UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

9/15/76

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

In the Matter of	)	
	)	Docket Nos. 50-275 O.L.
PACIFIC GAS AND ELECTRIC COMPANY	)	50-323 O.L.
	)	
(Diablo Canyon Nuclear Power Plant, Units Nos. 1 and 2)	)	

INTERVENORS' PETITION FOR RECONSIDERATION

OF ASLB ORDER OF SEPTEMBER 1, 1976

On September 7, 1976, Intervenor Sandra Silver communicated the Atomic Safety and Licensing Board's (ASLB) order of September 1, 1976 to the Center for Law in the Public Interest (CLPI), counsel for the Intervenors. Said order outlined the contentions upon which evidence will be received at the environmental hearings currently scheduled for October 13, 1976.

Specifically, inter alia, the order deleted from consideration Contention 2.B.,[1/] which had been previously stipulated to by the parties, and Controverted Contention 4.B. to the list of contentions to be considered, modifying it from "Number of nuclear reactors planned for the state" to "number of nuclear reactors under construction or currently in operation in California." (emphasis added).

1/ Whether the NEPA cost benefit analysis improperly assesses the benefits to the plant by improper assumptions on:

B. Plant malfunctions, breakdowns, downtime, or reduced operational efficiency causing a low reliability factor.

Pursuant to 10 CFR §2.771, Intervenors respectfully petition the ASLB to reconsider its deletion of Contention 2B and its modification of Controverted Contention 4B. Intervenors respectfully ask that non-seismic aspects of Contention 2B be re-adopted for consideration at the hearings as stipulated, and that Controverted Contention 4B be adopted by the ASLB as originally proposed.

A Memorandum of Points and Authorities in support of this petition follows.

DATED: September 15, 1976

Respectfully submitted,

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MEMORANDUM OF POINTS AND AUTHORITIES IN SUPPORT OF PETITION FOR RECONSIDERATION OF ASLB'S ORDER OF SEPTEMBER 1, 1976

INTRODUCTION

This petition asks the Atomic Safety and Licensing Board (ASLB) to reconsider its narrowing and deleting of certain of the issues which will be considered in the environmental hearings. Intervenors respectfully submit that the ASLB's deletion of Contention 2B on the assumption that it only concerns seismic events is an erroneous assumption, and that its narrowing of Contention 4B to cover only the effect of the Diablo reactors on the nuclear plants currently in operation or under construction ignores "meaningful information" which is indeed available as to the number of nuclear reactors planned for the state.

I

ASPECTS OF THE PLANT CAPACITY ISSUE, CONTENTION 2B, NOT RELATED TO SEISMICITY SHOULD BE CONSIDERED BY THE BOARD AT THE ENVIRONMENTAL HEARINGS.

In its order of September 1, 1976, the Board eliminated, without explanation, the plant capacity contention 2B which was not controverted, and indeed which had been stipulated to by all parties. Intervenors respectfully request that aspects of this contention which are not related to seismicity be considered by the Board at the forthcoming environmental hearings.

We respectfully submit that the Board may have rejected this plant capacity contention because of the Board's misconception that the contention is based solely upon seismic causes. Intervenors do ground their Contention 2B in part on seismicity. An earthquake could cause the Diablo Canyon plant to close for lengthy inspections and repairs of more than a year. During this time, of course, plant capacity would be reduced to zero.[1/] But intervenors also base this contention on their view that the Staff in its Final Environmental Statement has seriously over estimated the likely operating capacity factor of the Diablo Canyon nuclear generating plant under normal, non-earthquake conditions.

Plant capacity factor, an important index of a reactor's usefulness, is found by dividing the number of kilowatt-hours of

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1/ The Board, by its order of September 1, 1976, deferred consideration of all environmental issues relating to seismicity until a later time. We assume, then, that the aspects of the plant capacity issue which relate to seismicity have been deferred with the other seismic-related issues and that intervenors will have an opportunity to have an environmental hearing on the plant capacity and other seismic-related issues at a later time but before the Board's initial licensing decision.

electricity actually produced during a period of time by the number of kilowatt-hours that the plant would have produced during the same period of time if the plant had operated full-time at total capacity. Plant capacity factor, then, measures the benefit of actual power generation from a nuclear plant in relation to the theoretical capacity for generation of power from the plant. In the Final Environmental Statement, the Staff estimated that the Diablo Canyon nuclear plant would operate at 80% of its capacity throughout most of its life. (FES at p. 13-8)

Intervenors strongly dispute the Staff's optimistic estimates of Diablo Canyon plant capacity factor, even if the plant should operate under normal conditions without any earthquake or other natural disaster throughout its operating life. Intervenors have already cited in a previous submission in these proceedings two articles from the Bulletin of Atomic Scientists which indicate that the plant capacity factor for large reactors like those at Diablo Canyon may range below 50% under normal conditions, without earthquakes or other Acts of God.[2/] Several non-seismic causes for lowered plant capacity exist, including scheduled downtime for fueling and forced non-scheduled outages to correct problems with fuel, ECCS and other plant systems.

Intervenors plan to offer testimony from two expert witnesses regarding non-seimic causes of lowered plant capacity factor.

2/ Cited at p. 5 of Intervenors' Opposition to P.G. & E.'s Motion to Strike Cost-Benefit and Radiological Contentions are Comey, "Will Idle Capacity Kill Nuclear Power?" Bulletin of Atomic Scientists November, 1974 and "On Cooking Curves", Bulletin of Atomic Scientists, October, 1975.

Mr. Dale Bridenbaugh, a mechanical engineer experienced in nuclear power plant operations, will identify various problems that reduce plant capacity factor during normal operations. Dr. Charles Kamanoff, or his colleague Steven Moody, energy economists who have studied nuclear plant operations, will present predictions of Diablo's plant capacity factor which are based upon historical operating experience of existing nuclear generating plants.[3/]

In sum, intervenors' plant capacity contention contains important non-seismic aspects which should be considered in the environmental hearings encompassing all NEPA issues not related to seismicity. The EIS estimates that plant capacity factor will be 80% under normal operating conditions, while the intervenors contend that this factor, and therefore the benefit of power generation from the Diablo Canyon nuclear plant will be significantly lower.

3/ The NRC Staff's position on the plant capacity factor contention also encompasses non-seismic aspects. An affidavit of their expert on this issue, Mr. Norman Hinkle, which accompanied the NRC Staff's Motion for Summary Disposition dated September 7, 1976 contains considerable information on plant operations under normal non-seismic conditions (see Hinkle affidavit, pp. 18-21). An examination of the Hinkle affidavit and the Bulletin of Atomic Scientists articles cited at note 2 will provide the Board with some idea of the evidence relevant to the non-seismic aspects of this plant capacity contention.

If the Staff's prediction of 80% plant capacity factor and, therefore, the benefit of electric power generation from the Diablo plant is unreasonably high, then its cost-benefit balance is invalid under NEPA. (see, e.g., Montgomery v. Hill 364 F. Supp. 517 (N.D. Ala. 1973) where the court invalidated an Army Corps of Engineers environmental statement because the document over estimated the benefits of a proposed dam). Consequently, the plant capacity contention is a valid non-seismic contention which must be considered pursuant to NEPA and 10 C.F.R. Part 51.

II

EVIDENCE SHOULD BE RECEIVED AT THE ENVIRONMENTAL HEARINGS REGARDING THE EFFECT OF THE DIABLO CANYON REACTORS ON THE NUMBER OF NUCLEAR REACTORS PLANNED FOR CALIFORNIA.

In its September 1, 1976 Order, the ASLB narrowed the scope of Controverted Contention 4B to whether the FES has inadequately considered the effect of the Diablo Canyon reactors on the number of nuclear reactors under construction or currently in operation in California, rather than the effect that the Diablo Canyon reactors will have on the total nuclear power picture planned for the State. In so ordering, the ASLB stated that to consider the impact of the Diablo Canyon reactors on the nuclear power picture as planned for the State was "too vague and speculative to be litigated". Order at 4. Petitioner contends that (1) the nuclear power picture for California in the future is sufficiently concrete so that consideration of the Diablo reactors' effect on the nuclear reactors planned for the State should be at issue in assessing the adequacy of the applicant's FES and amendments, and that (2) to ignore the effect of the Diablo

reactors on the total nuclear energy picture as planned for California violates the thrust of case law which has interpreted the National Environmental Policy Act (NEPA).

(1) Concreteness. Litigation over the effect of the Diablo reactors on the total nuclear energy picture as forecast is not speculative if there is more than a possibility that other reactors will be built. In addition to those reactors currently in operation or under construction (Humboldt, Rancho Seco 1, San Onofre 1, 2, and 3), there are at least nine reactors which have advanced beyond the speculative and tenuous "idea" stages. In California, planning for nuclear energy begins at the state regulatory level, with both the Public Utilities Commission and Energy Commission receiving information as to plans to construct nuclear power plants. The PUC learns of plans to apply for construction permits prior to the filing of a Notice of Intent with the Energy Commission through informal sources and through contacts in the utility companies. Accordingly, employees of the state regulatory agencies and a California Public Utilities Commission (PUC) report have revealed that the following reactors are comtemplated for California:

SITE	SIZE	PROPOSED IN-SERVICE DATE
Rancho Seco, unit 2	1100 Megawatts (MW)	Possibly 1983
Sun Desert, 2 units, Blythe	950 MW each	Possibly 1985 4/
Vidal Junction, 2 units	750 MW each	1987
San Joaquin, 4 units near Bakersfield	1300 MW each	1983 or 1987

4/ Notice of Intent to apply for construction permit filed with the Energy Commission in July, 1976.

Sources: conversations with James Harding, California Energy Commission, Harry Strahl, California PUC, and California PUC, "A Report on 10 year and 20 year forecasts of Electric Utilities Loads and Resources," December 26, 1974.[5/]

According to the 20-year forecast published by the PUC in 1974, by 1993, the total nuclear energy picture in California, broken down by utility companies, will be as follows:

Utility company responsible for plant	Size (MW)
Pacific Gas & Electric	16,600
So. Calif. Edison	10,500
San Diego Gas & Electric	2,450
Los Angeles Dept. Water & Power	3,563

As is readily apparent from the above information, the nuclear power picture in California is far from vague and speculative. It is sufficiently concrete to permit argument in the upcoming environmental hearings regarding the effect of the Diablo projects on the overall nuclear energy picture as currently planned for the state.

It is also necessary to consider the effect of the applicant's reactors on the total nuclear energy picture planned for California because low level radiation dosage levels increase with the age of a reactor. U.S.N.R.C. Occupational Radiation Exposure at Light Water

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5/ A copy of the PUC report relied on herein will be furnished to any of the parties upon request.

Cooled Power Reactors 1969-1974, Radiation Protection Section, Radiological Assessment Branch, Office of Nuclear Regulation, NUREG-75/032, June, 1975. This is due to a buildup of radioactivities in the reactor's structures, and releases of radiation occurring as the reactor is routinely and/or specially maintenanced and refuled. All of this results in the delivery of higher doses of low-level radiation than were delivered during the first years of operation. Gofman, John W., "Radiation Doses and Effects in a Nuclear Power Economy: Myths v. Realities", April 1976, CRN Report 1976-2, p.5.

As Intervenors Mothers for Peace stated in response to a recent interrogatory:

> "There has been no clear statement as to the total number of reactors that are anticipated for the State of California. As each new reactor comes on line, it adds its increment to the total amount of effluents, releases, and discharges. There is nothing in the documents of this docket that indicates the existence of upper limits on effluents established to ensure the health and safety of the public. Certainly a threshold theory of radiation damage, which we understand the NRC to sponsor, recognizes 'upper limits'. (See Hiroshima and Nagasaki data.)"
>
> Response 1B of San Luis Obispo Mothers for Peace to Interrogatories Propounded by NRC Staff Dated, June 21, 1976, July 20, 1976.

The necessity of knowing the cumulative effect of past, present and future low level radiation dosages obviously should contribute to the decision about whether a particular reactor should be allowed to operate at all. Moreover, it is necessary to evaluate both present and future low level radiation doses contemplated because it is feasible that radiation dosages from one plant could combine with dosages from other plants. The combined effect of the Diablo plant and the proposed San Joaquin plants should be evaluated in the FES which is currently under consideration. An FES which fails to consider feasible combined effects might indeed be inadequate, and the failure to litigate this issue in the scheduled hearings would risk omitting responsible scientific information which might reveal possible significant environmental injury.

(2) Compliance with NEPA. Cases under NEPA and under the NRC's implementing regulations (10 CRF parts 50 and 51) have specifically noted that when information is available regarding long range environmental changes, the environmental effect of each proposed

increment must take into account the long-range effects. Thus, an environmental impact statement which failed to evalutate the effect of an applicant's nuclear reactor on the total nuclear energy picture contemplated for California might be found inadequate under NEPA. In NRDC v. NRC, _____ F.2d _____ (D.C. Cir., July 21, 1976), a case in which the Appeals Court ruled that NEPA encompasses the potential environmental impacts of wastes generated by the operations of a nuclear power station in Vermont, the court held that where "'meaningful information' concerning the effects of waste reprocessing and disposal technology is presently available," Slip op. at p. 9, the NRC could not ignore the potential effects of such waste on the environment in deciding whether to license a station. The court said:

> "NEPA's requirement for forecasting environmental consequences far into the future implies the need for predictions based on existing technology and those developments which can be extrapolated from it." Slip op. at 10.

Similarly, where the Commission has before it "meaningful information" on the number of nuclear plants or reactors realistically planned for the State of California, it cannot ignore the incremental effect that the licensing of applicant's plant will have on the planned overall nuclear power picture in California. The NRDC case is a clear mandate to agencies responsible for preparing environmental impact statements that the full disclosure policy behind NEPA requires an evaluation of the proposed project in light of future projects.

The requirement that an EIS evaluate the proposed project in light of future plans rests on sound NEPA precedent. In

Atchison, Topeka and Santa Fe Railway Co. v. Callaway, 382 F. Supp. 610 (D.C.D.C. 1974), the court held that an EIS for a lock and dam on the upper Mississippi was inadequate, because it failed to evaluate the impact the dam would have on possible future systematic changes in the upper Mississippi area. It is worth citing a significant portion of the court's reasoning in enjoining the project, since the issue is almost identical in the present matter:

> "[NEPA] requires that agencies of the federal government consider the impact of an overall program and not just isolated aspects of facilities. [] A restricted impact analysis is prohibited because it 'would frustrate the vitality of NEPA by allowing piecemeal decisions.' [] Thus, an agency may not engage in segmentation, i.e. 'an appraisal of each tree to one of the forest.' [] . . . . The intent of Congress was to have NEPA effect the earliest deliberations of proposed actions. [] Therefore, even though future action has not been finalized, if it is envisioned then the agency must consider the impact of subsequent actions in furtherance of the program." 382 F. Supp. at 600-621.

Although the Diablo reactors are not part of a total program of nuclear power proposed by the applicant, the "program" of nuclear energy for the state is something that should be considered in the final EIS. And, the mere expectation of future improvements or changes in the environment are enough to trigger the requirement that the proposed project consider those changes. The court in Atchison said:

"Although it is conceivable that no further improvements of the Upper Mississippi River system may occur, the fact that improvements are expected requires a present evaluation of their future impact." 382 F. Supp. at 622.

See also, Scientists' Inst. for Pub. Info., Inc. v. Atomic Energy Commission, 481 F. 2d 1079 (D.C. Cir. 1973).

Another compelling reason exists why evidence should be received on the inadequacy of the FES as to the number of nuclear reactors planned for California. The Interior Department indicated in its comments to the FES that

"The environmental impacts of this plant when combined with other thermal-electric plants on the California coast does not appear to have been properly considered. We think that the final environmental statement should discuss the contribution of environmental effects from the proposed plant in coastal waters from all existing and proposed power plants." (Emphasis added.) Department of Interior letter to Daniel Muller, FES p. A14-23.

No reaction to this comment is contained either in the FES or in the Addendum to the FES of May 1976. Intervenors contend that the failure to consider the Interior Department's comments renders the present FES inadequate, and that evidence should be received on the Contention 4B as originally proposed.

Whether a licensing agency has considered other government agencies' reactions to actions affecting the environment can be an

important factor in determining the sufficiency of the FES and the validity of the licensing agency's decision. In Porter County Chapter of the Izaak Walton League of America, Inc. v. Atomic Energy Commission, 5 ELR 20274 (7th Cir. April 1, 1975), the Court of Appeals stayed a construction permit for a nuclear reactor on the grounds that, inter alia, the AEC failed to take into account Department of the Interior comments in response to the AEC's draft environmental statement which recommended that the construction permit be denied as not being in the best interests of the public. Although the Department of the Interior had jurisdiction over the land immediately adjacent to the proposed site in Porter County, which is not the situation here, the case is still good authority for the proposition that agency reaction to a proposed site must be considered, both in preparing an acceptable FES and in ultimately deciding whether the action should be approved.

CONCLUSION.

Because Contention 2B encompasses issues broader than seismicity, and because case law and the thrust of NEPA requires an evaluation of the proposed project in light of future projects, we respectfully urge the Board to reconsider its Order of September 1, 1976, in which Contention 2B was deleted and Contention 4B substantially narrowed in preparation for the upcoming environmental hearings.

DATED: September 15, 1976

Respectfully submitted,

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CERTIFICATE OF SERVICE BY MAIL

The foregoing documents INTERVENORS' PETITION FOR RECONSIDERATION OF ASLB ORDER OF SEPTEMBER 1, 1976 and MEMORANDUM OF POINTS AND AUTHORITIES IN SUPPORT OF PETITION FOR RECONSIDERATION OF ASLB'S ORDER OF SEPTEMBER 1, 1976, INTERVENORS' ANSWER TO NRC STAFF'S MOTION FOR SUMMARY DISPOSITION OF CONTENTION 2A, NUCLEAR FUEL SHORTAGES, LETTER SUPPLEMENTING SCENIC SHORELINE'S RESPONSE TO STAFF INTERROGATORIES PROPOUNDED JUNE 21, 1976, INTERVENORS REQUEST FOR EXTENSION OF TIME IN WHICH TO RESPOND TO NRC STAFF MOTION FOR SUMMARY DISPOSITION OF CONTENTIONS 1 AND 4 has been served today, September 15, 1976, by deposit in the United States mail, properly stamped and addressed:

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September 15, 1976

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