LICENSING REVIEW BASES
UNDER PARTS 40 & 70 FOR THE
CLAIBORNE ENRICHMENT CENTER

February 7, 1991

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LICENSING REVIEW BASES UNDER PARTS 40 & 70 FOR THE CLAIBORNE ENRICHMENT CENTER

1. INTRODUCTION

1.1 Preamble

Louisiana Energy Services (LES)1/ proposes to build the first privately-owned, commercial-scale uranium enrichment facility in the United States, using centrifuge technology.2/ This licensing review bases (LRB) document sets forth LES' understanding of the requirements and guidelines applicable to the submission and review of LES' application to construct and operate the Claiborne Enrichment Center (CEC), a uranium centrifuge enrichment facility to be located in Claiborne Parish, Louisiana. This LRB document is intended to identify the regulatory requirements and guidance governing the contents and Staff review of the CEC license application. LES would appreciate feedback from the Staff wherever the Staff interpretation disagrees with the LES position presented herein.

Prior to enactment of the Solar, Wind, Waste, and Geothermal Power Production Incentives Act of 1990,3/ a uranium enrichment facility was a production facility as defined by section 11v. of the Atomic Energy Act of 1954, as amended. As a result of Pub. L. No. 101-575, the CEC will be licensed mainly under 10 C.F.R. Part 40, "Domestic Licensing of Source Material," and Part 70,

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1/ LES is a partnership comprising four general voting partners and seven limited partners. The general partners are Urenco Investments, Inc. (a subsidiary of Urenco, Ltd.), Claiborne Fuels L.P. (a subsidiary of Fluor Daniel Corp.), Claiborne Energy Services (a subsidiary of Duke Power Company), and Graystone Corp. (a subsidiary of Northern States Power). The limited partners are Louisiana Power & Light Company, BNFL Enrichment, Ltd. (a subsidiary of Urenco, Ltd.), GmV (a subsidiary of Urenco, Ltd.), UCN Deelnemingen B.V. (a subsidiary of Urenco, Ltd.), Claiborne Energy Services, Inc. (a subsidiary of Duke Power Company), Le Paz Incorporated (a subsidiary of Northern States Power), and Micogen Limited III, Inc. (a subsidiary of Fluor Daniel Corp.)

2/ The shareholders of Urenco, Ltd., have constructed and are operating similar facilities in the Netherlands, Great Britain, and West Germany.

3/ Public Law No. 101-575.

"Domestic Licensing of Special Nuclear Material."4/ Parts 40 and 70 apply to possession and use of nuclear materials. These regulations are silent as to facilities, and the NRC Staff ("Staff") has never received an application for construction and operation of a uranium enrichment facility. (The Staff did consider licensing a gas centrifuge facility that would have been capable of enriching uranium; however, it would have been used for the production of stable isotopes of high purity.) The NRC, however, has licensed facilities which process uranium hexafluoride (UF6), which is the principal chemical form of uranium used in the gaseous diffusion process and the centrifuge process, the current methods used to produce enriched uranium.

A regime is already in place that can be applied to the licensing of a commercial uranium enrichment facility. Parts 40 and 70 have been applied in the past for licensing of facilities possessing and processing UF6, such as fuel fabrication and uranium conversion plants. However, rulemaking for these Parts did not specifically contemplate the licensing of uranium enrichment facilities since, among other things, they were formerly production facilities subject to Part 50. Additionally, Pub. L. No. 101-575 imposed new requirements for the licensing of uranium enrichment facilities, such as a single license for construction and operation of the facility and publication of inspection results, among other things. The Commission has not had time to take generic action to respond to the new requirements; LES anticipates their implementation as respects the CEC license application by Commission Order.

To enable review of the CEC license application to proceed efficiently pending such Commission action, LES proposes to follow the approaches set forth in this licensing review bases document. LES has sought in this document to anticipate the NRC requirements for review of the application and issuance of a license for a uranium enrichment facility under Parts 40 and 70, as well as other relevant Parts, and to incorporate positions in this document responsive to those requirements. Thus, the understandings set forth herein should conform closely to the final requirements.

4/ Pub. L. No. 101-575 amended the Atomic Energy Act to provide for licensing of enrichment facilities under sections 53 and 63 of the Act rather than section 103. This amendment also revises the section 11v. definition of a production facility to exclude enrichment facilities for the purposes of Chapters 10 and 16 of the Act. The former definition applies to all other chapters of the Act. Thus, for example, the CEC remains a production facility for purposes of chapter 19, section 274 (agreement states).

In 1988 the Staff published an advance notice of proposed rulemaking ("ANPR")5/ and proposed a new 10 C.F.R. Part 76 for regulation of uranium enrichment facilities. The ANPR, which was published prior to the enactment of Pub. L. No. 101-575, focuses on the existing Part 50 licensing regime, and does not address licensing under Parts 40 and 70. Prior to enactment of Pub. L. No. 101-575, LES and the NRC intended to proceed with the submission and review of a CEC license application on the basis of the current regulations in 10 C.F.R. Part 50, applied according to the guidelines in the ANPR. Now the relevant requirements of Parts 40 and 70 will be applied. However, LES understands that the NRC still intends to apply some of the guidance of the ANPR, for example, the proposed General Design Criteria ("GDC"). LES accepts the applicability of these portions of the ANPR and they are reflected herein.6/

1.2 Uranium Hexafluoride and Public Health and Safety of Uranium Enrichment

A centrifuge facility designed to separate the isotopes of uranium presents hazards different in type and, for radioactivity, substantially less in magnitude than the hazards associated with nuclear power reactors. An enrichment facility does not contain large quantities of fissionable material arranged to create a self-sustaining nuclear reaction, nor is decay heat present. Therefore, the scenario which reactor safety requirements seek to prevent, i.e., loss of control of the nuclear reaction or loss of core cooling followed by core melting and potentially large releases of radioactive materials, is not relevant in the enrichment context. The risk associated with an enrichment facility is orders of magnitude small , and is dominated by chemical rather than radiological consequences.

Although the regulation of uranium enrichment facilities could include any type of technically feasible enrichment process, as a practical matter the two predominant techniques, gaseous diffusion and gaseous centrifugation, enrich the uranium utilizing the chemical form of uranium hexafluoride. The principal reason for using this form is that the compound is a

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5/ Advance Notice of Proposed Rulemaking for Part 76, "Regulation of Uranium Enrichment Facilities," 53 Fed. Reg. 13276 (1988).

6/ Portions that are incorporated verbatim are printed as bold text. LES comments on the incorporated portions of the ANPR are noted by non-bold text. Bold text in brackets, e.g., [**this text**], has been deleted from the quoted ANPR material by LES and should be read out of the text.

gas at reasonable temperatures and pressures. The release of uranium hexafluoride from process equipment is a more severe chemical (toxicological) hazard than a radiation (radiological) hazard, as discussed below.

If uranium hexafluoride is released to the atmosphere it will react exothermally with moisture in the air to produce hydrogen fluoride (HF) and uranyl fluoride (UO_2F_2). Both compounds can be toxic. Hydrogen fluoride is a corrosive acid vapor which can severely damage tissue, especially the moist tissue of the lungs if inhaled in sufficient concentrations. If uranyl fluoride is inhaled or ingested, it can cause internal injury to the kidneys and sufficient quantities can be lethal.7/

1.3 Design Guidance Standards Based on Chemical Effects

Based on the above discussion the licensing basis for the CEC [staff] will be guided mainly by the chemical effects of reaction products from uranium hexafluoride in its outlook on design for the protection of the health and safety of the public. The Atomic Energy Act provides authority for the Commission to consider any consequence to the public health and safety inherent in the physical characteristics of licensed source or special nuclear material such as uranium hexafluoride. LES [The staff herein] proposes reference values to be used for the evaluation of the CEC site and design with respect to potential accidents. These proposed reference values for UO_2F_2 and HF, based on chemical toxicity, are intended to be comparable with the original intent of the reactor siting criteria in 10 CFR Part 100, i.e., a whole-body radiation dose guideline value fixed at the point where it is believed that clinically observable

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7/ In order to demonstrate that the chemical hazard of uranium hexafluoride reaction products far exceeds that of its radiation hazard one might consider the following example related to just one of the reaction products, uranyl fluoride. If a person inhaled sufficient uranyl fluoride, as a result of being exposed to a plume from released uranium hexafluoride (enriched to six percent U-235), such that there was a 50/50 chance of surviving (50 percent lethality) the chemically toxic effects, that person would receive only about 2.5 rem committed (lifetime) total body dose equivalent or about the maximum amount a radiation worker can receive in one calendar quarter (3 rem). Obviously, even further chemical injury could be sustained by the same individual from the hydrogen fluoride produced during the same release of uranium hexafluoride.

threshold effects begin to occur. The staff thus proposes using quantities or concentration values which are at the lower range or average threshold level for chemically toxic effects which, if exceeded, could cause transient or permanent injury.

The staff considers that an intake of about 9 mg of uranium is the level at which slight transient kidney injury is expected to occur, and an intake of about 40 mg of uranium is a reasonable estimate of the threshold level at which permanent kidney damage may begin to occur (see NUREG-1140). Therefore, for design purposes the staff is considering the calculated maximum amount that an adult at or beyond the controlled site boundary could inhale, as a result of credible accidents of low probability, to be in the range of 9 to 40 mg. Facilities designed such that maximum effects would not exceed this range should not have a significant adverse effect on the health and safety of the public.

For exposure to HF, levels which cause permanent injury are not clearly defined. Exposure to HF at a concentration of 100 mg/m^3 is estimated to be unbearable for one minute. HF at 13 mg/m^3 would be detectable by smell and cause possible irritation. Above 26 mg/m^3, HF would cause irritation and possible health effects.8/ Therefore, the staff considers that 26 mg/m^3 HF is the maximum concentration that a person at or beyond the controlled site boundary could be exposed for short periods, as a result of credible incidents of low probability.

In light of the above Staff analysis, LES will design, construct and operate systems, structures and components to prevent or mitigate events that could result in exposure of any offsite individual to 500 $mg\text{-}min/m^3$ hydrogen fluoride or 10 mg uranium. Releases from the CEC having values below these concentrations will not have a significant adverse effect on the health and safety of the public.

Urenco's European facilities, in particular the plant in Gronau, West Germany, have been licensed under criteria which closely approximate (and in many cases are based on) NRC requirements. LES has compared the European requirements (both design and environmental) to related NRC regulations. The information submitted by the FRG licensee in support of the Gronau plant's license has also been taken into account by LES.

8/ Just, R.A., "Report on Toxicological Studies Concerning Exposures to UF6 and UF6 Hydrolysis Products," KID-5573, Rev. 1, July 1984.

1.4 The CEC Site

LES proposes a site in Claiborne Parish, Louisiana. LES will present information, consistent with relevant regulations and Regulatory Guides9/ to demonstrate acceptability of the site.

2. REGULATORY FRAMEWORK

The provisions of Parts 40 and 70 were not written with enrichment facilities in mind. LES has analyzed each section of Parts 40 and 70 as well as Parts 51, 71, and 73-75, for applicability to uranium centrifuge enrichment facilities enriching uranium to no more than 5%,10/ and the results are shown in several tables below. In these tables, regulations are marked as "Not Applicable" when deemed not to apply to the CEC, or are simply listed (sometimes with comments) when applicable. LES intends to comply with regulations not marked "Not Applicable." In some cases, LES believes that a Commission Order is needed to conform with Pub. L. No. 101-575. In these cases, LES offers proposed new requirements or revisions to existing requirements that are deemed necessary to comply with the AEA as amended. We also note that the NRC is presently promulgating rules applicable to enrichment facilities, such as 10 C.F.R. § 74.33 (which pertains to special nuclear material control and accounting) and may also be preparing a Commission Order. LES intends to comply with such requirements when promulgated, and will revise this license review bases document accordingly.

2.1 Applicability of 10 C.F.R. Part 70 Requirements to a Uranium Centrifuge Enrichment Facility

2.1.1 Demarcation Between Parts 40 and 70

As a result of the passage of Pub. L. No. 101-575, the CEC will be issued a single license to construct and operate a uranium enrichment facility. It is anticipated that this single license will incorporate appropriate licenses under Parts 40 and 70 for possession and use, including transfer or other disposition, of source, byproduct and special nuclear material. Part 70 requirements will apply to those portions of the CEC

9/ Regulatory Guide 4.9, Preparation of Environmental Reports for Commercial Uranium Enrichment Facilities, Revision 1 (October 1975), chapter 2.

10/ Sections of Part 70 invoke Parts 71 and 73-75. Part 72 applies to spent fuel storage and has been excluded from this analysis.

relating to receipt, production, possession, use, and initial transfer or other disposition of special nuclear material. Part 40 requirements will apply to receipt, possession, use and transfer or delivery of byproduct and source material. Uranium in any non-enriched form will be considered source material.

2.1.2 Definitions

Applicability of many of the sections of Parts 70, 71 and 73-74 is a function of the quantities and enrichment of uranium (U) isotope 235 (U235) in the process materials.11/ The categories of materials to which the sections of Parts 70, 71 and 73-75 apply are:12/

- **Special Nuclear Material:** U enriched with U235;
- **Strategic Special Nuclear Material:** U enriched to 20% or more;
- **Formula Quantity:** 5000 grams or more of U235 contained in strategic special nuclear material;
- **Special Nuclear Material of Moderate Strategic Significance:** less than a formula quantity but more than 1000 g of U235 in 20% or more enriched U, or 10,000 g or more U235 in 10% to 20% enriched U; and
- **Special Nuclear Material of Low Strategic Significance:**
  - 15 g to 1000 g U235 in 20% or more enriched U; or
  - 1000 g to 10,000 g U235 in 10% to 20% enriched U; or
  - 10,000 g or more U235 in U enriched above natural but less than 10%.

2.1.3 Applicability of 10 C.F.R. Part 70 Requirements

The LES facility will process special nuclear material, and in particular, special nuclear material of low strategic significance. Shown below is each section of Part 70 with comments as to applicability.

11/ We assume that the LES facility will not process more than trace amounts of U233 and plutonium, and that enrichment will be no more than 5%. (Uranium leaving the facility will be enriched to no more than 5%; however, uranium within the cascades may slightly exceed 5%.)

12/ Paraphrased from 10 C.F.R. § 70.4. Refer to the rule for the exact definitions.

DOMESTIC LICENSING OF SPECIAL NUCLEAR MATERIAL

SECTION	TITLE
70.1	**Purpose** LES anticipates that, in accordance with Pub. L. No. 101-575, the NRC will issue a license to construct and operate the CEC, which will include a license to receive, possess, use, produce, and initially transfer, including the disposition and sale of, special nuclear material.
70.2	**Scope**
70.3	**License requirements**
70.4	**Definitions** The 10 C.F.R. § 50.2 definition of "production facility" should be modified to reflect the new exception to the definition in Pub. L. No. 101-575.
70.5	**Communications** Section 70.5(b), the delegated licensing program is not applicable. LES possesses sufficient SNM to constitute a critical mass.
70.6	**Interpretations**
70.7	**Employee protection**
70.8	**Information collection requirements: OMB approval**
70.9	**Completeness and accuracy of information**
70.11	Not applicable. **Persons using special nuclear material under certain Department of Energy and Nuclear Regulatory Commission contracts**
70.12	**Carriers**
70.13	Not applicable. **Department of Defense**
70.13a	Not applicable. **Foreign military aircraft**
70.14	(b), (c), and (d) Not applicable. **Specific exemptions**
70.18	**Types of licenses**

70.19 **General license for calibration of reference sources**

Paragraphs (a)(1) and (a)(3), referring to agreement and non-agreement states, should be modified for enrichment facilities. Under Pub. L. No. 101-575, except for the purposes of chapters 10 and 16, uranium enrichment facilities remain production facilities. Thus, under chapter 19, section 274, uranium enrichment facilities are not subject to agreement state jurisdiction.

70.20 **General license to own special nuclear material**

70.20a **General license to possess special nuclear material for transport**

70.20b Not applicable. **General license for carriers of transient shipments of formula quantities of strategic special nuclear material, special nuclear material of moderate strategic significance, special nuclear material of low strategic significance, and irradiated reactor fuel**

A transient shipment is one that originates and terminates in a foreign country,13/ and is not expected to apply to LES facility shipments.

70.21 **Filing**

70.21(f) requires an environmental report when required under Subpart A of Part 51. Section 193.a.1. of the AEA, as amended by Pub. L. No. 101-575, provides that the issuance of a license under sections 53 and 63 for the construction and operation of any uranium enrichment facility is to be considered a major Federal action significantly affecting the quality of the human environment for purposes of the National Environmental Policy Act of 1969 (42 U.S.C. 4321 et seq.). Therefore, an EIS is required under section 51.20. Furthermore, the AEA as amended by Pub. L. No. 101-575 requires an EIS to be prepared before the hearing on the issuance of a license for the construction and operation of a uranium enrichment facility is completed. Thus, LES will file an environmental report.

Section 51.20(b)(3) requires an EIS for enrichment plants pursuant to Part 50. LES anticipates this regulation will be revised to require an EIS pursuant to Part 70.

13/ 10 C.F.R. § 70.5(v).

This is reinforced by an NRC letter14/ indicating that an enrichment facility licensed under Part 70 would be subject to this requirement even though the regulation speaks of facilities under Part 50.

70.22 **Contents of applications**

Section 70.22(a)(1) requests citizenship information. Foreign interests are a relevant factor in determining whether the issuance of the materials license is inimical to the common defense and security.15/

Section 70.22(b) invokes a control and accounting program requiring compliance with the below listed sections:

> 70.58 is a material control and accounting program for special strategic nuclear material in irradiated fuel processing operations or special nuclear material of moderate strategic significance and is not applicable.
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> 74.31 is a material control and accounting program for special strategic material of low strategic significance, and may apply to LES.
>
> Proposed 74.3316/ will apply to the CEC in lieu of 74.31 when the new regulation becomes effective. In the interim, LES has committed to a material control and accounting program meeting the guidelines of the proposed section 74.33. See March 30, 1990, letter from D.J. Kasun to H.A. Arnold.
>
> 74.51 is a material control and accounting program for strategic special nuclear material and is not applicable.

Section 70.22(f) invokes the requirements of 10 C.F.R. 50, Appendix B for plutonium processing and fuel fabrication plants. LES has committed to an Appendix B quality assurance program for Safety Class I equipment, and the Commission intends to so apply Appendix B to

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14/ Answer to Question 4 in the enclosure to the letter from James R. Curtiss (Acting Chairman, NRC) to The Honorable J. Bennett Johnston, March 5, 1990.

15/ Letter to B. Johnston from J. Curtiss, March 5, 1990.

16/ 55 Fed. Reg. 51726 (1990).

enrichment facilities;17/ therefore, LES assumes that a Commission Order or rulemaking will modify this section to include Safety Class I equipment of enrichment facilities.

Section 70.22(f) requires plutonium processing and fuel fabrication plant license applications to describe the design bases of the structures and systems. LES will also apply this requirement to the CEC, using the proposed GDC of the ANPR. LES will treat these GDC as if they were included in a rule or an appendix to Part 70.

Section 70.22(g)(1)(i) (in conjunction with section 73.1(b)(2)) requires a physical protection plan complying with sections 73.20, 73.25, 73.26, 73.27, 73.67(a), (e), and (g) and 73.70(g) when a Part 70 licensee delivers special nuclear material of low strategic significance to a carrier for transport in a single shipment. These sections apply to formula quantities of strategic special nuclear material; however, section 70.22(g)(1) appears to make these sections apply when the amount of SNM of low strategic significance material exceeds 10 kg. LES has committed to compliance with sections 73.67(a), (f) and (g) at the NRC's request. See March 30, 1990, letter from D.J. Kasun to H.A. Arnold.

Section 70.22(g)(1)(ii) requires a safeguards contingency plan for special nuclear material in transit. Section 70.22(g)(2) invokes some of the contingency planning requirements of 10 C.F.R. 73, Appendix C, §§ 1-4, for the material in transit.

Section 70.22(h)(1), physical security plan, is not applicable. (However, see the comment for section 70.22(k), below.) This plan is required only where 20% or more enriched U is present. Sections 73.20, 73.40, 73.45, 73.46, 73.50, 73.60, 73.70 and 73.71 are also not applicable as they pertain to physical security plans. Reg. Guide 5.52, page 5.52-11 indicates that physical security plans are not required for low enriched uranium plants. It is assumed that while this is true, amounts over 10 kg trigger additional requirements, per section 70.22(g)(1)(i), for material in transit.

17/ "10 C.F.R. Parts 40 and 70 do not contain specific quality assurance requirements, but the NRC Staff would impose appropriate quality assurance requirements by license condition." Letter from J. Curtiss to B. Johnston, March 5, 1990.

Section 70.22(i) provides applicable emergency planning requirements and supersedes older references to 10 C.F.R. Part 50, Appendix E, section IV.

Section 70.22(i)(4) requires that "The licensee shall allow the offsite response organizations expected to respond in case of an accident 60 days to comment on the licensee's emergency plan before submitting it to NRC." LES understands that the 60-day comment period applies to licensees in existence when the rule was implemented (hence the "licensee" language in a rule that applies to applicants). LES will provide offsite response organizations with a final copy of the emergency plan for review immediately following docketing. These organizations will then have at least 60 days to comment without impacting the licensing critical path. This will also relieve these organizations of the burden of reviewing a draft plan followed by a substantially revised final version of the plan.

Section 70.22(j), licensee site safeguards contingency plans, is not applicable. A site plan is required only when 20% or more enriched U is present. (Do not confuse with an in-transit plan according to 70.22(g)(1)(ii).)

Section 70.22(k). Where 10 kg or more of special nuclear material of low strategic significance is present, a site physical security plan meeting the requirements of section 73.67(d)-(g) must be included. NRC has requested LES to comply with 73.67(a), (f) and (g) by a March 30, 1990, letter from D J. Kasun to H.A. Arnold. LES intends to comply with this request.

Section 70.22(l) applies to formula quantities of SNM and is not applicable, also excluding section 73.21.

70.23 **Requirements for the approval of applications**

As noted in the comments for section 70.21, section 193.a.1. of the AEA as amended by Pub. L. No. 101-575 provides that issuance of a uranium enrichment facility license is to be treated as a major federal action significantly affecting the quality of the human environment for NEPA purposes and that an EIS be prepared prior to completion of the license hearing.

Also, a single adjudicatory hearing on the record with regard to the licensing of the construction and operation of a uranium enrichment facility under sections 53 and 63 is required by section 193.b. of the AEA as amended by Pub. L. No. 101-575. The hearing shall be completed and a decision issued before issuance of a license for such

construction and operation. No further Commission licensing action shall be required to authorize operation.

LES anticipates that the NRC will provide a Commission Order or an amendment to section 70.23(b) to include enrichment facilities in the list of plant types required to demonstrate reasonable assurance of protection against natural phenomena and the consequences of potential accidents. Additionally, a reference should be made to the proposed GDC of the ANPR. LES will treat these GDCs as if they were included in a rule or an appendix to Part 70.

70.24 **Criticality accident requirements.**

An exemption from this requirement is being requested.

70.25 **Financial assurance and recordkeeping for decommissioning.**

Section 191.d.2. of the AEA as amended by Pub. L. No. 101-575 requires that a licensee of a uranium enrichment facility provide adequate assurance of the availability of funds for facility decommissioning. LES expects that this requirement will be implemented by Commission Order or appropriate amendments to Parts 40 and 70.

70.31 **Issuance of licenses**

Section 193.b.1. of the AEA as amended by Pub. L. No. 101-575 requires a single hearing with regard to the licensing of the construction and operation of a uranium enrichment facility. Section 193.b.2. contemplates issuance of a license for such construction and operation.

LES expects that, by Commission Order or appropriate amendment to the applicable regulations, the NRC will provide that a single license will be issued for construction and operation.

70.32 **Conditions of licenses**

Section 70.32(c)(1)(i) involves a program for control and accounting of special nuclear material (in excess of one effective kilogram) to comply with sections 70.22(b), 70.58(l), 74.31(b) or 74.51(c)(1) as appropriate. LES intends to implement the requirements of proposed section 74.33, which will supersede section 74.31. (See comments for section 70.22(b)).

Section 70.32(c)(1)(ii) invokes a measurement and control program in accordance with sections:

> 70.57(c). Not applicable. Requires submittal of a plan if applicants are subject to section 70.57(b). Section 70.57(b) applies to possession of strategic special nuclear material or special nuclear material of moderate strategic significance;
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> 74.31(b). (See notes for section 70.22(b)); or
>
> 74.59(e). Not applicable. Section 74.59 applies to licensees subject to section 74.51. Section 74.51 is nuclear material control and accounting for strategic special nuclear material.

In addition, section 193.c. of the AEA as amended by Pub. L. No. 101-575 requires Federal Register publication of the results of inspections conducted for the Commission to verify construction of the facility in accordance with the requirements of the license. LES expects the NRC to provide an appropriate Commission Order or regulation reflecting this provision. Also, LES expects the Commission to suspend authority to operate until verification of construction in accordance with the license.

70.33 **Renewal of licenses**

70.34 **Amendment of licenses**

In the absence of a license condition establishing an approved change procedure, changes to the facility as described in the application are done by license amendment rather than by a 10 C.F.R. § 50.59-type process. LES proposes the following license condition to allow changes to the facility and procedures in a manner that does not require prior Commission approval for changes that will not reduce safety or safeguards effectiveness.18/

18/ NUREG-1159 Supplement No. 1, "Release of UF6 From a Ruptured Model 48Y Cylinder at Sequoyah Fuels Corporation Facility: Lessons Learned Report," states that, "A requirement, generally analogous to 10 CFR 50.59 should be established requiring that certain NMSS licensed facilities perform engineering evaluations of proposed design changes to ensure that overall safety margins would not be compromised by the proposed change. . . . The Office of Nuclear Regulation Research has been requested to prepare a rule change to Parts 30, 40, and 70 to include wording similar to Part 50.59."

The licensee shall make no change to the facility or procedures as described in the application, nor conduct tests or experiments not described in the application, without prior Commission approval unless such changes, tests or experiments do not reduce the safety or safeguards effectiveness of the facility.

The safety effectiveness of the facility shall be deemed to be reduced if (a) the probability of occurrence or the consequences of an accident or malfunction of safety-related equipment previously evaluated in the application may be increased, (b) a possibility for an accident or malfunction of a different type than any evaluated previously in the application may be created, or (c) the margin of safety in any license condition is reduced.

The safeguards effectiveness of the facility shall be deemed to be reduced if (a) the probability of unauthorized increased enrichment is increased, or (b) the probability of diversion of special nuclear material is increased.

The licensee shall maintain records of changes that are made to the facility without prior approval for a period of five years from the date of the change and shall furnish the Director, Office of Nuclear Material Safety and Safeguards, with a report summarizing each change every two years.19/ Subsequent revisions shall reflect all changes up to a maximum of one year prior to the date of filing.

70.35 **Commission action on applications to renew or amend**

70.36 **Inalienability of licenses**

70.37 **Disclaimer of warranties**

70.38 **Expiration and termination of licenses**

19/ The source of this guidance is 55 Fed. Reg. 24949 (1990).

70.39 Not applicable. **Specific licenses for the manufacture or initial transfer of calibration or reference sources**

70.41 **Authorized use of special nuclear material**

Invokes Part 71 for preparation for shipment and transport.

70.42 **Transfer of special nuclear material**

70.44 **Creditor regulations**

LES is proposing that any Commission Order or new regulation governing licensing of the CEC provide requirements, in addition to the existing provisions regulating creditor or ownership interests in source and special nuclear material, that will apply to creditor interests and other financial interests specified herein in the CEC uranium enrichment facility:

> The Commission consents, without individual application or other action, to the creation or transfer of any mortgage, pledge, or lien of or upon the CEC uranium enrichment facility, or to the creation or transfer of lessor ownership interests through sale and simultaneous leaseback of the facility or a portion thereof, or to the creation or transfer of limited partnership interests in the facility, or to the mortgage, pledge, or lien of or upon such leasehold or limited partnership interests; provided that any such mortgage, pledge, lien, sale and leaseback or limited partnership interest is entered into for the purpose of obtaining financing and such interest does not carry with it the present right either to possession of the facility or to control of licensed activities; and provided further:
>
> (1) That the rights of any creditor may be exercised only in compliance with and subject to the same requirements and restrictions as would apply to the licensee pursuant to the provisions of the license, the Atomic Energy Act of 1954, as amended, and regulations issued by the Commission pursuant to said Act; and
>
> (2) That no creditor may take possession of the facility or purport to exercise control over licensed activities prior to either the issuance of a license from the Commission authorizing such possession or the consent of the Commission to the transfer of the license.

Any creditor may apply to receive a license authorizing possession by the creditor or to receive the Commission's consent to the transfer of the license covering such facility by filing an application for transfer of the license pursuant to § 70.34. The Commission will act upon such application pursuant to § 70.36.

Nothing contained in this Order shall be deemed to affect the means of acquiring, or the priority of, any tax lien or other lien provided by law.

As used in this Order for the purposes of creditor requirements, the term "license" includes any license which may be issued by the Commission with regard to the CEC uranium enrichment facility; the term "creditor" includes, without implied limitation:

(1) the lender, mortgagee, pledgee, lien holder, or trustee under any mortgage, pledge or lien of or upon a facility, limited partnership interest or leasehold interest made to secure any creditor,

(2) any trustee or receiver of the facility or limited partnership or leasehold interest appointed by a court of competent jurisdiction in any action brought for the benefit of (a) any creditor secured by such mortgage, pledge or lien (b) any lessor or trustee under a sale and leaseback transaction or (c) any liquidating trustee or limited partner,

(3) any lessor or trustee under a sale and leaseback transaction,

(4) any liquidating trustee or limited partner,

(5) any purchaser of such facility at the sale thereof (a) upon foreclosure of such mortgage, pledge, or lien, or (b) upon exercise of any power of sale contained in any such mortgage, pledge, lien or sale and leaseback; or any purchaser of a limited partnership interest.

(6) any legal representative, successor or assignee of any of the foregoing.

70.51 **Material balance, inventory, and records requirements**

Sections 70.51(b)(1)-(5) can be excluded when sections 74.31 and 74.59 apply. However, section 74.31 requires

material control and accounting for special nuclear material of low strategic significance, and section 74.59 requires quality assurance and accounting requirements for licensees implementing nuclear material control and accounting for strategic special nuclear material, section 74.51. As a result, sections 74.31 and 74.59 would not both apply together.20/ LES assures that, because the sections are mutually exclusive, section 70.51(b) exempts licensees subject to sections 74.31 or 74.59. LES has committed to proposed section 74.33, which subsumes the requirements of section 74.31. Therefore, the CEC is exempt from the requirements of 70.51(b)(1) through (5).

Sections 70.51(e)-(h) apply to possession of strategic special nuclear material or SNM of moderate strategic significance and are, therefore, not applicable.

70.52 **Reports of accidental criticality or loss or theft or attempted theft of special nuclear material**

70.53 **Material status reports**

Section 70.53(a)(1) requires material balance reports according to section 74.13(a)(1).

Section 70.53(a)(2) requires material status reports per sections 75.35 and 75.21 when the facility is subject to an IAEA Agreement. Since an IAEA agreement is expected, sections 70.53(a)(1) and 74.13(a)(1) would be not applicable, otherwise, section 70.53(a)(2) is not applicable.

Section 70.53(a)(3) is not applicable; this section applies only to facilities subject to section 70.51(e).

70.54 **Nuclear material transfer reports**

Section 70.54(a) requires compliance with sections 74.15 (a) and (b).

Section 70.54(b) requires plants subject to section 75.34, Inventory Change Reports, to follow section 74.15(c). Inventory Change Reports are part of the Accounting Reports of section 75.33 required by section

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20/ A review of the applicable Federal Register notices, 52 F.R. 100,038 (1987) and 50 F.R. 7579 (1985), shed no light on the question other than to confirm that the "and" was not an erroneous "or."

75.31 when the facility is subject to an IAEA Agreement. Otherwise section 70.54(b) is not applicable.

70.55 **Inspections**

Section 70.55(c) (providing office space for a resident inspector) is not applicable if the facility is not considered to be a fuel fabrication or processing facility. However, space is currently set aside in the facility design for a resident inspector.

70.56 **Tests**

70.57 Not applicable. **Measurement control program for special nuclear materials control and accounting**

Applies to facilities handling strategic special nuclear material or special nuclear material of moderate strategic significance.

70.58 Not applicable. **Fundamental nuclear material controls**

Applies to facilities possessing strategic special nuclear material in irradiated fuel reprocessing operations or special nuclear material of moderate strategic significance. The material control and accounting program of section 74.31 may apply instead. LES has committed to the requirements of proposed section 74.33 which will supersede section 74.31.

70.59 **Effluent monitoring reporting requirements**

70.61 **Modification and revocation of licenses**

70.62 **Suspension and operation in war or national emergency**

This regulation appears to be based on AEA sections 53.e.(4) and 108. LES does not at this time contest the application of this regulation to any license or materials it may acquire, but reserves the right to do so.

70.71 **Violations**

70.__ **Insurance**

Section 193.d.1. of the AEA as amended by Pub. L. No. 101-575 requires enrichment facility licensees to have and maintain liability insurance in such type and amounts as the Commission judges appropriate. LES anticipates a Commission Order or rulemaking imposing the following requirements:

(a) The CEC uranium enrichment facility shall, prior to and throughout operation, have and maintain nuclear energy liability insurance in the amount of _____ 21/ to cover liability claims arising out of any occurrence within the United States, causing, within or outside the United States, bodily injury, sickness, disease, or death, or loss of or damage to property, or loss of use of property, arising out of or resulting from the radioactive, toxic, explosive, or other hazardous properties of chemical compounds containing source or special nuclear material.

(b) The amounts of nuclear energy liability insurance required under this section may be furnished and maintained in the form of:

(1) An effective facility form (non-indemnified facility) policy of nuclear energy liability insurance from American Nuclear Insurers or Mutual Atomic Energy Liability underwriters; or

(2) Such other type of nuclear energy liability insurance as the Commission may approve; or

(3) A combination of the foregoing.

2.2 Applicability of 10 C.F.R. Part 40 Requirements

DOMESTIC LICENSING OF SOURCE MATERIAL

SECTION	TITLE
40.1	**Purpose**
	LES expects that an appropriate Commission Order will ensure the purpose is consistent with section 70.1 for construction and operation of uranium enrichment facilities.
40.2	**Scope**
40.2a	Not applicable. **Coverage of inactive tailings sites**
40.3	**License requirements**
40.4	**Definitions**

21/ A dollar amount is to be determined.

40.5 **Communications**

LES will submit the CEC source material license application to Headquarters rather than the Region.

40.6 **Interpretations**

40.7 **Employee protection**

40.8 **Information collection requirements: OMB approval**

40.9 **Completeness and accuracy of information**

40.11 Not applicable. **Persons using source material under certain Department of Energy and Nuclear Regulatory Commission contracts**

40.12 **Carriers**

40.13 **Unimportant quantities of source material**

40.14 **Specific exemptions**

40.20 **Types of licenses**

40.21 **General license to receive title to source or byproduct material**

40.22 **Small quantities of source material**

40.23 **General license for carriers of transient shipments of natural uranium other than in the form of ore or ore residue**

40.24 **[Reserved]**

40.25 Not applicable. **General license for use of certain industrial products or devices**

40.26 Not applicable. **General license for possession and storage of byproduct material as defined in this part**

40.31 **Application for specific licenses**

Section 40.31(f) requires an environmental report when required under Subpart A of Part 51. As discussed above in the comments to section 70.21, section 193.a.1. of the AEA as amended by Pub. L. No. 101-575 provides that issuance of a uranium enrichment facility license is to be treated as a major federal action significantly affecting the quality of the human environment for NEPA purposes and that an EIS be prepared prior to completion

of the license hearing. Thus, LES will file an environmental report.

Section 40.31(j) requires emergency planning and is essentially the same as the emergency planning requirements of section 70.22(i).

40.32 **General requirements for issuance of specific licenses**

40.34 Not applicable. **Special requirements for issuance of specific licenses**

Pertains to licenses for manufacture or transfer of industrial products containing depleted uranium.

40.35 Not applicable. **Conditions of specific licenses issued pursuant to section 40.34**

40.36 **Financial assurance and recordkeeping for decommissioning**

Section 191.d.2. of the AEA as amended by Pub. L. No. 101-575 requires that a licensee of a uranium enrichment facility provide adequate assurance of the availability of funds for facility decommissioning. LES expects that this requirement will be implemented by Commission Order or appropriate amendments to Parts 40 and 70.

40.41 **Terms and conditions of licenses**

LES anticipates that the terms and conditions of the license will be consistent with LES' understanding in section 70.31 above, i.e., a single license is anticipated for construction and operation, and with section 70.32 above, i.e., publication of inspection results and suspension of authority to operate.

40.42 **Expiration and termination of licenses**

40.43 **Renewal of licenses**

40.44 **Amendment of licenses at request of licensee**

Refer to comments to section 70.34 for changes to the facility without prior NRC approval.

40.45 **Commission action on applications to renew or amend**

40.46 **Inalienability of licenses**

40.51 **Transfer of source or byproduct material**

40.61 **Records**

40.62 **Inspections**

40.63 **Tests**

40.64 **Reports**

40.65 **Effluent monitoring reporting requirements**

40.66 **Requirements for advance notice of export shipments of natural uranium**

40.67 **Requirement for advance notice for importation of natural uranium from countries that are not party to the Convention on the Physical Protection of Nuclear Material**

LES does not intend to import such natural uranium; however, its customers may be subject to this requirement.

40.71 **Modification and revocation of licenses**

40.81 **Violations**

40.__ **Creditor and other financial interests**

In addition to the existing regulations relating to interests in source material, LES proposes that any Commission Order or new regulation governing licensing of the CEC facility include requirements, in addition to the provisions in Parts 40 and 70 relating to creditor or ownership interests in source and special nuclear material, that will apply to creditor interests and other financial interests as specified in the comments to section 70.44, above.

Appendix A Not applicable. **Criteria Relating to the Operation of Uranium Mills and the Disposition of Tailings or Wastes Produced by the Extraction or Concentration of Source Material From Ores Processed Primarily for Their Source Material Content**

2.3 Applicability of 10 C.F.R. Part 51 Requirements

Part 51 of the Commission's regulations implements the National Environmental Policy Act of 1969, as amended. Its requirements apply to the Commission and to individual licensees. Part 51 requires that an Environmental Impact Statement (EIS) be prepared prior to issuing an authorization to construct an enrichment facility (10 CFR 51.20). (As discussed above in the comments to section 70.21, Pub. L. No. 101-575 requires an EIS prior to completion of the licensing hearing for an enrichment

facility.) Therefore, those portions of Part 51 dealing with categorical exclusions, environmental assessments, etc., have no bearing on this proceeding.

ENVIRONMENTAL PROTECTION REGULATIONS FOR DOMESTIC LICENSING AND RELATED REGULATORY FUNCTIONS

SECTION	TITLE
51.1	**Scope**
51.2	**Subparts (implementation of NEPA)**
51.3	**Resolution of Conflict**
51.4	**Definitions**
51.5	**Interpretations**
51.6	**Specific Exemptions**
51.7-51.9	**[Reserved]**
51.10	**Application of NEPA/CEQ**
51.11	**[Reserved]**
51.12	**Application of Regulations to Ongoing Environmental Work**
51.13	**Emergencies**
51.14	**Definitions**
51.15	**Time Schedules**
51.16	**Proprietary Information**
51.17	**Information Collection Requirements**
51.18-51.19	**[Reserved]**
51.20	**Actions Requiring Environmental Impact Statements**

As discussed above in the comments to section 70.21, section 193.a.1. of the AEA, amended by Pub. L. No. 101-575, requires the licensing of a uranium enrichment facility to be treated as a major federal action with a significant impact on the environment under NEPA, therefore, an EIS is required under section 51.20. Section 51.20(b)(3) requires an EIS for enrichment plants

pursuant to Part 50. LES expects that the regulation will be revised and/or an order will be issued to require an EIS pursuant to Part 70. This expectation is reinforced by an NRC letter22/ indicating that an enrichment facility licensed under Part 70 would also be subject to the same requirement.

51.21 Not applicable. **Actions Requiring Environmental Assessments**

51.22 Not applicable. **Matters Excluded from Environmental Review**

51.23 Not applicable. **Temporary Storage of Spent Fuel**

51.24 **[Reserved]**

51.25 **Determination to Prepare Environmental Documents**

51.26 **Publication of Notice of Intent to Issue an Environmental Impact Statement**

51.27 **Substance of Notice of Intent**

51.28 **Scoping - Participants**

51.29 **Scoping - Environmental Impact Statement**

51.30 Not applicable to the application, but may be applicable to amendments. **Environmental Assessment**

51.31 Not applicable to the application, but may be applicable to amendments. **Determinations Based on Environmental Assessment**

51.32 Not applicable to the application, but may be applicable to amendments. **Finding of No Significant Impact**

51.33 Not applicable to the application, but may be applicable to amendments. **Draft Finding of No Significant Impact**

51.34 Not applicable to the application, but may be applicable to amendments. **Preparation of Finding of No Significant Impact**

22/ Answer to Question 4 in the enclosure to the letter from James R. Curtiss (Acting Chairman, NRC) to The Honorable J. Bennett Johnston, March 5, 1990.

51.35 Not applicable to the application, but may be applicable to amendments. **Publication of Finding of No Significant Impact**

51.36-51.39 **[Reserved]**

51.40 **Consultation With NRC Staff**

51.41 **Requirement to Submit Environmental Information**

51.42-51.44 **[Reserved]**

51.45 **Environmental Report**

51.46-51.49 **[Reserved]**

51.50 **Environmental Report - Construction Permit Stage**

LES expects that section 51.50 will be revised to include uranium enrichment facilities as well as production and utilization facilities.

51.51 Not applicable. **Table S-3**

51.52 Not applicable. **Table S-4**

51.53 **Supplement to Environmental Report (operating license stage)**

See comments for section 51.50.

Not applicable: (b) **Spent fuel storage at end of plant life**

51.54 Not applicable. **Environmental Report - Manufacturing License**

51.55 **Environmental Report - Number of Copies**

LES will conform to the number of copies requirement of section 51.66 and will assume that section 51.55(a) is not applicable to uranium enrichment facilities.

51.56-51.59 **[Reserved]**

51.60 **Environmental Report - Materials License**

51.61 Not applicable. Environmental Report - Independent Spent Fuel Storage Installation

51.62 Not applicable. Environmental Report - Land Disposal License

51.63-51.65 [Reserved]

51.66 Environmental Report - Number of Copies

51.67 Not applicable. Environmental information concerning geologic repositories

51.68 Not applicable. Environmental Report - Rulemaking

51.69 Not applicable. Environmental Report - Rulemaking, Number of Copies

51.70 Draft Environmental Impact Statement ("DEIS") - General

51.71 DEIS - Contents

51.72 Supplement to DEIS

51.73 Request for Comments on DEIS

51.74 Distribution of DEIS

51.75 DEIS - Construction Permit

51.76 Not applicable. DEIS - Manufacturing License

51.77 Not applicable. DEIS - Manufacturing License, Distribution

51.78-51.79 [Reserved]

51.80 Not applicable. DEIS - Materials Licenses

This section applies to actions identified in sections 50.20(b)(7) through (12). Uranium enrichment activities are covered under section 50.20(b)(3).

51.81 Not applicable. DEIS - Materials Licenses, Distribution

51.82-51.84 [Reserved]

51.85 Not applicable. DEIS - Rulemaking

51.86 Not applicable. **DEIS - Rulemaking, Distribution**

51.87 **[Reserved]**

51.88 Not applicable. **Proposals for Legislation**

51.89 **[Reserved]**

51.90 **Final Environmental Impact Statement** ("FEIS") **- General**

51.91 **FEIS - Contents**

51.92 **Supplement to FEIS**

51.93 **Distribution of FEIS**

51.94 **Requirement to Consider FEIS**

51.95 **Supplement to FEIS**

Not applicable: (b) **Spent fuel storage**

51.96 **[Reserved]**

51.97 Not applicable. **FEIS, Materials License**

Applies to independent spent fuel storage and monitored retrievable storage facilities.

51.98-51.99 **[Reserved]**

51.100 **Timing of Commission Action**

51.101 **Limitations on Actions**

51.102 **Requirement to Provide Record of Decision**

51.103 **Record of Decision - General**

51.104 **Public Hearings - General**

51.105 **Public Hearings - Construction Permits**

Although the heading for sections 105 and 106 is "Production and Utilization Facilities," 10 C.F.R. 51.105(a) makes specific reference to enrichment facilities. Therefore, LES will conform to the requirements of these sections. Section 51.109 falls under the heading "Materials Licenses," but this section is clearly not applicable to enrichment facilities. LES

anticipates that the NRC will appropriately modify the headings to these sections.

51.106 **Public Hearings - Operating Licenses**

LES anticipates that this section will be amended to reflect the Pub. L. No. 101-575 requirement that an EIS must be issued prior to completion of the uranium enrichment facility licensing hearing.

Not applicable: (b) **Fuel loading**

51.107-51.115 **[Reserved]**

51.116 **Notice of Intent**

51.117 **DEIS - Notice of Availability**

51.118 **FEIS - Notice of Availability**

51.119 Not applicable. **Publication of No Significant Impact**

51.120 **Availability of Environmental Documents for Public Inspection**

51.121 **Status of NEPA Actions**

51.122 **List of Interested Organizations and Groups**

51.123 **Charges for Environmental Documents**

51.124 **Commission Duty to Comment**

51.125 **Responsible Official**

App. A **Format for Environmental Impact Statements**

2.4 Applicability of 10 C.F.R. Part 71 Requirements

Section 70.41 generally makes Part 71 applicable to Part 70 licensees that deliver special nuclear material to a carrier for transport. Much of Part 71 deals with design and testing of the packaging and, although applicable to the LES facility, may not be important to the license proceedings.23/

23/ LES will use standard 30 and 48 inch containers manufactured, designed, tested and inspected to ANSI N14.1-1987. These containers are the same as those used by DOE and the rest of

(Footnote 23 cont'd on next page.)

PACKAGING AND TRANSPORTATION OF RADIOACTIVE MATERIAL

SECTION	TITLE
71.0	**Purpose and scope**
71.1	**Communications and records**
71.2	**Interpretations**
71.3	**Requirement for license**
71.4	**Definitions**
71.5	**Transportation of licensed material**
	Requires licensee delivering licensed material to a carrier for transport to comply with selected DOT regulations (49 C.F.R.).
71.6	**Information collection requirements OMB approval**
71.6a	**Completeness and accuracy of information**
71.7	**Specific exemptions**
71.9	Not applicable. **Exemption of physicians**
71.10	**Exemption for low-level materials**
	No exemptions are assumed to apply. Section 71.10 provides exemptions from the requirements of Part 71 when the specific activity of the shipped material is 0.002 microcurie/g or less. Uranium enriched by the CEC will probably have a specific activity of about 2 microcuries/g,24/ therefore, the requirements of Part 71

(Footnote 23 cont'd.)
the industry. Natural U (0.7% U235) will be the input to the process. Output will be U enriched to 5% or less and tails will be 0.2% to 0.3% U235. Tails may be stored on site in the standard 48 inch shipping containers. Each 48 incn container will hold 12 tons and no radiation shielding for the containers will be required; the greatest health hazard being an an accidental criticality or a reaction of UF6 with H2O to produce HF and UO2F2.

24/ Based on activities for 5% or less enriched U presented in the Westinghouse Nuclear Fuel Fabrication Plant Environmental Assessment, NUREG-1118, § 4.3.2.

probably apply. LES has analyzed the rules on the basis that enriched uranium is being prepared for shipment; U238 is not defined by section 71.4 to be a fissile material, therefore, the rules of this Part do not apply to tails.

71.12 **General License: NRC approved package**

71.13 **Previously approved Type B package**

71.14 **General License: DOT specification container**

71.16 **General License: Use of foreign approved package**

71.18 Further evaluation required.25/ **General License: Type A, Fissile Class II package**

A technical evaluation is needed for this and other sections of Part 71 (as indicated) to focus on the exact characteristics of the materials to be shipped and how they fit into the regulatory scheme.

71.20 Further evaluation required. **General License: Restricted, Fissile Class II package**

71.22 Further evaluation required. **General License; Type A package, Fissile Class III shipment**

71.24 Further evaluation required. **General License: Restricted, Fissile Class III shipment**

71.31 **Contents of Application**

71.33 **Package description**

71.35 **Package evaluation**

71.37 **Quality assurance** (for shipping packages)

71.39 **Requirement for additional information**

71.41 **Demonstration of compliance**

71.43 **General standards for all packages**

25/ The applicability of a rule requiring further evaluation depends on activity levels or other parameters. Thus, applicability should be determined by licensing or engineering.

71.45 **Lifting and tie-down standards for all packages**

71.47 **External radiation standards for all packages**

71.51 **Additional requirements for Type B packages**

Applicability of this section depends upon the results of the technical evaluation of section 71.52.

(A Type B package (defined in 49 C.F.R. § 173) is a package designed to the standards of section 71.71.)

71.52 Further evaluation required. **Exemption for low specific activity (LSA) packages**

71.53 Further evaluation required. **Fissile material exemptions** from sections 71.55 through 71.61.

71.55 **General requirements for all fissile material packages**

Applicability of this section depends upon the results of the technical evaluation of section 71.53.

71.57 Further evaluation required. **Specific standards for a Fissile Class I package**

Additionally, applicability of this section depends upon the results of the technical evaluation of section 71.53.

71.59 Further evaluation required. **Specific standards for a Fissile Class II package**

Additionally, applicability of this section depends upon the results of the technical evaluation of section 71.53.

71.61 Further evaluation required. **Specific standards for a Fissile Class III shipment**

Additionally, applicability of this section depends upon the results of the technical evaluation of section 71.53.

71.63 Not applicable. **Special requirements for plutonium shipments**

71.65 **Additional requirements**

71.71 Not Applicable. **Normal conditions for transport**

Applies to designers of shipping packages.

71.73 Not applicable. **Hypothetical accident conditions**

Applies to designers of shipping packages.

71.75 Not applicable. **Qualification of special form radioactive material**

Applies to designers of shipping packages.

71.77 Not applicable. **Tests for special form radioactive material**

Applies to designers of shipping packages.

71.81 **Applicability of operating controls and procedures**

This section imposes the requirements of sections 71.83 through 71.137 on licensees that deliver licensed material to a carrier for transport.

71.83 **Assumptions as to unknown properties**

71.85 **Preliminary determinations**

71.87 **Routine determinations**

71.88 Not applicable. **Air transport of plutonium**

71.89 **Opening instructions**

71.91 **Records**

71.93 **Inspection and tests**

71.95 **Reports**

71.97 Further evaluation required. **Advance notification of shipment of nuclear waste**

71.99 **Violations**

71.101 **Quality assurance requirements** for important-to-safety packaging.

71.103 **Quality assurance organization**

71.105 **Quality assurance program**

71.107 Not applicable. **Package design control**

71.109 **Procurement document control**

71.111	Instructions, procedures and drawings
71.113	Document control
71.115	Control of purchased material, equipment and services
71.117	Identification and control of materials, parts, and components
71.119	Control of special processes
71.121	Internal inspection
71.123	Test control
71.125	Control of measuring and test equipment
71.127	Handling, storage, and shipping control
71.129	Inspection, test, and operating status
71.131	Nonconforming materials, parts, or components
71.133	Corrective action
71.135	Quality assurance records
71.137	Audits

2.5 Applicability of 10 C.F.R. Part 73 Requirements

Part 73 is made applicable by section 70.22(g)(1) to Part 70 licensees delivering special nuclear material of low strategic significance to a carrier for transport in a single shipment.

PHYSICAL PROTECTION OF PLANTS AND MATERIALS

SECTION	TITLE
73.1	Purpose and scope
73.2	Definitions
73.3	Interpretations
73.4	Communications

73.6 **Exemptions for certain quantities and kinds of special nuclear material**

Section 73.6(a) exempts licensees who handle low enriched U from the requirements of sections 73.20, 73.25, 73.26, 73.27, 73.45, 73.46, 73.70, and 73.72. However, section 70.22 requires compliance with sections 73.20, 73.25, 73.26, 73.27, 73.67(a), (e) and (g), and 73.70(g) when 10 kg or more of special nuclear material of low strategic significance is delivered to a carrier for transport. This leaves LES exempt from the requirements of sections 73.45, 73.46, 73.70(a)-(f) and (h), and 73.72. LES will comply with sections 73.67(a), (f) and (g) as requested by the Staff in a March 30, 1990, letter from D.J. Kasun to H.A. Arnold.

73.8 **Information collection requirements: OMB approval**

73.20 **General performance objective and requirements**

Although exempted by sections 73.6(a) and 73.20(a), section 70.22(g)(1) reinstates section 73.20 for 10 kg or more of special nuclear material of low strategic significance. However, section 70.22(g)(1) requires a physical protection plan for special nuclear material in transit or for delivery to a carrier for transportation

Section 70.22(h)(1), which requires a site physical security plan meeting the requirements of sections 73.20, 73.40, 73.45, 73.46, 73.50, 73.60, 73.70 and 73.71, does not apply unless U is enriched to 20%. Therefore, a fixed site physical protection program, in compliance with sections 73.20(b)(1) and 73.45 is not required and the application of section 73.20 should be limited to implementing the in-transit protection program of section 73.25. (A site physical security plan in accordance with section 73.67 is required by section 70.22(k).)

73.21 Not applicable. **Requirements for the protection of safeguards information**

This section applies to each person who possesses safeguards information. This would appear to include the LES facility because safeguards information is defined by section 73.2 to include information identifying security measures for the physical protection of special nuclear material.

However, section 73.21(b) describes the information to be protected as "Information relating to the protection of facilities that possess formula quantities of strategic

special nuclear material, and power reactors," and "Information relative to the protection of shipments of formula quantities of strategic special nuclear material . . . ." LES will not process strategic special nuclear material, therefore, this section is excluded. Reinforcing this conclusion is section 70.22(1) which invokes section 73.21 for applicants possessing and delivering for transport strategic special nuclear material.

73.24 **Prohibitions**

73.25 **Performance capabilities for physical protection of strategic special nuclear material in transit**

On its face, this section should apply only to strategic special nuclear material. However, it also applies to the CEC. See the discussion for sections 70.22(g)(1) and 73.20, above.

73.26 **Transportation physical protection systems, subsystems, components, and procedures**

See comment for section 73.25, above.

73.27 **Notification requirements**

See comment for section 73.25, above.

73.37 Not applicable. **Requirements for physical protection of irradiated reactor fuel in transit**

73.40 Not applicable. **Physical protection: General requirements at fixed sites**

Not required for special nuclear material of low strategic significance. See comments on section 70.22(h)(1).

73.45 Not applicable. **Performance capabilities for fixed site physical protection systems**

Section 70.22(h)(1) indicates that the physical security plan of section 73.45 is required when U enriched to 20% or more is present on the site. Section 70.22(k) indicates that the physical protection system of section 73.67 applies to sites having special nuclear material of low strategic significance. Section 73.6 corroborates this conclusion.

73.46 Not applicable. **Fixed site physical protection systems, subsystems, components and procedures**

See section 73.6.

73.50 Not applicable. **Requirements for physical protection of licensed activities**

Applies to strategic special nuclear material. Also, is only required by section 70.22(h)(1) which applies to U enriched to 20% or more.

73.55 Not applicable. **Requirements for physical protection of licensed activities in nuclear power reactors against radiological sabotage**

Applies to nuclear power reactors. However, LES intends to take reasonable precautions against unauthorized increased enrichment.

73.57 Not applicable. **Requirements for criminal history checks of individual granted unescorted access to a nuclear power facility or access to Safeguards Information by power reactor licensees**

This section applies to power reactor licensees under Part 50.

73.60 Not applicable. **Additional requirements for the physical protection of special nuclear material at non-power reactors**

This section applies to non-power reactors. However, LES intends to implement programs meeting the intent of this rule.

73.67 **Licensee fixed site and in-transit requirements for the physical protection of special nuclear material of moderate and low strategic significance**

Sections 70.22(g)(1) and (k) require implementation of sections 73.67(a) and (d) through (g) if the site possesses 10 kg or more of special nuclear material of low strategic significance even though some of the sections on their face apply to special nuclear material of moderate strategic significance. However, the Staff, in a March 30, 1990, letter from D.J. Kasun to H.A. Arnold, requested that LES comply with sections 73.67(a), (f) and (g).

73.70 Not applicable. Records

See section 73.6.

73.71 Reporting of safeguards events

Required by section 73.27(c).

73.72 Not applicable. Requirement for advance notice of shipment of formula quantities of strategic special nuclear materials, special nuclear material of moderate strategic significance, or irradiated reactor fuel

See section 73.6.

73.73 Requirement for advance notice and protection of export shipments of special nuclear material of low strategic significance

73.74 Requirement for advance notice and protection of import shipments of nuclear material from countries that are not party to the Convention on the Physical Protection of Nuclear Material (effective date pending)

73.80 Violations

2.6 Applicability of 10 C.F.R. Part 74 Requirements

MATERIAL CONTROL AND ACCOUNTING OF SPECIAL NUCLEAR MATERIAL

SECTION	TITLE
74.1	Purpose
74.2	Scope
74.4	Definitions
74.5	Interpretations
74.6	Communications
74.7	Specific exemptions
74.8	Information collection requirements OMB approval
74.11	Reports of loss or theft or attempted theft of special nuclear material

74.13 **Material status reports**

Section 74.13(b) is not applicable because the LES facility is not subject to section 70.51(e). See section 70.53(a)(2) for requirements when the facility is subject to an IAEA Agreement and section 74.13(a)(2) supersedes section 74.13(a)(1).

74.15 **Nuclear material transfer reports**

Sections 74.15(a) and (b) are required by section 70.54(a). Section 74.15(c) is only required when the facility is subject to an IAEA Agreement. See the discussion of 70.54(b), above.

74.17 **Special nuclear material physical inventory summary report**

Section 74.17(a) applies to licensees subject to section 74.31. LES has committed to meeting the requirements of proposed section 74.33 rather than section 74.31. However, LES will comply with the requirements of section 74.17(a) until the proposed section 74.33 is published. LES will modify its program as needed to conform to the final rule.

Sections 74.17(b) and (c) are not applicable. (Sections 70.51(e) and 74.51 do not apply to the CEC.)

74.31 Not applicable. **Nuclear material control and accounting for special nuclear material of low strategic significance**

This rule is required by sections 70.22(b) and 70.32(c)(1)(i). However, LES has committed to meeting the requirements of proposed section 74.33, which will subsume section 74.31.

74.51 Not applicable. **Nuclear material control and accounting for strategic special nuclear material**

74.53 Not applicable. **Process monitoring**

This section applies to licensees subject to section 74.51.

74.55 Not applicable. **Item monitoring**

This section applies to licensees subject to section 74.51.

74.57 Not applicable. **Alarm resolution**

This section applies to licensees subject to section 74.51.

74.59 Not applicable. **Quality assurance and accounting requirements**

This section applies only to licensees subject to section 74.51. Additionally, section 70.32(c)(1)(ii) requires licensees to set up control and accounting programs according to sections 74.31(b) or 74.59(e). LES will comply with proposed section 74.33, which subsumes section 74.31.

74.81 **Inspections**

74.82 **Tests**

74.83 **Violations**

2.7 Applicability of 10 C.F.R. Part 75 Requirements

The provisions of this Part apply (as indicated) to the facility only if subject to an IAEA Agreement.

SAFEGUARDS ON NUCLEAR MATERIAL--
IMPLEMENTATION OF US/IAEA AGREEMENT

SECTION	TITLE
75.1	**Purpose**
75.2	**Scope**
75.3	**Exemptions**
75.4	**Definitions**
75.5	**Interpretations**
75.6	**Maintenance of Records and delivery of information, reports, and other communications**
75.7	**IAEA representatives**
75.8	**Facility attachments**
75.9	**Information collection requirements OMB approval**

75.11 **Installation information**

75.12 **Communication of information to IAEA**

75.13 **Verification**

75.14 **Supplemental information**

75.21 **General requirements**

When required by the Commission, the material accounting and control program supersedes the program of section 74.13(a)(1). Also, see sections 70.53(a)(2) and 74.13(a)(2).

75.22 **Accounting records**

75.23 **Operating records**

75. 4 **Retention of records**

75.31 **General requirements**

75.32 **Initial inventory report**

75.33 **Accounting reports**

75.34 **Inventory change reports**

When reports are required under this section, section 74.15(c) is required by section 70.54(b).

75.35 **Material status reports**

When this section is required, section 70.53(a)(2) also requires section 74.13(a)(2) which excludes section 74.13(a)(1).

75.36 **Special reports**

2.8 Applicability of 10 C.F.R. Parts 25 and 95 Requirements

LES will implement the appropriate requirements of 10 C.F.R. Parts 25, "Access Authorization for Licensee Personnel" and 95, "Security Facility Approval and Safeguarding of National Security Information and Restricted Data."26/

26/ See notes of August 9, 1990, LES meeting with NRC.

2.9 Applicability of 10 C.F.R. Part 140 Requirements

Section 193.e. of the AEA as amended by Pub. L. No. 101-575 precludes Price-Anderson coverage in connection with the licensing of uranium enrichment facilities constructed after November 1990. LES anticipates that pursuant to Pub. L. No. 101-575, the provisions of this Part will not apply to any license issued under Parts 40 and 70 for the CEC uranium enrichment facility.

3. PROPOSED GENERAL DESIGN CRITERIA FOR ENRICHMENT FACILITIES

In the answer to Question 2 in an enclosure to a letter from James R. Curtiss (Acting Chairman, NRC) to The Honorable Bennett T. Johnston dated March 5, 1990, the NRC indicated that the draft General Design Criteria in the ANPR would be applied regardless of whether a uranium enrichment facility was licensed under Part [illegible] Part 70.

The staff has prepared draft General Design Criteria for uranium enrichment which are intended to apply to any technique used for that purpose. These draft General Design Criteria have been drawn from several sources, including those previously proposed for other types of fuel cycle facilities and those in use in 10 CFR Part 50 for nuclear power plants. They are intended to provide general guidance as to topics which shall [must] be considered and the overall performance objectives related to each criterion. The actual implementation of these general design criteria will be different than in the case of nuclear power plants and will depend upon the specific processes and designs being considered and will be commensurate with the safety function of the specific structures, systems or components related to those designs. As experience is gained on the application of the criteria, modifications may be deemed appropriate to the criteria. It is also expected that designs to implement the criteria will in most instances not be comparable with that of nuclear power plants. In particular, the containment criteria might apply to only limited areas of the plant where significant releases could occur which, in turn, could cause exposure in excess of the reference values for toxic effects.

As discussed in a previous section of this notice, the current technologies, using the chemical form uranium hexafluoride, would be of more immediate concern. In this section we provide these draft criteria as based on the NRC staff's current considerations as to potential hazard to the health and safety of the public. We note, in particular, that the draft criteria presented for design for effects of natural phenomena are characterized by return periods. These criteria should be used in conjunction with data provided by competent

authorities which relate design variables such as ground acceleration and wind speed to return period.

3.1 General Design Criteria

An application for a construction permit for a uranium enrichment facility shall [must] include the principal design criteria for the proposed facility. These General Design Criteria establish minimum requirements for the principal design criteria which are commensurate with their safety function.27/ These General Design Criteria may not be complete. Any omissions do not relieve the applicant from the requirement of providing the necessary safety features in the design of a specific facility. In addition to satisfying the General Design Criteria, the applicant shall [must]:

(1) Design against the loss of confinement capability or other capability which would jeopardize the health and safety of the public where such loss of capability results from any single failure28/ in systems having safety significance;

(2) Provide diversity in systems commensurate with their safety function;

(3) Minimize the possibility of non-random, concurrent failures of important elements29/ in protection systems;

27/ A safety function is a function performed by a system, structure or component (SSC) that prevents a release of UF6 to the environment that could result in a toxicological dose to a member of the public of at least the limits provided in section 1.2 of this LRB document. A SSC that performs a safety function shall be designated as "safety related," "important to safety," "significant to safety" or "having safety significance." The terms "safety related," "important to safety," "significant to safety," and "having safety significance" are deemed synonymous for the CEC.

28/ The definition of single failure shall be according to 10 C.F.R. Part 50, Appendix A, as interpreted by SECY 77-439 and attachments.

29/ "Important elements" are components or devices that perform a safety function, as defined above.

(4) Provide design criteria and design bases for resistance of parts of the facility to upper limit accidents and for maximum probable natural phenomena when the consequences of such events endanger the health and safety of the public;

(5) Provide adequate protection for employees from hazards which could affect their performance of actions required to protect the public from exposure to hazardous materials.

There may be some facilities for which the General Design Criteria are not sufficient and for which additional criteria must be satisfied in the interest of public safety. Also some of the General Design Criteria may not be necessary or appropriate for a specific facility. For facilities such as these, departures from the General Design Criteria must be identified and justified.

3.2 General Requirements

Quality Standards and Records

Structures, systems, and components which are determined to have safety significance shall be designed, fabricated, erected, and tested in accordance with the NRC-approved quality assurance criteria for the facility. Appropriate records of the design, fabrication, erection, and testing of structures, systems, and components which are determined to have safety significance shall [must] be maintained by or under the control of the licensee throughout the life of the facility.

Protection Against Environmental Conditions

(a) Structures, systems, and components which are determined to have safety significance shall be designed to withstand the effects of, and be compatible with, the environmental conditions associated with operation, maintenance, shutdown, testing, and accidents.

(b) Structures, systems, and components which are determined to have safety significance shall be protected against dynamic effects, including effects of missiles and discharging fluids, that may result from natural phenomena, accidents at nearby industrial, military, or transportation facilities, equipment failure, and other similar events and conditions both inside and outside the facility.

Protection Against Fires and Explosions

Structures, systems, and components which are determined to have safety significance shall [must] be designed and located so that they can continue to perform their safety functions effectively under credible fire and explosion exposure conditions. Non-combustible and heat resistant materials shall [must] be used wherever practical throughout the facility, particularly in locations vital to the control of hazardous materials and to the maintenance of safety control functions. Safety control functions shall include explosion and fire detection, alarm, and suppression systems, which shall be designed and provided with sufficient capacity and capability to minimize the adverse effects of fires and explosion on structures, systems, and components which are determined to have safety significance. The design of structures, systems and components shall [must] include provisions to protect against adverse effects that might result from either the operation or the failure of the fire suppression system.

Sharing of Structures, Systems, and Components

Structures, systems, and components which are determined to have safety significance shall [must] not be shared between an enrichment facility and other facilities unless it is shown that such sharing will not impair the capability of the enrichment facility (i.e., the structures, systems and components in the facility) to perform its safety functions, including the ability to return to a safe condition in the event of an accident.

Proximity of Sites

An enrichment facility located near other nuclear facilities30/ shall [must] be designed to ensure that the cumulative effects of their combined operations will not constitute an unreasonable risk to the health and safety of the public.

30/ A "nuclear facility" is a production or utilization facility as defined by 10 C.F.R. 50.2.

Testing and Maintenance of Systems and Components

Systems and components that are determined to have safety significance shall [must] be designed to permit inspection, maintenance, and testing.

Emergency Capability

Structures, systems, and components which are determined to have safety significance shall [must] be designed for emergencies. The design shall [must] provide for accessibility to the equipment of onsite and available offsite emergency facilities and services such as hospitals, fire and police departments, ambulance service, and other emergency agencies.

3.3 Design Basis For Normal Operation, For Accidents, And For Protection Against Natural Phenomena

Design

(a) Enrichment facilities shall [must] be designed so that the concentration of hazardous materials at or beyond the boundary of the exclusion area (1) under normal operating conditions, shall be as low as is reasonably achievable, and (2) as the result of design basis accidents including those of low probability, shall not create any undue risk to the health and safety of the public.

(b) The design of the facility structures, systems and components shall [must] be adequate to provide protection against severe external events that could result in the release of quantities and concentrations of hazardous material which may be of public health and safety significance.31/ The design bases for such events shall take into account their historic frequency and severity in the region of the site and the potential risk to public health and safety, including the inventory of hazardous materials in the facility and the size and the proximity of the population at risk. The type of severe events to be considered will vary among sites, however, earthquakes, tornadoes, and floods shall be considered in all cases, as described in paragraphs (c), (d), and (e) below.

31/ These are the amounts presented in section 1.2 of this LRB.

(c) Historical information concerning the regional seismicity interpreted in light of regional structural geology and site geological conditions shall be used for determining the maximum vibratory ground motion which reasonably could be expected to affect the site during the operating life of the facility. Such an earthquake will have a mean return period of the order of 500 years.32/ Design earthquakes of shorter return period may be proposed, and shall be justified through considerations of the incremental risk to public health and safety relative to the 500-year interval.33/

(d) Historical information concerning the regional and local incidence and severity of tornadoes shall be used to establish a site-specific design tornado event. The characteristics of the design tornado shall be determined considering both the tornado frequency for the region in which the facility is located, as well as the frequency of occurrence for a tornado of a given intensity within that region.34/

(e) The design basis flood as a minimum shall be the Standard Project Flood as defined and in common use by the Corps of Engineers. The Standard Project Flood is the flood resulting from the most severe flood-protection rainfall depth-area-duration

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32/ The return period should be related to vibratory ground motion through the use of seismic risk maps such as Figure CI-2 of "Tentative Provisions for the Development of Seismic Regulations for Buildings," Applied Technology Council, ATC 3-06, U.S. Department of Commerce-National Bureau of Standards Special Publication 510, National Science Foundation Publication 78-8. (An update of this map is expected soon.)

33/ LES refers to the 500 year interval as a mean recurrence interval instead of a mean return period.

34/ The techniques used in "U.S. Tornadoes, Part 1, 70-year Statistics, T. Theodore Fujita, the University of Chicago," "Historical Extreme Winds for the United States--Atlantic and Gulf of Mexico Coastlines, M. J. Changery, NOAA, May 1982, NUREG/CR-2639," and "Methodology for Estimating Extreme Winds for Probabilistic Risk Assessments," J. V. Ramsdell, et al., NUREG/CR-4492, PNL-5737, October 1986, to relate return period to design wind speed serve as examples of acceptable techniques. Mean return periods of 10,000 years are likely to yield satisfactory design wind speeds.

relationship and isohyetal pattern of any storm that is considered reasonably characteristic of the region in which the watershed is located. If snow melt may be substantial, appropriate amounts shall be included with the flood-producing rainfall. When floods are predominantly caused by snowmelt, the Standard Project Flood shall be based on critical combinations of snow, temperature, and water losses.

(f) Structures, systems, and components which shall [must] withstand the design basis earthquake to meet the requirements of paragraph (a) shall be [designed using a suitable dynamic analysis or a suitable qualification test to demonstrate that they can withstand the seismic and other concurrent loads, except where it can be demonstrated that the use of an equivalent static load method provides adequate conservatism] verified seismically adequate using any of the currently acceptable methods, such as analysis, test and comparison with a seismic experience database.

(g) Conservative estimates of atmospheric dispersion of hazardous material based on local meteorological conditions shall be used to evaluate the impact of normal operations and of design basis accidents to demonstrate compliance with the requirements of paragraph (a).

Confinement Barriers and Systems

Confinement systems shall consist of confinement barriers and equipment which control against the release of hazardous materials to the environment. The confinement systems which are significant to safety shall be designed to protect against the effects of accidents or external natural phenomena and shall be fabricated, erected, appropriately tested, and maintained to ensure prevention of abnormal leakage, rapidly propagating failure, or gross rupture during the design life of the facility.

Compartmentalization of process inventory, when used as a method of reducing the amount of hazardous material capable of being released by any single or local failure of primary containment,35/ shall be considered in design as a means to effectively isolate and contain the process

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35/ Primary containment for the CEC shall be the autoclave.

inventory in modular units or states for all reasonable normal or abnormal conditions.

Ventilation Systems

Ventilation systems required for the confinement of hazardous materials shall be designed and appropriately tested to ensure their operability during normal or abnormal conditions. To accomplish this objective, these systems shall be designed to meet the following requirements:

(a) The desired ventilating air flow direction shall be maintained under operating and accident conditions.

(b) The ventilation system shall accommodate changes in operating conditions, such as variations in temperature or pressure, and shall be capable of safely controlling all off-gases that could be associated with normal or accident conditions.

(c) The continuity of necessary ventilation shall be assured by means of alternate equipment, fail-safe systems, or other provisions.

(d) Provisions shall be made for testing, during normal operations, all component functions having safety significance to the extent necessary to provide reasonable assurance that they will perform their design safety functions.

(e) Ventilation systems shall be designed to permit the continued occupancy of any and all areas where such occupancy is required for normal plant operations, for safe shutdown,36/ and for maintaining the facility in a safe shutdown condition. Their design shall include protection against the intake and accumulation of hazardous materials. The design shall also permit the timely and safe evacuation of personnel from all areas.

36/ Safe shutdown of a cascade shall be the condition where feed and product UF6 (including enriched and depleted uranium) in containers attached to the cascade are cooled to a solidified state, feed and product shipping containers associated with the cascade are isolated by at least one valve from the cascade or the environment, and centrifuges in the cascade are not spinning. Safe shutdown for the facility is when all cascades are in a safe shutdown condition.

(f) Ventilation systems shall be designed to confine the hazardous materials during normal operation and to ensure that the release of hazardous materials in the effluent gases is as low as reasonably achievable. Such systems shall also be designed to retain their confinement and separation capability to minimize releases from an accident condition.

3.4 Process Safety

Protection Systems

(a) Protection systems shall be designed (1) to initiate action that will assure that specified acceptable operating design limits are not exceeded as a result of operational occurrences and (2) to sense potentially hazardous or accident conditions, and to activate systems and components required to ensure the safety of operating personnel and the public or to give audible and visual alarm so that action can be taken in a timely manner to ensure such safety. Systems and components shall be activated automatically where this mode is compatible with the safety requirements to be satisfied.

(b) Protection systems shall have reliability and in situ testability. The design of protection systems shall consider alternate methods at least sufficient to ensure that (1) no single failure results in loss of the protection functions and (2) removal from service of any component does not result in loss of the protection system [such that it] and as a result, the protection system will operate with acceptable reliability. The protection systems shall be designed to permit the periodic testing of their functions while the plant is in operation to determine their ability [competency] to perform their intended safety functions.

(c) Protection systems shall be designed to fail into a safe state or into a state demonstrated to be acceptable on some other defined basis if conditions such as disconnection of the system, loss of energy or motive power, or adverse environments are experienced.

Instrumentation and Control Systems

Instrumentation and control systems shall be provided to monitor variables and operating systems that are significant to safety over anticipated ranges for normal

operation, for abnormal operation, for accident conditions, and for safe shutdown. These systems shall ensure adequate safety of process and utility service operations in connection with their safety function. The variables and systems that require constant surveillance and control include process systems having safety significance, the overall confinement system, confinement barriers and their associated systems, and other systems that affect the overall safety of the facility [plant]. Controls shall be provided to maintain these variables and systems within the prescribed operating ranges under all normal conditions. Instrumentation and control systems shall be designed to fail into a safe state or to assume a state demonstrated to be acceptable on some other basis if conditions such as disconnection, loss of energy or motive power, or adverse environments are experienced.

Separation of Protection Systems and Control Systems

Protection systems shall be separated from control systems to the extent that a change or failure in a control system leaves intact a protection system having [with] acceptable reliability and independence [requirements].

Control Areas

A control room or control areas shall be designed to permit occupancy and actions to be taken to operate the plant safely under normal conditions and under abnormal or accident conditions to either operate the plant safely or to shut down the plant and maintain the plant in a safe shutdown condition. There shall be an alternate system designed to allow the plant to be put into a safe condition if any one control room or control area is removed from service.

Process Systems as Primary Confinement Barriers

Process components and systems are the primary confinement barrier. The design of each process system shall provide capability for the system to maintain its integrity and operability as necessary to protect the public health and safety. Provisions shall be included for the safe handling of anticipated nonroutine process conditions.

Utility Services

Onsite utility service systems shall be provided when such onsite service is necessary for emergency use to protect the health and safety of the public. Onsite utility services shall meet the following criteria.

(a) The design of each utility service system required for emergency conditions shall provide for the meeting of safety demands under normal and abnormal conditions.37/ The design of utility services and distribution systems having safety significance shall include alternate systems to the extent necessary to maintain, with adequate capacity, the ability to perform safety functions assuming a single failure.

(b) Emergency utility services shall be designed to permit testing of their functional operability and capacity, including the full operational sequence of each system for transfer between normal and emergency supply sources, and the operation of associated safety systems.

(c) Provisions shall be made so that, in the event of a loss of the primary electric power source or circuit, reliable and timely emergency power will be provided to instruments, confinement systems, utility systems, and process systems in amounts sufficient to allow operations to be shut down safely and to be maintained in a safe shutdown condition with all safety devices essential to safe shutdown functioning.

3.5 Nuclear Criticality Safety

Safety Margins

The design of process and storage systems shall include demonstrable margins of safety for the nuclear criticality parameters that are commensurate with the uncertainties in the process and storage conditions, in the data and methods used in calculations, and in the nature of the immediate environment under accident conditions. All process and storage systems shall be designed to be maintained subcritical and to ensure that

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37/ Safety demands are the utility requirements of safety related components performing their safety functions during normal and abnormal conditions.

no nuclear criticality accident can occur unless at least two unlikely, independent, and concurrent or sequential changes have occurred in the conditions essential to nuclear criticality safety.

If it can be demonstrated that criticality is highly unlikely, the requirements of this General Design Criterion for Nuclear Criticality Safety need not be applied.38/ An exemption from 10 C.F.R. § 70.24 may be requested.

Methods of Control

(a) Favorable geometry, in which equipment or systems are subcritical by virtue of neutron leakage under worst credible conditions, is the preferred method of nuclear criticality control.

(b) Where the favorable geometry method of nuclear criticality control is not practical, the use of permanently fixed neutron-absorbing materials (poisons) is the next preferred method of control.

(c) Where both the favorable geometry and the permanently fixed neutron-absorbing materials (poisons) methods of nuclear criticality control are not practical, administrative controls of moderation, fissile material concentration, total fissile material, or the use of soluble neutron-absorbing materials (poisons) shall be employed when combined with margins of safety measurements or appropriate analysis and engineered safety features.

Neutron Absorbers

Where solid neutron-absorbing materials (poisons) are used for the prevention of nuclear criticality, the design shall provide for positive means to verify their continued efficacy. Soluble neutron absorbing materials may be used as a primary nuclear criticality control provided (a) two independent methods are provided to ensure the presence of the required concentration of neutron absorber and (b) the equipment containing the fissile material is located behind sufficient barriers and shielding to reduce the probability and extent of accidental contamination of the environment and

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38/ See notes of September 14, 1989, LES meeting with NRC.

accidental radiation exposure to personnel in the event of a criticality accident.

Ancillary Criteria for Nuclear Criticality Safety

(a) Process and storage systems shall be designed to ensure that no mechanisms that could cause segregation of fissile materials can be present in components whose nuclear criticality safety is dependent on the homogeneous distribution of fissile material.

(b) Components whose nuclear criticality safety is dependent on a limiting concentration of fissile material shall be designed so that either (1) mechanisms that could cause critical concentrations of fissile materials are not present or (2) concentration is controlled by positive instrumental means.

(c) Process and storage systems shall be designed to ensure that the transfer of fissile material from safe systems to unsafe systems is not possible as a consequence of any single failure, including operating error.

(d) Confinement system components shall be designed to ensure that leakage from equipment or from one confinement zone to another confinement zone cannot result in a condition that would result in nuclear criticality.

(e) The spacing between discrete accumulations of fissile materials shall be controlled so as to maintain a subcritical state.

(f) A criticality monitoring system shall be maintained in each area where special nuclear material is handled, used, or stored which will energize clearly audible alarm signals if accidental criticality occurs.

3.6 Radiological Protection39/

Exposure Control

Radiation protection systems shall [must] be provided for all areas and operations where onsite personnel may be exposed to radiation or airborne radioactive materials.

39/ As noted in Paragraph 1.2 of this LRB document, the hazard is very low. Application of this section will reflect this fact.

Structures, systems, and components for which operation, maintenance, and required inspections may involve occupational exposure shall [must] be designed, fabricated, located, shielded, controlled, and tested so as to control external and internal radiation exposures to personnel. The design shall [must] include means to:

(a) Prevent the excessive accumulation of radioactive material in those systems requiring access;40/

(b) Decontaminate those systems to which access is required;

(c) Control access to areas of potential contamination or radiation;

(d) Measure and control contamination of areas requiring access;

(e) Minimize the time required to perform work in the vicinity of radioactive components; for example, by providing sufficient space for ease of operation and designing equipment for ease of repair and replacement; and

(f) Shield personnel from radiation exposure.

Radiological Alarm Systems

Radiological alarm systems shall [must] be provided in accessible work areas as appropriate to warn operating personnel of radiation and airborne radioactive material concentrations above a given setpoint and of concentrations of radioactive material in effluents above control limits. Radiation alarm systems shall [must] be designed with provisions for calibration and testing their operability.

40/ The term "excessive accumulation" is used because the CEC can tolerate a large accumulation without excessive dose.

Effluent and Direct Radiation Monitoring

(a) As appropriate, effluent systems shall [must] be provided. Means for measuring the amount of radionuclides in effluents during normal operations and under accident conditions shall [must] be provided for these systems. A means of measuring the flow of the diluting medium, either air or water, shall [must] also be provided.

(b) Areas containing radioactive materials shall [must] be provided with systems for measuring the direct radiation levels in and around these areas.

Effluent Control

Facilities shall [must] be designed to provide means to limit to levels as low as is reasonably achievable the release of radioactive materials in effluents during normal operations; and control the release of radioactive material under accident conditions.

Decommissioning

The facility shall [must] be designed so as to facilitate decommissioning. Provisions shall [must] be made to facilitate decontamination of structures and equipment, and facilitate the removal of radioactive wastes and contaminated materials at the time the facility is permanently decommissioned.

4. REGULATORY GUIDES APPLICABLE TO THE CEC

This CEC license application will address the applicability of NRC Regulatory Guides to a uranium enrichment facility, and specifically, to the CEC. Regulatory Guides for Divisions 1 and 2 apply to power research and test reactors, and are, therefore, not applicable. Most Regulatory Guides for Divisions 3, 4, 6, 7, and 8 apply to uranium mills, plutonium processing or fuel fabrication facilities. Only two (Reg. Guides 3.25 and 4.9) directly addresses enrichment facilities. The license application assumes that some Reg. Guides not specifically written for enrichment facilities nonetheless apply because risks to the health and safety of the public are similar to those posed by similar facilities.

5. RECORD OF CHANGES TO THIS DOCUMENT

Changes from one revision to the next are indicated by change bars in the margin.

5.1 **Changes to the December 28, 1990, version**

5.1.1 Section 2.1.3, add comments on LES' understanding of 10 C.F.R. § 70.22(i)(4).

5.1.2 Section 2.1.3, amend proposed creditor regulation/Order under discussion of 10 C.F.R. § 70.44.

5.1.3 Appendix A, outline of proposed notice, sections 6.3.1.1 and 6.3.2.1, change "module" to "plant unit," and delete reference to autoclaves and safety-significant support equipment.

5.1.4 Appendix A, outline of proposed Order, section 17, make changes to Creditor and Other Financial Interests corresponding to changes to section 2.1.3 as noted above.

Outline of Proposed Commission Notice & Order
For
The Claiborne Enrichment Center License Application

1. Notice Heading

   1.1 Receipt of application for License to Construct and Operate a uranium enrichment facility ("UEF")

   1.2 Availability of applicant's SAR

   1.3 Availability of applicant's Environmental Report

   1.4 Consideration of issuance of subject license

   1.5 Notice of Opportunity for Hearing

   1.6 Attached Commission Order: Licensing of the CEC UEF

2. Notice Introduction

   2.1 Receipt, on January __, 1991, of

      2.1.1 Application for license to construct and operate the CEC UEF. After issuance, no further Commission licensing action is required to authorize facility operation

      2.1.2 The single license will also include as necessary:

         2.1.2.1 Byproduct license

         2.1.2.2 Source license

         2.1.2.3 Special nuclear material license

      2.1.3 Environmental Report

      2.1.4 Safety Analysis Report

   2.2 Identify LES as applicant

   2.3 Describe facility

      2.3.1 Uses centrifuge machines obtained from Urenco

      2.3.2 Location of CEC UEF

      2.3.3 Limit on enrichment to 5%

      2.3.4 U235 to be used for commercial reactor fuel

2.4 Describe LES

2.4.1 LES is a limited partnership comprising four general partners:

2.4.1.1 Urenco Investments, Inc., a wholly-owned subsidiary of Urenco, Ltd.

2.4.1.2 Claiborne Energy Services, Inc., a wholly-owned subsidiary of Duke Power Company

2.4.1.3 Claiborne Fuels L.P., a wholly-owned subsidiary of Fluor Daniel, Inc.

2.4.1.4 Graystone Corporation, a wholly-owned subsidiary of Northern States Power Corporation

2.4.2 LES limited partners are:

2.4.2.1 Louisiana Power & Light Co.

2.4.2.2 BNFL Enrichment, Ltd., a subsidiary of Urenco, Ltd.

2.4.2.3 GnV, a subsidiary of Urenco, Ltd.

2.4.2.4 UCN Deelnemingen B.V., a subsidiary of Urenco, Ltd.

2.4.2.5 Claiborne Energy Services, Inc., a subsidiary of Duke Power Co.

2.4.2.6 Le Paz, Inc., a subsidiary of Northern States Power

2.4.2.7 Micogen, Ltd. III, Inc., a subsidiary of Fluor Daniel Corp.

2.5 Governing statutes and regulations

2.5.1 The Atomic Energy Act of 1954, as amended, in particular, by Public Law No. 101-575 (the Act)

2.5.2 10 C.F.R. Parts 40 and 70

2.5.3 Attached Commission Order

2.5.4 Other pertinent Parts as required

2.6 National Environmental Policy Act requirements

2.6.1 NEPA applies

2.6.2 10 C.F.R. Part 51

2.6.3 Availability of Environmental Report at PDR

2.6.4 NRC to complete an Environmental Impact Statement

2.6.5 Note opportunity to comment on draft EIS

2.6.6 Final EIS to be:

2.6.6.1 Published in the Federal Register

2.6.6.2 Available before completion of subject license hearing

2.7 In conjunction with the licensing decision, the NRC Staff will propose findings required by:

2.7.1 The Act

2.7.2 The Commission's rules and regulations

2.7.3 The attached Commission Order

3. The Licensing Hearing

3.1 Notice of a single hearing

3.2 Will be before an ASLB/ALJ

3.3 To be conducted under 10 C.F.R. Part 2, Subpart G

3.3.1 Any classified portions under Parts 25, 95 and 2, Subpart I

3.3.2 Commission intends expeditious hearing per Part 2, Appendix A

3.4 Commission itself to perform appellate review

3.5 Board/ALJ will authorize issuance of subject license

3.5.1 Authority to operate under the license will be suspended pending inspection to verify construction in accordance with the requirements of the license

4. NRC Staff Findings

4.1 NRC Staff will consider making affirmative findings on:

4.1.1 Whether, under 10 C.F.R. §§ 40.42 and 70.23, application is for purpose authorized by Act

4.1.2 Whether:

4.1.2.1 Applicant is qualified by training & experience

4.1.2.2 Applicant's proposed facilities, equipment, procedures and emergency plan are adequate to protect health and to minimize danger to life or property

4.1.3 Whether applicant is financially qualified to decommission the CEC UEF

4.1.4 Whether, according to 10 C.F.R. Part 51, the subject license should be issued as proposed

4.2 NRC Staff will consider making negative findings on:

4.2.1 Whether issuance of subject license will be inimical to the health and safety of the public or the common defense and security

4.3 Timing: After Commission's Staff has performed safety evaluation of the application and an environmental review

4.4 Above findings to be basis for issuance of subject license

5. Determinations to be made by Board/ALJ (presiding officer)

5.1 For all proceedings, whether contested or uncontested

5.1.1 The presiding officer will, in its initial decision, in accordance with Subpart A of Part 51:

5.1.1.1 Determine whether requirements of section 102(2)(A), (C) and (E) of NEPA and Subpart A of Part 51 have been complied with in the proceeding

5.1.1.2 Independently consider final balance among conflicting factors contained in the record of proceeding with a view to determining the appropriate action to be taken

5.1.1.3 Determine whether license should be issued, denied, or conditioned to protect the environment

2.6.4 NRC to complete an Environmental Impact Statement

2.6.5 Note opportunity to comment on draft EIS

2.6.6 Final EIS to be:

2.6.6.1 Published in the Federal Register

2.6.6.2 Available before completion of subject license hearing

2.7 In conjunction with the licensing decision, the NRC Staff will propose findings required by:

2.7.1 The Act

2.7.2 The Commission's rules and regulations

2.7.3 The attached Commission Order

3. The Licensing Hearing

3.1 Notice of a single hearing

3.2 Will be before an ASLB/ALJ

3.3 To be conducted under 10 C.F.R. Part 2, Subpart G

3.3.1 Any classified portions under Parts 25, 95 and 2, Subpart I

3.3.2 Commission intends expeditious hearing per Part 2, Appendix A

3.4 Commission itself to perform appellate review

3.5 Board/ALJ will authorize issuance of subject license

3.5.1 Authority to operate under the license will be suspended pending inspection to verify construction in accordance with the requirements of the license

4. NRC Staff Findings

4.1 NRC Staff will consider making affirmative findings on:

4.1.1 Whether, under 10 C.F.R. §§ 40.42 and 70.23, application is for purpose authorized by Act

5.2 For uncontested proceeding as defined by 10 C.F.R. 2.4(n)

5.2.1 No de novo evaluation of the application

5.2.2 Board will determine whether:

5.2.2.1 Application and record of proceeding contain sufficient information

5.2.2.2 NRC Staff's review of application has been adequate to:

5.2.2.2.1 Support proposed findings to be made by Director, NMSS, on issues of section 4, above

5.2.2.2.2 Support, insofar as Commission's licensing requirements under Act are concerned, issuance of subject license by Director, NMSS

5.3 For contested proceeding

5.3.1 Presiding officer will additionally decide:

5.3.1.1 Matters placed in controversy by parties in accordance with the Commission's Rules of Practice and not otherwise resolved

5.3.1.2 As ultimate issues, issues of section 4 above, as a basis to determine whether subject license should be issued

6. Facility Operation

6.1 No further hearing or licensing action

6.2 NRC Staff will verify completion of construction

6.2.1 In compliance with terms and conditions of license

6.2.2 Verification will be by inspection

6.2.2.1 Notice of the results of such inspections will be published in the Federal Register

6.3 Commission will lift suspension of authority to operate

6.3.1 Suspension will be lifted sequentially

6.3.1.1 License will authorize sequential construction and operation of three enrichment plant units

6.3.1.2 Suspension for each plant unit will be lifted following verification of construction of the plant unit's feed takeoff stations

7. Response to Notice

7.1 Applicant must file answer

7.1.1 By _____ __, 1991

7.1.2 pursuant to 10 CFR 2.705

7.2 Petition for leave to intervene

7.2.1 May be filed by any person:

7.2.1.1 Whose interest may be affected by this proceeding and who wishes to participate as party in proceeding

7.2.2 Filed in accordance with 10 C.F.R. Part 2

7.2.3 By _____ __, 1991

7.2.4 Presiding officer will rule on the petition and issue an appropriate order

7.2.5 Petition shall set forth with particularity:

7.2.5.1 The interest of the petitioner in the proceeding

7.2.5.2 How that interest may be affected by the results of the proceeding

7.2.5.3 Reasons why intervention should be permitted with particular reference to the following factors:

7.2.5.3.1 The nature of the petitioner's right under the Act to be made a party to the proceeding

7.2.5.3.2 The nature and extent of the petitioner's property, financial or other interest in the proceeding

7.2.5.3.3 The possible effect of any order which may be entered in the proceeding on the petitioner's interest

7.2.6 Shall identify the specific aspect(s) of the subject matter of the proceeding as to which petitioner wishes to intervene

7.2.6.1 Shall specify whether such aspect relates to:

7.2.6.1.1 Construction

7.2.6.1.2 Operation

7.2.6.1.3 Possession and use of materials

7.2.7 Petition may be amended

7.2.7.1 Without requesting leave of the presiding officer

7.2.7.2 Up to 15 days before the first prehearing conference scheduled in the proceeding

7.2.7.3 Must satisfy above-described specificity requirements

7.3 Non-timely Filings of Petitions for Leave to Intervene

7.3.1 Amended and supplemental petitions will not be entertained absent a determination by presiding officer or Commission that petition should be granted based on balancing factors in 10 CFR 2.714(a)(1)(i)-(v) and 2.714(d)

7.4 Petition shall be filed with [name, address, other administrative matters]

8. Contentions by Petitioners

8.1 Filed as supplement to the petition to intervene

8.1.1 List the contentions to be litigated

8.1.2 Not later than 15 days before the special prehearing conference, if one is held, or, if not, 15 days before the first prehearing conference scheduled in the proceeding

8.2 Contentions shall:

8.2.1 Consist of a specific statement of the law or facts to be controverted

8.2.2 Detail the alleged facts or opinion on which the prospective intervenor will rely, and

8.2.3 Show that a genuine dispute exists with the applicant on a material issue of law or fact

8.3 Limited to matters within the scope of the issues set forth in this notice and attached Order

8.4 Challenges to the attached Order will be certified to Commission for disposition

8.4.1 Commission will decide such challenges in a single order thereby making the attached Order, with Commission revisions, if any, final

8.5 To participate, parties must file supplement satisfying requirements of section 8.2 for at least one contention

8.6 Those permitted to intervene become parties to proceeding

8.6.1 Subject to limitations in the order granting leave to intervene, intervenors have the opportunity to:

8.6.1.1 Participate fully in the conduct of the hearing with respect to resolution of intervenor's admitted contentions

8.6.1.2 Present evidence as relevant, material and non-cumulative with respect to such contentions

8.6.1.3 Cross-examine witnesses as relevant, material and non-cumulative with respect to such contentions

9. Prehearing Conference & Evidentiary Hearing

9.1 Presiding officer will set the time and place

9.2 Respective notices to be published in Federal Register

10. Limited Appearances

10.1 For any person who does not wish, or is not qualified, to become a party to this proceeding

10.1.1 Inform Secretary of Commission within 60 days of the date of publication of this notice

10.2 Request permission to make a limited appearance pursuant to the provisions of 10 CFR 2.715

10.3 Person making limited appearance may make an oral or written statement of position on the issues

10.4 Limited appearance may be made at any session of the hearing or at any prehearing conference

10.4.1 Subject to such limitations and conditions as may be imposed by the presiding officer

10.5 Interested States will be afforded reasonable opportunity to participate pursuant to the provisions of 10 C.F.R. § 2.715(c)

11. Availability of Information

11.1 For further details, see (in PDR)

11.1.1 Application for a single license to construct and operate the CEC UEF and for related possession and use of byproduct, source and special nuclear material dated _____ __, 1991

11.1.2 Applicant's SAR

11.1.3 Applicant's Environmental Report

11.2 Future information (to be provided)

11.2.1 Staff SER

11.2.2 Draft and final EIS

11.2.3 Proposed license

11.2.4 Transcripts of prehearing conferences and hearing

11.3 Located in [D.C. and local PDRs, locations, hours]

THE COMMISSION ORDER (Attached to Notice of Hearing)

1. Introduction

1.1 Provides requirements for licensing the CEC UEF

1.2 Need for Order

1.2.1 To incorporate information from ANPR for Part 76

1.2.1.1 Proposed General Design Criteria

1.2.1.2 Chemical toxicity limits

1.2.1.3 Other pertinent guidance

1.2.2 Public Law 101-575 established new licensing requirements and new licensing procedures

1.2.2.1 Facility license application, filed January __, 1991, is subject to the new requirements

1.2.2.2 Necessitates Order to implement on timely basis

2. Challenges to Order by Parties

2.1 Parties admitted to the CEC license proceeding have opportunity to file challenges to the Order as specified in the notice

2.2 Commission itself will resolve any such challenges as are certified to it by ASLB/ALJ, thereby rendering the Order, with Commission revisions, if any, final

3. Applicable Regulations

3.1 Effects of change section 11.v. of the Act

3.1.1 The CEC UEF will be licensed under sections 53 and 63 of the Act; results in licensing under 10 C.F.R. Parts 40 and 70

3.1.2 Part 40 governs:

3.1.2.1 Receipt, possession and use of natural uranium

3.1.2.2 Possession and storage, transfer or other disposition of depleted uranium

3.1.3 Part 70, as modified herein, governs:

3.1.3.1 Design, construction and operation of the safety-related portions of the facility

3.1.3.2 Receipt, production, possession, use, transfer or other disposition of special nuclear material

3.1.4 The CEC UEF is a production facility for purposes other than chapters 10 and 16 of the Act

3.1.5 As a result of these and other changes certain determinations as respects the application of the Commission's regulations to this licensing proceeding are necessary, as set forth below

4. Single License to Construct and Operate

4.1 Section 193.b.2. of the Act specifies issuance of a single license to construct and operate the CEC UEF

4.2 NRC will issue subject license after review, a pre-construction hearing and favorable findings on the issues specified in the notice. Subject license will include requisite licenses for possession and use of byproduct, source and special nuclear materials

4.3 Authority to operate will be suspended until verification by inspection that construction is in accordance with license

5. Single Mandatory Hearing

5.1 Section 193.b.1. of the Act specifies a single, mandatory, adjudicatory hearing on the record

5.2 Hearing will be under 10 C.F.R. Part 2, Subpart G

5.3 Prior to Commission issuing subject license:

5.3.1 Hearing is to be completed

5.3.2 Favorable findings are to be made on the issues specified in the notice

5.4 No further Commission licensing action shall be required to authorize operation

6. Environmental Impact Statement

6.1 Section 193.a. of the Act requires a NEPA EIS for UEF licensees

6.2 An EIS meeting the requirements of 10 C.F.R. Part 51 will be prepared by the Commission's Staff prior to completion of license hearing

7. Authorization to Operate

7.1 Section 193.b.1. of Act specifies issuance of single license authorizing construction and operation

7.2 Single license will be issued:

7.2.1 Following favorable findings on issues set forth in the accompanying notice

7.2.2 With condition suspending authority to operate

7.3 Commission will lift suspension without further hearing or licensing action

7.3.1 Upon verification by inspection that construction has been completed in accordance with the license

7.4 Pre-operational Inspections

7.4.1 In accordance with section 193.b.1. of the Act, the Commission will publish in the Federal Register the results of inspections used by the Commission to verify construction of the facility in accordance with the requirements of the license

8. Decommissioning

8.1 In accordance with section 193.d.2. of the Act, the CEC UEF applicant will provide adequate assurance of the availability of funds for the decommissioning and decontamination of the CEC

8.2 Funding may include, but not be limited to

8.2.1 Prepayment

8.2.2 Surety

8.2.3 Insurance

8.2.4 Other guarantee or

8.2.5 Sinking fund

8.3 This requirement shall be satisfied by compliance with the provisions of 10 C.F.R. § 70 25

9. No Price-Anderson Coverage

9.1 Price-Anderson coverage of the CEC UEF is precluded as provided in section 193.e. of the Act

10. Insurance

10.1 Section 193.d.1. of the Act requires the CEC UEF to have and maintain liability insurance of such type and amounts as the Commission judges appropriate

10.2 The CEC UEF shall have and maintain nuclear energy liability insurance:

10.2.1 In the amount of $_____

10.2.2 Prior to and throughout operation

10.2.3 To cover liability claims arising out of any occurrence within the United States

10.2.4 For events causing, within or outside the United States:

10.2.4.1 Bodily injury, sickness, disease, or death, or loss of or damage to property, or loss of use of property

10.2.4.2 Arising out of or resulting from the radioactive, toxic, explosive, or other hazardous properties of chemical compounds containing source or special nuclear material

10.3 The amounts liability insurance may be furnished and maintained in the form of:

10.3.1 An effective facility form (non-indemnified facility) policy of nuclear energy liability insurance from American Nuclear Insurers or Mutual Atomic Energy Liability underwriters; or

10.3.2 Such other type of nuclear energy liability insurance as the Commission may approve; or

10.3.3 A combination of the foregoing

11. General Design Criteria

11.1 The CEC shall demonstrate, in the manner required by 10 C.F.R. § 70.22(f), reasonable assurance of protection against

11.1.1 Natural phenomena

11.1.2 The consequences of potential accidents

11.2 The design bases of the principal structures, systems, and components will meet the proposed GDCs in the Part 76 ANPR

12. Quality Assurance

12.1 CEC shall implement a 10 C.F.R. Part 50, Appendix B, quality assurance program for safety-related equipment

12.1.1 To follow 10 C.F.R. § 70.22(f)

13. Chemical Effects

13.1 CEC shall identify systems, structures and equipment as safety-related based on effects of potential accidents

13.2 Applicants will adhere to

13.2.1 Radiation protection standards of 10 C.F.R. Part 20

13.2.2 Chemical dose limits for U and HF in [draft NUREG-1391]

14. Authorization for Changes to the Facility

14.1 CEC license will provide procedure for making changes to the safety-related features of the facility

14.2 Provisions will be similar to 10 C.F.R. § 50.59

15. Material Control and Accounting

15.1 CEC shall comply with SNM MC&A program requirements of proposed 10 C.F.R. § 74.33 rather than section 74.31

16. Backfitting

16.1 The backfitting rule, 10 C.F.R. § 50.109, shall be applicable to the CEC

17. Creditor and Other Financial Interests

17.1 Requirements below apply to and supplement Part 40 and 70 provisions relating to creditor interests in source and SNM

17.2 The following requirements apply to creditor interests and other financial interests in the CEC:

17.2.1 Commission consents, without individual application, or other action, to the creation or transfer of

17.2.1.1 Any mortgage, pledge, or lien creditor upon the CEC UEF, or

17.2.1.2 To the creation or transfer of lessor ownership interests through sale and simultaneous leaseback of the facility or a portion thereof, or

17.2.1.3 To the creation or transfer of additional limited partnership interests in the facility, or

17.2.1.4 To the mortgage, pledge, or lien of or upon such leasehold or limited partnership interests

17.2.2 Any such mortgage, pledge, lien, sale and leaseback or limited partnership interest must be entered into for the purpose of obtaining financing and such interest does not carry with it the present right to:

17.2.2.1 Possession of the facility, or

17.2.2.2 Control of licensed activities

17.2.3 The rights of any creditor may be exercised only in compliance with and subject to the same requirements and restrictions as would apply to the licensee pursuant to the provisions of the license, the Atomic Energy Act of 1954, as amended, and regulations issued by the Commission pursuant to said Act; and

17.2.4 No creditor may take possession of the facility or purport to exercise control over licensed activities prior to:

17.2.4.1 The issuance of a license from the Commission authorizing such possession, or

17.2.4.2 The consent of the Commission to the transfer of the license

17.3 Any creditor may file an application for transfer of the license pursuant to section 70.34 to:

17.3.1 Receive a license authorizing possession by the creditor, or

17.3.2 Receive the Commission's consent to the transfer of the license covering such facility

17.4 The Commission will act upon such application pursuant to section 70.36

17.5 Nothing contained in this Order shall be deemed to affect the means of acquiring, or the priority of, any tax lien or other lien provided by law

17.6 Definitions of terms as used in this Order for the purposes of creditor requirements:

17.6.1 "License" includes any license which may be issued by the Commission with regard to the CEC UEF

17.6.2 "Creditor" includes, without implied limitation:

17.6.2.1 The lender, mortgagee, pledgee, lien holder, or trustee under any mortgage, pledge or lien of or upon a facility, limited partnership interest or leasehold interest made to secure any creditor

17.6.2.2 Any trustee or receiver of the facility or limited partnership or leasehold interest appointed by a court of competent jurisdiction in any action brought for the benefit of (a) any creditor secured by such mortgage, pledge or lien (b) any lessor or trustee under a sale and leaseback transaction or (c) any liquidating trustee or limited partner

17.6.2.3 Any lessor or trustee under a sale and leaseback transaction

17.6.2.4 Any liquidating trustee or limited partner

17.6.2.5 Any purchaser of such facility at the sale thereof (a) upon foreclosure of such mortgage, pledge, or lien, or (b) upon exercise of any power of sale contained in any such mortgage, pledge, lien or sale and leaseback; or any purchaser of a limited partnership interest

17.6.2.6 Any legal representative, successor or assignee of any of the foregoing