BWXT
Nuclear Fuel Services, Inc.

***CERTIFIED MAIL***
***RETURN RECEIPT REQUESTED***

21G-19-0109
GOV-01-55-04
ACF-19-0185

September 12, 2019

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

**Subject:** **30-Day Written Notification of Event (NRC Event No. 54218)**

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

On Wednesday, August 14, 2019, at approximately 1007 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)(2) 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. Randy Shackelford, Nuclear Safety and Licensing Manager, at (423) 743-2504. Please reference our unique document identification number (21G-19-0109) in any correspondence concerning this letter.

Sincerely,

**NUCLEAR FUEL SERVICES, INC.**

Richard J. Freudenberger, Director
Safety and Safeguards

RKR/pj

Attachment: 30-Day Notification of Speaker Failure

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Mr. Larry Harris
Senior Resident Inspector
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**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**

Event Date/Time: August 13, 2019, at approximately 1600 hours (ET). Event Location: Nuclear Fuel Services, Inc. (NFS), Erwin, TN, Building 333 LEU.

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

Not Applicable.

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)**

Low enriched and natural Uranium are handled inside this facility. An operable Criticality Accident Alarm System (CAAS) is required for this area per 10CFR70.24. There were no actual radiological or other nuclear safety consequences to the public, workers, or the environment. The potential consequence was that, in the highly unlikely event of a nuclear criticality accident, evacuation could have been delayed for those personnel within the Building 333 LEU area with a potential resultant increase of postulated doses. There are two tanks containing low enriched uranium inside the facility. A criticality safe concentration is maintained in these tanks by carefully controlling the volume of blend stock solution and the volume and concentration of high enriched solution through comprehensive controls including mass flow meters, analytical sampling, online density meters, and an inline monitoring system.

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**

At approximately 1100 hours (ET), on August 6, 2019, the CAAS alarm audibility in this area was confirmed per site procedures. This establishes the maximum potential period that alarm audibility was not operable.

At approximately 1320 hours (ET), on August 13, 2019, a series of Public Address announcements were made. A supervisor noted that the public address announcement was not audible in Building 333 LEU high bay. The speaker system provides coverage for the CAAS and the Fire Alarm systems which is also used for public address announcements. Notifications were made and at approximately 1425 hours (ET) another PA announcement was made to confirm speaker audibility in all speaker locations associated with the effected speaker zone. This testing confirmed the only area with a speaker out of service was in Building 333 LEU high bay. At

approximately 1430 hours (ET) compensatory measures were established to restrict personnel access in the impacted area to require radio communication with the alarm room.

At approximately 1600 hours (ET) the CAAS alarm audibility was tested which confirmed that the CAAS was not audible from adjacent redundant speakers.

After making appropriate preparations, at approximately 1726 hours (ET) the speaker was replaced and retested satisfactorily. This restored the system to full compliance and terminated the event.

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 direct cause was that the individual speaker failed due to a degraded secondary coil. Diagnostics of the failed speaker revealed that the secondary coil had an electrical resistance of approximately 1.8 M Ω while approximately 8 Ω was expected. The failed speaker was a Federal Signal Corporation Model SPA. This speaker model is obsolete. A contributing factor was that there was only one speaker in this room with CAAS audible output.

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 documented in the licensee's corrective action program. As stated above, the failed speaker was replaced with a current model UL listed speaker. Currently, a capital project is already in progress to replace the CAAS speaker system, which will provide redundant speaker coverage. Additionally, the licensee is conducting a technical review of the current speaker system for this zone to determine if additional actions can be taken to reduce the risk of redundant speaker coverage.

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**

Not applicable.

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

No exposures occurred.