

UNITED STATES NUCLEAR REGULATORY COMMISSION  
OFFICE OF NUCLEAR REACTOR REGULATION  
WASHINGTON, DC 20555

APRIL 8, 2002

NRC INFORMATION NOTICE 2002-14: ENSURING A CAPABILITY TO EVACUATE INDIVIDUALS, INCLUDING MEMBERS OF THE PUBLIC, FROM THE OWNER-CONTROLLED AREA

Addressees

All holders of operating licenses for nuclear power reactors, including those who have ceased operations but have fuel on site.

Purpose

The U.S. Nuclear Regulatory Commission (NRC) is issuing this information notice to inform addressees of inspection findings concerning a licensee's capability to evacuate individuals, including members of the public, from the owner-controlled area in the event of an emergency. The NRC expects recipients to review the information for applicability to their facilities and consider taking actions, as appropriate, to avoid similar problems. However, the suggestions contained in this information notice do not constitute NRC requirements and, therefore, no specific action or written response is required.

Background

Title 10, Section 100.3 of the *Code of Federal Regulations* (10 CFR 100.3) defines an "exclusion area" for power reactors and §100.11(a)(1) prescribes how to determine the boundary of the exclusion area. Specifically, §100.3 states that "... residents shall be subject to ready removal in case of necessity. Activities unrelated to operations of the reactor may be permitted in an exclusion area under appropriate limitations, provided that no significant hazards to the public health and safety will result." Exposure to more than routinely permitted concentrations of radioactive material could result in a significant hazard to the health and safety of the public.

Section 20.1003 defines several terms applicable to this discussion:

- *A member of the public* is any individual, except when he or she is receiving an occupational dose.
- *Occupational dose* is the dose received by an individual in the course of employment in which the individual's assigned duties involve exposure to radiation or radioactive material from licensed and/or unlicensed sources of radiation, whether in the possession of the licensee or another person. Occupational dose does not include the dose received from background radiation, from any medical administration the individual has

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received, from exposure to individuals who have been administered radioactive material and released in accordance with §35.75 [10 CFR 35.75], from voluntary participation in medical research programs, or as a member of the public.

- *Public dose* is the dose received by a member of the public from exposure to radiation or radioactive material released by a licensee, or any other source of radiation under the control of a licensee. Public dose does not include occupational dose or the dose received from background radiation, from any medical administration the individual has received, from exposure to individuals who have been administered radioactive material and released in accordance with §35.75, or from voluntary participation in medical research programs.
- *The owner-controlled area* is an area outside of a restricted area, but inside the site boundary, to which the licensee can limit access for any reason.

10 CFR 50.47(b)(7) states that “Information is made available to the public on a periodic basis on how they will be notified and what their initial actions should be in an emergency (e.g., listening to a local broadcast station and remaining indoors), the principal points of contact with the news media for dissemination of information during an emergency (including the physical location or locations) are established in advance, and procedures for coordinated dissemination of information to the public are established.”

The planning standard, §50.47(b)(10), states that “A range of protective actions has been developed for the plume exposure pathway EPZ [emergency planning zone] for emergency workers and the public. In developing this range of actions, consideration has been given to evacuation, sheltering, and, as a supplement to these, the prophylactic use of potassium iodide (KI), as appropriate. Guidelines for the choice of protective actions during an emergency, consistent with Federal guidance, are developed and in place, and protective actions for the ingestion exposure pathway EPZ appropriate to the locale have been developed.”

The importance of protecting individuals, including members of the public, in the owner-controlled area is reflected in the emergency preparedness cornerstone of the NRC’s reactor oversight process (ROP). The ROP identifies the planning standard as a risk-significant planning standard (RSPS).

The following section describes one licensee’s failure to adequately meet the requirements of the planning standard defined by §50.47(b)(10). That failure prevented the licensee from ensuring protection of the public in the owner-controlled area.

#### Description

The facility owned by a certain licensee has two partially completed nuclear power reactors within the exclusion area of an operating reactor. Construction of these units has been suspended and they have been in a maintenance regime for several years. No nuclear fuel or other significant radioactive sources are stored at the inactive sites.

The staff at the operating reactor did not exercise oversight responsibility for the incomplete plants. This responsibility had been transferred to a separate business unit in the licensee's corporate organization after construction was suspended. The business unit maintains an office in the area. The business unit has been leasing space in otherwise unused buildings (primarily vacant offices and warehouses originally constructed to support the inactive plants) to various general businesses without the direct involvement of staff at the operating reactor.

As reported in Inspection Report 50/397/01-008 (Accession Number ML 012880417), the NRC inspected this site in July 2001. The inspection revealed weaknesses in the licensee's ability to notify and evacuate members of the public (lessee employees) from the exclusion area, to monitor the evacuating people for radioactive contamination, and to decontaminate them as necessary. The NRC determined that these weaknesses constituted a violation of §50.54(q), which requires, in part, that "a licensee authorized to possess and operate a nuclear power reactor shall follow and maintain in effect emergency plans which meet the standards in §50.47(b)," and a violation of the planning standard, §50.47(b)(10), which requires that "a range of protective actions have been developed for the plume exposure pathway emergency planning zone for emergency workers and the public." The violation was determined to be safety-significant because members of the public could be exposed to radiation and/or radioactive material in the event of an emergency if appropriate protective actions were not taken.

The licensee stated that lessees would be notified of an exclusion area evacuation by external audible sirens and security sweeps; additional methods were available to notify licensee and licensee contractor personnel. One of the sirens was under the direct control of the staff at the operating reactor; others would have to be locally activated at the inactive sites. Signs along the plant access roads would inform people how to respond to the sirens. The licensee also expected that the business unit representative would contact each lessee by telephone when notified of an evacuation decision. General procedures were in place to establish security roadblocks along plant access roads during an exclusion area evacuation and to perform limited sweeps of the exclusion and owner-controlled areas.

The licensee had established a pre-designated assembly and decontamination center at a company location outside the EPZ for use by licensee and licensee contractor personnel following an evacuation. Licensee and licensee contractor personnel received initial and refresher training on expected actions for evacuation, offsite assembly, radiological monitoring, and personnel decontamination. However, the licensee did not provide similar training and information to the members of the public within the owner-controlled area.

The NRC and the licensee agreed that (1) lessee operations were permitted under §100.3, (2) lessee employees in the exclusion area were members of the public, (3) the licensee was responsible for promptly evacuating lessee employees as necessary, (4) the licensee was required to have the capability to effectively notify lessees of an exclusion area evacuation within about 15 minutes of the evacuation decision, and (5) the licensee was responsible for providing radiological monitoring to lessee employees and decontaminating them as required.

The NRC identified the following weaknesses in the licensee's ability to effectively notify, evacuate, monitor, and decontaminate lessee personnel:

- Licensee test data indicated that the external sirens could not be heard inside some lessee buildings, and the primary siren was out of service for 13 consecutive months.
- The licensee had not prepared written procedures for activating the business unit call-tree, and the process relied on someone to answer a specific telephone in the lessee's office.
- The licensee had no detailed written procedures for security sweeps, had not identified the locations of occupied spaces, had given security officers little or no training on the exclusion area evacuation process (including performing sweeps), and had not tested the effectiveness of sweeps by drills or other means.
- Although the licensee gave lessees a copy of an emergency plan specific to the incomplete reactor units, the plan mainly covered industrial accidents and pertained only to licensee and licensee contractor operations. The plan did not address radiological monitoring or decontamination. Specifically, the licensee did not give lessees information on the evacuation route and the assembly area. The NRC interviewed employees at several lessee sites and found that only half knew about the proper response to an emergency siren.
- The licensee did not ensure that lessee employees received training on emergency plan requirements, the expected response to a notification siren, evacuation routes, the offsite assembly area, or radiological monitoring and decontamination.
- Some members of the emergency response organization at the operating reactor were not aware of the presence of lessees (members of the public) within the exclusion area boundary. As a result, key decision makers may have been unaware of the need to protect the lessees and their employees.
- The licensee stated that it would establish a security roadblock along the access road to the inactive construction sites to inform lessee employees of the emergency and direct them to the offsite assembly area for radiological monitoring. However, the licensee acknowledged that there might be circumstances in which the single roadblock would be delayed or not established, thereby delaying evacuation of the exclusion area.
- The licensee had not evaluated or exercised the capability to evacuate members of the public from the owner-controlled area as part of the licensee's drill program.

### Discussion

The evaluation criteria for the planning standard §50.47(b)(10) are based, in part, on NUREG-0654, "Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants," Section II.J.1.:

“Each licensee shall establish the means and time required to warn or advise onsite individuals and individuals who may be in areas controlled by the operator, including:

- a. Employees not having emergency assignments;
- b. Visitors;
- c. Contractor and construction personnel; and
- d. Other persons who may be in the public access areas on or passing through the site or within the owner controlled area.”

The term *owner-controlled area*, as used in NUREG-0654, encompasses all areas contiguous to the reactor site property that is owned or leased by the licensee (or by any of its associated business units) over which the licensee exercises control. The owner-controlled area is usually larger than, and encompasses, the exclusion area.

The planning standard and the evaluation criteria in NUREG-0654 provide a basis for licensee actions that are necessary to protect the health and safety of members of the public who are in the owner-controlled area. The range of actions may include, but is not limited to, evacuation, sheltering, decontamination, and the use of potassium iodide (KI) for those licensees in States that have adopted its use for members of the public.

Situations that could have individuals, including members of the public, in a licensee’s owner-controlled area include the following examples:

- visitors at the visitor center or media center
- employee and family recreational facilities or areas
- visitors in physical fitness center
- lessee employees in leased buildings
- hunters or fishermen
- individuals using biking or walking trails
- individuals making deliveries or providing services (catering, filling drink machines, etc).

This list is not intended to be all-inclusive but to indicate the potential scope of situations that require adequate planning. Inclusion of these situations in the licensee’s emergency preparedness drill and exercise program can provide valuable insights regarding the quality and capability of the planning effort.

Furthermore, the planning standard, §50.47(b)(7), requires licensees to provide members of the public, in the owner-controlled area and beyond the site boundary, with information on how they will be notified and what their initial actions should be in an emergency. Section II.G of NUREG-0654 establishes the related evaluation criteria.

Effective integration of licensees' onsite plans with State and local plans can ensure that essentially all members of the public will be notified of protective actions to be taken and that the actions can be implemented in a timely manner.

This information notice does not require any specific action or written response. If you have any questions about this notice, please contact one of the technical contacts listed below or the appropriate project manager in the NRC's Office of Nuclear Reactor Regulation (NRR).

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99-28, Supp 1	Recall of Star Brand Fire Protection Sprinkler Heads	03/22/2002	All holders of licenses for nuclear power, research, and test reactors and fuel cycle facilities.
2002-12	Submerged Safety-Related Electrical Cables	03/21/2002	All holders of operating licenses or construction permits for nuclear power reactors
2002-11	Recent Experience with Degradation of Reactor Pressure Vessel Head	03/12/2002	All holders of operating licenses for pressurized-water reactors (PWRs), except those who have permanently ceased operations and have certified that fuel has been permanently removed from the reactor.
2002-10	Nonconservative Water Level Setpoints on Steam Generators	03/07/2002	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.
2002-09	Potential for Top Nozzle Separation and Dropping of Certain Type of Westinghouse Fuel Assembly	02/13/2002	All holders of operating licenses for nuclear power reactors, and non-power reactors and holders of licenses for permanently shutdown facilities with fuel onsite.