



Nuclear Fuel Services, Inc.

**CERTIFIED MAIL
RETURN RECEIPT REQUESTED**

21G-18-0059
GOV-01-55-18
ACF-18-0113

May 11, 2018

Director, Division of Spent Fuel Storage and Transportation
Office of Nuclear Material Safety and Safeguards
U.S. Nuclear Regulatory Commission
ATTENTION: Document Control Desk
Washington, D.C. 20555

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

Subject: 60-Day Written Notification of Event

Dear Sir:

On March 14, 2018, Nuclear Fuel Services, Inc. (NFS) identified an instance in which the conditions of approval in the Certificate of Compliance were not observed in making a shipment. This letter provides the 60-day written notification of that event as required by 10 CFR 71.95(a)(3).

If you or your staff have any questions, require additional information, or wish to discuss this matter further, please contact me or Mr. Tim Knowles, Licensing Manager, at (423) 735-5061. Please reference our unique document identification number (21G-18-0059) in any correspondence concerning this letter.

Sincerely,

NUCLEAR FUEL SERVICES, INC.

Richard J. Freudenberger, Director
Safety and Safeguards

TAK/pj

Attachment: **60-Day Notification of Reportable Event**

NM5324
IE74
NM55

Copy:
Regional Administrator
U.S. Nuclear Regulatory Commission
Region II
245 Peachtree Center Avenue, NE, Suite 1200
Atlanta, GA 30303-1257

Mr. Omar Lopez-Santiago
Chief, Projects, Branch II
Division of Fuel Facility Inspection
U.S. Nuclear Regulatory Commission
Region II
245 Peachtree Center Avenue NE, Suite 1200
Atlanta, GA 30303-1257

Mr. Leonard Pitts
Senior Fuel Facility Inspector
U.S. Nuclear Regulatory Commission
Region II
245 Peachtree Center Avenue NE, Suite 1200
Atlanta, GA 30303-1257

Ms. Leira Cuadrado
Project Manager
Fuel Manufacturing Branch
Division of Fuel Cycle Safety, Safeguards, & Environmental Review
Office of Nuclear Material Safety & Safeguards
U.S. Nuclear Regulatory Commission
Two White Flint North
11555 Rockville Pike
Rockville, MD 20852-2738

Mr. Kevin Ramsey
Senior Project Manager
Fuel Manufacturing Branch
Division of Fuel Cycle Safety, Safeguards, & Environmental Review
Office of Nuclear Material Safety & Safeguards
U.S. Nuclear Regulatory Commission
Two White Flint North
11555 Rockville Pike
Rockville, MD 20852-2738

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

Attachment

60-Day Notification of Reportable Event

(4 pages to follow)

Attachment

60-Day Notification of Reportable Event

1. **A brief abstract describing the major occurrences during the event, including all component or system failures that contributed to the event and significant corrective action taken or planned to prevent recurrence.**

Nuclear Fuel Services, Inc. (NFS) shipped five (5) drums containing radioactive material samples to KAPL on March 13, 2018. The shipment was regulated by the Department of Transportation as Class 7 Radioactive Material consigned under proper shipping name UN3327, Radioactive Material, Type A package, fissile. Knolls Atomic Power Laboratory (KAPL) reported that during the sample receipt, they identified that the lock nuts on the five (5) drums received were loose and not touching the unthreaded lug. The samples were shipped in 5-gallon Type A Skolnik drums, UN specification 1A2/X60/S. The Skolnik closure instructions specify this nut be tightened against the unthreaded lug to lock ring. The closure instructions also require that the insert bolt be torqued to 55-60 ft-lbs. Following an investigation, it was determined that the specific work instruction (SWI) did not include and/or reference instructions for the Skolnik drum. Furthermore, the closure instructions for a similar drum from a different manufacturer were used instead. For this reason, the conditions of approval in the Certificate of Compliance (COC) were not observed in making a shipment. Investigations by NFS indicated programmatic failure as the probable cause. Corrective actions taken or planned to prevent recurrence include the following: revising WST-SWI-17-021 to include specific closure instructions for Skolnik drums; revising as necessary SOP 335-O to include instructions for all container types that are utilized to package and ship samples; and, implementing administrative controls to ensure compliance with torque requirements.

2. **A clear, specific, narrative description of the event that occurred so that knowledgeable readers conversant with the requirements of part 71, but not familiar with the design of the packaging, can understand the complete event. The narrative description must include the following specific information as appropriate for the particular event.**

- (i) **Status of components or systems that were inoperable at the start of the event and that contributed to the event;**

During receipt of the five (5) Skolnik drums, KAPL personnel observed that the lock nuts on all five (5) drums were loose and not touching the unthreaded lug.

(ii) **Dates and approximate times of occurrences;**

NFS shipped five (5) 5-gallon drums from Erwin, TN, to Niskayuna, NY, on March 13, 2018. KAPL made the observation on March 14, 2018, during sample receipt.

(iii) **The cause of each component or system failure or personnel error, if known;**

The probable cause was programmatic error (i.e., the SWI did not include closure instructions for Skolnik drums).

(iv) **The failure mode, mechanism, and effect of each failed component, if known;**

Due to the lack of written instructions, the probable failure mode was a failure to properly close the Skolnik drums as required by the COC.

(v) **A list of systems or secondary functions that were also affected for failures of components with multiple functions;**

Not applicable to this event.

(vi) **The method of discovery of each component or system failure or procedural error;**

During receipt of the five (5) Skolnik drums, KAPL personnel observed that the lock nuts on all five (5) drums were loose and not touching the unthreaded lug. KAPL personnel confirmed that the condition of the containers was consistent with the closure instructions (i.e., torque, etc.). Upon further review by NFS, NFS identified that the conditions of approval in the COC were not observed when making the shipment. There were no similar previously identified issues with the Skolnik drums.

(vii) **For each human performance-related root cause, a discussion of the cause(s) and circumstances;**

The investigation looked into the cause for using the closure instructions for a different drum manufacturer. It was determined that the drum manufacturer was not readily identifiable on the drum. The lack of a readily and easily identifiable drum manufacturer marking on the 5-gallon drum contributed to misidentifying the drum and therefore using the incorrect closing instructions.

(viii) **The manufacturer and model number (or other identification) of each component that failed during the event; and,**

While there was no component failure for this event, the specific containers involved were 5-gallon Type 7A Skolnik Drums, UN specification 1A2/X60/S.

(ix) **For events occurring during use of a packaging, the quantities and chemical and physical form(s) of the package contents.**

311 grams of solid uranium oxide

3. **An assessment of the safety consequences and implications of the event. This assessment must include the availability of other systems or components that could have performed the same function as the components and systems that failed during the event.**

There were no safety consequences and implications as a result of this event. After notification from KAPL of the loose lock nuts, NFS requested KAPL to verify the torque on the closure ring bolt to ensure that the drum cover had not loosened during transport as a result of the loose lock nuts. The torque on each of the five (5) drums was verified to be within the 55-60 ft-lbs requirement per the Skolnik closure instructions.

4. **A description of any corrective actions planned as a result of the event, including the means employed to repair any defects, and actions taken to reduce the probability of similar events occurring in the future.**

1. This event was documented in NFS' Problem Identification, Resolution, and Correction System (PIRCS) as Problem P63655.
2. Creating an Operator Aid associated with the Skolnik closure instructions for bolt ring closure for open head drums.
3. Revising WST-SWI-17-021 to include specific closure instructions for Skolnik drums when used for packaging of samples.
4. Evaluating/revising, as necessary, SOP 335-O (Sample Preparation and Shipment) to include closure instructions for all container types that are utilized to package and ship samples.
5. Evaluating/implementing a mechanism to record container torque values/ verification for all rad and non-rad shipping packages as applicable for those packages that do not already have a runsheet in place to record this information.

6. Evaluating receipt inspection criteria for drums to include adding a readily and easily identifiable manufacturer identifier/markings to the drum/bucket.
7. Updating the Transportation and Waste Management (TWM) SharePoint site with the current revision of the Skolnik closure instructions such that the instructions are readily accessible. In addition, performing a transportability review of other manufacturer closure instructions to ensure that the current revision is readily accessible on the TWM SharePoint site.

5. **Reference to any previous similar events involving the same packaging that are known to the licensee or certificate holder.**

NFS has not had previous events with this type of packaging.

6. **The name and telephone number of a person within the licensee's organization who is knowledgeable about the event and can provide additional information.**

Jerry May, NFS Transportation & Waste Management, Operations Unit Manager, (423) 743-2568.

7. **The extent of exposure of individuals to radiation or to radioactive materials without identification of individuals by name.**

Not applicable to this event.