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DEFENSE NUCLEAR FACILITIES SAFETY BOARD

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March 23, 2000

The Honorable Carolyn L. Huntoon
Assistant Secretary for
Environmental Management
Department of Energy
1000 Independence Avenue, SW
Washington, DC 20585-0113

Dear Dr. Huntoon:

The Department of Energy (DOE) recently completed Phase I of a planned combined Phase I/II Verification Review of the Integrated Safety Management (ISM) System at the Hanford Plutonium Finishing Plant (PFP). The primary purpose of an ISM Verification Review is to assess the adequacy of the contractor's manuals of practice and policies for the ISM System, as well as their implementation. The secondary purpose is to evaluate the role of DOE in the implementation and oversight of the contractor's ISM System.

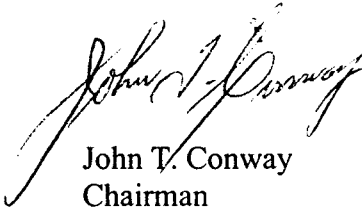
The staff of the Defense Nuclear Facilities Safety Board (Board) observed a large portion of the Verification Review. A report documenting the staff's observations is enclosed for your consideration. The staff found the verification team's conclusions regarding Phase I to be satisfactory in the areas reviewed. However, given the state of flux of PFP management and the recent restructuring of the DOE-Richland Operations Office (DOE-RL), it is not clear that all of the goals and objectives of a typical Phase I review have actually been met.

A key element of the Phase I review is to evaluate how well the procedures and policies are understood and implemented at upper management levels by the line managers responsible for safety. The Board is concerned that the timing of the ISM System review at PFP did not enable the verification team to perform a realistic assessment of the incoming PFP management team's commitment to, and understanding of, the principles of ISM. The timing of the review also did not make it possible to verify DOE's establishment of processes for interfacing effectively with the contractor to ensure that work is performed safely. Although DOE-RL's implementation of ISM was scheduled to be assessed several months later, the Verification Review would have been more objective and efficient had DOE's role in support of the contractor's ISM System been evaluated concurrently. It would be appropriate to follow up on these issues during the Phase II portion of the review to verify that the programs and policies of the previous management contractor are still functioning properly under the new management team, and that the restructured DOE organizations are interfacing effectively with the new contractor.

Recent positive developments at Hanford indicate that this will happen. Fluor Hanford, Inc. (FHI) has proposed instituting a single, sitewide ISM System Description, with the resultant Verification Review addressing outstanding issues from previous FHI Phase I reviews, including recent organizational changes at PFP. The Board is also encouraged that the Phase II review is expected to evaluate DOE-RL's interfaces with FHI and PFP simultaneously.

Please keep the Board and its staff informed of your path forward to ensure that the ISM System at PFP conforms to DOE's regulations, policies, and guidance.

Sincerely,



John T. Conway
Chairman

c: The Honorable David Michaels
Mr. Mark B. Whitaker, Jr.
Mr. Keith Klein

Enclosure

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

Staff Issue Report

February 4, 2000

MEMORANDUM FOR: J. K. Fortenberry, Technical Director

COPIES: Board Members

FROM: T. L. Hunt

SUBJECT: Integrated Safety Management Phase I/II Verification Review at Hanford's Plutonium Finishing Plant

This report documents an issue under review by the staff of the Defense Nuclear Facilities Safety Board (Board). The staff evaluated the first 2 weeks of the Department of Energy's (DOE) planned combined Phase I/II Verification Review of the Integrated Safety Management (ISM) System at Hanford's Plutonium Finishing Plant (PFP). The following observations were made by staff member T. Hunt during the week of January 10, 2000, and outside expert D. Boyd during the week of January 17, 2000.

Background. PFP is under the scope of the Project Hanford Management Contract (PHMC), managed by Fluor Hanford, Inc. (FHI). The *Project Hanford Management Contract Integrated Environmental, Safety, and Health Management System Plan* represents the safety management system documentation required by DOE Acquisition Regulations (DEAR) clause 970.5204-2 for the PHMC. In September 1998, PFP staff completed a facility-level gap analysis and subsequently, they developed the facility-specific ISM System Description. In September 1999, the facility conducted a separate internal readiness review for the ISM System and declared readiness for the Combined Phase I/II Verification Review. During October 1999, the DOE Richland Operations Office (DOE-RL) conducted an ISM System Phase I verification of the FHI ISM System Description.

The January 2000 Verification Review addressed PFP operations conducted by FHI and its lower-tier contractors. The review did not verify implementation of the ISM System within the DOE-RL organization. DOE-RL recently restructured many of its business processes and realigned personnel, and the implementation of its ISM System will be assessed in May 2000.

Staff Observations. The staff made the following observations with regard to the combined Phase I/II Verification Review at PFP.

ISM System Verification Team—The ISM System Phase I/II verification team comprised 24 persons, plus an independent observer from the Hanford Advisory Board. The adequacy, qualifications, and objectiveness of the team members are open to question. Of the 19 subteam members, none has a technical master's degree, and fewer than half have technical

undergraduate degrees. The team member biographies in DOE's draft review plan and discussions with the team lead revealed that 10 have experience from participation in previous ISM System Verification Reviews. The large majority of the verification team members are from DOE-RL (2 represent DOE-RL contractors). DOE cited the lack of availability of off-site personnel as the reason for not creating a more impartial team.

Within the Subject Matter Expert (SME) subteam, there was no criticality safety expert, and this area was not scheduled for review. Disciplines that have a poor history of performance, as is the case with criticality safety at PFP, normally merit assignment of an SME. Although a nuclear criticality safety review was being performed concurrently by DOE at PFP, it was not intended to supplant the need for the verification team to perform its own assessment of the program in light of ISM objectives. The criticality safety review team was not aware that the results of its review would be used by the verification team to draw conclusions about the ISM System, and did not tailor its interviews and document reviews accordingly. Discussions with the assistant team lead resulted in a heightened awareness of the need to review the criticality safety program from an ISM perspective in areas such as feedback and continuous improvement, training, authorization of work, and roles and responsibilities.

Timing of ISM System Verification Review—This was not the ideal time to perform the ISM system verification review at PFP. It is uncertain how the imminent change in contractor at PFP will affect upper management's knowledge and commitment to ISM. The verification team interviewed upper management of the departing contractor (B&W Hanford Company [BWHC], until February 1, 2000), with the new management team from Westinghouse Safety Management Solutions (WSMS) being "available" as the team deemed necessary. All 11 BWHC corporate personnel, as well as some local hires, left PFP at the end of January. The Board's staff impressed upon the leader of the verification team the importance of interviewing the members of the new contractor's management team. The team leader agreed that DOE might need to do a follow-up evaluation of WSMS to assess the impact of the personnel change on operations and safety.

Results—The staff evaluated mainly Phase I verification activities, but there were also opportunities to assess ISM implementation through observations of prejob briefs, job hazard analyses, other meetings, and limited work activities. The DOE verification team concluded that Phase I verification criteria had been met satisfactorily, but at least 25 issues were identified. These issues were generally categorized as (1) training and qualification requirements not defined, (2) ISM system processes not formalized, (3) practices in use not described in procedures, and (4) roles and responsibilities not defined and available.

On the basis of observations and independent assessments of selected ISM System elements, the staff agrees with the team's conclusions. However, given the state of flux of PFP management and DOE's recent restructuring, it is not clear that all of the goals and objectives of Phase I have actually been met. Additionally, the following deficiencies in ISM processes and implementation were noted by the Board's staff from reviews of selected documentation and observation of limited work activities:

- Roles and responsibilities were not clearly defined. Examples are uncompleted work team charters, the need for identification of the plant review committee chairperson, and duplication of functions of field work supervisor and person in charge.
- Adequate identification and mitigation of hazards were not demonstrated at a meeting on automated job hazard analysis (AJHA) for replacement of high-efficiency particulate air (HEPA) filters. Several SMEs did not attend the meeting, lessons learned from a previous similar job had not been developed, worker participation was low, the job site had not been walked down, and a number of attendees were not familiar with the AJHA process.
- Lack of effective work planning was manifested by the cancellation or rescheduling of several AJHA or prejob meetings during the week.
- Mechanisms were not in place to ensure continuous ISM improvements. Data analysis was lacking, some participants were unprepared, and some action items had not been followed up. Several interviewees stated that feedback is the weakest arc in the ISM circle.
- Deficiencies were observed in planning and executing the replacement of a valve. The radiological hazard evaluation was incorrect, and a step related to work change notice was not performed as written.
- Deficiencies were observed in planning, controlling, and executing the aerosol test of HEPA filters. Caution tags were incorrectly removed, and unexpected interference was encountered during an attempt to operate a manual filter switch lever.

The verification team leader briefed upper management from DOE-RL on January 20, 2000, and DOE decided on January 21, 2000, to delay Phase II of the Verification Review. Questions were raised with regard to the rationale for conducting Phase II at this time because (1) in several areas, organization and administration changes implemented in early October 1999 have not been incorporated into procedures or other permanent directives, (2) observation of several ISM activities during the week indicated a lack of maturity in ISM System implementation, and (3) WSMS has not promulgated the vision, policies, and organization that will be put in place to ensure the success of ISM. A final report of the January 2000 review was issued in February 2000.

The staff concurs that the Phase II Verification Review should be deferred until Phase I concerns have been addressed and the WSMS organization is in place and has declared readiness to continue with Phase II on the basis of its own assessment.