Pacific Gas and Electric Company®

Diablo Canyon Power Plant
P. O. Box 56
Avila Beach, CA 93424

PG&E Letter DCL-2009-507

Electronic Submission
PDF Formatted File

February 27, 2009

California Regional Water Quality Control Board
Central Coast Region
Attn: Monitoring and Reporting Review Section
895 Aerovista, Suite #101
San Luis Obispo, CA 93401-7906

Dear Mr. Briggs:

In accordance with Order 90-09, NPDES No. CA0003751, enclosed is the 2008 Annual Report on Discharge Monitoring at Diablo Canyon Power Plant (Enclosure 1).

Facility Name:	Diablo Canyon Power Plant
Address:	P.O. Box 56 Avila Beach, CA 93424
Contact Person: **Job Title:** **Phone Number:**	Bryan K. Cunningham Supervisor, Environmental Operations 545-4439
WDR/NPDES Order Number:	Order No. 90-09, NPDES No. CA0003751
Type of Report: (check one)	**QUARTERLY** ☐ **ANNUAL** ☒
Quarter: (check one):	**1st** ☐ **2nd** ☐ **3rd** ☐ **4th** ☐
Year:	2008 (Annual Reports for **DCPP** are Jan-Dec)
Violation(s) (Place an X by the appropriate choice): * see NOTE	☒ **No** (there are no violations to report) ☐ **Yes** **Note**: *Reference "Review of Compliance Record and Corrective Actions" Section*

IE25
NRR

If Yes is marked (complete a-g):
a) Parameter(s) in Violation:

b) Section(s) of WDR/NPDES Violated:

c) Reported Value(s)

d) WDR/NPDES Limit/Condition:

e) Dates of Violation(s)
(reference page of report/data sheet):

f) Explanation of Cause(s):
(attach additional information as needed)
(If "YES", see overview section of attached report)

g) Corrective Action(s):
(attach additional information as needed)
(If "YES", see overview section of attached report)

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 or concerns, or require additional information, please contact Bryan Cunningham at (805) 545-4439.

Sincerely,

Name: Kenneth J. Peters
Title: *Station Director – Diablo Canyon Power Plant*

2009507/jlk

cc: w/enclosure

PDF Formatted Electronic File Copy:

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Diablo Canyon Power Plant 104/5

ENCLOSURE

ANNUAL SUMMARY REPORT ON DISCHARGE MONITORING AT THE DIABLO CANYON POWER PLANT

(NPDES NO. CA0003751)

2008

2008 Annual Summary Report on Discharge Monitoring at the Diablo Canyon Power Plant

TABLE OF CONTENTS

2008 Annual Summary Report on Discharge Monitoring
at the
Diablo Canyon Power Plant

OVERVIEW

A. This annual summary report follows the format used in quarterly monitoring reports. Analytical results below the respective Reporting Limit (ND or non-detect) are plotted as a "zero" value in accordance with ELAP guidance. Less-than results are typically reported to express an average of values that inciude non-detects and at least one positive result. These less-than results are plotted conservatively at the value. During 2008, discharges occurred from all discharge paths except 001I, 001K, 016, and 017.

B. California Ocean Plan Table B substances that were not analyzed for have not been added to the discharge stream. The substances listed in Table B in the 1990 Ocean Plan were each analyzed for and reported in the permit renewal application for Diablo Canyon Power Plant (DCPP) submitted in October 1994 and January 2001. There have been no changes in activities conducted at the plant that would have significantly affected the results previously reported in the above referenced documents.

SUMMARY OF MONITORING PROGRAM

A. Monitoring of Plant Influent and Effluent

1. Monitoring Data

   a. Appendix 1 provides a list of discharge path names for ease of reference. Appendix 2 contains monitoring data in tabular form. Appendix 3 contains monitoring data in graphical form.

   b. Annual oil and grease analyses were performed in October on Stormwater/Yard Drain Discharges 005, 008, 009, 013, and 015. Results were non-detect (less than 5 mg/l) for discharges 005, 008, 009 and 015. The result for discharge 013 was 5 mg/l. No discharges that resulted in adequate sample quantities occurred from 016 and no discharge occurred from 017 during 2008.

   c. In October, Discharge 001D (Liquid Radioactive Waste Treatment System) annual grab samples for lithium, boron, and hydrazine were collected and analyzed. The results were 0.058 mg/l, 580 mg/l, and 0.005 mg/l, respectively.

2. Facility Operating and Maintenance Manual

   Pacific Gas and Electric Company (PG&E) maintains a multiple volume Plant Manual at DCPP that contains procedures used for operation and maintenance activities at the plant, including those activities that relate to wastewater handling, treatment, sampling, analysis and discharge.

   Plant procedures are prepared and reviewed by DCPP Staff and approved by DCPP Management. DCPP conducts biennial internal audits that review NPDES Plant procedures contained in the manual. Ongoing reviews of Plant procedures are conducted to assure that the manual remains valid, current, and complete for the facility.

3. Laboratories Used to Monitor Compliance

   The following laboratories were used during 2008 for monitoring compliance. They are certified under the appropriate agencies for the test/analyses they perform. As part of the on-going annual certification process, these laboratories take part in, and have passed, annual quality performance evaluation testing.

   a. PG&E Chemistry Laboratory, DCPP, Avila Beach, California (Lab Certification # CA01036)

   b. Aquatic Bioassay Consultants, Ventura, California (Lab Certification # CA01907)

c. Creek Environmental, San Luis Obispo, California (Lab Certification # CA00975)

d. Columbia Analytical Services, Kelso, Washington (Lab Certification # WA00035)

e. TestAmerica, Inc., Earth City, Missouri (Lab Certification # MO00054)

Results were also reported from Calscience Environmental Laboratories (CA-ELAP Lab #1230). These results were from samples taken by Liberty Composting of Bakersfield, CA of sewage treatment sludge received at their facility originating from the DCPP discharge 001N pathway. The results were provided by Calscience back to the contractor that operates DCPP's sewage treatment unit. The sample results are reported by PG&E as a courtesy, and not used to demonstrate compliance with the annual 001N pathway sludge analyses required by DCPP's NPDES Permit.

4. Review of Compliance Record and Corrective Actions

a. Circulating Water Pump Chlorination/Bromination Monitoring

The 2008 quarterly NPDES reports discuss chlorination cycles when discharge monitoring was interrupted. These are listed below with brief descriptions of the cause and corrective action. When these monitoring interruptions occurred, engineering evaluations (approved by the CCRWQCB January 13, 1994; PG&E Letter No. DCL-94-002) were performed. Detailed descriptions of these evaluations are included in the quarterly reports. Evaluations concluded that discharge chlorine limits were not exceeded during these events. An apparent exceedance occurred in February 2008 unrelated to an unmonitored condition (see description below).

Date	Chlorination Cycle Monitoring interruptions	Cause	Corrective Action
7/10/08 to 7/16/08	Unit 1 37 readings	Fouling of monitor's upper flow block.	Flow block replace and frequency of block inspection/replacement increased.
10/14/08 to 10/15/08	Unit 2 5 readings	Cracked fitting in upper flow block.	Fitting replaced.
12/18/08 to 12/19/08	Unit 1 and 2 10 readings	Open cross-tie valve between monitor inlets.	Cross-tie valve closed.

On February 23, 2008, chlorine levels at the Unit-1 discharge monitor reached 207 ppb during the 1600 injection, exceeding the 200 ppb limit in DCPP's NPDES discharge permit. The exceedance was discovered the morning of February 24, 2008. Regional Water Quality Control Board staff were notified the same day, within the 24 hour notification period. Investigation indicated that maintenance on the main seawater supply piping for the chemical injection system had taken place earlier on February 23rd. Pipe cleaning during the maintenance activity resulted in increased seawater flow within the overall system during the 1600 injection. The increased flow and associated water pressure forced out biofouling material that had accumulated and partially blocked system piping downstream of the conduit 1-1 chemical injection point. The restriction of water flow at this point had generated a build-up of treatment chemical that was suddenly released into the conduit when the blockage broke free.

Fouled system seawater supply piping had been the cause of another exceedance in August 2007 (reported in the third quarter 2007 report). The system maintenance activity on February 23, 2008 was part of the corrective action implemented in response to the August 2007 exceedance. Unfortunately, chemical treatment operations personnel were not notified that the piping was being cleaned, and the system was being put back in service with potentially enhanced seawater flow. Therefore, measures were not initiated (review chemical injection rate settings, conduct system test injections, increase dechlorination rates, etc.) to adequately evaluate potential change in system conditions, and subsequently mitigate related operational problems. To prevent recurrence, plant procedures have been modified to include notification steps during maintenance activities that could result in enhanced seawater flow. Additionally, preventative maintenance

periodic work orders have been established to remove biofouling throughout the entire system well before it can cause appreciable pipe occlusion, or contribute to flow restrictions that can result in pockets of chemical accumulation.

c. Closed Cooling Water Releases

During 2008, maintenance activities that required draining of closed cooling water systems were performed and are summarized below. PG&E received concurrence from the CCRWQCB in response to letters dated July 19, 1995 (PG&E Letter DCL-95-156), May 23, 1996 (PG&E Letter DCL-96-522), and May 19, 1997 (PG&E Letter DCL-97-533) regarding the use of glutaraldehyde and isothiazolin to control microbiological growth and corrosion in DCPP's closed cooling water systems. Any drainage from these systems is discharged at a flow-rate such that the chronic toxicity level is below the "No Observable Effect Concentration" (NOEC) at NPDES Discharge 001. The volumes of cooling water drained in 2008 from the component cooling water (CCW), intake cooling water (ICW), and service cooling water (SCW) systems are presented below. The glutaraldehyde (Glut) and isothiazoline (Iso) concentrations presented in the table below are system concentrations, not concentrations at the point of discharge to receiving water.

Date	System	Volume (gal)	Glut (mg/l)	Iso (mg/l)	Total Suspended Solids (mg/l)	Oil & Grease (mg/l)	Reason & Comments
01/17/08	Unit 2 CCW	5,300	156	---	---	---	Routine maintenance
01/24/08	Unit 2 SCW	200	92	0.33	---	---	Routine maintenance
01/28/08	Unit 2 ICW	1,050	< 50	< 0.25	11.1	3.1	Routine maintenance
01/28/08	Unit 2 SCW	11,000	90	0.33	3.1	1.6	Routine maintenance
01/29/08	Unit 1 ICW	3,308	102	7.3	15.4	3.2	Routine maintenance
02/18/08	Unit 2 SCW	8,000	0.0	0.0	< 2.0	< 1.4	Routine maintenance
03/05/08	Unit 2 SCW	20	297	242	3.4	1.4	Routine maintenance
03/13/08	Unit 2 SCW	33,200	249	< 0.25	3.4	1.4	Routine maintenance
04/12/08	Unit 2 SCW	15	106	< 0.25	---	---	Routine maintenance
05/01/08	Unit 1 CCW	181,000	129	0	5.9	< 1.4	Routine maintenance
05/14/08	Unit 1 ICW	200	132	6.0	---	---	Routine maintenance
06/05/08	Unit 1 SCW	34,000	144	7.9	< 2.0	< 1.4	Routine maintenance
06/17/08	Unit 1 ICW	3,318	< 50	4.6	---	---	Routine maintenance
06/30/08	Unit 2 SCW	15	90	4.3	---	---	Routine maintenance
07/03/08	Unit 2 ICW	3,304	153	2.1	---	---	Routine maintenance
07/09/08	Unit 2 SCW	33,000	57	4.1	< 0.2	< 1.4	Routine maintenance
07/19/08	Unit 2 CCW	192,500	157	0.0	< 0.2	< 1.4	Routine maintenance
08/25/08	Unit 1 SCW	15	88	0.75	---	---	Routine maintenance
09/03/08	Unit 1 SCW	15	85	2.4	---	---	Routine maintenance
10/09/08	Unit 2 SCW	10	134	2.8	----	----	Routine maintenance
12/11/08	Unit 1 SCW	33,250	151	5.0	<2.0	<1.4	Routine maintenance

d. On January 29, 2008, a level switch malfunction caused the turbine building sump to overflow to discharge, bypassing the oily-water-separator. The turbine building watch discovered the sump overflowing to the clean side, and observed pump level switches in normal automatic positions. Both sump pumps were immediately manually started, terminating flow overboard. However, turbine building sump water that had been directly released bypassed the oily water separator described for this discharge pathway (001F). DCPP conservatively estimates that a maximum of 25 gpm was released for approximately 18.5 hours resulting in a bypass of up to 27,750 gallons. Samples of the water remaining in the turbine building sump indicated that values for oil and grease (19.4 mg/l) and total suspended solids (17 mg/l) were below daily maximum limits for discharge point 001F. Therefore, this event was determined to be a bypass and not an exceedance. Regional Water Quality Control Board staff were notified within 24 hours of the bypass. Corrective maintenance was performed on the pump switches and satisfactory operation was verified.

e. Shortly after midnight on August 17, 2008, one of three operating Unit 2 main bank electrical transformers failed catastrophically causing a fire. The fire was put out by DCPP emergency

responders using water and a protein-based biodegradable, water-soluble, firefighting foam. Petroleum based electrical insulation oil released from the transformer during the event (estimated at < 100-gallons) was contained within adjacent paved areas, and a large volume oil containment and separation sump installed in the transformer area drainage path. High volumes of deluge water and soluble fire fighting foam additive entered the oil separation sump during the event. Water discharged from the sump flowed to the catch basin of discharge point 004. Foam was subsequently observed in the 004 discharge and in the adjacent power plant intake cove. No obvious petroleum oil sheen was observed at any location. Three oil absorbent booms were deployed, one at the entry to the 004 pathway catch basin, and two at the 004 discharge outlet, to capture any residual oil if transported by water/foam originating from the transformer area. There was a mild kerosene type smell in the foam at the inlet of the drainage catch basin (prior to catch basin outfall to the 004 discharge), but no petroleum type sheen was observed within the catch basin. However, some soot-like material was also observed at this same location. Other than the foam, the observation of soot-like material and the mild odor were the only notable concerns. Residual fire fighting foam dissipated rapidly once the sun came up, and no oil sheen was observed in the intake cove after all foam was gone.

Regional Board Staff were notified of the event by phone message early Sunday morning (August 17th) after observations of the catch basin, intake cove, and boom installation. The deployed booms were subsequently examined on Monday August 18th. No petroleum oil was observed in the absorbent material. Additionally, no oil sheen was observed within the drainage catch basin on the 18th, or at any location in the intake cove. Follow-up investigation and inspections concluded that during the initial transformer event and subsequent emergency response, the Unit-2 main bank transformer area oil containment and separation sump performed within design function to capture oil and pass water and entrained water soluble materials.

f. On October 6, 2008, a break in the hydraulic fluid line that controls the paddle wheel on the kelp harvester failed and released a small amount of food grade mineral oil into the Intake Cove. Operators noticed the leak and immediately returned to the boat dock and shut down the harvester. Hydraulic fluid was observed on the surface of the intake cove as a clear/colorless strip about one foot wide and 100 feet long. The released material did not generate a petroleum oil type multi-colored (rainbow) sheen on the water surface. An absorbent boom was placed around the kelp harvester and absorbent pads were used to clean up the hydraulic fluid. The kelp harvester was removed from the water for repair the same day. It was estimated that approximately one cup reached the water. Central Coast Regional Water Quality Control Board (CCRWQCB) staff were notified the same day and they requested that a brief description be included in the 4th quarter report.

g. A Total Suspended Solids (TSS) minor exceedance for discharge 001P was discovered on December 15, 2008. The monthly sample for the Seawater Reverse Osmosis (SRO) blowdown (001P) was taken on 12/11/2008 and analyzed on 12/15/2008. The result was 106 mg/l, slightly above the NPDES daily maximum limit of 100 mg/l. Visual inspection of TSS filter residue at the SRO showed much more sand than is typical. It is believed that the sample was taken during a backwash cycle and sock-filters were not operable. Backwash occurs during a very small fraction of the time the SRO is operating. CCRWQCB staff were notified on December 15, the day of discovery, and they requested that additional monitoring be initiated, and a brief description of the event be included in the 4th quarter report. Results of five additional samples were all ND(5). Therefore, the December 2008 monthly average (27 mg/l) was below the monthly average limit (30 mg/l). Evaluation has continued, and temporary engineering controls have been implemented. Details will be provided in the first quarter 2009 monitoring report.

h. On December 17, 2008, a bypass of the oily water separator occurred for discharge pathway 001F. The turbine building sump was discovered to have increasing water level with both pumps running to the WHAT facility. Operators were unable to discover where the water was coming from in time to prevent water from overflowing to the outfall, bypassing the oily water separator. It was estimated that the overflow continued for no more than five minutes at a rate of 50 gallons per minute for a total of 250 gallons. It was later discovered that the excessive inflow was water being transferred from a sump in the Unit-1 Turbine Building Reverse Osmosis

(RO) Buttress. The water source was rainwater from the Unit-1 transformer yard area that had entered a piping trench terminating in the Buttress Sump. Water samples were taken from the turbine building sump immediately after the discharge was terminated. Results were as follows:

Oil and Grease - 4.2 mg/l
Total Suspended Solids (TSS) - 45.0 mg/l and 41.5 mg/l (2 samples)

Oil and grease sample results were below monthly average and instantaneous maximum limits. The TSS results from this event were above the monthly average limit of 30 mg/l, but below the instantaneous maximum of 100 mg/l. These two values were averaged with the routine monthly measurements from discharge 001F for an actual monthly average of 9.0 mg/l, which is below the NPDES monthly average limit of 30 mg/l. Therefore, this event resulted in a bypass, not an exceedance. Operational procedures are being modified to ensure the turbine building sump can handle incoming flow when other sumps are drained. CCRWQCB staff were notified on December 17th, the day of the event.

B. Monitoring of Receiving Water

1. Ecological Studies at Diablo Canyon

Marine ecological monitoring was continued during 2008 under the Receiving Water Monitoring Program (RWMP) as requested in a letter from the Central Coast Regional Water Quality Control Board (CCRWQCB) dated December 9, 1998, and as detailed in a letter from PG&E dated January 8, 1999 (DCL-99-503). This program includes tasks from the Ecological Monitoring Program (EMP) with additional stations and increased sampling frequencies. This program replaces the EMP and the Thermal Effects Monitoring Program (TEMP). Several one-year-only tasks outlined in the above letters were completed in 1999 and were not requested to be performed in 2008. Results of 2007 RWMP data were submitted to the CCRWQCB on April 25, 2008. A table in Appendix 4 summarizes requirements and completed tasks for 2008.

2. In Situ Bioassay

Results of the Mussel Watch Program are reported to the CCRWQCB directly by the California Department of Fish and Game in the agency's periodic report for this program.

C. Sodium Bromide Treatment Program

DCPP continued its integrated sodium bromide and "foul release coating" strategy to control macrofouling in the Circulating Water System (CWS). The treatment program consists of six 20-minute injections (at four hour intervals) of a blend of generic sodium bromide and sodium hypochlorite into DCPP's seawater intake conduits. Each injection attempts to achieve a target concentration of 200 parts per billion (ppb) Total Residual Oxidant (TRO) at the inlet waterbox of the main condensers. Discharge TRO, measured at the plant outfall, remained below NPDES limitations, except for one reading in February (reference section 4.a). Typically, discharge values were between 20 ppb to 50 ppb. In conjunction with the chemical treatment, untreated portions of the cooling water system were previously painted with a non-toxic "foul release coating" to reduce or prevent attachment of fouling organisms.

Both conduits of Unit-1 were treated with simultaneous injections of sodium bromide and sodium hypochlorite six times a day throughout 2008 with brief interruptions for maintenance activities in January, February, May, June, July, August, and a few times in October.

Both conduits of Unit-2 were treated with simultaneous injections of sodium bromide and sodium hypochlorite six times a day throughout January 2008 with a brief interruption for maintenance activities in mid January. Unit-2 injections were shut down at the beginning of February for the 2R14 refueling outage. Unit-2 injections remained off until early April 2008, when simultaneous injections were restarted. Simultaneous treatment of Unit-2 intake conduits continued through the remainder of 2008 with brief interruptions in May, June, August (transformer failure described in Section 4.e.) and October for maintenance activities.

APPENDIX 1

DIABLO CANYON POWER PLANT

NPDES DISCHARGE POINTS	
DISCHARGE NUMBER	**DESCRIPTION**
001	Once-Though 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	Bio Lab and Storm Water Runoff
005, 008, 009, 013, 014, 015	Yard Storm Drains
006, 007, 010, 011, 012	Storm Water Runoff
016	Bio Lab Seawater Supply Pump Valve Drain
017	Seawater Reverse Osmosis System Blowdown Drain

APPENDIX 2

TABULAR SUMMARIES OF INFLUENT AND EFFLUENT MONITORING

2008 Annual Summary Report on Discharge Monitoring at the Diablo Canyon Power Plant

DISCHARGE 001

	TEMPERATURE (DEG F)								FLOW (MGD)		
	INFLUENT			EFFLUENT			DELTA T				
Month	high	low	avg	high	low	avg	high	avg	high	low	avg
JAN	54.5	51.9	53.4	74.2	71.3	72.5	20.0	19.1	2486	2486	2486
FEB	53.8	51.6	52.8	73.0	67.3	70.9	19.2	18.2	2486	1239	1363
MAR	53.6	48.8	50.6	71.6	66.7	68.8	18.9	18.2	1239	1239	1239
APR	50.2	47.0	48.6	67.9	59.8	65.1	18.9	16.5	2486	1239	2244
MAY	52.2	47.7	50.0	71.0	66.5	68.7	19.4	18.8	2486	1874	2400
JUN	54.0	48.6	51.3	72.6	67.2	70.0	18.9	18.1	2486	2486	2486
JUL	56.7	51.5	54.1	75.4	70.2	72.8	18.9	18.7	2486	2486	2486
AUG	57.8	54.0	55.7	75.6	56.2	69.7	19.0	14.0	2486	1862	2442
SEP	58.0	54.4	56.4	76.7	65.5	73.5	19.2	17.1	2486	2486	2486
OCT	58.0	52.8	55.1	76.8	65.1	73.1	19.2	17.9	2486	1239	2431
NOV	60.6	53.5	56.7	79.5	72.4	75.8	19.4	19.0	2486	2486	2486
DEC	58.2	53.1	55.3	77.4	72.4	74.5	19.4	19.3	2486	2486	2486
limit:		-			-		22		2760		

The Influent and Effluent "high" and "low" temperture values correspond to the highest and lowest daily average value for that month. The Influent high and low temperature does not necessarily correspond to the same day as the Effluent high and low temperature for that month. The "avg" temperature for Influent and Effluent is the average for the entire month. The Monthly Delta T "high" is the highest Delta T for a day of the month based on daily average Influent and Effluent temperature values. The "Avg" temperature is calculated from Influent and Effluent monthly avg values.

DISCHARGE 001

	TOTAL RESIDUAL CHLORINE (daily max. ug/l)			TOTAL CHLORINE USED (lbs/day)		
Month	high	low	avg	high	low	avg
JAN	54	28	43	490	370	435
FEB	207	<20	41	346	156	227
MAR	52	<20	<20	230	163	197
APR	65	21	34	403	194	336
MAY	41	<10	15	461	202	360
JUN	30	<10	21	547	336	475
JUL	43	<10	21	706	526	652
AUG	39	<10	19	706	408	629
SEP	63	<10	28	677	574	629
OCT	60	<10	32	619	204	498
NOV	36	12	27	518	496	518
DEC	52	25	35	547	346	484

Note that the residual chlorine limits in Permit CA0003751, Order 90-09, is an instantaneous max of 200 ug/l, and includes a time-based limit (per the Ocean Plan) which depends on the length of the respective chlorination cycle.

2008 Annual Summary Report on Discharge Monitoring at the Diablo Canyon Power Plant

DISCHARGE 001

METALS (monthly avg. ug/l)

	CHROMIUM		COPPER		NICKEL		*ZINC	
Month	Influent	Effluent	Influent	Effluent	Influent	Effluent	Influent	Effluent
JAN	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)
FEB	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)
MAR	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)
APR	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)
MAY	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)
JUN	ND(10)	ND(10)	ND(10)	ND(10)	13	11	ND(10)	ND(10)
JUL	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)
AUG	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)
SEP	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)
OCT	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)
NOV	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)
DEC	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)
6-month median limit:		10	-	10	-	30	-	70

DISCHARGE 001
VARIOUS ANNUAL ANALYSES

(monthly avg. ug/l)

Parameter	Influent	Effluent	6-Mo. Med. Effluent Limit
Arsenic	1.2	1.2	30
Cadmium	0.027	0.038	10
Cyanide	ND(10)	ND(10)	30
Lead	0.025	0.031	10
Mercury	0.2	0.2	0.2
Silver	0.025	0.025	2.9
Titanium	-	2.5	none
*Phenolic Compounds (non-chlorinated)	ND(13.27)	ND(15.12)	150
**Phenolic Cmpds (chlorinated)	ND(3.92)	ND(3.75)	10
***PCB's	ND(1.59)	ND(1.59)	none

*Reporting limits shown are the sum of individual Reporting Limits for 7 target compounds.
**Reporting limits shown are the sum of individual Reporting Limits for 6 target compounds.
***Reporting limits shown are the sum of individual Reporting Limits for 7 target compounds.

DISCHARGE 001

AMMONIA (as N) (ug/l)

Month	Influent	Effluent
JAN	ND(200)	ND(200)
FEB		
MAR		
APR	ND(200)	ND(200)
MAY		
JUN		
JUL	ND(200)	ND(200)
AUG		
SEP		
OCT	ND(200)	ND(200)
NOV		
DEC		
6-month median limit:		3060

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MONTHLY pH (averages)

Discharge:	001		002	003	004	001P
Month	Influent	Effluent				
JAN	7.9	7.9	8.0	8.0	7.9	7.6
FEB	7.9	7.9	8.0	7.9	7.9	7.7
MAR	7.9	7.9	7.9	8.0	8.0	7.7
APR	7.8	7.8	7.9	7.9	7.9	7.7
MAY	7.7	7.8	7.8	7.7	7.7	7.5
JUN	7.6	7.7	7.8	7.7	7.7	7.6
JUL	7.9	7.9	7.8	7.8	7.8	7.7
AUG	8.0	8.0	7.9	7.9	7.9	7.6
SEP	8.0	7.9	7.8	7.7	7.7	7.7
OCT	7.9	7.9	8.0	8.1	8.0	7.7
NOV	7.9	7.9	7.9	7.8	7.7	7.6
DEC	7.9	7.9	8.0	8.0	8.0	7.8

DISCHARGE 001F

	GREASE & OIL (mg/l)		SUSPENDED SOLIDS (mg/l)	
Month	high	avg	high	avg
JAN	19	10	17	16
FEB	ND(5)	ND(5)	7	7
MAR	ND(5)	ND(5)	16	12
APR	ND(5)	ND(5)	16	16
MAY	ND(5)	ND(5)	14	13
JUN	ND(5)	ND(5)	14	14
JUL	ND(5)	ND(5)	18	18
AUG	ND(5)	ND(5)	11	10
SEP	ND(5)	ND(5)	6	6
OCT	ND(5)	ND(5)	5	5
NOV	ND(5)	ND(5)	6	6
DEC	ND(5)	ND(5)	45	9
limit:	20	15	100	30

Note: "high" limits based upon Daily Maximum limits. "avg" limits based upon Monthly Average Limits.

DISCHARGE 001N
(Monthly Summary of Weekly Data)

	GREASE & OIL (mg/l)			SUSPENDED SOLIDS (mg/l)			SETTLEABLE SOLIDS (ml/l)		
Month	high	low	avg	high	low	avg	high	low	avg
JAN	10	ND(5)	<5	50	15	29	ND(0.1)	ND(0.1)	ND(0.1)
FEB	8	ND(5)	<5	60	25	40	ND(0.1)	ND(0.1)	ND(0.1)
MAR	ND(5)	ND(5)	ND(5)	34	11	21	0.3	ND(0.1)	<0.1
APR	7	ND(5)	<5	37	10	22	ND(0.1)	ND(0.1)	ND(0.1)
MAY	8	ND(5)	<5	12	7	10	ND(0.1)	ND(0.1)	ND(0.1)
JUN	8	ND(5)	<5	32	ND(5)	14	ND(0.1)	ND(0.1)	ND(0.1)
JUL	ND(5)	ND(5)	ND(5)	23	7	16	ND(0.1)	ND(0.1)	ND(0.1)
AUG	7	ND(5)	<5	36	14	27	ND(0.1)	ND(0.1)	ND(0.1)
SEP	ND(5)	ND(5)	ND(5)	42	ND(5)	20	ND(0.1)	ND(0.1)	ND(0.1)
OCT	ND(5)	ND(5)	ND(5)	20	14	16	ND(0.1)	ND(0.1)	ND(0.1)
NOV	ND(5)	ND(5)	ND(5)	27	16	21	ND(0.1)	ND(0.1)	ND(0.1)
DEC	ND(5)	ND(5)	ND(5)	35	17	26	0.2	ND(0.1)	<0.1
limit:	20	-	15	-	-	60	3.0	-	1.0

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Note: "high" limits based upon Daily Maximum limits. "avg" limits based upon Monthly Average limits.

DISCHARGE 001D, H, L, F, METALS (avg. ug/l)

	001D				001 H				001L				001F			
Month	Ag	Cd	Cr	Cu	Ag	Cd	Cr	Cu	Ag	Cd	Cr	Cu	Ag	Cd	Cr	Cu
JAN	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	20	27	ND(10)	ND(10)	ND(10)	ND(10)	25	ND(10)	ND(10)	ND(10)
FEB																
MAR																
APR	ND(10)	ND(10)	ND(10)	10	ND(10)	ND(10)	21	69	ND(10)	ND(10)	ND(10)	<10	ND(10)	ND(10)	ND(10)	38
MAY																
JUN																
JUL	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	40	67	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)
AUG																
SEP																
OCT	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	19	62	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	23	ND(10)
NOV																
DEC																

limit: none

Note: 001D, 001H and 001L analyses performed on quarterly composites.
001F analyses performed quarterly on a composite of weekly samples.

DISCHARGE 001D, H, L, F, METALS (avg. ug/l)

	001D				001 H				001L				001F			
Month	Hg	Ni	Pb	Zn	Hg	Ni	Pb	Zn	Hg	Ni	Pb	Zn	Hg	Ni	Pb	Zn
JAN	ND(0.20)	ND(10)	ND(10)	46	ND(0.20)	18	50	<10	ND(0.20)	ND(10)	ND(10)	ND(10)	ND(0.20)	ND(10)	39	49
FEB																
MAR																
APR	ND(0.20)	ND(10)	ND(10)	155	<0.20	16	ND(10)	ND(10)	ND(0.20)	<10	ND(10)	ND(10)	ND(0.20)	20	ND(10)	28
MAY																
JUN																
JUL	ND(0.20)	ND(10)	ND(10)	58	ND(0.20)	24	ND(10)	<10	ND(0.20)	ND(10)	ND(10)	ND(10)	ND(0.20)	ND(10)	ND(10)	ND(10)
AUG																
SEP																
OCT	ND(0.20)	ND(10)	ND(10)	174	<0.20	22	ND(10)	12	ND(0.20)	ND(10)	ND(10)	ND(10)	ND(0.20)	33	ND(10)	42
NOV																
DEC																

limit: none

Note: 001D, 001H and 001L analyses performed on quarterly composites.
001F analyses performed quarterly on a composite of weekly samples.

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MONTHLY TOTAL SUSPENDED SOLIDS

Averages (mg/l)

Month	001D*	001G	001H	001I	001J	001K	001L	001M	001P	002	003
JAN	<5	ND(5)	ND(5)				ND(5)		ND(5)	<5	5
FEB	<5	ND(5)	ND(5)		ND(5)		ND(5)		ND(5)	<5	<5
MAR	6	ND(5)	ND(5)				ND(5)		ND(5)	5	5
APR	<5	ND(5)	ND(5)		ND(5)		ND(5)	5	ND(5)	ND(5)	ND(5)
MAY	<5	ND(5)	ND(5)				ND(5)		ND(5)	ND(5)	ND(5)
JUN	<5	ND(5)	ND(5)				ND(5)		ND(5)	ND(5)	<5
JUL	<5	ND(5)	ND(5)				ND(5)		6	ND(5)	ND(5)
AUG	<5	ND(5)	ND(5)		ND(5)		ND(5)		ND(5)	7	9
SEP	<5	ND(5)	6		ND(5)		ND(5)		ND(5)	ND(5)	ND(5)
OCT	<5	ND(5)	ND(5)		ND(5)		ND(5)	ND(5)	ND(5)	ND(5)	ND(5)
NOV	<5	ND(5)	ND(5)				ND(5)		ND(5)	ND(5)	5
DEC	<5	ND(5)	<5				ND(5)		27	ND(5)	ND(5)
Limit:	30	30	30	30	30	30	30	30	30	30	-

* Discharges from 001D are batched. Monthly averages are flow weighted.
Note: No discharges occurred from 001I and 001K during 2008.
Blank spots for other discharge points indicate that no discharge occurred during that particular month.

QUARTERLY GREASE & OIL

Averages by Month (mg/l)

Month	001D*	001G	001H	001I	001J	001K	001L	001M	001P	002	003	004
JAN	<5	ND(5)	ND(5)				ND(5)		ND(5)	ND(5)	ND(5)	ND(5)
FEB					ND(5)							
MAR	ND(5)											
APR	8	ND(5)			ND(5)		ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)
MAY			<5				ND(5)					
JUN												
JUL	ND(5)	ND(5)	ND(5)				ND(5)		ND(5)	ND(5)	ND(5)	ND(5)
AUG	<5				ND(5)					10		
SEP												
OCT	5	ND(5)	ND(5)		ND(5)		ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)
NOV												
DEC												
Limit:	15	15	15	15	15	15	15	15	15	15	15	15

* Discharges from 001D are batched. Monthly averages are flow weighted.
Note: No discharges occurred from 001I and 001K during 2008.

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QUARTERLY ACUTE AND CHRONIC TOXICITY TESTING
(toxicity units, tu_a and tu_c)

Month	ACUTE Test Result	ACUTE 6-Month Median	*CHRONIC Test Result
JAN	0.00	0.41	
FEB	0.00	0.00	1.0
MAR	0.00	0.00	
APR	0.00	0.00	1.0
MAY			
JUN			
JUL	0.00	0.00	1.0
AUG			
SEP			
OCT	0.23	0.00	1.0
NOV			
DEC			
6-month median limit:		0.26	5.1

* This parameter is monitored for the State Ocean Plan instead of the NPDES Permit. A value of 1.0 indicates no chronic toxicity.

NOTE:
Increased acute toxicity testing in January, February and March were due to acute tests in the 4th quarter of 2007 that reported mortalities. The additional tests were negative for toxicity.

DISCHARGE 001N
ANNUAL ANALYSES

Sludge Parameter	Result	Limit
Percent Moisture	99%	None
Total Kjeldahl Nitrogen	720 mg/kg	None
Ammonia (N)	170 mg/kg	None
Nitrate (N)	ND(1) mg/kg	None
Total Phosphorus	140 mg/kg	None
pH	6.9	None
Oil and Grease	96 mg/kg	None
Boron	20 mg/kg	None
Cadmium	ND(0.3) mg/kg	10 X STLC*
Copper	4.6 mg/kg	10 X STLC
Chromium	ND(0.5) mg/kg	10 X STLC
Lead	ND(1) mg/kg	10 X STLC
Nickel	ND(0.5) mg/kg	10 X STLC
Mercury	ND(0.04) mg/kg	10 X STLC
Zinc	8 mg/kg	10 X STLC
Volume	1.05 tons	None

Note: Annual samples were collected in October.
* STLC = Soluble Threshold Limit Concentration

APPENDIX 3

GRAPHICAL SUMMARIES OF INFLUENT AND EFFLUENT MONITORING

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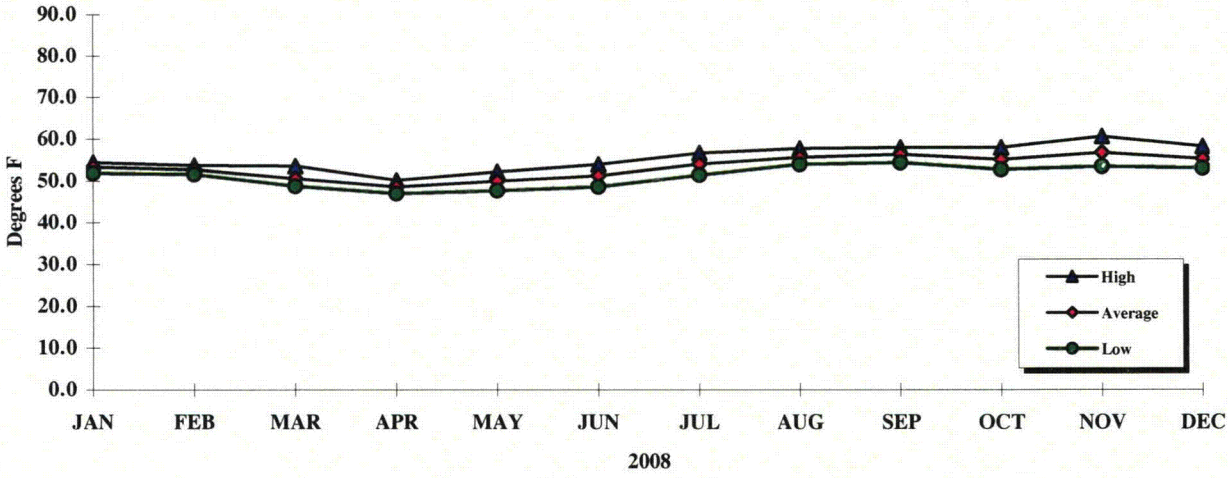
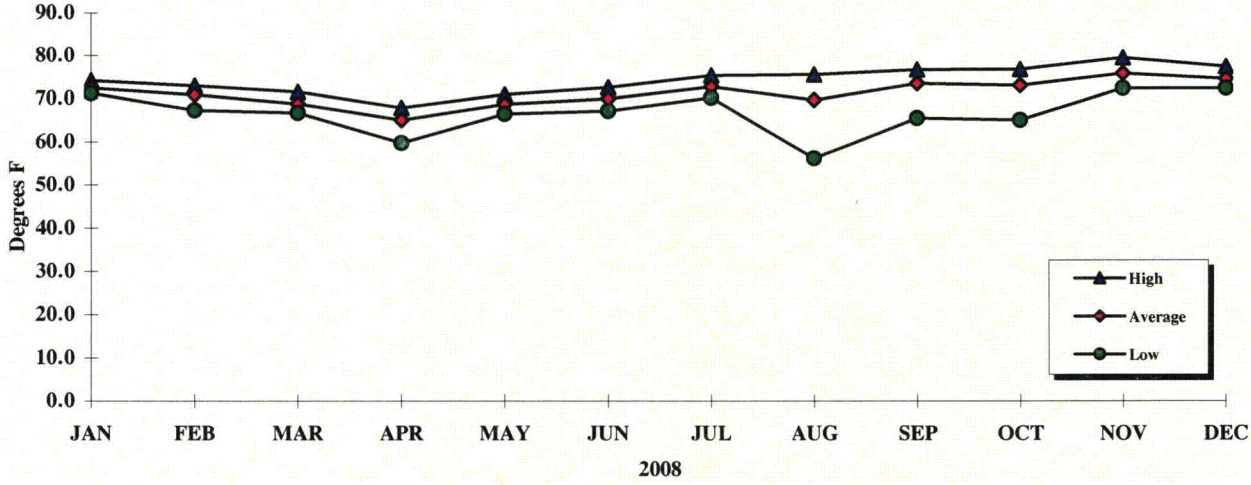
DISCHARGE 001 INFLUENT

Temperature (°F)



DISCHARGE 001 EFFLUENT

Temperature (°F)



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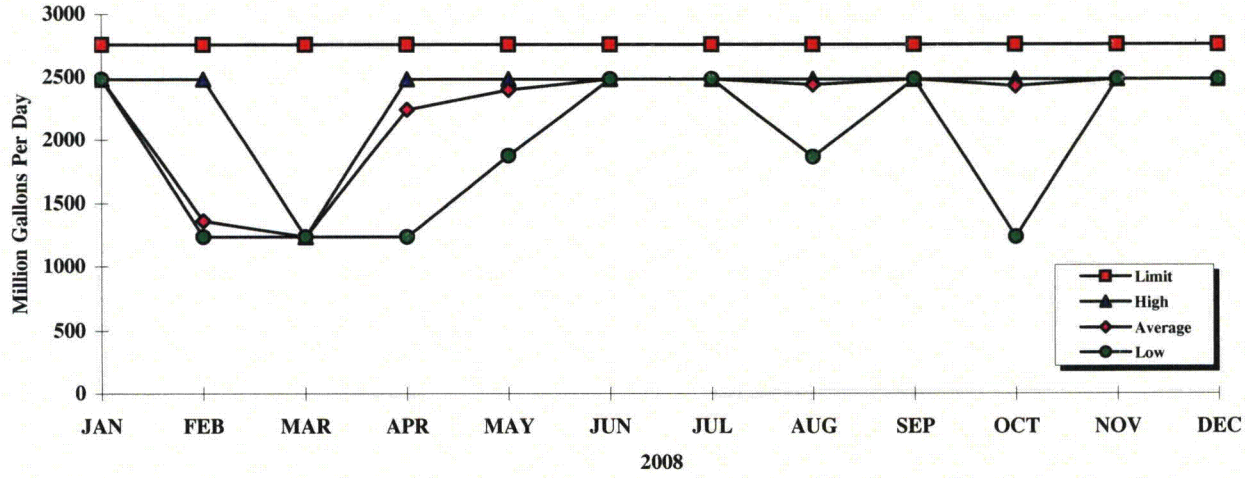
2008

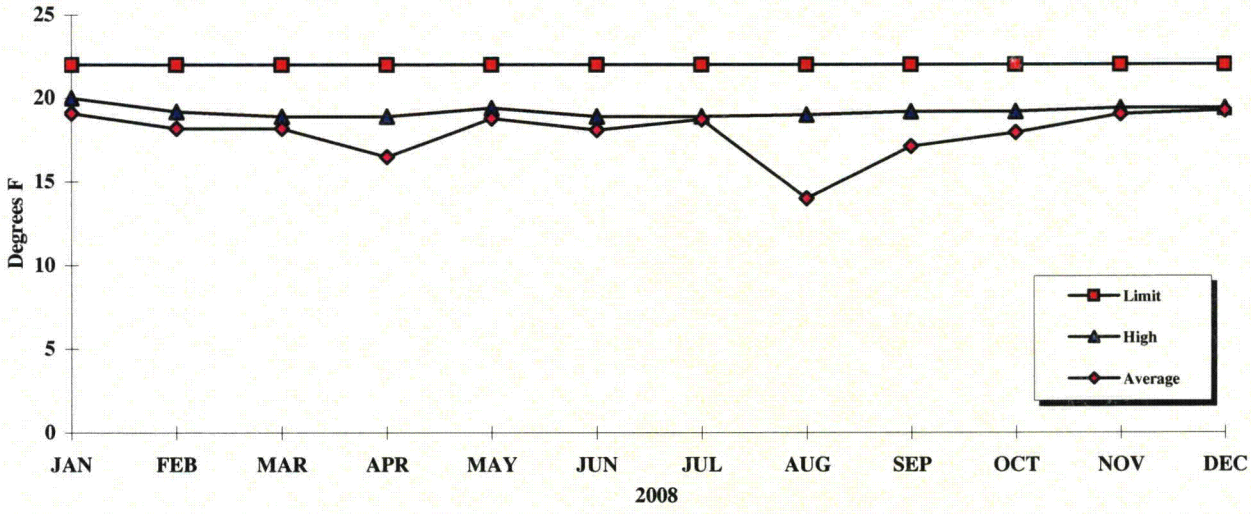
DISCHARGE 001 EFFLUENT

Flow (MGD)



DISCHARGE 001 EFFLUENT

Monthly Delta T (°F)



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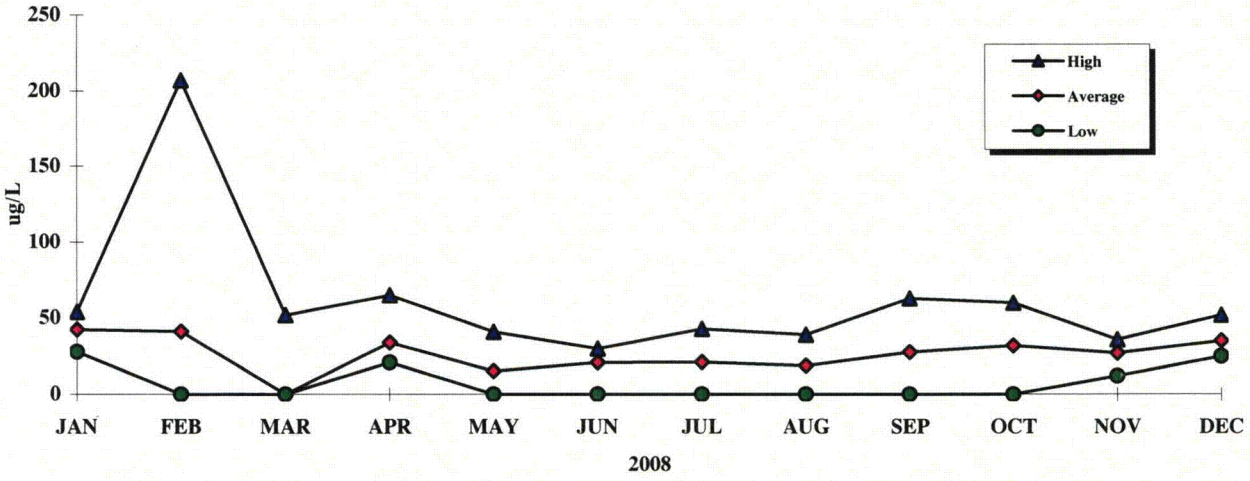
DISCHARGE 001

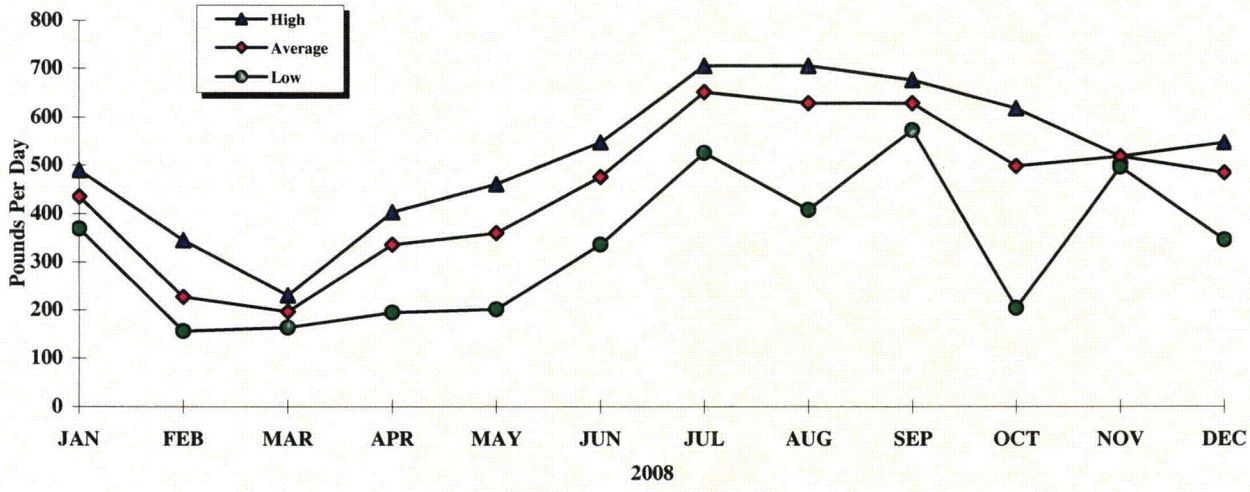
Total Chlorine Residual, ug/l



Note: Values plotted at zero were below the reporting limit.

DISCHARGE 001

Total Chlorine Used, pounds per day



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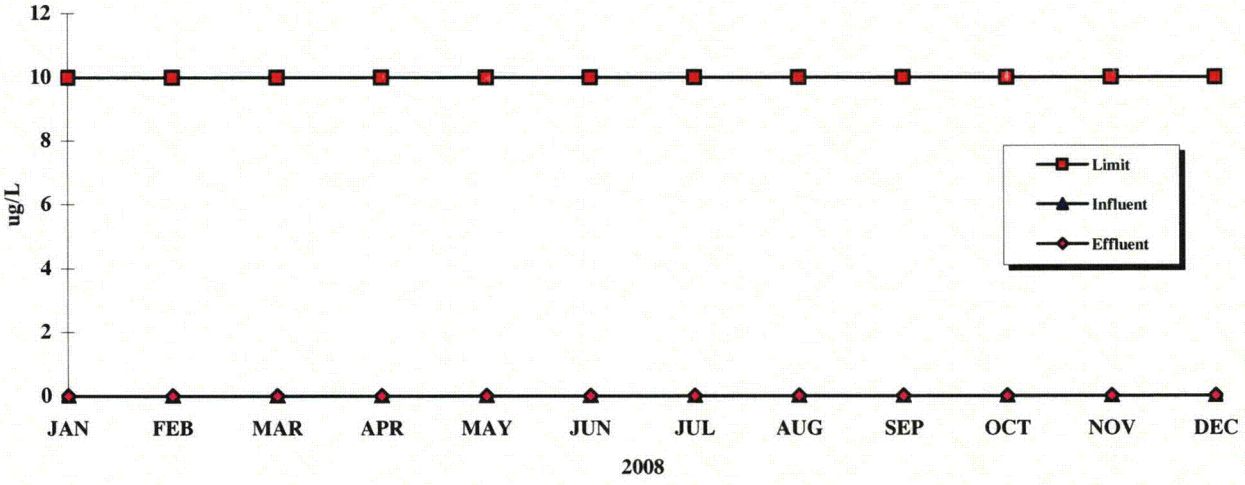
DISCHARGE 001

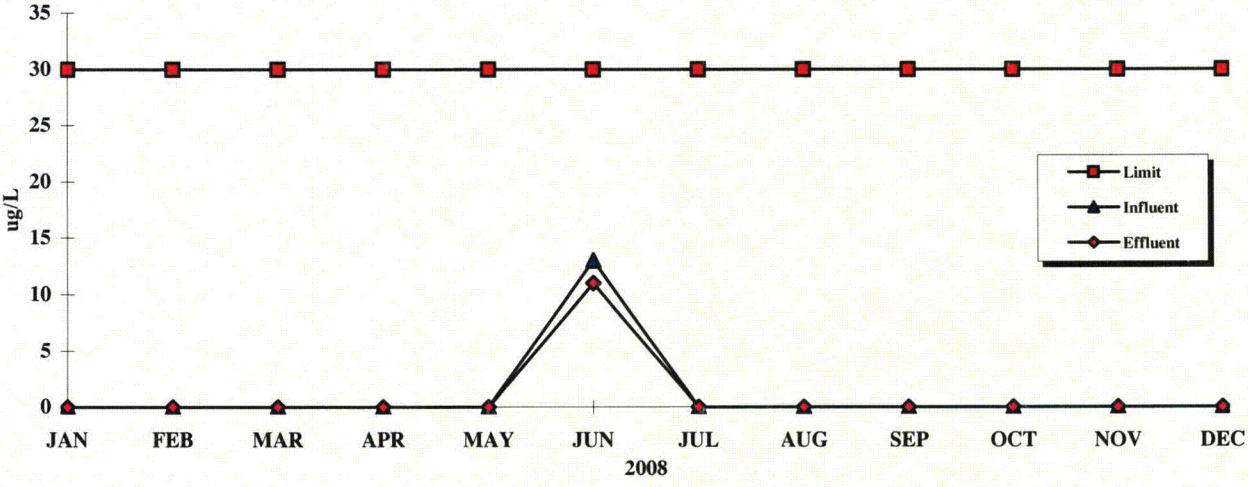
Copper (monthly average, ug/l)



Note: The analyte was not detected at or above the reporting limit for values plotted at zero.
The 6-month median limit (the most conservative limit) is plotted on this chart.
The daily maximum limit for Copper is 50 ug/l.

DISCHARGE 001

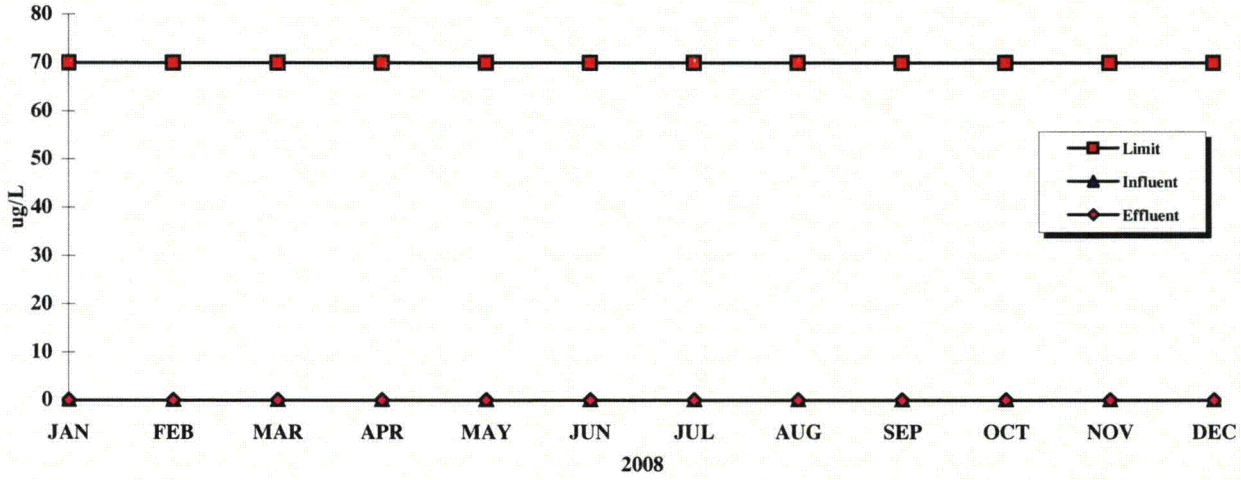
Nickel (monthly average, ug/l)



Note: The analyte was not detected at or above the reporting limit for values plotted at zero.
The 6-month median limit (the most conservative limit) is plotted on this chart.
The daily maximum limit for Nickel is 100 ug/l.

DISCHARGE 001

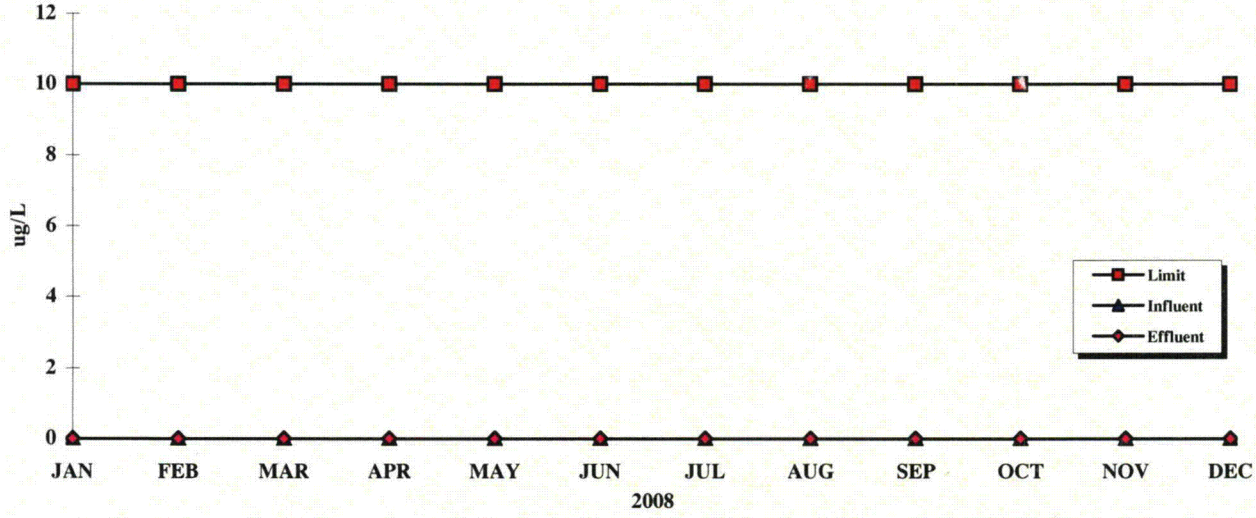
Zinc (monthly average, ug/l)



Note: The analyte was not detected at or above the reporting limit for values plotted at zero.

DISCHARGE 001

Chromium (monthly average, ug/l)



Note: The analyte was not detected at or above the reporting limit for values plotted at zero.
The 6-month median limit is plotted on this chart. The daily maximum limit for chromium is 40 ug/l.

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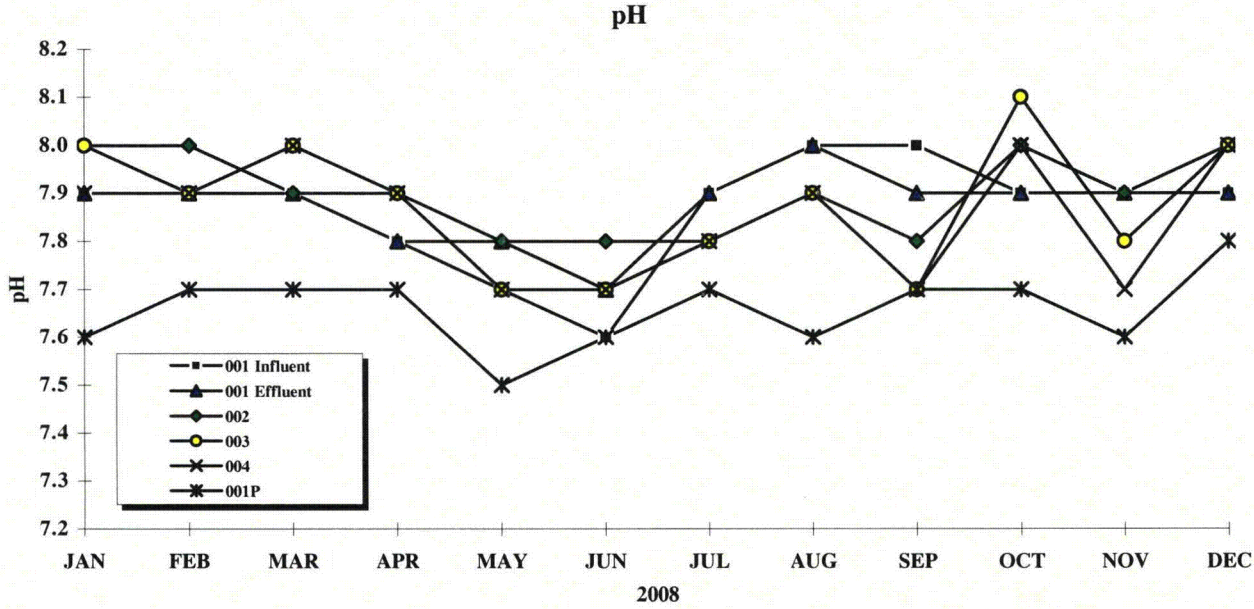
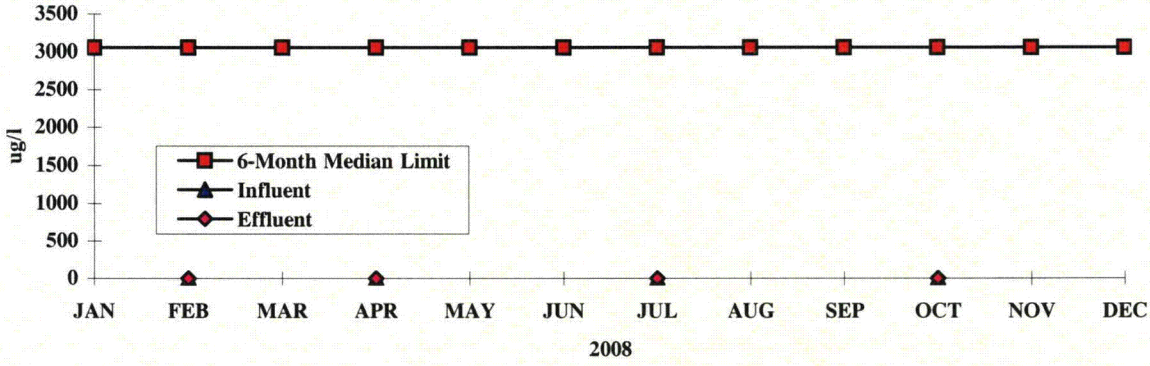


Note: Several data points on this chart overlap.

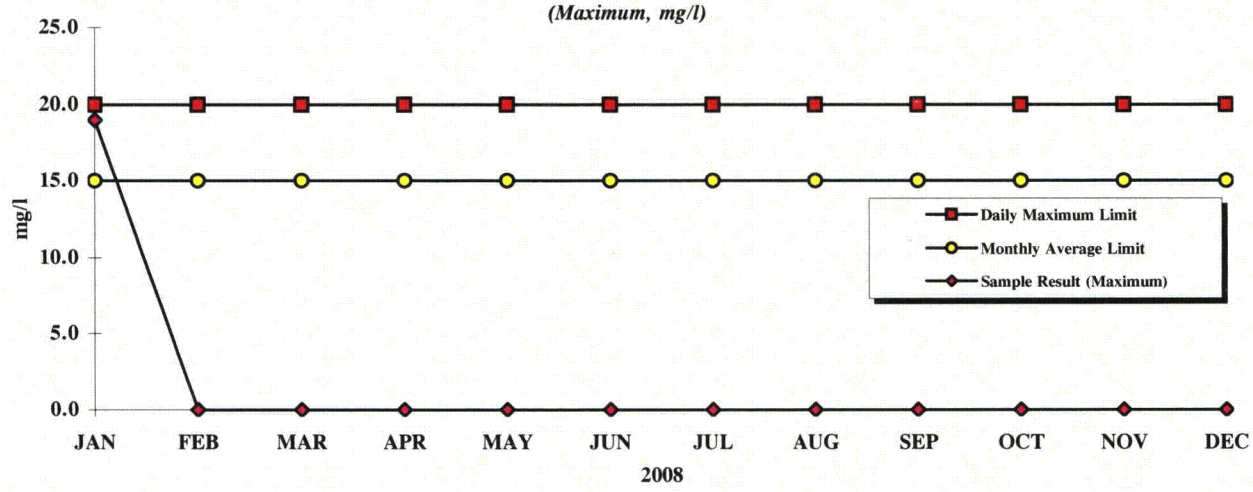


Note: The analyte was not detected at or above the reporting limit for values plotted at zero.
Influent and Effluent values overlap at four points on this plot.

DISCHARGE 001F

Oil & Grease

(Maximum, mg/l)

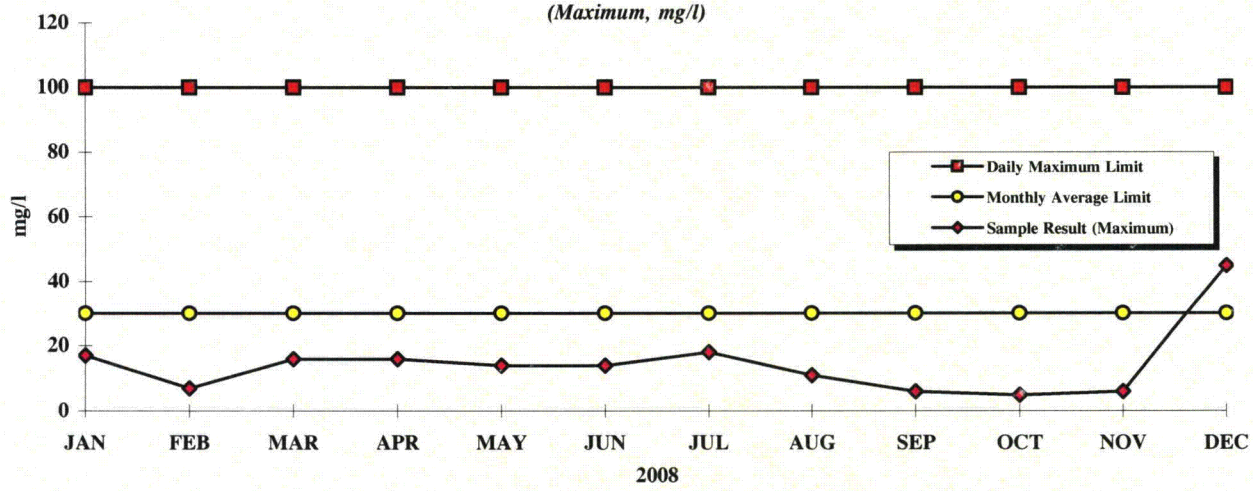


Note: Values plotted at zero were below the reporting limit.

DISCHARGE 001F

Suspended Solids

(Maximum, mg/l)



Note: Maximum values are plotted.

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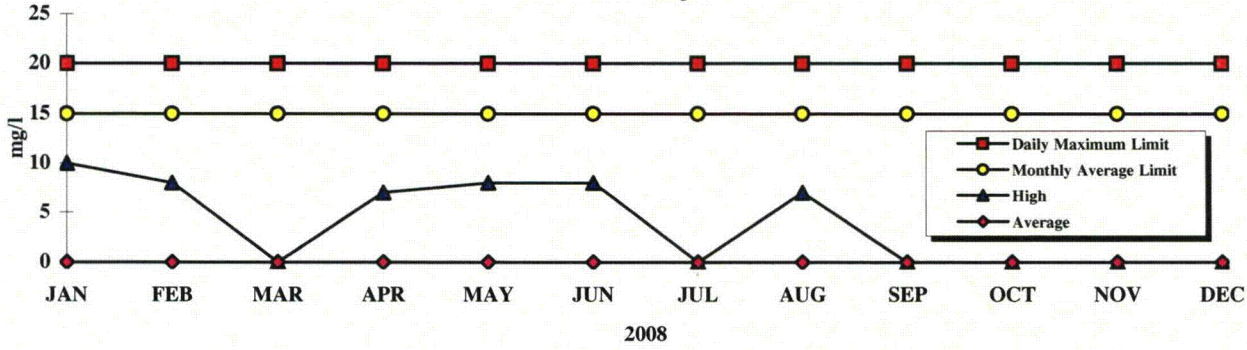
DISCHARGE 001N

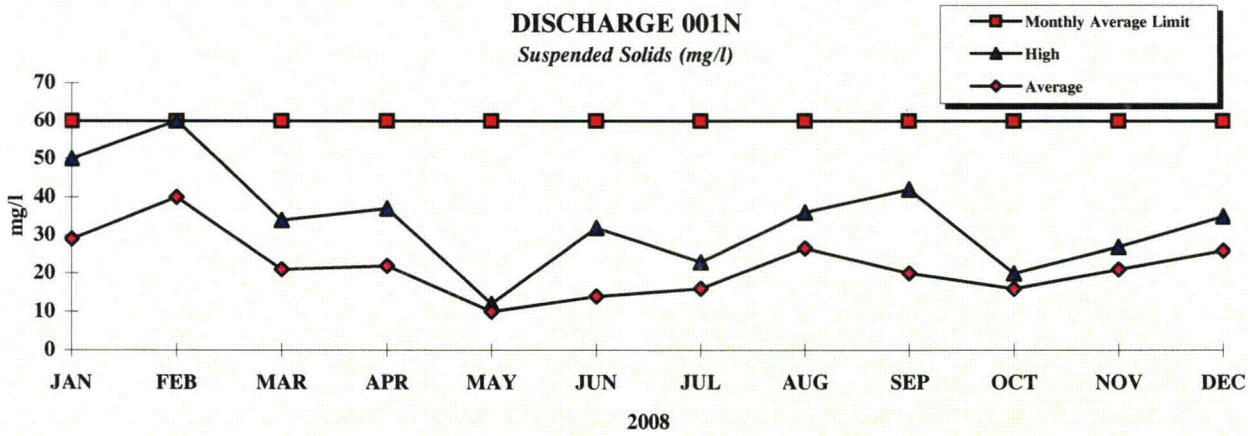
Oil & Grease(mg/l)



Note: Values plotted at zero were below the reporting limit.
High, low and average values overlap at eleven points on this plot.

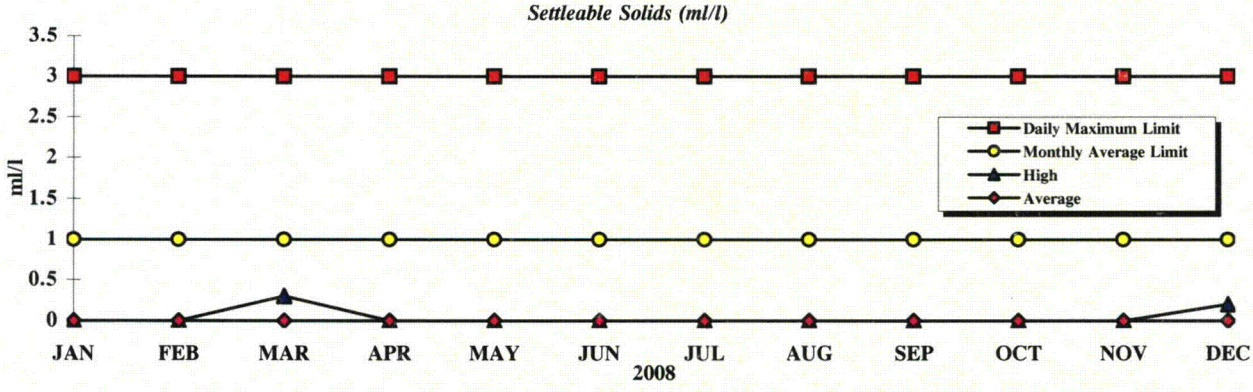
DISCHARGE 001N

Suspended Solids (mg/l)



DISCHARGE 001N

Settleable Solids (ml/l)



Note: Values plotted at zero were below the reporting limit.
High, average, and low values overlap at ten points on this plot.

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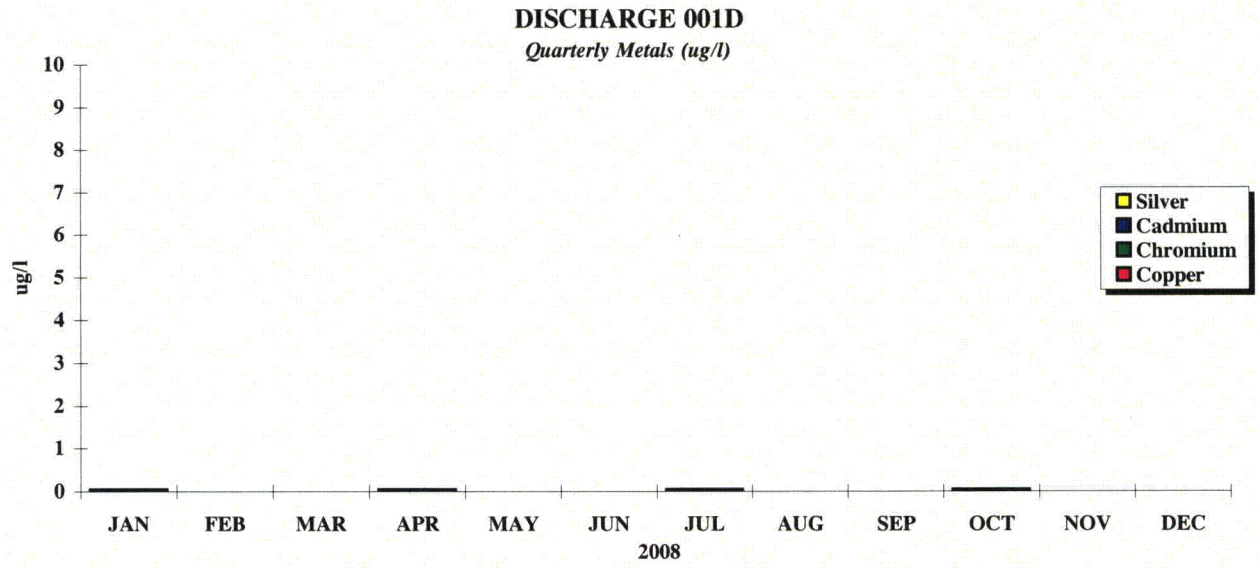
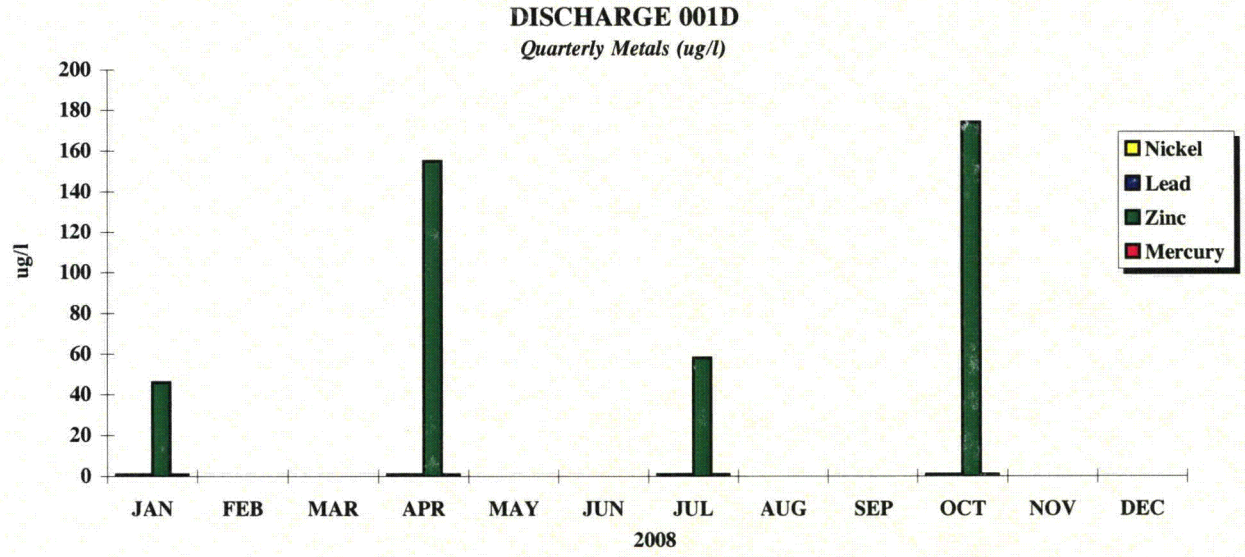


Note: The analyte was not detected at or above the reporting limit for values plotted at zero.



Note: The analyte was not detected at or above the reporting limit for values plotted at zero.

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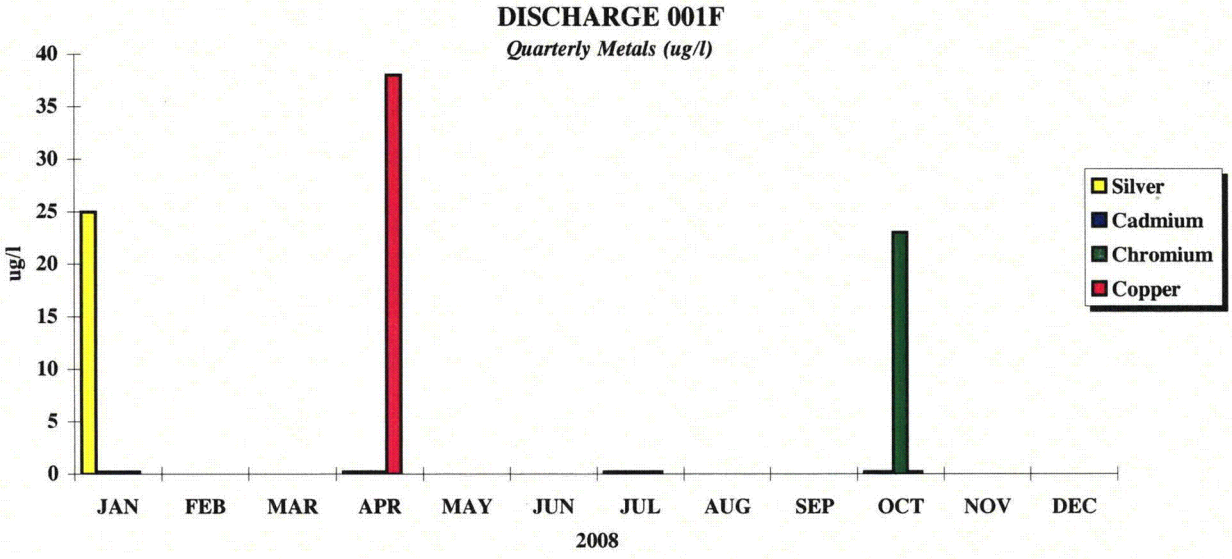
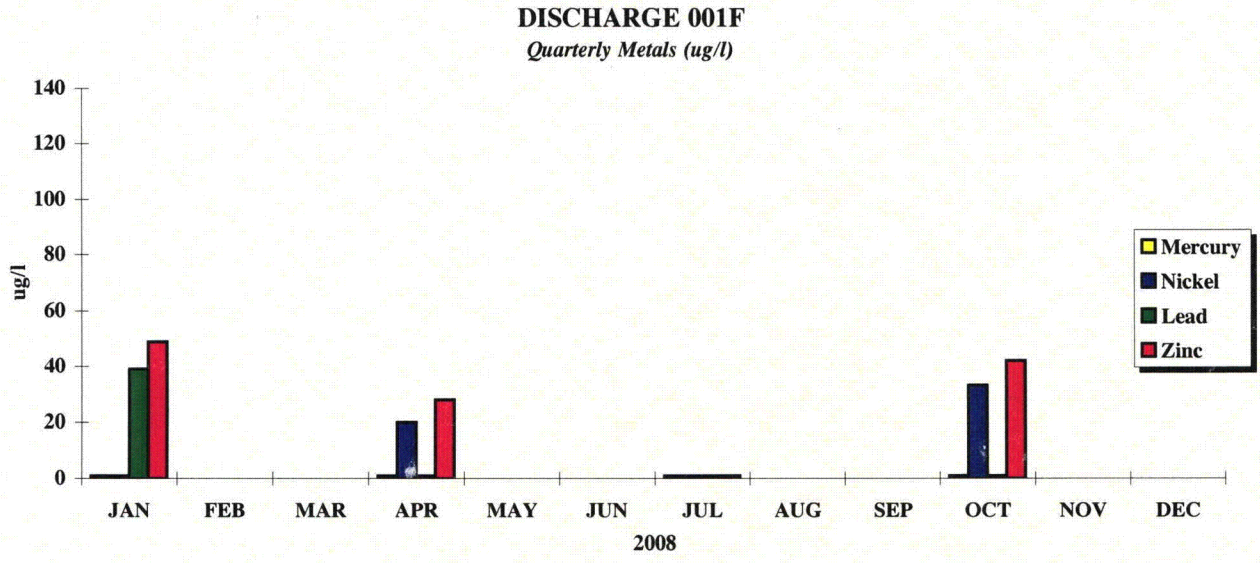


Note: The analyte was not detected at or above the reporting limit for values plotted at zero.



Note: The analyte was not detected at or above the reporting limit for values plotted at zero.

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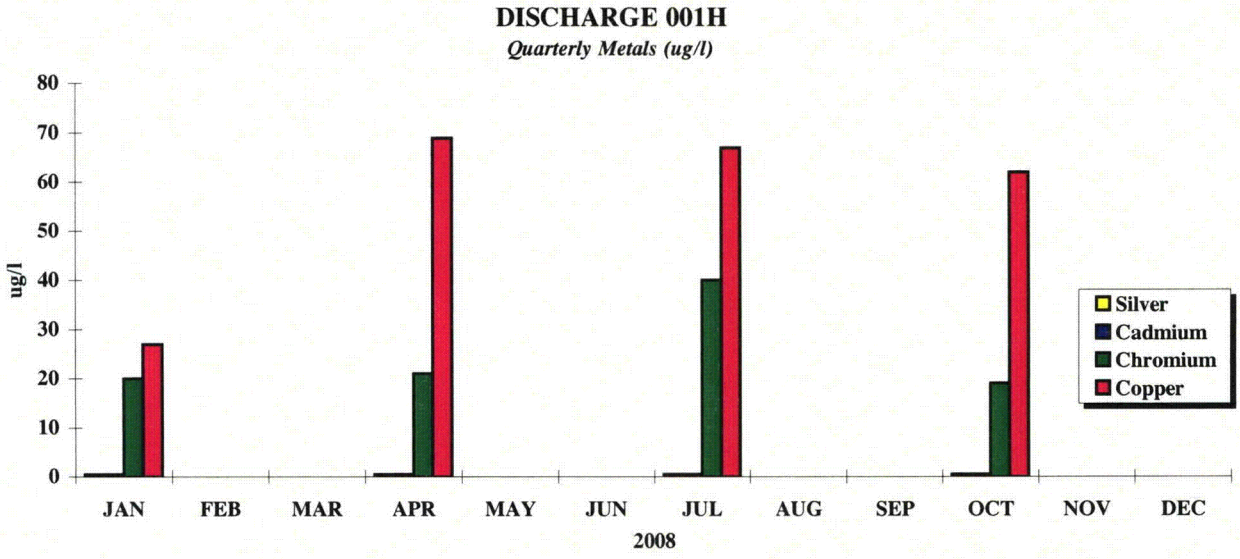
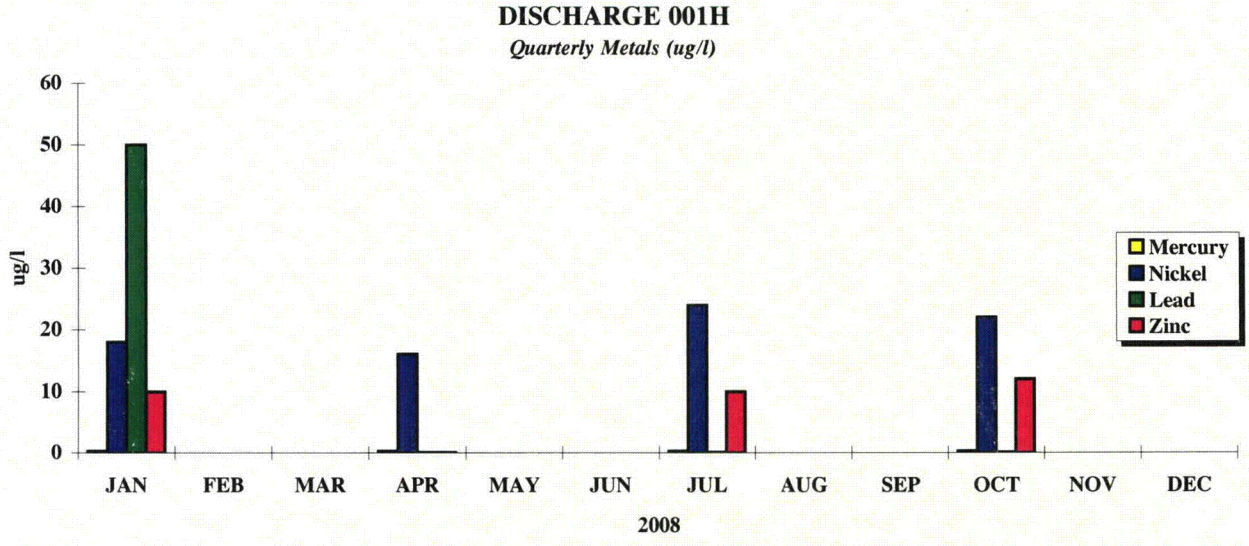


Note: The analyte was not detected at or above the reporting limit for values plotted at zero.



Note: The analyte was not detected at or above the reporting limit for values plotted at zero.

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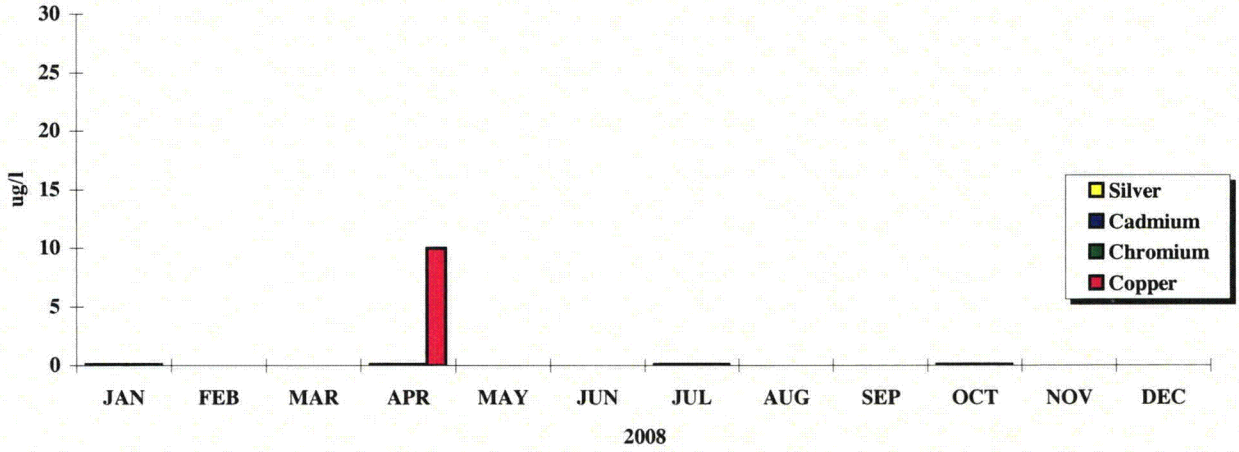
DISCHARGE 001L

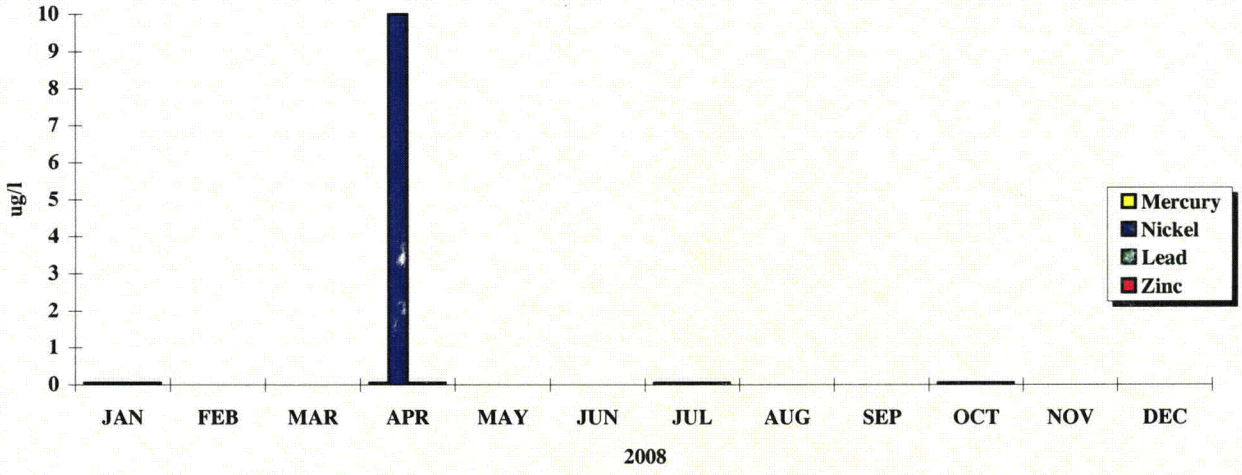
Quarterly Metals (ug/l)



Note: The analyte was not detected at or above the reporting limit for values plotted at zero.

DISCHARGE 001L

Quarterly Metals (ug/l)

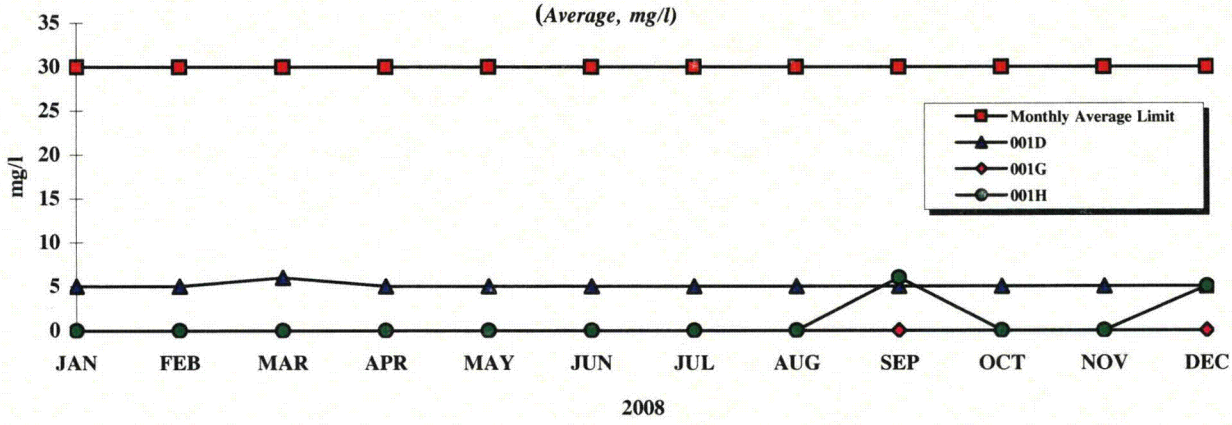


Note: The analyte was not detected at or above the reporting limit for values plotted at zero.

2008 Annual Summary Report on Discharge Monitoring at the Diablo Canyon Power Plant

MONTHLY TOTAL SUSPENDED SOLIDS

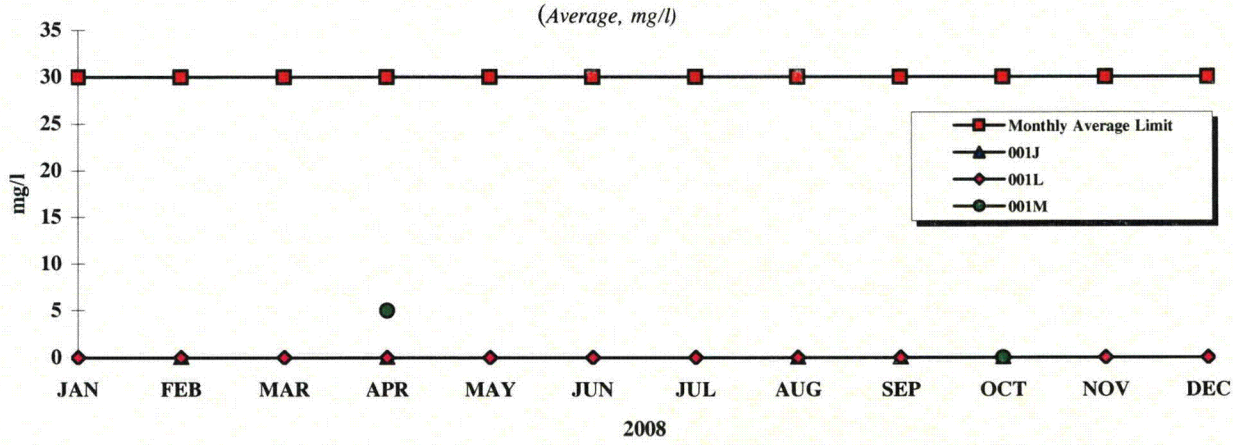
(*Average, mg/l*)



Note: Points on chart may overlap. Values plotted at zero were below the reporting limit.

MONTHLY TOTAL SUSPENDED SOLIDS

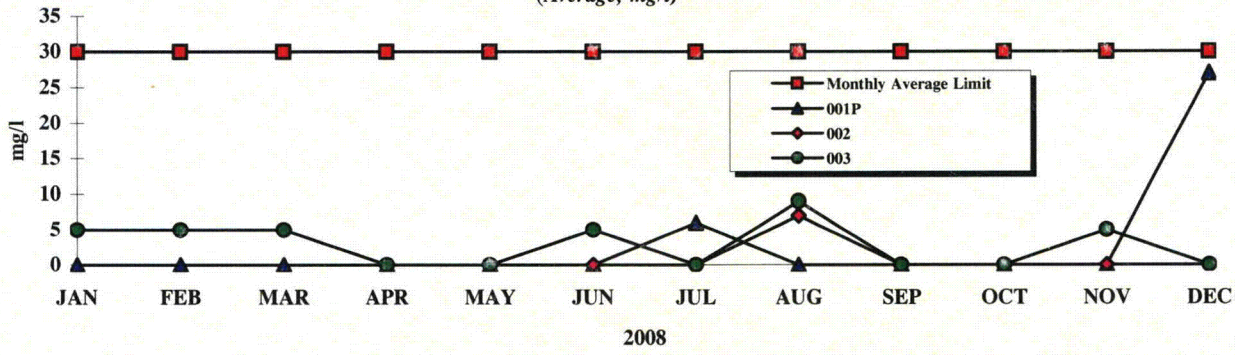
(*Average, mg/l*)



Note: Points on chart may overlap. Values plotted at zero were below the reporting limit.

MONTHLY TOTAL SUSPENDED SOLIDS

(*Average, mg/l*)

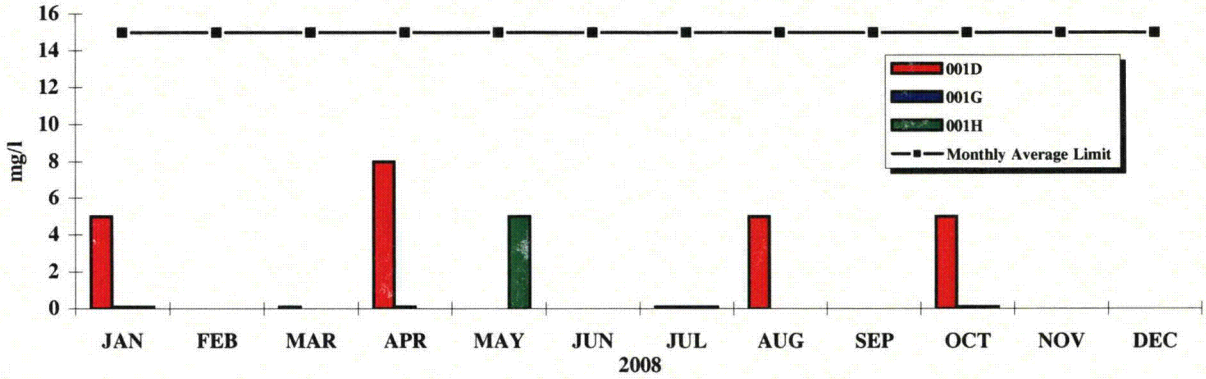


Note: Points on chart may overlap. Values plotted at zero were below the reporting limit.

2008 Annual Summary Report on Discharge Monitoring
at the
Diablo Canyon Power Plant

QUARTERLY OIL & GREASE

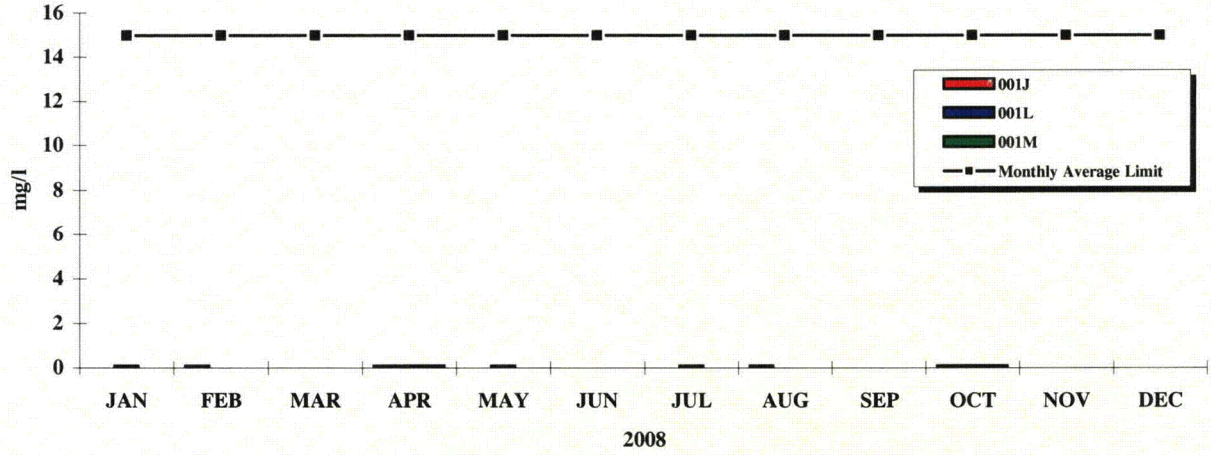
(Average, mg/l)



Note: Values plotted at zero were below the reporting limit. Less than values are plotted at the value.

QUARTERLY OIL & GREASE

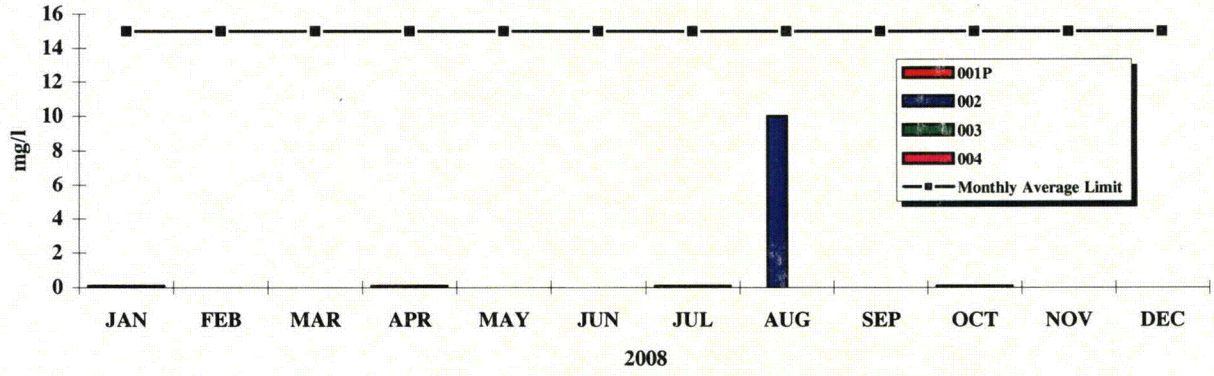
(Average, mg/l)



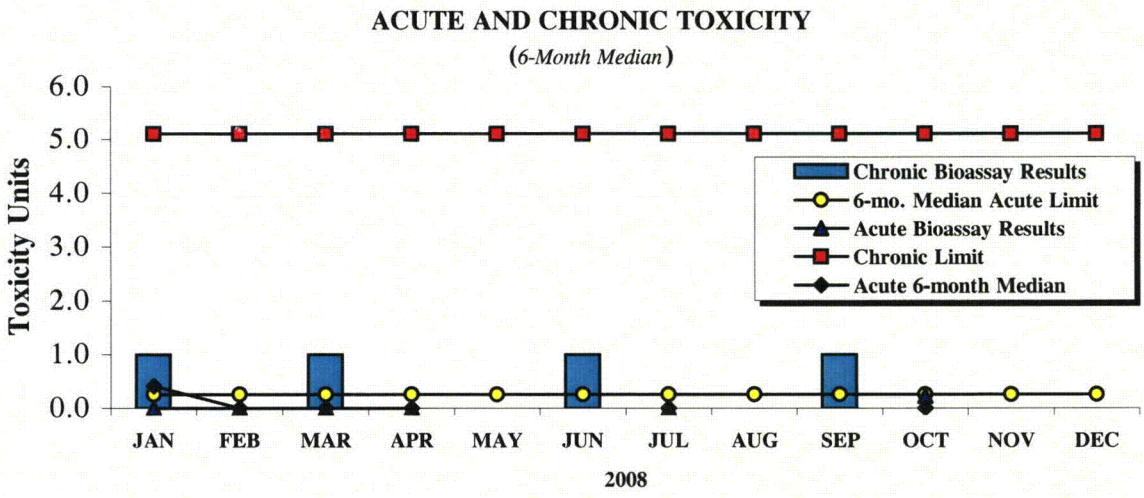
Note: Values plotted at zero were below the reporting limit.

QUARTERLY OIL & GREASE

(Average, mg/l)



Note: Values plotted at zero were below the reporting limit.



Note: High acute 6-month median value in January due to positive test results in late 2007.

APPENDIX 4

SUMMARY OF RWMP MONITORING FOR 2008

Study	RWMP Stations/ Surveys per Year	1st Survey Completion Stations/ Dates	2nd Survey Completion Stations/ Dates	3rd Survey Completion Stations/ Dates	4th Survey Completion Stations/ Dates
Horizontal Band Transects	14 / 4x	Feb 6	Jun 4	Aug 29	Dec 8
Vertical Band Transects	5 / 4x	Feb 7	Jun 5	Aug 29	Nov 14
Benthic Stations	8 / 4x	Apr 2	Jun 20	Sep 17	Dec 11
Fish Observation Transects	12 / 4x	Apr 24	Jul 16	Sep 29	Dec 22
Bull Kelp Census	* / 1x				Oct 28
Temperature Monitoring	24 / **	Jan-Mar	Apr-Jun	Jul-Sep	Oct-Dec

* Diablo Cove census.

** Temperature measured throughout the year at 20 minute intervals (14 intertidal and 10 subtidal stations).