November 14, 2007

Mr. Dwight B. Ferguson, President
and Chief Executive Officer
Nuclear Fuel Services, Inc.
P.O. Box 337, MS 123
Erwin, TN 37650

SUBJECT: INSPECTION REPORT NO. 70-143/2007-208 AND NOTICE OF VIOLATION

Dear Mr. Ferguson:

The U.S. Nuclear Regulatory Commission (NRC) conducted a routine announced criticality safety inspection at your facility in Erwin, Tennessee, from October 15 - 19, 2007. The purpose of the inspection was to determine whether activities involving licensed materials were conducted safely and in accordance with NRC requirements. Inspection observations were discussed with your management and staff throughout this inspection and at the exit meeting which was held on October 19, 2007.

The inspection, which is described in the enclosure, focused on the most hazardous activities and plant conditions; the most important controls relied on for safety and their analytical basis; and the principal management measures for ensuring controls are capable, available, and reliable to perform their functions relied on for safety. The inspection consisted of analytical basis review, selective review of related procedures and records, examinations of relevant nuclear criticality safety (NCS)-related equipment, interviews with NCS engineers and plant personnel, and facility walkdowns to observe plant conditions and activities related to safety basis assumptions and related NCS controls.

Based on the results of this inspection, the NRC has determined that one Severity Level IV violation of NRC requirements occurred. The violation was evaluated in accordance with the NRC Enforcement Policy 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), 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 as a result of NRC inspection. The violation being cited as a Severity Level IV violation is the failure to have NCS approval for flexible hoses in the Oxide Conversion Building as required by procedure.

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 2.390 of NRC's "Rules of Practice," a copy of this letter will be available electronically in the public electronic reading room of the NRC's Agency-Wide Document Access and Management System (ADAMS), 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 Thomas Marenchin, of my staff, at (301) 492-3209.

Sincerely,

/RA/

Deborah A. Jackson, Chief
Technical Support Branch
Division of Fuel Cycle Safety
and Safeguards

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

Enclosure: 1. Notice of Violation
2. Inspection Report 70-143/2007-208

In accordance with 10 CFR 2.390 of NRC's "Rules of Practice," a copy of this letter will be available electronically in the public electronic reading room of the NRC's Agency-Wide Document Access and Management System (ADAMS), 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 Thomas Marenchin, of my staff, at (301) 492-3209.

Sincerely,

/RA/

Deborah A. Jackson, Chief
Technical Support Branch
Division of Fuel Cycle Safety
and Safeguards

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

Enclosure: 1. Notice of Violation
2. Inspection Report 70-143/2007-208

DISTRIBUTION:
FCSS r/f DAyres, RII MCrespo, RII ASheppard, RII KRamsey GMorrell

ML080670299

INDICATE IN BOX: "E"=COPY W/ATT/ENCL; "C"=COPY W/O ATT/ENCL; "N"=NO COPY						
OFFICE	FCSS/TSB		FCSS/TSB	E	FCSS/TSB	E
NAME	TMarenchin		PJenifer		DJackson	
DATE	11/7/07		11/9/07		11/14/07	

OFFICIAL RECORD COPY

NOTICE OF VIOLATION

Nuclear Fuel Services, Inc. Docket No. 70-143
Erwin, TN License No. SNM-124

During an Nuclear Regulatory Commission (NRC) inspection from October 15 through October 19, 2007, a violation of NRC requirements was identified. In accordance with the NRC Enforcement Policy, the violation is listed below:

> Safety Condition No. S-1 of Special Nuclear Material License (SNM) 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-HS-CL-27 Rev. 7, requires in part, that any flexible lines and temporary piping must be approved by Nuclear Criticality Safety (NCS) by Standard Operating Procedure (SOP), Letter of Authorization (LOA), or related formal method.
>
> Contrary to the above, on and before October 18, 2007, flexible lines were located in the Oxide Conversion Building (OCB) and were not approved by NCS in an SOP, LOA, or other formal method describing which lines were approved for which process. Specifically, four sections of flexible lines were observed in the OCB without formal approval from NCS.

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 Chief, Technical Support Branch, Division of Fuel Cycle Safety and Safeguards, NMSS, and Regional Administrator, Region II, 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 this 14th day of November 2007

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

Docket No.:	70-143
License No.:	SNM-124
Report No.:	70-143/2007-208
Licensee:	Nuclear Fuel Services, Inc.
Location:	Erwin, TN
Inspection Dates:	October 15 through October 19, 2007
Inspector:	Thomas Marenchin, Criticality Safety Inspector
Approved by:	Deborah A. Jackson, Chief Technical Support Branch Division of Fuel Cycle Safety and Safeguards, NMSS

Enclosure 2

EXECUTIVE SUMMARY

Nuclear Fuel Services, Inc.
NRC Inspection Report No. 70-143/2007-208

Introduction

Staff of the U.S. Nuclear Regulatory Commission (NRC) performed a routine and announced nuclear criticality safety (NCS) inspection of the AREVA Erwin facility (licensed under Nuclear Fuel Services, Inc. (NFS) License Number SNM-124), in Erwin, Tennessee, facility from October 15 through October 19, 2007. The inspection included an on-site review of the licensee programs involving the NCS program, inspections, audits, and investigations, plant operations, NCS event review and follow-up and open items. The inspection focused on risk-significant fissile material processing activities including the blended low-enriched uranium (BLEU) Oxide Conversion Building (OCB), the BLEU Uranyl Nitrate Building (UNB), and the BLEU Effluent Processing Building (EPB).

Results

- A severity level IV violation was identified due to flexible lines located in the OCB that were not approved by NCS.
- No safety concerns were noted regarding the NCS program.
- No safety concerns were noted regarding the licensee NCS inspections, audits, and investigations.
- No safety concerns were identified during a review of recent licensee investigation of internal events.
- No safety concerns were noted regarding licensee NCS evaluations.

REPORT DETAILS

1.0 Plant Status

AREVA facility (licensed under Nuclear Fuel Services, Inc. (NFS) License Number SNM-124) produces uranium oxides from low-enriched uranium (LEU) liquid, conducts routine ammonia recovery process and liquid waste treatment at its Erwin, Tennessee site. During the inspection, AREVA was performing routine oxide production and maintenance operations.

2.0 Nuclear Criticality Safety Program (IP 88015, 88016)

a. Inspection Scope

The inspector reviewed Nuclear Criticality Safety Evaluations (NCSEs) to determine that criticality safety of risk-significant operations was assured through engineered and human controls with adequate safety margin and preparation and review by qualified staff. The inspector reviewed selected aspects of the following documents:

- 15T-06-0015, NFS-RM-010, “Guidelines for Operating Plans, Procedures, Standard Operating Procedures and General Policies,” Revision 5, dated October 2, 2006
- 21T-05-1877, NFS-HS-CL-27-01, “Nuclear Criticality Safety Building 520 OCB,” Revision 5, dated November 16, 2005
- 21T-05-1867, NFS-HS-CL-27-02, “Nuclear Criticality Safety Building 520 OCB/NUN [natural uranium nitrate] Area,” Revision 2, dated November 16, 2006
- 21T-06-0561, NFS-HS-A-58, “Nuclear Criticality Safety Evaluations (NCSE),” Revision 10, dated February 17, 2006
- 21T-06-1046, NFS-HS-A-62, “Implementation of Nuclear Criticality Safety Evaluations,” Revision 4, dated April 4, 2006
- 21T-06-1984, NFS-HS-CL-27, “Nuclear Criticality Safety Buildings 520/530 OCB/EPB [Effluent Processing Building],” Revision 7, dated January 5, 2007
- 54T-04-0060, NCS-07-03, “Nuclear Criticality Safety Moderation Effects of Halocarbon Oil in OCB Blending Systems,” Revision 1, dated July 26, 2004
- 54T-04-0085, NCS-07-03, “Nuclear Criticality Safety Evaluation for OCB Product and Utility Pail Storage,” Revision 0, dated August 16, 2004
- 54T-05-0022, NCS-07-03, “Nuclear Criticality Safety Analysis OCB Equipment Interactions,” Revision 2, dated July 29, 2005
- 55T-06-7072, SOP [Standard Operating Procedure] 520-17, “Central Vacuum Operation,” Revision 5, dated October 30, 2006
- 55T-07-1069, SOP 520-01, “ADU [ammonium diuranate] Operations,” Revision 11, dated October 12, 2007
- 55T-07-2058, SOP 501-06, “BLUE [blended low enriched uranium] Inventory Preparation,” Revision 3, dated July 30, 2007

b. Observations and Findings

The inspector determined that NCSEs were performed by qualified NCS engineers, that independent reviews of the evaluations were completed by 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 inspector determined that NCS controls for equipment and processes assured the safety of the operations. NCS analyses and supporting calculations demonstrated adequate identification and control of NCS hazards to assure operations within subcritical limits.

c. Conclusions

No safety concerns were noted regarding the NCS program.

3.0 Nuclear Criticality Safety Inspections, Audits, and Investigations (IP 88015)

a. Inspection Scope

The inspector reviewed results of the most recent NCS audits to assure that appropriate issues were identified and resolved. The inspector reviewed selected aspects of the following documents:

- 21T-06-1861, NCS-2006-32, “Nuclear Criticality Safety Audit of the NCSE for the OCB Product and Utility Pails,” dated October 4, 2006
- 21T-06-1927, NCS-2006-34, “Nuclear Criticality Safety Audit of the NCS for OCE Dryer/Calciner,” Revision 3, dated October 19, 2006
- 21T-06-2035, NCS-2006-42, “First Nuclear Criticality Safety Audit of the NCSE for the OCB Uranium Recovery Process,” dated December 21, 2006
- 21T-06-2037, NCS-2006-44, “Nuclear Criticality Safety Audit of the NCSE for the OCB Precipitation, First Audit,” dated December 21, 2006

b. Observations and Findings

The inspector observed that the licensee NCS audits were conducted in accordance with written procedures. The inspector noted that the audits were performed by NCS engineers who reviewed open NCS issues from previous audits; reviewed the adequacy of control implementation; reviewed plant operations for compliance with license requirements, procedures, and postings; and examined equipment and operations to determine that past evaluations remained adequate. Any deficiencies identified within NCSEs and operating procedures were appropriately captured in the licensee corrective action program and resolved in a timely manner. The inspector had no safety concerns regarding the identification, assignment and tracking of corrective actions.

c. Conclusions

No safety concerns were noted regarding the licensee NCS inspections, audits, and investigations.

4.0 Nuclear Criticality Safety Event Review and Follow-up (IP 88015)

a. Inspection Scope

The inspector reviewed the licensee response to internally-reported events. The inspectors reviewed the progress of investigations and interviewed licensee staff regarding immediate and long-term corrective actions. The inspector reviewed selected aspects of the following documents:

- 21T-07-0014, "The NFS Problem Identification, Resolution, and Corrections System (PIRCS)," Revision 7, dated March 13, 2007
- PIRCS Problem ID 8379, date October 2, 2006
- PIRCS Problem ID 8380, date October 2, 2006
- PIRCS Problem ID 8381, date October 2, 2006
- PIRCS Problem ID 8843, date December 11, 2006
- PIRCS Problem ID 8844, date December 11, 2006
- PIRCS Problem ID 8895, date December 20, 2006
- PIRCS Problem ID 10596, dated August 3, 2007
- PIRCS Problem ID 10637, dated August 8, 2007

b. Observations and Findings

The inspector reviewed selected licensee internally-reported events. The inspector observed that internal events were investigated in accordance with written procedures and appropriate corrective actions were assigned. The inspector had no safety concerns regarding licensee reporting, investigation, and correction of internal NCS related events.

c. Conclusions

No safety concerns were identified during a review of recent licensee investigation of internal events.

5.0 Plant Activities (IP 88015)

a. Inspection Scope

The inspector 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 inspector interviewed operations staff and NCS engineers both before and during walkdowns. The inspector

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

- 21T-05-1877, NFS-HS-CL-27-01, "Nuclear Criticality Safety Building 520 OCB," Revision 5, dated November 16, 2005

- 21T-05-1867, NFS-HS-CL-27-02, "Nuclear Criticality Safety Building 520 OCB/NUN Area," Revision 2, dated November 16, 2006
- 21T-06-1984, NFS-HS-CL-27, "Nuclear Criticality Safety Buildings 520/530 OCB/EPB," Revision 7, dated January 5, 2007

b. Observations and Findings

The inspector verified that controls identified in NCS analyses were installed or implemented and were adequate to ensure safety. The inspector also verified that safety was maintained for observed facility operations. The cognizant NCS engineers were knowledgeable and interacted regularly with operators on the process floors. The inspector 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.

While conducting a walkdown of the OCB, the inspector observed flexible piping stored in four locations inside the process area. NS-HS-CL-27 requires that any flexible lines and temporary piping in process areas must be approved by NCS (e.g., SOP, LOA, etc.). While interviewing operations staff and NCS engineers, the inspector determined that no formal approval was in place that stated which of the flexible lines were authorized for use in the OCB. SOPs were in place which required flexible hoses but these SOPs did not identify which hoses were authorized. Storage and use of flexible pipe sections in the OCB without formal approval from NCS contrary to the requirement in procedure NS-HS-CL-27 is **Violation (VIO) 70-143/2007-208 -01**.

c. Conclusions

A severity level IV violation was identified due to flexible lines located in the OCB that were not approved by NCS.

6.0 Exit Meeting

The inspector presented the inspection results to members of the licensee's management and staff during an exit meeting on October 19, 2007. The licensee acknowledged and understood the findings as presented.

SUPPLEMENTARY INFORMATION

1.0 List of Items Opened, Closed, and Discussed

Items Opened

VIO 70-143/2007-208-01	Failure to have NCS approval in an SOP, LOA, or other formal method for flexible lines that were located in the OCB as required by procedure.

Items Closed

None

Items Discussed

None

2.0 Inspection Procedures Used

IP 88015	Nuclear Criticality Safety Program
IP 88016	Nuclear Criticality Safety Evaluations and Analyses

3.0 Key Points of Contact

Nuclear Fuel Services, Inc.

*N. Brown	Engineer, NCS
*R. Crowe	Manager, Corrective Actions Program
*R. Droke	Director, Licensing / Safety
*D. Ferguson	Chief Executive Officer
*T. Lindstrom	Executive Vice President, HEU Operations
R. Mauer	Engineer, NCS
*B. Moore	Vice President, Safety and Regulatory
*J. Nagy	Senior Licensing and Regulatory Compliance Officer
R. Shackelford	Manager, NCS
*P. Goddard	SNM Inventory Supervisor
*T. Lindstrom	General Manager
*C. Brown	Material Manager
*C. Athon	Vice President Applied Technology
*G. Hazelwood	Engineering Director
*S. Sanders	Training Manager
*D. Gardner	Licensing Specialist
*D. Hopson	BPF Safety Manager
*M. Eakin	NCS Engineer
*S. Skiles	NCS Engineer
*R. Bond	Project Director HEU Operations

*D. Chang	MC&A Test Coordinator
*S. Strouth	Statistical Supervisor
*R. Holley	Environmental Manager

NRC

*S. Burris	Senior Resident Inspector, NRC Region II
*G. Smith	Resident Inspector, NRC Region II
*D. Morey	Senior Criticality Safety Inspector, NRC Headquarters
*T. Marenchin	Criticality Safety Inspector, NRC Headquarters
*G. Tuttle	MC&A Inspector, NRC Headquarters
*M. Williams	MC&A Inspector, NRC Headquarters
*M. Romano	MC&A Inspector, NRC Region II

*Attended the exit meeting on October 19, 2007.

4.0 List of Acronyms and Abbreviations

ADU	ammonium diuranate
BLEU	blended low-enriched uranium
EPB	Effluent Processing Building
HEU	high-enriched uranium
IP	inspection procedure
NCS	nuclear criticality safety
NCSE	nuclear criticality safety evaluation
NFS	Nuclear Fuel Services, Inc. (licensee)
NUN	natural uranium nitrate
OCB	Oxide Conversion Building
PIRCS	Problem Identification, Resolution, and Corrective System
UNB	Uranyl Nitrate Building
VIO	violation