

NRC INSPECTION MANUAL

LHFB

INSPECTION PROCEDURE 42001

EMERGENCY OPERATING PROCEDURES

PROGRAM APPLICABILITY: 2515

42001-01 INSPECTION OBJECTIVES

01.01 To follow up on inspection issues, events, or allegations concerning the licensee's Emergency Operating Procedure (EOP) Program.

01.02 To determine whether significant changes to the licensee's EOPs since the last inspection meet commitments and regulatory requirements.

01.03 To assess the impact of the changes to the licensee's EOPs on the licensee's EOP program and overall plant safety.

42001-02 INSPECTION REQUIREMENTS

02.01 Review of EOPs and Supporting Procedures

- a. Conduct an in-depth human factors adequacy review of EOPs where significant human factors changes have been made.
- b. Where significant changes have been made, verify that the procedures are technically correct and accurately incorporate the most recent owner's group generic technical guidance and that any deviation(s) warranted by the plant-specific design are adequately justified and incorporated into the EOPs as required.
- c. Verify that entry and exit points are easily followed, and that transitions between and within the Normal Operating, Alarm and Abnormal Operating Procedures and EOPs are appropriate, well defined, and easy to follow.
- d. Evaluate the procedures and the licensee writer's guide relative to significant human factors issues raised by changes to structure and format.

- e. Determine the extent of deviations in the procedures from the current licensee writer's guide and evaluate the licensee's justification for the deviations.
- f. Evaluate decision points in the procedures to determine if they can be easily discriminated and understood.

- g. Verify that the use of notes and cautions is consistent and correct in the procedures.

02.02 Use of EOPs and Supporting Procedures. Where significant changes have been made, verify that the EOPs and supporting procedures can be physically and correctly performed both inside and outside the control rooms including simulator exercises if appropriate.

02.03 Knowledge and Performance of Duties

- a. Verify that the control room staff is aware of and understands all significant changes to the EOPs.
- b. Verify that operators receive training on revised EOPs before the revised EOPs are implemented.
- c. Evaluate operator concerns regarding the EOPs.

02.04 Review of Licensee EOP Programmatic Controls

- a. Verify that the licensee's administrative procedures adequately govern the program for controlling changes to the EOPs, the supporting procedures and associated operator training.
- b. Verify that the licensee's documentation reflects adequate conduct of activities required by administrative procedures that control the EOPs, and that EOP changes are incorporated, as appropriate, into the licensee's operator training program.
- c. Verify that the licensee's staff possesses the required understanding of administrative procedures governing EOPs and correctly implements them.
- d. Verify that the licensee conducts independent audits of the EOP program, as required, and has provisions for document control that are commensurate with NRC requirements, including facility licensing requirements.

02.05 Follow-up of Licensee Corrective Actions Involving EOPs

- a. Verify that the licensee's documentation identifies and prioritizes EOP weaknesses and that timely corrective actions are implemented.
- b. Evaluate the effectiveness of the licensee's corrective actions by control room and in-plant walkdowns, simulator scenarios, and plant staff interviews as applicable.

42001-03 INSPECTION GUIDANCE

General Guidance. This procedure is intended primarily for use in implementing regional discretionary resources for Regional Initiatives or Reactive Inspection to inspect the significant changes to the licensee's EOPs and associated programs. These

inspection activities include the examination of licensee programs to follow up on corrective actions, to review programmatic controls, and to follow up on identified issues requiring licensee resolution relative to EOP program deficiencies, weaknesses, or implementation.

This procedure is also intended for use in conjunction with NRC Manual Chapter 0517, "Management of Allegations," to examine elements of the licensee's EOP Program as appropriate to follow up on allegations concerning the program. It is not intended that each inspection requirement be covered during an inspection. Rather, inspection requirements should be selected or modified, as appropriate, to address the issue or event that prompted the inspection. Preparation for the inspection should include a review of issues identified during previous inspections or operator licensing examination reports that would be indicative of weaknesses in the EOP Program, policy, or implementation. Significant events with a root cause related to EOPs should also be reviewed in preparation for inspection. During onsite inspection, all major changes, including those related to the resolution of identified issues, the bases for the changes, and the effect of the changes on program effectiveness, should be discussed by the team leader with licensee management.

By reference to the appropriate revision of Regulatory Guide 1.33, "Quality Assurance Program Requirements," Section 6.8 of the Standard Technical Specifications requires that Emergency Operating Procedures be established, implemented, and maintained. In addition, the licensee should review the EOPs to evaluate the safety review functions and the responsibilities of the onsite safety review organization. Further, 10 CFR 50 Appendix B, Criterion VI, requires that quality related documents, and changes thereto, be reviewed for adequacy and approved for release by authorized personnel. In general, technical inadequacies or failures to properly implement and maintain EOPs are violations of these requirements.

The NRC evaluates the owner's group Generic Technical Guidelines (GTGs) for safety and approves them. Where licensees elect to deviate from the NRC-approved GTGs, they need to implement correctly the 10 CFR 50.59 process to ensure safe plant operation, particularly for design basis events. Insufficient or incorrect use of the 10 CFR 50.59 process to evaluate deviations from the NRC-approved GTGs may constitute a violation.

Specific Guidance

03.01 Review of EOPs

- a. The review for human factors adequacy determines whether the EOPs are adequate for the intended use and whether the licensee has accurately incorporated the guidance of the GTGs. Plant staff interviews should be conducted with cognizant licensee personnel to assist in determining whether the GTGs remain appropriately incorporated in the EOPs. Significant changes to the EOPs and supporting procedures should be reviewed by inspectors with experience in human factors

evaluation. See NUREG-0899, NUREG-1358 and NUREG/CR-5228. See Section 42001-05 of this procedure for full reference.

- b. Operator comments on the technical aspects of significant changes to the EOPs, given during interviews with the plant staff, procedure walkdowns, and simulator exercises, should be evaluated and addressed in the inspector's EOP technical adequacy review. Particular attention should be given to the following:
 - 1. Comparison of the GTG table of contents to the table of contents of plant-specific EOPs and evaluation of the differences.
 - 2. Review of licensee documentation addressing the development of plant EOPs from GTGs.
 - 3. Evaluation of responses to questions about the incorporation of GTGs into the EOPs from interviews with cognizant licensee personnel.
 - 4. Verification that the licensee has an appropriately prioritized accident mitigation strategies in the procedures and that recommended GTG step sequences are followed.
 - 5. Verification that the licensee has an adequate technical justification for identified deviations between the plant-specific EOPs and the generic technical guidelines. See Generic Letter 82-33. Full reference may be found in Section 42001-05 of this procedure.
 - 6. Assessment of the safety significance of identified deviations. A sample of deviations should be examined to determine if the licensee has reported safety significant deviations to the NRC. These deviations should be verified to be in accordance with 10 CFR 50.59.
- c. The use of walkthroughs and simulator scenarios provides a practical means to verify that the procedures are well defined and easy to follow for entry and exit points and for transitions.
- d. For specific program guidance, see NUREG-0899, NUREG-1358, and NUREG/CR-5228.
- e. Significant deviations from the licensee's writer's guide for the EOPs should be reviewed for adequacy. A significant number of minor deviations should raise questions about the consistency of EOP structure.
- f. A newly qualified operator should be able to properly implement the decision points in the EOPs without needing further guidance. The logic points should have clear questions that solicit yes or no answers. See NUREG-0899, NUREG-1358, and NUREG/CR-5228.

- g. The caution statements should identify potential hazards, and the notes and caution statements should not contain action statements. See NUREG-0899, NUREG-1358 and NUREG/CR-5228.

03.02 Use of EOPs and Supporting Procedures. Where major changes have been made or concerns have been previously identified, walkdowns, simulator exercises on EOPs and supporting procedures and interviews with plant staff should be conducted. Focus on whether:

- a. The changes made to the procedures can be physically implemented and whether operators physically interfere with each other while performing the changed procedures.
- b. The changed procedures can be implemented within the time allotted considering the actual accident, the course of events, and the availability of the necessary operating locations involved under those conditions.
- c. Environmental conditions (such as temperature, steam, flooding, and radiological hazards) that would exist during the event would prevent items 03.02a. and 03.02b. above from being accomplished.
- d. Plant personnel can effectively use the EOPs and supporting procedures in the control room and other parts of the plant as necessary. An evaluation of the consistency of instrument and control designations as compared with installed equipment labels and procedural descriptions should be included. Also, the indicators, annunciators, and controls referenced in the procedures are available to the operators.
- e. EOP activities that would occur outside of the control room can be performed with equipment on hand.
- f. The licensee has validated and verified the procedures. A documented, comprehensive review should have been conducted by an independent, multidisciplinary team, including a human factors analysis of the procedural changes and a walkdown of the procedures in the plant. See NUREG-1358, NUREG/CR 2005, and NUREG-3632 which are fully referenced in Section 42001-05 of this procedure.
- g. The latest revision to the procedures is in the control room, the Technical Support Center, and the Emergency Operation Facility.

03.03 Knowledge and Performance of Duties

- a. The control room staff should understand how to perform the current EOPs. To determine whether the operators are aware of recent changes to the EOPs and understand the changes, limited plant-specific simulator scenarios should be conducted on at least one fully staffed shift crew. The simulator scenario should reflect relevant abnormal operating conditions that require the use of two or more of the EOPs in which significant changes have been made. Each procedural step should be observed to determine that the correct procedures

are used with proper transitions, and that each step is correctly implemented. Where concerns are identified, the sample size should be expanded. Walkdowns should be conducted to further assess the operator's understanding of the EOPs, the supporting procedures, and recent changes to the procedures. During the control room and in-plant walkdowns direct observation should be made of selected operators in the simulated performance of selected tasks required by the EOPs. Such tasks include simulated handling of equipment, interpretation of instrument readings, following procedures, proper sequencing of actions, and an understanding of information flow patterns related to a specific task. Plant-referenced simulators, as required by 10 CFR 55.45 should be used for walkdowns to allow hands-on performance for certain tasks. See SECY 90-337 which is fully referenced in Section 42001-05 of this procedure.

- b. EOP training is covered under Inspection Procedure 41500.
- c. Operator concerns regarding the EOPs may be identified by the review of inspection reports, operator licensing examination reports, operator responses to licensee training, procedural review documentation, Licensee Event Reports (LERs), discussions with the Resident Inspectors, and interviews with operators. Operators' concerns may be evaluated by EOP desktop reviews, procedure walkdowns, and simulator exercises.

03.04 Review of Licensee EOP Programmatic Controls

- a. The licensee's administrative procedures should provide controls to ensure that all changes such as changes to the Technical Specifications, setpoints, and those resulting from instrument and equipment modifications, are reflected in a timely manner, in the EOPs, the setpoint documents, and the operator training lesson plans. An active licensee program should provide for the long-term evaluation of EOPs as recommended in Section 6.2.3 of NUREG-0899, "Guidelines for the Preparation of Emergency Operating Procedures." The licensee's EOP evaluation program should be technically adequate and the EOPs should be structured to incorporate operational experience and use, training experience, simulator exercises, control room and in-plant walkdowns and changes in plant design, technical specifications, technical guidelines, Writer's Guide, or other plant procedures. (See Regulatory Guide 1.33, Rev 2. which is fully referenced in Section 42001-05 of this procedure).
- b. No guidance is necessary.
- c. Interview the licensee's staff and management involved in the performance of administrative procedures governing EOPs to determine if they understand the procedures and if the procedures are implemented consistently among users.
- d. See NUREG-1358.

03.05 Follow-up of Licensee Corrective Actions with Regard to EOP Concerns. No guidance is necessary.

42001-04 RESOURCE ESTIMATES

For planning purposes, direct inspection effort to accomplish this procedure should be established by the Regional office, consistent with the scope of planned regional initiatives or reactive inspections to be performed. Individuals having experience in evaluating human factors should accomplish the parts of this inspection that deal with human factors issues. Direct inspection effort for reactive inspection or regional initiatives should be recorded on RITS against Inspection Procedure 42001. If the procedure is used to follow up allegations in conjunction with NRC Manual Chapter 517, the actual time expended should be recorded on RITS against BJ1.

42001-05 REFERENCES

10 CFR Part 50, Appendix B, Criteria V and VI.

10 CFR 50.54(x) and (y).

10 CFR 50.9.

10 CFR Part 2, Appendix C, Criterion VI.

10 CFR 50.34(f)(2)(ii) and (v).

10 CFR 50.36(c)(5).

10 CFR 50.59.

Site-Specific Technical Specifications, Chapter 6.

Generic Letter 82-33, "Supplement 1 to NUREG - 0737, Requirements for Emergency Response Capability," December 17, 1982. (NUDOCS Fiche Address 16681/208)

SECY-90-337, "Procedural Adherence Requirements," October 3, 1990. (NUDOCS Fiche Address 70497/142)

Regulatory Guide 1.33, Rev.2, "Quality Assurance Program Requirements (Operation)," 1978. (NUDOCS Fiche Address 00125/155)

NUREG-1358, "Lessons Learned From the Special Inspection Program for Emergency Operating Procedures," April 1989. (NUDOCS Fiche Address 49726/209)

NUREG-1977, "Guidelines for Preparing Emergency Procedures for Nuclear Power Plants," April, 1981. (NUDOCS Fiche Address 08514/008)

NUREG/CR-4613, "Evaluation of Nuclear Power Plant Operating Procedures Classifications and Interfaces," February 29, 1987. (NUDOCS Fiche Address 39983 /256)

NUREG/CR-3632, "Methods for Implementing Revisions to Emergency Operating Procedures," May 1984. (NUDOCS Fiche Address 24534/208)

NUREG-0899, "Guidelines for the Preparation of Emergency Operating Procedures," August 1982. (NUDOCS Fiche Address 15513/286)

NUREG/CR-2005, Rev.1, "Checklist for Evaluation Emergency Operating Procedures Used in Nuclear Power Plants," April 1983. (NUDOCS Fiche Address 08790/355)

NUREG/CR-3177, Vols. 1, 2, and 3, "Methods for Review and Evaluation of Emergency Procedure Guidelines," March 1983. (NUDOCS Fiche Address 21119/138, 17863/033, and 17862/227)

NUREG/CR-5228, "Techniques for Preparing Flowchart-Format Emergency Operating Procedures," January 1989. (NUDOCS Fiche Address 49670/141)

"Supplement 3, Safety Evaluation for CEN-152, `Combustion Engineering Emergency Procedure Guidelines,'" November 5, 1986.

"Combustion Engineering Emergency Procedure Guidelines," Submittal 2 of Revision 3, August 6, 1986.

"Supplement Safety Evaluation Report for `Westinghouse Owners Group Emergency Response Guidelines, Revision 1,'" July 7, 1986.

"Westinghouse Owners Group Emergency Response Guidelines, Revision 1," November 30, 1983.

"Safety Evaluation of `BWR Owners Group Emergency Procedure Guidelines, Revision 4, March 1987,'" NEDO 31331, August 1, 1988.

"BWR Emergency Procedure Guidelines, Revision 4," March 1987.

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