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 TOWNSEND, J.D.      Pacific Gas & Electric Co.  
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SUBJECT: "Rept on Discharge Monitoring at Diablo Canyon Power Plant During Month of Apr 1990." W/900517 ltr.

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	IRM TECH ADV		1	1		NRR/DREP/PRPB11		2	2
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	RGN5 DRSS/RPB		2	2		RGN5 FILE 02		1	1
EXTERNAL:	BNL TICHLER, J03		1	1		EG&G SIMPSON, F		2	2
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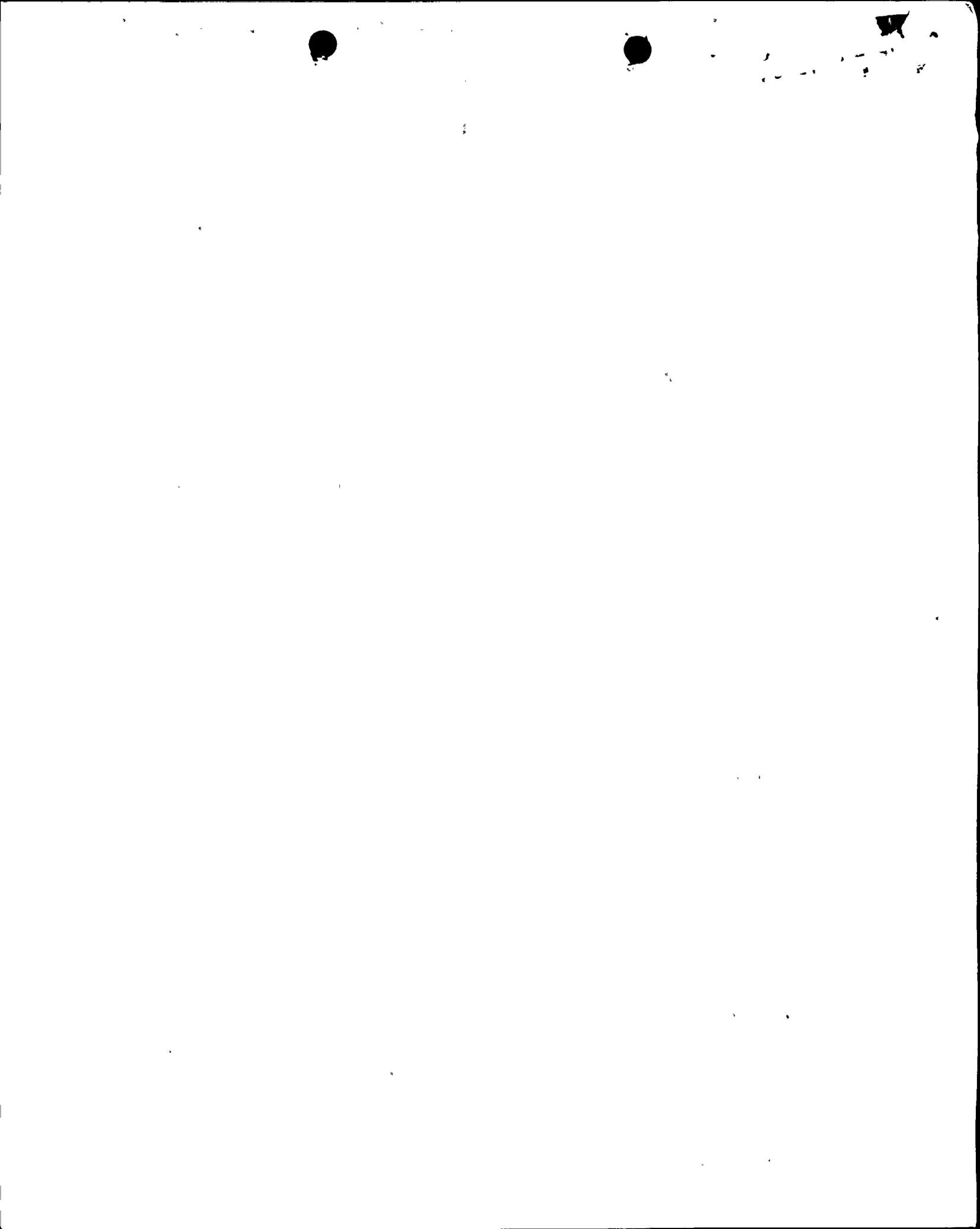
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Pacific Gas and Electric Company

Diablo Canyon Power Plant  
P.O. Box 56  
Avila Beach, CA 93424  
805/595-7351

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

May 17, 1990



Mr. William Leonard, Executive Officer  
California Regional Water Quality Control Board  
Central Coast Region  
1102-A Laurel Lane  
San Luis Obispo, California 93401

Dear Mr. Leonard:

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

The monthly report for April 1990 of the Diablo Canyon Power Plant Discharge Monitoring Program, in accordance with Order 85-101, NPDES No. CA0003751 is enclosed.

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 any 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 further questions, please contact Mr. Michael L. O'Connell of my staff at (805) 595-4580.

Kindly acknowledge receipt of this material on the enclosed copy of this letter and return it in the enclosed addressed envelope.

Sincerely,

A handwritten signature in black ink, appearing to read 'J.D. Townsend'.

JDT:af

Enclosure

9005230079 900430  
PDR ADDCK 05000275  
R . . . . . FDC

JEAS  
11



11

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

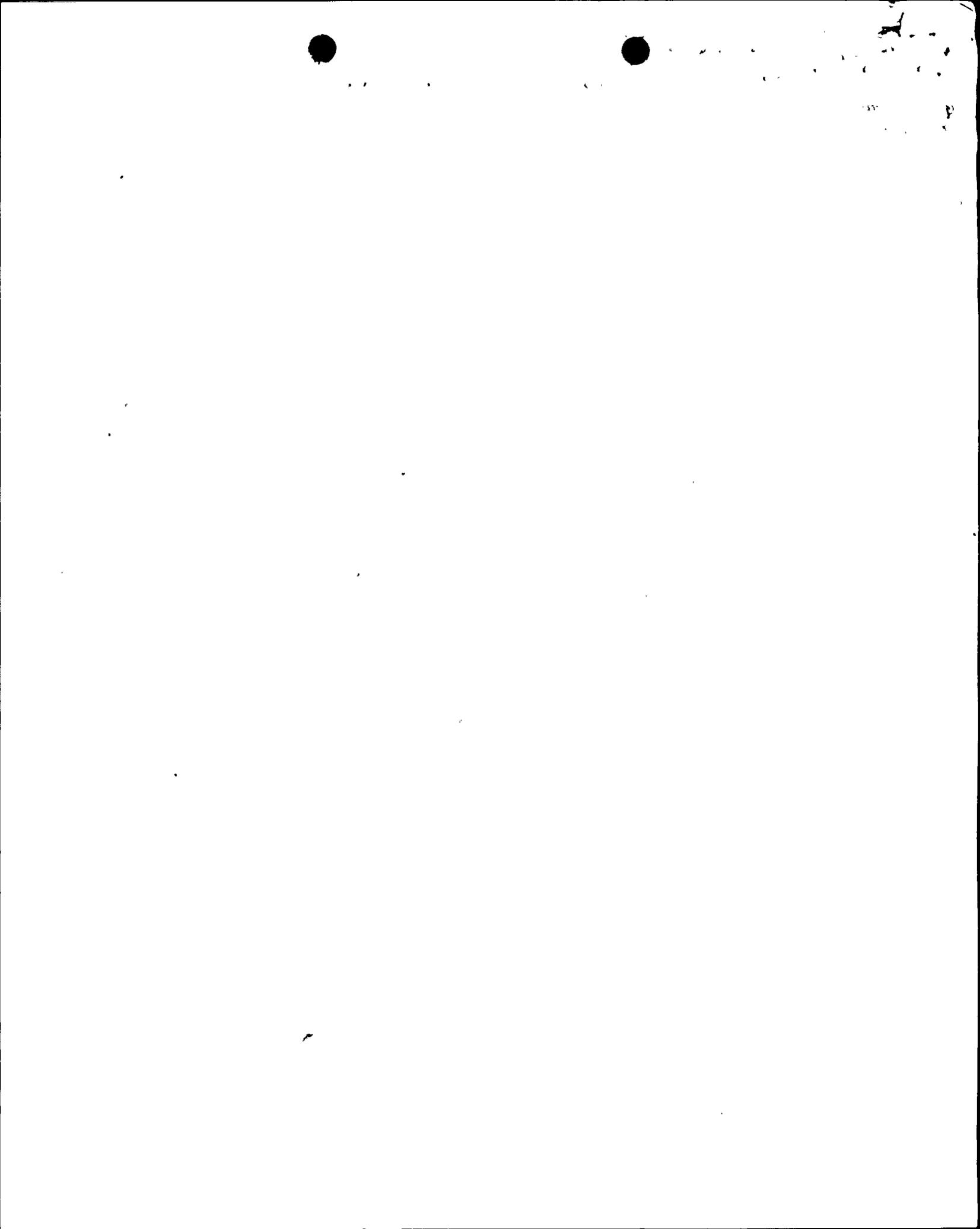
Regional Administrator, Region IX  
Environmental Protection Agency  
215 Fremont Street  
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San Francisco, California 94105

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





PACIFIC GAS & ELECTRIC COMPANY

NUCLEAR PLANT OPERATIONS

REPORT ON

DISCHARGE MONITORING AT

DIABLO CANYON POWER PLANT

DURING THE MONTH OF

APRIL 1990

...9005230079



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## OVERVIEW

- A. During the month of April, discharges occurred from Discharge Paths 001 (once through cooling water), 001A, 001B, 001D, 001E, 001F, 001G, 001H, 001J, 001L, 001M, 001N, 001P, and 002 through 0013. No discharges occurred from Discharge Paths 001C, 001I, and 001K.
- B. On April 12, 1990, an analysis result of a sample from the effluent of the Oily Water Separator, OWS, Discharge 001F, indicated that the Grease & Oil concentration was 45mg/l, which is above the daily maximum concentration of 20mg/l. The OWS was taken out of the discharge mode and placed into a recirculation mode to reduce the oil content of the Turbine Building Sump.

After cleanup of residual oil, the OWS product water was analyzed for Grease & Oil on April 14, 1990. The result indicated less than detectable concentrations for Grease & Oil (<3mg/l). The system was placed back into the discharge mode on April 14, 1990. Subsequent analyses on April 18, 19 and 23 also indicated that the effluent of the OWS was <3mg/l for Grease & Oil.

- C. 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

The results of the April plant influent and effluent monitoring are reported in Appendix 1.

The results of the DCPD toxicity bioassay on water sampled on April 2, 1990, are presented in Appendix 2.

### B. Monitoring of Receiving Waters

#### 1. Ecological Studies at Diablo Canyon

Ecological studies in the vicinity of Diablo Cove, referred to as the Diablo Canyon Thermal Effects Monitoring Program (TEMP), continue.

#### 2. Sediment Analysis

Sediment samples are collected and analysis reported in September.



3. Aerial Photography of Kelp Beds

Aerial infrared photography of the kelp beds in the vicinity of Diablo Canyon was completed on April 9, 1990. Color transparencies of the photographs are included in Appendix 3 (Regional Board copy only).

4. Surface Water Temperature

Surface water temperatures, measured on April 11, 1990, are reported in Appendix 4.

5. Stratified Water Temperatures

Stratified water temperatures are measured in February, June, and October.

6. Dissolved Oxygen and pH of Receiving Waters

Dissolved oxygen and pH sampling is conducted in February, June, and October.

7. Incident Light Measurements

Incident light measurements are reported quarterly.

8. 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.



**APPENDIX 1**

**Influent and Effluent Monitoring  
April 1990**



FACILITY I.D.  
3 402003001

YEAR/ MO / DAY  
BEGINNING 90/04/01

YEAR/ MO / DAY  
ENDING 90/04/30

STATE CODE  
06

NPDES PERMIT #  
CA0003751

STATION ANALYSIS UNITS SNPL TYPE FREQ.	INFLUENT TEMPERATURE DEGREES F METERED CONTINUOUS	EFFLUENT 001 TEMPERATURE DEGREES F METERED CONTINUOUS	EFFLUENT 001 FLOW MGD RECORDED DAILY	INFLUENT pH pH UNITS GRAB MONTHLY	EFFLUENT 001 pH pH UNITS GRAB MONTHLY	EFF 001P=003 pH pH UNITS GRAB WEEKLY	EFFLUENT 002 pH pH UNITS GRAB MONTHLY	EFFLUENT 003 pH pH UNITS GRAB MONTHLY
APRIL								
1	50.4	68.2	1239					
2	51.2	68.7	1239					
3	51.5	69.2	1239	8.0	7.9			
4	51.5	69.5	1239					
5	51.1	69.1	1239					
6	51.7	69.4	1239					
7	51.8	69.7	1239					
8	52.0	69.3	1239					
9	52.0	69.9	1239					
10	52.3	70.2	1239					
11	52.3	70.2	1239					
12	51.5	69.6	1239					
13	52.6	70.9	1239					
14	53.6	71.8	1239					
15	53.8	71.8	1239					
16	55.4	73.2	1239					
17	54.9	72.8	1239					
18	52.9	71.3	1239					
19	53.7	71.3	1176					
20	53.3	68.8	1563					
21	53.0	65.4	1932					
22	52.6	65.0	1926					
23	53.2	65.4	1931					
24	52.6	64.9	1927				2 7.9	7.5
25	51.6	64.0	1970					
26	51.2	63.7	1925					
27	50.9	61.8	2206					
28	52.2	59.6	2564					
29	51.2	59.7	2557					
30	50.9	63.0	2557					
31								
MONTHLY AVG	52.3	67.9	1551			NO DISCHARGE	7.9	
MONTHLY HIGH	55.4	73.2	2564				7.9	
MONTHLY LOW	50.4	59.6	1239				7.9	
TIMES EXCEEDED	NO LIMIT	MAXIMUM = 0	MAX 2760 = 0	NO LIMIT	MIN 6.0 = 0	MIN 6.0 = 0	MIN 6.0 = 0	MIN 6.0 = 0
TIMES EXCEEDED		INTAKE PLUS			MAX 9.0 = 0	MAX 9.0 = 0	MAX 9.0 = 0	MAX 9.0 = 0
TIMES EXCEEDED		22 DEGREES(**)						

REMARKS: (\*\*) Number of Samples taken during the day. (\*\*\*) Except During Demusseling.

PRINCIPAL EXECUTIVE OFFICER  
JAMES D. SHIFFER

SIGNATURE OF AUTHORIZED AGENT DATE  
John R. Krenn 5/4/90



CALIFORNIA REGIONAL WATER QUALITY  
CONTROL BOARD  
CENTRAL COAST REGION  
1102A LAUREL LANE  
SANTA 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) 2

FACILITY I.D.  
3 402003001

YEAR/ MO / DAY  
BEGINNING 90/04/01

YEAR/ MO / DAY  
ENDING 90/04/30

STATE CODE  
06

NPDES PERMIT #  
CA0003751

STATION ANALYSIS UNITS SMPL TYPE FREQ.	EFFLUENT 004 pH pH UNITS GRAB MONTHLY	INFLUENT TURBIDITY NTU GRAB MONTHLY	EFFLUENT 001 TURBIDITY NTU GRAB MONTHLY	EFFLUENT 001 OIL & GREASE mg/l GRAB MONTHLY	EFFLUENT 001F OIL & GREASE mg/l GRAB MONTHLY	EFFLUENT 001M OIL & GREASE mg/l GRAB MONTHLY	EFF001P=>003 OIL & GREASE mg/l GRAB WEEKLY	EFFLUENT 001M SETTLE SOLIDS mg/l GRAB WEEKLY
--	---------------------------------------	-------------------------------------	---	---	--	--	--	--

APRIL	#	#	#	#	#	#	#	#
1								
2								
3			.4	.3	<3			
4								
5						5		<0.5
6								
7								
8								
9								
10								
11						45		<0.5
12								
13						<3		
14								
15								
16								
17								
18						<3		
19						<3		
20								<0.5
21								
22								
23						<3		
24		7.9						
25								<0.5
26								
27								
28								
29								
30								
31								

MONTHLY AVG					11.4			NO DISCHARGE
MONTHLY HIGH					45			
MONTHLY LOW					<3			

TIMES EXCEEDED MIN 6.0 =0	NO LIMIT	NO LIMIT	NO LIMIT	NO AVG 15 =0	NO AVG 15 =0	NO AVG 15 =0	NO AVG 1.0 =0
TIMES EXCEEDED MAX 9.0 =0				D MAX 20 =1	D MAX 20 =0	D MAX 20 =0	D MAX 3.0 =0
TIMES EXCEEDED							

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

PRINCIPAL EXECUTIVE OFFICER  
JAMES D. SHIFFER

SIGNATURE OF AUTHORIZED AGENT DATE  
*John R. Kuenen* 5/14/90



FACILITY I.D.  
 3 402003001

YEAR/ MO / DAY  
 BEGINNING 90/04/01

YEAR/ MO / DAY  
 ENDING 90/04/30

STATE CODE  
 06

NPDES PERMIT #  
 CA0003751

STATION ANALYSIS UNITS SMPL TYPE FREQ.	EFFLUENT 001 T HF RESIDUE mg/l 1st FLTR GRAB MONTHLY	EFFLUENT 001 T HF RESIDUE mg/l 2nd FLTR GRAB MONTHLY	EFFLUENT 001 T HF RESIDUE mg/l NET GRAB MONTHLY	EFFLUENT 001 T HF RESIDUE mg/l 1st FLTR GRAB MONTHLY	EFFLUENT 001 T HF RESIDUE mg/l 2nd FLTR GRAB MONTHLY	EFFLUENT 001 T HF RESIDUE mg/l NET GRAB MONTHLY	EFFLUENT 001C T HF RESIDUE mg/l GRAB MONTHLY	EFFLUENT 001D T HF RESIDUE mg/l GRAB MONTHLY
--	--	--	---	--	--	---	--	--

APRIL	§	§	§	§	§	§	§	§
1								
2								
3	9	9	<1					
4								
5								
6								
7								
8								
9								
10								3
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	NO DISCHARGE							
MONTHLY LOW	NO DISCHARGE							
TIMES EXCEEDED	NO LIMIT	NO LIMIT	NO LIMIT	NO LIMIT	NO LIMIT	NO AVG 30 =0	NO AVG 30 =0	NO AVG 30 =0
TIMES EXCEEDED						D MAX 100 =0	D MAX 100 =0	D MAX 100 =0
TIMES EXCEEDED								

REMARKS: (§) Number of Samples taken during the day. \_\_\_\_\_

PRINCIPAL EXECUTIVE OFFICER  
 JAMES D. SHIFFER

SIGNATURE OF AUTHORIZED AGENT DATE  
*John R. Krenney* 5/4/90















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 (M) 7

FACILITY I.D.  
3 402003001

YEAR/ MO / DAY  
BEGINNING 90/04/01

YEAR/ MO / DAY  
ENDING 90/04/30

STATE CODE  
06

NPDES PERMIT #  
CA0003751

STATION	EFF 001N=>003	EFF 001N=>003	EFF 001N=>INTK	EFF 001N=>INTK
ANALYSIS	TOTL COLIFORM	FECAL COLIFORM	TOTL COLIFORM	FECAL COLIFORM
UNITS	MPN/100ml	MPN/100ml	MPN/100ml	MPN/100ml
SNPL TYPE	GRAB	GRAB	GRAB	GRAB
FREQ.	4 TIMES/WEEK	4 TIMES/WEEK	4 TIMES/WEEK	4 TIMES/WEEK

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

MONTHLY AVG	NO DISCHARGE	NO DISCHARGE	NO DISCHARGE	NO DISCHARGE
MONTHLY HIGH				
MONTHLY LOW				

TIMES EXCEEDED	80% SMPLS>1K	MEAN>200=	80% SMPLS>1K	MEAN>200=
TIMES EXCEEDED	=	90% SMPLS>400	=	90% SMPLS>400
TIMES EXCEEDED	1 MAX >10K=	=	1 MAX >10K=	=

REMARKS: (#) Number of Samples taken during the day. \_\_\_\_\_

PRINCIPAL EXECUTIVE OFFICER  
JAMES D. SHIFFER

SIGNATURE OF AUTHORIZED AGENT DATE  
*J.R. Knevez* 5/1/90



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 BEGINNING 90/04/01  
YEAR/ MO / DAY ENDING 90/04/30  
STATE CODE 06  
NPDES PERMIT # CA0003751

STATION ANALYSIS UNITS SMPL TYPE FREQ.	INFLUENT OIL & GREASE mg/l GRAB JA/AP/JUL/OCT	EFFLUENT 001C OIL & GREASE mg/l GRAB JA/AP/JUL/OCT	EFFLUENT 001D OIL & GREASE mg/l GRAB JA/AP/JUL/OCT	EFFLUENT 001E OIL & GREASE mg/l GRAB JA/AP/JUL/OCT	EFFLUENT 001H OIL & GREASE mg/l GRAB JA/AP/JUL/OCT	EFFLUENT 001I OIL & GREASE mg/l GRAB JA/AP/JUL/OCT	EFFLUENT 001J OIL & GREASE mg/l GRAB JA/AP/JUL/OCT	EFFLUENT 001K OIL & GREASE mg/l GRAB JA/AP/JUL/OCT
APRIL								
1								
2								
3	<3							
4								
5								
6								
7					14			
8								
9								
10			<3					
11								
12								
13								
14								
15								
16								
17								
18								
19								
20								
21								
22								
23								
24				<3				
25								
26							<3	
27								
28								
29								
30								
31								
MONTHLY AVG	NO DISCHARGE				NO DISCHARGE			NO DISCHARGE
MONTHLY HIGH								
MONTHLY LOW								
TIMES EXCEEDED	NO LIMIT	NO AVG 15=0						
TIMES EXCEEDED		D MAX 20 =0						
TIMES EXCEEDED								

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

PRINCIPAL EXECUTIVE OFFICER  
JAMES D. SHIFFER

SIGNATURE OF AUTHORIZED AGENT DATE  
John R. Freeman 5/14/90















CALIFORNIA REGIONAL WATER QUALITY  
CONTROL BOARD  
CENTRAL COAST REGION  
1102A LAUREL LANE  
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3 402003001

YEAR/ NO / DAY  
BEGINNING 90/04/01

YEAR/ NO / DAY  
ENDING 90/04/30

STATE CODE  
06

NPDES PERMIT #  
CA0003751

STATION ANALYSIS UNITS SMPL TYPE FREQ.	EFFLUENT 001D CHROMIUM ug/l QTRLY COMP JA/AP/JUL/OCT	EFFLUENT 001H T CHROMIUM ug/l QTRLY COMP JA/AP/JUL/OCT	EFFLUENT 001L T CHROMIUM ug/l QTRLY COMP JA/AP/JUL/OCT	EFFLUENT 001F T CHROMIUM ug/l WEEKLY COMP JA/AP/JUL/OCT	EFFLUENT 001D COPPER ug/l QTRLY COMP JA/AP/JUL/OCT	EFFLUENT 001H COPPER ug/l QTRLY COMP JA/AP/JUL/OCT	EFFLUENT 001L COPPER ug/l QTRLY COMP JA/AP/JUL/OCT	EFFLUENT 001F COPPER ug/l WEEKLY 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
																			43	670	<36	68	106	713	63	157					

MONTHLY AVG																															
MONTHLY HIGH																															
MONTHLY LOW																															

TIMES EXCEEDED	NO LIMIT																														
TIMES EXCEEDED																															
TIMES EXCEEDED																															

MARKS: (#) Number of Samples taken during the day. \_\_\_\_\_

PRINCIPAL EXECUTIVE OFFICER  
JAMES D. SHIFFER

SIGNATURE OF AUTHORIZED AGENT DATE  
*John R. Kremer* 5/14/90



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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PAGE (Q) 6

FACILITY I.D.  
3 402003001

YEAR/ MO / DAY  
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YEAR/ MO /DAY  
ENDING 90/04/30

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 WEEKLY 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 WEEKLY 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		286		<1		4		1.27		3.95		.05		.94

MONTHLY AVG																																
MONTHLY HIGH																																
MONTHLY LOW																																
TIMES EXCEEDED	NO LIMIT																															
TIMES EXCEEDED																																
TIMES EXCEEDED																																

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

PRINCIPAL EXECUTIVE OFFICER  
JAMES D. SHIFFER

SIGNATURE OF AUTHORIZED AGENT DATE  
*J.R. Krumpholtz* 5/4/90



FACILITY I.D.  
 3 402003001

YEAR/ MO / DAY  
 BEGINNING 90/04/01

YEAR/ MO / DAY  
 ENDING 90/04/30

STATE CODE  
 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 WEEKLY 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 WEEKLY 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
																			<18	294	<18	68	<3	24	<3					3	

MONTHLY AVG																														
MONTHLY HIGH																														
MONTHLY LOW																														
TIMES EXCEEDED	NO LIMIT																													
TIMES EXCEEDED																														
TIMES EXCEEDED																														

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

PRINCIPAL EXECUTIVE OFFICER  
 JAMES D. SHIFFER

SIGNATURE OF AUTHORIZED AGENT  
 DATE  
*John R. Krenn* 5/1/90



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 (Q) 8

FACILITY I.D.  
3 402003001

YEAR/ MO / DAY  
BEGINNING 90/04/01

YEAR/ MO /DAY  
ENDING 90/04/30

STATE CODE  
06

NPDES PERMIT #  
CA0003751

STATION ANALYSIS UNITS SMPL TYPE FREQ.	EFFLUENT 001D ZINC ug/l QTRLY COMP JA/AP/JUL/OCT	EFFLUENT 001H 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 WEEKLY 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
																			216	262	5	127									

MONTHLY AVG				
MONTHLY HIGH				
MONTHLY LOW				

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

REMARKS: (\$) Number of Samples taken during the day. \_\_\_\_\_

PRINCIPAL EXECUTIVE OFFICER  
JAMES D. SHIFFER

SIGNATURE OF AUTHORIZED AGENT DATE  
*J. R. Kumaya* 5/14/90



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.  
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 PAGE (0) 9

FACILITY I.D.  
 3 402003001

YEAR/ MO / DAY  
 BEGINNING 90/04/01

YEAR/ MO /DAY  
 ENDING 90/04/30

STATE CODE  
 06

NPDES PERMIT #  
 CA0003751

STATION ANALYSIS UNITS SMPL TYPE FREQ.	EFFLUENT 001D COPPER mg/l 24-HR COMP. METAL CLNG	EFFLUENT 001F COPPER mg/l 24-HR COMP. METAL CLNG	EFFLUENT 001I COPPER mg/l 24-HR COMP. METAL CLNG	EFFLUENT 001L COPPER mg/l 24-HR COMP. METAL CLNG	EFFLUENT 001M COPPER mg/l 24-HR COMP. METAL CLNG
APRIL	§	§	§	§	§
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
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 =				
TIMES EXCEEDED	D MAX 1 =				
TIMES EXCEEDED					

REMARKS: (§) Number of Samples taken during the day. \_\_\_\_\_

PRINCIPAL EXECUTIVE OFFICER  
 JAMES D. SHIFFER

SIGNATURE OF AUTHORIZED AGENT DATE  
*John R. Kennedy* 5/14/90



FACILITY I.D.  
3 402003001

YEAR/ MO / DAY  
BEGINNING 90/04/01

YEAR/ MO / DAY  
ENDING 90/04/30

STATE CODE  
06

NPDES PERMIT #  
CA0003751

STATION ANALYSIS UNITS SMPL 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 001M IRON mg/l 24-HR COMP. METAL CLNG
--	--	--	--	--	--

APRIL	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	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 =				
TIMES EXCEEDED	D MAX 1 =				
TIMES EXCEEDED					

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

PRINCIPAL EXECUTIVE OFFICER  
JAMES D. SHIFFER

SIGNATURE OF AUTHORIZED AGENT DATE  
*John R. Krenn* 5/14/90



**APPENDIX 2**

**DCPP Toxicity Bioassay  
April 2, 1990**



PACIFIC GAS & ELECTRIC COMPANY

DIABLO CANYON BIOLOGICAL LABORATORY  
 STATIC BIOASSAY REPORT SHEET

ASSAY NO. 160-N

One Concentration

TEST ORGANISM DATA

TEST SPECIES Red abalone  
 SOURCE Abalone Farm Inc.  
 AVERAGE LENGTH 19.3 RANGE 15-27 mm  
 ACCLIMATION TIME 1 mo. TEMPERATURE ambient  
 WATER SOURCE Bio Lab Seawater pump

TEST SOLUTION DATA

SOURCE OF TEST SOLUTION DCPP Discharge  
 DATE/TIME SAMPLED 2 April 90 / 1000

DATE STARTED 2 April 90

TIME STARTED 1100 HRS.

VOLUME/DEPTH OF TEST SOLUTION 19 L. / 20cm.

RENEWAL OF TEST SOLUTION AT        HR. INTERVALS

TYPE OF AERATION Ring Compressor

NUMBER OF ORGANISMS PER CONCENTRATION 30

DILUTION WATER SOURCE Bio Lab Seawater pump

TEST CONCENTRATIONS

	100%	CONTROL	INITIALS
<u>0 HOURS</u>			
TEMP.	<u>11.6</u>	<u>11.6</u>	<u>TW16</u>
D.O.	<u>7.6</u>	<u>8.0</u>	<u>      </u>
PH	<u>7.7</u>	<u>7.8</u>	<u>      </u>
SALINITY/HARDNESS	<u>      </u>	<u>      </u>	<u>      </u>
<u>24 HOURS</u>			
ORGANISMS SURVIVING	<u>30</u>	<u>30</u>	<u>TW16</u>
% SURVIVAL	<u>100%</u>	<u>100%</u>	<u>      </u>
TEMP.	<u>11.3</u>	<u>11.3</u>	<u>      </u>
D.O.	<u>8.0</u>	<u>7.4</u>	<u>      </u>
PH	<u>7.7</u>	<u>7.6</u>	<u>      </u>
<u>48 HOURS</u>			
ORGANISMS SURVIVING	<u>30</u>	<u>30</u>	<u>MDS</u>
% SURVIVAL	<u>100%</u>	<u>100%</u>	<u>      </u>
TEMP.	<u>12.0</u>	<u>12.0</u>	<u>      </u>
D.O.	<u>8.0</u>	<u>7.4</u>	<u>      </u>
PH	<u>7.6</u>	<u>7.7</u>	<u>      </u>
<u>72 HOURS</u>			
ORGANISMS SURVIVING	<u>30</u>	<u>30</u>	<u>TW16</u>
% SURVIVAL	<u>100%</u>	<u>100%</u>	<u>      </u>
TEMP.	<u>11.7</u>	<u>11.7</u>	<u>      </u>
D.O.	<u>8.0</u>	<u>7.6</u>	<u>      </u>
PH	<u>7.5</u>	<u>7.5</u>	<u>      </u>
<u>96 HOURS</u>			
ORGANISMS SURVIVING	<u>30</u>	<u>30</u>	<u>TW16</u>
% SURVIVAL	<u>100%</u>	<u>100%</u>	<u>      </u>
TEMP.	<u>11.8</u>	<u>11.8</u>	<u>      </u>
D.O.	<u>8.0</u>	<u>7.6</u>	<u>      </u>
PH	<u>7.6</u>	<u>7.7</u>	<u>      </u>
SALINITY/HARDNESS	<u>      </u>	<u>      </u>	<u>      </u>

TU: No Mortalities  
 Procedure No. 2.3  
 Temp. Probe No. 117  
 Cal. Due Date 20 Jun 90

TESTED BY TW Hubert  
 Reviewed by Jimi Kelly



**APPENDIX 3**

**Aerial Photography of Kelp Beds  
April 9, 1990**



## **Aerial Photography of Kelp Beds**

**April 09, 1990**

Spatial and temporal variation in kelp beds offshore of Diablo Canyon Power Plant is documented using aerial infra-red (IR) photography. Kelp photography is conducted in February, June, and October. Kelp flights for the February sampling period were made on April 09, 1990.

IR photography is conducted using Kodak IR #2443 film. Altitude of the aircraft was 4500 feet above mean sea level, and photographs are at a scale of 1 inch equal to 750 feet.

The IR film is duplicated in 35 mm slide format for reporting purposes. Slides are numbered and a flight index map is also included (Figure 1).

Processed film is archived at PG&E's Technical and Ecological Services oceanographic laboratory, in San Ramon, CA.



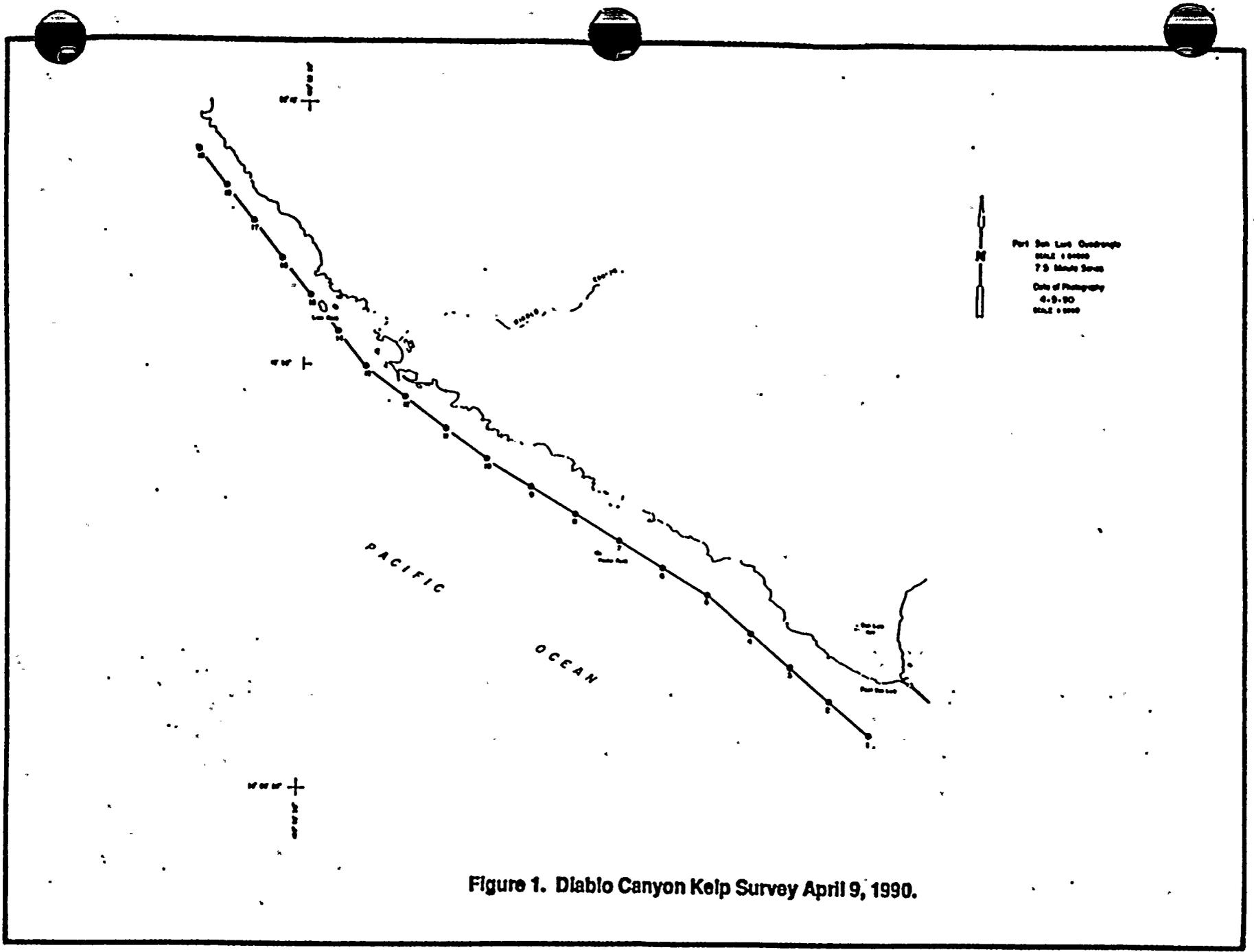
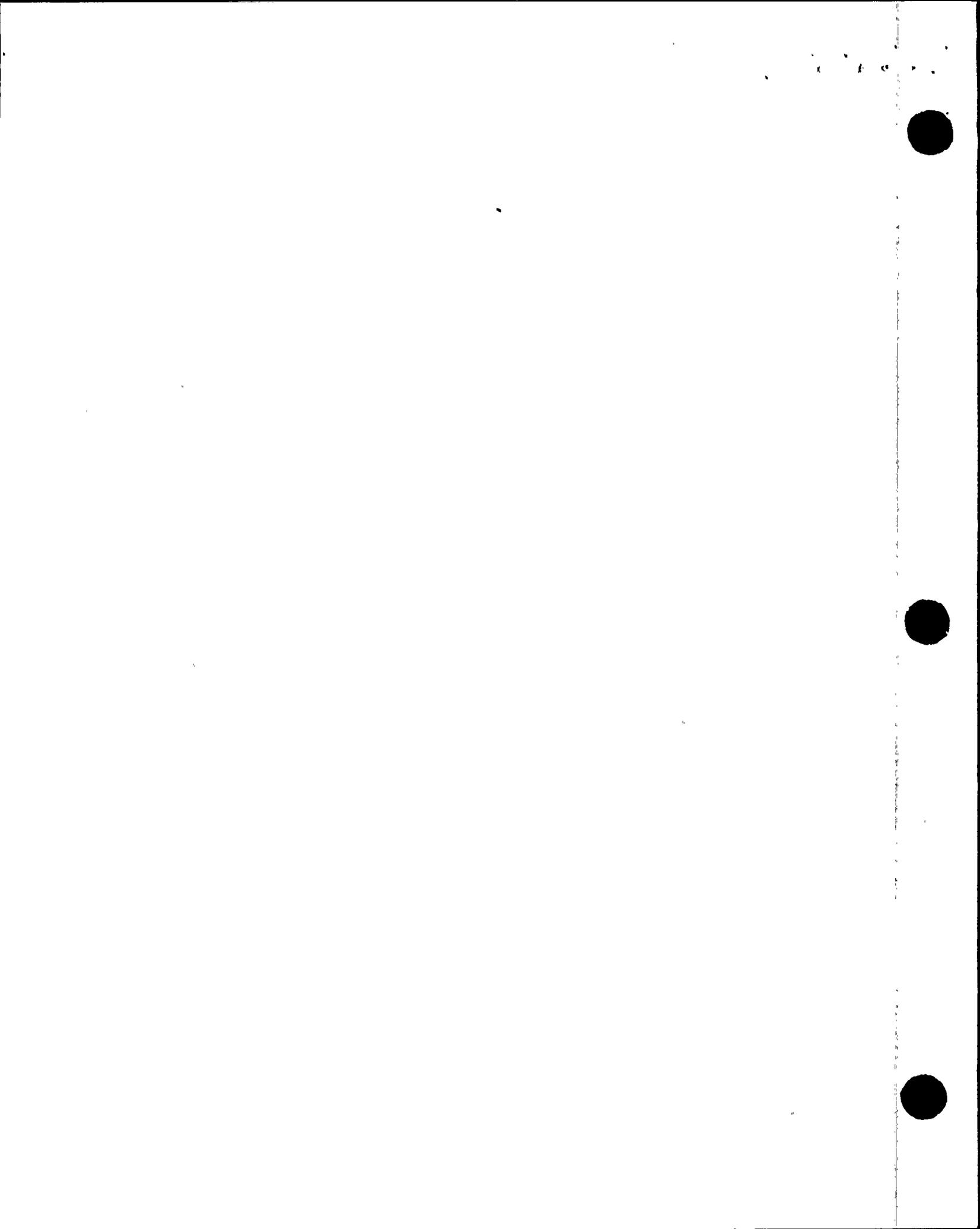
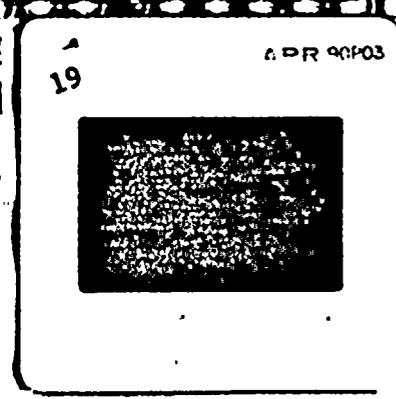
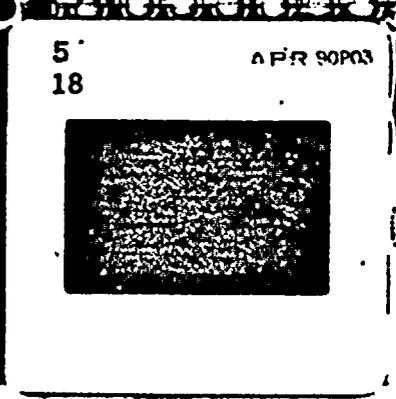
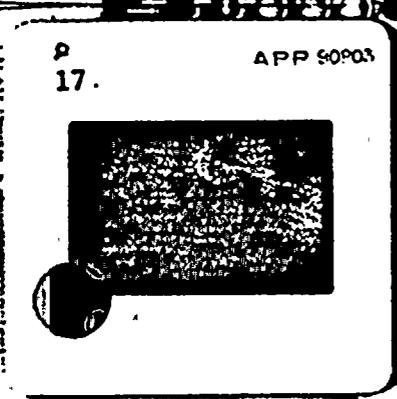
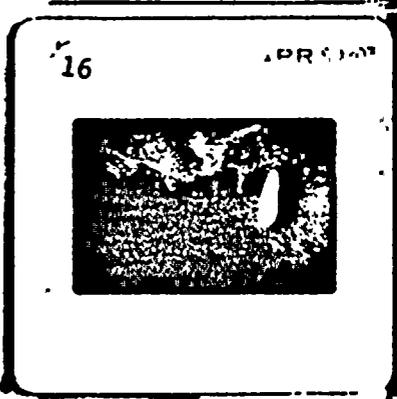
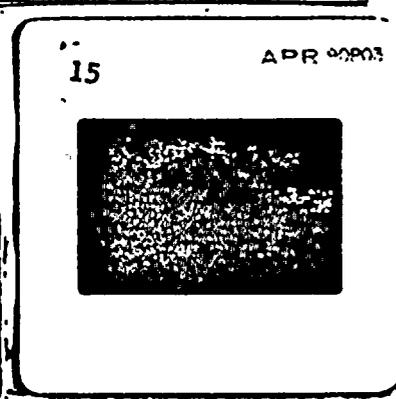
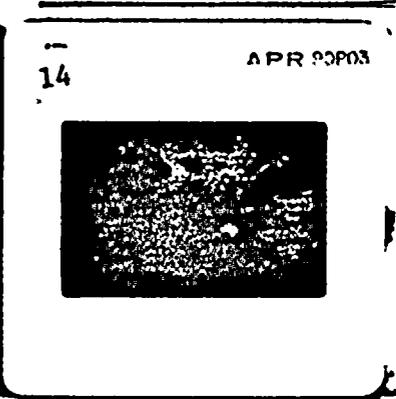
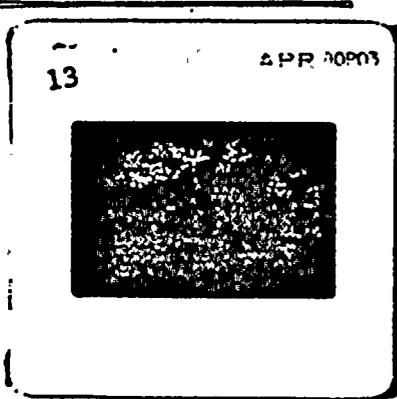
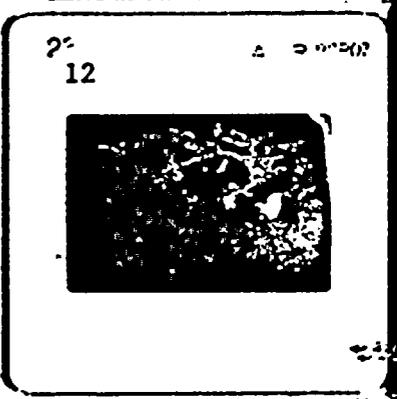
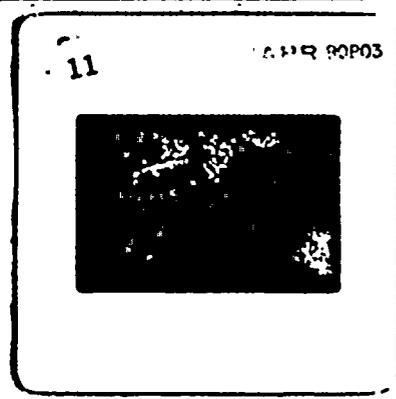
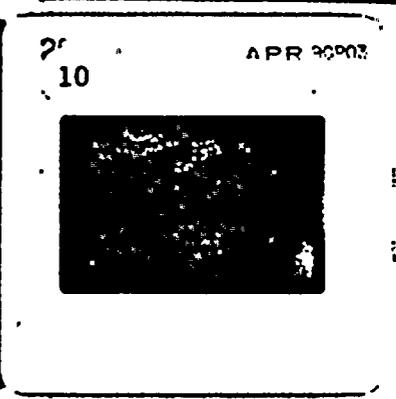
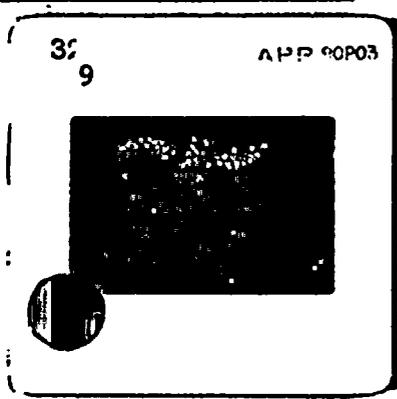
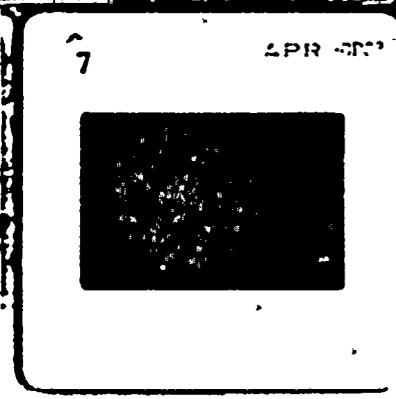
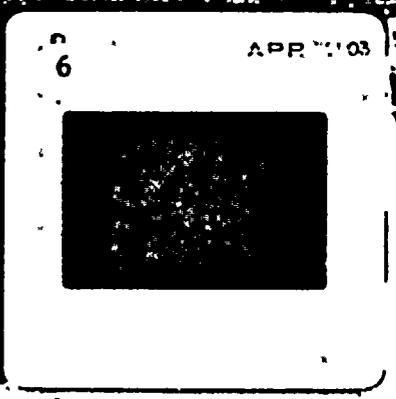
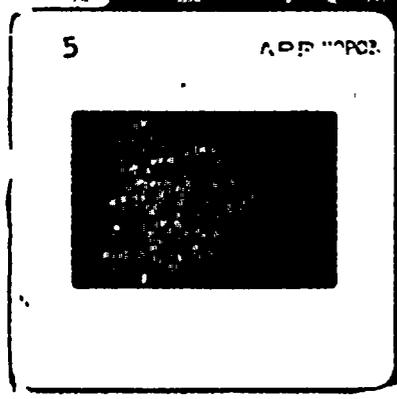
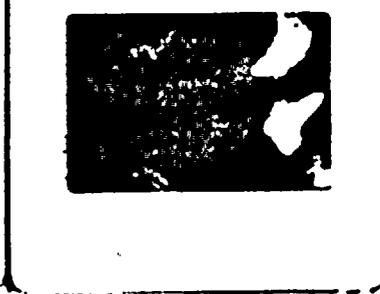
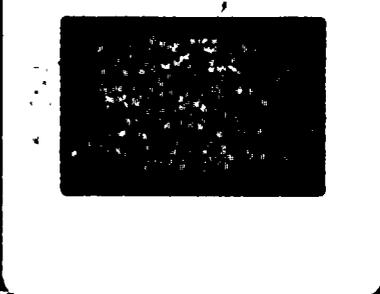
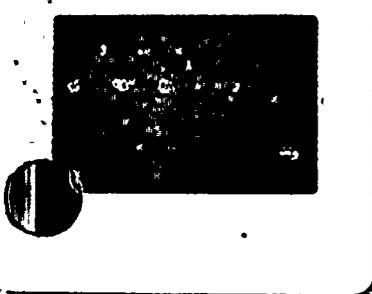
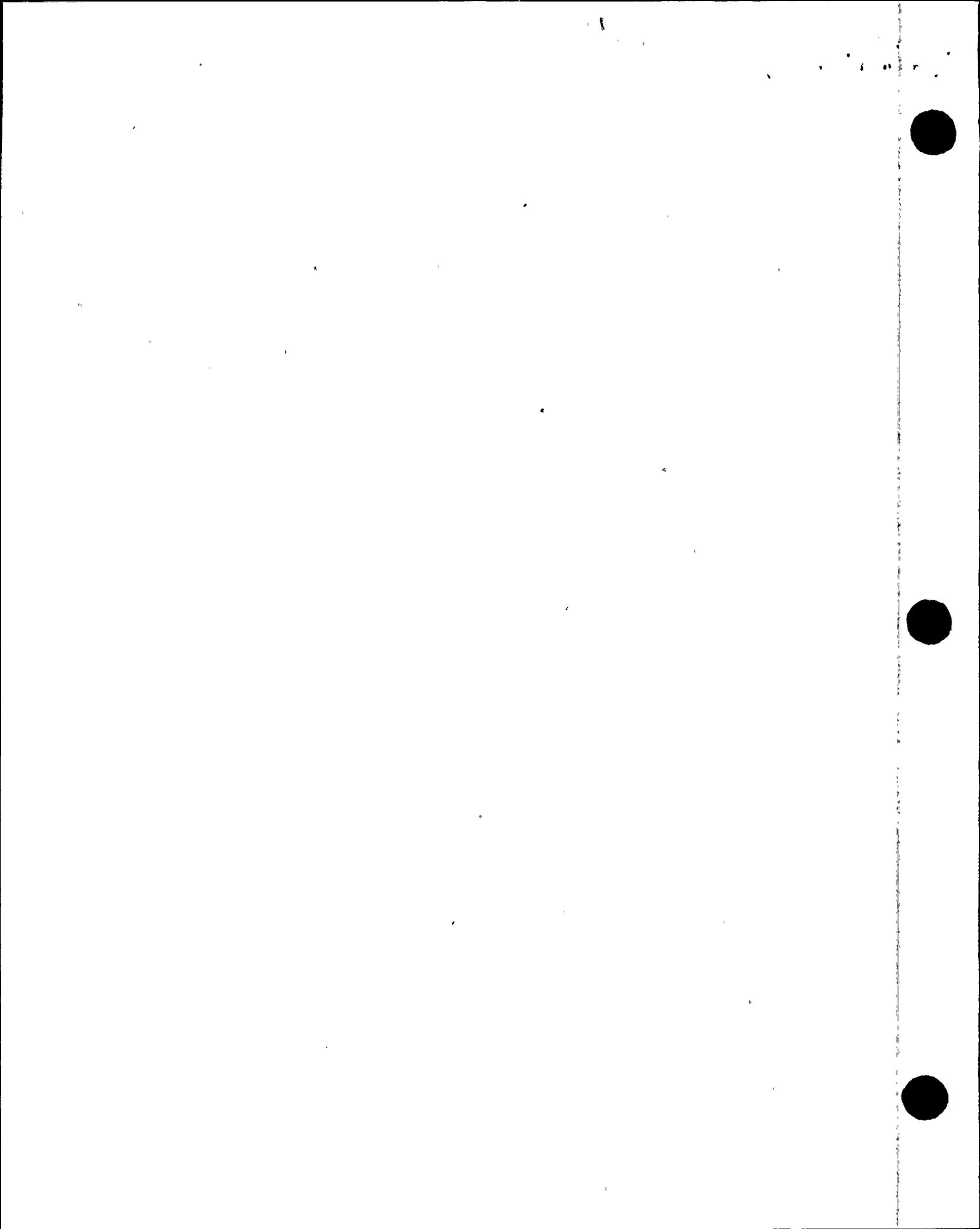


Figure 1. Diablo Canyon Kelp Survey April 9, 1990.







**APPENDIX 4**  
**Surface Water Temperatures**  
**April 11, 1990**



**DIABLO CANYON POWER PLANT**  
**Surface Water Temperature Isotherms**  
**April 11, 1990**

Surface water isotherms of the discharge plume at Diablo Canyon Power Plant were measured between 0700 and 0900 PDT, on April 11, 1990. The sea state was rough with 5 to 8 foot swell and 14 to 15 knot winds from the northwest. The sky was clear with an air temperature of approximately 61 degrees F.

Surface temperatures were measured with a TSKAmerica towable electronic bathythermograph with a pressure independent sensor accurate to  $\pm 0.1$  degrees F (0.05 degrees C). Depth was measured with a pressure transducer accurate to 0.3 percent (full scale). Temperature and depth data were recorded at five second intervals and stored in integrated circuit memory. A Minolta/Land infrared radiometer was used as an aid in locating discharge plume boundaries. Vessel position was recorded every five seconds using a Motorola Miniranger III navigation system with an accuracy of  $\pm 0.5$  meters. After the survey, data were retrieved using a photomagnetic coupler and Compaq computer.

Intake and discharge temperatures were measured using Sea-Data temperature recorders. The intake recorder was suspended 10 feet below the seawater surface in front of the intake structure. Discharge temperatures were measured at the sampling pipes in the discharge structure. Offshore ambient water temperature, defined as the lowest recorded offshore temperature, was 52.0 degrees F.

Both cooling water pumps for Unit 1 were in operation during the survey producing 2000 cfs of flow volume on the Unit 1 side of the discharge structure. Cooling water pumps for Unit 2 were not operational during the survey. Water crossover through the mixing holes in the center of the structure account for the elevated temperature on the Unit 2 side of the discharge.

Temperature and vessel position data were merged to produce surface temperature isotherms, in degrees F above ambient seawater temperature (Figure 1). The area covered by each 2 degree isotherm was measured and is presented in Table 1. If an isotherm was not completely enclosed within the sampling boundary, the boundary was used as the limit of the areal coverage of the isotherm. Isotherms measured on April 11 were well within the range of isotherms reported in the "Surface Buoyant Jet Characteristics of the Thermal Discharge Plume at Diablo Canyon Power Plant" (S.W. Tu et.al 1986) and in the Discharge Monitoring and Reporting Program Monthly Reports.



FIGURE 1

DIABLO CANYON POWER PLANT  
SURFACE WATER TEMPERATURE  
2° F ISOTHERMS (Delta T)

Survey Date: April 11, 1990

Time Period: 0708-0900

Intake Temperature 52.7°F

Plant Conditions:

Unit	Discharge Temp (°F)	Cooling Water Flow (cfs)	Reactor Power (%)
1	69.6	2000	99.8
2	64.4	0000	0

Environmental Conditions:

Tide: 0.2 - 2.0 (rising) feet above MLLW

Offshore Currents (by drouge) 0.23 knots 138° true

Waves: 5/8 ft, 11 sec from Northwest

Wind: 17 mph, from 328°

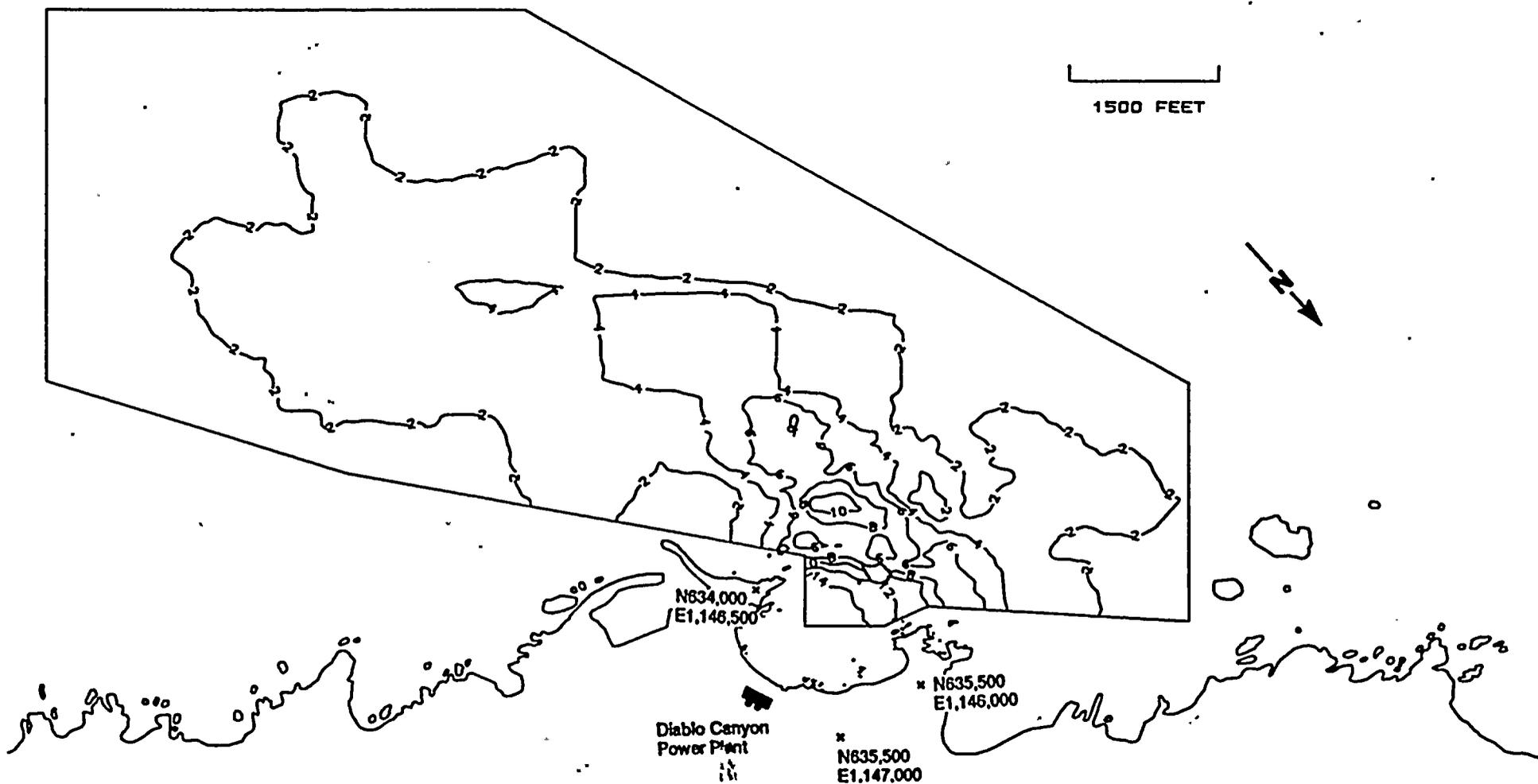




TABLE 1

CUMULATIVE ISOTHERM AREAS  
April 11, 1990

2 Degree Isotherms (in degrees F)	Cumulative Isotherm Areas (in acres)
2	482.4
4	127.6
6	54.2
8	20.2
10	13.4
12	8.8
14	4.7



## REFERENCES

Tu, S. W., J. P. Leighton, C. O. White, and C. C. Hsu. "Surface Buoyant Jet Characteristics of the Thermal Discharge Plume at Diablo Canyon Power Plant. A Field Study of Power Ascension Testing of Unit 2 and Full Load Operation of Unit 1". In Environmental Investigations at Diablo Canyon, 1986, Volume 2 - Oceanographic and Environmental Engineering Studies. PG&E, 1986. (Edited by C. O. White and D. W. Behrens).

PG&E. Discharge Monitoring and Reporting Program Diablo Canyon Power Plant. Monthly Reports.

