April 6, 2006

Mr. Rod Krich, Vice President
Licensing, Safety, and Nuclear Engineering
Louisiana Energy Services
2600 Virginia Avenue NW, Suite 610
Washington, DC 20037

SUBJECT: SAFETY EVALUATION REPORT SUPPLEMENT ON REVIEW OF U.S. DEPARTMENT OF ENERGY DEPLETED URANIUM DISPOSITION COST ESTIMATE (LOUISIANA ENERGY SERVICES GAS CENTRIFUGE URANIUM ENRICHMENT FACILITY)

Dear Mr. Krich:

On June 6, 2005, you submitted a U.S. Department of Energy (DOE) report providing the basis for DOE's cost estimate for dispositioning depleted uranium generated at your proposed uranium enrichment facility in Lea County, New Mexico. On August 12, 2005, December 30, 2005, and February 27, 2006, you provided additional information clarifying the DOE report basis. On March 24, 2006, you submitted Revision 11 to the "National Enrichment Facility Safety Analysis Report," for the proposed uranium enrichment facility in Lea County, New Mexico. This revision amended the Safety Analysis Report (SAR) to incorporate changes in the depleted uranium disposition cost bases and commitments to ensure that the decommissioning financial assurance funding would always be equal to or greater than the DOE cost estimate. We completed our review of the above information and are enclosing a supplement to our Safety Evaluation Report (SER).

If you have any questions, please contact Mr. Timothy C. Johnson at 301-415-7299.

Sincerely,

\RA\

Joseph G. Giitter, Chief
Special Projects Branch
Division of Fuel Cycle Safety
and Safeguards
Office of Nuclear Material Safety
and Safeguards

Enclosure: Safety Evaluation Report Supplement
Docket: 70-3103

cc:
William Szymanski/DOE
Monty Newman/Hobbs
Peter Miner/USEC
Glen Hackler/Andrews
Matt White/Eunice
Jerry Clift/Hartsville
Joseph Malherek/PC
Clay Clark/NMED
Roger Mulder/Texas
Fred Seifts/Jal
James Curtiss/W&S
Betty Rickman/Tatum
Lue Ethridge/Lea Cty
Richard Ratliff/Texas
CO'Claire/Ohio
Ron Curry/NMED
Patricia Madrid/NMAG
Lindsay Lovejoy/NIRS
Troy Harris/Lovington
James Ferland/LES
John Parker/NMED
M. Marriotte/NIRS
Lee Cheney/CNIC
D. Watchman-Moore/NMED
Glen Smith/NMAG

April 6, 2006

Mr. Rod Krich, Vice President
Licensing, Safety, and Nuclear Engineering
Louisiana Energy Services
2600 Virginia Avenue NW, Suite 610
Washington, DC 20037

SUBJECT: SAFETY EVALUATION REPORT SUPPLEMENT ON REVIEW OF U.S. DEPARTMENT OF ENERGY DEPLETED URANIUM DISPOSITION COST ESTIMATE (LOUISIANA ENERGY SERVICES GAS CENTRIFUGE URANIUM ENRICHMENT FACILITY)

Dear Mr. Krich:

On June 6, 2005, you submitted a U.S. Department of Energy (DOE) report providing the basis for DOE's cost estimate for dispositioning depleted uranium generated at your proposed uranium enrichment facility in Lea County, New Mexico. On August 12, 2005, December 30, 2005, and February 27, 2006, you provided additional information clarifying the DOE report basis. On March 24, 2006, you submitted Revision 11 to the "National Enrichment Facility Safety Analysis Report," for the proposed uranium enrichment facility in Lea County, New Mexico. This revision amended the Safety Analysis Report (SAR) to incorporate changes in the depleted uranium disposition cost bases and commitments to ensure that the decommissioning financial assurance funding would always be equal to or greater than the DOE cost estimate. We completed our review of the above information and are enclosing a supplement to our Safety Evaluation Report (SER).

If you have any questions, please contact Mr. Timothy C. Johnson at 301-415-7299.

Sincerely,

\RA\

Joseph G. Giitter, Chief
Special Projects Branch
Division of Fuel Cycle Safety
and Safeguards
Office of Nuclear Material Safety
and Safeguards

Enclosure: Safety Evaluation Report Supplement
Docket: 70-3103
cc: William Szymanski/DOE
Monty Newman/Hobbs
Peter Miner/USEC
Glen Hackler/Andrews
Matt White/Eunice
Jerry Clift/Hartsville
Joseph Malherek/PC
Clay Clark/NMED
Roger Mulder/Texas
Fred Seifts/Jal
James Curtiss/W&S
Betty Rickman/Tatum
Lue Ethridge/Lea Cty
Richard Ratliff/Texas
CO'Claire/Ohio
Ron Curry/NMED
Patricia Madrid/NMAG
Lindsay Lovejoy/NIRS
Troy Harris/Lovington
James Ferland/LES
John Parker/NMED
M. Marriotte/NIRS
Lee Cheney/CNIC
D. Watchman-Moore/NMED
Glen Smith/NMAG

Docket: 70-3103
DISTRIBUTION: Docket: 70-3103
FCSS r/f SPB r/f

JGiitter/FCSS	MFederline/NMSS	JStrosnider/NMSS	RPierson/FCSS
YFaraz/SPB	LClark/OGC	JDavis/DWM	MGalloway/TSG
SFlanders/DWM	JPark/DWM	DMcIntyre/OPA	RVirgilio/OSTP
TCombs/OCA	KEverly/NSIR	RTrojanowski/Reg II	RHannah/Reg II
DAyres/Reg II	DSeymour/Reg II	JHenson/Reg II	KClark/Reg II
KO'Brien/Reg III	VMitlyng/Reg III	WMaier/Reg IV	FBurrows\TSG
TFredricks/DWM	Hearing file	LES website - YES	

ML060950326

OFC	GCFLS	GCFLS	OGC	GCFLS	SPB
NAME	TJohnson:	LWilliamson	LClark	BSmith	JGiitter
DATE	4/04/06	4/05 /06	4/ 04/06	4/ 06/06	4/ 06 /06

OFFICE RECORD COPY

Louisiana Energy Services National Enrichment Facility
Safety Evaluation Report Supplement on
Decommissioning Financial Assurance

At the time of the initial license application for a uranium enrichment facility, the applicant is required to submit a decommissioning funding plan (DFP). The purpose of NRC's review of the DFP is to determine whether the applicant has considered decommissioning activities that may be needed in the future, has performed a credible site-specific cost estimate for those activities, and has presented NRC with financial assurance to cover the cost of those activities in the future. The DFP therefore should contain an overview of the proposed decommissioning activities, the methods used to determine the cost estimate, and the financial assurance mechanism. This overview must contain sufficient details to enable the reviewer to determine whether the decommissioning cost estimate is reasonably accurate.

In its Safety Analysis Report (SAR) (LES, 2006b), the applicant presented two approaches for dispositioning depleted uranium tails generated in the operation of its uranium enrichment plant. The applicant stated that its preferred approach was to use a commercial pathway for dispositioning depleted uranium with a contingency approach using U.S. Department of Energy (DOE) disposition services under the USEC Privatization Act of 1996. The applicant provided additional information and clarifications pertaining to the cost estimate for dispositioning depleted uranium using the DOE pathway. In this Safety Evaluation Report Supplement, the NRC staff is documenting its review of the DOE cost estimate for dispositioning depleted uranium. This supplement provides the staff's evaluation of the DOE cost estimate and determination, based on review of the supplementary material submitted by the applicant, that there is reasonable assurance that the applicant will provide sufficient funding for dispositioning of depleted uranium tails that will be generated by the applicant.

1 REGULATORY REQUIREMENTS

The following NRC regulations require planning, financial assurance, and record-keeping for decommissioning, as well as procedures and activities to minimize waste and contamination:

10 CFR 70.22(a)(9)	"Decommissioning Funding Plan"
10 CFR 70.25	"Financial Assurance and Recordkeeping for Decommissioning"
10 CFR 70.38	"Expiration and Termination of Licenses and Decommissioning of Sites and Separate Buildings or Outdoor Areas"
10 CFR 20.1401-1406	"Radiological Criteria for License Termination" (Subpart E)

2 REGULATORY ACCEPTANCE CRITERIA

The "Standard Review Plan for the Review of a License Application for a Fuel Cycle Facility," NUREG-1520 (NRC, 2002) and "Consolidated NMSS Decommissioning Guidance," NUREG-1757 (NRC, 2003), define relevant regulatory guidance and appropriate acceptance criteria for decommissioning and DFPs contained in license applications.

Enclosure

3 STAFF REVIEW AND ANALYSIS

Under Section 3113 of the USEC Privatization Act of 1996 (Title 42 U.S. Code 2297h), DOE, "at the request of the generator, shall accept for disposal low-level radioactive waste, including depleted uranium, if it is ultimately determined to be low-level radioactive waste, generated by any person licensed by the Nuclear Regulatory Commission to operate a uranium enrichment facility." In addition, the generator must reimburse DOE for the disposal of depleted uranium in an amount equal to DOE's costs, including a pro rata share of any capital costs. On January 18, 2005, the Commission issued an order stating that depleted uranium was a low-level radioactive waste (NRC, 2005). Therefore, if the applicant requests, DOE is required under the USEC Privatization Act of 1996 to accept the depleted uranium generated by the applicant. At the request of the applicant, DOE provided a cost estimate for dispositioning depleted uranium generated by the applicant (DOE, 2005).

The staff reviewed the following information submitted by the applicant concerning the cost estimate for DOE deconversion and disposal of depleted uranium generated by the applicant:

- March 1, 2005, letter containing a cost estimate from the DOE for deconversion and disposal of the applicant's depleted uranium tails (DOE, 2005);
- Proprietary report from DOE consultant LMI Government Consulting entitled "An Analysis of DOE's Cost to Dispose of DUF6 (Depleted Uranium Hexaflouride)," Report DE523T1, December 2004 (DOE, 2004), upon which the DOE cost estimate was based; this report was submitted to the NRC on June 6, 2005 (LES, 2005a);
- Applicant responses (LES, 2005b), dated August 12, 2005, to an NRC request for additional information;
- Applicant clarifications (LES, 2005c), dated December 30, 2005, in response to teleconferences between the staff and the applicant on August 31, 2005, and November 16, 2005;
- Applicant clarifications (LES, 2006a), dated February 27, 2006, in response to a teleconference on January 27, 2006; and
- Applicant amendment to Chapter 10 of the SAR (LES, 2006b), dated March 24, 2006, reflecting the addition of funding obligations for cylinder washing, changes in the DOE cost estimate, and a commitment to maintaining the total uranium disposition obligation at least in the amount of the DOE cost estimate.

In the March 1, 2005, letter from DOE (DOE, 2005), DOE indicated that its cost estimate for dispositioning depleted uranium in 2004 dollars would be \$2.68/kg UF_6 for deconversion, \$0.11/kg UF_6 for transportation, \$0.003/kg UF_6 for storage, and \$0.55/kg UF_6 for byproduct disposal and decommissioning of the deconversion plant. The total amount for depleted uranium disposition would be \$3.34/kg UF_6 or \$4.91/kg U. Subsequently, the disposal cost was revised by DOE to correct for an error in computing the equivalent uniform annual cost. The revised disposal and decommissioning cost is \$0.39/kg UF_6 and the revised total cost is

$3.18/kg UF_6 or $4.68/kg U (LES, 2005b). In addition, the applicant will add a 25 percent contingency factor to the total DOE estimate for a total estimate of $5.85/kg U (LES, 2005b and LES, 2006b).

In the DOE report explaining the basis for its cost estimate (DOE, 2004), DOE considered six cost scenarios, as follows:

> Scenario 1: DOE processes the applicant's depleted uranium along with its own depleted uranium concurrently at the deconversion facility in Paducah, Kentucky;
>
> Scenario 2: DOE processes the applicant's depleted uranium along with its own depleted uranium concurrently at the deconversion facility in Portsmouth, Ohio;
>
> Scenario 3: DOE processes its own depleted uranium first and then the applicant's depleted uranium at the deconversion facility in Paducah, Kentucky;
>
> Scenario 4: DOE processes its own depleted uranium first and then the applicant's depleted uranium at the deconversion facility in Portsmouth, Ohio;
>
> Scenario 5: DOE adds an additional deconversion line at the deconversion plant in Paducah, Kentucky, to increase its total annual capacity from 18,000 metric tons of UF_6 to 24,750 metric tons of UF_6;
>
> Scenario 6: DOE adds an additional deconversion line at the deconversion plant in Portsmouth, Ohio, to increase its total annual capacity from 13,500 metric tons of UF_6 to 20,250 metric tons of UF_6.

For each of the above scenarios, DOE calculated the depleted uranium disposition costs. The highest cost scenarios (Scenarios 2 and 4) were used as the basis for the cost estimate provided to the applicant.

The staff reviewed the above information to determine if all appropriate costs were considered and the information was adequately documented and reasonable. The staff reviewed the cost estimates for the deconversion of the depleted uranium tails at a DOE facility, including a pro rata share of capital expenses (including construction and decontamination and decommissioning) and operational costs. In addition, the staff reviewed the costs of transportation of depleted uranium to the deconversion site and transportation of the byproducts of the tails deconversion (depleted uranium and calcium fluoride) to a disposal facility, storage of tails prior to disposal, and disposal.

The operational costs include costs for deconversion operations, cylinder management, disposal activities (including waste preparation and characterization, and transportation to and disposal of depleted uranium oxides and calcium fluoride at a low-level radioactive waste disposal facility), plant management and administration, and a management reserve and fee. The pro rata share of the capital costs was determined by allocating the proportion of the total proposed baseline construction, decontamination, and decommissioning costs as determined by the ratio of UF_6 to be processed from the applicant versus DOE.

The cost estimate properly does not assume any resale or reuse of products resulting from the deconversion process. Since DOE plans to use the incoming UF_6 cylinders as disposal containers for the depleted uranium oxides generated by deconversion, the cost to prepare the cylinders as disposal containers is included in the operational costs of the cost estimate. Since construction of the deconversion facilities will be performed under a DOE contract, where the contractor will be reimbursed for construction costs as they occur, the contractor will have no need to take out construction loans and account for debt service and cost of capital. The applicant determined that the cost of loading cylinders at the uranium enrichment plant site is negligible.

The applicant's current commitment in the DFP cost estimate for the disposition of depleted uranium using a commercial disposition pathway is $5.28/kg U based on its original estimate of $4.68/kg U and the addition of $0.60/kg U for cleaning cylinders to levels needed for recertification or for release for unrestricted use (LES, 2006b). With the 25 percent contingency factor the total amount to be funded in 2004 dollars for the commercial disposition pathway is $6.60/kg U. This commitment for financial assurance exceeds the cost estimate for deconversion and disposal services provided by DOE (LES, 2006b). Based on its evaluation of the material described above, the staff considers that the applicant has adequately supported its position that adequate funds will be available at any point during the life of the proposed facility to pay the DOE to disposition depleted uranium tails from the facility if the applicant is unable to do so.

Because the applicant is now committing to ensure that its cost estimate for dispositioning depleted uranium using a commercial dispositioning path will also be equal to or greater than the DOE cost estimate, the staff is imposing the following license conditions:

"1. The licensee shall provide final copies of the proposed financial assurance instruments to NRC for review at least six months prior to the planned date for obtaining licensed material, and provide to NRC final executed copies of the reviewed financial assurance instruments prior to the receipt of licensed material. The amount of the financial assurance instrument shall be updated to current year dollars and include any applicable changes to the decommissioning cost estimate. The decommissioning cost estimate shall include an update to the U.S. Department of Energy (DOE) depleted uranium disposition cost estimate with a 25 percent contingency factor. The total amount funded for depleted uranium disposition shall be no less than the updated DOE cost estimate with the 25 percent contingency factor.

2. The Decommissioning Funding Plan cost estimate shall be updated as follows:

   a. In the first executed financial assurance instrument submitted prior to receipt of licensed material, the licensee shall provide full funding for decontamination and decommissioning of the full-size facility.

   b. In the first executed financial assurance instrument submitted prior to receipt of licensed material, the licensee shall provide funding for the disposition of depleted uranium tails in an amount needed to disposition the first three years of depleted uranium tails generation.

c. Subsequent updated decommissioning funding estimates and revised funding instruments for facility decommissioning shall be provided, at a minimum, every three years. Any proposed reduction based on changes to module phase-in shall be submitted six months prior to the scheduled operation of the facility module.

d. Subsequent updated decommissioning cost estimates and revised funding instruments for depleted uranium disposition shall be provided annually on a forward-looking basis to reflect projections of depleted uranium byproduct generation. Each updated depleted uranium disposition cost estimate shall include an update to the DOE depleted uranium disposition cost estimate. The total amount funded for depleted uranium disposition shall be no less than the updated DOE cost estimate with a 25 percent contingency factor.

3. The Decommissioning Funding Plan cost estimates shall be provided to NRC for review, and subsequently, after resolution of any NRC comments, final executed copies of the financial assurance instruments shall be provided to NRC."

4 EVALUATION FINDINGS

The NRC staff has evaluated the applicant's decommissioning financial assurance plan in accordance with NUREG-1520 (NRC, 2002) and NUREG-1757 (NRC, 2003). On the basis of this evaluation, the NRC staff has determined that the applicant's financial assurance for decommissioning based on the DOE cost estimate for dispositioning depleted uranium complies with NRC's regulations and provides reasonable assurance of protection for workers, the public, and the environment.

5 REFERENCES

(DOE, 2004) U.S. Department of Energy (DOE), "An Analysis of DOE's Cost to Dispose of DUF6 (Depleted Uranium Hexaflouride)," Report DE523T1, December 2004.

(DOE, 2005) U.S. Department of Energy (DOE), letter to Louisiana Energy Services, "Conversion and Disposal of Depleted Uranium Hexafluoride (DUF6) Generated by Louisiana Energy Services, LP (LES)," March 1, 2005.

(LES, 2005a) Louisiana Energy Services (LES) letter to U.S. Nuclear Regulatory Commission, "Transmittal of Department of Energy Report and Application for Withholding Information from Public Disclosure," June 6, 2005.

(LES, 2005b) Louisiana Energy Services (LES) letter to U.S. Nuclear Regulatory Commission, "Response to the NRC Request for Additional Information on Depleted Uranium Disposition Costs and Application for Withholding Information from Public Disclosure," August 12, 2005.

(LES, 2005c) Louisiana Energy Services (LES) letter to U.S. Nuclear Regulatory Commission, "Response to NRC Request for Clarifications on LES Response to NRC Request for Additional Information on Depleted Uranium Disposition Costs and Application for Withholding Information from Public Disclosure," December 30, 2005.

(LES, 2006a) Louisiana Energy Services (LES) letter to U.S. Nuclear Regulatory Commission, "Responses to NRC Request for Clarifications on Depleted Uranium Disposition Costs and Fuel Cycle Facility Performance Indicator Program and Application for Withholding Information from Public Disclosure," February 27, 2006.

(LES, 2006b) Louisiana Energy Services (LES) "National Enrichment Facility Safety Analysis Report," Revision 11, March 24, 2006.

(NRC, 2002) U.S. Nuclear Regulatory Commission (NRC). NUREG-1520, "Standard Review Plan for the Review of a License Application for a Fuel Cycle Facility," 2002.

(NRC, 2003) U.S. Nuclear Regulatory Commission (NRC). NUREG-1757, Volume 3, "Consolidated NMSS Decommissioning Guidance - Financial Assurance, Recordkeeping, and Timeliness," 2003.

(NRC, 2005) U.S. Nuclear Regulatory Commission (NRC). Commission Memorandum and Order CLI-05-05. January 18, 2005.