

RELATED CORRESPONDENCE

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UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

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BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

OFFICE OF SECRETARY
RULEMAKINGS AND
ADJUDICATIONS STAFF

In the Matter of:

Louisiana Energy Services, L.P.

(National Enrichment Facility)

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Docket No. 70-3103-ML

ASLBP No. 04-826-01-ML

APPLICANT'S SUPPLEMENTAL RESPONSES TO INTERROGATORIES
FROM NUCLEAR INFORMATION AND RESOURCE SERVICE AND
PUBLIC CITIZEN AND THE ATTORNEY GENERAL OF NEW MEXICO

I. INTRODUCTION

On September 8 and 9, 2004, respectively, the Attorney General of New Mexico ("AGNM") and Nuclear Information and Resource Service and Public Citizen ("NIRS/PC") filed interrogatories directed to applicant Louisiana Energy Services, L.P. ("LES").¹ LES initially responded to these interrogatories on September 23, 2004, asserting objections to a number of the interrogatories.² On October 4, 2004, NIRS/PC and the AGNM each filed motions to compel³ responses from Louisiana Energy Services, L.P. ("LES"). In accordance with the

¹ "Interrogatories and Document Requests on Behalf of Petitioners Nuclear Information and Resource Service and Public Citizen to Applicant Louisiana Energy Services, L.P." (Sept. 9, 2004); "New Mexico Attorney General's Interrogatories, Requests for Production and Identification of Expert Witness" (Sept. 8, 2004).

² "Applicant's Objections and Responses to Interrogatories from Nuclear Information and Resource Service and Public Citizen" (Sept. 23, 2004); "Applicant's Objections and Responses to Interrogatories from New Mexico Attorney General" (Sept. 23, 2004).

³ "Motion To Compel Responses To Interrogatories By Applicant Louisiana Energy Services, L.P. on Behalf of Petitioners Nuclear Information and Resource Service and Public Citizen" (Oct. 4, 2004) ("NIRS/PC Motion to Compel"); "New Mexico Attorney

Atomic Safety and Licensing Board's ("Licensing Board") Memorandum and Order (Discovery Rulings) dated October 20, 2004 ("Board Discovery Rulings"), LES herein provides supplemental responses to the NIRS/PC and AGNM interrogatories identified below.

II. SUPPLEMENTAL RESPONSES TO INTERROGATORIES

A. NIRS/PC Interrogatories

26. *At page 1.1-9 of the Environmental Report, it is said that "the annual nameplate capability [of the Paducah gaseous diffusion plant] of 11.3 million [SWU] is not physically attainable without capital upgrades to the plant, which are not expected." As to the capital upgrades, please state:*
- a. *A brief description of each upgrade.*
 - b. *The projected capital and operating cost of such upgrade.*
 - c. *The contribution such upgrade would make to the capacity of the plant.*
 - d. *The capacity of the Paducah plant without such upgrade.*
 - e. *An explanation why such upgrade is not expected, and*
 - f. *Please describe all documents relating or referring to such possible upgrades.*

RESPONSE:

- a. LES has no specific knowledge of any upgrade.
- b. No further response is required. The Board directed LES to respond to Interrogatory 26, "with the exception of . . . Subpart b," which the Board stated "appears to run afoul of the concerns" addressed in its ruling. See Board Discovery Rulings, at 2-3.
- c. LES has no specific knowledge of the contribution such upgrade would make to the capacity of the plant.
- d. Environmental Report ("ER") Reference USEC 2002a states: "USEC estimates that the maximum capacity of the existing equipment is about 8 million SWU per year." See LES mandatory initial disclosures at LES-02449.

General's Motion to Compel Responses to Interrogatories By Louisiana Energy Services, L.P." (Oct. 4, 2004).

- e. LES is not aware of any statement by USEC indicating that it plans to make any capital upgrades to the Paducah Gaseous Diffusion Plant ("GDP"). However, LES is aware that USEC is actively pursuing licensing and construction of a new uranium enrichment plant based upon gas centrifuge technology and plans to ultimately shut down the Paducah GDP. See Environmental Report for the American Centrifuge Plant in Piketon, Ohio (Revision 0), NRC Docket No. 70-7004, United States Enrichment Corporation (Aug. 2004), at 1-10, 2-2 (stating that "it is also important for meeting the commercial needs of the corporation to replace higher cost and aging production with new lower cost production, and that "UF₆ production will ultimately cease at the [Paducah] GDP after the [American Centrifuge Plant] becomes operational").
- f. LES is not aware of any such documents. Again, USEC has stated that it "estimates that the maximum capacity of the existing equipment is about 8 million SWU per year." See LES mandatory initial disclosures at LES-02449. This is less than the annual nameplate capability of 11.3 million SWU per year.

31. *At page 1.1-19 of the Environmental Report you refer to the "negative financial impact of operating [the] Paducah [gaseous diffusion plant] at low production levels" (less than 3 million SWU per year). Please:*

- a. *Quantify this negative impact,*
- b. *Explain the derivation of such figure, and*
- c. *Describe any documents referring or relating to such calculations.*

RESPONSE:

- a. Beyond what is stated in the National Enrichment Facility ("NEF") Environmental Report ("ER"), LES has no knowledge of the specific financial impact to USEC of operating the Paducah GDP at low production levels. However, USEC has stated its intent to replace the Paducah GDP with a new centrifuge uranium enrichment plant because it considers the financial conditions associated with operation of the Paducah GDP at its current production levels to be unacceptable. See, e.g., Response to Interrogatory No. 26.e, *supra*. The point being made in the ER is that operation of a large production facility with significant fixed costs, such as the Paducah GDP, at a low level of production, would result in higher unit costs than operation of that same facility at higher levels of production.

- b. LES has not attempted, nor does it intend, to quantify the negative financial impact of operating the Paducah GDP at low production levels. *See* Response to Interrogatory No. 31.a, *supra*.
 - c. Although it contains no "calculations," the Environmental Report for USEC's proposed American Centrifuge Plant states that "it is also important for meeting the commercial needs of [USEC] to replace higher cost and aging production [at Paducah] with new lower cost production," *i.e.*, a gas centrifuge plant. *See* Environmental Report for the American Centrifuge Plant in Piketon, Ohio (Revision 0), NRC Docket No. 70-7004, United States Enrichment Corporation (Aug. 2004), at 1-10. *See also* Transcript of September 29, 2004 Deposition of Michael H. Schwartz, at 79-80, 87-88, 102.
46. *Please identify each occasion on which it has been "ultimately determined" that depleted uranium is low-level radioactive waste, in the sense in which that term is used in Sec. 3113 of the U.S. Enrichment Corporation Privatization Act.*
47. *Please describe each document relating or referring to whether depleted uranium constitutes low-level radioactive waste, or to a determination whether depleted uranium constitutes low-level radioactive waste.*

RESPONSES (to Interrogatory Nos. 46 and 47):

The Commission's Hearing Order for this proceeding specifically states that:

... unless LES demonstrates a use for the uranium in the depleted tails as a potential resource, the depleted tails may be considered waste. In addition, if such waste meets the definition of "waste" in 10 CFR 61.2, the depleted tails are to be considered low-level radioactive waste within the meaning of 10 CFR Part 61 *in which case an approach by LES to transfer to DOE for disposal by DOE of LES' depleted tails pursuant to Section 3113 of the USEC Privatization Act constitutes a "plausible strategy" for dispositioning the LES depleted tails.*⁴

The issue of whether depleted uranium waste from the proposed NEF meets the definition of "waste" in 10 CFR 61.2 has been referred to, and is pending before, the Commission. LES

⁴ *In the Matter of Louisiana Energy Services, L.P. (National Enrichment Facility); Notice of Receipt of Application for License; Notice of Availability of Applicant's Environmental Report; Notice of Consideration of Issuance of License; and Notice of Hearing and Commission Order*, 69 Fed. Reg. 5873, 5877 col. 3 (Feb. 6, 2004) (emphasis added).

reiterates that it has fully set forth its position on that issue in filings with the Commission dated September 8 and 17, 2004.⁵

With respect to prior assessments of the proper waste classification of depleted uranium, LES refers NIRS/PC to the following publicly available documents:

- (1) SECY-91-019, "Disposition of Depleted Uranium Tails from Enrichment Plants" (Jan. 25, 1991), Enclosure at 2-4;
- (2) NUREG-1484, *Final Environmental Impact Statement for the Construction and Operation of Claiborne Enrichment Center, Homer Louisiana*, Docket No. 70-3070, Louisiana Energy Services L.P., NRC/NMSS (Aug. 1994), Vol. 1, at xx, 2-47;
- (3) *Louisiana Energy Servs., L.P. (Claiborne Enrichment Center), Memorandum and Order (Ruling on Intervenor's Petition to Waive Certain Regulations)*, 1995 WL 110611 (N.R.C. Mar. 2, 1995), *petition for interlocutory review denied*, CLI-95-7, 41 NRC 383 (1995), *vacated*, CLI-98-5, 47 NRC 113 (1998);
- (4) Letter from Robert C. Pierson (NRC) to Rod Krich (LES), "Subject: Louisiana Energy Services Policy Issues" (Mar. 24, 2003), at 2;
- (5) NUREG-1790, *Environmental Impact Statement for the Proposed National Enrichment Facility – Draft Report for Comment*, Lea County, New Mexico, Docket No. 70-3103, Louisiana Energy Services L.P., NRC/NMSS (Sept. 2004), at 2-27, 2-29 (inset);
- (6) DOE/EIS-0269, *Final Programmatic Environmental Impact Statement for Alternative Strategies for the Long-Term Management and Use of Depleted Uranium Hexafluoride* (Apr. 1999), Vol. 1, § 2.2.6 at 2-17 (stating that "[u]nder the disposal as uranium oxide alternative, depleted uranium would be chemically converted to a more stable oxide form and disposed of below ground as LLW");
- (7) DOE/EIS-0360, *Final Environmental Impact Statement for Construction and Operation of a Depleted Uranium Hexafluoride Conversion Facility at the Portsmouth, Ohio Site* (June 2004), §§ S.2.3.4, 1.6.2.4, 2.2.3; Table 2.2-2 (discussing disposal of depleted U₃O₈ deconversion product at a LLW disposal facility); and

⁵ See "Response of Louisiana Energy Services, L.P. to the Question Certified to the Commission by Memorandum and Order (Rulings Regarding Standing, Contentions, and Procedural Administrative Matters)" (Sept. 8, 2004); "Reply Brief of Louisiana Energy Services, L.P. on the Certified Question Regarding the Proper Waste Classification of Depleted Uranium" (Sept. 17, 2004).

- (8) *USEC, Inc. (American Centrifuge Plant); Notice of Receipt of Application for License; Notice of Availability of Applicant's Environmental Report; Notice of Consideration of Issuance of License; and Notice of Hearing and Commission Order*, 69 Fed. Reg. 61,411, 61,415 col. 1 (Oct. 18, 2004).
48. *Please describe each environmental analysis, pursuant to the National Environmental Policy Act, of the possible disposal of depleted uranium (a) in accordance with one or another proposed or final provision of 10 CFR Part 61 or (b) in accordance with orders, rules, or regulations other than 10 CFR Part 61, including but not limited to orders, rules or regulations governing disposal by the U.S. Department of Energy.*

RESPONSE:

LES has previously identified all documents, of which it is aware, that are responsive to this request. In particular, LES refers NIRS/PC to the following publicly available documents: (1) NUREG-1484, *Final Environmental Impact Statement for the Construction and Operation of Claiborne Enrichment Center, Homer Louisiana*, Docket No. 70-3070, Louisiana Energy Services L.P., NRC/NMSS (Aug. 1994), Vol. 1., §§ 2.3.4.5, 4.2.2.8 & App. A; (2) DOE/EIS-0269, *Final Programmatic Environmental Impact Statement for Alternative Strategies for the Long-Term Management and Use of Depleted Uranium Hexafluoride* (Apr. 1999), Vol. 1, § 2.2.6; Vol. 3, App. I; (3) DOE/EIS-0360, *Final Environmental Impact Statement for Construction and Operation of a Depleted Uranium Hexafluoride Conversion Facility at the Portsmouth, Ohio Site* (June 2004), § 2.2.3.

49. *Please fully describe the form of depleted uranium waste (if any) to be generated by the NEF when it is prepared for disposal, including but not limited to the chemical form, radionuclides present, and the radioactivity of the waste form in nanocuries per gram.*

RESPONSE:

Information responsive to this request may be found in the record and in publicly available sources. These documents include, but are not necessarily limited to, the following:

- (1) NEF Environmental Report, § 4.13 at 4.13-8, 4.13-10 to 4.13-14 (regarding chemical form of depleted uranium for purposes of disposal);

- (2) NUREG-1790, *Environmental Impact Statement for the Proposed National Enrichment Facility – Draft Report for Comment*, Lea County, New Mexico, Docket No. 70-3103, Louisiana Energy Services L.P., NRC/NMSS (Sept. 2004), at 2-27 to 2-31; 4-58 to 4-59 (regarding chemical form of depleted uranium for purposes of disposal);
- (3) “Affidavit of Timothy C. Johnson” [attached to “NRC Staff Brief on Classification of Depleted Uranium as Waste” (Sept. 8, 2004)], at 3 (regarding radionuclides present in depleted uranium);
- (4) Biwer, B., Ranek, N., Goldberg, M. and Avci, H., “Depleted Uranium Disposal Options,” *Practice Periodical of Hazardous, Toxic, and Radioactive Waste Management* (Apr. 2000), at 68 (regarding radioactivity of depleted uranium in nanocuries per gram and chemical form of depleted uranium for purposes of disposal);
- (5) Croff, A.G., Hightower, J.R., and Ranek, N.L., “Evaluation of the Acceptability of Potential Depleted Uranium Hexafluoride Conversion Products at the Envirocare Disposal Site,” ORNL/TM-2000/355 (Dec. 2000), at 6-7, Table 2 (regarding the isotopic composition, mass, and activity of depleted uranium as a function of U-235 concentration).⁶
- (6) SECY-91-019, “Disposition of Depleted Uranium Tails from Enrichment Plants” (Jan. 25, 1991), Enclosure at 2-4 (regarding chemical form, radionuclides present, and the radioactivity of the waste form).

See also Response to Interrogatory No. 48, *supra* (the NRC and DOE documents cited therein also discuss the chemical form of depleted uranium for disposal purposes); and

54. Please state whether you concur that the mortality factor for U-238 in drinking water, according to the EPA Regulatory Guide, is $1.13E-9$ per Becquerel, and that such factor is less than a factor of two less than the mortality factor for Americium-241, a principal transuranic radionuclide. If so, please state whether there is any health-based reason not to dispose of U-238 contaminated waste, of radioactivity in excess of 100 nanocuries per gram, with the same level of security as transuranic waste of similar radioactivity, and state the reasons.

⁶ LES also wishes to point out that a recently published report, authored in part by NIRS/PC witness Arjun Makhijani, also contains information responsive to Interrogatory No. 46. Specifically, the table presented on page 30 of the report, “Uranium Decay Chain – Main Branch,” provides information regarding the radionuclides potentially present in depleted uranium. See *Uranium Enrichment: Just Plain Facts to Fuel an Informed Debate on Nuclear Proliferation and Nuclear Power*, Institute for Energy and Environmental Research, A. Makhijani, L. Chalmers, and B. Smith (Oct. 15, 2004), at 30 (available on the IEER website at <http://www.ieer.org/reports/uranium/enrichment.pdf>).

RESPONSE:

In accordance with the Licensing Board's October 20, 2004 Memorandum and Order, counsel for LES has conferred with counsel for NIRS/PC and confirmed that "EPA Regulatory Guide" is a reference to the following document: *Federal Guidance Report No. 13 – Cancer Risk Coefficients for Environmental Exposure to Radionuclides*, EPA 402-R-99-001, U.S. Environmental Protection Agency (Sept. 1999). LES also has confirmed that the phrase "mortality factor for U-238 in drinking water" is a reference to the "mortality risk coefficient" for U-238 for intake of tap water, as indicated in Table 2.2a of ("Mortality and morbidity risk coefficients for ingestion of water and food") of *Federal Guidance Report No. 13* (at pages 84-104). In view of these clarifications, LES states as follows.⁷

As set forth in Table 2.2a (page 103) of the EPA's *Federal Guidance Report No. 13*, the "mortality risk coefficient" for U-238 for intake of tap water is 1.13E-09. The same table (at page 103) lists the "mortality risk coefficient" for Am-241 for intake of tap water as 2.01E-09. The mortality risk coefficients for U-238 and Am-241, as set forth in Table 2.2a, thus appear to differ by a factor of about 1.78.

Notwithstanding this observation, LES fails to see the relevance of Interrogatory No. 54 to any admitted NIRS/PC contention or to any NRC assessment of the disposal of the depleted uranium to be generated by the proposed NEF. *Federal Guidance Report No. 13* is an EPA guidance document, not an NRC guidance document. Indeed, on page iv of the preface to *Federal Guidance Report No. 13*, EPA states that use of the document by other Federal agencies is "discretionary." To LES's knowledge, the NRC, while making use of earlier EPA Federal

Guidance Reports in connection with its radiation protection standards in 10 C.F.R. Part 20, has neither endorsed nor made such use of *Federal Guidance Report No. 13*.

In any event, LES rejects any implication or assertion by NIRS/PC – particularly one predicated on an oblique comparison of U-238 and Am-241 mortality risk coefficients for tap water intakes contained in an EPA guidance document – that depleted uranium must be disposed of “with the same level of security as transuranic waste of similar radioactivity” or in a “deep geologic repository.” LES has previously made clear its position that it is appropriate to dispose of depleted uranium from the NEF as Class A low-level waste in accordance with the provisions of 10 C.F.R. Part 61. LES has stated in this proceeding its basis for that conclusion. *See, e.g.,* “Response of Louisiana Energy Services, L.P. to the Question Certified to the Commission by Memorandum and Order (Rulings Regarding Standing, Contentions, and Procedural Administrative Matters)” (Sept. 8, 2004); “Reply Brief of Louisiana Energy Services, L.P. on the Certified Question Regarding the Proper Waste Classification of Depleted Uranium” (Sept. 17, 2004). This also has been further discussed in depositions conducted in this matter.

56. *Please describe your site selection process for a possible underground mine disposal site for depleted uranium and describe any documents concerning such process.*

RESPONSE:

LES has not implemented or developed a “site selection process” for a possible underground mine site for disposal of depleted uranium. Nonetheless, while LES agrees with the Licensing Board’s observation that LES may proceed solely on the basis that “it has an accepted (and preapproved) ‘plausible strategy’ of transferal [of depleted uranium] to DOE [under Section 3113 of the USEC Privatization Act]” – and notes that LES ultimately may opt to

⁷ Because LES is responding herein to Interrogatory 54, there is no need for LES and NIRS/PC to file a joint report with the Licensing Board regarding this interrogatory. *See*

proceed in that manner – it has not ruled out the SAR-referenced alternative of using a mine for disposal of depleted uranium. *See* Board Discovery Rulings, at 6-7. To the extent LES has in its possession documents relevant to the mine-disposal alternative, it has previously disclosed all such documents to NIRS/PC. Additionally, NIRS/PC have deposed LES witnesses with respect to the plausibility and potential costs of mine disposal of depleted uranium.

57. *Please identify each abandoned or disused underground mine that would be available for use as a disposal facility for depleted uranium during the time required to serve the NEF, and as to each:*

- a. *State the exact location of the mine,*
- b. *State the identity of the owner,*
- c. *Describe the status of any discussions concerning the possible use of such mine for disposal of depleted uranium, and*
- d. *Describe any documents relating or referring to the possible use of such mine for disposal of depleted uranium.*

RESPONSE:

LES has not identified any such mine. *See* Response to Interrogatory No. 56, *supra*.

60. *Concerning possible disposal of depleted uranium in an underground mine, please state whether the possible chemical changes occurring to depleted uranium in the form of DU_3O_8 have been analyzed, state what changes have been identified, identify the effect of such changes on waste containment (e.g., enhanced solubility), and describe any documents concerning such analyses.*

RESPONSE:

LES provided a detailed response to this interrogatory in its October 12, 2004 response to the motion to compel filed by NIRS/PC on October 4, 2004. *See* LES Opposition to NIRS/PC Motion to Compel, at 19-21. Accordingly, LES refers NIRS/PC to that prior response.

Board Discovery Rulings, at 6.

As stated therein, the NRC Staff considered the possible disposal of depleted uranium in an underground mine environment in its final environmental impact statement for the proposed Claiborne Enrichment Center. LES is supplementing its prior reference to that document with a more specific citation, as follows: NUREG-1484, *Final Environmental Impact Statement for the Construction and Operation of Claiborne Enrichment Center, Homer Louisiana*, Docket No. 70-3070, Louisiana Energy Services L.P., NRC/NMSS (Aug. 1994), Vol. 1, at 4-66 to 4-68; App. A at A-7 to A-15. LES further states that the Licensing Board and the Commission issued decisions in the *Claiborne* proceeding relevant to the issue of disposal of depleted uranium in an underground mine. See *Louisiana Energy Servs. (Claiborne Enrichment Center)*, LBP-97-3, 45 NRC 99 (1997), *vacated by* CLI-98-5, 47 NRC 113 (1998); *Louisiana Energy Servs. (Claiborne Enrichment Center)*, CLI-97-11, 46 NRC 49 (1997), *remanding for clarification* LBP-97-3, *motion for reconsideration denied*, CLI-97-12, 46 NRC 52 (1997); *Louisiana Energy Servs. (Claiborne Enrichment Center)*, LBP-97-22, 46 NRC 275 (1997), *vacated by* CLI-98-5, 47 NRC 113 (1998).

61. Please state whether, in most circumstances, uranium is more mobile in soil and rock than (a) plutonium, (b) neptunium, or (c) americium.

RESPONSE:

As an initial matter, LES reiterates its position that depleted uranium is Class A low-level waste under 10 C.F.R. Part 61 and may be disposed of in accordance with the applicable provisions of Part 61. See LES Response to Interrogatory No. 54, *supra*. Insofar as this interrogatory seeks to compare the "mobility" of uranium with three "transuranic" elements, it appears to relate to the NIRS/PC assertion that depleted uranium is "clearly comparable to the wastes defined as transuranic wastes by DOE and EPA" and should be

disposed of in a "deep geologic repository." Again, LES rejects any such assertion or argument.

To the extent this interrogatory seeks to elicit information that might call into question the plausibility of mine disposal of depleted uranium, LES refers NIRS/PC to Section 4.13.3.1.4 of the NEF Environmental Report and to Section 4.2.14.4 (at 4-59) of the NRC Staff's draft environmental impact statement ("EIS") for the NEF. As set forth in 4.13.3.1.4 of the ER, the DOE, in its 1999 programmatic EIS, considered several options for the disposal of depleted uranium, including disposal in shallow earthen structures, below-ground vaults, and an underground mine. See ER at 4.13-10; DOE/EIS-0269, *Final Programmatic Environmental Impact Statement for Alternative Strategies for the Long-Term Management and Use of Depleted Uranium Hexafluoride* (Apr. 1999), Vol. 1, § 2.2.6; Vol. 3, App. I. Further, as indicated in the ER and in the Staff's draft EIS, the NRC presented an analysis of the radiological impacts from the disposal of depleted uranium (as depleted U_3O_8) in the final EIS for the Claiborne Enrichment Center. Two postulated geologic disposal sites (an abandoned mine in the southeastern United States in granite or sandstone/basalt) were evaluated for impacts from contaminated well or river water).⁸ The purpose of this analysis was to "develop estimates of impacts for conditions which may be expected to occur at a carefully selected site," taking into account postulated site characteristics that "are representative of natural variability and expected conditions for deep [mine] disposal."

⁸ See ER at 4.13-13 to 4.13-14; NUREG-1790, *Environmental Impact Statement for the Proposed National Enrichment Facility – Draft Report for Comment*, Lea County, New Mexico, Docket No. 70-3103, Louisiana Energy Services L.P., NRC/NMSS (Sept. 2004), at 4-59; NUREG-1484, *Final Environmental Impact Statement for the Construction and Operation of Claiborne Enrichment Center, Homer Louisiana*, Docket No. 70-3070, Louisiana Energy Services L.P., NRC/NMSS (Aug. 1994), Vol. 1., §§ 2.3.4.5, 4.2.2.8 & App. A.

NUREG-1484, App. A at A-7, A-10. The NRC Staff concluded that “[a]ll estimated impacts for either geologic [mine] disposal site would not result in an annual dose exceeding an equivalent of 0.25 millisieverts (25 millirem) to the whole body provided in 10 C.F.R. § 61.41; thus, the overall disposal impacts would be SMALL.” NUREG-1790, at 4-59. Significantly, the Staff has concluded that “[t]he potential impacts from the disposal of the proposed NEF-generated U_3O_8 for similar geologic disposal [mine] sites would be proportional to the quantity of material postulated from the Claiborne Enrichment Center.” *Id.*

That being said, LES also notes that Interrogatory No. 61 is more akin to a request for admission than to an interrogatory, in that it asks LES to “state *whether, in most circumstances*, uranium is more mobile in soil and rock” than the specified radionuclides. LES cannot concur in any statement couched in such vague and categorical terms. In short, the “mobility” of a radionuclide in soil or rock is contingent on an array of physical and chemical factors (*e.g.*, advection, dispersion, solubility, oxidation state, retardation) that are a function of site geological and geochemical characteristics. *See, e.g.*, NUREG-1484, App. A., at A-10 (stating that “the solubility of a radionuclide in groundwater depends on the concentration of naturally occurring ions in the groundwater and on the physical/chemical characteristics, for example, pH, eH, and temperature of the water”). The mobility of uranium relative to plutonium, neptunium, or americium will vary with the geologic and/or geochemical “circumstances.”

Although LES has not studied this issue in detail (nor is it required to conduct additional research or analytical work in response to a discovery request), a limited review of comparative “mobility” data available in the literature reflects this fact. For example,

NUREG/CR-3130 (1983)⁹ provides retardation coefficients for selected radionuclides for five (5) different types of soil conditions. Radionuclides with higher retardation coefficients would be less mobile than those with relatively lower retardation coefficients. NUREG/CR-3130 provides the retardation coefficients for neptunium and americium. It also provides the retardation coefficients for uranium and plutonium. The retardation coefficients for uranium and plutonium are approximately a factor of three higher than those provided for neptunium and americium. Therefore, for the soil conditions analyzed, the data from NUREG/CR-3130 shows that neptunium and americium are a factor of three more mobile than uranium or plutonium.

62. *Please identify each person or firm that, to your knowledge, has within the past 20 years considered the possible construction of a plant to convert the depleted uranium hexafluoride produced by a uranium enrichment plant, and as to each, describe any documents relating or referring to such consideration, and state the current state of such person's planning or other consideration.*

Per the Licensing Board's October 20, 2004 memorandum and order, LES is required to respond to this interrogatory only to the extent that LES possesses information "relating to the consideration of possible plant construction since 1990, which corresponds to the beginning of the first LES proceeding." Board Discovery Rulings, at 7. The following table reflects LES's current knowledge with respect to the information requested in Interrogatory No.

62.

⁹ U.S. Nuclear Regulatory Commission, NUREG/CR-3130, "Influence of Leach Rate and Other Parameters on Groundwater Migration" (Feb. 1983).

Entity	Relevant Timeframe	Nature and Status of Consideration	Relevant Documents
Cogema, Inc.	1991-1997	In 1991, Cogema expressed its willingness to consider providing, in the U.S., deconversion services for depleted uranium to be generated by LES's proposed Claiborne Enrichment Center. Cogema reaffirmed its willingness to provide such services in 1995. LES, however, withdrew the Claiborne license application in 1998.	<ul style="list-style-type: none"> • Letter from F. Shallo, Cogema, to W. Arnold Howard, LES (Oct. 16, 1991) • Letter from F.. Shallo, Cogema, to W. Arnold Howard, LES (Feb. 22, 1995). <p>Although these documents are publicly available and may be obtained from the NRC's Public Document Room, LES will provide copies to NIRS/PC.</p>
Cogema, Inc.	2003 to present	Cogema has expressed an interest in providing, in the U.S., deconversion services for depleted uranium to be generated by LES's proposed National Enrichment Facility. Discussions between LES and Cogema are ongoing.	<ul style="list-style-type: none"> • NEF Environmental Report, at 4.13-8. • E-mail from D. Davidson, Cogema, to J. Ferland, LES, "Subject: NDA" (w/ attachment) (Feb. 26, 2004) [LES-04364 to LES-04366] • Transcript of October 8, 2004 Deposition of Rod Krich, at 58-61, 65-66
ConverDyn	2004 to present	ConverDyn has expressed an interest in providing deconversion services in the U.S. for depleted uranium to be generated by LES's proposed National Enrichment Facility.	<ul style="list-style-type: none"> • NEF Environmental Report, at 4.13-8. • E-mail from J. Steyn, ERI, to R. Krich (LES), "Subject: ConverDyn" (June 6, 2004) [LES-01644]. • E-mail from J. Graham, ConverDyn, to J. Ferland, LES, "Subject: RE: LES" (May 24, 2004) [LES-01799]. • ERI Document entitled "Draft - Depleted Uranium Conversion and Disposal Options for LES-II" (Dec. 2002) [LES-01823]. • Transcript of October 8, 2004 Deposition of Julian Steyn and Rod Krich, at 30-32, 61-63, 65-68.
Unidentified Third Party	Summer 2004 to present	A third company, which has asked that it not be publicly identified, has expressed an interest in providing deconversion services in the U.S. for depleted uranium to be generated by LES's proposed National Enrichment Facility. Discussions with this company are ongoing.	All relevant documents are proprietary and will be provided to NIRS/PC as protected materials under separate cover.

Entity	Relevant Timeframe	Nature and Status of Consideration	Relevant Documents
Uranium Disposition Services, LLC ¹⁰ (a venture of Framatome ANP Inc., Duratek Federal Services Inc., and Burns and Roe Enterprises Inc.)	2002 to present	Uranium Disposition Services has been contracted by the Department of Energy to design, construct, and operate deconversion facilities at Portsmouth, Ohio and Paducah, Kentucky. This work is underway.	<ul style="list-style-type: none"> • DUF₆ Contract with Uranium Disposition Services (Redacted Copy) (Aug. 29, 2002) • http://web.ead.anl.gov/uranium/news/archive/index.cfm • See also DOE final environmental impact statements for the planned Paducah and Portsmouth deconversion facilities, available at: http://web.ead.anl.gov/uranium/documents/index.cfm.
Unidentified Third Party	Summer 2004 to present	This company is considering possible construction of a deconversion facility.	All relevant documents are proprietary and will be provided to NIRS/PC as protected materials under separate cover.

¹⁰ As indicated in an August 28, 2002 DOE press release entitled "Department of Energy Selects Uranium Disposition Services for Uranium Hexafluoride Conversion Plants in Ohio and Kentucky," five companies submitted proposals in response to the Department's Request for Proposals. See http://www.energy.gov/engine/content.do?PUBLIC_ID=12929&BT_CODE=PR_PRESSRELEASES. As reported in the trade press, in addition to UDS, the other four companies that submitted bids were: (1) American Conversion Services (a venture of CH2M Hill and USEC), (2) the Jacobs-Cogema team (Jacobs Engineering Group Inc. and Cogema, Inc), (3) Foster Wheeler Environmental Conversion (venture of BWXT Services Inc., BNFL, Inc., and Foster Wheeler Environmental Corp.), and (4) General Atomics. See *Nuclear Fuel* (Sept. 2, 2002).

B. AGNM Interrogatories

8. *Identify and explain the governmental, institutional and operational similarities and differences between the Urenco facility in the Netherlands and the proposed facility in Eunice, New Mexico.*

RESPONSE:

Per the Licensing Board's October 20, 2004 memorandum and order, LES is required to respond to this interrogatory, to the degree it has not already done so, by providing any information in its possession that was used by LES in estimating the cost of disposal at NEF based on a comparison with Urenco's experience with the plant in the Netherlands. In response, LES states that it already has disclosed to the AGNM all information in its possession that is responsive to this interrogatory. In particular, LES refers the AGNM to the following documents:

- (1) NEF Environmental Report, at 4.13-20 & Table 4.13-7;
- (2) NEF Safety Analysis Report, at 10.3-3 & Table 10.3-1;
- (3) Proprietary E-mail from C. Andrews (Urenco) to R. Krich (LES) (Jan. 9, 2003) [LES-PRO-00025];
- (4) Proprietary E-mail from A. Brown (Urenco) to C. Chater (Urenco) (June 2, 2004) [LES-PRO-00018];
- (5) "Project LES – Non-Confidential Version – Report for Urenco Limited" (Mar. 3, 2003) [LES-PRO-00523 to LES-PRO-00581];
- (6) "USJV (LES-2), UPD/0202880A, Decommissioning Cost Estimate" (Nov. 7, 2002) [LES-PRO-00278 to LES-PRO-383];
- (7) Energy Resources International, Inc., ERI-2129-0302, "Estimated Costs for Disposition of DUF₆" (Jan. 2003) [See LES mandatory initial disclosures at LES-PRO-00491 to LES-PRO-00492. Note that various drafts of this report also were provided by LES]; and
- (8) Transcript of October 4, 2004 Depositions of Chris Chater, Bernard Duperret, and Rod Krich (*passim*).

As LES has previously informed the AGNM, the "Urenco contract" referred to in Contention AGNM TC-ii contains information that is proprietary to both Urenco and a third party; therefore, its disclosure to the AGNM requires the permission of both parties. LES has requested and is actively pursuing such authorization. LES reiterates its promise to promptly provide a copy of the contract to the AGNM, if and when it receives the authorization to do so. See "Applicant's Objections and Responses to Document Production Requests from Attorney General of New Mexico" (Oct. 12, 2004), at 5.

9. *Identify and explain the governmental, institutional and operational similarities and differences between the proposed CEC facility and the proposed facility in Eunice, New Mexico.*

RESPONSE:


Per the Licensing Board's October 20, 2004 memorandum and order, LES is required to respond to this interrogatory, to the degree it has not already done so, by providing any information in its possession that was used by LES in estimating the cost of disposal at NEF based on a comparison with proposed CEC facility. In response, LES states that it has already disclosed to the AGNM all information in its possession that is responsive to this interrogatory. Indeed, most of the responsive information is a matter of public record (whether for this proceeding or for the Claiborne proceeding). In particular, LES directs the AGNM to the following documents:

- (1) NEF Environmental Report, at 4.13-14, 4-13-19 to 4.13-20, & Table 4.13-7;
- (2) NEF Safety Analysis Report, at 10.3-1, 10.3-3, & Table 10.3-1;
- (3) NRC Memorandum from T. Johnson to J. Giitter, "Subject: June 1, 2004 Telephone Summary: [LES] Uranium Disposition Cost Information"[The CEC-related portions of this memorandum are contained in LES's mandatory initial disclosures at LES-01348 to LES-01357. These pages include a June 30, 1993 letter from P. LeRoy (LES) to J. Hickey (NRC) and a June 18, 1993 letter from J. Hickey (NRC) to W. Arnold (LES).];

- (4) Energy Resources International, Inc., ERI-2129-0302, "Estimated Costs for Disposition of DUF₆" (Jan. 2003) [See LES mandatory initial disclosures at LES-01608. Note that various drafts of this report also were provided by LES];
- (5) Claiborne Enrichment Center Safety Analysis Report, Vol. VIII, § 11.8 (Oct. 1993); and
- (6) Transcript of October 4, 2004 Depositions of Rod Krich and Michael Schwartz, at 111-116, 183-185; Exhibits 5-7, 22.

Additionally, LES notes that, in LBP-97-3, the Licensing Board discussed the derivation of the depleted uranium disposition cost estimates prepared by LES for the proposed CEC. *See Louisiana Energy Servs. (Claiborne Enrichment Center)*, LBP-97-3, 45 NRC 99 (1997), *vacated by* CLI-98-5, 47 NRC 113 (1998). Any documents cited by the Board in LBP-97-3 should be available in the docket for that proceeding.

Respectfully submitted,



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Dated at Washington, District of Columbia
this 1st day of November 2004

November 1, 2004

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

In the Matter of:

Louisiana Energy Services, L.P.

(National Enrichment Facility)

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)

Docket No. 70-3103-ML

ASLBP No. 04-826-01-ML

DECLARATION OF GEORGE A. HARPER

George A. Harper states as follows under penalties of perjury:

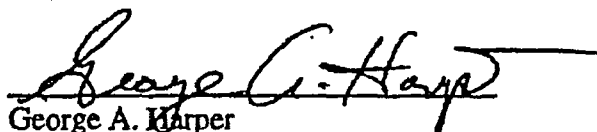
1. I am Manager of Regulatory Compliance Programs at Framatome ANP. I am providing this declaration pursuant to a technical assistance contract between Framatome ANP and Applicant Louisiana Energy Services, L.P. ("LES").

2. I am duly authorized to verify a response provided in "Applicant's Supplemental Responses to Interrogatories from Nuclear Information and Resource Service and Public Citizen and the Attorney General of New Mexico.," specifically, LES's response to NIRS/PC Interrogatory No. 61.

3. I certify that the statements and opinions in such response are true and correct to the best of personal knowledge and belief.

I declare under penalty of perjury that the foregoing is true and correct.

Executed on November 1, 2004.


George A. Harper

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))	

CERTIFICATE OF SERVICE

I hereby certify that copies of the "APPLICANT'S SUPPLEMENTAL RESPONSES TO INTERROGATORIES FROM NUCLEAR INFORMATION AND RESOURCE SERVICE AND PUBLIC CITIZEN AND THE ATTORNEY GENERAL OF NEW MEXICO" in the captioned proceeding have been served on the following by e-mail service, designated by **, on November 1, 2004 as shown below. Additional service has been made by deposit in the United States mail, first class, this 1st day of November 2004.

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Commissioner Jeffrey S. Merrifield
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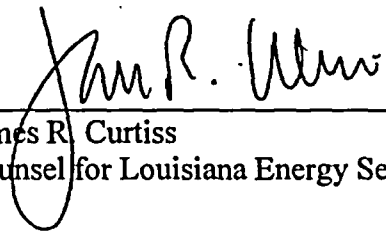
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