

October 14, 2005

UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

DOCKETED  
USNRC

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD      October 14, 2005 (11:35am)

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

OFFICE OF SECRETARY  
RULEMAKINGS AND  
ADJUDICATIONS STAFF

**APPLICANT'S MOTION IN LIMINE TO EXCLUDE PORTIONS  
OF THE PREFILED REBUTTAL TESTIMONY OF ARJUN MAKHIJANI  
CONCERNING CONTENTIONS NIRS/PC EC-3/TC-1, EC-5/TC-2 AND EC-6/TC-3**

**I. INTRODUCTION**

In accordance with 10 C.F.R. §§ 2.323 and 2.337(a), and the Atomic Safety and Licensing Board's ("Board") Memorandum and Order of October 4, 2005,<sup>1</sup> Louisiana Energy Services, L.P. ("LES") hereby moves to exclude portions of the October 11, 2005 prefiled rebuttal testimony of Nuclear Information and Resource Service and Public Citizen ("NIRS/PC" or "Intervenors") witness Arjun Makhijani. LES respectfully requests that the NIRS/PC rebuttal testimony identified below be stricken on the ground that it raises issues that fall outside the proper scope of rebuttal testimony, including issues that the Board has previously excluded from this proceeding.

**II. BACKGROUND**

On September 16, 2005, in accordance with the Board's Memorandum and Order of September 2, 2005,<sup>2</sup> LES, NIRS/PC, and the NRC Staff submitted prefiled direct testimony on issues pertaining to LES's plausible strategy and associated cost estimate for the commercial

<sup>1</sup> See Memorandum and Order (Ruling on In Limine Motions and Motion to Dismiss) (Oct. 4, 2005) (unpublished) ("Ruling on In Limine Motions").

<sup>2</sup> See Memorandum and Order (Regarding LES Motion to Dismiss/Narrow Scope; Schedule for Prefiled Testimony and Related Filings) (Sept. 2, 2005) (unpublished) ("September 2nd Order").

dispositioning of depleted uranium ("DU") from the proposed National Enrichment Facility ("NEF"). The parties submitted that testimony in connection with admitted Contentions NIRS/PC EC-3/TC-1 (Depleted Uranium Hexafluoride Storage and Disposal), NIRS/PC EC-5/TC-2 (Decommissioning Costs), and NIRS/PC EC-6/TC-3 (Costs of Management and Disposal of Depleted Uranium). LES and the NRC Staff filed motions to strike portions of the prefiled direct testimony of NIRS/PC witness Arjun Makhijani on September 22, 2005. On October 4, 2004, the Board ruled on those motions, granting them in large part, and instructing the parties to file their prefiled rebuttal testimony on October 11, 2005. The Board further directed the parties to file any in limine motions regarding rebuttal testimony by noon on October 14, 2005.

### III. ARGUMENT

LES and the NRC Staff have discussed the legal standards governing the admissibility of evidence in NRC proceedings on several prior occasions. That discussion need not be duplicated here. In short, to be admitted, proffered evidence must be relevant, material, and reliable. *See* 10 C.F.R. § 2.337(a). Testimony that fails to meet those criteria should be excluded from the proceeding. In the case of rebuttal testimony, the Board has emphasized that the purpose of such testimony *"is to respond to the prefiled direct testimony propounded by the other parties to the proceeding, not for witnesses to put forth new testimony of their own or reintroduce testimony that the Board has stricken by its [prior] rulings."*<sup>3</sup> Rebuttal testimony that violates this simple precept, such as the NIRS/PC rebuttal testimony identified below, should be stricken.

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<sup>3</sup> Ruling on In Limine Motions at 17 (emphasis added).

A. Makhijani Rebuttal Testimony Regarding Deconversion<sup>4</sup>

In Answer 12 of his rebuttal testimony, Dr. Makhijani seeks to contest the adequacy of the Department of Energy's ("DOE") cost estimate for the dispositioning of depleted uranium ("DU") from the proposed NEF. In doing so, Dr. Makhijani again relies on arguments related to the DOE's alleged "long history of poor management, technical problems, and cost overruns." See Makhijani Deconversion Rebuttal at 15-19. This testimony concerning the DOE's so-called "long track record of [] past failures" is plainly inadmissible. *Id.* at 18.

Dr. Makhijani's testimony is in direct defiance of the Board's October 4, 2005 ruling. Amazingly, the testimony at issue is *identical* to testimony concerning "DOE's performance history" that the Board struck from Dr. Makhijani's prefiled direct testimony. In its October 4 ruling, the Board stated unequivocally that it "will not hear testimony concerning the adequacy of the particular costs associated with the DOE disposal option, except in one limited respect," that being the DOE's potential exclusion of costs associated with any pertinent element of decommissioning or DU disposal.<sup>5</sup> The Board emphasized that this "limited" inquiry does *not* encompass subjects that the Board previously deemed inappropriate for consideration in connection with LES's cost estimate for commercial dispositioning of DU (e.g., use of the depleted UO<sub>2</sub> disposal form, "emerging" uranium health effects, and the DOE's performance history).<sup>6</sup> Thus, the "omission" in the LMI report that NIRS/PC alleges of "any consideration of DOE's experience at managing complex programs" is unquestionably *not* a pertinent element of DU dispositioning.<sup>7</sup>

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<sup>4</sup> See "Rebuttal Testimony of Arjun Dr. Makhijani in Support of NIRS/PC Contentions EC-3/TC-1, EC-5/TC-2, and EC-6/TC-3 Concerning LES's Deconversion Strategy and Cost Estimate" (Oct. 11, 2005) ("Makhijani Deconversion Rebuttal").

<sup>5</sup> Ruling on In Limine Motions at 7.

<sup>6</sup> See *id.* at 7-8 & n.4.

<sup>7</sup> Similarly, on page 19 of his testimony, Dr. Makhijani also asserts that "the DOE will likely have to pursue deeper than shallow land disposal," and that "the LMI study omits any discussion of this potential need for

Accordingly, Questions 11 and 12, and the answers thereto, should be stricken in their entirety. Answer 11 simply excerpts portions of the prefiled direct testimony of LES expert witness Rod Krich, and is intended to serve as a predicate for the inadmissible testimony contained in Answer 12. *See* Makhijani Deconversion Rebuttal at 15. Therefore, because they serve no independent purpose, Question and Answer 11 also should be stricken.

In Answer 13 of his rebuttal testimony, Dr. Makhijani again acts in defiance of the Board's October 4 ruling by propounding an entirely new argument. Specifically, he asserts that "[i]t is not reasonable for LES to exclude the cost of [empty depleted uranium hexafluoride ("DUF<sub>6</sub>") cylinder management from its cost estimate as it apparently has done." Makhijani Deconversion Rebuttal at 21. However, issues associated with the management of empty DUF<sub>6</sub> cylinders and any attendant costs simply are not germane to LES's DU dispositioning cost estimate, and, for that reason, were not addressed by LES or the NRC Staff in either party's prefiled direct testimony. Dr. Makhijani acknowledges this much in stating: "The testimony of any LES or NRC Staff witness does not address the issue of the cost associated with the management of the emptied DUF<sub>6</sub> cylinders." Makhijani Deconversion Rebuttal at 19. Any attempt by NIRS/PC to characterize the testimony at issue as a "response" to a material omission in the direct testimony of LES or the Staff is unpersuasive at best, and disingenuous at worst. Relevance aside, NIRS/PC plainly could have raised -- but chose not to raise -- the issue of DUF<sub>6</sub> cylinder management costs in their own direct testimony. Indeed, the documents on which Dr. Makhijani relies -- the DOE's 1999 programmatic environmental impact statement ("PEIS") and the Urenco business study -- have been in the possession of NIRS/PC for most, if not all, of this

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more costly disposal." Dr. Makhijani, however, grossly misconstrues the Board's October 4 ruling. Clearly, DOE and LMI have considered the costs associated with the "element" of disposal. Dr. Makhijani's assertion that DOE should consider "deeper" disposal thus goes to the "adequacy" of the DOE cost estimate, *not* to the exclusion of a relevant cost "element."

proceeding. Therefore, Question 13 and the answer thereto should be stricken for seeking improperly to "put forth new testimony." Ruling on In Limine Motions at 17.

Finally, in Answer 14, Dr. Makhijani presents his revised estimate of the "overall cost" of dispositioning  $\text{DUF}_6$  from the proposed NEF, purportedly "taking into account the Board-imposed subtractions from the estimates contained in [his] November 2004 and July 2005 reports." Makhijani Deconversion Rebuttal at 21. Notwithstanding this ostensible compliance with the Board's October 4, 2005 ruling, Dr. Makhijani proceeds to state as follows:

Unlike the cost estimates in our report, this range of costs does not include (1) any contingency to incorporate the findings from the 1999 Federal Guidance Report 13, from the U.S. Environmental Protection Agency, or the 2005 BEIR VII Report from the National Academy of Sciences Committee to Assess Health Risks from Exposure to Low Levels of Ionizing Radiation which show that women have a 52 to 58 percent higher risk of developing cancer than men from the same level of radiation exposure and (2) any costs associated with deconverting the  $\text{DUF}_6$  to a chemical form other than  $\text{DU}_3\text{O}_8$  even though alternative chemical forms have been considered or discussed by such agencies as the U.S. Department of Energy, the Lawrence Livermore National Laboratory, the International Atomic Energy Agency, the OECD Nuclear Energy Agency, and the U.S. Nuclear Regulatory Commission. Finally, the \$18 to \$24 per kilogram of uranium range does not include any allowance for fabricating the depleted uranium into a waste form more suitable for geologic disposal than  $\text{U}_3\text{O}_8$ .

*Id.* at 21-22. The foregoing passage constitutes sheer apophasis. Dr. Makhijani purports to acknowledge the "clear boundaries" the Board has established relative to his testimony on overall DU dispositioning costs, yet simultaneously raises two of the very issues the Board has "repeatedly declined to admit" -- (1) increased health risks to women and (2) consideration of alternatives to the  $\text{DU}_3\text{O}_8$  disposal form.<sup>8</sup> As such, the portion of Answer 14 excerpted above should be stricken from Dr. Makhijani's rebuttal testimony because it seeks to reintroduce testimony that the Board has excluded by prior rulings.<sup>9</sup>

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<sup>8</sup> See Ruling on In Limine Motions at 10, 12-13.

<sup>9</sup> See *id.* at 17.

B. Makhijani Rebuttal Testimony Regarding Transportation<sup>10</sup>

In Answer 4 of his rebuttal testimony, Dr. Makhijani repeats the statements discussed above in connection with Answer 14 of his rebuttal testimony on deconversion-related issues. See Makhijani Transportation Rebuttal at 4. As noted above, the testimony of concern attempts to reintroduce the inadmissible issues of increased health risks to women and alternative DU disposal forms. Accordingly, the portion of Answer 4 beginning on page four with "Unlike the cost estimates" and ending with "geologic disposal than U<sub>3</sub>O<sub>8</sub>" should be stricken.

C. Makhijani Rebuttal Testimony Regarding Disposal<sup>11</sup>

With respect to disposal-related issues, LES seeks to strike five discrete portions of the prefiled rebuttal testimony of Dr. Makhijani. First, in Answer 5 of his rebuttal testimony, Dr. Makhijani seeks to respond to LES's "criticisms of [his] comparisons between the radiological properties of bulk depleted uranium and transuranic waste." Makhijani Disposal Rebuttal at 6-9. Near the end of his answer, Dr. Makhijani states as follows:

Significantly, both the states of Utah and Washington have also included a 10 nanocuries per gram limit on radium-226 in their Class A low-level waste definitions. *The same logic that has already extended the limit for near surface disposal to radium-226, would likely extend this same limit to the three uranium isotopes under consideration as well.* The specific activity of the bulk DU<sub>3</sub>O<sub>8</sub> would exceed a 10 nanocurie per gram limit for Class A LLW by more than a factor of 30.

*Id.* at 9 (emphasis added). The preceding passage should be stricken on several grounds. First, the existence of concentration limits on radium-226 is irrelevant to the disposal of bulk DU<sub>3</sub>O<sub>8</sub>. Second, Dr. Makhijani tacitly asserts that the NRC and/or Agreement State agencies *should* (and, in fact, "likely" will, if they follow his "logic") apply a 10 nanocurie per gram limit to uranium

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<sup>10</sup> See "Rebuttal Testimony of Dr. Arjun Makhijani in Support of NIRS/PC Contention EC-5/TC-2 Concerning LES's Transportation Cost Estimate" (Oct. 11, 2005) ("Makhijani Transportation Rebuttal").

<sup>11</sup> See "Rebuttal Testimony of Arjun Dr. Makhijani in Support of NIRS/PC Contentions EC-3/TC-1, EC-5/TC-2, and EC-6/TC-3 Concerning LES's Disposal Strategy and Cost Estimate" (Oct. 11, 2005) ("Makhijani Disposal Rebuttal").

isotopes. Clearly, the decision to impose such a limit is matter within the purview of the pertinent regulatory entity, and, therefore, is not litigable in this proceeding. Moreover, the suggestion that such a limit "likely" will be extended to the uranium isotopes is rank speculation and cannot be regarded as reliable evidence.<sup>12</sup>

Second, Answer 11 is devoted entirely to supporting Dr. Makhijani's view that "*it is very unlikely that Envirocare would be suitable for the disposal of the 133,000 metric tons of [DU] that would be generated by the proposed NEF and should not be relied upon as such for determining the cost of disposal.*" Makhijani Disposal Rebuttal at 15 (emphasis added). In other words, Dr. Makhijani again seeks to contest the viability of the Envirocare facility's license, an issue that the Board has made clear is not subject to consideration in this proceeding.<sup>13</sup> In fact, Answer 11 of Dr. Makhijani's rebuttal testimony reiterates *verbatim* Answer 13 of his direct testimony on disposal. Significantly, the Board struck Answer 13 in its entirety in its October 4, 2005 ruling. Therefore, Answer 11 of the rebuttal testimony should be excluded insofar as it seeks to reintroduce previously stricken testimony.

Third, LES moves to exclude a portion of Dr. Makhijani's answer to Question 12, which concerns statements made by the DOE in its 1999 PEIS relative to the disposal of DU in a near-surface or shallow land disposal facility. While Dr. Makhijani initially focuses on certain statements made in the PEIS, he quickly turns his attention to the "generic screening" and "site-specific" analyses discussed in his November 2004 and July 2005 reports. *See* Makhijani Disposal Rebuttal at 19-20. Those same "analyses" are discussed in that portion of Dr. Makhijani's direct testimony regarding the suitability of the WCS and Envirocare sites for

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<sup>12</sup> On a related note, LES also moves to strike newly proposed NIRS/PC Exhibits 259 and 260. These exhibits, which are cited in footnote 18 of Dr. Makhijani's rebuttal testimony on disposal, are intended to support that portion of Answer 5 which LES seeks to strike herein. Should the Board's grant LES's motion in this regard, NIRS/PC Exhibits 259 and 260 will lack any relevance/materiality and should likewise be excluded as evidence.

<sup>13</sup> *See* Ruling on Limine Motions at 13.

shallow land disposal. Importantly, the Board struck that testimony as an improper challenge to the viability of the WCS license application and the Envirocare license.<sup>14</sup> Consistent with the Board's ruling, LES respectfully requests that the Board strike that portion of Answer 12 of Dr. Makhijani's rebuttal testimony beginning on page 19 with "This conclusion is consistent with" and ending on page 21 with "radiologically acceptable is unwarranted."

Fourth, in the second paragraph of Answer 14, Dr. Makhijani states: "Even if [DU] was so classified [*i.e.*, as Class A low-level waste], this is an insufficient basis for a decision on disposal since DU disposal at Envirocare would not likely meet the radiation dose limits in 10 CFR 61 Subpart C." Makhijani Disposal Rebuttal at 22. The foregoing statement improperly challenges the viability of disposal at Envirocare and the Envirocare facility license, and should be stricken on that basis.

Finally, in Answer 16 of his rebuttal testimony, Dr. Makhijani again repeats the statements discussed above in connection with Answer 14 of his rebuttal testimony on deconversion-related issues. Makhijani Disposal Rebuttal at 24. As noted above, the testimony of concern seeks to reintroduce the inadmissible issues of health risks to women and alternative DU disposal forms. Accordingly, the portion of Answer 16 beginning on page 24 with "Unlike the cost estimates" and ending on page 25 with "geologic disposal than U<sub>3</sub>O<sub>8</sub>" should be stricken.

D. Makhijani Rebuttal Testimony Concerning Contingency Factor<sup>15</sup>

LES seeks to strike five portions of Dr. Makhijani's rebuttal testimony on the contingency factor issue. In Answer 5 of his rebuttal testimony, Dr. Makhijani asserts on page seven that "the fact that the Portsmouth deconversion plant was already 12 to 14 months behind

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<sup>14</sup> See Ruling on In Limine Motions at 13-14.

<sup>15</sup> See "Rebuttal Testimony of Arjun Dr. Makhijani in Support of NIRS/PC Contentions EC-3/TC-1, EC-5/TC-2, and EC-6/TC-3 Concerning the Contingency Factor Applicable to LES's Cost Estimate" (Oct. 11, 2005) ("Makhijani Contingency Rebuttal").



schedule as of July 2005 due to difficulties encountered in finalizing the design" suggests the need for a larger contingency factor. This statement is clearly another manifestation of his argument regarding DOE's "performance history." Insofar as the Board has rejected all prior NIRS/PC arguments and testimony to that effect, the language quoted above should be stricken.

In Answer 6 of his rebuttal testimony, Dr. Makhijani seeks to rebut the LES and NRC Staff claim that disposal of DU "will be a relatively simple matter." Makhijani Contingency Rebuttal at 7. While much of Dr. Makhijani's testimony in this regard arguably is within scope, Dr. Makhijani strays impermissibly into the inadmissible realm of "licensing delays." *See id.* at 10-11. He states, for example, that "the history of developing shallow land burial disposal sites gives no reason to expect that such development will be easy or expeditious." *Id.* at 10. In short, Dr. Makhijani again seeks to reintroduce testimony that the Board has previously stricken. Therefore, LES requests that the Board strike that portion of Answer 6 beginning on page 10 with "When considering the difficulties" and ending on page 11 with "developing such a repository."

In Answer 7 of his rebuttal testimony, Dr. Makhijani states that the lack of any discussion of the contingency factor to be applied to the DOE cost estimate in LES's and the NRC Staff's direct testimony constitutes a "notable omission." Makhijani Contingency Rebuttal at 12. Insofar as the three admitted NIRS/PC contentions at issue are concerned solely with LES's commercial DU dispositioning strategy and associated cost estimate, the appropriateness of any contingency factor that might be applied by LES to the DOE cost estimate is irrelevant. Moreover, such contingency factor, as might be applied by LES (in a manner external to, or on top of, the fee estimate provided by DOE) is not an "element of decommissioning or disposal," as LES interprets the Board's intent, that would affect DOE's underlying or base cost estimate for dispositioning DU. Thus, "Question 7 and the answer thereto should be stricken as irrelevant."


In Answer 8 of his rebuttal testimony, Dr. Makhijani merely repackages previously stricken testimony regarding the adequacy of the DOE cost estimate, focusing again on the lack of a "firm offer" from DOE and DOE's "poor" performance history. *See* Makhijani Contingency Rebuttal at 12-15. Indeed, Answer 8 bears a striking resemblance to Answer 16 of Dr. Makhijani's direct testimony on the contingency factor question (which the Board struck in its entirety), and to Answer 12 of his rebuttal testimony on deconversion-related issues. Accordingly, Question 8 and the answer thereto should be stricken in their entirety.

Finally, in Answer 9, Dr. Makhijani seeks yet one more time to reintroduce the inadmissible issues of health risks to women and alternative DU disposal forms. Accordingly, the portion of Answer 9 beginning on page 15 with "Unlike the cost estimates" and ending on page 16 with "geologic disposal than U<sub>3</sub>O<sub>8</sub>" should be stricken.

#### IV. CONCLUSION

For the foregoing reasons, LES requests that the Board strike those portions of the prefiled rebuttal testimony of NIRS/PC witness Dr. Arjun Makhijani specified above.

Respectfully submitted,

  
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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 MOTION IN LIMINE TO EXCLUDE PORTIONS OF THE PREFILED REBUTTAL TESTIMONY OF ARJUN MAKHIJANI CONCERNING CONTENTIONS NIRS/PC EC-3/TC-1, EC-5/TC-2 AND EC-6/TC-3" in the captioned proceeding has been served on the following by e-mail service, designated by \*\*, on October 14, 2005 as shown below. Additional service has been made by deposit in the United States mail, first class, this 14th day of October 2005.

Chairman Nils J. Diaz  
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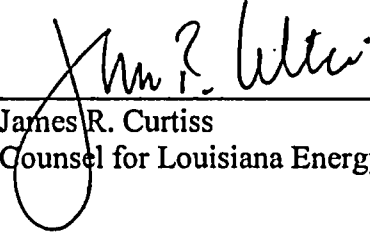
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