March 11, 2004

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

SUBJECT: INSPECTION REPORT NO. 70-143/2004-201 AND NOTICE OF VIOLATION

Dear Mr. Schutt:

The U.S. Nuclear Regulatory Commission (NRC) conducted a routine announced criticality safety inspection at your facility in Erwin, Tennessee, from February 23 through 27, 2004. The purpose of the inspection was to determine whether activities involving special nuclear material (SNM) were conducted safely and in accordance with NRC regulatory requirements. An exit meeting was held at the conclusion of the inspection on February 27, 2004. The inspection observations and findings were discussed with members of your staff.

The inspection which is described in the enclosure, focused on: 1) the most hazardous activities and plant conditions; 2) the most important controls relied on for safety; and 3) the principal management measures for ensuring controls are capable, available, and reliable to perform their function relied on for safety. The inspection consisted of facility walkdowns, selective examinations of relevant procedures and records, examinations of safety-related equipment, interviews with plant personnel, and observations of plant conditions and activities in progress. Throughout this inspection, observations were discussed with your managers and staff.

Based on the results of the inspection, the NRC has determined that a Severity Level IV violation of NRC requirements occurred. The violation was evaluated in accordance with the "General Statement of Policy and Procedure for NRC Enforcement Actions" (Enforcement Policy), NUREG-1600. The current Enforcement Policy is included on the NRC's web site at www.nrc.gov; select What We Do, Enforcement, then Enforcement Policy. The violation is being cited in the enclosed Notice of Violation (Notice) as a Severity Level IV violation, and the circumstances surrounding it are described in detail in the subject inspection report. The violation is being cited in the Notice because it was identified by the NRC during the inspection. The violation being cited as a Severity Level IV violation is the failure to control six greater-than- [redacted] plastic bags in the [redacted].

You are required to respond to this letter and should follow the instructions specified in the enclosed Notice of Violation when preparing your response. The NRC will use your response, in part, to determine whether further enforcement action is necessary to ensure compliance with regulatory requirements.

In accordance with 10 CFR 2.790 of NRC's "Rules of Practice," a copy of this letter and the enclosure will be available in the public electronic reading room of NRC's Agency-wide Documents Access and Management System (ADAMS). ADAMS is accessible from the NRC Web site at http://www.nrc.gov/reading-rm/adams.html.

If you have any questions concerning this report, please contact Dennis Morey, of my staff, at (301) 415-6107.

Sincerely,

/RA/

Melanie A. Galloway, Chief
Technical Support Group
Division of Fuel Cycle Safety
and Safeguards, NMSS

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

Enclosures: (1) Notice of Violation
(2) Inspection Report 70-143/2004-201

cc w/enclosures: B. Marie Moore, NFS
cc w/o enclosures: Eddie Nanney, State of Tennessee

In accordance with 10 CFR 2.790 of NRC's "Rules of Practice," a copy of this letter and the enclosure will be available in the public electronic reading room of NRC's Agency-wide Documents Access and Management System (ADAMS). ADAMS is accessible from the NRC Web site at http://www.nrc.gov/reading-rm/adams.html.

If you have any questions concerning this report, please contact Dennis Morey, of my staff, at (301) 415-6107.

Sincerely,

/RA/

Melanie A. Galloway, Chief
Technical Support Group
Division of Fuel Cycle Safety
and Safeguards, NMSS

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

Enclosures: (1) Notice of Violation
(2) Inspection Report 70-143/2004-201

cc w/enclosures: B. Marie Moore, NFS
cc w/o enclosures: Eddie Nanney, State of Tennessee

DISTRIBUTION: DRich DAyres, RII MLMoore MLamastra
LPsyk EBanks WGloerson KRamsey

ML040710176
INDICATE IN BOX: "C"=COPY W/O ATTACHMENT/ENCLOSURE, "E"=COPY W/ATT/ENCL, "N"=NO COPY

OFFICE	TSG/FCSS	E	TSG/FCSS	E	TSG/FCSS		TSG/FCSS	
NAME	DMorey		FGee		RCesaro		MGalloway	
DATE	3/4 /04		3/ 4 /04		3/10 /04		3/11/04	

OFFICIAL RECORD COPY

NOTICE OF VIOLATION

Nuclear Fuel Services, Inc.
Erwin, TN

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

During an NRC inspection from February 23 through 27, 2004, a violation of NRC requirements was identified. In accordance with the "General Statement of Policy and Procedure for NRC Enforcement Actions," NUREG-1600, the violation is listed below:

> Safety Condition No. S-1 of Special Nuclear Material License No. 124 requires that material be used in accordance with the statements, representations, and conditions in the license application dated July 24, 1996, and supplements thereto. Section 2.7 of the license application requires that SNM operations and safety function activities at the Nuclear Fuel Services facility be conducted in accordance with written and approved procedures.
>
> Safety function procedure, NFS-CL-10 Rev. 22, requires that unfavorable geometry bags [redacted] shall only be opened for the minimum time necessary to perform the task and must otherwise be kept flat, closed, sealed, or have the bottom corners cut out leaving openings in the bag of [redacted] in length while in [redacted].
>
> Contrary to the above, on and before February 25, 2004, the licensee failed to control unfavorable geometry bags with volumes greater than [redacted]. Specifically, six plastic bags with volumes greater than [redacted] were opened and left unattended in the [redacted] without having [redacted] openings cut in the bottom corners.

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 copies to the Regional Administrator, Region II, and the Chief, Technical Support Group, Division of Fuel Cycle Safety and Safeguards, NMSS, 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: (1) the reason for the violation, or, if contested, the basis for disputing the violation, (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 or Demand for Information may be issued as to why the license should not be modified, suspended, or revoked, or why such other actions as may be proper should not be taken. Where good cause is shown, consideration will be given to extending the response time.

ENCLOSURE 1

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

Because your response will be made available electronically for public inspection in the NRC Public Document Room (PDR), or from the NRC's document system (ADAMS), accessible from the NRC web site at http://www.nrc.gov/reading-rm/adams.html, to the extent possible, it should not include any personal privacy, proprietary, or safeguards information so that it can be made available to the public without redaction. If personal privacy or proprietary information is necessary to provide an acceptable response, then please provide a bracketed copy of your response that identifies the information that should be protected and a redacted copy of your response that deletes such information. If you request withholding of such material, you must specifically identify the portions of your response that you seek to have withheld, and provide in detail the bases for your claim of withholding (e.g., explain why the disclosure of information will create an unwarranted invasion of personal privacy or provide the information required by 10 CFR 2.790 (b) to support a request for withholding confidential commercial or financial information). If safeguards information is necessary to provide an acceptable response, please provide the level of protection described in 10 CFR 73.21.

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

Dated at Rockville, Maryland

this 11th day of March 2004

U. S. NUCLEAR REGULATORY COMMISSION
OFFICE OF NUCLEAR MATERIAL SAFETY AND SAFEGUARDS

Docket No:	70-143
Licensee No:	SNM-124
Report No:	70-143/2004-201
Licensee:	Nuclear Fuel Services, Inc.
Location:	Erwin, TN
Inspection Dates:	February 23 - 27, 2004
Inspectors:	Frank Gee, Criticality Safety Inspector Dennis Morey, Senior Criticality Safety Inspector
Approved by:	Melanie A. Galloway, Chief Technical Support Group Division of Fuel Cycle Safety and Safeguards, NMSS

ENCLOSURE 2

EXECUTIVE SUMMARY

Nuclear Fuel Services, Inc.
NRC Inspection Report No. 70-143/2004-201

Introduction

Staff of the U.S. Nuclear Regulatory Commission performed a routine and announced nuclear criticality safety (NCS) inspection of the Nuclear Fuel Services, Inc. (NFS), Erwin, Tennessee, facility from February 23 through 27, 2004. The inspection included an on-site review of the licensee's programs dealing with plant operations, the criticality alarm system, the NCS function, NCS training, NCS Audits, and NCS-related corrective actions. The licensee's programs were acceptably directed toward the protection of public health and safety, and in compliance with NRC requirements. [redacted].

Results

- One Severity Level IV violation was identified with the licensee's control of bags with volumes greater than [redacted].
- Plant operations involving [redacted] materials were otherwise conducted safely and in accordance with written procedures.
- Coverage of risk-significant [redacted] material operations by the licensee's criticality alarm system continues to be adequate during the ongoing system upgrade.
- The NCS function was adequate for maintaining acceptable levels of safety.
- The NCS training and qualification program was adequate for maintaining acceptable levels of safety.
- The licensee's NCS quarterly audits were adequate for maintaining acceptable levels of safety.
- The licensee's corrective action tracking system provides acceptable assurance that risk-significant corrective actions will be assigned to appropriate staff, tracked to completion, and that undesirable trends will be identified and resolved.

REPORT DETAILS

1.0 Plant Operations (88015)

a. Scope of Inspection

The inspectors performed plant walkdowns to review activities in progress and to determine whether risk-significant fissile material operations were being conducted safely and in accordance with regulatory requirements. The inspectors verified the adequacy of management measures for assuring the continued availability, reliability and capability of safety-significant controls relied upon by the licensee for controlling criticality risks to acceptable levels. The inspectors performed walkdowns of risk-significant [redacted] material processing activities including the [redacted] production areas, the [redacted] The walkdowns included review of equipment installation in the [redacted] The inspectors interviewed operators and NCS engineers both before and during walkdowns.

The inspectors reviewed selected aspects of the following documents prior to performing the walkdowns:

- NFS-CL-10, "NCS for Fuel Manufacturing Facility," Rev. 22, dated November 11, 2003
- 54X-03-005, "NCSE for [redacted] of the Production Fuel Facility," Rev. 1, dated September 30, 2004
- 54X-01-0027, "Addendum 2 to [redacted]" Rev. 2, dated October 26, 2001
- 55T-03-52 Letter of Authorization 1832H-03-022, "[redacted]," dated November 17, 2003

b. Observations and Findings

The inspectors verified that the controls identified in the NCS analyses were installed or implemented, and were adequate to assure safety. The cognizant NCS engineers were knowledgeable and had good interfaces with operators on the process floors.

During a walkdown of the [redacted], the inspectors identified six open plastic liners which had the potential for solution accumulation in excess of the licensee's [redacted] volume limit. The inspectors noted that the approximately five-gallon bags contained construction related parts associated with ongoing equipment installation and were located in or adjacent to areas of the facility where enriched uranium was present and uranium [redacted] and non-uranium [redacted] solutions were normally processed. The

inspectors observed that liquid drainage from five of the bags was provided through small holes in the bottom corners of the bags that were partially blocked by the contents of the bags. The inspectors also observed that a sixth bag had no provision for liquid drainage (i.e., no holes). The inspectors determined that, in the event of a solution spill, the size and shape of the holes on five of the bags and the lack of holes in the sixth bag would permit the accumulation of greater than [redacted] of solution.

Safety Condition S-1 of Special Nuclear Material License No. 124 requires that material be used in accordance with the statements, representations, and conditions in the license application dated July 24, 1996, and supplements thereto. Section 2.7 of the license application requires that SNM operations and safety function activities at NFS be conducted in accordance with written and approved procedures. Safety function procedure, NFS-CL-10, Rev. 22, requires that unfavorable geometry bags [redacted] shall only be opened for the minimum time necessary to perform the task and must otherwise be kept flat, closed, sealed, or have the bottom corners cut out leaving openings in the bag of at least [redacted] in length while in [redacted] Contrary to the above, on and before February 25, 2004, the licensee failed to control unfavorable geometry bags with volumes greater than [redacted]. Specifically, six plastic bags with volumes greater than [redacted] were opened and left unattended in the [redacted] without having [redacted] openings cut in the bottom corners. The licensee's failure to control the open plastic bags is a low safety-significance violation of Section 2.7 of the license application (**VIO 70-143/2004-201-01**).

c. Conclusions

One Severity Level IV violation was identified with the licensee's control of bags with volumes greater than [redacted]. Plant operations involving [redacted] materials were otherwise conducted safely and in accordance with written procedures.

2.0 Criticality Alarm System (88015)

a. Scope of Inspection

The inspectors reviewed the licensee's progress in upgrading the criticality alarm system (CAS). The inspectors reviewed the licensee's CAS performance records to determine the adequacy and reliability of newly-installed equipment. The inspectors visually inspected the alarm monitoring room, the remote alarm station and several installed detector monitor sets to verify operability assumptions for newly-installed equipment.

b. Observations and Findings

The inspectors observed that the licensee's CAS has had 27 trouble alarms since November 2003 when the licensee began substantial installation of new CAS equipment. The inspectors determined that trouble alarm signals were sent by the alarm monitors when equipment operability was potentially degraded due to conditions such as loss of power or low background counts. The inspectors

determined that the licensee either reset the trouble alarms immediately or took action to replace or repair equipment, and no loss of coverage resulted. Based on discussions with the licensee, the inspectors determined that the likely cause of the trouble alarms was associated with the installation (i.e., placement, mounting, and wiring) of new CAS detectors and monitors. The inspectors observed that the licensee had identified appropriate corrective actions to resolve CAS installation issues but that corrective actions were not complete. Resolution of criticality alarm system equipment problems related to the installation of new detectors and monitors will be tracked as an inspection follow-up item (**IFI 70-143/2004-201-02**).

c. Conclusions

Coverage of risk-significant [redacted] material operations by the licensee's criticality alarm system continues to be adequate during the ongoing system upgrade.

3.0 NCS Function (88015)

a. Scope of Inspection

The inspectors reviewed NCS evaluations to determine that criticality safety of risk-significant operations was assured through engineered features and human performance (controls) with adequate safety margin/certainty, and including preparation and review by capable staff. The inspectors reviewed selected aspects of the following documents:

- 54X-02-0012, "Nuclear Criticality Safety Evaluation for the [redacted]," Rev. 0, dated June 25, 2002
- 54X-04-0001, "Nuclear Criticality Safety Analysis for [redacted] Production Fuel Facility," Revision 0, dated February 20, 2004
- 54T-04-0002, "Nuclear Criticality Safety Evaluation BLEU Preparation Facility (BPF) Downblending," Revision 1, dated January 21, 2004
- 54T-03-0011, "Nuclear Criticality Safety Evaluation for BPF Liquid Waste Discard System," Revision 1, dated January 20, 2004

b. Observations and Findings

The inspectors determined that analyses were performed by capable NCS engineers, that independent reviews were completed for the evaluations by other qualified NCS engineers, that subcriticality of the systems and operations was assured through appropriate limits on controlled parameters, and that double contingency was assured for each credible accident sequence leading to inadvertent criticality. The inspectors determined that NCS controls for equipment and processes assured the safety of the operations.

c. Conclusions

The NCS function was adequate for maintaining acceptable levels of safety.

4.0 NCS Training (88015)

a. Scope of Inspection

The inspectors reviewed the licensee's training program to determine the adequacy of NCS training for permanent and temporary employees. The inspectors reviewed procedures and lesson plans for both General Employee Training (GET) and common operator training to determine that adequate coverage of NCS was included. The inspectors interviewed the licensee's training manager and two senior instructors regarding the content and presentation of NCS training. The inspectors reviewed selected aspects of the following documents:

- NFS-TN-008, "NFS Training Procedure," Rev. 4, dated May 30, 2003
- 27T-01-0019, Lesson Plan SA-1006-01, dated November 2001

b. Observations and Findings

The inspectors determined through document review and interviews that: (1) workers with unescorted access to the facility received adequate training on NCS requirements including emergency actions; and (2) workers who handled SNM received job-specific NCS training, including testing to confirm achievement and maintenance of required skill levels. The inspectors determined that the licensee's training program was monitored and audited by the licensee's NCS staff to ensure current and accurate training.

The inspectors noted that the licensee's training program procedure, NFS-TN-008, did not specify all staff responsibilities for the training program or the qualifications for trainers who presented NCS training. However, the licensee indicated that appropriate responsibilities and qualifications were planned for incorporation in the next revision of the training procedure. The inspectors noted that required programmatic training functions were performed and that the four trainers interviewed were fully qualified.

c. Conclusions

The NCS training and qualification program was adequate for maintaining acceptable levels of safety.

5.0 NCS Inspections, Audits and Investigations (88015)

a. Scope of Inspection

The inspectors reviewed the licensee internal audit procedures and reviewed records of previously completed audits of fissile operations in the [redacted] and process cooling water. The inspectors reviewed the licensee's corrective action program to verify that corrective actions were appropriately assigned and tracked to

completion and that undesirable trends were identified and resolved. The inspectors reviewed selected aspects of the following documents:

- NFS-HS-A-16, "Safety Audits and Inspections," Rev. 7, dated June 4, 2003
- 21T-00-0540, "Nuclear Criticality Safety Audit Writer's Guide," Rev. 0, dated July 6, 2000
- 21T-03-1060, "NCS Audit of the NCSA for [redacted] of the Production Facility," dated January 14, 2004
- 21T-03-1135, "NCS Audit of the NCSA of [redacted]," dated November 24, 2003
- 21T-03-1122, "NCS Audit of Prevention of Backflow to Cooling Water," dated December 8, 2003
- NFS-GH-922, "The NFS Problem Identification, Resolution and Correction System (PIRCS)," Revision 3, dated June 25, 2003

b. Observations and Findings

The inspectors observed that NCS audits were conducted in accordance with the requirements specified in the NCS audit writer's guide and procedure NFS-HS-A-16. The inspectors noted that the NCS engineers: (1) reviewed open NCS issues from previous audits; (2) reviewed the adequacy of control implementation; (3) reviewed plant operations for compliance with license, procedures, and postings; and (4) examined equipment and operations to determine that past evaluations remain adequate. The inspectors observed that the licensee's quarterly audits were performed on a schedule that ensured all program areas are reviewed at least biennially. The inspectors determined that, for issues identified, the licensee's corrective action system assures that appropriate corrective actions are assigned, issues tracked to resolution and trends identified.

c. Conclusions

The licensee's NCS quarterly audits were adequate for maintaining acceptable levels of safety. The licensee's corrective action tracking system provides acceptable assurance that risk-significant corrective actions will be assigned to appropriate staff, tracked to completion, and that undesirable trends will be identified and resolved.

6.0 Management Meetings

The inspectors presented the inspection scope and results to members of the licensee's management and staff during an exit meeting on February 27, 2004. The licensee acknowledged and understood the findings as presented.

List of Items Opened, Closed, and Discussed

Opened

VIO 70-143/2004-201-01	Failure to control six greater-than [redacted] plastic bags in the [redacted]
IFI 70-143/2004-201-02	Tracks resolution of criticality alarm system equipment and installation problems

Closed

None

Discussed

None

Inspection Procedures Used

IP 88015	Headquarters Nuclear Criticality Safety Program

Partial List of Persons Contacted

Nuclear Fuel Services, Inc.

*N. Brown	Engineer, NCS
*D. Chaney	Engineer, Quality
*N. Kenner	Manager, Training Department
*A. Maxin	Director, Safety
*B. Moore	Vice President, Safety and Regulatory
*R. Shackelford	Manager, NCS
*M. Tester	Manager, Radiological Control
*R. Winiarski	Engineer, NCS
*S. Skiles	Engineer, NCS
*A. Vaughan	Director, Fuel Production
*J. Kirk	Licensing Specialist
*J. Nagy	Licensing and Regulatory Compliance
R. Ratnor	Health Physicist, Nuclear Measurements
C. Miller	Engineer, NCS
D. Quisenberry	NDA Specialist
R. Frost	Engineer, NCS
J. Miller	Project Engineer

NRC

*D. Rich	Senior Resident Inspector, NFS

*Denotes attendance at the exit meeting on February 27, 2004.