



**NUCLEAR FUEL SERVICES, INC.**  
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21G-09-0188  
GOV-01-55-04  
ACF-09-0346

December 11, 2009

U.S. Nuclear Regulatory Commission  
Attention: Document Control Desk  
Washington, DC 20555

References: 1) Docket No. 70-143; SNM License 124  
2) NRC Inspection Report No. 70-143/2009-003 and Notice of Violation, Dated November 12, 2009

**Subject: Reply to Notice of Violation 70-143/2009-003-01**

Dear Sir:

Pursuant to the requirements of 10 CFR 2.201, Nuclear Fuel Services, Inc. (NFS) hereby submits the attached response to the subject violation identified in the referenced NRC inspection report.

If you or your staff have any questions, require additional information, or wish to discuss this, please contact me, or Ms. Marie Moore, Safety and Regulatory Director, at (423) 743-1737. Please reference our unique document identification number (21G-09-0188) in any correspondence concerning this letter.

Sincerely,

**NUCLEAR FUEL SERVICES, INC.**

David L. Kudsin  
President

EAS/pdj  
Attachment

JE07  
R6NII

Copy:

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**Attachment**  
**NFS Reply to Notice of Violation 70-143/2009-003-01**

4 pages to follow

**Attachment**  
**NFS Reply to Notice of Violation 70-143/2009-003-01**

**Restatement of Violation**

During an NRC inspection conducted from August 25-29, 2009, a violation of NRC requirements was identified. In accordance with the NRC Enforcement Policy, the violation is listed below:

- A. 10 CFR 70.62 requires, in part, that each licensee shall establish a safety program that demonstrates compliance with the performance requirements. One of the elements of the safety program is management measures.

10 CFR 70.62(d) requires, in part, that each licensee shall establish management measures to ensure compliance with the performance requirements. These measures shall ensure that an item relied on for safety (IROFS) will be available and reliable to perform its intended function when needed, to comply with the performance requirements.

Contrary to the above, from November 19, 2007, to September 4, 2008, the licensee had not implemented a safety program that would ensure IROFS FIRE-15 and IROFS FIRE-28 would perform their intended function when needed to comply with the performance requirements. Specifically, the licensee did not identify that IROFS FIRE-15 was going to be impaired during the 105 Laboratory roof replacement activities and failed to implement IROFS FIRE-28 as soon as IROFS FIRE-15 was impaired to ensure that an adequate safety margin was maintained. This represented a failure of the safety program to adequately ensure the reliability of IROFS FIRE-15 and 28 to limit the likelihood, and consequently the risk, of a high consequence accident scenario.

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

**Background**

A major work request (MWR) #117849 was initiated on October 17, 2007, to replace the roof on the 105 Laboratory. The work request was routed for approval from November 9, 2007, until November 19, 2007. The fire system impairment box was marked 'No' under the permit section of the work request form. An Addendum #1 to MWR #117849 was initiated on January 9, 2008, and Addendum #2 to MWR #117849 was initiated on March 31, 2008, to:

- 1) Remove ceiling tile panels from the 105 Laboratory and install reinforced, fire retardant plastic suspended from the bar joists and sealed to the walls;
- 2) Once the deck/roof was replaced on a discreet section (room), remove the plastic by TuffWrap personnel and install new ceiling tile.

Removal of the ceiling tiles impaired the effectiveness of the lab sprinkler, designated as IROFS FIRE-15. The initiator of the work request did not realize that there was an impact to IROFS when initiating the work request.

Section 4.1.6 of the NFS Standard Operating Procedure (SOP) 392 "Work Request Procedure" states that the initiator is responsible for reviewing IROFS that will be affected by the proposed change. The initiator of the work request had not read and acknowledged within the Training and Qualification System (T&Q) the procedure NFS-GH-27 "Planned Impairments to Fire Protection Equipment." The T&Q job qualification requirement "NFS-WORK-AREA-ADM" did not include NFS-GH-27. The current T&Q job qualification for initiators of work requests is NFS-WORK-REQ-INT and does not require training on specific IROFS.

Additionally, Addendum #2 of MWR #117849 was initiated from March 31, 2008 to April 3, 2008 without identifying an impact to IROFS/Fire System Impairment. Industrial Safety believed the fire system was not impaired when compensatory measures were implemented by installing battery operated smoke detectors. No work request was written to install the battery operated smoke detectors. SOP 392 does not define the process, roles, and responsibilities for obtaining compensatory measures required to be documented, approved, and implemented prior to performing work. The need for compensatory measures was not identified on the initial work request or on any of the addendums, and no document authorizing the compensatory measures was generated. A violation of procedural steps occurred when NFS-HS-A-79, Revision 4, Section 6.3 "Identification and Control of Items Relied on for Safety (IROFS) Procedure" was not followed regarding documentation and approval of compensatory measures in a major work request, LOA or procedure prior to starting work. Also, IROFS FIRE-28 requires additional actions to be taken during planned impairments to fire protection equipment.

105 Laboratory roof work continued during December 2008. The reinforced, fire retardant plastic was removed and ceiling tiles were installed in the south half of the Laboratory. An NRC inspection was performed during the week of August 17, 2009. As a result, Problem ID #20557 was entered in PIRCS regarding an NRC unresolved item (URI) which contained:

- 1) Sprinkler impairment was not identified on WR #117849;
- 2) Unclear whether a Fire Protection System Impair Form was in place;
- 3) Unclear process to review and approve compensatory measures.

Several commitments/corrective actions were initiated. Work continued on the project in August 2009. Reinforced, fire-retardant plastic was removed and ceiling tile was installed in the north half of the Laboratory.

**The Reason for the Violation, or if Contested, the Basis for Disputing the Violation or Severity Level**

An investigation was initiated once the URI was identified to determine the root cause of the failure to identify the impairment to the 105 Laboratory fire safety system. The investigation team concluded the reason for the failure stemmed from the following causal factors:

1. The initiator of the work request was unaware of a potential impact upon an IROFS. The investigation team identified NFS-GH-27 "Planned Impairments to Fire Protection Equipment" procedure was in need of improvement.
2. Addendum #2 of Work Request #117849 did not identify the impact upon an IROFS/Fire System Impairment.
3. Failure to follow NFS-HS-A-79 regarding identification, documentation and approval of compensatory measures in a major work request, LOA or procedure prior to starting work.

**The Corrective Steps That Have Been Taken and the Results Achieved**

The immediate corrective actions which were identified and assigned are detailed below.

Corrective Action #1: A Fire Protection System Impairment Form was initiated on August 20, 2009 for the 105 Sprinkler System. Work Request #117849 is referenced on the form.

Corrective Action #2: PIRCS Commitment #9953 required locating the impairment forms that were in effect from the time when the TuffWrap plastic installation began in the 105 Laboratory or document why an impairment of the 105 Lab Sprinkler (IROFS FIRE-15) did not occur. Impairment forms were not found for the period in question in the 105 Laboratory. Commitment #9953 documented that although NFS-GH-27 indicates that the sprinkler system in the 105 Laboratory is a credited system, there appears to have been an assumption that providing smoke detection after Tuff-Wrap installation was an adequate compensatory measure. As stated previously, there was a misconception that the sprinkler was not impaired once compensatory measures were installed, so impairment forms were not maintained.

Corrective Action #3: PIRCS Commitment #9954 required evaluation of the impact of the potential impairment of the 105 Lab Sprinkler (IROFS FIRE-15) to determine if the 10 CFR 70.61 performance requirements are still being met. Review of the safety basis documents identified that, for a combustible fire, the ISA consequences were low. Additional fire modeling and radiological evaluations were conducted to address specific NRC comments. Radiological consequences were still low based on the revised fire modeling. Since the ISA evaluations all indicated low consequence events, the sprinkler isn't required as an IROFS but is included as a Good Practice. 10 CFR 70.61 performance requirements are being met.

Corrective Action #4: PIRCS Corrective Action #10477 required a risk assessment to be performed in accordance with NFS-HS-A-79 for the compensatory measures in place for FIRE-15 due to lack of ceiling tiles. It was determined that FIRE-15 was no longer impaired due to lack of ceiling tiles and a risk assessment was not required.

Corrective Action #5: PIRCS Corrective Action #10478 required a review of fire impairment forms that are used as a compensatory measure for all IROFS in NFS-GH-27. Outstanding/current fire protection system impairment forms were reviewed to determine which impairments affected IROFS/SRE. The review indicated that we are within the 60-day window as prescribed in NFS-A-79. A qualitative evaluation was performed and determined that compensatory measures (fire patrols) are functioning as required. However, it was also noted that equipment issues, e.g., obtaining replacement parts for some fire doors, and sprinkler system impairments to support fire pump installation, may result in impairments exceeding the 60-day criteria contained in NFS-HS-A-79. Industrial Safety will enter a PIRCS problem report if an impairment might exceed the 60-day criteria in NFS-HS-A-79 and NFS-GH-27, in order to notify ISA and NFS management that a risk assessment of the impairment may be required.

### **The Corrective Steps That Will be Taken to Avoid Further Violations**

Discussed below are the corrective actions which have been identified to further enhance the IROFS program and to avoid further violations.

A revision to procedure NFS-GH-27 "Planned Impairments to Fire Protection Equipment" has been assigned to clarify several identified problems, including retention of impairment forms, clarification of responsibility for initiation of impairment forms, flowdown of the requirements in NFS-HS-A-79, and clarification of abnormal operating modes for the IROFS listed in NFS-GH-27. (PIRCS Corrective Actions #10473 and #10479).

Engineering will partner with the integrated safety analysis (ISA) department to 1) evaluate and revise SOP 392 "Work Request Procedure" and determine the most cognizant, responsible personnel for identifying IROFS and set point analyses that may be impacted by work requests, 2) ensure that the required IROFS training has been assigned to the personnel responsible for identifying IROFS and set point analyses that may be impacted by the work, and 3) include the roles and responsibilities for documenting, approving, and implementing compensatory measures prior to performing work. (PIRCS Corrective Actions #10474 and #10475).

A system for tracking fire impairments, and flow down requirements for the roles and responsibilities for implementing the system will be developed. (PIRCS Corrective Actions #10476).

**The Date When Full Compliance Will be Achieved**

Full compliance concerning the identified violation was achieved on November 20, 2009, when Corrective Action Nos. 1 through 5 described above were completed. Additional corrective actions are planned to strengthen the IROFS system and prevent future reoccurrence.