

team was assembled to validate immediate actions and to determine if further immediate action was required. The team determined that a barrier should be installed to prevent any potential for spread of contamination.

ANALYSIS: The direct and root cause of this event was that there were no steps taken prior to 1964 to detect if a leak was in the process system.

There were no indications that there had been a past leak at this location based upon numerous visual inspections, consultation with available operations personnel that have experience with the building, and reviews of historical documents.

In the future, the Nuclear Criticality Safety Department will be consulted prior to initiating field activities where the process piping is covered. Information that will help the Nuclear Criticality Safety Department determine if a possible leak of uranyl fluoride has occurred includes visual inspections of the piece of equipment for signs of leakage, nondestructive assay data (NDA), and consultation with personnel that are knowledgeable of the equipment.

In addition, the DRP has been redirected to verify containment on the deposit locations that pose the highest risk if a leak of uranyl fluoride has occurred.

It should be noted that neither Health Physics nor NDA personnel have the ability to detect a uranyl fluoride leak similar to that which occurred at this location. Intrusive characterization (removing some of the insulation) would need to be performed to determine if there was a breach of the process system.

As a result of the process material being found outside of its primary containment, the project is being directed to re-scope the remaining activities to focus on the verification of containment on deposits where the process equipment cannot be visually inspected. This includes locations at the Product Withdrawal Station and several cold traps. A Baseline Change Proposal will be developed to redirect the project. A letter requesting redirection has been submitted to DOE for concurrence.

RESOLUTION/RECOMMENDED ACTIONS:

1. Develop and issue a Unreviewed Safety Question determination pre-screening for the as-found condition of uranyl fluoride external to process system pipe in the Building.
2. Revise the work plan and other associated documentation as required (i.e., NCSAs, RWPs, JHAs, etc.) for cleanup of the uranyl fluoride external to process system pipe in the building.
3. Clean up the uranyl fluoride outside the process piping, store/dispose of uranyl fluoride properly, and return the area to a controlled state.
4. Issue a notice for the DRP personnel stating that the Nuclear Criticality Safety Department be contacted for appropriate requirements and review prior to starting work activities involving removal of insulation from process system components or piping.

5. Issue a notice for the Surveillance and Maintenance Program stating that the Nuclear Criticality Safety Department be contacted for appropriate requirements and review prior to starting work activities involving removal of insulation from process system components or piping.
6. Develop and issue a Lessons Learned detailing the need to contact the Nuclear Criticality Safety Department prior to starting maintenance activities at locations where process piping is covered.
7. Complete inspections of selected process equipment where primary containment is not visible to determine if a uranyl leak has occurred.
8. Have individuals that perform periodic inspections of deposit locations to be knowledgeable of what uranyl fluoride material looks like.

This lessons learned is especially applicable to those areas of the process system that operated above atmospheric pressure. Material may have been forced out through small leaks in valves, fittings or pinhole leaks in the pipe.

In addition to applying to systems that contain fissile material, this lessons learned can also apply to piping systems that contain hazardous materials or materials that could be harmful if unknowingly outside the primary containment. Similar precautions should be taken to determine if containment has been lost prior to performing work on the system.

ORIGINATOR: Bechtel Jacobs Company, LLC; E. Paul Larson, (423) 574-9905 Engineering & Technical Services

VALIDATOR: E. E. Hill, (423) 576-0276 Performance/Quality Assurance

CONTACT: Joanne E. Schutt, (423) 574-1248

NAME OF AUTHORIZED DERIVATIVE CLASSIFIER: D. C. Lannom 423-576-0097

NAME OF REVIEWING OFFICIAL: J. F. Preston

PRIORITY DESCRIPTOR: Yellow/Caution

KEYWORDS: process pipe, fissile, Nuclear Criticality Safety Department, leaks, pipe

REFERENCES: Occurrence Report: ORO--BJC-BJCETTP-1998-0003

DOE FUNCTIONAL CATEGORIES: Environmental Protection, Environmental Restoration and Waste Management, Conduct of Operations

BJC FUNCTIONAL CATEGORIES: EP - Environmental Protection, OP - Conduct of Operations,

HAZARDS: Hazardous Materials Radiological

WORK ACTIVITY: Decontamination and Decommissioning Waste Remediation

FOLLOW-UP ACTION: Information in this report is accurate to the best of our knowledge. As means of measuring the effectiveness of this report please notify Joanne E. Schutt at (423)574-1248, e-mail at s6u@ornl.gov of any action taken as a result of this report or of any technical inaccuracies you find. Your feedback is important and appreciated.

Cynthia M. Eubanks, eub@bechteljacobs.org
Performance/Quality Assurance Org.
Bechtel Jacobs Company, LLC
Phone: (423)576-7763; Pager = 873-6968
Fax: (423)574-5398