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07-174

Director
Office of Nuclear Material Safety and Safeguards
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555-0001
ATTN: Document Control Desk

Reference: License SNM-42, Docket 70-27

Subject: 30-Day Written Report for Event Notification # 43616

Gentlemen:

BWX Technologies, Inc., Nuclear Operations Division - Lynchburg (NOD-L) is providing a 30-Day written report for Event Notification # 43616 per 10 CFR 70.50(c)(2). The event notification was reported under 10 CFR 70 Appendix A(b)(2): loss or degradation of item relied on for safety that results in failure to meet the performance requirement of §70.61.

The enclosure presents the detailed information on this event and corrective actions. If there are any questions in this regard, please contact me at (434) 522-6570.

Sincerely,

Leah R. Morrell
Manager, Licensing and Safety Analysis
(Licensing Officer)

Enclosure

cc: NRC, Region II
NRC, Resident Inspector
NRC, A. Snyder

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ENCLOSURE

30-Day Written Report for Event Notification # 43616 – September 6, 2007

Event Description

On August 22, 2007, a pre-filter was removed from the saw enclosure ventilation in the Metallurgical Lab (Met Lab) due to a high pressure drop across the pre-filter. The pre-filter was constructed with a paper core and metal housing, approximately 10.5-inches high with a 13-inch diameter. When the pre-filter was prepared for disposal, it was determined to have a net weight gain of about 2410 grams.

In accordance with procedure, Met Lab personnel immediately notified Nuclear Criticality Safety (NCS) because the weight gain was more than expected. For pre-filters, net weight difference may be used as a conservative U-235 mass until Accountability measurements are completed. Nondestructive assay of the pre-filter determined there were 107 grams of U-235 in the filter. This value was significantly less than the allowable U-235 mass limit of 546 grams.

Initial Evaluation

NCS determined that the existing NCS analysis for fuel accumulation in glove-box ventilation pre-filters defined a limit of 744 grams U-235 with the requirement that the pre-filters be replaced at a documented frequency determined by specific operations performed in the glove-box. There was also an operational requirement to check the enclosure manometer to determine if the exhaust pre-filters need to be changed, but no minimum change frequency had been specified. The initial evaluation determined that it was unlikely that a large fuel quantity could collect on the saw enclosure pre-filter because the saw removes only a few grams from each item, most of the removed material is zirconium, and much of the material is collected in the coolant. It is probable that the pre-filter would clog, as indicated by the manometer check, before the fuel accumulation approached the limit.

On September 5, 2007, NCS determined the requirement of the NCS analysis to implement a minimum change frequency for the saw enclosure pre-filter had not been completed nor had the Integrated Safety Analysis (ISA) been updated. Although there was no immediate safety concern and controls were in place, IROFS had not been fully implemented. The operation of the saw was immediately suspended until the procedures and ISA were revised to implement the Item(s) Relied On For Safety (IROFS).

BWXT determined that this event required an NRC notification. A corrective action was issued and an investigation was initiated.

BWXT notified the NRC on 9/6/07 in accordance with 10 CFR 70.61, Appendix A, (b)(2) - Loss or degradation of IROFS that results in the failure to meet the performance requirements of 70.61.

Investigation Team Findings

In July, 2005, an NRC audit identified an unevaluated event for accumulation of material in ventilation systems outside the Recovery area. In response to this evaluation, BWXT performed an NCS evaluation which identified locations in the facility with the highest potential for significant SNM accumulation in the ventilation system. The Met Lab was identified in this list. In addition, the evaluation identified several general protections and preventions that existed. These included annual ductwork inspections, pre-filters, and procedural pressure drop monitoring. This evaluation addressed the NRC violation and it was closed.

In 2006, an incident occurred in the Recovery area where a significant quantity of SNM accumulated in a pre-filter. The NRC Resident Inspector discovered that a limit for the amount of material that was allowed to accumulate in the pre-filter was not established. An Unresolved Issue (URI) was generated and the NCS safety concern analysis for the URI recommended establishing pre-filter accumulation limits.

In June 2006, an evaluation was performed to determine the maximum allowable accumulation in the pre-filters to address the URI. The NRC Resident Inspector noted that the URI was addressed, however, no specific area evaluations had been performed and no controls were established in the ISA. An Inspector Follow-up Item (IFI) was generated. BWXT agreed to perform a specific evaluation for the RTRT Powder processing area to establish controls and management measures. Periodic replacement of the pre-filter was identified as an IROFS. Following the implementation of these management measures, the IFI was closed.

When the accumulation of material in the Met Lab pre-filter occurred, it was discovered that although an evaluation was performed to determine the allowable material accumulation for a pre-filter, no specific controls had been placed in the ISA Summary for the Met Lab.

Although NCS had been performing area specific evaluations to resolve recommendations from the evaluation of the pre-filter systems, no formal tracking was initiated to ensure timely completion and implementation of IROFS. Based on a previous NCS safety concern analysis however, there is no immediate concern for accumulation in dry glove-box pre-filters because it is has long been

BWXT's position that dry glove-box pre-filters will not collect a significant amount of uranium before being replaced due to restricted airflow.

Causal Factor and Corrective Actions to Prevent Recurrence

As a result of the investigation, a causal factor and corrective actions to prevent recurrence were identified:

Causal Factor: Failure to establish commitments to perform specific evaluations for areas identified as having potential for significant SNM accumulation in the ventilation system.

Corrective Action #1: Develop a plan to perform evaluations for each of the areas where there is a high potential for significant accumulation of SNM on ventilation pre-filters. For each area identified, a formal commitment will be generated to follow through to completion.

Completion Date: 11/30/2007

Corrective Action #2: Update NCS procedures to include a method to formally address recommendations stated in NCS analyses.

Completion Date: 11/30/2007

Corrective Action #3: An area specific evaluation for the Met Lab was performed and IROFS were implemented. The Met Lab procedure governing the saw operation and filter change was modified to require filter changes at each inventory and when the cumulative saw loss approaches the 350 gram limit.

Completion Date: Completed