

June 16, 1997

FOR: The Commissioners

FROM: L. Joseph Callan /s/
Executive Director for Operations

SUBJECT: RULEMAKING PLAN FOR EMERGENCY PLANNING REQUIREMENTS FOR PERMANENTLY SHUTDOWN NUCLEAR POWER PLANT SITES [10 CFR PART 50.54\(q\)](#) and (t); [10 CFR 50.47](#); AND [APPENDIX E TO 10 CFR PART 50](#)

PURPOSE:

To inform the Commission of the staff's rulemaking plan to amend emergency planning requirements for permanently shutdown nuclear power plant sites.

BACKGROUND:

The Commission's regulations currently require that each licensee of an operating nuclear power plant establish and maintain emergency plans and preparedness in accordance with [10 CFR Part 50.54\(q\)](#), [10 CFR Part 50.47](#) and [Appendix E to 10 CFR Part 50](#). An exemption is typically requested and granted to these requirements for permanently shutdown nuclear power plants. In order to provide uniform regulatory requirements and to eliminate the continued use of exemptions, the regulations should be amended to establish the appropriate emergency planning requirements for permanently shutdown plant sites depending on the plant status during permanent shutdown. In addition the above, subsection [50.54\(t\)](#) should be amended to clarify its applicability to permanently shutdown plants.

The structure of this rulemaking effort is consistent with present regulatory requirements for emergency plans for operating reactors in [10 CFR Part 50](#), storage of spent fuel in [10 CFR Part 72](#), and possession of byproduct material in [10 CFR Part 30](#).

DISCUSSION:

The proposed rulemaking would revise sections [50.54\(q\)](#) and (t), [50.47](#) and [Appendix E to 10 CFR Part 50](#) in order to establish appropriate emergency planning requirements for permanently shutdown nuclear power plant sites. The proposed rulemaking would address the following: (1) when it is appropriate to reduce, in certain specified instances, emergency planning requirements, and (2) when emergency planning requirements can be eliminated.

The regulations would provide gradual regulatory relief from emergency planning requirements based on the anticipated reactor conditions during permanent shutdown at nuclear power plant sites. The reduction in emergency planning requirements would allow licensees to modify their programs to requirements similar to those specified in [10 CFR Part 72.32](#). This would occur when the reactors onsite are defueled and permanently shutdown, spent fuel in the spent fuel pools is no longer susceptible to a zirconium cladding fire or gap release caused by an incipient fuel cladding failure in the event the spent fuel pool is drained accidentally, and a site specific analysis of the onsite inventory of radioactive material has determined that in the event of a release no member of the public would be exposed to doses in excess of the U. S. Environmental Protection Agency Protective Action Guides. Under these conditions, the risks from accidents would be considerably less than the risks estimated from accidents at full power operations. Consequently, the emergency plans currently required for full power operations would no longer be necessary. The proposed emergency planning requirements would be principally focused on licensee's onsite activities with the provision that arrangements would be made for requesting offsite assistance. In certain specified instances, emergency planning requirements would be eliminated altogether if the onsite inventory of radioactive material is below the quantities as specified in [30.72](#), "Schedule C - Quantities of Radioactive Materials Requiring Consideration of the Need for an Emergency Plan for Responding to a Release."

The staff concludes that amending emergency planning regulations for permanently shutdown power plant sites provides licensees with a significant amount of relief in emergency planning requirements and with greater consistency within the regulations than currently exists. It is also consistent with the emergency planning requirements for the storage of spent fuel and the possession of byproduct material. These reductions provide licensees a reduced financial burden with no compromise in health and safety.

COORDINATION:

The Office of the General Counsel has no legal objection to the Rulemaking Plan. The Office of the Chief Financial Officer has no objection to the resource estimate contained in this paper. The Office of the Chief Information Officer has reviewed the Rulemaking Plan for information technology and information management implications and concurs with the proposed rulemaking activity, which includes coordination with the Office of Management and Budget under the Paperwork Reduction Act of 1995.

The Federal Emergency Management Agency (FEMA) has not been consulted on the rulemaking plan. However, FEMA's views will be solicited on the proposed rulemaking.

RECOMMENDATION:

I intend to proceed with the development of the rule as described in the [attached](#) Rulemaking Plan unless otherwise directed by the Commission within 10 days from the date of this paper.

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Attachment: [Rulemaking Plan](#)

ATTACHMENT

RULEMAKING PLAN
EMERGENCY PLANNING REQUIREMENTS
FOR PERMANENTLY SHUTDOWN NUCLEAR POWER PLANT SITES
10 CFR 50.54(q) and (t), 10 CFR 50.47,
AND APPENDIX E TO 10 CFR PART 50

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ISSUES TO BE RESOLVED

The proposed rulemaking would revise sections 50.54(q), 50.47 and Appendix E to 10 CFR Part 50 in order to establish appropriate emergency planning requirements for permanently shutdown nuclear power plant sites. The proposed rulemaking would address the following: (1) when it is appropriate to reduce, in certain specified instances, emergency planning requirements, and (2) when emergency planning requirements can be eliminated. This effort is a companion to another rulemaking under development by the staff that proposes to allow licensees to reduce the level of insurance coverage based on several different reactor configurations that are anticipated following permanent shutdown (SECY-96-256).

The regulations should be revised to provide relief from emergency planning requirements for permanently shutdown nuclear power plant sites based on the reduced risks associated with the configuration of the stored fuel and the passage of time since power operation. These factors, under specified conditions, result in significantly reduced accident risk and consequences, therefore, emergency plans devised for full power operations are not warranted. Revising 10 CFR 50.54(q), which incorporates by reference the standards of 10 CFR 50.47(b) and the requirements of 10 CFR Part 50, Appendix E, that pertain to operating plants, would allow licensees of permanently shutdown nuclear power plant sites to reduce their emergency planning efforts depending on the plant condition following permanent shutdown. In addition to the above, subsection 50.54(t), which prescribes requirements for the development, revision, implementation, and maintenance of emergency preparedness programs, would be amended to clarify its applicability to shutdown plants.

The structure of this rulemaking effort is consistent with present regulatory requirements for emergency plans for operating reactors in 10 CFR Part 50, storage of spent fuel in 10 CFR Part 72, and possession of byproduct material in 10 CFR Part 30.

CURRENT RULE REQUIREMENTS

The Commission's regulations currently require that each nuclear power plant licensee establish and maintain emergency plans and preparedness in accordance with 10 CFR Part 50, sections 50.54(q), 50.47 and Appendix E. An exemption has been typically requested and granted from some of these requirements for permanently shutdown nuclear power plants. The provisions in the current regulations do not provide clear guidance relative to the

reduction of emergency planning requirements for permanently shutdown plants. The regulations should be amended to establish the appropriate emergency planning requirements for permanently shutdown nuclear power plants.

For nuclear power plant sites with Independent Spent Fuel Storage Installations (ISFSIs) on site, the emergency planning requirements as specified in 10 CFR 72.32 will remain in effect.

PRELIMINARY REGULATORY ANALYSIS

The proposed rulemaking would permit deleting certain emergency planning requirements for permanently shutdown nuclear plant sites, thereby resulting in a cost savings to licensees of approximately \$1 million per site per year based on the estimated cost savings for the Trojan Nuclear Plant after it eliminated offsite emergency preparedness requirements following permanent shutdown. These savings can be expected to be typical.

Options

Two options were considered. They are as follows:

1. No action. This would maintain current emergency planning regulations in effect. Relief from regulatory requirements during permanent reactor shutdown has been provided on a case-by-case basis through the exemption process. However, licensees could interpret the applicable regulations to permit elimination of emergency planning requirements based on certification of shutdown under 10 CFR 50.82(a). This potential result was not intended by the NRC staff. Complete elimination of emergency planning requirements in accordance with this interpretation would result in the NRC having a concern that emergency planning and preparedness would not be maintained when it is still necessary based on the plant configuration.
2. Provide clear and gradual regulatory relief from emergency planning requirements based on the anticipated reactor configurations during permanent shutdown at nuclear power plant sites. The reduction in emergency planning requirements would allow licensees to modify their programs to requirements similar to those specified in 10 CFR 72.32. This reduction would occur when the reactors onsite are defueled and permanently shutdown, spent fuel in the spent fuel pools is no longer susceptible to a zirconium cladding fire or gap release caused by an incipient fuel cladding failure in the event the spent fuel pool is drained accidentally, and a site specific analysis of the onsite inventory of radioactive material has determined that in the event of a release no member of the public would be exposed to doses in excess of the U. S. Environmental Protection Agency (EPA **EXIT**) Protective Action Guides (PAGs).⁽¹⁾ These factors result in significantly reduced accident risk and consequences, therefore, emergency plans devised for full power operations are not warranted. In certain specified instances, emergency planning requirements would be eliminated altogether if the onsite inventory of radioactive material were below the quantities as specified in 30.72, "Schedule C - Quantities of Radioactive Materials Requiring Consideration of the Need for an Emergency Plan for Responding to a Release."

IMPACTS OF THE PROPOSED ACTION

Option 1: The no action option retains the emergency planning provisions in the current regulations. There is some inconsistency among the regulations pertaining to emergency planning that create uncertainties in determining when permanently shutdown and defueled nuclear power reactors no longer have to maintain emergency plans. Under Option 1, power reactor licensees would continue to be subject to the uncertainties outlined above. Under current regulatory practice, most permanently shutdown and defueled reactor licensees would request and likely receive exemptions from the regulations, thus continuing to cause less regulatory certainty and potential inconsistencies among licensees. This option would also result in higher costs to both licensees and the NRC because of the cost inefficiencies of dealing with this issue on an individual plant basis.

Option 2: This option allows power reactor licensees to obtain orderly relief from their current emergency planning requirements during permanent shutdown through the regulations. Under specified conditions, and subject to NRC approval, licensees would be allowed to modify their emergency planning requirements to a reduced level similar to the requirements of 10 CFR 72.32. The reduced emergency planning requirements would be applicable to permanently shutdown reactors if they met the following conditions: (1) the reactors onsite are defueled and permanently shutdown, (2) spent fuel in the spent fuel pools is no longer susceptible to a zirconium cladding fire or gap release caused by an incipient fuel cladding failure in the event the spent fuel pool is drained accidentally, and (3) a site specific analysis of the onsite inventory of radioactive material has determined that in the event of a release, no member of the public would be exposed to doses in excess of the U. S. EPA PAGs. In addition, under special circumstances, emergency planning requirements could be eliminated if the onsite inventory of radioactive material were below the quantities as specified in 30.72, "Schedule C - Quantities of Radioactive Materials Requiring Consideration of the Need for an Emergency Plan for Responding to a Release."

For analyzing the impacts of this proposed rulemaking action on emergency planning requirements for permanently shutdown nuclear power reactors, the staff has selected similar reactor configurations anticipated during permanent shutdown as were used in a recently approved rulemaking plan for amending insurance requirements for permanently shutdown nuclear power reactors.⁽²⁾

The reactor configurations encompass anticipated spent fuel characteristics and storage modes following permanent shutdown. They are as follows:

Reactor Configuration 1: Reactor is defueled, permanently shutdown, and spent fuel in the spent fuel pool is susceptible to a zirconium cladding fire if the spent fuel pool is drained accidentally. This configuration encompasses the period commencing immediately after the offload of the core to just prior to when the decay heat of the hottest assemblies is low enough that no rapid zirconium oxidation will take place and the fuel cladding will remain intact, such as no gap release, in the event of loss of water in the spent fuel pool.

Reactor Configuration 2: Reactor is defueled, permanently shutdown, and spent fuel is in the spent fuel pool but is not susceptible to a zirconium cladding fire or gap release caused by an incipient fuel cladding failure in the event the spent fuel pool is drained accidentally. A site specific analysis of the onsite inventory of radioactive material has determined that in the event of a release no member of the public would be

exposed to doses in excess of the U. S. EPA PAGs. In this configuration, the spent fuel can be stored on a long-term basis in the spent fuel pool without the possibility of initiating a zirconium fire or significant fuel cladding failure. In addition, the site may contain an inventory of radioactive material, such as liquid radwaste, activated reactor components, and contaminated structural materials. The inventory of radioactive material during this configuration may change depending on the licensee's proposed shutdown activities and schedule.

Reactor Configuration 3: Reactor is permanently shutdown and no spent fuel is in the reactor or the spent fuel pool. All spent fuel has been removed to an offsite or onsite dry storage ISFSI or to a DOE high-level repository. A site specific analysis of the onsite inventory of radioactive material has determined that in the event of a release no member of the public would be exposed to doses in excess of the U. S. EPA PAGs. The remaining onsite inventory of radioactive material depends on the decommissioning status and may include liquid radwaste, activated reactor components, and contaminated structural materials.

Reactor Configuration 4: Same as reactor configuration 3, except the reactor site has no spent fuel and the onsite radioactive inventory of radioactive material is below the quantities as specified in 30.72, "Schedule C - Quantities of Radioactive Materials Requiring Consideration of the Need for an Emergency Plan for Responding to a Release."

Under reactor configuration 1, onsite and offsite emergency planning efforts would be maintained at the same levels as currently specified by regulations for operating reactors. The radiological consequences during reactor configuration 1 approximate the magnitude of a severe core damage accident resulting from the accidental draining of the spent fuel pool. After spent fuel has cooled down to a point where the spent fuel cladding temperature would not exceed 565 C following an accidental draining of the spent fuel pool (reactor configuration 2), power reactor licensees would be allowed to modify their emergency planning requirements consistent with the requirements of 10 CFR Part 72.32. The above noted cladding temperature limit of 565 C would be reached after a decay period of approximately 7 months for BWRs and 17 months for PWRs. (3) Reactor configuration 3 would maintain the same emergency planning requirements as reactor configuration 2, since there would be an onsite inventory of radioactive material that would have the potential to contaminate the site. However, there would be negligible offsite radiological consequences resulting from postulated accidents onsite in reactor configurations 2 and 3. For reactor configuration 4, emergency planning requirements would be eliminated since the onsite inventory of radioactive material would be below those identified in 10 CFR 30.72 (Schedule C). The facility would be similar, in its permanently shutdown condition, to material facilities authorized under 10 CFR Part 30 for which no emergency planning is required by NRC regulations.

Preferred Option: Given the above considerations, the staff concludes that the preferred option is Option 2. It provides licensees with a significant amount of relief in reduced or eliminated emergency planning requirements without additional risk to the public. It further provides a simplified approach for the implementation of emergency planning requirements based first on the critical cladding temperature of the spent fuel, and second on a site specific analysis that determines that EPA PAGs for areas adjacent to the site would not be exceeded in the event of an accidental release of radioactive material. It provides additional relief to licensees in certain instances by eliminating the emergency planning requirements altogether and is consistent with the emergency planning regulatory requirements for the storage of spent fuel and the possession of byproduct material. These reductions provide licensees a reduced financial burden with no compromise in health and safety.

This determination is based on the conclusion that: (1) given the permanently shutdown and defueled status of the facility, there is reasonable assurance that the probability and consequences of accidents which may potentially result in a radiological release are significantly decreased from those that could be associated with power reactors authorized to operate at full licensed power levels, (2) there would be no changes as a result of the rulemaking in the types of any effluents that may be released offsite, and (3) there would be no anticipated increase as a result of the rulemaking in the allowable individual or cumulative occupational radiation exposure onsite.

OGC'S LEGAL SUFFICIENCY ANALYSIS DEMONSTRATING THAT NO KNOWN BASIS EXISTS FOR LEGAL OBJECTION

The staff's proposal to establish emergency planning requirements for permanently shutdown and defueled reactors through rulemaking delineated above is within the authority of the Commission, granted to the agency to protect public health and safety through licensing of the commercial uses of nuclear materials and facilities under the Atomic Energy Act for 1954, as amended. This rulemaking would amend the emergency planning requirements associated with permanently shutdown and defueled nuclear power reactors permitting burden reductions for licensees. The scope of the backfit provisions in 10 CFR 50.109 is limited to construction and operation of nuclear reactors. This rulemaking would apply only to reactors that have permanently ceased operations and are defueled and, therefore, under 10 CFR 50.82, these reactors are no longer authorized to operate. Accordingly, the backfit rule does not apply to these proposed changes. OGC has not identified any legal impediments to proceeding with the development of proposed changes to the NRC regulations, as described.

AGREEMENT STATE CONSIDERATIONS

None. Agreement States do not license power reactors, and therefore, this rulemaking would not effect their licensees.

SUPPORTING DOCUMENTS

A regulatory analysis, environmental assessment, and a notice of Office of Management and Budget (OMB) review of the information collection requirements that would be part of this amendment to the regulations (with supporting statement) would be required to support this proposed rulemaking. It is not anticipated that a regulatory guide will be necessary.

RESOURCES REQUIRED

Approximately 1 staff year is estimated to develop this rulemaking. These resources are included in the FY 1997 budget and the FY 1998 budget request.

IS IT RECOMMENDED THAT THE EDO ISSUE THE RULE IN ACCORDANCE WITH MANAGEMENT DIRECTIVE 9.17

No. Establishing the emergency planning requirements for defueled reactors involves a significant issue of policy.

LEAD OFFICE STAFF AND STAFF WITHIN EACH OFFICE WHO WILL BE INVOLVED

Working Group	Office Concurrence
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George Mencinsky, RES	A. C. Thadani
Daniel M. Barss / Richard Dudley, NRR	S. J. Collins
Stephen H. Lewis, OGCW.	J. Olmstead

USE OF STEERING GROUP

No. This rulemaking effort would not be expected to benefit from the use of a steering group.

PUBLIC PARTICIPATION

This Rulemaking Plan will be placed on an electronic bulletin board following EDO approval and Commission review. The public will have an opportunity to comment on the proposed rule after it is published in the Federal Register. The NRC staff will also specifically solicit the views of the Federal Emergency Management Agency on this proposed rulemaking.

No enhanced public participation, special measures, or direct final rulemaking is deemed to be necessary at this time.

SCHEDULE

Expressed in terms of time from approval of the Rulemaking Plan.

Proposed rule to EDO	6 months
Public comment period ends	10 months
Final rule to EDO	15 months

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1. EPA 400-R-92-001 "Manual Of Protective Action Guides And Protective Actions For Nuclear Incidents," U.S. Environmental Protection Agency (May 1992)
 2. Staff Requirements Memorandum on SECY-96-256, Changes to the Financial Protection Requirements for Permanently Shutdown Nuclear Power Reactors, 10 CFR 50.54(w) and 10 CFR 140.11 (January 28, 1997).
 3. NUREG/CR-6451, "A Safety and Regulatory Assessment of Generic BWR and PWR Permanently Shutdown Nuclear Power Plants," U.S. Nuclear Regulatory Commission Report by Brookhaven National Laboratory (to be published in 1997).