



**UNITED STATES
NUCLEAR REGULATORY COMMISSION**
REGION II
245 PEACHTREE CENTER AVENUE NE, SUITE 1200
ATLANTA, GEORGIA 30303-1257

March 7, 2011

Mr. Joseph G. Henry
President
Nuclear Fuel Services, Inc.
P. O. Box 337, MS 123
Erwin, TN 37650

**SUBJECT: LICENSEE PERFORMANCE REVIEW OF LICENSED ACTIVITIES FOR
NUCLEAR FUEL SERVICES, INC., DOCKET NUMBER 70-143
(NON-SAFEGUARDS PORTION)**

Dear Mr. Henry:

The U.S. Nuclear Regulatory Commission (NRC) Region II and Headquarters staffs completed a review of your performance in conducting NRC licensed activities at the Nuclear Fuel Services (NFS) facility in Erwin, TN. The review evaluated your performance during the period beginning January 7, 2010, and ending December 31, 2010. Nuclear Fuel Service's performance was evaluated in five major areas: Safety Operations, Safeguards, Radiological Controls, Facility Support, and Special Topics. This letter and Enclosure 1 provide to you the results of our review, and will be used as a basis for establishing the NRC oversight program for your conduct of licensed activities during the next review period. Details regarding the safeguards portion of the review are documented in a separate letter marked Official Use Only – Security-Related Information due to the sensitive nature of the subject matter.

At the start of this review period, the NRC issued a Confirmatory Action Letter dated January 7, 2010 (ML100070118) that required the facility to remain shut down until select commitments from the letter were effectively implemented and subsequently inspected by NRC prior to the restart of individual process lines. This action was taken in response to findings from an NRC interim performance assessment conducted in December 2009 (ML103090576). The assessment concluded that NFS had experienced significant performance issues. These issues included the adequacy of NFS' management oversight of facility process changes, perceived production pressures, the apparent lack of a questioning attitude on the part of workers and management, and poor communications on the part of the NFS staff. The assessment also identified issues relating to: a lack of significant progress in improving safety culture on site; weaknesses in design control and configuration management processes; and NFS' inability to perform thorough introspective evaluations and use the results in subsequent operational decisions.

Overall, the NRC review of the current Licensee Performance Review (LPR) period concluded that NFS continued to conduct its activities safely and securely, protecting public health and the environment. In our assessment, the NRC considered the results of the core inspection program, and reviewed NFS' actions to address the issues identified in the Confirmatory Action Letter by conducting several restart readiness inspections. In addition to evaluating the specific actions required for restart, these restart inspections assessed NFS' response to the issues

identified above. The NRC concluded that the actions taken by NFS in response to the aforementioned performance and management issues were sufficient to provide reasonable assurance that several process lines could be operated safely.

However, the NRC staff did identify two areas needing continued focus on the part of NFS management. The first of these areas is in Safety Operations. While NFS demonstrated improved performance during the course of the review period, inspection findings issued in 2010 demonstrate that the corrective actions to address the underlying causes have not been fully effective and sustainable. In addition, a number of commitments identified in the Confirmatory Action Letter remain incomplete. These issues include the readiness of the uranium hexafluoride processing line to restart, the thoroughness with which NFS conducts causal evaluations, and the process for incorporating the results of these evaluations into operational decisions. As a result, the NRC concluded that the area of Safety Operations remains an Area Needing Improvement.

The second area requiring continued focus of NFS management is in the area of Facility Support. In November 2010, NRC issued a Confirmatory Order (ML103210213) in response to NFS providing the NRC with inaccurate information and the lack of demonstrable progress in the area of safety culture as evidenced by the events that led to the Confirmatory Action Letter. These issues indicate that additional effort by NFS management is needed to improve management oversight of facility operations. As a result, the NRC concluded that the area of Facility Support remains an Area Needing Improvement.

The NRC will augment the core inspection effort at NFS to ensure that the actions taken to correct the issues described above are effective and sustainable. In 2011, these additional inspections will include the following: an assessment of readiness to restart the uranium hexafluoride process line; Confirmatory Action Letter and Confirmatory Order follow-up inspections; a problem identification and resolution inspection; and a design review inspection.

The results of this performance review will be discussed with you in a public meeting on April 7, 2011. During this meeting, NFS management should discuss its efforts to improve safety operations, improve its process to conduct probing thorough causal evaluations, and to improve the overall safety culture on site. The NRC will conduct the next LPR assessment following the end of the current assessment period, which is scheduled to end on December 31, 2011.

Enclosure 2 to this letter details the inspections, except those related to physical protection and information security, scheduled through December 31, 2011. The NRC will also schedule and conduct a restart readiness assessment of the uranium hexafluoride process line, and Confirmatory Action Letter and Confirmatory Order follow-up inspections when NFS indicates readiness for these inspection activities. Routine resident inspections are not listed due to their ongoing and continuous nature. The inspection plans are provided to allow for the resolution of any scheduling conflicts and personnel availability issues well in advance of inspector arrival onsite. These inspection plans are tentative and may be revised as circumstances warrant.

J. Henry

3

In accordance with 10 CFR 2.390 of NRC's "Rules of Practice," this document and its enclosures may be accessed through the NRC's public electronic reading room, Agency-Wide Document Access and Management System (ADAMS) on the Internet at <http://www.nrc.gov/reading-rm/adams.html>.

Questions and comments about NRC's review of NFS' performance should be referred to Mr. Steven J. Vias, Chief, Fuel Facility Inspection Branch 1, at 404-997-4560.

Sincerely,

/RA by A. Gody/

Anthony T. Gody, Director
Division of Fuel Facility Inspection

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

Enclosures:

- 1 Licensee Performance Review Summary Outline
2. Inspection/Activity Plan 31/2011 – 12/32/2011

cc w/encls:
Christa Reed
Director, Operations
Nuclear Fuel Services, Inc.
Electronic Mail Distribution

Mark Elliott
Director, Quality, Safety and Safeguards Department
Nuclear Fuel Services, Inc.
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Debra Shults
Director, TN Dept. of Environment & Conservation
Electronic Mail Distribution

J. Henry

3

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*see previous concurrence

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ADAMS: Yes ACCESSION NUMBER:ML110660633 SUNSI REVIEW COMPLETE

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SIGNATURE	/RA by JP/	/RA by SV/	/RA by AG/	/RA via email by JK/	/RA by LW/	
NAME	JPelchat	SVias	TGody	JKinneman	LWert	
DATE	3/1/2011	3/1/2011	3/2/2011	3/2/2011	3/4/2011	3/ /2011
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J. Henry

4

Letter to: Mr. Joseph Henry from Anthony Gody dated March 7, 2011

Subject: LICENSEE PERFORMANCE REVIEW OF LICENSED ACTIVITIES FOR
NUCLEAR FUEL SERVICES, INC., DOCKET NUMBER 70-143
(NON-SAFEGUARDS PORTION)

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**LICENSEE PERFORMANCE REVIEW
NUCLEAR FUEL SERVICES, INC. (NFS)
ASSESSMENT PERIOD: JANUARY 7, 2010 TO DECEMBER 31, 2010**

The following is a summary of the performance of NFS in the conduct of NRC licensed activities.

PERFORMANCE AREA: SAFETY OPERATIONS

This area is comprised of nuclear criticality safety (NCS), fire protection, and plant operations.

During the Licensee Performance Review (LPR) period, the following findings were issued in the area of Safety Operations:

- (VIO 70-143/2009-011, EA-10-086-IB; Severity Level (SL) III violation with three examples) The licensee failed to following the following procedures (EA-10-086-IB):
 - Contrary to procedure NFS-CM-004, “NFS Change Control Process”, enterprise change requests (ECRs) regarding a method to process fines material were inappropriately classified as urgent. The procedure requires that urgent ECRs be limited to issues adversely impacting personnel safety or operations. As a result, the ECRs were inappropriately expedited through the review process.
 - Contrary to procedure NFS-CM-005, “NFS Change Controls Board (CCB)”, the CCB’s review of ECRs 20092008 and 20091919 failed to identify that the design requirements and design basis were affected by the direct addition of fines into the bowl cleaning station without first processing the material in the uranium-aluminum dissolvers.
 - Contrary to procedure NFS-GH-901, “Configuration Management Program”, the technical reviews failed to identify that processing uranium aluminum fines directly in the bowl cleaning station was not analyzed in the integrated safety analysis as a part of the uranium-aluminum design basis.
- (VIO 70-143/2009-011, EA-10-086-IA; SL III violation) The licensee failed to apply controls to the extent needed to reduce the likelihood of occurrence of the event so that, upon implementation of such controls, the event would be highly unlikely or its consequences would be less severe. Specifically, the licensee failed to implement sufficient items relied on for safety (IROFS) to prevent or mitigate the production of nitrogen compound gas generation, which could have led to a high consequence event.
- (VIO 70-143/2009-011, EA-10-086-IC; SL III violation) The licensee failed to maintain records of written evaluations that provided the bases for the determination that a change to its facility did not require prior NRC approval. Specifically, the inspectors determined that an inadequate review as required by Title 10, *Code of Federal Regulations*, Part 70.72 was conducted based on reviews of the Safety and Regulatory Review Routing Forms used for the change requests that led to the October 13, 2009 event.

- (VIO 70-143/2010-003-02; SL IV violation) The licensee failed to follow plant procedures by not securing or suspending BPF HEU operations prior to performing the functional test on plant air valve 7A01.
- (VIO 70-143/2009-011, EA-10-086-IIA; SL IV) The licensee failed to maintain process safety information that would have provided reasonable assurance that a chemical addition IROFS (BUA-43) could perform its intended design function as described in the integrated safety analysis.
- (VIO 70-143/2009-011, EA-10-086-IIB; SL IV) The licensee failed to identify engineered or administrative controls as IROFS' for several accident scenarios involving excessive nitrogen compound gas generation in the fuel manufacturing, uranium-metal/oxide, uranium-aluminum, and commercial development lines in order to meet the performance requirements of 10 CFR 70.61(b).
- (VIO 70-143/2010-002-02, SL IV) The licensee failed to establish management measures that would ensure that an engineered IROFS would be available and reliable to perform its intended function. Specifically, the licensee's inspection, testing, and maintenance program did not identify sprinklers designated as IROFS were in a degraded condition.

Program Areas Needing Improvement

Continued focus is needed in the area of Safety Operations. While NFS demonstrated improved performance during the course of the review period, inspection findings issued in 2010 demonstrate that the corrective actions to address the underlying causes have not been demonstrated to be fully effective and sustainable. In addition, a number of commitments identified in the Confirmatory Action Letter remain incomplete. These issues include the readiness of the uranium hexafluoride processing line to restart, the thoroughness with which NFS conducts causal evaluations, and the process for incorporating the results of these evaluations into operational decisions. As a result, the NRC concluded that the area of Safety Operations remains an Area Needing Improvement.

Recommended NRC inspection Effort in Safety Operations

- Maintain the annual core inspection program in the area of Safety Operations.
- Confirmatory Action Letter follow-up inspections

PERFORMANCE AREA: RADIOLOGICAL CONTROLS

This area is comprised of radiation protection, environmental protection, waste management, and transportation.

Program Areas Needing Improvement

- No specific areas needing improvement were identified in Radiological Controls.

Recommended NRC inspection Effort in Radiological Controls

- Maintain the annual core inspection program in the area of Radiological Controls.

PERFORMANCE AREA: FACILITY SUPPORT

This area is comprised of maintenance and surveillance, training, emergency preparedness, management organization and controls, and permanent plant modifications.

During the LPR period, there were two examples of ineffective management measures and oversight to effectively support safe facility operations, including the overall importance of safety in relation to production activities. These examples include:

- Confirmatory Action Letter (CAL) No. 2-2010-001, was issued to confirm commitments made regarding actions to resolve safety concerns before restarting specific processes. This CAL was based on the results of the Augmented Inspection (Inspection Report No. 70-143/2009-011) and a review of NFS' overall safety performance. The NRC identified a number of concerns regarding NFS' ability to provide reasonable assurance that it was able to safely operate the Erwin facility. These concerns involve the adequacy of NFS' management oversight of facility process changes, perceived production pressures, lack of questioning attitude by workers and management and poor communications. In addition, the NRC identified concerns with the decisions made by NFS management, in both October and November 2009, to restart the Uranium Aluminum process lines without fully understanding the causes of the events and correcting the underlying problems that caused them.
- Confirmatory Order EA-10-076 was issued to the licensee as the result of the licensee having provided information on two occasions to the NRC that was not complete and accurate in all material respects. On the first occasion, NFS submitted a Reply to a Notice of Violation to the NRC that stated that all fire dampers in procedure NFS-GH-22 were inspected in September of 2008, and passed the inspection. However, 12 of the fire dampers had not been inspected. NFS's submittal of inaccurate information was due, in part, to the actions of a former NFS employee tasked with drafting the written reply to the Notice of Violation.

On the second occasion, the NRC attempted to verify the corrective actions as documented in NFS's November 25, 2008 Reply to Notice of Violation. In support of the verification, the former NFS employee created and provided a document to the NRC inspector that indicated that all but one of the fire dampers had been fully inspected during 2008, when in fact, more than one of the dampers had not been fully inspected.

Program Areas Needing Improvement

Continued focus is needed in the area of Facility Support. The aforementioned issues indicate that additional effort by NFS management continues to be needed to improve of management oversight to effectively support safe facility operations and to improve the safety culture on site. As a result, the NRC concluded that the area of Facility Support remains an Area Needing Improvement.

Recommended NRC inspection Effort in Facility Support

- Maintain the annual core inspection program in the area of Facility Support.
- Perform additional regional initiative inspections in the following areas:
 - Safety Culture Improvement Plan status inspection;
 - Problem Identification and Resolution (PI&R) Inspection with augmented examination of Safety Conscious Work Environment;
 - CAL follow-up inspections including Restart Readiness Assessment Team inspection focusing on the design of the uranium hexafluoride process on the on the Commercial Development line;
 - Design assessment inspection; and,
 - Confirmatory Order follow-up inspections.

PERFORMANCE AREA: SPECIAL TOPICS

This area is comprised of safety licensing.

Program Areas Needing Improvement

No specific areas needing improvement were identified in Special Topics.

Recommended NRC inspection Effort in Special Topics

Routine

07000143 - NFS
 Inspection / Activity Plan
 03/01/2011 - 12/31/2011

Unit Number	Planned Dates Start End	Inspection Activity	Title	No. of Staff on Site
1	03/07/2011 03/11/2011	MCA - MCA HEU IP 85401	Management Structure	2
1	04/04/2011 04/08/2011	NCS - NCS IP 88015	Criticality Safety	2
1	04/11/2011 04/15/2011	FPA/RP - FPA / RP IP 88030	Radiation Protection	2
1	04/11/2011 04/15/2011	IP 88055	Fire Protection (Annual)	
1	05/02/2011 05/06/2011	RRAT5 - RRAT5 IP 88020	Operational Safety	6
1	05/09/2011 05/13/2011	MOC/IOT - MOC/IOT IP 88005	Management Organization And Controls	1
1	05/09/2011 05/13/2011	IP 88010	Operator Training/Retraining	
1	06/13/2011 06/17/2011	NCS - NCS IP 88015	Criticality Safety	2
1	06/27/2011 07/01/2011	OPS - OPS IP 88020	Operational Safety	1
1	07/11/2011 07/14/2011	MCA - MCA LEU IP 85401	Management Structure	1
1	07/11/2011 07/15/2011	EP/ENV - EP / ENV IP 88045	Environmental Protection	2
1	07/11/2011 07/15/2011	IP 88050	Emergency Preparedness	
1	08/29/2011 09/02/2011	EPEX/PPM - EP EX / PPM IP 88051	Evaluation of Exercises and Drills	2
1	08/29/2011 09/02/2011	IP 88070	Permanent Plant Modifications	
1	09/12/2011 09/16/2011	MCA - MCA LEU IP 85401	Management Structure	2
1	09/12/2011 09/16/2011	MS - MS IP 88025	Maintenance And Surveillance Testing	1
1	10/03/2011 10/07/2011	RP/WMIT - RP/ WMI/T IP 86740	Inspection Of Transportation Activities	2
1	10/03/2011 10/07/2011	IP 88030	Radiation Protection	
1	10/03/2011 10/07/2011	IP 88035	Radioactive Waste Management	
1	12/05/2011 12/09/2011	NCS - NCS IP 88015	Criticality Safety	2

This report does not include MEETINGS and SHUTDOWN activities.
 This report shows only on-site and announced inspection procedures.