NUCLEAR FUEL SERVICES, INC.
a subsidiary of The Babcock & Wilcox Company

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21G-09-0049
GOV-01-55-04
ACF-09-0083

March 12, 2009

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

Subject: 30-Day Written Notification of Event (NRC Event No. 44848)

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

Gentlemen:

On February 12, 2009, at approximately 1630 hours EST, Nuclear Fuel Services, Inc. (NFS) made a telephone notification to the NRC Operations Center of an event for which 10CFR70.50.b (3) requires a 24-hour notification. This letter provides the 30-day written notification of that event.

If you or your staff have any questions, require additional information, or wish to discuss this matter further, please contact me or Mr. Michael C. Tester, Health Physics Manager, at (423) 743-2518. Please reference our unique document identification number (21G-09-0049) in any correspondence concerning this letter.

Sincerely,

NUCLEAR FUEL SERVICES, INC.

BM Moore

B. Marie Moore
Director
Safety and Regulatory

MCT/rm

Attachment

IE72
NMSS

cc: Regional Administrator
U. S. Nuclear Regulatory Commission
Region II
Atlanta Federal Center
61 Forsyth Street, SW
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Atlanta, GA 30303

Mr. Manuel G. Crespo
Project Inspector
U. S. Nuclear Regulatory Commission
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Mr. Stephen Burris
Senior Resident Inspector
U. S. Nuclear Regulatory Commission

Attachment

30-Day Notification of Reportable Event

(3 pages to follow)

30-Day Notification of Reportable Event

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

The initiating event occurred on February 12, 2009 at approximately 1215 hours (EST). The report of the event was made on February 12, 2009 at approximately 1630 hours (EST). The event occurred in a Uranium Metal Dissolution Area filtration glovebox in Building 333 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

Radiological and/or chemical hazards associated with the event were limited to a very small quantity (a few milliliters) of highly enriched uranyl nitrate solution leaking through small holes/cuts in rubber gloves attached to the filtration glovebox. The solution in the glovebox contained a small mass of uranium (~ 100 grams) and concentrated nitric acid used in inventory clean out of the process equipment. Specific information concerning the materials typically located in the glovebox is as follows:

Isotopes:	60 wt.% ^{235}U
Chemical Form:	Uranyl Nitrate
Physical Form:	Solution

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)

The worker sustained a 2nd degree chemical burn to a 6 cm^2 location on the skin of the right wrist and a 1st degree chemical burn to a similiar area of skin on the right forearm. Duration of exposure to the corrosive chemical was brief, since the individual responded immediately to an emergency eye wash/safety shower to decontaminate, and subsequently received medical treatment at a local hospital emergency room. The minor skin contamination resulted in no intake of radioactive material or external penetrating radiation exposure to the individual. There was no actual or potential safety consequence to any other workers, the public, or to the environment.

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**

The injured individual was changing an in-line solution filter inside containment using rubber gloves mounted to the glovebox when he noticed liquid on his right coverall sleeve. The physical configuration of the glovebox ports required the individual to hold his arm at an upward angle while pouring solution from the filter canister into a container. Several small holes/cuts were later discovered in the fingers of the glovebox glove. The solution apparently penetrated the glove at the fingers, ran down the inside of the glove and came in contact with the individual's skin at the wrist and forearm. Contamination and/or injury to the skin of the hand was prevented because the individual was wearing disposable gloves on his hands inside the glovebox glove. More serious chemical burns were prevented by the quick response to the emergency eye wash/safety shower, and the immediate attention by medical personnel at the local hospital.

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 event was caused by degradation of the glovebox glove, over time, during contact with corrosive chemicals and/or sharp metal objects inside the containment. The glovebox gloves were manufactured from butyl rubber by North Safety of China Grove, N. C.

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**

Immediate corrective action taken was to shut the operation down and secure the filtration glovebox pending an investigation of the event. The glovebox gloves were carefully examined to identify how the solution leaked through the glove and resulted in the injury. Similar glovebox arrangements plant-wide using corrosive chemicals were also evaluated to verify the integrity of the glovebox gloves. Several gloves were replaced where the condition of the glove material was considered suspect.

Glovebox gloves on the filtration glovebox were replaced with gloves manufactured from a heavier butyl rubber material more resistant to damage. Long term corrective actions include determination of optimum glove specifications for applications onsite, and identification of the approved material of construction in site documentation. The ergonomics of the glovebox design is also being considered.

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 the consequences of an accidental chemical exposure were evaluated, and mitigating controls implemented in order to meet performance criteria.

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

Other than minor skin contamination to the injured employee, no individuals were exposed to radiation or radioactive materials as a result of this event.