

UNITED STATES
NUCLEAR REGULATORY COMMISSION
OFFICE OF NUCLEAR REACTOR REGULATION
WASHINGTON, D.C. 20555-0001

August 2, 2004

**NRC REGULATORY ISSUE SUMMARY 2004-13
CONSIDERATION OF SHELTERING IN LICENSEE'S RANGE OF
PROTECTIVE ACTION RECOMMENDATIONS**

ADDRESSEES

All holders of operating licenses for nuclear power reactors, except those who have permanently ceased operations and have certified that fuel has been permanently removed from the reactor vessel.

INTENT

The U.S. Nuclear Regulatory Commission (NRC) is issuing this regulatory issue summary (RIS) to clarify the regulatory requirement that licensees develop a range of protective actions that includes sheltering for the public in the plume exposure pathway emergency planning zone (EPZ). This RIS requires no action or written response on the part of addressees.

BACKGROUND INFORMATION

Section 50.47(b)(10) of Title 10 of the Code of Federal Regulations (CFR) states in part that licensees are to develop a range of protective actions for the public in the plume exposure pathway EPZ. In addition, 10 CFR 50.47(b)(10) states that in developing this range of protective actions, consideration is to be given to sheltering, and that the guidelines for the choice of protective actions be consistent with Federal guidance.

Following an inspection at Point Beach in August 2003 (ML040360104), the NRC staff performed a review of licensee emergency plans, implementing procedures, and notification forms to evaluate the extent licensees considered sheltering when recommending protective actions to offsite organizations. During the review, the NRC staff has noticed that licensee emergency plans, implementing procedures and notification forms consider sheltering in one of three ways: (1) sheltering as an alternative to evacuation (shelter rather than evacuate), (2) sheltering as a supplement to evacuation (evacuate downwind sectors and shelter the remaining sectors until further instructions are provided), and (3) sheltering is not considered by the licensee. The NRC staff has also noticed that some licensees have addressed sheltering inconsistently in their emergency plan, implementing procedures, and notification forms. For example, sheltering is considered as an alternative to evacuation in the emergency plan, but it is not included as an option in the implementing procedures or on the notification form.

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DISCUSSION

The decision to recommend a protective action involves a judgment in which the radiation dose avoidance provided by the protective action is weighed in the context of the risks involved in taking the action. Since the decision will most likely be made under emergency conditions, considerable planning is necessary to reduce the complexity of decisions required to effectively protect the public at the time of an emergency.

Plant conditions are the major determining factors in developing early protective action recommendations. To be most effective, protective actions (evacuation or shelter) need to be taken before or shortly after the start of a major radioactive release to the atmosphere. According to the original version of Appendix 1, Emergency Action Level Guidelines for Nuclear Power Plants, in NUREG-0654/FEMA-REP-1, "Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants," the initial protective action for a General Emergency is to shelter the population close to the plant while considering the advisability of evacuation. The guidance in the original version of Appendix 1 further states that if core damage is in progress and containment failure is judged to be imminent, shelter should be recommended for people in those areas that cannot be evacuated before the plume arrives. Although the original guidance was never intended to imply that the appropriate initial protective action for severe accidents was to only shelter the population that is near the plant, it was not explicit on this point.

Subsequently, portions of Appendix 1 were revised in Supplement 3 Criteria for Protective Action Recommendations for Severe Accidents, to NUREG-0654/FEMA-REP-1, "Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants." Revised Appendix 1 states that for a General Emergency, the preferred initial protective action is to evacuate immediately about two miles in all directions from the plant and about five miles downwind, unless other conditions make evacuation dangerous. Note 5 to Figure 1, Severe Damage or Loss of Control of Facility Public Protective Actions, in Supplement 3, states that sheltering may be the appropriate action for controlled releases of radioactive material from the containment, if there is assurance that the release is short term (puff release) and the area near the plant cannot be evacuated before the plume arrives.

10 CFR 50.47(b)(10) requires that the consideration of sheltering be included in the range of protective action recommendations consistent with Federal guidance. In addition to the Federal guidance discussed above, EPA 400-R-92-001, Manual of Protective Action Guides and Protective Actions for Nuclear Accidents (EPA 400), dated May 1992, also contains information on evacuation and sheltering. Section 5.5.3, General Guidance for Evacuation and Sheltering, states that the process of evaluating, recommending, and implementing evacuation or shelter for the public is far from an exact science, particularly in view of time constraints that prevent thorough analysis at the time of an emergency. The effectiveness of evacuation and shelter can be improved considerably by planning and testing. Also, EPA 400 states that sheltering may be appropriate (when available) for areas not designated for immediate evacuation because: 1) it positions the public to receive additional instructions; and 2) it may provide protection equal to or greater than evacuation.

SUMMARY OF ISSUE

The NRC staff has identified a generic misinterpretation of the regulatory requirement to include sheltering in a licensee's range of protective action recommendations (PARs) consistent with Federal guidance. The NRC staff has found that some emergency plans specifically state that the licensee will provide only evacuation as a PAR. In those cases, the appropriate protective action recommendation consistent with Federal guidance may not be made to State and/or local authorities. Even if the licensee has established an understanding with State and local authorities not to recommend a sheltering protective action, 10 CFR 50.47(b)(10) still requires that sheltering be considered in developing the range of protective action recommendations in the licensee's emergency plan.

Federal guidance states that sheltering may be the appropriate action for controlled releases of radioactive material from the containment, if there is assurance that the release is short term (puff release) and the area near the plant cannot be evacuated before the plume arrives. Federal guidance also states that sheltering may be appropriate (when available) for areas not designated for immediate evacuation because: 1) it positions the public to receive additional instructions; and 2) it may provide protection equal to or greater than evacuation. Additionally, a licensee's emergency plan, implementing procedures, and notification forms need to include the consideration of sheltering consistent with Federal guidance.

BACKFIT DISCUSSION

This RIS clarifies the regulatory requirements in 10 CFR 50.47(b)(10) related to the need for licensees to develop a range of protective actions (including sheltering) for the public in the plume exposure pathway EPZ. This RIS does not impose new or modified staff requirements or uniquely prescribe a way to comply with the regulations, or require any action or written response. Therefore, this RIS does not constitute a backfit under 10 CFR 50.109 and the staff did not perform a backfit analysis.

FEDERAL REGISTER NOTIFICATION

A notice of opportunity for public comment on this RIS was not published in the *Federal Register* because this RIS is informational and pertains to a staff position that does not represent a departure from current regulatory practice.

PAPERWORK REDUCTION ACT STATEMENT

This RIS does not request any information collections and, therefore, is not subject to the requirements of the Paperwork Reduction Act of 1995 (44 U.S.C. 3501 et seq.).

If you have any questions about this matter, please contact Robert Kahler by telephone or by e-mail at the numbers listed below.

/RA/

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Attachment: List of Recently Issued Regulatory Issue Summaries

LIST OF RECENTLY ISSUED
NRC REGULATORY ISSUE SUMMARIES

Regulatory Issue Summary No.	Subject	Date of Issuance	Issued to
2004-12	Clarification on Use of Later Editions and Addenda to the ASME OM Code and Section XI	07/28/2004	All holders of operating licenses for nuclear power reactors except those who have permanently ceased operations and have certified that fuel has been permanently removed from the reactor vessel.
2003-18, Supplement 1	Use of Nuclear Energy INSTITUTE (NEI) 99-01, "Methodology for Development of Emergency Action Levels," Revision 4, Dated January 2003	07/13/2004	All holders of operating licenses for nuclear power reactors and licensees that have permanently ceased operations and have certified that fuel has been permanently removed from the reactor vessel.
2004-11	Supporting Information Associated with Requests For Withholding Proprietary Information	06/29/2004	All submitters of proprietary information to the Nuclear Regulatory Commission.
2004-10	Preparation And Scheduling of Operator Licensing Examinations	06/14/2004	All holders of operating licenses for nuclear power reactors, except those who have permanently ceased operations and have certified that fuel has been permanently removed from the reactor vessel.
2004-09	Status on Deferral of Active Regulation of Ground-water Protection At In Situ Leach Uranium Extraction Facilities	06/07/2004	All holders of materials licenses for uranium and thorium recovery facilities.
2004-08	Results of the License Termination Rule Analysis	05/28/2004	All holders of operating licenses for nuclear power reactors, research and test reactors, as well as decommissioning sites.

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