



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

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OFFICE OF THE
COMMISSIONER

August 7, 1985

MEMORANDUM FOR: David A. Ward, Chairman
Advisory Committee on Reactor Safeguards

FROM: James K. Asselstine *[Signature]*

SUBJECT: PROPOSED RULEMAKING ON EMERGENCY PLANNING

I would appreciate ACRS comments on the attached proposed rule.

Attachment: 49 FR 49640-3

cc: Chairman Palladino
Commissioner Roberts
Commissioner Bernthal
Commissioner Zech
SECY
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DIABLO CANYON HEARING BOOK INDEX

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House Panel to Scrutinize Nuclear Safety Rulings

By BEN A. FRANKLIN

Special to The New York Times

WASHINGTON, March 24 — A Congressional subcommittee plans to hold hearings on charges by a member of the Nuclear Regulatory Commission that the agency's safety decisions have been hasty and overly favorable to the nuclear power industry.

The Energy and Commerce Subcommittee on Energy Conservation and Power will hold the public hearings, probably in May, according to its new chairman, Representative Edward J. Markey, Democrat of Massachusetts, a longtime critic of the industry and the commission.

The charges of abuses at the agency have been made by James K. Asselstine, who is often the only dissenter on the five-member panel.

Mr. Asselstine contends that the commission, led by its chairman, Nunzio J. Palladino, engaged in manipulation and in possibly illegal procedural shortcuts in granting a full-power operating license to the Diablo Canyon nuclear power plant near San Luis Obispo, Calif.

Accusation by Commissioner

Mr. Asselstine wrote Representative Markey that the commission's Diablo Canyon approval, granted last summer against the advice of its legal and technical staff, "was motivated solely by the objective of avoiding delay in issuing a full-power license."

According to the transcripts of closed commission meetings in July and August, the Diablo Canyon license was granted despite repeated warnings by Mr. Asselstine and the commission's staff that the approval was being rushed through without adequate, and legally required, public hearings.

Although the staff lawyers repeatedly warned that the commission was required by law to hold a public hearing, at which opponents of the Diablo Canyon license could offer testimony

on the effect of an earthquake and on planning for the emergency evacuation of nearby residents, the commission majority voted to grant the license.

In a letter to Mr. Markey, Mr. Palladino and the three other commissioners "categorically rejected" the Asselstine charges. They said his complaints of misconduct were false and that he had hurt the other commissioners' credibility by "seeking to impugn our motives" and "attacking the integrity of those with opposing views."

Other Charges Are Similar

Similar charges of procedural shortcuts have been made by Mr. Asselstine and others, including groups opposed to the licensing of such other reactors as the Shoreham plant of the Long Island Lighting Company and the undamaged Unit 1 at the Three Mile Island generating station in central Pennsylvania.

These critics say the commission has been rushing headlong to relieve the nuclear industry of the huge financial burden entailed when nominally operable plants remain shut down.

In the case of Shoreham, opponents have repeatedly asserted that the commission has tried to bypass the requirement for a workable emergency evacuation plan. In the case of the Three Mile Island unit, opponents say the commission seems unwilling to wait for the results of examination boards it has appointed to examine charges of misconduct by the plant's operators.

"The purpose of the hearing," Mr. Markey said, "will be to determine whether there were serious deficiencies in the Diablo Canyon licensing process and whether they present an isolated episode or a more widespread phenomenon."

All five commission seats are filled by appointees of President Reagan. By law, no more than three members of the commission can be of the same party. Mr. Palladino and two other commissioners, Frederick J. Bernthal

and Thomas M. Roberts, are Republicans. Landq Zech, a retired Navy admiral who is the newest member of the commission, and Mr. Asselstine, appointed by Mr. Reagan in 1982, are nominally independents.

But Mr. Asselstine, a 36-year-old Virginia lawyer with experience on the staff of the Nuclear Regulatory Commission and of the former Joint Committee on Atomic Energy of Congress, has become known as the dissenter, often incurring the bitter resentment of the other commissioners.

The basis of the coming House hearings is a file of increasingly contentious correspondence between Mr. Markey and two of the commissioners, Mr. Asselstine and Mr. Palladino.

Mr. Markey's decision to investigate the Diablo Canyon controversy also was spurred by requests for hearings by three California Democrats, Representatives Leon E. Panetta, whose dis-

trict includes San Luis Obispo, Henry A. Waxman and George Miller.

After Mr. Markey obtained the transcripts of three closed commission meetings on the Diablo Canyon license, he demanded an explanation of its approval and asked that the transcripts be made public. With Mr. Asselstine in the minority, the commission voted 4 to 1 not to make the transcripts public. But they were obtained by a reporter at a San Francisco television station, KRON, and the commission subsequently authenticated them.

In the transcripts Mr. Palladino is quoted as saying, "At this late stage, requiring a delay while we wait for a hearing is not in the best national interest."

Mr. Asselstine is reported to find it "disturbing" that "what we are trying to do here is reach a certain outcome, and what is it that we have to do to reach that outcome?"

Press Intelligence, Inc.

WASHINGTON, D.C. 20003

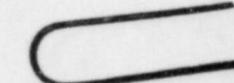
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DIABLO CANYON ^{DECISION}~~HEARING~~ INDEX (CLI-84-12)

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ORAL STATEMENT OF
NUNZIO J. PALLADINO, CHAIRMAN
U.S. NUCLEAR REGULATORY COMMISSION
BEFORE THE

SUBCOMMITTEE ON ENERGY CONSERVATION AND POWER
COMMITTEE ON ENERGY AND COMMERCE
UNITED STATES HOUSE OF REPRESENTATIVES

ON
DIABLO CANYON LICENSING PROCESS

JULY 10, 1985

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K/B

MR. CHAIRMAN, MEMBERS OF THE SUBCOMMITTEE, MY FELLOW COMMISSIONERS AND I ARE HERE TODAY TO ADDRESS THE COMMISSION'S HANDLING OF THE ISSUE OF THE POSSIBLE COMPLICATING EFFECTS OF EARTHQUAKES ON EMERGENCY PLANNING FOR DIABLO CANYON. IN RESPONSE TO YOUR LETTER OF JUNE 10, 1985, THE COMMISSION'S PREPARED TESTIMONY INCLUDES A DETAILED CHRONOLOGY OF THE NRC'S HANDLING OF THIS ISSUE, BOTH AT DIABLO CANYON AND GENERICALLY, AND THE COMMISSION MAJORITY'S RESPONSE TO THE SEVEN SPECIFIC ISSUES RAISED BY COMMISSIONER ASSELSTINE. THE COMMISSION'S RESPONSE TO YOUR ADDITIONAL QUESTIONS WAS FORWARDED TO THE SUBCOMMITTEE UNDER A LETTER DATED JUNE 27, 1985. WITH YOUR PERMISSION MR. CHAIRMAN, I WOULD LIKE TO MENTION A FEW POINTS AND SUBMIT THE PREPARED TESTIMONY FOR THE RECORD.

AS YOU KNOW, A PANEL OF THE U.S. COURT OF APPEALS FOR THE DISTRICT OF COLUMBIA CIRCUIT AFFIRMED THE COMMISSION'S DECISION; HOWEVER, THE FULL COURT HAS DETERMINED TO REHEAR THE ISSUE OF THE EFFECT OF

EARTHQUAKES ON EMERGENCY PLANNING AT DIABLO CANYON. THE COURT HAS NOT YET INDICATED THE EXACT SCOPE OR SCHEDULE FOR THAT REHEARING.

THE COMMISSION WANTS TO AVOID, INSOFAR AS IS POSSIBLE, ANY APPEARANCE OR SUGGESTION THAT THESE HEARINGS ARE A MEANS TO INFLUENCE THE COURT. ACCORDINGLY, THE COMMISSION'S TESTIMONY BEFORE THIS SUBCOMMITTEE, IN THE SAME FASHION AS ITS BRIEF AND ARGUMENT BEFORE THE COURT, FOCUSES ON THE COMMISSION'S OWN DECISION AND ITS STATED RATIONALE.

TO SUMMARIZE THE COMMISSION'S DECISION, THE ISSUE BEFORE THE COMMISSION WAS WHETHER PARTICULAR CIRCUMSTANCES IN THE DIABLO CANYON PROCEEDING WARRANTED A DEPARTURE FROM THE COMMISSION'S PREVIOUS DECISION IN THE SAN ONOFRE PROCEEDING. IN SAN ONOFRE, THE COMMISSION HAD DETERMINED THAT THE NRC'S REGULATIONS DID NOT REQUIRE CONSIDERATION OF THE COMPLICATING EFFECTS OF EARTHQUAKES ON EMERGENCY PLANNING. AFTER REVIEWING THE RECORD IN DIABLO

CANYON, THE COMMISSION FOUND NOTHING WARRANTING A DIFFERENT CONCLUSION.

THE HEART OF THE COMMISSION'S DECISION WAS THE FINDING THAT THE PROBABILITY OF A CONTEMPORANEOUS OCCURRENCE OF AN EARTHQUAKE AND A RADIOLOGIC RELEASE FROM THE PLANT WOULD BE VERY LOW -- SO LOW THAT THERE WAS NO NEED TO ADJUDICATE THE EFFECTS OF EARTHQUAKES ON EMERGENCY PLANNING.

YOUR LETTER OF INVITATION POSED ADDITIONAL QUESTIONS WHICH WE ANSWERED IN OUR LETTER TO YOU OF JUNE 27, 1985. I WOULD LIKE TO ADDRESS ONLY ONE OF THOSE QUESTIONS HERE: THAT IS WHETHER THE COMMISSION BELIEVES THAT A POTENTIAL LICENSING DELAY THAT COULD RESULT FROM THE PUBLIC HEARING PROCESS IS A RELEVANT CONSIDERATION IN THE COMMISSION'S DELIBERATIONS OF WHETHER A CONTESTED SAFETY ISSUE IS MATERIAL TO A LICENSING DECISION? THE ANSWER IS UNEQUIVOCALLY NO. THE MATERIALITY OF A SAFETY ISSUE IS JUDGED EXCLUSIVELY ON THE NATURE OF THAT SAFETY ISSUE. WHERE, AS HERE,

THE RECORD SHOWS THAT THE ISSUE WAS NOT REQUIRED TO BE ADDRESSED BY THE REGULATIONS AND WAS NOT SIGNIFICANT FROM A SAFETY STANDPOINT, THE COMMISSION ACTED REASONABLY IN DETERMINING THAT THE ISSUE SHOULD NOT BE CONSIDERED MATERIAL TO THE ISSUANCE OF A LICENSE.

THIS CONCLUDES MY ORAL STATEMENT, MR. CHAIRMAN. COMMISSIONER ASSELSTINE HAS SEPARATE REMARKS THAT HE WOULD LIKE TO PRESENT.

CHRONOLOGY

ATTACHMENT TO NRC TESTIMONY ON DIABLO CANYON LICENSING PROCESS

The Licensing Board for the San Onofre proceeding, in its Prehearing Conference Order of May 8, 1981, solicited the views of the parties on the issue of the proper consideration to be given to earthquakes in emergency planning. Following consideration of the comments of the parties and after initially determining that the issue warranted consideration, the Licensing Board on September 14, 1981, referred to the Appeal Board "the issue of possible effects on emergency plans of an earthquake of a magnitude greater than the Safe Shutdown Earthquake at the facility." Because this issue raised a significant question on the interpretation of the Commission's emergency planning requirements, the Commission took up the issue. After studying the matter, the Commission determined in December 1981 that its emergency planning regulations did not require consideration of the complicating effects on emergency plans of earthquakes which cause or occur during an accidental radiological release. However, the Commission decided to consider on a generic, as opposed to case-by-case, basis whether to amend the emergency planning requirements to address the issue and directed the Licensing Board for the San Onofre proceeding not to pursue the issue.

On December 23, 1981, the Licensing Board for Diablo Canyon relied on the Commission's San Onofre decision to disallow Governor Brown's contention that the "complications arising from attempting emergency response during an earthquake situation" should be addressed. A request to the Commission by Governor Brown's counsel to take direct review of the Board's ruling was denied by the Commission (as an impermissible interlocutory appeal) on March 5, 1982.

At about the same time, the Commission directed the staff to follow up on the issues raised in the San Onofre decision by addressing, in consultation with FEMA, the question whether emergency planning activities of licensees should include consideration of the possible effects of earthquakes and, if so, what criteria should be applied in evaluating the adequacy of such plans. The staff's views on the appropriateness of rulemaking were also requested. In June 1982 the staff responded to the Commission's request stating that consideration of the effects of earthquakes on emergency planning "may be appropriate" in areas of relatively high seismic hazard but that no rulemaking was necessary because the current review practices were adequate.

In May 1983 an Appeal Board review of the Diablo Canyon Licensing Board's decision on fuel loading and low-power testing found that the Licensing Board did not err in failing to consider the impacts of earthquakes on emergency planning. A petition for review of the Appeal Board decision, which was filed by Joint Intervenors in June 1983, was denied by the Commission in December 1983.

In response to the Chairman's request for a further technical discussion, the staff provided additional views in January 1984. The staff stated its continuing belief that the Commission's regulations do not require amendment. The views of the parties in the Diablo Canyon proceeding on a series of questions related to the issue were requested by the Commission in its April 1984 Memorandum and Order. The responses were considered by the Commission in preparing its August 1984 decision. In that decision the Commission reaffirmed the interpretation of the regulations in San Onofre and specifically addressed the rulemaking issue left open by the 1981 San Onofre decision, determining that rulemaking should be initiated. A proposed rule was published for public comment in December 1984. Comments have been received, and the NRC staff is currently developing a final rule based on the record of that proceeding.

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

COMMISSIONERS:

Nunzio J. Palladino, Chairman
Thomas M. Roberts
James K. Asselstine
Frederick M. Bernthal
Lando W. Zech, Jr.

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OFFICE OF SECRETARY
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In the Matter of
PACIFIC GAS AND ELECTRIC COMPANY
(Diablo Canyon Nuclear Power Plant,
Units 1 and 2)

Docket Nos. 50-275 OL
50-323 OL

DECISION
(CLI-84-12)

In CLI-84-4, the Commission requested the parties' responses to several questions bearing on whether the circumstances in this case warranted some specific consideration of the effects of seismic events on emergency planning. Responses were received from Pacific Gas and Electric Company (PG&E), the NRC staff, and Joint Intervenors.

After considering these responses, the Commission has determined that the information before it does not warrant departure from the decision in San Onofre that the NRC's regulations "do not require consideration of the impacts on emergency planning of earthquakes which cause or occur during an accidental release," and that the determination of whether to amend the regulations to include the consideration of earthquakes should be addressed as a generic matter. Southern California Edison Company, et al. (San Onofre Nuclear Generating Station, Units 2 and 3), CLI-83-33, 14 NRC 1091 (1981).

~~84-814-009~~ 29pp.

Accordingly, for the reasons discussed below, the Commission has decided to initiate a rulemaking and has determined that the issuance of a full-power operating license need not be delayed until the conclusion of any such proceeding.

I.

The Commission's first question was whether emergency planning regulations can and should be read to require some review of the complicating effects of earthquakes on emergency planning for Diablo Canyon.

A. Parties' Views

PG&E and the NRC staff believe that the Commission should not read its emergency planning regulations and implementing guidance in NUREG-0654 so as to provide for any specific consideration of the complicating effects of earthquakes on emergency response, even in California. For the NRC staff, this appears to present a change from its previous view, expressed most clearly in 1981 in the San Onofre proceeding, that some limited consideration of the effects of earthquakes on emergency response was warranted in areas of high seismic activity, especially California.

PG&E's essential argument is that the Commission's emergency planning regulations implicitly include the complicating effects of earthquakes as part of the overall consideration of four classes of Emergency Action Levels established in NUREG-0654. In PG&E's view, consideration of the effects of earthquakes on emergency planning is subsumed within the consideration given to the effects of other natural

phenomena having similar effects on emergency planning. PG&E is concerned that the explicit consideration of the effects of earthquakes on emergency planning will distort or preferentially align emergency plans to concentrate on earthquake-related emergencies. Therefore, PG&E believes that it would be redundant and contrary to established planning guidance to require an emergency plan to include consideration of specific accident sequences such as those associated with earthquakes.

The essential argument of the NRC staff is that there is an acceptably low risk to public health and safety associated with not requiring emergency plans to explicitly consider the complicating effects of earthquakes. This staff position is based on its belief that contemporaneous occurrence of an earthquake and a radiologic release has too low a probability to warrant mandatory consideration.¹

Joint Intervenors take the contrary view that the NRC's regulations and implementing guidance require some consideration of the complicating effects of earthquakes on emergency response for the same reasons that the NRC staff has considered the effects of other natural phenomena on emergency plans.

¹The details of the staff's position were described in its memorandum to the Commission of January 13, 1984 which was incorporated in CLI-84-4.

B. Analysis

The Commission agrees with the NRC staff's analysis in this case.

The focus of the emergency planning controversy among the parties is on the possible need to consider the contemporaneous occurrence of an earthquake and radiologic release from the plant.

For the earthquakes up to and including the Safe Shutdown Earthquake (SSE), the seismic design of the plant was reviewed to render extremely small the probability that such an earthquake would result in a radiologic release.²

While a radiologic release might result from an earthquake greater than the SSE, the probability of occurrence of such an earthquake is extremely low.³ In addition, as the NRC staff noted in its January 13, 1984 memorandum to the Commission on the generic subject of earthquakes and emergency planning, for those 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.

²Indeed, Diablo Canyon has been subjected to special, unprecedented reviews of this issue.

³Joint Intervenors have recently moved the Appeal Board to reopen the record on the seismic design bases for Diablo Canyon to consider new seismic information. PG&E has opposed that request. Both parties rely on conflicting expert opinions. The Commission has considered in CLI-84-13 whether this new information warrants a stay and for the reasons stated there, has concluded that the new information does not require a revision of the seismic design basis of Diablo Canyon at this time. The Commission believes that the license condition requiring PG&E to complete a seismic reevaluation of the site by 1988, as new scientific data becomes available, is the appropriate method for considering such new information.

Thus, the Commission agrees with the NRC staff's conclusion that the expenditure of additional resources to cope with seismically caused offsite damage under those circumstances is of doubtful value considering the modest benefit in overall risk reduction which could be obtained.

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(cont'd)

There remains only the possibility of a contemporaneous occurrence of both a radiologic release from the plant caused by an event other than an earthquake, and an earthquake that would complicate emergency response. NUREG-0654 does call for some consideration of site-specific adverse or emergency conditions on emergency response. In prior cases such frequently occurring natural phenomena as snow, heavy rain, and fog have been considered. With one exception, the focus has always been on frequently occurring natural phenomena.⁴ The Commission believes, based on the information provided by the parties, that earthquakes of sufficient size to disrupt emergency response at Diablo Canyon would be so infrequent that their specific consideration is not warranted.

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p.7)

The Commission's view that it need not give specific consideration to the complicating effects of earthquakes on emergency planning in this case is bolstered by the following consideration. 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 communication networks and

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⁴The one exception is Trojan, for which consideration has been given to the effects of volcanic eruption due to the expectation that another explosion is imminent at Mt. St. Helens.

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. Testimony in the Diablo Canyon record indicates that adverse weather conditions such as the effect of heavy fog could increase evacuation time to approximately 10 hours. 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 by earthquakes as well.

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(cont'd)

II.

The Commission's second question was whether, even though the regulations do not require it, there are special circumstances for the purposes of 10 C.F.R. § 2.758 that would permit consideration of the effects of earthquakes on emergency planning for Diablo Canyon.

A. Parties' Views

Joint Intervenors argue that this case does present special circumstances. They rely on the proximity of the plant to the Hosgri fault, the seismic redesign of the plant to accommodate earthquake-induced ground motion which may result from an SSE on that fault, and the conclusion by the Advisory Committee on Reactor Safeguards (ACRS) that the plant is designed to less conservative criteria than would have been applied to a new plant at that site.

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The NRC staff and PG&E respond that Diablo Canyon has been redesigned to take into account its proximity to the Hosgri fault, and, thus, is no different from any reactor which has been designed to accommodate its seismic environment.

B. Analysis

The Commission notes that the important safety issue for any plant located in a region potentially affected by seismic activity is not the location of the facility per se but the probable consequences of such location for the plant in question. The Commission will not license a plant unless it can make the statutorily required finding that operation of the plant will not result in undue risk to public health and safety. Necessarily, this includes a determination that the seismic design is adequate. Such a finding is not undermined by the circumstances that more conservative criteria might have been applied to a new plant. The issue is whether operation of the plant as designed will result in undue risk to public health and safety. The Commission's seismic design criteria have been fully addressed for Diablo Canyon and the Commission has determined that the seismic design of the plant presents no undue risk. ALAB-644, 13 NRC 903 (1981).

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What remains is the argument that the likelihood of the simultaneous occurrence of an earthquake and a radiologic release from other causes is especially high for this site. The Commission must disagree.

The resources, time, and attention devoted to seismic design in this case have been unprecedented, and the information before us does not support the conclusion that the chance of such a simultaneous occurrence is substantially greater than for numerous other nuclear plant sites.

D

In particular, the Commission takes note of its Appeal Board decision ALAB-644 which concluded that the record does not bear out the claim that the Diablo Canyon site is one of "high seismicity," i.e., an area having a high frequency of seismic events. This conclusion was based on record evidence by Drs. Anderson and Trifunac who plotted for the years 1950 through 1974 the known epicenters in the central California coastal region, centered around Diablo Canyon, between 33° and 37° north latitude and 119° to 123° west longitude. That plot, and the calculated low-recurrence rate of an earthquake of the magnitude assigned the operating basis earthquake (OBE), indicate that the region is at most one of moderate seismicity. Earthquakes of greater magnitude than the SSE would occur with much lower frequency than the OBE. Thus, there has been no showing by Joint Intervenors of special circumstances warranting waiver of the regulations to allow specific consideration of the effects of earthquakes on emergency planning at Diablo Canyon.

III.

The Commission finds that the information and argument presented by the parties in response to the questions posed in CLI-84-4 lead to the conclusion that there is no present need to reconsider the San Onofre decision.⁵

⁵In view of the answers to the first two questions, the third question regarding the specifics of any further consideration of the effects of earthquakes on emergency planning need not be addressed.

Nevertheless, we believe that further generic rulemaking exploring the effects of earthquakes on emergency planning could be useful. In particular, the Commission believes that it will be useful 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 proceeding 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. In addition rulemaking would allow a greater spectrum of public participation in the resolution of this matter on a general, as opposed to plant-specific, basis.

We previously indicated in San Onofre that this matter would be considered on a generic basis. Some time ago the NRC staff advised us that, in its view, generic consideration was not necessary. However, we were diverted from this issue by the press of other important Commission business, and we took no action in response to that advice. In retrospect, since we disagree with the NRC staff's view, we should have acted sooner and initiated rulemaking. The need to address this issue in this case has again focused our attention on this matter. By this order we are indicating our desire to initiate rulemaking shortly, and directing the NRC staff to give priority attention to the matter.

Commissioner Zech participated only in the portion of the order which concerns the initiation of a rulemaking proceeding.

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This
is a
generic
rulemaking
proceeding

What
is status
of generic
rulemaking

The additional views of Chairman Palladino and Commissioner Bernthal and the dissenting views of Commissioner Asselstine are attached.

It is so ORDERED.



FOR THE COMMISSION

Samuel J. Chilk
SAMUEL J. CHILK
Secretary of the Commission

Dated at Washington, D.C.

this 10th day of August, 1984

ADDITIONAL VIEWS OF
CHAIRMAN PALLADINO

I agree with the Commission's opinion. I believe that the Commission has adopted a reasonable approach to the question of earthquakes and emergency planning, one which will produce an informed Commission consideration of the policy issue, will not prejudice procedural rights, and will not pose undue risk for the health and safety of the public in the vicinity of Diablo Canyon, as well as other potentially affected plants.

Although, the question before the Commission in this case might be characterized as a question of interpretation of NRC emergency planning regulations, I view the issue as a policy question that has generic dimensions. NRC regulations simply do not address earthquakes and emergency planning. Further, at least two other plants in California (San Onofre and Rancho Seco) could be affected by the answer to the outcome of our consideration and other plants outside of California might be affected.

NRC can address a policy question by either adjudication or rulemaking. In this instance, rulemaking offers the opportunity for broader and deeper public input. I believe that the Commission could benefit from public comment on issues such as the following: what is the range of probabilities of a coincidental earthquake and radiological emergency and how does this range compare with that for other natural phenomena that could affect emergency response? To what extent does emergency

planning under current NRC regulations provide a sufficient planning base to handle the complicating effects of earthquakes? What benefits of significance for emergency preparedness would be expected to result from the consideration of the complicating effects of earthquakes? Further, if the outcome of the rulemaking is that more should be done, then the new requirements can be applied to Diablo Canyon.

It appears to me that the essential arguments in the dissenting opinion are pertinent to the policy question we will address by rulemaking, and have application to all California plants (and possibly to plants elsewhere) and not just Diablo Canyon. The assertions (and counter-assertions) of facts and their significance for the policy question can also be examined in the rulemaking and, thus, need not be accepted or argued solely on the basis of the assertions alone. All Commissioners have approved this rulemaking and I, for one, have not "already decided the issue."

Rulemaking does not assure Joint Intervenors in this case an opportunity for a formal adjudicatory hearing, but it does provide them an adequate opportunity to be heard. Further, the Joint Intervenors had no assurance of a formal hearing in the Diablo Canyon operating license proceeding. Their hearing rights depended upon their raising an issue that was cognizable in an NRC hearing. The Commission ruled in San Onofre (CLI-83-33,

14 NRC 1091 (1981)) that the matter of complicating effects of earthquakes on emergency planning could not be raised in individual cases, and it reaffirmed the San Onofre ruling in this case after providing all parties, including the Joint Intervenors, with an opportunity to submit written briefs.

While the delay on the Commission's part in addressing the generic policy question is regrettable, it would be speculative to conclude that the delay prejudiced the rights of the Joint Intervenors in the Diablo Canyon proceeding. The outcome of a more timely generic proceeding might have been a final rule that the complicating effects of earthquakes need not be considered.

Operation of the Diablo Canyon plant during the interim while the Commission conducts rulemaking does not, in my judgment, pose a significant risk to the public. The probability of an earthquake that would impede emergency response action is exceedingly small for that period of time.

COMMISSIONER BERNTHAL'S ADDITIONAL VIEWS

The Commission has been remiss in not dealing with this issue earlier, as it had indicated three years ago it would. Be that as it may, the question today is how best to proceed, in a manner that assures adequate protection of public health and safety, and is equitable and fair to the parties concerned.

My support of the Commission's order rests on a massive record compiled by the Licensing and Appeal Boards. That record includes the technical judgment of the best seismologists in this country. Their judgment is that the seismic design basis of this facility is adequate to prevent a radiological release from the most severe earthquake that could reasonably be postulated in the vicinity of Diablo Canyon. The complex basis for this conclusion is entirely consistent with the simple, factual, 200-year recorded history of seismic activity in the vicinity of the plant.

As for the probability of a random simultaneous occurrence of 1) an earthquake which could disrupt emergency planning and, 2) an accident severe enough to result in a radiological release from other causes, the comments of the parties in response to CLI-84-4 provided no basis for the notion that such an eventuality ought to be taken into account in emergency planning either generically or for Diablo Canyon specifically. My judgment in this regard is supported by the 200-year record of seismic events in the Diablo Canyon area which indicates that there have been only two events in all of that time which had the potential for any, let alone major, disruption of emergency response activities.¹

¹ Earthquake History of the United States Publication 41-1, 1982 Reprint with Supplement.

Common perceptions and "gut" feelings might seem to argue that, because a plant is located in California, it must be unique. But the numbers for actual California sites, and for the seismic design bases required of all plants to deal with their particular seismic environments, require us to move beyond subjectivity and to consider the facts. The hazards of earthquakes, tornados, hurricanes, and fogs rarely choose to conform themselves to state boundaries. The Appeal Board's conclusion, based on a careful examination of the record, that this particular EPZ area is of "low to moderate seismicity", was not casually derived, and is consistent with the 200 years of recorded seismic activity in this region of the nation.

It clearly makes sense to consider, in emergency response planning, hurricane-type events and fog conditions in California or blizzards in the northern half of the United States, since these events occur on at least an annual basis and have widespread and certain effects on road systems and other facilities which must be utilized should an emergency occur at a nuclear facility. But the actual record of seismic activity in this limited geographical area convinces me that earthquakes need not be similarly treated. From all of the information before me at the present time, I therefore find no basis to reconsider the San Onofre decision.

California has no monopoly on seismic activity. Three of the four most severe earthquakes ever recorded in the Continental United States occurred in the eastern half of the country. Further, there may be reasoned arguments which are possible, but which have not been made by the parties to the Diablo Canyon

proceeding, to support the specific consideration of seismic effects on emergency planning in the areas surrounding nuclear facilities. Therefore, out of an abundance of caution, I have agreed that the Commission should get on with the generic proceeding it committed to initiate in the San Onofre decision*so that this issue may finally be laid to rest.

Dissenting Views of Commissioner Asselstine

The Commission's performance in its handling of this issue--the complicating effects of earthquakes on emergency planning--is most disappointing. In its apparent determination to avoid adjudicating an issue that the agency itself has acknowledged to be material to emergency planning, the Commission has repeatedly changed its mind about how to treat this issue only to end up right back where it started three years ago--promising a generic rulemaking. In the meantime, the Commission's only accomplishment has been to deny parties the right to adjudicate the issue and to delay any action on this issue until the only two plants, Diablo Canyon and San Onofre, for which this issue probably has any real significance have been licensed.

I cannot agree with the Commission's decision or its reasons for reaching that decision. The Commission's decision ignores fundamental principles of emergency planning, offends common sense, and abuses the legal process. I would recognize the obvious--that earthquakes ought to be considered for plants located in areas of high seismicity such as California, and let the parties adjudicate the specifics in individual cases. I would provide the parties to the Diablo Canyon proceeding an opportunity for a hearing and let them litigate whether the Diablo Canyon emergency plan is flexible enough to deal with the complicating effects of earthquakes on emergency planning.

History

The history of the Commission's handling of this issue shows exactly why the Commission's decision today is so disturbing. Rather than simply allowing the issue to be considered by a licensing board, a step that probably would have added about a week of hearing time to the San Onofre and Diablo Canyon proceedings, the Commission has instead followed a tortuous path from adjudication to generic rulemaking to case-by-case consideration, to generic adjudication, only to end up right back at generic rulemaking.

In early 1981 the staff took the position in the San Onofre proceeding that consideration of the complicating effects of earthquakes up to the Safe Shutdown Earthquake (SSE) was appropriate. The staff disagreed, however, when the Licensing Board tried to raise sua sponte the issue of the effects of earthquakes exceeding the SSE. The Commission on its own motion ordered the Licensing Board not to consider "the impacts on emergency planning of earthquakes which cause or occur during an accidental radiological release." Southern California Edison Co. (San Onofre Nuclear Generating Station, Units 2 and 3), CLI 81-33, 14 NRC 1091(1982). The Commission determined that its regulations did not require such consideration and concluded that whether the regulations should require such consideration was a generic issue to be decided by rulemaking. San Onofre, 14 NRC at 1091-92 (1981).

Based on the San Onofre decision, the Licensing Board in the Diablo Canyon operating license proceeding refused to allow any consideration of the effects of earthquakes on emergency planning at the Diablo Canyon site. There was, therefore, no opportunity to litigate any issue connected with the complicating effects of earthquakes on emergency planning.

After the Diablo Canyon Board's decision, the staff on June 22, 1982, issued a memorandum which stated that it was the staff's technical judgment that a generic rulemaking was not necessary because of the very low likelihood of earthquakes in most parts of the country. However, the staff took the view that for California and other areas of high seismic risk in the Western United States explicit, site specific consideration of the effects of earthquakes on emergency planning is necessary. As the staff explained:

It is the judgment of the staff that for most sites earthquakes need not be explicitly considered for emergency planning purposes because of the very low likelihood that an earthquake severe enough to disturb onsite or offsite planned responses will occur concurrently with or cause a reactor accident. Planning for earthquakes which might have implications for response actions or initiate occurrences of the "Unusual Event" or "Alert" classes in areas where the seismic risk of earthquakes to offsite structures is relatively high may be appropriate (e.g., for California sites and other areas of relatively high seismic hazard in the Western U.S.). Memorandum to the Commissioners from William Dircks, Executive Director for Operations, dated June 22, 1982, entitled "Emergency Planning and Natural Hazards," p.1.

The staff went on to say that it requests applicants for licenses for California facilities and the Federal Emergency Management Agency (FEMA)

to consider earthquake effects in their emergency planning and review. Memorandum of June 22, 1982, Enclosure at 3-4. In fact, at both San Onofre and Diablo Canyon the staff required the license applicants to specifically consider this issue.

The Commission realized that this position by the staff seemed to contradict the Commission's San Onofre decision and thus cast doubt on the validity of the Licensing Board's ruling in the Diablo Canyon case. The Commission asked the staff to elaborate and in a further memorandum, the staff repeated its conclusion that "planning for earthquakes which might have emergency preparedness implications may be warranted in areas where the seismic risk to offsite structures is relatively high (e.g. California sites...)." Memorandum to Chairman Palladino from William Dircks, Executive Director for Operations, dated January 13, 1984, entitled "Emergency Planning and Seismic Hazards," p. 2, f.n.2. The staff also stated that it thought current emergency planning review criteria were adequate for this. Id.

Given this position by the staff, the Commission decided to ask the parties to the Diablo Canyon proceeding whether and under what circumstances the effects of earthquakes on emergency planning should be considered for the Diablo Canyon plant. Pacific Gas and Electric Company (Diablo Canyon Nuclear Power Plant, Units 1 and 2), CLI 84-4, 20 NRC__ (April 3, 1984). The Commission, referring to the staff's January 1984 memorandum, noted that the staff appeared "to believe that some specific consideration of the effects of seismic events may be warranted

for plants located in areas of relatively high seismicity." CLI 84-4, Slip Opinion at 2.

In its response to the Commission's order, the staff attempted to reverse course. Staff Counsel explained that while staff stated in its January 13, 1984 memorandum that "seismic events are considered and evaluated to a limited extent as part of our current emergency planning reviews, those staff reviews are informal and do not reflect a required licensing element which must be satisfied in order to warrant issuance of a license".¹ "NRC Staff's Memorandum Regarding Consideration of Effects of Earthquakes on Emergency Planning (CLI-84-4)", dated May 3, 1984, p.3, f.n.2.

Commission Decision

In its decision today, the Commission has concluded that there is no reason to depart from its decision in San Onofre that the NRC's regulations "do not require consideration of the impacts on emergency planning of earthquakes which cause or occur during an accidental release," for Diablo Canyon and that the determination of whether to

¹The flaw in the staff's argument is obvious. Having acknowledged that it is concerned enough about the issue to require licensees to consider it, the staff cannot now argue that "informal" review by the staff is a satisfactory substitute for formal review in individual licensing proceedings. If the issue is material to the Commission's licensing decision, as the staff's own statements and actions concede, then the agency must admit that satisfactory resolution of the issue is a required licensing element.

amend the regulations to include the consideration of earthquakes should be addressed as a generic matter. (CLI-84-12) Slip Op. at 1. There are several problems with the Commission's decision and its underlying rationale.

The cornerstone of the Commission's decision is the Commission's conclusion that the probability of an earthquake disrupting an emergency response is so low that it need not be considered in emergency planning. The basis for the Commission's conclusion is its determination that for various reasons there is unlikely to be a radiological release and an earthquake at the same time. The Commission's arguments on this score ignore one of the fundamental precepts of emergency planning: we plan for low probability occurrences because no matter how safe we try to make nuclear power plants there is always a possibility that some event will occur which will require use of one or more aspects of emergency planning. The probability arguments used by the Commission are really arguments that we do not need any emergency planning, rather than that we need not consider earthquakes in emergency planning. The Commission simply asserts that there is a low likelihood of a release and an earthquake at the same time and assumes that that ends the inquiry.

Unfortunately, the Commission ignores the fact that safety calculations are subject to some uncertainties. The philosophy behind emergency planning is to recognize this uncertainty and to provide defense in depth in protecting the public. Indeed, the Commission's emergency

planning regulations are founded on the judgment that adequate emergency planning is an essential element in protecting the public health and safety independent of the Commission's other regulations and safety reviews focusing on the design of the plant itself. Obviously, we do not plan for every conceivable but highly unlikely event. We should not, for example, waste resources planning for the effects of hurricanes on emergency responses in Kansas or for snow in Southern California. Instead, we plan to take into account the natural phenomena which present the more likely risks for a particular area. Thus, we consider hurricanes for plants in Florida, tornados for plants in the Midwest, and volcanic eruptions in the Pacific Northwest. By the same token, we should consider the complicating effects of earthquakes for plants in high seismic risk areas such as California.

The Commission tells us, however, that the probability of an earthquake disrupting an emergency response in an Emergency Planning Zone (EPZ) is too low even to be considered. To apply this argument to California, where almost 90 percent of the seismic activity in the United States occurs and where earthquakes which damage, obstruct or disrupt roads, buildings, bridges and communications networks occur with some regularity, simply ignores common sense. In support of this assertion, the Commission contends that the Diablo Canyon site is located in an area of low to moderate seismicity. This argument is based upon an analysis in the record of the recurrence rate for earthquakes in the central California coastal region for the years 1950 through 1974. What the Commission does not mention, however, is that the only plant in the

country with a comparable SSE and OBE (Operating Basis Earthquake)--the key bases for the seismic design of the plant--is San Onofre (.67g and .34g respectively). In fact, the SSE's and OBE's for plants in other parts of the country are significantly lower (for other plants the SSE is typically .25g or less and the typical OBE is .11 - .12g, with the highest being .13g) than those for Diablo Canyon (SSE of .75g and OBE of .20g). Clearly, by requiring the plant to be designed to withstand an earthquake with ground motions almost twice those of other plants in the country, the Commission explicitly made the technical judgment that the earthquake risk for the Diablo Canyon area is not comparable to other areas of the country, and is, in fact, much higher.²

²Publicly available information compiled by the U.S. Geological Survey (USGS) would seem to indicate that earthquakes of sufficient magnitude to cause possible damage, obstruction or disruption to roads, buildings, bridges and communication networks occur throughout many parts of California, including the San Luis Obispo area, with some regularity. "Earthquake History of the United States", Publication 41-1, 1982 Reprint with Supplement. According to this information, four earthquakes have occurred in the immediate San Luis Obispo area since 1830, and at least one of these earthquakes has been of magnitude 7-8 on the Modified Mercalli scale. *Id.*, pp. 138, 140, 141, 156, 162, 164. In addition, two other earthquakes, of magnitudes 6.5 and 7.5, have occurred within 50 miles of the Diablo Canyon site since 1922. "Earthquake Epicenter Map of California, 1900 through 1974", State of California, the Resources Agency, Department of Conservation, 1978. This publicly available information, although not in the record of the Diablo Canyon proceeding, would also appear to contradict the Commission's assertions regarding the frequency of occurrence of earthquakes in the vicinity of the Diablo Canyon site which are sufficiently severe to cause damage to structures and disrupt communications. Much of this same information is also in the FSAR for Diablo Canyon, which is a part of the record in this proceeding.

Further, the Commission's argument must be considered in light of the other natural phenomena the Commission includes in its consideration of emergency planning. If the probability of an earthquake disrupting an emergency response in an EPZ in California is too unlikely to be considered, that probability must by definition be much lower than the probability of disruption caused by the other natural phenomena which the Commission does consider. It must, for example, be less likely than the probability that a tornado will disrupt an emergency response in an EPZ in the Midwest or that a hurricane will disrupt an emergency response in a California EPZ.

The probability that a tornado will travel through a particular 10 mile area and thereby initiate or disrupt response to an emergency at a nuclear plant must be quite low; yet, the Commission requires consideration of that issue for certain plants. Similarly, the probability of a hurricane striking the San Luis Obispo coastal area and initiating or disrupting an emergency response must also be quite low; yet, the Commission considered that very issue in the Diablo Canyon case. I see no factual basis for the Commission's assertion that earthquakes in California are so much more unlikely than either of these events that earthquakes need not be considered.

The Commission's order also misses another very important point. Emergency planning is not relevant only to accidents resulting in the offsite release of radiation. Emergency planning is also relevant for responses to emergencies which do not result in a radiological release,

including emergencies initiated or complicated by earthquakes below the SSE. For example, whether or not an earthquake results in the offsite release of radioactivity, an emergency plan must take into account the assurance of continued communication between a plant and offsite emergency response agencies, the ability to obtain damage estimates for the plant and the offsite transportation and communication facilities to provide data for decisions on appropriate responses, the availability of backup facilities to ensure continued functioning of an emergency response capability, and the ability to transport necessary personnel to a plant to deal with the emergency. In its June 22, 1982 memorandum to the Commission, the NRC staff recognized this:

"There is no explicit guidance in [the Commission's regulations] as to the extent to which adverse earthquake conditions are to be taken into account in emergency planning at particular sites...The occurrence of earthquakes of a nature that could have implications for onsite or offsite response actions or initiate occurrences of the "Unusual Event" or "Alert" class is an adverse characteristic of the type discussed above." Memorandum at 3-4.

The staff went on to note that they ask applicants for licenses for California facilities and FEMA to consider such earthquakes (smaller than the Safe Shutdown Earthquake) in their emergency planning for this very reason.

The Commission simply ignores the fact that the staff has been requiring licensees for plants located in California to consider the effects of earthquakes on emergency planning. The staff has stated that while it does not think such consideration is necessary for plants in most areas of the country, "planning for earthquakes which might have emergency

preparedness implications may be warranted in areas where the seismic risk to offsite structures is relatively high (e.g. California sites.)"³ Memoranda of June 22, 1982, and January 13, 1984. The complicating effects of earthquakes on emergency planning were formally considered by the staff in the San Onofre proceeding, and were informally considered by the staff for Diablo Canyon. By their own actions, the agency's technical experts have demonstrated that they consider this issue to be material to the Commission's licensing decisions in these two cases. Given the fact that the staff experts on this issue have been concerned enough to consider it, I see no basis for the Commission's argument that in the cases of Diablo Canyon and San Onofre, seismic effects on emergency planning are irrelevant. Since the issue is clearly material to the agency's licensing decision in those two cases, the Commission is required by law to grant the parties an opportunity to litigate that issue. See, UCS v NRC, No. 82-2053 (D.C. Cir. May 25, 1984.)

³In its response to the Commission's order, staff counsel attempted to withdraw this conclusion. The fact remains, however, that staff has indeed been considering the complicating affects of earthquakes on emergency planning at California plants, including Diablo Canyon. Staff required PG&E to prepare a report on this issue. Presumably, the staff does not ask license applicants to look at issues which it thinks are irrelevant. Perhaps the staff's new position has something to do with the fact that for the only two plants located in "high seismic areas", the staff has now completed its review of seismic effects on emergency planning. This appears to be the only plausible reason for such a radical change in staff's position. Further, staff explained that what it really wanted was to consider this issue, but only "informally". See, above at p.5.

Apparently recognizing the weaknesses in their low probability argument, my colleagues have also attempted to support their decision by arguing that the disruption to emergency response caused by fog, hurricanes and heavy weather are similar to the disruptions which may result from an earthquake. Thus, the Commission argues, emergency plans implicitly have enough flexibility to deal with earthquakes as well. This is an interesting argument. Unfortunately, the Commission cannot point to any evidence in the record of this proceeding to support such a factual finding. Although the Diablo Canyon record includes information on natural phenomena other than earthquakes, there was no discussion in that record of earthquake effects, or whether the plans for dealing with other natural phenomena are flexible enough to implicitly include the effects of earthquakes. The Commission's conclusion seems, therefore, to be based on the Commission's intuitive feeling that the finding ought to be true rather than on any kind of factual record. This is precisely the type of factual question that should only be decided based upon a site-specific, factual record, developed and tested in a hearing (or at least after consideration of information in the record of a rulemaking specifically addressing this issue.)

Finally, the Commission has decided that the regulations are not sufficiently clear on whether earthquakes must be considered in emergency planning and so intends to conduct a generic rulemaking on the issue. The Commission disagrees with the staff's view that a generic rulemaking is not necessary, although it offers no persuasive reason for rejecting

the staff's technical judgment on this question. Unfortunately, the Commission's belatedly renewed promise of a generic rulemaking appears to be little more than window dressing. The Commission's justification for not considering seismic effects on emergency planning at Diablo Canyon clearly shows that it has already decided the issue. If the Commission will not require the consideration of earthquakes for plants located in an area of the country where 90 percent of the seismic activity occurs, it is unlikely to conclude that they must be considered for plants elsewhere. Since the Commission appears to have already decided this fundamental issue, it is unclear what it hopes to accomplish with such a rulemaking. I have agreed to the Commission's decision to conduct such a rulemaking, but only because some consideration of this issue is better than no consideration at all.

It is absolutely amazing, the lengths to which the Commission will go to avoid finding that a party is entitled to a hearing on an issue. In this case, the Commission has constructed an elaborate, but flawed, rationale in an attempt to explain why earthquakes need not be considered in emergency planning for Diablo Canyon. The Commission has then proceeded, as a factual matter, to consider the effects of earthquakes on emergency planning. As a last resort, the Commission has again promised to conduct a generic rulemaking on this issue, a promise that it made three years ago but did not keep. The unfortunate consequence of this delay has been to put the issue off until the two California plants have been licensed.

Tab F

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



February 25, 1985

The Honorable Edward Markey
United States House of Representatives
Washington, D.C. 20515

Dear Congressman Markey:

This will respond to your letter of December 17, 1984, requesting detailed responses to the criticisms raised by Commissioner Asselstine with regard to the Commission's decision to license Diablo Canyon without requiring adjudicatory proceedings on the possible effects of an earthquake on emergency planning. This letter will supplement the Commission's earlier letter of December 13, 1984, to you regarding this issue.

Before responding charge-by-charge to Commissioner Asselstine's criticisms we want to stress several matters which underlie the overall response of the Commission majority.

First, on December 31, 1984 the District of Columbia Circuit Court of Appeals issued its decision in Deukmejian v. NRC, No. 81-2034. That opinion affirmed, in all respects, the Commission's licensing action regarding Diablo Canyon. In reaching this decision the Court had before it all of Commissioner Asselstine's charges. Although the Court split over the question of whether it was reasonable for the Commission to exclude the possible effects of earthquakes on emergency planning from the Diablo Canyon litigation, not a single judge voted to stay that licensing decision. Thus, no judge shared Commissioner Asselstine's view that this issue was so material that operation of Diablo Canyon was required to await the outcome of mandatory litigation over this matter.

Second, the transcripts which we are discussing reflect the give and take of the Commission's group deliberations on this issue. Such materials are not the proper subject for a line-by-line discussion of what was meant by a particular person at a particular time. As with any deliberations on a difficult issue, ideas are expressed, examined, rejected, and refined during the process by which a final decision is reached. The Commission rendered its final decision on this issue on August 10, 1984. That decision must stand or fall on its own merits, not by reference to the discussions made prior to the Commission agreement on a final decision and the rationale for that decision. We are quite concerned that

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debate over the meaning of each word spoken in Commission deliberations will greatly undermine the Commission's future ability both to receive the candid advice of our subordinates and to exchange preliminary thoughts among ourselves.

Third, Commissioner Asselstine's criticisms focus attention solely on the three meetings at which the Commission as a group discussed the issue of earthquakes and emergency preparedness at Diablo Canyon. This emphasis leaves the impression that these meetings were the only times that the Commissioners ever considered or discussed this difficult issue. Indeed, quite the opposite is the case. Each Commissioner has legal and technical advisors with whom he could discuss this matter at length. Moreover, each Commissioner and the personal staffs of each Commissioner have access to the lawyers in the Office of General Counsel and to the technical advisors in the Office of Policy Evaluation to discuss this matter in detail. None of these individual discussions is reflected in any transcripts. Similarly, there is no transcript made of each Commissioner's review of the record in this case and the manner in which each Commissioner arrived at his own decision. In short, the transcribed meetings do not reflect all the legal or technical advice rendered to the Commissioners nor do they reflect all the Commissioners' thought processes in reaching the decision at issue.

Fourth, as Commissioner Asselstine asserts, it is unquestionably true that the Commissioners received some advice from their advisors that cautioned them of the possible risk that a Court might reverse the action which the majority ultimately decided to take. This is neither novel, nor is it evidence of any wrongdoing. Commissioners must be given candid advice on risks of any action which they are considering. But advisors are not given the task of making the Commission's decision. Particularly on difficult, close, judgmental matters, such as the likelihood of an earthquake affecting emergency planning, the Commissioners themselves must make their own and then their collegial decision of what is proper. This point was noted in our December 13 letter to you and underscored by the Deukmejian Court:

[T]he Commission majority [is not] required to accept the advice of some members of their legal and technical staff (and no inference of bad faith can be derived from their failure to do so). The Commissioners are appointed by the President to administer the agency, the agency's staff is not.

Slip Op. at 75.

We now respond to Commissioner Asselstine's specific criticisms of the Commission's actions.

ALLEGATION 1:

In reaching its decision in the Diablo Canyon case, the Commission ignored the advice of its legal advisors that the question of the complicating effects of earthquakes on emergency planning was most probably a material issue, and that intervenors were entitled to a hearing on the issue under section 189a. of the Atomic Energy Act of 1954.

RESPONSE:

Our previous general comments have addressed this allegation. The Commission is not bound to take the advice of its advisors if, in its judgment, it feels that another conclusion is warranted. In this case, while it is true that some of the Commission's advisors urged a more cautious approach than that which the Commission majority ultimately took, it is also true that the Commission majority felt that, in its judgment, the decision which it reached was justified. Moreover, as is also obvious, the majority of the panel of the District of Columbia Circuit Court of Appeals that heard this case agreed with the Commission that the decision was legally justified. Indeed, since no judge on that panel voted to stay the licensing of Diablo Canyon, no judge felt that this issue was so material that litigation over the matter had to precede the licensing of Diablo Canyon.

ALLEGATION 2:

The Commission distinguished between the complicating effects of earthquakes on emergency planning and the complicating effects of other natural phenomena, even though the Commission's legal and technical advisors told the Commission that this approach was fundamentally different than the Commission's approach for considering the complicating effects of all other natural phenomena on emergency planning and there was no factual basis in the record of the Diablo Canyon proceeding for doing so.

RESPONSE:

The Commission's treatment of the possible complicating effects of earthquakes on emergency planning was based, in part, on the Commission's unusually extensive review of the adequacy of the seismic design of Diablo Canyon and on its conclusion that the probability of the occurrence of significant earthquakes in the vicinity of Diablo Canyon was low since the record revealed that "at most, the region is one of 'moderate seismicity'." Deukmejian, slip op. at 29 n.91 quoting CLI-84-12, at 8, J.A.S. at 258 (emphasis by the Court). The Commission concluded that both prongs of this analysis were supported by an extensive record that provided ample factual basis for treating the possible effects of

earthquakes on emergency planning differently from the treatment of the possible effects of other natural phenomenon on emergency planning. Had a similar record reflected that the "other natural phenomena" which were considered in the Diablo Canyon emergency preparedness review were similarly unlikely to cause a radiological release or to complicate emergency planning and had the issue of whether further litigation over the possible effects of these other phenomena been before the Commission, the majority could have considered whether or not to refuse to require further litigation over these matters as well.

ALLEGATION 3:

The Commission concluded that the probability of an earthquake which could affect emergency planning is much lower than the probabilities of other natural phenomena which are routinely considered by the Commission even though the Commission's legal and technical advisors told the Commission that there was no factual basis in the Diablo Canyon record to support this conclusion.

RESPONSE:

We reiterate our prior response. There is record support for the Commission majority's finding that the Diablo Canyon site is "at most, one of moderate seismicity." CLI-84-12 at 8, J.A.S. at 258. As the Appeal Board noted "the region is at most one of low to moderate seismicity." ALAB-644, 13 NRC 903, 994 (1981). The Deukmejian majority acknowledged this record support on several occasions. Slip op. at 29 n.91, 35 n.115.

Similarly, it is beyond dispute that the record extensively demonstrates that the likelihood of an earthquake causing a radiological release is extraordinarily small. Indeed, both the Deukmejian majority and dissent found the Commission well justified in concluding that an earthquake was not likely to initiate a radiological emergency and that the possible effects of such an earthquake on emergency planning need not be litigated. Slip op. at 35-36, dissent at 7.

These are the only findings necessary to determine whether the possible effects of earthquakes on emergency planning should be the subject of litigation in the Diablo Canyon proceedings. A comparative evaluation with the possible effects of other natural phenomena is simply irrelevant to a determination of whether the possible effect of earthquakes on emergency planning is a required subject for litigation. Moreover, as noted above, the Commission did not have before it and, thus, did not pass on the issue of whether or not it was mandatory to litigate the possible effects of such phenomena on emergency planning.

ALLEGATION 4:

The Commission ignored the possibility of the simultaneous occurrence of an emergency at the plant (e.g. a fire) which could require emergency response and an unrelated earthquake which could affect emergency response features such as communication and emergency response to the site, even though the Commission's legal and technical advisors told the Commission that this approach was fundamentally different than the Commission approach for considering the complicating effects of all other natural phenomena on emergency planning and there was no factual basis in the Diablo Canyon record for adopting this different approach for earthquakes.

RESPONSE:

Again, our prior responses are fully applicable here. Our position was adopted by the panel majority in Deukmejian. We reiterate their specific holding in response to this charge:

Judge Wald faults the Commission for "cit[ing] no specific record support for its conclusion that it is very unlikely that an earthquake will occur contemporaneously with an unrelated radiological accident." Opinion of Wald, J. at 8. In fact, the Commission's findings more than adequately provide the proof for its conclusion. The Commission specifically found that the Diablo Canyon site is one of "moderate" rather than "high" seismicity. CLI-84-12, at 9, J.A.S. at 258 (1984). Distinguishing earthquakes from "frequently occurring natural phenomena," the Commission stated that "earthquakes of sufficient size to disrupt emergency response at Diablo Canyon would be so infrequent that their specific consideration is not warranted." CLI-84-12, at 5, J.A.S. at 255 (1984). Similarly, the Commission continues to regard the probability of a radiologic accident with significant off-site impacts as "very low." Nuclear Power Plant Accident Considerations Under the National Environmental Policy Act of 1969, 45 Fed. Reg. 40,101, 40,101 (1980).

The likelihood that an earthquake will disrupt emergency procedures during a radiologic accident brought about by other causes is the product of these two probabilities. Because each probability is considered very small, the product is much smaller still, yielding a joint probability that falls well below the threshold of scientific and legal significance. Cf. Baltimore Gas & Elec. Co. v. Natural Resources Defense Council, Inc., 103 S. Ct. 2246 (1983) (approving NRC's "zero-release assumption" for nuclear waste storage). The only conceivable grounds on which the Commission can be faulted is that it failed to perform the final step in its mathematical analysis. Because the result is

self-evident, however, we see no reason to delay operations at Diablo Canyon and demand that the Commission formally perform an elementary exercise in multiplication.

Slip op. at 35-36, n.115. (Emphasis added).

ALLEGATION 5:

The Commission relied on material not in the record of the Diablo Canyon proceeding to conclude that the Diablo Canyon emergency plan is sufficiently flexible to accommodate the complicating effects of earthquakes on emergency planning despite repeated warnings that such reliance on extra-record material was inappropriate and legally impermissible.

RESPONSE:

In CLI-84-12 the Commission found that the scope of emergency plans to deal with the variety of natural phenomena which could interfere with their operation implied a flexibility to deal with the effects of earthquakes. For emergency planning purposes it did not matter whether an impassible road was impassible because of heavy fog or because of an earthquake. The Commission's position on this matter was simply a logical inference drawn from undisputed evidence (e.g. the emergency planning at Diablo Canyon had accounted for the effects of heavy fog). Moreover, in Deukmejian the Court majority found that the Commission acted reasonably in relying, in part, on the flexibility of emergency plans to deal with the wide variety of potential disruptions to support its conclusion not to allow litigation over the possible effect of earthquakes on emergency planning. Slip op. at 35-36.

The Court also addressed the erroneous allegation that the Commission relied on extra-record evidence on the flexibility in its emergency planning decision. First, the Court noted that the Commission could not use such material to support and defend its conclusions in Court. Slip op. at 75-76. Of course, the Commission did not attempt to use any extra-record material to justify its decision or to convince the Court that its decision was proper. While the Court recognized that it would be improper for the agency to exclude evidence adverse to its ultimate position from the record, it also quite correctly observed that no such charge had ever been leveled by Commissioner Asselstine or any Congressional critic.

Slip op. at 75-76.

Finally, all the material discussed by the Commission at the meetings in question -- most notably the multi-volume report prepared by the utility to demonstrate that its plans for handling the possible effects of earthquakes and emergency

planning (the so-called TERA Report) -- was provided to all the parties for comment. The Commission was fully advised, however, that this material was not in the adjudicatory record and, thus, that only limited use could be made of the TERA Report. As a result, the Commission did not use that report as a justification for its ultimate rationale not to require litigation over the possible effects of earthquakes on Diablo Canyon emergency planning.

In short, the Commission's conclusion that flexibility is implicit in emergency plans which must deal with a number of interruptions caused to roads, bridges, and the like, is consciously limited. It does not rely on any materials which are not in the adjudicatory record.

ALLEGATION 6:

[T]he Commission's decision was motivated solely by the objective of avoiding delay in issuing a full-power license for the Diablo Canyon plant. The Commission refused to recognize the right to a hearing on this issue because such a hearing could delay the issuance of a full-power license for the plant.

RESPONSE:

The allegation is false. Had the Commission believed that public health and safety required litigation over the earthquake/emergency planning issue, it would have ordered the litigation notwithstanding possible delay in the plant's operation. Not a single Deukmejian judge, even the dissent, believed that the licensing and operation of Diablo Canyon had to await the outcome of a hearing on this issue. Moreover, the Deukmejian majority quite correctly observed that

What passes for proof of "bad faith" on this motion are inferences -- inferences based on the speculation and conjecture of a dissenting Commissioner and a chairman of a House oversight subcommittee who have "read between the lines" of the Commission's deliberations prior to its final decision. But statements made as part of the collegial exchange of Commission deliberations do not necessarily represent the Commissioners' final belief. Petitioners' characterization of the probity of those transcripts must be further discounted by the likelihood that the authors of the letters read as much into the transcripts as they read in them. Cognitive dissonance applies with special force to "what is one of the most sensitive and difficult issues of our time: the safety of nuclear power."

Slip op. at 77 (footnotes omitted).

ALLEGATION 7:

To provide a semblance of public comment on the issue of the complicating effects of earthquakes on emergency planning, the Commission decided to conduct a generic rulemaking on this issue. However, it is apparent from the proposed rule that the Commission is intent on merely codifying its Diablo Canyon decision, and any opportunity for public comment on this issue will be meaningless.

RESPONSE:

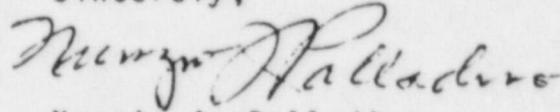
Commissioner Asselstine is again wrong when he suggests that the pending rulemaking will be a meaningless opportunity for public comment. The Commission's proposed rule on the need to litigate the possible effects of earthquakes on emergency planning is similar to its previous position on this matter. This similarity is not surprising. As with any proposed rule, the Commission first spends substantial time and resources in developing a proposal for public comment. Thus, whenever the Commission proposes a rule, it states a proposed position on the subject of that rule. In the past, this has not led the Commission to ignore public comment, nor will it do so in this case.

We have sought to respond to Commissioner Asselstine's charges in candor and in detail. Like many issues this Commission confronts, the one addressed in this letter touches strong emotions and raises deep feelings. The way to address those issues is directly, on their merits, and with reason, not by ad hominem allegations that attack the integrity of those with differing views. Commissioner Asselstine unquestionably feels that his resolution of this issue was the correct one. You can be assured, however, that the Commission majority is equally convinced that it has properly and wisely decided the matter. However, we never felt that the question was easy nor did we ever suggest that it was one over which reasonable men might not differ. Unless the Court sees fit to grant the motion for rehearing which we expect petitioners to file, or unless the Supreme Court decides to grant a possible petition for certiorari, this case is over; the courts have spoken. It is our most sincere hope that we can put this dispute behind us, and the damage we fear that it has caused our collegiality and our future deliberative process will not materialize.

Commissioner Asselstine adds:

I obviously disagree with the statements of my colleagues. However, rather than delay their response to you, I will provide my own comments in a separate letter.

Sincerely,

A handwritten signature in cursive script that reads "Nunzio J. Palladino". The signature is written in dark ink and is positioned above the printed name.

Nunzio J. Palladino

cc: Rep. Ron Marlenee

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U.S. HOUSE OF REPRESENTATIVES
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December 17, 1984

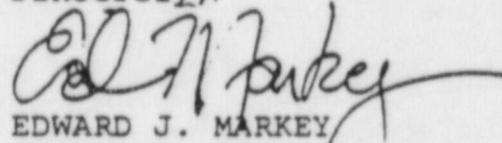
The Honorable Nunzio J. Palladino
 Chairman
 U.S. Nuclear Regulatory Commission
 Washington, D.C. 20555

Dear Mr. Chairman:

I have reviewed the Commission majority's December 13, 1984 letter concerning Commissioner Assestine's charges regarding the Diablo Canyon case. The Commission's response to my November 14, 1984 letter is unresponsive and unacceptable.

I continue to expect the Commission's full and detailed response to each of Commissioner Asselstine's concerns in the immediate future.

Sincerely,


 EDWARD J. MARKEY
 Chairman
 Subcommittee on Oversight
 and Investigations

EJM:rau

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NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

JAN 13 1984

MEMORANDUM FOR: Chairman Palladino

FROM: William J. Dircks
Executive Director for Operations

SUBJECT: EMERGENCY PLANNING AND SEISMIC HAZARDS

On September 9, 1983, a meeting was held with you to discuss the Staff's views on the need for and extent of consideration of the potentially complicating effects of earthquakes in the context of emergency preparedness. Please recall that this issue emanates from the Commission's Memorandum and Order in the San Onofre proceeding, CLI-81-33, issued in December 1981, in which the Commission determined that "its current regulations do not require consideration of the impacts on emergency planning of earthquakes which cause or occur during an accidental radiological release." The Commission further noted that it "will consider on a generic basis whether regulations should be changed to address the potential impacts of a severe earthquake on emergency planning" and, a memorandum from the Secretary to the

In the San Onofre proceeding, the Licensing Board sought to raise, sua sponte, the issue of the effects of an earthquake exceeding the Safe Shutdown Earthquake on the applicants' and responding jurisdictions' abilities to carry out an evacuation in a timely manner and/or protect those in the EPZ pending evacuation. It had been the Staff's and FEMA's positions before the Licensing Board that in that proceeding, while consideration of the complicating effects of earthquakes up to the SSE was appropriate, consideration of the potential of earthquakes exceeding the SSE was not warranted. The Licensing Board rejected this view and instead affirmed its prior position calling for consideration of the potential effects of an earthquake exceeding the SSE. Thereafter, the Commission, as indicated above, reversed the Licensing Board's decision. Parenthetically, based on the Commission's San Onofre decision, the Licensing Board, in the Diablo Canyon proceeding rejected a contention regarding consideration of the effects of earthquakes on emergency preparedness. In an unpublished order issued on March 5, 1982, the Commission denied the Governor's request for interlocutory review of the Licensing Board's action. The Licensing Board's ruling was affirmed by the Appeal Board in ALAB-728, slip op. at 20-21, (May 18, 1983) and review by the Commission was denied (CLI-83-32, December 9, 1983).

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networks, and from the failure of major structures. In this instance the range of protective actions and the capability of the offsite jurisdictions to initiate and implement them could be drastically reduced. The degree of this reduction would vary based on conditions in the region around the site. For example, even with substantial damage to all bridges, a site might have so few bridges in its vicinity that blockage of roads would not be significant.

3. Plant Damage Associated With Seismic Events

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 .10g (higher in areas of high seismicity). During an OBE all 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. Probabilities of occurrence for the SSE have typically been estimated to be on the order of one in a thousand or 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. However, only in the event of a coincident failure of a safety function (safety systems are designed for the SSE) or some undiscovered common cause failure mechanism (such as a major design error) would there be a chance of an accident which would require offsite emergency response. The probability of these two events (SSE and safety function failure) occurring simultaneously is very much lower than the probability of either one, perhaps on the order of one in a million per reactor year or less.

The final class of events includes all earthquakes with ground motion levels above the SSE. Fragility analysis is 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, in general, ground motion on the order of 0.5g to 0.75g acceleration would be required to damage a nuclear power plant to the extent that significant release of radioactivity could occur. Of course, some plants, such as those in high seismic regions, are designed to withstand earthquakes with ground motion this high; they would resist damage to still higher levels of ground motion. The probability estimates for such ground accelerations are significantly less than the probability estimates for the SSE for these plants (the Zion, IP, and Limerick SSEs are .17g, .15g, and .15g respectively). The absolute probabilities for earthquakes at and beyond the SSE are extremely difficult to estimate and thus have large associated uncertainties.

example initiating conditions. The seismic events specifically included in this appendix are the Operating Basis Earthquake, and the Safe Shutdown Earthquake as well as "any earthquake felt in-plant or detected on station seismic instrumentation."

The preceding show that seismic events are considered in emergency planning but, as is evident, these review criteria are not very clear and clarification of them could lead to some improvements in emergency preparedness, perhaps by leading to more refined analysis of potential road blockage, etc. However, it is not clear that such improvements would substantially reduce the impairment of emergency response caused by seismic damage offsite.

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. FEMA does, however, have an active program of earthquake preparedness which includes 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 these separate activities would complement each other in the event that a concurrent response to a major earthquake and a serious accident at a nuclear power plant was required.

5. Risk Perspectives

Recent PRAs (e.g., Zion, Indian Point) have indicated that very large earthquakes (much greater than the SSE) can dominate the risk from a nuclear power plant. Such earthquakes can cause massive plant damage leading to immediate offsite radiological hazards. In addition, massive offsite damage was assumed in these analyses which substantially degraded the emergency response.

Based upon the PRA results, the staff finds that for most earthquakes (including some earthquakes more severe than the SSE) the power plant would not be expected to pose an immediate 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 earthquakes which cause more severe offsite damage, such as, for example, disabling a siren alerting system, the earthquake itself acts as an alerting system. For those 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. The expenditure of additional resources to cope with seismically caused offsite damage is of doubtful value considering the modest benefit in overall risk reduction which could be obtained.

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

'84 APR -3 P4:44

COMMISSIONERS:

Nunzio J. Palladino, Chairman
Victor Gilinsky
Thomas M. Roberts
James K. Asselstine
Frederick M. Bernthal

OFFICE OF THE
DOCKETING & SERVICE
BRANCH

SERVED APR 4 1984

In the Matter of
PACIFIC GAS AND ELECTRIC COMPANY
(Diablo Canyon Nuclear Power Plant,
Units 1 & 2)

Docket Nos. 50-275
50-323

ORDER
(CLI-84- 4)

This order concerns the issue of the consideration of complicating effects of earthquakes on emergency planning in the Diablo Canyon licensing proceedings.

In the San Onofre proceeding, the Commission declared that

current regulations do not require consideration of the impacts on emergency planning of earthquakes which cause or occur during an accidental radiological release. Whether or not emergency planning requirements should be amended to include these considerations is a question to be addressed on a generic, as opposed to a case-by-case, basis.

Southern California Edison Co. (San Onofre Nuclear Generating Station, Units 2 and 3), CLI-81-33, 14 NRC 1091, 1091-1092 (1981). In the interim, the Commission precluded consideration of this issue in individual licensing adjudications. Thus, the boards have properly excluded this issue from this adjudication.

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- (a) The specific aspects of emergency planning at Diablo Canyon on which the impacts of earthquakes should be considered.
- (b) The specific deficiencies in the consideration already given to the impacts of earthquakes on emergency plans for Diablo Canyon. In this regard the NRC staff is directed to serve on the parties to the proceeding a copy of the Licensee's submittal regarding effects of earthquake on emergency planning. However, the Commission is not requesting the filing of contentions in response to this order. The matter of contentions will be handled by a Licensing Board if a proceeding is to be held.
- (c) The appropriateness of limiting to the Safe Shutdown Earthquake the magnitude of the largest earthquake to be considered.
- (d) The substantive criteria for reviewing the effects of earthquakes on emergency planning.
- (e) The necessity for litigation of this matter, including the general scope of (i) proceedings, if any, that should be held, and (ii) issues that should be litigated.

The Commission notes that it is not now deciding whether any requirement for further hearings would require that interim operation of the plant be stayed. The stay determination, if and when it is presented, will be a matter for the equitable discretion of the Commission or Appeal Board. See e.g., Public Service Company of New Hampshire



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

JUN 22 1982

MEMORANDUM FOR: Chairman Palladino
Commissioner Gilinsky
Commissioner Ahearne
Commissioner Roberts
Commissioner Asselstine

FROM: William J. Dircks
Executive Director for Operations

SUBJECT: EMERGENCY PLANNING AND NATURAL HAZARDS

By memorandum dated March 1, 1982, the Secretary of the Commission requested the staff to consider several questions with regard to emergency planning.

1. Should the emergency planning activities of NRC licensees include consideration of the possible effects on emergency plans of a very large earthquake?

It is the judgment of the staff that for most sites earthquakes need not be explicitly considered for emergency planning purposes because of the very low likelihood that an earthquake severe enough to disturb onsite or offsite planned responses will occur concurrently with or cause a reactor accident. Planning for earthquakes which might have implications for response actions or initiate occurrences of the "Unusual Event" or "Alert" classes in areas where the seismic risk of earthquakes to offsite structures is relatively high may be appropriate (e.g., for California sites and other areas of relatively high seismic hazard in the Western U. S.).

2. If NRC requirements are to include this consideration, then what criteria should be applied in evaluating the adequacy of such plans in this respect?

In view of the staff response to question 1, current review criteria are considered adequate. Also the staff does not believe that rulemaking is necessary with regard to this issue based on the analysis conducted. The Hearing Boards have read the Commission ruling in the San Onofre case (CLI-81-33) to eliminate consideration of all earthquakes at California sites.* The interaction of earthquakes less than the SSE with emergency preparedness was considered in the staff SER for San Onofre and ultimately was not a matter in contention in the San Onofre proceeding.

Commissioner Ahearne requested several actions be taken by the staff and these requests were also transmitted in the March 1, 1982, memorandum from the Secretary of the Commission. These are addressed below.

*For example, Pacific Gas & Electric Co. (Diablo Canyon Nuclear Power Plant, Units 1 and 2), Memorandum and Order, December 23, 1981 (unpublished), directed certification denied by Commission Order dated March 5, 1982.

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SECRET

BASIS FOR CONSIDERATION OF NATURAL HAZARDS IN EMERGENCY PLANNING

A fundamental premise in the approach to emergency planning utilized by the Federal Emergency Management Agency (FEMA) and the Commission is that the emergency planning basis must be capable of responding to a wide spectrum of accidents. This was the conclusion reached by the Task Force which authored NUREG-0396 (Planning Basis for the Development of State and Local Government Radiological Emergency Response Plans in Support of Light Water Nuclear Power Plants). That Task Force report was subsequently endorsed by the Commission in its Policy Statement with respect to the Planning Basis for Emergency Responses to Nuclear Power Reactor Accidents (Policy Statement). 44 Fed. Reg. 61123 (October 23, 1979). The concept is reiterated in NUREG-0654 (Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants). Consequently, as a single specific accident sequence for a light water reactor nuclear power plant could not be identified as a planning basis, both NUREG-0396 and NUREG-0654 emphasized that the most important element of any planning basis is the distance from the nuclear facility which defines the area over which planning for predetermined action should be carried out. Not only is this area, termed the Emergency Planning Zone or EPZ, crucial but the characteristics of the EPZ are significant.

The need for specification of areas for major exposure pathways is evident. The location of the population for whom protective measures may be needed, responsible authorities who would carry out protective actions and the means of communication to these authorities and to the population are all dependent on the characteristics of the planning areas. (Emphasis supplied). NUREG-0654, p. 8.

Explicit planning for emergency preparedness provides a base capability which can be expanded or contracted to address an actual emergency. Backup communications and feedback of damage estimates regarding transportation routes to decisionmakers after an earthquake would be generally available with or without specific advance planning. The general planning base would allow decisionmakers to choose specific actions from among available alternatives for a spectrum of events.

There is no explicit guidance in 10 CFR 50.47 or in Appendix E to Part 50 nor in NUREG-0654 as to the extent to which adverse earthquake conditions are to be taken into account in emergency planning at particular sites. The staff, however, believes the answer to this question is dependent upon the nature of the risk and the nature of the remedy to deal with the risk. Except in California and other areas of relatively high seismic hazard in the Western U. S., the staff's judgment is that the nature of the seismic risk is such that no explicit consideration of earthquake effects is needed in emergency planning. (This judgment is not based on a quantitative analysis but rather on qualitative observations of the relatively lower seismic risk to roads, bridges and communications facilities in the east versus the west.) The occurrence of earthquakes of a nature that could have implications for onsite or offsite response actions or initiate occurrences of the "Unusual Event" or "Alert" class is an adverse characteristic of the type discussed above. The NRC staff made requests to California facilities to consider earthquake effects in their emergency planning, and the NRC staff also requested FEMA to consider earthquake effects in its evaluation of offsite plans. On the other hand, the staff concluded that additional requirements such

Given an earthquake of magnitude less than or equal to the SSE, while the earthquake could have impacts upon communications and transportation as a consequence of the earthquake, the plant would likely not pose an immediate radiological hazard. If, however, an earthquake substantially in excess of the SSE were to occur, then the potential exists for a radiological hazard complicated by the nonradiological impacts posed by a major earthquake. In the view of the NRC staff, such a contingency does not warrant specific emergency planning efforts because of the general planning base capabilities discussed above. We conclude that this general planning base is adequate because of the remote likelihood of an earthquake substantially in excess of the SSE. In addition, the characteristics of an accident which could theoretically be created by an earthquake substantially larger than the SSE would not be outside the spectrum of accident consequences considered in NUREG-0396 upon which the judgment on planning zone sizes and other planning elements was based. This unlikely sequence would not be unlike the case of a severe accident (not generated by an earthquake) occurring after a winter storm at a site in the northern U. S. Evacuation may not be a feasible option in such a circumstance. It also should be noted that to provide for a preplanned emergency response in all remote circumstances could require a commitment of substantial societal resources, e.g., to assure that houses and bridges would withstand very large earthquakes.