March 31, 2004

Ms. B. Marie Moore, Vice President
Safety and Regulatory
Nuclear Fuel Services, Inc.
P.O. Box 337, MS 123
Erwin, TN 37650

SUBJECT: NUCLEAR FUEL SERVICES, INC., OXIDE CONVERSION BUILDING AND EFFLUENT PROCESSING BUILDING REQUEST FOR ADDITIONAL INFORMATION (TAC L31791)

Dear Ms. Moore:

This refers to your application dated October 23, 2003 (NFS No. 21G-03-0277), requesting an amendment to Materials License SNM-124 for the Blended Low-Enriched Uranium Oxide Conversion Building and Effluent Processing Building.

Our review of your application has identified that additional information is needed before final action can be taken on your request. The additional information, specified in the enclosure, should be provided within 30 days of the date of this letter. Please reference the above TAC No. in future correspondence related to this request.

If you have any questions regarding this letter, I can be reached on (301) 415-8139 or by e-mail at mxl2@nrc.gov.

In accordance with 10 CFR 2.390 of the NRC's "Rules of Practice," a copy of this letter will be available electronically for public inspection in the NRC Public Document Room or from the Publicly Available Records (PARS) component of NRC's document system (ADAMS). ADAMS is accessible from the NRC Web site at http://www.nrc.gov/reading-rm/adams.html.

Sincerely,

/RA/

Michael A. Lamastra, Senior Project Manager
Fuel Cycle Facilities Branch
Division of Fuel Cycle Safety
and Safeguards
Office of Nuclear Material Safety
and Safeguards

Docket: 70-143
License: SNM-124

Enclosure: Request for Additional Information

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DATE	3/31/04		3/31/04		3/31/04	

OFFICIAL RECORD COPY

Request for Additional Information
for the Oxide Conversion Building and Effluent Processing Building
License Amendment Request Dated October 23, 2003
Nuclear Fuel Services, Inc.
70-143

Please provide the following information concerning your license application:

1 Please describe the systems for detecting leaks from tanks associated with the Oxide Conversion Building (OCB) and the Effluent Processing Building (EPB) operations. The standard review plan (NUREG-1520), Section 9.4.3.2.2(1) states that an applicant's effluent monitoring is acceptable if, in part, the systems for detecting leaks from tanks are adequate to detect and ensure against any unplanned releases to groundwater, surface water, or soil.

2. The transmittal letter for the OCB Amendment states that the Supplemental Environmental Report (Supp ER), submitted in 2001, contains the information to support the Nuclear Regulatory Commission (NRC) environmental review and no additional information is submitted. However, Figure 4 in the Supp ER indicates that the OCB stack and monitoring point is located at the Northwest corner of the building. During a recent site visit, it was observed that the OCB stack is actually located at the Southeast corner of the building. What impact does this change have on the assumptions and conclusions for the radiological and chemical consequence analyses? Do any of the other stacks or monitoring points for the Blended Low-Enriched Uranium (BLEU) Complex differ from the descriptions in the Supp ER?

3. Please provide an update to Table 26 of the 2001 Supp ER. We noted that Section 2.2.2.3.2 of the 2001 Supp ER states that a separate pretreatment permit will be obtained for the waste discharged to the sanitary sewer from the BLEU Complex.

4. What is the current status of the new water intake at the Jonesborough water treatment facility? What is your plan for providing a new dose estimate? Our 2002 Environmental Assessment (EA), Section 3.6.1, page 3-8, states that Jonesborough planned to install a new water intake closer to the Nuclear Fuel Services (NFS) plant. In your May 28, 2003, letter (21G-03-0164), you stated in part that the new water intake had not been installed yet, however, a revised public dose estimate would be provided once the project was completed.

5. What is the current status of the groundwater baseline monitoring program? Our 2002 EA, pages 3-9, state that groundwater baseline survey would be conducted. In your May 28, 2003, letter (21G-03-0164), you stated that the report had not been finalized because of delays in installing groundwater monitoring wells at the BLEU Complex.

Enclosure

6. Please describe your plans for an expanded environmental survey. The NRC's 2002 EA, pages 4-6, state that NFS plans to expand the existing environmental monitoring program to cover the BLEU complex. Additional monitoring locations for air, vegetation, soil and groundwater will be proposed. The environmental monitoring program described in Part I of the SNM-124 license commitments (Section 5.2) does not appear to address the additional monitoring locations.

7. With regards to the ammonia recovery process:

   a. In response to question 3 in your letter dated March 16, 2004, you stated that "if the ammonia concentration is high enough, interlocks will shut down the ammonia recovery process". Provide the ammonia concentration level at which the interlocks will shut down the ammonia recovery process and how it is protective to the operator(s). This information is required to determine compliance with 70.22(a)(8) which states that an application should contain proposed procedures to protect health and minimize danger.

   b. In Section 3.7.2.3 of your OCB Integrated Safety Analysis (ISA) summary states that the uranium concentration in the ammonia recovery process will be approximately 1 ppm. Provide the maximum concentration and the controls.

8. In response to question 11 in your letter dated March 16, 2004, clarify the following statement "... defense in depth is provided by pressure control on the calciner that prevents the in-leakage of oxygen (or escape of hydrogen) by maintaining a slight negative on the calciner." It is not clear if NFS meant to imply that positive pressure would prevent in-leakage of air or oxygen into the system. This information is required to determine compliance with 70.65(b)(3) which states that the ISA summary should include sufficient detail to understand the theory of the processes and the hazards associated with them.

9. In response to question 13 in your letter dated March 16, 2004, NFS states that the off-gas filters will be heated at temperatures greater than 300ºF to avoid condensation. Provide additional information on the maximum temperature and safety limit to prevent decomposition of by-products (e.g., chemicals such as ammonium nitrate and ammonia) from licensed material that may develop unsafe conditions.

   This information is required to determine compliance with 70.64(5), which states that the design must provide adequate protection against chemical risks produced from license material facility conditions, which affect the safety of licensed material and hazardous chemicals produced from licensed material.

10. Provide calculation of the time needed to reach 19.5% O_2 (volume/volume) in the OCB (i.e., applicable room or area). Considering the worst case scenario for a nitrogen and hydrogen release, a hydrogen release, and a nitrogen release, explain the impact that this event could have on operator actions, Items Relied On For Safety (IROFS), (administrative control) or part of an IROFS (enhanced administrative control). Also, justify the assumptions to reach any conclusion.

    This information is required to determine compliance with 70.22(a)(7) which states that an application should contain a description of the equipment and facilities which will be used

by the applicant to protect health and minimize danger to life and property. This information will also be necessary to determine compliance with 10 CFR Part 70 to ensure the availability and reliability of IROFS (operator actions) to perform their function when needed.

Please provide the following information related to your OCB ISA.

1. Please describe intended safety performance of the IROFS identified as “Enhanced Administrative Control - Calciner high pressure alarm on CCS” (IROFS #ODC-3) (Table 4-10 update provided in submittal dated March 18, 2004), Scenario FHA #7: to achieve its mitigation or prevention of in-leakage of air. Does the high pressure alarm lead to high pressure switch interlock?

2. In the ISA there are several accident sequences where both IROFS are administrative controls. These controls have the potential for a common mode failure (i.e., same operator, alarms at same control station, etc.). Explain the independence of these controls. In addition, explain why preference wasn't given to engineered controls pursuant to 70.64(b). We found these administrative controls in the following accident sequences:

   27.1.5.1
   27.1.6.1
   47.1.5.2
   47.3.1.1

3. Explain the specific function of IROFS ODS-6 in accident sequence 38.25.1.1 (page 271).

   This information is needed to determine compliance with 70.62(c)(vi) which states that the ISA should identify each item relied on for safety pursuant to 70.61(e), Subpart H, the characteristics of its safety function(s), and the assumptions and conditions under which the item is relied upon to support compliance with the performance requirements of 70.61.

4. If as part of your ISA summary you identified any IROFS for a system that you do not believe are subject to NRC regulation, please provide the following:

   a. A list of the IROFS and justify why these systems are not subject to NRC regulations and;

   b. A commitment to removing these IROFS from your ISA summary, or describe how these safety controls will be identified.