UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

October 20, 1983

LS05-83-10-044

MEMORANDUM FOR: Themis P. Speis, Director
Division of Safety Technology

FROM: Darrell G. Eisenhut, Director
Division of Licensing

SUBJECT: PROPOSED AMENDMENTS TO THE REGULATIONS DEALING WITH EMERGENCY PREPAREDNESS

By memorandum dated September 16, 1983, R.M. Bernero requested NRR review of proposed amendments to 10 CFR Part 50, Sections 50.34, 50.47, 50.54 and Appendix E; Emergency Preparedness. In general, the concept is acceptable in that for events with serious core damage prompt action will be taken to minimize the potential dose to the public close to the facility. Implementation of this 2 mile action plan is not without added costs for licensees and local and State officials. In addition to expanded exercises and additional training, hardware costs could be significant. Many systems will need to be modified or new systems installed to provide evacuation notification for the 2 mile radius area. Additional comments are enclosed as marked up pages from the amendment package.

Darrell G. Eisenhut, Director
Division of Licensing

Enclosure:
As stated

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4. The 4-month clock - The wording in this proposed rule change relating to providing a 4-month time span for the correction of deficiencies in emergency planning has been clarified to be consistent with the Commission's original (1980) intent. The proposed rule change specifically states that deficiencies in the State and local governmental emergency planning and preparedness, which are not within the control of the licensee, may be given 4 months for correction. This 4-month time period does not include the time period that FEMA may take to find that the deficiency has been corrected, particularly if such finding depends on conducting another exercise. Similarly, emergency planning and preparedness deficiencies that are within the license's control will be handled as a normal enforcement action.

5. Specification of emergency planning requirements for research and test reactors and critical facilities - The staff is proposing to add a new section 50.48 to its regulations that would outline specific planning standards that research and test reactors and critical facilities must meet to obtain an operating license or to continue operation. The rationale for the change is that the potential radiological hazards to the public associated with the operation of research or test reactors and critical facilities licensed under 10 CFR Part 50 involve considerations different than those associated with nuclear power reactors.

   Research and test reactors and critical facilities are low power facilities that are used for the fundamental study of material properties and nuclear processes and the production of radioisotopes for medical and industrial applications.

   Safety analyses for research and test reactors are based on the concept of a postulated ~~Design Basis Event (DBE), an~~ accident or event

event for which the risk to the public health and safety is greater than that from any event that can be mechanistically postulated. The rationale for using the [redacted] for research and test reactors is to assess the potential effects to the public health and safety and is based on the determination that the offsite doses from the [redacted] be within the requirements of 10 CFR Part[redacted] 20 [redacted]. Consequently, if the requirements are met for a DBE condition, the capability of the facility to withstand normal and abnormal operational transients and a broad spectrum of postulated credible accidents without undue risk to the public would also be defined within the DBE.

The NRC staff has [redacted] the DBE for research reactors as the event [redacted] will result in the [redacted] loss of water (reactor coolant) in the reactor pool or tank. A loss of coolant accident for research and test reactors is where the reactor pool or tank could be drained through a break of an experimental beam port, crack of a primary coolant line, or other means, thus removing the liquid coolant medium from the reactor.

The postulated radioactive releases from credible accidents associated with the operation of research reactors will not result in offsite radiological doses to the general public exceeding the EPA Protective Action Guides.

In light of the credible accidents postulated for research and test reactors and critical facilities resulting in core degradation, the staff considers that research and test reactors and critical facilities with an authorized power level of 2 MW (th) or less should establish general industrial emergency plans. These plans need not be submitted to the NRC for approval but must be maintained onsite.

Research and test reactors and critical facilities are low power facilities that are used for the fundamental study of material properties and nuclear processes and the production of radioisotopes for medical and industrial applications.

Safety analyses for research and test reactors above 2 MWt are based on the concept of a postulated Design Basis Event (DBE), an event for which the risk to the public health and safety is greater than that from any event that can be mechanistically postulated. The rationale for using the DBE for research and test reactors is to assess the potential effects to the public health and safety and is based on the determination that the offsite doses from the DBE be within the requirements of 10 CFR Part 20, and "Standards for Protection Against Radiation" and Part 100, "Reactor Site Criteria." Consequently, if the requirements are met for a DBE condition, the capability of the facility to withstand normal and abnormal operational transients and a broad spectrum of postulated credible accidents without undue risk to the public would also be defined within the DBE.

The NRC has ~~defined~~ accepted the DBE for most research reactors above 2 MWt as the event ~~that~~ which ~~will~~ results in the ~~total~~ loss of water (reactor coolant) in the reactor pool or tank. A loss of coolant accident for research and test reactors is where the reactor pool or tank could be drained through a break of an experimental beam port, crack of a primary coolant line, or other means, thus removing the liquid coolant medium from the reactor. Other reactors, suitably protected, would have other postulated DBE's depending upon the design and engineered safeguards. The postulated radioactive releases from credible accidents associated with the operation of research reactors will not result in offsite radiological doses to the general public exceeding the EPA Protective Action Guides.

In light of the credible accidents postulated for research and test reactors and critical facilities resulting in core degradation, the Commission has determined that research and test reactors and critical facilities with an authorized power level of 2 MW (th) or less must establish general industrial emergency plans. These plans need not be submitted to the NRC for approval but must be maintained onsite.

The Commission has also determined that research and test reactors with an authorized power level greater than 2 MW(th) must establish and

loading and/or low power operations (up to 5% of the rated power). Insofar as emergency planning and preparedness requirements are concerned, a license authorizing fuel loading and/or low power operation may be issued after a finding is made by the NRC that the state of onsite emergency preparedness provides reasonable assurance that adequate protective measures can and will be taken in the event of a radiological emergency. The NRC will base this finding on its assessment of the applicant's emergency plans against the pertinent standards and elements in paragraph (b) of this section. ~~and Appendix E of this part.~~

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4. § 50.48 is added for Research and Test reactors and Critical facilities.

§ 50.48 Emergency Planning Requirements For Research and Test reactors and Critical facilities.

(a)(1) ~~No~~ An operating license for a research or test reactor or critical facility will be issued ~~unless~~ following a finding ~~is~~ made by the NRC that the state of onsite emergency preparedness provides reasonable assurance that adequate protective measures can and will be taken in the event of a radiological emergency.

(2) The NRC will base its findings on the assessment as to whether the licensee/applicant's emergency plans are adequate and capable of being implemented.

(b) The emergency plans for research or test reactors or critical facilities designed and authorized to operate at 2 ~~MW(th)~~ MWt or less must establish general industrial emergency plans. These plans need not be submitted to the NRC for approval but must be maintained onsite.

(c) The emergency plans for research or test reactors or critical facilities designed and authorized to operate at greater than 2 MWt(th) must meet the following and elements.

(1) Introduction. The plan shall briefly introduce the type of reactor, the reactor's purpose, where it is located, and the purposes of the emergency plan.

which meet the elements in 10 CFR Part 50 § 50.48. The nuclear power reactor licensee may make changes to these plans without Commission approval only if such changes do not decrease the effectiveness of the plans and the plans, as changed, continue to meet the elements and standards of § 50.47(b) of this part ~~and the requirements of Appendix E of this part~~ The research reactor licensee and/or the fuel facility licensee with an authorized power level greater than 1 MW thermal may make changes to these plans without Commission approval only if such changes do not decrease the effectiveness of the plans and the plans, as changed, continue to meet the ~~requirements of Appendix E of~~ elements of 10 CFR 50 § 50.48. Proposed changes that decrease the effectiveness of the approved emergency plans shall not be implemented without application to and approval by the Commission. The licensee shall furnish one copy of each proposed change for approval to the Administrator of the appropriate NRC Regional Office specified in Appendix D of Part 20 of this chapter and two copies to the Document Control Desk, U.S. Nuclear Regulatory Commission, Washington, DC 20555. If a change is made without approval, the licensee shall furnish one copy to the Administrator of the appropriate NRC Regional Office specified in Appendix D of Part 20 of this chapter and two copies to the Document Control Desk, U.S. Nuclear Regulatory Commission, Washington, DC 20555 within 30 days after the change is made.

(2) ?

(r) Research or test reactors and critical facilities authorized to operate at power levels of 2 MW (th) or less have potential emergency situations that can occur within the operations boundary (onsite) that will not result in an impact on the public health and safety offsite. Therefore, a licensee authorized to possess and/or operate a research or test reactor or critical facility with an authorized power level of 2 MW(th) or less need not submit radiological emergency plans to the NRC for approval. These licensees shall follow and maintain in effect general industrial emergency plans. Each licensee who is authorized to possess and/or operate a research or test reactor facility with an authorized power level greater than 2 MW thermal under a licensee of the type specified in § 50.21(c), shall submit emergency plans complying