



August 29, 2024
24-042

Attn: Document Control Desk
Director, Office of Nuclear Materials Safety & Safeguards
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

Reference: License No. SNM-42, Docket 70-27

Subject 30 Day Written Report of Event Notification EN-57251

Dear Sir or Madam:

Please find BWXT Nuclear Operations Group, Inc. – Lynchburg’s (BWXT-NOG-L) 30-Day Written Report for Event Notification (EN) 57251, enclosed. This EN was reported under 10 CFR 20.2202(b).

On July 29, 2024, a BWXT NOG-L recycle vendor notified the licensee that a shipment of scrap aluminum machining chips was identified as being potentially radioactive and/or contaminated. The shipment of material had activated the recycle vendor’s portal detectors. BWXT-NOG-L’s evaluation determined that the scrap aluminum material contained licensed material.

The enclosed report provides an event description, immediate actions taken, compensatory measures, and the status of the investigation. BWXT-NOG-L will provide NRC, within 30 days, a written follow up report that provides the root causes and the long-term corrective actions to prevent recurrence.

If you have any questions or require additional information, please contact Daniel Ashworth, Manager of Licensing and Safety Analysis, at dashworth@bwxt.com or (434) 522-5472.

Sincerely,

Richard J. Freudenberger
Manager, Environment, Safety, Health, and Safeguards
BWXT Nuclear Operations Group, Inc, Lynchburg

Enclosure

cc: NRC, Region II
NRC, Resident Inspector
NRC, James Downs, NMSS/DFM

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24-042
Enclosure

ENCLOSURE
(3 Pages)

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Event Description:

On July 29, 2024, a BWXT NOG-L recycle vendor notified the licensee that a shipment of scrap aluminum machining chips had been identified as potentially radioactive. The shipment had activated the recycle vendor's portal radiation detectors. BWXT-NOG-L personnel responded to the vendor's facility and performed a preliminary assessment. Smears of the exterior of the shipping container and the interior of the transport vehicle confirmed no contamination was present. The recycle vendor obtained a special permit (Permit No. US DOT SP 10656 / Approval Number VA 24 002) from the Commonwealth of Virginia to return the container to BWXT-NOG-L for further evaluation. Upon return of the container, the contents were re-packaged into drums, values established through non-destructive assay (NDA), and stored within a radiologically controlled area. A total of 38 grams U-235 was assigned to the container.

There was no exposure to any members of the public. The material did not pose a risk to the public or the environment during its transportation to and from the recycle vendor. BWXT-NOG-L recognized the potential exposure implications had this material been processed through the recycler's facility and reported accordingly under 20.2202(b). BWXT-NOG-L also recognized the failure to properly ship radioactive material in accordance with 10 CFR 71.5.

Background:

Between May 31, 2024 and June 22, 2024, Research Test Reactor (RTR) operations machined 24 fuel plates to final width. During machining, a breach unknowingly occurred as the result of incorrectly aligned machining reference holes. On or about June 25, 2024, an aluminum scrap drum (Drum #1) located at the milling machine was replaced with a new drum (Drum #2). Drum #1 was transferred out of the Controlled Access Area (CAA) and the Protected Area to the Waste Treatment Recycle facility on or around June 27, 2024. The presence of licensed material in Drum # 1 was not detected during the transfer.

On July 9, 2024, during an x-ray of plates, an RTR operator identified exposed RTR fuel on the edge of an aluminum plate. An Extent of Condition Review revealed all 24 plates had been breached. Following a review by Nuclear Material Control (NMC), Security, and Radiation Protection, the area was released for production under the assumption that the breached material was contained in one drum (Drum #2), which was moved to the RTR controlled area.

Between July 22, 2024 and July 26, 2024, recycle aluminum (including Drum #1) was consolidated into cardboard shipping containers for shipment. The mixed metal shipment was transported to a local recycle facility on July 29, 2024.

Safety Significance:

The actual safety significance of the event was low. No personnel exposures resulted from the loss of control of licensed material. The material did not pose a risk to the public or the environment during its transportation to and from the recycle vendor. Had the radioactive materials not been detected at the recycle facility and subsequently processed by the vendor, exposures to the public may have occurred.

Immediate Actions:

- Material transfers outside of the CAA involving metal, metal chips, similar material or any material in a drum or barrel that could not be visually inspected were suspended.
- Shipments of recycle and waste materials were suspended.
- A 24-hour notification was made to the NRC (EN 57251).
- Corrective Action CA202401144, Level 1, was initiated.
- The affected areas were returned to operation with the implementation of compensatory measures, per BWXT NOG-L's Conduct of Operations Procedure.
- An investigation was initiated.

Compensatory Measures in Place:

Compensatory measures were systematically implemented in accordance with BWXT NOG-L's Conduct of Operations Procedure for restart of both CAA Transfers and Recycle Shipments.

CAA Transfers - Remedial performance-based training on the proper use of security hand-held SNM search equipment was conducted with a limited number of officers to search drums, barrels, or other similar packaging containing any/all forms of metal prior to exiting the CAA. A phased approach was implemented to train all officers responsible for security searches at Checkpoint 6 (exit point from the CAA). Security implemented a dual-search requirement for packages exiting the CAA. The number of drums/barrels per pallet was limited to ensure a thorough search and survey can be performed. Security also implemented additional oversight when searching drums, barrels, or other similar packaging containing any/all forms of metal prior to exiting the CAA. Alarm conditions require notification of Security Management as well as Radiation Control to conduct further investigation.

Recycle Shipments – All drums, excluding those that are already managed as LLR or mixed waste and materials that are already sampled and / or metal that is not utilized in areas where Special Nuclear Material (SNM) is processed, are being surveyed by Radiation Control to verify

no contamination is present. Each container is being given a unique identification for documentation purposes. Survey results are being documented and a copy of the results attached to the shipping documentation retained for each container.

Status of Investigation:

An investigation was initiated shortly after the event was identified. The investigation team includes representation from Security, Radiation Protection, NMC, and RTR Operations. The team is being led by an independent representative from Engineering. Formal investigation tools, including a Nuclear Work Model Critique and a TapRoot Root Cause Analysis are being utilized to identify root causes and corrective actions. A Safety Culture Implication Review is also being performed. Following completion of the investigation and finalization of root causes, BWXT NOG-L will implement corrective actions to prevent recurrence. The root causes and the planned corrective actions will be shared with NRC within the next 30 days.