UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION II
SAM NUNN ATLANTA FEDERAL CENTER
61 FORSYTH STREET SW SUITE 23T85
ATLANTA, GEORGIA 30303-8931

[redacted]

August 9, 2004

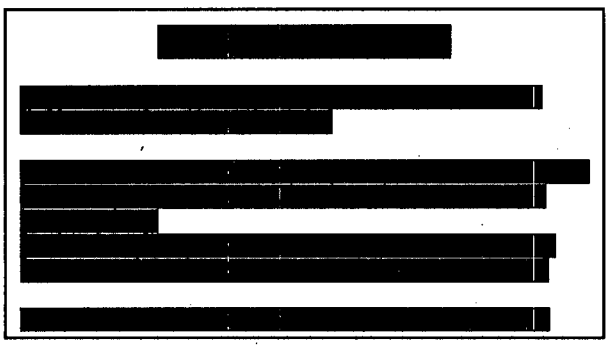
Nuclear Fuel Services, Inc.
ATTN: Mr. Kerry Schutt
President, General Manager
P. O. Box 337, MS 123
Erwin, TN 37650

SUBJECT: NRC INSPECTION REPORT NO. 70-143/2004-07

Dear Mr. Schutt:

This refers to the inspection conducted from May 30, through July 10, 2004, at your Erwin facility. The purpose of the inspection was to determine whether activities authorized by the license were conducted safely and in accordance with NRC requirements.

Areas examined during the inspection are identified in the report. Within these areas, the inspection consisted of selective examination of procedures and representative records, interviews with personnel, and observation of activities in progress.



[redacted]

Based on the results of the inspection, no violations or deviations were identified.

[redacted] Should you have any questions concerning this letter, please contact us.

Sincerely,

/RA/

David A. Ayres, Chief
Fuel Facility Inspection Branch 1
Division of Fuel Facility Inspection

Docket No. 70-143
License No. SNM-124

Enclosures: NRC Inspection Report (Part 1)
NRC Inspection Report (Part 2) [redacted]

cc w/encls:
B. Marie Moore
Vice President
Safety and Regulatory Management
Nuclear Fuel Services, Inc.
P. O. Box 337, MS 123
Erwin, TN 37650

Distribution w/encls: (See page 3)

[redacted]

[redacted]

U. S. NUCLEAR REGULATORY COMMISSION

REGION II

Docket No.:	70-143
License No.:	SNM-124
Report No.:	70-143/2004-07
Licensee:	Nuclear Fuel Services, Inc.
Facility:	Erwin Facility
Location:	Erwin, TN 37650
Dates:	May 30, 2004 - July 10, 2004
Inspectors:	D. Rich, Senior Resident Inspector G. Wertz, Senior Resident Inspector O. Lopez, Fuel Facilities Inspector M. Crespo, Fuel Facilities Inspector
Approved by:	D. Ayres, Chief Fuel Facility Inspection Branch 1 Division of Fuel Facility Inspection

[redacted]

Enclosure 1

[redacted]

EXECUTIVE SUMMARY

Nuclear Fuel Services, Inc.
NRC Inspection Report 70-143/2004-07 (Part 1)

This inspection included activities conducted by the senior resident inspector and regional inspectors during normal and off normal shifts in the areas of facility operations, training, fire protection, radiological protection, and safeguards.

Plant Operations

- The plant was operated safely and in accordance with the license (Paragraph 2.a).
- Initiation of safe operations was observed in the [redacted] process area and [redacted] of the [redacted] process (Paragraph 2.b).
- Changes to the [redacted] processing system were properly approved and controlled by the licensee's change control process (Paragraph 2.c).

Operator Training

- Down-blending operators adequately demonstrated proper understanding of processing operations and procedural adherence. High Enriched Uranium operators were aware of abnormal operation response actions.
- The Low Enriched Uranium operators and area supervisor were not cognizant of the multiple emergency stop functions nor their effect on system operation. Corrective action was planned by the facility manager (Paragraph 3).
- Licensee supervisors and trainers appropriately supervised on-the-job training for operators in the [redacted] process and the blended low enriched uranium preparation facility common areas training and emphasized procedural compliance (Paragraph 3).

Fire Protection

- Fire protection and detection equipment was adequately maintained or appropriate compensatory measures were employed. Fire hazards were minimized by appropriate housekeeping (Paragraph 4).

[redacted]

[redacted]

Radiation Protection

- Radiological control practices met regulatory requirements (Paragraph 5).

Attachment:
Partial List of Persons Contacted
Inspection Procedures Used
List of Items Opened, Closed, and Discussed
List of Acronyms

[redacted]

[redacted]

REPORT DETAILS

1. Summary of Plant Status

The [redacted] manufacturing and scrap recovery processes operated throughout the reporting period. Operations continued at the uranyl nitrate [redacted] building and construction of the other blended low-enriched (BLEU Uranium) facilities continued. Operations commenced at the BLEU preparation facility (BPF). Efforts continued in decommissioning older facilities on site. The processing, analysis, packaging, and shipments of contaminated soils and debris from the burial grounds continued and construction continued in several areas.

2. Plant Operations (Temporary Instruction (TI) 2600/006)

a. Routine Observations

(1) Inspection Scope

The inspector reviewed plant operations in progress during normal and off-normal operating shifts to evaluate plant safety and compliance with the license.

(2) Observations and Findings

The inspector made routine tours of the plant operating areas and determined that equipment and systems were operated safely and in compliance with the license. Some daily operational meetings were observed where production status and issues were discussed. The inspector verified the Emergency Control Center (ECC) and associated equipment were maintained in a state of readiness. The inspector reviewed selected licensee identified events and corrective actions for previously identified events and found no significant deficiencies in the items reviewed.

(3) Conclusions

The plant was operated safely and in accordance with the license.

b. Operations

(1) Inspection Scope

The inspector observed start up operations for [redacted] of the [redacted] process (or Product Support Line) and the Blended Low Enriched Uranium Preparation Facility (BPF), which consisted of the operation of the uranium [redacted] system. The inspector also reviewed the implementation of airborne activity sampling methods and airborne effluent monitoring for BPF.

[redacted]

(2) Observations and Findings

The inspector noted that startup operations, for both the [redacted] and BPF processes, were conducted with the appropriate level of supervision, which consisted of the trainer, supervisor, and building manager. The inspector also noted that operators were using adequate procedures and contacted their supervisor if any problem occurred when implementing the procedures. The inspector noted that the procedures adequately identified Safety Related Equipment (SRE) and Nuclear Criticality Safety (NCS) requirements. In addition, the procedures were approved by the appropriate safety council. The inspector noted that the operators used the appropriate personal protective equipment to clean up a minor chemical spill.

The inspector observed that procedures for collection and analysis of airborne effluents incorporated BPF effluent monitoring stations. The inspector toured the BPF stack sampling locations and observed the collection of samples. The inspector noted that the radiation technician was adequately trained in sample collection and the sampling equipment was properly maintained. The inspector also noted a representativeness study of the BPF building interior stationary airborne sample card locations was in progress, and operators wore lapel samplers to facilitate the study.

The inspector observed testing and equipment installation in the BLEU oxide conversion building. No safety issues were identified.

Conclusions

The licensee safely began operations in the [redacted] process area and [redacted] of the [redacted] process.

c. Maintenance and Surveillance

(1) Inspection Scope

The inspector reviewed the processing modifications of the [redacted] system furnaces prior to the start-up of the BPF to verify that the modification went through the licensee change control process and was adequately reviewed for safety.

(2) Observations and Findings

The inspector noted that the modifications of the [redacted] system furnaces were properly routed through the safety departments for review, and the Safety and Security Review Council had approved the modifications prior to start-up. The inspector performed an independent review of the modifications and found no safety issues. The inspector

[redacted]

noted changes in procedure were authorized and specified by a letter of authorization. No issues were noted.

(3) Conclusions

Changes to the [redacted] processing system were properly approved and controlled by the licensee's change control process.

3. Operator Training (IP 88010)

a. Inspection Scope

The inspector reviewed down-blending operations with newly trained operators and area supervisors in order to assess the effectiveness of the classroom training and the adequacy of the operating procedural guidance. The inspector observed on-the-job-training (OJT) of [redacted] system operators to verify that the appropriate supervision was present and that emphasis on procedure compliance was communicated. The inspector reviewed lesson plans for the BPF common areas training and observed a session of the training.

b. Observations and Findings

The inspector reviewed the High Enriched Uranium (HEU) and Low Enriched Uranium (LEU) Down-blending Training Lesson Plans, OJT checklists, training attendance records, and completed tests for several of the operators assigned to the down-blending facility. Although the OJT training had not been completed (since processing operations had yet to begin), the operators had completed the classroom instruction and successfully completed the written test. The test content appeared consistent with the lesson plan level-of-instruction and no discrepancies were noted in any of the training records.

Five operators were questioned on their understanding of Items Relied On For Safety (IROFS) flags (indicating an administrative control), the post-maintenance test requirement for safety related equipment (functional test prior to use), and management's expectation for procedure compliance (verbatim). No discrepancies were noted. All operators interviewed readily understood management's expectation to stop work if a question or concern arises, and seek supervisory guidance before proceeding. The supervisors, when questioned by the operators about specific procedure guidance, demonstrated an effective understanding of the process and communication of the information.

HEU and LEU operators successfully demonstrated adequate knowledge of processing operations by simulating performance of various sections of standard operating procedure (SOP) 409, Section 15, "HEU Down-blending Operations," and Section 16, "LEU Down-blending Operations." Both HEU and LEU operators understood the alarm response actions delineated in SOP 409 Sections 15 and 16, Chapter 8, "Abnormal Operation Responses." HEU operators were cognizant of the location and use of the emergency stop (e-stop) and recognized that it placed HEU down-blending operations in a fail-safe condition. HEU and LEU operators were both aware that use of the e-stop required supervisor notification. However, the LEU operators were unsure which of the multiple (four) e-stops to use. The LEU supervisor was asked and unable to determine which LEU operations were affected by the various e-stops. In addition, the inspector noticed that both HEU and LEU e-stops had not been labeled. The issue was discussed with the facility manager who agreed that corrective action was necessary before processing operations commenced. Problem report 2840 was entered into the licensee's corrective action system to ensure the issue was tracked to completion.

The inspector noted that OJT was properly conducted with the trainer present in the [redacted] areas and BPF common training. The inspector also noted that the trainer appropriately emphasized procedure compliance. The inspector also discussed the process with operators and found them to be appropriately knowledgeable of the [redacted] process operation and safety requirements. The inspector observed that the BPF common areas training focused on safety areas such as criticality and radiological controls, and recognition and reporting of unsafe conditions as well as responses to process upsets.

c. Conclusions

Down-blending operators adequately demonstrated proper understanding of processing operations and procedural adherence. HEU operators were aware of abnormal operation response actions. However, the LEU operators and area supervisor were not cognizant of the multiple emergency stop functions nor their effect on system operation. Corrective action was planned by the facility manager.

Licensee supervisors and trainers appropriately supervised OJT for operators in the [redacted] process and the BPF common areas training and emphasized procedural compliance.

4. Fire Protection (TI 2600/06)

a. Inspection Scope

The inspector reviewed fire detection and protection systems in accordance with the license and additional licensee commitments.

[redacted]

[redacted]

b. Observations and Findings

The inspector determined that fire protection and detection equipment was adequately maintained. Portable fire extinguishers were charged to the normal operating zones and no visible damage was noted. Fire hazards were minimized by appropriate housekeeping.

The inspector noted that on June 19, the licensee conducted a successful test of the carbon dioxide (CO_2) fire suppression system for the [redacted] process [redacted]. Although the system remained in service, the test depleted the (CO_2) tank below the required minimum reserve. The inspector verified the licensee maintained the solvent extraction system in a shutdown condition as required by license application section 6.5.3, until the (CO_2) tank was filled to the required level on June 25.

c. Conclusions

Fire protection and detection equipment was adequately maintained or appropriate compensatory measures were employed. Fire hazards were minimized by appropriate housekeeping.

5. Radiation Protection (TI 2600/006)

a. Inspection Scope

The inspector reviewed radiation work permits, radiological surveys, radiological precautions, and general work practices in the process area and in decommissioning and [redacted] areas to verify that work was conducted safely and in compliance with the license.

b. Observations and Findings

During tours of the facility, the inspectors noted that radiological signs, postings, and procedures were properly posted or readily available. The inspectors determined that equipment and devices used to confine and contain radioactive contamination and airborne radioactivity were in proper working condition and that proper personal protective clothing and dosimetry were issued and properly worn. Radiological controls in process and decommissioning areas were adequate. During process area tours, the inspector noted that housekeeping was adequate and emergency egress routes were sufficiently clear of debris. The inspector observed response to off-normal events and noted the use of conservative radiological controls practices to confine contamination and to prevent unnecessary personnel exposure.

[redacted]

c. Conclusions

Radiological control practices met regulatory requirements.

6. Exit Interview

The inspection scope and results were presented to members of the licensee management at various meetings throughout the inspection period and were summarized on July 16, 2004. Although proprietary documents and processes were occasionally reviewed during this inspection, the proprietary nature of these documents or processes has been deleted from part one of this report. No dissenting comments were received from the licensee.

[redacted]

ATTACHMENT

1. PERSONS CONTACTED

Partial List of Licensee's Persons Contacted

N. Brown, Nuclear Safety Engineer
R. Droke, Licensing Director
J. Greene, Environmental Safety Manager
K. Guinn, Vice President and Principal Scientist
P. Koppel, Project Director
M. Moore, Vice President, Safety and Regulatory
J. Parker, Industrial Safety Manager
J. Schreiber, Senior Project Manager
K.D. Schutt, President, General Manager
K. Schutt, Quality Engineer
D. Stewart, Director, Business Process Improvement
G. Tipton, Director, Plant Facilities
A. Vaughn, Director, Fuel Production

2. INSPECTION PROCEDURES USED

TI 2600/006	Safety Operations, Safeguards, Radiological Controls & Facility Support
IP 88010	Operator Training

3. LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED

Item Number	Status	Type	Description

None

4. LIST OF ACRONYMS USED

BLEU	Blended Low Enriched Uranium
BPF	BLEU Preparation Facility
ECC	Emergency Control Center
HEU	High Enriched Uranium
IP	Inspection Procedures
IR	Inspection Report
IROFS	Items Relied on for Safety

[redacted]

[redacted]

LEU	Low Enriched Uranium
NCS	Nuclear Criticality Safety
NFS	Nuclear Fuels Services
NRC	Nuclear Regulatory Commission
OJT	On-The-Job-Training
PARS	Publicly Available Records
SOP	Standard Operating Procedure
SRE	Safety Related Equipment
TI	Temporary Instruction
[redacted]	[redacted]

[redacted]