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DEFENSE NUCLEAR FACILITIES SAFETY BOARD

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July 20, 1999

The Honorable Victor H. Reis
Assistant Secretary for Defense Programs
Department of Energy
1000 Independence Avenue, SW
Washington, DC 20585-0104

Dear Dr. Reis:

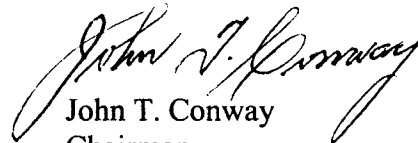
The Defense Nuclear Facilities Safety Board (Board) has reviewed the February 12, 1999, Y-12 Plant document entitled *9206 Complex Phase Out/Deactivation Program Management Plan* as a result of vulnerabilities that had previously been identified in the safety posture of Building 9206, most recently in a Board letter of February 6, 1998. The purpose of this review was to ensure an integrated safety management approach is taken during work preparations. Members of the Board's staff also met with cognizant Department of Energy (DOE) and contractor personnel at Building 9206 to discuss areas in which the plan could be strengthened. The issues noted by the staff are detailed in the enclosed report, and should be considered for incorporation during any later revisions to the plan.

Overall, the Board believes the deactivation project plan is a cogent and functional document. As it was one of the first documents of its kind developed using the protocol set forth in DOE Order 430.1A, *Life Cycle Asset Management*, and draft DOE Guide 430.1-3, *Deactivation Implementation Guide*, it should provide future deactivation projects throughout the DOE complex with an acceptable model from which to develop other deactivation project plans.

Several aspects of the plan are exceptionally praiseworthy; other areas, however, should be strengthened in future revisions. Positive features include the fact that key activities and subprojects are generally well defined, the record of containerized radioactive material presently in the facility's inventory provides a sound basis for development of the engineering and technical baseline documents (including a radiological and hazardous material sampling plan which will confirm the validity of this inventory) required for deactivation planning and implementation, and the status of current environment, safety, and health programs and deactivation strategies is summarized appropriately. Areas for improvement include the need to better enumerate the policies and procedures designed to meet the quality assurance (QA) objectives and provide a description of the QA program, and the need to revise the section on project management and responsibilities to discuss the expected increase in field/labor manpower when the facility begins deactivation activities following a shutdown period.

If you have comments or questions on this matter, please do not hesitate to contact me.

Sincerely,


John T. Conway
Chairman

c: Mr. Mark B. Whitaker, Jr.

Enclosure

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

Staff Issue Report

April 28, 1999

MEMORANDUM FOR: G. W. Cunningham, Technical Director
J. K. Fortenberry, Deputy Technical Director

COPIES: Board Members

FROM: T. L. Hunt

SUBJECT: Review of Y/MA-7400, Revision 0, *Building 9206 Complex Phase Out/Deactivation Program Management Plan*, February 12, 1999

This report documents a review by the staff of the Defense Nuclear Facilities Safety Board (Board) of the Y-12 Plant report entitled *Building 9206 Complex Phase Out/Deactivation Program Management Plan*. This document was reviewed recently by staff member T. L. Hunt.

Background. The staff reviewed the subject document to assess its adequacy and completeness for use as a safety planning tool during the upcoming Building 9206 (B9206) phaseout and deactivation project at the Y-12 Plant on the Oak Ridge Reservation and to ensure an integrated safety management approach is being taken during work preparations. The Board's staff had previously reviewed a draft plan and provided comments to the deactivation planning team in October 1998. The purpose of the plan, developed by Lockheed Martin Energy Systems, Inc., is to set forth the objectives, scope, strategy, and schedule for managing the phaseout and deactivation project. This project is being initiated to consolidate B9206 operational capabilities into Building 9212 (B9212) and place B9206 in a passively safe configuration until final disposition. The primary objective of the project is to remove, reduce, and/or stabilize the chemical and radioactive materials currently stored in the facility. The deactivation plan, along with associated safety documentation (e.g., Fire Hazard Analysis, Preliminary Hazards Analysis, and Basis for Interim Operations), is expected to address the vulnerabilities identified in the *Department of Energy (DOE) Highly Enriched Uranium ES&H Vulnerability Assessment* and previously issued Board reports. Since the ultimate disposition of B9206 (demolition or dry storage) is not known, the intended overall deactivation end state is to place the facility in a safe and secure configuration so it can be unoccupied (except during routine quarterly surveillances) and locked pending eventual decommissioning.

Discussion. As a guide in determining the quality and acceptability of the deactivation plan, the staff considered the instructions provided in several documents pertaining to development of disposition plans, as well as personal subject matter experience. Documents used as references included DOE Order 430.1A, *Life Cycle Asset Management*; draft DOE Guide 430.1-3, *Deactivation Implementation Guide*; American Society for Testing and Materials (ASTM) E 1281-89, *Standard Guide for Nuclear Facility Decommissioning Plans*; and other commercial and DOE information available.

Although relatively vague on the requirements for and of a deactivation project plan, DOE Order 430.1A, Section 6.g.6.a., states the requirement to “ensure deactivation is appropriately planned and documented.” The draft deactivation implementation guide for this Order, DOE Guide 430.1-3, is much clearer and more prescriptive on the need for and contents of such a plan. While not providing an exhaustive list, the implementation guide suggests a project plan outline that includes 12 sections on such topics as organization, management, scope, objectives, safety and health, and risk. The B9206 project plan follows this model quite closely and provides a considerable level of detail in the areas covered. Experts from the DOE Hanford Plutonium-Uranium Extraction (PUREX) deactivation project provided assistance and guidance, lessons learned, and several on-site working sessions.

Staff Observations. Overall, the deactivation project plan is a relatively well-developed and functional document that should provide a firm foundation for the development of the follow-on subproject documents (e.g., End Points Document, Fire Hazard Analysis, sampling plans, permits, engineering drawings, and Preliminary Hazards Analysis). Following are comments on aspects of the deactivation project plan that are praiseworthy and others in which improvements could be made to strengthen future revisions of the plan.

Praiseworthy Aspects

- The key activities and subprojects (areas delineated by material type/form, location, input from safety basis documentation) are generally well defined and thorough, providing descriptive information and essential details. The operating history and anticipated deactivation activities are outlined for each subarea.
- The record of containerized radioactive material (excluding holdup) presently in the facility’s inventory provides a sound basis for development of the engineering and technical baseline documents (including a radiological and hazardous material sampling plan which will confirm the validity of this inventory) required for deactivation planning and implementation. The quantity, form, and candidate disposition path for each material type are described in an appendix.
- The section on environment, safety, and health provides the current status of these programs at the facility, plus strategies for operational support during and after deactivation in such areas as criticality safety, fire protection, nuclear material control and accountability, and radiation protection. The schemes are logical and address contingencies for outcomes that cannot be foreseen.

Potential Areas for Improvement

- The activities described under the deactivation subprojects include decontamination and breaching of contaminated systems. The plan could be strengthened by including descriptions of the options available for decontaminating equipment, structures, hoods, etc., and noting alternative technologies applicable to such tasks as pipe cutting, tapping and draining, or tank/pipe flushing.

- This deactivation project is relatively unusual in the DOE complex in that it is being performed initially by Defense Programs (DP). There are few details in the plan for the possible transfer of the facility from DP to Environmental Management before the scheduled completion of deactivation in FY 2006. It is not clear how this programmatic transfer after partial completion of deactivation could impact activities and funding.
- The policies and procedures required to meet quality assurance (QA) objectives and the QA program to be applied are described in Appendix A for transition activities, but not in the project plan for deactivation work.
- Although the section on project management and responsibilities does a satisfactory job in describing the deactivation organization and identifying the current staff and key personnel, it does not address the expected increase in field/labor manpower when the facility, presently in warm standby, begins transition of its operations to B9212 and deactivation activities. The number of radiological control technicians, pipefitters, and electricians, among others, will increase as activities intensify, and these resources will need to be trained and available to meet the limits imposed by cost and schedule.