AUG 30 1977

The Honorable Alan Cranston
United States Senate
Washington, D. C. 20510

Dear Senator Cranston:

I am pleased to respond to your note of August 5, 1977. You forwarded a letter from your constituent, Mr. Frederic Chase, and requested our comments on Mr. Chase's concerns regarding the role of the Nuclear Regulatory Commission (NRC) staff in the licensing review of the Diablo Canyon Nuclear Power Plant.

Mr. Chase expressed his impression, gained from an article in the Los Angeles Times, that the NRC staff tried to twist and suppress the facts about earthquake faults near the Diablo Canyon Nuclear Power Plant and to bring pressure upon the U. S. Geological Survey to change its findings or upon the staff's reviewers to upgrade their estimates of the plant's capabilities. He also believed that the matter should be investigated.

The impressions that Mr. Chase has received are erroneous. These matters were aired in public hearings before the House Subcommittee on Energy and the Environment on June 30, 1977. Among other things, representatives from the NRC staff and the U. S. Geological Survey have both testified at these Congressional hearings that there was no pressure applied upon the Survey. In addition, the House Subcommittee on Oversight and Investigations has, since early 1977, kept itself well informed about the NRC staff's continuing review of the operating license application for the Diablo Canyon Plant.

A copy of the newspaper article is provided in Enclosure No. 1 and a detailed discussion of the points raised by Mr. Chase is provided in Enclosure No. 2.

I trust you will find this information responsive to Mr. Chase's concerns.

Sincerely,

Leo V. Gossick
Executive Director
for Operations

Enclosures
1. Newspaper Article
2. Discussion of Concerns
3. ~~Letter dated 8/5/77~~

SEE PREVIOUS YELLOW FOR CONCURRENCES:
RETYPED FOR THE PURPOSE OF ADDING ENCLOSURE 3

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OFFICE				NRR	EDO	OCA
SURNAME				ECase	LGossick	
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United States Senate
Washington, D. C. 20510

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Enclosures
(1) Newspaper Article
(2) Discussion of Concerns

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	RDeYoung	RBoyd
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SEE PREVIOUS YELLOW FOR CONCURRENCE

OFFICE	LWR-#1	LWR-#1	AD/LWR	NRR	EDO	OCA
SURNAME	DAllison:klj EHylton	JStolz	DVassallo	ECase	LGossick	
DATE	8/ /87	8/ /77	8/ /77	8/ /77	8/ /77	8/ /77

ENCLOSURE NO. 1

LOS ANGELES TIMES ARTICLE CONCERNING THE

DIABLO CANYON NUCLEAR POWER PLANT, JUNE 29, 1977

Los Angeles Times 6-29-77

Officials Push Diablo Plants Despite Major Quake Fault

BY PAUL E. STEIGER
Times Staff Writer

WASHINGTON—Staff officials of the Nuclear Regulatory Commission, the agency charged by Congress with preventing unsafe uses of atomic energy, have engaged in an unusual effort to justify licensing two nuclear power stations now nearing completion in California's Diablo Canyon near San Luis Obispo—despite the discovery of a major earthquake fault a few miles offshore.

Among the concerns motivating the staff officials, documents obtained by The Times indicate, were fears that failure to license the reactors would have a damaging effect both on the nuclear power industry and on government efforts to increase U.S. energy supplies.

In an interview Tuesday, two of the officials involved, Edson Case, acting director of nuclear reactor regulation for the NRC, and Richard DeYoung, deputy director of the division of project management, maintained that such political and economic factors affected only how much time and effort they and their subordinates were prepared to spend analyzing the safety risks.

The political and economic considerations, they said, would not influence their ultimate recommendation—which is still pending—on whether the plants should be granted an operating license.

Nevertheless, examination of internal NRC memoranda, amplified by interviews with the staff officials, indicates that the commission staff has expended a major effort to find a basis on which the plants might be granted licenses.

The effort came after the U.S. Geological Survey, an arm of the Interior Department, disclosed the existence of an offshore fault line capable of producing an earthquake with a force well beyond what the plants were designed to withstand.

The moves by the NRC staff include:

—Marshaling geologists, seismologists and other experts from inside and outside the commission for a year-long challenge—ultimately without success—of the Geological Survey's assessment of the earthquake danger.

—Sharply upgrading the staff's previous view of how great a shock the plants might be able to resist.

—Devising a plan by which the builder of the plants, Pacific Gas & Electric Co., the big San Francisco-based utility, could seek a two-year interim operating license that might be easier to approve than the normal, full-term license.

When PG&E was reluctant to propose such a move itself, the staff suggested the interim license approach in a letter to Richard Maullin, chairman of California's Energy Resources Conservation and Development Commission.

There has been no suggestion that any of these actions violated the law. And NRC staff officials defend the moves vigorously as justified in light of events as they occurred and facts as they became known.

Still, the moves raise questions as to how well Congress succeeded in its goal of separating safety concerns from economic and political factors when it created the NRC in 1974, carrying it out of the old Atomic Energy Commission. Unlike the AEC, so the argument went, the new regulatory commission would not be charged with promoting atomic energy as well as regulating it, and hence would be free to focus on safety concerns alone.

The Carter Administration emphasized the importance of this division earlier this year, when it left the NRC out of the new Department of Energy it asked Congress to form. That way the public would have full assurance that safety considerations were not being subordinated to the drive for new domestic energy sources and for diminished dependence on the oil-exporting nations, James R. Schlesinger, Carter's chief energy adviser, told reporters.

Concerned about these issues, and about how safety decisions are being made under the new system, the House Interior Committee's subcommittee on energy and the environment has called NRC officials to testify on the Diablo Canyon case at a hearing Thursday.

Also invited are two major opposing parties in the case, PG&E and representatives of the "intervenors," local citizens' groups in the San Luis Obispo area who have opposed the Diablo Canyon facility since its drawing board days in the 1960s.

The issues are not simple. Deciding how much in the way of precautions constitutes safety is a matter of judgment, and judgments can differ. A look at the Diablo Canyon project suggests just how complicated those judgments can become, and how difficult to achieve may be Congress' goal of keeping them completely separate from economic and political factors.

After prolonged studies of environmental and safety factors, and over the objections of local groups concerned about preserving the wild shoreline and nearby hills from unsightly plants and transmission lines, the old Atomic Energy Commission awarded PG&E construction permits for the two reactors in 1968 and 1970.

Unfortunately for PG&E, however, the studies had not included a sufficiently thorough check of the Pacific Ocean floor near the site. In 1973, when the plants were under construction, the AEC staff learned of the existence of the Hosgri Fault, named after two oil company geologists who identified it.

At first the staff did not take the fault seriously. But in late 1974, as the AEC was being readied for oblivion and the NRC and Energy Research and Development Agency were being fashioned from its parts, the staff was confronted by a conclusion from the Geological Survey that the fault was big enough to produce an earthquake that would shake the earth under the plants more than they were designed to withstand.

If the impact were enough to shatter the plants' safety systems, the resulting failure could spew significant quantities of radioactive material into the surrounding countryside.

The chagrin of NRC staff members over this information is well documented in a pair of memos written in February, 1975, by DeYoung. The construction permit had called for the plants to withstand a ground acceleration of 0.4g., or 40% of gravity. The NRC staff had concluded that the design might be able to withstand a seismic event of somewhat higher magnitude, 0.5 g.

"An extensive reanalysis could be undertaken by the applicant (PG&E)," DeYoung wrote, "but will probably show that some parts of the plant are capable of withstanding various loadings in excess of 0.4g., 0.5g., 0.6g., and 0.7g., but that other vital parts will not have such capability. Some increase in capability is possible from design changes that might be undertaken, but changes sufficient to bring the design up to a 0.6-0.7g. capability are impractical."

To convince the NRC's Advisory Committee on Reactor Safety that even a 0.5g. quake could be withstood would require months of analysis and documentation, DeYoung wrote. For 0.6g., he said, it would take years, and many costly modifications of plant design as well.

But the Geological Survey analysts were pointing toward a conclusion that the ground acceleration in a quake could approach 0.7g., and information to be sent them by PG&E was not likely to change the survey's mind, DeYoung wrote.

The implication was clear. Without a major effort to persuade the Geological Survey staff to change its view, providing an operating license to the nearly finished plants might be impossible.

"Unless specific guidance, support and direction is provided promptly by the upper management levels at NRC and USGS to the 'working' levels in the two organizations, positions that do not necessarily reflect the judgment of upper-level management will be formulated and documented to the extent that later modification will be difficult," DeYoung wrote.

The NRC did mount an effort to change the USGS view, attacking both its estimate of the size earthquake the Hosgri Fault was likely to produce and its assessment of the shock an earthquake of any given size would impart to the plants.

But by January, 1976, another memo by DeYoung makes clear, the USGS was still standing fast. And by May 11, 1976, the NRC staff gave in on this point. It accepted 0.75g. as the ground acceleration value for the Diablo Canyon plants.

The NRC was not giving up, however. For one thing, the staff felt considerable reluctance to recommend against granting the operating license.

"We have a poor basis for this action at this time," DeYoung wrote in the January memo, "other than general conservatism and (a feeling that) 'PG&E hasn't done enough to make everyone happy.'

"Such arbitrary conservatism would not be an adequate basis in this case because of the large financial loss involved and the severe impact such action would have on the nuclear industry."

Asked to explain this statement, DeYoung told a reporter: "If this had been at the construction permit stage, the investment by the utility might have been $30 million. We could have said at that time, we have spent enough staff time and public money on this review, and tell the utility, 'we will not give you a construction permit.'

"But at the operating license stage, we had concurred with the design basis established by the utility at the construction permit stage. We had a part in this. And when we look at the operating license stage, where a billion dollars worth of plant was sitting there, designed and constructed on bases with which we had concurred, you can't take the same approach as you could when only $30 million had been spent."

A week after DeYoung's January, 1976, memo, a meeting was called involving DeYoung, Case and about a dozen other NRC staff officials. Before the meeting a "talking paper" entitled "Program to Establish Basis to License Diablo Canyon" was circulated to the participants.

The paper proposed several actions, including a final stab at changing the USGS conclusions by inducing Interior Department superiors to intervene, a move to assess chances of "upgrading the plant design" by a combination of new analysis and structural changes, and an effort to determine whether a basis could be established for licensing the first reactor on an interim basis.

Included in the paper was a section entitled "Associated Considerations," which suggested that the NRC staff's final conclusion on whether to recommend licensing of the plant ought to take into account the impact on the nation's energy problems, on the nuclear moratorium issue Californians were to vote on the following June, and on other nuclear plants where new earthquake data might suddenly become available.

Case and DeYoung conceded this document was embarrassing. But they said the issues were not discussed at the 1976 meeting. "Like every piece of paper we put out for a meeting, we usually don't get beyond the first page," DeYoung said.

Nevertheless, following the meeting, several of the steps mentioned in the talking paper were carried out, including the suggestion to PG&E that it request an interim license.

Officials at the utility took "the reluctant-bride approach" to this suggestion, Case said. "They wanted to be told to apply for this interim license." Such licenses have been granted before, but only to operate a plant at about 5% capacity during testing. What the NRC staff had in mind was full operation for about two years.

The problem was solved when Maullin, the California energy commission chairman, telegraphed the NRC this March asking what could be done to expedite a decision on the Diablo Canyon plants in view of the state's water shortage and consequent need for extra electric power. The NRC sent him a letter describing how a request for an interim license might speed the process.

Meanwhile, the NRC staff has concluded that the Diablo Canyon plants might be able to withstand a 0.75 G. earthquake impact without huge design changes. The reason: reanalysis by PG&E of a portion of the plants' design suggests it is stronger than previously believed.

After the staff makes its decision, the request for an operating license for the Diablo Canyon plants will go to other bodies within the NRC for decision. That decision can then be appealed to the commission and the courts.

ENCLOSURE NO. 2

DISCUSSION OF CONCERNS RAISED BY MR. FREDERIC CHASE FOLLLOWING A NEWSPAPER ARTICLE IN THE LOS ANGELES TIMES ON JUNE 29, 1977

RELATIONS WITH GEOLOGICAL SURVEY

The newspaper article states that the NRC staff marshalled various experts in a year-long effort to challenge the U. S. Geological Survey's assessment of the earthquake hazard. That is incorrect. An explanation of what happened is provided below.

Construction of the two Diablo Canyon units had been approved in 1968 and 1970. They had originally been designed to withstand an earthquake with a horizontal acceleration of 0.4g. The existence of the Hosgri fault, which runs offshore about 3 1/2 miles from the plant site, had come to light in 1971. The operating license application for these units has been under review since 1973.

In late 1974, the applicant, Pacific Gas and Electric Company, submitted the results of its investigation of the Hosgri fault. The Company's geology and seismology consultants believed that an acceleration of 0.5g would adequately represent the Hosgri fault's earthquake potential and it was apparent that the plant's design could readily be shown to be adequate for 0.5g without extensive analysis or modification.

In January 1975, the NRC staff received an assessment from the U. S. Geological Survey indicating that, in light of the then current information, 0.5g would not be adequate. The NRC staff's own experts in seismology were, tentatively, of a different view. Thus, it was apparent that there might, in the end, be significantly different expert opinions about what would be an adequate seismic design value. That would not be unusual for difficult geological and seismological situations.

One of the options mentioned in internal staff memoranda, at that time and later, was the appointment of a panel of eminent experts in geology, seismology and seismic design to study the entire question and make a recommendation. The purpose of such a panel, if it had been employed, would have been to explore all of the issues and provide the best advice the panel could give—whatever that advice might be—not to reach some predetermined conclusion.

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That idea was not completely without merit. Indeed, since then, one of the intervenors in this case has formally petitioned for the employment of just such a "blue ribbon" panel to evaluate seismic design questions. In addition, the Advisory Committee on Reactor Safeguards, which is independent of the NRC staff, has employed a panel of ten eminent experts to review this case. However, that option was not judged appropriate and it was not adopted, or even discussed by the NRC staff's upper management.

The NRC staff did hold a public meeting with the applicant and the Survey in February 1975 to discuss the technical issues and the Survey's concerns. The NRC staff then believed that the technical issues might be resolved, one way or another, by obtaining more data. Accordingly, the applicant was requested to submit appropriate information. For example, since there was disagreement about the length of the fault, the applicant was requested to submit more seismic refraction survey records to provide a better picture of whether the fault died out or continued at the north end.

It took until the end of 1975 for the applicant to submit this additional information and for the NRC staff and the Survey to review it. This activity did not in any way resemble a challenge to the Survey's assessment. It was merely our routine procedure of requesting additional information that would be needed to enable us to make a decision.

In this case, review of the additional information did not eliminate the conflict between the various expert opinions. After further discussion of the technical issues with the Survey and the applicant, the NRC staff adopted the Survey's assessment of the fault's earthquake potential.

UPGRADING PLANT CAPABILITIES

Mr. Chase also has the impression that the NRC staff reviewers were put under pressure to upgrade their view of the plant's capabilities. We cannot find an implication to that effect in the newspaper article. In any event, the impression is not correct.

The internal memoranda that were quoted in the article were merely discussing what the possibilities were with regard to upgrading the plant. They were based on the opinions of staff engineers as to what might be practical. They correctly predicted that the plant could readily be shown to be capable of

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withstanding 0.5g but that the applicant would need to spend years performing extensive reanalysis and modifications in order to meet significantly higher levels. (The applicant has now been performing such analyses for more than a year).

There has never been any suggestion that the NRC staff's opinion of the plant's capability should simply be increased. This was only to be done after the applicant had performed the appropriate analyses and modifications and the NRC staff had reviewed them and found them acceptable.

STAFF MEMBERS

Mr. Chase mentioned Richard DeYoung in connection with his impressions, presumably because Mr. DeYoung's memoranda were cited in the newspaper article. As discussed above, there was not any attempt to pressure the Survey or the NRC staff.

In addition to expressing Mr. DeYoung's ideas, those memoranda reflect, to a large degree, the opinions of various other staff members and they attribute such opinions to those persons. Our reviewers have the right and the duty to form their own opinions on safety questions and to express those opinions to the NRC staff's management. Obviously, they are not and should not be bound to agree with any particular point of view, including the Survey's assessments. In this case, the reviewers have expressed their opinions and then the principal staff decisions have been made by the staff's upper management after thorough discussion with the people involved. This open method of reaching NRC staff conclusions on safety matters is part of the Commission's policy.

In addition, the NRC staff's determinations are not final Commission decisions. They are reviewed by the independent Advisory Committee on Reactor Safeguards which provides a written opinion. Then an Atomic Safety and Licensing Board makes a decision based on the evidence presented in public hearings by the applicant, the intervenors and the NRC staff. The Licensing Board's decision is then subject to review by an Appeal Board and/or the Commissioners.

The Diablo Canyon earthquake safety questions are quite complex and the decisions involved are hard ones. We have faced such decisions before and we have a careful and deliberate procedure for dealing with them. Assuring adequate protection for the public health and safety will always be the foremost consideration.

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ALAN CRANSTON
CALIFORNIA

United States Senate

WASHINGTON, D.C. 20510

August 5, 1977 1st Ack

To: Congressional Liaison
Nuclear Regulatory Commission
Washington, DC 20555

Enclosure from:

Mr. Frederic A. Chase
7557 Mulholland Drive
Los Angeles, California 90046

Re: Please comment on Mc. Chase's concerns about the Diablo Canyon Nuclear Power Plant.

I forward the attached for your consideration.

Your report, in duplicate, along with the return of the enclosure will be appreciated.

Sincerely,

Alan Cranston

Alan Cranston

Please address envelope to:
Senator Alan Cranston
Senate Office Building
Washington, D.C. 20510

Att:

Jim Forcier

Frederic A. Chase
MULHOLLAND DRIVE • LOS ANGELES, CALIFORNIA 90046

June 29, 1977

The Honorable Alan Cranston, Senator
229 Senate Office Building
Washington, D.C. 20510

My dear Senator:

I am damned angry about the disclosure in the Los Angeles Times today that the Nuclear Regulatory Commission staff apparently tried to twist and suppress the facts about earthquake faults in the vicinity of the Diablo Canyon sites for two nuclear power stations.

There is evidence that Mr. Richard DeYoung of the NRC staff sought to bring pressure on the U.S. Geological Survey to change its findings or upon the design staff to revise upward its estimates of the plants' capabilities to withstand stress,so the project could go forward.

If there is the slightest suspicion that those who work for this regulatory agency owe their loyalty to the nuclear industry, including its suppliers and the power companies, rather than to the American people they should be investigated to the hilt and, if guilty, drummed out of office.

We had hoped that this administration would have the integrity and moral stamina to stamp out this sort of thing. Has it?

Sincerely,

Frederic A. Chase

Frederic A. Chase

cc: Senator Gary Hart
Marcus Rowden, Chairman, NRC

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