



babcock & wilcox nuclear operations group

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April 9, 2010
10-035

Director
Office of Nuclear Material Safety and Safeguards
U.S. Nuclear Regulatory Commission
Washington, DC 20555
Attn: Document Control Desk

Reference: License SNM-42, Docket 70-27

Subject: 30-Day Written Report for Event Notification #45762

Dear Sir:

Babcock & Wilcox Nuclear Operations Group, Inc. (B&W NOG) is providing a 30-Day written report for its Lynchburg facility for Event Notification #45762 per 10 CFR 70.50(c)(2). The event notification was reported under 10 CFR 74.11: Each licensee who possesses one gram or more of contained uranium-235, uranium-233, or plutonium shall notify the NRC Operations Center within 1 hour of discovery of any loss or theft or other unlawful diversion of special nuclear material which the licensee is licensed to possess, or any incident in which an attempt has been made to commit a theft or unlawful diversion of special nuclear material.

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) 522-5965

Sincerely,

Barry L. Cole
Manager, Licensing & Safety Analysis
(Licensing Officer)

Enclosure

cc: NRC, Resident Inspector
NRC, Merritt Baker
NRC, Region II

ENCLOSURE

30-Day Written Report for Event Notification # 45762 – March 12, 2010**Event Description**

A Metallurgical Laboratory (Met Lab) sample was determined not to be in its prescribed location on March 9, 2010. A search for the item was immediately initiated per requirements. As of 10:00 a.m. March 12, 2010, the item had not been located and as a result, formal notification of a missing item was made to the NRC per 10 CFR 74.11. To date, no indicator of intentional theft or diversion has been found. The missing item is approximately 3.71" long by 0.25" wide and contains 0.67 grams U and 0.65 grams U235.

Initial Evaluation

On the morning of March 9, 2010, two Nuclear Materials Control (NMC) operators were dispatched to retrieve a Met Lab sample from its in-process storage location for further analysis. The operators could not locate the sample and immediately notified supervision. An initial search of the area was made along with a review of process documentation to determine if the item had been removed. At 1:00 p.m. the same day, the supervisor notified the NMC Accountability Manager that the sample could not be found and missing item procedures were initiated. Efforts were immediately begun to research affected areas, trash containers, drums, area process containers, and the Laundry. No indication was found that the item had been transferred from the area. No indication was found that the sample was received at the Chemistry Laboratory, the next intended location in the analysis process. A review of NMC records confirmed that the item was last physically verified by two personnel on October 26, 2009, when it was created. NMC records were then reviewed to identify all containers from the area that had either been created or accessed during that time. This information was used to further expand the search. Over 140 material containers were generated during that time and they have been searched. Seven waste drums remained of the 90 identified as having come from the area. These seven have been searched. The remaining 83 have either been compacted or sent offsite for radiologically contaminated waste disposal per normal operating procedures.

B&W NOG Security was notified on March 10, 2010, after initial searches did not resolve the missing item. They increased surveillance of employees and materials exiting the area. A review of Security records confirmed that there were no security related unresolved alarms for the time period from October 26, 2009, through March 10, 2010.

Investigation Team Findings

An investigation team was chartered to investigate this incident. The team used TapRoot® and Human Performance Improvement (HPI) cause analysis techniques to create an event timeline and identify the causal factors. They are as follows:

Causal Factor 1- Causal Factor 1 is the lack of a formal system for handling element samples for purposes other than metallurgical analysis. These samples travel with the tray of element samples until the samples processed in the Met Lab are complete. There was no procedure, routing, or formal guidance for segregating element samples generated in the Met Lab for purposes other than metallurgical analysis. The missing sample was not identified on the Met Lab forms, routings, or applicable procedures.

Causal Factor 2- Causal Factor 2 is inadequate control of in process Met Lab samples due to the handling of thousands of in-process element samples and the limited documentation and peer review for chain-of-custody. The missing sample has not been located and the specific cause for its loss is unknown. NMC and Met Lab management states that over 7000 element samples are typically generated and processed every six months in the Met Lab. The extent of condition is limited to the Met Lab due to the high volume of element samples that must be controlled. There is no indication from the searches that material has been diverted.

Causal Factor 3 Causal Factor 3 is an inadequacy in the design of the tray used to store the Met Lab element samples. Previous corrective actions have shown that samples can fall out of the tray or container. The extent of condition is limited to the Met Lab area since the tray is only utilized in this area.

Corrective Actions to Prevent Recurrence

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

Causal Factors and Corrective Actions

Causal Factor 1: No formal segregation & routing guidance or procedure for element samples generated in the Met Lab for purposes other than metallurgical analysis.

Corrective Action 1: Create procedures/documents to provide routings for all Met Lab sectioned samples including disposition path.

Completion Date 1: 10/1/2010

Causal Factor 2: Control of in-process samples in the Met Lab was inadequate.

Corrective Action 2: Implement a documented formal sign in/sign out system for issue and receipt with dates of element sections.

Completion Date 2: 6/18/2010

Causal Factor 3: The existing Met Lab storage tray used for sample storage is inadequate.

Corrective Action 3: Replace the Met Lab element storage trays with containers sized to hold all the element samples without potential loss of smaller samples.

Completion Date 3: 5/31/2010