ATTACHMENT 4

NUCLEAR REGULATORY COMMISSION

10 CFR Part 50

1. Additions And Changes

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Emergency Planning And Preparedness for Production And Utilization Facilities

AGENCY: Nuclear Regulatory Commission.

ACTION: Proposed rule.

SUMMARY: The Commission has ruled in previous adjudications that its regulations do not require the consideration of potential impacts of earthquakes on emergency planning for nuclear reactor sites. The Commission now proposes to provide explicitly through amendment of its regulations in 10 CFR Part 50 that such consideration need not be given. Pending completion of this rulemaking, the interpretation of its rules set out in the adjudications remains in effect. It is not anticipated that this amendment will have significant impact on licensees, State, or local governments or on NRC or FEMA.

DATES: Comment period expires January 22, 1985. Comments received after this date will be considered if it is practical to do so, but assurance of consideration can be given only for comments received on or before this date.

ADDRESSES: Mail comments to: Secretary of the Commission, U.S. Nuclear Regulatory Commission, Washington, DC 20555, ATTN: Docketing and Service Branch. Deliver comments to: Room 1121, 1717 H Street NW., Washington, DC between 8:15 a.m. and 5:00 p.m. weekdays. Copies of comments received may be examined at the NRC Public Document Room, 1717 H Street NW., Washington, DC.

FOR FURTHER INFORMATION CONTACT: Michael T. Jamgochian, Division of Risk Analysis and Operations, Office of Nuclear Regulatory Research, U.S. Nuclear Regulatory Commission, Washington, DC 20555. Telephone: (301)443-7615.

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SUPPLEMENTARY INFORMATION:

Background

On December 8, 1981, the Commission ruled in a then pending adjudication that its emergency planning regulations do not require consideration of potential earthquake effects on emergency plans for nuclear power reactors. <u>In the Matter</u> <u>of Southern California Edison Company, et al.</u> (San Onofre Nuclear Generating Station, Units 2 and 3), CLI-81-33, 14 NRC 1091 (1981). In so ruling the Commission stated:

The Commission will consider on a generic basis whether regulations should be changed to address the potential impacts of a severe earthquake on emergency planning. For the interim, the proximate occurrence of an accidental radiological release and an earthquake that could disrupt normal emergency planning appears sufficiently unlikely that consideration in individual licensing proceedings pending generic consideration of the matter is not warranted. 14 NRC at 1092.

The Commission recently affirmed this position in the Diablo Canyon proceeding. <u>In the Matter of Pacific Gas and Electric Company</u> (Diablo Canyon Nuclear Power Plant, Units 1 and 2), CLI-84-12, 20 NRC ______ (August 10, 1984), petition for review in <u>San Luis Obispo Mothers for Peace</u> v. <u>NRC</u> (D.C. Cir. No. 84-1410). In this decision the Commission stated that it would initiate rulemaking "to address whether the potential for seismic impacts on emergency planning is a significant enough concern for large portions of the nation to warrant the amendment of the regulations to specifically consider those impacts. The

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chief focus of the rulemaking will be to obtain additional information to determine whether, in spite of current indications to the contrary, cost-effective reductions in overall risk may be obtained by the explicit consideration of severe earthquakes in emergency response planning." Slip Opinion at 9.

It should be noted that the Federal Emergency Management Agency (FEMA) reviews offsite radiological emergency planning and preparedness to insure the adequacy of Federal, State, and local capabilities in such areas as emergency organization, alert and notification, communications, measures to protect the public, accident assessment, public education and information. and medical support. Detailed, specific assessment of potential earthquake consequences and response are not part of this process related to radiological emergencies. Also, FEMA has coordinated planning for the Federal response to radiological emergencies including commercial nuclear power plant accidents. These efforts have resulted in FEMA publishing the Federal Radiological Emergency Response Plan in the Federal Register (49 FR 35896) on .. September 12, 1984. In addition, FEMA has an active program of earthquake preparedness which includes hazards and vulnerability analysis, estimates of damage and casualties, planning for Federal response to a major earthquake, and assistance to State and local governments in their earthquake planning and preparedness activities. FEMA believes that all of these activities are sufficiently flexible to complement each other in preparing for an event that may require a concurrent response to a major earthquake and a serious accident at a nuclear power plant.

For general background on emergency planning at nuclear facilities, the public is referred to NUREG-0396, "Planning Basis for the Development of State and Local Government Radiological Emergency Response Plans in Support of Light Water Nuclear Power Plants," and NUREG-0654 /FEMA-REP-1, Rev. 1, "Criteria for Preparation and Evaluation of Radiological Emergency Response

Plans and Preparedness in Support of Nuclear Power Plant."¹ The latter document, developed jointly by the NRC and FEMA, forms the basis for both NRC and FEMA regulations on emergency planning at nuclear power facilities. Also available for public inspection are the complete case records for the <u>San Onofre</u> and <u>Diablo Canyon</u> proceedings, both of which deal specifically with the earthquake/emergency planning interface.

The Commission, in its review of the record and consideration of arguments in the <u>Diablo Canyon</u> proceeding, reached the view that its previous <u>San Onofre</u> holding was correct, i.e., that the potential impact of earthquakes on emergency plans need not be considered. The rationale for this holding was <u>stated</u> in <u>Diablo Canyon</u> (Slip Opinion at 4-6), and may be summarized in part as follows:

... [T]he seismic design of a nuclear power plant was reviewed to render extremely small the probability that...an earthquake [SSE] would result in a radiologic release.... [For] the risk-dominant earthquakes which cause very severe damage to both the plant and the offsite area, emergency response would have marginal benefit because of its impairment by offsite damage.... Specific consideration has been given in this case to the effects of other relatively frequent natural phenomena. The evidence includes the capability of the emergency plan to respond to disruptions in communications networks and evacuation routes as a result of fog. severe storms and heavy rain. In the extreme, these phenomena are capable of resulting in area-wide disruptions similar to some of the disruptions which may result from an earthquake ... Thus, while no explicit consideration has been given to disruptions caused by earthquakes, the emergency plans do have considerable flexibility to handle the disruptions caused by various natural phenomena which occur with far greater frequency than do damaging earthquakes, and this implicitly includes some flexibility to handle disruptions from earthquakes as well.

¹Copies of these documents are available at the Commission's Public Document Room, 1717 H Street NW., Washington, DC 20555. Copies of these documents may be purchased from the Government Printing Office. Information on current prices may be obtained by writing the U.S. Nuclear Regulatory Commission, Washington, DC 20555, Attention: Publications Sales Manager.

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#"STATEMENT OF. INTERIM POLICY" heading deleted.

Although the Commission's remarks were directed to the Diablo Canyon mergency plan, all nuclear power reactor emergency plans do address the contingency that emergency actions may need to be taken under less-than-ideal conditions and with less-than-maximum emergency response capabilities.

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Nuclear power plants are required to be designed to safely shut down for all earthquakes up to and including the "Safe Shutdown Earthquake," or SSE. See 10 CFR Part 50, Appendix A, General Design Criterion 2; 10 CFR Part 100, Appendix A. Accordingly, the probability of earthquakes large enough to cause major onsite damage that would result in a significant radiological release from the plant is low, and for such large earthquakes, offsite damage could make prior offsite emergency plans marginally useful at best. In addition, the probability of the proximate occurrence of an earthquake of substantial magnitude and a radiological release from the plant for reasons unrelated to the earthquake itself is even lower. Therefore, there does not appear to exist a set of circumstances at all likely where the consideration of earthquake impacts would significantly improve the state of emergency planning at a nuclear power reactor.

The ability to take protective actions throughout the plume exposure pathway (EPZ) could be hampered during the life of the plant by temporary adverse conditions resulting from natural phenomena such as rain, snow, flooding or by activities in the vicinity of the plant such as a major road repair. Existing NRC regulations require that emergency plans be comprehensive and flexible enough to assure the capability to take appropriate protective action to mitigate the effects of a nuclear emergency under such conditions. Similar types of adverse conditions could result from earthquakes below the Safe Shutdown Earthquake (SSE), which occur proximate in time with an unrelated accidental release of nuclear material from the facility. The concern is with

"the noted flexibility is found in " phase deleted

seismic events in the region of the power plant which could impair offsite emergency response. However, emergency plans which meet the standards in 10 CFR 50.47 and Appendix E provide reasonable assurance that appropriate protective measures can and will be taken under such circumstances.

The magnitude of the SSE and the adequacy of a plant's design to meet the SSE are reviewed by NRC and may be controverted in adjudicatory proceedings. but, once settled, should not be reconsidered in reviewing or adjudicating emergency planning issues. If a larger earthquake were considered feasible. then a larger SSE would have been established. If an earthquake smaller than an SSE were considered to be capable of damaging a plant's safety systems, then the plant's design would have been corrected. Thus, emergency plans need not take into account earthquakes larger or smaller than an SSE. Nevertheless, the basis for emergency planning is not constrained by the design basis for a plant, and emergency planning efforts recognize the possibility that events considered beyond the design basis can occur. A spectrum of potential consequences independent of the particular causes are analyzed in reaching decisions on emergency planning provisions, and the planning basis does not depend upon the particular scenario which may lead to significant offsite releases of radioactivity. To explicitly consider earthquakes as causes for radioactive releases is inconsistent with the emergency planning basis used by NRC in adopting its regulations.

The Commission intends to consider this issue carefully in this rulemaking and to weigh all arguments before reaching a final decision. In the meantime, this rulemaking should not be construed to affect the continuing validity of the Commission's ruling in <u>San Onofre</u> and <u>Diablo Canyon</u>.

4 = lines replaced with sentence following.

Technical Information

When considering the possibilities of plant damage from seismic events, it is important to understand the severity of seismic events, their range of probabilities, and the potential for reactor accidents caused by seismic events, Three classes of seismic events are considered in this discussion. The first class includes earthquakes of relatively low ground motion, up to the Operating Basis Earthquake (OBE). The OBE ground motion depends on plant location. These accelerations vary in the range of about .05g to 0.33g. During an OBE, all safety related plant systems would be expected to remain operating.

The second class of events includes earthquakes with ground motion higher than the OBE but equal to or less than the Safe Shutdown Earthquakes (SSE); the ground motion of the SSE is typically about twice that of the OBE. Because probabilities of occurrence have large uncertainties for the SSE, typical estimates are in the order of one in a thousand to one in ten thousand per year. NRC regulations require that plants be designed to achieve a safe shutdown after an SSE. Given an SSE, all seismically qualified equipment would be expected to function to bring the plant to safe shutdown. An earthquake up to and including an SSE would be cause for an alert emergency action level classification, but would not cause failures that would result in a significant accidental release from the plant. Thus, although such an event would initiate certain emergency plan actions, no offsite response would be required. Only in the event of an accident attributable to multiple unrelated failures of safety related systems due to some undiscovered common cause failure mechanism (such as a major design error), coincident with an earthquake such as an SSE, would there be a situation which would require offsite emergency response when there was extensive offsite damage. The Commission believes that, because of the intensive, continuing review of nuclear safety conducted by NRC, there is an extremely low probability that any such failure mechanisms have been overlooked.

Original read: "... to . 10g (higher in areas of high seismicity)

The final class of events includes all earthquakes with ground motion levels above the SSE. Fragility analysis has been used to estimate the probability of failure as a function of ground motion associated with these earthquakes. The Zion, Indian Point, and Limerick Probabilistic Risk Assessments estimated that ground motion on the order of 0.5g to 0.75g acceleration would be required to damage these nuclear power plants to the extent that significant release of radioactivity could occur. Some plants, in certain regions, are designed to withstand earthquakes with such ground motion. These plants are able to resist damage to still higher levels of ground motion because of the design margin. It is apparent that the probability estimates for ground accelerations which would be required to damage these nuclear power plants to the extent that significant release of radioactivity would occur are less than the probability estimates for the SSE for these plants.

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Based upon the probabilistic risk assessment results for these three plants, the NRC staff considers that for most earthquakes (including some earthquakes more severe than the SSE) the power plant would generally not be expected to pose an offsite radiological hazard. For earthquakes which would cause plant damage leading to immediate offsite radiological hazards but for which there would be relatively minor offsite damage, emergency response capabilities around nuclear power plants would not be seriously affected. For those earthquakes which cause very severe damage to both the plant and the offsite area, emergency response would have marginal benefit because of its impairment by offsite damage. However, the expenditure of additional resources to cope with seismically caused offsite damage may be "of doubtful value considering the modest benefit in overall risk reduction which could be obtained." CLI-84-12, (Slip Opinion at 5).

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Proposed Rule

In the <u>Diablo Canyon</u> decision the Commission stated that it would initiate rulemaking "to address whether the potential for seismic impacts on emergency planning is a significant enough concern for large portions of the nation to warrant the amendment of the regulations to specifically consider those impacts. The chief focus of the rulemaking will be to obtain additional information to determine whether, in spite of current indications to the contrary, cost-effective reductions in overall risk may be obtained by the explicit consideration of severe earthquakes in emergency response planning." CLI-84-12 (Slip Opinion at 9).

The amendments to 10 CFR 50.47 and 10 CFR Part 50 Appendix E which the (3/p)Commission is proposing would explicitly incorporate in them the interpretations in the Commissions <u>San Onofre</u> and <u>Diablo Canyon</u> rulings. A new paragraph (e) would be added to 10 CFR 50.47 and a paragraph would be added to the "Introduction" section of Appendix E. The Commission wants to assure that it has the benefits of comments of all interested persons on the subject. The Commission therefore invites comment not only on the text of the proposed rule, but also on the fundamental que tion of the relationship between earthquakes and emergency planning at provide the wer facilities. Commenters should, at a minimum, address the merits of uncer possible alternatives:

- Adoption of the proposed rule <u>explicitly incorporating the</u> Commission's interpretation in <u>San Onofre</u> and <u>Diablo Canyon</u>;
- Leaving the issue open for adjudication on a case-by-case basis;
 or

 Requiring by rule that emergency plans specifically address the impact of earthquakes.

The Commission would be most assisted by comments which offer specific policy and technical reasons for preferring one alternative over the others. The Commission is also considering whether to include in this rulemaking tornadoes and other low-frequency natural events. In that possible case, offsite emergency response plans submitted to satisfy the applicable standards of 10 CFR § 50.47 and Appendix E would not need to specifically consider the impact on emergency response capability of earthquakes, tornadoes or any similar low-probability naturally occurring phenomena which are presumed to occur proximate in time with an accidental release of radioactive material from a licensed facility. Comments on this possible alternative are requested.

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Separate Views of Commissioner Asselstine

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It should be obvious that emergency planning is a site-specific exercise which is not amenable to a generic rulemaking such as that proposed by the Commission. In carrying out their emergency planning responsibilities, both the NRC staff and FEMA have recognized this. When they consider whether the emergency plan for a particular site is flexible enough to envelope all eventualities, they consider the effects of whatever natural phenomena are most likely to disrupt emergency planning at that site. Thus, they have considered snow in New England, hurricanes in Florida, tornados in the Midwest, and earthquakes in California.

The Commission now tells us, however, that the experts were wrong and that earthquakes are somehow so different from other natural phenomena that they need not be considered at all, even in areas of high seismic risk. I

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examined the basis for the Commission's conclusion in my separate views on CLI-84-12, the <u>Diablo Canyon</u> order, so I will not repeat here my reasons for disagreeing with the Commission's conclusion. Suffice it to say that I do not believe that there is any reasonable basis for a rule which would treat earthquakes differently from other natural phenomena for purposes of emergency planning.

New

In an attempt to counter my criticism of their course of action in the <u>Diablo Canyon</u> case, the Commission has just recently decided to request comment on a possible alternative rule which would also exclude from emergency planning "tornados and other low-frequency natural events." I do not believe that such a rule would be in the public interest. While hurricanes, tornados, and earthquakes may occur relatively infrequently, should they cause or occur coincident with an accident or an emergency at a nuclear plant they could significantly disrupt emergency response capabilities. The staff's solution to this problem has been to require licensees to consider what kinds of effects these natural phenomena cause and to determine whether their emergency plans are flexible enough to deal with these effects. This has hardly been an onerous burden. Thus, with a minimal expenditure of resources, the licensees can prepare for what could be a serious emergency planning problem.

When I agreed to the publication of a rule, I did so with the hope that the Commission intended to carefully and objectively examine the issue of whether and to what extent the complicating effects of eacthquakes bught to be considered in emergency planning. I also hoped that the information gathered in the rulemaking would convince the Commission that a rule excluding altogether the considerations of earthquakes was not a wise thing to do. I find, however, that that was a forlorn hope. The Commission is instead intent merely on codifying its <u>Diablo Canyon</u> decision, and is going through with rulemaking procedures only so that it can say that it is allowing comment on

the issue, no matter how meaningless that opportunity for comment turns out to be. I will not, therefore, agree to the publication of a rule with which I disagree when the rulemaking procedures are not being used as they were intended, to meaningfully gather information to be factored into the rulemaking decision, but instead are being used solely to circumvent the hearing process in a particular licensing proceeding.

NEW

NEW

Chairman Palladino's Additional Views

In its bare essentials, the disagreement between the Commission majority and Commissioner Asselstine seems to be that the majority currently believes earthquakes need not be considered in emergency planning whereas Commissioner Asselstine believes that they should. I have difficulty understanding why the opportunity to comment on the majority's proposal should be viewed as "meaningless," or "solely to circumvent the hearing process," but an opportunity to comment on some other proposal, such as a proposal to consider earthquakes, should not. I would hope that the Commission's proposal will stimulate public comments, both pro and con, and I believe that the Commission has plainly indicated its desire to obtain and consider all pertinent comments and facts.

PROPOSED FINDING OF NO SIGNIFICANT ENVIRONMENTAL IMPACT

The Commission proposes to determine under the National Environmental Policy Act of 1969, as amended, and the Commission's regulations in Subpart A of 10 CFR Part 51, that this proposed rule, if adopted, would not be a major Federal action significantly affecting the quality of the human environment and therefore an environmental impact statement is not required. See 10 CFR 51.20(a)(1). This determination has been made because the Commission cannot identify any impact on the human environment associated with not requiring consideration of earthquakes in emergency planning and because it is an interpretation of existing regulation. #, Deleted ~ 6 lines)

REGULATORY ANALYSIS

The Commission has prepared a regulatory analysis of this proposed regulation. The analysis examines the costs and benefits of the rule as considered by the Commission. A copy of the draft regulatory analysis is available for inspection and copying, for a fee, at the NRC Public Document Room, 1717 H Street, NW, Washington, DC. Single copies of the analysis may be obtained from Michael Jamgochian, Office of Nuclear Regulatory Research, U.S. Nuclear Regulatory Commission, Washington, DC 20555, Telephone (301)443-7615.

PAPERWORK REDUCTION ACT STATEMENT

This proposed rule contains no information collection requirements and therefore is not subject to the requirements of the Paperwork Reduction Act of 1980 (440.5.C. 3501 et seq.).

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REGULATORY FLEXIBILITY CERTIFICATION

In accordance with the Regulatory Flexibility Act of 1980, 5 U.S.C. 605(b), the Commission hereby certifies that this proposed rule will not, if promulgated, have a significant economic impact on a substantial number of small entities. The proposed rule clarifies requirements for the issuance of an operating license for a nuclear power plant, licensed pursuant to Section 103 and 104b of the Atomic Energy Act of 1954, as amended, 42 U.S.C. 2133, 2134b. The electric utility companies which own and operate nuclear power plants are dominant in their service areas and do not fall within the definition of a small business found in Section 3 of the Small Business Act, 15 U.S.C. 632, or within the Small Business Size Standards set forth in 13 CFR Part 121. Accordingly, there is no significant economic impact on a substantial number of small entities under the Regulatory Flexibility Act of 1980.

LIST OF SUBJECTS IN 10 CFR PART 50

Part 50 - Antitrust, Classified information, Fire prevention, Incorporation by reference, Intergovernmental relations, Nuclear power plants and reactors, Penalty, Radiation protection, Reactor siting criteria, Reporting and recordkeeping requirements.

Pursuant to the Atomic Energy Act of 1954, as amended, the Energy Reorganization Act of 1974, as amended, and Section 553 of Title 5 of the United States Code, notice is hereby given that adoption of the following amendments to Title 10, Chapter 1, Code of Federal Regulations, Part 50 is contemplated.

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PART 50 - DOMESTIC LICENSING OF PRODUCTION AND UTILIZATION FACILITIES

The authority citation for Part 50 continues to read as follows:
 AUTHORITY: Sections 103, 104, 161, 182, 183, 186, 189, 68 Stat. 936, 937,
 948, 953, 954, 955, 956, as amended, sec. 234, 83 Stat. 1244, as amended
 (42 U.S.C. 2133, 2134, 2201, 2232, 2233, 2236, 2239, 2282); secs. 201, 202,
 206, 88 Stat. 1242, 1244, 1246, as amended (42 U.S.C. 5841, 5842, 5846), unless otherwise noted.

Section 50.7 also issued under Pub. L. 95-601, sec. 10, 92 Stat. 2951 (42 U.S.C. 5851). Sections 50.57(d), 50.58, 50.91, and 50.92 also issued under Pub. L. 97-415, 96 Stat. 2071, 2073 (42 U.S.C. 2133, 2239). Section 50.78 also issued under sec. 122, 68 Stat. 939 (42 U.S.C. 2152). Sections 50.80-50.81 also issued under sec. 184, 68 Stat. 954, as amended (42 U.S.C. 2234). Sections 50.100-50.102 also issued under sec. 186, 68 Stat. 955 (42 U.S.C. 2236).

For the purposes of sec. 223, 68 Stat. 958, as amended (42 U.S.C. 2273), \$\$ 50.10(a), (b), and (c), 50.44, 50.46, 50.48, 50.54, and 50_80(a) are issued under 161b, 68 Stat. 948, as amended (42 U.S.C. 2201(b)); \$\$ 50.10(b) and (c) and 50.54 are issued under sec. 1611, 68 Stat. 949, as amended (42 U.S.C. 2201(i); and \$\$ 50.55(e), 50.59(b), 50.70, 5C.71, 50.72, 50.73, and 50.78 are issued under sec. 1610, 68 Stat. 950, as amended (42 U.S.C. 2201(o)).

In § 50.47 a new paragraph (e) is added to read as follows:
 § 50.47 <u>Emergency plans</u>.

The word Offsite deleted (e) Emergency response plans submitted to satisfy the standards set

(e) thergency response plans submitted to satisfy the standards set forth in this section need not consider the impact on emergency planning of earthquakes which cause, or occur proximate in time with, an accidental release of radioactive material from the facility.

3. A new sentence is added as an additional paragraph at the end of the Introduction section of Appendix E to read as follows:

I. Introduction

Neither emergency response plans nor evacuation time analyses need consider the impact of earthquakes which cause, or occur proximate in time with, an accidental release of radioactive material from the facility.

Dated at Washington, DC, this 18thday of December , 1984.

For the Nuclear Regulatory Commission. Ch Secretary of the Commission