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SUBJECT: "Second Quarter 1993 Rept on Discharge at Diablo Canyon Power Plant." W/930720 ltr.

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Pacific Gas and Electric Company

Diablo Canyon Power Plant
P.O. Box 56
Avila Beach, CA 93424
805/545-6000

John D. Townsend
Vice President-Diablo Canyon
Operations and Plant Manager

July 20, 1993

PG&E Letter No. DCL-93-180



Mr. William Leonard, Executive Officer
California Regional Water Quality Control Board
Central Coast Region
81 Higuera Street, Suite 200
San Luis Obispo, California 93401-5414

Dear Mr. Leonard:

Discharge Monitoring and Reporting Program
Diablo Canyon Power Plant -- NPDES No. CA0003751

The report on discharge monitoring at Diablo Canyon Power Plant for the second quarter of 1993 is enclosed, in accordance with Order 90-09, NPDES No. CA0003751.

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. The results of the influent and effluent monitoring presented are the observed results of the measurements and analyses required by the monitoring program, and is neither an assertion of the adequacy of any instrument reading or analytical result, nor an endorsement of the appropriateness of any analytical or measurement procedure. I am aware that there are significant penalties for submitting false information including the possibility of fine and imprisonment for knowing violations.

If you have any questions, please contact Thomas C. Wilson at (805) 545-4439.

Sincerely,

A handwritten signature in cursive script that reads 'John D. Townsend for'.

John D. Townsend

Enclosure

6175S/85K/BJB/1536

9307280107 930630
PDR ADDCK 05000275
R PDR



JE23 / 1

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cc: Chief, Environmental Services Division
California Department of Fish and Game
Resources Building
1416 Ninth Street
Sacramento, California 95814



Regional Administrator, Region 9
U. S. Environmental Protection Agency
75 Hawthorne Street
San Francisco, California 94105
Attention: Carey Houk (W-5-3)

Regional Administrator
U. S. Nuclear Regulatory Commission
Region 5
1450 Maria Lane, Suite 210
Walnut Creek, California 94596-5368

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Washington, DC 20555

Chief, Marine Resources Division
California Department of Fish and Game
Resources Building
1416 Ninth Street
Sacramento, California 95814

Enclosure

6175S/85K/BJB/1536



Handwritten marks or scribbles in the top right corner.

PACIFIC GAS AND ELECTRIC COMPANY

NUCLEAR POWER GENERATION

Second Quarter 1993

**REPORT ON
DISCHARGE MONITORING AT
DIABLO CANYON POWER PLANT**

(NPDES No. CA0003751)

National Pollutant Discharge Elimination System

....9307280107



PACIFIC GAS AND ELECTRIC COMPANY

Second Quarter 1993

REPORT ON DISCHARGE MONITORING AT
DIABLO CANYON POWER PLANT

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OVERVIEW

- A. During the second quarter of 1993, discharges occurred from Discharge Paths 001 (once through cooling water), 001B, 001D, 001E, 001F, 001G, 001H, 001J, 001L, 001M, 001N, 001P, and 002 through 016. No discharges occurred from Discharge Paths 001I, 001K, and 017. A list of all of the permit discharge pathways, including name and number, is shown in Appendix 1.
- B. On May 7, 1993, maintenance was performed at the Intake Structure on valves associated with the Biolab seawater supply system. Work on the valve was completed and the system was returned to service to check its performance. Meanwhile, work on the Biolab Discharge piping, Discharge 004, had been initiated downstream of the work at the Intake Structure and Biolab. The work was not properly scheduled and coordinated with the work at the Intake Structure. The additional work involved disconnecting the drain piping between the Biolab and the Intake Cove. When the system was returned to service, seawater exited the piping where it was disconnected and emptied onto the ground. The water caused erosion of the surrounding area and eventually drained into the Intake Cove at Discharge 004. Approximately 2 cubic yards of soil was carried into the Intake Cove, resulting in discoloration of a portion of the cove.

The Regional Water Quality Control Board Staff was notified of the incident on May 7, 1993. The Staff requested that the incident be described in the next routine quarterly report.

An investigation is being performed to determine why routine work coordination procedures were not effective in preventing this incident. The results of this investigation will be reported in the 3rd Quarter 1993 Report on Discharge Monitoring.

- C. During the months of May and June, 1993, the Sanitary Wastewater Treatment System, Discharge 001N, experienced higher than normal Oil & Grease (O&G) concentrations in the effluent. The daily maximum limit of 20 mg/l was exceeded on May 7, and June 3. The O&G concentration on May 7 was 94 mg/l, and on June 3 was 34 mg/l. In addition, the 30-day average of 15 mg/l was exceeded in May. The 30-day average concentration reported for O&G in May was 29 mg/l. The effluent O&G concentration has been within permit limits since June 16. The routine weekly samples are based upon 3 samples grabbed at different times during a system decant cycle. The average of the 3 samples is reported for the sampling period.

The RWQCB Staff was notified of Discharge 001N effluent O&G concentration increases on June 10, 1993.

An investigation is being performed to determine what is causing the higher than normal O&G concentrations. Listed below are some of the investigative and corrective actions being pursued:

1. A memo has been distributed to plant personnel making them aware of the current situation. Personnel are being asked to report any conditions that may be contributing O&G to the plant's sewage system.



2. The disposal practices of and the effluent from DCP's cafeteria are being reviewed to determine if any recent changes may be contributing more than normal O&G, such as the cleaning frequency of the kitchen's grease trap.
3. The sewage treatment system's air blowers are being adjusted to help collect incoming O&G in the pre-react tank. This should allow accumulated material to be removed by a vacuum truck. The system was not originally designed to treat or remove O&G from incoming sources. The effectiveness of this adjustment to the system is not yet known.
4. For samples that exceed system limits, further analyses are being performed to help determine the nature of the oil and/or grease to help focus the investigations that are taking place.
5. The sample frequency of the system effluent was increased from 1/week to 3/week on June 22, and will continue until the effluent quality returns to normal.

Refer to Appendices 3 and 4, page (M)2 for the O&G concentrations in Discharge 001N. Further information about corrective actions and findings will be reported in the 1993 third quarter NPDES report.

- D. Between June 17 at 1200 hours and June 18 at 1200 hours, the sodium hypochlorite/sodium bromide injection cycles (a total of 8) for the Unit 1 Circulating Water Pump (CWP) tunnels were not monitored. The cause was determined to be a faulty probe in the Orion 1770 Analyzer used at the Discharge Structure. The analyzer's response appears to have started degrading on the previous day, and then dropped off completely. After this condition was discovered, attempts to calibrate the instrument using the faulty probe were unsuccessful, and revealed that the instrument's response varied when the probe's electrical leads were moved. A new probe and O-ring were installed and recalibrated successfully.

The sodium hypochlorite and sodium bromide injection flowrates before and after this incident were identical. In addition, Total Residual Chlorine (TRC) concentrations before and after the unmonitored period (including the time when the analyzer's response had degraded) were within permit limits. Therefore, PG&E believes that the TRC concentration during the unmonitored and degraded monitoring period was within permit limits.

- E. In all cases, chemical, radiochemical, and toxicity analyses were performed in accordance with chemical analysis procedures contained in the Diablo Canyon Power Plant, Units 1 and 2 Plant Manual, Volume 8, by State approved laboratories, or laboratories meeting the requirements specified in the California Regional Water Quality Control Board Central Coast Region: "Standard Provisions and Reporting Requirements" dated January 25, 1985. Receiving water monitoring was performed in accordance with approved biological and oceanographic procedures.



SUMMARY OF MONITORING PROGRAM

A. Monitoring of Plant Influent and Effluent

1. The results of the April, May and June plant influent and effluent monitoring are reported in Appendices 2, 3, and 4 respectively.
2. Results from one acute bioassay on water sampled from Discharge 001, performed April 5, 1993, are included in Appendix 5.
3. Results from one chronic bioassay performed April 20 and 21, 1993, on water sampled from Discharge 001 are included in Appendix 6. This quarterly chronic toxicity bioassay was conducted in accordance with the 1990 California Ocean Plan.
4. Listed below are the detection limits used for plant effluent analyses performed during the quarter:

<u>Parameter</u>	<u>Detection Limit</u>
Oil & Grease	3 mg/l
Total Residual Chlorine	0.001 mg/l
Suspended Solids	1 mg/l
Settleable Solids	0.1 ml/l
Ammonia (N)	0.08 mg/l
Metals (chelation extraction)	
Chromium	0.005 mg/l
Copper	0.003 mg/l
Nickel	0.003 mg/l
Zinc	0.001 mg/l

5. Each of the Appendices 2 through 4 contain additional laboratory results located after the normal Q2 forms that were used to develop "average" values reported on the Q2 forms. This information is provided to ensure that all analytical data is reported "uncensored."

Normally, the additional data will included results for analyses performed several times in one day, such as Total Residual Chlorine, for which an average value is reported on the Q2 form.

B. Monitoring of Receiving Waters

1. Ecological Studies at Diablo Canyon

Ecological studies in the vicinity of Diablo Cove conducted during the second quarter,



referred to as the Diablo Canyon Thermal Effects Monitoring Program (TEMP), are summarized in the following table.

Subtask	Month Completed
Intertidal Algal Scrapes	May
Intertidal Horizontal Bands	May
Intertidal Vertical Bands	May
Intertidal Black Abalone	To Be Completed in July
Subtidal Benthic Stations	June
Subtidal Fish Observations	May

2. Sediment Analysis

Sediment samples are collected and analyzed annually in September. Results for 1993 will be included in the third quarter report.

3. Stratified Water Temperature

Stratified water temperatures, measured June 24, 1993 are included in Appendix 7.

4. Dissolved Oxygen and pH of Receiving Waters

Dissolved Oxygen and pH values, measured June 24, 1993 are included in Appendix 8.

5. In Situ Bioassay

Results of the Mussel Watch program will be reported to the Board directly from the California Department of Fish and Game in their periodic report for this program.

C. Acti-Brom Treatment Program

The Diablo Canyon Power Plant began in situ testing of the proprietary chemical Acti-Brom in November 1992. Acti-Brom is a sodium bromide salt solution with a proprietary surfactant that is used, in combination with sodium hypochlorite (NaOCl), to discourage the settlement of macrofouling organisms such as barnacles and mussels. The test was initiated on one of the two seawater conduits that supply cooling water to DCP Unit 1. The other conduit served as an experimental control against which the efficacy of the Acti-Brom could be gauged.

In March of 1993, both of the Unit 1 tunnels were inspected while the Unit was curtailed to 50 percent power for maintenance purposes. The treated conduit was found to be much cleaner than the untreated conduit. Fouling organisms that were present in the treated conduit were both fewer in number and smaller in size. Several major fouling species that were present in large numbers in the untreated tunnel, were totally absent from the Acti-Brom conduit. Based on these observations, a decision was made to expand the Acti-Brom treatment program to one of the Unit 2 conduits following the conclusion of the 2R5 refueling outage in May 1993.



In early June 1993, macrofouling growth in the untreated Unit 1 conduit had reached a point where manual cleaning of the conduit was required. Following the cleaning of the untreated conduit (which removed approximately 40 cubic yards of macrofouling debris), the Acti-Brom conduit was again inspected and was found to have changed very little since March. No cleaning or other biofouling procedure, such as heat treatment, will be necessary in the near future.

As of June 30, 1993, there have been no opportunities for inspection of either of the Unit 2 conduits.



APPENDIX 1

NPDES DISCHARGE POINTS	
DISCHARGE NUMBER	DESCRIPTION
001	Once-Through Cooling Water
001 A	Firewater Systems
001 B	Auxiliary Salt Water Cooling System
001 C	Discharge Deleted
001 D	Liquid Radioactive Waste Treatment System
001 E	Service Cooling Water System
001 F	Turbine Building Sump
001 G	Make-Up Water System Waste Effluent
001 H	Condensate Demineralizer Regenerant
001 I	Seawater Evaporator Blowdown
001 J	Condensate Pumps Discharge Header Overboard
001 K	Condenser Tube Sheet Leak Detection Dump Tank Overboard
001 L	Steam Generator Blowdown
001 M	Wastewater Holding and Treatment System
001 N	Sanitary Wastewater Treatment System
001 P	Seawater Reverse Osmosis System Blowdown
002	Intake Structure Building Floor Drains
003	Intake Screen Wash
004	Biolab Discharge
005, 008, 009, 013, 014, 015	Yard Storm Drains
006, 007, 010, 011, 012	Storm Water Runoff
016	Biolab Seawater Supply Pump Valve Drain
017	Seawater Reverse Osmosis System Blowdown Drain



APPENDIX 2

Influent and Effluent Monitoring,

April, 1993



CALIFORNIA REGIONAL WATER QUALITY
CONTROL BOARD
CENTRAL COAST REGION
1102A LAUREL LANE
SAN LUIS OBISPO, CA 93401

DISCHARGE SELF MONITORING REPORT

PACIFIC GAS AND ELECTRIC CO.
DIABLO CANYON NUCLEAR POWER PLANT
PO BOX 56
AVILA BEACH, CALIF 93424

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NPDES PERMIT #
CA0003751

STATION ANALYSIS UNITS SMPL TYPE FREQ.	INFLUENT TEMPERATURE DEGREES F METERED CONTINUOUS	EFFLUENT 001 TEMPERATURE DEGREES F METERED CONTINUOUS	DELTA TEMP TEMPERATURE DEGREES F METERED CONTINUOUS	EFFLUENT 001 FLOW MGD RECORDED DAILY	INFLUENT pH pH UNITS GRAB MONTHLY	EFFLUENT 001 pH pH UNITS GRAB MONTHLY (***)	EFFLUENT 001P pH pH UNITS GRAB MONTHLY	EFFLUENT 002 pH pH UNITS GRAB MONTHLY
APRIL								
1	53.8	73.4	19.6	1299				
2	52.0	71.6	19.6	1297				
3	52.0	71.7	19.7	1299				
4	51.6	68.6	17.0	1234				
5	50.6	70.4	19.8	1295	8.0	8.0		
6	50.4	70.1	19.7	1298				
7	50.8	70.6	19.8	1299				
8	50.6	70.4	19.8	1295				
9	50.8	70.4	19.6	1297				
10	50.5	70.3	19.8	1298				
11	50.1	69.8	19.7	1398				
12	50.0	69.7	19.7	1301				
13	50.1	69.7	19.6	1295				
14	49.9	69.5	19.6	1295				
15	49.8	69.5	19.7	1301				
16	50.5	70.3	19.8	1297				
17	50.8	70.8	20.0	1300				
18	51.5	71.6	20.1	1300				
19	50.6	70.9	20.3	1298				
20	50.5	70.7	20.2	1299				2 8.0
21	50.6	70.7	20.1	1298			7.6	
22	50.3	70.4	20.1	1613				
23	49.8	69.8	20.0	1416				
24	49.6	69.7	20.1	1425				
25	49.6	69.4	19.8	1943				
26	49.4	69.2	19.8	1926				
27	49.3	69.0	19.7	1930				
28	49.2	68.9	19.7	1927				
29	50.1	69.7	19.6	2002				
30	49.9	69.3	19.4	2136				
31								
MONTHLY AVG	50.5	70.2	19.7	1454				8.0
MONTHLY HIGH	53.8	73.4	20.3	2136				8.1
MONTHLY LOW	49.2	68.6	17.0	1234				7.9
TIMES EXCEEDED	NO LIMIT	NO LIMIT	MAX 22 = 0	MAX 2760 = 0	NO LIMIT	NO LIMIT	NO LIMIT	NO LIMIT
TIMES EXCEEDED			(**)					
TIMES EXCEEDED								

REMARKS: (1) Number of Samples taken during the day. (2) Except during deaerating.

(3) Daily when discharging chemical cleaning wastes from discharges 001D, F, I, L and/or H.

PRINCIPAL EXECUTIVE OFFICER

GREGORY M. RUEGER

SIGNATURE OF AUTHORIZED AGENT DATE

John Krumpholtz 7/19/93



CALIFORNIA REGIONAL WATER QUALITY
CONTROL BOARD
CENTRAL COAST REGION
1102A LAUREL LANE
SAN LUIS OBISPO, CA 93401

DISCHARGE SELF MONITORING REPORT

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STATION ANALYSIS UNITS SMPL TYPE FREQ.	EFFLUENT 003 pH UNITS GRAB MONTHLY	EFFLUENT 004 pH UNITS GRAB MONTHLY	EFFLUENT 001N OIL & GREASE mg/l COMPOSITE WEEKLY	EFFLUENT 001P OIL & GREASE mg/l GRAB WEEKLY (**)	EFFLUENT 003 OIL & GREASE mg/l GRAB WEEKLY (***)	EFFLUENT 001F OIL & GREASE mg/l GRAB MONTHLY	EFFLUENT 001 T CHLOR RES ug/l GRAB 2 per CYCLE	EFFLUENT 001 CHLORINE USED lbs/day RECORDED MONTHLY
APRIL	1	1	1	1	1	1	1	1
1							7	22
2				18			7	37
3							6	49
4							6	51
5							6	42
6							7	48
7							7	39
8				<5			7	34
9							6	36
10							6	42
11							6	37
12							6	37
13							6	29
14							6	25
15				<5			3	<1
16							4	33
17							6	36
18							6	34
19							6	41
20				8			6	29
21							6	30
22							6	28
23							6	31
24							6	22
25							6	18
26	7.8	7.9		<5			7	19
27							7	19
28							7	18
29							2	21
30							1	17
31								
MONTHLY AVG			8	NO DISCHARGE	NO DISCHARGE		31	190
MONTHLY HIGH			18				51	285
MONTHLY LOW			<5				<1	29
TIMES EXCEEDED	NO LIMIT	NO LIMIT	NO AVG 15 =0	NO AVG 15 =0	NO AVG 15 =0	NO AVG 15 =0	MAX 200 =0	NO LIMIT
TIMES EXCEEDED			0 MAX 20 =0	0 MAX 20 =0	0 MAX 20 =0	0 MAX 20 =0		
TIMES EXCEEDED								

REMARKS: (1) Number of samples taken during the day.
(**) When 001N is discharging to 001P. (***) When 001P is discharging to 003.

PRINCIPAL EXECUTIVE OFFICER
GREGORY M. RUEGER

SIGNATURE OF AUTHORIZED AGENT
DATE
John Kennedy 7/19/93





CALIFORNIA REGIONAL WATER QUALITY
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STATION ANALYSIS UNITS SMPL TYPE FREQ.	-----EFFLUENT 001G-----			-----EFFLUENT 001H-----		
	SUSPENDED SOLIDS					
	mg/l 1st FLTR	mg/l 2nd FLTR	mg/l NET	mg/l 1st FLTR	mg/l 2nd FLTR	mg/l NET
	GRAB MONTHLY			GRAB MONTHLY		
APRIL	1					
	2			8	8	<1
	3					
	4					
	5					
	6					
	7					
	8					
	9					
	10					
	11					
	12					
	13					
	14					
	15					
	16					
	17					
	18					
	19					
	20					
	21	<1	<1	<1		
	22					
	23					
	24					
	25					
	26					
	27					
	28					
	29					
	30					
	31					
MONTHLY AVG						
MONTHLY HIGH						
MONTHLY LOW						
TIMES EXCEEDED	NO LIMIT	NO LIMIT	NO AVG 30 = 0	NO LIMIT	NO LIMIT	NO AVG 30 = 0
TIMES EXCEEDED			0 MAX 100 = 0			0 MAX 100 = 0
TIMES EXCEEDED						

MARKS: (*) Number of Samples taken during the day.

PRINCIPAL EXECUTIVE OFFICER:
GREGORY M. RUEGER

SIGNATURE OF AUTHORIZED AGENT: *Gar Krenn* DATE: 7/17/93



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STATION ANALYSIS UNITS SMPL TYPE FREQ.	-----EFFLUENT 0011-----			-----EFFLUENT 0012-----		
	SUSPENDED SOLIDS			SUSPENDED SOLIDS		
	mg/l 1st FLTR	mg/l 2nd FLTR	mg/l NET	mg/l 1st FLTR	mg/l 2nd FLTR	mg/l NET
	GRAB MONTHLY			GRAB MONTHLY		
APRIL						
1						
2						
3						
4						
5						
6						
7						
8						
9						
10						
11						
12						
13						
14						
15						
16						
17						
18						
19						
20						
21				4	<1	4
22						
23				<1	<1	<1
24						
25						
26						
27						
28						
29						
30						
31						
MONTHLY AVG	NO DISCHARGE					3
MONTHLY HIGH						4
MONTHLY LOW						<1
TIMES EXCEEDED	NO LIMIT	NO LIMIT	NO AVG 30 =0	NO LIMIT	NO LIMIT	NO AVG 30 =0
TIMES EXCEEDED			D MAX 100 =0			D MAX 100 =0
TIMES EXCEEDED						

REMARKS: (1) Number of Samples taken during the day.

PRINCIPAL EXECUTIVE OFFICER
GREGORY M. RUEGER

SIGNATURE OF AUTHORIZED AGENT DATE
John Krenn 7/19/93





CALIFORNIA REGIONAL WATER QUALITY
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STATION ANALYSIS UNITS SMPL TYPE FREQ.	-----EFFLUENT 001H----- SUSPENDED SOLIDS			EFFLUENT 001N SUSPENDED SOLDS mg/l COMPOSITE WEEKLY	-----EFFLUENT 001P----- SUSPENDED SOLIDS																													
	mg/l 1st FLIR	mg/l 2nd FLIR	mg/l NET		mg/l 1st FLIR	mg/l 2nd FLIR	mg/l NET																											
	GRAB MONTHLY				GRAB MONTHLY																													
APRIL	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31			
1					29																													
2																																		
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4																																		
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29		2				1																												
30																																		
31																																		
MONTHLY AVG					31																													
MONTHLY HIGH					46																													
MONTHLY LOW					15																													
TIMES EXCEEDED	NO LIMIT	NO LIMIT	NO AVG 30 = 0	NO AVG 60 = 0	NO LIMIT	NO LIMIT	NO AVG 30 = 0																											
TIMES EXCEEDED			D MAX 100 = 0				D MAX 100 = 0																											
TIMES EXCEEDED																																		

MARKS: (*) Number of Samples taken during the day.

PRINCIPAL EXECUTIVE OFFICER
GREGORY M. RUEGER

SIGNATURE OF AUTHORIZED AGENT DATE
John R. Kennedy 7/19/93



CALIFORNIA REGIONAL WATER QUALITY
CONTROL BOARD
CENTRAL COAST REGION
1102A LAUREL LANE
SAN LUIS OBISPO, CA 93401

DISCHARGE SELF MONITORING REPORT

PACIFIC GAS AND ELECTRIC CO.
DIABLO CANYON NUCLEAR POWER PLANT
PO BOX 56
AVILA BEACH, CALIF 93424
PAGE (N) 8

FACILITY I.D.
3 402003001

YEAR/ MO / DAY
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ENDING 93 / 04 / 30

STATE CODE
06

NPDES PERMIT #
CA0003751

STATION
ANALYSIS
UNITS
SMPL TYPE
FREQ.

-----EFFLUENT 002-----
SUSPENDED SOLIDS
mg/l 1st FLTR mg/l 2nd FLTR mg/l NET
GRAB
MONTHLY

-----EFFLUENT 003-----
SUSPENDED SOLIDS
mg/l 1st FLTR mg/l 2nd FLTR mg/l NET
GRAB
MONTHLY

APRIL	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31



CALIFORNIA REGIONAL WATER QUALITY
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NPDES PERMIT #
CA0003751

STATION ANALYSIS UNITS SAMPL TYPE FREQ.	-----EFFLUENT 003-----			EFFLUENT 001N	EFFLUENT 001	EFFLUENT 001	EFFLUENT 001	EFFLUENT 001
	SUSPENDED SOLIDS			SETTL SOLIDS	I CHROMIUM	COPPER	NICKEL	ZINC
	mg/l 1st FLTR	mg/l 2nd FLTR	mg/l NET	ml/l	ug/l	ug/l	ug/l	ug/l
	GRAB			GRAB	GRAB	GRAB	GRAB	GRAB
	WEEKLY WHEN 001N & 001P => 003			WEEKLY	MONTHLY	MONTHLY	MONTHLY	MONTHLY
APRIL								
1								
2				<0.1				
3								
4								
5					<5	<3	<3	4
6								
7								
8				<0.1				
9								
10								
11								
12								
13				<0.1				
14								
15								
16								
17								
18								
19								
20				<0.1				
21								
22								
23								
24								
25								
26				<0.1				
27								
28								
29								
30								
31								
MONTHLY AVG	NO DISCHARGE			<0.1				
MONTHLY HIGH				<0.1				
MONTHLY LOW				<0.1				
TIMES EXCEEDED	NO LIMIT	NO LIMIT	NO AVG 30 =0	NO AVG 1.0 =0	6M-MEAN 10 =0	6M-MEAN 10 =0	6M-MEAN 30 =0	6M-MEAN 70 =0
TIMES EXCEEDED			D MAX 100 =0	D MAX 3.0 =0	D MAX 40 =0	D MAX 50 =0	D MAX 100 =0	D MAX 300 =0
TIMES EXCEEDED					I MAX 100 =0	I MAX 140 =0	I MAX 260 =0	I MAX 990 =0

REMARKS: (1) Number of Samples taken during the day.

PRINCIPAL EXECUTIVE OFFICER
GREGORY H. RUEGER

SIGNATURE OF AUTHORIZED AGENT DATE
J. R. Kneeger 7/19/93











CALIFORNIA REGIONAL WATER QUALITY
CONTROL BOARD
CENTRAL COAST REGION
1102A LAUREL LANE
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DISCHARGE SELF MONITORING REPORT

PACIFIC GAS AND ELECTRIC CO.
DIABLO CANYON NUCLEAR POWER PLANT
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FACILITY I.D.
S 402003001

YEAR/ MO / DAY
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ENDING 93 / 04 / 30

STATE CODE
06

NPDES PERMIT #
CA0003751

STATION ANALYSIS UNITS SMPL TYPE FREQ.	EFFLUENT 001D LEAD ug/l QTRLY COMP JA/AP/JUL/OCT	EFFLUENT 001H LEAD ug/l QTRLY COMP JA/AP/JUL/OCT	EFFLUENT 001L LEAD ug/l QTRLY COMP JA/AP/JUL/OCT	EFFLUENT 001F LEAD ug/l 1 WEEK COMP JA/AP/JUL/OCT	EFFLUENT 001D MERCURY ug/l QTRLY COMP JA/AP/JUL/OCT	EFFLUENT 001H MERCURY ug/l QTRLY COMP JA/AP/JUL/OCT	EFFLUENT 001L MERCURY ug/l QTRLY COMP JA/AP/JUL/OCT	EFFLUENT 001F MERCURY ug/l 1 WEEK COMP JA/AP/JUL/OCT
--	--	--	--	---	---	---	---	--

APRIL	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
								<7																							
		2	200	2	<7		36	<.3	2	<.3	2	<.3																			

MONTHLY AVG		200	<7					<.3		<.3																				
MONTHLY HIGH		205	<7					<.3		<.3																				
MONTHLY LOW		195	<7					<.3		<.3																				

TIMES EXCEEDED	NO LIMIT																													
TIMES EXCEEDED																														
TIMES EXCEEDED																														

REMARKS: (1) Number of Samples taken during the day.

PRINCIPAL EXECUTIVE OFFICER
GREGORY M. RUEGER

SIGNATURE OF AUTHORIZED AGENT
John Krenn
DATE
7/19/93



CALIFORNIA REGIONAL WATER QUALITY
CONTROL BOARD
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1102A LAUREL LANE
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DISCHARGE SELF MONITORING REPORT

PACIFIC GAS AND ELECTRIC CO.
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3 402003001

YEAR/ MO / DAY
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06

NPDES PERMIT #
CA0003751

STATION ANALYSIS UNITS SMPL TYPE FREQ.	EFFLUENT 001D NICKEL ug/l QTRLY COMP JA/AP/JUL/OCT	EFFLUENT 001H NICKEL ug/l QTRLY COMP JA/AP/JUL/OCT	EFFLUENT 001L NICKEL ug/l QTRLY COMP JA/AP/JUL/OCT	EFFLUENT 001F NICKEL ug/l 1 WEEK COMP JA/AP/JUL/OCT	EFFLUENT 001D SILVER ug/l QTRLY COMP JA/AP/JUL/OCT	EFFLUENT 001H SILVER ug/l QTRLY COMP JA/AP/JUL/OCT	EFFLUENT 001L SILVER ug/l QTRLY COMP JA/AP/JUL/OCT	EFFLUENT 001F SILVER ug/l 1 WEEK COMP JA/AP/JUL/OCT
--	--	--	--	---	--	--	--	---

APRIL	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
		21	2	189	2	<19	47	<7	31	<7																					
MONTHLY AVG				189		<19			189		<7																				
MONTHLY HIGH				220		<19			220		<7																				
MONTHLY LOW				157		<19			157		<7																				
TIMES EXCEEDED	NO LIMIT			NO LIMIT		NO LIMIT			NO LIMIT		NO LIMIT																				
TIMES EXCEEDED																															
TIMES EXCEEDED																															

REMARKS: (*) Number of Samples taken during the day.

PRINCIPAL EXECUTIVE OFFICER
GREGORY M. RUEGER

SIGNATURE OF AUTHORIZED AGENT DATE
John Kennedy 7/17/93



CALIFORNIA REGIONAL WATER QUALITY
CONTROL BOARD
CENTRAL COAST REGION
1102A LAUREL LANE
SAN LUIS OBISPO, CA 93401

DISCHARGE SELF MONITORING REPORT

PACIFIC GAS AND ELECTRIC CO.
DIABLO CANYON NUCLEAR POWER PLANT
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S 402003001

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BEGINNING 93 / 04 / 01

YEAR/ NO / DAY
ENDING 93 / 04 / 30

STATE CODE
06

NPDES PERMIT #
CA0003751

STATION ANALYSIS UNITS SHPL TYPE FREQ.	EFFLUENT 001D ZINC ug/l QTRLY COMP JA/AP/JUL/OCT	EFFLUENT 001B ZINC ug/l QTRLY COMP JA/AP/JUL/OCT	EFFLUENT 001L ZINC ug/l QTRLY COMP JA/AP/JUL/OCT	EFFLUENT 001F ZINC ug/l 1 WEEK COMP JA/AP/JUL/OCT
--	--	--	--	---

APRIL	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
								186	2	121	2	15	552																		

MONTHLY AVG		121	15
MONTHLY HIGH		159	15
MONTHLY LOW		83	15

TIMES EXCEEDED	NO LIMIT	NO LIMIT	NO LIMIT	NO LIMIT
TIMES EXCEEDED				
TIMES EXCEEDED				

REMARKS: (1) Number of Samples taken during the day.

PRINCIPAL EXECUTIVE OFFICER
GREGORY M. RUEGER

SIGNATURE OF AUTHORIZED AGENT DATE
Joan R. Krumm 7/19/93



CALIFORNIA REGIONAL WATER QUALITY
CONTROL BOARD
CENTRAL COAST REGION
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DISCHARGE SELF MONITORING REPORT

PACIFIC GAS AND ELECTRIC CO.
DIABLO CANYON NUCLEAR POWER PLANT
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FACILITY I.D.
3 402003001

YEAR/ MO / DAY
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STATE CODE
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NPDES PERMIT #
CA0003751

STATION ANALYSIS UNITS SHPL TYPE FREQ.	EFFLUENT 001D COPPER mg/l 24-HR COMP. METAL CLNG	EFFLUENT 001F COPPER mg/l 24-HR COMP. METAL CLNG	EFFLUENT 001J COPPER mg/l 24-HR COMP. METAL CLNG	EFFLUENT 001L COPPER mg/l 24-HR COMP. METAL CLNG	EFFLUENT 001H COPPER mg/l 24-HR COMP. METAL CLNG
--	--	--	--	--	--

APRIL	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
1																															
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30																															
31																															

MONTHLY AVG	NO DISCHARGE				
MONTHLY HIGH					
MONTHLY LOW					
TIMES EXCEEDED	NO AVG 1 = 0				
TIMES EXCEEDED	D MAX 1 = 0				
TIMES EXCEEDED					

REMARKS: (1) Number of Samples taken during the day.

PRINCIPAL EXECUTIVE OFFICER

GREGORY N. RUEGER

SIGNATURE OF AUTHORIZED AGENT DATE

Gregory N. Rueger 7/19/93



CALIFORNIA REGIONAL WATER QUALITY
CONTROL BOARD
CENTRAL COAST REGION
1102A LAUREL LANE
SAN LUIS OBISPO, CA 93401

DISCHARGE SELF MONITORING REPORT

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BEGINNING 93 / 04 / 01

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ENDING 93 / 04 / 30

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06

NPDES PERMIT #
CA0003751

STATION ANALYSIS UNITS SHPL TYPE FREQ.	EFFLUENT 001D IRON mg/l 24-HR COMP. METAL CLNG	EFFLUENT 001F IRON mg/l 24-HR COMP. METAL CLNG	EFFLUENT 001I IRON mg/l 24-HR COMP. METAL CLNG	EFFLUENT 001L IRON mg/l 24-HR COMP. METAL CLNG	EFFLUENT 001H IRON mg/l 24-HR COMP. METAL CLNG
--	--	--	--	--	--

APRIL	1	2	3	4	5	6	7	8	9	10	11	12	13	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31

MONTHLY AVG	NO DISCHARGE				
MONTHLY HIGH					
MONTHLY LOW					
TIMES EXCEEDED	NO AVG 1 = 0				
TIMES EXCEEDED	D MAX 1 = 0				
TIMES EXCEEDED					

REMARKS: (1) Number of Samples taken during the day.

PRINCIPAL EXECUTIVE OFFICER
GREGORY M. RUEGER

SIGNATURE OF AUTHORIZED AGENT
John R. Kneger
DATE
7/19/93



CALIFORNIA REGIONAL WATER QUALITY
CONTROL BOARD
CENTRAL COAST REGION
1102A LAUREL LANE
SAN LUIS OBISPO, CA 93401

DISCHARGE SELF MONITORING REPORT

PACIFIC GAS AND ELECTRIC CO.
DIABLO CANYON NUCLEAR POWER PLANT
PO BOX 56
AVILA BEACH, CALIF 93424
PAGE (A) 1

FACILITY I.D.
3 402003001

YEAR/ MO / DAY
BEGINNING 93 / 04 / 01

YEAR/ MO / DAY
ENDING 93 / 04 / 30

STATE CODE
06

NPDES PERMIT #
CA0003751

STATION ANALYSIS UNITS SMPL TYPE FREQ.	EFFLUENT 001 TITANIUM ug/l GRAB OCTOBER	INFLUENT ARSENIC ug/l GRAB OCTOBER	EFFLUENT ARSENIC ug/l GRAB OCTOBER	INFLUENT CADMIUM ug/l GRAB OCTOBER	EFFLUENT 001 CADMIUM ug/l GRAB OCTOBER	INFLUENT LEAD ug/l GRAB OCTOBER	EFFLUENT 001 LEAD ug/l GRAB OCTOBER	INFLUENT ZINC ug/l GRAB OCTOBER
--	---	------------------------------------	------------------------------------	------------------------------------	--	---------------------------------	-------------------------------------	---------------------------------

APRIL								
1								
2								(1) 2
3								
4								
5								
6								
7								
8								
9								
10								
11								
12								
13								
14								
15								
16								
17								
18								
19								
20								
21								
22								
23								
24								
25								
26								
27								
28								
29								
30								
31								

MONTHLY AVG
MONTHLY HIGH
MONTHLY LOW

TIMES EXCEEDED	NO LIMIT	NO LIMIT	6M-MEAN 30 =0	NO LIMIT	6M-MEAN 10 =0	NO LIMIT	6M-MEAN 10 =0
TIMES EXCEEDED			D MAX 150 =0		D MAX 20 =0		D MAX 40 =0
TIMES EXCEEDED			I MAX 400 =0		I MAX 50 =0		I MAX 100 =0

REMARKS: (1) Number of Samples taken during the day. (11) Influent Zinc analysis performed for comparison to Effluent. All other annual analysis will be performed in October.

PRINCIPAL EXECUTIVE OFFICER
GREGORY M. RUEGER

SIGNATURE OF AUTHORIZED AGENT DATE
Gregory M. Rueger 2/17/93



FACILITY I.D.
3 402003001

YEAR/ MO / DAY
BEGINNING 93 / 04 / 01

YEAR/ MO / DAY
ENDING 93 / 04 / 30

STATE CODE
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NPDES PERMIT #
CA0003751

STATION	EFFLUENT 009	EFFLUENT 013	EFFLUENT 015	EFFLUENT 016	EFFLUENT 017	INFLUENT	EFFLUENT 001
ANALYSIS	OIL & GREASE	PCB'S	PCB'S				
UNITS	mg/l	mg/l	mg/l	mg/l	mg/l	ug/l	ug/l
SMPL TYPE	GRAB	GRAB	GRAB	GRAB	GRAB	GRAB	GRAB
FREQ.	OCTOBER	OCTOBER	OCTOBER	OCTOBER	OCTOBER	OCTOBER	OCTOBER

APRIL	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31

(3 (11))

MONTHLY AVG																														
MONTHLY HIGH																														
MONTHLY LOW																														
TIMES EXCEEDED	NO AVG 15 =0	NO LIMIT	NO LIMIT																											
TIMES EXCEEDED	D MAX 20 =0																													
TIMES EXCEEDED																														

REMARKS: (1) Number of Samples taken during the day. (11) 016 sample performed during discharge, all other annual samples will be performed in October.

PRINCIPAL EXECUTIVE OFFICER
GREGORY M. RUEGER

SIGNATURE OF AUTHORIZED AGENT
John R. Kennedy
DATE
7/19/93





Unit: 0 NPDES CHLORINATION/BROMINATION 1-2 CWP From: 4/01/93 0:01 Through: 4/30/93 23:59

Parameter:	0000 Cl2 Peak	0400 Cl2 Peak	0800 Cl2 Peak	1200 Cl2 Peak	1600 Cl2 Peak	2000 Cl2 Peak		
	ppb	ppb	ppb	ppb	ppb	ppb		
Sample Time:								
4/01/93 0:01	22	25	28	30	40	<1		
4/02/93 0:01	38	37	38	45	45	45		
4/03/93 0:01	55	46	46	50	50	49		
4/04/93 0:01	48	48	46	55	57	53		
4/05/93 0:01	53	50	5		57	47		
4/06/93 0:01	56	57	58	61	48	48		
4/07/93 0:01	43	45	53	57	50	<1		
4/08/93 0:01	52	40	2	38	36	35		
4/09/93 0:01	33	31	38	37	40	38		
4/10/93 0:01	35	40	40	45	45	47		
4/12/93 0:01	39	38	37	33	38	38		
4/13/93 0:01	36	35	33	<1	34	34		
4/14/93 0:01	<1	35	34	41	38	<1		
4/15/93 0:01	<1	<1	<1					
4/16/93 0:01			37	37	33	34		
4/17/93 0:01	35	37	35	37	37	35		
4/18/93 0:01	32	35	32	32	35	38		
4/19/93 0:01	39	43	44	45	45	29		
4/20/93 0:01	27	27	27	30	31	32		
4/21/93 0:01	31	31	32	32	26	26		
4/22/93 10:00	26	27	27	32	29	28		
4/23/93 0:01	28	28	35	31	32	33		
4/24/93 0:01	32	34	33	31	33	36		
4/25/93 0:01	31	33	31	29	33	33		
4/26/93 0:01	29	33	34	27	28	30		
4/27/93 0:01	30	30	31	30	32	33		
4/28/93 0:01	32	32	34	35	32	32		

NOTE: Individual sample results for Total Residual Chlorine (TRC) are adjusted by the following formula to account for dilution by the unchlorinated Circulating Water Pumps on the opposite operating Unit. It is assumed that no chlorine demand exists in the sea water:

$$\text{ppb TRC} \times \frac{\text{\# of operating pumps on chlorinated Unit}}{\text{\# of operating pumps for both Units}}$$

The daily average TRC value reported on the Q2 forms is the average of the adjusted TRC results for the day.

NOTE: The TRC concentration for each CWP is measured continuously during each chlorination cycle. The peak value for each cycle is reported.



Unit: 0 NPDES
 CHLORINATION/BROMINATION 1-2 CWP

From: 4/01/93 0:01
 Through: 4/30/93 23:59

Parameter:	0000 Cl2 Peak	0400 Cl2 Peak	0800 Cl2 Peak	1200 Cl2 Peak	1600 Cl2 Peak	2000 Cl2 Peak		
	ppb	ppb	ppb	ppb	ppb	ppb		
Sample Time:								
4/29/93 0:01	31	32						
4/30/93 0:01						34		

NOTE: Individual sample results for Total Residual Chlorine (TRC) are adjusted by the following formula to account for dilution by the unchlorinated Circulating Water Pumps on the opposite operating Unit. It is assumed that no chlorine demand exists in the sea water:

$$\text{ppb TRC} \times \frac{\text{\# of operating pumps on chlorinated Unit}}{\text{\# of operating pumps for both Units}}$$

The daily average TRC value reported on the Q2 forms is the average of the adjusted TRC results for the day.

NOTE: The TRC concentration for each CWP is measured continuously during each chlorination cycle. The peak value for each cycle is reported.



**PACIFIC GAS & ELECTRIC - DIABLO CANYON POWER PLANT
SANITARY WASTEWATER TREATMENT SYSTEM
CONTRACT # 278-2104-86**

(REV. 5/90)

ECO RESOURCES INC
39899 Balentine Dr, Suite 200
Newark, CA 94560

Pacific Gas and Electric Co.
Contacts:
Randy Falcke (805) 695-4362
John Knemeyer (805) 695-4472

CONSTITUENTS	UNITS	FREQ.	LIMITS		SAMPLE		RESULTS
			MONTHLY AVERAGE	DAILY MAX	DATE	TIME	
1. GREASE & OIL	mg/l	WEEKLY	15	20	4-2	11:39	18 mg/l Ave of 3
2. "	mg/l	"	15	20	4-8	9:00	< 5 mg/l " " "
3. "	mg/l	"	15	20	4-15	11:01	< 5 mg/l " " "
4. "	mg/l	"	15	20	4-20	11:34	8 mg/l " " "
5. "	mg/l	"	15	20	4-26	11:59	< 5 mg/l " " "
1. SUSPENDED SLDS	mg/l	WEEKLY	60	N/A	4-2	11:13	29 mg/l
2. "	mg/l	"	60	N/A	4-8	8:48	30 mg/l
3. "	mg/l	"	60	N/A	4-15	10:21	46 mg/l
4. "	mg/l	"	60	N/A	4-20	11:08	36 mg/l
5. "	mg/l	"	60	N/A	4/26	11:37	15 mg/l
1. SETTLEABLE SLD	ml/l	WEEKLY	1.0	3.0	4/2	11:40	< 0.1 ml/l
2. "	ml/l	"	1.0	3.0	4/8	8:50	< 0.1 ml/l
3. "	ml/l	"	1.0	3.0	4/15	10:49	< 0.1 ml/l
4. "	ml/l	"	1.0	3.0	4-20	11:13	< 0.1 ml/l
5. "	ml/l	"	1.0	3.0	4-26	11:43	< 0.1 ml/l

NOTE:

- ANALYSIS RESULTS ABOVE THE MONTHLY AVERAGE SHALL BE REPORTED VERBALLY, WITHIN 8 HOURS, TO A PG&E CONTACT LISTED ABOVE.
- G&O AND SUSP. SLDS. SAMPLES ARE COMPOSITES DURING 1 DISCHARGE CYCLE.

COMMENTS:

SLUDGE DISPOSAL DATA

MONTH REMOVED	VOLUME REMOVED	WEIGHT REMOVED	DISPOSAL SITE
APRIL 1993		3708 lbs	WALSH NIPOMO

DATA SHEET COMPLETED BY: *Michael J. Berley* DATE: 5-6-93



APPENDIX 3

Influent and Effluent Monitoring,

May, 1993











CALIFORNIA REGIONAL WATER QUALITY
 CONTROL BOARD
 CENTRAL COAST REGION
 1102A LAUREL LANE
 SAN LUIS OBISPO, CA 93401

DISCHARGE SELF MONITORING REPORT

PACIFIC GAS AND ELECTRIC CO.
 DIABLO CANYON NUCLEAR POWER PLANT
 PO BOX 56
 AVILA BEACH, CALIF 93424

PAGE (H) 5

FACILITY I.D.
 J 402003001

YEAR/ MO / DAY
 BEGINNING 93 / 05 / 01

YEAR/ MO / DAY
 ENDING 93 / 05 / 31

STATE CODE
 06

NPDES PERMIT #
 CA0003751

STATION ANALYSIS UNITS SHPL TYPE FREQ.	-----EFFLUENT 0011----- SUSPENDED SOLIDS			-----EFFLUENT 001J----- SUSPENDED SOLIDS		
	mg/l 1st FLTR	mg/l 2nd FLTR	mg/l NET	mg/l 1st FLTR	mg/l 2nd FLTR	mg/l NET
	GRAB MONTHLY			GRAB MONTHLY		
MAY						
1						
2						
3						
4						
5						
6						
7						
8						
9						
10						
11						
12						
13						
14						
15						
16						
17						
18						
19						
20						
21						
22						
23						
24						
25						
26						
27						
28						
29						
30						
31						
MONTHLY AVG	NO DISCHARGE			NO DISCHARGE		
MONTHLY HIGH	NO DISCHARGE			NO DISCHARGE		
MONTHLY LOW	NO DISCHARGE			NO DISCHARGE		
TIMES EXCEEDED	NO LIMIT	NO LIMIT	NO AVG 30 = 0	NO LIMIT	NO LIMIT	NO AVG 30 = 0
TIMES EXCEEDED			D MAX 100 = 0			D MAX 100 = 0
TIMES EXCEEDED						

REMARKS: (#) Number_of_Samples_taken_during_the_day.

PRINCIPAL EXECUTIVE OFFICER
 GREGORY M. RUEGER

SIGNATURE OF AUTHORIZED AGENT DATE
Joel Fremeyer 7/19/93





CALIFORNIA REGIONAL WATER QUALITY
CONTROL BOARD
CENTRAL COAST REGION
1102A LAUREL LANE
SAN LUIS OBISPO, CA 93401

DISCHARGE SELF MONITORING REPORT

PACIFIC GAS AND ELECTRIC CO.
DIABLO CANYON NUCLEAR POWER PLANT
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AVILA BEACH, CALIF 93424
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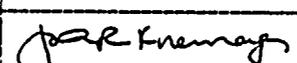
STATE CODE
06

NPDES PERMIT #
CA0003751

STATION ANALYSIS UNITS SMPL TYPE FREQ.	-----EFFLUENT 001M-----			EFFLUENT 001M			-----EFFLUENT 001P-----						
	SUSPENDED SOLIDS			SUSPENDED SLDS			SUSPENDED SOLIDS						
	mg/l 1st FLTR	mg/l 2nd FLTR	mg/l NET	mg/l	mg/l 1st FLTR	mg/l 2nd FLTR	mg/l NET						
	GRAB MONTHLY			COMPOSITE WEEKLY			GRAB MONTHLY						
MAY	1												
1													
2													
3													
4													
5													
6													
7							22						
8													
9													
10													
11													
12													
13							16						
14													
15													
16													
17													
18													
19							18						
20													
21									20		19		1
22	2		1		1								
23													
24													
25													
26													
27							19						
28													
29													
30													
31													
MONTHLY AVG							19						
MONTHLY HIGH							22						
MONTHLY LOW							16						
TIMES EXCEEDED	NO LIMIT	NO LIMIT	NO AVG 30 =0	NO AVG 60 =0	NO LIMIT	NO LIMIT	NO AVG 30 =0				NO AVG 30 =0		
TIMES EXCEEDED			0 MAX 100 =0				0 MAX 100 =0				0 MAX 100 =0		
TIMES EXCEEDED													

REMARKS: (1) Number of samples taken during the day.

PRINCIPAL EXECUTIVE OFFICER
GREGORY N. RUEGER

SIGNATURE OF AUTHORIZED AGENT DATE
 7/17/93



CALIFORNIA REGIONAL WATER QUALITY
CONTROL BOARD
CENTRAL COAST REGION
1102A LAUREL LANE
SAN LUIS OBISPO, CA 93401

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BEGINNING 93 / 05 / 01

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06

NPDES PERMIT #
CA0003751

STATION
ANALYSIS
UNITS
SMPL TYPE
FREQ.

-----EFFLUENT 002-----
SUSPENDED SOLIDS
mg/l 1st FLTR mg/l 2nd FLTR mg/l NET
GRAB
MONTHLY

-----EFFLUENT 003-----
SUSPENDED SOLIDS
mg/l 1st FLTR mg/l 2nd FLTR mg/l NET
GRAB
MONTHLY

MAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
1																															
2																															
3																															
4																															
5																															
6																															
7																															
8																															
9																															
10																															
11																															
12																															
13																															
14																															
15																															
16																															
17																															
18		6		<1		2	6																								
19																															
20																															
21																															
22																															
23																															
24																															
25										10																					
26																															
27																															
28																															
29																															
30																															
31																															

MONTHLY AVG					6																										
MONTHLY HIGH					7																										
MONTHLY LOW					5																										

TIMES EXCEEDED	NO LIMIT	NO LIMIT	NO AVG 30 =0	NO LIMIT	NO LIMIT	NO AVG 30 =0
TIMES EXCEEDED			1 MAX 100 =0			1 MAX 100 =0
TIMES EXCEEDED						

REMARKS: (1) Number of Samples taken during the day.

PRINCIPAL EXECUTIVE OFFICER
GREGORY M. RUEGER

SIGNATURE OF AUTHORIZED AGENT DATE
Joel Krenn 7/19/93





CALIFORNIA REGIONAL WATER QUALITY
CONTROL BOARD
CENTRAL COAST REGION
1102A LAUREL LANE
SAN LUIS OBISPO, CA 93401

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YEAR/ MO / DAY
BEGINNING 93 / 05 / 01

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STATE CODE
06

NPDES PERMIT #
CA0003751

STATION ANALYSIS UNITS SMPL TYPE FREQ.	INFLUENT T CHROMIUM ug/l GRAB JA/AP/JUL/OCT	INFLUENT COPPER ug/l GRAB JA/AP/JUL/OCT	INFLUENT NICKEL ug/l GRAB JA/AP/JUL/OCT	INFLUENT AMMONIA (N) ug/l GRAB JA/AP/JUL/OCT	EFFLUENT 001 AMMONIA (N) ug/l GRAB JA/AP/JUL/OCT	EFFLUENT 001D OIL & GREASE mg/l GRAB JA/AP/JUL/OCT	EFFLUENT 001G OIL & GREASE mg/l GRAB JA/AP/JUL/OCT	EFFLUENT 001H OIL & GREASE mg/l GRAB JA/AP/JUL/OCT
--	---	---	---	--	--	--	--	--

MAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
			11 <5	11 <3	11 <3																										

MONTHLY AVG																																
MONTHLY HIGH																																
MONTHLY LOW																																
TIMES EXCEEDED	NO LIMIT	6H-NEAR 3060 =0	NO AVG 15 =0																													
TIMES EXCEEDED						D MAX 12240 =0	D MAX 20 =0																									
TIMES EXCEEDED						I MAX 30600 =0																										

REMARKS: (1) Number of Samples taken during the day. (11) Influent sample taken for comparison to effluent. All other quarterly analysis performed in April.

PRINCIPAL EXECUTIVE OFFICER
GREGORY N. RUEGER

SIGNATURE OF AUTHORIZED AGENT DATE
John Kenyon 7/17/93









PG&E	CHEMISTRY SAMPLE DATA TABULAR REPORT	DCPP
------	--------------------------------------	------

Unit: 0 NPDES
 CHLORINATION/BROMINATION 1-2 CWP

From: 5/01/93 0:01
 Through: 5/31/93 23:59

Parameter:	0000 cl2 Peak	0400 cl2 Peak	0800 cl2 Peak	1200 cl2 Peak	1600 cl2 Peak	2000 cl2 Peak		
	ppb	ppb	ppb	ppb	ppb	ppb		
Sample Time:								
5/01/93 0:01	33	28	34	28	34	55		
5/02/93 0:01	33	31	33	33	28	30		
5/03/93 0:01	34	34	33	32	36	27		
5/04/93 0:01		43	35	41	33	29		
5/05/93 0:01	32	32	30	23	32	29		
5/06/93 0:01	31	31	27	24	27	23		
5/07/93 0:01	21	27	23	27	32	27		
5/08/93 0:01		30	32	35	38	38		
5/09/93 0:01	37	37	39	38	37	37		
5/10/93 0:01	17	18	22		8	21		
5/11/93 0:01	13	17	19					
5/12/93 0:01					29	23		
5/13/93 0:01	28	16	16	10	20	25		
5/14/93 0:01	37	37	24	14	14	19		
5/15/93 0:01	19	16	19	8	15	16		
5/16/93 0:01	18	19	8	6	5	5		
5/17/93 0:01	5	5	4	5	3	4		
5/18/93 0:01	4	47	48	19	19	16		
5/19/93 0:01	17	16	14	16	20	17		
5/20/93 0:01	20	22	22	16	19	21		
5/21/93 0:01	27	28	28	24	28	28		
5/22/93 0:01	28	30	31	28	30	28		
5/23/93 0:01	28	28	28	23	25	22		
5/24/93 0:01	21	19	18	19	13	17		
5/25/93 0:01	15	17	18	24	20	20		
5/26/93 0:01	19	19	23	27	<1	23		
5/27/93 0:01	21	26	25	23	19	16		

NOTE: Individual sample results for Total Residual Chlorine (TRC) are adjusted by the following formula to account for dilution by the unchlorinated Circulating Water Pumps on the opposite operating Unit. It is assumed that no chlorine demand exists in the sea water:

$$\text{ppb TRC} \times \frac{\text{\# of operating pumps on chlorinated Unit}}{\text{\# of operating pumps for both Units}}$$

The daily average TRC value reported on the Q2 forms is the average of the adjusted TRC results for the day.

NOTE: The TRC concentration for each CWP is measured continuously during each chlorination cycle. The peak value for each cycle is reported.



Unit: 0 NPDES
 CHLORINATION/BROMINATION 1-2 CWP

From: 5/01/93 0:01
 Through: 5/31/93 23:59

Parameter:	0000 Cl2 Peak	0400 Cl2 Peak	0800 Cl2 Peak	1200 Cl2 Peak	1600 Cl2 Peak	2000 Cl2 Peak		
	ppb	ppb	ppb	ppb	ppb	ppb		
Sample Time:								
5/28/93 0:01	19	18	16	<1	<1	8		
5/29/93 0:01	8	7	7	6	4	15		
5/30/93 0:01	15	12	12	8	7	7		
5/31/93 0:01	10	10	8	7	3	4		

NOTE: Individual sample results for Total Residual Chlorine (TRC) are adjusted by the following formula to account for dilution by the unchlorinated Circulating Water Pumps on the opposite operating Unit. It is assumed that no chlorine demand exists in the sea water:

$$\text{ppb TRC X } \frac{\text{\# of operating pumps on chlorinated Unit}}{\text{\# of operating pumps for both Units}}$$

The daily average TRC value reported on the Q2 forms is the average of the adjusted TRC results for the day.

NOTE: The TRC concentration for each CWP is measured continuously during each chlorination cycle. The peak value for each cycle is reported.



Unit: 0 NPDES

From: 5/01/93 0:01

CHLORINATION/BROMINATION 2-1 CWP

Through: 5/31/93 23:59

Parameter:	0100 PEAK	0500 PEAK	0900 PEAK	1300 PEAK	1700 PEAK	2100 PEAK		
	ppb	ppb	ppb	ppb	ppb	ppb		
Sample Time:								
5/01/93 1:00			247	219	259	364		
5/02/93 1:00	245	231	245	207	207	207		
5/03/93 1:00	231	219	245	245	364	231		
5/04/93 1:00	245	259	259	219	219	207		
5/05/93 1:00	219	207	207	219	231	219		
5/06/93 1:00	231	231	207	207	231	195		
5/07/93 1:00	207	219	219	245	259	259		
5/08/93 1:00	231	245	245	245	259	259		
5/09/93 1:00	245	259	274	274	290	259		
5/10/93 1:00	207	219	231	195	184	245		
5/11/93 1:00	174	219	207					
5/12/93 1:00				219	245	231		
5/13/93 1:00	231	207	165	155	155	174		
5/14/93 1:00	207	219	231	207	219	245		
5/15/93 1:00	245	231	245	174	184	195		
5/16/93 1:00	219	165	147	131	124	139		
5/17/93 1:00	131	124	117	139	139	155		
5/18/93 1:00	155	155	155	184	195	174		
5/19/93 1:00	207	207	184	174	184	184		
5/20/93 1:00	207	207	195	165	219	219		
5/21/93 1:00	231	245	245	245	259	274		
5/22/93 1:00	274	307	290	290	290	290		
5/23/93 1:00	290	307	290	274	245	231		
5/24/93 1:00	231	219	219	184	184	195		
5/25/93 1:00	184	207	219	195	207	207		
5/26/93 1:00	207	219	231	207	207	219		
5/27/93 1:00	207	219	219	219	219	219		

7/16/93 14:37

Requested by John Knemeyer

Page: 1

NOTE: Total Residual Chlorine (TRC) for Circulating Water Pump 2-1 is measured at the Condenser Waterbox Inlet rather than at the Discharge Structure. Sample results are adjusted by the following formula to account for dilution by the unchlorinated Circulating Water Pumps. It is assumed that no chlorine demand exists in the sea water:

$$\frac{\text{ppb TRC}}{\# \text{ of operating pumps for both Units}}$$

The daily average TRC value reported on the Q2 forms is the average of the adjusted TRC results for the day.

NOTE: The TRC concentration for each CWP is measured continuously during each chlorination cycle. The peak value for each cycle is reported.



PG&E	CHEMISTRY SAMPLE DATA TABULAR REPORT	DCPP
------	--------------------------------------	------

Unit: 0 NPDES
CHLORINATION/BROMINATION 2-1 CWP

From: 5/01/93 0:01
Through: 5/31/93 23:59

Parameter:	0100 PEAK	0500 PEAK	0900 PEAK	1300 PEAK	1700 PEAK	2100 PEAK		
	ppb	ppb	ppb	ppb	ppb	ppb		
Sample Time:								
5/28/93 1:00	231	231	231	62	66	66		
5/29/93 1:00	66	62	59	59	56	137		
5/30/93 1:00	231	219	219	231	219	50		
5/31/93 1:00	259	245	219	219	195	195		

7/16/93 14:37	Requested by John Knemeyer	Page: 2
---------------	----------------------------	---------

NOTE: Total Residual Chlorine (TRC) for Circulating Water Pump 2-1 is measured at the Condenser Waterbox Inlet rather than at the Discharge Structure. Sample results are adjusted by the following formula to account for dilution by the unchlorinated Circulating Water Pumps. It is assumed that no chlorine demand exists in the sea water:

$$\frac{\text{ppb TRC}}{\text{\# of operating pumps for both Units}}$$

The daily average TRC value reported on the Q2 forms is the average of the adjusted TRC results for the day.

NOTE: The TRC concentration for each CWP is measured continuously during each chlorination cycle. The peak value for each cycle is reported.



**PACIFIC GAS & ELECTRIC - DIABLO CANYON POWER PLANT
 SANITARY WASTEWATER TREATMENT SYSTEM
 CONTRACT #Z78-2104-86**

REV 5/93

ECO Resources, Inc. 39899 Balentine Drive Suite 200 Newark, CA 94560	Pacific Gas & Electric Company Contacts: Joseph Higgins (805) 545-4103 John Kruemeyer (805) 545-4472
---	---

PARAMETER	UNITS	FREQ.	LIMITS		SAMPLE		RESULT
			MONTHLY AVERAGE	DAILY MAX	DATE	TIME	
1. Oil & Grease	mg/l	Weekly	15	20	5/7/93	8:32 A	94 mg/l
2. "	"	"	"	"	5/13/93	8:40 A	<3 mg/l
3. "	"	"	"	"	5/19/93	8:53 A	<3 mg/l
4. "	"	"	"	"	5/27/93	10:05 A	17 mg/l
5. "	"	"	"	"	_____	_____	_____
1. Suspended Solids	mg/l	Weekly	60	N/A	5/7/93	8:20 A	22 mg/l
2. "	"	"	"	"	5/13/93	8:28 A	16 mg/l
3. "	"	"	"	"	5/19/93	9:05 A	18 mg/l
4. "	"	"	"	"	5/27/93	9:25 A	19 mg/l
5. "	"	"	"	"	_____	_____	_____
1. Settleable Solids	ml/l	Weekly	1.0	3.0	5/7/93	8:26 A	<0.1 ml/l
2. "	"	"	"	"	5/13/93	8:43 A	<0.1 ml/l
3. "	"	"	"	"	5/19/93	9:05 A	<0.1 ml/l
4. "	"	"	"	"	5/27/93	9:31 A	<0.1 ml/l
5. "	"	"	"	"	_____	_____	_____

NOTES:

1. Analysis results above the monthly average shall be reported verbally within 8 hours to a PG&E contact listed above.
2. Oil & Grease and Suspended Solids samples are composites during 1 discharge cycle.
3. If ECO diagnostic analysis results indicate that the system effluent exceeds the listed limits, increase the frequency at which samples are collected and submitted to contract laboratory.

COMMENTS: Oil and Grease sample # 2 on 5/7 had a reading of 258 mg/l

SLUDGE DISPOSAL DATA			
MONTH REMOVED	VOLUME REMOVED	WEIGHT REMOVED	DISPOSAL SITE
MAY 1993		1829 lbs	WALSH - NIPOMO

Data sheet completed by: Melinda J. Buckley Date: 6-4-93



APPENDIX 4

Influent and Effluent Monitoring,

June, 1993



CALIFORNIA REGIONAL WATER QUALITY
CONTROL BOARD
CENTRAL COAST REGION
1102A LAUREL LANE
SAN LUIS OBISPO, CA 93401

DISCHARGE SELF MONITORING REPORT

PACIFIC GAS AND ELECTRIC CO.
DIABLO CANYON NUCLEAR POWER PLANT
PO BOX 56
AVILA BEACH, CALIF 93424
PAGE (H) 1

FACILITY I.D.
3 402003001

YEAR/ MO / DAY
BEGINNING 93 / 06 / 01

YEAR/ MO / DAY
ENDING 93 / 06 / 30

STATE CODE
06

NPDES PERMIT #
CA0003751

STATION ANALYSIS UNITS SHPL TYPE FREQ.	INFLUENT TEMPERATURE DEGREES F METERED CONTINUOUS	EFFLUENT 001 TEMPERATURE DEGREES F METERED CONTINUOUS	DELTA TEMP TEMPERATURE DEGREES F METERED CONTINUOUS	EFFLUENT 001 FLOW MGD RECORDED DAILY	INFLUENT pH pH UNITS GRAB MONTHLY	EFFLUENT 001 pH pH UNITS GRAB MONTHLY (***)	EFFLUENT 001P pH pH UNITS GRAB MONTHLY	EFFLUENT 002 pH pH UNITS GRAB MONTHLY
--	---	---	---	--------------------------------------	-----------------------------------	---	--	---------------------------------------

JUNE								
1	55.5	75.3	19.8	2564	8.0	8.0		
2	52.5	72.3	19.8	2560				
3	51.4	68.0	16.6	2560				
4	51.6	69.9	18.3	2475				
5	53.2	71.0	17.8	1931				
6	53.4	72.1	18.7	1968				
7	52.0	70.1	18.1	2500				
8	50.7	69.5	18.8	2562				
9	50.2	68.9	18.7	2562				
10	50.5	69.1	18.6	2564				
11	49.8	68.5	18.7	2564				
12	49.3	68.0	18.7	2557				
13	49.9	68.5	18.6	2561				
14	51.3	69.9	18.6	2566				
15	50.8	69.5	18.7	2566				2 7.9
16	50.3	68.9	18.6	2564			7.9	
17	51.8	70.3	18.5	2565				
18	53.2	71.6	18.4	2559				
19	54.2	72.7	18.5	2564				
20	54.8	73.3	18.5	2559				
21	55.1	73.7	18.6	2566				
22	52.5	71.5	19.0	2559				
23	50.3	69.2	18.9	2559				
24	52.0	70.5	18.5	2561				
25	55.2	73.9	18.7	2566				
26	56.6	75.1	18.5	2564				
27	55.9	74.5	18.6	2559				
28	55.1	73.9	18.8	2564				
29	53.3	72.2	18.9	2561				
30	52.8	71.7	18.9	2557				
31								

MONTHLY AVG	52.5	71.1	18.6	2435				7.9
MONTHLY HIGH	56.6	75.3	19.8	2566				7.9
MONTHLY LOW	49.3	68.0	16.6	1931				7.9

TIMES EXCEEDED	NO LIMIT	NO LIMIT	MAX 22 = 0	MAX 2760 = 0	NO LIMIT	NO LIMIT	NO LIMIT	NO LIMIT
TIMES EXCEEDED			(**)					
TIMES EXCEEDED								

REMARKS: (**) Number of Samples taken during the day. (***) Except During Deausseling.
 (****) Daily when discharging chemical cleaning wastes from discharges 001D, F, I, L and/or N.

PRINCIPAL EXECUTIVE OFFICER
 GREGORY M. RUEGER

SIGNATURE OF AUTHORIZED AGENT DATE
 J. R. Kennedy 7/19/93









CALIFORNIA REGIONAL WATER QUALITY
CONTROL BOARD
CENTRAL COAST REGION
1102A LAUREL LANE
SAN LUIS OBISPO, CA 93401

DISCHARGE SELF MONITORING REPORT

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S 402003001

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YEAR/ MO / DAY
ENDING 93 / 06 / 30

STATE CODE
06

NPDES PERMIT #
CA0003751

STATION ANALYSIS UNITS SHPL TYPE FREQ.	-----EFFLUENT 0011----- SUSPENDED SOLIDS			-----EFFLUENT 0013----- SUSPENDED SOLIDS		
	mg/l 1st FLTR	mg/l 2nd FLTR	mg/l NET	mg/l 1st FLTR	mg/l 2nd FLTR	mg/l NET
	GRAB MONTHLY			GRAB MONTHLY		
JUNE	1	2	3	4	5	6
	7	8	9	10	11	12
	13	14	15	16	17	18
	19	20	21	22	23	24
	25	26	27	28	29	30
	31					
MONTHLY AVG	NO DISCHARGE					
MONTHLY HIGH						
MONTHLY LOW						
TIMES EXCEEDED	NO LIMIT	NO LIMIT	NO AVG 30 =0	NO LIMIT	NO LIMIT	NO AVG 30 =0
TIMES EXCEEDED			0 MAX 100 =0			0 MAX 100 =0
TIMES EXCEEDED						

REMARKS: (1) Number of Samples taken during the day.

PRINCIPAL EXECUTIVE OFFICER
GREGORY M. RUEGER

SIGNATURE OF AUTHORIZED AGENT DATE
Joakim... 7/19/93





CALIFORNIA REGIONAL WATER QUALITY
CONTROL BOARD
CENTRAL COAST REGION
1102A LAUREL LANE
SAN LUIS OBISPO, CA 93401

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PO BOX 56
AVILA BEACH, CALIF 93424
PAGE (H) 7

FACILITY I.D.
S 402003001

YEAR/ MO / DAY
BEGINNING 93 / 06 / 01

YEAR/ MO / DAY
ENDING 93 / 06 / 30

STATE CODE
06

NPDES PERMIT #
CA0003751

STATION ANALYSIS UNITS SHPL TYPE FREQ.	-----EFFLUENT 001H-----			EFFLUENT 001H	-----EFFLUENT 001P-----		
	SUSPENDED SOLIDS			SUSPENDED SLDS	SUSPENDED SOLIDS		
	mg/l 1st FLTR	mg/l 2nd FLTR	mg/l NET	mg/l	mg/l 1st FLTR	mg/l 2nd FLTR	mg/l NET
	GRAB MONTHLY			COMPOSITE WEEKLY	GRAB MONTHLY		

JUNE									
1									
2									
3				31					
4									
5									
6									
7									
8									
9									
10				20					
11									
12									
13									
14	5	1	4						
15									
16	5	<1	5	13	19	16	3		
17									
18									
19									
20									
21									
22									
23									
24									
25				19					
26									
27									
28									
29									
30									
31									

MONTHLY AVG			5	21				
MONTHLY HIGH			5	31				
MONTHLY LOW			4	13				

TIMES EXCEEDED	NO LIMIT	NO LIMIT	NO AVG 30 =0	NO AVG 60 =0	NO LIMIT	NO LIMIT	NO AVG 30 =0
TIMES EXCEEDED			D MAX 100 =0				D MAX 100 =0
TIMES EXCEEDED							

REMARKS: (1) Number of Samples taken during the day.

PRINCIPAL EXECUTIVE OFFICER:
GREGORY K. RUEGER

SIGNATURE OF AUTHORIZED AGENT: *John K... 7/17/93* DATE





CALIFORNIA REGIONAL WATER QUALITY
CONTROL BOARD
CENTRAL COAST REGION
1102A LAUREL LANE
SAN LUIS OBISPO, CA 93401

DISCHARGE SELF MONITORING REPORT

PACIFIC GAS AND ELECTRIC CO.
DIABLO CANYON NUCLEAR POWER PLANT
PO BOX 56
AVILA BEACH, CALIF 93424
PAGE (H) 9

FACILITY I.D.
3 402003001

YEAR/ MO / DAY
BEGINNING 93 / 06 / 01

YEAR/ MO / DAY
ENDING 93 / 06 / 30

STATE CODE
06

NPDES PERMIT #
CA0003751

STATION ANALYSIS	-----EFFLUENT 003-----			EFFLUENT 001N	EFFLUENT 001	EFFLUENT 001	EFFLUENT 001	EFFLUENT 001
	mg/l 1st FLTR	mg/l 2nd FLTR	mg/l NET	SETTL SOLIDS	T CHROMIUM	COPPER	NICKEL	ZINC
UNIIS				ml/l	ug/l	ug/l	ug/l	ug/l
SMPL TYPE	GRAB			GRAB	GRAB	GRAB	GRAB	GRAB
FREQ.	WEEKLY WHEN 001N & 001P => 003			WEEKLY	MONTHLY	MONTHLY	MONTHLY	MONTHLY
JUNE								
1						5	<3	<3
2								1
3				<0.1				
4								
5								
6								
7								
8								
9								
10				<0.1				
11								
12								
13								
14								
15								
16				<0.1				
17								
18								
19								
20								
21								
22				<0.1				
23								
24								
25								
26								
27								
28								
29								
30								
31								
MONTHLY AVG	NO DISCHARGE			<0.1				
MONTHLY HIGH				<0.1				
MONTHLY LOW				<0.1				
TIMES EXCEEDED	NO LIMIT	NO LIMIT	NO AVG 30 =0	NO AVG 1.0 =0	6M-MEAN 10 =0	6M-MEAN 10 =0	6M-MEAN 30 =0	6M-MEAN 70 =0
TIMES EXCEEDED			D MAX 100 =0	D MAX 3.0 =0	D MAX 40 =0	D MAX 50 =0	D MAX 100 =0	D MAX 380 =0
TIMES EXCEEDED					I MAX 100 =0	I MAX 140 =0	I MAX 260 =0	I MAX 990 =0

REMARKS: (X) Number of Samples taken during the day.

PRINCIPAL EXECUTIVE OFFICER
GREGORY M. RUEGER

SIGNATURE OF AUTHORIZED AGENT DATE
John R. ... 7/19/93



CALIFORNIA REGIONAL WATER QUALITY
CONTROL BOARD
CENTRAL COAST REGION
1102A LAUREL LANE
SAN LUIS OBISPO, CA 93401

DISCHARGE SELF MONITORING REPORT

PACIFIC GAS AND ELECTRIC CO.
DIABLO CANYON NUCLEAR POWER PLANT
PO BOX 56
AVILA BEACH, CALIF 93424
PAGE (0) 1

FACILITY I.D.
3 402003001

YEAR/ MO / DAY
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ENDING 93 / 06 / 30

STATE CODE
06

NPDES PERMIT #
CA0003751

STATION ANALYSIS UNITS SNPL TYPE FREQ.	INFLUENT I CHROMIUM ug/l GRAB JA/AP/JUL/OCT	INFLUENT COPPER ug/l GRAB JA/AP/JUL/OCT	INFLUENT NICKEL ug/l GRAB JA/AP/JUL/OCT	INFLUENT AMMONIA (N) ug/l GRAB JA/AP/JUL/OCT	EFFLUENT 001 AMMONIA (N) ug/l GRAB JA/AP/JUL/OCT	EFFLUENT 001D OIL & GREASE mg/l GRAB JA/AP/JUL/OCT	EFFLUENT 001G OIL & GREASE mg/l GRAB JA/AP/JUL/OCT	EFFLUENT 001H OIL & GREASE mg/l GRAB JA/AP/JUL/OCT
--	---	---	---	--	--	--	--	--

JUNE	I	I	I	I	I	I	I	I	I
1	11	5	11	<3	11	<3			
2									
3									
4									
5									
6									
7									
8									
9									
10									
11									
12									
13									
14									
15									
16									
17									
18									
19									
20									
21									
22									
23									
24									
25									
26									
27									
28									
29									
30									
31									

MONTHLY AVG
MONTHLY HIGH
MONTHLY LOW

TIMES EXCEEDED	NO LIMIT	NO LIMIT	NO LIMIT	NO LIMIT	6M-MEAN 3060 =0	MO AVG 15 =0	MO AVG 15 =0	MO AVG 15 =0
TIMES EXCEEDED					D MAX 12240 =0	D MAX 20 =0	D MAX 20 =0	D MAX 20 =0
TIMES EXCEEDED					I MAX 30600 =0			

REMARKS: (I) Number of Samples taken during the day. (II) Influent analysis performed for comparison to Effluent. All other quarterly analysis were performed in April.

PRINCIPAL EXECUTIVE OFFICER
GREGORY M. RUEGER

SIGNATURE OF AUTHORIZED AGENT DATE
John Freeman 7/19/93





CALIFORNIA REGIONAL WATER QUALITY
CONTROL BOARD
CENTRAL COAST REGION
1102A LAUREL LANE
SAN LUIS OBISPO, CA 93401

DISCHARGE SELF MONITORING REPORT

PACIFIC GAS AND ELECTRIC CO.
DIABLO CANYON NUCLEAR POWER PLANT
PO BOX 55
AVILA BEACH, CALIF 93424
PAGE (A) 1

FACILITY I.D.
3 402003001

YEAR/ MO / DAY
BEGINNING 93 / 06 / 01

YEAR/ MO / DAY
ENDING 93 / 06 / 30

STATE CODE
06

NPDES PERMIT #
CA0003751

STATION ANALYSIS UNITS SMPL TYPE FREQ.	EFFLUENT 001 TITANIUM ug/l GRAB OCTOBER	INFLUENT ARSENIC ug/l GRAB OCTOBER	EFFLUENT ARSENIC ug/l GRAB OCTOBER	INFLUENT CADMIUM ug/l GRAB OCTOBER	EFFLUENT 001 CADMIUM ug/l GRAB OCTOBER	INFLUENT LEAD ug/l GRAB OCTOBER	EFFLUENT 001 LEAD ug/l GRAB OCTOBER	INFLUENT ZINC ug/l GRAB OCTOBER
--	---	------------------------------------	------------------------------------	------------------------------------	--	---------------------------------	-------------------------------------	---------------------------------

JUNE								
1								<1
2								
3								
4								
5								
6								
7								
8								
9								
10								
11								
12								
13								
14								
15								
16								
17								
18								
19								
20								
21								
22								
23								
24								
25								
26								
27								
28								
29								
30								
31								

MONTHLY AVG							
MONTHLY HIGH							
MONTHLY LOW							
TIMES EXCEEDED	NO LIMIT	NO LIMIT	6M-MEAN 30 =0	NO LIMIT	6M-MEAN 10 =0	NO LIMIT	6M-MEAN 10 =0
TIMES EXCEEDED			0 MAX 150 =0		0 MAX 20 =0		0 MAX 40 =0
TIMES EXCEEDED			1 MAX 400 =0		1 MAX 50 =0		1 MAX 100 =0

REMARKS: (1) Number of Samples taken during the day. (2) Influent Zinc analysis performed for comparison to Effluent. All other annual analysis will be performed in October.

PRINCIPAL EXECUTIVE OFFICER
GREGORY M. RUEGER

SIGNATURE OF AUTHORIZED AGENT DATE
Joel Krenn 7/19/93



Unit: 0 NPDES
001 EFFLUENT CHLORINATION

From: 6/01/93 0:01
Through: 6/30/93 23:59

Parameter:	CWP 1-1 Peak Cl2	CWP 2-2 Peak Cl2					
	ppb	ppb					

Sample Time:		
6/01/93 10:00	<1	<1
6/02/93 10:00	<1	<1
6/03/93 10:00	3	<1
6/04/93 10:00	2	<1
6/07/93 10:00	<1	<1
6/10/93 10:00	<1	<1
6/11/93 10:00	16	3
6/14/93 10:00	<1	<1
6/15/93 10:00	1	2
6/16/93 10:00	<1	
6/17/93 10:00	<1	<1
6/18/93 10:00	<1	<1
6/21/93 10:00	<1	<1
6/22/93 10:00	<1	<1
6/23/93 10:00	<1	<1
6/24/93 10:00	<1	<1
6/25/93 10:00	<1	<1
6/28/93 10:00	<1	<1
6/29/93 10:00	<1	<1
6/30/93 10:00	<1	<1

NOTE: Individual sample results for Total Residual Chlorine (TRC) are adjusted by the following formula to account for dilution by the unchlorinated Circulating Water Pumps on the opposite operating Unit. It is assumed that no chlorine demand exists in the sea water:

$$\text{ppb TRC} \times \frac{\text{\# of operating pumps on chlorinated Unit}}{\text{\# of operating pumps for both Units}}$$

The daily average TRC value reported on the Q2 forms is the average of the adjusted TRC results for the day.

NOTE: The TRC concentration for each CWP is measured continuously during each chlorination cycle. The peak value for each cycle is reported.



Unit: 0 NPDES
 CHLORINATION/BROMINATION 1-2 CWP

From: 6/01/93 0:01
 Through: 6/30/93 23:59

Parameter:	0000 Cl2 Peak	0400 Cl2 Peak	0800 Cl2 Peak	1200 Cl2 Peak	1600 Cl2 Peak	2000 Cl2 Peak		
	ppb	ppb	ppb	ppb	ppb	ppb		
Sample Time:								
6/01/93 0:01	5	6	9	10	11	12		
6/02/93 0:01	15	15	15	3	4	4		
6/03/93 0:01	3	4	4	18	<1	15		
6/04/93 0:01	16	15	15	9	<1	13		
6/05/93 0:01	9	10	14	10	10	8		
6/06/93 0:01	6	6	7	5	4			
6/07/93 0:01				<1	<1	<1		
6/08/93 0:01	<1	<1	<1	<1	<1	<1		
6/09/93 0:01	<1	<1	<1	3	3	3		
6/10/93 0:01	3	3	3	12	14	14		
6/11/93 0:01	13	14	14	7	13	3		
6/12/93 0:01	4	4	4	11	10	11		
6/13/93 0:01	11	11	11	8	8	7		
6/14/93 0:01	7	7	7	6	5	5		
6/15/93 0:01	5	5	4	5	5	4		
6/16/93 0:01	4	4	4	4	3	3		
6/17/93 0:01	3	2	2					
6/18/93 0:01					<20	90		
6/19/93 0:01	<20	65	30	30	130	<20		
6/21/93 0:01	<20	<20	<20	45	4	4		
6/22/93 0:01	4	4	4	5	7	7		
6/23/93 0:01	10	10	13	12	11	12		
6/24/93 0:01	11	12	12	10	10	7		
6/25/93 0:01	6	6	5	6	6	4		
6/26/93 0:01	6	4	4	4	<1	4		
6/27/93 0:01	7	9	5	4	5	5		
6/28/93 0:01	4	3	4	6	7	8		

NOTE: Individual sample results for Total Residual Chlorine (TRC) are adjusted by the following formula to account for dilution by the unchlorinated Circulating Water Pumps on the opposite operating Unit. It is assumed that no chlorine demand exists in the sea water:

$$\text{ppb TRC} \times \frac{\text{\# of operating pumps on chlorinated Unit}}{\text{\# of operating pumps for both Units}}$$

The daily average TRC value reported on the Q2 forms is the average of the adjusted TRC results for the day.

NOTE: The TRC concentration for each CWP is measured continuously during each chlorination cycle. The peak value for each cycle is reported.



Unit: 0 NPDES
 CHLORINATION/BROMINATION 1-2 CWP

From: 6/01/93 0:01
 Through: 6/30/93 23:59

Parameter:	0000 Cl2 Peak	0400 Cl2 Peak	0800 Cl2 Peak	1200 Cl2 Peak	1600 Cl2 Peak	2000 Cl2 Peak		
	ppb	ppb	ppb	ppb	ppb	ppb		
Sample Time:								
6/29/93 0:01	10	10	10	7	7	10		
6/30/93 0:01	9	8	7	6	11	14		

NOTE: Individual sample results for Total Residual Chlorine (TRC) are adjusted by the following formula to account for dilution by the unchlorinated Circulating Water Pumps on the opposite operating Unit. It is assumed that no chlorine demand exists in the sea water:

$$\text{ppb TRC} \times \frac{\text{\# of operating pumps on chlorinated Unit}}{\text{\# of operating pumps for both Units}}$$

The daily average TRC value reported on the Q2 forms is the average of the adjusted TRC results for the day.

NOTE: The TRC concentration for each CWP is measured continuously during each chlorination cycle. The peak value for each cycle is reported.



Unit: 0 NPDES
 CHLORINATION/BROMINATION 2-1 CWP

From: 6/01/93 0:01
 Through: 6/30/93 23:59

Parameter:	0100 PEAK	0500 PEAK	0900 PEAK	1300 PEAK	1700 PEAK	2100 PEAK		
	ppb	ppb	ppb	ppb	ppb	ppb		

6/01/93 1:00	231	219	219	231	231	231		
6/02/93 1:00	245	245	231	231	231	231		
6/03/93 1:00	219	245	219	207	207	219		
6/04/93 1:00	207	219	195	174	195	165		
6/05/93 1:00	165	184	174	165	165	155		
6/06/93 1:00	155	155	155	139	117	131		
6/07/93 1:00	174	174	174	184	184	184		
6/08/93 1:00	174	174	155	131	111	104		
6/09/93 1:00	184	207	231	147	131	117		
6/10/93 1:00	124	111	0	259	274	274		
6/11/93 1:00	259	274	274	207	231	245		
6/12/93 1:00	245	259	259	245	245	259		
6/13/93 1:00	259	259	245	231	231	231		
6/14/93 1:00	245	245	231	207	195	207		
6/15/93 1:00	219	245	231	219	219	207		
6/16/93 1:00	231	245	231	231	231	231		
6/17/93 1:00	245	231	219	207	207	219		
6/18/93 1:00	207	219	231	174	155	174		
6/19/93 1:00	165	184	174	139	147	155		
6/20/93 1:00	124	147	83	83	36	42		
6/21/93 1:00	63	50	28	147	165	174		
6/22/93 1:00	165	174	165	184	207	195		
6/23/93 1:00	231	274	259	231	231	245		
6/24/93 1:00	219	231	219	207	207	195		
6/25/93 1:00	174	174	174	174	195	184		
6/26/93 1:00	231	219	207	174	50	184		
6/27/93 1:00	184	184	174	174	184	174		

NOTE: Total Residual Chlorine (TRC) for Circulating Water Pump 2-1 is measured at the Condenser Waterbox Inlet rather than at the Discharge Structure. Sample results are adjusted by the following formula to account for dilution by the unchlorinated Circulating Water Pumps. It is assumed that no chlorine demand exists in the sea water:

$$\frac{\text{ppb TRC}}{\text{\# of operating pumps for both Units}}$$

The daily average TRC value reported on the Q2 forms is the average of the adjusted TRC results for the day.

NOTE: The TRC concentration for each CWP is measured continuously during each chlorination cycle. The peak value for each cycle is reported.



Unit: 0 NPDES
 CHLORINATION/BROMINATION 2-1 CWP

From: 6/01/93 0:01
 Through: 6/30/93 23:59

Parameter:	0100 PEAK	0500 PEAK	0900 PEAK	1300 PEAK	1700 PEAK	2100 PEAK		
	ppb	ppb	ppb	ppb	ppb	ppb		
6/28/93 1:00	174	174	184	184	195	231		
6/29/93 1:00	245	259	231	195	207	231		
6/30/93 1:00	195	195	174	139	207	219		

NOTE: Total Residual Chlorine (TRC) for Circulating Water Pump 2-1 is measured at the Condenser Waterbox Inlet rather than at the Discharge Structure. Sample results are adjusted by the following formula to account for dilution by the unchlorinated Circulating Water Pumps. It is assumed that no chlorine demand exists in the sea water:

$$\frac{\text{ppb TRC}}{\# \text{ of operating pumps for both Units}}$$

The daily average TRC value reported on the Q2 forms is the average of the adjusted TRC results for the day.

NOTE: The TRC concentration for each CWP is measured continuously during each chlorination cycle. The peak value for each cycle is reported.



**SANITARY WASTEWATER TREATMENT SYSTEM
CONTRACT #Z78-2104-86**

REV 5/93

ECO Resources, Inc. 39899 Balentine Drive Suite 200 Newark, CA 94560	Pacific Gas & Electric Company Contacts: Joseph Higgins (805) 545-4103 John Knemeyer (805) 545-4472
--	---

PARAMETER	UNITS	FREQ.	LIMITS		SAMPLE		RESULT
			MONTHLY AVERAGE	DAILY MAX	DATE	TIME	
1. Oil & Grease	mg/l	Weekly	15	20	6-3-93	10:32am	34 mg/l
2. "	"	"	"	"	6-10-93	11:37am	16 mg/l
3. "	"	"	"	"	6-16-93	8:25am	9 mg/l
4. "	"	"	"	"	6-22-93	1:11pm	12 mg/l
5. "	"	"	"	"	6-23-93	1:32pm	4 mg/l
					6-24-93	1:19pm	7.3 mg/l
1. Suspended Solids	mg/l	Weekly	60	N/A	6-3-93	10:16am	31 mg/l
2. "	"	"	"	"	6-10-93	11:17am	20 mg/l
3. "	"	"	"	"	6-16-93	8:13am	13 mg/l
4. "	"	"	"	"	6-22-93	12:47pm	19 mg/l
5. "	"	"	"	"			
1. Settleable Solids	ml/l	Weekly	1.0	3.0	6-3-93	10:18am	< 0.1 ml/l
2. "	"	"	"	"	6-10-93	11:45am	< 0.1 ml/l
3. "	"	"	"	"	6-16-93	8:16am	< 0.1 ml/l
4. "	"	"	"	"	6-22-93	1:14pm	< 0.1 ml/l
5. "	"	"	"	"			

NOTES:

1. Analysis results above the monthly average shall be reported verbally within 8 hours to a PG&E contact listed above.
2. Oil & Grease and Suspended Solids samples are composites during 1 discharge cycle.
3. If ECO diagnostic analysis results indicate that the system effluent exceeds the listed limits, increase the frequency at which samples are collected and submitted to contract laboratory.

COMMENTS:

SLUDGE DISPOSAL DATA			
MONTH REMOVED	VOLUME REMOVED	WEIGHT REMOVED	DISPOSAL SITE
JUNE 1993		1403 lbs	Walsh-Nipomo

Mitchell & Berleap 7-9-93



**SANITARY WASTEWATER TREATMENT SYSTEM
CONTRACT #Z78-2104-86**

REV 5/93

ECO Resources, Inc. 39899 Balentine Drive Suite 200 Newark, CA 94560	Pacific Gas & Electric Company Contacts: Joseph Higgins (805) 545-4103 John Knemeyer (805) 545-4472
--	--

PARAMETER	UNITS	FREQ.	LIMITS		SAMPLE		RESULT
			MONTHLY AVERAGE	DAILY MAX	DATE	TIME	
1. Oil & Grease	mg/l	Weekly	15	20	6-29-93	1:30pm	3.7 mg/
2. "	"	"	"	"			
3. "	"	"	"	"			
4. "	"	"	"	"			
5. "	"	"	"	"			
1. Suspended Solids	mg/l	Weekly	60	N/A			
2. "	"	"	"	"			
3. "	"	"	"	"			
4. "	"	"	"	"			
5. "	"	"	"	"			
1. Settleable Solids	ml/l	Weekly	1.0	3.0			
2. "	"	"	"	"			
3. "	"	"	"	"			
4. "	"	"	"	"			
5. "	"	"	"	"			

NOTES:

1. Analysis results above the monthly average shall be reported verbally within 8 hours to a PG&E contact listed above.
2. Oil & Grease and Suspended Solids samples are composites during 1 discharge cycle.
3. If ECO diagnostic analysis results indicate that the system effluent exceeds the listed limits, increase the frequency at which samples are collected and submitted to contract laboratory.

COMMENTS:

SLUDGE DISPOSAL DATA

MONTH REMOVED	VOLUME REMOVED	WEIGHT REMOVED	DISPOSAL SITE



APPENDIX 5

DCPP Acute Bioassay

April 5, 1993



PACIFIC GAS AND ELECTRIC COMPANY
NRS Onsite Dosimetry and Environmental Services
 P. O. Box 56
 Avila Beach, California 93424

LABORATORY TEST REPORT

SUBJECT: ACUTE TOXICITY ASSESSMENT OF DISCHARGE WATER FROM DIABLO CANYON POWER PLANT, SECOND QUARTER OF 1993

Introduction:

One acute toxicity bioassay was conducted at the Nuclear Regulatory Services Diablo Canyon Biological Laboratory on water sampled on April 5, 1993, from Diablo Canyon Power Plant's discharge 001. This bioassay satisfies the quarterly requirement for acute toxicity testing in Diablo Canyon Power Plant's NPDES Permit.

Methods:

The bioassay was a standard 96-hour static acute toxicity test conducted using the guidelines in Kopperdahl (1976) and EPA (1985). The dilutions tested were 100 percent effluent and a dilution water control. Juvenile red abalone (*Haliotis rufescens*) were used as the test species.

Results:

The bioassay (DCPP-200) was begun within twenty-four hours of sample collection. Toxicity was 0 (no mortality was observed). All measured chemical and physical parameters fell within accepted limits. The data sheet is attached.

SUMMARY OF RESULTS

<u>Assay No.</u>	<u>Date Sampled</u>	<u>Location</u>	<u>Toxicity (TU)</u>
DCPP-200	April 5, 1993	Discharge 001	0 (no mortality)

References:

Kopperdahl, Fredric R. 1976. Guidelines for Performing Static Acute Toxicity Fish Bioassays in Municipal and Industrial Wastewaters. State Water Resources Control Board, and California Department of Fish and Game

EPA, 1985. Methods for Measuring the Acute Toxicity of Effluents to Freshwater and Marine Organisms. Third Edition. EPA/600/4-85/013

Distribution: JVBoots
 RWLorenz
 JRKnemeyer
 DCSommerville
 TCWilson
 RMS Indexer

DATE April 26, 1993
 TESTED BY James L. Kelly
 APPROVED DCSommerville
 FILE NO. _____



PACIFIC GAS & ELECTRIC COMPANY
Technical and Ecological Services
DIABLO CANYON BIOLOGICAL LABORATORY
STATIC BIOASSAY REPORT SHEET
One Concentration

ASSAY NO. DCPP-200

TEST ORGANISM DATA

TEST SPECIES RED ABALONE HALIOTIS RUFESCENS
SOURCE CAYUCOS ABALONE FARM
AVERAGE LENGTH 17.6 mm RANGE 14-20 MILLIMETER
ACCLIMATION TIME 23 WEEKS TEMPERATURE 12-15° CELSIUS
WATER SOURCE DIABLO CANYON POND LAB PUMP

TEST SOLUTION DATA

SOURCE OF TEST SOLUTION DIABLO CANYON POWER
PLANT UNIT 1 DISCHARGE EFFLUENT
GRAB SAMPLE (UNIT 2 IN REFUELING OUTAGE)
DATE/TIME SAMPLED 05 APRIL 1993 / 08:30 R.K. CUNNINGHAM

DATE STARTED 05 APRIL 1993
VOLUME/DEPTH OF TEST SOLUTION 16 LITER / 19 CM
TYPE OF AERATION RINZ COMPRESSOR

TIME STARTED 15:00 HRS.
RENEWAL OF TEST SOLUTION AT 0 HR. INTERVALS
NUMBER OF ORGANISMS PER CONCENTRATION 30
DILUTION WATER SOURCE CONTROL, DCPP BIO LAB PUMP

TEST CONCENTRATIONS

0 HOURS	100%	CONTROL	INITIALS
TEMP.	<u>11.2°c</u>	<u>11.2°c</u>	<u>BKC</u>
D.O.	<u>7.4</u>	<u>7.9</u>	<u>BKC</u>
pH	<u>8.0</u>	<u>8.0</u>	<u>BKC</u>
SALINITY/HARDNESS	<u>35.0</u>	<u>34.5</u>	<u>BKC</u>
24 HOURS			
ORGANISMS SURVIVING	<u>30</u>	<u>30</u>	<u>BKC</u>
% SURVIVAL	<u>100%</u>	<u>100%</u>	<u>BKC</u>
TEMP.	<u>11.2°c</u>	<u>11.2°c</u>	<u>BKC</u>
D.O.	<u>8.4</u>	<u>8.4</u>	<u>BKC</u>
pH	<u>8.0</u>	<u>8.0</u>	<u>BKC</u>
48 HOURS			
ORGANISMS SURVIVING	<u>30</u>	<u>30</u>	<u>BKC</u>
% SURVIVAL	<u>100%</u>	<u>100%</u>	<u>BKC</u>
TEMP.	<u>11.1°c</u>	<u>11.6°c</u>	<u>BKC</u>
D.O.	<u>8.4</u>	<u>8.2</u>	<u>BKC</u>
pH	<u>8.0</u>	<u>8.0</u>	<u>BKC</u>
72 HOURS			
ORGANISMS SURVIVING	<u>30</u>	<u>30</u>	<u>BKC</u>
% SURVIVAL	<u>100%</u>	<u>100%</u>	<u>BKC</u>
TEMP.	<u>11.3°c</u>	<u>11.3°c</u>	<u>BKC</u>
D.O.	<u>8.3</u>	<u>8.4</u>	<u>BKC</u>
pH	<u>7.9</u>	<u>7.9</u>	<u>BKC</u>
96 HOURS			
ORGANISMS SURVIVING	<u>30</u>	<u>30</u>	<u>BKC</u>
% SURVIVAL	<u>100%</u>	<u>100%</u>	<u>BKC</u>
TEMP.	<u>11.2°c</u>	<u>11.2°c</u>	<u>BKC</u>
D.O.	<u>8.5</u>	<u>8.2</u>	<u>BKC</u>
pH	<u>7.9</u>	<u>7.9</u>	<u>BKC</u>
SALINITY/HARDNESS	<u>36.0</u>	<u>35.0</u>	<u>BKC</u>

TU: 0, No Mortality
Procedure No. 2.3
Temp. Probe No. 012
Cal. Due Date 12 FEBRUARY 1994

TESTED BY BK CUNNINGHAM
Reviewed by James L. Kelly



APPENDIX 6

DCPP Chronic Bioassay

April 21, 1993



PACIFIC GAS AND ELECTRIC COMPANY
NRS Onsite Dosimetry and Environmental Services
 P. O. Box 56
 Avila Beach, California 93424

LABORATORY TEST REPORT

**SUBJECT: CHRONIC TOXICITY ASSESSMENT OF DISCHARGE WATER FROM
 DIABLO CANYON POWER PLANT, SECOND QUARTER OF 1993**

Introduction:

One chronic toxicity bioassay was conducted at the Nuclear Regulatory Services Diablo Canyon Biological Laboratory on water sampled April 20 through 21, 1993, from Diablo Canyon Power Plant's discharge 001. This bioassay satisfies the quarterly requirement for chronic toxicity testing in the 1990 California Ocean Plan.

Methods:

The bioassay was a 48 hour chronic toxicity test conducted using a state approved protocol developed by the Water Resources Control Board. Larval red abalone (*Haliotis rufescens*) were used as the test organism. The bioassay (DCPP-201) was begun within thirty six hours of sample collection.

Results:

The highest concentration that was not significantly different from the Control was the 100% concentration (No Observed Effect Level (NOEL) = 100%). Toxicity (TUc) = 100/NOEL = 1. A chronic toxicity value of 1 indicates that no chronic toxicity was detected in any of the concentrations. The data were analyzed using ANOVA with Dunnet's Test. The effluent test and the reference toxicant test met all test acceptance criteria. Data sheets and statistical analysis results are attached.

SUMMARY OF RESULTS

<u>Test Solution</u>	<u>Assay No.</u>	<u>Date Sampled</u>	<u>Toxicity (TUc)</u>
Discharge 001	DCPP-201	April 20-21, 1993	1.0 (NOEL = 100%)
Reference Toxicant	NA	April 20, 1993	3.13 (NOEL = 32µg/l)

References:

State of California. October 1990. Procedures Manual on Conducting Toxicity Tests Developed by the Marine Bioassay Project. Water Resources Control Board.

Distribution: JVBoots
 RWLorenz
 DCSommerville
 JWWarrick
 TCWilson
 RMS Indexer

DATE May 6, 1993
 TESTED BY James L. Kelly
 APPROVED [Signature]
 FILE NO. _____



DCPP - 201 Chronic Larval Abalone Bioassay Diablo Canyon Power Plant Unit 1 Discharge Effluent 24 Hour Composite Sample

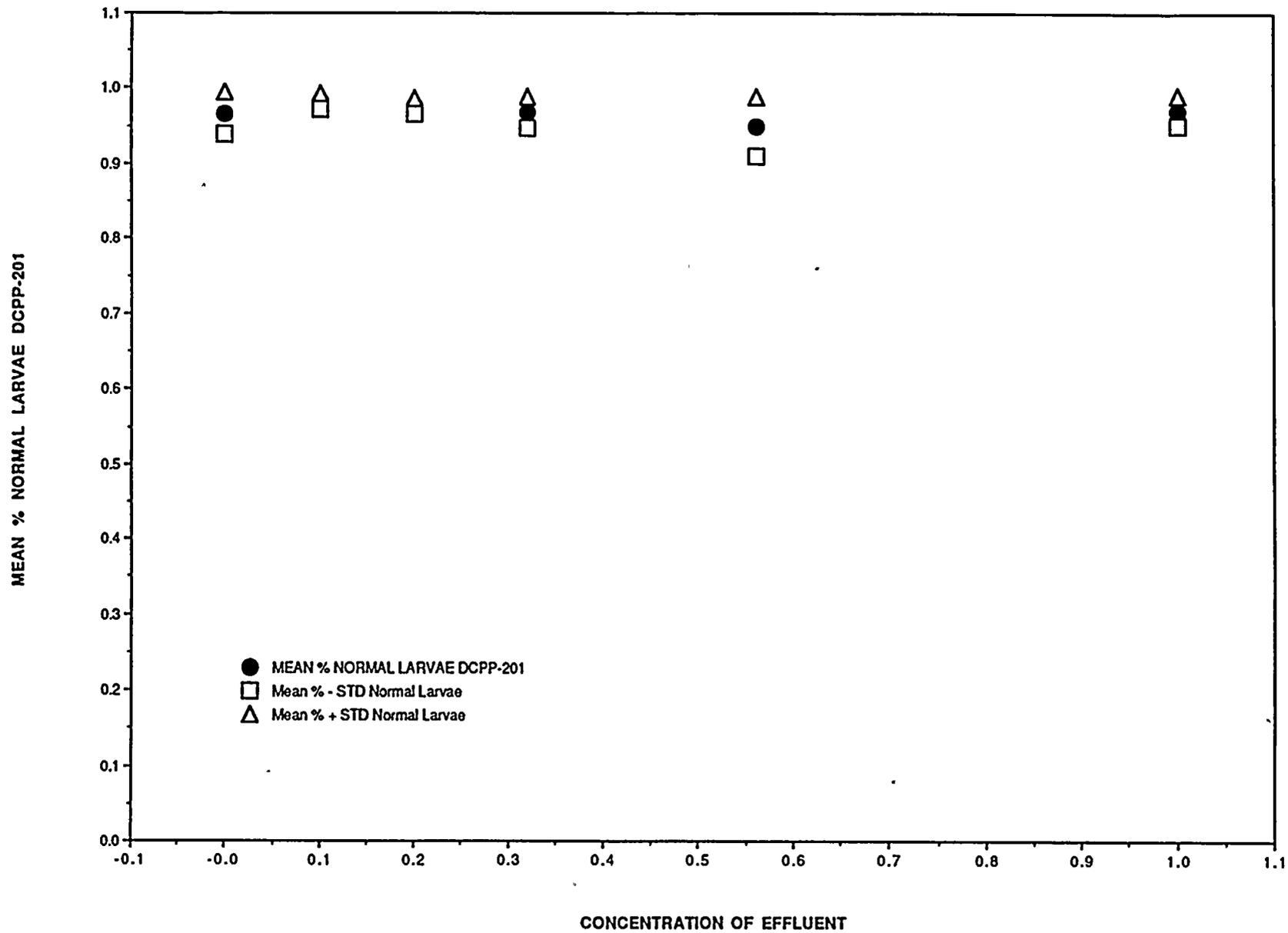
Test Container Number	Effluent Concentration Percent	Number Abnormal Larvae	Number Normal Larvae	Percentage of Normal Larvae	Mean % Normal Larvae	Standard Deviation Normal L.	Mean less Standard Deviation	Mean plus Standard Deviation	Percentage of Abnormal Larvae	Mean % Abnormal Larvae
10	0.0% Control 0.45 um Filtered Seawater	2	198	99.00%	0.966	0.028	0.938	0.994	1.00%	0.034
11		3	197	98.50%					1.50%	
53		7	193	96.50%					3.50%	
56		6	194	97.00%					3.00%	
68		16	184	92.00%					8.00%	
5	10.0%	5	195	97.50%	0.983	0.010	0.973	0.993	2.50%	0.017
7		6	194	97.00%					3.00%	
24		2	198	99.00%					1.00%	
34		3	197	98.50%					1.50%	
36		1	199	99.50%					0.50%	
26	20.0%	8	192	96.00%	0.976	0.011	0.965	0.987	4.00%	0.024
42		2	198	99.00%					1.00%	
44		4	196	98.00%					2.00%	
48		6	194	97.00%					3.00%	
51		4	196	98.00%					2.00%	
12	32.0%	4	196	98.00%	0.968	0.020	0.948	0.988	2.00%	0.032
21		11	189	94.50%					5.50%	
25		9	191	95.50%					4.50%	
29		1	199	99.50%					0.50%	
62		7	193	96.50%					3.50%	
19	56.0%	5	195	97.50%	0.949	0.039	0.910	0.988	2.50%	0.051
27		7	193	96.50%					3.50%	
50		8	192	96.00%					4.00%	
67		24	176	88.00%					12.00%	
69		7	193	96.50%					3.50%	
4	100.0%	7	193	96.50%	0.971	0.020	0.951	0.991	3.50%	0.029
20		5	195	97.50%					2.50%	
39		2	198	99.00%					1.00%	
40		3	197	98.50%					1.50%	
59		12	188	94.00%					6.00%	



DCPP - 201

Chronic Larval Abalone Bioassay April 21 - 23 , 1993

Diablo Canyon Power Plant Unit 1 Discharge



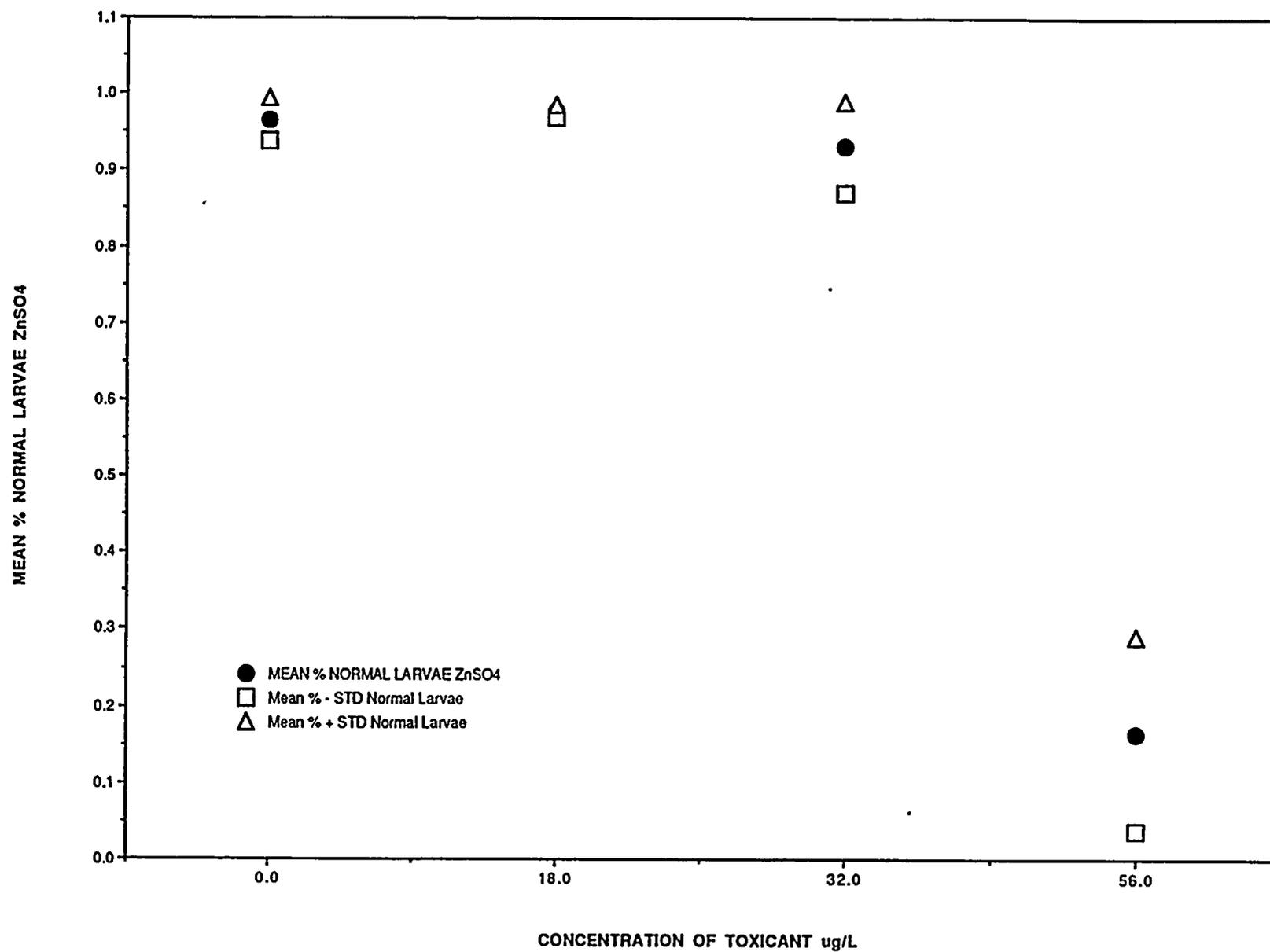




DCPP - 201 Chronic Larval Abalone Bioassay Zinc Sulfate Reference Toxicant Preparations

Test Container Number	Toxicant Concentration ug per Liter	Number Abnormal Larvae	Number Normal Larvae	Percentage of Normal Larvae	Mean % Normal Larvae	Standard Deviation Normal L.	Mean less Standard Deviation	Mean plus Standard Deviation	Percentage of Abnormal Larvae	Mean % Abnormal Larvae
10	0.0 Control 0.45 um Filtered Seawater	2	198	99.00%	0.966	0.028	0.938	0.994	1.00%	0.034
11		3	197	98.50%					1.50%	
53		7	193	96.50%					3.50%	
56		6	194	97.00%					3.00%	
68		16	184	92.00%					8.00%	
6	18.0	5	195	97.50%	0.977	0.008	0.969	0.985	2.50%	0.023
9		6	194	97.00%					3.00%	
32		5	195	97.50%					2.50%	
47		5	195	97.50%					2.50%	
54		2	198	99.00%					1.00%	
17	32.0	5	195	97.50%	0.931	0.059	0.872	0.990	2.50%	0.069
18		4	196	98.00%					2.00%	
31		9	191	95.50%					4.50%	
45		19	181	90.50%					9.50%	
65		32	168	84.00%					16.00%	
2	56.0	151	49	24.50%	0.164	0.127	0.037	0.291	75.50%	0.836
35		155	45	22.50%					77.50%	
43		141	59	29.50%					70.50%	
60		195	5	2.50%					97.50%	
66		194	6	3.00%					97.00%	









PHYSICAL / CHEMICAL MEASUREMENTS
Red Abalone Chronic Bioassay
Diablo Canyon Biological Laboratory

Test Start Date/Time : April 21, 1993 @ 14:57

Bioassay Number (s) : DCP - 201

Test Finish Date/Time : April 23, 1993 @ 14:57

Collection Date (s) : April 20 - 21, 1993 @ 08:00

Test Organism : *Haliotis rufescens*

MEASUREMENTS AT START OF ASSAY

MEASUREMENTS AT FINISH OF ASSAY

	PH	D. OXYGEN	SALINITY	CONTAINER	PH	D. OXYGEN	SALINITY
CONTROL	7.9	7.4	33	11	8	7.8	36

REFERENCE TOXICANT : ZnSO4

18ug / L	7.9	7.5	33	32	8	7.7	36
32ug / L	7.9	7.6	34	45	8	7.7	36
56ug / L	7.9	7.5	33	66	8.1	7.7	37

Effluent Source : Diablo Canyon PP Unit 1 Discharge

Collection Date/Time : April 20-21, 1993 @ 08:00

10%	7.9	7.4	33	34	8	7.7	36
20%	7.9	7.3	33	26	8	7.8	36
32%	7.9	7.4	33	12	8.1	7.7	37
56%	8	7.3	34	50	8	7.8	36
100%	8	7.4	34	39	8	7.7	36

Hourly Temperature Data

Hour 01	Hour 13	Hour 25	Hour 37
15.16	15.11	15.28	15.20
14.96	15.14	15.27	15.21
14.83	15.17	15.29	15.19
14.80	15.20	15.30	15.20
14.81	15.23	15.28	15.19
14.88	15.24	15.27	15.16
14.90	15.25	15.24	15.13
14.87	15.29	15.20	15.09
14.88	15.31	15.17	15.06
14.96	15.36	15.16	15.02
15.01	15.34	15.19	15.04
15.06	15.30	15.18	15.28
Hour 12	Hour 24	Hour 36	Hour 48

Mean Temperature 48 Hour Static Test

15.14

Degrees Celsius

Standard Deviation Hourly Temperature

0.15

Analyzed By : BK Cunningham , SC Borucki

Reviewed by : James L. Kelly

Date Analyzed : April 21 , 1993 : April 23 , 1993

Date Reviewed : 5/4/93



ABALONE SPAWN AND FERTILIZATION WORKSHEET

Red Abalone Chronic Bioassay
Diablo Canyon Biological Laboratory

Test Start Date/Time : APRIL 21, 1993 AT 14:57 Bioassay Number(s) : DCPP - 201

Test Finish Date/Time : APRIL 23, 1993 AT 14:57 Effluent Source (s) : Diablo Canyon PP Discharge

Test Organism : Haliotis rufescens Collection Date/Time : April 20 - 21, 1993 @ 08:00

	Males Used	Gonad Index	Date Last Used		Females Used	Gonad Index	Date Last Used
1	Unmarked	4	No Prior Use	1	Unmarked	4	No Prior Use
2	Unmarked	4	No Prior Use	2	Unmarked	4	No Prior Use
3	Unmarked	4	No Prior Use	3	Unmarked	4	No Prior Use
4	Unmarked	4	No Prior Use	4	Unmarked	4	No Prior Use

Method of spawning : Peroxide () UV irradiated seawater () Other _____

Beginning of spawning treatment : 1030 Peroxide Solution Flushed From Spawning Tanks :

First male spawns : 1242 Males: 1242 Females: 1258

First female spawns : 1258 Comments: MALE SPAWNING IN PEROXIDE

Multiple spawners : Male : 1315 Female : 1258

Condition of spawn : Males : light () moderate () heavy : Females : () light () moderate heavy

Sperm added to egg container : 1345 Time fertilization complete : 1402

Condense the fertilized eggs into a beaker and determine the density. Counts of 1 ml samples :

1: 245 2: 248 3: 270 4: 267 5: 247
Mean : 255.4 STD : _____

Add 1000 embryos to each test container :
Pipette the volume calculated below from the well-mixed beaker sampled above.

(1000 embryos/test container) / (255 #embryos/ml) = 3.92 ml/test container

Temperature of embryos : 15.2° Celsius Temperature of test containers : 14.6° Celsius

Time all containers in incubator : 1457

Comments : To insure adequate spawn success, 3 additional Male, and 2 additional Female abalone, Gonad Index 3 - 4, will be used in the Hydrogen Peroxide spawn induction procedure.

Prepared By : BRYAN K CUNNINGHAM

Reviewed By : James L. Kelly

Date Prepared : APRIL 21, 1993

Date Reviewed : 5/4/93



APPENDIX 7

DIABLO CANYON POWER PLANT

RECEIVING WATER STRATIFIED WATER TEMPERATURES

June 24, 1993

On June 24, 1993, from approximately 1040 until 1200 PDT, stratified water temperatures were measured at six stations inside Diablo Cove (Figure 7.1). Swell was from the northwest at a height of about 4-6 feet. The wind speed was approximately 0-5 knots during the sampling.

Water temperatures were measured at one meter depth intervals utilizing an electronic bathythermograph. The bathythermograph is a self-contained unit with a temperature sensor which has a response time of 0.25 seconds and an accuracy to $\pm 0.10^{\circ}\text{F}$ ($\pm 0.05^{\circ}\text{C}$). Instrument depth is determined by a pressure transducer with an accuracy of 0.3% (full scale). The bathythermograph's yearly calibration is traceable to the National Institute of Standards and Technology.

Water temperatures (Table 7.1) ranged from a high of 68.0°F on the surface at Station 10, to a low of 50.0°F on the bottom at Station 12. The range of water temperatures measured between the top and bottom at any one station varied from 17.4°F at Station 10 to 13.0°F at Station 15. Stratification of the water column is influenced by the thermal discharge plume.

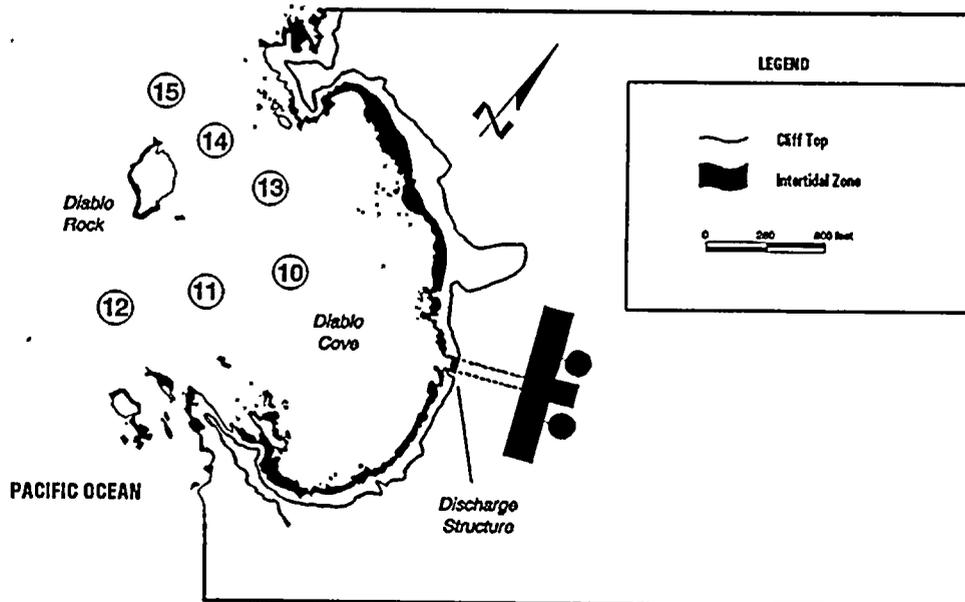


Figure 7.1 Stratified Water Temperature Stations





APPENDIX 8
DIABLO CANYON POWER PLANT
RECEIVING WATER
DISSOLVED OXYGEN DETERMINATIONS
and pH MEASUREMENTS

June 24, 1993

On June 24, 1993, from approximately 1040 until 1200 PDT, sea water samples were collected at six stations in Diablo Cove to determine dissolved oxygen concentrations and pH (Figure 8.1). Swell was from the northwest at a height of about 4-6 feet. The wind speed was approximately 0-5 knots during the sampling.

Surface, mid-depth, and bottom water samples were collected at each station using a hydrocast array of sampling bottles. Samples for dissolved oxygen determinations were preserved with magnesium sulfate and alkaline-azide immediately after collection. Analysis of the samples was conducted at the onsite oceanographic laboratory. Dissolved oxygen concentrations were determined using a modified Winkler titration method, with an accuracy of +0.1 mg/L. A pH meter with an accuracy of ± 0.1 units was used to measure pH levels.

Dissolved oxygen values (Table 8.1) ranged from a high of 7.8 mg/L on the surface at Stations 10 and 13 and mid-depth at Station 13, to a low of 4.8 mg/L on the bottom at Station 12. Measured pH values (Table 8.2) were relatively uniform throughout the water column at all stations, varying between 7.7 and 7.8.

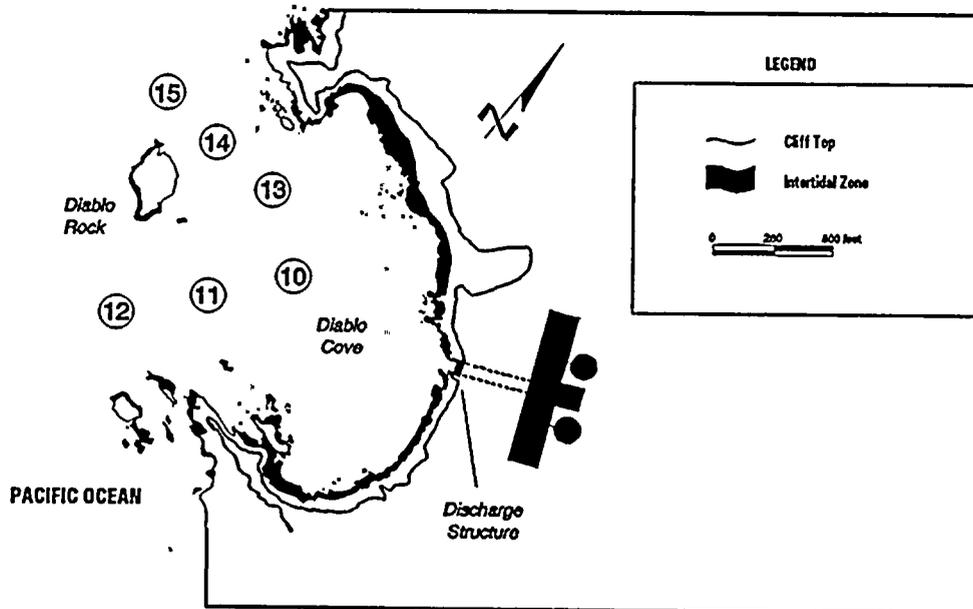


Figure 8.1. Dissolved Oxygen and pH Stations



TABLE 8.1
DIABLO CANYON POWER PLANT
RECEIVING WATER
DISSOLVED OXYGEN DETERMINATIONS (mg/L)
June 24, 1993

Station	Surface	Mid-depth	Bottom
10	7.8	7.2	5.4
11	7.0	6.4	5.0
12	6.8	5.6	4.8
13	7.8	7.8	6.7
14	7.7	7.4	7.4
15	7.6	6.6	6.4

TABLE 8.2
DIABLO CANYON POWER PLANT
RECEIVING WATER
pH MEASUREMENTS
June 24, 1993

Station	Surface	Mid-depth	Bottom
10	7.8	7.8	7.8
11	7.8	7.8	7.8
12	7.8	7.8	7.7
13	7.8	7.8	7.8
14	7.8	7.8	7.8
15	7.8	7.8	7.8

