



UNITED STATES
NUCLEAR REGULATORY COMMISSION

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

August 14, 2006

EA-06-129

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

SUBJECT: NRC INSPECTION REPORT NO. 70-143/2006-009

Dear Mr. Ferguson:

This refers to the inspection conducted from June 11, 2006, through July 22, 2006, at the Nuclear Fuel Services 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, Radiation Protection, Environmental 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.

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.

This letter and the enclosed report 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).

D. B. Ferguson, Jr.

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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

Enclosure: NRC Inspection Report

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

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U.S. NUCLEAR REGULATORY COMMISSION

REGION II

Docket No.: 70-143

License No.: SNM-124

Report No.: 70-143/2006-009

Licensee: Nuclear Fuel Services, Inc.

Facility: Erwin Facility

Location: Erwin, TN 37650

Dates: June 11, 2006 - July 22, 2006

Inspectors: S. Burris, Senior Resident Inspector
G. Smith, Resident Inspector
M. Crespo, Fuel Facilities Inspector

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

Enclosure



EXECUTIVE SUMMARY

Nuclear Fuel Services, Inc.
NRC Inspection Report 70-143/2006-009

This inspection included observations conducted by the Resident Inspectors during normal and off-normal shifts in the area of Plant Operations, Management Organization and Controls, and Radiation Protection. A specialized inspection and review of documentation was conducted by regional inspectors in the areas of Environmental Protection and followup on NFS Strike Contingency Plan.

Plant Operations

- All of the operations of post BPF Phase 1 activities observed were performed safely and in accordance with approved procedures (Paragraph 2.a).
- Solvent extraction equipment changes in the BLEU Complex were properly controlled and documented. Review of configuration control and SRE changes in the BPF facility indicated that the licensee had obtained the proper authorizations and approvals for the changes in the solvent extraction area (Paragraph 2.b).


Management Organization and Controls

- Management changes and reassignments were consistent with the current plant status and license requirements (Paragraph 3.a).

Radiation Protection

- Radiation protection activities were performed safely and in accordance with approved procedures (Paragraph 4.a).

Environmental Protection

- The licensee implemented the environmental monitoring program in accordance with license requirements. No new additional environmental contamination problems were noted (Paragraph 5.a).
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Strike Contingency Plan


- The licensee strike contingency plan is in place and continued security operations for the on-going strike appeared to be adequate (Paragraph 7.a).

Attachment:

Partial List of Persons Contacted

Inspection Procedures Used

List of Items Opened, Closed, and Discussed





REPORT DETAILS

1. Summary of Plant Status

Fuel manufacturing, training activities, and scrap recovery processes were operated throughout the reporting period. Blended low-enriched uranium (BLEU) oxide conversion activities operated normally during the inspection period. BLEU Preparation Facility (BPF) operations were shut down following the March 6, 2006, spill event. NRC performed Phase 1 (Solvent Extraction, Low Enriched Uranium and Utilities) of an Operational Readiness Review for BPF during the week of June 26, 2006. Decommissioning, including processing, packaging, and shipping contaminated soil and debris from burial grounds has 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 in Building 302/303, Building 333, and the Oxide Conversion Building (OCB) during normal and off-normal operating shifts to evaluate plant safety and compliance with license requirements.

The inspector continued to review modifications and preparations for operations associated with a Solvent Extraction (SX) evaporator heater control panel equipment change out. The licensee replaced these control panels due to under sizing issues with the original panel which lead to overheating and erratic control problems. The inspectors observed post modification testing of the evaporator columns and heating control units. The inspectors observed the licensee's successful completion of the heater control tuning operations.

The inspectors observed and evaluated the licensee's performance during a transfer of approximately 14,000 liters of low enriched uranium (LEU) in the uranyl nitrate form from the BPF hold tank to the uranyl nitrate building located in the BLEU facility. This activity was conducted in accordance with procedure SOP 409, Section 16, "LEU Downblending Operations," Rev. 9. The inspectors also performed a walkdown of the piping to verify integrity prior to the transfer.



(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 licensee experienced level control problems with first and second Pass Solvent Extraction Strip Columns SRE Level Control Valve operation as documented in PIRCS #6647. These valves, along with the associated pumps were designated as SRE items. The original installed float valves and the subsequently installed density control sensors would not properly control the interface levels in these columns which could have led to overflow problems (red oil issue). The licensee implemented compensatory measures by manually controlling the strip column levels below the level of overflow concern (143 inches) and eliminated the SRE requirements for the float valves (N333FLOWFSL2A12 & N333FLOWFSL2B12) and associated pumps (N333XPUMPMT2A12 & N333XPUMPMT2A12) under Letter Of Authorization (LOA) 333 USVXTR, Rev. 12. Operation of the system under this manual control function will be reviewed when the system is restarted after the shutdown period.

The inspector reviewed a sample of 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. The inspectors verified these changes were properly identified and/or documented in the system drawings and procedures. Changes to process equipment were properly evaluated and documented in accordance with the licensee's configuration control program.

(2) Conclusions

Solvent extraction equipment changes were properly controlled and documented. The licensee had obtained the proper authorizations and approvals for the changes in the solvent extraction area.

3. Management Organization and Controls (IP 88005)

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

The inspector continued to review changes in management roles, responsibilities and functions which became effective on May 15, 2006, due to the United Steel Workers strike. Numerous managers were assigned other operational duties and responsibilities, including operations training activities, in support of future facility startup and operation. 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. 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

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

The OCB effluent processing building continued to operate to remove contaminants from the process via the in-plant scrubber system.

Quarterly RWP Review

The inspectors reviewed RWP #11606, that involved the visual inspection and certification of the internals of a uranyl nitrate tanker truck by an approved offsite ASME certified inspector. The inspectors interviewed workers and verified that the appropriate radiological controls and precautions were adequately implemented. The inspectors also reviewed the associated work order #NFS-WST-024 and the confined space entry permit #641 and verified compliance with confined space requirements.

[REDACTED]

Review of Previous Issues

(Open) Apparent Violation (AV) 70-143/2006-009-01: NRC communicated to the licensee by letter dated May 31, 2006, that URI 70-143-2005-004-02 (failure to use required respiratory equipment) was an apparent violation (AV) and is opened for additional NRC followup and corrective action review (EA-06-129).

(Closed) Unresolved Item (URI) 70-143/2005-004-02: Based on information provided in NRC letter dated May 31, 2006 URI 70-143-2005-004-02 is considered closed.

b. Conclusions

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

5. Environmental Protection (IP 88045)

a. Program/Procedure Changes, Internal Audits and Inspections, Quality Control of Analytical Measurements, Quality Control Records, Monitoring Stations, Monitoring Program Reports

(1) Scope and Observations

The licensee's environmental program was reviewed to verify that commitments were met and the impact on the environment and the public was minimal. The inspector reviewed procedures for the collection of soil, sediment, vegetable, surface water, and environmental air station samples. The procedures provided proper guidance for the collection and control of these environmental samples. The inspector also reviewed the management changes that had occurred due to the strike. No issues were noted with the management changes since an experienced environmental protection manager was placed in charge.

The inspector reviewed the licensee's analytical reports for the environmental program. Monitoring results for soil, sediment, air, and vegetation for calendar year 2005 were reviewed to assess the radiological impact to the environment due to plant operations. The inspector noted that the appropriate isotopic analyses were performed for any measurements that were above the action levels. No issues were noted. The inspector also observed the collection of sample media from the air monitors, vegetation, surface water and sediment. The inspector observed the condition of selected environmental monitoring locations around the perimeter of the facility. No significant problems were noted. The inspector determined that the licensee's environmental samples were collected at the required frequency.

The inspector also reviewed the most recent quality assurance audits of the

[REDACTED]

environmental protection program. The inspector noted that the audits were of sufficient depth and appropriately targeted. The audit findings and recommendations were documented, assigned and tracked.

(2) Conclusions

The licensee implemented the environmental monitoring program in accordance with license requirements. No additional environmental contamination problems were noted.

6. Safety of Uranium Hexafluoride Cylinders at Fuel Cycle Facilities (TI 2600/013)

a. Scope and Observations

The inspector reviewed the licensee's use of uranium hexafluoride (UF₆) cylinders on site. The use of UF₆ cylinders was limited to small sample size cylinders (less than 7 kilograms of material) for research purposes. The UF₆ cylinders present in the facility are kept in storage and once used, are disposed of. Therefore, the application of the information notices regarding UF₆ cylinders did not apply. Also, the use of the cylinders (in which the most recent case was several years ago) was noted to be adequate.

b. Conclusions

No further review for this TI is necessary.

7. Strike Contingency Plan (IP 92709)

Adequacy of Strike Contingency Plan

a. Inspection Scope and Observations

The inspector continued to followup on the licensee's implementation of their strike contingency and response plan, including security preparations and response involvement for the strike.

The inspector reviewed the licensee's ongoing actions in response to the continuing strike. Observation of vehicle access and personnel egress from the site did not identify any problems between NFS staff and the picket line. The inspector interviewed managers and supervisors in critical areas of the facility to ensure that they were currently completing those tasks assigned to them as identified in the Strike

Contingency Plan. The licensee had implemented their process for replacement workers and shifts necessary to carry out operations in the current shutdown mode and upcoming resumption of operations. In addition, the managers have completed a large majority of the previously identified operator training for the Navy Fuel Operations.

The inspector observed numerous activities and determined that personnel assignments have been properly and adequately performed.

The inspector discussed the licensee's continuing security preparations during the strike, and has found that, so far, preparations have been effective in providing site control and security.

b. Conclusions

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

8. 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 July 24, 2006, and July 31, 2006. No dissenting comments were received from the licensee.

ATTACHMENT

1. PERSONS CONTACTED

Partial List of Licensee's Persons Contacted

R. Bond, Sr. Project Director, BPF
R. Droke, Licensing & Compliance Director/Acting Safety Director
D. Ferguson, President & CEO
G. Hazelwood, Engineering Director
P. Johnson, V.P., Applied Technology
N. Kenner, Training Manager
M. Moore, V.P., Safety & Regulatory
D. Rogers, BPF Manager
K. Schutt, Senior Vice President
R. Shackelford, Nuclear Criticality Safety Manager
T. Sheehan, Director HEUO
J. Wheeler, ISA Manager
R. Wise, V.P., Fuel Production

2. INSPECTION PROCEDURES USED

TI 2600/006 Safety Operations, Safeguards, Radiological Controls & Facility Support
TI 2600/013 Safety of Uranium Hexafluoride Cylinders at Fuel Cycle Facilities
IP 83822 Radiation Protection
IP 88005 Management Organization and Controls
IP 88020 Plant Operations
IP 88045 Environmental Protection
IP 92709 Strike Contingency Plan

3. LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED

70-143/2006-009-01	Open	AV	Failure to utilize required respiratory protection (ref: EA-06-129).
70-143/2005-004-02	Closed	URI	Failure to utilize required respiratory protection (ref: EA-06-129).