

NRC INSPECTION MANUAL

PEPB

INSPECTION PROCEDURE 82302

REVIEW OF EXERCISE OBJECTIVES AND SCENARIOS FOR POWER REACTORS

PROGRAM APPLICABILITY: 2513, 2515

SALP FUNCTIONAL AREA: PLANT SUPPORT (PLTSUP)

82302-01 INSPECTION OBJECTIVE

To provide guidance for the review of proposed licensee (or applicant) exercise objectives and scenarios.

82302-02 INSPECTION REQUIREMENTS

02.01 Timeliness of Licensee Submittals. Determine whether the licensee's (or applicant's) proposed objectives and scenario were received in sufficient time before the exercise to permit appropriate NRC review.

02.02 Content of Licensee Exercise Objectives and Scenarios. Determine whether the licensee's (or applicant's) proposed objectives for the exercise meet commitments and provide reasonable acceptance criteria.

02.03 Determine whether the licensee's (or applicant's) emergency preparedness exercise objectives and scenario provide an adequate framework for the type and scope of exercise proposed. Determine whether the scenario is realistic.

02.04 Determine whether the licensee's (or applicant's) proposed exercise scenario will meet the previously submitted exercise objectives.

82302-03 INSPECTION GUIDANCE

General Guidance

Evaluations conducted in accordance with this procedure are limited to the staff, activities, records, and facilities of the licensee (or applicant.) Where necessary to verify licensee (or applicant) performance, concerning interactions with organizations and persons involved in offsite emergency preparedness, inspection activities

are to be limited to reviews of pertinent records available through the licensee (or applicant). If additional information is needed about offsite emergency preparedness, it can be obtained from FEMA.

Technical evaluations of the scenario and exercise control are the responsibility of the licensee (or applicant). The scenario is to be evaluated primarily on relative credibility and timing of events. The licensee (or applicant) should review and verify the technical details including, but not limited to, engineering operational parameters, engineering logic, source term, radiological instrumentation data, and units of data provided by controllers. The licensee may utilize insights from accident sequences evaluated as part of the site-specific probabilistic risk analysis (PRA) to develop realistic scenarios which include likely equipment failures, human errors, recovery actions, and accident sequence progression. Scenario-related problems and poorly controlled exercises will be evaluated during the exercise. The in-house inspection of the scenarios is to be against the requirements of 10 CFR 50.54(t), 50.47(b)(14), and Section IV.F. of Appendix E to 10 CFR 50. Results of these inspections are to be documented in the inspection reports for those inspections completed under Inspection Procedure 82301, "Evaluation of Exercises for Power Reactors."

Specific Guidance

03.01 Exhibit 1 provides the schedule recommended for the development, submission, and review of licensee (or applicant) exercise scenarios. This schedule is in accordance with the guidance of Table 2, "Milestones for REP Process," in FEMA-REP-14, "Radiological Emergency Preparedness Exercise Manual," dated September 1991.

03.02 Major onsite elements of licensee (or applicant) exercises are to be included in the objectives. These elements normally include aspects of the emergency plan to be exercised and may include areas, such as the use of a new set of procedures, that licensees (or applicants) wish to evaluate for their own information.

- a. Major elements that are to be included in all exercises are listed below along with the specific references in NUREG-0654, Part II, and Supplement 1 to NUREG-0737.

Elements that are to be Exercised Each Year NUREG-0654

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|--|--|
| 1. Accident detection and assessment | I.1, I.2 |
| 2. Emergency classification | D.1, D.2 |
| 3. Notification of onsite and offsite emergency responders | E.1, E.2, E.3,
J.1 |
| 4. Communications | F.1, F.2, E.2,
E.4, H.6, 8.1
8.2, 8.3, 8.4 |

- 5. Radiological exposure control K.1, K.2, K.3,
K.5, K.6, J.3,
J.6
- 6. Protective action recommendations J.7
- 7. Staff augmentation A.1, A.3, A.4,
B.7, B.8, B.9
- 8. Shift staffing B.1, B.2, B.3;
B.5, Table 2

b. The inspector is to review the emergency plan and related documentation to determine licensee (or applicant) commitments. Where the licensee (or applicant) has committed to the elements of NUREG-0654, the inspector is to take steps to ensure that those elements of the emergency plan have been exercised over a period of six years. Licensees may be credited for exercising elements during any drill or exercise. A review of licensee critique records can provide appropriate documentation of elements having been successfully exercised. Regional personnel may wish to consider initiating a tracking system for each licensee to record and monitor when elements are exercised. Regulatory Guide 1.101, Revision 3, allows the licensee (or applicant) to develop methods and solutions different from those described in NUREG-0654. In the event that the licensee (or applicant) has not formally committed to NUREG-0654, applicable elements are required to be tested. Applicable elements as well as the appropriate references are provided below:

Elements to be Exercised Over
a Period of Six Years NUREG-0654¹

- 1. Off-hours staffing (6 p.m. to 4 a.m.).N.1.b²
- 2. Activation of emergency news center
(Joint Information Center). G.3, G.4
- 3. Use of fire control teams. N.2.b, 0.4.d
- 4. Use of first aid and/or rescue teams.K.1, K.2, K.3,
K.4, K.5, L.2,
0.4.f
- 5. Use of medical support personnel. N.2.c, L.1,
L.4, 0.4.h

¹ Items refer to NUREG-0654, Part II, except for element (j) in which the reference is NUREG-0737, Supplement 1.

² Item refers to NUREG-0654, Revision 1, Supplement 1.

- 6. Use of licensee's headquarters support personnel. 0.4.i
- 7. Use of security personnel to provide prompt access for emergency equipment and support. 0.4.d
- 8. Use of backup communications. F.1
- 9. Rumor control. G.4.c
- 10. Use of emergency power (where a part of plant safety systems, e.g. Technical Support Center (TSC)). 8.2.1
- 11. Evacuation of Emergency Response Facilities (ERFs) and relocation to backup ERFs, where applicable. J.10.g
- 12. Ingestion pathway exercise, when necessary to support state exercise requirements. J.9, J.11
- 13. Field monitoring, including soil, vegetation, and water sampling. I.7, I.8, I.11, N.2.d
- 14. Capability for determining the magnitude and impact of the particular components of a release. I.3, I.4, I.6, I.8, I.9, I.10
- 15. Capability for post-accident coolant sampling and analysis. I.2
- 16. Use of potassium iodide. J.6.c
- 17. Assembly and accountability. J.5
- 18. Recovery and re-entry. M.1
- c. The level of specificity of the objectives should provide measurable and/or observable criteria for evaluators. The objectives should also include a description of adequate or acceptable levels of response.
- d. Onsite objectives are to provide for a demonstration of the correction of previously identified drill or exercise weaknesses.
- e. For the full-participation biennial exercise, the NRC team leader will contact FEMA to confirm that offsite objectives are consistent with exercise frequency requirements, testing

communication interfaces between onsite and offsite facilities, and testing of the public notification systems.

03.03 Exercise objectives are dependent on the type of exercise conducted. Descriptions of the types of exercises currently conducted by licensees and applicants may be found in Inspection Manual Chapter (IMC) 2500, Appendix I.

- a. Exercise Objectives. Attention to details, in the review of exercise objectives, is required because they provide the basis for the development of the exercise scenario and acceptance criteria for exercise evaluation. The licensee's objectives should be commensurate with the type and scope of exercise proposed. Information Notice 87-54, "Emergency Response Exercises," reminds licensees (and applicants) that off-year exercises are not required to proceed to severe core damage situations. These exercises can provide an opportunity for more realistic emergency response training and evaluation of licensee (or applicant) staff. Timely evaluation of exercise objectives is essential to provide enough time for the licensee (or applicant) to change or revise objectives in advance of the exercise, where necessary, without hardship.
- b. Exercise Scenarios. These scenarios are to provide for (1) a test of the licensee's (or applicant's) integrated capabilities for timely response to a radiological accident, (2) a test of the content of selected implementing procedures and methods, (3) test emergency equipment, (4) test communications networks, and to (5) determine whether the licensee's (or applicant's) emergency response personnel are familiar with their emergency response duties (See 10 CFR 50, Appendix E, Part IV.F.). The objectives and scenario are to provide meaningful training for the emergency response organization.

03.04 Review the scenario package for familiarization with the type of accident proposed, an indication of how the objectives will be met, and the organization and outline of the contents. All major sections are to be included in the package. Attention is to be given to the credibility and logical sequencing of events. The sequence of events must provide sufficient opportunity for player response activities to satisfy exercise objectives and be coordinated to a timeline that delineates the continuity of events in a logical order (e.g., a release not starting before the failure of related equipment; the point of release being consistent with anticipated pathways; sufficient time be allowed for the plume to traverse the emergency planning zone (EPZ) before the location, centerline, and magnitude are determined; etc.). Insights from the site-specific probabilistic risk analysis may be used to assist in this determination. Obtain these insights through discussion with the regional Senior Reactor Analyst, resident inspector staff, licensee PRA group, or by review of PRA documentation (if available in usable form).

82302-04 INSPECTION RESOURCES

The estimated time to complete this inspection procedure is 12 hours. The time expended for this review is to be reported as direct inspection time.

82302-05 REFERENCES

Inspection Manual Chapter 2515, Appendix C "Use of Insights Derived from Probabilistic Risk Assessment (PRA)".

Regulatory Guide 1.101, "Emergency Planning and Preparedness for Nuclear Power Reactors," Revision 3, August 1992.

NUREG-0654/FEMA-REP-1, Rev. 1, "Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants," November 1980 (Microfiche Address: 01997/314 - 01998/71).

Supplement 1 to NUREG-0654, "Criteria for Utility Offsite Planning and Preparedness - Final Report," September 1988 (Microfiche Address: 46972/313-348).

Supplement 1 to NUREG-0737, "Clarification of TMI Action Plan Requirements-Requirements for Emergency Response Capability," January 1983 (Microfiche Address: 17301/342-363).

Information Notice 87-54, "Emergency Response Exercises," October 1987 (Microfiche Address: 43156/110-228).

FEMA-REP-14, "Radiological Emergency Preparedness Exercise Manual," September 1991.

FEMA Guidance Memorandum GM-PR-1, "Policy on NUREG-0654/FEMA-REP-1 and 44 CFR 350 Periodic Requirements," October 1985.

END

Attachments: Exhibit 1

Exhibit 1

Recommended Schedule for Development,
Submission, and Review of Exercise Scenarios

Goals

(number of days
before an exercise)

Activities

- 150 days NRC Headquarters and the selected Region exchange objectives for an exercise in which the NRC Executive and Site Teams plan to participate. The selected Region informs the licensee (or applicant) of NRC's intent, to participate, requests cooperation, and provides combined agency objectives to the licensee.
- 90 days The licensee (or applicant) submits exercise objectives to NRC.
- 80 days NRC discusses evaluation of objectives with the licensee (or applicant) and negotiates the submittal of revised objectives if major revision is required and coordinates with FEMA if offsite responses are affected.
- 75 days The Region transmits a letter of confirmation to the licensee (or applicant) documenting the discussion of the review of exercise objectives.
- 60 days The licensee (or applicant) submits the exercise scenario and associated materials to the NRC for review. Where applicable, NRC objectives are to be included.
- 60 to The scenario is reviewed for consistency with
45 days objectives, credibility, and sequencing of events.
- 45 days The Region informs the licensee (or applicant) of its scenario review and with FEMA should occur if offsite responses are affected.

END