

**U. S. Department of Energy
Carlsbad Field Office**

MANAGEMENT PROCEDURE

CBFO MP 4.11, Rev. 1

Effective: May 1, 2006

Expires: May 1, 2008

SUBJECT: SAFETY BASIS REVIEW PROCEDURE

Manager, Carlsbad Field Office: Signature on File

Date: 3/26/06

1.0 PURPOSE

This procedure defines the process for reviewing safety basis documents prepared for Waste Isolation Pilot Plant (WIPP) facilities and operations per DOE-STD-1104-96, Chg. 1.

2.0 SCOPE

This procedure applies to U. S. Department of Energy (DOE) personnel and their contractor support personnel who provide independent review and technical approval recommendations for safety basis documents for DOE facilities and operations at the WIPP. This Management Procedure (MP) supersedes MP 4.11, Rev. 0.

3.0 REFERENCES AND DEFINITIONS

3.1 References

- 10 CFR 830, Nuclear Safety Management
- DOE-STD-1027-92, *Hazard Categorization and Accident Analysis Techniques for Compliance with DOE Order 5480.23, Nuclear Safety Analysis Reports*
- DOE-STD-1104-96, *Review and Approval of Nuclear Facility Safety Basis Documents*
- DOE-STD-3009-94, *Preparation Guide for U. S. Department of Energy Nonreactor Nuclear Facility Safety Analysis Reports*
- DOE/WIPP 98-2287, *Functions, Responsibilities, and Authorities Manual (FRAM)*

3.2 Definitions

- **Accident analysis** – Bounding analysis of design basis or beyond design basis accidents selected for inclusion in the safety analysis. Consequences are compared with evaluation guidelines to identify safety-class structures, systems, and components.
- **Authorization Basis (AB)** – Those aspects of the facility design basis and operational requirements on which DOE relies to authorize operation. It includes safety documentation supporting the decision to allow a process or facility to operate (includes corporate operational environmental requirements found in regulations and specific permits and, for specific activities, work packages or job safety analyses).

AVAILABLE ONLINE AT:

<http://bellview/cbfo/Procedures/ProcedureManualTOC.htm>

INITIATED BY:

Authorization Basis Senior Technical Advisor

CBFO Form 4.2-1

- **Document Review** – Any review that meets the requirements stated in this procedure, or clearly demonstrates a comprehensive review process involving a minimum of qualified individuals with adequate experience to determine where flaws may exist in a document.
- **Documented Safety Analysis (DSA)** – A DSA documents the results of safety analyses to ensure a facility can be constructed, operated, maintained, shut down, and decommissioned safely and in compliance with applicable laws and regulations.
- **Hazard Analysis** – The determination of material, system, process, and plant characteristics that can produce undesirable consequences, followed by the assessment of hazardous situations associated with a process or activity. Largely qualitative techniques are used to pinpoint weaknesses in design or operation of a facility that could lead to accidents. The DSA hazard analysis examines the complete spectrum of potential accidents that could expose workers, members of the public, and the environment to hazardous materials (DOE-STD-3009-94).
- **Safety Analysis** – A documented process to: 1) provide systematic identification of hazards within a given DOE operation; 2) describe and analyze the adequacy of measures taken to eliminate, control, or mitigate identified hazards; and 3) analyze and evaluate potential accidents and their associated risks.
- **Safety Evaluation Report (SER)** – Documents that an appropriate review of the authorization basis documents was conducted for a given facility or operation. Also documents the bases for approving or disapproving the authorization basis documents and may prescribe conditions for approval.
- **Technical Safety Requirement (TSR)** – A limit, control, and related action that establishes the specific parameters and requisite actions for the safe operation of a nuclear facility and includes, as appropriate for the work and the hazards identified in the documented safety analysis for the facility, safety limits, operating limits, surveillance requirements, administrative and management controls, use and application provisions, and design features, as well as a bases appendix. [10 CFR 830]
- **Unreviewed Safety Question Determination (USQD)** – A risk-based process to determine if the authorization basis would be impacted by a procedural change and to provide contractors at nuclear facilities with the flexibility needed to conduct day-to-day operations by allowing contractors to make limited changes without DOE approval.

4.0 RESPONSIBILITIES

- 4.1 CBFO Manager/CBFO Deputy Manager
 - 4.1.1 Recommend approval of the WIPP and mobile facility authorization bases and safety documentation.
 - 4.1.2 Exercise line management responsibility and accountability for ensuring adequacy of WIPP facility safety bases.
 - 4.1.3 Approve safety basis documents for which approval authority cannot be delegated to the CBFO Authorization Basis Senior Technical Advisor (ABSTA).
 - 4.1.4 Delegate in writing, as appropriate, supplemental authorities for AB documentation.

4.2 CBFO Authorization Basis Senior Technical Advisor

- 4.2.1 Oversee nuclear safety assessments, documented safety analysis (DSA) update preparation, technical safety requirement (TSR) modifications and changes, unreviewed safety question determinations (USQDs), WIPP Hazardous Waste Facility Permit modifications, and repository long-term compliance recertification.
- 4.2.2 Maintain ongoing contacts with management and operating (M&O) contractor facilities and environment, safety, and health (ES&H) organizations to obtain early notice of safety basis document development efforts.
- 4.2.3 Identify, assess, and approve resources, and plan support for safety basis document reviews.
- 4.2.4 Appoint safety basis document review team leader.
- 4.2.5 Recommend approval of safety basis documents based on recommendations of review team leader.
- 4.2.6 Provide direction to WIPP safety basis document development projects.
- 4.2.7 Determine the need for facility-specific safety basis document review plans.
- 4.2.8 Obtain support from subject matter experts from within and outside CBFO to assist with Authorization Basis (AB) documentation reviews.
- 4.2.9 Provide AB documentation review guidance, procedures, and direction to the review team leader as necessary.
- 4.2.10 Ensure that review team members are fully qualified to conduct specific safety basis reviews.

4.3 Review Team Leader

- 4.3.1 Select and document on a Review/Approval Matrix (see attachment) the review team members, and arrange reviews.
- 4.3.2 Coordinate DOE review of assigned safety basis documents and interface with M&O contractor development and review managers to ensure that development, review, and approval efforts are coordinated and managed as an integrated project.
- 4.3.3 Coordinate and attend review meetings, progress reviews, and comment consolidation and resolution meetings.
- 4.3.4 Consolidate comments from review team members, validate essential comments, and provide comment packages to the M&O contractor.
- 4.3.5 Document in draft Safety Evaluation Reports (SERs) important lessons from completed safety basis document reviews.

4.4 Review Team Member

- 4.4.1 Participate in review team meetings.
- 4.4.2 Develop and provide comments to the review team leader according to the specified format and deadline.

- 4.4.3 Attend comment consolidation and resolution meetings as directed by the review team leader.
- 4.4.4 Support progress reviews as directed by review team leader.
- 4.4.5 Bring significant issues and unresolved comments to the timely attention of the review team leader.
- 4.4.6 Review revised documents for adequate incorporation of comment resolutions.
- 4.4.7 Verify during the AB review that the most recent and applicable orders, standards, and other regulatory guidance are being used as currently required in DOE guidance and/or applicable M&O contract requirements.

5.0 PROCEDURE

- 5.1 Review Planning and Team Formation
 - 5.1.1 When a safety basis document is delivered to CBFO from the contractor, the CBFO ABSTA plans the review and appoints a team leader.
 - 5.1.2 The review team leader should have adequate experience involving safety analyses for DOE facilities, and should have demonstrated leadership ability. The CBFO team leader should be qualified per the CBFO nuclear safety specialist qualifications card (based on DOE-STD-1183-2004, *Nuclear Safety Specialist Functional area Qualification Standard*). The CBFO ABSTA may use interim team leaders for the purpose of on-the-job training, but all decisions will be made by the CBFO ABSTA until CBFO review team leaders are fully qualified.
 - 5.1.3 Based on information from contractor counterparts, the review team leader assembles the team, schedules reviews, and tracks progress.
 - 5.1.4 Review team leaders and members may be drawn from CBFO staff, the CBFO Technical Assistance Contractor (CTAC), EM-22, the DOE Albuquerque Service Center, or support contractors.
 - 5.1.5 The review team leader ensures adequate support in applicable technical areas.
 - 5.1.6 Review team members should possess the following general experience.
 - A. Knowledge of the general purpose, function, organization, and content of DSAs and TSRs as specified by 10 CFR 830, DOE-STD-3009, and DOE-STD-1027.
 - B. Familiarity with DOE orders and standards, CBFO contract requirements, and WIPP procedures and standards applicable to the areas under review.
 - C. Familiarity with CBFO review processes.
 - D. General knowledge of hazard analysis/accident analysis.
 - E. Previous technical experience and on-the-job training in the review of safety documents.
 - F. Minimum of a bachelor's degree in science or engineering, or equivalent experience.

5.2 Review Process

5.2.1 Review team members may attend a joint review kick-off meeting with the M&O contractor review team. The meeting should include:

- A. Team orientation
- B. Walk-down/tour of the facility
- C. Review goals and expectations
- D. Team roles and responsibilities
- E. Introduction of counterparts, other reviewers, and observers
- F. Review schedule and milestones

5.2.2 The review team will perform a comprehensive review of final draft safety basis documents only after formal submittal to the DOE/CBFO by the M&O contractor. The review team will:

- A. Use DOE-STD-1027-92 to verify the hazard categorization for nuclear facilities.
- B. Verify the adequacy and content of the safety basis documentation to ensure that DOE requirements and objectives are met.
- C. Review the technical adequacy of the safety analysis methodology and results using technical judgment, applicable technical support documentation, and walk-downs of the facility and operations.
- D. Review the adequacy of safety analysis by reviewing the assumptions used to ensure that relevant hazards, scenarios, and controls are identified and that reasonable and conservative likelihood of occurrence and consequence estimates have been applied to unmitigated accident scenarios.
- E. Review proposed controls for the prevention or mitigation of potential accident scenarios and the designation of their importance to safety for nuclear facilities. Verify that selection of controls follows the guidance in DOE-STD-3009, Appendix A, Section A.4.
- F. Evaluate safety significant structures, systems, and components controls.
- G. Verify that sufficient information exists to effectively assess the adequacy of identified controls and the residual uncertainties the DOE accepts if the facility or operation is authorized.
- H. Review the technical bases for TSRs used at the WIPP.

5.2.3 Reviews will be based on the criteria provided in documents listed in the reference section of this procedure.

5.2.4 The review team will generate comments based on their review findings. Reviewers shall observe the following rules:

- A. Focus on significant deficiencies rather than marginal issues or minor discrepancies.

- B. Comments should be based on requirements in applicable requirements documents.
- C. Comments should be specific.
- D. Comments should not be in the form of questions.
- E. All editorial comments will be assessed and corrected as necessary.

5.2.5 Comments are entered on a CBFO Document Review Record (DRR) form.

5.2.6 Review team members provide their comments to the review team leader in accordance with the review plan schedule. The team leader consolidates and validates the comments in draft form.

5.2.7 The team leader calls a comment review meeting to achieve consensus and resolve conflicts before the draft comments package is presented to the M&O contractor. Final comments are presented to the M&O contractor by the team leader.

5.3 Comment Resolution Process

5.3.1 Interface between the safety basis document author(s), the review team, and CBFO is essential. Formal comments are maintained by CBFO as an appropriate administrative record of the comment resolution process.

5.3.2 All comments will be resolved, either by mutual agreement or a decision by the CBFO ABSTA or the CBFO Manager.

5.3.3 If CBFO is not satisfied with a comment resolution, the issue may be treated in the SER in the form of a condition of approval to the M&O contractor. Release of the document may be postponed by the CBFO Manager until a satisfactory resolution is provided by the M&O contractor.

5.4 SER Preparation and Approval

5.4.1 The review team leader and review team develop the SER to present the results of the review and provide a recommendation and any conditions for approval. SER content should follow the guidance in DOE-STD-1104-96, adjusted for the specific safety basis document being reviewed.

5.4.3 The SER should include a discussion of the review team's concerns, along with the basis for the findings. Concerns should be categorized based on their significance to safety. This will clearly distinguish those that warrant "recommendation of disapproval of the AB documentation" or "approval of AB documentation with conditions for approval," should either of these alternatives to unconditional approval be necessary.

5.4.4 Prior to the CBFO ABSTA providing the SER to the DOE approval authority, the review team leader provides M&O contractor line management a copy of the draft SER and other pertinent information.

5.5 Capture Lessons Learned

The review task includes a conscientious effort to record lessons learned. The review team leader discusses the review with team members, their contractor counterparts, and the CBFO ABSTA. If a substantive change in this procedure is indicated, the review team leader suggests the change to the CBFO ABSTA, who then authorizes the change if judged appropriate.

6.0 **RECORDS**

Records produced as a result of this procedure are:

- The signed Document Review/Approval Matrix
- Signed DRRs of the reviewed document
- The final copy of the revised document
- The signed safety evaluation report

7.0 **ATTACHMENTS**

Document Review/Approval Matrix

DOCUMENT REVIEW/APPROVAL MATRIX

DOCUMENT NAME/NUMBER _____

REQUESTOR _____

NAME OF APPROVING OFFICIAL _____

REVIEWER NAME/ORGANIZATION	TYPE OF REVIEW REQUIRED					COMMENTS RECEIVED
	MGMT	TECH	QA	LEGAL	EDIT	Y/N

MATRIX APPROVED BY: _____

DATE: _____