranium tails. Nor does the response address the authority of the Central Interstate Compact and other low-level radioactive waste compacts in approving disposal and intercompact import and export of low-level radioactive waste, including the depleted tails that would be generated at CEC.

Future arrangements with DOE might indeed obviate the need for LES to independently develop an acceptable method for disposal of depleted uranium. They could also conceivably result in the sale of the depleted uranium by LES to DOE, thus removing NRC's jurisdiction over the materials. However, unless and until DOE has accepted responsibility for disposal of the LES wastes, the NRC must have assurance that any waste generated by LES at the CEC facility will be safely disposed of and managed. Recognizing the impacts of the recent National Energy Policy Act may have on the national program to dispose of DOE's depleted uranium tails, a considerable amount of effort will likely be required over the next several years to tens of years to develop a suitable

disposal program for the tails. Thus, LES may not be able to identify a viable disposal facility for the tails for some time.

Until an appropriate disposal facility is identified and available for the LES wastes, it would be acceptable for LES to accumulate depleted tails at the CEC, provided that LES sets aside sufficient funds on a continuing basis as the waste is generated to ensure that LES will be able to pay for disposal of the tails when a disposal facility becomes available. The level of funding should assume non-DOE disposal until an agreement is reached with DOE.

LES should describe its plans for working with the DOE to develop a suitable disposal facility for depleted uranium tails, and provide a schedule for bringing these cooperative efforts to successful closure in a timely manner.

The above analysis is consistent with the approaches taken in the reviews of other decommissioning cases. Those approaches have a basic tenet that licensees should be able to decommission their facilities and sites, given the possession limit of material under the license, even if the licensee were to enter bankruptcy. Further, an acceptable disposal method must be identified for purposes of establishing the decommissioning costs, as required in the regulations. In this case, however, a departure from normal procedures may be warranted. Rather than insist on identifying an acceptable disposal alternative prior to licensing, one alternate approach might be to begin a "waste confidence" proceeding, similar to that for high level waste, in which NRC examines the question of DOE developing an acceptable and cost-effective disposal method for DU that could be used by LES. With an affirmative finding, LES would then have to estimate the amount of funds to be set aside for disposing the DU tails as the material accumulates.

Summary

LES should provide: (1) appropriate and reasonable cost estimates for the disposal of the tailings from the CEC process; (2) a mechanism to accumulate sufficient funds on an ongoing basis as the waste is generated to pay for ultimate conversion, transportation, and disposal of the tails; and (3) plans for working with the DOE to develop a suitable disposal facility for depleted uranium tails along with a schedule for bringing these cooperative efforts to successful closure in a timely manner.

This review was performed by Harvey Spiro, Fred Ross, Michael Weber, and John Thoma. If you have any questions or would like to discuss our comments, please contact me or have your staff contact Harvey Spiro at 504-2559.

Original Signed By
RICHARD L BANGART

Richard L. Bangart, Director
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