

its findings of fact on the safety and environmental matters identified by the Commission in its Hearing Notice and Order. With respect to those "areas of concern" upon which the Board sought clarification from the NRC Staff and/or LES during the March 2006 mandatory hearing session, the Board elaborates as needed upon the rationale for certain of its findings. As set forth below, based upon its findings, the Board also makes appropriate conclusions of law.

1.3 The Board finds that the application and the record of the proceeding contain sufficient information, and that the review of the application by the Staff has been adequate, to support the findings to be made by the Director of the Office of Nuclear Material Safety and Safeguards ("NMSS"), with respect to the applicable standards in 10 C.F.R. §§ 30.33, 40.32, and 70.23; 10 C.F.R. Part 51; and the Commission's Notice and Hearing Order. The Board also concludes that that the requirements of Sections 102(2)(A), (C), and (E) of the National Environmental Policy Act ("NEPA") have been satisfied; that an independent weighing and balancing of the environmental, technical, and other costs and benefits of the proposed facility supports issuance of the license; and the license should be issued.

1.4 Accordingly, the Board orders herein that the Director of NMSS is authorized to issue the license for which application was made by LES.

II. PROCEDURAL BACKGROUND

2.1 By application filed December 12, 2003, with the Commission, LES seeks a license to possess and use source, byproduct, and special nuclear material in order to enrich natural uranium to a maximum of five percent uranium-235 by the gas centrifuge process. LES proposes to construct and operate the proposed NEF near Eunice, New Mexico for that purpose. The requested license, if granted, would be issued under 10 C.F.R. Parts 30, 40, and 70, and be for an initial term of thirty (30) years.

2.2 On January 30, 2004, the Commission provided notice of the receipt and availability of the LES license application and of the opportunity for a hearing on the application.² The Hearing Notice and Order, as published in the *Federal Register* on February 6, 2004 (69 Fed. Reg. 5873), provided interested persons with the opportunity to participate as parties in the proceeding by filing a written petition for leave to intervene in accordance with the provisions of 10 C.F.R. § 2.309.³

A. **Overview of the "Contested" Portion of the Proceeding**

2.3 The contested portion of this proceeding is discussed in detail in the Board's three partial initial decisions on admitted NIRS/PC contentions.⁴ As noted above, the findings of fact and conclusions of law set forth in this Final Initial Decision relate only to those "uncontested" matters of fact and law identified in the Hearing Notice and Order. Accordingly, the following discussion is intended solely as background.

2.4 In response to the February 2004 Hearing Notice and Order, three parties sought to intervene in this proceeding to contest the LES license application. Two intervention petitions were filed by governmental entities associated with the State of New Mexico – the New Mexico Environment Department ("NMED") and the Attorney General of New Mexico ("AGNM"). A third intervention petition was submitted jointly by the public interest groups Nuclear Information and Resource Service and Public Citizen ("NIRS/PC"). Each of the hearing

² See CLI-04-3, 59 NRC 10 (2004).

³ As discussed further below, in the Hearing Notice and Order, the Commission also addressed the nature of the hearing to be conducted on the LES license application. The Commission identified the specific matters of fact and law to be considered by the Board, drawing a clear distinction between "contested" and uncontested" matters. The Commission also provided guidance on certain procedural matters and applicable regulatory requirements and imposed a 30-month milestone schedule for the proceeding.

requests/petitions to intervene included proposed contentions pursuant to 10 C.F.R. § 2.309. The Commission referred the intervention petitions to the Atomic Safety and Licensing Board Panel to conduct any subsequent adjudication. This Board was constituted on April 15, 2004 to preside over the proceeding. *See* 69 Fed. Reg. 22,100 (Apr. 23, 2004).

2.5 On June 15, 2004, the Board conducted an initial prehearing conference in Hobbs, New Mexico, during which it heard oral presentations regarding the admissibility of numerous proposed contentions proffered by the petitioners. Thereafter, in a July 19, 2004 memorandum and order, the Board found that all of the petitioners had established the requisite standing to intervene in this proceeding (per a prior Commission ruling), and ruled that each petitioner had submitted at least one admissible contention concerning the LES application so that each could be admitted as a party to this proceeding.⁵

2.6 In LBP-04-14, the Board admitted a total of ten contentions. In accordance with a prior Board order, each of the contentions was identified as falling into one of two groups: (1) Environmental Contentions (*i.e.*, contentions relating primarily to matters discussed or referenced in the Applicant's Environmental Report ("ER")) and (2) Technical/Safety Contentions (*i.e.*, contentions relating primarily to technical or safety issues discussed or referenced in the Applicant's Safety Analysis Report ("SAR")). In some instances, contentions were identified as falling into both categories.⁶

⁴ *See* LBP-05-13, 61 NRC 385 (2005); LBP-06-08, 63 NRC __ (slip op. Mar. 3, 2006). (The Board's Third Partial Initial Decision has yet to be issued.)

⁵ *See Louisiana Energy Servs., L.P.* (National Enrichment Facility), LBP-04-14, 60 NRC 40, 54-58 (2004).

⁶ The admitted contentions included: Contentions NMED TC-3/EC-4 ("Radiation Protection Program"), AGNM TC-ii ("Disposal Cost Estimates"), NIRS/PC EC-1 ("Impacts Upon Ground and Surface Water"), EC-2 ("Impact Upon Water Supplies"), EC-4 ("Impacts of Waste Storage and Disposal"), NIRS/PC EC-5/TC-2 - AGNM TC-i ("Decommissioning Costs"), NIRS/PC EC-

2.7 NIRS/PC withdrew Contention NIRS/PC TC-6, concerning natural gas-related accident risks, on May 23, 2005.⁷ Additionally, on August 11, 2005, the Board approved a settlement agreement between LES, the AGNM, and the NMED.⁸ Pursuant to that agreement, the Board accepted the withdrawal of the AGNM and NMED as parties to the proceeding and dismissed Contentions NMED TC-3/EC-4, AGNM TC-ii, and modified EC-5/TC-2-AGNM TC-i (by deleting AGNM TC-i from the title) to reflect the AGNM's withdrawal from the proceeding. As a result of the foregoing actions, evidentiary hearings were required for only seven of the ten originally admitted contentions.

2.8 The Board held three rounds of evidentiary hearings on the remaining NIRS/PC contentions. The first hearing session was held from February 7-10, 2005, in Hobbs, New Mexico, and concerned the four environmental contentions, *i.e.*, NIRS/PC EC-1, EC-2, EC-4, and EC-7. On June 8, 2005, the Board issued its First Partial Initial Decision (LBP-05-13), resolving all four environmental contentions in favor of LES and/or the NRC Staff.

2.9 The second hearing session on contested issues was held from October 24-27, 2005, at NRC headquarters in Rockville, Maryland. That hearing session involved Contentions NIRS/PC EC-3/TC-1, EC-5/TC-2, EC-6/TC-3 (challenging the plausibility and estimated cost of LES's commercial depleted uranium dispositioning strategy), as well as an

3/TC-1 ("Depleted Uranium Hexafluoride Storage and Disposal"), EC-6/TC-3 ("Cost of Management and Disposal of Depleted UF₆"), EC-7/TC-4 ("Need for the Facility"), and TC-6 ("Natural Gas-Related Accident Risks").

⁷ See "Joint Report in Response to the Licensing Board's May 3, 2005 Administrative Directives" (May 23, 2005) at 5.

⁸ See Memorandum and Order (Approving Settlement Agreement and Accepting Withdrawal of Parties to the Proceeding) (Aug. 11, 2005) (unpublished). Among other things, the Settlement Agreement requires LES to observe certain quantity and time limits with respect to the onsite storage of cylinders containing depleted uranium hexafluoride ("DUF₆"); proscribes the construction of a private "deconversion" facility in New Mexico; and requires LES to increase its financial assurance for DUF₆ dispositioning under certain conditions.

amended version of Contention NIRS/PC EC-4 (which the Commission had remanded to the Board in October 2005).⁹ The third and final hearing session on contested issues took place on February 13, 2006 in Rockville, Maryland, and involved supplemental evidentiary presentations on two cost-related issues litigated during the prior October 2005 hearing session.

2.10 The Board issued its Second Partial Initial Decision (LBP-06-08) on March 3, 2006. That decision, in conjunction with a concurrently issued Board ruling on Staff and NIRS/PC summary disposition cross-motions (*see* LBP-06-09), resolved amended Contention NIRS/PC EC-4 in favor of the Staff. The Board dismissed NIRS/PC's challenges to the adequacy of the Staff's analysis, as set forth in the FEIS, of the impacts of disposal of depleted uranium from the proposed NEF.

2.11 The Board is expected to issue its Third Partial Initial Decision in late April or early May 2006. In that decision, the Board will rule on the merits of the three remaining NIRS/PC contentions -- EC-3/TC-1, EC-5/TC-1, EC-6/TC-3 -- concerning the plausibility and estimated cost of LES's proposed "private sector" strategy for the disposition of DUF₆ from the NEF. That decision is expected to conclude the Board's resolution of contested issues in this proceeding.

2.12 Thus, during the contested portion of this proceeding, the Board received and evaluated detailed evidence regarding the following issues: (1) impacts of the facility on groundwater quality; (2) impacts of the facility on local and regional water supplies; (3) the need

⁹ Contention NIRS/PC EC-4, as dismissed by the Board in its First Partial Initial Decision, concerned the adequacy of the Applicant's and the Staff's evaluation of the potential environmental impacts associated with the possible construction and operation of a commercial facility for the "deconversion" of DUF₆ to depleted U₃O₈. As remanded to the Board, amended Contention NIRS/PC EC-4 challenged the adequacy of the Staff's analysis, under NEPA, of the environmental impacts associated with the disposal of depleted uranium from the NEF. *See* CLI-05-20, 62 NRC 523 (2005) (remanding amended version of Contention NIRS/PC EC-4).

for the facility; (4) the environmental impacts associated with the deconversion of DUF₅ to depleted U₃O₈, and the subsequent disposal thereof; and (5) the plausibility and estimated cost of LES's commercial strategy for dispositioning depleted uranium. Consistent with the Commission's directive (*see* ¶ 3.2, *infra*), the Board does not revisit here its prior determinations on the merits of these contested issues.

B. Overview of the Uncontested Portion of the Proceeding

2.13 In accordance with Section II.F of the Hearing Notice and Order, the Board has conducted the uncontested portion of this proceeding on a separate track. First, pursuant to the Board's memorandum and order of August 12, 2005, the Board requested that LES and/or the Staff provide the Board with executive summaries of the key areas of Staff review and associated Staff findings, including references to the final Staff review documents (*i.e.*, the final Safety Evaluation Report ("SER") and the FEIS).¹⁰ The Board also requested copies of certain documents associated with the NEF license application, including the LES SAR", Integrated Safety Analysis ("ISA") Summary, Staff requests for additional information ("RAIs"), and LES's responses to those Staff RAIs. LES and the NRC Staff provided the requested summaries and documents in mid-September of 2005.

2.14 In its August 12, 2005 memorandum and order, the Board also established a schedule for the conduct of the mandatory hearing. Among other things, the Board indicated that it would hold a prehearing conference in January 2006 to discuss the key issues to be addressed during the mandatory hearing and the scope of evidentiary presentations. The Board also indicated that, after reviewing all of the voluminous documentation provided by the

¹⁰ See Memorandum and Order (Memorializing Results of Prehearing Conference) (Aug. 12, 2006) (unpublished).

Applicant and Staff, it would provide, as necessary, written questions or "areas of concern" relative to the Staff's review of the LES application.

2.15 The Board, in fact, held multiple discussions with the Applicant and Staff regarding the mandatory hearing. On October 27, 2005, at the conclusion of the second evidentiary session on contested issues, the Board identified several areas of concern germane to the Staff's licensing review.¹¹ During a January 25, 2006 prehearing conference, the Board identified several additional areas of concern.¹² After the Board set forth its questions in writing on January 30, 2006,¹³ the Staff requested further clarification on certain Board questions. The Board provided that clarification during a February 6, 2006 conference with LES and the Staff.¹⁴ The Board reduced the Staff's questions to writing in a memorandum and order dated February 8, 2006.¹⁵

2.16 On February 24, 2006, LES and the NRC Staff submitted prefiled direct testimony and supporting exhibits addressing the Board's seven key areas of concern. Specifically, LES and the Staff presented testimony and evidence relating to the following safety and environmental matters:

- (1) Application of Standard Review Plan and Regulatory Guides, including Safety Matters 1, 2, and 3, as set forth in the Board's January 30 memorandum and order (see January 30 Order at 2-3);

¹¹ See Hearing Transcript (hereinafter "Tr.") at 3167-79 (Oct. 27, 2005).

¹² See Tr. at 3180-3213 (Jan. 25, 2006).

¹³ See Memorandum and Order (Memorializing Board Questions/Areas of Concern for Mandatory Hearing) (Jan. 30, 2006) (unpublished) ("January 30 Order").

¹⁴ See Tr. at 3214-54 (Feb. 6, 2006).

¹⁵ Memorandum and Order (Administrative Matters Relative to Mandatory Hearing), Attach. A, "Clarifications on Mandatory Hearing Questions" (Feb. 8, 2006) (unpublished) ("Administrative Order").

- (2) Financial Assurance, including Safety Matter 4, as set forth in the Board's January 30 memorandum and order (*see* January 30 Order at 3);
- (3) Nuclear Criticality Safety, including Safety Matters 5 through 8, as set forth in the Board's January 30 memorandum and order (*see* January 30 Order at 3) and October Hearing Questions 6.b, 6.e, 6.f, and 6.g (*see* Administrative Order, Attach. A at 2);
- (4) Interaction of Hydrogen Fluoride and Plant Components, including October Hearing Questions 6.c and 6.d (*see* Administrative Order, Attach A at 2)
- (5) Electrical Cabinet Fires, including October Hearing Question 6.h (*see* Administrative Order, Attach. A at 2);
- (6) Purpose and Need for the Facility, including Environmental Matter 1, as set forth in the Board's January 30 memorandum and order (*see* January 30 Order at 4); and
- (7) Mitigation of Cylinder Rupture Accident, including Environmental Matter 2, as set forth in the Board's January 30 memorandum and order (*see* January 30 Order at 4).

2.17 In accordance with the schedule set forth in its August 12, 2005 memorandum and order, the Board held an evidentiary hearing on uncontested issues on March 6, 2006, in Hobbs, New Mexico.¹⁶ During that hearing, LES and Staff witnesses presented their prefiled written testimony and supporting exhibits for admission into the evidentiary record of the proceeding. LES and Staff witnesses also presented live testimony, principally in response to specific questions posed by the Board during the hearing.

2.18 Subsequent to the March 6, 2006 hearing, the Board issued several orders relating to various administrative matters (*e.g.*, transcript corrections, exhibit redactions). Among other things, the Staff provided the Board with updated lists of all documents provided to the Board through the Staff's mandatory hearing-related document productions.¹⁷ In accordance

¹⁶ *See* Tr. at 3499-3688 (Mar. 6, 2006).

¹⁷ *See* Letter from M. Bupp, Counsel for NRC Staff, to Administrative Judges (Mar. 21, 2006) (enclosing (1) "LES ASLB Mandatory Disclosure Documents," (2) "LES Mandatory Disclosure

with the Board's mandatory hearing schedule, on April 10, 2006, LES and the Staff submitted their proposed findings of fact and conclusions of law.

III. LEGAL STANDARDS GOVERNING THE BOARD'S REVIEW

3.1 Sections II.D through II.F of the Hearing Notice and Order describe the legal determinations that the Board must make as part of the mandatory hearing. As set forth in Section II.D, with respect to uncontested matters, the Board is to determine, without conducting a *de novo* review of the license application:

(1) whether the application and record of the proceeding contain *sufficient information* and whether the NRC staff's review of the application has been *adequate to support findings* to be made by the Director of the Office of Nuclear Materials Safety and Safeguards, *with respect to the matters set forth in paragraph C of this section*, and (2) whether the review conducted by the NRC staff pursuant to 10 CFR Part 51 has been adequate.

69 Fed. Reg. at 5874 col. 1 (emphasis added). *See also* 10 C.F.R. § 2.104(b)(2) (procedural regulation describing the determinations to be made by a licensing board in a mandatory hearing). Section II.C of the Hearing Notice and Order, in turn, states that:

The matters of fact and law to be considered are whether the application satisfies the standards set forth in this Notice and Commission Order and the *applicable standards* in 10 CFR 30.33, 40.32, and 70.23, and whether the requirements of 10 CFR Part 51 have been met.

69 Fed. Reg. at 5874 col. 1 (emphasis added). We discuss the referenced regulatory standards below in connection with our findings of fact. *See* Section IV, *infra*.

3.2 In Section II.F, the Commission explained that, to the extent that the Board has admitted intervenor contentions, the Board is to make the foregoing determinations only with respect to matters *not* covered by those contentions. *See id.* That is, in performing its "sufficiency" review of the application, the record, and the Staff's licensing determinations, the

File: Requests for Additional Information," and (3) LES ASLB Mandatory Disclosure Documents: Documents Relating to the DOE Cost Estimate").

Board is not to revisit contested issues that it has resolved on the merits.

3.3 With respect to NEPA or Part 51 issues in particular, Section II.E provides that the Board must:

Determine whether the requirements of sections 102(2) (A), (C), and (E) of NEPA and Subpart A of Part 51 have been complied with in the proceeding; independently consider the final balance among conflicting factors contained in the record of proceeding with a view to determining the appropriate action to be taken; and determine whether a license should be issued, denied, or conditioned to protect the environment.

69 Fed. Reg. at 5874 col. 2. As the Hearing Notice and Order further states, this Board obligation must be met irrespective of whether the proceeding involves contested issues. *See id.*

3.4 On March 18, 2005 the Chief Administrative Judge of the Atomic Safety and Licensing Board Panel certified to the Commission six questions concerning the NRC's statutory duty to conduct a "mandatory hearing."¹⁸ The certified questions arose out of three separate proceedings for nuclear power plant early site permits, as well as this combined operating license proceeding. In answering those certified questions, the Commission provided additional guidance to its licensing boards with respect to the conduct of mandatory hearings.

3.5 Of particular relevance here, the Commission stated that:

[W]e expect licensing boards conducting mandatory hearings on uncontested issues to take an independent "hard look" at NRC staff safety and environmental findings, but not to replicate NRC staff work. Giving appropriate deference to NRC staff technical expertise, boards are to probe the logic and evidence supporting NRC staff findings and decide whether those findings are sufficient to support license issuance.¹⁹

¹⁸ See LBP-05-7, 61 NRC 188 (2005).

¹⁹ *Exelon Generation Co., LLC (Early Site Permit for Clinton ESP Site) et al.*, CLI-05-17, 62 NRC 5, 34 (2005).

In this regard, the Commission emphasized again that "the boards should conduct a simple 'sufficiency' review of uncontested issues, not a *de novo* review."²⁰ Stated another way, with respect to uncontested matters, the Board must merely "decide whether the *staff's* review has been adequate to support [its] findings."²¹ (By contrast, in the case of contested issues, the Board must resolve the controversy itself, as a *de novo* matter.)

3.6 With respect to safety issues cognizable under the Atomic Energy Act ("AEA") of 1954, as amended, the Commission noted its expectation that "boards will not follow a cursory, hands-off approach to uncontested Staff findings."²² Rather, the Commission expects its boards to -- as this Board has done -- "carefully probe those findings by asking appropriate questions and requiring supplemental information when necessary."²³ This does *not* mean that the Board must inquire into "*all possible views and facts* relating in any way to the matters in question."²⁴

3.7 The Commission also provided guidance with respect to the scope of the Board's review under NEPA. The Commission stated that the Board in this proceeding must conduct the "weighing" of the proposed facility's environmental costs against its various economic, technical, and other benefits required by 10 C.F.R. § 51.105(a)(5).²⁵ Additionally, the Commission confirmed that the Board must consider "reasonable alternatives" to the proposed

²⁰ *Id.* at 39.

²¹ *Id.* at 36 (emphasis in original) (citation omitted).

²² *Id.* at 40.

²³ *Id.*

²⁴ See CLI-05-17, 62 NRC at 41-42 (emphasis in original).

²⁵ *Id.* at 44,

action before deciding whether the license should be issued.²⁶ However, the Commission clarified that in making the "independent judgments" required by NEPA and Section 51.105(a)(5), the Board should follow the approach spelled out in the D.C. Circuit's seminal *Calvert Cliffs'* decision.²⁷ While the Board must independently review the Staff's NEPA-related conclusions, it must do so "on the basis of the evidence in the record."²⁸ This means that the Board should not "second-guess underlying technical or factual findings made by the NRC Staff," absent a Board finding that the Staff's review is incomplete or the Staff's findings are insufficiently explained in the record.²⁹ It is with the foregoing principles in mind that we make the findings of fact and conclusions of law set forth below.

IV. FINDINGS OF FACT

A. Safety, Security and Safeguards

1. *General Description of the Proposed Facility and the License Application*

4.1 The proposed NEF will be located in southeastern New Mexico, approximately five miles east of the City of Eunice, New Mexico, and 0.5 miles west of the New Mexico-Texas border, in Lea County. The primary function of the facility will be to enrich natural uranium, in the form of UF₆, from its natural isotopic concentration of about 0.7 percent uranium-235 to 5 percent uranium-235. The enrichment process uses fast-rotating cylinders (centrifuges) at subatmospheric conditions to generate centrifugal forces that separate the various uranium isotopes based on their differing molecular weights. The enrichment process yields two

²⁶ See *id.* at 47-49.

²⁷ See CLI-05-17, 62 NRC at 44 (citing *Calvert Cliffs' Coordinating Comm. v. AEC*, 449 F.2d 1109 (D.C. Cir. 1971)).

²⁸ *Id.* at 45.

²⁹ *Id.*

streams, *i.e.*, a product stream consisting of enriched UF₆ and a byproduct stream consisting of depleted UF₆. *See* Staff Exh. 49-M (SER) at 1-1.

4.2 LES prepared its application to conform with, to the extent practicable, the format and substantive guidance contained in NUREG-1520, "Standard Review Plan for the Review of a License Application for a Fuel Cycle Facility" (March 2002) ("SRP"). *See* Staff Exh. 51-M; Tr. at 3537. The license application for the NEF consists of the following principal documents: a Safety Analysis Report ("SAR"), an Emergency Plan, an Environmental Report ("ER"), a Fundamental Nuclear Material Control Plan, a Physical Security Plan, a Safeguards Contingency Plan, and Guard Force Training and Qualification Plan, and a Standard Practice and Procedures Plan for the Protection of Classified Matter. LES also prepared and submitted, along with the NEF license application, an ISA Summary. The NEF ISA Summary also conforms, to the extent practicable, to the format and substantive guidance contained in the SRP.

2. *Thoroughness of the Staff's Licensing Review Process*

4.3 In evaluating LES's license application and preparing its SER, the Staff relied in principal part on the review guidance contained in the SRP (*i.e.*, NUREG-1520).³⁰ At the hearing, Timothy Johnson, the Staff's LES Project Manager, explained the purpose and intended use of the SRP.³¹ The primary purpose of the SRP, which the Staff developed after extensive interactions with fuel cycle licensees to ensure comprehensiveness, is to facilitate

³⁰ In addition, for its review of the safeguards section of the license application, the Staff used NUREG-1065, "Acceptable Standard Format and Content for the Fundamental Nuclear Material Control (FNMC) Plan Required for Low-Enriched Uranium Facilities." For its physical protection review, the Staff used Regulatory Guide 5.59, "Standard Format and Content for a Licensee Physical Security Plan for the Protection of Special Nuclear Material of Moderate to Low Strategic Significance."

³¹ *See* "NRC Staff Pre-Filed Mandatory Hearing Testimony Concerning the Use of NUREG-1520 in the Review of the License Application for the Proposed National Enrichment Facility" (Feb. 24, 2006) ("Staff SRP Testimony") A.6.

quality and uniformity in Staff reviews of such applications. *See id.*; Tr. at 3524-26. It also serves as guidance to applicants. *See id.* However, because the SRP is a guidance document, the information presented in it does not preclude applicants from suggesting alternative approaches to those specified in the SRP to demonstrate compliance with applicable regulations. *See* Staff SRP Testimony A.6; Tr. at 3535. Therefore, when an applicant suggests alternative approaches, the Staff must make an independent determination as to the adequacy of the applicant's proposed approaches. *See id.*; Tr. at 3535-36.

4.4 Given that the SRP applies to license applications and ISA summaries for nuclear fuel cycle facilities in general, and not to uranium enrichment facilities in particular, the Board sought clarification from the Staff as to how it "adapted" the SRP to apply to LES's enrichment facility application. *See* January 30 Order at 2-3. To this end, the Board also directed the Staff to explain the manner in which it (a) determined the applicability of all Regulatory Guides specifically relied upon by LES, and (b) addressed (or asked LES to address) issues covered by Regulatory Guides that are cited in the SRP, but which are not applicable to the NEF. In their prefiled and live testimony, the Staff's witnesses responded to the Board's questions in full, identifying both the applicable and inapplicable portions of the SRP and other pertinent NRC guidance, and explaining in detail the bases for accepting alternative applicant approaches and/or deviations from NRC guidance. *See* Staff SRP Testimony A.12-A.18.

4.5 In doing so, the Staff explained that, while some sections of the SRP are not applicable to the LES facility, no modifications to the SRP were necessary for the applicable sections. *See* Staff SRP Testimony A.12. On this point, Mr. Johnson added that the SRP was developed as a generic document for licensing fuel cycle facilities under 10 C.F.R. Part 70, including fuel fabrication facilities and uranium enrichment facilities like the NEF. *See id.* A.7.

Although there are differences among these types of plants, the hazards that will exist at the proposed NEF are similar to the types of hazards at other fuel cycle facilities to which NUREG-1520 applies. *See id.* These hazards include the handling of UF₆ cylinders, the processing of UF₆ as a gas and sometimes as a liquid, the use of autoclaves for sampling uranium, nuclear criticality, equipment decontamination operations, and laboratory activities. *See id.*

4.6 The Staff also emphasized that the relative risk of the facility necessarily informs the Staff's review, and that Staff review of each type of application (e.g., enrichment facility, fuel fabrication facility, or mixed-oxide fuel fabrication facility) must focus on the specific type of hazards associated with the particular technology being deployed at the facility. *See Staff SRP Testimony A.8.* In this regard, the Staff noted that the Staff's review of the LES application was informed by the fact that the overall risk of the NEF is lower than that associated with other types of fuel cycle facilities licensed by the NRC. *See id.* A.8. In support of this position, the Staff provided an explicit comparison of the safety (including nuclear criticality) risks of the proposed NEF to the safety risks associated with the operation of other types of Part 70 facilities. *See id.* A.9-A.11.

4.7 Based upon our review of the SER and the record of the proceeding, the Board is satisfied that the Staff conducted a thorough and adequate review of the LES license application. Specifically, by adhering as closely as possible to the relevant guidance and acceptance criteria of the SRP, the Staff utilized a reasonable and logical approach to reviewing the application.³² Where deviations from or alternatives to the SRP guidance proved necessary,

³² *See Tr.* at 3529-30; *see also Private Fuel Storage, L.L.C.* (Independent Spent Fuel Storage Installation), CLI-01-22, 54 NRC 255, 264-65 (2001) (stating that "where the NRC develops a guidance document to assist in compliance with applicable regulations, it is entitled to special weight"); *Vermont Yankee Nuclear Power Corp.* (Vermont Yankee Nuclear Power Station), CLI-74-40, 8 AEC 809, 811 (1974) (stating that while regulatory guides do not have the force of

the Staff ensured that they were adequately justified. The Staff's review, in other words, has been adequate to support the safety and environmental findings to be made by the Director of NMSS for purposes of license issuance.

3. Adequacy of the Application and the Record of the Proceeding

4.8 The Commission's Hearing Notice and Order also requires the Board to decide whether the application and the record of the proceeding contain *sufficient information* to support the Staff's findings relative to compliance with all applicable standards.³³ We identify below the relevant standards and describe, in brief, the Staff's findings relative to those standards. With respect to those matters on which the Board sought testimony and evidence from the Staff and/or LES to supplement the record, the Board elaborates, as needed, upon its rationale for certain findings. In summary, the Board finds that LES has provided sufficient information relative to the safety of the proposed facility, and that the Staff's review of that information has been adequate, to support the Staff's specific findings and license issuance.

a. Authorized Use of AEA-Regulated Materials

4.9 NRC regulations require that the license application be for a purpose authorized by the AEA. *See* 10 C.F.R. § 70.23(a)(1). The Applicant is proposing to use special nuclear material and source material in the enrichment of uranium. The uranium enrichment services would be sold to clients for the production of low-enriched uranium, which, in turn, ultimately would be used in the manufacture of fuel for commercial nuclear power plants. *See* Staff Exh. 49-M at 1-8 to 1-9. Byproduct material, as defined in 10 C.F.R. Part 30, would be

regulations, "they are entitled to considerable *prima facie* weight because of the important day-to-day responsibilities of the Regulatory Staff [sic] in effectuating Commission policy").

³³ The specific standards (*e.g.*, technical qualifications) enumerated in Sections 30.33 and 40.32, which relate to byproduct material and source material, respectively, mirror those contained in Section 70.23, albeit they are fewer in number.

used in instrument-calibration sources, and may be present as contamination as a consequence of the historical feed of recycled uranium at other enrichment facilities. (However, feed cylinders that have been previously used to transport or store recycled uranium must be decontaminated before being allowed on the facility site.) *See id.* The record is sufficient to support the Staff's conclusion that the foregoing uses (or types of possession) of nuclear material are authorized by the AEA. *See also* 42 U.S.C. §§ 2073, 2093, 2111, 2243.

b. Technical Qualifications

4.10 An applicant must be qualified by reason of training and experience to use the material for the purpose requested. *See* 10 C.F.R. § 70.23(a)(2). The record is sufficient to support the Staff's conclusion that LES has adequately described the responsibilities and associated resources for the design, construction, and operation of the proposed NEF and its plans for managing the project. Further, the record provides a reasonable basis for the Staff's conclusion that the plans and commitments described in the application provide reasonable assurance that an acceptable organization, administrative policies, and sufficient competent resources have been established or committed for the design, construction, and safe operation of the facility. *See generally* Staff Exh. 49-M (SER), Chs. 2 & 11; Staff Exh. 50-M at 2-1 to 2-2; 11-1 to 11-3.

c. Adequacy of LES's Proposed Equipment, Facilities and Procedures

4.11 An applicant's proposed equipment, facilities, and procedures must be adequate to protect health and minimize danger to life or property. *See* 10 C.F.R. § 70.23(a)(3)-(4). Based upon a comprehensive review of the application and the record, including evidence presented by LES and the Staff during the March 2006 hearing, we find that there is sufficient information in the record to support the pertinent Staff findings. As the SER reflects, the Staff's

findings in this regard encompass a number of review areas, including the integrated safety analysis, radiation protection, nuclear criticality safety, chemical process safety, fire safety, environmental protection (*i.e.*, environmental and effluent monitoring and effluent controls to maintain doses as low as reasonably achievable), and decommissioning (including financial assurance), and management measures. *See* Staff Exh. 49-M (particularly pages xv-xviii; Chapters 3-7, 9-11). In support of its determination that the record contains sufficient information to support the relevant Staff conclusions, the Board notes the following, based on evidence received by the Board during the March 6, 2006 evidentiary hearing.

4.12 First, Staff and LES witnesses made several general observations relative to the Applicant's proposed equipment, facility, and procedures that warrant mention here. Uranium will be enriched at the LES facility through an entirely mechanical process. *See* Staff SRP Testimony A.9. As such, there will be no licensed material other than natural uranium or uranium enriched up to five percent U-235 present at the LES facility (with the exception of sealed sources used for instrument calibration). *See id.* Licensed materials at the proposed facility will be contained mostly in UF₆ cylinders or in the centrifuge cascades, and open sources of uranium will be present only in the laboratories and in decontamination facilities. *See id.* The only liquids used to support the process that can come into contact with special nuclear material are those used for decontamination and maintenance activities. *See id.* A.10.

4.13 The gas centrifuge cascades will contain only limited quantities of UF₆ in a gaseous form and operate at subatmospheric conditions. *See* Staff SRP Testimony A.9. There is no anticipated need to perform maintenance on the centrifuges at the proposed facility. *See id.* Gas centrifuges operate until they fail (centrifuges are expected to operate continuously for periods exceeding 15 years), and only in rare cases would failed centrifuges be removed from the

cascade. *See id.* Therefore, the only routine maintenance proposed for the NEF will be on equipment that is located outside the cascade halls. *See id.*

4.14 The lack of plutonium, high-enriched uranium, or fission products greatly simplifies radiation protection, which is on the same level as that required at a low-enriched uranium fuel fabrication plant, but with much less contamination (as shown by experience in Europe). *See Staff SRP Testimony A.10.* Moreover, because the NEF will operate with limited quantities of uranium in the process systems, and the assays will be limited to 5 percent U-235, the nuclear criticality hazard at the facility is limited. *See id.* A.9-A.11. Finally, the only materials presenting chemical hazards are soluble uranium compounds (which present a heavy metal toxicity concern) and hydrogen fluoride, which is a product of the chemical reaction between UF_6 and water (*i.e.*, moisture from the air). *See id.* A.8. Qualitatively, the chemical risks posed by these facilities are far below those found at a typical chemical plant. *See id.* In view of the foregoing considerations, the Board finds that the record provides a reasonable basis for the Staff's conclusion that the proposed equipment, facility, and operations strategy present limited hazards to workers and the public.

4.15 Notwithstanding, nuclear criticality and chemical process safety were areas of particular interest to the Board. *See* ¶ 2.17, *supra*. In this regard, the Board posed several questions to the Staff and Applicant regarding those subjects. The Board also received evidence on two discrete issues related to fire safety and financial assurance. We briefly discuss those issues below.

Supplemental Presentations on Nuclear Criticality Issues

4.16 With regard to the nuclear criticality, the Board's areas of concern were essentially twofold. First, the Board probed the methodology and assumptions used by the

Applicant (and reviewed by the Staff) to validate and verify of the MONK8A Monte Carlo computer code, a computational code that the Applicant used to perform the NEF criticality analyses.³⁴ See LES Exhs. 126-M, 127-M. The Applicant responded in full to the Board's questions concerning the MONK8A Validation and Verification Report.³⁵ Given the technical nature and depth of those responses, we do not repeat them here. Suffice it to say, the Board is satisfied with LES's explanation of the validation and verification approach used by LES. The Board finds that the record contains sufficient information to support the Staff's overall conclusion that LES's nuclear criticality safety program satisfies the applicable Part 70 requirements.

4.17 Second, the Board requested additional information regarding the probability of significant water vapor intrusion affecting criticality safety at the NEF. LES witnesses testified that the facility will be designed and constructed to preclude the occurrence of such an event. See Applicant NCS Testimony A.21; Tr. at 3620-23. Due to the high vacuum requirements for the normal operation of the gas centrifuges of the Separations Plant, air in-leakage (and hence water vapor intrusion) into the process systems is controlled to very low levels, such that the condition of significant water vapor intrusion constitutes an abnormal condition. See *id.* In addition, excessive air in-leakage would result in a loss of vacuum, which, in turn, would cause the affected centrifuges to abruptly stop. See *id.* Therefore, the buildup of

³⁴ In particular, the Board inquired about (1) the relationship between Items Relied on for Safety ("IROFS") and the nuclear criticality safety analyses selected for verification in the Applicant's MONK8A Validation and Verification report; (2) the significance of the hydrogen-to-uranium ("H/U") (*i.e.*, moderation) ratio ranges associated with the benchmark criticality experiments used to validate the MONK8A code (including the impact of varying H/U ratios on computational bias); and (3) the manner in which the "no hydrogen moderation" case (including the existence of "unresolved resonances") was treated in validating the MONK8A code. See January 30 Order at 3-4 (Safety Matters 5-8); Administrative Order, Attach. A at 2 (¶¶6.b, 6.e, 6.f, and 6.g).

³⁵ See "Applicant's Prefiled Testimony in Mandatory Hearing Concerning Matters Related to Nuclear Criticality Safety ["NCS"] (Safety Matter Nos. 5-8 and October Hearing Questions 6.b, 6.e, 6.f, and 6.g)" (Feb. 24, 2006) ("Applicant NCS Testimony") A.6 to A.20; Tr. at 3603-13; see also LES Exhs. 126-M to 131-M.

mass of moderated breakdown material in the associated process system components, such that the components become filled with sufficient mass of moderated enriched uranic material for criticality, is precluded. *See id.*

4.18 The Board suggested the possibility of preparing a more detailed, quantitative assessment of the probability of significant water vapor intrusion, such as a fault-tree diagram or a probabilistic risk assessment ("PRA"). *See* Administrative Order, Attach A at 2, ¶ 6.b; Tr. at 3623-26. However, William Troskoski, a Senior Technical Reviewer in NMSS, testified that neither NRC regulations nor SRP guidance calls for the use of a PRA or quantitative approach in this situation. Tr. at 3628. Mr. Troskoski further explained that the Applicant used a hazard and operability methodology to identify hazards that could lead to inadvertent criticality or the loss of confined material. Tr. at 3629. Using this approach, Mr. Troskoski demonstrated that, in the unlikely event of a significant breach in containment, UF₆ would not escape to the environment, and any resulting HF or hydrofluoric acid would be present only in minute quantities. Tr. at 3629-35. Accordingly, the record contains adequate information to support the Staff's conclusion that the qualitative approach prescribed the NRC in the SRP and utilized by LES to assess high-consequence accident sequences is acceptable, and that applicable performance requirements (with respect to radiological and chemical dose) would not be exceeded by a water vapor intrusion event.

Supplemental Presentation on HF Compatibility Issues

4.19 The Board also sought additional information on the possible interaction of hydrogen fluoride ("HF") with (1) the aluminum used in constructing the centrifuge cascades and other plant components, and (2) the various seals that will be present in the facility. *See* Administrative Order, Attach. A at 2, ¶¶ 6.c-6.d. LES witnesses explained that the Separations

Plant process gas system is inherently dry due to its vacuum operation, which, together with the absence of water connections in the process gas pipework, precludes the possibility of the formation of aqueous HF.³⁶ They noted that Urenco has conducted enrichment operations for some 30 years without significant HF corrosion to centrifuges or Separations Plants and without loss of vacuum. *See* Applicant HF Compatibility Testimony A.9, A.11.

4.20 As discussed above, in the event of significant air in-leakage into the Separations Plant (and the resulting water intrusion), the process would abruptly shut down, confining the in-process UF₆ to pipe sections between successive isolation valves. The confined UF₆ would be on the order of a few hundred grams and be contained within a couple of hundred feet of pipe. *See* Applicant HF Compatibility Testimony A.9. Assuming full hydrolyzation of the UF₆ due to significant in-leakage, some tens of grams (no more than 100 grams) of anhydrous HF would be produced. *See id.* A.9-A.10. Since the resulting amount of HF will be anhydrous, no impact to aluminium piping integrity due to corrosion would result. *See id.* Even assuming full hydrolyzation of the anhydrous HF, the amount of aqueous HF would be small relative to the amount of aluminium in the pipe, and would not pose any threat to the integrity of the aluminium piping. *See id.* A.10; *see also* LES Exhs. 18, 132-M to 134-M.

4.21 Similarly, the seals that will be used in various NEF systems or equipment would not degrade due to exposure to hydrogen fluoride. *See* Applicant HF Compatibility Testimony A.12; Tr. at 3626. The seals installed at the NEF will be made of materials like those used in Urenco's operating enrichment plants, *i.e.*, materials that Urenco has specifically qualified through exposure tests and relied on for many years of operation. *See id.* The Urenco

³⁶ *See* "Applicant's Prefiled Testimony in Mandatory Hearing Concerning the Compatibility of Uranium Hexafluoride and Hydrogen Fluoride ["HF"] with Centrifuge Plant Materials (October Hearing Questions 6.c and 6.d)" (Feb. 24, 2006) (Applicant HF Compatibility Testimony") A.9.

seals specification requires the use of materials (e.g., fluoroelastomers such as Viton, fluorinated polymers such as Kel-F) that are compatible with UF₆, which is far more reactive than HF under the vacuum conditions characteristic of the Separations Plant. *See id.* In addition, the HF industry considers fluoroelastomers to be suitable for anhydrous HF service. *See id.*; LES Exh.135-M. In view of the above, the Board is satisfied that the record contains adequate information to support the Staff's conclusions concerning chemical process safety.

Supplemental Presentations on Fire Safety Issue

4.22 With regard to fire safety, the Board asked the Applicant and Staff to discuss the potential for reignition of an electrical cabinet fire following its initial extinguishment. *See* Administrative Order, Attach. A at 2, ¶ 6.h. In short, LES and Staff witnesses demonstrated that the NEF is equipped with means to rapidly detect and respond to a panel/cable fire with manual fire suppression capability (e.g., portable extinguishers, hoselines) that is adequate to extinguish the fire and prevent its reignition.³⁷ After manual fire extinguishment, fire response personnel would remain in the area for a sufficient period of time to ensure that reignition does not occur or is rapidly suppressed. Applicant Fire Safety Testimony A.14; Staff Fire Safety Testimony A.4; Tr. at 3642-43. Moreover, the Applicant and Staff explained that the likelihood of electrical panel/cable ignition with a propagating fire at the NEF is very low, and if it were to occur, it would not compromise the safety of the public or the facility. *See* Applicant Fire Safety Testimony A.10, A.15-A.16; Staff Fire Safety Testimony A.5. The NEF fire safety program is designed to meet the acceptance criteria in Chapter 7 of the SRP, which requires, among other things, appropriate design measures and the implementation and

³⁷ *See* "Applicant's Prefiled Testimony in Mandatory Hearing Concerning Fire Protection (October Hearing Question 6.h)" (Feb. 24, 2006) ("Applicant Fire Safety Testimony") A.13; "NRC Staff Pre-Filed Mandatory Hearing Testimony Concerning Electrical Cabinet Fires" (Feb. 24, 2006) ("Staff Fire Safety Testimony") A.4.

maintenance of an acceptable management system. *See id.*; Staff Exh. 49-M, Ch. 7; Staff Exh. 50-M at 7-1 to 7-4. Accordingly, the Board finds that the record is sufficient to support the Staff's conclusions with respect to fire safety.

Supplemental Presentations on Financial Assurance Issue

4.23 The Staff concluded that LES has provided an acceptable conceptual decommissioning plan that addresses both facility decommissioning and the disposition of depleted UF₆. *See* Staff Exh. 49-M (SER), Ch. 10; Staff Exh. 50-M at 10-1 to 10-5. The Staff also accepted LES's decommissioning funding plan, which addresses the estimated costs of decommissioning and the funding of LES's proposed financial assurance instrument. *See id.* The Board sought more information on one issue, *i.e.*, the source of the Staff's assurance that LES can and will modify its surety bond to accommodate a future increase (*e.g.*, due changes in regulatory requirements) in required decommissioning financial assurance levels. *See* January 30 Order at 3, ¶ 4.

4.24 Staff and Applicant witnesses cited a number of factors which ensure that LES will modify its financial assurance instrument in response to potential increases in necessary decommissioning financial assurance levels.³⁸ These include, among others, required periodic updates of LES's cost estimate and associated decommissioning financial assurance level;³⁹ the availability of a contingency equal to 25 percent of LES's *total* decommissioning cost estimate;

³⁸ *See* "Applicant's Prefiled Testimony in Mandatory Hearing Concerning Financial Assurance (Safety Matter No.4)" (Feb. 24, 2006) ("Applicant Financial Assurance Testimony") A.9-A.15; "NRC Staff Pre-Filed Testimony Regarding Financial Assurance" (Feb. 24, 2006) ("Staff Financial Assurance Testimony") A.4; Tr. at 3569-80.

³⁹ While the regulations contemplate triennial updates of decommissioning cost estimates and associated funding levels, LES has committed to annual forward-looking revisions to its cost estimate for the disposition of depleted UF₆ and to commensurate changes in its financial assurance instrument (to cover any changes in DUF₆ dispositioning costs). *See* Staff Exh. 49-M at 10-14 to 10-15.

the ability of a licensee to revise its surety bond and/or employ supplemental financial assurance mechanisms to meet new coverage levels; the size of the financial commitment made by LES and the substantial base of firm contracts it already has in place; the strong financial position of LES's parent company (which enables it to meet indemnification requirements imposed by a surety company); the historical experience of the NRC;⁴⁰ the notice-and-comment process that precedes most changes to NRC rules; and the broad enforcement powers of the NRC. In view of this information and the record as a whole, the Board finds that the foregoing Staff conclusions relative to decommissioning planning and financial assurance have a reasonable basis.

d. Financial Qualifications

4.25 An applicant also must be financially qualified to engage in the proposed activities. *See* 10 C.F.R. § 70.23(a)(5). While LES is a single purpose entity, the LES partners, particularly principal general partner Urenco, are corporations of worth with sizable assets and cash flow.⁴¹ The investment in the NEF will be financed through a combination of partners' equity, internal cash flow, and an appropriate debt structure. *See* Staff Exh. 49-M, § 1.2.3.2 at 1-6 to 1-8; *see also* Applicant Financial Assurance Testimony A.13. Partner's equity will represent a minimum of 30% of the project cost. *See id.* Additionally, once NEF operations commence and production ramps up, LES expects to generate significant revenues and profits of its own. *See id.* At the time of SER publication (June 2005), LES already had secured enough contracts with nuclear utilities to account for approximately 70% of the NEF's output through

⁴⁰ Staff witnesses testified that the NRC has not observed any unusually large or unexpected increases in projected decommissioning and disposal costs that could result in corporate failures or failures to remain in compliance with the financial assurance requirements.

⁴¹ On March 3, 2006, Urenco Investments, Inc. purchased Westinghouse Enrichment Company, LLC's 24.5-percent interest in LES. As a result, Urenco is now the sole general partner in LES, owning 90% of LES. LES has revised its application to reflect this fact. *See* Letter from R. Krich, LES, to Director of NMSS (Mar. 16, 2006) (docketed correspondence NEF#06-007).

the facility's initial 10 years of production. *See id.* Based upon the foregoing, in accordance with 10 CFR 70.23(a)(5), the Board finds the application and record of the proceeding contain sufficient information to support the Staff's finding that LES is financially qualified to build and operate the proposed facility.

e. Fundamental Nuclear Material Control Plan

4.26 In accordance with 10 C.F.R. § 70.23(a)(6), the Staff concluded that the Applicant's proposed Material Control and Accounting ("MC&A") program is adequate, *i.e.*, it complies with the applicable requirements of 10 C.F.R. Part 74. *See* Staff Exh. 49-M at 12-1; Staff Exh. 50-M at 12-1 to 12-3. LES submitted a Fundamental Nuclear Material Control Plan ("FNMCP"), which describes the programs and procedures to be used to control and account for special nuclear material in the facility.⁴² *See id.* The Staff reviewed the FNMCP and obtained, where necessary, additional information from the applicant through RAIs and conference calls. The Board finds that the application and record of the proceeding contain sufficient information to support the Staff's conclusion that LES's MC&A program is adequate.

f. Physical Protection of Special Nuclear Material in Transit

4.27 An applicant also must submit an adequate plan for the physical protection of special nuclear material in transit. 10 C.F.R. § 70.23(a)(9). LES provided detailed information in its Physical Security Plan on the policies, methods, and procedures to be implemented to protect SNM of low strategic significance in transit to and from the facility. The Staff focused its review on the Applicant's commitments to meet specific material transportation,

⁴² These programs include, for example, MC&A organization, the measurement program, the statistical program, the physical inventory program, the item control program, the material receipt and shipment program, the assessment program, the unauthorized enrichment prevention program, the program for resolving indications of missing uranium, investigation assistance, and recordkeeping. *See, e.g.*, Staff Exh. 50-M at 12-1.

material receipt, in-transit physical protection, export, import, and document retention requirements. *See* Staff Exh. 49-M at 14-1; Staff Exh. 50-M at 14-1 to 14-3. The Staff concluded that this information is acceptable and complies with the applicable Part 73 requirements. *See id.* The Board has reviewed the relevant portions of the application and the record and finds that they provide adequate support for the Staff's conclusion.

g. Physical Protection and Protection of Classified Matter

4.28 As required by Section 70.23(a)(10), the Staff reviewed and approved LES's Physical Security Plan, in which the Applicant described the policies, methods, and procedures that will be implemented to protect SNM of low strategic significance that is used or possessed at the proposed facility. The Staff focused its review on the areas of barriers, access control, intrusion detection, response force, and event reporting. The Staff concluded that the information provided by LES is acceptable and conforms with the applicable Part 73 requirements. *See* Staff Exh. 49-M at 13-1; Staff Exh. 50-M at 13-1 to 13-2. The Board has reviewed the relevant portions of the application and the record and finds that they provide adequate support for the Staff's conclusion.

4.29 The Applicant also provided information, including a Standard Practice Procedures Plan, on the protection of classified matter, including security controls and procedures, to ensure that classified matter is properly used, processed, stored, reproduced, transmitted, transported, and destroyed. The Staff concluded that the Applicant's proposed program is acceptable and complies with the Part 95 requirements for a facility clearance. *See* Staff Exh. 49-M at 1-10 to 1-11. The Board has reviewed the relevant portions of the application and the record and finds that they provide adequate support for the Staff's conclusion.

h. Emergency Management

4.30 In accordance with Section 70.23(a)(11), the Staff found that the Applicant has submitted an adequate Emergency Plan ("EP"). *See* Staff Exh. 49-M at 8-1 to 8-10; Staff Exh. 50-M at 8-1 to 8-4. Specifically, LES has committed to maintaining and executing written procedures for responding to the hazards resulting from potential release of radioactive and/or chemically hazardous materials incident to the processing of licensed material. *See id.* In reviewing the EP, the Staff focused on information concerning the facility description; onsite and offsite emergency facilities; the types, classification, and detection of accidents; mitigation of consequences; assessments of releases and responsibilities; notification and coordination procedures; training, safe shutdown; exercises and drills; and the means by which LES will update its EP program and procedures. *See id.* The Board has reviewed the relevant portions of the application and the record and finds that they provide adequate support for the Staff's conclusion.

i. Nuclear Energy Liability Insurance

4.31 Before issuing a license, the Staff must find that the Applicant has complied with the applicable requirements of 10 C.F.R. Part 140 concerning nuclear energy liability insurance.⁴³ *See* 10 C.F.R. § 70.23(a)(12). At present, LES has a nuclear energy liability policy with a limit of \$1 million, as a standby policy, until the facility is ready to begin operations. *See* Staff Exh. 49-M at 1-8. However, the Staff will impose a license condition that will require LES to provide proof of full liability insurance (*i.e.*, \$300 million) at least 30 days

⁴³ Section 140.13b requires that a uranium enrichment facility carry liability insurance to cover public claims arising from any occurrence, within the U.S. that causes, within or outside the U.S., bodily injury; sickness; disease; death; loss of, or damage to, property; or loss of use of property arising from the radioactive, toxic, explosive, or other hazardous properties of chemicals containing licensed material.

prior to the planned date for obtaining licensed material, so as to ensure compliance with Part 140 requirements. *See id.* Accordingly, the Board finds that the application and the record contain sufficient information to support the Staff's conclusion that the liability insurance requirements referenced in Section 70.23(a)(12) have been met.

j. Foreign Ownership

4.32 In its Hearing Notice and Order, the Commission stated that Section 57 of the AEA requires, among other things, an affirmative finding by the Commission that issuance of a license for the NEF will not be "inimical to the common defense and security." 69 Fed. Reg. at 5878 col. 1. As the SER and reflects, the NRC Staff made this affirmative finding on the basis of the Department of Energy's ("DOE") Foreign Ownership, Control, and Influence ("FOCI") review of the LES application. *See Staff Exh. 49-M at 1-5.* Namely, the Staff received a letter from the DOE dated March 31, 2005, in which the DOE recommended that the NRC waive the requirement for FOCI mitigation associated with the granting of a nuclear facility license to LES.⁴⁴ *See id.* The NRC accepted this finding by DOE based on a May 6, 2004 Interagency Agreement between NRC and DOE. *See id.* Thus, the Board finds that the record contains sufficient information to support the Staff's conclusion that issuance of a license to LES will not be "inimical to the common defense and security."

B. Environmental Issues

4.33 We now turn our attention to the NEPA-related findings required by Section II.E of the Commission's Hearing Notice and Order. The Board's environmental findings

⁴⁴ *See Letter from Marshall O. Combs (DOE) to Roy P. Zimmerman (NRC), dated March 31, 2005. Among other things, the DOE noted that (1) the governments that are ultimately responsible for Urenco/LES are parties to the Non-Proliferation Treaty; and (2) the signatories to the Treaty of Almelo, which established Urenco, have agreed to abide by the safeguards requirements established by the International Atomic Energy Agency.*

are threefold, *i.e.*, the Board must: (1) ascertain whether the Staff has complied with NEPA's principal procedural requirements; (2) independently consider the "final balance among conflicting factors" in the record of the proceeding; and (3) determine whether a license should be issued, denied, or conditioned to protect the environment. *See* Section III., *supra*. As discussed above, in making those findings, the Board must give appropriate deference to the factual and technical findings of the Staff.

1. Staff Compliance With Sections 102(2)(A), (C), and (E) of NEPA

4.34 The Board has reviewed the FEIS in its entirety and concludes that the Staff has complied with the procedural requirements set forth in Sections 102(2)(A), (C), and (E) of NEPA, 42 U.S.C. §§ 4332(2)(A), (C), and (E). *See also* 10 C.F.R. §§ 51.71, 51.91, & App. A to Part 51. Section 102(2)(A) requires that the Staff "utilized a systematic, interdisciplinary approach" that will ensure the integrated use of natural and social sciences in the environmental decisionmaking process. As documented in FEIS, the Staff considered in detail the potential impacts of the proposed facility on an array of physical, biological, economic, and social parameters.⁴⁵ *See generally* Staff Exh. 47 at xxv-xxviii; Chs. 3 & 4. The FEIS includes consideration of both radiological and nonradiological (including chemical) impacts. In fact, the Staff sought to coordinate its environmental review with its safety evaluation of the proposed NEF, so as to evaluate, *inter alia*, the health, safety, and security impacts of the proposed action. *See* Staff Exh. 47 at 1-6. For its environmental review, the Staff relied on the expertise of a

⁴⁵ Section 1.4.2 of the FEIS lists the specific environmental subjects (and related impacts) studied in detail by the Staff as part of its NEPA evaluation of the proposed action. They include: the need for the facility, alternatives to the proposed action, applicable regulatory requirements, land use, historic and cultural resources, visual and scenic resources, air quality, site geology and soils, water resources, ecological resources, socioeconomic impacts, environmental justice, noise, transportation, public and occupational health, waste management, decontamination and decommissioning, depleted uranium disposition, accidents, cumulative impacts, and resource commitments. *See* Staff Exh. 47 at 1-7.

diverse body of professional scientists, engineers, and social scientists. Chapter 9 (List of Preparers) of the FEIS lists the principal contributors to the FEIS, and identifies each individual's area of expertise/contribution, educational training, and level of experience.

4.35 Section 102(2)(C) of NEPA requires a federal agency to address in its environmental impact statement: (1) the environmental impact of the proposed action, (2) any unavoidable adverse impacts associated with implementation of the proposed action, (3) alternatives to the proposed action, (4) the relationship between local short-term uses of man's environment and the maintenance and enhancement of long-term productivity, and (5) any irreversible and irretrievable commitment of resources that might result from the proposed action. 42 U.S.C. § 4332(2)(C). The NRC Staff has thoroughly addressed each of these considerations in its FEIS for the proposed facility.⁴⁶ See Staff Exh. 47, Chs. 2 & 4.

4.36 In addition, Section 102(2)(C) also requires that an agency "consult with and obtain the comments of any Federal agency which has jurisdiction by law or special expertise with respect to any environmental impact involved." 42 U.S.C. § 4332(2)(C). Based upon its review of the FEIS, the Board finds that the Staff also has complied with this

⁴⁶ Upon completing its review of the FEIS, the Board sought additional information from the Staff and LES on only two environmental issues: (1) the extent to which the Staff reviewed, and agreed with, the statement of purpose and need presented in Section 1.1 of the LES Environmental Report; and (2) the potential mitigating actions that may be instituted to reduce the consequences of an accident involving the hydraulic rupture of a UF₆ cylinder. The Staff made evidentiary presentations on both issues; LES offered testimony and evidence only on the latter. See "Revised Staff Pre-Filed Mandatory Hearing Testimony Concerning the Purpose and Need Statement in the [FEIS] for the Proposed [NEF]" (Mar. 3, 2006); "NRC Staff Pre-Filed Mandatory Hearing Testimony Concerning Mitigation of a Cylinder Rupture Accident" (Feb. 24, 2006); "Applicant's Prefiled Testimony in Mandatory Hearing Concerning Mitigating Actions for Postulated Cylinder Rupture Accident (Environmental Matter No. 2)" (Feb. 24, 2006); see also Tr. at 3649-84; Staff Exhs. 61-M to 75-M; LES Exh. 139-M. In view of these supplementary Staff and Applicant presentations, the Board finds that the record contains sufficient information to support any related Staff findings and conclusions under NEPA.

requirement. See Staff Exh. 47 at § 1.5.6 (Consultations), Ch. 8 (Agencies and Persons Consulted), App. B (Consultation Letters), and App. H to J (concerning public comments).

4.37 Finally, Section 102(2)(E) of NEPA requires a federal agency to "study, develop, and describe appropriate alternatives to the recommended courses of action in any proposal which involves unresolved conflicts concerning alternative uses of available resources." 42 U.S.C. § 4332(2)(C). As set forth in Chapter 2 of the FEIS, the NRC Staff prepared a detailed discussion of alternatives to the proposed action. The types of alternatives considered by the Staff included the "no-action" alternative, alternative sites, alternative sources of low-enriched uranium, alternative enrichment technologies, alternatives for DUF₆ disposition, and alternative deconversion technologies. See Staff Exh. 47, Ch. 2 (Alternatives). The Board finds that the Staff has met its obligations under NEPA relative to the consideration of alternatives.

2. *Independent Consideration of the Final Balance Among Conflicting Factors*

4.38 In Section 2.4 of the FEIS, the NRC Staff concludes that the overall benefits of the proposed NEF outweigh the environmental disadvantages and costs. See Staff Exh. 47 at 2-46. The Staff cites three principal considerations in support of this conclusion. These include (1) the demonstrated need for an additional, reliable, economical, domestic source of enrichment services; (2) the *moderate* beneficial economic impacts of the proposed NEF on the local communities; and (3) the generally *small* impacts of the proposed action on the physical environment and human communities (only short-term impacts associated construction traffic, accidents, and waste management were determined to be *small to moderate*). See *id.* Based upon its review of the record of the proceeding, and an independent "weighing" of the proposed facility's environmental costs against its technical, economic, and other benefits, the Board

reaches the same conclusion as the Staff. That is, as set forth in the FEIS, the various benefits of the proposed facility outweigh its environmental costs.

3. *Ultimate Determination Regarding License Issuance*

4.39 Based upon its review of the FEIS and the record of the proceeding, the Board agrees with the Staff's recommendation that the license be issued to LES. The Board agrees that the proposed mitigation measures and the environmental monitoring program described in Chapters 5 and 6 of the FEIS, respectively, would eliminate or substantially lessen any potential adverse environmental impacts of the proposed action.

V. CONCLUSIONS OF LAW

5.1 The Board has given careful consideration to all of the documentary and oral evidence presented by the parties. Based upon our review of the entire record of this proceeding and the foregoing findings of fact and conclusions of law, the Board makes the following determinations on the ultimate issues concerning the safety and environmental aspects of the mandatory proceeding.

5.2 With respect to safety issues, the Board has determined that the application and the record of the proceeding contain sufficient information, and that the review of the application by the Staff has been adequate, to support the findings to be made by the Director of NMSS, with respect to the standards set forth in the Hearing Notice and Order and the applicable standards in 10 C.F.R. §§ 30.33, 40.32, and 70.23.

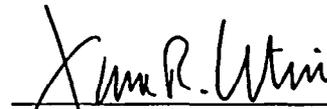
5.3 With respect to environmental issues, the Board has determined that the review conducted by the Staff pursuant to 10 C.F.R. Part 51 has been adequate; that the requirements of Sections 102(2)(A), (C), and (E) of NEPA have been satisfied; that an independent weighing and balancing of the environmental, technical, and other costs and benefits

of the proposed facility supports issuance of the license; and the requested license should be issued.

VI. ORDER

It is ORDERED, in accordance with 10 C.F.R. § 2.713, that this Final Initial Decision shall constitute the final decision of the Commission forty (40) days from the date of issuance, unless a petition for review is filed in accordance with 10 C.F.R. § 2.341, or the Commission directs otherwise. It is further ORDERED, in accordance with 10 C.F.R. § 2.340, that this decision shall become immediately effective, and that the Director of NMSS is authorized to issue to LES a license to construct and operate a uranium enrichment facility. Pursuant to 10 C.F.R. § 2.340(c), the Director of NMSS shall issue the license to LES with ten (10) days from the date of issuance of this Final Initial Decision.

Respectfully submitted,



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Dated at Washington, District of Columbia
this 10th day of April 2006

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

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

CERTIFICATE OF SERVICE

I hereby certify that copies of the "LOUISIANA ENERGY SERVICES, L.P.'S PROPOSED FINDINGS OF FACT AND CONCLUSIONS OF LAW CONCERNING MANDATORY HEARING ISSUES" in the captioned proceeding has been served on the following by e-mail service, designated by **, on April 10, 2006 as shown below. Additional service has been made by deposit in the United States mail, first class, this 10th day of April 2006.

Chairman Nils J. Diaz
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Washington, DC 20555-0001

Commissioner Jeffrey S. Merrifield
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Washington, DC 20555-0001

Commissioner Edward McGaffigan
U.S. Nuclear Regulatory Commission
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Commissioner Gregory B. Jaczko
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Office of the Secretary**
Attn: Rulemakings and Adjudications Staff
U.S. Nuclear Regulatory Commission
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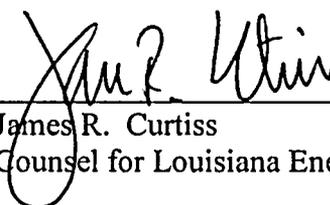
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