



Nuclear Fuel Services, Inc.

**CERTIFIED MAIL
RETURN RECEIPT REQUESTED**

21G-21-0129
GOV-01-55-04
ACF-21-0208

September 17, 2021

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

Subject: 30-Day Report, EN-55431 No Security Related Information

- Reference:
- (1) Docket No. 70-143: SNM License 124
 - (2) NRC Event Notification Report EN-55161
 - (3) 30 Day Report NFS to NRC, unique ID 21G-21-0076 dated April 28, 2021 (OUO)
 - (4) NRC Event Notification Report EN-55431

Nuclear Fuel Services, Inc., (NFS) is hereby providing a 30-day report that has removed Security Related Information as requested by the Nuclear Regulatory Commission and detailed in Reference 4. This report in its entirety (including Security Related Information) was previously provided as Reference 3 on April 28, 2021.

On March 30, 2021, at approximately 1325 hours [ET], NFS discovered concentration of radioactive material that exceeded the amount in 10 CFR 20.2203(a)(3)(ii) requiring a written report. This event was originally reported telephonically on March 31, 2021, at 1438 [ET] per 10 CFR 20.1906(d)(1) (Reference 2) and the 30 day written report (Reference 3) was submitted as required by these regulations.

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 Mrs. Danielle Rogers, Nuclear Safety and Licensing Section Manager, at (423) 735-5475. Please reference our unique document identification number (21G-21-0129) in any correspondence concerning this letter.

Sincerely,

NUCLEAR FUEL SERVICES, INC.

Tim Knowles
Tim Knowles, Director
Safety and Safeguards

*IET2
NMSS01
NMS3*

BRG/smd
Attachment: 30-Day Report
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Attachment

30-Day Report

(3 pages to follow)

30-Day Report

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

On, March 30, 2021, at approximately 1325 hours [ET], Nuclear Fuel Services, Inc., (NFS) discovered concentration of radioactive material that exceeded the amount in 10 CFR 20.2203(a)(3)(ii). An enclosure with contaminated material inside was discovered at the Industrial Park Facility (IPF), 1080 S. Industrial Drive, Erwin, TN 37650, approximately 1.4 miles from NFS. In accordance with SNM-124, the IPF is a licensed area for the material, but the material was not appropriately marked or labeled as required by license or regulation. Additionally, the area was not posted to contain radioactive materials as required by license or regulation. Furthermore, the material may have been moved from NFS to the IPF without using the controls identified in 10 CFR 71.5 at some past date.

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

The enclosure contained miscellaneous contaminated material. The total quantity of activity in the enclosure is estimated to be approximately 400 μ Curies (4.32 grams).

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 or safety consequences. The materials were stored in a wrapped enclosure that was not easily accessible. The enclosure was maintained inside the IPF and the building is not accessible by members of the public. Exterior radiation and contamination levels of the enclosure were not above background within the sensitivity of the instrumentation. There was no evidence of any damage or tampering of the enclosure or contents.

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**

A radiological survey was initiated to confirm that an enclosure in storage at the IPF met the criteria for unrestricted release. Initial exterior surveys and swipes of the enclosure identified no contamination that exceeded action limits or radiation doses above background. Smear surveys of equipment

inside the lower portion of the enclosure identified radioactive contamination-- a maximum removable of 11,240 dpm/100cm² alpha and 9,890 dpm/100cm² beta was noted. Nondestructive assay (NDA) of the enclosure was performed to ascertain the contents. NDA results were originally biased high due to an assumption that the materials contained within the enclosure were of steel construction. All radioactive materials were appropriately labeled and the area was posted to restore regulatory compliance.

On March 31, 2021, NFS investigation into the event determined an improper transfer method was likely utilized to relocate the enclosure from the Protected Area (PA) to the IPF at some point during or prior to 2016. A telephone report on March 31, 2021, at 1438 [ET] was made as required per 10 CFR 20.1906(d)(1) (Reference NRC EN55161).

NFS license SNM-124 exempts NFS from the labeling requirements of 10 CFR 20.1904 if other posting requirements are met. Exemptions to labeling requirements in 10 CFR 1905 exempts containers of radioactive material that are packaged and labeled in accordance with the regulations of the Department of Transportation (DOT). In consideration that the container was not labeled in accordance in DOT regulations, was not in a regulated area, and the quantity of licensed radioactive material contained exceeded the quantity in Appendix C to Part 20 by greater than a factor of 10, the notification requirement of 10 CFR 20.2203(a)(3)(ii) was 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 event was documented in NFS' corrective action program and a team was assembled to perform a root cause investigation and identify corrective actions. The investigation is still in progress and a probable cause has not yet been identified.

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 NFS' corrective action program and a team was assembled to evaluate root cause and identify corrective actions.

A plan was developed to remove, characterize, and package the contaminated items within the enclosure. The plan established appropriate radiological controls implemented in a Safety Work Permit requiring a negative pressure tent at the IPF. Additional operational guidance was provided in an approved Letter of Authorization (LOA). Once removed from the enclosure and wrapped to prevent the spread of contamination, further characterization of the contaminated materials was performed. The material was transferred from the enclosure into compliant shipping package(s). The

work area was surveyed and down-posted accordingly at the IPF. On April 9, 2021, all contaminated items removed from the enclosure were shipped from the IPF to the NFS PA.

The enclosure box was decontaminated to the extent practicable. Contamination inside the enclosure was adhered by applying a fixative. Other materials generated during the evolution (e.g., PPE, tent material) and the emptied enclosure box will ship from the IPF as low level radioactive waste at a later date.

As an interim corrective action, walkthroughs of storage areas located outside of the NFS PA are being performed to identify any similar materials or equipment that require additional surveys or evaluation.

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**

There were no measurable exposures to the environment or members of the public. During packaging of the equipment, there were no personnel contamination events and the cumulative exposure to all workers was less than 10 mRem.