

**REGULATORY DOCKET FILE COPY**

APR 29 1980

Distribution ✓ 50-323  
 Docket Files  
 NRC PDR  
 Local PDR  
 NRR Reading  
 EDO Reading  
 LWR 1 File  
 W. Dircks  
 H. Denton  
 E. Case  
 D. Ross  
 D. Vassallo  
 J. Yore  
 ELD

G. Ertter (08534)  
 M. Groff  
 SECY (80-0445)  
 E. Hughes  
 B. Moore  
 J. Stolz  
 B. Buckley  
 E. Hylton  
 IE (3)  
 H. Shapar  
 H. Berkow  
 W. Russell  
 D. Muller  
 D. Eisenhut  
 R. Mattson  
 J. Cook  
 S. Varga

The Honorable Robert J. Lagomarsino  
 United States House of Representatives  
 Washington, D. C. 20515

Dear Congressman Lagomarsino:

I am pleased to respond to your March 5, 1980<sup>CA(3)</sup> referral of a letter to Commissioner Hendrie from your constituent Mr. William H. McDill. Since rulings and decisions related to the Diablo Canyon Nuclear Power Plant could be subject to the review by the Commission, it would be inappropriate for a Commissioner to comment on your constituent's concerns at this time. Therefore, your letter was referred to me for reply.

Your constituent expressed his dissatisfaction regarding the way the Nuclear Regulatory Commission (NRC) handled the Three Mile Island accident and the Commission's delays in the licensing of nuclear power plants. He also enclosed copies of newspaper clippings regarding the Atomic Safety and Licensing Appeal Board (ASLAB) review of intervenors appeals on seismic and security issues and statements from a coalition of San Luis Obispo County anti-nuclear groups critical of emergency preparedness plans under consideration for the Diablo Canyon plant.

The concern expressed regarding the NRC has been also described in the Report of the President's Commission on the Accident at Three Mile Island (the Kemeny Report), and in the report prepared for the Commissioners by the NRC Special Inquiry Group (the Rogovin Report). The NRC, in the year following the Three Mile Island accident, has devoted a major part of its resources to evaluating what happened and applying the "lessons learned" to improving nuclear plant safety. Among the actions taken to improve the way the NRC does its job, the Office of Nuclear Reactor Regulation has been recently reorganized to provide more emphasis on management matters identified by the various Three Mile Island accident investigations. The new organization provides special emphasis on human factors in safety and an interdisciplinary systems approach to licensing reviews, operating problems and generic issues.

The post-Three Mile Island efforts within the NRC and industry had a significant impact on the licensing of nuclear plants. However, licensing priority has been assigned to four plants, including Diablo Canyon Unit 1, where construction is essentially completed. Our evaluation of the plant for the results of the "lessons learned" from Three Mile Island and for a license that would allow low-power testing is nearing completion and will be documented in a safety evaluation report. When our safety evaluation report is issued, the Atomic Safety and Licensing Board must rule on a motion before it which seeks to reopen the public hearings on Three Mile Island issues.

HO  
 2  
 8005130238 6P

OFFICE					
SURNAME					
DATE					



The Honorable Robert J. Lagomarsino - 2 -

The appeals on seismic and security matters, matters which were previously reviewed and approved by the Licensing Board, are still pending before the ASLAB. A prehearing conference on the security matter and oral argument on the seismic matter were conducted during the first week of April 1980. The staff has not changed its previous favorable conclusions regarding these matters.

Regarding emergency preparedness plans, the staff has held public meetings on this subject in the area near the Diablo Canyon Plant. Before licensing of Diablo Canyon, these plans must meet the upgraded requirements which include evaluation by the NRC in conjunction with the Federal Emergency Management Agency (FEMA) of State and local emergency response plans and preparedness for all elements of off-site radiological emergencies. One of six NRC teams has been assigned to the Diablo Canyon site to make this assessment. Longer term actions in coordination with FEMA involve the testing of the state of preparedness at the nuclear site by integrated emergency drills and exercises involving the licensees and State, local and Federal agencies.

I want to assure you that we fully appreciate your constituent's comments and trust that the above information has been responsive to his concerns.

Sincerely,

(Signed) T. A. Rehm

William J. Dircks  
Acting Executive Director  
for Operations

SEE PREVIOUS YELLOW FOR CONCURRENCES

OFFICE	LWR 1	EDO	OCA			
SURNAME	EHyton	WJDircks				
DATE	JStolz 4/21/80	4/ /80	4/ /80			

1000  
1000

1000

1000

1000

The Honorable Robert J. Lagomarsino - 2 -

The appeals on seismic and security matters, matters which were previously reviewed and approved by the Licensing Board, are still pending before the ASLAB. A prehearing conference on the security matter and oral argument on the seismic matter were conducted during the first week of April 1980. The staff has not changed its previous favorable conclusions regarding these matters.

Regarding emergency preparedness plans, the staff has held public meetings on this subject in the area near the Diablo Canyon plant. Before licensing of Diablo Canyon, these plans must meet the upgraded requirements which include evaluation by the NRC in conjunction with the Federal Emergency Management Agency (FEMA) of a program for assessing State and local emergency response plans for all elements of off-site radiological emergencies. One of six NRC teams has been assigned to the Diablo Canyon site to make this assessment. Longer term actions in coordination with FEMA involve the testing of the state of preparedness at the nuclear site by integrated emergency drills and exercises involving the licensees and State, local and Federal agencies.

I want to assure you that we fully appreciate your constituent's comments and trust that the above information has been responsive to his concerns.

Sincerely,

William J. Dircks  
Acting Executive Director  
for Operations

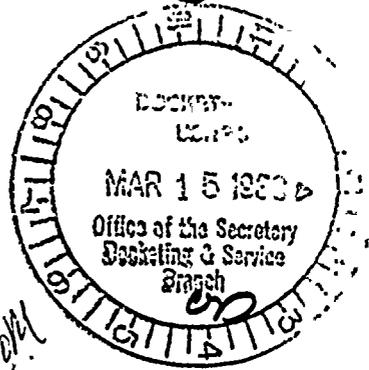
SEE PREVIOUS YELLOW FOR CONCURRENCES\* - REWRITTEN PER OELD

LWR  
SVarga\*  
4/10/80

OELD  
4/ /80

OFFICE ▶	LWR 1	DPM	NRR	NRR	EDO	OCA
SURNAME ▶	EHylton	DRoss*	EGCase	HDenton	WDircks	
DATE ▶	JStolz	4/17/80	4/ /80	4/ /80	4/ /80	4/ /80
	4/ /80					

1950  
1951  
1952  
1953  
1954  
1955  
1956  
1957  
1958  
1959  
1960  
1961  
1962  
1963  
1964  
1965  
1966  
1967  
1968  
1969  
1970  
1971  
1972  
1973  
1974  
1975  
1976  
1977  
1978  
1979  
1980  
1981  
1982  
1983  
1984  
1985  
1986  
1987  
1988  
1989  
1990  
1991  
1992  
1993  
1994  
1995  
1996  
1997  
1998  
1999  
2000  
2001  
2002  
2003  
2004  
2005  
2006  
2007  
2008  
2009  
2010  
2011  
2012  
2013  
2014  
2015  
2016  
2017  
2018  
2019  
2020  
2021  
2022  
2023  
2024  
2025



3057 S. Higuera St. Spced 116  
San Luis Obispo, CA 93401

Director  
Nuclear Regulatory Commission  
Washington, D. C.

Dear Sir:

I would like to plead with you not to give Pacific Gas and Electric the permission they asked for yesterday to start operating their Diablo Canyon Nuclear Plant without their final license. In the first place this would be a dangerous precedent. More important, I do not believe that any licenses should be granted until the Three Mile Island Report has shown all the requirements necessary for more safety in nuclear plants.

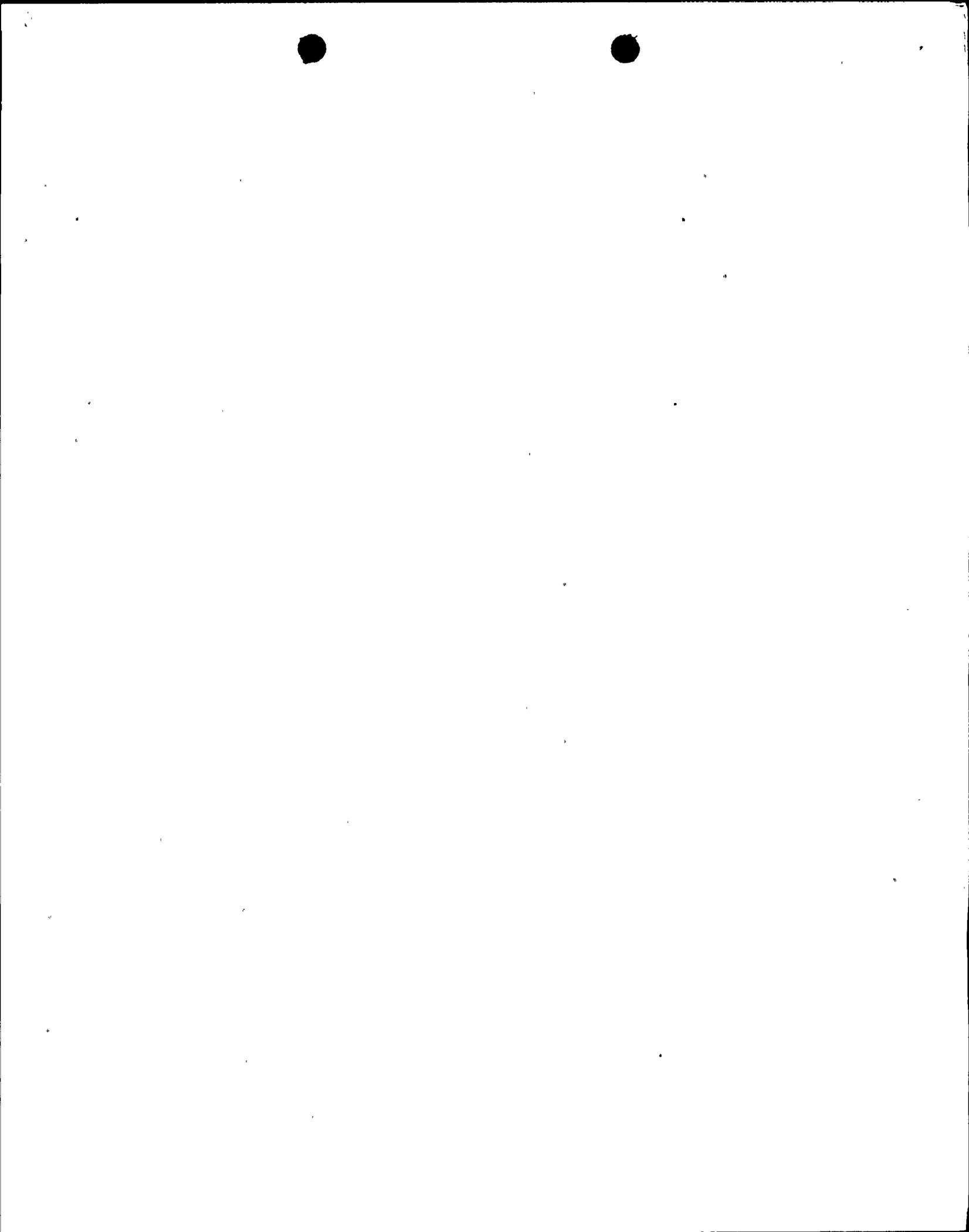
In the case of Diablo Canyon I do not feel that all conditions of danger have yet been taken into consideration. We moved here a month ago; just a few days ago I saw pictures of the plant for the first time. Knowing the history of slides and slumping along the coast of Southern California I was horrified to see how close to the beach cliffs it is located as well as being close to a small canyon perpendicular to the shoreline. Obviously some of the cliff the cliff has been disturbed also for one of the smaller structures. I had meant to look up the geology of this particular area before writing but P.G.&E's action does not give me time. I'm sure that you can get the information from the U. S. Geological Survey. If there is the same sandstone, siltstone and shale underneath these buildings that there is under most of the coastal area, then the danger of this plant sliding towards or into the ocean with the accompanying disaster if the plant is in operation is far greater than the danger from an earthquake. I plan to write again after I have looked into this matter further.

I am against any nuclear plant at least until a satisfactory method of waste disposal is found; but I am particularly against them in California. California is in a unique situation found no place else in the world today. Perhaps there has never been one like it. It is located on the leading edge of a continental plate which is overriding a mid-ocean ridge of molten rock coming up from great depths one side of which is trying to push California back to the east. Geologists do not know what is going to happen but know that this is the reason for the tremendous number of faults.

I have not seen either of these matters brought up in discussion of the safety of Diablo Canyon Nuclear plant and feel strongly that they should be before a licensing decision is made.

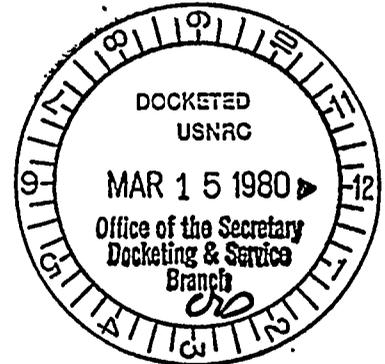
Sincerely,  
*Connie Snapp*  
Connie Snapp

cc: Gov. Jerry Brown



March 10, 1980

Mr. John Ahearne, Chairman  
U.S. Nuclear Regulatory Commission  
Washington, D.C. 20555



Dear Mr. Ahearne:

I am writing to urge the licensing of Nuclear Power Plants, particularly those ready or near ready for operation. The most urgent need is for Diablo Canyon. California is particularly short of power reserves thanks to your delays and those of the State Energy Commission. Power reserves last summer in California were below 5% which is just too slim a margin to assure reliable energy.

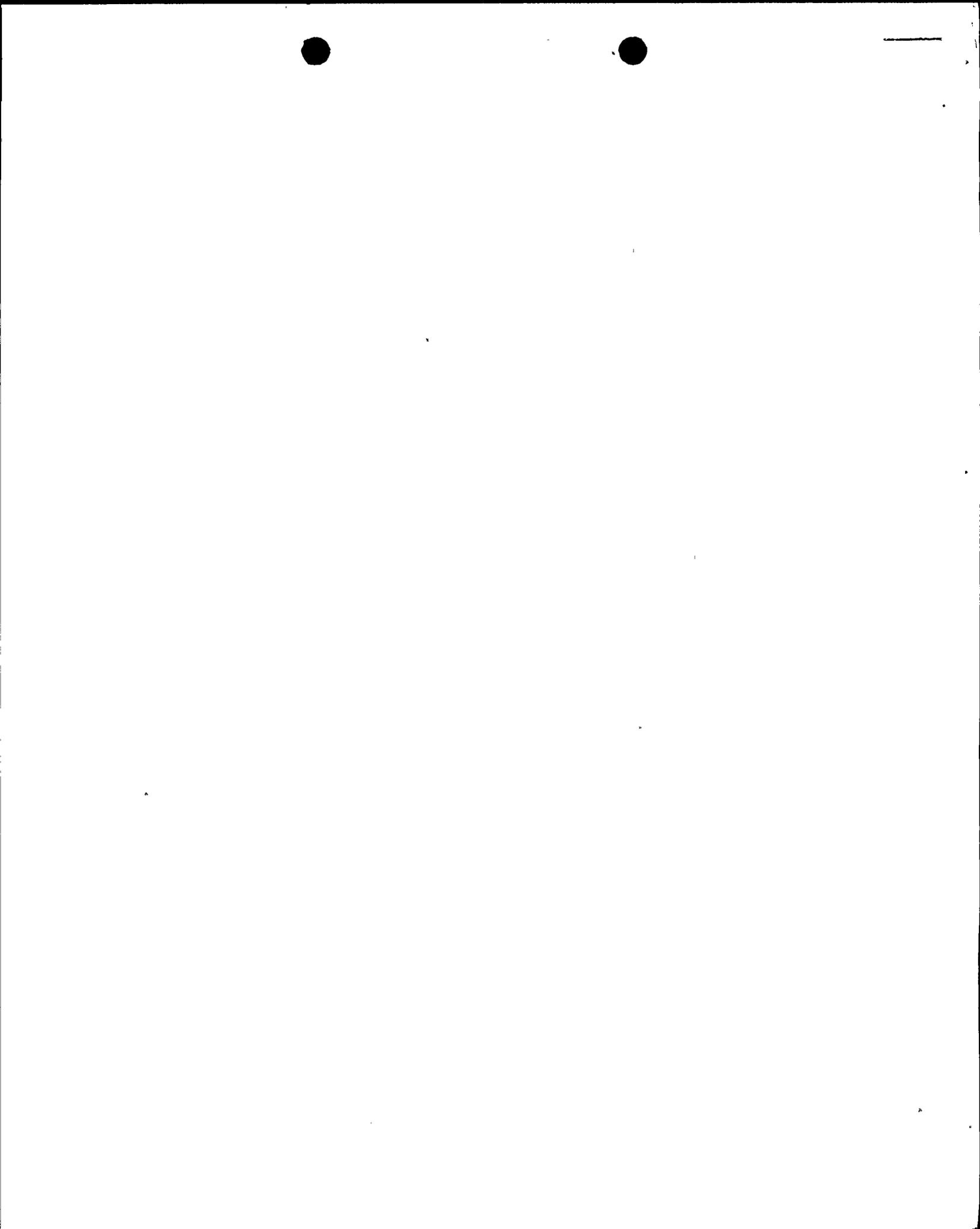
Please act.

Very truly yours,

A handwritten signature in cursive script, appearing to read "Oscar D. Terrell".

Oscar D. Terrell  
6477 Camelia Drive  
San Jose, CA 95120

cc: Senator S. I. Hayakawa  
Representative Mineta  
Governor Jerry Brown  
San Jose Mercury News



15 1980  
 of the Secretary  
 ting. & Service  
 Branch  
 020

DOCKET NUMBER  
 PROD. & UTIL. FAC. 50-275-323

STOP THE DIABLO CANYON NUCLEAR POWER PLANT

We the undersigned, as citizens of the State of California and  
 tepayers of the Pacific Gas and Electric Company, believe that the  
 clear Regulatory Commission and P.G. & E. should not allow the Diablo  
 nyon Nuclear Power Plant, in San Luis Obispo County, to go into Oper-  
 ion. Nuclear Power is one of the most dangerous technologies known..  
 .it poses a grave risk to our health and safety, is a major contri-  
 ting factor in the spread of nuclear weapons, it is a threat to our  
 vil liberties, and an economically unviable way of generating elec-  
 icity. Diablo Canyon is in violation of the spirit of the California  
 clear Safeguards Laws regarding the safe disposal of nuclear waste.

NAME                      ADDRESS                      CITY                      ZIP

(Please Print Clearly)

- Erna Green 4701 San Leandro St Oakland
- Angela Seidenberg 2942 Ellis St, Berk 94703
- Bill White " " " "
- Don Alvarado 4701 San Leandro St. Oakland
- Bob L. De V. P.O. Box 3015 Livermore Ca.
- Martha Lordier 1270 4th Ave. S.F. CA 94122
- Autonne Tolson 22325 Christiana Rd Tracy Ca 95376
- Maureen Kuhlman 29325 CHRISMAN RD TRACY 95376
- Michael E. Lucas 11620 Laurelcrest N. L.A. Ca 91604
- Kary Annenberg 8910 La Valpica Rd - Tracy 95376
- Kathryn E. Lee 215 Clark Warner Stockton Ct 95211
- Arthur B. Kalson 433 Pierce SF CA
- Catherine M. Beumer 433 Pierce SF CA
- John D. Fallon 578 S. 11th St. SJ. Ca 95112
- Jaime Foster 201 MacLane Palo Alto Ca 94301
- Michael S. Johnson P.O. Box 1112 CARMEL VALLEY CA 95021

STOP THE DIABLO CANYON NUCLEAR POWER PLANT

.....We the undersigned, as citizens of the State of California and ratepayers of the Pacific Gas and Electric Company, believe that the Nuclear Regulatory Commission and P.G. & E. should not allow the Diablo Canyon Nuclear Power Plant, in San Luis Obispo County, to go into Operation. Nuclear Power is one of the most dangerous technologies known. ...it poses a grave risk to our health and safety, is a major contributing factor in the spread of nuclear weapons, it is a threat to our civil liberties, and an economically unviable way of generating electricity. Diablo Canyon is in violation of the spirit of the California Nuclear Safeguards Laws regarding the safe disposal of nuclear waste.

NAME                      ADDRESS                      CITY                      ZIP

(Please Print Clearly)

- |   |                      |                     |                |       |
|---|----------------------|---------------------|----------------|-------|
| 1 | Andrea Lappin        | 1708 Lincoln        | Berkeley       | 94703 |
| 2 | Jacqueline Schuman   | 2049 Russell        | Berkeley       | 94705 |
|   | Sharon Wallace       | 5455 Marinda        | Oakland        | 94618 |
|   | Andy Rojas           | Box 211             | San Rafael     | 94955 |
|   | Joel Stein           | 5532 Marlborough Ct | S.F.           | 95123 |
|   | Jon Bell             | 222 Lighthouse Ave  | Santa Cruz     | 95060 |
|   | Tony Lamphier        | 1732 Cedar          | Berkeley       | 94703 |
|   | Leslie Young         | 116 Ruth Ct         | SACRAMENTO     | 95819 |
|   | M. Marilyn Stone     | 7040 22nd St.       | Riverdale, Ca. | 95673 |
| 0 | Paul Foyl            | 1420 Webster        | San Francisco  | 94115 |
| 1 | Michael F. [unclear] | 1735 Willow         | SF             | 94117 |
| 2 | [unclear]            | 2543 73 St          | SF             | 94110 |
| 3 | [unclear]            | 107 [unclear]       | LA             | 90012 |
| 1 | Jill Francis         | 529 S 11th St       | Redwood City   | 94063 |
| 1 | W. Joel Packer       | 2315 Dwight Way     | Berkeley, Ca.  | 94702 |

STOP THE DIABLO CANYON NUCLEAR POWER PLANT

.....We the undersigned, as citizens of the State of California and ratepayers of the Pacific Gas and Electric Company, believe that the Nuclear Regulatory Commission and P.G. & E. should not allow the Diablo Canyon Nuclear Power Plant, in San Luis Obispo County, to go into Operation. Nuclear Power is one of the most dangerous technologies known... it poses a grave risk to our health and safety, is a major contributing factor in the spread of nuclear weapons, it is a threat to our civil liberties, and an economically unviable way of generating electricity. Diablo Canyon is in violation of the spirit of the California Nuclear Safeguards Laws regarding the safe disposal of nuclear waste.

NAME

ADDRESS

CITY

ZIP

(Please Print Clearly)

- 1 Sue Foster 2909 Concord Blvd Concord 94519
- 2 Jeffrey Foster 2909 Concord Blvd Concord 94519
- 3 Nick Aquilino Nick Aquilino 2633 Grant Berkeley 94703
- 4 David Barnes (DAVID BARNES) 2424 7th St Berkeley 94710
- 5 Michael [unclear] P.O.B. 282 COYOTE, CA 95103
- 6 Mike Wright 1075 Park Hills Rd Berkeley 94705
- 7 Robert R. Smith 1370 CALIF. ST. #105, SAN FRANCISCO, CA. 94109
- 8 Lynn Mandala 25 Bella Vista Avenue San Anselmo, Calif 94960
- 9 Steve Sandler 1587 Sandler S.F. CA 94131
- 10 Heidi Kucala-Martin 3154 Lewiston Berkeley CA 94705
- 11 Jeffrey W. Martin 3154 Lewiston Berkeley Ca. 94705
- 12 Michael P. Baker 3746 Bixling Ct Pleasanton CA 94566
- 13 [unclear] 228 Hayes St. S.F. Calif 94117
- 14 SHERYL HOWSER 829 DIVISION ST PLEASANTON 94566
- 15 Susan Smith 200 [unclear] Park, CA 95240
- 16 [unclear]

# STOP THE DIABLO CANYON NUCLEAR POWER PLANT

.....We the undersigned, as citizens of the State of California and ratepayers of the Pacific Gas and Electric Company, believe that the Nuclear Regulatory Commission and P.G. & E. should not allow the Diablo Canyon Nuclear Power Plant, in San Luis Obispo County, to go into operation. Nuclear Power is one of the most dangerous technologies known. ...it poses a grave risk to our health and safety, is a major contributing factor in the spread of nuclear weapons, it is a threat to our civil liberties, and an economically unviable way of generating electricity. Diablo Canyon is in violation of the spirit of the California Nuclear Safeguards Laws regarding the safe disposal of nuclear waste.

NAME

ADDRESS

CITY

ZIP

(Please Print. Clearly)

- 1/ Kelly Edwards 170 Lundy Ln SF CA 94110
- 2/ L. J. Jacobs 727 60th St Oak
- 3/ Georgia Schumacher 1714 Francisco St 94703
- 4/ Len Edmiston 1780 University Ave. Berk 94703
- 5/ Nancy Bowen 6169 Harvard Ave. Oakland 94618
- 6/ Cynthia Brown RN 4673 7th St Oakland CA 94612
- 7/ Rose Nichols 2965 Ashby Ave Berkeley CA 94705
- 8/ Jean Day 653 Mulwood - Liv. Calif 94550
- 9/ Susan Hewitt 2228 Coronet Rd. San Jose Calif
- 10/ Hillie Sale 13139 Diorix Dr. Mt. View, Ca 94039
- 11/ David Beaton 401 Circle Drive #206 LA CA 90024
- 12/ Pat Bowen 111 Cypress alley S.F., CA. 94116
- 13/ Carole Steinson 1442 Wendell Ln Pleasant Hill CA 94523
- 14/ Mallory Smith 306 Main St. Martinez, Ca 94553
- 15/ M. M. Anderson 1531 9th Ave S.F. 94122
- 16/ Friedrich De Cost 1763 9th Ave S.F. 94122

STOP THE DIABLO CANYON NUCLEAR POWER PLANT

...We the undersigned, as citizens of the State of California and  
 taxpayers of the Pacific Gas and Electric Company, believe that the  
 Nuclear Regulatory Commission and P.G. & E. should not allow the Diablo  
 Canyon Nuclear Power Plant, in San Luis Obispo County, to go into Oper-  
 ation. Nuclear Power is one of the most dangerous technologies known.  
 It poses a grave risk to our health and safety, is a major contri-  
 buting factor in the spread of nuclear weapons, it is a threat to our  
 civil liberties, and an economically unviable way of generating elec-  
 tricity. Diablo Canyon is in violation of the spirit of the California  
 Nuclear Safeguards Laws regarding the safe disposal of nuclear waste.

NAME                      ADDRESS                      CITY                      ZIP

(Please Print Clearly)

Rick DeLoe 1763 9th Ave SF 94122  
 Mission Wainwright 6000 Colton Blvd. Box 565 Santa Cruz CA 95064  
 Bob Calson 177 Bayside Road, Apt 9 Arcata Ca 95521  
 Don Byrd P.O. Box 945, Arcata, CA 95521  
 John Lutz 833 Loring Ave. Crockett, Ca 94525  
 Delia A. Dempsey 8A Cordova St SF 94110  
 John F. Padilla 709 Santa Rosa Ave Oakland Ca 94616  
 Irving Fromer 229 Rhonda Way Mill Valley 94941  
 Patricia Shinn (8th) Berkeley Way Berkeley 94703  
 Linda Hester 1761 Montross Dr - Oakland Ca 94612  
 Carol Althamer 3540 Shattuck Ave Berkeley Ca 94705  
 Ted Klaman 3171 Noriega St SF. CA 94122  
 Dawn Matheny 2159 6th St Livermore 94550  
 Charles Emert 3041 Dealan St Berkeley 94705  
 Michael Moley 1619 BLAKE BERKELEY 94703  
 Sharon Paulson 1619 BLAKE BERKELEY 94703

STOP THE DIABLO CANYON NUCLEAR POWER PLANT

....We the undersigned, as citizens of the State of California and ratepayers of the Pacific Gas and Electric Company, believe that the Nuclear Regulatory Commission and P.G. & E. should not allow the Diablo Canyon Nuclear Power Plant, in San Luis Obispo County, to go into Operation. Nuclear Power is one of the most dangerous technologies known... it poses a grave risk to our health and safety, is a major contributing factor in the spread of nuclear weapons, it is a threat to our civil liberties, and an economically unviable way of generating electricity. Diablo Canyon is in violation of the spirit of the California Nuclear Safeguards Laws regarding the safe disposal of nuclear waste.

<u>NAME</u>	<u>ADDRESS</u>	<u>CITY</u>	<u>ZIP</u>
	(Please Print Clearly)		- 94122
1 John O'Brien	1277 3rd Ave.	San Francisco	
2 Tony Papp	208 Lumber	Lomb. Calif	95060
3 Evin Johnson	9900 Pescadero Rd	Loma Mar	94021
4 Davis Shields	994 Grizzly Peak Blvd	Berkeley	94708
5 Carol Marshall	275 Santa Fe Dr.	Walnut Creek	94594
6 Karen Hecht	1825 Berkeley Way	Berkeley	94703
7 Robert Rixler	404 SERRAIGHT AVE	San Jose, Ca	95062
8 Susan Lambert	2310 Cherry St.	Berkeley	94705
9 Marilee M... ..	100 Riverside Dr	SF	94133
10 Ann Lee	125 B... .. Dr	SF	94133
11 Eric J... ..	1125 4th St	San Francisco	94114
12 Christina... ..	17790 Harbor Drive	San Francisco	94150
13 Eileen H. Stern	1917 Hayes	San Francisco	94117
14 Susan... ..	401 5th St	San Francisco	94112
15 ... ..	1221 ... ..	San Francisco	94114
16 ... ..	277 ... ..	San Francisco	94117

STOP THE DIABLO CANYON NUCLEAR POWER PLANT

.....We the undersigned, as citizens of the State of California and ratepayers of the Pacific Gas and Electric Company, believe that the Nuclear Regulatory Commission and P.G. & E. should not allow the Diablo Canyon Nuclear Power Plant, in San Luis Obispo County, to go into Operation. Nuclear Power is one of the most dangerous technologies known. ...it poses a grave risk to our health and safety, is a major contributing factor in the spread of nuclear weapons, it is a threat to our civil liberties; and an economically unviable way of generating electricity. Diablo Canyon is in violation of the spirit of the California Nuclear Safeguards Laws regarding the safe disposal of nuclear waste.

NAME

ADDRESS

CITY

ZIP

(Please Print Clearly)

- 1 Nelson Z. Mauld 5915 Keith St Oakland CA 94618
- 2 Nancy V. V. 1865 Divisadero St #4 SF CA 94117
- 3 Janet Demenickoff 152 17th Ave SF Ca. 94121
- 4 Kathleen Kasper 45 10th Ave San Francisco CA 94117
- 5 Barbara Green 40 STEINER ST SF CA 94117
- 6 Brenda Wright 2625 - 7th St Berkeley CA 94708
- 7 " " " " " " " " " " " "
- 8 Mr. " " " " " " " " " " " "
- 9 " " " " " " " " " " " "
- 10 Mark H. " " " " " " " " " " " "
- 11 " " " " " " " " " " " "
- 12 " " " " " " " " " " " "
- 13 SUSAN WATMAN 4326 PAVANTHER ST CA 94611
- 14 " " " " " " " " " " " "
- 15 " " " " " " " " " " " "
- 16 Chuck " " " " " " " " " " " "

STOP THE DIABLO CANYON NUCLEAR POWER PLANT

.....We the undersigned, as citizens of the State of California and ratepayers of the Pacific Gas and Electric Company, believe that the Nuclear Regulatory Commission and P.G. & E. should not allow the Diablo Canyon Nuclear Power Plant, in San Luis Obispo County, to go into Operation. Nuclear Power is one of the most dangerous technologies known.. ...it poses a grave risk to our health and safety, is a major contributing factor in the spread of nuclear weapons, it is a threat to our civil liberties, and an economically unviable way of generating electricity. Diablo Canyon is in violation of the spirit of the California Nuclear Safeguards Laws regarding the safe disposal of nuclear waste.

NAME                      ADDRESS                      CITY                      ZIP

(Please Print Clearly)

- 1 Walter Harrigan 5589 Wilcox St. S.F. 95472
- 2 John A. ... 9575 ... Lane ... 94701
- 3 David R. ... 2170 ... St. ... 94717
- 4 John W. ... 2100 ... St. ... 94701
- 5 Lawrence Goldfarb 26 Alameda St. SF CA 94117
- 6 Robert ... 6356 22nd St SF CA 94117
- 7 Richard ... 3350 22nd St SF CA 94117
- 8 Chas McAttee III 1920 Fell St. # 11 SF CA - 94117
- 9 John & Mitchell 1934 Berkeley Hills Berkeley 94701
- 10 Mr & Mrs ... 1700 Stanford Dr. ...
- 11 ... 1700 ... Berkeley ...
- 12 ... L. ... 249 Mullen S.F. ... 94110
- 13 Jean Taylor 4126 Ravenswood Castroville 94546
- 14 Barney and Yesta 201 Bush #405 St. 94105
- 15 Chas Crumpley 16464 Shady ... San Jose 95130
- 16 ... 1700 ... San Jose 95105

STOP THE DIABLO CANYON NUCLEAR POWER PLANT

.....We the undersigned, as citizens of the State of California and ratepayers of the Pacific Gas and Electric Company, believe that the Nuclear Regulatory Commission and P.G. & E. should not allow the Diablo Canyon Nuclear Power Plant, in San Luis Obispo County, to go into Operation. Nuclear Power is one of the most dangerous technologies known. ....it poses a grave risk to our health and safety, is a major contributing factor in the spread of nuclear weapons, it is a threat to our civil liberties, and an economically unviable way of generating electricity. Diablo Canyon is in violation of the spirit of the California Nuclear Safeguards Laws regarding the safe disposal of nuclear waste.

NAME                      ADDRESS                      CITY                      ZIP

(Please Print Clearly)

- 1 \_\_\_\_\_
- 2 Sharon Linnick 255-22nd St SF CA 94112
- 3 \_\_\_\_\_ Dogman Dr. Santa Cruz Calif 95060
- 4 \_\_\_\_\_ 1157 Avenue BERKELEY CA 94707
- 5 Tom Miller \_\_\_\_\_ Calif. 94017
- 6 \_\_\_\_\_
- 7 Peter König 69 Hill St. SF. Cal.
- 8 DuCoy 924 23rd St Santa Monica CA 90402
- 9 Bernadette Zivick 54 Washington St. <sup>Santa</sup> Cruz, Calif 95060
- 10 SKDuan Box 117 Rutherford cal. 94573
- 11 O'Neil 2259 Cedar #1 Berkeley 94709
- 12 Burr Overstreet 48 Hickory Rd. Fairfax Ca. 94930
- 13 Linda Loney 1703 Woolsey St. Berkeley CA 94703
- 14 Lora Huise 1352 Linda Mar Pacifica 94044
- 15 \_\_\_\_\_ 1352 Linda Mar Pacifica 94044
- 16 Steve Kasper 29 Goree Ct. Martinez 94532

STOP THE DIABLO CANYON NUCLEAR POWER PLANT

.....We the undersigned, as citizens of the State of California and ratepayers of the Pacific Gas and Electric Company, believe that the Nuclear Regulatory Commission and P.G. & E. should not allow the Diablo Canyon Nuclear Power Plant, in San Luis Obispo County, to go into operation. Nuclear Power is one of the most dangerous technologies known. ...it poses a grave risk to our health and safety, is a major contributing factor in the spread of nuclear weapons, it is a threat to our civil liberties, and an economically unviable way of generating electricity. Diablo Canyon is in violation of the spirit of the California Nuclear Safeguards Laws regarding the safe disposal of nuclear waste.

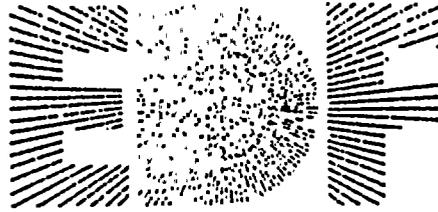
NAME                      ADDRESS                      CITY                      ZIP

(Please Print Clearly)

- 1 Dahlia Rudavsky 2976 Folsom St SF 94110
- 2 Catherine E. Mc Carthy 474 Nelson Ave #109 Berkeley Ca 94706
- 3 Samuel J. Calverton 731 Santa Fe Ave Albany Ca 94706 94707
- 4 Kris Rudley 731 Santa Fe Ave Albany, Calif 94706
- 5 Chia Alice Ann Hill Quincy Ca 94971
- 6 Marianne Anne Owen 1512 Cl... Ct Berkeley, CA 94709
- 7 Cara F. Hill 1865 Euclid #22 Berkeley, CA 94709
- 8 Patti Murrell 3024 Frank St Oakland Ca 94611
- 9 Israel M. Cerny 2465 - alpin St., Mendocino P.O. Co. 94623
- 10 Walter Adams 4021 Berkeley Ave Oakland Ca 94610
- 11 MARCI HARD 1617 ANNETTA DRIVE, PETHLINDIA CA 94950
- 12 Laura M. Owen 30 E. ... St San Francisco 94110
- 13 Ruby Doty 661 Alcatraz, Oakland, Ca 94607
- 14 PAT SCHNEID 3191 WASH ST PLEASANTON CA 94566
- 15 Bill Zimmert 21695 Felton Berkeley CA 94704
- 16 Colleen K... 2140 ... Ave 201 ... CA 94703







DOCKET NUMBER  
PROD. & UTIL. FAC. 50-275,323

February 27, 1980

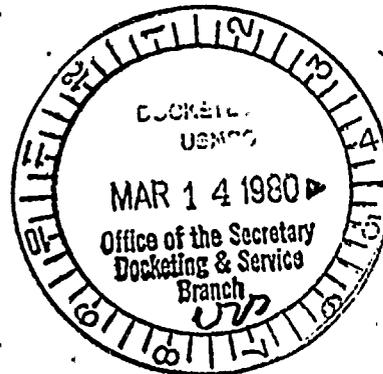
MEMORANDUM

TO: Interested Persons

FROM: David Roe

The enclosed, from the Los Angeles Times, is an extensive analysis of utility financial problems, aggravated by commitment to large coal and nuclear power plants. The potential benefits of alternatives are also discussed.

DBR:jg





# Stalled Nuclear Plant: PG&E Feels Powerless

## 14-Year, \$1.6 Billion Investment Is Symbol of Critical Squeeze on Nation's Electric Utilities

Los Angeles Times  
**Business**  
 PART VI  
 SUNDAY, FEBRUARY 24, 1980

*Electricity for the '80s: Where will it come from? How much will it cost? Will there be enough? These are difficult questions at a time when nuclear power has fallen from favor and many other electricity sources seem too expensive or pollution prone, or both. This is the fourth and final article in an intermittent series on the extent of the problem and California's potentially pathfinding role in efforts to solve it.*

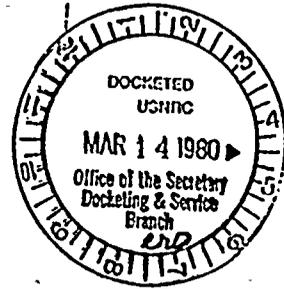
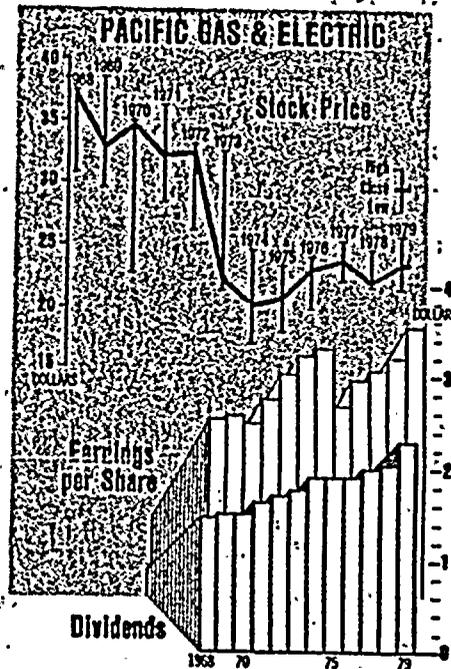
By TOM REDBURN  
 Times Staff Writer

SAN FRANCISCO—After more than 14 years and \$1.6 billion invested in the Diablo Canyon nuclear power plant, there is nothing much that executives of Pacific Gas & Electric Co. can do now but wait. And wait.

Ever since PG&E acknowledged, in 1973, the existence of a major earthquake fault close to the facility, Diablo Canyon has been at the center of controversy. The debate over the plant's safety delayed its start-up. Then, in reaction to last March's Three Mile Island accident, the Nuclear Regulatory Commission imposed a general licensing moratorium on all new nuclear plants. The moratorium will continue, many observers believe, at least until after the November election. This will delay even further a resolution of the safety issue at Diablo Canyon.

"Every month the cost of Diablo Canyon, from the financing charges alone, goes up \$10 million," said Stanley Skinner, a PG&E executive vice president. "In the end, our customers will be the ones who pay that bill."

Until the plant is operating, however, PG&E pays the bills. A refusal by the NRC to issue an operating license for the nuclear facility, unlikely as that may be, would plunge PG&E into the greatest crisis in its 100-year history.





If PG&E were forced to write off its entire investment in Diablo Canyon overnight, its common stockholders' equity of about \$3.3 billion would be slashed by 50%. The company, according to a PUC staff report to the California Energy Commission, would barely generate enough cash to cover its dividend and debt payments. PG&E would not be able to continue a 15-year, \$20 billion construction program.

"It would be a case of extreme financial distress," said Ray Czahr, one of the Public Utilities Commission's chief financial examiners. "PG&E's only real alternative would be to drastically reduce its construction program . . . The major forecasted expenditures for a large number of additional supply projects would have to be substantially reduced, if not eliminated, over the forecasted period 1980-1993."

PG&E officials argue, that since state regulators approved the plant back in the late 60s, the only realistic option in the event Diablo Canyon never operates would be to include the cost in electricity rates spread out over a long period of time.

None of the other choices is any less bleak for consumers. Even if PG&E could rapidly build two so-called combined cycle plants, designed to run on oil or natural gas, the price the company charges for electricity would still jump substantially. And if the PUC allowed the company to include the unusable Diablo Canyon plant in its

rate base—thus violating present policy—prices would increase even more.

The PUC staff estimates that with Diablo Canyon operating normally, average electricity rates would increase from about 4.6 cents per kilowatt/hour in 1980 to 6.5 cents in 1985. Allowing PG&E to charge customers for the costs of the unused nuclear facility would boost rates to 5 cents per kilowatt hour this year and to 7.6 cents by 1985.

Although that difference seems small, it translates into hundreds of millions of dollars in additional expense for PG&E's customers.

Nor would excluding Diablo Canyon from the company's rate base shelter Northern California from big runups in electricity costs. (PG&E serves over 4.9 million people in California north of the Tehachaps but does not operate in Southern California.)

A financially weakened PG&E would have to pay much higher interest rates for borrowed money, thus increasing its costs and eventually, its rates.

PG&E is not alone in its precarious situation. Roughly \$50 billion has been invested by the nation's utilities in uncompleted nuclear power plants. "It is quite likely," Harvard energy experts Robert Stobaugh and Daniel Yergin recently wrote, "that some of the 90 or so (nuclear plants) in various stages of planning and construction will never operate."

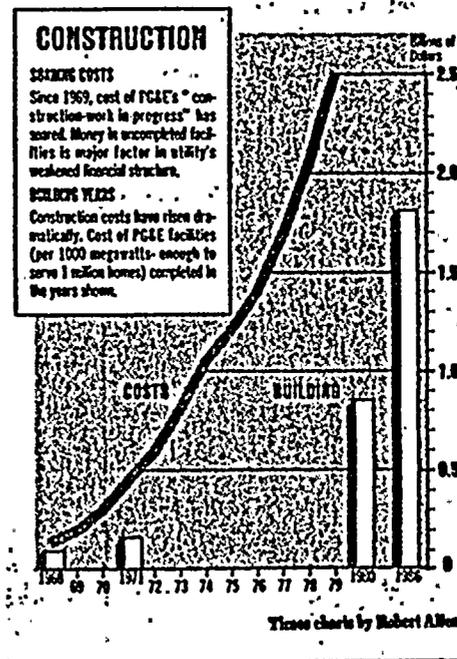
Sitting useless on the coast near San Luis Obispo, Diablo Canyon is only the most visible symptom of an underlying illness which plagues not only PG&E but the entire industry. The electric utilities have lost control of their own destiny.

Diablo Canyon is so important to PG&E that executives have made winning a NRC license for the plant the company's No. 1 corporate goal. Yet so sensitive is the issue that company officials are reluctant to discuss the possibility that the 2,200 megawatt nuclear plant may never operate.

Behind PG&E's public wall of unanimity, however, an internal debate rages. The issue is not Diablo Canyon itself, but how to avoid in the future the endless and costly delays that plague any kind of power project and which threaten to undermine PG&E's entire investment program.

"Building a new power plant is a billion-dollar gamble based on uncertain information about the future," said Andrew Ford, a researcher at the Los Alamos Scientific Laboratory. "There is no way to entirely eliminate the risk.

Please Turn to Page 2, Col. 1





# Stalled Nuclear Plant: PG&E Feels Powerless

Continued from First Page

yet making the wrong choice can lead to devastating consequences."

PG&E is one of the strongest electric utilities in the nation. Yet from interviews with company executives, government officials, financial analysts and others, it is clear that the San Francisco-based utility simply cannot afford another experience like Diablo Canyon.

The debate over how to survive the future has split PG&E down the middle. Traditionally, PG&E has been run by its engineers, who built the company into the largest privately owned energy utility in the United States during a period when electricity was cheap to produce and demand for

power grew at a rapid, predictable rate of about 7% to 8% a year.

Today, the viewpoint of the engineers, from whose ranks president Barton Shackelford came, continues to exert a powerful influence over the company's operations. PG&E has no choice over the rest of the century, advocates of this point of view contend, but to rely primarily on about a dozen new, large baseload power plants—both coal and nuclear—to meet its own projections of rising demand and replace some existing oil-fired power plants.

Another viewpoint, however, is gradually emerging inside PG&E, coming mostly from lawyers and financial experts, from whose ranks chairman Frederick W. Mielke Jr. rose. From this viewpoint, PG&E can no longer be sure that what worked in the past will continue to work in the future.

These officials are not convinced that the alternative technologies recommended by industry critics will solve their problems. They still hold out hope for a nuclear power resurgence. Nevertheless, the increasing financial hazards of traditional big

power plant construction programs is leading to a questioning of the engineering strategy. And within PG&E, it is argued that pressure from regulators, environmentalists and others requires the utility to adapt to changing circumstances, particularly by trying to control demand for electricity and by developing strategies to reduce the risks of relying so heavily on the traditional technologies.

Mielke, the chairman, said there is no fundamental rift at PG&E but adds that the difficult problems facing the company have led to some major changes in decision making.

"There are so many more uncertainties today than there ever were in the past," Mielke said. "There are

great uncertainties as to what growth will be, great questions about costs, yet we are faced with decisions that require much bigger investments than we used to make. We have had to systemize our decision making far more than before."

"PG&E is in a box," contends Irvin C. Bupp, a utility industry expert from the Harvard Business School, and one of the authors of the recent book, "Energy Future." "They cannot continue with business as usual without drastic rate increases on the order of 25% per year higher than historical increases. That is both so undesirable and so unlikely that some of the company's executives are beginning to recognize the dilemma the company faces."

There are several indications that PG&E is reexamining its original plans. For instance:

—Last month, PG&E announced it would delay the application for its first proposed coal units, Montezuma 1 and 2, in favor of a three-month study of energy alternatives, including increased conservation, power plants which could run on different fuels, industrial cogeneration, and

building smaller rather than larger coal facilities.

—Late last year, Mason Willrich, a lawyer who has written a book with nuclear scientist Theodore Taylor on the dangers of nuclear proliferation, was hired to fill a new post as vice president for corporate planning. Willrich's appointment raised eyebrows both inside and outside PG&E, for he brings a new outlook to a company that has not brought an outsider into such an important position in decades.

—In 1978, when the California Supreme Court said the PUC could not require utilities to offer 8% loans to customers for home insulation purchases, PG&E, unlike some other utilities, said it wanted to continue to offer the below-market loans anyway. (The state Legislature last year gave the PUC expanded powers to require energy-efficiency investments.)

—In September, when PG&E submitted its latest supply plan, the company substantially increased its proposed development of cogeneration, an energy-saving method of producing useful heat and electricity at industry sites. It also included plans for expanding use of load management during periods of peak demand as well as accelerating development of solar heating and wind power. All such measures tend to reduce the need for new central power plants.

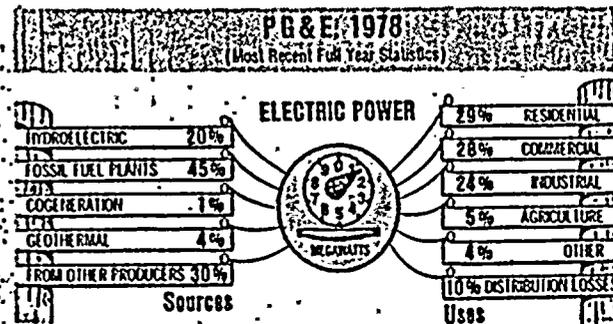
"I'm very encouraged by the

changes at PG&E," said John Bryson, president of the PUC and one of the key individuals in state government pushing to improve energy efficiency and develop new energy sources. "I think some of the people in top management are recognizing the risks of the traditional methods and the financial advantages of investing in improved energy efficiency."

None of these has been easy for PG&E. It has not moved in this new direction without tough prodding from the PUC, nor have its executives given up their serious trepidations.

"A utility is different from any other business," said Nolan Dalnes, PG&E's vice president for planning and research, "and I'm not sure most people understand that. We are required to serve the entire market whether it is to our advantage or not. At the same time, we have a product that cannot be stored, yet we have to be ready at any moment to meet demand. In planning for electricity supplies, we can't afford to come up short."

So far PG&E hasn't come up short. But its reserve margins have dipped to dangerously low levels at peak periods in recent years. There is an





Intense fear within the company that because it is so dependent on hydro-power, an unusually dry winter and hot summer could combine to force unexpected blackouts on its customers.

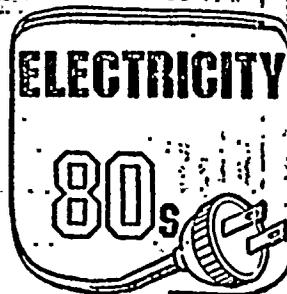
Even this potential disaster pales in comparison, however, with the accumulation of problems that PG&E, like the electric power industry nationwide, confronts today. "The electric power industry has difficulties that threaten to shake the foundations of the nation's economy," wrote Sheldon Novick in "The Electric War." "Economic realities have changed, and the new high prices of fuel and capital, which seem to be permanent features on the landscape of the next few years, may mean that the central-station monopolies are traveling the course of rail passenger service—a necessary service that becomes increasingly unprofitable as competitors absorb the more lucrative industrial business. The utilities' long fight against public ownership may end in defeat—through receivership, as in the case of Penn Central, rather than

socialism—unless the power companies take aggressive action to adapt themselves to changing conditions."

When Novick wrote that in 1976, he detected almost no sign of adaptation. Indeed, as their troubles have mounted, many PG&E officials have tended to blame everyone but themselves for the company's problems.

This is not to say that environmental restrictions and regulatory obstacles have not created serious problems. But many PG&E executives have simply blamed the industry's critics for the company's troubles, arguing if outsiders would get out of the way, the problems would disappear.

A 1979 best-selling novel by Arthur Hailey "Overload," which was written with the help of a PG&E public relations executive, provides a revealing glimpse at this attitude. In the novel, a mythical "Golden State Power & Light Co." is beset by an environmental group, the "Sequoia Club," which is secretly financing an irresponsible consumer advocate, who, in turn, is in league with a terrorist whose bombs kill company offi-

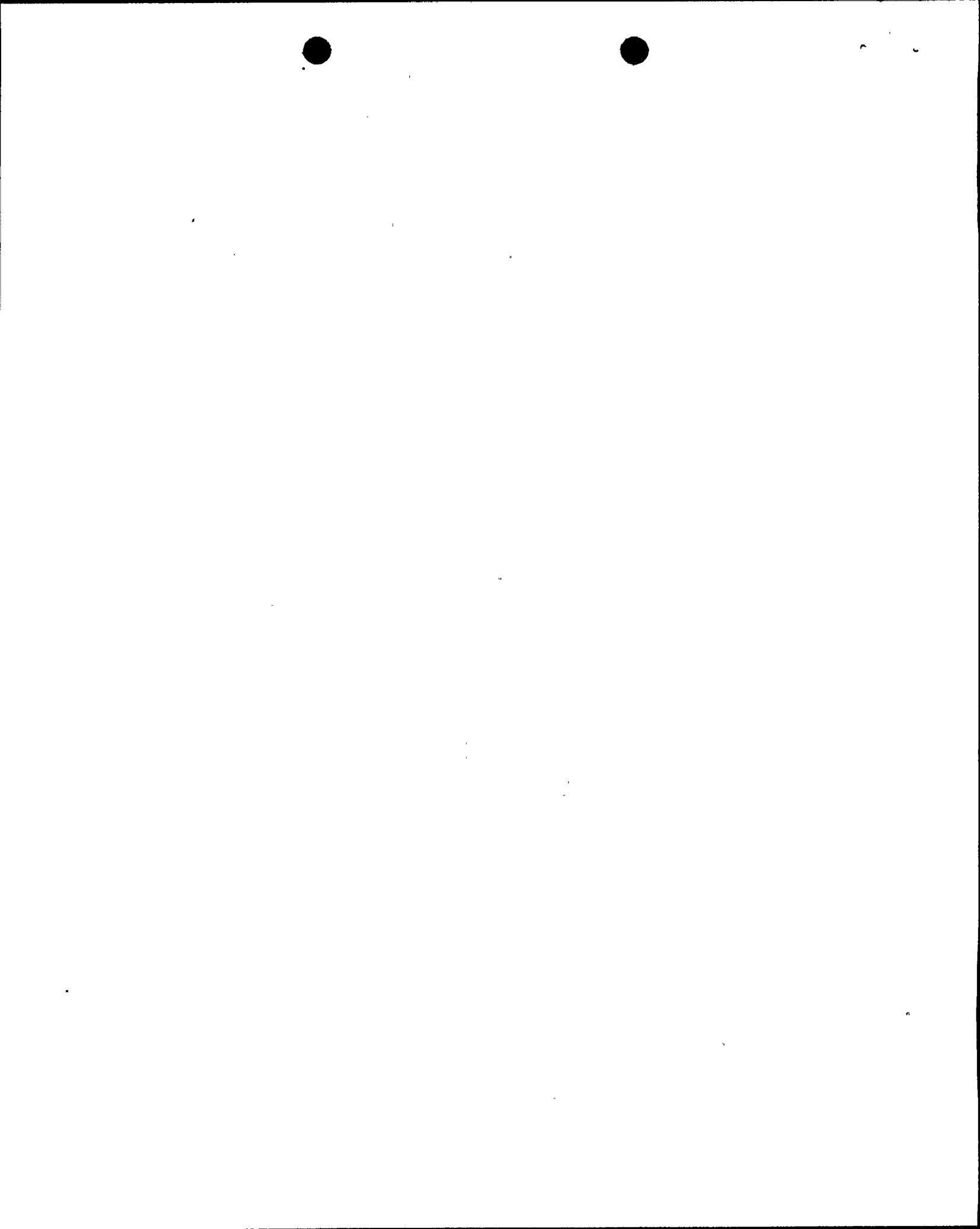


cial and create severe blackouts by destroying power equipment. When this far-reaching conspiracy is finally discovered by a reporter, opposition to GSP&L's power projects vanishes.

"Some of us were awfully disturbed by the implication in that book that the Sierra Club was involved with terrorists," said one PG&E official. "But I'm afraid that there are many people here who see the outside world that way."

It doesn't take a conspiracy theory, however, to account for PG&E's problems. But it is necessary to understand the power industry's tremendous past successes to recognize why it has faltered so badly in dealing with its present traumas.

For the first seven decades of the 20th century, real electricity prices  
Please Turn to Page 13, Col. 1



# PG&E's Nuclear Plant Still Stalled

Continued from Second Page

fell steadily, primarily because technological advances and advantages of scale from building larger power plants insured that each additional power project produced electricity at a lower cost than past facilities. And because electricity was seen as a undeniably useful product, growth in demand was taken for granted.

As utilities invested increasing sums to build new central stations and distribution systems, the size of their "rate base" grew along with it. Regulators simply permitted the utilities to earn a profit on that growing rate base, which meant that growth in sales assured growth in profits—without the need for higher rates to consumers.

Now all that has changed. Inflation has helped cause construction costs and borrowing expenses to soar, while the 1973 Arab oil embargo and the subsequent OPEC price hikes pushed energy costs through the roof. The U.S. utility industry, which had continued to order dozens of new power plants, mostly nuclear, in the early 1970s on the expectation that construction costs would be relatively stable and demand would continue to grow rapidly, was unpre-



pared for the turnaround. And most executives did not expect higher prices to measurably reduce electricity demand.

"Forecasting problems lie at the heart of the present crisis in the electric utility industry," said Edward Kahn, a utility expert at the University of California's Lawrence Berkeley Lab. "With long lead times for new supply and unforeseen drop in demand growth, many American utilities are caught in the midst of mammoth capital programs that may turn out to have been unnecessary."

Nuclear power plants were originally supposed to prevent this situation, by providing what utility officials thought would be a safe, cheap energy source that was not dependent on fossil fuels.

In PG&E, nuclear power is still preferred by both sides in the internal debate and the company is currently involved in a lawsuit against the Energy Commission to overturn the California laws restricting new nuclear development.

But the experience with Diablo Canyon has privately soured many company executives. "Being practical men," said one financial analyst for a Wall Street firm, "they recognize that it would take a fundamental shift in the political climate to make nuclear investment sound again. I can't believe they are prepared to go through another Diablo Canyon experience."

The slowdown in growth of electricity use has provided a welcome breathing spell for PG&E during the time that Diablo Canyon has been delayed. Yet its investors, while continuing to supply much of the money for new spending programs, are demanding higher and higher interest rates and dividend payments to compensate for the increased risk and deteriorating balance sheet.

Because electric utilities are the most capital intensive of all industries and are so heavily dependent on borrowing to finance new construction, investors' attitudes are critical.

Despite steady dividends and relatively good earnings, PG&E's stock price has fallen in the last decade from nearly \$40 per share and a price/earnings ratio of 15 to less than \$25 a share, with investors willing to pay only seven times annual earnings for its common stock. Instead of selling well above book value, as its stock did in the 1950s and 1960s, PG&E is now selling about 20% below book value, which means its existing shareholders' stake is substantially diluted each time the company issues more stock to raise capital.

Inflation, of course, has hurt many other companies in the stock market as well. But it has a particularly harmful effect on utilities like PG&E, which must now pay very high interest rates to borrow money over long periods of time, meaning that many new power plants end up costing nearly as much in interest payments as in actual construction expenses.

The quality of PG&E's earnings, the amount of internal cash flow, are at historic lows," said the PUC's Ray Czahr in recent testimony, "and this is directly attributable to the investment in Diablo Canyon. Considering that there is great uncertainty as to when and if the plant is included in the earnings base of PG&E by the PUC, additional expenditures on capital intensive projects, which require long lead times would only exacerbate PG&E's current financial position."

When Diablo Canyon was originally proposed—the first unit in 1966 and the second in 1968—the estimated cost was about \$320 million, or approximately \$147 for each kilowatt of installed capacity. In 1971, the estimate was re-

ady spent nearly \$1.7 billion and it will have to continue to pay the \$10 million a month borrowing charges until the plant is approved for operation.

In the meantime, the federal government has forbidden greater oil use by electric utilities and said it will ban the burning of natural gas in utility plants after 1990. Earlier this month, the U.S. Department of Energy notified PG&E that an oil-fired power plant that was on the drawing boards before the rules were imposed would not be permitted to be built. At the same time, the California Energy Commission has stopped any new nuclear units in the state and suggested that existing air quality rules will prevent PG&E from building more than one major coal plant in California.

"We've seen a tremendous buildup in the regulatory environment in a very short time," said Willrich, the new PG&E vice president. "There is no reason it should take 14 years to complete a power plant—but it does. In this environment, PG&E has to be extremely careful about any investment in a future power project."

From the testimony PG&E executives have given, it is clear that some officials are not particularly enthusiastic about huge coal plants as an alternative to nuclear power.

"The only alternative, other than nuclear, which is available, is coal," said Mielke, PG&E's chairman, in a deposition for the company's suit against the California Energy Commission. "It was our desire to avoid using coal

There are many more uncertainties now as to what will be required to get a coal-fired plant built in this state. (It is) something which has never been done, and (we must) meet a changing array of air pollution control requirements of very uncertain nature, and do so with technology that is not fully proven."

The Environmental Defense Fund, one of PG&E's critics, has proposed what it sees as a way out of this dilemma for the company. It has developed an economic analysis that suggests PG&E would be better off if it diverted nearly all its planned spending on big power plants to smaller projects which can be developed more quickly, such as cogeneration, and to investments by the utility to reduce demand, such as solar water heating and residential weatherization.

"We're not out to hurt PG&E," argued David Roe, EDF's West Coast counsel on utility issues, "we're out to help them and improve the environment at the same time. We want to help them recognize that investing in the demand side can be better than an exclusive focus on supply and

Please Turn to Page 15, Col. 1



## After 14 Years, PG&E's Nuclear Plant Is Still Stalled

Continued from 13th Page

that small, quickly-developed projects provide financial advantages the utility and its ratepayers can't get if it has to wait 10 years to bring any power plant on-line."

EDF, unlike most other environmental and consumer-activists, has never opposed utility involvement in home insulation and solar energy. "PG&E should be authorized to make a profit on those things just like it does when it builds a central-station power plant," Roe said. "That's the only way to insure that the most cost-effective investment is made."

The PUC has responded to this critique by conducting a wide-ranging investigation into PG&E's supply plan, one of the first such examinations ever by a regulatory agency in the United States.

In the first ruling to come out of that investigation, the PUC last year found that PG&E had not actively pursued cogeneration as a major supply option and imposed a \$7 million profit penalty against PG&E to induce greater cogeneration development.

Instead of appealing the decision, as it probably would have in the past, PG&E will attempt to meet the PUC's goal of contracting for 600 megawatts of new power from cogeneration within the next year or so. If successful, that would restore the lost profit to the company.

"Losing that money certainly got our attention," said Stanley Skinner, a PG&E executive vice president and the top financial man at the company. "But it also produced a lot of worries because cogeneration is not dependent just on our efforts but also requires the cooperation of others."

What worries some of PG&E's executives even more about cogeneration is that it analyzes industrial users, shopping centers and other large energy users to produce their own electricity instead of relying on the utility. "Why should we pay someone to compete with us?" questions one PG&E official.

But others see advantages to PG&E from cogeneration. "It may well be that (cogeneration and other untraditional power projects) are just as capital intensive," said Willrich, "but on the other hand the company could benefit from shifting some investment into different firms and not have to shoulder these tremendous costs itself."

Smaller projects that can be developed faster than traditional power plants are also viewed by some executives as a way to ease the company's financial squeeze. "It's a real broad generalization, of course, but as a rule the faster you get a return on investment, the greater financial advantage there is," said Skinner. "What we are exploring is the total context of whether the alternatives will ultimately produce the amount of generating resources in the time frame needed."

At the same time, the traditional industry trend toward building larger and larger generating units is being challenged within PG&E's executive offices.

"We are going to examine the whole assumption that big power plants are better," said Willrich. "Perhaps there are

some real financial gains from having units of 600 megawatts or less. A lot depends on the financial environment and a lot depends on the regulatory environment." At the present, PG&E's Montezuma coal plant is supposed to be built in 600-megawatt units. By comparison, Diablo Canyon's two nuclear units are about 1100 mw each, while PG&E's oil plants are generally smaller. (A 1000-megawatt plant will serve the needs of more than a million homes.)

A recent study by Los Alamos Lab's Andrew Ford supports the argument in favor of small coal units. "Because larger power plants cost less to build for each kilowatt of capacity, it is often thought that the trend towards larger power plants makes good economic sense," Ford wrote in a forthcoming article. "Economies of scale is not always sufficient to justify the choice of larger plants. Large plants suffer from reliability problems which can negate their apparent cost advantage. They also take longer to approve and construct, making demand forecasting and system planning more difficult. For many utilities, it may well be that a collection of smaller power plants would lead to a lower price of electricity for their customers and fewer planning headaches for their executives."

For the first time since statistics have been kept, the U.S. utility industry last year reversed the trend to larger units and ordered new plants that were somewhat smaller, on average, than those ordered the previous year.

That may have only been a temporary aberration, though, and the debate is certainly not settled. "There are still economies of scale but they will not permit us to lower rates as we once did," PG&E president Shackelford said. "They may not be as apparent as in the past but they are still there."

The PUC has followed up its PG&E investigation by an equally important study of solar energy financing which recommends that all of the state's utilities be required to finance cost-effective installation of solar water heaters in residences. Already, the PUC found, it is cheaper to reduce electricity demand by replacing electric water heaters with solar units than it would be to finance a new power plant to produce more electricity. And solar water heat is nearing the competitive point with natural gas as well, given the dramatic and continuing natural gas price hikes of recent months.

Moving in this direction is not likely to eliminate the need for every new baseload power plant, even under the best of circumstances. But many of these profound changes may well have to work their way inside utilities like PG&E if the industry is ever going to be restored to economic vitality.

As it stands today, PG&E plans to nearly double its existing capacity of about 15,000 megawatts by 1996, a goal company officials admit may be impossible to achieve.

About 75% of the capacity additions are supposed to be coal and nuclear facilities, with the largest chunk of other

power coming from PG&E's innovative geothermal project in the Geysers area north of San Francisco.

But, recently the company has significantly increased the amount of generating capacity it expects to get from cogeneration and small hydro and wind projects to more than 1,000 megawatts by 1990.

Even more significantly, new policy directions from the PUC suggest that PG&E will become much more active in limiting peak demand by financing home insulation, load-management devices and other decentralized technologies to help avoid the need for massive commitments to big power projects.

"We don't really see any difference in objectives between PG&E and the PUC," PG&E's chairman, Fred Mielke, said. "We are trying to maximize conservation in every way and we are encouraging our people to be innovative. Any supply policy now depends on that."

If these new directions prove successful, analysts and energy officials say PG&E may need less than half as many power plants, with the gap being filled by improved energy efficiency and smaller generating units, such as cogeneration facilities. If they are not particularly successful, PG&E and its customers will be faced with a real crunch.

"I would like to see a whole lot more cooperation among utility managers, regulators and environmental groups in dealing with the profound problems of the utility industry," said Harvard's Chip Bupp. "The whole planning process needs to be inverted and demand can no longer be treated as something that has a life of its own. The risk of having too much or the wrong kind of capacity has simply become too great for that old system to continue."

"PG&E and the other California utilities are among the few utilities actually grappling with these problems, but the rest of the industry is going to have to start soon. Otherwise, the situation for all of us is going to get worse and worse."

