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UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

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BEFORE THE COMMISSION

OFFICE OF SECRETARY  
RULEMAKINGS AND  
ADJUDICATIONS STAFF

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

APPLICANT'S PETITION FOR REVIEW OF LBP-06-15

I. INTRODUCTION

Pursuant to 10 C.F.R. § 2.341(b), Louisiana Energy Services, L.P. ("LES" or "Applicant") hereby petitions the Commission for review of certain aspects of the Atomic Safety and Licensing Board's ("Board") Third Partial Initial Decision (LBP-06-15), issued on May 31, 2006, concerning the plausibility and estimated cost of LES's "private sector" strategy for the disposition of depleted uranium ("DU") byproduct from the proposed National Enrichment Facility ("NEF").<sup>1</sup>

In this contested proceeding, LES provided extensive evidence demonstrating the "reasonableness" of its private sector cost estimate, consistent with applicable NRC regulations and guidance. The Board, however, rejected that evidence -- as well as the NRC Staff's corroborating evaluation -- by finding LES's cost estimate to be deficient in two respects. The Board concluded that LES had failed to demonstrate the adequacy of two components of its commercial cost estimate, *i.e.*, the costs associated with (1) deconverting depleted uranium hexafluoride ("DUF<sub>6</sub>") to depleted uranium oxide ("DU<sub>3</sub>O<sub>8</sub>"), and (2) disposing of the DU<sub>3</sub>O<sub>8</sub> in

<sup>1</sup> See LBP-06-15, 63 NRC \_\_ (slip op. May 31, 2006).

a near-surface disposal facility. In evaluating the adequacy of LES's private sector cost estimate, the Board created and applied a novel standard that has no legitimate legal or regulatory basis. The Board's errors warrant Commission review insofar as they (1) reflect a departure from governing precedent or established law, and (2) present a substantial question of law, policy, or discretion that may impact future NRC license applicants.

## II. FACTUAL BACKGROUND CONCERNING LES'S DEPLETED URANIUM DISPOSITION STRATEGIES AND ASSOCIATED COST ESTIMATES

As a gas centrifuge uranium enrichment facility licensed under 10 C.F.R. Parts 30, 40, and 70, the NEF will enrich natural uranium (in the form UF<sub>6</sub>) from its natural isotopic concentration of about 0.7 percent uranium-235 to 5 percent uranium-235. The enrichment process will yield a product stream consisting of enriched UF<sub>6</sub> and a byproduct stream consisting of DUF<sub>6</sub>. Absent its use as a resource, the byproduct will require disposal as waste.

At the outset of this proceeding, the Commission explicitly addressed the need for a "plausible strategy" for dispositioning the DUF<sub>6</sub> generated by NEF operations.<sup>2</sup> In its license application, LES proposed two alternative strategies for dispositioning DUF<sub>6</sub> from the NEF -- the so-called "private sector" and the U.S. Department of Energy ("DOE") disposition options.<sup>3</sup> The former strategy entails transporting the DUF<sub>6</sub> to a privately-owned deconversion facility, where it would be deconverted to DU<sub>3</sub>O<sub>8</sub>, and then transporting the DU<sub>3</sub>O<sub>8</sub> to a licensed disposal facility. LES identified this strategy as its "preferred plausible strategy."<sup>4</sup> The second "alternative"

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<sup>2</sup> Notice of Hearing and Commission Order, 69 Fed. Reg. 5,873, 5,877 (Feb. 6, 2004) ("Hearing Order").

<sup>3</sup> See LES Exh. 109 (NEF Environmental Report ("ER") § 4.13) at 4.13-8 to 4.13-9. In the ER, these two options are designated "Option 1 – U.S. Private Sector Conversion and Disposal (Preferred Plausible Strategy)" and "Option 2 – DOE Conversion and Disposal (Plausible Strategy)." *Id.* at 4.13-8.

<sup>4</sup> In this regard, the ER reflects LES's commitment to, among other things, utilize a disposal path outside the State of New Mexico "as soon as possible," to aggressively pursue economically viable paths for DU disposition as soon as they become available, and to enter into good faith discussions with qualified vendors to pursue construction of a private deconversion facility. LES Exh. 109 at 4.13-8.

strategy involves transferring the DUF<sub>6</sub> to DOE pursuant to Section 3113 of the USEC Privatization Act of 1996, 42 U.S.C. § 2297h-11, as amended. Section 3113 requires DOE to "accept for disposal" low-level radioactive waste ("LLRW"), including DU, generated by any NRC-licensed operator of a uranium enrichment facility, subject to reimbursement for the cost of disposal and a *pro rata* share of DOE's deconversion-related capital costs.

In accordance with NRC decommissioning funding regulations, LES provided a cost estimate for dispositioning DU from the NEF. Specifically, LES obtained, to the extent practicable, cost information from specific vendors regarding the costs of transporting DU; of constructing, operating, and decommissioning a deconversion facility; and of disposing of DU in a near-surface disposal facility. Additionally, LES executed agreements with both AREVA Enterprises (acting on behalf of COGEMA SA and Framatome ANP) and Waste Control Specialists, LLC ("WCS") regarding the furnishing of deconversion and disposal services, respectively.<sup>5</sup> LES also received confirmation in writing from Envirocare of Utah regarding the technical feasibility of disposing of DU<sub>3</sub>O<sub>8</sub> in its near-surface disposal facility and the reasonableness of the estimated disposal cost contained in LES's original application.<sup>6</sup> Based on this third-party commercial information, LES submitted to the NRC a cost estimate of \$4.68 per kilogram of depleted uranium ("kgU"), to which LES subsequently committed to add \$0.60 per kgU for the cost of empty DUF<sub>6</sub> cylinder management.<sup>7</sup>

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<sup>5</sup> See LES Exh. 88 (Memorandum of Understanding Between Louisiana Energy Services, L.P. and AREVA Enterprises, Inc. (Jan. 21, 2005)); LES Exh. 105 (Memorandum of Agreement Between Louisiana Energy Services, L.P. and Waste Control Specialists, LLC" (Jan. 14, 2005)).

<sup>6</sup> See LES Exh. 103 (Letter from A. Rafati, Envirocare of Utah, LLC, to E.J. Ferland, LES (Feb. 3, 2005)).

<sup>7</sup> See, LES Exh. 83 (NEF Safety Analysis Report, Chapter 10) at 10.3-3; LES Exh. 118 (Letter from R. M. Krich to Director, NMSS, "Clarifying Information Related to Cost Estimate for Deconversion of Depleted UF<sub>6</sub>," NEF#05-033 (Nov. 23, 2005)).

In further support of the backup DOE dispositioning strategy, LES requested a cost estimate from the DOE. On March 1, 2005, DOE provided to LES a specific cost estimate, "in the event LES were to request that the Secretary accept DUF<sub>6</sub> for disposal."<sup>8</sup> In June 2005, at LES's further request, DOE provided LES with a report, prepared for DOE by its contractor LMI Government Consulting ("LMI"), that sets forth in detail the specific bases for DOE's cost estimate.<sup>9</sup>

In its June 2005 Safety Evaluation Report ("SER"), the NRC Staff set forth its conclusions regarding LES's private sector decommissioning cost estimate, including that portion of the estimate relating to the disposition of DU byproduct. The Staff addressed each component -- deconversion, transportation, and disposal -- of LES's cost estimate, and found each to be based on documented and reasonable assumptions. Contrary to the Board, the Staff concluded that *all* components of LES's private sector cost estimate are reasonable and meet the requirements of 10 C.F.R. §§ 30.35(e), 40.36(d), 70.25(e) and the evaluation criteria in Volume 3 of NUREG-1757.<sup>10</sup> In a supplement to its SER, the Staff subsequently found that decommissioning funding assurance based on the DOE cost estimate would similarly provide reasonable assurance.

### **III. SUMMARY OF BOARD DECISION WARRANTING COMMISSION REVIEW**

LBP-06-15 represents the third and final Board decision on contested issues in this proceeding, and reflects consideration of evidence presented during the October 2005 and February 2006 evidentiary hearing sessions. LBP-06-15 is concerned solely with challenges

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<sup>8</sup> See LES Exh. 85 (Letter from P. Golan, DOE, to R. Krich, LES (Mar. 1, 2005)).

<sup>9</sup> See LES Exh. 86 (E. Meek, D. Gallway, D. Gray, & G. Westerbeck, *An Analysis of DOE's Cost to Dispose of DUF<sub>6</sub>*, Report DE523T1 (Dec. 2004)).

<sup>10</sup> Staff Exh. 37 (NUREG-1827, *Safety Evaluation Report for the National Enrichment Facility in Lea County, New Mexico* (June 2005)) at 10-11 to 10-12.

proffered by intervenors Nuclear Information and Resource Service and Public Citizen ("NIRS/PC") to LES's private sector strategy for dispositioning DUF<sub>6</sub> and the related cost estimate. Specifically, the Board ruled on the remaining NIRS/PC challenges set forth in Contentions NIRS/PC EC-3/TC-1, NIRS/PC EC-5/TC-2, and NIRS/PC EC-6/TC-3.<sup>11</sup>

Although much of the Board's decision was favorable to LES,<sup>12</sup> the Board concluded that the "reliability" of two major contested elements of LES's overall cost estimate -- the costs associated with private deconversion and private near-surface disposal services -- was not adequately supported on the record. With respect to the first of these elements (private deconversion), the Board found that LES's cost estimate is not "sufficiently reliable" insofar as LES did not: (1) obtain a "direct" or "arm's length" estimate from "a knowledgeable, experienced third-party" of what the third party would charge LES to provide deconversion services; *or* (2) obtain a "thorough analysis from a qualified, credible source of what it would cost either LES or a third party to build, own, operate, and decommission a deconversion facility at the proposed NEF or some other site." LBP-06-15, slip op. at 43, 62. As to the second element (private near-surface disposal), the Board held that "while perhaps not wholly unreasonable on its face," LES's private sector cost estimate for near-surface disposal of DU<sub>3</sub>O<sub>8</sub> "is fundamentally unsupported by either a true third-party estimate or a thorough cost analysis that reflects specific consideration of

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<sup>11</sup> The complex procedural history of these three contentions is discussed at length in the Board's decision. *See* LBP-06-15, slip op. at 3-31. LES will not repeat that recitation here. Numerous bases were withdrawn by NIRS/PC or dismissed as moot prior to the evidentiary hearing stage. As the Board's decision reflects, there was considerable overlap among the remaining bases with respect to subject matter.

<sup>12</sup> Specifically, the Board found that "the LES private deconversion and disposal strategies are plausible," and rejected NIRS/PC challenges to "certain elements" of LES's overall commercial cost estimate, *i.e.*, the costs associated with calcium fluoride ("CaF<sub>2</sub>") disposal, DUF<sub>6</sub> cylinder management costs, DU transportation, and the contingency factor applied to LES's overall dispositioning cost estimate. LBP-06-15, slip op. at 121.

material of the type and quantity that is being contemplated in this instance." *Id.* at 108. The Board's evaluation of the evidentiary record is discussed further below.

#### IV. STANDARD OF REVIEW

Under 10 C.F.R. § 2.341(b)(4), the Commission may, in its discretion, grant a petition for review, giving due weight to the existence of a "substantial question" with respect to the following considerations: (1) a finding of material fact is clearly erroneous or in conflict with a finding as to the same fact in a different proceeding; (2) a necessary legal conclusion is without governing precedent or is a departure from or contrary to established law; (3) a substantial and important question of law, policy or discretion has been raised; (4) the conduct of the proceeding involved a prejudicial procedural error; or (5) any other consideration which the Commission may deem to be in the public interest.<sup>13</sup> Licensing Board findings may be rejected or modified if, after giving the Board's decision the probative force it intrinsically demands, the record compels a different result.<sup>14</sup> Although the Board functions as the agency's primary fact-finder, the Commission may make *de novo* findings of fact based on its own review of the record and decide the case accordingly.<sup>15</sup>

#### V. GROUND FOR COMMISSION REVIEW AND REVERSAL OF THE BOARD'S DECONVERSION AND DISPOSAL COST RULINGS

For the reasons set forth below, the Board's conclusions relative to the adequacy of LES's private sector deconversion and disposal cost estimates are erroneous. The Commission should grant review of LBP-06-15 on the grounds that the Board's decision rests on

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<sup>13</sup> 10 C.F.R. § 2.341(b)(4)(i)-(v); *see also See Private Fuel Storage, L.L.C.* (Independent Spent Fuel Storage Facility), CLI-03-8, 58 NRC 11, 17 (2003) .

<sup>14</sup> *See, e.g., Gen. Pub. Utils. Nuclear Corp.* (Three Mile Island Nuclear Station, Unit 2), ALAB-926, 31 NRC 1, 13-14 (1990).

<sup>15</sup> *See Louisiana Power & Light Co.* (Waterford Steam Electric Station, Unit 3), ALAB-732, 17 NRC 1076, 1087 n.12 (1983).

the application of a legal standard that is contrary to established law and precedent, and which presents a substantial question of law, policy, or discretion. Based on the record in this proceeding -- portions of which the Board improperly evaluated or overlooked -- the Commission should reverse LBP-06-15 so as to resolve Contentions NIRS/PC EC-5/TC-2 and EC-6/TC-3 entirely in the Applicant's favor.

A. **"Reasonable Assurance" is the NRC Standard to be Applied in Evaluating the Adequacy of an Applicant's Initial Decommissioning Funding Cost Estimate**

The NRC has a well-established standard -- the "reasonable assurance" standard -- for evaluating the availability of decommissioning funding. As the NRC Staff observed in an early guidance document concerning decommissioning funding for nuclear facilities:

Traditionally, the Commission has used the standard of "reasonable assurance" in its financial qualification reviews as well as for other public health and safety issues. This standard should remain applicable to establishing the proper degree of assurance for funding decommissioning. The staff does not believe that absolute assurance is attainable, let alone cost effective.<sup>16</sup>

Accordingly, when the Commission amended its regulations in 1988 to set forth revised technical and financial criteria for decommissioning licensed nuclear facilities, it retained the "reasonable assurance" standard. See Final Rule, "General Requirements for Decommissioning Nuclear Facilities," 53 Fed. Reg. 24,018, 24,036 col. 2 (June 27, 1988) (emphasis added) (stating that "[i]t is expected that the requirements contained in amended 10 CFR Parts 30, 40, and 70 will provide *reasonable assurance* that funds are available for decommissioning nuclear facilities"). Although the NRC has since made modifications to its decommissioning funding

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<sup>16</sup> NUREG-0584, "Assuring the Availability of Funding for Decommissioning Nuclear Facilities," Revision 3 (Mar. 1983) at 5.

regulations, the 1988 rulemaking remains the cornerstone of the NRC's decommissioning funding assurance framework.

Notably, in adjudicatory proceedings involving both power reactor and materials licensees, the Commission has reaffirmed the applicability of the "reasonable assurance" standard and illuminated its application. In a 1988 proceeding involving the Seabrook plant's bid for a low-power testing license, the Commission made several observations regarding the reasonable assurance standard that are germane to this licensing proceeding. In particular, the Commission indicated that it "expect[s] *approximate* estimates of costs so that a *reasonable minimum sum* [can] be determined and then adequate assurance provided for its availability."<sup>17</sup> The Commission added that it "does not require the details of the low-level waste disposal sites and disposal fees so long as the plan contains *reasonable* cost estimates for these matters."<sup>18</sup> Finally, the Commission dismissed the need for "comparative decommissioning cost studies as a proof of reasonableness."<sup>19</sup>

In a 1996 proceeding related to the decommissioning of the Yankee Nuclear Power Station, the Commission commented on the degree of precision and certainty required for decommissioning funding assurance purposes. The Commission noted that even a final decommissioning plan "by its very nature deals with a myriad of uncertainties, and [NRC] regulations cannot be construed to require the plan to do the impossible, *i.e.*, predict the future with precision."<sup>20</sup> The Commission emphasized that "the standard to be applied is whether there

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<sup>17</sup> *Pub. Serv. Co. of New Hampshire* (Seabrook Station, Units 1 and 2), CLI-88-10, 28 NRC 573, 586 (emphasis added).

<sup>18</sup> *Id.* (emphasis added).

<sup>19</sup> *Id.*

<sup>20</sup> *Yankee Atomic Elec. Co.* (Yankee Nuclear Power Station), CLI-96-7, 43 NRC 235, 257 (1996).

is *reasonable assurance* of adequate funding, not . . . whether that assurance is 'ironclad.'"<sup>21</sup> In this regard, the Commission added that "not all actual or alleged errors in a decommissioning plan are of equal significance; to be significant enough to be 'material' . . . there needs to be some indication that an alleged flaw in a plan will result in a shortfall of the funds actually needed for decommissioning."<sup>22</sup>

In the *Hydro Resources* proceeding, which involved a license for a proposed multiple-site *in situ* uranium mining project in New Mexico, the Commission enunciated several other key principles that apply here. Although *in situ* uranium mining licensees are subject to the decommissioning funding assurance requirements set forth in Criterion 9 of 10 C.F.R. Part 40, Appendix A, those requirements are directly analogous to those contained in 10 C.F.R. §70.25(e) and described in related NRC guidance.<sup>23</sup> In *Hydro Resources*, the Commission granted review of two rulings by the Presiding Officer because they both involved questions on the proper interpretation and application of applicable decommissioning funding assurance requirements.<sup>24</sup> Importantly, in reversing the two rulings at issue, the Commission made the following observations on the "reasonable assurance" standard and the scope of decommissioning funding cost estimates.

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<sup>21</sup> *Id.* at 260 (emphasis added). *Cf. Private Fuel Storage L.L.C.* (Independent Spent Fuel Storage Installation), CLI-04-27, 61 NRC 145, 155 (2004) (redacted version attached as Attachment 2 to CLI-05-8) (emphasis added) (stating that "our regulations require the license applicant to provide 'reasonable assurance' that it can cover the 'estimated costs' of operating and *decommissioning* the facility").

<sup>22</sup> CLI-96-7, 43 NRC at 259.

<sup>23</sup> Criterion 9 states that "the licensee's cost estimates must take into account total costs that would be incurred if an independent contractor were hired to perform the decommissioning and reclamation work." By comparison, NUREG-1757, which the Staff used to review LES's decommissioning cost estimate, states that "[e]stimated costs should . . . provide sufficient funds to allow an independent third party to assume responsibility for and carry out the decommissioning of the facility if the licensee is unable to do so." LES Exh. 82 (Excerpts from NUREG-1757, Vol. 3, "Consolidated NMSS Decommissioning Guidance -- Financial Assurance, Recordkeeping, and Timeliness" (Sept. 2003)) at A-27.

<sup>24</sup> *Hydro Resources, Inc.* (P.O. Box 15910, Rio Rancho, NM 87174), CLI-04-33, 60 NRC 581, 595 (2004).

- "Cost estimates must be *explained and reasonable, but they need not come directly from an independent contractor*. Such estimates need only 'take into account' *reasonable, common sense judgments* on costs one 'would' incur in hiring an independent contractor."<sup>25</sup>
- "Financial assurance plans [] are *not* intended to cover every imaginable circumstance," and if the NRC were "to demand the most conservative prediction conceivable, based on a 'worst case' type of scenario, the NRC would, as a general matter, unnecessarily and unduly burden the great majority of licensees."<sup>26</sup>

In *Hydro Resources*, the Commission also emphasized that the adequacy of an applicant's initial decommissioning funding cost estimate is a very case-specific inquiry, and that the NRC's decommissioning funding assurance process is a *continuous* process that takes into account the possibility of changes over time.<sup>27</sup> On these points, the Commission stated:

- "The staff evaluates financial plans on a *case-by-case basis*, and thus can require special measures of particular licensees where warranted, *whether at the initial surety stage or later*, if changes in operations or other events bearing on decommissioning costs occur. Required *annual surety updates* provide a *flexible and continuous means* to allow for NRC-required '[a]djustments to reclamation plans.'<sup>28</sup>
- "[T]here are *significant practical considerations* in the case of HRI's license. We could be years away before any operations begin at [the site], and a number of details of the project – which may bear on labor and equipment needs – *will not be known until*

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<sup>25</sup> *Id.* at 602 (emphasis added).

<sup>26</sup> *Id.* at 603 (emphasis added).

<sup>27</sup> LES witness Rod Krich, who has extensive NRC licensing experience, also testified to these important funding assurance considerations. He noted that NRC regulations reflect the Commission's intent to use a "step-by-step" or graded approach to decommissioning financial assurance that spans the operating life of a given facility. *See, e.g.,* "Supplemental Prefiled Direct Testimony of Rod Krich on behalf of [LES] Regarding Cost of Cylinder Management and Cost of Capital Issues" (December 29, 2005), Tr. at 3279, at A.20-A.26. In addition to updating their cost estimates at regular intervals, Part 70 licensees must meet certain end-of-life requirements, including the submittal of a decommissioning plan ("DP"). *Id.* at A.23. The DP must contain, among other items, an updated and detailed cost estimate for decommissioning, along with a comparison of that cost estimate to the amount of the financial assurance for decommissioning. *Id.*; *see also* LES Exh. 81 at 10-1; LES Exh. 82 at 4-4 to 4-6.

<sup>28</sup> CLI-04-33, 60 NRC at 605 (emphasis added). In this same vein, the Commission noted that the regulations do "not require an initial surety that covers *every theoretical possibility*," and that "[t]he plain terms of the regulation itself clearly provide that the updates are intended to cover 'any [] conditions' that may affect the cost estimates." *Id.* (emphasis added).

*operations begin. Thus, the annual surety reviews are a practical and necessary means for assuring an adequate financial surety . . . for every licensed site.*"<sup>29</sup>

With these overarching principles in mind, LES now turns to the specific errors that the Board committed in rejecting LES's private sector deconversion and disposal cost estimates.

**B. The "Reliability" Standard Applied by the Board in Rejecting LES's Private Sector Deconversion and Disposal Cost Estimates is Without Governing Precedent**

In its decision the Board seemingly recognized that "reasonable assurance" is the appropriate standard to apply in assessing the adequacy of a decommissioning cost estimate.<sup>30</sup> The Board stated that "[t]he primary purpose of the plausible strategy requirement is to provide a foundation upon which to build *reasonable* cost estimates for the various elements related to ultimate decommissioning of the proposed facility." LBP-06-15, slip op. at 40 (emphasis added). Similarly, the Board noted that "for a cost estimate based upon such a strategy to afford *reasonable assurance* there will be sufficient future funds to support decommissioning and so provide an adequate foundation for a DFP, it must be footed in 'documented and reasonable assumptions.'" *Id.* (quoting NUREG-1757, Vol. 3 at 4-10) (emphasis added). However, in fact, the Board adopted a standard that exceeds "reasonable assurance."

Specifically, the Board opted to devise and apply *sua sponte* a novel, more rigid standard -- the so-called "reliability" standard. The Board's new standard is based purely on inference, as the Board itself tacitly acknowledged: "[I]n the Board's view ['documented and reasonable assumptions'] connotes that [a] cost estimate must have a sufficient degree of

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<sup>29</sup> *Id.* at 605-06 (emphasis added).

<sup>30</sup> LES made clear, in both its prefiled written testimony and proposed findings, its view that a reasonable assurance standard governs NRC reviews of decommissioning funding cost estimates. See "Prefiled Direct Testimony of Rod Krich, Leslie Compton, Paul Harding, and Paul Schneider on Behalf of [LES] Regarding Applicant's Strategy and Cost Estimate for Private Sector Deconversion of Depleted Uranium Hexafluoride from the Proposed [NEF]" (Sept. 16, 2005) ("LES Deconversion Direct"), Tr. at 1838, A.21; "[LES's] Proposed Findings of Fact and Conclusions of Law Concerning Contentions NIRS/PC EC-3/TC-1, EC-5/TC-2, EC-6/TC-3, and EC-4 (As Remanded) (Nov. 30, 2005), at 20-24. See 10 C.F.R. § 2.341(b)(2)(ii).

reliability." LBP-06-15, slip op. at 40 (emphasis added). After defining a "reliable" cost estimate as one "that is sufficiently trustworthy and dependable" (*id.* at 40 n.30), the Board then posited a two-pronged test for assessing the "reliability" of an applicant's cost estimate. Under that test, a cost estimate is "sufficiently reliable" *only* if it represents: (1) a "direct" or "arm's length" estimate from a "knowledgeable, experienced third-party" or (2) a "thorough analysis from a qualified, credible source." *Id.* at 43, 62.

The Board cited no NRC regulation, guidance document, or precedent (adjudicatory or otherwise) as a basis for applying this new "reliability" standard. Contrary to the Board's suggestion, the NRC Staff's sporadic use of the term "reliable" in its post-hearing findings is a semantical matter, *not* a corroboration of the substantive standard actually applied by the Board. *See* LBP-06-15, slip op. at 40 n.30. At no time in this proceeding has the Staff espoused the Board's two-part "reliability" test. Indeed, it is telling that the Staff and the Board reached contrary conclusions relative to the adequacy of LES's deconversion and disposal cost estimates. In short, the Board's rejection of LES's private sector deconversion and disposal cost estimates was the direct result of its reliance on an arbitrary standard that has no precedent in NRC regulatory or adjudicatory practice.

C. **The "Reliability" Standard Applied by the Board in Rejecting LES's Deconversion and Disposal Cost Estimates is Contrary to Established Law**

The "reliability" standard fashioned by the Board is contrary to the "reasonable assurance" standard traditionally applied by the NRC in its financial assurance reviews. The Board's two-fold inquiry is too stringent to qualify as a "reasonable assurance" review. Under the Board's new standard, the only way an applicant can furnish a "sufficiently reliable" cost estimate is by (1) obtaining a direct, third-party estimate (*i.e.*, "a summary bid or price quote from an experienced third-party vendor") or (2) undertaking a "thorough cost analysis." LBP-06-

15, slip op. at 62 & n.48. However, as the Commission made clear in CLI-04-33, while a cost estimate must be "explained and reasonable," it need not come directly from an independent contractor or third party. CLI-04-33, 60 NRC at 602. The Board expressly conceded this fact when it stated that "[h]aving a third-party estimate for decommissioning costs is not necessarily mandated by the relevant NRC regulations and guidance." LBP-06-15, slip op. at 60 n.45.

The other alternative posed by the Board -- producing a "thorough cost analysis"-- also is plainly at odds with the reasonable assurance standard. NUREG-1757, Volume 3, which provides guidance relevant to demonstrating compliance with the decommissioning funding requirements of Parts 30, 30, and 70, states that "[t]he site-specific cost estimate required for a DFP should represent the licensee's *best approximation* of all direct and indirect costs of decommissioning its facilities under routine facility conditions."<sup>31</sup> Similarly, NUREG-1520, the NRC's standard review plan for fuel cycle facilities, states that the DFP "must contain *sufficient detail* to enable the reviewer to determine whether the decommissioning cost estimate is *reasonably accurate*."<sup>32</sup> Neither guidance document mentions any need for a "thorough cost analysis" of the type contemplated by the Board.

The Board, however, stated rather cryptically that LES must prepare a cost analysis "such as would typically be developed and used for any new project."<sup>33</sup> LBP-06-15, slip op. at 59. Such an analysis, the Board posits, must "accurately reflect[] all the variables

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<sup>31</sup> LES Exh. 82 at A-26 (emphasis added). In this regard, NUREG-1757 directs the Staff to give due consideration to the completeness (*i.e.*, scope) of the cost estimate, the level of detail presented, and the *reasonableness* of the estimate (*i.e.*, the "accuracy and magnitude" of the estimated costs), and to probe the bases for the applicant's assumptions. *See id.* at A-25. It does not suggest the need for a theoretically optimal cost estimate.

<sup>32</sup> LES Exh. 81 (NUREG-1520, "Standard Review Plan for the Review of a License Application for a Fuel Cycle Facility" (Mar. 2002), Chapter 10) at 10-1 (emphasis added).

customarily considered in establishing the cost" of the project or service. *Id.* at 60. LES construes these ambivalent Board statements to require the preparation of a comprehensive, bottom-up cost analysis, perhaps of the sort that might be prepared by the actual provider of the relevant service as part of a business plan or pricing analysis. The Board's logic thus yields an untenable result: if an applicant is unable to obtain a direct cost estimate from a third-party vendor, then it must effectively place itself in the shoes of the vendor providing the relevant service. Moreover, the Board's two-part "reliability" test contravenes the principle that an applicant need only make "reasonable, common sense judgments" in estimating third-party costs. *See* CLI-04-33, 60 NRC at 602.

The Board's approach also ignores the need, as identified by the Commission, for both case-by-case evaluation and flexibility in the decommissioning funding assurance process. *See* CLI-04-33, 60 NRC at 605-06. Importantly, the precise details and costs of LES's private sector deconversion and disposal strategies will not become fully crystallized until LES completes further commercial discussions with appropriate third-party vendors. However, by applying its unduly rigid "reliability" standard, the Board gave short shrift to this "significant practical consideration." Furthermore, the Board failed to apprehend the full importance of the periodic adjustment process. As the Commission has noted, "annual surety reviews are a practical and necessary means for assuring an adequate financial surety" (CLI-04-33, 60 NRC at 605-06) where, as here, key disposition-related details (*i.e.*, the exact deconversion and disposal paths for NEF-generated DU) are still fluid and evolving.<sup>34</sup> LES is no exception to this rule. It

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<sup>33</sup> On this point, it warrants emphasis that the "new project" at issue here is the construction and operation of the NEF -- for which LES long ago prepared a detailed cost analysis -- *not* the construction and operation of a private deconversion facility.

<sup>34</sup> *Cf. Wabash Valley Power Ass'n and Pub. Serv. Co. of Indiana* (Marble Hill Nuclear Generating Station, Units 1 & 2), DD-81-18, 14 NRC 925, 928 (stating that "[t]he financing of any undertaking is obviously a dynamic process," and that "[e]ven after consideration of the fundamental underlying assumptions of a

will be required by a license condition to update its cost estimate for DU dispositioning *annually* on a forward-looking (*i.e.*, prospective) basis, so that the financial assurance level reflects current projections of LES's DU byproduct inventory. *See* Staff Exh. 37 (SER) at 10-14 to 10-16.

**D. The Board's Decision Presents a Substantial Question of Law, Policy, or Discretion**

In view of the above, the Board's decision presents a substantial question of law, policy, or discretion. Improper interpretation or application of the NRC's decommissioning funding assurance requirements has broad implications. Application of the "reliability" standard applied by the Board here in future proceedings could adversely impact other materials license applicants. In addition, assuming *arguendo* that the Board's "reliability" standard is not erroneous, the Board failed to meaningfully delineate the contents or scope of the "thorough cost analysis" envisaged in the second prong of its two-part "reliability" test. This fact alone could inject considerable confusion and uncertainty into future NRC licensing proceedings. For these reasons, Commission review is warranted.

**E. LES's Private Sector Deconversion and Disposal Cost Estimates Satisfy the Commission's "Reasonable Assurance" Standard**

**1. *LES Carried its Burden of Proof to Demonstrate the Adequacy of its Private Sector Deconversion Cost Estimate***

When viewed in light of the correct legal standard, *i.e.*, "reasonable assurance," the record fully supports the Staff's conclusion that LES's commercial deconversion cost estimate meets the applicable NRC regulatory requirements and criteria. At bottom, LES's cost estimate constitutes a "best approximation," such that a "reasonable minimum sum" can be financially assured (and, as necessary, adjusted in accordance with the periodic update process). Stated

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financing plan ... one can only view a financial plan to be one possible way by which a company's projected capital requirements, including those resulting from the construction of a facility, might reasonably be obtained").

differently, LES "understands its funding commitment and has seriously considered the factors that will contribute to the expense of the project it is undertaking."<sup>35</sup>

In this regard, LES has provided a "reasonably accurate" cost estimate for private deconversion that, under the circumstances, is of an appropriate scope, level of detail, and magnitude. Moreover, as reflected in the extensive evidentiary record on this issue, the bases for LES's cost estimate, including any necessary assumptions, have been fully disclosed and documented.<sup>36</sup> LES will not repeat in full here the derivation of its estimate. In short, LES derived a cost estimate from a proprietary Urenco business study (LES Exh. 91) of a proposed 3,500 Metric Tons (MT) U/year deconversion plant for Urenco's Capenhurst, UK site that will use the COGEMA deconversion process to produce U<sub>3</sub>O<sub>8</sub> and aqueous HF co-product. The Urenco business study is, in turn, directly based on a detailed cost assessment that COGEMA prepared at Urenco's request (LES Exh. 90). Based on engineering judgment and some relevant NEF-related experience, LES adjusted the cost information extracted from the Urenco business study to reflect differences in planned operating capacities, Euros to dollars conversion, "Americanization" costs (*i.e.*, potential additional costs associated with obtaining regulatory approval in the U.S. and converting European equipment standards to American standards), and decontamination and decommissioning costs.

LES's deconversion cost estimate, as supported by the current evidentiary record, passes muster under the "reasonable assurance" standard insofar it is based on detailed cost

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<sup>35</sup> *Private Fuel Storage*, CLI-04-27, 61 NRC at 155 (quoting *Louisiana Energy Servs., L.P.* (Claiborne Enrichment Center), CLI-97-15, 46 NRC 294, 307 (1997)).

<sup>36</sup> *See generally* LES Deconversion Direct, Tr. at 1838; "Prefiled Rebuttal Testimony of Rod Krich, Leslie Compton, Paul Harding, and Paul Schneider on Behalf of [LES] Regarding Applicant's Strategy and Cost Estimate for the Private Sector Deconversion of Depleted Uranium Hexafluoride" (Oct. 11, 2005) ("LES Deconversion Rebuttal"), Tr. at 1840; LES Exhs. 88-97, 115; *see also* Tr. at 1893-97, 1901-11, 1927-28, 2007-2010, 2270-77.

information from appropriate commercial sources, as modified by "reasonable, common sense judgments." The purported evidentiary shortcomings cited by the Board reflect the Board's application of an improper review standard. First, the Board rejected LES's reliance on the Urenco business study (and the COGEMA cost estimates upon which it is based), asserting that it "does not represent a bona fide third-party estimate of what that entity would charge to provide deconversion services for the NEF." LBP-06-15, slip op. at 59-60. However, as discussed above, there is no regulatory dictate that LES obtain a "direct" third party cost estimate.

There is no better footing for the Board's related assertion that, while COGEMA has "actual experience in constructing and operating a deconversion facility," its "cost estimates and related statements are *degrees removed* from the instant proceeding." LBP-06-15, slip op. at 59-60 n.44 (emphasis added). This statement again reflects the Board's asserted preference for "direct" cost estimates. In any event, it was not unreasonable for LES to rely on relevant cost information supplied by either COGEMA or Urenco. LES's Memorandum of Understanding ("MOU") with AREVA Enterprises, Inc. (which, like COGEMA SA, is an AREVA Group company) makes very clear that LES is considering deployment of COGEMA's deconversion technology in the U.S. for purposes of processing DUF<sub>6</sub> byproduct generated by the NEF. *See* LES Exh. 88. The MOU, upon which the Board relied in part in finding LES's commercial deconversion strategy to be plausible, explicitly references the planned deconversion facility at Urenco's Capenhurst, United Kingdom site (for which the COGEMA bid and Urenco business study were prepared). *See id.* In fact, the Board described the MOU as reflecting an "important part" of LES's commercial strategy "because it demonstrates that LES has identified a specific entity with pertinent, proven technology and experience as the basis for its private deconversion

strategy." LBP-06-15, slip op. at 53. The Board's subsequent and inconsistent assertion that the COGEMA cost information is "degrees removed" from this proceeding is thus misplaced.<sup>37</sup>

Second, though it accepted "the concept of estimating the cost to construct and operate a facility based on prior experience with a similar facility (*id.* at 59)," the Board found that, "in this instance the mere scaling up and adapting of those construction and operation costs "falls short." *Id.* This conclusion, however, is likewise rooted in the application of a faulty legal standard. Specifically, applying its two-part reliability test, the Board reasoned that in the absence of "bona fide third-party estimate," LES must provide "a thorough analysis of what it would cost LES or another entity to construct and operate a facility to process the NEF's anticipated annual throughput." *Id.* at 61. As the Staff found, the bases for its "scaling up and adapting" of the costs contained in the Urenco business study are explained, reasonable, and adequately documented in the record. Nothing more is required for purposes of a "reasonable assurance" showing.

Finally, in the context of its "thorough cost analysis" inquiry, the Board concluded that LES's deconversion cost estimate was not "reliable" because it "failed to encompass material, customary cost elements." LBP-06-15, slip op. at 61. In particular, the Board noted that it was unable to determine whether additional "line items" are necessary to account for the HF neutralization costs or "cost of capital" insofar as LES allegedly did not provide "a sufficiently documented breakdown of the costs contained within the overall deconversion estimate." *Id.* at 64-65 n.51. LES, however, presented ample testimony and evidence to

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<sup>37</sup> Insofar as the Urenco business study contains cost estimates and assumptions made by Urenco itself (*e.g.*, estimated licensing and operating costs), LES did not act unreasonably in relying on that information. LES witness Dr. Paul Harding testified that although a deconversion plant is different from an enrichment plant, "many of the scales and expertise required are identical to an enrichment plant expansion." He added that with "some augmentation," Urenco "does have the required expertise in Europe." Tr. at 1906.

demonstrate a reasonable basis for its assumption that the cost of neutralizing HF is bounded by the cost of processing and storing HF.<sup>38</sup> The Board rejected that evidence because it lacked "true cost figures." LBP-06-15, slip op. at 65 n.51. Similarly, LES provided ample testimony establishing why it is not necessary to include an explicit "line item" for the "cost of capital," *i.e.*, the cost of borrowing funds and the return on investment for a third-party deconverter to construct and operate a private deconversion facility.<sup>39</sup>

In sum, in applying its so-called "reliability" standard, the Board improperly evaluated the evidentiary record. Whereas the Commission has noted that a plausible strategy does not mean a "definite or certain strategy," the Board has nonetheless demanded a definite or certain cost analysis. Notwithstanding, the Board's decision, while questioning the "reliability" of LES's deconversion estimate, does not establish that LES's cost estimate is materially deficient, *i.e.*, of such a magnitude that a major shortfall in funding will occur. Indeed, other approximate benchmarks of the cost of deconversion -- including the DOE cost estimate and the Urenco-COGEMA contract -- indicate a deconversion cost in the vicinity of \$3 per kgU.<sup>40</sup> While the intervenors sought to "poke holes" in LES's private deconversion cost estimate (which is now \$3.29 per kgU with the addition of \$0.60 for cylinder management costs), they did not demonstrate any gross or disabling error, *i.e.*, that the cost would greatly exceed \$3 per kgU, so

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<sup>38</sup> LES Deconversion Direct A.42-A.43; LES Deconversion Rebuttal A.6; Tr. at 1950-51, 2065-71; LES Exh. 115.

<sup>39</sup> See "Supplemental Prefiled Direct Testimony of Rod Krich on behalf of [LES] Regarding Cost of Cylinder Management and Cost of Capital Issues" (December 29, 2005), Tr. at 3279, A.19-A.30; "Supplemental Prefiled Rebuttal Direct Testimony of Rod Krich on Behalf of [LES] Regarding Cost of Cylinder Management and Cost of Capital Issues" (Jan. 13, 2006), Tr. at 3281, A.8-A.12.; See also Tr. at 3313-15, 3291-93, 3353, 3358.

<sup>40</sup> Additionally, LES witness Paul Schneider testified that he was part of the team that, in 2001, prepared a proposal on behalf of USEC and others to perform deconversion services for DOE. That proposal included the capital and operating costs associated with a deconversion plant. Mr. Schneider testified that the estimate was less than \$3 per kgU, and that a subcontractor in South Carolina confirmed the actual cost of deconverting DUF<sub>6</sub> to be less than \$3 per kgU. See Tr. at 1886-87.

as to possibly require something more than a "formalistic redraft" of the cost estimate.<sup>41</sup> At bottom, when evaluated under the "reasonable assurance" standard, the record fully supports a finding that LES's private deconversion cost estimate represents a "reasonably accurate" estimate or "best approximation" of private sector deconversion costs.

2. *LES Carried its Burden of Proof to Demonstrate the Adequacy of its Private Sector Near-Surface Disposal Cost Estimate*

The record also fully supports a finding that LES's cost estimate for near-surface disposal of  $DU_3O_8$  in a commercial LLRW disposal facility is "reasonably accurate" and based on adequately documented data and assumptions. Again, the Board reached a contrary and erroneous conclusion because it substituted its own "reliability" test for the applicable "reasonable assurance" standard. This fact is strikingly manifest in the following Board statement: "LES's cost estimate *may well be reasonable . . .*, but reasonableness does not, in and of itself, beget *reliability*." LBP-06-15, slip op. at 107 (emphasis added).

As the Board noted, "[t]here is no doubt that the record before [it] contains a great deal of evidence about various disposal costs." *Id.* Indeed, LES identified a specific disposal site (Envirocare) authorized to accept  $DU_3O_8$  in the volumes to be generated by the NEF, included a cost estimate for a variety of LLRW waste types at that same site (including a specific price quote from Envirocare to DOE contractor UDS for  $DU_3O_8$  disposal), and obtained a quote from a reputable radioactive waste management company (WCS) that is seeking to a license that will authorize it to dispose of  $DU_3O_8$ .<sup>42</sup> *See id.* at 100-106. Additionally, LES and Staff

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<sup>41</sup> *Cf. Yankee*, CLI-96-7, 43 NRC at 257 (citation omitted) (stating "the reasonableness of a decommissioning plan's cost estimate should not be deemed litigable if reasonable assurance of decommissioning costs is not in serious doubt and the only available relief would be a 'formalistic redraft' of the plan with a new estimate").

<sup>42</sup> *See* "Prefiled Direct Testimony of Rod Krich and Thomas Potter on Behalf of [LES] Regarding Applicant's Strategy and Cost Estimate for the Private Sector Disposal of Depleted Uranium From the National

witnesses familiar with typical LLRW disposal costs at Envirocare testified that, in view of that knowledge, LES's disposal cost estimate of \$1.14/kgU (approximately \$80/ft<sup>3</sup>) is reasonable.<sup>43</sup>

*Id.* at 101-107.

However, rather than considering the cumulative weight of, and consistency among, the disposal cost figures, the Board adopted a "siloeed" approach, applying its novel reliability test to each piece of cost information individually. For example, the Board found the WCS cost estimate "unreliable" since WCS is not currently licensed to accept DU<sub>3</sub>O<sub>8</sub> (though it has a pending application) and has no experience in disposing of DU<sub>3</sub>O<sub>8</sub>. *See* LBP-06-15, slip op. at 104. The Board could not find the \$75 per cubic foot Envirocare estimate "reliable" since it was not specifically for DU<sub>3</sub>O<sub>8</sub> (even though DU<sub>3</sub>O<sub>8</sub> is LLRW and would be disposed in the same type of cell as other LLRW). *See id.* at 104. Although the Board acknowledged that the record contains evidence of what Envirocare might charge DOE for disposing of its DU<sub>3</sub>O<sub>8</sub>, the Board could not consider that estimate to be a "direct" third-party estimate or a "thorough analysis from a qualified and credible source." *Id.* at 106.

Because the Board's evaluation of the record was impaired by its application of the wrong standard, the Commission should reverse the Board's finding relative to the adequacy of LES's disposal cost estimate. Moreover, when viewed in the aggregate, the evidence in the

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Enrichment Facility" (Sept. 16, 2005), Tr. 2607, A.27-A.28; LES Exhs. 87, 103-109; Tr. at 2795-96, 2802-04, 2811-13.

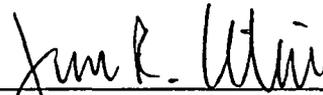
<sup>43</sup> The quantity and quality of evidence presented by LES and the Staff is significantly greater than that presented in the *Claiborne* proceeding, where the Board -- applying the correct standard -- nonetheless found LES's disposal cost estimate to be "a reasonable one." Specifically, the Board found that "it was not unreasonable for the Applicant to base its cost estimate for *deep disposal* on the *near-surface* cost estimates in the [DOE-sponsored] Martin Marietta and EG&G reports." *See Louisiana Energy Servs. (Claiborne Enrichment Center)*, LBP-97-3, 45 NRC 99, 113 (1997), *vacated by* CLI-98-5, 47 NRC 113 (1998) (emphasis added) (NIRS/PC Exh. 205). In other words, the Board found LES's cost estimate to be reasonable based on reports that were prepared for DOE without reference to a specific disposal site and for a different type of disposal altogether. Here, LES has presented cost information from third parties (including DOE) that is relevant to near-surface disposal of depleted uranium and other comparable forms of LLRW at a specific disposal site (Envirocare).

record fully supports a finding that LES's private sector disposal cost estimate is, in fact, "explained and reasonable."

**VI. CONCLUSION**

For the foregoing reasons, the Commission should accept review of LBP-06-15 and reverse the Board's rulings relative to the adequacy of LES's private sector deconversion and disposal cost estimates.

Respectfully submitted,



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Dated at Washington, District of Columbia  
this 15th day of June 2006

UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

BEFORE THE COMMISSION

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 PETITION FOR REVIEW OF LBP-06-15" in the captioned proceeding has been served on the following by e-mail service, designated by \*\*, on June 15, 2006 as shown below. Additional service has been made by deposit in the United States mail, first class, this 15th day of June 2006.

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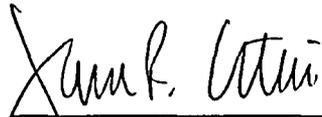
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