PDR-06

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

December 28, 1984

Ms. Nina Bell, Assistant Director
Nuclear Information and Resource Service
1346 Connecticut Avenue, NW, 4th Floor
Washington, DC 20036

IN RESPONSE REFER
TO FOIA-84-814

Dear Ms. Bell:

This is in further response to your letter dated October 19, 1984, in which you requested, pursuant to the Freedom of Information Act (FOIA), documents related to Commission meetings held during June, July, and August of 1984 concerning the complicating effects of earthquakes on emergency preparedness at the Diablo Canyon Nuclear Power Plant (DCNPP).

Copies of the documents listed on enclosed Appendix A are being placed in the NRC Public Document Room (PDR) located at 1717 H Street, NW, Washington, DC, in PDR folder FOIA-84-814.

The documents listed on enclosed Appendix B contain advice, opinions, and recommendations of the staff and Commissioners and are being withheld from public disclosure pursuant to Exemption 5 of the FOIA (5 U.S.C. 552(b)(5)) and 10 CFR 9.5(a)(5) of the Commission's regulations. Disclosure of the information would inhibit the candid and frank exchange of communications in future deliberations and would not be in the public interest. The documents are being withheld in their entirety because there are no reasonably segregable factual portions.

Pursuant to 10 CFR 9.15 of the Commission's regulations, it has been determined that the information withheld is exempt from production or disclosure and that its production or disclosure is contrary to the public interest. The person responsible for this denial is Mr. John C. Hoyle, Assistant Secretary of the Commission.

This denial may be appealed to the NRC within 30 days from the receipt of this letter. Any such appeal must be in writing, addressed to the Secretary of the Commission, U.S. Nuclear Regulatory Commission, Washington, DC 20555, and should clearly state on the envelope and in the letter that it is an "Appeal from an Initial FOIA Decision."

The NRC has not completed its search and review of the remaining documents subject to your request. We will respond as soon as those actions are completed.

Sincerely,

J. M. Felton, Director
Division of Rules and Records
Office of Administration

Enclosures: As stated

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PDR FOIA
BELL84-814 PDR

1.	11/14/83	Memo from J. Asselstine to H. Plaine and G. Cunningham Diablo Canyon-SECY-84-814.
2.	12/22/83	Letter from S. Sholly, UCS,to J. Asselstine.
3.	11/29/83	Commissioner Asselstine's vote sheet on SECY-83-377
4.	10/19/84	Commissioner Asselstine's vote sheet on SECY-84-401
5.	10/07/83	Commissioner Asselstine's vote sheet on SECY-83-377
6.	10/17/84	Memo from J. Asselstine to S. Chilk, SECY-84-401
7.	08/30/84	Statement of J. Asselstine before Subcommittee on Energy and the Environment, Committee on Interior and Insular Affairs, U.S. House of Representatives
8.	10/23/84	Commissioner Asselstine's vote sheet on CR-84-99, proposed response to Reps. Patterson and Panetta
9.	8/11/84	Commissioner Bernthal's additional views on the Diablo Canyon Decision, (3 pages) - Accession No. 8408140009

APPENDIX B

1. Memorandum from J. Meyer, S. Sohinki and L. Stoloff to Comm Bernthal on Talking Points for the 7/30 Diablo Canyon meeting; July 30, 1984; 2 pages

2. Note for Comm Bernthal from L. Stoloff; Summary of Commission meeting on earthquakes and emergency planning at Diable Canyon; July 25, 1984; 1 page

3. Note for Comm Bernthal from S. Sohinki; Secy-84-70 - Consideration of the Complicating Effects of Earthquakes on Emergency Planning at Diable Canyon; February 28, 1984; 1 page

4. Note for Comm Bernthal from S. Sohinki; Secy-84-70 - Consideration of the Complicating Effects of Earthquakes on Emergency Planning at Diablo Canyon; February 24, 1984; 2 pages

5. Note for Comm Bernthal from L. Stoloff, J. Meyer, and S. Sohinki; Secy-84-394- Proposed Rulemaking Re Earthquake Effects; October 22, 1984; 2 pages

6. Memorandum for Commissioners from Comm Bernthal; Secy-84-394 - Proposed Rulemaking Re Earthquake Effects; October 30, 1984; 2 pages

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

OFFICE OF THE
COMMISSIONER

November 14, 1983

MEMORANDUM FOR: Herzel H.E. Plaine, OGC
Guy H. Cunninghan, ELD

FROM: James K. Asselstine

SUBJECT: DIABLO CANYON - SECY 83-377

In Secy 83-377, OGC stated that OGC and ELD were going to work out informally the issue of what the Commission should do to deal with "complicating effects of earthquakes on emergency planning." I agreed with that approach but asked for a status report from OGC and ELD. I would like to know by November 30, 1983 what you intend to recommend.

cc: Chairman Palladino
Commissioner Gilinsky
Commissioner Roberts
Commissioner Bernthal
SECY
OPE

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lp

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UNION OF CONCERNED SCIENTISTS 1346 Connecticut Avenue, N.W. • S. 1101 • Washington, DC 20036 • (202) 296-5600

22 December 1983

Mr. James K. Asselstine
Commissioner
U.S. Nuclear Regulatory Commission
1717 H Street, N.W., 11th Floor
Washington, D.C. 20555

Dear Commissioner Asselstine:

On 14 August 1983, you wrote a memorandum requesting information from the NRC Staff concerning consideration of the effects of earthquakes on emergency planning. Mr. Guy Cunningham (ELD) responded to this memo on 30 November 1983 (copy attached), noting that a Staff memorandum on this issue was being prepared and it was expected that the Staff would continue to recommend that consideration of earthquakes in the context of radiological emergency planning is unnecessary ". . . given the level of planning already required by the Commission's regulations . . . ".

The impact of earthquakes (and other natural hazards) on radiological emergency response is of particular personal and professional interest as a result of both my background in environmental geology and my work with the Union of Concerned Scientists in risk analysis and radiological emergency planning. I have therefore prepared the enclosed paper to provide a few observations for your consideration regarding the issues raised by Mr. Cunningham's response to your memorandum. I hope this may be useful in your discussions with the NRC Staff on this issue. I would be pleased to discuss the issue in more detail with you or your staff if you feel that would be beneficial.

Sincerely,

Steven C. Sholly

Steven C. Sholly
Technical Research Associate

cc: Chairman Palladino
Commissioner Gilinsky
Commissioner Roberts
Commissioner Bernthal
Guy Cunningham (ELD)
William Dircks (EDO)
Edward Jordan (IE)
Roger Blond (RES)
Richard Krimm (FEMA)

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Main Office: 26 Church Street • Cambridge, Massachusetts 02238 • (617) 547-5552

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UNION OF CONCERNED SCIENTISTS 1346 Connecticut Avenue, N.W. • S. 1101 • Washington, DC 20036 • (202) 296-5600

The Impact of "External Events" on Radiological Emergency Response Planning Considerations

Steven C. Sholly
Technical Research Associate
Union of Concerned Scientists
Washington, D.C.

22 December 1983

8512190519

Main Office: 26 Church Street • Cambridge, Massachusetts 02238 • (617) 547-5552

The Impact of "External Events" on Radiological Emergency Response Planning Considerations

1.0 External Events and the NRC's Emergency Response Requirements

Current Commission offsite radiological response requirements are based on the Three Mile Island Unit 2 accident experience and radiological risk estimates derived from the Reactor Safety Study (WASH-1400) risk estimates. Two NRC reports (Refs. 1 and 2) detail the use of the WASH-1400 risk estimates in the derivation of the Commission's radiological emergency response requirements.

The use of WASH-1400 risk estimates in the Commission's concept of offsite radiological emergency response is significant because WASH-1400 concluded generally that so-called "external events" did not have a significant impact on risk. The Ad Hoc Risk Assessment Review Group ("Lewis Committee") expressed doubt about the WASH-1400 assessment of seismic risk (Ref. 3), but this did not seem to affect the Commission's use of the WASH-1400 results as a partial basis for its offsite radiological emergency response requirements.

More recent probabilistic risk analyses (e.g., Refs. 4, 5, and 6) have indicated that earthquakes and other "external events" can cause severe reactor accidents at estimated frequencies which are competitive with internally-initiated accident sequence probabilities. While risk estimates for externally-initiated sequences are subject to considerable uncertainties (much greater than the uncertainties associated with estimates for internally-initiated sequences), the recent Zion, Indian Point, and Limerick PRAs indicated that external events are significant in terms of public risk.

These results argue for a reexamination of offsite radiological emergency response measures to ascertain whether they are adequate to respond to accidents initiated by extreme natural phenomena which also have the

capability to disrupt emergency response. For the following discussion, "external events" are limited to earthquakes, hurricanes, and tornadoes. These external hazards (particularly earthquakes and hurricanes) are "area-wide" in impact, in contrast with other external hazards (such as aircraft crash and transportation accidents involving toxic or explosive materials) which are more localized in impact.

2.0 Impacts of "External Events" on Offsite Emergency Response

2.1 Loss of Prompt Notification Capability

All the external events of concern here have the capability to cause an extended disruption of AC electrical power in the area near a nuclear power plant site. As a result, offsite emergency response officials will be unable to activate siren-based "prompt notification" systems. I am unaware of any siren alerting system now installed around a U.S. commercial nuclear power plant which has any significant capabilities for operating without AC electrical power from the local grid. The only exceptions might be individual sirens previously installed at fire stations or for civil defense purposes which may have a backup power source. Sirens with backup electrical power would be expected to be few in number.

In addition, the capability of the sirens to survive seismic events and operate on command is not established. Nor is the structural capability of the poles on which the sirens are placed well known (nor is this capability likely to be very great) for seismic and high wind events. Thus, in addition to losing electrical power, the "external events" could damage the siren systems. Indeed, it would seem unlikely that the nuclear power plant would be damaged without also damaging the siren alerting system.

Without specific information to the contrary, it is not reasonable to rely upon the operability of offsite siren alerting systems following an extreme natural event such as an earthquake, a hurricane, or a tornado. The impact of this for increasing accident consequences might be somewhat alleviated in the case of a hurricane where significant advance warning might cause a recommendation for a precautionary evacuation (without regard to the

potential for a reactor accident) of areas near a body of water (where nuclear plants are typically sited). Such an evacuation might, however, just as easily put more people in the ultimate path of the plume than would otherwise have been there, depending upon the locations of shelters and other evacuation destinations.

2.2 Impacts on Evacuation as a Protective Measure

Evacuation is one of a range of offsite protective measures which might be recommended in the event of a severe accident. The effectiveness of evacuation as a protective measure depends on several factors, including principally warning time (the amount of time between discovery by plant operators of an impending release and the time of the release), delay time (the amount of time between an evacuation recommendation by offsite authorities and the beginning of evacuation movement), and evacuation speed. These matters are addressed to some extent in parametric fashion in NRC studies (Refs. 7, 8, and 9).

"External events" as accident initiators can have significant impacts on the effectiveness of evacuation as a protective measure depending upon the severity of the event and the type of accident initiated by the event. First, if the operators are injured during the event or if confusion delays recognition of an accident sequence or its severity, the warning time could be significantly shortened. This would be most critical for accidents involving an early failure of the containment.

Second, given that the siren system will probably fail as a result of the initiating event, the delay time could be quite lengthy. Earlier notification of the need to evacuate could occur for those households with battery-powered radios. The telephone system could be inoperable thus eliminating this possibility. Word-of-mouth notification by neighbors might alert some additional persons. So-called "route alerting" might be seriously limited, however, in the event of seismic damage to roads, flooding caused by hurricanes and storms associated with tornadoes, or blockage of roadways by debris caused by any of these events. Evacuation speeds and the number of routes available for evacuation could be limited by similar problems.

Such delays will thus decrease the time available to implement an evacuation. Delays will also increase the consequences of accidents. To illustrate this point, the Sandia siting study (Ref. 8) displayed accident consequence results for a large atmospheric release of radioactivity using the Indian Point site population. Varying the delay time from one to five hours caused an increase by a factor of about eight in the mean number of early fatalities for a ten-mile evacuation at a nominal speed of ten miles per hour (Ref. 8, Table 2.5-6). The possibility that evacuation delays could be minimized or averted for externally-initiated reactor accidents by advance contingency planning deserves to be investigated.

2.3 Impacts on Sheltering as a Protective Measure

Sheltering is frequently cited as an easily implemented offsite protective measure for reactor accidents. This is true due to the ready availability of a large number of structures which would be adequate for temporary sheltering during passage of the radioactive plume released during an accident. The availability of adequate sheltering might be seriously constrained, however, in the event of an externally-initiated reactor accident.

For example, an earthquake sufficient to damage a nuclear power plant might reasonably be expected to cause structural damage to homes and other buildings which would otherwise serve as potential radiological shelters. Even if the buildings experience only minor structural damage and retain their overall structural integrity, such minor damage as broken windows and structural cracks would nearly eliminate the sheltering capabilities of these structures by enhancing the infiltration of radioactive aerosols. Inhalation doses might be substantially avoided by the implementation of ad hoc respiratory protective measures (Ref. 10), but prior public education on this form of emergency response would be necessary. This measure would not provide protection against whole-body exposures.

In addition, for seismically-initiated reactor accidents, the possibility of aftershocks could make the affected population reluctant to use shelter structures which survived the initial quake. Indeed, shelters which

survived the initial earthquake might be quite risky since aftershocks could cause subsequent damage which could fail the structures. The result of a substantial earthquake could be a significant reduction or loss of sheltering as an offsite response measure.

For tornadoes and hurricanes, sheltering might also be limited by structural damage caused by high winds, flying debris, and flooding. Thus, sheltering could be significantly restricted or largely unavailable as an offsite response measure for externally-initiated reactor accidents.

2.4 Impacts on Emergency Response Personnel and Facilities

The impacts of "external events" on offsite emergency response personnel could be considerable. The ability of such personnel to travel to their assigned emergency stations from their location just prior to the event could be limited as described above. Furthermore, such personnel could be killed or severely injured as a result of the initiating event.

Emergency response facilities and emergency response equipment could be damaged in the initiating event. In addition to these problems, communications would be hampered. Normal telephone service could easily be lost, and radio communications limited, if radio transmission towers are felled during the initiating event. The ability of offsite response workers to communicate with one another, with plant personnel, and with state or federal agencies such as NRC and FEMA could be quite restricted.

A final consideration here is the availability of medical treatment. Medical personnel could be occupied just treating the injuries arising from the initiating event itself, without considering the additional need for somewhat specialized medical services to treat individuals contaminated by or exposed to radioactive materials.

The significance of the latter problem lies in the modeling of accident consequences. The NRC's CRAC2 code (Ref. 11), for example, calculates the number of early fatalities based on the assumption that "supportive treatment" will be available for all persons requiring such treatment (this assumption

has recently been questioned; see Ref. 12). This assumption permits the code to assign a dose of 510 rads whole-body exposure as the dose which will kill half the people exposed to it within 60 days (the so-called LD-50/60 dose). If supportive treatment cannot be provided, the LD-50/60 dose drops to 340 rads whole-body exposure. As a result, significantly larger numbers of persons would be calculated to have been exposed to potentially fatal doses.

3.0 Conclusion

There is no apparent basis for the NRC to continue to ignore the effects of externally-initiated reactor accidents on radiological emergency response. Based on risk analyses which account for such accidents, it is apparent that externally-initiated accidents may be the most likely type of reactor accident for some nuclear plants. For other plants, the likelihood of externally-initiated accidents is at least competitive with the likelihood of internally-initiated accidents. Explicit consideration of the impacts of externally-initiated accidents on offsite emergency response is therefore necessary.

The planning process for incorporating externally-initiated accidents into the scope of offsite emergency planning need not involve a large expenditure of resources, nor would the plans need to be extremely detailed. It may be feasible to address externally-initiated accidents and their impact on offsite emergency response as a contingency within the framework of the existing emergency plans.

Despite the level of planning already undertaken for internally-initiated reactor accidents, existing radiological emergency plans do not address this issue. The need to undertake additional contingency planning to account for externally-initiated reactor accidents probably could not be determined generically. Site-specific analysis of the need for such planning and the specific external hazards to be considered in the plans appears to be necessary. It would require little effort by the NRC to amend current emergency response guidance to reflect the need to consider reactor accidents initiated by external hazards and to make basic preparations for the contingencies created by such events.

References

1. David C. Aldrich, Peter E. McGrath, and Norman C. Rasmussen, "Examination of Offsite Radiological Emergency Protective Measures for Nuclear Reactor Accidents Involving Core Melt", NUREG/CR-1131, SAND78-0454, prepared for the NRC by Sandia National Laboratories, June 1978.

2. Task Force on Emergency Planning, "Planning Basis for the Development of State and Local Government Radiological Emergency Response Plans in Support of Light Water Nuclear Power Plants", NUREG-0396, EPA 520/1-78-016, prepared by the NRC and the U.S. Environmental Protection Agency, December 1978.

3. Ad Hoc Risk Assessment Review Group, "Risk Assessment Review Group Report to the U.S. Nuclear Regulatory Commission", NUREG/CR-0400, prepared for the NRC, September 1978.

4. Power Authority of the State of New York and Consolidated Edison Company, Inc., "Indian Point Probabilistic Safety Study", March 1982.

5. Commonwealth Edison Company, Inc., "Zion Probabilistic Safety Study", 1981.

6. NUS Corporation, "Severe Accident Risk Assessment: Limerick Generating Station", Report No. 4161, prepared for Philadelphia Electric Company, April 1983.

7. David C. Aldrich, Lynn T. Ritchie, and Jeremy L. Sprung, "Effect of Revised Evacuation Model on Reactor Safety Study Accident Consequences", SAND79-0095, prepared for NRC by Sandia National Laboratories, February 1979.

8. David C. Aldrich, et al., "Technical Guidance for Siting Criteria Development", NUREG/CR-2239, SAND81-1549, prepared for NRC by Sandia National Laboratories, December 1982.

9. Richard P. Burke, Carolyn D. Heising, and David C. Aldrich, "In-Plant Considerations for Optimal Offsite Response to Reactor Accidents", NUREG/CR-2925, SAND82-2004, prepared for NRC by Sandia National Laboratories, November 1982.

10. Douglas W. Cooper, William C. Hinds, and John M. Price, "Expedient Methods of Respiratory Protection", NUREG/CR-2272, SAND81-7143, prepared for Sandia National Laboratories by the Department of Environmental Health Science, Harvard School of Public Health, under contract to NRC, November 1981.

11. Lynn T. Ritchie, Jay D. Johnson, and Roger M. Blond, "Calculations of Reactor Accident Consequences Version 2, CRAC2: Computer Code and User's Guide", NUREG/CR-2326, SAND81-1994, prepared for the NRC by Sandia National Laboratories, February 1983.

12. Douglas W. Cooper, John S. Evans, Ninni Jacob, Kenneth R. Kase, Constantine J. Maletskos, James B. Robertson, and Douglas G. Smith, "Critical Review of the Reactor Safety Study Radiological Health Effects Model", NUREG/CR-3185, SAND82-7081, prepared for Sandia National Laboratories by the Harvard School of Public Health under contract to the NRC, March 1983.

NOTATION VOTE

AMENDED

RESPONSE SHEET

TO: SAMUEL J. CHILK, SECRETARY OF THE COMMISSION

FROM: COMMISSIONER ASSELSTINE

SUBJECT: SECY 83-377 - REVIEW OF ALAB-728 (PACIFIC GAS AND ELECTRIC COMPANY, DOCKET NOS. 50-275,50-323 OL)

APPROVED SEE BELOW DISAPPROVED SEE BELOW ABSTAIN _____

NOT PARTICIPATING _____ REQUEST DISCUSSION _____

COMMENTS: Approved in part, disapproved in part.

I AGREE WITH COMMISSIONER GILINSKY'S SEPARATE VIEWS ON THE CLASS 9 ACCIDENTS ISSUE. THE LICENSING BOARD HAS DEFINED "SPECIAL CIRCUMSTANCES" OUT OF EXISTENCE, AND THE COMMISSION SHOULD HAVE CORRECTED THIS MISTAKEN INTERPRETATION OF COMMISSION POLICY.

I ALSO AGREE THAT WE MUST DO SOMETHING ABOUT THE "COMPLICATING EFFECTS OF EARTHQUAKES ON EMERGENCY PREPAREDNESS." I AM STILL AWAITING OGC & ELD'S RECOMMENDATION ON THIS ISSUE.

Thomas M. Roberts

SIGNATURE

11-29-83

DATE

SECRETARIAT NOTE: PLEASE ALSO RESPOND TO AND/OR COMMENT ON OGC/OPE MEMORANDUM IF ONE HAS BEEN ISSUED ON THIS PAPER.

NRC-SECY FORM DEC. 80

A/3

NOTATION VOTE

RESPONSE SHEET

TO: SAMUEL J. CHILK, SECRETARY OF THE COMMISSION

FROM: COMMISSIONER ASSELSTINE

SUBJECT: SECY-84-401 - REVIEW OF CLOSED DIABLO CANYON MEETING TRANSCRIPTS

APPROVED_____ DISAPPROVED ✓ ABSTAIN_____

NOT PARTICIPATING_____ REQUEST DISCUSSION_____

COMMENTS:

I would release the transcripts in their entirety.

James K. Asselstine
SIGNATURE

10-19-84
DATE

SECRETARIAT NOTE: PLEASE ALSO RESPOND TO AND/OR COMMENT ON OGC/OPE MEMORANDUM IF ONE HAS BEEN ISSUED ON THIS PAPER.

NRC-SECY FORM DEC. 80

A/4

NOTATION VOTE

RESPONSE SHEET

TO: SAMUEL J. CHILK, SECRETARY OF THE COMMISSION

FROM: COMMISSIONER ASSELSTINE

SUBJECT: SECY-83-377 - REVIEW OF ALAB-728 (PACIFIC GAS AND ELECTRIC COMPANY, DOCKET NOS. 50-275, 50-323 OL)

APPROVED xxxxx DISAPPROVED _____ ABSTAIN _____

NOT PARTICIPATING _____ REQUEST DISCUSSION _____

COMMENTS:

I would like a report from OGC and ELD by September 15 on what approach the Commission should take to deal with the issue of "complicating effects of earthquakes on emergency planning."

Lando K Asselstine
SIGNATURE

10-7-83
DATE

SECRETARIAT NOTE: PLEASE ALSO RESPOND TO AND/OR COMMENT ON OGC/OPE MEMORANDUM IF ONE HAS BEEN ISSUED ON THIS PAPER.

NRC-SECY FORM DEC. 80

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

OFFICE OF THE
COMMISSIONER

October 17, 1984

MEMORANDUM FOR: Samuel J. Chilk, SECY

FROM: James K. Asselstine

SUBJECT: SECY 84-401

Please convert this paper to a notation vote.

cc: Chairman Palladino
Commissioner Roberts
Commissioner Bernthal
Commissioner Zech
OGC

A/6

Statement of James K. Asselstine
Commissioner, U.S. Nuclear Regulatory Commission

before the

Subcommittee on Energy and the Environment
Committee on Interior and Insular Affairs

August 30, 1984

Mr. Chairman and members of the Committee, I have a prepared statement from my colleagues on the Commission which I would like to submit for the record. In addition, I would like to offer a few comments of my own on the Commission's handling of the full-power operating license proceeding for the Diablo Canyon nuclear power plant.

I was unable to vote in favor of the issuance of a full power operating license for Diablo Canyon Unit 1 because of the Commission's treatment of two issues: the complicating effects of earthquakes on emergency planning, and the re-evaluation of the adequacy of seismic design for small and large bore piping in the plant. With regard to seismic design, the record of this proceeding, allegations filed by former workers at the site and subsequent NRC inspections, including those performed by NRC inspector Isa Yin, all document a widespread quality assurance breakdown in the seismic design work for small bore piping in the plant. This quality assurance breakdown raises serious questions regarding both the adequacy of quality assurance for other design activities for the plant and the adequacy of the Independent Design Verification Program (IDVP). Those questions are of special importance for the IDVP, which was established to verify that the

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seismic design problems that led to the Commission's suspension of the Diablo Canyon low power license had been identified and corrected.

These questions existed at the time that the Commission authorized the reinstatement of the low power license for Diablo Canyon, Unit 1. When I voted to permit low power operation, it was with the understanding that Mr. Yin and other elements of the NRC staff were in agreement on the measures needed to resolve those questions prior to a Commission decision authorizing full power operation. I was particularly disappointed in the staff's subsequent handling of Mr. Yin's concerns. Given the special significance of seismic design for this plant and the extent of the quality assurance breakdown in the seismic design program for portions of the plant, it was incumbent on the NRC staff to make every effort to verify that all significant design errors had in fact been identified and corrected.

Based upon the continuing concerns expressed by Mr. Yin regarding the adequacy of the staff's verification efforts and the extent of the seismic design quality assurance breakdown in the case, I am not yet satisfied that the Commission has the information needed to conclude, with a high degree of confidence, that all significant seismic design errors for this plant have been identified and corrected. In that regard, it is important to keep in mind that the seismic design problems identified at this plant over the past several years indicate a failure on the part of the utility to meet the requirements of our quality assurance regulations. Given this failure to comply with our quality

assurance regulations, the applicant must make a particularly strong and convincing showing that the design work for the plant has in fact been done correctly. Indeed, that was the intended purpose of the IDVP and the other design verification programs undertaken by the utility. Thus, it is particularly important to resolve fully these issues relating to the adequacy of the seismic design work for the plant and the seismic design verification efforts. The Agency's handling of these questions has been particularly unfortunate since the adequacy of the seismic design of the plant is a matter of serious public concern and since it appears that a further design verification program sufficient to resolve Mr. Yin's concerns could have been completed in a matter of a few weeks from the time the Commission issued the full-power license.

With regard to the complicating effects of earthquakes on emergency planning, I disagreed with the Commission's conclusion that our regulations do not require consideration of this issue for the Diablo Canyon plant. 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 for which this issue probably has any real significance -- Diablo Canyon and San Onofre -- have been licensed. I would have recognized 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. In my view, the Commission should have provided 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.

The cornerstone of the Commission's decision on this issue 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 <u>any</u> emergency planning, rather than that we need not consider earthquakes in emergency planning.

Unfortunately, the Commission has ignored 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.

A key element of the Commission's argument in this case was 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, my colleagues argued that the Diablo Canyon site is located in an area of low to moderate seismicity. However, the only plant in the country with a comparable Safe Shutdown Earthquake and Operating Basis Earthquake -- the two key bases for the seismic design of the plant--is San Onofre. In fact, the SSE's and OBE's for plants in other parts of the country are significantly lower than those for Diablo Canyon. 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 has 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. The Commission's decision on this issue must also 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 Emergency Planning Zone 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. I see no factual basis for concluding that earthquakes in California are so much more unlikely than either of these events that earthquakes need not be considered.

The Commission's decision also 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 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. Thus, by their own actions, the agency's technical experts have demonstrated that <u>they</u> 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. For these reasons, I would have required that the

record of the Diablo Canyon licensing proceeding be reopened to consider the complicating effects of earthquakes on emergency planning for this plant.

Mr. Chairman, as you know, on August 17, the United States Court of Appeals for the District of Columbia issued a stay of the effectiveness of the full-power license for Diablo Canyon pending the Court's review of the Commission's decision in this case. This action by the Court is unprecedented and indicates serious flaws in the Commission's decisions. As it now stands, the Court's stay is likely to remain in effect for at least the next three or four months. This action provides an opportunity for the Commission to reconsider some of its previous positions and to take actions to minimize the potential for further delays in this case. I believe that the Commission should do four things. First, it should reopen the hearing record to permit litigation of the complicating effects of earthquakes on emergency planning for this plant. If the Court decides that a hearing is required on this issue prior to full-power operation, as I believe it will, this step will avoid still further delays in this case. Second, the Commission should establish a further special review of the small and large bore piping seismic design adequacy. This review should be under the direction of NRC staff members who have not been directly involved in the previous design review efforts and should have as its objective achieving a consensus resolution of the concerns identified by Isa Yin and the allegations relating to the seismic design work at the plant. I would have Mr. Yin play a significant role in this review effort. Given

the utility's failure to comply with our quality assurance regulations, we should insist on as thorough a review as possible in order to provide ourselves, you and the public a high degree of confidence that the seismic design work for the plant has now been performed properly. Third, the Commission should reopen the investigation of the NRC staff's conduct during the Commission meetings prior to the issuance of the low power license for the plant with the objective of assuring a thorough and complete investigation of the allegations that have been submitted to the Commission regarding the staff's conduct. Such an investigation should include interviews with those who have submitted the allegations to assure that we have all the facts. Finally, the Commission should take a careful look at the need to reopen the record of this proceeding to consider other design and construction quality assurance issues. Now is the time to decide whether the Appeal Board rulings on these questions are correct so that any further hearings which may be required can proceed expeditiously. Mr. Chairman, I believe that these four measures would do much to correct the problems in the Commission's handling of the Diablo Canyon full-power operating license proceeding and to minimize the potential for further unnecessary licensing delays in this case.

Thank you.

CR-84-99

CR-84-99

COLLEGIAL COMMISSION

Correspondence Response Sheet

Date: October 22, 1984

FOR ACTION:
Commissioner Roberts
Commissioner Asselstine
Commissioner Bernthal
Commissioner Zech
OPE OGC

FOR INFORMATION:
Chairman Palladino
SECY

FROM: Samuel J. Chilk, Secretary of the Commission

SUBJECT: Response to Rep. Patterson and Panetta regarding issues at Diablo Canyon

Contact: Roxanne Goldsmith, OPE, x43295
SECY Contact: Sandy Showman, x43317

Your Response Must Be Received In The Office Of The Secretary By:

	Commission-Level Offices	Commissioners
Time:	C.O.B.	C.O.B.
Day:	Thursday	Monday
Date:	October 25, 1984	October 29, 1984

VOTE: (Initial and Date Appropriate Vote Characterization)

APPROVE:

DISAPPROVE: JHR 10-23-84 VIEWS ARE ATTACHED

ABSTAIN:

NOT PARTICIPATING:

REQUEST DISCUSSION:

COMMENT: Chairman Palladino's comments are attached.

Also attached is a letter commenting on Commissioner Asselstine's assertion re: preoccupation with licensing

A/8

Commissioner Asselstine has the following comments: Following the Subcommittee's August 30 hearing, I sent a memorandum to my colleagues to follow up on the suggestions I made in my testimony. A copy of my memorandum is enclosed. Unfortunately, a majority of the Commission did not approve my suggestions. I continue to believe that the actions I suggested would do much to address the public concerns that have been raised regarding the Commission's full-power licensing decision for the Diablo Canyon plant and would minimize the potential for further delay in this case.