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UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

BEFORE THE COMMISSION

In the Matter of

Louisiana Energy Services, L.P.
National Enrichment Facility

Docket No. 70-3103

ASLBP No. 04-826-01-ML

PETITION ON BEHALF OF NUCLEAR INFORMATION AND RESOURCE SERVICE AND PUBLIC CITIZEN FOR REVIEW OF FIRST PARTIAL INITIAL DECISION ON ENVIRONMENTAL CONTENTIONS

Preliminary statement

This Petition for Review is submitted on behalf of Intervenors Nuclear Information and Resource Service and Public Citizen ("NIRS/PC"), seeking Commission review, pursuant to 10 CFR Sec. 2.341, of the First Partial Initial Decision (Environmental Contentions)(the "Decision") of the Atomic Safety and Licensing Board (the "Board"), dated June 8, 2005.

Factual background

The license sought herein would allow the construction and operation of the first Commission-licensed private uranium enrichment facility, the National Enrichment Facility ("NEF"). The Applicant is Louisiana Energy Services, L.P. ("LES"), a limited partnership led by Urenco, Inc., a corporation controlled by British, German, and Dutch interests. On January 30, 2004, the Commission entered its Hearing Notice. (69 Fed. Reg. 5873)(Feb. 6, 2004). NIRS/PC filed their petition to intervene on April 6, 2004 (the "Petition"). NIRS/PC presented several contentions, involving both environmental issues raised by LES's Environmental Report ("ER") and technical contentions, most of which included environmental aspects. The

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contentions included the following (using the Board's designations, Memorandum and Order, July 19, 2004, at 19, *et seq.*):

1. EC-1 concerns impacts upon ground water; it claims inadequate analysis of the fate of waste waters and runoff entering the subsurface, including:
    a. failure to estimate the probability and frequency of leakage from lined basins;
    b. failure to support the statement that no precipitation recharge occurs;
    c. failure to support claims that the underlying Chinle Formation lacks fracture zones that would increase vertical water transport. (Petition at 19).
2. EC-2 asserts an inadequate analysis of the impact of the proposed NEF on ground water supplies. (Petition at 24).
3. EC-3/TC-1 concerns waste storage and disposal. It asserts that the methods described in the Application for deconversion of depleted uranium to a more stable form and disposal thereof do not constitute a "plausible strategy" and that environmental impacts would preclude near-surface disposal as low-level waste. (Petition at 25-31). NIRS/PC stated that the proposed private sector conversion and disposal methods had no substance (at 26-27). NIRS/PC also stated that the risks presented by depleted uranium would preclude its disposal as low-level radioactive waste, since the "classification of low-level waste can apply only to waste that would clearly be appropriate for shallow land disposal and 100 year institutional control. DU meets neither requirement." (Petition at 28). NIRS/PC contended that depleted uranium has the same level of risks associated with disposal as Greater than Class C ("GTCC") waste (id. 29-31) and that "[s]uch wastes must be disposed of in a deep geologic

repository." (id. 30). Such assertions apply to private as well as DOE disposal of depleted uranium.

4. EC-4 contends that the ER fails to discuss adequately the environmental impacts of construction and operation of a deconversion plant, required to deconvert depleted UF_6 to a stable disposal form. (Petition at 31). It also asserts that the ER fails to disclose the environmental impacts of a repository for disposal. (Petition at 32).
5. EC-5/TC-2 contends that LES presented inadequate estimates of decommissioning costs. (Petition at 32).
6. EC-6/TC-3 contends that LES underestimated the costs of management and disposal of depleted uranium. (Petition at 34). It also states that underground mine disposal could not be approved, because radionuclides would escape in ground water (id. 37), and that the "engineered trench" method could not meet the dose limit requirements of 10 CFR Part 61. (id. 38).
7. EC-7 concerns the NEPA analysis of need for the facility. (Petition at 38). NIRS/PC contended that the analysis of costs and benefits is inadequate, in that, inter alia, it erroneously calculated the demand for enrichment, assumed that the NEF would acquire market share, assumed adverse impacts of foreign enrichment, and failed to show that LES would enter the enrichment market and contribute some public benefit. It also states that the ER fails to analyze impacts of the NEF upon the U.S.-Russia agreement to purchase downblended weapons-grade uranium. (id. 38-43).
8. EC-8 contends that the ER should discuss the non-proliferation benefits of using downblended weapons-grade uranium for a greater proportion of U.S. fuel needs.

(Petition at 43). It also points out Urenco's failures to prevent disclosures of classified enrichment technology. (Petition at 46).

9. TC-6 concerns natural gas-related accident risks. (Petition at 48).

The Board admitted the NIRS/PC contentions listed above, except for contentions involving failure to analyze the use of downblended weapons-grade uranium, the nonproliferation impacts of construction of an enrichment plant, the construction and operation of a geologic repository, which the Board said "raises issues unrelated to the application," and need for the facility to the extent that it suggests that LES must present a "business plan." (Memorandum and Order, July 19, 2004, at 33, 30, 32). The Board referred Contention EC-3/TC-1 to the Commission on the ground that it "raises novel legal or policy question regarding the status of depleted uranium hexafluoride waste as low-level waste" (id. 29).

In September 2004 Commission Staff issued the Draft Environmental Impact Statement, NUREG-1790 ("DEIS"). The DEIS contained quantified estimates of releases from hypothetical deep disposal sites. (DEIS at 4-59). A new table (DEIS, Table 4-19) showed estimated doses, under two scenarios, from waste buried in a granite site and a sandstone/basalt site; the text stated that the doses would come within the limits of 10 CFR Part 61. NIRS/PC moved to supplement Contention EC-4 to state that the "DEIS contains an incorrect analysis of the environmental impacts of the disposal of depleted uranium hexafluoride waste." (NIRS/PC Motion to Amend and Supplement Contentions, Oct. 20, 2004, at 13). NIRS/PC explained:

> "C. The DEIS attempts to estimate the impact of disposal of depleted uranium from the NEF in its modeling of the releases expected from the site. (at 4-58, 4-59 and Table 4-19). The DEIS fails to disclose the models used or the parameter values. The text suggests that models used in analyzing the CEC site were used; however, the results are unlike any reported in connection with the CEC facility. Further, the model addresses only two hypothetical disposal sites and fails to examine any actual location of disposal. Performance of a disposal site is highly site-specific." (id. 16).

NIRS/PC also sought to contend that the Commission had abandoned, without explanation, its longstanding position that depleted uranium may not be disposed of in a near-surface facility. (id. 15-16). The Board rejected these contentions, explaining that they concern whether depleted uranium is low-level radioactive waste, an issue that the Board had certified to the Commission:

> "Proposed paragraph three of this contention deals with the issue of classification of depleted uranium as low-level waste. Since the Board has already ruled on this question in relation to a predominately technical contention -- NIRS/PC EC-3/TC-1 -- and referred our ruling to the Commission, see LBP-04-14, 60 NRC at 67, where it now awaits review, see CLI-04-25, 60 NRC at 226-27, at this juncture we decline to admit this issue in the context of an environmental contention relating to the DEIS. We do so, however, without prejudice to a renewed motion should the Commission hold that the Board should hear the waste classification issue relative to that contention." (Memorandum and Order, Nov. 22, 2004, at 16).

However, the proposed contentions do not deal with "the issue of classification of depleted uranium as low-level waste." Rather, they deal with the performance of disposal sites in containing radioactivity and with the estimated doses to individuals from the depleted uranium. It later emerged that Commission Staff cannot fully explain DEIS Table 4-19. (NRC Staff's Response to Interrogatories and Document Request by NIRS/PC, Nov. 10, 2004, at 6, par. 10).

The Board also refused to allow NIRS/PC to amend Contention EC-7 to assert that the DEIS omits to discuss the impact of the proposed NEF on the market for enrichment services, existing and forthcoming suppliers, market participants, and customers, stating that such amendment "reasserts a subject matter that the Board has previously declined to address, . . . expressly declining to require LES to present a 'business case' or provide detailed market analyses." (Memorandum and Order, Nov. 22, 2004, at 19-20).

In discovery, the Board refused any disclosure concerning the economic impact or performance of the NEF. Such issues are particularly pertinent to the costs and benefits of the NEF, since USEC, Inc. is now seeking to build a centrifuge enrichment plant and may close the

Paducah gaseous diffusion plant. Thus, the enrichment market is in a period of instability, and there is uncertainty as to the future market positions of various producers. (LES Ex. 30, at 1.1-18). However, the Board ruled that such information is nondiscoverable. (Memorandum and Order, Oct. 20, 2004, at 2, 18-19).

This Commission on January 18, 2005 issued its decision on "whether depleted uranium is properly considered low-level radioactive waste, and thus whether transfer of the LES tails to DOE pursuant to Section 3112 of the USEC Privatization Act constitutes a 'plausible strategy' for disposal of the tails." (Memorandum and Order, Jan. 18, 2005, at 3). The Commission was explicit that no issues of disposal system performance were addressed: "We need not address any of the other waste disposal options, including particular disposal methods (e.g., engineered trenches, concrete vaults, underground mine) that LES has proposed." (id.). The Commission also stated that, in deciding the status of depleted uranium, it would not use the low-level waste definition in 10 CFR Part 61—that waste is "acceptable for disposal in a land disposal facility":

> "[W]e need not resolve the question whether the LES depleted uranium tails also would meet the "waste" definition in § 61.2. As USEC states, 'inclusion of the reference to the [Part 61] definition of "Waste"' in the hearing notice added an unnecessary requirement for showing that material is low-level radioactive waste.'" (Memorandum and Order, Jan. 18, 2005, at 8).

The contention in issue (EC-3/TC-1, Basis C) includes several reasons why depleted uranium is not "acceptable for disposal in a land disposal facility," 10 CFR 61.2, and states that depleted uranium should be treated as analogous to GTCC waste in relation to disposal. Such arguments apply equally to private and DOE waste disposal. (Petition at 25, 28-31). Moreover, even if depleted uranium is low-level waste, the question of waste classification (Class A, B, C, or GTCC) remains. This Commission has never determined the Part 61 classification of depleted uranium, having removed it from the rulemaking process for Part 61, without applying to it the

models used to rank other radionuclides or examining the impact of alternative classifications. (NUREG-0945, Final EIS on 10 CFR Part 61, Licensing Requirements for Land Disposal of Radioactive Waste Nov. 1982, at 5-38). Indeed, the Commission stated that such issues—the "factual arguments over whether the LES waste may properly be disposed of in a near-surface facility (a matter we need not resolve today)" (Memorandum and Order, Jan. 18, 2005, at 15 (*footnote omitted*))—remain before the Board:

> "A more difficult question—and one we need not answer today—concerns whether the LES material, in the volumes and concentration proposed, will meet the Part 61 requirements for near-surface disposal. The Commission agrees with the intervenors that a definitive conclusion on this and other disposal method questions cannot be reached at this time, and may require further environmental or safety analysis. Our decision should not be read to intimate any Commission view on this issue, which relates both to the plausibility of LES's proposed private disposal options, and to financial assurance—issues which remain before the Board."

Indeed, the Commission noted that NIRS/PC had vigorously disputed "whether near-surface disposal is acceptable." (id. 15 n. 1). Thus, the Commission reversed only "the admission to this proceeding of the portion of the plausible strategy contention that challenges the DOE disposal option" (id. 17-18), based on the applicability of the USEC Privatization Act.

The Commission's January 18 decision determined only that depleted uranium is "low-level radioactive waste." It did not decide whether depleted uranium meets the criterion of 10 CFR Part 61.2, *viz:* "acceptable for disposal in a land disposal facility," nor what Part 61 class depleted uranium comes within, nor whether any methods of disposal would comply with the release limits of 10 CFR Part 61, Subpart C, nor the environmental impacts of such disposal.

A hearing was held on contentions EC-1, EC-2, EC-4, and EC-7 on February 7 through 10, 2005. Ruling on prefiled testimony, the Board struck all testimony by NIRS/PC's expert witness, Dr. Arjun Makhijani, concerning "the disposal of depleted uranium and all testimony relating to classification of this waste." (Memorandum and Order, Jan. 21, 2005, at 10). Dr.

Makhijani's prefiled testimony explained that the choice of deconversion product—U_3O_8 or UO_2 or another—must be based upon its expected disposal performance and the impacts of different conversion processes. He showed that UO_2 differs from U_3O_8 in both respects. (Makhijani prefiled direct testimony, Jan. 7, 2005, at 8, 10-17, 18-19, 24). The Board struck all such testimony. (Memorandum and Order, Jan. 2, 2005, at 10-11). In rebuttal testimony Dr. Makhijani showed that U_3O_8, compared to UO_2, is less suitable as a disposal form to protect public health and meet limits on uranium exposure, that a facility to produce UO_2 would have different impacts from one to produce U_3O_8, and that such facts are not discussed in the DEIS or the DOE EISs. (Makhijani prefiled rebuttal testimony, Jan. 28, 2005, at 5-7, 11—15). The Board struck all such testimony. (Memorandum and Order, Feb. 4, 2005, at 4).

The Board excluded nearly all of the direct testimony of NIRS/PC expert witness, Dr. Michael Sheehan, about the impact of the proposed NEF upon the enrichment market in the United States, *e.g.,* the sufficiency of a competitive supply in the absence of the NEF, impacts upon the U.S.-Russian agreement for sale of weapons-derived uranium, impacts upon the proposed USEC plant in light of Urenco's aggressive marketing strategies, and Urenco's likely dominance of the U.S. market. (Memorandum and Order, Jan. 21, 2005, at 12). The Board excluded rebuttal testimony about "the effect of the construction and operation of the NEF upon the ability of the proposed USEC facility to be financially successful, and his testimony regarding how the NEF might be expected to behave competitively" (Memorandum and Order, Feb. 4, 2005, at 4). Further, the Board excluded all testimony by Charles Komanoff, who demonstrated that the asserted shortage of enrichment capacity does not exist, because the NEF's output could be met by slightly increased tails assays at existing plants. (Memorandum and Order, Jan. 21, 2005, at 9).

After hearings, the Board entered its Decision on June 8, 2005. Among other things, that Decision states:

1. Concerning contention EC-1, involving DEIS disclosure about possible groundwater impacts, the Board acknowledged that there is a potential flow path from the surface through the alluvium, to the top of the Chinle Formation, and thence downgradient toward Monument Draw. (Decision at 30, par. 4.13). However, as to the source of contaminants, the Board found that there "currently is no scientifically sound means of estimating the probability, frequency, and rate of liner leakage from the lined basins." (Decision at 35, par. 4.25).
2. Assessing ground water flow, the Board said that moisture found in boreholes present at the NEF site was not indicative of possible recharge, because hydraulic gradients draw water upwards. (Decision at 37, par. 4.30).
3. The Board stated that the absence of interconnected flow paths in the Chinle Formation was established by the fact that a well, drilled into a Chinle aquifer 220 feet below the surface, filled to a level of 120 feet. (Decision at 40, par. 4.37).
4. Contention EC-2 involves the impact of the NEF's water consumption, over the 30-year life of the license, upon usage from the Ogallala Aquifer. (Petition at 24). The NEF's supply cannot be interrupted, because of the need for "asset protection." (Tr. 1303-04). NRC Staff modeled the impact of the NEF's 30-year water usage, but they assumed overall withdrawals at the 1993-96 rate (Tr. 1341), which irrigated only 53,000 acres, when there are 120,000 acres with irrigation rights. (NRC Staff Ex. 21 at 53). The Board ignored the modeling (Decision at 53, par. 4.64) and based its finding of no significant impact on future water supplies upon the quantity of water

rights owned by the cities of Hobbs and Eunice. (id. 51, par. 4.60). The Board gave no weight to evidence that usage of existing water rights would increase water use in Lea County by about 105% from 1995. (LES Ex. 26, exec. summary at 2).

5. In evaluating Contention EC-4, involving impacts of conversion of DUF_6 to a stable form, the Board noted that the principal issues involve deconversion processes that produce anhydrous hydrofluoric acid ("AHF"), analysis of deconversion to products other than DU_3O_8 (presumably, DUO_2), and analysis of off-normal events. (Decision 58, par. 4.74).

6. The Board quoted the regulation (10 CFR 51.70(b)) that requires Staff to "independently evaluate and be responsible for the reliability of all information used in the [DEIS].'" (Decision at 21, par. 3.6). It said also that "the ultimate responsibility for NEPA compliance rests with the Staff." (id. 59, par. 4.75). The Board stated, however, that the NRC Staff may rely upon an EIS, draft or otherwise, prepared by another federal agency. (id. 21, par. 3.7).

7. Although the Board stated that the DEIS "considers" deconversion at private or DOE plants (Decision at 59, par. 4.75), the DEIS simply refers to the site-specific EISs for DOE plants at Portsmouth and Paducah. (NRC Staff Ex. 1A, at 4-53 through 4-58).

8. The Board observed that Staff's analysis of deconversion impacts consisted of a review of three DOE EISs: the 1999 programmatic EIS (the "DOE PEIS") and the site-specific EISs for the Portsmouth and Paducah plants. (Decision at 59-60, par. 4.77). The Board found that "the Staff appropriately relied upon and incorporated portions of the analyses from the DOE EIS documents into the NEF DEIS." (id. 60, par. 4.78).

9. The Board referred at length to testimony by the Staff witness, Dr. Palmrose, about DOE PEIS analyses of deconversion to DU_3O_8, deconversion to DUO_2, neutralization of HF to CaF_2, distillation to AHF, accident situations, and transportation impacts. (Decision at 61-63, par. 4.80 – 4.83; id. 67, par. 4.90). The Board noted that Dr. Palmrose considered that the impacts of a deconversion plant sized to serve the NEF would be the same or less than the impacts of the DOE Paducah or Portsmouth plants, since those plants have a larger capacity. (id. 63, par. 4.84).

10. The Board expressly found that the Staff "adequately considered and presented in the DEIS" the impacts of construction and operation of a U_3O_8 conversion plant." (Decision at 68, par. 4.91). The Board found that, since any assessment of the impacts of an AHF distillation process would have a high degree of uncertainty, "there has been adequate consideration of the impacts of the management of anhydrous HF." (id.). The Board made no finding that the alternative of deconversion to DUO_2 had been analyzed.

11. The Board failed to note that the DEIS does not refer to any environmental analyses in the DOE PEIS. The DEIS refers to the DOE PEIS only in listing disposition options. (DEIS, NRC Staff Ex. 1A, at 2-42). Further, the Board overlooked Dr. Palmrose's testimony that Staff intentionally did not cite the DOE PEIS, because the DOE PEIS does not contain the most current analysis. (Tr. 1052-53).

12. The Board approved Staff's reliance on the DOE EISs, even though Staff had neither performed calculations of environmental impacts nor checked the calculations by DOE. (Tr. 1026-27, 1037-38). Dr. Palmrose expressly accepted the DOE calculations on their face without verifying them and said, assuming those are right,

the environmental effects of the NEF facility will be bounded by the DOE results; he did not independently verify the DOE calculations. (Tr. 1041; 1044). Mr. Krich stated that he had read the Portsmouth and Paducah EISs but had not done any calculations to verify their estimates. (Tr. 965-66).

13. Mr. Krich took the position that the analysis in the DOE PEIS bounds the impacts of a deconversion facility for the NEF, based upon a comparison of the throughputs of the facilities. (Tr. 973-76). However, the ER does not refer to the DOE PEIS. Mr. Krich reviewed parts of the DOE PEIS, but he did no calculations to check its results. (Tr. 966-71).

14. Concerning contention EC-7, addressing the need for the facility, the Board emphasized that it examined supply and demand without considering costs or prices:

> "[T]he Board has held that LES is not required under NEPA to present a business plan, to make its "business case," or to demonstrate the profitability of its proposed facility, nor is it under any obligation to provide detailed market analysis. See LBP-04-14, 60 NRC at 69-70; November Late-Filing Ruling at 17-18. Therefore, the Board's inquiry relative to this contention does not address any matters associated with the projected cost of supplying enrichment services, or the potential prices that might be paid for those services. Rather, the Board's inquiry focused upon the projected demand (based on current operating and anticipated new reactors) and the expected supply based upon the actual commitments or statements of the parties involved in supply production." (Decision at 72-73, par. 4.101).

15. The Board recognized that "key issues" include the shutdown of the USEC gaseous diffusion plants, availability of Russian highly enriched uranium, and future demand (Decision at 74, par. 4.103), but on such issues it chose to follow LES's analyses, purportedly based on "corporate intent," rather than consider the economic factors. (Decision at 75-77, 78, par. 4.106-4.109, 4.111).

16. The Board found that LES projected a shortfall in supply, even if the NEF and the proposed USEC centrifuge plant are both built and the U.S.-Russia HEU agreement is extended. (Decision at 77-78, par. 4.110). In fact, LES projected that supply and demand would be in balance. (LES Ex. 30 at 1.1-15 & Fig. 1.1-7).

17. The Board found that the NEF would bring about a diverse, reliable domestic enrichment supply (Decision at 79, par. 4.113) and improve the "aggregate contribution of domestic enrichment sources" (id. 79-80, par. 4.114)—after excluding testimony that Urenco's aggressive marketing practices portend the demise of USEC, the last domestically-owned supplier. (Memorandum and Order, Jan. 21, 2005, at 12; Feb. 4, 2005, at 4).

18. The Board recognized the issue "whether the NEF can effectively enter the enrichment market in the face of existing and anticipated competitors and contribute some public benefit" (Decision at 82, par. 4.120), and it found that "LES has reasonably demonstrated its ability to enter the market" by making contracts (Decision at 82-83, par. 4.120-4.121). It so found without considering the prices under such contracts, future prices, or the impact of the NEF on other suppliers and customers. It did not find whether the NEF would "contribute some public benefit."

In light of the Commission's January 18, 2005 decision, stating that "a definitive conclusion on this and other disposal method questions cannot be reached at this time, and may require further environmental and safety analysis" (id. 17), NIRS/PC moved to add new contentions addressing whether near-surface disposal of depleted uranium would comply with Part 61 and the environmental impact and costs of such disposal. (NIRS/PC Motion for Admission of Late-filed Contentions, Feb. 2, 2005). NIRS/PC moved to amend Contentions EC-

3/TC-1 and EC-4 to state that no "plausible strategy" was presented, that the DEIS analyses of disposal methods were unsupported and technically deficient, and that the disposal methods described in the DEIS would fail relevant health criteria, such as 10 CFR Part 61, Subpart C. NIRS/PC presented well-founded expert bases for these contentions. (id. 8-46).

The Board on May 3, 2005 rejected such amendments as untimely, stating that the Commission's January 18 ruling did not support new contentions. (Memorandum and Order, May 3, 2005, at 7). It said that NIRS/PC's contention as to plausible strategy could have been included in the original Petition (Memorandum and Order, May 3, 2005, at 7)—failing to note that EC-3/TC-1, Basis C, had contained such a claim, but the Board had regarded it as dismissed after the January 18 ruling. (Memorandum and Order, Jan. 21, 2005, at 10). The Board said that the proposed contention that the DEIS inadequately analyzed disposal of depleted uranium "could have been raised in their October 20, 2004 petition setting forth contentions with respect to the DEIS" (id. 11)—failing to note that NIRS/PC did seek to add such contentions, but the Board had excluded them. (Memorandum and Order, Nov. 22, 2004, at 16).

Argument

NIRS/PC submit that review by the full Commission is necessary to correct fundamental errors in this important licensing proceeding.

1. The Board erred in refusing to allow NIRS/PC to show the environmental impacts of waste disposal.

NEPA analysis of the environmental impact of a nuclear facility requires analysis of the impact of its nuclear waste. See *State of Minnesota v. NRC,* 602 F.2d 412 (D.C. Cir. 1979). Here, since filing the Petition, NIRS/PC have sought to present questions that apply to any strategy for disposal of depleted uranium waste, *viz:*

1. Is the waste low-level radioactive waste? This issue has been resolved.

2. If low-level, what is its classification under 10 CFR Part 61? NIRS/PC have argued that depleted uranium should be viewed as analogous to GTCC waste in relation to disposal.
3. Is the waste acceptable for disposal in a land disposal facility, in the terms of 10 CFR 61.2? NIRS/PC have presented expert analyses to demonstrate that it is not.
4. Is the waste required to be disposed of in a geologic repository or some other site specifically approved by the Commission? NIRS/PC have presented expert analyses to demonstrate that this is required.
5. Will proposed disposal methods comply with the release limits of 10 CFR Part 61, Subpart C? NIRS/PC have presented expert analyses to demonstrate that such methods would not comply.

These questions are clearly relevant to the required environmental analysis. The questions were timely raised in the Petition (Petition at 27-31) and admitted, but after the Commission's decision that depleted uranium is low-level radioactive waste, the remaining questions were summarily dismissed. NIRS/PC sought to question the DEIS analysis of deep disposal, but the Board refused, saying that the claim involved whether depleted uranium is low-level waste, which is simply wrong. (Memorandum and Order, Nov. 22, 2004, at 16). Even though the Commission remanded for further environmental analysis of "whether the LES material, in the volumes and concentration proposed, will meet the Part 61 requirements for near-surface disposal" (Memorandum and Order, Jan. 18, 2005, at 17), and NIRS/PC promptly moved to assert again that depleted uranium is not acceptable for near-surface disposal, the contention was refused on the ground that it should have been made earlier. (Memorandum and Order, May 3, 2005, at 7). But it *was* made earlier—and improperly dismissed. (Petition at 27-31).

In sum, unless the Commission intervenes, the issues of the environmental impact of disposal of the waste from this facility may be summarily excluded from this process. Such result would clearly be incorrect under NEPA. There has *never* been a NEPA analysis of the application of 10 CFR Part 61 to depleted uranium. The Commission should direct that the issues left unresolved on January 18, 2005, remain open for determination here.

2. The Board erred in declining to consider the proliferation impacts of the proposed facility.

The Board rejected NIRS/PC's proposed contentions concerning impacts of the proposed NEF upon national security objectives, *viz:*

1. Contention EC-7, Basis G, involves the impact of a new enrichment plant upon the nonproliferation objectives of the 1993 U.S.-Russia agreement on the purchase of enriched uranium from weapons stocks. (Petition at 41).
2. Contention EC-8 involves several security concerns of the United States, *e.g.*, the advantages of using available HEU to meet enrichment needs and of increasing the pace of downblending; impacts of increasing enrichment capacity upon nonproliferation aims, and the potential effects of constructing an additional plant managed by Urenco, which was the source of enrichment technology that was leaked and used in weapons development by Pakistan, Iraq, Iran, Libya, and North Korea. (Petition at 43-48).

The effect of the NEF on these critical national interests should be examined under NEPA. In similar cases DOE examines the impact of its actions on nonproliferation objectives. DOE's Record of Decision for the Disposition of Surplus Highly Enriched Uranium Final Environmental Impact Statement (Aug. 5, 1996) reviews the impacts of the various proposals, from the standpoint of nonproliferation:

> "The Department of Energy has concluded that the Preferred Alternative would best serve the purpose and need for the HEU disposition program for several reasons. DOE considers all of the action alternatives (2 through 5) to be roughly equivalent in terms of the fundamental nonproliferation objective of the program." (at S-10).

Nonproliferation is a national objective, and NEPA requires "a weighing of the environmental costs against the economic, technical, or other public benefits of a proposal." *Louisiana Energy Services* (Claiborne Enrichment Center), CLI-98-3, 47 NRC 77, 88 (April 3, 1998).

NIRS/PC pointed out that the NEF would enhance proliferation risks because Urenco's management has a history of leaks of gas ultra-centrifuge technology. In the mid-1970's Abdul Qadeer Khan took from Urenco the information needed to reproduce the centrifuge. Pakistan, Libya, North Korea, and Iran obtained the information. In the late 1980's Urenco contractors Karl Heinz Schaab and Bruno Stemmler took plans for centrifuge construction to Iraq. Urenco has failed to contain vital secrets that simply must be contained.

Issues of management character are clearly admissible when they shed light on future operations. *Dominion Nuclear Connecticut, Inc.* (Millstone Nuclear Power Station), CLI-01-24, 54 NRC 349, 365 (2001); *Georgia Institute of Technology* (Georgia Tech Research Reactor), CLI-95-12, 42 NRC 111, 121 (Oct. 12, 1994); *Georgia Power Co.* (Vogtle Electric Generating Station), CLI-93-16, 38 NRC 25 (1993).

The national interests are overwhelming—far greater than the safe operation of a single rector, which is a serious matter. The Commission should not disregard risks of such magnitude.

3. The Board has erroneously limited the analysis of impacts of deconversion.

"Because deconversion is necessary and foreseeable, the environmental impacts of such a process must be considered as part of the Staff's NEPA review." (Decision at 57, par. 4.73). NEPA review includes the consideration of appropriate alternatives. (10 CFR 51.45(b)(3)).

Clearly, deconversion to DUO_2 is an appropriate alternative. The Staff itself has advised DOE that the dioxide form should be the "baseline":

> "Thus, for compatibility with disposal facilities, for reduced storage requirements, to minimize conversion facility numbers and types, and to reduce schedules and costs, a likely candidate for applications may be dense uranium dioxide forms. We believe the roadmap needs to recognize this linkage between disposal, storage, and future applications, and perhaps identify the dense dioxide form as the baseline." (LES Ex. 20, at 2, letter from NRC Division of Fuel Cycle Safety and Safeguards, Special Projects Branch, Oct. 18, 2000).

DOE itself included deconversion to UO_2 in its programmatic EIS. (LES Ex. 18 at 2-9). Nevertheless, the Board admonished counsel for NIRS/PC that "the Board has advised you on a number of occasions that UO2 is not an issue in this proceeding." (Tr. 947). The Board later emphasized that "the disposal form of depleted uranium" would not be considered. (Memorandum and Order, May 3, 2005, at 10).

Such action is especially unfortunate, since the performance of the waste disposal site depends upon the waste form; thus, selection among alternative deconversion products has disposal impacts. Since the Commission has not yet identified a plausible private disposal strategy, it is premature to reject alternative deconversion products. However, the Board rejected evidence of alternatives. (Tr. 945-48).

Similarly, the deconversion process that would generate AHF should have been examined but was not. Such process presents significantly greater risks than a process that generates CaF_2. (LES Ex. 17, Appx. D at 18-19). Although LES does not plan to use an AHF process, since DOE analyzed the AHF process in the PEIS (LES Ex. 18 at F-11, -12), and Cogema has pursued an AHF process (NIRS/PC Ex. 61), it is clearly a realistic alternative. Counsel for LES closely examined Dr. Makhijani on impacts of an AHF process. (Tr. 1120-34). The Board observed that the DOE PEIS analyzes an AHF process (Decision at 63, par. 4.84-4.85), but the DEIS does not

incorporate the DOE PEIS analysis, because it is not "current" (Tr. 1052). Dr. Makhijani showed that, after Cogema's experience, the DOE PEIS analysis of a distillation process no longer applies, since the process has been rejected due to technical difficulties. (Tr. 1073-76; 1102-04). No credible analysis of the impact of a more current AHF process has been presented.

4. The Board erroneously relied upon DOE EISs to satisfy the Commission's NEPA obligation.

The fundamental problem with the DEIS analysis of deconversion is that NRC Staff did no analysis and, instead, relied upon DOE documents, which Staff neither prepared nor even checked. Such practice raises an important issue of environmental compliance. The Board states that "'tiering' or 'incorporation by reference'" are permissible. (Decision at 21, par. 3.7). On this issue, Commission NEPA regulations state specifically:

> "The techniques of tiering and incorporation by reference described respectively in 40 CFR 1502.20 and 1508.28 and 40 CFR 1502.21 of CEQ's NEPA regulations may be used as appropriate to aid in the presentation of issues, eliminate repetition or reduce the size of an environmental impact statement. In appropriate circumstances, draft or final environmental impact statements prepared by other federal agencies may be adopted in whole or in part in accordance with the procedures outlined in 40 CFR 1506.3 of CEQ's NEPA regulations." 10 CFR Part 51, Subpart A, Appx. A.1(b).

Tiering is available only where a broad EIS on a program or policy is followed by action "included within the entire program or policy," 40 CFR 1502.20. See also 40 CFR 1508.28. Thus, tiering only applies when the action is part of the program analyzed in an earlier EIS. But LES's preferred alternative—a private deconversion plant—is not part of any program analyzed in a DOE EIS. Therefore, tiering is not available.

Adoption of an existing EIS is allowed only in defined circumstances. If the action covered by an existing EIS and the proposed action are "substantially the same," an agency may

adopt the EIS as a final statement. If not, an existing EIS may not be adopted without recirculating it for comment:

> "Otherwise the adopting agency shall treat the statement as a draft and recirculate it." 40 CFR 1506.3.

Thus, Staff may *not* adopt the DOE EISs as final analyses of deconversion *at a private plant*, because such activity is not "substantially the same" as deconversion at DOE plants. Staff has not done as 40 CFR 1506.3 requires—namely, "treat the statement as a draft and recirculate it." Further, incorporation by reference is only permitted under 40 CFR 1502.21 when the public is invited to review and comment on the material, which was not done here. Indeed, the Staff has not *adopted* any DOE EIS.

The Board relies upon *Philadelphia Electric Co.* (Limerick Generating Station, Units 1 and 2), 15 NRC 1423, LBP-82-43A (June 1, 1982), but there the existing EIS could not be adopted without further inquiry, including independent review of the findings and cost-benefit analysis. (at 1467). Here, Staff have done *no* independent inquiry.

There is another error here. The Board relies upon testimony about the 1999 DOE PEIS (Decision at 61-63, par. 4.79-4.4.83). But the DEIS does not refer to any analysis in the DOE PEIS. (NRC Staff Ex. 1A, at 2-42). Dr. Palmrose confirmed that the DEIS intentionally does not refer to the DOE PEIS for any environmental analyses:

> "MR. LOVEJOY: Okay. And isn't it true that the DEIS doesn't make reference explicitly to any analyses in the DOE programmatic EIS?
> WITNESS PALMROSE: That's correct.
> MR. LOVEJOY: Anyway, so you did not adopt any of those analyses in the draft EIS?
> WITNESS PALMROSE: That's correct, because they weren't the most current." (Tr. 1052-53)

For the Board to decide that the DOE PEIS satisfies the Commission's NEPA duties not only ignores the applicable rules but departs from the Board's NEPA role, which is "similar to that of a federal court" (Decision at 20, par. 3.4). A reviewing court may not devise new rationales to sustain agency action. *SEC v. Chenery Corp.*, 313 U.S. 80, 88 (1943).

5. The Board erred in drastically limiting the NEPA analysis of need, cost, and benefits.

The Board prohibited discovery or testimony about the economic cost and benefits of the proposed NEF plant—even though the proposed action involves a new economic unit in a competitive market. Such a limitation conflicts with Commission precedents. The Hearing Notice specifically directed the Board and the parties to follow specified precedents:

> "The Commission issued a number of decisions in an earlier proceeding regarding a proposed site in Homer, Louisiana. These final decisions, **Louisiana Energy Services**, L.P. (Claiborne Enrichment Center), CLI-92-7, 35 NRC 93 (1992), **Louisiana Energy Services**, L.P. (Claiborne Enrichment Center), CLI-97-15, 46 NRC 294 (1997), and **Louisiana Energy Services**, L.P. (Claiborne Enrichment Center), CLI-98-3, 47 NRC 77 (1998), resolve a number of issues concerning uranium enrichment licensing and may be relied upon as precedent." (69 Fed. Reg. at 5877).

One such Commission decision, CLI-98-3, 47 NRC 77, 88 (1998), shows that the "need" for an enrichment facility requires analysis, among other things, of its impact on the enrichment market. There, the Board found that the proposed plant's costs would be about the same as costs of existing producers, so that its entry probably would not lead to lower prices. *Louisiana Energy Services, L.P.* (Claiborne Enrichment Center), LBR-96-25, 44 NRC 331, 369 (Dec. 3, 1996). The Commission expressly did "not disturb the Board's core factual finding that the CEC is unlikely to have a major beneficial price effect." In re *Louisiana Energy Services, L.P.* (Claiborne Enrichment Center), CLI-98-3, 47 NRC 77, 90 (Apr. 3, 1998). It stated:

> "In sum, we hold that the Board had sufficient reason to examine the likely competitive price effects of the CEC, that the Board's price-effects finding should be added to the environmental record of decision, and that the Board, in performing its ultimate cost-

benefit balancing under NEPA, must consider, in addition to price effects, the other benefits of the CEC." (id. 97).

Thus, the Board must examine the economic impact—an inquiry that obviously must be carried out in economic terms. Here, the Board barred that analysis, contrary to Commission precedent.

6. The Board erred in its analysis of the ground water impacts.

The Board's findings on ground water impact disregard record facts. The Board states that there is "no scientifically sound means of estimating the probability, frequency, and rate of liner leakage from the lined basins." (Decision at 35, par. 4.25). But such estimates of leakage rates are routinely performed using EPA's computer models (*e.g.*, HELP, EPACMTP)(NIRS/PC Ex. 10, 12; Tr. 822). These models are based upon data about the frequency of punctures. (NIRS/PC Ex. 10 at 34; Ex. 12 at A-1). The Board states that Staff could not project the amount of water present in the NEF basins (Decision at 35, par. 4.24), but Mr. Toblin admitted that such data are available. (Tr. 717-18). Neither can it be assumed, as the Board does (Decision at 34, par. 4.22) that basin contaminants will be below regulatory limits, nor that a clay liner will absorb them (id.), absent supporting data. (Tr. 813-14).

The Board said that the moisture in boreholes at the NEF site did not indicate recharge, but in saying that it "could be attributed to a variety of sources" failed to identify *any* source. (Decision at 37, par. 4.31). And the Board's statement that any precipitation will evaporate (id.) is based upon a purely theoretical analysis (Tr. 806, 808, 810-11) that omits preferential flow paths (Tr. 811; LES Ex. 5 at 44-5)) and is unsupported by data about the NEF site. Neither LES's witness nor Staff's witness could state whether the observed moisture was moving upward. (Peery, Tr. 512; Toblin, Tr. 723-24). NIRS/PC's expert testified that the moisture probably reflects episodic recharge (Tr. 776, 810, 822); supporting this view, a 1993 study of the nearby WCS site found moisture in most boreholes that penetrated the alluvial-Chinle contact.

(LES Ex. 3, Tab G, boreholes B-23, B-37, B-18, B-33, B-13, B-27, B-46, B-36, B-44, B-19, B-25, B-35, B-20, B-45, B-51, B-52).

The Board's finding that fast flow paths do not exist within the Chinle Formation (Decision at 40, par. 4.37), based on the confined nature of a Chinle aquifer, ignores reported flow through the Chinle (Tr. 780) and the fact that fracture flow does occur between aquifers with different hydraulic heads and between confined systems. (Tr. 816, 854-58). The Board said, "Nobody doubts that there are fractures." (Tr. 858). However, to find a flow path the Board required "material amounts of water at levels well above the aquifer, even if confined to pockets formed around such flow paths." (Decision at 40, par. 4.37). But if episodic flows occur, moisture would not constantly be present. (Tr. 778, 780). In any case, borehole logs do identify moisture at fractures. (Tr. 751-52; LES Ex. 3, Tab G, boreholes B-23 (7-I, 37'-54'), B-18 (8-D, 45'-71'), B-32 (8-E, 96.8'-101.4'), B-46 (9-E, 37'-40.9'), B-25 (10F, 19.5'-31'), B-20 (11-D, 22'-48'), B-45 (11-E, 19'-24')). Further, mineralization in fractures indicates moisture flow. (Tr. 573, 576, 579, 749-50). Clearly, fracture flow paths for contaminants exist and have not been investigated sufficiently to describe the impacts of a contaminant release. (Tr. 859).

7. The Board's conclusion of lack of impact on ground water supplies is without basis.

The Board based its decision on Contention EC-2 upon *current* usage rates—ignoring the *future* impact of the NEF over the 30-year term of its license. The Hobbs Well Field is being depleted at a far greater rate than its recharge. (LES Ex. 26 at 5-4; Tr. 1286-87). The saturated thickness of the Hobbs Well Field is approximately 160 feet. (Tr. 1210). Mr. Toblin, for the Staff, used a model (NRC Staff Ex. 21) and projected that, with overall withdrawals at the 1993-96 rate, saturated thickness would fall to 38.2 feet by 2040, and to 37 feet if usage by the NEF is considered. (Tr. 1316). A decline from 160 feet to 38.2 feet is a 76% loss in saturated thickness.

Importantly, the model warns: "The annual rate of water level decline could increase if additional permitted acreages are brought back into irrigation." (NRC Staff Ex. 21). The model emphasizes: "The exact pumping rates from the basin are not known and there is a high degree of uncertainty about future water uses in this region in both states." (NRC Staff Ex. 21 at 62). If overall usage significantly exceeds the historical amount, the saturated thickness would diminish to less than 37 feet—how much has not been projected. Since the NEF requires an uninterruptible water supply for 30 years, difficult questions of priority of water users and curtailments would arise. Such impacts have not been analyzed.

In *Mid States Coalition for Progress v. Surface Transportation Board,* 345 F.3d 520 (8th Cir. 2003), the agency failed to evaluate the impact of new rail lines upon usage of coal and consequent pollution, even though computer models could forecast the relevant usage. (at 550). The court found a NEPA violation, since "when the *nature* of the effect is reasonably foreseeable but its extent is not, we think that the agency may not simply ignore the effect." (at 549).

The EIS should present high, middle, and low cases of an uncertain impact. See, *e.g., Private Fuel Storage* (Independent Spent Fuel Storage Installation), 60 NRC 125, 142, CLI-04-22 (Aug. 17, 2004). Here, the EIS should show overall 30-year water usage at high, middle, and low values, so that the impacts of the addition of the NEF's 30-year uninterruptible demand for water can be assessed. Impacts of possible curtailments should be analyzed. The DEIS is clearly inadequate on this issue.

Conclusion

For the foregoing reasons, the Commission should undertake review and reverse the Board's Decision to reject the environmental contentions made by NIRS/PC.

Respectfully submitted,

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June 23, 2005

CERTIFICATE OF SERVICE

Pursuant to 10 CFR § 2.305 the undersigned attorney of record certifies that on June 23, 2005, the foregoing Petition on behalf of Nuclear Information and Resource Service and Public Citizen for Review of First Partial Initial Decision was served by first class mail upon the following:

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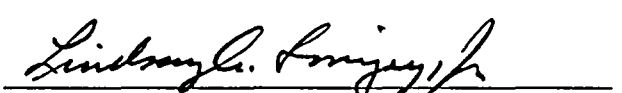

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