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 50-323 Diablo Canyon Nuclear Power Plant, Unit 2, Pacific Ga 05000323

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LEONARD, W. California, State of

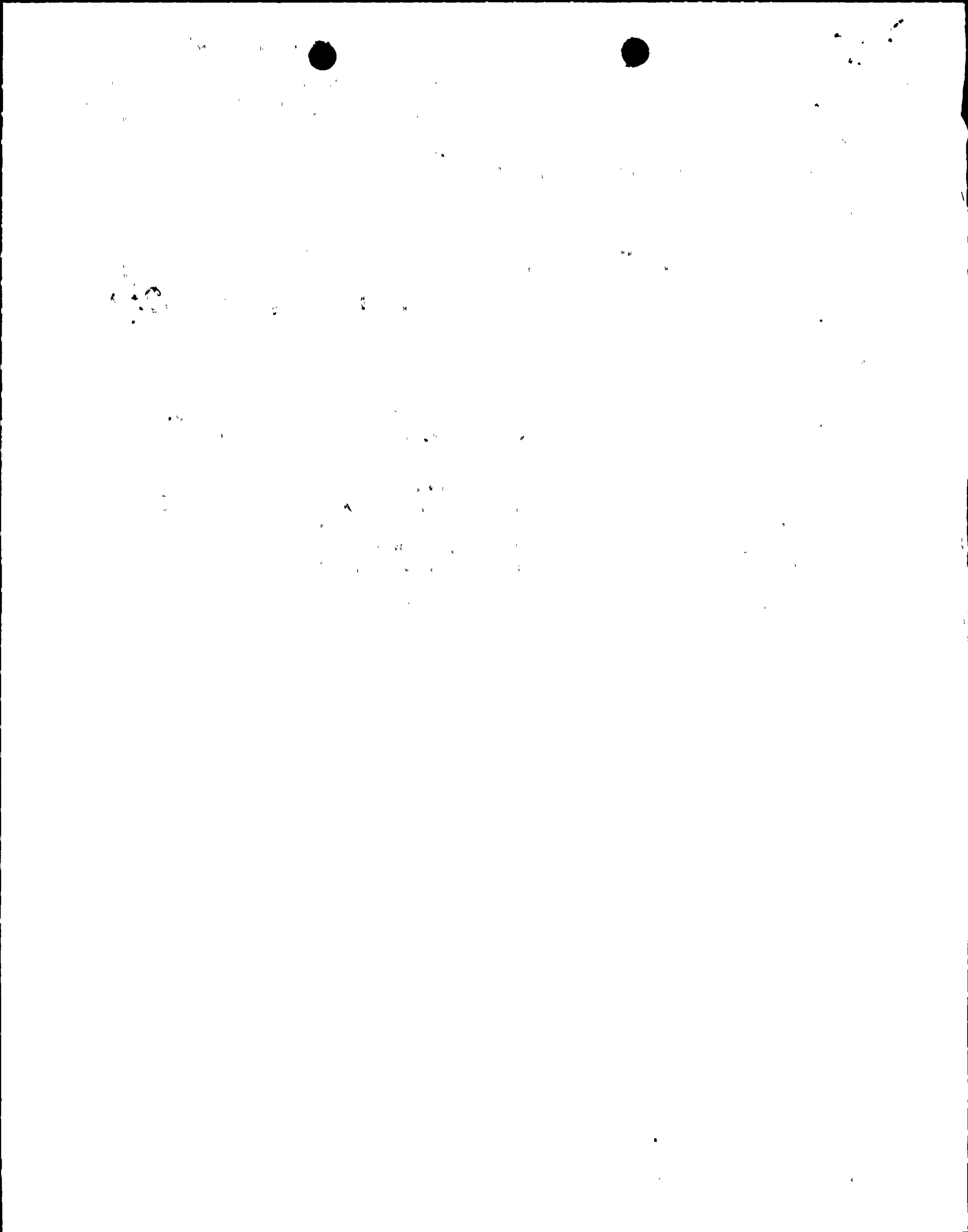
SUBJECT: "Rept on Discharge Monitoring at Diablo Canyon Power Plant During Aug 1987." W/870920 ltr.

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 TITLE: Environmental Monitoring Rept (per Tech Specs)

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| | RGN5 FILE 02 | | 1 | 1 | | RGN2/DRSS/EPRPB | | 1 | 1 |
| EXTERNAL: | LPDR | | 2 | 2 | | NRC PDR | | 1 | 1 |

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PACIFIC GAS AND ELECTRIC COMPANY
NUCLEAR PLANT OPERATIONS

REPORT ON
DISCHARGE MONITORING AT
DIABLO CANYON POWER PLANT
DURING THE MONTH OF
AUGUST 1987

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| B - Monitoring of Receiving Waters | |
| Appendix 1 - Influent and Effluent Monitoring Data for August 1987 | |
| Appendix 2 - Surface Water Temperatures - August 1987 | |



OVERVIEW

During the month of August, discharges occurred from Discharge Paths 001 (main circulating pumps), 001B, 001D, 001E, 001F, 001G, 001H, 001K, 001L, 001M, 001N, 001P, 002, 003 and 004. No discharges occurred from Discharge Paths 001A, 001C, 001I, 001J, and 005-013.

The Central Coast Regional Water Quality Control Board was contacted on two occasions during the month of August:

1. John Goni was contacted on August 25, 1987, concerning a Unit 2 turbine building sump overflow to the ocean which occurred on August 24, 1987.

The overflow occurred at about 2220 hours, and the volume discharged was approximately 300 gallons.

The overflow occurred when the Unit 2 condensate demineralizer system vessels 2-3 and 2-4 were isolated to perform corrective maintenance. One of the valves used as a boundary to keep demineralized water away from the work area began to leak allowing the water to drain into the condensate demineralizer system sump (CDSS). When the CDSS filled, its pumps began to transfer water to the Unit 2 turbine building sump (TBS). The TBS pumps then began transferring the incoming water over to the Unit 1 TBS for processing through the oily water separator (OWS). The flow rate of water coming into the Unit 2 TBS was faster than the flow rate of the water leaving the sump. System Operators recognized the problem, but before corrective action was complete, approximately 300 gallons of water overflowed from the Unit 2 TBS into the main circulating water discharge (Discharge 001).

A sample of the CDSS was taken and analyzed for total non-filtrable residue (NFR) and grease and oil (G&O). A sample of the water that overflowed from the Unit 2 TBS was not available. The results of the Unit 2 CDSS were:

| <u>Parameter</u> | <u>Result</u> |
|------------------|---------------|
| G&O | <3 mg/l |
| NFR | 6 mg/l |

An investigation to determine a corrective action is still being made.

2. With the written concurrence of the Executive Officer, the main condenser of Unit 1 was backwashed on August 15 and 16 to remove debris which was causing differential pressure problems. This was accomplished by rerouting the cooling water flow in partial demusseling mode with the unit operating at half load. Three replications of the backwashing operations were required per condenser half to reduce the differential pressure. The duration of each event was approximately 30 minutes. Continuous temperature measurements were taken in front of the intake structure at three depths: -1, -10, and -20 feet below the water



surface. These indicate that the backflush plume is basically surface borne. The maximum temperatures were recorded at -1 foot. These consisted of spikes between 66 degrees and 68 degrees F. The plume was barely detectable at -10 feet, where the temperature ranged between 56 degrees and 60 degrees F. At -20 feet, the recorded temperatures ranged from 55 degrees to 57 degrees F, and appeared to reflect changes in ambient seawater temperature during the day. The maximum recorded delta T between the discharge plume and the receiving water (intake bay) was 13 degrees F. The duration of the maximum temperature in the intake cove was less than 5 minutes during each backflushing event. There were no observable effects on the biota in the vicinity of the intake structure.

The quarterly grease and oil sample for Discharge 001G was taken in August rather than July. The quarterly grease and oil sample for Discharge 001M was available for the first time in August. Discharge 002 samples were collected for informational purposes.

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. Results of monitoring of plant influent and effluent in August are reported in Appendix 1.
2. A static bioassay of Discharge 001 is performed quarterly in January, April, July, and October.

B. Monitoring of Receiving Waters

1. Ecological Studies at Diablo Canyon

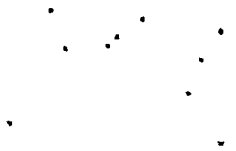
Ecological studies in accordance with the Thermal Effects Monitoring Program (Provision D.4.a) continue.

2. Sediment Analysis

Sediment samples are collected in September.

3. Aerial Photography of Kelp Beds

Aerial photography (infrared film type 2443) of kelp beds in the vicinity of Diablo Canyon is required in February, June, and October.



4. Surface Water Temperature

Surface water temperatures are reported in Appendix 2.

5. Stratified Water Temperatures

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

6. pH and Dissolved Oxygen of Receiving Waters

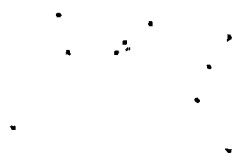
Monitoring of pH and dissolved oxygen in the receiving waters is scheduled in February, June, and October.

7. Incident Light Measurements

Incident light measurements are reported quarterly in the reports submitted in January, April, July, and October.

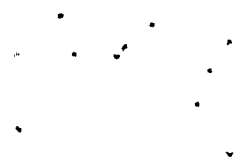
8. In situ Bioassay

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
August 1987



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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) 1

FACILITY I.D.
3 402003001

YEAR/ MO / DAY
BEGINNING 87/08/01

YEAR/ MO / DAY
ENDING 87/08/31

STATE CODE
06

NPDES PERMIT #
CA0003751

| STATION ANALYSIS UNITS SKPL 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 |
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| AUGUST | | | | | | | | |
|--------|------|------|------|------|------|--|------|------|
| 1 | 53.4 | 70.9 | 2260 | | | | | |
| 2 | 53.9 | 71.5 | 2260 | | | | | |
| 3 | 53.6 | 72 | 2490 | | | | 7.91 | |
| 4 | 53.2 | 71.4 | 2490 | 7.93 | 7.93 | | | |
| 5 | 52.5 | 71 | 2420 | | | | | |
| 6 | 53.4 | 71.4 | 2340 | | | | | |
| 7 | 54.8 | 72 | 2490 | | | | | |
| 8 | 55.4 | 70.8 | 2390 | | | | | |
| 9 | 55.7 | 69.7 | 2420 | | | | | |
| 10 | 55.9 | 71.1 | 2490 | | | | | |
| 11 | 56 | 73.1 | 2400 | | | | | |
| 12 | 56.4 | 74.4 | 2460 | | | | | |
| 13 | 56.3 | 74.6 | 2490 | | | | | 7.83 |
| 14 | 55.9 | 73.9 | 2490 | | | | | |
| 15 | 55.9 | 72.8 | 2300 | | | | | |
| 16 | 55.6 | 72.7 | 2240 | | | | | |
| 17 | 55.3 | 72.6 | 2420 | | | | | |
| 18 | 55.5 | 72.4 | 2490 | | | | | |
| 19 | 55.3 | 73.3 | 2490 | | | | | |
| 20 | 55.5 | 73.8 | 2490 | | | | | |
| 21 | 56.2 | 74.4 | 2490 | | | | | |
| 22 | 56.9 | 75.1 | 2490 | | | | | |
| 23 | 56.3 | 74.7 | 2490 | | | | | |
| 24 | 55.4 | 74 | 2490 | | | | | |
| 25 | 56 | 73.7 | 2490 | | | | | |
| 26 | 56.8 | 73.9 | 2490 | | | | | |
| 27 | 56.9 | 74.9 | 2490 | | | | | |
| 28 | 56.7 | 74.7 | 2490 | | | | | |
| 29 | 56.6 | 74.5 | 2490 | | | | | |
| 30 | 57 | 75.1 | 2490 | | | | | |
| 31 | 57.3 | 75.4 | 2490 | | | | | |

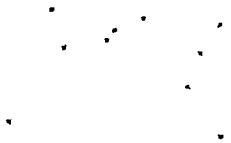
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| MONTHLY AVG | 55.5 | 73.1 | 2442.0 | NO DISCHARGE | | | | |
| MONTHLY HIGH | 57.3 | 75.4 | 2490.0 | | | | | |
| MONTHLY LOW | 53.2 | 69.7 | 2240.0 | | | | | |

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| 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 Deausseling.

PRINCIPAL EXECUTIVE OFFICER
JAMES D. SHIFFER

SIGNATURE OF AUTHORIZED AGENT DATE
John R. Krenag 9/17/87



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

DISCHARGE SELF MONITORING REPORT

DIABLO CANYON NUCLEAR POWER PLANT
 PO BOX 56
 AVILA BEACH, CALIF 93424
 PAGE (M) 2

FACILITY I.D.
 3 462003001

YEAR/ MO / DAY
 BEGINNING 87/08/01

YEAR/ MO / DAY
 ENDING 87/08/31

STATE CODE
 06

NPDES PERMIT #
 CA0003751

| STATION ANALYSIS UNITS SNPL 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/1 GRAB MONTHLY | EFFLUENT 001F OIL & GREASE mg/1 GRAB MONTHLY | EFFLUENT 001N OIL & GREASE mg/1 GRAB MONTHLY | EFF001F->003 OIL & GREASE mg/1 GRAB WEEKLY | EFFLUENT 001N SETTLE SOLIDS mg/1 GRAB WEEKLY |
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| AUGUST | | | | | | | | |
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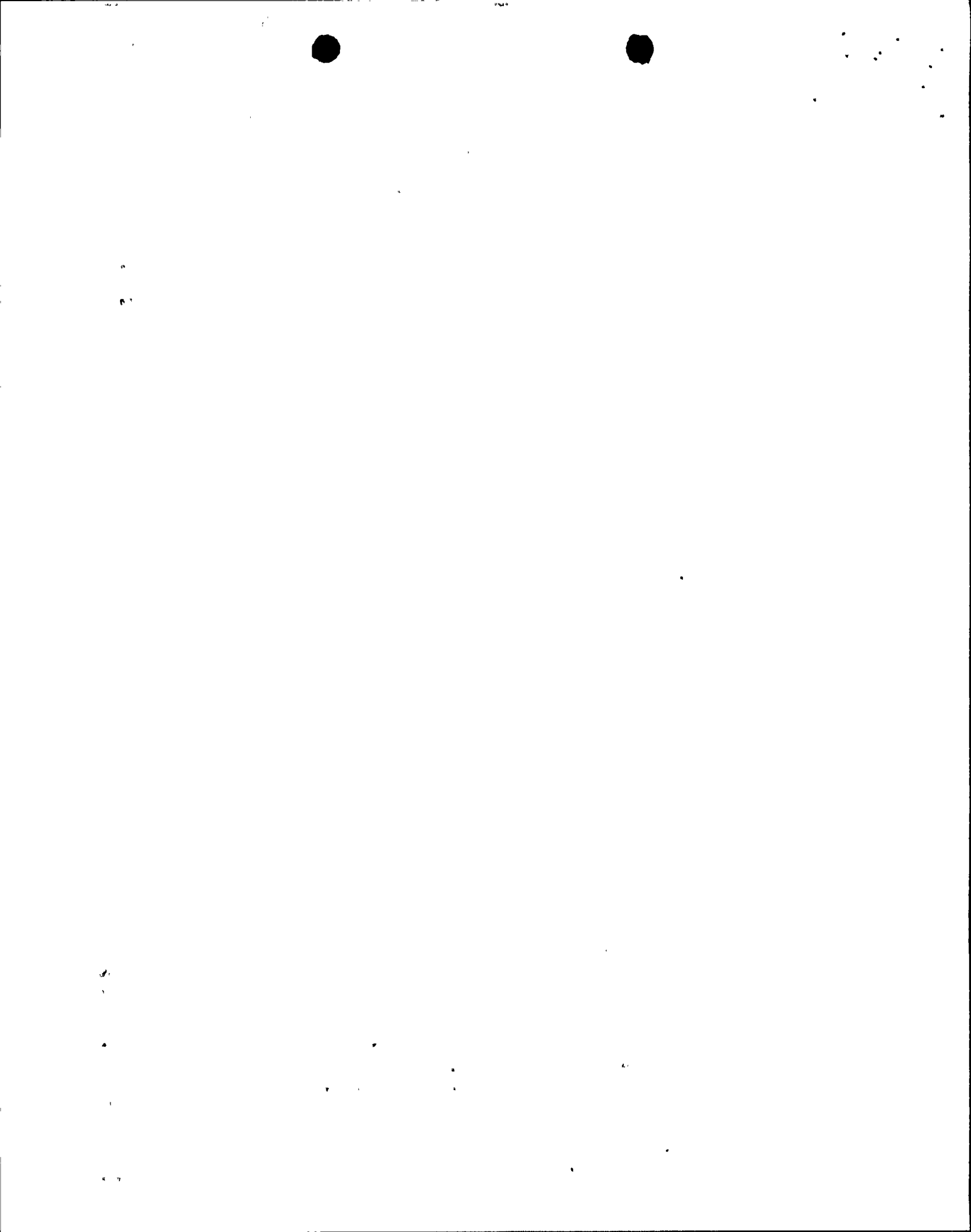
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| MONTHLY AVG | | | | | | | | NO DISCHARGE | .05 |
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| TIMES EXCEEDED | MIN 6.0 =0 | NO LIMIT | NO LIMIT | NO LIMIT | NO AVG 15 =0 | NO AVG 15 =0 | NO AVG 15 =0 | NO AVG 1.0 =0 |
| TIMES EXCEEDED | MAX 9.0 =0 | | | | D MAX 20 =0 | D MAX 20 =0 | D MAX 20 =0 | D MAX 3.0 =0 |
| TIMES EXCEEDED | | | | | | | | |

REMARKS: (1) Number_of_Samples_taken_during_the_day. _____

PRINCIPAL EXECUTIVE OFFICER
 JAMES D. SHIFFER

SIGNATURE OF AUTHORIZED AGENT DATE
 John R. Krueger 9/17/87



CONTROL BOARD
 CENTRAL COAST REGION
 1102A LAUREL LANE
 SAN LUIS OBISPO, CA 93401

DIABLO CANYON NUCLEAR POWER PLANT
 PO BOX 56
 AVILA BEACH, CALIF 93424
 PAGE (M) 3

FACILITY I.D. 3 402003001
 YEAR/ MO / DAY BEGINNING 87/08/01
 YEAR/ MO / DAY ENDING 87/08/31
 STATE CODE 06
 NPDES PERMIT # CA0003751

| STATION ANALYSIS UNITS SMPL TYPE FREQ. | EFFLUENT 001 T NF RESIDUE mg/l 1st FLTR GRAB MONTHLY | EFFLUENT 001 T NF RESIDUE mg/l 2nd FLTR GRAB MONTHLY | EFFLUENT 001 T NF RESIDUE mg/l NET GRAB MONTHLY | EFFLUENT 001I T NF RESIDUE mg/l 1st FLTR GRAB MONTHLY | EFFLUENT 001I T NF RESIDUE mg/l 2nd FLTR GRAB MONTHLY | EFFLUENT 001I T NF RESIDUE mg/l NET GRAB MONTHLY | EFFLUENT 001C T NF RESIDUE mg/l GRAB MONTHLY | EFFLUENT 001D T NF RESIDUE mg/l GRAB MONTHLY |
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| AUGUST | 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 |
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| MONTHLY AVG | NO DISCHARGE | | | | | | | | NO DISCHARGE | NO DISCHARGE | NO DISCHARGE | NO DISCHARGE |
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| TIMES EXCEEDED | NO LIMIT | NO LIMIT | NO LIMIT | NO LIMIT | NO LIMIT | NO AVG 30 =0 | NO AVG 30 =0 | NO AVG 30 =0 |
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REMARKS: (#) Number of Samples taken during the day.

PRINCIPAL EXECUTIVE OFFICER
 JAMES D. SHIFFER

SIGNATURE OF AUTHORIZED AGENT DATE
 John R. Krenn 9/17/87



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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) 4

FACILITY I.D.
3 402003001

YEAR/ MO / DAY
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YEAR/ MO /DAY
ENDING 87/08/31

STATE CODE
06

NPDES PERMIT #
CA0003751

| STATION ANALYSIS UNITS SMPL TYPE FREQ. | EFFLUENT 001F T NF RESIDUE mg/l GRAB MONTHLY | EFFLUENT 001G T NF RESIDUE mg/l GRAB MONTHLY | EFFLUENT 001H T NF RESIDUE mg/l GRAB MONTHLY | EFFLUENT 001J T NF RESIDUE mg/l GRAB MONTHLY | EFFLUENT 001K T NF RESIDUE mg/l GRAB MONTHLY | EFFLUENT 001L T NF RESIDUE mg/l GRAB MONTHLY | EFFLUENT 001M T NF RESIDUE mg/l GRAB MONTHLY | EFFLUENT 001N T NF RESIDUE ug/l GRAB MONTHLY |
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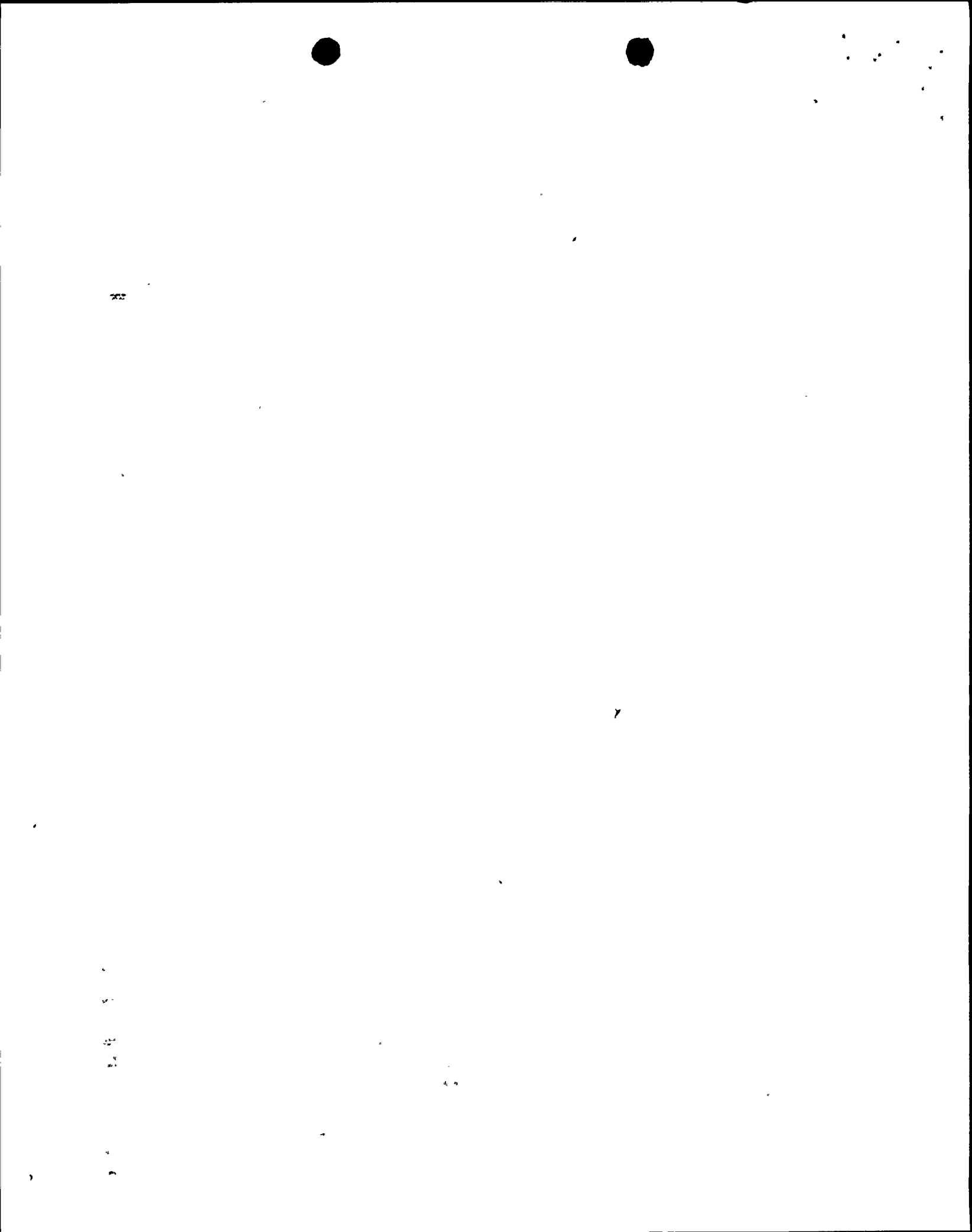
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| MONTHLY AVG | NO DISCHARGE | | | | | | | |
| MONTHLY HIGH | | | | | | | | |
| MONTHLY LOW | | | | | | | | |
| TIMES EXCEEDED | NO AVG 30 =0 | NO AVG 30 =0 | NO AVG 30 =0 | NO AVG 30 =0 | NO AVG 30 =0 | NO AVG 30 =0 | NO AVG 30 =0 | NO AVG 60 =0 |
| TIMES EXCEEDED | D MAX 100 =0 | D MAX 100 =0 | D MAX 100 =0 | D MAX 100 =0 | 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 |
| <i>John R. Kraemer</i> | 9/17/87 |



CONTROL BOARD
CENTRAL COAST REGION
1102A, LAUREL LANE
SAN LUIS OBISPO, CA 93401

DIABLO CANYON NUCLEAR POWER PLANT
PG BOX 56
AVILA BEACH, CALIF 93424
PAGE (N) 5

FACILITY I.D.
3 402003001

YEAR/ MO / DAY
BEGINNING 87/08/01

YEAR/ MO / DAY
ENDING 87/08/31

STATE CODE
06

NPDES PERMIT #
CA0003751

| STATION ANALYSIS UNITS SHPL TYPE FREQ. | EFFLUENT 001P T NF RESIDUE ug/l GRAB MONTHLY | EFFLUENT 002 T NF RESIDUE ug/l GRAB MONTHLY | EFF 001P=>003 T NF RESIDUE ug/l GRAB WEEKLY | EFFLUENT 001 T CHROMIUM ug/l GRAB MONTHLY | EFFLUENT 001 COPPER ug/l GRAB MONTHLY | EFFLUENT 001 NICKEL ug/l GRAB MONTHLY | EFFLUENT 001 ZINC ug/l GRAB MONTHLY |
|--|--|---|---|---|---|---|---|
|--|--|---|---|---|---|---|---|

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

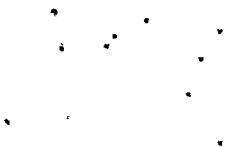
| | | | | | | | |
|--------------|---|--------------|--|--|--|--|--|
| MONTHLY AVG | 2 | NO DISCHARGE | | | | | |
| MONTHLY HIGH | 2 | | | | | | |
| MONTHLY LOW | 2 | | | | | | |

| | | | | | | | |
|----------------|--------------|--------------|--------------|---------------|---------------|----------------|---------------|
| TIMES EXCEEDED | MD AVG 30 =0 | MD AVG 30 =0 | MD AVG 30 =0 | 6M-MEAN 15 =0 | 6M-MEAN 24 =0 | 6M-MEAN 148 =0 | 6M-MEAN 97 =0 |
| TIMES EXCEEDED | D MAX 100 =0 | D MAX 100 =0 | D MAX 100 =0 | D MAX 59 =0 | D MAX 135 =0 | D MAX 592 =0 | D MAX 541 =0 |
| TIMES EXCEEDED | | | | I MAX 148 =0 | I MAX 357 =0 | I MAX 1480 =0 | I MAX 1430 =0 |

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

| |
|-----------------------------|
| PRINCIPAL EXECUTIVE OFFICER |
| JAMES D. SHIFFER |

| | |
|-------------------------------|---------|
| SIGNATURE OF AUTHORIZED AGENT | DATE |
| <i>John R. Kneeman</i> | 9/17/87 |



24

25

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27

28

CONTROL BOARD
 CENTRAL COAST REGION
 1102A LAUREL LANE
 SAN LUIS OBISPO, CA 93401

DIABLO CANYON NUCLEAR POWER PLANT
 PO BOX 56
 AVILA BEACH, CALIF 93424
 PAGE (M) 6

FACILITY I.D.
 3 402603001

YEAR/ MO / DAY
 BEGINNING 87/08/01

YEAR/ MO /DAY
 ENDING 87/08/31

STATE CODE
 06

NPDES PERMIT #
 CA0003751

| STATION ANALYSIS UNITS SMPL TYPE FREQ. | EFFLUENT 001 T CHLOR RES ug/l GRAB | EFFLUENT 001 FREE AVL CHL ug/l GRAB | EFFLUENT 001 CHLORINE USED lbs/day RECORDED | EFFLUENT 001 AMMONIA (N) mg/l GRAB | EFFLUENT 001 TITANIUM ug/l GRAB | EFFLUENT 001D LITHIUM ug/l MONTHLY COMP. | EFFLUENT 001D BORDH ug/l MONTHLY COMP. | EFFLUENT 001D HYDRAZINE ug/l GRAB |
|--|------------------------------------|-------------------------------------|---|------------------------------------|---------------------------------|--|--|-----------------------------------|
| | 2 per CYCLE | 2 per CYCLE | MONTHLY | MONTHLY | MONTHLY | MONTHLY | MONTHLY | MONTHLY |

| AUGUST | # | # | # | # | # | # | # | # |
|--------|---|----|---|----|-----|--------|--------|----|
| 1 | | | | | | | | 11 |
| 2 | | | | | | | | |
| 3 | 8 | 50 | 8 | 30 | 333 | | | |
| 4 | | | | | | <0.041 | | |
| 5 | 8 | 70 | 8 | 30 | 333 | | | |
| 6 | | | | | | 42 | | |
| 7 | 2 | 90 | 2 | 70 | 21 | | | |
| 8 | | | | | | | | |
| 9 | | | | | | | | |
| 10 | 8 | 20 | 8 | 20 | 333 | | | |
| 11 | | | | | | | | |
| 12 | 6 | 20 | 6 | 20 | 188 | | | |
| 13 | | | | | | | | |
| 14 | 8 | 30 | 8 | 30 | 333 | | | |
| 15 | | | | | | 28 | 339000 | |
| 16 | | | | | | | | |
| 17 | 8 | 30 | 8 | 20 | 333 | | | |
| 18 | | | | | | | | |
| 19 | 8 | 40 | 8 | 30 | 333 | | | |
| 20 | | | | | | | | |
| 21 | 8 | 20 | 8 | 20 | 333 | | | |
| 22 | | | | | | | | |
| 23 | | | | | | | | |
| 24 | 8 | 20 | 8 | 20 | 333 | | | |
| 25 | | | | | | | | |
| 26 | 8 | 40 | 8 | 30 | 333 | | | |
| 27 | | | | | | | | |
| 28 | 8 | 30 | 8 | 20 | 333 | | | |
| 29 | | | | | | | | |
| 30 | | | | | | | | |
| 31 | 2 | 20 | 2 | 20 | 83 | | | |

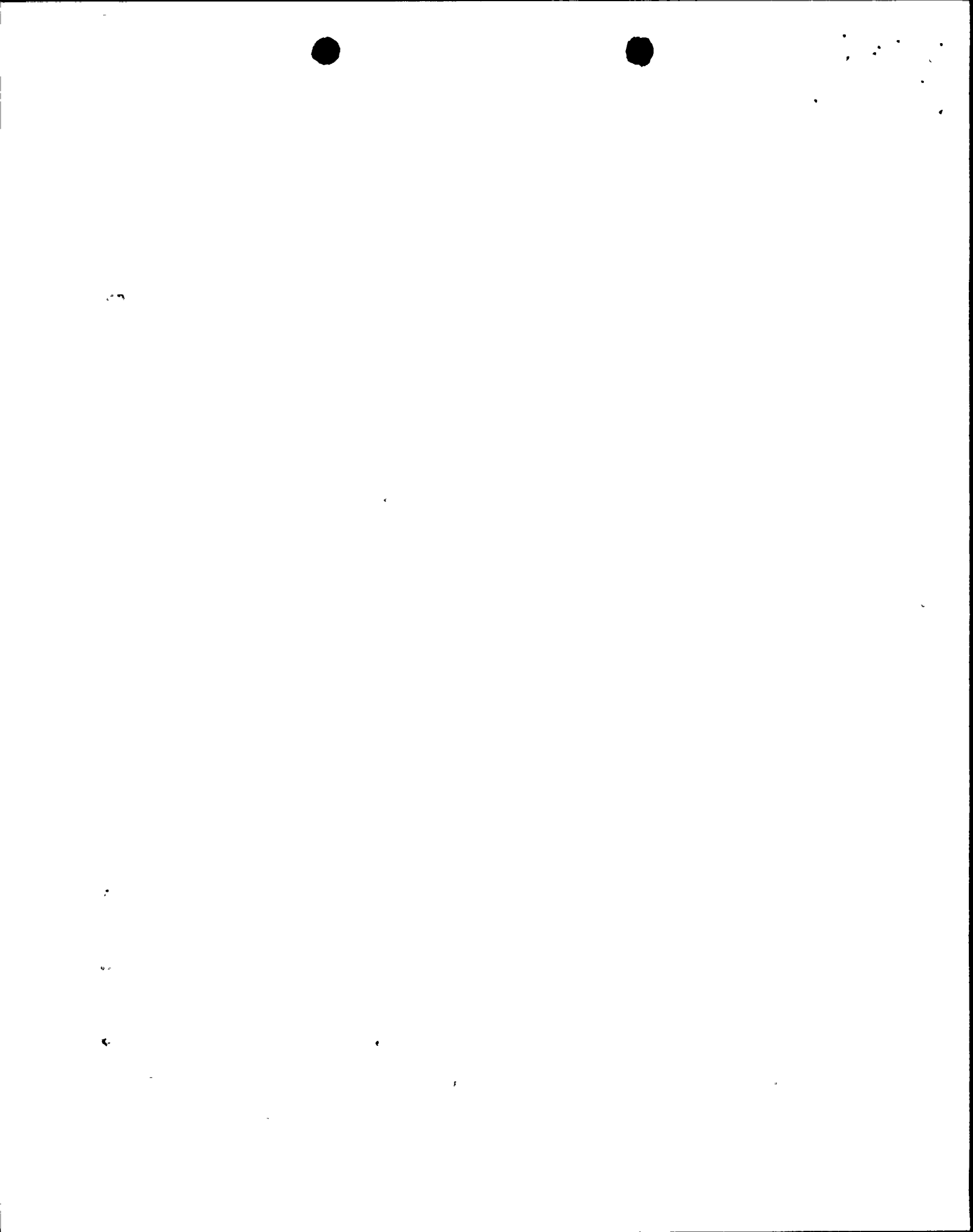
| | | | | | | | |
|--------------|----|----|-----|--|--|--|--|
| MONTHLY AVG | 37 | 28 | 279 | | | | |
| MONTHLY HIGH | 90 | 70 | 333 | | | | |
| MONTHLY LOW | 20 | 20 | 21 | | | | |

| | | | | | | | | |
|----------------|--------------|---------------|----------|----------------|----------|----------|----------|----------|
| TIMES EXCEEDED | D MAX 200 =0 | 30 DAY AV 200 | NO LIMIT | 6M-MEAN 4.44=0 | NO LIMIT | NO LIMIT | NO LIMIT | NO LIMIT |
| TIMES EXCEEDED | I MAX 200 =0 | =0 | | D MAX 17.8 =0 | | | | |
| TIMES EXCEEDED | | D MAX 500 =0 | | I MAX 44.4 =0 | | | | |

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

PRINCIPAL EXECUTIVE OFFICER
 JAMES D. SHIFFER

SIGNATURE OF AUTHORIZED ASENT DATE
 John R. Kremag 9/17/87



CONTROL BOARD
 CENTRAL COAST REGION
 1102A LAUREL LANE
 SAN LUIS OBISPO, CA 93401

DIABLO CANYON NUCLEAR POWER PLANT
 PO BOX 56
 AVILA BEACH, CALIF 93424
 PAGE (K) 7

FACILITY I.D.
 3 402003001

YEAR/ MO / DAY
 BEGINNING 87/08/01

YEAR/ MO /DAY
 ENDING 87/08/31

STATE CODE
 06

NPDES PERMIT #
 CA0003751

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

| AUGUST | 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 |
|--------|---|---|---|---|---|---|---|---|---|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

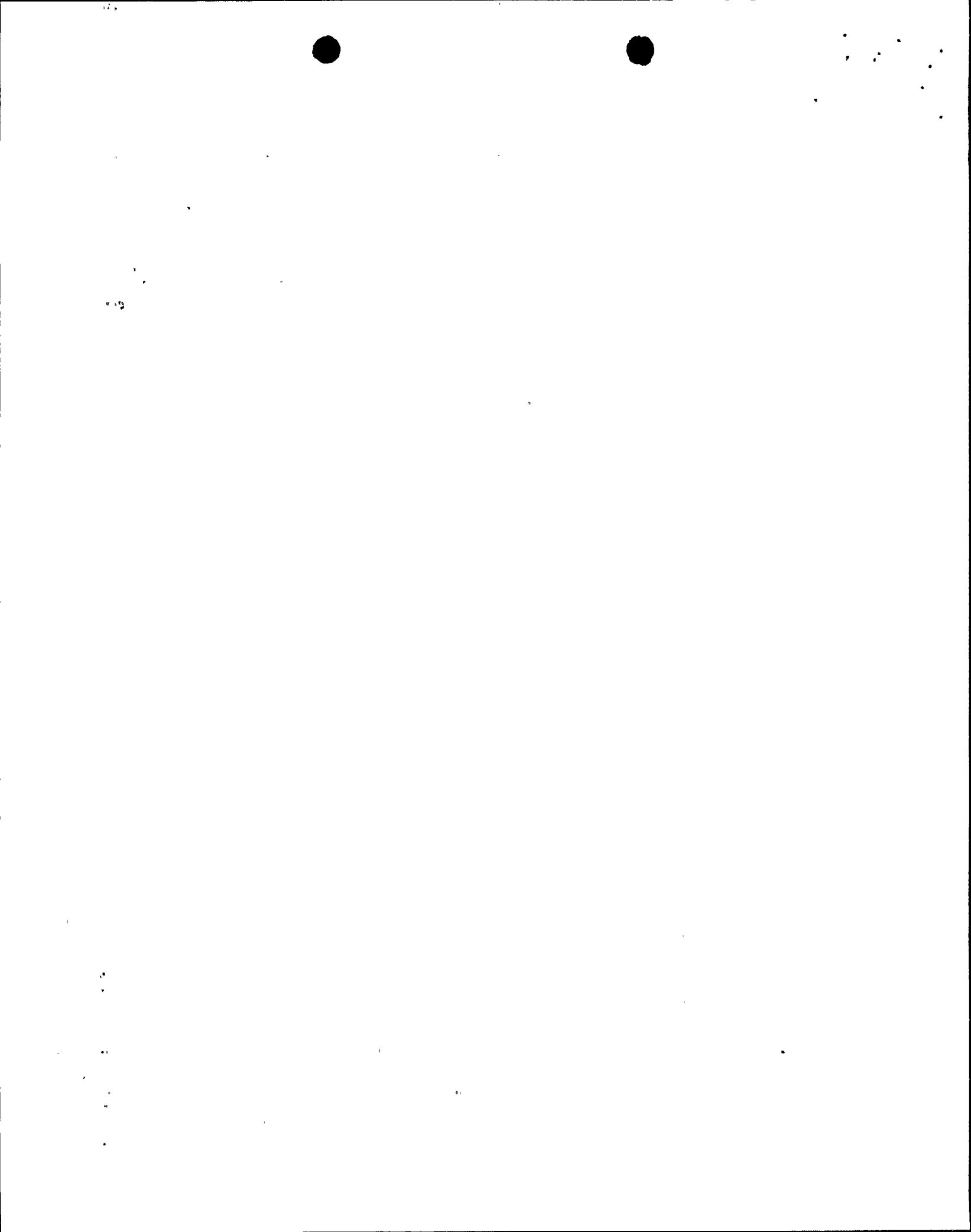
| | | | | |
|--------------|--------------|--------------|--------------|--------------|
| MONTHLY AVG | NO DISCHARGE | NO DISCHARGE | NO DISCHARGE | NO DISCHARGE |
| MONTHLY HIGH | | | | |
| MONTHLY LOW | | | | |

| | | | | |
|----------------|--------------|---------------|--------------|---------------|
| 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: (1) Number of Samples taken during the day. _____

PRINCIPAL EXECUTIVE OFFICER
 JAMES D. SHIFFER

SIGNATURE OF AUTHORIZED AGENT DATE
 John R. Kneeney 9/17/87



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 (B) 1

FACILITY I.D. 3 402003001
 YEAR/ MO / DAY BEGINNING 87/08/01
 YEAR/ MO / DAY ENDING 87/08/31
 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 |
|--|---|--|--|--|--|--|--|--|
|--|---|--|--|--|--|--|--|--|

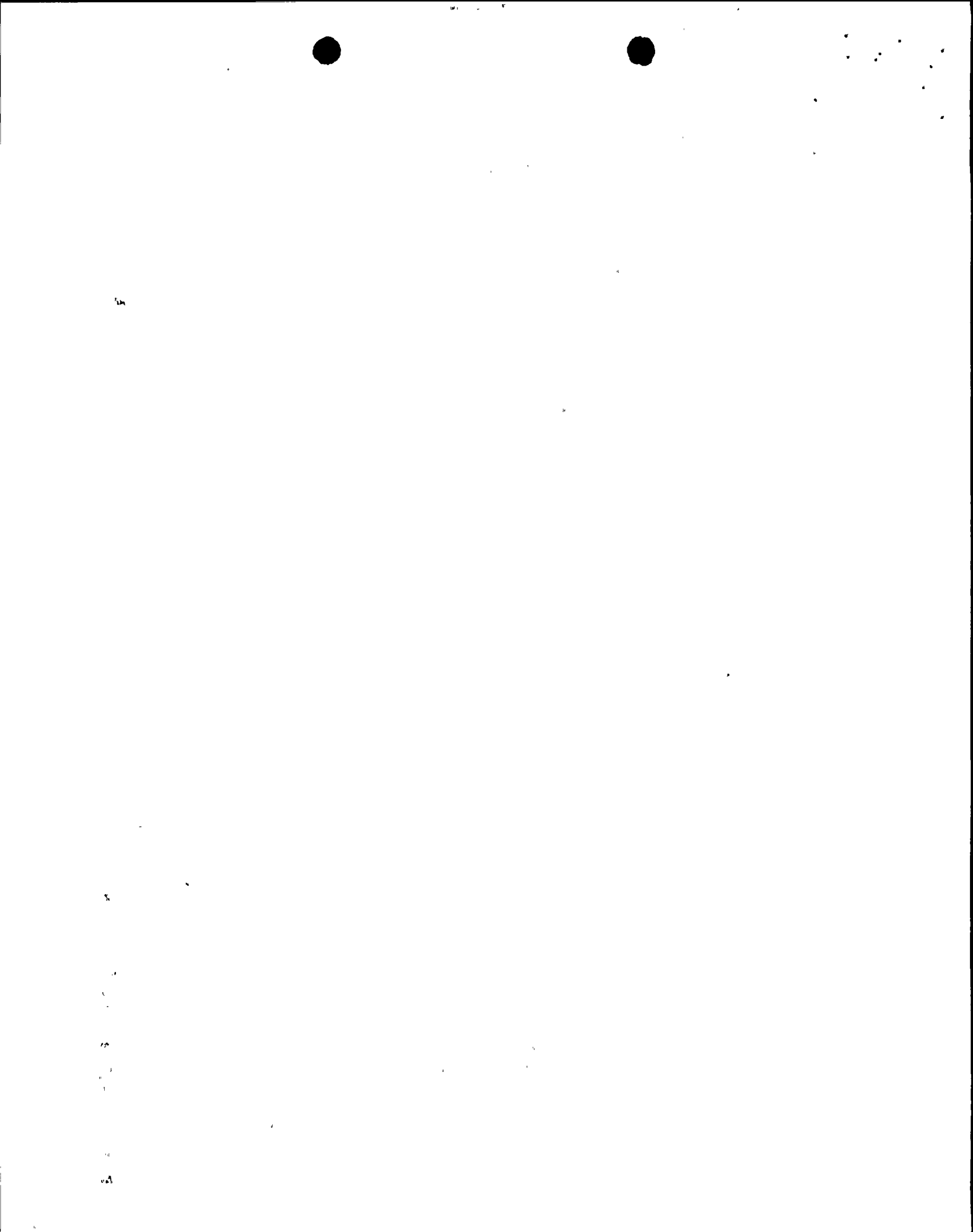
| AUGUST | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 |
|--------|---|---|---|---|---|---|---|---|---|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|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

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

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

PRINCIPAL EXECUTIVE OFFICER
 JAMES D. SHIFFER

SIGNATURE OF AUTHORIZED AGENT DATE
 John R. Kremar 9/17/87



CONTROL BOARD
 CENTRAL COAST REGION
 1102A LAUREL LANE
 SAN LUIS OBISPO, CA 93401

DIABLO CANYON NUCLEAR POWER PLANT
 PO BOX 56
 AVILA BEACH, CALIF 93424
 PAGE (0) 2

FACILITY I.D. 3 402003001 YEAR/ MO / DAY BEGINNING 87/08/01 YEAR/ MO / DAY ENDING 87/08/31 STATE CODE 06 NPDES PERMIT # CA0003751

| STATION ANALYSIS UNITS SMPL TYPE FREQ. | EFFLUENT 001L OIL & GREASE mg/l GRAB JA/AP/JUL/OCT | EFFLUENT 001K OIL & GREASE mg/l GRAB JA/AP/JUL/OCT | EFFLUENT 001P OIL & GREASE mg/l GRAB JA/AP/JUL/OCT | EFFLUENT 002 OIL & GREASE mg/l GRAB JA/AP/JUL/OCT | EFFLUENT 003 OIL & GREASE mg/l GRAB JA/AP/JUL/OCT | EFFLUENT 004 OIL & GREASE mg/l GRAB JA/AP/JUL/OCT | INFLUENT T NF RESIDUE mg/l 1st FLTR GRAB JA/AP/JUL/OCT | INFLUENT T NF RESIDUE mg/l 2nd FLTR GRAB JA/AP/JUL/OCT |
|--|--|--|--|---|---|---|--|--|
|--|--|--|--|---|---|---|--|--|

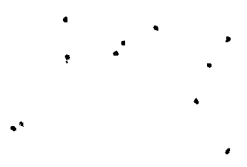
| AUGUST | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 |
|--------|---|---|---|---|---|---|---|---|---|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|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

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

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

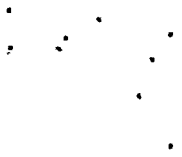
PRINCIPAL EXECUTIVE OFFICER
 JAMES D. SHIFFER

SIGNATURE OF AUTHORIZED AGENT DATE
John R. Krenn 9/17/87



APPENDIX 2

Surface Water Temperatures
August 1987



DIABLO CANYON POWER PLANT
OCEANOGRAPHIC STUDIES
SURFACE SEAWATER TEMPERATURES

Provision 4 of the Receiving Water Monitoring requirements of the NPDES permit for the Diablo Canyon Power Plant (Order No. 85-101; NPDES No. CA0003751) calls for surface temperature measurements during normal operation at two month intervals. Surface temperatures are to be reported in 2°F isotherms.

Surface water temperatures were measured on August 7, 1987 between 1010 and 1121 PDST. A towable electronic bathythermograph (TOWED-BT) was used for thermal plume mapping. The TOWED-BT is a self-contained underwater unit. The TOWED-BT uses a platinum resistance, pressure independent temperature sensor. The sensor has a response time of .25 seconds, with an accuracy of $\pm 0.01^{\circ}\text{F}$ ($.05^{\circ}\text{C}$). An oil filled strain gauge pressure transducer accurate to .3% is used to determine depth of the instrument (TSK, 1985). Temperature and depth data are collected at 5 second intervals. All data are recorded in internal IC memory. Data were retrieved after the test using a photomagnetic coupler and microcomputer.

The positions during the thermal plume mapping were determined with a Motorola MiniRanger III system. The MiniRanger III system is a range-range navigation system, with an accuracy of ± 0.5 m when used with a data processor.

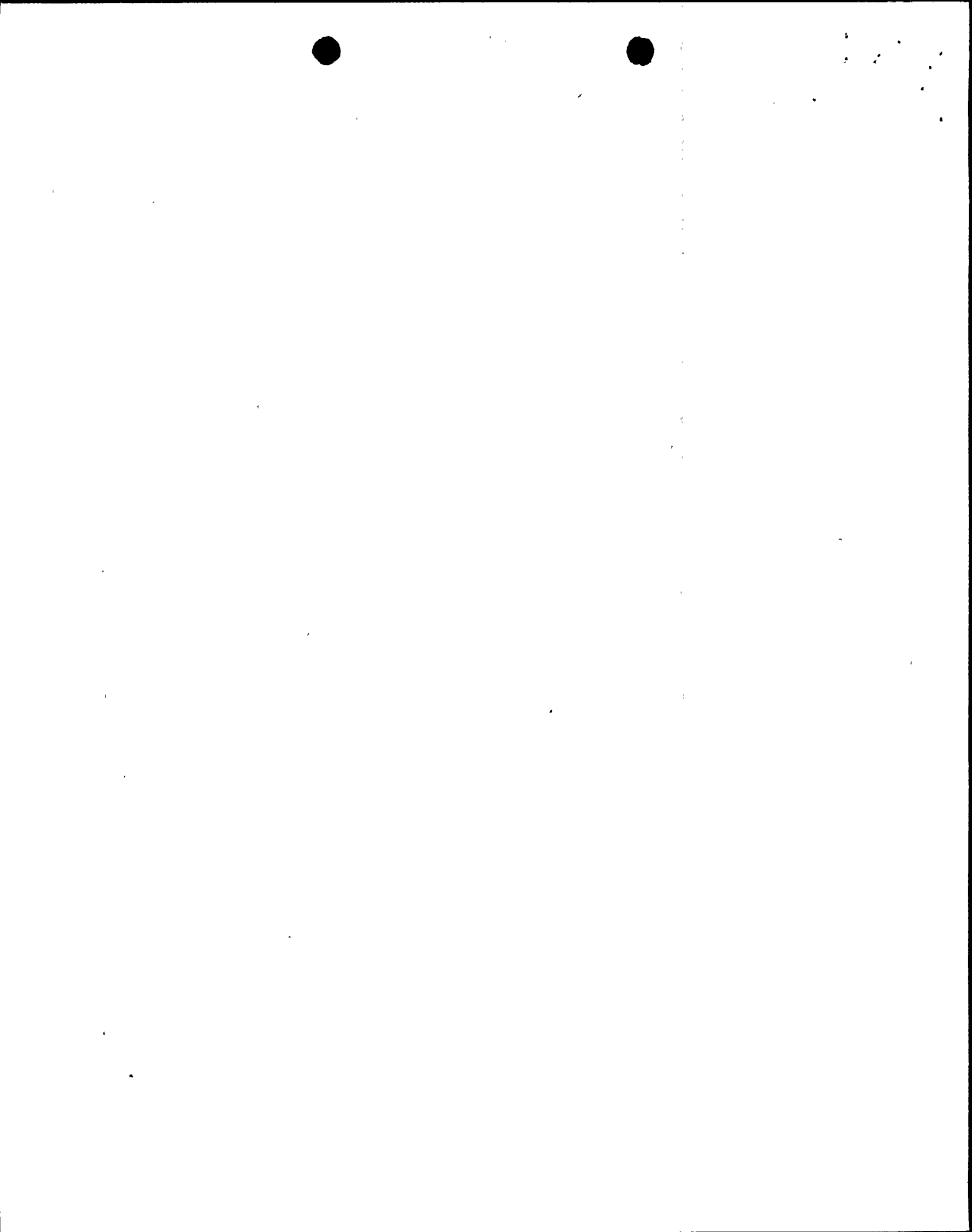
Intake and discharge temperatures were measured using Sea Data TR-2 temperature recorders. The Sea Data units have a manufacturers specified accuracy of $\pm 0.2^{\circ}\text{F}$ (0.1°C) with a response time of 2 seconds (Sea Data, 1984). The temperature sensor at the intake is located 100 feet from the intake

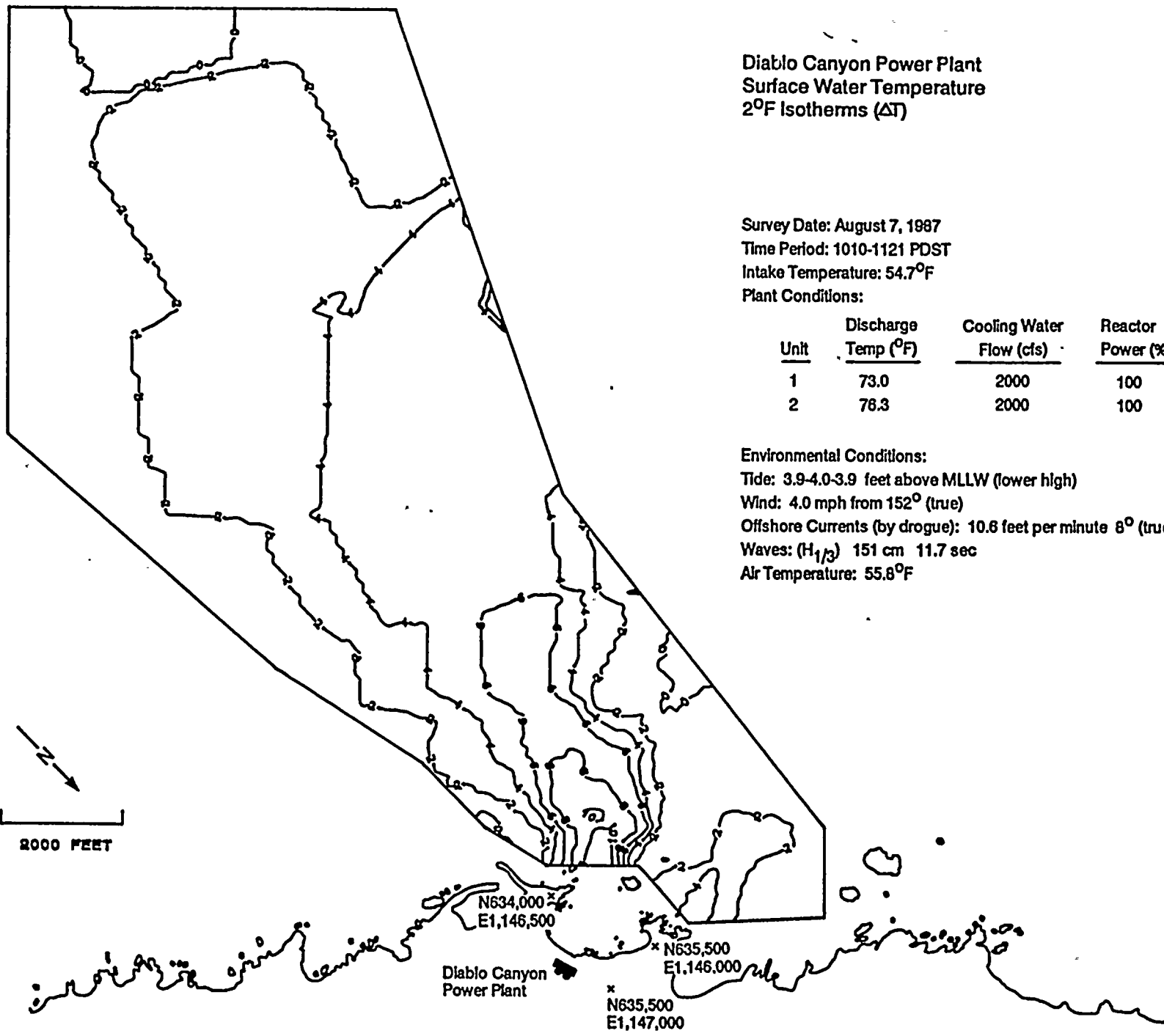


structure in 10 feet of water (MLLW). The discharge temperatures are measured on the side walls of the discharge structure, near the end weir (north wall for Unit 1 and the south wall for Unit 2).

Temperature and position data were merged and surface isotherms, in degrees above ambient (ΔT), were computer generated (Figure 1). Discharge volumes reported for Units 1 and 2 are the actual circulating water pump volumes. The area covered by each 2°F isotherm was calculated and is presented in Table 1. When an isotherm is not completely enclosed within the sampling boundary, the boundary is used as the limit in determining the areal extent of the contour.

These values are within the range of isotherm areas reported by Tu, Leighton, White, and Hsu (1986).





**Diablo Canyon Power Plant
Surface Water Temperature
2°F Isotherms (ΔT)**

Survey Date: August 7, 1987
 Time Period: 1010-1121 PDST
 Intake Temperature: 54.7°F
 Plant Conditions:

| Unit | Discharge Temp (°F) | Cooling Water Flow (cfs) | Reactor Power (%) |
|------|---------------------|--------------------------|-------------------|
| 1 | 73.0 | 2000 | 100 |
| 2 | 78.3 | 2000 | 100 |

Environmental Conditions:
 Tide: 3.9-4.0-3.9 feet above MLLW (lower high)
 Wind: 4.0 mph from 152° (true)
 Offshore Currents (by drogue): 10.6 feet per minute 8° (true)
 Waves: ($H_{1/3}$) 151 cm 11.7 sec
 Air Temperature: 55.8°F

2000 FEET

N634,000
E1,146,500

Diablo Canyon Power Plant

x N635,500
E1,146,000

x N635,500
E1,147,000

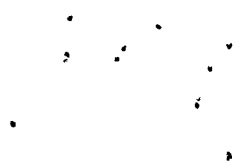
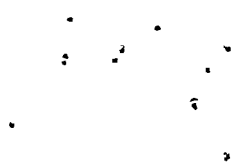


TABLE 1

CUMULATIVE ISOTHERMS AREAS
(IN ACRES)

2° ISOTHERMS

| <u>2°</u> | <u>4°</u> | <u>6°</u> | <u>8°</u> | <u>10°</u> |
|-----------|-----------|-----------|-----------|------------|
| 700.9 | 319.1 | 61.3 | 18.2 | 2.7 |



REFERENCES

Sea Data. Sea Data Oceanographic Instrumentation, Micro-Logger Users Manual. 1984.

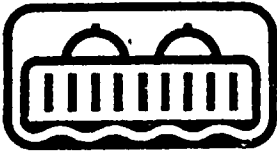
Tu, S. W., J. P. Leighton, C. O. White and C. C. Hsu. Surface Buoyant Jet Characteristics of the Thermal Discharge Plume at Diablo Canyon Power Plant. A Field Study of Power Ascension Testing of Unit 2 and Full Load Operation of Unit 1". In Environmental Investigations at Diablo Canyon, 1986, Volume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

, White, C. O. Measurement of Surface Temperatures and Isotherm Contour Development. In Oceanographic Procedures Manual. PGandE, 1986. (Edited by E. M. Kenzler).



Small, faint, illegible markings or characters in the top right corner of the page.

PACIFIC GAS AND ELECTRIC COMPANY



+

DIABLO CANYON POWER PLANT
P.O. Box 56 • Avila Beach, California 93424 • (805) 595-7351

R.C. THORNBERRY
PLANT MANAGER

September 20, 1987

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

The monthly report for August 1987 of the Diablo Canyon Power Plant
Discharge and 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 contained herein should not be construed to imply accuracy beyond the errors associated with equipment, instrumentation, or method capability, nor should they be construed to represent an endorsement of the required testing methodology. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Sincerely,



JOHN D. TOWNSEND

Enclosure

JDT:cd

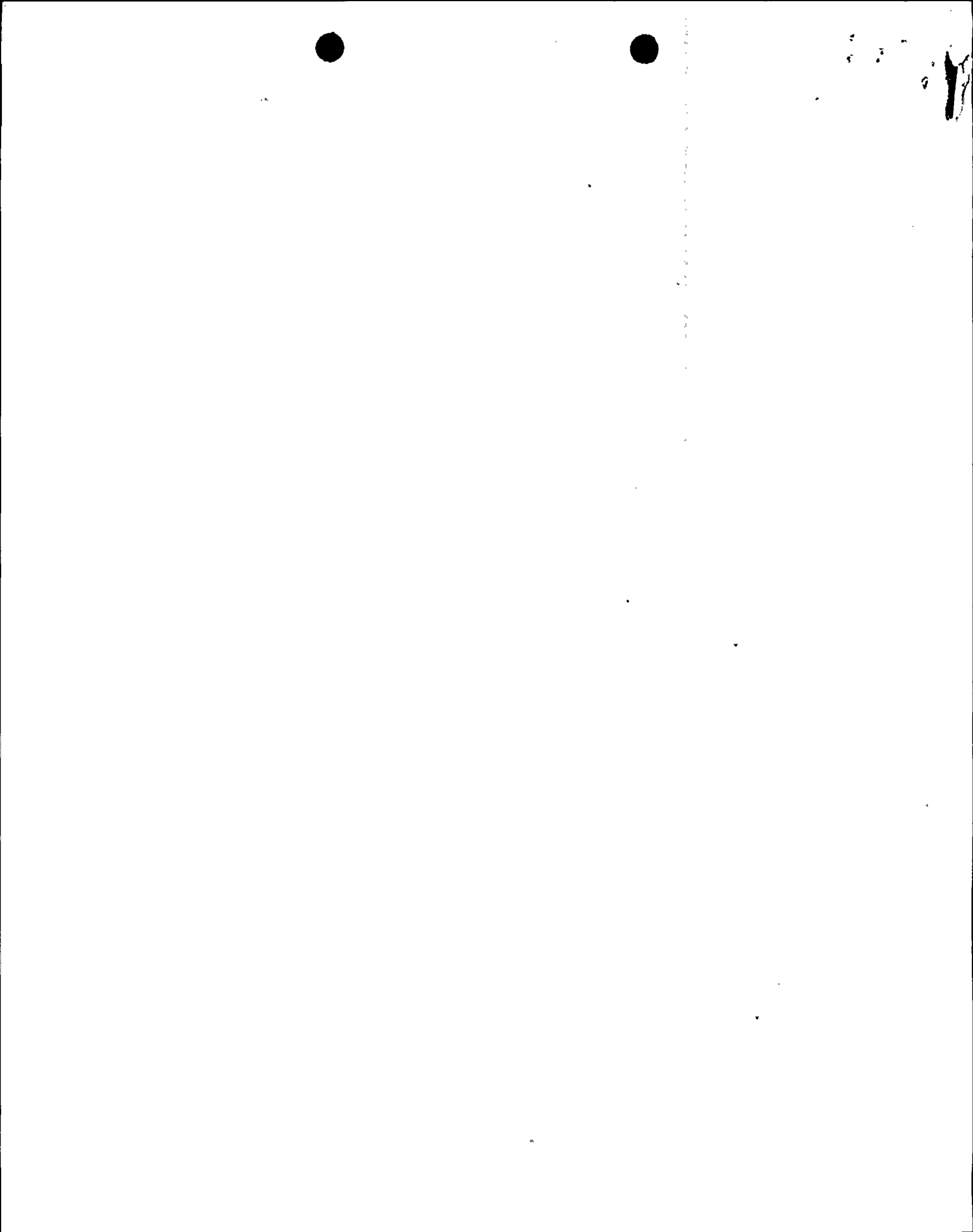
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bcc: DWBehrens
JVBoots
MJDoylE/VLWyman
VCFurtado/JFMcKenzie
JEGardner
JBGibson/DJWilliamson
MTHug
BSLew/ERKendle
RWLorenz/KMGodfrey
MNNorem
WAO'Hara
JASexton
JDShiffer
JWWarrick
CJWeinberg/JTWells
RMS



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