



UNITED STATES
NUCLEAR REGULATORY COMMISSION

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

August 27, 2007

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. 70-143/2007-005 AND NOTICE OF VIOLATION

Dear Mr. Ferguson:

This refers to the inspection conducted from June 17, 2007 through July 28, 2007, 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: Safety Operations, Radiological Controls, Facility Support, Decommissioning, and Safeguards. Within these areas, the inspection consisted of selective examinations of procedures and representative records, interviews with personnel, and observation of activities in progress.

Based on the results of this inspection, the NRC has determined that a violation of NRC requirements occurred. The violation was evaluated in accordance with the NRC Enforcement Policy. The current Enforcement Policy is available on the NRC's Web site at www.nrc.gov. The violation is cited in the enclosed Notice of Violation (Notice) and is being cited in the Notice because it was identified by the NRC.

You are required to respond to this letter and should follow the instructions specified in the enclosed Notice when preparing your response. For your consideration, NRC Information Notice 96-28, "SUGGESTED GUIDANCE RELATING TO DEVELOPMENT AND IMPLEMENTATION OF CORRECTIVE ACTION," is available on the NRC's Web site. The NRC will use your response, in part, to determine whether further enforcement action is necessary to ensure compliance with regulatory requirements.

[REDACTED]

If you contest the violation, you should provide a response within 30 days of the date of this inspection report, with the basis for your denial, to the Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington DC 20555-0001, with copies to the Regional Administrator, Region II, and the Director, Office of Enforcement, United States Nuclear Regulatory Commission, Washington, DC 20555-0001, and the NRC Resident Inspector at your facility.

By letter dated July 4, 2007, we received your reply to our Notice of Violation 70-143/2007-003-01, which was issued on March 10, 2007. 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).

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

Sincerely,

/RA/

Alphonsa Gooden, Acting Chief
Fuel Facility Inspection Branch 1
Division of Fuel Facility Inspection

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

Enclosures: 1. Notice of Violation
2. NRC Inspection Report

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)

[REDACTED]

D. Ferguson, Jr.



Distribution w/encls:

- D. Ayres, RII
- M. Crespo, RII
- S. Burris, RII
- G. Smith, RII
- G. Wertz, RII
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- M. Lamastra, NMSS
- nmed@inl.gov

*see previous concurrence

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ADAMS: X Yes ACCESSION NUMBER: _____

OFFICE	RII:DFFI	RII:DFFI	RII:DFFI	RII:CIP			
SIGNATURE	via email 8/24	via email 8/24	MC 8/22	via email 8/15	SB 8/24		
NAME	SBurris*	GSmith*	MCrespo*	WGloersen*	DClassifier*		
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NOTICE OF VIOLATION

Nuclear Fuel Services, Inc.
Erwin, Tennessee

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

During an NRC inspection conducted from June 18, through June 22, 2007, a violation of NRC requirements was identified. In accordance with the NRC Enforcement Policy, the violation is listed below:

Safety Condition S-1 of Special Nuclear Materials License No. SNM-124, authorizes the use of licensed materials in accordance with the statements, representations, and conditions in the License Application and Supplements.

Section 2.7 of the License Application, "Procedures," requires SNM operations and safety function activities to be conducted in accordance with written procedures.

Section 5.2 of procedure NFS-DC-027, Revision 3, "Quality Assurance Plan For Environmental Sampling Projects," states that "all samples will be collected, controlled, and analyzed in accordance with written instructions as defined in workplans, procedures, special work instructions and/or letter of authorizations."

Contrary to the above, on June 20, 2007, environmental samples were not being collected and controlled in accordance with written instructions as defined in workplans, procedures, special work instructions and/or letter of authorizations. No NFS approved procedures were in use or available for the final status survey samples pulled for the remediated North Site.

This is a Severity Level IV violation (Supplement VI).

Pursuant to the provisions of 10 CFR 2.201, Nuclear Fuel Services, Inc. is hereby required to submit a written statement or explanation to the U.S. Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington, D.C. 20555 with a copy to the Regional Administrator, Region II, and a copy to the NRC Senior Resident Inspector at the facility that is the subject of this Notice, within 30 days of the date of the letter transmitting this Notice of Violation (Notice). This reply should be clearly marked as a "Reply to a Notice of Violation" and should include for each violation: (1) the reason for the violation, or, if contested, the basis for disputing the violation or severity level, (2) the corrective steps that have been taken and the results achieved, (3) the corrective steps that will be taken to avoid further violations, and (4) the date when full compliance will be achieved. Your response may reference or include previously docketed correspondence, if the correspondence adequately addresses the required response. If an adequate reply is not received within the time specified in this Notice, an order

Enclosure 1

[REDACTED]

[REDACTED]

or a Demand for Information may be issued as to why the license should not be modified, suspended, or revoked, or why such other action as may be proper should not be taken. Where good cause is shown, consideration will be given to extending the response time.

If you contest this enforcement action, you should also provide a copy of your response to the Director, Office of Enforcement, United States Nuclear Regulatory Commission, Washington, D.C. 20555-0001.

Your response will be considered sensitive information and will not be made available for public inspection in the NRC Public Document Room or in the NRC's document system (ADAMS).

In accordance with 10 CFR 19.11, you may be requested to post this Notice within two working days.

Dated this 27th day of August, 2007.

[REDACTED]

U.S. NUCLEAR REGULATORY COMMISSION

REGION II

Docket No.: 70-143

License No.: SNM-124

Report No.: 70-143/2007-005

Licensee: Nuclear Fuel Services, Inc.

Facility: Erwin Facility

Location: Erwin, TN 37650

Dates: June 17, 2007 - July 28, 2007

Inspectors: S. Burris, Senior Resident Inspector
G. Smith, Resident Inspector
W. Gloersen, Senior Project Inspector
M. Crespo, Senior Fuel Facilities Inspector
J. Foster, Fuel Facilities Inspector (In-Training)

Approved by: A. Gooden, Acting Chief
Fuel Facility Inspection Branch 1
Division of Fuel Facility Inspection

Enclosure 2



EXECUTIVE SUMMARY

Nuclear Fuel Services, Inc.
NRC Inspection Report No. 70-143/2007-005

This inspection included observations conducted by the resident and regional inspectors during normal and off-normal shifts in the following areas within the fuel manufacturing and blended low-enriched uranium (BLEU) preparation facility (BPF) operations area: safety operations, radiological controls, facility support, decommissioning, and safeguards.

Safety Operations

- All of the operations activities observed were performed safely and in accordance with approved procedures (Paragraph 2.a).
- Transient combustibles were controlled and minimized (Paragraph 2.b).
- Criticality station limit cards were followed by licensee personnel (Paragraph 2.c).


Radiological Controls

- Radiation work permits were adequately developed and implemented in order to ensure personnel exposures were kept as low as reasonably achievable (Paragraph 3.a).

Facility Support

- Maintenance activities in the process areas were adequately controlled and implemented (Paragraph 4.a).
- The licensee implemented their corrective action program in a satisfactory fashion such that their noted deficiencies were identified, evaluated, and resolved (Paragraph 4.b).

Decommissioning

- The licensee performed the sampling activities safely. However, a violation was identified for the failure of the licensee to implement the decommissioning final status survey process using approved procedures. In addition, the licensee suspended sampling activities to ensure that subsequent final status survey activities would be controlled in accordance with the licensee's quality assurance plan for environmental sampling (Paragraph 5.a)
- 

Safeguards

- The facility conducted a force on force exercise in a safe and effective manner (Paragraph 6.a)

Attachment:

Partial List of Persons Contacted

Inspection Procedures Used

List of Items Opened, Closed, and Discussed



[REDACTED]

REPORT DETAILS

1. Summary of Plant Status

Fuel manufacturing, BLEU Preparation Facility (BPF), 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. Decommissioning, including processing, packaging, and shipping contaminated soil and debris from burial grounds, continued under normal operations. Final status sampling activities were commenced this period.

2. Safety Operations

a. Plant Operations (Inspection Procedure (IP) 88135 and IP 88020)

(1) Inspection Scope and Observations

The inspectors performed tours of the fuel process areas, BPF, vaults, storage areas and waste treatment facility. The inspectors verified that the licensee was in compliance with approved procedures, staffing was adequate for the level of activities, operations personnel were attentive to their duties and responsibilities, operations of the facility and equipment was in compliance with the appropriate station limits and verified that safety controls were being implemented and controlled. Both direct and indirect communications were monitored between supervision and operators to ensure that safety activities were being performed in accordance with design and administrative controls. Adequate oversight was provided by supervision and the supervisors were aware of the current status of the facility and equipment. The inspectors verified procedural compliance within the operating areas. The inspectors verified that evacuation paths were not blocked due to inadequate housekeeping.

The inspectors performed a detailed walkdown of the 500 area system. The inspectors reviewed the Integrated Safety Assessment (ISA) to verify that assumptions were properly implemented in the field via engineered and administrative control mechanisms. The inspectors also verified that operating personnel were knowledgeable of these assumptions and controls, and selected components matched the as-built configuration and process drawings. Operators were knowledgeable of requirements associated with each of the items relied on for safety (IROFS), and the IROFS were properly functioning. The inspectors verified that no external hazards existed which could degrade system performance.

The inspectors performed a detailed walkdown of area 100/200 [REDACTED]. [REDACTED]. As part of this walkdown the inspectors reviewed the criticality safety analysis to verify assumptions and controls were properly implemented in the field via engineered and administrative controls. The inspectors also verified that personnel were aware of these assumptions and controls. The inspectors sampled various

[REDACTED]

[REDACTED]

components and verified the as-built configuration matched the process drawings. IROFS were verified to be properly functioning and operators were knowledgeable of requirements associated with these IROFS. The inspectors also verified that there were no external hazards that could degrade system performance.

The inspectors performed walkdowns of the BPF, Naval fuel process areas, storage areas, vaults, and the waste treatment facility. The inspectors verified that there was adequate staffing and that operators were attentive to their duties. The inspectors also verified that activities were performed in compliance with procedures and station limits, and that safety controls were in place and were being maintained by supervision. The inspectors verified procedural compliance within the operating areas. The inspectors walked down sections of the standard operating procedures and verified that IROFS were identified and operable in each of the areas. No issues were noted.

The inspectors observed modifications of equipment as well as the documentation and controls used to support these modifications in order to verify that: 1) work documents reflected the proper approvals and reviews of the proposed activities, 2) personnel were properly implementing these changes as designed and 3) management oversight was evident during the work activities. Proper controls (Work Request, Lockout/Tagout, Special Work Permits) were in place and implemented during the work activities.

The inspectors reviewed operations across the facility and verified procedural compliance. The inspectors walked down sections of the standard operating procedures and verified that IROFS were identified and present in the 100, 200, 300, 600, 800 and 900 areas of [REDACTED]. No issues were noted.

(2) Conclusions

All of the operations activities observed were performed safely and in accordance with approved procedures. Review of the process work activities, identified documents, and closure packages were found to be acceptable with no identified issues. All of the operations activities observed were performed safely and in accordance with approved procedures.

b. Fire Protection (IP 88135)

(1) Inspection Scope and Observations

During daily plant tours, the inspectors verified that transient combustibles were being adequately controlled and minimized.

(2) Conclusions

Transient combustibles were adequately controlled.

[REDACTED]

c. Criticality Safety (IP 88135)

(1) Inspection Scope and Observations

During daily operating area tours, the inspectors verified various criticality controls to be in place. The station limit card requirements were observed by personnel. Containers were adequately controlled in order to minimize criticality hazards. The inspectors sampled a number of IROFS to verify their operability. Operators were knowledgeable of the IROFS' requirements. IROFS were adequately identified in the field as well as on plant controlled drawings.

(2) Conclusions

Licensee criticality controls were adequately followed by licensee personnel.

3. **Radiological Controls**

. Radiation Protection (IP 88135)

a. Inspection Scope and Observations

The inspectors reviewed Radiation Work Permit (RWP) 07-09-019. This RWP dealt with a pump change out in Area 200 [REDACTED]. The inspectors verified that licensee personnel complied with the requirements of the RWP and that job description, contamination levels, radiation levels, dosimetry, and protective clothing were adequately addressed by the RWP. The inspectors noted that the RWP was prominently posted and readily available for operator review and observation.

b. Conclusions

The licensee complied with RWP requirements and ensured dose was maintained as low as reasonably achievable (ALARA).

4. **Facility Support**

a. Maintenance/Surveillance (IP 88135)

(1) Inspection Scope and Observations

The inspectors evaluated the licensee's maintenance activity associated with a pump replacement in Area 200 [REDACTED]. The pump was replaced under Work Request (WR) #116942. The inspectors verified that the pump was adequately locked out prior to maintenance in accordance with the lockout/tagout sheet #P-2676. The workers demonstrated sound work practices while working within a potentially contaminated area. No issues were identified with this associated activity.

The inspectors performed an assessment of the maintenance and surveillance activities to ensure that IROFS and other safety controls were in place and available to perform their safety function when needed. These assessments included a review of work control documents, permits, and other required controls.

Through interviews with personnel, observation of on-going activities, and discussions with the licensee, the inspectors determined that procedures associated with operations and safety management systems were reviewed in the appropriate time frame and approved by the appropriate management. The inspectors verified that changes to procedures were properly reviewed by the appropriate level of management and were performed at the designated frequency. The inspectors verified that the appropriate safety management personnel were included in the review and approval of procedure changes. The inspectors found no examples of outdated procedures during the inspection.

The inspectors attended selected meetings and reviewed the most recent minutes from various Safety & Safeguard Review Council (SSRC) meetings. The inspectors found that the required disciplines (e.g. Safety, Security, Material Control and Accounting Management, Production, etc.) were represented in the meetings. The inspectors found that the items reviewed were given appropriate consideration and management attention. No findings of significance were identified.

(2) Conclusions

The inspectors determined that the licensee adequately performed maintenance and sufficiently documented any identified adverse condition. The licensee conducted maintenance activities in accordance with plant procedures.

b. Management Organization and Controls (IP 88135)

(1) Inspection Scope and Observations

The inspectors reviewed the licensee's Problem Identification, Resolution, and Correction System (PIRCS) entries to ensure that items adverse to requirements and quality were being identified and tracked to closure. Those items reviewed were being properly identified, reviewed and tracked to completion.

Personnel changes were implemented throughout the inspection period due to contract requirements for shift preferences. The inspectors verified that these personnel changes were performed with due diligence with regard to qualification and training requirements for these reassignments. No issues were identified during this assessment.

[REDACTED]

The inspectors performed a daily review of the PIRCS. This review included an evaluation of all problem reports to ensure that NFS sufficiently tracks known deficiencies. This review also considered whether or not the appropriate corrective actions had been taken and whether an adequate evaluation had been performed for the identified problems. The inspectors also verified that the licensee adequately evaluated the extent of condition for all issues.

(2) Conclusions

The inspectors determined that NFS adequately implemented their corrective action program as described in NFS-GH-922, "The NFS Problem Identification, Resolution, and Correction System (PIRCS)," Rev. 6.

Returning personnel were being appropriately trained and qualified as required by license and procedure requirements. The inspectors will closely monitor the effectiveness of the PIRCS program to properly identify all issues of concern and verify that the results were documented and conveyed to management. The inspectors determined that the licensee adequately implemented the SSRC.

5. Decommissioning (IP 88104)

Final Status Survey Sampling

a. Inspection Scope and Observations

The inspectors reviewed the licensee's initiation of the final status survey sampling project, which had been contracted to a third party contractor. In order to meet the final status survey goal, release of the remediated North Site, the contractors had developed a new subsurface sampling technique for the licensee. This technique was approved for use in License Amendment 69. The technique involved the use of a boring machine that would extract up to 10 meter deep bore-hole cores from below the surface of the remediated areas. The cores would then be divided based on depth and analyzed at NFS for the gamma radiation content. A small percentage of the samples would also be shipped to an off-site laboratory to perform alpha spectroscopy measurements. The results of the analysis would determine if more remediation is required.

The inspectors noted adequate oversight of the contractor's actions in the field. Radiation technicians and health physics representatives were present throughout the sample boring process. However, the inspectors also noted that the activities of the contractors were not being implemented through procedures approved by the licensee. According to the licensee's quality assurance plan for environmental sampling procedure (NFS-DC-027, Revision 3), all samples must be collected, controlled, and analyzed in accordance with written instructions as defined in workplans, procedures,

[REDACTED]

special work instructions and/or letter of authorizations. Based on these observations, the inspectors determined that the failure to implement environmental sampling according to approved NFS procedures constitutes violation (VIO) 70-143/2007-005-01: Failure to have approved procedures prior to performing sampling.

In addition to the lack of approval of the implementing procedures, the contractors did not demonstrate adequate knowledge of their own procedures. Inconsistencies were noted in procedure implementation ranging from modifications to the sample mixing times to changing of the duties of the radiation technicians. Also, the contractors were not completing the sample entry forms in their entirety and the contractors' chain of custody process did not meet the licensee's requirements.

The inspectors attempted to review the licensee's quality assurance (QA) of the project and discovered that the QA department had not been promptly notified of the upcoming project due to an error in paperwork. QA audits were in the process of being scheduled during the course of the inspection. Once these observations were communicated to the licensee's management, the licensee decided to stop all sampling activities to ensure that the project was performed according to NFS procedures and appropriate QA audits were performed. The licensee indicated that all samples generated during the inspection were to be destroyed and performed again according to approved procedures.

b. Conclusions

The licensee performed the sampling activities safely. However, a violation was identified for the failure of the licensee to implement the decommissioning final status survey process using approved procedures. In addition, the licensee suspended sampling activities to ensure that subsequent final status survey activities would be controlled in accordance with the licensee's quality assurance plan for environmental sampling.

6. Safeguards

Physical Protection (IP 88135)

a. Inspection Scope and Observations

The inspectors observed an annual force-on-force drill conducted from July 10 to July 12, 2007. This drill was also observed by Commissioner Jascko on July 11. The inspectors attended the post-drill critiques as well as various pre-drill tabletop and safety meetings. The licensee's critique adequately addressed various issues identified during the drill scenarios. The inspectors verified that the licensee exhibited satisfactory command, control, and communications during the drill scenarios.

b. Conclusions

NFS conducted a force-on-force security drill in a safe and effective manner.

7. **Exit Meeting**

The inspection scope and results were presented to licensee management at various meetings throughout the inspection period and were summarized on July 30, 2007. No dissenting comments were received from the licensee.

[REDACTED]

ATTACHMENT

1. PERSONS CONTACTED

Partial List of Licensee's Persons Contacted

S. Barron, Emergency Preparedness Manager
R. Crowe, Corrective Actions Program Manager
R. Droke, Licensing & Compliance Director/Acting Safety Director
B. Faidley, Building Manager, Fuel Production
J. Green, Decommissioning Supervisor
T. Lindstrom, Executive Vice President, HEU Operations
M. Moore, Vice President, Safety & Regulatory
J. Nagy, Senior Licensing & Regulatory Compliance Officer
J. Parker, Industrial Safety Manager
R. Rice, Radiation Monitoring Manager
D. Rogers, Building Manager, BPF Production
S. Sanders, Training Manager
A. Vaughan, Fuel Production Director
M. Warren, Security Director
J. Wheeler, Licensing & ISA Manager

2. INSPECTION PROCEDURES USED

IP 88135 Resident Inspector Program for Category 1 Fuel Cycle Facilities
IP 88104 Decommissioning Inspection Procedure for Fuel Cycle Facilities
IP 88020 Operational Safety

3. LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED

<u>Item</u>	<u>Status</u>	<u>Description</u>
70-143/2007-005-01	Open	VIO - Failure to have approved procedures prior to performing sampling (Paragraph 5).
70-143/2005-007-04	Closed	URI - Failure to conduct vehicle search (closed as EA-06-182 in Inspection Report 2007-402).

