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21G-09-0010
GOV-01-55-04
ACF-09-0012
January 21, 2009

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

Subject: **30-Day Written Notification of Event (NRC Event No. 44740)**

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

Gentlemen:

On December 23, 2008, at approximately 1035 hours EST, Nuclear Fuel Services, Inc. (NFS) made a telephone notification to the NRC Operations Center of an event for which 10CFR70.74, Appendix A, (b)(2) requires a 24-hour notification. This letter provides the 30-day written notification of that event.

Attachment 1 contains sensitive information and is marked as "Official Use Only," and is not suitable for public release. A redacted version of this submittal suitable for public disclosure is being provided as Attachment 2.

If you or your staff have any questions, require additional information, or wish to discuss this matter further, please contact me or Ms. Jennifer Wheeler, Licensing and Integrated Safety Analysis Manager, at (423) 735-5429. Please reference our unique document identification number (21G-09-0010) in any correspondence concerning this letter.

Sincerely,

NUCLEAR FUEL SERVICES, INC.

B. Marie Moore
Director of Safety and Regulatory

EAS/pdj/rcy
Attachments

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Contains Circumvention of Statute Information. Department of Energy approval required prior to public release
Reviewed by:

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Attachment 1

30-Day Notification of Reportable Event

(3 pages to follow)

[redacted]

21G-09-0010
GOV-01-55-04
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Attachment 2

Redacted Version

30-Day Notification of Reportable Event

(3 pages to follow)

[redacted]

[redacted]

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30-Day Notification of Reportable Event

1. **The date, time, and exact location of the event**

The event occurred on December 23, 2008, at approximately 0749 hours (EST). The report of the event was made on December 23, 2008 at approximately 1035 hours (EST). The event occurred at the Nuclear Fuel Services, Inc. (NFS) site, located in the town of Erwin, Unicoi County, Tennessee.

2. **Radiological or chemical hazards involved, including isotopes, quantities, and chemical and physical form of any material released**

There were no radiological or chemical hazards associated with the event. Specific information concerning the materials typically located in the related areas is as follows:

Isotopes	97 wt.% ^{235}U
Quantities	0 grams ^{235}U [redacted]
Chemical Form	Classified
Physical Form	Classified

3. **Actual or potential health and safety consequences to the workers, the public, and the environment, including relevant chemical and radiation data for actual personnel exposures to radiation or radioactive materials or hazardous chemicals produced from licensed materials (e.g., level of radiation exposure, concentration of chemicals, and duration of exposure)**

There were no actual health and safety consequences to workers, the public, or the environment. There were also no personnel exposures to radiation, radioactive materials, or hazardous chemicals produced from licensed materials.

4. **The sequence of occurrences leading to the event, including degradation or failure of structures, systems, equipment, components, and activities of personnel relied on to prevent potential accidents or mitigate their consequences**

Area 600 uses a flammable gas as part of its operation. IROFS FIRE6-6 is a control that prevents the flammable gas from exiting the main process equipment and being released into an attached glovebox. FIRE6-6 makes use of a dual door system in which only one (1) door is allowed to be open at a time and the chamber between the doors is purged when both doors are closed. [redacted]

[redacted]

[redacted] Additionally, IROFS FIRE6-8, 6-1 and 6-9 ensure an inert gas purge occurs prior to opening the main process equipment to the glovebox and are also credited as IROFS.

The equipment associated with FIRE6-6 is designated as Safety Related Equipment (SRE) and is functionally tested annually. The regularly scheduled SRE Test was performed on December 23, 2008 and the purpose of the test is to demonstrate that each door remains closed while the other door is opened. The test failed because when the first door was opened, the second door also opened slightly (approximately one (1) inch). Though there are mitigating factors such as potential dilution of the flammable gas through the glovebox ventilation system, it was determined that IROFS FIRE6-6 was degraded and that the performance criteria of 10CFR70.61 were not met.

5. **The probable cause of the event, including all factors that contributed to the event and the manufacturer and model number (if applicable) of any equipment that failed or malfunctioned**

The system design uses double acting solenoid valves to control air pressure to each of the two chamber door pneumatic cylinders. A proximity switch on each door senses when the door is open and closes an SRE solenoid valve (ASCO model #8320A33) on the air line to the other door preventing air flow to the cylinder which prevents the door from opening. This is the interlock which prevents both doors from being open at the same time.

Prior to performing the SRE Test, both entrance and discharge doors to the chamber were in the closed position. The double acting solenoid valve sends air to the cylinder to keep it in the closed position. During the SRE Test, valve FV-0659 was manually operated (as required by the SRE Test) while the discharge door was open. When valve FV-0659 is manually operated, it relieves pressure on the side of the piston which keeps the door closed and applies pressure to the side of the piston which opens the door. Since the discharge door was open, valve FV-0694 was closed by the interlock to prevent air from valve FY-0659 from entering the cylinder and opening the entrance door. The failure was caused when the blocking SRE solenoid valve FV-0694 (ASCO model #8320A33) leaked by and allowed a small amount of air to flow to the entrance door lifting cylinder.

6. **Corrective actions taken or planned to prevent occurrence of similar or identical events in the future and the results of any evaluations or assessments**

The flammable gas supply to Area 600 was turned off at the time the SRE test was performed. The system was tagged out of service upon failure of the SRE test. The system was repaired by replacing both blocking solenoid valves FV-0694 and FV-0695 with a new model of ASCO valves (model # 8320G184). This is the same

model used in comparable areas in the facility. After installation of the new model valves, the SRE test was performed and passed. The Area Engineer is evaluating the type of valves being used to determine if a more reliable valve is available.

7. **If the event involved an area or equipment with an approved Integrated Safety Analysis, whether the event was identified and evaluated in the Integrated Safety Analysis**

The event was associated with an area having an approved Integrated Safety Analysis (ISA) in which an accidental fire is determined to be highly unlikely through the application of IROFS. The accident sequence associated with this report was identified and evaluated in the ISA.

8. **The extent of exposure of individuals to radiation or radioactive materials**

No individuals were exposed to radiation or radioactive materials as a result of this event.