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21G-17-0153
GOV-01-55-04
ACF-17-0193

July 26, 2017

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

Subject: 30-Day Written Report of Shipment Error

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

Gentlemen:

On June 26, 2017, Nuclear Fuel Services, Inc. (NFS) was made aware of an error in shipment involving licensed material for which 10 CFR 20.2203(a)(3)(ii) requires a report. This letter provides the 30-day written report 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-17-0153) in any correspondence concerning this letter.

Sincerely,

NUCLEAR FUEL SERVICES, INC.

Richard J. Freudenberger, Director
Safety and Safeguards

RKR/lh

Attachment: 30-Day Report

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NMSSD1
NMSS

Copy:

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Mr. Larry Harris
NRC Resident Inspector

Attachment

30-Day Report

(2 pages to follow)

30-Day Report

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

On June 22, 2017, Nuclear Fuel Services, Inc. (NFS), Erwin, TN, shipped licensed radioactive material as an unregulated shipment when limited quantity would have been appropriate to BWXT, Lynchburg, VA. The shipment was delivered on June 23, 2017. On June 26, 2017, BWXT, Lynchburg opened the package and reported the error to NFS at approximately 1532 hours.

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

The shipment consisted of four (4) metal samples that were U234/U235 contaminated up to 60,000 dpm/100 cm². The total quantity of activity in the shipment is estimated to be approximately 0.1 microCuries.

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 properly controlled prior to packaging, packaged in a Type A container, and upon receipt properly controlled. Radiation and contamination levels of the shipping container prior to shipment were not above background within the sensitivity of the instrumentation and would have been acceptable for a Surface Contaminated Object shipment. Radiological surveys upon receipt were comparable to pre-shipment surveys and there was no evidence of any damage or tampering of the container.

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**

NFS downsized and prepared four (4) contaminated metal samples during the week of June 19, 2017, using appropriate radiological controls. On June 20, 2017, the samples were bagged and removed from the work area and packaged for shipment. The internal packaging was marked as "Caution Internal Contamination" and the shipment was packaged in a metal five (5) gallon drum meeting Type A packaging requirements. On June 21, 2017, exterior radiation levels were measured as less than 0.1 mr/hr and the maximum removable contamination was 7 dpm/100cm².

On June 22, 2017, the package was shipped as an unregulated shipment to BWXT, Lynchburg, VA. The package was delivered on June 23, 2017. On June 26, 2017,

BWXT performed receipt inspections, identified the error, and informed NFS of the shipping error.

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. 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 shipped 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.

BWXT, Lynchburg (SNM License – SNM-42), the receiving facility, had anticipated the shipment would contain radioactive material and implemented adequate radiological controls upon receipt.

The licensee informed the NRC Resident Inspector on June 27, 2017.

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 is that the individual that prepared the shipping papers for the shipment inappropriately used gamma sensitive nuclear measurement data and contamination survey data obtained from the exterior bags used to package the material to characterize the shipment instead of requesting contamination surveys of the samples.

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

As an interim corrective action, an internal document that requires additional health physics and technical reviews of sample and non-waste/non-product shipments was implemented until the final corrective actions are generated.

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.