

# Annual Report of Analysis 2007

CITY OF  
**VENTURA**  
PUBLIC WORKS

City of Ventura • Public Works • Wastewater

*Ice Plant Flower taken by Lori Swaffar at Wildlife Pond*



**ANNUAL REPORT OF ANALYSIS**  
**CITY OF SAN BUENAVENTURA**  
**VENTURA WATER RECLAMATION FACILITY**  
**2007**

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## **DISCUSSION**

### **I. INTRODUCTION: THE CITY OF SAN BUENAVENTURA**

The City of San Buenaventura provides wastewater collection and treatment for the City, for McGrath State Beach Park, and for the North Coast Communities (Ventura County Service Area 29). These areas include a population of approximately 106,000 people.

#### **THE WASTEWATER DIVISION:**

Wastewater collection and treatment facilities are operated by the Wastewater Division, which along with the Water Division, and environmental services comprises Utilities Division of the Public Works Department. Facilities include 475 miles of sewer mains, 1 lift stations and the Ventura Water Renovation Facility (VWRF), a tertiary treatment plant.

#### **THE VWRF UNIT PROCESS:**

The VWRF, at 1400 Spinnaker Drive, is located on the north bank of and discharges treated effluent to the Santa Clara River Estuary.

Processes employed at the treatment facility during 2007 include: screening, grit removal, primary sedimentation, primary flow equalization, activated sludge secondary biological treatment, tertiary effluent filtration chlorination and dechlorination.

Process solids are treated by anaerobic digestion to class B standards, dewatered and composted further to class A exceptional quality in Lost Hills, California. Screenings and grit removed during the treatment process are disposed of at the Toland Road Landfill.

Wastewater facilities include pump stations and pipelines for water reclamation. In 2007 the daily average volume of treated effluent reclaimed was 560,833 GPD . The maximum daily reuse volume measured in 2007 was 1,548,000 gallons. The effluent reuse system provides effluent for irrigation of golf course, park and similar landscape areas. This reuse is an integral part of the city water conservation program and represents a reduction in demand on the freshwater supply each year of approximately 204.704 million gallons. NPDES permit CA0053651, issued by the Los Angeles Regional Water Quality Control

Board (Water Board) as Order 00 –143, regulates discharge of treated effluent to the Santa Clara Tidal Prism. This order expired on September 10, 2005; however it remains in effect during the period necessary for Water Board staff to review estuary studies submitted by the City. Water Board staff intend to renew the Permit in Summer of 2007.

Reuse of effluent for Los Angeles Regional Water Quality Control Board Order 87-45 regulates irrigation. The wastewater facility operation staff consists of fourteen certified operators. All hold State of California certificates as listed:

OPERATORS	Position	GRADE	CERTIFICATE NUMBER
Daniel E. Pfeifer	Wastewater Superintendent	V	V - 6737
Donald B. Burt	Wastewater Plant Supervisor	V	V - 1915
Nicholas A. Hardesty	Lead Plant Operator	IV	IV - 1374
John S. Willis	Lead Plant Operator	IV	IV - 9370
Michael S. Stehle	Lead Plant Operator	III	III - 4731
Pete Vallejo	Lead Plant Operator	III	III - 7055
Eric W. Miller	Plant Operator	V	V - 9798
Carey A. Adams	Plant Operator	III	III - 9785
Joseph E. Volpe	Plant Operator	V	V - 8987
Curtiss W. Montague	Plant Operator	III	III - 10475
Chad Steinlicht	Plant Operator	III	III - 10297
Baltazar Cervantez Jr.	Plant Operator	II	II - 9419
Adam Lopez	Plant Operator	II	I - 10894
Paul Herrera	Operator In Training	I	

## II. PROCESS PERFORMANCE AND COMPLIANCE WITH DISCHARGE REQUIREMENTS

During the reporting period the effluent 7-day median coliform limit was exceeded 28 times. Biological process upset accounted for 1 coliform violations in November.

## III. IRRIGATION EFFLUENT QUALITY

A summary of principle effluent mineral constituent concentrations is presented below.

Year	Average TDS	Average Chloride	Average Sulfate	Average Boron	Average Fluoride	Average Sodium	Average Calcium	Average Magnesium	Average Potassium
1972	1950	487	421	1.5	1.04				
1973	1740	440	399	1.4	0.96				
1974	1547	422	358	1.5	1.11				
1975	1454	374	369	1.1	0.61	354	112	45	17
1976	1474	366	398	1.4	0.65	331	118	36	15
1977	1479	372	383	1.2	0.64	320	109	40	15
1978	1525	358	409	1.0	0.80	325	110	40	17
1979	1527	359	481	1.1	0.89	308	117	45	14
1980	1451	342	463	1.2	0.73	295	120	43	15
1981	1330	312	424	0.9	0.88	278	117	41	18
1982	1452	334	443	0.8	0.80	280	136	46	17
1983	1367	308	435	0.7	0.81	275	125	43	13
1984	1398	312	454	0.7	0.80	257	130	42	20
1985	1380	313	393	0.8	0.78	249	126	42	16
1986	1411	309	415	0.8	0.62	269	132	44	19
1987	1309	317	371	0.8	0.63	240	117	39	19
1988	1457	333	412	0.8	0.58	274	123	44	17
1989	1424	324	418	0.7	0.59	274	117	43	17
1990	1561	328	444	0.9	0.67	307	126	46	18
1991	1583	334	418	0.9	0.56	308	130	46	20
1992	1569	333	456	0.7	0.55	283	140	46	18
1993	1493	315	446	0.7	0.67	295	138	46	18
1994	1403	304	416	0.7	0.71	289	131	44	19
1995	1508	293	460	0.8	0.66	286	145	38	16
1997	1310	279	366	0.7	0.41	249	115	40	19
1998	1387	263	405	0.6	0.71	261	124	43	19
1999	1348	285	388	0.7	0.72	249	116	43	21
2000	1474	286	423	0.8	0.58	287	130	48	23

2001	1370	241	435	0.7	0.63	255	121	43	21
2002	1370	277	418	0.7	0.62	255	121	43	21
2003	1408	316	471	0.7	0.59	267	139	50	21
2004	1512	334	511	0.8	0.58	293	144	49	23
2005	1533	297	563	0.7	0.53	281	135	50	23
2006	1502	268	540	0.5	0.53	274	138	48	26
2007	1431	286	497	0.8	0.55	261	117	47	28



## **LOCATION OF SAMPLE POINTS FOR MONITORING AND REPORTING PROGRAMS**

From the wildlife ponds the flow discharges into the Santa Clara Tidal Prism and treated effluent is used for landscape irrigation as shown in the schematic plant flow diagram which follows. This has been the treatment plant operating mode throughout all of 2007

The total wastewater flow is treated and disinfected through the system as shown regardless to the ultimate discharge designation.

The following describes sample locations and the purposes for which each is used.

### **LOCATION 1 - INFLUENT PUMP STATION (IPS)**

This location receives all raw wastewater flow to the treatment plant unless failure of pumping systems occurs. If such failure occurs, or should storm flows exceed the capacity of this primary station, all or part of the influent flow will be diverted to a standby facility, which has no provision for sampling or flow measurement. Such events are infrequent and a duplicate influent sampling program is not warranted. IPS coordinates are  $34^{\circ} 14'21.45''$  N /  $119^{\circ} 115' 25.53''$  W.

The samplers used here are the ISCO 6712R which is programmed flow proportion .

The sampler is located in the main stream of the influent channel prior to the headwork adjacent to Harbor Boulevard.

Sampling is performed here for compliance monitoring and for process control. Sample analyses for pH, 5-day BOD, COD, suspended solids, nitrogen compounds quarterly metals and semi-annual priority pollutants are collected at this station.

## **LOCATION 2 – FLOW EQUALIZATION BASIN - PRIMARY EFFLUENT (EPE)**

All effluent from the Primary Clarifier passes through this location. This sample station can be bypassed and raw sewage delivered directly to the Activated Sludge System for routine maintenance or emergency. EPE coordinates are 34°14'29.83" N / 119° 15'27.88" W.

ISCO Model 6712R sampler programmed to collect samples at uniform time intervals proportional to the flow to the secondary treatment process was used for sample collection/.

Sampling is performed at this location is for process control.

Analyses performed at this location are 5-day BOD, COD, pH, suspended solids, MBAS and nitrogen compounds.

## **LOCATION 3 - ACTIVATED SLUDGE PROCESS EFFLUENT**

This site is at the end of the 36 inch line from the Activated Sludge Final Sedimentation (FS) Tanks and before the Mixed Media Filter Station Pump Wet Well. FS coordinates are 34° 14'22.89" N / 119° 15'27.45" W.

ISCO Model 6712R programmed to collect samples at uniform time intervals proportional to the flow to the Activated Sludge System was used for sample collection..

Sampling at this site is for process control.

Analyses performed at this location are pH, 5-day BOD, COD, suspended solids, MBAS and nitrogen compounds. The stream from the Activated Sludge System is monitored continuously by a process turbidimeter.

#### **LOCATION 4 - EFFLUENT TRANSFER STATION (ETS)**

This location follows the plant's filtration and disinfection. From here treated effluent is pumped to the Wildlife Ponds. All treated effluent passes through this station. ETS coordinates are 34° 14'21.45" N / 119° 15' 31.26" W.

ISCO Model 6712FR programmed to collect samples at uniform time intervals proportional to the flow leaving the Mixed Media Filter Station was used for sample collection.

Sampling is conducted here for compliance monitoring and for process control.

Analyses performed at this site are pH, 5-day BOD, COD, suspended solids, grease and oil, nitrogen compounds, phosphate, MBAS, quarterly metals, phenols, and pesticides, metals, chloride, sulfate, boron, fluoride, sodium, potassium, calcium, magnesium, chlorophyll A, total phosphorous. Analyses for 17 dioxin congeners and priority pollutants are performed semi-annually. The flow from the Filtration and Disinfection processes is also continuously monitored here by a process turbidimeter.

Grab samples for bacteriological examination and total chlorine residual were collected daily at 11:00 AM from the Chlorine Contact Chamber.

#### **LOCATION 5 - OUTFALL METERING STRUCTURE**

This sample location is after the Wildlife Pond System and near the of sulfur dioxide building used for chlorine residual neutralization and head of the discharge to the Santa Clara River Tidal Prism. All effluent reaching the Tidal Prism passes through this site. Outfall coordinates are 34° 14'11.75" N / 119° 15' 33.85" W.

Sampling is performed here for compliance monitoring and for process control.

Grab samples for temperature and composite samples used for acute toxicity and chronic toxicity are collected at this site. A residual chlorine analyzer continuously monitors the flow from the station.

## RECEIVING WATER SAMPLE STATIONS

Five sample stations, designated R1 through R4 and L5 within the Santa Clara Tidal Prism are specified by the Los Angeles Regional Water Quality Control Board in the facility NPDES permit in 2000.

Locations coordinates are:

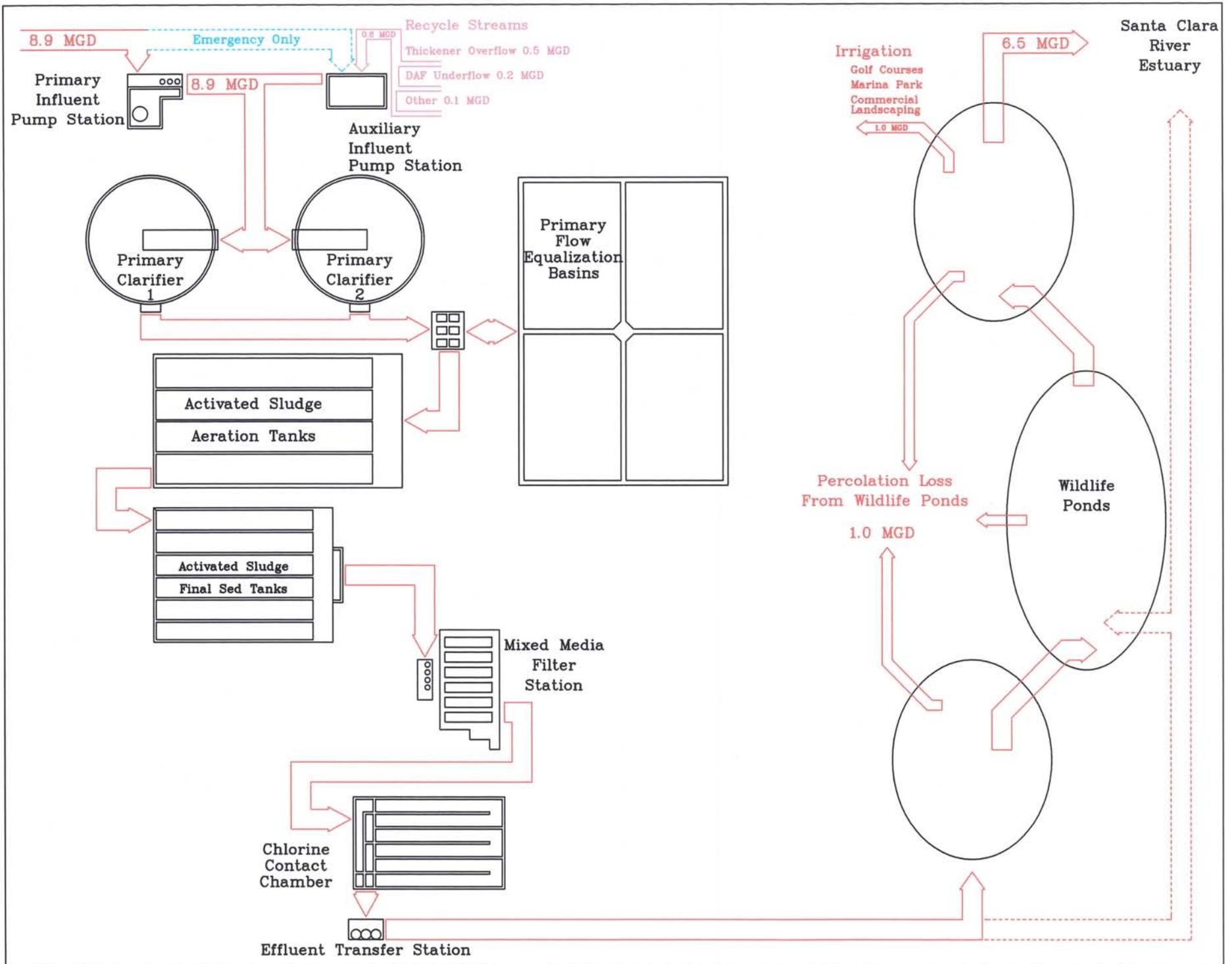
1. R1 34° 13'55.58" N / 119° 15'27.59" W.
2. R2 34° 13'47.37" N / 119° 15'43.15" W.
3. R3 Variable at the mouth of the river.
4. R4 34° 14'04.15" N / 119° 15'54.19" W.
5. L5 34° 14'01.63" N / 119° 15'23.79" W.

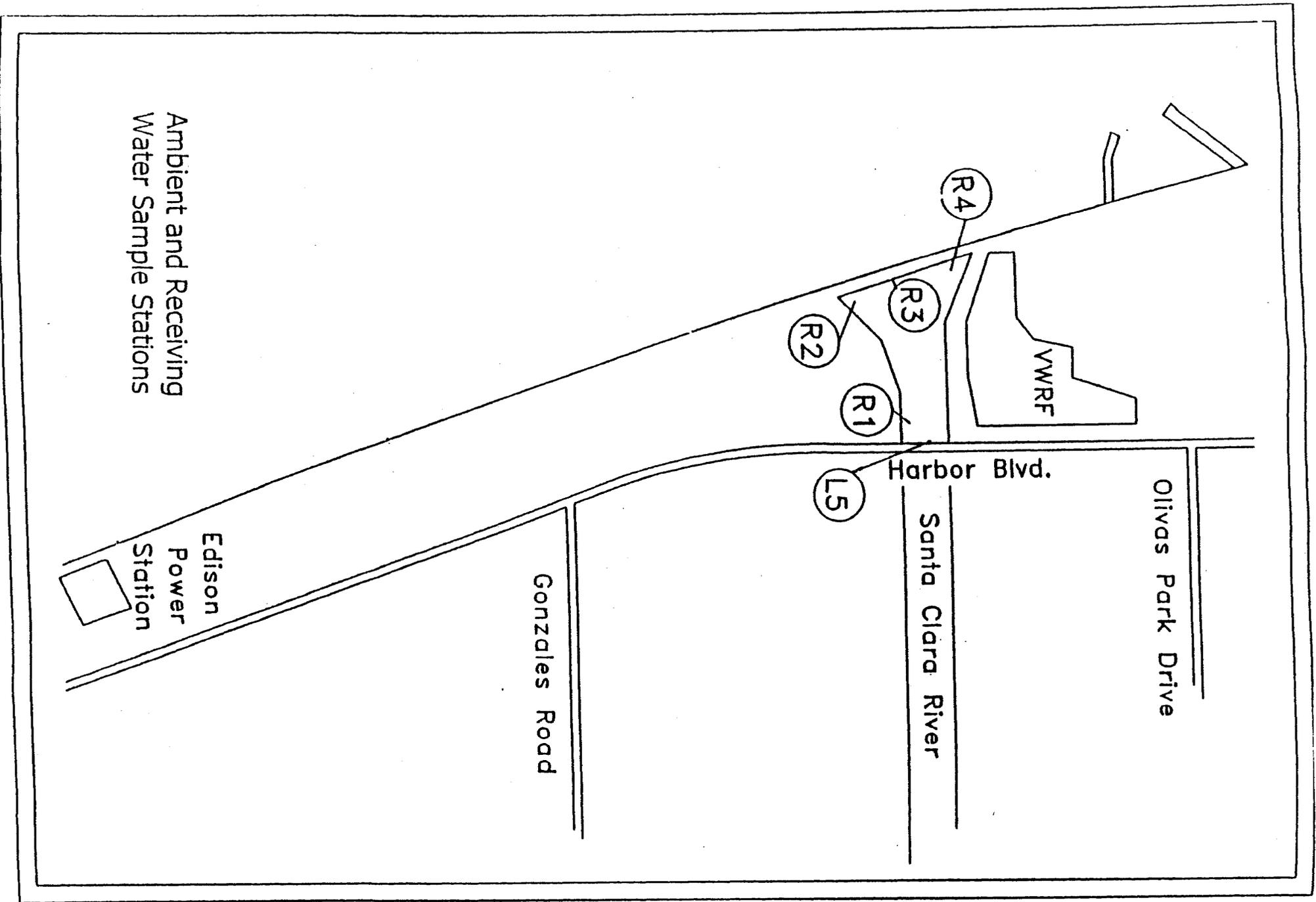
Water quality observations, temperature, salinity, chlorine residual and dissolved oxygen are measurements are done at each of these sites.

Grab samples from these locations are taken weekly and analyzed for total coliform, fecal coliform and total hardness. Other required monthly analyses for the receiving water stations R1 through R4 and L5 are total phosphorous, nitrogen compounds, and chlorophyll A. Priority Pollutants are performed on sample stations R1, R3 and L5 quarterly.

Grab samples from station R1, on the flowing stream as it enters the Tidal Prism, and R3, on the west shoreline near the point of discharge and L5 on the flowing stream as it exits the Tidal Prism from the Ventura Water Reclamation Facility are analyzed for chronic toxicity. Samples are taken for three months and analyzed using the same three species protocol applied to the discharge.

A map showing sample locations follows the schematic plant flow diagram.





Ambient and Receiving  
Water Sample Stations

Edison  
Power  
Station

Gonzales Road

Harbor Blvd.

Santa Clara River

Olivas Park Drive

WVRF

R4

R3

R2

R1

L5







**Ventura Water Reclamation Facility  
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**Influent Pump Station**

	Influent Total Flow	Influent pH @ Lab	Influent Suspended Solids @ 105C	Influent BOD	Influent COD	Influent Ammonia	Influent Total Kjeldahl Nitrogen
Month	MGD	SU	mg/l	mg/l	mg/l	mg/l	mg/l
Jan 2007	8.96	7.58	229	277.8	560	28.4	46.2
Feb 2007	8.77	7.47	286	296.3	646	27.7	43.0
Mar 2007	8.73	7.39	312	317.6	716	26.5	50.3
Apr 2007	8.74	7.40	297	296.9	664	28.9	43.6
May 2007	8.20	7.36	310	319.7	664	26.9	51.5
Jun 2007	8.21	7.33	307	302.8	663	26.2	43.7
Jul 2007	8.42	7.50	303	293.6	622	29.3	44.9
Aug 2007	8.56	7.43	299	280.7	638	28.0	49.7
Sep 2007	8.32	7.47	293	293.1	591	26.5	46.0
Oct 2007	8.57	7.46	326	276.1	599	26.0	41.9
Nov 2007	8.57	7.53	291	276.0	596	28.0	47.4
Dec 2007	8.78	7.57	277	278.0	645	26.1	40.4
Minimum	8.20	7.33	229	276.0	560	26.0	40.4
Maximum	8.96	7.58	326	319.7	716	29.3	51.5
Average	8.57	7.46	294	292.4	634	27.4	45.7

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**Influent Pump Station**

Month	Influent Aluminum, Total ug/l	Influent Antimony, Total ug/l	Influent Arsenic, Total ug/l	Influent Barium Total ug/l	Influent Beryllium, Total ug/l	Influent Cadmium, Total ug/l	Influent Chromimun, Total ug/l	Influent Cobalt, Total ug/l	Influent Copper, Total ug/l	Influent Iron *
Jan 2007										
Feb 2007	740.0	7.000	<2.000	68.300	5.000	5.000	<7.000	5.430	121.000	120.00
Mar 2007										
Apr 2007										
May 2007										<100.000
Jun 2007										
Jul 2007										
Aug 2007	1,370.0	<1.000	<2.000	72.100	<0.200	<4.000	<7.000	1.410	142.000	2,290.000
Sep 2007										
Oct 2007										
Nov 2007										940.000
Dec 2007										
Minimum	740.0	<1.000	<2.000	68.300	<0.200	<4.000	<7.000	1.410	121.000	<100.000
Maximum	1,370.0	7.000	<2.000	72.100	5.000	5.000	<7.000	5.430	142.000	2,290.000
Average	1,055.0	3.500	<2.000	70.200	2.500	<4.000	<7.000	3.420	131.500	837.500

Analyzed by American Scientific Laboratories, Los Angeles, CA 90065

\*Analyzed by City of San Buenaventura Wastewater Laboratory, Ventura, CA 93001

## Ventura Water Reclamation Facility

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#### Influent Pump Station

Month	Influent Lead, Total ug/l	Influent Manganese * ug/l	Influent Mercury, Total ug/l	Influent Molybdenum, Total ug/l	Influent Nickel, Total ug/l	Influent Selenium, Total ug/l	Influent Silver, Total ug/l	Influent Thallium, Total ug/l	Influent Tin, Total ug/l	Influent Vanadium, Total ug/l	Influent Zinc, Total ug/l
Jan 2007											
Feb 2007	<5.000	80.000	<2.000	21.000	8.700	2.200	<0.200	<1.000	<100.00	21.000	140.000
Mar 2007											
Apr 2007											
May 2007		120.000									
Jun 2007											
Jul 2007											
Aug 2007	<5.000	320.000	<0.020	16.600	5.970	<2.000	<0.200	<1.000	<100.00	<4.000	150.000
Sep 2007											
Oct 2007											
Nov 2007		20.000									
Dec 2007											
Minimum	<5.000	20.000	<0.020	16.600	<10.000	<2.000	<0.200	<1.000	<100.000	<4.000	140.000
Maximum	<5.000	320.000	<2.000	21.000	<10.000	2.200	<0.200	<1.000	<100.000	21.000	150.000
Average	<5.000	135.000	<1.000	18.800	<10.000	1.100	<.2000	<1.000	<100.000	10.500	145.000

Analyzed by American Scientific Laboratories, Los Angeles, CA 90065

\*Analyzed by City of San Buenaventura Wastewater Laboratory, Ventura, CA 93001

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**Influent Pump Station**

Month	Acetone ug/l	Chloroform ug/l	Toluene ug/l	Ethylbenzene ug/l	Tetrachloroethylene ug/l	Xylene ug/l	1,1,1-Trichloroethane ug/l	1,4 Dichlorobenzene UG/L
February	23.500	2.100	0.390	<0.340	1.200	<0.500	<0.030	<0.500
August	40.300	2.600	0.800	<0.340	<0.030	<0.500	<0.030	<4.400
Minimum	23.500	2.100	0.390	<0.340	<0.030	<0.500	<0.030	<0.500
Maximum	40.300	2.600	0.800	<0.340	1.200	<0.500	<0.030	<4.400
Average	31.900	2.350	0.595	<0.340	<0.615	<0.500	<0.030	<2.450

Analysis Performed by American Scientific Laboratory, Los Angeles, CA 90065

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**Flow Equalization Basin - Primary Effluent**

	EPE pH @ Lab	EPE BOD	EPE COD	EPE Suspended Solids @ 105C	EPE Ammonia	EPE Total Kjeldahl Nitrogen	EPE MBAS
Month	SU	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l
Jan 2007	7.50	162.0	339	71.2	29.8	38.8	10.60
Feb 2007	7.43	176.9	384	83.3	28.2	33.6	7.40
Mar 2007	7.38	178.3	390	92.7	28.4	44.1	7.14
Apr 2007	7.38	168.2	357	83.0	30.3	34.6	9.39
May 2007	7.36	166.6	368	84.3	32.8	49.6	8.47
Jun 2007	7.37	157.0	346	81.8	31.5	43.9	9.94
Jul 2007	7.55	145.7	332	86.3	32.0	44.3	13.10
Aug 2007	7.46	167.6	363	80.5	32.4	40.0	11.77
Sep 2007	7.46	165.6	359	78.1	32.2	40.8	14.15
Oct 2007	7.43	168.7	365	86.9	34.6	49.2	11.53
Nov 2007	7.50	189.6	392	89.7	33.9	50.3	8.22
Dec 2007	7.54	191.9	392	98.2	30.8	43.9	7.83
Minimum	7.04	88.5	205	50.0	21.6	33.6	7.14
Maximum	7.95	299.2	508	176.4	41.9	50.3	14.15
Average	7.44	170.1	366	84.6	31.5	42.8	9.96

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**Mixed Media Filter Station (FS) Influent**

	MMF Flow	FS Suspended Solids @ 105C	FS BOD	FS COD	FS Nitrate	FS Nitrite	FS Ammonia	FS Total Kjeldahl Nitrogen	FS MBAS
Month	MGD	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l
Jan 2007	9.70	7.87	8.2	36.9	15.2	<0.4	0.6	1.2	0.26
Feb 2007	9.52	9.47	7.8	32.4	12.8	<0.5	0.3	***	0.33
Mar 2007	9.44	13.62	10.3	38.2	14.0	0.7	1.0	0.7	0.08
Apr 2007	9.53	14.87	18.0	45.3	14.9	0.8	0.5	2.1	0.10
May 2007	8.98	12.69	9.2	40.7	13.6	0.7	0.5	1.7	0.50
Jun 2007	8.93	10.58	9.7	35.7	14.6	<0.5	0.6	2.2	0.50
Jul 2007	9.16	10.82	10.1	40.8	14.7	<0.4	0.3	2.1	0.50
Aug 2007	9.37	9.36	9.0	38.7	10.4	<0.4	0.3	1.7	0.19
Sep 2007	9.07	6.14	7.6	39.0	11.9	<0.5	0.2	1.7	0.05
Oct 2007	9.12	10.88	10.4	45.8	11.0	<0.5	0.1	2.0	0.12
Nov 2007	9.03	10.10	8.1	42.6	11.4	<0.4	0.1	3.1	0.08
Dec 2007	9.16	13.97	9.8	40.8	13.4	<0.6	0.3	3.9	0.13
Minimum	7.31	0.92	1.4	11.8	8.3	<0.4	0.1	0.7	0.05
Maximum	10.7	61.0	53.4	106.7	20.9	1.3	1.8	3.9	0.50
Average	9.25	10.87	9.8	39.8	13.1	0.5	0.4	2.0	0.24

\*\*\* No Data

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**Effluent Transfer Station**

	Effluent pH @ Lab	Effluent Suspended Solids @ 105C	Effluent Suspended Solid Load	Effluent Total Dissolved Solids	Effluent Conductivity	Effluent BOD	Effluent BOD Load	Effluent COD	Effluent Settable Solids	Effluent Dissolved Oxygen
Month	su	mg/l	lbs/day	mg/l	mg/l	mg/l	lbs/day	mg/l	mg/l	mg/l
Jan 2007	7.43	0.72	51	1,481	2,293	1.7	116	28.6	<0.10	7.8
Feb 2007	7.43	1.17	82	1,475	2,299	1.6	112	29.8	<0.10	7.7
Mar 2007	7.34	1.33	89	1,376	2,164	2.5	166	30.3	<0.10	7.0
Apr 2007	7.26	1.32	87	1,336	2,120	3.5	226	31.3	<0.10	6.5
May 2007	7.39	1.14	71	1,422	2,235	2.7	166	32.0	<0.10	6.6
Jun 2007	7.30	1.12	67	1,386	2,145	2.1	128	28.3	<0.10	6.3
Jul 2007	7.41	1.18	72	1,461	2,201	2.7	163	29.6	<0.10	5.8
Aug 2007	7.34	0.59	38	1,439	2,150	3.4	220	29.2	<0.10	5.7
Sep 2007	7.39	0.68	44	1,430	2,143	2.8	178	28.5	<0.10	5.9
Oct 2007	7.43	0.91	58	1,464	2,255	2.5	160	35.5	<0.10	6.0
Nov 2007	7.35	0.54	36	1,471	2,282	1.8	117	31.1	<0.10	6.1
Dec 2007	7.26	0.44	28	1,438	2,149	2.0	128	30.4	<0.10	6.3
Minimum	7.00	0.08	5	1,115	1,927	0.4	29	14.7	<0.10	5.0
Maximum	8.09	3.27	236	1,778	2,610	8.2	505	47.7	<0.10	8.2
Average	7.36	0.93	60	1,431	2,202	2.4	157	30.4	<0.10	6.5

Limitations of Permit CA0053651

Daily Maximum	45	5,250	45	5,250	0.3
7 Day Average	40	4,670	30	4,670	
30 Day Average	15	1,751	20	1,751	0.1

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**Effluent Transfer Station**

	Effluent Grease & Oil	Effluent Grease & Oil Load	Effluent ETS Turbidity Max	Effluent Nitrate	Effluent Nitrite	Effluent Ammonia	Effluent Total Kjeldahl Nitrogen	Effluent Total Organic Nitrogen
Month	mg/l	lbs/day	NTU	mg/l	mg/l	mg/l	mg/l	mg/l
Jan 2007	1.1	74	0.6	15.6	<0.4	1.3	0.4	<.1
Feb 2007	1.0	72	0.9	13.2	<0.4	1.5	2.3	1.1
Mar 2007	1.0	69	0.9	15.2	<0.4	1.5	0.7	<.1
Apr 2007	1.0	64	0.9	16.3	<0.4	1.8	3.4	1.9
May 2007	1.0	65	0.6	14.1	<0.7	1.7	0.9	<.1
Jun 2007	1.9	112	0.5	16.2	<0.4	2.0	3.5	1.4
Jul 2007	4.0	246	0.4	15.7	<0.4	2.0	2.7	<.1
Aug 2007	1.8	118	0.6	11.1	<0.4	1.9	3.4	1.8
Sep 2007	1.7	107	0.7	13.4	<0.4	1.5	2.0	0.5
Oct 2007	1.8	113	0.6	12.8	<0.4	1.3	0.8	<.1
Nov 2007	2.9	195	0.5	13.4	<0.4	1.1	2.2	0.6
Dec 2007	1.2	78	0.9	15.2	<0.4	1.2	***	***
Minimum	1.0	61	0.3	9.1	<0.4	0.6	0.4	<.1
Maximum	5.0	313	6.9	22.3	1.70	2.7	3.5	1.9
Average	1.7	110	0.7	14.3	<0.4	1.6	2.0	0.4

Limitations of Permit CA0053651

Daily Maximum            15            1,750

7 Day Average

30 Day Average        10            1.170

\*\*\* No Data

**Ventura Water Reclamation Facility  
Annual Report 2007**

**Effluent Transfer Station**

	Effluent Chloride	Effluent Sulfate	Effluent Sodium	Effluent Calcium	Effluent Magnesium	Effluent Potassium
Month	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l
Jan 2007	279	513	286	133	47	29
Feb 2007	270	518	274	130	47	27
Mar 2007	275	438	252	117	47	27
Apr 2007	285	487	242	102	41	28
May 2007	325	565	253	114	50	30
Jun 2007	276	471	253	99	49	29
Jul 2007	276	502	241	116	46	28
Aug 2007	271	479	269	122	48	29
Sep 2007	276	469	242	119	44	28
Oct 2007	294	506	273	104	48	31
Nov 2007	304	513	284	112	49	29
Dec 2007	304	511	259	136	47	28
Minimum	270	438	241	99	41	27
Maximum	325	565	286	136	50	31
Average	286	497	261	117	47	28

**Ventura Water Reclamation Facility  
Annual Report 2007**

**Effluent Transfer Station**

	Effluent Phosphate	Effluent Total Phosphorus	Effluent Boron	Effluent Fluoride	Effluent Total Alkalinity	Effluent MBAS	Effluent Chlorophyll A*
Month	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l
Jan 2007	2.46	4.00	0.51	0.52	185	0.24	0.028
Feb 2007	0.65	3.00	0.67	0.55	232	0.35	0.046
Mar 2007	1.80	5.89	0.92	0.56	190	0.06	0.029
Apr 2007	2.00	5.01	1.26	0.53	202	0.06	0.007
May 2007	2.08	8.58	0.89	0.56	198	<0.05	0.044
Jun 2007	1.48	9.31	0.78	0.57	229	<0.05	0.023
Jul 2007	2.99	3.59	0.81	0.54	189	<0.05	0.003
Aug 2007	2.92	3.27	0.89	0.52	213	0.22	0.045
Sep 2007	2.90	3.18	0.70	0.50	183	<0.05	<0.002
Oct 2007	2.90	3.20	0.64	0.61	197	0.09	0.079
Nov 2007	2.78	2.89	0.65	0.61	215	0.09	0.064
Dec 2007	1.84	2.61	0.66	0.56	182	0.11	0.061
Minimum	0.65	2.61	0.51	0.50	182	<0.05	<0.002
Maximum	2.99	9.31	1.26	0.61	232	0.35	0.079
Average	2.23	4.54	0.78	0.55	201	0.10	0.036

\* Analyzed by Aquatic Bioassay Consulting Laboratories, INC., Ventura, California 93001

**Ventura Water Reclamation Facility  
Annual Report 2007**

**Effluent Transfer Station**

Month	Effluent Total Cyanide (As CN) ug/l	Effluent Aluminum, Total ug/l	Effluent Antimony, Total ug/l	Effluent Arsenic, Total ug/l	Effluent Barium, Total ug/l	Effluent Beryllium, Total ug/l	Effluent Cadmium, Total ug/l	Effluent Cobalt, Total ug/l	Effluent Chromium, Hexavalent, Total ug/l	Effluent Copper, Total ug/l
Jan 2007										
Feb 2007	<5.000	63.000	<2.000	<2.000	26.000	<0.200	<4.000	<1.000	<1.000	10.000
Mar 2007										
Apr 2007										
May 2007	<5.000	89.000	<1.000	<2.000	23.500	<0.200	<4.000	<1.000	<1.000	<2.000
Jun 2007										
Jul 2007										
Aug 2007	<5.000	82.600	<1.000	<2.000	26.100	<0.200	<4.000	<1.000	<1.000	<2.000
Sep 2007										
Oct 2007										
Nov 2007	<5.000	63.400	<1.000	<2.000	28.000	<0.200	<4.000	<1.000	<1.000	<2.000
Dec 2007										
Minimum	<5.000	63.00	<1.000	<2.000	23.500	<.2000	<4.000	<1.000	<1.000	<2.000
Maximum	<5.000	89.00	<1.000	<2.000	28.000	<.2000	<4.000	<1.000	<1.000	10.000
Average	<5.000	74.50	<1.000	<2.000	25.900	<.2000	<4.000	<1.000	<1.000	<4.000

Limitation of Permit CA0053651

Daily Maximum .99  
Monthly Average .41

11 2.9  
3.7 2.0

Analyzed by American Scientific Laboratories, Los Angeles, CA 90065

**Ventura Water Reclamation Facility  
Annual Report 2007**

**Effluent Transfer Station**

Month	Effluent Lead, Total ug/l	Effluent Mercury, Total ug/l	Effluent Molybdenum, Total ug/l	Effluent Nickel, Total ug/l	Effluent Selenium, Total ug/l	Effluent Silver, Total ug/l	Effluent Thallium, Total ug/l	Effluent, Tin Total ug/l	Effluent Vanadium, Total ug/l	Effluent Zinc, Total ug/l
Jan 2007										
Feb 2007	<5.000	<0.020	16.000	3.240	<2.000	<0.200	<1.000	<100.000	<4.000	<2.000
Mar 2007										
Apr 2007										
May 2007	<5.000	<0.200	16.400	<1.000	<2.000	<0.200	<1.000	<100.000	<4.000	25.700
Jun 2007										
Jul 2007										
Aug 2007	<5.000	<0.020	12.800	3.880	<2.000	<0.200	<1.000	<100.000	<4.000	25.100
Sep 2007										
Oct 2007										
Nov 2007	<5.000	<0.200	14.600	4.030	<2.000	<0.200	<1.000	<100.000	<4.000	26.500
Dec 2007										
Minimum	<5.000	<.200	12.800	<10.000	<2.000	<.200	<1.000	<100.00	<4.000	<2.00
Maximum	<5.000	<.200	16.400	<10.000	<2.000	<.200	<1.000	<100.00	<4.000	26.50
Average	<5.00	<.200	14.950	<10.000	<2.000	<.200	<1.000	<100.00	<4.000	19.33

Limitation of Permit CA0053651

Daily Maximum	14	.12	15.2	8.8	95
30 Day Average	7.0	.025	5.3	2.9	38

Analyzed by American Scientific Laboratories, Los Angeles, CA 90065

**Ventura Water Reclamation Facility  
Annual Report 2007**

**Effluent Transfer Station**

Month	Aldrin ug/l	alpha - BHC ug/l	beta - BHC ug/l	delta - BHC ug/l	Lindane ug/l	PCBs ug/l	Chlordane ug/l	Toxaphene ug/l	DDD ug/l	alpha Endosulfan ug/l	beta Endosulfan ug/l
February	<0.004	<0.003	<0.006	<1.900	<0.004	<0.585	<0.014	<10.000	<2.800	<0.014	<0.004
May*	<0.003	<0.007	<0.005	<0.118	<0.007	<0.395	<0.361	<0.529	<0.010	<0.009	<0.029
August	<0.004	<0.003	<0.006	<0.009	<0.004	<0.585	<0.014	<10.000	<2.800	<0.014	<0.004
November	<0.004	<0.003	<0.006	<0.009	<0.004	<0.585	<0.140	<10.000	<2.800	<0.014	<0.004
Average	<0.004	<0.004	<0.006	<0.509	<0.005	<0.538	<0.132	<7.632	<2.103	<0.013	<0.010
Maximum	<0.004	<0.003	<0.006	<1.900	<0.004	<0.585	<0.014	<10.000	<2.800	<0.014	<0.004
Minimum	<0.003	<0.003	<0.005	<0.009	<0.004	<0.395	<0.014	<0.529	<0.010	<0.009	<0.004

Permit Limit CA0053651

Daily Maximum	0.00028		0.092		0.13	0.00034	0.0012	0.00033	0.0017	0.014	0.014
Monthly Average	.00014		0.046		0.063	.00017	0.00059	0.00016	0.00084	0.0007	0.004

Analyses Performed by American Scientific Laboratories, Los Angeles, CA 90065

\*Analyses Performed by City of San Buenaventura Wastewater Laboratory, Ventura, CA 93001

**Ventura Water Reclamation Facility  
Annual Report 2007**

**Effluent Transfer Station**

Month	Bromoform ug/l	Chloroform ug/l	Dibromchloromethane ug/l	Dichlorobromomethane ug/l	Carbon Tetrachloride ug/l	1, 4 Dichlorobenzene ug/l
February	<0.5000	14.800	1.500	4.700	<12.000	<4.400
May	<0.200	9.900	1.500	4.300	<0.120	
August	<0.200	11.000	1.200	4.100	<0.120	<0.500
November	2.700	34.700	<0.090	20.200	<0.120	
Minimum	<0.200	9.900	<0.090	4.100	<0.120	<0.500
Maximum	2.700	34.700	1.600	20.200	<12.000	<4.400
Annual Average	<0.675	17.600	<1.075	8.325	<3.090	<2.200

Permit Limit CA0053651

Daily Maximum  
Monthly Average

22

Analyses Performed by American Scientific Laboratories, Los Angeles, CA 90065

**Ventura Water Reclamation Facility  
Annual Report 2007**

**Effluent Transfer Station**

Month	Pentachlorophenol ug/l	Benzene ug/l	Bis (2-Ethylhexylphthalate) ug/l	Acetone ug/l	Xylene ug/l	Chlorobenzene ug/l
February	<3.600	<0.500	<2.500	<0.500	<0.500	<2.000
May	<1.090	<0.200	<2.500	<0.500	<0.500	
August	<3.600	<0.200	<2.500	<0.500	<0.500	<0.200
November	<3.600	<0.200	<2.500	4.700	<0.500	<0.200
Minimum	<1.090	<0.200	<2.500	<0.500	<0.500	<0.200
Maximum	<3.600	<0.500	<2.500	4.700	<0.500	<2.000
Annual Average	<2.973	<0.275	<2.500	<1.550	<0.500	<0.800

Permit Limit CA0053651

Daily Maximum	13	71	5.9
Monthly Average	7.9		

Analyses Performed By American Scientific Laboratories, Los Angeles, CA 90065

**Ventura Water Reclamation Facility  
Annual Report 2007**

**Effluent Transfer Station**

	Effluent -Contact Chamber CL2 @ 11 AM	Effluent Chlorine Residual @ 11 AM
Month	mg/L	mg/l
Jan 2007	4.4	4.4
Feb 2007	4.6	4.5
Mar 2007	4.6	4.6
Apr 2007	4.5	4.5
May 2007	4.0	3.9
Jun 2007	4.3	4.2
Jul 2007	4.1	3.9
Aug 2007	4.2	4.0
Sep 2007	3.8	3.6
Oct 2007	4.9	4.8
Nov 2007	5.6	5.2
Dec 2007	6.1	6.0
Minimum	1.4	1.4
Maximum	7.6	7.8
Average	4.6	4.5

Limitation of Permint CA0053651

**Ventura Water Reclamation Facility  
Annual Report 2006**

**Outfall Junction Structure**

	Estuary Yesterday Flow	Effluent Chlorine Residual Daily Max	Effluent Temperature	Acute 96hr Toxicity Pimphales *	Chronic Ceriodaphnia - Survival *	Chronic Ceriodaphnia - Reproduction *
Month	MGD	mg/l	Deg. C	%	TUc	TUc
Jan 2007	8.22	<.10	15.5			
Feb 2007	8.41	<.10	17.9	100.00	1.00	1.00
Mar 2007	7.94	<.10	19.6			
Apr 2007	7.86	<.10	20.7			
May 2007	7.49	<.10	22.1			
Jun 2007	7.22	<.10	23.7			
Jul 2007	7.30	<.10	24.8			
Aug 2007	7.70	<.10	24.7			
Sep 2007	7.65	<.10	23.5			
Oct 2007	7.56	<.10	21.4			
Nov 2007	7.85	<.10	20.0			
Dec 2007	7.64	<.10	17.3	100.00	1.00	1.00
Minimum	7.22	<.10	15.5	100.00	1.00	1.00
Maximum	8.41	<.10	24.8	100.00	1.00	1.00
Average	7.74	<.10	20.9	100.00	1.00	1.00

Limitation of Permit CA0053651

Daily Maximum  
30 Day Average

Bioassays performed by Aquatic Bioassay Consulting Laboratories, Ventura, CA 93001

**Ventura Water Reclamation Facility  
Annual Report 2007**

**Outfall Junction Structure**

	Chronic Fathead Larvae - Growth *	Chronic Fathead Larvae- Survival *	Chronic Selenastrum - Growth
	TUc	TUc	TUc
Jan 2007			1.00
Feb 2007	1.00	1.00	1.00
Mar 2007			1.00
Apr 2007			1.00
May 2007			1.00
Jun 2007			1.00
Jul 2007			1.00
Aug 2007			1.00
Sep 2007			1.00
Oct 2007			1.00
Nov 2007			1.00
Dec 2007	1.00	1.00	1.00
Minimum	1.00	1.00	1.00
Maximum	1.00	1.00	1.00
Average	1.00	1.00	1.00

Limitation of Permit CA0053651

1.00

1.00

1.00

\*Analyzed by Aquaic Bioassay Consulting Laboratoires, INC., Ventura, CA 93001

**Ventura Water Reclamation Facility  
Annual Report 2007**

**Receiving Water Station**

	R1 Chronic Selenastrum- Growth	R1 Chronic Ceriodaphnia - Reproduction	R1 Chronic Ceriodaphnia - Survival	R1 Chronic Fathead Larvae - Growth	R1 Chronic Fathead Larvae - Survival
Month	TUc	TUc	TUc	TUc	TUc
Jan 2007					
Feb 2007	1.00	1.00	1.00	1.00	1.00
Mar 2007					
Apr 2007					
May 2007					
Jun 2007					
Jul 2007					
Aug 2007					
Sep 2007		1.00	1.00		
Oct 2007					
Nov 2007					
Dec 2007	1.00	1.00	1.00	1.00	10.00
Minimum	1.00	1.00	1.00	1.00	1.00
Maximum	1.00	1.00	1.00	1.00	10.00
Average	1.00	1.00	1.00	1.00	5.50

Analyzed by Aquatic Bioassay Consulting Laboratories, INC., Ventura, CA 93001

## Ventura Water Reclamation Facility

### Annual Report 2007

#### Receiving Water Station

	R3 Chronic Selenastrum - Growth	R3 Chronic Ceriodaphnia - Reproduction	R3 Chronic Ceriodaphnia - Survival	R3 Chronic Fathead Larvae - Growth	R3 Chronic Fathead Larvae - Survival
Month	TUc	TUc	TUc	TUc	TUc
Jan 2007					
Feb 2007	10.00	10.00	10.00	3.13	5.56
Mar 2007					
Apr 2007					
May 2007					
Jun 2007					
Jul 2007					
Aug 2007					
Sep 2007		1.00	1.00		
Oct 2007					
Nov 2007					
Dec 2007	1.00	1.00	1.00	1.00	1.00
Minimum	1.00	1.00	1.00	1.00	1.00
Maximum	10.00	10.00	10.00	3.13	5.56
Average	5.50	4.00	4.00	2.07	3.28

Analyzed by Aquatic Bioassay Consulting Laboratories, INC., Ventura, CA 93001

**Ventura Water Reclamation Facility  
Annual Report 2007**

**Receiving Water Station**

Month	L5 Chronic Selenastrum - Growth TUc	L5 Chronic Ceriodaphnia - Reproduction TUc	L5 Chronic Ceriodaphnia - Survival TUc	L5 Chronic Fathead Larvae - Growth TUc	L5 Chronic Fathead Larvae - Survival TUc
Jan 2007					
Feb 2007	1.00	3.13	1.79	1.00	1.00
Mar 2007					
Apr 2007					
May 2007					
Jun 2007					
Jul 2007					
Aug 2007					
Sep 2007		1.00	1.00		
Oct 2007					
Nov 2007					
Dec 2007	1.00	1.00	1.00	1.00	1.00
Minimum	1.00	1.00	1.00	1.00	1.00
Maximum	1.00	3.13	1.79	1.00	1.00
Average	1.00	1.71	1.26	1.00	1.00

Analyzed by Aquatic Bioassay Laboratories, INC., Ventura, CA 93001

**Ventura Water Reclamation Facility  
Annual Report 2007**

**Receiving Water Stations -Temperature**

	R1 Air Temperature	R2 Air Temperature	R3 Air Temperature	R4 Air Temperature	L5 Air Temperature	R1 Water Temperature	R2 Water Temperature	R3 Water Temperature	R4 Water Temperature	L5 Water Temperature
Month	Deg. C	Deg. C	Deg. C	Deg. C	Deg. C					
Jan 2007	***	17.5	17.9	18.0	17.6	***	12.1	12.3	12.4	12.9
Feb 2007	16.8	16.6	16.8	16.7	16.9	14.0	13.5	14.6	16.5	17.4
Mar 2007	15.4	15.5	15.7	15.8	15.7	13.4	14.8	15.3	19.1	17.9
Apr 2007	15.6	15.6	16.2	16.3	16.0	15.2	17.3	17.4	19.5	18.2
May 2007	16.6	16.5	16.9	16.9	16.9	18.3	19.7	19.8	19.8	18.8
Jun 2007	17.4	17.4	17.7	17.7	17.4	19.4	20.8	20.8	20.7	20.3
Jul 2007	19.5	19.4	19.9	20.0	19.5	20.7	22.9	23.2	23.0	21.5
Aug 2007	22.5	22.3	22.0	22.5	22.3	20.0	22.4	22.5	21.5	26.9
Sep 2007	22.2	22.1	23.0	23.0	21.9	19.7	21.6	21.4	21.1	21.3
Oct 2007	18.0	18.1	18.9	19.4	18.7	17.4	17.5	17.6	17.8	18.3
Nov 2007	17.5	17.4	17.9	17.8	17.5	13.7	15.8	15.5	15.7	16.0
Dec 2007	13.6	13.3	13.6	13.6	13.5	12.5	12.2	12.3	11.8	12.2
Minimum	12.0	12.0	12.0	12.0	12.0	10.2	12.1	12.3	11.8	10.1
Maximum	26.7	26.4	27.3	27.3	24.2	22.3	22.9	23.2	23.0	22.2
Average	17.9	17.7	18.1	18.2	17.8	16.7	17.5	17.7	18.2	16.2

\*\*\*No Data

## Ventura Water Reclamation Facility

### Annual Report 2007

#### Receiving Water Stations - Chlorine Residual & Salinity

	R1 Chlorine Residual	R2 Chlorine Residual	R3 Chlorine Residual	R4 Chlorine Residual	L5 Chlorine Residual	R1 Salinity	R2 Salinity	R3 Salinity	R4 Salinity	L5 Salinity
Month	MG/L	MG/L	MG/L	MG/L	MG/L	PPT	PPT	PPT	PPT	PPT
Jan 2007	***	<0.10	<0.10	<0.10	<0.10	***	19.7	18.7	18.3	12.6
Feb 2007	<0.10	<0.10	<0.10	<0.10	<0.10	2.1	17.4	18.2	16.3	1.7
Mar 2007	<0.10	<0.10	<0.10	<0.10	<0.10	2.0	15.0	9.5	1.2	1.5
Apr 2007	<0.10	<0.10	<0.10	<0.10	<0.10	2.3	5.4	4.9	2.5	1.8
May 2007	<0.10	<0.10	<0.10	<0.10	<0.10	2.2	2.0	1.9	1.6	1.7
Jun 2007	<0.10	<0.10	<0.10	<0.10	<0.10	1.4	1.4	1.5	1.4	1.6
Jul 2007	<0.10	<0.10	<0.10	<0.10	<0.10	1.4	1.3	1.2	1.1	1.6
Aug 2007	<0.10	<0.10	<0.10	<0.10	<0.10	1.4	1.3	1.3	1.1	1.6
Sep 2007	<0.10	<0.10	<0.10	<0.10	<0.10	1.4	1.2	1.2	1.1	1.3
Oct 2007	<0.10	<0.10	<0.10	<0.10	<0.10	1.1	1.1	1.1	1.0	1.2
Nov 2007	<0.10	<0.10	<0.10	<0.10	<0.10	1.4	1.3	1.3	1.3	1.4
Dec 2007	<0.10	<0.10	<0.10	<0.10	<0.10	2.3	9.5	11.2	9.4	2.4
Minimum	<0.10	<0.10	<0.10	<0.10	<0.10	1.0	1.1	1.0	1.0	1.2
Maximum	<0.10	<0.10	<0.10	<0.10	<0.10	3.6	32.8	36.4	32.7	18.2
Average	<0.10	<0.10	<0.10	<0.10	<0.10	1.7	6.4	6.0	4.8	2.7

\*\*\*No Data

## Ventura Water Reclamation Facility

### Annual Report 2007

#### Receiving Water Stations - DO & Hardness

	R1 Dissolved Oxygen	R2 Dissolved Oxygen	R3 Dissolved Oxygen	R4 Dissolved Oxygen	L5 Dissolved Oxygen	R1 Hardness	R2 Hardness	R3 Hardness	R4 Hardness	L5 Hardness
Month	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L
Jan 2007	***	13.3	14.5	13.8	12.8	***	3,752	2,138	1,708	2,016
Feb 2007	7.6	9.4	8.0	8.4	12.7	1,630	3,533	2,533	748	1,098
Mar 2007	5.7	6.1	7.6	8.2	12.3	1,620	2,528	2,033	595	1,060
Apr 2007	5.6	11.1	11.7	10.3	9.5	1,438	1,358	1,278	803	1,070
May 2007	3.4	7.9	7.5	6.9	5.3	990	868	802	702	1,092
Jun 2007	3.0	8.2	10.3	5.9	5.3	880	770	875	623	1,113
Jul 2007	0.7	5.4	6.9	6.3	0.8	798	700	652	592	1,044
Aug 2007	1.3	7.4	7.9	3.5	1.3	770	725	673	598	1,095
Sep 2007	3.0	11.3	11.7	4.7	4.1	623	575	620	583	695
Oct 2007	9.4	13.1	13.6	6.6	10.0	640	628	652	628	714
Nov 2007	12.9	16.3	13.7	9.2	12.3	650	647	685	673	728
Dec 2007	7.6	16.0	15.2	14.0	15.4	1,047	1,755	2,128	733	755
Minimum	0.4	3.3	2.5	2.5	0.2	600	510	550	540	450
Maximum	12.9	22.1	21.9	22.8	19.2	1,690	6,040	6,100	2,410	2,430
Average	4.6	10.4	10.7	8.2	8.4	1,036	1,503	1,241	761	1,053

\*\*\*No Data

**Ventura Water Reclamation Facility  
Annual Report 2007**

**Receiving Water Stations -Nitrate & Nitrite**

	R1 Nitrate	R2 Nitrate	R3 Nitrate	R4 Nitrate	L5 Nitrate	R1 Nitrite	R2 Nitrite	R3 Nitrite	R4 Nitrite	L5 Nitrite
Month	MG/L									
Jan 2007	***	6.3	11.5	11.0	3.1	***	<0.4	<0.4	<0.4	<0.4
Feb 2007	7.4	2.4	6.3	11.7	3.1	<0.4	<0.4	<0.4	<0.4	<0.4
Mar 2007	6.1	1.5	10.7	14.4	1.1	<0.4	0.5	<0.4	0.4	<0.4
Apr 2007	1.8	4.5	4.2	3.1	0.6	<0.4	0.5	0.5	0.5	<0.4
May 2007	1.8	7.2	6.4	6.7	<0.4	<0.4	<0.4	0.5	0.4	<0.4
Jun 2007	1.2	4.4	6.0	11.5	<0.4	<0.4	0.4	<0.4	<0.4	<0.4
Jul 2007	<0.4	1.7	12.1	11.2	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4
Aug 2007	<0.4	0.8	2.6	6.3	2.3	<0.4	<0.4	<0.4	<0.4	<0.4
Sep 2007	<0.4	<0.4	3.9	4.9	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4
Oct 2007	<0.4	0.5	0.7	9.3	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4
Nov 2007	2.4	1.5	1.9	5.2	1.0	<0.4	<0.4	<0.4	<0.4	<0.4
Dec 2007	3.3	3.5	3.7	5.9	3.2	<0.4	<0.4	<0.4	<0.4	<0.4
Minimum	<0.4	<0.4	0.7	3.1	<0.4	<0.40	<0.4	<0.4	<0.4	<0.4
Maximum	7.4	7.2	12.1	14.4	3.2	<0.40	0.5	0.5	0.5	<0.4
Average	<2.3	2.9	5.8	8.4	<1.4	<0.40	<0.4	<0.4	0.4	<0.4

\*\*\* No data

**Ventura Water Reclamation Facility  
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**Receiving Water Stations**

	R1 Ammonia	R2 Ammonia	R3 Ammonia	R4 Ammonia	L5 Ammonia	R1 Total Kjeldahl Nitrogen	R2 Total Kjeldahl Nitrogen	R3 Total Kjeldahl Nitrogen	R4 Total Kjeldahl Nitrogen	L5 Total Kjeldahl Nitrogen
Month	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L
Jan 2007	***	<0.1	0.1	0.2	0.1	***	2.7	1.9	1.6	0.8
Feb 2007	0.3	0.6	0.7	0.9	0.3	***	***	***	***	***
Mar 2007	0.1	0.7	0.7	0.7	0.1	4.2	3.2	3.6	2.9	3.7
Apr 2007	0.1	0.5	0.6	1.0	0.1	2.1	4.3	5.2	4.7	1.7
May 2007	0.5	0.4	0.3	0.2	0.2	2.3	6.0	2.6	2.0	1.7
Jun 2007	1.0	0.9	0.9	0.5	0.3	1.5	1.4	1.3	1.5	1.0
Jul 2007	0.1	0.3	0.1	0.2	0.1	2.0	1.9	1.0	1.1	1.0
Aug 2007	0.9	0.5	0.4	0.4	1.5	4.8	1.5	2.3	2.3	5.8
Sep 2007	0.2	<0.1	<0.1	<0.1	0.1	3.1	1.9	1.6	1.7	2.9
Oct 2007	0.2	0.2	0.1	0.1	0.2	2.1	3.0	2.8	1.9	3.4
Nov 2007	0.1	0.3	0.1	0.3	0.2	2.3	4.2	4.3	2.4	4.6
Dec 2007	0.4	0.1	0.1	<0.1	<0.1	3.6	3.0	3.3	2.5	3.0
Minimum	0.1	<0.10	<0.1	<0.1	0.1	1.5	1.4	1.0	1.1	0.8
Maximum	1.0	0.9	0.9	1.0	1.5	4.8	6.0	5.2	4.7	5.8
Average	0.4	0.4	0.4	0.4	0.3	2.8	3.0	2.7	2.2	2.7

\*\*\*No Data

**Ventura Water Reclamation Facility  
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**Receiving Water Stations**

	R1 Total Phosphorus	R2 Total Phosphorus	R3 Total Phosphorus	R4 Total Phosphorus	L5 Total Phosphorus	R1 Chlorophyll A	R2 Chlorophyll A	R3 Chlorophyll A	R4 Chlorophyll A	L5 Chlorophyll A
Month	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L
Jan 2007	***	2.16	1.46	1.75	5.38	***	0.340	0.120	0.021	0.084
Feb 2007	1.86	0.52	1.75	3.03	1.58	0.020	0.030	0.020	0.026	0.013
Mar 2007	<0.10	0.31	1.25	1.18	0.10	0.018	0.020	0.018	0.040	0.014
Apr 2007	<0.10	0.32	5.94	5.10	0.10	0.003	0.030	0.015	0.003	<0.002
May 2007	0.78	0.90	10.32	9.98	0.24	<0.002	<0.002	<0.002	<0.002	<0.002
Jun 2007	3.09	2.99	6.76	9.09	0.42	0.013	0.003	<0.002	0.005	<0.002
Jul 2007	0.87	0.58	2.01	2.13	0.10	0.024	<0.002	<0.002	0.010	<0.002
Aug 2007	2.20	1.67	1.98	3.33	0.59	0.005	<0.002	0.003	0.010	0.028
Sep 2007	0.52	0.49	1.97	2.20	0.70	0.026	0.030	0.037	0.021	0.067
Oct 2007	0.66	0.87	0.87	3.03	0.89	0.130	0.230	0.190	0.039	0.180
Nov 2007	1.14	1.11	1.19	2.11	1.06	0.200	0.180	0.230	0.120	0.370
Dec 2007	1.20	1.17	1.39	1.52	1.04	0.250	0.220	0.250	0.130	0.200
Minimum	<0.10	0.31	0.87	1.18	0.10	<0.002	<0.002	<0.002	<0.002	<0.002
Maximum	3.09	2.99	10.32	9.98	5.38	0.250	0.340	0.250	0.130	0.370
Average	1.14	1.09	3.07	3.70	1.02	0.063	0.091	0.074	0.036	0.080

Chlorophyll A Analyzed By Aquatic Bioassay Consulting Laboratories, INC., Ventura, CA 93001

\*\*\*No Data

**Ventura Water Reclamation Facility  
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**Solid Streams**

**Total Metals - Dewatered Digested Sludge**

Month	Filter Press 1 Run 1, Aluminum mg/kg/dry	Filter Press 1 Run 1, Antimony mg/kg/dry	Filter Press 1, Run 1, Arsenic mg/kg/dry	Filter Press 1, Run 1, Barium mg/kg/dry	Filter Press 1 Run 1, Beryllium mg/kg/dry	Filter Press 1 Run 1, Cadmium mg/kg/dry	Filter Press 1 Run 1, Chromium mg/kg/dry	Filter Press 1 Run 1, Cobalt mg/kg/dry	Filter Press 1 Run 1, Copper mg/kg/dry
Jan 2007	5,455.6	<2.8	<2.8	366.7	<2.8	<2.8	19.4	9.5	1,111.1
Feb 2007	5,000.0	4.2	<3.5	295.8	<3.5	<3.5	28.2	9.2	1,000.0
Mar 2007									
Apr 2007									
May 2007	6,244.6	5.0	<3.6	446.0	<3.6	<3.6	32.7	11.5	1,201.4
Jun 2007									
Jul 2007	4,638.2	<3.3	<3.3	376.3	<3.3	<3.3	21.7	8.2	960.5
Aug 2007	5,523.2	<3.3	<3.3	407.9	<3.3	<3.3	20.0	10.5	1,132.5
Sep 2007									
Oct 2007	5,135.7	4.1	<3.6	351.4	<3.6	<3.6	22.0	11.4	1,164.3
Nov 2007	4,452.2	<3.2	<3.2	301.3	<3.2	<3.2	21.4	9.9	1,012.7
Dec 2007									
Minimum	4,452.2	<2.8	<2.8	295.8	<2.8	<2.8	19.4	8.2	960.5
Maximum	6,244.6	5.0	<3.6	446.0	<3.6	<3.6	32.7	11.5	1,201.4
Average	5,207.1	<3.7	<3.3	363.6	<3.3	<3.3	23.6	10.0	1,083.2

Analyses Performed by American Scientific Laboratories, Los Angeles, CA 90065

**Ventura Water Reclamation Facility  
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**Solid Streams**

**Total Metals - Dewatered Digested Sludge**

	Filter Press 1 Run 1, Lead	Filter Press 1 Run 1, Mercury	Filter Press 1 Run 1, Molybdenum	Filter Press 1 Run 1, Nickel	Filter Press 1 Run 1, Selenium	Filter Press 1 Run 1, Silver	Filter Press 1 Run 1, Thallium	Filter Press 1 Run 1, Tin	Filter Press 1 Run 1, Vanadium	Filter Press 1 Run 1, Zinc
Month	mg/kg/dry	mg/kg/dry	mg/kg/dry	mg/kg/dry	mg/kg/dry	mg/kg/dry	mg/kg/dry	mg/kg/dry	mg/kg/dry	mg/kg/dry
Jan 2007	20.6	1.7	22.8	27.4	22.2	16.1	<2.8	<27.8	12.2	888.9
Feb 2007	15.0	<1.4	19.0	25.4	22.0	20.5	<3.5	<35.2	7.7	802.8
Mar 2007										
Apr 2007										
May 2007	16.9	1.8	26.6	34.2	27.7	28.1	<3.6	<36.0	11.5	1,122.3
Jun 2007										
Jul 2007	13.8	<1.3	18.4	22.8	17.6	8.9	<3.3	<32.9	8.8	802.6
Aug 2007	13.2	<1.3	23.6	24.9	24.8	20.4	<3.3	<33.1	11.1	9.1
Sep 2007										
Oct 2007	11.5	<1.4	25.8	24.6	23.1	17.1	<3.6	35.7	7.7	900.0
Nov 2007	12.4	<1.3	18.7	24.1	20.2	14.9	<3.2	<31.8	<3.2	777.1
Dec 2007										
Minimum	11.5	<1.3	18.4	22.8	17.6	8.9	<2.8	<27.8	<3.2	9.1
Maximum	20.6	1.8	26.6	34.2	27.7	28.1	<3.6	<36.0	12.2	1,122.3
Average	14.7	<1.5	22.1	26.2	22.5	18.0	<3.3	<33.2	8.9	757.5

Analyses Performed by American Scientific Laboratories, Los Angeles, CA 90065

**Ventura Water Reclamation Facility  
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**Solid Streams**

**Total Metals - Dewatered Digested Sludge**

Month	Filter Press 1 Run 2, Aluminum mg/kg/dry	Filter Press 1 Run 2, Antimony mg/kg/dry	Filter Press 1 Run 2, Arsenic mg/kg.dry	Filter Press 1 Run 2, Barium mg/kg/dry	Filter Press 1 Run 2, Beryllium mg/kg.dry	Filter Press 1 Run 2, Cadmium mg/kg/dry	Filter Press 1 Run 2, Chromium mg/kg/dry	Filter Press 1 Run 2, Cobalt mg/kg/dry	Filter Press 1 Run 2, Copper mg/kg/dry
Jan 2007									
Feb 2007	4,634.1	<3.0	<3.0	274.4	<3.0	<3.0	22.0	8.5	926.8
Mar 2007									
Apr 2007									
May 2007	4,443.2	4.1	<2.7	329.7	<2.7	<2.7	23.0	8.1	891.9
Jun 2007									
Jul 2007									
Aug 2007	5,546.0	<2.9	<2.9	410.3	<2.9	<2.9	21.7	10.1	1,137.9
Sep 2007									
Oct 2007									
Nov 2007	4,218.5	<3.3	<3.3	284.8	<3.3	<3.3	19.5	9.2	973.5
Dec 2007									
Minimum	4,218.5	<2.9	<2.7	274.4	<2.7	<2.7	19.5	8.1	891.9
Maximum	5,546.0	4.1	<3.3	410.3	<3.3	<3.3	23.0	10.1	1,137.9
Average	4,710.5	<3.3	<3.0	324.8	<3.0	<3.0	21.5	9.0	982.5

\*Analyses Performed by American Scientific Laboratories, Los Angeles, CA 90065  
Analyzed by City of San Buenaventura - Wastewater Laboratory, Ventura, CA 93001

**Ventura Water Reclamation Facility  
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**Solid Streams**

**Total Metals - Dewatered Digested Sludge**

Month	Filter Press 1 Run 2, Lead mg/kg/dry	Filter Press 1 Run 2, Mercury mg/kg/dry	Filter Press 1 Run 2, Molybdenum mg/kg.dry	Filter Press 1 Run 2, Nickel mg/kg/dry	Filter Press 1 Run 2, Selenium mg/kg.dry	Filter Press 1 Run 2, Silver mg/kg/dry	Filter Press 1 Run 2, Thallium mg/kg/dry	Filter Press 1 Run 2, Tin mg/kg/dry	Filter Press 1 Run 2, Vanadium mg/kg.dry	Filter Press 1 Run 2, Zinc mg/kg/dry
Jan 2007										
Feb 2007	13.4	1.2	17.68	22.0	21.6	15.24	<3.0	<30.5	6.7	737.8
Mar 2007										
Apr 2007										
May 2007	14.1	1.6	2.70	25.4	19.5	16.76	<2.7	<27.0	10.0	837.8
Jun 2007										
Jul 2007										
Aug 2007	14.8	1.1	23.51	26.1	23.4	16.21	<2.9	<28.7	<2.9	942.5
Sep 2007										
Oct 2007										
Nov 2007	11.3	1.3	17.62	22.5	18.9	19.87	<3.3	<33.1	<3.3	748.3
Dec 2007										
Minimum	11.3	1.1	2.70	22.0	18.9	15.24	<2.7	<27.0	<2.9	737.8
Maximum	14.8	1.6	23.51	26.1	23.4	19.87	<3.3	<33.1	10.0	942.5
Average	13.4	1.3	15.38	24.0	20.8	17.02	<3.0	<29.8	<5.7	816.6

Analyses Performed by American Scientific Laboratories, Los Angeles, CA 90065

**Ventura Reclamation Facility  
Annual Report 2007**

**Solid Streams**

**Total Metals - Dewatered Digested Sludge**

Month	Filter Press 2 Run 1, Aluminum - mg/kg	Filter Press 2 Run 1, Antimony mg/kg	Filter Press 2 Run 1, Arsenic mg/kg	Filter Press 2 Run 1, Barium mg/kg	Filter Press 2 Run 1, Beryllium mg/kg	Filter Press 2 Run 1, Cadmium mg/kg	Filter Press 2 Run 1, Chromium mg/kg	Filter Press 2 Run 1, Cobalt mg/kg	Filter Press 2 Run 1, Copper mg/kg
Jan 2007									
Feb 2007	771.0	<0.5	<0.5	46.0	<0.5	<0.5	3.5	1.4	155.0
Mar 2007									
Apr 2007	937.0	0.6	<0.3	62.2	<0.5	<0.5	3.3	1.7	179.0
May 2007	602.0	0.6	<0.5	44.8	<0.5	<0.5	2.6	1.2	118.0
Jun 2007									
Jul 2007									
Aug 2007	771.0	<0.5	<0.5	56.1	<0.5	<0.5	3.0	1.4	160.0
Sep 2007									
Oct 2007									
Nov 2007	561.0	<0.5	<0.5	37.8	<0.5	<0.5	2.5	1.2	127.0
Dec 2007									
Minimum	561.0	<0.5	<0.3	37.8	<0.5	<0.5	2.5	1.2	118.0
Maximum	937.0	0.6	<0.5	62.2	<0.5	<0.5	3.5	1.7	179.0
Average	728.4	<0.5	<0.5	49.4	<0.5	<0.5	3.0	1.4	147.8

Analyses Performed By American Scientific Laboratories, Los Angeles, CA 90065

**Ventura Reclamation Facility  
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**Soild Streams**

**Total Metals - Dewatered Digested Sludge**

Month	Filter Press 2 Run 1, Lead mg/kg/dry	Filter Press 2, Run 1, Mercury mg/kg.dry	Filter Press 2 Run 1, Molybdenum mg/kg/dry	Filter Press 2 Run 1, Nickel mg/kg/dry	Filter Press 2 Run1, Selenium mg/kg/dry	Filter Press 2 Run 1, Silver mg/kg/dry	Filter Press 2 Run 1, Thallium mg/kg/dry	Filter Press 2 Run 1, Tin mg/kg/dry	Filter Press 2 Run 1, Vanadium mg/lkg/dry	Filter Press 2, Run 1, Zinc mg/kg/dry
Jan 2007										
Feb 2007	12.1	<2.9	16.4	21.5	19.8	18.0	<2.9	<28.9	5.9	711.0
Mar 2007										
Apr 2007	14.4	1.4	18.0	23.8	22.6	14.8	<2.6	<26.5	6.9	798.9
May 2007	12.1	<1.6	<4.0	27.8	19.0	23.8	<4.0	<40.3	8.5	919.4
Jun 2007										
Jul 2007										
Aug 2007	14.7	<1.4	22.7	24.1	23.9	16.8	<3.6	<35.7	10.7	928.6
Sep 2007										
Oct 2007										
Nov 2007	12.0	<1.5	17.6	22.1	19.8	11.4	<3.8	<37.6	<3.8	749.6
Dec 2007										
Minimum	12.0	1.4	<4.0	21.5	19.0	11.4	<2.6	<26.5	<3.8	711.0
Maximum	14.7	<2.9	22.7	27.8	23.9	23.8	<4.0	<40.3	10.7	928.6
Average	13.1	<1.8	<15.7	23.9	21.0	16.9	<3.4	<33.8	<7.1	821.5

Analyses Performed by American Scientific Laboratories, Los Angeles, CA 90065

**Ventura Reclamation Facility  
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**Solid Streams**

**Total Metals - Dewatered Digested Sludge**

Month	Filter Press 2 Run 2, Aluminum mg/kg/dry	Filter Press 2 Run 2, Antimony mg/kg/dry	Filter Press 2 Run 2, Arsenic mg/kg/dry	Filter Press 2 Run 2, Barium mg/kg/dry	Filter Press 2 Run 2, Beryllium mg/kg/dry	Filter Press 2 Run2, Cadmium mg/kg/dry	Filter Press 2 Run 2, Chromium mg/kg/dry	Filter Press 2 Run 2, Cobalt mg/kg/dry	Filter Press 2 Run 2, Copper mg/kg/dry
Jan 2007									
Feb 2007	4,247.3	1,116.0	<2.7	258.1	<2.7	<2.7	17.7	8.6	876.3
Mar 2007									
Apr 2007									
May 2007	4,895.1	1,053.0	<3.1	355.6	<3.1	<3.1	23.5	9.3	938.3
Jun 2007									
Jul 2007									
Aug 2007	5,715.3	<685.0	<3.6	411.7	<3.6	<3.6	20.9	10.2	1,175.2
Sep 2007									
Oct 2007									
Nov 2006 *	4,496.6	<745.0	<3.4	301.3	<3.4	<3.4	21.1	9.7	1,006.7
Dec 2007									
Minimum	4,247.3	<685.0	<2.7	258.1	<2.7	<2.7	17.7	8.6	876.3
Maximum	5,715.3	1,116.0	<3.6	411.7	<3.6	<3.6	23.5	10.2	1,175.2
Average	4,838.6	<899.8	<3.2	331.7	<3.2	<3.2	20.8	9.5	999.1

Analyses Performed By American Scientific Laboratories, Los Angeles, CA 90065

**Ventura Reclamation Facility  
Annual Report 2007**

**Soild Streams**

**Total Metals - Dewatered Digested Sludge**

Month	Filter Press 2 Run 2, Lead mg/kg/dry	Filter Press 2 Run2, Mercury mg/kg/dry	Filter Press 2 Run 2, Molybdenum mg/kg/dry	Filter Press 2 Run 2, Nickel mg/kg/dry	Filter Press 2 Run 2, Selenium mg/kg/dry	Filter Press 2 Run 2, Silver mg/kg/dry	Filter Press 2 Run 2, Thallium mg/kg/dry	Filter Press 2 Run 2, Tin mg/kg.dry	Filter Press 2 Run 2, Vanadium mg/kg/dry	Filter Press 2 Run 2, Zinc mg/kg/dry
Jan 2007										
Feb 2007	11.3	<1.1	16.7	21.6	18.8	14.0	<2.7	<26.9	6.7	698.9
Mar 2007										
Apr 2007										
May 2007	12.3	<1.2	3.1	26.5	21.3	22.5	<3.1	<30.9	9.0	888.9
Jun 2007										
Jul 2007										
Aug 2007	29.9	<1.5	23.8	26.5	24.6	15.8	<3.6	<36.5	11.2	956.2
Sep 2007										
Oct 2007										
Nov 2007	13.7	<1.3	19.5	23.9	18.4	13.9	<3.4	<33.6	<3.4	791.9
Dec 2007										
Minimum	11.3	1.1	3.1	21.6	18.4	13.9	<2.7	<26.9	<3.4	698.9
Maximum	29.9	1.5	23.8	26.5	24.6	22.5	<3.6	<36.5	11.2	956.2
Average	16.8	1.3	15.8	24.6	20.8	16.6	<3.2	<31.9	<7.5	834.0

Analyses Performed by American Scientific Laboratories, Los Angeles, CA 90065

**Ventura Water Reclamation Facility  
Annual Report 2007**

**Solid Streams**

Organics - Dewatered Digested Sludge

Month		Acetone mg/kg/dry	Chloromethane mg/kg/dry	Bis (2-Ethylhexylphthalate) mg/kg/dry	1,4-Dichlorobenzene mg/kg/dry	Toluene mg/kg/dry	Xylene mg/kg/dry	TOX mg/kg/dry
February	Filter Press 1 Run 1	<0.35	<0.21	<2.32	<0.07	0.03	<0.04	387.32
May	Filter Press 1 Run 1	<0.36	<0.22	19.42	<0.07	0.01	<0.04	179.86
August	Filter Press 1 Run 1	<0.33	<0.20	18.99	<0.07	<0.01	<0.04	<165.56
November	Filter Press 1 Run 1	<0.06	<0.19	7.38	<0.06	<0.01	<0.04	1,273.89
Minimum		<0.06	<0.19	<2.32	<0.06	<0.01	<0.04	<165.56
Maximum		<0.36	<0.22	19.42	<0.07	0.03	<0.04	1,273.89
Average		0.28	<0.21	12.03	<0.07	<0.02	<0.04	501.66

Analyses Performed by American Scientific Laboratories, Los Angeles, CA 90065

**Ventura Water Reclamation Facility  
Annual Report 2007**

**Solid Streams**

**Total Metals - Dry Weight**

Dissolved Air Flotation System (Waste Activated Sludge)

Month	Cadmium mg/kg/dry	Chromium mg/kg dry	Copper mg/kg/dry	Lead mg/kg/dry	Nickel mg/kg/dry	Silver mg/kg/dry	Zinc mg/kg/dry
February	0.33	4.84	543.92	17.28	4.56	0.74	342.40
May	0.29	4.71	478.21	16.88	5.22	0.75	279.98
August	0.61	3.12	401.46	18.18	15.23	3.46	388.58
November	1.37	15.13	656.90	14.64	14.42	1.88	391.95
Annual Average	0.65	6.95	520.12	16.75	9.86	1.71	350.73

**Gravity Thickener (Primary Sludge)**

Month	Cadmium mg/kg/dry	Chromium mg/kg/dry	Copper mg/kg/dry	Lead mg/kg/dry	Nickel mg/kg/dry	Silver mg/kg/dry	Zinc mg/kg/dry
February	0.24	4.59	248.36	20.86	4.38	0.47	304.13
May	0.19	3.76	212.33	15.92	4.38	0.27	265.69
August	0.22	7.88	134.83	10.05	5.55	0.90	150.12
November	1.04	16.24	416.96	24.09	14.29	1.38	446.98
Annual Average	0.42	4.59	253.12	17.73	7.15	0.76	291.73

**Ventura Water Reclamation Facility  
Annual Report 2007**

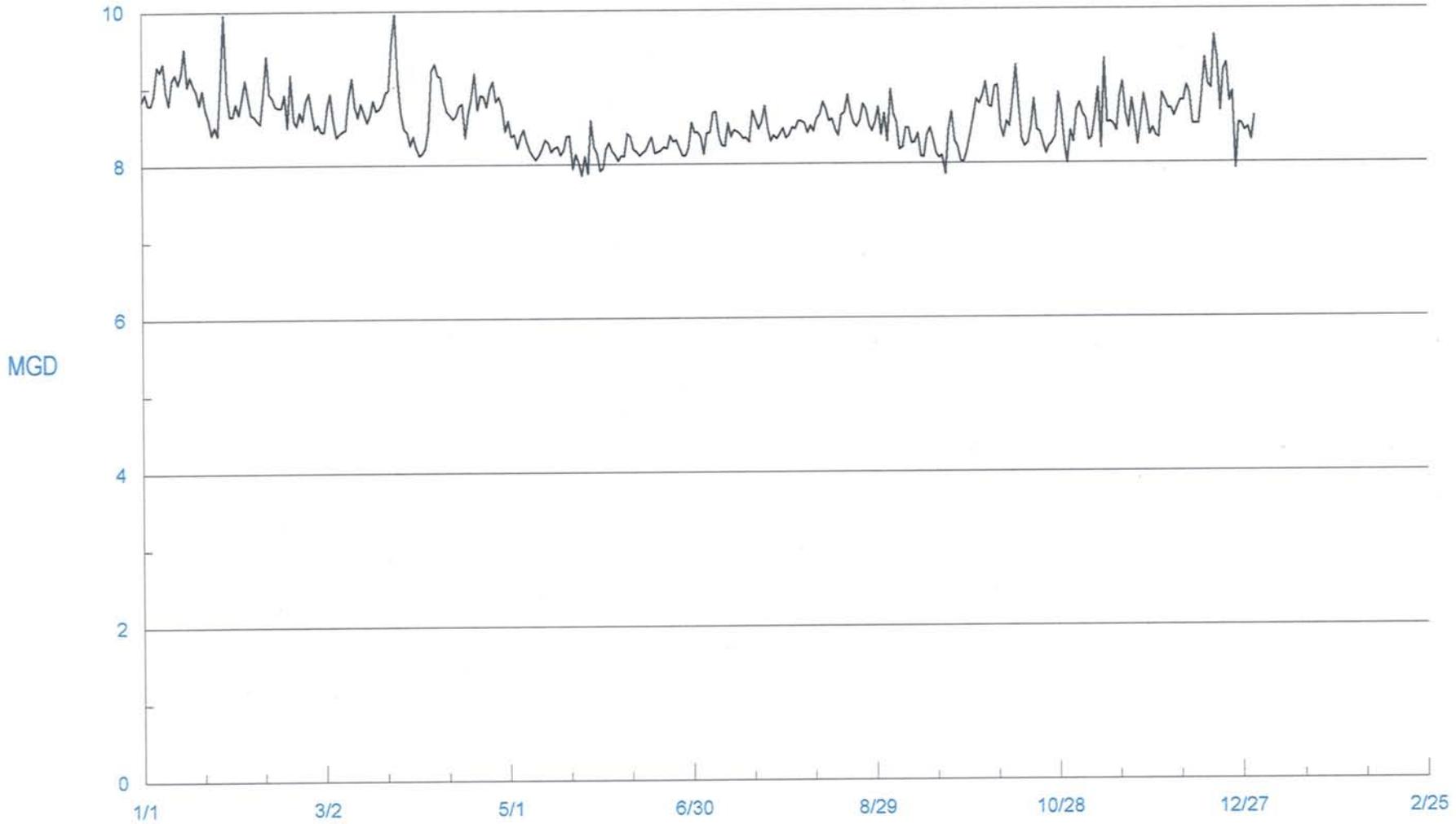
**Irrigation Reuse Flows**

Month	Olivas Irrigation MGD	Buena Irrigation MGD	Marina Irrigation MGD	Irrigation Total MGD
Jan 2007	0.0995	0.1867	0.0374	0.3236
Feb 2007	0.0349	0.0784	0.0170	0.1303
Mar 2007	0.2551	0.2507	0.0407	0.5465
Apr 2007	0.2871	0.2983	0.0576	0.6430
May 2007	0.4738	0.3612	0.0598	0.8948
Jun 2007	0.5341	0.4616	0.0612	1.0390
Jul 2007	***	0.4110	0.0781	0.4891
Aug 2007	0.4151	0.3624	0.0676	0.8490
Sep 2007	0.3395	0.3048	0.0624	0.7067
Oct 2007	0.2921	0.2587	0.0455	0.5963
Nov 2007	0.1651	0.1544	0.0318	0.3513
Dec 2007	0.0434	0.0641	0.0237	0.1312
Minimum	0.0000	0.0000	0.0000	0.0018
Maximum	0.8883	1.0734	0.1731	1.5480
Average	0.2804	0.2944	0.0488	0.3596

\*\*\* No Data



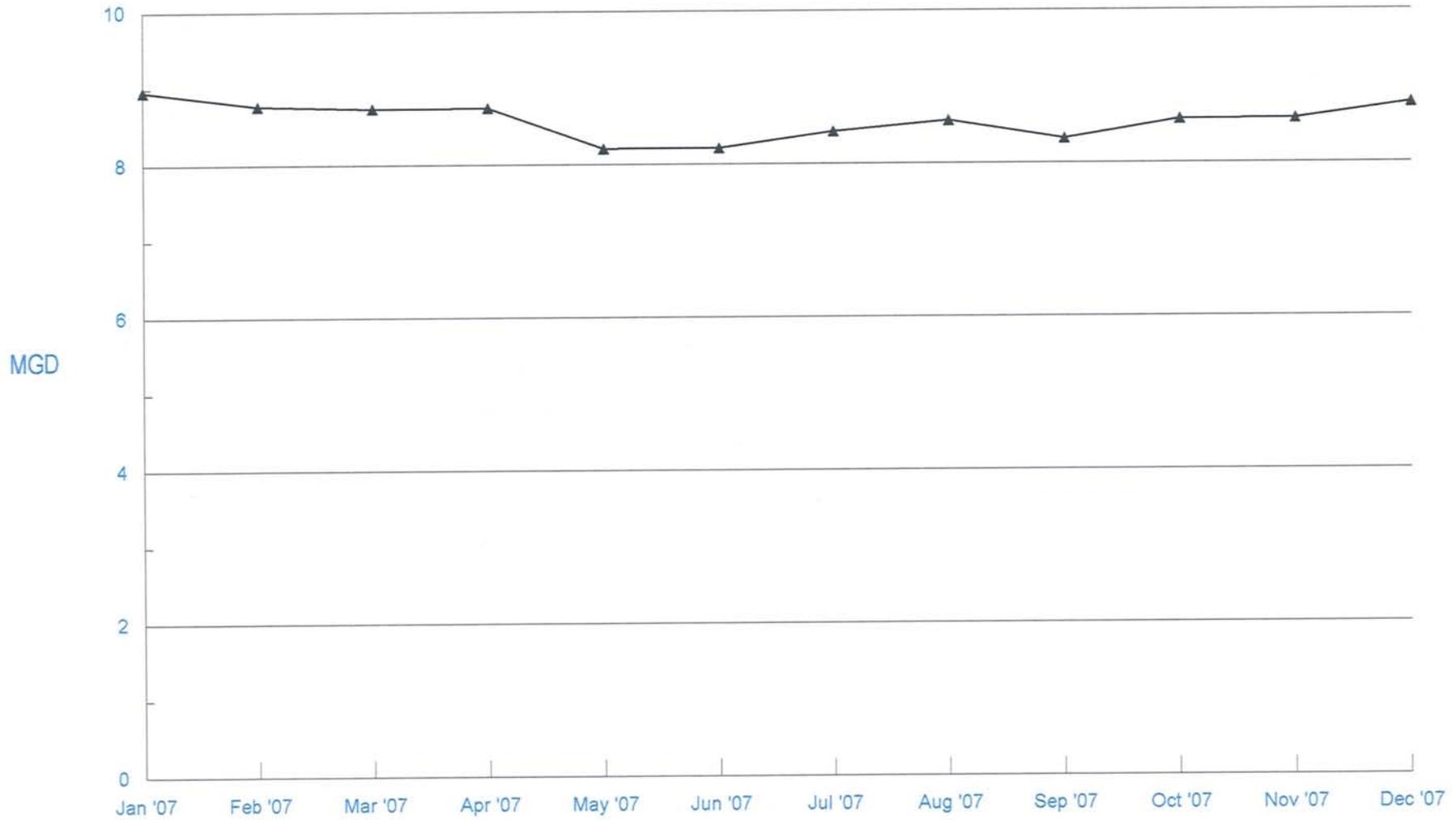
Annual Report 2007



Influent Pump Station  
/ Daily Raw Sewage Flow

OPS SQL (Ventura Water Reclamation Facility)  
Daily Raw Sewage

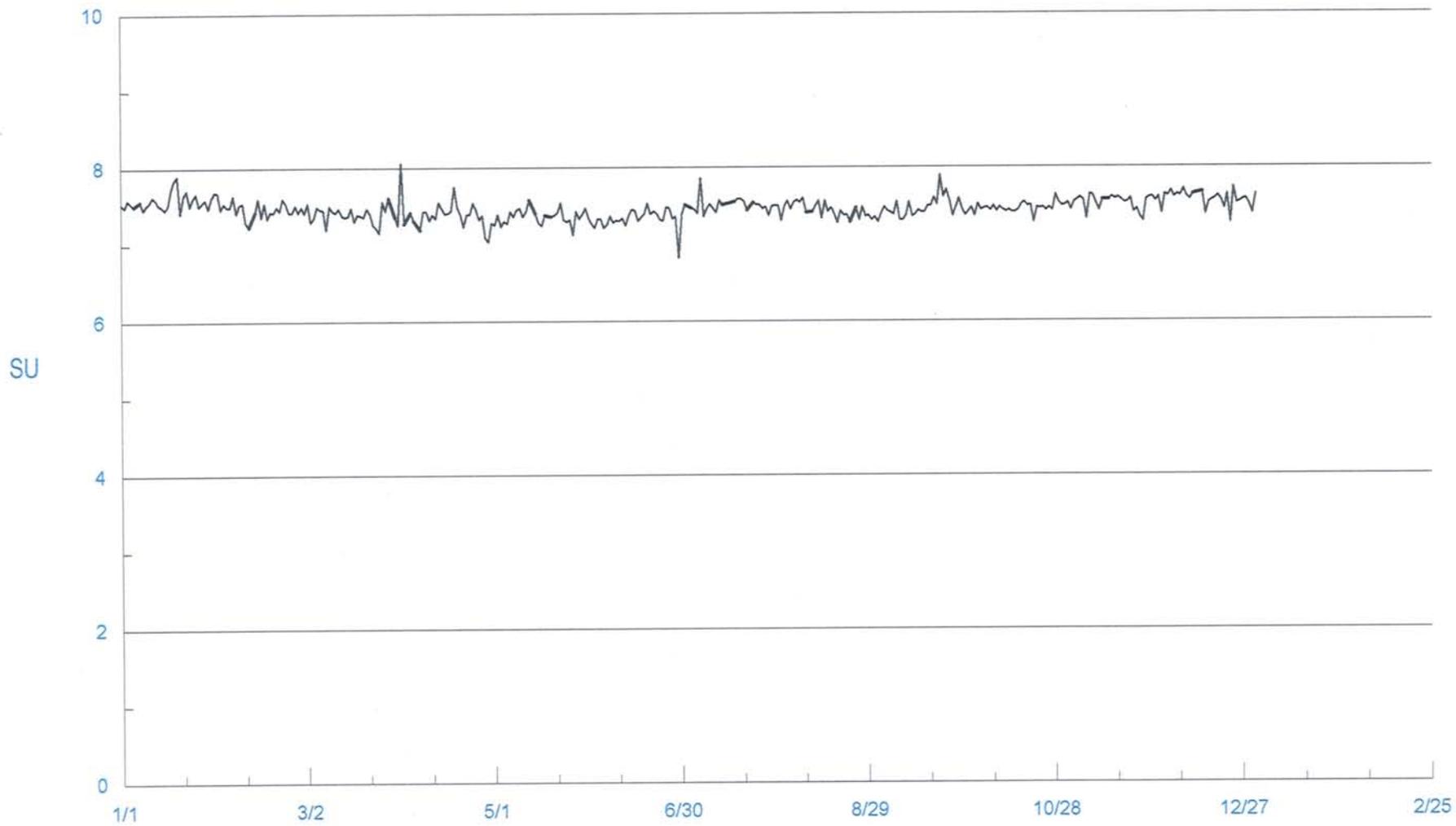
Annual Report 2007



Influent Pump Station  
▲ Raw Sewage Flow (Mo Avg)

OPS SQL (Ventura Water Reclamation Facility)  
Daily Raw Sewage

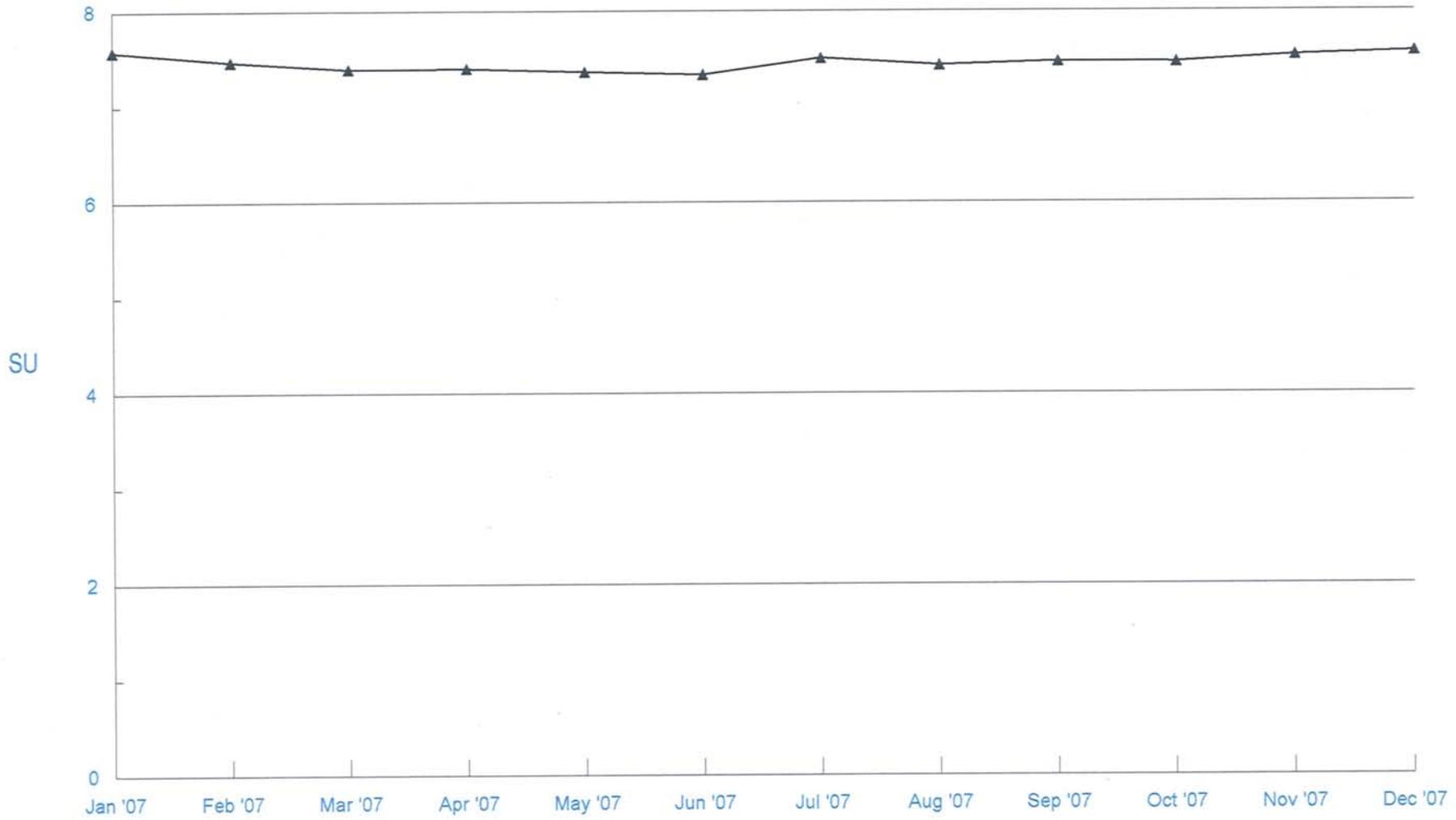
Annual Report 2007



Influent Pump Station  
/ Daily Raw Sewage pH

OPS SQL (Ventura Water Reclamation Facility)  
pH 07

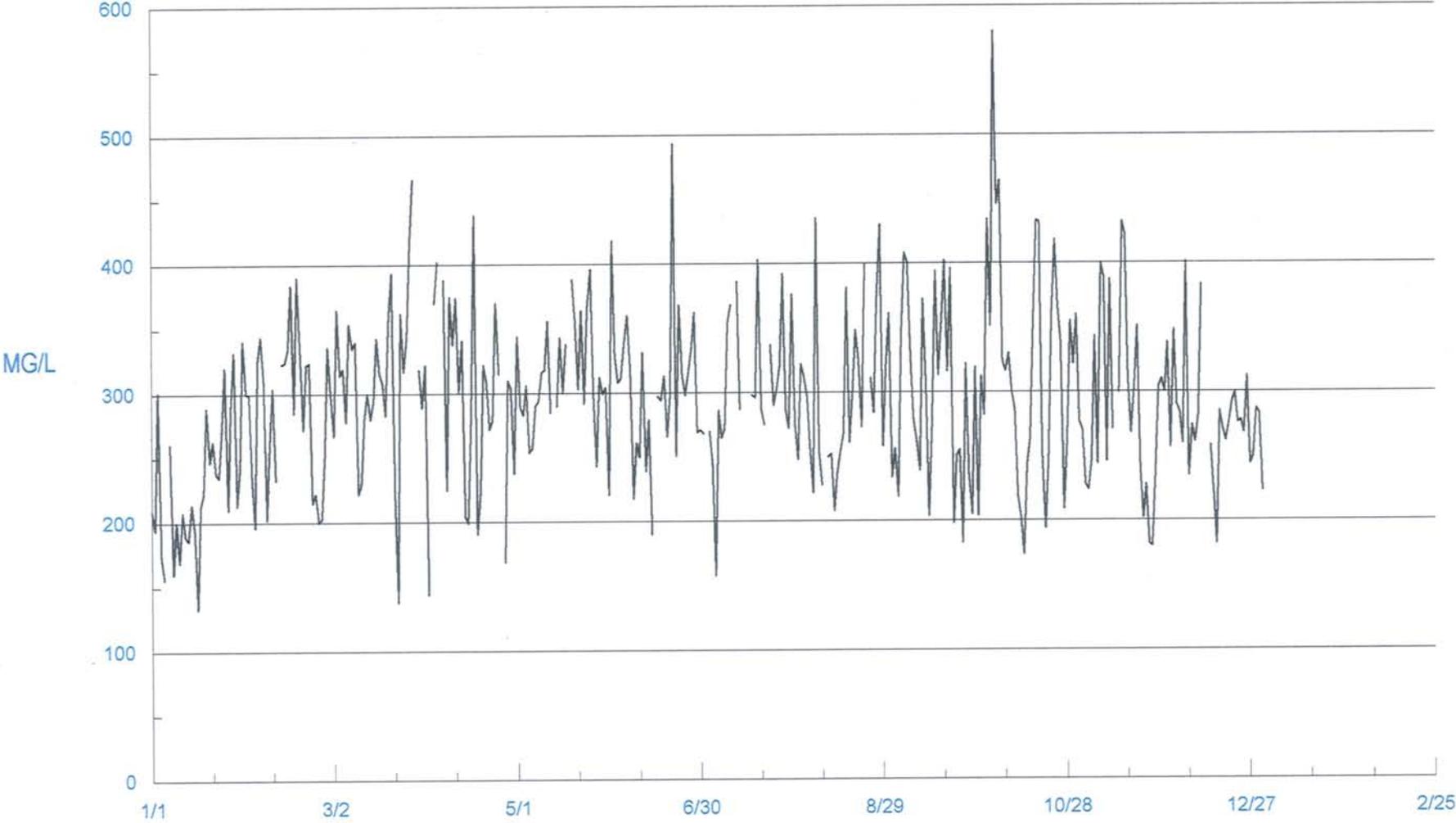
Annual Report 2007



Influent Pump Station  
▲ Raw Sewage pH (Mo Avg)

OPS SQL (Ventura Water Reclamation Facility)  
pH 07

Annual Report 2007

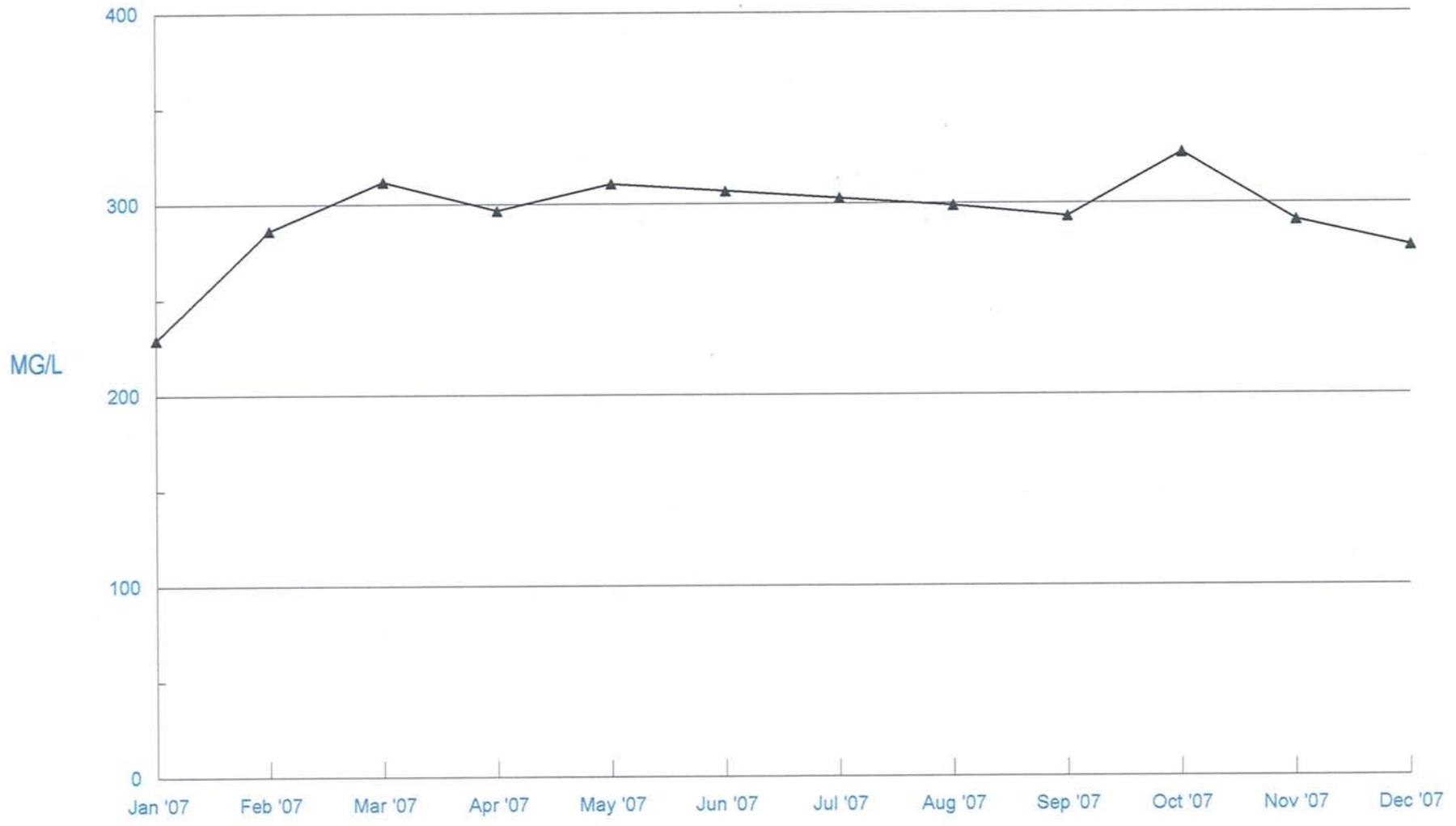


Influent Pump Station

/ Daily Raw Sewage Suspended Solids

OPS SQL (Ventura Water Reclamation Facility)  
Suspended Solids 07

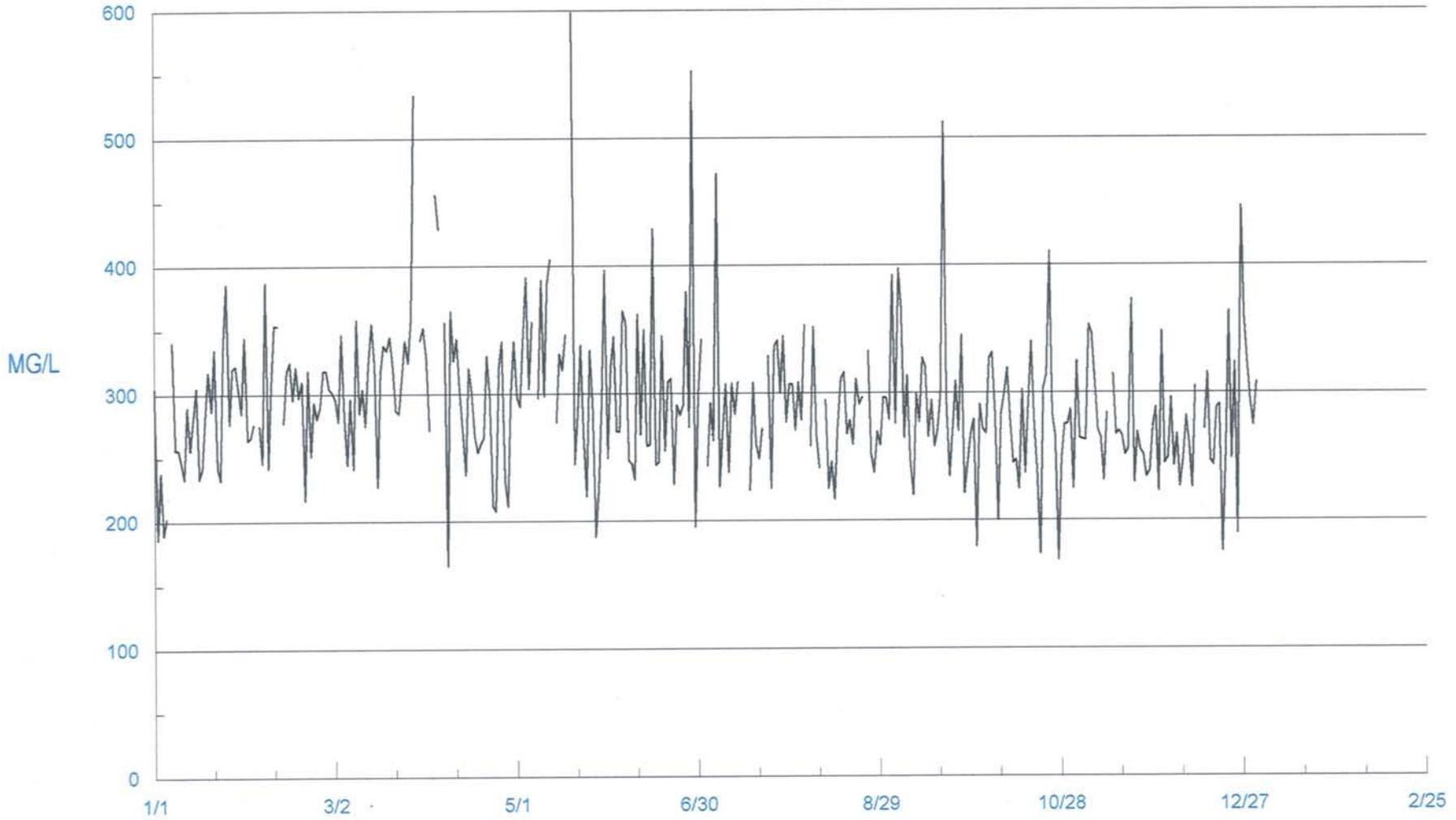
Annual Report 2007



Influent Pump Station  
▲ Raw Sewage Suspended Solids (Mo Avg)

OPS SQL (Ventura Water Reclamation Facility)  
Suspended Solids 07

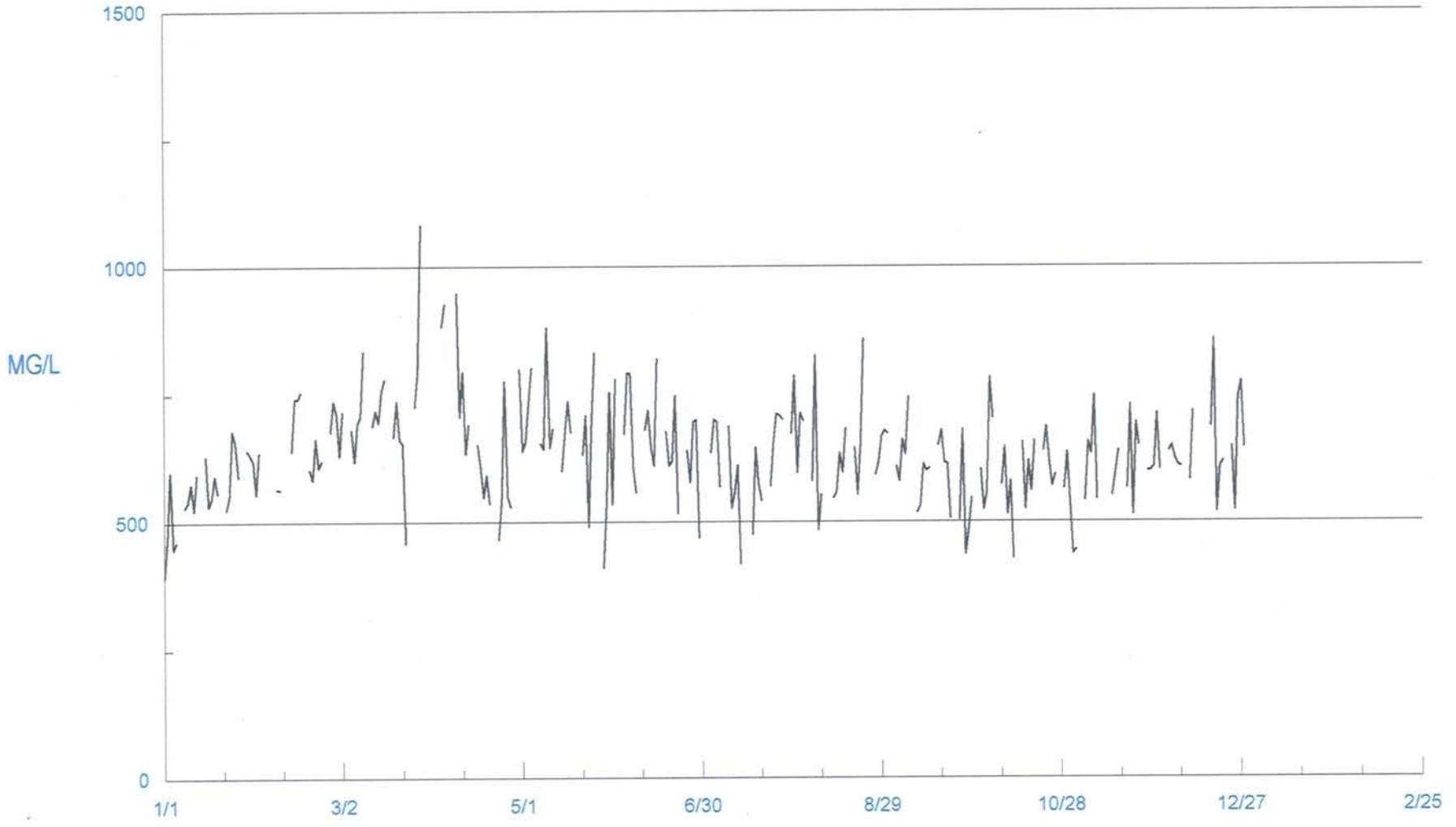
Annual Report 2007



Influent Pump Station  
/ Daily Raw Sewage BOD

OPS SQL (Ventura Water Reclamation Facility)  
BOD 07

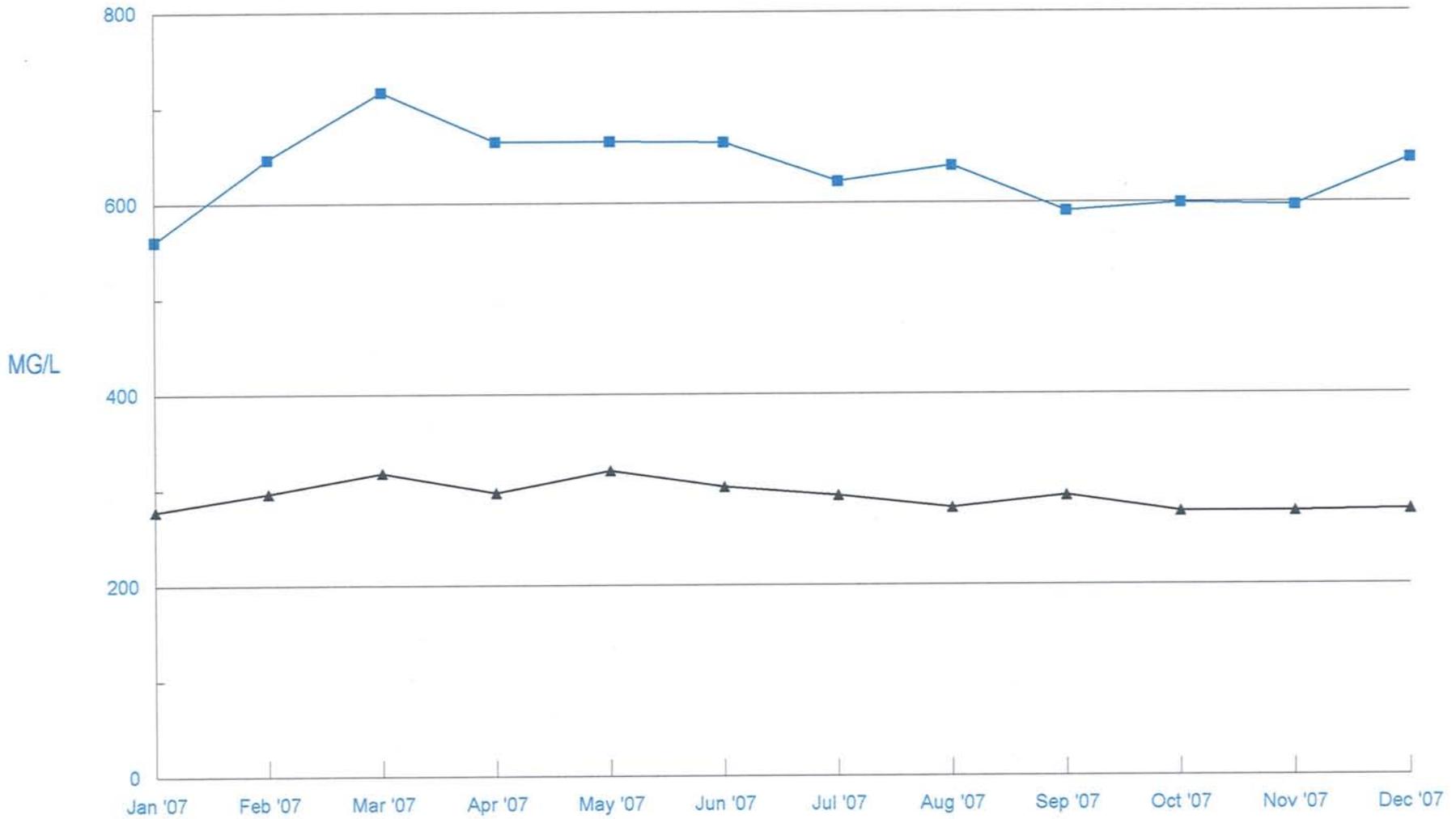
Annual Report 2007



Influent Pump Station  
/ Daily Raw Sewage COD

OPS SQL (Ventura Water Reclamation Facility)  
COD 07

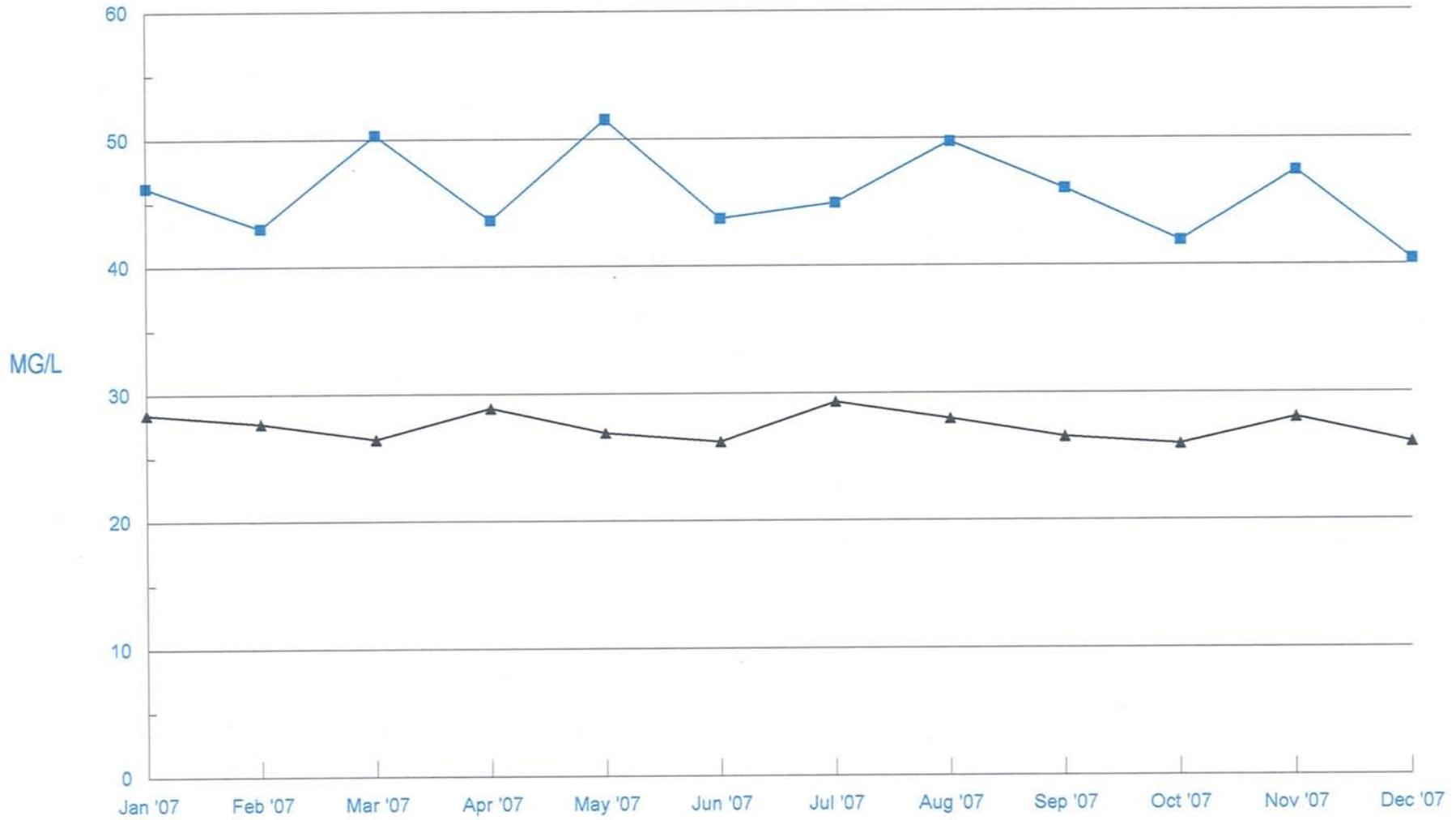
Annual Report 2007



Influent Pump Station  
▲ Raw Sewage BOD (Mo Avg)    ■ Raw Sewage COD (Mo Avg)

OPS SQL (Ventura Water Reclamation Facility)  
BOD & COD 07

# Annual Report 2007



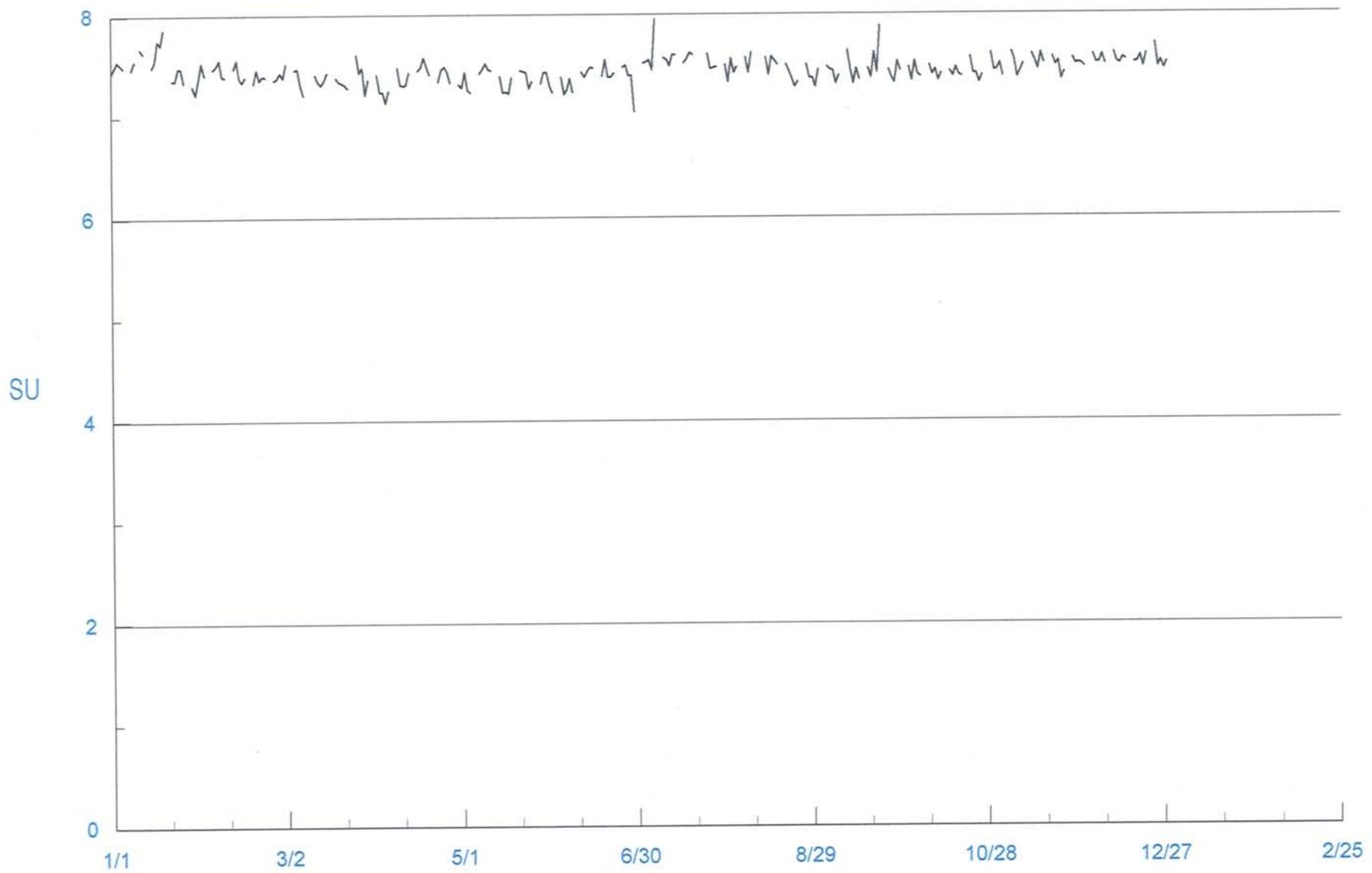
Influent Pump Station

▲ Raw Sewage Ammonia (Mo Avg) ■ Raw Sewage TKN (Mo Avg)

OPS SQL (Ventura Water Reclamation Facility)  
Ammonia & TKN 07



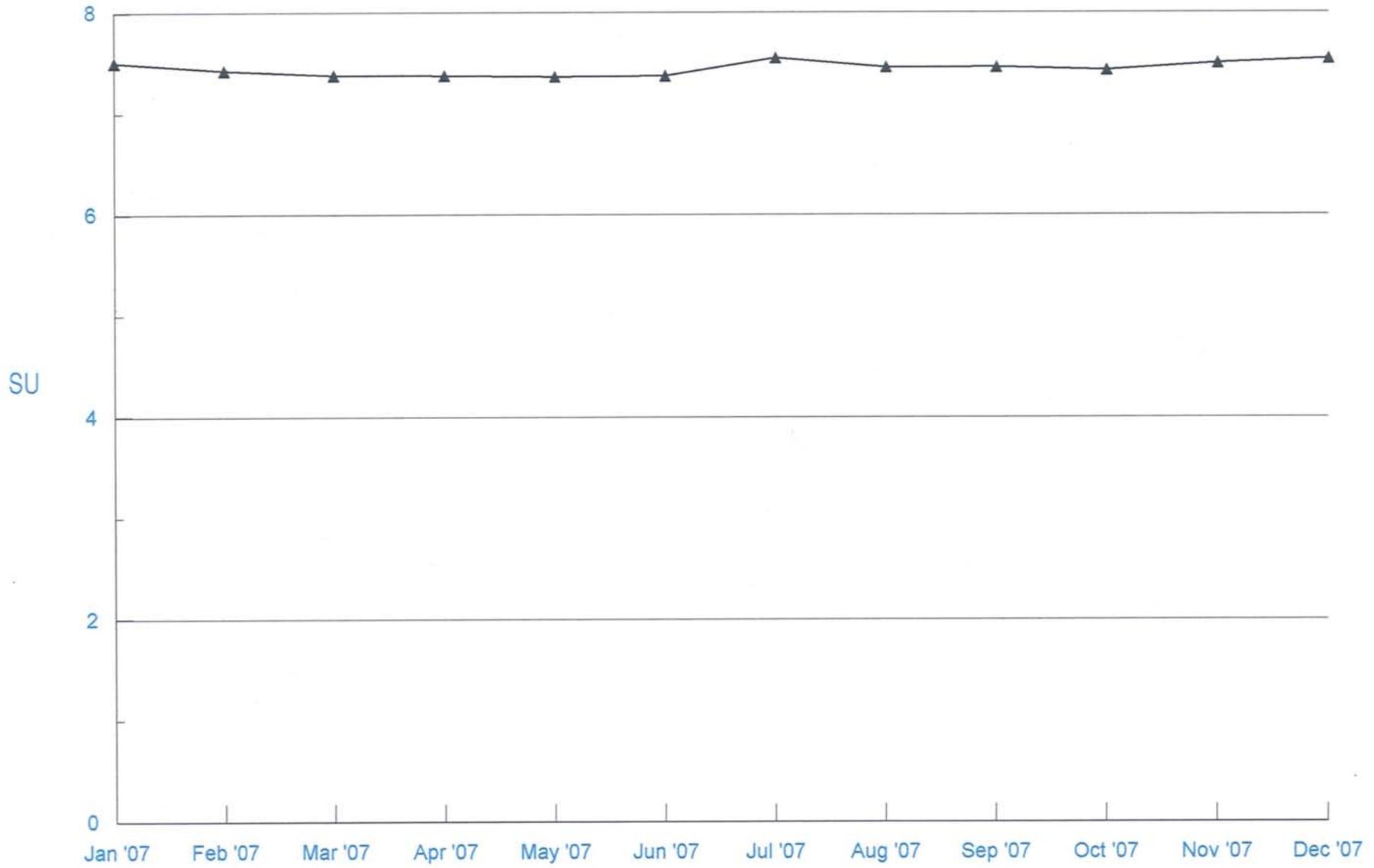
Annual Report 2007



Flow Equalization Basin  
/ Primary Effluent pH

OPS SQL (Ventura Water Reclamation Facility)  
Primary 07

# Annual Report 2007

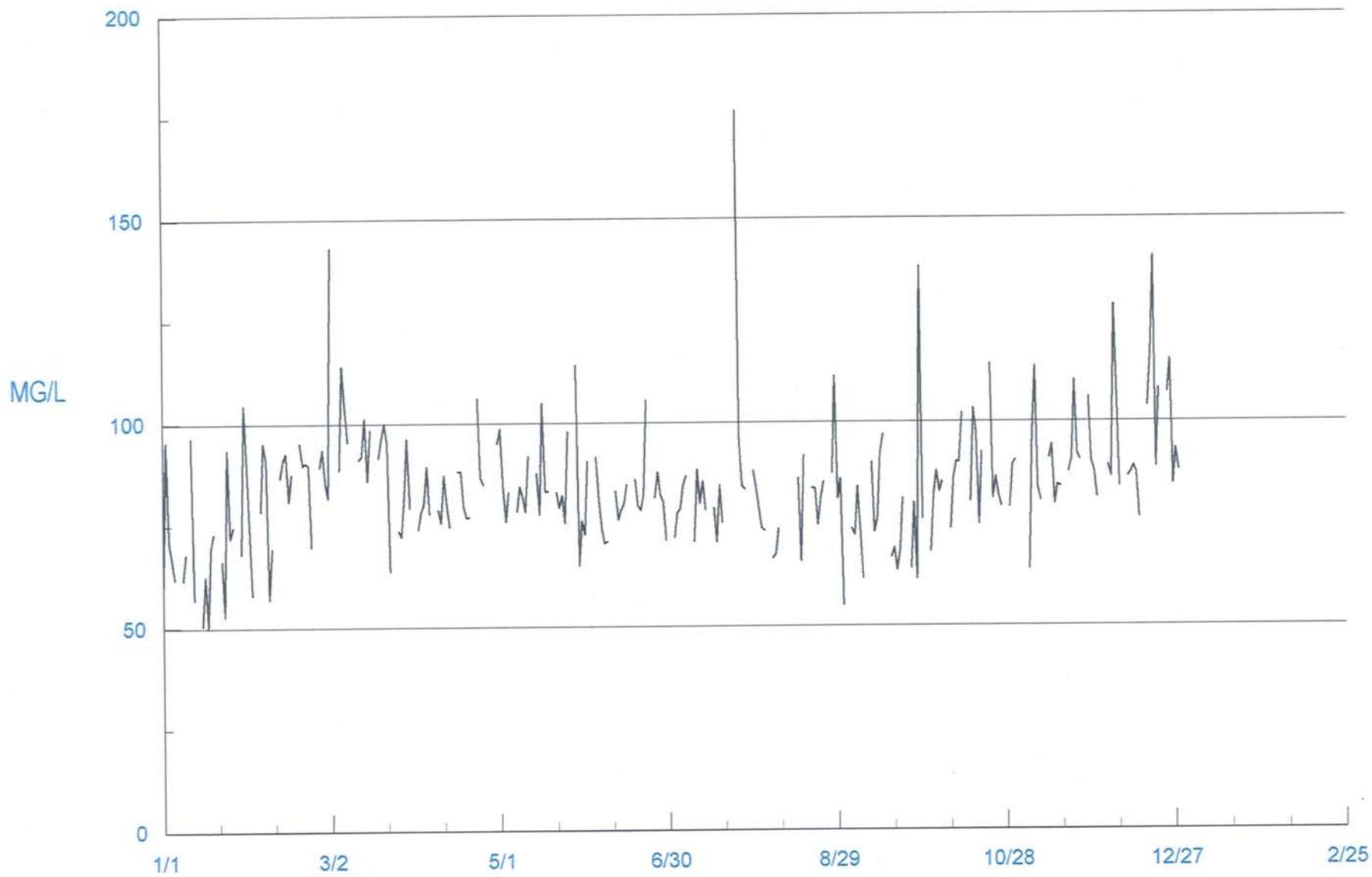


Flow Equalization Basin

▲ Primary Effluent pH ( Monthly Avg)

OPS SQL (Ventura Water Reclamation Facility)  
Primary 07

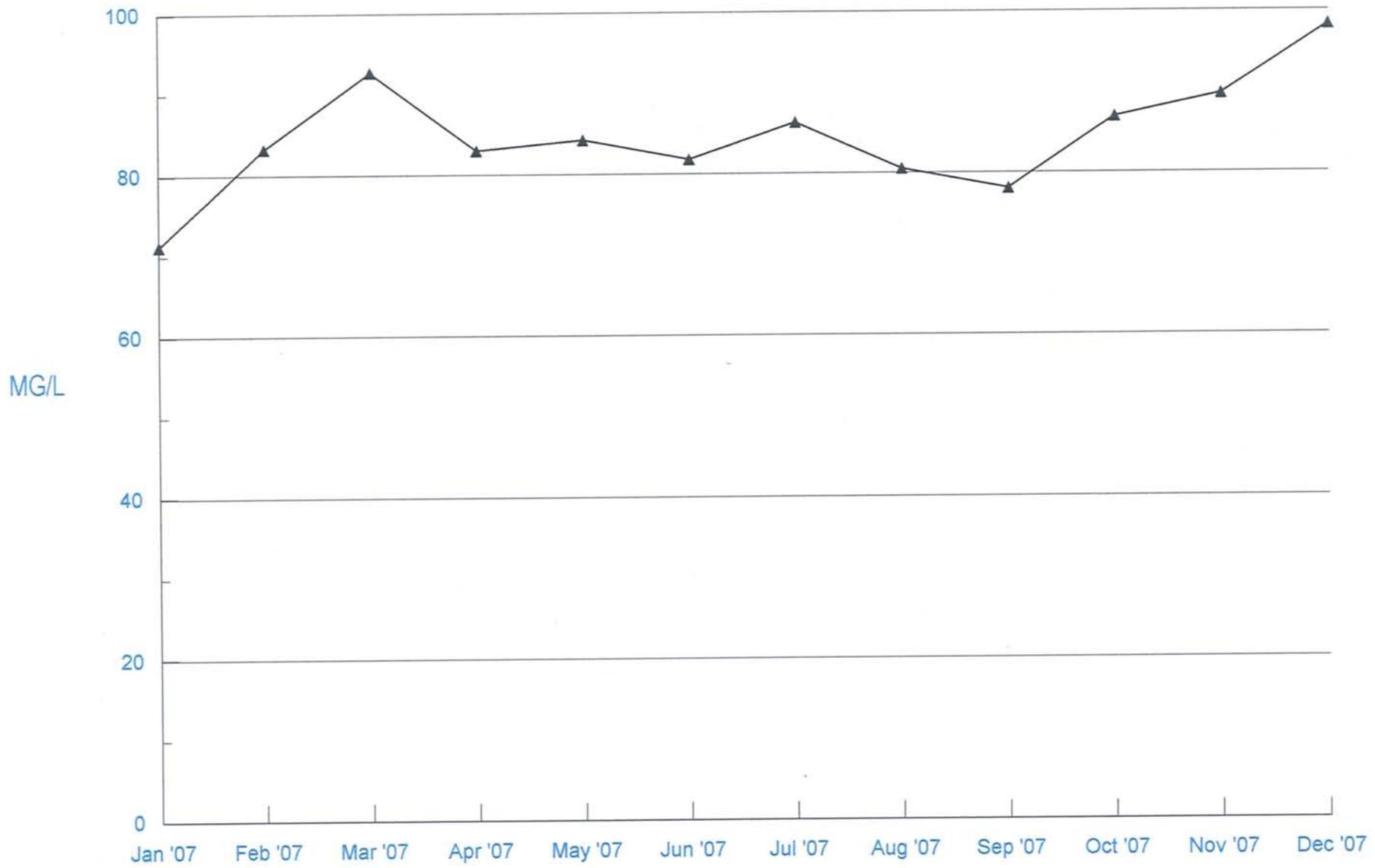
# Annual Report 2007



Flow Equalization Basin  
/ Primary Effluent Suspended Solids

OPS SQL (Ventura Water Reclamation Facility)  
Primary SS 07

# Annual Report 2007

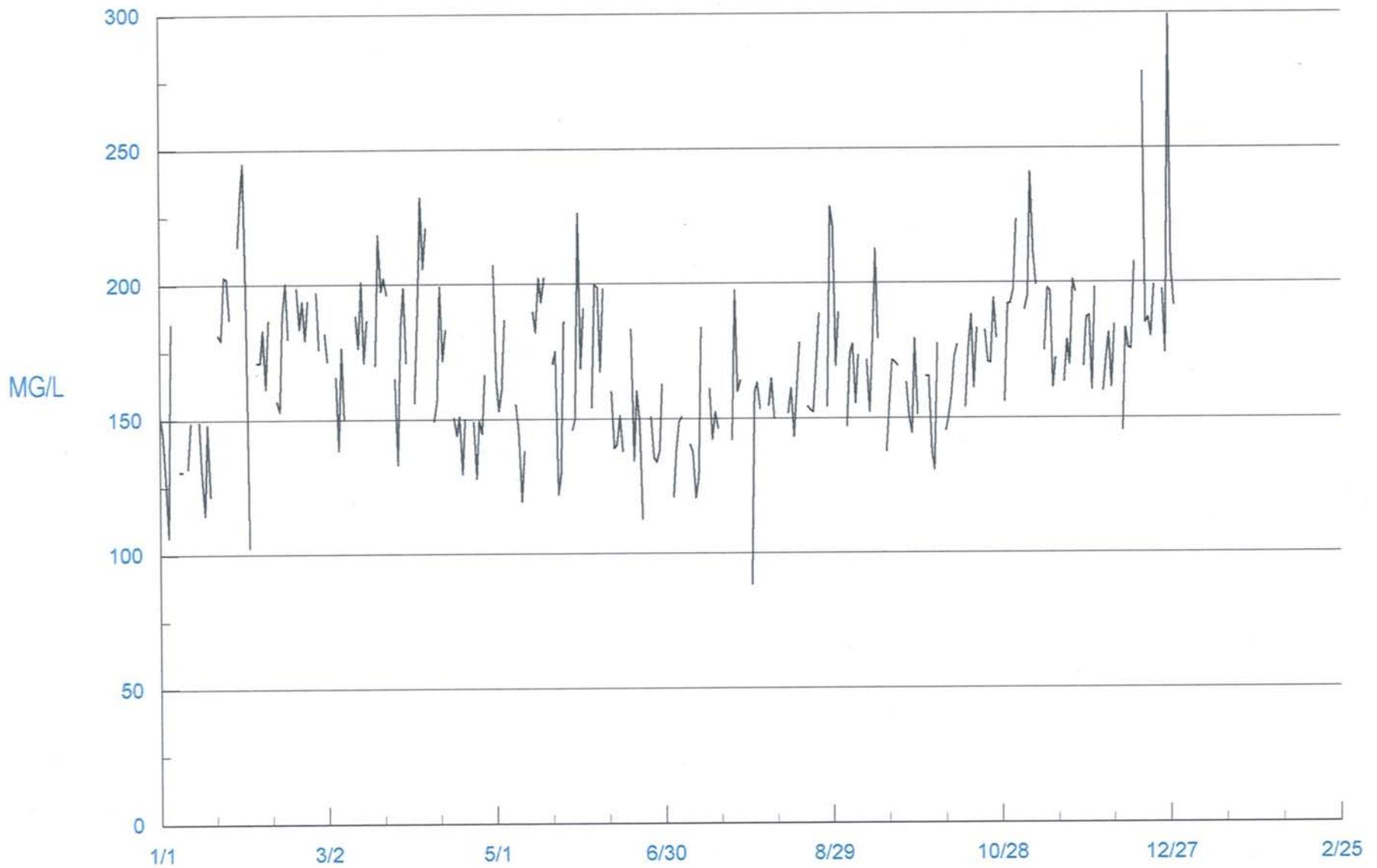


Flow Equalization Basin

▲ Primary Suspended Solids (Mo Avg)

OPS SQL (Ventura Water Reclamation Facility)  
Primary SS 07

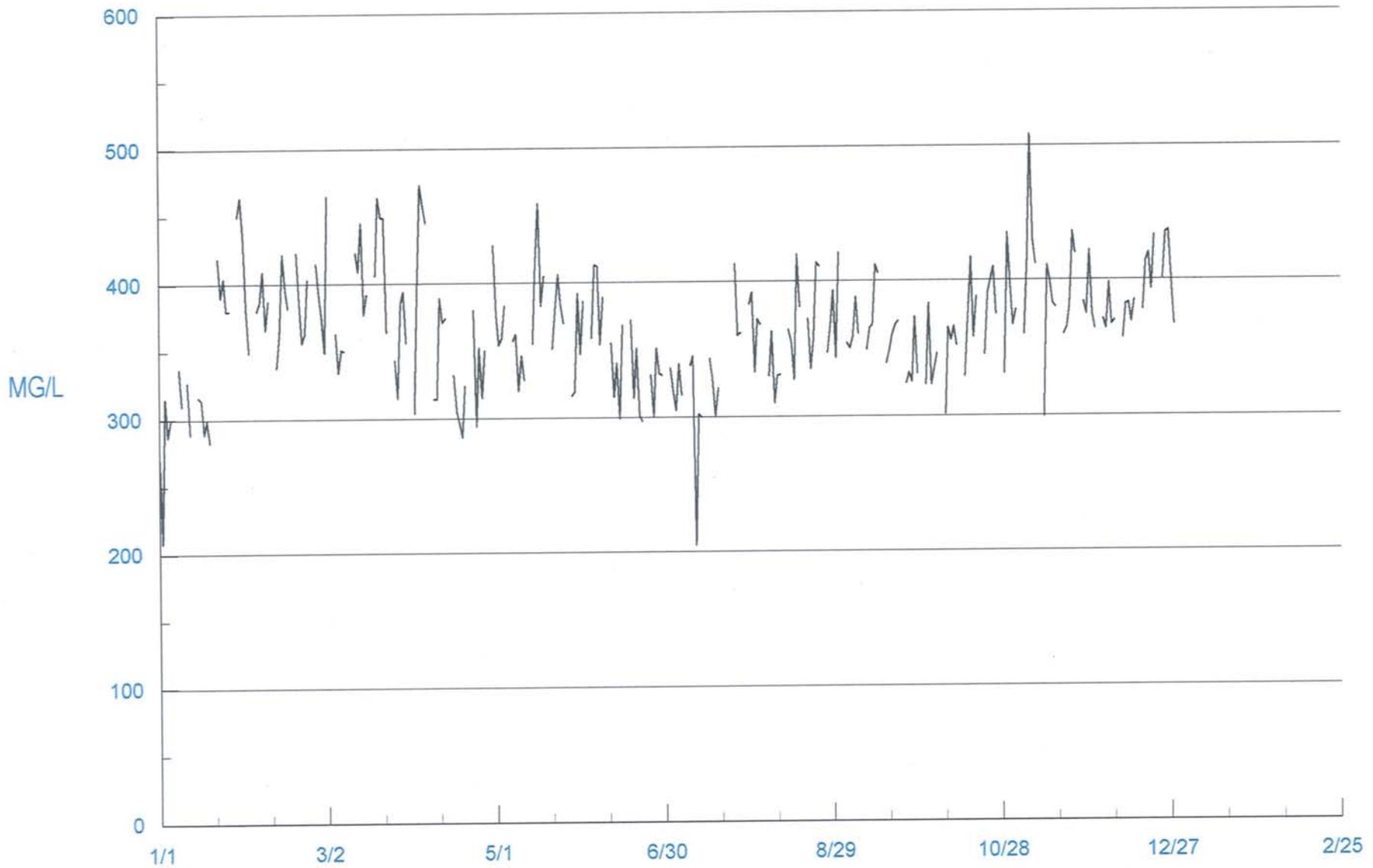
# Annual Report 2007



Flow Equalization Basin  
/ Primary Effluent BOD

OPS SQL (Ventura Water Reclamation Facility)  
Primary BOD 07

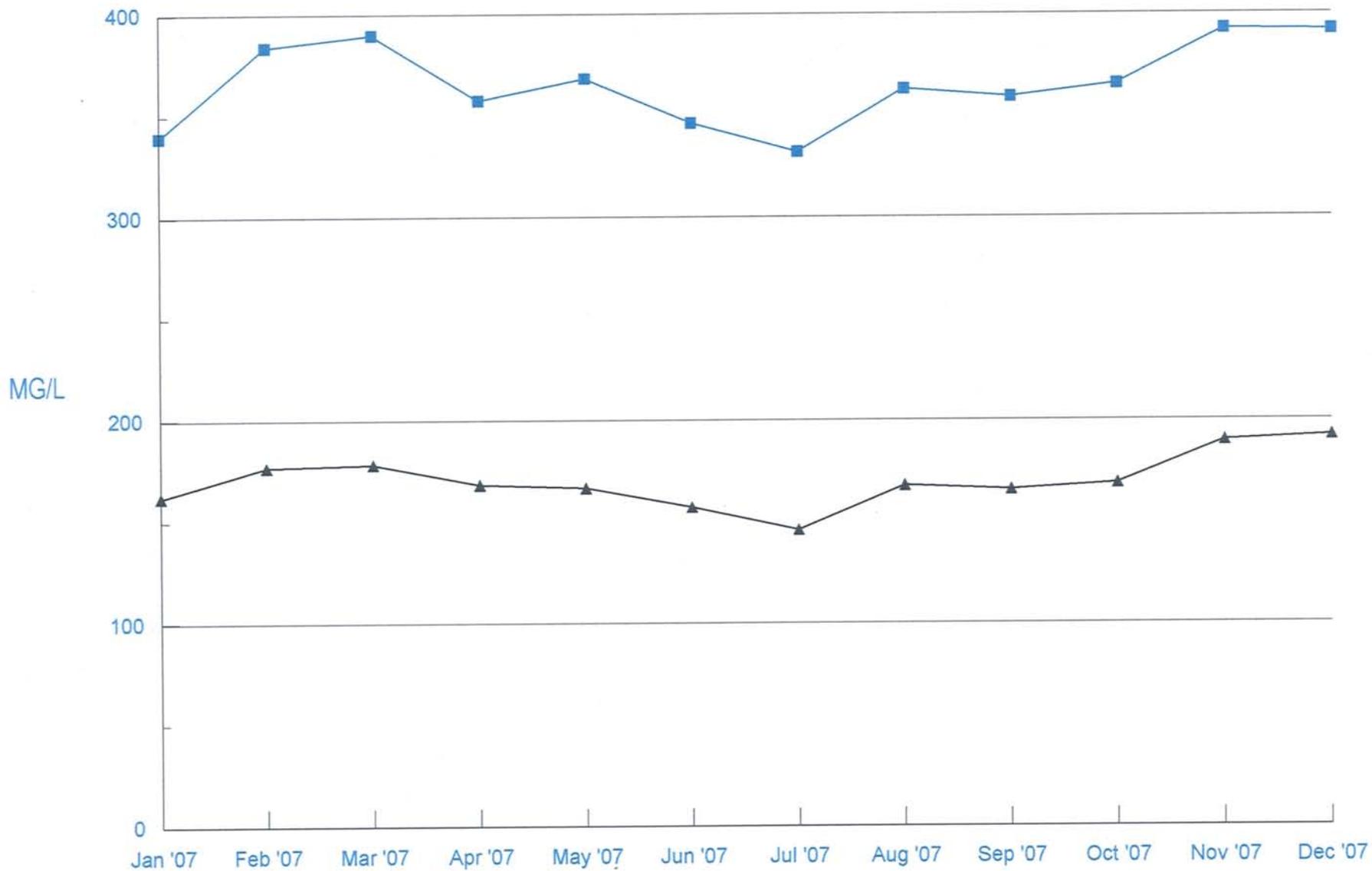
# Annual Report 2007



Flow Equalization Basin  
/ Primary Effluent COD

OPS SQL (Ventura Water Reclamation Facility)  
Primary COD 07

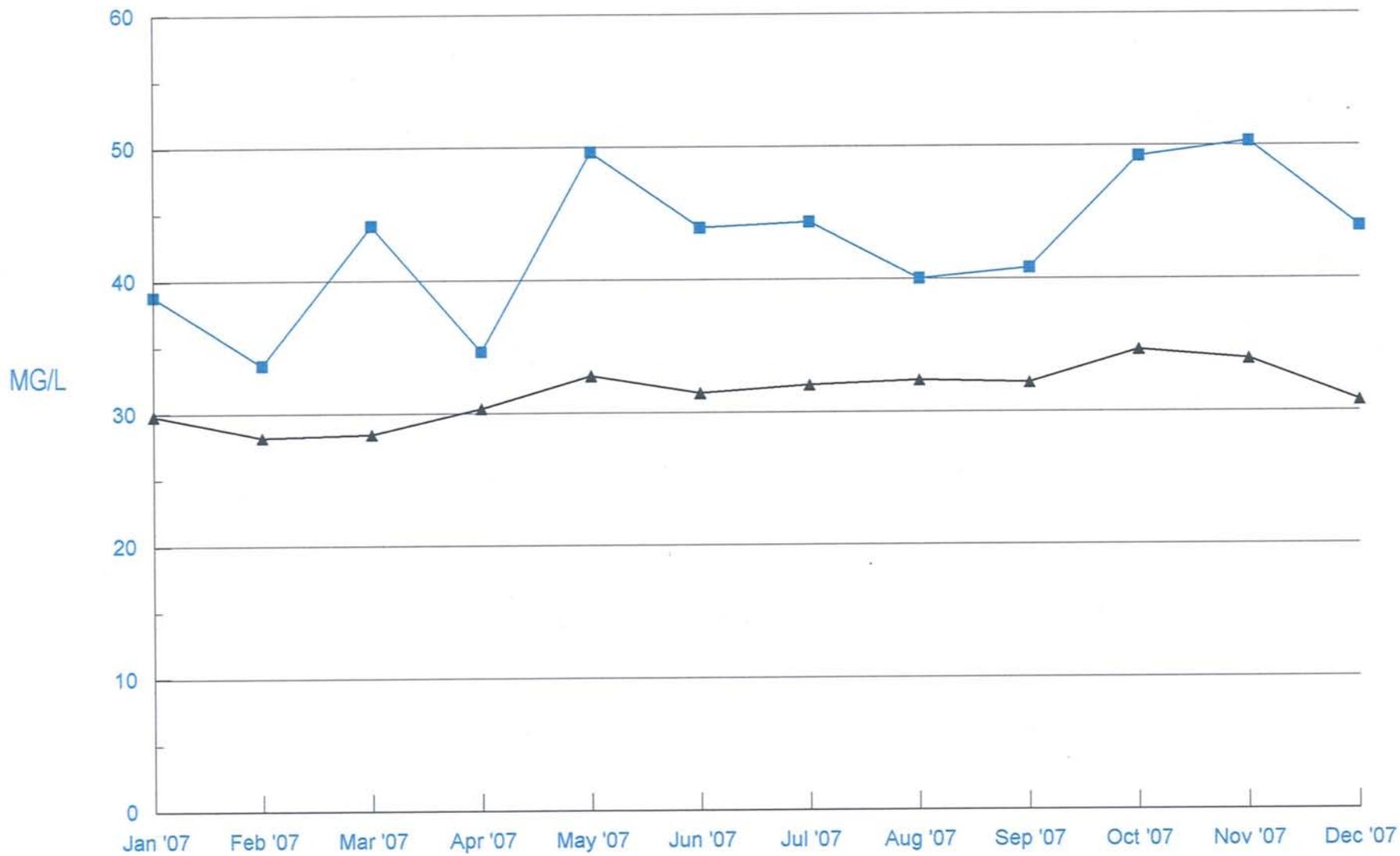
# Annual Report 2007



Flow Equalization Basin  
▲ Primary Eff BOD (Mo Avg) ■ Primary Eff COD (Mo Avg)

OPS SQL (Ventura Water Reclamation Facility)  
Primary BOD & COD 07

# Annual Report 2007

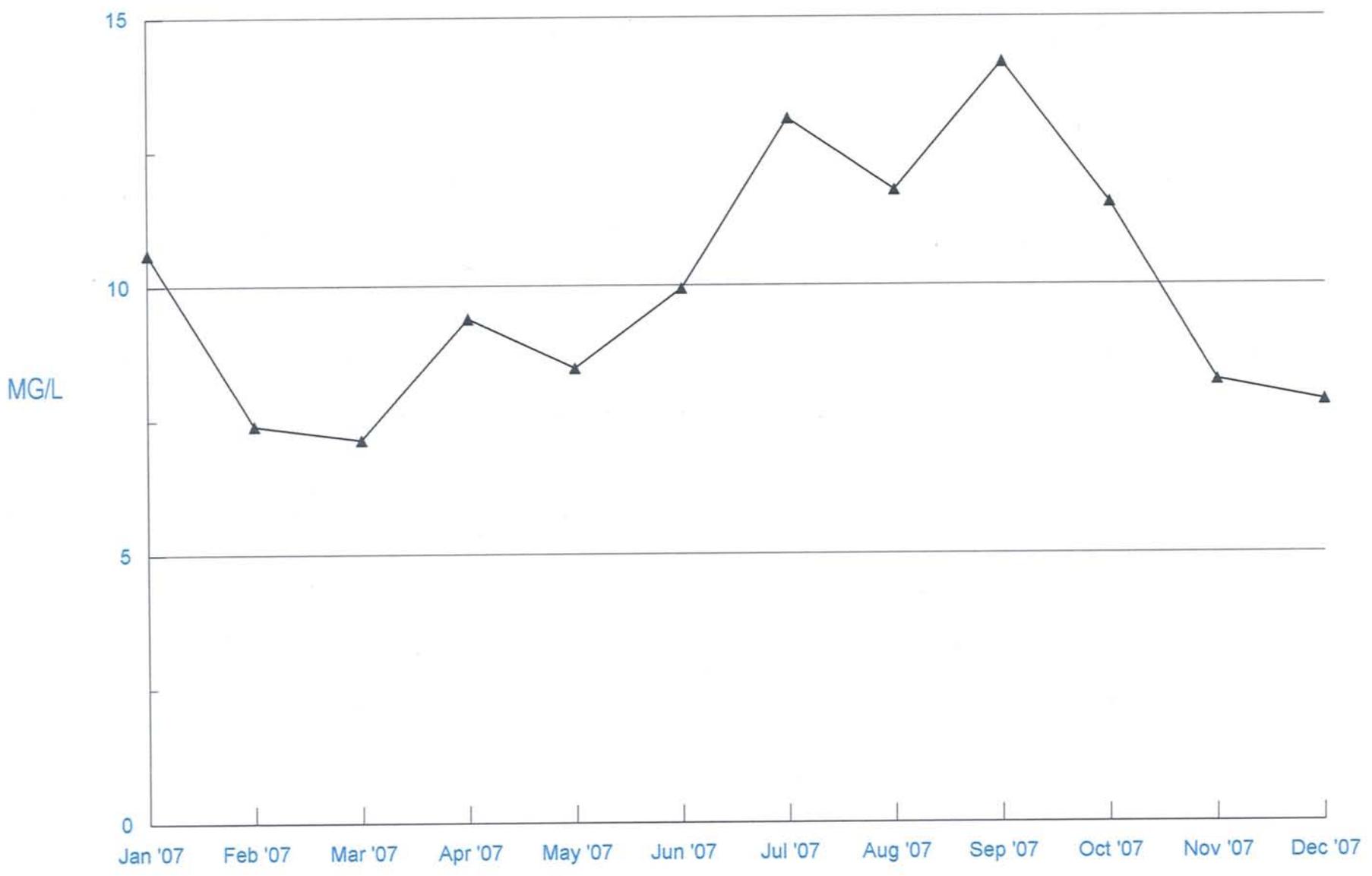


Flow Equalizatin Basin

▲ Primary Eff Ammonia (Mo Avg)    ■ Primary Eff TKN (Mo Avg)

*OPS SQL (Ventura Water Reclamation Facility)  
Primary NH3 & TKN 07*

# Annual Report 2007

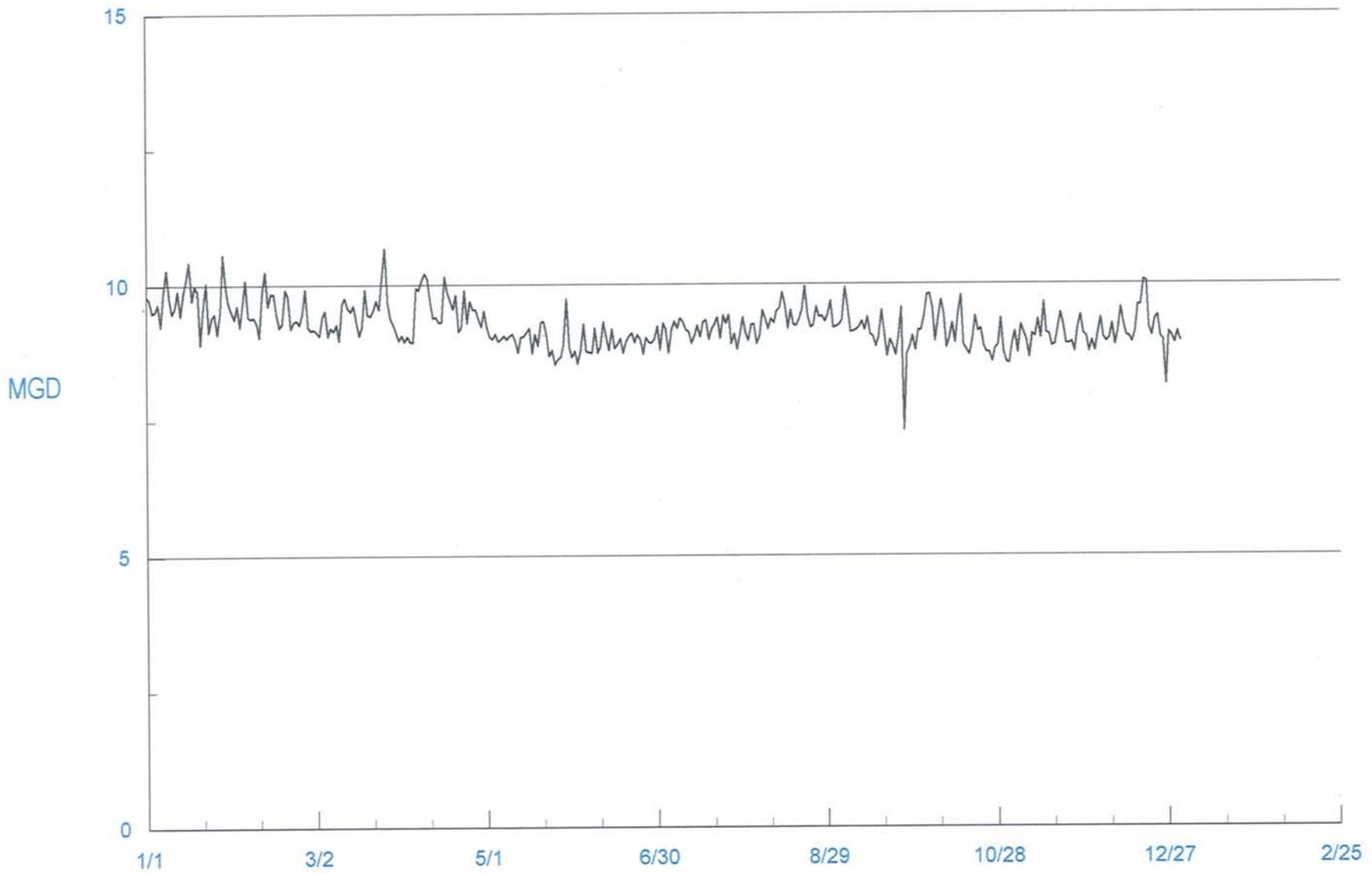


Flow Equalization Basin  
▲ Primary Effluent MBAS

OPS SQL (Ventura Water Reclamation Facility)  
Primary MBAS 07



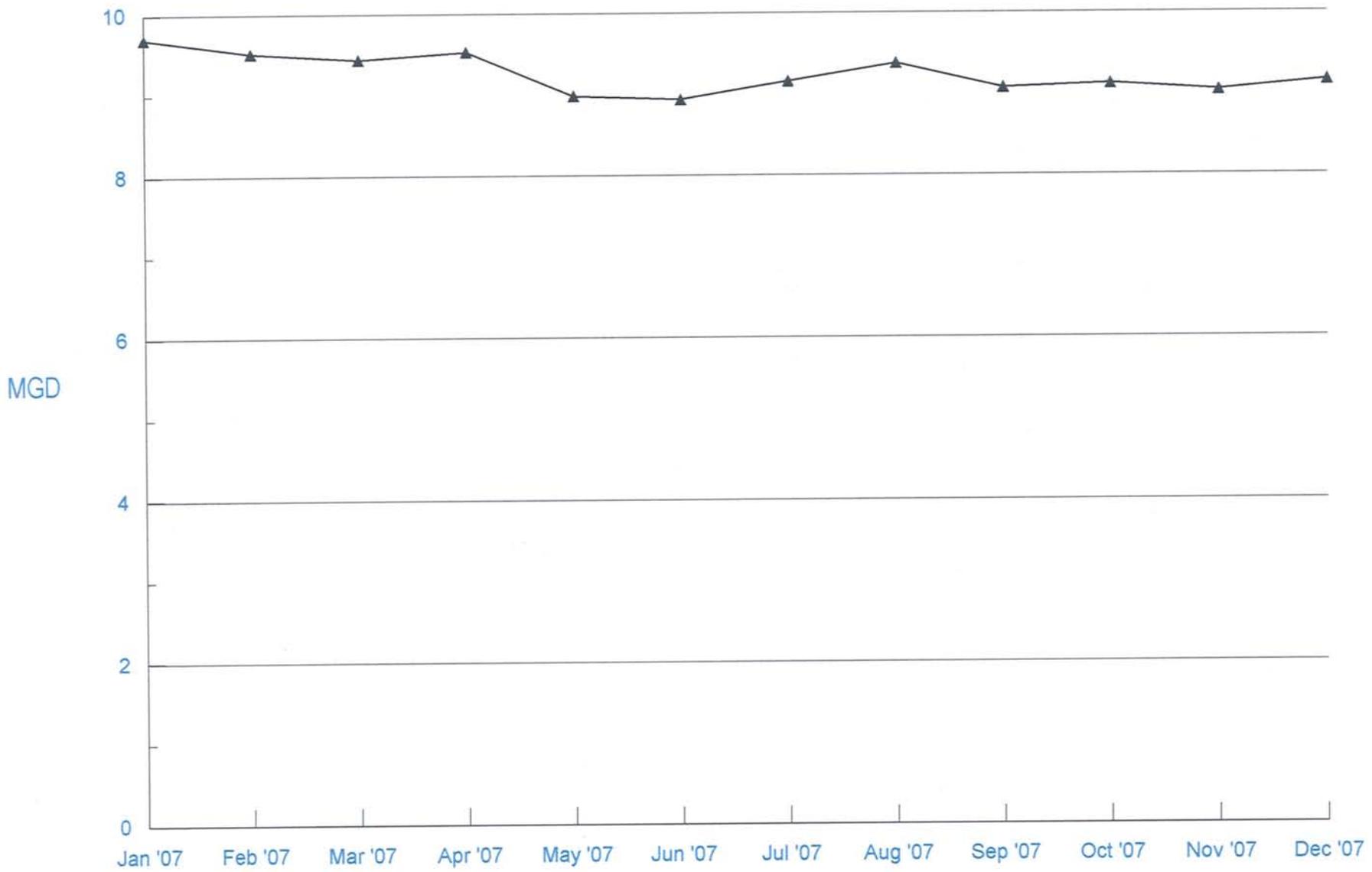
# Annual Report 2007



Mixed Media Filter Station  
/ Daily Mixed Media Flow

OPS SQL (Ventura Water Reclamation Facility)  
MM Flow 07

# Annual Report 2007

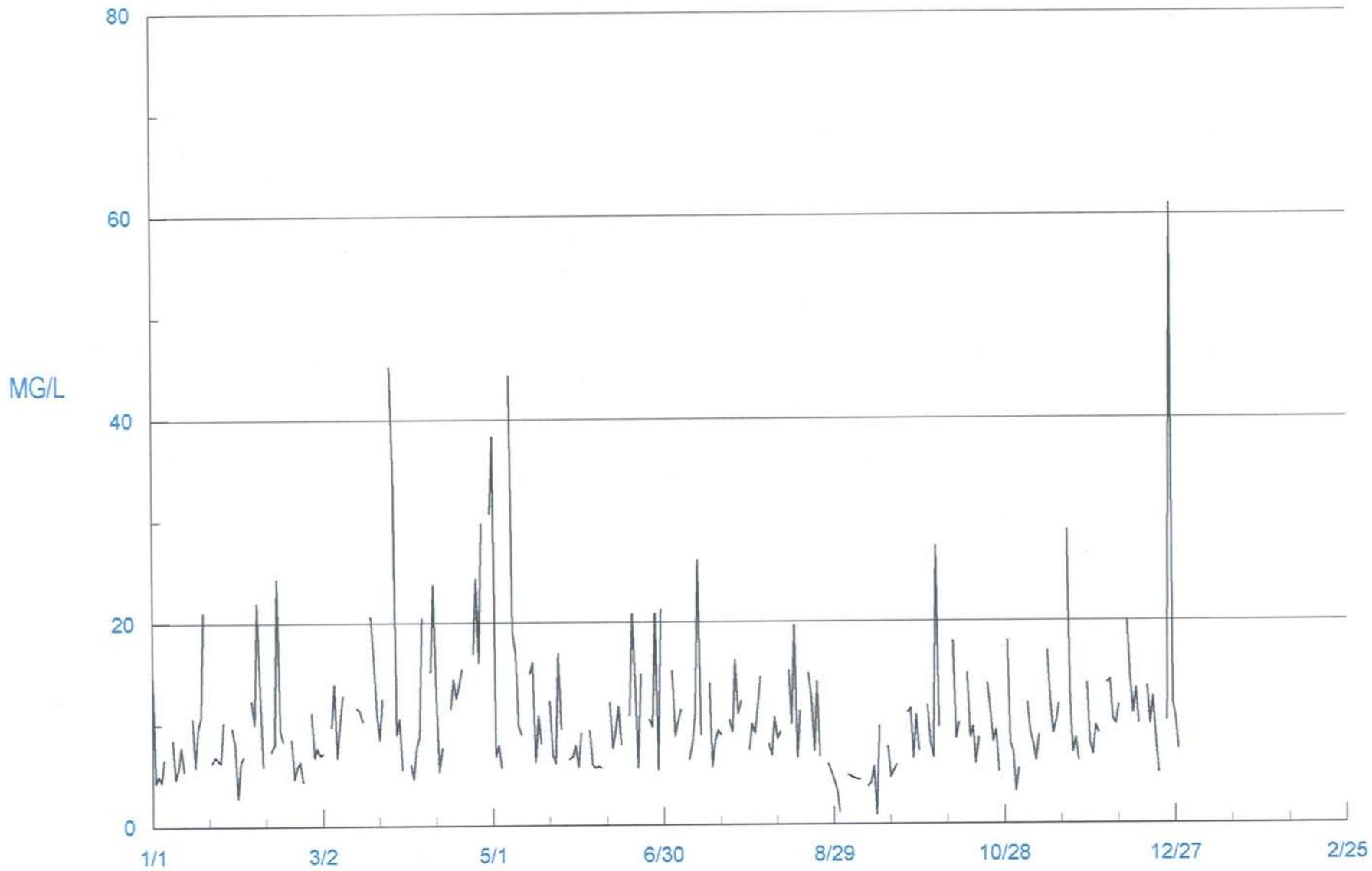


Mixed Media Filter Station

▲ Mixed Media Flow (Monthly Avg)

OPS SQL (Ventura Water Reclamation Facility)  
MM Flow 07

# Annual Report 2007



Mixed Media Filter Station

/ Activated Sludge Effluent Suspended Solids

OPS SQL (Ventura Water Reclamation Facility)  
MM SS 07

Annual Report 2007

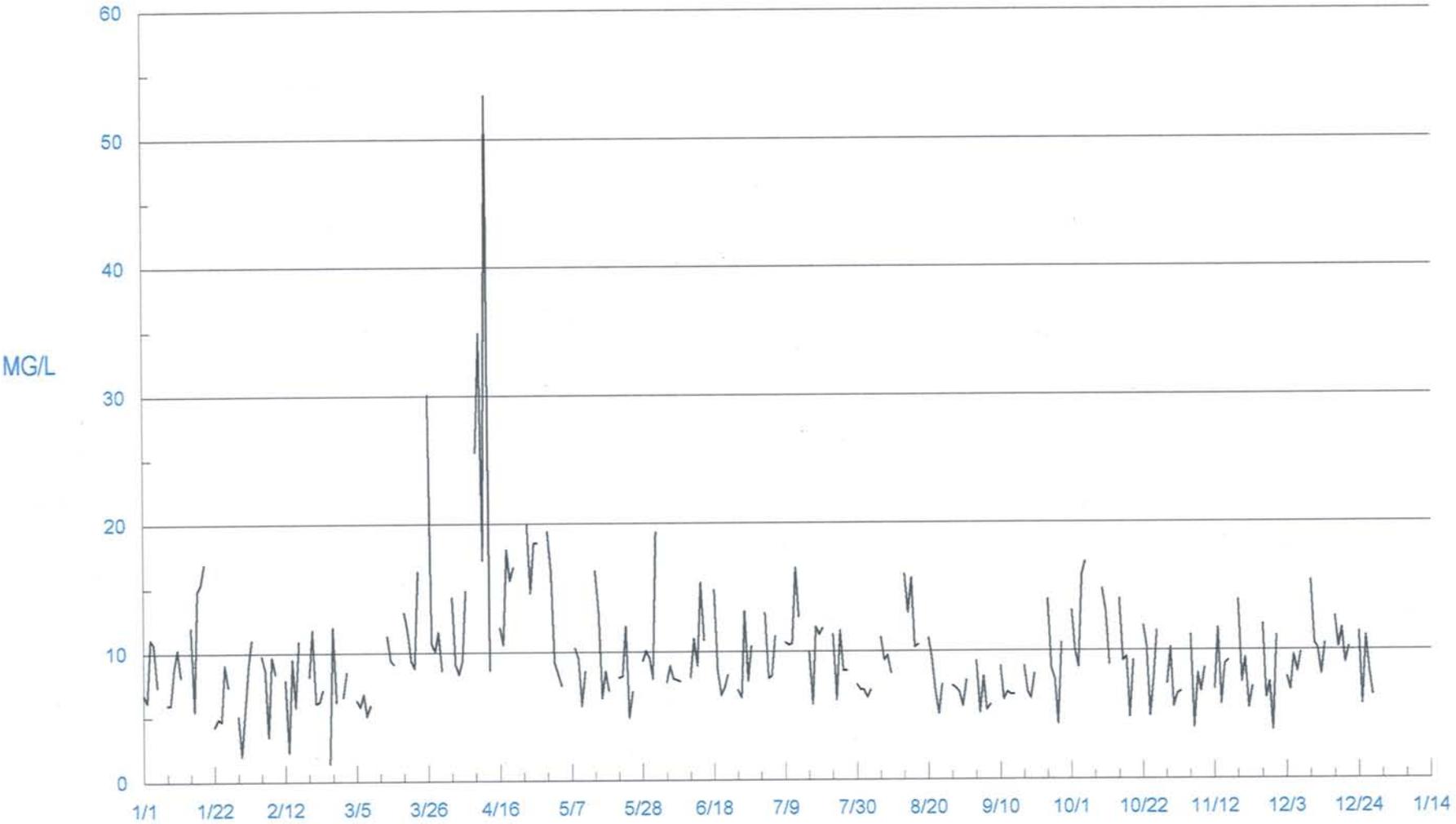


Mixed Media Filter Station

▲ Activated Sludge Effluent Suspended Solids (Mo Avg)

OPS SQL (Ventura Water Reclamation Facility)  
MM SS 07

Annual Report 2007

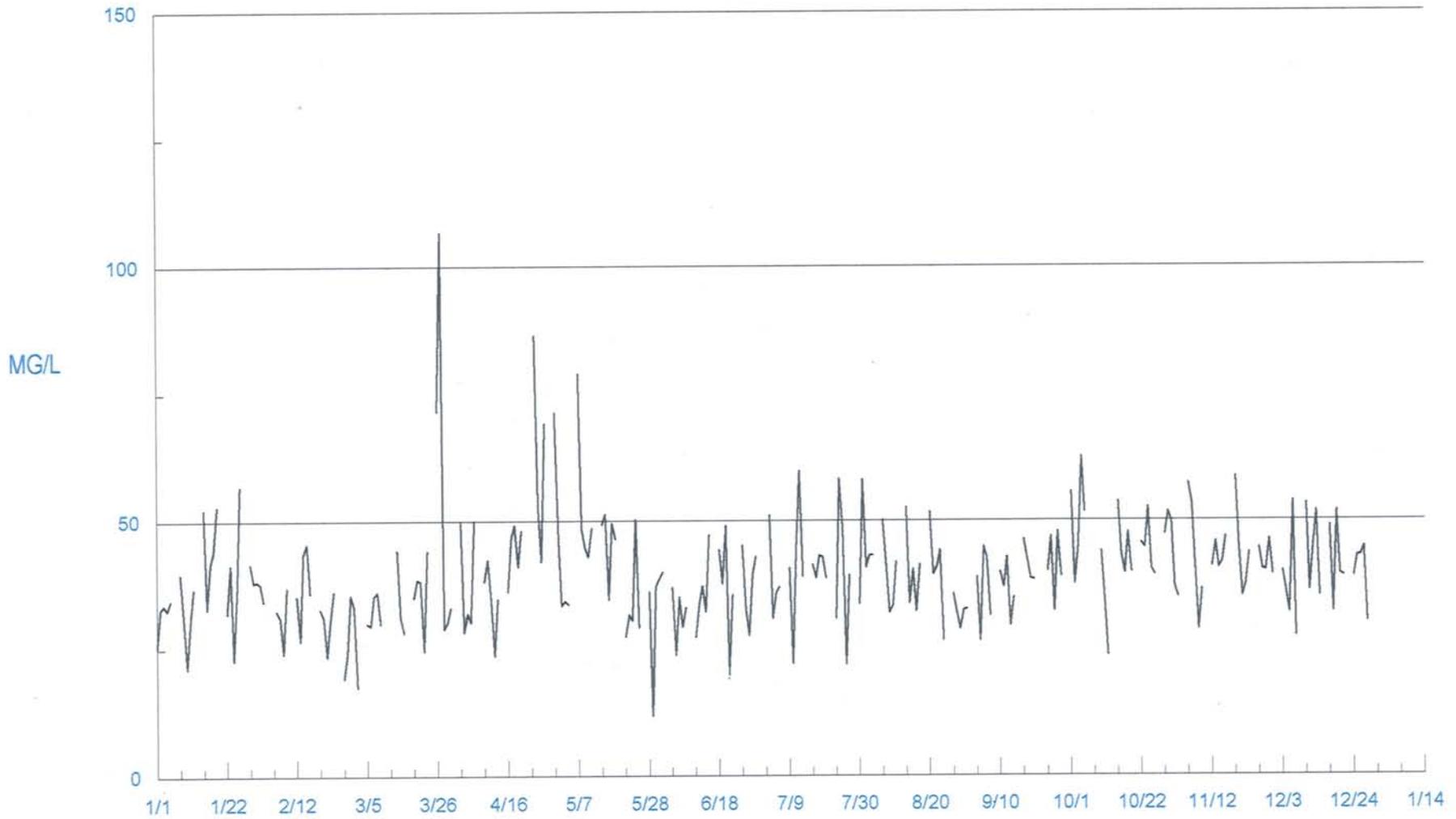


Mixed Media Filter Station

/ Activated Sludge Effluent BOD

OPS SQL (Ventura Water Reclamation Facility)  
MM BOD 07

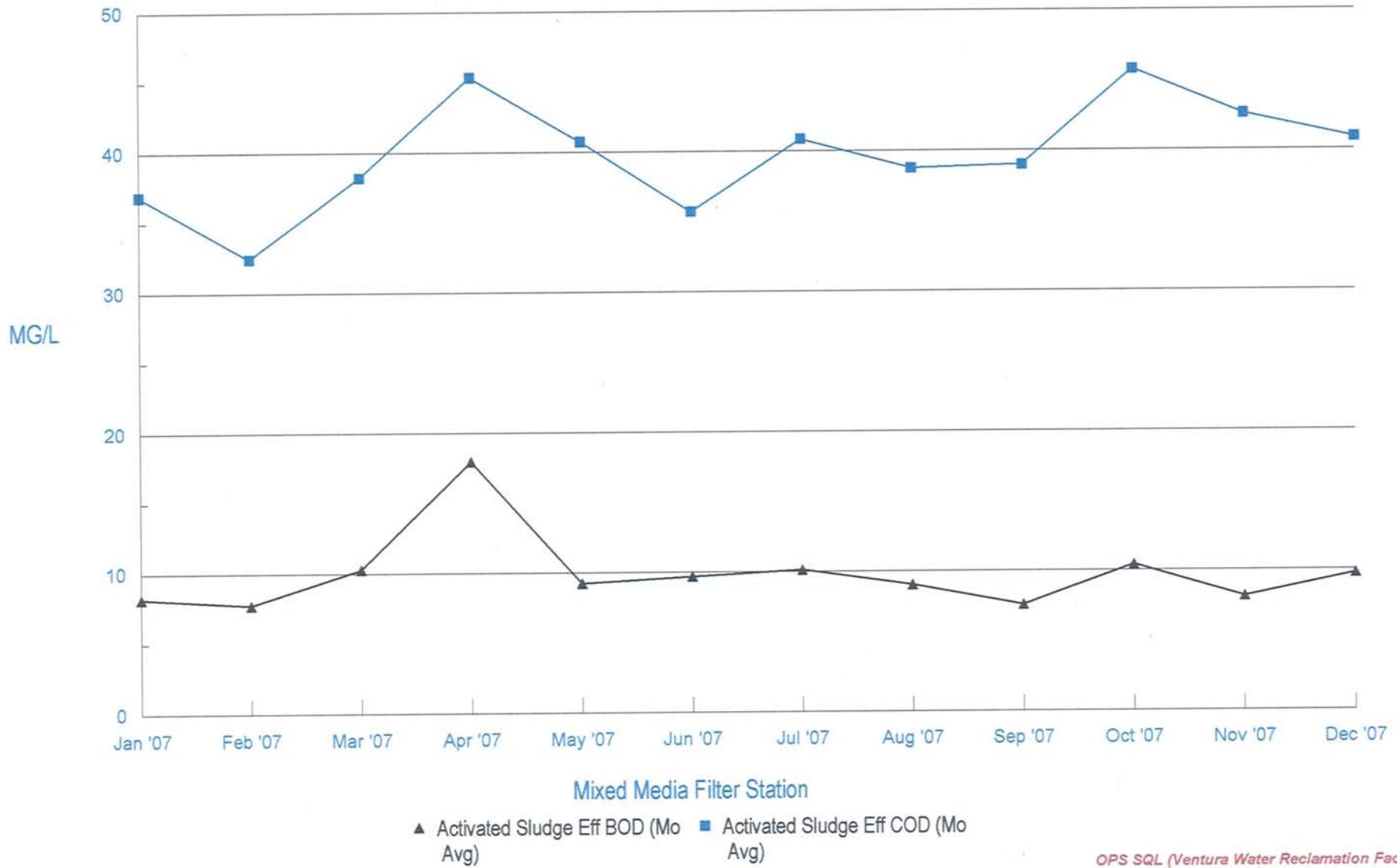
Annual Report 2007



Mixed Media Filter Station  
/ Activated Sludge Effluent COD

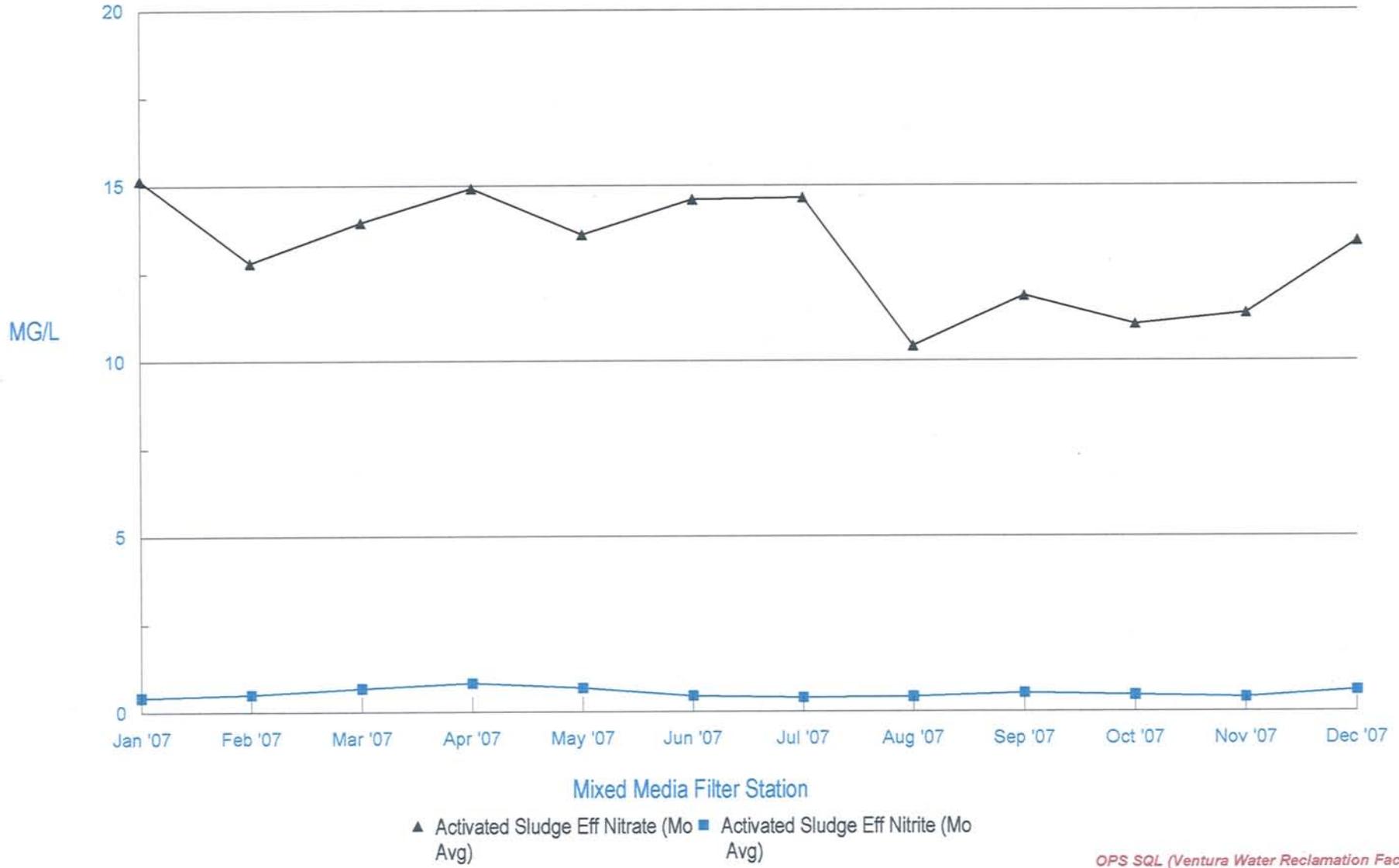
OPS SQL (Ventura Water Reclamation Facility)  
MM COD 07

Annual Report 2007



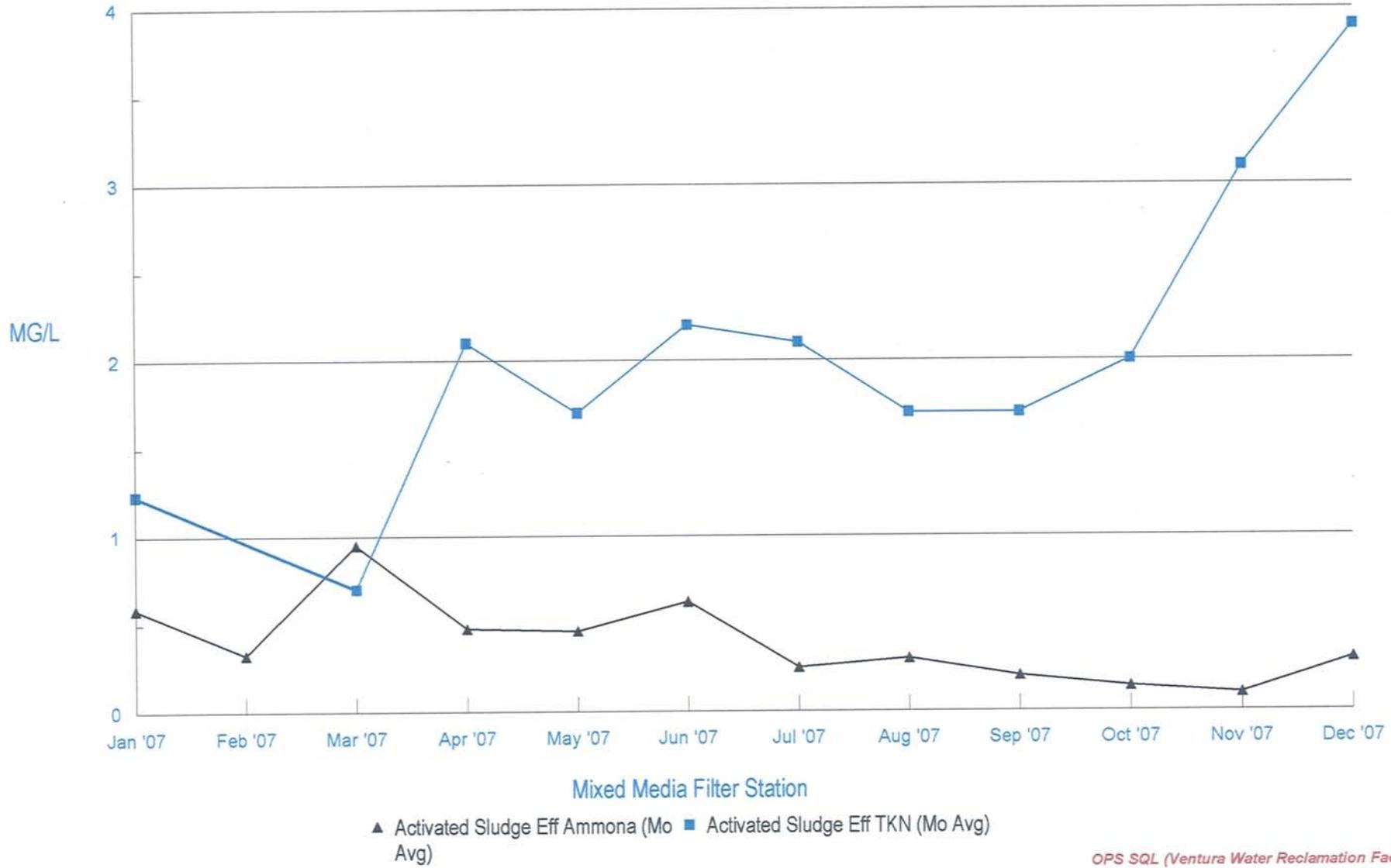
OPS SQL (Ventura Water Reclamation Facility)  
MM BOD & COD 07

Annual Report 2007



OPS SQL (Ventura Water Reclamation Facility)  
MM NO3 & NO2 07

Annual Report 2007



OPS SQL (Ventura Water Reclamation Facility)  
MM NH3 & TKN 07

Annual Report 2007



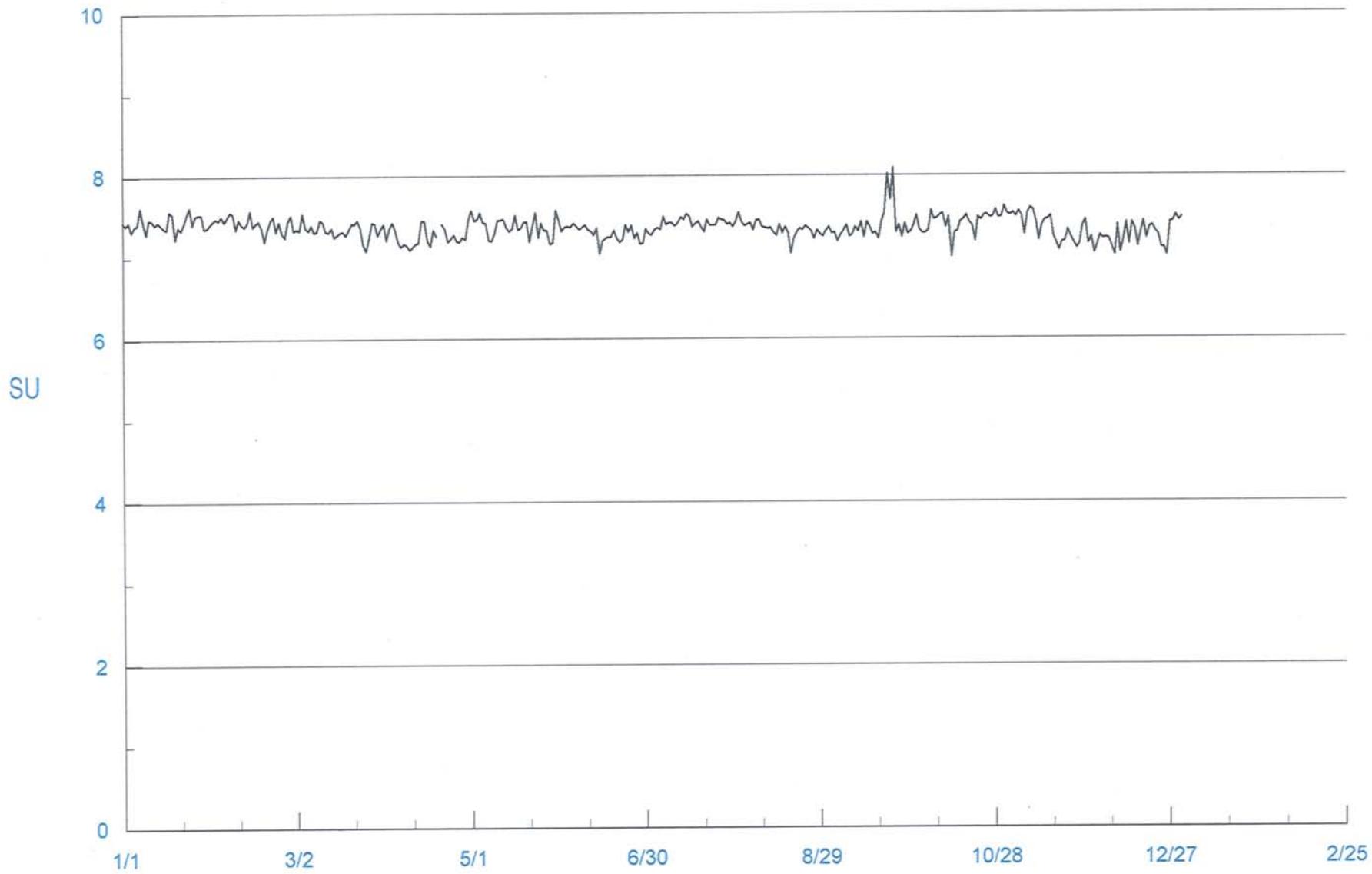
Mixed Media Filter Station

▲ Activated Sludge Eff MBAS ( Mo Avg)

OPS SQL (Ventura Water Reclamation Facility)  
MM MBAS 07



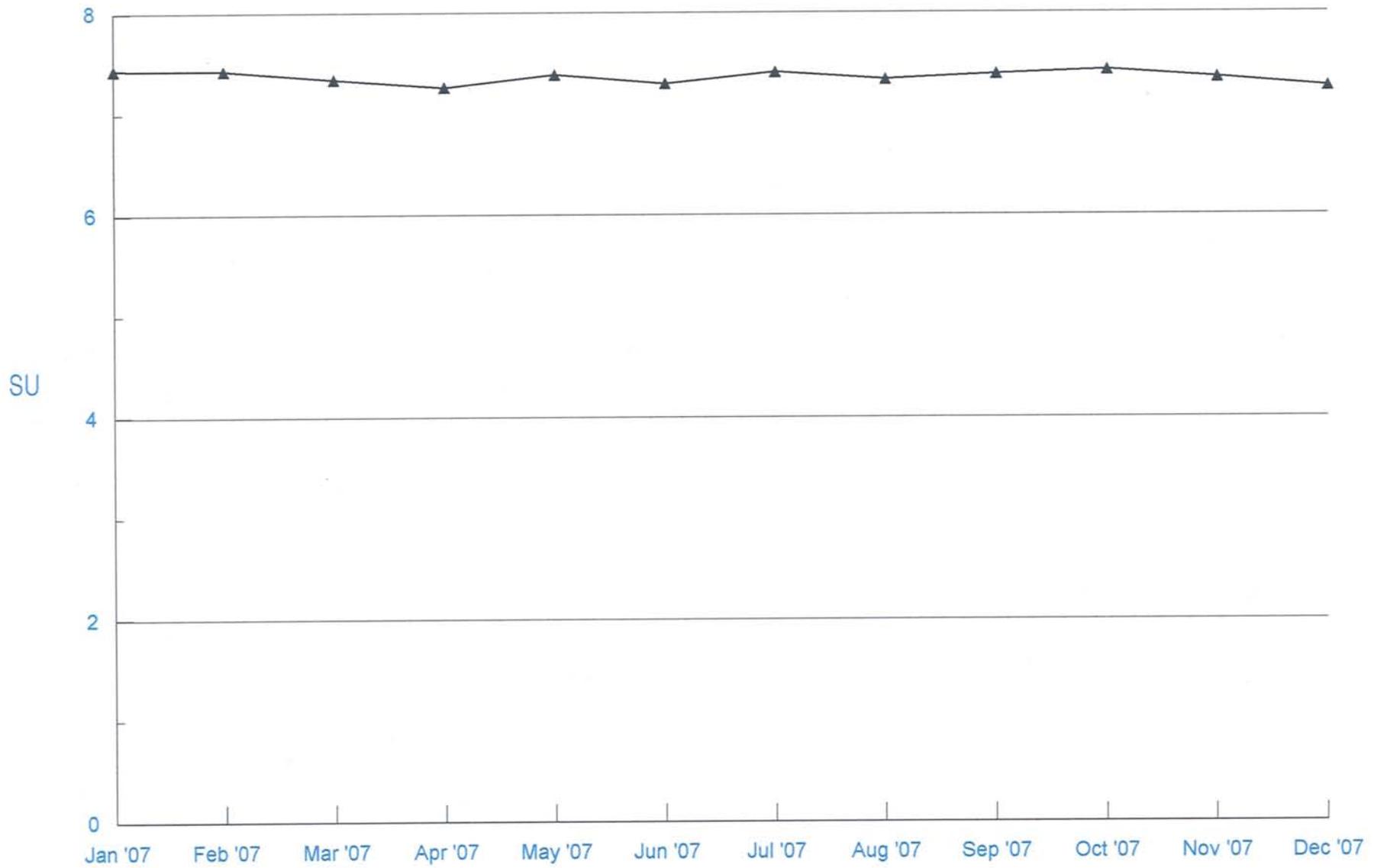
# Annual Report 2007



Effluent Transfer Station  
/ Daily Effluent pH

OPS SQL (Ventura Water Reclamation Facility)  
ETS pH 07

# Annual Report 2007

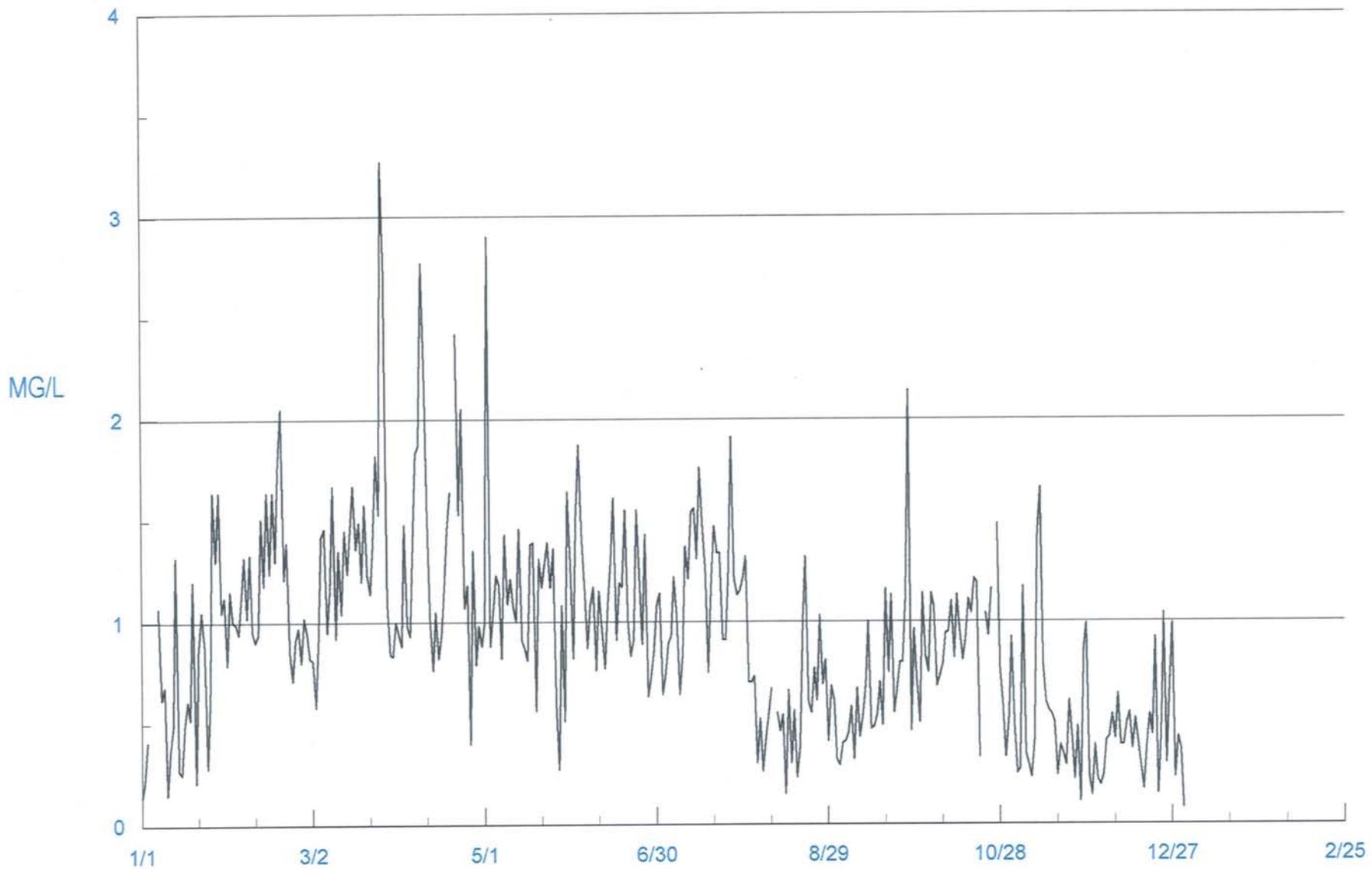


Effluent Transfer Station

▲ Effluent pH (Mo Avg)

OPS SQL (Ventura Water Reclamation Facility)  
ETS pH 07

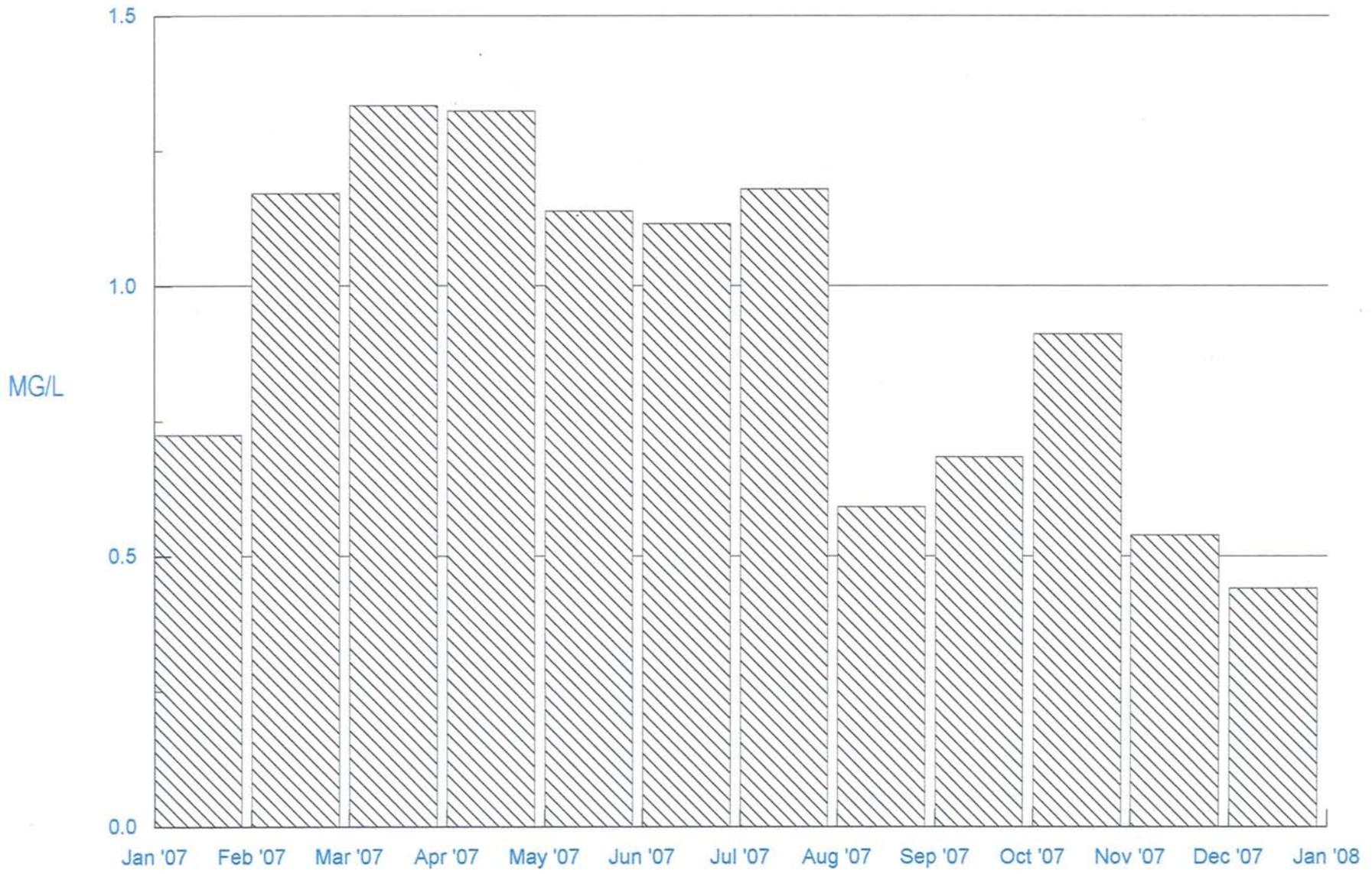
# Annual Report 2007



Effluent Transfer Station  
/ Daily Effluent Suspended Solids

OPS SQL (Ventura Water Reclamation Facility)  
ETS SS 07

# Annual Report 2007

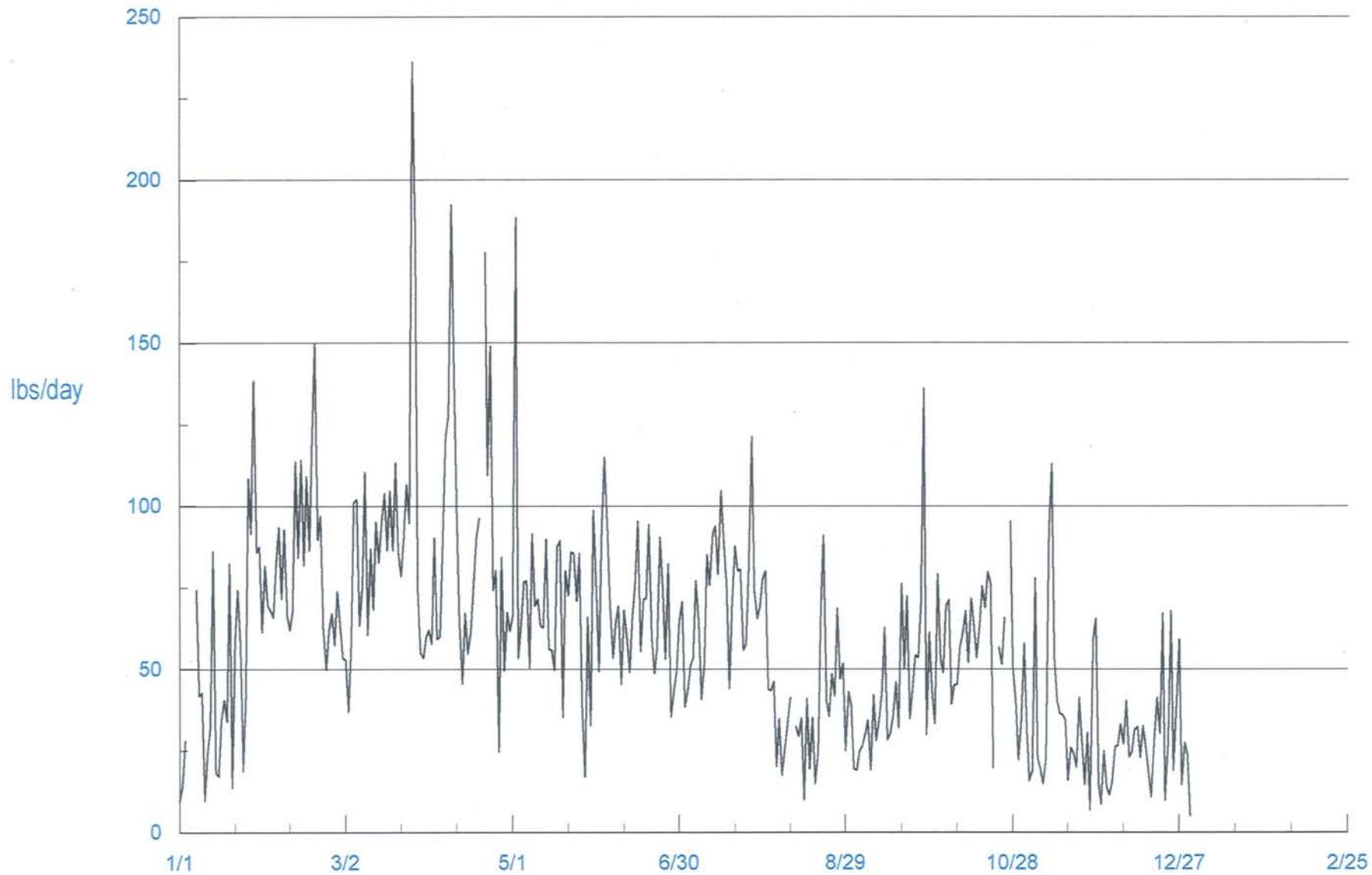


Effluent Transfer Station

▨ Effluent Suspended Solids (Mo Avg)

OPS SQL (Ventura Water Reclamation Facility)  
ETS SS 07

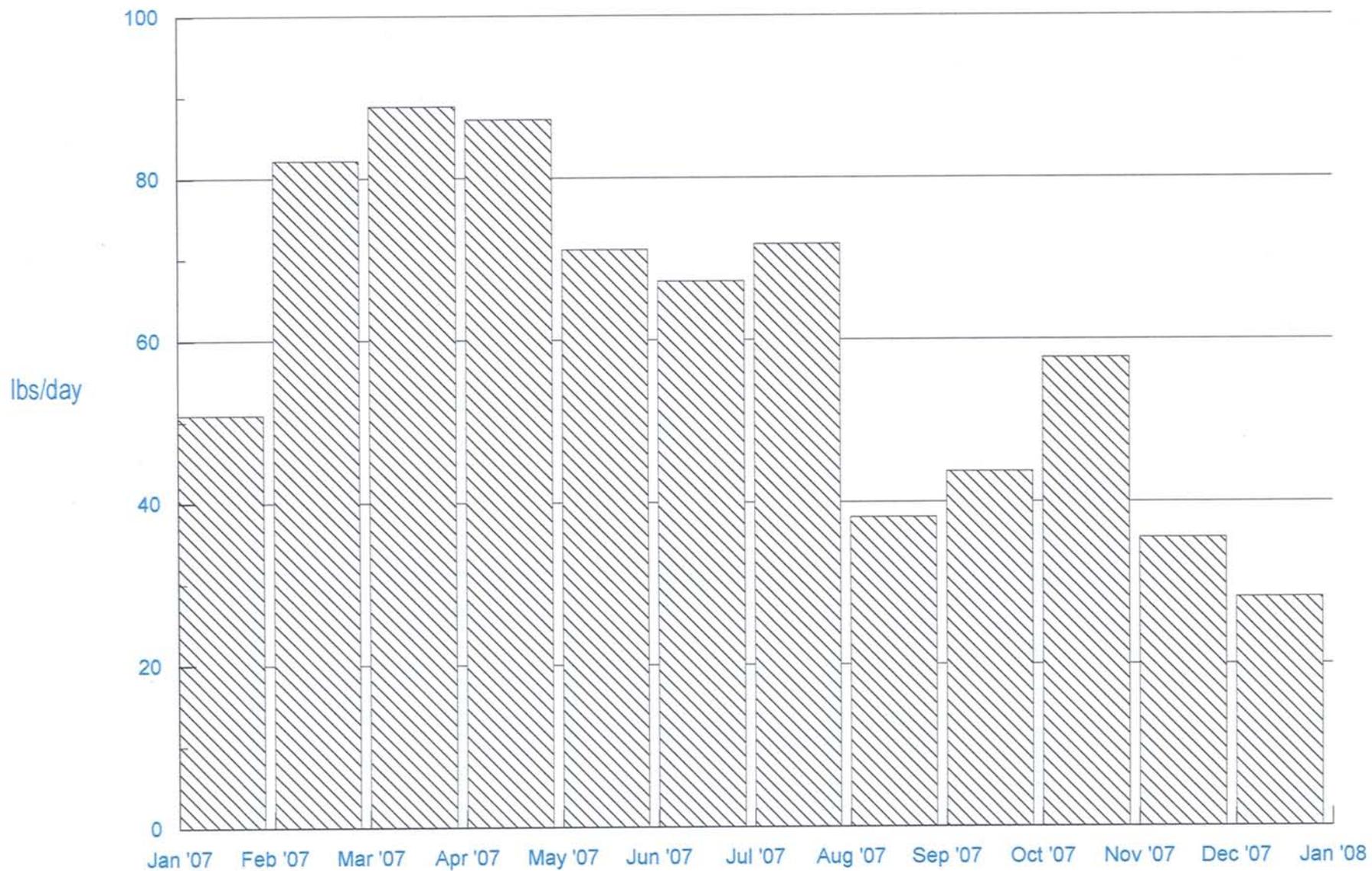
# Annual Report 2007



Effluent Transfer Station  
/ Daily Effluent Suspended Solids Mass Emission Rate

OPS SQL (Ventura Water Reclamation Facility)  
ETS SS Load 07

# Annual Report 2007

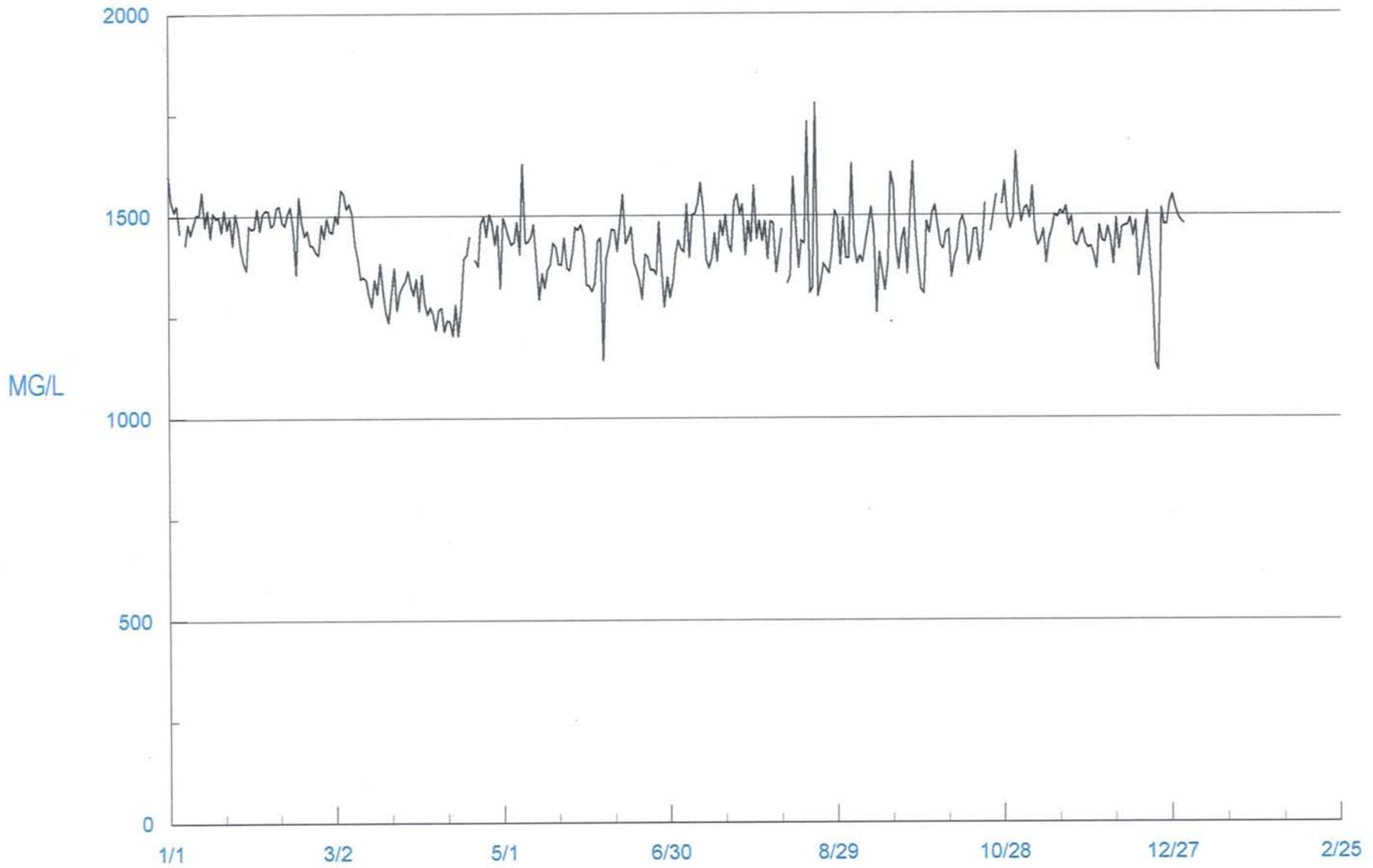


Effluent Transfer Station

☐ Effluent Suspended Solids Mass Emission Rate (Mo Avg)

OPS SQL (Ventura Water Reclamation Facility)  
ETS SS Load 07

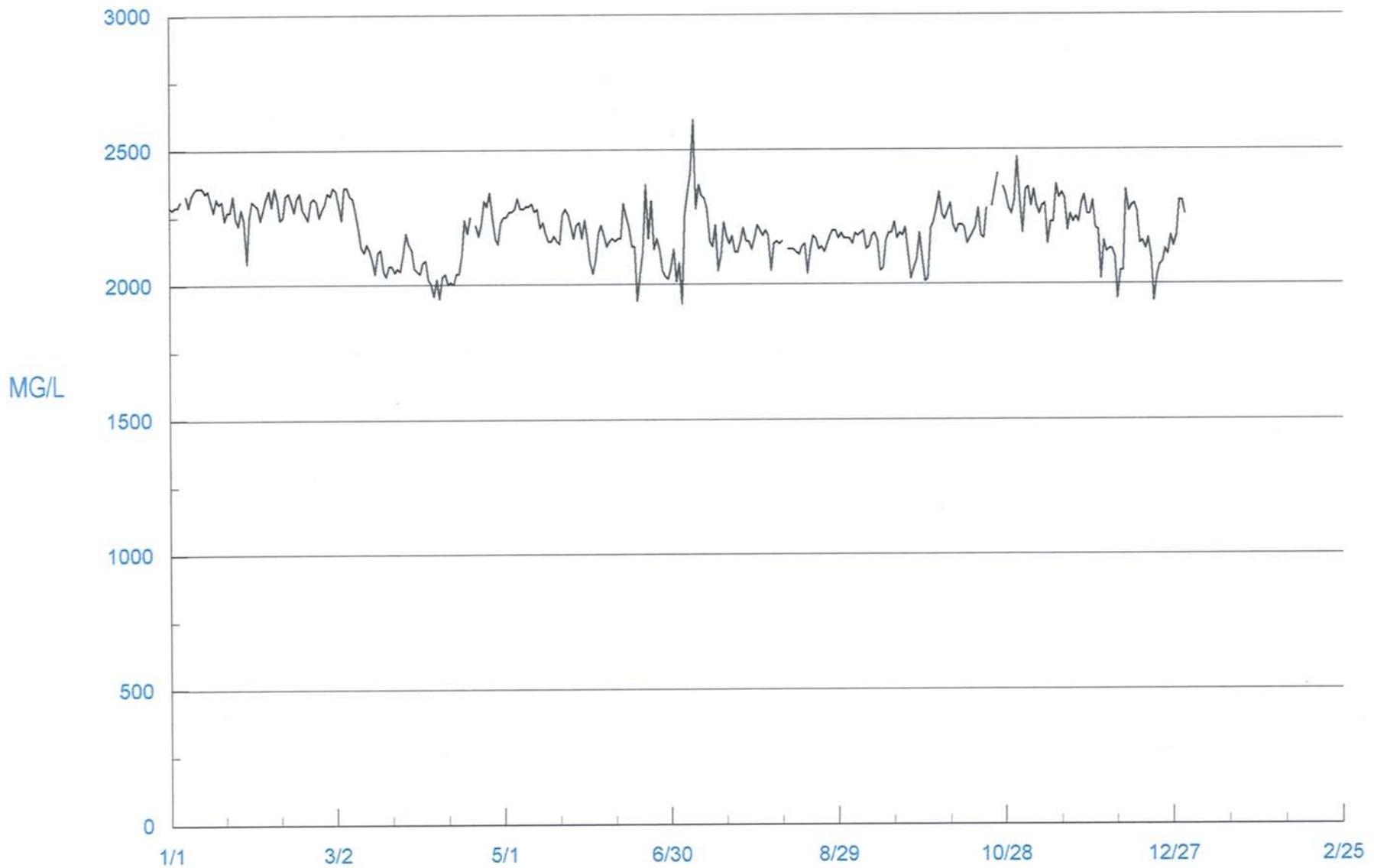
# Annual Report 2007



Effluent Transfer Station  
/ Daily Effluent Total Dissolved Solids

OPS SQL (Ventura Water Reclamation Facility)  
ETS TDS 07

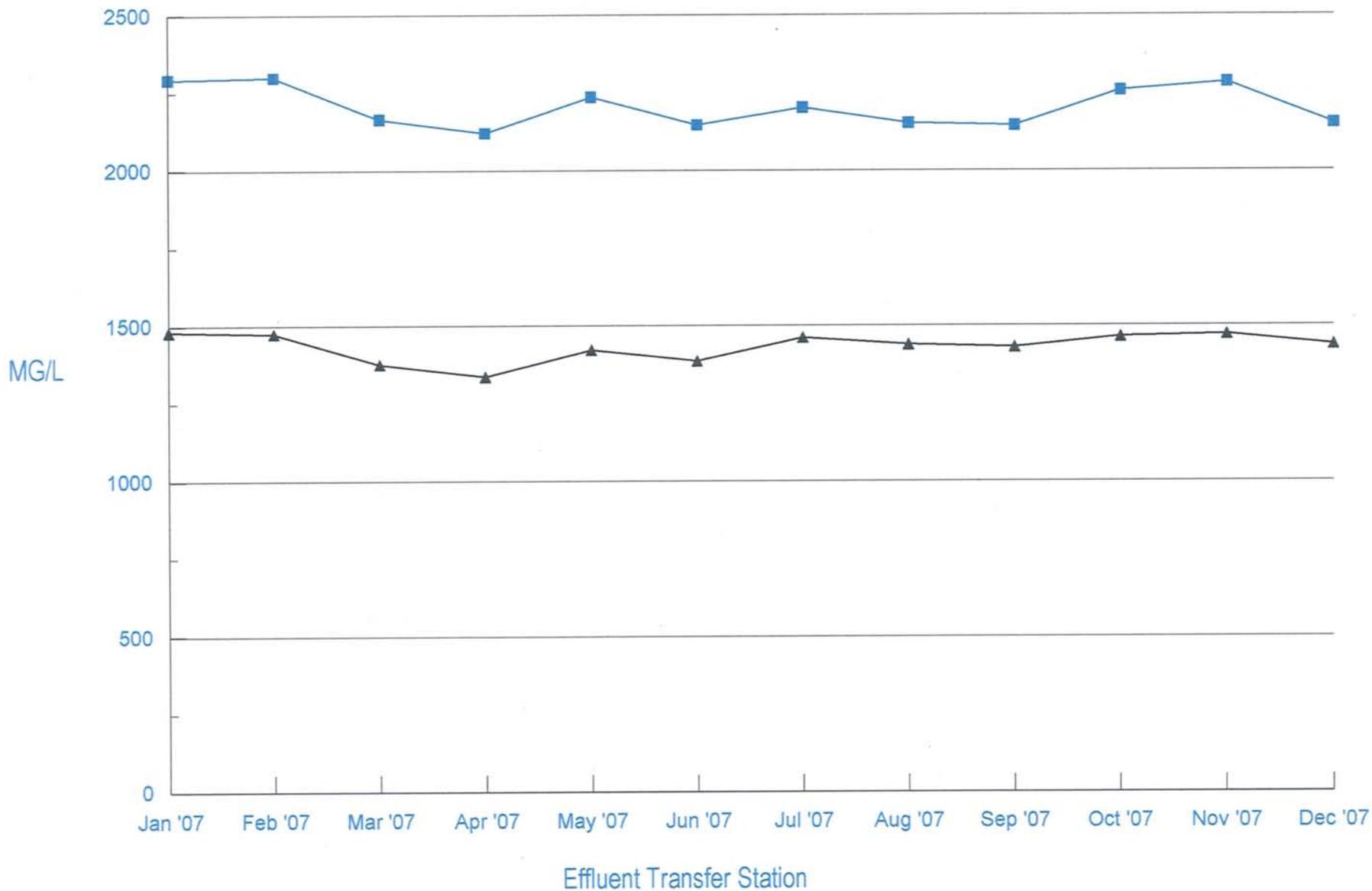
# Annual Report 2007



Effluent Transfer Station  
/ Daily Effluent Conductivity

OPS SQL (Ventura Water Reclamation Facility)  
ETS Cond 07

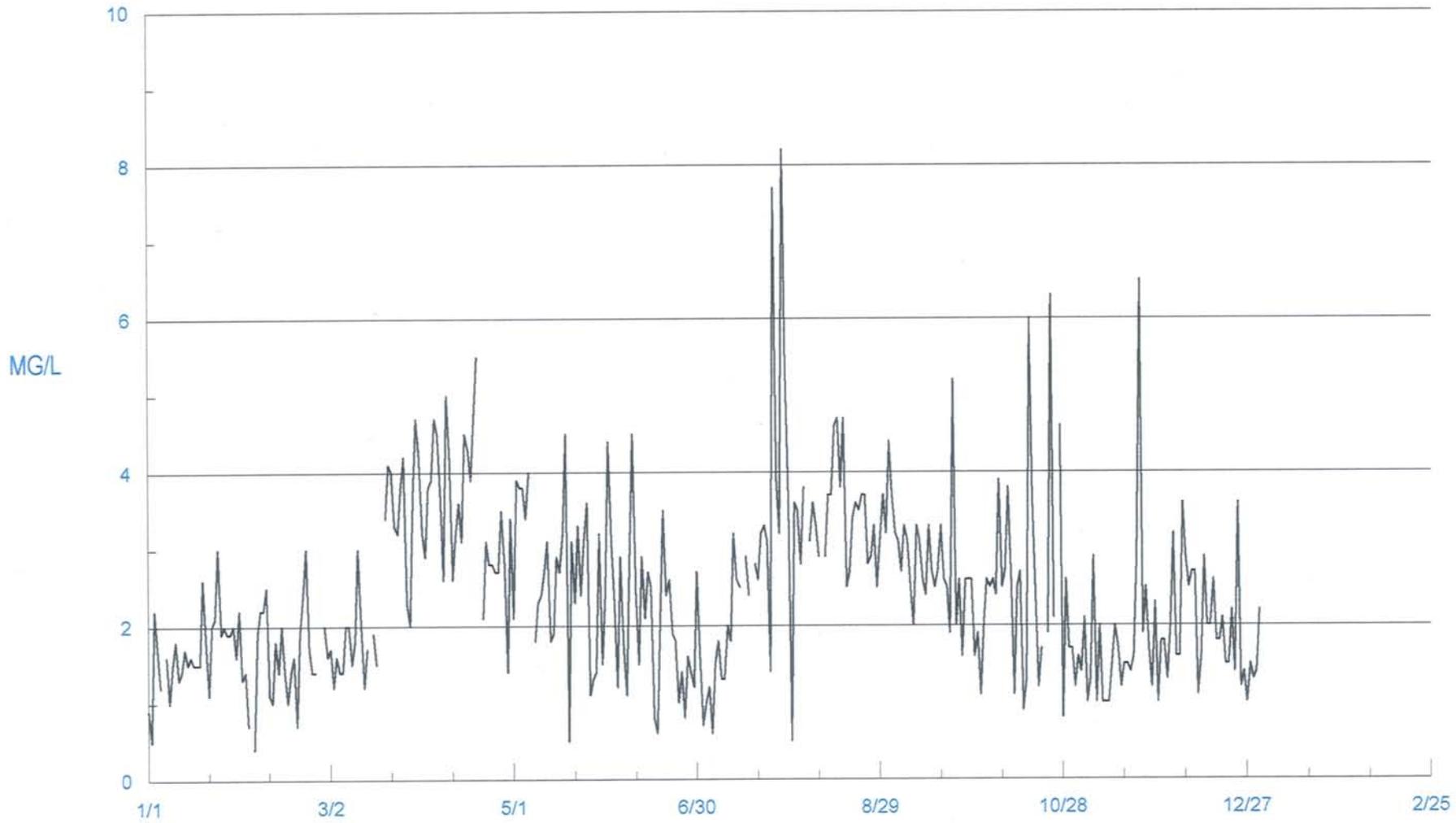
# Annual Report 2007



▲ Effluent Total Dissolved Solids (Mo Avg)  
■ Effluent Conductivity (Mo Avg)

OPS SQL (Ventura Water Reclamation Facility)  
ETS TDS & Cond 07

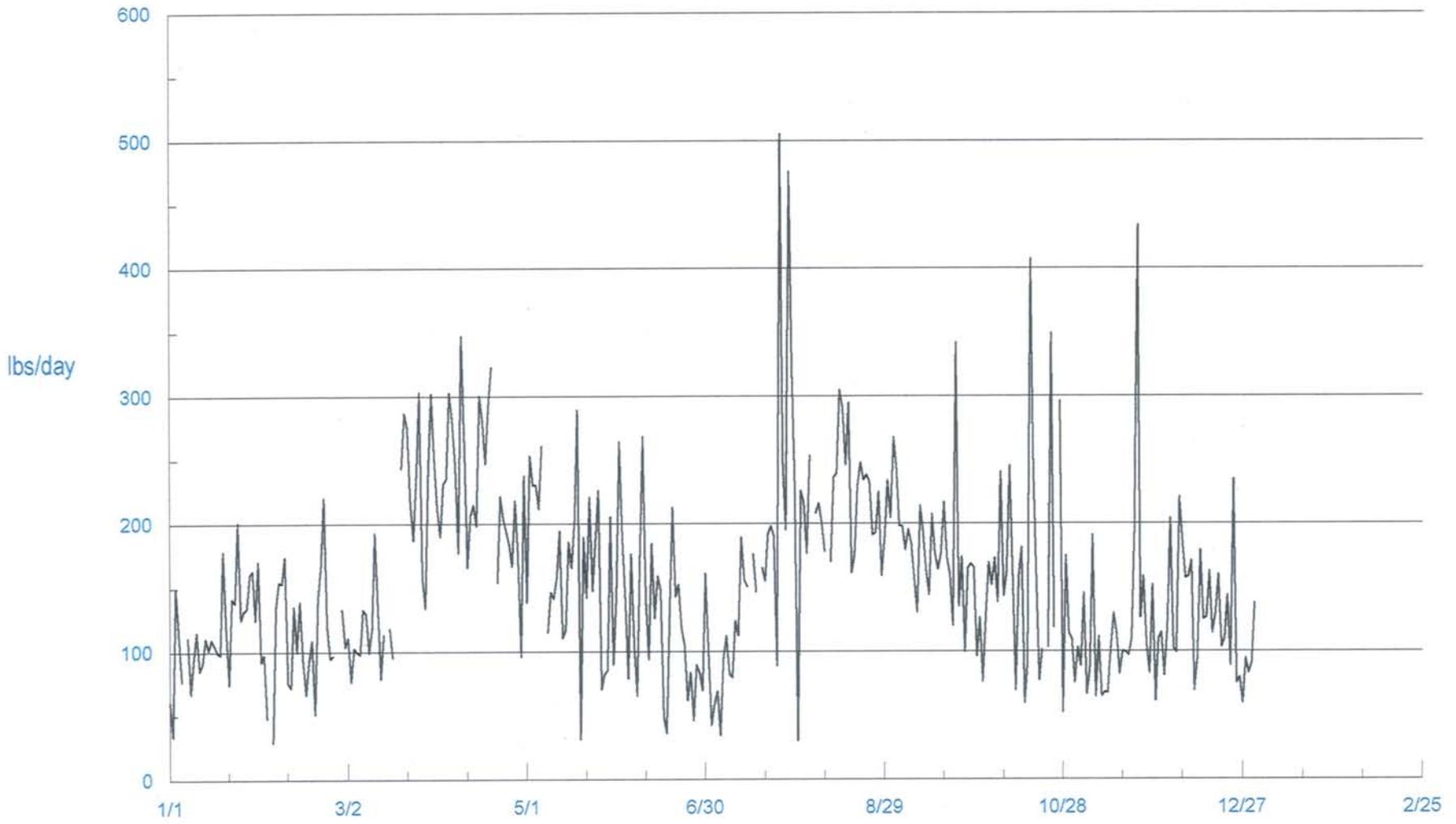
Annual Report 2007



Effluent Transfer Station  
/ Daily Effluent BOD

OPS SQL (Ventura Water Reclamation Facility)  
ETS BOD 07

Annual Report 2007

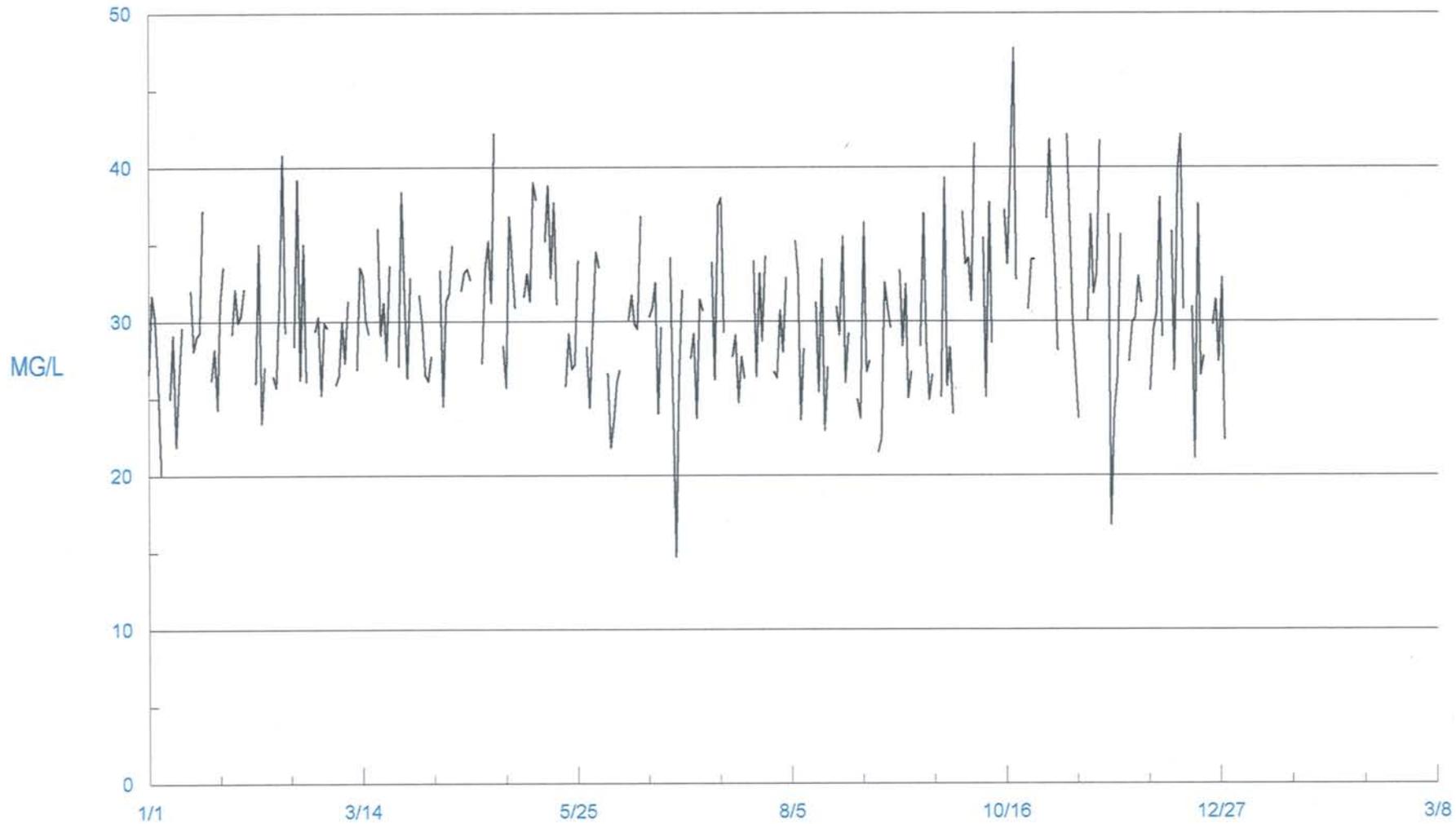


Effluent Transfer Station

/ Daily Effluent BOD Mass Emission Rate

OPS SQL (Ventura Water Reclamation Facility)  
ETS BOD Load 07

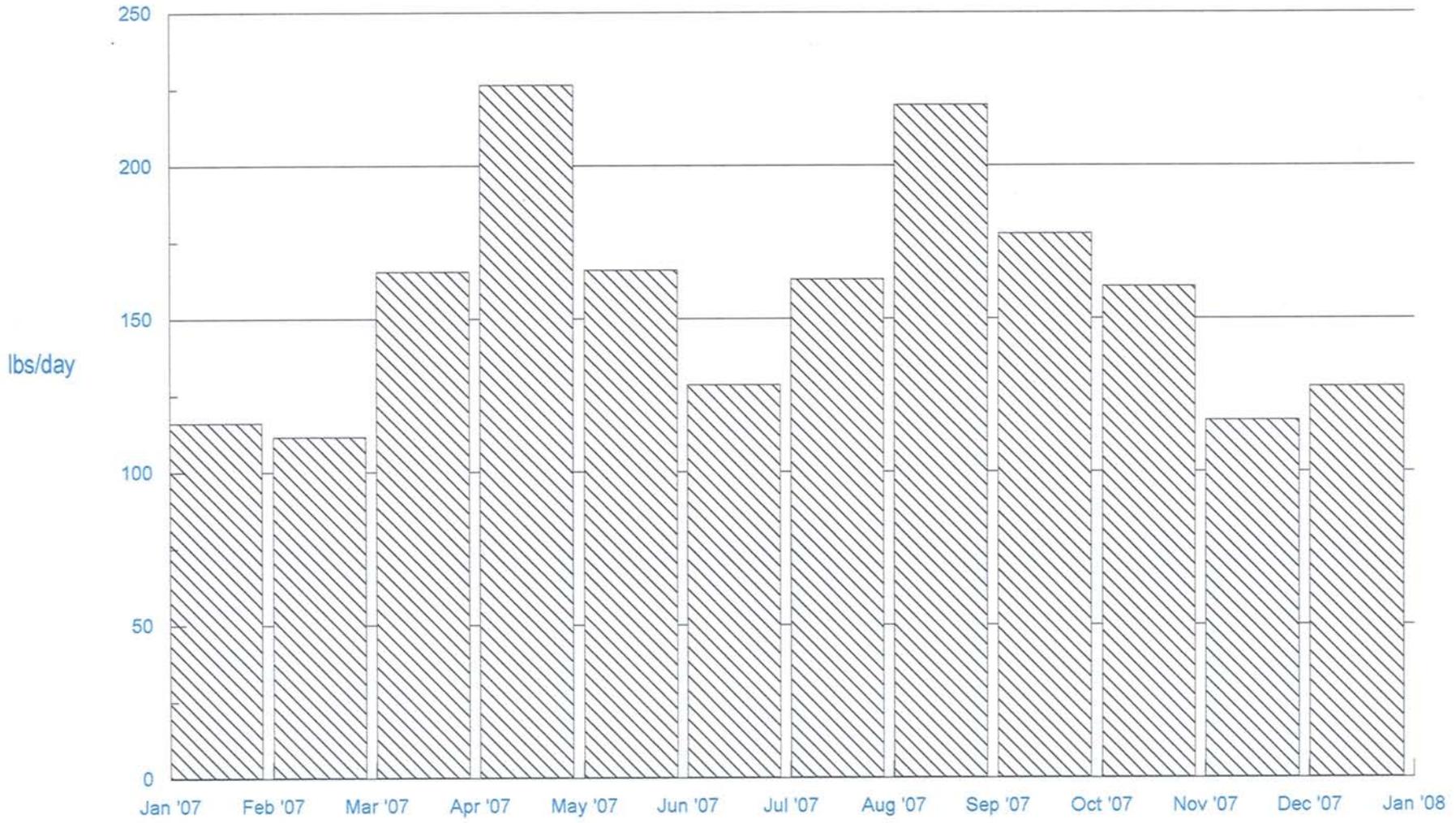
Annual Report 2007



Effluent Transfer Station  
/ Daily Effluent COD

OPS SQL (Ventura Water Reclamation Facility)  
ETS COD 07

# Annual Report 2007

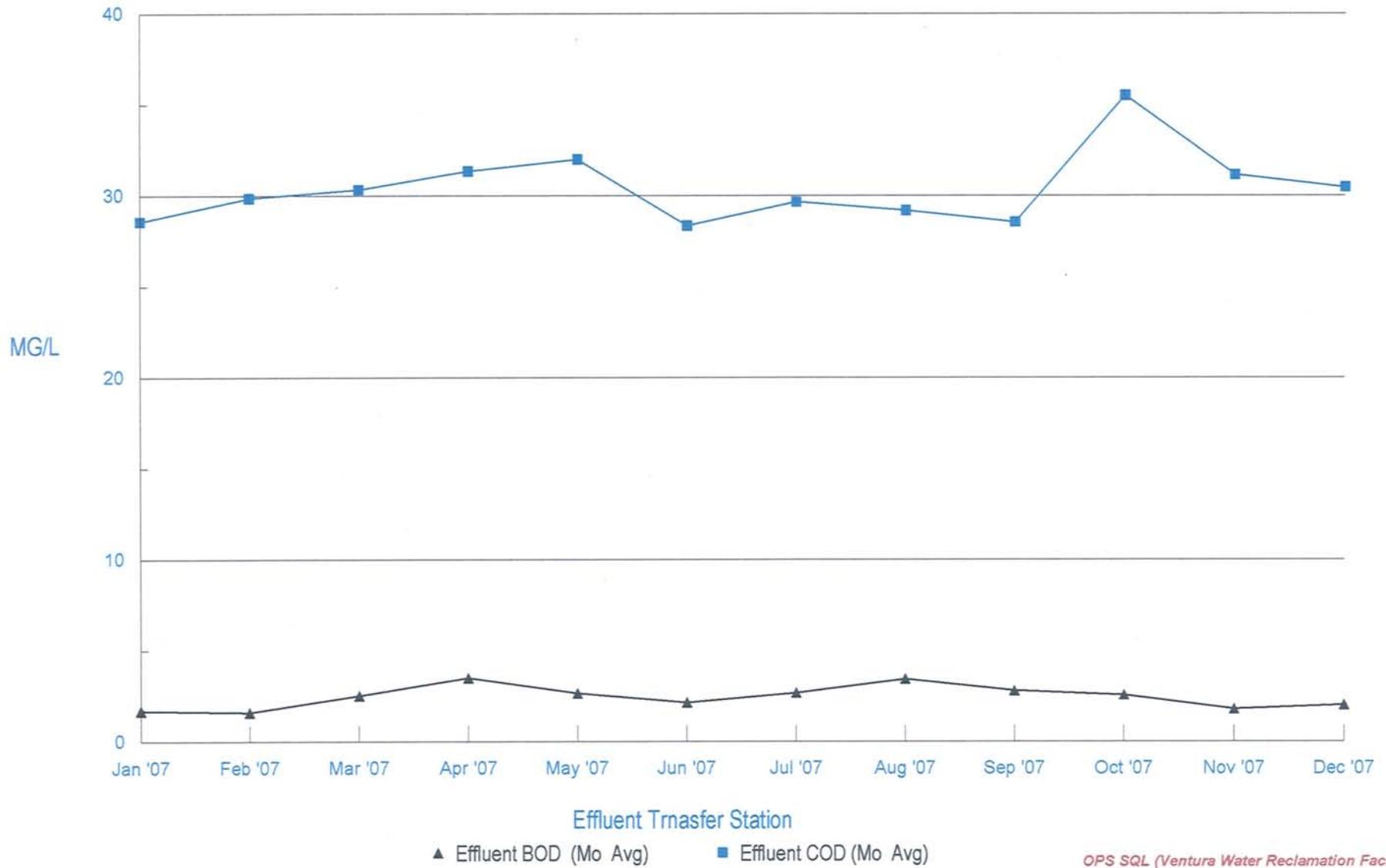


Effluent Transfer Station

☐ Effluent BOD Mass Emission Rate (Mo Avg)

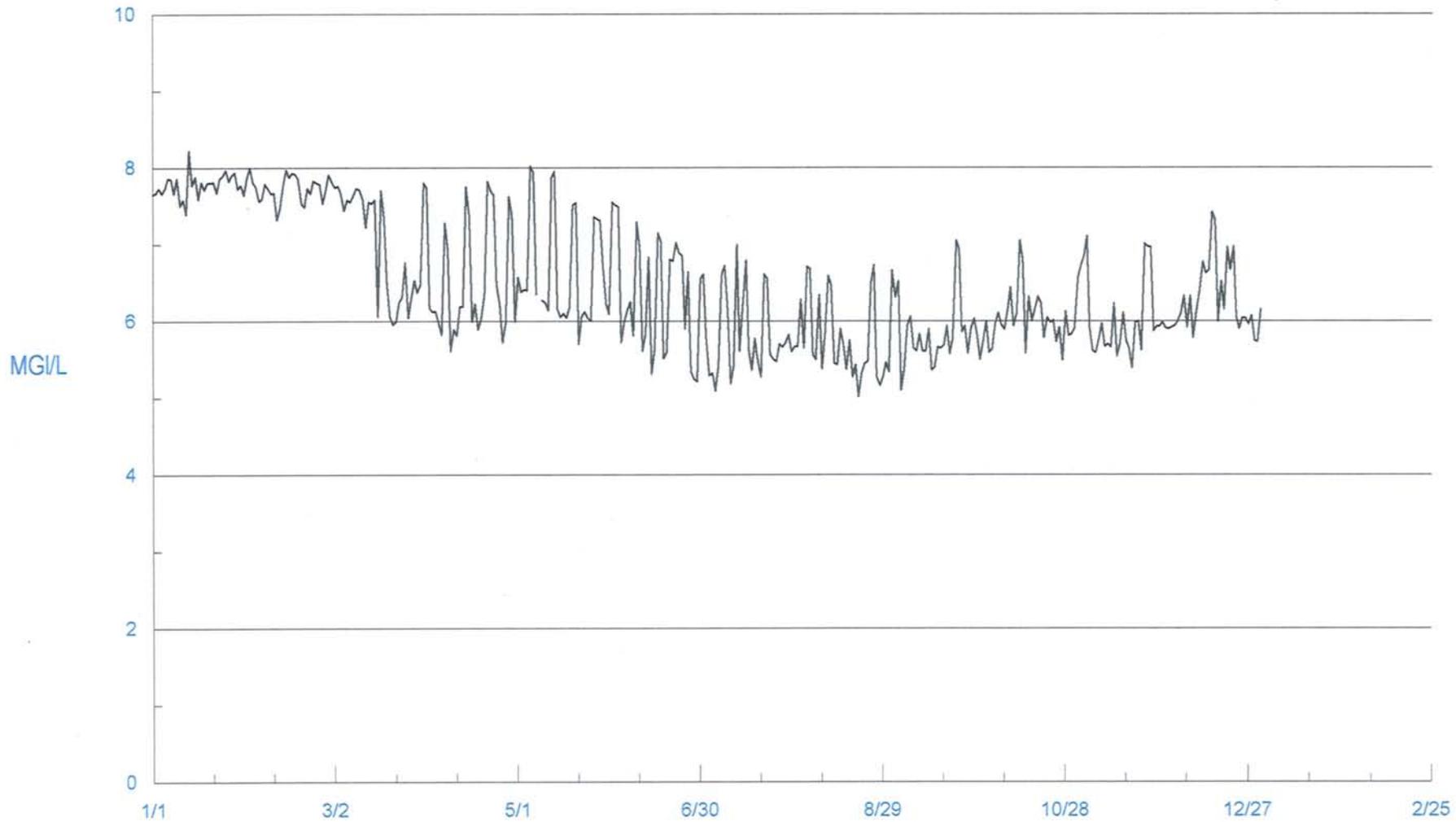
OPS SQL (Ventura Water Reclamation Facility)  
ETS BOD Load 07

Annual Report 2007



OPS SQL (Ventura Water Reclamation Facility)  
ETS COD & BOD 07

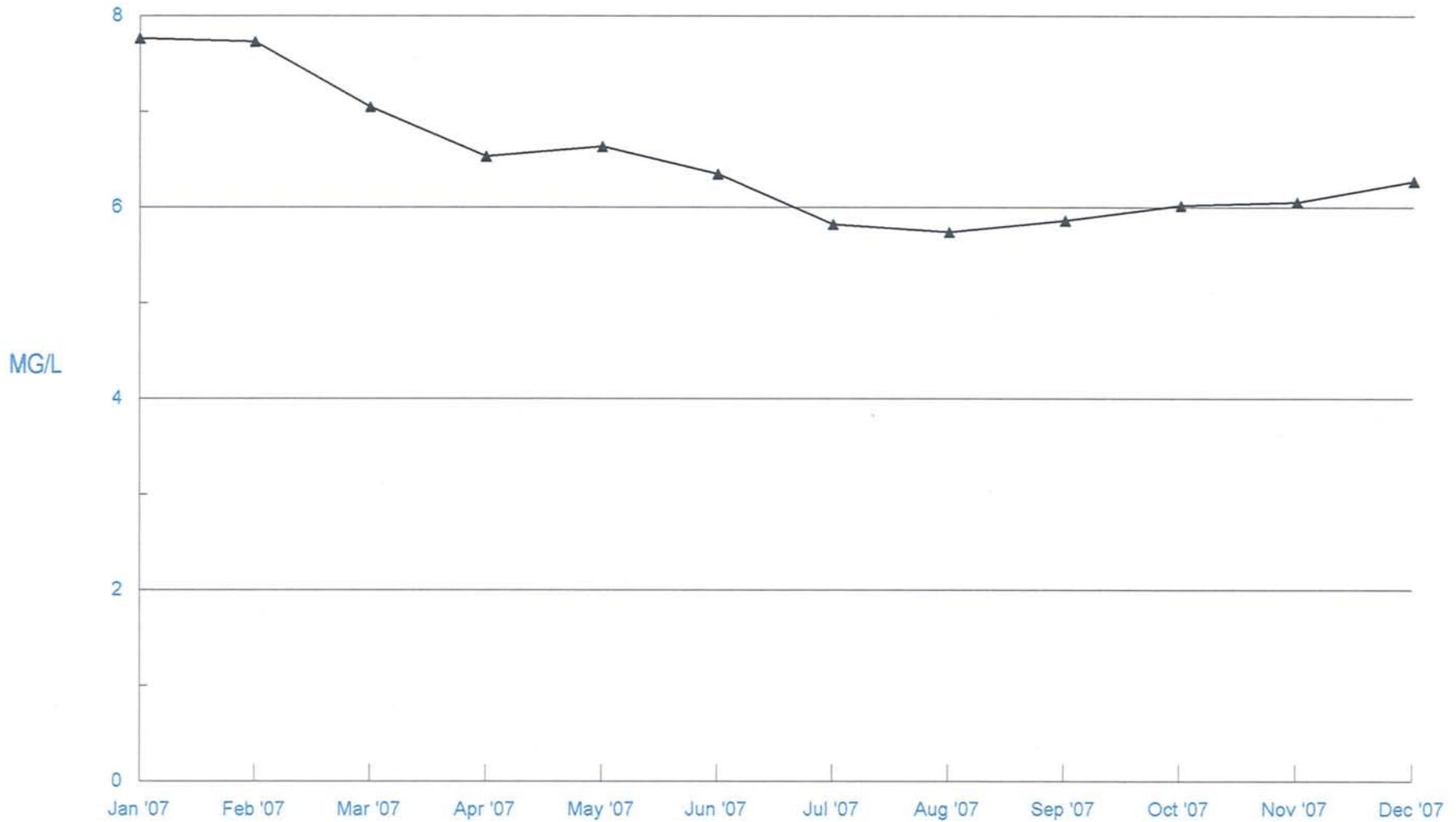
Annual Report 2007



Effluent Transfer Station  
/ Daily Effluent Dissolved Oxygen

OPS SQL (Ventura Water Reclamation Facility)  
ETS DO 07

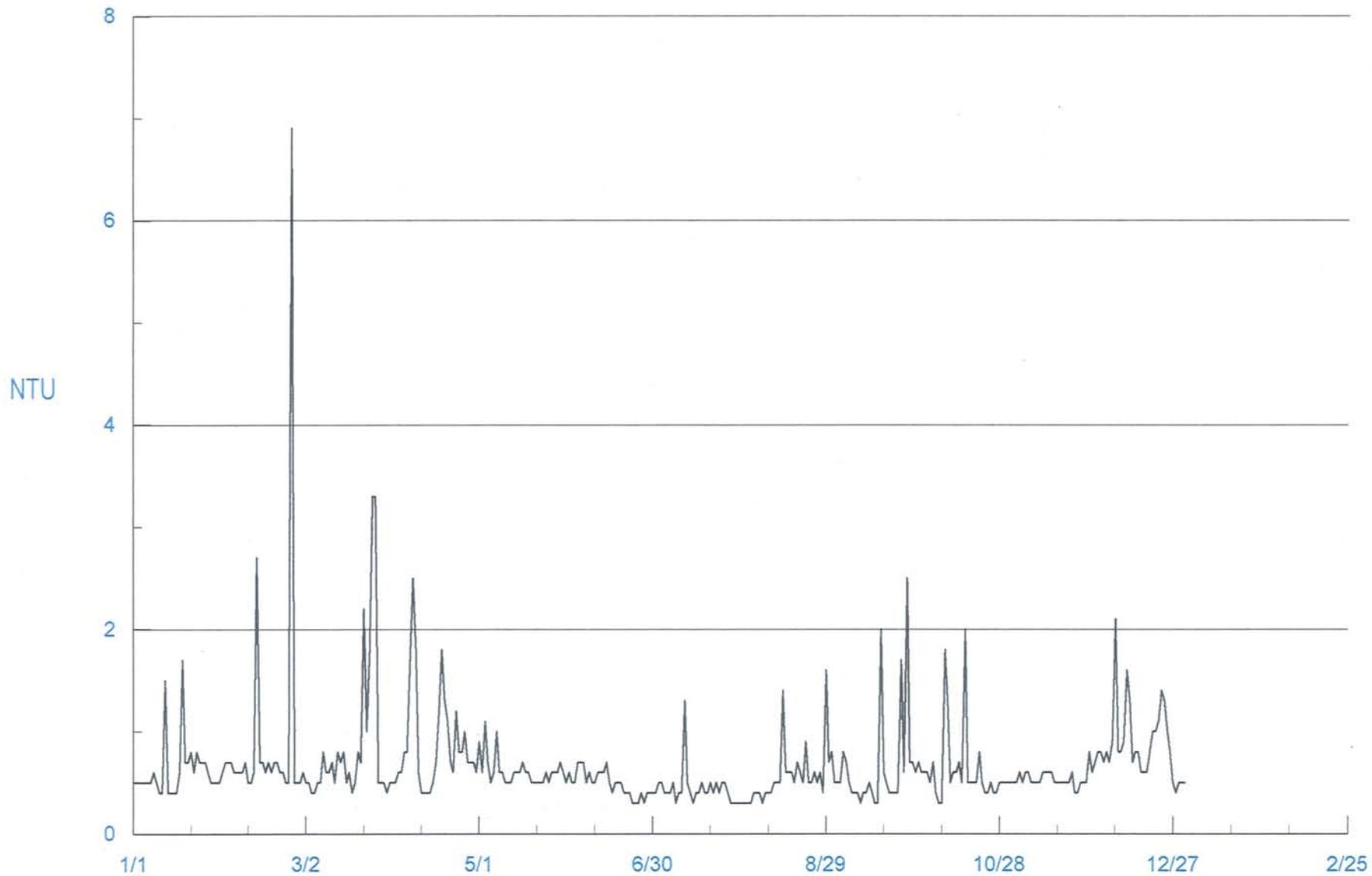
Annual Report 2007



Effluent Transfer Station  
▲ Effluent Dissolved Oxygen (Mo Avg)

OPS SQL (Ventura Water Reclamation Facility)  
ETS DO 07

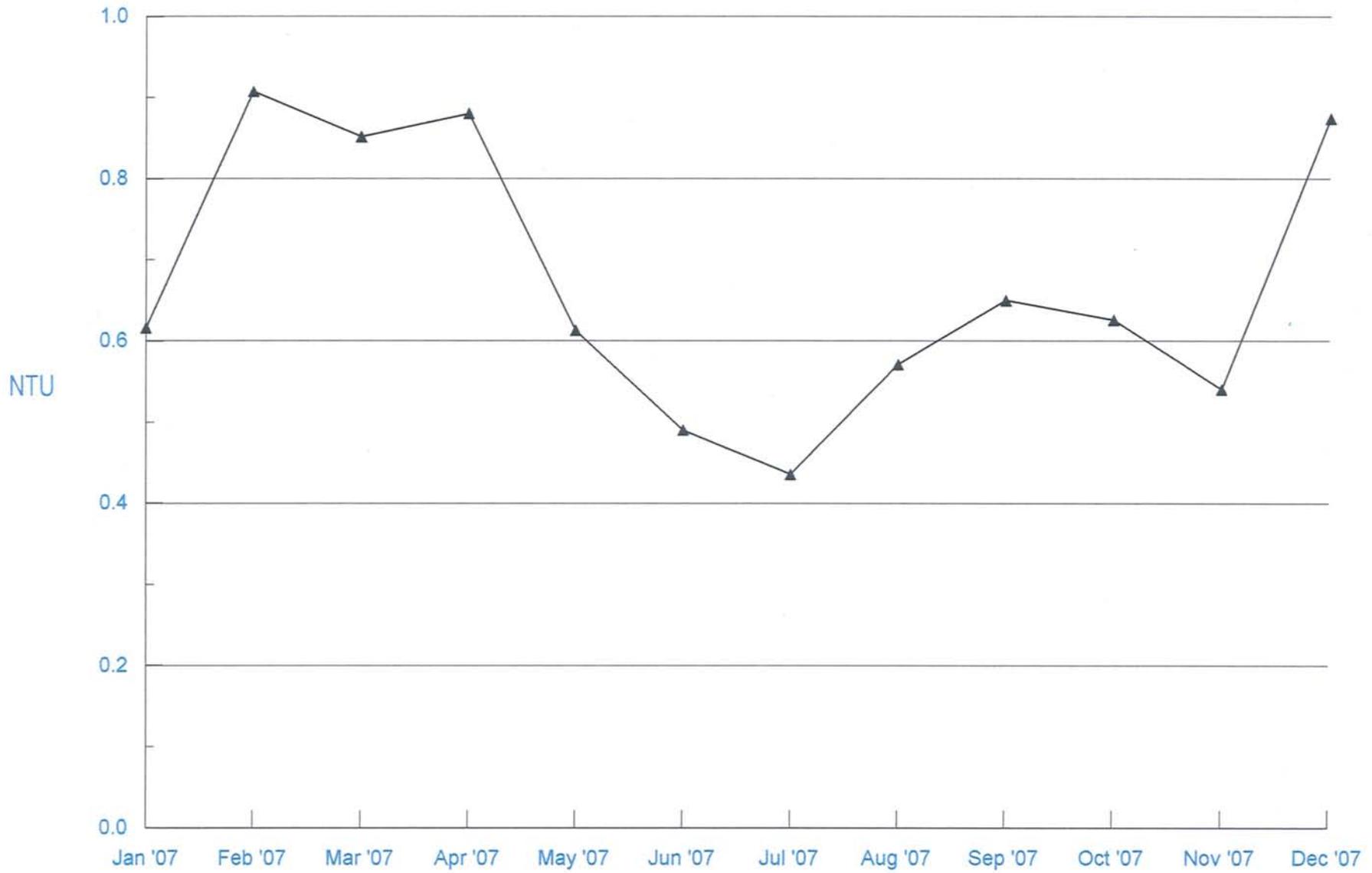
# Annual Report 2007



Effluent Transfer Station  
/ Daily Effluent Turbidity Max

OPS SQL (Ventura Water Reclamation Facility)  
ETS Turb 07

# Annual Report 2007

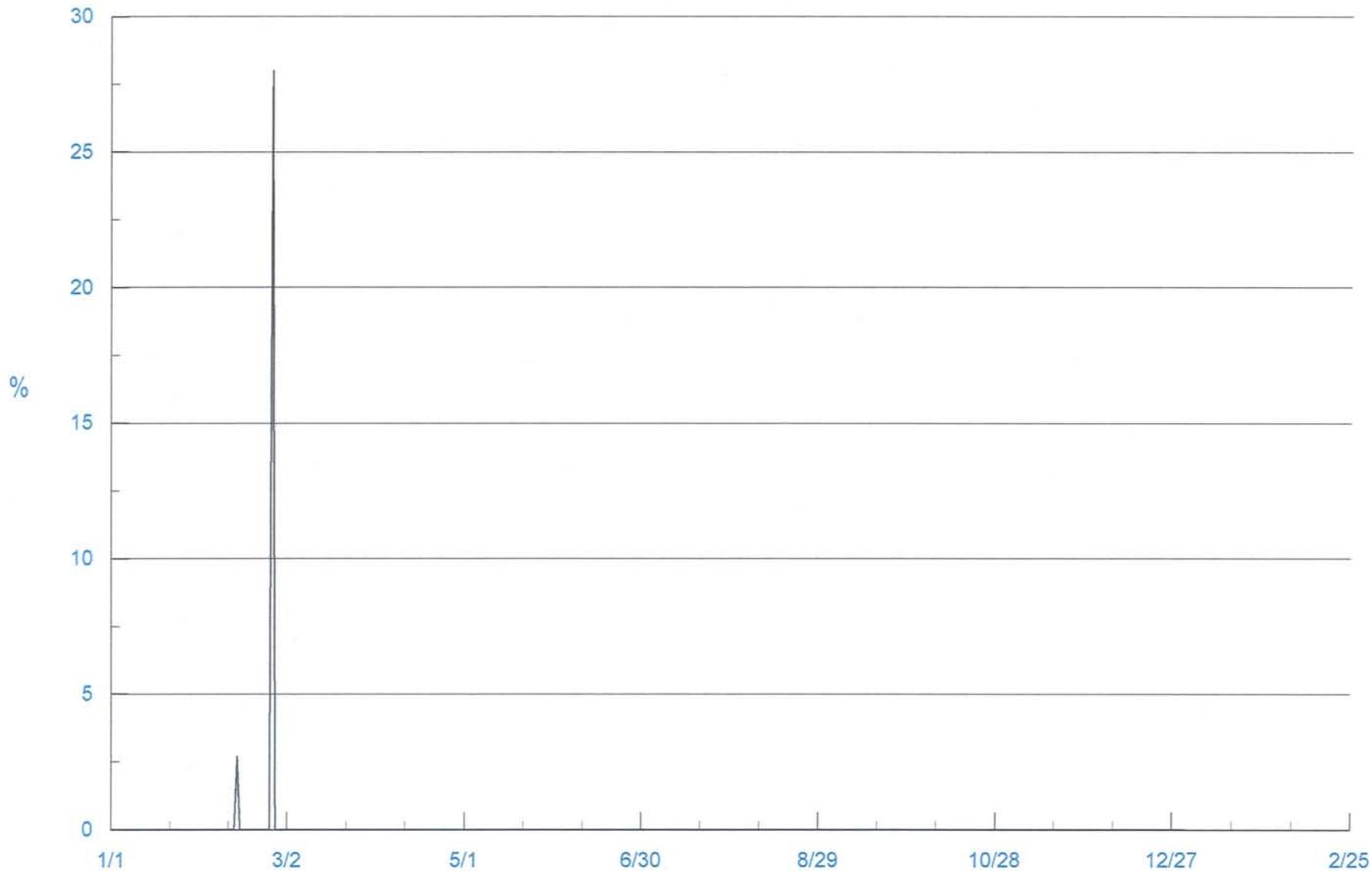


Effluent Transfer Station

▲ Effluent Turbidity Max (Mo Avg)

OPS SQL (Ventura Water Reclamation Facility)  
ETS Turb 07

# Annual Report 2007

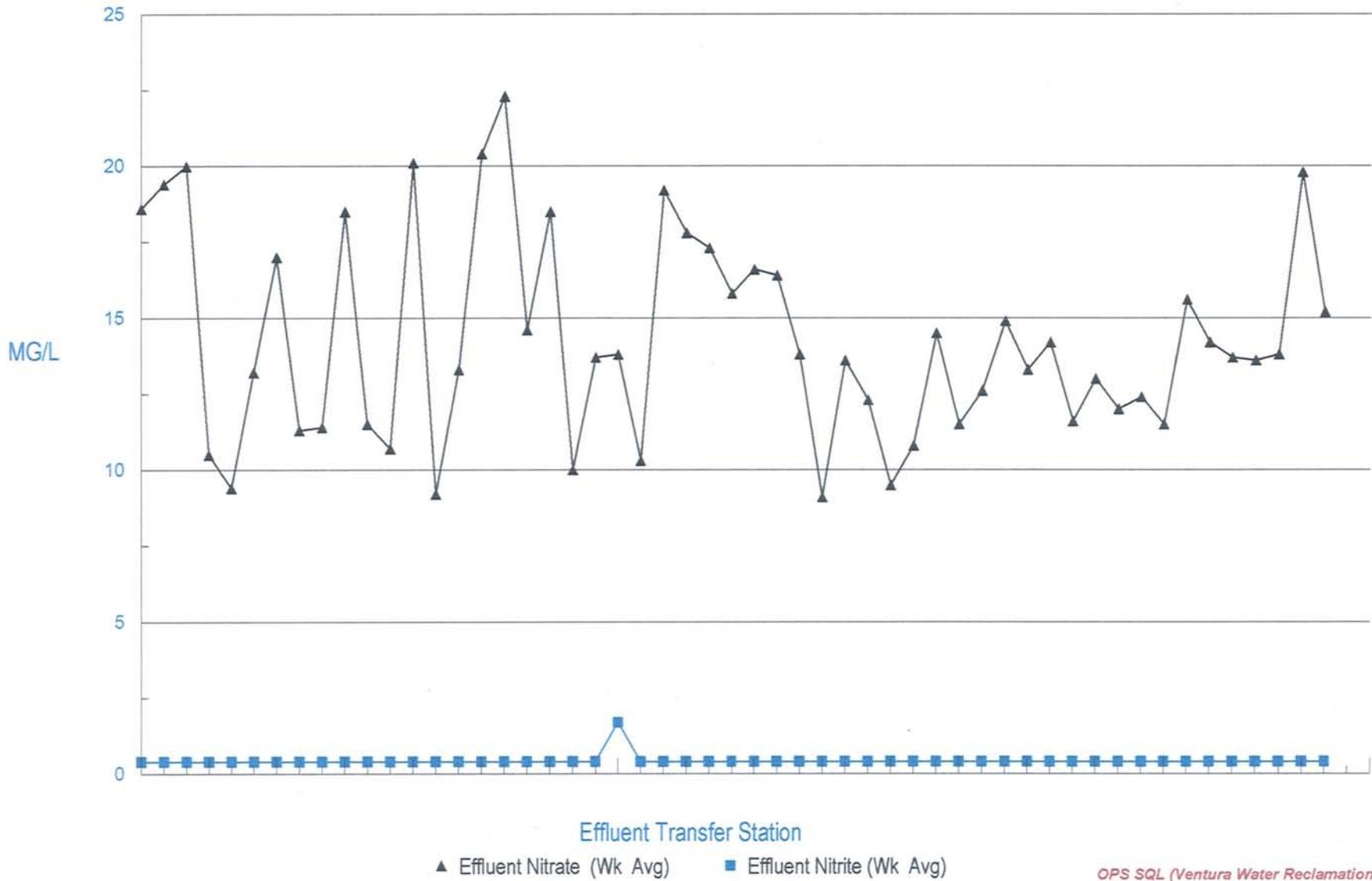


Effluent Transfer Station

/ Effluent Turbidity Exceeding 5 NTU

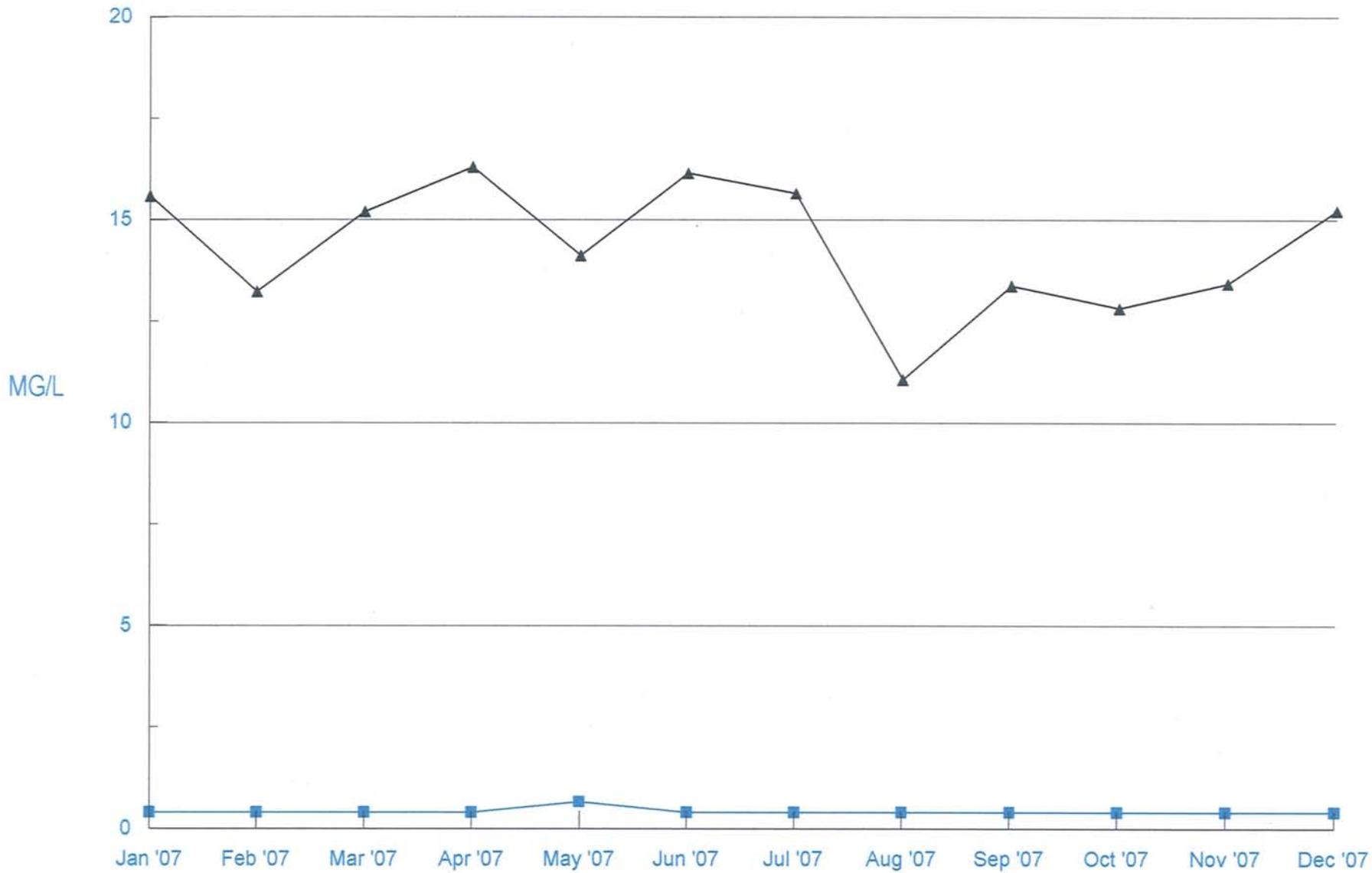
OPS SQL (Ventura Water Reclamation Facility)  
ETS Turb 07

Annual Report 2007



OPS SQL (Ventura Water Reclamation Facility)  
ETS NO3 & NO2 07

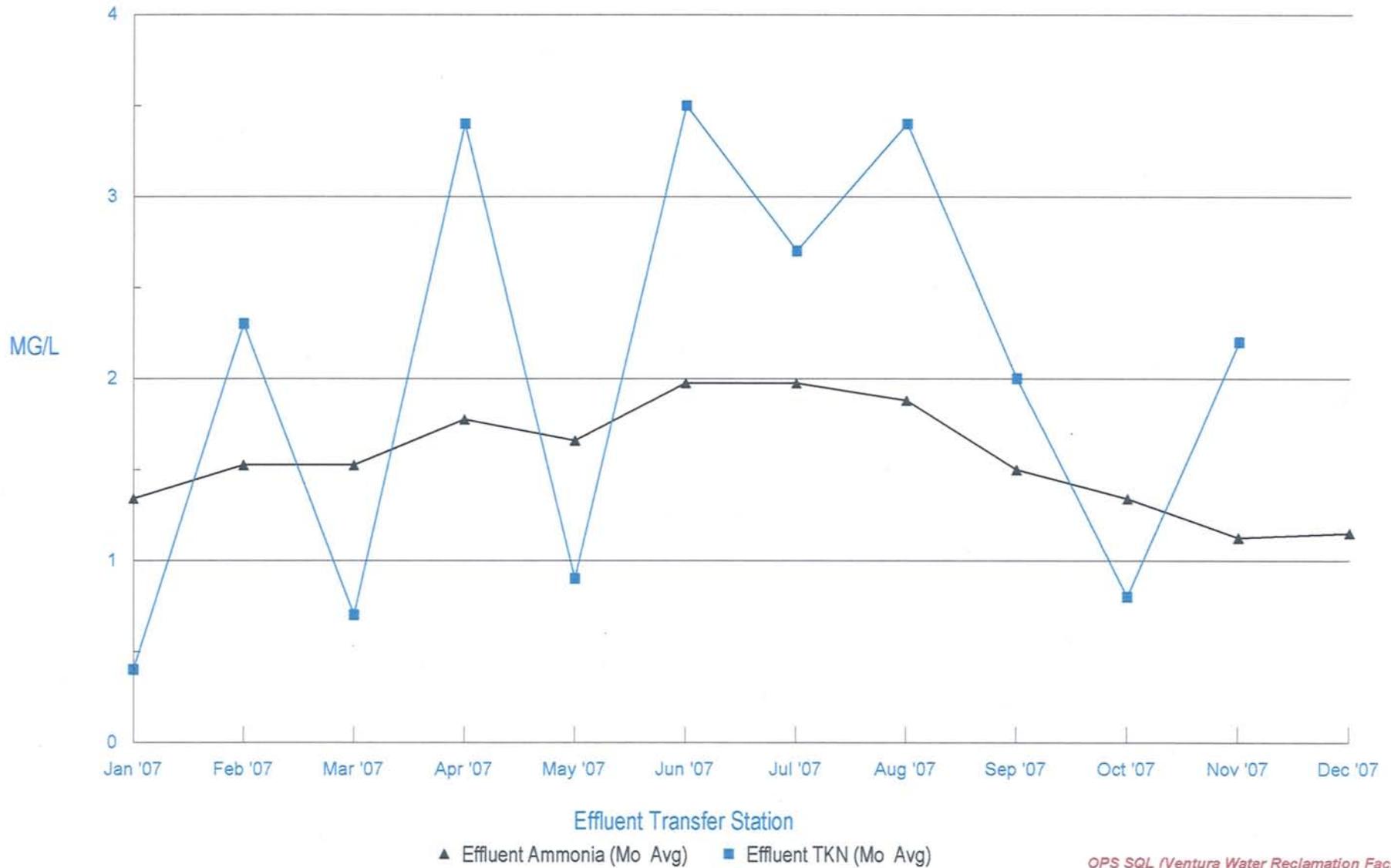
# Annual Report 2007



Effluent Transfer Station  
▲ Effluent Nitrate (Mo Avg) ■ Effluent Nitrite (Mo Avg)

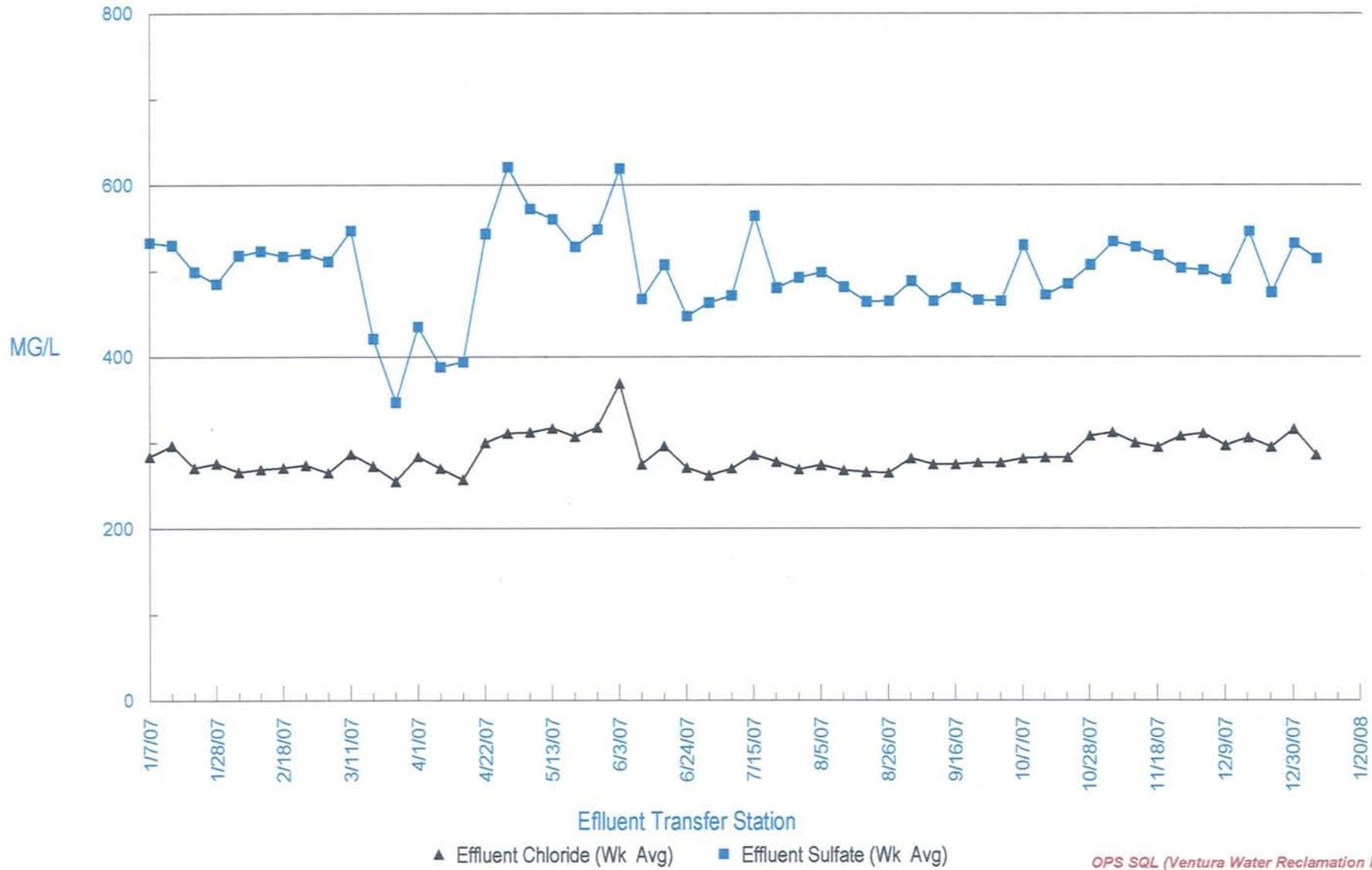
OPS SQL (Ventura Water Reclamation Facility)  
ETS NO3 & NO2 07

# Annual Report 2007



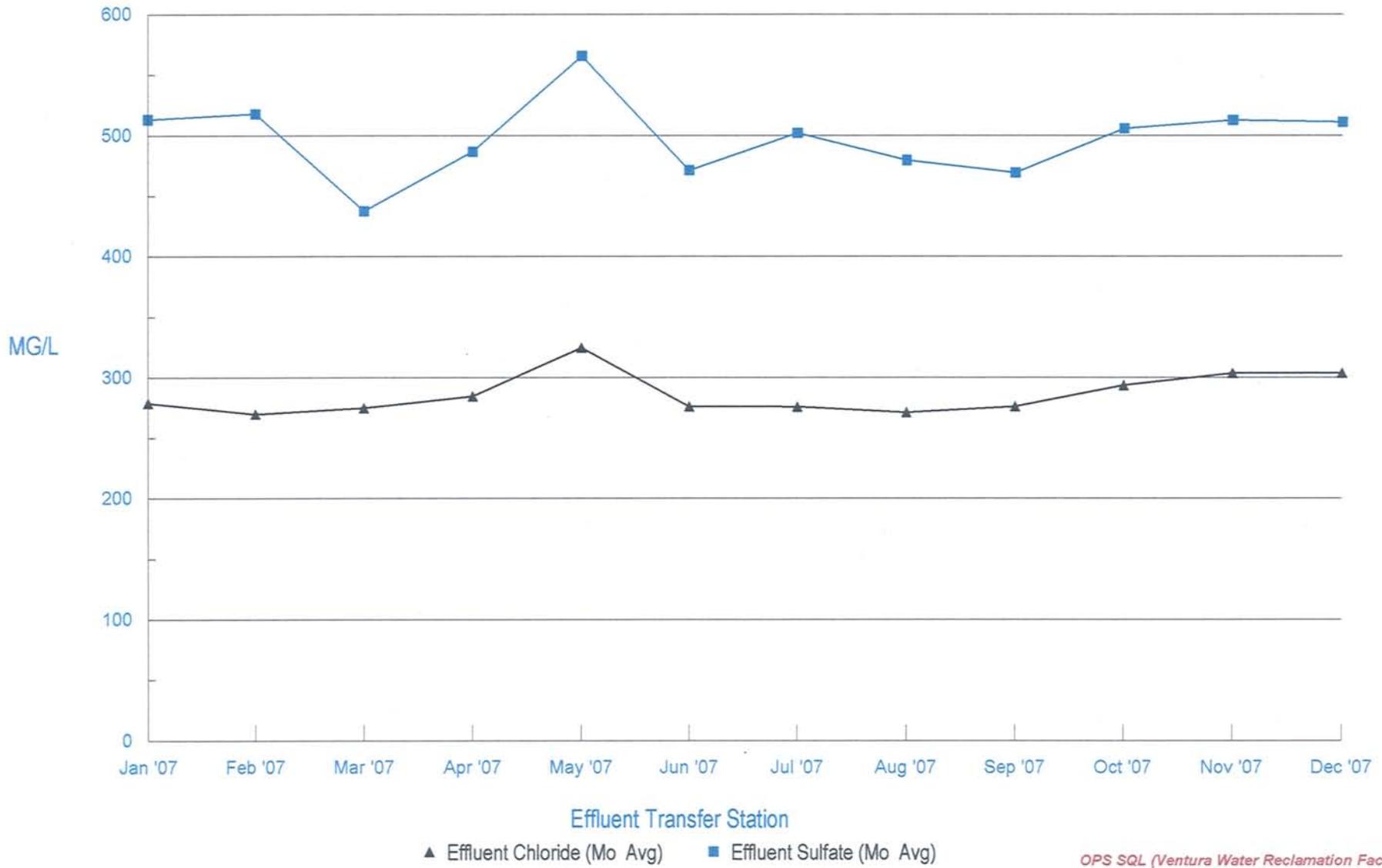
OPS SQL (Ventura Water Reclamation Facility)  
ETS NH3 & TKN 07

# Annual Report 2007



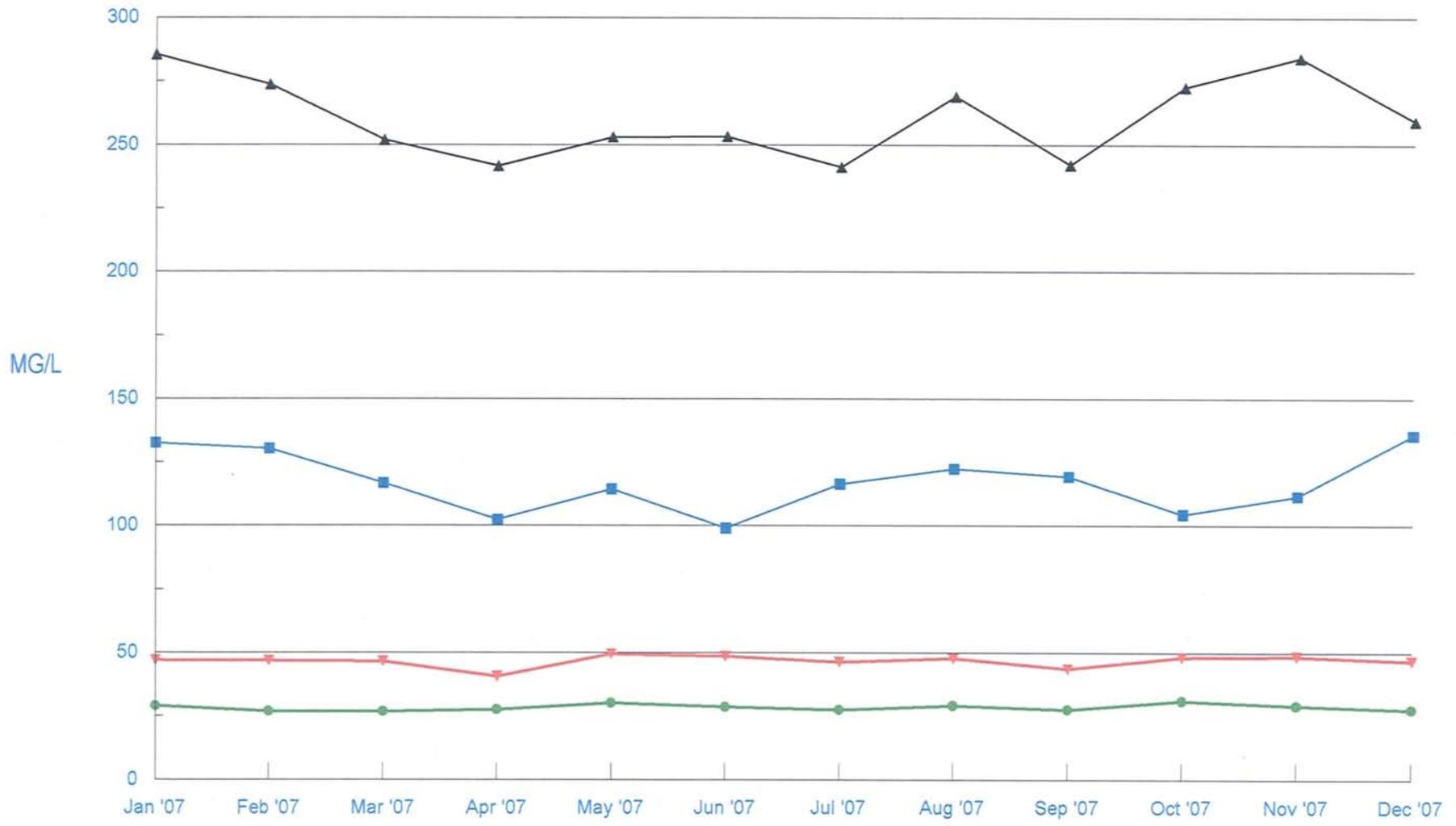
*OPS SQL (Ventura Water Reclamation Facility)  
ETS Cl & SO4 07*

Annual Report 2007



OPS SQL (Ventura Water Reclamation Facility)  
ETS Cl & SO4 07

Annual Report 2007

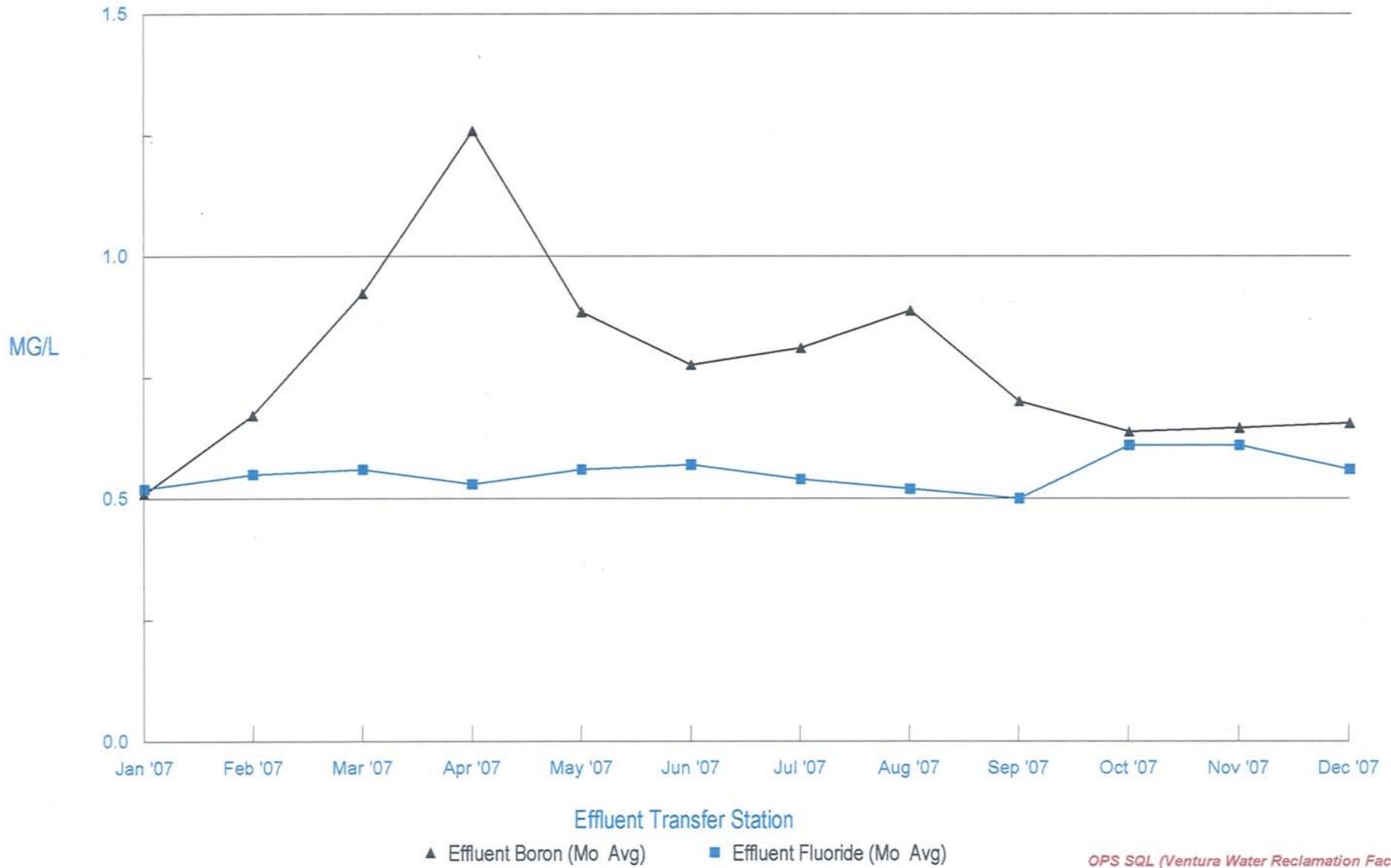


Effluent Transfer Station - Monthly Average

▲ Sodium    ■ Calcium    ▼ Magnesium    ● Potassium

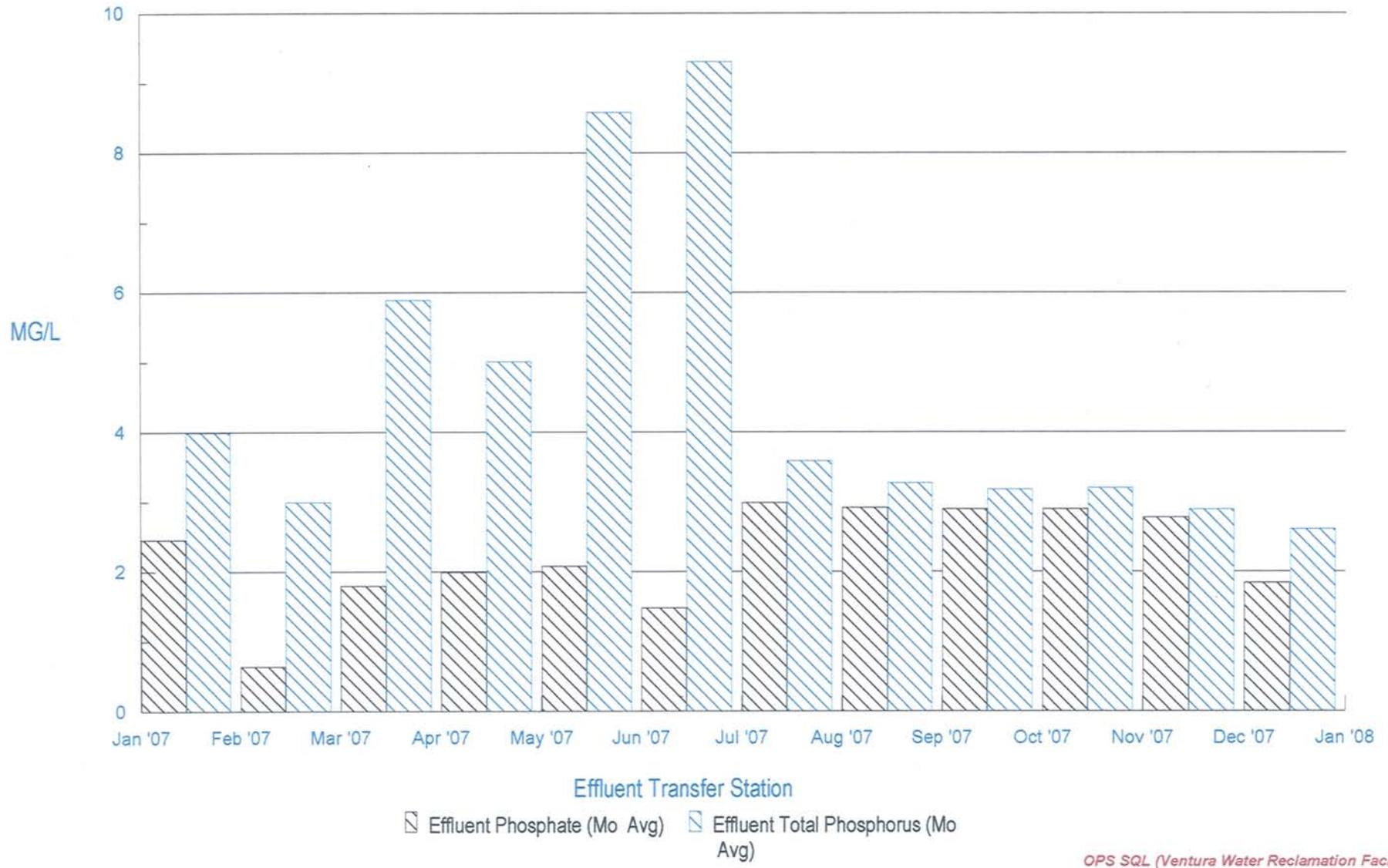
OPS SQL (Ventura Water Reclamation Facility)  
ETS Minerals 07

Annual Report 2007



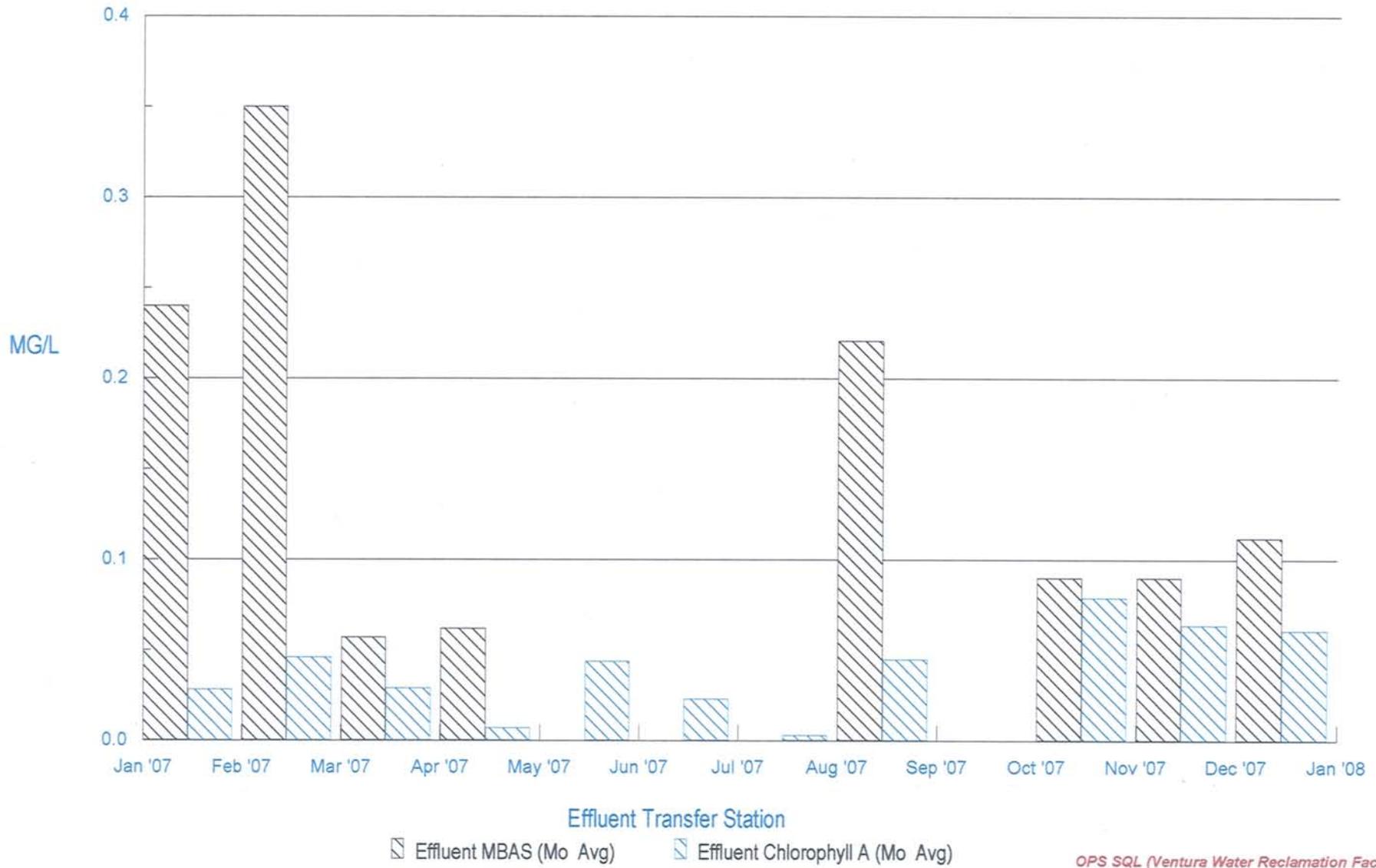
OPS SQL (Ventura Water Reclamation Facility)  
ETS F & B 07

# Annual Report 2007



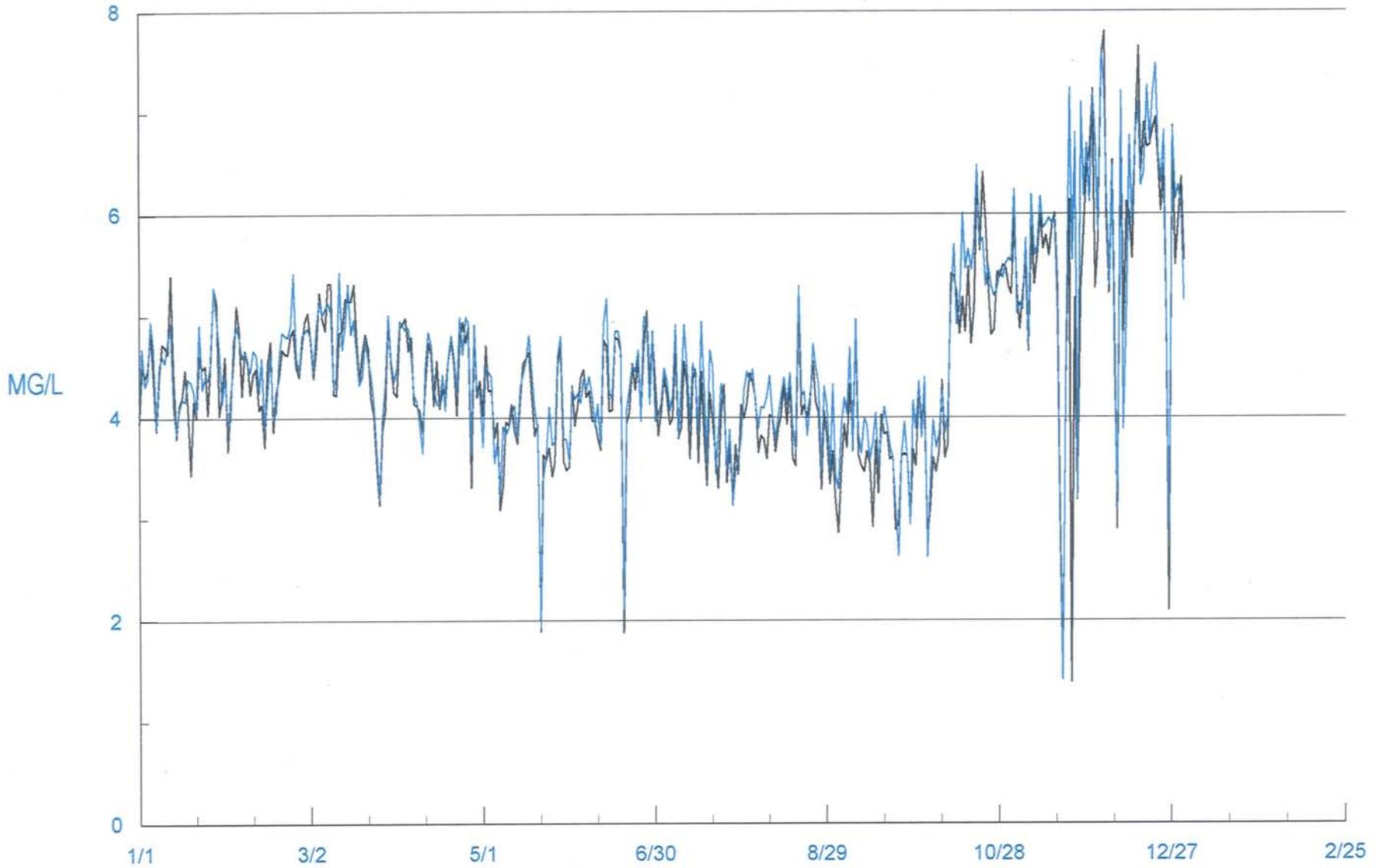
OPS SQL (Ventura Water Reclamation Facility)  
ETS PO4 & Tot P 07

# Annual Report 2007



*OPS SQL (Ventura Water Reclamation Facility)  
ETS MBAS & Chloro A 07*

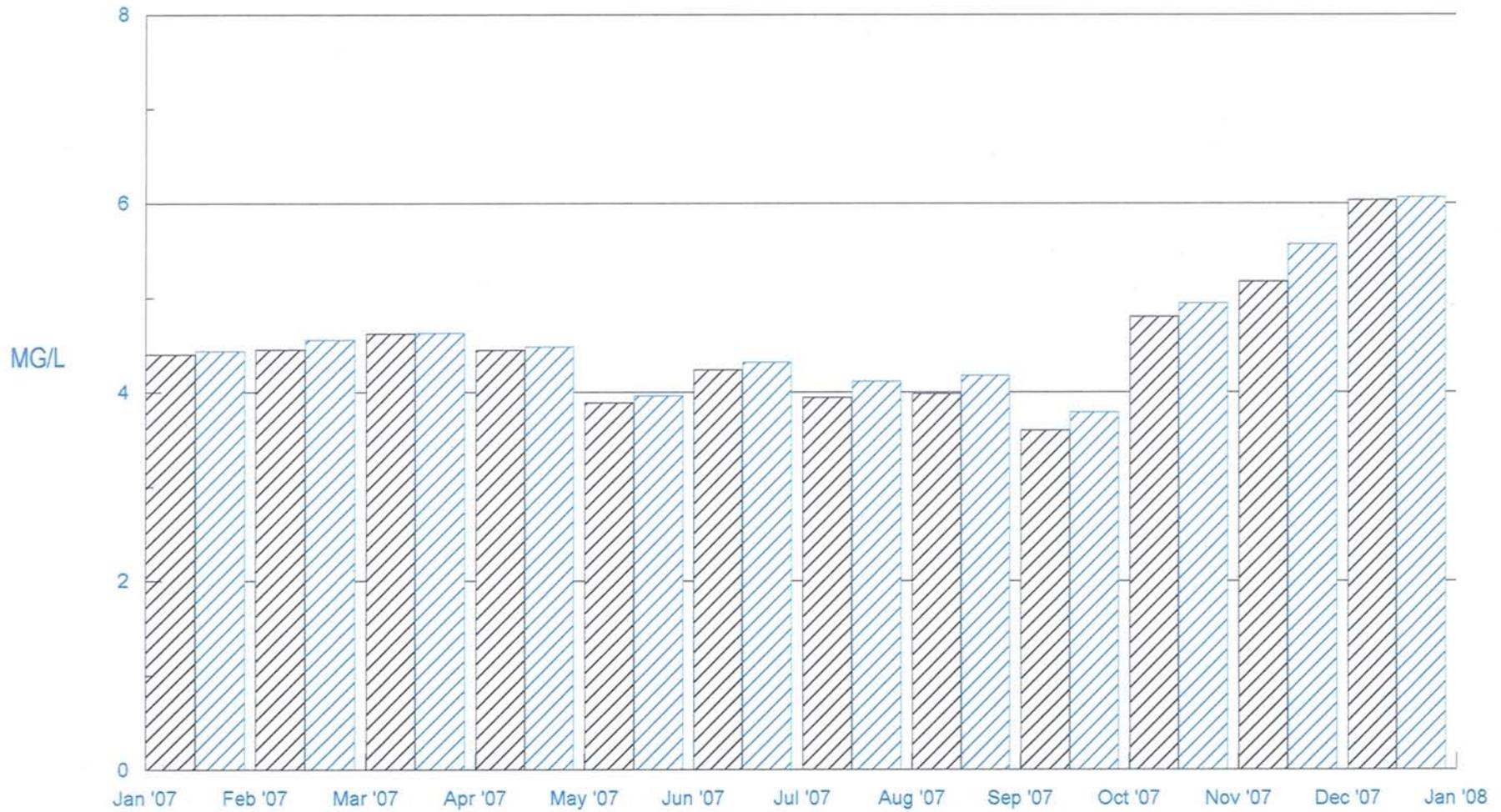
# Annual Report 2007



Effluent Transfer Station - Daily Chlorine Residual  
/ Effluent @ 11 AM      / Contact Chamber @ 11 AM

*OPS SQL (Ventura Water Reclamation Facility)  
ETS Chlorine Res 07*

Annual Report 2007



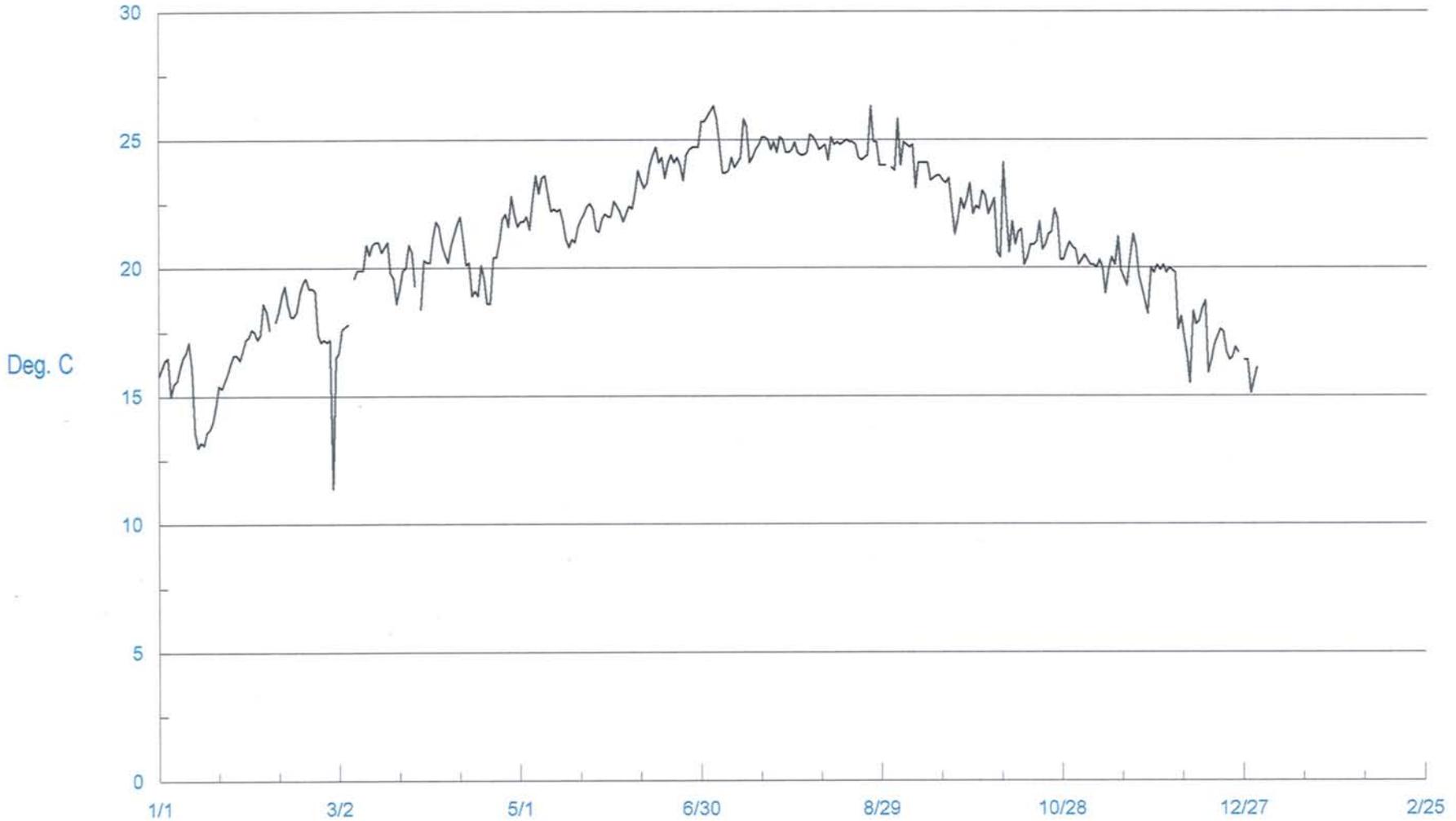
Effluent Transfer Station -Chlorine Residual

Effluent @ 11 AM (Mo Avg)
  Contact Chamber @ 11 AM (Mo Avg)

OPS SQL (Ventura Water Reclamation Facility)  
ETS Chlorine Res 07



Annual Report 2007

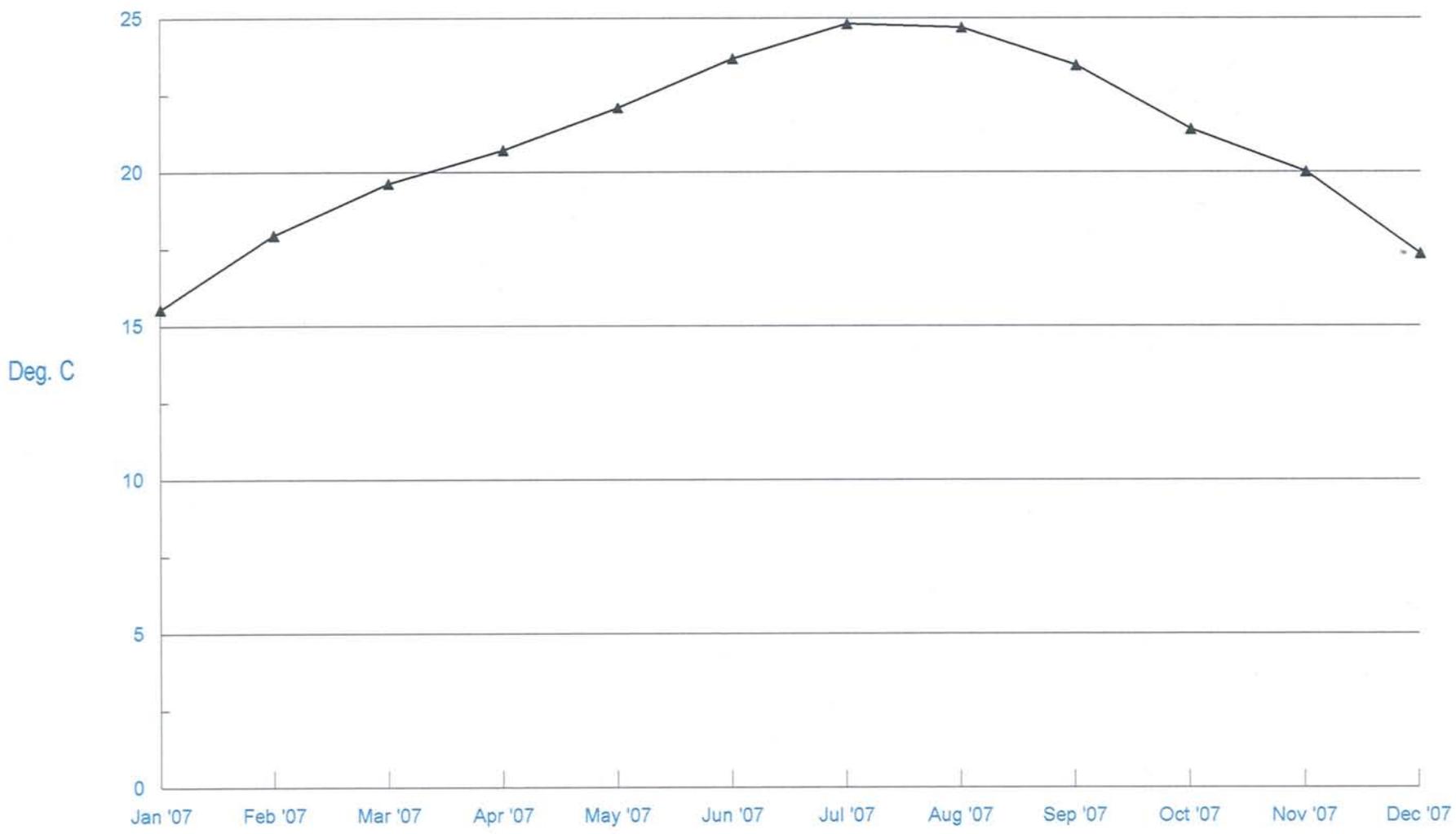


Outfall Junction Structure

/ Daily Effluent Temperature @ 11 AM

OPS SQL (Ventura Water Reclamation Facility)  
Outfall Temp 07

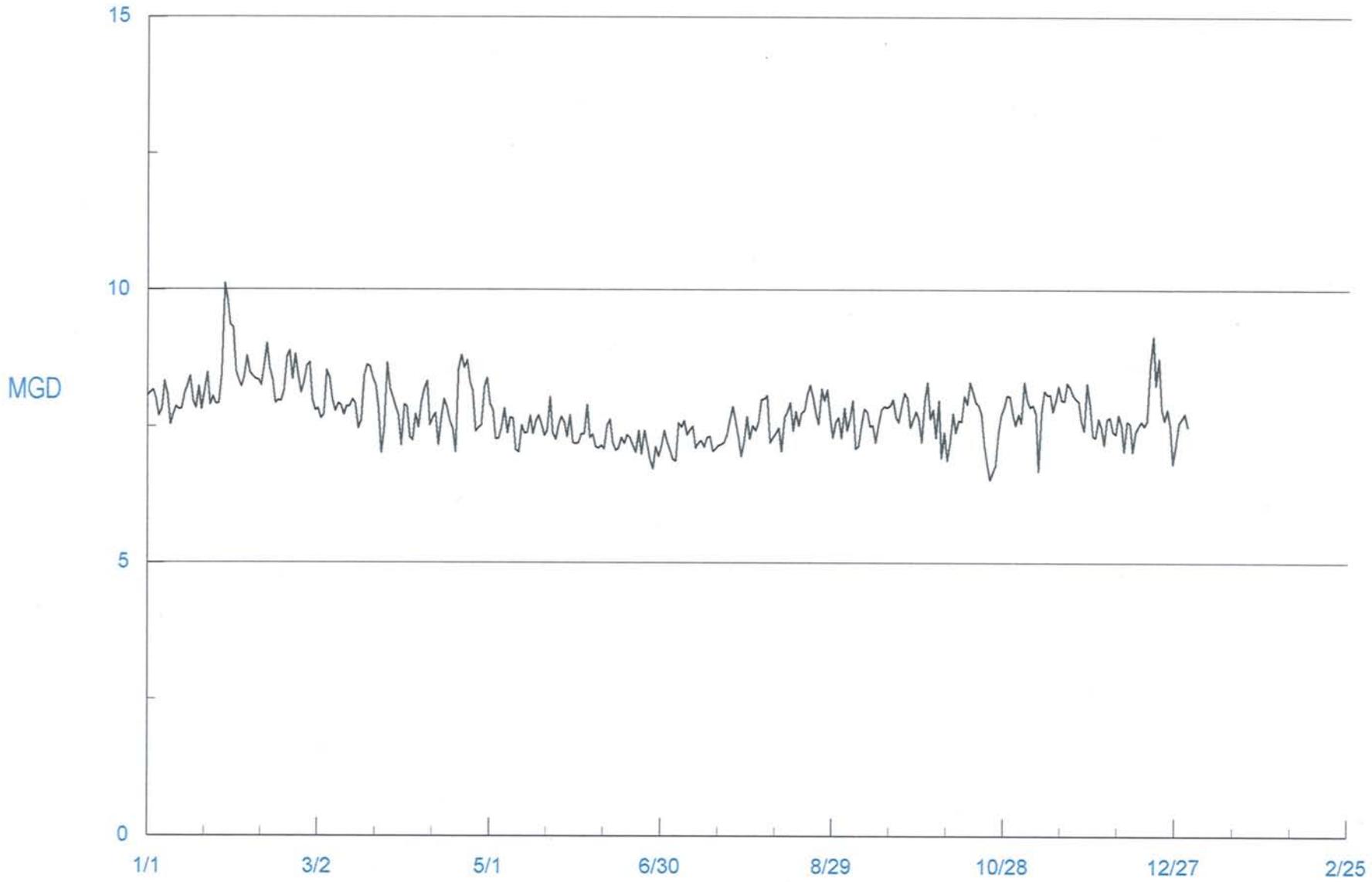
Annual Report 2007



Outfall Junction Structure  
▲ Effluent Temperature @ 11 AM (Mo Avg)

OPS SQL (Ventura Water Reclamation Facility)  
Outfall Temp 07

# Annual Report 2007

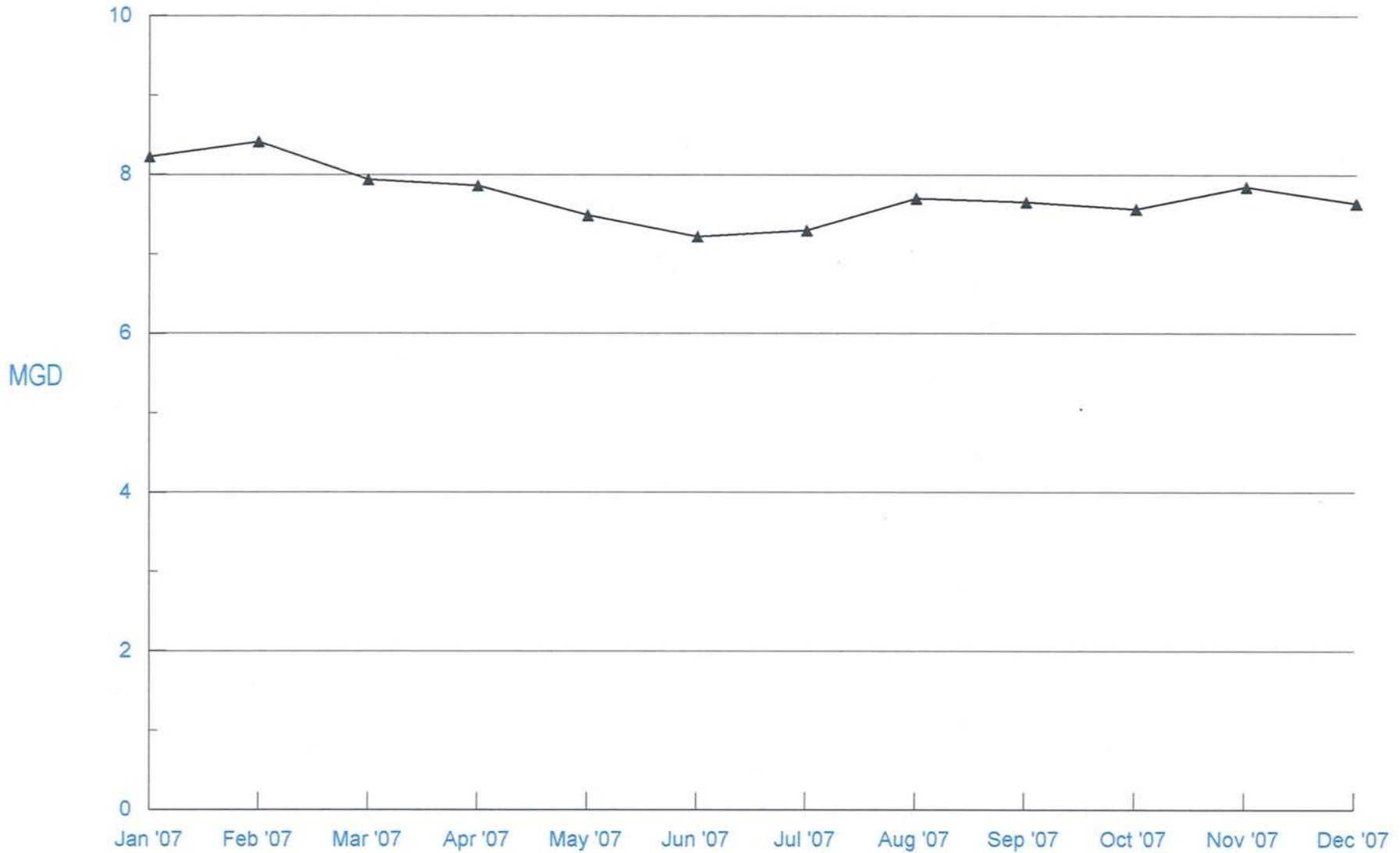


Outfall Junction Structure

/ Effluent Discharge To The Santa Clara Tidal Prism

OPS SQL (Ventura Water Reclamation Facility)  
Outfall Flow 07

# Annual Report 2007



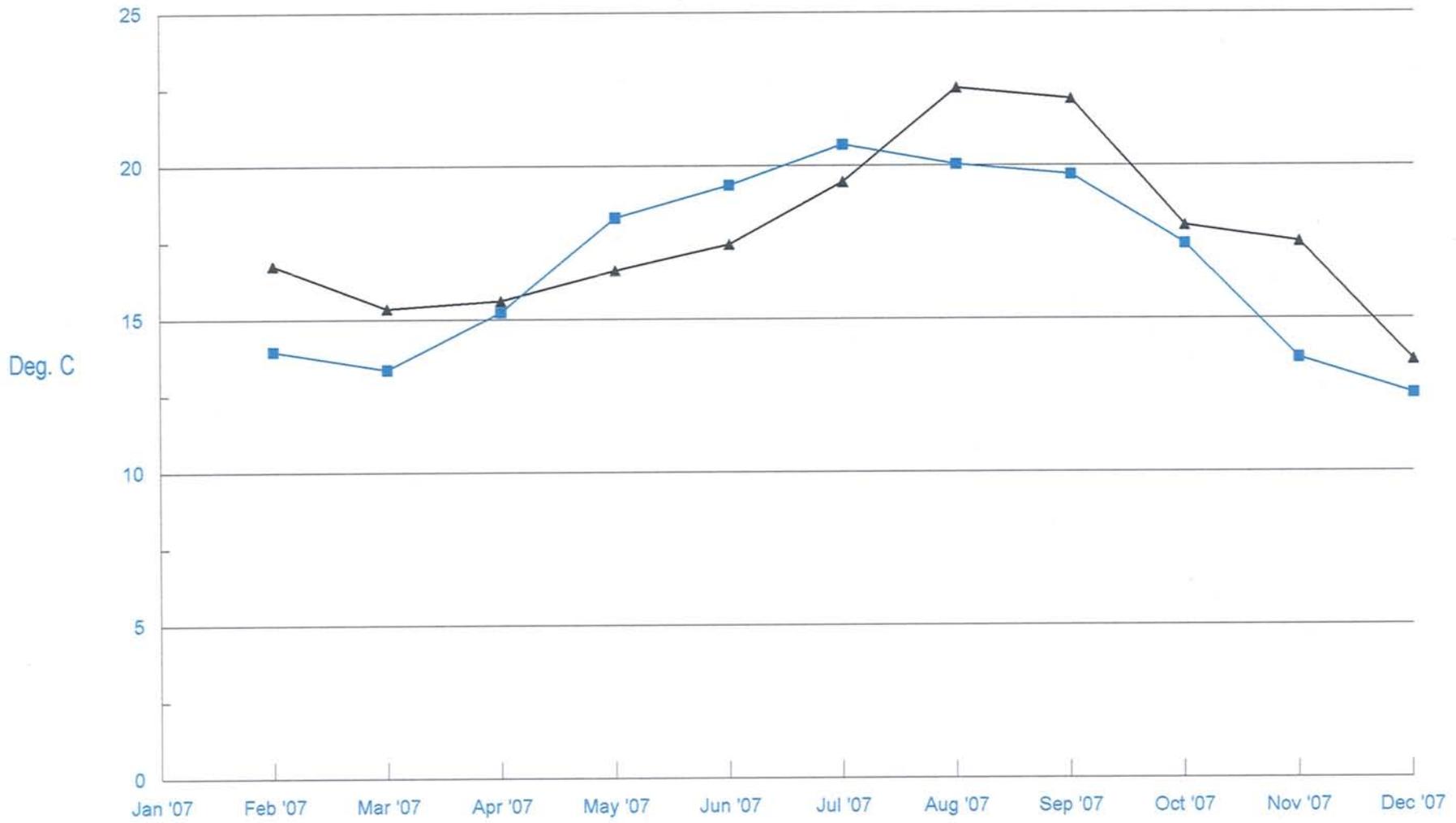
Outfall Junction Structure

▲ Effluent Discharge To The Santa River Tidal Prism (Mo Avg)

OPS SQL (Ventura Water Reclamation Facility)  
Outfall Flow 07



Annual Report 2007

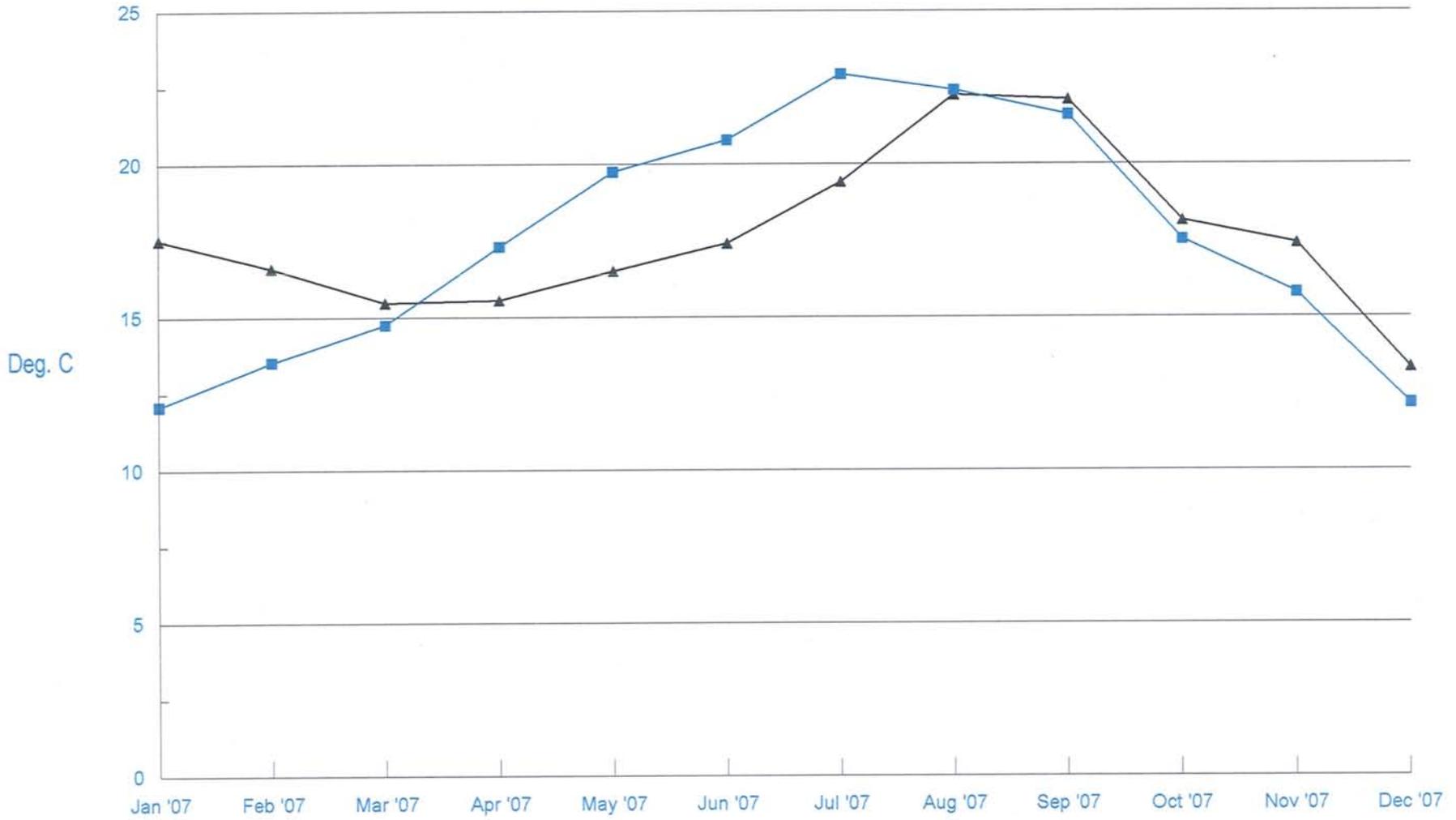


Receiving Water Station - R1

▲ Air Temperature (Mo Avg)    ■ Water Temperature (Mo Avg)

OPS SQL (Ventura Water Reclamation Facility)  
R1 Temperatures

Annual Report 2007

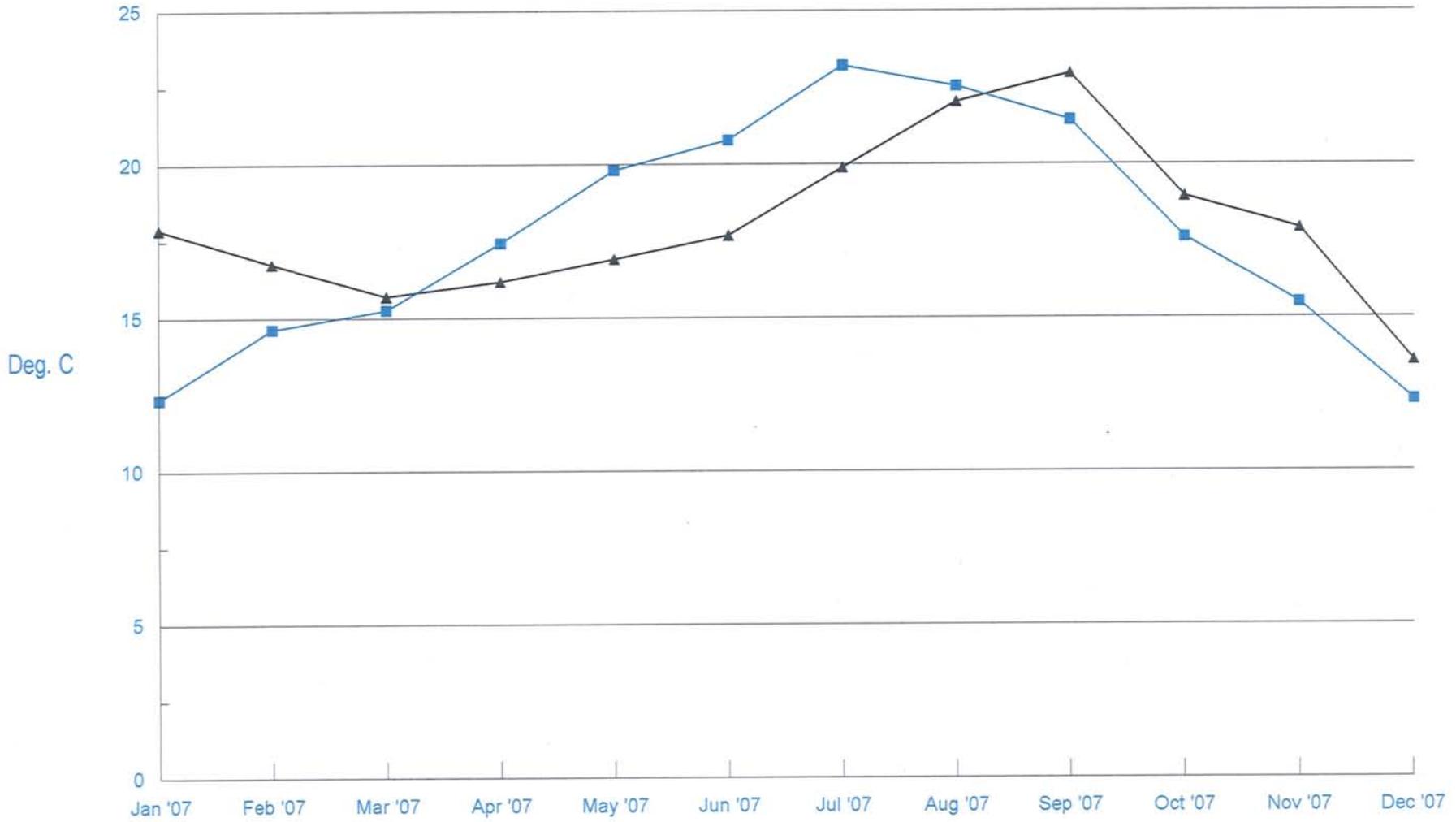


Receiving Water Station - R2

▲ Air Temperature (Mo Avg)    ■ Water Temperature (Mo Avg)

OPS SQL (Ventura Water Reclamation Facility)  
R2 Temperatures

# Annual Report 2007

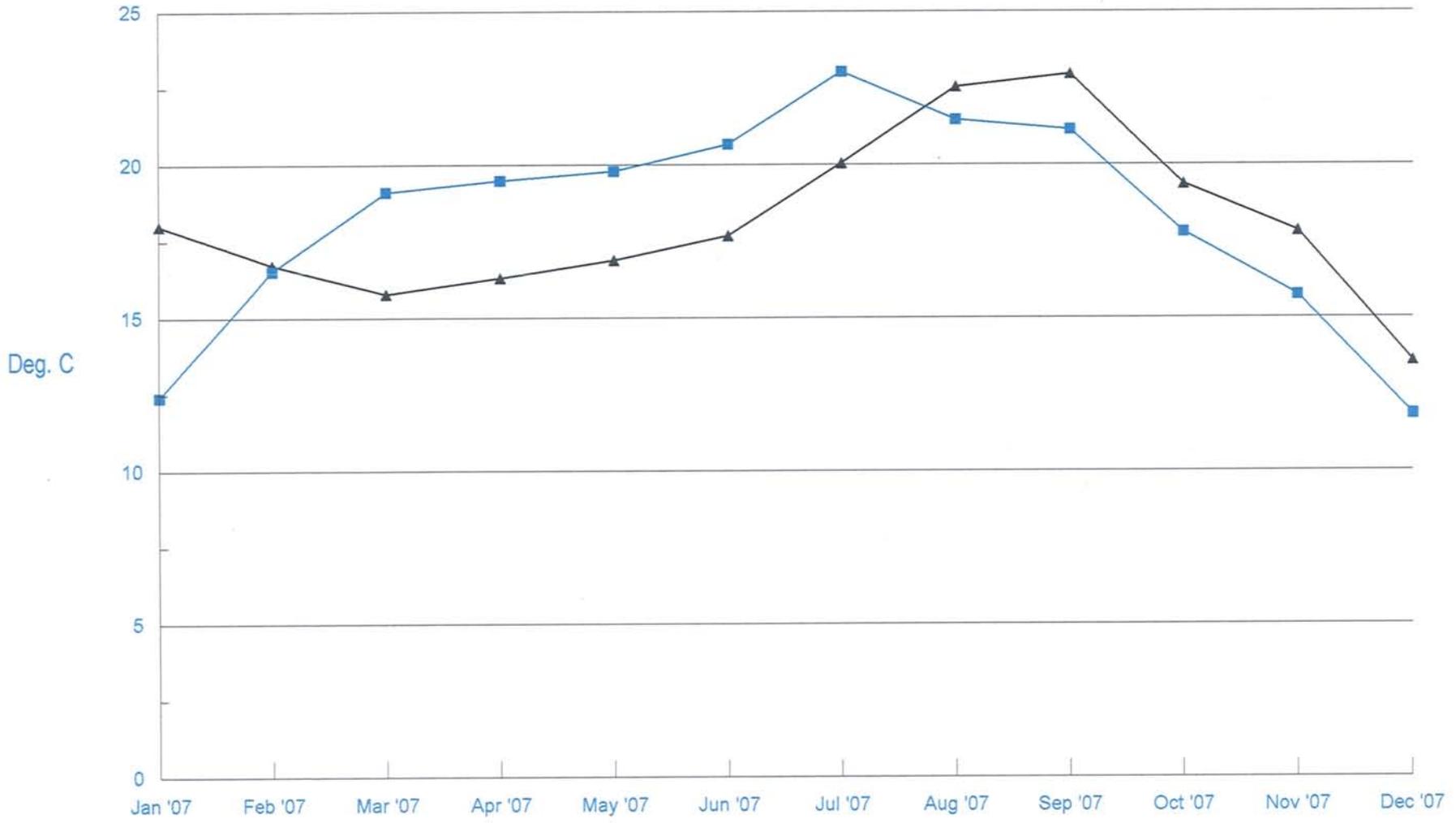


Receiving Water Station - R3

▲ Air Temperature (Mo Avg)    ■ Water Temperature (Mo Avg)

OPS SQL (Ventura Water Reclamation Facility)  
R3 Temperatures

Annual Report 2007

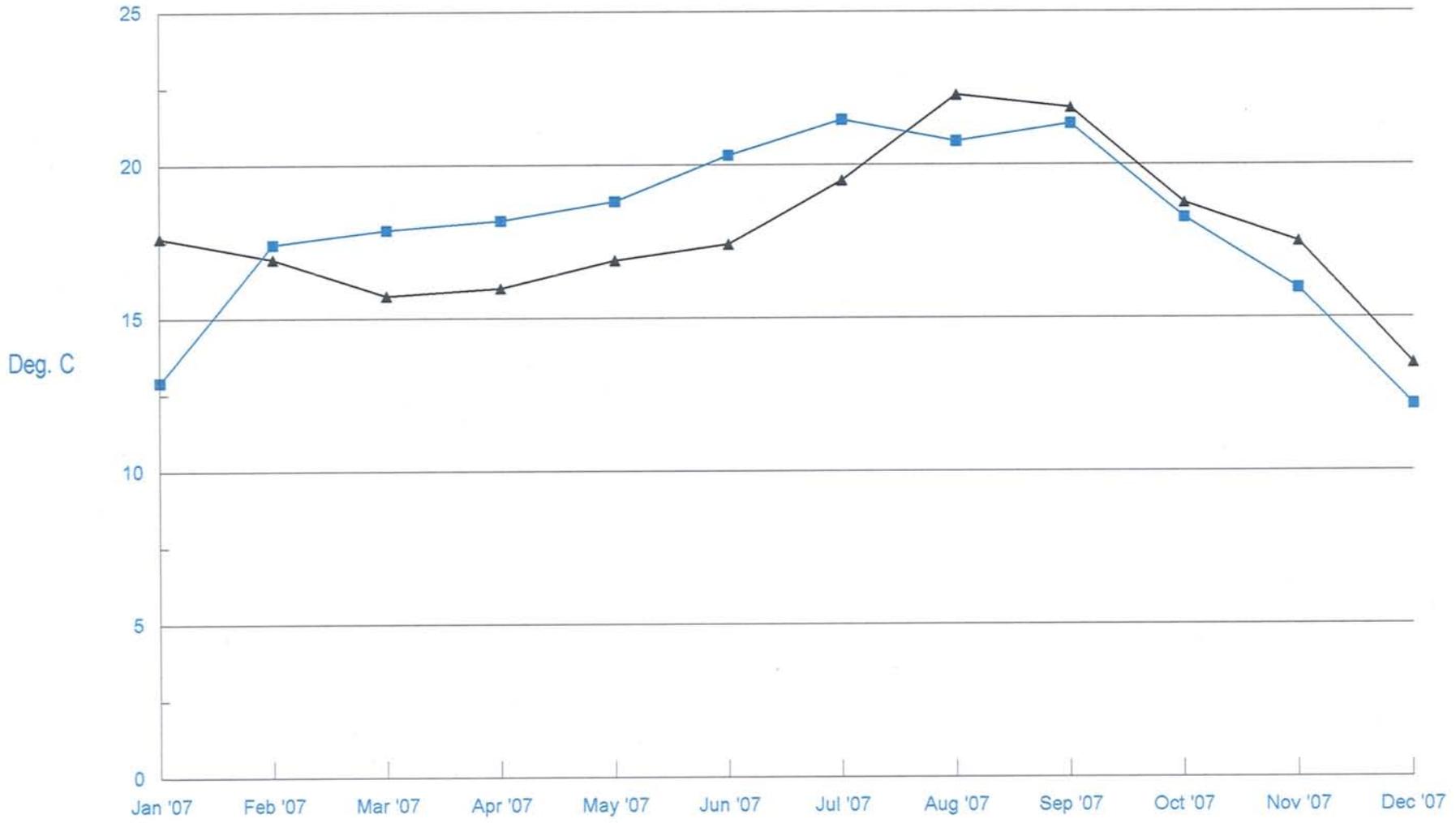


Receiving Water Station - R4

▲ Air Temperature (Mo Avg)    ■ Water Temperature (Mo Avg)

OPS SQL (Ventura Water Reclamation Facility)  
R4 Temperatures

Annual Report 2007

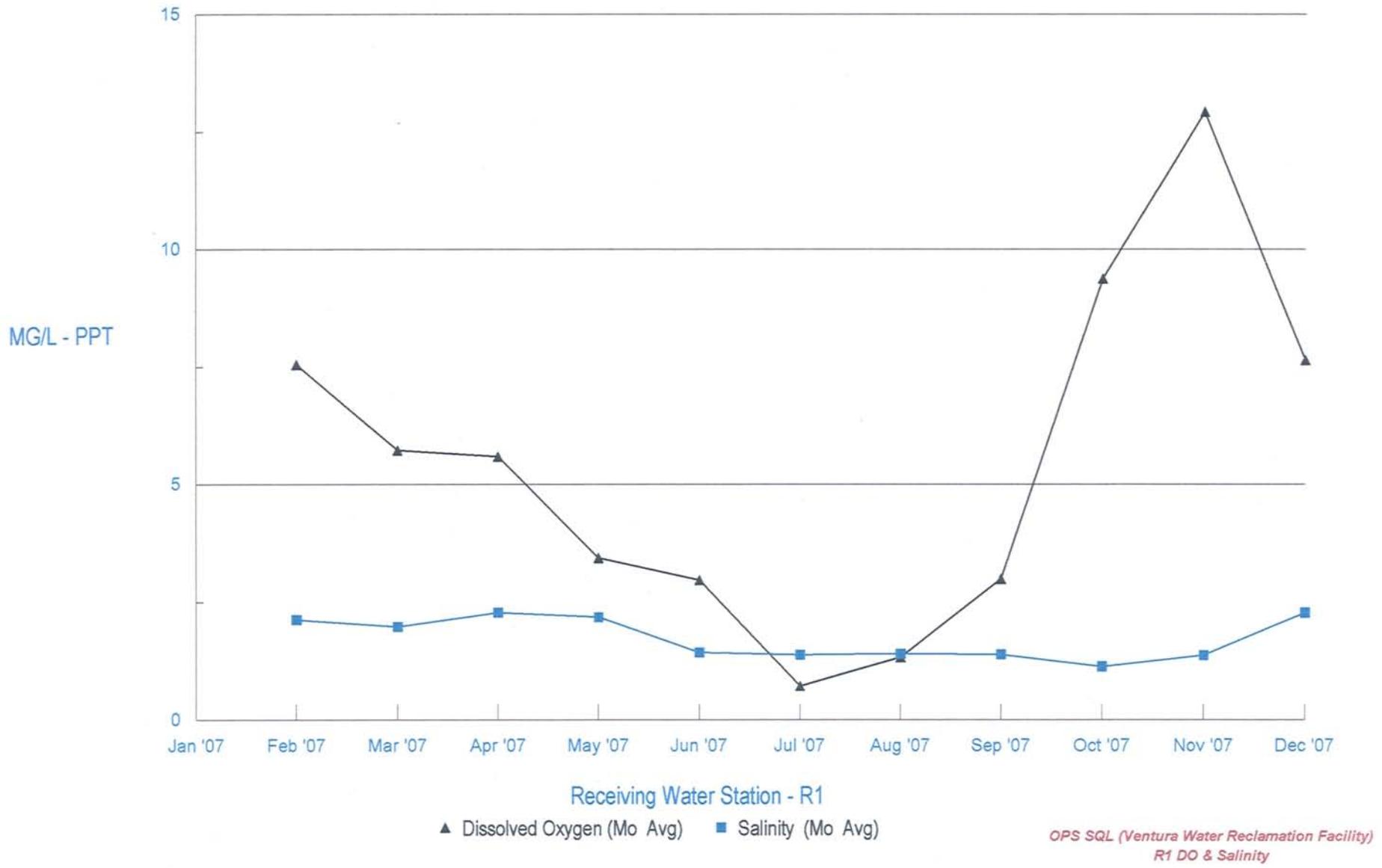


Receiving Water Station - L5

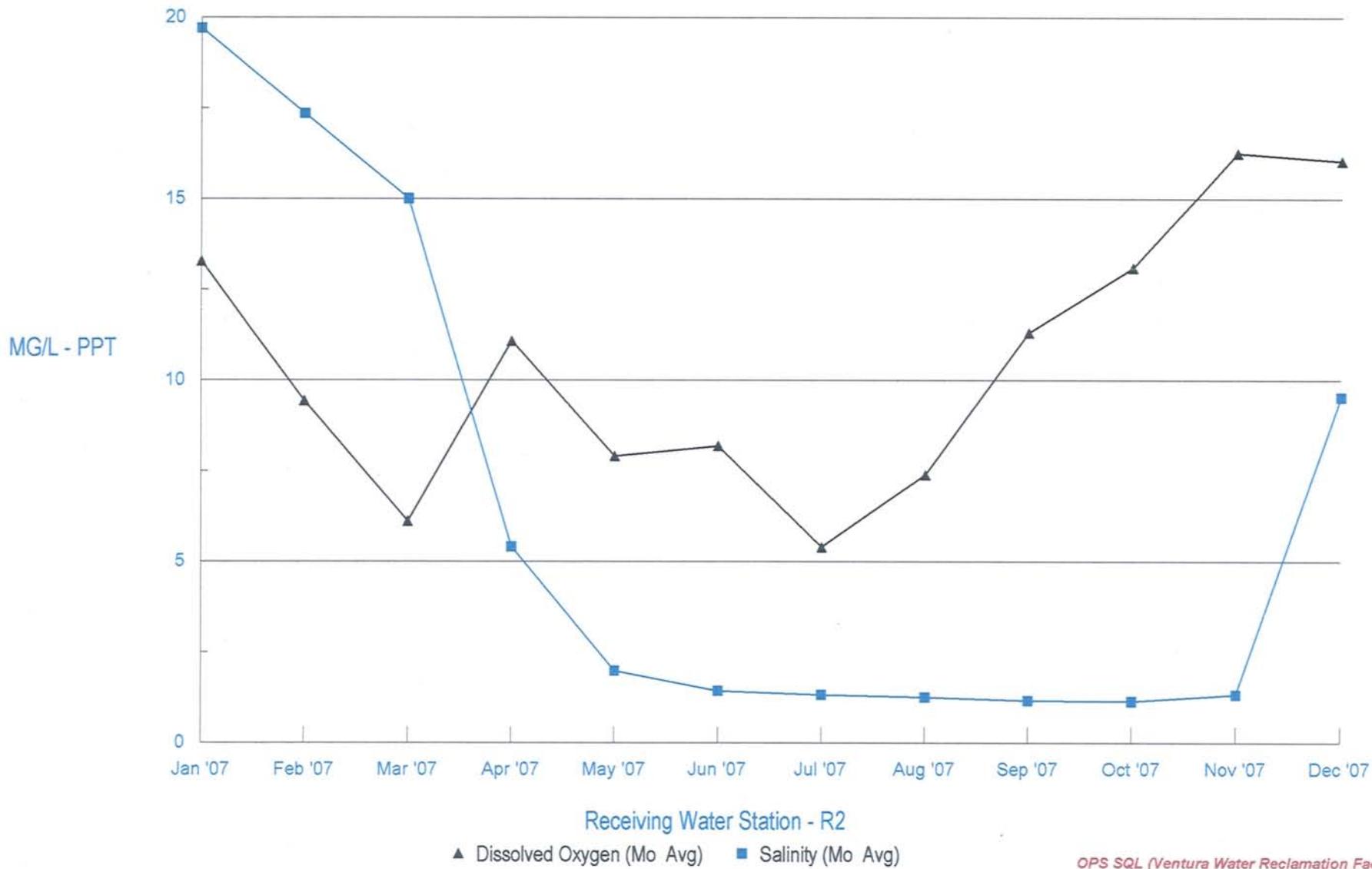
▲ Air Temperature (Mo Avg)    ■ Water Temperature (Mo Avg)

OPS SQL (Ventura Water Reclamation Facility)  
L5 Temperatures

Annual Report 2007

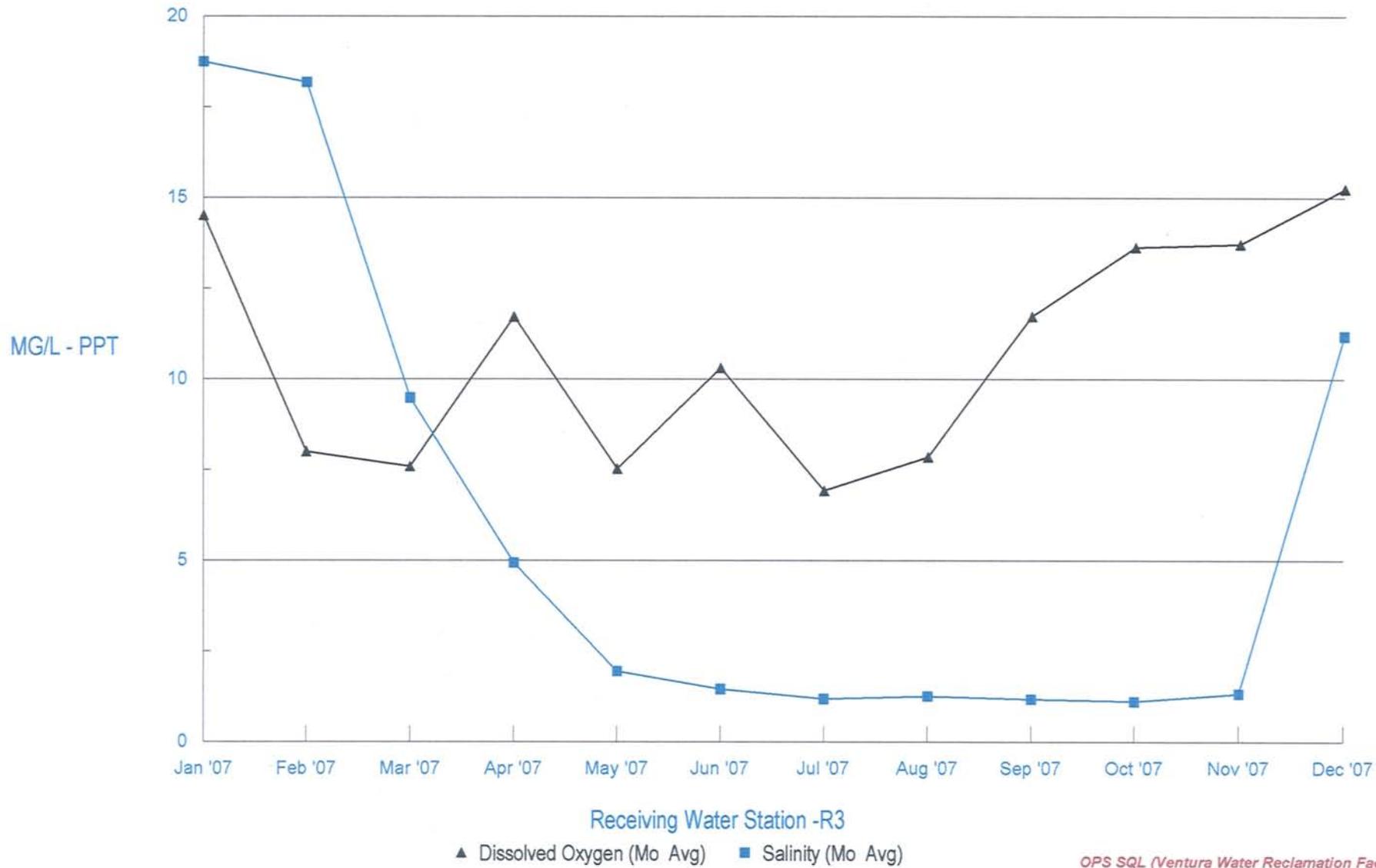


# Annual Report 2007



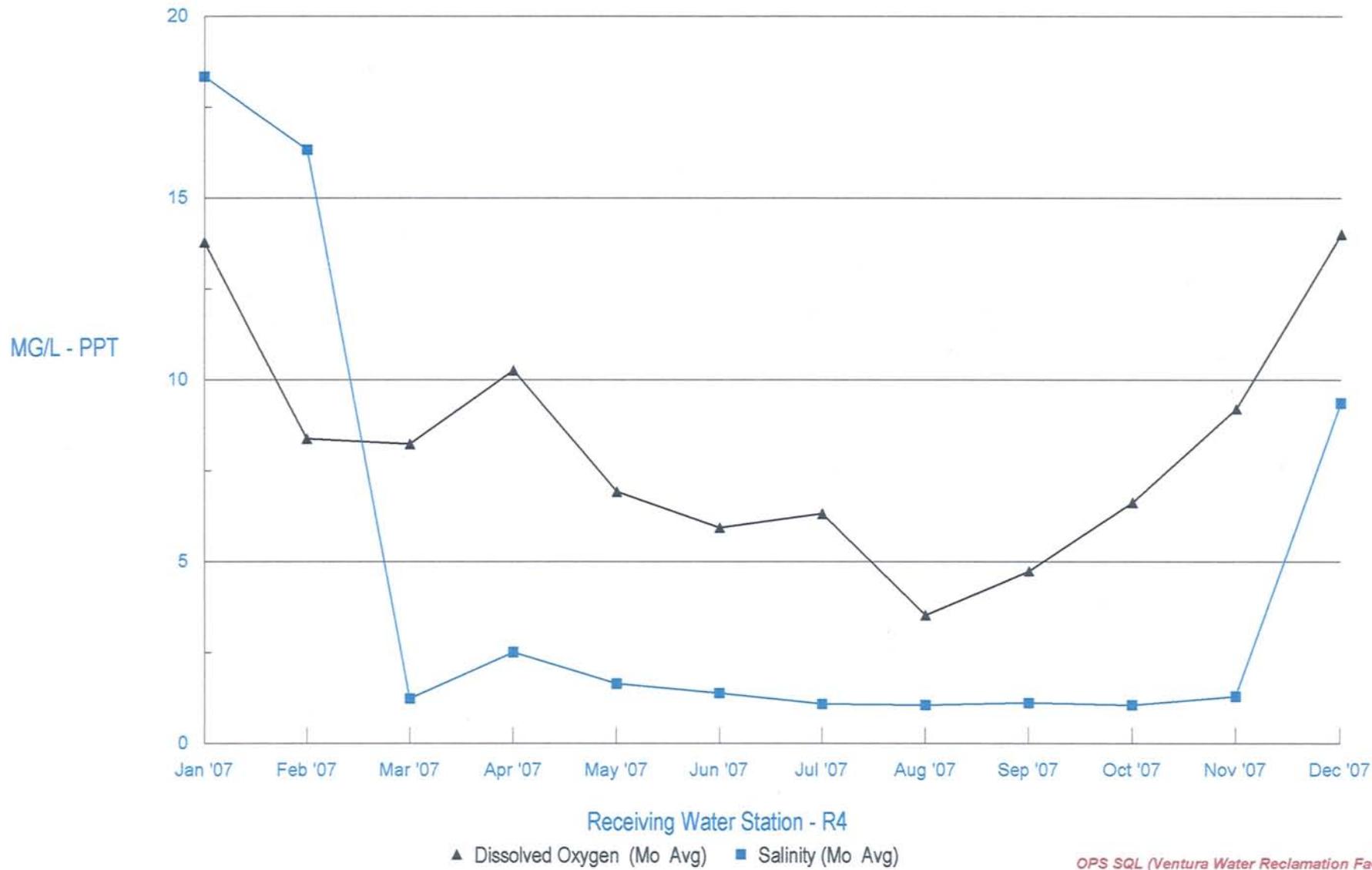
OPS SQL (Ventura Water Reclamation Facility)  
R2 DO & Salinity

# Annual Report 2007



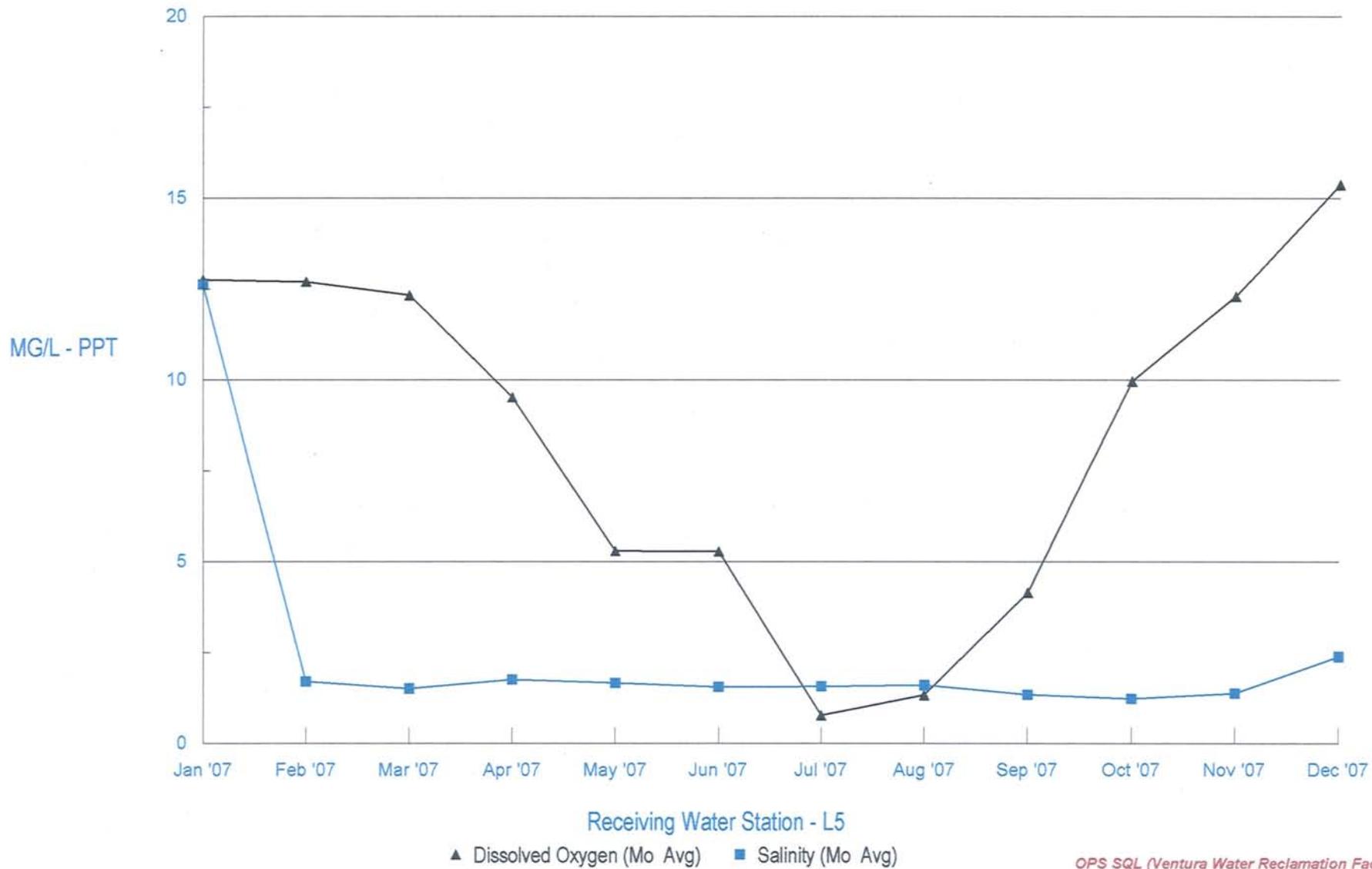
OPS SQL (Ventura Water Reclamation Facility)  
R3 DO & Salinity

# Annual Report 2007



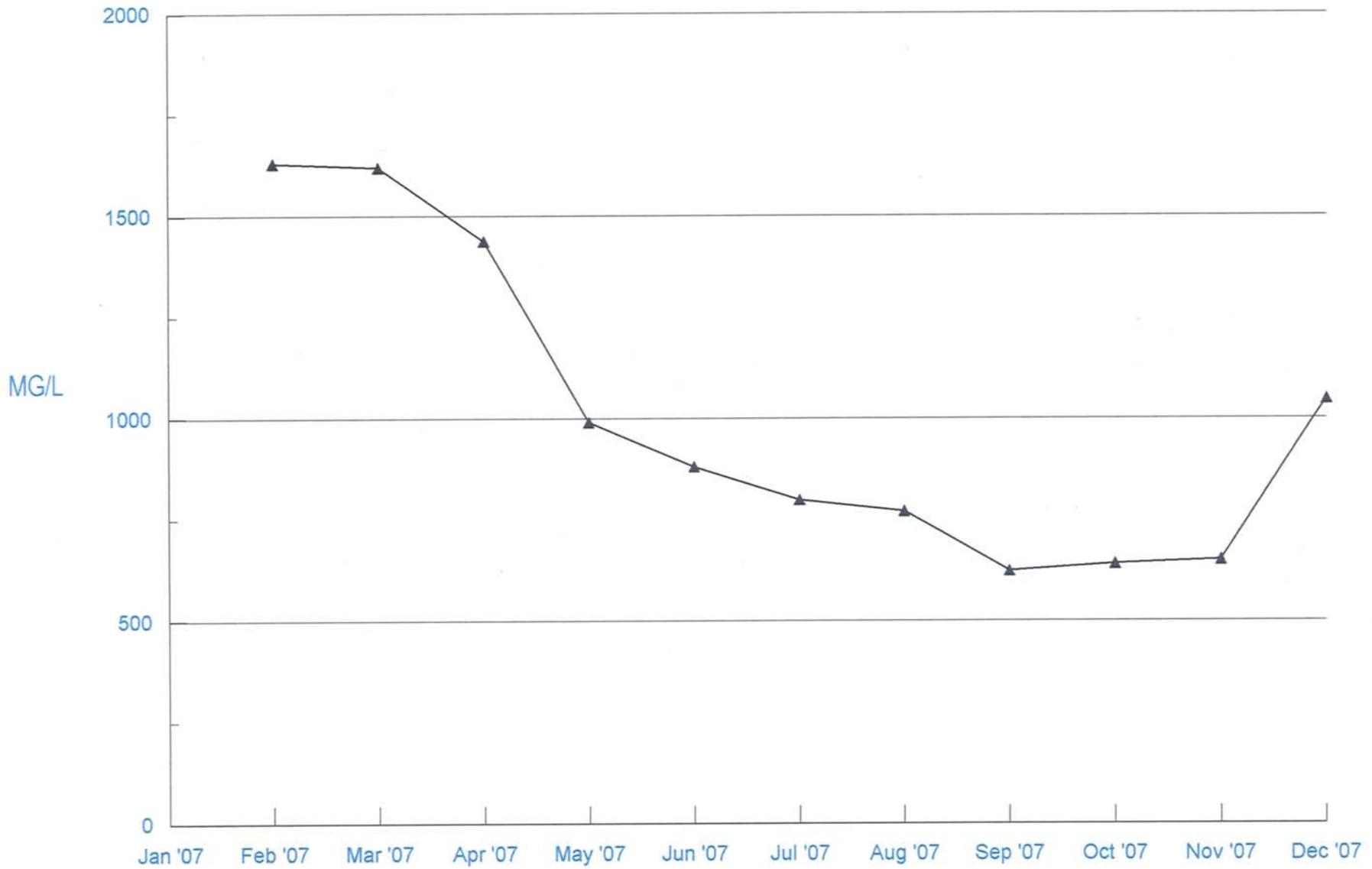
OPS SQL (Ventura Water Reclamation Facility)  
R4 DO & Salinity

Annual Report 2007



OPS SQL (Ventura Water Reclamation Facility)  
L5 DO & Salinity

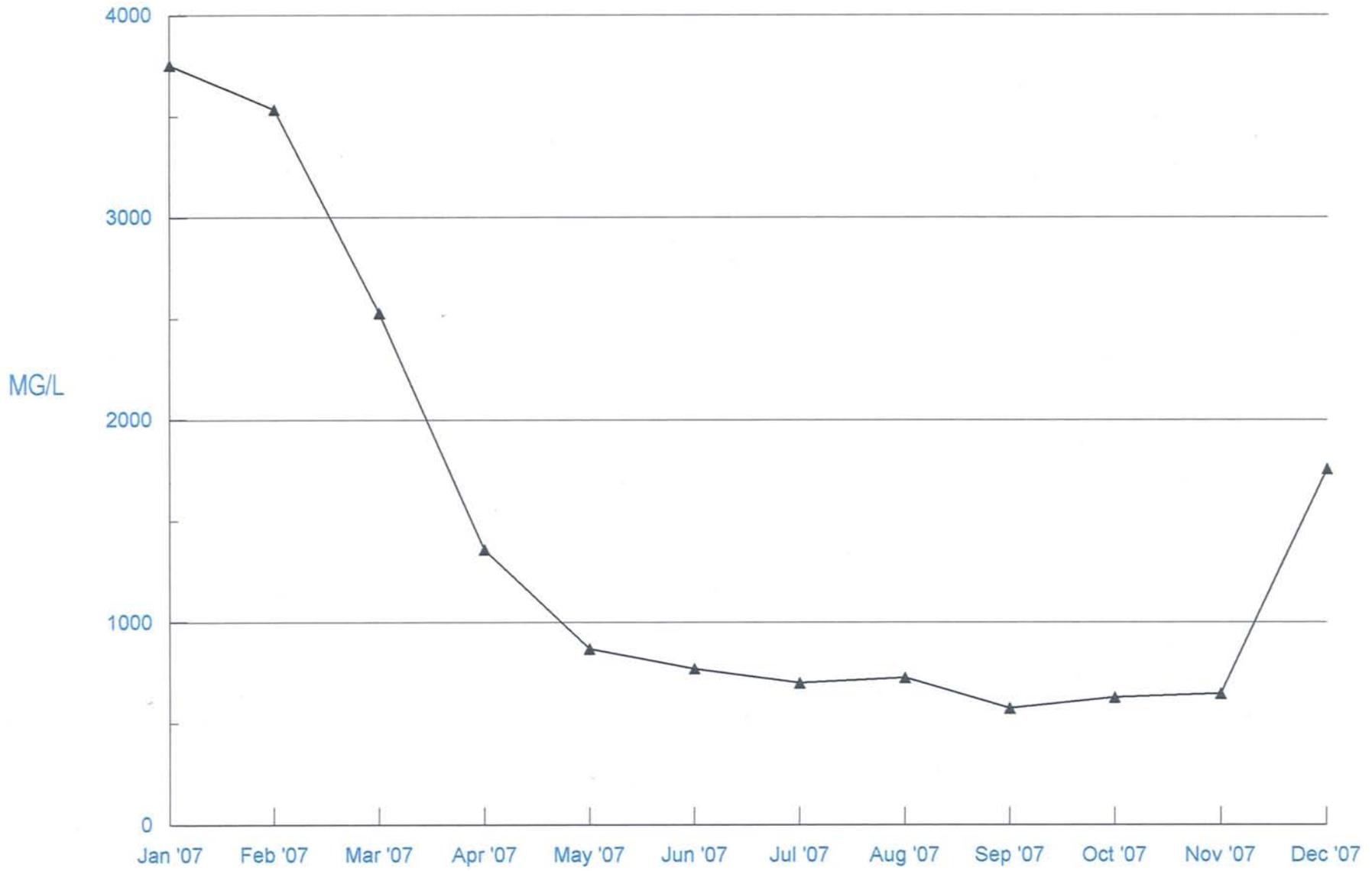
# Annual Report 2007



Receiving Water Station - R1  
▲ Hardness (Mo Avg)

OPS SQL (Ventura Water Reclamation Facility)  
R1 Hardness

# Annual Report 2007

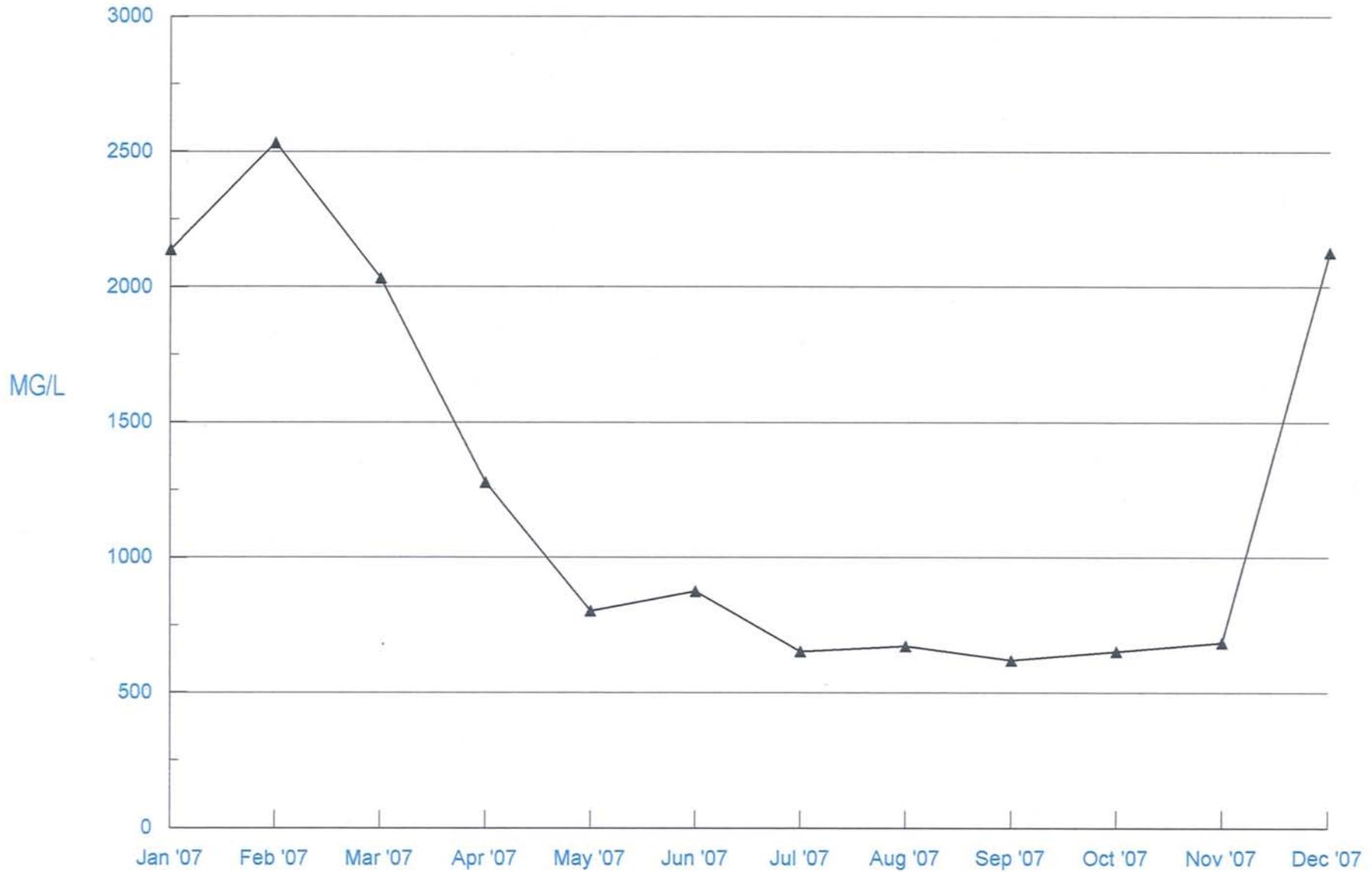


Receiving Water - R2

▲ Hardness (Mo Avg)

OPS SQL (Ventura Water Reclamation Facility)  
R2 Hardness

# Annual Report 2007

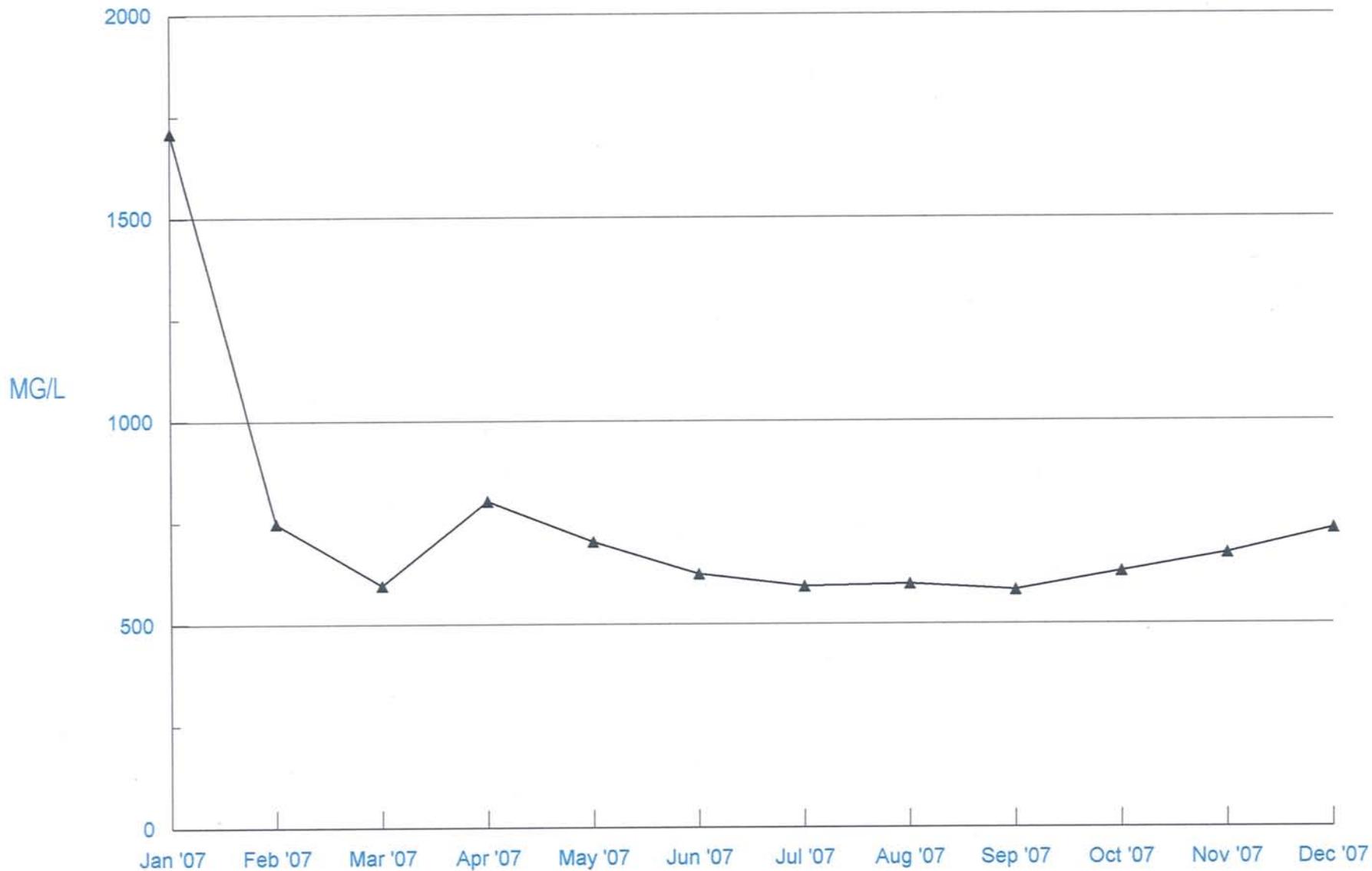


Receiving Water Station - R3

▲ Hardness (Mo Avg)

OPS SQL (Ventura Water Reclamation Facility)  
R3 Hardness

# Annual Report 2007

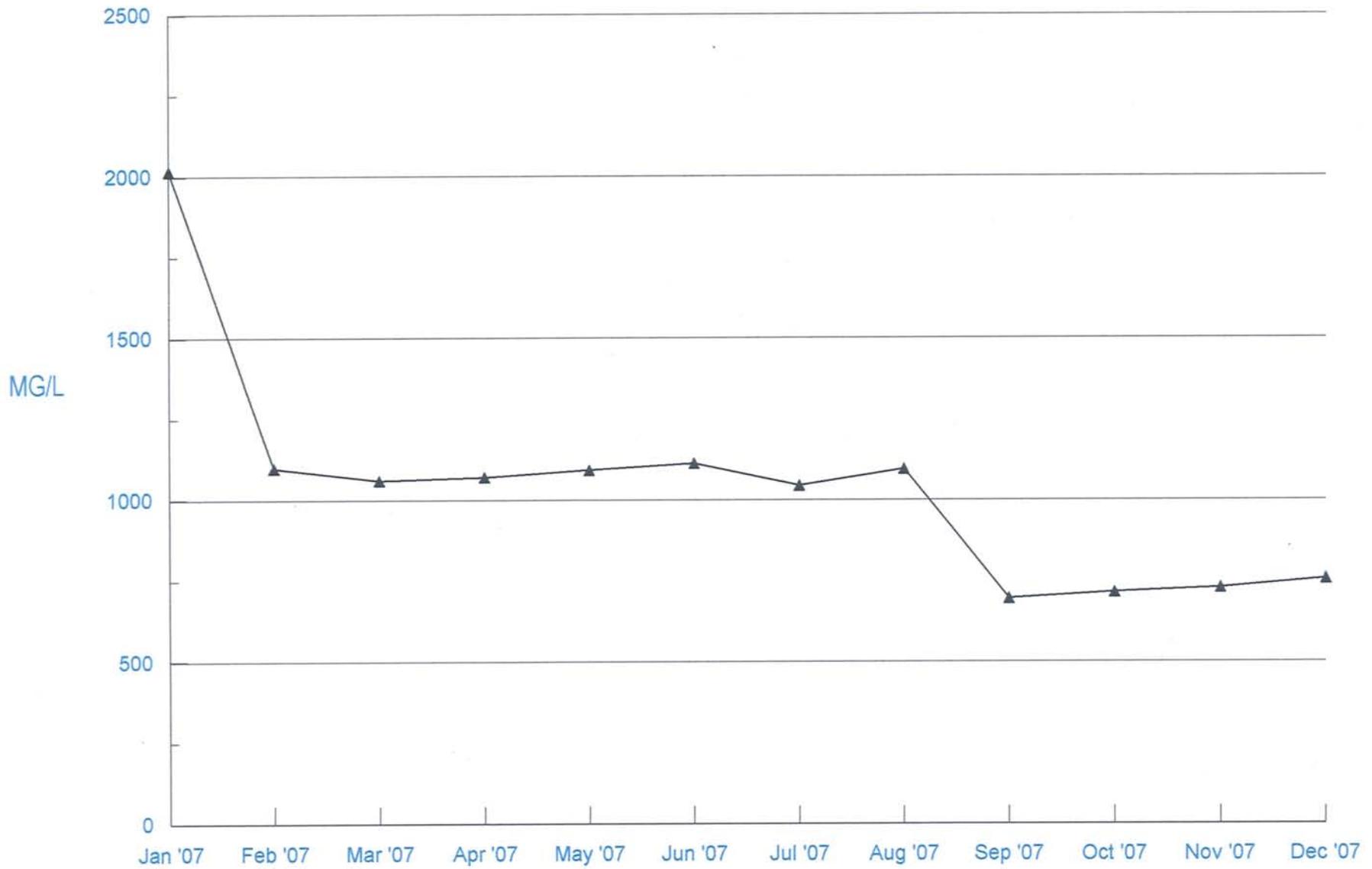


Receiving Water Station - R4

▲ Hardness (Mo Avg)

OPS SQL (Ventura Water Reclamation Facility)  
R4 Hardness

# Annual Report 2007

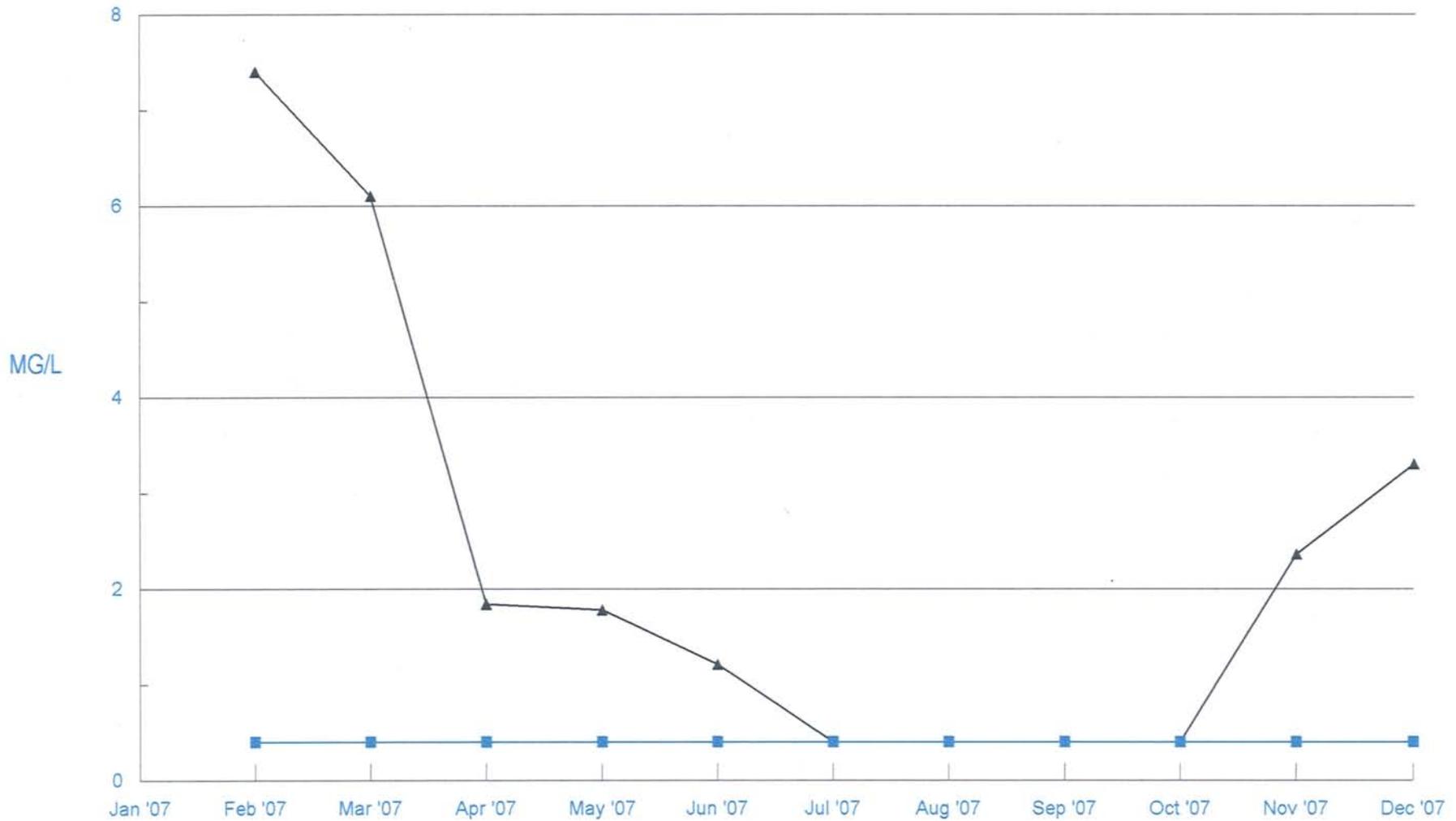


Receiving Water Station - L5

▲ Hardness (Mo Avg)

OPS SQL (Ventura Water Reclamation Facility)  
L5 Hardness

# Annual Report 2007

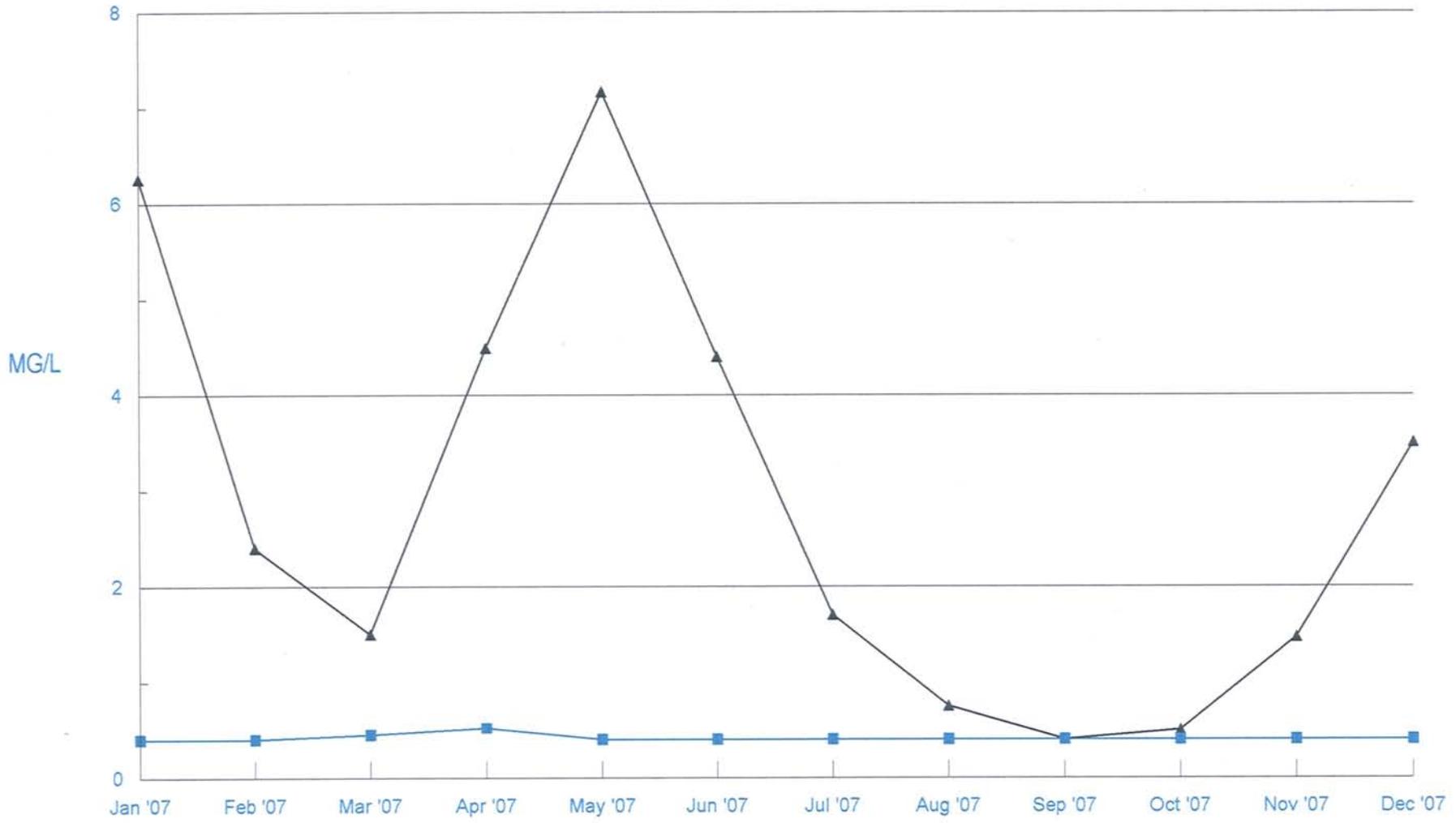


Receiving Water Station - R1

▲ Nitrate (Mo Avg)      ■ Nitrite (Mo Avg)

OPS SQL (Ventura Water Reclamation Facility)  
R1 N03 & N02

# Annual Report 2007

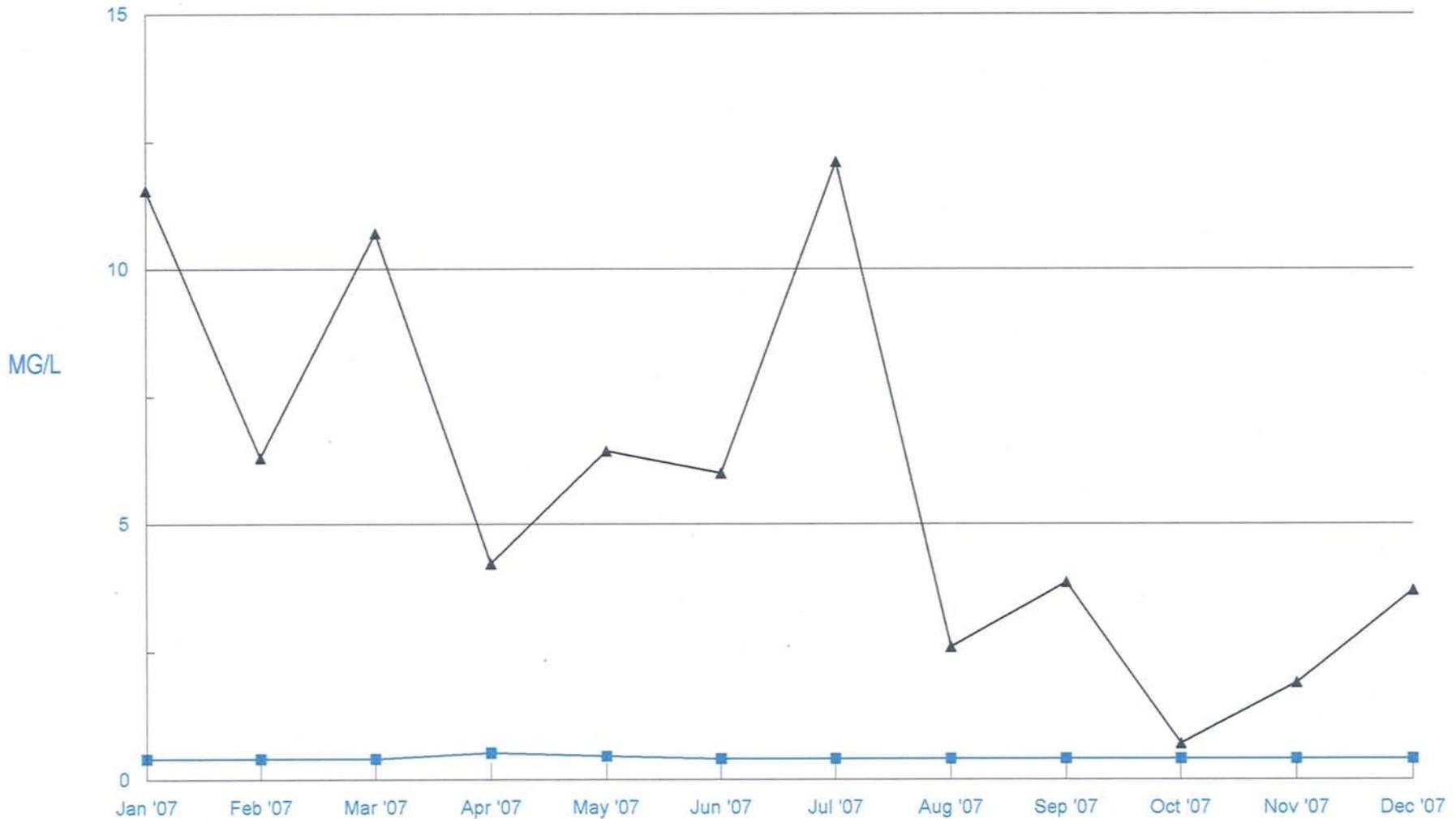


Receiving Water Station - R2

▲ Nitrate (Mo Avg)      ■ Nitrite (Mo Avg)

OPS SQL (Ventura Water Reclamation Facility)  
R2 N03 & N02

Annual Report 2007

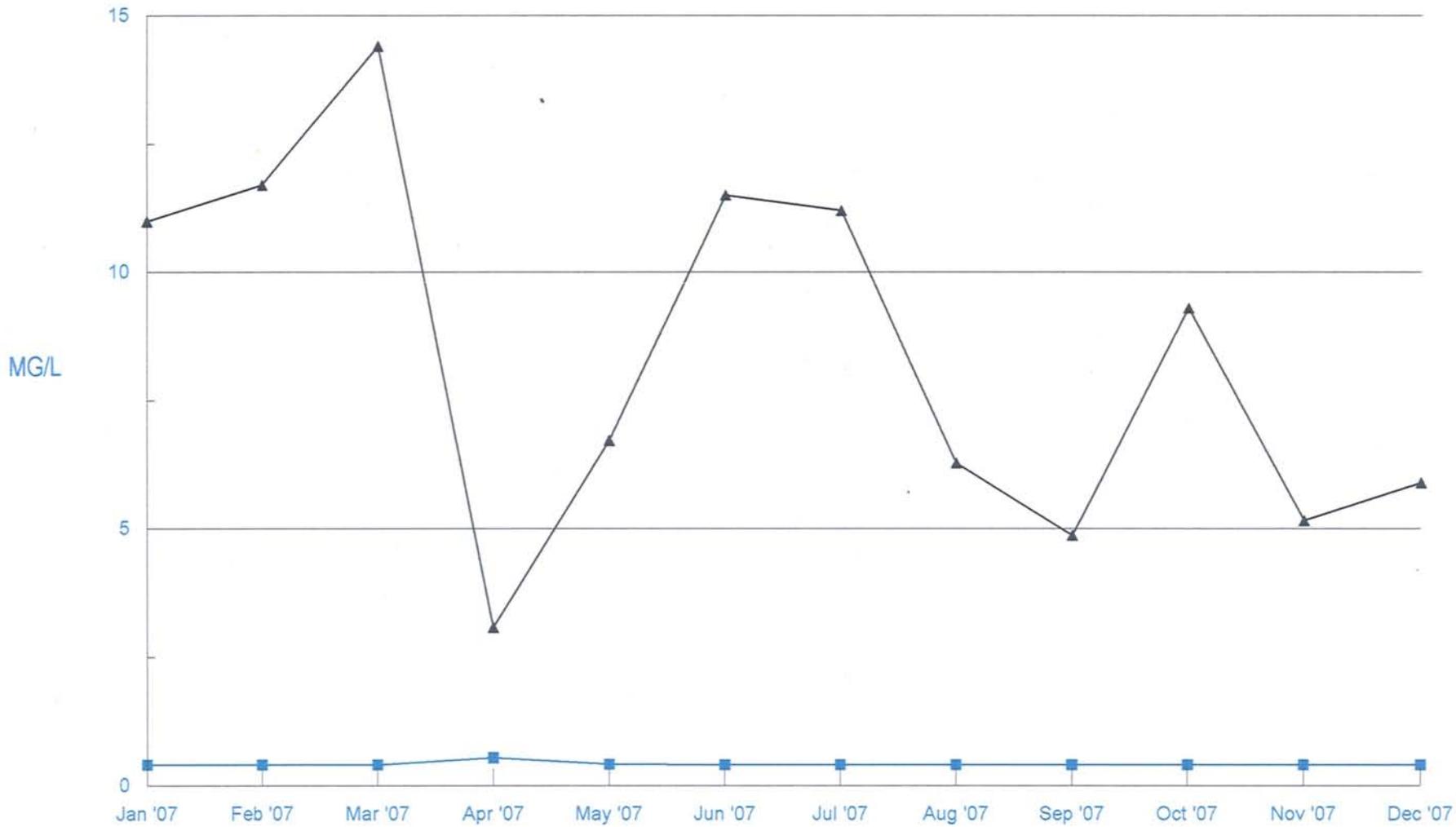


Receiving Water Station - R3

▲ Nitrate (Mo Avg)      ■ Nitrite (Mo Avg)

OPS SQL (Ventura Water Reclamation Facility)  
R3 N03 & N02

Annual Report 2007

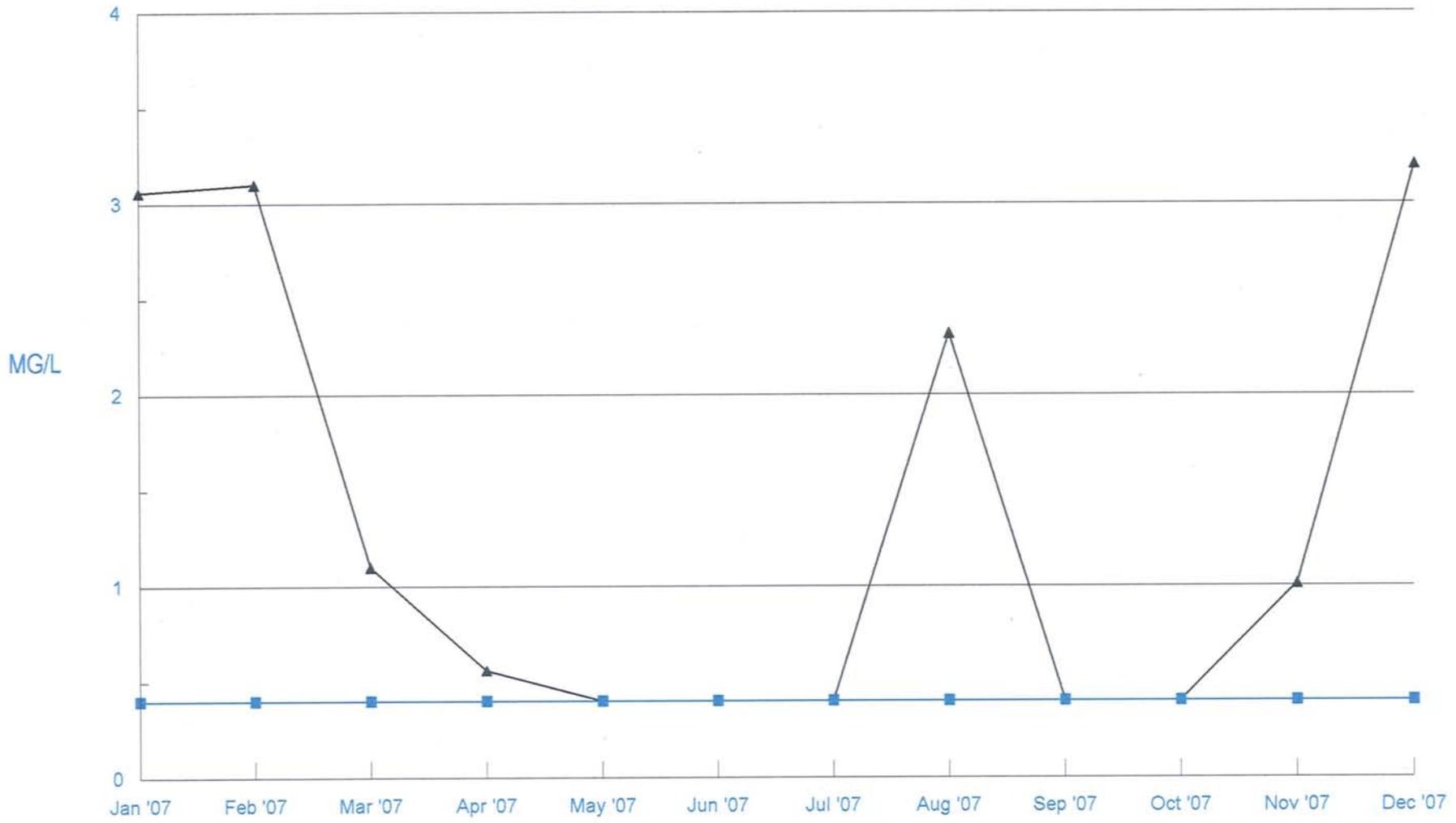


Receiving Water Station - R4

▲ Nitrate (Mo Avg)      ■ Nitrite (Mo Avg)

OPS SQL (Ventura Water Reclamation Facility)  
R4 N03 & N02

# Annual Report 2007

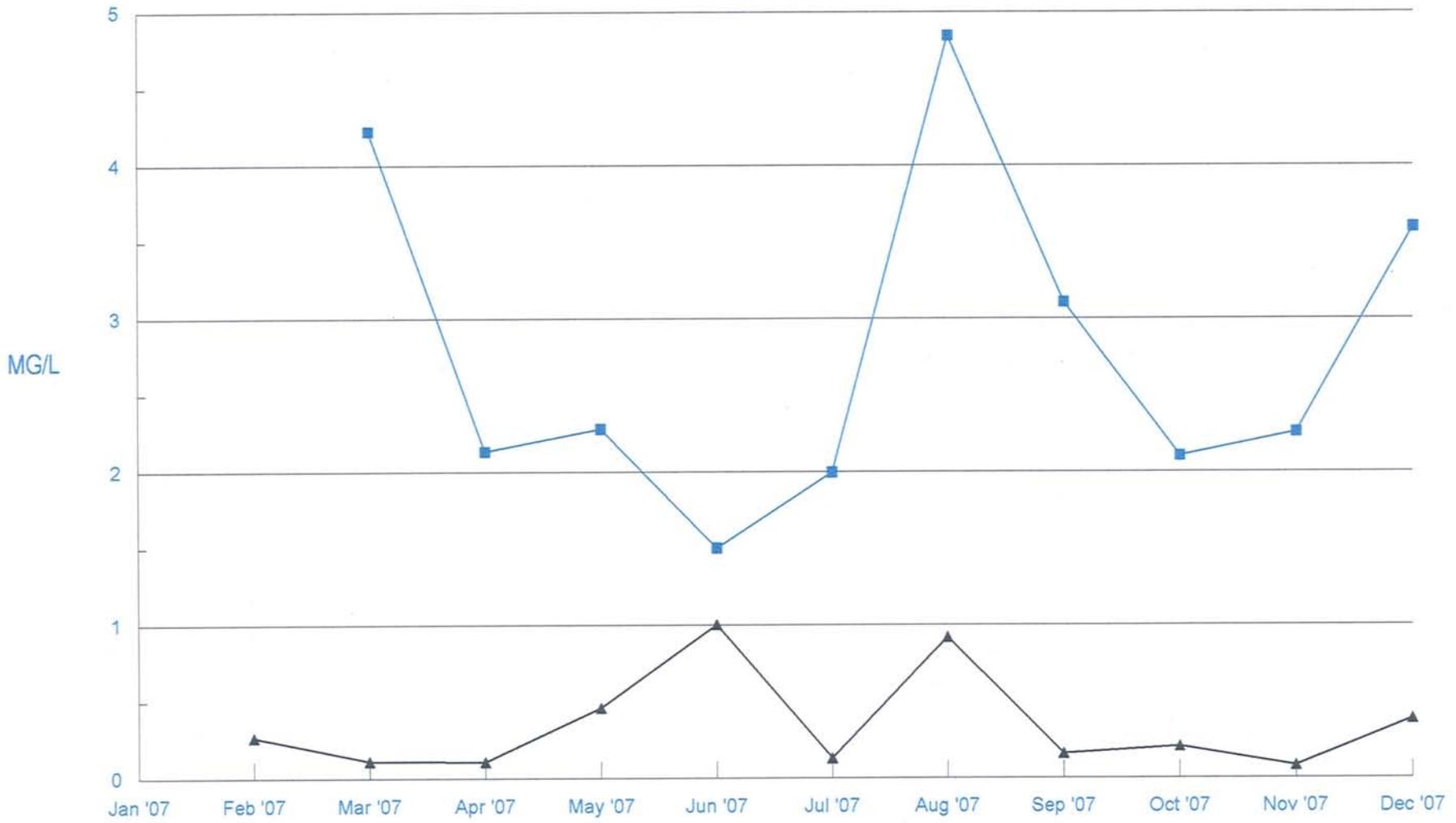


Receiving Water Station - L5

▲ Nitrate (Mo Avg)      ■ Nitrite (Mo Avg)

OPS SQL (Ventura Water Reclamation Facility)  
L5 N03 & N02

Annual Report 2007

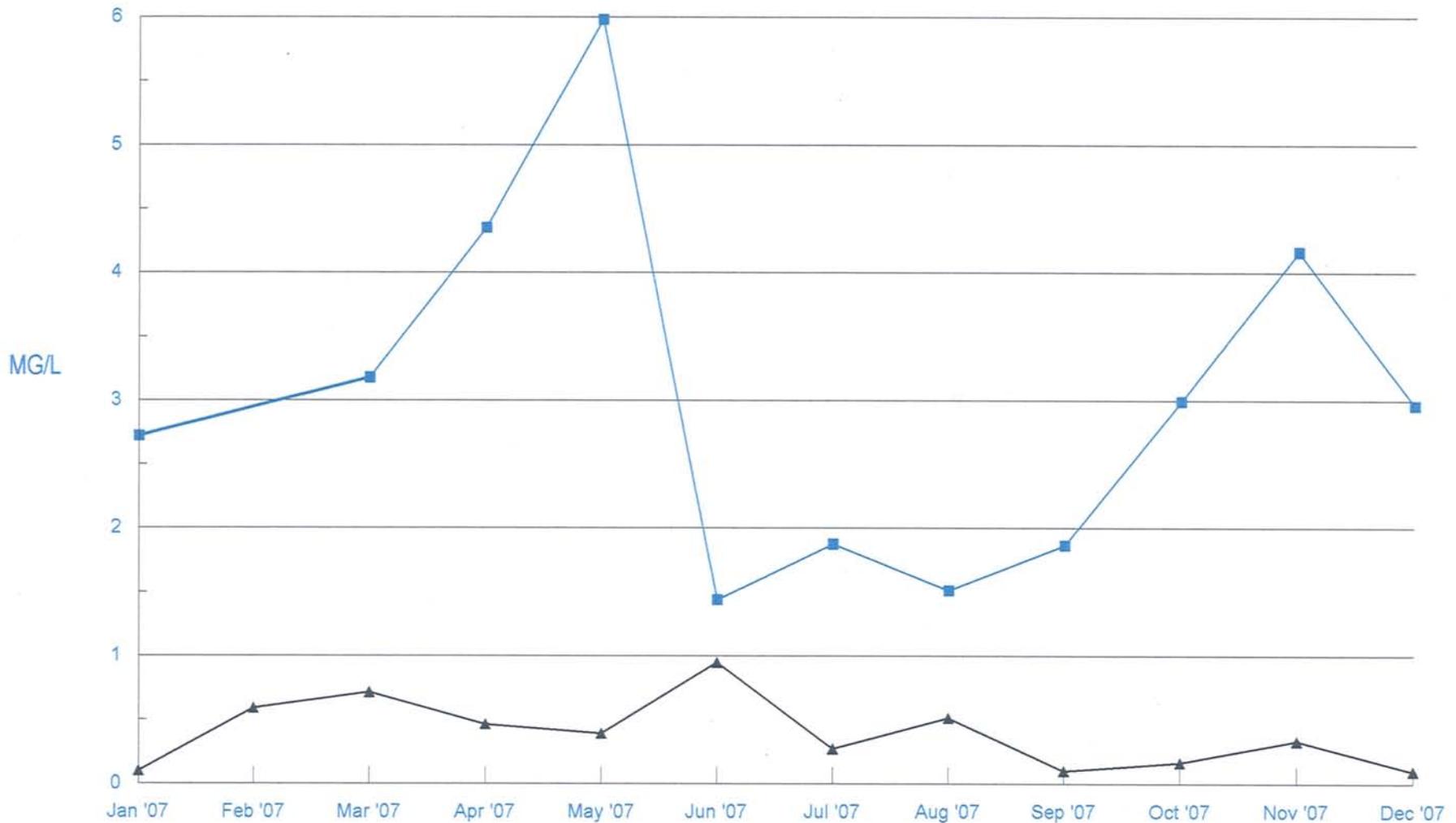


Receiving Water Station - R1

▲ Ammonia (Mo Avg)      ■ TKN (Mo Avg)

OPS SQL (Ventura Water Reclamation Facility)  
R1 NH3 & TKN

# Annual Report 2007

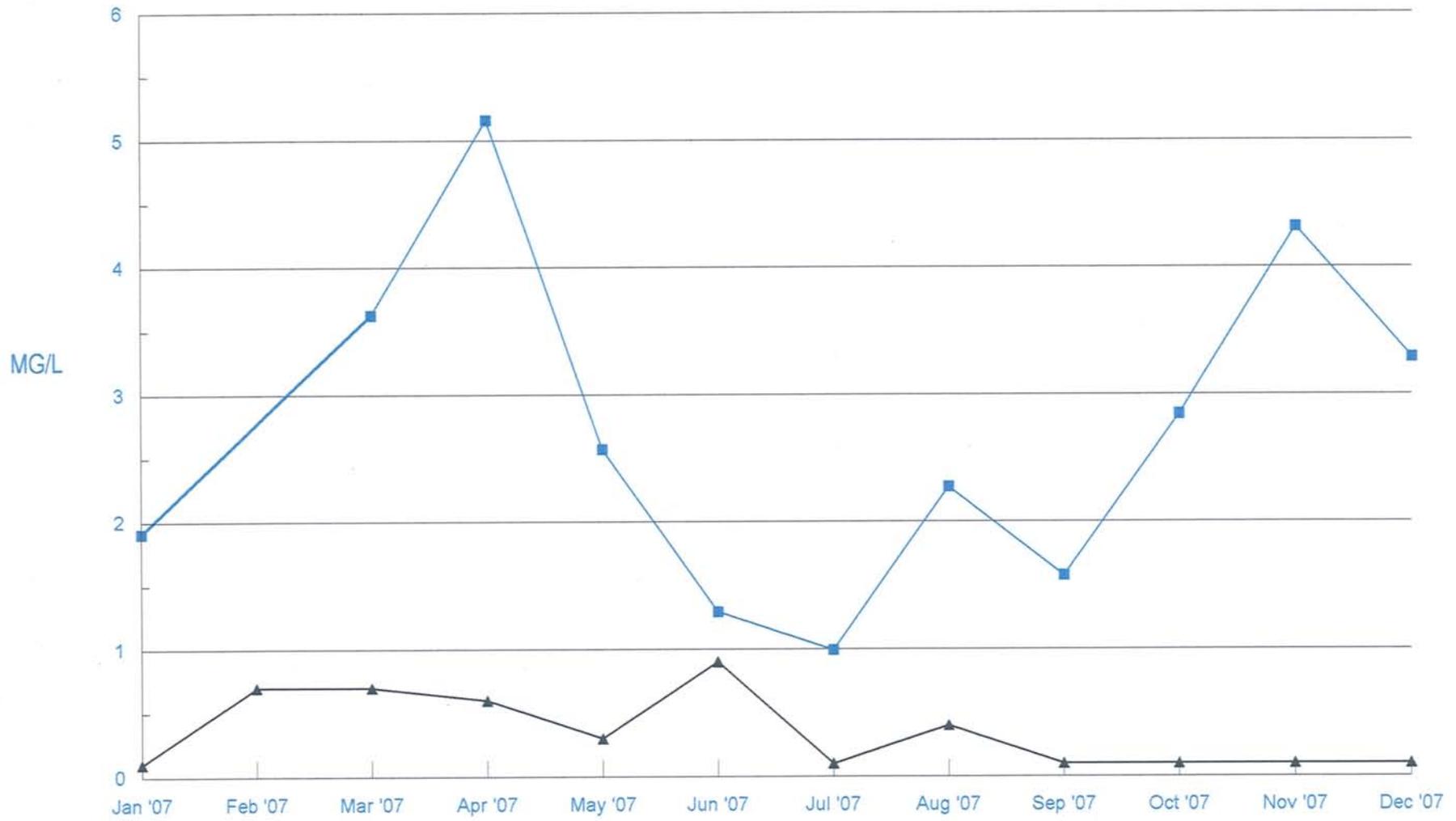


Receiving Water Station - R2

▲ Ammonia (Mo Avg)      ■ TKN (Mo Avg)

OPS SQL (Ventura Water Reclamation Facility)  
R2 NH3 & TKN

Annual Report 2007

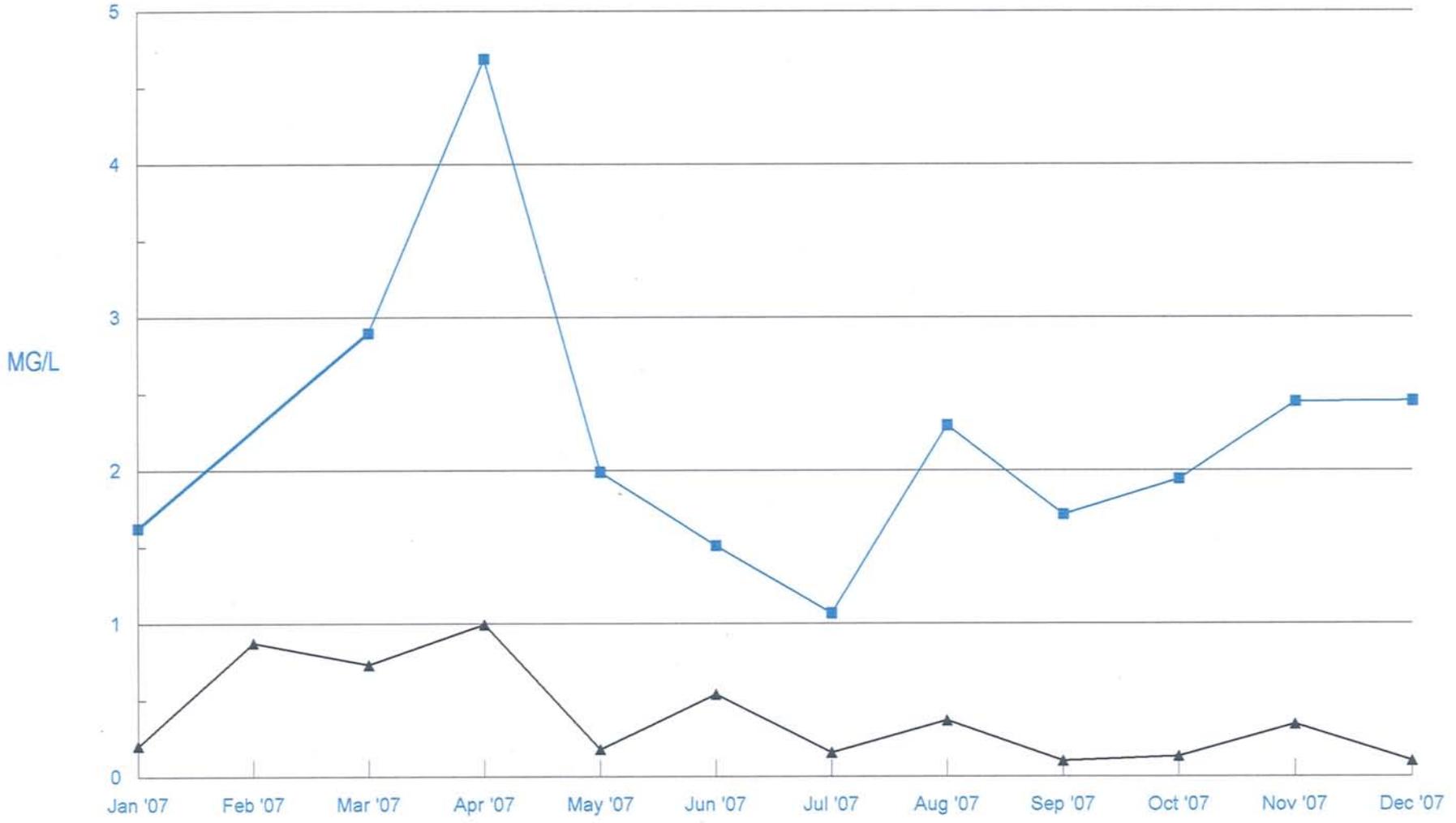


Receiving Water Station - R3

▲ Ammonia (Mo Avg)      ■ TKN (Mo Avg)

OPS SQL (Ventura Water Reclamation Facility)  
R3 NH3 & TKN

Annual Report 2007

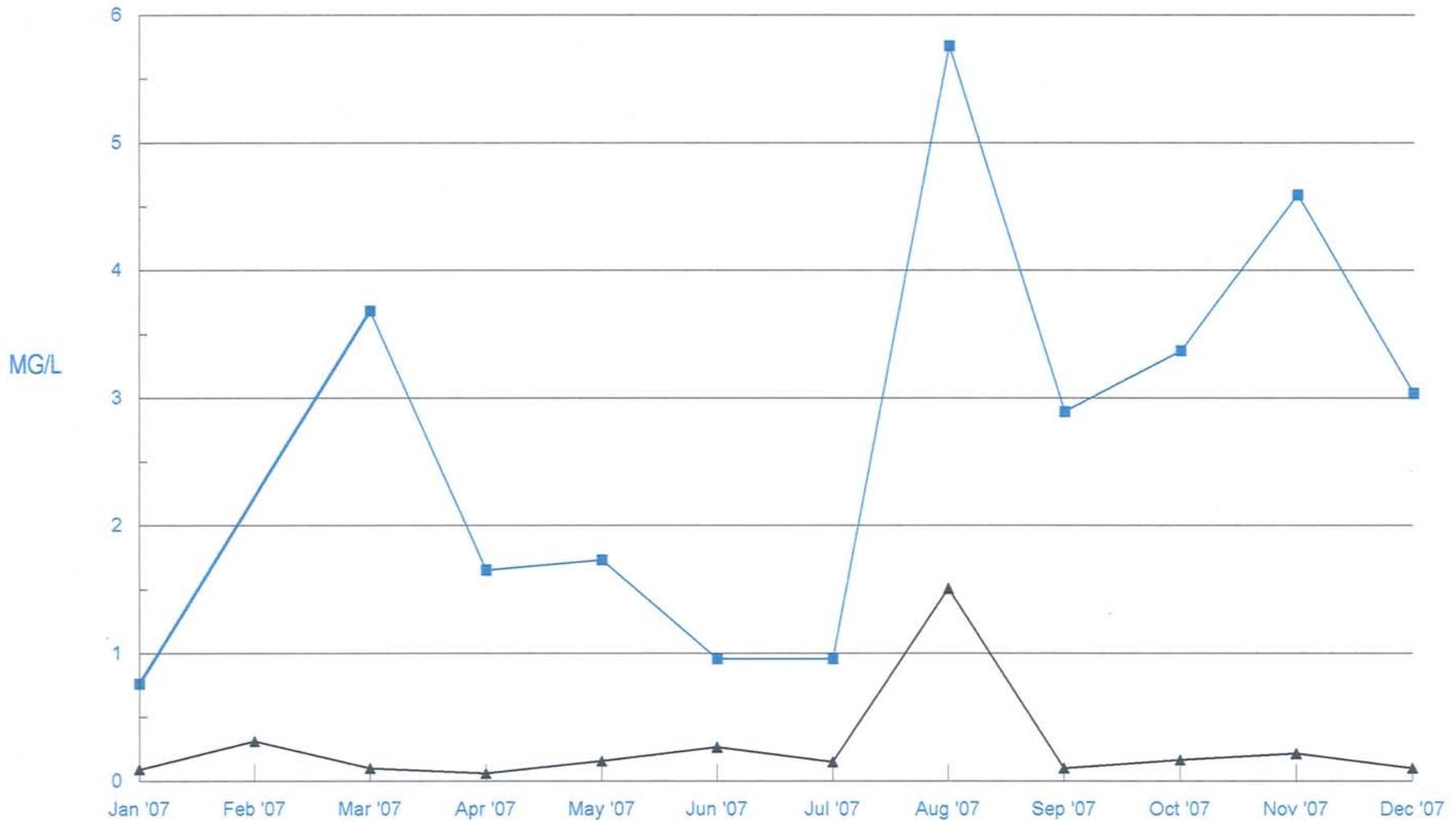


Receiving Water Station - R4

▲ Ammonia (Mo Avg)      ■ TKN (Mo Avg)

OPS SQL (Ventura Water Reclamation Facility)  
R4 NH3 & TKN

Annual Report 2007

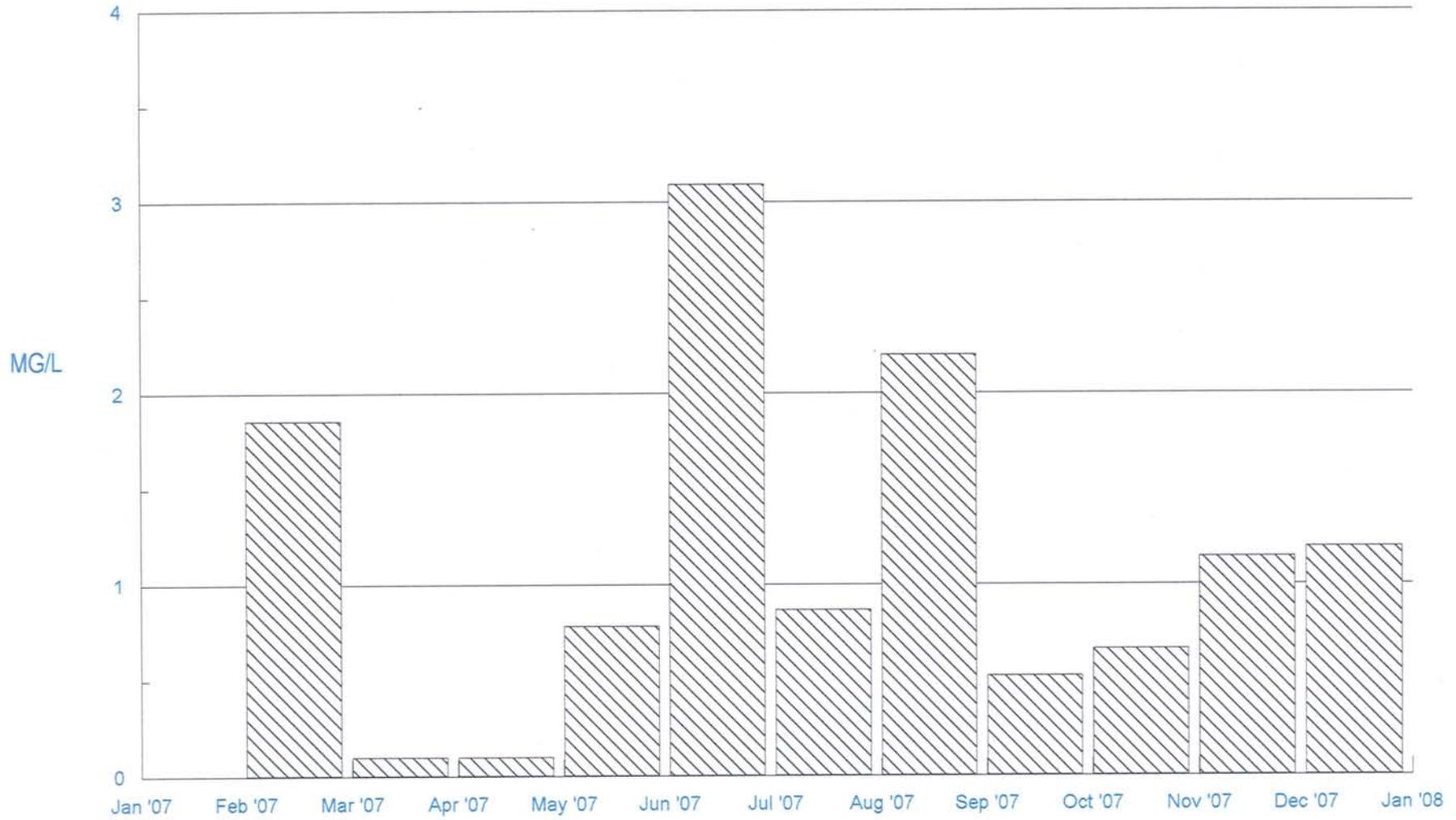


Receiving Water Station - L5

▲ Ammonia (Mo Avg)      ■ TKN (Mo Avg)

OPS SQL (Ventura Water Reclamation Facility)  
L5 NH3 & TKN

Annual Report 2007

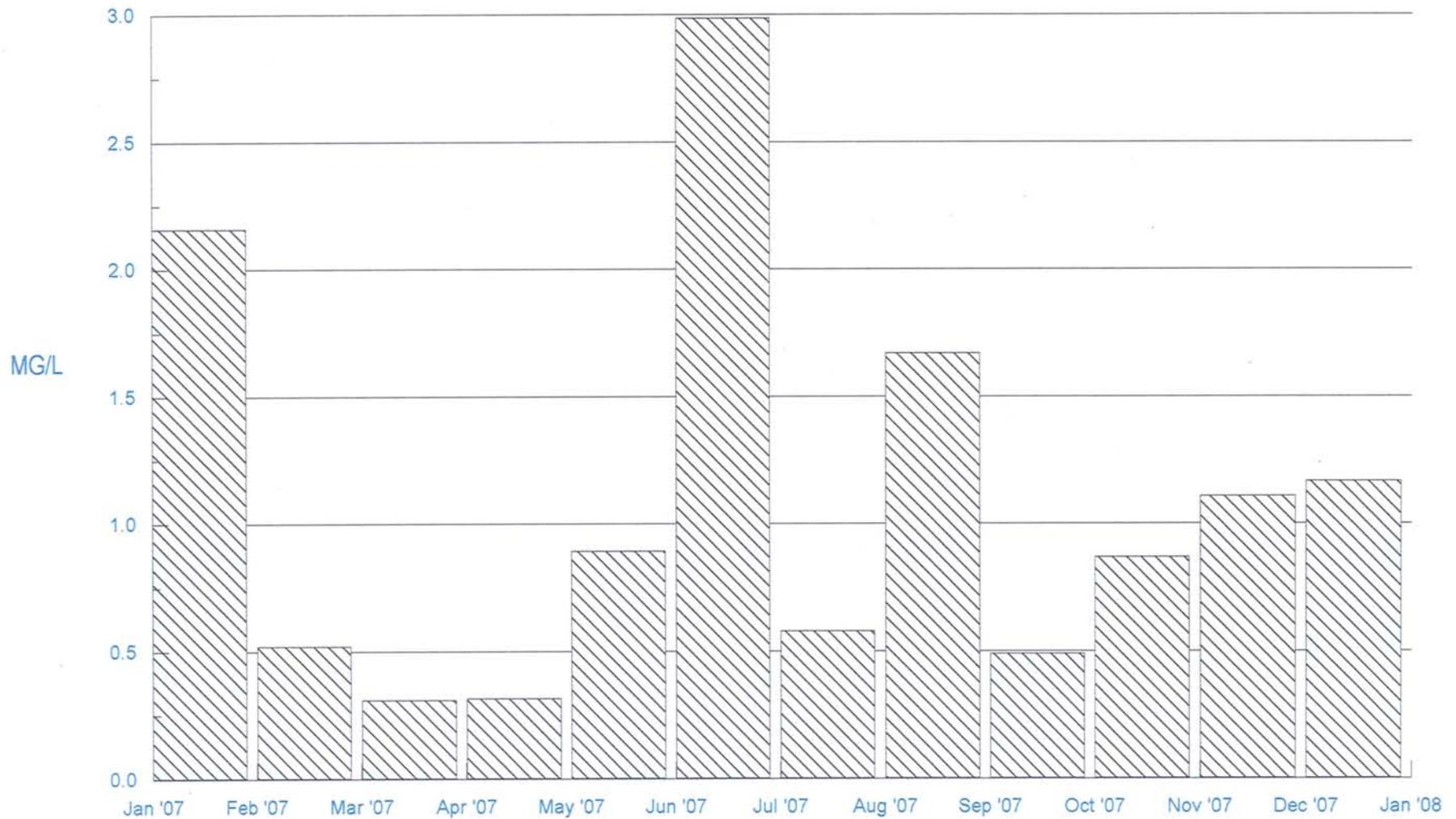


Receiving Water Station - R1

▨ Total Phosphorus (Mo Avg)

OPS SQL (Ventura Water Reclamation Facility)  
R1 Tot P

Annual Report 2007

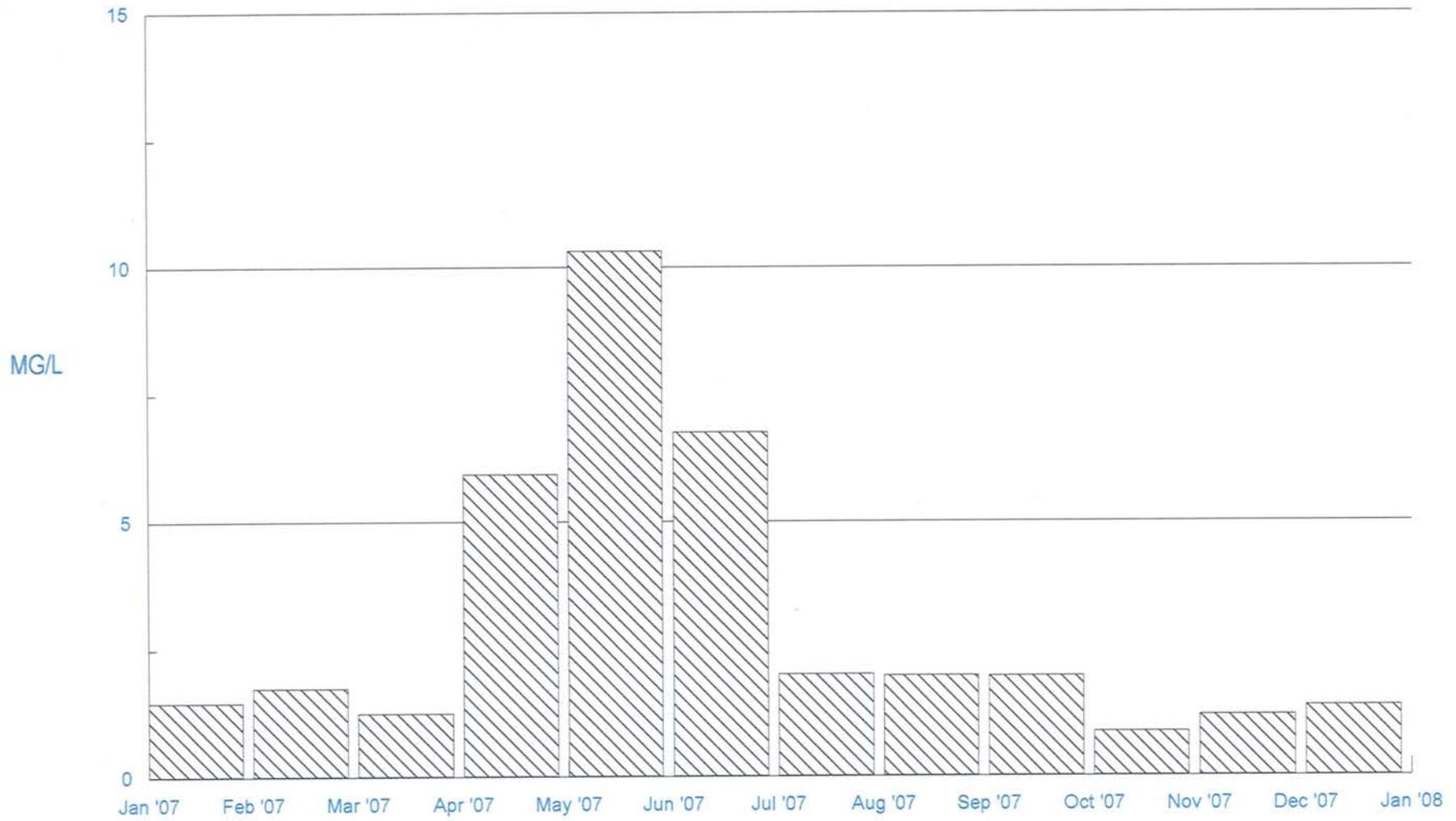


Receiving Water Station - R2

▨ Total Phosphorus (Mo Avg)

OPS SQL (Ventura Water Reclamation Facility)  
R2 Tot P

Annual Report 2007

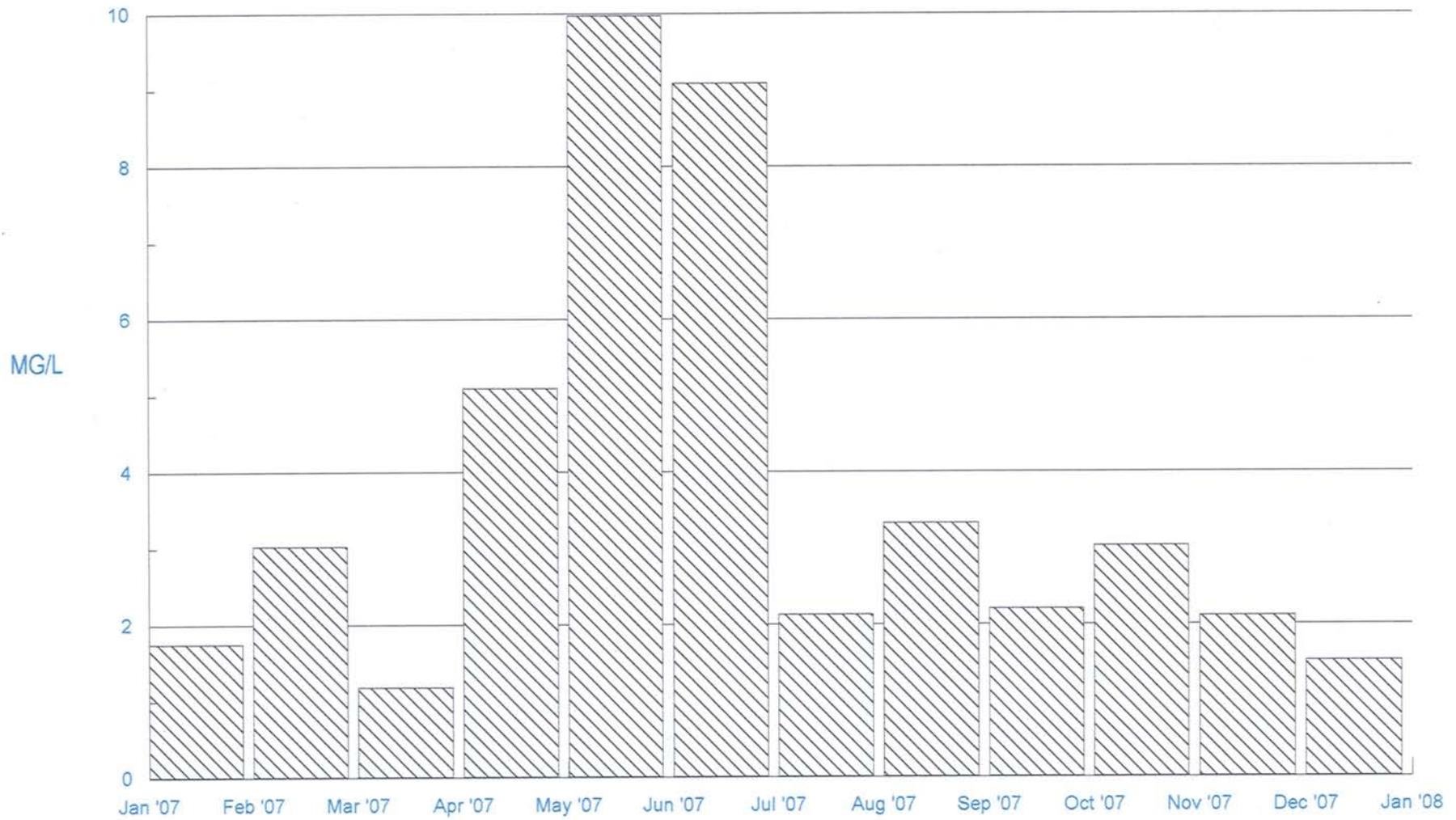


Receiving Water Station - R3

☐ Total Phosphorus (Mo Avg)

OPS SQL (Ventura Water Reclamation Facility)  
R3 Tot P

Annual Report 2007

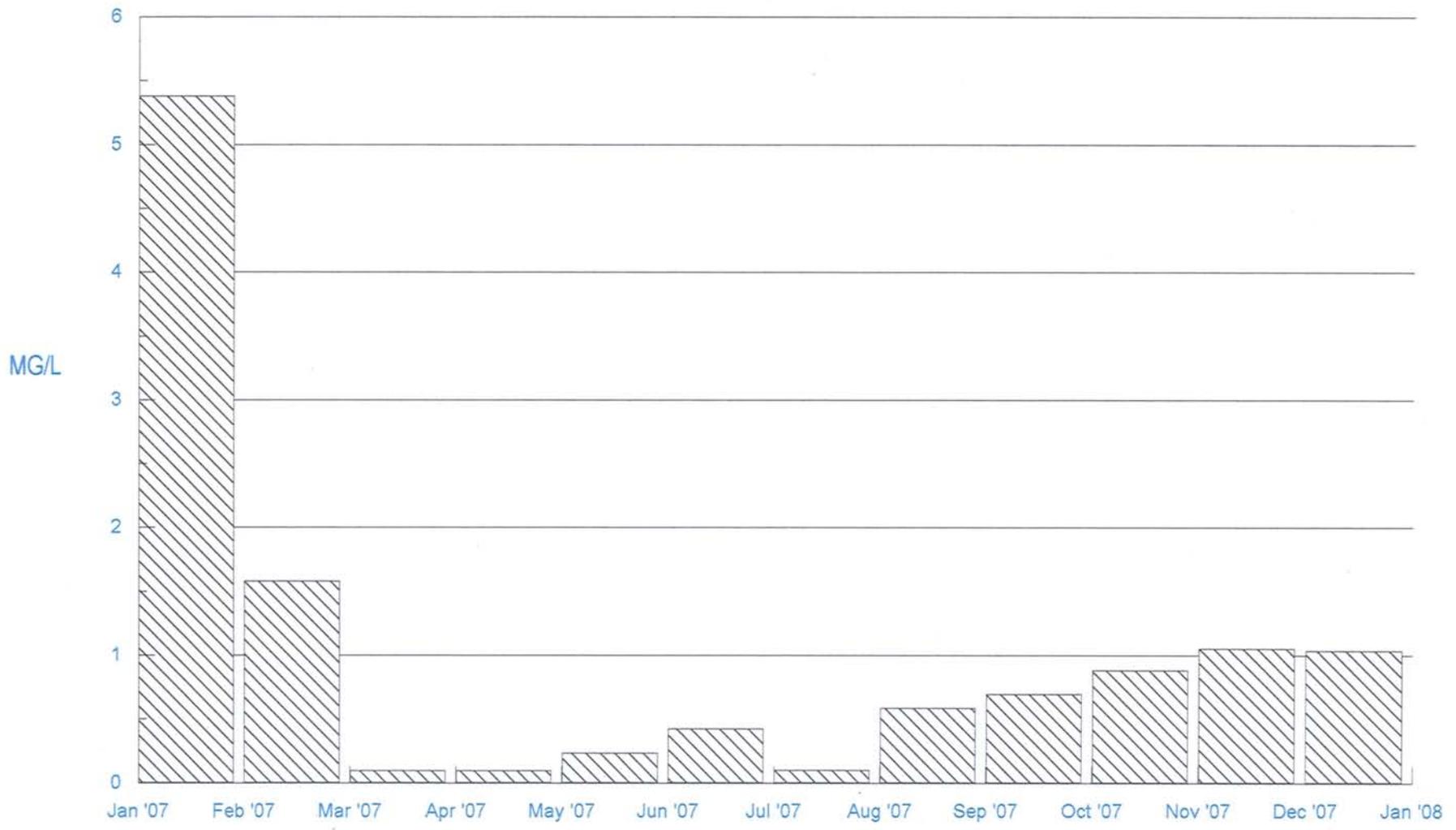


Receiving Water Station - R4

▣ Total Phosphorus Mo Avg

OPS SQL (Ventura Water Reclamation Facility)  
R4 Tot P

Annual Report 2007

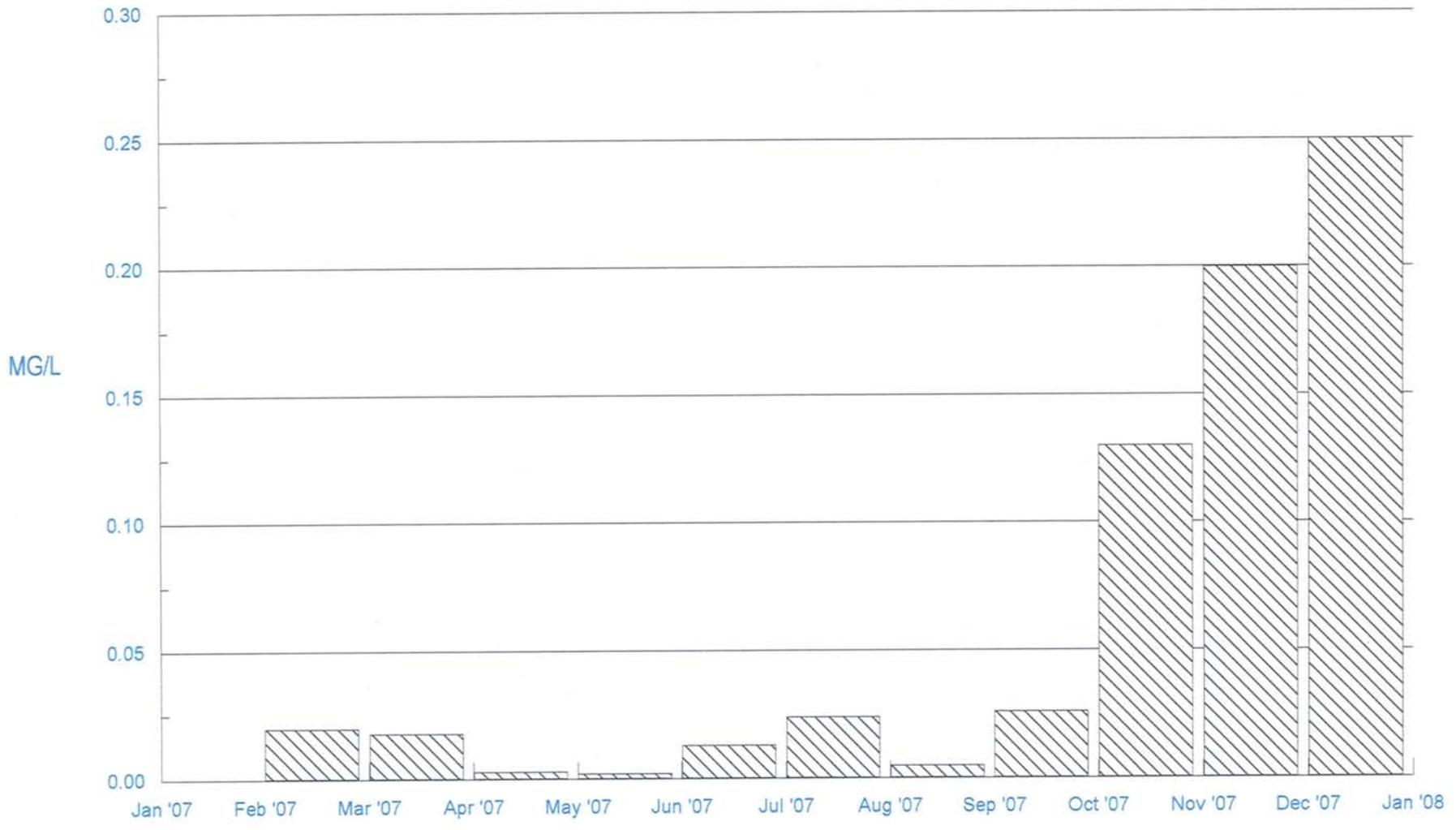


Receiving Water Station - L5

☐ Total Phosphorus (Mo Avg)

OPS SQL (Ventura Water Reclamation Facility)  
L5 Tot P

Annual Report 2007

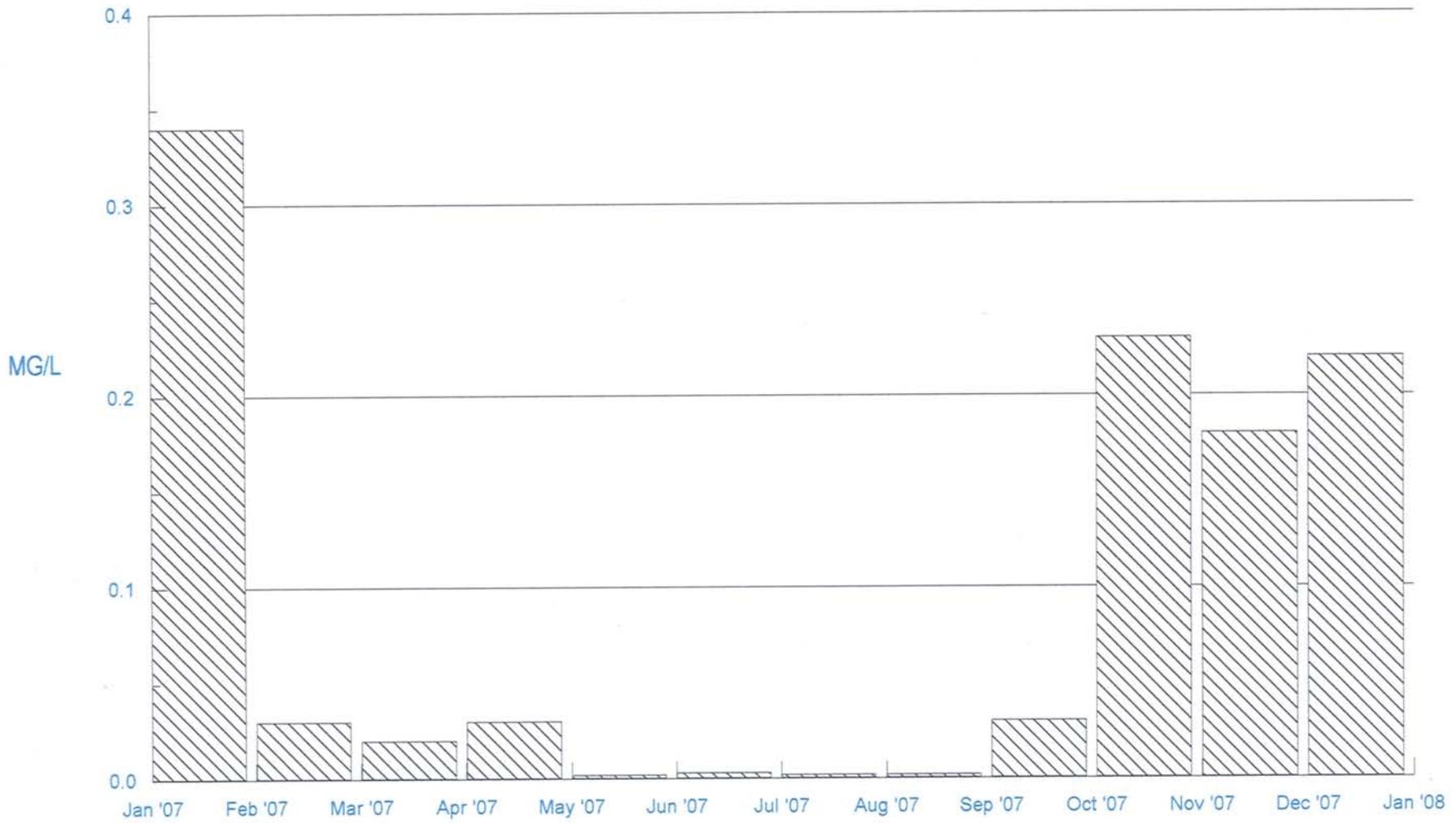


Receiving Water Station - R1

Chlorophyll A (Mo Avg)

OPS SQL (Ventura Water Reclamation Facility)  
R1 Chloro A

Annual Report 2007

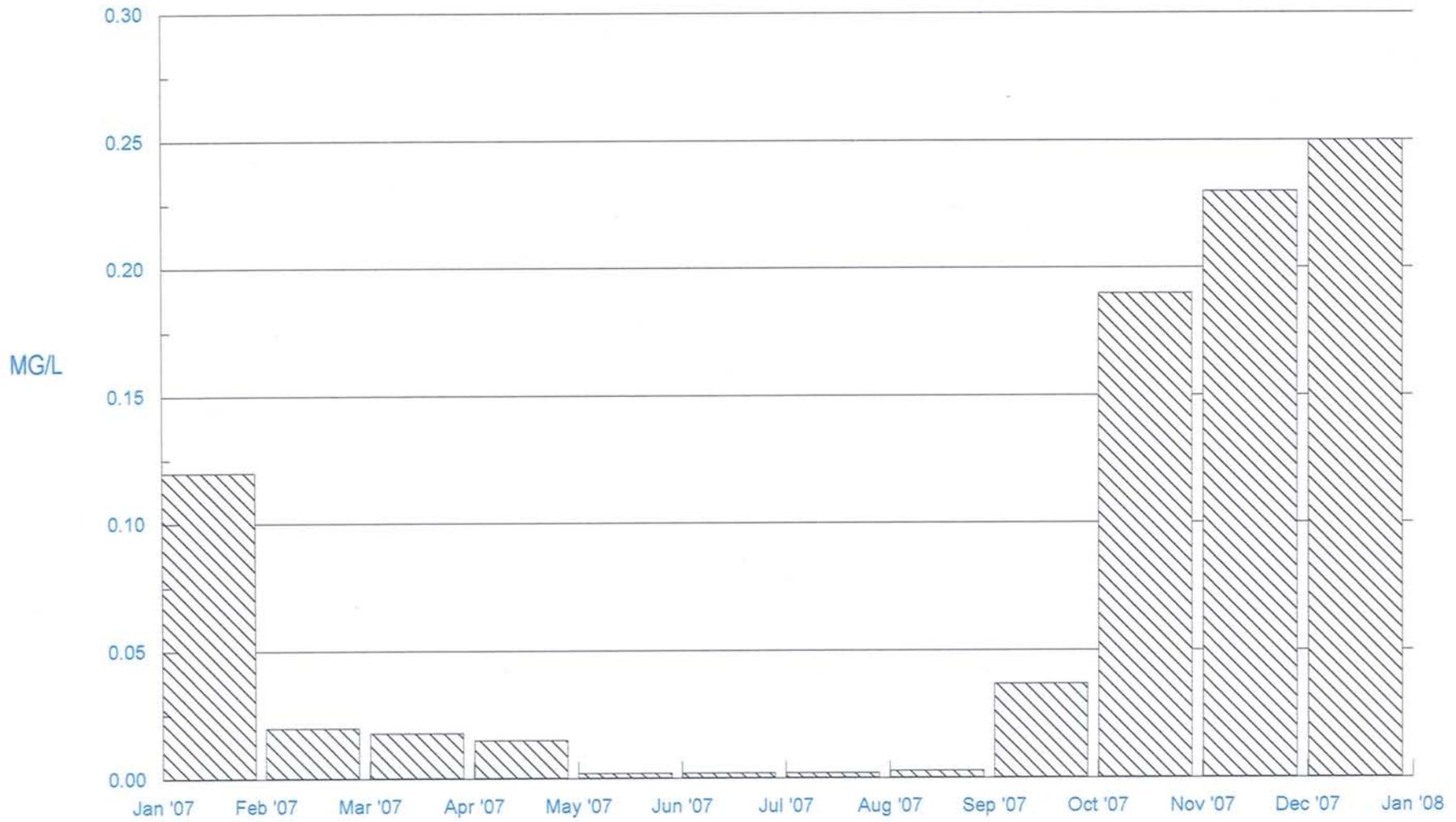


Receiving Water Station - R2

☐ Chlorophyll A (Mo Avg)

OPS SQL (Ventura Water Reclamation Facility)  
R2 Chloro A

Annual Report 2007

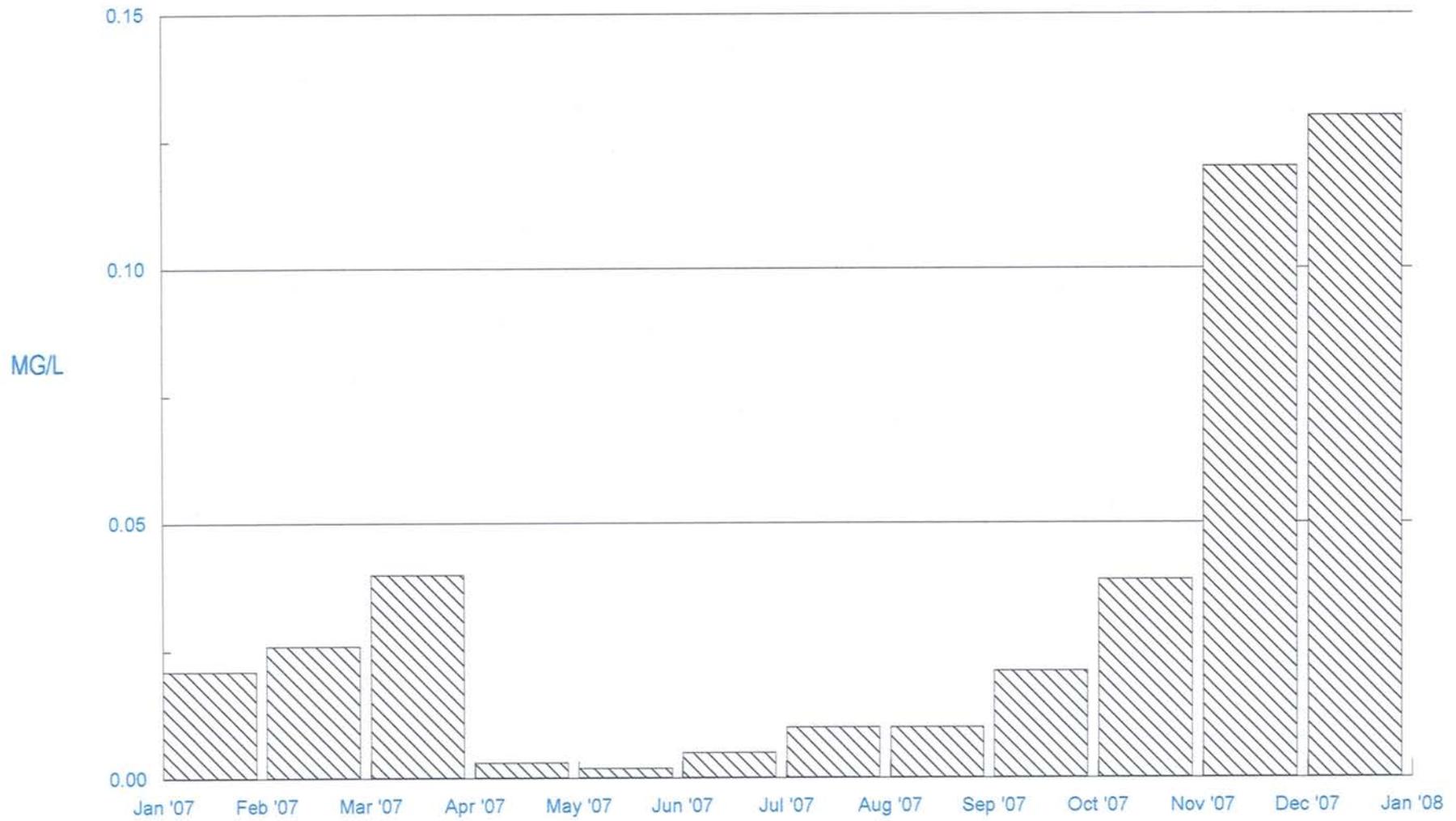


Receiving Water Station - R3

☐ Chlorophyll A (Mo Avg)

OPS SQL (Ventura Water Reclamation Facility)  
R3 Chloro A

Annual Report 2007

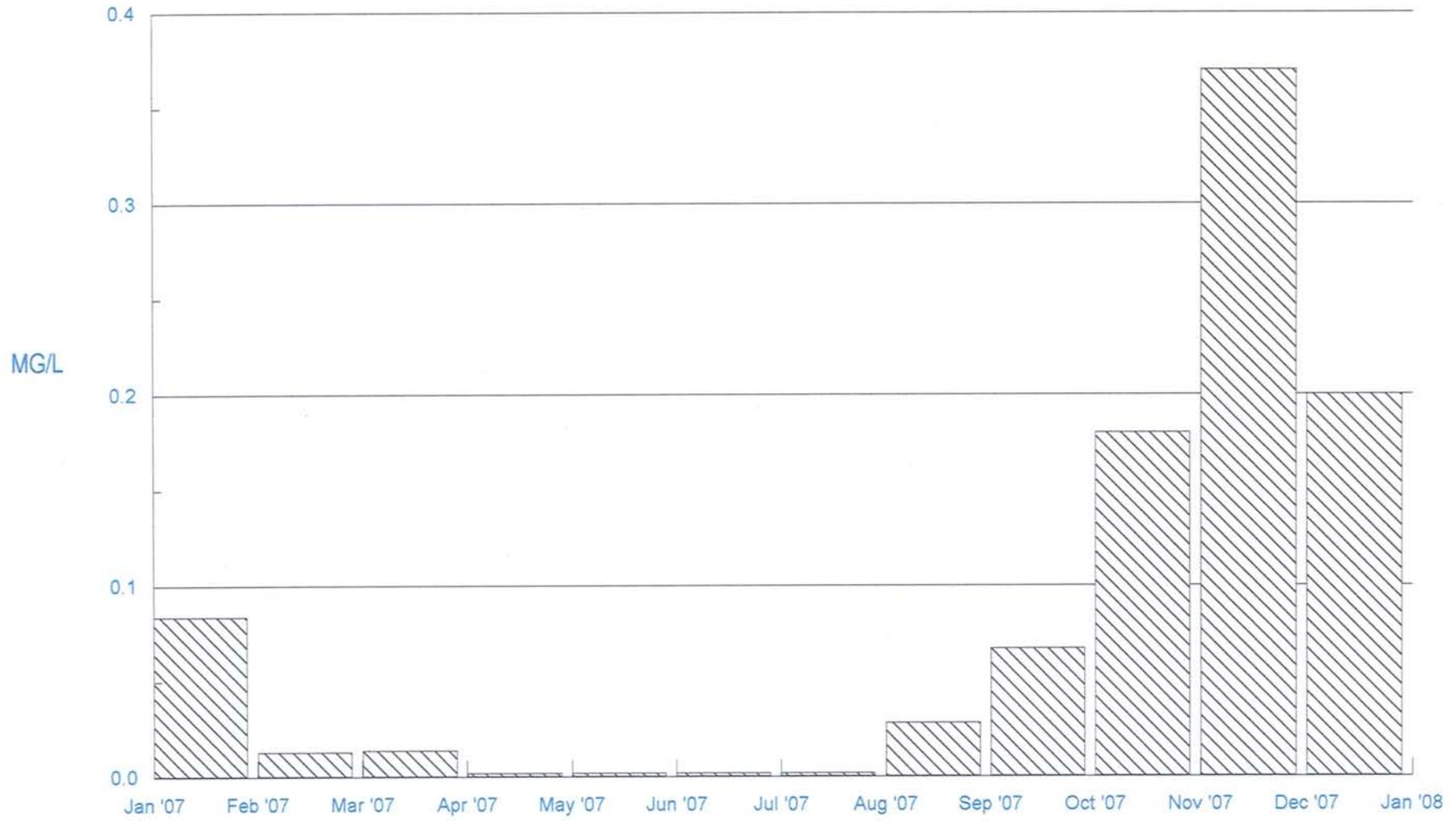


Receiving Water Station - R4

☐ Chlorophyll A (Mo Avg)

OPS SQL (Ventura Water Reclamation Facility)  
R4 Chloro A

Annual Report 2007



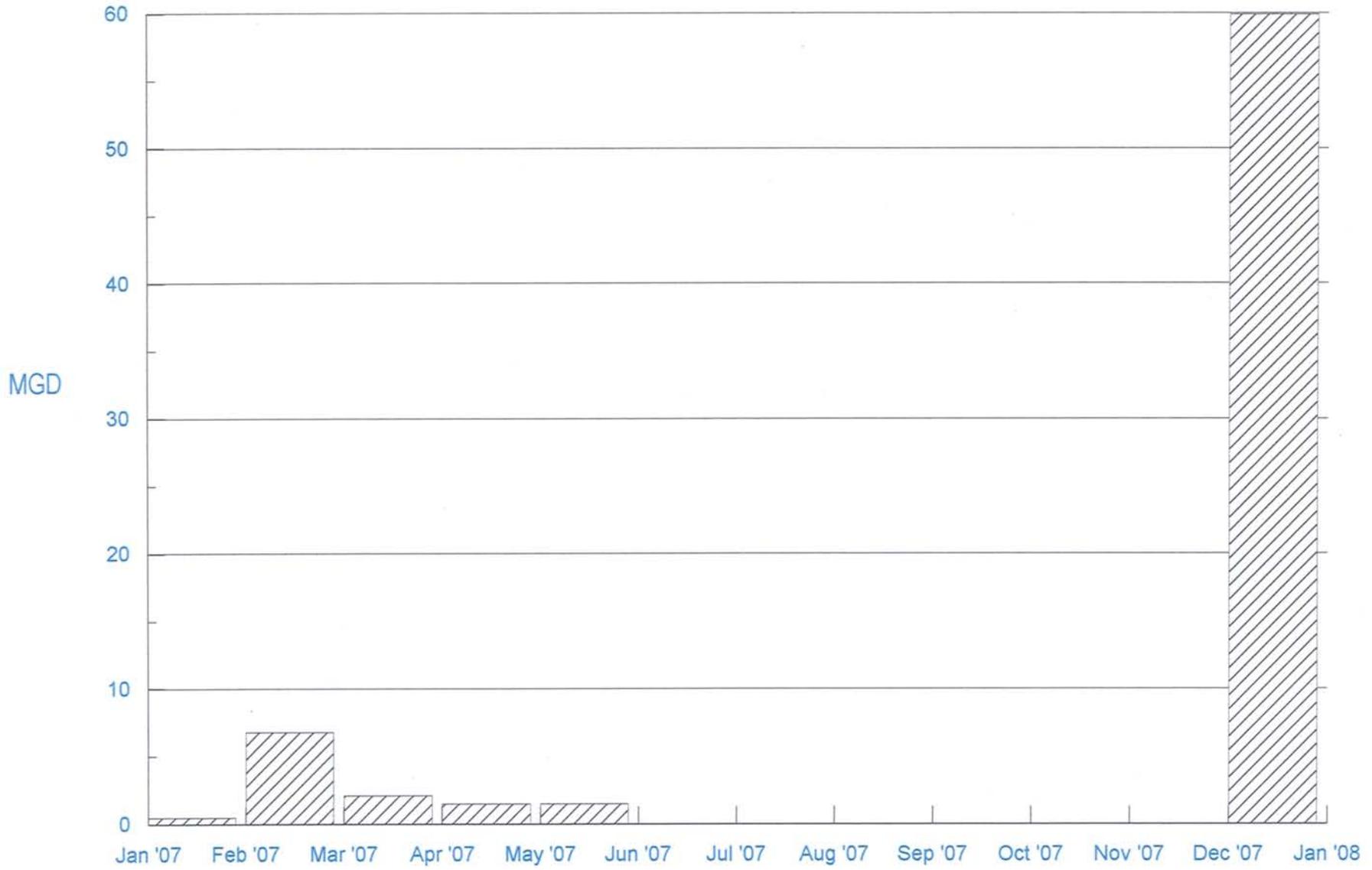
Receiving Water Station - L5

☐ Chlorophyll A (Mo Avg)

OPS SQL (Ventura Water Reclamation Facility)  
L5 Chloro A



# Annual Report 2007



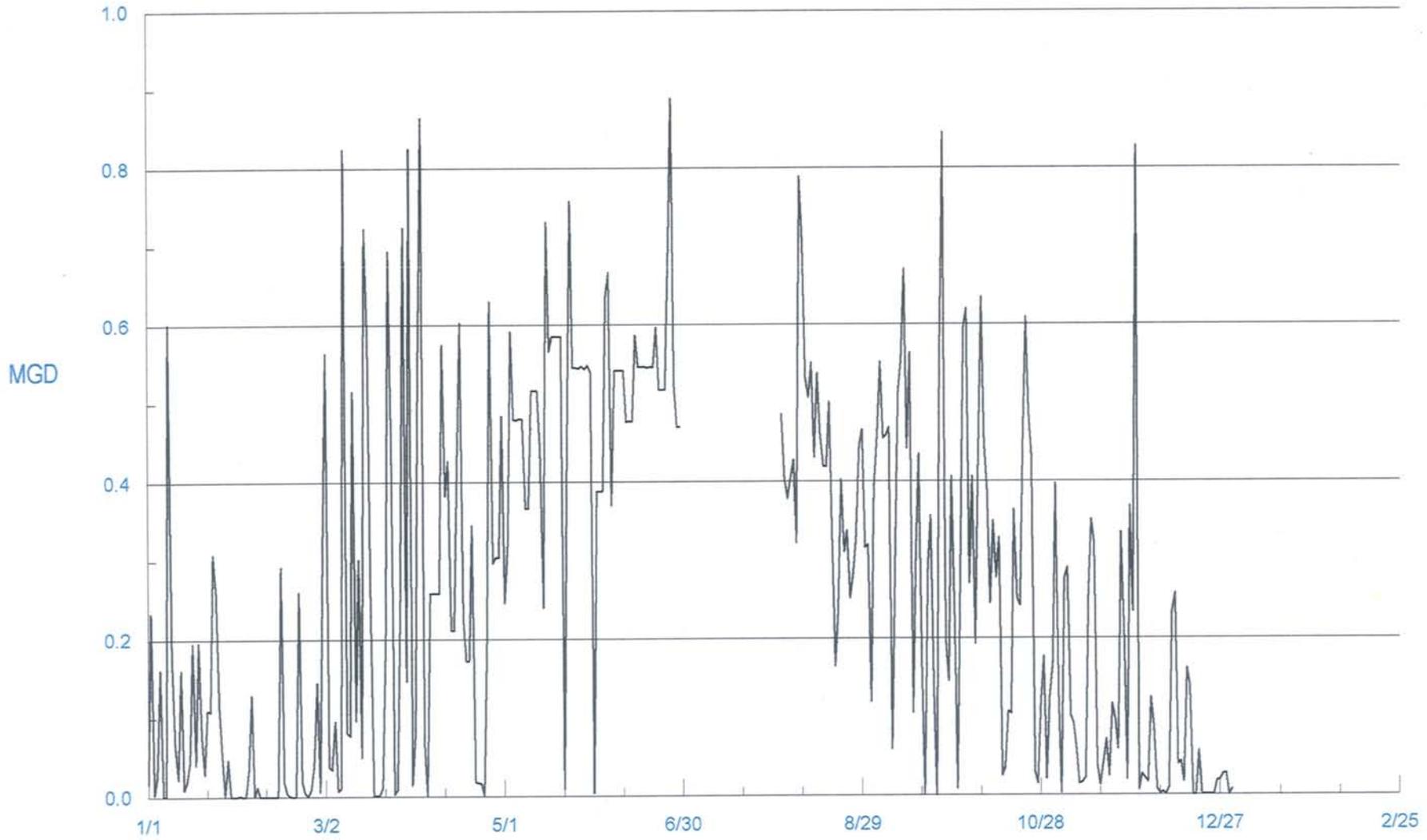
Santa Clara Tidal Prism

Estimated Discharge To The Pacific Ocean (Mo Avg)

OPS SQL (Ventura Water Reclamation Facility)  
River 07



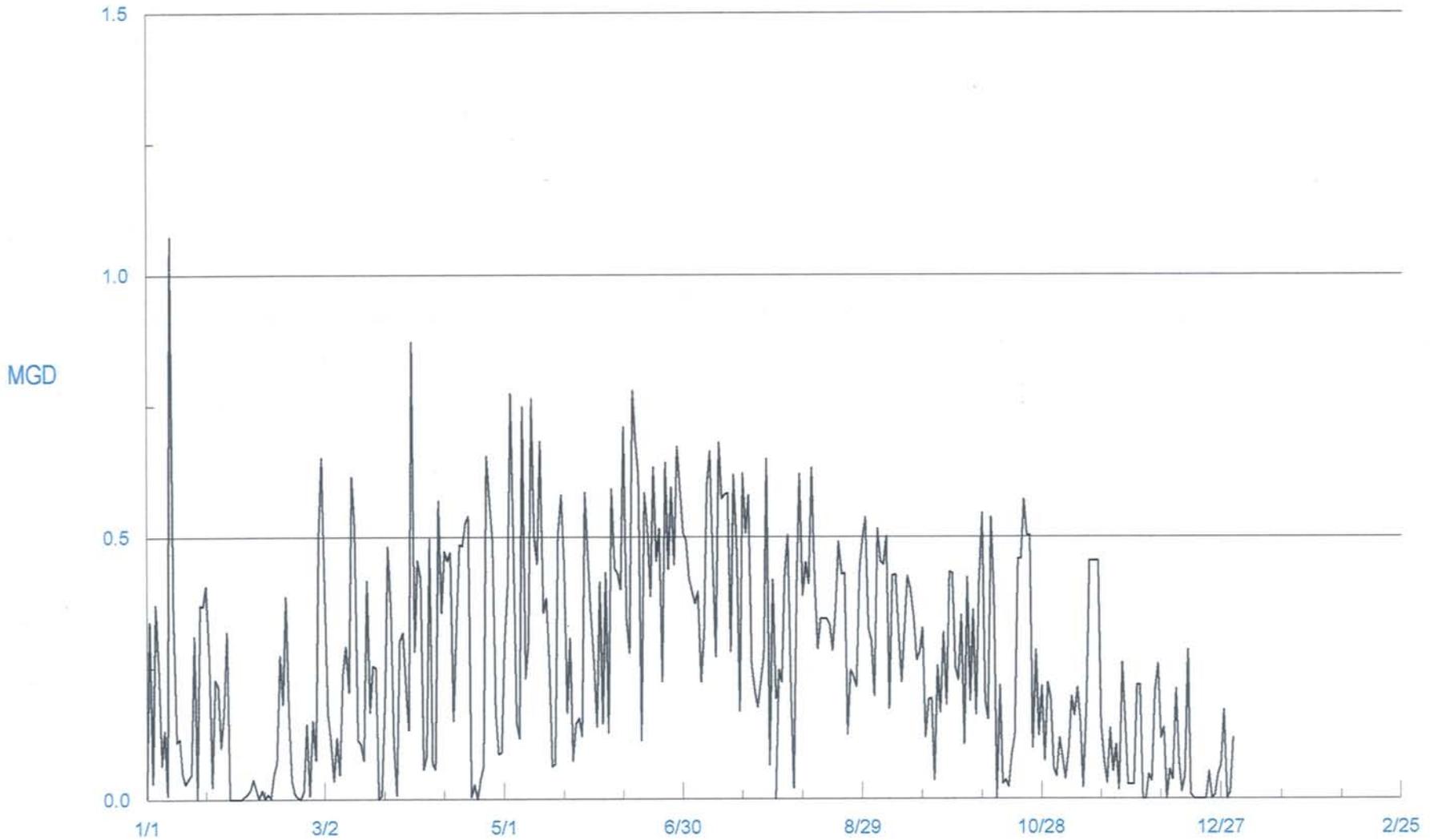
Annual Report 2007



/ Daily Reclaimed Water Delivery - Olivas Pump Station

OPS SQL (Ventura Water Reclamation Facility)  
Olivas 07

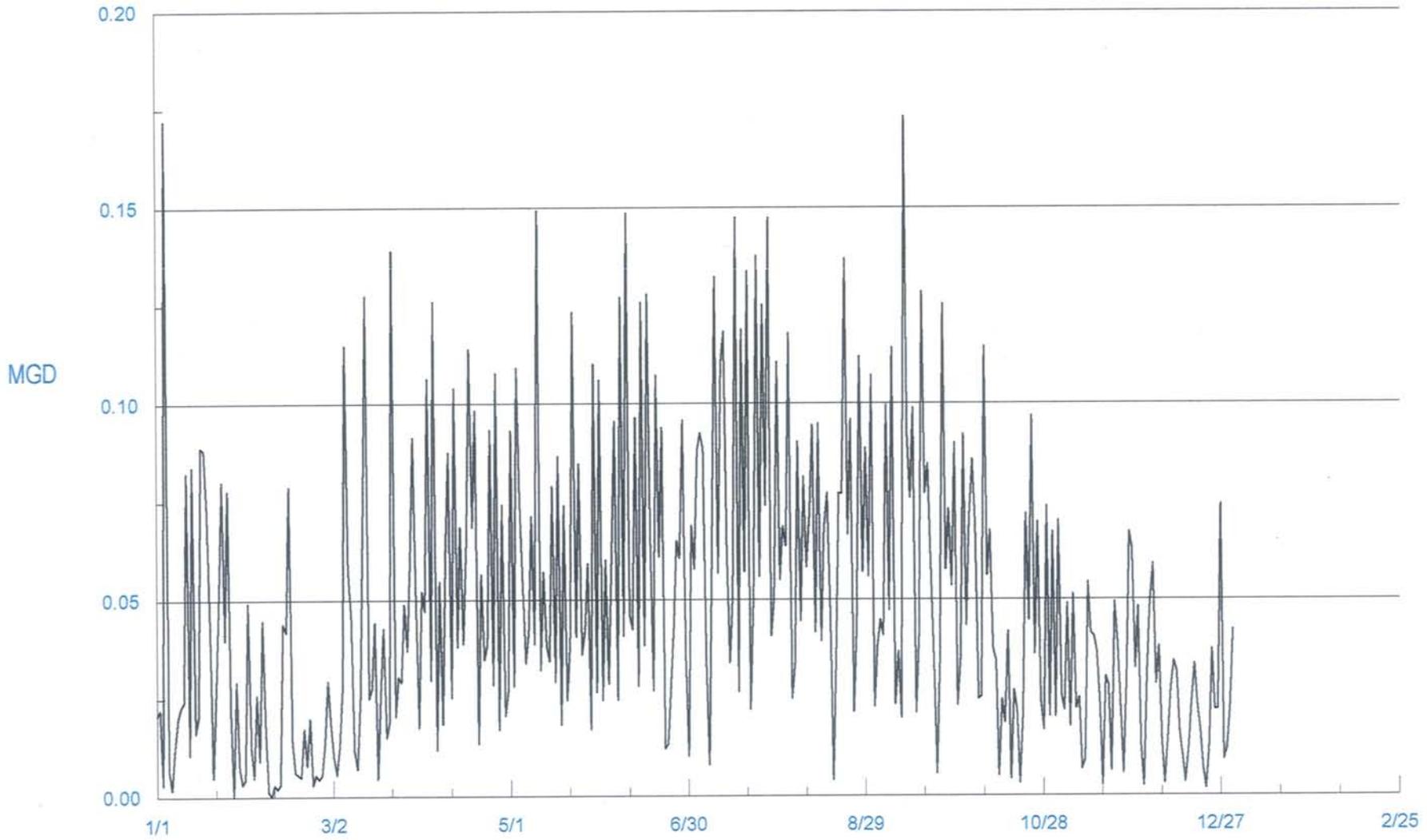
Annual Report 2007



/ Daily Reclaimed Water Delivery - Buena Pump Station

OPS SQL (Ventura Water Reclamation Facility)  
Buena 07

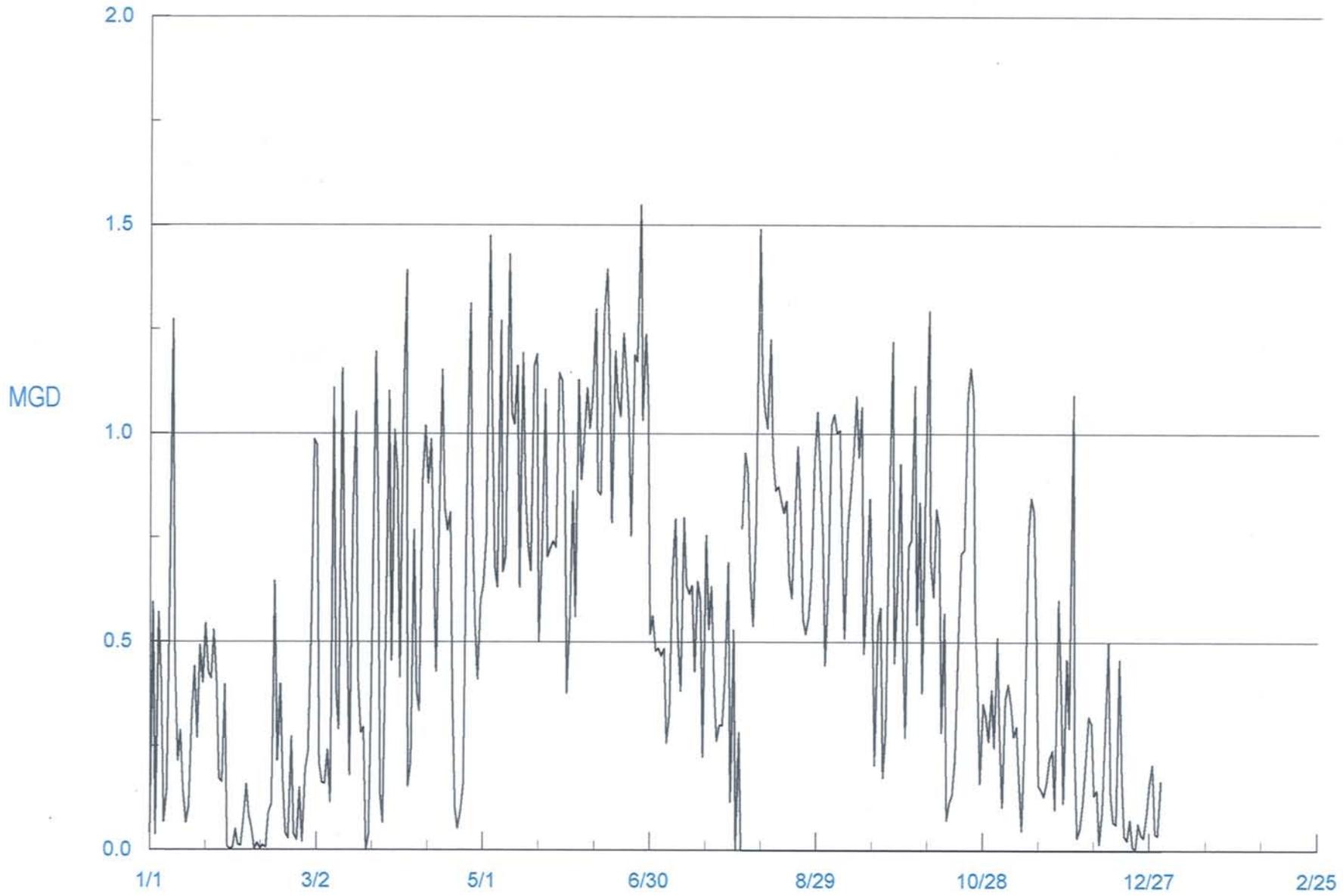
Annual Report 2007



/ Daily Reclaimed Water Delivery - Marina Park Irrigation System

OPS SQL (Ventura Water Reclamation Facility)  
Marina 07

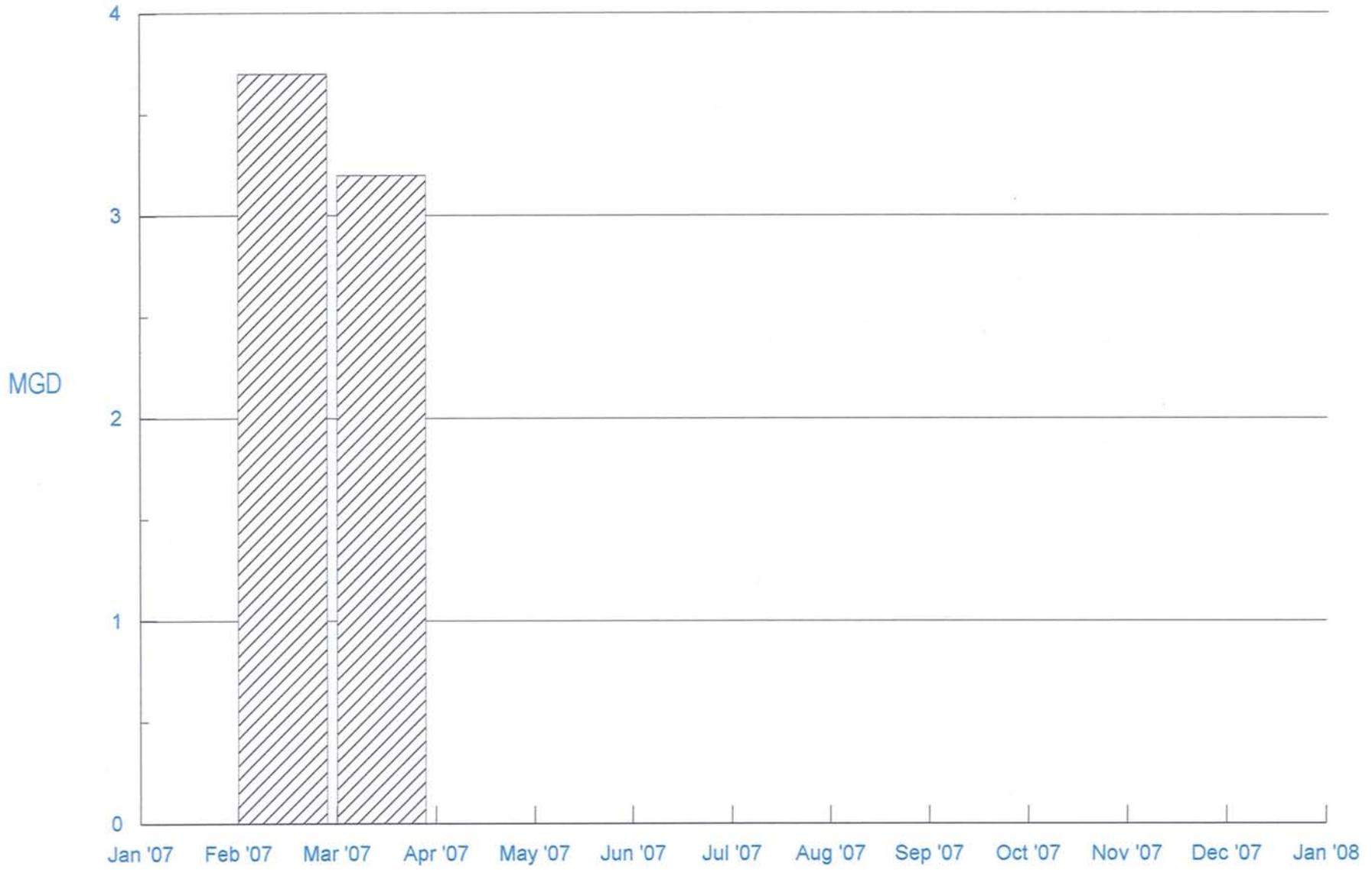
# Annual Report 2007



/ Daily Reclaimed Water Delivery - Total Irrigation

OPS SQL (Ventura Water Reclamation Facility)  
Tot Irr 07

# Annual Report 2007



Santa Clara Tidal Prism

Estimated Influx To The Pacific Ocean (Mo Avg)

OPS SQL (Ventura Water Reclamation Facility)  
River 07



# **ANALYTICAL QUALITY ASSURANCE PROGRAM 2007**

## **I. LABORATORY DUTIES AND OBJECTIVES**

The City of San Buenaventura Wastewater Laboratory is responsible for all sampling and analysis for purposes of NPDES compliance monitoring related to the City operated wastewater treatment plant, industrial waste and for the City domestic water supply and water distribution system monitoring for SDWA compliance. It is aim to provide a product the does not cause harm to the public or the environment.

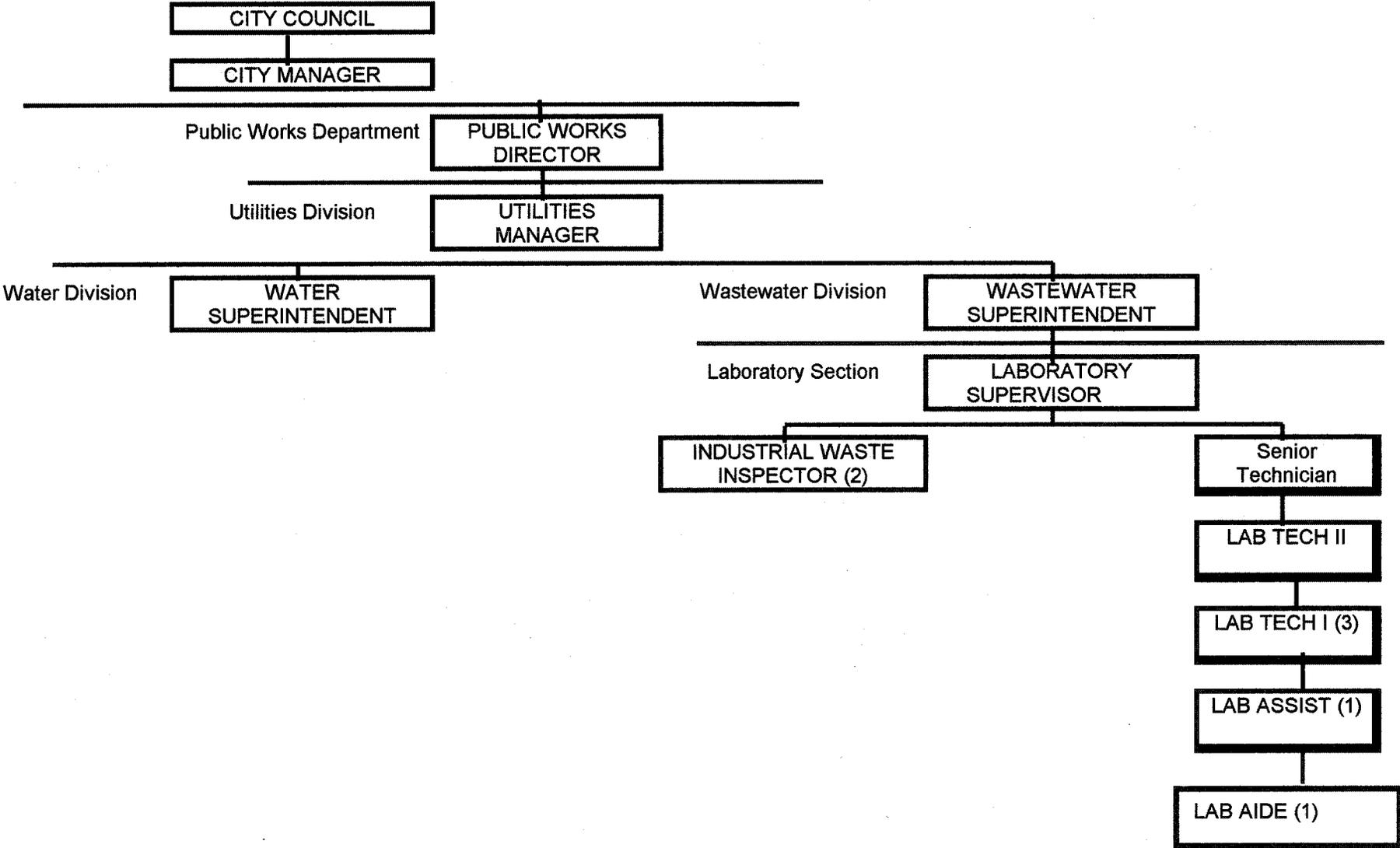
Current State of California Department of Health Services laboratory certification is attached.

All analyses for purposes of NPDES and SDWA reporting or for industrial waste monitoring conforms to the current requirements of 40 CFR Part 136, "Guidelines Establishing Test Procedures for the Analysis of Pollutants" or of 40 CFR Part 141, "National Interim Primary Drinking Water Regulations."

The purpose of this document is to outline the laboratory quality assurance procedures as they relate to compliance monitoring and to evaluate performance where statistically valid numbers of control results are available.

**II. Laboratory Overview**

**A. Organization**



## **B. Laboratory Personnel Qualifications and Experience**

### **Laboratory Supervisor: Florence Jay - May 1998 to Present**

#### Education:

Bachelor of Sciences Fort Valley State College Major - Biology

Master of Sciences Iowa State University Major - Fisheries Biology

#### Experience:

Lab Tech I, City of San Buenaventura Water Division

Lab Tech II, City of San Buenaventura Wastewater Division

Senior Lab Tech, City of San Buenaventura Wastewater Division

#### Present Duties:

Responsibilities include the supervision of the laboratory and industrial waste staff, which involves the preparing of employees' evaluations and overseeing the day to day activities. Prepare water and wastewater monitoring reports of analyses including electronic transfer of water data. Prepare the laboratory budget and the ordering of supplies and chemicals. Other administrative duties include attending various meetings, coordination of sample schedule with other departments and assist with the chemical, physical and biological analysis of water, wastewater and industrial waste samples.

**Senior Technician: Michael L. Torres - August 1999 to Present**

Education:

Bachelor of Science Microbiology – California State University @ Northridge (Pending)

Experience:

Microbiologist – Montgomery Watson Laboratories

Present Duties:

Responsibilities include the inorganic and organic analyses of water, wastewater and industrial waste samples using the Gas Chromatogram and the Ion Chromatograph. As the bench supervisor direct, train and assist the staff with physical, chemical and biological analyses. Operate the laboratory's quality control program, maintain records, data entry of results and oversee the laboratory safety program. Supervise the laboratory in the absence of the supervisor.

**Lab Tech II: Craig Jones – September 2000 to Present**

**Education:**

Bachelor of Science in Biology- University of North Carolina @ Chapel Hill

**Experience:**

Laboratory Technician I City of San Buenaventura Wastewater, Ventura California

Laboratory Technician, Ventura County Waterworks, Moorpark, California

**Present Duties:**

Analyze water, wastewater and industrial waste sample using the Atomic Absorption Spectrometer for mineral and metals. Perform other physical, chemical and biological analyses of water, wastewater and industrial waste samples Daily input and recording of laboratory data. Maintenance and upkeep of laboratory equipment.

## **Lab Tech I: Mary Champion - July 2005 to Present**

### **Education:**

Bachelor of Science in Biology, minor in Chemistry, University of Mary Harding – Baylor

### **Experience:**

Laboratory Technician, Los Angeles County Sanitation District Via Fastek

Laboratory Technician, San Manuel Bottle Water Group

### **Present Duties:**

Perform routine chemical, physical and biological analysis of water, wastewater and industrial waste samples. Effluent chronic toxicity, collect water, wastewater, and receiving water samples for laboratory analyses. Daily input and recording of laboratory data. General laboratory housekeeping.

**Lab Tech I: Felicitas Ramirez – September 2005 to Present**

**Education:**

Bachelor of Science in Commerce Management Saint Louis University Philippines

Bachelor of Science in Biology Ventura College

**Experience:**

Laboratory Technician I Aquatic Bioassay Consulting Laboratories, INC

Aquatic Biologist Aquatic Bioassay Consulting Laboratories, INC

Laboratory Supervisor Aquatic Bioassay Consulting Laboratories, INC

**Present Duties:**

Perform routine chemical, physical and biological analysis of water, wastewater and industrial waste samples. Chronic bioassay testing of effluent, collect water, wastewater, and receiving water samples for laboratory analyses. Daily input and recording of laboratory data. General laboratory housekeeping.

**Lab Tech I: Manuel Zapien – July 2006 – Present**

**Education:**

Associate of Science in General Science – Ventura College

Bachelor of Science in Geology – University California at Santa Barbara

CWEA Grade 1 Laboratory Analyst Certificate

**Experience:**

Laboratory Technician – Ventura County Water Works

Laboratory Technician – NUSII Technology, INC

**Present Duties:**

Perform routine chemical, physical and biological analysis of water, wastewater and industrial waste samples. Collect water, wastewater, and receiving water samples for laboratory analyses. Daily input and recording of laboratory data. General housekeeping and equipment maintenance.

**Laboratory Assistant: Jason Wong – August 2006 – Present**

Education:

High School Diploma Adolf Camarillo High School

Experience:

Laboratory Aide – City of Ventura Wastewater Laboratory

Present Duties:

Collect water, wastewater, industrial waste and receiving water samples for laboratory analyses. Perform simple chemical, physical and bacteriological analyses on the various water samples. Input laboratory data and perform maintenance of laboratory equipment.

### C. Instrumentation and Equipment

The division laboratory owns and maintains the following equipment and instrumentation.

UNIT	MANUFACTURER/MODEL	MAINTENANCE
Water Still	Coming 3 Liter Megapure	Division
	Barnstead Nanopure Diamond	Division
D. I. Water Supply	Culligan Commercial Units	Culligan
Forced Convection Oven	VWR S/P Model 1370FM	Division
Oven	VWR Model 1670 HAFO Series	Division
Muffle Furnace	Barnstead/Thermolyne Furnace Model F304203C	Division
Incubator (Air)	Precision Model 30M	Division
Incubator (Air)	Fisher Scientific Counter Top Model 6500	Division
Incubator (Water Bath)	Precision Circulating Bath Model 270	Division
Incubator (BOD)	Fisher Scientific Model FFU20FC4CWO	Division
Autoclave	Getinge/Castle Model 133LS	Getinge/Castle
pH Meters	Orion Model 601	Division
	Orion Model 701	Division
	Cole-Parmer 5938-00 Portable	Division
Specific Ion System	Orion Model EA 940 Meter/Electrodes	Division
Sealer	Idexx Quant- Tray Sealer Model 2X	Idexx
Conductivity Meter	Orion Model 162A	Division
D.O. Meters	Orion SL 9 Portable Probe	Division
	Orion Model 9708 Electrode	Division
	Thermo Orion Model 826A	Division
Nephelometers	Hach Model 2100A	Hach
Water Bath	Blue M Magniwhirl Model 1110A	Division
Analytical Balances	Mettler Model AT 201 Mettler Model AE 163	Mettler
Top-Loading Balances	Mettler Model PM2000	Mettler
	Mettler Model PM2000	Mettler
Microscopes	American Optical 40-1000X Phastar	Division
	American Optical .7-3X Stereo	Division
	Nikon Eclipse E600	Division
Spectrophotometers	HP 8453 UV-Visible Spectrophotometer	Division
	Bausch & Lomb Spectronic 20	Division

Spectrophotometer AA-AE	Varian Spectra220/Furnace Atomizer/ GTA110 Autosamplers	Varian
Ion Chromatograph	Dionex, ASRS-I Self Regenerating Suppressor/Dionex, CD20 conductivity Detector	Dionex
Gas Chromatograph	HP 6890 GCSystem Series Autosampler; Micro EC Detector Flame Ionization Detector	SC Chromatography
Purge/Trap system	HP 7695	SC Chromatography
Dispenser/Diluter	Gilson 222	Division
Samplers	5 ISCO Model 6712Fr	Division/ MRC Technologies, Inc
	2-American Sigma 900	Division/America Sigma
	1 ISCO Model 3700	Division/ MRC
	5 American Sigma 800SL	Division/America Sigma
Dishwashers	2 - Miele Professional Washers G-7783	Miele
SC Chromatography	-- SC Chromatography Torrance, CA	
Getinge/ Castle	-- Getinge/Castle Rochester, New York	
Idexx	--Idexx Westbrook, Maine	
Dionex	--Dionex Sunnyvale, CA	
Varian	-- Varian Sugarland, Texas	
MRC Technologies, Inc	--MRC Technologies, Newbury Park, CA	
Mettler Toledo	--Mettler Toledo Columbus, OH	
Miele	--Miele, Inc, La Verne, CA	
American Sigma	-- Ponton Industries, Inc, Santa Fe, Spring CA	
Division	-- Ventura Sanitation Division Personnel	

### **III. PROCEDURES, RECORDS AND REPORTS**

#### **A. Sampling**

Procedures for sampling, sample preservation, handling, storage, disposal and transportation conform to the requirements of 40 CFR Part 136 and/or to 40 CFR Part 141 and amendments.

##### **1. Collection**

Samples are collected and delivered to the Wastewater Laboratory for analysis by wastewater personnel (laboratory staff and plant operators), industrial waste inspector, water division and other City's staff.

Samples collected maybe a grab or a 24-hour composite. All composite samples are collected using ISCO Models 6712 FR, 3700, or American Sigma Models 900. Samplers operate in flow proportion by utilizing the non-uniform time option of the control electronics.

Sample containers are of a material that does not produce positive or negative errors or cause contamination to the sample. Sample containers used for composite samples are pre-clean ICHM plastic cubtainers or stainless steel container for organic analysis. Grab samples are collected in pre-cleaned plastic ICHM cubtainers, pre-cleaned glass amber bottles and pre-cleaned 40 vials depending upon the analysis.

All samples are collected in a manner that will not introduce contaminates or interference causing erroneous results. Sample is collected daily, weekly, monthly, quarterly, semi-annually in accordance with the NPDES permit or as a special request, one time basis.

##### **2. Sample Preservation**

Sample preservations are done in accordance with the analysis to be performed in 40CFR. At sample collection the sampler does field measurements for pH, chlorine residuals and temperatures.

The laboratory preserves all samples not analyzed immediately that are collected and delivered to the laboratory by wastewater personnel (laboratory staff and plant operators). The technician performing the analysis preserves samples delivered by the Water Division or outside agencies.

The industrial waste inspector or the lab assistant preserves industrial samples collected for metals cyanide and total sulfide analyses. The lab technician performing the analysis preserves all other industrial waste samples.

### **3. Handling and Storage**

The person preserving the sample is responsible for storage of the sample. When possible the samples are stored in their original containers in the containers.

All samples not requiring immediate analysis are preserved and refrigerated at 4°C. They remain in storage until all the analyses has been completed and data approved. The technicians responsible for performing the required analysis remove and replace the samples in storage.

Samples placed into storage must be labeled with the sample name, date, and time sampled, the analysis required and the initial of the sampler. As part of the chain of custody the technician fills out the sign in and out label on the sample container or custody sheet when the sample is taken out of storage.

The amount of time a sample is held in storage varies from .5 hours to 6 months depending upon the analysis to be performed. The holding time for each sample is checked before it is placed into storage to ensure that the analysis is done within that time frame.

### **4. Disposal**

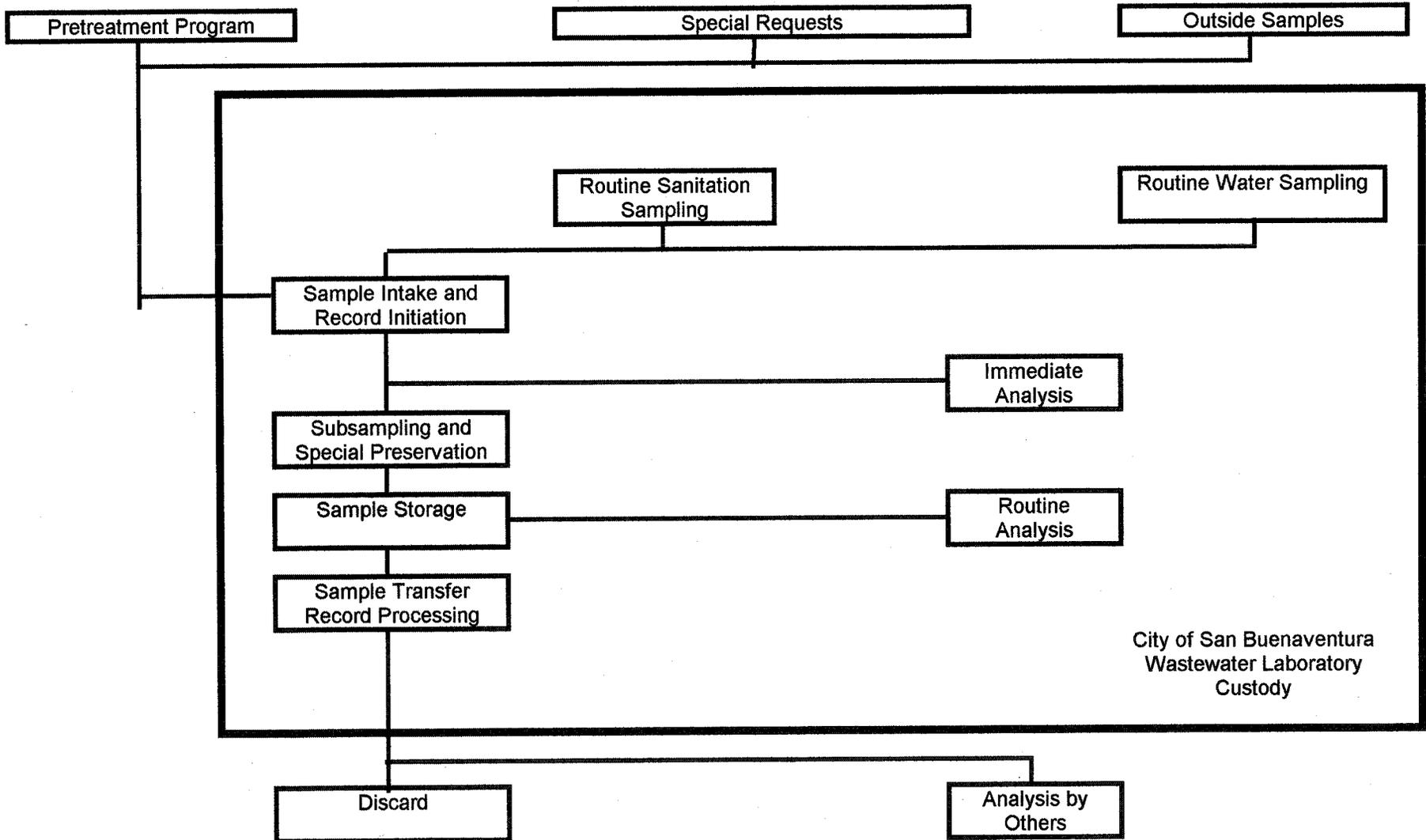
A sample can be disposed after the analysis is completed and the data has been reviewed by the laboratory supervisor, senior lab tech and industrial waste inspector. Samples should be disposed of in a safe manner that will not harm employees or the environment. Special care must be taken with samples that have been stored for long periods of times.

Wastewater and some industrial waste samples that have been stored for several weeks can create hazardous odor such as sulfides at the time of disposal. Proper safety attire and precaution must be taken when disposing these samples.

Samples analyzed for minerals and some metals maybe dumped down the drain and flushed with large of water for disposal. Others must be neutralized before they can be disposed as in the case of COD vials. Samples that have been analyzed for pesticides or phenols can be evaporated under the fume hood. Large volumes of waste solvents and other hazardous materials are disposed of at hazardous waste disposal sites.

Review the Material Safety Data Sheet (MSDS) or check with the laboratory supervisor or the senior lab tech if you have questions on proper disposal of laboratory chemical or reagents.

The laboratory sample path is shown in the chart below.



## **A. Sample Identification**

Sampling sites for routine wastewater and drinking water, which are, monitored daily, weekly, quarterly or semi-annually have fixed identity by name, number or acronym. This identification is used on location maps, in sample logs, on bench worksheets, on permanent records and on analysis reports.

The Laboratory Computer Data System assigns a Laboratory Identification Number (LID) to other water, wastewater, industrial waste samples or any non-routine sample received. The LID is in numerical order and is automatically assigned by the computer. This number is used in sample logs, bench worksheets, permanent records and on analysis reports. A copy of the Computer Data System is in the laboratory's Standard Operation Procedures (SOP).

## **B. Custody**

A Chain of custody is initiated when a sample enters or leaves the laboratory unit. All samples done on a regular bases have printed worksheet which sample collectors log in custody information. All other samples enter the laboratory are log in the incoming sample book and given a laboratory Identification number.

Custody documents vary with the sampling purpose, but all custody transfers identify the sample by name and/or LID number, the sample collector and documents date, time, location, analysis required and circumstances of sample collection along with the history of sample transfers by person and/or organization. An example of the chain of custody form is in the laboratory's SOP.

## **C. Analysis Procedures**

Analytical Procedures which the laboratory is certified to perform are according to the Standard Methods for the Examination of Water and Wastewater 18<sup>th</sup>, EPA Chemical Method for Analysis of Water and Wastes and EPA 40 CFR 136 & 141.

Bench procedures for analytical methods performed by the laboratory are maintained in a loose-leaf notebook in the laboratory work area. These are derived from approved standard procedures; which include reagents, standard preparation and concentration, test procedures, equipment and instrumentation with the analytical options for interference correction; samples and sample volumes defined for the samples analyzed. These procedures are reviewed periodically and revised to accommodate method and sample changes.

For unfamiliar and non-routine samples, the primary analytical procedures are followed to determine dilution, interference correction and all other method variables.

## D. Records

Systematic procedures for record keeping and retention have been established in conformance with the requirements of compliance monitoring and good practice.

The following summarizes the purposes and retention criteria for each general type of written laboratory record.

Record	Function	Retention
Field Logs	Record of Field Measurements and Circumstances of Sampling	7 Years
Receiving Log	Record of Samples Received from Others	7 Years
Sample/Custody Form	Pretreatment Program Sampling	7 Years
Chromatographs	Analysis from Gas Chromatograph, Ion Chromatograph and Atomic Absorption	7 Years
Bench Logs	Worksheets for Data and Calculation	7 Years
Bound Record Books	Permanent Record of Analysis Results	7 Years
Reports	Transmittal of Information to Others	7 Years

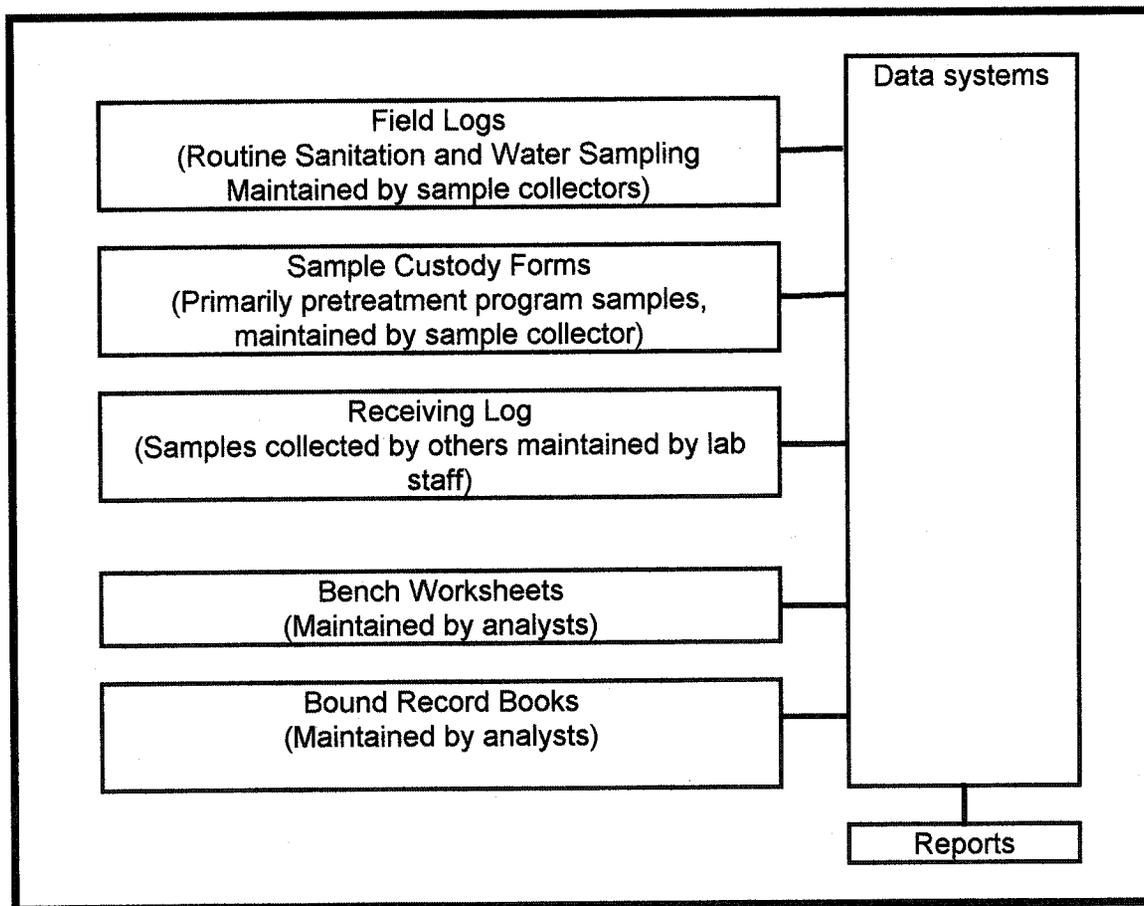
## E. Reports

Report formats and contents are generally specified by the agency requesting the reports. Reports of routine monitoring are provided by computer methods designed to meet these specifications. Reports for water samples are generated from data entered into Run: Input1 and Input 2 through the City Vax system. OPS Strategic Data Management program is used to generate wastewater reports. Industrial Waste reports are generated from the Environmental Control Database. Reports generated from data with LID numbers are generated from the Vax using Run Tra Input3. A copy of the Laboratory Computer Data Systems is located in the SOP manual in the Laboratory.

Data from field logs, custody forms, receiving logs, bench worksheets, bound logbooks, chromatographs and spectrophotometer is used to compile information required for these report. A flow chart for data input information is below.

All current procedures, records and reports are available at the laboratory for review and inspection. Records of annual analytical results are available from 1971 to present. Reports are reviewed and signed by the Laboratory Supervisor.

Data flow from generation to reporting is shown below.



## Sample Retention Requirements

Sample Source	Frequency	Subsample	Discard After:	Authorization by:
Drinking Water	Weekly	Turbidity, Iron Filters	Analysis Complete	Analysts
Drinking Water	Any	Bacti	Inoculation Complete	Analysts
Drinking Water	Monthly	Chemical & Physical	Report Reviewed	Lab Supervisor
Drinking Water	Quarterly	THM	Report Reviewed	Lab Supervisor
Drinking Water	Annual	Metals	Report Reviewed	Lab Supervisor
Submerged Wells	Any	All	Report Reviewed	Lab Supervisor
Surface and Ocean	Any	Bacti	Inoculation Complete	Analysts
Wastewater	Daily Grab	pH, Turbidity, Residual	Analysis Complete	Analysts
Wastewater	Daily Grab	Bacti	Inoculation Complete	Analysts
Wastewater	Daily Composite	pH, Solids, Oxygen Demands, Conductivity	Analysis Complete	Analysts
Wastewater	Weekly Composite	Nitrogen, Chloride, Sulfate	Analysis Complete	Analysts
Wastewater	Monthly Composite	MBAS, Total P	Report Reviewed	Lab Supervisor
Wastewater	Monthly Composite	PO <sub>4</sub> , Alkalinity, B, F	Analysis Complete	Analysts/Supervisor
Wastewater	Weekly Grabs	Oil & Grease	Analysis Complete	Analysts
Wastewater	Quarterly Grabs	Cyanide	Analysis Complete	Analysts
Wastewater	Monthly Composite	Bioassay	Test Complete	Analysts/Supervisor
Wastewater	Quarterly Composite	Metals,	Report Reviewed	Lab Supervisor
Wastewater	Quarterly Composite	Pesticides, Phenol	Report Reviewed	Lab Supervisor
Receiving Waters	Weekly	Bacti, Chemical & Physical	Analysis Completed	Analysts
Receiving Waters	Monthly	Nitrogen, PO <sub>4</sub> , Total P	Analysis Completed	Analysts/Supervisor
Receiving Waters	Quarterly	Priority Pollutants	Report Reviewed	Lab Supervisor
Source Control	Any	All	Report Reviewed	IW Inspector
Special	Any	All	Report Reviewed	Lab Supervisor

## **IV. QUALITY ASSURANCE PROCEDURES AND DOCUMENTATION**

### **A. General**

The quality assurance procedures employed by the laboratory are intended to accomplish the following objectives:

1. Provide primary control over the accuracy reagents, standards and other related materials employed in analysis.
2. Provide day-to-day control over the accuracy of measurements.
3. To ensure that the technicians understand the analyses.

Specific actions designed to accomplish these goals in each area of laboratory measurement are discussed below.

## B. Laboratory Equipment

Equipment effected by the environmental, mechanical or electronic reasons is checked periodically for alignment. Other units, such as ovens or incubators are monitored for accuracy and consistency. Readings are taken or calibration procedures are performed and recorded at the frequency indicated below.

Unit	Calibration Procedure	Frequency
Ovens	Verify Temperature and Adjust as needed	Daily
Incubators	Verify Temperature and Adjust as needed	Daily
Furnace	Verify Temperature and Adjust as needed	Daily
Conductivity Meter	Calibrate with 1413 calibration standard	Daily
pH Meters	Calibrate with Buffer Solutions	Prior to Use
D.O. Meters	Air Calibrate	Prior to Use
D.O. Meters	Check Against Winkler Titration	Weekly
Light Merer		Annually
Turbidimeters	Calibrate with Secondary Turbidity Standards	Daily
Turbidimeters	Calibrate with Certified Standards	Daily
Turbidimeters	Calibrated by Hach	Annually
Spectrophotometer	Verify Wavelength Accuracy with Holmium Oxide Filter	Quarterly
Autoclave	Verify Accuracy of Integral Recorder with Lag Thermometer	Weekly
Weights	Calibrated by Troemner Precision Weights	Annually
Balances	Verify Accuracy with External Calibration Weights	Weekly
Balances	Calibrated Mettler Toledo	Annually

### **C. Primary Quality Control (QC)**

Stock standard and reagents used in the analysis are logged with: the quantity used, dilution, final volume, initials of the preparer, date prepared and discards date. This information is on each sample container. The method procedure is checked for the stability and storage of the stock solution or the reagent.

Titration reagents used on a daily basis is standardized weekly. The results from that standardization such as the multiplication factor adjustments; the normality of the reagent; and the initials of the person doing the standardization is label on the buret and the logged into the prep book. Other titration reagents are standardized prior to use and labeled with the same information listed above.

### **D. Chemical Analysis**

Analysis reagents and standards are prepared from Primary standard materials, calibrated against Primary Standard materials, or purchased as certified purity and/or certified concentration standards from an approved agency such as NSI.

These procedures are used to assure conformance to narrow concentration or purity limits when procedures require it. It helps in determining when a reagent must be discarded and calculation factors to avoid errors in analysis results.

### **E. Day-to-day Control for Accuracy of Results**

Testing for chemical and physical composition is conducted on a batch basis. Each sample batch is run with controls and spikes. An acceptance of sample results as valid is based on the results of the control analyzed and spike recovery. Weekly QC is performed on all daily analyses. QC is performed on all monthly, quarterly and annual analyses following the same format as for weekly QC.

Routine control samples are prepared in house for frequently performed analyses. For other procedures the Division Laboratory analyzes NSI and Accustandard traceable commercial reference samples.

In addition to these primary checks on the accuracy and precision of measurement, blank, sample replicates and matrix spikes are carried through all procedures.

## **F. Corrective Actions**

Some laboratory data reduction is automated in many cases including instrument data generation. For automated applications, when a control, spike or sample duplicate evaluation fails to meet standard criteria for method performance, the analysis process is halted and/or sample results are withheld by the software system. Analysis cannot continue until the cause of the failure is identified and acceptable results from the control materials are produced.

In procedures where automation is not employed, the analyst performs the same function: data is not reportable unless results from analysis of control, spike and sample duplicates analyzed with the analysis batch are within acceptance standards.

All controls, spikes and duplicates must be within the acceptance limits before the results from the analysis can be recorded. After reviewing the analysis procedures, calculations and repeat of the analysis it cannot be determine the reason for the failure you must check with the QA person and the laboratory supervisor before recording the data. If it is determined that the QA material failed and the sampled material was accurate an explanation must be recorded for the failure in the "QIR" Qualitative Investigate Report book.

## **G. Special considerations for Trace Inorganic and Organic Analyses**

The Quality Assurance requirements for trace inorganic and organic analyses are narrowly defined by the approved analytical procedures. These requirements are adhered to.

Materials used for preparing standards, spikes and control for Trace Inorganic analysis are obtained from SCP Science, Champlain, NY, AccuStandard, Inc, New Haven, CT and VHG, Manchester, NH.

Materials used to prepare standards; spikes and control for trace organic analysis are normally obtained from Supelco/Sigma Aldrich, Milwaukee, WI. If appropriate materials are not available from this source, they are obtained from NSI Solution, Raleigh, NC or from normal chemical supply sources.

As with all other measurements, acceptability of sample results is dependent on controls, spikes and duplicates analysis results being within acceptance limits. No QA analysis data can be recorded if the control, spike or duplicate fail without a valid reason.

## H. Special Considerations for Toxicity Analysis

### Instrument Calibration

Continuous temperature recorders for monitoring test solution temperatures are Taylor Instrument drum recorders with remote sensor probes. Recorders are calibrated against ASTM certified reference  $-1^{\circ}$  to  $101^{\circ}$  glass thermometer by adjustment of the pen arm.

ASTM  $30^{\circ}$  C thermometers are calibrated annual against the reference thermometer any corrections are labeled on the thermometer.

pH measurement is made with Thermo Orion meter which is calibrated prior to use.

D.O. measurement is made with a Thermo Orion meter which is calibrated daily..

Reference materials are analyzed as noted below.

Analysis	Reference Material	Frequency of Reference Analysis
Algae Growth Chronic Toxicity	Zinc	With Every Test Sample
Ceriodaphnia Survival and Reproduction	Copper	With Every Test Sample
Larval Fathead Minnow Survival and Growth	Copper	With Every Test Sample

Other test acceptance criteria:

Analysis	Criterion
Algae Growth Chronic Toxicity	Control cell counts >> 200,000/ml
Algae Growth Chronic Toxicity	Control Replicate Counts << 20% Different
Ceriodaphnia Survival	Survival in Controls >> 80%
Ceriodaphnia Reproduction	Number of young must be 15 or greater
Ceriodaphnia Survival and Reproduction	60% of Surviving Adults produce 3 broods
Larval Fathead Minnow Survival and Growth	Survival in Controls >> 80%

Moderate hard synthetic dilution water is used as the control for all chronic bioassay analyses. The control is exposed to the sample conditions as the sample. A summary of the test acceptance for each species is below and a table for each is at the end of the QC report.

For Green Alga, *Selenastrum Capricornutum*, at the end of 96- hour the cell mass density in the control must be at least  $1 \times 10^6$  cells/ml and variability (CV %) among control replicates less than or equal to 20 % required. Test organisms must be 4 to 7 days old and have a cell density of 10,000 cells/ml.

For Daphnid, *Ceriodaphnia Dubia*, 60% or more of the control females must have three brood with in an 8 day time period and 80% or greater survival of all control organisms. Each surviving control female must produce an average of 15 or more babies. Test organisms must be less than 24 hours old and all released within an 8 hours period.

For, Fathead Minnow, *Pimephales Promelas*, at the end of 7 days the control must have 80% or greater survival. Each survivor must have a dry weight or 0.25 mg or greater. Test organisms must be newly hatched larvae less than 24 hours old. If shipped not more than 48 hours old.

## I. Bacteriological Analysis

Bacteriological analysis required by NPDES and SDWA monitoring is routinely performed by the multiple-tube fermentation procedure. Drinking water samples are analyzed using Colilert and recreational water by Idexx Quanti Tray method.

The Laboratory is equipped to perform Multiple Tube Fermentation (MTF) for total coliform, fecal coliform and fecal streptococci; membrane filter tests for total and fecal coliform analyses. Heterotrophic plate count (HPC) is performed monthly on water samples.

Quality assurance is for MTF, Colilert, and idexx methods consist of analyses of a blank, positive and negative control using the appropriate bacteria strand. Each new batch of MTF media and bacti supplies is tested before use. Controls are analyzed with each colilert an idexx tests.

Total coliform testing is performed following the procedures of Section 9221B of "Standard Methods for the Examination of Water and Wastewater," 18th Edition. All Samples are carried through the Brilliant Green Bile confirmation step.

At least 5% of all samples testing positive in the confirmed coliform procedure are carried through the completed procedure.

Fecal Coliform testing is performed following the procedures of Section 9221E of "Standard Methods for the Examination of Water and Wastewater," 18th Edition.

Fecal streptococcus testing is routinely performed following the procedures of Section 9230B of "Standard Methods for the Examination of Water and Wastewater," 18th Edition.

Control tests for water suitability and for inhibitory residues are performed annually following the procedures of Section 9020B(3)(a)(2) and 9020A(3)(c)(1) of "Standard Methods for the Examination of Water and Wastewater," 18th Edition.

Commercial dehydrated media is used for all analysis. Media is tested for accurate response by inoculation of portions from each prepared batch with *Escherichia coli* (ATCC 25922), *Staphylococcus aureus* (ATCC 25923) and *Streptococcus faecalis* (USEPA-EMSL Cincinnati 111054).

Coliform test materials failing to give a positive response to *Escherichia coli*, a negative response to *Staphylococcus aureus* and no response upon incubation of non-inoculated media are discarded.

Fecal strep test materials failing to give a positive response to *Streptococcus faecalis*, a negative response to *Staphylococcus aureus* and no response upon incubation of non-inoculated media are discarded.

Both media and equipment are prepared in weekly batches, and materials are tested for sterility using Tryptic Soy Broth before use and dated to assure they are used within acceptable holding periods or discarded.

Revised 2/13/2008



City of San Buenaventura

L. A. RWQCB Order 95-074 (NPDES Permit 0053651; CI No. 1822) and L. A. RWQCB Order 87-45 ( File No. 57-68 ; CI No. 6190 )

Ventura Water Reclamation Facility

## ANNUAL REPORT OF ANALYSIS

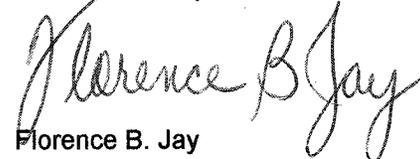
I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted.

Based on my inquiry of the person or persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of a fine and imprisonment for knowing violations.

Executed on the 21<sup>st</sup> ,day of March, 2008, at Ventura, CA.



Daniel Pfeifer  
Wastewater Superintendent



Florence B. Jay  
Laboratory Supervisor