Annual Report of Analysis 2005

City of Ventura • Public Works • Wastewater

CITY OF
VENTURA
PUBLIC WORKS

COVER: Photo of Tidewater Goby

ANNUAL REPORT OF ANALYSIS

CITY OF SAN BUENAVENTURA

VENTURA WATER RECLAMATION FACILITY

2005

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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 comprises Utilities Division of the Public Works Department. Facilities include 475 miles of sewer mains, 12 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.

On January 10th 2005 the new influent headworks was put into service; this unit process provides, screening, grit removal, and influent pumping. The aerated grit chamber improves mixing of iron salt addition, which has improved primary clarifier performance.

Processes employed at the treatment facility during 2005 include: screening, grit removal, primary sedimentation, primary flow equalization, activated sludge secondary biological treatment, tertiary effluent filtration and chlorination.

In 2005 process solids were treated by anaerobic digestion, dewatered and applied to agricultural land at River Island Farm near Wasco, California.

Following disinfection, effluent enters a system of Wildlife Ponds with a combined capacity of 34 million gallons. At the current average daily outfall flow rate of 9.6 MGD; this provides approximately 4 days of detention.

Wastewater facilities include pump stations and pipelines for water reclamation. In 2005 the daily average volume of treated effluent reclaimed was 520,584 gallons. The maximum daily reuse volume measured in 2005 was 1,761,000 gallons per day.

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 190.0 million gallons.

Reclaimed water for irrigation and for discharge to the Santa Clara Tidal Prism is withdrawn from the end of the wildlife pond system. Irrigation water supply is delivered by two pump stations into 3 distribution lines.

Residence in these ponds provides substantial dissipation of Chlorine residual and a corresponding reduction in the cost of dechlorination chemicals needed to meet the requirement for complete Chlorine neutralization prior to discharge to the tidal prism. Chlorine dissipation also reduces the risk of landscape damage from high Chlorine concentrations in water supplied for irrigation. Sulfur Dioxide is applied prior to estuary discharge.

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 Fall of 2006.

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
Jeffery A. Baker	Plant Operator	III	III - 9316
Carey A. Adams	Plant Operator	III	III - 9785
Joseph E. Volpe	Plant Operator	III	III – 8987
Curtiss W. Montague	Plant Operator	III	III - 10475
Chad Steinclicht	Plant Operator	III	III - 10297
Baltazar Cervantez Jr.	Plant Operator	II	II - 9419
Adam Lopez	Plant Operator	I	I - 10894

II. PROCESS PERFORMANCE AND COMPLIANCE WITH DISCHARGE REQUIREMENTS

During the reporting period the effluent 7-day median coliform limit was exceeded 13 times, the 30-day coliform limit was exceeded 5 times, and the turbidity limit was exceeded once. January and February 2005 storms accounted for 6 of the 18 violations. Biological process upset accounted for 12 coliform violations in June and July.

Chronic toxicity was found in 4 samples during 2005. Conservatively, the City responded by completing a TIE based on 2 consecutive samples. On September 6, 2005 the City filed with Water Board staff the Algal Toxicity Identification Evaluation Final Report.

During November of the reporting period the copper concentrations exceeded discharge permit limit. This was the one monitoring event during the reporting period when the City was not protected with Time Schedule Order interim limits.

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

LOCATION OF SAMPLE POINTS FOR MONITORING AND REPORTING PROGRAMS

The liquid fraction flow path for both discharge to the Santa Clara Tidal Prism and treated effluent reused for landscape irrigation was as shown in the schematic plant flow diagram which follows. This has been the treatment plant operating mode throughout all of 2005

The total wastewater flow is treated and disinfected through the system as shown without regard to the ultimate discharge designation.

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

LOCATION 1 - INFLUENT PUMP STATION

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 duplication of influent sampling programs is not warranted.

The samplers used here are the ISCO 6712R and American Sigma 900 which are 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. Analyses for pH, 5-day BOD, COD, suspended solids, nitrogen compounds quarterly metals and priority pollutants are performed on samples collected at this station.

LOCATION 2 – FLOW EQUALIZATION BASIN - PRIMARY EFFLUENT

Through this location passes all effluent from the Primary Clarifier. This sample station can be bypassed and raw sewage delivered directly to the Activated Sludge System if routine maintenance or emergency requires it.

The samplers used here are the ISCO Model 6712R samplers programmed to collect samples at uniform time intervals proportional to the flow to the secondary treatment process.

Sampling is performed here for process control.

Analyses for 5-day BOD, COD, pH, suspended solids, MBAS and nitrogen compounds are performed on samples collected at this station.

LOCATION 3 - ACTIVATED SLUDGE PROCESS EFFLUENT

This location is at the end of the 36 inch line from the Activated Sludge Final Sedimentation Tanks and before the Mixed Media Filter Station Pump Wet Well.

The samplers used here were an ISCO Model 6712R programmed to collect samples at uniform time intervals proportional to the flow to the Activated Sludge System.

Sampling is performed here for process control.

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

LOCATION 4 - EFFLUENT TRANSFER STATION

This location follows filtration and disinfection and from here treated effluent is pumped to the Wildlife Ponds. All treated effluent passes through this station.

The samplers used here were and ISCO Model 6712FR programmed to collect samples at uniform time intervals proportional to the flow leaving the Mixed Media Filter Station.

Sampling is performed here for compliance monitoring and for process control. Analyses for 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, 17 dioxin congeners and priority pollutants are performed on samples collected at this station. The flow from the Filtration and Disinfection processes is also continuously monitored here by a process turbidimeter.

Grab samples for bacteriological examination are collected three times daily, at 7:00 AM, 11:00 AM and 8:00 PM just ahead of this sample station from the outlet end of the contact chamber that would allow the longest contact time.

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 is ahead of the discharge for the Santa Clara River Tidal Prism. All effluent reaching the Tidal Prism must pass through this Station.

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 here. A residual chlorine analyzer continuously monitors the flow from the station.

RECEIVING WATER SAMPLE STATIONS

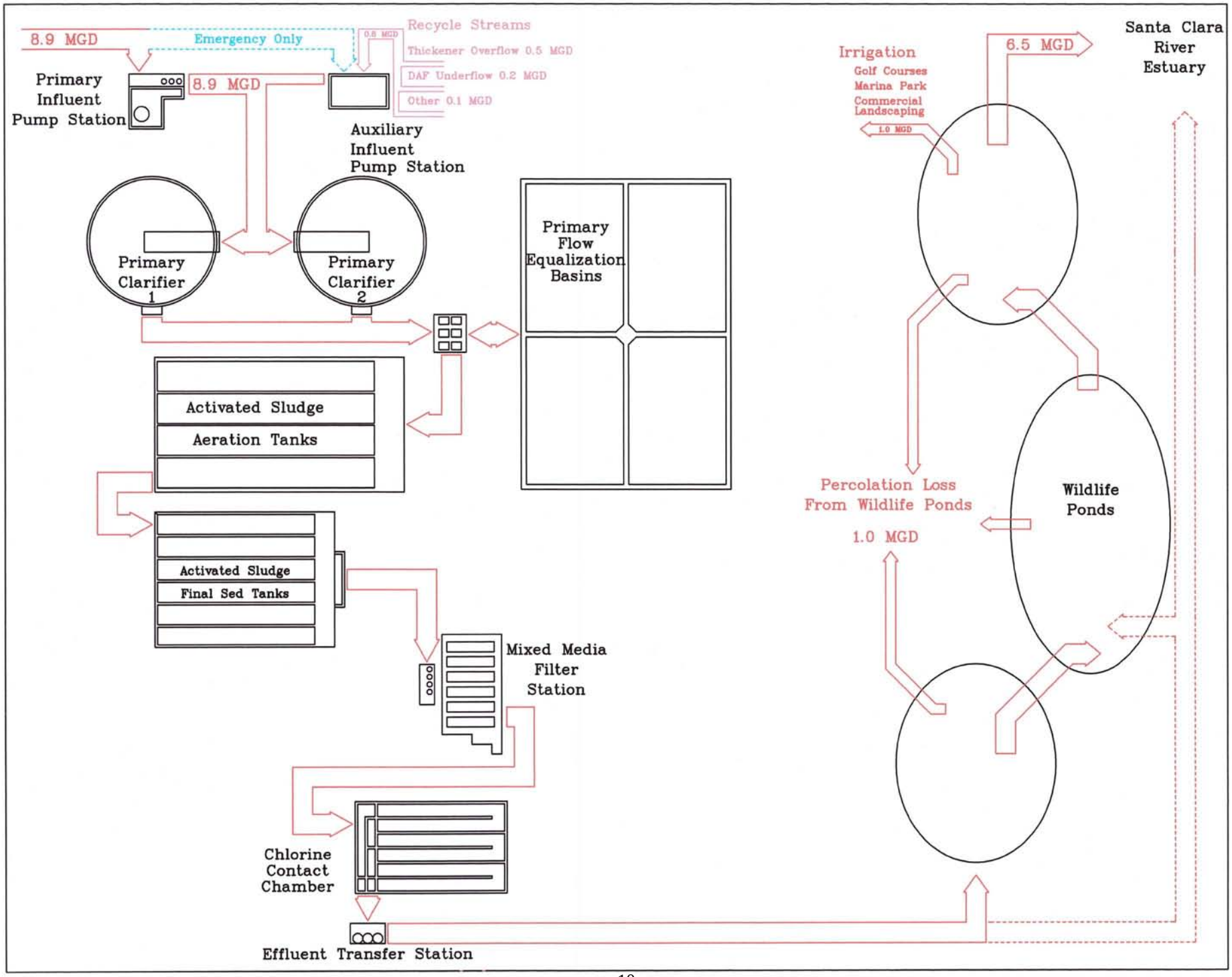
Five sample stations, designated R1 through R4 and L5 within the Santa Clara Tidal Prism are specified by the Los Angeles Regional Water Quality Control Board in the facility NPDES permit in 2000.

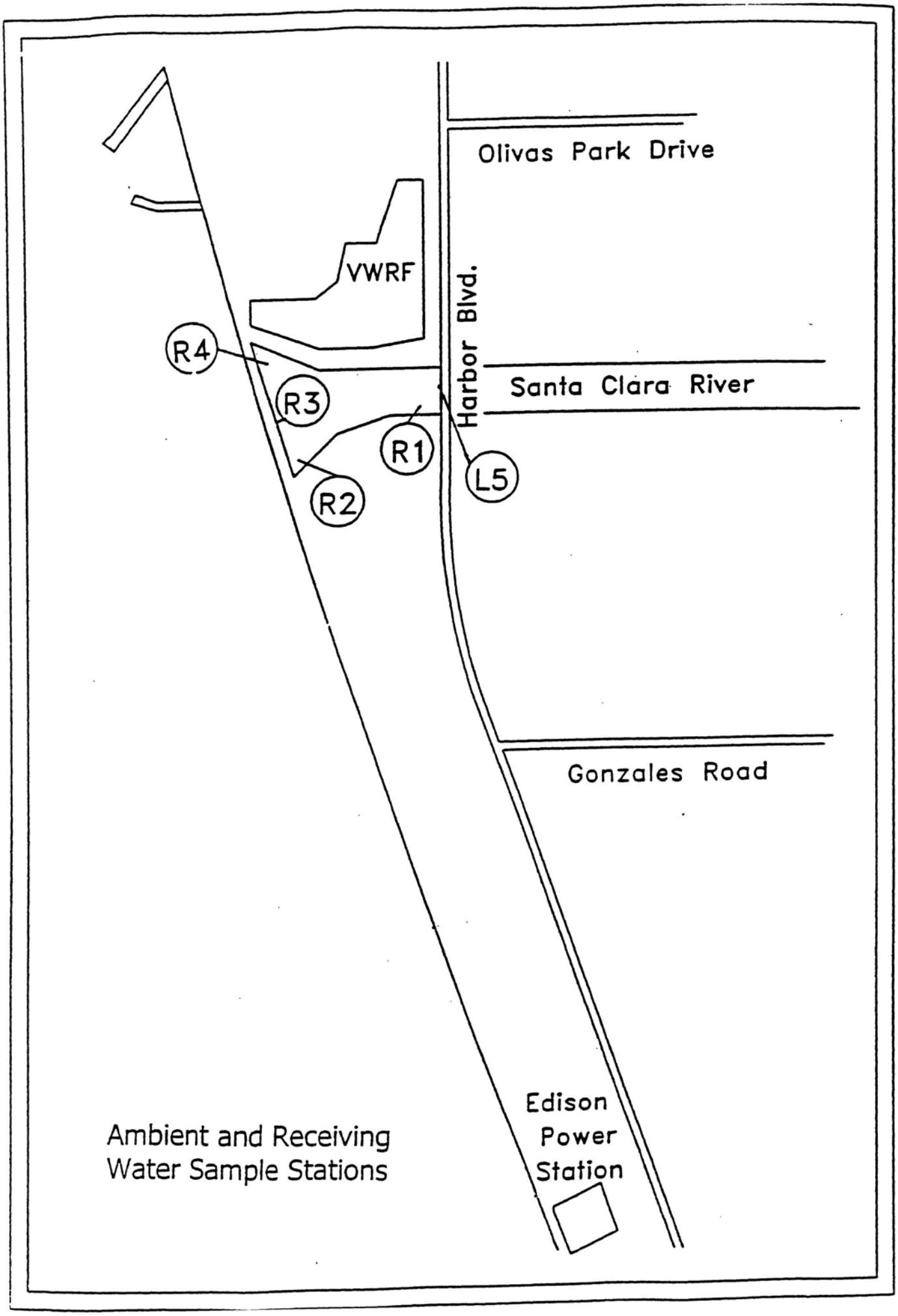
Water quality observations, temperature, salinity, chlorine residual and dissolved oxygen are measurements are done at each of these sites.

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.


8.9 MGD
Emergency Only
0.8 MGD
Recycle Streams
Thickener Overflow 0.5 MGD
DAF Underflow 0.2 MGD
Other 0.1 MGD
Primary Influent Pump Station
8.9 MGD
Auxiliary Influent Pump Station
Primary Clarifier 1
Primary Clarifier 2
Primary Flow Equalization Basins
Activated Sludge
Aeration Tanks
Activated Sludge
Final Sed Tanks
Mixed Media Filter Station
Chlorine Contact Chamber
Effluent Transfer Station
Irrigation
Golf Courses
Marina Park
Commercial Landscaping
1.0 MGD
6.5 MGD
Santa Clara River Estuary
Percolation Loss From Wildlife Ponds
1.0 MGD
Wildlife Ponds



Ambient and Receiving
Water Sample Stations

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Influent Pump Station

Month	Influent Total Flow Yesterday MGD	Influent pH @ Lab SU	Influent Suspended Solids @ 105C mg/l	Influent BOD MG/L	Influent COD mg/l	Influent Ammonia mg/l	Influent Total Kjeldahl Nitrogen mg/l
Jan 2005	10.39	7.58	373	297.0	668	23.0	28.7
Feb 2005	10.86	7.60	526	430.7	948	25.6	37.5
Mar 2005	10.30	7.50	625	449.6	926	22.8	48.4
Apr 2005	9.08	7.44	574	420.4	909	26.0	41.5
May 2005	9.05	7.49	459	396.3	803	20.6	53.3
Jun 2005	8.85	7.44	491	413.8	890	24.0	
Jul 2005	9.19	7.53	495	412.4	933	21.8	48.7
Aug 2005	9.51	7.52	382	295.4	669	21.3	36.4
Sep 2005	9.36	7.53	393	263.6	544	19.7	
Oct 2005	9.08	7.55	394	295.0	621	21.3	49.5
Nov 2005	9.31	7.49	320	252.2	555	23.5	46.7
Dec 2005	9.07	7.48	369	268.3	603	20.0	34.0
Minimum	8.85	7.44	320	252.2	544	19.7	28.7
Maximum	10.86	7.60	625	449.6	948	26.0	53.3
Average	9.50	7.51	450	349.6	756	22.5	42.5
Total	3,372.41						

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Influent Pump Station

Month	Influent Aluminun, 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 ug/l
Jan 2005										
Feb 2005	1,454.6	5.900	<2.000	66.100	<0.200	<4.000	<7.000	3.770	240.300	1,100.00
Mar 2005										
Apr 2005										
May 2005	209.0	<1.000	<2.000	43.600	1.670	<4.000	<7.000	3.920	40.900	
Jun 2005										
Jul 2005										
Aug 2005	1,030.0	5.820	<2.000	99.500	<0.200	<4.000	8.230	8.230	206.000	
Sep 2005										
Oct 2005										
Nov 2005										
Dec 2005										
Minimum	209.00	<1.000	<2.000	43.600	<.2000	<4.000	<7.000	1.500	40.900	1,100.00
Maximum	1,454.60	5.900	<2.000	99.500	1.670	<4.000	8.230	8.230	240.300	1,100.0
Average	897.56	6.360	<2.000	69.733	0.0623	<4.000	7.415	5.307	162.400	1,100.0

Analyzed by American Scientific Laboratories, Los Angeles, CA 90065

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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 2005											
Feb 2005	7.500	180.00	<0.200	15.500	<10.000	5.100	1.600	<1.000	<100.00	8.700	173.300
Mar 2005											
Apr 2005											
May 2005	<5.000		<0.200	18.300	<10.000	<2.000	15.000	<1.000	<100.00	<4.000	18.000
Jun 2005											
Jul 2005											
Aug 2005	17.000		<0.200	<1.000	<10.000	<2.000	22.800	<1.000	<100.00	<4.000	200.000
Sep 2005											
Oct 2005											
Nov 2005											
Dec 2005											
Minimum	5.000	180.00	<0.200	<1.000	<10.000	<2.000	1.600	<1.000	<100.000	<4.000	18.000
Maximum	17.000	180.00	<0.200	18.300	<10.000	5.100	22.800	<1.000	<100.000	8.700	200.000
Average	9.833	180.00	<0.200	11.400	<10.000	3.033	13.133	<1.000	<100.000	5.566	130.433

Analyzed by American Scientific Laboratories, Los Angeles, CA 90065

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Influent Pump Station

Month	Acetone ug/l	Chloroform ug/l	Toluene ug/l	Ethlylbenezene ug/l	Tetrachloroethylene ug/l	Xylene ug/l	1,1,1-Trichloroethane ug/l	1,4 Dichlorobenzene UG/L
February	4.400	5.300	<0.200	<0.340	0.300	<0.500	<0.030	<4.400
August	99.300	7.100	0.520	<0.340	0.410	<0.500	<0.030	<4.400
Minimum	4.400	5.300	<0.200	<0.340	0.300	<0.500	<0.030	<4.400
Maxium	99.300	7.100	0.520	<0.340	0.410	<0.500	<0.030	<4.400
Average	51.850	6.200	0.036	<0.340	0.355	<0.500	<0.030	<4.400

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

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Flow Equaliztion Basin - Primary Effluent

Month	EPE pH @ Lab SU	EPE BOD mg/l	EPE COD mg/l	EPE Suspended Solids @ 105C mg/l	EPE Ammonia mg/l	EPE Total Kjeldahl Nitrogen mg/l	EPE MBAS mg/l
Jan 2005	7.60	125.1	293	90.5	27.3	35.0	6.43
Feb 2005	7.63	135.8	312	86.0	30.0	34.2	5.89
Mar 2005	7.60	139.7	315	91.0	30.1	41.4	4.97
Apr 2005	7.48	174.3	367	94.6	29.2	34.4	6.60
May 2005	7.45	198.2	382	97.6	29.5	47.3	5.70
Jun 2005	7.47	202.4	391	98.2	30.5	40.0	5.50
Jul 2005	7.57	149.6	330	90.6	28.9	34.4	5.52
Aug 2005	7.57	149.8	324	79.4	27.1	33.2	
Sep 2005	7.56	133.4	309	88.0	25.6	37.8	7.80
Oct 2005	7.62	144.1	308	86.8	27.6	46.0	7.00
Nov 2005	7.52	132.5	315	85.5	29.0	46.6	8.02
Dec 2005	7.51	141.9	328	89.4	27.3	40.4	8.40
Minimum	7.08	61.8	194	42.9	17.9	33.2	4.97
Maximum	7.97	339.6	584	164.6	36.9	47.3	8.4
Average	7.55	152.4	331	89.8	28.6	39.2	6.5

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Mixed Media Filter Station (FS) Influent

Month	MMF Flow MGD	FS Suspended Solids @ 105C mg/l	FS BOD mg/l	FS COD mg/l	FS Nitrate mg/l	FS Nitrite mg/l	FS Ammonia mg/l	FS Total Kjeldahl Nitrogen mg/l	FS MBAS mg/l
Jan 2005	10.50	9.24	13.3	39.5	15.9	1.25	0.8	2.1	0.06
Feb 2005	10.78	14.97	17.8	49.7	16.7	0.8	1.1	1.8	0.09
Mar 2005	10.73	10.45	12.2	39.3	14.6	0.7	0.7	2.4	0.07
Apr 2005	10.19	9.57	12.0	33.6	12.5	<0.4	0.6	1.6	0.08
May 2005	9.84	7.32	10.1	33.1	10.1	<0.4	0.4	3.3	0.07
Jun 2005	9.64	9.36	9.8	33.5	10.6	<0.4	0.2	1.8	0.04
Jul 2005	9.41	9.07	10.7	38.3	17.5	<0.4	0.2	3.3	0.07
Aug 2005	9.81	6.10	6.9	37.5	16.2	<0.4	0.3		
Sep 2005	9.68	7.42	10.7	33.2	15.8	<0.4	0.4	1.6	
Oct 2005	9.39	5.96	7.6	31.2	15.7	<0.4	0.3	2.2	
Nov 2005	9.65	8.25	7.4	34.0	17.9	<0.4	1.2	2.1	0.10
Dec 2005	9.51	7.41	8.9	36.3	18.3	<0.4	0.9	2.3	0.08
Minimum	0.95	2.24	<0.1	15.0	7.5	<0.4	0.1	1.6	0.04
Maximum	14.62	41.40	39.0	128.0	23.2	2.4	2.1	3.3	0.10
Average	9.92	8.73	10.6	36.5	14.9	0.5	0.6	2.2	0.07

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Effluent Transfer Station

Month	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
	su	mg/l	lbs/day	mg/l	mg/l	mg/l	lbs/day	mg/l	mg/l	mg/l
Jan 2005	7.32	0.88	66	1,497	2,304	1.3	90	26.5	<0.10	7.8
Feb 2005	7.40	1.08	76	1,554	2,403	1.3	88	29.1	<0.10	7.7
Mar 2005	7.41	0.68	43	1,604	2,452	1.1	70	28.4	<0.10	7.6
Apr 2005	7.34	0.86	46	1,590	2,409	1.2	67	23.2	<0.10	7.5
May 2005	7.38	0.92	49	1,575	2,415	1.5	80	26.4	<0.10	7.3
Jun 2005	7.41	0.93	48	1,562	2,369	1.3	68	25.0	<0.10	7.2
Jul 2005	7.32	0.94	46	1,532	2,302	1.9	92	25.9	<0.10	6.9
Aug 2005	7.37	0.55	28	1,505	2,263	1.9	97	26.3	<0.10	6.7
Sep 2005	7.38	0.86	46	1,511	2,344	1.5	77	26.3	<0.10	7.0
Oct 2005	7.45	0.63	34	1,540	2,199	5.1	272	27.0	<0.10	7.2
Nov 2005	7.41	0.50	27	1,464	2,145	3.4	185	24.9	<0.10	7.1
Dec 2005	7.45	0.58	32	1,460	2,219	1.9	103	27.6	<0.10	7.3
Minimum	6.84	0.08	4	1,014	1,965	0.2	8	12.1	<0.10	6.3
Maximum	8.15	3.95	395	2,008	2,950	8.6	467	66.2	<0.10	8.7
Average	7.39	0.78	45	1,533	2,318	2.0	108	26.4	<0.10	7.3

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

Month	Effluent Grease & Oil mg/l	Effluent Grease & Oil Load lbs/day	Effluent ETS Turbidity Max NTU	Effluent Nitrate mg/l	Effluent Nitrite mg/l	Effluent Ammonia mg/l	Effluent Total Kjeldahl Nitrogen mg/l	Effluent Total Organic Nitrogen mg/l
Jan 2005	1.3	96	1.1	15.8	<0.4	1.6	2.0	1.1
Feb 2005	1.3	86	0.9	17.2	<0.4	1.6	1.8	0.0
Mar 2005	0.3	16	0.5	16.9	<0.4	1.5	2.2	1.0
Apr 2005	0.6	33	0.7	14.2	<0.4	1.4	2.0	0.7
May 2005	0.6	31	0.6	10.6	<0.4	0.8	2.9	1.3
Jun 2005	0.9	44	0.7	11.0	<0.4	0.8	1.1	0.2
Jul 2005	1.1	56	0.6	17.6	<0.4	0.9	1.7	0.5
Aug 2005	0.8	40	0.5	16.0	<0.4	1.1	1.6	1.0
Sep 2005	0.8	44	0.6	15.8	<0.4	1.2	2.2	1.1
Oct 2005	1.1	61	0.5	17.6	<0.4	1.1	2.4	2.1
Nov 2005	1.2	62	0.5	18.6	<0.4	1.6	3.3	1.5
Dec 2005	1.00	53	0.6	18.0	<0.4	1.9	3.0	0.2
Minimum	0.1	6	0.3	9.2	<0 .4	0.1	1.1	0.0
Maximum	2.5	148	5.2	23.8	0.5	3.3	3.3	2.1
Average	0.9	51	0.6	16.0	<0 .4	1.3	2.2	0.9

Limitations of Permit CA0053651

Daily Maximum	15	1,750
7 Day Average		
30 Day Average	10	1.170

Ventura Water Reclamation Facility

Annual Report 2005

Effluent Transfer Station

Month	Effluent Chloride mg/l	Effluent Sulfate mg/l	Effluent Sodium mg/l	Effluent Calcium mg/l	Effluent Magnesium mg/l	Effluent Potassium mg/l
Jan 2005	252	546	253	135	49.7	20.5
Feb 2005	275	555	266	137	50.1	22.1
Mar 2005	297	599	315	163	65.0	20.0
Apr 2005	289	585	313	146	55.3	23.8
May 2005	298	716	313	147	56.4	26.2
Jun 2005	294	599	275	147	52.6	29.0
Jul 2005	303	513	254	121	42.4	24.4
Aug 2005	305	527	255	130	46.7	25.0
Sep 2005	314	602	262	115	43.7	21.3
Oct 2005	311	514	270	120	42.6	17.9
Nov 2005	315	502	304	142	47.3	23.8
Dec 2005	311	496	295	123	45.5	23.4
Minimum	252	496	253	115	42.4	17.9
Maximum	315	716	315	163	65.0	29.0
Average	297	563	281	135	49.8	23.1

Ventura Water Reclamation Facility

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Effluent Transfer Station

Month	Effluent Phosphate mg/l	Effluent Total Phosphorus mg/l	Effluent Boron mg/l	Effluent Fluoride mg/l	Effluent MBAS mg/l	Effluent * Chlorophyll A mg/l
Jan 2005	2.72	2.43	0.83	0.55	0.09	0.140
Feb 2005	2.76	3.05	0.77	0.57	0.13	0.035
Mar 2005	2.38	2.44	0.86	0.59	0.11	0.046
Apr 2005	2.17	1.92	0.75	0.58	0.08	0.140
May 2005	1.95	1.64	0.66	0.54	0.09	0.160
Jun 2005	2.79	2.30	0.72	0.52	0.06	0.110
Jul 2005	0.86	0.85	0.74	0.51	0.06	0.059
Aug 2005	2.70	1.90	0.83	0.49		0.007
Sep 2005	2.99	2.40	0.60	0.52	<0.05	0.014
Oct 2005	2.47	2.50	0.63	0.50	0.06	0.058
Nov 2005	3.30	2.50	0.49	0.47	0.06	0.035
Dec 2005	3.34	2.72	0.64	0.47	0.18	0.130
Minimum	0.86	0.85	0.49	0.47	<0.05	0.007
Maximum	3.34	3.05	0.86	0.59	0.18	0.160
Average	2.54	2.22	0.71	0.53	0.060	0.078

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

Ventura Water Reclamation Facility

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Effluent Transfer Station

Month	Contact Chamber Chlorine Residual - 0700 mg/L	Contact Chamber Chlorine Residual - 1100 mg/L	Contact Chamber Chlorine Residual - 2000 mg/L	Effluent Chlorine Residual - 1100 mg/l
Jan 2005	3.5	3.7	3.7	3.7
Feb 2005	4.0	3.5	4.1	3.6
Mar 2005	3.9	3.5	4.1	3.5
Apr 2005	3.6	3.7	3.9	3.8
May 2005	3.8	3.5	3.7	3.8
Jun 2005	3.8	3.5	3.9	3.7
Jul 2005	4.8	4.6	5.1	4.8
Aug 2005	3.8	3.6	3.5	3.7
Sep 2005	4.0	3.7	3.9	3.7
Oct 2005	4.2	4.0	4.2	4.0
Nov 2005	4.1	4.2	4.2	3.9
Dec 2005	5.3	5.3	4.8	5.3
Minimum	0.7	0.6	0.8	0.7
Maximum	7.7	9.4	6.7	11.3
Average	4.1	3.9	4.1	4.0

Limitation of Permint CA0053651

Ventura Water Reclamation Facility
Annual Report 2005

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 2005										
Feb 2005	<5.000	133.000	<1.000	<2.000	23.100	<0.200	<4.000	1.840	<7.000	9.000
Mar 2005										
Apr 2005										
May 2005	<5.000	51.100	<1.000	<2.000	24.800	<0.200	<4.000	<1.000	<7.000	8.700
Jun 2005										
Jul 2005										
Aug 2005	<5.000	<3.000	2.550	<2.000	24.900	<0.200	<4.000	<1.000	<7.000	13.000
Sep 2005										
Oct 2005										
Nov 2005	<5.000	102.000	58.200	<2.000	21.200	<0.200	<4.000	<1.000	<7.000	16.900
Dec 2005										
Minimum	<5.000	<3.000	<1.000	<2.000	21.20	<.2000	<4.000	<1.00	<7.000	8.70
Maximum	<5.000	133.00	58.20	<2.000	24.90	<.2000	<4.000	1.84	<7.000	16.90
Average	<5.000	72.28	15.68	<2.000	23.50	<.2000	<4.000	1.21	<7.000	11.90

Limitation of Permit CA0053651

Daily Maximum	.99	11	2.9
Monthly Average	.41	3.7	2.0

Analyzed by American Scientific Laboratories, Los Angeles, CA 90065

Ventura Water Reclamation Facility
Annual Report 2005

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 2005										
Feb 2005	<5.00	<0.200	17.900	<10.000	<2.000	<0.200	<1.000	<100.000	<4.000	36.500
Mar 2005										
Apr 2005										
May 2005	<5.00	<0.200	12.900	<10.000	<2.000	<0.200	<1.000	<100.000	<4.000	10.000
Jun 2005										
Jul 2005										
Aug 2005	<5.00	<0.200	14.900	<10.000	<2.000	<0.200	<1.000	<100.000	<4.000	43.000
Sep 2005										
Oct 2005										
Nov 2005	<5.00	<0.200	18.200	<10.000	<2.000	<0.200	<1.000	<100.000	<4.000	10.000
Dec 2005										
Minimum	<5.00	<.200	12.90	<10.000	<2.000	<.200	<1.000	<100.00	<4.000	10.00
Maximum	<5.00	<.200	18.20	<10.000	<2.000	<.200	<1.000	<100.00	<4.000	43.00
Average	<5.00	<.200	15.98	<10.000	<2.000	<.200	<1.000	<100.00	<4.000	24.88

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

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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	<0.009	<0.004	<0.065	<0.014	<10.000	<2.800	<0.014	<0.004
May	<0.004	<0.003	<0.006	<0.009	<0.004	<0.065	<0.014	<10.000	<2.800	<0.014	<0.004
August	<0.004	<0.003	<0.006	<0.009	<0.004	<0.065	<0.014	<10.000	<2.800	<0.014	<0.004
November*	<0.003	<0.006	<0.004	<0.011	<0.007	<0.039	<0.360	<0.529	<0.009	<0.009	<0.009
Average	<0.004	<0.004	<0.006	<0.010	<0.005	<0.059	<0.101	<7.632	<2.102	<0.013	<0.006
Maximum	<0.004	<0.006	<0.006	<0.011	<0.007	<0.065	<0.360	<0.529	<2.800	<0.014	<0.009
Minimum	<0.003	<0.003	<0.004	<0.009	<0.004	<0.039	<0.014	<10.000	<0.009	<0.009	<0.004

Permit Limit CA0053651

Daily Maximum	0.00028	0.026	0.092	0.13	0.00034	0.0012	0.00033	0.0017	0.014	0.014
Monthy Average	.00014	0.013	0.046	0.063	.00017	0.00059	0.00016	0.00084	0.0007	0.004

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

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

Ventura Water Reclamation Facility

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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	0.300	8.900	1.600	4.000	<0.12	<4.400
May	<0.200	10.600	1.100	3.500	<0.12	
August	0.210	11.600	1.500	5.460	<0.12	<4.400
November	<0.200	6.000	0.840	2.500	<0.12	
Annual Average	0.128	0.318	1.260	3.865	<0.12	<4.400
Maximum	0.300	11.600	1.600	5.460	<0.12	<4.400
Minimum	<0.200	8.900	0.840	2.500	<0.12	<4.400

Permit Limit CA0053651

Daily Maximum	82	22
Monthy Average	34	

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

Ventura Water Reclamation Facility
Annual Report 2005

Effluent Transfer Station

Month	Pentachlorophenol ug/l	Benzene ug/l	Bis (2-Ethyylhexylphthalate) ug/l	Acetone ug/l	Xylene ug/l	Chlorobenzene ug/l
February	<3.600	<0.20	<2.50	1.40	<0.50	<0.200
May	<3.600	<0.20	<2.50	<0.50	<0.50	<0.200
August	<3.600	<0.20	9.79	0.50	<0.50	<0.200
November	<3.600	<0.20	<2.50	<0.50	<0.50	<0.200
Annual Average	<3.600	<0.20	4.32	0.73	<0.50	<0.200
Maximum	<3.600	<0.20	9.79	1.40	<0.50	<0.200
Minimum	<3.600	<0.20	<2.50	<0.50	<.050	<0.200

Permit Limit CA0053651

Daily Maximum	13	71	5.9
Monthy Average	7.9		

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

Ventura Water Reclamation Facility

Annual Report 2005

Outfall Junction Structure

Month	Effluent Estuary Flow Max MGD	Effluent Chlorine Residual Daily Max mg/l	Effluent Temperature Deg. C	Acute 96hr Toxicity Pimphales %	Chronic Ceriodaphnia - Survival TUc	Chronic Ceriodaphnia - Reproduction TUc
Jan 2005	9.77	<.10	17.9		1.00	1.00
Feb 2005	9.11	<.10	18.9	100.00	1.00	1.00
Mar 2005	8.40	<.10	20.5			
Apr 2005	7.36	<.10	21.6			
May 2005	7.31	<.10	23.8			
Jun 2005	7.19	<.10	23.9			
Jul 2005	6.75	<.10	23.8			
Aug 2005	7.15	<.10	24.5			
Sep 2005	6.95	<.10	23.5			
Oct 2005	7.05	<.10	21.6			
Nov 2005	7.15	<.10	20.0			
Dec 2005	7.18	<.10	18.1		1.00	1.00
Minimum	6.75	<.10	17.9	100.00	1.00	1.00
Maximum	9.77	<.10	24.5	100.00	1.00	1.00
Average	7.62	<.10	21.5	100.00	1.00	1.00

Limitation of Permit CA0053651

Daily Maximum
30 Day Average

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

Ventura Water Reclamation Facility
Annual Report 2005

Outfall Junction Structure

Month	Chronic Fathead Larvae - Growth TUc	Chronic Fathead Larvae-Survival TUc	Chronic Selenastrum - Growth TUc
Jan 2005 *	1.00	1.00	1.00
Feb 2005 *	1.00	1.00	1.00
Mar 2005			1.79
Apr 2005			2.00
May 2005			1.79
Jun 2005			1.00
Jul 2005			1.79
Aug 2005			1.00
Sep 2005			1.00
Oct 2005			1.00
Nov 2005			1.00
Dec 2005 *	1.00	1.00	1.00
Minimum	1.00	1.00	1.00
Maximum	1.00	1.00	2.00
Average	1.00	1.00	1.28

Limitation of Permit CA0053651	1.00	1.00	1.00

* Analyzed by Aquatic Bioasssay Consulting Laboratories, INC., Ventura , CA 93001

Ventura Water Reclamation Facility
Annual Report 2005

Receiving Water Station

Month	R1 Chronic Selenastrum-Growth TUc	R1 Chronic Ceriodaphnia - Reproduction TUc	R1 Chronic Ceriodaphnia - Survival TUc	R1 Chronic Fathead Larvae - Growth TUc	R1 Chronic Fathead Larvae - Survival TUc
Jan 2005	1.00	1.00	1.00	1.00	1.00
Feb 2005	1.00	1.00	1.00	1.00	1.00
Mar 2005					
Apr 2005					
May 2005					
Jun 2005					
Jul 2005					
Aug 2005					
Sep 2005					
Oct 2005					
Nov 2005					
Dec 2005	1.00	1.00	1.00	1.00	1.00
Minimum	1.00	1.00	1.00	1.00	1.00
Maximum	1.00	1.00	1.00	1.00	1.00
Average	1.00	1.00	1.00	1.00	1.00

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

Ventura Water Reclamation Facility

Annual Report 2005

Receiving Water Station

Month	R3 Chronic Selenastrum - Growth TUc	R3 Chronic Ceriodaphnia - Reproduction TUc	R3 Chronic Ceriodaphnia - Survival TUc	R3 Chronic Fathead Larvae - Growth TUc	R3 Chronic Fathead Larvae - Survival TUc
Jan 2005	10.00	10.00	10.00	5.56	5.56
Feb 2005	1.00	1.00	1.00	1.00	1.00
Mar 2005					
Apr 2005					
May 2005					
Jun 2005					
Jul 2005					
Aug 2005					
Sep 2005					
Oct 2005					
Nov 2005					
Dec 2005	1.79	3.13	3.13	1.00	1.00
Minimum	1.00	1.00	1.00	1.00	1.00
Maximum	10.00	10.00	10.00	5.56	5.56
Average	4.26	4.71	4.71	2.52	2.52

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

Ventura Water Reclamation Facility

Annual Report 2005

Receiving Water Station

Month	L5 Chronic Selenastrum - Growth TUc	L5 Chronic Cerodaphnia - Reproduction TUc	L5 Chronic Ceriodaphnia - Survival TUc	L5 Chronic Fathead Larvae - Growth TUc	L5 Chronic Fathead Larvae - Survival TUc
Jan 2005	10.00	1.00	1.00	1.00	1.00
Feb 2005	1.00	1.00	1.00	1.00	1.00
Mar 2005					
Apr 2005					
May 2005					
Jun 2005					
Jul 2005					
Aug 2005					
Sep 2005					
Oct 2005					
Nov 2005					
Dec 2005	1.00	1.79	1.79	1.00	1.00
Minimum	1.00	1.00	1.00	1.00	1.00
Maximum	10.00	1.79	1.79	1.00	1.00
Average	4.00	1.26	1.26	1.00	1.00

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

Ventura Water Reclamation Facility
Annual Report 2005

Receiving Water Stations

Month	R1 Air Temperature Deg. C	R2 Air Temperature Deg. C	R3 Air Temperature Deg. C	R4 Air Temperature Deg. C	L5 Air Temperature Deg. C	R1 Water Temperature Deg. C	R2 Water Temperature Deg. C	R3 Water Temperature Deg. C	R4 Water Temperature Deg. C	L5 Water Temperature Deg. C
Jan 2005	11.1	11.3	10.9	13.7	11.2	14.8	11.2	11.6	14.9	11.6
Feb 2005	12.7	12.5	12.5	16.2	13.1	11.4	11.6	12.5	16.0	11.6
Mar 2005	16.7	16.2	16.9	16.7	15.1	15.0	13.7	14.2	14.6	13.6
Apr 2005	15.9	15.4	14.5	14.4	14.4	15.5	12.7	14.3	13.9	15.0
May 2005	18.9	19.5	20.0	20.6	17.5	16.0	16.6	16.6	17.3	15.4
Jun 2005	19.1	19.9	19.8	21.5		22.6	17.0	18.1	21.2	
Jul 2005	22.8	22.3	21.5	23.9	22.2	20.7	20.7	20.3	20.9	20.4
Aug 2005	15.4	22.5	22.8	23.2	29.1	17.1	21.4	21.1	18.2	26.9
Sep 2005	18.7	20.1	19.1	19.9	20.1	18.6	19.5	19.4	20.3	20.9
Oct 2005	18.0	18.0	17.8	18.6	20.0	16.8	16.2	15.7	16.9	15.5
Nov 2005	17.7	18.2	18.7	20.4		14.6	15.7	15.3	17.6	
Dec 2005	16.2	16.3	16.1	16.4	16.0	13.2	14.6	13.3	13.9	14.5
Minimum	7.6	8.1	7.1	10.1	10.6	10.6	11.2	11.6	13.9	8.1
Maximum	23.0	26.4	25.6	26.4	33.3	33.3	21.4	21.1	21.2	29.7
Average	16.9	17.8	17.8	18.9	16.7	16.4	15.9	16.0	17.1	13.8

Ventura Water Reclamation Facility

Annual Report 2005

Receiving Water Stations

Month	R1 Chlorine Residual MG/L	R2 Chlorine Residual MG/L	R3 Chlorine Residual MG/L	R4 Chlorine Residual MG/L	L5 Chlorine Residual MG/L	R1 Salinity PPT	R2 Salinity PPT	R3 Salinity PPT	R4 Salinity PPT	L5 Salinity PPT
Jan 2005	<0.10	<0.10	<0.10	<0.10	<0.10	0.9	4.1	6.2	1.8	0.7
Feb 2005	<0.10	<0.10	<0.10	<0.10	<0.10	0.5	4.7	7.2	1.5	0.3
Mar 2005	<0.10	<0.10	<0.10	<0.10	<0.10	0.8	1.2	2.2	1.2	0.4
Apr 2005	<0.10	<0.10	<0.10	<0.10	<0.10	1.4	8.1	8.9	2.9	3.1
May 2005	<0.10	<0.10	<0.10	<0.10	<0.10	1.3	11.1	14.1	2.9	1.3
Jun 2005	<0.10	<0.10	<0.10	<0.10		2.0	16.4	22.2	2.8	
Jul 2005	<0.10	<0.10	<0.10	<0.10	<0.10	1.9	16.0	19.8	1.2	1.7
Aug 2005	<0.10	<0.10	<0.10	<0.10	<0.10	1.4	8.6	11.7	3.3	1.1
Sep 2005	<0.10	<0.10	<0.10	<0.10	<0.10	2.9	5.3	6.4	4.9	1.4
Oct 2005	<0.10	<0.10	<0.10	<0.10	<0.10	1.5	15.4	13.6	15.8	1.1
Nov 2005	<0.10	<0.10	<0.10	<0.10		8.0	13.8	11.0	8.5	
Dec 2005	<0.10	<0.10	<0.10	<0.10	<0.10	7.8	14.3	9.3	8.7	8.9
Minimum	<0.10	<0.10	<0.10	<0.10	<0.10	0.3	0.3	0.1	0.1	0.3
Maximum	<0.10	<0.10	<0.10	<0.10	<0.10	9.4	32.4	30.7	25.0	8.9
Average	<0.10	<0.10	<0.10	<0.10	<0.10	2.5	9.8	11.0	4.6	2.0

Ventura Water Reclamation Faclity

Annual Report 2005

Receiving Water Stations

Month	R1 Dissolved Oxygen MG/L	R2 Dissolved Oxygen MG/L	R3 Dissolved Oxygen MG/L	R4 Dissolved Oxygen MG/L	L5 Dissolved Oxygen MG/L	R1 Hardness MG/L	R2 Hardness MG/L	R3 Hardness MG/L	R4 Hardness MG/L	L5 Hardness MG/L
Jan 2005	20.0	18.8	20.0	18.4	15.6					
Feb 2005	4.9	6.4	6.8	2.1	4.9	800	1,740	3,323	1,253	845
Mar 2005	7.4	9.3	7.8	6.7	7.7	1,530	1,160	1,392	1,030	636
Apr 2005	11.3	8.9	10.9	10.8	10.4	1,483	930	1,443	650	588
May 2005	9.6	5.3	9.8	4.8	4.2	1,445	1,776	1,620	646	858
Jun 2005	9.9	6.6	7.9	10.3		2,460	2,453	2,748	843	
Jul 2005	3.6	4.8	6.8	8.8	2.4	920	1,670	2,720	688	930
Aug 2005	4.5	8.4	10.3	6.3	8.9	1,363	1,662	1,796	1,118	960
Sep 2005	3.2	7.1	9.9	7.1	4.6	1,795	1,525	1,958	1,953	643
Oct 2005	6.9	6.3	7.5	6.9	8.1	1,290	2,348	2,430	2,325	1,200
Nov 2005	14.4	11.6	11.1	13.1		1,695	1,882	1,764	1,464	
Dec 2005	11.0	6.6	10.0	8.9	6.3	1,815	1,878	1,835	1,473	1,680
Minimum	0.8	0.3	0.3	0.7	0.5	630	630	630	510	550
Maximum	20.0	20.0	27.1	20.0	20.0	2,460	2,453	5,960	6,320	1,360
Average	8.9	8.4	9.7	8.6	7.3	1,729	1,729	2,056	1,209	942

Ventura Water Reclamaton Facililty
Annual Report 2005

Receiving Water Stations

Month	R1 Nitrate MG/L	R2 Nitrate MG/L	R3 Nitrate MG/L	R4 Nitrate MG/L	L5 Nitrate MG/L	R1 Nitrite MG/L	R2 Nitrite MG/L	R3 Nitrite MG/L	R4 Nitrite MG/L	L5 Nitrite MG/L
Jan 2005	1.3	0.8	<0.4	1.2	1.2	<0.4	<0.4	<0.4	<0.4	<0.4
Feb 2005	1,852.0	1,748.0	2,118.0	2,057.0	3,364.0	<0.4	<0.4	<0.4	<0.4	<0.4
Mar 2005	20.4	11.5	1.7	21.4	1.3	<0.4	<0.4	<0.4	<0.4	<0.4
Apr 2005						<0.4	<0.4	<0.4	<0.4	<0.4
May 2005	21.3	3.5	<0.4	11.8	1.9	<0.4	<0.4	<0.4	<0.4	<0.4
Jun 2005	<0.4	<0.4	<0.4	12.3	<0.4	<0.4	<0.4	<0.4	<0.4	
Jul 2005		4.9	2.9	16.2			<0.4	<0.4	<0.4	
Aug 2005	1.9	5.3	5.3	5.4		<1.00	<0.4	<0.4	<0.4	
Sep 2005	<0.4	<0.4	4.4	4.2	<0.4	<0.40	<0.4	<0.4	<0.4	<0.4
Oct 2005	8.9	4.2	6.3	14.5	3.5	<0.40	<0.4	<0.4	<0.4	<0.4
Nov 2005	2.9	7.5	8.2	15.2		<0.40	<0.4	<0.4	0.4	
Dec 2005	11.7	8.4	11.3	7.5	5.0	<0.40	<0.4	<0.4	<0.4	<0.4
Minimum	<0.40	<0.4	<0.4	1.2	<0.400	<0.40	<0.4	<0.4	<0.4	<0.4
Maximum	1852.0	1,748.0	2,118.0	2,057.0	3,364.0	<0.40	<0.4	<0.4	0.4	<0.4
Average	192.1	149.6	179.9	180.6	422.2	<0.40	<0.4	<0.4	<0.4	<0.4

Ventura Water Reclamation Facility
Annual Report 2005

Receiving Water Stations

Month	R1 Ammonia MG/L	R2 Ammonia MG/L	R3 Ammonia MG/L	R4 Ammonia MG/L	L5 Ammonia MG/L	R1 Total Kjeldahl Nitrogen MG/L	R2 Total Kjeldahl Nitrogen MG/L	R3 Total Kjeldahl Nitrogen MG/L	R4 Total Kjeldahl Nitrogen MG/L	L5 Total Kjeldahl Nitrogen MG/L
Jan 2005	0.2	0.2	0.3	0.1	0.1	2.2	4.0	6.0	5.8	4.8
Feb 2005	0.1	0.1	0.1	0.1	0.1	3.7	1.5	0.7	1.5	1.4
Mar 2005	0.4	0.3	0.3	0.2	0.2	6.4	1.8	1.4	2.3	1.2
Apr 2005	0.5	0.5	0.6	0.7	0.1	1.2	0.5	0.9	1.3	1.2
May 2005	0.4	0.3	0.3	0.3	0.3	0.9	1.3	0.9	1.6	0.9
Jun 2005	0.7	0.9	0.3	0.3		2.2	1.3	1.5	1.3	
Jul 2005	0.8	1.2	0.5	0.4	0.2	2.0	3.9	2.2	1.9	2.9
Aug 2005	0.1		0.2	0.4	0.2	0.3		1.8	0.3	2.0
Sep 2005	0.1	0.1	0.1	0.1	0.1	2.0	2.9	2.8	2.1	1.8
Oct 2005	0.2	0.1	0.1	0.2	0.3	2.2	2.3	3.1	2.8	11.2
Nov 2005	0.2	0.2	0.1	0.1		4.0	3.0	2.6	3.2	
Dec 2005	0.2	0.1	0.3	0.2	1.0	1.9	0.9	1.2	0.2	3.0
Minimum	0.1	0.1	0.1	0.1	0.1	0.3	0.5	0.7	0.2	0.9
Maximum	0.8	1.2	0.6	0.7	1.0	6.4	4.0	6.0	5.8	11.2
Average	0.3	0.4	0.3	0.2	0.3	2.4	2.1	2.1	2.0	3.0

Ventura Water Reclamation Facility
Annual Report 2005

Receiving Water Stations

Month	R1 Total Phosphorus MG/L	R2 Total Phosphorus MG/L	R3 Total Phosphorus MG/L	R4 Total Phosphorus MG/L	L5 Total Phosphorus MG/L	R1 Chlorophyll A MG/L	R2 Chlorophyll A MG/L	R3 Chlorophyll A MG/L	R4 Chlorophyll A MG/L	L5 Chlorophyll A MG/L
Jan 2005		0.22	0.08	2.11	2.33	<0.002	<0.002	<0.002	<0.002	<0.002
Feb 2005	0.45	0.37	0.51	1.68	0.47	<0.002	0.150	0.010	0.008	<0.002
Mar 2005	0.28	0.56	1.77	4.86	1.31	<0.002	<0.002	<0.002	0.035	<0.002
Apr 2005	0.10	0.15	0.08	0.92	0.22	<0.002	0.005	<0.002	0.035	<0.002
May 2005	0.04	0.03	0.22	0.49	0.06	0.022	0.021	0.006	0.100	0.008
Jun 2005	0.70	0.11	0.03	0.44		0.130	0.130	0.060	0.080	
Jul 2005		0.05	0.03	0.49			0.060	0.050	0.047	
Aug 2005	0.62		0.73	1.74	0.10	0.015	0.032	0.008	0.007	0.026
Sep 2005	1.90	0.82	0.86	0.60	0.56	0.005	0.015	0.013	0.013	0.004
Oct 2005	0.23	0.59	1.48	2.02	0.60	0.024	0.120	0.031	0.087	<0.002
Nov 2005	0.10	2.90	0.10	2.40		0.034	0.034	0.010	0.007	0.010
Dec 2005	3.20	0.90	0.90	3.00	1.00	0.036	0.080	0.110	0.030	0.029
Minimum	0.04	0.03	0.03	0.44	0.06	<0.002	<0.002	<0.002	<0.002	<0.002
Maximum	3.20	2.90	1.77	4.86	2.33	0.130	0.150	0.110	0.100	0.029
Average	0.76	0.61	0.57	1.73	0.74	0.025	0.054	0.025	0.038	<0.106

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

Ventura Water Reclamation Facility
Annual Report 2005

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	Filiter Press 1, Run 1, Barium mg/kg/dry	Filter Press 1 Run 1, Beryillum 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 2005	9,463.1	3.6	<3.4	379.2	<3.4	<3.4	25.3	14.43	959.7
Feb 2005 *						4.3	21.0		871.0
Mar 2005									
Apr 2005	8,639.1	14.9	<3.0	404.7	<3.0	<3.0	63.9	17.2	1,082.8
May 2005	9,786.0	<3.6	<3.6	526.4	<3.6	36.8	108.6	18.0	1,550.0
Jun 2005									
Jul 2005	7,078.7	<2.8	<2.8	356.7	<2.8	<2.8	27.5	11.5	1,044.9
Aug 2005	14,186.1	<3.9	<3.9	553.5	<3.9	<3.9	30.5	20.4	1,969.0
Sep 2005									
Oct 2005									
Nov 2005	8,091.6	<3.8	<3.8	458.0	<3.3	<3.8	<3.8	<3.8	1,229.0
Dec 2005									
Minimum	7,078.7	<2.8	<2.8	356.7	<2.8	<2.8	<3.8	14.4	871.0
Maximum	1,486.1	14.9	<3.9	553.5	<3.9	26.8	108.6	14.4	1,969.0
Average	9,540.7	5.4	<3.4	446.4	<3.3	8.3	40.1	14.4	1,243.8

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

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

Ventura Water Reclamation Facility
Annual Report 2005

Solid Streams

Total Metals - Dewatered Digested Sludge

Month	Filter Press 1 Run 1, Lead mg/kg/dry	Filter Press 1 Run 1, Mercury mg/kg/dry	Filter Press 1 Run 1, Molybdenum mg/kg/dry	Filter Press 1 Run 1, Nickel mg/kg/dry	Filter Press 1 Run 1, Selenium mg/kg/dry	Filter Press 1 Run 1, Silver mg/kg/dry	Filter Press 1 Run 1, Thallium mg/kg/dry	Filter Press 1 Run 1, Tin mg/kg/dry	Filter Press 1 Run 1, Vanadium mg/kg/dry	Filiter Press 1 Run 1, Zinc mg/kg/dry
Jan 2005	25.2	<1.3	21.5	32.5	22.0	24.2	<3.4	<33.6	8.2	872.5
Feb 2005 *	50.0			27.6		1.7				746.4
Mar 2005										
Apr 2005	19.2	3.1	14.4	40.7	13.6	27.2	<3.0	<29.6	<3.0	77.2
May 2005	21.9	<1.4	22.6	217.1	29.1	24.4	<3.6	<35.7	3.9	1,457.1
Jun 2005										
Jul 2005	11.5	1.4	22.8	30.3	22.8	11.5	<2.8	<28.1	<2.8	741.6
Aug 2005	39.9	1.7	51.8	42.3	22.7	36.7	<3.9	<38.8	8.2	1,379.8
Sep 2005										
Oct 2005										
Nov 2005	<1.9	1.6	<3.8	<3.8	<3.8	<3.8	<3.8	<38.2	<3.8	954.2
Dec 2005										
Minimum	<1.9	<1.3	<3.8	<3.8	<3.8	1.7	<2.8	<28.1	<2.8	77.2
Maximum	50.0	3.1	51.8	217.1	29.1	36.7	<3.9	<38.8	8.2	1,457.1
Average	24.2	1.8	22.8	56.3	19.0	18.5	<3.4	<34.0	5.0	889.8

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
Annual Report 2005

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 2005									
Efeb 2005 *						4.1	20.4		874.5
Mar 2005									
Apr 2005									
May 2005	8,707.5	<3.4	<3.4	472.1	<3.4	13.4	48.4	16.1	1,340.2
Jun 2005									
Jul 2005									
Aug 2005	11,123.6	3.7	<2.8	567.4	<2.8	3.7	40.5	14.5	1,561.8
Sep 2005									
Oct 2005									
Nov 2005	7,500.0	<3.3	<3.3	434.9	<3.3	<3.3	<3.3	<3.3	1,171.1
Dec 2005									
Minimum	7,500.0	<3.3	<2.8	434.9	<2.8	<3.3	<3.3	<3.3	874.5
Maximum	11,123.6	3.7	<3.4	567.4	<3.9	13.4	48.4	16.1	1,561.8
Average	9,110	<3.4	<3.2	491.5	<3.3	6.1	28.2	11.3	1,236.9

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

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

Ventura Water Reclamation Facility
Annual Report 2005

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	Filter Press 1 Run 2, Vanadium mg/kg/dry	Filter Press 1 Run 2, Zinc mg/kg/dry
Jan 2005										
Feb 2005 *	47.4			26.6		1.4				761.1
Mar 2005										
Apr 2005										
May 2005	22.4	<1.4	20.7	93.9	24.8	24.4	<3.4	<34.0	<3.4	1,108.8
Jun 2005										
Jul 2005										
Aug 2005	33.0	1.8	34.7	48.8	28.5	29.4	<2.8	<28.1	16.5	1,376.4
Sep 2005										
Oct 2005										
Nov 2005	<3.3	1.3	<3.3	<3.3	<3.3	<3.3	<3.3	<32.9	<3.3	875.0
Dec 2005										
Minimum	<3.3	1.3	<3.3	<3.3	<3.3	1.4	<2.8	<28.1	<3.3	761.1
Maximum	47.4	1.8	34.7	93.9	28.5	29.4	<3.4	<34.0	16.5	1,376.4
Average	26.5	1.5	19.6	43.1	18.8	14.6	<3.2	<31.7	7.7	1,030.3

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

Ventura Reclamation Facility
Annual Report 2005

Solid Streams

Total Metals - Dewatered Digested Sludge

Month	Filter Press 2 Run 1, Aluminum mg/kg/dry	Filter Press 2 Run 1, Antimony mg/kg/dry	Filter Press 2 Run 1, Arsenic mg/kg/dry	Filter Press 2 Run 1, Barium mg/kg.dry	Filter Press 2 Run 1, Beryllium mg/kg/dry	Filter Press 2 Run 1, Cadmium mg/kg/dry	Filter Press 2 Run 1, Chromium mg/kg/dry	Filter Press 2 Run 1, Cobalt mg/kg/dry	Filter Press 2 Run 1, Copper mg/kg/dry
Jan 2005									
Feb 2005	9,000.0	<2.5	<2.5	388.7	<2.5	<2.5	19.7	14.1	955.9
Feb 2005 *						4.1	20.4		859.2
Apr 2005									
May 2005	6,623.4	<3.3	<3.3	363.0	<3.3	5.2	28.1	12.8	1,000.0
Jun 2005									
Jul 2005									
Aug 2005	8,344.0	<3.3	<3.3	507.2	<3.3	<3.9	28.5	10.8	1,152.9
Sep 2005									
Oct 2005									
Nov 2005	6,907.9	<3.3	<3.3	396.7	<3.3	<3.3	<3.3	<3.3	1,059.2
Dec 2005									
Minimum	6,623.4	<2.5	<2.5	363.0	<2.5	<2.5	<3.3	<3.3	859.2
Maximum	9,000.0	<3.3	<3.3	507.2	<3.3	5.2	28.5	14.1	1,152.9
Average	7,718.8	<3.1	<3.1	413.9	<3.1	<3.8	20.0	10.2	1,005.4

Analyses Peformed By American Scientific Laboratories, Los Angeles, CA 90065
*Analyses Peformed By City of San Buenaventura - Wastewater Laboratories, Ventura, CA 93001

Ventura Reclamation Facility

Annual Report 2005

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/kg/dry	Filter Press 2, Run 1, Zinc mg/kg/dry
Jan 2005										
Feb 2005	25.9	<1.0	13.9	28.7	18.9	18.4	<2.5	<24.5	3.1	725.5
Feb 2005 *	48.9			26.0		1.4				792.5
Apr 2005										
May 2005	12.7	<1.3	17.0	24.0	24.0	18.0	<3.3	<32.5	<3.3	787.7
Jun 2005										
Jul 2005										
Aug 2005	24.0	1.5	24.3	35.5	20.6	25.1	<3.2	<31.9	10.8	1,095.5
Sep 2005										
Oct 2005										
Nov 2005	<3.3	2.3	<3.3	<3.3	<3.3	<3.3	<3.3	<32.9	<3.3	842.1
Dec 2005										
Minimum	<3.3	<1.0	<3.3	<3.3	<3.3	1.4	<2.5	<24.5	3.1	725.5
Maximum	48.9	2.3	24.3	35.5	24.0	25.1	<3.3	<32.9	10.8	1,095.5
Average	22.9	1.5	14.6	23.5	16.7	13.2	<3.0	<30.4	5.1	848.7

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

*Analysis Performed by City of San Buenavenutra - Wastewater Laboratory, Ventura, CA 93001

Ventura Reclamation Facility
Annual Report 2005

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 2005									
Feb 2005 *						3.5	21.5		882.3
Mar 2005									
Apr 2005									
May 2005	7,388.5	<3.2	<3.2	407.0	<3.2	4.2	28.0	14.4	1,108.3
Jun 2005									
Jul 2005									
Aug 2005	9,736.8	<3.8	<3.3	458.0	<3.8	<3.3	35.7	12.5	1,368.4
Sep 2005									
Oct 2005		<2.4	<1.2	495.2	<2.4	<2.4	20.4	13.7	1,423.8
Nov 2005	7,000.0	<3.5	<3.5	398.6	<3.3	<3.5	<3.5	<3.5	1,063.4
Dec 2005									
Minimum	7,000.0	<2.4	<1.2	398.6	<2.4	<2.4	<3.5	<3.5	882.30
Maximum	9,736.8	<3.8	<3.5	495.2	<3.8	4.2	35.7	14.4	1,423.81
Average	8,041.8	<3.2	<2.8	439.7	<3.2	<3.4	21.8	11.0	1,169.24

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

*Analyses Peformed By City of San Buenaventura - Wastewater Laboratories, Ventura, CA 93001

Ventura Reclamation Facility

Annual Report 2005

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 2005										
Feb 2005 *	49.2			24.1		1.4				803.9
Mar 2005										
Apr 2005										
May 2005	13.6	<1.3	18.0	37.2	23.1	16.7	<3.2	<31.9	<3.2	866.2
Jun 2005										
Jul 2005										
Aug 2005	29.4	2.0	28.7	43.2	25.1	31.5	<3.3	<32.9	13.4	1,223.7
Sep 2005										
Oct 2005	22.8	1.0	23.9	29.5	30.8	22.7	<2.4	25.9	4.8	919.1
Nov 2005	<3.5		<3.5	<3.5	<3.5	<3.5	<3.5	<35.2	<3.5	859.2
Dec 2005										
Minimum	<3.5	1.0	<3.5	<3.5	<3.5	1.4	<2.4	25.9	<3.2	803.9
Maximum	49.2	2.0	28.7	43.2	30.8	31.5	<3.5	<35.2	13.4	1,223.7
Average	23.7	1.4	18.5	27.5	20.6	15.2	<3.1	<31.5	6.2	934.4

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

*Analysis Performed by City of San Buenavenutra - Wastewater Laboratory, Ventura, CA 93001

Ventura Water Reclamation Facility
Annual Report 2005

Solid Streams

Organics - Dewatered Digested Sludge

Month		Acetone mg/kg/dry	Chloromethane mg/kg/dry	Bis (2-Ethyylhexylphthalate) 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	<0.25	<0.25	<1.62	<0.05	<0.49	0.15	<24.5
May	Filter Press 2 Run 1	0.89	<0.21	<2.36	<0.07	<0.01	<0.04	<35.7
August	Filter Press 1 Run 1	<0.31	<0.17	<1.85	<0.06	0.02	0.08	<140.4
November	Filter Press 1 Run 1	<0.38	<0.23	6.12	<0.06	<0.02	<0.05	329.4
Minimum		<0.25	<0.17	<1.62	<0.05	<0.01	<0.04	<24.50
Maximum		0.89	<0.25	6.12	<0.07	<0.49	0.15	329.4
Average		0.46	<0.21	2.98	<0.06	<0.14	0.08	<132.5

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

Ventura Water Reclamation Facility
Annual Report 2005

Solid Streams

Total Metals - Dry Weight

Dissolverd 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	1.98	7.53	606.73	19.40	11.88	0.98	344.78
May	1.77	4.20	550.47	14.28	1.48	0.51	368.79
August	1.57	5.71	748.10	9.05	2.20	0.44	489.80
November	1.47	1.63	697.61	9.09	5.00	0.43	468.87
Annual Average	1.70	4.77	650.73	12.96	5.14	0.59	418.06

Gravity Thickener (Primary Sludge)

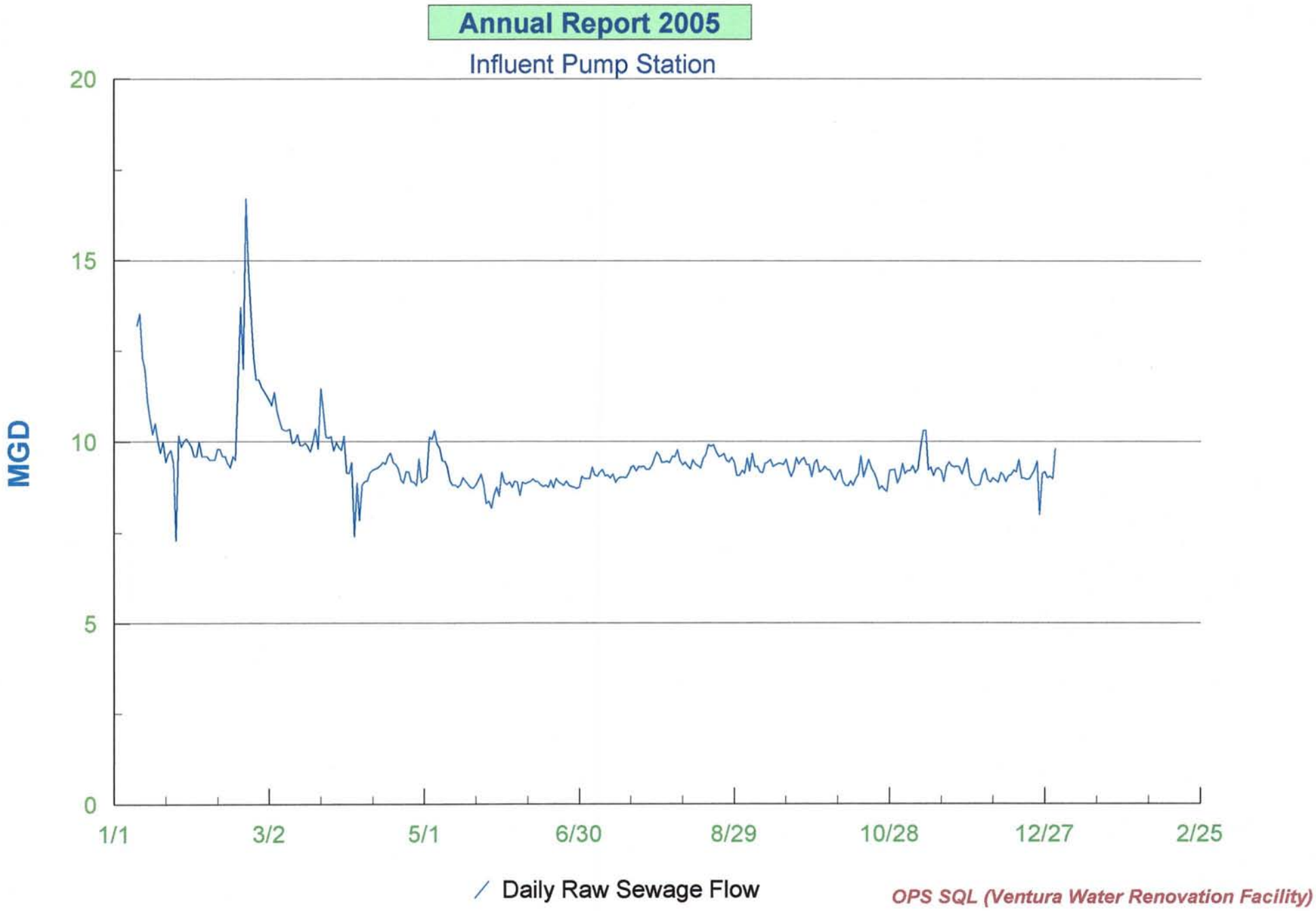
Month	Cadmium mg/kg/dry	Chromium mg/kg/dry	Copper mg/kg/dry	Lead mg/kg/dry	Nickel mg/kg/dry	Silver mg/kg/dry	Zinc mg/kg/dry
February	1.62	6.96	592.85	23.04	9.86	1.05	280.60
May	0.84	0.81	437.95	12.38	4.43	0.44	325.16
August	1.02	0.80	841.82	19.85	5.82	0.58	422.84
Novermbr	0.62	0.34	634.06	13.86	6.05	0.37	406.65
Annual Average	1.03	2.23	626.67	17.28	6.54	0.61	358.81

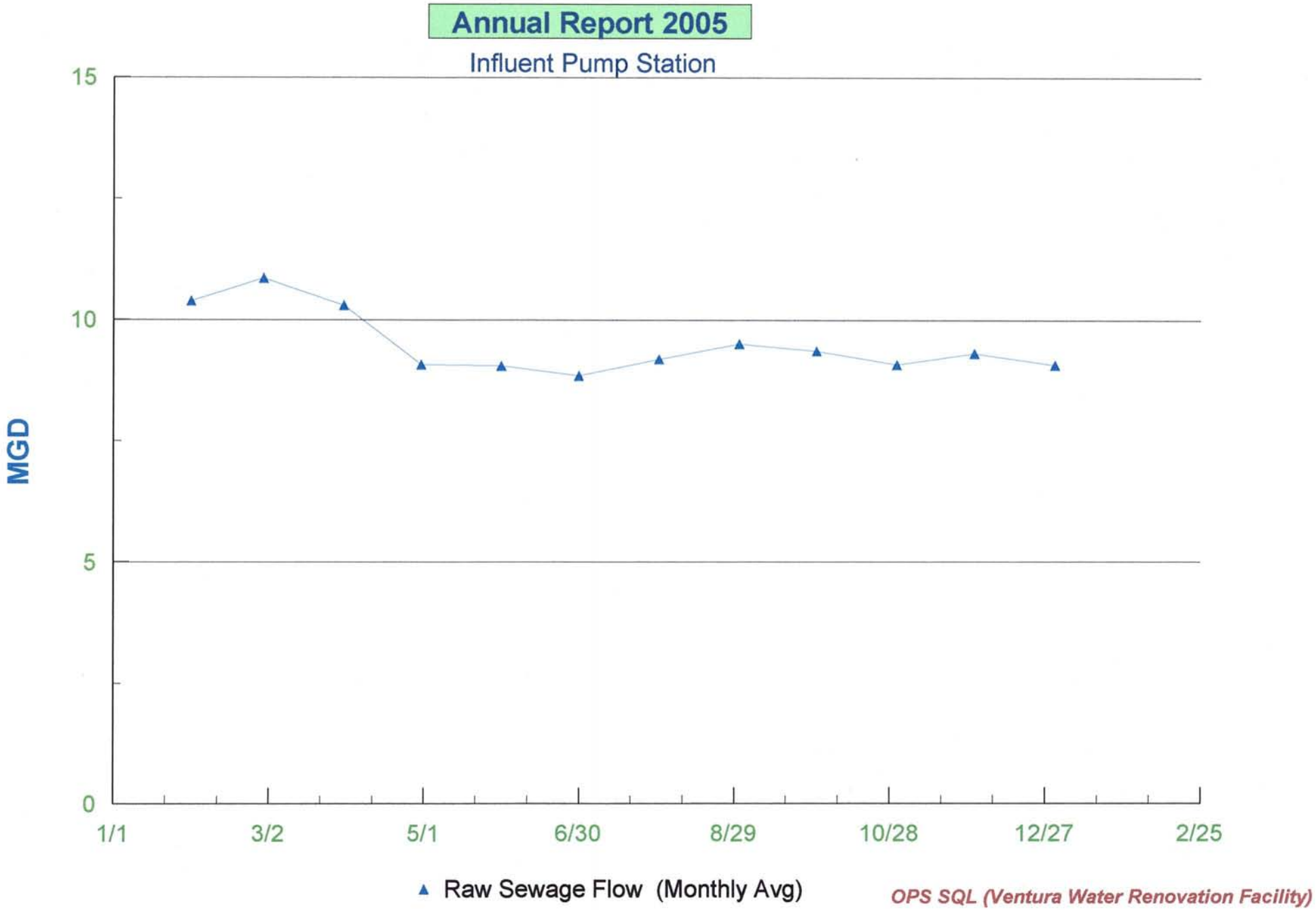
Ventura Water Reclamation Facility

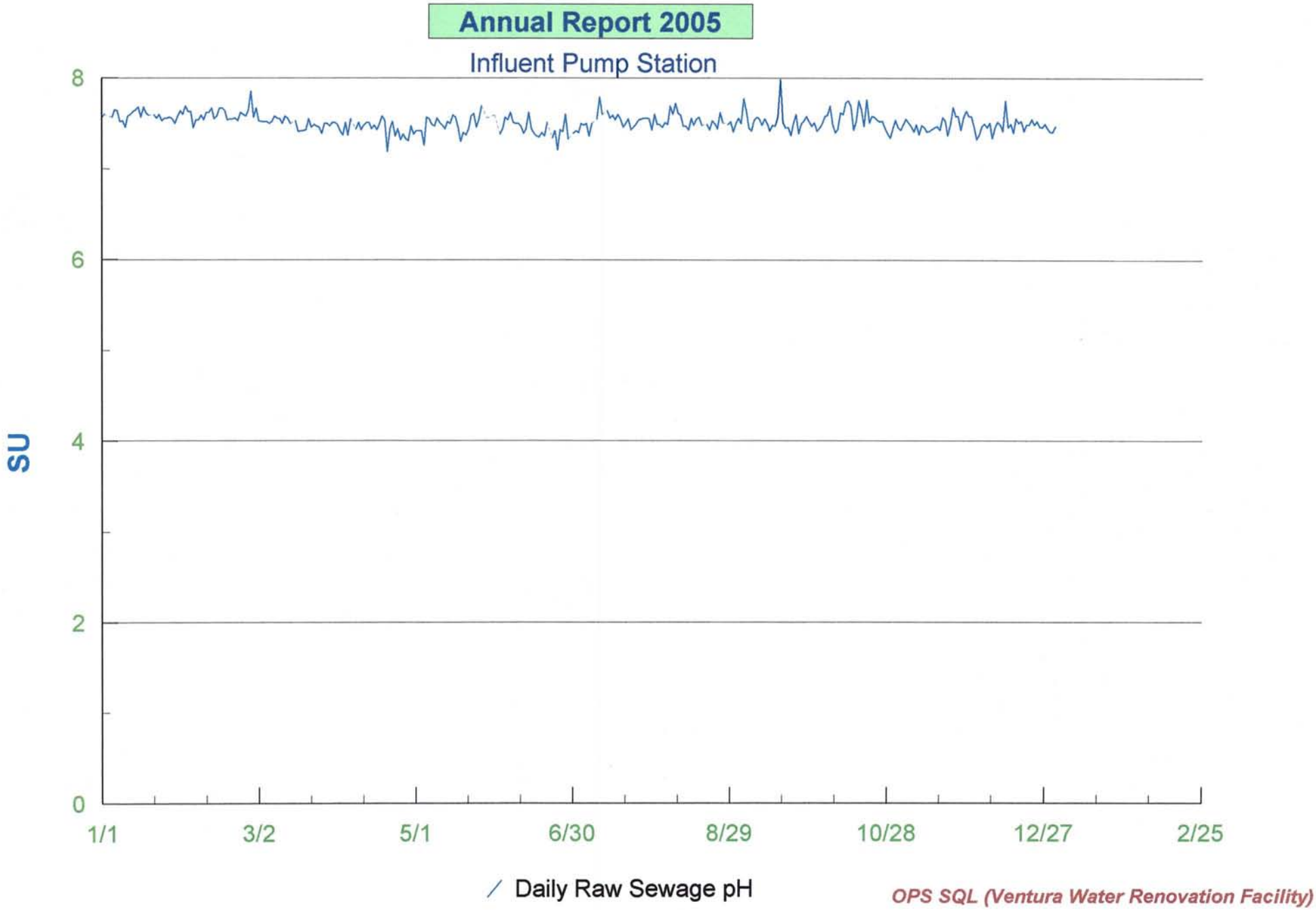
Annual report 2005

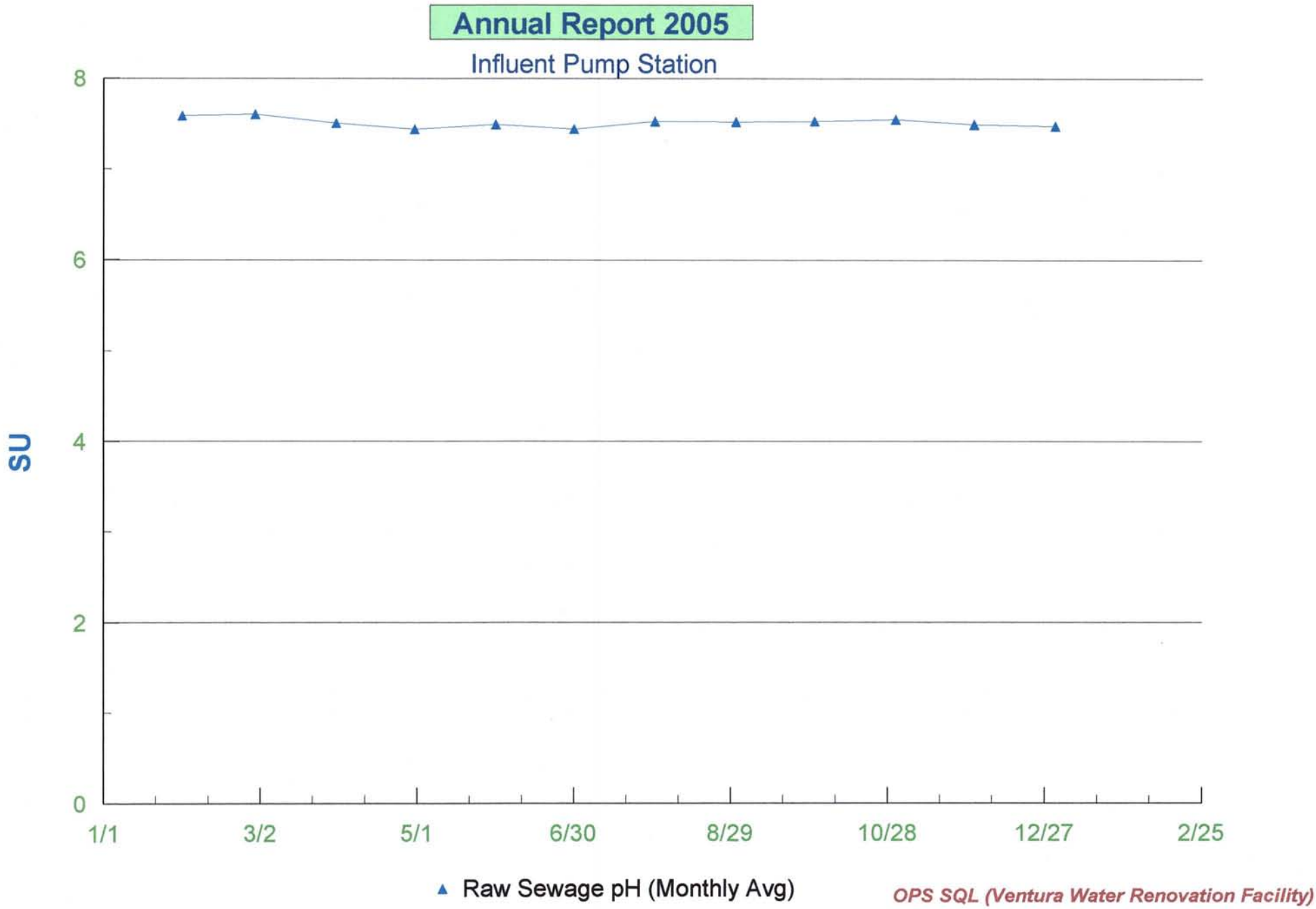
Irrigation Reuse Flows

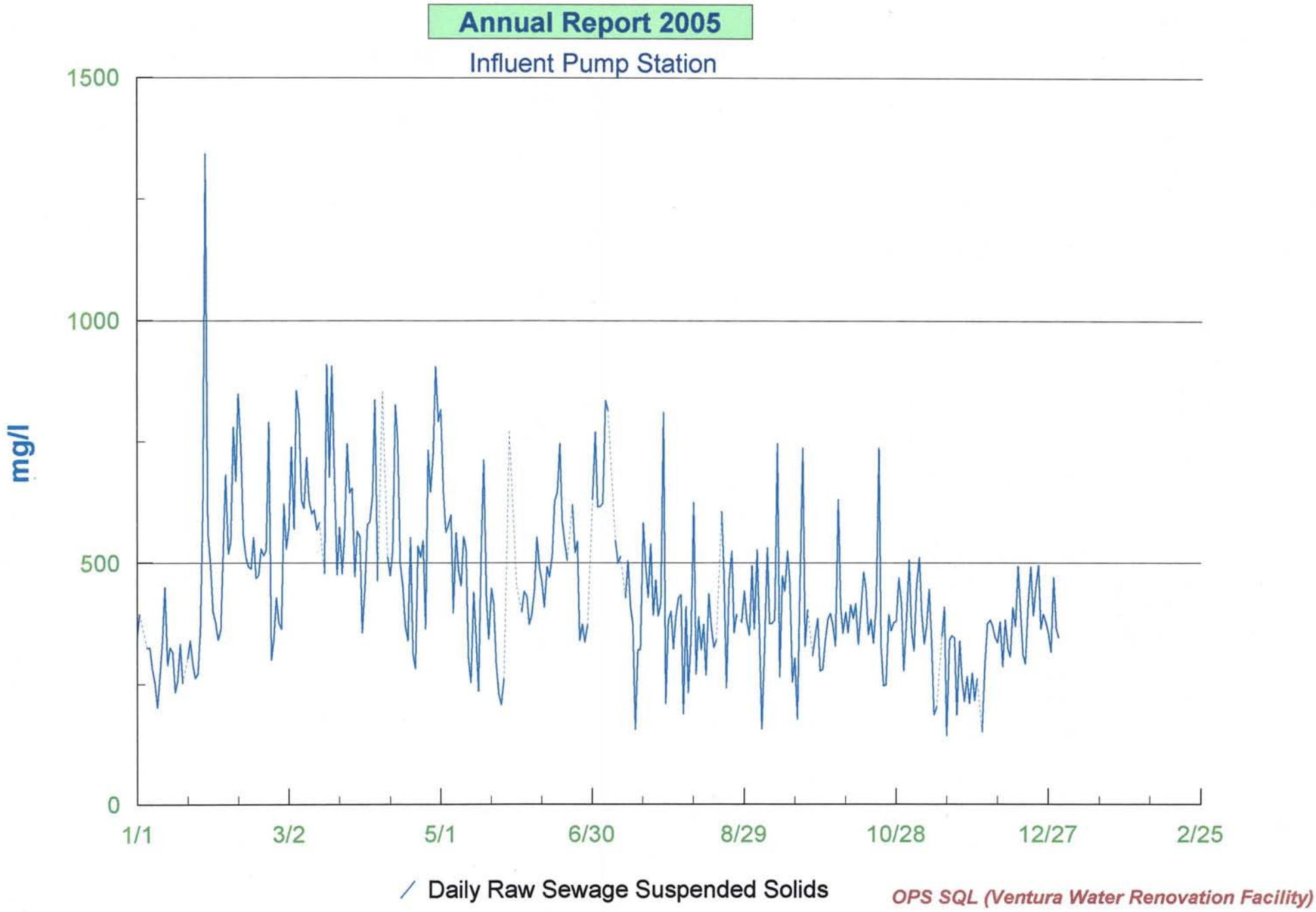
Month	Olivas Irrigation MGD	Buena Irrigation MGD	Marina Irrigation MGD	Irrigation Total MGD
Jan 2005	0.0013	0.0544	0.003	0.0590
Feb 2005	0.0814	0.0737	0.006	0.1611
Mar 2005	0.0188	0.1080	0.013	0.1396
Apr 2005	0.4063	0.3172	0.060	0.7836
May 2005	0.5084	0.3140	0.037	0.8598
Jun 2005	0.5931	0.4165	0.051	1.0609
Jul 2005	0.6572	0.4007	0.054	1.1120
Aug 2005	0.5135	0.3675	0.076	0.9574
Sep 2005	0.1001	0.3254	0.055	0.4807
Oct 2005	0.0139	0.1883	0.034	0.2361
Nov 2005	0.0032	0.1985	0.030	0.2315
Dec 2005	0.0215	0.0857	0.038	0.1455
Minimum	0.0000	0.0000	0.000	0.000
Maximum	1.2379	0.9754	0.285	1.761
Average	0.2442	0.2380	0.038	0.521

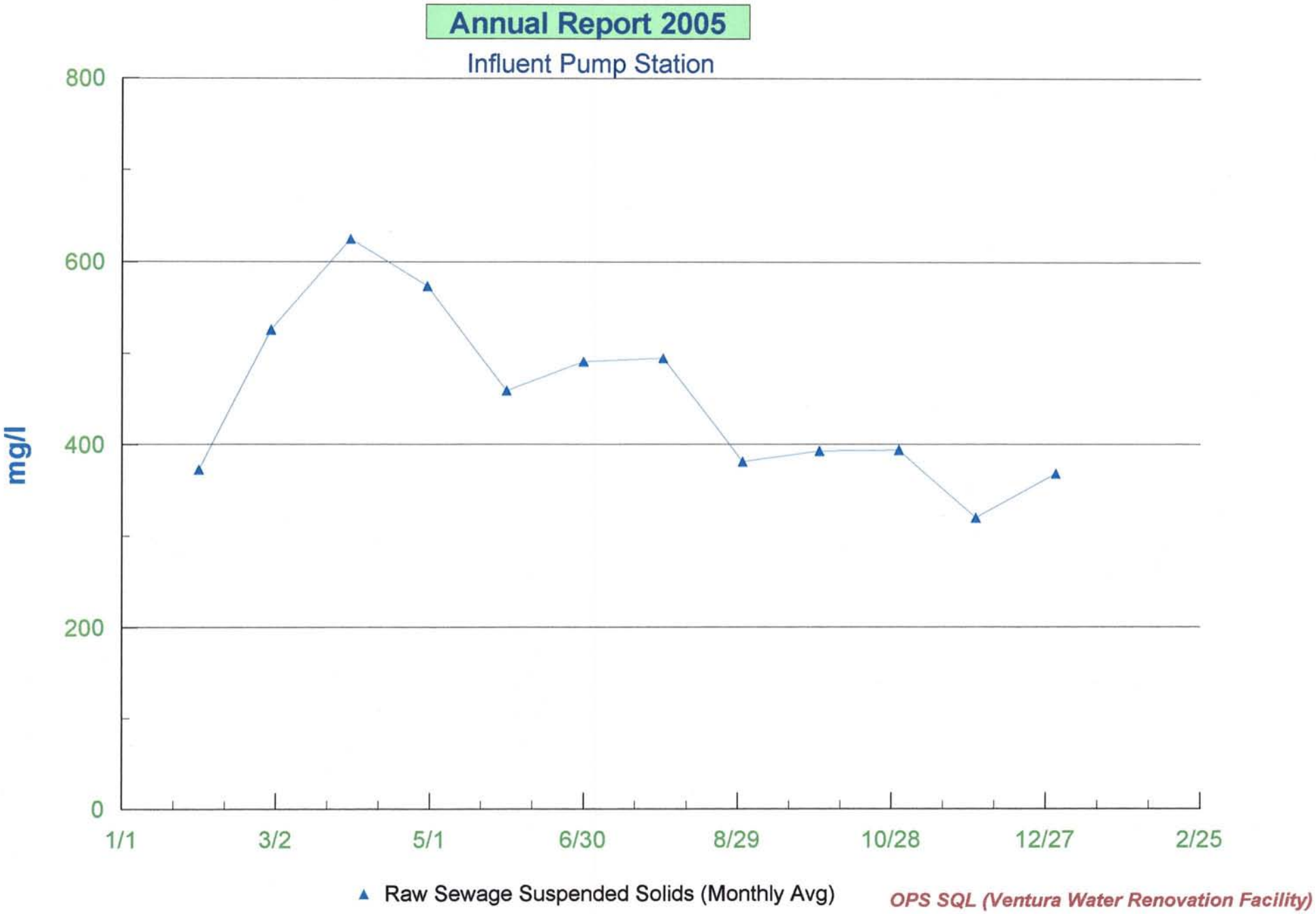

Annual Report 2005
Influent Pump Station
MGD
20
15
10
5
0
1/1
3/2
5/1
6/30
8/29
10/28
12/27
2/25
Daily Raw Sewage Flow
OPS SQL (Ventura Water Renovation Facility)

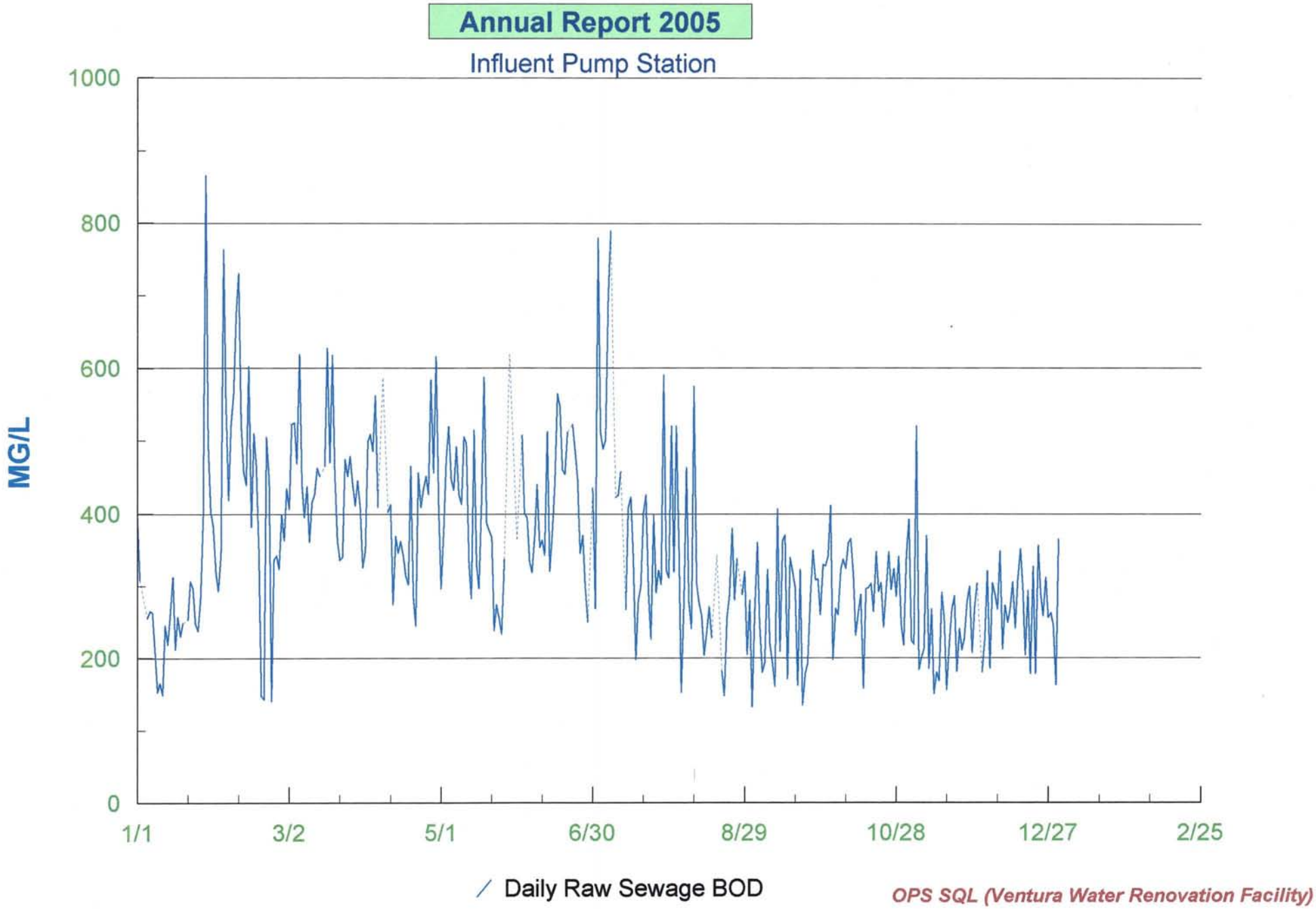

Annual Report 2005
Influent Pump Station
MGD
15
10
5
0
1/1
3/2
5/1
6/30
8/29
10/28
12/27
2/25
Raw Sewage Flow (Monthly Avg)
OPS SQL (Ventura Water Renovation Facility)

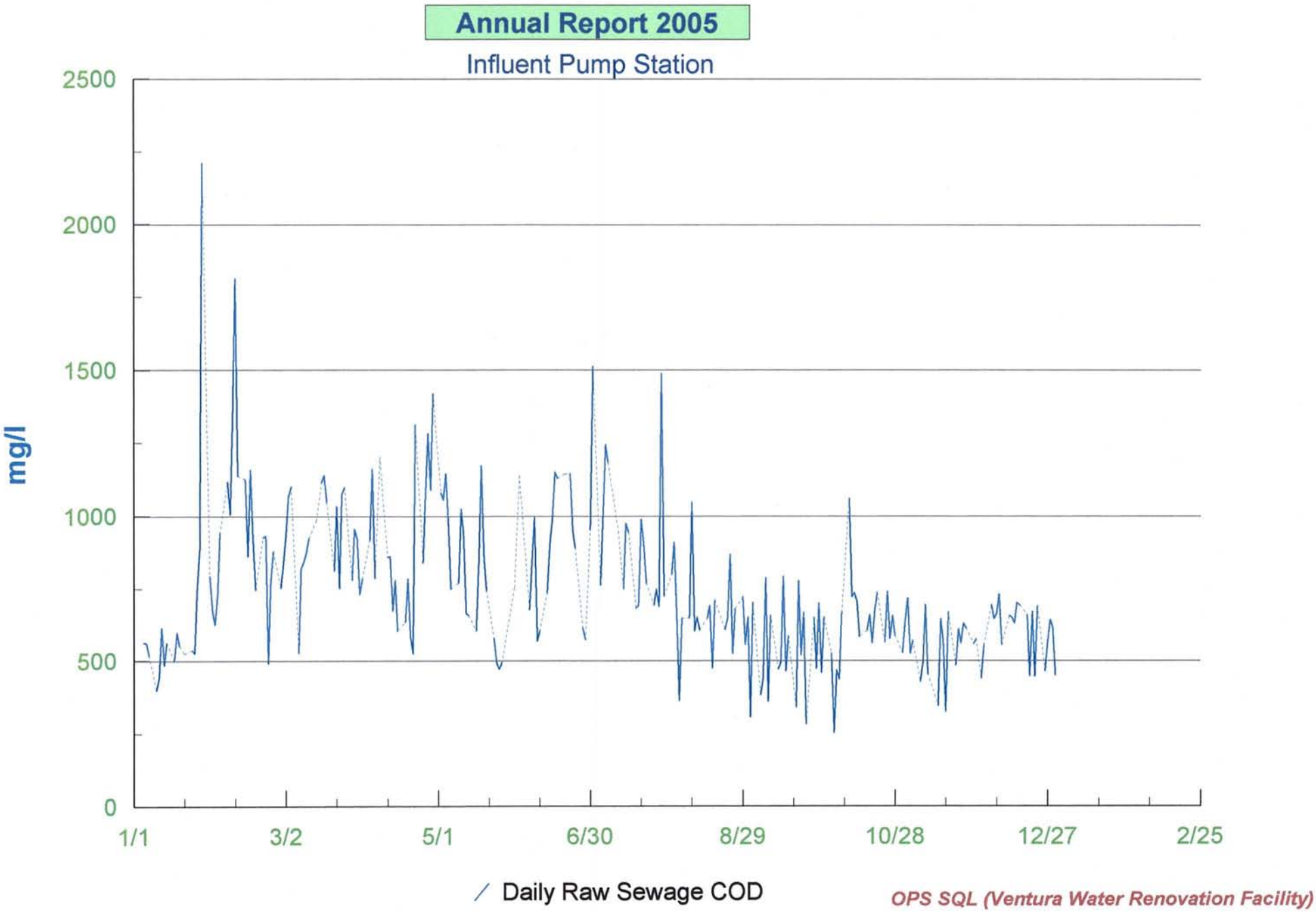

Annual Report 2005
Influent Pump Station
SU
8
6
4
2
0
1/1
3/2
5/1
6/30
8/29
10/28
12/27
2/25
Daily Raw Sewage pH
OPS SQL (Ventura Water Renovation Facility)

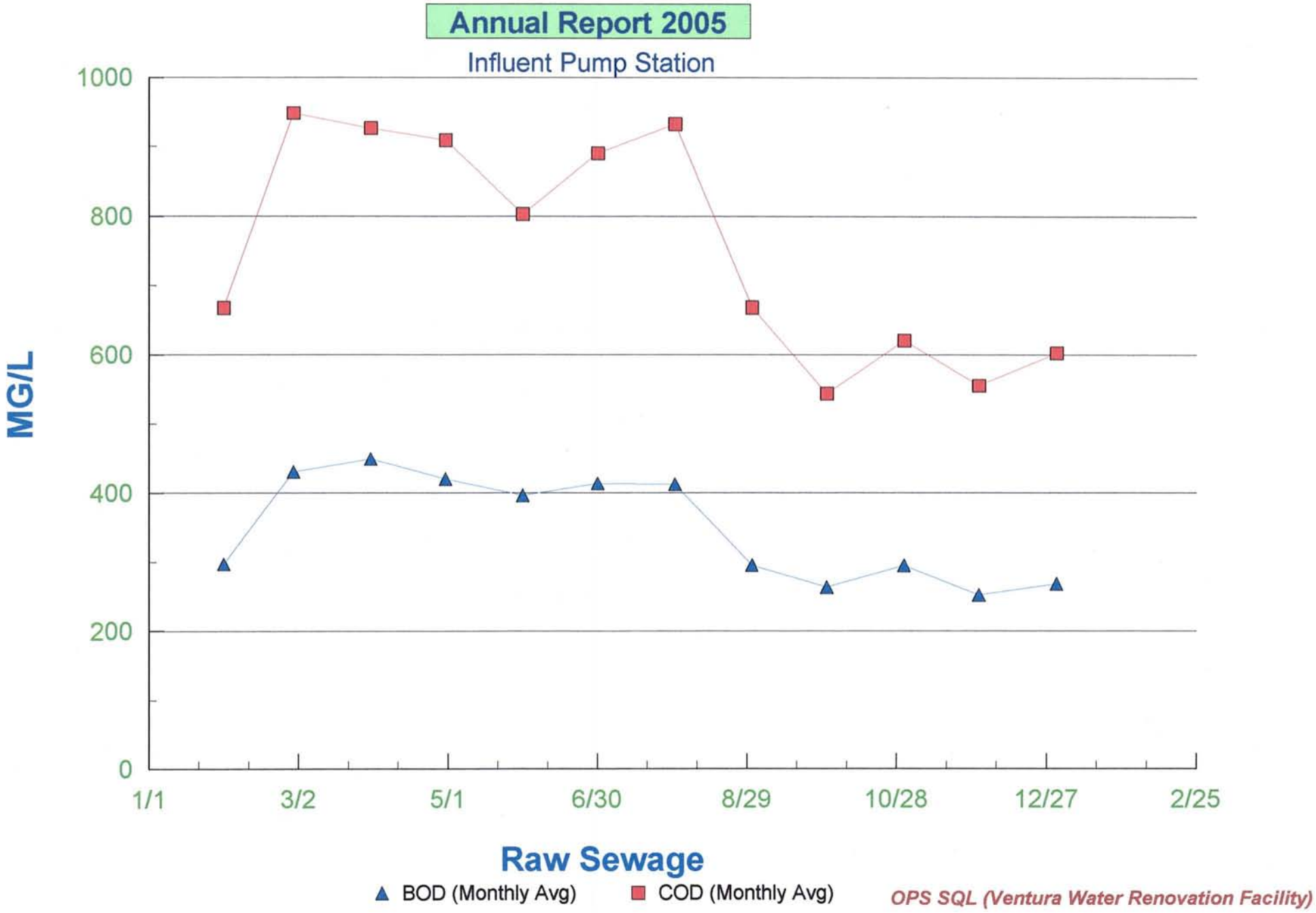

Annual Report 2005
Influent Pump Station
SU
8
6
4
2
0
1/1
3/2
5/1
6/30
8/29
10/28
12/27
2/25
Raw Sewage pH (Monthly Avg)
OPS SQL (Ventura Water Renovation Facility)

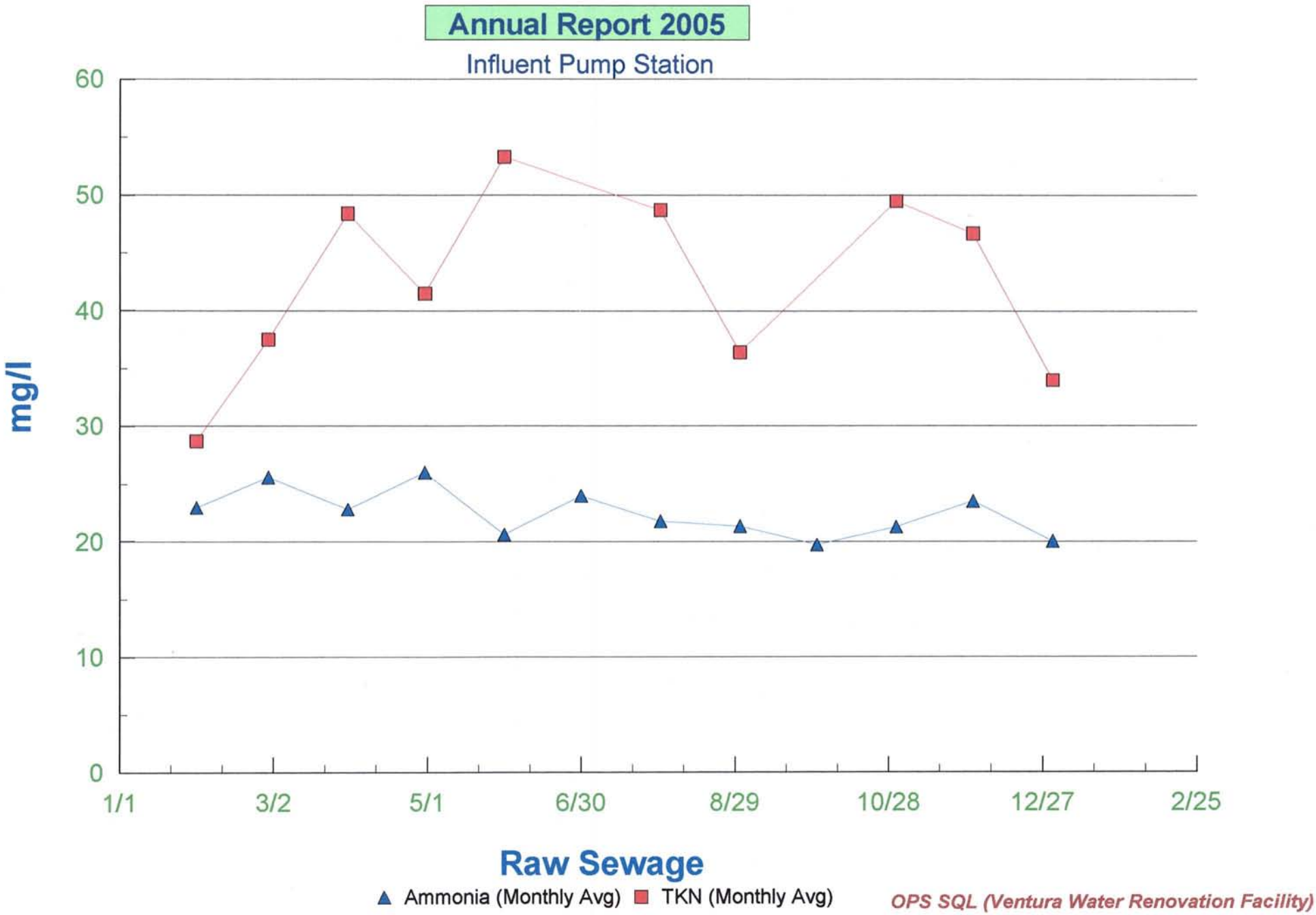

Annual Report 2005
Influent Pump Station
1500
1000
500
0
mg/l
1/1
3/2
5/1
6/30
8/29
10/28
12/27
2/25
Daily Raw Sewage Suspended Solids
OPS SQL (Ventura Water Renovation Facility)

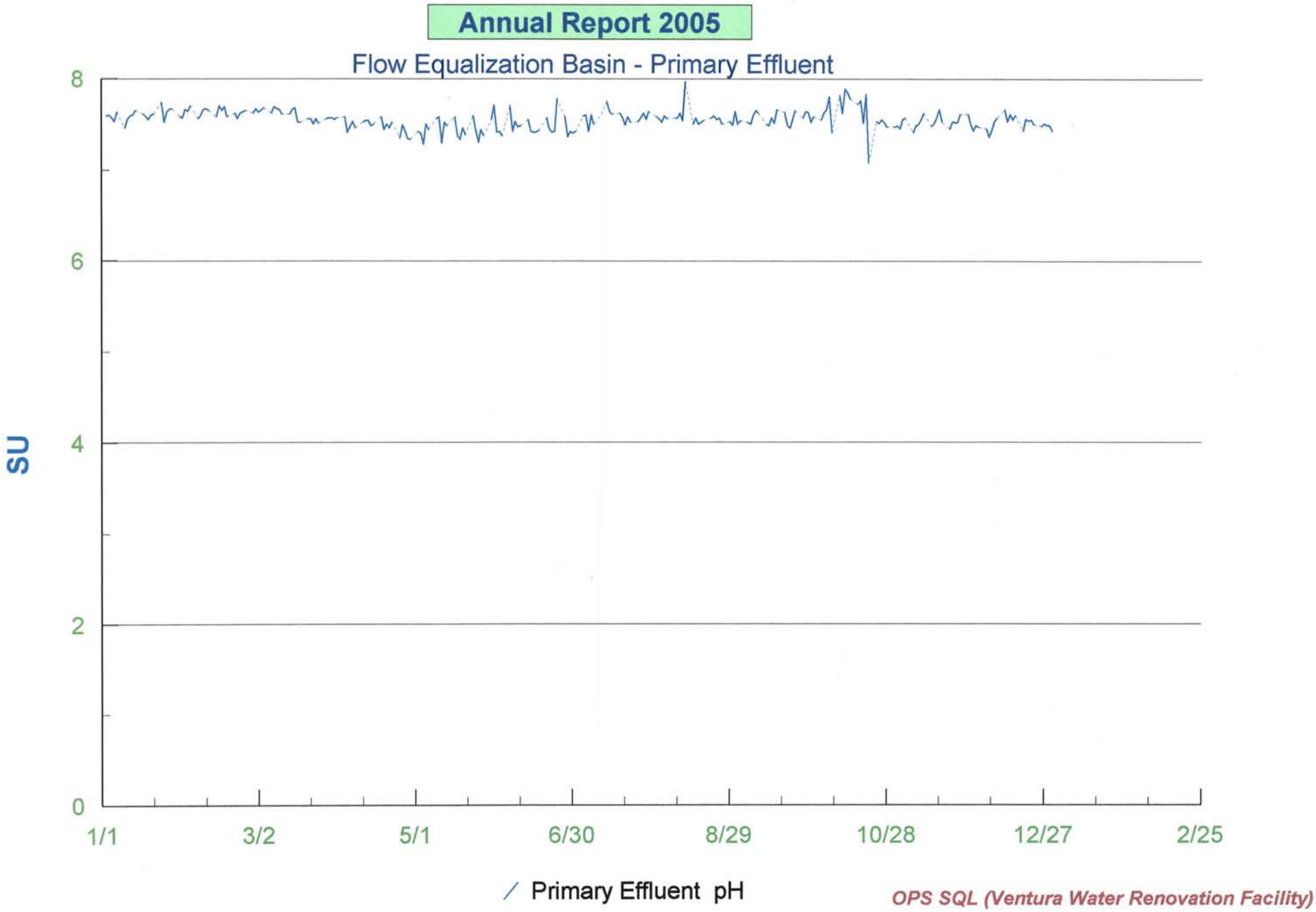

Annual Report 2005
Influent Pump Station
800
600
400
200
0
mg/l
1/1
3/2
5/1
6/30
8/29
10/28
12/27
2/25
Raw Sewage Suspended Solids (Monthly Avg)
OPS SQL (Ventura Water Renovation Facility)

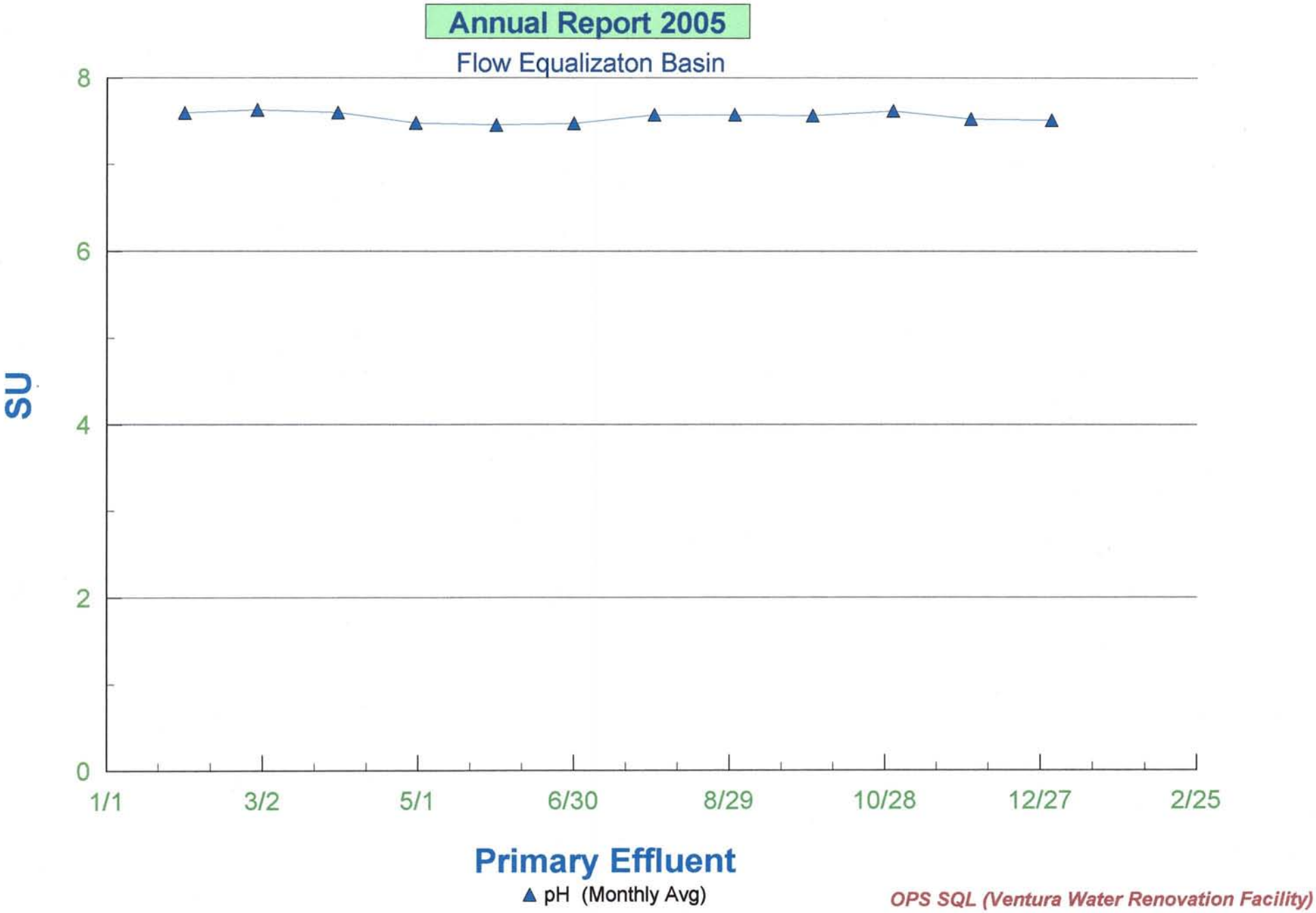

Annual Report 2005
Influent Pump Station
MG/L
1000
800
600
400
200
0
1/1
3/2
5/1
6/30
8/29
10/28
12/27
2/25
Daily Raw Sewage BOD
OPS SQL (Ventura Water Renovation Facility)

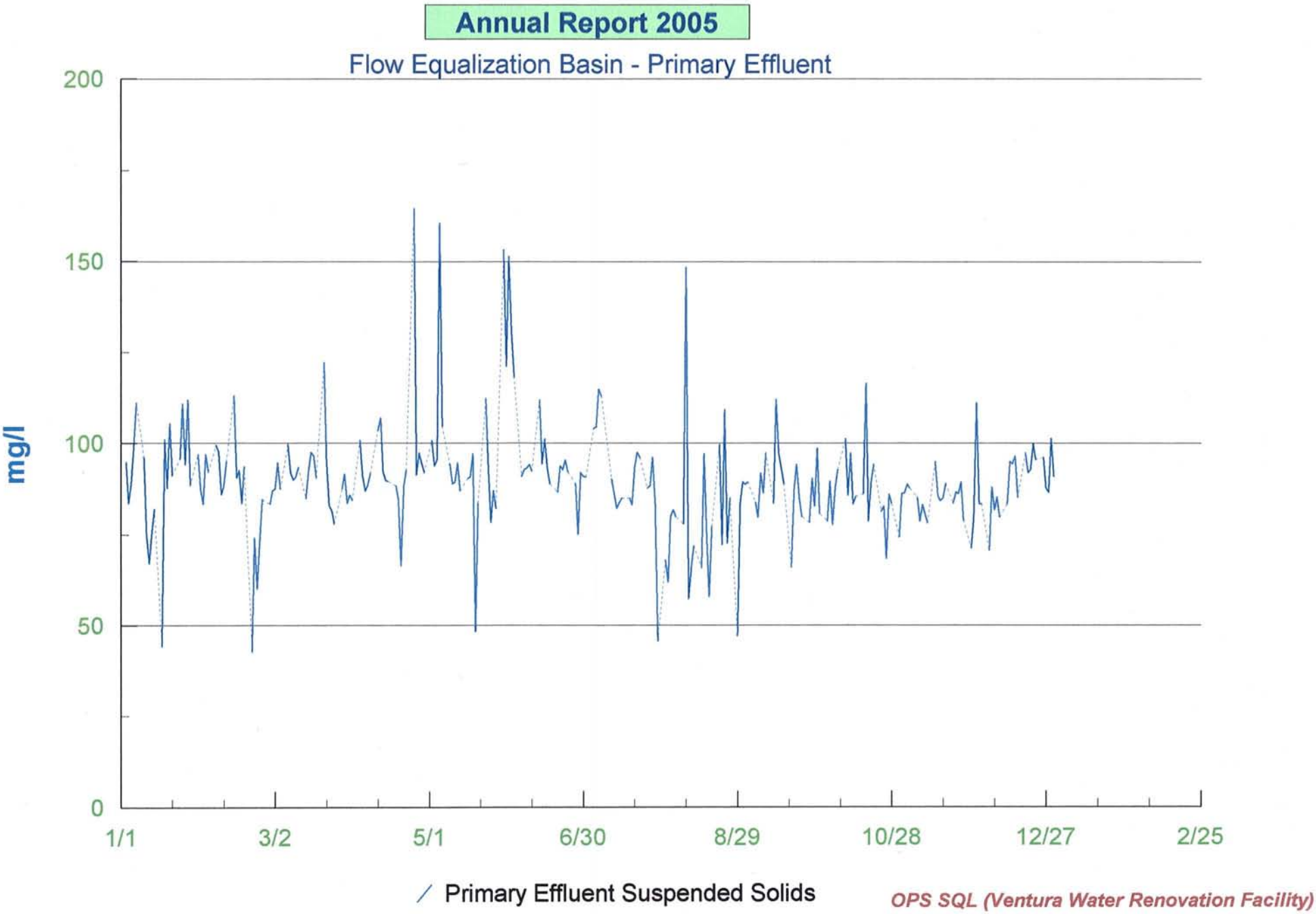

Annual Report 2005
Influent Pump Station
mg/l
2500
2000
1500
1000
500
0
1/1
3/2
5/1
6/30
8/29
10/28
12/27
2/25
Daily Raw Sewage COD
OPS SQL (Ventura Water Renovation Facility)

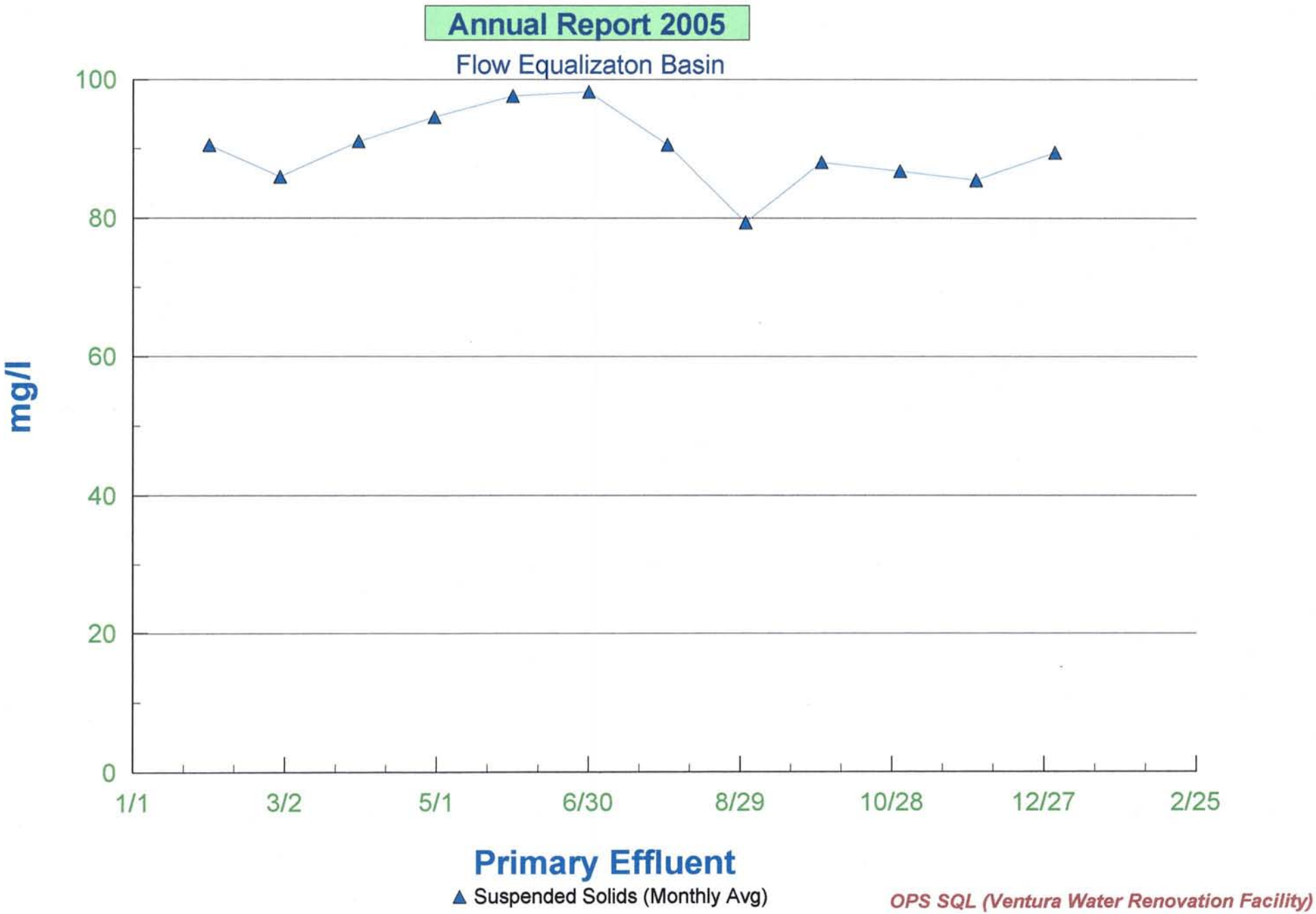

Annual Report 2005
Influent Pump Station
MG/L
1000
800
600
400
200
0
1/1
3/2
5/1
6/30
8/29
10/28
12/27
2/25
Raw Sewage
BOD (Monthly Avg)
COD (Monthly Avg)
OPS SQL (Ventura Water Renovation Facility)

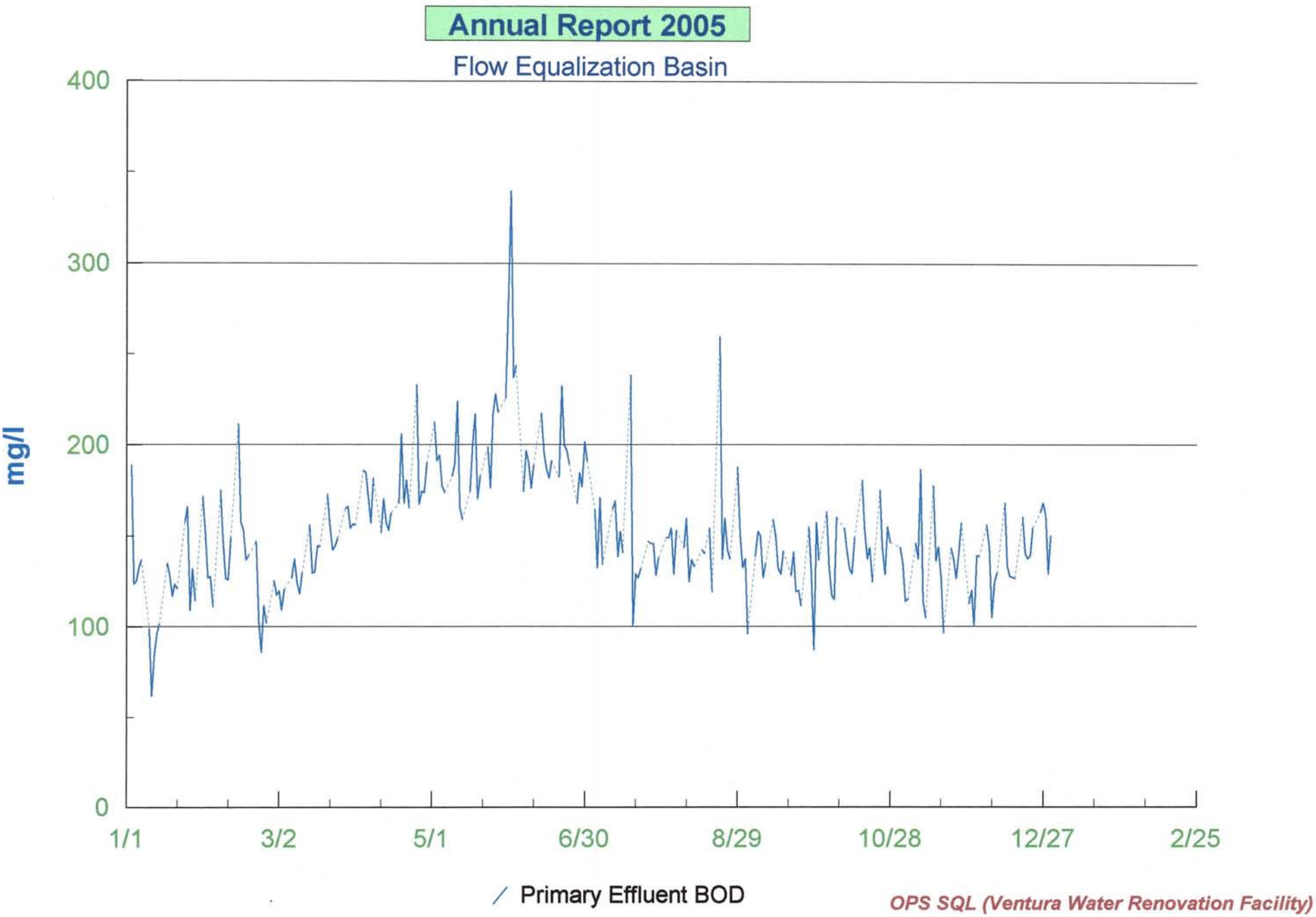

Annual Report 2005
Influent Pump Station
mg/l
60
50
40
30
20
10
0
1/1
3/2
5/1
6/30
8/29
10/28
12/27
2/25
Raw Sewage
Ammonia (Monthly Avg)
TKN (Monthly Avg)
OPS SQL (Ventura Water Renovation Facility)

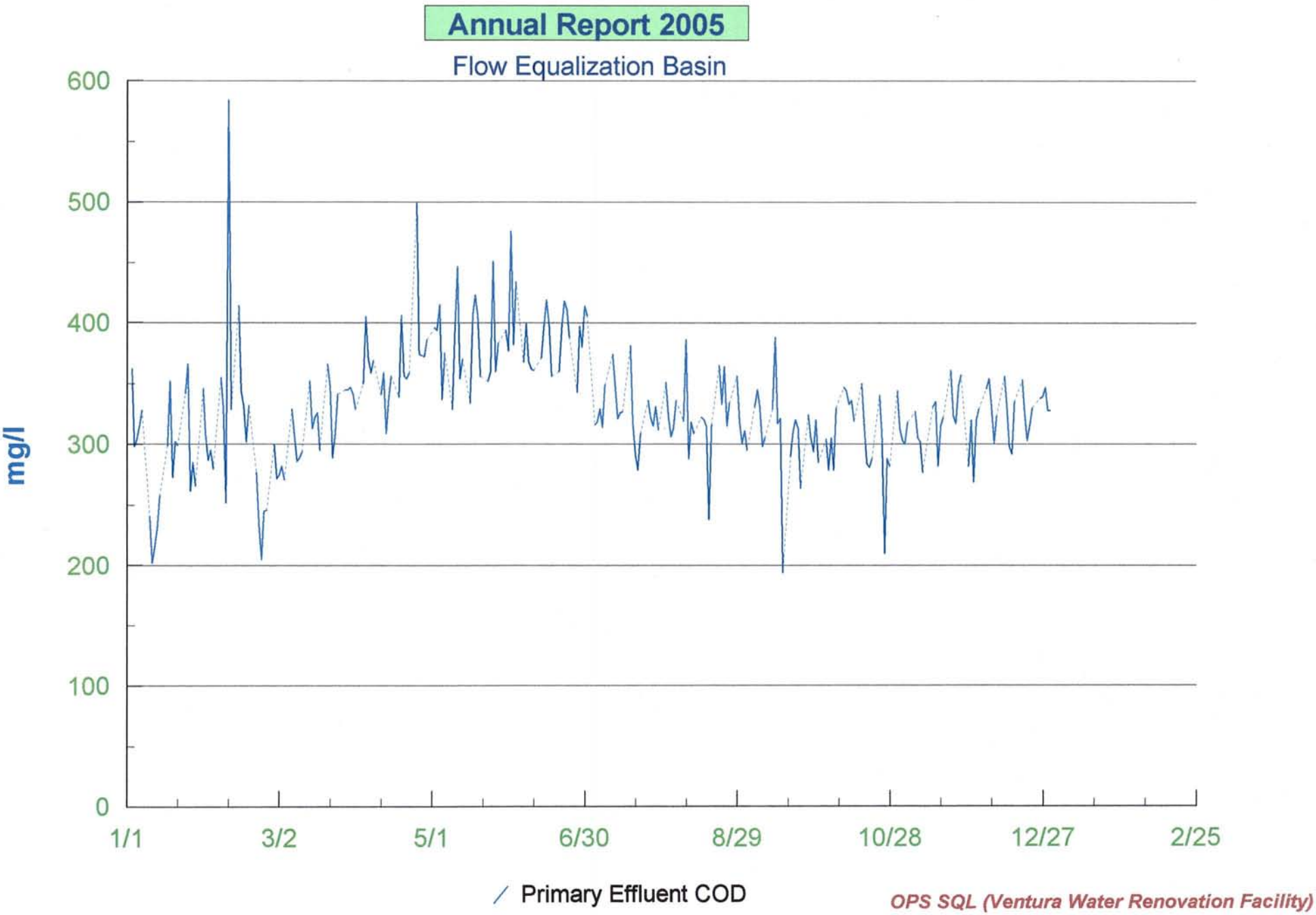

Annual Report 2005
Flow Equalization Basin - Primary Effluent
SU
8
6
4
2
0
1/1
3/2
5/1
6/30
8/29
10/28
12/27
2/25
Primary Effluent pH
OPS SQL (Ventura Water Renovation Facility)

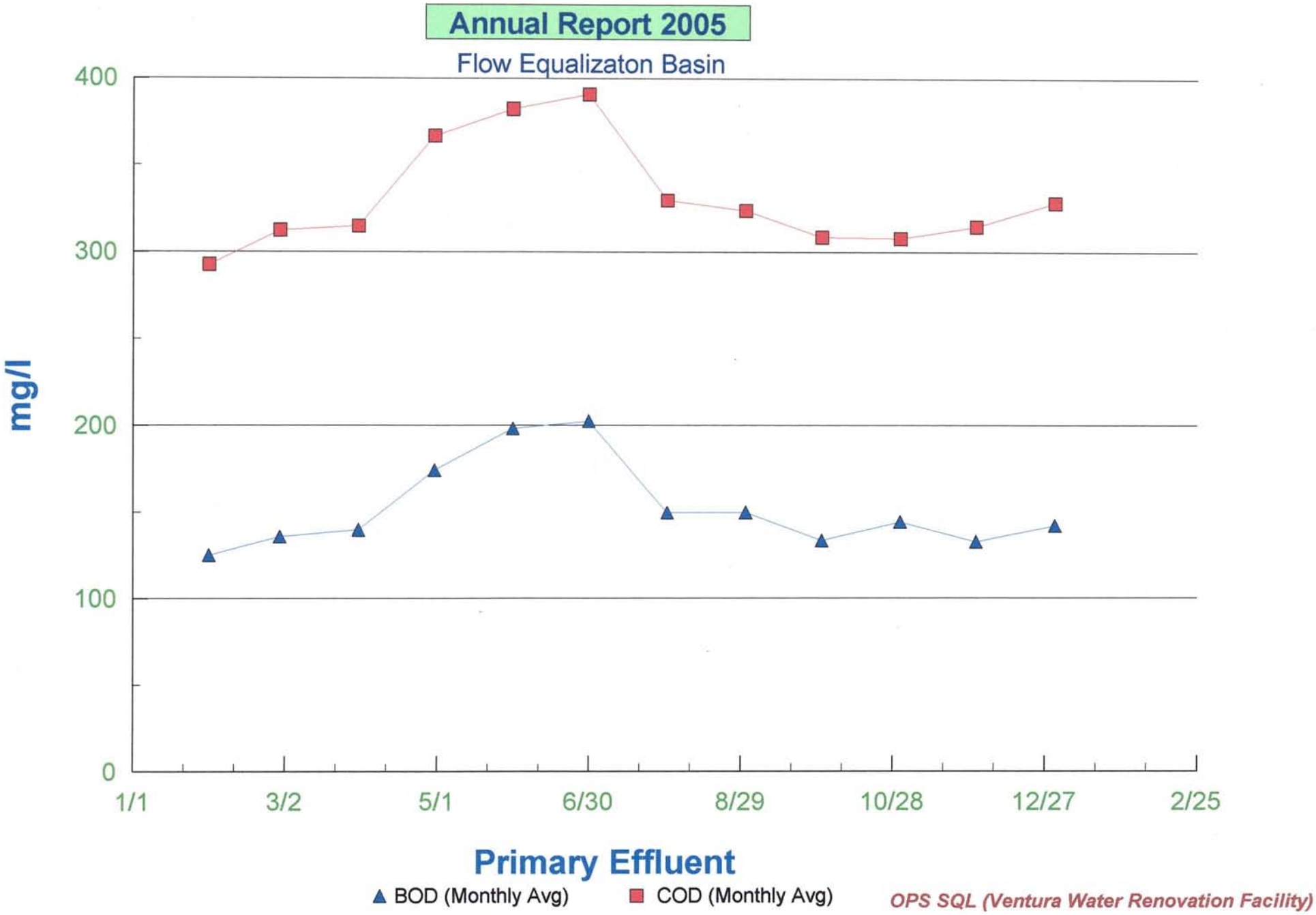

Annual Report 2005
Flow Equalizaton Basin
SU
8
6
4
2
0
1/1
3/2
5/1
6/30
8/29
10/28
12/27
2/25
Primary Effluent
pH (Monthly Avg)
OPS SQL (Ventura Water Renovation Facility)

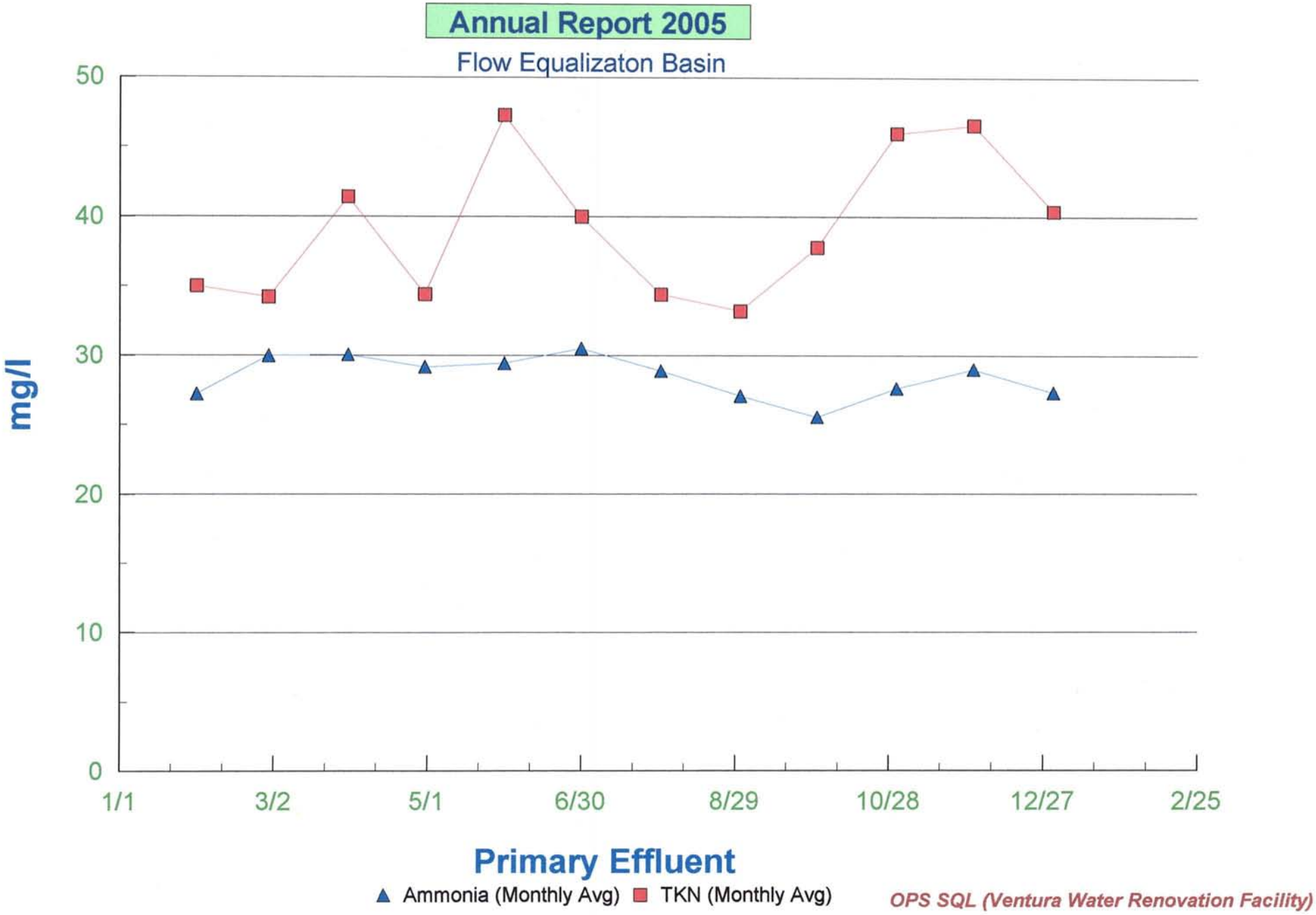

Annual Report 2005
Flow Equalization Basin - Primary Effluent
mg/l
200
150
100
50
0
1/1
3/2
5/1
6/30
8/29
10/28
12/27
2/25
Primary Effluent Suspended Solids
OPS SQL (Ventura Water Renovation Facility)

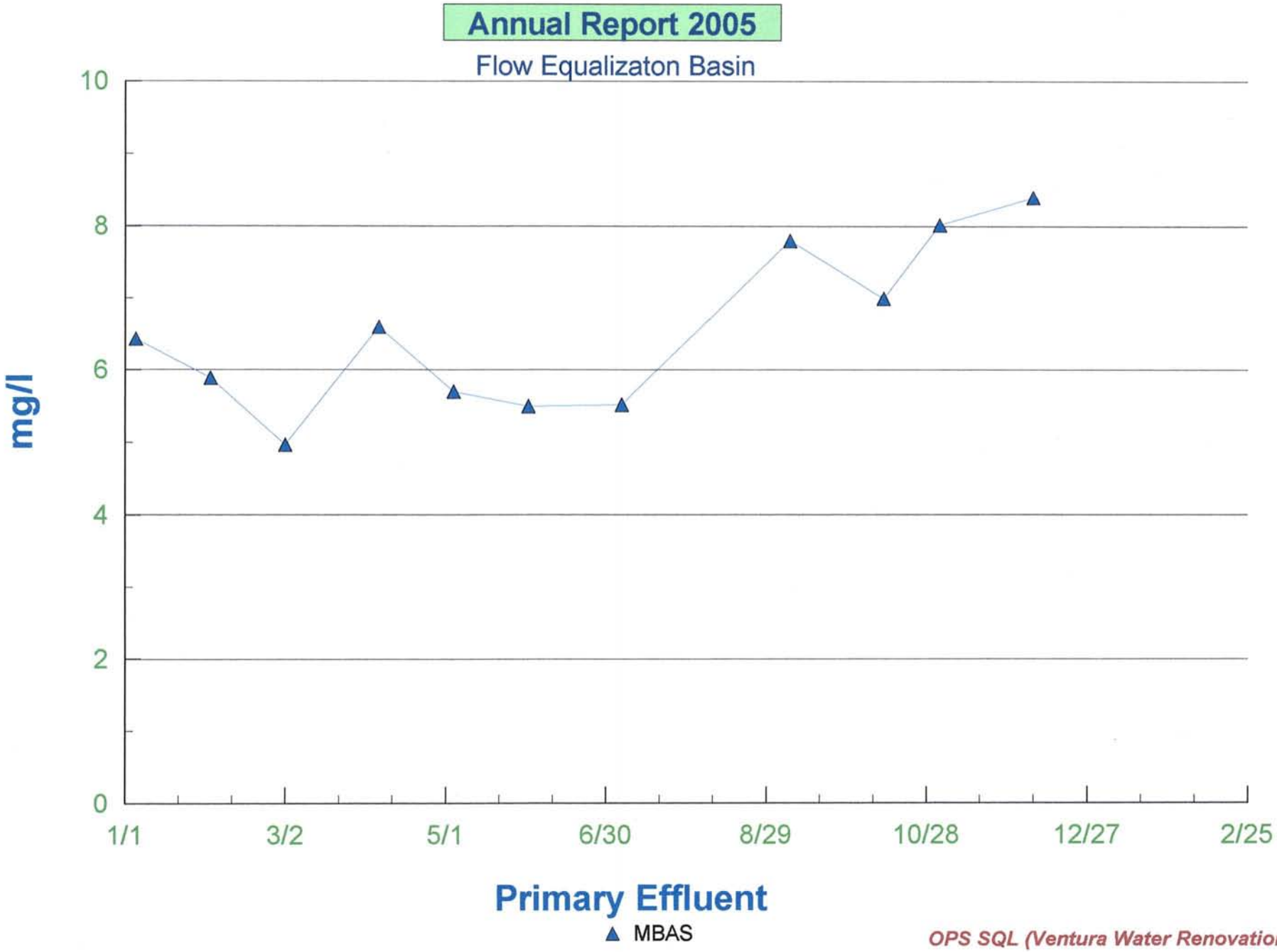

Annual Report 2005
Flow Equalizaton Basin
100
80
60
40
20
0
mg/l
1/1
3/2
5/1
6/30
8/29
10/28
12/27
2/25
Primary Effluent
Suspended Solids (Monthly Avg)
OPS SQL (Ventura Water Renovation Facility)


Annual Report 2005
Flow Equalization Basin
400
300
200
100
0
mg/l
1/1
3/2
5/1
6/30
8/29
10/28
12/27
2/25
Primary Effluent BOD
OPS SQL (Ventura Water Renovation Facility)

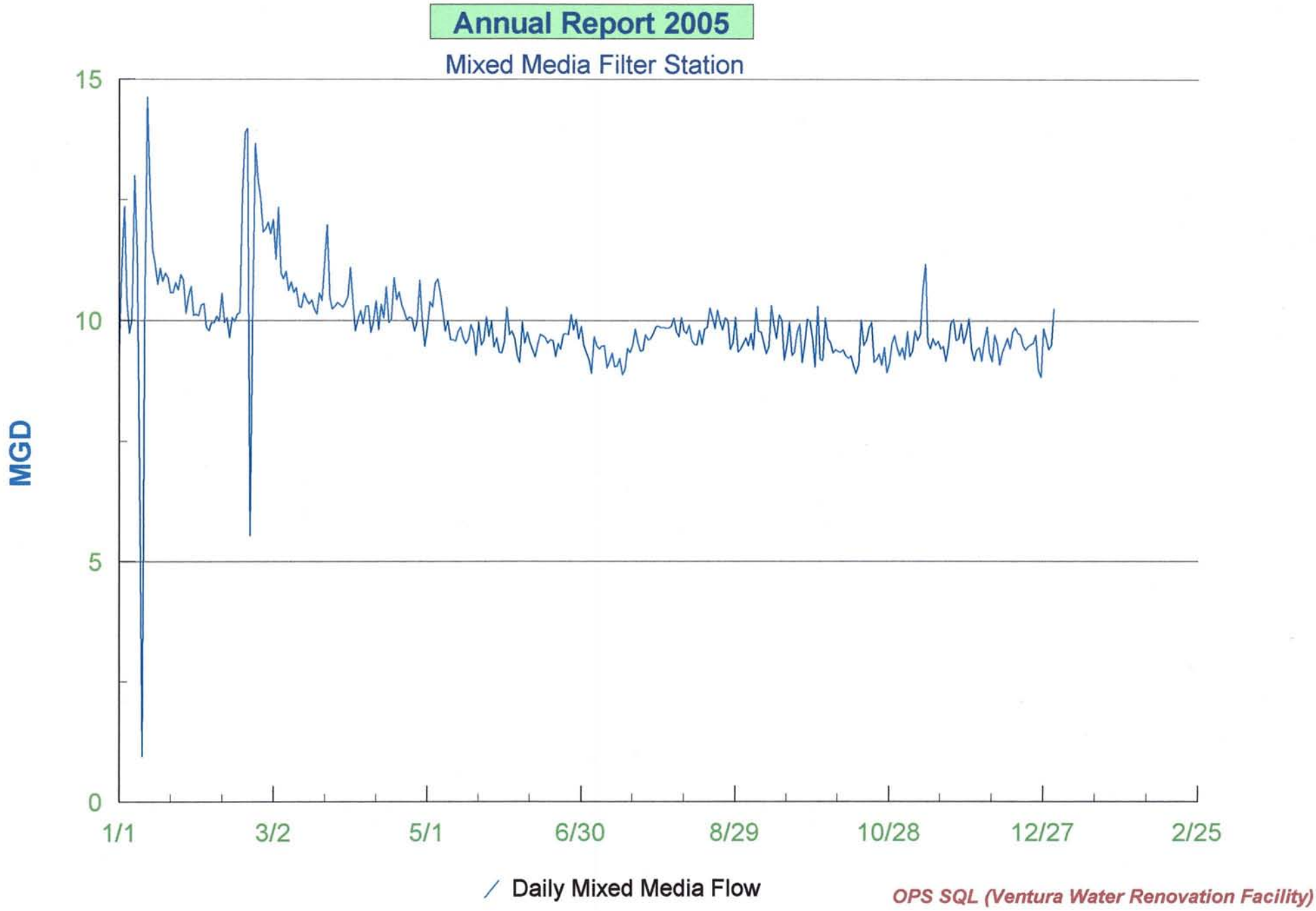

Annual Report 2005
Flow Equalization Basin
mg/l
600
500
400
300
200
100
0
1/1
3/2
5/1
6/30
8/29
10/28
12/27
2/25
Primary Effluent COD
OPS SQL (Ventura Water Renovation Facility)

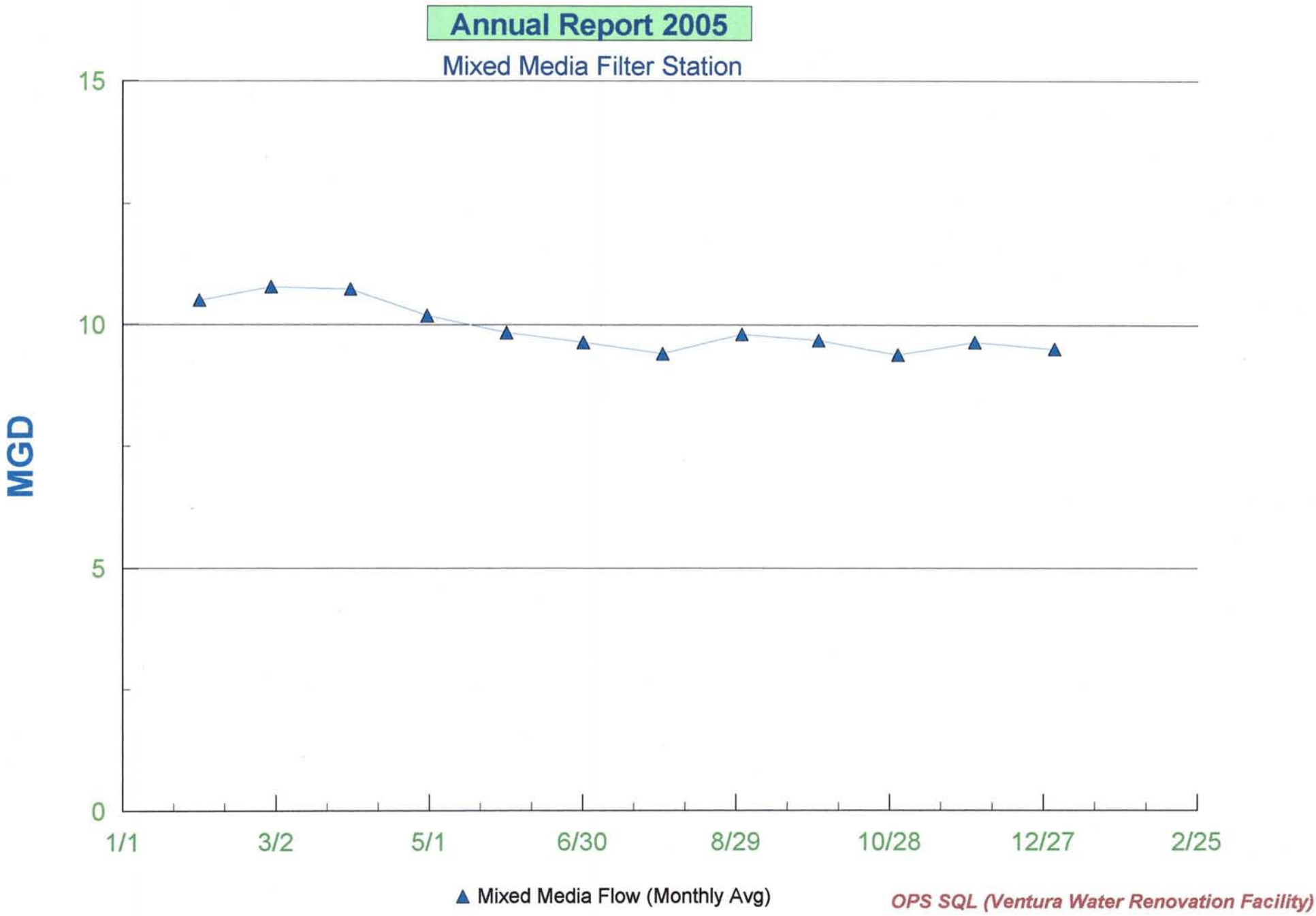

Annual Report 2005
Flow Equalizaton Basin
400
300
200
100
0
mg/l
1/1
3/2
5/1
6/30
8/29
10/28
12/27
2/25
Primary Effluent
BOD (Monthly Avg)
COD (Monthly Avg)
OPS SQL (Ventura Water Renovation Facility)

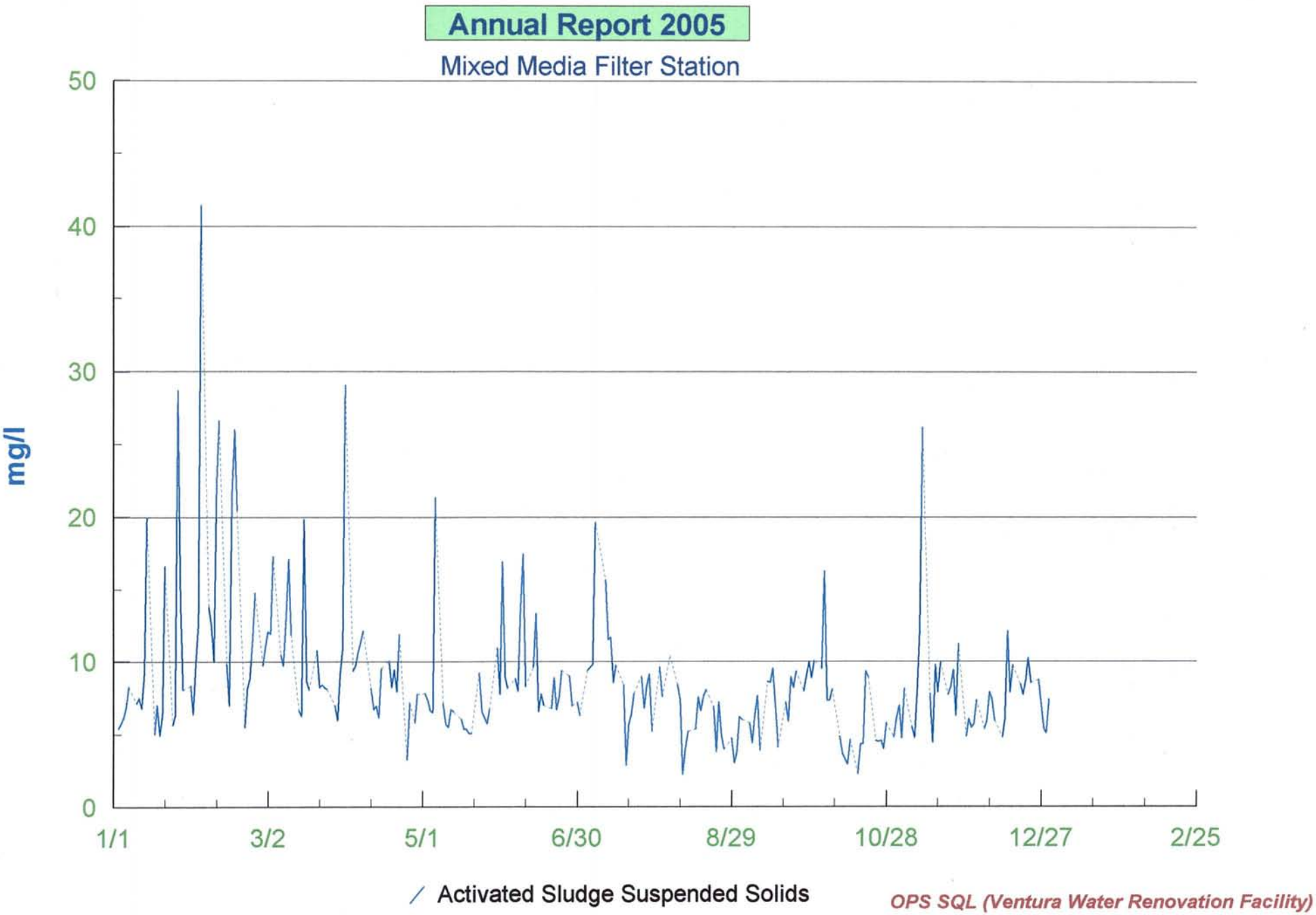

Annual Report 2005
Flow Equalizaton Basin
50
40
30
20
10
0
mg/l
1/1
3/2
5/1
6/30
8/29
10/28
12/27
2/25
Primary Effluent
Ammonia (Monthly Avg)
TKN (Monthly Avg)
OPS SQL (Ventura Water Renovation Facility)

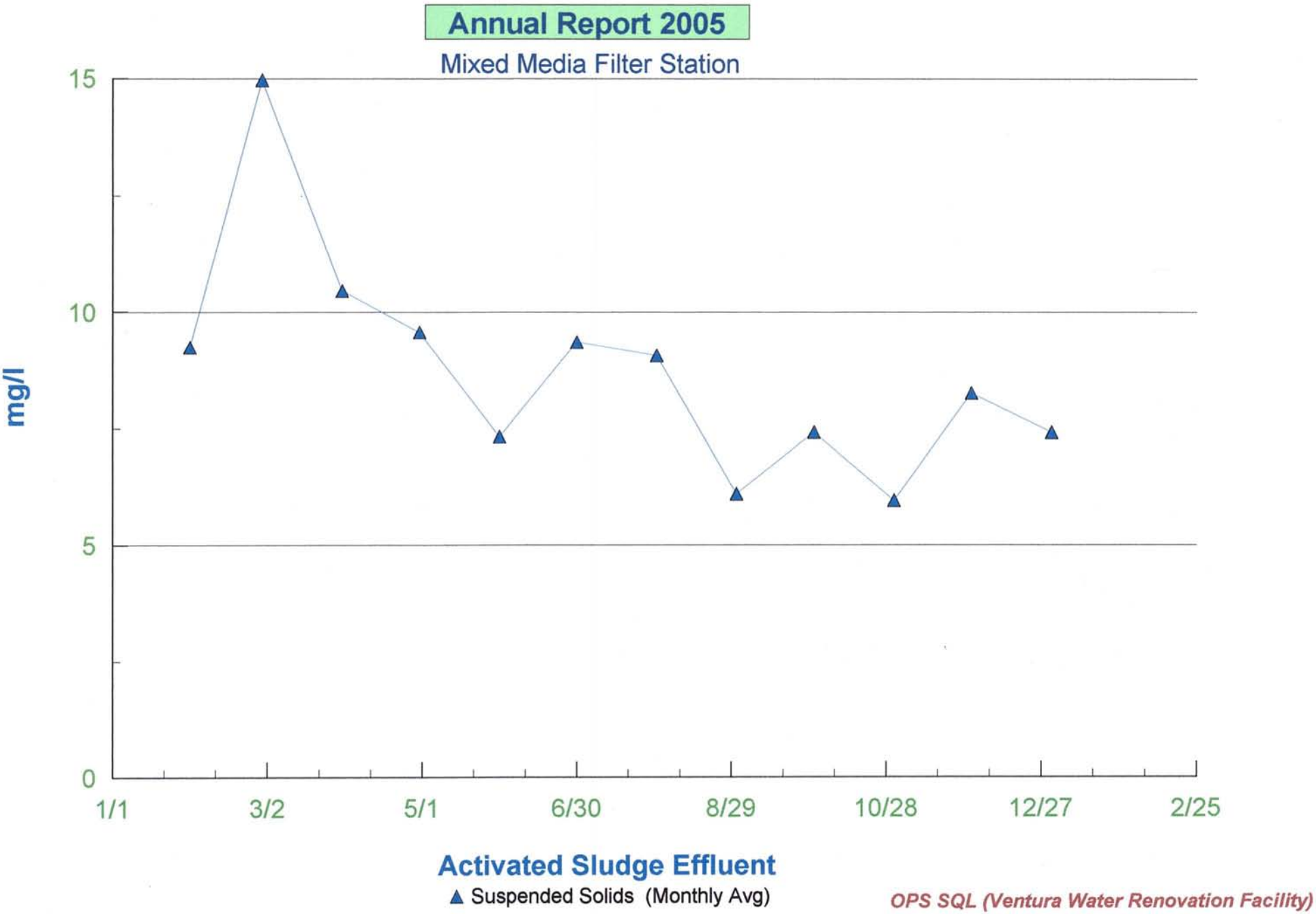


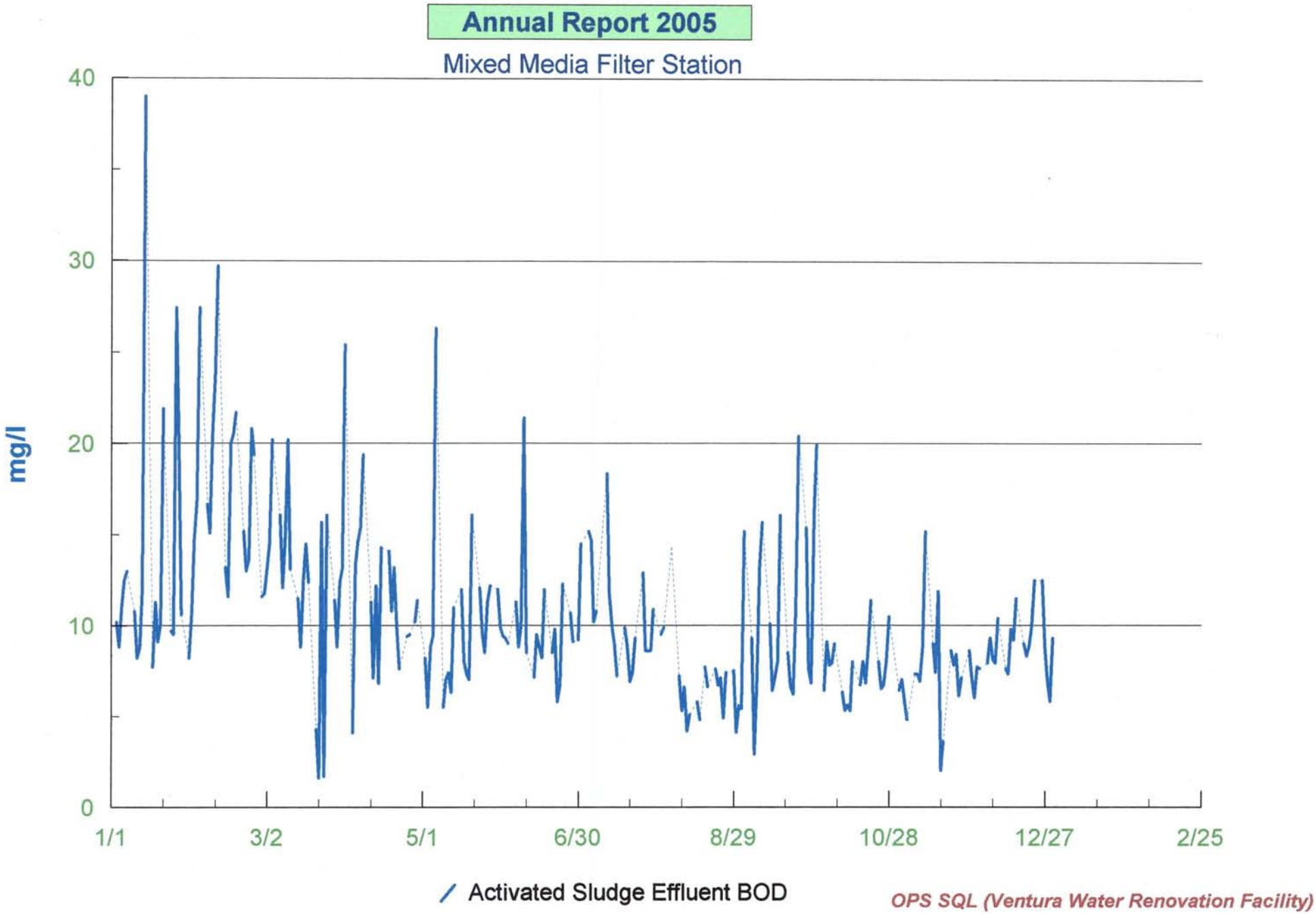
OPS SQL (Ventura Water Renovation Facility)

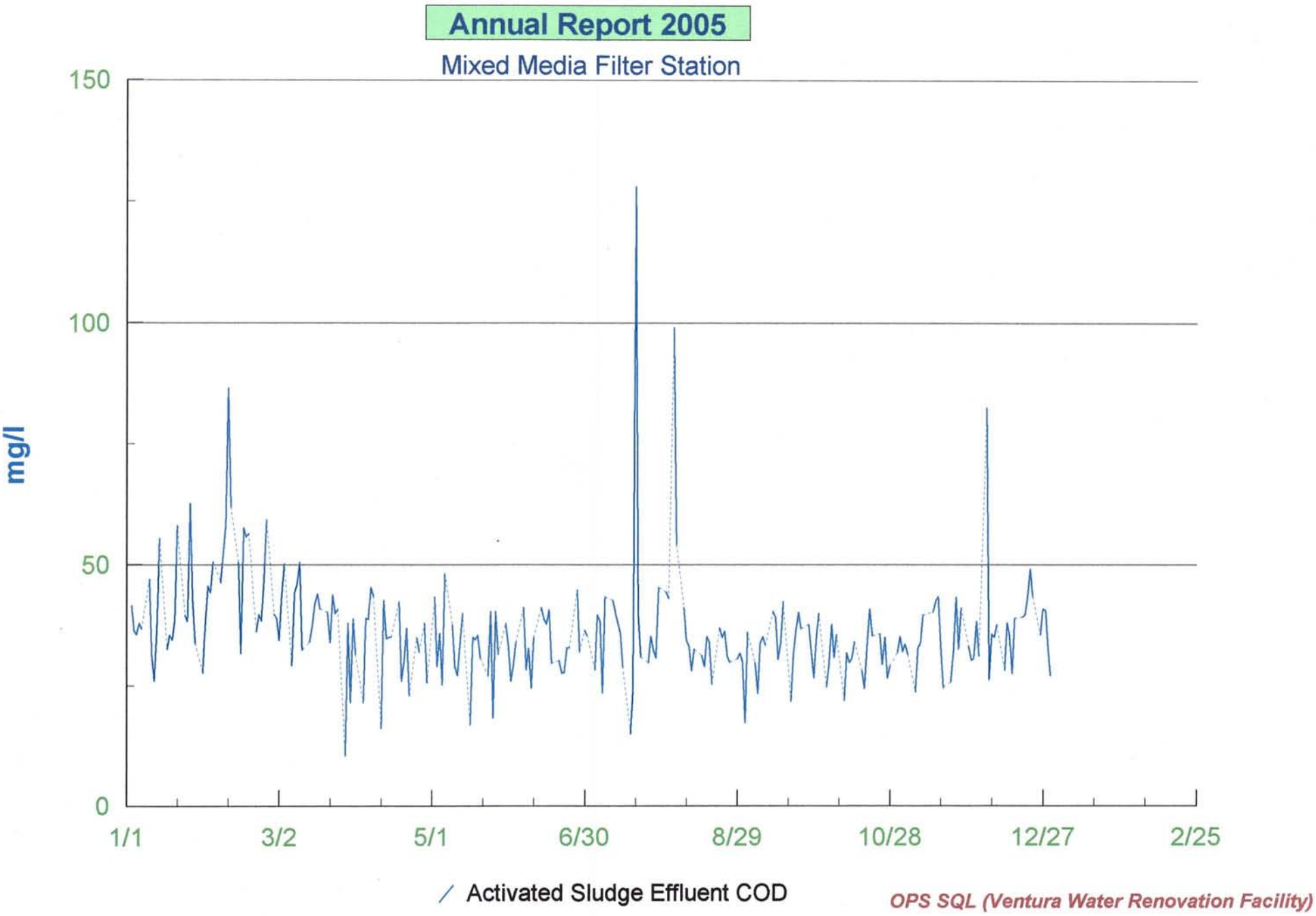

Annual Report 2005
Mixed Media Filter Station
MGD
15
10
5
0
1/1
3/2
5/1
6/30
8/29
10/28
12/27
2/25
Daily Mixed Media Flow
OPS SQL (Ventura Water Renovation Facility)

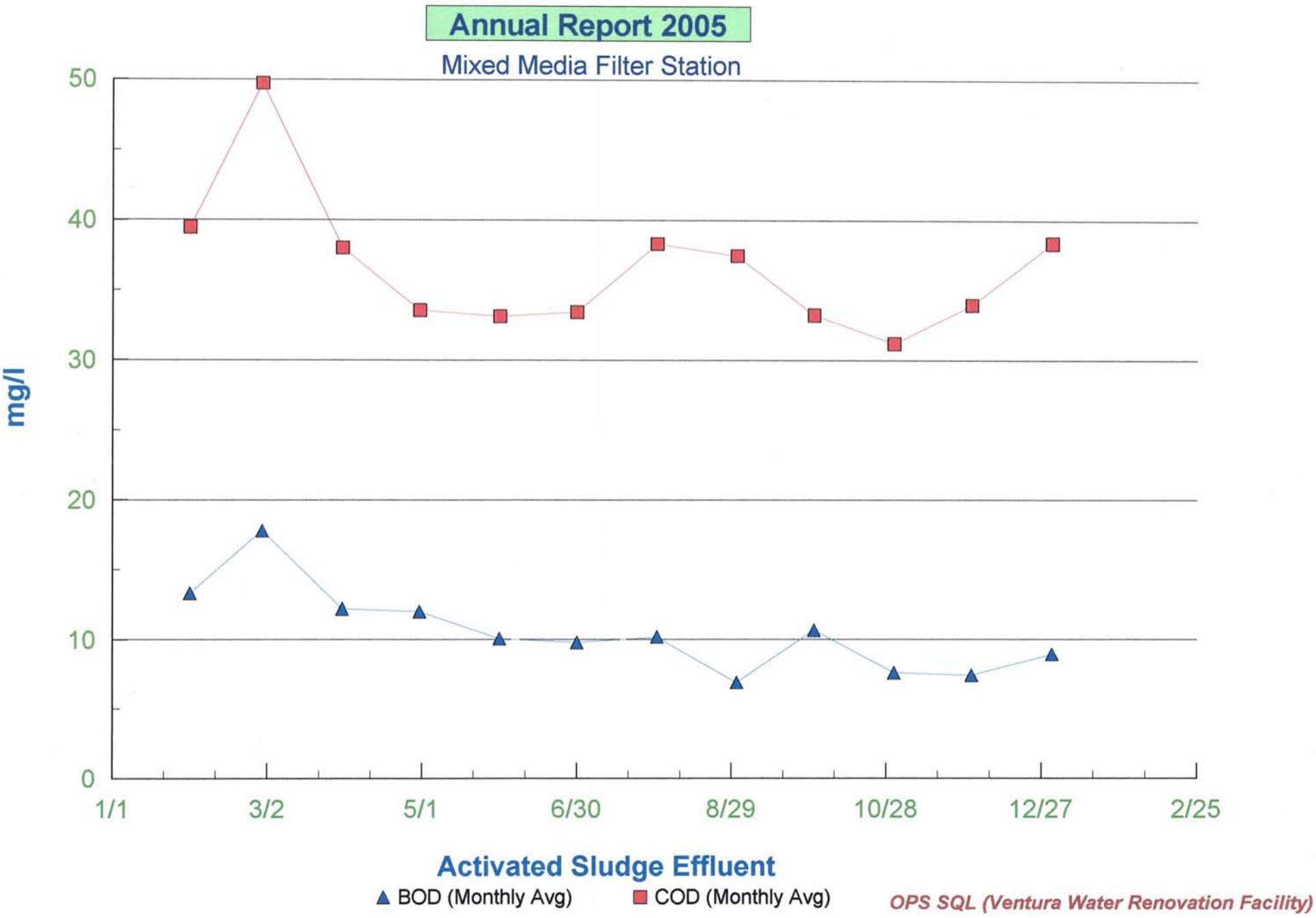

Annual Report 2005
Mixed Media Filter Station
MGD
15
10
5
0
1/1
3/2
5/1
6/30
8/29
10/28
12/27
2/25
Mixed Media Flow (Monthly Avg)
OPS SQL (Ventura Water Renovation Facility)

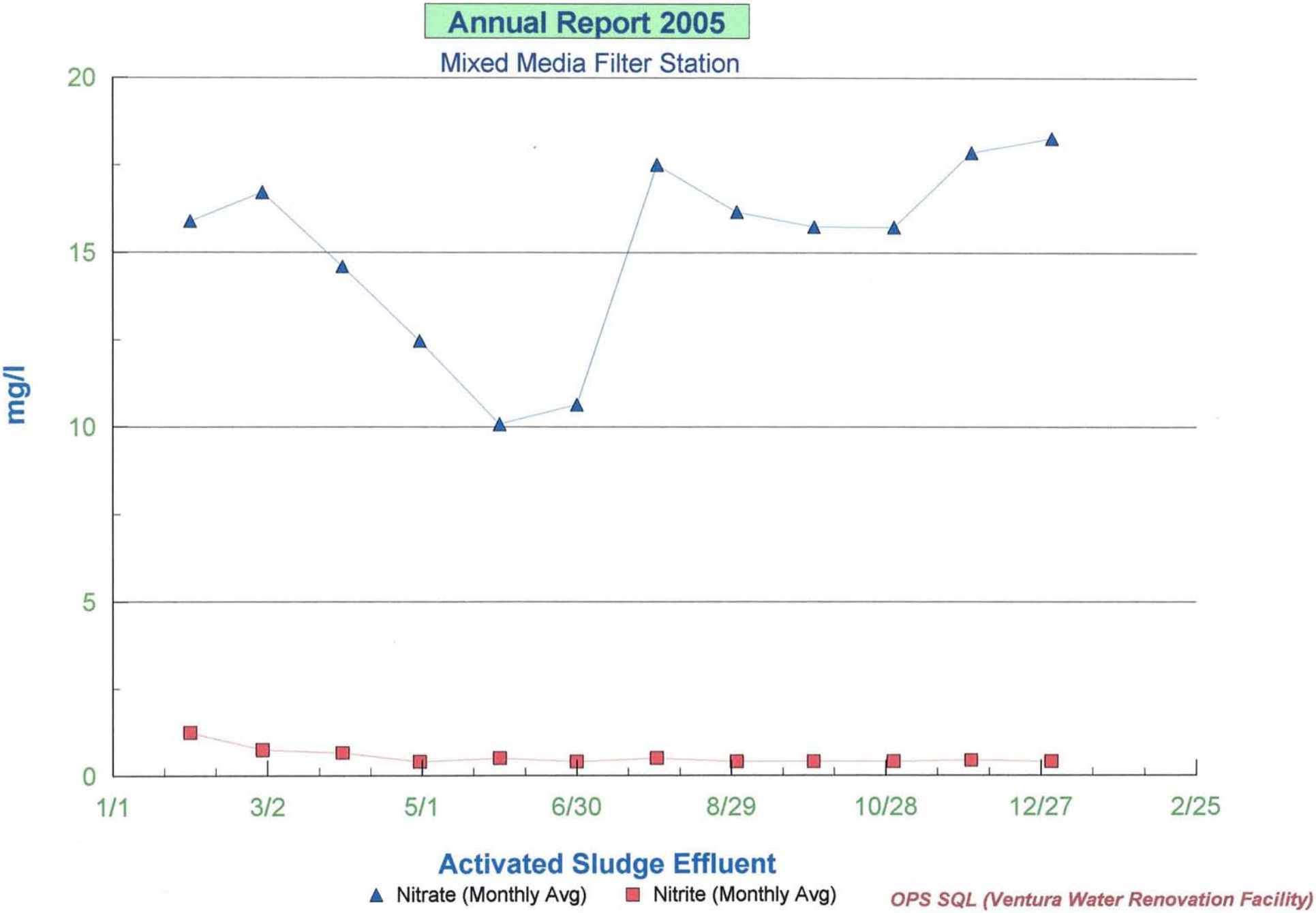

Annual Report 2005
Mixed Media Filter Station
mg/l
50
40
30
20
10
0
1/1
3/2
5/1
6/30
8/29
10/28
12/27
2/25
Activated Sludge Suspended Solids
OPS SQL (Ventura Water Renovation Facility)

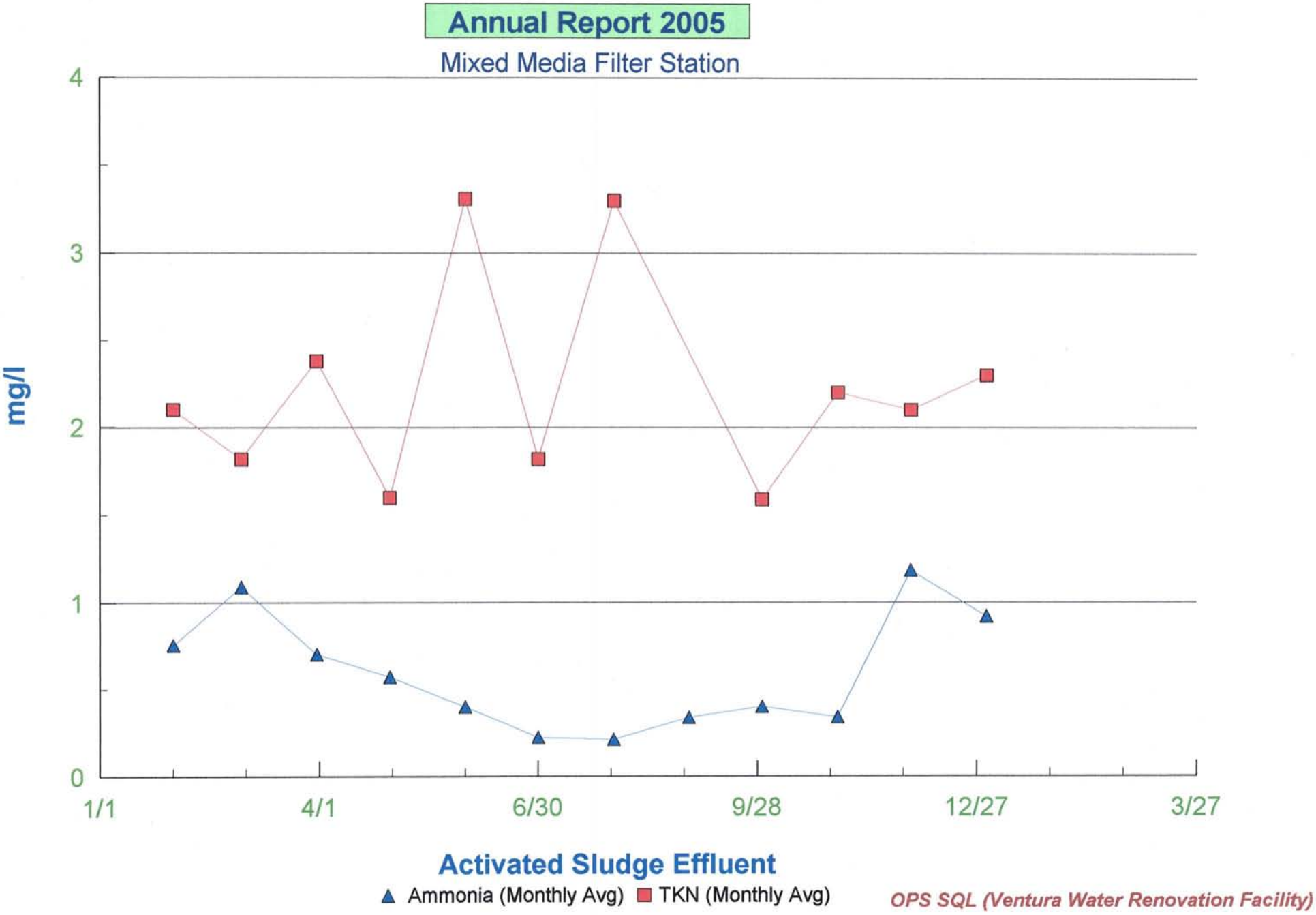

Annual Report 2005
Mixed Media Filter Station
15
10
5
0
mg/l
1/1
3/2
5/1
6/30
8/29
10/28
12/27
2/25
Activated Sludge Effluent
Suspended Solids (Monthly Avg)
OPS SQL (Ventura Water Renovation Facility)

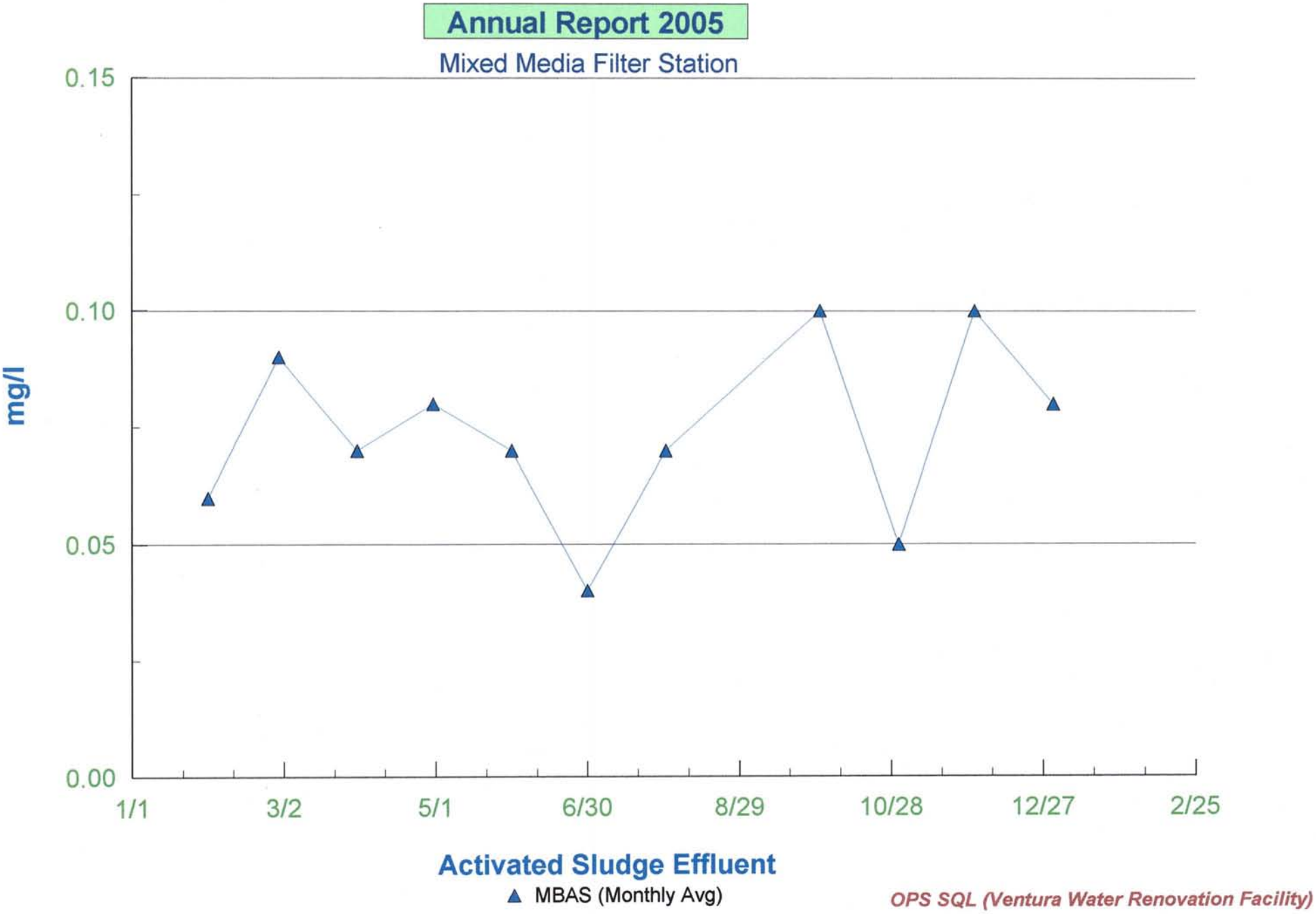

Annual Report 2005
Mixed Media Filter Station
mg/l
40
30
20
10
0
1/1
3/2
5/1
6/30
8/29
10/28
12/27
2/25
Activated Sludge Effluent BOD
OPS SQL (Ventura Water Renovation Facility)

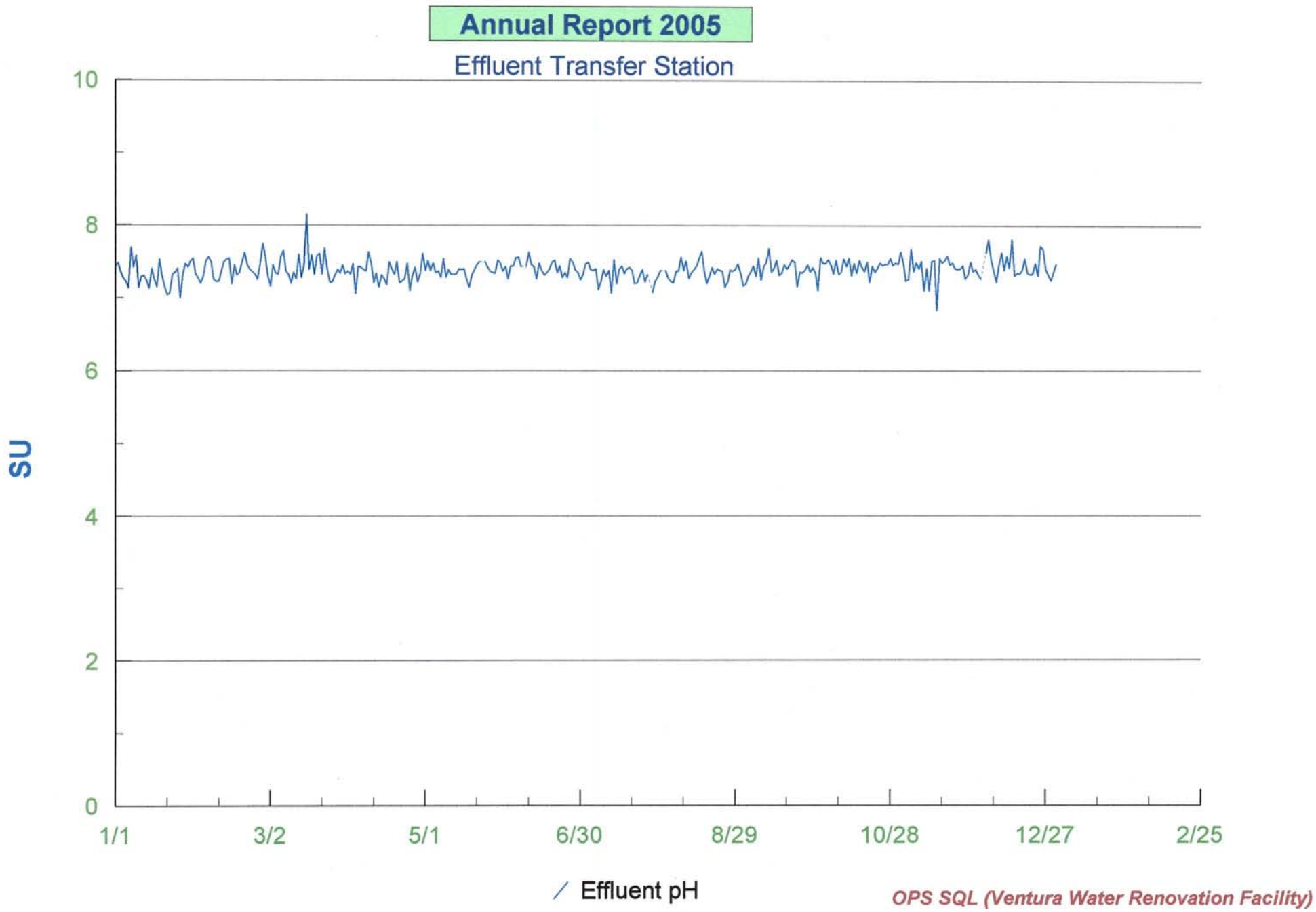

Annual Report 2005
Mixed Media Filter Station
150
100
50
0
mg/l
1/1
3/2
5/1
6/30
8/29
10/28
12/27
2/25
Activated Sludge Effluent COD
OPS SQL (Ventura Water Renovation Facility)

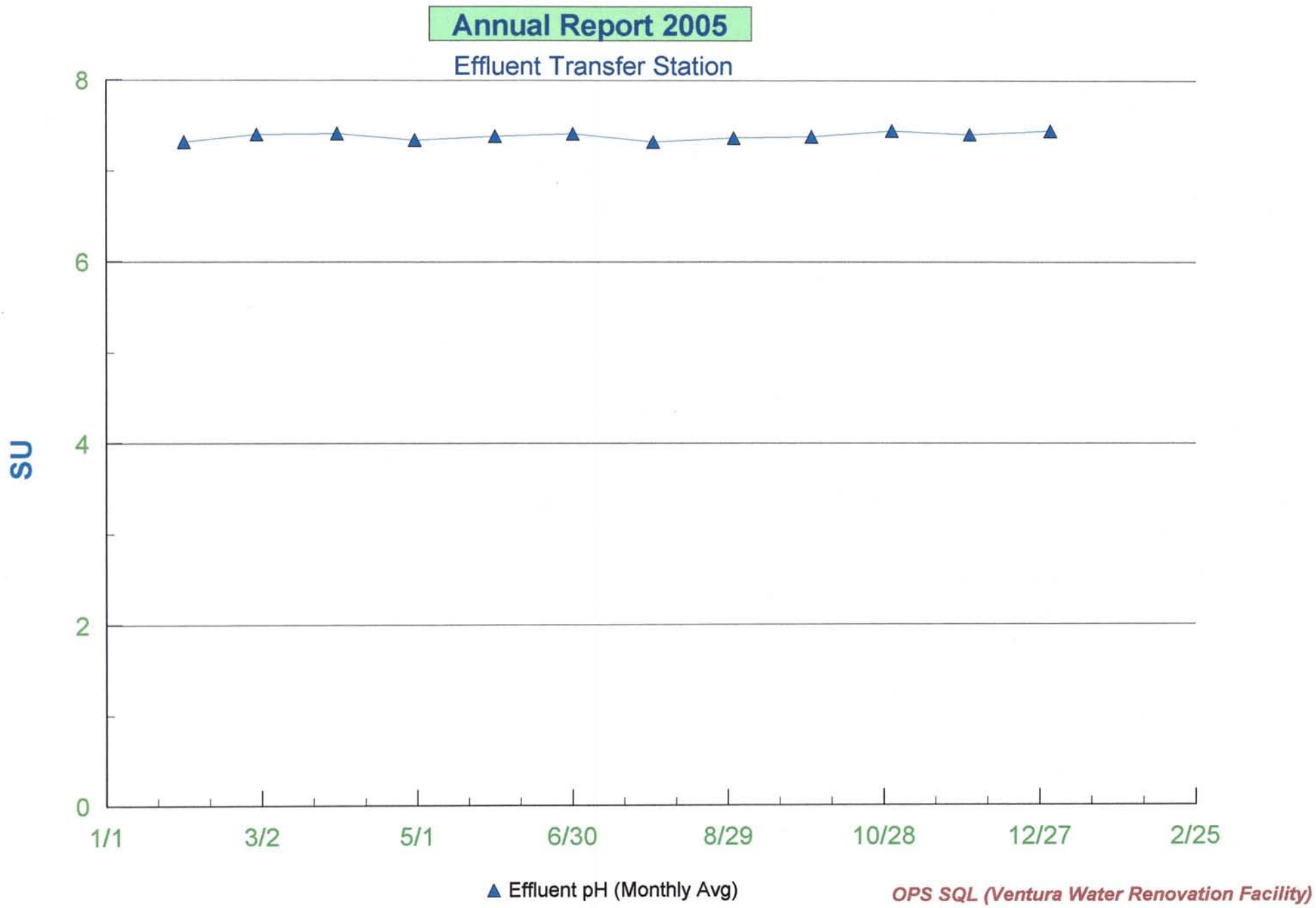

Annual Report 2005
Mixed Media Filter Station
mg/l
50
40
30
20
10
0
1/1
3/2
5/1
6/30
8/29
10/28
12/27
2/25
Activated Sludge Effluent
BOD (Monthly Avg)
COD (Monthly Avg)
OPS SQL (Ventura Water Renovation Facility)

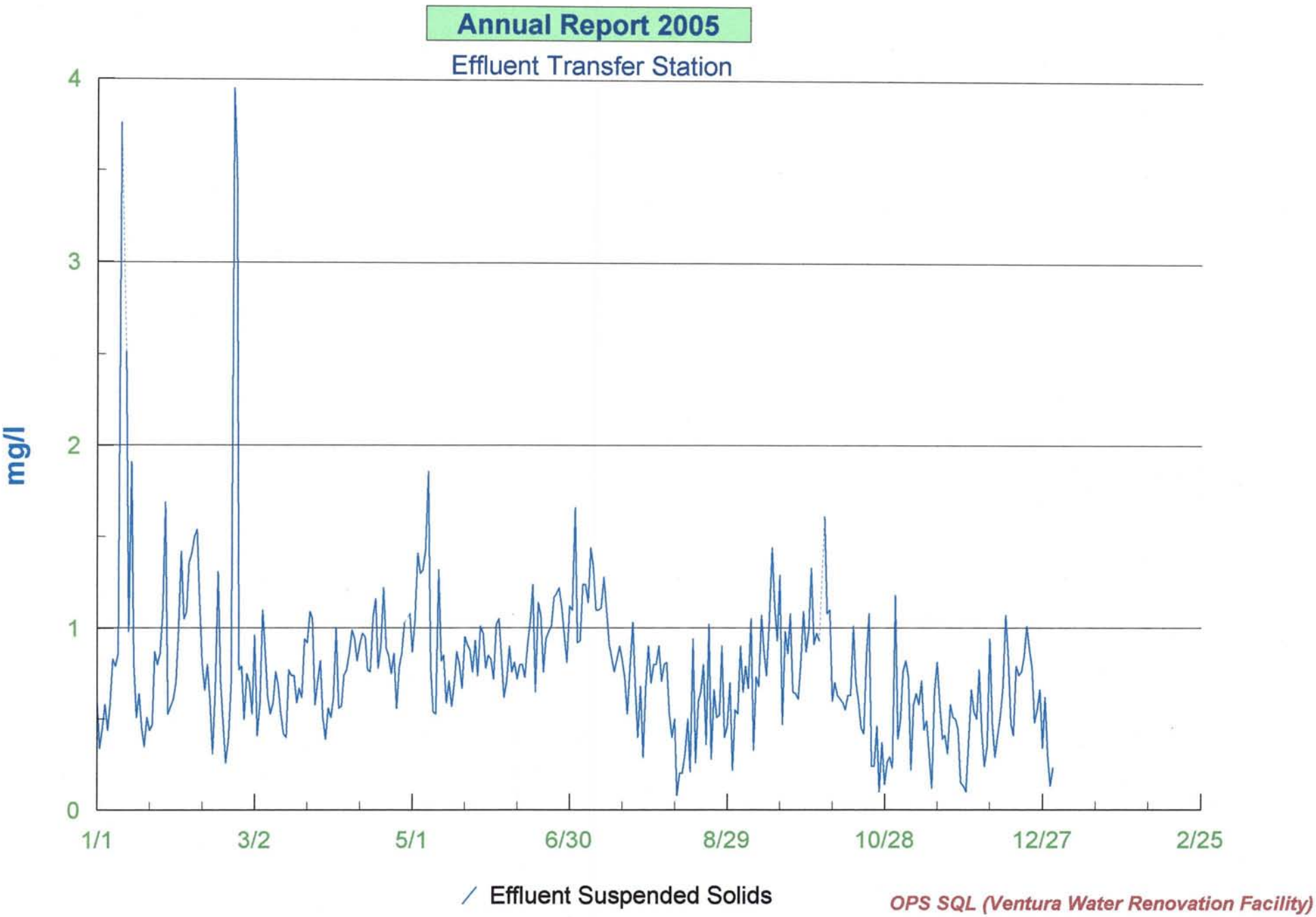

Annual Report 2005
Mixed Media Filter Station
20
15
10
5
0
mg/l
1/1
3/2
5/1
6/30
8/29
10/28
12/27
2/25
Activated Sludge Effluent
Nitrate (Monthly Avg)
Nitrite (Monthly Avg)
OPS SQL (Ventura Water Renovation Facility)

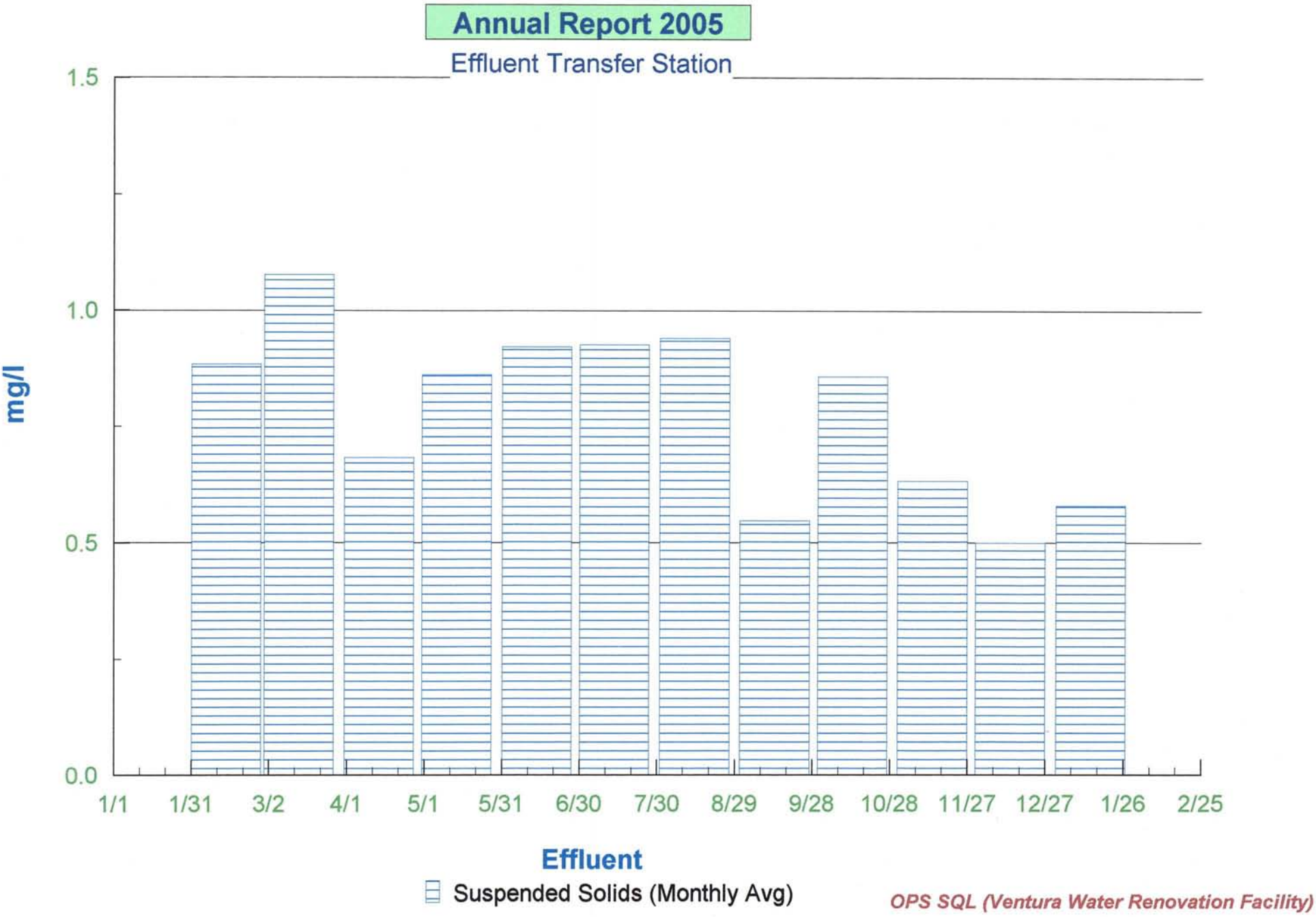

Annual Report 2005
Mixed Media Filter Station
mg/l
4
3
2
1
0
1/1
4/1
6/30
9/28
12/27
3/27
Activated Sludge Effluent
Ammonia (Monthly Avg)
TKN (Monthly Avg)
OPS SQL (Ventura Water Renovation Facility)

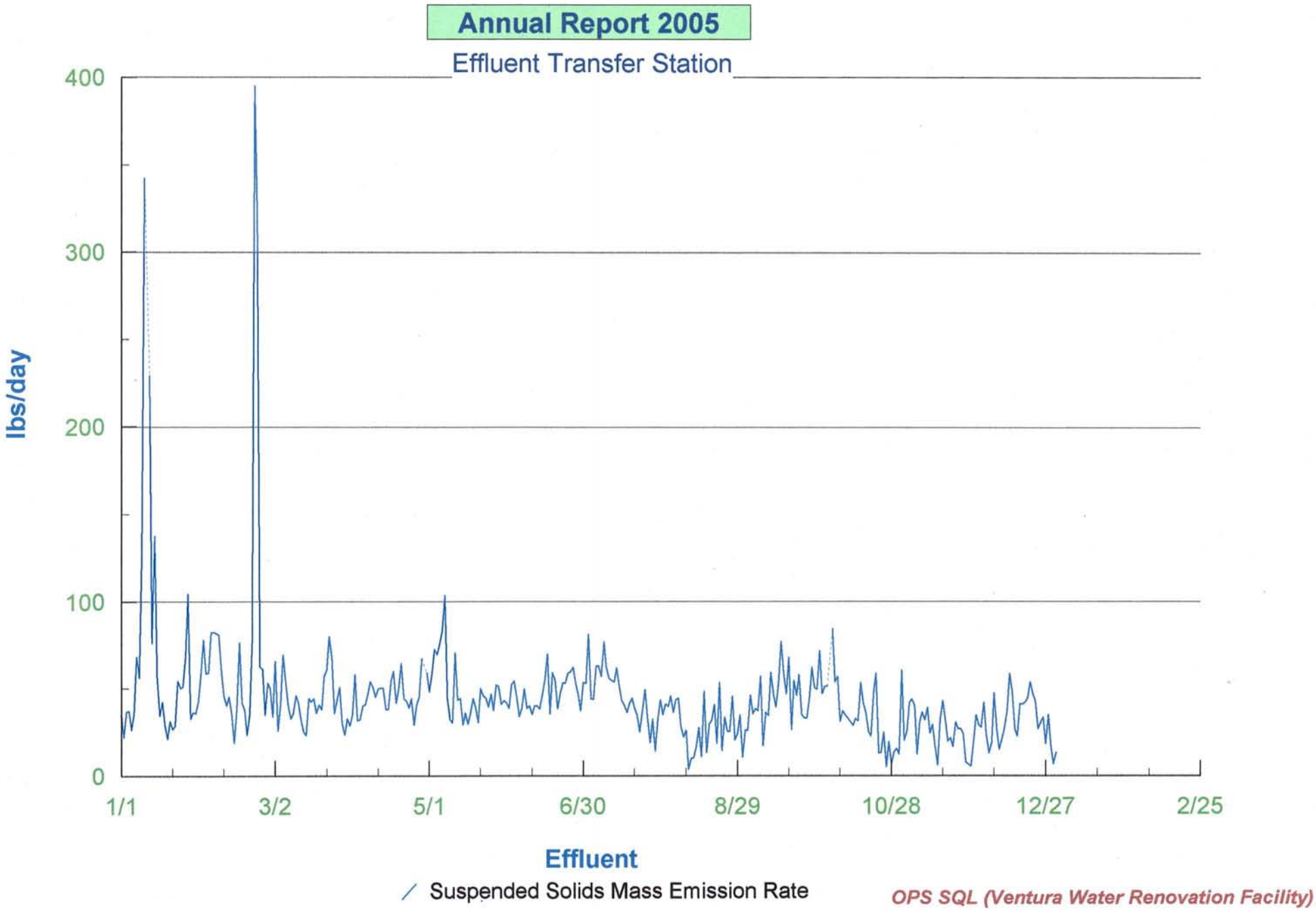

Annual Report 2005
Mixed Media Filter Station
0.15
0.10
0.05
0.00
mg/l
1/1
3/2
5/1
6/30
8/29
10/28
12/27
2/25
Activated Sludge Effluent
MBAS (Monthly Avg)
OPS SQL (Ventura Water Renovation Facility)

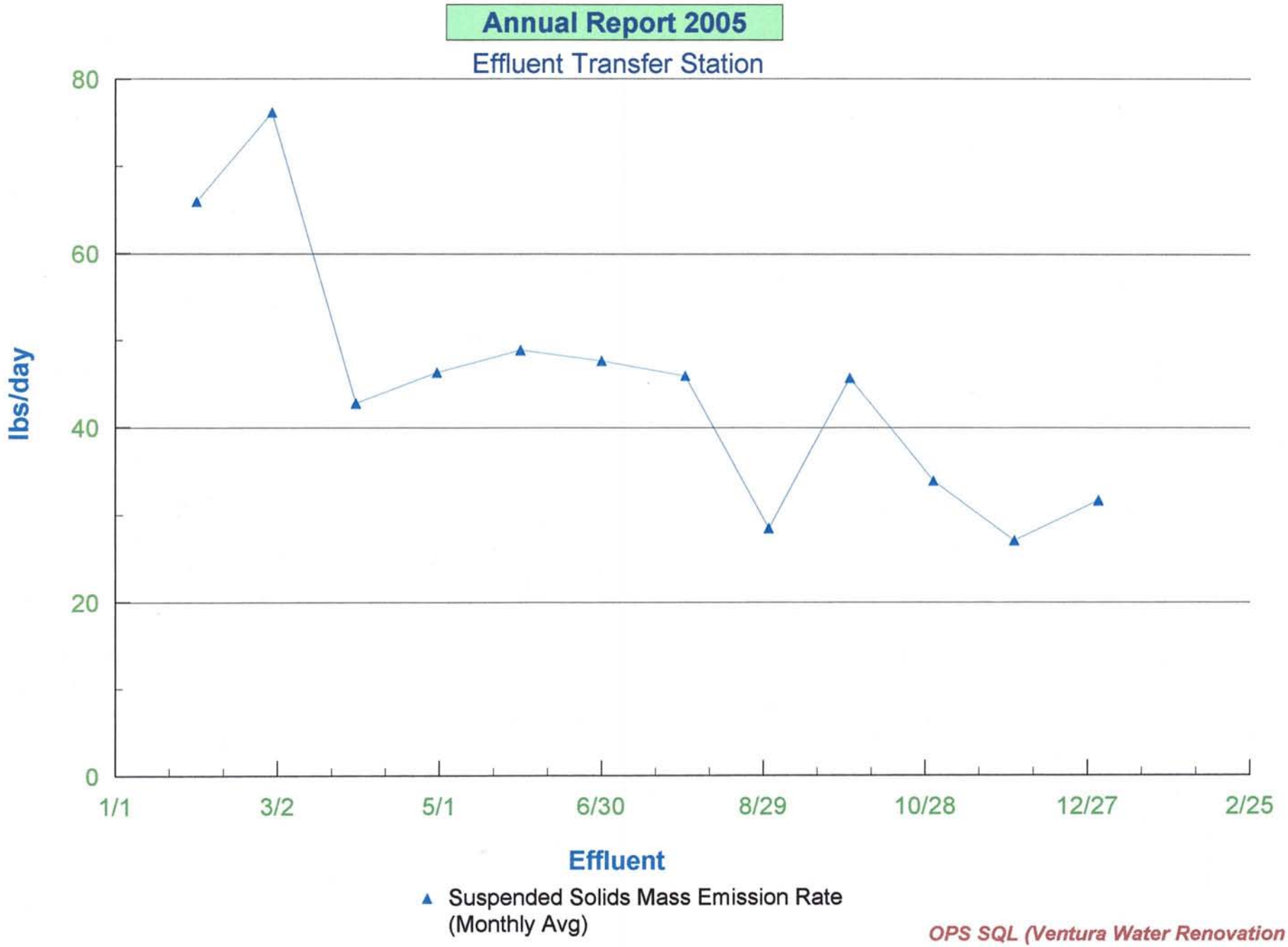

Annual Report 2005
Effluent Transfer Station
SU
10
8
6
4
2
0
1/1
3/2
5/1
6/30
8/29
10/28
12/27
2/25
Effluent pH
OPS SQL (Ventura Water Renovation Facility)


Annual Report 2005
Effluent Transfer Station
SU
8
6
4
2
0
1/1
3/2
5/1
6/30
8/29
10/28
12/27
2/25
Effluent pH (Monthly Avg)
OPS SQL (Ventura Water Renovation Facility)

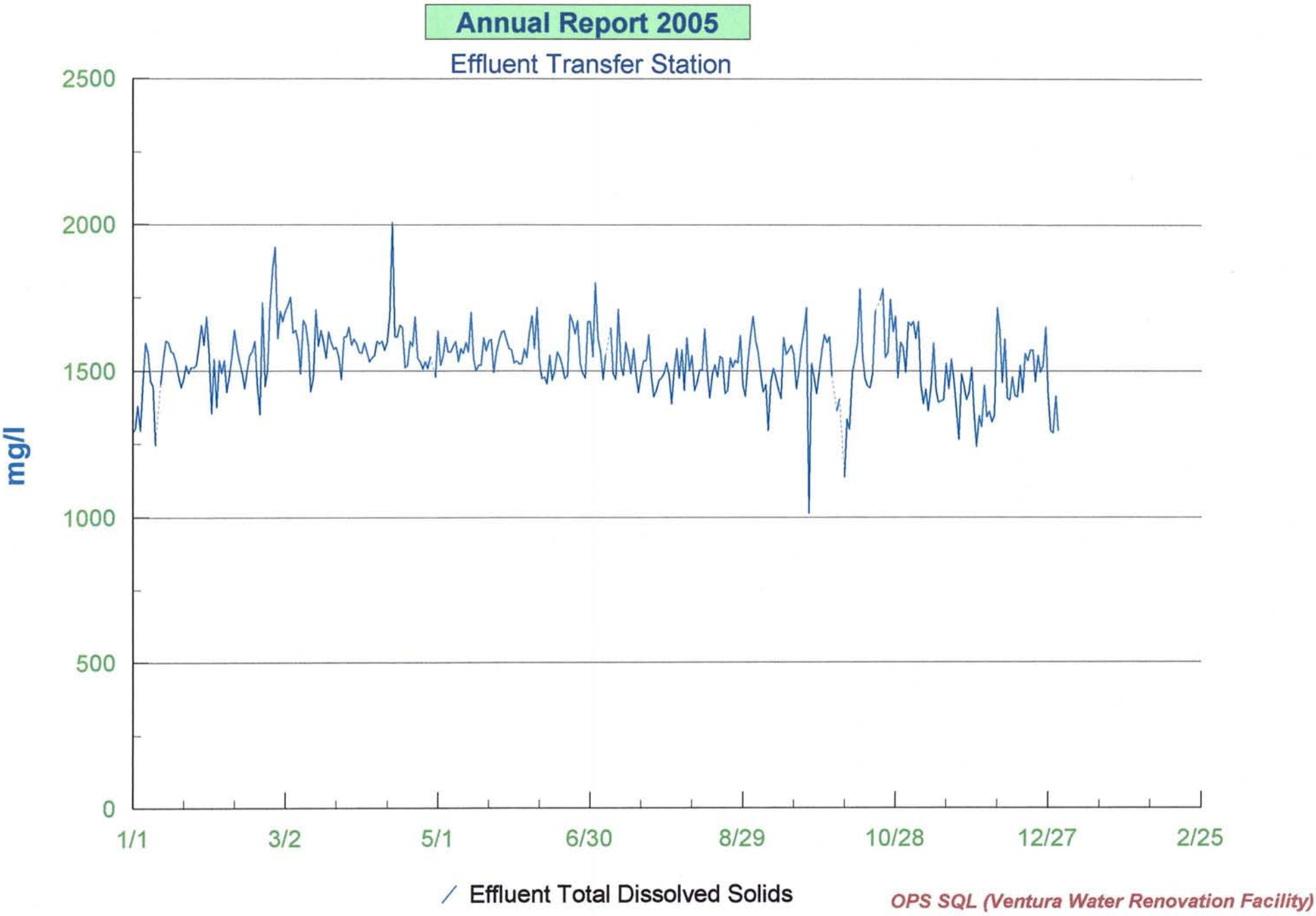

Annual Report 2005
Effluent Transfer Station
mg/l
4
3
2
1
0
1/1
3/2
5/1
6/30
8/29
10/28
12/27
2/25
Effluent Suspended Solids
OPS SQL (Ventura Water Renovation Facility)

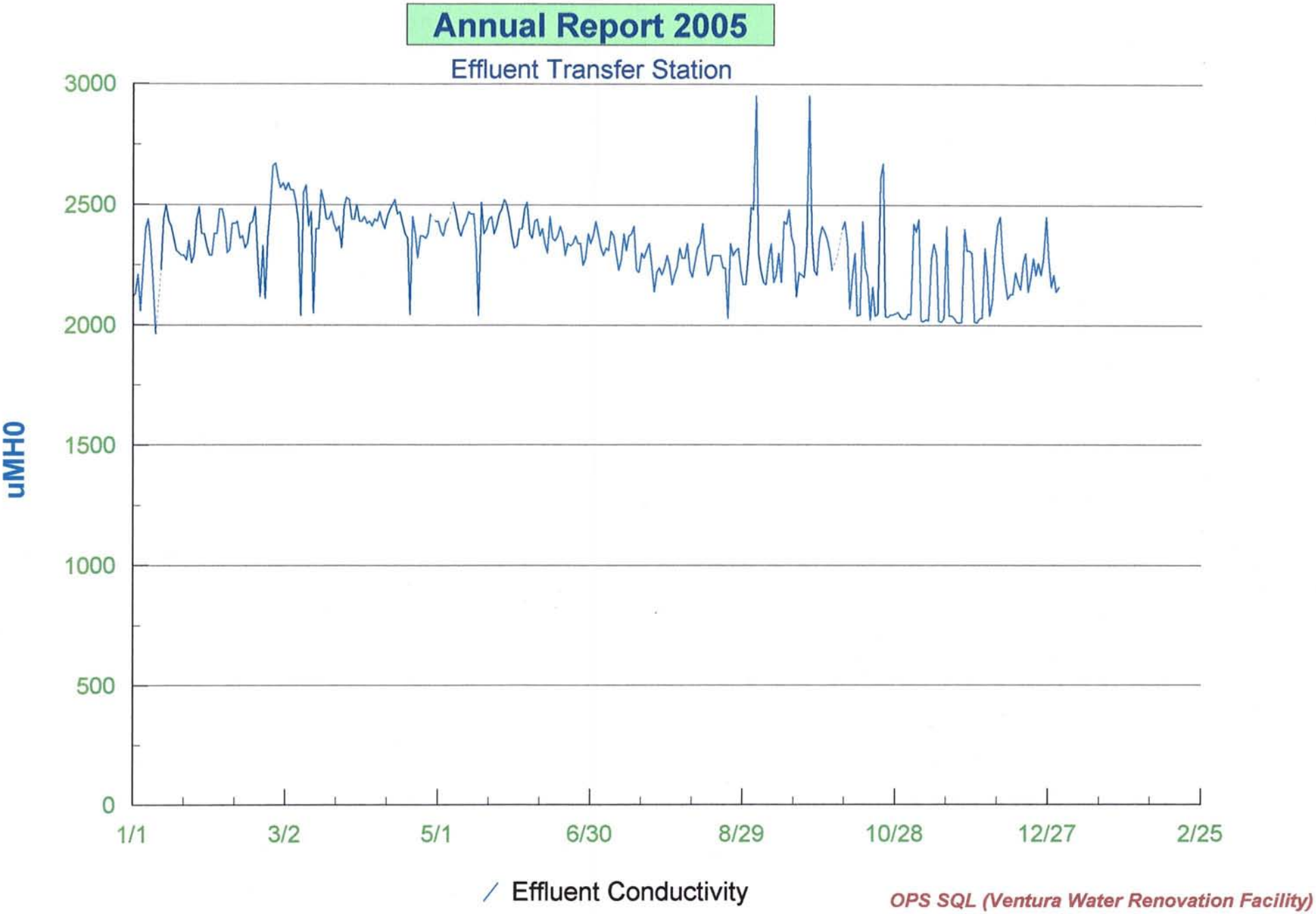

Annual Report 2005
Effluent Transfer Station
1.5
1.0
0.5
0.0
mg/l
1/1
1/31
3/2
4/1
5/1
5/31
6/30
7/30
8/29
9/28
10/28
11/27
12/27
1/26
2/25
Effluent
Suspended Solids (Monthly Avg)
OPS SQL (Ventura Water Renovation Facility)

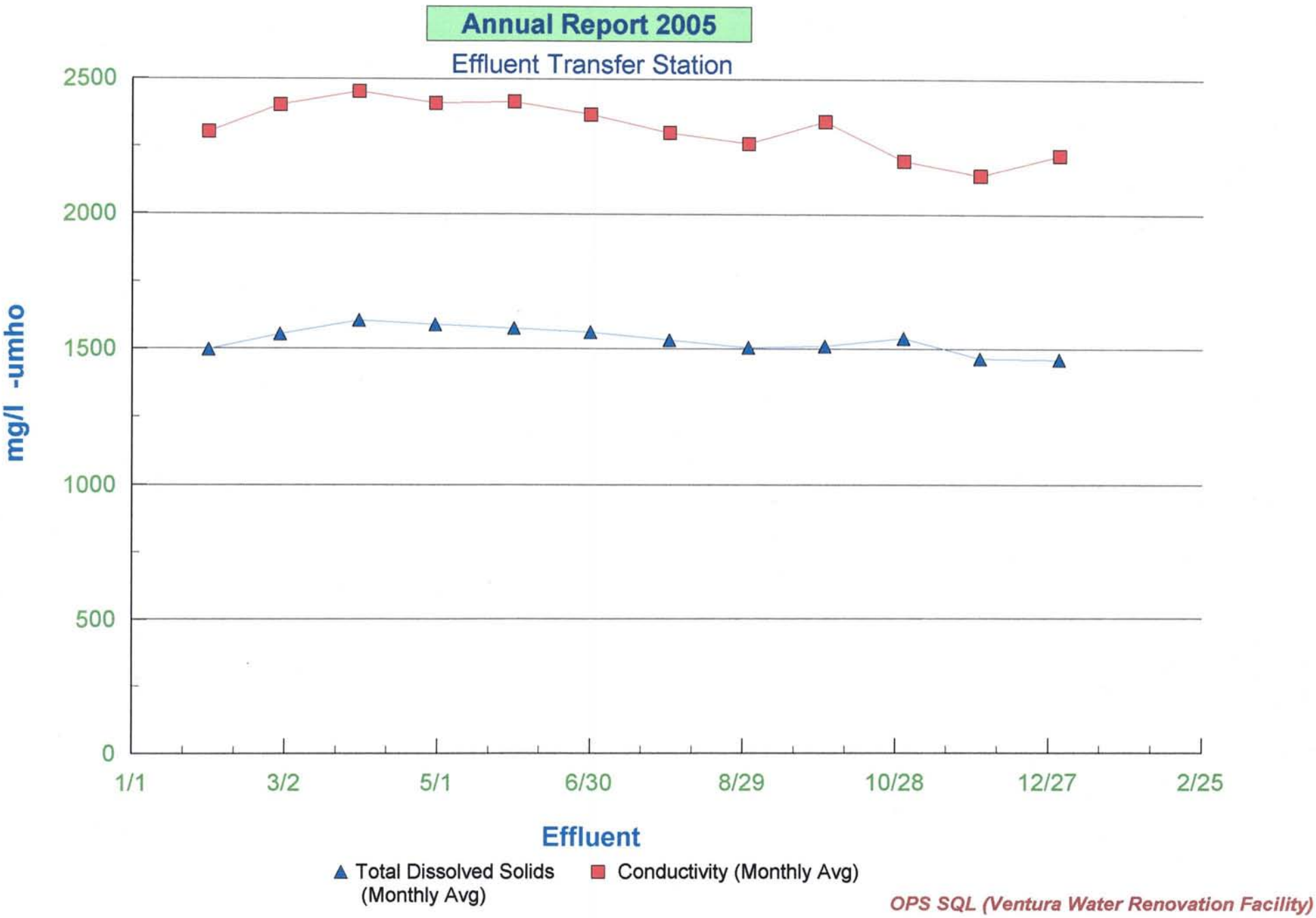

Annual Report 2005
Effluent Transfer Station
400
300
200
100
0
lbs/day
1/1
3/2
5/1
6/30
8/29
10/28
12/27
2/25
Effluent
Suspended Solids Mass Emission Rate
OPS SQL (Ventura Water Renovation Facility)

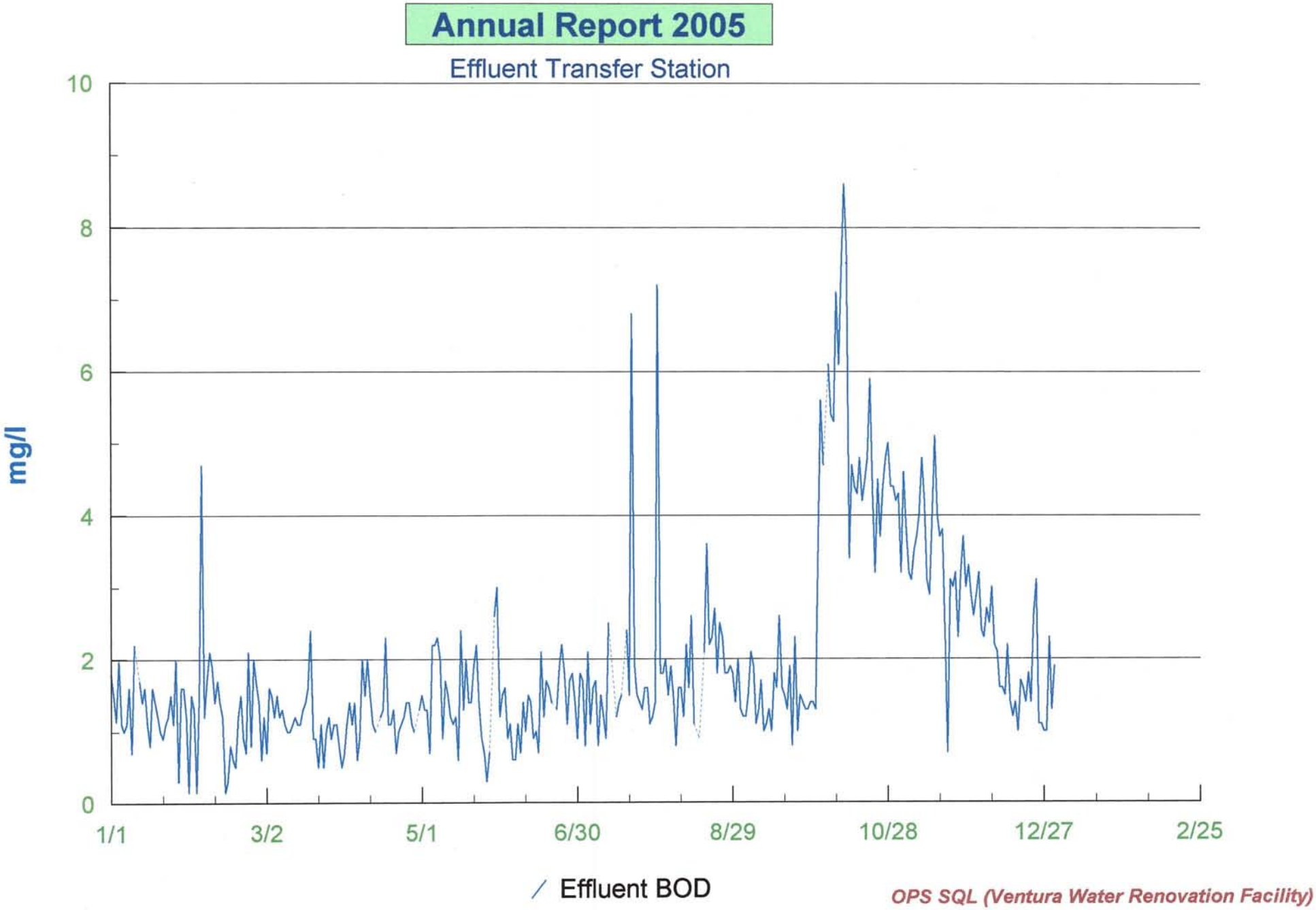


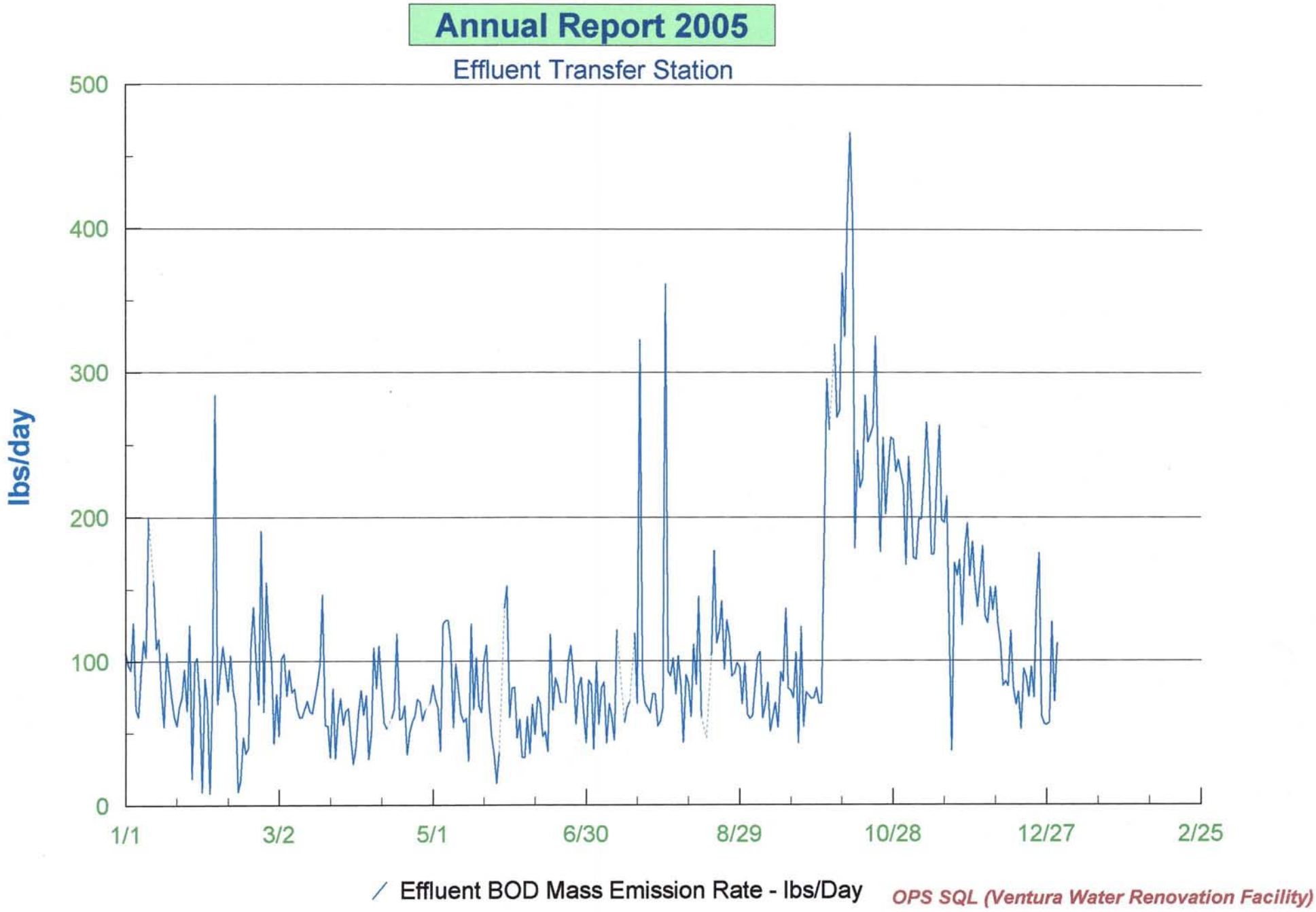
OPS SQL (Ventura Water Renovation Facility)

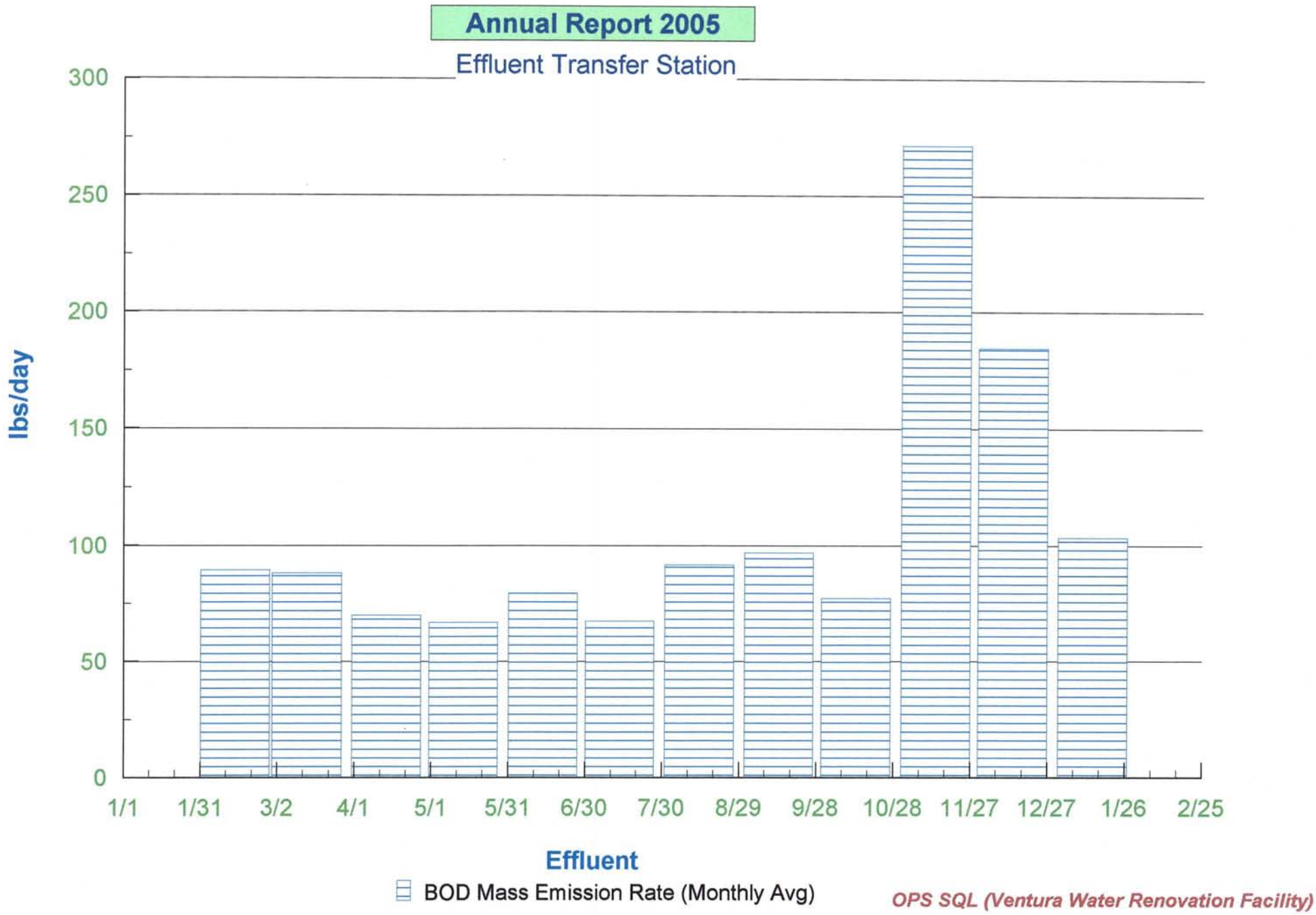

Annual Report 2005
Effluent Transfer Station
2500
2000
1500
1000
500
0
mg/l
1/1
3/2
5/1
6/30
8/29
10/28
12/27
2/25
Effluent Total Dissolved Solids
OPS SQL (Ventura Water Renovation Facility)

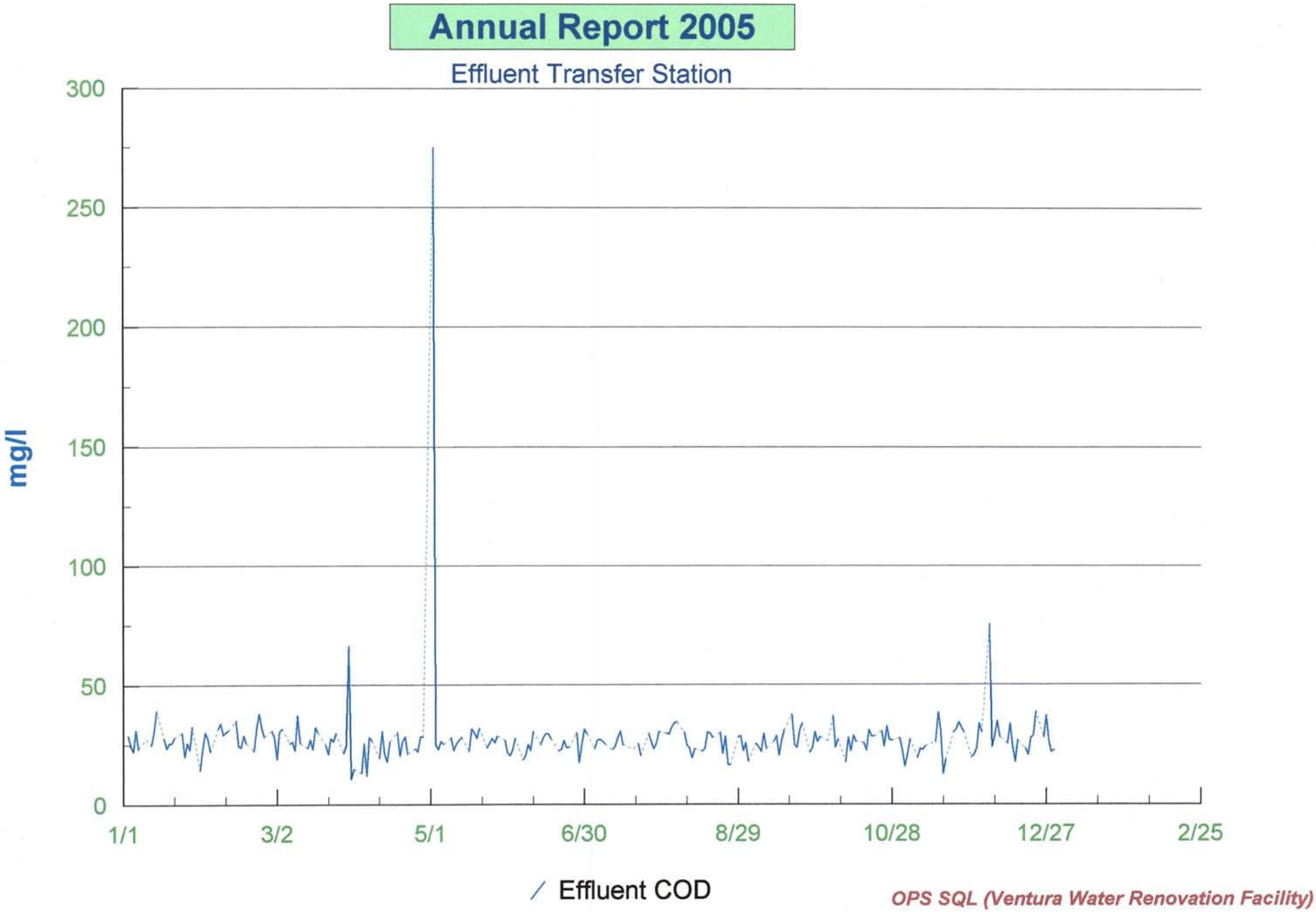

Annual Report 2005
Effluent Transfer Station
uMH0
3000
2500
2000
1500
1000
500
0
1/1
3/2
5/1
6/30
8/29
10/28
12/27
2/25
Effluent Conductivity
OPS SQL (Ventura Water Renovation Facility)

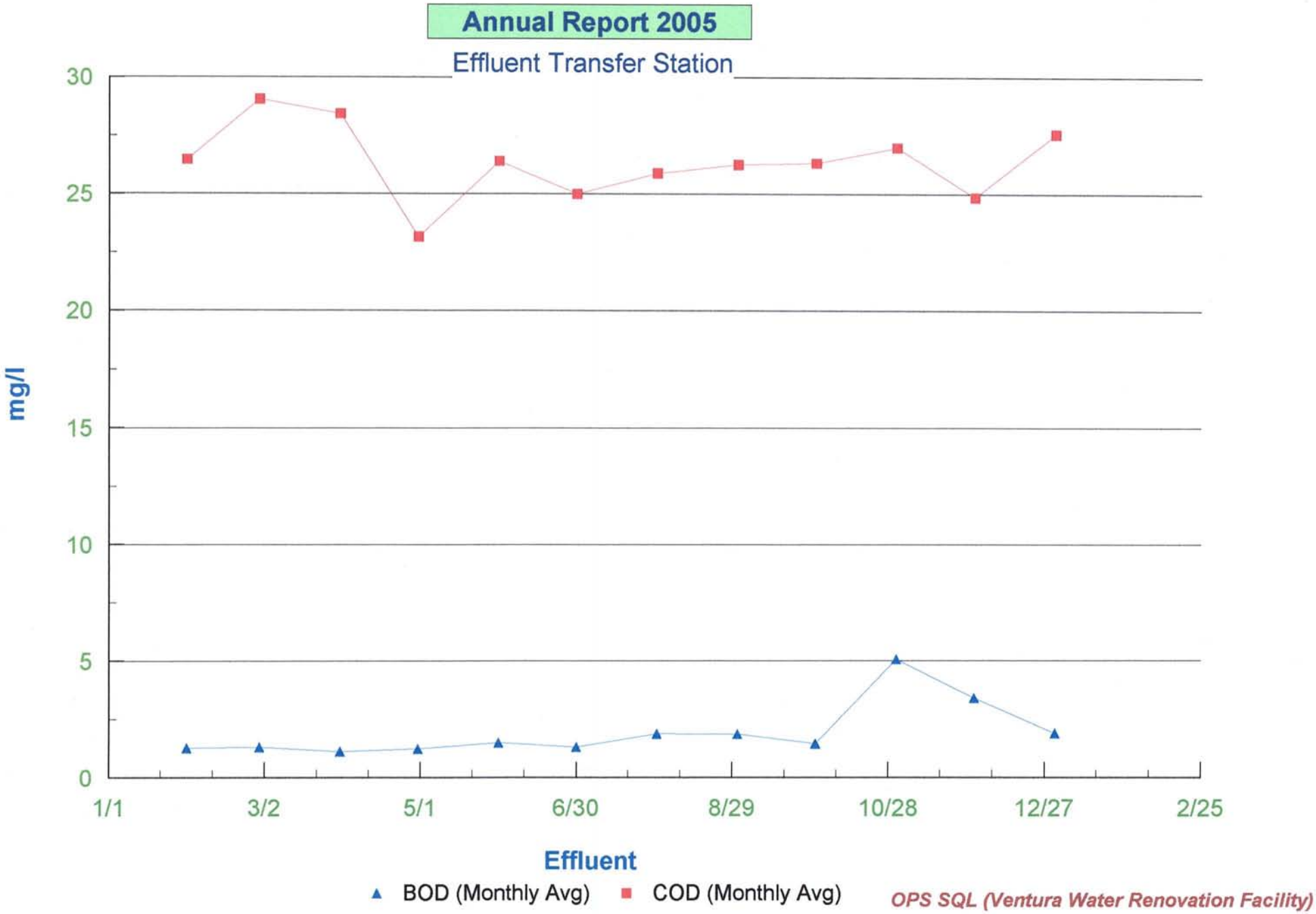

Annual Report 2005
Effluent Transfer Station
2500
2000
1500
1000
500
0
mg/l -umho
1/1
3/2
5/1
6/30
8/29
10/28
12/27
2/25
Effluent
Total Dissolved Solids (Monthly Avg)
Conductivity (Monthly Avg)
OPS SQL (Ventura Water Renovation Facility)

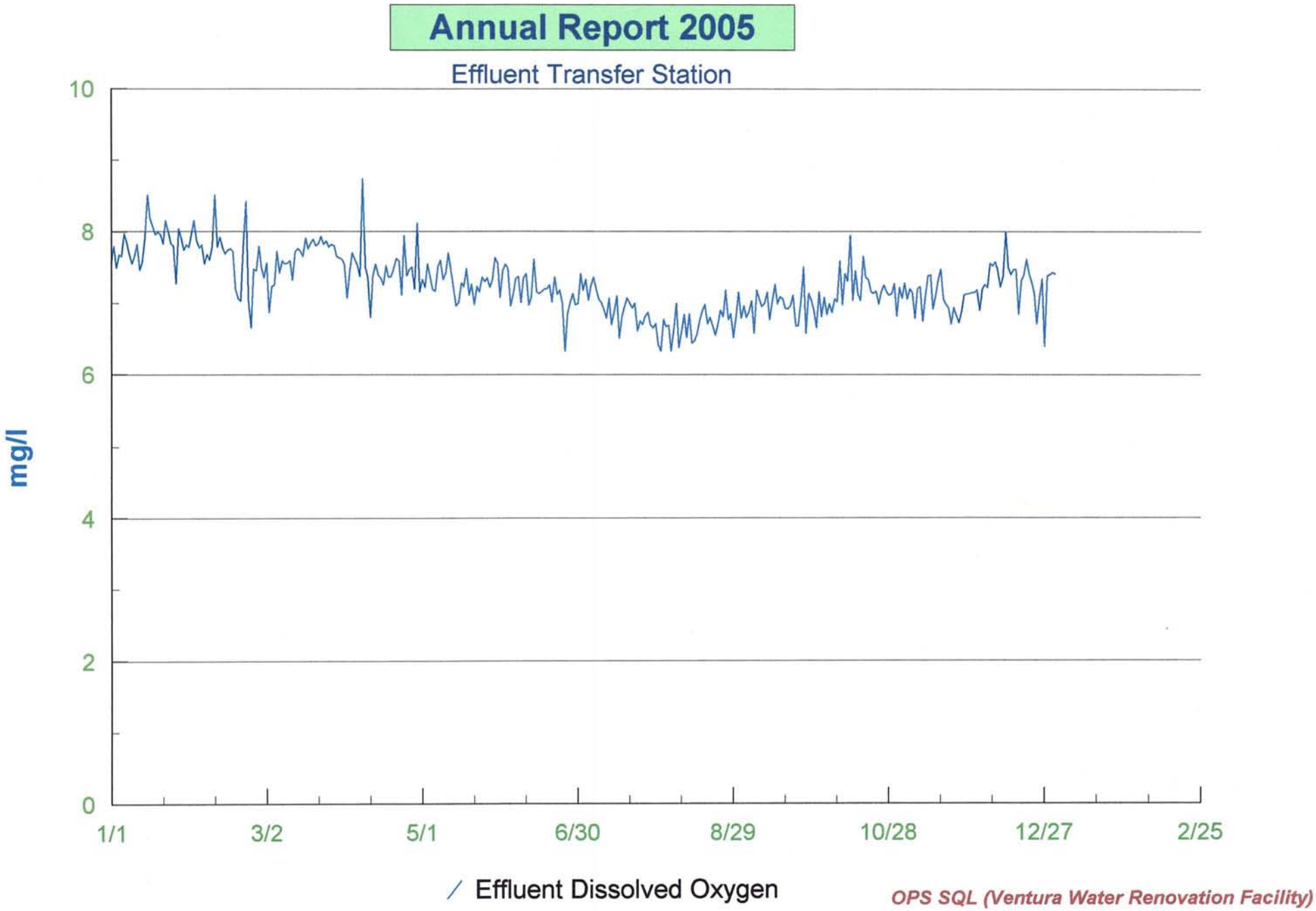

Annual Report 2005
Effluent Transfer Station
mg/l
10
8
6
4
2
0
1/1
3/2
5/1
6/30
8/29
10/28
12/27
2/25
Effluent BOD
OPS SQL (Ventura Water Renovation Facility)

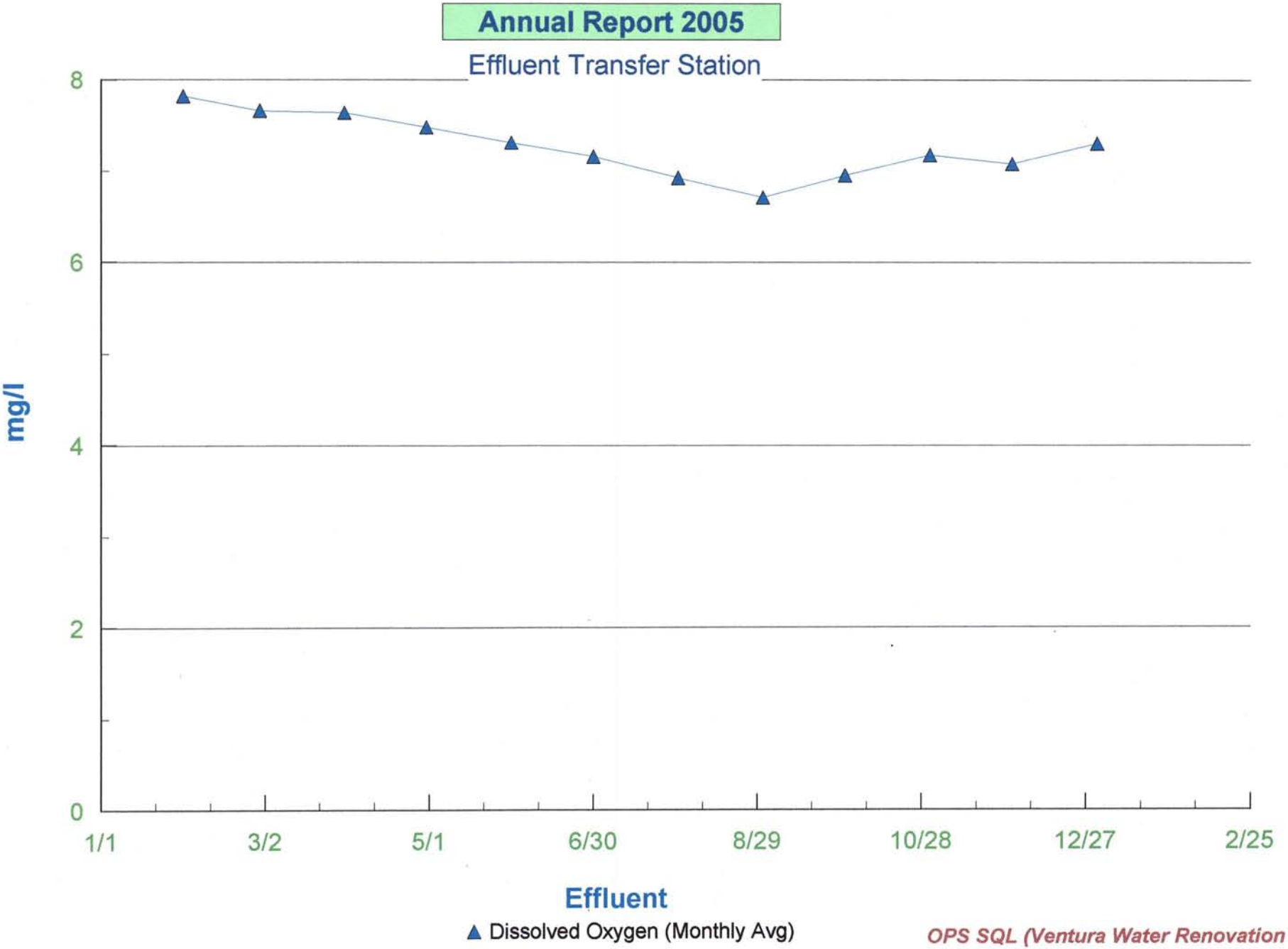

Annual Report 2005
Effluent Transfer Station
lbs/day
500
400
300
200
100
0
1/1
3/2
5/1
6/30
8/29
10/28
12/27
2/25
Effluent BOD Mass Emission Rate - lbs/Day
OPS SQL (Ventura Water Renovation Facility)


Annual Report 2005
Effluent Transfer Station
lbs/day
300
250
200
150
100
50
0
1/1
1/31
3/2
4/1
5/1
5/31
6/30
7/30
8/29
9/28
10/28
11/27
12/27
1/26
2/25
Effluent
BOD Mass Emission Rate (Monthly Avg)
OPS SQL (Ventura Water Renovation Facility)

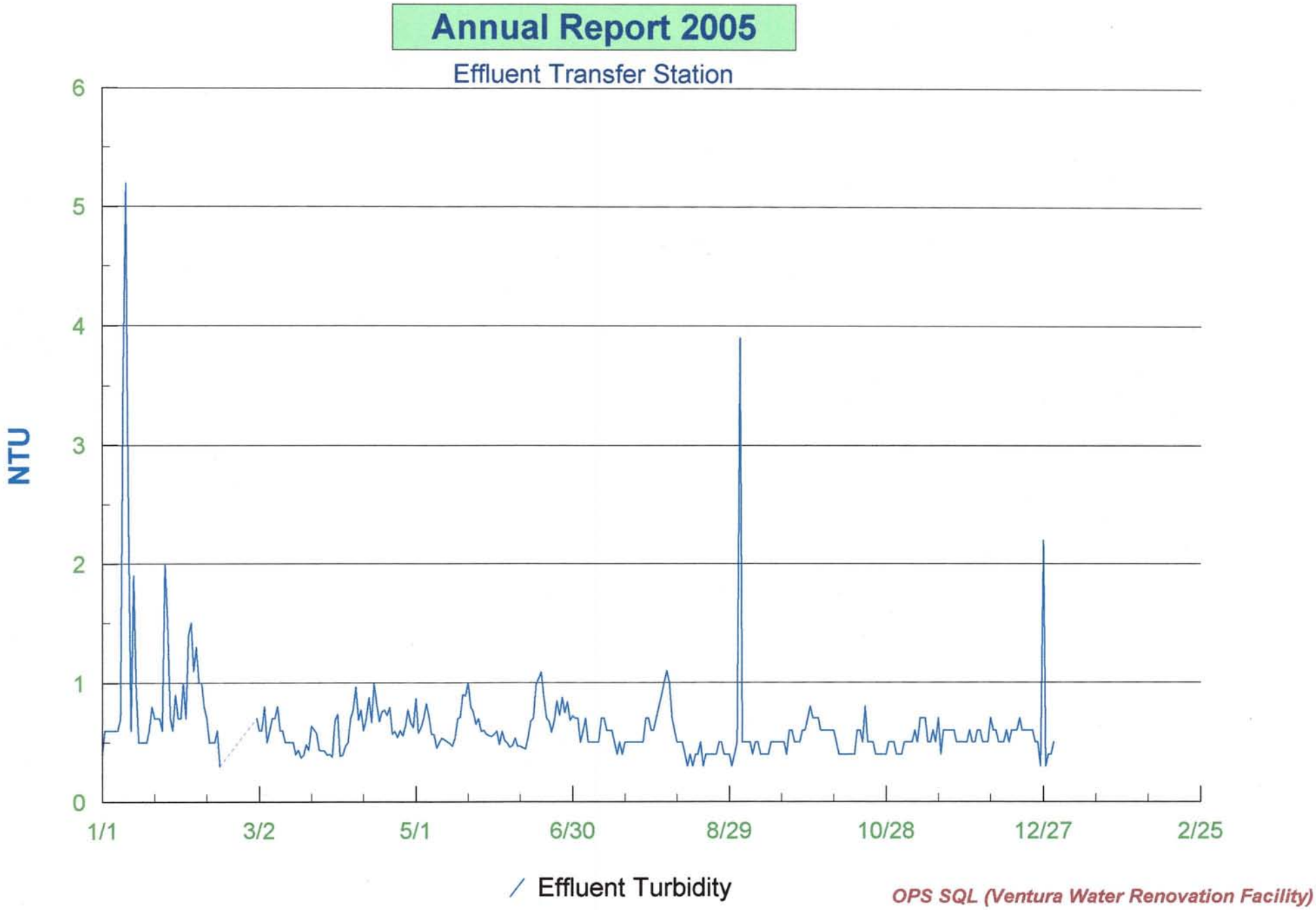

Annual Report 2005
Effluent Transfer Station
mg/l
300
250
200
150
100
50
0
1/1
3/2
5/1
6/30
8/29
10/28
12/27
2/25
Effluent COD
OPS SQL (Ventura Water Renovation Facility)

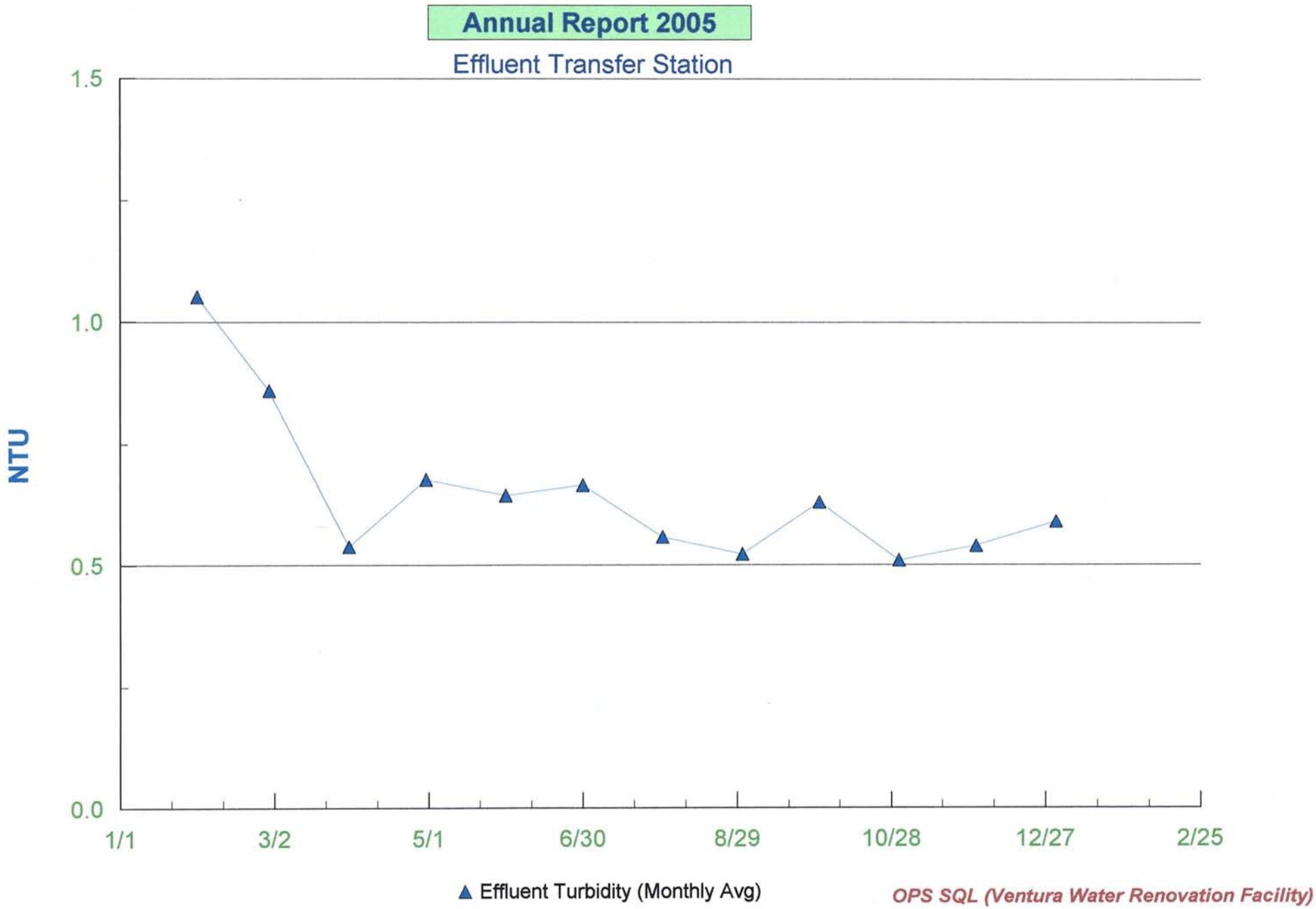

Annual Report 2005
Effluent Transfer Station
30
25
20
15
10
5
0
mg/l
1/1
3/2
5/1
6/30
8/29
10/28
12/27
2/25
Effluent
BOD (Monthly Avg)
COD (Monthly Avg)
OPS SQL (Ventura Water Renovation Facility)

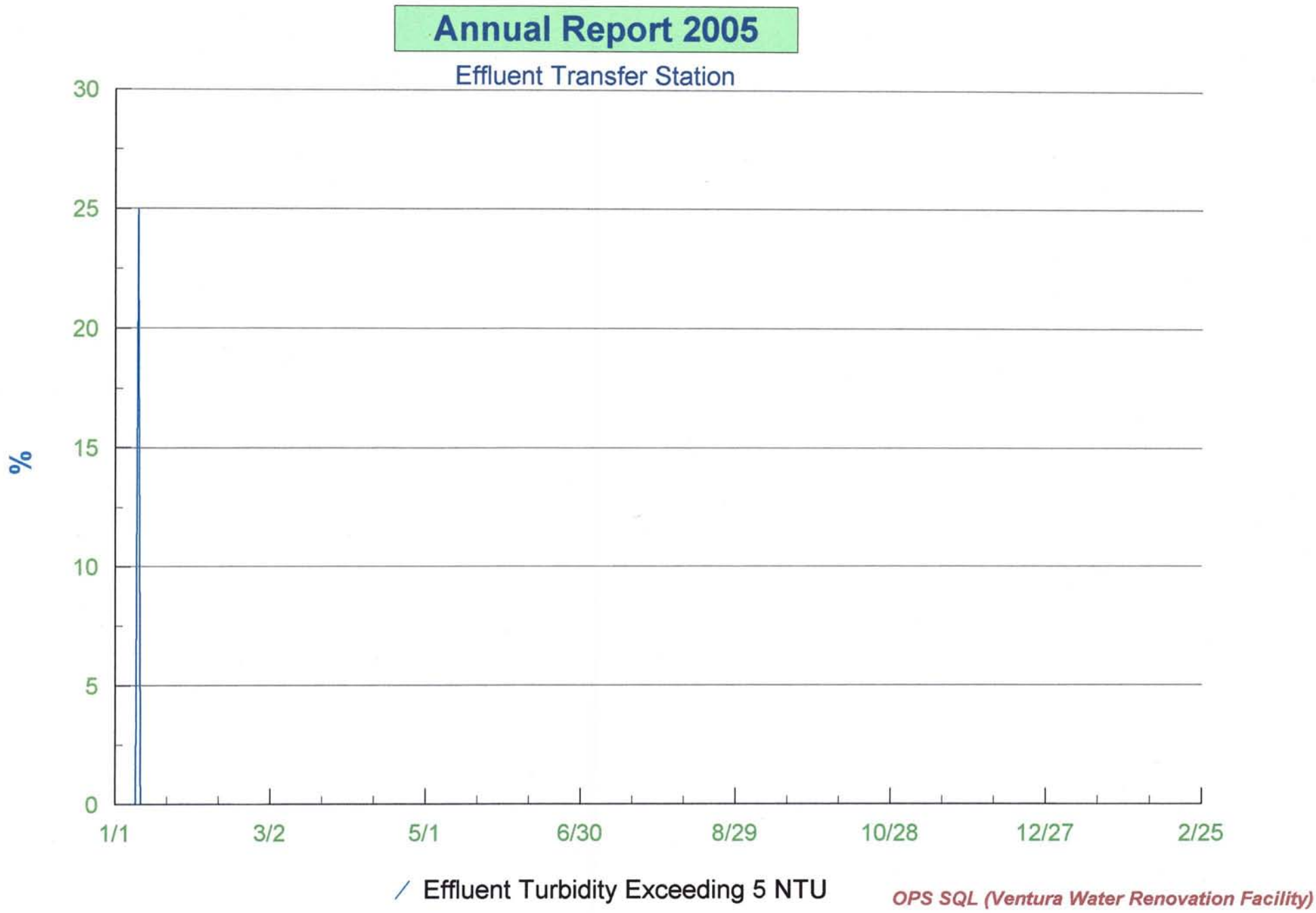

Annual Report 2005
Effluent Transfer Station
10
8
6
4
2
0
mg/l
1/1
3/2
5/1
6/30
8/29
10/28
12/27
2/25
Effluent Dissolved Oxygen
OPS SQL (Ventura Water Renovation Facility)

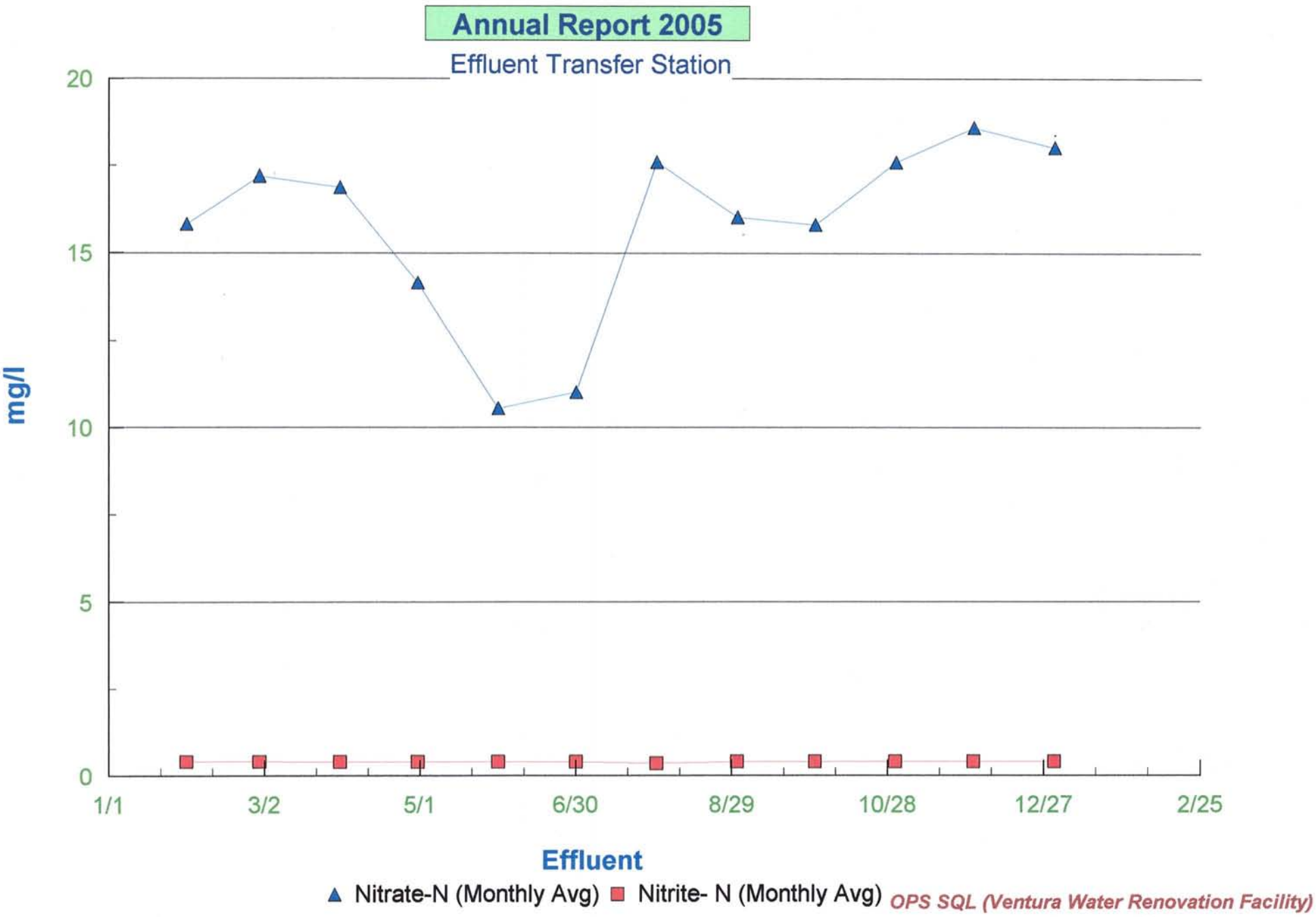


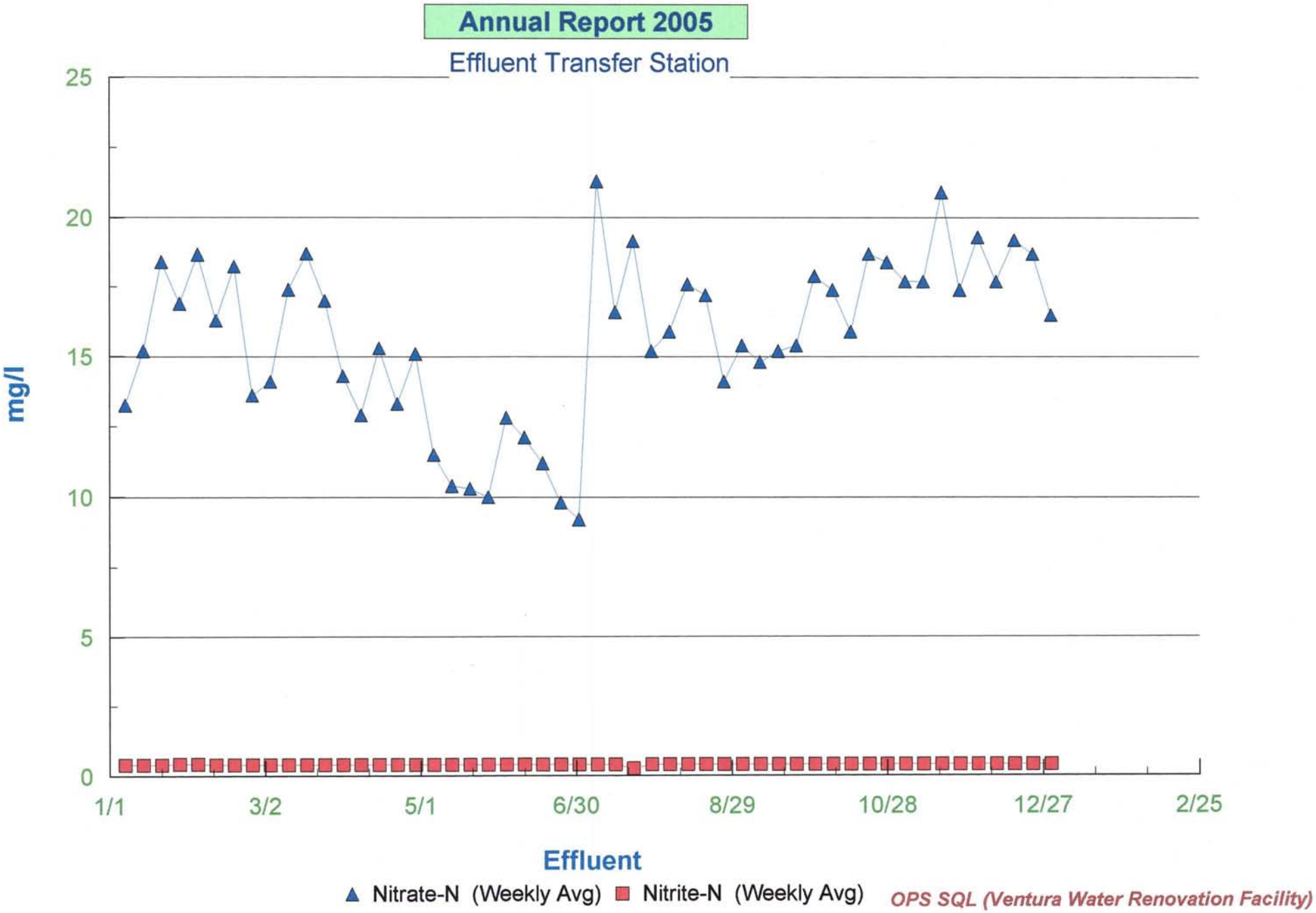
OPS SQL (Ventura Water Renovation Facility)

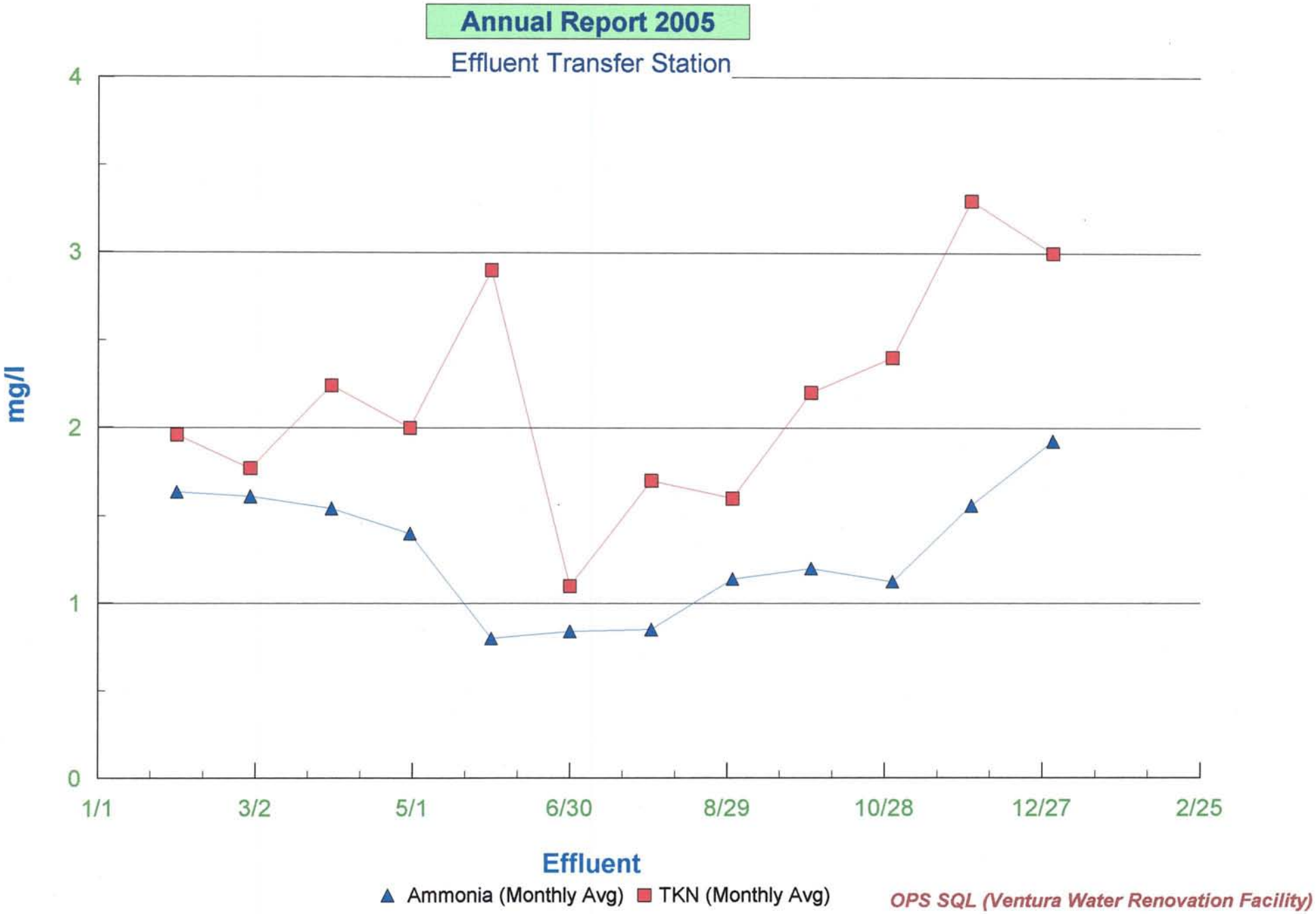

Annual Report 2005
Effluent Transfer Station
NTU
6
5
4
3
2
1
0
1/1
3/2
5/1
6/30
8/29
10/28
12/27
2/25
Effluent Turbidity
OPS SQL (Ventura Water Renovation Facility)

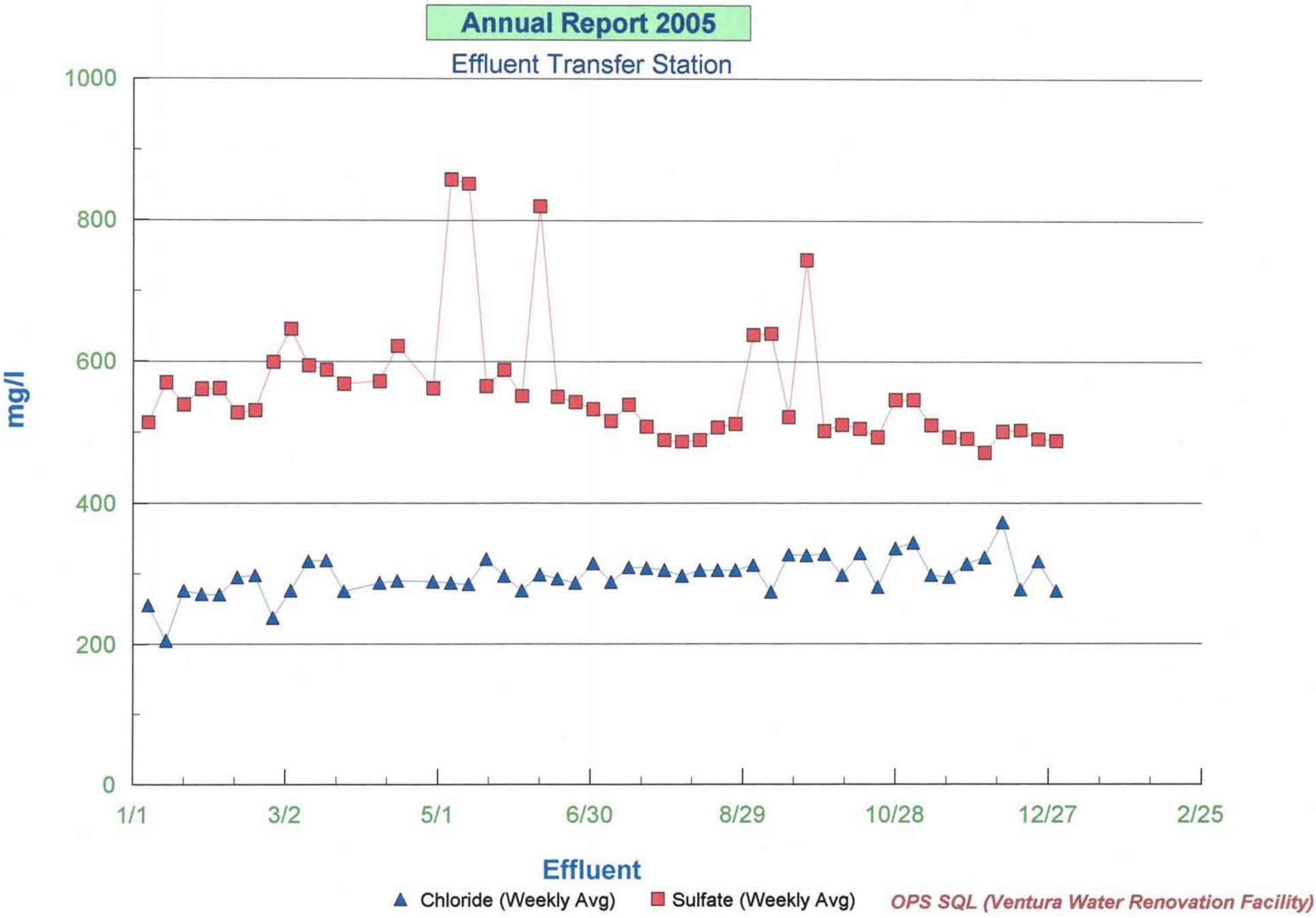

Annual Report 2005
Effluent Transfer Station
1.5
1.0
0.5
0.0
NTU
1/1
3/2
5/1
6/30
8/29
10/28
12/27
2/25
Effluent Turbidity (Monthly Avg)
OPS SQL (Ventura Water Renovation Facility)

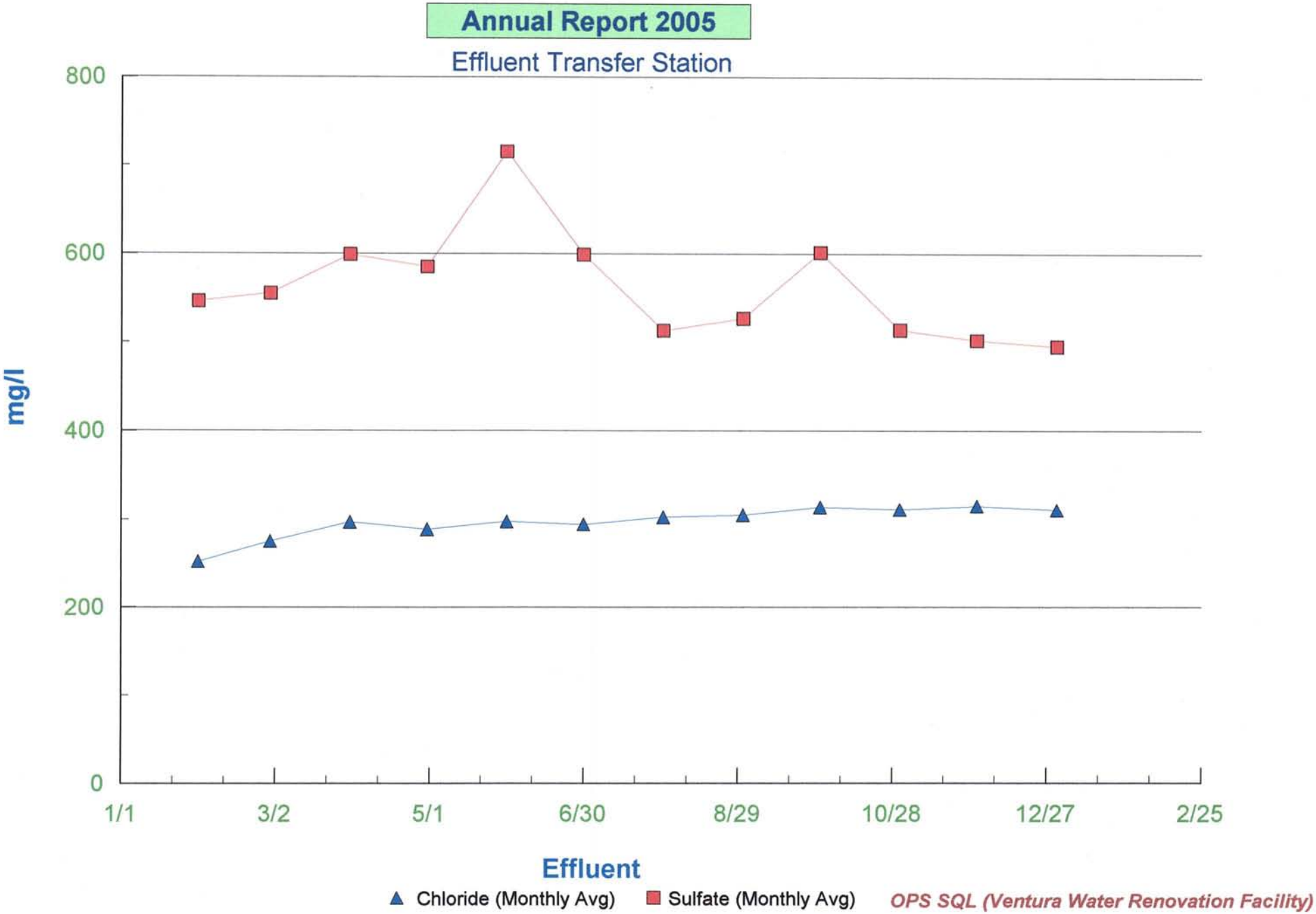

Annual Report 2005
Effluent Transfer Station
%
30
25
20
15
10
5
0
1/1
3/2
5/1
6/30
8/29
10/28
12/27
2/25
Effluent Turbidity Exceeding 5 NTU
OPS SQL (Ventura Water Renovation Facility)

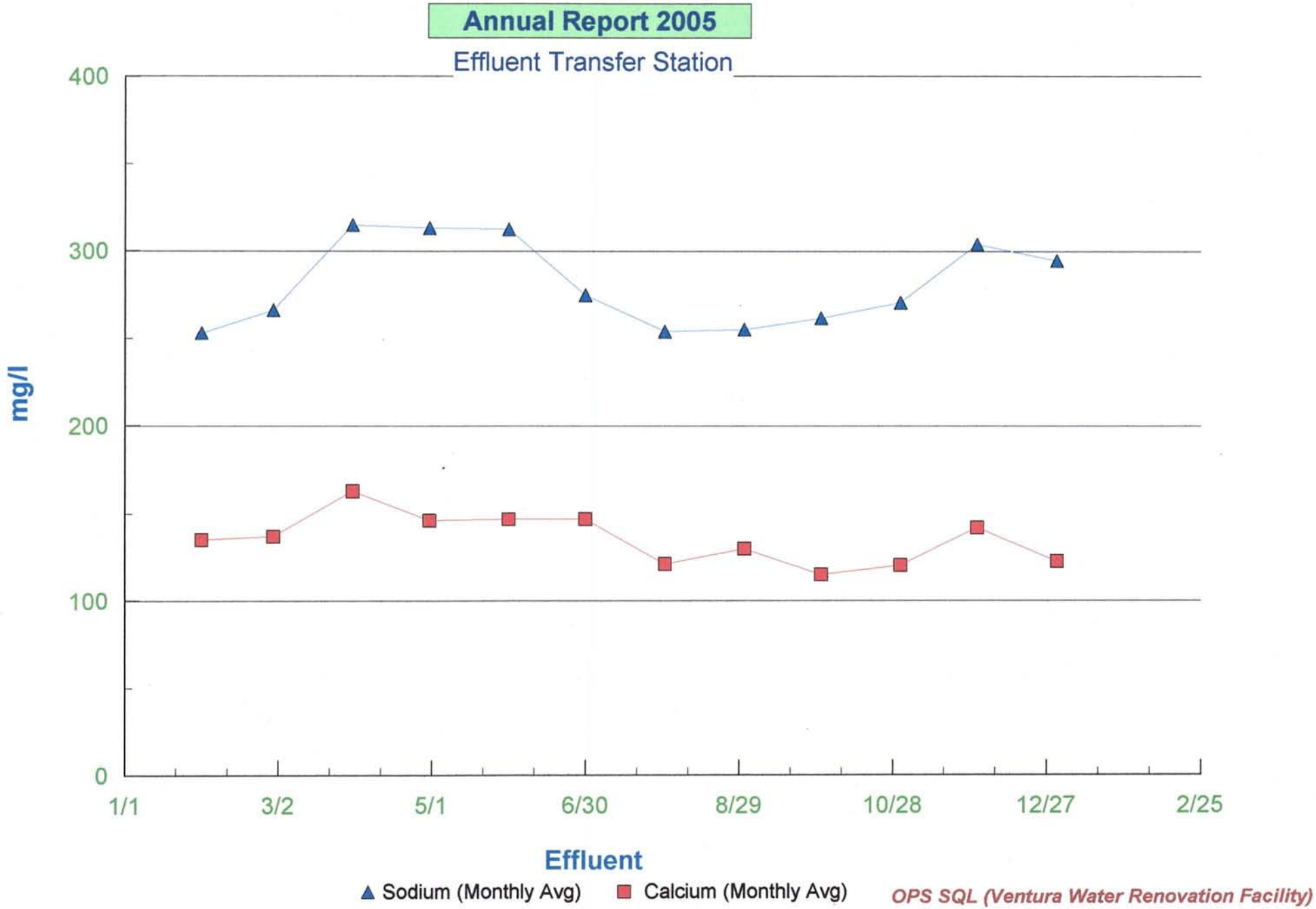

Annual Report 2005
Effluent Transfer Station
20
15
10
5
0
mg/l
1/1
3/2
5/1
6/30
8/29
10/28
12/27
2/25
Effluent
Nitrate-N (Monthly Avg)
Nitrite- N (Monthly Avg)
OPS SQL (Ventura Water Renovation Facility)

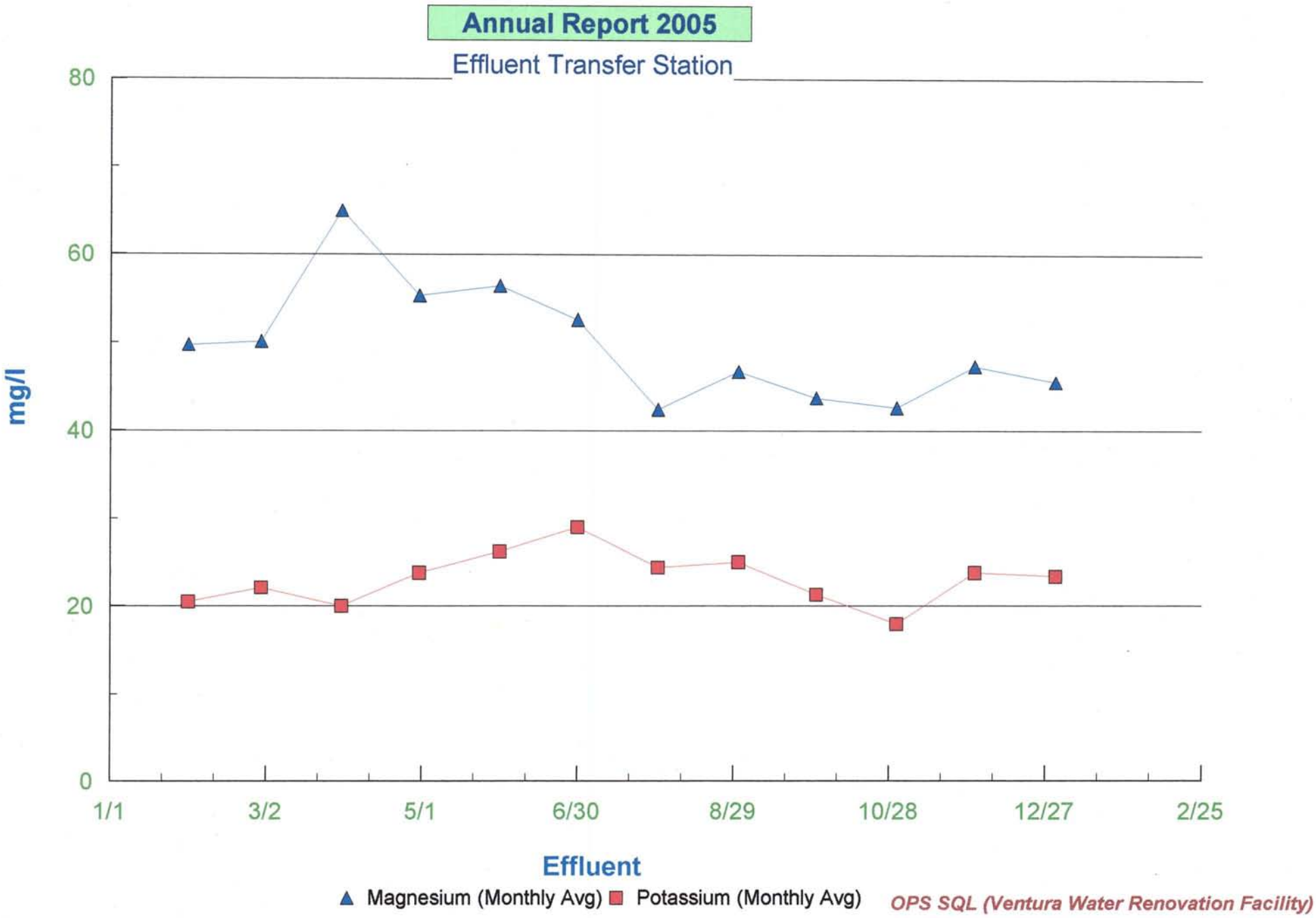

Annual Report 2005
Effluent Transfer Station
25
20
15
10
5
0
mg/l
1/1
3/2
5/1
6/30
8/29
10/28
12/27
2/25
Effluent
Nitrate-N (Weekly Avg)
Nitrite-N (Weekly Avg)
OPS SQL (Ventura Water Renovation Facility)

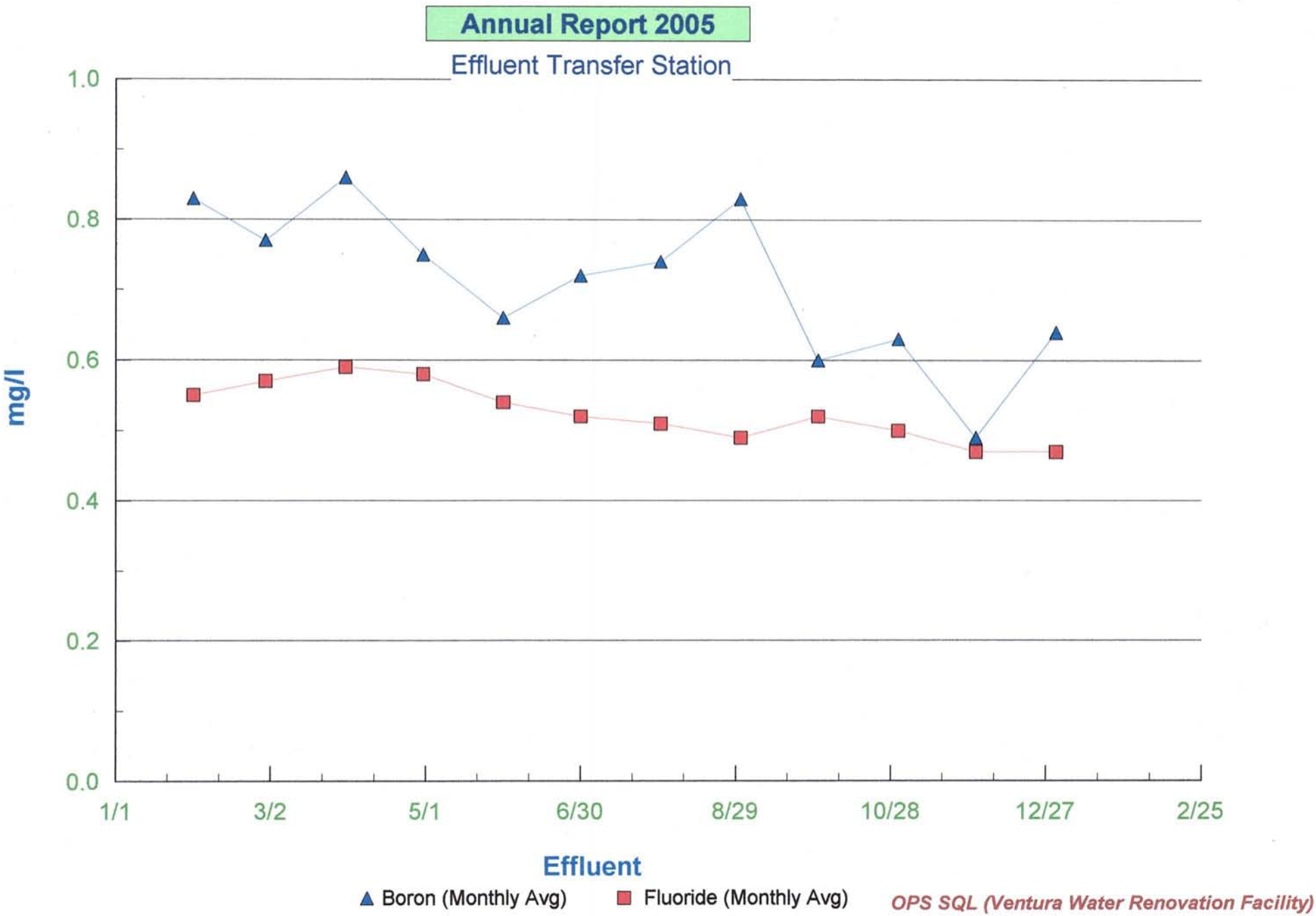

Annual Report 2005
Effluent Transfer Station
mg/l
4
3
2
1
0
1/1
3/2
5/1
6/30
8/29
10/28
12/27
2/25
Effluent
Ammonia (Monthly Avg)
TKN (Monthly Avg)
OPS SQL (Ventura Water Renovation Facility)

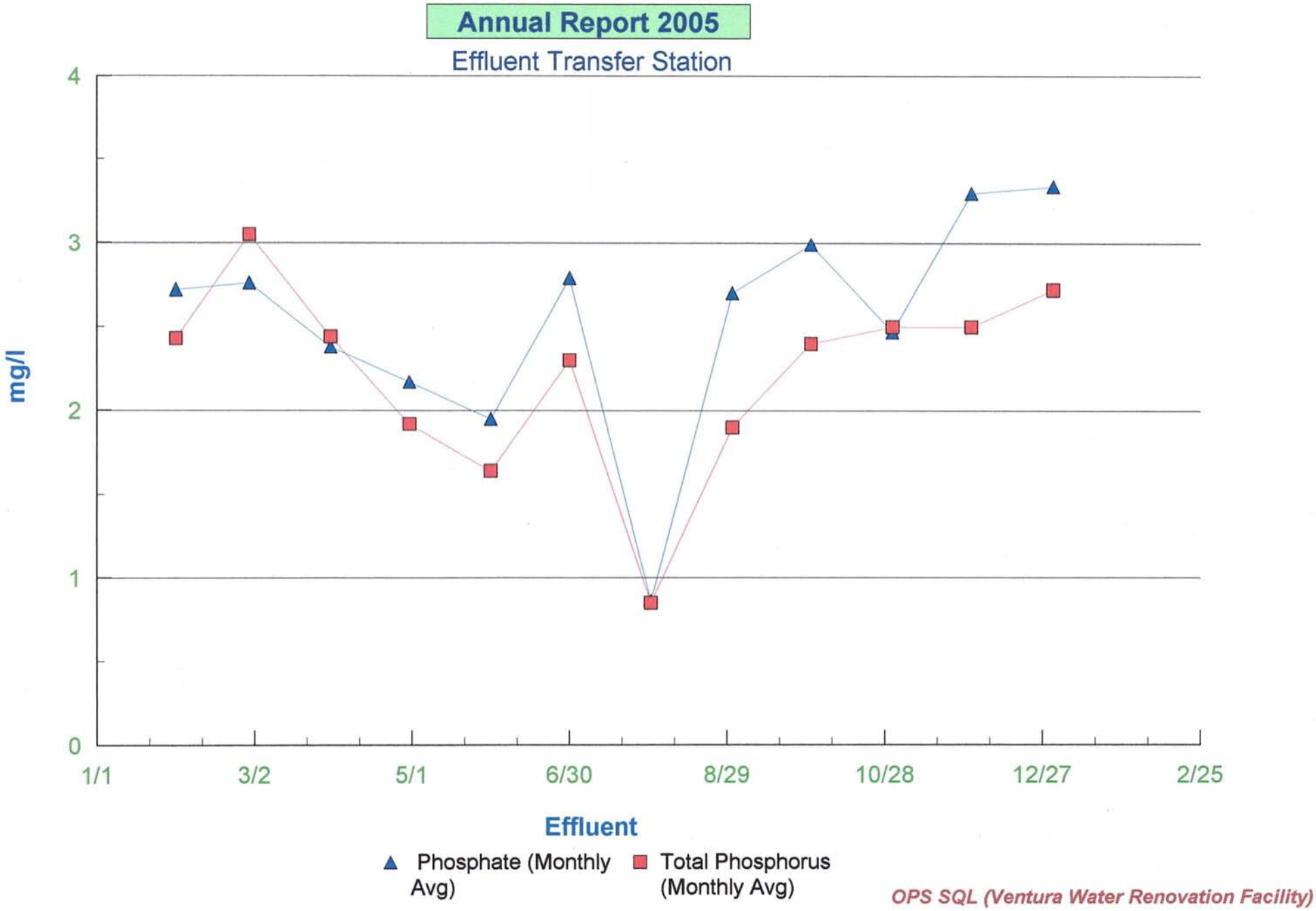

Annual Report 2005
Effluent Transfer Station
1000
800
600
400
200
0
mg/l
1/1
3/2
5/1
6/30
8/29
10/28
12/27
2/25
Effluent
Chloride (Weekly Avg)
Sulfate (Weekly Avg)
OPS SQL (Ventura Water Renovation Facility)

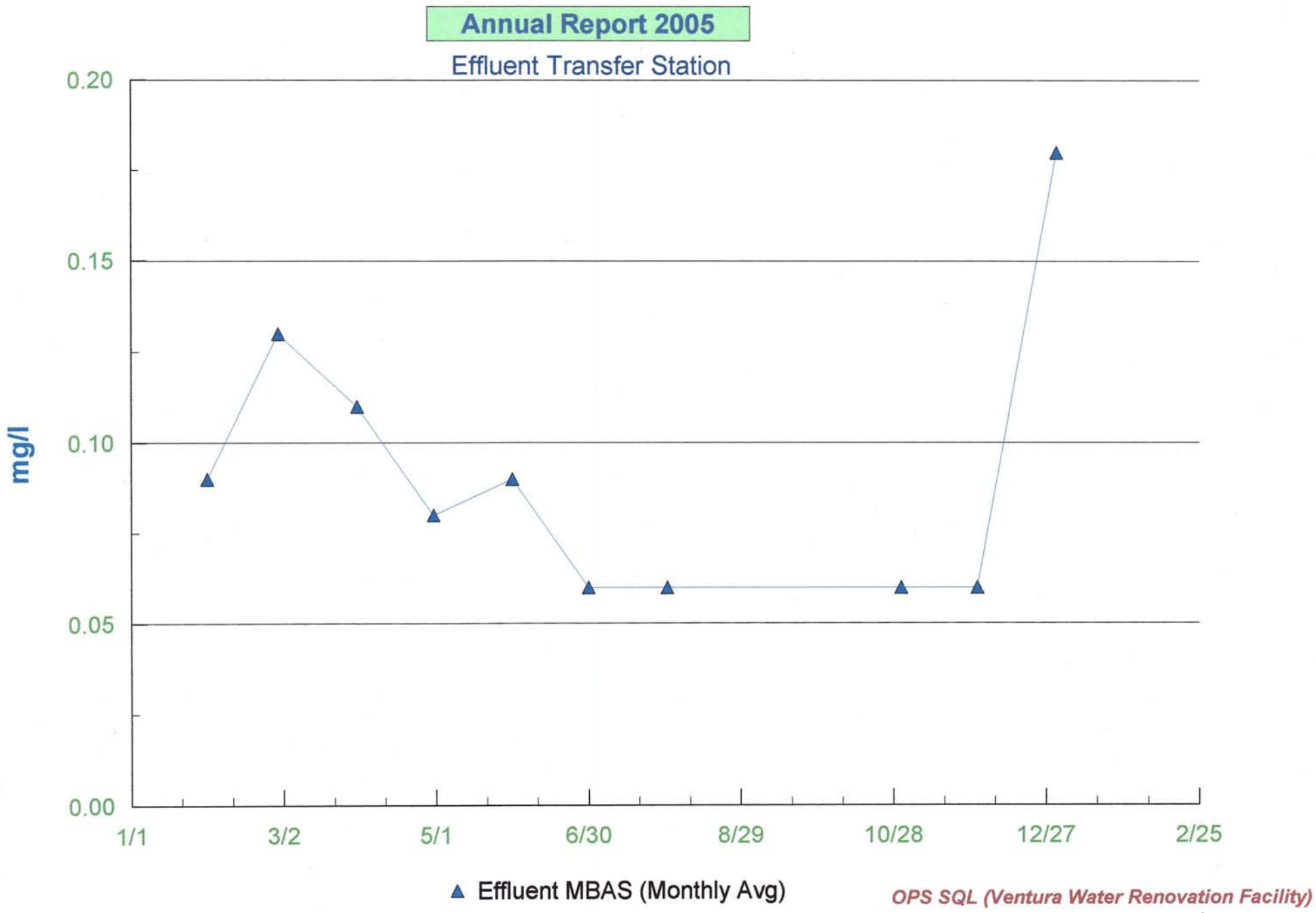

Annual Report 2005
Effluent Transfer Station
800
600
400
200
0
mg/l
1/1
3/2
5/1
6/30
8/29
10/28
12/27
2/25
Effluent
Chloride (Monthly Avg)
Sulfate (Monthly Avg)
OPS SQL (Ventura Water Renovation Facility)

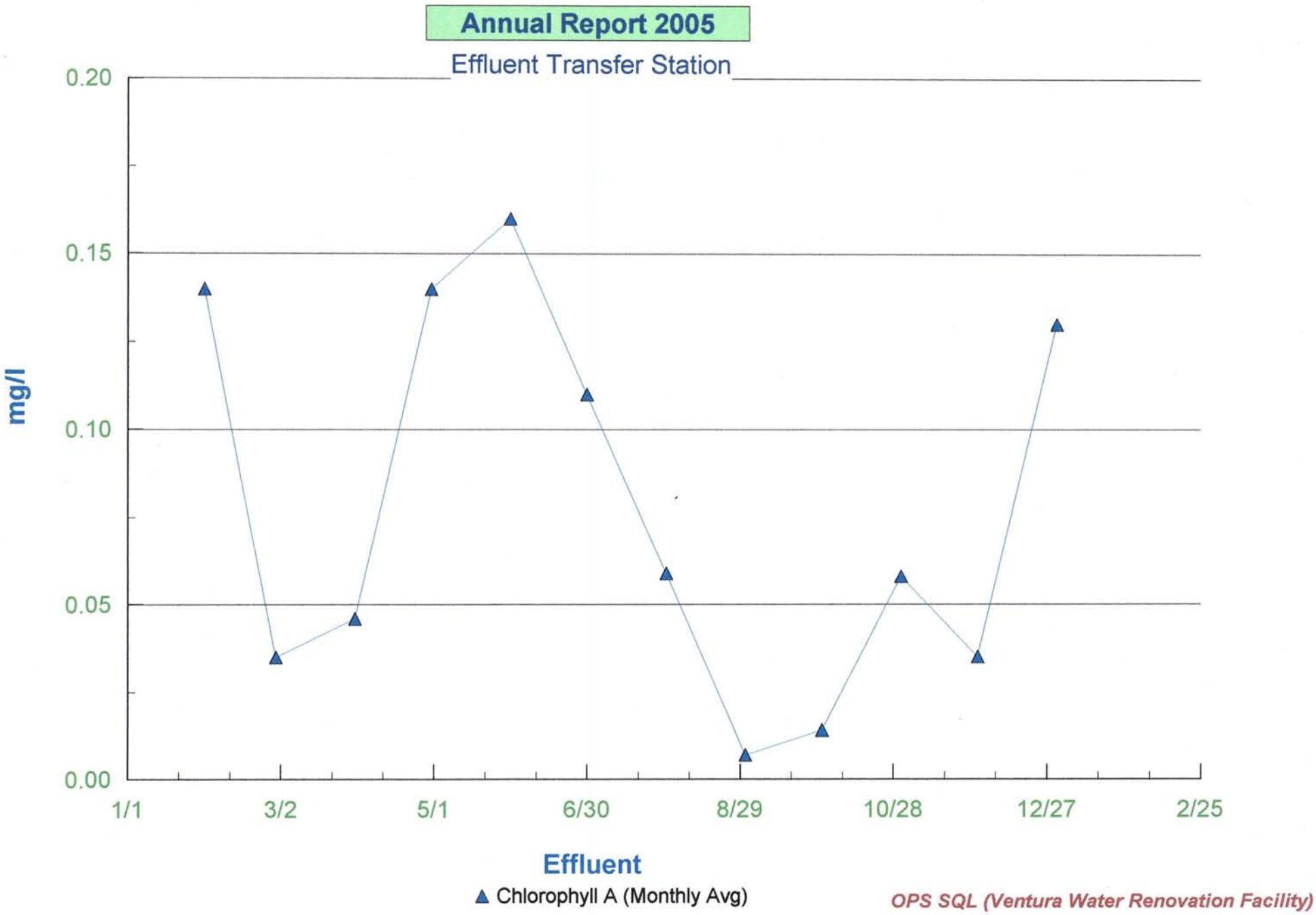

Annual Report 2005
Effluent Transfer Station
400
300
200
100
0
mg/l
1/1
3/2
5/1
6/30
8/29
10/28
12/27
2/25
Effluent
Sodium (Monthly Avg)
Calcium (Monthly Avg)
OPS SQL (Ventura Water Renovation Facility)

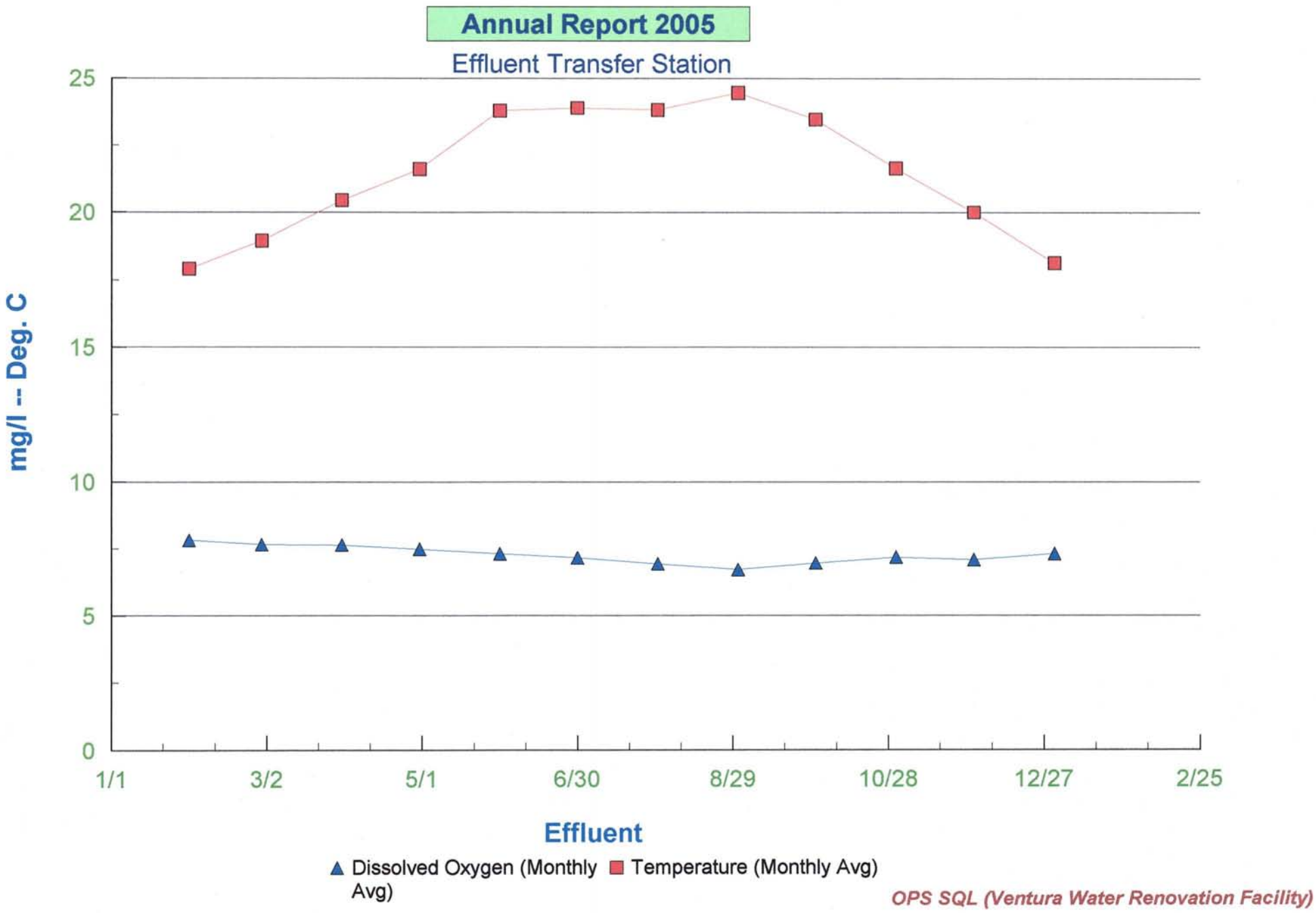

Annual Report 2005
Effluent Transfer Station
80
60
40
20
0
mg/l
1/1
3/2
5/1
6/30
8/29
10/28
12/27
2/25
Effluent
Magnesium (Monthly Avg)
Potassium (Monthly Avg)
OPS SQL (Ventura Water Renovation Facility)

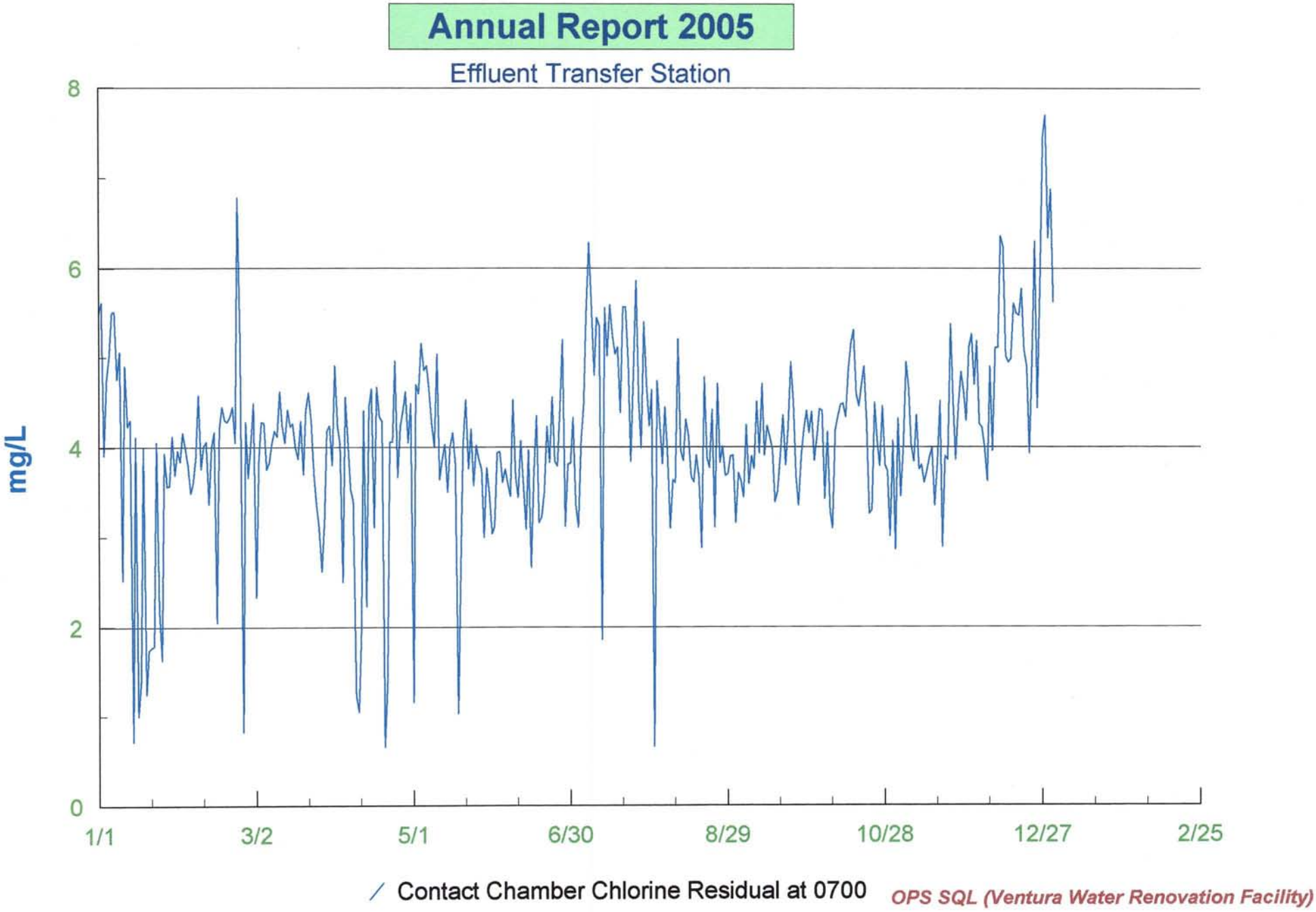

Annual Report 2005
Effluent Transfer Station
1.0
0.8
0.6
0.4
0.2
0.0
mg/l
1/1
3/2
5/1
6/30
8/29
10/28
12/27
2/25
Effluent
Boron (Monthly Avg)
Fluoride (Monthly Avg)
OPS SQL (Ventura Water Renovation Facility)

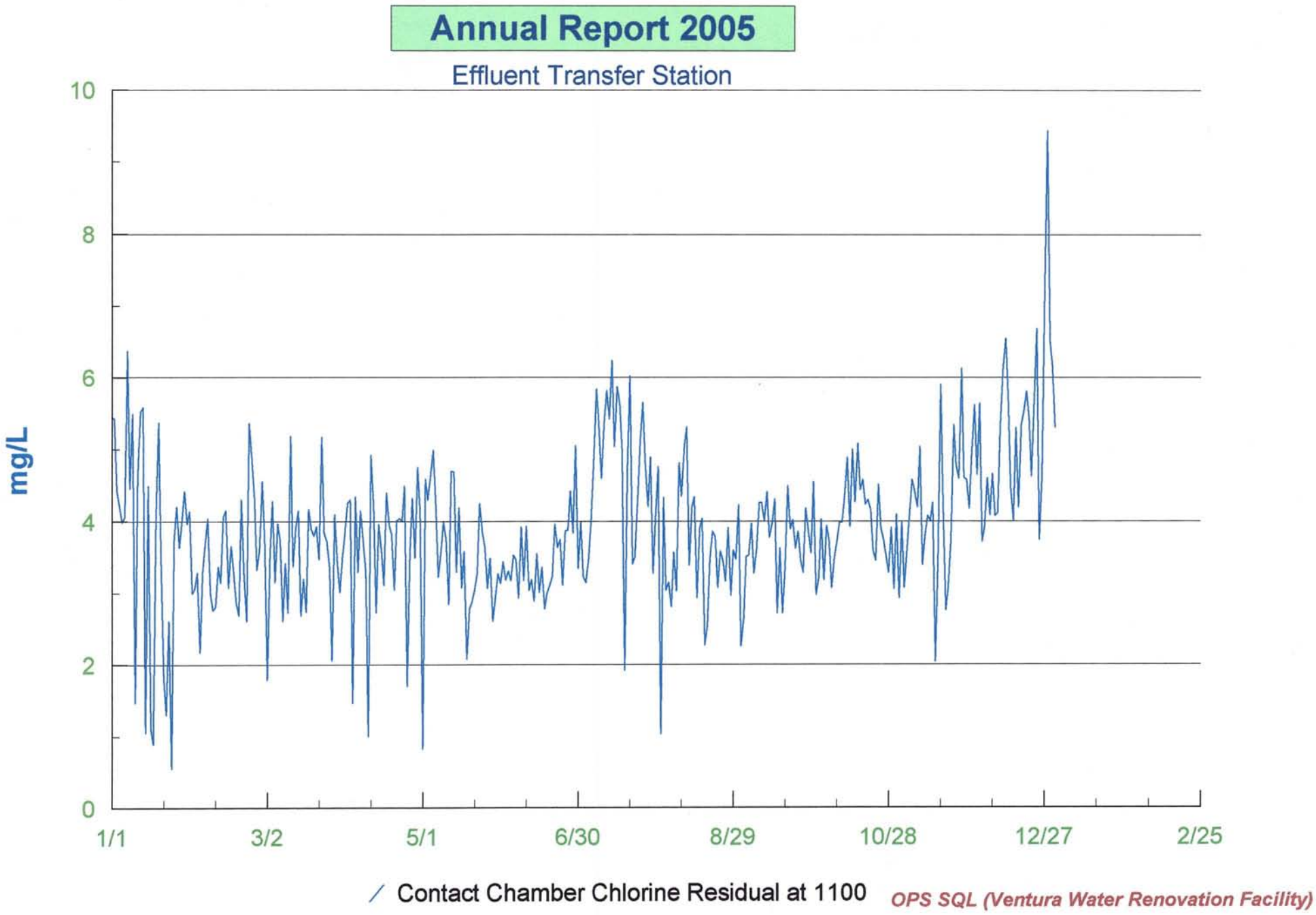

Annual Report 2005
Effluent Transfer Station
4
3
2
1
0
mg/l
1/1
3/2
5/1
6/30
8/29
10/28
12/27
2/25
Effluent
Phosphate (Monthly Avg)
Total Phosphorus (Monthly Avg)
OPS SQL (Ventura Water Renovation Facility)

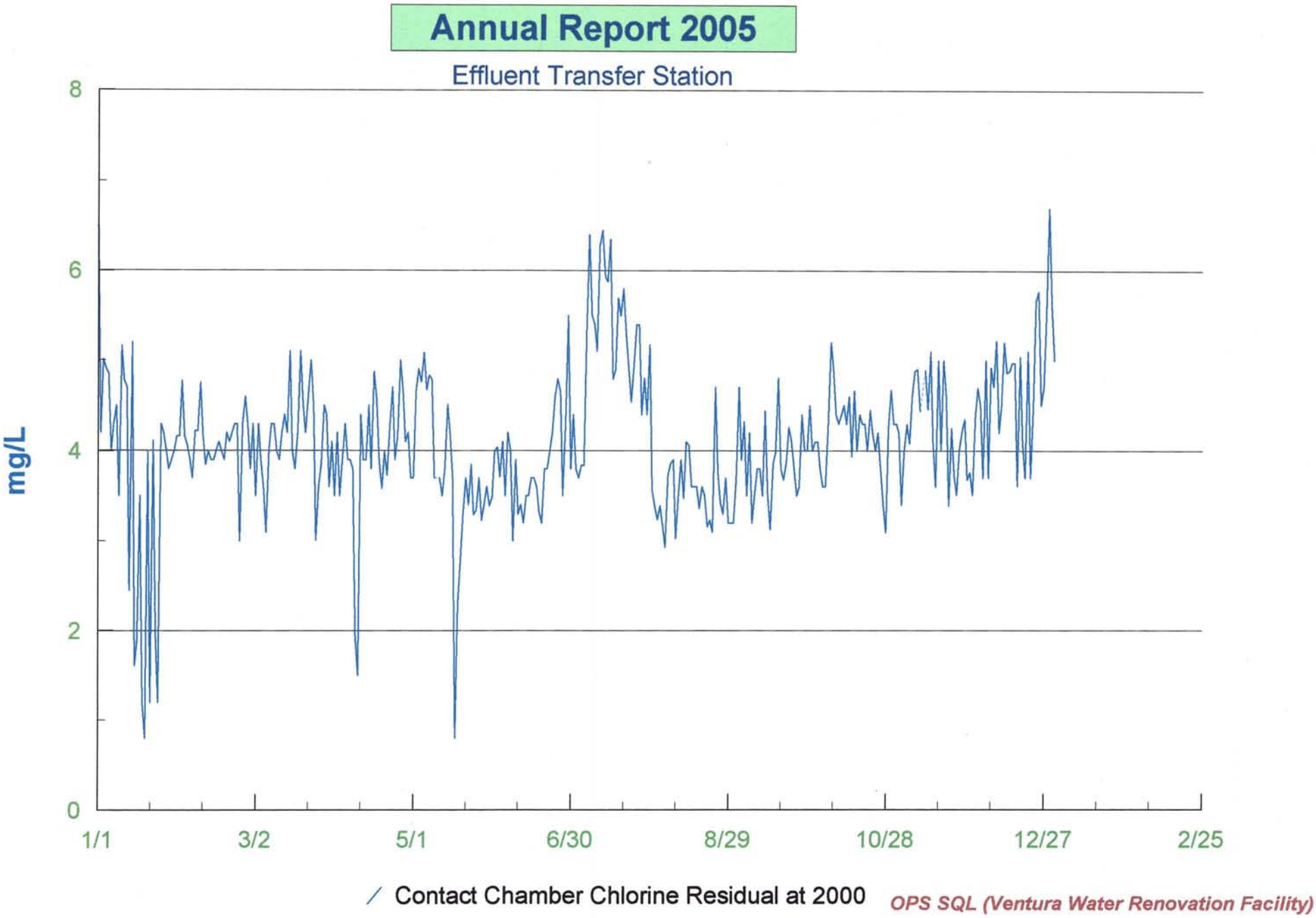

Annual Report 2005
Effluent Transfer Station
0.20
0.15
0.10
0.05
0.00
mg/l
1/1
3/2
5/1
6/30
8/29
10/28
12/27
2/25
Effluent MBAS (Monthly Avg)
OPS SQL (Ventura Water Renovation Facility)

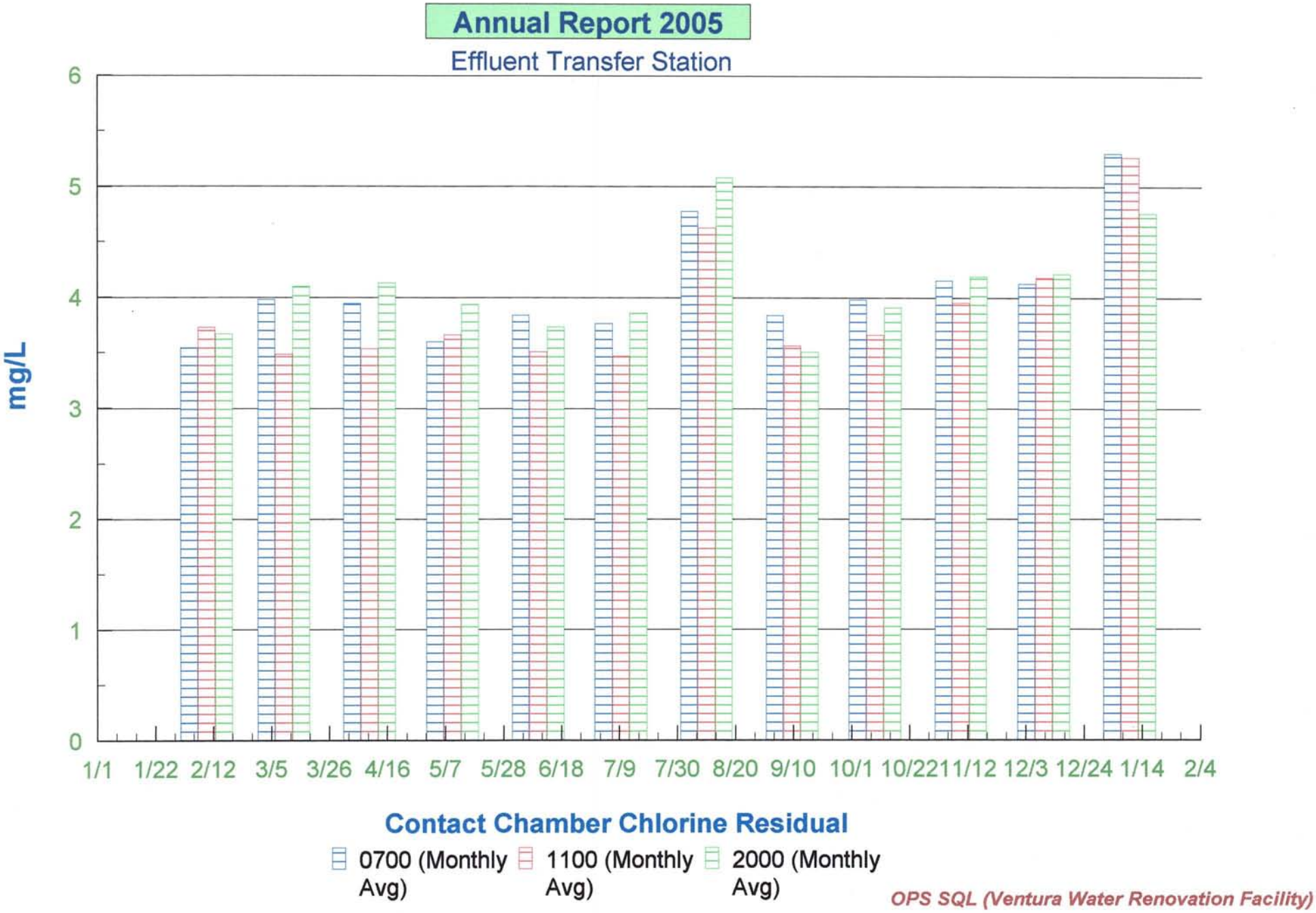

Annual Report 2005
Effluent Transfer Station
0.20
0.15
0.10
0.05
0.00
mg/l
1/1
3/2
5/1
6/30
8/29
10/28
12/27
2/25
Effluent
Chlorophyll A (Monthly Avg)
OPS SQL (Ventura Water Renovation Facility)

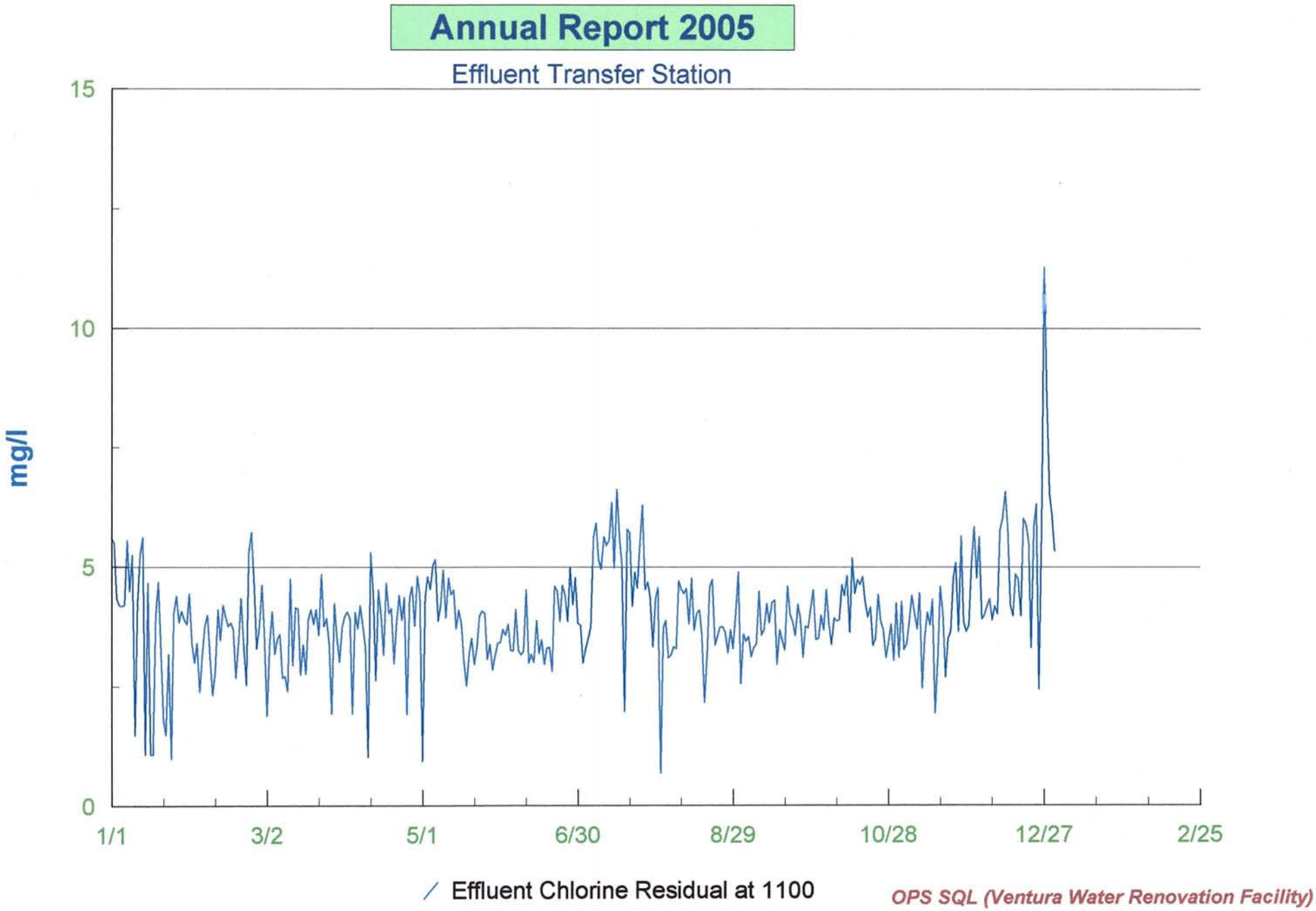

Annual Report 2005
Effluent Transfer Station
25
20
15
10
5
0
mg/l -- Deg. C
1/1
3/2
5/1
6/30
8/29
10/28
12/27
2/25
Effluent
Dissolved Oxygen (Monthly Avg)
Temperature (Monthly Avg)
OPS SQL (Ventura Water Renovation Facility)

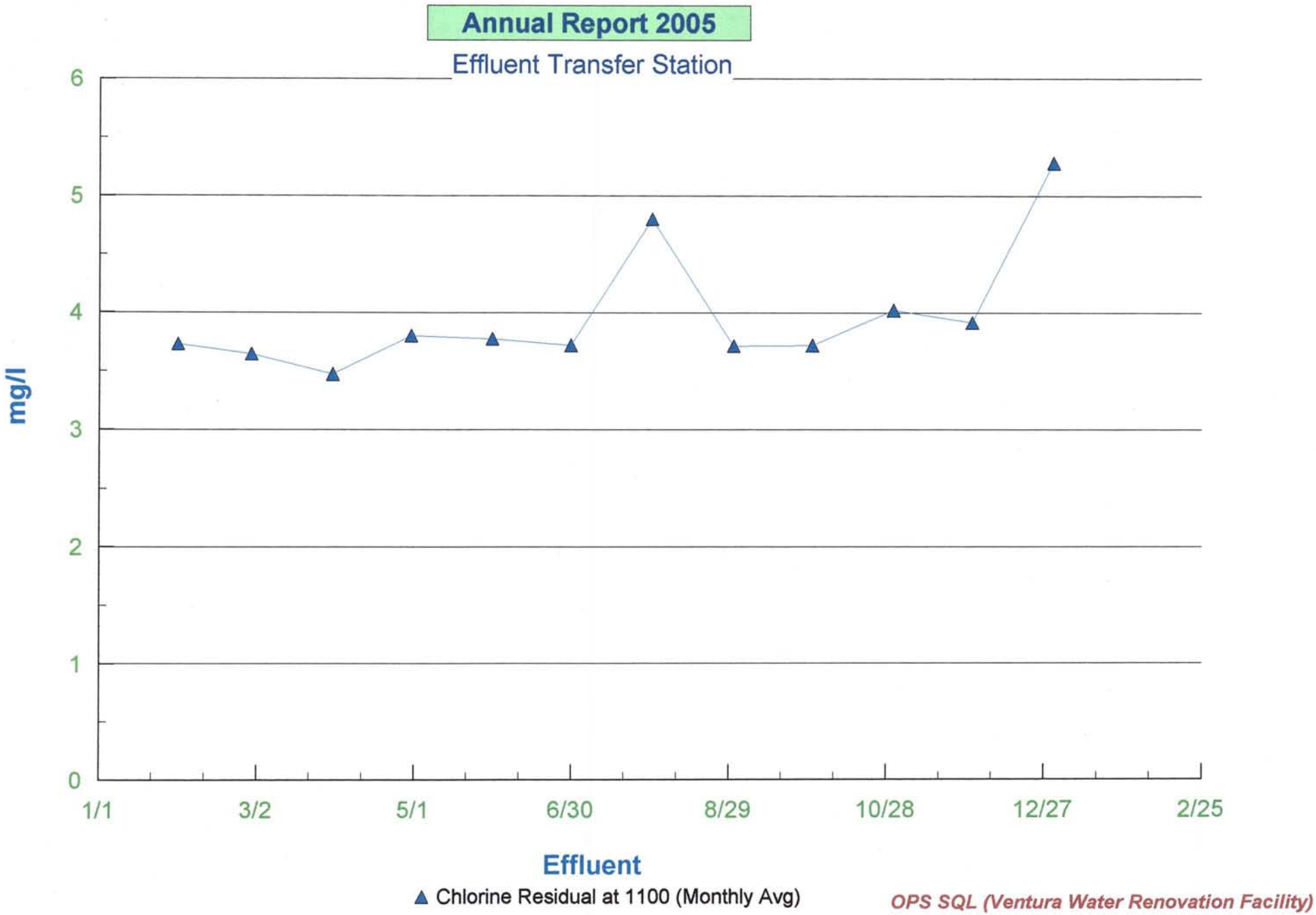

Annual Report 2005
Effluent Transfer Station
mg/L
8
6
4
2
0
1/1
3/2
5/1
6/30
8/29
10/28
12/27
2/25
Contact Chamber Chlorine Residual at 0700
OPS SQL (Ventura Water Renovation Facility)

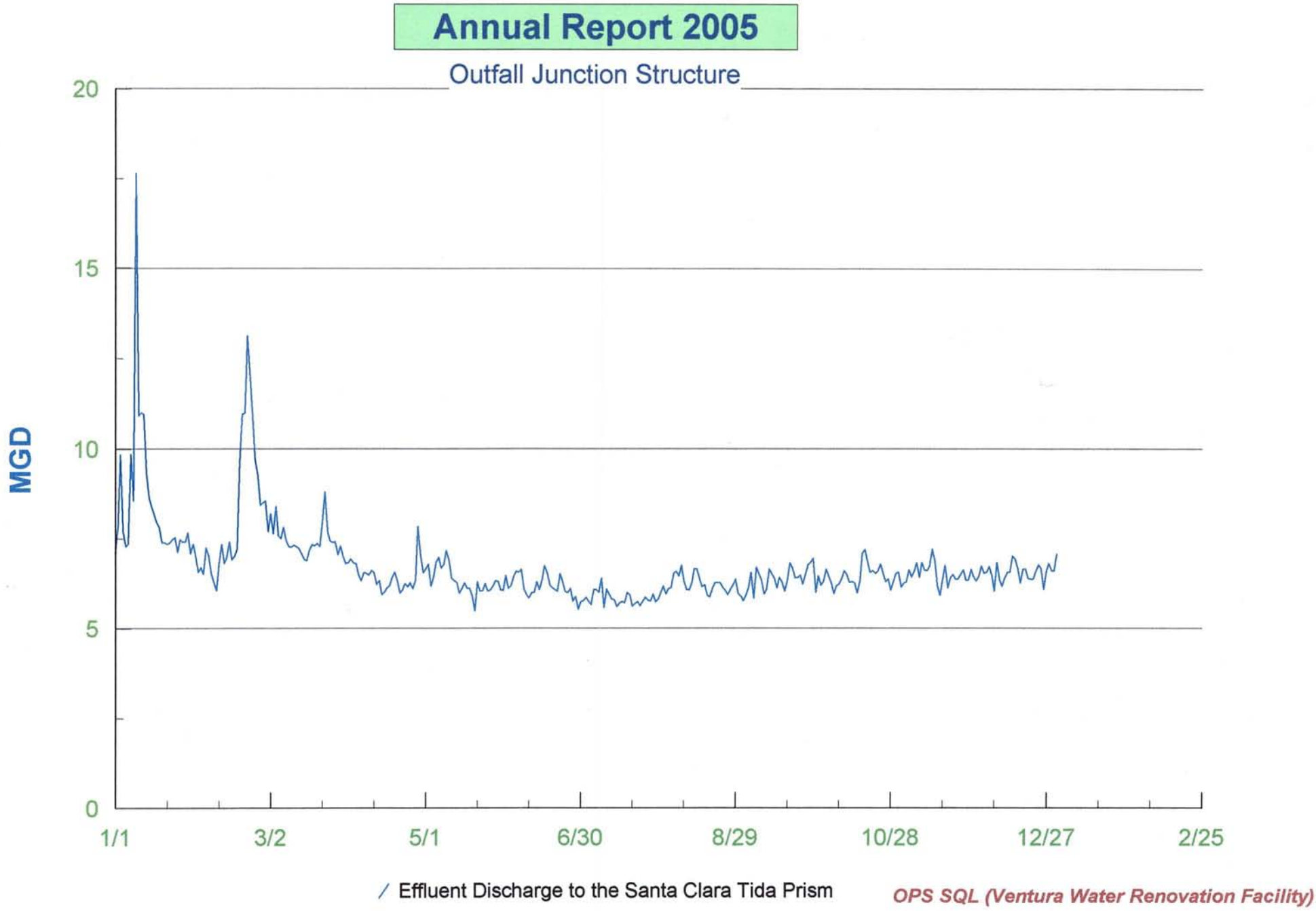

Annual Report 2005
Effluent Transfer Station
mg/L
10
8
6
4
2
0
1/1
3/2
5/1
6/30
8/29
10/28
12/27
2/25
Contact Chamber Chlorine Residual at 1100
OPS SQL (Ventura Water Renovation Facility)

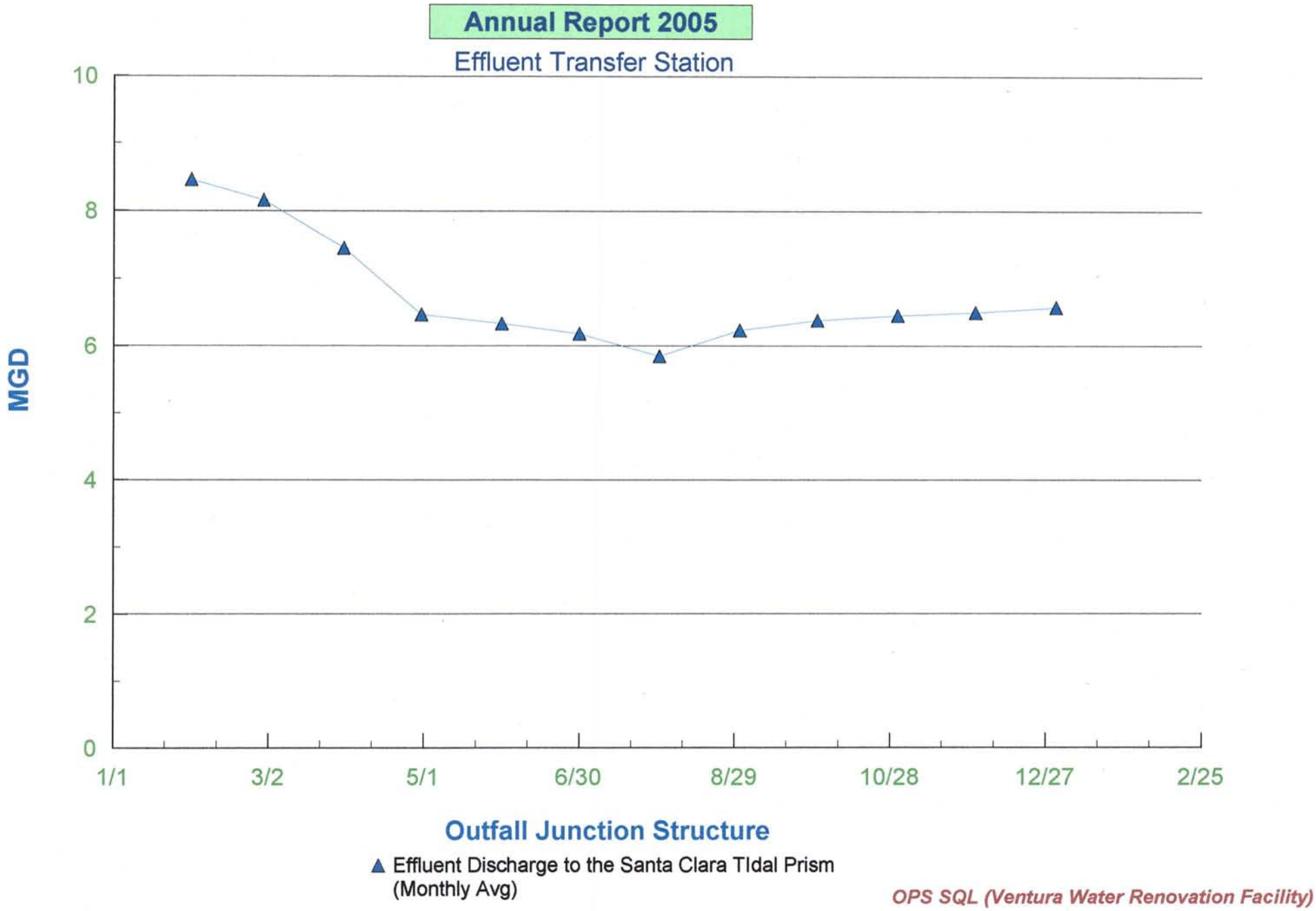

Annual Report 2005
Effluent Transfer Station
mg/L
8
6
4
2
0
1/1
3/2
5/1
6/30
8/29
10/28
12/27
2/25
Contact Chamber Chlorine Residual at 2000
OPS SQL (Ventura Water Renovation Facility)

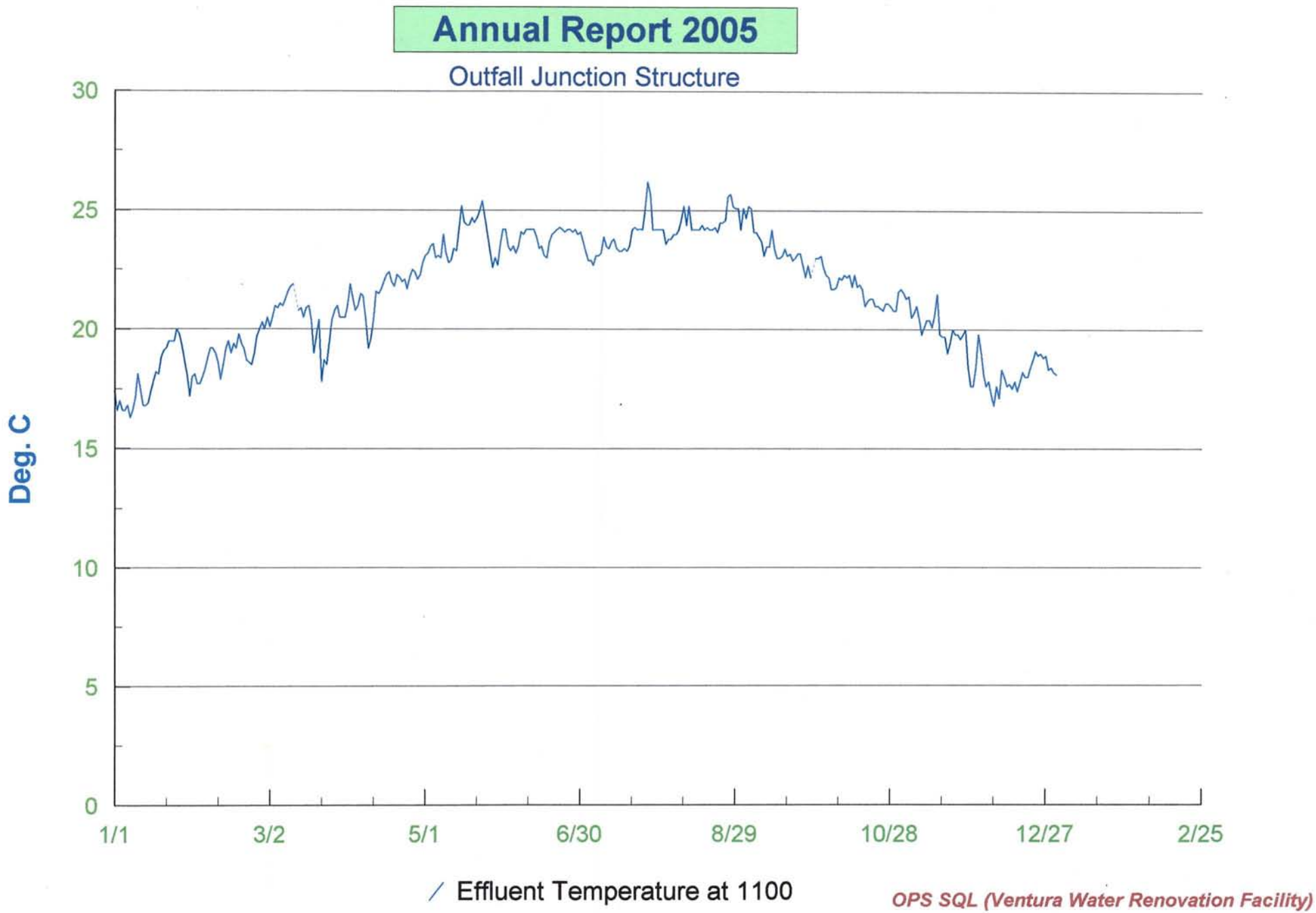

Annual Report 2005
Effluent Transfer Station
mg/L
6
5
4
3
2
1
0
1/1 1/22 2/12 3/5 3/26 4/16 5/7 5/28 6/18 7/9 7/30 8/20 9/10 10/1 10/22 11/12 12/3 12/24 1/14 2/4
Contact Chamber Chlorine Residual
0700 (Monthly Avg)
1100 (Monthly Avg)
2000 (Monthly Avg)
OPS SQL (Ventura Water Renovation Facility)

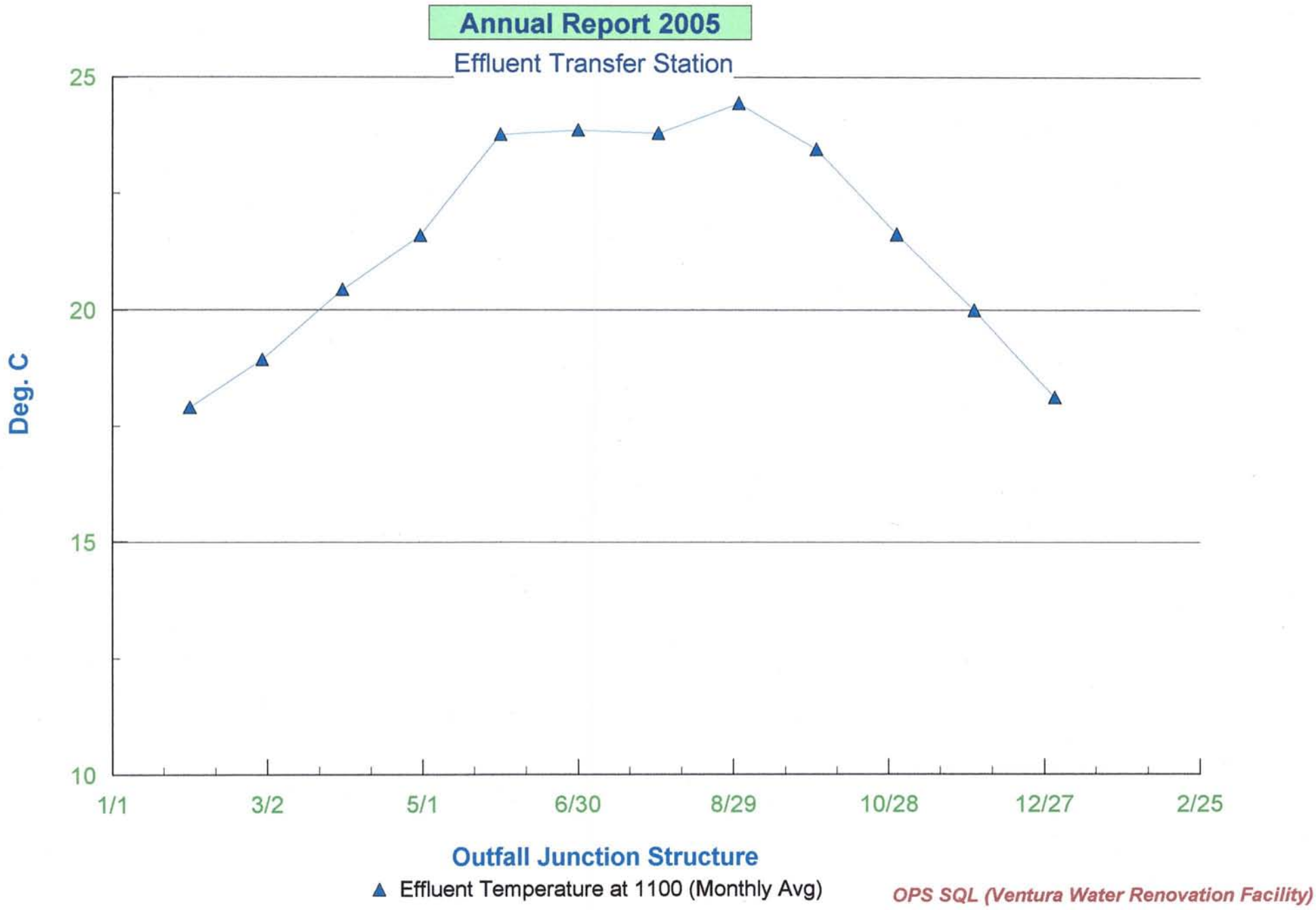

Annual Report 2005
Effluent Transfer Station
15
10
5
0
mg/l
1/1
3/2
5/1
6/30
8/29
10/28
12/27
2/25
Effluent Chlorine Residual at 1100
OPS SQL (Ventura Water Renovation Facility)

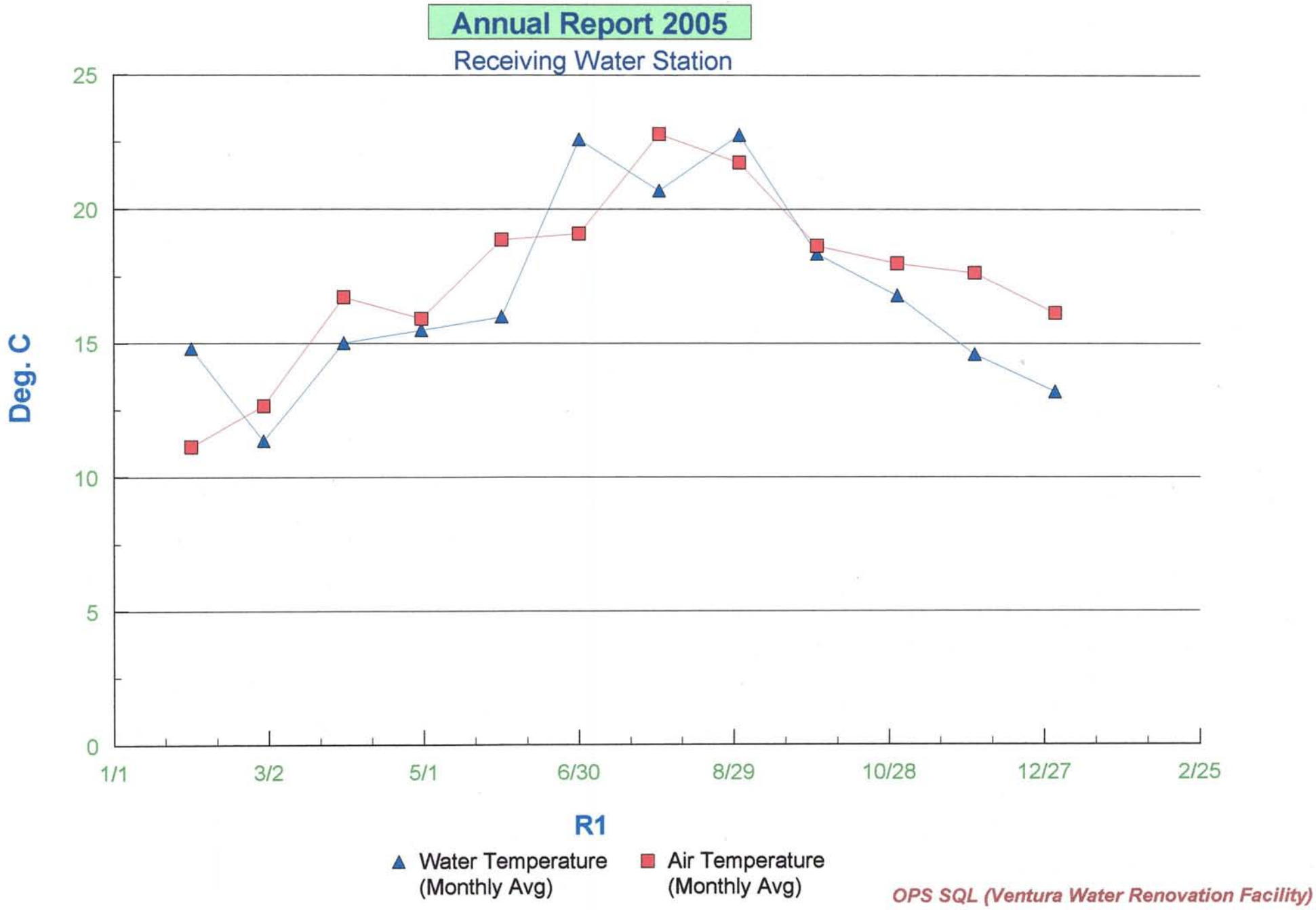

Annual Report 2005
Effluent Transfer Station
mg/l
6
5
4
3
2
1
0
1/1
3/2
5/1
6/30
8/29
10/28
12/27
2/25
Effluent
Chlorine Residual at 1100 (Monthly Avg)
OPS SQL (Ventura Water Renovation Facility)

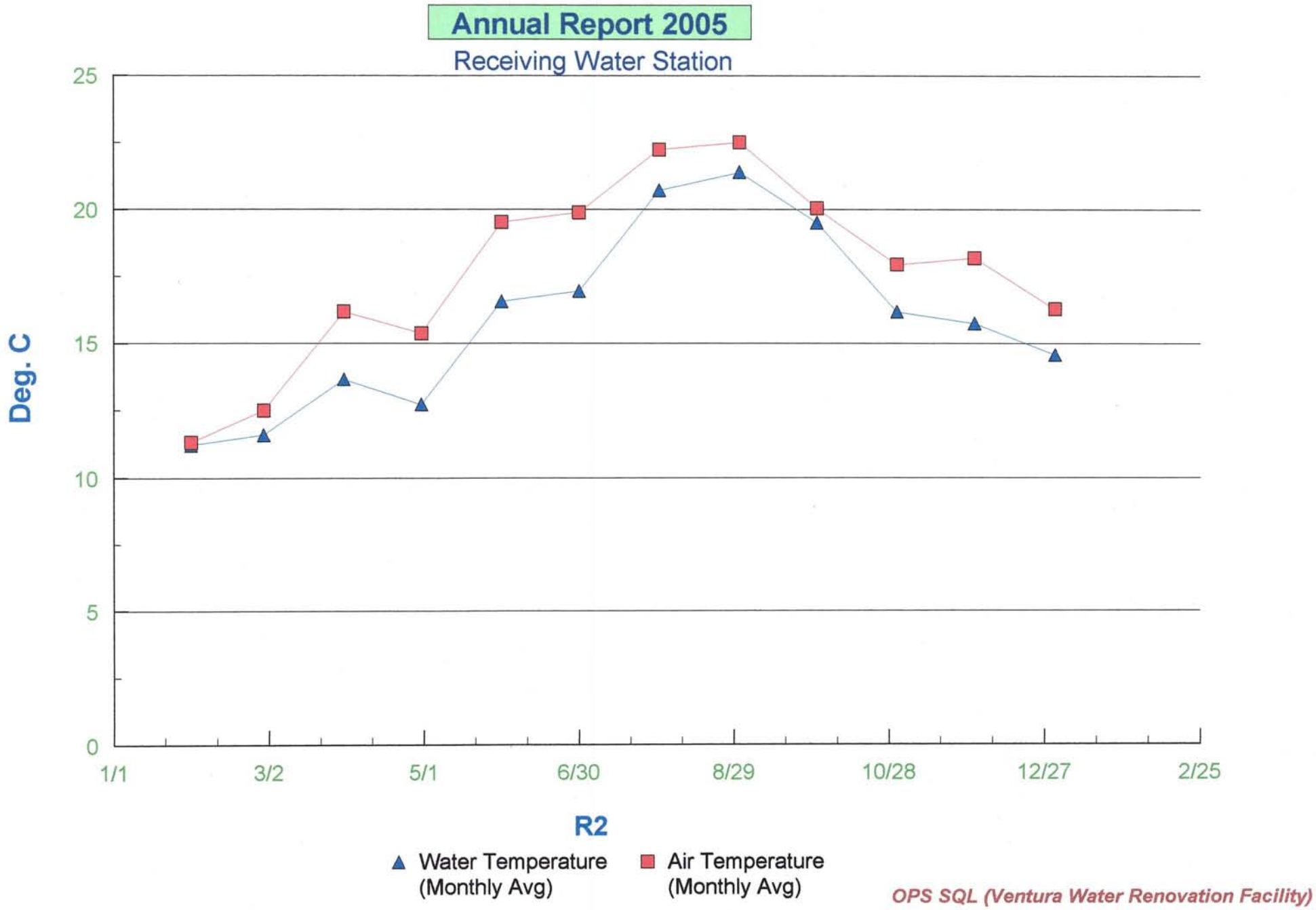

Annual Report 2005
Outfall Junction Structure
MGD
20
15
10
5
0
1/1
3/2
5/1
6/30
8/29
10/28
12/27
2/25
Effluent Discharge to the Santa Clara Tida Prism
OPS SQL (Ventura Water Renovation Facility)

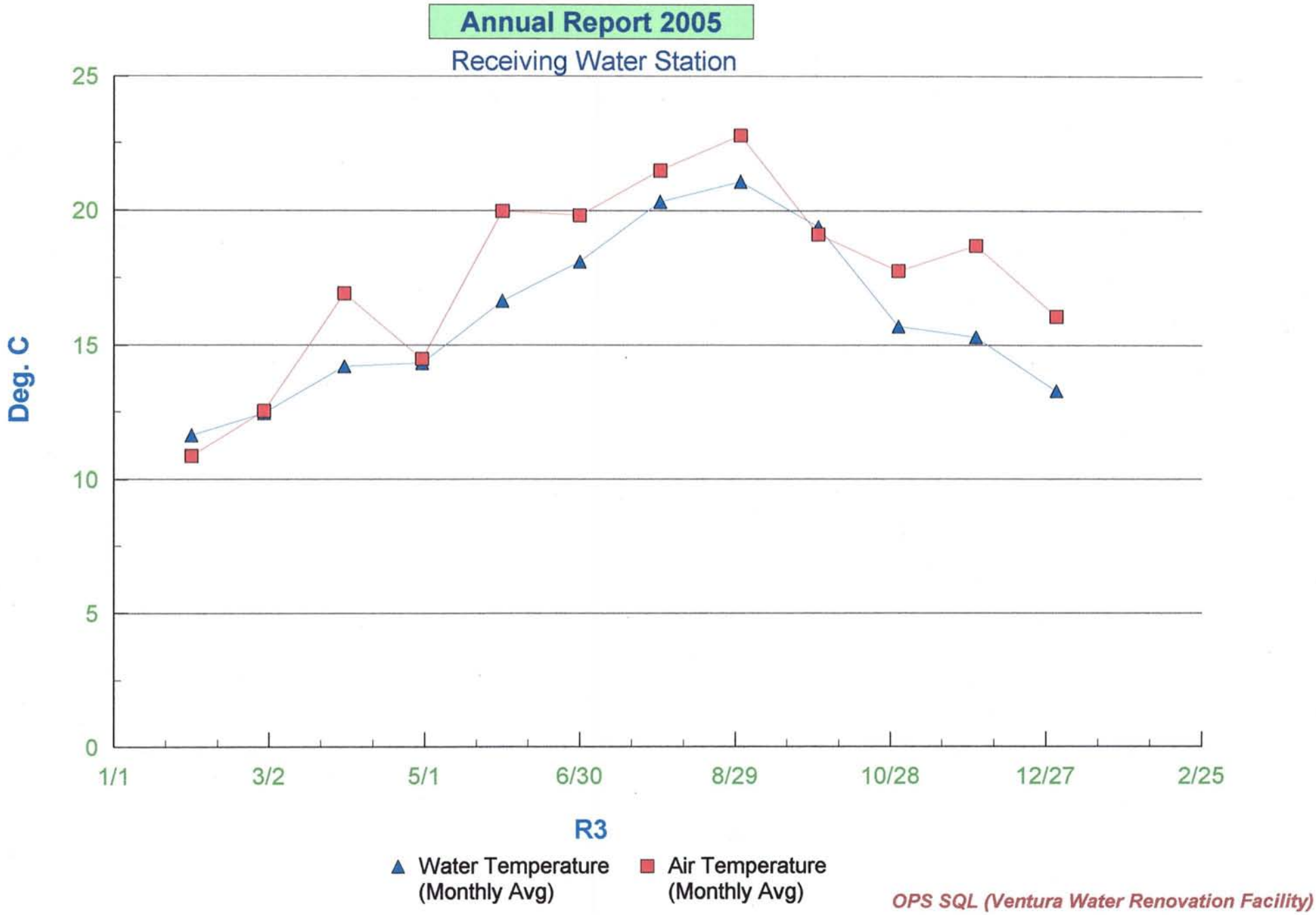

Annual Report 2005
Effluent Transfer Station
MGD
10
8
6
4
2
0
1/1
3/2
5/1
6/30
8/29
10/28
12/27
2/25
Outfall Junction Structure
Effluent Discharge to the Santa Clara TIdal Prism (Monthly Avg)
OPS SQL (Ventura Water Renovation Facility)

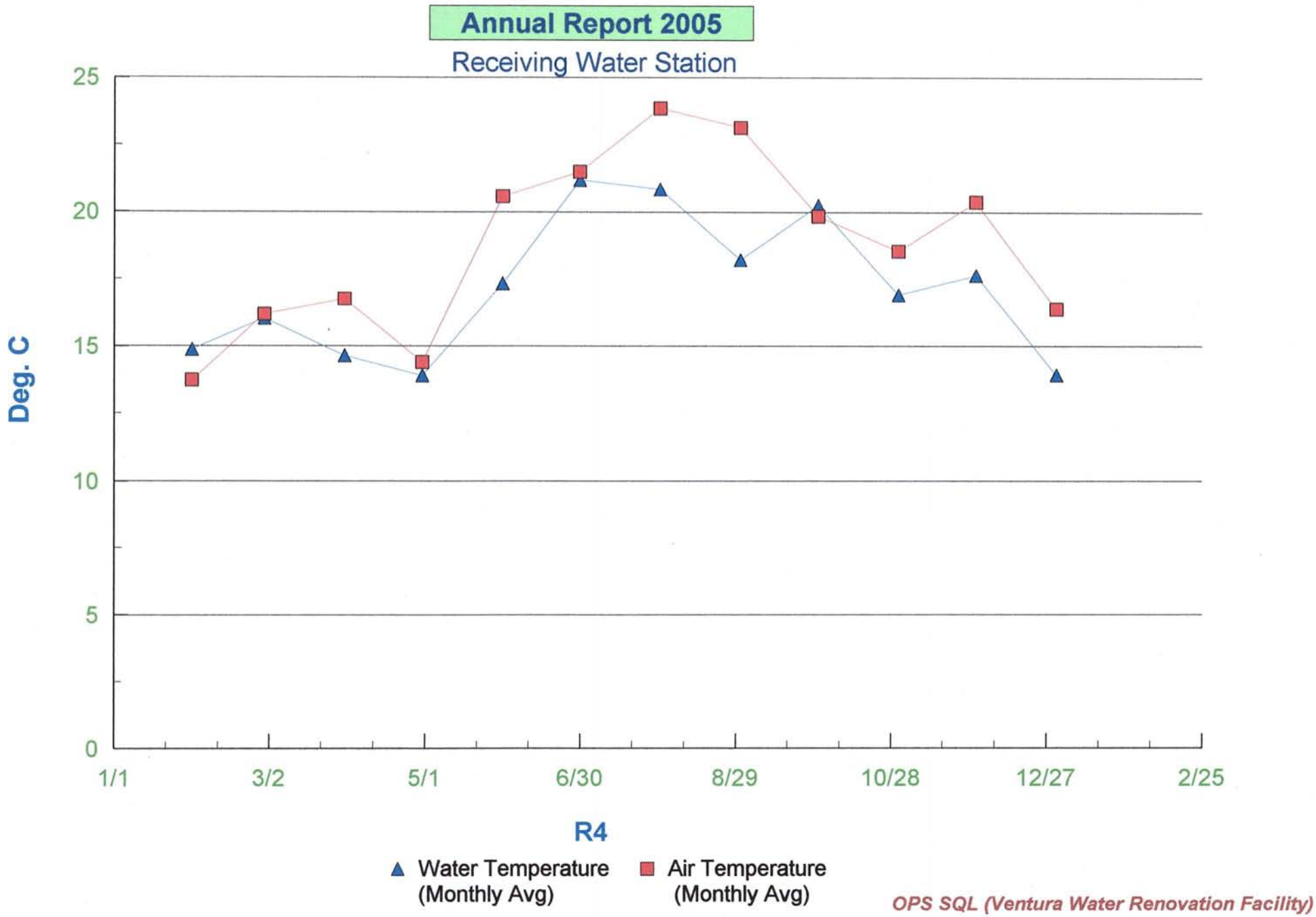

Annual Report 2005
Outfall Junction Structure
Deg. C
30
25
20
15
10
5
0
1/1
3/2
5/1
6/30
8/29
10/28
12/27
2/25
Effluent Temperature at 1100
OPS SQL (Ventura Water Renovation Facility)

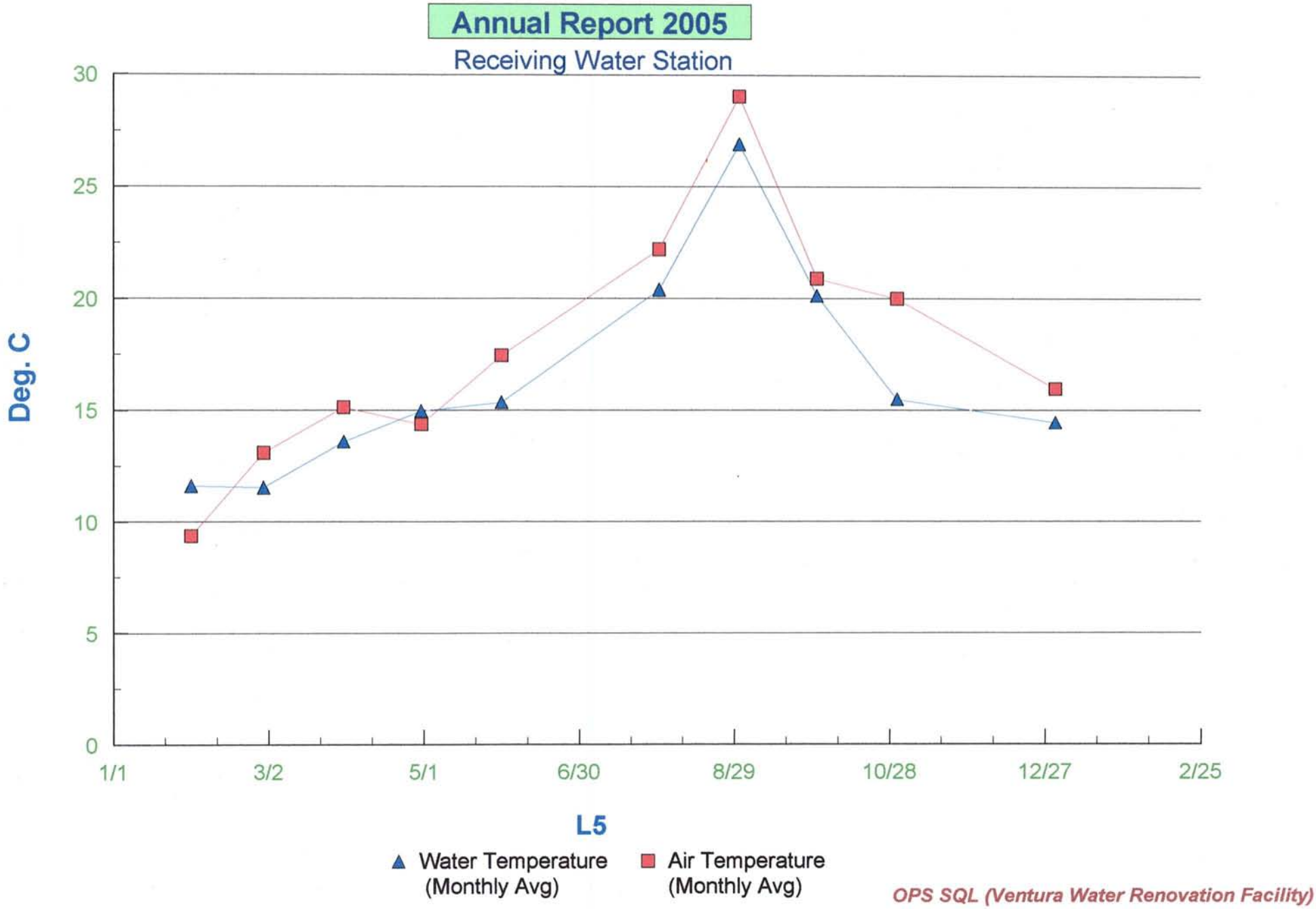

Annual Report 2005
Effluent Transfer Station
25
20
15
10
Deg. C
1/1
3/2
5/1
6/30
8/29
10/28
12/27
2/25
Outfall Junction Structure
Effluent Temperature at 1100 (Monthly Avg)
OPS SQL (Ventura Water Renovation Facility)

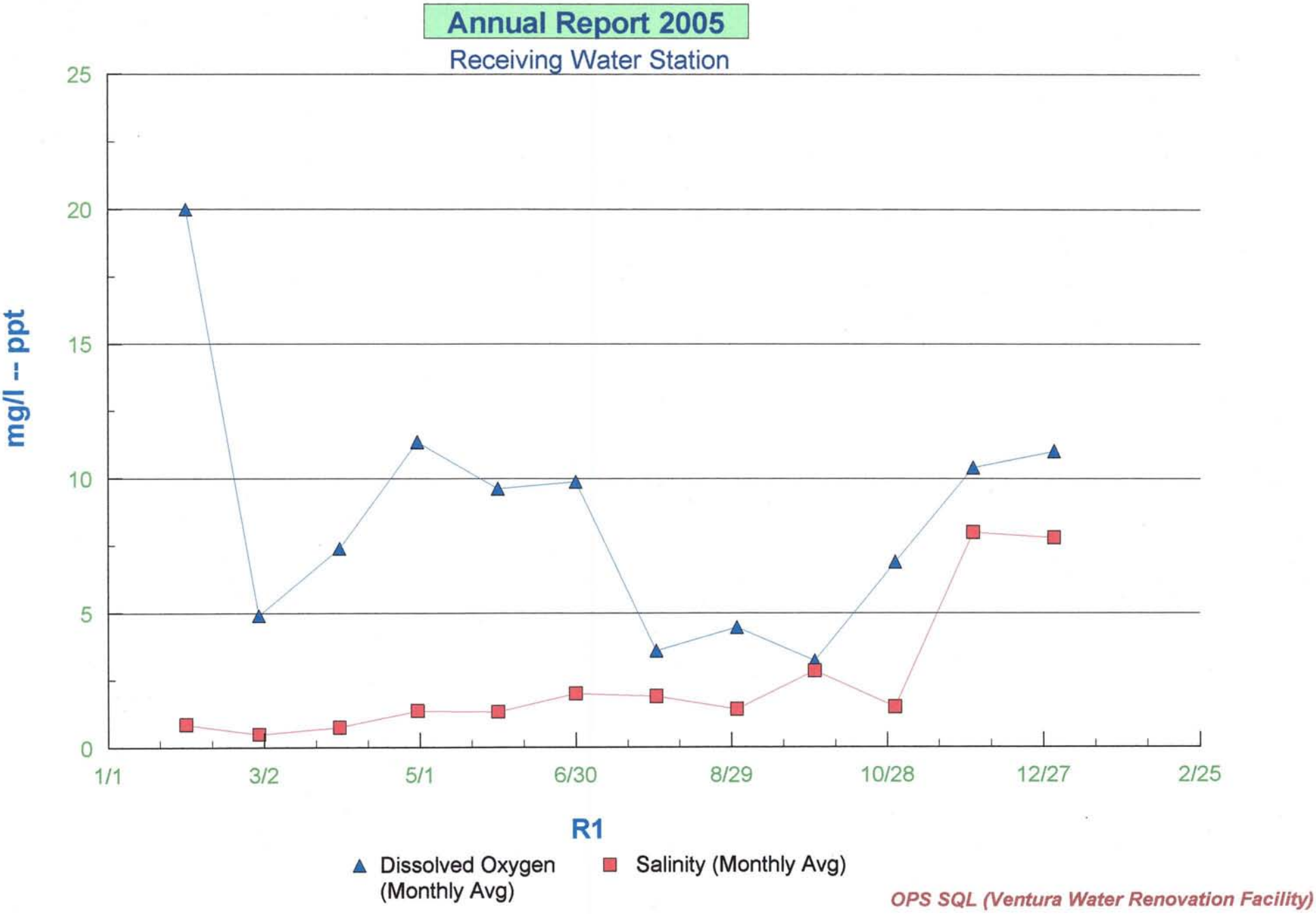

Annual Report 2005
Receiving Water Station
Deg. C
25
20
15
10
5
0
1/1
3/2
5/1
6/30
8/29
10/28
12/27
2/25
R1
Water Temperature (Monthly Avg)
Air Temperature (Monthly Avg)
OPS SQL (Ventura Water Renovation Facility)

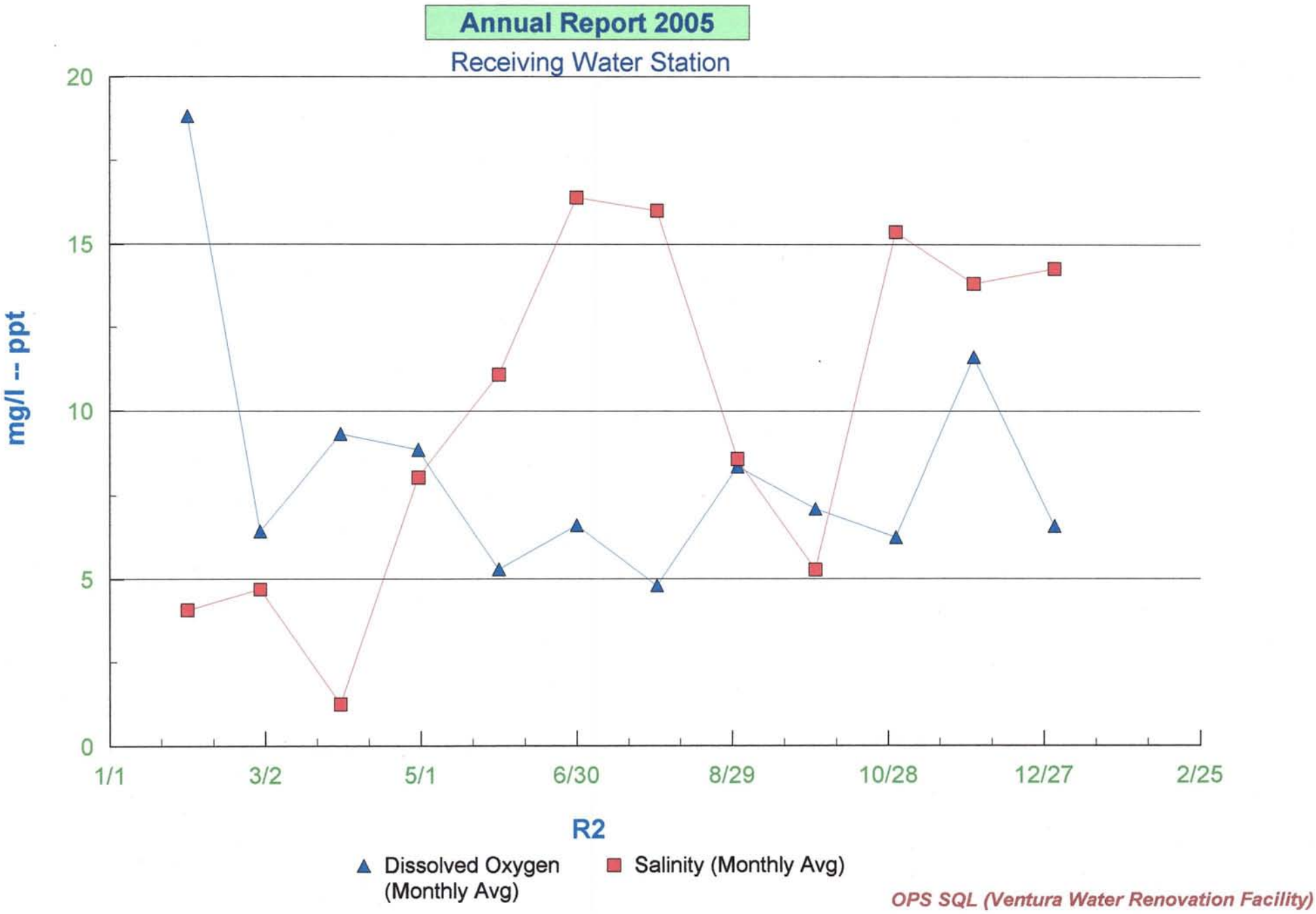

Annual Report 2005
Receiving Water Station
Deg. C
25
20
15
10
5
0
1/1
3/2
5/1
6/30
8/29
10/28
12/27
2/25
R2
Water Temperature (Monthly Avg)
Air Temperature (Monthly Avg)
OPS SQL (Ventura Water Renovation Facility)

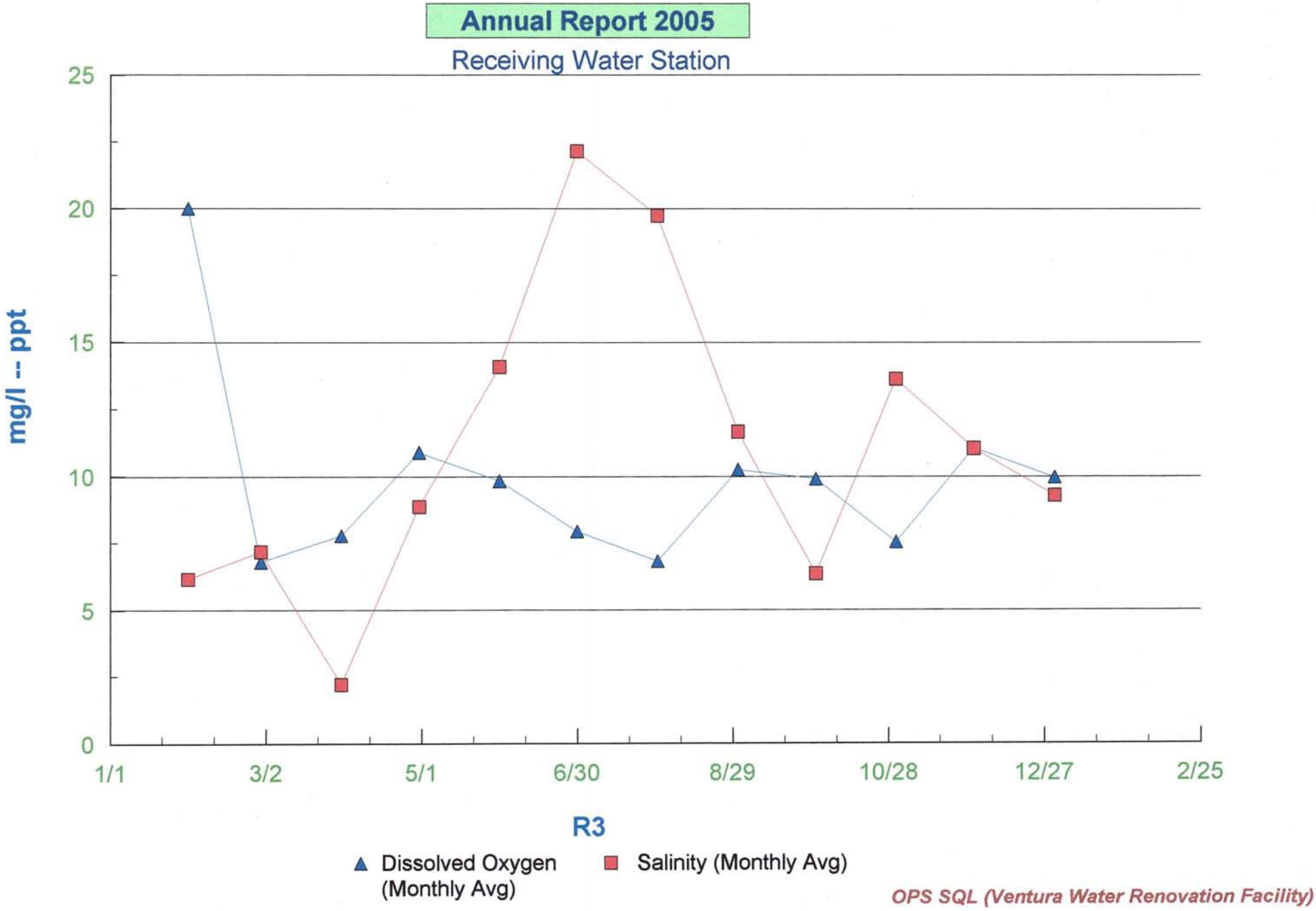

Annual Report 2005
Receiving Water Station
Deg. C
25
20
15
10
5
0
1/1
3/2
5/1
6/30
8/29
10/28
12/27
2/25
R3
Water Temperature (Monthly Avg)
Air Temperature (Monthly Avg)
OPS SQL (Ventura Water Renovation Facility)

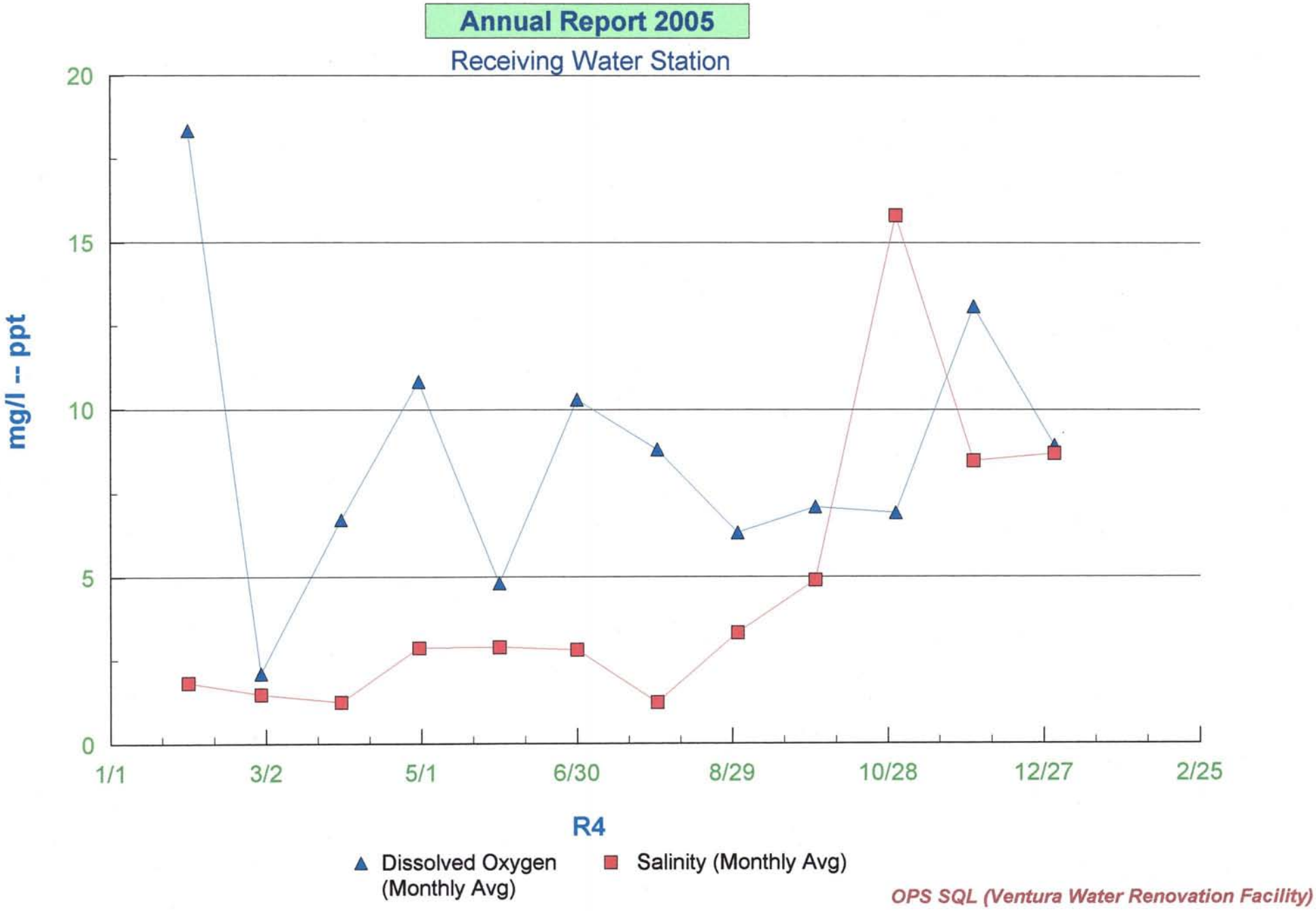

Annual Report 2005
Receiving Water Station
Deg. C
25
20
15
10
5
0
1/1
3/2
5/1
6/30
8/29
10/28
12/27
2/25
R4
Water Temperature (Monthly Avg)
Air Temperature (Monthly Avg)
OPS SQL (Ventura Water Renovation Facility)

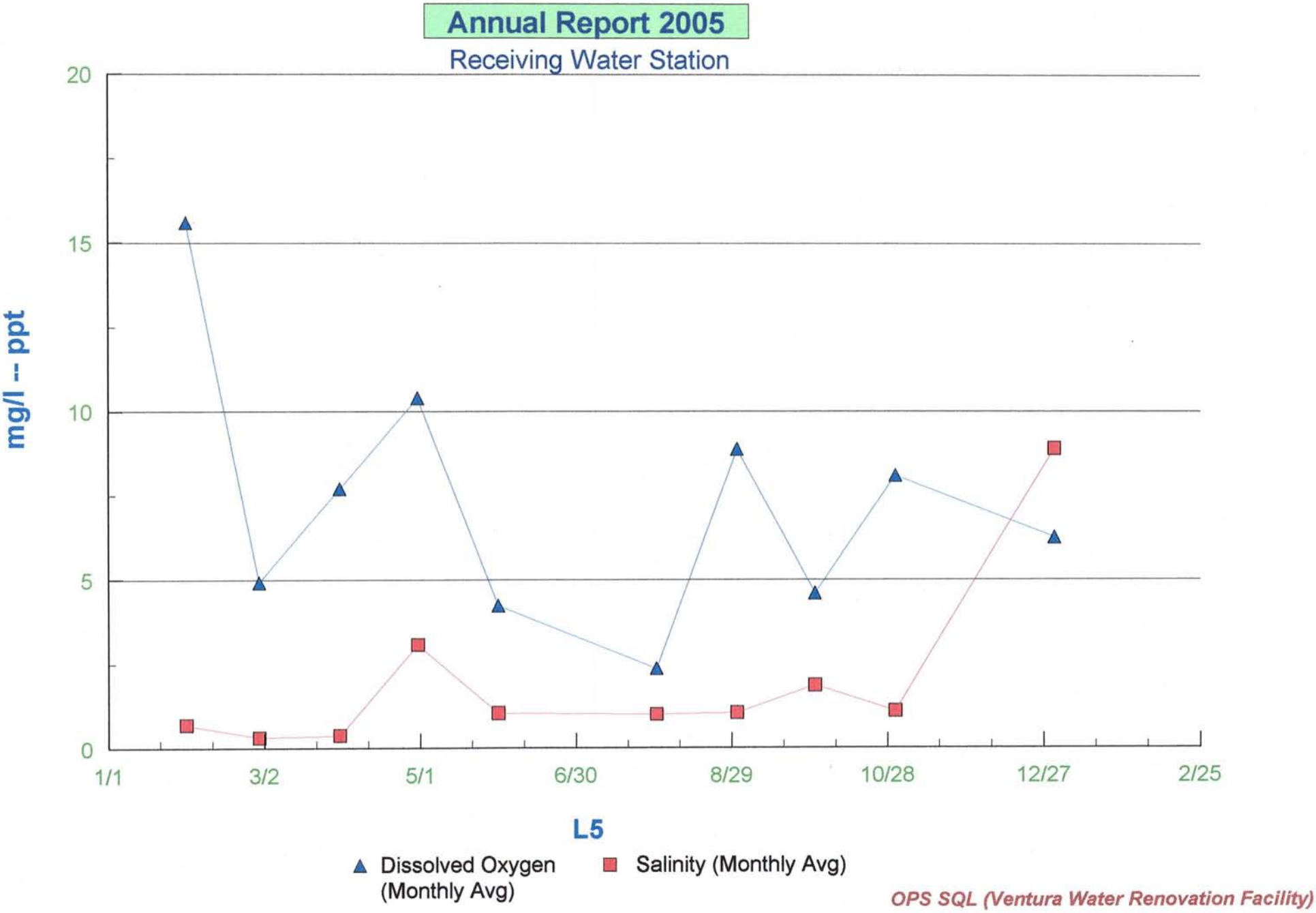

Annual Report 2005
Receiving Water Station
Deg. C
30
25
20
15
10
5
0
1/1
3/2
5/1
6/30
8/29
10/28
12/27
2/25
L5
Water Temperature (Monthly Avg)
Air Temperature (Monthly Avg)
OPS SQL (Ventura Water Renovation Facility)

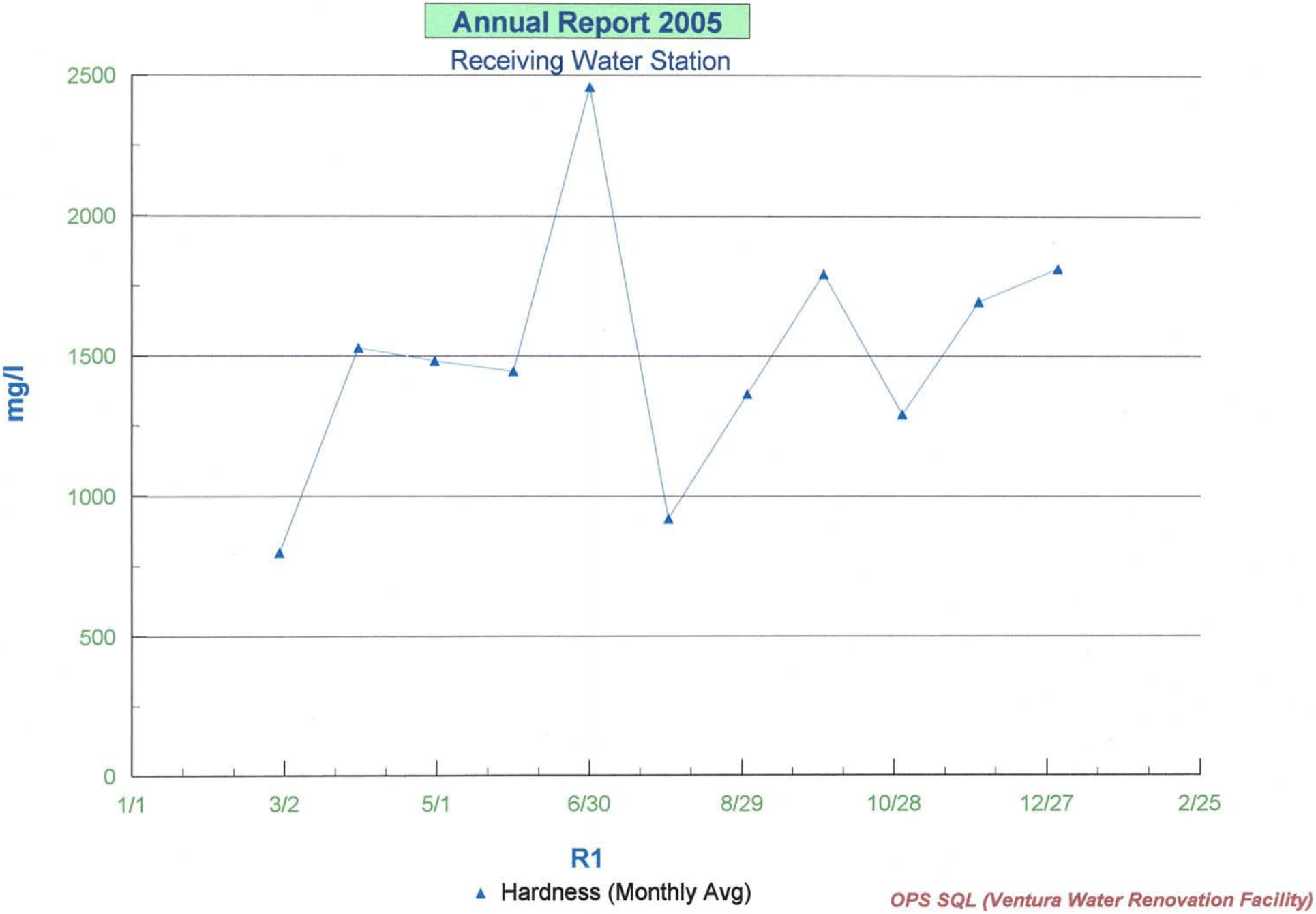

Annual Report 2005
Receiving Water Station
mg/l -- ppt
25
20
15
10
5
0
1/1
3/2
5/1
6/30
8/29
10/28
12/27
2/25
R1
Dissolved Oxygen (Monthly Avg)
Salinity (Monthly Avg)
OPS SQL (Ventura Water Renovation Facility)

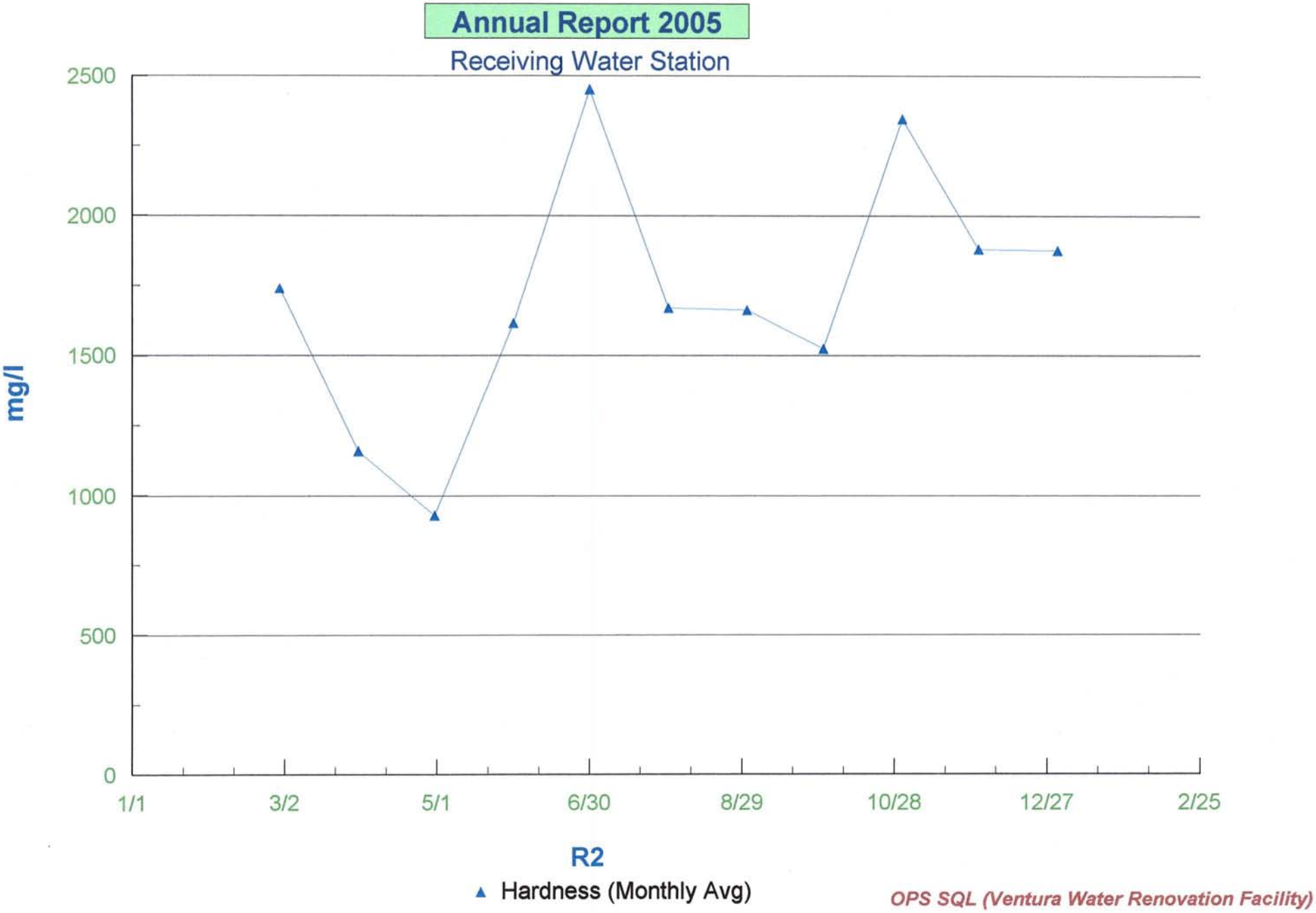

Annual Report 2005
Receiving Water Station
20
15
10
5
0
mg/l -- ppt
1/1
3/2
5/1
6/30
8/29
10/28
12/27
2/25
R2
Dissolved Oxygen (Monthly Avg)
Salinity (Monthly Avg)
OPS SQL (Ventura Water Renovation Facility)

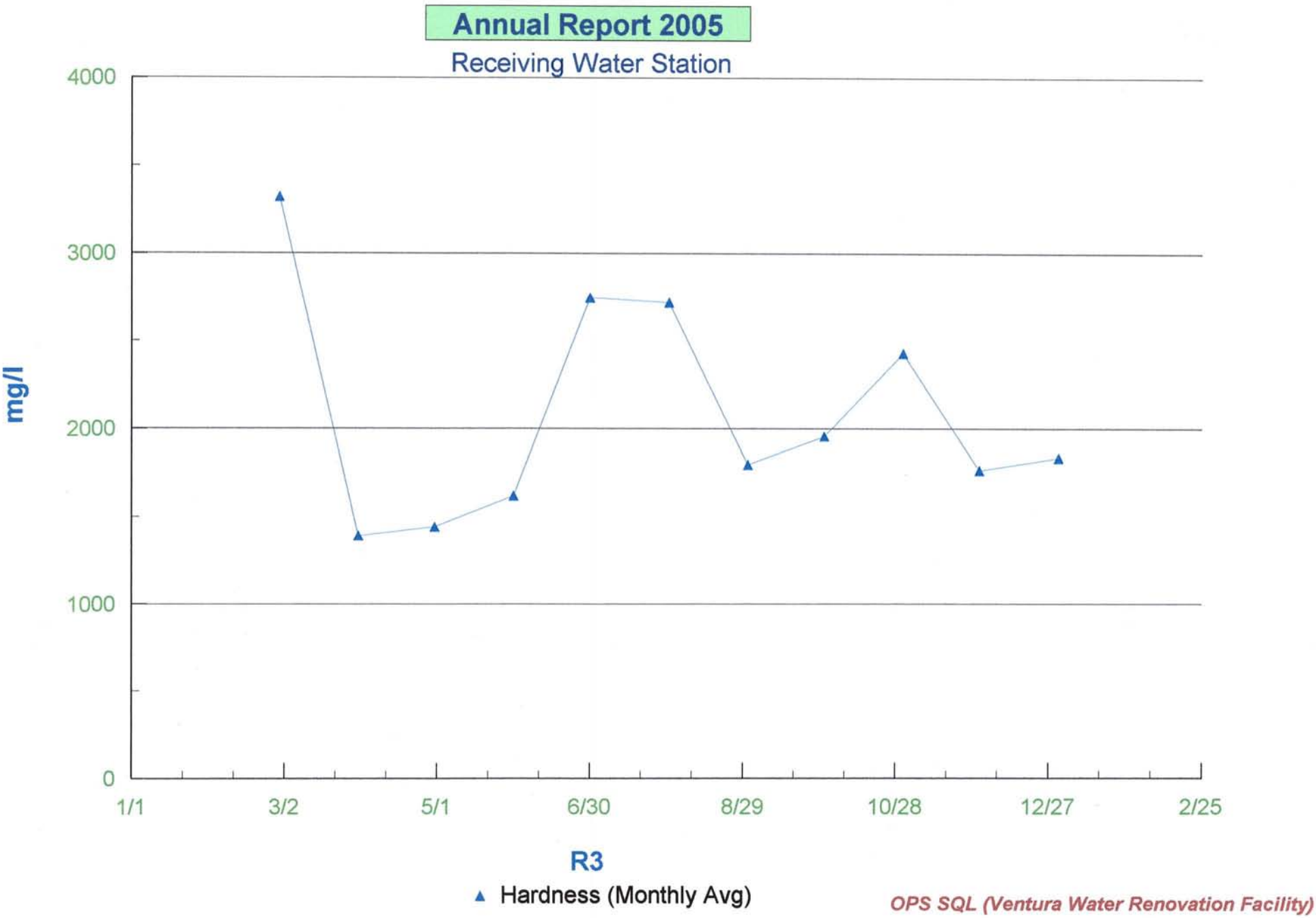

Annual Report 2005
Receiving Water Station
25
20
15
10
5
0
mg/l -- ppt
1/1
3/2
5/1
6/30
8/29
10/28
12/27
2/25
R3
Dissolved Oxygen (Monthly Avg)
Salinity (Monthly Avg)
OPS SQL (Ventura Water Renovation Facility)

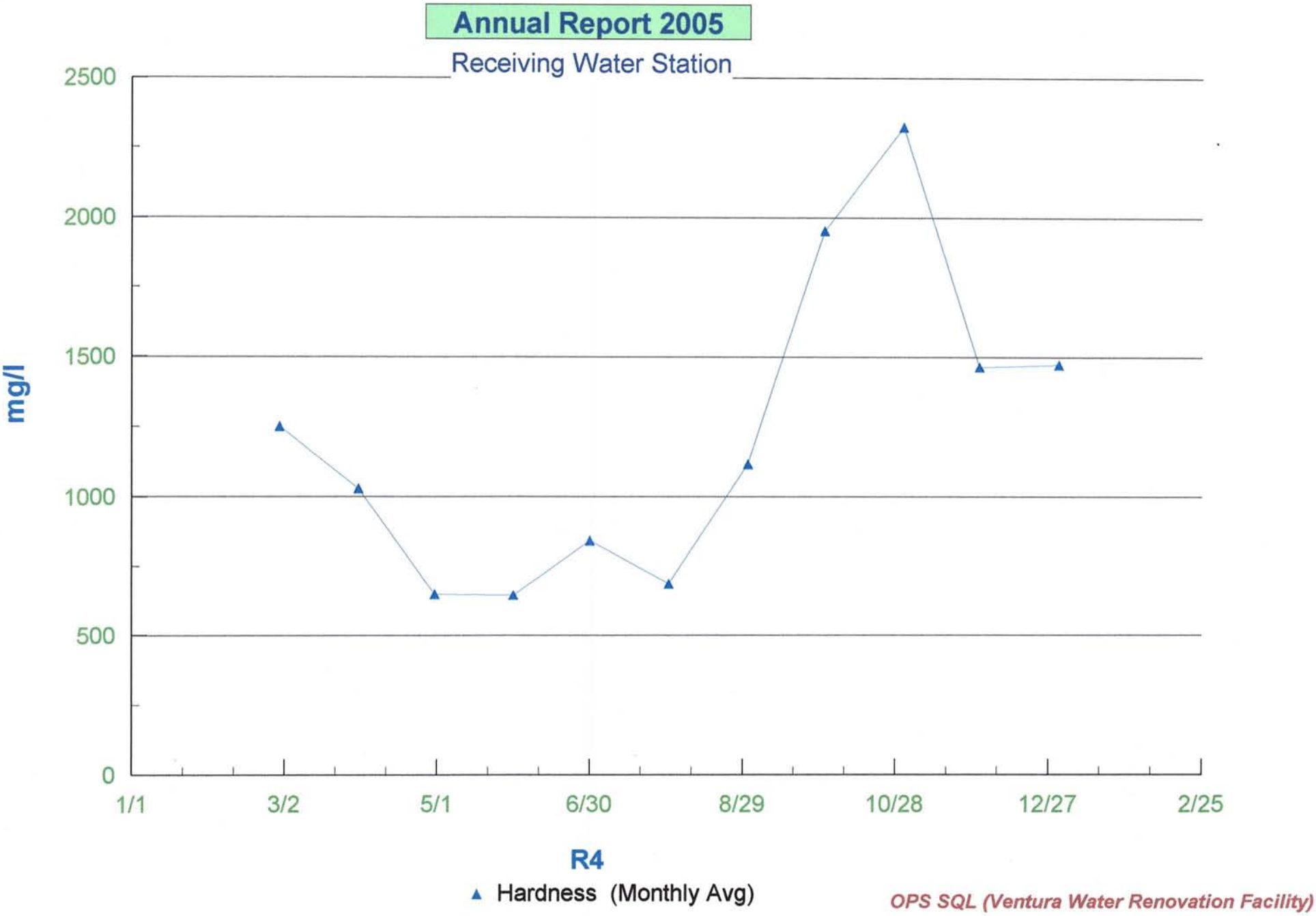

Annual Report 2005
Receiving Water Station
20
15
10
5
0
mg/l -- ppt
1/1
3/2
5/1
6/30
8/29
10/28
12/27
2/25
R4
Dissolved Oxygen (Monthly Avg)
Salinity (Monthly Avg)
OPS SQL (Ventura Water Renovation Facility)

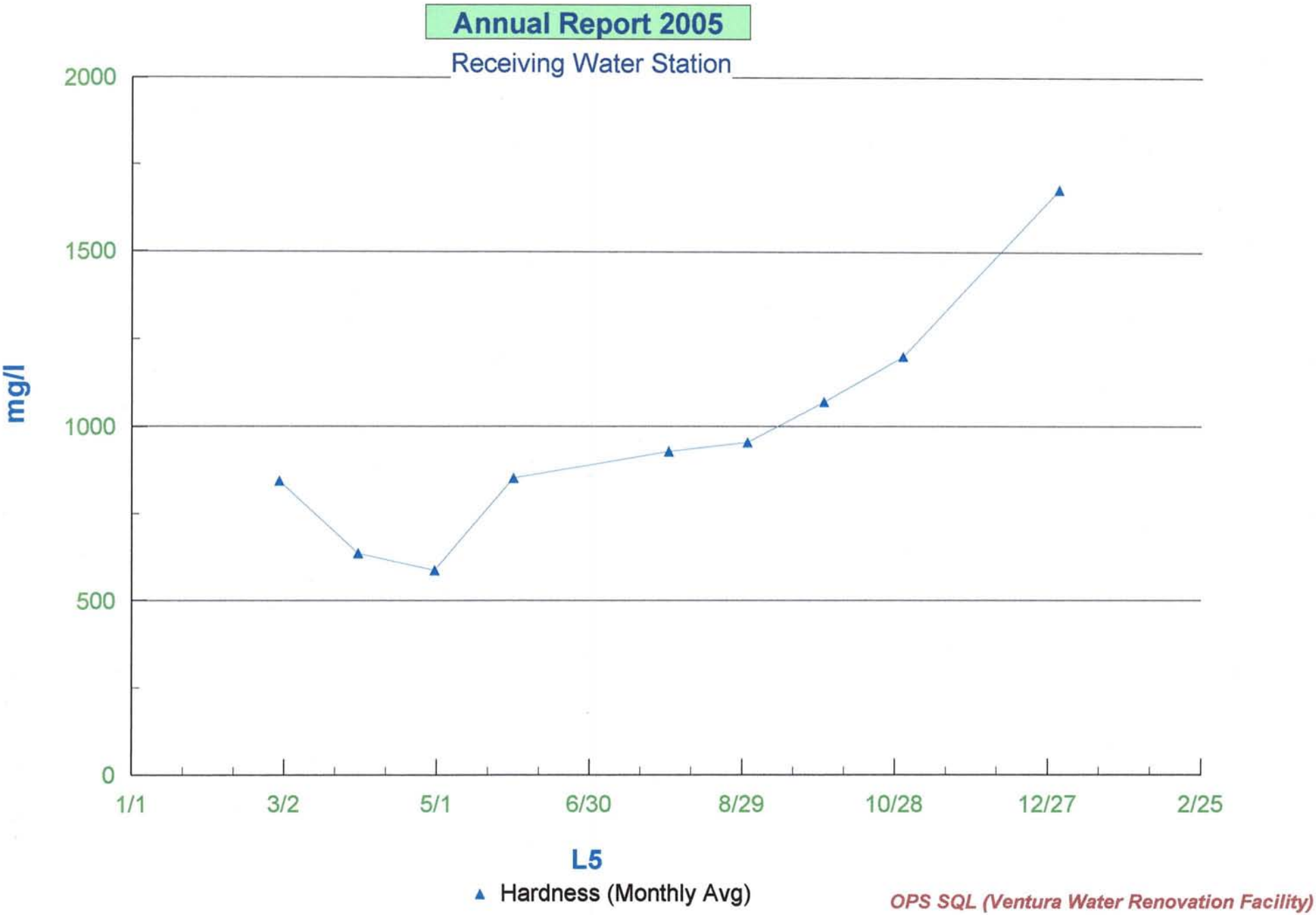

Annual Report 2005
Receiving Water Station
20
15
10
5
0
mg/l -- ppt
1/1
3/2
5/1
6/30
8/29
10/28
12/27
2/25
L5
Dissolved Oxygen (Monthly Avg)
Salinity (Monthly Avg)
OPS SQL (Ventura Water Renovation Facility)

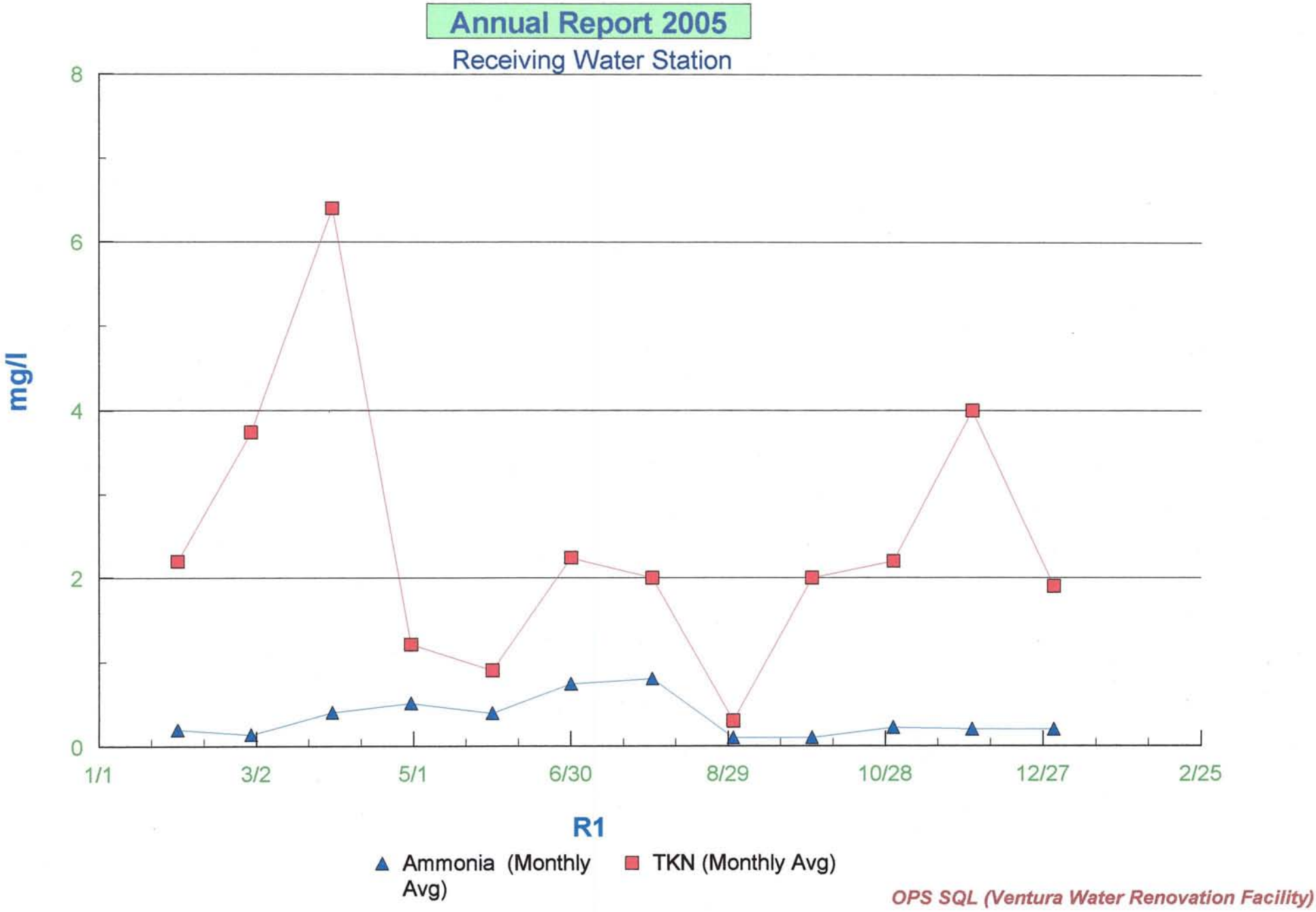

Annual Report 2005
Receiving Water Station
2500
2000
1500
1000
500
0
mg/l
1/1
3/2
5/1
6/30
8/29
10/28
12/27
2/25
R1
Hardness (Monthly Avg)
OPS SQL (Ventura Water Renovation Facility)

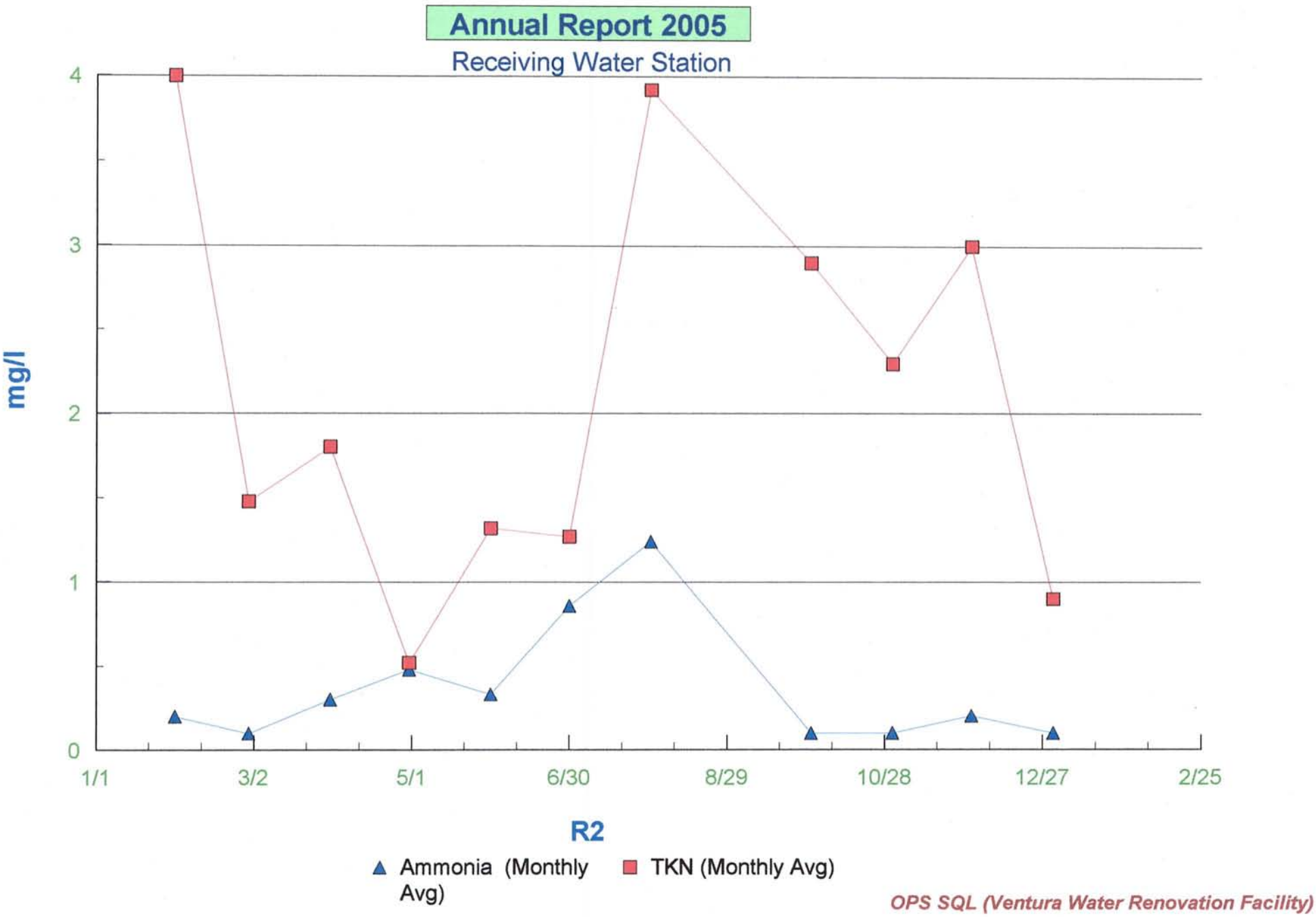

Annual Report 2005
Receiving Water Station
2500
2000
1500
1000
500
0
mg/l
1/1
3/2
5/1
6/30
8/29
10/28
12/27
2/25
R2
Hardness (Monthly Avg)
OPS SQL (Ventura Water Renovation Facility)

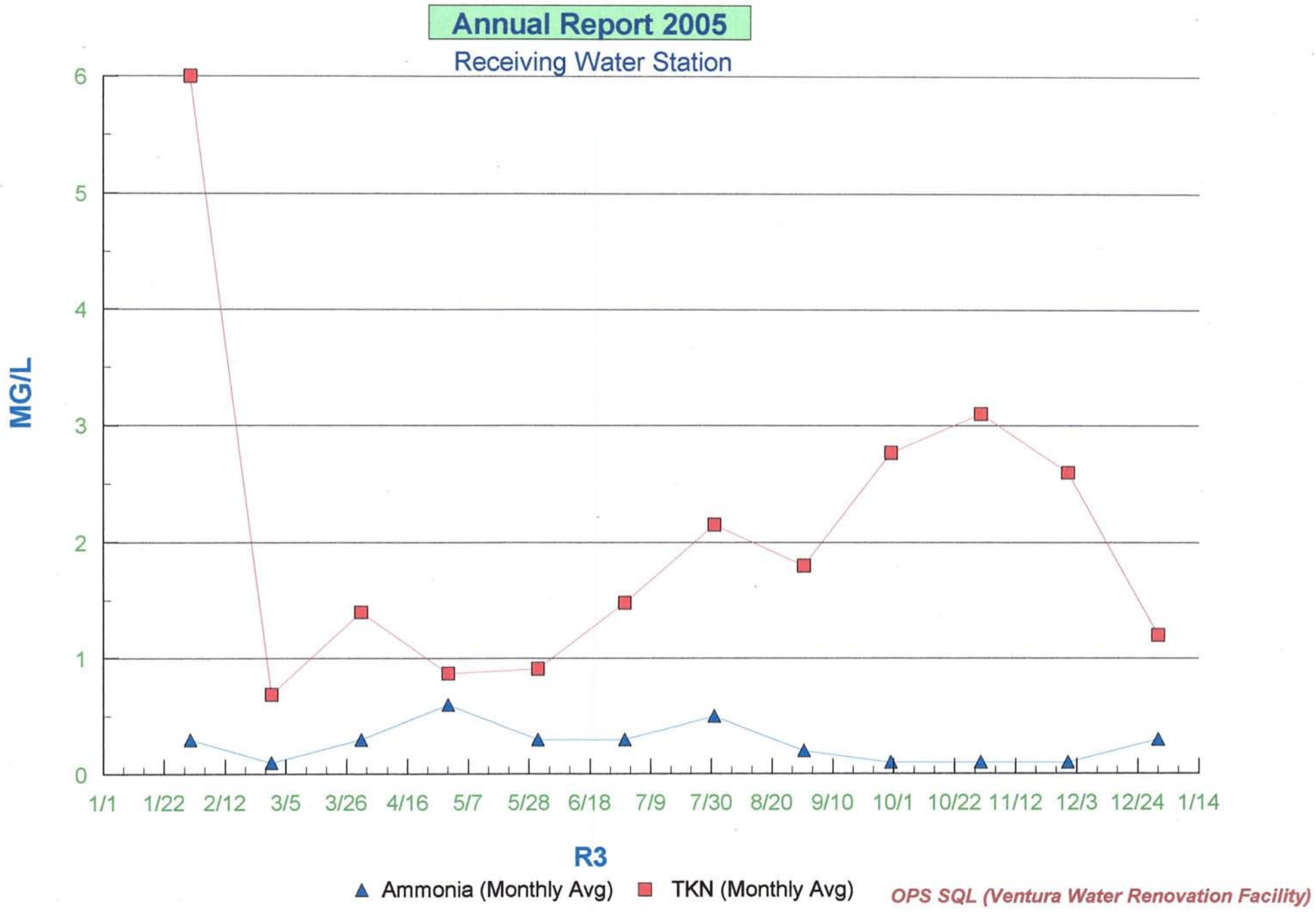

Annual Report 2005
Receiving Water Station
4000
3000
2000
1000
0
mg/l
1/1
3/2
5/1
6/30
8/29
10/28
12/27
2/25
R3
Hardness (Monthly Avg)
OPS SQL (Ventura Water Renovation Facility)

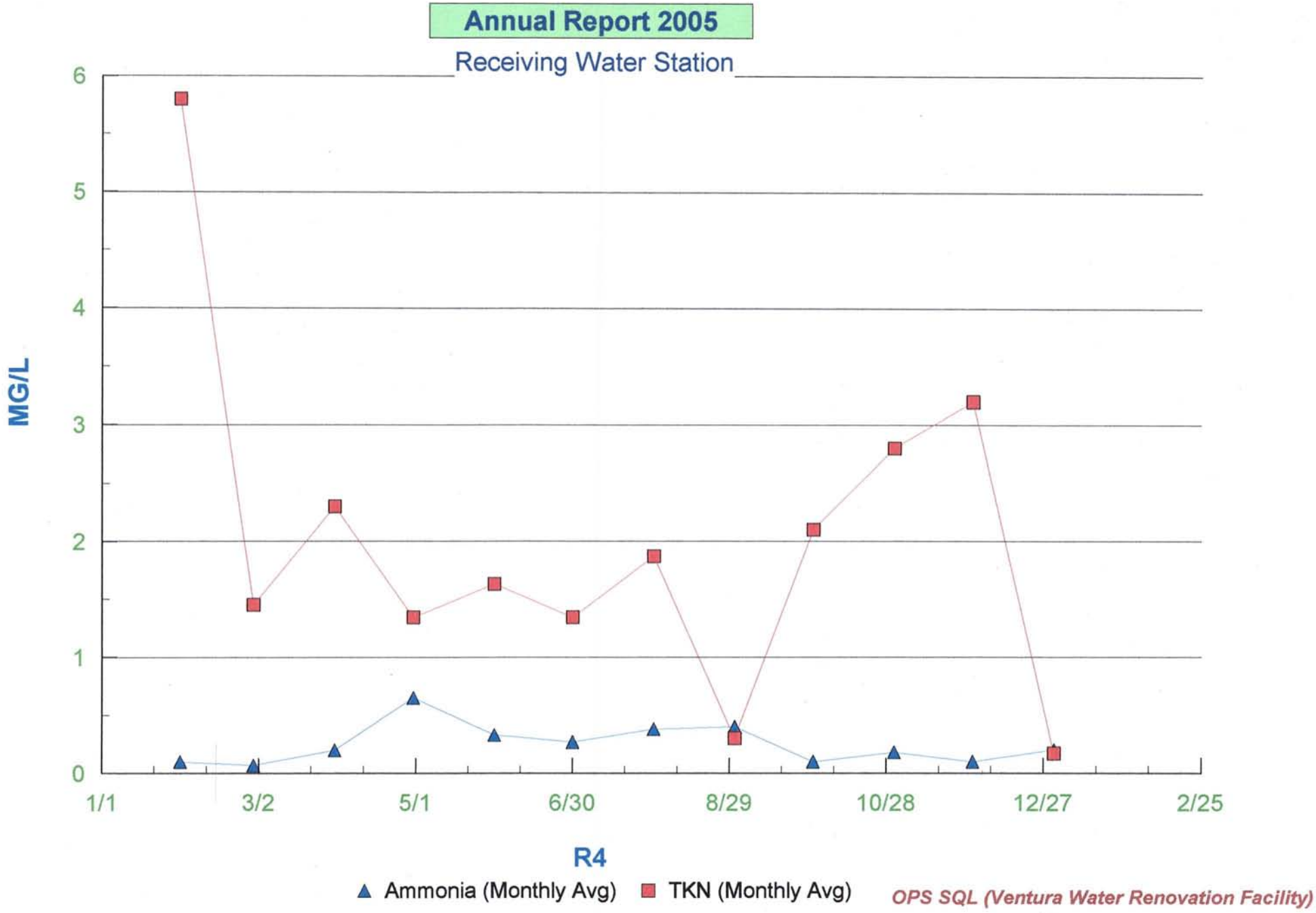

Annual Report 2005
Receiving Water Station
2500
2000
1500
1000
500
0
mg/l
1/1
3/2
5/1
6/30
8/29
10/28
12/27
2/25
R4
Hardness (Monthly Avg)
OPS SQL (Ventura Water Renovation Facility)

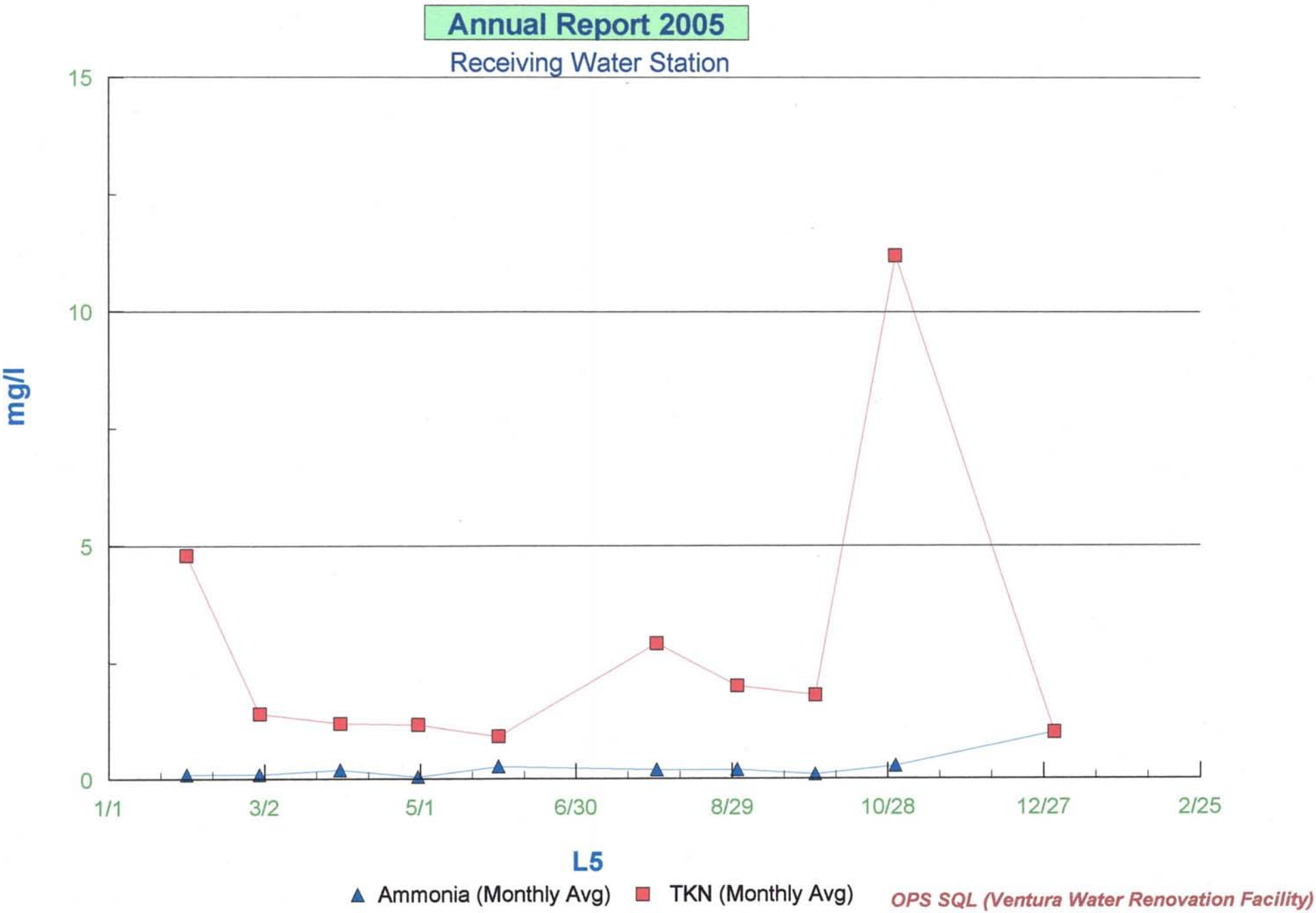

Annual Report 2005
Receiving Water Station
2000
1500
1000
500
0
mg/l
1/1
3/2
5/1
6/30
8/29
10/28
12/27
2/25
L5
Hardness (Monthly Avg)
OPS SQL (Ventura Water Renovation Facility)

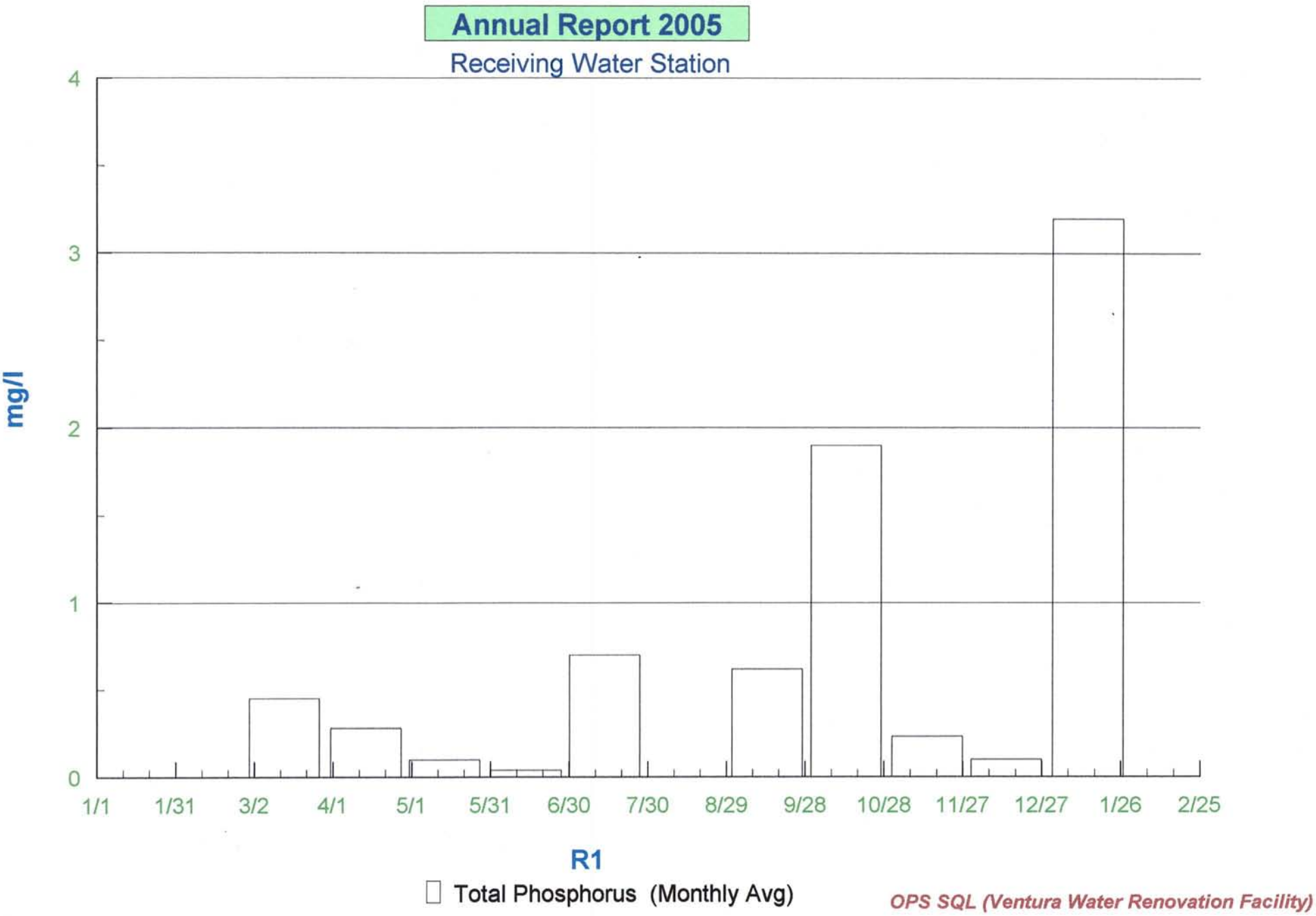

Annual Report 2005
Receiving Water Station
mg/l
8
6
4
2
0
1/1
3/2
5/1
6/30
8/29
10/28
12/27
2/25
R1
Ammonia (Monthly Avg)
TKN (Monthly Avg)
OPS SQL (Ventura Water Renovation Facility)


Annual Report 2005
Receiving Water Station
mg/l
4
3
2
1
0
1/1
3/2
5/1
6/30
8/29
10/28
12/27
2/25
R2
Ammonia (Monthly Avg)
TKN (Monthly Avg)
OPS SQL (Ventura Water Renovation Facility)

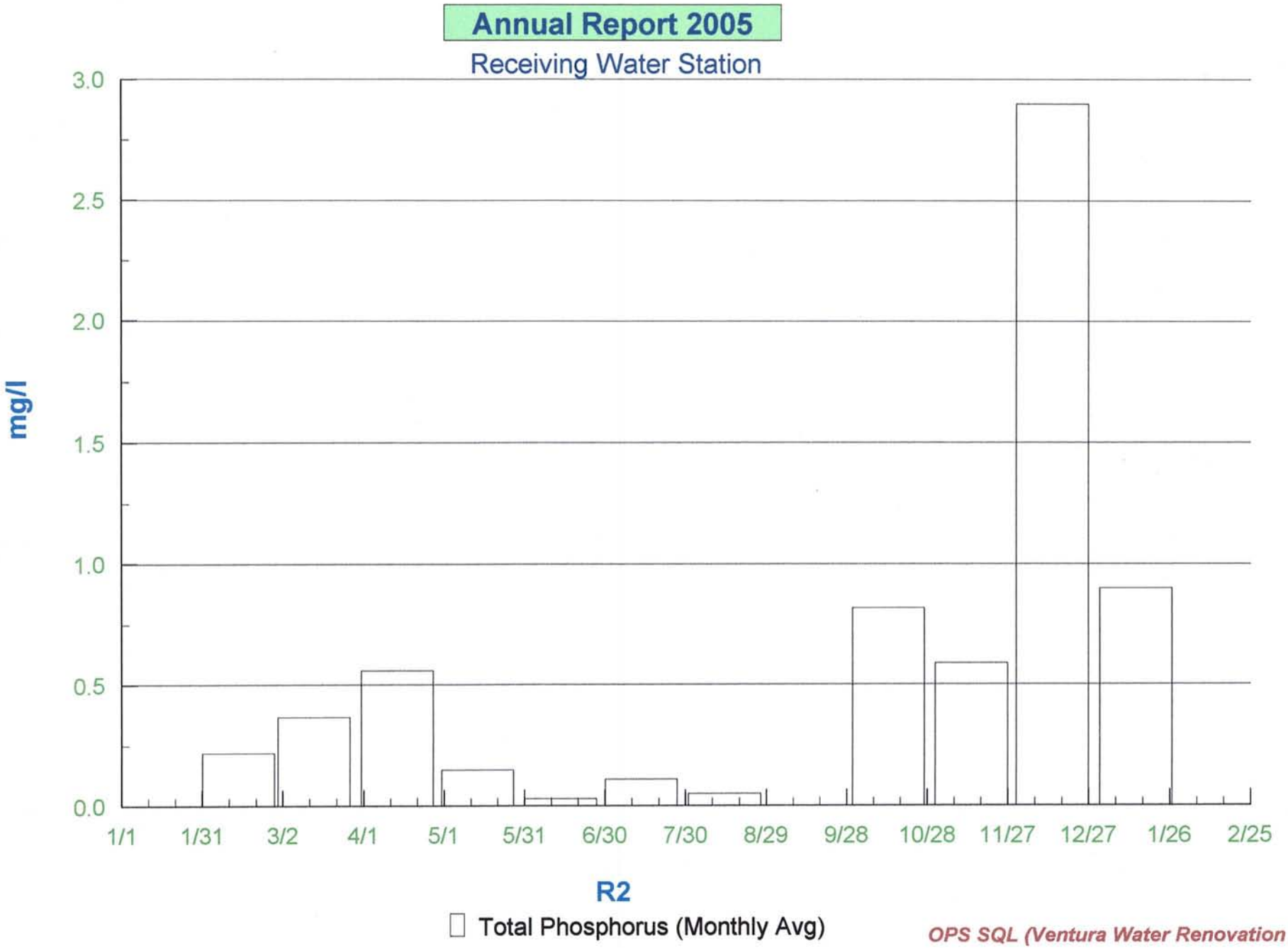

Annual Report 2005
Receiving Water Station
MG/L
6
5
4
3
2
1
0
1/1
1/22
2/12
3/5
3/26
4/16
5/7
5/28
6/18
7/9
7/30
8/20
9/10
10/1
10/22
11/12
12/3
12/24
1/14
R3
Ammonia (Monthly Avg)
TKN (Monthly Avg)
OPS SQL (Ventura Water Renovation Facility)


Annual Report 2005
Receiving Water Station
MG/L
6
5
4
3
2
1
0
1/1
3/2
5/1
6/30
8/29
10/28
12/27
2/25
R4
Ammonia (Monthly Avg)
TKN (Monthly Avg)
OPS SQL (Ventura Water Renovation Facility)

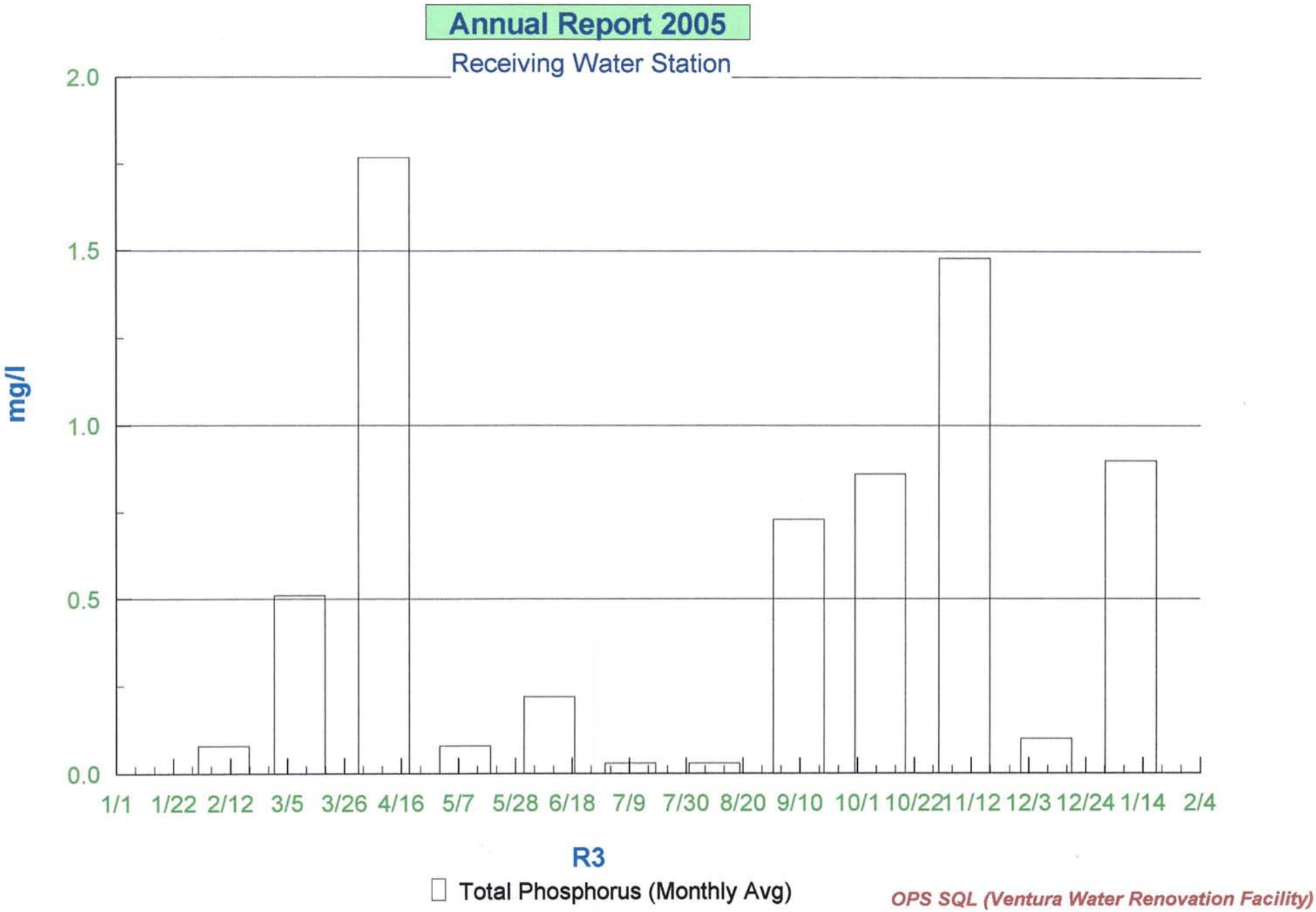

Annual Report 2005
Receiving Water Station
15
10
5
0
mg/l
1/1
3/2
5/1
6/30
8/29
10/28
12/27
2/25
L5
Ammonia (Monthly Avg)
TKN (Monthly Avg)
OPS SQL (Ventura Water Renovation Facility)

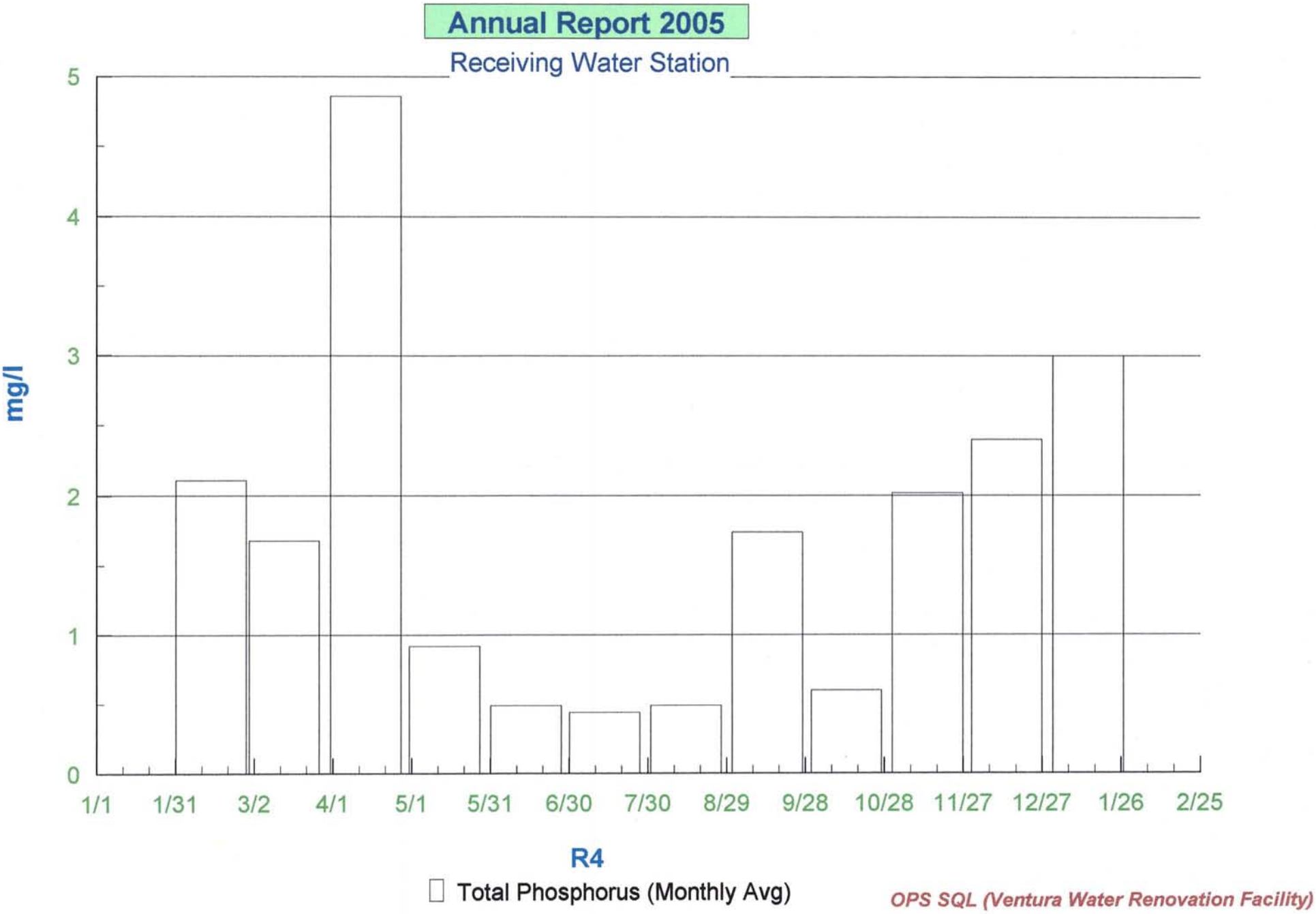


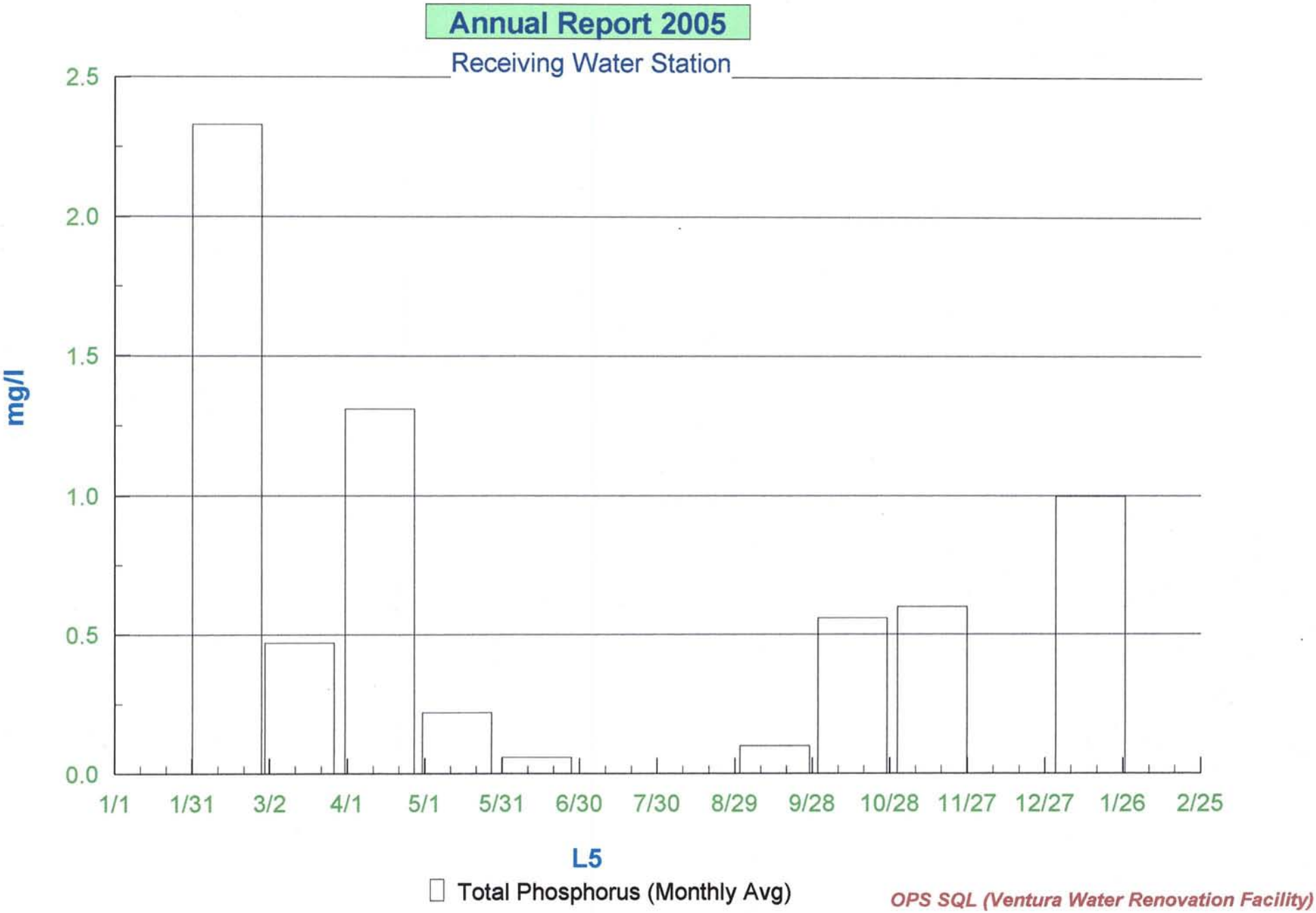
OPS SQL (Ventura Water Renovation Facility)

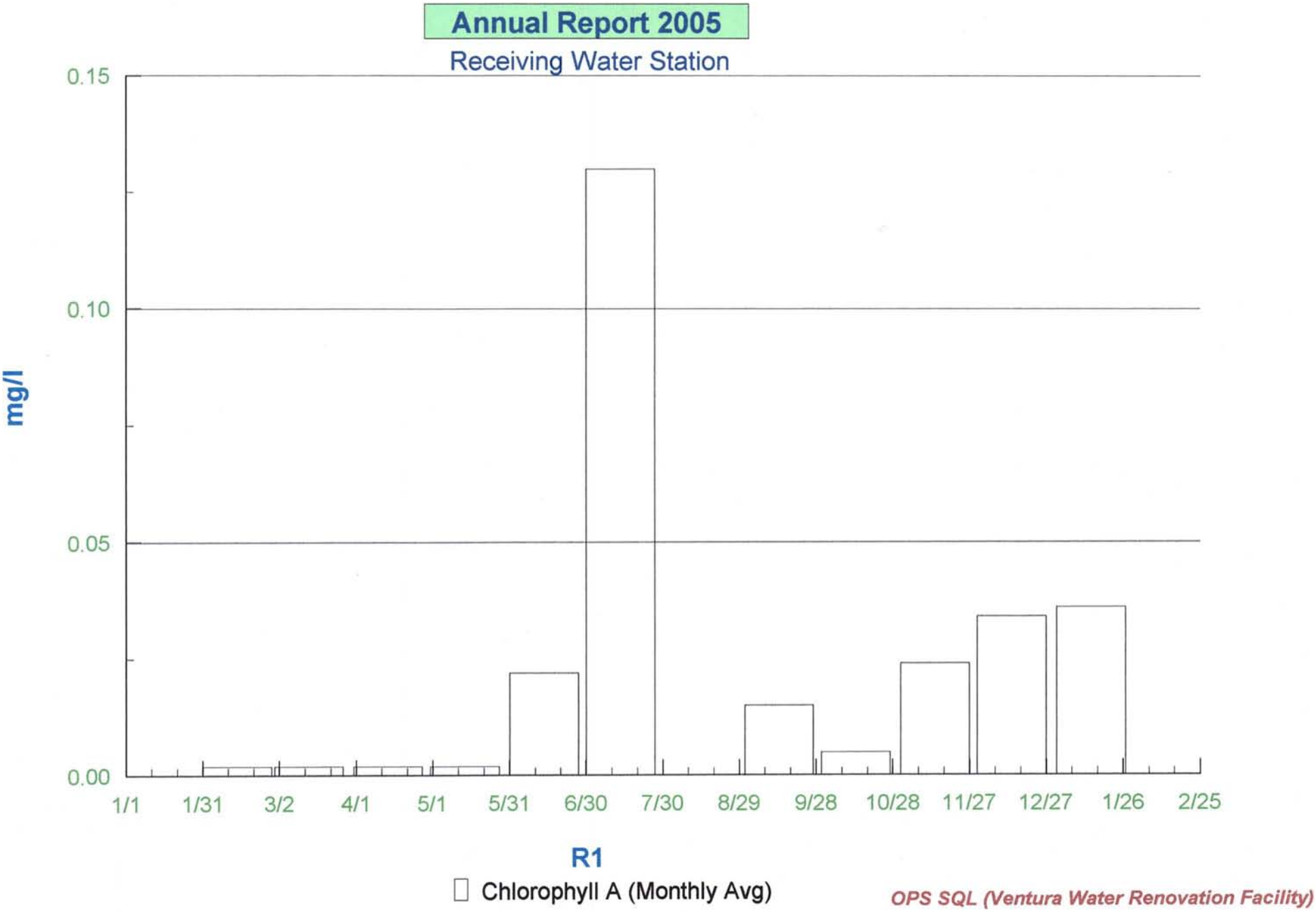


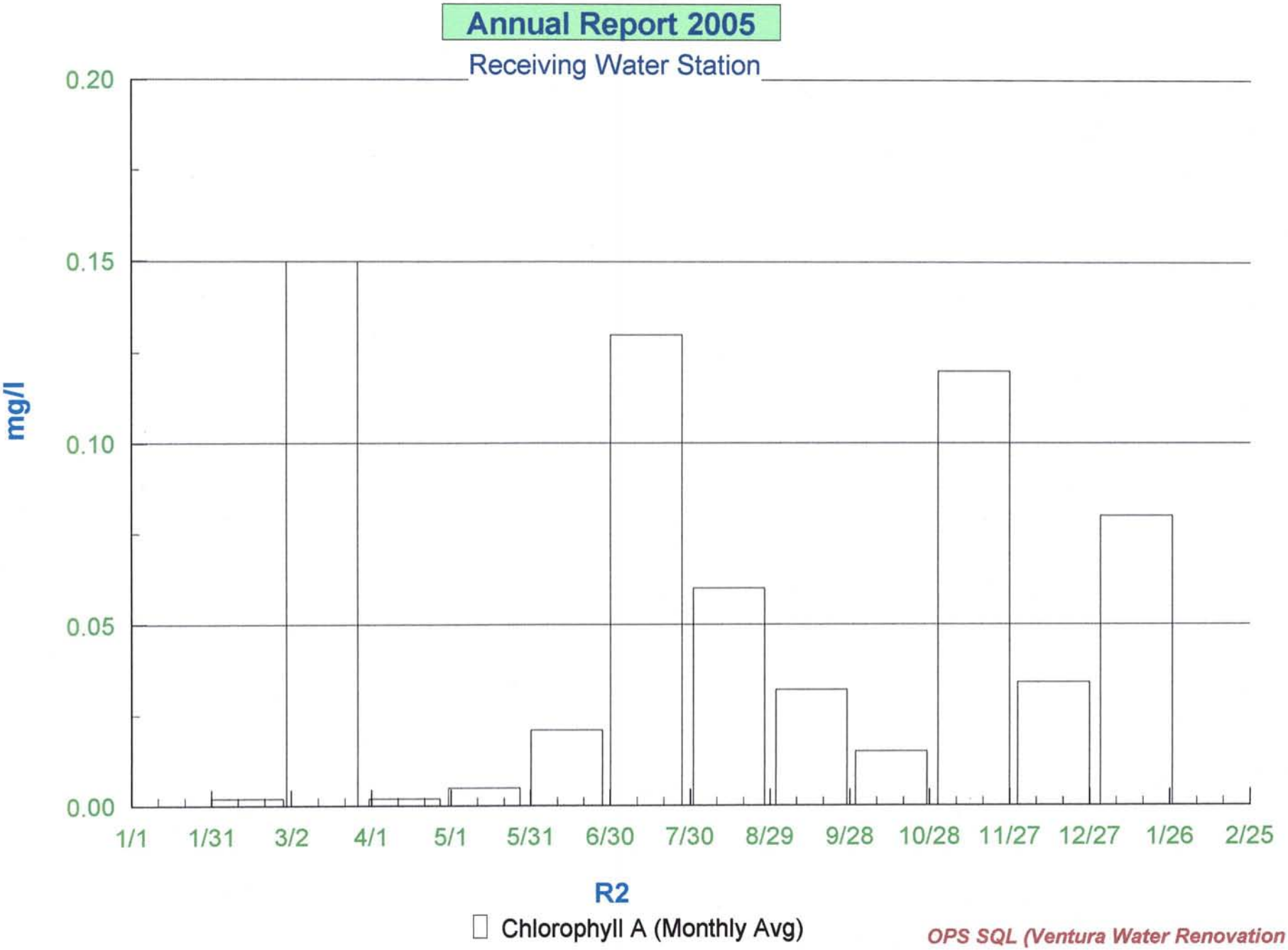
OPS SQL (Ventura Water Renovation Facility)


Annual Report 2005
Receiving Water Station
mg/l
2.0
1.5
1.0
0.5
0.0
1/1 1/22 2/12 3/5 3/26 4/16 5/7 5/28 6/18 7/9 7/30 8/20 9/10 10/1 10/22 11/12 12/3 12/24 1/14 2/4
R3
Total Phosphorus (Monthly Avg)
OPS SQL (Ventura Water Renovation Facility)

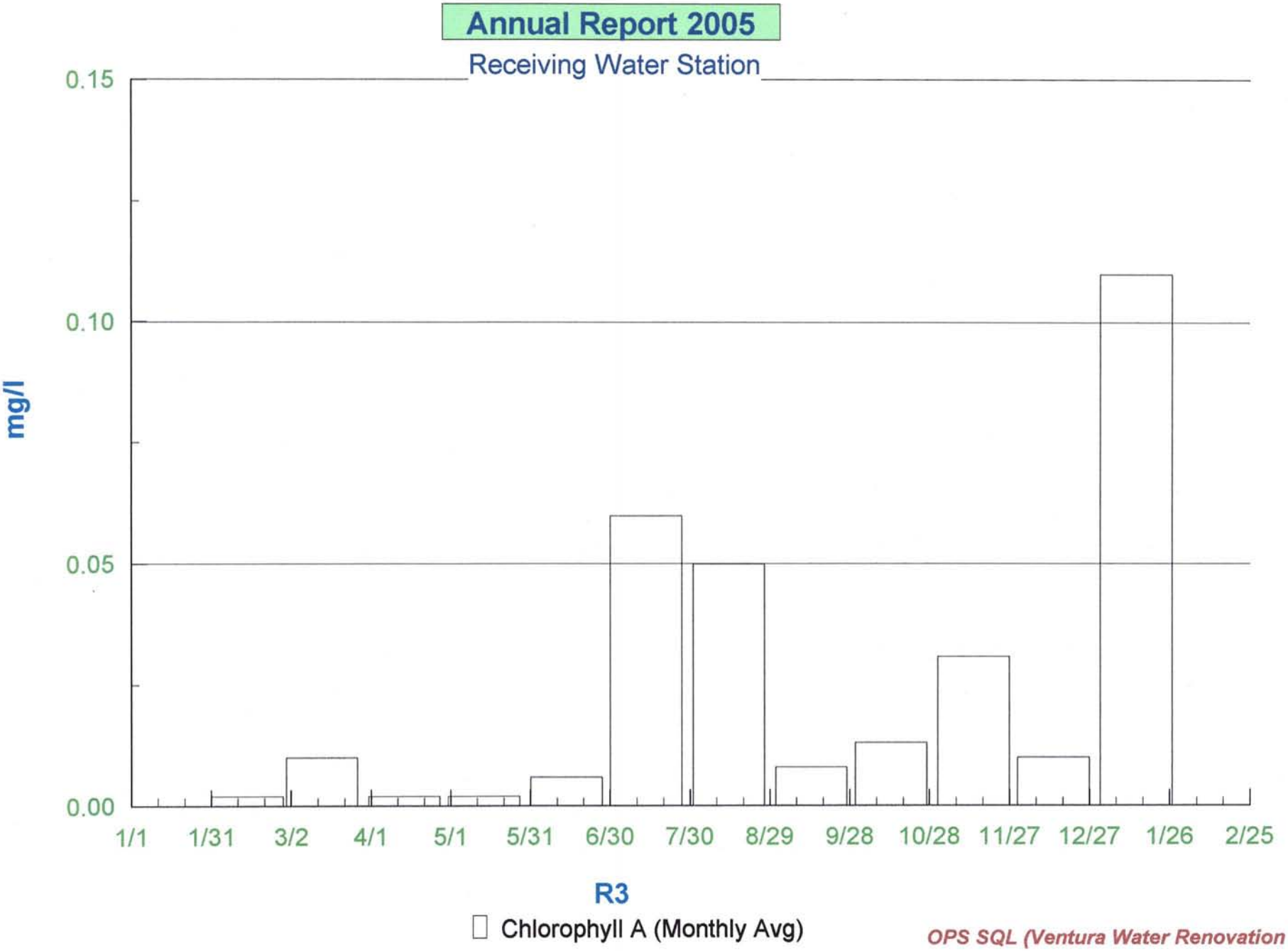

Annual Report 2005
Receiving Water Station
mg/l
5
4
3
2
1
0
1/1
1/31
3/2
4/1
5/1
5/31
6/30
7/30
8/29
9/28
10/28
11/27
12/27
1/26
2/25
R4
Total Phosphorus (Monthly Avg)
OPS SQL (Ventura Water Renovation Facility)


Annual Report 2005
Receiving Water Station
mg/l
2.5
2.0
1.5
1.0
0.5
0.0
1/1
1/31
3/2
4/1
5/1
5/31
6/30
7/30
8/29
9/28
10/28
11/27
12/27
1/26
2/25
L5
Total Phosphorus (Monthly Avg)
OPS SQL (Ventura Water Renovation Facility)

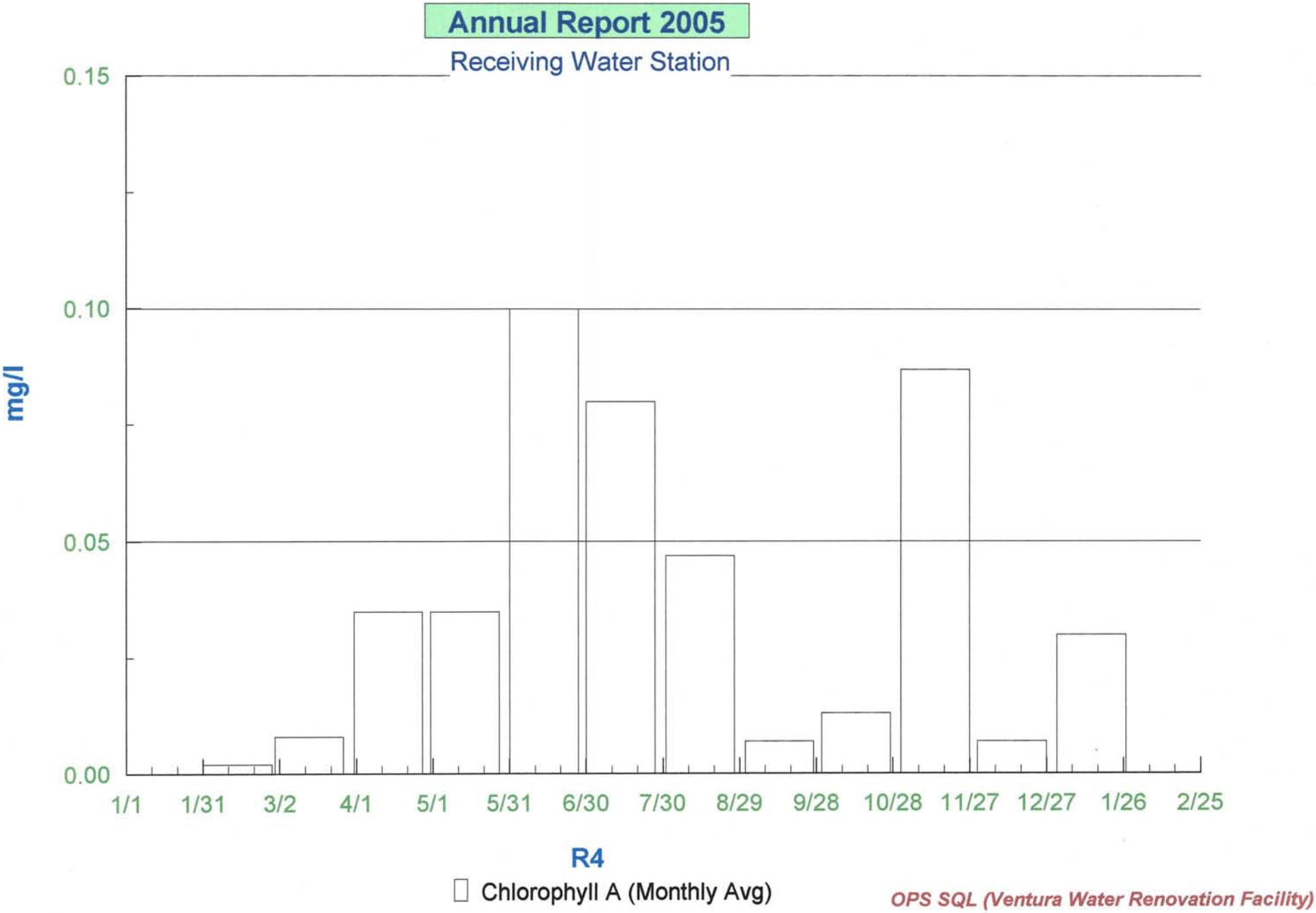

Annual Report 2005
Receiving Water Station
0.15
0.10
0.05
0.00
mg/l
1/1
1/31
3/2
4/1
5/1
5/31
6/30
7/30
8/29
9/28
10/28
11/27
12/27
1/26
2/25
R1
Chlorophyll A (Monthly Avg)
OPS SQL (Ventura Water Renovation Facility)

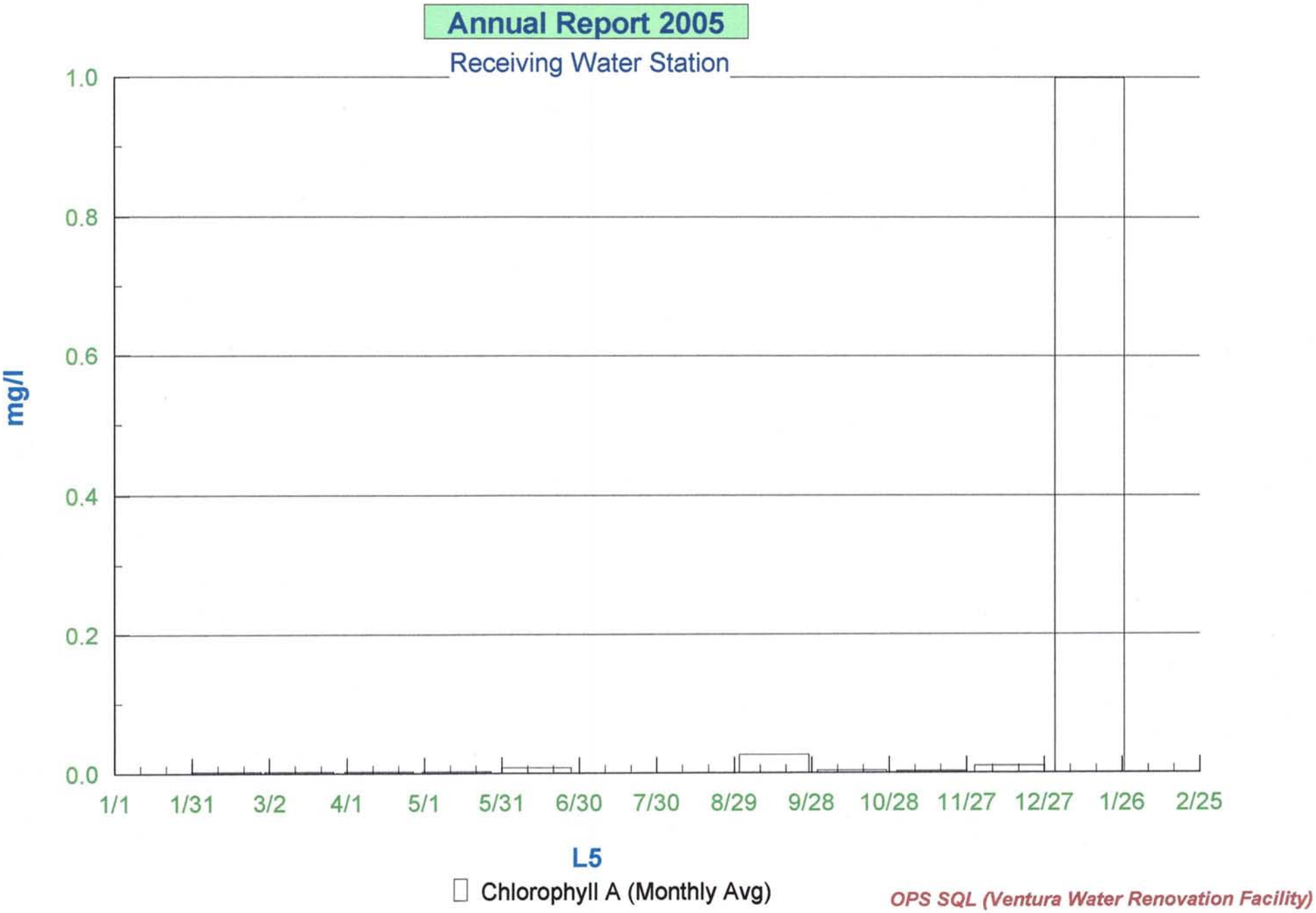


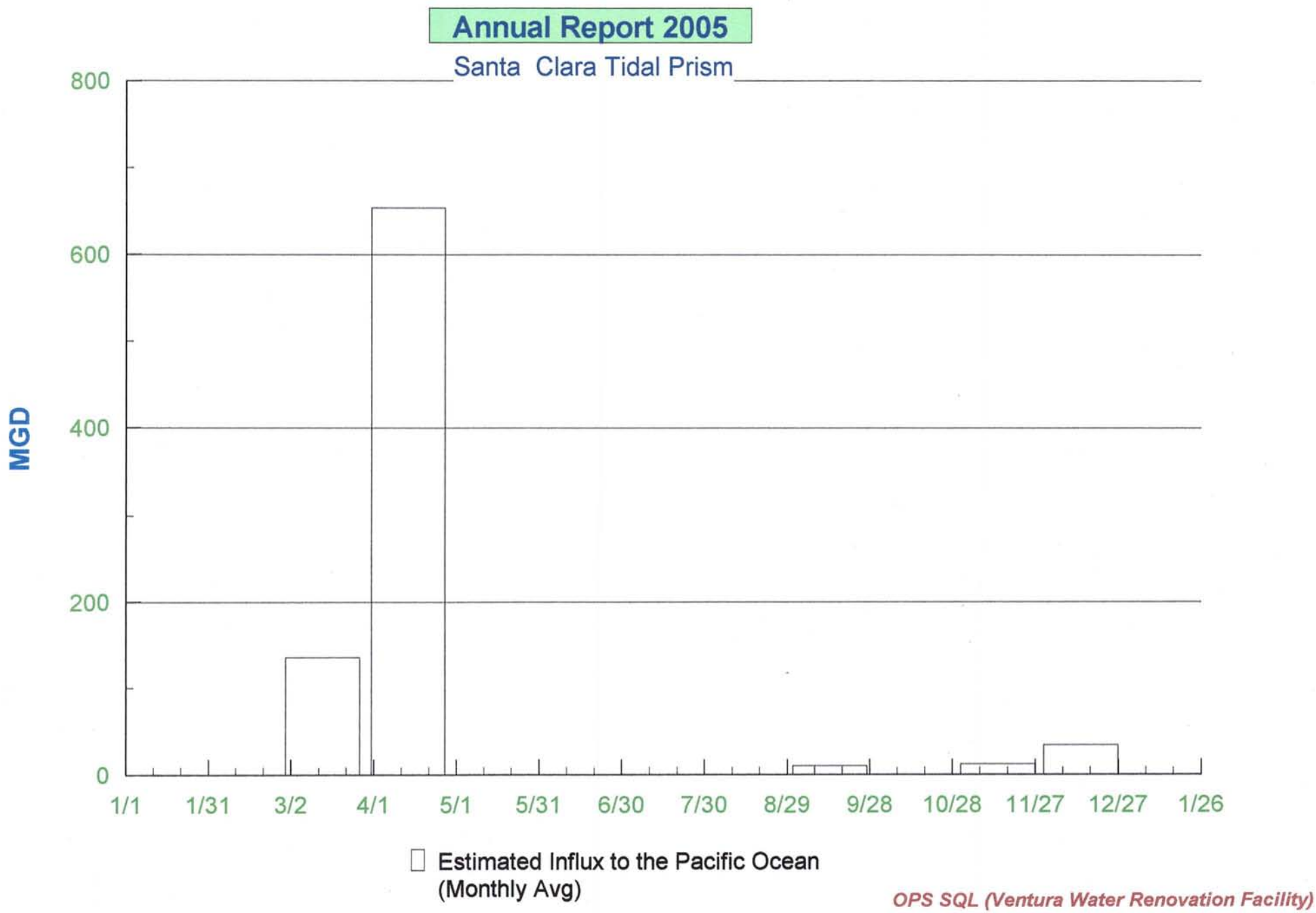
OPS SQL (Ventura Water Renovation Facility)

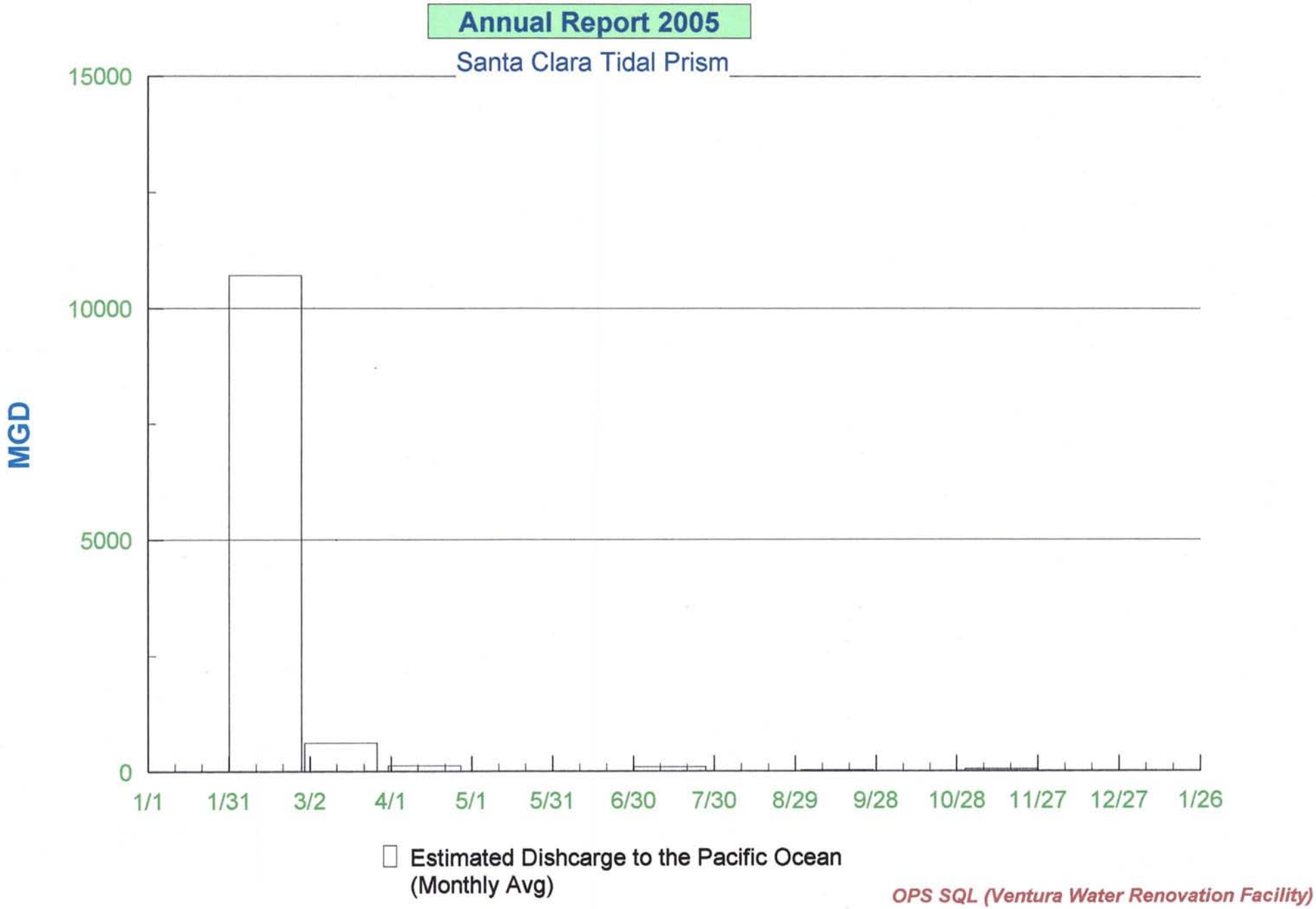


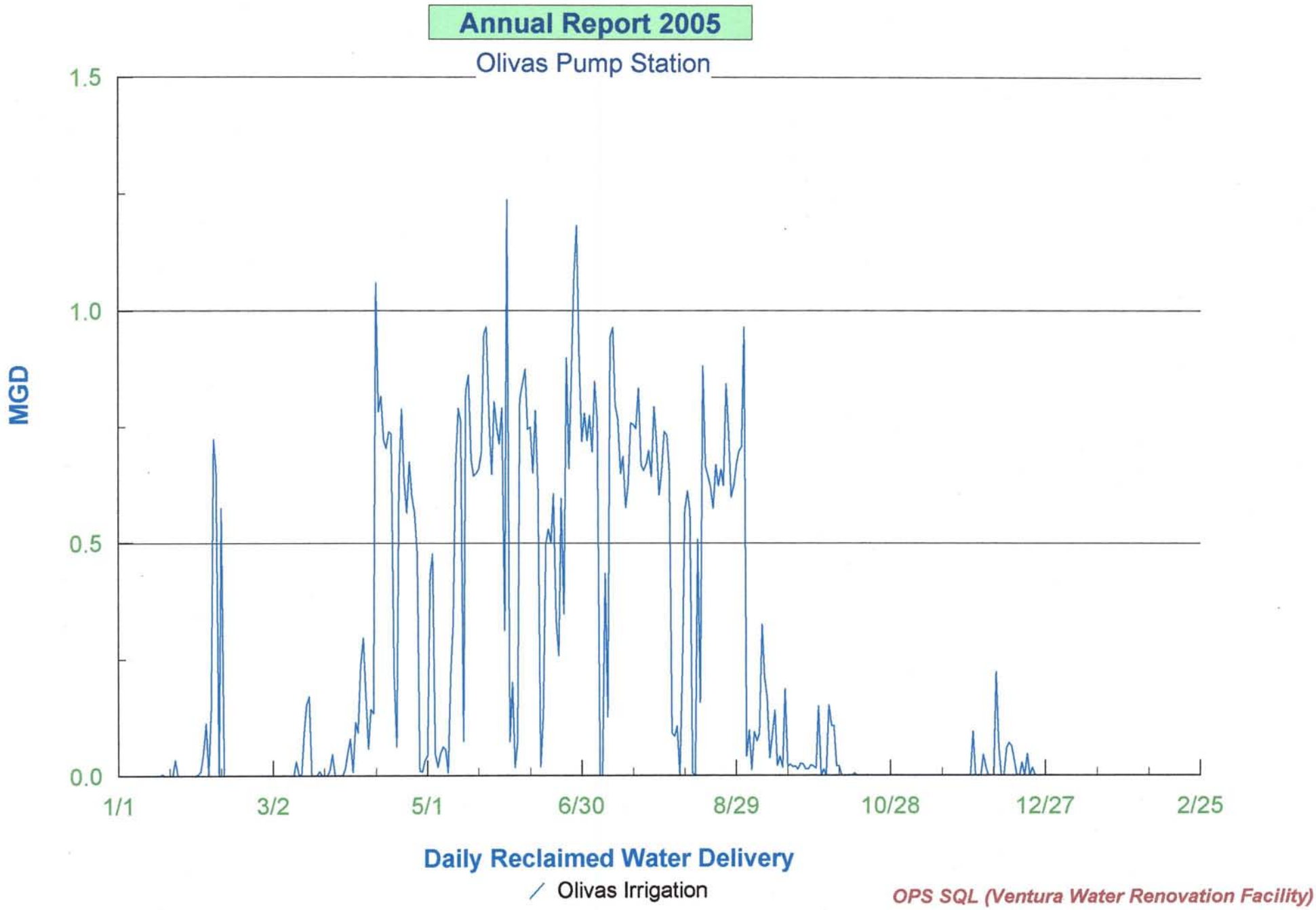
OPS SQL (Ventura Water Renovation Facility)

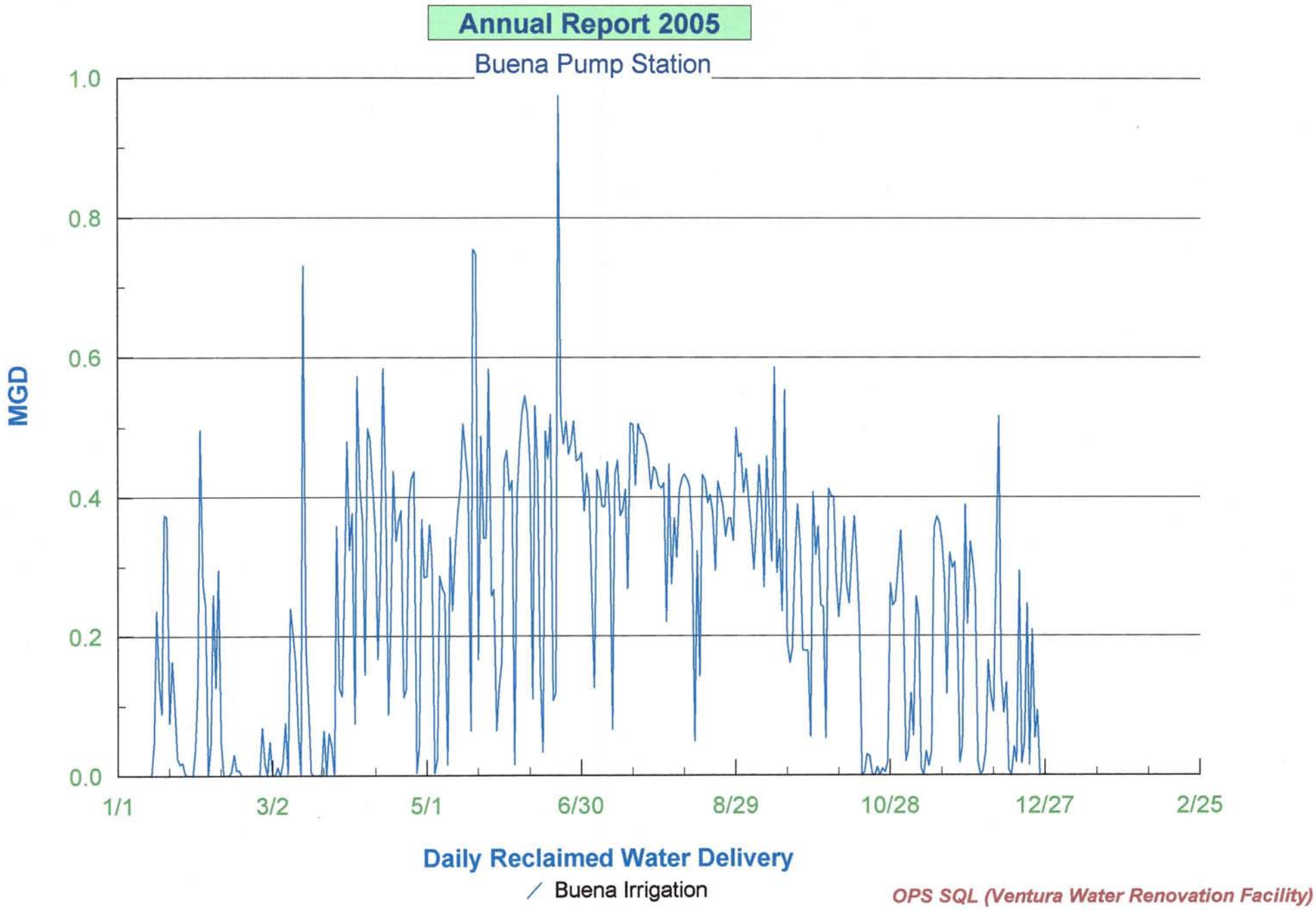

Annual Report 2005
Receiving Water Station
0.15
0.10
0.05
0.00
mg/l
1/1
1/31
3/2
4/1
5/1
5/31
6/30
7/30
8/29
9/28
10/28
11/27
12/27
1/26
2/25
R4
Chlorophyll A (Monthly Avg)
OPS SQL (Ventura Water Renovation Facility)

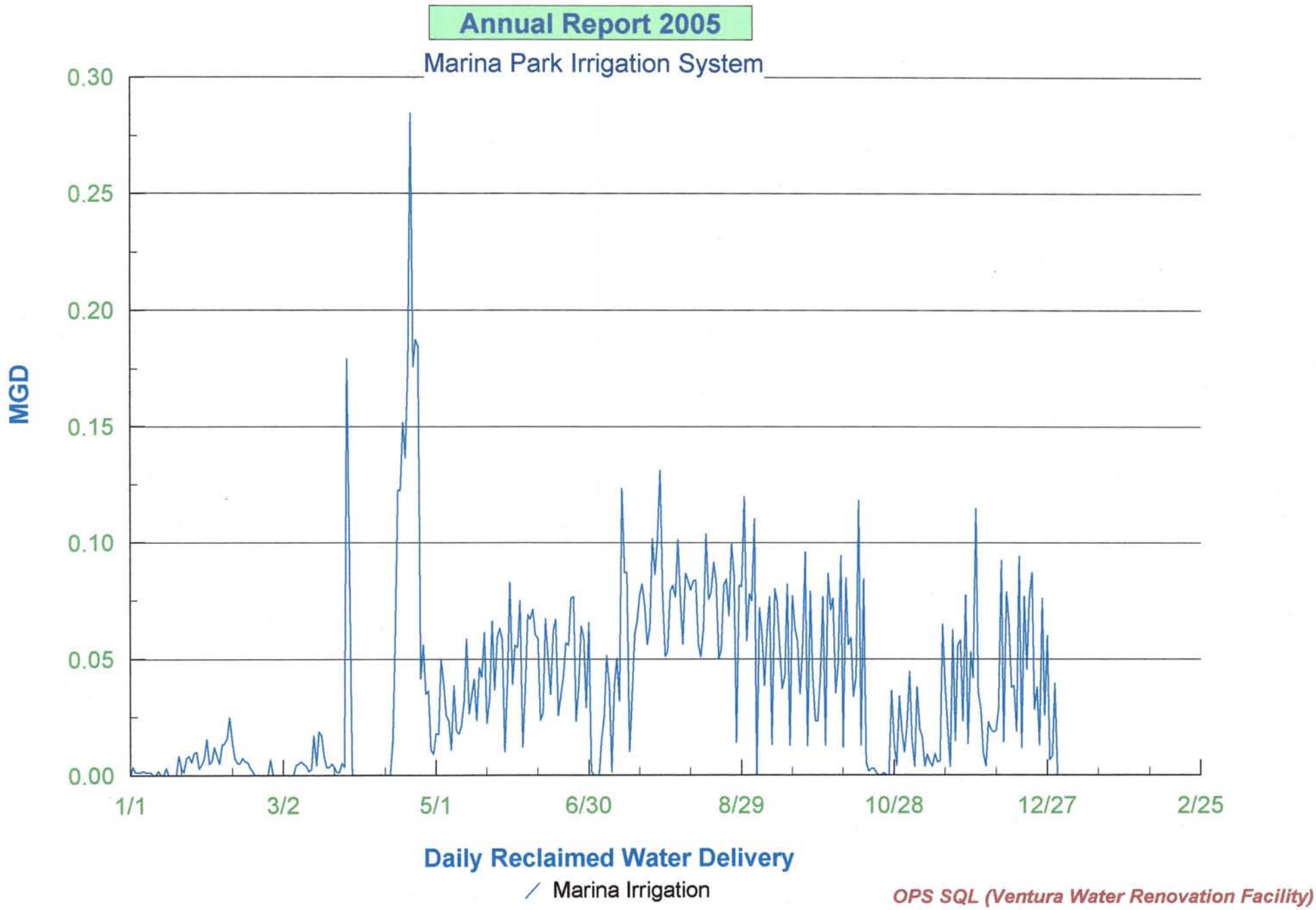

Annual Report 2005
Receiving Water Station
1.0
0.8
0.6
0.4
0.2
0.0
mg/l
1/1
1/31
3/2
4/1
5/1
5/31
6/30
7/30
8/29
9/28
10/28
11/27
12/27
1/26
2/25
L5
Chlorophyll A (Monthly Avg)
OPS SQL (Ventura Water Renovation Facility)

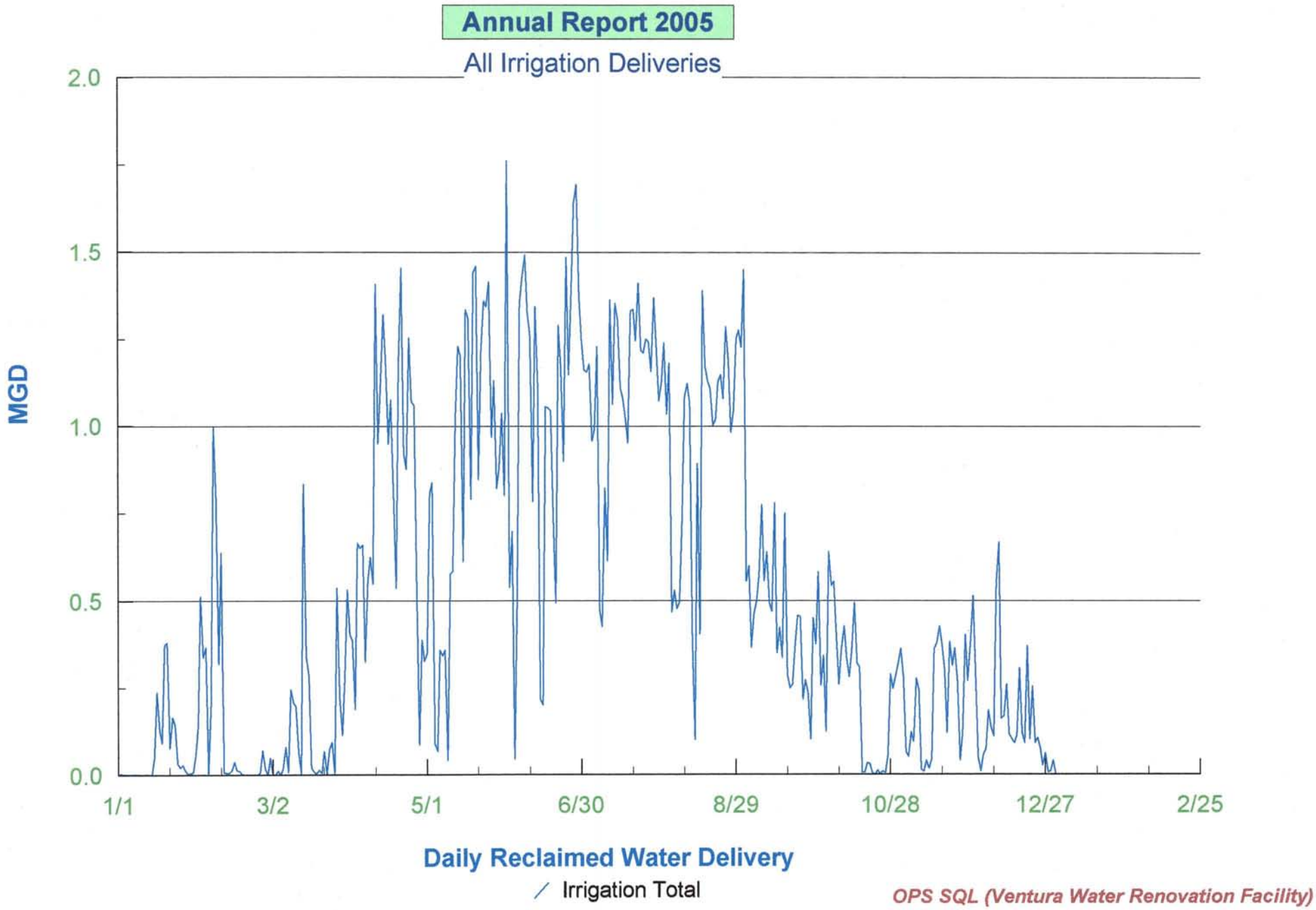

Annual Report 2005
Santa Clara Tidal Prism
MGD
800
600
400
200
0
1/1
1/31
3/2
4/1
5/1
5/31
6/30
7/30
8/29
9/28
10/28
11/27
12/27
1/26
Estimated Influx to the Pacific Ocean
(Monthly Avg)
OPS SQL (Ventura Water Renovation Facility)


Annual Report 2005
Santa Clara Tidal Prism
MGD
15000
10000
5000
0
1/1
1/31
3/2
4/1
5/1
5/31
6/30
7/30
8/29
9/28
10/28
11/27
12/27
1/26
Estimated Dishcarge to the Pacific Ocean
(Monthly Avg)
OPS SQL (Ventura Water Renovation Facility)


Annual Report 2005
Olivas Pump Station
1.5
1.0
0.5
0.0
MGD
1/1
3/2
5/1
6/30
8/29
10/28
12/27
2/25
Daily Reclaimed Water Delivery
Olivas Irrigation
OPS SQL (Ventura Water Renovation Facility)


Annual Report 2005
Buena Pump Station
MGD
1.0
0.8
0.6
0.4
0.2
0.0
1/1
3/2
5/1
6/30
8/29
10/28
12/27
2/25
Daily Reclaimed Water Delivery
Buena Irrigation
OPS SQL (Ventura Water Renovation Facility)


Annual Report 2005
Marina Park Irrigation System
MGD
0.30
0.25
0.20
0.15
0.10
0.05
0.00
1/1
3/2
5/1
6/30
8/29
10/28
12/27
2/25
Daily Reclaimed Water Delivery
Marina Irrigation
OPS SQL (Ventura Water Renovation Facility)


Annual Report 2005
All Irrigation Deliveries
MGD
2.0
1.5
1.0
0.5
0.0
1/1
3/2
5/1
6/30
8/29
10/28
12/27
2/25
Daily Reclaimed Water Delivery
Irrigation Total
OPS SQL (Ventura Water Renovation Facility)

ANALYTICAL QUALITY ASSURANCE PROGRAM 2005

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 and for the City domestic water supply and water distribution system monitoring for SDWA compliance.

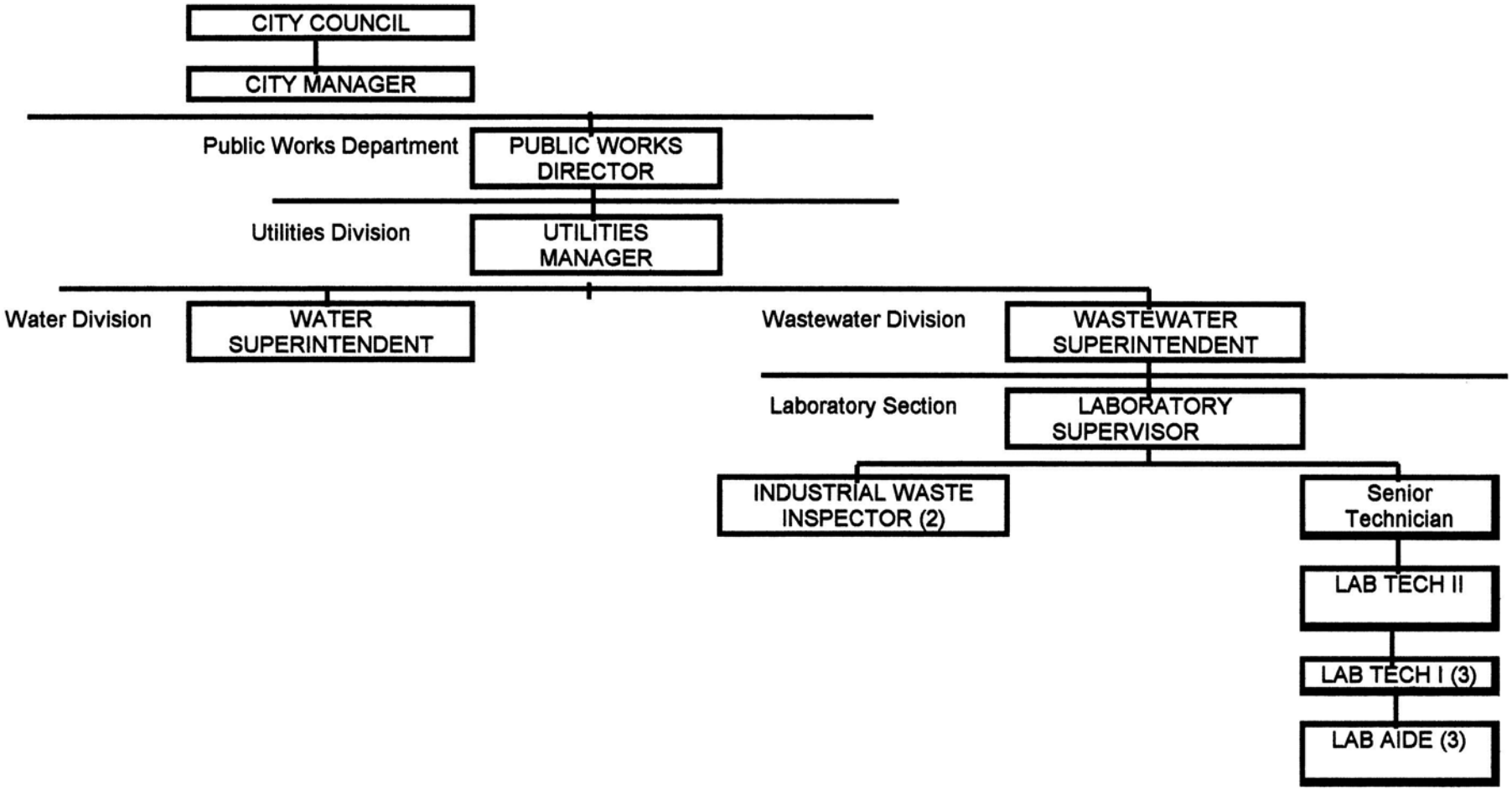
Current State of California Department of Health Services laboratory certification is attached.

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 - 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:

Responsible for the overall operation of laboratory and the supervision of the lab and industrial waste staff. Preparation of annual budget and monitoring reports for water and wastewater analyses. Write employee evaluations, order supplies and assist chemical, physical and biological analysis of water, wastewater and industrial waste samples.

Senior Technician: Michael L. Torres - 1999 to Present

Education:

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

Experience:

Microbiologist – Montgomery Watson Laboratories

Present Duties:

Supervise laboratory personnel and analyze water, wastewater and Industrial samples using the Gas Chromatogram and the Ion Chromatograph. Conduct the laboratory QC/QA program and assist with other chemical, physical and biological analysis of water, wastewater and industrial waste samples.

Lab Tech II: Craig Jones – 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 chronic toxicity on the effluent and assist with other physical, chemical and biological analyses of water, wastewater and industrial waste samples. Daily input and recording of laboratory data.

Lab Tech I: Sergio Ormachea 2005 to Present

Education:

Bachelor of Science in Earth Science Emphasis in Hydrology University of California Santa Cruz

Experience:

Laboratory Aide City of San Buenaventura Wastewater Treatment; Ventura California

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 laboratory data.

Lab Tech I: Mary Champion 2005 to Present

Education:

Bachelor of Science in Biology, minor in Chemistry, University of May 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. Collect water, wastewater, and receiving water samples for laboratory analyses. Daily input and recording of laboratory data.

Lab Tech I: Felicitas Ramirez 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, IINC

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.

C. Instrumentation and Equipment

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

UNIT	MANUFACTURER/MODEL	MAINTENANCE
Water Still	Corning 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
Nepthelometers	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 Supressor/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	4 ISCO Model 6712Fr	Division
Dishwashers (2)	Miele Professional Washers G 7783	Miele
	2 ISCO Model 3700	Division
	5 American Sigma 800SL	Division
	2 American Sigma 900	Division
	1 ECOA Model E	Division
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	
Mettler Toledo	--Mettler Toledo Columbus, OH	
Miele	--Miele, Inc, La Verne, 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 personnel.

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 ICHEM plastic cubtainers or stainless steel container for organic analysis. Grab samples are collected in pre-cleaned plastic ICHEM 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 or, as in the case of special request, one time basis.

2. Sample Preservation

Sample preservations are done in accordance with the analysis to be performed.

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 will preserve the samples when collected for metals, cyanide and total sulfide analyses. The lab technician performing the analysis preserves all other industrial waste samples. Sample preservation is done in accordance with the analysis to be performed.

3. Handling and Storage

The person who preserved the sample is responsible for placing them into storage. If possible the samples should be stored in the containers in which they are collected and according to the analysis to be performed.

All samples not requiring immediate analysis are preserved and refrigerated at 4° C and remains in storage until the analysis is complete and data has been 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 should fill 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

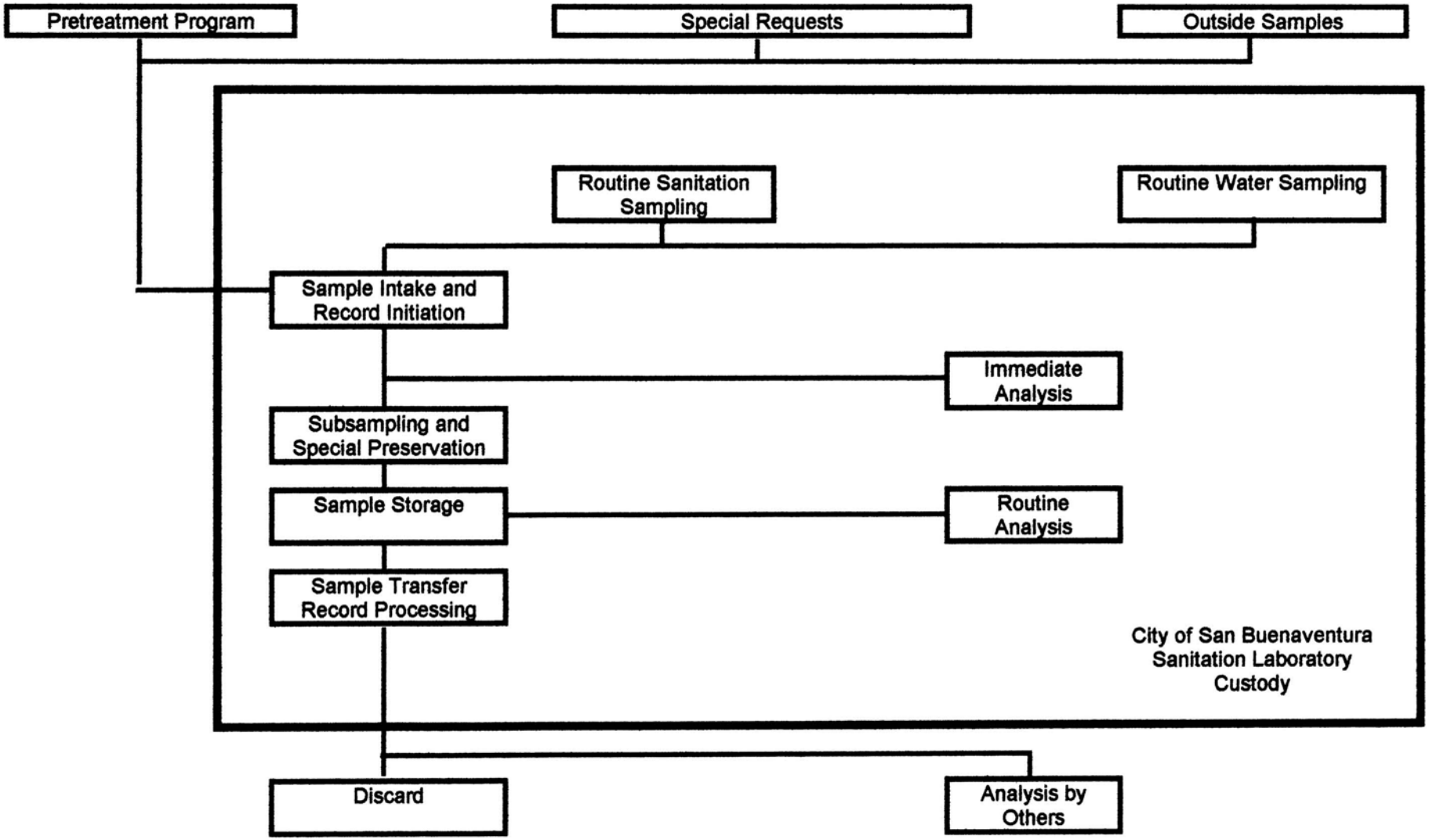
A sample can be disposed after the analysis is completed and the data has been reviewed by the laboratory supervisor, senior lab tech and industrial waste inspector. Samples should be disposed of in a safe manner that will not harm employees or the environment. Special care must be taken with samples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

Some samples are disposed of by pouring down the drain and flushing with large volume of water such as minerals and metal sample. Others have to neutralize 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 must be disposed of at hazardous waste disposal site.

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.



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).

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.

B. Analysis Procedures

Analytical Procedures which the laboratory is certified to perform are according to the Standard Methods for the Examination of Water and Wastewater 18th, 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.

C. 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.

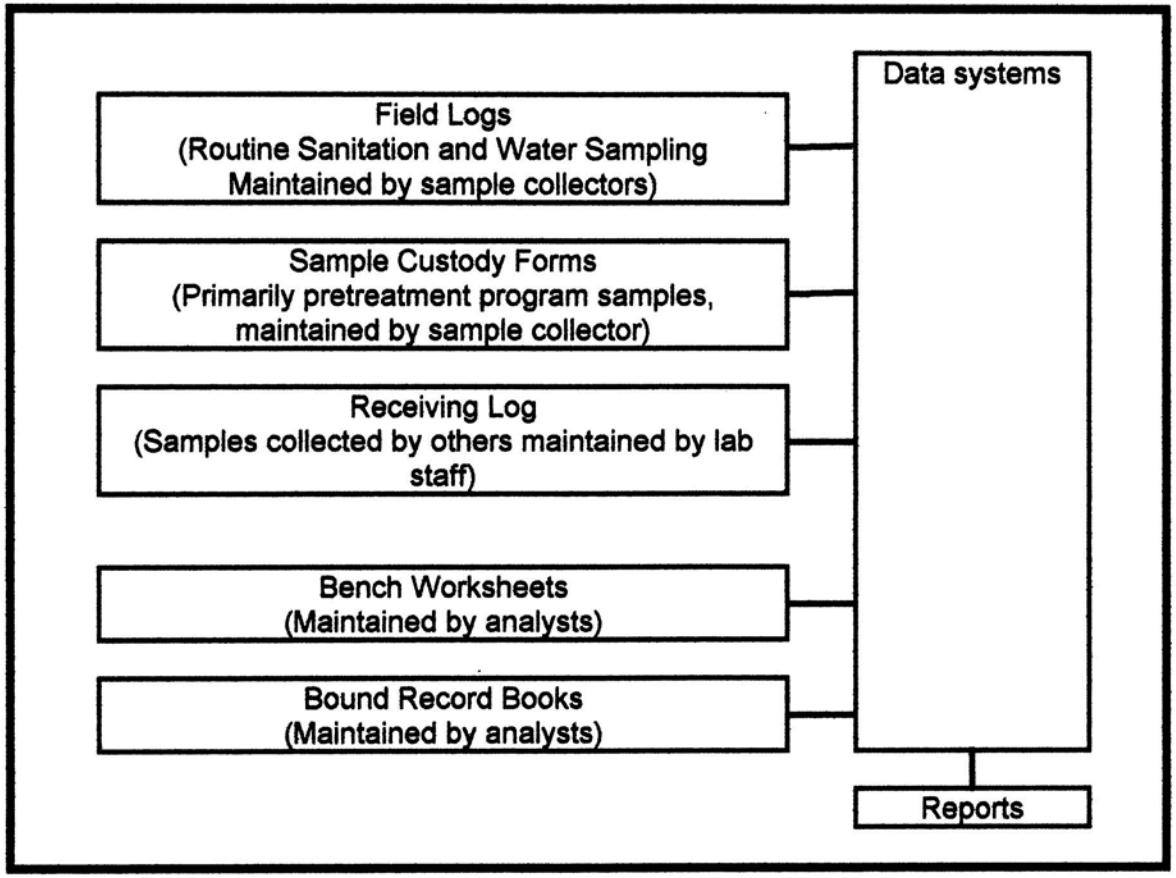
Record	Function	Retention
Field Logs	Record of Field Measurements and Circumstances of Sampling	7 Years
Receiving Log	Record of Samples Received from Others	7 Years
Sample/Custody Form	Pretreatment Program Sampling	7 Years
Chromatographs	Analysis from Gas Chromatograph, Ion Chromatograph and Atomic Absorption	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

D. 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 and wastewater samples are generated from data entered into Run: Input1 input 2, Ioutil, Organics, Metals, Phenols, and Bactin. OPS Strategic Data Management program is used primarily to generate wastewater reports. Industrial Waste and other non-routine reports are obtained from data entered into Run: Tra Input 3 and IWMON.
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	PO4, Alkalinity, B, F	Analysis Complete	Analysts
Wastewater	Weekly Grabs	Oil & Grease	Analysis Complete	Analysts
Wastewater	Quarterly Grabs	Cyanide	Analysis Complete	Analysts
Wastewater	Monthly Composite	Bioassay	Test Complete	Analysts
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_4, Total P	Analysis Completed	Analysts
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
Turbidimeters	Calibrate with Secondary Turbidity Standards	Daily
Turbidimeters	Calibrate with Certified Standards	Daily
Spectrophotometer	Verify Wavelength Accuracy with Holmium Oxide Filter	Quarterly
Autoclave	Verify Accuracy of Integral Recorder with Lag Thermometer	Weekly
Balances	Verify Accuracy with External Calibration Weights	Weekly

C. Primary QA Control

Stock standard and reagents used in the analysis are logged with the amount weight out, lot number, finally volume, initials of the preparer, date prepared and discard date. The storage container is labeled with this information also. The procedure for the method is check 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 not used on a regular basis should be 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.

These procedures are used to assure conformance to narrow concentration or purity limits when procedures require it. It help to determine 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 routinely 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.

Most 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 90C glass thermometers by adjustment of the pen arm.

pH measurement is made with a Markson 6100 portable meter. Calibration is done daily during the course of the analysis.

D.O. measurement is made with a Thermo Orion meter. Calibration is done 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 are noted below.

Analysis	Criterion
Acute Toxicity	Survival in Controls >> 90 %
Algae Growth Chronic Toxicity	Control cell counts >> 200,000/ml
Algae Growth Chronic Toxicity	Control Replicate Counts << 20% Different
Ceriodaphnia Survival and Reproduction	Survival in Controls >> 90 %
Ceriodaphnia Survival and Reproduction	Average Number of Offspring >>= 15
Larval Fathead Minnow Survival and Growth	Survival in Controls >> 90 %
Larval Fathead Minnow Survival and Growth	Control Average Dry Weight >> 0.250 mg

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 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 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 Echerichia 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 3/24/06

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 27th,day of March, 2006, at Ventura, CA.

Daniel Pfeifer
Wastewater Superintendent

Florence B. Jay
Laboratory Supervisor