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OFFICE OF SECRETARY
RULEMAKINGS AND
ADJUDICATIONS STAFF

Docket No. 70-7004-ML

MEMORANDUM TO: FCSS Staff

FROM: Robert C. Pierson, Director /RA/
Division of Fuel Cycle Safety
and Safeguards
Office of Nuclear Material Safety
and Safeguards

SUBJECT: UNITED STATES ENRICHMENT CORPORATION LICENSE DETAIL REGARDING THE LEVEL OF INFORMATION NEEDED FOR 10 CFR PART 70 LICENSING

It is my understanding that staff have raised the issue of the level of design detail needed to complete the review and to approve the U.S. Enrichment Corporation (USEC) American Centrifuge Plant (ACP) license application. The enclosed position statement reflects the regulatory structure under which the Division licensed the Lead Cascade and Louisiana Energy Service. This is also the how the ACP review is being performed. The position statement has been reviewed by both the hearing and licensing sections within OGC and they have provided their no legal objections.

I also understand that staff have expressed a concern that there may not be sufficient opportunity to ensure that the programmatic commitments made by USEC, as reflected in the license application, are properly applied in the as-built facility. In fact, qualified staff will have multiple opportunities to confirm that the facility design and the items relied on for safety have been implemented in accordance with the license application.

The first opportunity is participation in the review of the annual update of the Integrated Safety Analysis (ISA) Summary in 2008. The license is scheduled for issuance in 2007, so the first submission would be in January 2008. We have budgeted extra FTE for this review recognizing that there may be numerous changes as the design is completed. An on-site review will be performed as part of this review. In addition, USEC has committed in the license application to providing another submission documenting all changes that had been made to the ISA Summary since the license was issued 180 days prior to the expected date of the introduction of UF6 into the ACP.

The next opportunity is participation in the operational readiness review (ORR) for the ACP. Construction is expected to start following issuance of the license and USEC plans to start limited operations in early 2009. The ORR will be done in stages as the construction of the ACP progresses and as the design approaches completion. The draft NRC Inspection Manual Chapter that will be used for the USEC ACP ORR is expected to identify QA inspection,

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U.S. NUCLEAR REGULATORY COMMISSION
In the Matter of USEC, Inc.
Docket No. 07-7004-ML Official Exhibit No. Staff 60
OFFERED by: Applicant/Licensee Intervenor
NRC Staff Other
IDENTIFIED on 3/19/07 Witness/Panel
Action Taken: ADMITTED REJECTED WITHDRAWN
Reporter/Clerk

TEMPLATE= SECY-027

SECY-02

construction inspection, and pre-operational inspection procedures that will be used to verify that the programmatic commitments made as part of the licensing review have been properly implemented. These include QA inspection procedures for software validation and inspection of safety function interfaces, construction inspection procedures for instrumentation and control systems, and pre-operational inspection procedures for the Headquarters criticality safety inspection program, integrated safety analysis implementation and facility changes and change process (10 CFR 70.72). We have budgeted the necessary resources to support the ORR reviews for the USEC ACP, so you (or someone equally qualified) will have the opportunity to participate in these inspections.

As the design is completed, changes to the plant are to be expected. USEC will evaluate these changes in accordance with 10 CFR 70.72. USEC will submit amendment requests for those changes that exceed the criteria in 10 CFR 70.72. In addition, as discussed above, we will review their annual ISA Summary updates to ensure that they have adequately followed their facility change process and complied with 10 CFR 70.72.

The draft NRC Inspection Manual Chapter (IMC) that will be used for the USEC ACP ORR is expected to closely resemble the IMC being drafted for LES, which includes all the aspects identified above.

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Enclosure: Level of Information for 10 CFR Part 70 Licensing

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Level of Information Needed for 10 CFR Part 70 Licensing

For licensing a facility under 10 CFR Part 70, technical information on the proposed equipment and facility must be provided in the application in accordance with 10 CFR 70.22(a)(7), which states that each application shall contain:

> "A description of equipment and facilities which will be used by the applicant to protect health and minimize danger to life or property (such as handling devices, working areas, shields, measuring and monitoring instruments, devices for the disposal of radioactive effluents and wastes, storage facilities, criticality accident alarm systems, etc.)."

The requirements for approval of an application are provided in 10 CFR 70.23(a). These requirements state that an application will be approved upon a finding that the applicant is qualified, the proposed equipment and facilities are adequate to protect health and minimize danger to life or property and the proposed procedures are adequate. As a technical matter, it is for the Office of Nuclear Material Safety and Safeguards to determine how final the design must be to make this finding.

In addition, 10 CFR 70.61 requires each applicant to evaluate, in an integrated safety analysis performed in accordance with 10 CFR 70.62, compliance with the performance requirements in 10 CFR 70.61(b), 10 CFR 70.61(c), and 10 CFR 70.61(d). The regulations in 10 CFR 70.65 describe the requirements for the contents of an integrated safety analysis summary that is required to be submitted with the application. The requirements in 10 CFR 70.65(b)(3) require that the integrated safety analysis contain:

> "A description of each process (defined as a single reasonably simple integrated unit operation within an overall production line) analyzed in the integrated safety analysis in sufficient detail to understand the theory of operation; and, for each process, the hazards that were identified in the integrated safety analysis pursuant to §70.62(c)(1)(i)-(iii) and a general description of the types of accident sequences."

The regulations in 10 CFR 70.65(b)(6) require that the integrated safety analysis contain:

> "A list briefly describing each item relied on for safety which is identified pursuant to §70.61(e) in sufficient detail to understand their functions in relation to the performance requirements of §70.61."

Based on the information in the integrated safety analysis summary provided as required under 10 CFR 70.65, licensing decisions are made as required under 10 CFR 70.21, 70.22, 70.23, and 70.60 through 70.66. These decisions include compliance with the performance requirements, the baseline design criteria, defense-in-depth, and the adequacy of management measures.

Enclosure

In 10 CFR Part 70 licensing, the staff uses a reasonable assurance standard and focuses on the programmatic provisions of the applicant's proposed activities. This is reflected in the above licensing requirements that talk about, "sufficient detail to understand the theory of operation," or a list "briefly describing each item relied on for safety ... in sufficient detail to understand their functions in relation to the performance requirements." This is also reflected in the various chapters of the standard review plan, NUREG-1520, "Standard Review Plan for the Review of a License Application for a Fuel Cycle Facility." Based on this understanding, the licensing review needs to focus on the applicant's programmatic commitments and, consequently, the licensing decision is ultimately based on a sufficient level of detail to understand process system functions and functionally how items relied on for safety can perform their intended function and be reliable. The reasonable assurance standard is applied such that the staff decision pertains to a reasonable assurance that the integrated safety analysis summary is complete and the licensee will follow its integrated safety analysis approach and maintain it consistent with the regulations. The level of detail required for a licensing decision, therefore, does not require a final facility design or an absolutely complete identification of all items relied on for safety and accident sequences, but instead sufficient information has to be provided to understand the process and functions of items relied on for safety and reasonable assurance that the integrated safety analysis summary is complete.

For uranium enrichment facilities, to ensure that the applicant's programs have been sufficiently implemented and commitments have been properly applied in the final facility design and in the constructed facility, the regulations in 10 CFR 40.41(g) and 10 CFR 70.32(k) state that:

> "No person may commence operation of a uranium enrichment facility until the Commission verifies through inspection that the facility has been constructed in accordance with the requirements of the license."

This requirement applied through inspections, and not by licensing reviews, will ensure that the programmatic commitments made by licensee are properly applied in the as built facility. This inspection is intended to inspect the final design of the facility and the procedures that have been prepared to implement the licensee's commitments that are reflected in the license.

In the development of the performance requirements in 10 CFR Part 70, it was anticipated that, in the future, changes will be made to the facility design and processes and, therefore, a process for addressing these changes is described in 10 CFR 70.72. For a uranium enrichment facility, the licensee may make changes to its design after receiving its license during the construction phase and after operations begin. These changes, therefore, need to be submitted, as necessary, and reviewed in accordance with 10 CFR 70.72. The annual update submittals required under 10 CFR 70.72 would be reviewed by the staff.

The approach of using a reasonable assurance standard and programmatic commitments to make the licensing decision for a uranium enrichment facility was used in both the USEC Inc. Lead Cascade review and the Louisiana Energy Services (LES) review. The LES review underwent extensive litigation in both the contested and mandatory hearings. The Atomic Safety and Licensing Board (ASLB) concluded that based on its review the staff had adequately

performed its environmental and safety reviews and a license could be issued. The ASLB decisions confirm that the above approach meets the legal requirements in 10 CFR Parts 40 and 70. Therefore, the approach can be directly applied to the USEC Inc. American Centrifuge Plant. The fact that the LES plant is based on a facility currently operating in Europe has no effect on the licensing basis used to issue the LES license. The licensing bases for a uranium enrichment facility are solely the regulations in 10 CFR Parts 40 and 70 and are not dependent on operations of similar facilities located elsewhere.