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# DEFENSE NUCLEAR FACILITIES SAFETY BOARD

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December 8, 1995

Mr. Mark Whitaker  
Department of Energy  
1000 Independence Avenue  
Washington, DC 20585-0119

Dear Mr. Whitaker:

A staff report entitled "Review of PNL's Hanford 300 Area Facilities" was sent to you on September 27, 1995. Would you please replace it with the enclosed revised report.

Sincerely,

A handwritten signature in cursive script that reads "Elaine Baer".

Elaine Baer

Enclosure

## DEFENSE NUCLEAR FACILITIES SAFETY BOARD

February 28, 1995

**MEMORANDUM FOR:** G. W. Cunningham, Technical Director

**COPIES:** Board Members

**FROM:** Dermot M. Winters, Technical Staff

**SUBJECT:** Trip Report - Review of PNL's Hanford 300 Area Facilities,  
January 31-February 2, 1995

1. **Purpose:** This trip report documents an introductory review by Defense Nuclear Facilities Safety Board (DNFSB) staff members (Dermot Winters and Paul Gubanc) and outside expert (David Boyd) of the organization, conditions, and activities of the Pacific Northwest Laboratory's (PNL's) 300 Area facilities at the Hanford Site, Richland, Washington.
2. **Summary:** Review activities included walk downs of facilities in Buildings 305-B, 324, 325, 326, 327, and 331. Outside expert David Boyd's focus included observing the performance of selected portions of safe operating procedures (SOPs) and reviewing an SOP. During the orientation tours and limited observation of operations at various facilities it became apparent that, despite recent and ongoing efforts to improve, significant conduct of operations deficiencies remain at PNL. Principal findings include:
  - a. Problems with procedures, such as:
    1. different systems exist in different buildings for exercising procedural controls;
    2. adequate procedures for properly handling and opening suspect waste drums do not yet exist at PNL; and
    3. numerous inconsistencies, omissions, and inaccuracies were noted in review of procedures;
      - (a) During performance of selected portions of several SOPs, the control point sign off sheets appended to the procedures were observed to be the primary references for the supervisor conducting the evolution instead of steps included in the body of the procedures.

- (b) An action contained in an operational control hold point of a procedure was not performed.
  - b. A structured, facility-specific program is not yet in place for training and qualifying Building 324 hot cell operations (HCO) technicians.
  - c. Considerable variability in conditions was noted between the various buildings toured. Deficiencies were noted in housekeeping and material condition, lock and tag records, and radiological work permits (RWPs).
3. **Background:** The Pacific Northwest Laboratory operates various research facilities in the 300 Area at the Hanford Site. These facilities have been the subject of various radiological and waste management occurrences in recent months. PNL management has been attempting to institute operational improvements at these facilities. The aforementioned occurrences, especially several personnel contaminations and, most recently, the act of improperly opening a pressurized drum containing radioactive waste at Building 331 led to the conduct of this review.
4. **Discussion:** Facility observations and discussions among the DNFSB technical staff and OE's, Department of Energy Richland (DOE-RL), and PNL personnel between January 31 and February 2, 1995, are summarized below:
- a. Procedural Controls. Different systems exist in different buildings for exercising procedural controls. Three different categories of procedure documents were observed to be in use simultaneously at Building 325. In addition to use of "controlled" and "uncontrolled" copies, copies of controlled copies were also in use. The latter were considered to be the equivalent of "controlled" copies since each person on controlled distribution makes sure that all copies of his/her "controlled" copy are current. This practice would seem to defeat the purpose of maintaining "controlled" copies in the first instance.
  - b. Performance of Procedures. Portions of several Building 324 SOPs were observed being performed as required to move a cask from the crane handling area (CHA) to the B-Cell airlock, move a grouted container of radioactive waste from B-Cell to the airlock, load it into a liner, and install the liner lid. Outside expert David Boyd observed the performance of a routine procedure to move a cask. The following deficiencies in procedure use and compliance were noted:
    - 1. Infrequent use of procedures during the observed evolutions.
    - 2. Numerous hold points were initialled instead of signed as called for by the sheets and undated, although dates are specified to be included.

3. Several hold points were left blank.
  4. During observation of the "Cask - Grouted Waste Loading" procedure a subitem was not performed. Omission of the subitem was called to the attention of the supervisor conducting the evolution. He discussed the observation with the HCO lead supervisor, also present in the CHA, and they decided to red line the procedure to delete the action as being unnecessary.
  5. Uncontrolled work place copies in use for two procedures were marked with an expiration date of January 31, 1996. Limiting the effective date of copies of procedures to short periods of time would decrease the possibility that they may not be kept current.
  6. "Cask - Grouted Waste Loading," a current key procedure that has received considerable review and revision remains, in a number of respects, inconsistent with guidance contained in DOE-STD-1029-92, *Writer's Guide for Technical Procedures*. The procedure also includes numerous confusing actions, inaccuracies and omissions.
- c. Pressurized Drum Event. A tour of Building 331 and discussions with PNL management concerning the recent improper opening of a pressurized waste drum were performed. At the time of the discussions, re-entry of the lab where the incident took place and recovery operations had not yet taken place due to extremely slow efforts to develop an adequate recovery plan. Although there appear to be no additional drums of unknown age or content at Building 331, the lack of adequate procedures for handling such drums across the PNL complex remains a deficiency.
- d. Training and Qualification. A structured, facility-specific, training and qualification program is not yet in place for Building 324 HCO technicians. Rather, technicians are authorized to perform designated SOPs by a HCO group manager memo, based on the manager's personal interactions and observations, inputs from the HCO training representative, supervisory and technical staff, and a review of individual work histories and experience. This represents a non-compliance with DOE Order 5480.20A.
- e. Housekeeping and Material Condition. Inconsistent conditions were noted between the various facilities toured. Buildings 305-B, 325, 327, and 331 displayed good to excellent housekeeping; buildings 324 and 326 fair to poor housekeeping. Overall appearance of most frequently toured spaces in Buildings 324 and 325 was satisfactory. Deficiencies were noted in such areas as the Building 325 basement storage and machinery areas and the "cold" side of Building 324. In general, few valves and equipment components are labeled; numerous informal operator aids are in use; some Building 325 fume hood ventilation exhaust ducts have test point openings closed with tape instead of fittings; and several components such as pipe and duct ends possibly containing contamination are closed with tape.

- f. Radiological Deficiencies. Deficiencies noted include the following:
1. Deficiencies in Radiological Work Permit RWP 324-118, Rev 3.
    - (a) Locations were not specified for the estimated dose rates and contamination levels.
    - (b) The limiting condition that would void the RWP was the same as the estimated extremity dose rate and the limiting work area removable contamination in the Controlled Work Area (CWA) is given as less than the estimated contamination level.
    - (c) The limiting airborne radioactivity in the CWA is given in DAC units while the results of air samples included with the associated radiological survey report state concentration in uCi/l units.
  2. A safe for storing radioactive materials for which there was no log kept of materials taken in or out was observed in a Building 326 radiological lab.
  3. There is no system for tracking radiological postings of inoperable fume hoods in Building 325.
- g. Organization and Administration. Building 324 organization has reportedly changed four times in the past eleven months. Personnel questioned showed some confusion and uncertainty about present responsibilities and the future course of the organization. In several of the areas reviewed, policies are established and implemented by memoranda and not institutionalized in a manual, procedure, or directive with a structured review and approval process.