

June 23, 2004

UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

In the Matter of:	)	
	)	Docket No. 70-3103-ML
Louisiana Energy Services, L.P.	)	
	)	ASLBP No. 04-826-01-ML
(National Enrichment Facility)	)	

IDENTIFICATION OF REFERENCES REQUESTED BY  
THE LICENSING BOARD AT PREHEARING CONFERENCE

This submittal is a follow-up to certain discussions held during the prehearing conference conducted on Tuesday, June 15, 2004 in Hobbs, New Mexico. Specifically, in response to inquiries from the Board, Louisiana Energy Services, L.P. ("LES") indicated that it would identify references relating to (1) its recent commitment to the NRC Staff to use a 25% contingency factor for facility decommissioning, and (2) monitoring and related remedial action plans in the event that LES detects leakage from one of the proposed facility's engineered basins. *See* LES Prehearing Conference Tr. at 104, 109-10, 119, 159 (regarding use of a 25% contingency factor for facility decommissioning); LES Prehearing Conference Tr. at 258-59 (regarding proposed remedial action plans). LES believes that the following materials, copies of which are attached to this submittal, respond to the Board's requests:

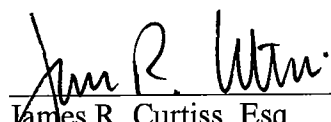
- (1) LES Responses to NRC Staff Safety Analysis Report (SAR) Requests for Additional Information (RAIs) D-1, D-2 and D-4, dated May 19, 2004. LES Response D-2, in particular, addresses LES's decision to use a 25% contingency factor for facility decommissioning.
- (2) LES Response to NRC Staff Environmental Report (ER) Request for Additional Information (RAI) 2-3, dated May 20, 2004. Paragraph (D) of

the response, in particular, addresses the mitigating actions to be taken in the event that the Treated Effluent Evaporative Basin liner(s) fail.

In addition, during the conference, LES noted that its responses to NRC Staff RAIs may be available on the NRC's website. As a matter of clarification, electronic versions of LES's RAI responses are available through the NRC's Agencywide Documents Access and Management System, or "ADAMS." The applicable URL is <http://www.nrc.gov/reading-rm/adams.html>.

Please contact us you have any questions regarding this submittal.

Respectfully submitted,

  
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Dated at Washington, District of Columbia  
this 23rd day of June 2004

**ATTACHMENT 1**

Louisiana Energy Services  
Response to April 19, 2004  
Request for Additional Information

## **LES Response**

The onsite fire brigade is intended to be an incipient fire brigade as classified under NFPA 600, "Standard on Industrial Fire Brigades," 1996 (e.g., not required to wear thermal protective clothing nor self-contained breathing apparatus during firefighting). There will be five members on site at all times.

LES is conducting a baseline needs assessment as committed to in the SAR. This assessment includes evaluation of the capabilities, resources, and response times for two local fire departments – Eunice Fire & Rescue and the Hobbs Fire Department. Both of these agencies have signed Memoranda of Understanding, which are attached to the NEF Emergency Plan. This needs assessment also evaluates other areas as identified in SAR Section 7.5.2.3 for overall staffing and equipment issues associated with the onsite brigade and offsite fire department response.

LES will provide the baseline needs assessment for NRC review on or before May 28, 2004. Based on the findings and recommendations of this assessment, the LES position regarding intended firefighting capability will be reconfirmed and/or modified, as required, and appropriate changes will be integrated in the next revision to the SAR.

## **Chapter 10.0 Decommissioning**

### **D-1 Section 10.1.3, pp. 10.1-1 and 10.1-2**

Provide the increased level of detail described in NUREG-1757, Volume 3, for the decommissioning cost estimate.

The regulations in 10 CFR 70.25 require applicants for a uranium enrichment facility to have decommissioning funding plans. NUREG-1757, Volume 3, "Consolidated NMSS Decommissioning Guidance," specifically Chapter 4, Section 4.1, "Cost Estimate (As Contained in a Decommissioning Funding Plan or Decommissioning Plan)" provides the information and acceptance criteria that should be used in both developing and evaluating the decommissioning cost estimate. Appendix A, Section A.3.1, "Preparing the Site Specific Cost Estimate," provides specific guidance on the information to be included in the cost estimate for the staff to be able to make a finding regarding the adequacy of the cost estimate, and reasonable assurance regarding funding to support decommissioning.

The applicant's cost estimate for the facility is a summary of the decommissioning costs and is presented in Table 10.1-1, "Total Decommissioning Costs," and does not include the supporting basis for how the applicant arrived at the summary estimates for each activity. For the staff to evaluate the decommissioning cost estimate, the applicant needs to provide the level of detail described to NUREG-1757, Volume 3, Section A.3.1.

## **LES Response**

The decommissioning cost estimate tables in SAR Section 10.1 will be revised to be consistent with Tables D-1.1A through D-1.14 presented in Attachment 2. The re-presentation is intended to provide the level of detail described in NUREG-1757, Volume 3, to the extent practicable. These revised tables do not contain classified information. The decommissioning cost estimate tables containing classified information are being provided by Urenco and will follow shortly. The estimated costs in the attached Tables are based on recent commercial decommissioning cost estimates and anticipated activity durations, and are intended to be in sufficient detail such

that the NRC staff would be able to make their finding regarding the adequacy of the cost estimate and reasonable assurance regarding funding to support decommissioning. The next revision to the SAR will also incorporate these attached Tables.

**D-2 Section 10.1.3, pp. 10.1-1 and 10.1.2**

Provide a thorough justification for using a contingency factor less than 25 percent.

The regulations in 10 CFR 70.25 require applicants for a uranium enrichment facility to have decommissioning funding plans. NUREG-1757, Volume 3, "Consolidated NMSS Decommissioning Guidance," specifically Chapter 4, Section 4.1, "Cost Estimate (As Contained in a Decommissioning Funding Plan or Decommissioning Plan)" has recommended a contingency factor of 25 percent.

The applicant is using a contingency factor of 10 percent and has based the reduced factor on past experience. While the staff agrees that a contingency factor lower than 25 percent may be warranted based on past experience at similar facilities, the applicant needs to provide a stronger supporting basis for a reduced contingency, and although a reduced contingency may be warranted, the staff believes 10 percent may not be sufficient. In addition, the staff believes that the contingency factor needs to be applied across the board, and includes applying the contingency factor to the cost of the tails disposition (also see Comment D-4).

**LES Response**

In the next revision to the SAR, the 10% contingency factor will be revised to 25% (which is also shown in Attachment 2 Table D-1.14) as recommended in NUREG-1757 for all decommissioning costs except those associated with tails disposition. The contingency factor associated with tails disposition is addressed in the response to RAI D-4.

**D-3 Section 10.2.1, p. 10.2-1**

Provide an unexecuted copy of the surety mechanism for decommissioning financial assurance.

The regulations in 10 CFR 70.25 require applicants for a uranium enrichment facility to have decommissioning funding plans. Decommissioning funding plans include a certification that financial assurance for decommissioning has been provided in the amount of a site-specific cost estimate and a signed original of the financial assurance instrument used. Under "Consolidated NMSS Decommissioning Guidance," NUREG-1757, it is acceptable to provide the executed surety instruments prior to the commencement of licensed activities or receipt of licensed material.

An unexecuted copy of the financial assurance instrument proposed to be used by the applicant needs to be reviewed to ensure that it meets the requirements in 10 CFR 70.25.

**LES Response**

LES is supplying an unexecuted copy of a surety bond as the mechanism for decommissioning fund financial assistance in the following pages. Information not available at this time has been left blank and will be provided when available.

#### **D-4 Section 10.3, pp. 10.3-1 through 10.3-3**

Provide a contingency factor for the processing and disposal of depleted uranium. Also, provide copies of the four reports used to prepare the tails disposition cost estimates.

The regulations in 10 CFR 70.25 require applicants for a uranium enrichment facility to have decommissioning funding plans. Decommissioning funding plans include a certification that financial assurance for decommissioning has been provided in the amount of a site-specific cost estimate and a signed original of the financial assurance instrument used.

NUREG-1757, Volume 3, "Consolidated NMSS Decommissioning Guidance," specifically Chapter 4, Section 4.1, "Cost Estimate (As Contained in a Decommissioning Funding Plan or Decommissioning Plan)" has recommended a contingency factor of 25 percent. Chapter 10.3 estimates 132,942 MT of depleted uranium will be generated over the thirty-year life of the facility. The cost of waste processing and disposal cost for the depleted uranium is estimated to be \$5.50 per MTU resulting in a total cost of \$731,181,000. The cost was based on a comparison of four studies which were developed between 1993 and 2002 and the earlier studies were escalated to 2002 dollars. The cost for disposal of the depleted uranium varied significantly. Because the disposition of the depleted uranium may not take place for more than 30 years, and due to the uncertainty in the studies, LES needs to include a contingency factor in the estimated costs of disposition of the depleted uranium.

In Section 10.3, the applicant has prepared a cost estimate using four references. The staff needs these cost estimate references to evaluate the cost estimate basis.

#### **LES Response**

Referencing NEF SAR Section 10.3 and Table 10.3-1, the \$5.50 per kgU used to calculate the tails disposal cost as a component of total decommission costs, is based on LES consideration of three sets of relevant cost information sources:

- (1) A 1997 study by Lawrence Livermore National Laboratory (LLNL) ("Cost Analysis Report for the Long-Term Management of Depleted Uranium Hexafluoride," (UCRL-AR-127650)) from which LES derived a cost of \$5.06 per kgU;
- (2) The 2002 Uranium Disposition Services, LLC (UDS) contract with the U.S. Department of Energy (DOE) ("DUF<sub>6</sub> Contract" (DE-AC05-02OR22717)) from which LES derived a cost of \$3.92 per kgU;
- (3) Depleted uranium tails disposition cost estimates submitted to the NRC in connection with the Claiborne Enrichment Center license application in June 1993 ("Claiborne Enrichment Center (CEC) Disposition of Depleted Uranium Hexafluoride," letter dated June 30, 1993) from which LES derived a cost of \$6.74 per kgU.

The simple average of these estimates yields a value of \$5.24 per kgU  $\{(5.06+3.92+6.74)/3\}$ . It is noteworthy that available information has supported the calculation of lower estimates of the cost of tails disposal over time. That is, the more recent the date of the cost estimate, the lower the estimated disposal cost. Nonetheless, LES conservatively selected \$5.50 per kgU as its estimated unit cost for depleted tails disposition. Information from Urenco, who has operational experience with respect to the disposition of depleted uranium tails, is supportive of this cost estimate of \$5.50 per kgU.

It should also be noted that the highest cost estimate (\$6.74 per kgU) is at least 10 years old and was based on the information available at that time. The value of \$5.50 per kgU used in the decommissioning cost estimate is 22% above the average of the more recent LLNL and UDS cost estimates, which is \$4.49 per kgU  $\{(5.06+3.92)/2\}$ . The LLNL Cost Analysis Report (page 30) states that its cost estimate already includes a 30% contingency in the capital costs of the process and manufacturing facilities, a 20% contingency in the capital costs of the balance of plant; and a minimum of a 30% contingency in the capital costs of process and manufacturing equipment.

Also, the 1997 LLNL cost information is five years older than the more recent 2002 UDS cost information. The value of \$5.50 per kgU used in the decommissioning cost estimate for tails disposition is 40% greater than the 2002 UDS-based cost estimate of \$3.92 per kgU, which does not include offset credits for HF sales or proceeds from the sale of recycled products.

In summary, there is already substantial margin between the value of \$5.50 per kgU being used by LES in the decommissioning cost estimate and the most recent information (2002 UDS) from which LES derived a cost estimate of \$3.92 per kgU. Accordingly, LES does not believe that a further contingency is warranted.

The three referenced documents (non-proprietary, and cited above) supporting the tails disposition cost estimate have been submitted by letter NEF#04-013 dated May 12, 2004, from R. M. Krich (Louisiana Energy Services, L. P.) to Director, Office of Nuclear Material Safety and Safeguards (NRC). Urenco confirmatory information (proprietary material) supporting the tails disposition cost estimate will be submitted once clearance is obtained from Urenco and its uranium disposition contractor.

## **Chapter 11.0 Management Measures**

### **MM-1 Section 11.1, p. 11.1-1 through 11.1-12**

Describe the Configuration Management (CM) process and controls that are in place during design, license application review, construction, and operation to assure that the design, engineering, procurement, and construction drawings and documents and the ISA are consistent and current.

10 CFR 70.72(a) requires that the licensee shall establish a configuration management system to evaluate, implement, and track each change to the site, structures, processes, systems, equipment, components, computer programs, and activities of personnel.

Section 11.1 states that the ISA will be under the CM program, but additional clarification of the design/procurement/construction and ISA interfaces and how the design basis is controlled and assured is needed to clarify the management measure adequacy in this area.

### **LES Response**

The configuration management controls are discussed in three phases, i.e., design, construction, and operation, as outlined in SAR Sections 11.1.4.1, 11.1.4.2, and 11.1.4.3, respectively. Full implementation of the regulatory required 10 CFR 70.72, configuration management system, will not occur until the time of license issuance (i.e., during the latter part of the design phase). SAR Section 11.1.4.1 and Section 11.1.4.2 will be revised to more clearly reflect the requirement to have configuration management system procedures and processes that fully comply with 10 CFR 70.72 upon issuance of the NEF Materials License. During the

**ATTACHMENT 1**

Louisiana Energy Services  
Response to April 29, 2004,  
Request for Additional Information

## 2-3 Treated Effluent Evaporative Basin (TEEB):

- A. Provide specific information on the materials and construction methods to be used for the double-lined TEEB.
  - Section 4.4.7 describes controls of impacts to water quality including the TEEB which is double-lined with leak detection equipment installed and open to allow evaporation.
- B. Describe the methodology used to determine that the basin liner(s) would last the entire life of the proposed NEF.
- C. Describe the proposed monitoring system used to determine whether the liner(s) has been breached. Provide specific information on the equipment and its alarm activation and operation system.
- D. Describe the proposed mitigating actions to be implemented if the liner(s) fails.
- E. Provide the process for decommissioning the TEEB and disposing of the soil and sludge as low-level waste.
  - Based on Section 2.1.2.3.4, the TEEB soil/sludge would contain a complexing agent (citrate), Uranium, and other decay product radionuclides from the 30 years of operation.
- F. Identify the treatment method(s) used to treat the citrate in the liquid effluent prior to discharging it into the TEEB.
- G. Verify that the amount of chelating agent (i.e., citric acid) in the TEEB's soil/sludge would be acceptable for low-level waste disposal.

### LES Response

- A. Materials and construction methods to be used for the double-lined Treated Effluent Evaporative Basin (TEEB) will be in compliance with current New Mexico Environment Department (NMED) Guidelines for Liner Material and Site Preparation for Synthetically-Lined Lagoons, December 1995.

The TEEB will have two, geosynthetic fabric liners. The geosynthetic liner material will be chemically compatible with potential liquid effluents to be discharged to the TEEB, resistant to sunlight deterioration, and of sufficient thickness to have adequate tensile strength and tear and puncture resistance. The liner material will be selected during final design and may consist of high-density polyethylene (HDPE) or ethylene interpolymer alloy (Coolgard<sup>®</sup> XR-5<sup>®</sup> or Ultra Tech<sup>®</sup>).

Methods that will be used to construct the TEEB, from the bottom up, are as follows.

- A minimum 0.61-meter (2-foot) thick layer of on-site clay-type soils, free from rock, and compacted at optimum moisture content to 95% of Standard Effort, i.e., American Standard for Testing and Materials (ASTM) D698, "Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Standard Effort

(12,400ft-lbf/ft<sup>3</sup> (600kN-m/m<sup>3</sup>))," (applicable version at time of design) will be prepared. The plastic limit of the clay will be approximately 20 and the material will be compacted to +3% of its optimum moisture content.

- A geosynthetic fabric liner will be installed on top of the prepared soil layer. This will serve as the secondary (lower) liner.
- Leak collection piping and associated sump and pumping system, to pump any leakage back to the TEEB, will then be placed.
- A geomembrane drainage mat with the imbedded leak collection piping will be added.
- The primary (upper) geosynthetic fabric liner will be installed.
- The primary liner will then be covered by a minimum 0.3-meter (1-foot) thick prepared layer of on-site clay, free of rock, and compacted at optimum moisture content.
- Liner installation will be by manufacturer certified installers and will be installed and tested according to project specifications.

In addition, the TEEB will be enclosed with animal-friendly fencing to prevent wildlife and unauthorized personnel access. It will also be covered by surface netting or other suitable devices, to exclude waterfowl access to basin water.

B. The methodology that will be used to determine that the basin liner(s) will last the entire life of the proposed NEF is as follows:

- A geosynthetic fabric liner determined to be chemically compatible with basin contents will be selected. The selection process will include consultation with liner manufacturers. This will occur during final design.
- The selected liner will have a projected service life in excess of the projected life of NEF.
- Liner thickness will comply with current NMED Guidelines for Liner Material and Site Preparation for Synthetically-Lined Lagoons, December 1995 and with the recommendations of the liner manufacturer.
- Liner material will be ultraviolet resistant and covered by a minimum of 0.3-meter (1-foot) thick prepared layer of on-site clay, free of rock, and compacted at optimum moisture content.
- The liner material will be pre-approved by a professional engineer and the NMED, as required by current NMED Guidelines for Liner Material and Site Preparation for Synthetically-Lined Lagoons, December 1995.
- Site preparation for basin construction will meet or exceed current NMED Guidelines for Liner Material and Site Preparation for Synthetically-Lined Lagoons, December 1995.

