



UNITED STATES  
NUCLEAR REGULATORY COMMISSION

REGION II  
SAM NUNN ATLANTA FEDERAL CENTER  
61 FORSYTH STREET, SW, SUITE 23T85  
ATLANTA, GEORGIA 30303-8931

July 7, 2006

OI Case No. 2-2005-028  
Event No. 42612

Mr. D. B. Ferguson  
President & CEO  
Nuclear Fuel Services, Inc.  
P. O. Box 337, MS 123  
Erwin, TN 37650

SUBJECT: NRC INSPECTION REPORT NO. 70-143/2006-004

Dear Mr. Ferguson:

This refers to the inspection conducted from April 30, 2006, through June 10, 2006, at the Nuclear Fuel Services, Inc. (NFS) Erwin, Tennessee facility. The purpose of the inspection was to determine whether activities authorized by the license were conducted safely and in accordance with NRC requirements. At the conclusion of the inspection, the findings were discussed with those members of your staff identified in the enclosed report.

Areas examined during the inspection included: Operations, Management Organization and Controls, Emergency Preparedness, Radiation Protection and Strike Contingency Plans. Within these areas, the inspection consisted of selective examinations of procedures and representative records, interviews with personnel, and observation of activities in progress.

Within the scope of the inspection, violations or deviations were not identified.

In addition, enclosed for your information is the synopsis of the Nuclear Regulatory Commission's (NRC) Office of Investigation's (OI) completed report regarding whether NFS personnel willfully recorded incomplete and inaccurate information regarding the transfer of containers of Special Nuclear Material (SNM). OI determined that there was insufficient evidence to substantiate the allegation. We plan no further action with regard to this matter.

By letter dated June 16, 2006, we received your reply to our Notice of Violation which was issued on May 23, 2006. The reply met the requirements of 10 CFR 2.201 and your corrective actions will be reviewed during a future inspection.

D. B. Ferguson

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This letter and its enclosures contain sensitive unclassified information and will not be available for public inspection in the NRC Public Document Room or from the Publicly Available Records (PARS) component of NRC's document system (ADAMS).

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: 1. NRC Inspection Report  
2. OI Synopsis

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

L. Edward Nanney, Director  
Division of Radiological Health  
Tennessee Dept. of Environment & Conservation  
L&C Annex, Third Floor  
401 Church Street  
Nashville, TN 37243-1532

Distribution w/encls: (See page 3)

D. B. Ferguson

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U.S. NUCLEAR REGULATORY COMMISSION

REGION II

Docket No.: 70-143

License No.: SNM-124

Report No.: 70-143/2006-004

Licensee: Nuclear Fuel Services, Inc.

Facility: Erwin Facility

Location: Erwin, TN 37650

Dates: April 30, 2006 - June 10, 2006

Inspectors: S. Burris, Senior Resident Inspector  
C. Taylor, Health Physicist  
M. Crespo, Fuel Facilities Inspector  
W. Gloersen, Senior Fuel Facilities Inspector

Approved by: D. Ayres, Chief  
Fuel Facility Inspection Branch 1  
Division of Fuel Facility Inspection

Enclosure 1

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## EXECUTIVE SUMMARY

Nuclear Fuel Services, Inc.  
NRC Inspection Report 70-143/2006-004

This inspection included observations conducted by the Senior Resident Inspector during normal and off-normal shifts in the area of Plant Operations, Management Organization and Controls, and Radiation Protection. A specialized inspection was conducted by regional inspectors in the areas of Emergency Preparedness and NFS Strike Contingency Plan.

### Plant Operations

- Items relied on for safety reviewed in the uranium recovery area were available to provide their intended safety function (Paragraph 2.a).
- IROFS reviewed in the uranium blend area were available to provide the intended safety function. The licensee had obtained the proper authorizations for the modifications in the solvent extraction area (Paragraph 2.b).

Event No. 42612 concerning the failure of an Oxide Conversion Building (OCB) Criticality Alarm System (CAS) were appropriately reported in the Problem Identification, Resolution, and Correction System (PIRCS) and the investigation of the failure mechanism was immediately initiated.

- The following Temporary Instruction 2600/012 item was reviewed:

Information Notice (IN) 95-051- The inspector reviewed this item and concluded that procedures for maintaining accountability and security of sealed sources were adequate.


### Management Organization and Controls

- Recent management reassignments and duties were consistent with license requirements (Paragraph 3.a).

### Emergency Preparedness

- The staffing for emergency preparedness positions was consistent with license requirements (Paragraph 4).

### Radiation Protection

- Radiation protection and waste management activities were performed safely and in accordance with approved procedures (Paragraph 5).
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Strike Contingency Plan


- The licensee had an adequate strike contingency plan in place and security preparations for the potential strike appeared to be adequate (Paragraph 6.a).

Attachment:

Partial List of Persons Contacted

Inspection Procedures Used

List of Items Opened, Closed, and Discussed





## REPORT DETAILS

### 1. Summary of Plant Status

Most operations were halted prior to the union strike that began May 15, 2006. Limited fuel manufacturing and scrap recovery processes were operated throughout the reporting period to meet inventory requirements. Blended low-enriched uranium (BLEU) oxide conversion activities were stopped due to a loss of the criticality alarm system from a lightning strike. BLEU preparation facility (BPF) operations remained shutdown following the March 6, 2006, spill event. Decommissioning, including processing, packaging, and shipping contaminated soil and debris from burial grounds had been stopped due to staffing issues because of the union strike.

### 2. Plant Operations (Temporary Instruction (TI) 2600/006, Inspection Procedure (IP) 88020)

#### a. Routine Observations, Plant Activities (O3.03); Operating Procedures (O3.06); NCS Training (O3.08)

#### (1) Inspection Scope and Observations


The inspector observed limited activities in the fuel process areas, Building 333, the Oxide Conversion Building (OCB), and the BPF during normal and off-normal operating shifts to evaluate plant safety and compliance with license requirements.

The inspector continued to review modifications and movement associated with a Solvent Extraction (SX) equipment (glove box). The licensee continued to review the system changes on the piping and instrumentation diagrams (P&IDs), items relied on for safety (IROFS), piping modifications, installation and/or replacement of instrumentation to ensure that these changes are incorporated properly.

In accordance with Temporary Instruction (TI) 2600/012, the item associated with Information Notice (IN) 95-051 was reviewed by the inspector and it was concluded that procedures for maintaining accountability and security of sealed sources were adequate.

#### (2) Conclusions

All of the operations activities observed were performed safely and in accordance with approved procedures.



b. Safety Function (O3.02); Maintenance for Safety Controls (O3.07), Configuration Control (O3.04), and Change control (O3.05)

(1) Inspection Scope and Observations

The inspector reviewed a sample of the IROFS listed in the Integrated Safety Analysis (ISA) for the uranium blend area and concluded that the IROFS identified were available and reliable to perform their safety function. The inspector reviewed the change control form for the recent modifications to the solvent extraction area. The inspector noted that all the approvals were obtained prior to starting the equipment with special nuclear material.

(2) Conclusions

IROFS reviewed in uranium blend area were available to provide their intended safety function. The licensee had obtained the proper authorizations for the construction in the "L" area.

c. Followup on Events

(1) Inspection Scope and Observations

The inspector reviewed Event No. 42612 concerning the failure of an OCB CAS to provide an audible evacuation signal. During a routine monthly surveillance test at 11:30 a.m. on May 31, 2006, it was found that the audible evacuation signal would not provide the required plant wide evacuation notification to personnel. The licensee evaluated the events and determined that the issue fell within the 24-Hour reporting requirement and notified the NRC Headquarters Operations Officer on June 1, 2006, at 11:25 a.m. The event was also reported in the licensee's problem identification, resolution, and correction system (PIRCS). The licensee's immediate corrective actions were to secure all movement of SNM within the facility and begin an investigation of the failure mechanism.

(2) Conclusions

This event was appropriately reported in the licensee's problem identification, resolution, and correction system. The immediate corrective actions were adequate to secure all movement of SNM within the facility and begin an investigation of the failure mechanism.



**3. Management Organization and Controls (IP 88005, O5)**

a. Organizational Structure (O5.01), Procedure Controls (O5.02)

The inspector reviewed changes in management roles, responsibilities and functions which became effective on May 15, 2006, due to the Untied Steel Workers strike. Numerous managers were assigned other operational duties and responsibilities, including training activities, in support of future facility startup. The inspector interviewed licensee personnel affected by these changes and verified that all of the personnel interviewed understood the new duties and responsibilities.

b. Conclusions

Management changes/reassignments were consistent with the current plant status and license requirements.

**4. Emergency Preparedness (IP 88050)**

a. Training and Staffing of Emergency Organization (F3.03)

(1) Inspection Scope and Observations

Annual Emergency response training was observed by the inspector to determine if the licensee had provided training to response personnel in accordance with the Emergency Plan. The inspector observed the annual emergency training session, lesson plan and reviewed the attendance sign-in sheets. At the end of the training, a quiz was given to those individuals who participated. The staffing for the emergency preparedness positions was reviewed. Replacement personnel and their training for recently retired personnel were reviewed.

(2) Conclusions

The licensee maintained an emergency response training program which provided instructions to those individuals expected to implement the Emergency Plan. The staffing for emergency preparedness positions was adequate.

b. Drills and Exercises (F3.05)

(1) Inspection Scope and Observations

The inspector observed a quarterly drill conducted on May 5, 2006. The drill exercised the Emergency Operations Center (EOC), radiation staff, onsite fire brigade and the offsite ambulance and hospital support. The quarterly drill was effective in testing the

overall Emergency Plan. The emergency coordinator used the drill as a hands-on training opportunity for the participants. A critique and corrective action plan was completed and reviewed after the drill.

(2) Conclusions

The licensee conducted a quarterly drill on May 5, 2006, that was observed by the inspector. The drill was adequate and exercised the EOC, radiation staff, fire brigade and offsite support agencies.

5. **Radiation Protection (TI 2600/006, IP 83822)**

a. Inspection Scope and Observations

The inspection identified the following aspects of the licensee programs as outlined below:

BLEU Project

The BPF was not operating during the inspection, however, routine health physics surveys were being performed. The OCB was shutdown due to criticality alarm problems.

Radiation Work Permits (RWPs) and surveys were posted and being maintained and performed as required. Instruments and respiratory protection equipment were maintained as required for worker use. Contamination limits were maintained according to procedural requirements.

Waste Management - NFS and BLEU

The licensee effectively maintained liquid effluent concentrations below the limits specified in the license and 10 CFR Part 20.

The OCB effluent processing building continued to operate to remove contaminants from the process via the in plant scrubber system. OCB management was working to restore the CAS to an operable condition which would allow them to process excess waste water from the scrubber system.

b. Conclusions

Radiation protection and waste management activities were performed safely and in accordance with approved procedures.



## 6. **Strike Contingency Plan (IP 92709)**

### a. Adequacy of Strike Contingency Plan

#### (1) Inspection Scope and Observations

The inspector determined the adequacy of the licensee's strike contingency plans and if these plans had been reviewed by the facilities safety review committees. In addition, the inspector reviewed security preparations for the potential strike.

The inspector reviewed the licensee's strike contingency plan and observed a safety committee meeting discussing the plan. The plan organized as a functional checklist identified critical areas such as Radiation Safety, Emergency Preparedness, Industrial Health and Safety, Fuel Operations, Security, Training, and Maintenance. Each manager was responsible for a specific task in his assigned area. The inspector conducted interviews with managers and supervisors in the above referenced critical areas. The inspector determined that managers had reviewed the plan and were currently completing those tasks assigned to them. The managers interviewed had identified replacement workers and shifts that would be necessary to carry out operations in a shutdown mode. In addition, the managers were coordinating with the training department to train individuals who would be working in various areas.

The inspector determined that approximately 350 hourly workers out of a total 700 employees would be affected by the potential strike. The inspector determined that the job classifications for those individuals were radiation technicians, laboratory technicians, plant clerks, yard and maintenance technicians.


The inspector discussed the licensee's security preparations for the potential strike. The inspector determined that an augmented security force had been contracted for potential strike activities at the boundary of the facility.

#### (2) Conclusions

The inspector determined that the licensee had developed an adequate strike contingency plan and had made security preparations for the potential strike.

## 7. **Exit Meeting**

The inspection scope and results were presented to members of the licensee management at various meetings throughout the inspection period and were summarized on June 9, 2006. No dissenting comments were received from the licensee.





**ATTACHMENT**

**1. PERSONS CONTACTED**

Partial List of Licensee's Persons Contacted


D. Culberson, Acting Licensing Manager  
R. Droke, Licensing & Compliance Director/Acting Safety Director  
J. Nagy, Senior License & Regulatory Compliance Officer  
K. Schutt, Senior Vice President  
R. Shackelford, Nuclear Criticality Safety Manager  
T. Sheehan, Director HEUO  
M. Warren, Security Director  
M. Tester, Senior Manager, Radiation Control  
J. Wheeler, ISA Manager

**2. INSPECTION PROCEDURES USED**

TI 2600/006	Safety Operations, Safeguards, Radiological Controls & Facility Support
IP 83822	Radiation Protection
IP 88005	Management Organization and Controls
IP 88020	Plant Operations
IP 88050	Emergency Preparedness
IP 92709	Strike Contingency Plan

**3. LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED**

There were no items identified as opened or closed during inspection period.



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SYNOPSIS

This investigation was initiated by the U.S. Nuclear Regulatory Commission (NRC), Office of Investigations (OI), Region II (RII), on June 30, 2005, to determine whether Nuclear Fuel Services (NFS) personnel willfully submitted incomplete and inaccurate information to the NRC regarding the transfer of containers of Special Nuclear Material (SNM).

Based on the evidence developed during this investigation, OI:RII did not substantiate that NFS personnel willfully submitted incomplete and inaccurate information to the NRC regarding the transfer of containers of SNM.

APPROVED FOR RELEASE ON 7/6/08 BY C. MONTGOMERY

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