

March 17, 2006

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

DOCKETED
USNRC

March 17, 2006 (3:00pm)

In the Matter of:)
)
Louisiana Energy Services, L.P.)
)
(National Enrichment Facility))

Docket No. 70-3103-ML

OFFICE OF SECRETARY
RULEMAKINGS AND
ADJUDICATIONS STAFF

ASLBP No. 04-826-01-ML

**LOUISIANA ENERGY SERVICES, L.P.'S REPLY FINDINGS
OF FACT AND CONCLUSIONS OF LAW CONCERNING COST
OF CYLINDER MANAGEMENT AND COST OF CAPITAL ISSUES**

I. INTRODUCTION

1.1 In accordance with 10 C.F.R. § 2.712 and the Atomic Safety and Licensing Board's ("Board") memorandum and order of January 11, 2006,¹ Louisiana Energy Services, L.P. ("LES") submits these reply findings of fact and conclusions of law regarding the two discrete contested cost issues upon which the Board received testimony and evidence during the supplemental February 13, 2006 evidentiary session. Those issues concern the alleged need to account for (1) the potential cost of washing and recertifying empty depleted uranium hexafluoride ("DUF₆") cylinders for reuse or, alternatively, the cost of dispositioning those cylinders; and (2) the "cost of capital" associated with the construction of a private facility for deconverting DUF₆ to DU₃O₈ for purposes of its disposal. Intervenors Nuclear Information and Resource Service and Public Citizen ("NIRS/PC") initially raised these issues in connection with

¹ Licensing Board Memorandum and Order (Schedule for Supplemental Proposed Findings of Fact and Conclusions of Law; Modification of Date for Prehearing Conference) (Jan. 11, 2006) (unpublished).

the October 2005 evidentiary hearing on Contention NIRS/PC EC-5/TC-2 ("Decommissioning Costs").

1.2 LES filed its initial proposed findings of fact and conclusions of law on March 1, 2006.² The NRC Staff filed proposed findings and conclusions on the same date.³ LES's initial proposed findings of fact and conclusions of law, as generally supported by the NRC Staff's proposed findings, address and are sufficient to resolve the cost of cylinder management and the cost of capital issues raised by NIRS/PC.

1.3 NIRS/PC also filed proposed findings of fact and conclusions of law on March 1, 2006.⁴ As shown below, the NIRS/PC proposed findings are contrary to the evidentiary record in this proceeding. The record supports, by a preponderance of the reliable, material, and probative evidence, a determination that LES's cost estimate for depleted uranium ("DU") dispositioning complies with the applicable decommissioning funding requirements set forth in 10 C.F.R. §§ 30.35, 40.36, and 70.25. The Board concludes that LES and the NRC Staff have carried their respective burdens of proof to demonstrate the adequacy of the Applicant's Safety Analysis Report ("SAR") and the Staff's Safety Evaluation Report ("SER") relative to Intervenors' challenges to LES's DU dispositioning cost estimate. Accordingly, the NIRS/PC claims concerning LES's alleged failure to address the cost of cylinder management and the "cost of capital" cannot be sustained.

² See "Louisiana Energy Services, L.P.'s Proposed Findings of Fact and Conclusions of Law Concerning Cost of Cylinder Management and Cost of Capital Issues" (Mar. 1, 2006) ("LES Proposed Findings").

³ See "NRC Staff's Proposed Findings of Fact and Conclusions of Law Concerning Clarifying Information Relating to The Cost Estimate of Deconversion" (Mar. 1, 2006) ("Staff Proposed Findings").

⁴ See "Proposed Findings of Fact and Conclusions of Law Submitted on Behalf of Intervenors [NIRS/PC] Based Upon Evidence Taken on February 13, 2006 (Cost of Capital, Cylinder Management)" (Mar. 1, 2006) ("NIRS/PC Proposed Findings").

II. REPLY FINDINGS OF FACT

2.1 The following reply findings address the most significant of the NIRS/PC proposed findings of fact and conclusions of law, *i.e.*, those that are material to the resolution of the remaining contentions. In a number of instances, NIRS/PC only recite factual information, presumably to provide background or context. In other cases, NIRS/PC present claims that were either previously excluded by the Board as inadmissible, or that are discrete new claims not within the scope of any admitted contention. In either case, such claims, as identified below, are barred from litigation in this proceeding.⁵ In general, NIRS/PC have ignored the contrary testimony of LES and NRC Staff witnesses, or taken that testimony out of context. In total, the NIRS/PC proposed conclusions of law are not supported by the record.

A. Cost of Capital Findings⁶

1. *NIRS/PC Comments on the "Plausible Strategy" Standard*

2.2 NIRS/PC initially discuss the Commission's "plausible strategy" standard and its relationship to the NRC's decommissioning funding requirements. *See* NIRS/PC Proposed Findings at ¶¶ 1-6. Presumably, this discussion is intended to establish the predicate for Intervenor's core argument that LES has inappropriately altered, or deviated from, its DU dispositioning strategy. *See* ¶¶ 2.3-2.7, *infra*. Because the parties set forth their views on this subject in their November 30 and December 23, 2005 proposed findings on Contentions

⁵ *See, e.g., Private Fuel Storage, L.L.C.* (Independent Spent Fuel Storage Installation), CLI-02-20, 56 NRC 147, 150 (2002) (citation omitted) (stating that "[i]t is neither fair nor consistent with our usual practice to allow a last-second infusion of new elements into a previously admitted contention").

⁶ In accordance with footnote 2 of the Board's February 16, 2006 Memorandum and Order (Post-Hearing Administrative Hearings), LES considers the following prior findings on the *cost of capital* issue, as predicated on the October 2005 hearing record, to be still operative: (1) ¶¶ 4.26-4.29 of LES's November 30, 2005 Proposed Findings and (2) ¶¶ 3.36-3.38 of LES's December 23, 2006 Reply Findings.

NIRS/PC EC/TC-1, EC-5/TC-2, EC-6/TC-3 and EC-4 (as remanded to the Board), we do not discuss it at length here. In short, the Board recognizes the nexus that exists between an applicant's "plausible strategy" and its cost estimate for dispositioning of depleted uranium. The purpose of the "plausible strategy" is simply to ensure that an applicant accounts for all pertinent elements of the DU dispositioning process in computing a reasonable cost estimate.⁷ Contrary to NIRS/PC's suggestion, an applicant's identification of a "plausible strategy" for that purpose does *not* bind the applicant irrevocably to one specific course of action (e.g., to the commencement of deconversion operations in 2016, as discussed further below). Intervenors' proposition is directly at odds with the Commission's observation that a plausible strategy "does not mean a definite or certain strategy."⁸

2. *Relationship Between the AREVA MOU and LES's "Preferred" Plausible Strategy of Private Sector Disposition of Depleted Uranium*

2.3 NIRS/PC focus much attention on LES's January 21, 2005 Memorandum of Understanding ("MOU") with AREVA (LES Exh. 88). See NIRS/PC Proposed Findings at ¶¶ 7-18, 27-35, 47-49, 58. Specifically, NIRS/PC contend that LES "expressly adopted" the MOU as "a description of its deconversion strategy." *Id.* at ¶ 14. NIRS/PC state, in turn, that the MOU contains an explicit timeline for the licensing and construction of a private deconversion facility that would begin processing DUF₆ from the NEF in 2016. *Id.* at ¶¶ 7-9 (emphasis added). NIRS/PC also cite two LES responses to Staff requests for additional or clarifying information in

⁷ See *Louisiana Energy Servs.* (Claiborne Enrichment Center), LBP-97-3, 45 NRC 99, 108 (1997), vacated by CLI-98-5, 47 NRC 113 (1998) (NIRS/PC Exh. 205) ("The purpose of the Applicant's tails disposal strategy is to enable the computation of reasonable cost estimates for the various essential elements of the decommissioning plan." Cf. *Pub. Serv. Co. of New Hampshire* (Seabrook Station, Units 1 and 2), CLI-88-10, 28 NRC 573, 587 (stating that when "the plan for decommissioning need not be a final plan," the plan "must contain essential elements sufficient to ensure that a reasonable estimate of decommissioning costs can be made")

⁸ *Louisiana Energy Servs., L.P.* (National Enrichment Facility), CLI-04-25, 60 NRC 223, 226.

support of their argument. *See id.* at ¶¶ 9, 11 (quoting NIRS/PC Exhs. 286 and 188, respectively). According to NIRS/PC, these documents "make[] clear that LES was presenting to Commission Staff a deconversion plant that would be in operation *during the NEF's operating life*, as the AREVA MOU contemplated." *Id.* at ¶ 11 (emphasis added). The implication is that by maintaining that sufficient financial assurance will be available at the end of the NEF's nominal 30-year operating life to cover the cost of third-party deconversion (*i.e.*, in the event that LES is unable to meet its decommissioning obligations), LES has abandoned or altered its "preferred" plausible strategy of private sector disposition of depleted uranium.

2.4 The Board rejects this NIRS/PC argument as lacking merit. To be sure, LES relied on the MOU to support its "plausibility" showing. Mr. Krich testified that LES offered the MOU as an exhibit during the October 2005 hearings specifically to demonstrate that the construction and operation of a private deconversion facility in the U.S. is plausible (*i.e.*, "more than mere speculation"), in direct response to Contention NIRS/PC EC-3/TC-1. *See* Tr. at 3401-02. No one disputes this fact. However, Intervenors' characterization of the MOU stretches the purported regulatory significance of that document to its breaking point. As NIRS/PC readily acknowledge, the stated purpose of the MOU is to lay the groundwork for future commercial discussions and a potential contractual agreement between LES and AREVA. *See* NIRS/PC Proposed Findings at ¶ 7. While the MOU does identify a tentative timeline for the design, licensing, and construction of a private deconversion facility, it also explicitly recognizes the possibility that future discussions between LES and AREVA may not culminate in a "definitive agreement." *See* LES Exh. 88 at 3. Significantly, LES has not committed to adhere to the putative timeline set forth in the MOU -- nor is it required to do so -- for the purpose of obtaining its NRC license.

2.5 Thus, we do not agree with NIRS/PC that "LES presented the AREVA MOU as LES's asserted 'plausible strategy.'" NIRS/PC Proposed Findings at ¶ 34 (emphasis added). In fact, NIRS/PC and Dr. Makhijani have complained previously about the nonbinding nature of LES's MOUs with both AREVA and Waste Control Specialists, LLC. For example, NIRS/PC asserted that:

[T]he AREVA MOU states only that the parties will conduct discussions toward a contract concerning a deconversion plant, but it does not commit any party to make such a contract, nor to take important steps toward such a contract. There are no estimates of conversion costs in the MOU.⁹

Similarly, in their December 2005 reply findings, NIRS/PC asserted that AREVA has not "made any commitment" to construct a deconversion facility for the cost estimated by LES based upon the Urenco business study.¹⁰ Notwithstanding, for purposes of the "cost of capital" issue addressed herein, NIRS/PC would have this Board believe that the timeline of activities contemplated in the AREVA MOU (which NIRS/PC now dub a "key exhibit") is etched in stone. Intervenors' latest characterization of the MOU clearly is one of convenience.

2.6 Nor are we persuaded by the argument that LES's subsequent discussion of the MOU in its February 11 and April 8, 2005 letters to the Staff reflects a definitive commitment by LES, for NRC licensing purposes, to commence deconversion operation prior to the end of the NEF's nominal 30-year operating period. The statements excerpted by NIRS/PC merely affirm that LES's "preferred" plausible strategy involves the construction and operation of a private deconversion facility of the type and size described in the MOU. Indeed, the focus of pertinent discussion in February 11, 2005 letter is on LES's commitment to deploy a

⁹ See "Responses on Behalf of [NIRS/PC] to Applicant's Interrogatories Dated July 8, 2005" (July 19, 2005) at 9.

¹⁰ See Reply Proposed Findings of Fact and Conclusions of Law on Behalf of Intervenors [NIRS/PC] Based Upon Evidence Taken on October 24-27, 2005" (Dec. 22, 2005) at ¶ 2.

deconversion process that does not generate anhydrous hydrogen fluoride ("HF") as a byproduct. (The COGEMA process referred to in AREVA MOU generates aqueous HF.) *See* NIRS/PC Exh. 286 at 14. It contains no mention of the MOU "timeline." Contrary to NIRS/PC's claim in paragraph 32 of their proposed findings, those statements in no way represent a commitment by LES to adhere to a specific schedule. As Mr. Krich noted, the MOU itself was never placed on the licensing docket. *See* Tr. at 3313, 3402-03. Furthermore, the NEF license application, which LES has revised multiple times to incorporate LES responses to Staff requests for additional information, contains no reference to the AREVA MOU timeline, let alone the MOU itself. *See* Tr. at 3313.

2.7 Likewise, the fact that LES witnesses Krich and Compton may have *assumed* that deconversion operations would commence in 2016 for purposes of responding to Intervenor and/or NRC Staff inquiries does not mean that LES committed to the timeline presented in the MOU. *See, e.g.,* NIRS/PC Proposed Findings at ¶ 16-18 (citing Tr. at 2284-85, 2289-90; LES Exh. 118 at 3; NIRS/PC Exh. 281). As Mr. Krich testified in February 2006, "in trying to answer the question [posed during the October 2005 evidentiary hearings] as to what might be the cost of capital," LES's witnesses "identified various means that [they] felt were justified to cover that cost of capital," *assuming* that it is necessary to account for such a cost. Tr. at 3338. Additionally, Mr. Krich explained that LES's subsequent *pro forma* calculation of a cost of capital simply considered one of many possible scenarios or sets of assumptions. Tr. at 3319-20. That discussion and calculation in no way reflect an obligation or commitment on the part of LES to commence deconversion operation in 2016.

3. *NIRS/PC Challenges to the Applicant's "30-Year" Approach to Financial Assurance*

2.8 As set forth in LES's March 1, 2006 proposed findings, the Applicant's position is that by providing financial assurance in increments on an annual, forward-looking

basis, LES will ensure that sufficient financial assurance is available at the end of the NEF's nominal 30-year operating period to disposition the DUF₆ generated by the facility. *See* LES Proposed Findings at 3.21, 3.25-3.27, 3.30-3.31, 3.36. LES further maintains that, should the NRC need to draw on LES's financial assurance instrument at that time, sufficient funds would be available to pay for the construction and operation of a deconversion facility. *See id.* ¶¶ 3.22, 3.30, 3.33. Therefore, according to the Applicant and the Staff, there would be no need to resort to borrowed funds, or to account for a return on investment, in carrying out that purpose. *See id.* at ¶¶ 3.25, 3.30-3.31. As set forth below, the Board agrees with LES and the Staff on this point, and is not persuaded by Intervenors' counterarguments.

a. The Alleged Shift in Applicant's Dispositioning Strategy

2.9 We disagree with NIRS/PC's assertion that LES's "latest strategy" is "not accord in with the schedule on which LES cost estimates have been based." NIRS/PC Proposed Findings at ¶ 54. Both the NEF application and the testimony of Mr. Krich demonstrate that LES has always assumed, for the purpose of estimating total DU dispositioning costs, that the NEF will operate for 30 years and then shut down, resulting in the production of approximately 133 million metric tons of depleted uranium. *See* LES Proposed Findings at ¶¶ 3.23, 3.33-3.34. Moreover, LES's December 2003 license application makes clear that LES consistently has intended to provide financial assurance for DU dispositioning on an incremental basis during the life of NEF. *See* LES Exh. 83 at 10.2-1, 10.3-1. Thus, contrary to Intervenors' assertion, LES has not altered its preferred plausible strategy or adopted a new "schedule" for financial assurance purposes.

b. Relevance of LES's Settlement Agreement with New Mexico

2.10 We also agree with LES that its August 2005 Settlement Agreement with the State of New Mexico is irrelevant to the discrete "cost of capital" issue raised by NIRS/PC.

See NIRS/PC Proposed Findings at ¶¶ 55-56; LES Proposed Findings at ¶ 3.35. Assuming that LES opts to store DUF₆ cylinders at an offsite location due to the DUF₆ cylinder storage limits set forth in the Settlement Agreement (reflecting the fact that the NEF is still in the production mode and has not ceased operations), any associated transportation or storage costs would be paid for out of NEF operating funds, and hence would not constitute decommissioning costs. See Tr. at 3334-35. Further, as LES correctly points out, the Settlement Agreement accords LES considerable flexibility by giving LES a number of options, beyond the suspension of enrichment operations, as the NEF approaches the 5,016-cylinder storage limit set forth in the Agreement. See LES Proposed Findings at ¶ 3.35.

2.11 Whether LES chooses, as a commercial matter, to commence deconversion of its DUF₆ inventory before the NEF ceases enrichment operations is of no consequence to the legal determination made by the Board here. Specifically, we agree with LES and the Staff that there is no regulatory requirement that deconversion occur before termination of the license. See, e.g., LES Proposed Findings at ¶ 3.34.

c. Availability of the Backup DOE Dispositioning Option

2.12 Notwithstanding, we agree with LES and the Staff that sufficient financial assurance will be available at any point during the NEF's operating lifetime to disposition all DUF₆ generated by the facility and awaiting dispositioning up to that point in time. See LES Proposed Findings at ¶ 3.29. Specifically, by providing financial assurance in the amount of its current "private sector" and DOE cost estimates (and by updating these estimates over time), LES will ensure that sufficient funds are available at any time up to the end of the 30-year operating life of the NEF in its financial assurance instrument to allow the NRC to pay the DOE to disposition DUF₆ from the NEF if LES is unable to do. See Tr. at 3321, 3365-66, 3379-80, 3434-35, 3442. The fact that the Staff is still reviewing limited aspects of the DOE cost estimate

is irrelevant, insofar as we held previously that the adequacy of DOE cost estimate is not litigable in this proceeding.¹¹ Moreover, the Board sees no reason why LES or the Staff must prepare "cash flow" analyses or projections "to analyze the DOE option." NIRS/PC Proposed Findings at ¶ 50. The DOE cost estimate, like LES's "private sector" cost estimate, is subject to the periodic update process. *See* LES Exh. 85 at 2; Tr. at 3288-89. That process is intended to account for unforeseen cost increases and inflation, not to "cure errors," as NIRS/PC wrongly claim Mr. Krich testified. *See* NIRS/PC Proposed Findings at ¶ 36.

d. The Role of Periodic Cost Estimate Updates

2.13 NIRS/PC complain that "[n]o reliance can be placed upon future adjustment to correct for omissions," particularly "where the applicant has few assets, apart from the proposed facility." NIRS/PC Proposed Findings at ¶ 36. NIRS/PC add that the periodic adjustment process "is intended to account for inflation or changes in costs that are unforeseen." *Id.* at ¶ 37. In support of their argument, NIRS/PC also cite two prior Licensing Board decisions. *See id.* at ¶¶ 36, 38. We similarly reject these arguments as meritless.

2.14 First, assuming that Intervenors' arguments are relevant to the "cost of capital" question before us, those arguments constitute improper collateral attacks on the Commission's regulations.¹² NRC regulations (and, in LES's case, a license condition as well) require licensees to update their decommissioning funding plan cost estimates at regular intervals. As stated in the regulatory history of Section 70.25(e), such updates "are intended to

¹¹ August 2005 Ruling on Late-Filed Contentions at 22 (finding "challenges to the DOE cost calculations [to be] outside the scope of this proceeding and lacking materiality in that the agency has no basis for assuming DOE has erred in computing its fees and no authority to direct or challenge DOE's fee estimates established pursuant to its own statutory authority").

¹² *See* 10 C.F.R. § 2.335(a); *Philadelphia Elec. Co.* (Peach Bottom Atomic Power Station, Units 2 and 3), ALAB-216, 8 AEC 13, 20-21 (1974) (barring attacks on applicable statutory requirements and challenges to the basic structure of the Commission's regulatory process).

capture changes in estimated costs *regardless of cause*, and to ensure that the level of financial assurance required of each licensee is appropriate.” LES Exh. 119 (68 Fed. Reg. 57,327, 57,332 col. 1 (Oct. 3, 2003)) (emphasis added). Thus, Intervenor’s assertion that the cost update process is somehow limited in application or scope is without basis.

2.15 Additionally, the *Claiborne* and *Sequoyah Fuels* cases cited by NIRS/PC are neither relevant to the issue of concern (*i.e.*, cost of capital) nor binding on this Board. NIRS/PC rely on the former decision, in effect, to challenge the financial qualifications of LES and its partners-owners to undertake the NEF project. The financial qualifications of the Applicant, however, are not at issue in this contested proceeding. In any case, the *Claiborne* decision (LBP-97-3) cited by NIRS/PC was vacated by the Commission at the conclusion of that proceeding.¹³ Intervenor’s reliance on the *Sequoyah Fuels* case (LBP-96-24) is similarly misplaced. That decision was rendered in a context that is far removed from the instant proceeding. It involved Board approval of a settlement agreement between the NRC Staff and a licensee against which the Staff had instituted enforcement action. Further, the passage quoted by NIRS/PC appears only to reflect a *dissenting* judge’s desire for additional information upon which to base his assessment of the settlement agreement at issue. It certainly does not represent a prior Board ruling that this Board is obligated to follow.

e. The Parties’ Spreadsheet Calculations and Related Assumptions

2.16 Many of NIRS/PC’s proposed findings relate to various “theories” and spreadsheet calculations presented by the parties during the October 2005 and February 2006 evidentiary hearings. For example, in paragraphs 39 through 41 of their proposed findings, NIRS/PC attack LES’s assertions that any assumed cost of capital is covered by (1) the margin

¹³ See *Louisiana Energy Servs. (Claiborne Enrichment Center)*, CLI-98-5, 47 NRC 113 (1998).

inherent in LES's estimated O&M cost (*see, e.g.*, Tr. at 2007, 2016, 2277), and/or (2) the escalation of LES's financial assurance amount over time. *See* Tr. at 3337-38. Insofar as we conclude that LES need not calculate a cost of capital to demonstrate compliance with the NRC's decommissioning financial assurance requirements, we find it unnecessary to resolve the merits of these two claims. Indeed, LES acknowledged that its prior arguments regarding O&M margin and escalation of funds are immaterial to its ultimate showing of financial assurance. *See* LES Proposed Findings at ¶ 3.31.

2.17 Similarly, NIRS/PC dwell at length on the parties' various spreadsheet calculations, which, to no one's surprise, invoked different assumptions and yielded disparate results. *See* NIRS/PC Proposed Findings at ¶¶ 17-19, 43-45, 49-53, 59-63. As noted above, given our finding that the computation of a "cost of capital" is unnecessary, the Board refrains from evaluating or discussing the relative merits of the parties' respective spreadsheet calculations. Suffice it to say, we agree with LES and the Staff that there is more than one acceptable method to compute a cost of capital (assuming one is even needed), and that the end result of such a computation is heavily assumption-driven. *See* Staff Direct at A.17-A.18.; Tr. at 3319-20 (Krich); Tr. at 3455-56 (Collier). For these reasons, we do not address NIRS/PC's various criticisms of the Applicant's and the Staff's spreadsheets; nor do we assess the validity of the specific assumptions utilized by NIRS/PC witness Arjun Makhijani in his own spreadsheet calculations of the "cost of capital."

2.18 One NIRS/PC criticism or observation that we are compelled to address is the existence of ostensibly divergent Applicant and Staff views on the cost of capital question. For example, NIRS/PC claim that LES supplied the MOU to the Staff during the licensing process, and that the Staff "understood that the MOU was intended to reflect LES's deconversion strategy." NIRS/PC Proposed Findings at ¶¶ 30-31. In this same vein, NIRS/PC claim that

"Staff's assumption was based upon LES's declared strategy that a private deconversion plant would be put into operation in approximately 2016." *Id.* at ¶ 48. NIRS/PC also assert that "Staff calculated that the addition of \$0.40 per kgU to LES's cost estimate would be inadequate to meet the cost of obtaining the funds necessary to build and operate the deconversion plant." *Id.* at ¶ 43; *see also* ¶¶ 44-49 (regarding AREVA MOU and Staff spreadsheet calculations).

2.19 These purported Applicant and Staff differences of opinion (relative to the role of the AREVA MOU and the means by which an appropriate cost of capital "line item" is calculated) do not alter our ultimate conclusion. The record demonstrates that LES and the Staff are in full agreement on those issues which the Board considers to be dispositive. Specifically, the Staff's witnesses testified that because LES's financial assurance instrument will "collect" or accrue sufficient funds by the end of the NEF's operating life to cover the estimated \$88 million (2004 dollars) in construction, licensing, and engineering costs for a deconversion plant, then there is no need to include \$0.40 per kgU as a line item for cost of capital. *See* Staff Direct at A.15; Tr. at 3433. In addition, the Staff's witnesses agreed that by providing financial assurance in the amount of its current "private sector" cost estimate (and by updating that estimate and the DOE cost estimate over time), LES will ensure that sufficient funds are available in its financial assurance instrument at any time up to the end of the 30-year operating life of the NEF to allow the NRC to pay the DOE to disposition DUF₆ from the NEF, if LES is unable to do. *See* Tr. at 3321, 3365-66, 3379-80, 3434-35, 3442.

B. Cost of Empty DUF₆ Cylinder Management Findings¹⁴

2.20 In paragraphs 64 through 90 of their proposed findings, NIRS/PC contend that LES must account for the cost of managing empty DUF₆ cylinders in its DU dispositioning cost estimate. Insofar as LES has expressly committed to add \$0.60 per kgU to its cost estimate to address the cost of cylinder management, the Board sees no reason to debate whether such cost is properly included within LES's deconversion cost estimate. *See* LES Exh. 118. Indeed, NIRS/PC state that "an additional amount of \$0.60 per kgU for cylinder washing and recertification should be added to the estimated cost of deconversion." NIRS/PC Proposed Findings at ¶ 89. Nevertheless, NIRS/PC argue that "there has been a failure of proof of the likely feasibility of recycling cylinders, of the feasibility and cost of disposing of cylinders, and the feasibility and cost of cleaning cylinders to allow free release." *Id.* at ¶ 90. Accordingly, we consider below whether \$0.60 per kgU is adequate to cover all *pertinent* DUF₆ cylinder management costs identified by NIRS/PC.

1. *Cylinder Washing and Recertification*

2.21 The Board finds that \$0.60 per kgU is more than sufficient to cover the cost of cylinder washing and recertification. Of particular note, Cameco advised LES that the

¹⁴ In accordance with footnote 2 of the Board's February 16, 2006 Memorandum and Order (Post-Hearing Administrative Hearings), LES considers the following prior proposed findings on the *cost of DUF₆ cylinder management*, as predicated on the October 2005 hearing record, to be still operative: ¶¶ 4.45-4.49 of LES's November 30, 2005 Proposed Findings and (2) ¶¶ 3.32-3.34 of LES's December 23, 2006 Reply Findings, with the following exceptions. First, in paragraph 4.48 of LES's November 23, 2006 Proposed Findings, the following sentence should be disregarded: "Mr. Krich testified that the cost of washing an empty cylinder for purposes of its recertification would bound the cost of cleaning that same cylinder for purposes of disposing of it under "free release" standards (*e.g.*, as scrap metal). *See* Tr. at 2309-10." As set forth herein, the more precise statement of LES's position is that the additional \$0.60 per kgU to which LES has committed as a "line item" for the cost of cylinder management bounds the cost of cleaning a cylinder to meet unrestricted use levels, such that the cylinder may be released from regulatory control. In this regard, in the last sentence paragraph 4.48 of LES's November 23, 2006 Proposed Findings, the phrase "for purposes of dispositioning it under free release standards" should be replaced with "for purposes of achieving its release from regulatory control."

cost of performing cylinder washing and recertification is about \$2,500 per cylinder, or \$0.29 per kgU. *See* LES Exh. 123. According to Cameco, the \$2,500 per cylinder price quotation includes overhead and profit margin. *See id.* Given Cameco's extensive experience in performing such activities for third parties (including U.S. customers), the Board concludes that \$0.60 per kgU is a conservative cost estimate that easily encompasses the cost of cylinder washing and recertification. NIRS/PC presented no testimony or evidence to controvert this finding. NIRS/PC merely assert that cylinder washing/recertification is "a necessary element of decommissioning," and that "\$0.60 per kgU is not a worst case scenario." NIRS/PC Proposed Findings at ¶ 74. While LES has emphasized that cylinder washing/recertification is more aptly characterized as an operational cost (*see, e.g.,* Tr. at Tr. at 1968-69, 2313), the fact remains that LES has committed to add \$0.60 per kgU to its cost estimate. Moreover, we agree with LES that it is unlikely that, at the time of facility decommissioning, all DUF₆ cylinders will require washing and recertification, insofar as some cylinders will have been previously washed and recertified. *See* LES Proposed Findings at ¶ 3.8. The Board thus considers the issue of cylinder washing/recertification costs to be resolved in the favor of the Applicant.

2. *Reuse of Cylinders*

2.22 In seeking to contest the adequacy of LES's proposed \$0.60 per kgU line item for the cost of cylinder management, NIRS/PC challenge the notion that empty DUF₆ cylinders are valuable commodities (insofar as they can be continuously reused or recycled for storing and/or transporting radioactive material). In particular, NIRS/PC assert that LES and the Staff have "not offered an analysis of projected market conditions," and that "[t]he farther out the cessation of deconversion operations, the more speculative the assumption that the cylinders can be successfully marketed." NIRS/PC Proposed Findings at ¶ 81. Notably, however, NIRS/PC present no projections of their own.

2.23 The Board is not persuaded by Intervenors' arguments, especially in view of the contrary testimony and evidence proffered by LES and the Staff. In particular, the views expressed by Dr. Paul Harding of Urenco and Dr. Andrew Oliver of Cameco give the Board sufficient reason to believe that a market for empty DUF₆ cylinders exists now, and likely will exist for the foreseeable future, given the reusable nature of those cylinders. See LES Proposed Findings at *See* Tr. at 1965-77; Tr. at 3394; LES Exh. 123. Mr. Krich and Mr. Johnson concurred in those views. *See* Tr. at 3396-97; Tr. at 3468. To the extent future changes in the market for used cylinders might affect LES's cost estimate, we conclude that LES can make appropriate adjustments to its cost estimate through the periodic update process. *See* Tr. at 3390, 3398 (Mr. Krich); Tr. at 3470 (Mr. Johnson); *see also*, Exh. 82 at A-29; LES Exh. 82 at A-29; LES Exh. 119 at 57,332 col. 1.

3. *Alleged Need to Dispose of Cylinders as Low-Level Waste*

2.24 NIRS/PC also argue that \$0.60 per kgU is insufficient to account for the cost of "disposal" of empty DUF₆ cylinders. *See* NIRS/PC Proposed Findings at ¶¶ 82-84. NIRS/PC, however, offer no credible support for the assertion that the cost of disposing of a cylinder is a necessary element of LES's deconversion cost estimate. The fact that the Department of Energy "analyzed" the cost of "separate disposal [of cylinders] as low-level waste" hardly establishes that such a cost is a requisite element of LES's cost estimate. *Id.* at ¶ 82. As Intervenors readily acknowledge, DOE intends to use cylinders as DU₃O₈ disposal containers. *Id.* That decision, however, does not mean that DOE considers the cylinders themselves to be low-level waste.

2.25 Furthermore, the supposition that empty DUF₆ cylinders should be treated as low-level waste is directly at odds with industry practice and the actual commercial experience of Cameco. In its January 9, 2006 letter to LES, Cameco indicated that the need to

scrap cylinders is rare, as evidenced by the fact that the company has disposed of only "a very few damaged cylinders" during its extensive operational history. *See* LES Exh. 123; LES Rebuttal at A.6. While NIRS/PC complain of the lack of an adequately documented cost estimate for cylinder disposal, they fail to establish the need for such disposal -- as a reasonably foreseeable event or "routine facility condition" (*see* LES Exh. 82 at A-26) -- let alone present a credible cost estimate of their own.

4. *Cleaning Cylinders for Release From Regulatory Control*

2.26 Finally, we conclude that LES has met its burden with respect to demonstrating the "feasibility and cost" of cleaning empty DUF₆ cylinders, such that they may be released from regulatory control. Specifically, the record supports the conclusion that the cost of cleaning a cylinder to meet unrestricted use levels (*i.e.*, by washing, cutting and manually grit-blasting the cylinder), and disposing of the small amount of any resultant radioactive material, is bounded by LES's \$0.60 per kgU cost estimate for cylinder washing and recertification. *See* LES Direct at A.17; Tr. at 2309-10. Cameco confirmed this in its January 9, 2006 letter to LES. *See* LES Exh. 123. Cameco indicated that the process of cleaning a cylinder to meet Canadian "free release" standards requires about 30 person-hours, and that based on its knowledge of the activities involved in that process, \$0.60 per kgU is sufficient to cover the cost of cleaning a cylinder to meet Canadian "free release" standards. *See id.*

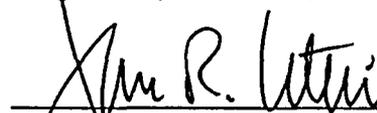
2.27 Both Mr. Krich testified that the Canadian standard referenced in the Cameco letter is the International Atomic Energy Agency ("IAEA") release standard. That standard requires cleaning cylinders to meet contamination levels that are more stringent than the acceptable contamination levels outlined in the NRC's Branch Technical Position ("BTP"), "Guidelines for Decontamination of Facilities and Equipment Prior to Release for Unrestricted Use or Termination of Licenses for Byproduct, Source, and Special Nuclear Material" (ADAMS

Accession No. ML003745526). *See* Tr. at 3392-94 (Mr. Krich), Tr. at 3471, 3485-88 (Mr. Johnson). Since the decommissioning cost estimate need not include disposal of non-radioactive materials (*i.e.*, cleaned cylinders) beyond that necessary to terminate the NRC license, meeting the Canadian standard (and thus the BTP levels) is sufficient to release the cylinders from regulatory control. *See* Staff Direct at A.7; LES Exh. 82 at A-26; LES Exh. 120 at 24,031 col. 2.

2.28 NIRS/PC offered only baseless or conclusory assertions in response to this LES and Staff testimony and evidence. For instance, NIRS/PC claim that "the letter from Cameco does not refer to the international standard that Mr. Krich relied upon." NIRS/PC Proposed Findings at ¶ 86. As noted above, Mr. Krich, who has had multiple communications with a Cameco representative, confirmed that the Canadian standard referenced in the Cameco letter is the IAEA standard. *See* Tr. at 3393. In addition, NIRS/PC claim that neither LES nor the Staff could state that "there is an established process to clean thousands of cylinders to free release standards." As Mr. Krich testified, however, given that cylinders are valuable commodities, and that cylinder manufacturers continue to manufacture thousands of cylinders per year, it is unreasonable to assume that LES (or a third party) would need to clean 13,000 cylinders such that they may be released from regulatory control. *See* Tr. at 3494-98. Finally, NIRS/PC state that because "there is no 'Below Regulatory Concern' rule in place in the United States . . . any assertion about free release [cannot] be regarded as reliable." NIRS/PC Proposed Findings at ¶ 88. However, NIRS/PC ignore the fact that Mr. Krich and Mr. Johnson identified

the pertinent NRC standard, *i.e.*, the BTP cited above. The BTP governs the decontamination of facilities and equipment prior to their release for unrestricted use.

Respectfully submitted,



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Dated at Washington, District of Columbia
this 17th day of March 2006

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 "LOUISIANA ENERGY SERVICES, L.P.'S REPLY FINDINGS OF FACT AND CONCLUSIONS OF LAW CONCERNING COST OF CYLINDER MANAGEMENT AND COST OF CAPITAL ISSUES in the captioned proceeding has been served on the following by e-mail service, designated by **, on March 17, 2006 as shown below. Additional service has been made by deposit in the United States mail, first class, this 17th day of March 2006.

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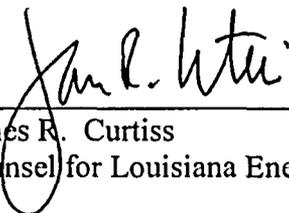
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