UNITED STATES
NUCLEAR REGULATORY COMMISSION
OFFICE OF NUCLEAR SECURITY AND INCIDENT RESPONSE
WASHINGTON, D.C. 20555-0001

July 18, 2005

NRC INFORMATION NOTICE 2005-19: EFFECT OF PLANT CONFIGURATION CHANGES ON THE EMERGENCY PLAN

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.

PURPOSE

The U.S. Nuclear Regulatory Commission (NRC) is issuing this information notice to inform addressees of inspection findings related to licensees' failure to properly evaluate the effect of plant configuration changes (procedures, equipment, and facilities) on the emergency plan. This information notice is intended to inform licensees of the importance of properly evaluating changes to procedures, equipment, and facilities for potential impact on the licensee's ability to maintain an effective emergency plan.

It is expected that recipients will review the information for applicability to their facilities and consider actions, as appropriate, to avoid similar problems. However, suggestions contained in this information notice do not constitute NRC requirements; therefore, no specific action or written response is required.

DESCRIPTION OF CIRCUMSTANCES

Failure to Revise an Emergency Action Level (EAL) Associated with Plant Instrumentation

At the Callaway plant, an effluent radiation monitor is used as an EAL indicator for emergency classifications. In March 1998, the licensee corrected errors in the calculation for the effluent monitor indicators used in determining site area and general emergency classifications. The correction raised the indicator value so that an emergency classification would occur at a somewhat higher monitor value than was previously required. However, 22 months later NRC inspectors determined that the licensee had decided not to update the monitor indicator value to reflect the correct value, as determined by the revised calculation, because the licensee assumed it would decrease the effectiveness of the emergency plan.

The NRC concluded that a violation of 10 CFR 50.54(q) occurred when the licensee failed to revise an EAL associated with plant instrumentation to its most accurate known value to ensure that corresponding protective action recommendations (PARs) were appropriate for the indicated conditions (ADAMS Accession No. ML003737917).

ML051530520

Failure to Evaluate the Effect of Equipment Deficiency on the Ability to Determine PARs

At the Kewaunee Nuclear Power Plant, meteorological instrumentation is used in the development of PARs in the event of an emergency. In June 2002, the licensee identified that the primary 10-meter wind direction instrumentation was indicating an erroneous wind direction. The control room and emergency preparedness staff were not informed of this malfunction and compensatory measures were not implemented pending completion of repairs to the instrument. As a result, the use of primary 10-meter wind direction readings could have resulted in the wrong downwind sectors reported to the State for determining protective measures for the public.

The NRC concluded that a violation of 10 CFR 50.54(q) occurred when the licensee failed to correct a malfunction of the wind direction instrumentation and to maintain the meteorological system so that it could be used to ensure the capability to provide accurate dose assessments and PARs under accident conditions (ADAMS Accession No. ML023040516).

Failure to Evaluate the Effect of Equipment Issues on Timely EAL Determination

At the Point Beach Nuclear Plant, seismic instrumentation is used as an EAL indicator for emergency classification. The licensee's 1984 Emergency Plan specified the instrument and control (I&C) technicians as 30-minute emergency responders and allowed use of the on-shift auxiliary operators in lieu of on-shift I&C technicians to retrieve seismic data. At that time, the retrieval of the seismic data did not require specialized training or the use of a laptop computer so the auxiliary operators could retrieve the data.

The licensee replaced the seismic instrumentation with an instrument that required the use of a laptop computer to retrieve the seismic data. Only I&C technicians were trained to use the laptop computer for retrieving seismic data. An I&C technician, or an appropriately trained alternate, was not assigned to the on-shift staff and was therefore not immediately available during off-normal working hours to retrieve the data. As a result, the licensee could not have assessed the seismic activity to support timely declaration of an emergency condition.

The NRC concluded that a violation of 10 CFR 50.47(b) occurred when the licensee failed to ensure adequate on-shift staffing at all times to support reading of the seismic instrumentation and timely implementation of the emergency plan (ADAMS Accession No. ML040360104).

Failure to Evaluate Procedure Changes Against the Emergency Plan

At the Point Beach Nuclear Plant, steam generator narrow range level setpoints are used as EAL indicators for emergency classifications. In November 2001, the licensee revised its technical specifications and several safety-related procedures associated with steam generator narrow range level setpoints. The licensee's review failed to recognize the impact on the emergency plan. As a result, the EAL was not updated to reflect the correct narrow range steam generator water level setpoints which could have led to an incorrect emergency classification and PAR.

The NRC concluded that the licensee's failure to identify and evaluate the potential impacts of the discrepancy between the procedure setpoints and EALs was more than minor in that, if left uncorrected, it could have prevented or delayed declaration of a general emergency (ADAMS Accession No. ML041280141).

Failure to Identify the Impact of Equipment Deficiencies on the Emergency Plan

At the San Onofre Nuclear Generating Station, portable radiation detection equipment is used to evaluate EAL indicators under certain plant conditions. In December 2002, NRC inspectors identified that emergency procedures require the dispatch of a health physics technician to monitor radiation conditions outside of containment only when the hi-range in-containment monitor is inoperable. However, a radiological emergency condition could exist where the licensee would fail to recognize it because the hi-range in-containment monitor is operable and the actual radiation condition outside of containment at specific locations exceeded established levels and was not evaluated. As a result, a potential emergency classification situation could exist and the licensee staff might not recognize it.

The NRC concluded that a violation of 10 CFR Part 50, Appendix E IV.B occurred when the licensee failed to provide adequate procedures to ensure that conditions that could require the declaration of an EAL are recognized and evaluated (ADAMS Accession No. ML030160320).

BACKGROUND

The NRC evaluates the acceptability of a licensee's emergency plan against the standards set forth in 10 CFR 50.47(b), the requirements of Appendix E to 10 CFR Part 50, and the guidance contained 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 NRC requires licensees to comply with 10 CFR 50.54(q) which states, 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 10 CFR 50.47(b) and the requirements in Appendix E of 10 CFR Part 50.

DISCUSSION

The ultimate goal of an EAL scheme and an emergency plan is to ensure that emergency response personnel, emergency procedures, and equipment are in place if it becomes necessary to implement actions to protect the public health and safety.

Site configuration changes should be evaluated to ensure that the licensee continuously maintains the ability to implement an effective emergency plan. Configuration changes that impact the ability of a site to implement its emergency plan need to be evaluated to determine the impact and, if necessary, to implement compensatory measures. For example, several licensees have recently modified their seismic instrumentation and failed to properly evaluate these modifications to ensure that the emergency plan and the ability to declare the appropriate EAL in a timely fashion were not adversely affected.

Other changes, such as training, facility modifications, site egress and ingress, etc., can also affect the emergency plan and should be properly evaluated. This evaluation should also consider whether the proposed modification could take advantage of technological advancements in order to enhance the effectiveness of the emergency plan. For example, when replacing seismic instrumentation, licensees could consider technological advancements that would provide a seismic annunciator in the control room to ensure timely and accurate event declaration due to an earthquake.

CONTACTS

This information notice requires no specific action or written response. Please direct any questions about this matter to the technical contact listed below or the appropriate Office of Nuclear Reactor Regulation (NRR) project manger.

/RA/
Patrick L. Hiland, Chief
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Office of Nuclear Reactor Regulation

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Note: NRC generic communications may be found on the NRC public Web site, http://www.nrc.gov, under Electronic Reading Room/Document Collections.

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