



Nuclear Fuel Services, Inc.

**CERTIFIED MAIL  
RETURN RECEIPT REQUESTED**

21G-18-0081  
GOV-01-55-04  
ACF-18-0157

August 8, 2018

U. S. Nuclear Regulatory Commission  
Attention: Document Control Desk  
Washington, DC 20555-0001

**Subject: 30-Day Written Notification of Event (NRC Event No. 53502)**

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

Gentlemen:

On July 12, 2018, at approximately 0923 hours (ET), Nuclear Fuel Services, Inc. (NFS) made a telephone notification to the Nuclear Regulatory Commission (NRC) Operations Center of an event for which 10 CFR 70.50(b)(1) requires a 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 at (423) 743-1705, or Mr. Tim Knowles, Licensing Manager, at (423) 735-5061. Please reference our unique document identification number (21G-18-0081) in any correspondence concerning this letter.

Sincerely,

**NUCLEAR FUEL SERVICES, INC.**

Richard J. Freudenberger, Director  
Safety and Safeguards

RKR/lah

Attachment: 30-Day Notification of Reportable Event

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NMSS01  
NMSS

Copy:

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Mr. Larry Harris  
Senior Resident Inspector  
U. S. Nuclear Regulatory Commission

**Attachment**

***30-Day Notification of Reportable Event***

(2 pages to follow)

### **30-Day Notification of Reportable Event**

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

The Event Date/Time was July 11, 2018, at approximately 0645 hours (ET). The Event Location was Nuclear Fuel Services, Inc. (NFS), Erwin, TN, Building 333, Uranium Metal Dissolution area.

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

The spilled material was a solution of approximately 17 liters of Uranyl Nitrate. This solution consisted of approximately two (2) Molar nitric acid with 3.1E5 microCuries of Highly Enriched Uranium.

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 release of radioactive material occurred in Building 333, which is maintained as a Radiologically Controlled Area and designed to safely contain upset conditions. Consequently, there were no actual or potential safety consequences to the public or the environment. Potential health and safety consequences to workers include exposure to nitric acid and potential spread of radioactive contamination. There were no actual chemical exposures as a result of this event. During cleanup activities, one worker had skin contamination of 2,332 dpm alpha on his hand which was quickly decontaminated. Work records indicate the individual could not have been contaminated greater than approximately two (2) hours. The affected area was properly controlled and contained. No other radiological consequences occurred.

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**

On July 11, 2018, at approximately 0645 (ET), leakage was identified in Building 333, Uranium Metal Dissolution from Column 3C03. The spill was contained within an area of approximately 150 sq. ft. The event was entered into the corrective action program. Cleanup activities were initiated at approximately 1000 (ET). On July 12, 2018, it was discovered that the glass column was cracked and structural stability was in question. Cleanup activities were suspended pending further evaluation to ensure safety while continuing additional decontamination activities. As a result, adjacent columns were drained and isolated to eliminate potential sources of additional leakage. Actions to decontaminate the affected area to below building limits, and replace and retest the failed column were completed on July 25, 2018.

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 probable cause of the column failing was minor component misalignment and previous torque application resulting in unacceptable lateral tensile stresses in the glass column. The fractured column was Kimax Beaded Process Pipe manufactured by Kimble Glass, Inc.

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 event was entered into the corrective action program. An engineering evaluation identified a minor misalignment of the column glass and steel connection points. During replacement, the noted misalignment was corrected. The column has been replaced and retested satisfactorily. The affected area was decontaminated within the normal building limits and normal occupancy was restored to the area.

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 occurred in an area with an approved Integrated Safety Analysis (ISA); and, the event was evaluated and bounded by accident sequences in the approved ISA.

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

No chemical exposures occurred. During cleanup activities, one worker had skin contamination of 2,332 dpm alpha on his hand which was decontaminated within approximately two (2) hours with no measurable skin exposure. The total exposure for workers involved in the cleanup and repair activities was 4.4 DAC-hours accumulative.