

2.0 DETERMINATION OF NATURE AND EXTENT OF CONDITION

The integrated DOE-ORO/BJC project team was established to provide leadership and set priorities for the four task teams to ensure necessary actions are taken to improve DOE-ORO and BJC ISMS performance. One objective of the integrated project team was to consolidate the issues resulting from the DNFSB areas of concern and subsequent independent and management assessments. Each of these assessments has generated issues and findings, which assisted in causal factor identification. The sources of the various issues requiring corrective actions are briefly summarized below to provide some additional perspective for the scope of this CAP. The DOE-ORO corrective actions will be tracked to closure by ORO staff in the Oak Ridge Issues and Open Actions System (ORION). The BJC corrective actions will be tracked in the BJC Issues/Corrective Action Tracking System (I/CATS).

2.1 EM SB 10 CFR 830 COMPLIANCE REVIEW

In response to a January 10, 2001 memorandum from the DOE Assistant Secretary for EM, DOE-ORO and BJC undertook an assessment to determine the extent to which the existing SB for all EM Category 2 and Category 3 nuclear facilities complied with the requirements of 10 CFR 830 Subpart B. On April 9, 2001 BJC submitted a report to DOE-ORO EM, concluding that none of the existing SB documents were in full compliance with the new rule.

BJC subsequently prepared and submitted to DOE-ORO on August 22, 2001 a plan and schedule to revise the safety documents for compliance with 10 CFR 830 Subpart B requirements by April 10, 2003. The most recent update to the implementation plan was submitted to DOE-ORO on April 5, 2002.

2.2 BJC NTS REPORT

In September 2001, the DNFSB staff raised questions regarding the adequacy of the SB document and associated implementing procedures for the Depleted Uranium Oxide Storage Vault Facility (UOSV) managed by BJC for the DOE-ORO EM program at the Y-12 site. Evaluation of these concerns resulted in the issuance of occurrence report ORO—BJC-Y12WASTE-2001-0010, "Potential Unreviewed Safety Question Concerning Oxide Storage Vaults at Y-12 Site" on September 19, 2001. Further, BJC issued NTS report NTS-ORO—BJC-BJCPM-2001-0004, "Inadequacy in Safety Authorization Basis Management" on October 5, 2001. Concurrent with the implementation of several compensatory measures, BJC completed a root cause analysis and defined required corrective actions. An update of the root cause analysis and corrective actions was submitted on April 12, 2002 to address the findings and observations from the subsequent DOE and BJC assessments.

2.3 DNFSB LETTER OF OCTOBER 15, 2001

On October 15, 2001 DNFSB Chairman John Conway issued a letter to DOE Under Secretary Robert Card resulting from a DNFSB staff review of defense nuclear facilities operated by BJC. In that letter, the DNFSB questioned: 1) the adequacy of the AB and safety posture for ORO EM nuclear facilities managed by BJC; 2) the rationale for DOE requirements not included in the WSS set of the BJC contract; 3) the effectiveness of ISMS implementation by DOE-ORO and BJC; and, 4) the adequacy of the technical expertise in ORO to manage the AB for nuclear facilities.

DOE-ORO and BJC formed an integrated project team and initiated corrective action development under each of the DNFSB four areas of concern. Foremost was the joint effort by DOE-ORO and BJC to confirm the adequacy of the current SB for ongoing operations of the EM Category 2 and 3 nuclear facilities. This included an initial qualitative assessment of facility safety completed on

December 5, 2001 followed by detailed assessments by BJC and a subsequent independent verification by DOE-ORO. These assessments resulted in the implementation of several facility-specific compensatory measures, pending completion of more detailed facility assessments. For example, DOE-ORO suspended fissile material handling at the East Tennessee Technology Park (ETTP) pending upgrades to the SB documentation for the Radiation/Criticality Accident Alarm System (R/CAAS).

2.4 BJC EXECUTIVE MANAGEMENT ASSESSMENT BY OUTSIDE EXPERTS

During November 2001, BJC utilized the services of ISMS/SB experts Paul Rice and Phil Hildebrandt to assist in developing the management framework and causal factor identification for overall ISMS improvements. They conducted interviews with DOE-ORO and BJC senior managers, reviewed program policies and procedures, and met several times with the DNFSB Site Representative. They also reviewed the immediate corrective actions initiated, assisted in causal factor analysis, and made recommendations for additional assessment and analysis. Subsequently, the overall corrective action framework was developed, leading to the establishment of an integrated DOE-ORO/BJC ISMS Improvements Project Team.

2.5 DOE-ORO MANAGER REVOCATION OF DOE-ORO AND BJC ISMS VERIFICATION

Due to concerns about the maturity of the DOE-ORO and BJC ISMS, the ORO Manager revoked the November 2000 verification of both the ORO and BJC ISMS on November 1, 2001. The ISMS verification in 2000 had identified a number of opportunities for improvement (OFIs) for DOE-ORO and BJC for which corrective actions were developed. Both DOE-ORO and BJC performed an assessment of the previous OFIs and respective corrective actions to determine effectiveness and to identify actions needed to achieve further improvements. These assessments led to the identification of causal factors related to trend analysis and corrective action closures. Further, both DOE-ORO and BJC management have undertaken corrective actions related to ISMS implementation, as reflected in this CAP.

2.6 DOE-ORO AND BJC EVALUATION OF ORDERS OF INTEREST TO THE DNFSB

In response to questions regarding the BJC M&I contract WSS, DOE-ORO and BJC evaluated the 109 orders of interest to the DNFSB (attached to the October 15, 2001 letter). The directives were categorized by the need for further consideration to determine the appropriateness of incorporation in the BJC contract. The evaluation determined that 25 of the directives warranted further analysis. Of these 25 directives, the requirements of 14 are already in the BJC contract, although not specifically cited. Four of the 25 directives were incorporated immediately into the BJC contract as directed by DOE-ORO letter of January 28, 2002. The remaining orders have undergone detailed analysis via the established DOE-ORO directives management process, with actions underway to modify the contract where needed.

2.7 BJC BASELINE ASSESSMENT OF TRAINING AND QUALIFICATIONS FOR NUCLEAR FACILITIES MANAGEMENT

On January 15, 2002, BJC completed a baseline program assessment of training and qualification requirements, focusing on facility-specific requirements for nuclear facilities. The assessment determined that position/facility specific requirements are not included in present training position descriptions and recommended several corrective actions to implement a qualification program for personnel supporting nuclear and radiological facilities. These actions are reflected in this CAP. Concurrently, DOE Order 5480.20A, "Selection, Qualification and Training of Personnel at DOE Nuclear Facilities" has been incorporated into the BJC contract by the January 28, 2002 letter referenced in Section 2.6.

2.8 BJC SB FLOWDOWN ASSESSMENT AND DOE-ORO INDEPENDENT VERIFICATION

From late October 2001 to early February 2002, BJC completed comprehensive assessments of SB documents and the flowdown of requirements from these documents to facility operations. The SB Flowdown Assessments involved all BJC category 2 and 3 nuclear facilities, with 28 separate assessment reports issued. The following areas were reviewed: facility hazard classification; flowdown of safety requirements to procedures; field implementation of SB related requirements; implementation of SMPs; knowledge, training, and qualifications of facility management responsible for maintaining operations in accordance with SB controls; and flowdown of requirements to subcontractors. Findings and observations from these assessments have been entered into the BJC I/CATS and corrective actions will be tracked to completion.

On March 15, 2002, the Manager of ORO issued a memorandum summarizing the results of an independent review of BJC key operations in ten Category 2 and 3 facilities. The ORO review included field verifications of the BJC SB Flowdown Assessment. The results of the review indicated that the operations reviewed were adequately bounded by their existing SB and should continue contingent on implementation of additional identified compensatory measures. These compensatory measures and four additional corrective actions were identified in written correspondence to BJC from the respective DOE Contracting Officer's Representatives.

2.9 SB TECHNICAL ADEQUACY ASSESSMENT

In response to a concern cited in the DOE-HQ Independent SB Assessment, DOE-ORO and BJC completed a joint review of a representative group of 15 nuclear facilities (based on operating status, critical mission, and hazard/risk potential) to determine the adequacy of the SB hazards and accident analyses. This included assessing the SB for completeness of the postulated accident list, reviewing technical adequacy of analysis, and assuring that key analysis assumptions were translated into controls. In general, the assessment concluded that the SBs for all of the facilities have assessed the dominant hazards of earthquake and fire initiators and have developed controls protecting most key analytical assumptions. The SB identified controls have appropriately flowed down to procedures or OSR/TSR. Several immediate compensatory measures were implemented. The review also identified seven facility conditions requiring further analysis. In addition, a number of improvements were recommended for incorporation in the upgrade of the documents for 10 CFR 830 compliance. The report of this assessment was issued on March 1, 2002. Findings and observations from these assessments have been entered into the BJC I/CATS and corrective actions will be tracked to completion.

On March 4, 2002, the Vice President and General Manager of BJC issued a letter to DOE-ORO summarizing the results of the SB Flowdown and Technical Adequacy assessments. The letter summarized compensatory measures and actions implemented by BJC to that date.

2.10 DOE-HQ OFFICE OF SCIENCE INDEPENDENT SB ASSESSMENT OF BJC AND DOE-ORO

During December 2001 and January 2002, a DOE-HQ team performed an independent assessment and reviewed SB documents for all ORO EM Category 2 and 3 nuclear facilities. This assessment was commissioned by the DOE Acting Principal Director of the Office of Science to fulfill a request in the DNFSB letter of October 15, 2001. Nuclear safety procedures and other related documents, such as the WSS, were also reviewed, and interviews were conducted with numerous ORO and BJC managers and personnel and with the DNFSB site representative. The independent assessment report was issued on January 31, 2002 and identified 20 findings and 46 associated recommendations for

improvements to DOE-ORO and BJC nuclear safety systems and processes for managing nuclear facilities under the ORO EM program. The assessment team reported that there had been a systemic breakdown in nuclear safety management systems and processes within DOE-ORO and BJC. The principal contributing factor for this breakdown was identified as a lack of management priority and accountability for nuclear safety within DOE-ORO and BJC. The assessment team found that BJC and subcontractor operations personnel were generally aware of hazards and controls and that a number of program improvements were underway. The HQ team determined that there is no imminent risk to the public or workers from readily releasable nuclear materials. The report concluded that upgrading the SB program in the near term and re-evaluation of the previously submitted 10 CFR 830 Subpart B compliance plan should help resolve the TSR, OSR, and SB hazard and accident analysis concerns. The corrective actions for recommendations in the independent assessment report are incorporated into this CAP.

2.11 DOE-HQ EM REVIEW OF THE OAK RIDGE M&I CONTRACT

During the period February 11-15, 2002 a team from DOE-HQ EM performed a review of the M&I contract to ensure the contract provides DOE the mechanisms for communicating performance objectives and expectations to the contractor for cost, scope, schedule, and ISM. The review team examined incentives and work definition; operations and research; work authorization, incentives, and contract modifications; hazard requirements for contract control; and DOE policy and directives. The review team concluded that the M&I contract is an adequate mechanism to ensure work scope is identified and expectations for completing work in compliance with the core functions and principles of ISM are communicated. However, the team concluded that improvements in contract execution are warranted. The DOE-ORO corrective actions in response to this review are being addressed separately from this CAP, because they involve potential procurement-sensitive prime contract changes.

2.12 ISSUE DETERMINATION

The DOE-ORO/BJC project team applied ISM principles to categorize issues by the most applicable core function and/or guiding principles of the ISMS. The results of the ISM analysis are shown in Figures 2.1 and 2.2.

Major issues were identified and subjected to root cause analysis, as described in Section 3.0.

- Inadequate SB authorization and management system for AMEM nuclear facilities managed by BJC. (DOE)
- Development, maintenance, and implementation of SB documents have not been managed to consistently assure adequate implementation. (BJC)
- DOE Orders of Interest important to nuclear safety were not included as requirements in the M&I contract WSS. (DOE and BJC)
- Inadequate technical expertise in ORO to manage the SB for nuclear facilities. (DOE)
- Sufficient technical expertise is not in place to accomplish responsibilities required by the SB for nuclear facilities. (BJC)
- A rigorous program has not been maintained to ensure that competencies are commensurate with roles and responsibilities. (BJC)
- Declaration of ISMS may have been premature. (DOE)
- Feedback and improvement process has not been fully effective to ensure an expected degree of ISM maturity. (BJC)
- ISM implementation by BJC failed to adequately assure ongoing effectiveness and continuous improvement. (BJC)

Figure 2.1 Weaknesses Identified in DOE-ORO and BJC ISMS

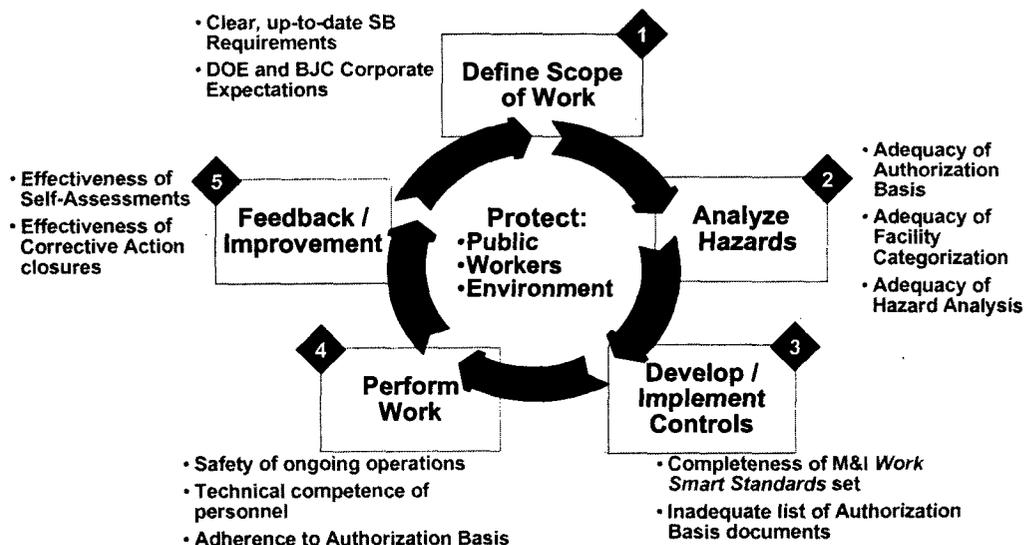


Figure 2.2 Improvements to Core Functions Reflected by Corrective Actions

ORO is Strengthening its ISMS Implementation Through the Following Improvements to Core Functions

