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## DEFENSE NUCLEAR FACILITIES SAFETY BOARD

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October 21, 1994

Mr. Mark Whitaker, EH-6  
U.S. Department of Energy  
1000 Independence Avenue, SW  
Washington, D.C. 20585

Dear Mr. Whitaker:

Enclosed for your information and distribution are 24 Defense Nuclear Facilities Safety Board (DNFSB) staff reports. The reports have been placed in the DNFSB Public Reading Room.

Sincerely,

A handwritten signature in black ink, appearing to read "G. W. Cunningham".

George W. Cunningham  
Technical Director

Enclosures (24)

**DEFENSE NUCLEAR FACILITIES SAFETY BOARD**

January 18, 1994

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

**COPIES:** Board Members

**FROM:** J. T. Arcano, Jr.

**SUBJECT:** Review of Corrective Action Processes at Hanford,  
December 13-16, 1993

1. **Purpose:** This memorandum describes the observations of the Defense Nuclear Facilities Safety Board (DNFSB) technical staff during a review of the corrective action management processes used at Hanford by the Department of Energy - Richland Operations Office (DOE-RL), Westinghouse Hanford Company (WHC), Kaiser Engineers Hanford (KEH), and the Battelle - Pacific Northwest Laboratories (PNL). The review was conducted from December 13-16, 1993 by DNFSB staff members J. T. Arcano, Jr., T. J. Dwyer, and S. A. Stokes, and by outside expert D. J. Cleaves.
2. **Summary:** During this review at Hanford there was no evidence of any DOE-RL or DOE Headquarters activity to ascertain the effectiveness of the corrective action processes or the degree of completion of safety significant corrective actions. Specific areas of concern to the review team include:
  - a. Sitewide
    - Prioritization of corrective actions is not based on their safety significance.
  - b. DOE-RL
    - The DOE-RL corrective action process lacks management attention and clear lines of responsibility and communication.
    - DOE-RL lacks adequate quality verification of the corrective action process.
    - Root cause determination has not been adequately used as input to the corrective action process.
    - No program exists for trending deficiencies.

c. **WHC**

- The determination and approval of corrective actions and their implementation plans lacks senior management involvement.
- There is insufficient site-wide acceptance and utilization of the corrective action system as a decision-making tool for management.
- No program has been implemented for effective trending of deficiencies.

**3. Background**

- a. DOE defense nuclear facilities involve operations such that an accident or error could result in considerable impact on public and worker health and safety. Therefore, these facilities are subject to a significant number of internal and external audits, reviews, and investigations to identify operations that may not be planned and conducted in a safe and proper manner. These audits, reviews, and investigations result in the identification of deficiencies which necessitate timely and appropriate corrective responses. For this process to be effective, defense nuclear facilities should have in place comprehensive corrective action programs which identify, prioritize, and manage the correction of deficiencies that are safety significant.
- b. The primary corrective action database management systems used at Hanford include the Central Information Control System (CICS) used by DOE-RL; the Quality, Environmental and Safety Tracking (QUEST) System used by WHC; and the compliance database system used by PNL. KEH recently became a subcontractor to WHC; WHC is in the process of determining how they will manage KEH's corrective actions. Recently, the Hanford Self-Assessment Database (HSADB) was created to consolidate significant deficiencies from all the primary databases at Hanford into one database. The first HSADB quarterly report will be available in January 1994.
- c. The Priority Planning Grid (PPG) is a risk-ranking methodology used extensively at Hanford. PPG values are determined for deficient conditions at the Hanford Site by a DOE-RL Risk Evaluation Group. PPG values are indicators of the relative risk of a given condition: the higher the value, the greater the risk present when a deficiency is not corrected. The PPG value also determines the level of analysis, corrective action approval, and verification necessary for the closeout of a corrective action.

#### 4. Discussion

- a. **Hanford Site:** A common issue associated with each of the organizations reviewed at the Hanford Site was that prioritization of corrective actions is not based on their safety significance. Although the Priority Planning Grid score identifies the relative risk associated with a deficiency, it is generally not used to prioritize corrective action. For example, the CICS program periodic reports distributed at the DOE-RL Branch Chief and Division Manager levels are not sorted by risk (PPG), but by due date. Several DOE-RL managers indicated that issues are not managed by their level of risk, but rather by due date; these managers also indicated that they only use the CICS reports as ticklers for *completed* items awaiting verification; *open* items are ignored.

Deficiencies with a PPG score of eleven or higher are labeled as "significant" and are supposed to be tracked via the Hanford Self-Assessment Database. Issues with PPG scores greater than 25 require additional controls and are to be reported to the RL Program Manager "in a timely manner." However, no additional management attention is given to issues with higher PPG scores. (Deficiencies with PPG scores greater than five hundred were outstanding at the time of the review.)

- b. **DOE-RL:** DOE-RL is not only responsible for the completion of its own corrective actions, but is also responsible for the oversight of the contractors' corrective actions. However, DOE-RL lacks a formal, integrated corrective action management program. DOE-RL does have procedures which describe the *processing* of occurrence reports and self-assessments, and has drafted documents dealing with the *processing* of surveillances and externally identified findings. However, no procedure exists which defines the *management* of corrective actions at DOE-RL.

Several deficiency tracking systems are in place at DOE-RL including: the Central Information Control System (CICS) for deficiencies derived from various types of DOE-RL assessments, or Tiger Team and Progress Assessment Team findings; a Tank Waste Remediation Systems (TWRS) corrective action system; and the Manager's Action Tracking System (MATS) for external (to DOE-RL) deficiencies reported via correspondence (but not immediately *recognized* as deficiencies). A lack of interface between these databases results in the possibility that all key deficiencies might not be accounted for. For example, DOE-NS findings had not been entered into the CICS because they were not called "deficiencies" and therefore were not accounted for. Specific areas of concern to the DNFSB review team include:

1. The DOE-RL corrective action process lacks management attention and clear lines of responsibility and communication.

DOE Order 5480.19, *Conduct of Operations for DOE Facilities*, calls for clear lines of responsibility for normal and emergency conditions at operating facilities. However, DOE-RL has not created clear lines of responsibility or accountability for the timely completion of corrective actions either within DOE-RL or for its contractors.

DOE Order 5484.1, *Environmental Protection, Safety and Health Protection Information Reporting Requirements*, requires that Heads of Field Organizations assure that corrective actions are satisfactorily completed. However, no person has been designated as being responsible for managing the corrective action process. Branch chiefs and division managers apparently are not held accountable for ensuring that corrective actions under their cognizance are completed in a timely manner. The Site Manager is not regularly informed of the status of corrective actions nor is he on regular distribution for the DOE-RL, WHC, or PNL corrective action systems' periodic reports. DNFSB staff could ascertain only one occasion on which the Site Manager was briefed on corrective action.

No established method of senior management review of corrective action plans exists. For surveillances, the responsibility to review and concur with corrective action plans lies with the individual who identified the deficiency. No higher level of review is required.

2. DOE-RL lacks adequate quality verification of the corrective action process.

DOE Order 5700.6C, *Quality Assurance*, Criteria 9 and 10 call for ongoing management assessment and independent assessment. However, no audit or self-assessment of the DOE-RL corrective action process has been performed nor does any follow-up activity exist to verify the effectiveness of corrective actions. Further, no action has been taken by DOE-RL management to determine the validity or to assess the safety significance of the existing database and the myriad of deficiencies currently outstanding at the Hanford Site.

A sampling of the five highest priority action items (for DOE-RL) open in CICS revealed discrepancies between hard copy (record copy) and the CICS database.

A review of the most recent CICS Quarterly Report for the Quality, Safety and Health Division; a review of the six oldest Unusual Occurrence Reports from the Hanford Site; and a sampling of other databases at the site revealed that DOE-RL has consistently failed to follow up in a timely manner on deficiencies that have been reported by contractors to be resolved.

3. Root cause determination has not been adequately used as input to the corrective action process.

DOE Order 5480.19, *Conduct of Operations for DOE Facilities*, states that "when all root causes have been determined, a corrective action plan is developed, executed, and tracked to completion." However, no DOE-RL policy requires the determination of a root cause of an event or issue prior to generation of a corrective action plan. DOE-RL personnel indicated that it was not improper to develop corrective actions prior to determining the root cause of the deficiency.

To date, root cause codes in the CICS database have been subjectively entered by the CICS support contractor. Only recently have some DOE-RL personnel begun training in root cause analysis.

4. No program exists for trending deficiencies.

DOE Order 5480.19, *Conduct of Operations for DOE Facilities*, calls for deficiencies to be documented, trended, and corrected. Similarly, DOE Order 4330.4A, *Maintenance Management Program*, calls for reported deficiencies to be monitored to identify recurring, generic, and long-term problems. Despite a DOE-RL procedure on Self-Assessment, which calls for trend analysis to be an integral part of the self-assessment process, no trending program has been established. DOE-RL personnel indicated that such a program is in the process of being developed but no completion date has been established.

- c. **WHC:** WHC has established and implemented a broad corrective action management system which adequately addresses the majority of the corrective action program requirements of DOE Orders, commercial nuclear industry guidelines, and consensus standards. The WHC *Corrective Action Management Manual* integrates the corrective action policies, procedures, responsibilities, and resources into a single comprehensive document. A Corrective Action Management Board has been established to develop and approve corrective action policies and procedures. The WHC Environment, Safety and Quality (ESQ) Compliance Assurance Division is responsible for effectively implementing the system. The program uses the Priority Planning Grid to perform risk-based evaluations of conditions as a means of determining the level of analysis, corrective action approval, and verification necessary for closeout of a condition. The process relies on the condition identifier and the condition owner to come to mutual agreement on the extent of the condition, the necessary corrective actions, and the timetable for their correction. WHC uses the QUEST database as the mechanism for corrective action tracking. The program is intended to accommodate conditions identified through a variety of internal and

external sources. However, some specific areas of concern to DNFSB staff were identified including:

1. The determination and approval of corrective actions and their implementation plans lacks senior management involvement.

DOE Order 5480.19, *Conduct of Operations for DOE Facilities*, states that final approval for corrective actions associated with abnormal events should be made by the facility manager. The WHC process for corrective action approval is based on negotiated mutual agreement between the condition owner and the condition identifier. The WHC *Corrective Action Management Manual* defines the condition owner to be "the manager at the lowest level of the facility, project, program, or organizational management with the responsibility and authority to initiate and implement corrective action." Senior line management should participate to a greater extent in the approval of corrective action plans. Such participation would increase the likelihood that corrective action plans address the root cause of conditions as opposed to specific symptoms identified. In addition, interviews with WHC personnel indicate that delays in implementing corrective actions occur too often, and that extensions in commitment dates are too easily obtained. Increased involvement by senior management would serve to elevate the importance of correcting conditions in accordance with the established time frames.

2. There is insufficient site-wide acceptance and utilization of the corrective action system as a decision making tool for management.

Interviews with WHC personnel indicated that many WHC managers have not accepted the utility of their corrective action management program. Insufficient understanding of the system's capabilities, difficulties with the system's interfaces, and excessive paperwork requirements were all cited as issues which make QUEST a burden to work with. The WHC *Corrective Action Management Manual* articulates the need for a rigorous, disciplined method for handling corrective actions. In practice, however, managers indicated a reluctance to use QUEST as a tool for managing deficiencies identified through self-assessment activities. The perception is that too big a list of open conditions would only serve to draw too much attention to a facility. Instead, internal (and informal) tracking systems are used - systems which lack the review and verification elements resident within QUEST.

3. No program has been implemented for effective trending of deficiencies.

While the *Corrective Action Management Manual* calls for department and division management to work with the ESQ Data manager in the development of

trending data, no evidence of this process being implemented in practice was provided. The ESQ/Compliance Assessment group is initiating an effort to analyze various assessment data, however, trending efforts do not utilize the full extent of the database to support long-term monitoring or generic condition determinations as specified in DOE Orders.

- d. **PNL:** The Battelle - Pacific Northwest Laboratories (PNL) Compliance Database System appears to be operating satisfactorily. PNL attempts to enter all action deficiencies into the system, and all managers are required to review monthly reports from the system with their supervisor, up to Level 1 Management. Prioritization of outside-audit generated actions relative to internal findings is accomplished by accepting only actions that have been routed through the DOE-RL Laboratory Management Division, wherein a PPG determination can be assigned. In addition to the status of a condition, the system is used to track the owner of the condition, the responsible manager (and specific corrective action owners as assigned by that manager), the history, and the priority.

PNL is in the latter stages of developing an upgraded computer database system which will allow all PNL personnel computer network access to a formatted issue tracking database system. The *Beta* version of this program is slated for installation in January 1994; PNL is presenting briefings on the system to other sites across the complex.