City of
San Buenaventura

Public Works
Utilities
Wastewater

VENTURA
PUBLIC WORKS

Annual Report of Analysis 2004

COVER: Photo of Monarch Butterfly was taken by Don Williamson, an avid birdwatcher.

ANNUAL REPORT OF ANALYSIS

CITY OF SAN BUENAVENTURA

VENTURA WATER RECLAMATION FACILITY

2004

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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 105,000 people.

THE SANITATION DIVISION:

Wastewater collection and treatment facilities are operated by the Sanitation 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, a tertiary treatment plant.

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

Processes employed at the treatment facility during 2004 include comminution, screening grit removal, primary sedimentation, primary flow equalization, activated sludge secondary biological treatment, tertiary effluent filtration and chlorination.

In 2004 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 2004 the daily average volume of treated effluent reclaimed was 620,236 gallons. The maximum daily reuse volume measured in 2004 was 2,341,000 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 226.4 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Reclaimed water for irrigation and for discharge to the Santa Clara Tidal Prism is withdrawn from the end of the wildlife pond system.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.

Additionally the reservoir capacity of the wildlife ponds serves as a safeguard against use of effluent of unacceptable quality for irrigation of park land, where significant public health risk may occur. The pond detention time allows completion of analysis necessary to assure the safety of the irrigation supply before that water would reach the point of irrigation withdrawal.

When necessary, irrigation use from the ponds can be discontinued before inadequately treated effluent reaches the irrigation intake. When ponds operate in series, and all ponds are in operation, the safety margin is 4 days.

NPDES permit CA0053651, issued by the Los Angeles Regional Water Quality Control Board as Order 00 -144 regulates discharge of treated effluent to the Santa Clara Tidal Prism.

Reuse of effluent for irrigation is regulated by Los Angeles Regional Water Quality Control Board Order 87-45.

The wastewater facility operation staff consists of fourteen certified operators. All hold State of California certificates as listed:

OPERATORS	GRADE	CERTIFICATE NUMBER
Daniel E. Pfeifer	V	V - 6737
Donald B. Burt	IV	IV - 1915
Nichloas A. Hardesty	IV	IV – 1374
John S. Willis	IV	IV – 9370
Eric W. Miller	IV	IV – 9798
Michael S. Stehle	III	III – 4731
Pete Vallejo	III	III – 7055
Jeffery A. Baker	III	III – 9316
Carey A. Adams	III	III – 9785
Joseph E. Volpe	III	III – 8987
Curtiss W. Montague	III	III – 10475
Baltazar Cervantez Jr.	II	II – 9419
Chad Steinclicht	II	II – 10297
Adam Lopez	Operation In Training	

II. PROCESS PERFORMANCE AND COMPLIANCE WITH DISCHARGE REQUIREMENTS

On April 18th 2004 operations staff implemented the work plan for investigation into chloramine disinfection at the VWRF. This plan was successful in reducing coliform violations and chlorine byproduct concentrations in the effluent.

During 2004 the chronic toxicity exceeded permit limitations on four samples. These results were associated with the chloramine concentrations affecting the organism growth in the sample dilutions.

In December 2004 the City completed the construction of a new headworks. This project replaced communition with screenings removal, improved grit removal with an aerated grit chamber and improved flow measurement with parshall flumes.

In June of 2004 the regional board issued Time Schedule Order Number R4-2004-0095, which provides alternative discharge limits for copper, lead, mercury, nickel, selenium, zinc, cyanide, and aldrin. The City is developing a

comprehensive report due to Regional Board Staff on May 1, 2005 to determine if any of these metals are accumulating in the estuary sediment as a result of the discharge and possible toxic effects on sensitive species within the receiving waters. The report will also reaffirm the City's exemption to the 1976 California Bays and Estuaries Policy.

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
1996	1425	295	425	0.7	0.52	273	130	42	20
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

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 2004

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

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 ECOA model E dip sampler controlled by a PLC using the signal from the influent flow meters and the ISCO 6712R programmed .

The sampler is located downstream of comminution equipment and upstream of grit removal and the entry point for recirculation from the Activated Sludge process.

Sampling is performed here for compliance monitoring and for process control. Analyses for pH, 5-day BOD, COD, Suspended Solids, Nitrogen Compounds 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 Models 3700 & 6712R samplers programmed to collect samples at non-uniform time intervals proportional to the flow to the Roughing Filter System.

Sampling is performed here for process control.

Analyses for 5-day BOD, COD, Suspended Solids, Settleable 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 non-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, Settleable 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 a Sigma Model 900 and ISCO Model 6712FR programmed to collect samples at non-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, Phenols, Chloride, Sulfate, Boron, Fluoride, Sodium, Potassium, Calcium, Magnesium and Priority Pollutants are performed on samples collected at this station. Chlorophyll A, Phosphorous and the 17 Dioxin Congeners. 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 first contact chamber in use.

LOCATION 5 - OUTFALL METERING STRUCTURE

This sample location follows the Wildlife Pond System and the point of addition of Sulfur Dioxide used for Chlorine Residual neutralization and is immediately ahead of the point of discharge to 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 also 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 made 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 monthly for three months during the winter and analyzed using the same three species protocol applied to the discharge. Chronic Toxicity is performed once during the summer on the most sensitive test species for each station.

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

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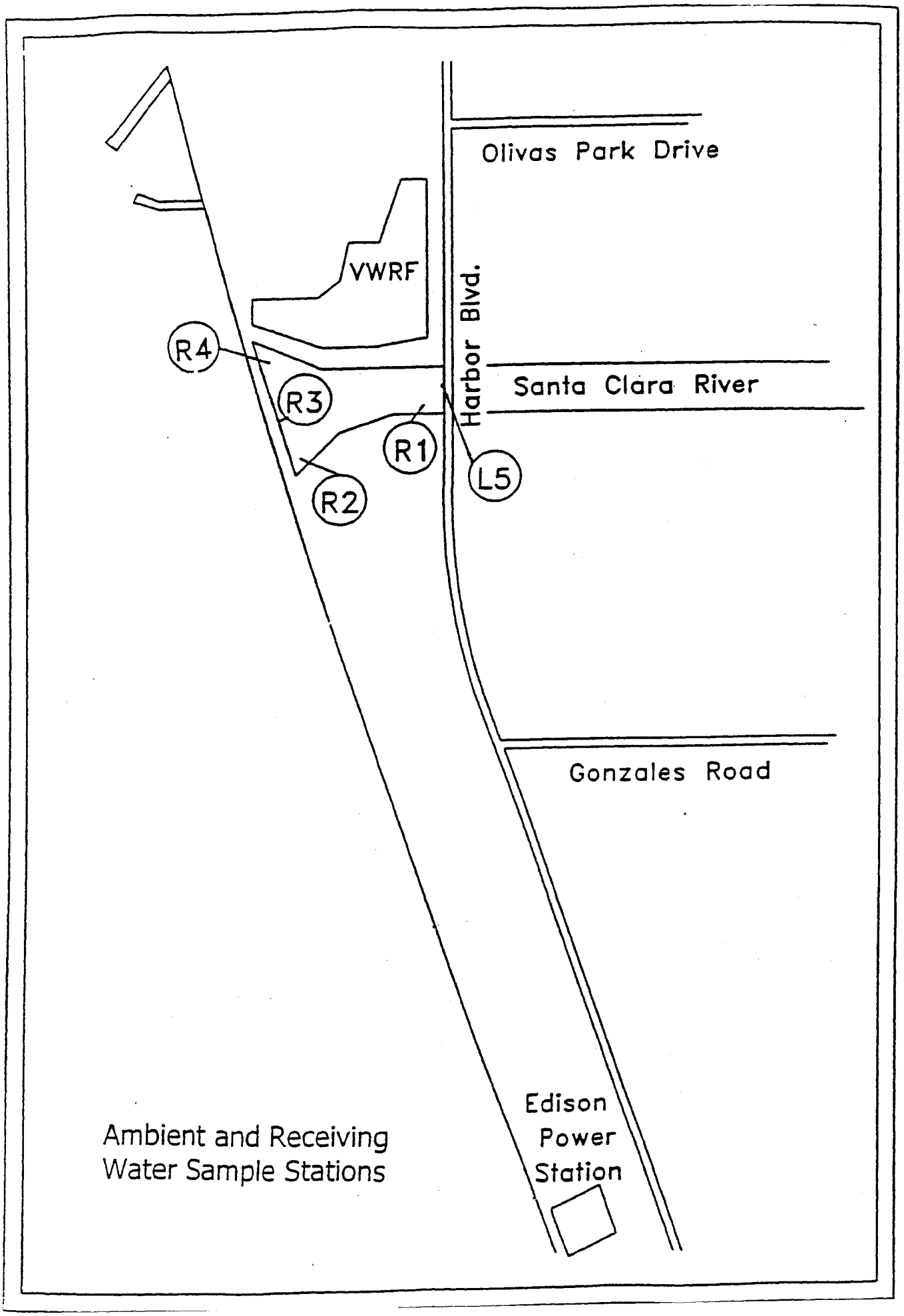
A map showing sample locations follows the schematic plant flow diagram.



Ambient and Receiving
Water Sample Stations

Ventura Water Reclamation Facility
Annual Report 2004

Influent Pump Station

Month	Average Flow MGD	pH Units	Suspended Solids mg/l	BOD mg/l	COD mg/l	Ammonia Nitrogen mg/l	Total Kjeldahl Nitrogen mg/l
January	10.30	7.32	390	370	835	34.3	61.1
February	8.84	7.44	447	363	844	33.0	54.7
March	8.83	7.52	388	345	784	32.0	50.4
April	8.83	7.42	401	356	806	32.5	49.9
May	8.81	7.40	428	378	869	32.8	58.3
June	8.83	7.49	436	396	905	32.4	51.9
July	8.84	7.48	401	368	783	34.2	49.3
August	8.85	7.51	387	334	788	33.3	47.4
September	8.84	7.74	273	260	596	27.9	44.9
October	8.81	7.69	305	281	628	28.8	48.8
November	8.83	7.71	306	309	674	33.0	47.4
December	8.83	7.61	340	353	754	35.3	45.8
Average	8.96	7.53	375	342	769	32.5	51.4
Maximum	10.60	7.91	690	563	1204	40.1	64.6
Minimum	7.80	7.01	137	173	483	16.9	44.9
Total	3180.78						

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Influent Pump Station

Month	Aluminum mg/l	Antimony mg/l	Arsenic mg/l	Barium mg/l	Beryllium mg/l	Cadmium mg/l	Chromium mg/l	Cobalt mg/l	Copper mg/l	Iron mg/l
February	2.803	0.0031	0.0006	0.3854	<0.00002	0.0007	0.00440	0.0021	0.3190	
February*	2.460	<0.001	<0.0020	0.0108	<0.0002	<0.004	0.0095	0.0042	0.3540	2.300
May	2.835	0.0027	0.0025	0.1324	0.00003	0.0007	0.0009	0.0021	0.3210	2.300
August	3.092	0.0067	0.0009	0.1588	0.00002	0.0007	0.00530	0.0037	0.2256	1.755
August*	1.840	0.0026	<0.0020	0.1060	<0.0002	<0.004	0.0105	0.0052	0.2030	
November	2.971	0.0036	0.0008	0.0675	<0.00002	0.0004	0.00270	0.0031	0.1399	1.500
Average	2.667	0.0031		0.1435			0.0056	0.0034	0.2604	1.964
Maximum	3.092	0.0067		0.3854			0.0105	0.0052	0.3540	2.300
Minimum	1.840			0.0108					0.1399	1.500

*Analyzed by American Scientific Laboratories, Los Angeles, CA 90065

Ventura Water Reclamation Facility
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Influent Pump Station

Month	Lead mg/l	Mercury mg/l	Molybdenum mg/l	Nickel mg/l	Selenium mg/l	Silver mg/l	Thallium mg/l	Tin mg/l	Vanadium mg/l	Zinc mg/l
February	0.0066	0.0004	0.0115	<0.0008	0.0008	0.0031	<0.0002		<0.0044	0.2386
February*	<0.0050	<0.0002	0.0168	0.0119	0.0096	0.0176	<0.0010	<0.100	0.0090	0.1950
May	<0.0012	0.0008	0.0195	0.0038	0.0004	0.0038	0.0006		0.0118	0.2841
August	0.0202	0.0014	0.0156	0.0106	<0.0005	0.0012	0.0002		0.0128	0.0316
August*	0.0076	0.0008	0.0158	0.1090	<0.002	0.0158	<0.0010	<0.100	<0.0040	0.0194
November	0.0062	0.0005	0.0144	0.0067	0.0055	0.0044	0.0004		0.0089	0.1649
Average	0.0068	0.0007	0.0156	0.0237	0.0027	0.0077			0.007	0.156
Maximum	0.0202	0.0014	0.0195	0.1090	0.0096	0.0176			0.013	0.284
Minimum										0.019

*Analyzed by American Scientific Laboratories, Los Angeles, CA 90065

Ventura Water Reclamation Facility
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Influent Pump Station

Month	Acetone	Chloroform	1,4 Dichlorobenzene	Ethylbenzene
February *	<0.0005	0.0021	0.0013	<0.00034
August *	0.11300	0.0029	0.0019	<0.00034

Month	Tetrachloroethylene	Toluene	1,1,1-Trichloroethane	Xylenes
February *	<0.00003	0.0005	<0.00003	<0.0005
August *	<0.00003	0.0004	<0.00003	<0.0005

*Analyzed by American Scientific Laboratories, Los Angeles, CA 90065

Ventura Water Reclamation Facility
Annual Report 2004

Flow Equalization Basin - Primary Effluent

Month	pH Units	Suspended Solids mg/l	BOD mg/l	COD mg/l	Ammonia Nitrogen mg/l	Total Kjeldahl Nitrogen mg/l	MBAS mg/l
January	7.36	109.3	188	382	33.4	43.4	6.9
February	7.53	100.5	149	342	32.5	42.8	6.1
March	7.63	100.0	153	333	32.4		
April	7.51	92.9	173	363	35.2	43.4	6.9
May	7.55	110.2	186	388	33.8	59.9	6.3
June	7.59	82.9	173	371	32.0	41.8	7.8
July	7.68	84.1	185	366	36.1	45.3	7.8
August	7.69	85.6	175	373	34.0	24.3	7.6
September	7.67	101.0	148	343	29.2	24.3	6.2
October	7.61	96.0	148	335	32.7	42.0	7.2
November	7.60	100.5	158	339	36.7	56.8	6.4
December	7.53	107.2	173	363	36.0	57.0	6.8
Average	7.58	97.6	167	358	33.7	46.9	6.7
Maximum	7.85	380.4	408	635	43.0	77.9	7.8
Minimum	7.26	39.8	82	255	17.4	24.3	4.8

Ventura Water Reclamation Facility
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Mixed Media Filter Station Influent

Month	Average Flow MGD	Suspended Solids mg/l	BOD mg/l	COD mg/l	Nitrate Nitrogen mg/l	Nitrite Nitrogen mg/l	Ammonia Nitrogen mg/l	Total Kjeldahl Nitrogen mg/l	MBAS mg/l
January	9.30	18.38	19.8	47.1	17.23	0.60	0.34	2.1	0.14
February	9.61	9.99	19.8	43.2	13.25	0.58	2.19	1.9	0.16
March	9.61	11.61	13.2	37.4	15.42	<0.40	0.39	1.8	0.14
April	9.09	9.35	13.0	34.8	11.75	0.25	0.58	1.8	0.12
May	9.27	12.16	12.9	42.4	11.34	<0.40	0.35	2.3	0.13
June	9.20	13.51	12.3	47.2	12.68	0.05	0.62	2.1	0.13
July	9.26	9.34	11.0	34.8	14.18	<0.40	0.85	1.9	0.93
August	9.41	8.44	9.8	35.7	13.46	<0.40	0.39	1.5	0.08
September	9.41	10.97	8.6	39.4	15.38	<0.40	0.72	1.0	0.07
October	9.20	9.54	10.4	37.4	16.30	0.33	1.05	1.9	0.02
November	9.25	9.35	11.1	38.3	17.70	0.42	3.22	7.2	0.06
December	9.38	11.41	16.4	42.0	15.25	<0.40	0.92	11.3	0.07
Average	9.33	11.21	13.2	40.3	14.46	0.09	1.01	2.8	0.17
Maximum	11.98	52.88	46.4	109.5	19.20	1.40	9.36	11.3	0.93
Minimum	7.74	3.08	2.6	10.9	4.10	<0.40	0.05	0.1	0.02

Ventura Water Reclamation Facility
Annual Report 2004

Effluent Transfer Station

Month	pH Units	Suspended Solids mg/l	lb/day	TDS mg/l	Specific Cond uMHO	BOD mg/l	lb/day	COD mg/l	Settleable Solids ml/l	Dissolved Oxygen mg/l
January	6.64	1.68	88	1543	2395	1.9	99	27.2	<0.1	8.0
February	6.81	1.92	116	1577	2475	1.8	98	26.9	<0.1	7.7
March	6.98	1.33	73	1657	2510	1.5	81	23.6	<0.1	7.8
April	7.32	1.72	84	1606	2430	1.8	89	23.1	<0.1	7.8
May	7.43	2.08	102	1531	2312	2.2	109	29.8	<0.1	7.6
June	7.53	1.87	95	1502	2264	2.1	108	35.7	<0.1	7.4
July	7.55	1.58	80	1504	2302	1.9	95	28.5	<0.1	7.5
August	7.52	1.62	83	1500	2315	2.0	108	26.8	<0.1	7.4
September	7.44	2.67	135	1513	2424	1.9	97	29.1	<0.1	7.1
October	7.38	2.51	136	1487	2389	2.1	113	30.4	<0.1	7.3
November	7.42	1.60	83	1444	2296	1.6	80	28.4	<0.1	7.8
December	7.31	1.28	68	1283	2105	1.4	75	26.8	<0.1	7.5
Annual Average	7.28	1.83	95	1512	2351	1.9	96	28.0	<0.1	7.6
Maximum	8.05	6.50	338	1980	2710	8.6	432	66.4	<0.1	9.5
Minimum	6.20	0.16	9	1084	1774	0.2	10.1	9.5	<0.1	6.8
Limitations of Permit CA0053651										
Maximum						45	5250		0.3	
7 Day Average		40.00	4670							
30 Day Average		15.00	1751			20	2340		0.1	

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Annual Report 2004

Effluent Transfer Station

Month	Grease and Oil mg/l	lb/day	Continuous Turbidity NTU	Nitrate Nitrogen mg/l	Nitrite Nitrogen mg/l	Ammonia Nitrogen mg/l	Total Kjeldahl Nitrogen mg/l	Chloride mg/l
January	1.2	64	1.3	17.2	<0.4	0.6	2.1	422
February	0.9	48	1.4	13.5	<0.4	2.8	1.5	374
March	1.1	59	1.1	15.4	<0.4	0.5	1.8	385
April	1.1	56	0.9	12.5	<0.4	1.7	1.4	333
May	1.1	42	0.7	12.0	<0.4	1.3	1.8	309
June	0.1	9	0.8	13.2	<0.4	1.3	1.6	268
July	0.8	41	0.7	14.3	<0.4	1.2	2.9	290
August	1.4	73	0.5	13.8	<0.4	1.2	2.5	342
September	1.3	64	0.4	15.4	<0.4	1.2	1.5	349
October	1.4	81	0.8	16.2	<0.4	1.9	3.6	339
November	1.4	73	0.9	17.8	<0.4	3.6	7.6	325
December	1.8	112	0.7	15.5	<0.4	1.9	11.2	263
Annual Average	1.2	61	0.8	14.7	<0.4	1.6	3.0	334
Maximum	2.2	173	2.3	18.9	<0.4	9.8	11.2	455
Minimum	<0.1	<5	0.3	5.7	<0.4	0.1	1.4	208
Limitations of Permit CA0053651								
Maximum	15.0	1750	2.0					
7 Day Average								
30 Day Average	10.0	1170						

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Effluent Transfer Station

Month	Sulfate mg/l	Chlorophyll A* mg/l	MBAS mg/l	Phosphate mg/l	Total Phosphorus mg/l	Fluoride mg/l	Boron mg/l
January	619	0.007	0.17	3.08	3.03	0.64	0.74
February	579	0.016	0.18	2.80	4.89	0.70	0.64
March	625	<0.002	0.12	2.41	2.55	0.70	0.69
April	555	0.020	0.14	1.11	1.28	0.67	0.76
May	505	0.025	0.11	2.82	2.82	0.55	0.70
June	439	0.035	0.10	2.75	2.80	0.50	0.72
July	418	0.066	0.85	3.19	2.81	0.47	0.74
August	467	0.130	0.09	2.75	3.35	0.50	0.74
September	464	0.038	0.11	2.97	3.16	0.40	0.77
October	527	0.190	0.06	2.85	3.50	0.63	0.79
November	534	0.048	0.09	2.88	1.79	0.59	0.87
December	386	0.016	0.10	1.84	1.79	0.58	0.91
Annual Average	511	0.049	0.18	2.63	2.91	0.58	0.75
Maximum	686	0.190	0.85	3.19	4.89	0.70	0.91
Minimum	302	<0.002	0.06	1.11	1.28	0.40	0.64

Limitations of Permit CA0053651

Maximum
7 Day Average
30 Day Average

* Analysis performed by Aquatic Bioassay Consulting Laboratories, Inc., Ventura, California 93001

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Effluent Transfer Station

Month	Sodium mg/l	Calcium mg/l	Magnesium mg/l	Potassium mg/l
January	340	141	49.4	23.0
February	288	146	53.2	22.5
March	314	151	56.6	22.2
April	333	146	50.7	23.6
May	294	144	50.0	23.2
June	250	136	48.8	23.0
July	272	117	43.5	22.1
August	296	166	50.0	20.8
September	262	130	45.3	21.3
October	291	134	44.2	23.0
November	308	178	56.0	23.6
December	267	135	44.1	22.7
Annual Average	293	144	49.3	22.6
Maximum	340	178	56.6	23.6
Minimum	250	117	43.5	20.8

Limitations of Permit CA0053651

Maximum
7 Day Average
30 Day Average

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Effluent Transfer Station

Month	0700 Bay 1 Chlorine Residual mg/l	1100 Bay 1 Chlorine Residual mg/l	2000 Bay 1 Chlorine Residual mg/l	1100 ETS Chlorine Residual mg/l
January	12.8	10.2	12.0	10.7
February	11.6	9.9	11.8	10.3
March	10.5	8.3	10.3	8.7
April	5.0	4.3	4.4	4.2
May	4.0	3.8	4.1	3.9
June	4.3	4.0	4.2	4.0
July	4.3	3.8	3.6	3.8
August	4.1	3.8	4.0	3.7
September	4.3	3.9	4.1	3.8
October	4.1	4.0	4.0	4.0
November	4.2	4.0	4.1	4.2
December	4.5	9.9	4.5	4.3
Annual Average	6.1	5.3	5.9	5.4
Maximum	19.2	17.3	19.2	17.1
Minimum	1.4	1.3	0.9	1.2

Limitations of Permit CA0053651

Maximum
7 Day Average
30 Day Average

Ventura Water Reclamation Facility
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Effluent Transfer Station

Month	Cyanide mg/l	Aluminum mg/l	Antimony mg/l	Arsenic mg/l	Barium mg/l	Beryllium mg/l	Cadmium mg/l	Chromium mg/l	Cobalt mg/l	Copper mg/l
January										<0.0002
February	0.0270	0.1321	0.0033	0.0019	0.0300	<0.00002	0.0003	0.0006	0.0015	0.0077
February *		0.0962	<0.0010	<0.0020	0.2930	<0.00020	<0.0040	<0.0070	0.0149	0.0101
March										0.0062
May	0.0270	0.1403	0.0022	0.0008	0.0272	<0.00020	<0.0002	<0.0006	0.0010	0.0064
May*	<0.005	0.1070	<0.0010	<0.0020	0.0280	<0.00020	<0.0040	<0.0070	<0.0010	<0.0060
August *	<0.005	0.0929	<0.0010	<0.0020	0.0248	<0.00002	<0.0040	<0.0070	0.0017	<0.0060
November*	<0.005	0.1160	0.0046	<0.0020	0.0225	<0.00002	<0.0040	<0.0070	0.0019	<0.0060
Annual Average	0.0108	0.1141	0.0017	0.0005	0.0709				0.0035	0.0038
Maximum	0.0270	0.1403	0.0046	0.0019	0.2930		0.0003	0.0006	0.0149	0.0101
Minimum	<0.005	0.0929	<0.0010	0.0000	0.0225				<0.0010	<0.0002

Limitations of Permit CA0053651

Maximum	0.00099							0.0110		0.0520
7 Day Average										
30 Day Average	0.00041							0.0037		0.0180

*Analyzed by American Scientific Laboratories, Los Angeles, CA 90065

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Effluent Transfer Station

Month	Lead mg/l	Mercury mg/l	Molybdenum mg/l	Nickel mg/l	Selenium mg/l	Silver mg/l	Thallium mg/l	Tin mg/l	Vanadium mg/l	Zinc mg/l
January	<0.0012			<0.0008						0.0341
February	0.0040	<0.00020	0.0132	0.0047	0.00250	0.00040	<0.0002		0.00590	0.0362
February *	<0.0050	<0.00020	0.0130	<0.010	0.00200	0.01250	<0.0010	<0.100	0.0044	0.0355
March	<0.0012			0.0018						0.0335
May	0.0018	<0.00020	0.0187	0.0024	0.00100	0.00030	0.0006		0.0150	0.0380
May*	<0.0050	<0.00020	0.0203	<0.0100	<0.0020	<0.0002	<0.0010	<0.100	<0.0040	0.0388
August*	<0.0050	<0.00020	0.0119	<0.0100	<0.0020	0.00930	<0.0010	<0.100	<0.0040	0.0686
November*	<0.005	<0.00020	0.0169	<0.0100	<0.0020	0.00450	<0.0010	<0.100	<0.0040	0.0351
Annual Average	0.001	<0.00020	0.0157	0.0011	0.00092	0.00450	<0.001	<0.100	0.0042	0.0400
Maximum	0.004	<0.00020	0.0203	0.0047	0.00250	0.01250	0.0006		0.0150	0.0686
Minimum	<0.005	<0.0002	0.012							<0.050
Limitations of Permit CA0053651										
Maximum	0.014	0.000120		0.0152	0.0088		0.0063			0.095
7 Day Average										
30 Day Average	0.007	0.000025		0.0053	0.0029		0.0063			0.038

*Analyzed by American Scientific Laboratories, Los Angeles, CA 90065

Ventura Water Reclamation Facility
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Effluent Transfer Station

Month	Iron mg/l	Manganese mg/l
January	0.10	0.04
February	0.10	0.05
March	0.10	<0.02
April	0.40	0.15
May	<0.10	0.03
June	0.10	0.07
July	0.20	0.02
August	<0.10	0.21
September	0.10	0.05
October	0.10	0.03
November	0.10	0.04
December		
Annual Average	0.118	0.063
Maximum	0.40	0.2100
Minimum	<0.1	<0.02

Limitations of Permit CA0053651

Maximum
7 Day Average
30 Day Average

Ventura Water Reclamation Facility
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Effluent Transfer Station

Month	Aldrin mg/l	alpha-BHC mg/l	beta-BHC mg/l	delta-BHC mg/l	Lindane mg/l	PCBs mg/l	Chlordane mg/l	Toxaphene mg/l	DDD mg/l	Endodulfan mg/l
February	<0.000003	<0.000006	<0.000004	<0.000011	<0.000007	<0.000390	<0.000360	<0.000529	<0.000009	<0.0000090
February *	<0.000004	<0.000003	<0.000006	<0.000009	<0.000004	<0.000065	<0.000014	<0.010000	<0.002800	<0.000018
May	<0.000003	<0.000010	<0.000007	<0.000011	<0.000006	<0.000390	<0.000360	<0.000529	<0.000009	<0.000038
August	<0.000003	<0.000011	<0.000007	<0.000011	<0.000006	<0.000390	<0.000360	<0.000529	<0.000009	<0.000009
August *	<0.000004	<0.000003	<0.000006	<0.000009	<0.000004	<0.000065	<0.000014	<0.010000	<0.002800	<0.000018
November	<0.000003	0.000011	<0.000007	<0.000011	<0.000006	<0.000390	<0.000360	<0.000529	<0.000009	<0.000009
Annual Average										
Maximum										
Minimum										
Limitations of Permit CA0053651										
Maximum	0.0000028				0.0002	0.00000034	0.0000012	0.00000033		
7 Day Average										
30 Day Average	0.00000014					0.00000017	0.00000059	0.00000016		

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Effluent Transfer Station

Month	Bromoform mg/l	Chloroform mg/l	Dichlorobromomethane mg/l	Dibromochloromethane mg/l	Carbon Tetrachloride mg/l	1,4-Dichlorobenzene mg/l
February *	0.0049	0.0903	0.0763	0.04330	<0.00012	<0.0005
May *	<0.0002	0.0116	0.0042	0.00150	<0.00012	<0.0005
August *	<0.0002	0.0074	0.0046	0.00160	<0.00012	<0.0005
November *	<0.0002	0.0087	0.0040	0.00130	<0.00012	<0.0005
Annual Average	0.00123	0.02950	0.02228	0.01193	<0.00012	<0.0005
Maximum	0.0049	0.0903	0.0763	0.0433	<0.00012	<0.0005
Minimum	<0.0002	0.00740	0.00400	0.00130	<0.00012	<0.0005
Limitations of Permit CA0053651						
Maximum			0.0220	0.0820		
7 Day Average						
30 Day Average				0.0340		

*Analyzed by American Scientific Laboratories, Los Angeles, CA 90065

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Effluent Transfer Station

Month	Pentachlorophenol mg/l	Benzene mg/l	Bis (2-Ethylhexylphthalate) mg/l	Acetone mg/l	Xylene mg/l	Chlorobenzene mg/l
February	<0.00161					
February *	<0.00360	0.00023	0.03670	0.02340	<0.0005	<0.0002
May	<0.00161					
May *	<0.00360	<0.00020	<0.00250	0.0029	<0.0005	<0.0002
August	<0.00161					
August *	<0.00360	<0.00020	<0.00250	<0.0005	<0.0005	<0.0002
November	<0.00161					
November *	<0.00360	<0.00020	<0.00250	<0.00050	<0.0005	<0.0002
Annual Average						
Maximum		0.00023	0.0367	0.0234		
Minimum						
Limitations of Permit CA0053651						
Maximum	0.0130		0.0059			
7 Day Average						
30 Day Average	0.0079					

*Analyzed by American Scientific Laboratories, Los Angeles, CA 90065

Ventura Water Reclamation Facility
Annual Report 2004

Outfall Junction Structure

Month	Flow MGD	Max Contin Chlorine Residual mg/l	1100 Grab Temp Degrees C	Bioassay Acute Toxicity Survival %	Bioassay Chronic Ceriodaphnia Survival TU	Bioassay Chronic Ceriodaphnia Reproduction TU
January	6.31	<0.1	17.19	100%*	1.00*	1.00*
February	6.77	<0.1	17.31			1.00
March	6.59	<0.1	20.78			1.00
April	5.90	<0.1	22.53			1.00
May	5.91	<0.1	24.37			1.00
June	6.09	<0.1	24.02			2.00
July	6.04	<0.1	24.57			1.79
August	6.11	<0.1	24.67			1.79
September	6.05	<0.1	24.94			1.00
October	6.45	<0.1	22.66			2.00
November	6.16	<0.1	20.02			1.00
December	6.53	<0.1	17.58		1.00*	1.00*
Annual Average	6.24	<0.1	21.73	100.00%	1.00	1.36
Maximum	9.61	<0.1	26.80			2.00
Minimum	4.92	<0.1	15.20			1.00
Limitations of Permit CA0053651					1.00	1.00

* Analysis performed by Aquatic Bioassay Consulting Labotories, Inc.; Ventura, California 93001

Maximum	70
7 Day Average	
30 Day Average	90

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Outfall Junction Structure

Month	Bioassay Chronic Fathead Larvae Survival TU	Bioassay Chronic Fathead Larvae Growth TU	Bioassay Chronic Selenastrum Growth TU
January	1.00*	1.00*	1.00*
February			
March			
April			
May			
June			
July			
August			
September			
October			
November			
December	1.00	1.00	1.00
Annual Average	1.00	1.00	1.00
Maximum	1.00	1.00	1.00
Minimum	1.00	1.00	1.00

Limitations of Permit CA0053651

*Analysis performed by Aquatic Bioassay Consulting Laboratories, Inc.; Ventura, California 93001

Ventura Water Reclamation Facility
Annual Report 2004

Receiving Water Stations

Month	R1 Bioassay Chronic Ceriodaphnia Survival TU	R1 Bioassay Chronic Ceriodaphnia Reproduction TU	R1 Bioassay Chronic Fathead Larvae Survival TU	R1 Bioassay Chronic Fathead Larvae Growth TU	R1 Bioassay Chronic Selenastrum Growth TU
January	3.13	3.13	1.00	1.00	5.56
February	5.56	5.56			
March					
April					
May	1.79	1.79			
June					
July					
August					
September					
October					
November					
December	1.00	1.00	1.00	1.00	1.00
Annual Average	2.87	2.87	1.00	1.00	3.28
Maximum	5.56	5.56	1.00	1.00	5.56
Minimum	1.00	1.00	1.00	1.00	1.00

Limitations of Permit CA0053651

* All analysis performed by Aquatic Bioassay Consulting Laboratories, Inc.; Ventura, California 93001

Ventura Water Reclamation Facility
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Receiving Water Stations

Month	R3 Bioassay Chronic Ceriodaphnia Survival TU	R3 Bioassay Chronic Ceriodaphnia Reproduction TU	R3 Bioassay Chronic Fathead Larvae Survival TU	R3 Bioassay Chronic Fathead Larvae Growth TU	R3 Bioassay Chronic Selenastrum Growth TU
January	1.79	3.13	1.00	1.00	3.13
February					
March					
April					
May	5.56	5.56			
June					
July					
August					
September					
October					
November					
December	1.00	1.00	1.00	1.00	1.00
Annual Average	2.78	3.23	1.00	1.00	2.07
Maximum	5.56	5.56	1.00	1.00	3.13
Minimum	1.00	1.00	1.00	1.00	1.00

Limitations of Permit CA0053651

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Ventura Water Reclamation Facility
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Receiving Water Stations

Month	L5 Bioassay Chronic Ceriodaphnia Survival TU	L5 Bioassay Chronic Ceriodaphnia Reproduction TU	L5 Bioassay Chronic Fathead Larvae Survival TU	L5 Bioassay Chronic Fathead Larvae Growth TU	L5 Bioassay Chronic Selenastrum Growth TU
January	1.79	3.13	1.00	1.00	>10
February					
March					
April					
May	1.00	3.13			
June					
July					
August					
September					
October					
November					
December	1.00	1.00	1.00	1.00	1.00
Annual Average	1.26	2.42	1.00	1.00	>10
Maximum	1.79	3.13	1.00	1.00	>10
Minimum	1.00	1.00	1.00	1.00	1.00

Limitations of Permit CA0053651

Maximum
7 Day Average
30 Day Average

* All Analyses performed by Aquatic Bioassay Consulting Laboratories, Inc.; Ventura, California 93001

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Receiving Water Stations

Month	R1 Air Temp Degrees C	R2 Air Temp Degrees C	R3 Air Temp R3 AirT	R4 Air Temp Degrees C	L5 Air Temp Degrees C	R1 Water Temp Degrees C	R2 Water Temp Degrees C	R3 Water Temp Degrees C	R4 Water Temp Degrees C	L5 Water Temp Degrees C
January	11.8	12.6	13.1	12.3	12.4	12.6	12.2	12.6	11.7	11.9
February	13.7	12.9	11.7	11.7	12.9	12.9	11.4	11.7	11.9	13.6
March	15.7	16.5	16.7	16.6	17.3	16.5	16.9	16.1	15.8	16.7
April	19.6	19.5	19.2	19.2	20.3	19.5	19.7	18.5	18.7	19.9
May	21.4	20.3	19.4	19.8	19.9	20.3	18.6	20.1	21.9	21.5
June	21.4	21.1	19.5	19.3	20.4	21.1	19.4	20.3	21.5	21.4
July	23.2	22.3	21.7	21.9	22.4	22.3	21.6	22.8	23.1	23.5
August	23.2	20.9	21.5	21.5	21.5	20.9	21.5	22.6	23.0	22.9
September	23.8	22.2	21.1	21.4	21.4	22.2	21.2	21.9	23.4	22.4
October	20.0	18.7	17.7	18.6	17.6	18.7	18.0	17.9	20.2	18.0
November	15.2	14.6	14.3	15.4	14.6	14.6	14.8	14.3	15.5	15.5
December	14.3	16.0	16.6	13.9	13.9	16.0	17.6	12.2	13.1	13.5
Annual Average	18.2	17.7	17.7	17.6	17.9	17.7	17.7	17.6	18.4	18.5
Maximum	26.2	24.2	26.4	23.8	24.3	24.2	27.5	25.1	25.8	25.8
Minimum	9.1	10.1	10.8	10.4	9.6	10.1	8.6	9.7	10.4	10.2

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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
January	<0.1	<0.1	<0.1	<0.1	<0.1	2.5		9.6	6.7	3.0
February	<0.1	<0.1	<0.1	<0.1	<0.1	1.4	2.5	2.2	1.9	1.0
March	<0.1	<0.1	<0.1	<0.1	<0.1	1.0	2.2	6.2	3.9	1.3
April	<0.1	<0.1	<0.1	<0.1	<0.1	0.6	1.3	2.4	1.3	0.9
May	<0.1	<0.1	<0.1	<0.1	<0.1	1.7	5.8	5.1	1.2	2.7
June	<0.1	<0.1	<0.1	<0.1	<0.1	3.8	5.9	6.3	3.2	3.6
July	<0.1	<0.1	<0.1	<0.1	<0.1	2.4	2.7	2.3	2.3	2.6
August	<0.1	<0.1	<0.1	<0.1	<0.1	2.9	2.5	3.4	2.1	2.9
September	<0.1	<0.1	<0.1	<0.1	<0.1	2.2	5.4	5.0	3.2	4.9
October	<0.1	<0.1	<0.1	<0.1	<0.1	4.1	8.3	9.7	1.9	2.9
November	<0.1	<0.1	<0.1	<0.1	<0.1	4.8	2.3	3.7	2.0	3.6
December	<0.1	<0.1	<0.1	<0.1	<0.1	4.9	4.5	8.6	3.5	3.3
Annual Average	<0.1	<0.1	<0.1	<0.1	<0.1	2.7	4.0	5.4	2.7	2.7
Maximum	<0.1	<0.1	<0.1	<0.1	<0.1	9.8	22.7	23.2	15.5	14.6
Minimum	<0.1	<0.1	<0.1	<0.1	<0.1	0.2	0.2	0.3	0.4	0.1

* Analyzed by Aquatic Bioassay Consulting Laboratories, Ventura, CA 93001

Ventura Water Reclamation Facility
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Receiving Water Stations

Month	R1 Dissovlved Oxygen mg/l	R2 Dissolved Oxygen mg/l	R3 Dissolved Oxygen mg/l	R4 Dissolved Oxygen mg/l	L5 Dissolved Oxygen mg/l	R1 Total Hardness mg/l	R2 Total Hardness mg/l	R3 Total Hardness mg/l	R4 Total Hardness mg/l	L5 Total Hardness mg/l
January	R1 DO	R2 DO	R1 Salin	R4 DO	L5 DO	1280	1485	1678	1555	1284
February	11.0	9.5	2.5	9.8	11.5	1790	1388	1246	1546	1852
March	5.2	7.9	1.4	7.7	6.1	1520	1575	3048	2150	2628
April	0.5	6.3	1.0	5.3	6.4	1215	980	950	1420	1555
May	8.1	7.7	0.6	9.6	7.4	1088	2198	2734	1196	1223
June	7.6	7.1	1.7	7.0	9.3	1495	2000	2133	1358	1365
July	8.7	9.5	3.8	5.9	7.4	960	1043	1025	1043	1018
August	11.0	9.7	2.4	10.2	11.3	1260	1400	1560	1494	1550
September	11.2	8.4	2.9	8.1	10.0	903	2100	2103	965	1250
October	8.3	10.0	2.2	8.4	5.6	1275	1998	3300	954	1196
November	8.7	9.8	4.1	9.0	7.6	1688	1543	1305	1220	1705
December	13.7	15.2	4.8	12.5	14.3	1740	1480	1823	2593	1763
Annual Average	9.1	9.5	9.5	8.5	8.5	1360	1610	1928	1445	1526
Maximum	15.0	18.0	19.8	14.6	15.5	3620	6750	7100	4940	3820
Minimum	0.4	2.6	4.9	0.2	0.8	650	380	400	470	250

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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
January	0.32	0.18	<0.10	<0.1	0.16	0.077	0.017	0.006	0.019	0.083
February	1.10	0.94	1.18	1.14	1.23	0.014	0.004	<0.002	0.016	0.013
March	1.15	0.70	<0.10	0.75	1.05	<0.002	<0.002	<0.002	<0.002	<0.002
April	0.43	1.39	0.68	1.23	0.68	0.000	0.020	0.030	0.010	0.040
May	0.85	0.92	1.02	1.07	0.60	0.270	0.120	0.065	0.073	0.027
June		0.03	0.16	5.08	0.14	0.000	0.015	0.014	0.028	0.011
July	0.86	0.94	1.02	1.40	0.69	0.180	0.260	0.210	0.310	0.150
August	1.23	1.37	1.13	1.24	0.40	0.260	0.046	0.044	0.069	0.025
September	0.82	1.25	4.04	0.87	0.61	0.050	0.046	0.290	0.110	0.100
October		2.26	0.27	2.26	0.28	0.000	0.110	0.023	0.095	0.026
November		2.01	0.40	2.11	0.06	0.150	0.033	0.006	0.033	0.005
December	0.79	1.07	3.72	1.88	0.45	0.095	0.093	0.053	0.052	0.062
Annual Average	0.84	1.09	1.24	1.62	0.53	0.122	0.064	0.062	0.068	0.045
Maximum	1.23	2.26	4.04	5.08	1.23	0.270	0.260	0.290	0.310	0.150
Minimum	0.32	0.03	<0.1	<0.1	0.06	<0.002	<0.002	<0.002	<0.002	<0.002

* Analyzed by Aquatic Bioassay Consulting Laboratories, Ventura, CA 93001

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Receiving Water Stations

Month	R1 Nitrate Nitrogen mg/l	R2 Nitrate Nitrogen mg/l	R3 Nitrate Nitrogen mg/l	R4 Nitrate Nitrogen mg/l	L5 Nitrate Nitrogen mg/l	R1 Nitrite Nitrogen mg/l	R2 Nitrite Nitrogen ug/l	R3 Nitrite Nitrogen ug/l	R4 Nitrite Nitrogen ug/l	L5 Nitrite Nitrogen ug/l
January	2.9	<0.4	6.9	2.1	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4
February	120.0	<0.4	112.0	116.0	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4
March	<0.4	960.0	971.0	987.0	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4
April	2.5	3.5	8.1	8.6	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4
May	3.2	3.3	4.0	4.3	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4
June										
July	<0.4	5.2	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4
August	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4
September	4.7	7.4	<.4	5.1	4.50	0.40	<0.4	<.04	<0.4	<0.4
October		2094.0	2070.0	2112.0	2082.00		<0.4	<.04	<0.4	<0.4
November	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4
December	2227.6	2022.1	2114.6	2205.3	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4
Annual Average	428.7	476.6	482.1	495.9	471.4	<0.4	<0.4	<0.4	<0.4	<0.4
										<0.4
Maximum	2227.6	2094.0	2114.6	2205.3	2082.0	0.5	<0.4	<0.4	<0.4	<0.4
										<0.4
Minimum	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4

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Receiving Water Stations

Month	R1 Ammonia Nitrogen mg/l	R2 Ammonia Nitrogen mg/l	R3 Ammonia Nitrogen mg/l	R4 Ammonia Nitrogen mg/l	L5 Ammonia Nitrogen mg/l	R1 Tot Kjeldahl Nitrogen mg/l	R2 Tot Kjeldahl Nitrogen mg/l	R3 Tot Kjeldahl Nitrogen mg/l	R4 Tot Kjeldah Nitrogen mg/l	L5 Tot Kjeldahl Nitrogen mg/l
January	2.6	0.4	0.7	0.4	0.3	2.4	1.6	1.1	1.1	3.1
February	<0.1	<0.1	<0.1	<0.1	<0.1	6.2	6.2	5.2	6.3	3.8
March	0.5	0.8	0.4	0.4	0.3	1.4	1.5	1.1	1.8	2.2
April	0.5	0.6	0.5	0.4	0.6	0.7	1.3	0.6	1.1	0.6
May	0.3	0.3	0.2	0.2	0.1	3.0	3.3	3.0	3.0	2.6
June		0.2	0.1	0.4	0.1		1.9	2.5	1.7	0.6
July	<0.1	<0.1	<0.1	<0.1	<0.1	1.8	1.9	1.6	1.9	2.0
August	0.2	0.7	0.5	0.7	0.5	10.5	2.1	2.0	1.6	1.5
September	0.4	0.1	0.1	0.1	0.1	1.9	2.0	7.3	2.7	2.7
October	0.0	0.3	0.1	0.2	0.1	0.0	3.6	0.7	5.9	5.9
November	0.3	0.3	0.3	0.4	0.4	0.6	14.7	0.8	5.3	3.8
December	0.3	0.4	0.5	0.3	0.2	1.3	1.1	1.0	0.9	2.9
Annual Average	0.6	0.4	0.3	0.4	0.3	3.0	3.4	2.2	2.8	2.6
Maximum	2.6	0.8	0.7	0.7	0.6	10.5	14.7	7.3	6.3	5.9
Minimum	<0.1	<0.1	<0.1	<0.1	<0.1	0.6	1.1	0.6	0.9	0.6

Solids Streams

Total Metal in mg/kg Dry Weight

Dissolved Air Flotation System (Waste Activated Sludge)

Month	Cadmium mg/kg	Chromium mg/kg	Copper mg/kg	Lead mg/kg	Nickel mg/kg	Silver mg/kg	Zinc mg/kg
February	1.2	5.3	820.0	27.7	8.5	0.9	351.2
May	1.8	7.7	781.0	22.9	10.8	1.1	326.1
August							
November	2.7	15.2	751.9	25.5	15.3	1.3	445.3
Average	1.9	9.4	784.3	25.4	11.5	1.1	374.2

Gravity Thickener (Primary Sludge)

Month	Cadmium mg/kg	Chromium mg/kg	Copper mg/kg	Lead mg/kg	Nickel mg/kg	Silver mg/kg	Zinc mg/kg
February	1.7	6.6	281.1	15.1	11.2	0.9	278.2
May	1.3	6.7	471.2	23.6	8.8	1.0	265.3
August	1.2	6.2	228.9	22.9	8.5	0.8	265.7
November	2.0	9.8	327.1	25.5	11.4	1.3	366.1
Average	1.5	7.3	327.1	21.8	10.0	1.0	293.8

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Solids Streams

Total Metal in mg/kg Dry Weight

Filter Press Product (Dewatered Digested Sludge)

Date	Sample	Aluminum	Antimony	Arsenic	Barium	Beryllium	Cadmium	Chromium
04-Feb-04	FILTER PRESS 1 RUN 1						3.2	16.4
04-Feb-04	FILTER PRESS 1 RUN 2						3.4	17.0
04-Feb-04	FILTER PRESS 2 RUN 1						3.1	16.8
04-Feb-04	FILTER PRESS 2 RUN 2						3.0	15.3
04-Feb-04	FILTER PRESS 1 RUN 1 *	11176	17.1	<3.3	358	<3.3	<3.3	20.5
12-May-04	FILTER PRESS 1 RUN 1						4.3	23.8
12-May-04	FILTER PRESS 1 RUN 2						4.2	22.9
12-May-04	FILTER PRESS 2 RUN 1						4.2	23.3
12-May-04	FILTER PRESS 2 RUN 2						4.1	23.3
12-May-04	FILTER PRESS 1 RUN 1 *	7657	<2.9	<2.9	314	<2.9	<2.9	18.5
04-Aug-04	FILTER PRESS 1 RUN 1						3.3	19.9
04-Aug-04	FILTER PRESS 1 RUN 2						3.2	20.5
04-Aug-04	FILTER PRESS 2 RUN 1						3.5	20.9
04-Aug-04	FILTER PRESS 2 RUN 2						3.5	19.9
04-Aug-04	FILTER PRESS 2 RUN 2 *	10167	<2.8	<2.8	397	<2.9	<2.9	21.9
03-Nov-04	FILTER PRESS 1 RUN 1						5.2	30.1
03-Nov-04	FILTER PRESS 1 RUN 2						5.2	31.9
03-Nov-04	FILTER PRESS 2 RUN 1						5.0	30.6
03-Nov-04	FILTER PRESS 2 RUN 2						4.8	30.3
03-Nov-04	FILTER PRESS 1 RUN 2 *	10000	2.3	<2.3	375	<2.3	<2.3	202.3
Average		9750	4.9		361		3.2	31.3
Maximum		11176	17.1		397		5.2	202.3
Minimum		7657	<2.8		314		<2.3	15.3

*Analyzed by American Scientific Laboratories, Los Angeles, CA 90065

Ventura Water Reclamation Facility
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Solids Streams

Total Metal in mg/kg Dry Weight

Filter Press Product (Dewatered Digested Sludge)

Date	Sample	Cobalt	Copper	Lead	Mercury	Molybdenum	Nickel	Selenium
04-Feb-04	FILTER PRESS 1 RUN 1		1255	44.9			26.0	
04-Feb-04	FILTER PRESS 1 RUN 2		1303	45.9			24.5	
04-Feb-04	FILTER PRESS 2 RUN 1		1251	31.3			22.5	
04-Feb-04	FILTER PRESS 2 RUN 2		1239	37.4			22.9	
04-Feb-04	FILTER PRESS 1 RUN 1 *	14.3	1412	21.2	<1.31	23.9	26.8	12.5
12-May-04	FILTER PRESS 1 RUN 1		1256	54.3			23.6	
12-May-04	FILTER PRESS 1 RUN 2		1246	50.7			22.9	
12-May-04	FILTER PRESS 2 RUN 1		1258	51.8			22.6	
12-May-04	FILTER PRESS 2 RUN 2		1240	50.6			22.5	
12-May-04	FILTER PRESS 1 RUN 1 *	10.3	1080	25.1	<1.1	23.1	23.3	9.9
04-Aug-04	FILTER PRESS 1 RUN 1		1253	35.2			35.1	
04-Aug-04	FILTER PRESS 1 RUN 2		1266	35.5			37.0	
04-Aug-04	FILTER PRESS 2 RUN 1		1297	34.9			35.4	
04-Aug-04	FILTER PRESS 2 RUN 2		1255	30.2			35.2	
04-Aug-04	FILTER PRESS 2 RUN 2 *	14.6	1411	28.6	<1.1	37.1	30.3	16.3
03-Nov-04	FILTER PRESS 1 RUN 1		1152	59.5			29.2	
03-Nov-04	FILTER PRESS 1 RUN 2		1152	55.9			30.5	
03-Nov-04	FILTER PRESS 2 RUN 1		1159	62.2			29.3	
03-Nov-04	FILTER PRESS 2 RUN 2		1117	58.4			29.0	
03-Nov-04	FILTER PRESS 1 RUN 2 *	13.8	1093	26.9	<.9	29.3	96.7	19.9
Average		13.3	1234.7	42.0		28.4	31.3	14.7
Maximum		14.6	1412.0	62.2		37.1	96.7	19.9
Minimum		10.3	1080.0	21.2	<0.91	23.1	22.5	9.9

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Solids Streams

Total Metal in mg/kg Dry Weight

Filter Press Product (Dewatered Digested Sludge)

Date	Sample	Silver	Thallium	Tin	Vanadium	Zinc
04-Feb-04	FILTER PRESS 1 RUN 1	1.1				717
04-Feb-04	FILTER PRESS 1 RUN 2	1.3				752
04-Feb-04	FILTER PRESS 2 RUN 1	1.5				737
04-Feb-04	FILTER PRESS 2 RUN 2	1.4				731
04-Feb-04	FILTER PRESS 1 RUN 1 *	27.5	<3.3	<32.7	7.1	719
12-May-04	FILTER PRESS 1 RUN 1	1.6				841
12-May-04	FILTER PRESS 1 RUN 2	1.5				852
12-May-04	FILTER PRESS 2 RUN 1	1.7				861
12-May-04	FILTER PRESS 2 RUN 2	1.6				888
12-May-04	FILTER PRESS 1 RUN 1 *	23.2	<2.9	<28.6	<2.9	663
04-Aug-04	FILTER PRESS 1 RUN 1	1.3				805
04-Aug-04	FILTER PRESS 1 RUN 2	1.3				815
04-Aug-04	FILTER PRESS 2 RUN 1	1.3				827
04-Aug-04	FILTER PRESS 2 RUN 2	1.2				809
04-Aug-04	FILTER PRESS 2 RUN 2 *	26.3	<2.8	<27.8	5.9	989
03-Nov-04	FILTER PRESS 2 RUN 2	2.2				889
03-Nov-04	FILTER PRESS 1 RUN 1	2.8				881
03-Nov-04	FILTER PRESS 1 RUN 2	2.1				903
03-Nov-04	FILTER PRESS 2 RUN 1	2.0				851
03-Nov-04	FILTER PRESS 1 RUN 2 *	27.3	<2.3	<23.3	15.6	1312
Average		6.5			7.2	842
Maximum		27.5			15.6	1312
Minimum		1.1				663

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Solids Streams

Total Compound in mg/kg Dry Weight

Filter Press Product (Dewatered Digested Sludge)

Date	Sample	Acetone	Chloromethane	1,4-Dichlorobenzene	Toluene
04-Feb-04	FILTER PRESS 1 RUN 1	<0.33	<0.33	<0.065	<0.065
12-May-04	FILTER PRESS 1 RUN 1	<0.29	<0.17	<0.057	<0.011
04-Aug-04	FILTER PRESS 2 RUN 2	<0.28	<0.17	0.018	0.018
03-Nov-04	FILTER PRESS 1 RUN 2	<0.23	<0.35	<0.046	0.012

Date	Sample	Xylene	Bis (2-Ethylhexyl)phthalate	TOX
04-Feb-04	FILTER PRESS 1 RUN 1	0.26	75.2	<32.7
12-May-04	FILTER PRESS 1 RUN 1	0.10	<18.9	<28.6
04-Aug-04	FILTER PRESS 2 RUN 2	0.15	<18.3	<27.7
03-Nov-04	FILTER PRESS 1 RUN 2	0.16	52.3	56

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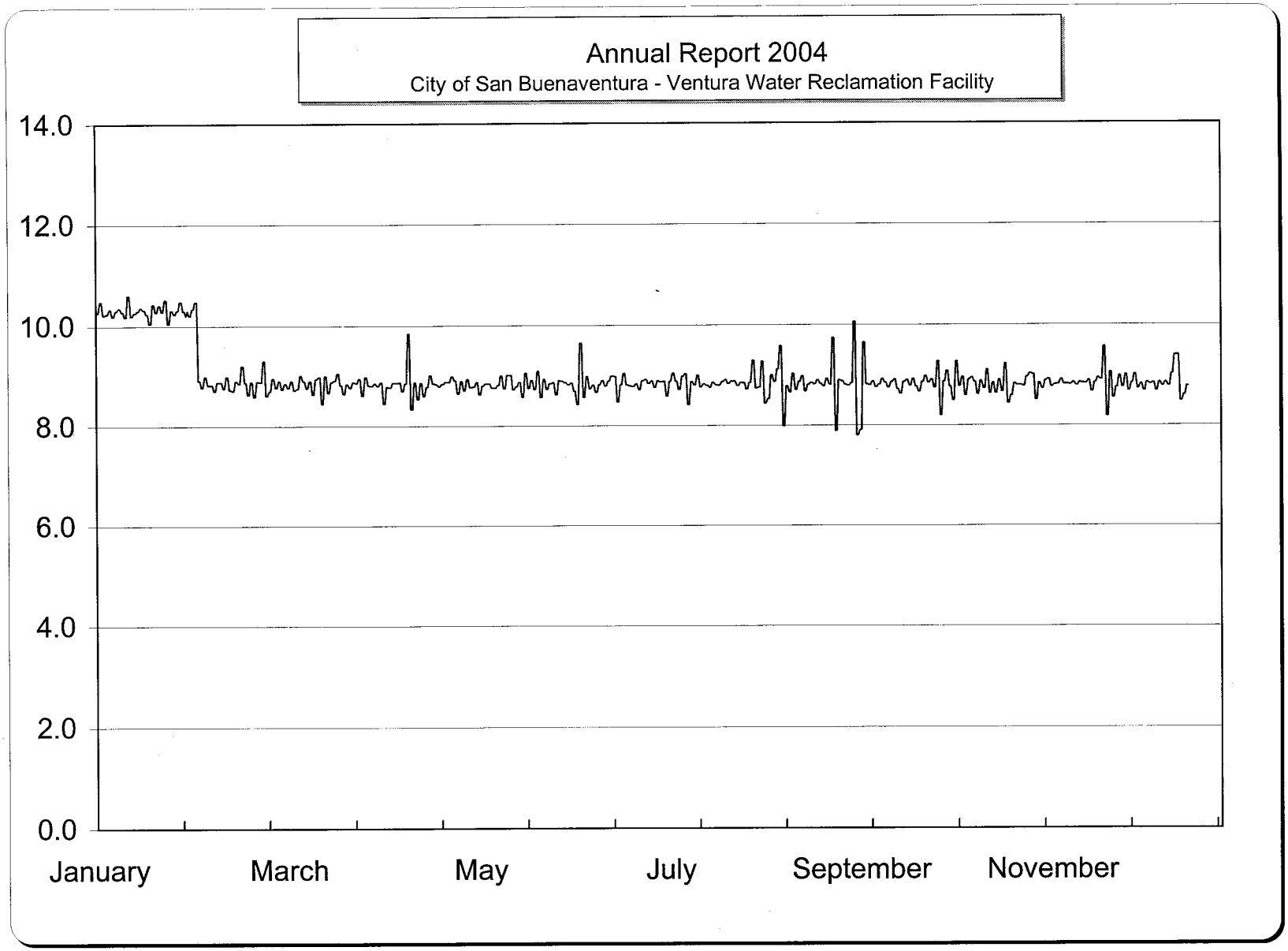
Irrigation Reuse Flows

Month	Olivas Pump Station Flow MGD	Marina Park Flow MGD	Buena Pump Station Flow MGD	Total Irrigation Flow MGD
January	0.3909	0.0000	0.1507	0.5416
February	0.2786	0.0000	0.1273	0.4058
March	0.3860	0.0000	0.1759	0.5619
April	0.3810	0.0590	0.1900	0.6300
May	0.7385	0.0531	0.0575	0.8492
June	0.6372	0.0581	0.0669	0.7621
July	0.7333	0.0513	0.0569	0.8416
August	0.7359	0.0515	0.2103	0.9976
September	0.7089	0.0463	0.2330	0.9883
October	0.3348	0.0206	0.2907	0.6461
November	0.3124	0.0146	0.1814	0.5084
December	0.3003	0.0298	0.1863	0.5164
Annual Average	0.5423	0.0409	0.1639	0.6654
Maximum	1.7910	0.1570	0.8260	2.3410
Minimum	0.0010	0.0010	0.0010	0.0010

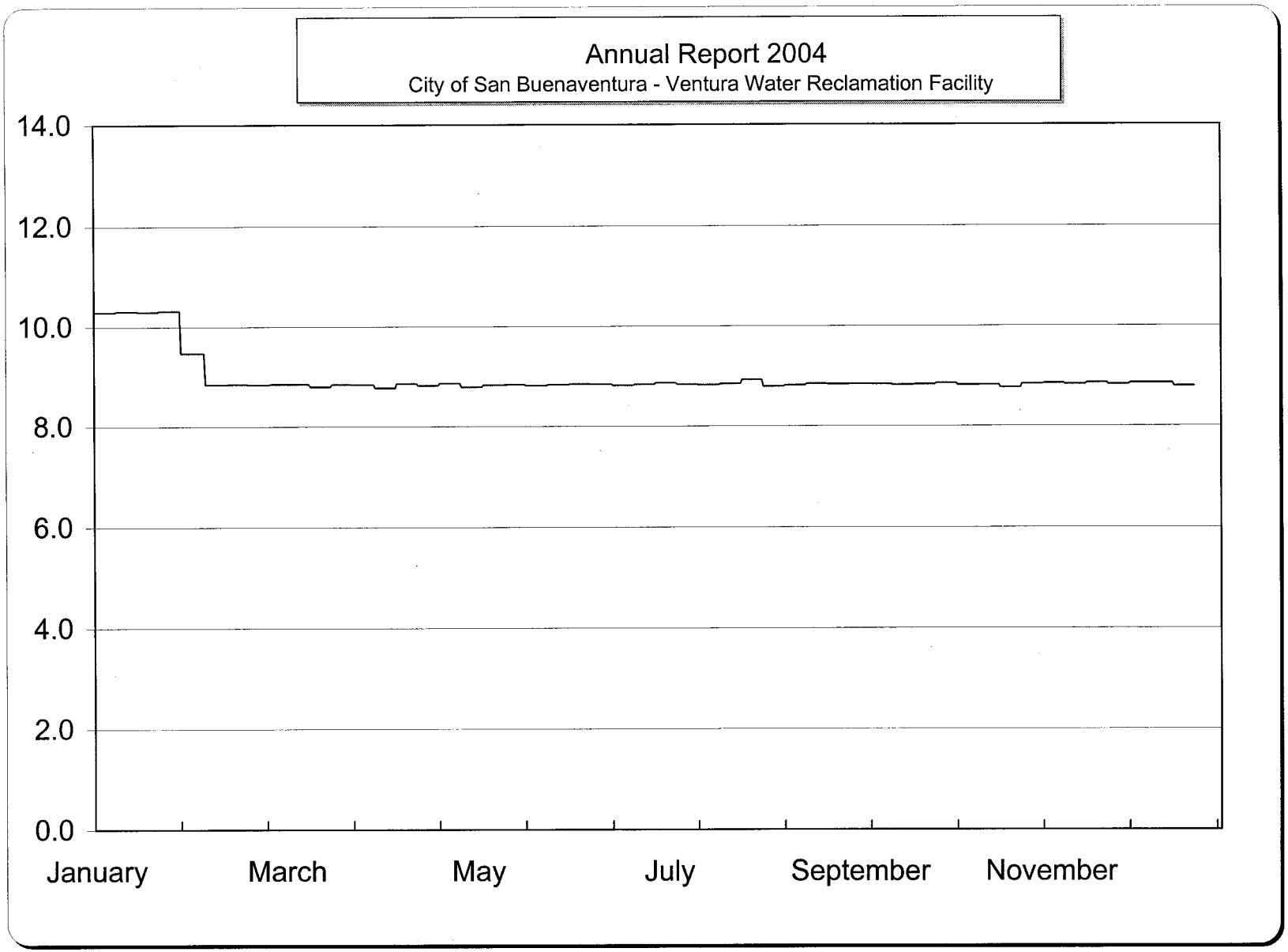
Limitations of Permit CA0053651

Maximum
7 Day Average
30 Day Average



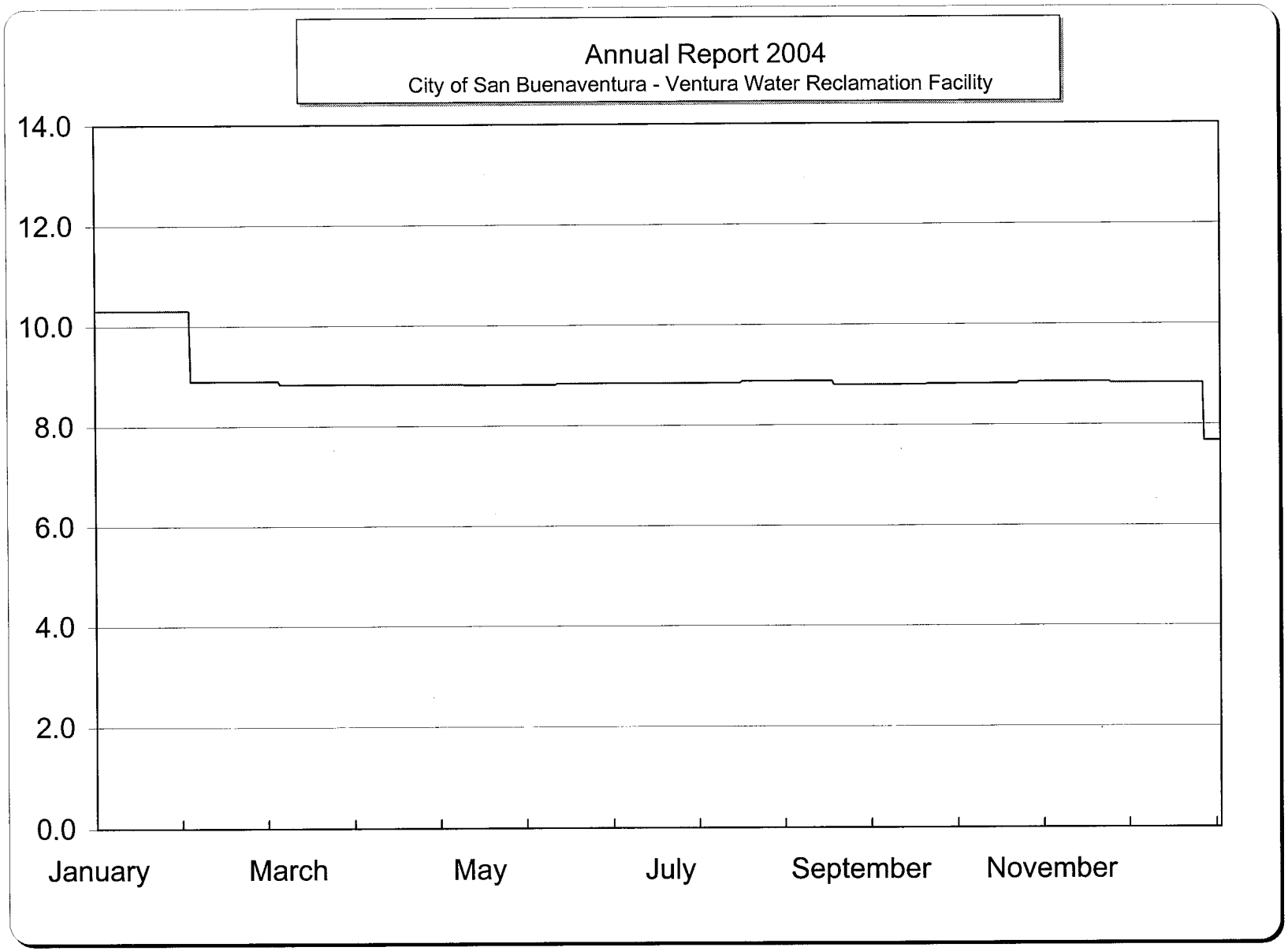
Bimonthly Period

Influent Pump Station
Daily Influent Raw Sewage Flow - MGD



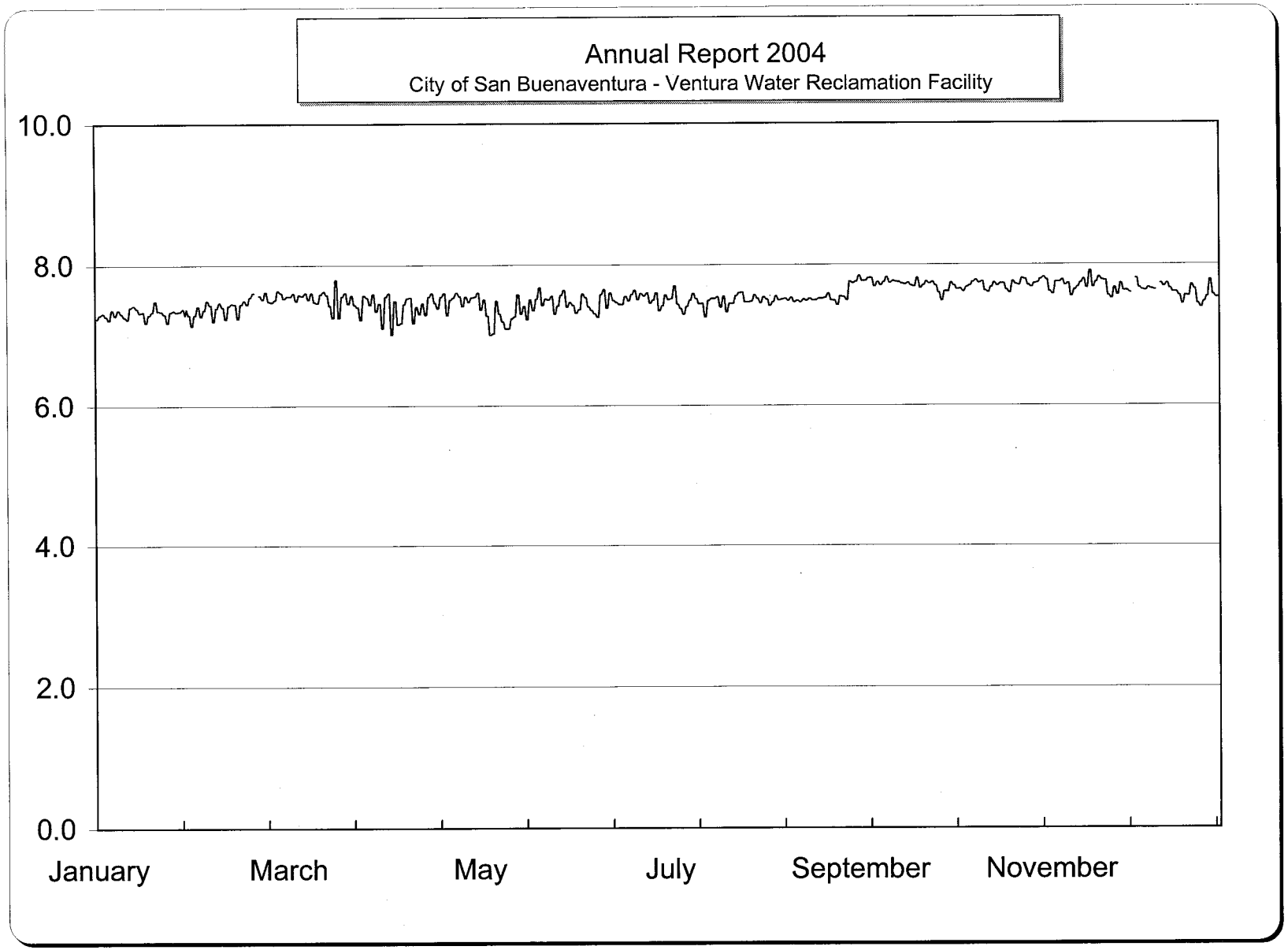
Bimonthly Period

Influent Pump Station
Influent Raw Sewage 7 Day Average Flow - MGD



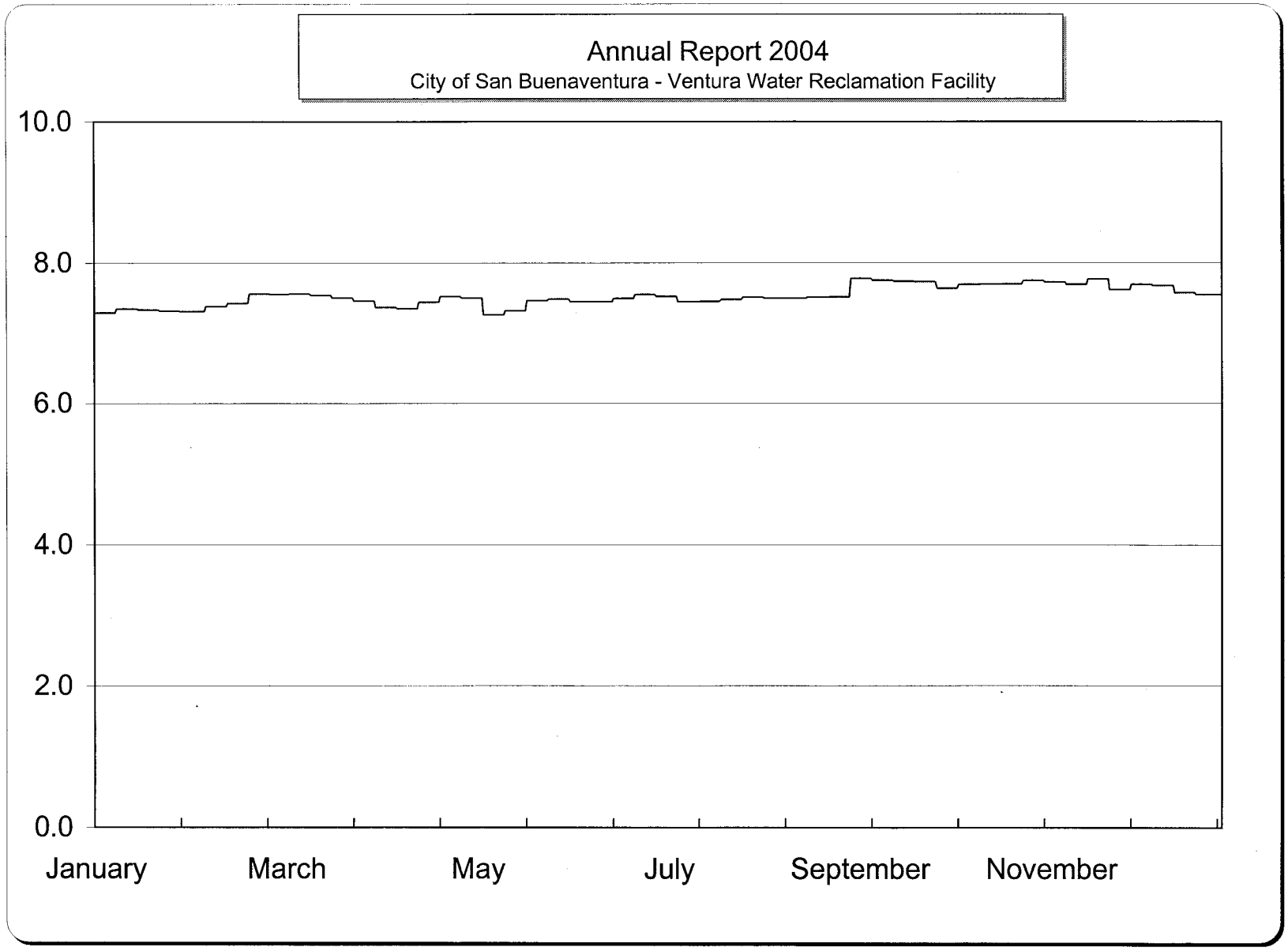
Influent Pump Station
Influent Raw Sewage 30 Day Average Flow - MGD

Bimonthly Period



Bimonthly Period

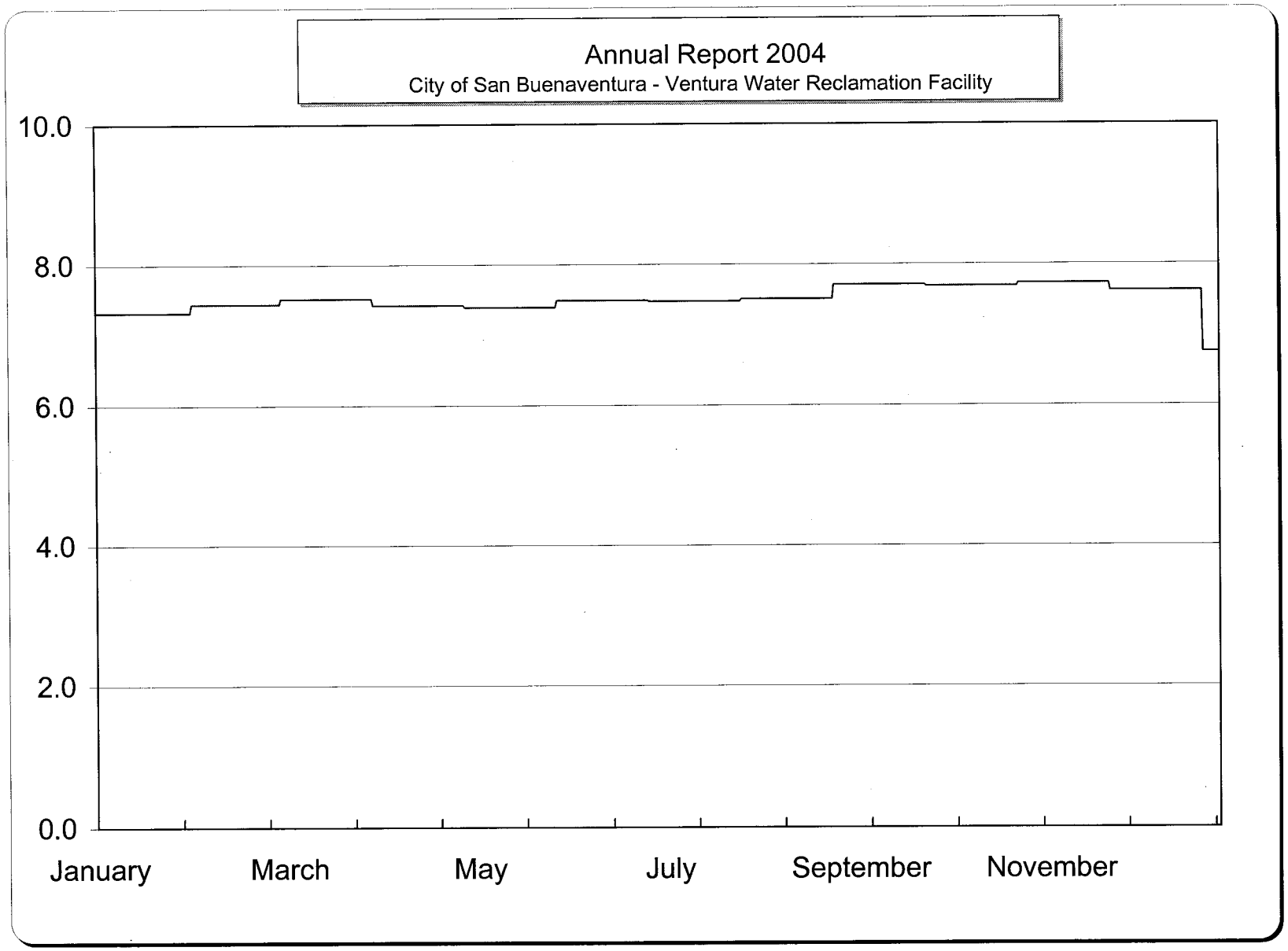
Influent Pump Station
Daily Influent Raw Sewage pH - pH Units



Influent Pump Station

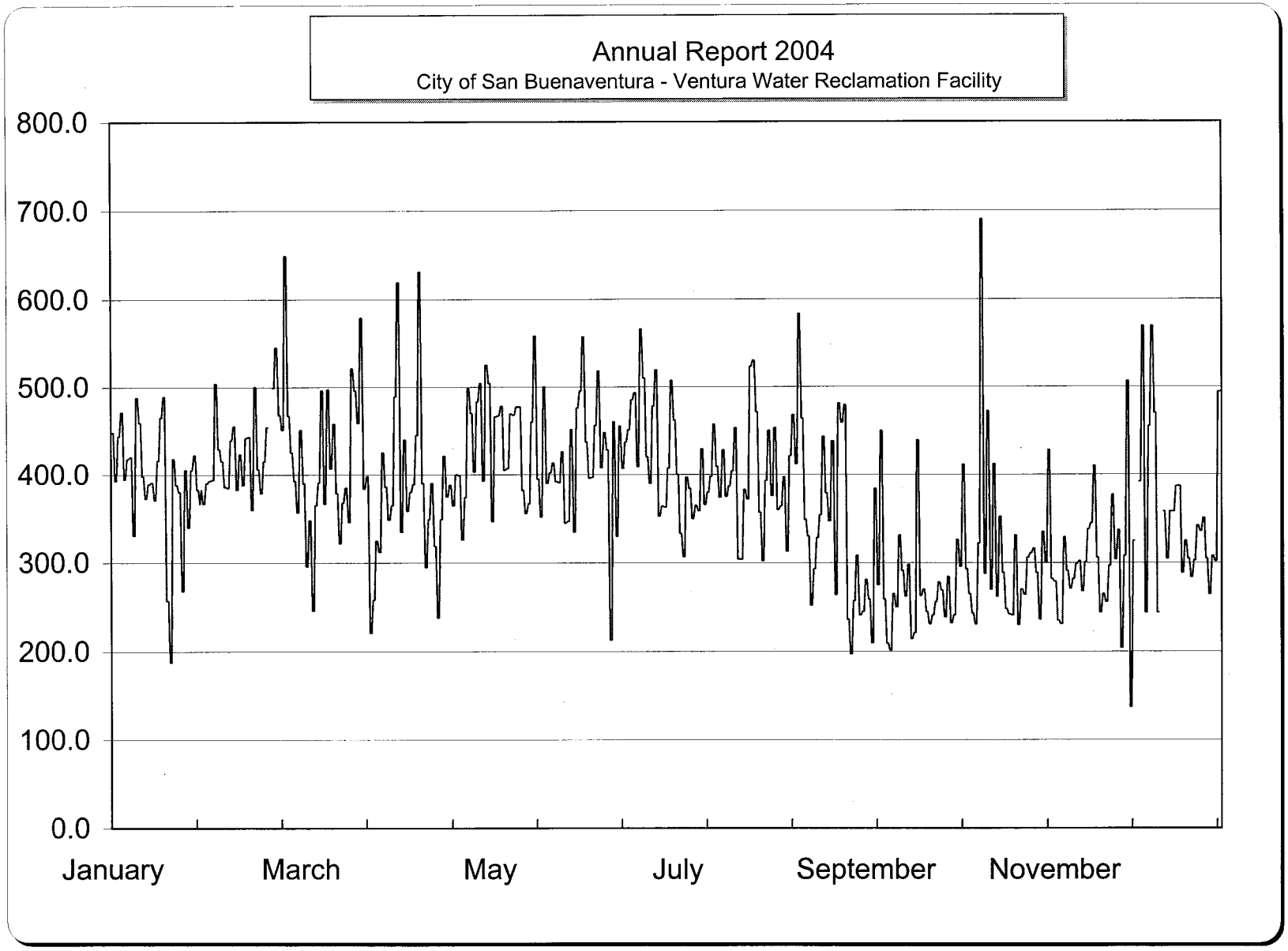
Bimonthly Period

Influent Raw Sewage 7 Day Average pH - pH Units



Influent Pump Station
Influent Raw Sewage 30 Day Average pH - pH Units

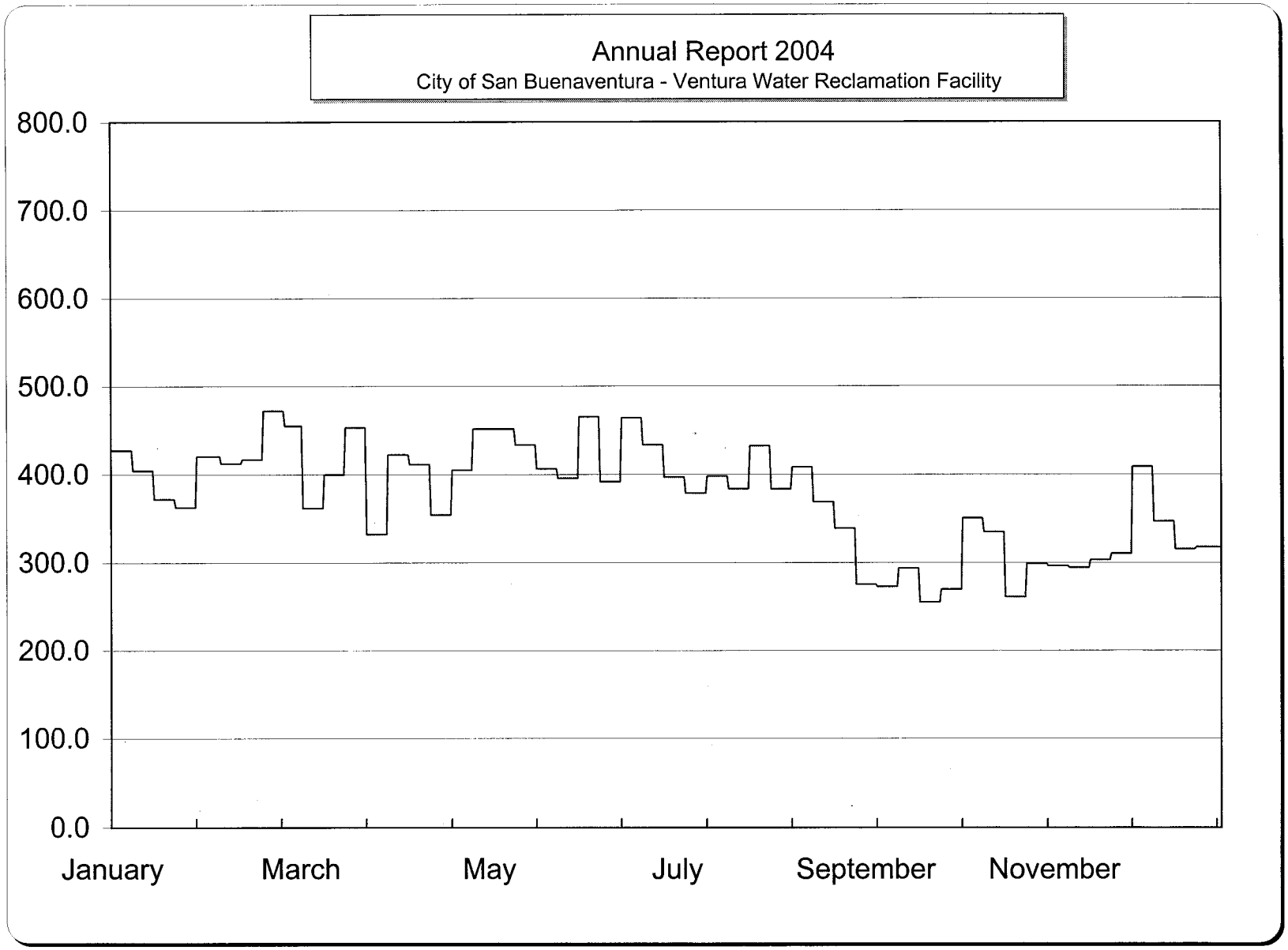
Bimonthly Period



Influent Pump Station

Bimonthly Period

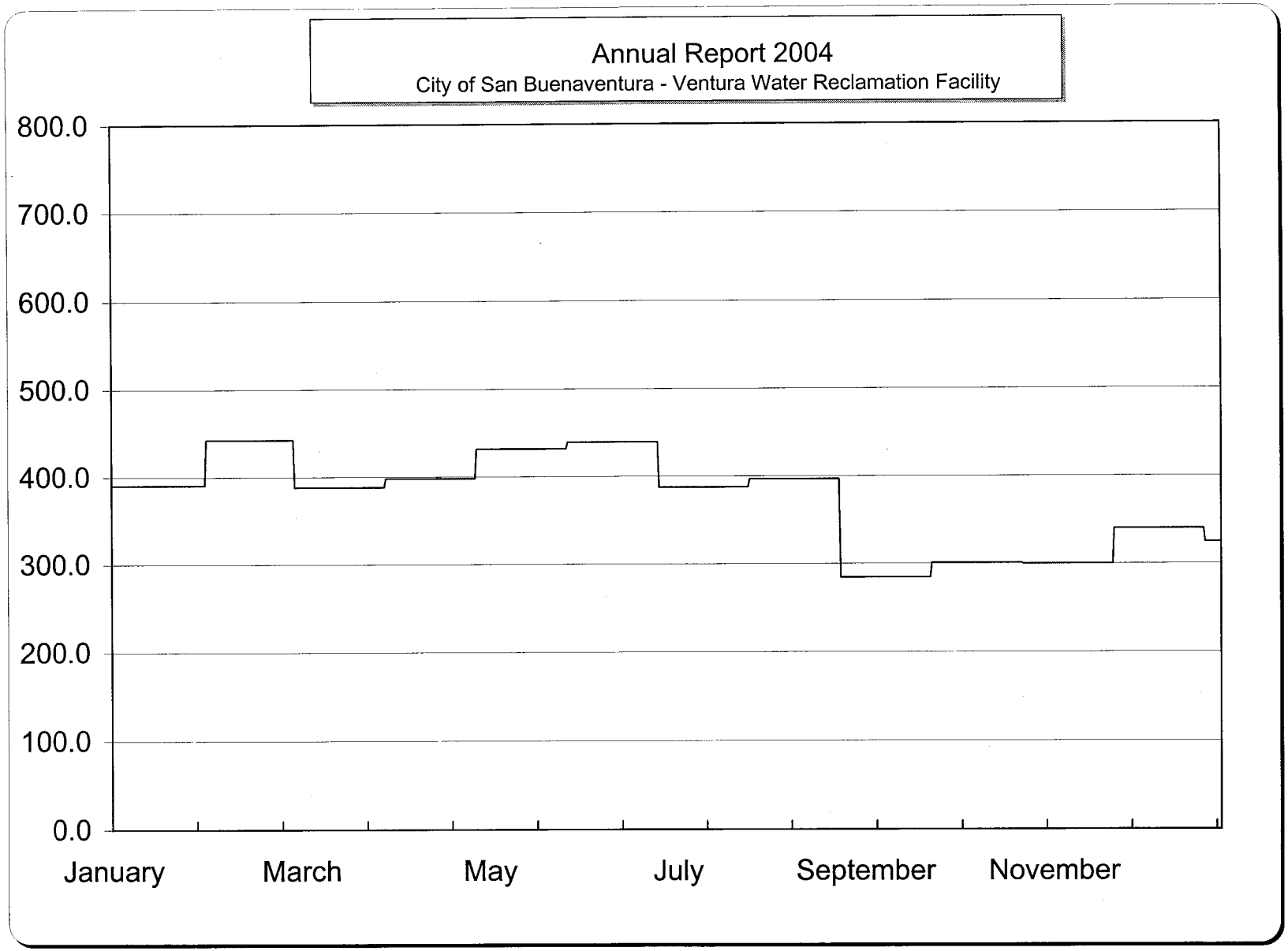
Daily Influent Raw Sewage Suspended Solids - mg/L



Influent Pump Station

Bimonthly Period

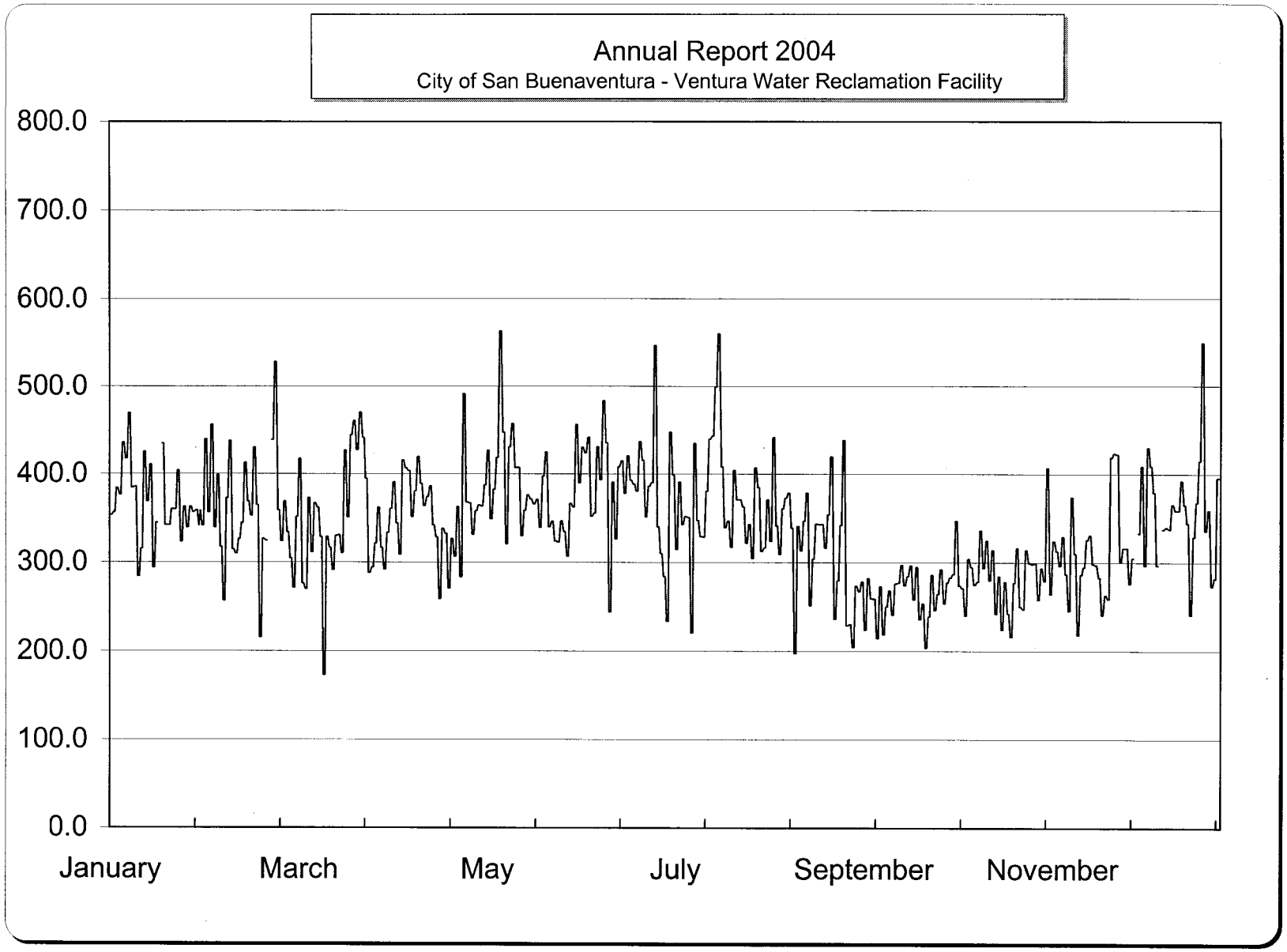
Influent Raw Sewage 7 Day Average Suspended Solids - mg/L



Influent Pump Station

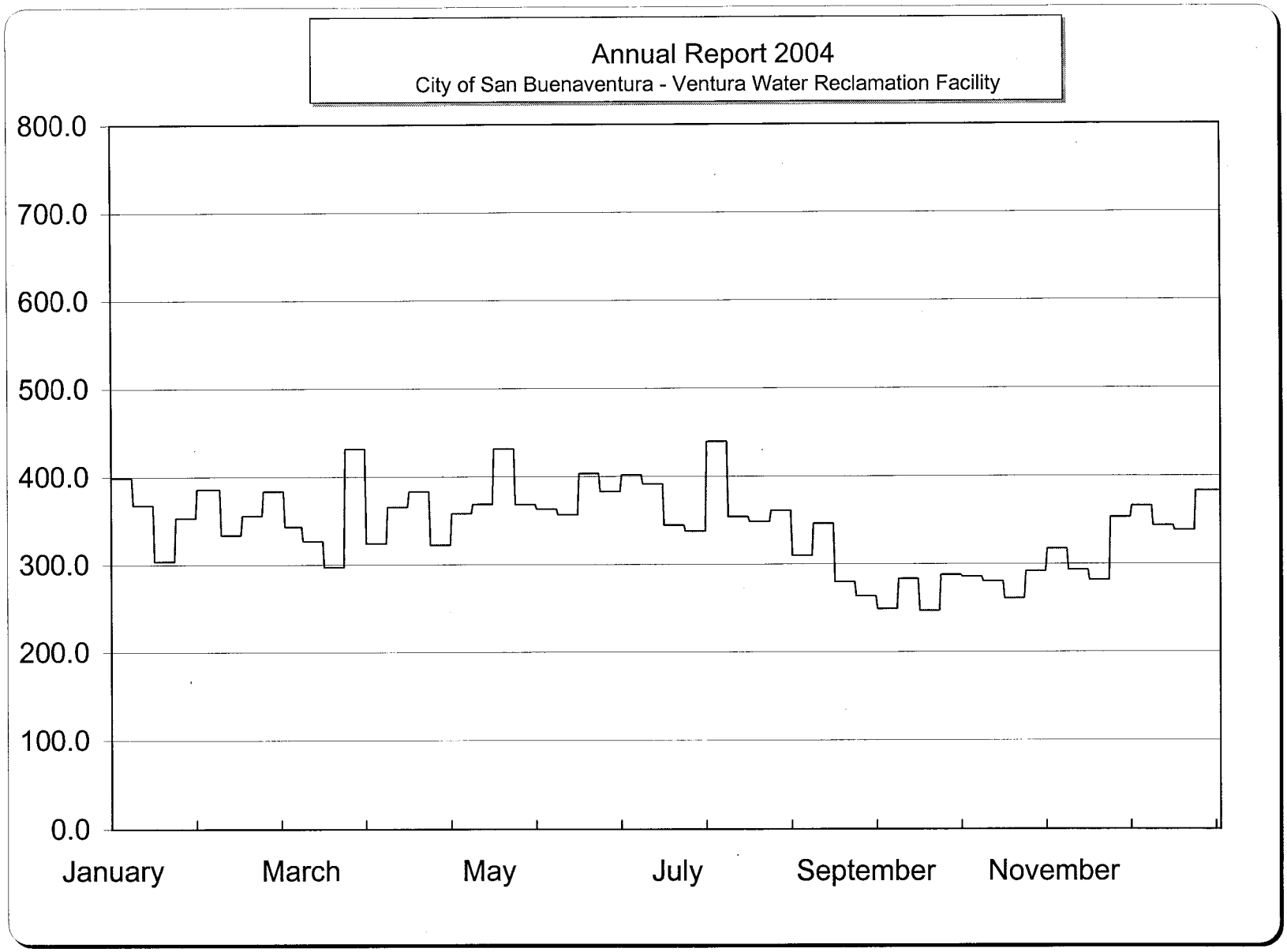
Bimonthly Period

Influent Raw Sewage 30 Day Average Suspended Solids - mg/L



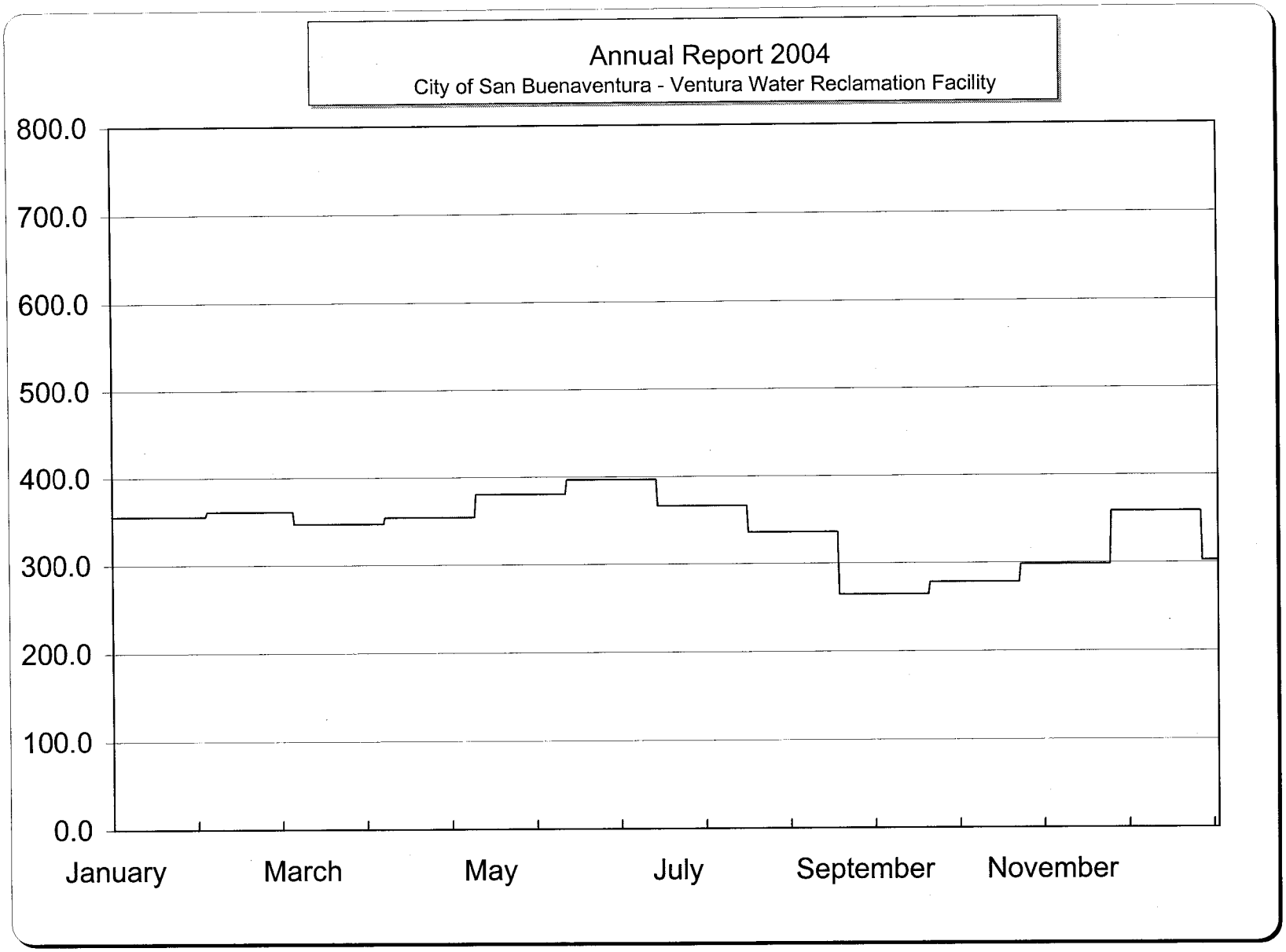
Bimonthly Period

Influent Pump Station
Daily Influent Raw Sewage BOD - mg/L



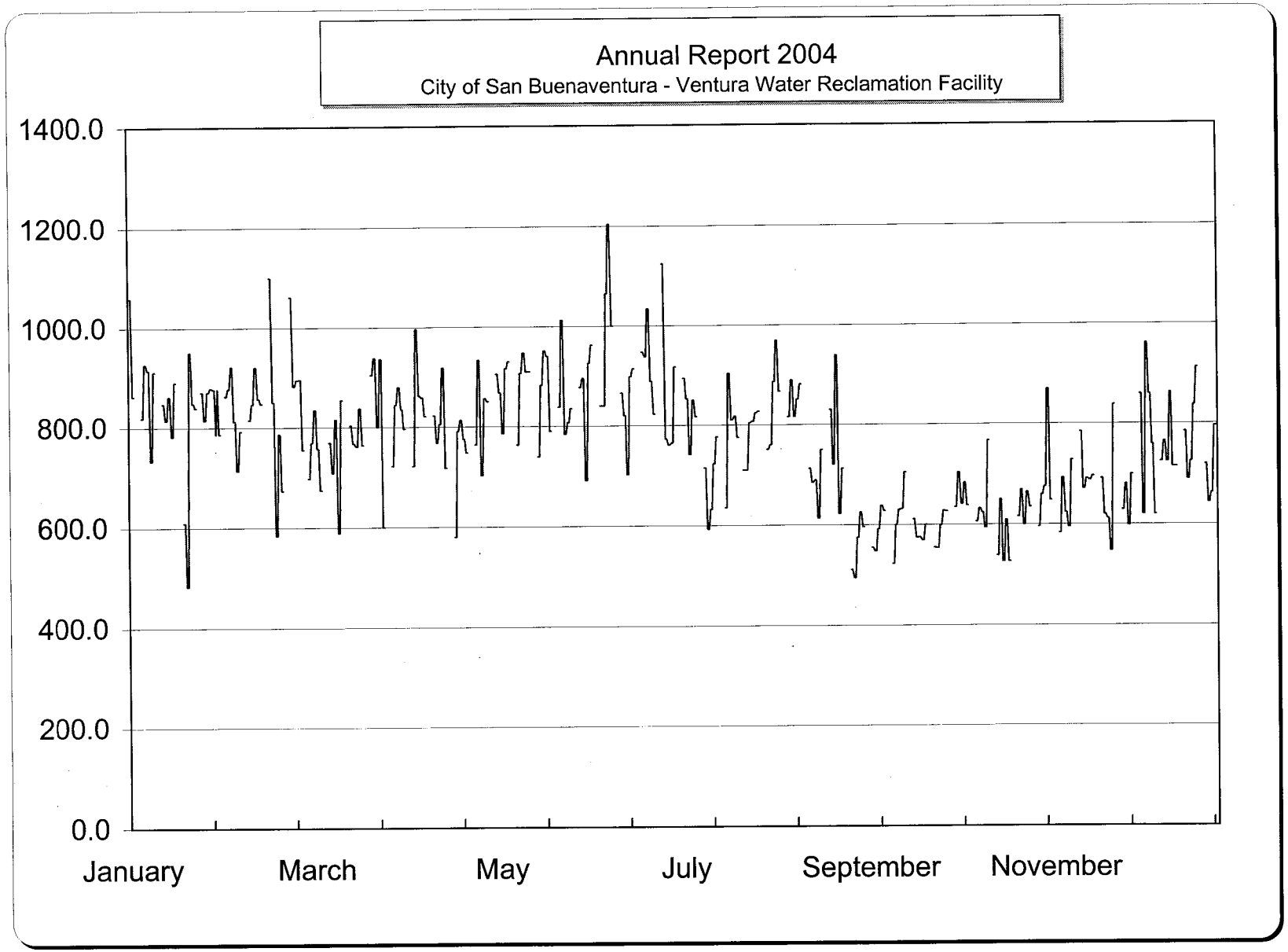
Influent Pump Station
Influent Raw Sewage 7 Day Average BOD - mg/L

Bimonthly Period



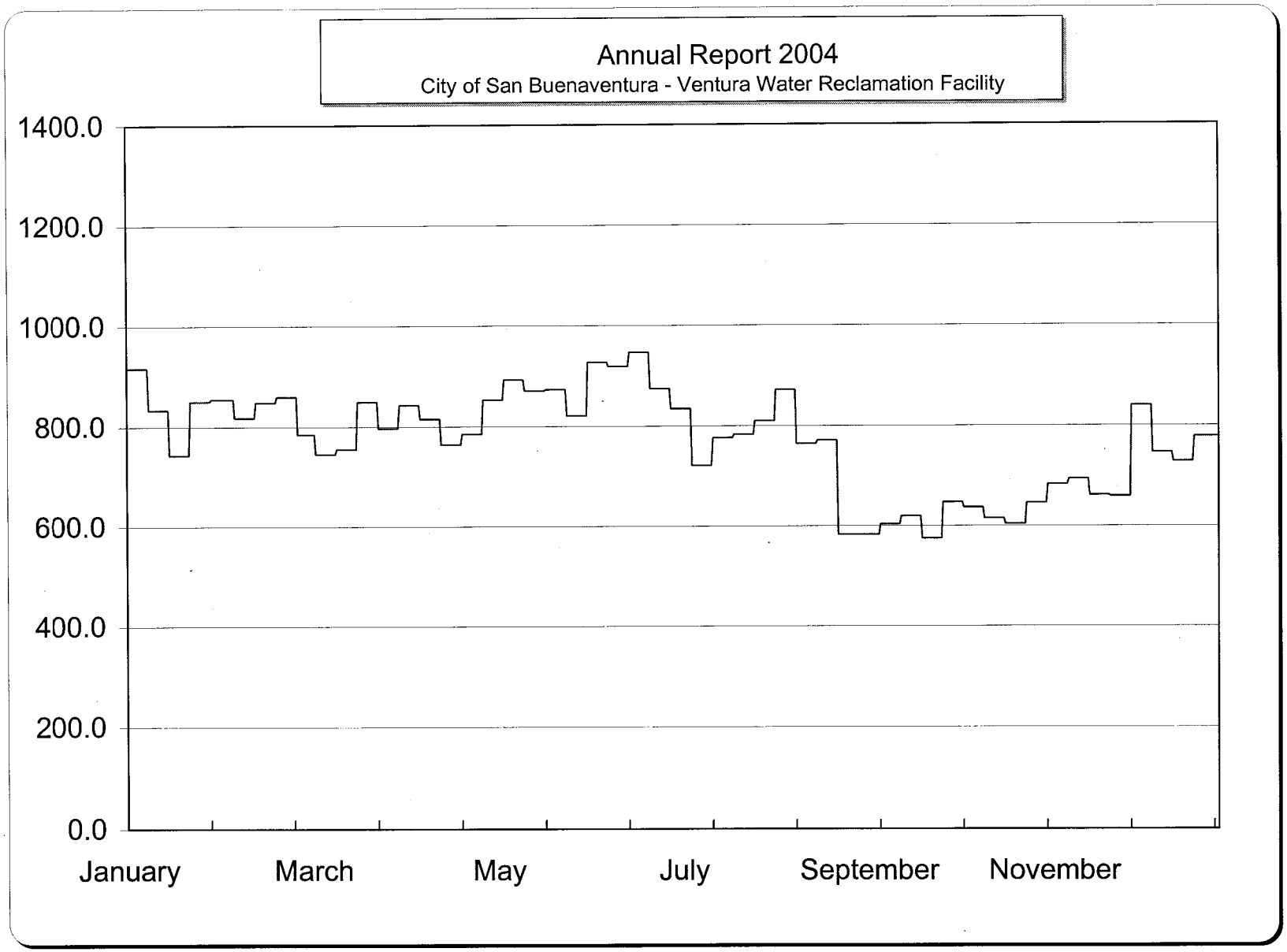
Influent Pump Station
Influent Raw Sewage 30 Day Average BOD - mg/L

Bimonthly Period



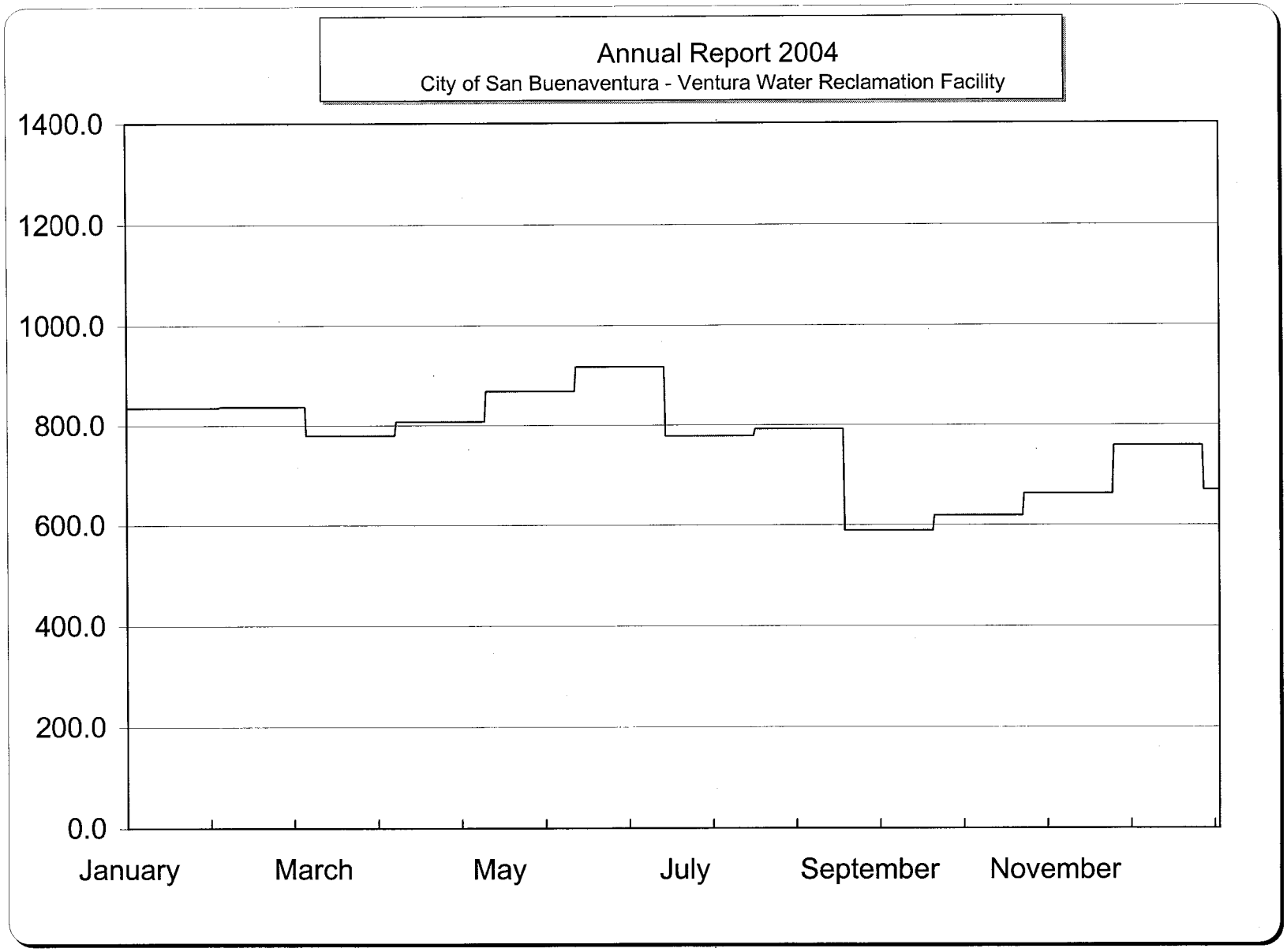
Bimonthly Period

Influent Pump Station
Daily Influent Raw Sewage COD - mg/L



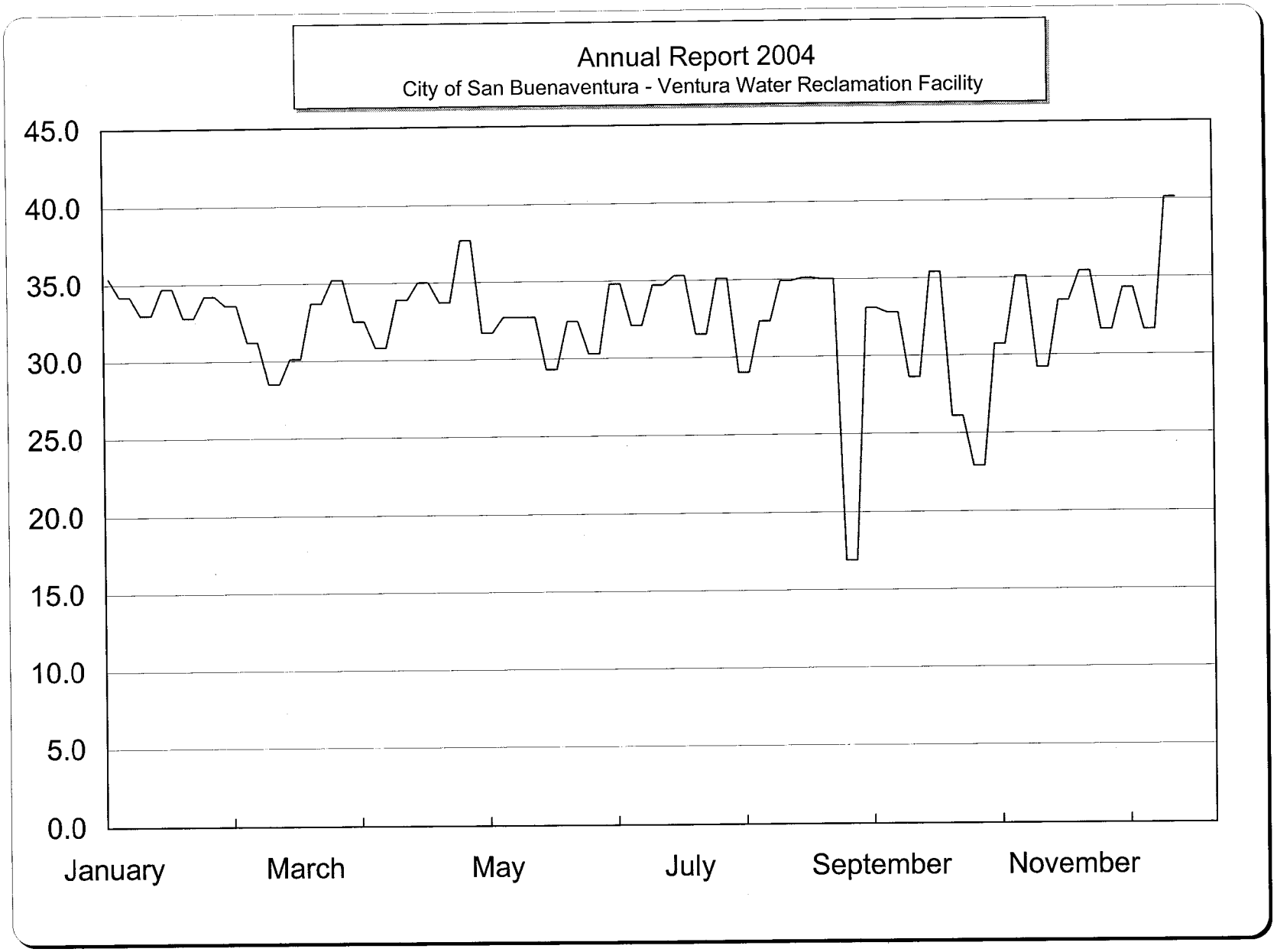
Bimonthly Period

Influent Pump Station
Influent Raw Sewage 7 Day Average COD - mg/L



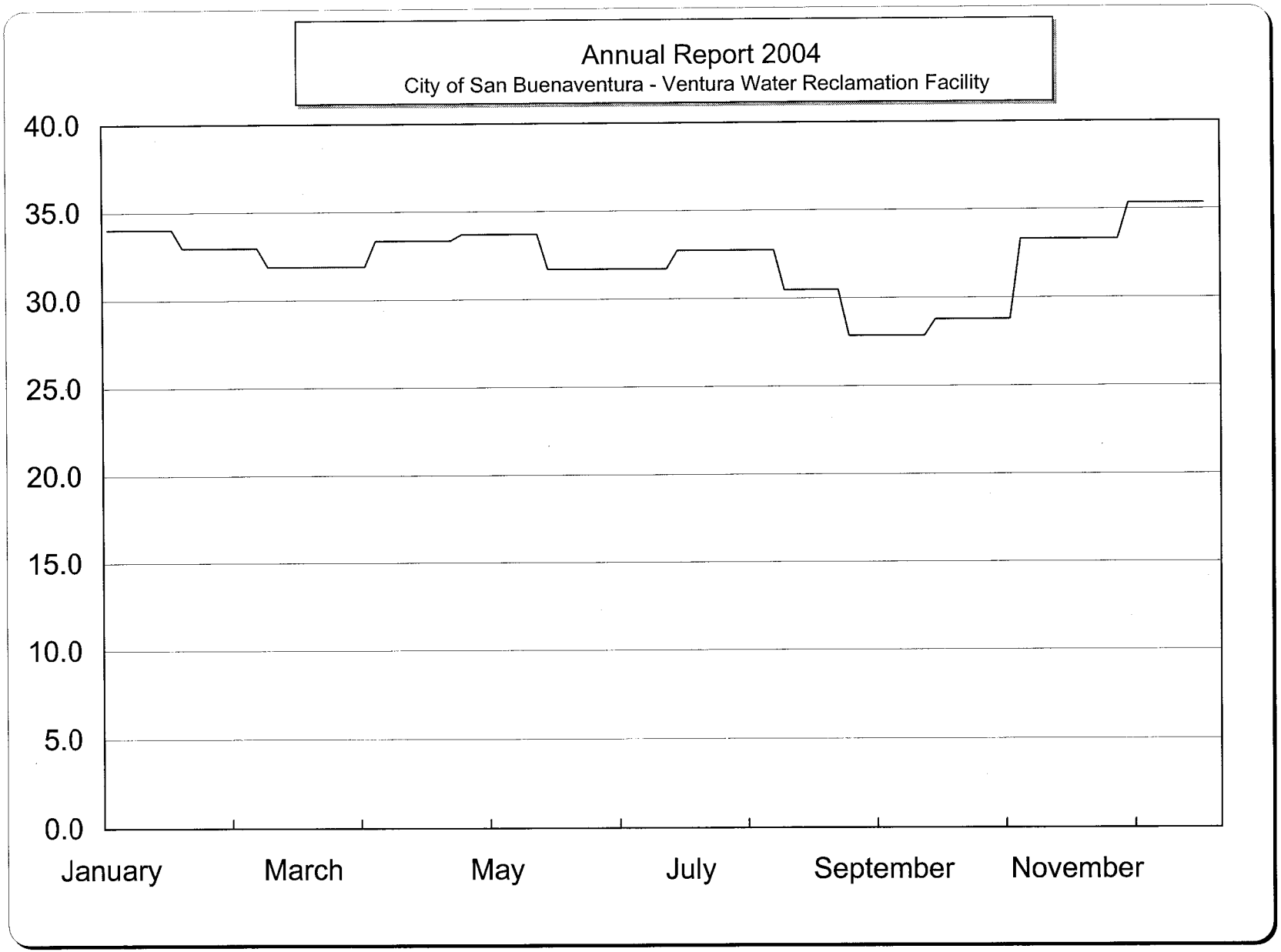
Influent Pump Station
Influent Raw Sewage 30 Day Average COD - mg/L

Bimonthly Period



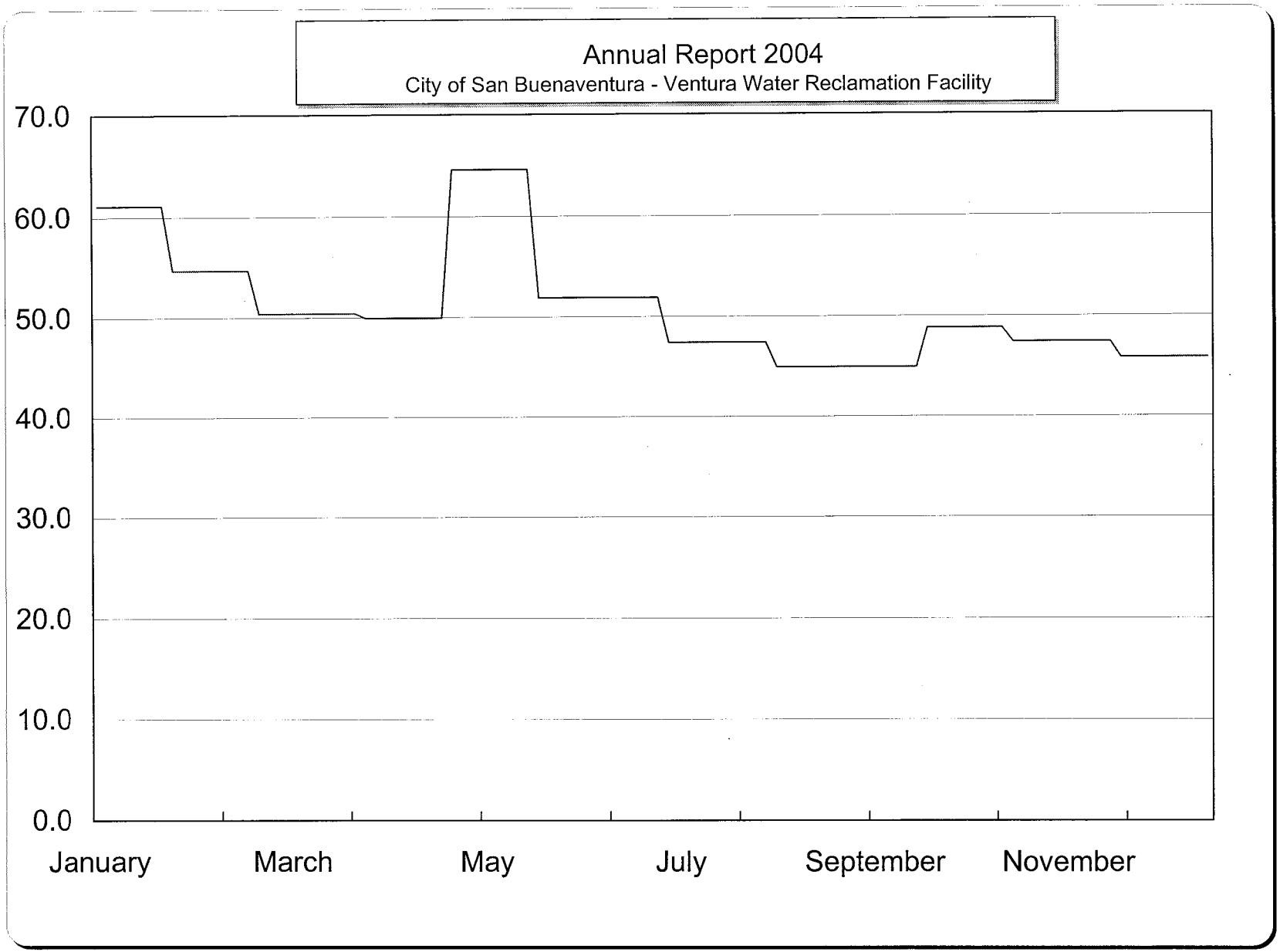
Influent Pump Station
Raw Sewage Weekly Ammonia-N - mg/L

Bimonthly Period



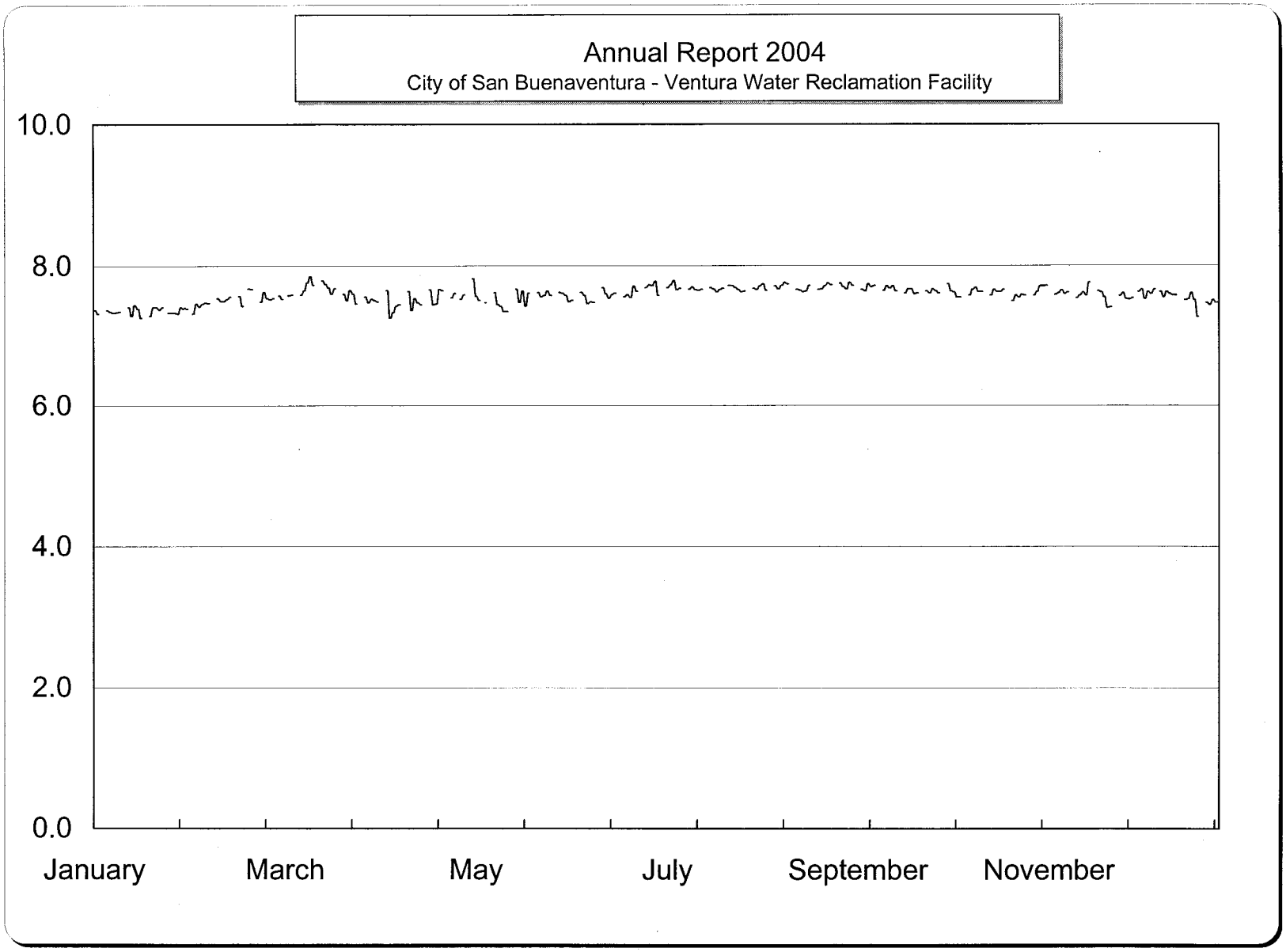
Influent Pump Station
Raw Sewage 30 Day Average Ammonia-N - mg/L

Bimonthly Period



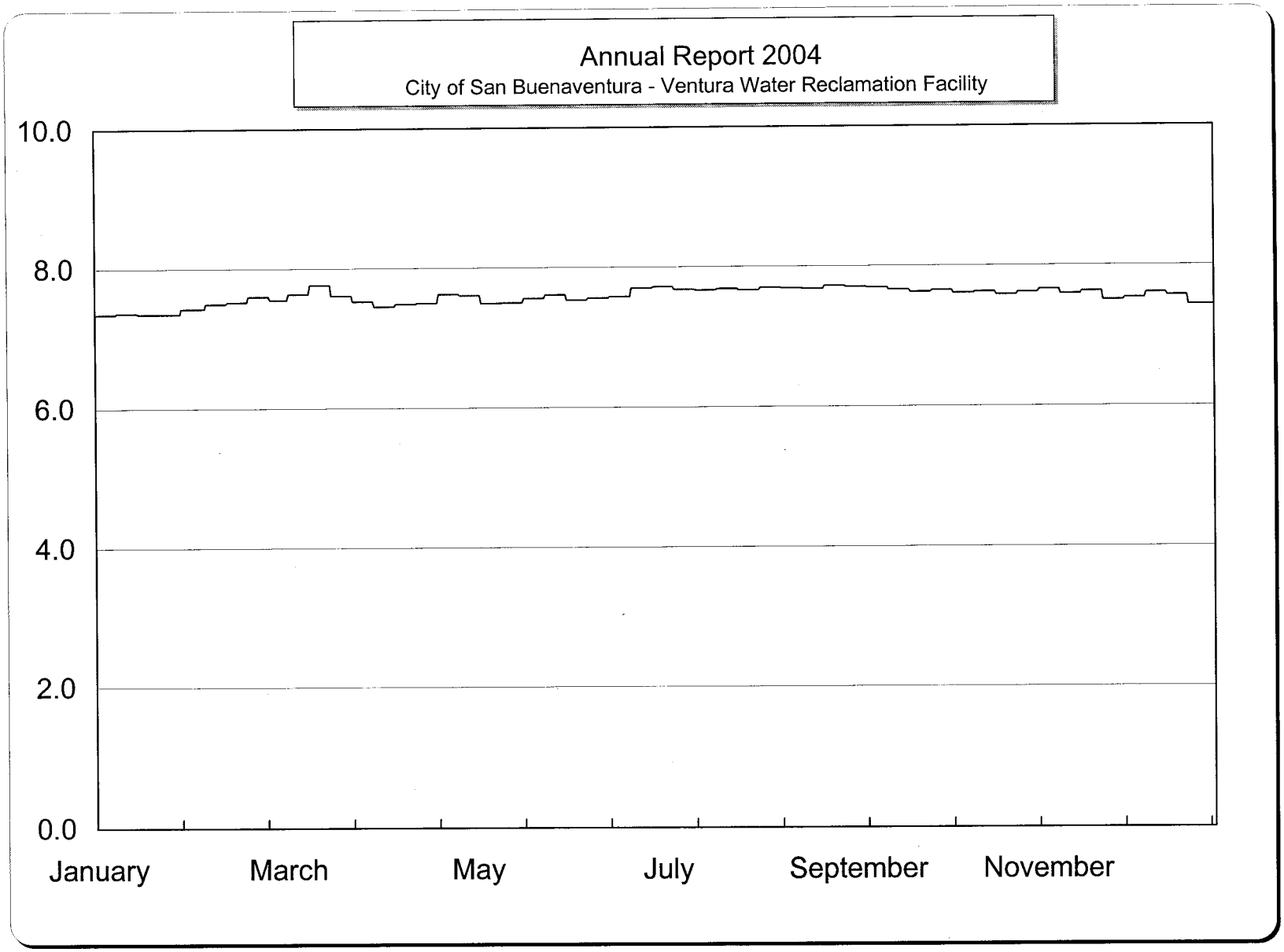
Influent Pump Station
Raw Sewage Monthly TKN - mg/L

Bimonthly Period



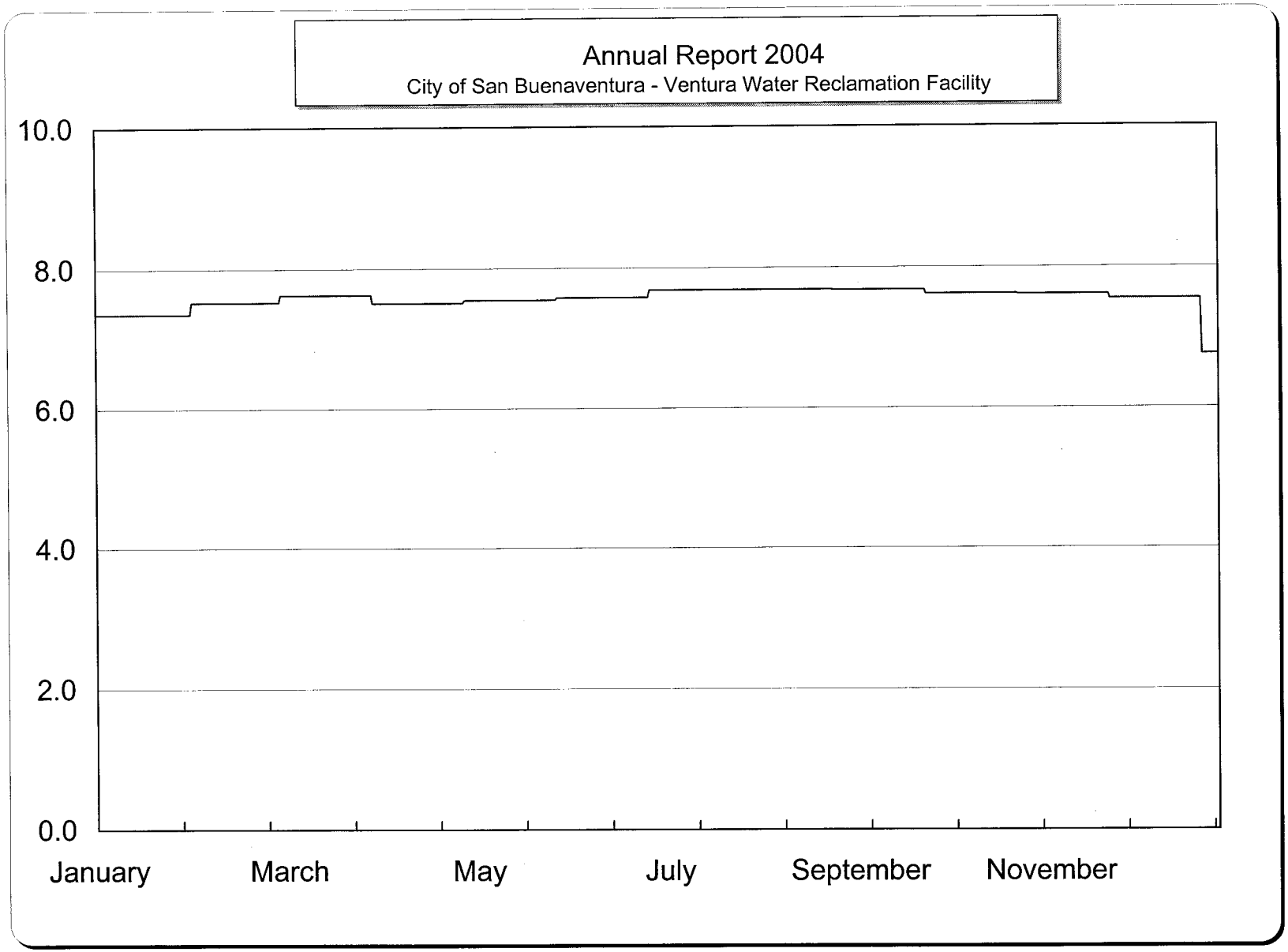
Bimonthly Period

Flow Equalization Basin - FEB
Primary Effluent pH - pH Units



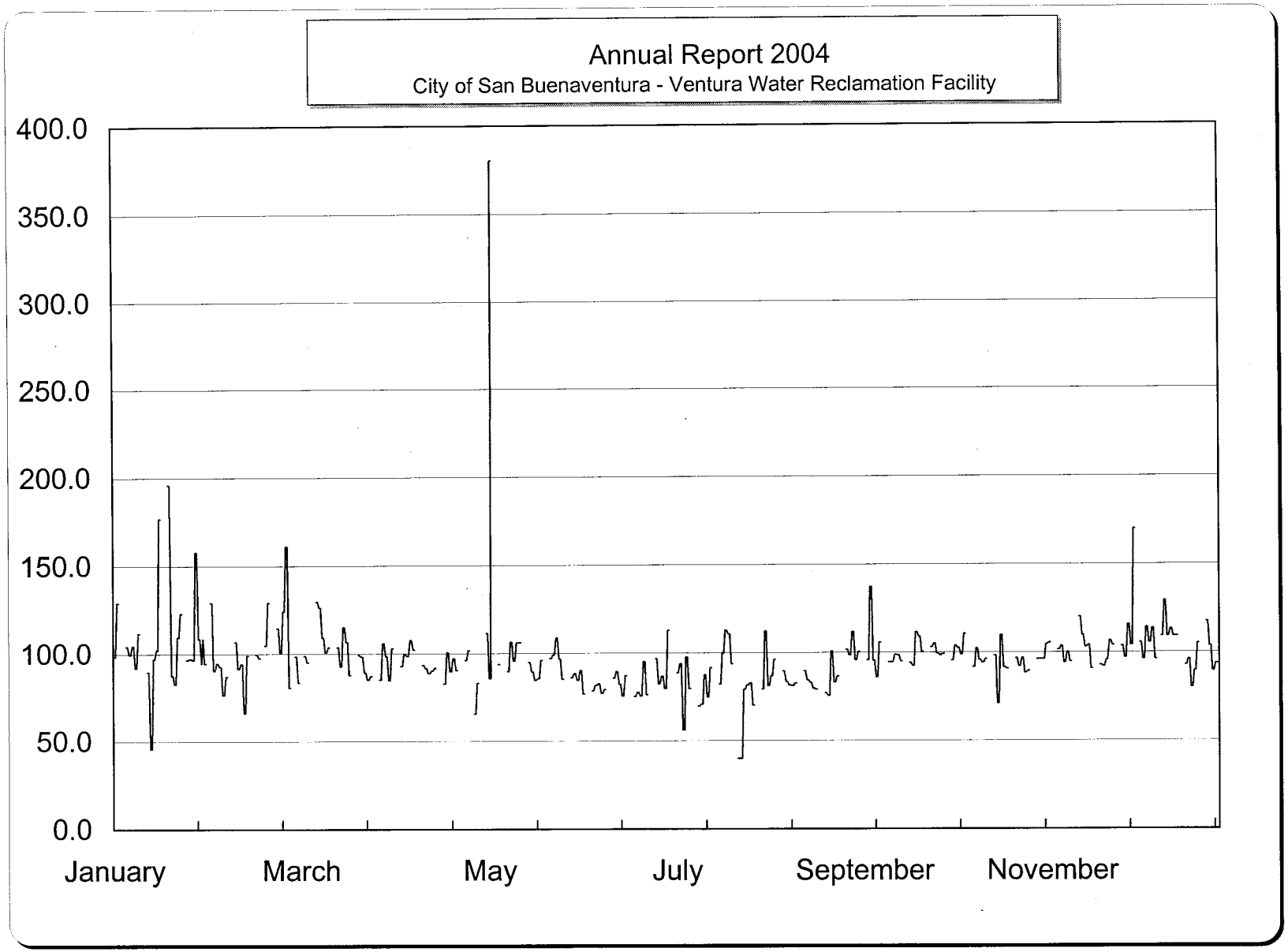
Flow Equalization Basin - FEB
Primary Effluent 7 Day Average pH - pH Units

Bimonthly Period



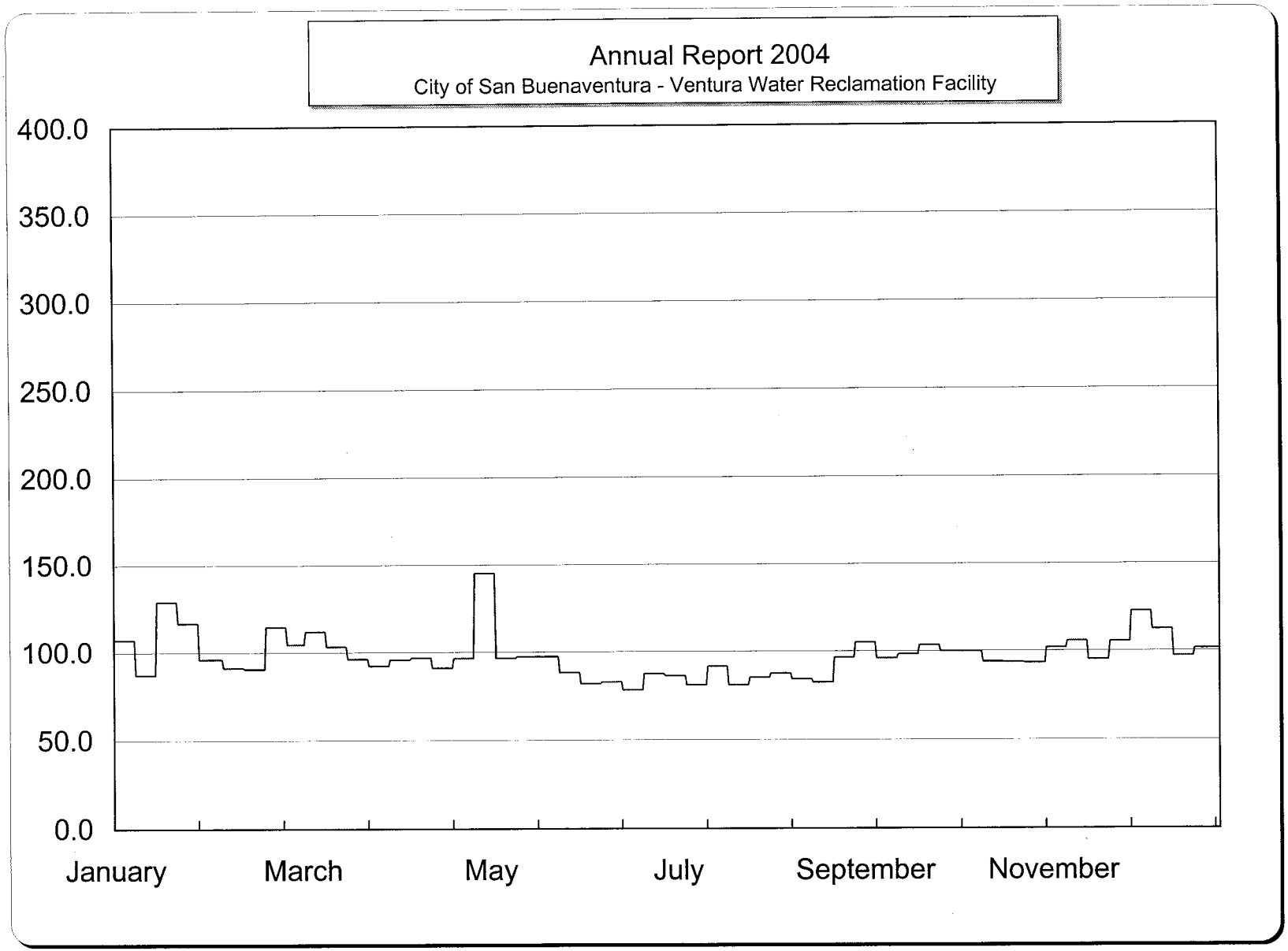
Flow Equalization Basin - FEB
Primary Effluent 30 Day Average pH - pH Units

Bimonthly Period



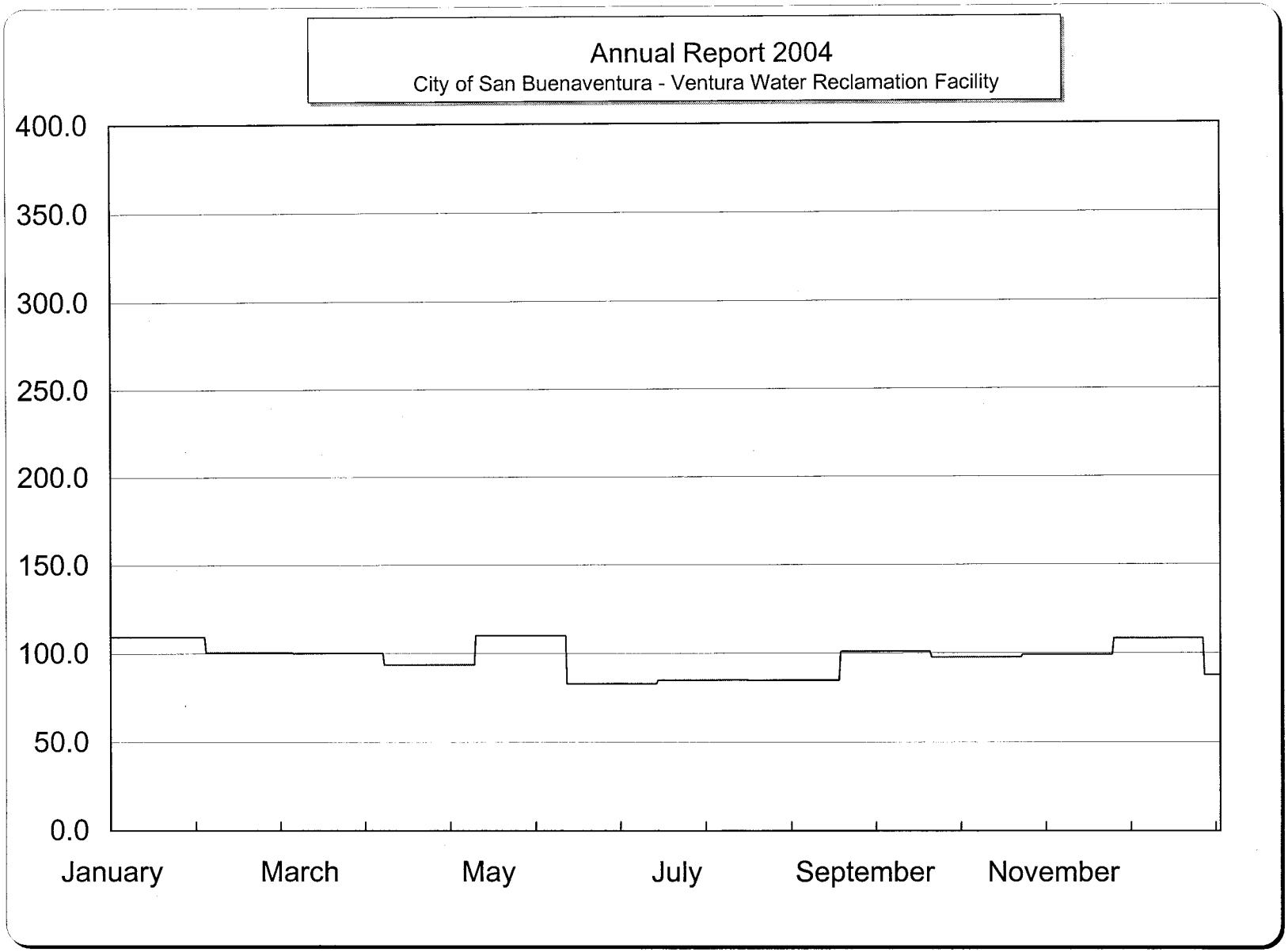
Flow Equalization Basin - FEB
Primary Effluent Suspended Solids - mg/L

Bimonthly Period



Flow Equalization Basin - FEB
Primary Effluent 7 Day Average Suspended Solids - mg/L

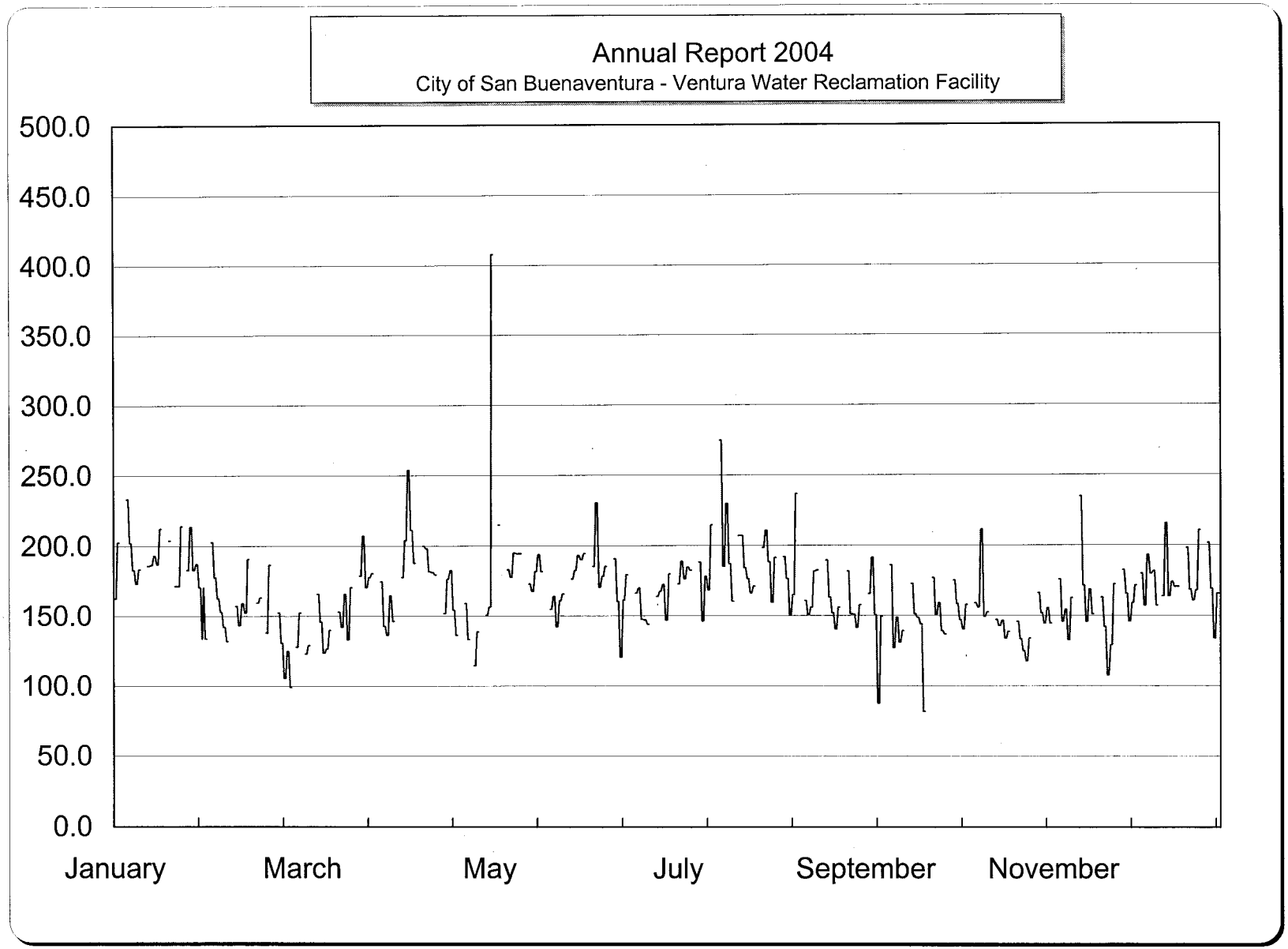
Bimonthly Period



Flow Equalization Basin - FEB

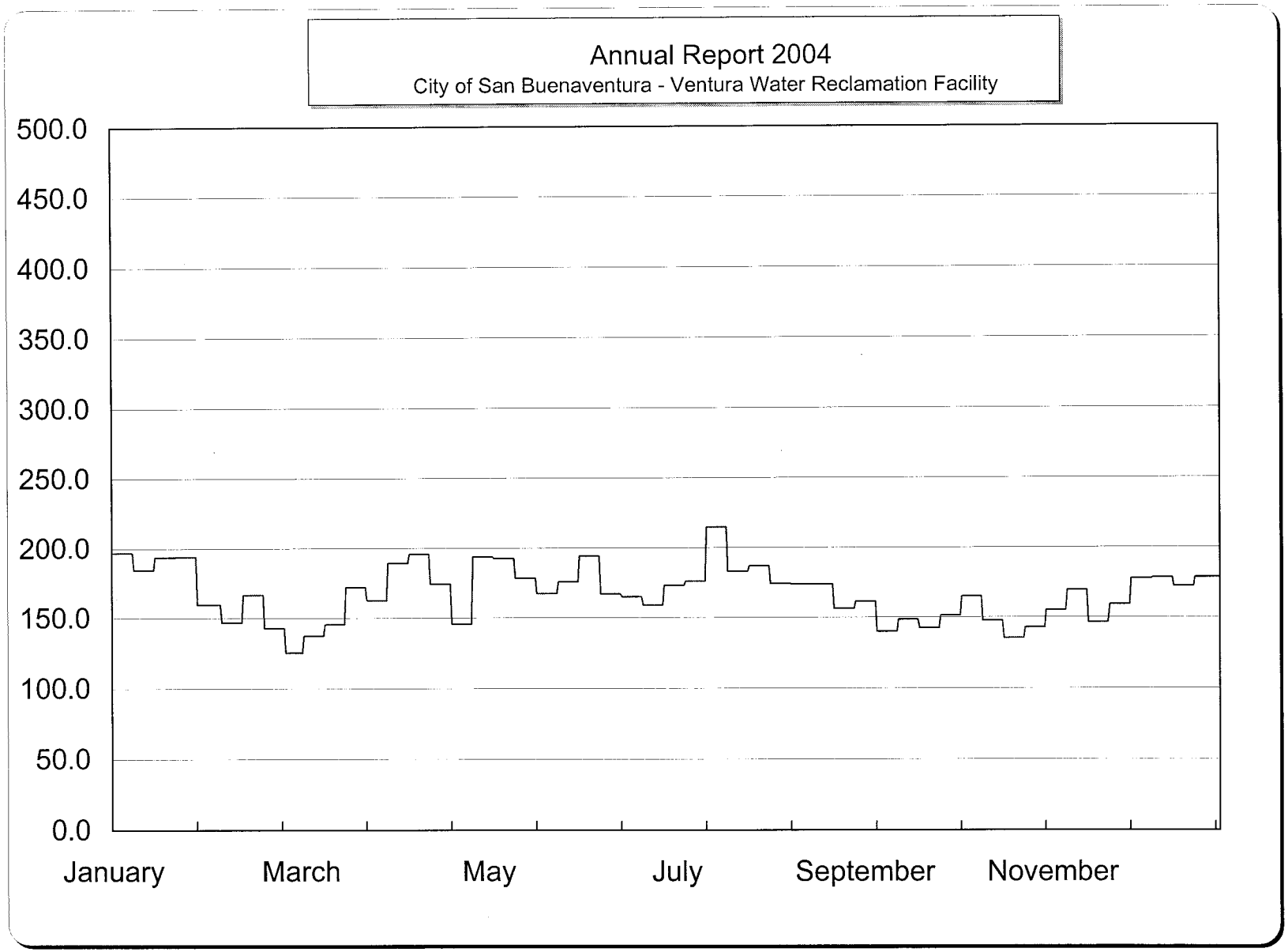
Bimonthly Period

Primary Effluent 30 Day Average Suspended Solids - mg/L



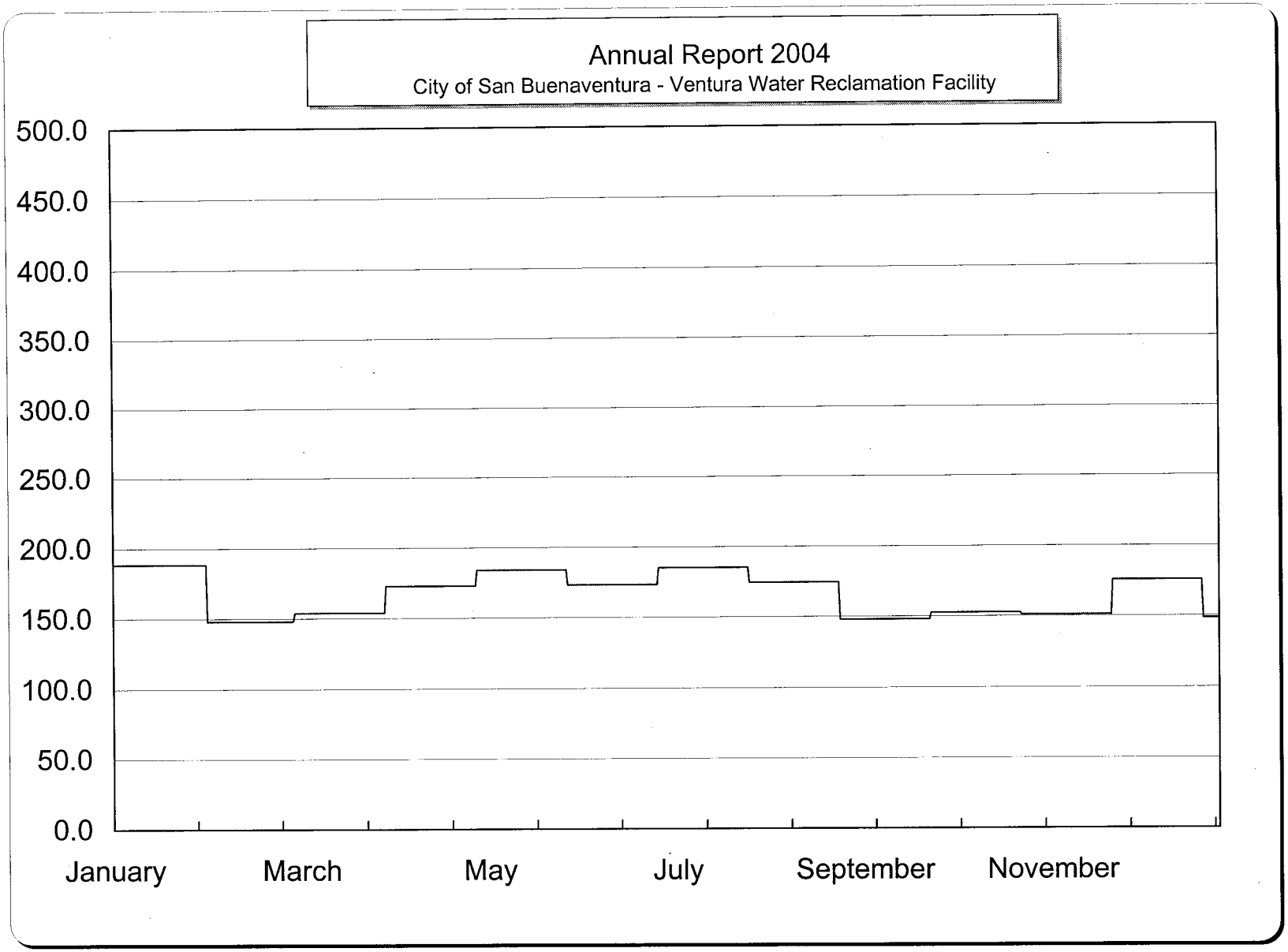
Bimonthly Period

Flow Equalization Basin - FEB
Primary Effluent BOD - mg/L



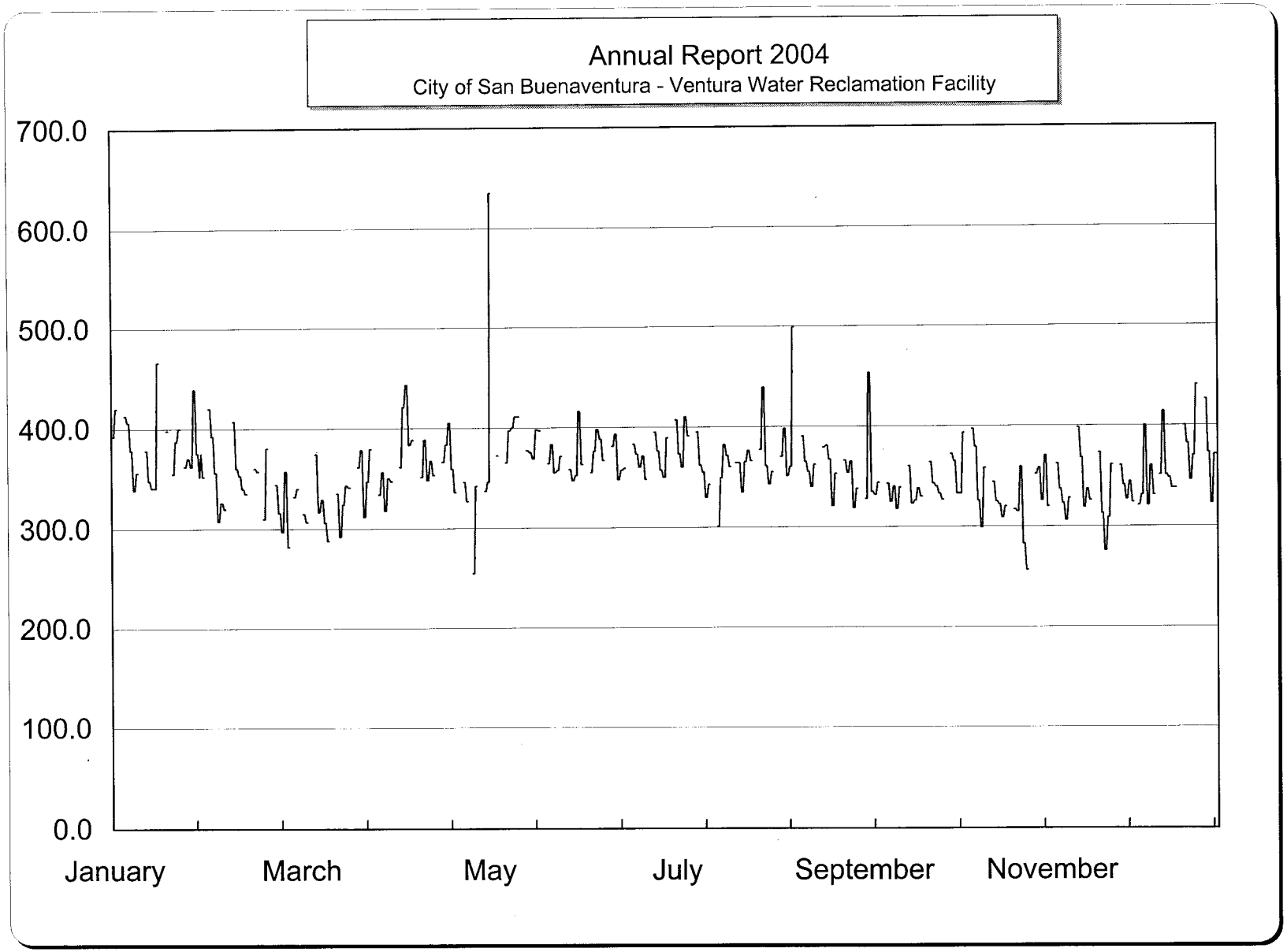
Flow Equalization Basin - FEB
Primary Effluent 7 Day Average BOD - mg/L

Bimonthly Period



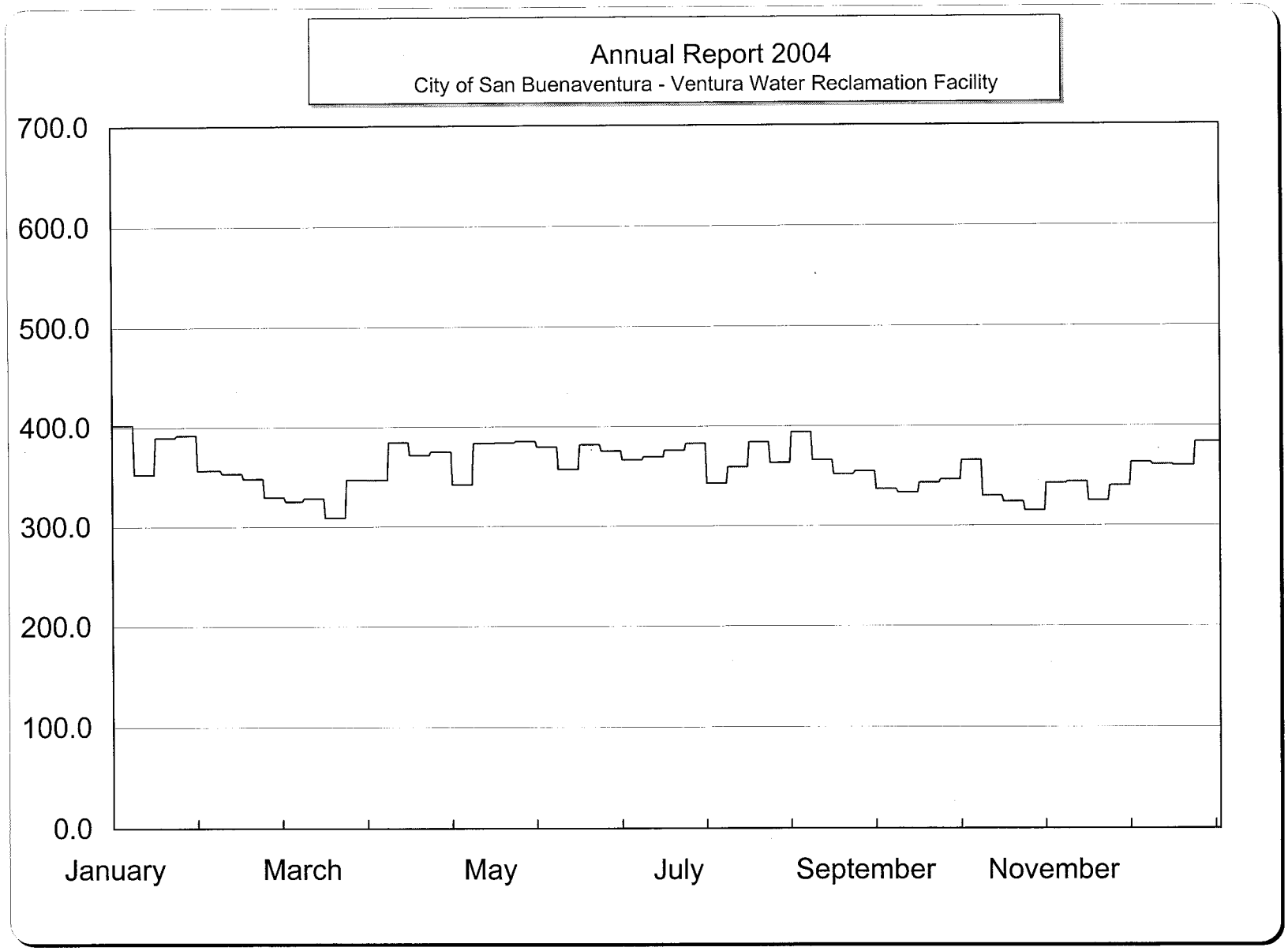
Flow Equalization Basin - FEB
Primary Effluent 30 Day Average BOD - mg/L

Bimonthly Period



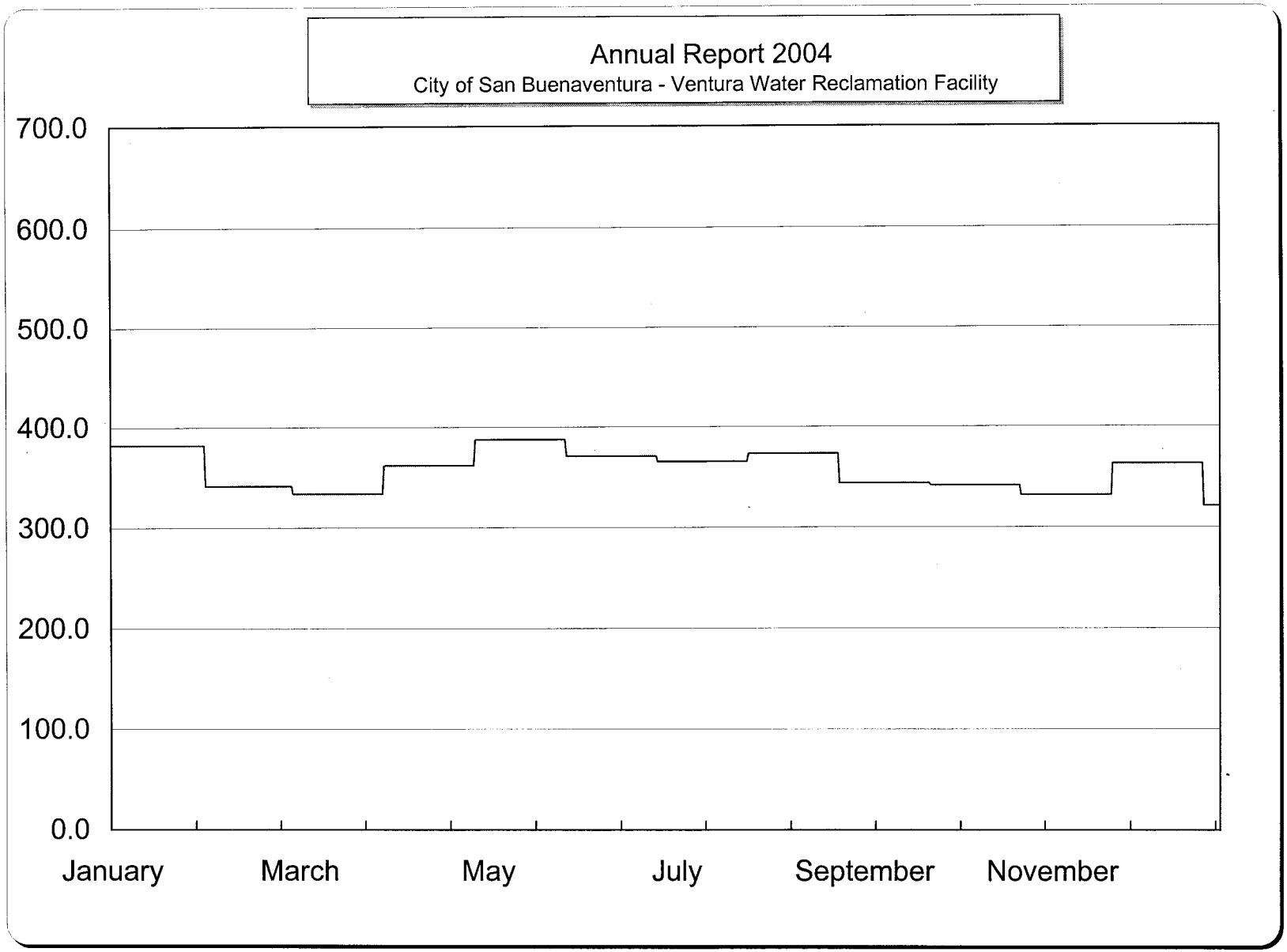
Bimonthly Period

Flow Equalization Basin - FEB
Primary Effluent COD - mg/L



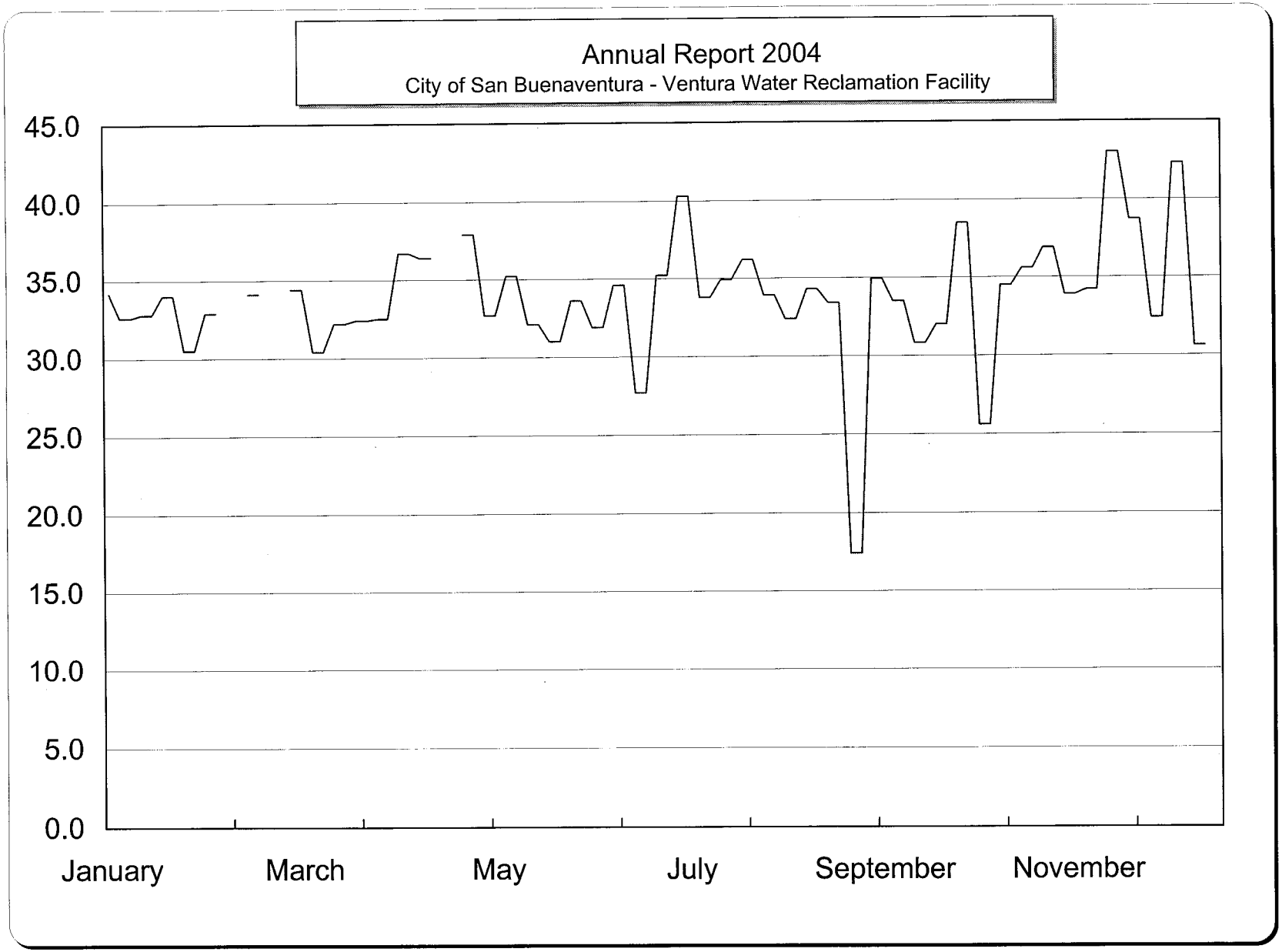
Flow Equalization Basin - FEB
Primary Effluent 7 Day Average COD - mg/L

Bimonthly Period



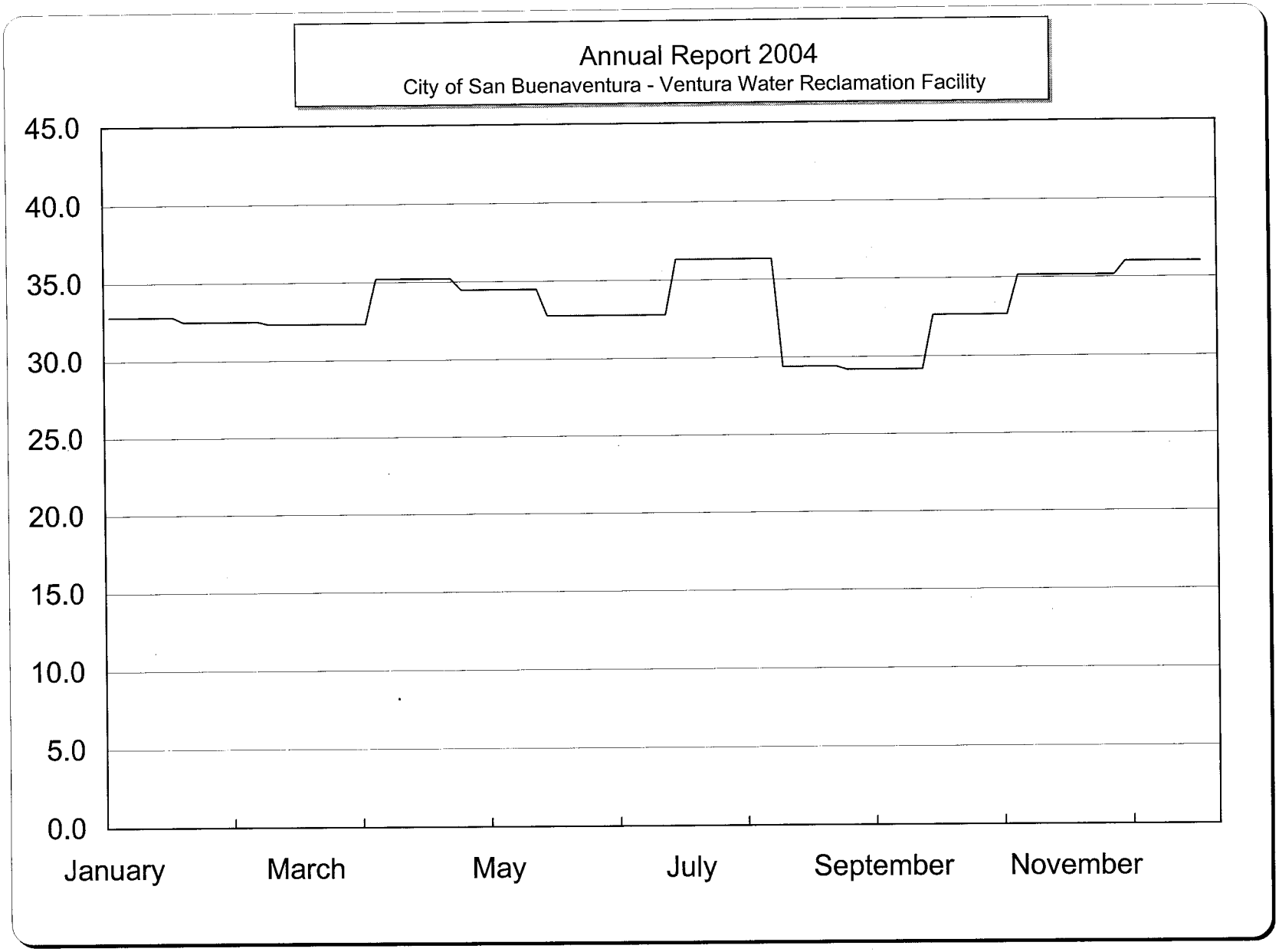
Flow Equalization Basin - FEB
Primary Effluent 30 Day Average COD - mg/L

Bimonthly Period



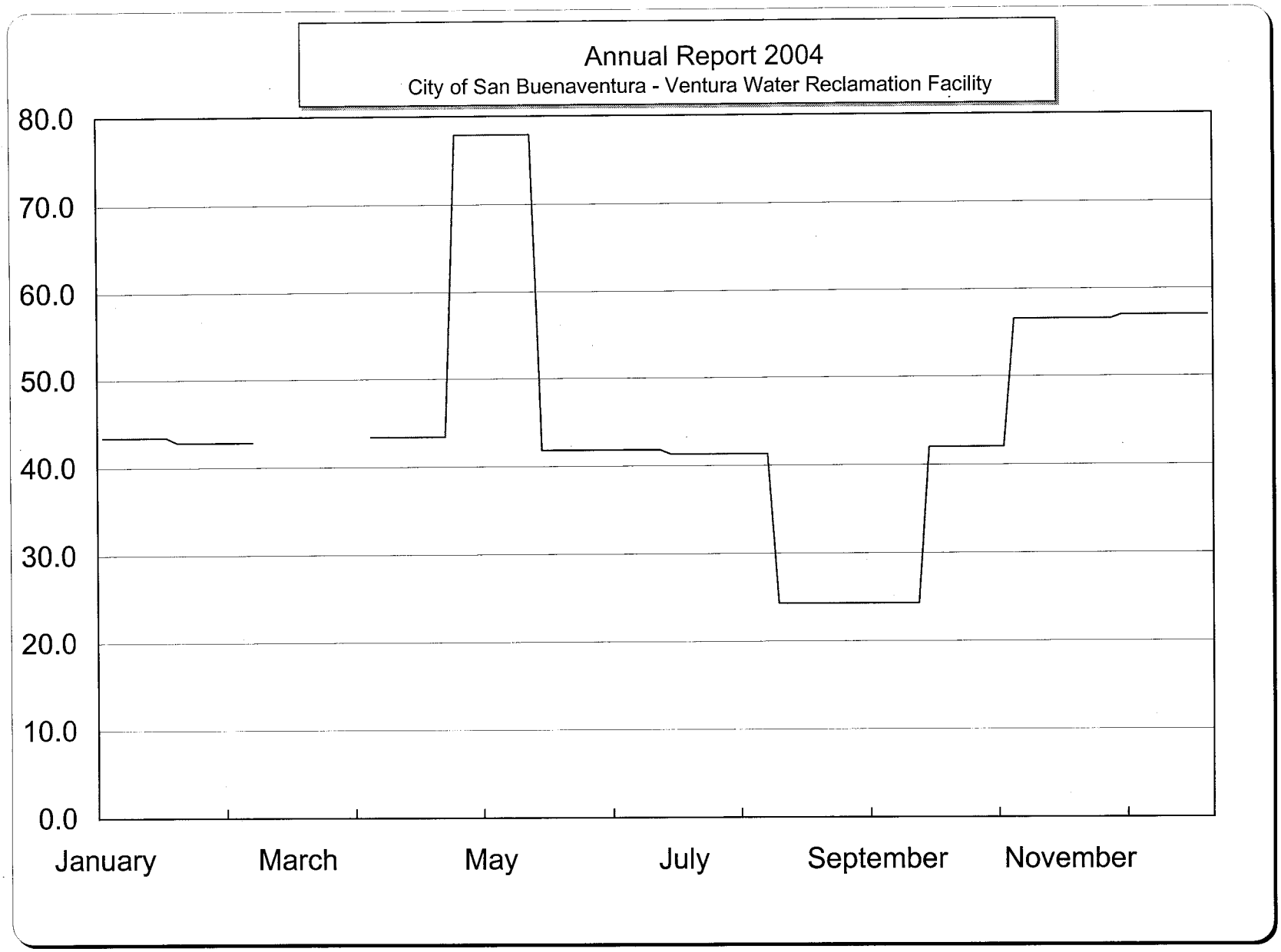
Flow Equalization Basin
Primary Effluent Weekly Ammonia-N - mg/L

Bimonthly Period



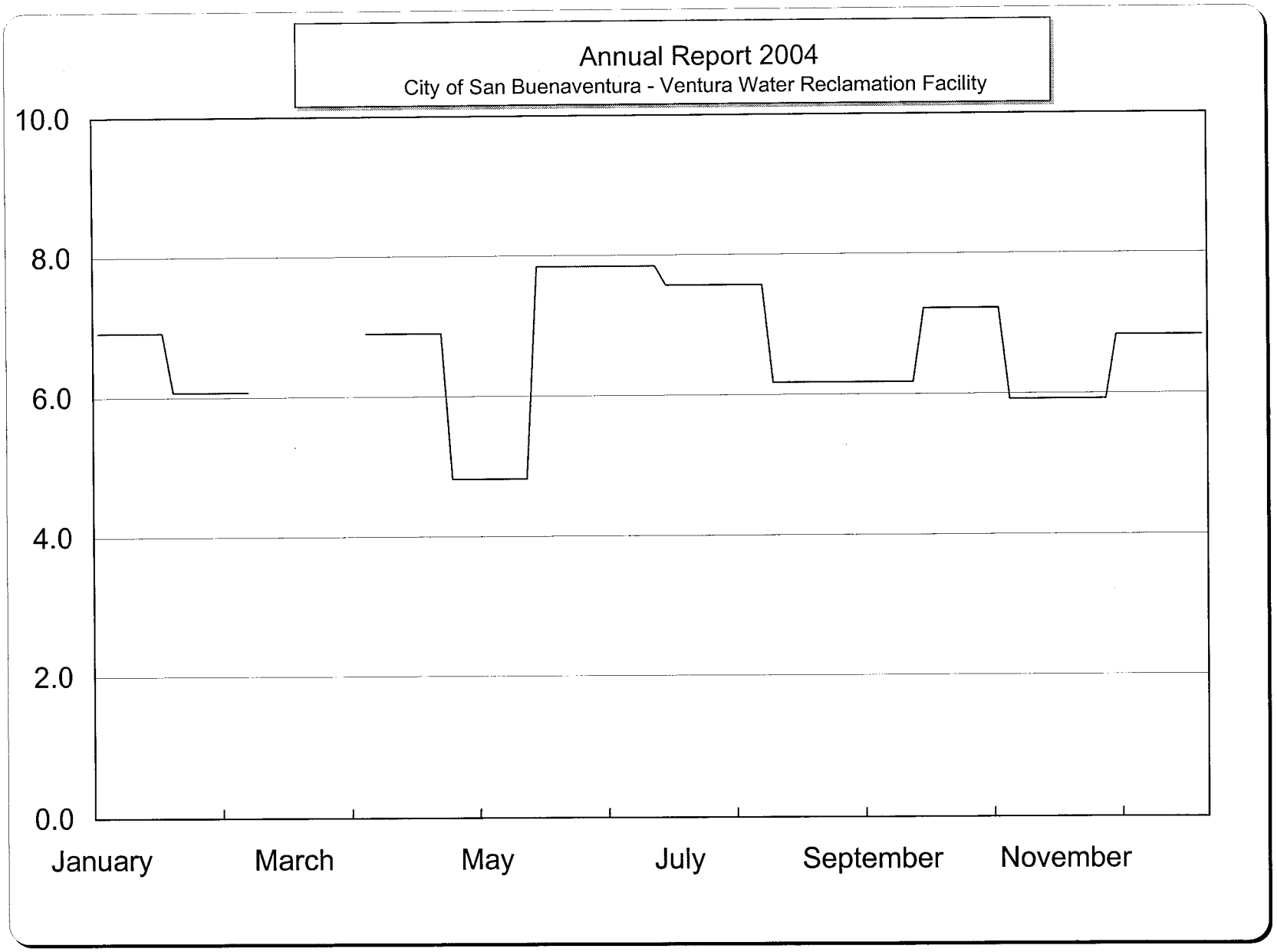
Flow Equalization Basin
Primary Effluent 30 Day Average Ammonia-N - mg/L

Bimonthly Period



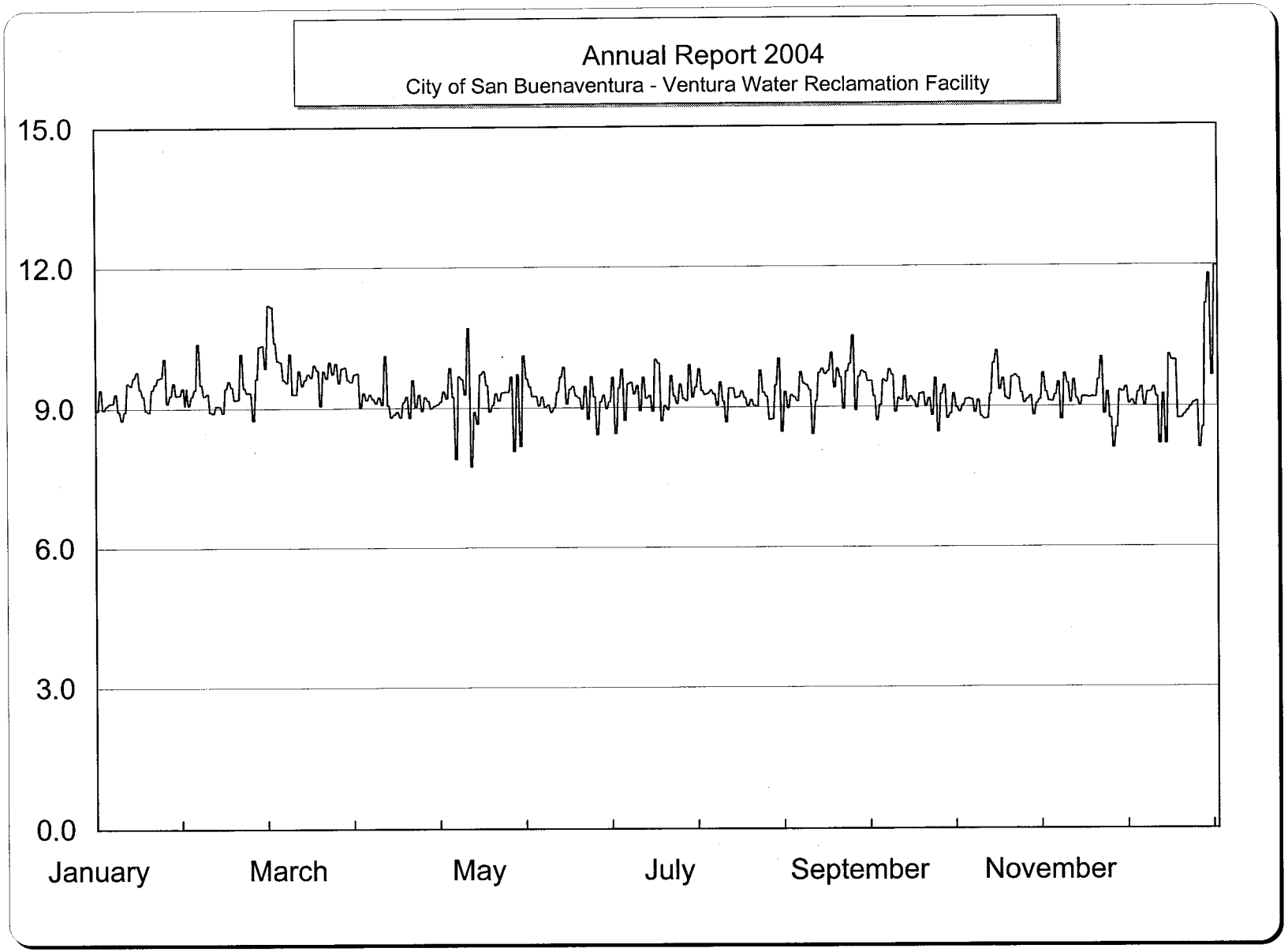
Flow Equalization Basin
Primary Effluent Monthly TKN - mg/L

Bimonthly Period



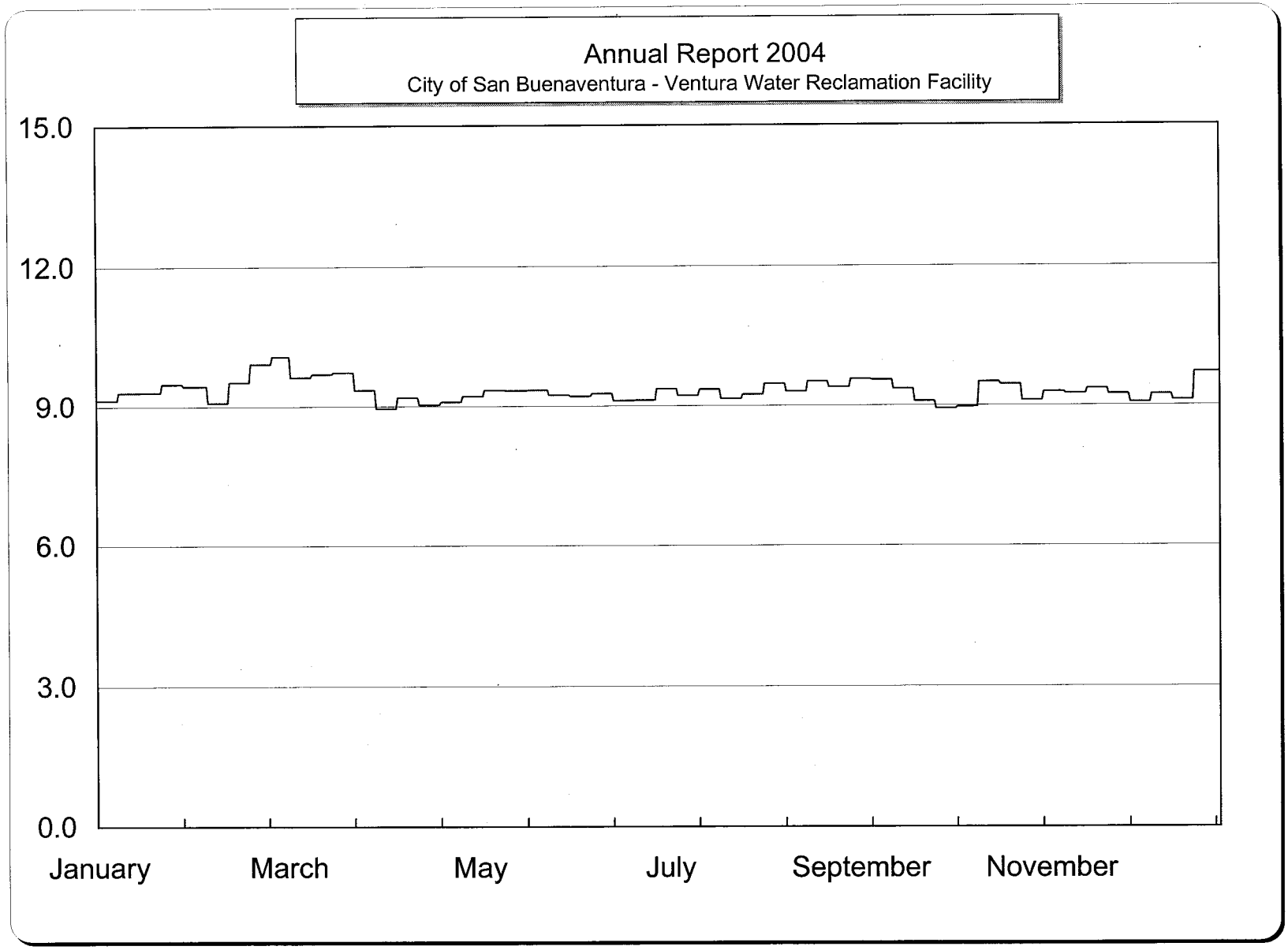
Flow Equalization Basin
Primary Effluent Monthly MBAS - mg/L

Bimonthly Period



Bimonthly Period

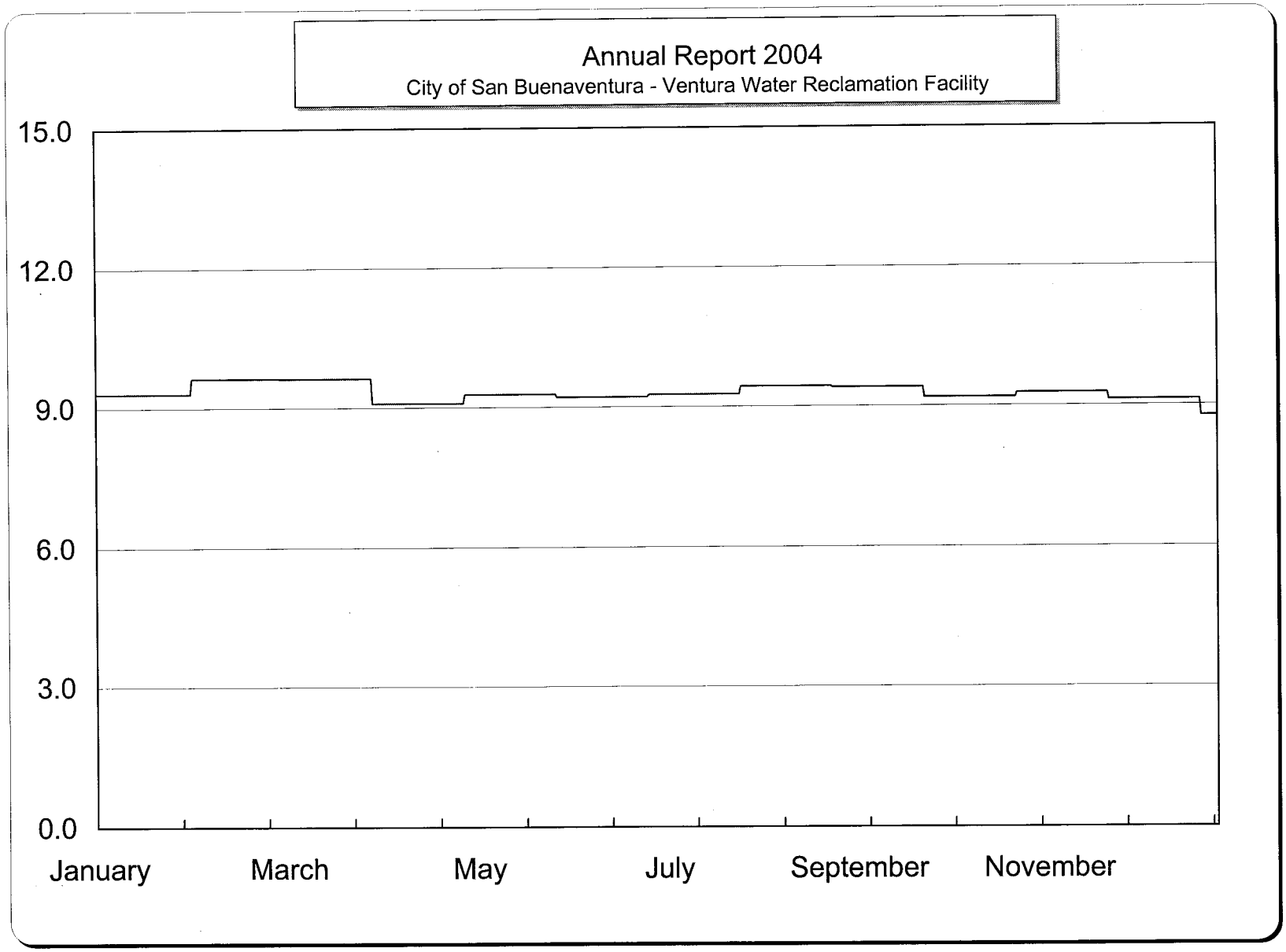
Mixed Media Filter Station
Mixed Media Filter Flow - MGD



Mixed Media Filter Station

Bimonthly Period

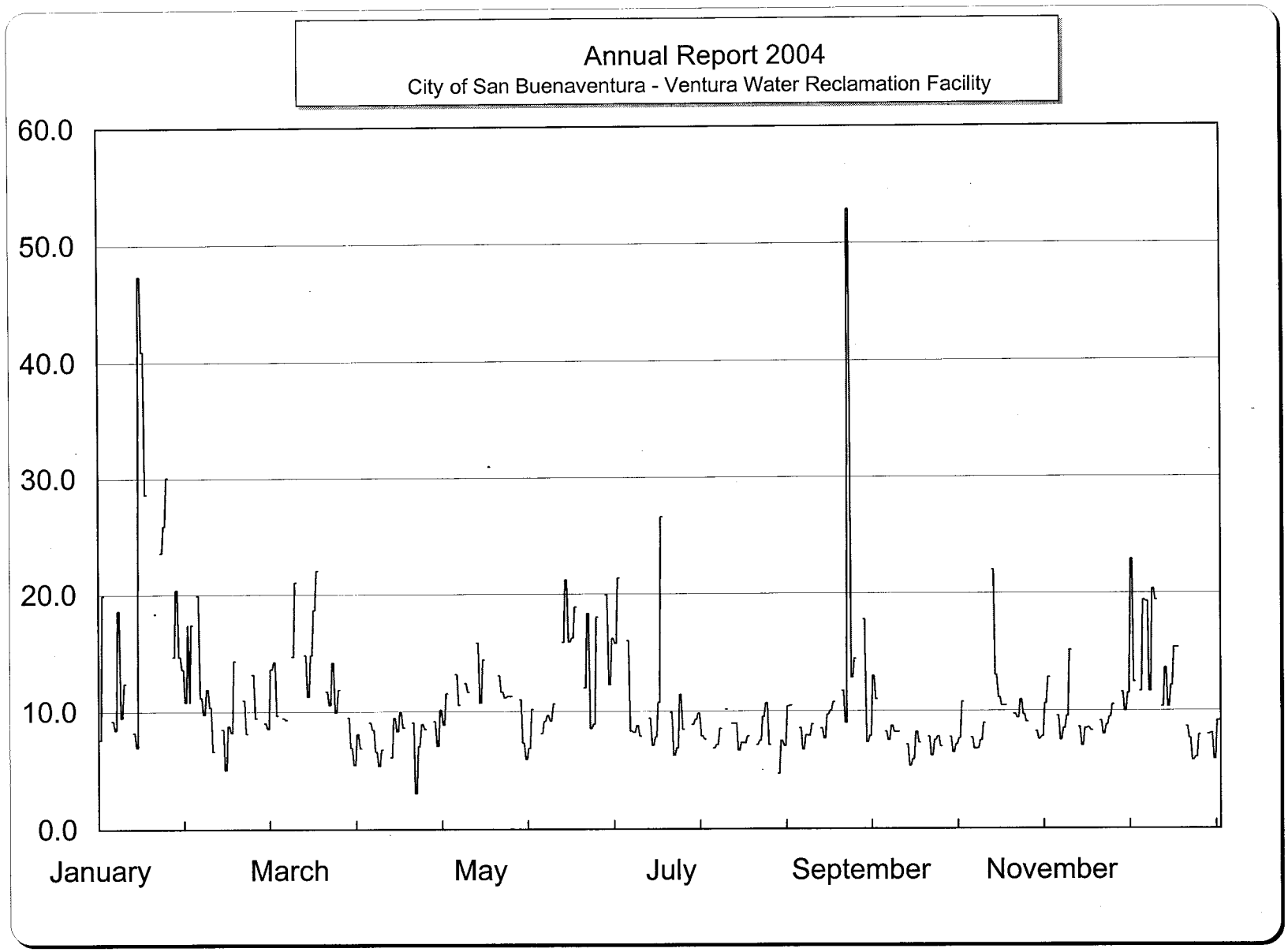
Mixed Media Filter 7 Day Average Flow - MGD



Mixed Media Filter Station

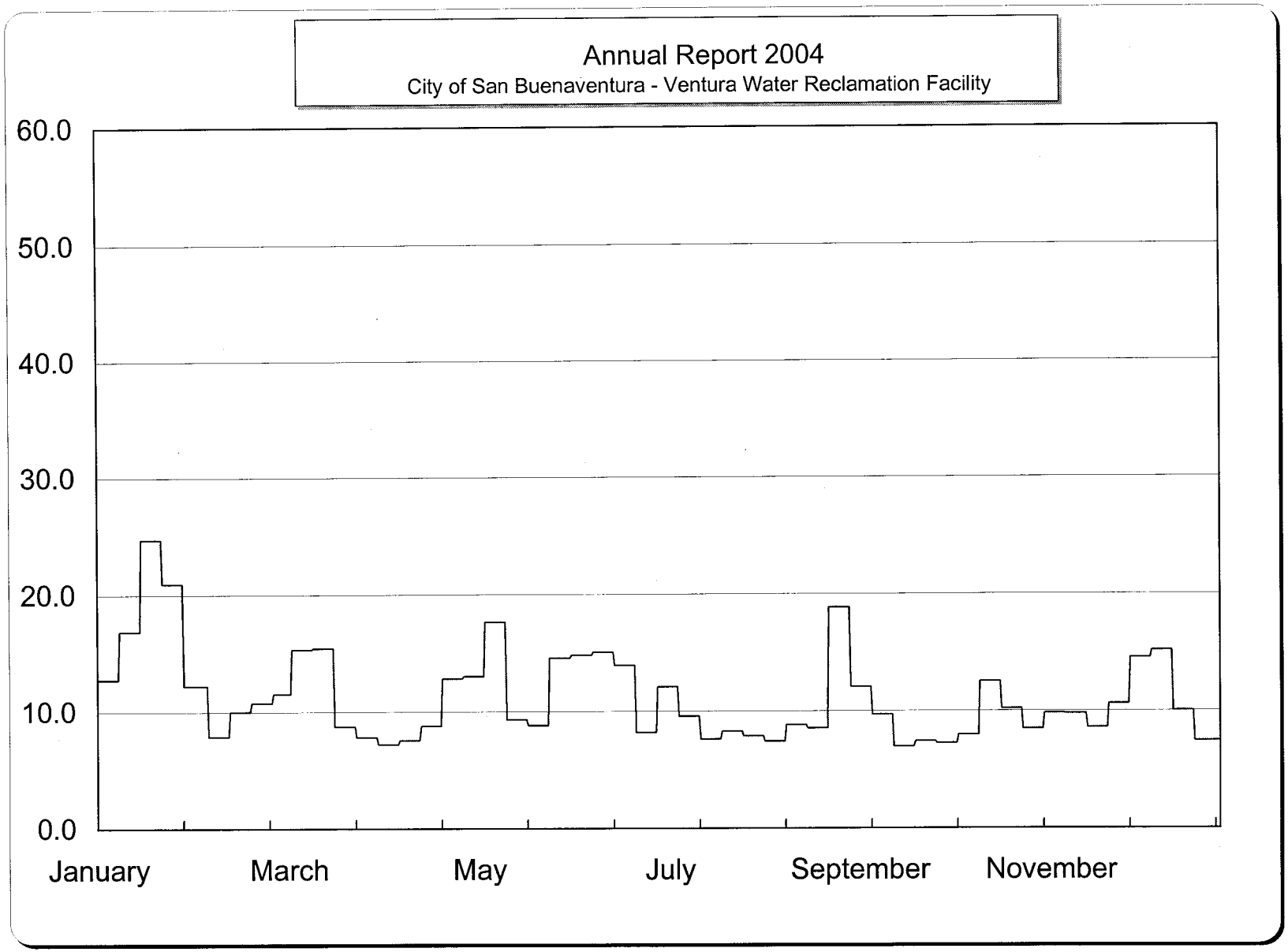
Bimonthly Period

Mixed Media Filter 30 Day Average Flow - MGD



Mixed Media Filter Station
Activated Sludge Eflfluent Suspended Solids - mg/L

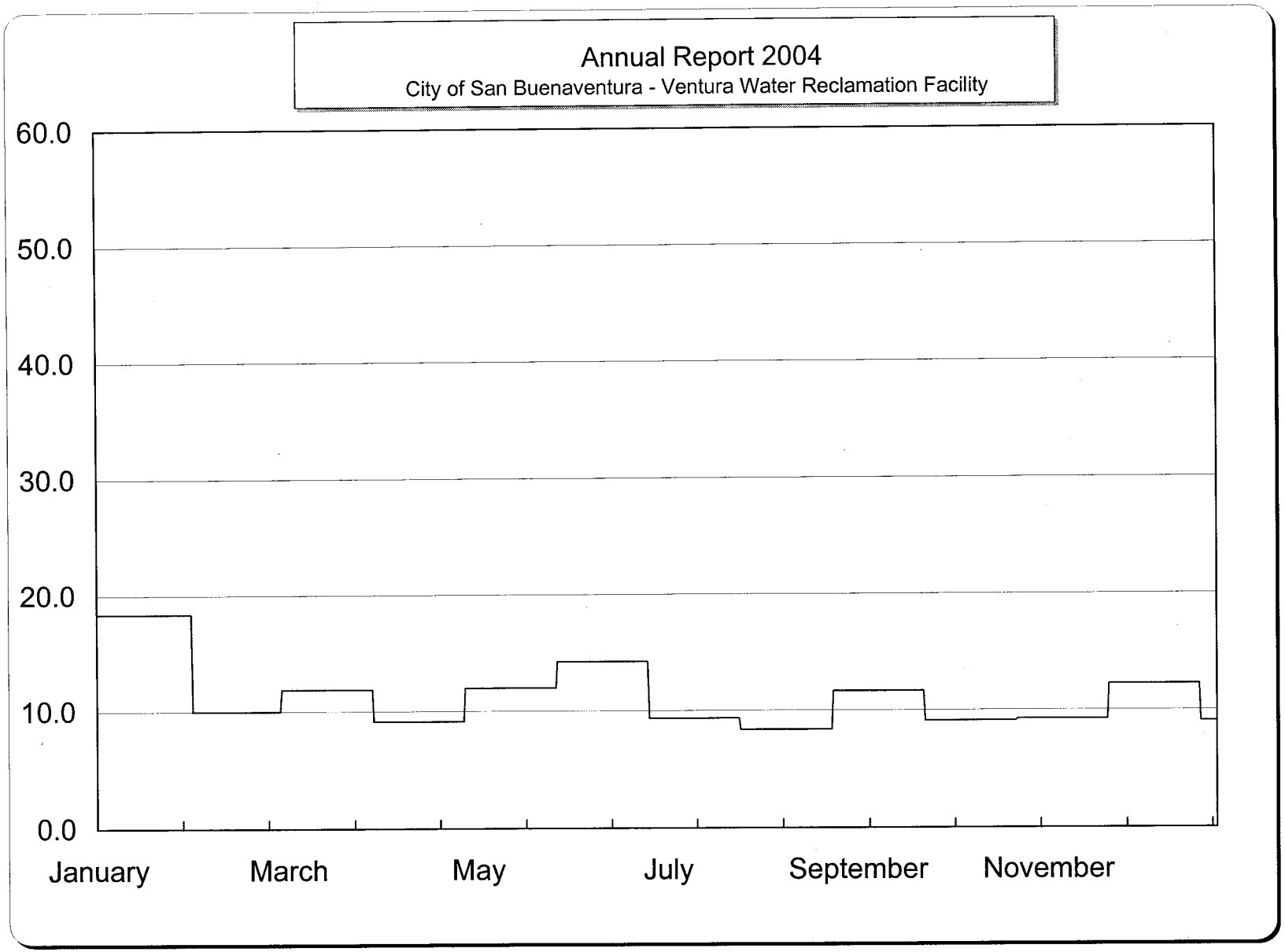
Bimonthly Period



Mixed Media Filter Station

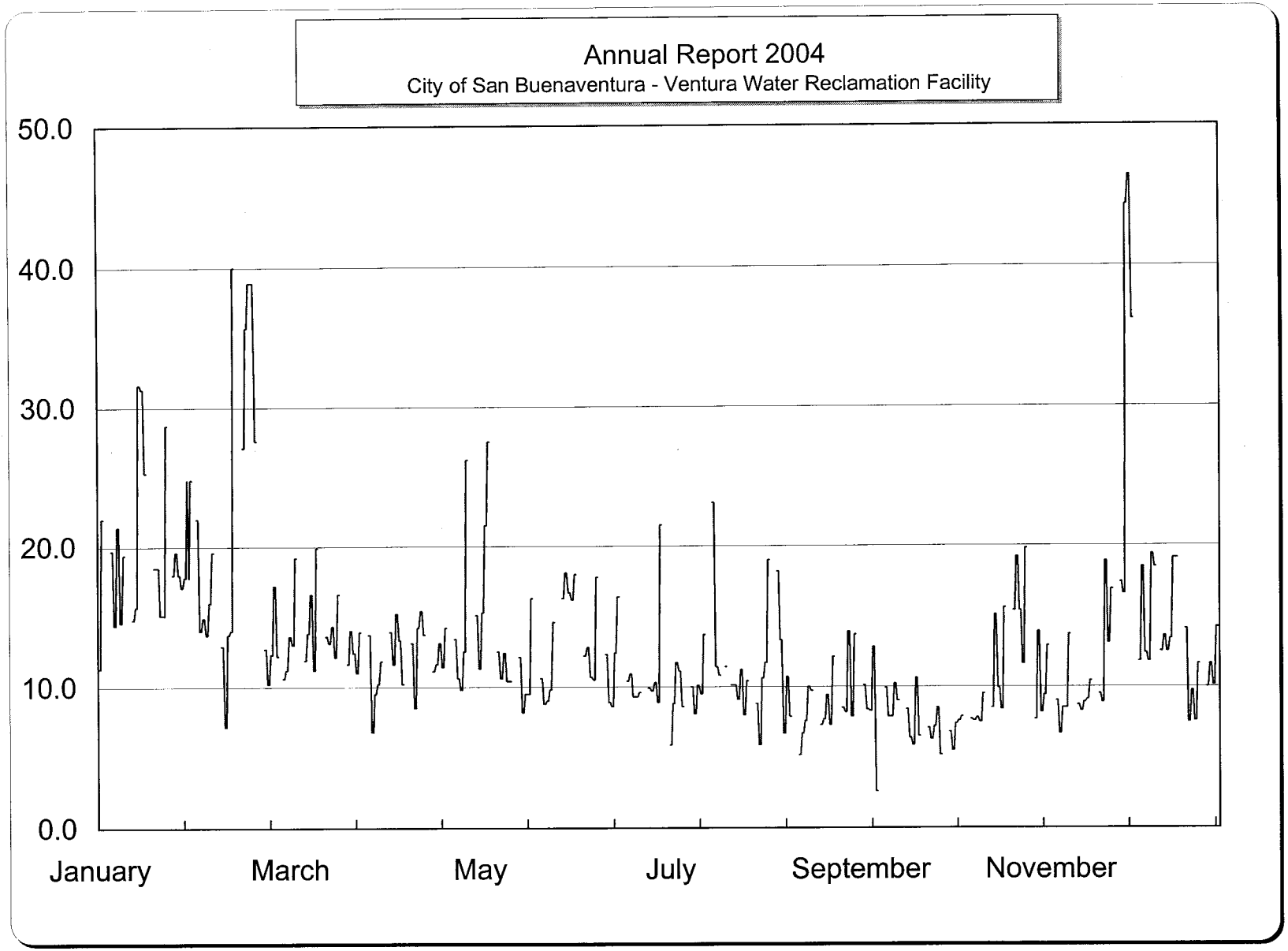
Bimonthly Period

Activated Sludge Eflfluent 7 Day Average Suspended Solids - mg/L



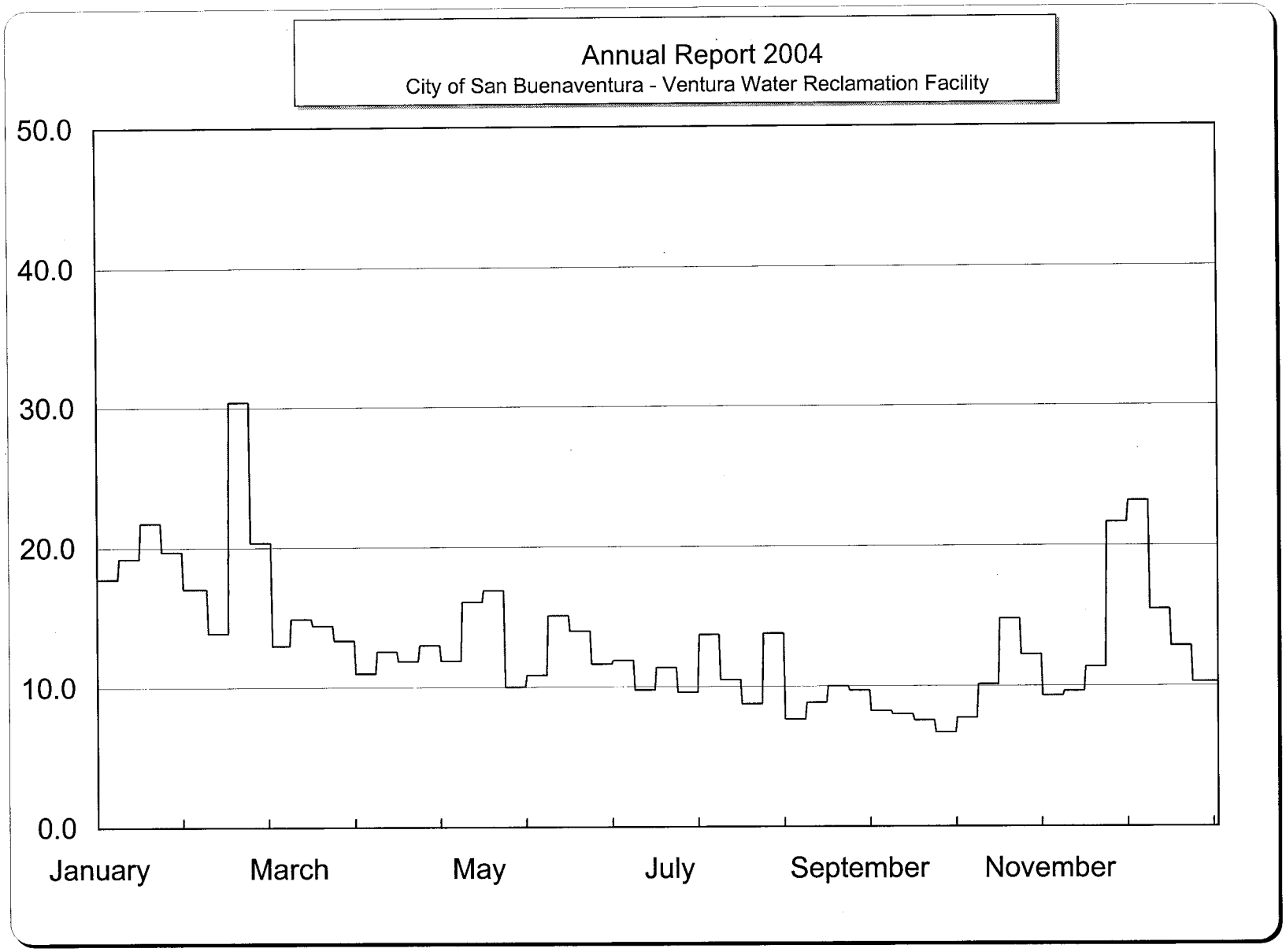
Mixed Media Filter Station

Bimonthly Period Activated Sludge Eflfluent 30 Day Average Suspended Solids - mg/L



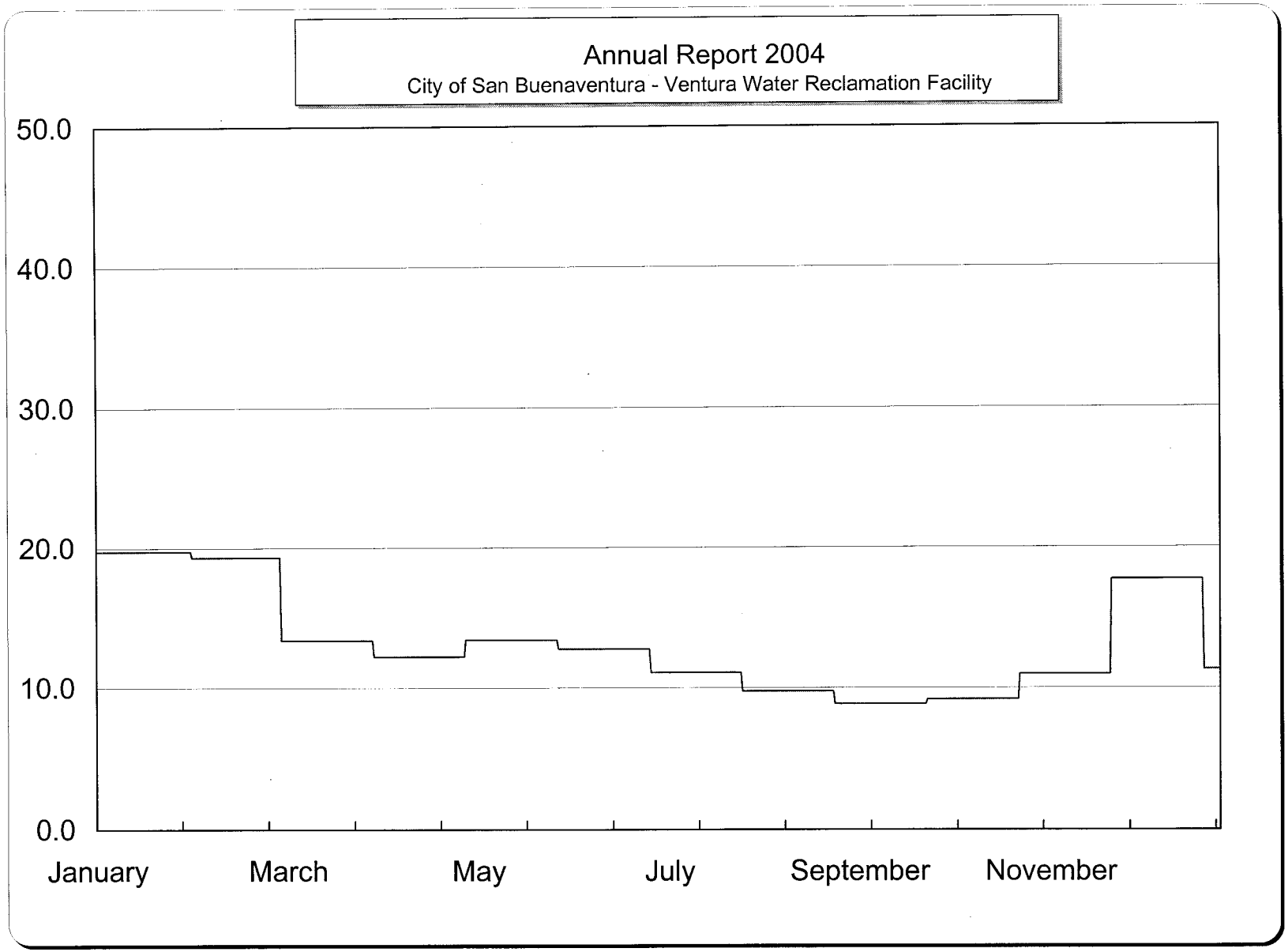
Bimonthly Period

Mixed Media Filter Station
Activated Sludge Eflfluent BOD - mg/L

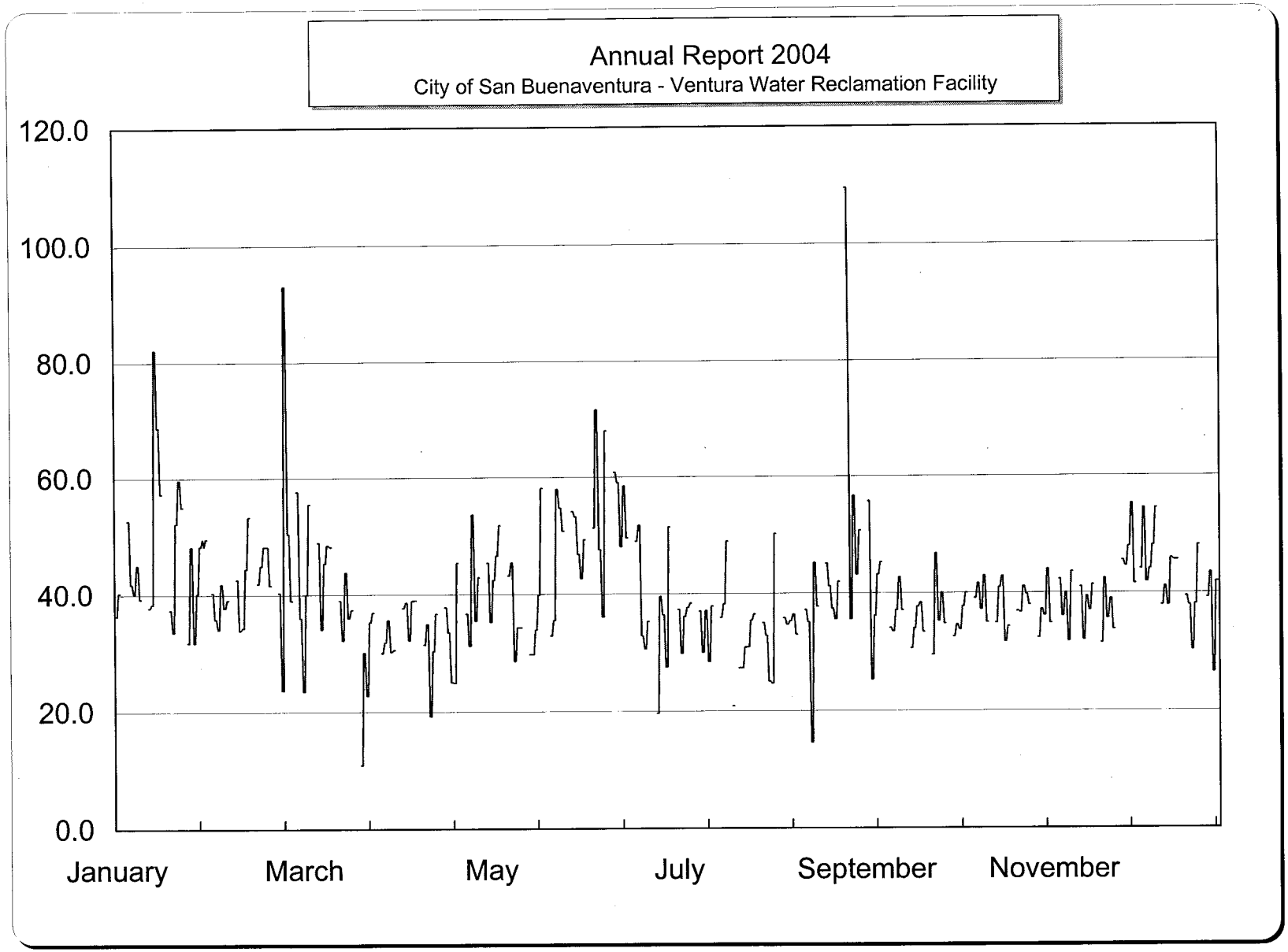


Mixed Media Filter Station
Activated Sludge Eflfluent 7 Day Average BOD - mg/L

Bimonthly Period

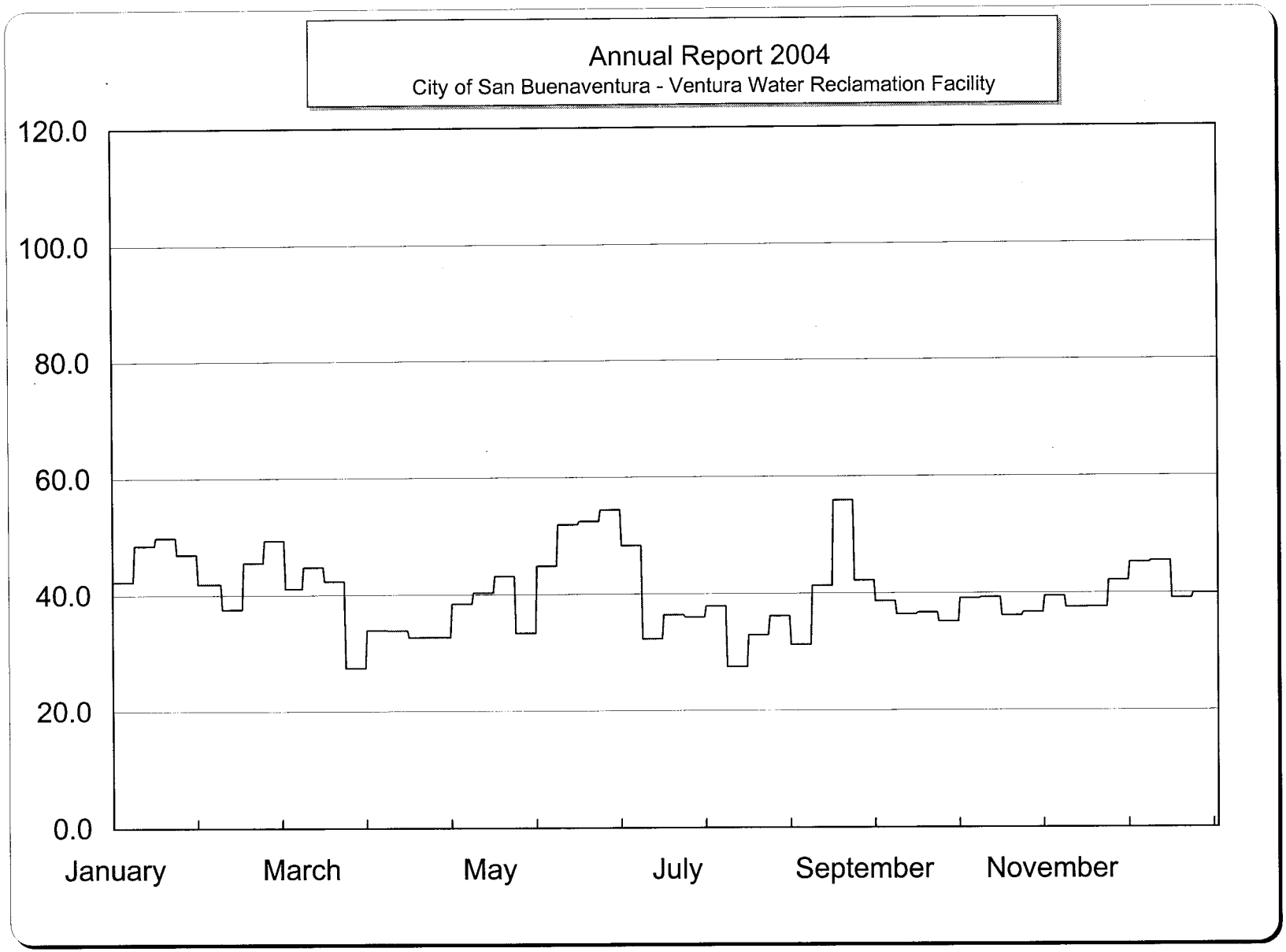


Mixed Media Filter Station
Bimonthly Period
Activated Sludge Eflfluent 30 Day Average BOD - mg/L



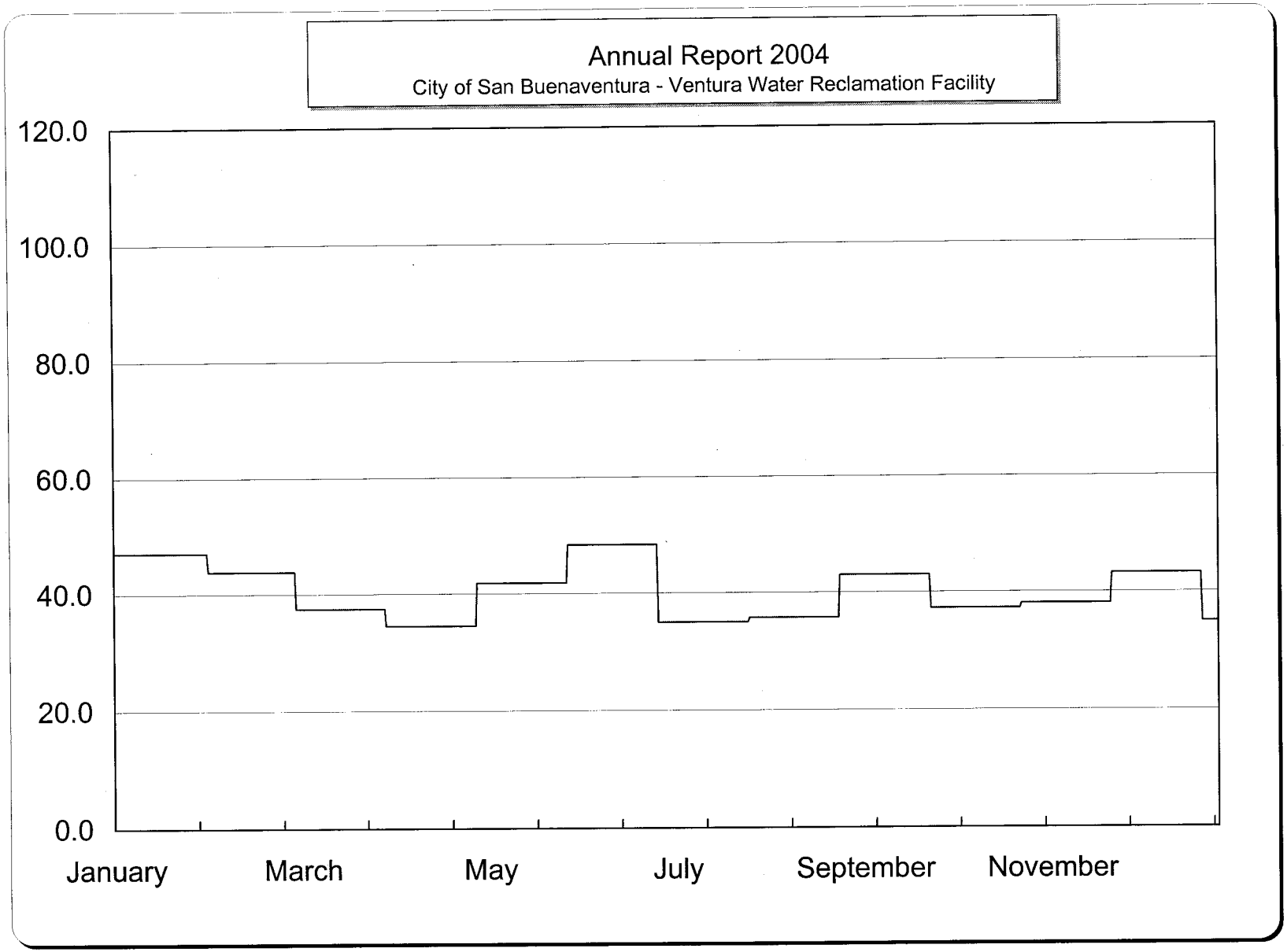
Mixed Media Filter Station
Activated Sludge Eflfluent COD - mg/L

Bimonthly Period

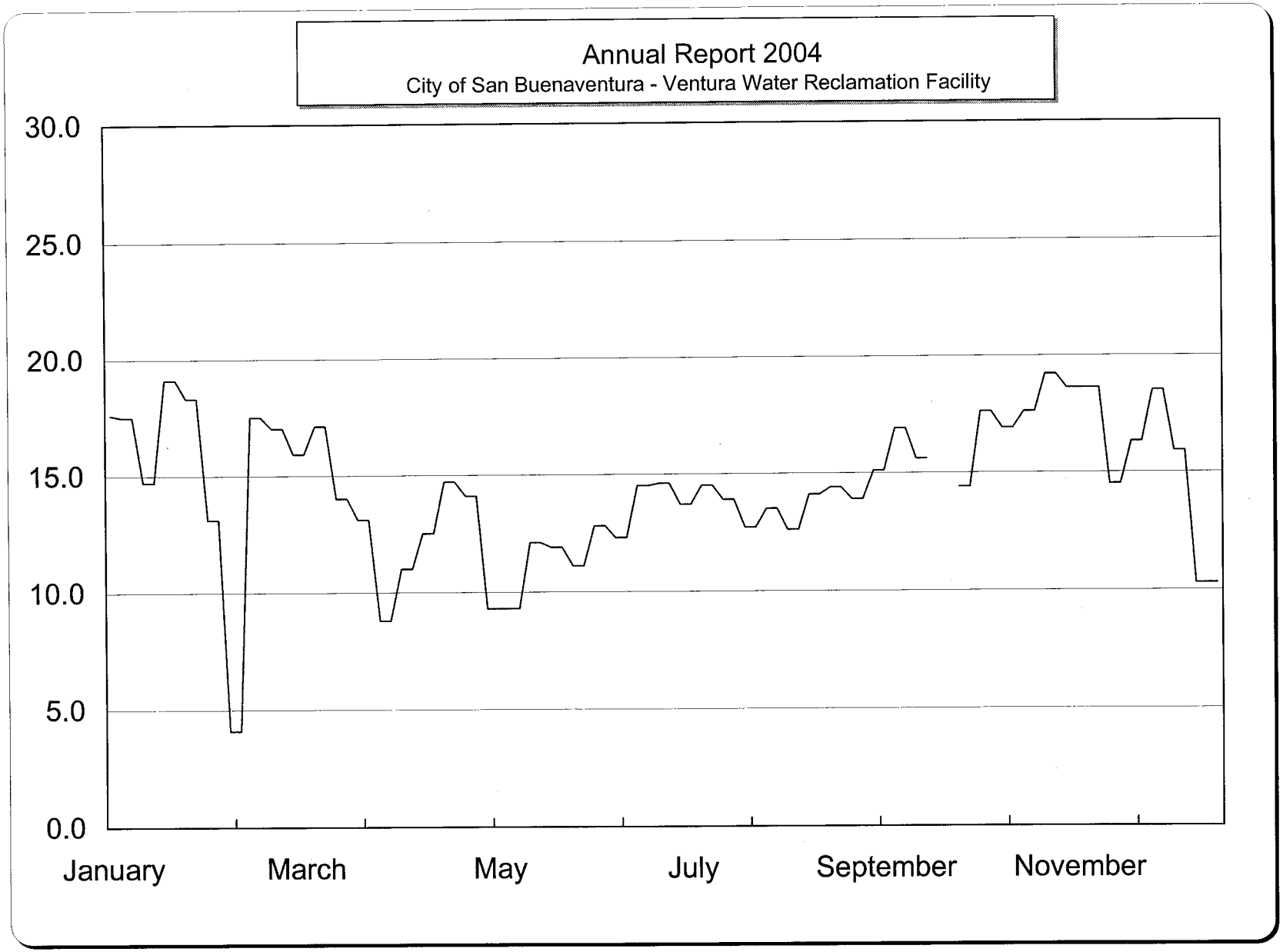


Mixed Media Filter Station
Activated Sludge Eflfluent 7 Day Average COD - mg/L

Bimonthly Period

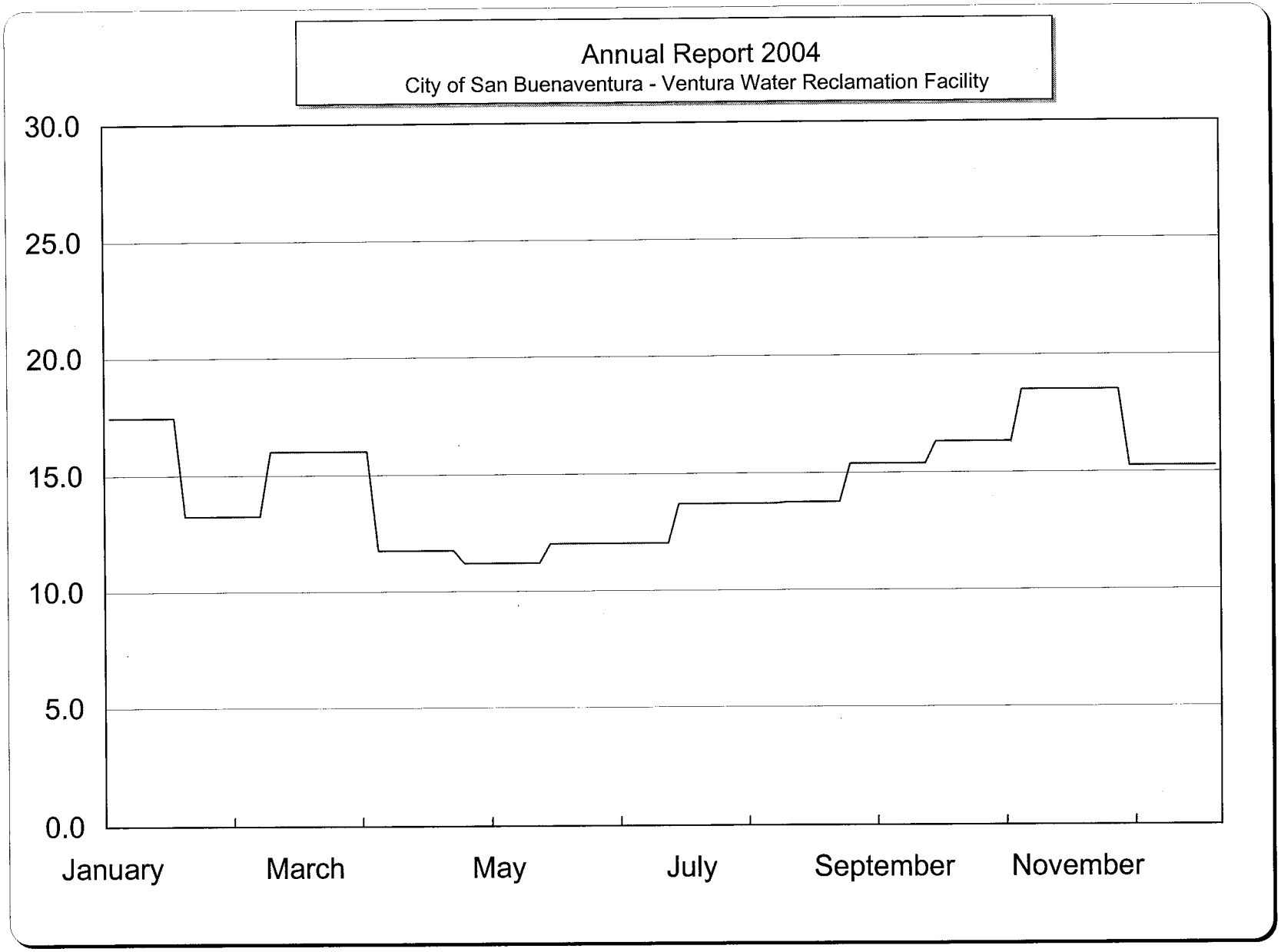


Mixed Media Filter Station
Bimonthly Period
Activated Sludge Eflfluent 30 Day Average COD - mg/L



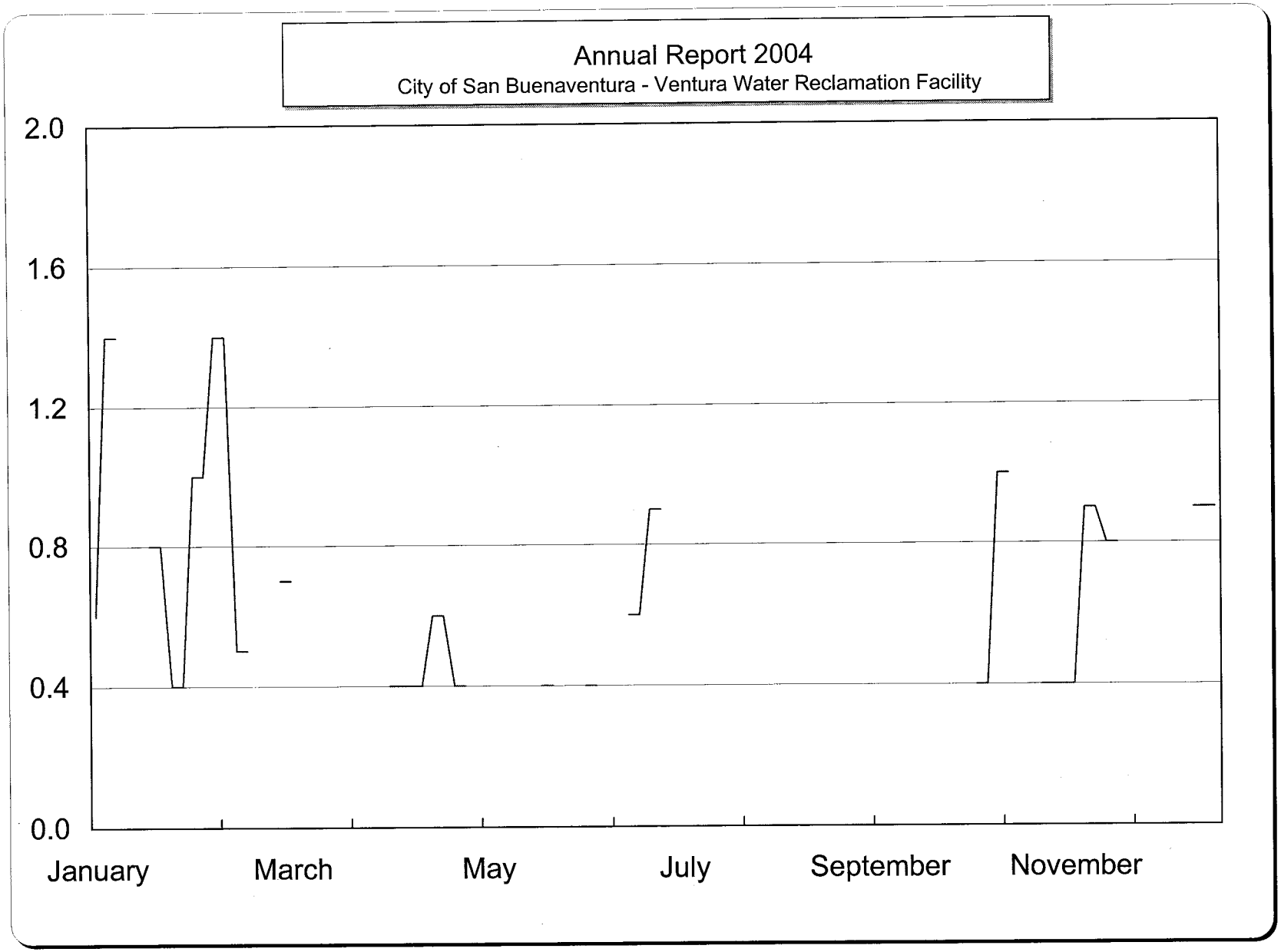
Mixed Media Filter Influent
Activated Sludge Effluent Weekly Nitrate-N - mg/L

Bimonthly Period



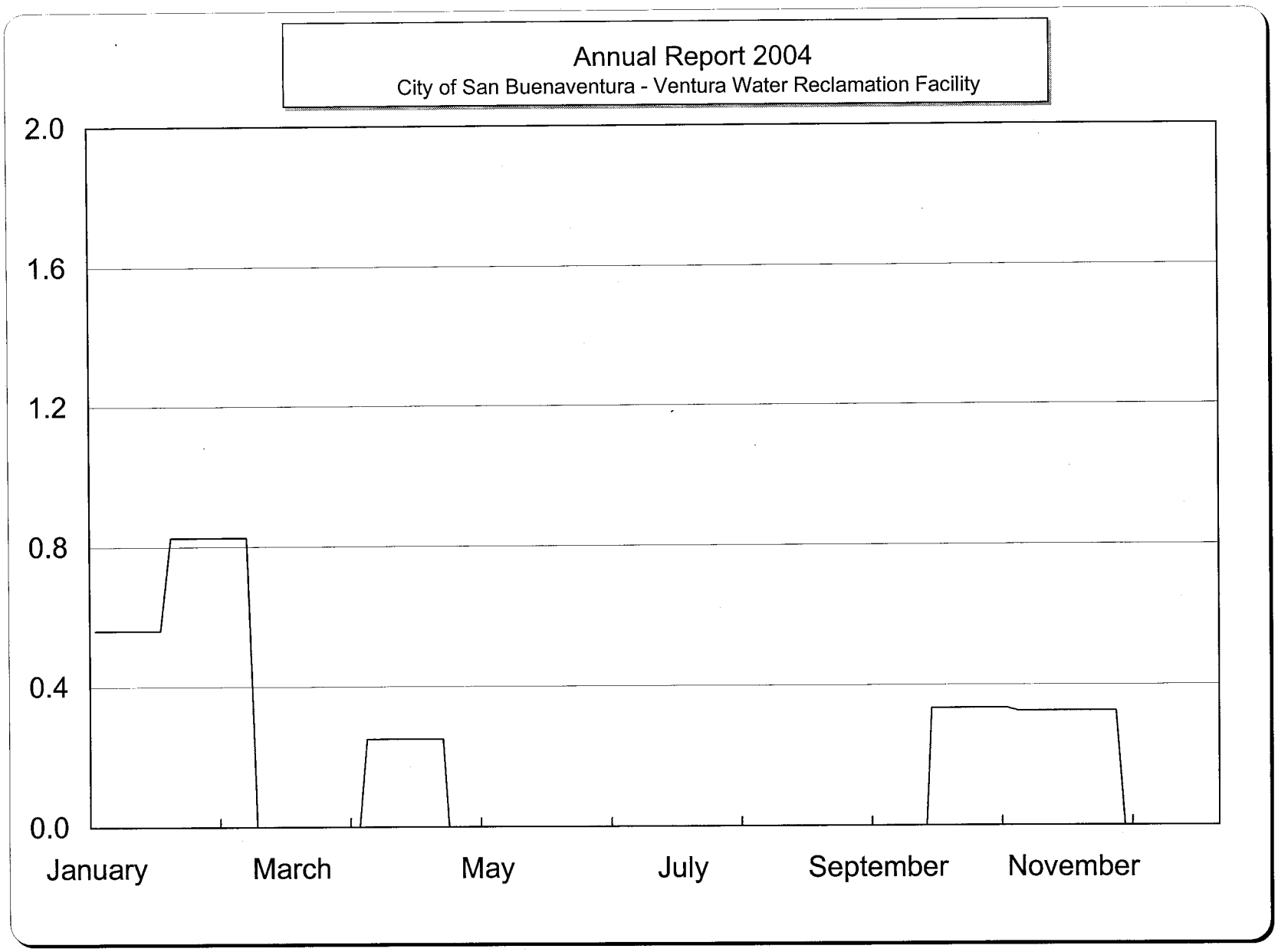
Mixed Media Filter Influent
Activated Sludge Effluent 30 Day Average Nitrate-N - mg/L

Bimonthly Period



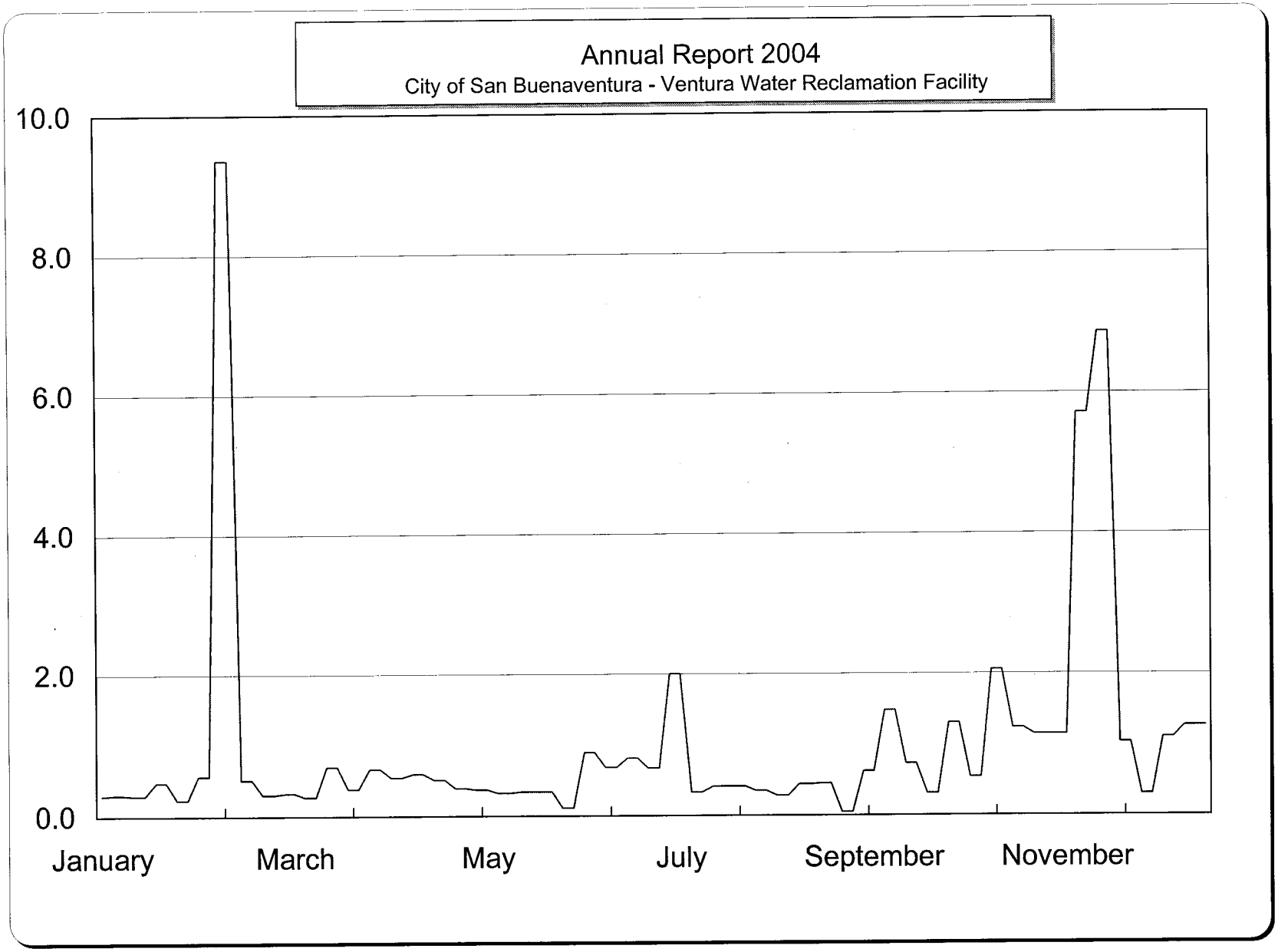
Mixed Media Filter Influent
Activated Sludge Effluent Weekly Nitrite-N - mg/L

Bimonthly Period



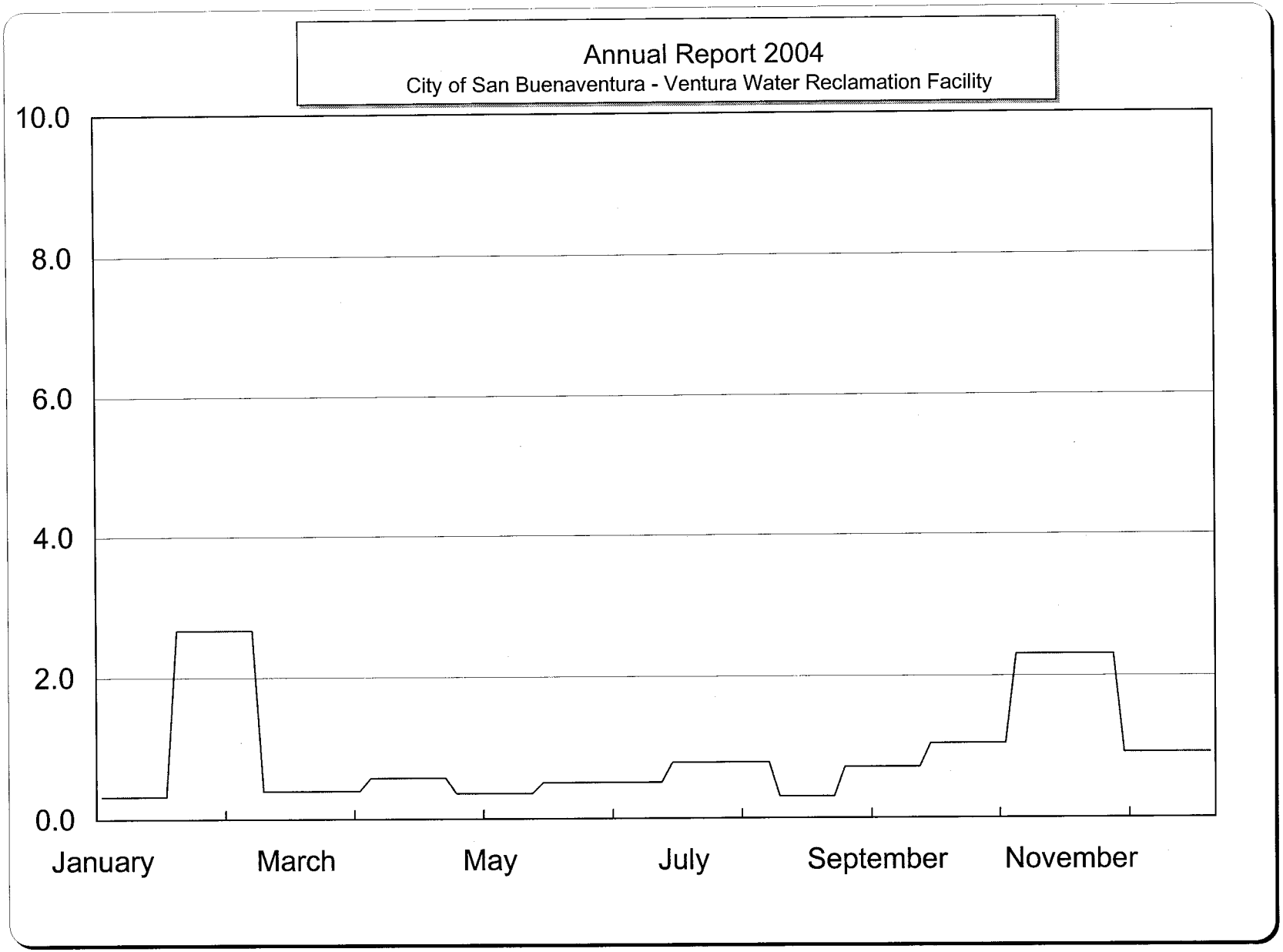
Mixed Media Filter Influent
Activated Sludge Effluent 30 Day Average Nitrite-N - mg/L

Bimonthly Period



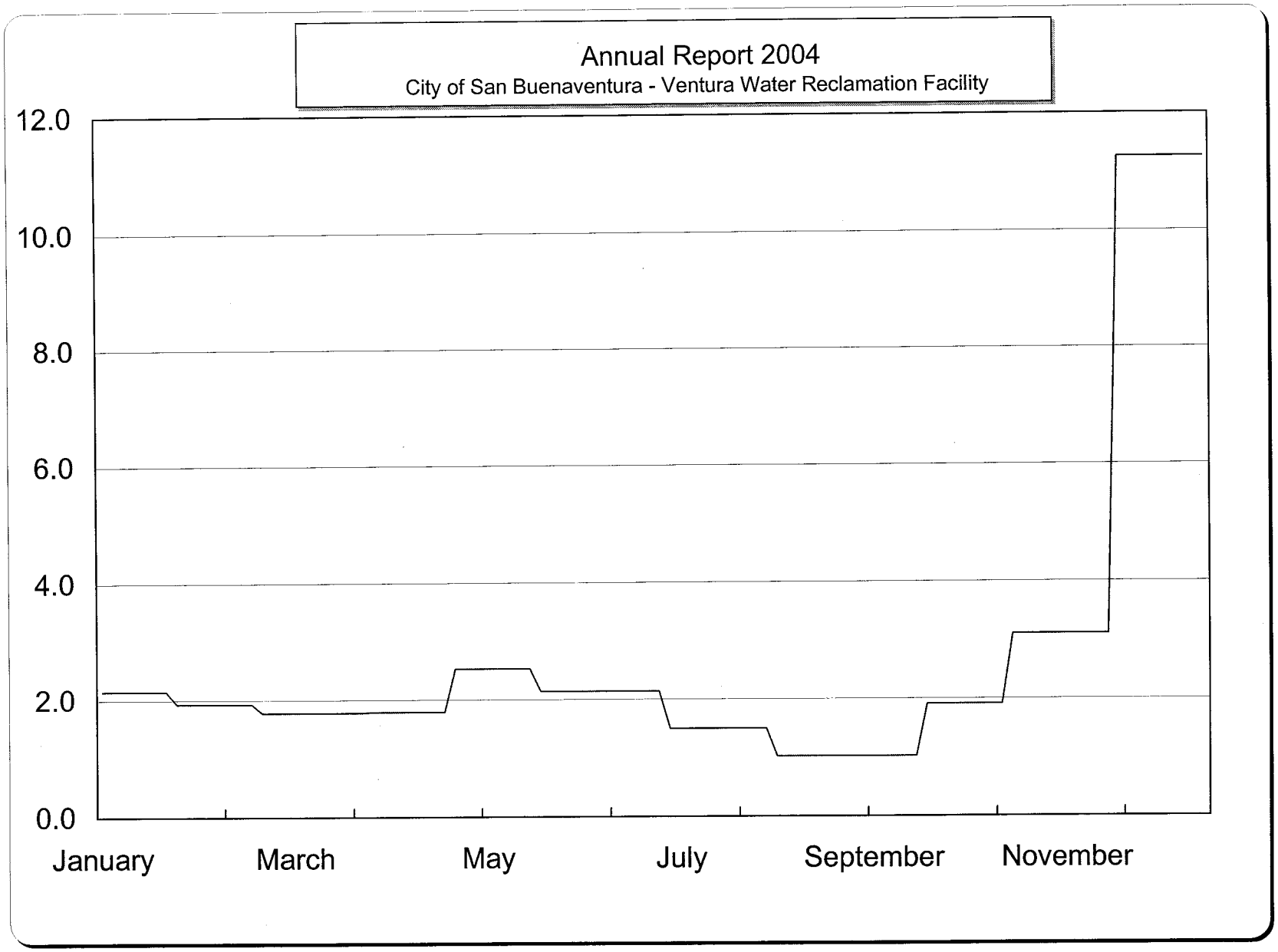
Mixed Media Filter Influent
Activated Sludge Effluent Weekly Ammonia-N - mg/L

Bimonthly Period



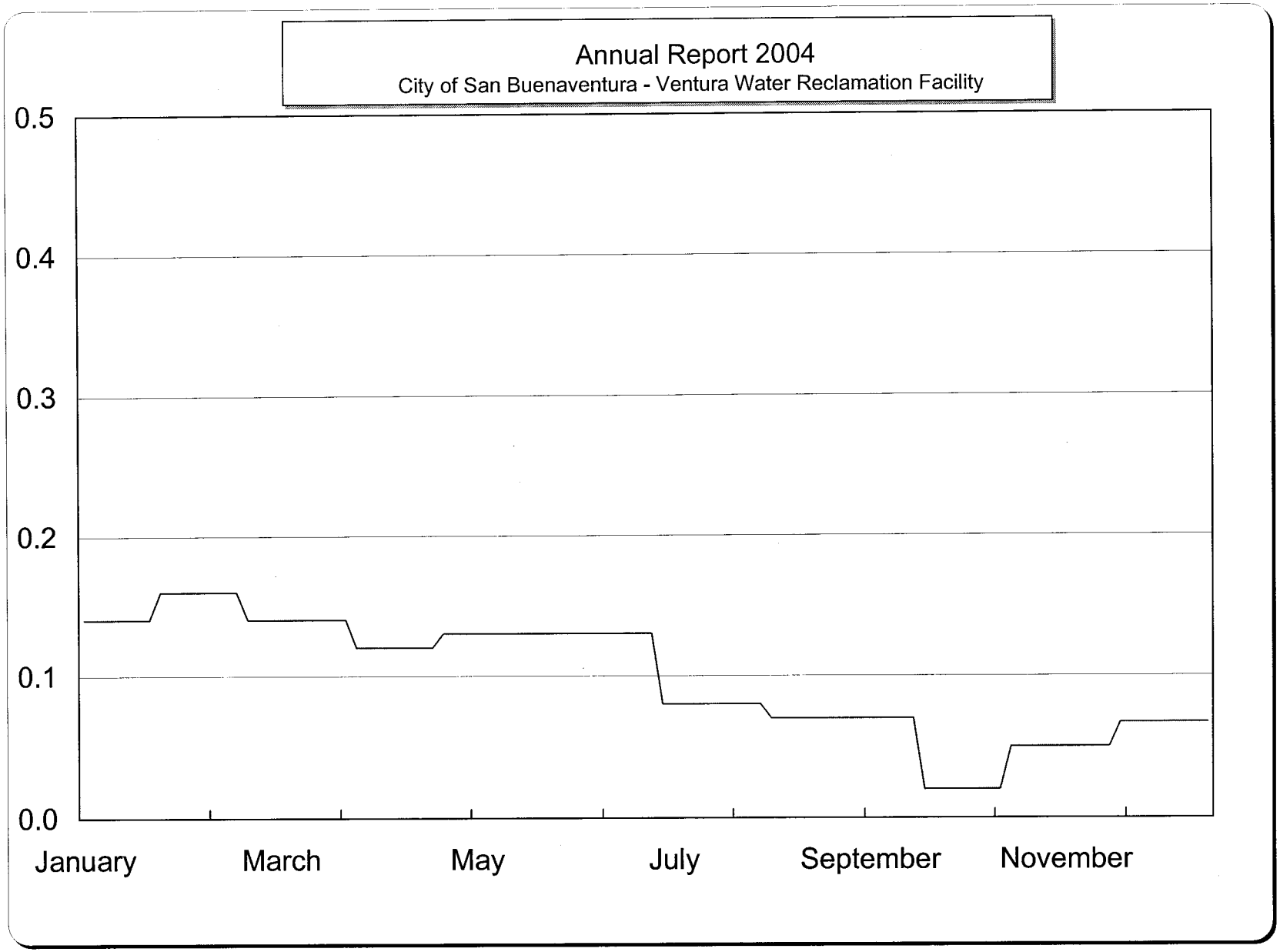
Mixed Media Filter Influent
Activated Sludge Effluent 30 Day Average Ammonia-N - mg/L

Bimonthly Period



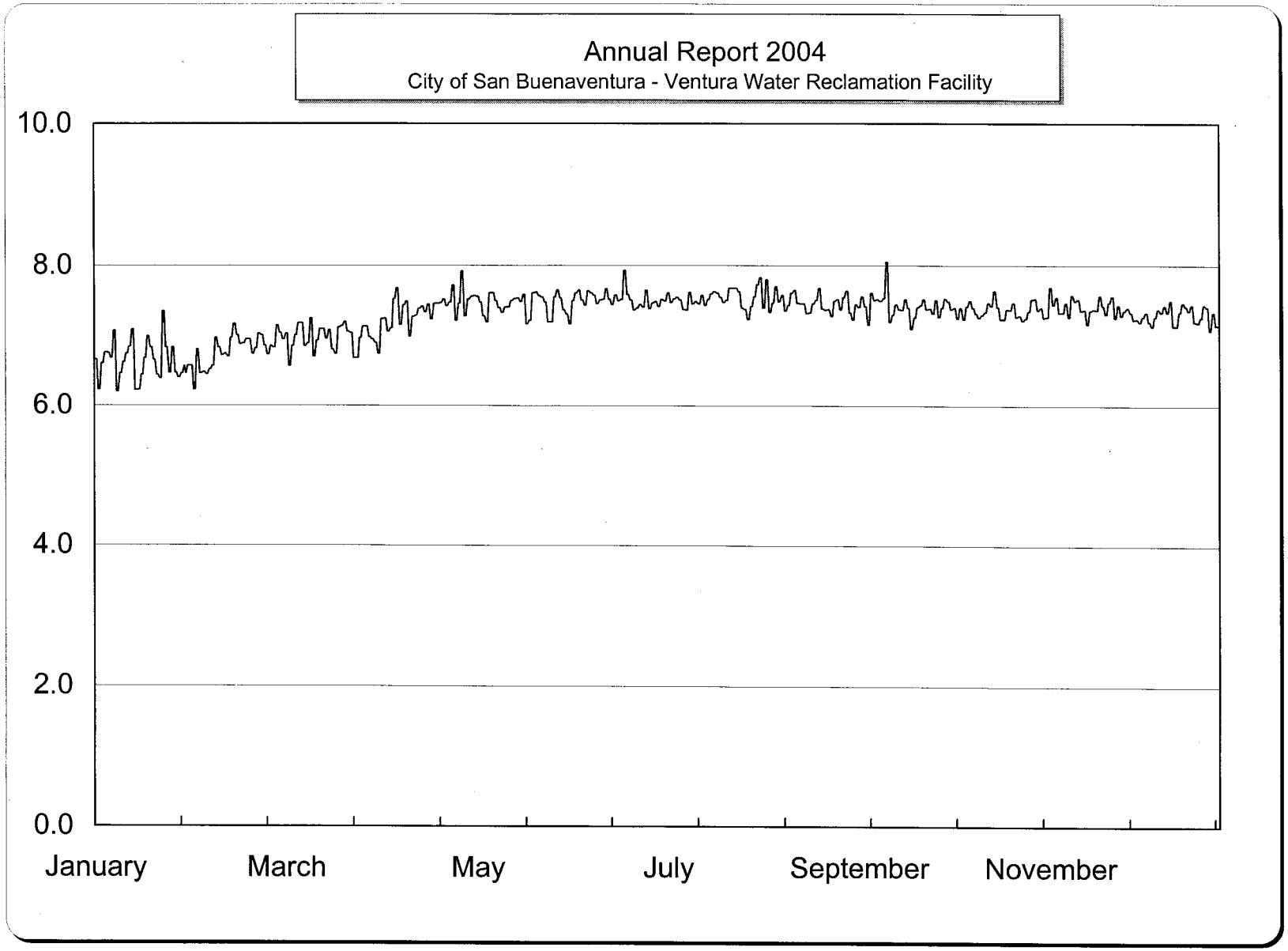
Mixed Media Filter Station
Activated Sludge Effluent Monthly TKN - mg/L

Bimonthly Period



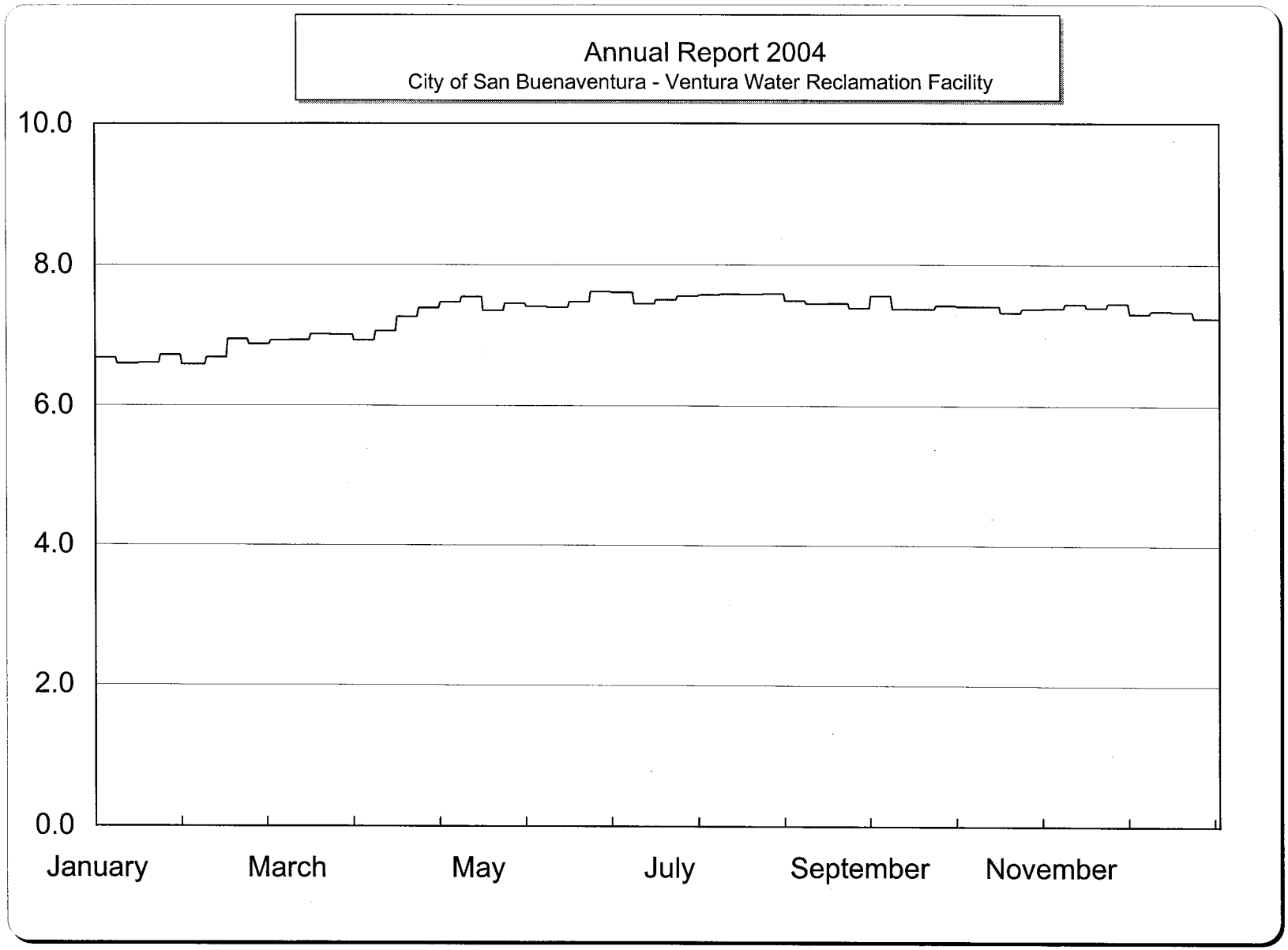
Mixed Media Filter Station
Activated Sludge Effluent Monthly MBAS - mg/L

Bimonthly Period

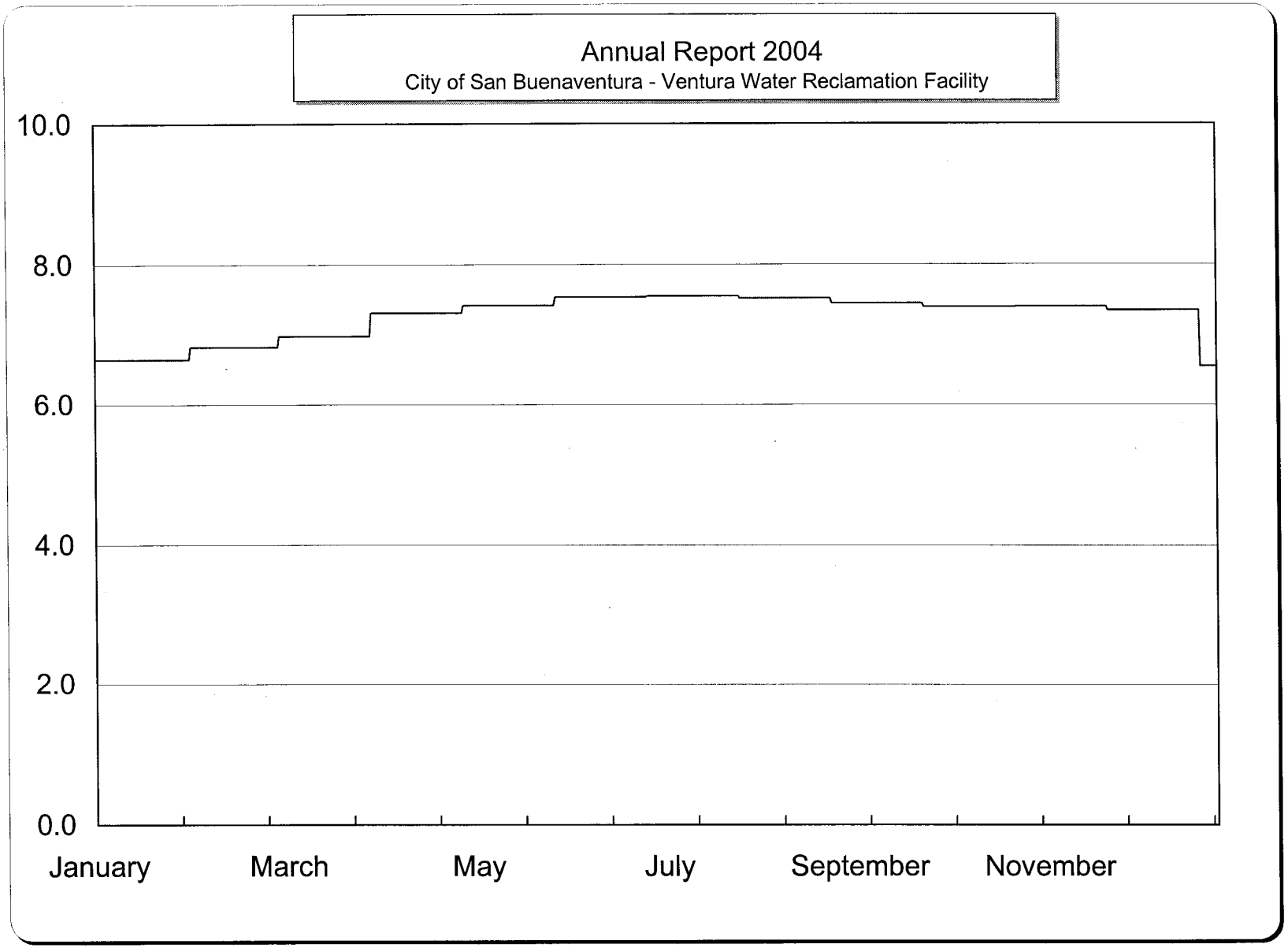


Bimonthly Period

Effluent Transfer Station
Effluent pH - pH Units

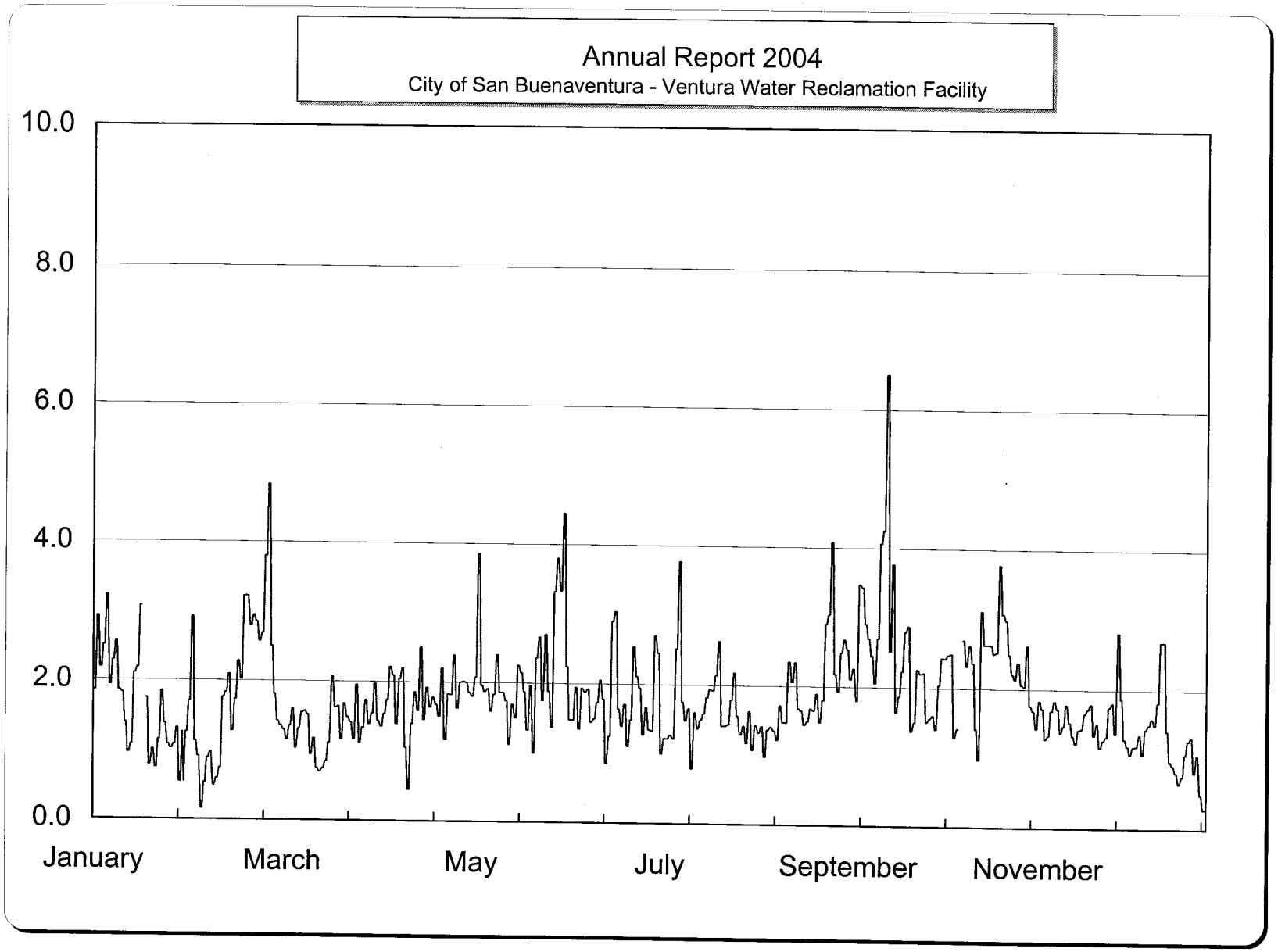


Effluent Transfer Station
Bimonthly Period
Effluent 7 Day Average pH - pH Units



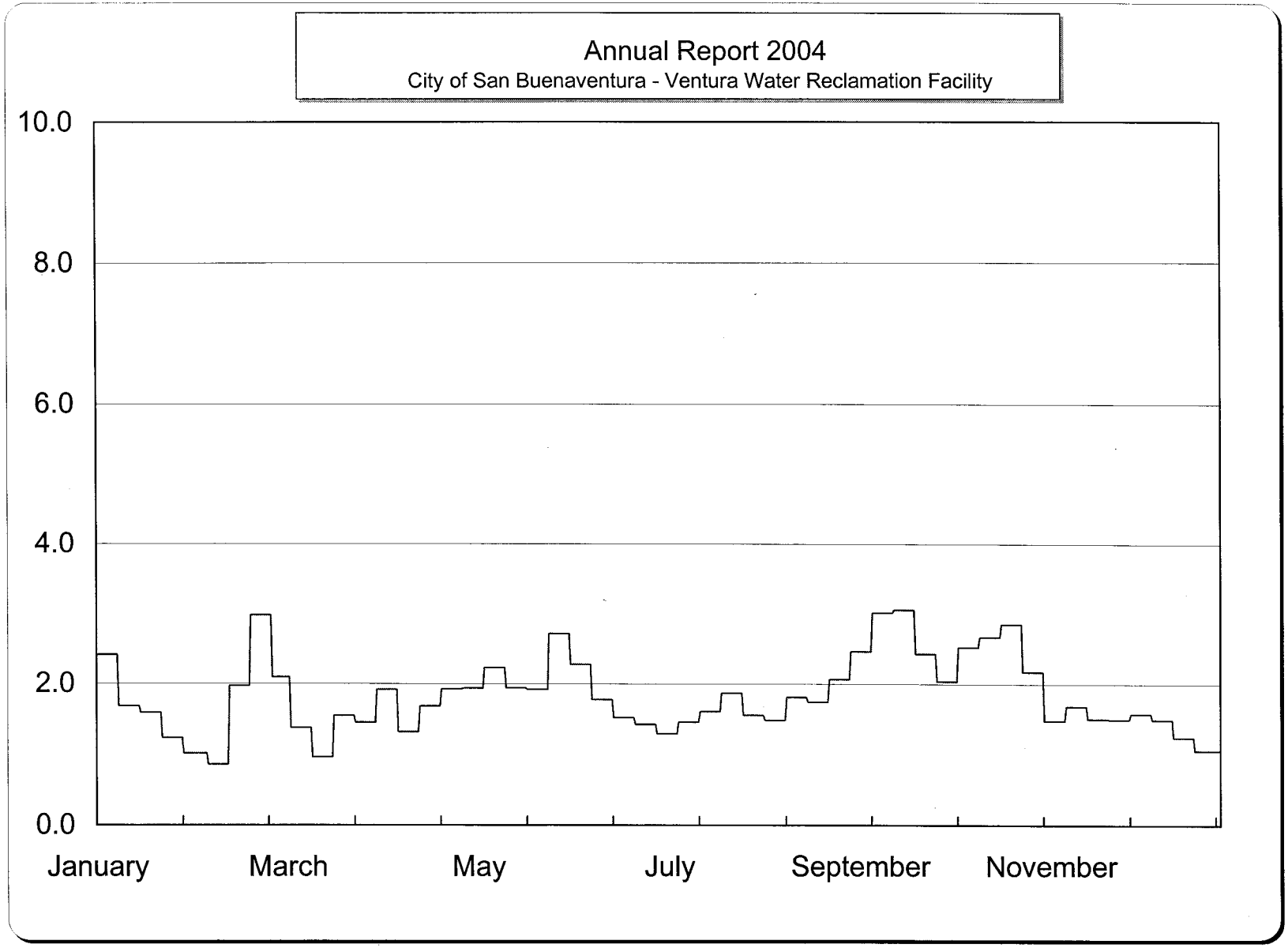
Bimonthly Period

Effluent Transfer Station
Effluent 30 Day Average pH - pH Units



Bimonthly Period

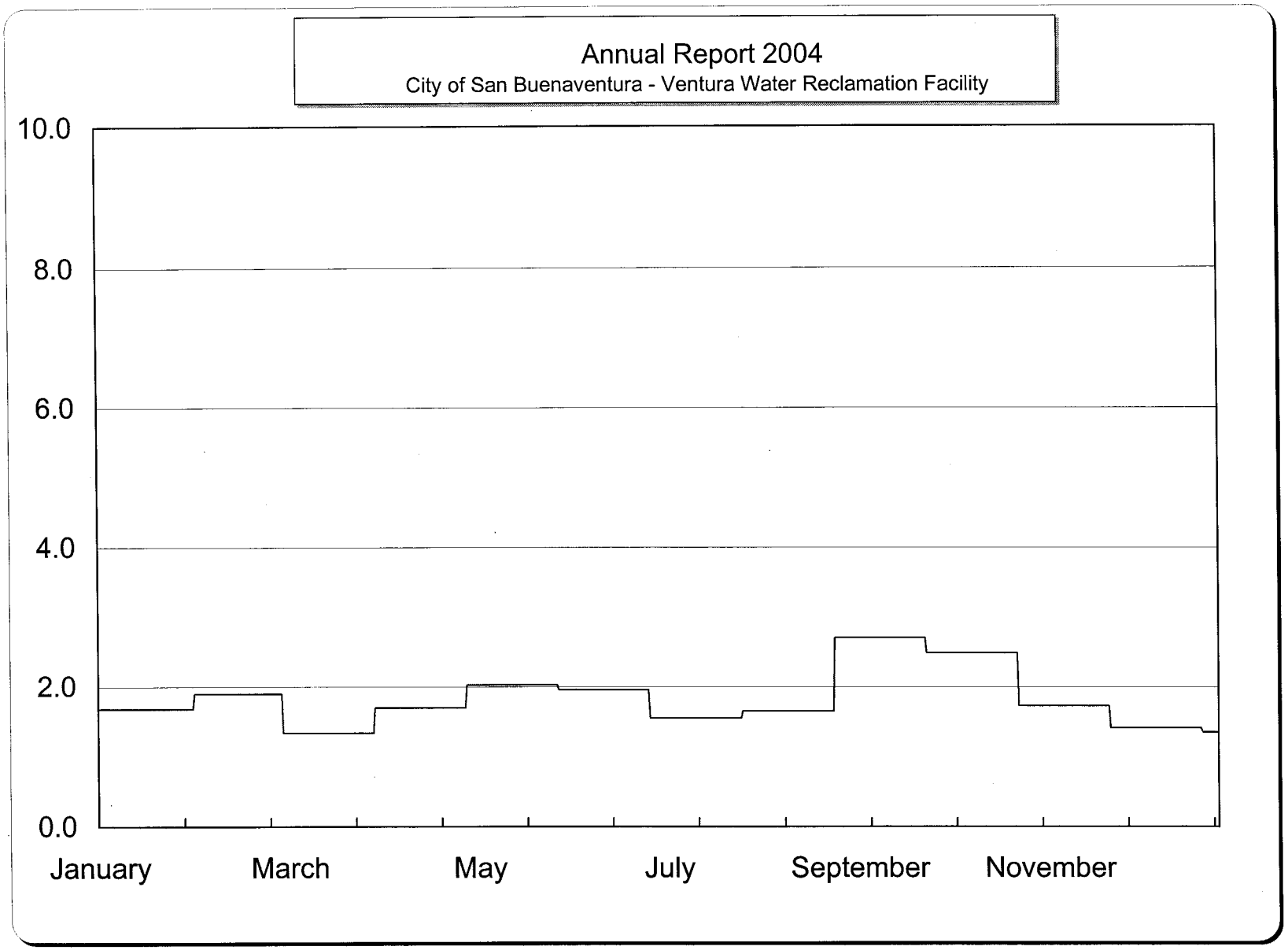
Effluent Transfer Station
Effluent Suspended Solids - mg/L



Effluent Transfer Station

Bimonthly Period

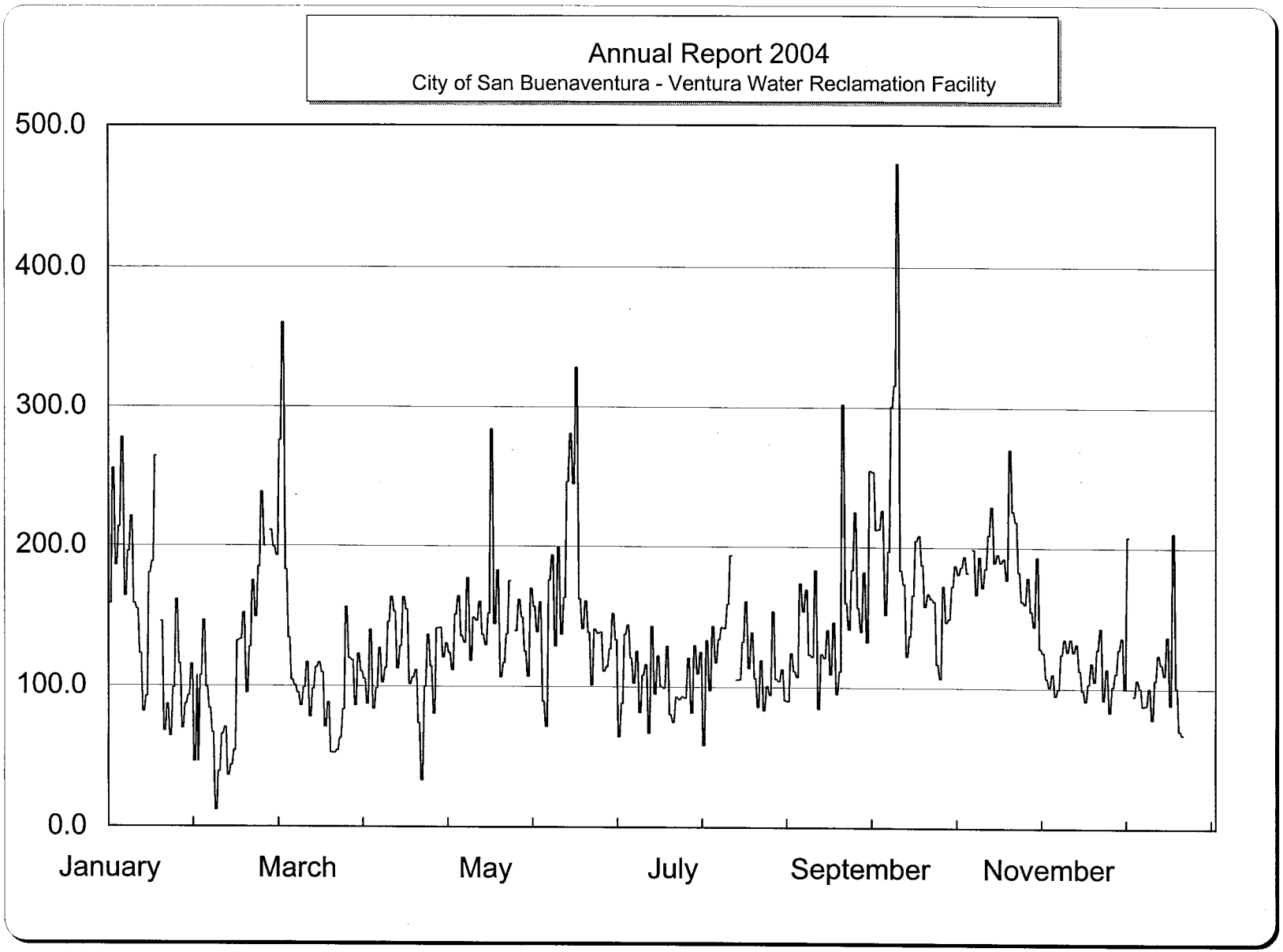
Effluent 7 Day Average Suspended Solids - mg/L



Effluent Transfer Station

Bimonthly Period

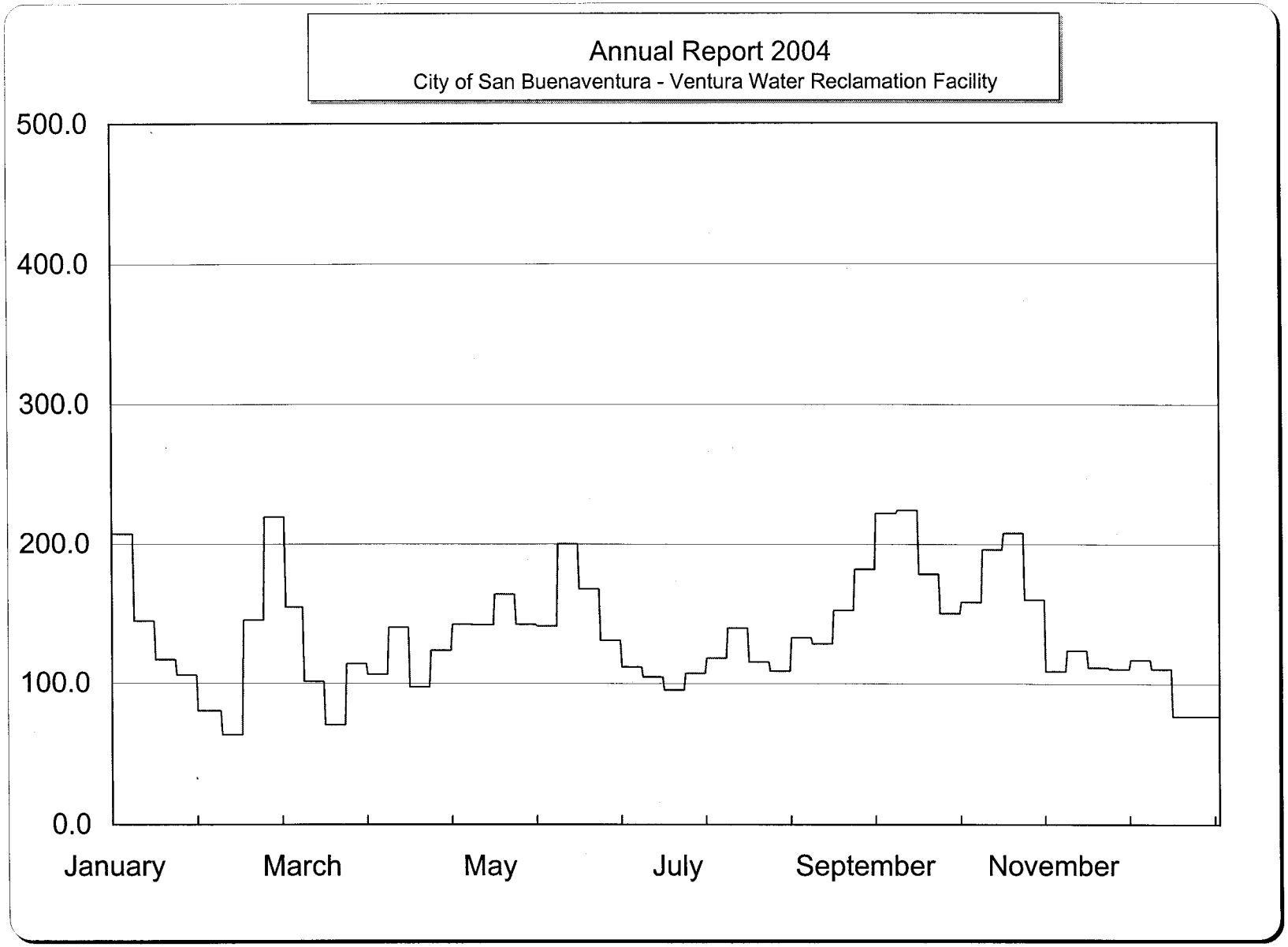
Effluent 30 Day Average Suspended Solids - mg/L



Effluent Transfer Station

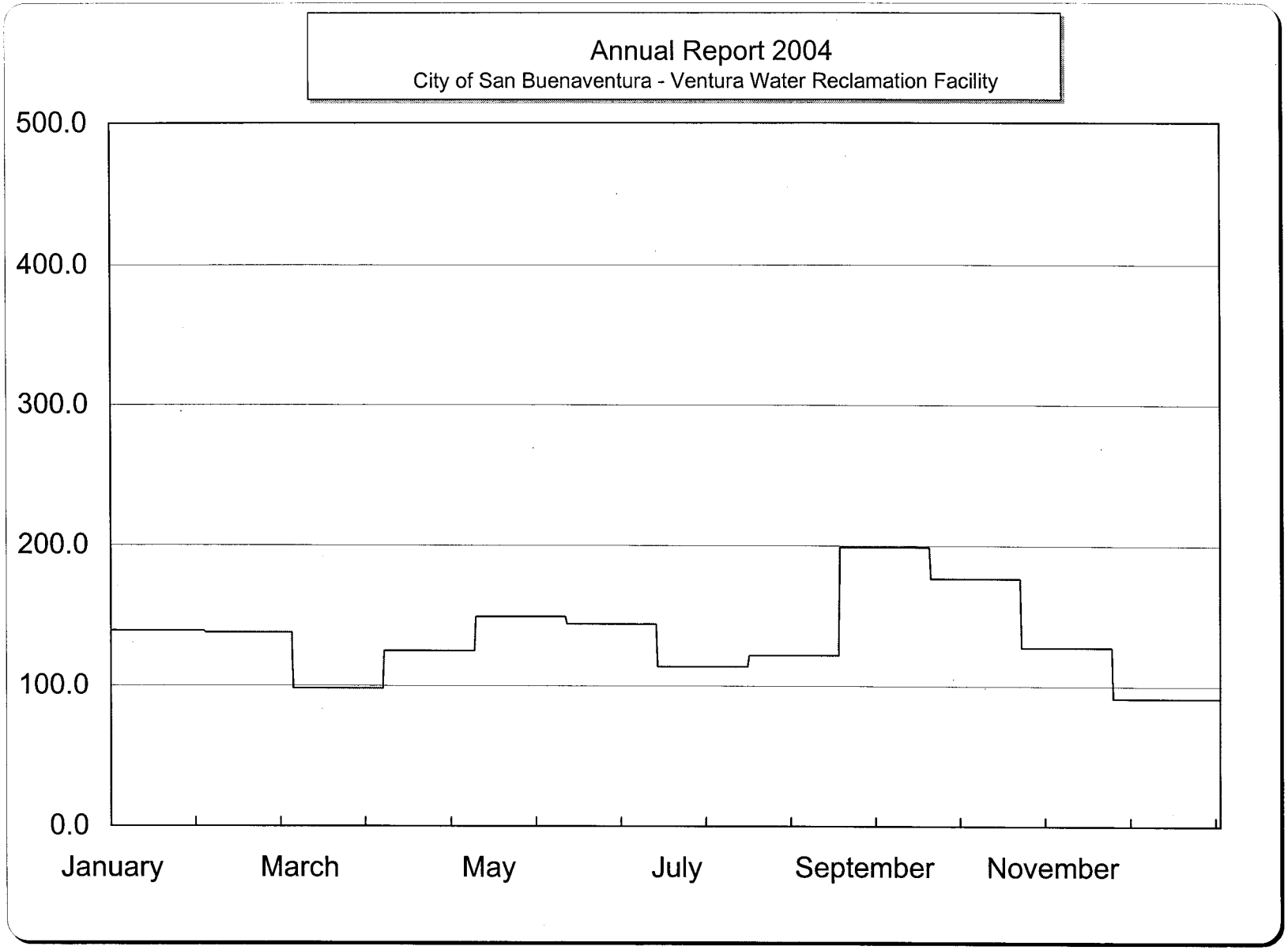
Bimonthly Period

Effluent Suspended Solids Mass Emission Rate - lbs/Day



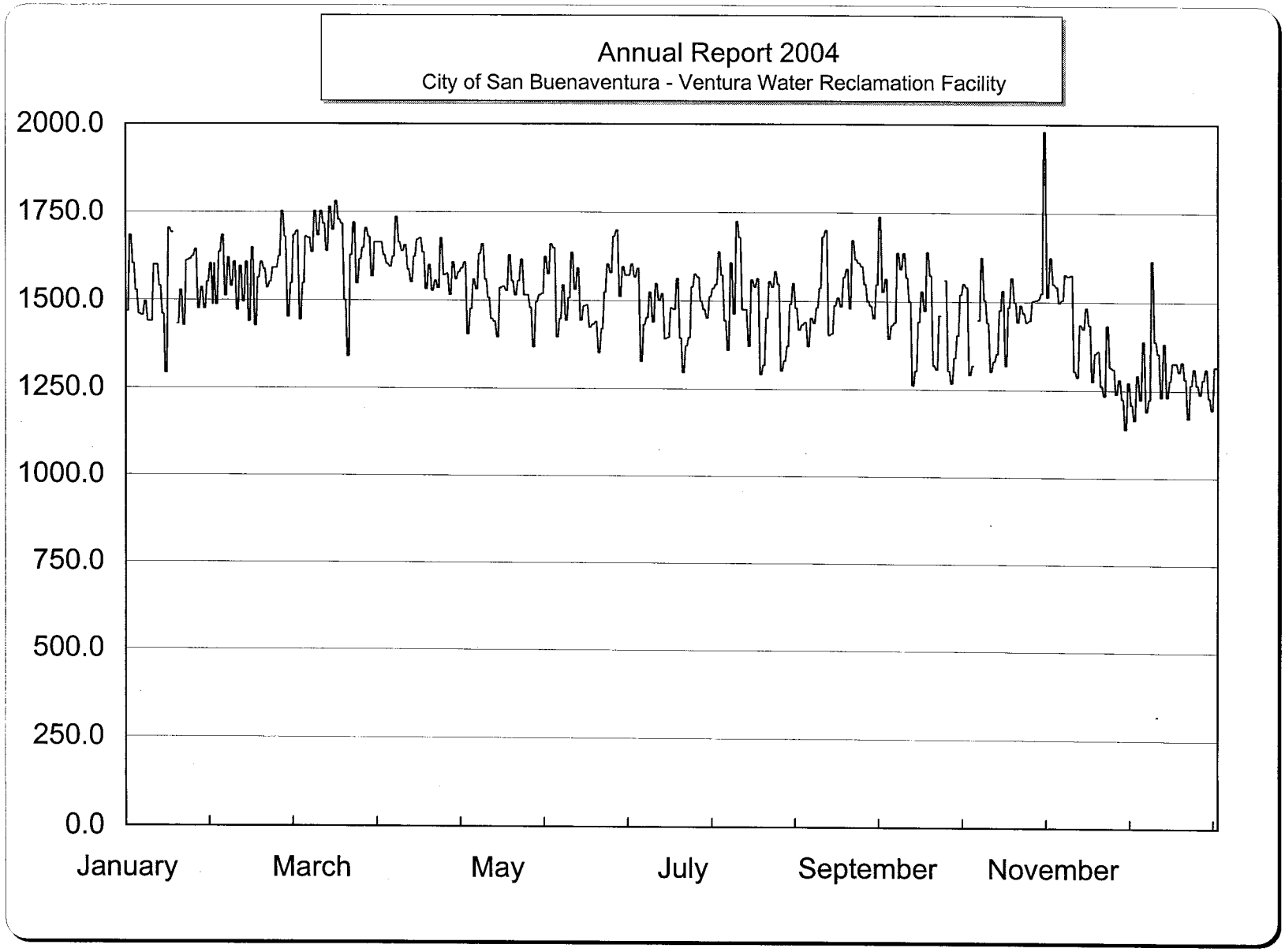
Effluent Transfer Station

Bimonthly Period Effluent 7 Day Average Suspended Solids Mass Emission Rate - lbs/Day



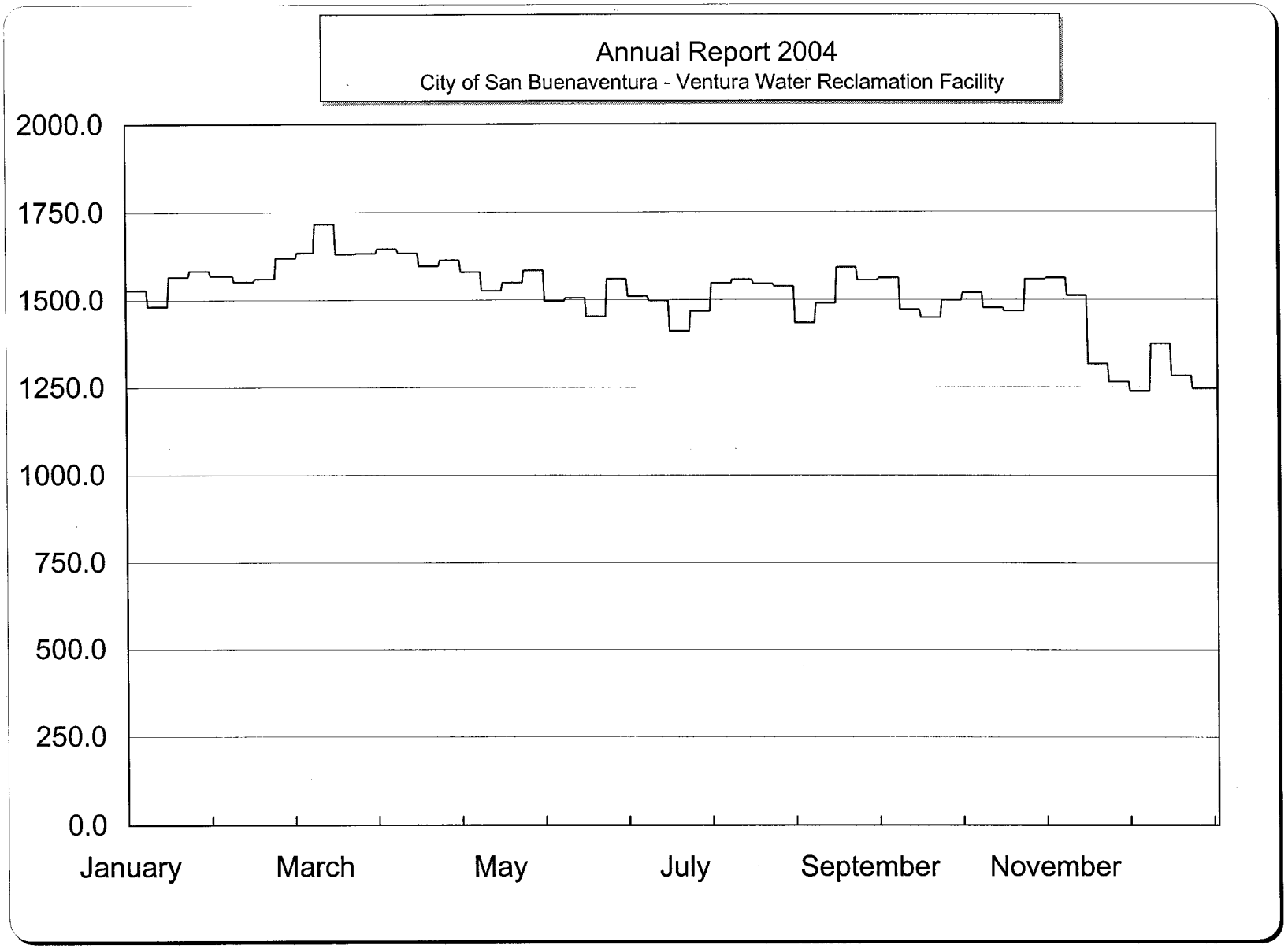
Effluent Transfer Station

Bimonthly Period Effluent 30 Day Average Suspended Solids Mass Emission Rate - lbs/Day



Bimonthly Period

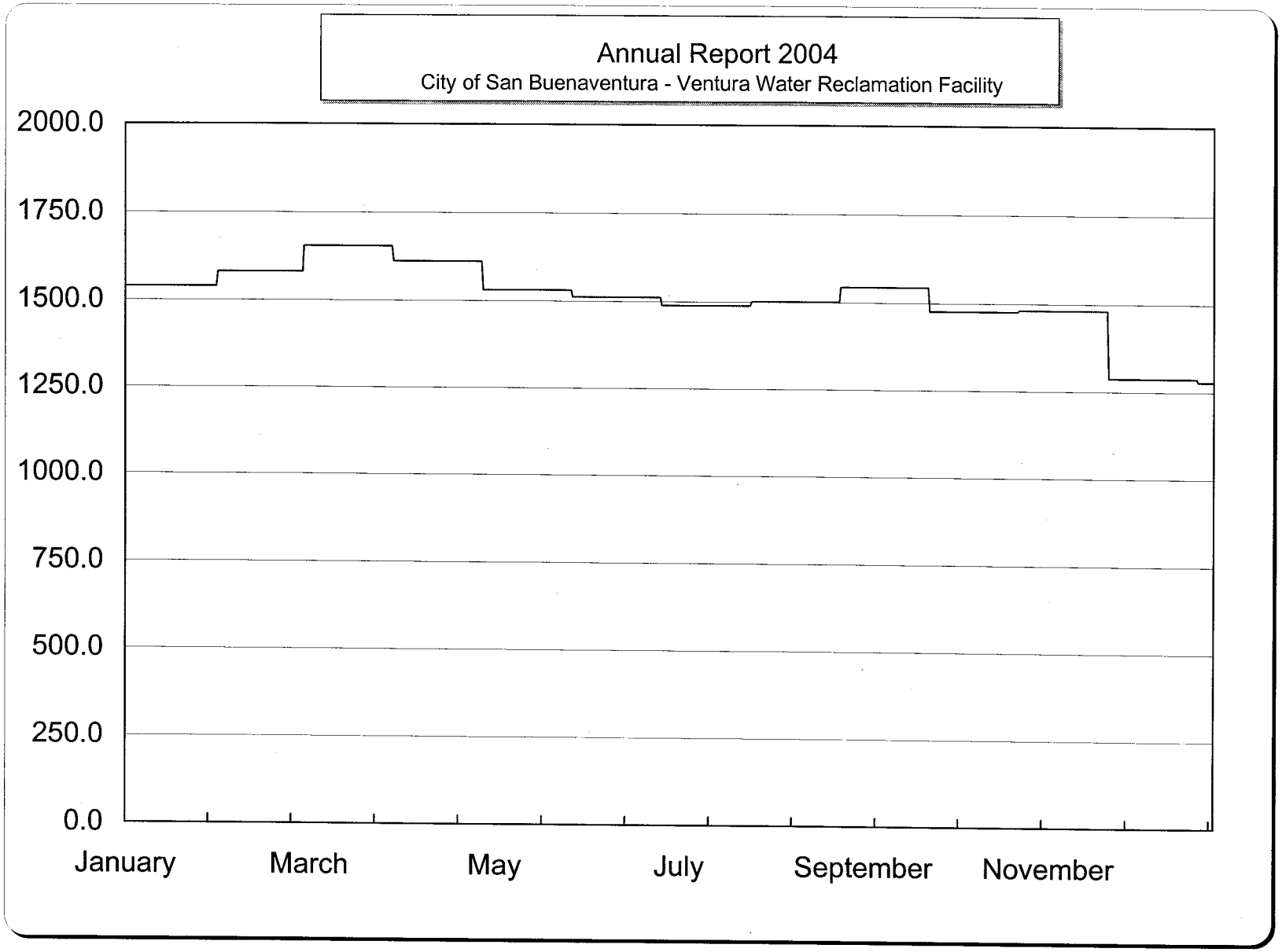
Effluent Transfer Station
Effluent Total Disssolved Solids - mg/L



Effluent Transfer Station

Bimonthly Period

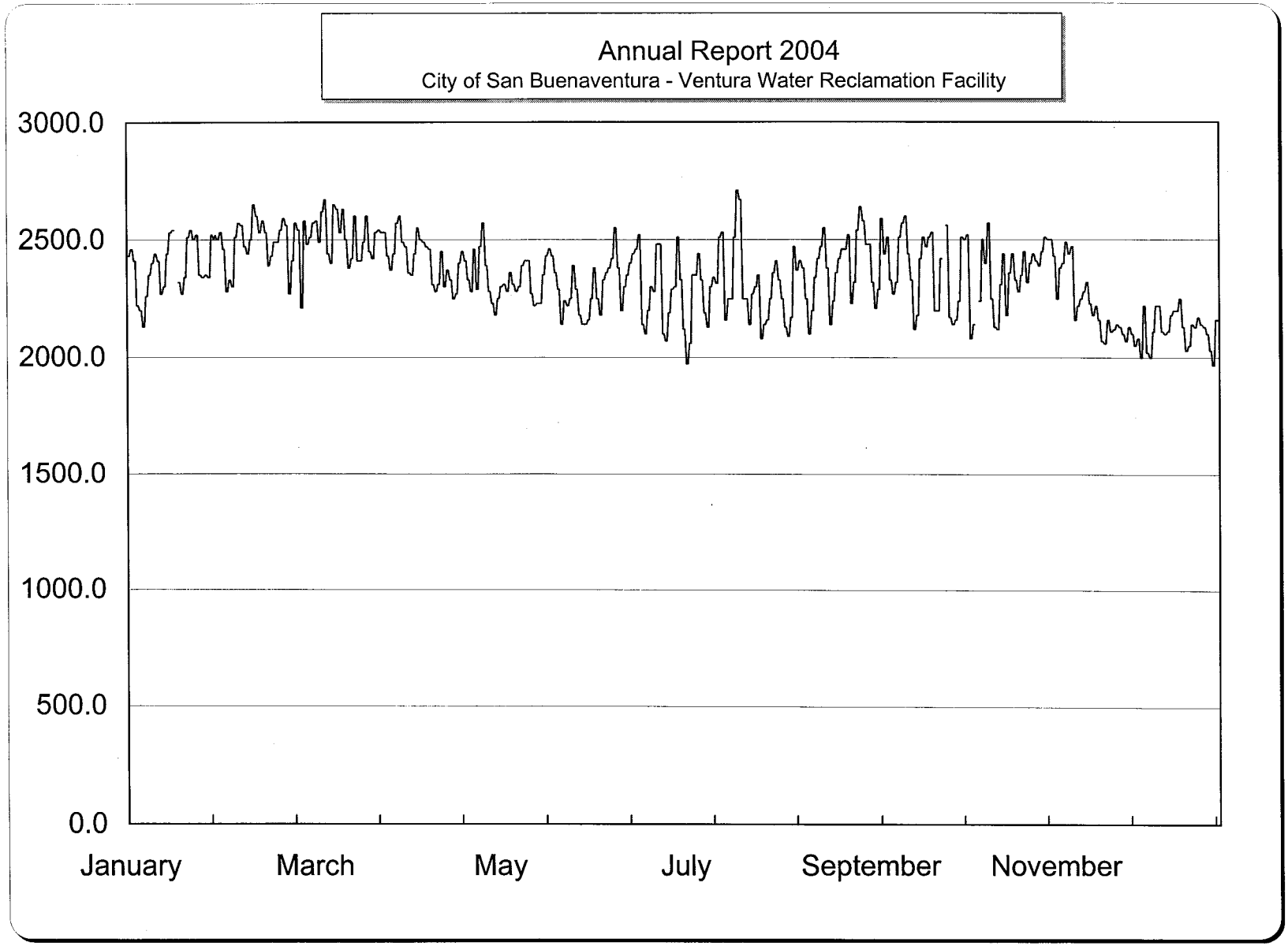
Effluent 7 Day Average Total Disssolved Solids - mg/L



Effluent Transfer Station

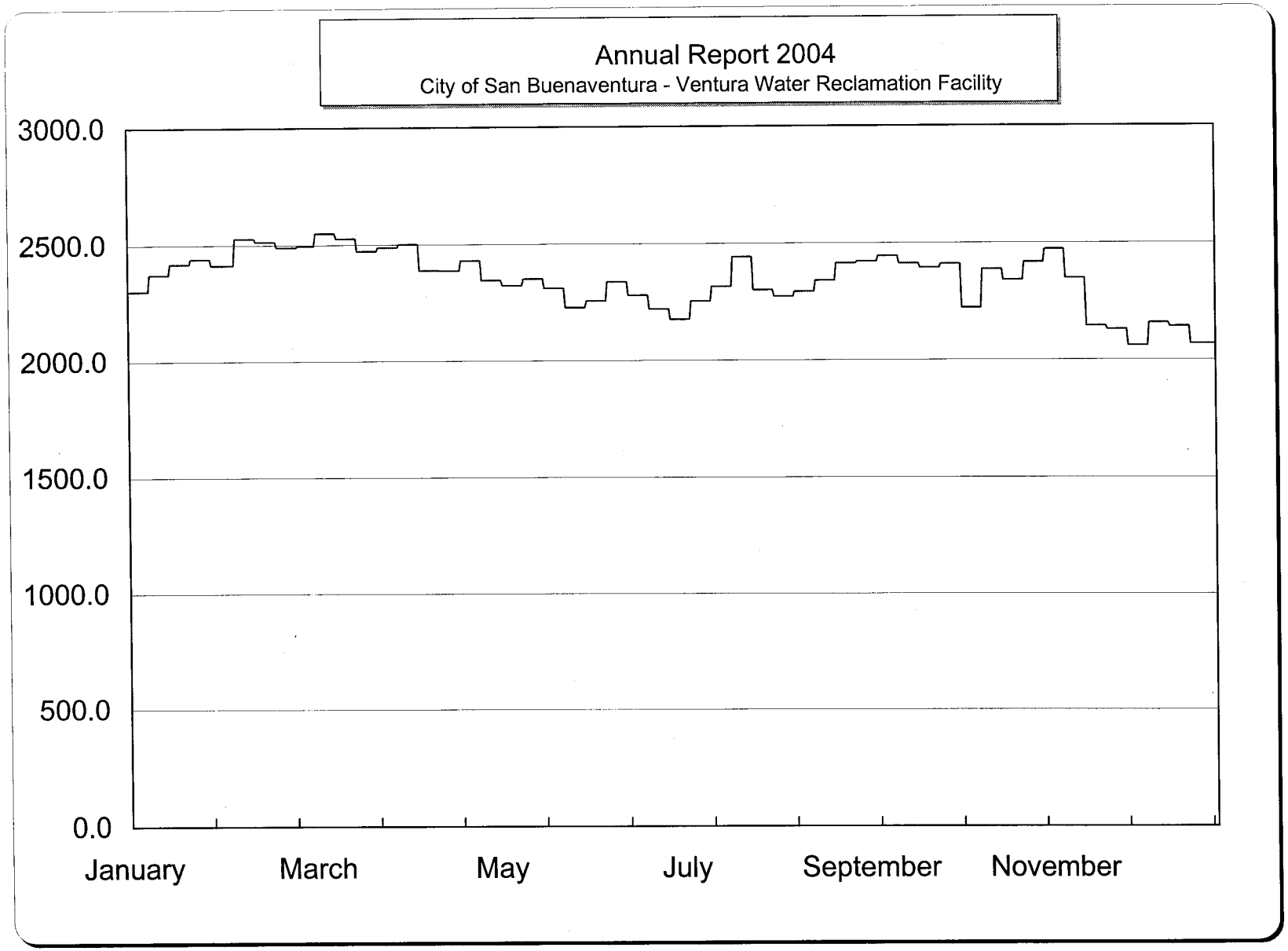
Bimonthly Period

Effluent 30 Day Average Total Disssolved Solids - mg/L



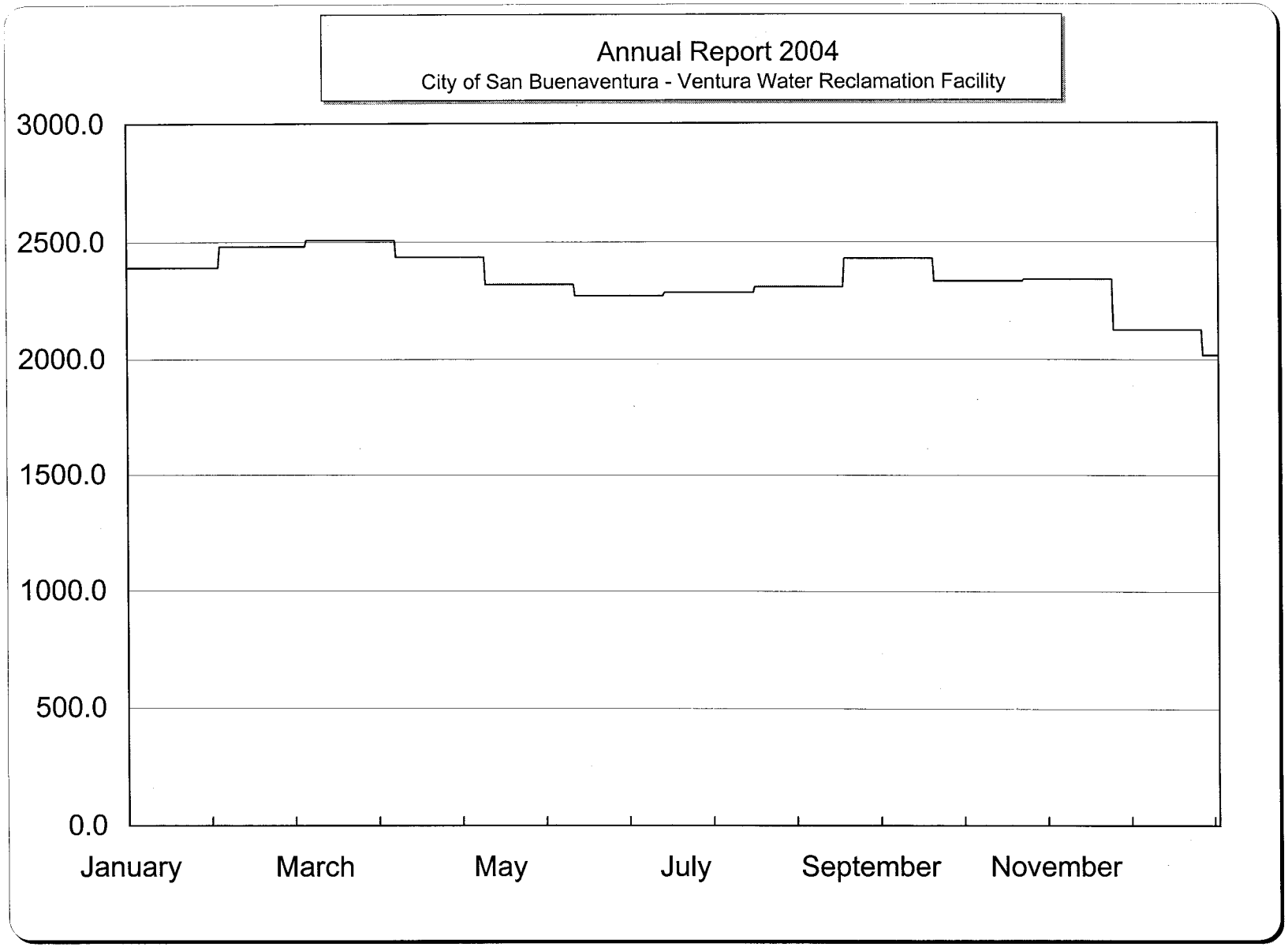
Bimonthly Period

Effluent Transfer Station
Effluent Conductivity -uMHO

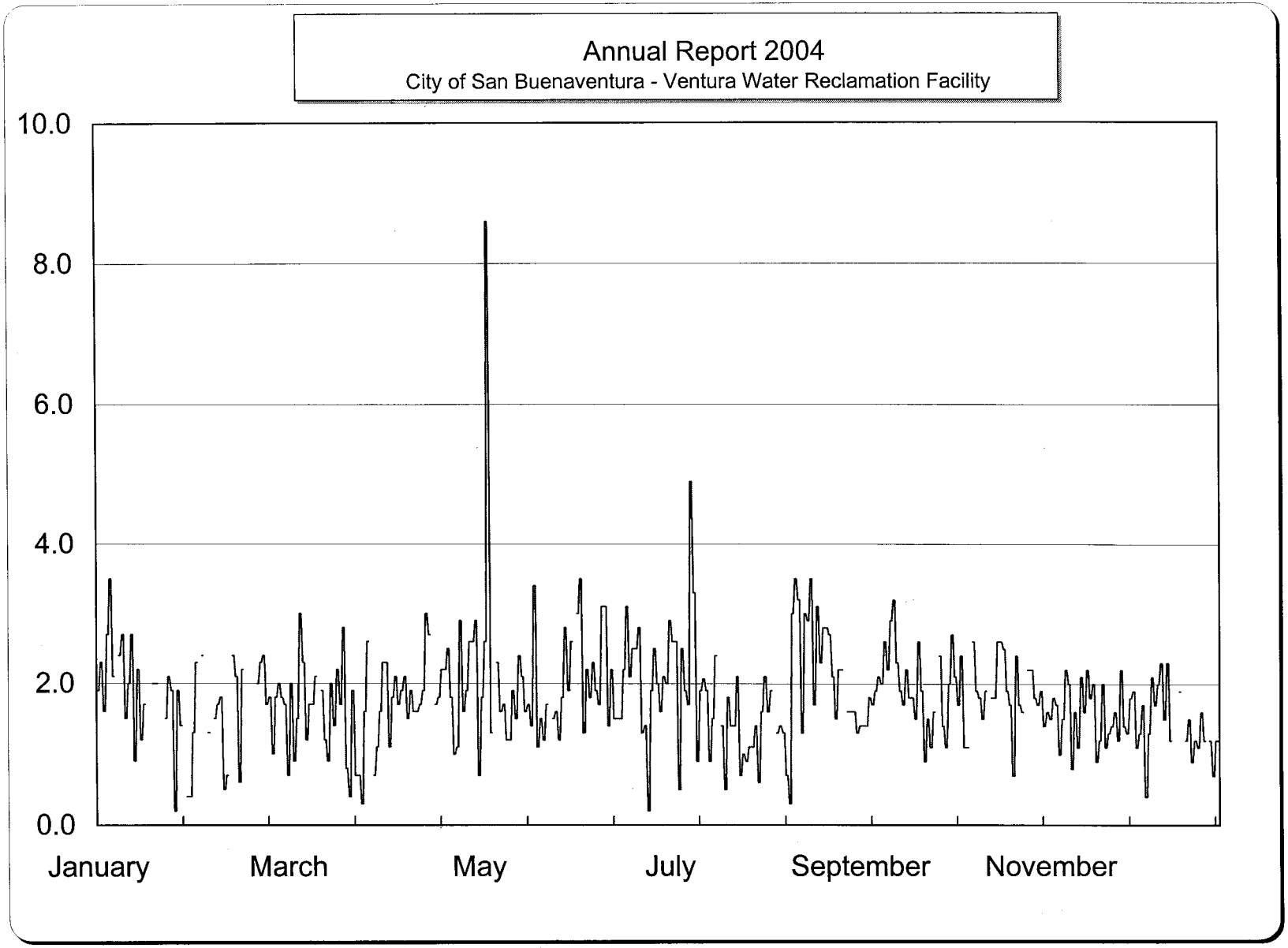


Effluent Transfer Station
Effluent 7 Day Average Conductivity -uMHO

Bimonthly Period

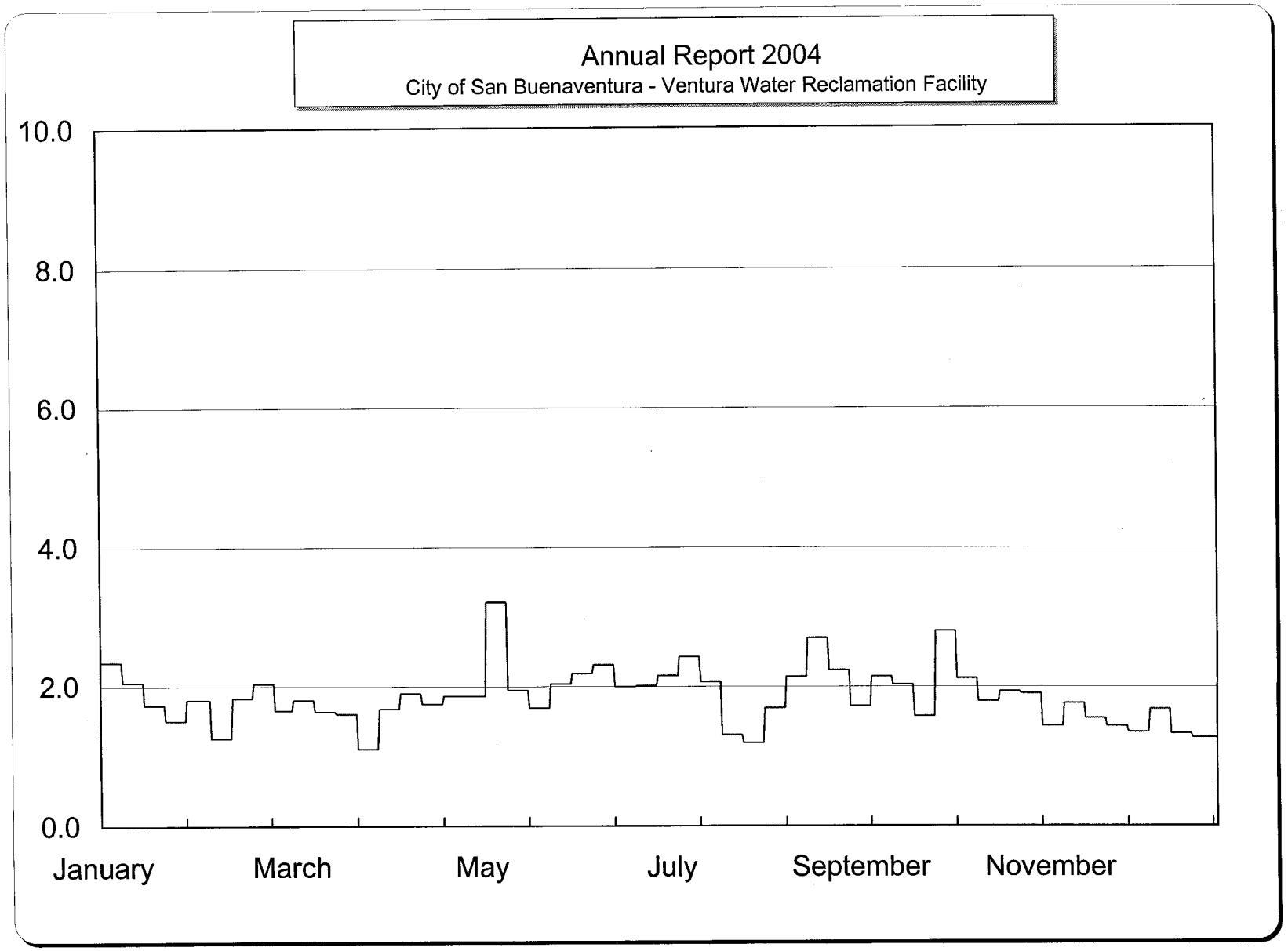


Effluent Transfer Station
Bimonthly Period
Effluent 30 Day Average Conductivity -uMHO



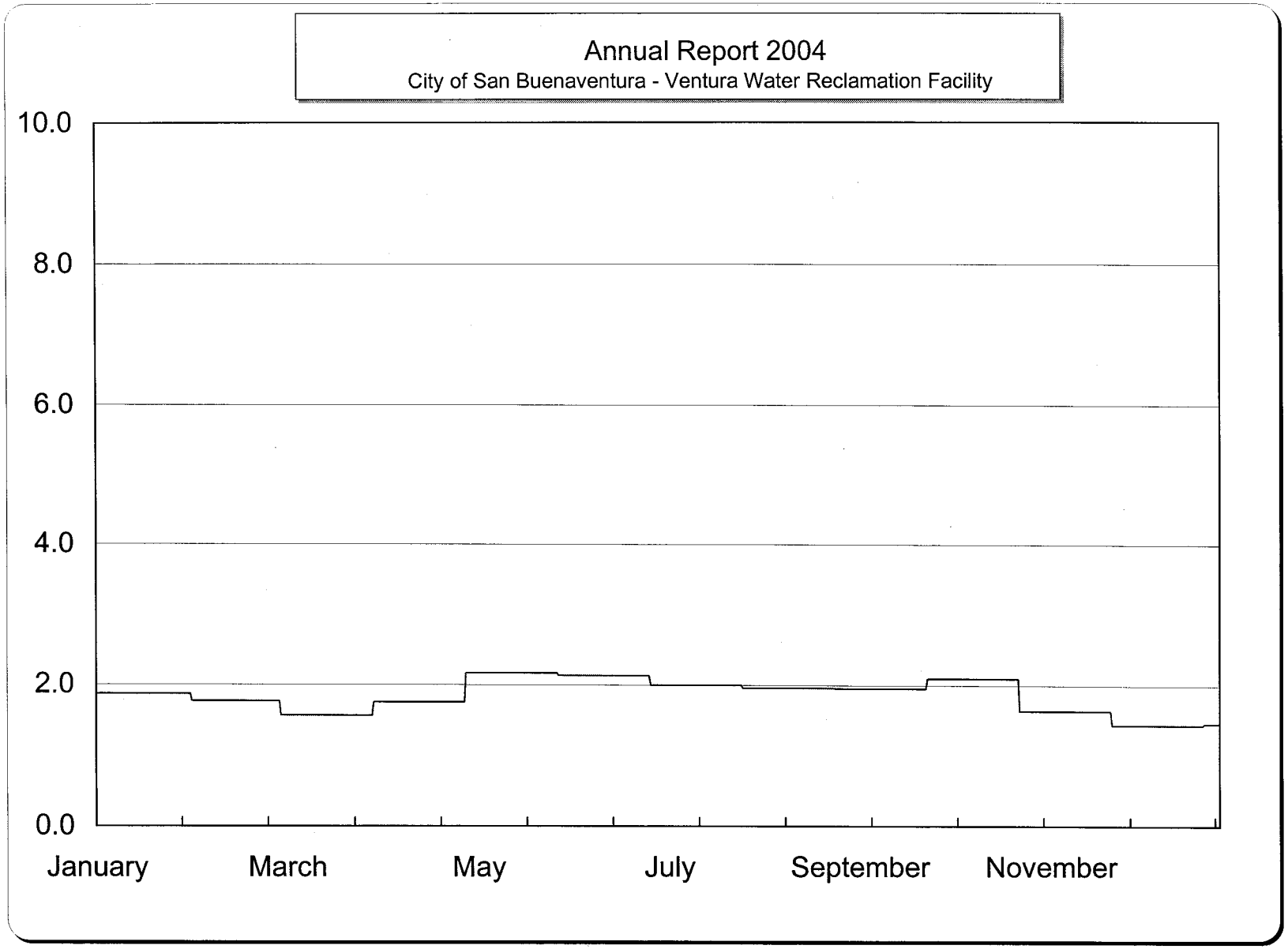
Effluent Transfer Station
Effluent BOD - mg/L

Bimonthly Period



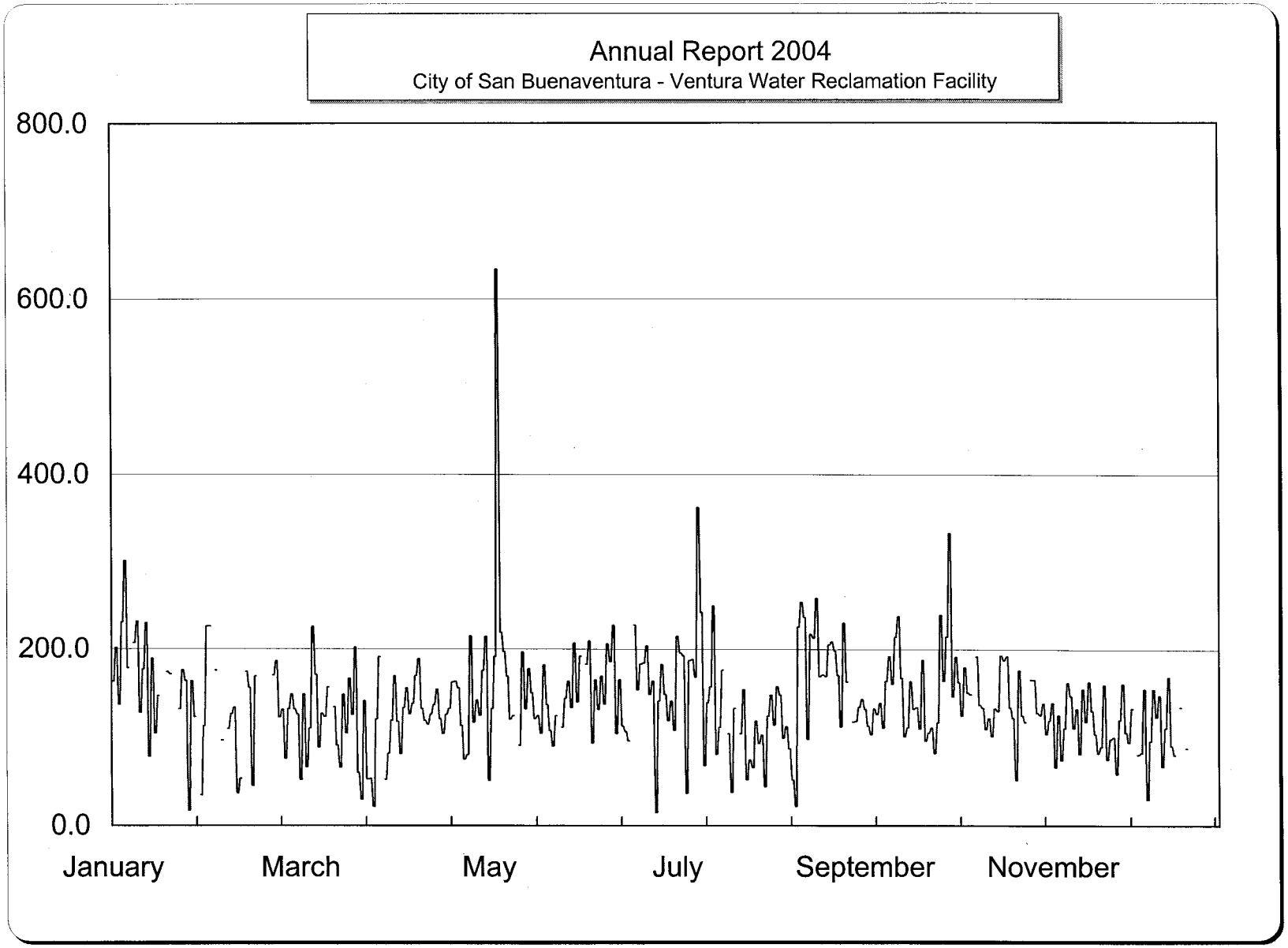
Effluent Transfer Station
Effluent 7 Day Average BOD - mg/L

Bimonthly Period



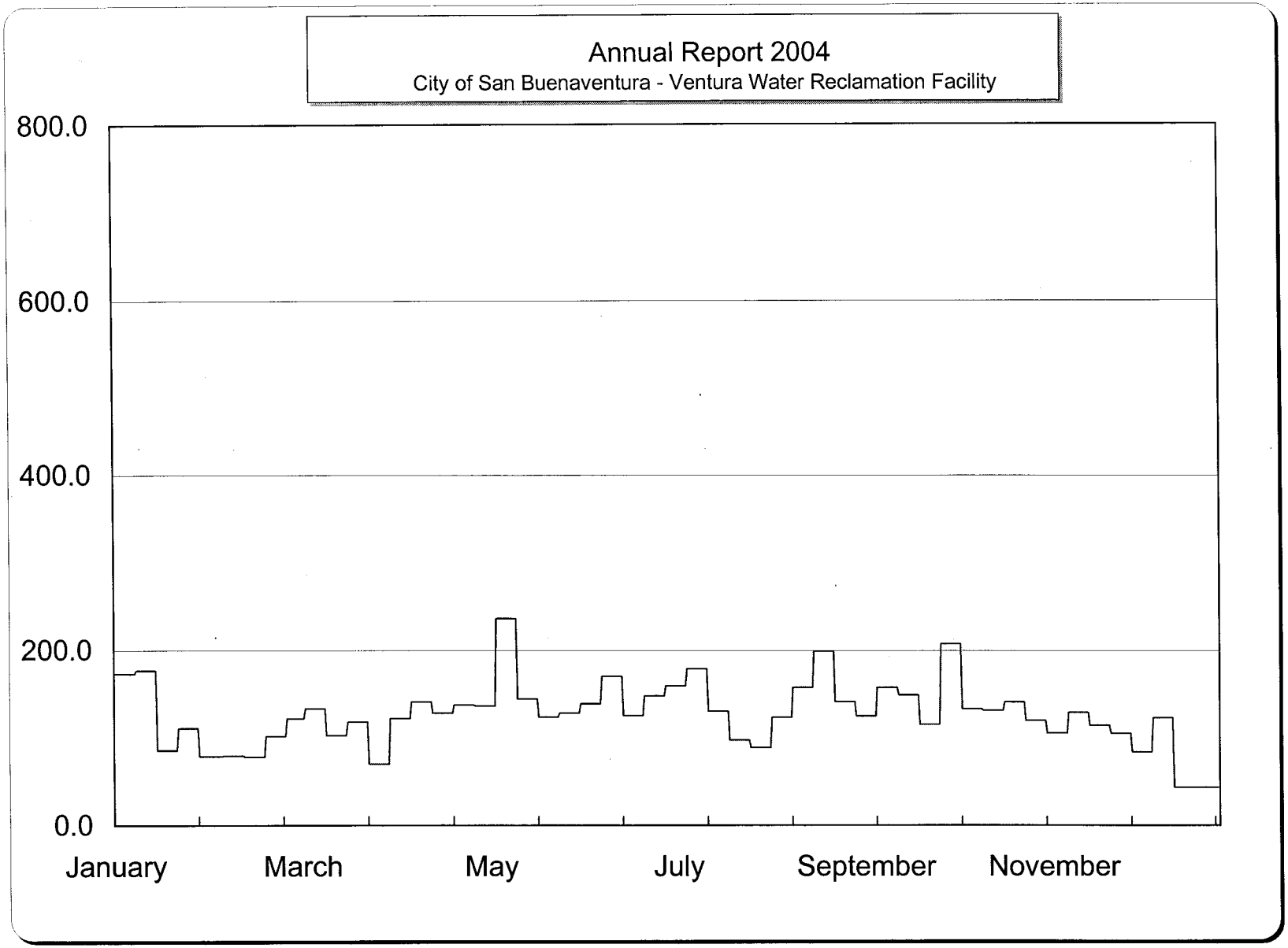
Effluent Transfer Station
Effluent 30 Day Average BOD - mg/L

Bimonthly Period



Effluent Transfer Station
Effluent BOD Mass Emission Rate - lbs/Day

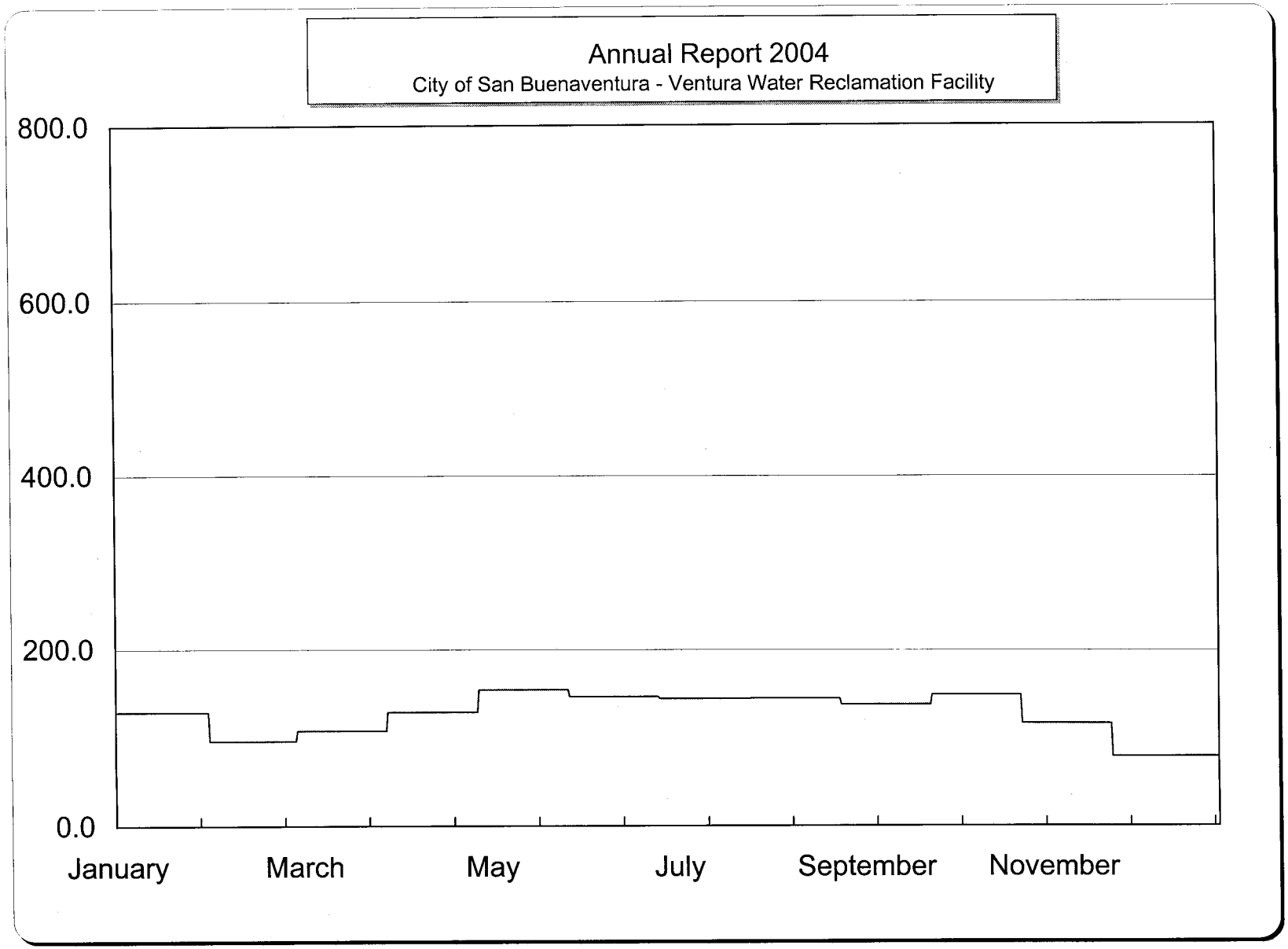
Bimonthly Period



Effluent Transfer Station

Bimonthly Period

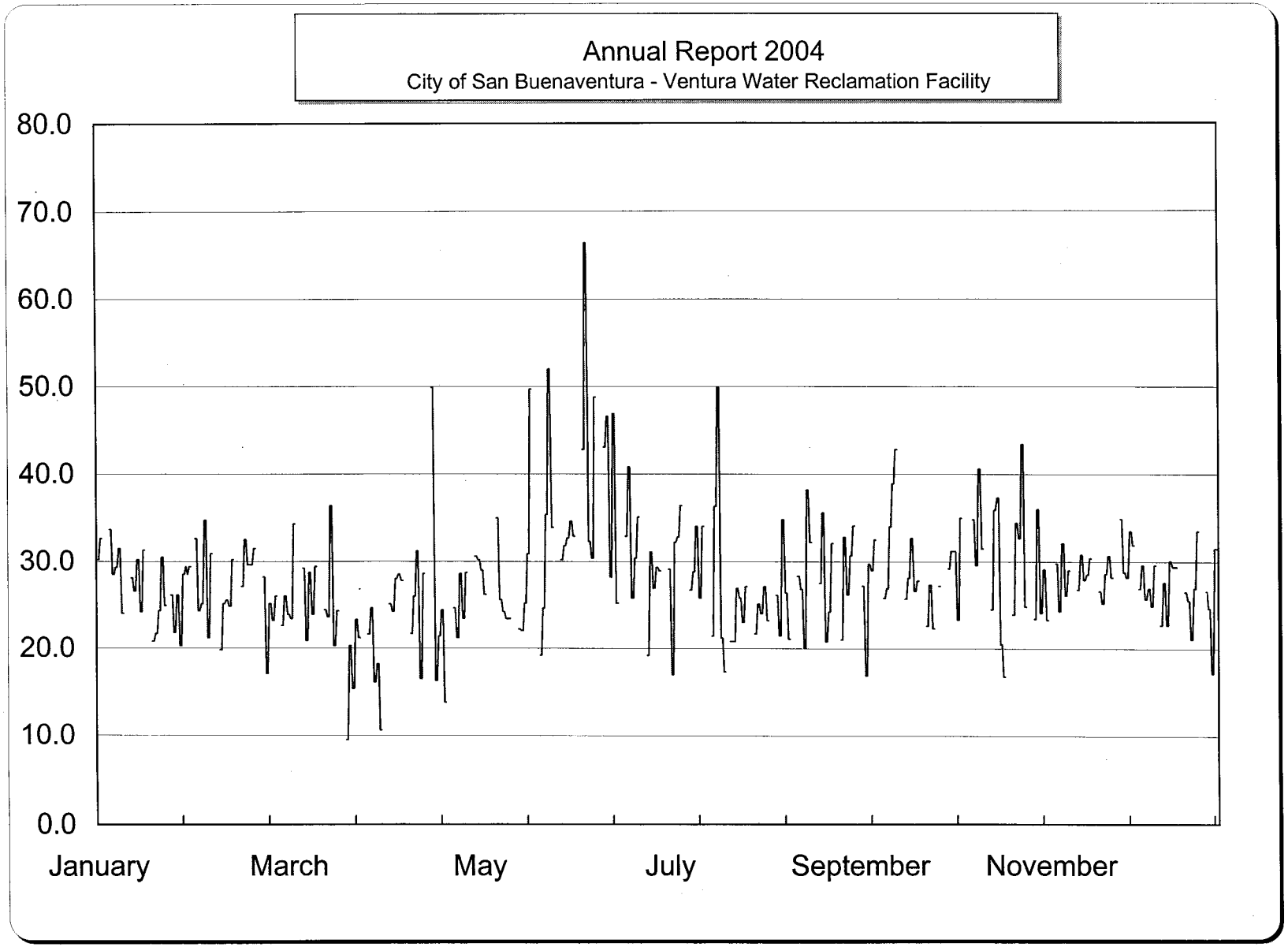
Effluent 7 Day Average BOD Mass Emission Rate - lbs/Day



Effluent Transfer Station

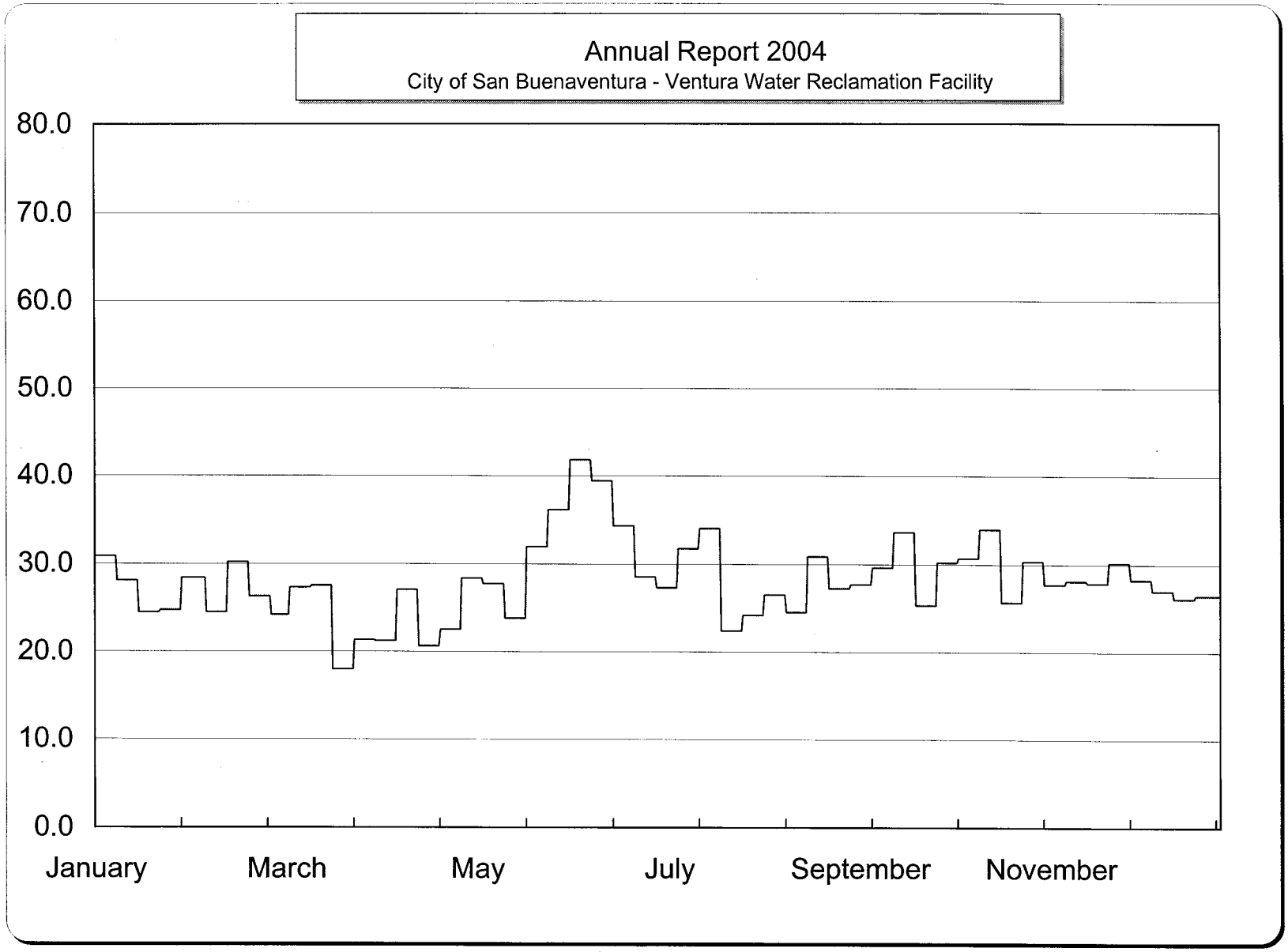
Bimonthly Period

Effluent 30 Day Average BOD Mass Emission Rate - lbs/Day



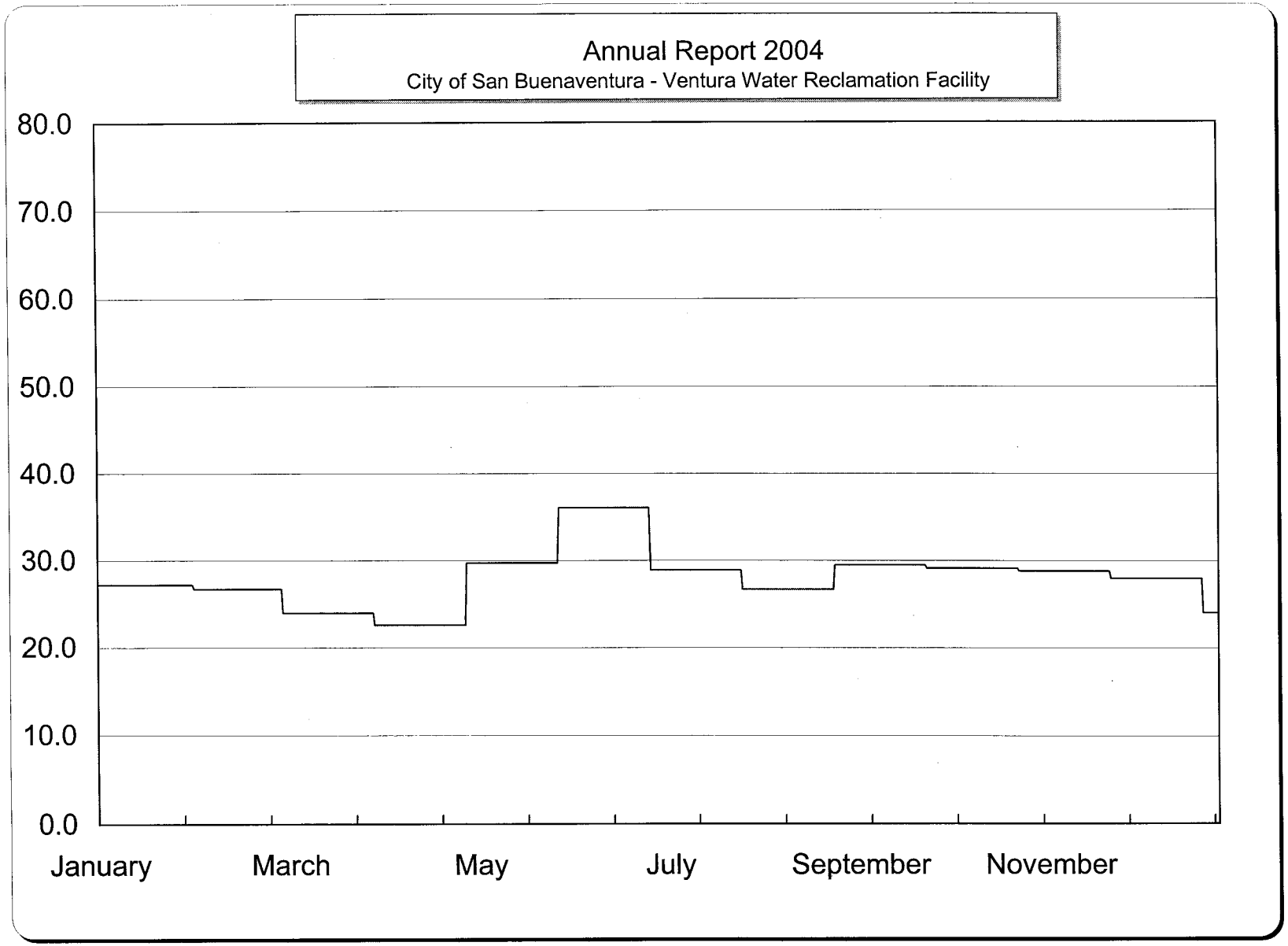
Bimonthly Period

Effluent Transfer Station
Effluent COD - mg/L



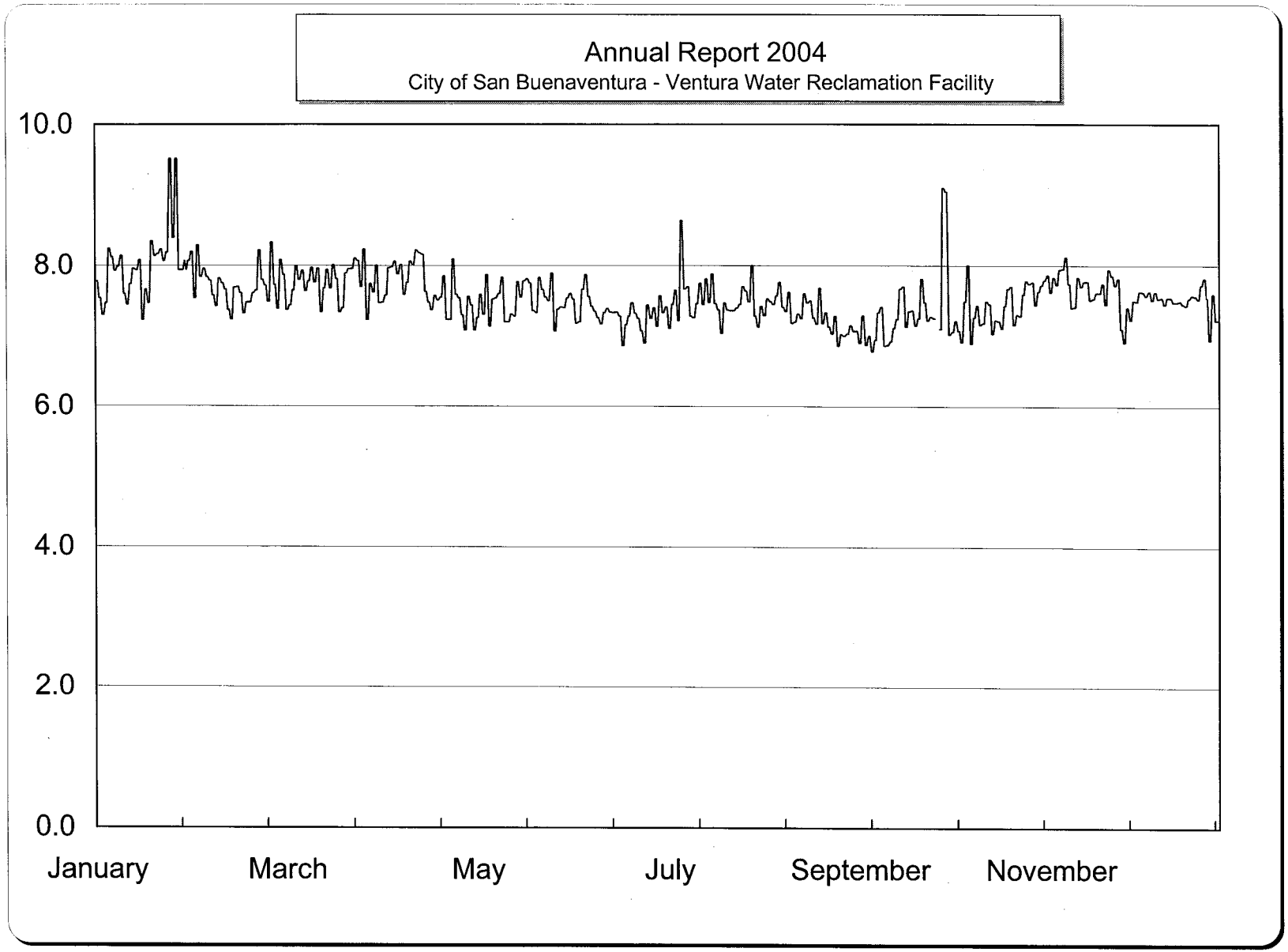
Effluent Transfer Station
Effluent 7 Day Average COD - mg/L

Bimonthly Period



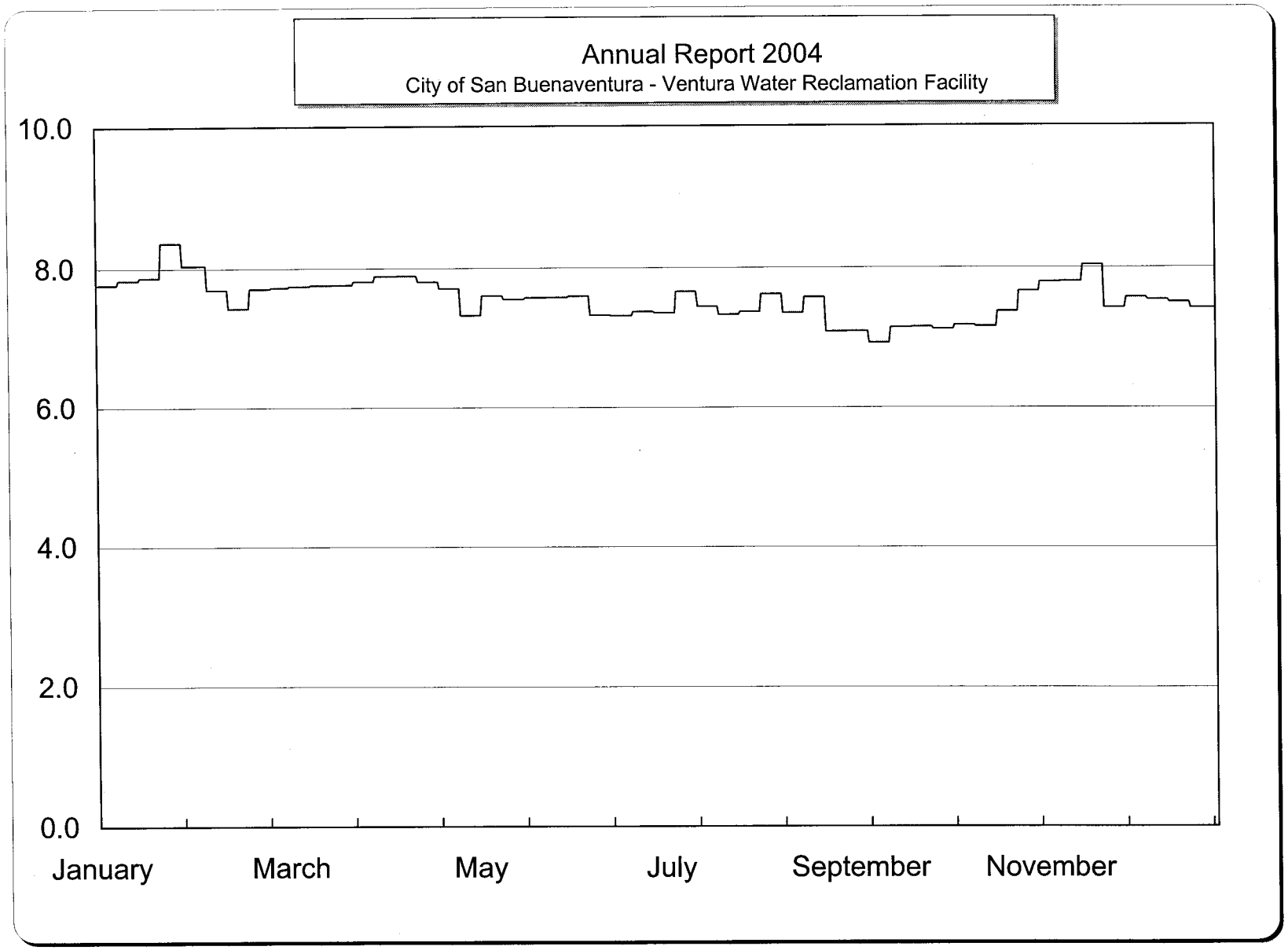
Effluent Transfer Station
Effluent 30 Day Average COD - mg/L

Bimonthly Period



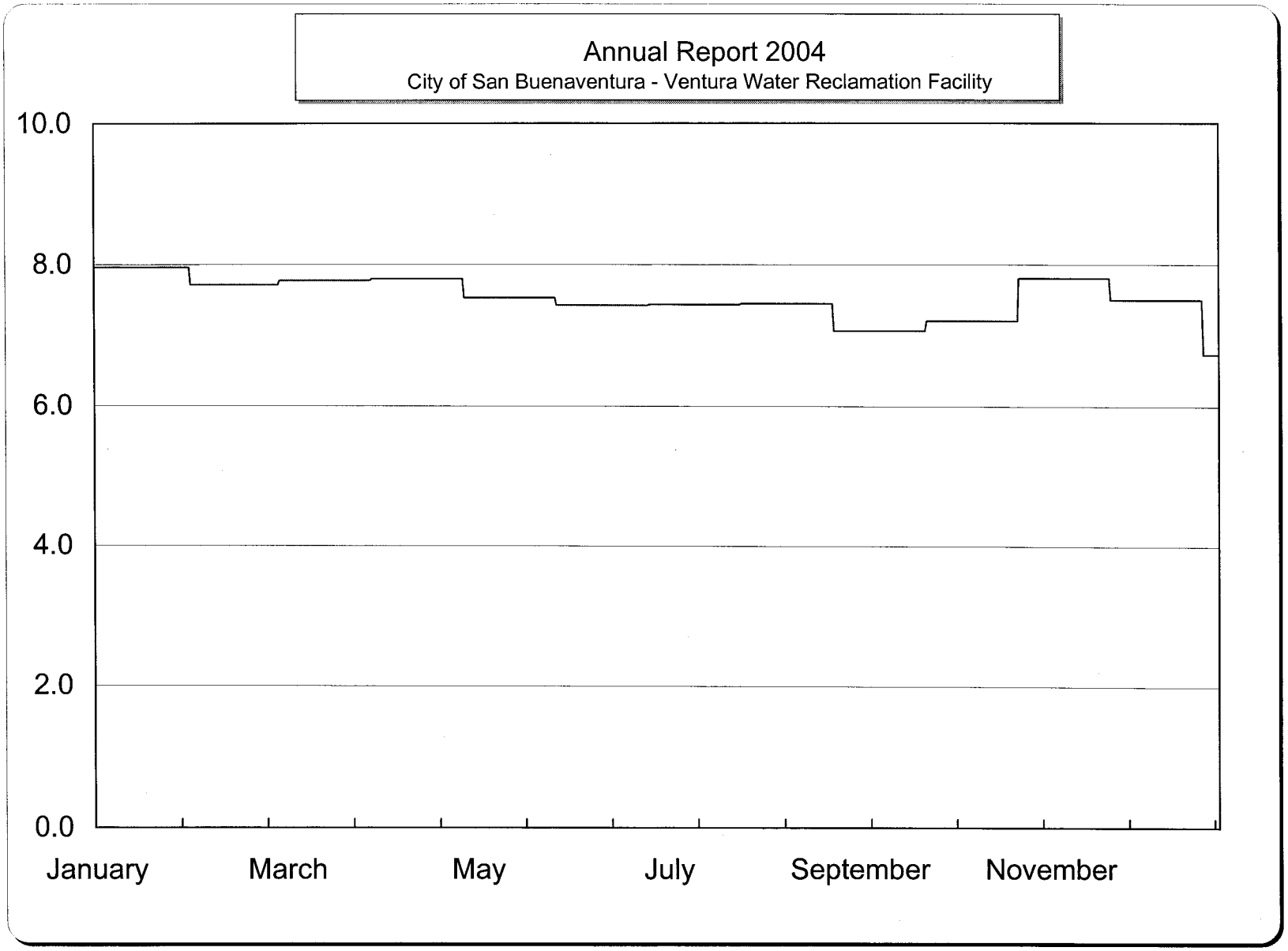
Effluent Transfer Station
Effluent Dissolved Oxygen - mg/L

Bimonthly Period



Effluent Transfer Station
Effluent 7 Day Average Dissolved Oxygen - mg/L

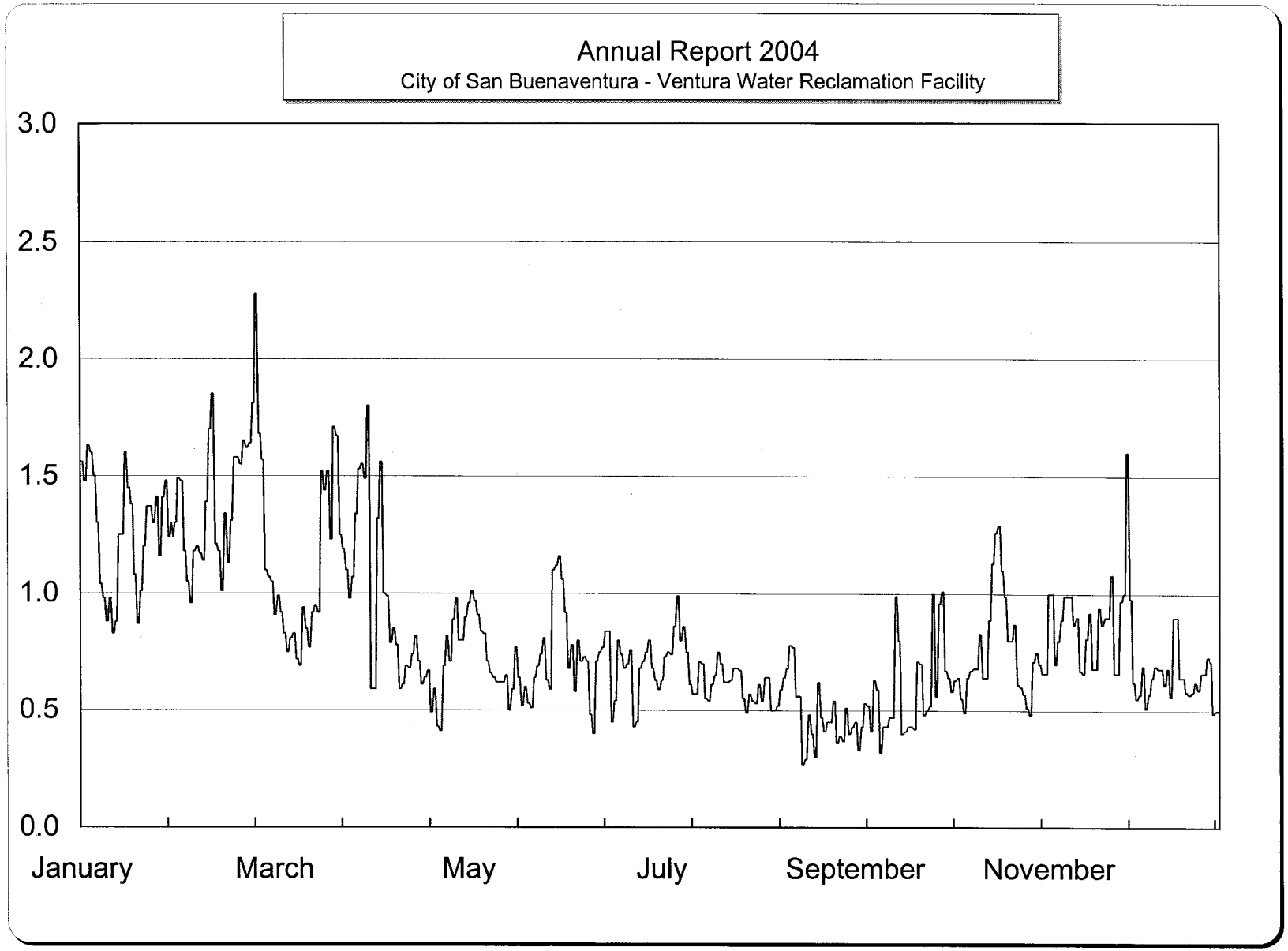
Bimonthly Period



Effluent Transfer Station

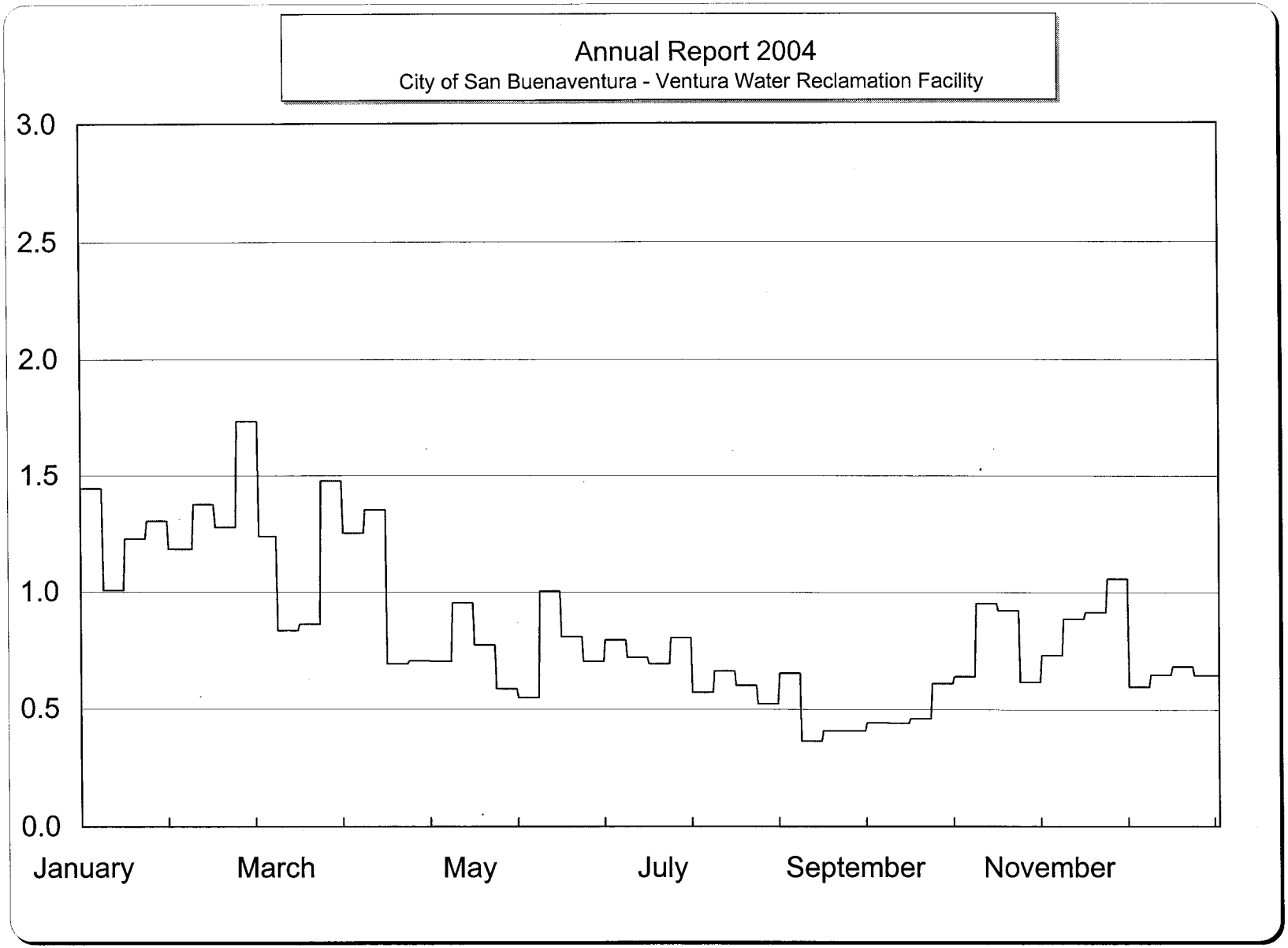
Bimonthly Period

Effluent 30 Day Average Dissolved Oxygen - mg/L



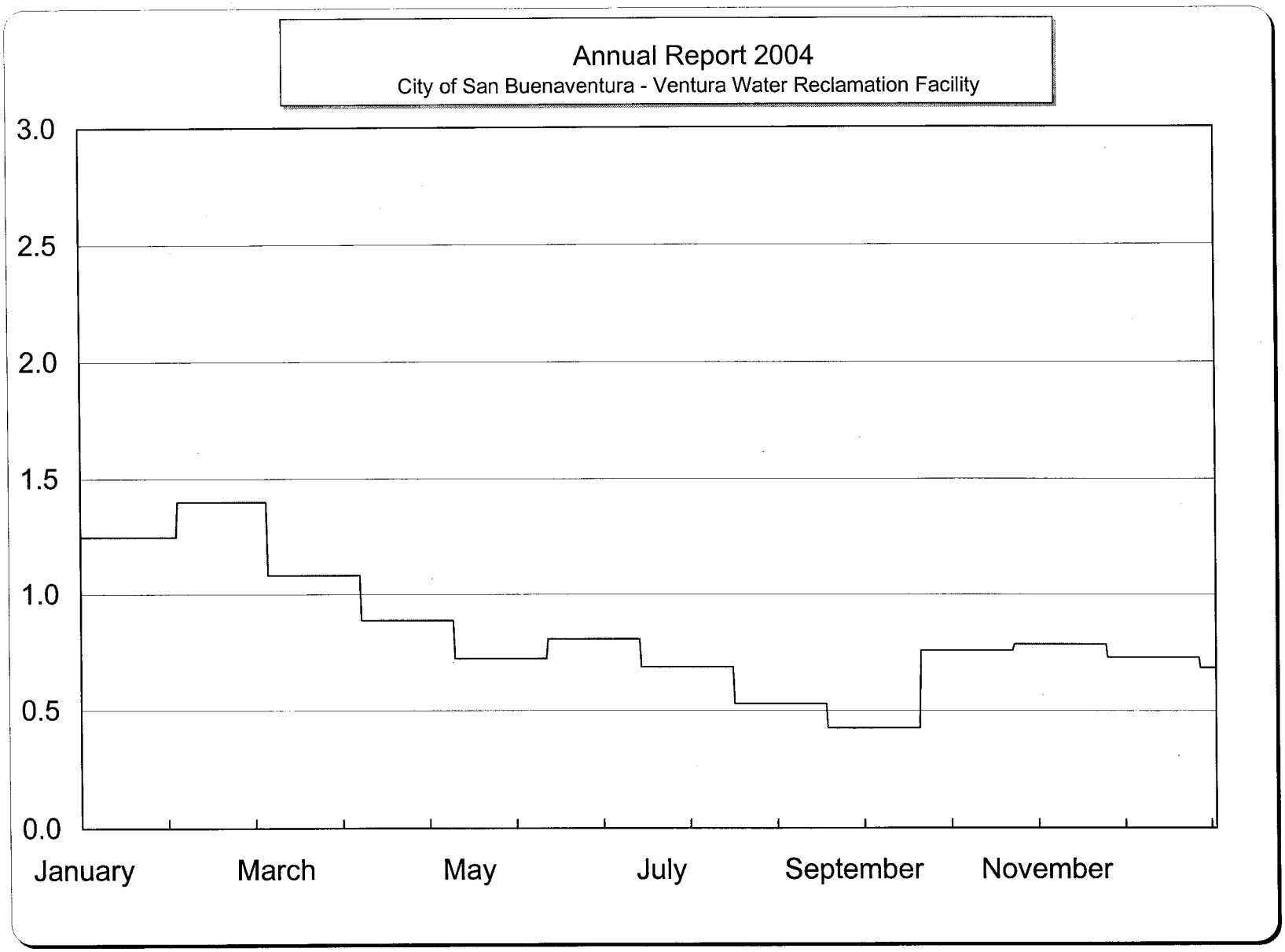
Bimonthly Period

Effluent Transfer Station
Effluent Turbidity - NTU



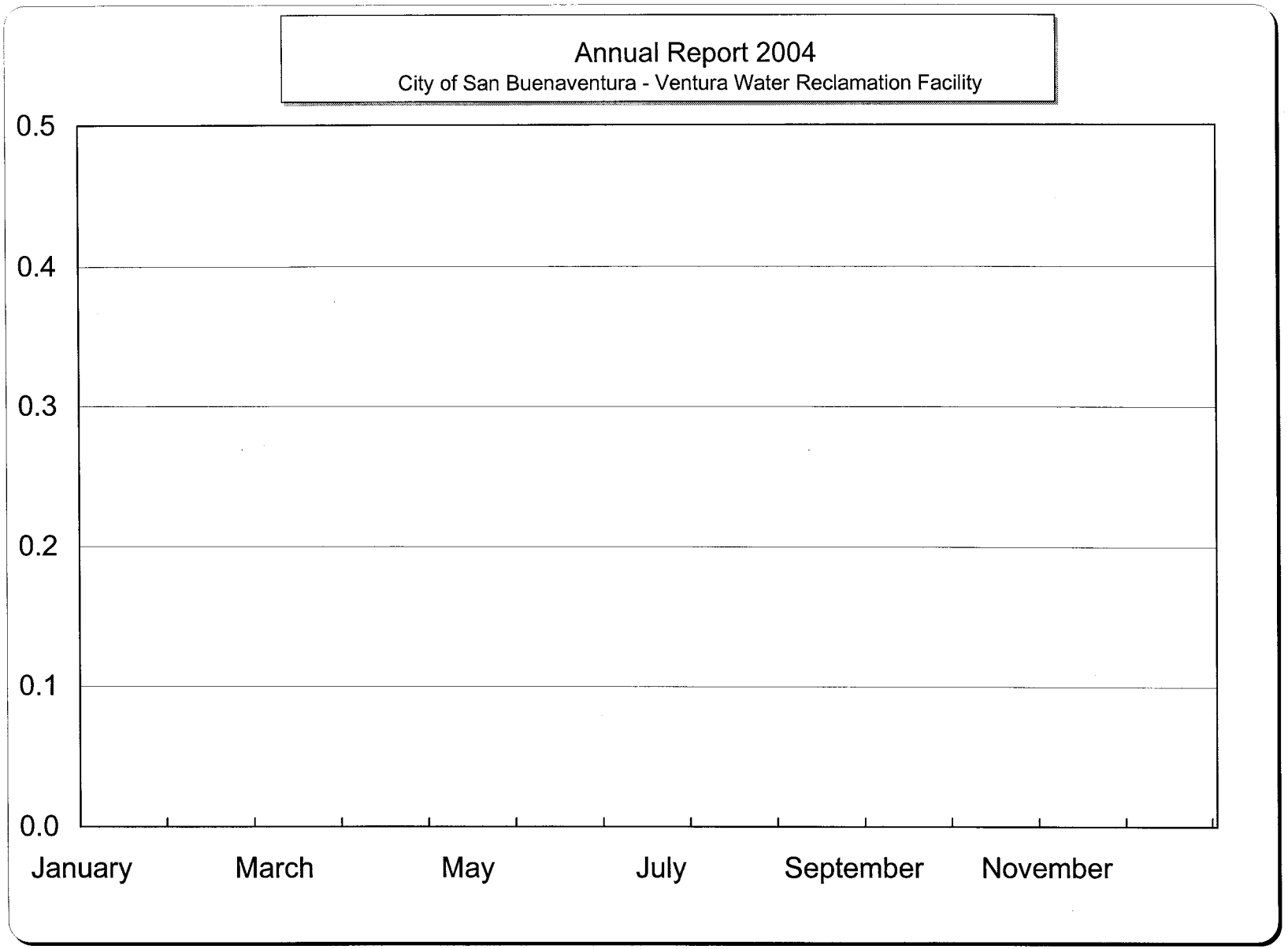
Effluent Transfer Station
Effluent 7 Day Average Turbidity - NTU

Bimonthly Period



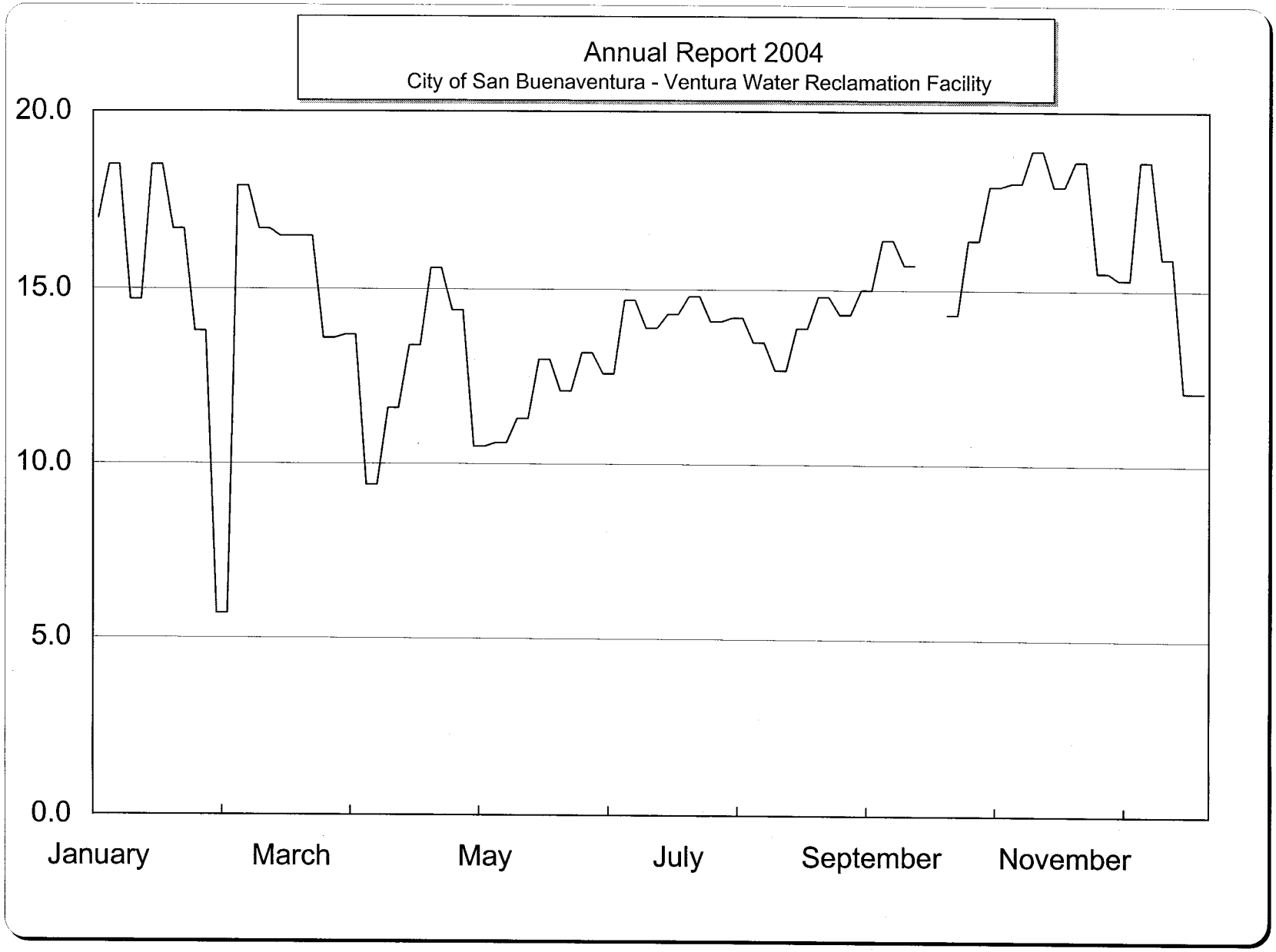
Effluent Transfer Station
Effluent 30 Day Average Turbidity - NTU

Bimonthly Period



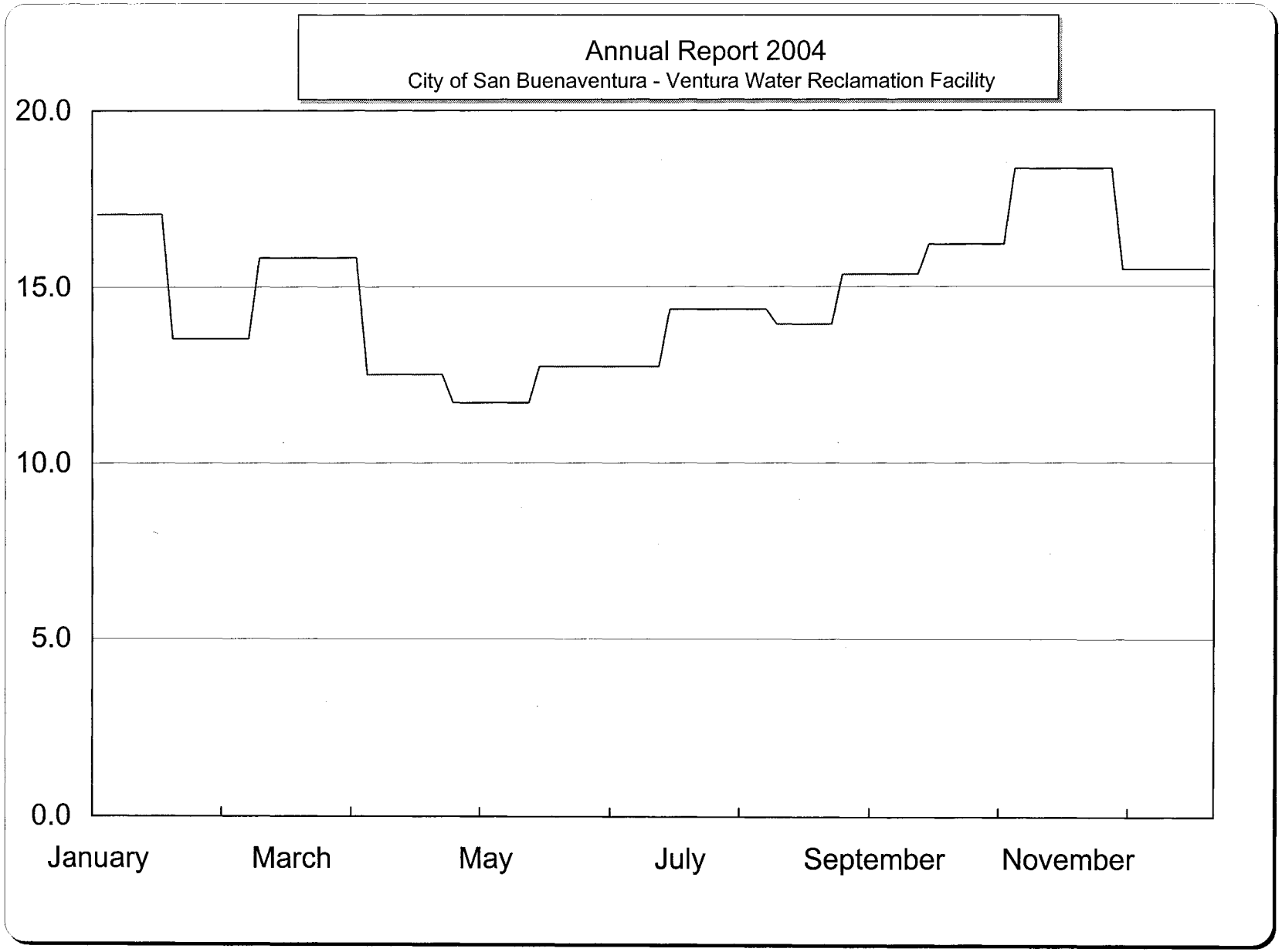
Effluent Transfer Station
Effluent Turbidity Exceeding 5 NTU - %

Bimonthly Period



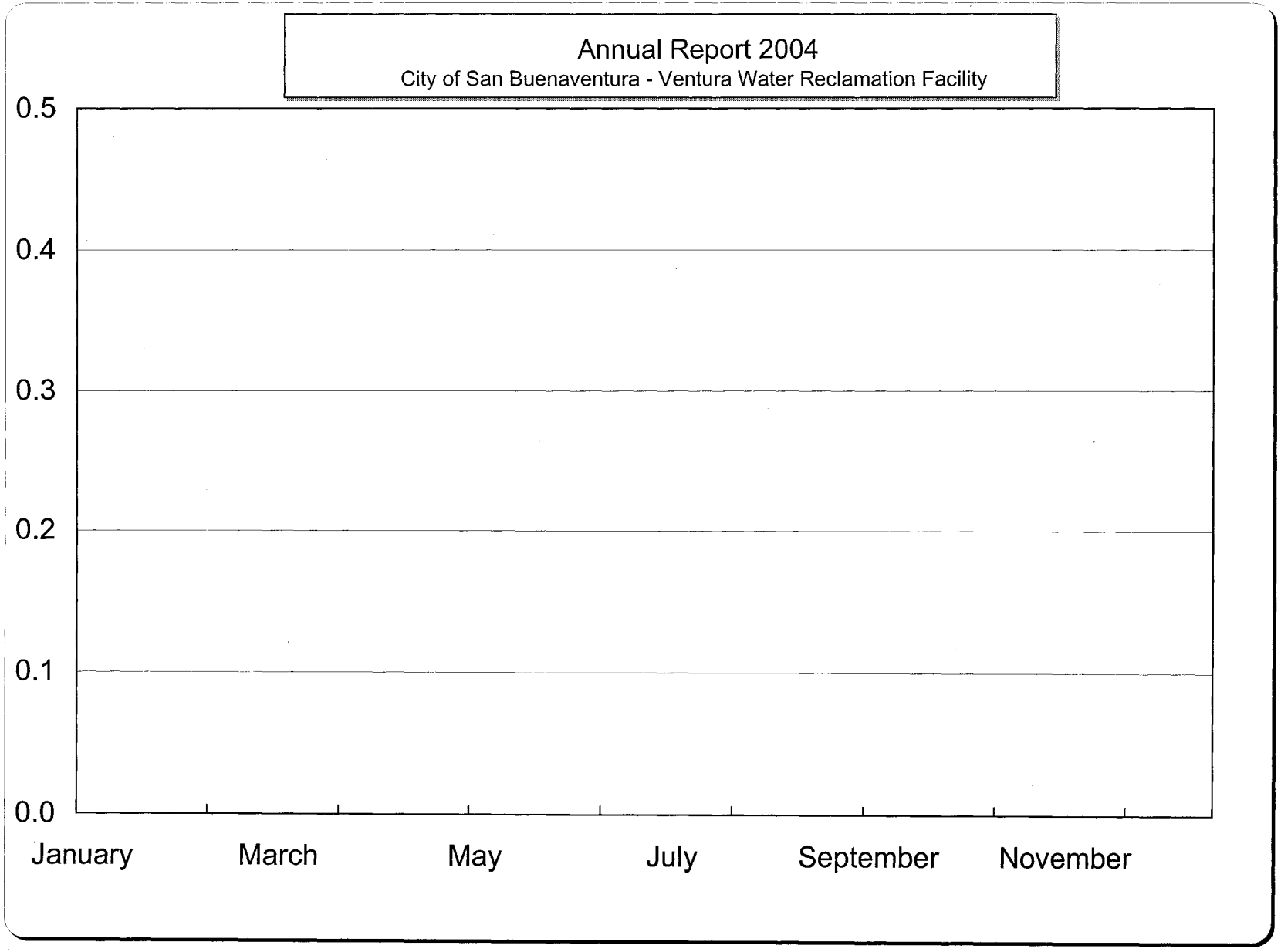
Effluent Transfer Station
Effluent Weekly Nitrate-N - mg/L

Bimonthly Period



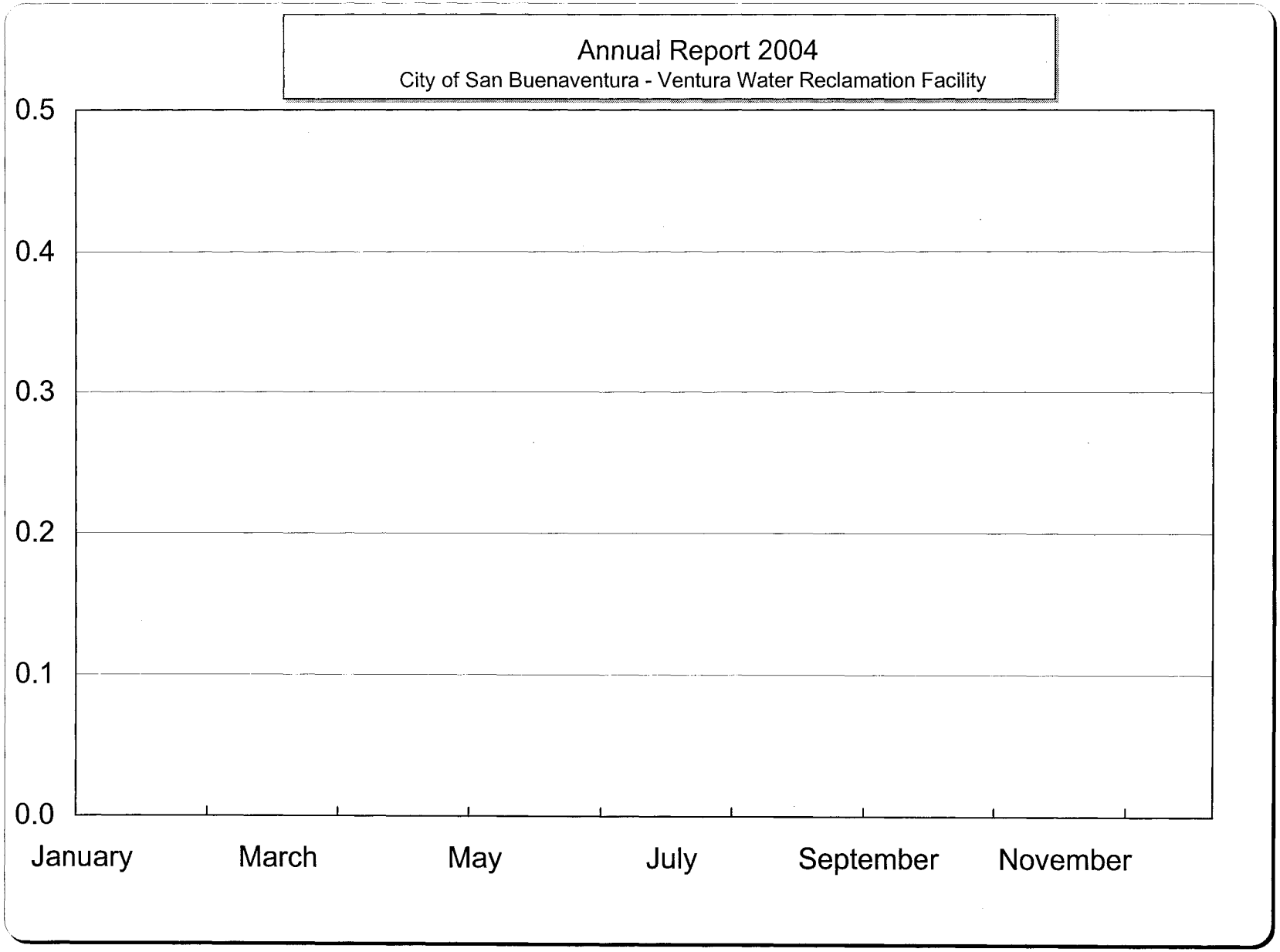
Effluent Transfer Station
Effluent 30 Day Average Nitrate-N - mg/L

Bimonthly Period



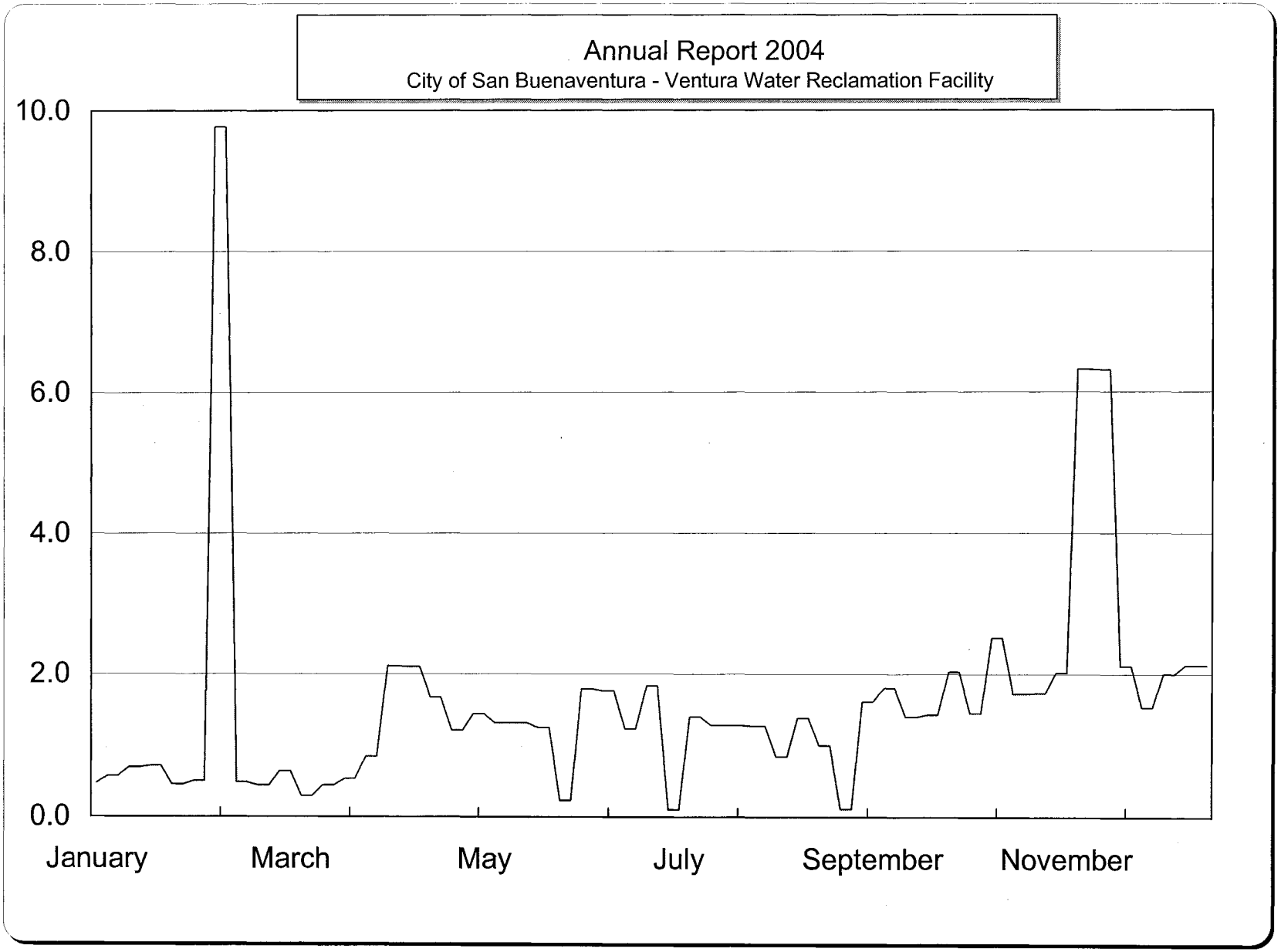
Effluent Transfer Station
Effluent Weekly Nitrite-N - mg/L

Bimonthly Period



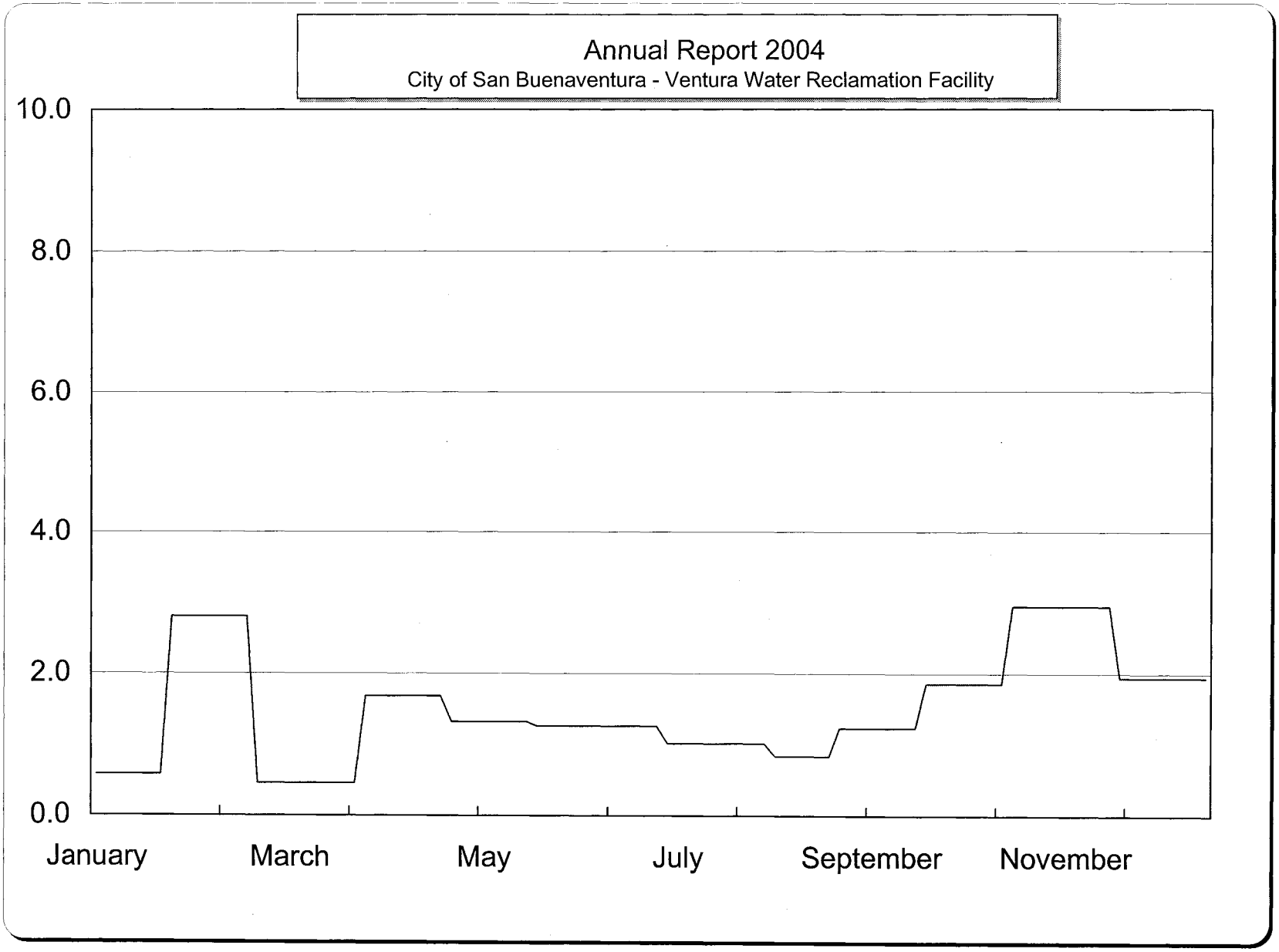
Effluent Transfer Station
Effluent 30 Day Average Nitrite-N - mg/L

Bimonthly Period



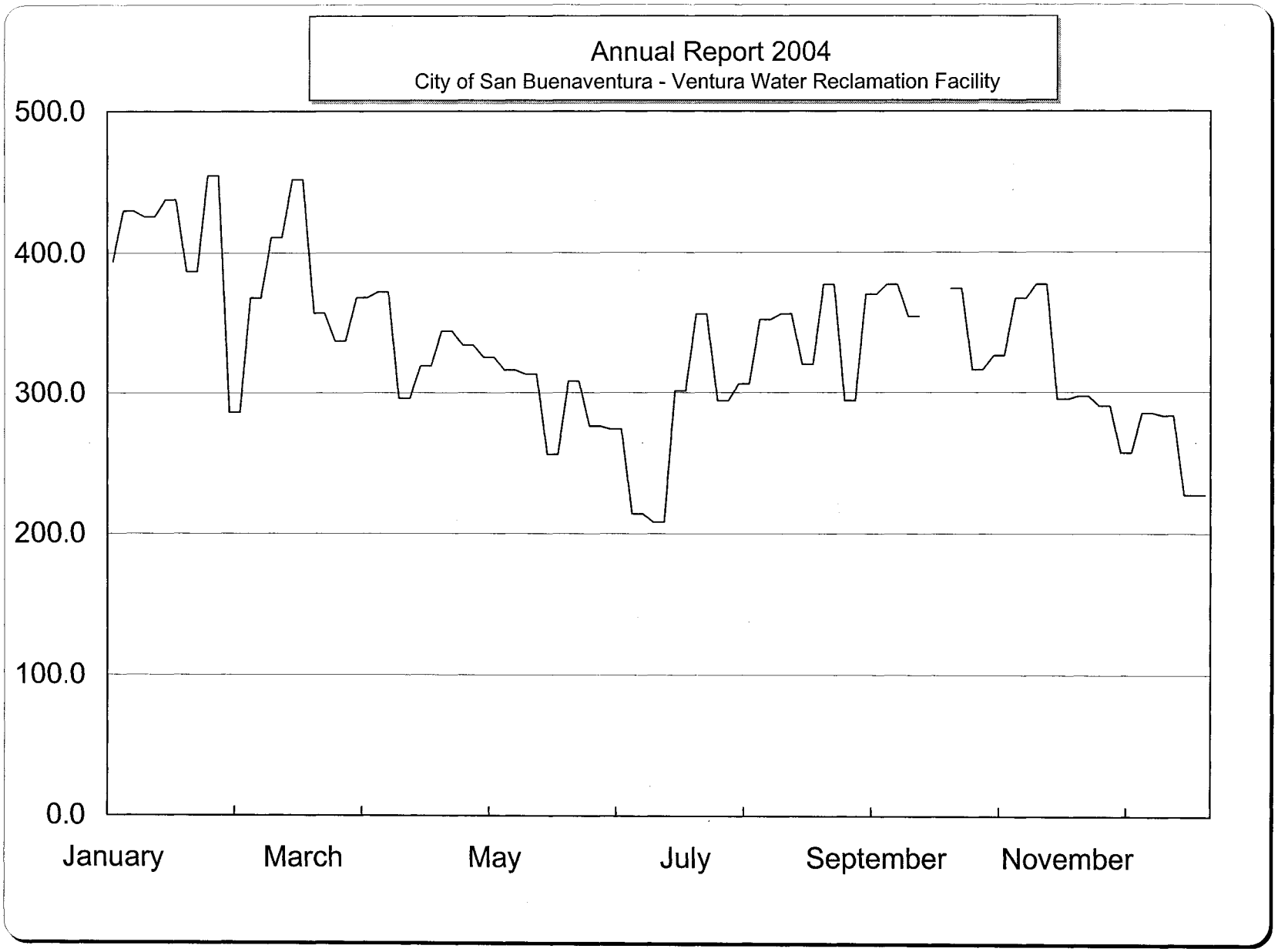
Effluent Transfer Station
Effluent Weekly Ammonia-N - mg/L

Bimonthly Period



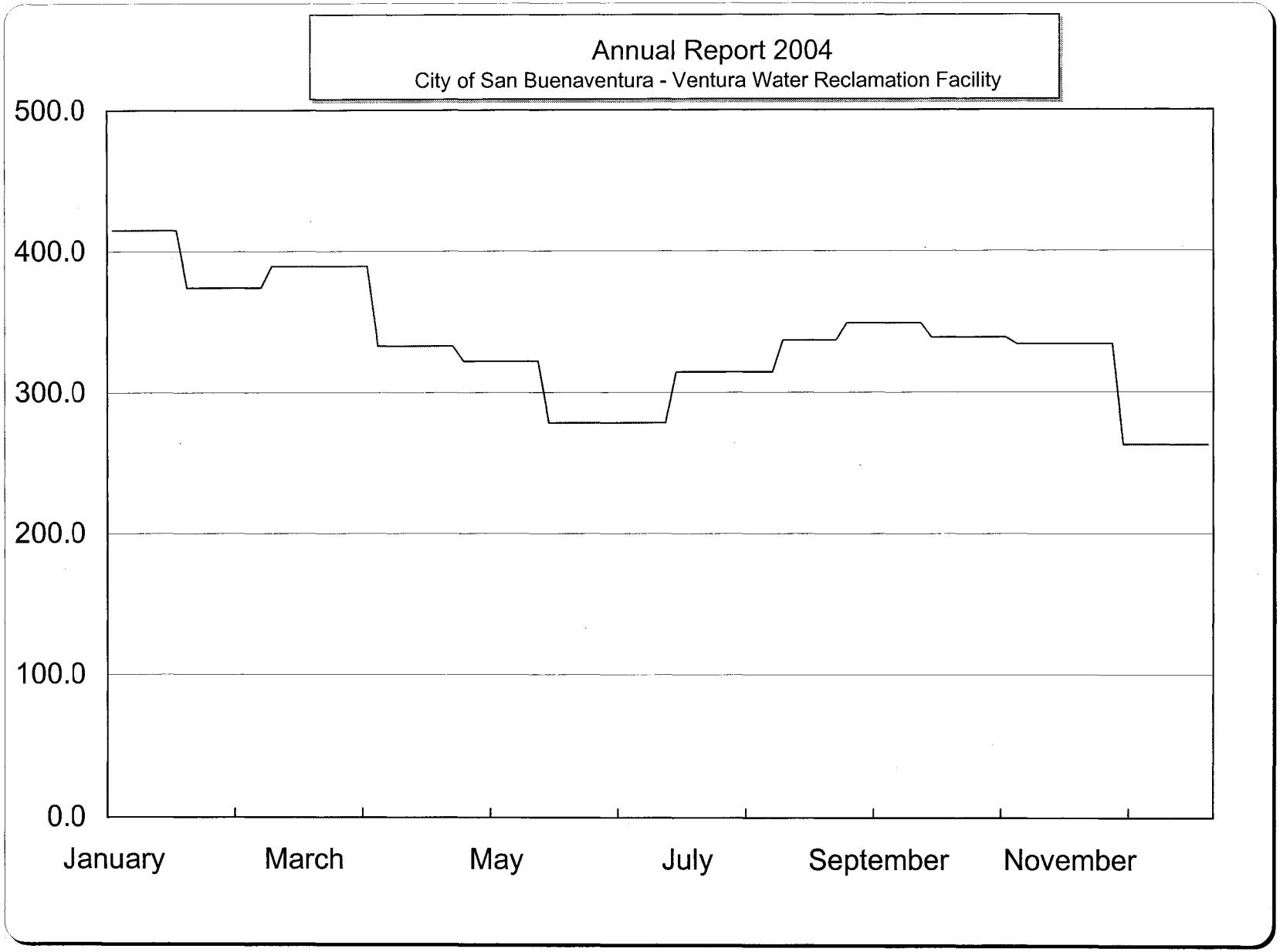
Effluent Transfer Station
Effluent 30 Day Average Ammonia-N - mg/L

Bimonthly Period



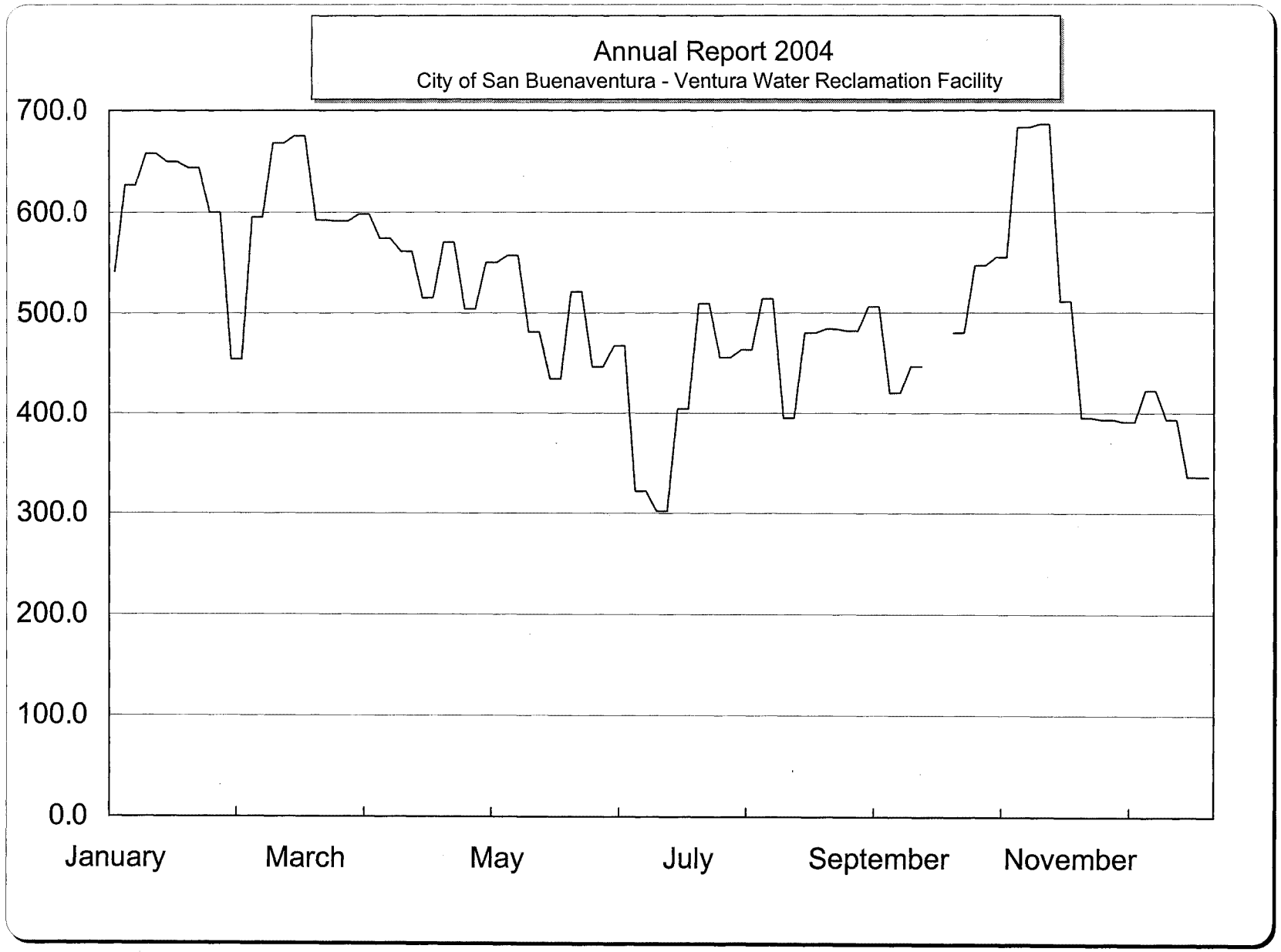
Effluent Transfer Station
Effluent Weekly Chloride - mg/L

Bimonthly Period



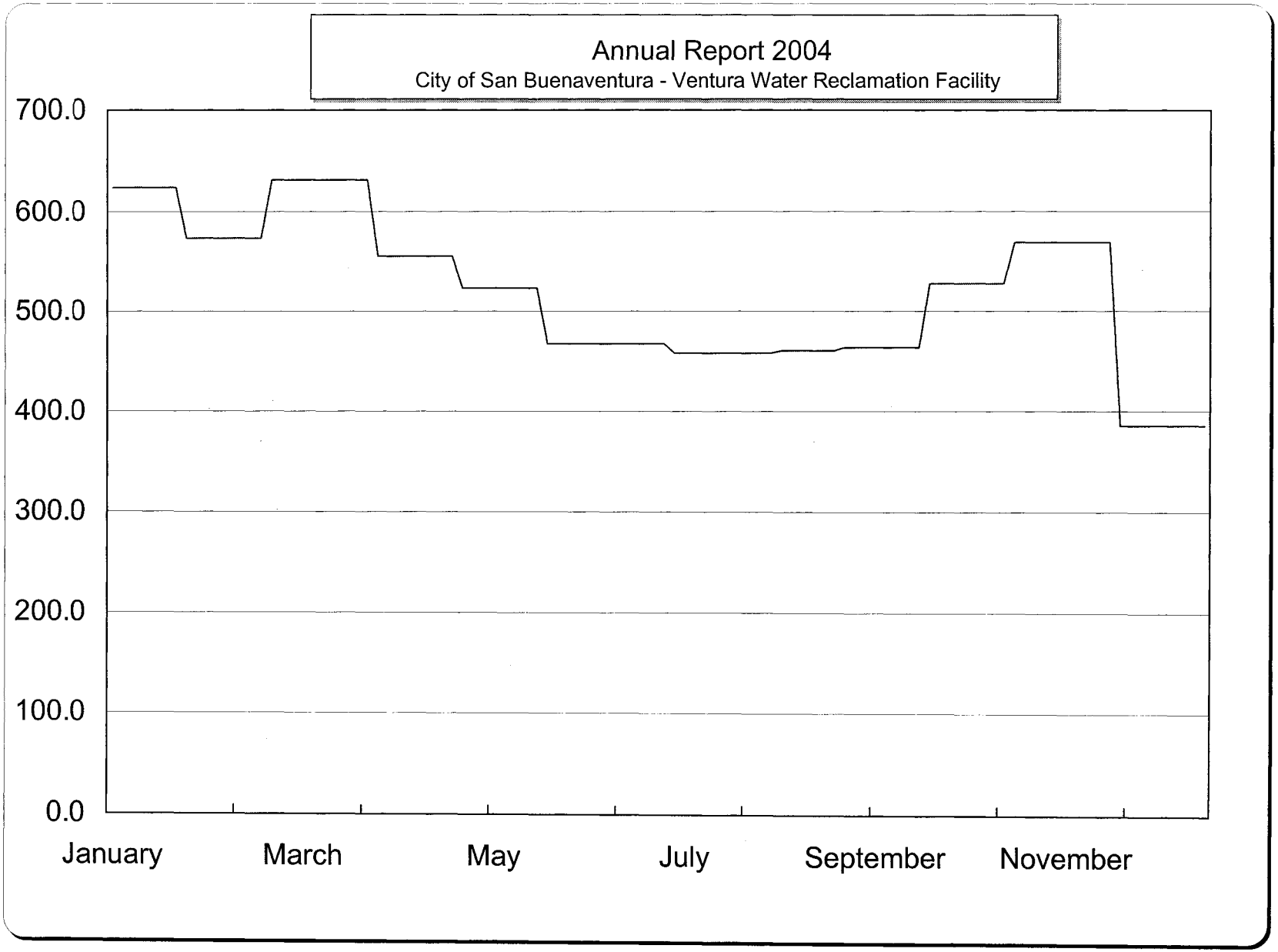
Effluent Transfer Station
Effluent 30 Day Average Chloride - mg/L

Bimonthly Period



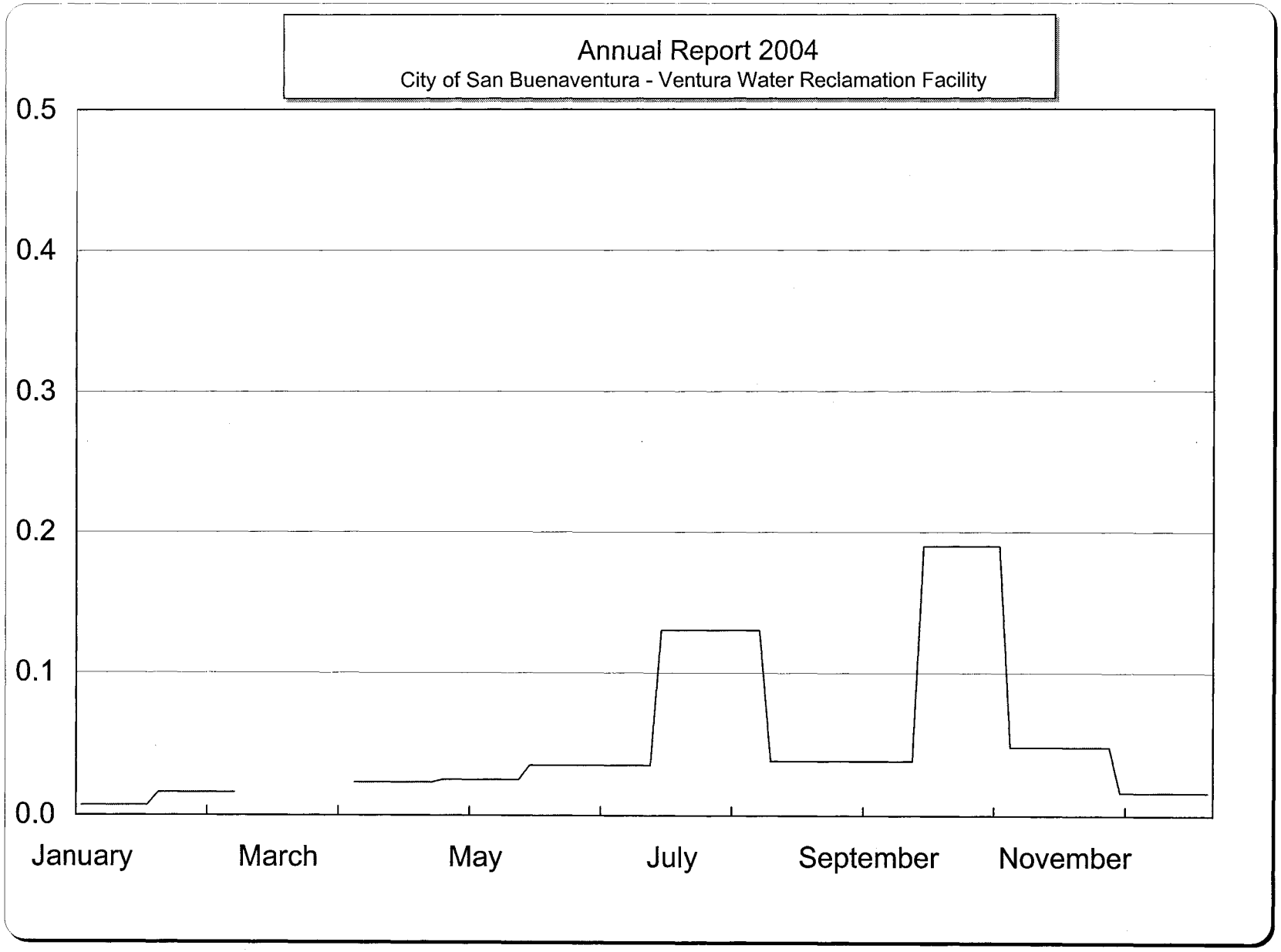
Effluent Transfer Station
Effluent Weekly Sulfate - mg/L

Bimonthly Period



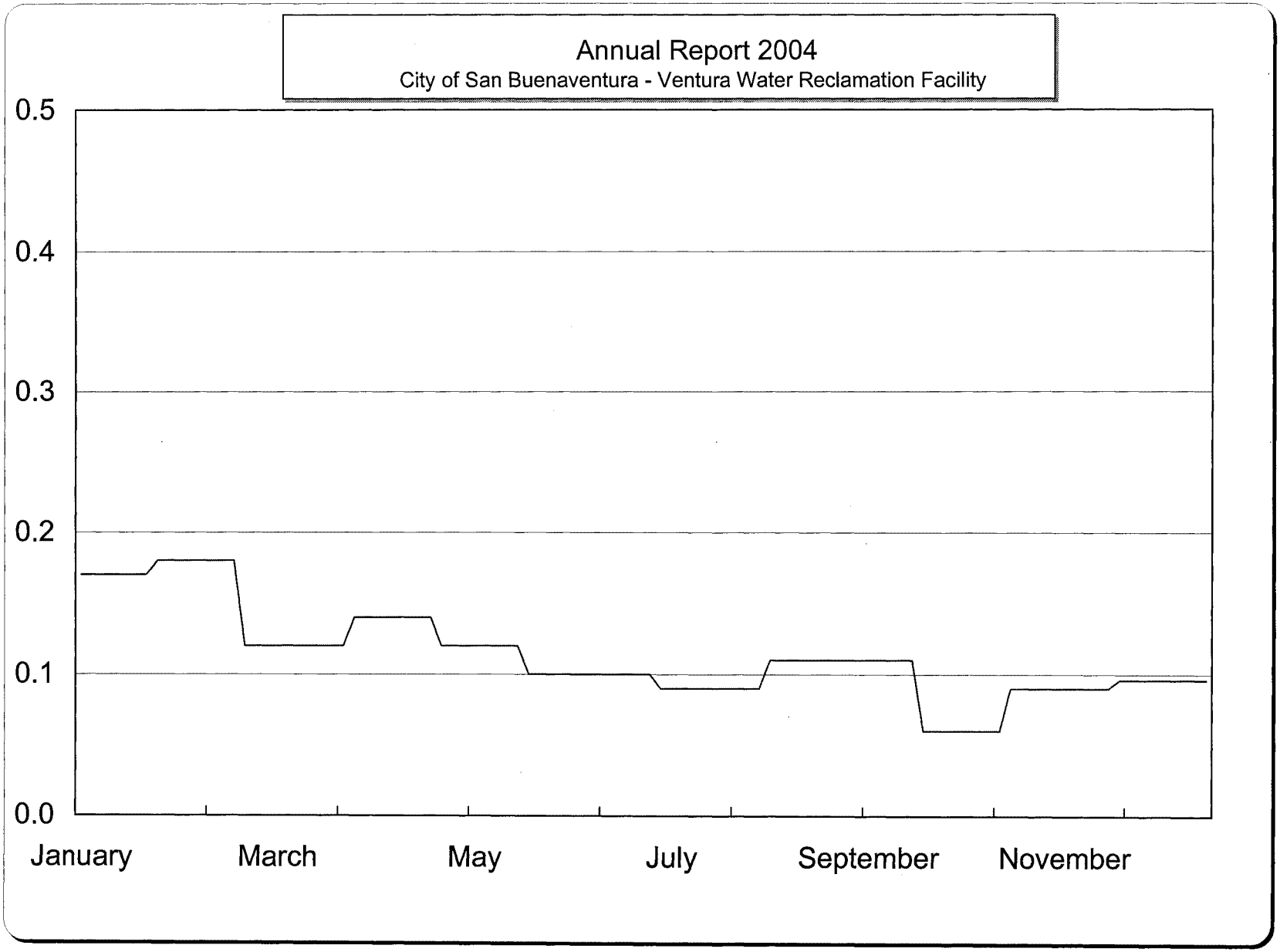
Effluent Transfer Station
Effluent 30 Day Average Sulfate - mg/L

Bimonthly Period



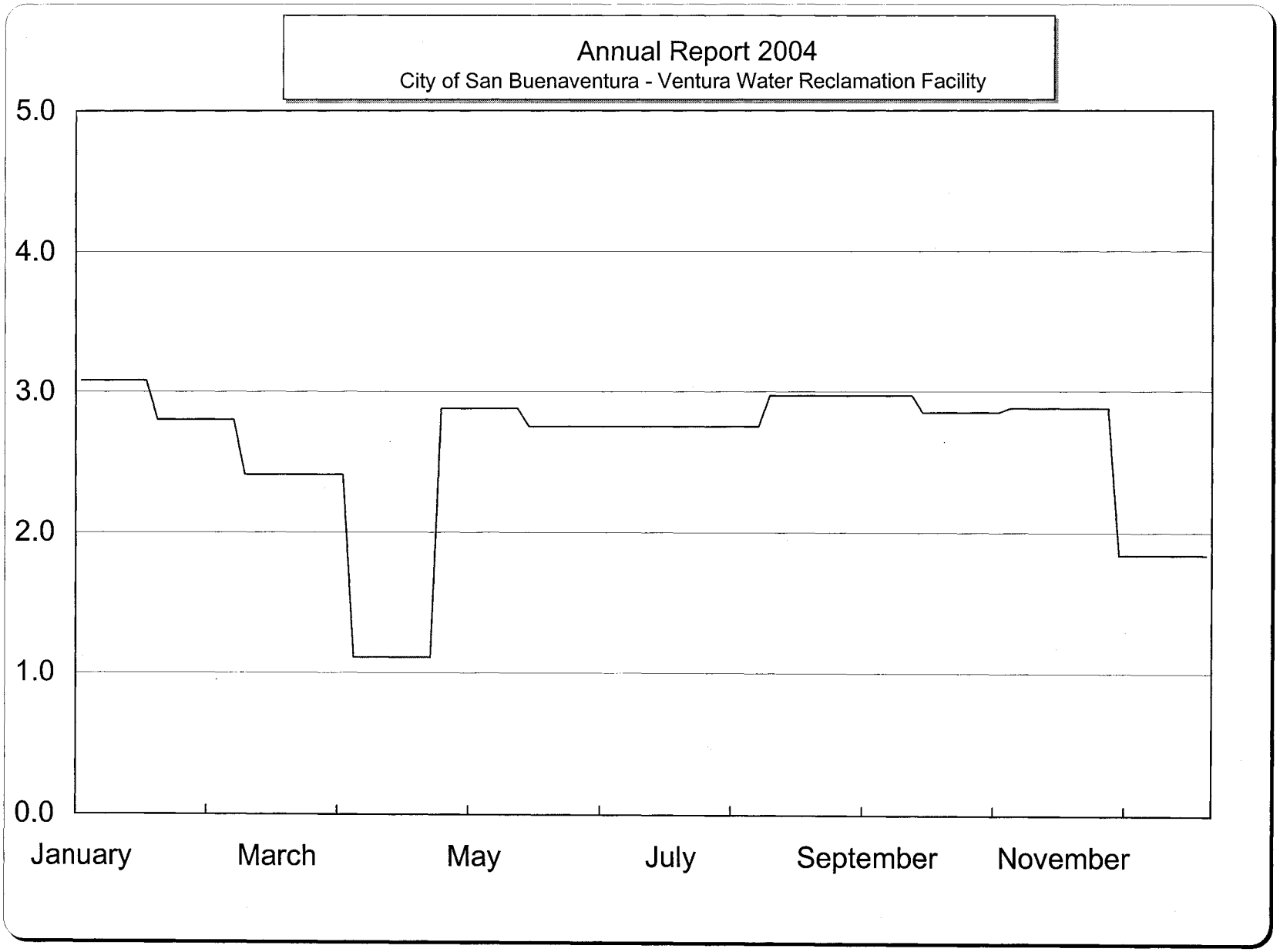
Effluent Transfer Station
Effluent Monthly Chlorophyll A - mg/L

Bimonthly Period



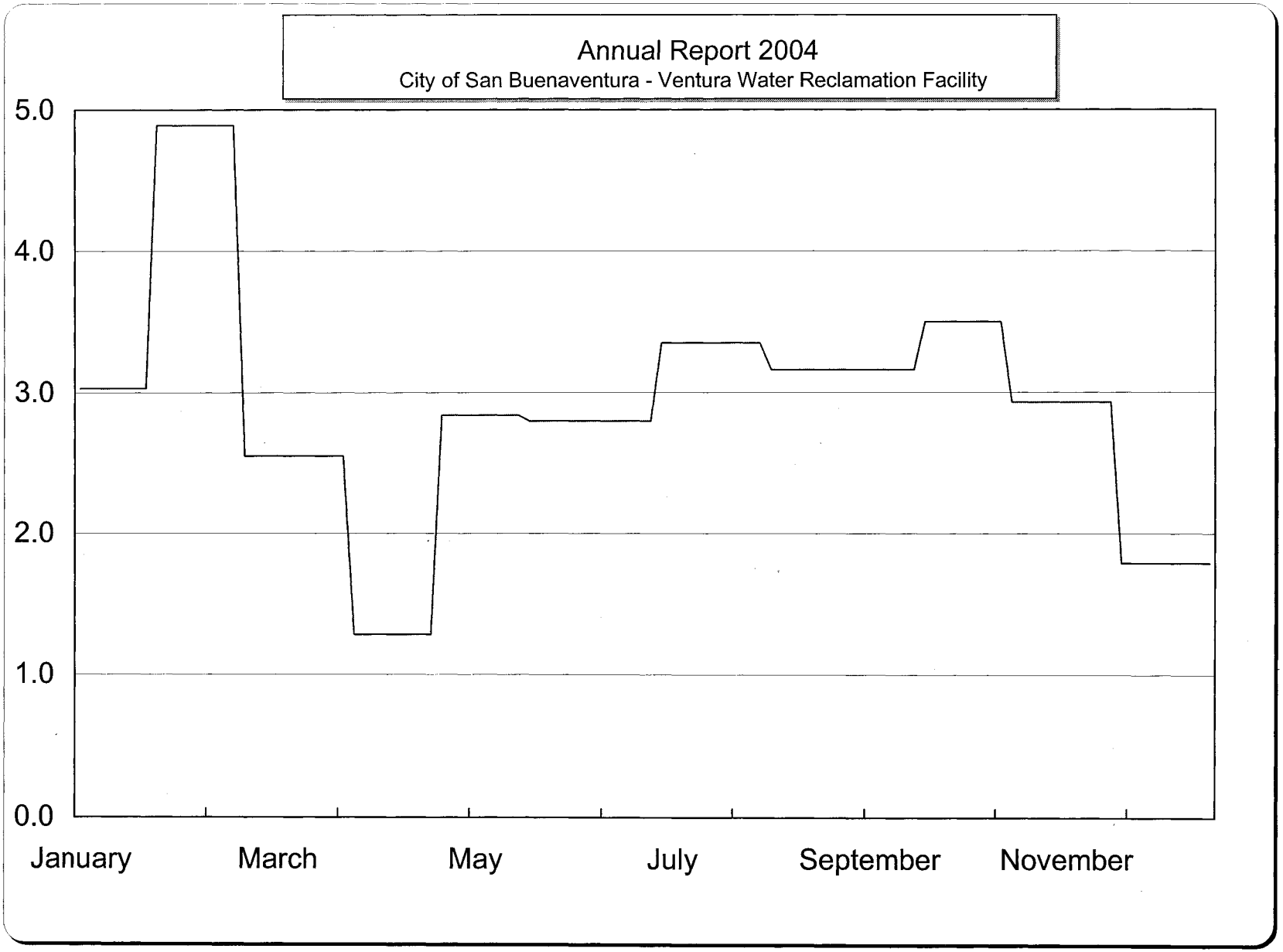
Effluent Transfer Station
Effluent Monthly MBAS - mg/L

Bimonthly Period



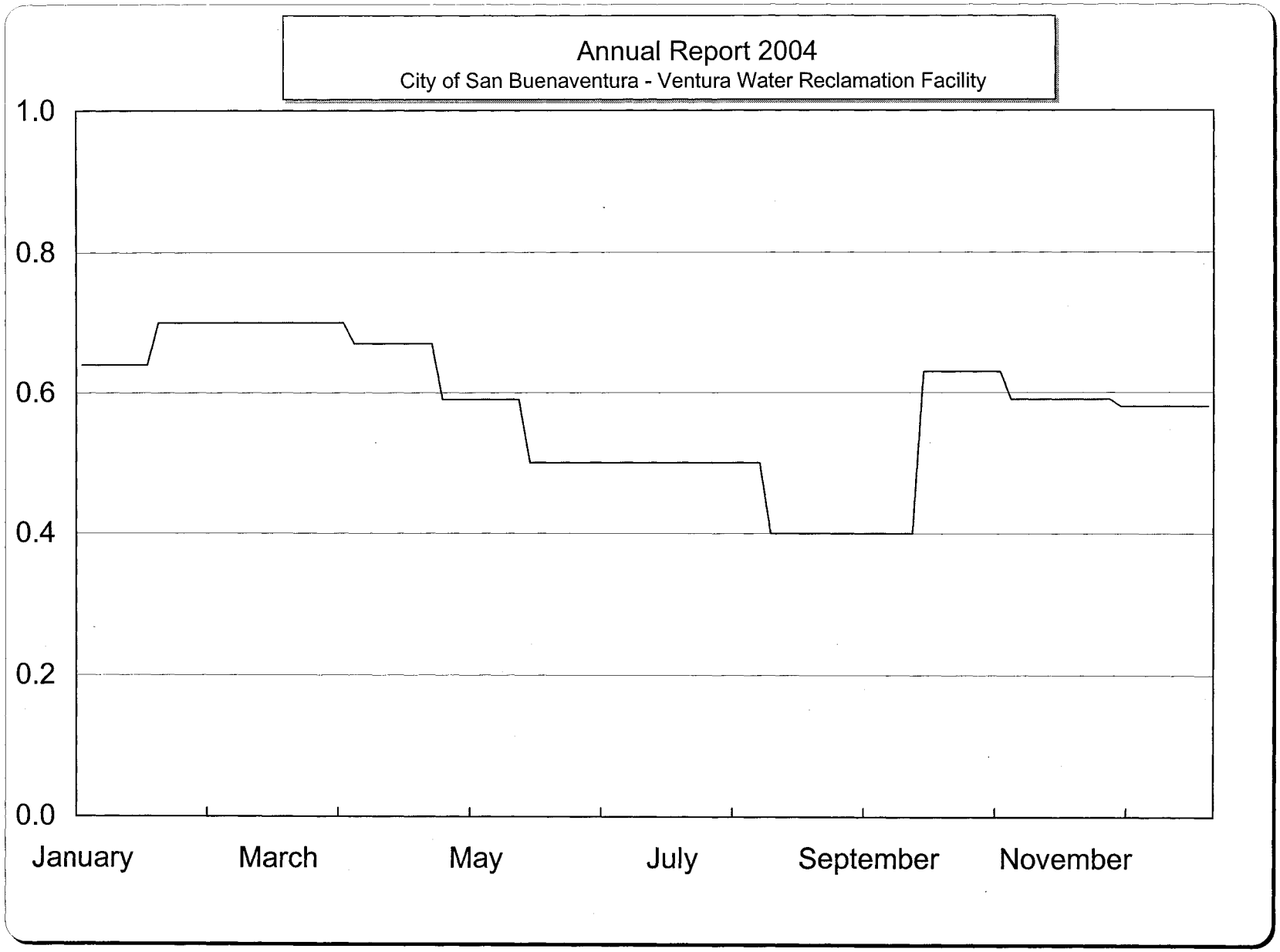
Effluent Transfer Station
Effluent Monthly Phosphate - mg/L

Bimonthly Period



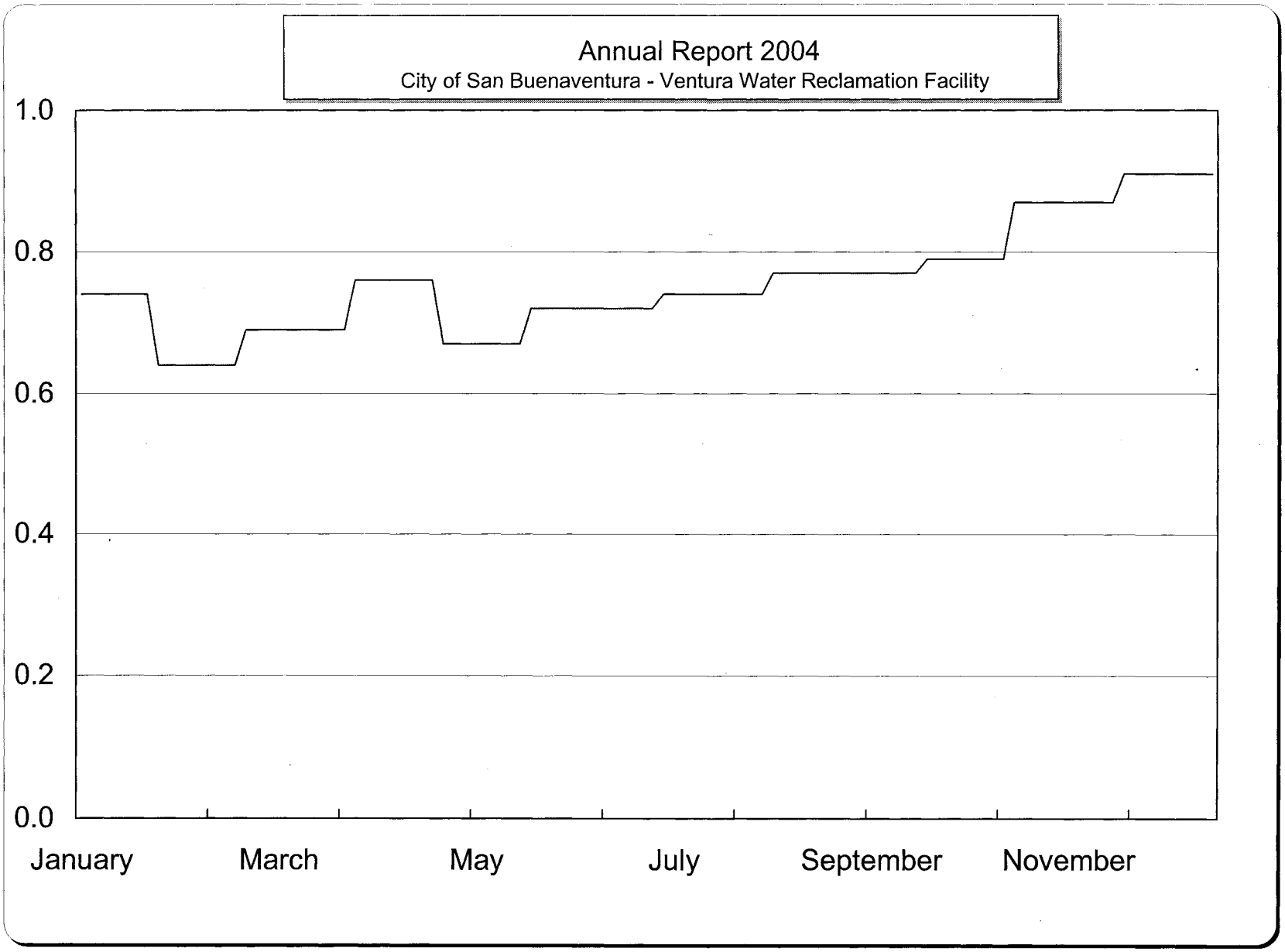
Effluent Transfer Station
Effluent Monthly Total Phosphorus - mg/L

Bimonthly Period



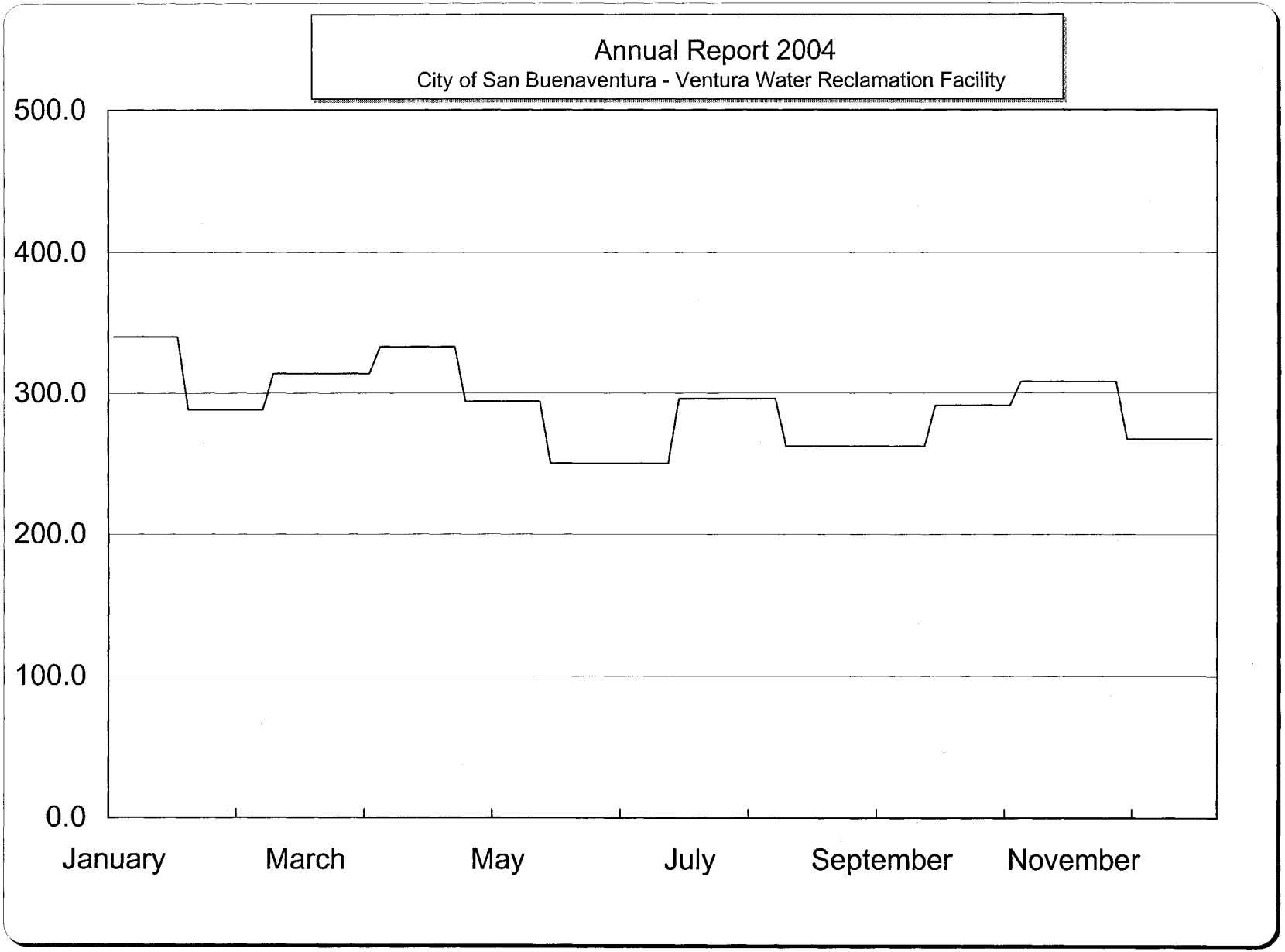
Effluent Transfer Station
Effluent Monthly Flouride - mg/L

Bimonthly Period



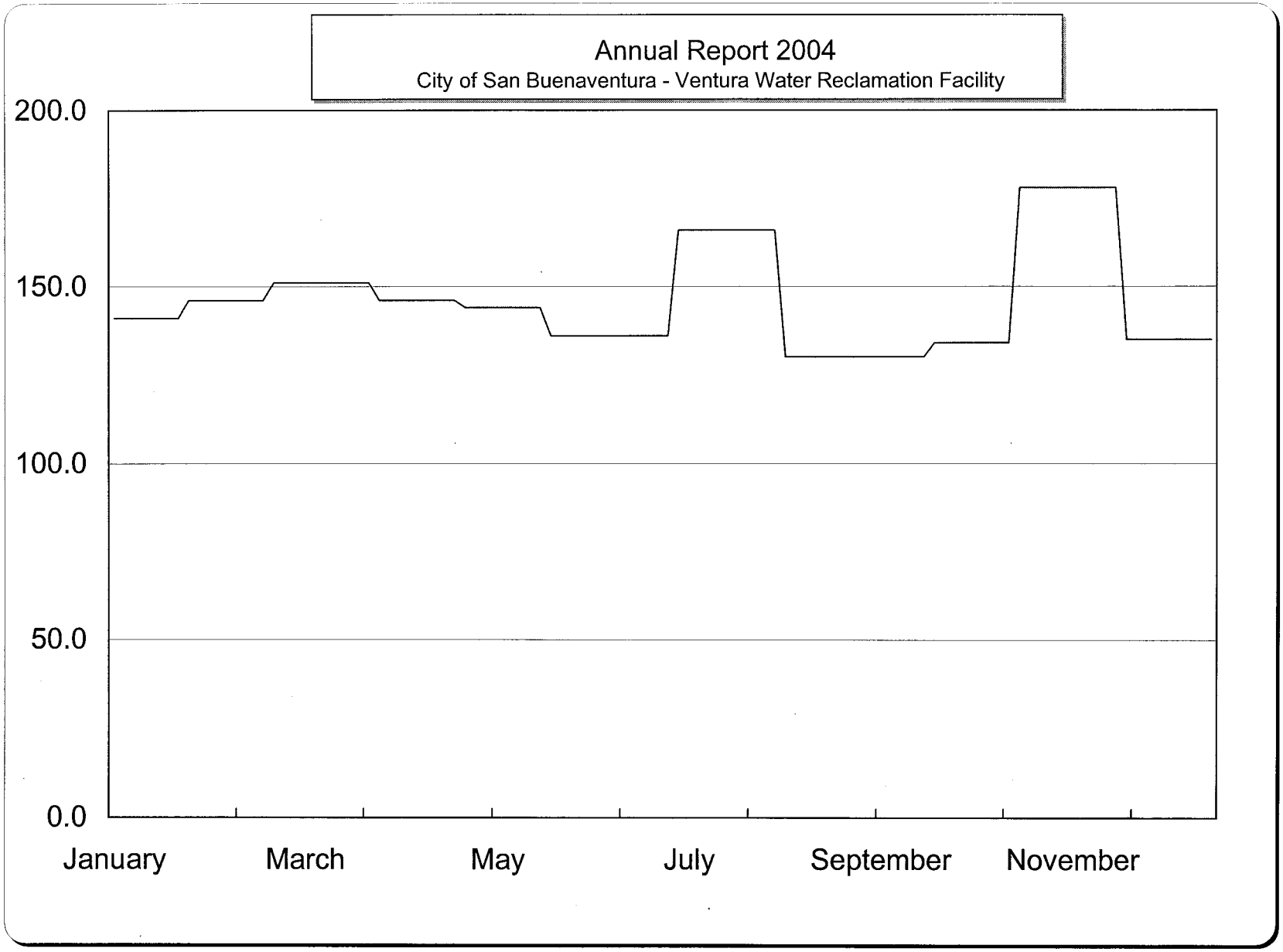
Effluent Transfer Station
Effluent Monthly Boron - mg/L

Bimonthly Period



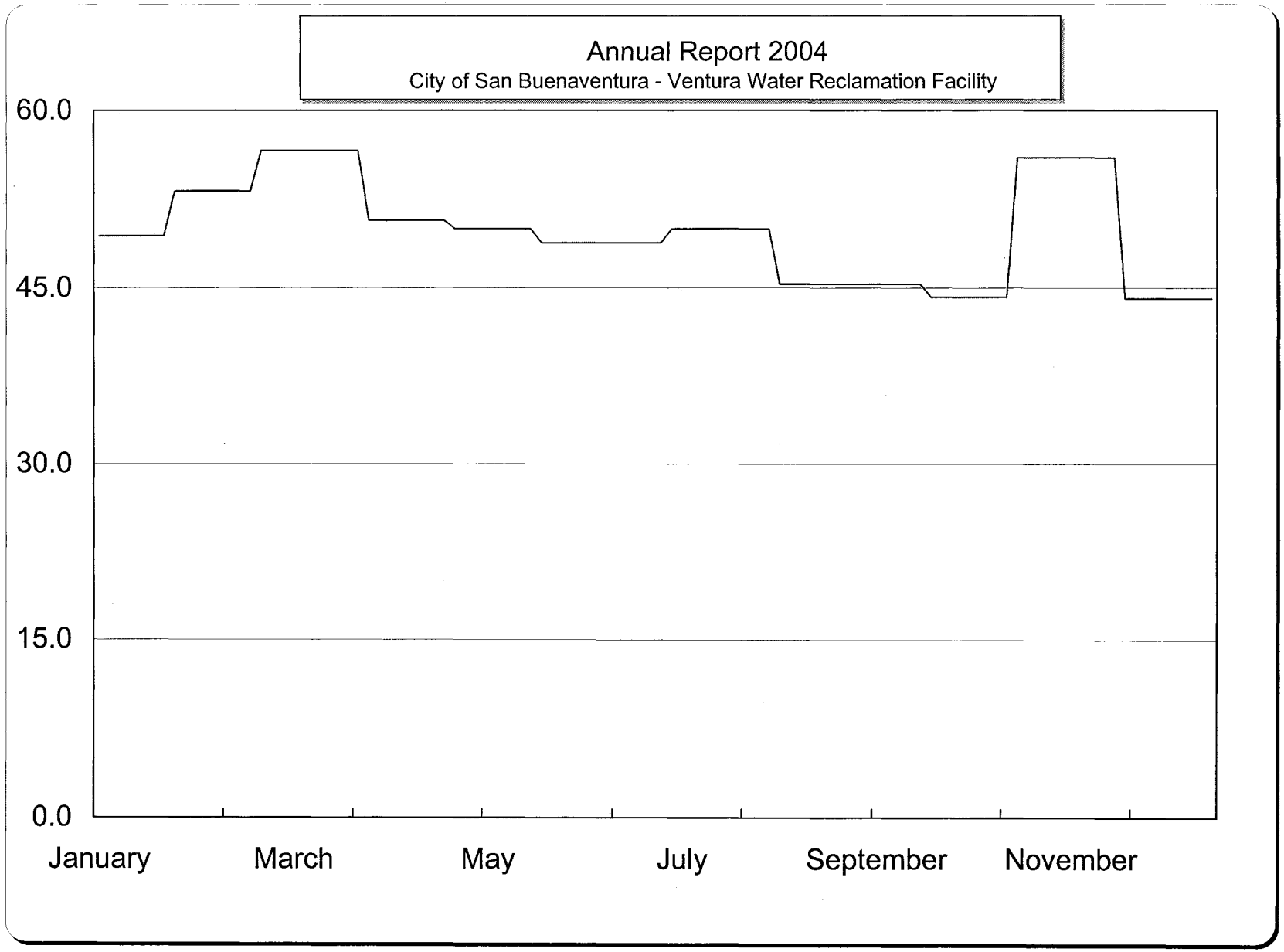
Effluent Transfer Station
Effluent Monthly Sodium - mg/L

Bimonthly Period



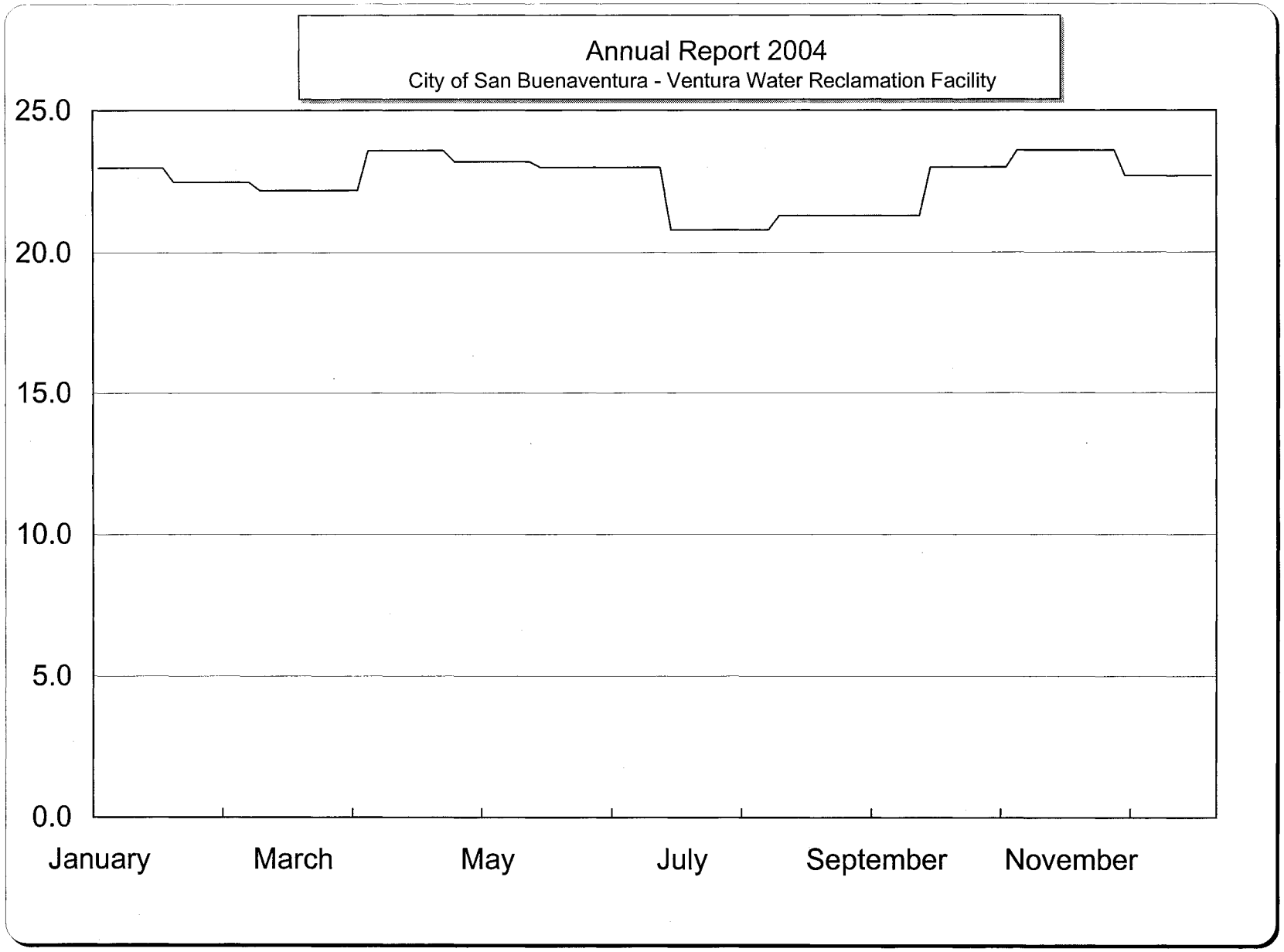
Effluent Transfer Station
Effluent Monthly Calcium - mg/L

Bimonthly Period



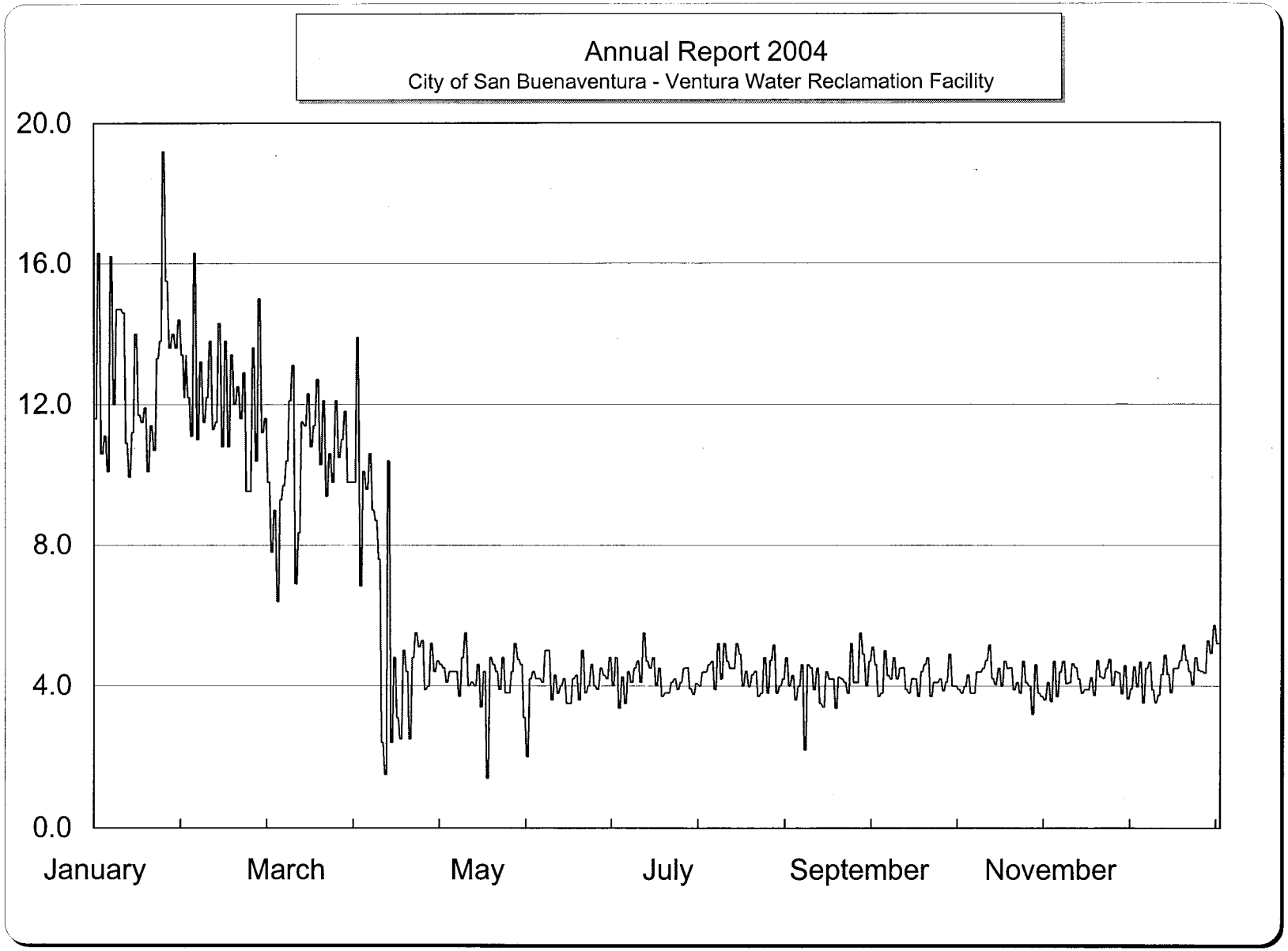
Effluent Transfer Station
Effluent Monthly Magnesium - mg/L

Bimonthly Period



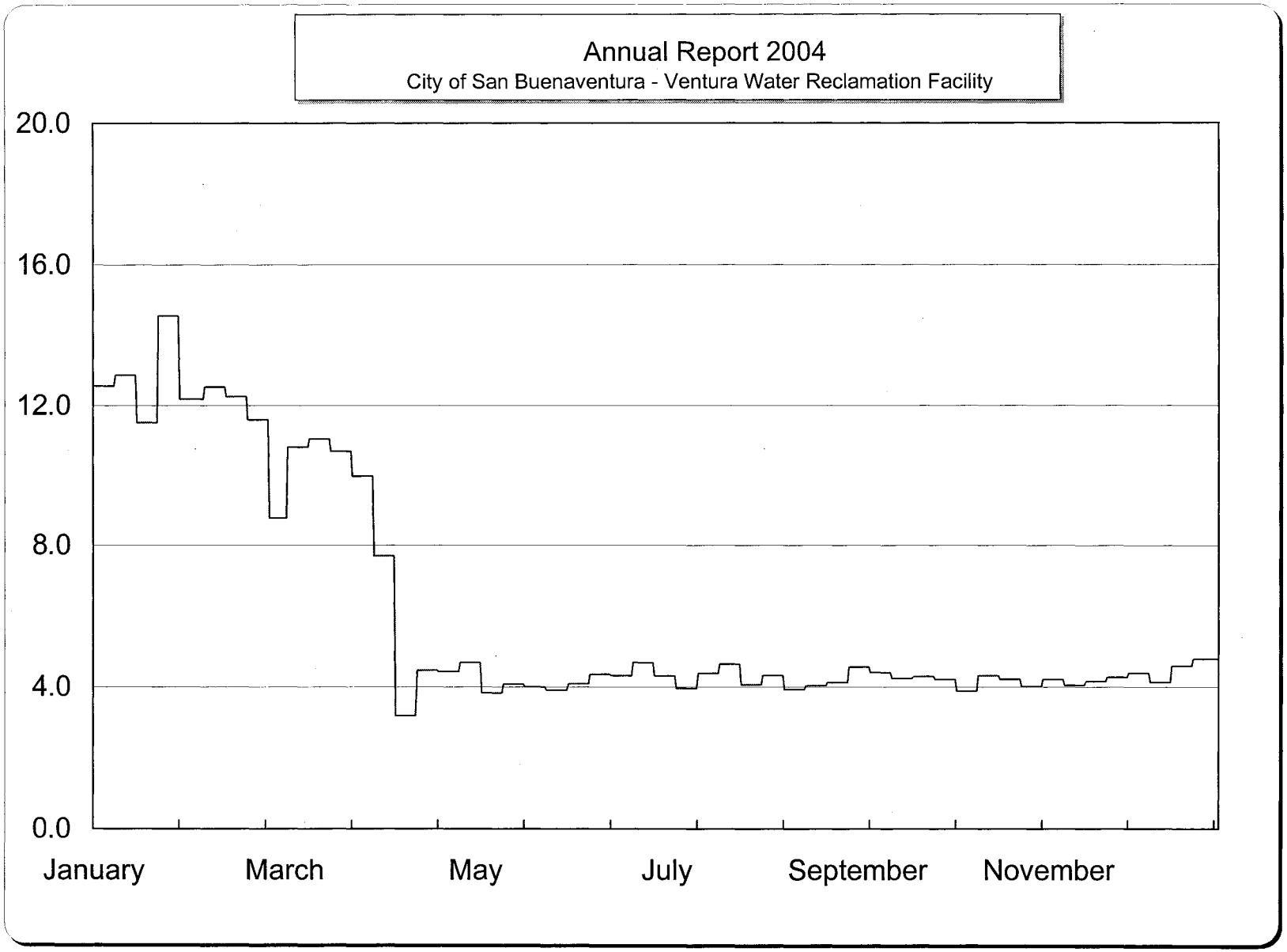
Effluent Transfer Station
Effluent Monthly Potassium - mg/L

Bimonthly Period



Effluent Transfer Station - BAY 1
Chlorine Residual at 7:00 AM - mg/L

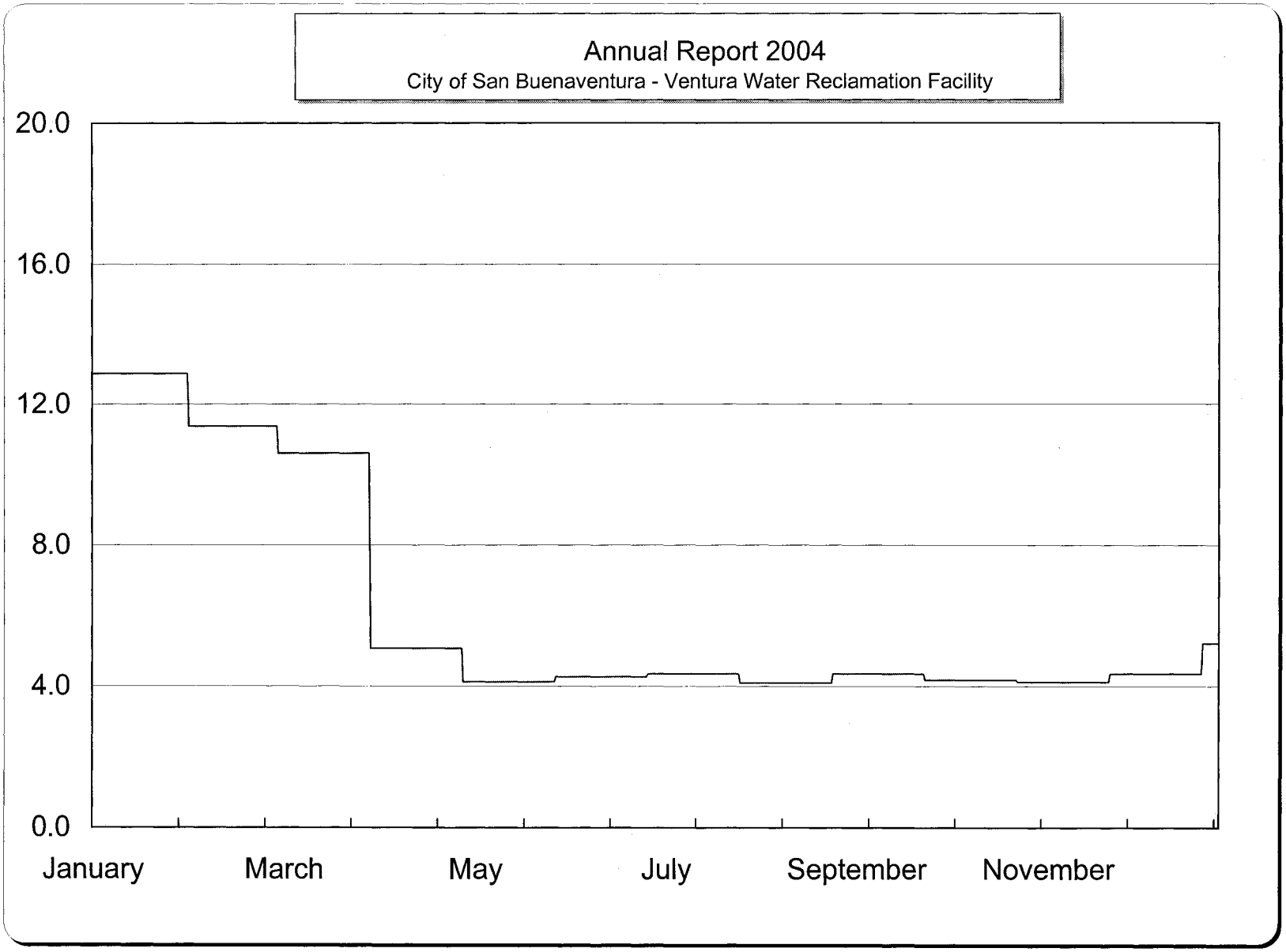
Bimonthly Period



Effluent Transfer Station - BAY 1

Bimonthly Period

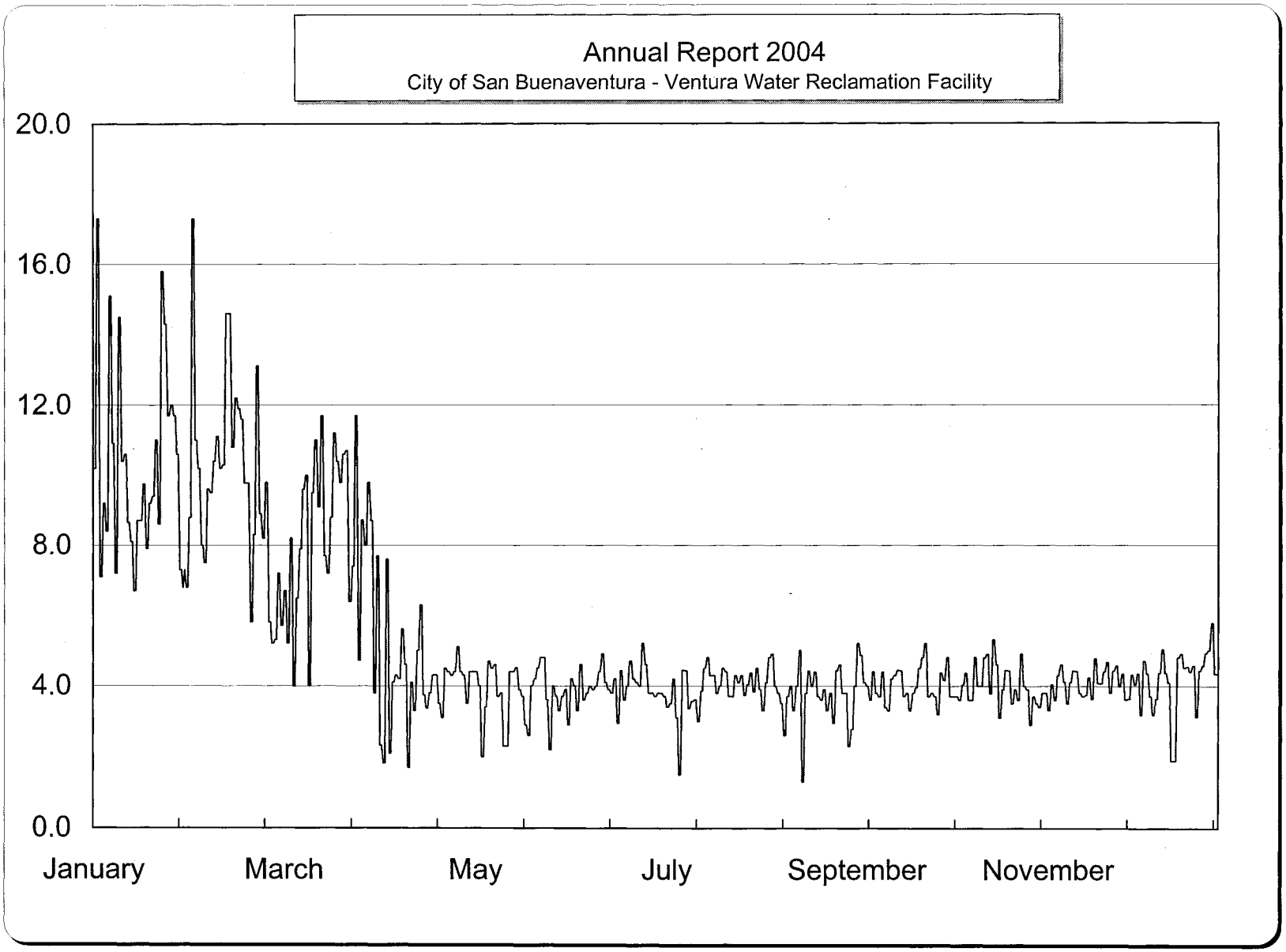
7 Day Average Chlorine Residual at 7:00 AM - mg/L



Effluent Transfer Station - BAY 1

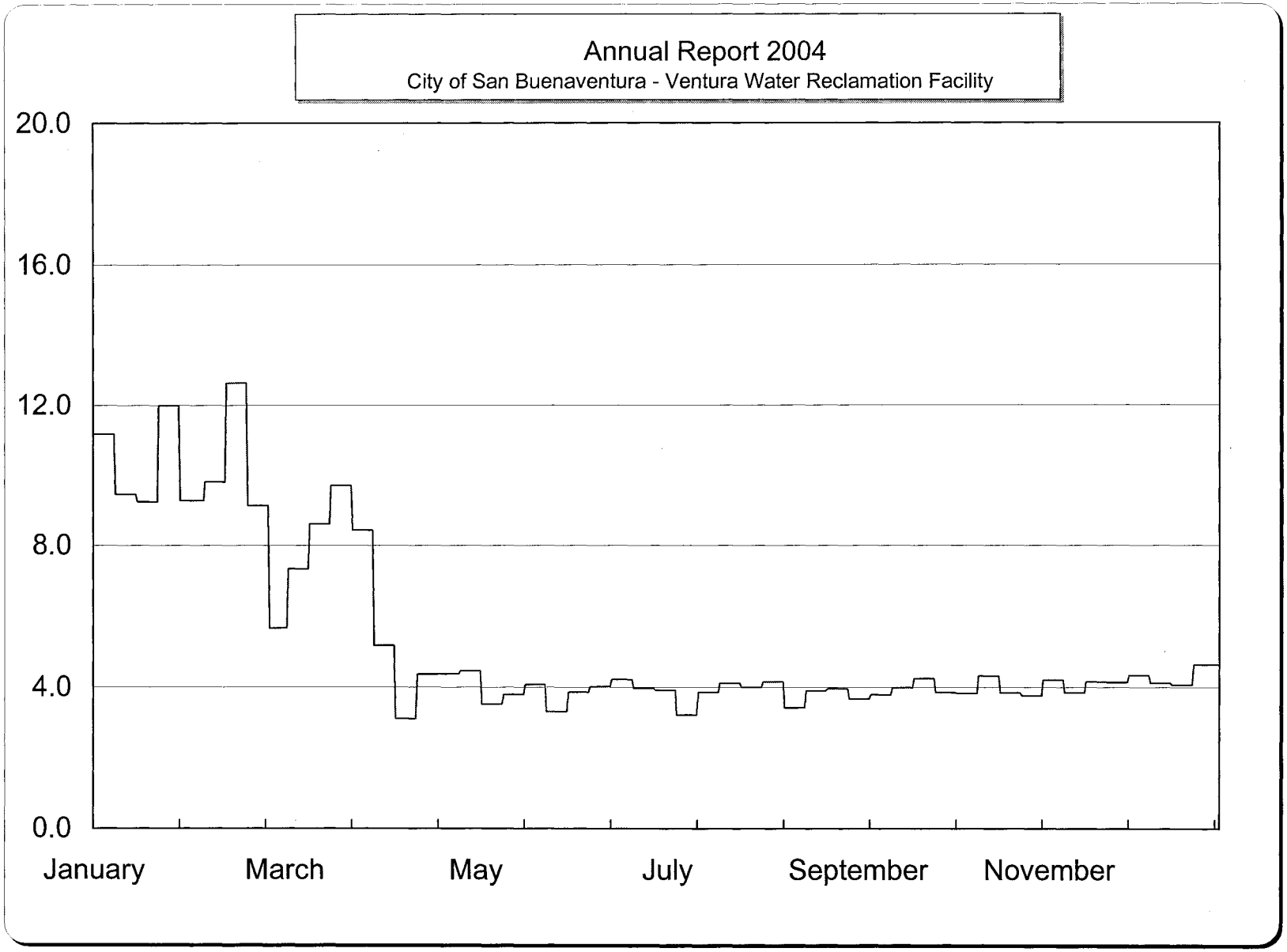
Bimonthly Period

30 Day Average Chlorine Residual at 7:00 AM - mg/L



Effluent Transfer Station - BAY 1
Chlorine Residual at 11:00 AM - mg/L

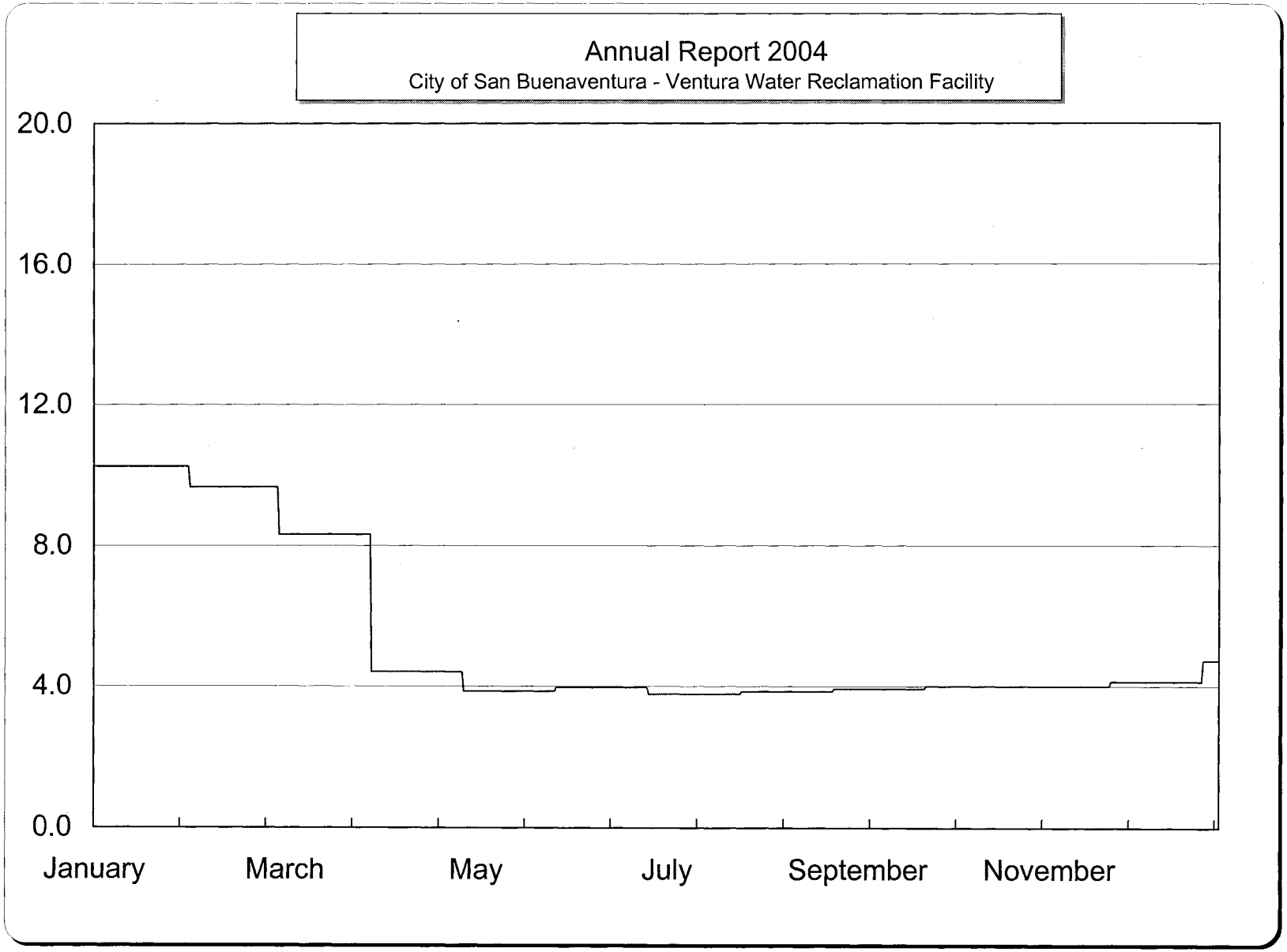
Bimonthly Period



Effluent Transfer Station - BAY 1

Bimonthly Period

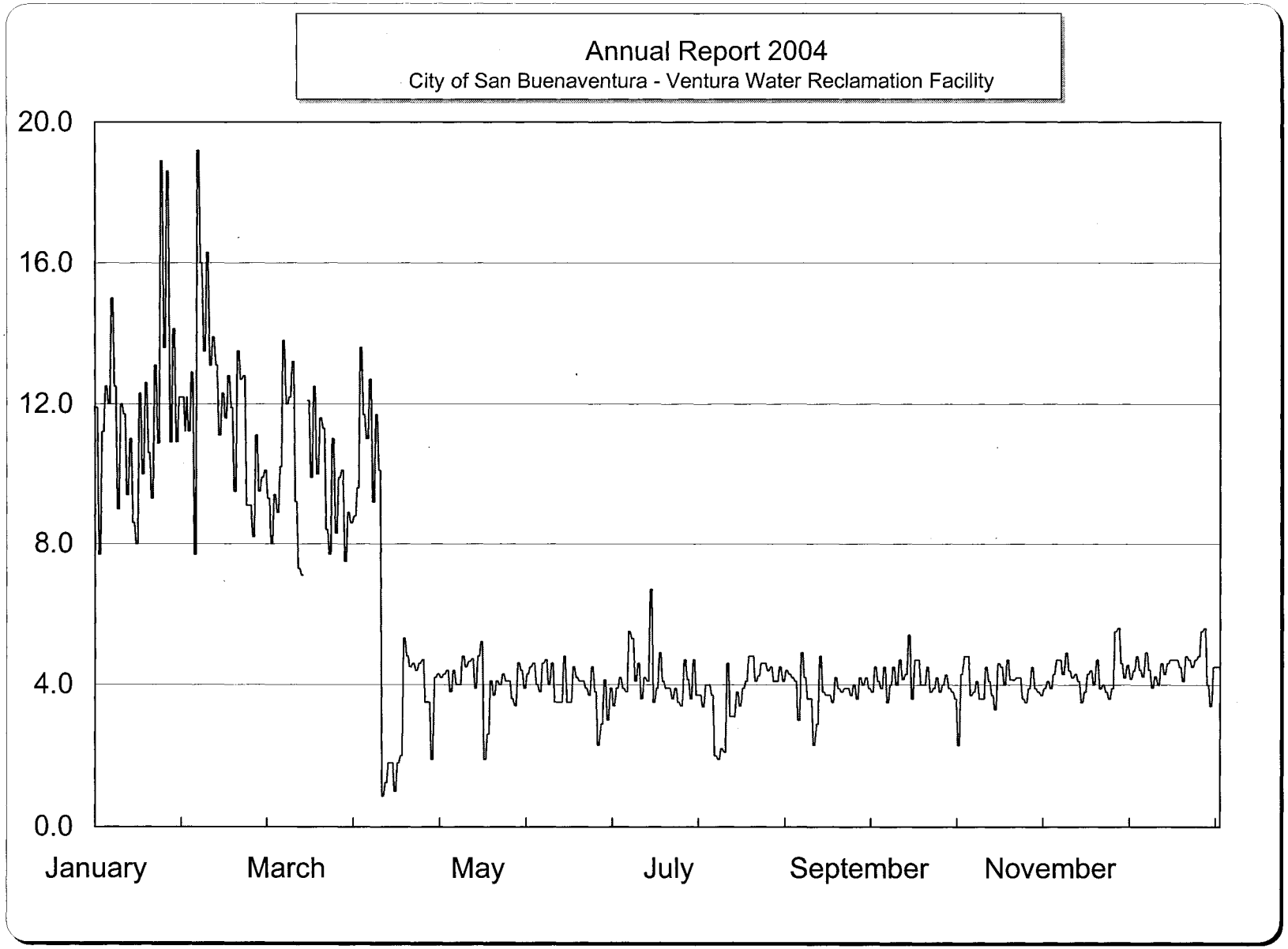
7 Day Average Chlorine Residual at 11:00 AM - mg/L



Effluent Transfer Station - BAY 1

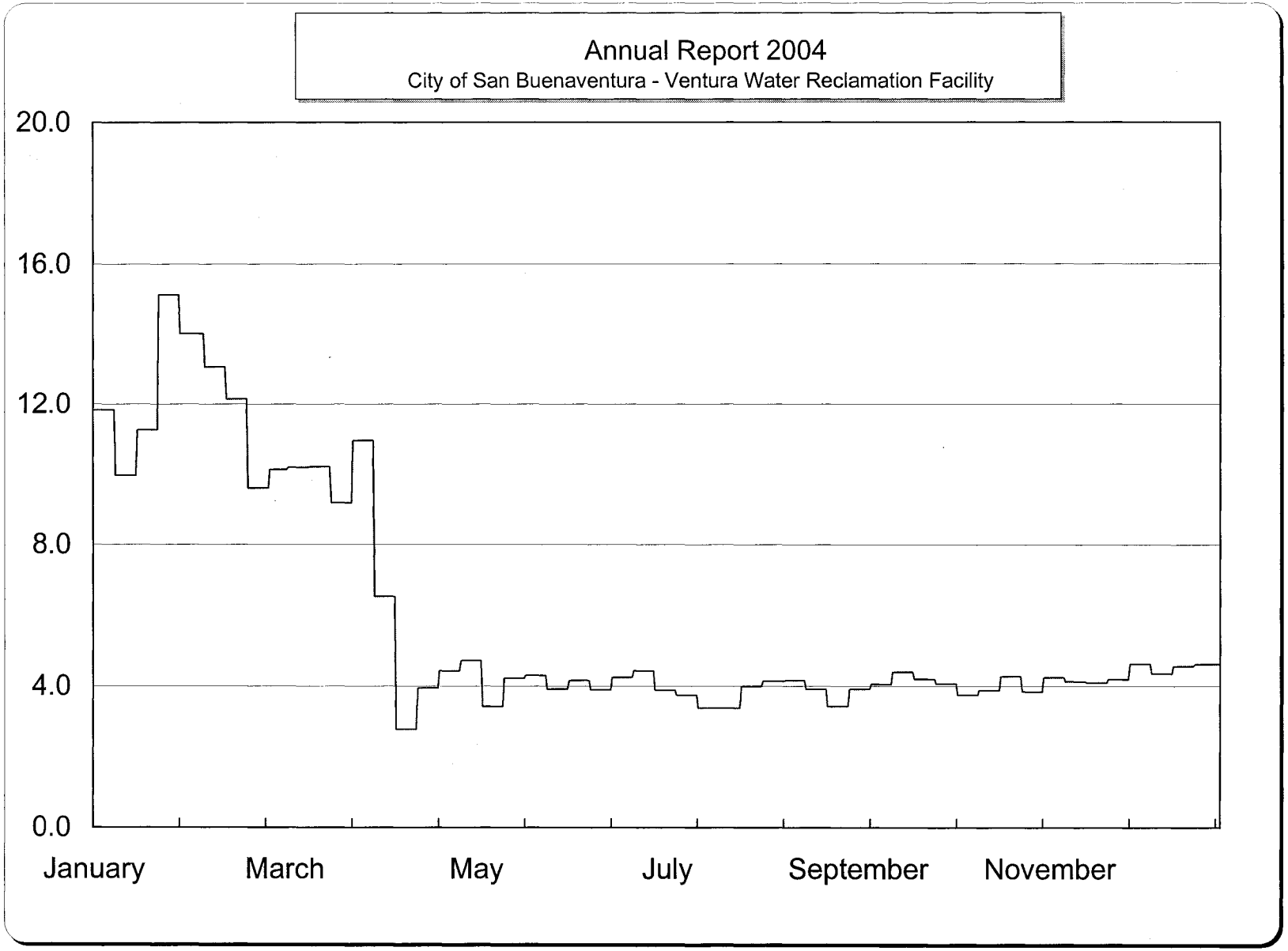
Bimonthly Period

30 Day Average Chlorine Residual at 11:00 AM - mg/L



Effluent Transfer Station - BAY 1
Chlorine Residual at 8:00 PM - mg/L

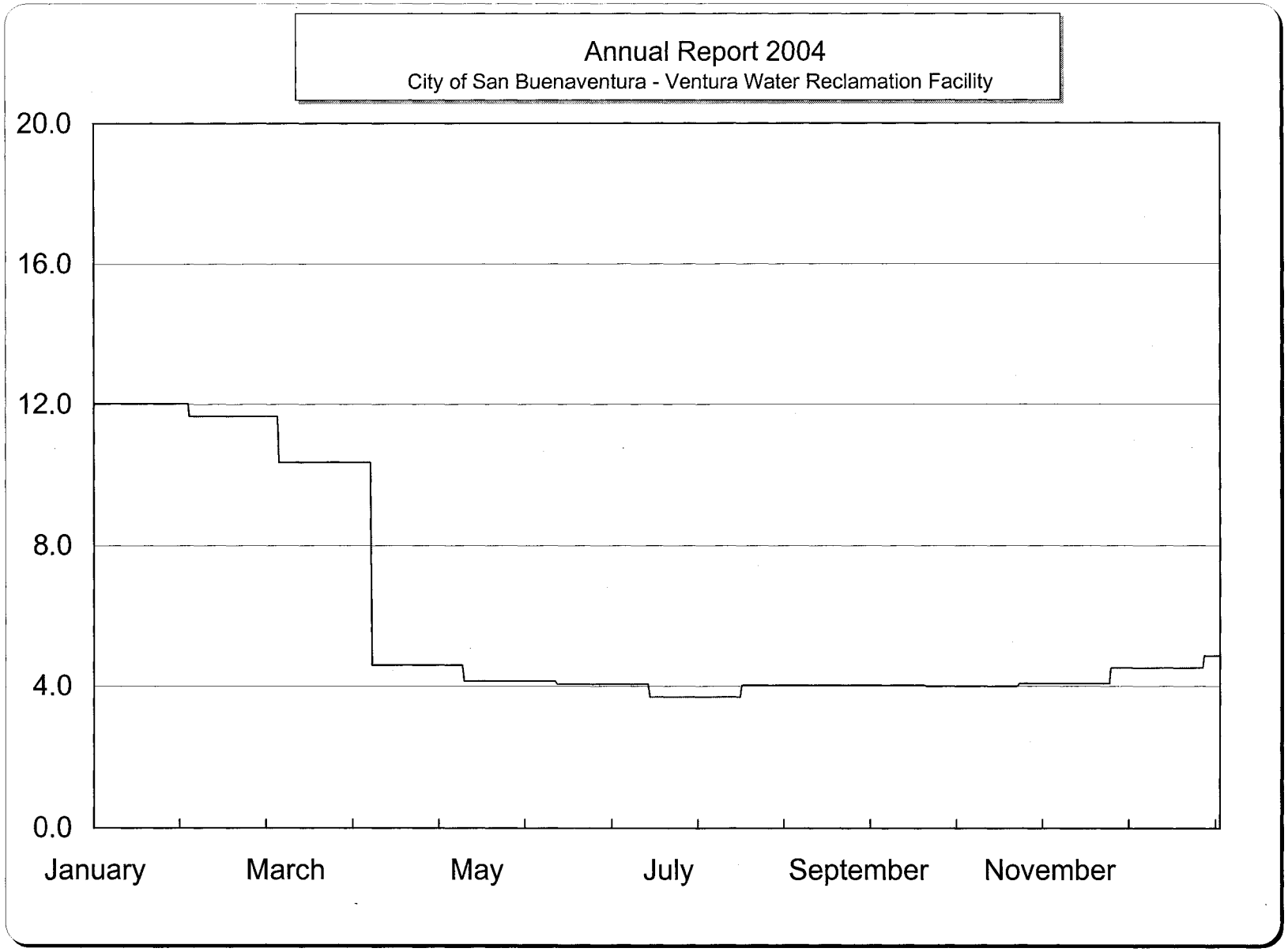
Bimonthly Period



Effluent Transfer Station - BAY 1

Bimonthly Period

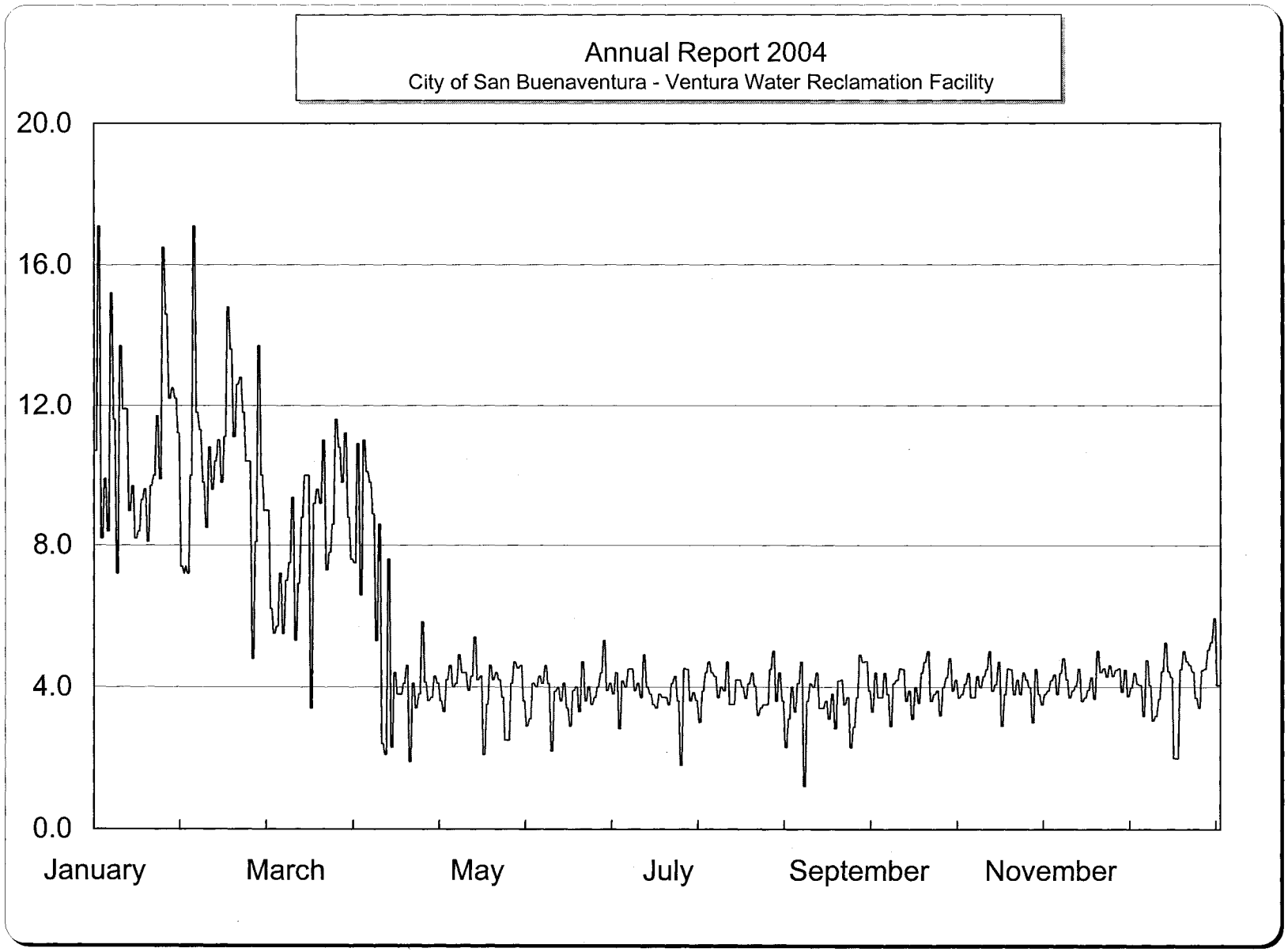
7 Day Average Chlorine Residual at 8:00 PM - mg/L



Effluent Transfer Station - BAY 1

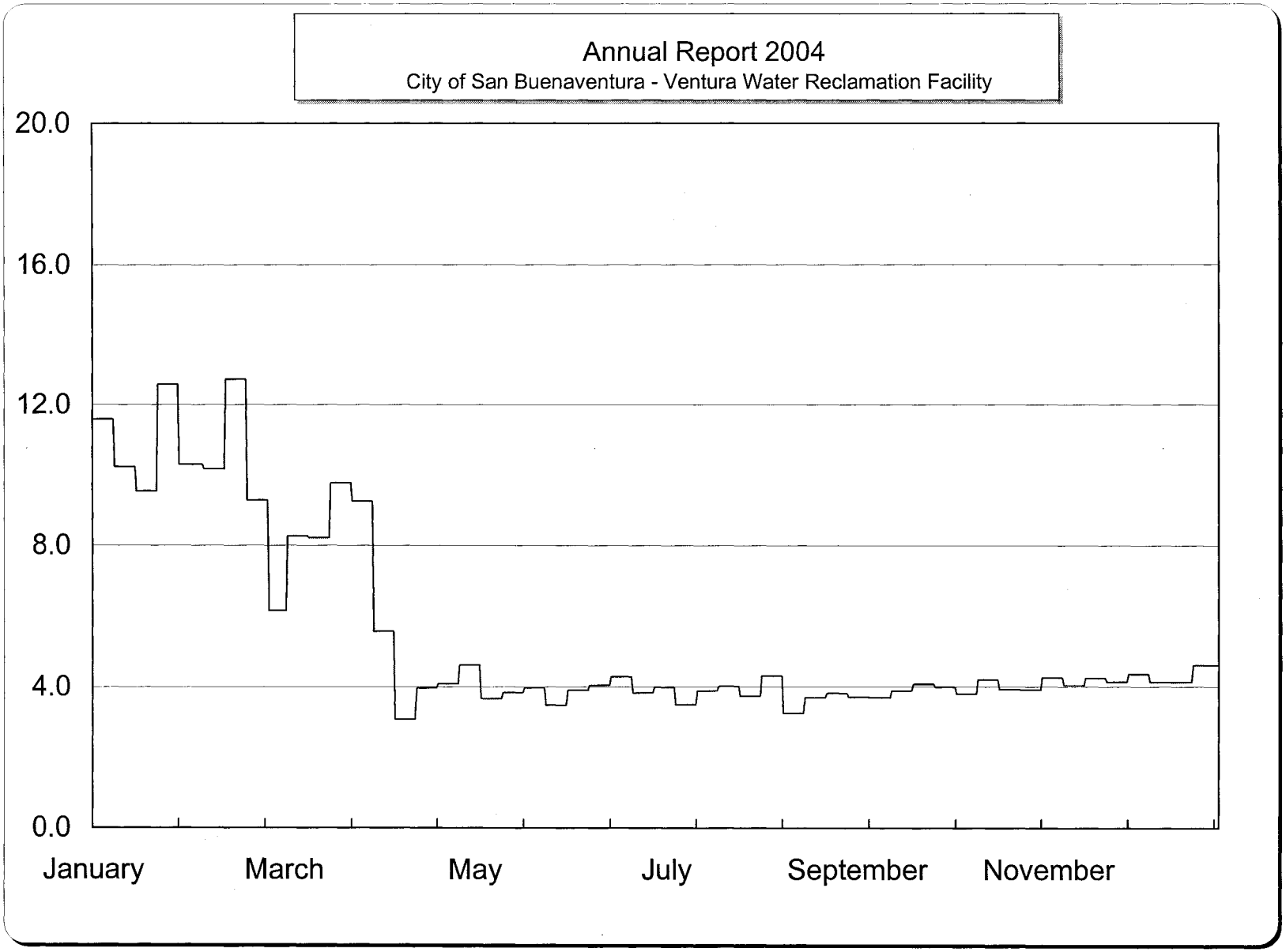
Bimonthly Period

30 Day Average Chlorine Residual at 8:00 PM - mg/L



Effluent Transfer Station
Effluent Chlorine Residual at 11:00 AM - mg/L

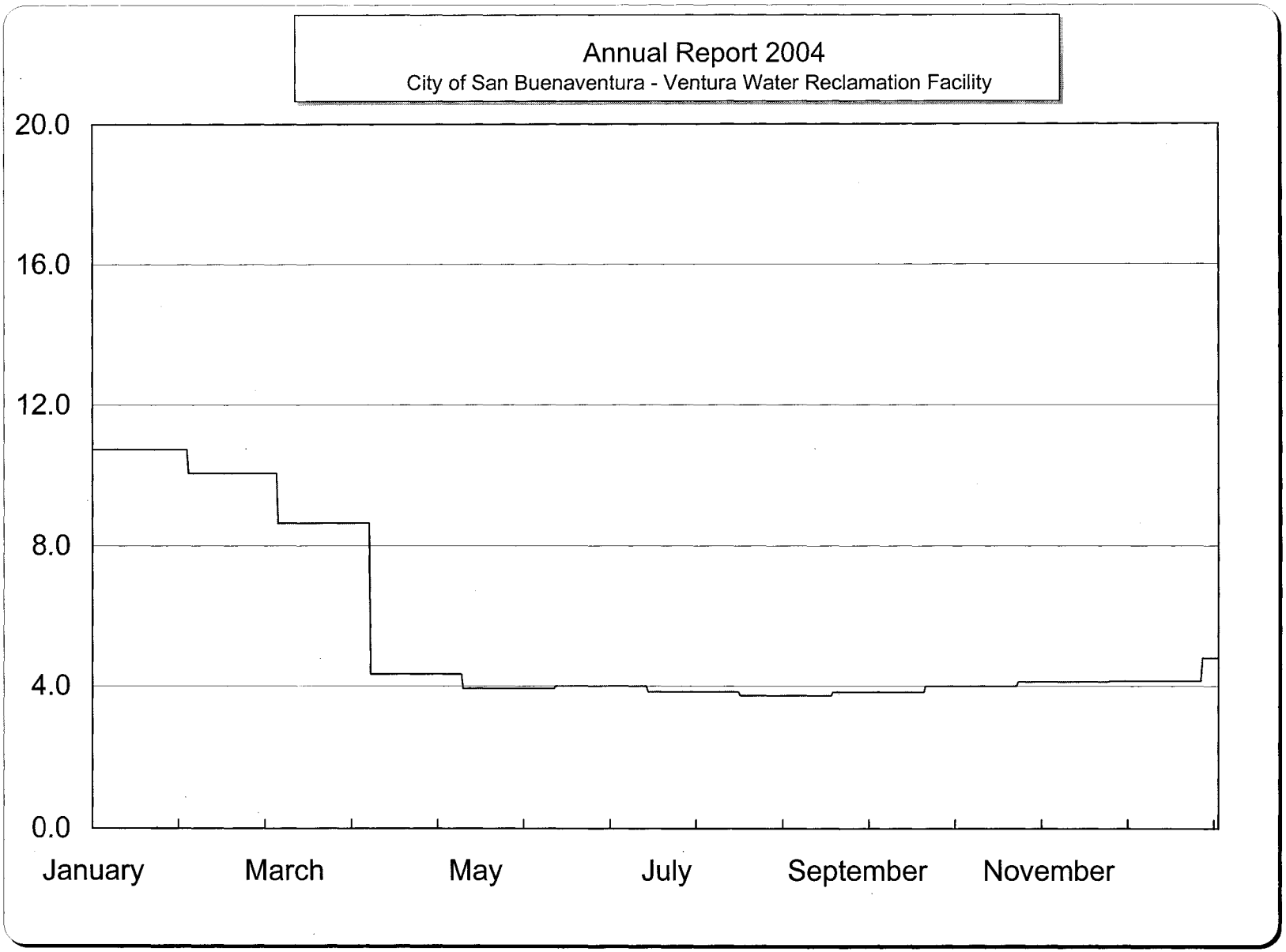
Bimonthly Period



Effluent Transfer Station

Bimonthly Period

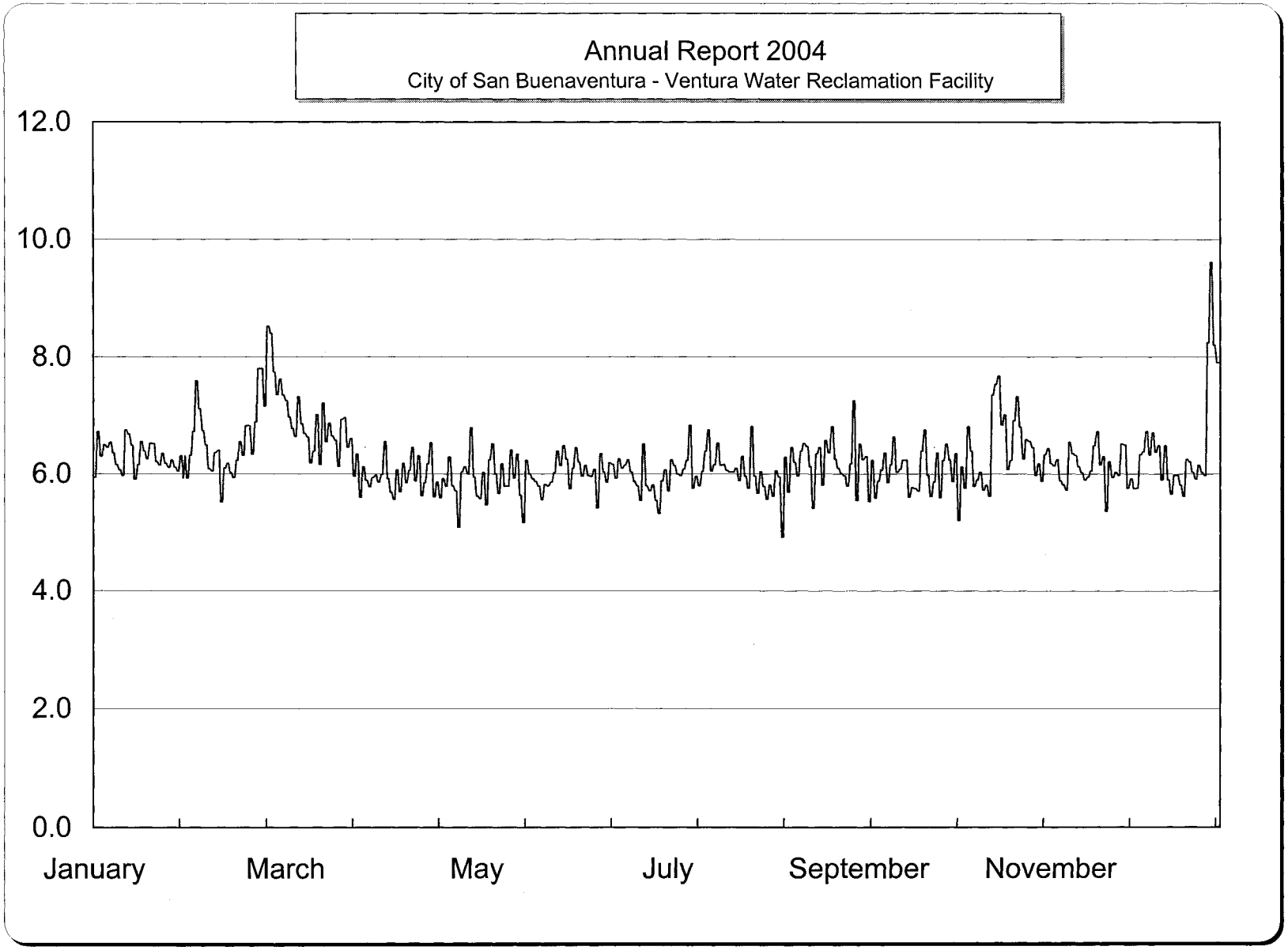
Effluent 7 Day Average Chlorine Residual at 11:00 AM - mg/L



Effluent Transfer Station

Bimonthly Period

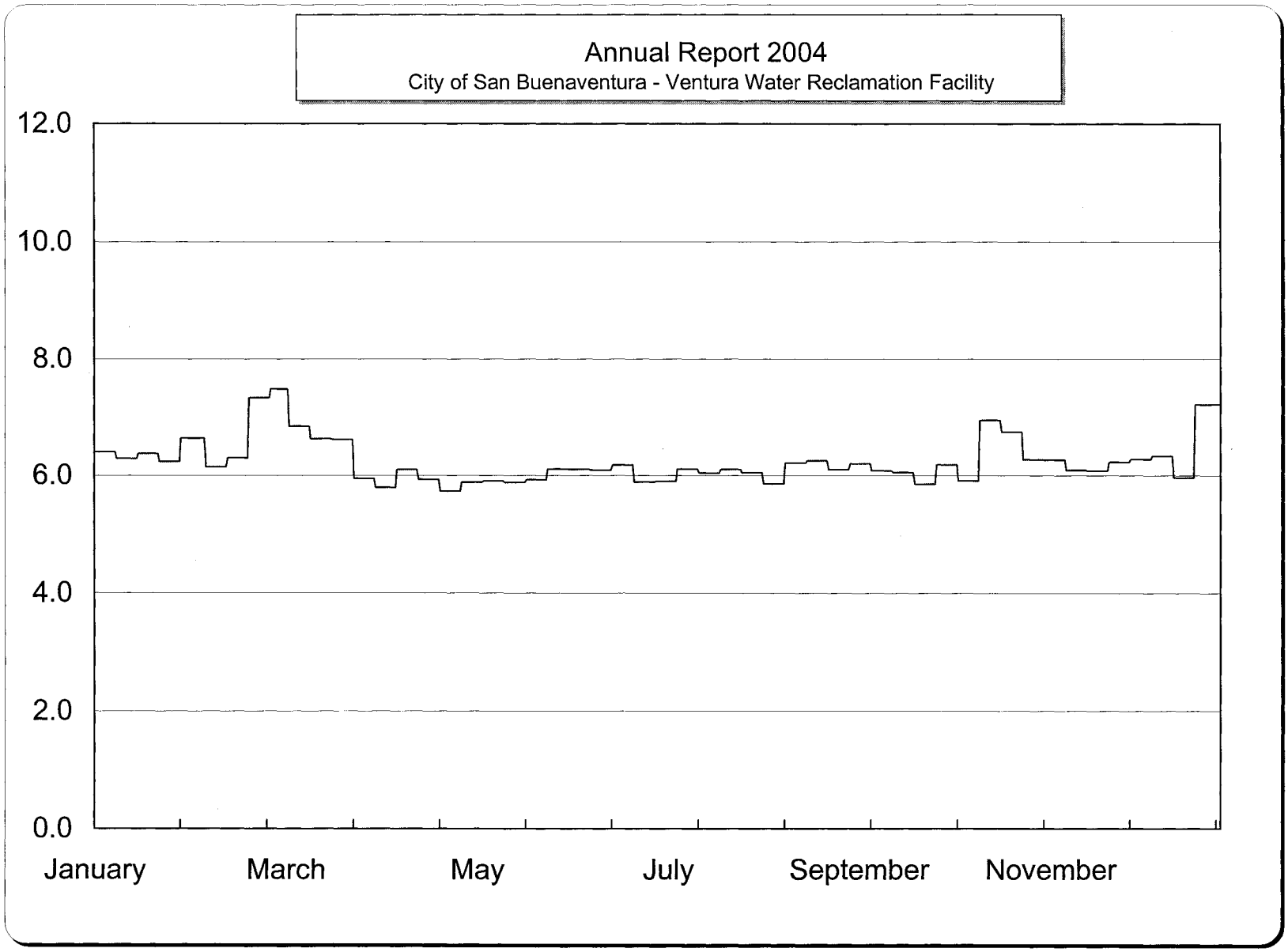
Effluent 30 Day Average Chlorine Residual at 11:00 AM - mg/L



Outfall Juction Structure

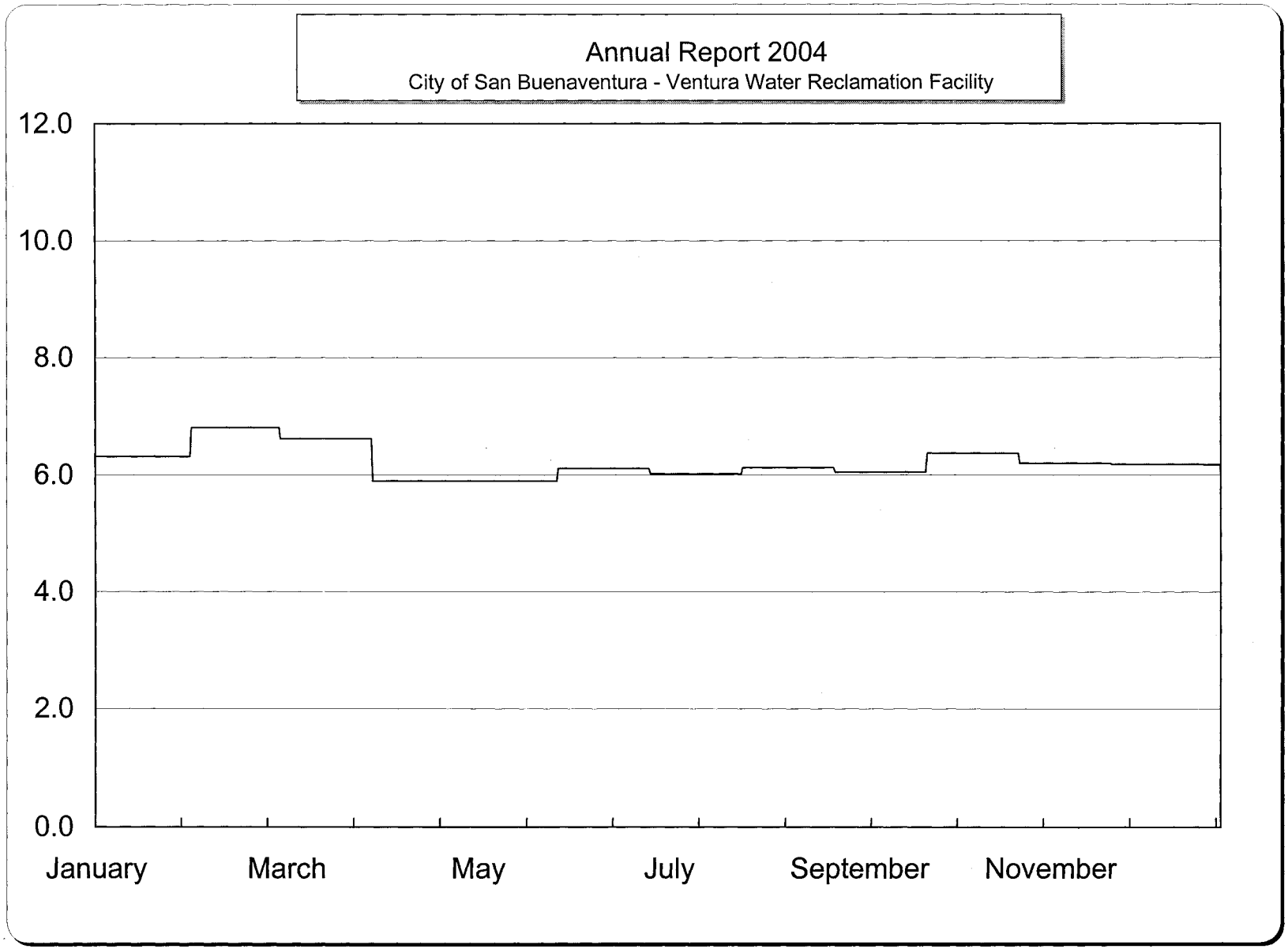
Bimonthly Period

Effluent Discharge to the Santa Clara Tidal Prism - MGD



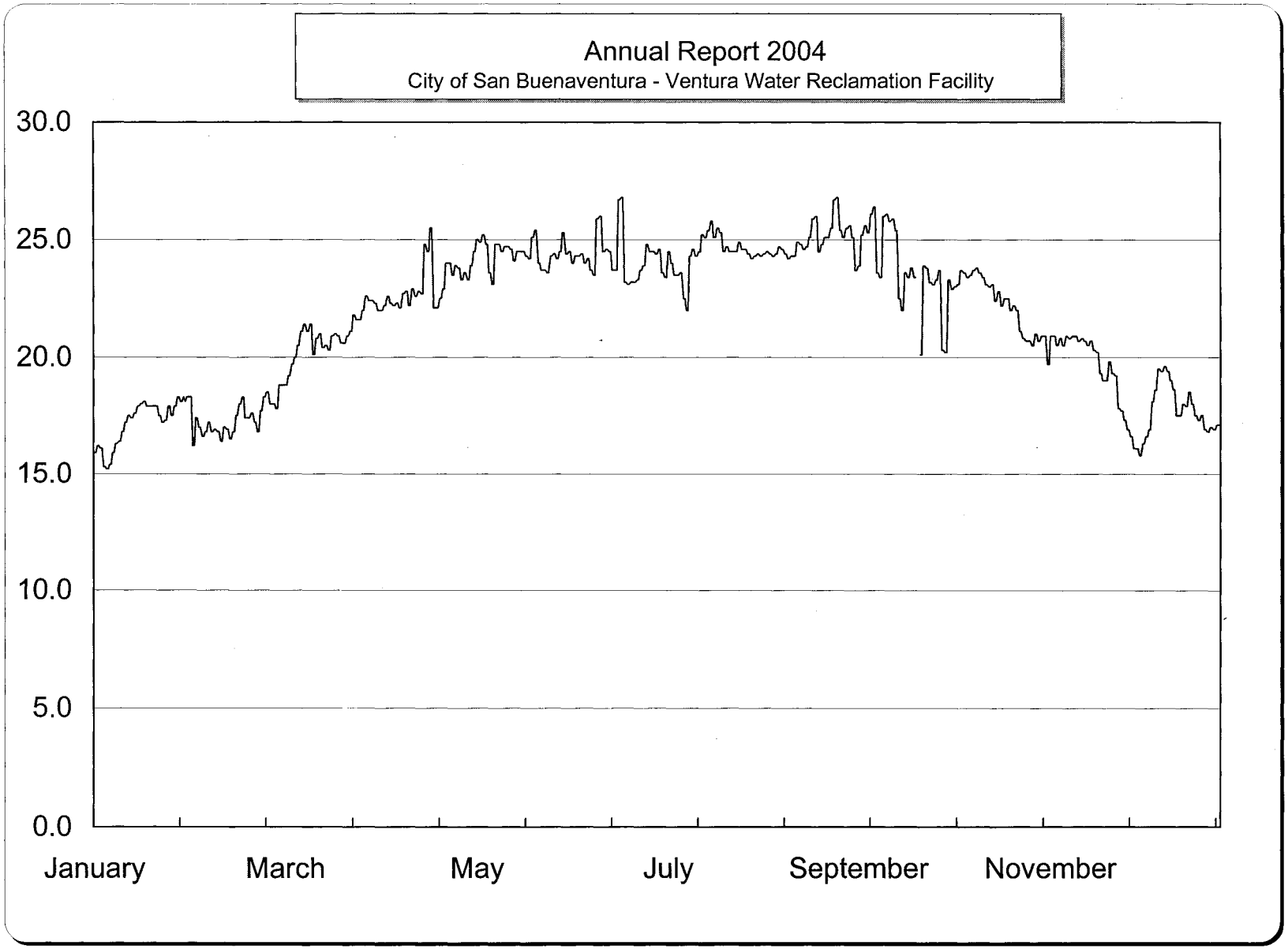
Outfall Juction Structure

Bimonthly Period Effluent Discharge 7 Day Average to the Santa Clara Tidal Prism - MGD



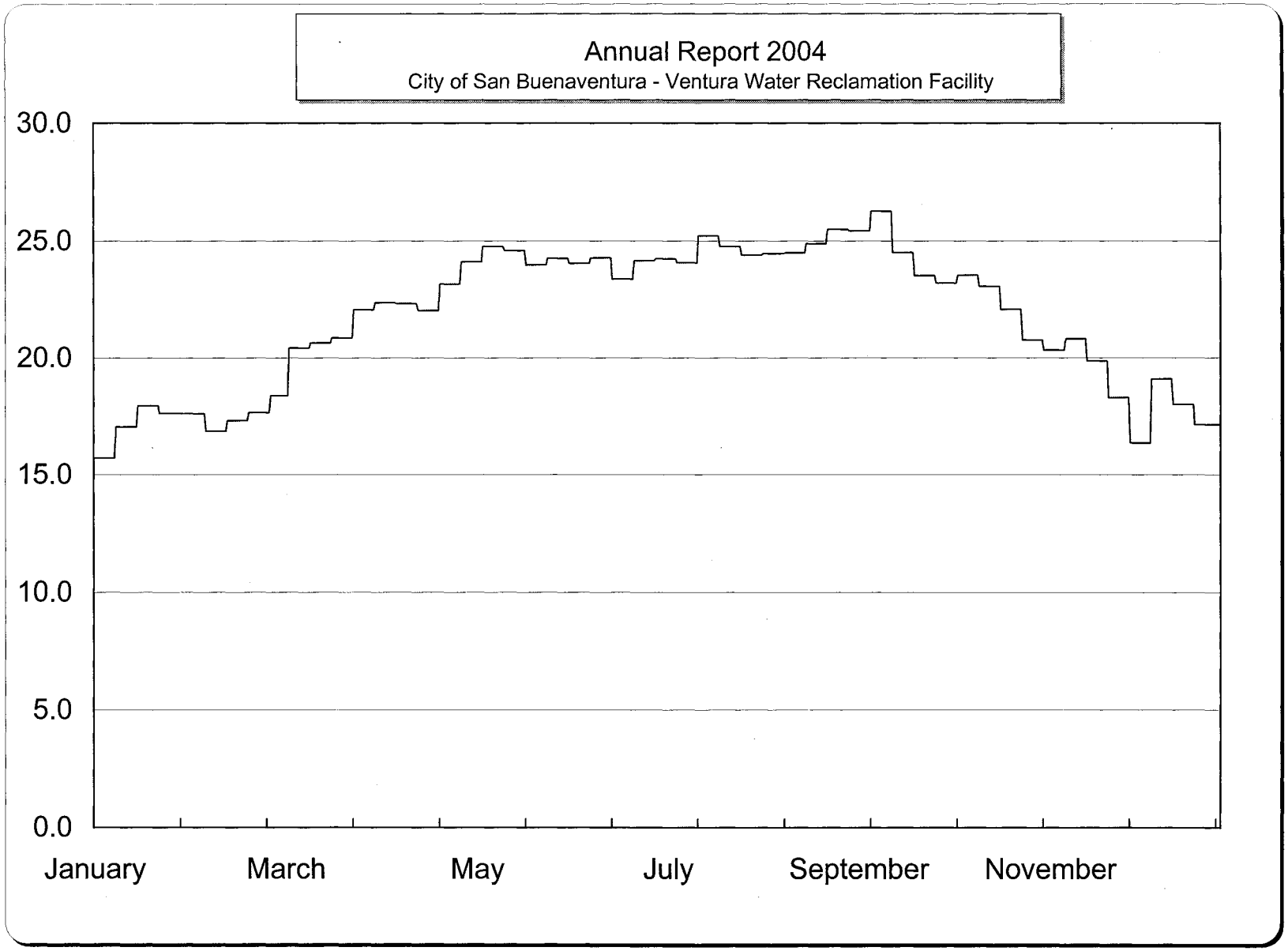
Outfall Juction Structure

Bimonthly Period Effluent Discharge 30 Day Average to the Santa Clara Tidal Prism - MGD



Outfall Juction Structure
Effluent Temperature at 11:00 AM - Degree C

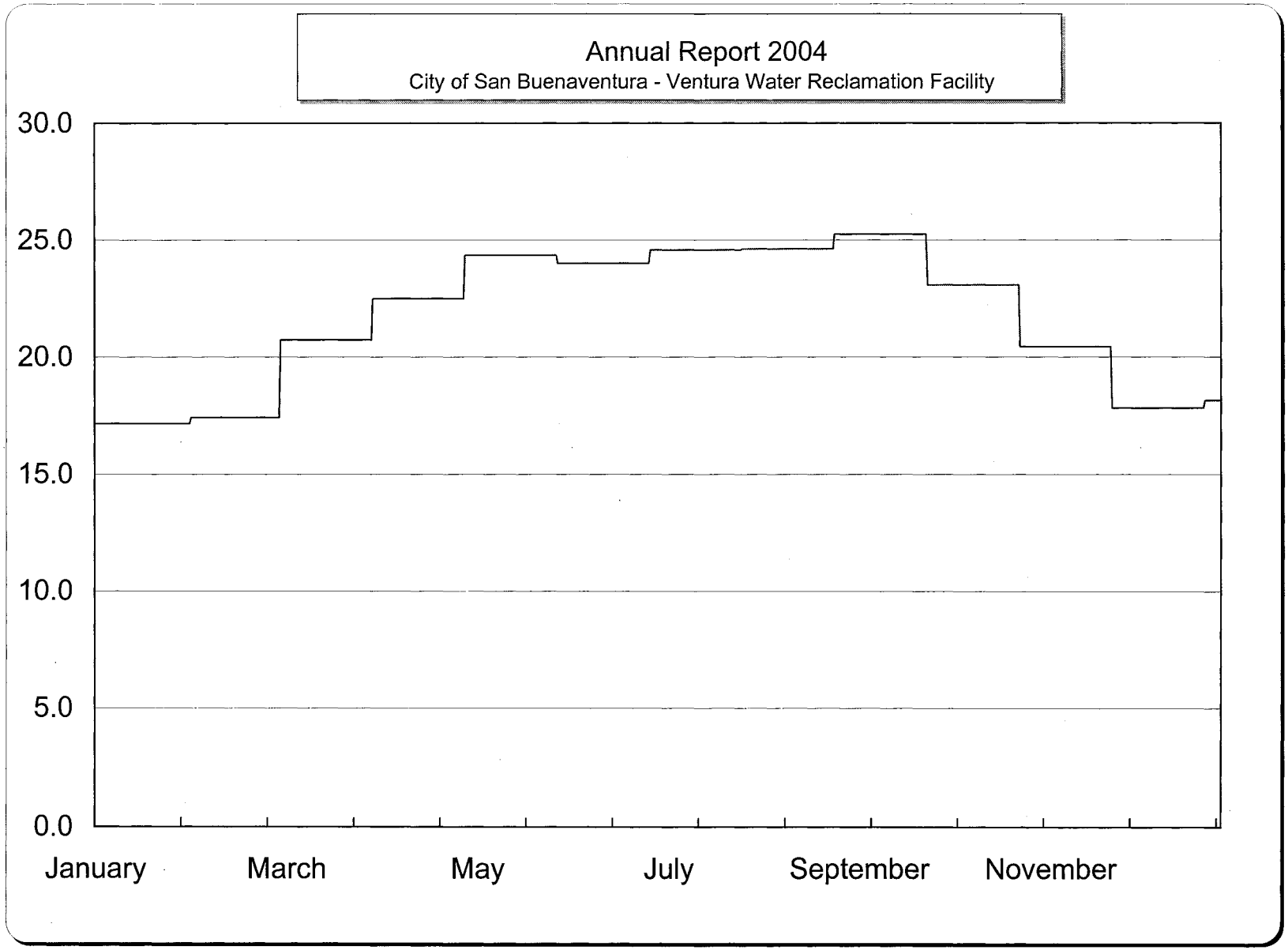
Bimonthly Period



Outfall Juction Structure

Bimonthly Period

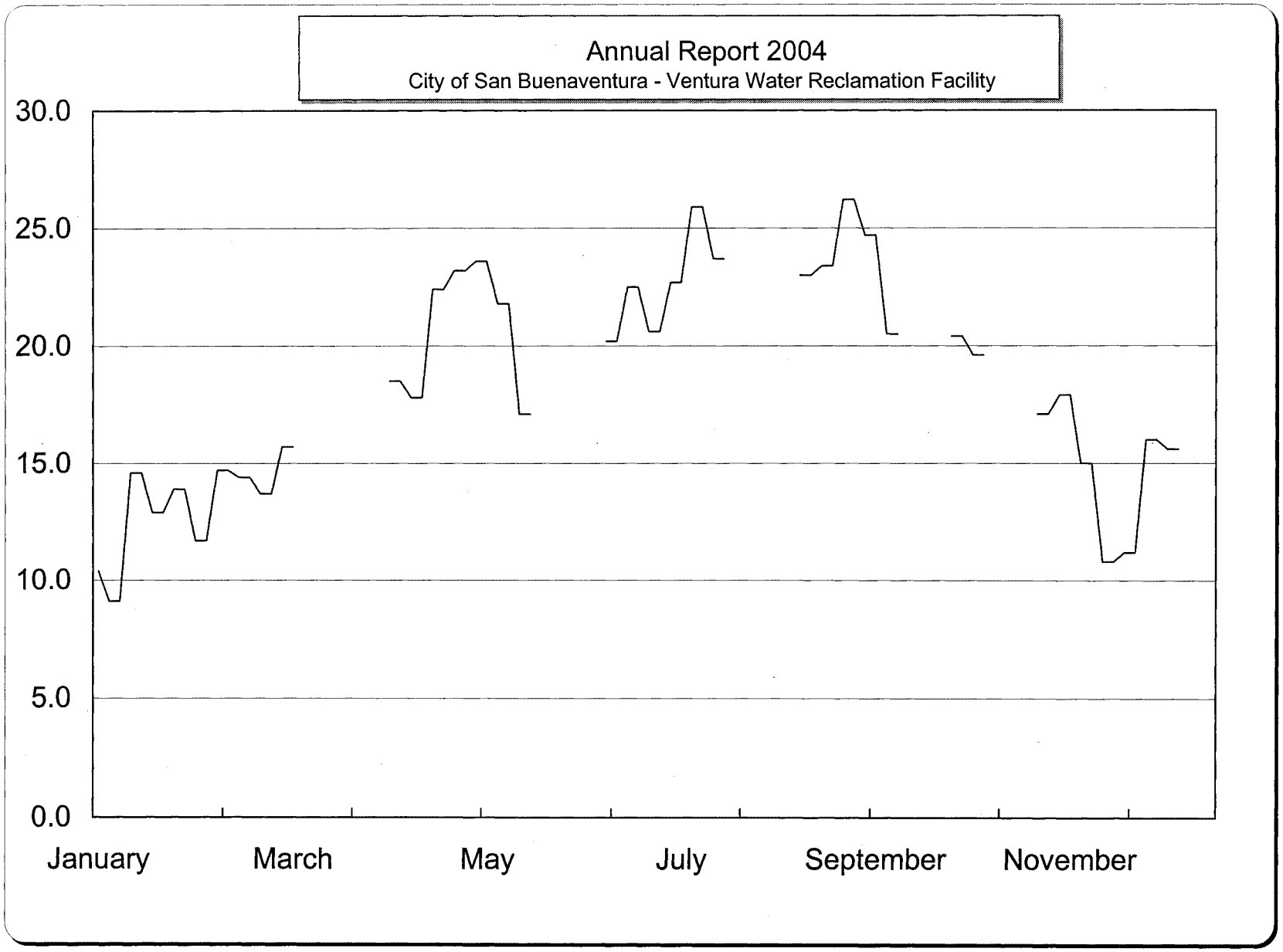
Effluent 7 Day Average Temperature at 11:00 AM - Degree C



Outfall Juction Structure

Bimonthly Period

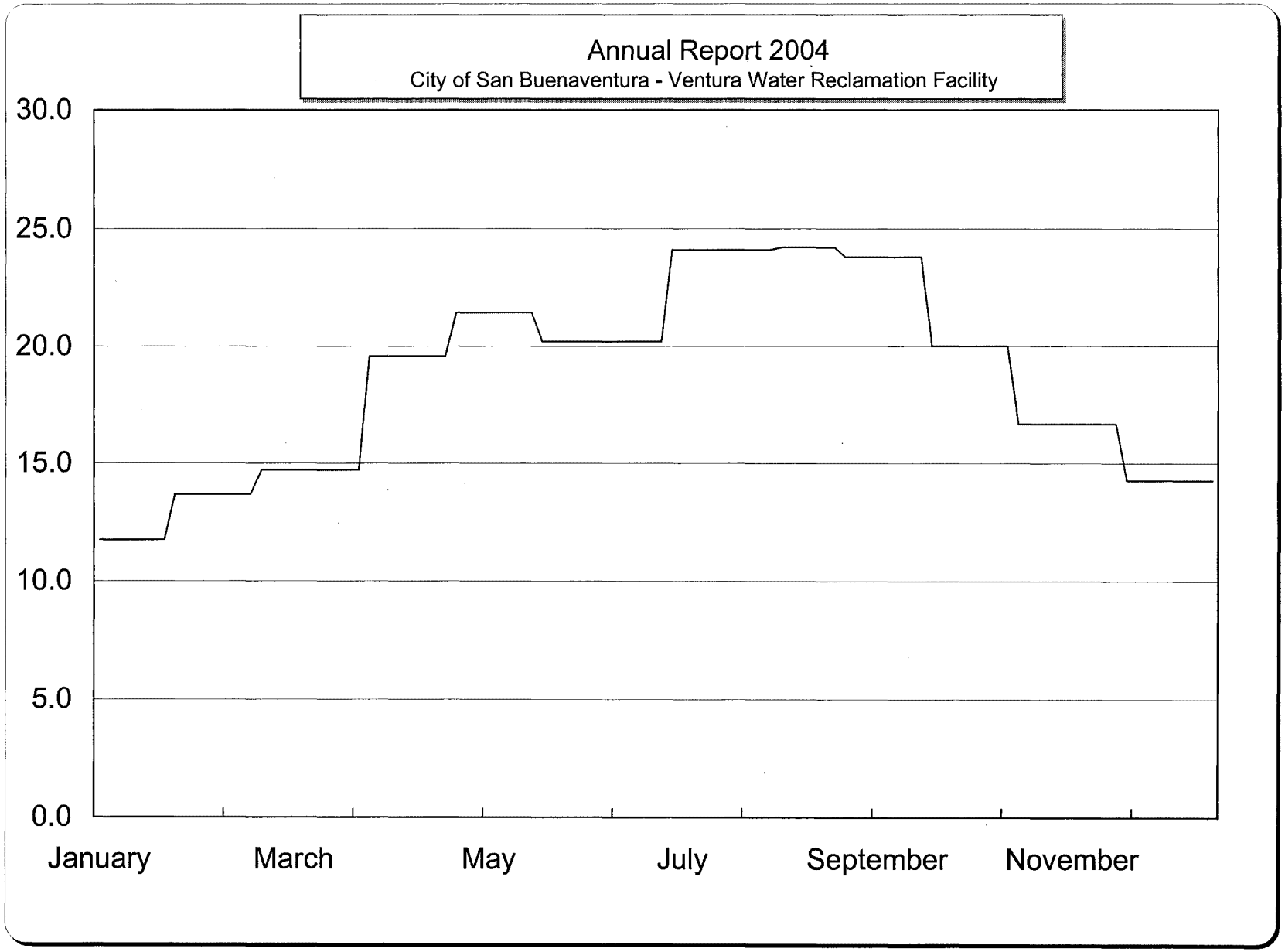
Effluent 30 Day Average Temperature at 11:00 AM - Degree C



Receiving Water Station - R1

Bimonthly Period

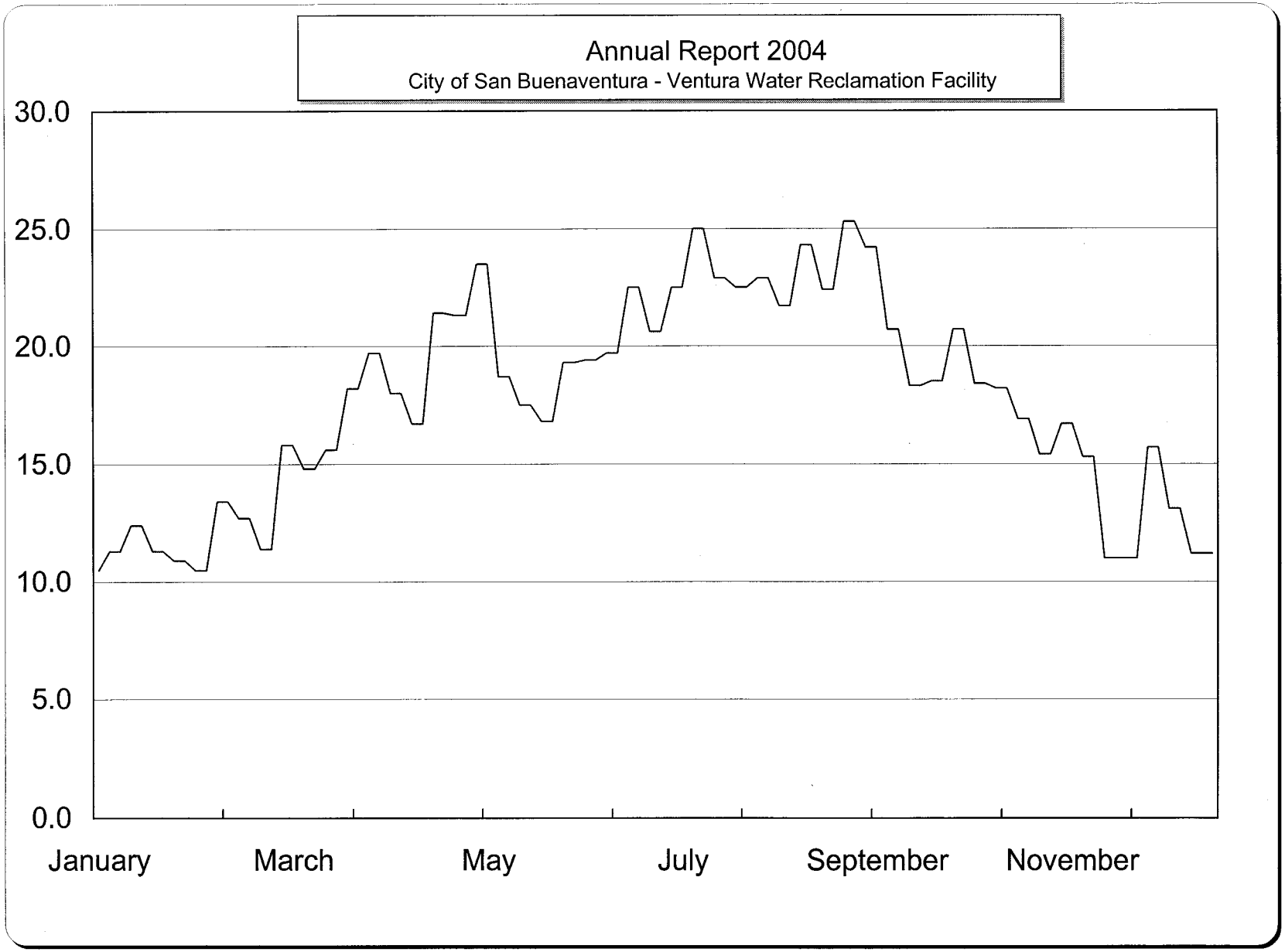
Weekly Water Temperature - Degees C



Receiving Water Station - R1

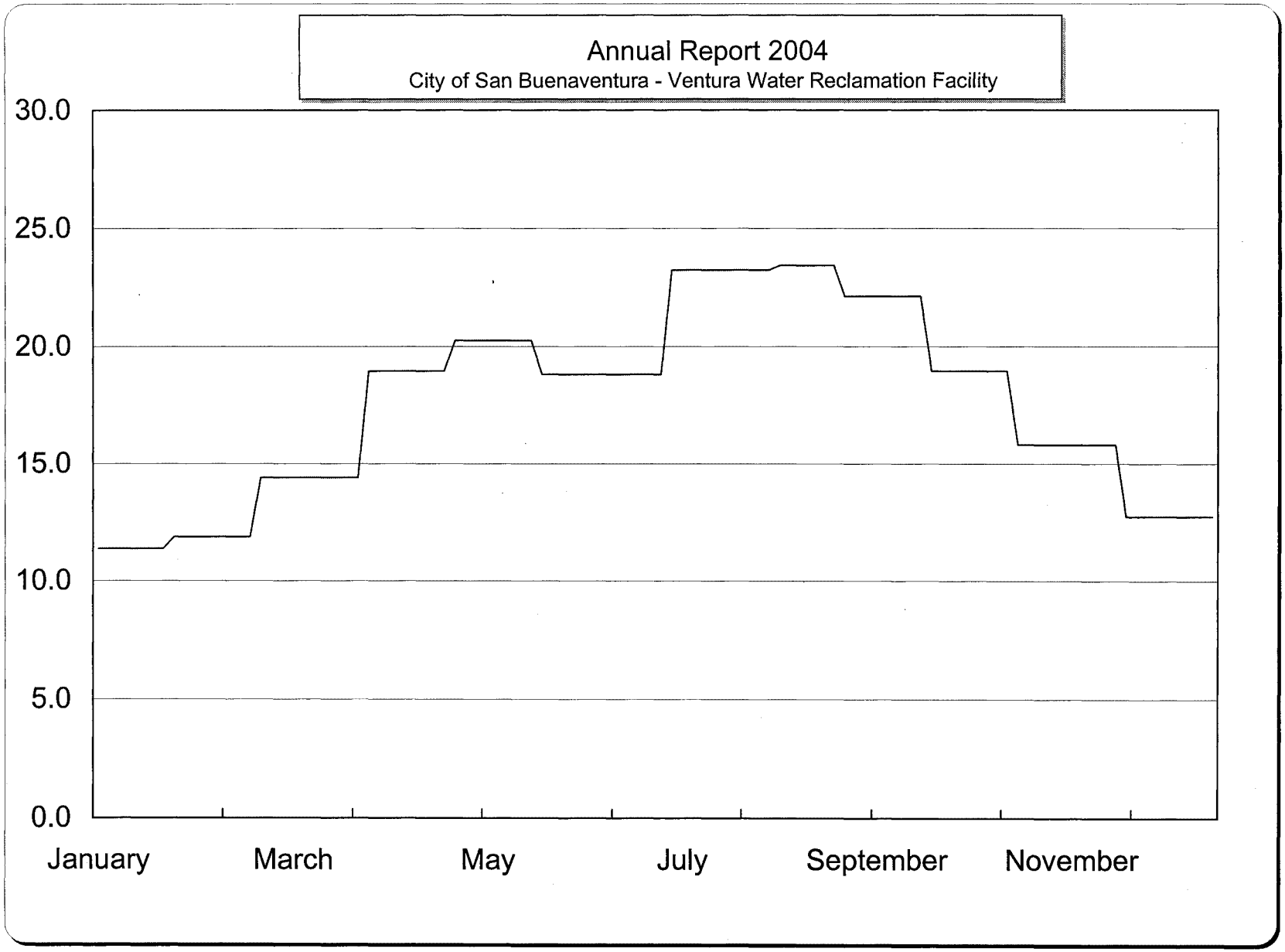
Bimonthly Period

30 Day Average Water Temperature - Degees C



Receiving Water Station - R2
Weekly Water Temperature - Degees C

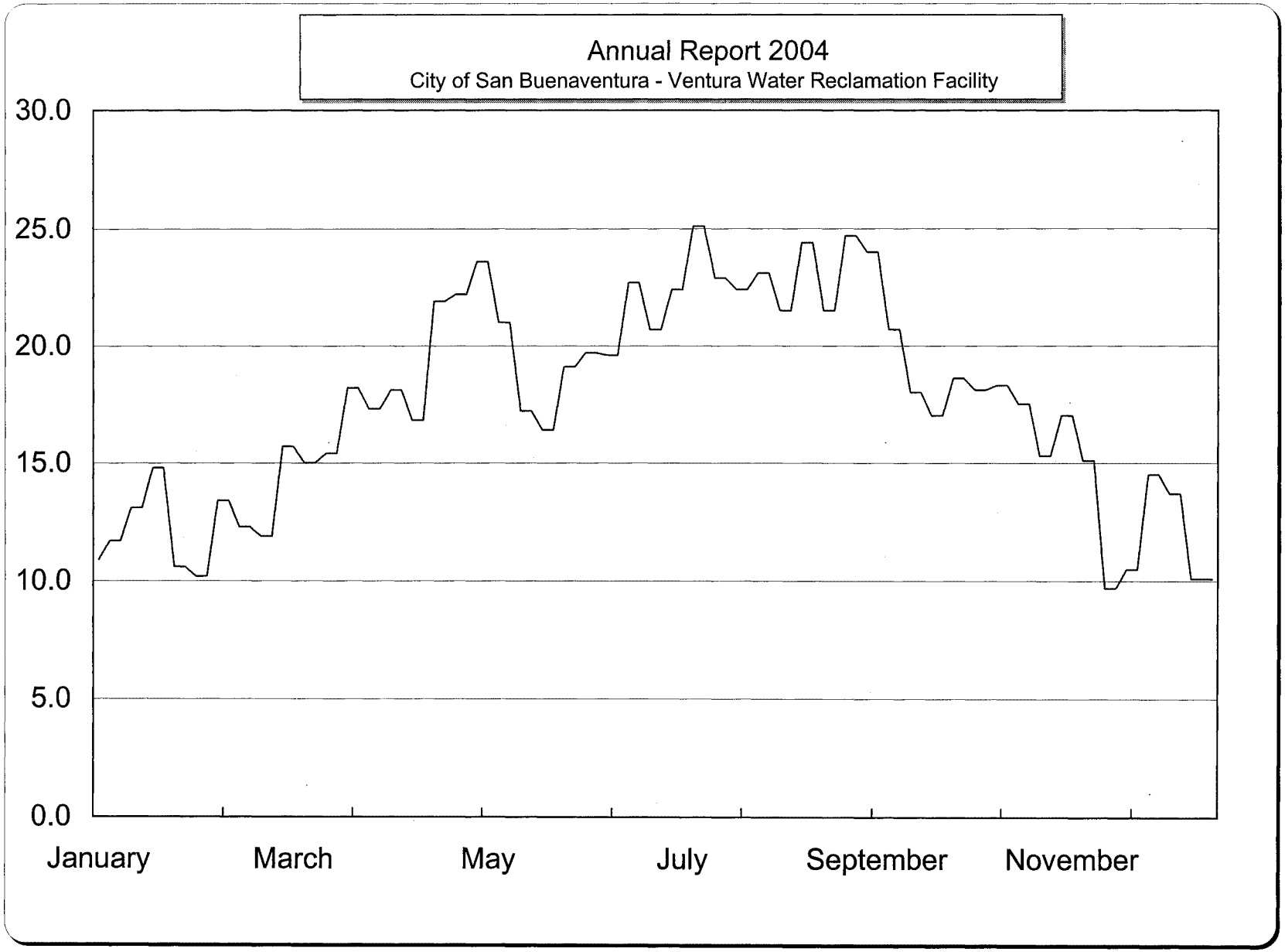
Bimonthly Period



Receiving Water Station - R2

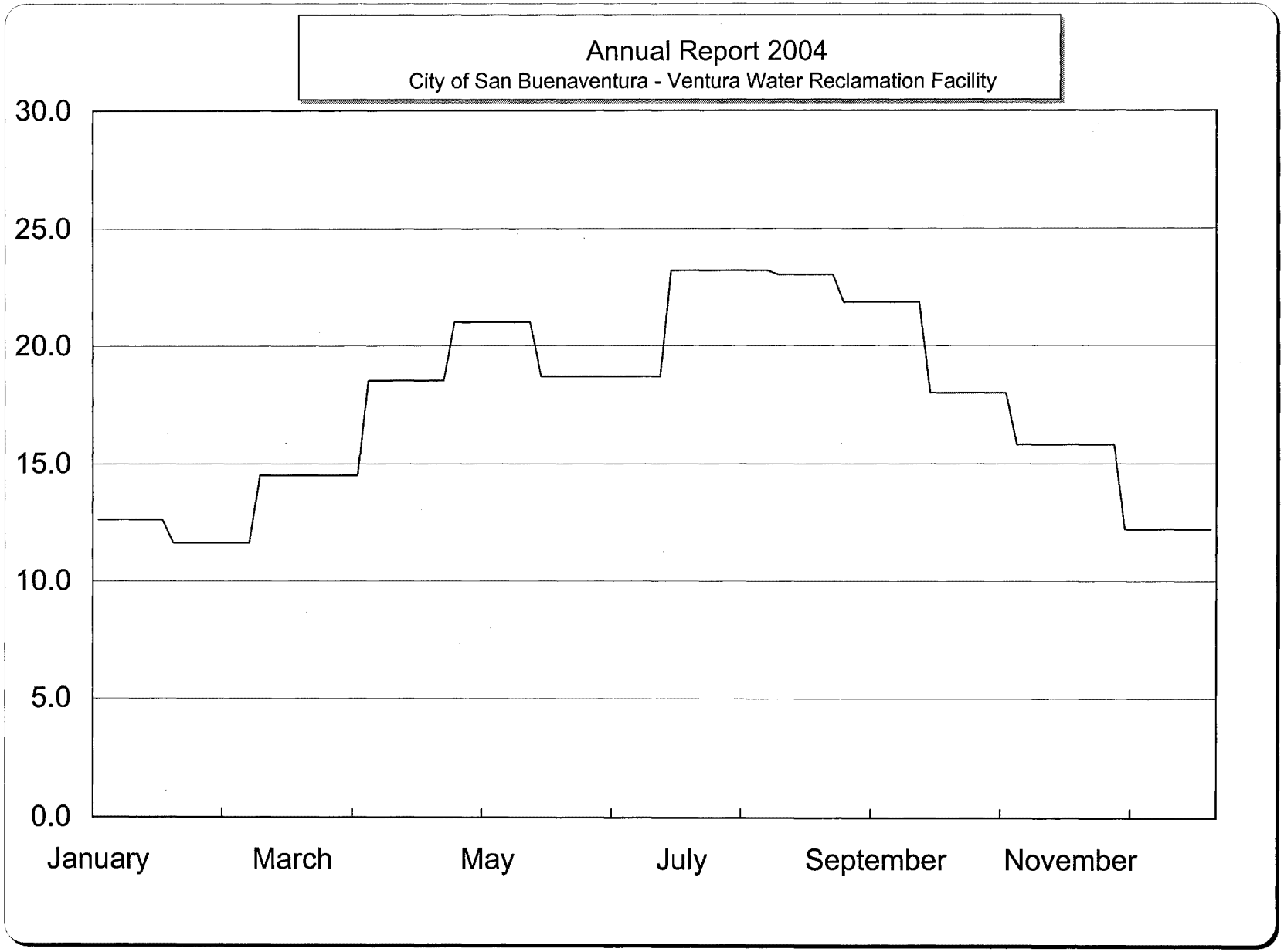
Bimonthly Period

30 Day Average Water Temperature - Degees C



Receiving Water Station - R3
Weekly Water Temperature - Degees C

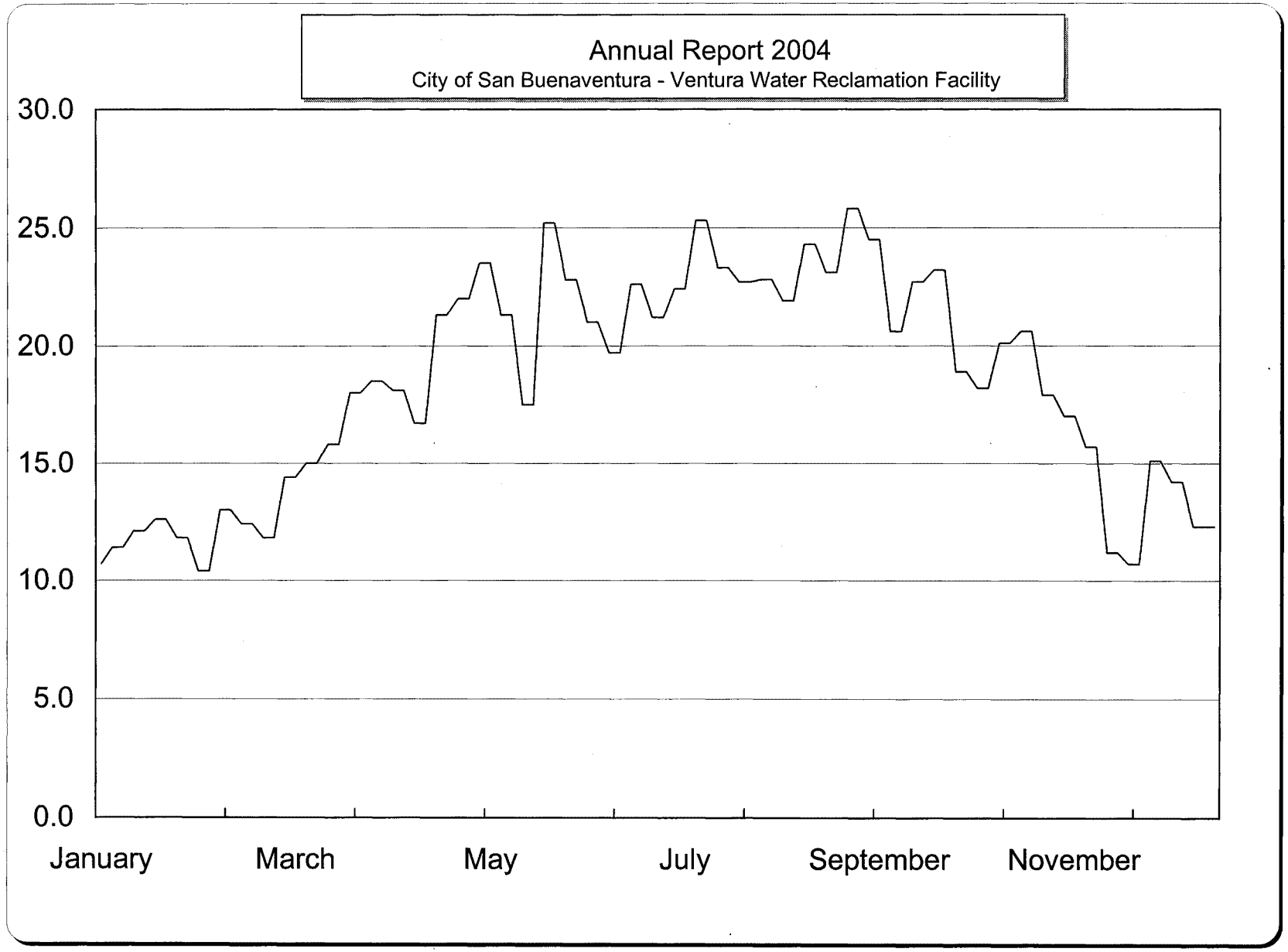
Bimonthly Period



Receiving Water Station - R3

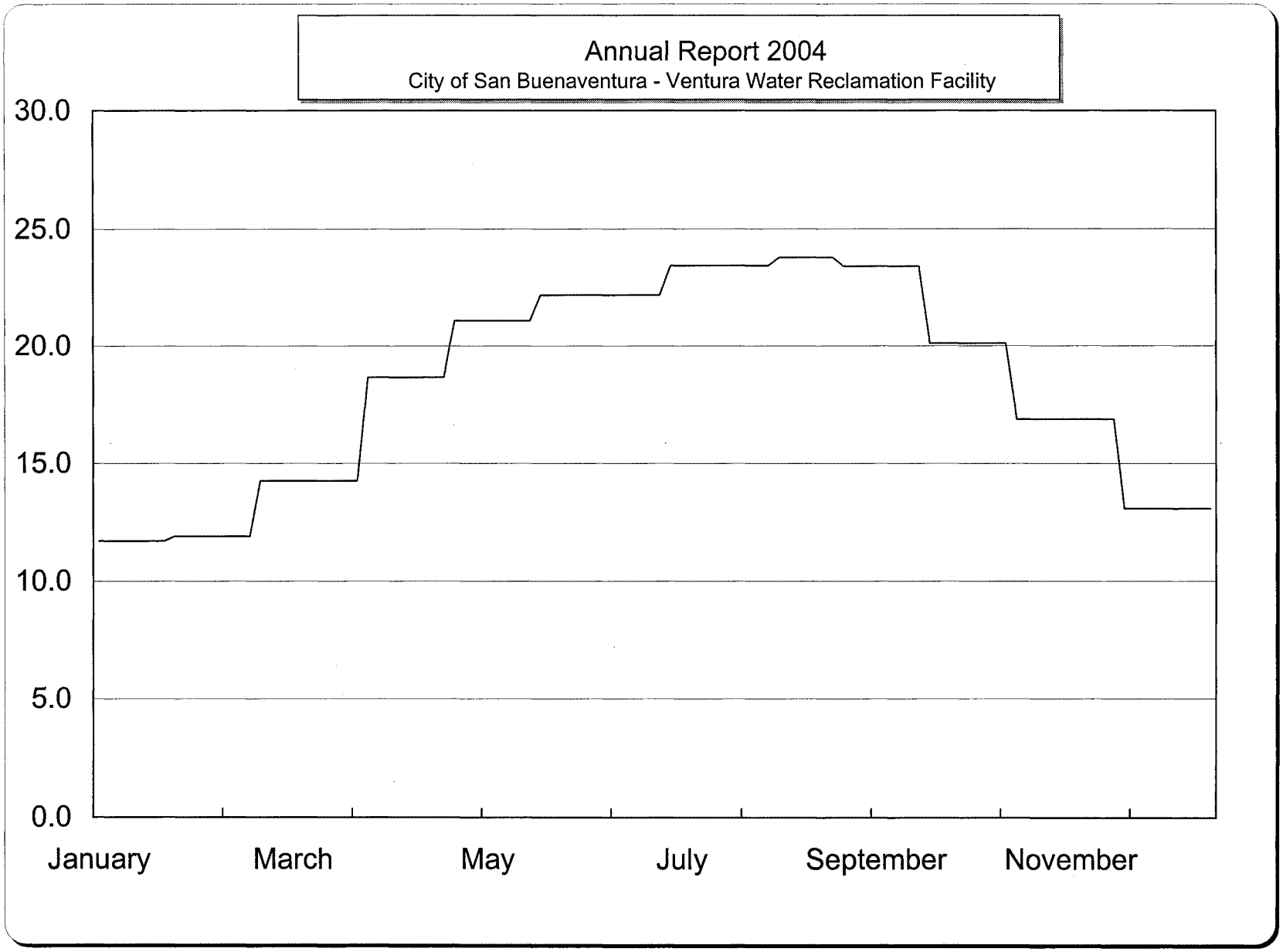
Bimonthly Period

30 Day Average Water Temperature - Degees C



Receiving Water Station - R4
Weekly Water Temperature - Degees C

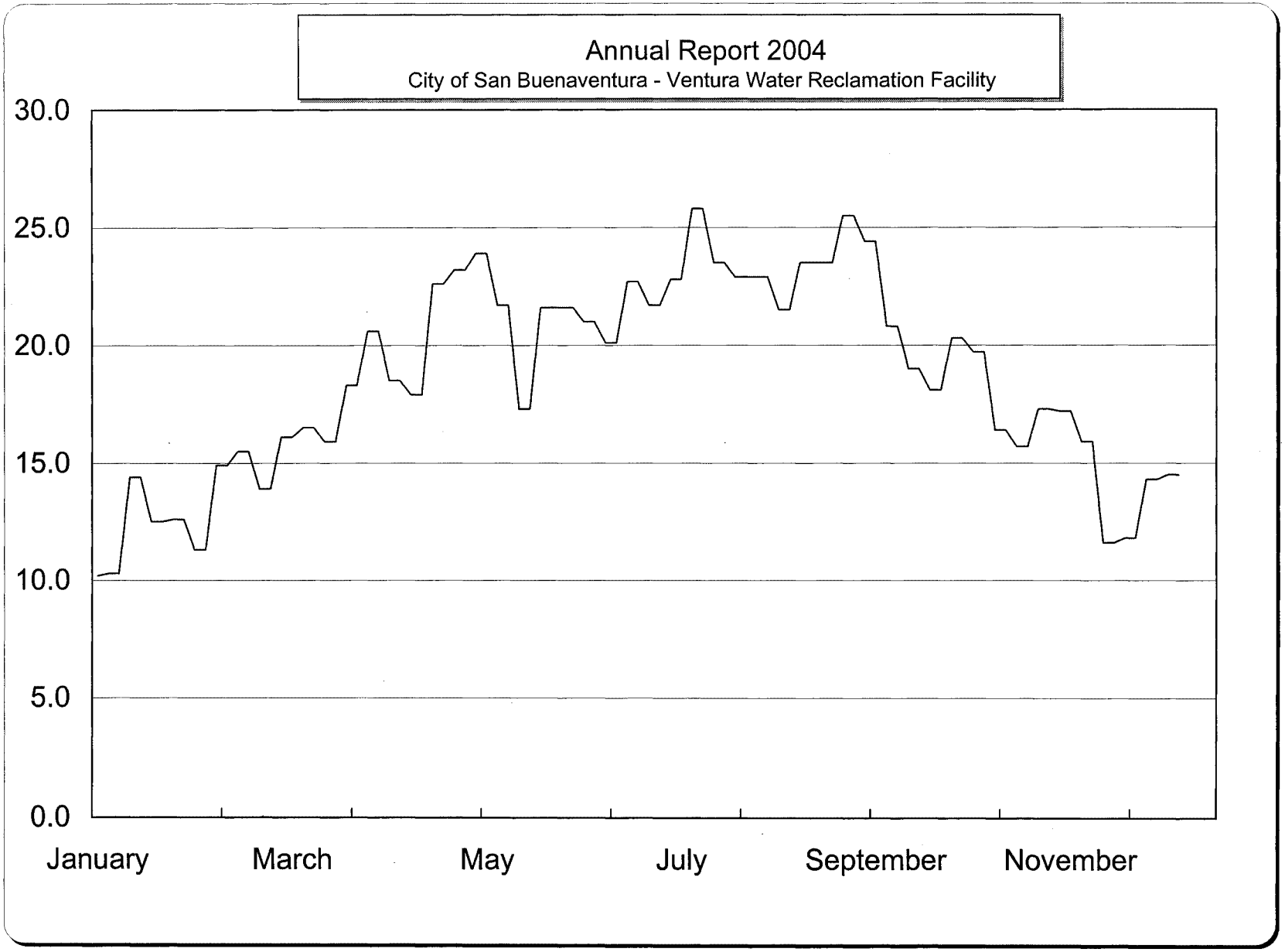
Bimonthly Period



Receiving Water Station - R4

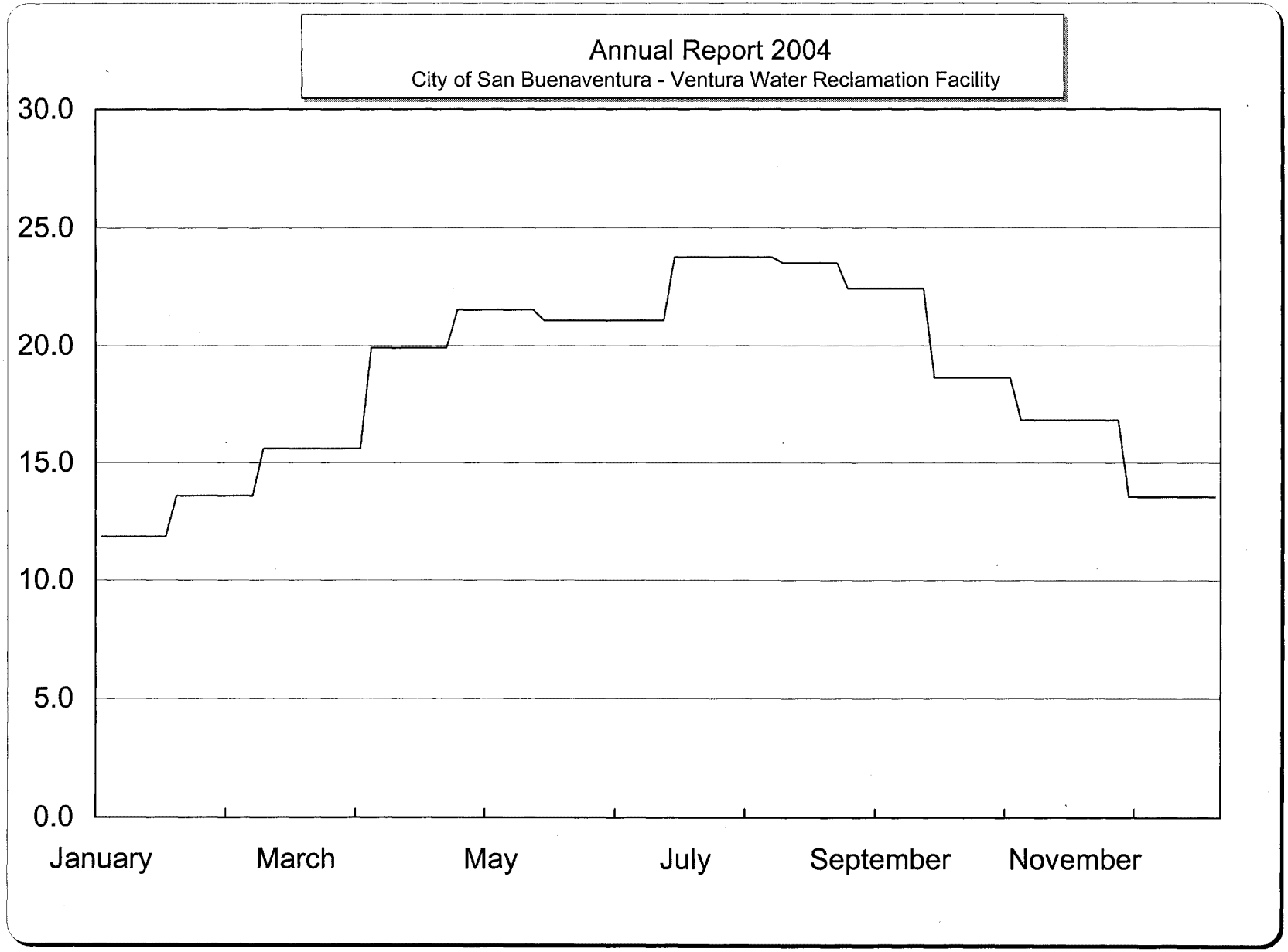
Bimonthly Period

30 Day Average Water Temperature - Degees C



Receiving Water Station - L5
Weekly Water Temperature - Degees C

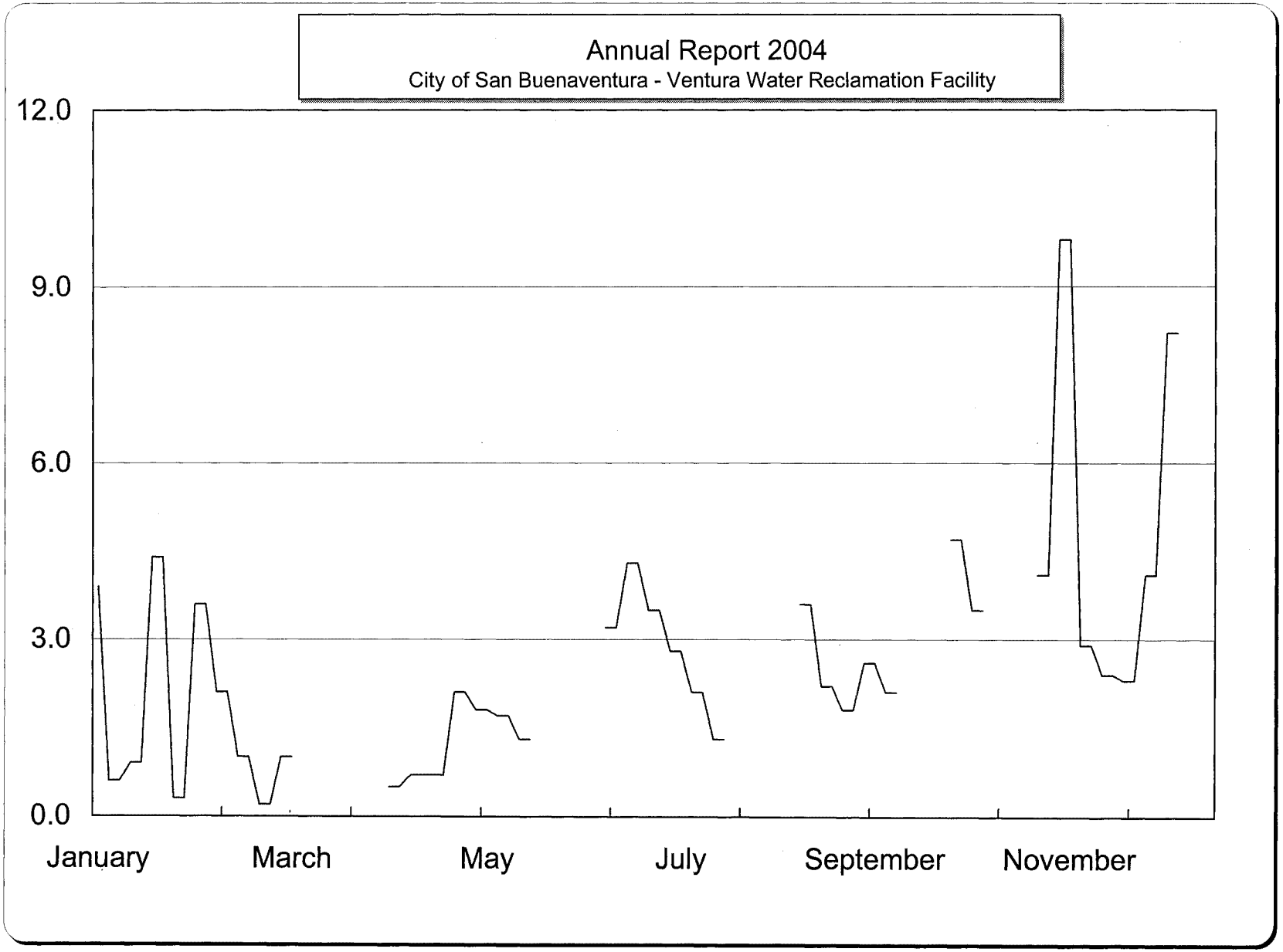
Bimonthly Period



Receiving Water Station - L5

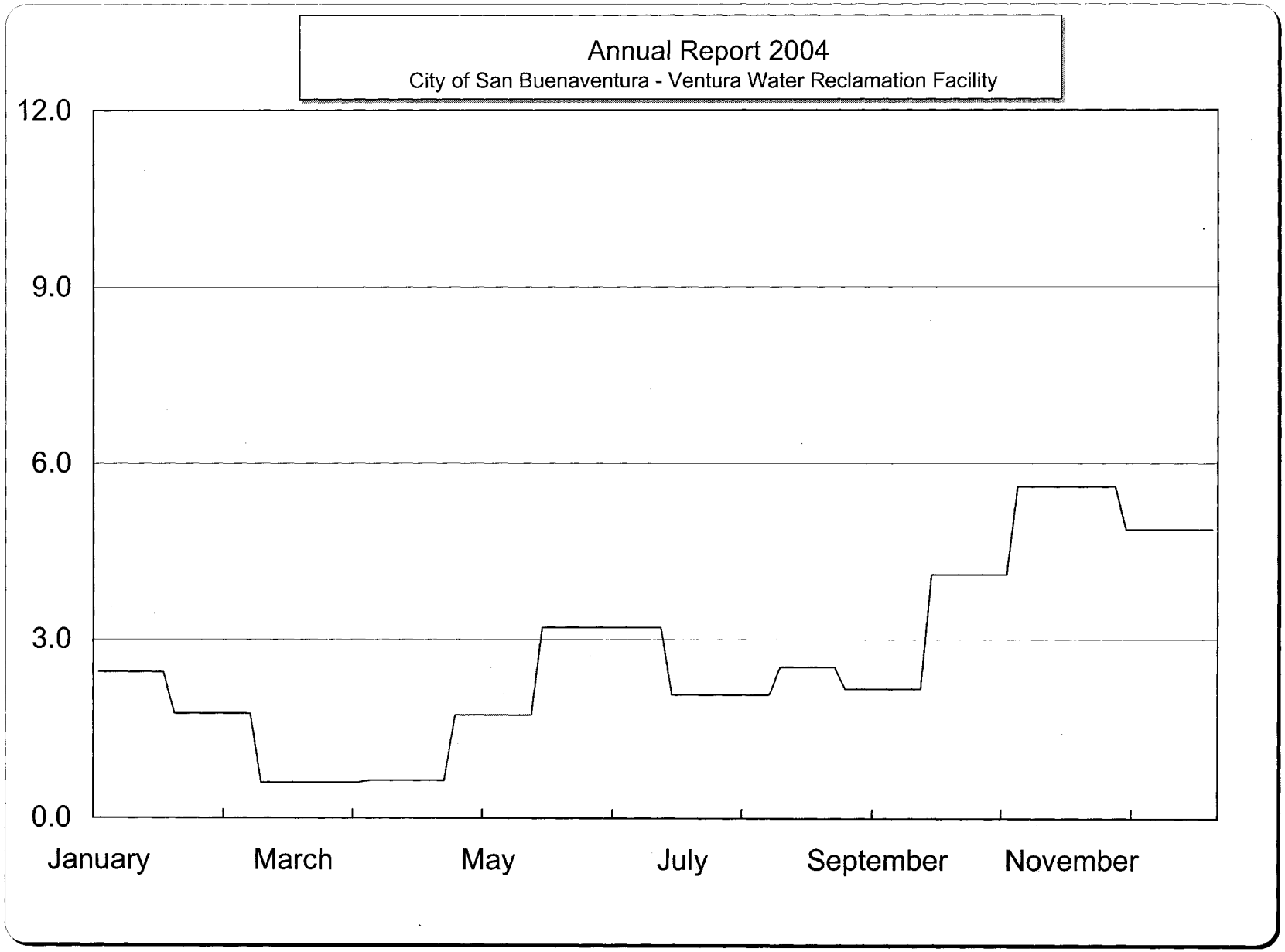
Bimonthly Period

30 Day Average Water Temperature - Degees C



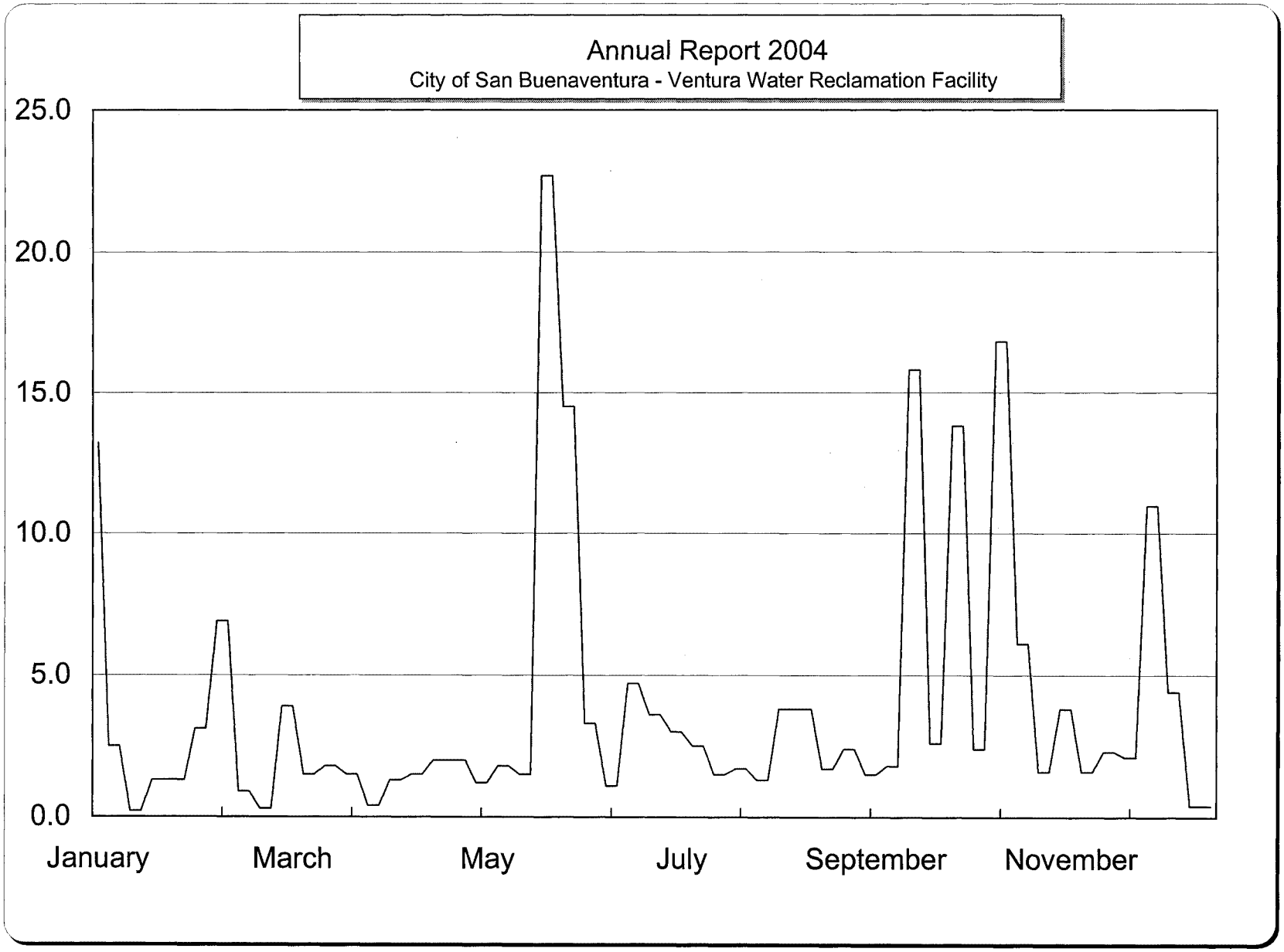
Receiving Water Station - R1
Weekly Water Salinity - ppt

Bimonthly Period



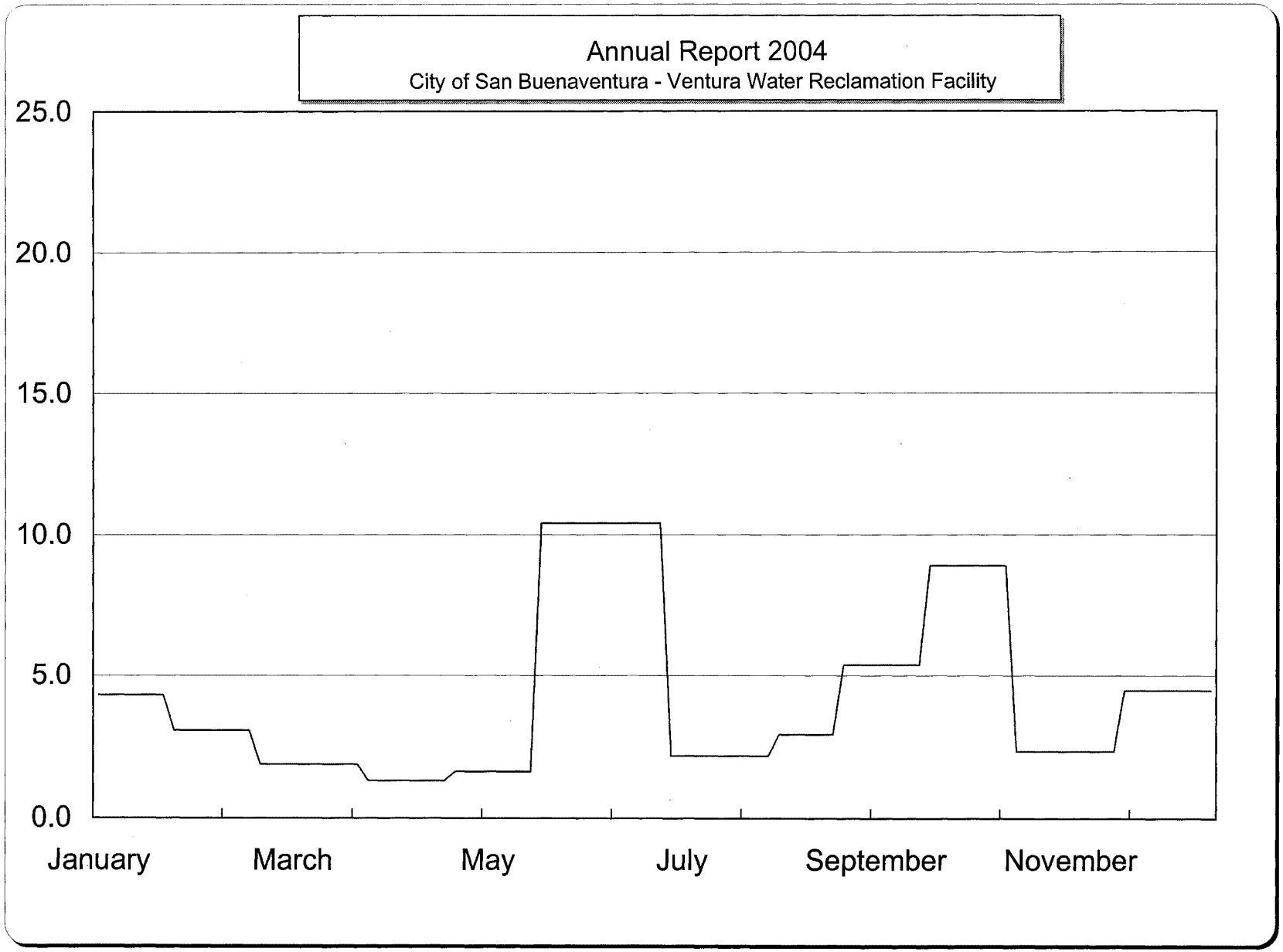
Receiving Water Station - R1
30 Day Average Water Salinity - ppt

Bimonthly Period



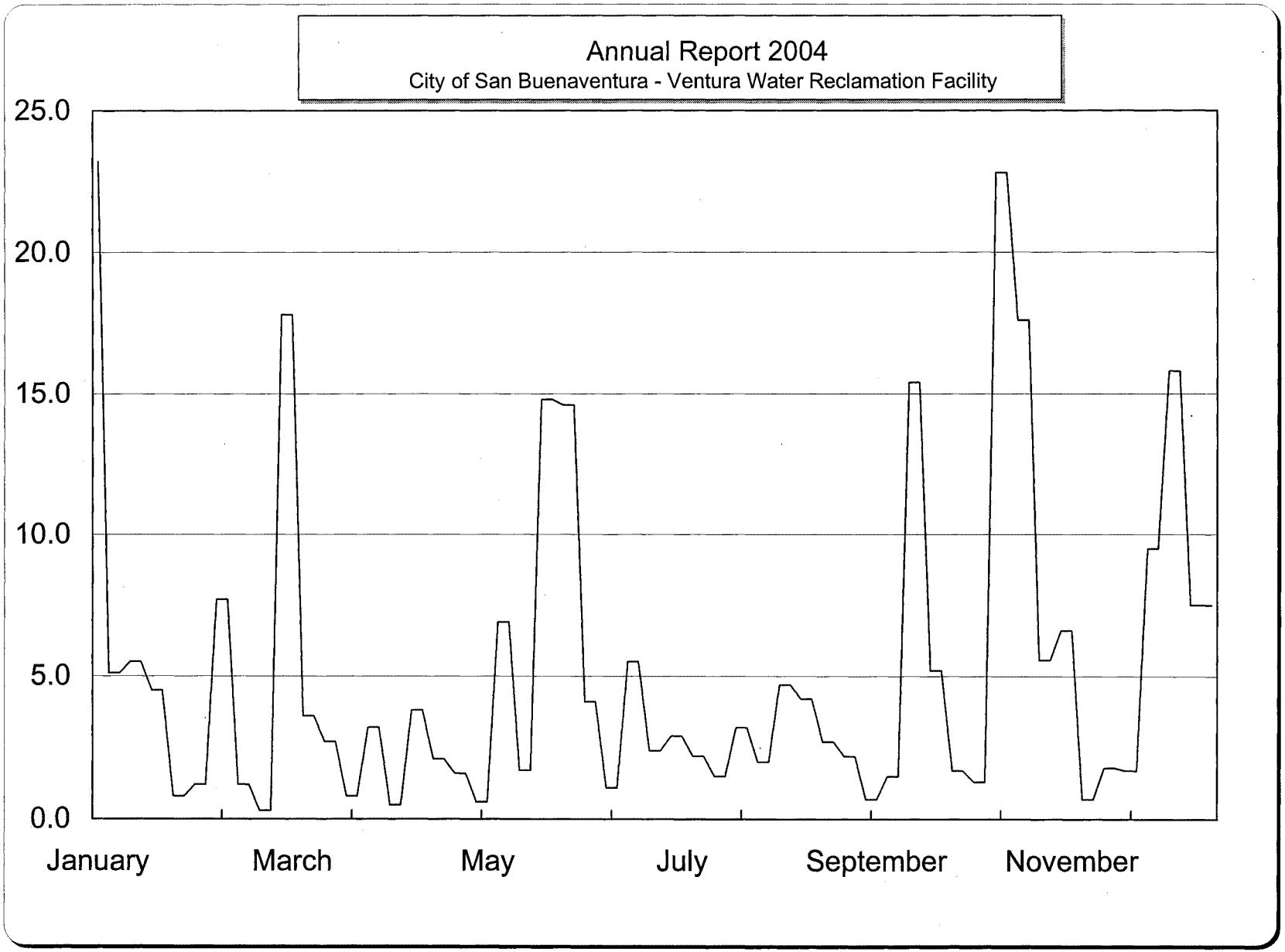
Bimonthly Period

Receiving Water Station - R2
Weekly Water Salinity - ppt



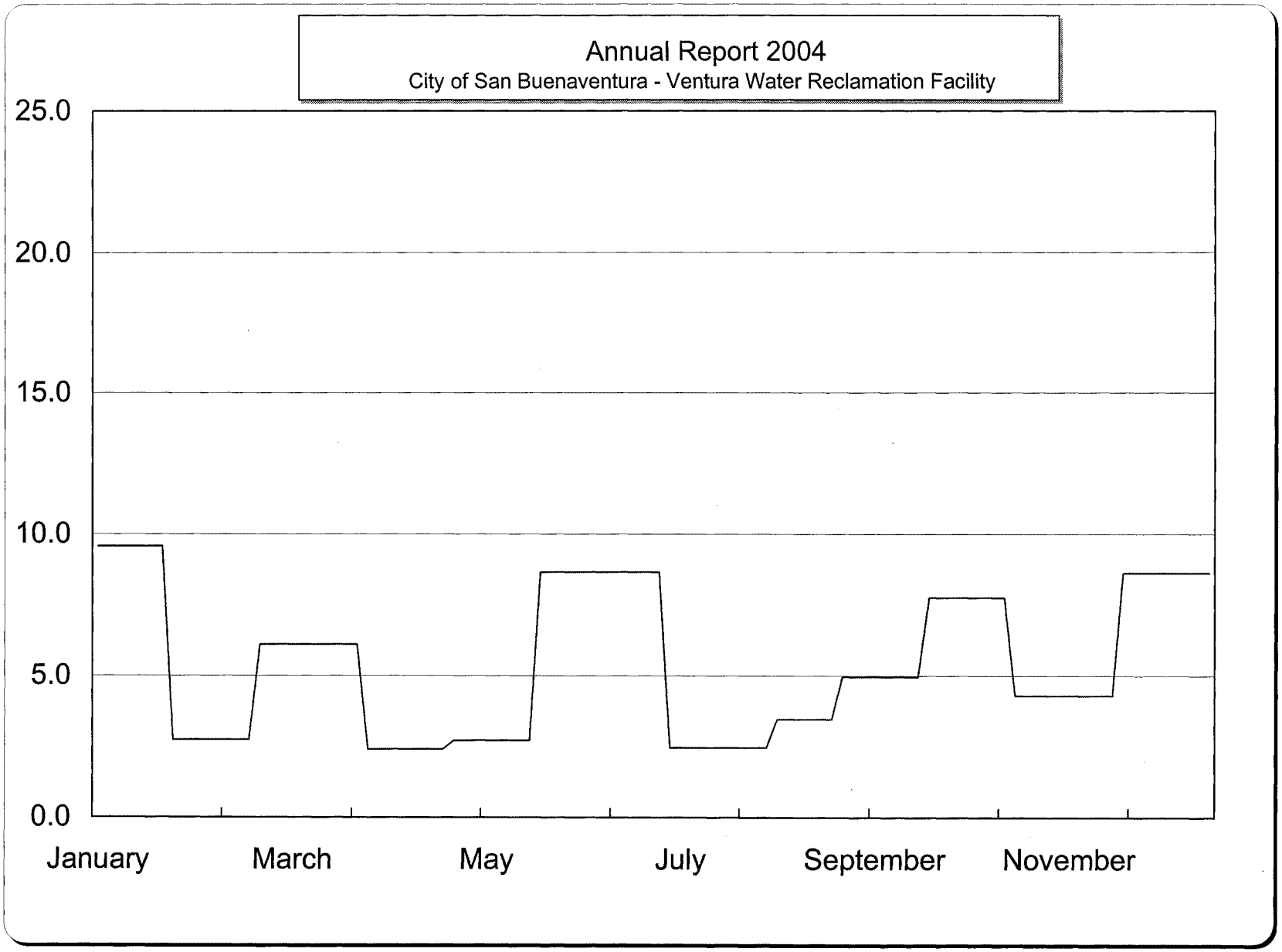
Receiving Water Station - R2
30 Day Average Water Salinity - ppt

Bimonthly Period



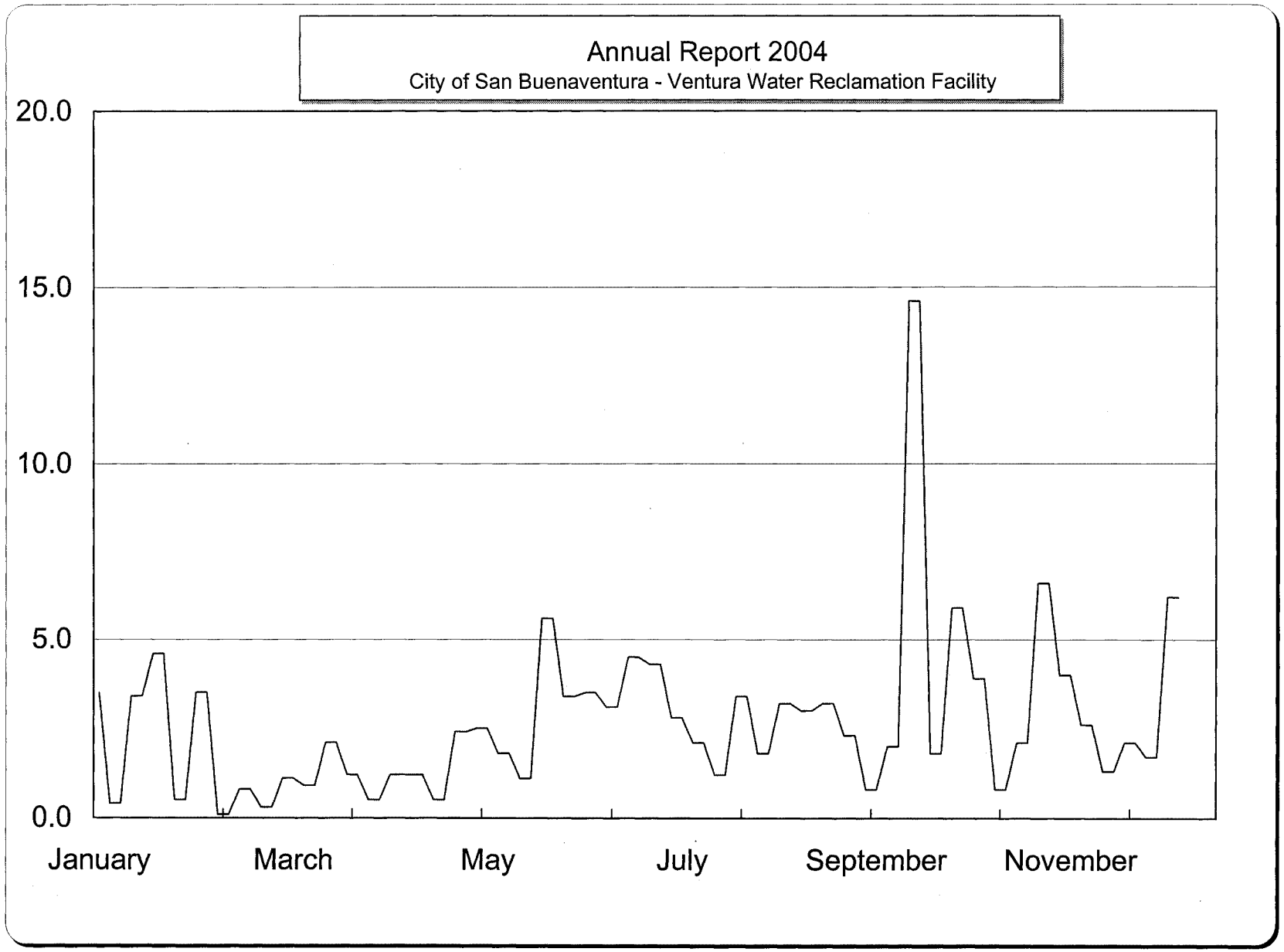
Receiving Water Station - R3
Weekly Water Salinity - ppt

Bimonthly Period



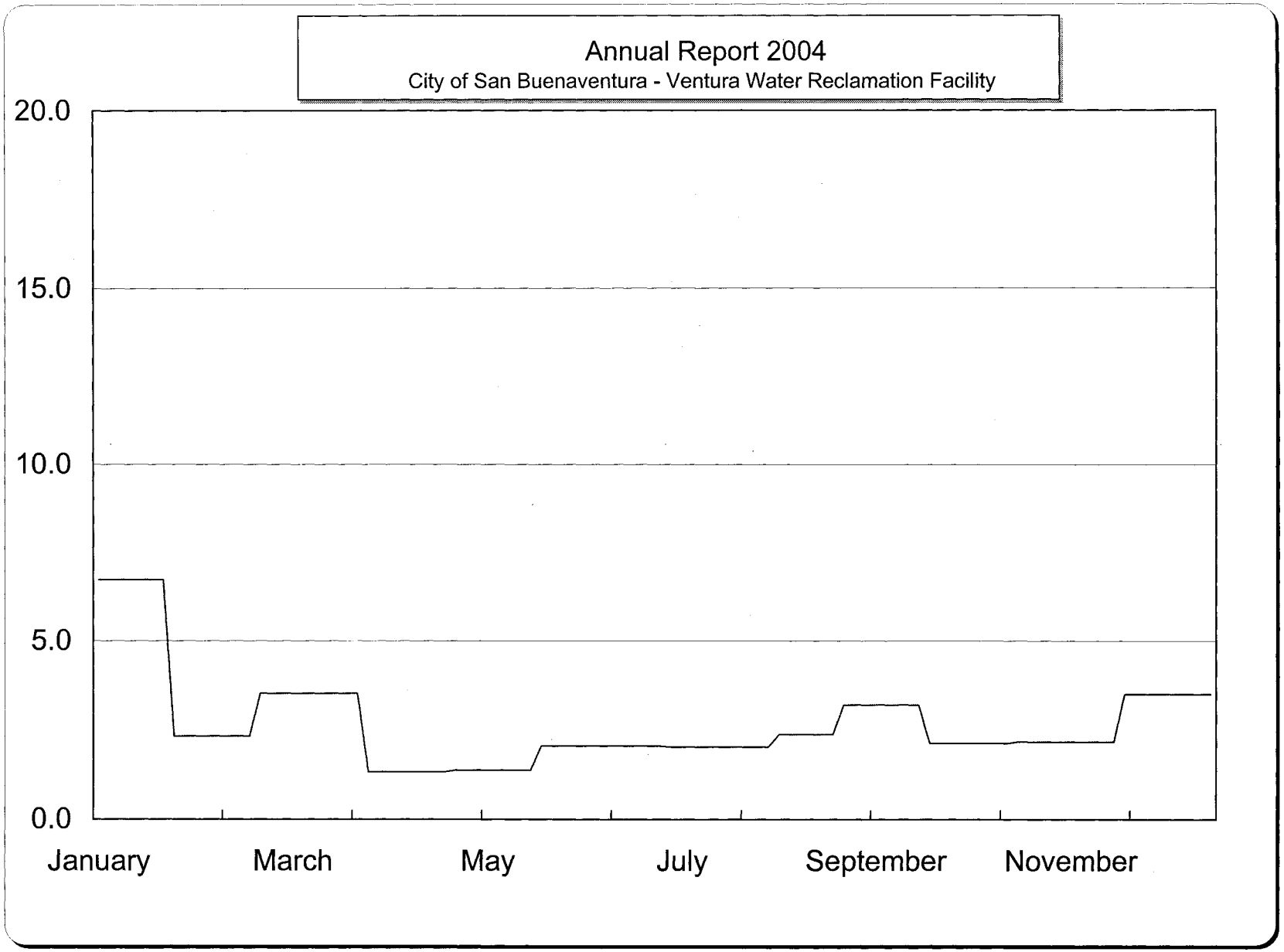
Receiving Water Station - R3
30 Day Average Water Salinity - ppt

Bimonthly Period



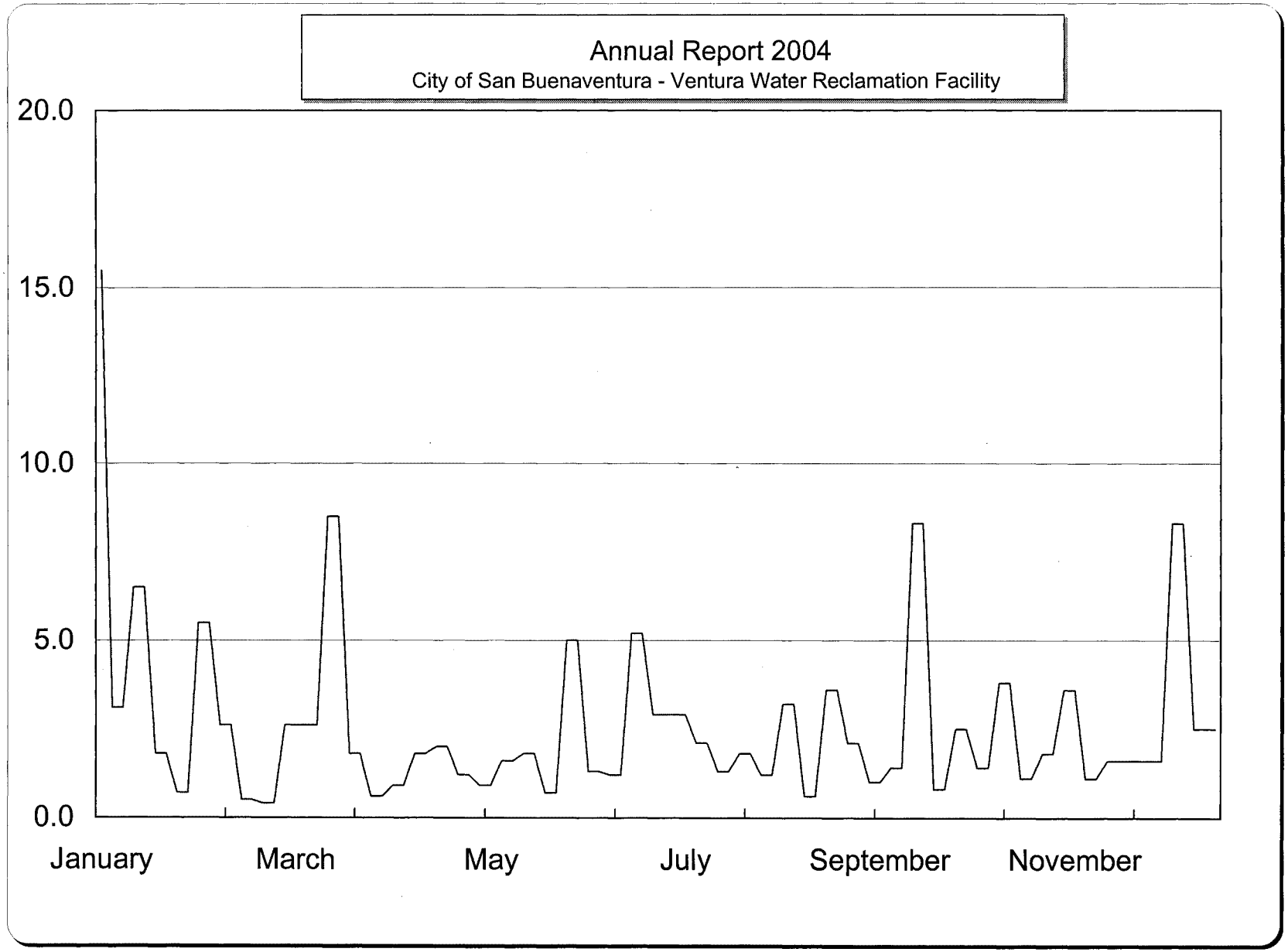
Receiving Water Station - L5
Weekly Water Salinity - ppt

Bimonthly Period



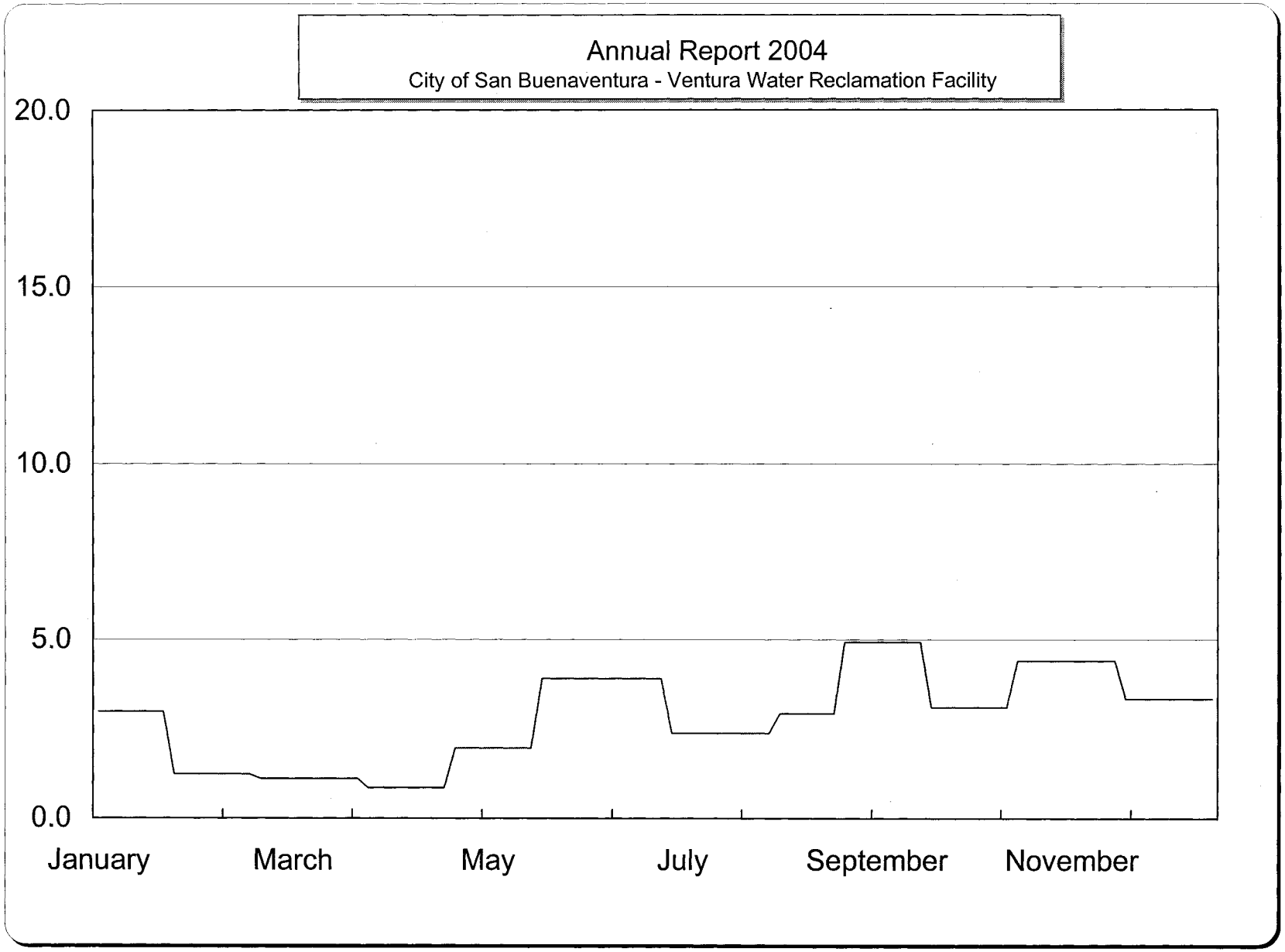
Receiving Water Station - R4
30 Day Average Water Salinity - ppt

Bimonthly Period



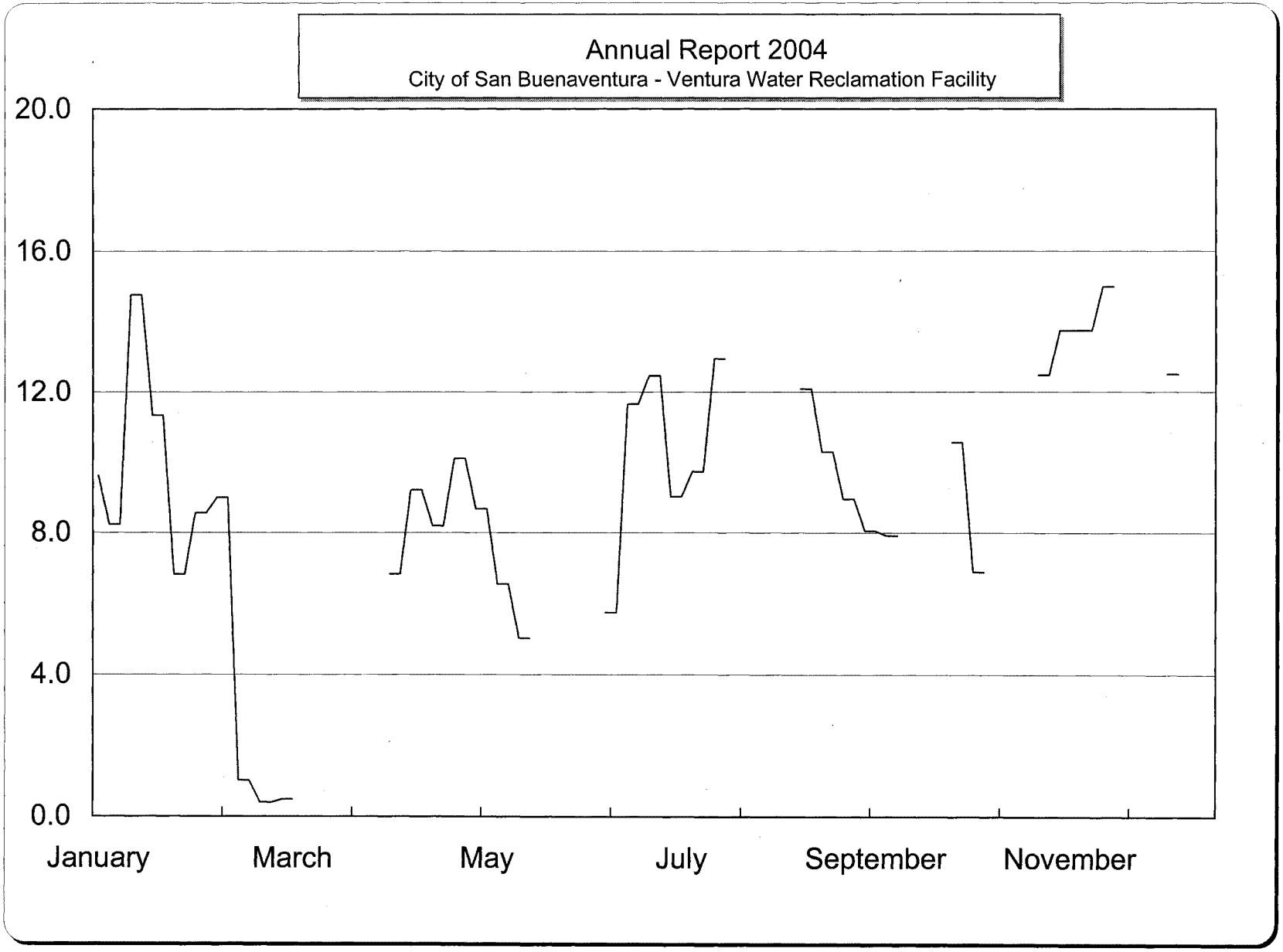
Receiving Water Station - R4
Weekly Water Salinity - ppt

Bimonthly Period



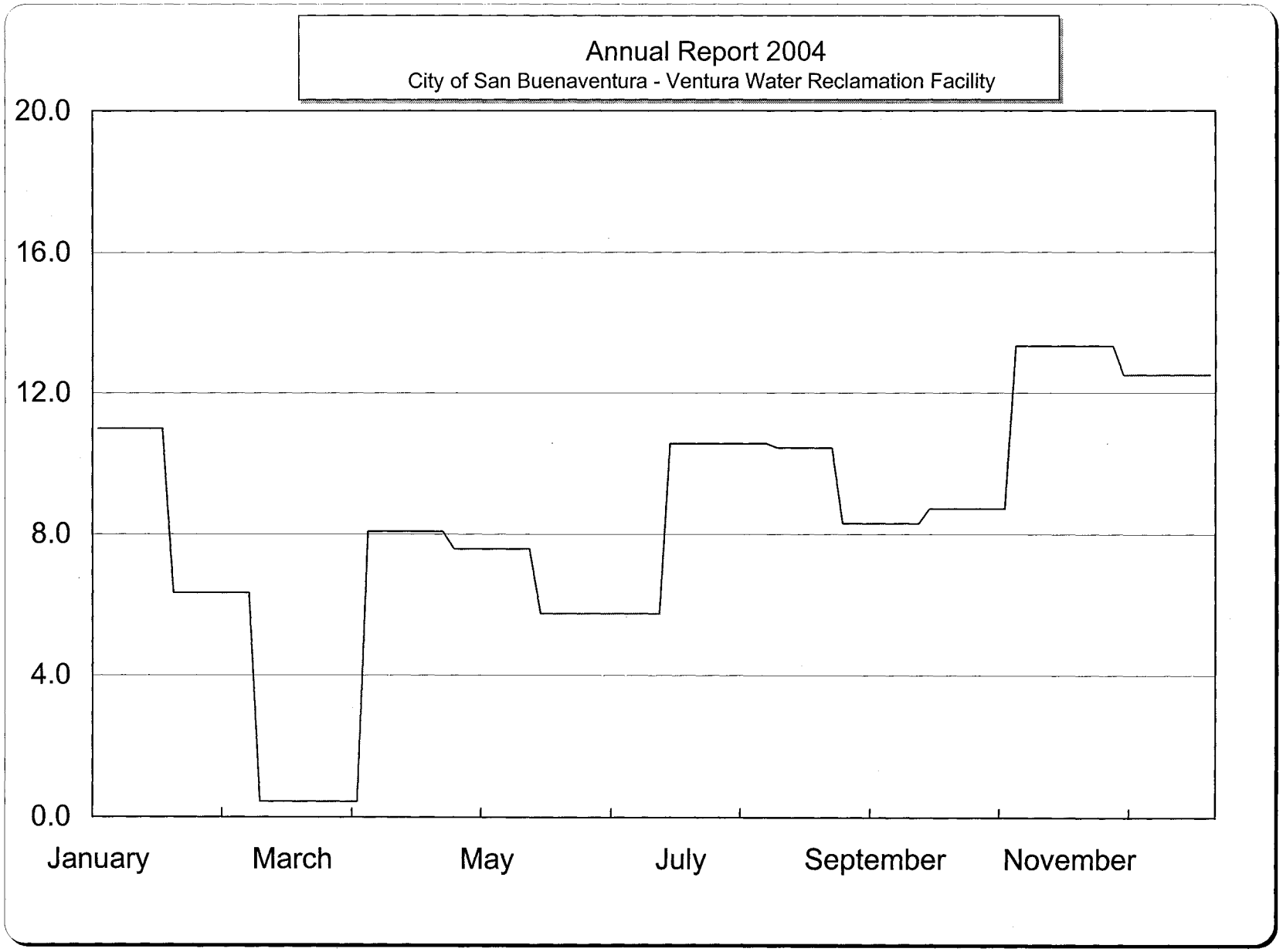
Receiving Water Station - L5
30 Day Average Water Salinity - ppt

Bimonthly Period



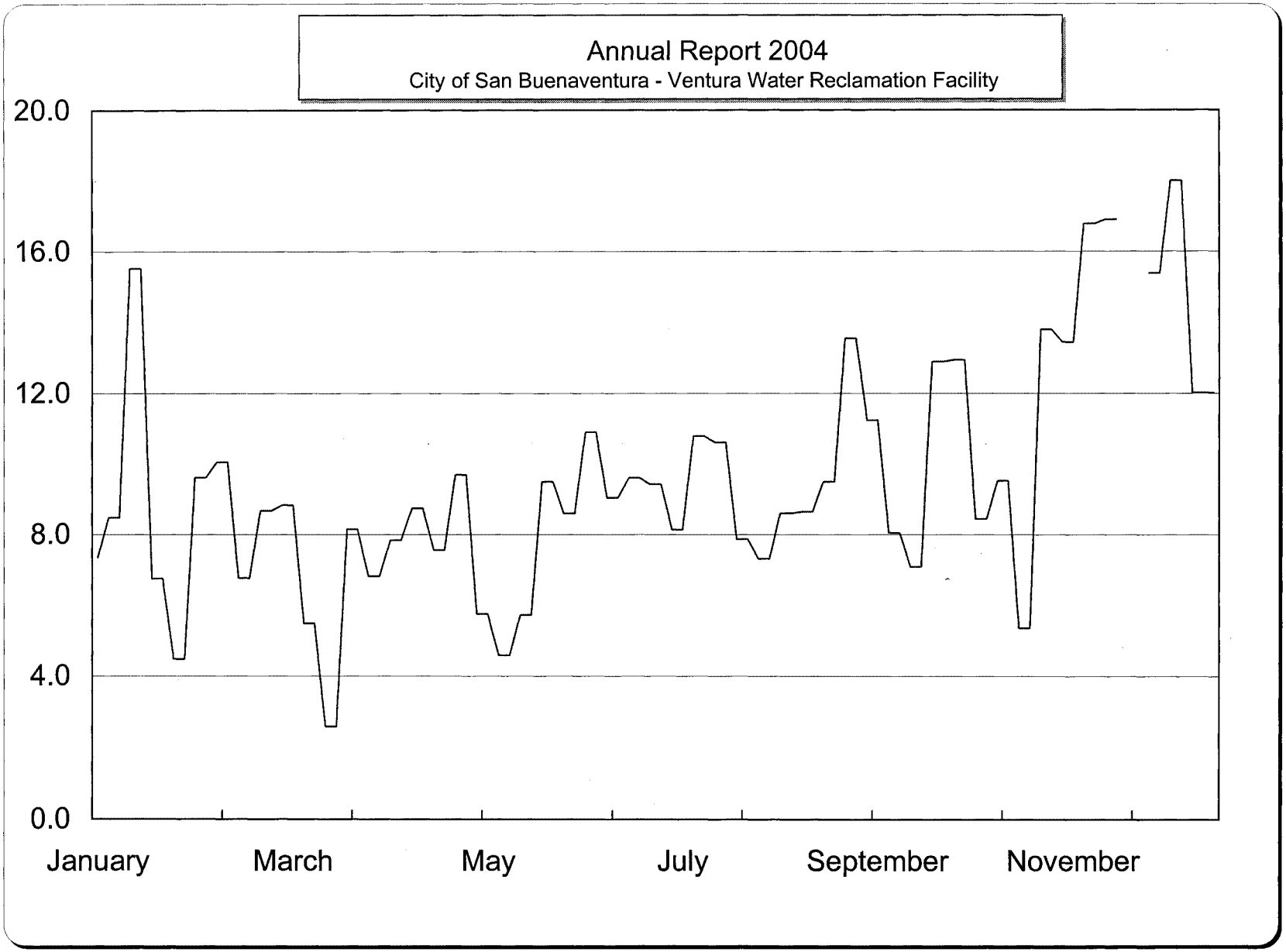
Receiving Water Station -R1
Weekly Dissolved Oxygen - mg/L

Bimonthly Period



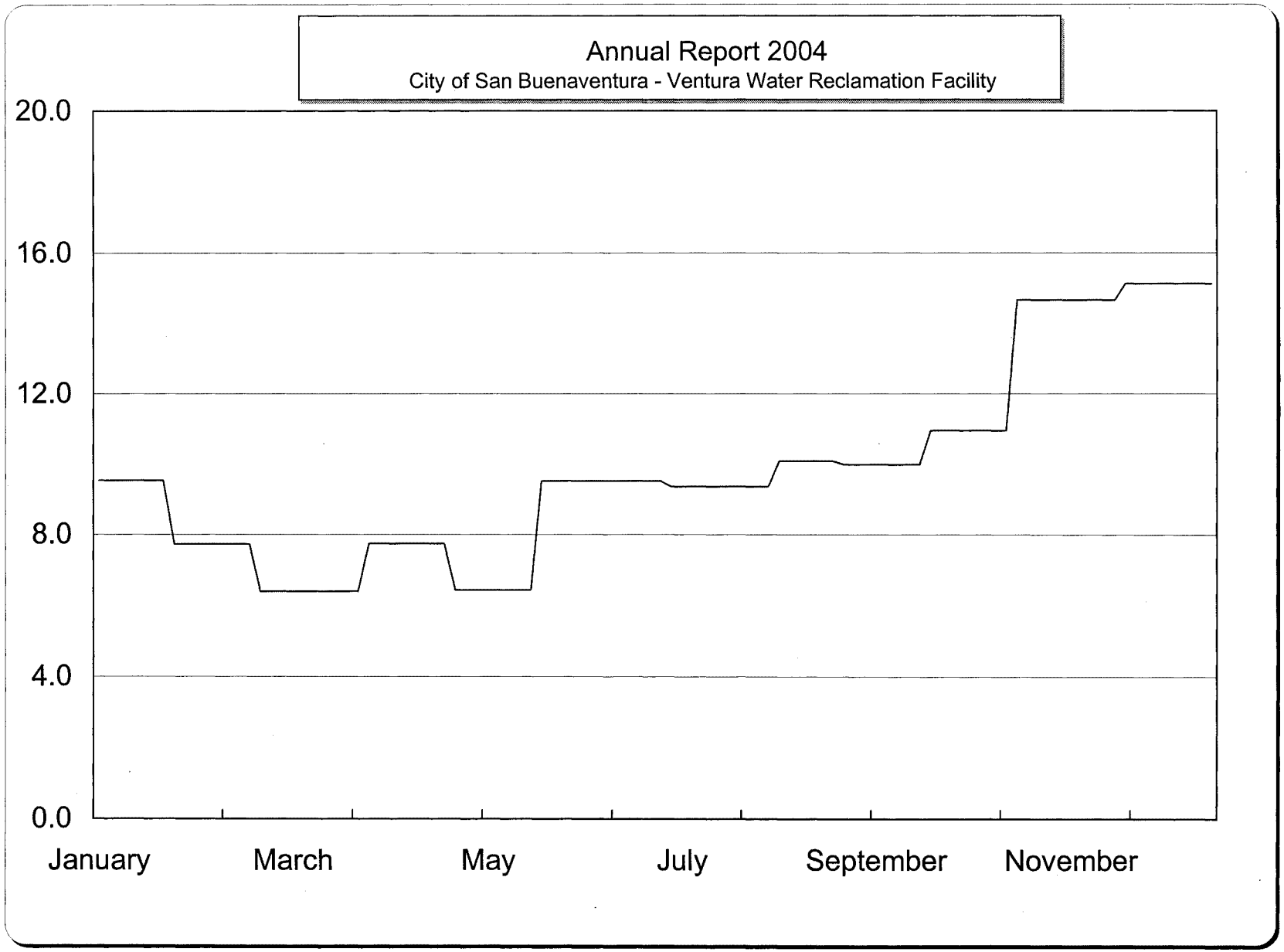
Receiving Water Station -R1
30 Day Average Dissolved Oxygen - mg/L

Bimonthly Period



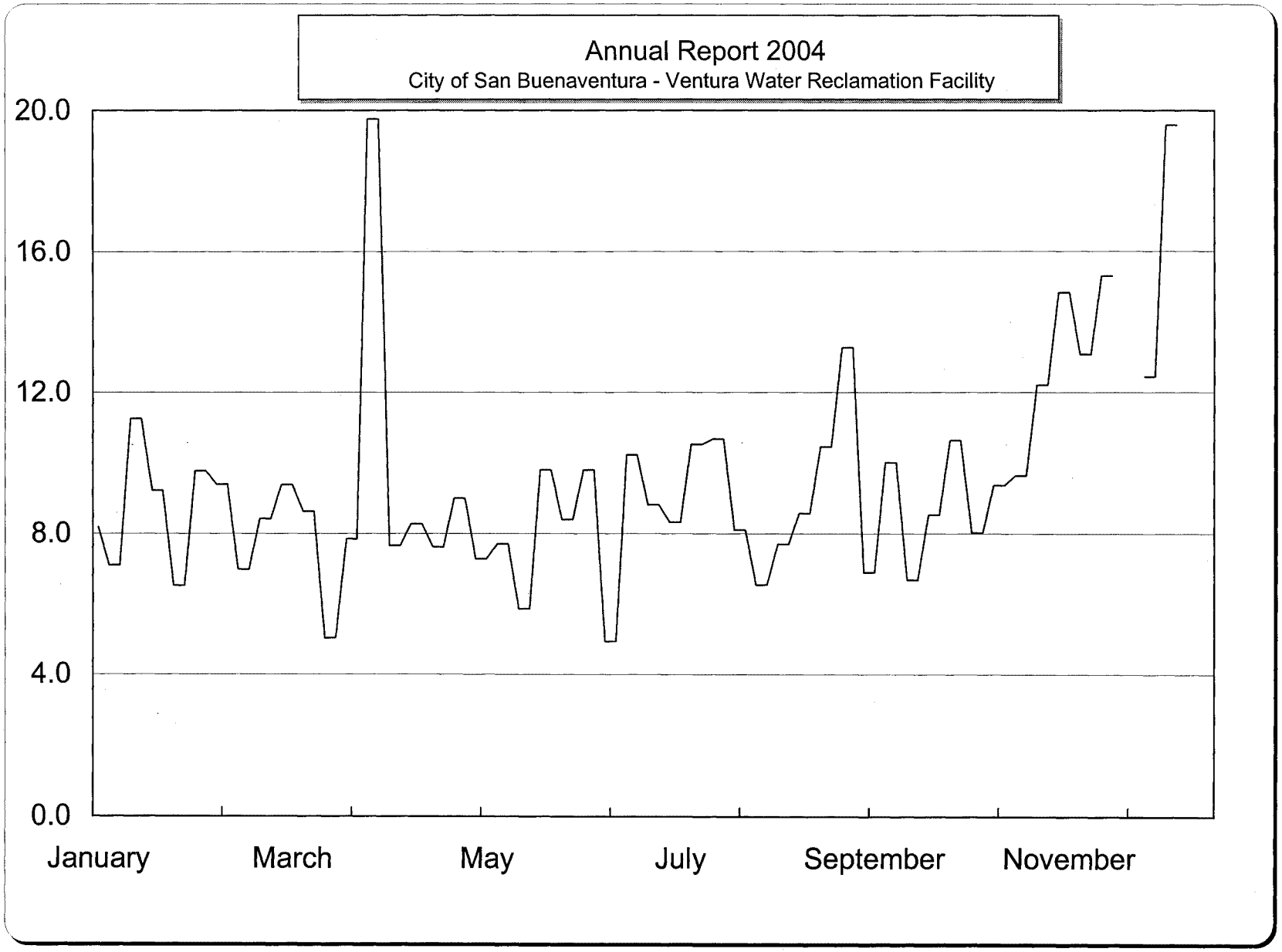
Receiving Water Station -R2
Weekly Dissolved Oxygen - mg/L

Bimonthly Period



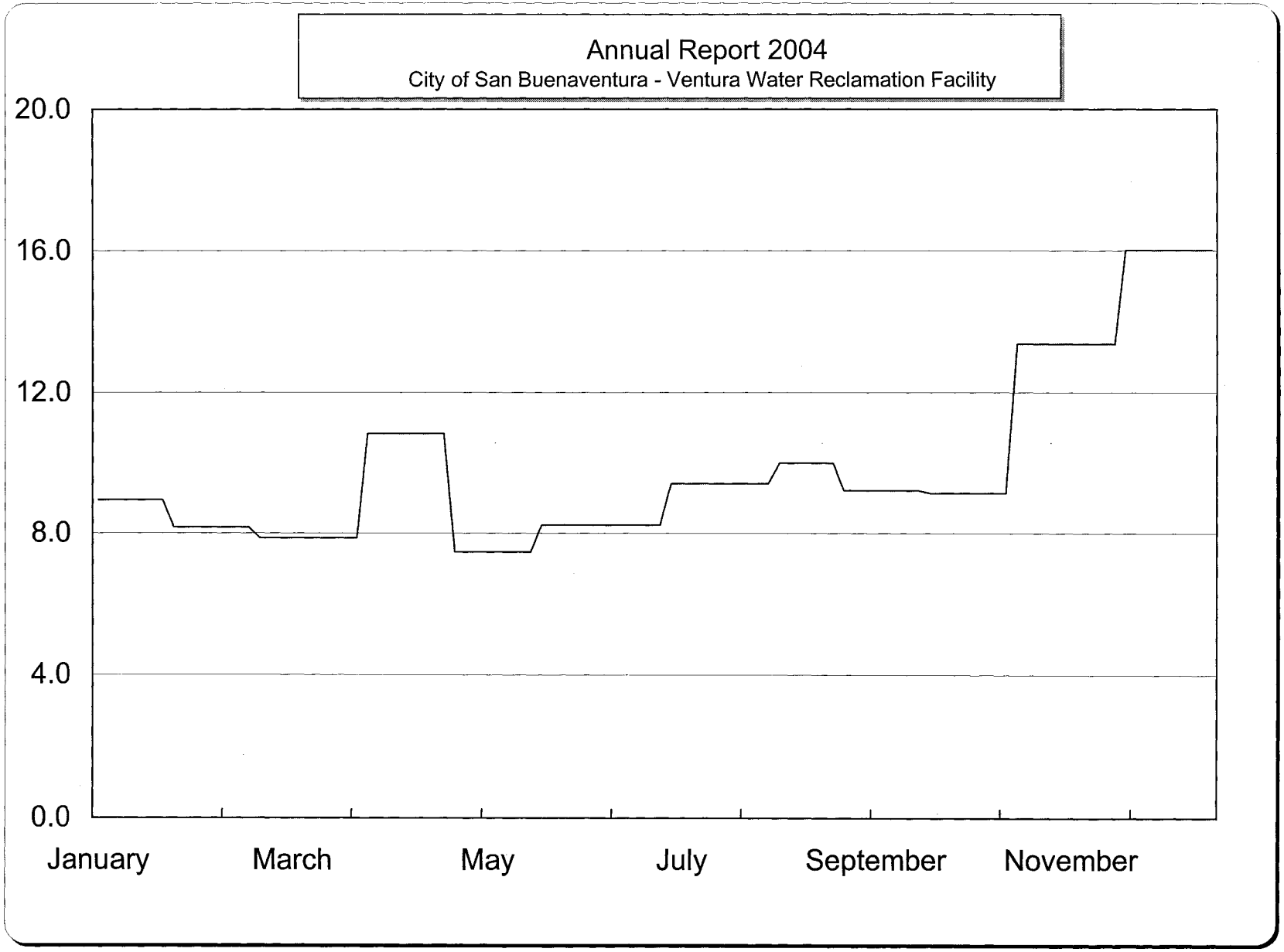
Receiving Water Station -R2
30 Day Average Dissolved Oxygen - mg/L

Bimonthly Period



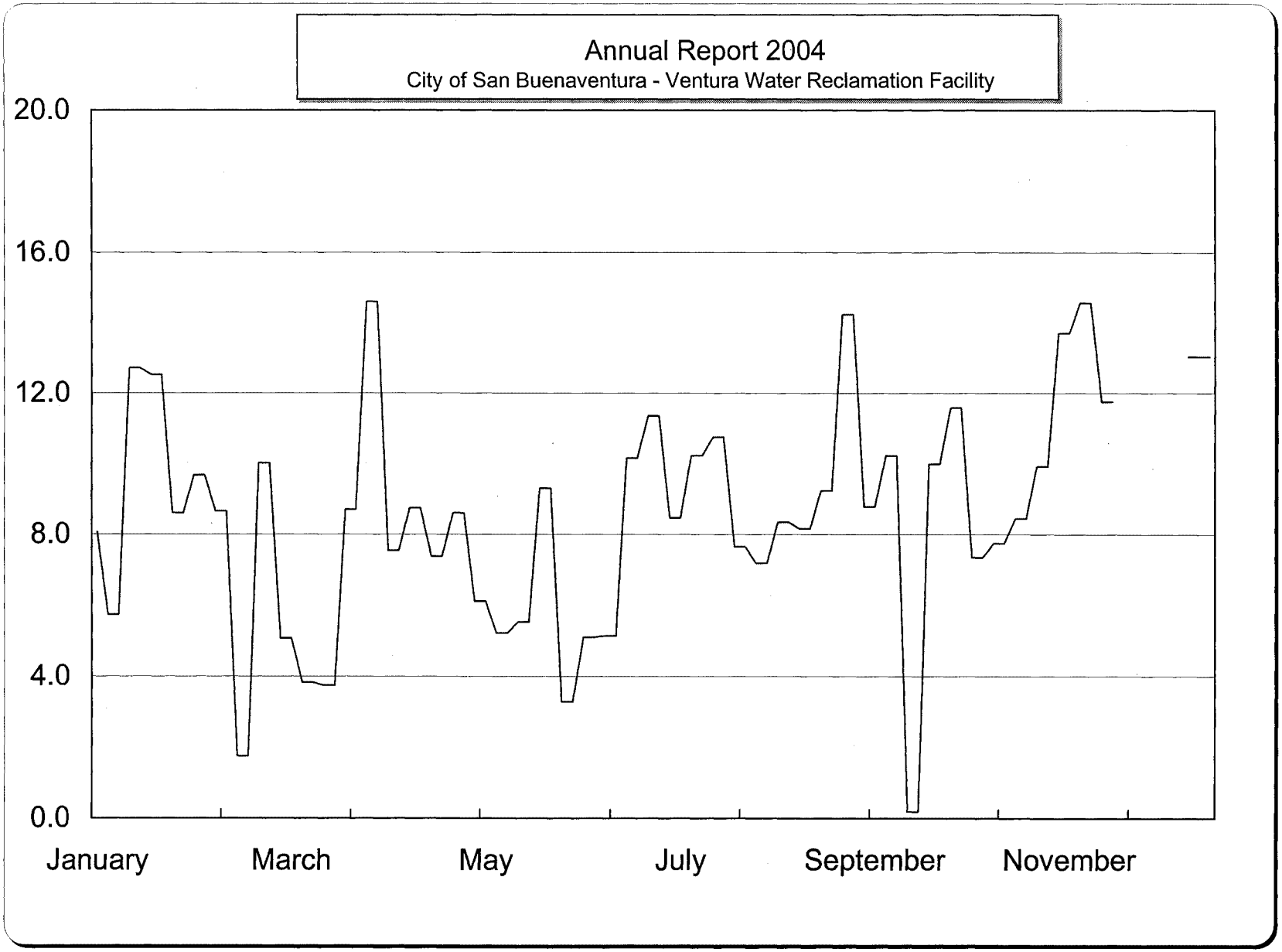
Receiving Water Station -R3
Weekly Dissolved Oxygen - mg/L

Bimonthly Period



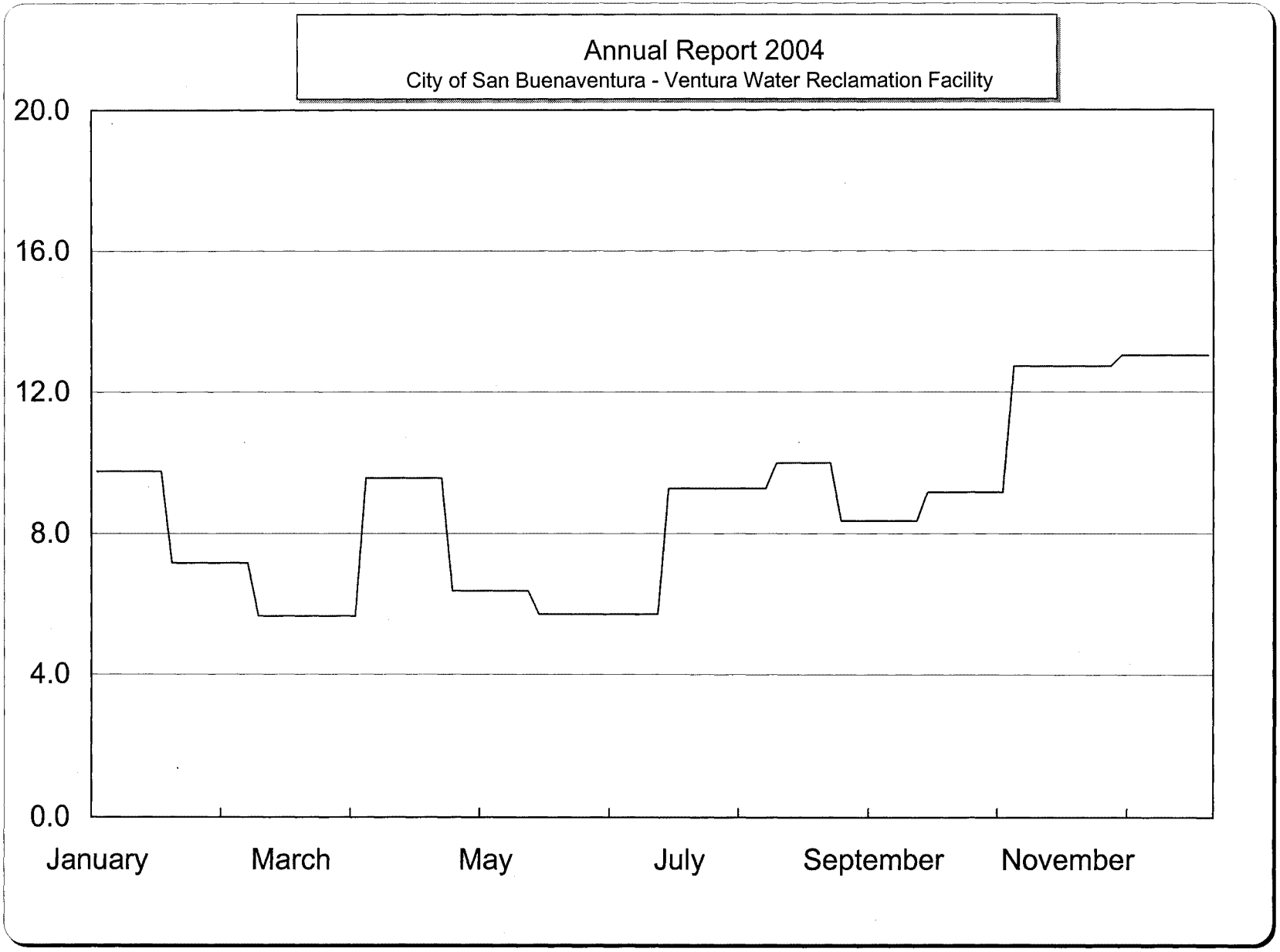
Receiving Water Station -R3
30 Day Average Dissolved Oxygen - mg/L

Bimonthly Period



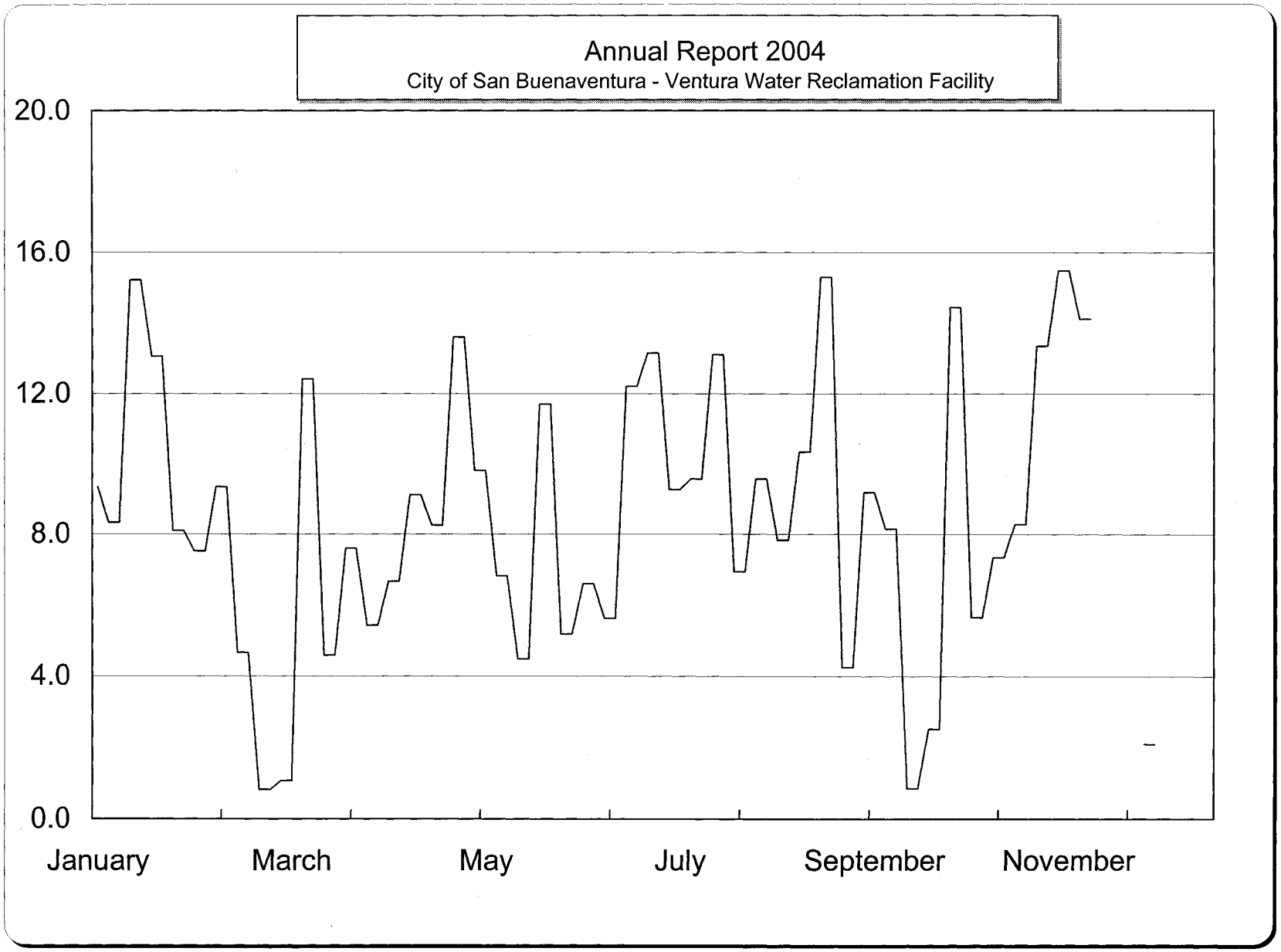
Receiving Water Station -R4
Weekly Dissolved Oxygen - mg/L

Bimonthly Period



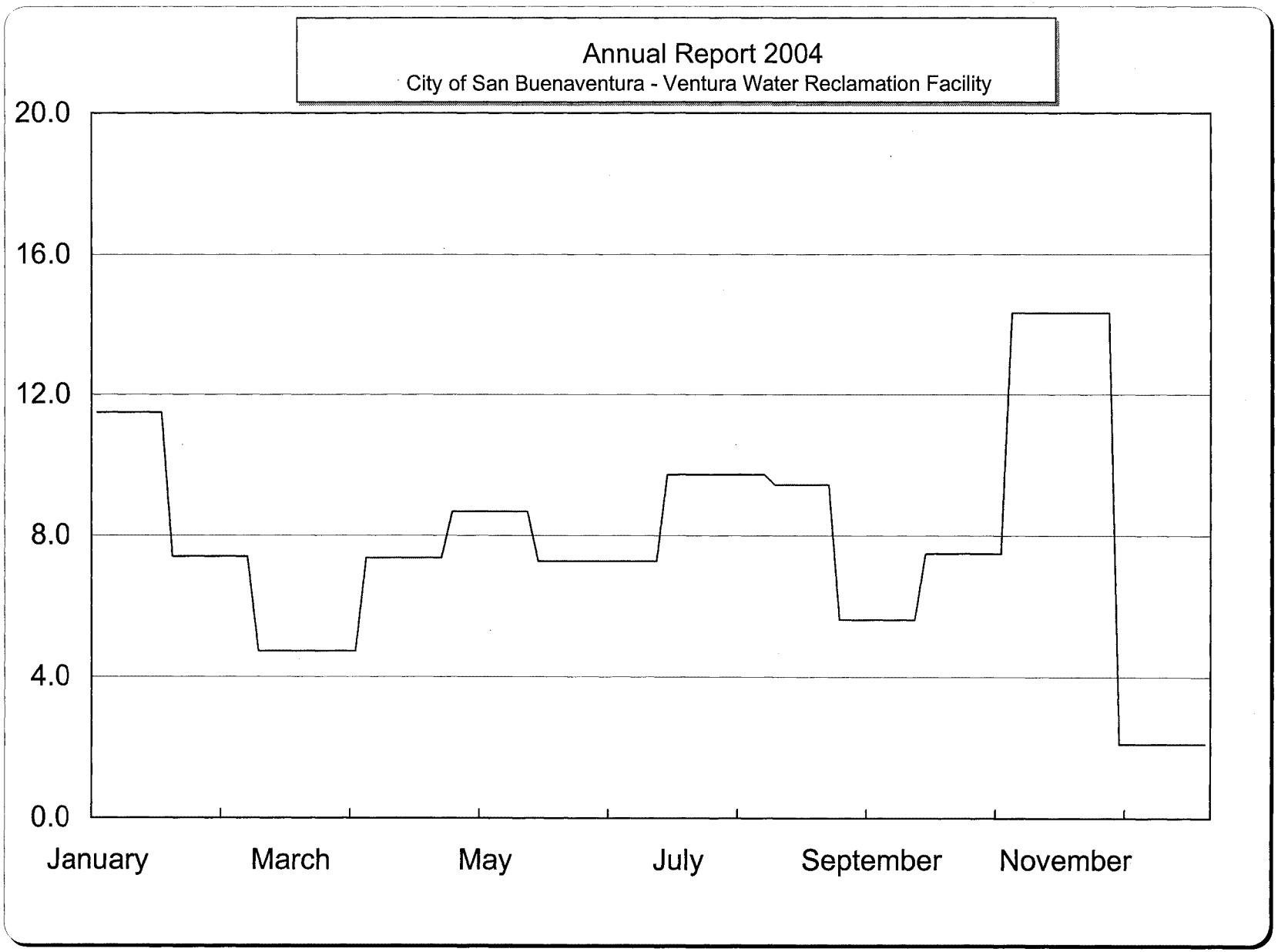
Receiving Water Station -R4
30 Day Average Dissolved Oxygen - mg/L

Bimonthly Period



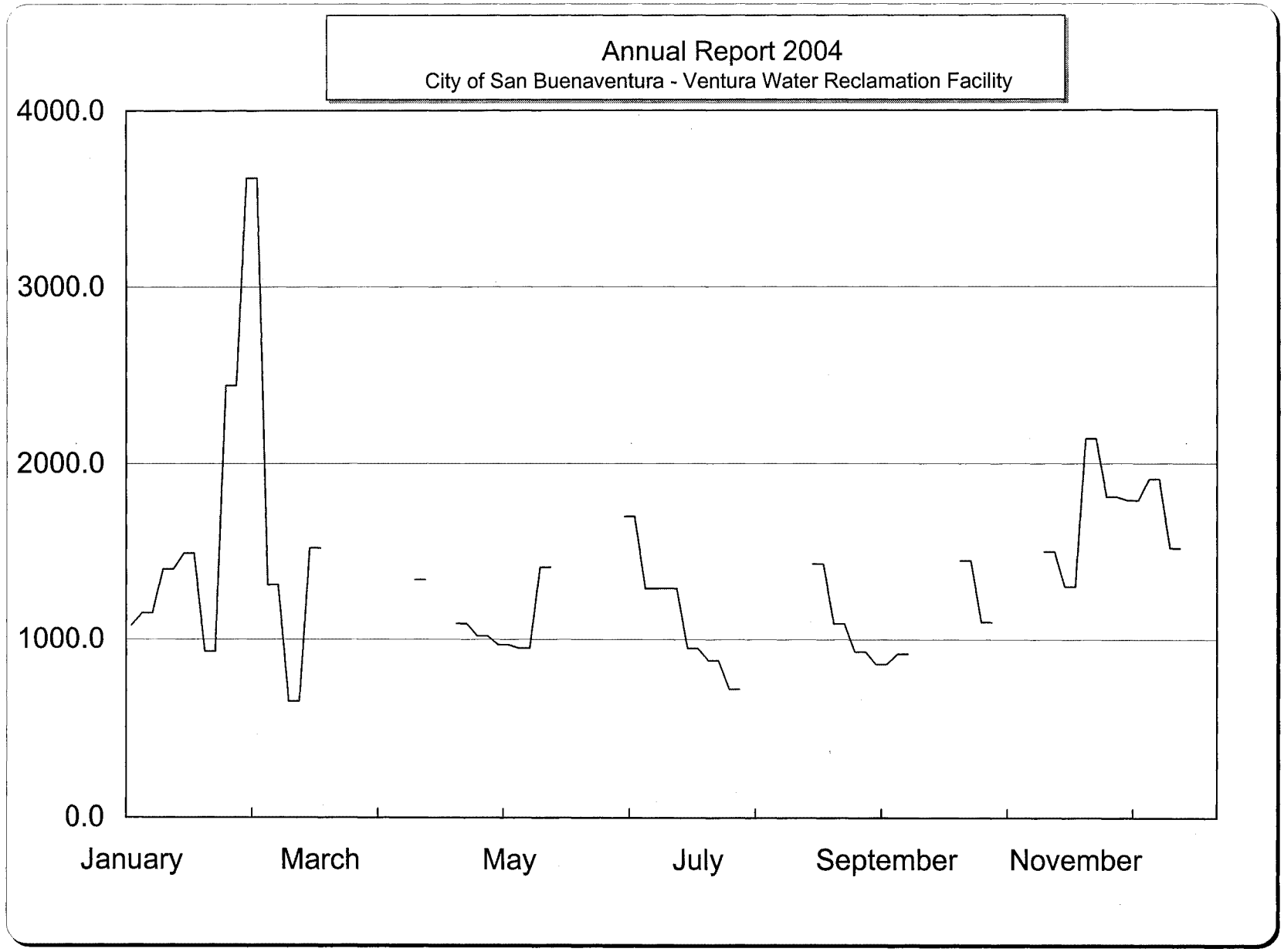
Receiving Water Station -L5
Weekly Dissolved Oxygen - mg/L

Bimonthly Period



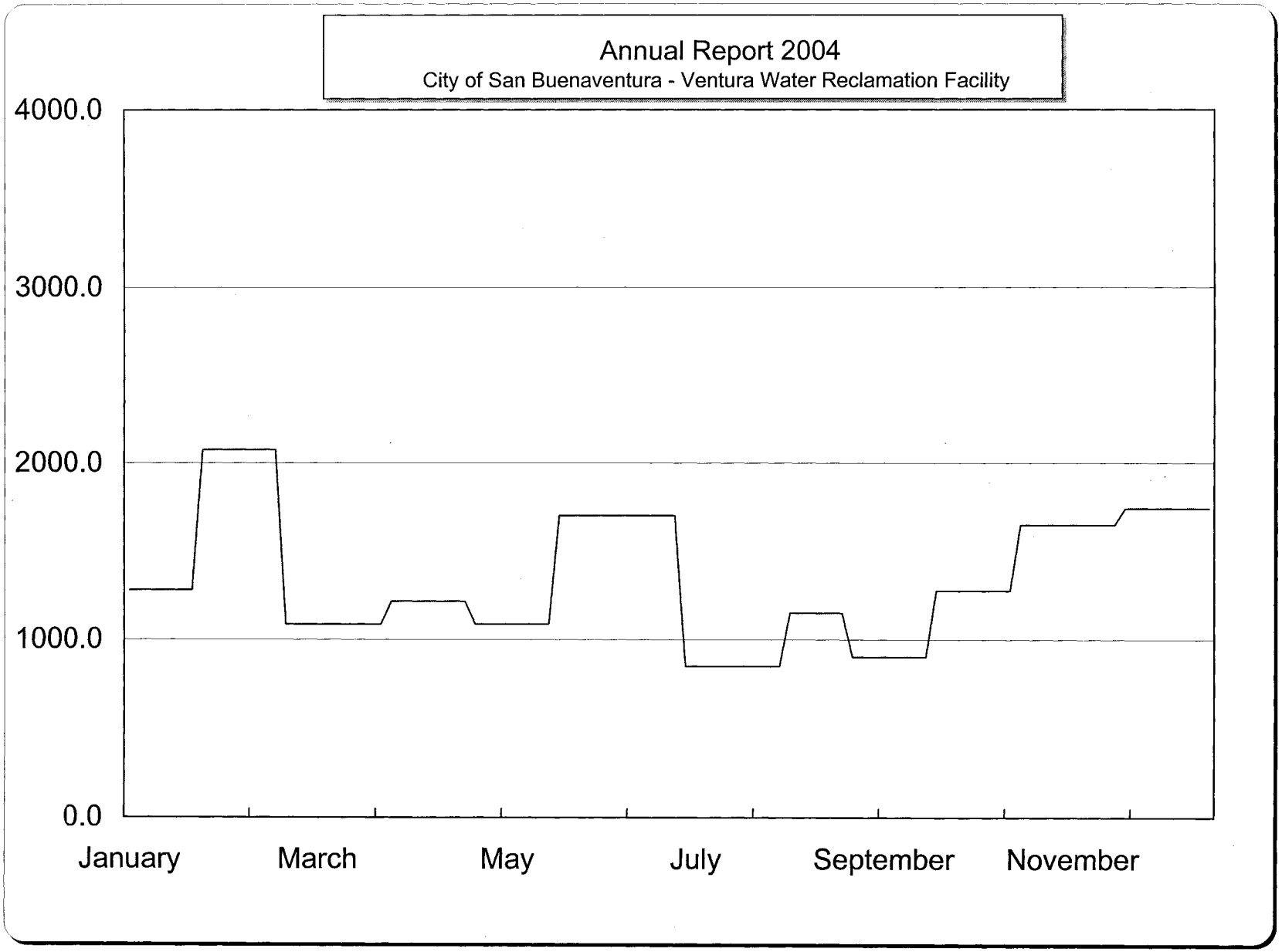
Receiving Water Station -L5
30 Day Average Dissolved Oxygen - mg/L

Bimonthly Period



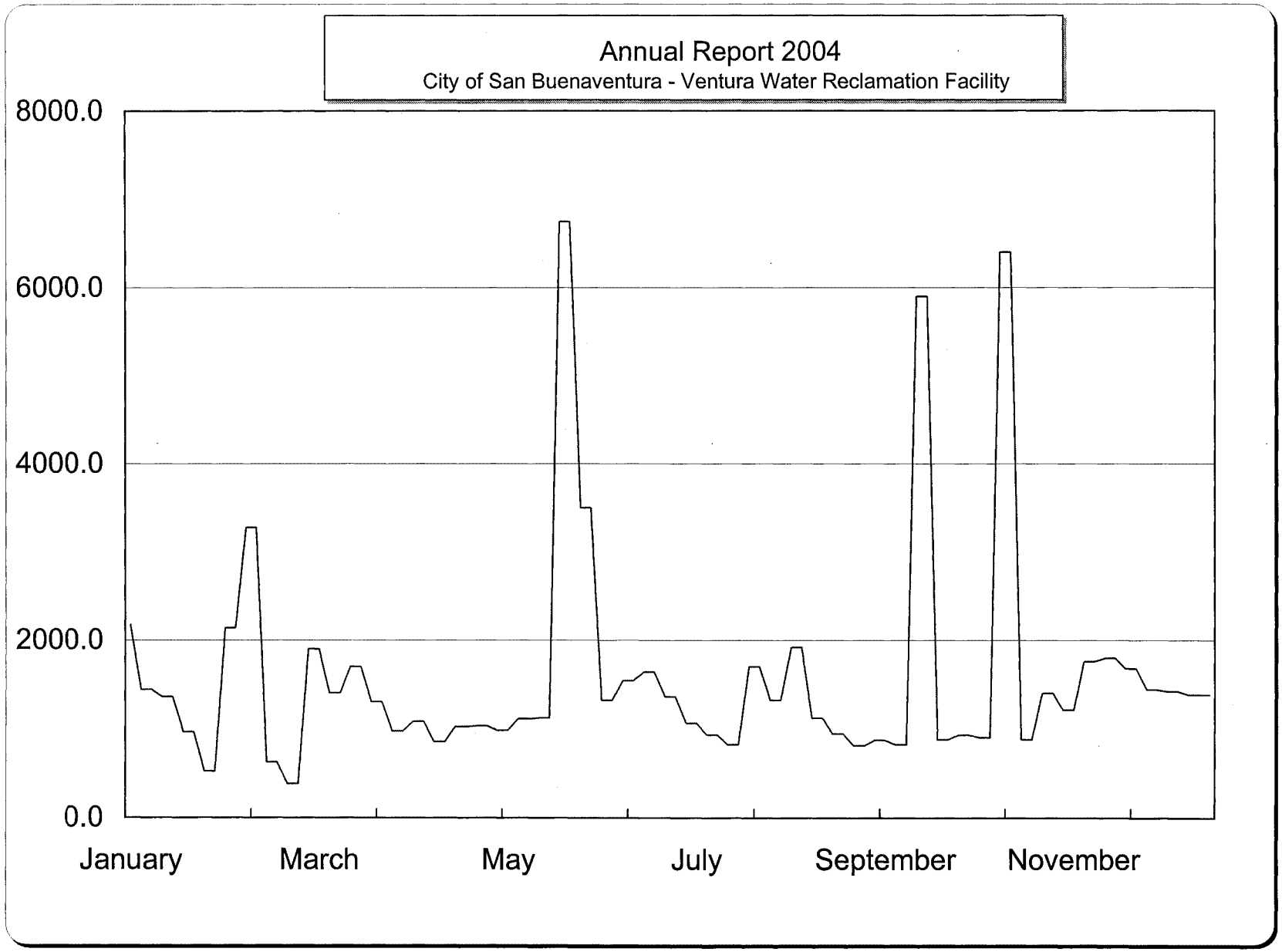
Receiving Water Station - R1
Weekly Hardness - mg/L

Bimonthly Period



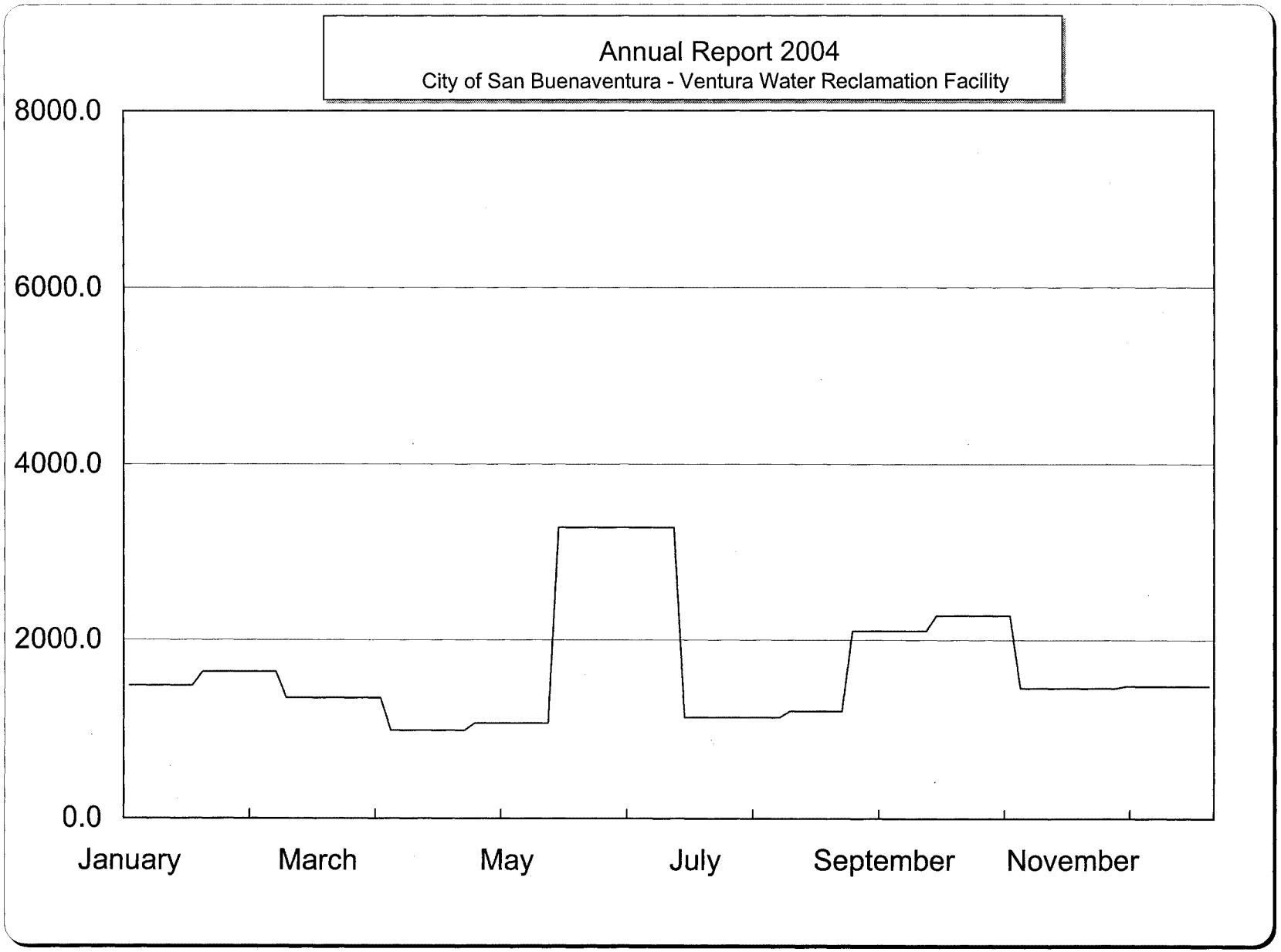
Receiving Water Station - R1
30 Day Average Hardness - mg/L

Bimonthly Period



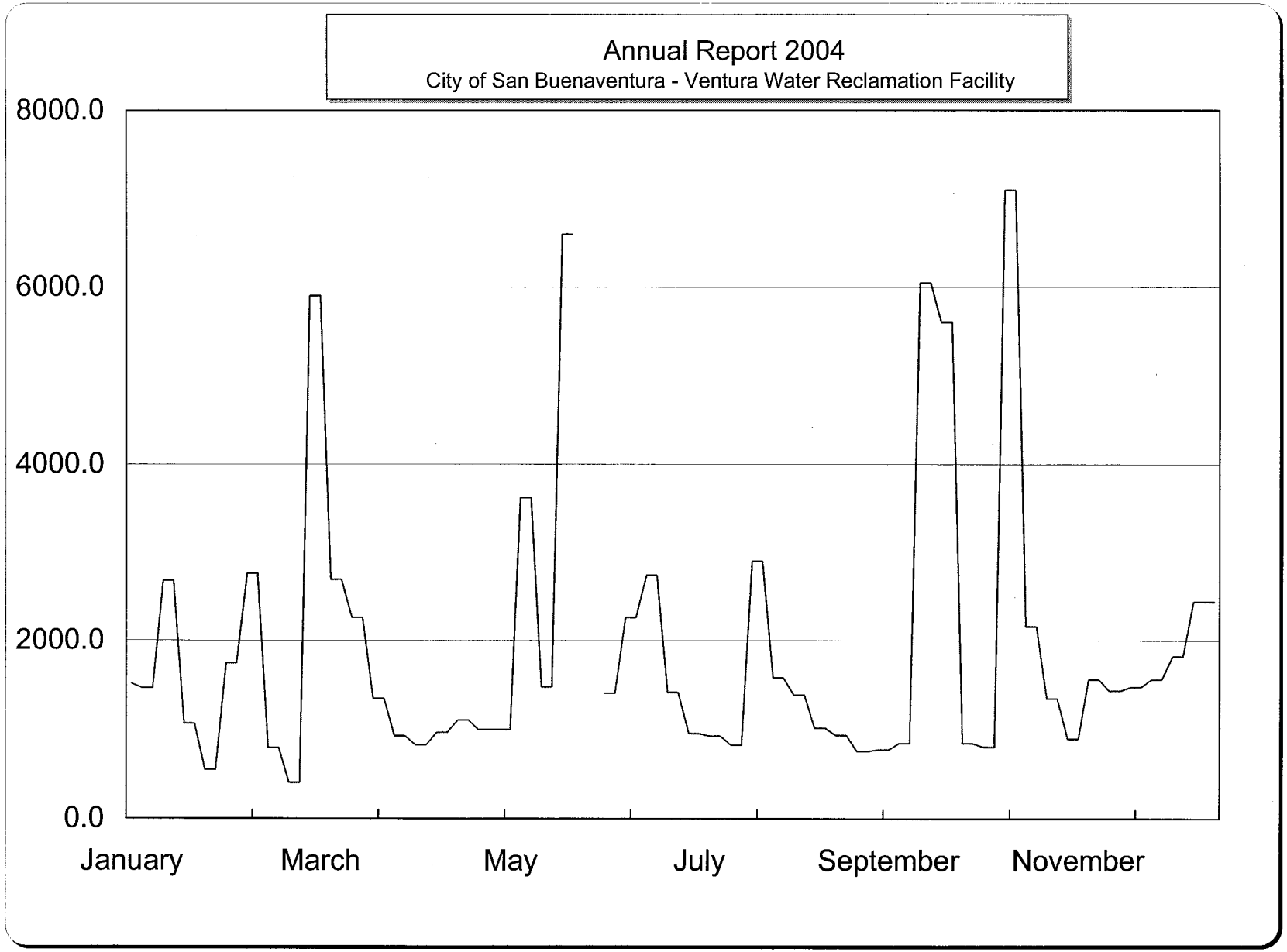
Receiving Water Station - R2
Weekly Hardness - mg/L

Bimonthly Period



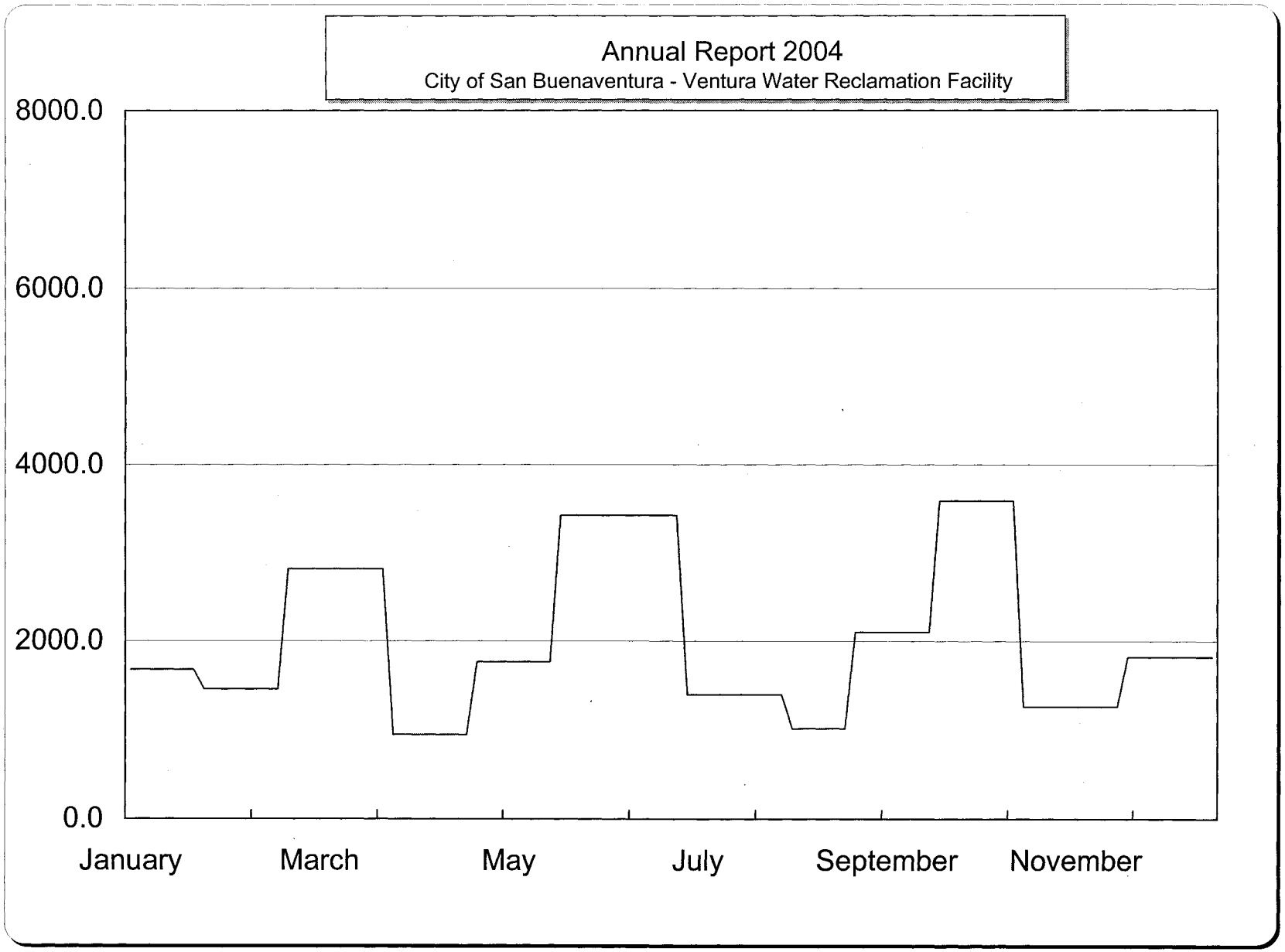
Receiving Water Station - R2
30 Day Average Hardness - mg/L

Bimonthly Period



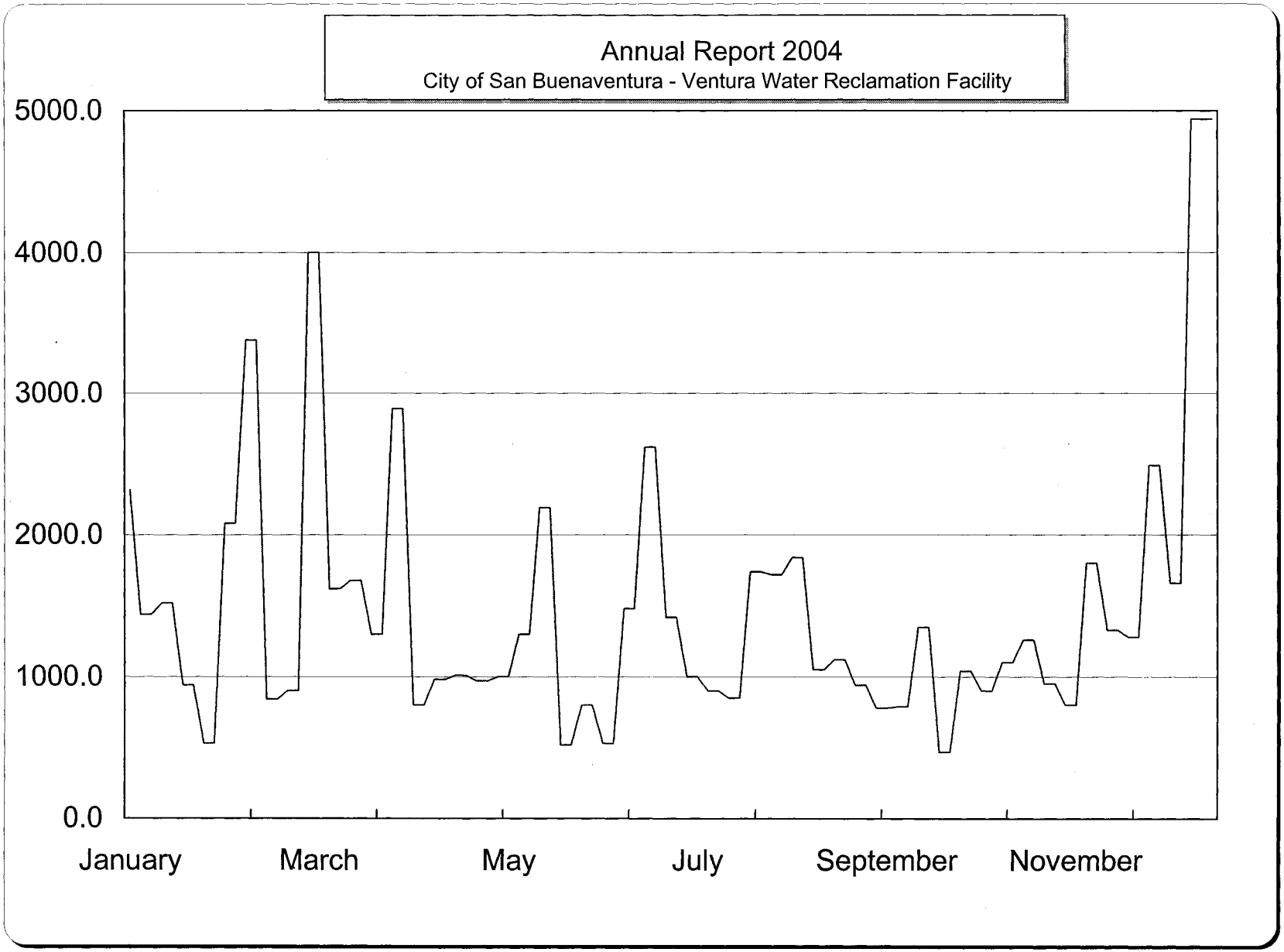
Receiving Water Station - R3
Weekly Hardness - mg/L

Bimonthly Period



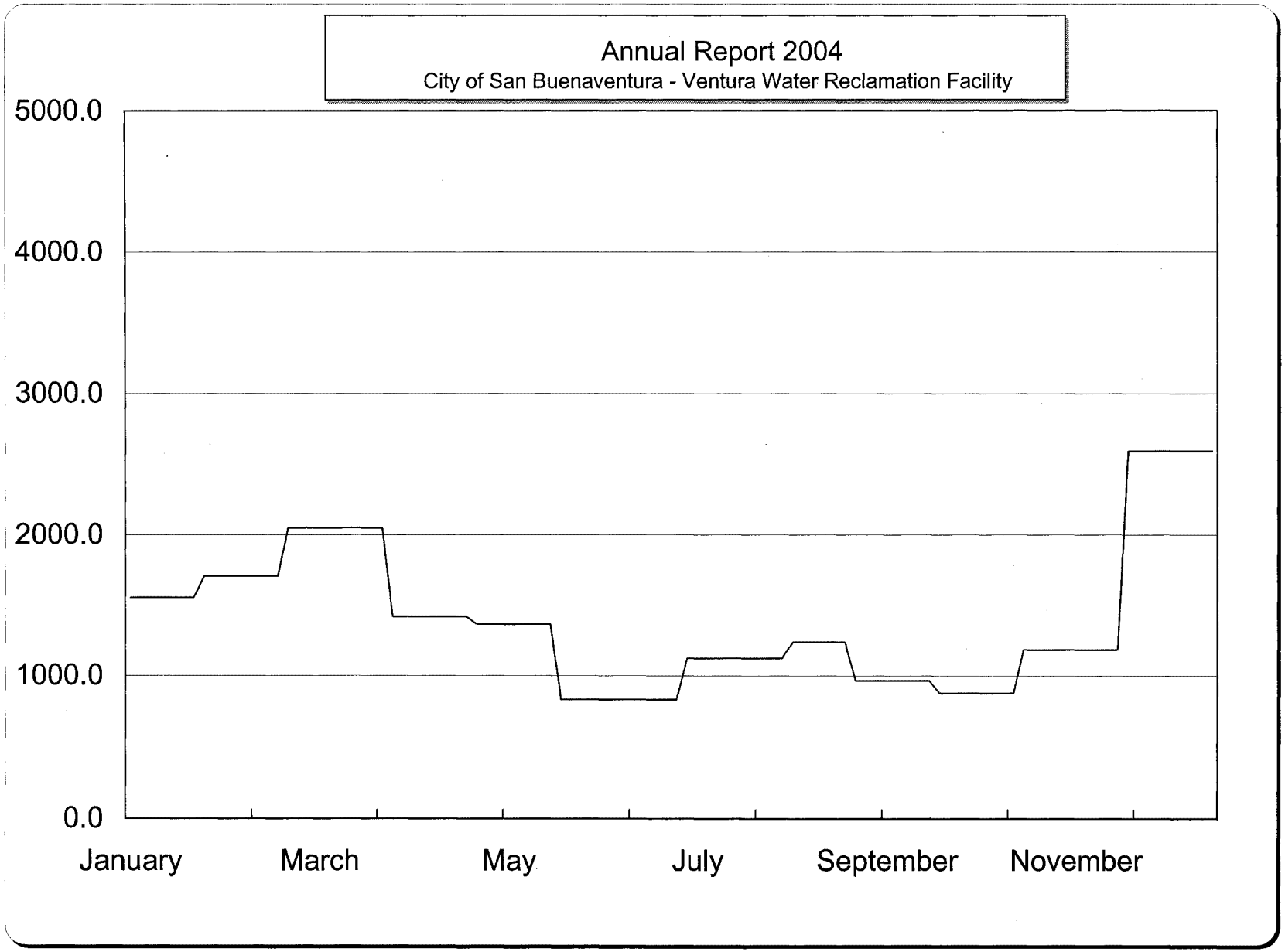
Receiving Water Station - R3
30 Day Average Hardness - mg/L

Bimonthly Period



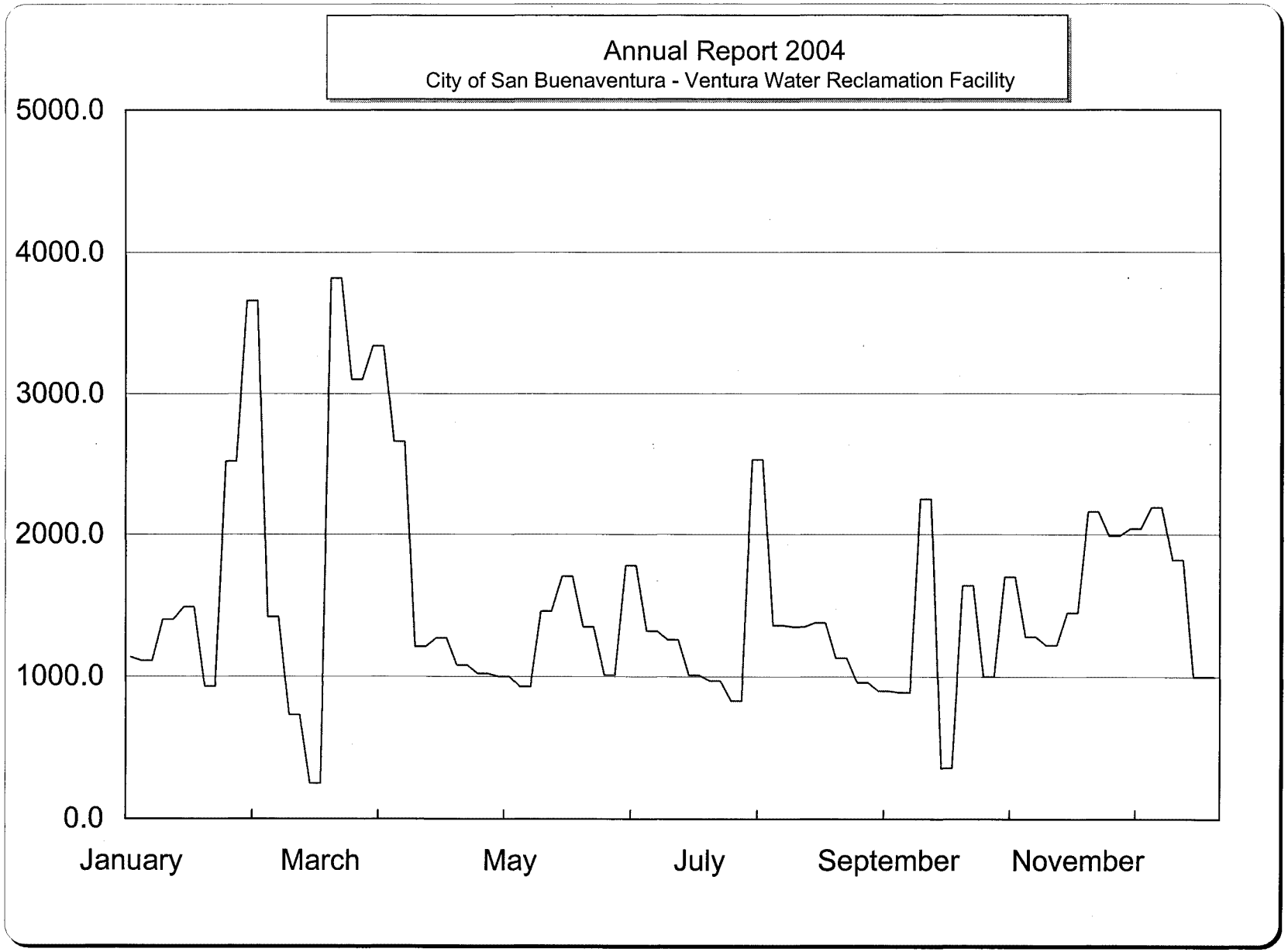
Receiving Water Station - R4
Weekly Hardness - mg/L

Bimonthly Period



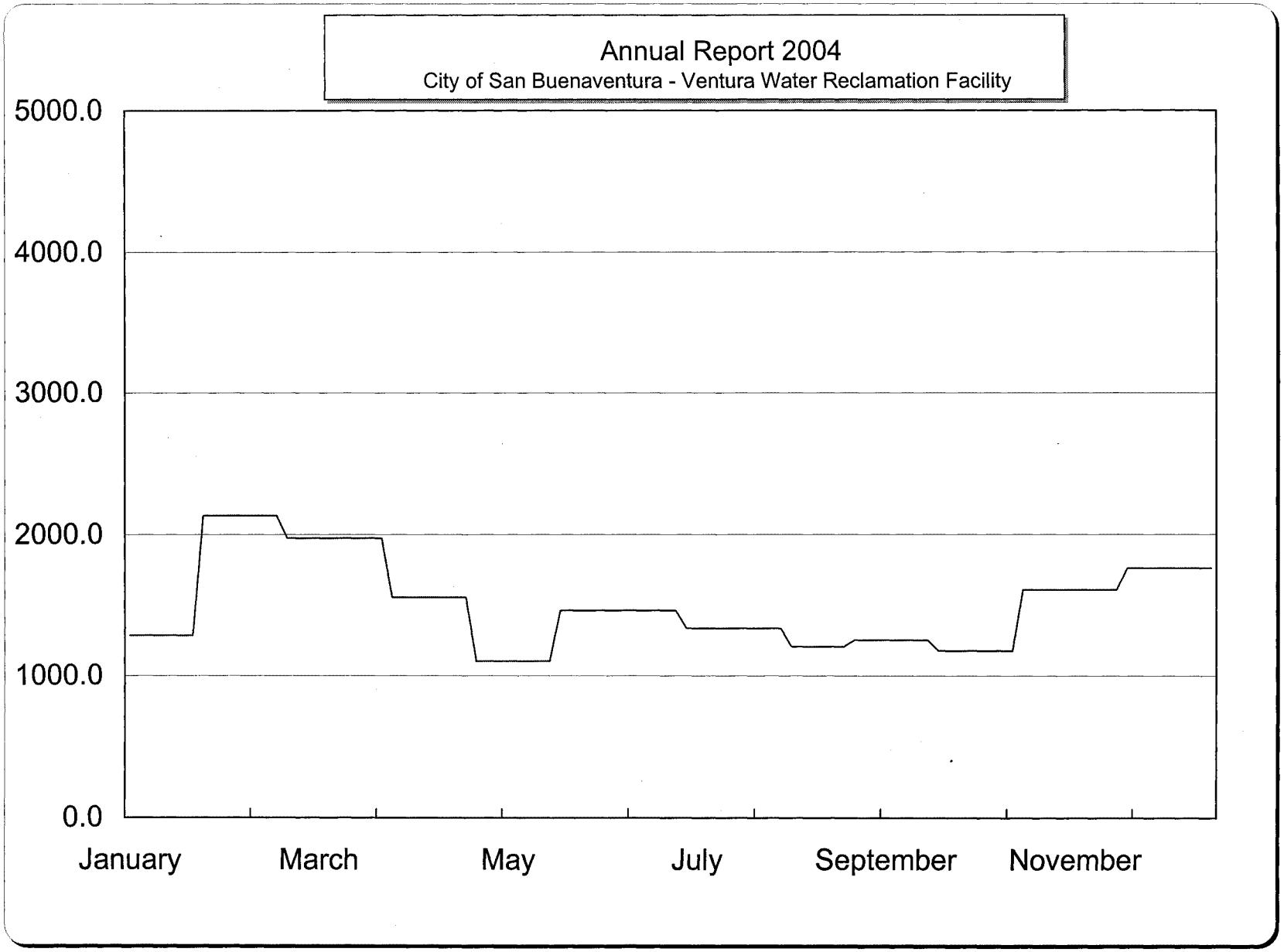
Receiving Water Station - R4
30 Day Average Hardness - mg/L

Bimonthly Period



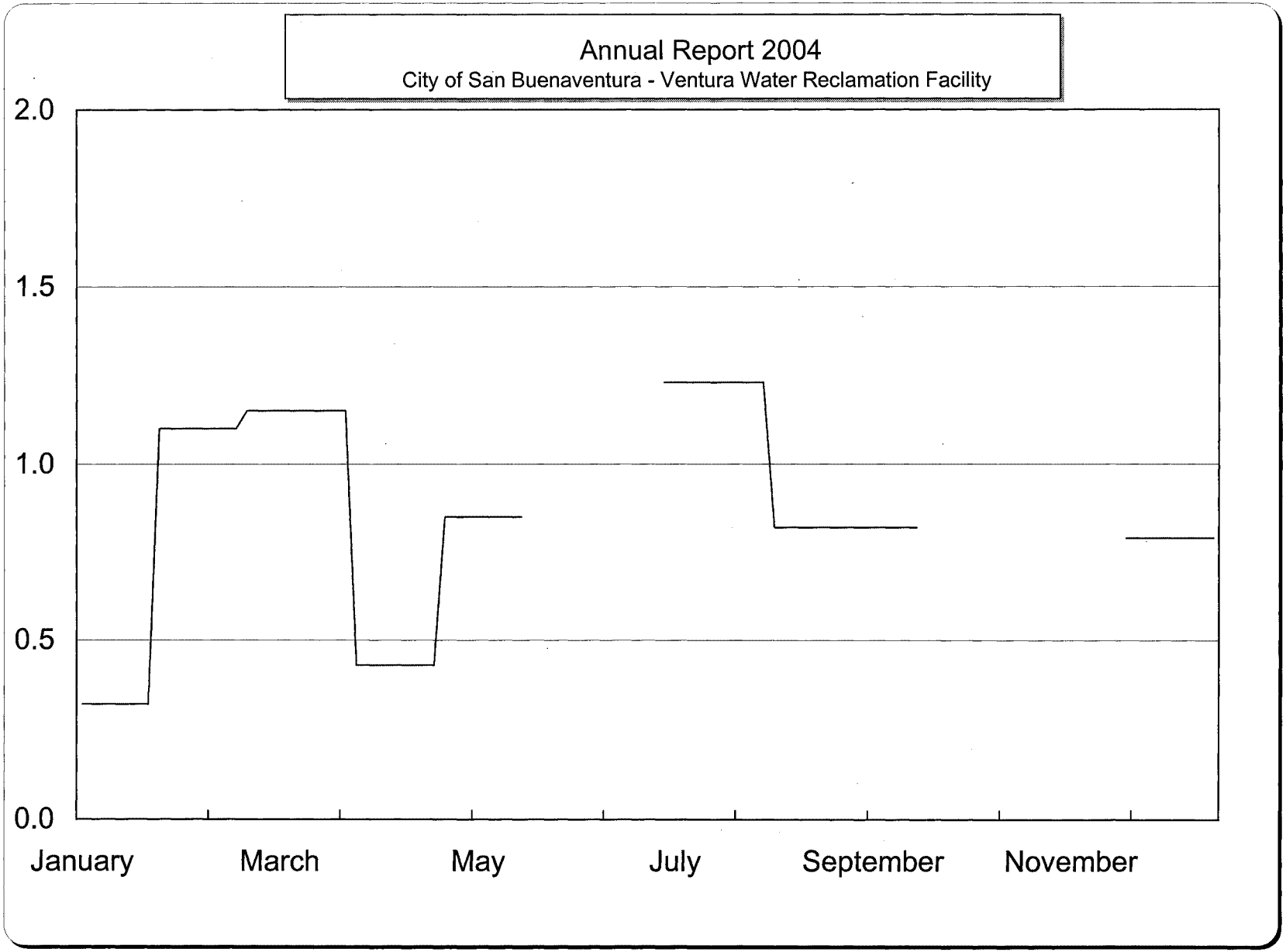
Receiving Water Station - L5
Weekly Hardness - mg/L

Bimonthly Period



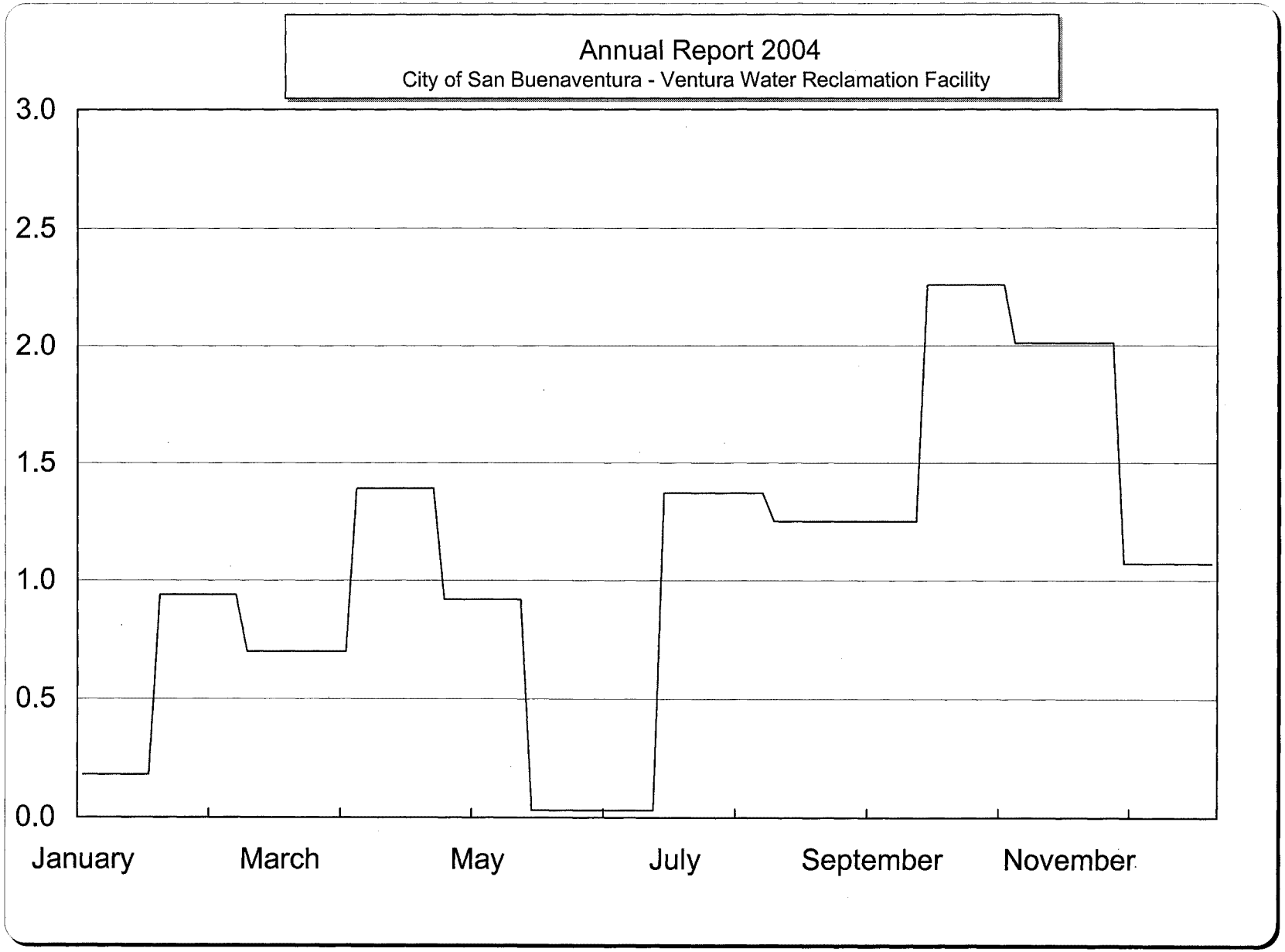
Receiving Water Station - L5
30 Day Average Hardness - mg/L

Bimonthly Period



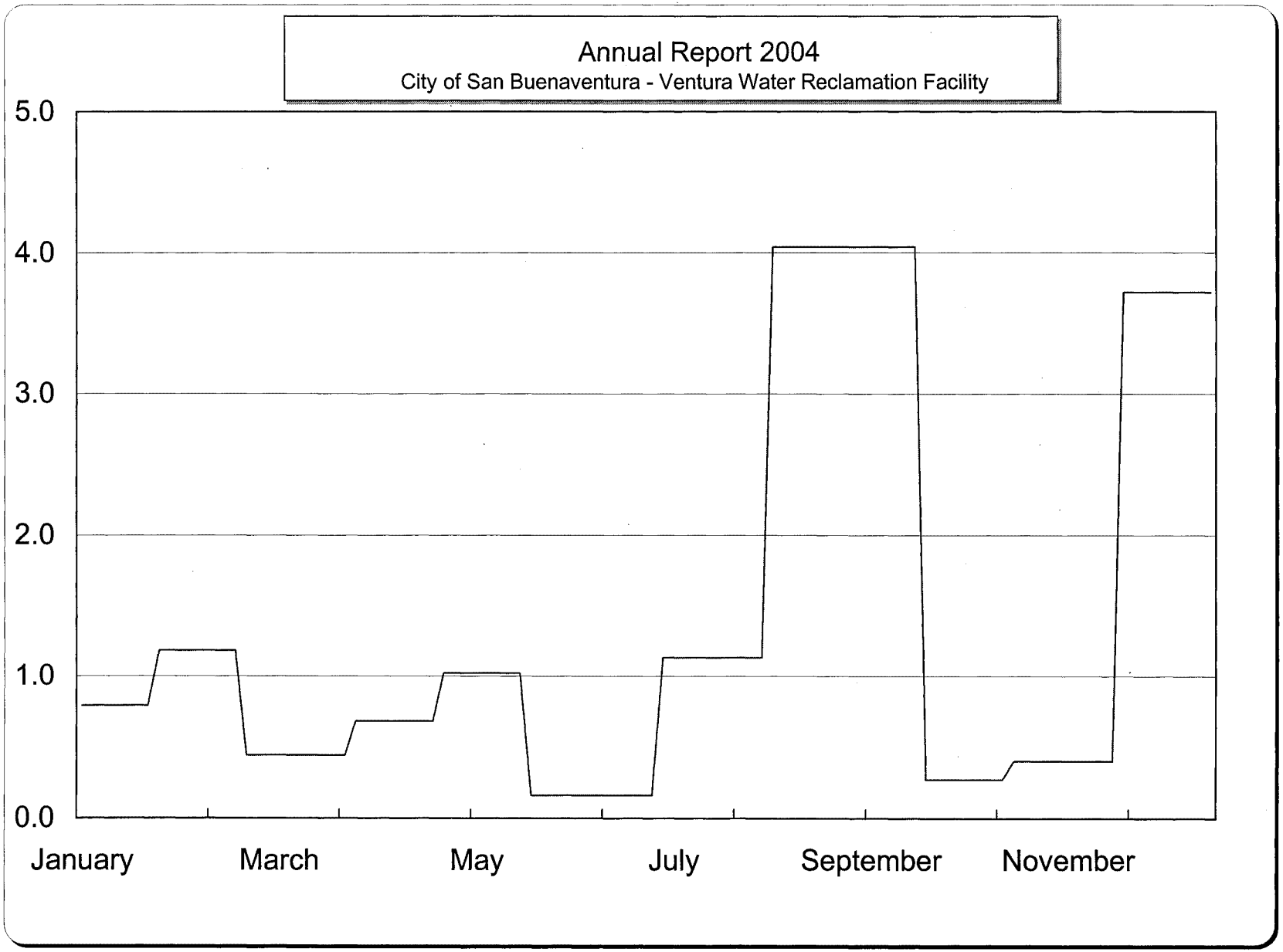
Receiving Water Station - R1
Monthly Total Phophorus - mg/L

Bimonthly Period



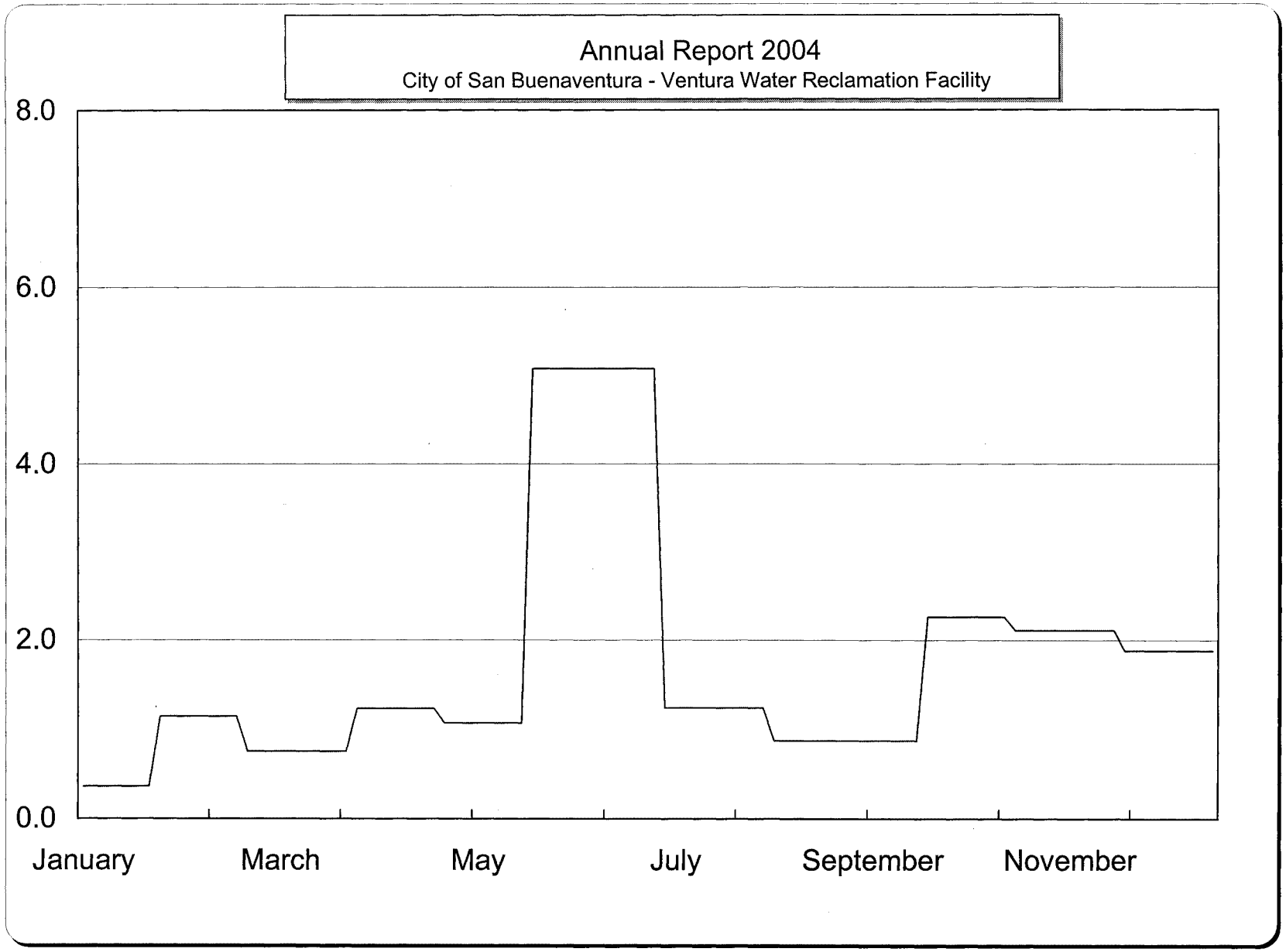
Receiving Water Station - R2
Monthly Total Phophorus - mg/L

Bimonthly Period



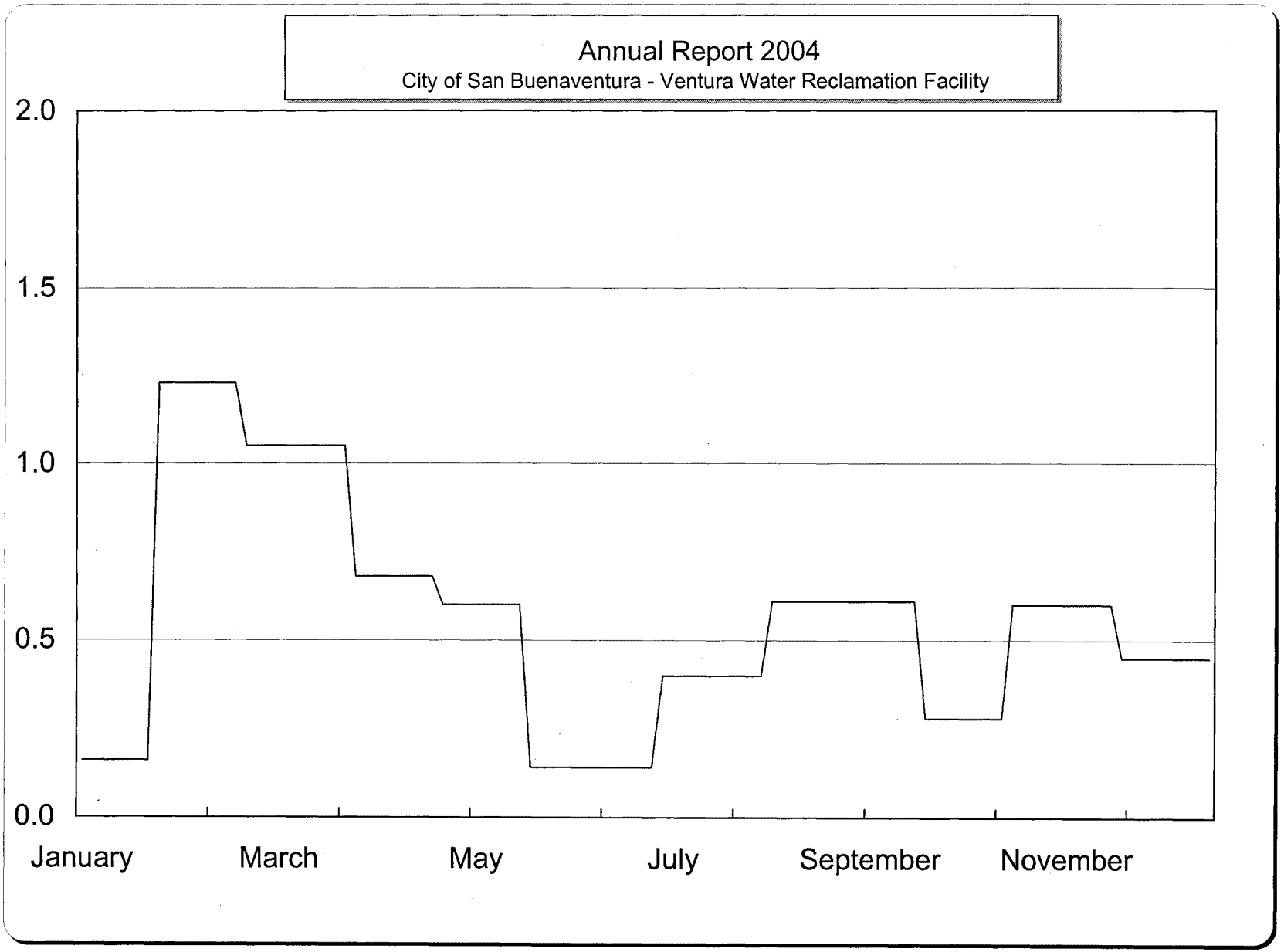
Receiving Water Station - R3
Monthly Total Phophorus - mg/L

Bimonthly Period



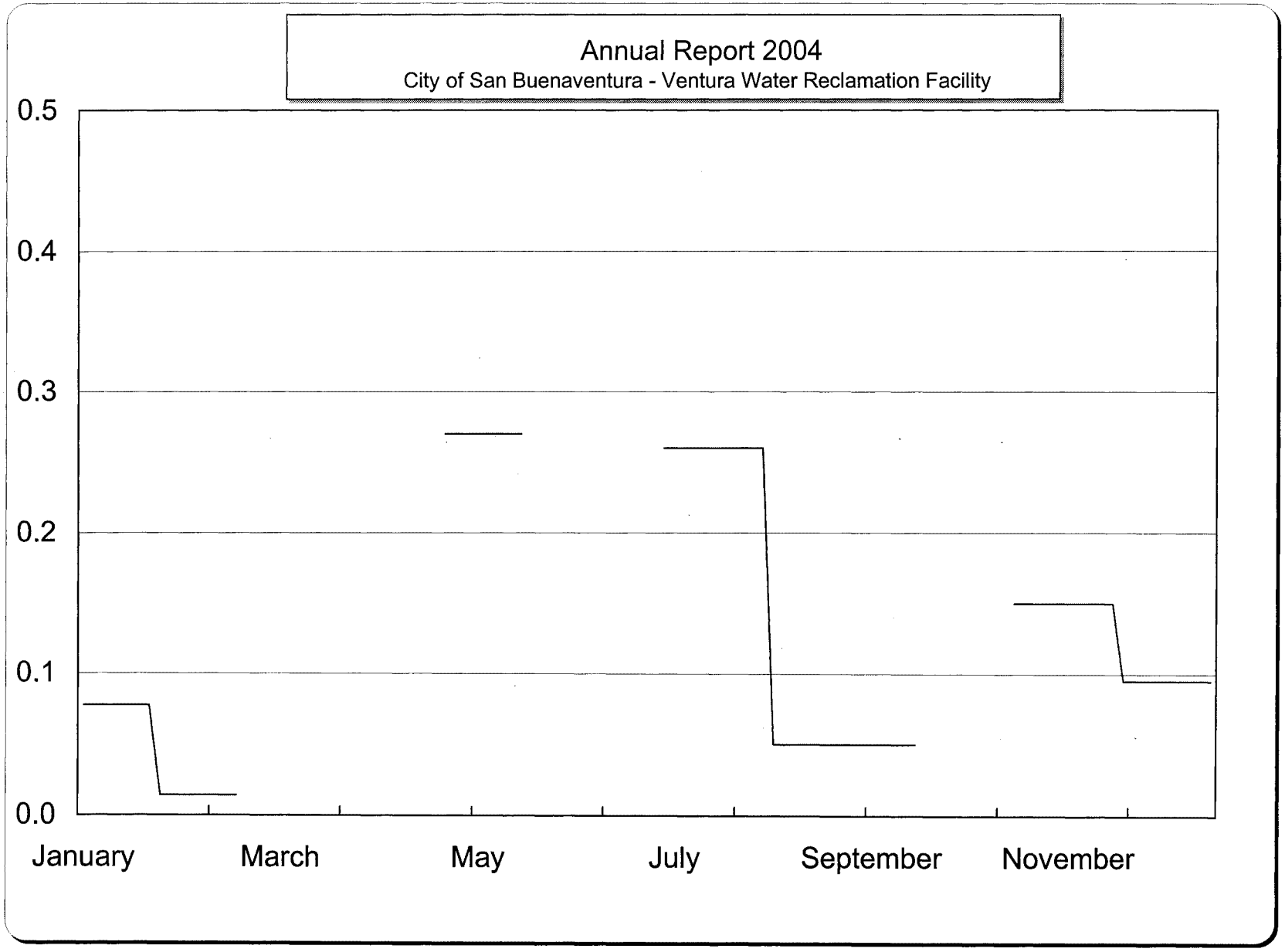
Receiving Water Station -R4
Monthly Total Phosphorus - mg/L

Bimonthly Period



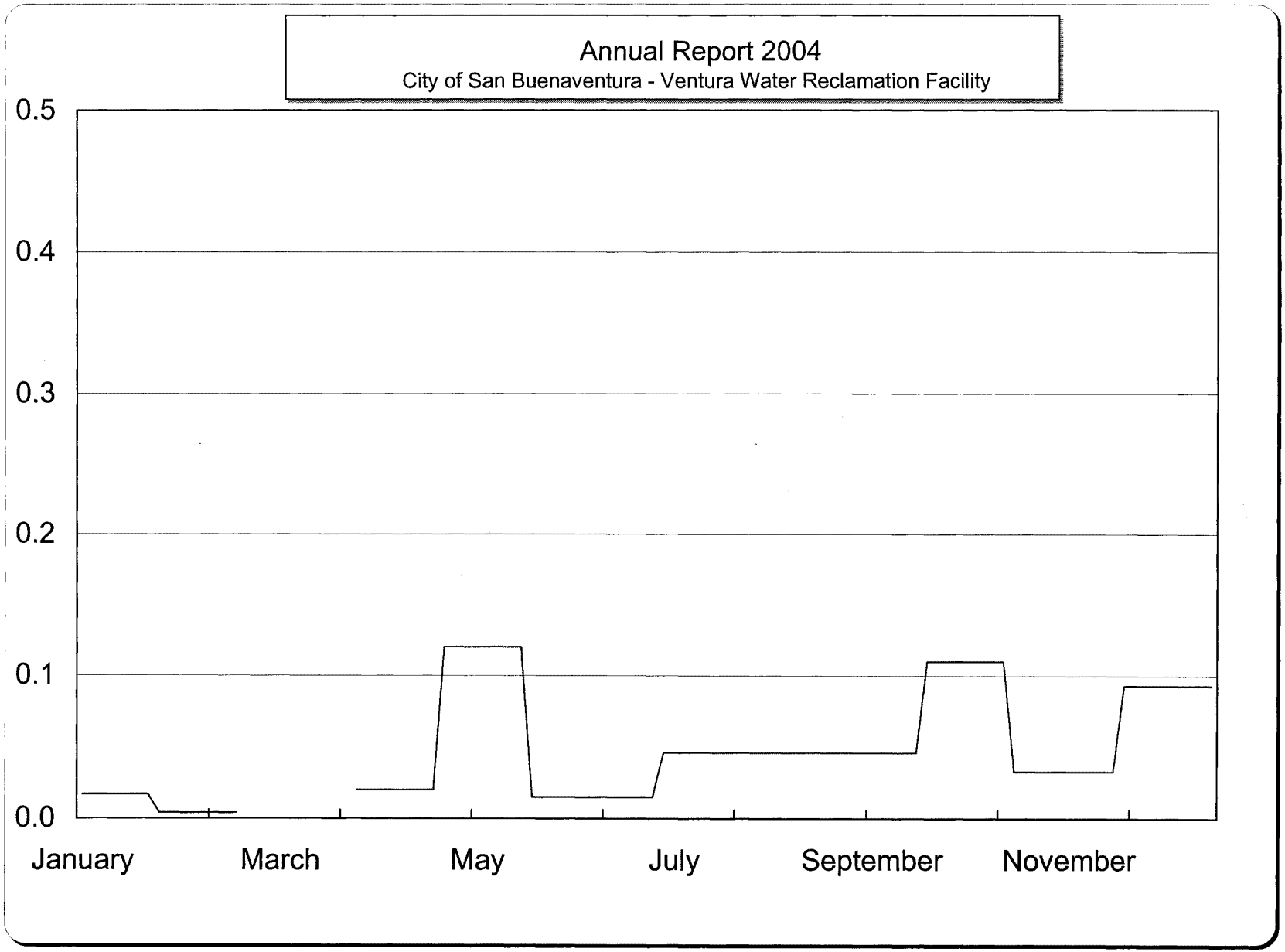
Receiving Water Station - L5
Monthly Total Phosphorus - mg/L

Bimonthly Period



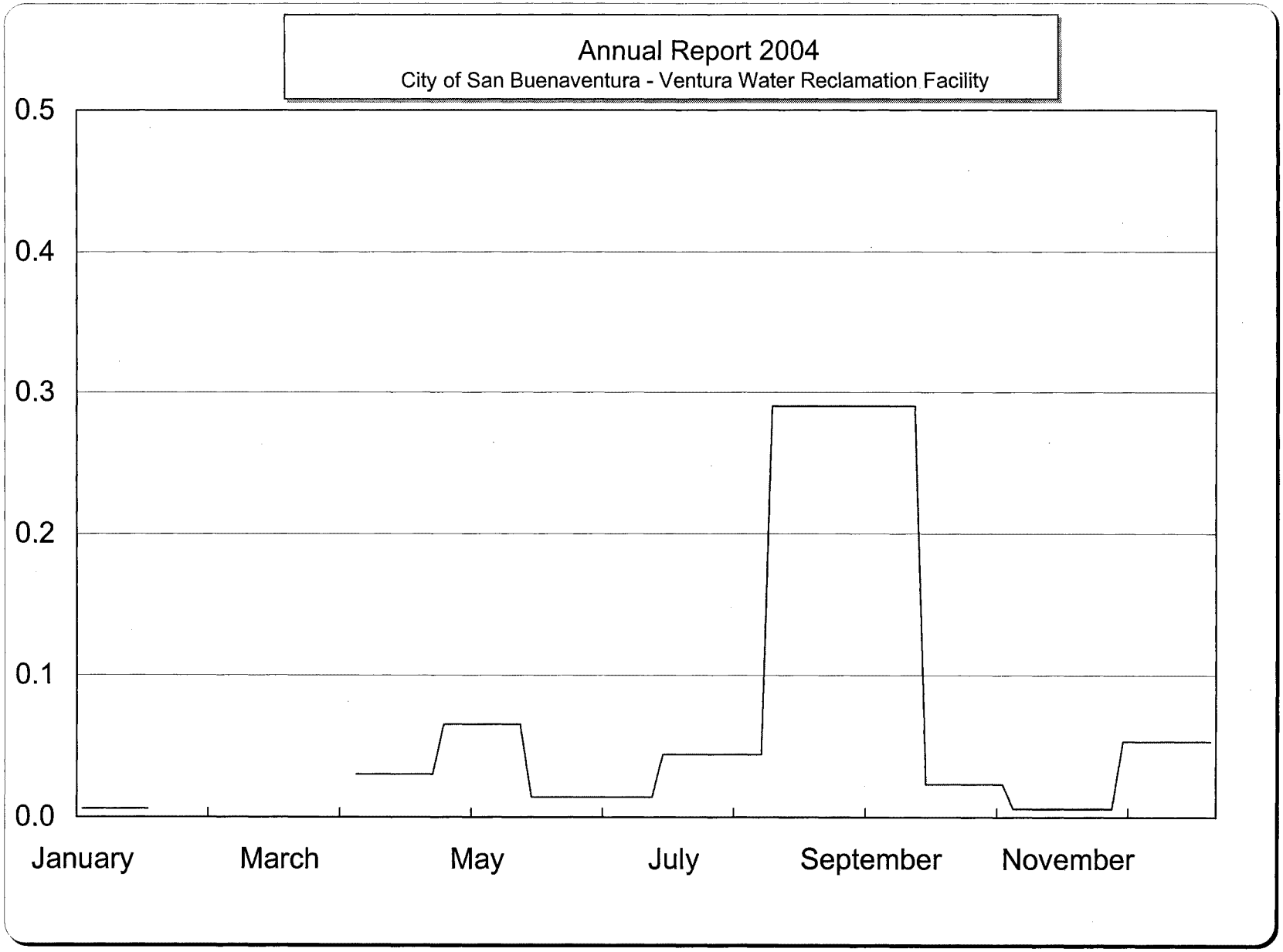
Bimonthly Period

Receiving Water Station - R1
Monthly Chlorophyll A - mg/L



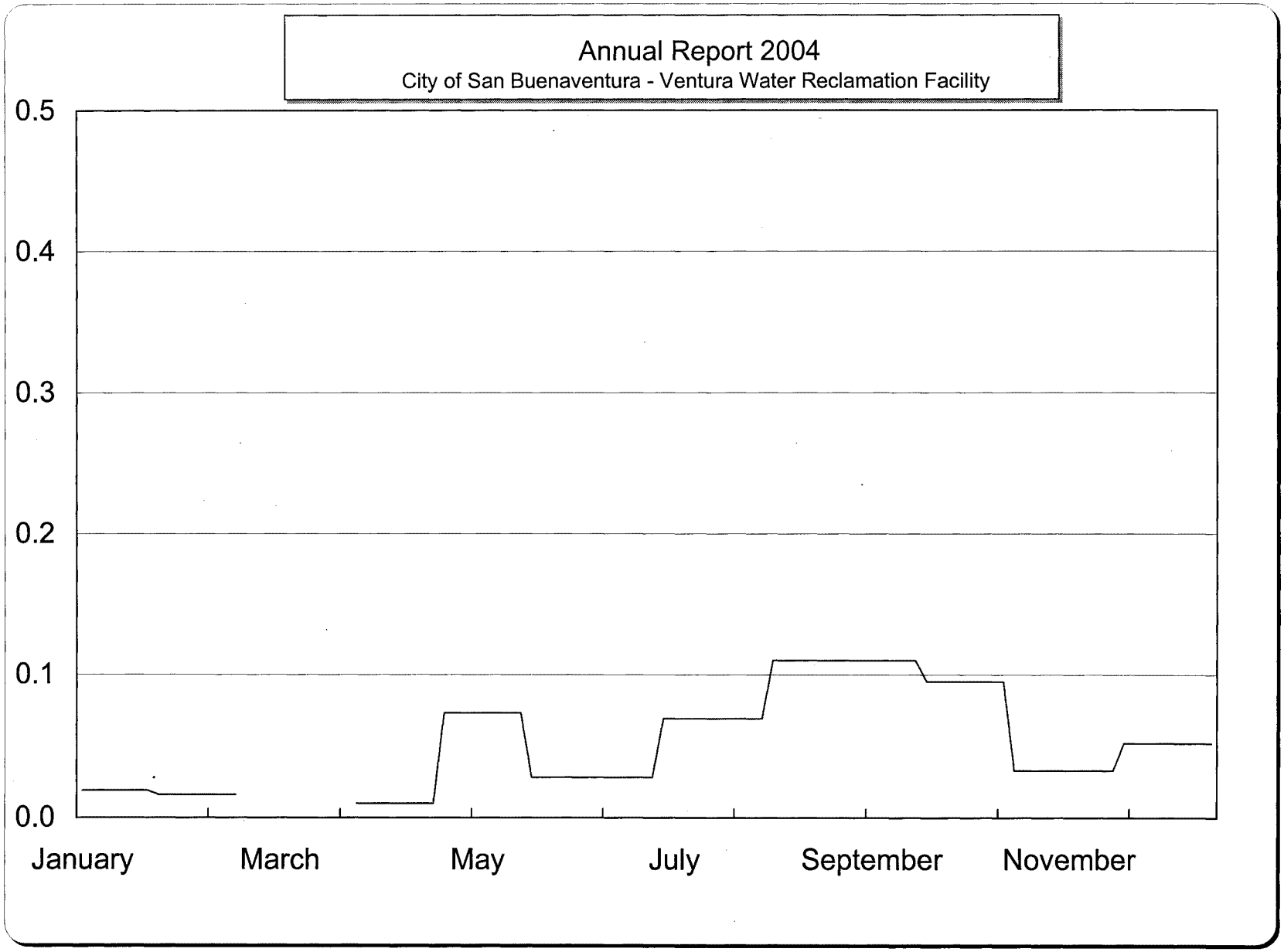
Receiving Water Station - R2
Monthly Chlorophyll A - mg/L

Bimonthly Period



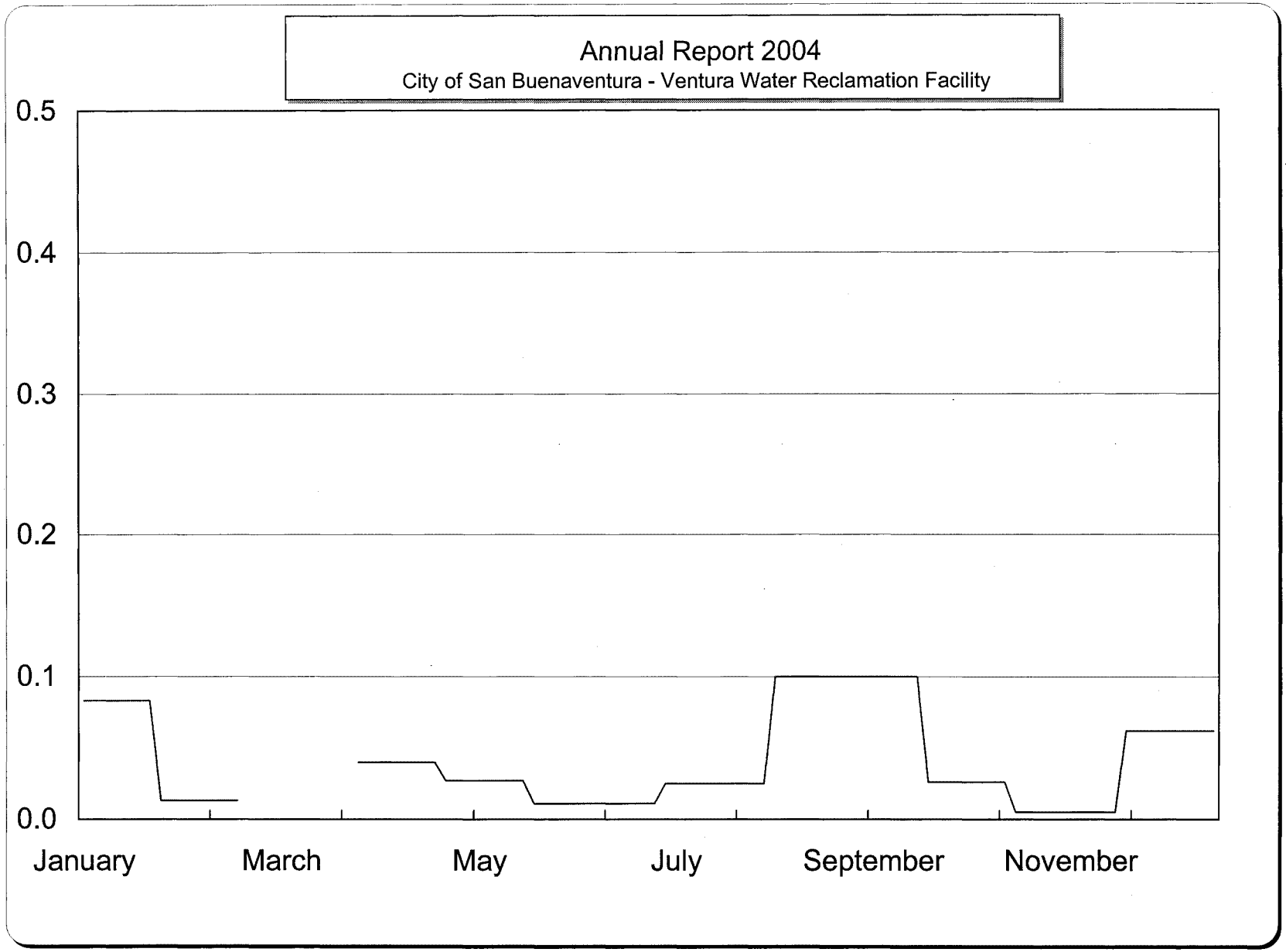
Receiving Water Station - R3
Monthly Chlorophyll A - mg/L

Bimonthly Period



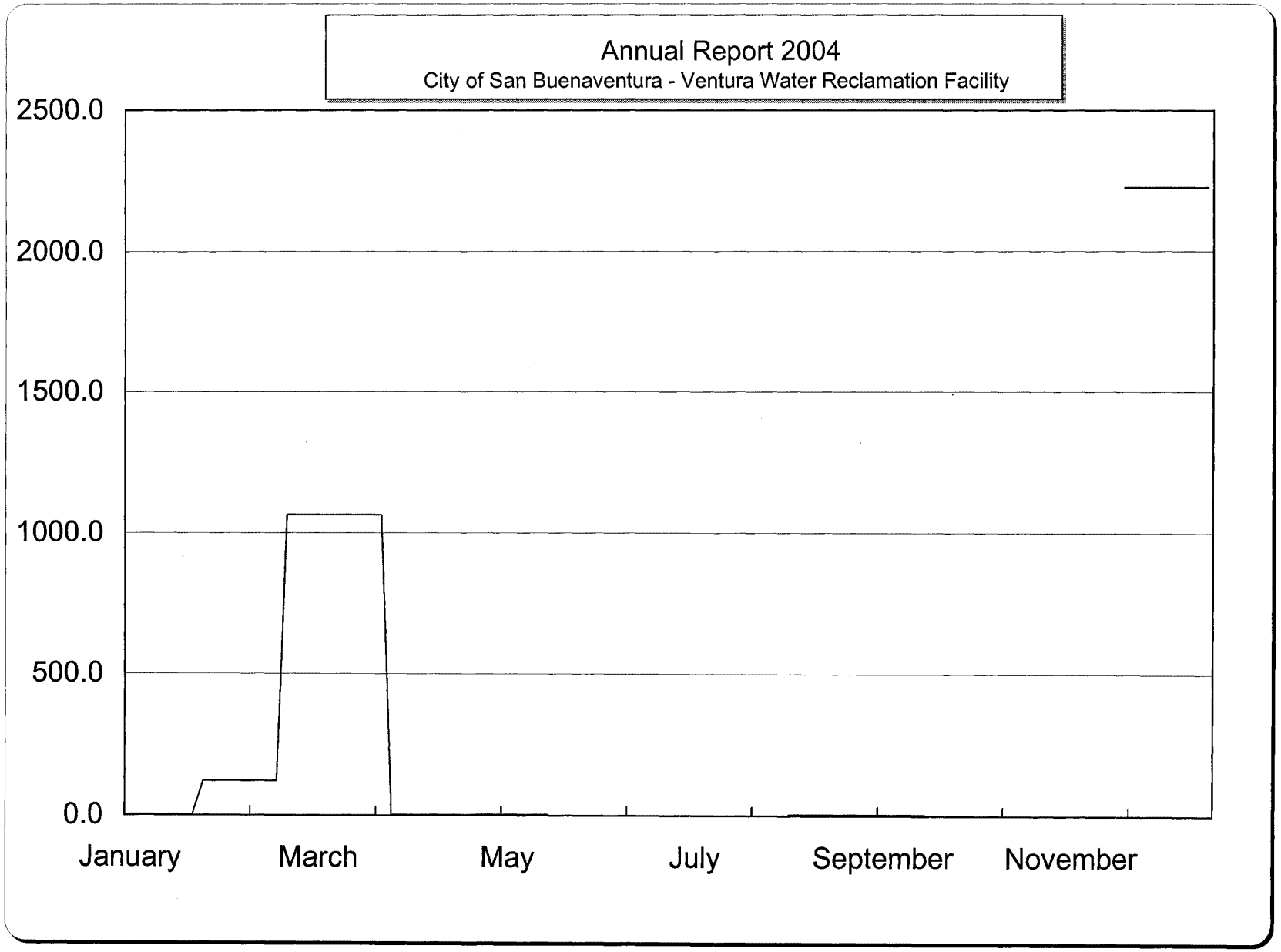
Bimonthly Period

Receiving Water Station - R4
Monthly Chlorophyll A - mg/L



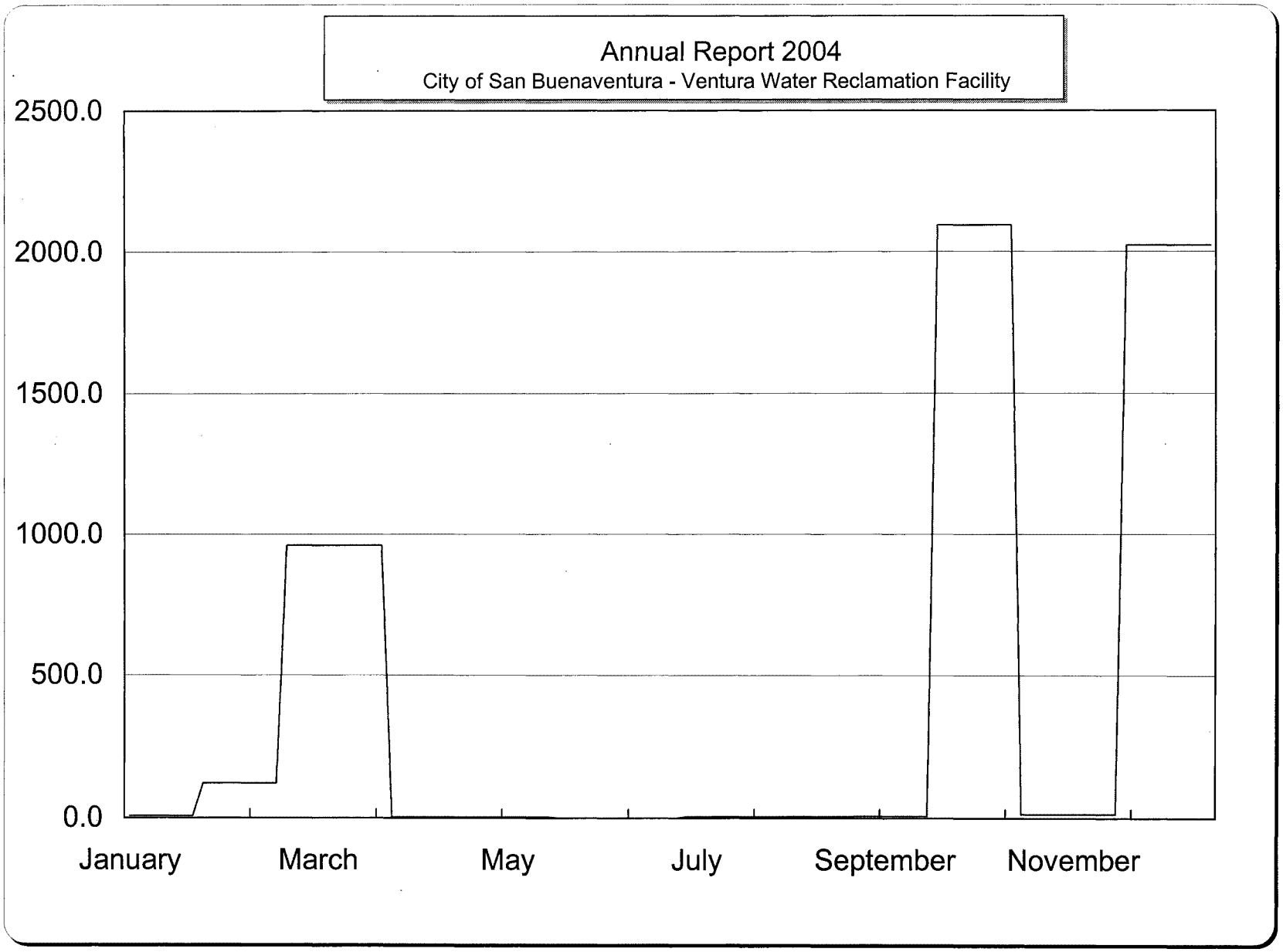
Receiving Water Station - L5
Monthly Chlorophyll A - mg/L

Bimonthly Period



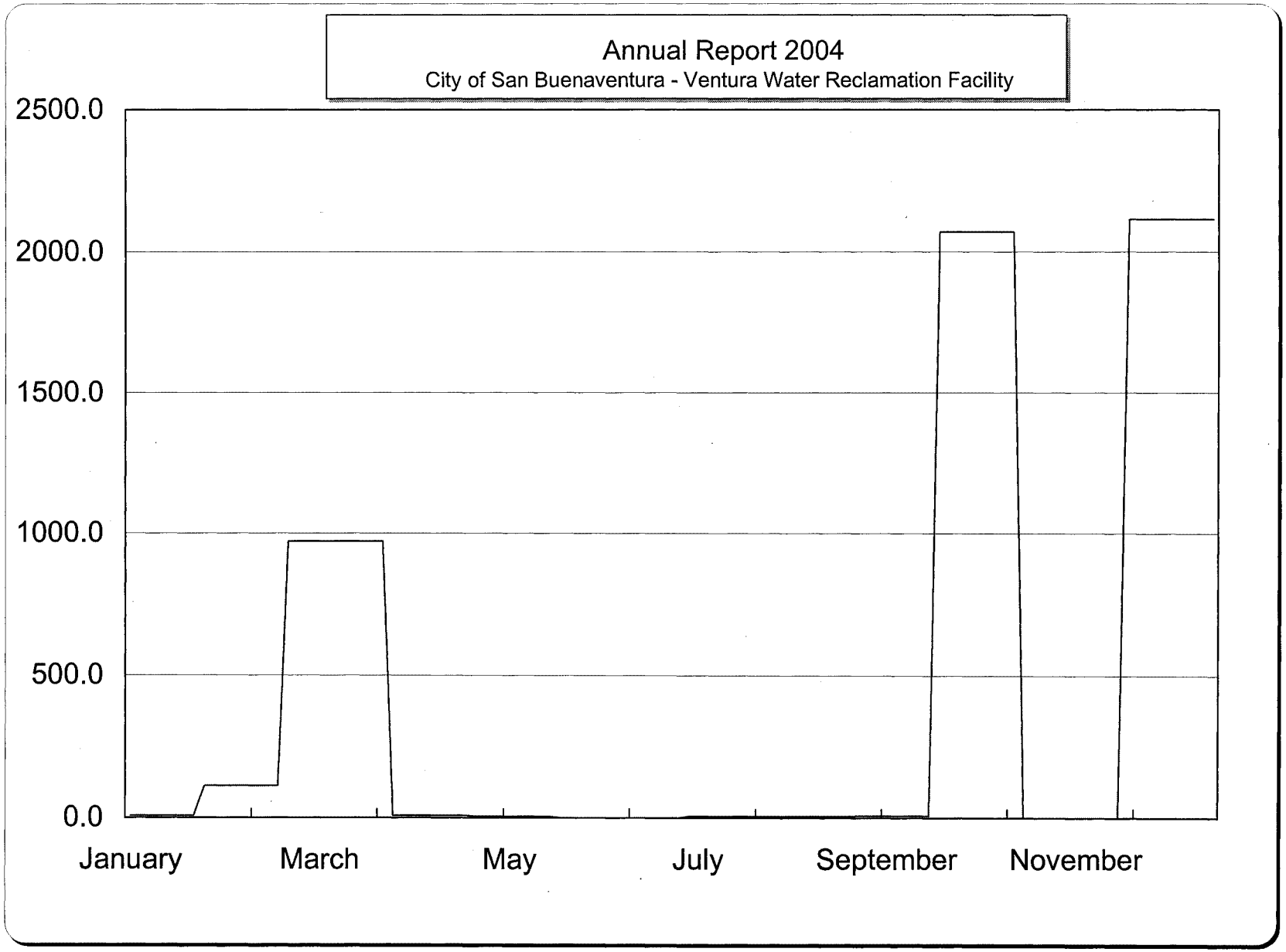
Bimonthly Period

Receiving Water Station - R1
Monthly Nitrate-N - mg/L



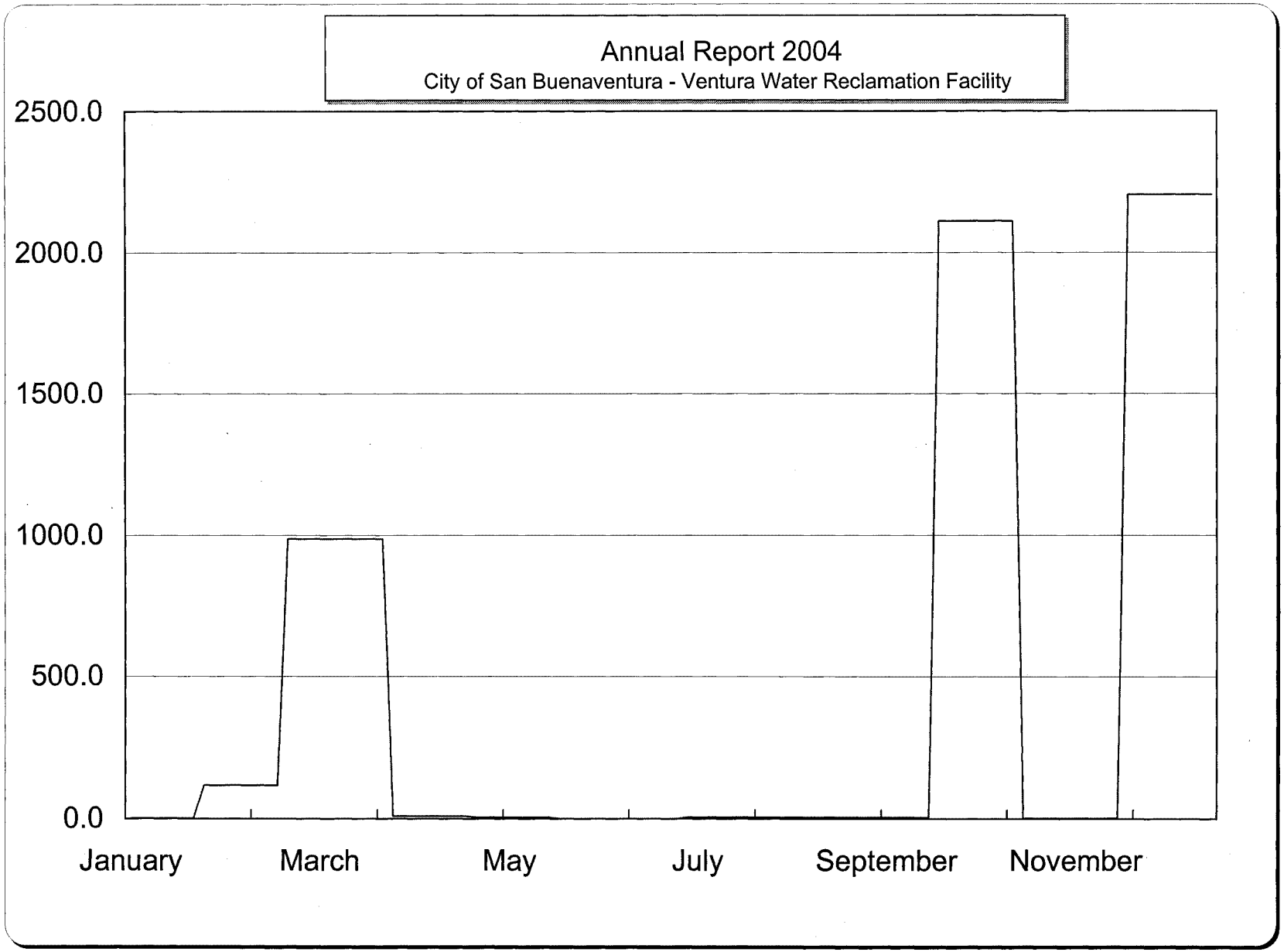
Receiving Water Station - R2
Monthly Nitrate-N - mg/L

Bimonthly Period



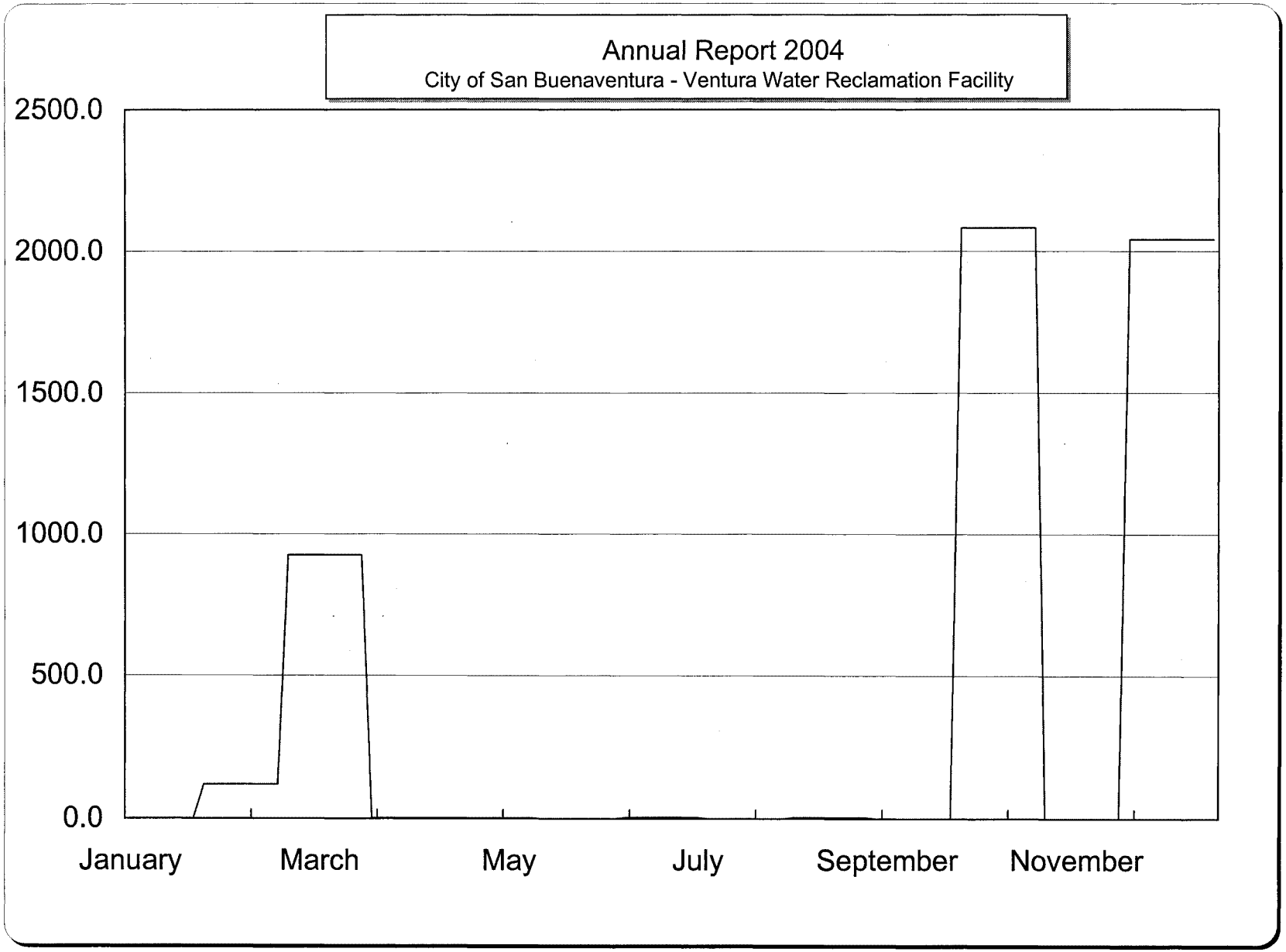
Receiving Water Station - R3
Monthly Nitrate-N - mg/L

Bimonthly Period



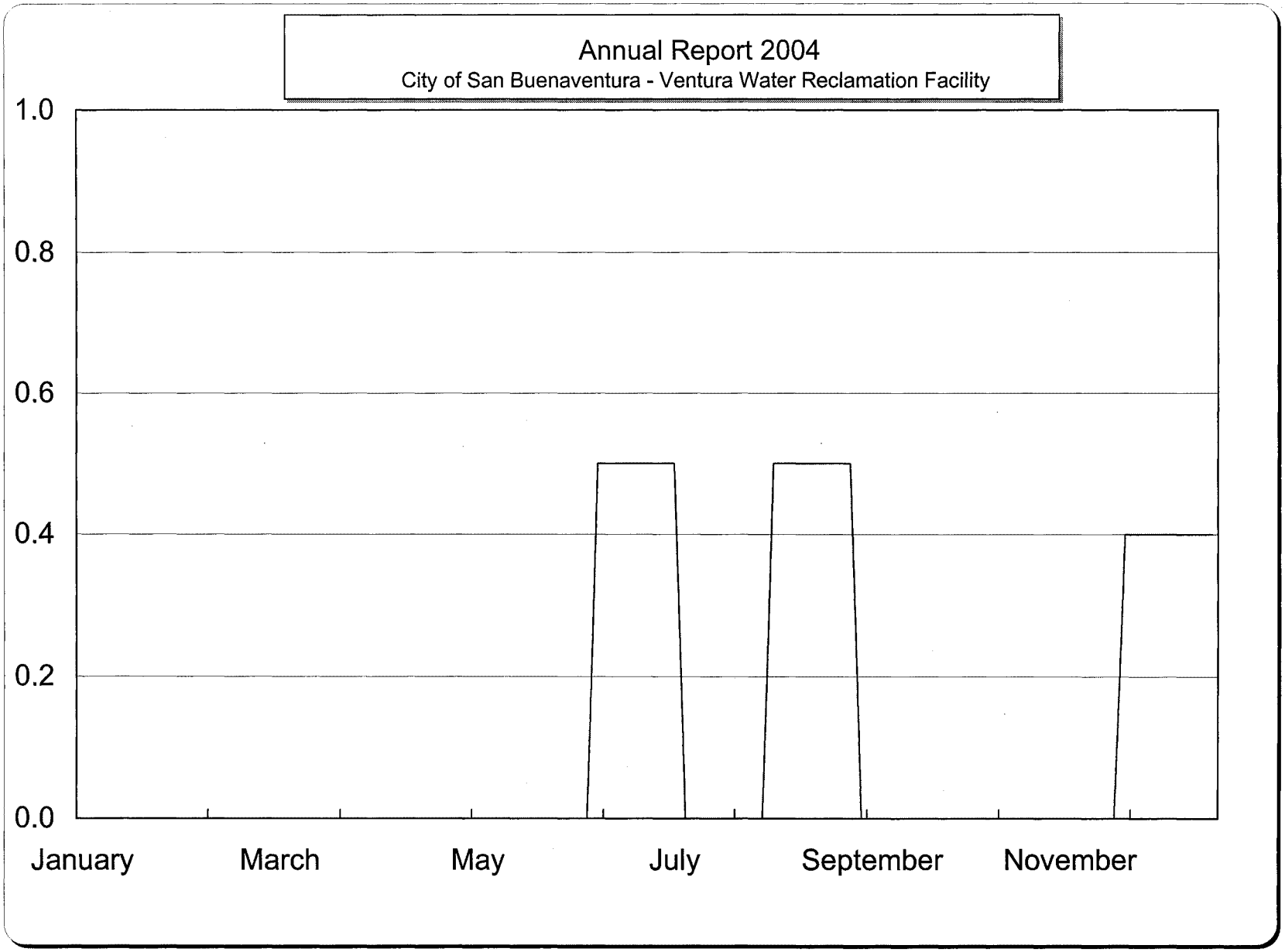
Receiving Water Station -R4
Monthly Nitrate-N - mg/L

Bimonthly Period



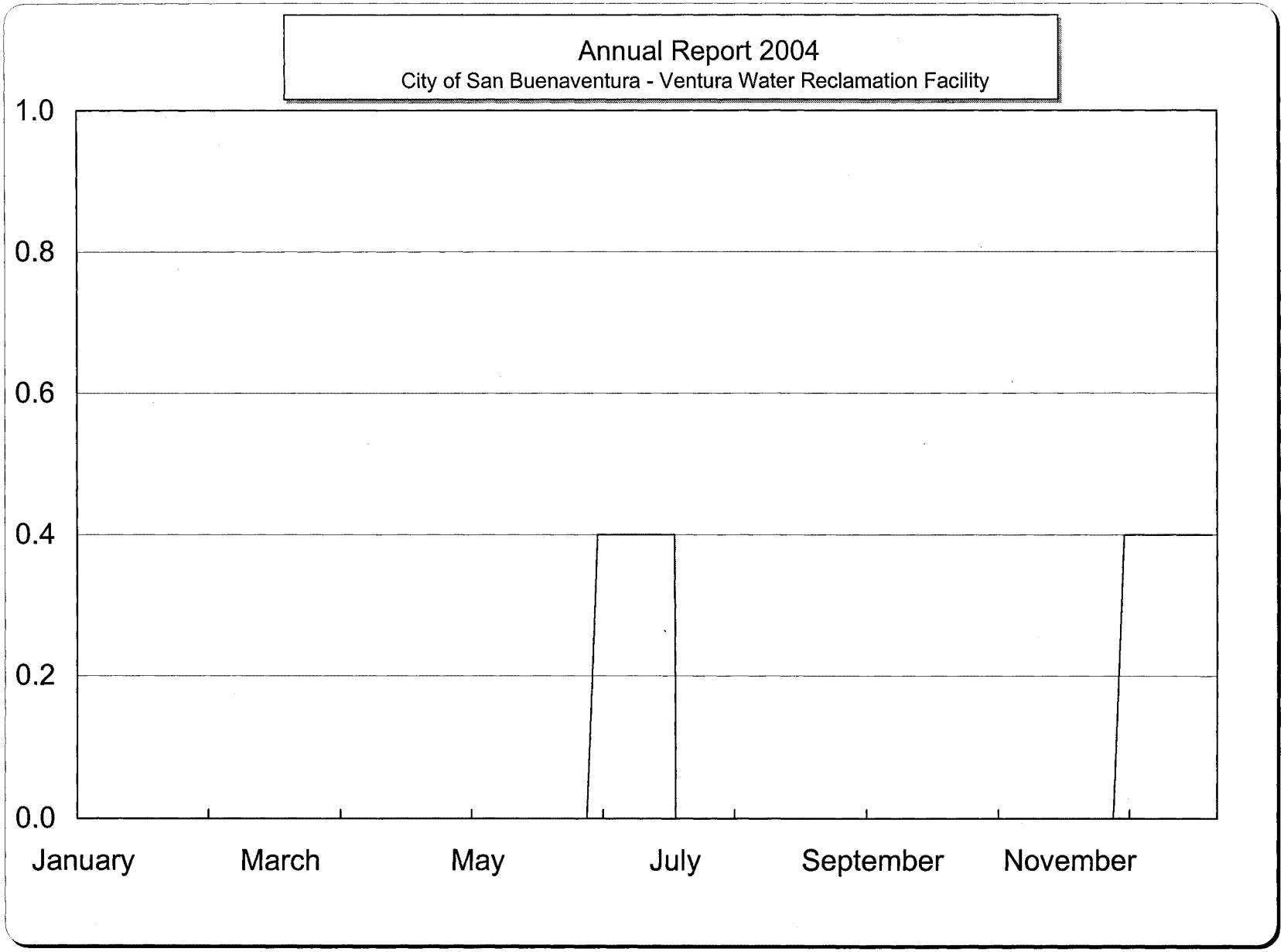
Receiving Water Station - L5
Monthly Nitrate-N - mg/L

Bimonthly Period



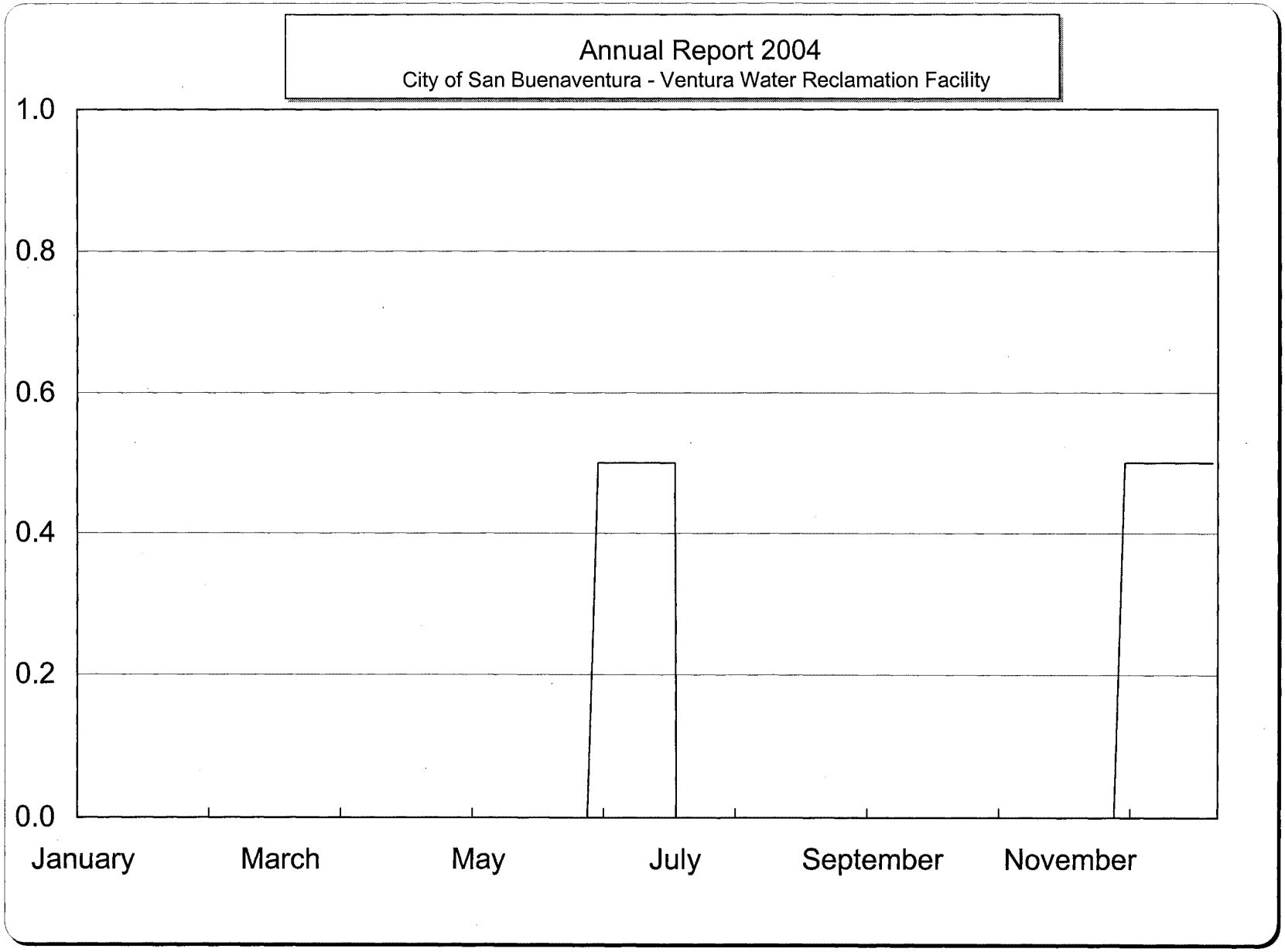
Receiving Water Station - R1
Monthly Nitrite-N - mg/L

Bimonthly Period



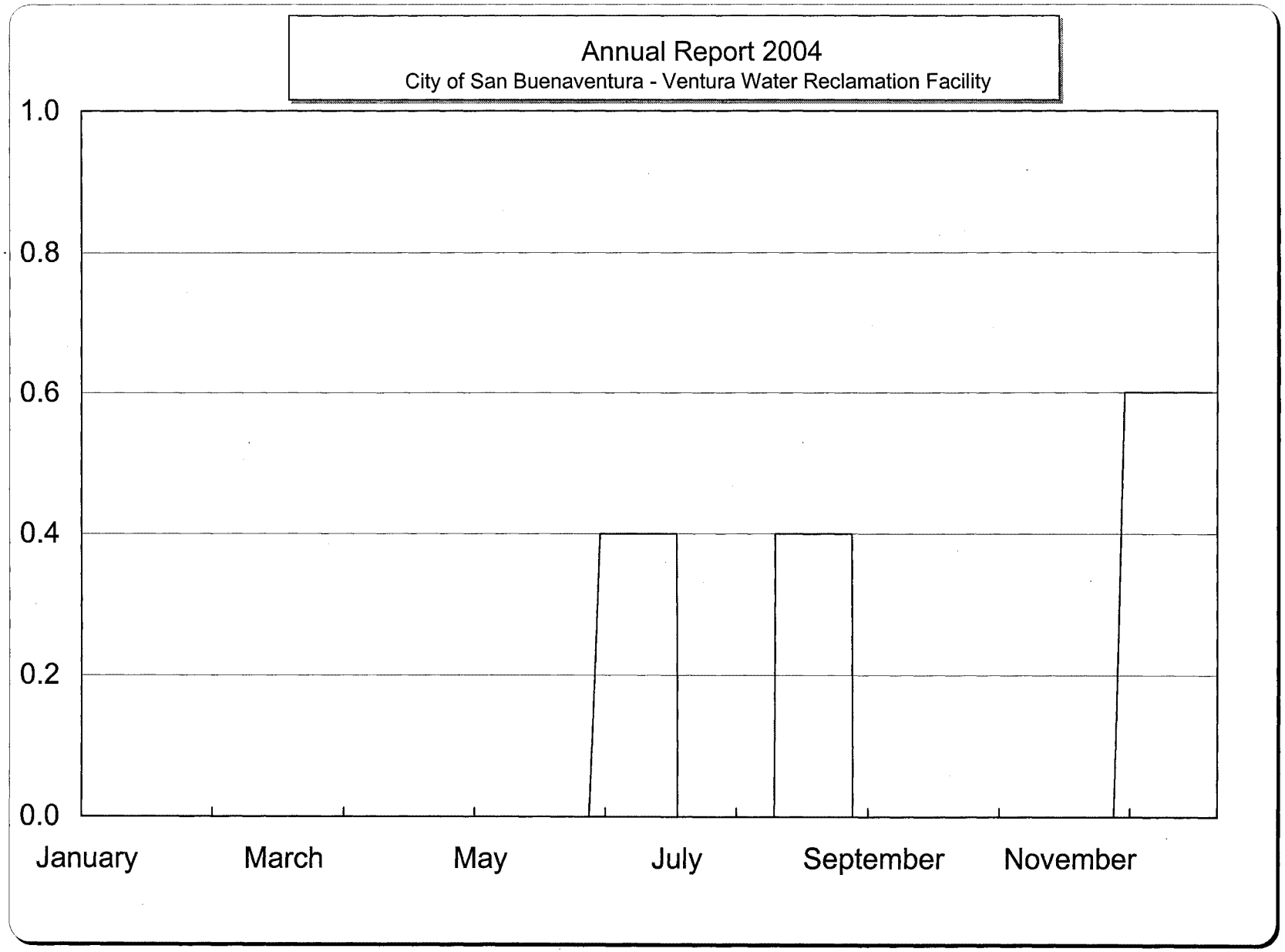
Receiving Water Station - R2
Monthly Nitrite-N - mg/L

Bimonthly Period



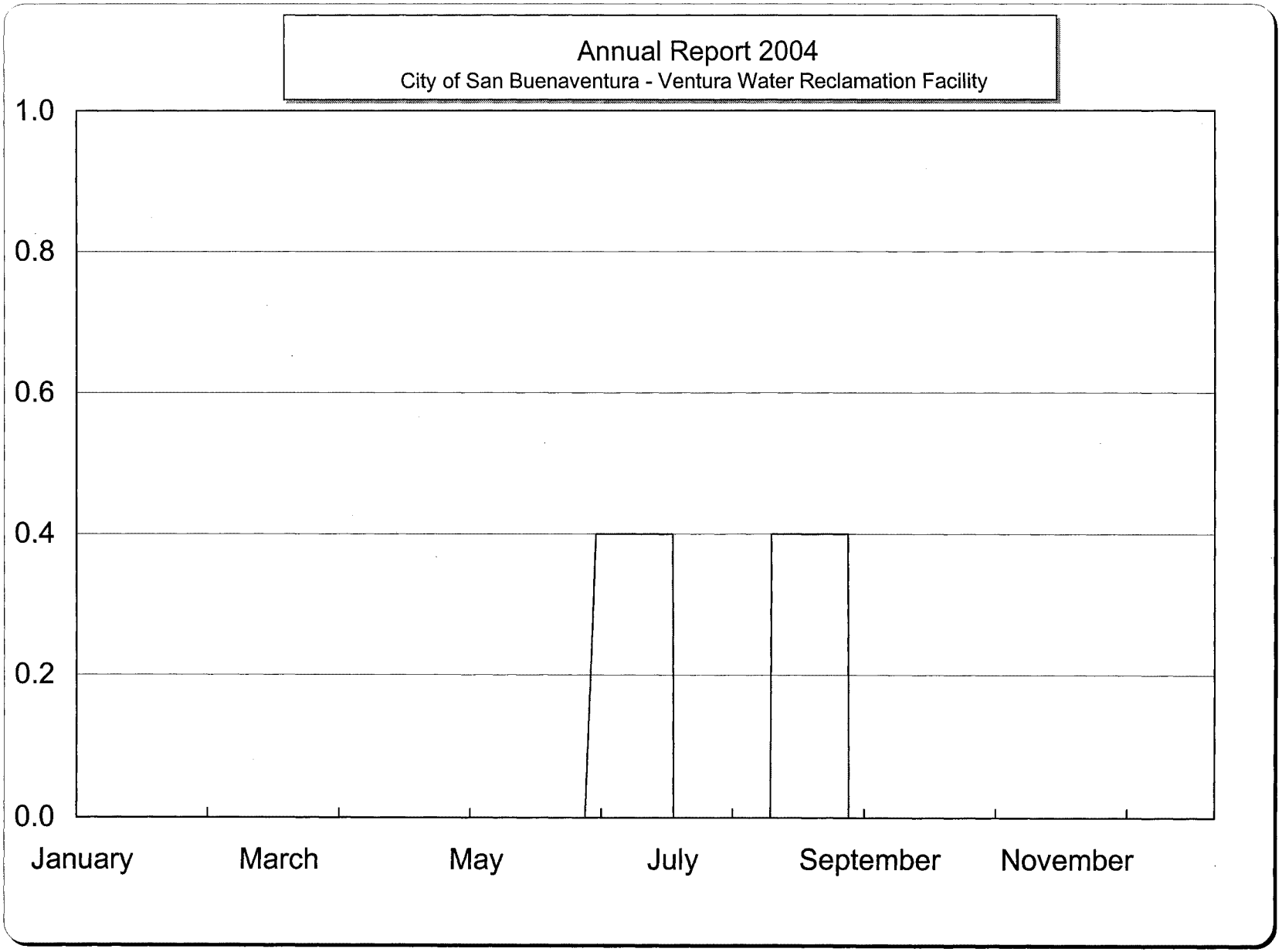
Bimonthly Period

Receiving Water Station - R3
Monthly Nitrite-N - mg/L



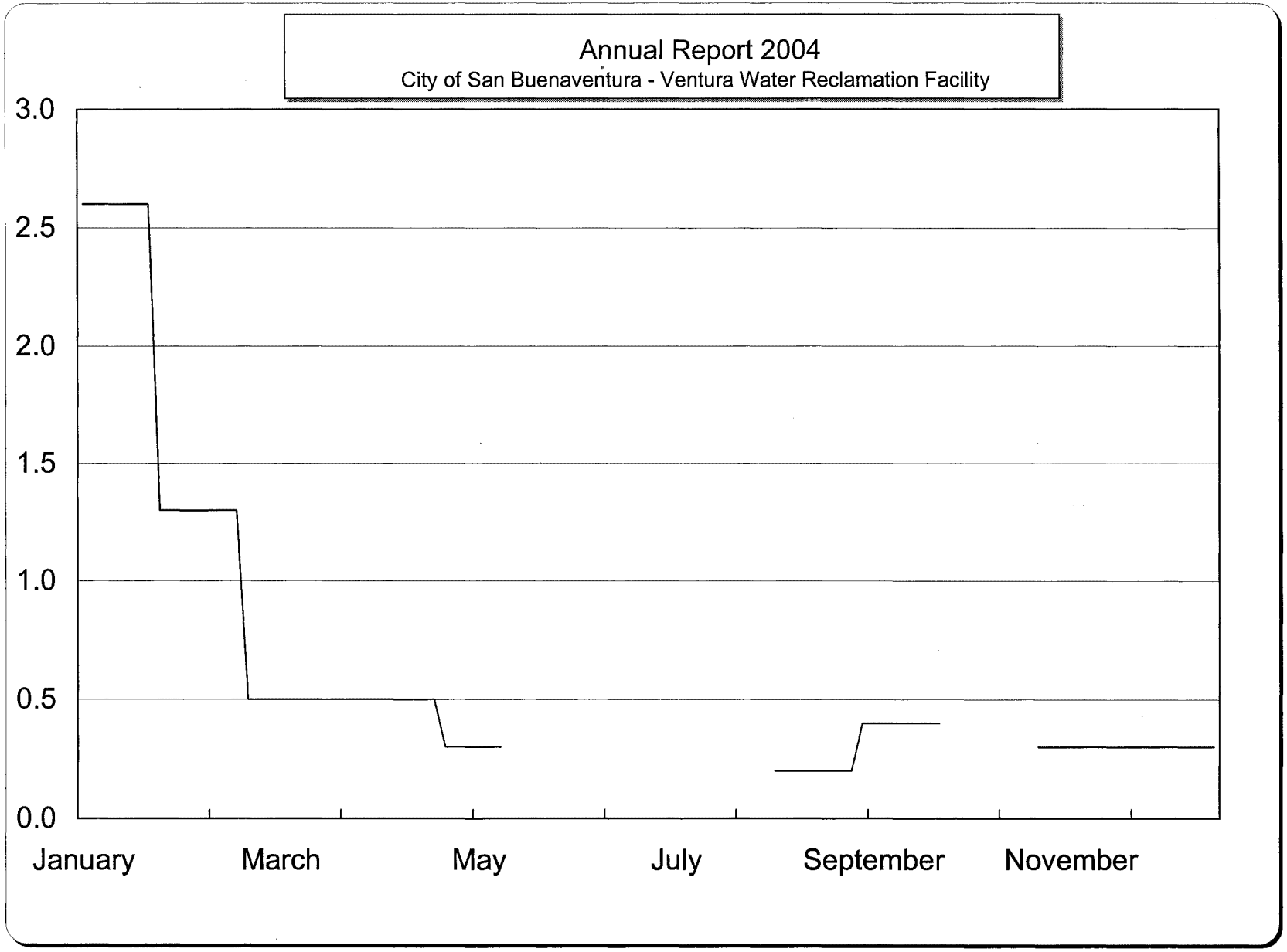
Bimonthly Period

Receiving Water Station - R4
Monthly Nitrite-N - mg/L



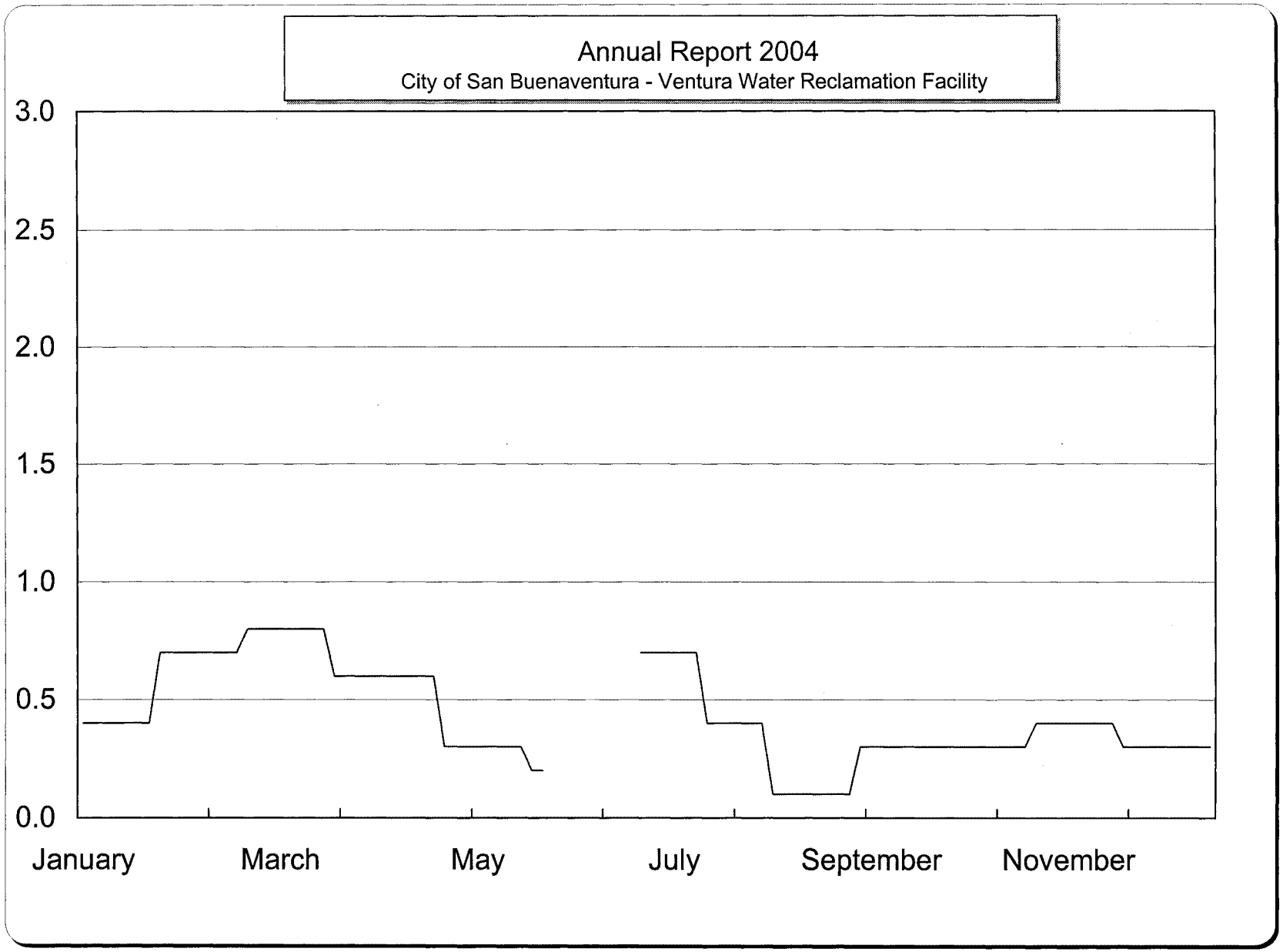
Receiving Water Station - L5
Monthly Nitrite-N - mg/L

Bimonthly Period



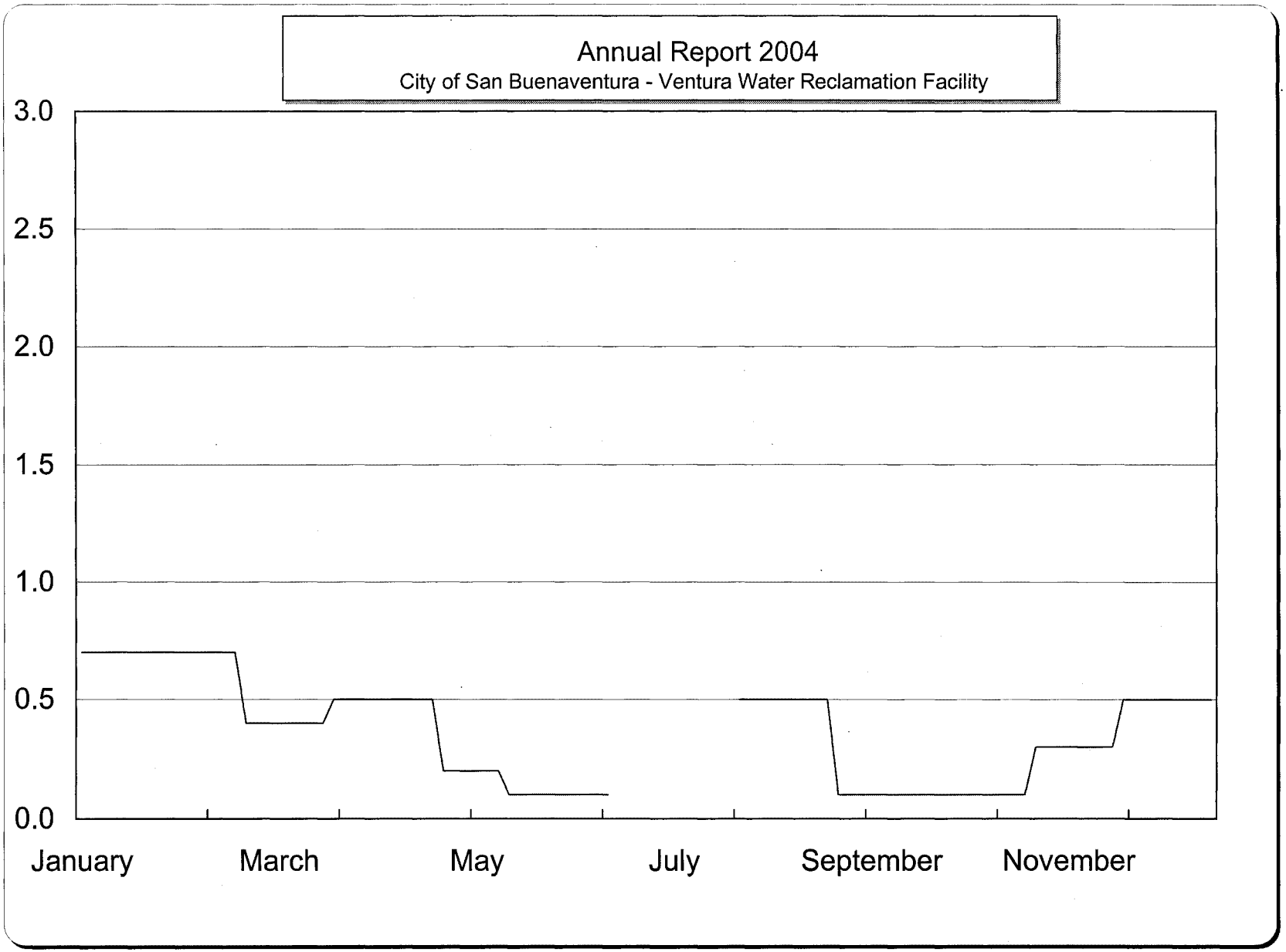
Receiving Water Station - R1
Monthly Ammonia-N - mg/L

Bimonthly Period



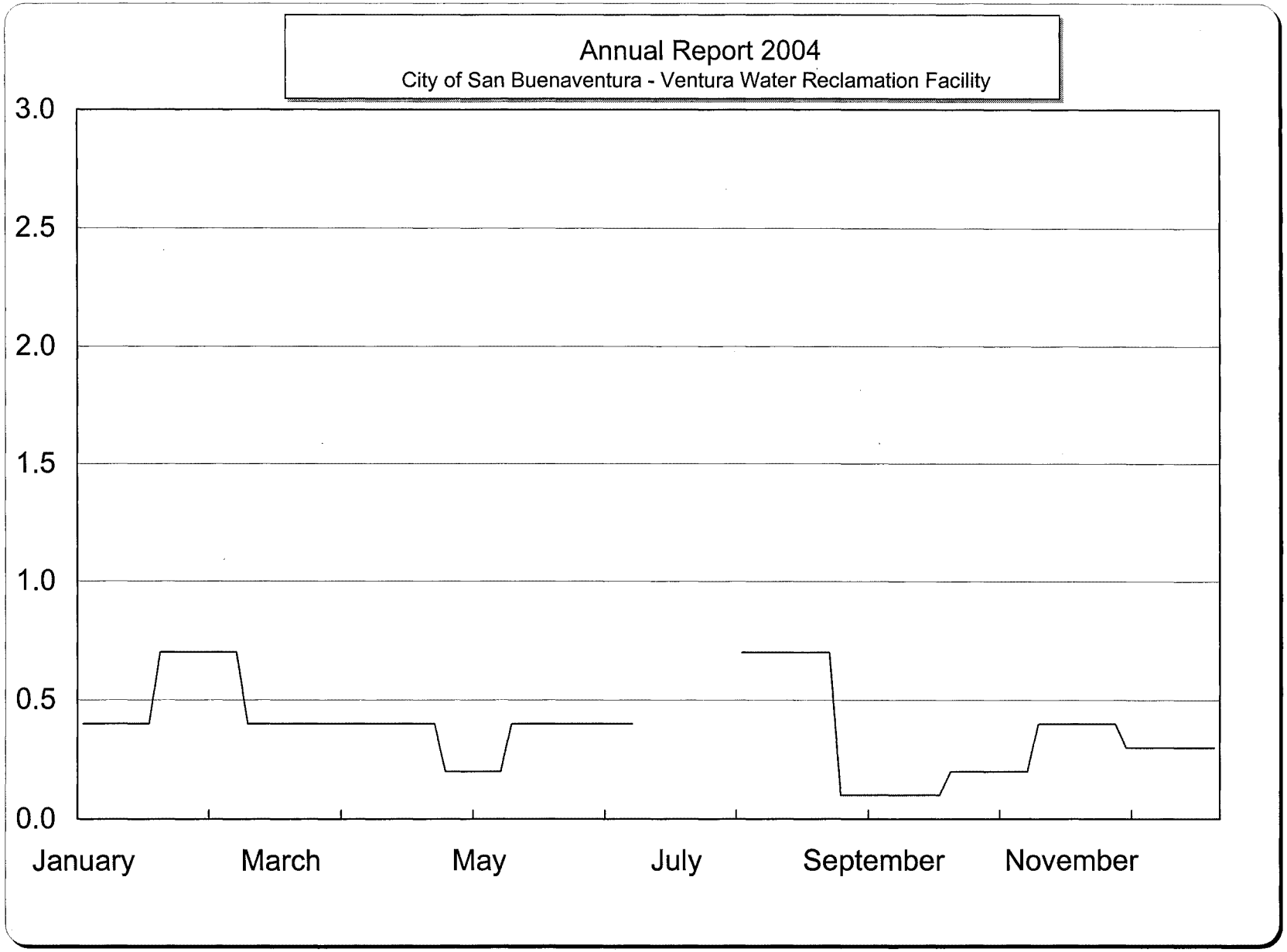
Receiving Water Station - R2
Monthly Ammonia-N - mg/L

Bimonthly Period



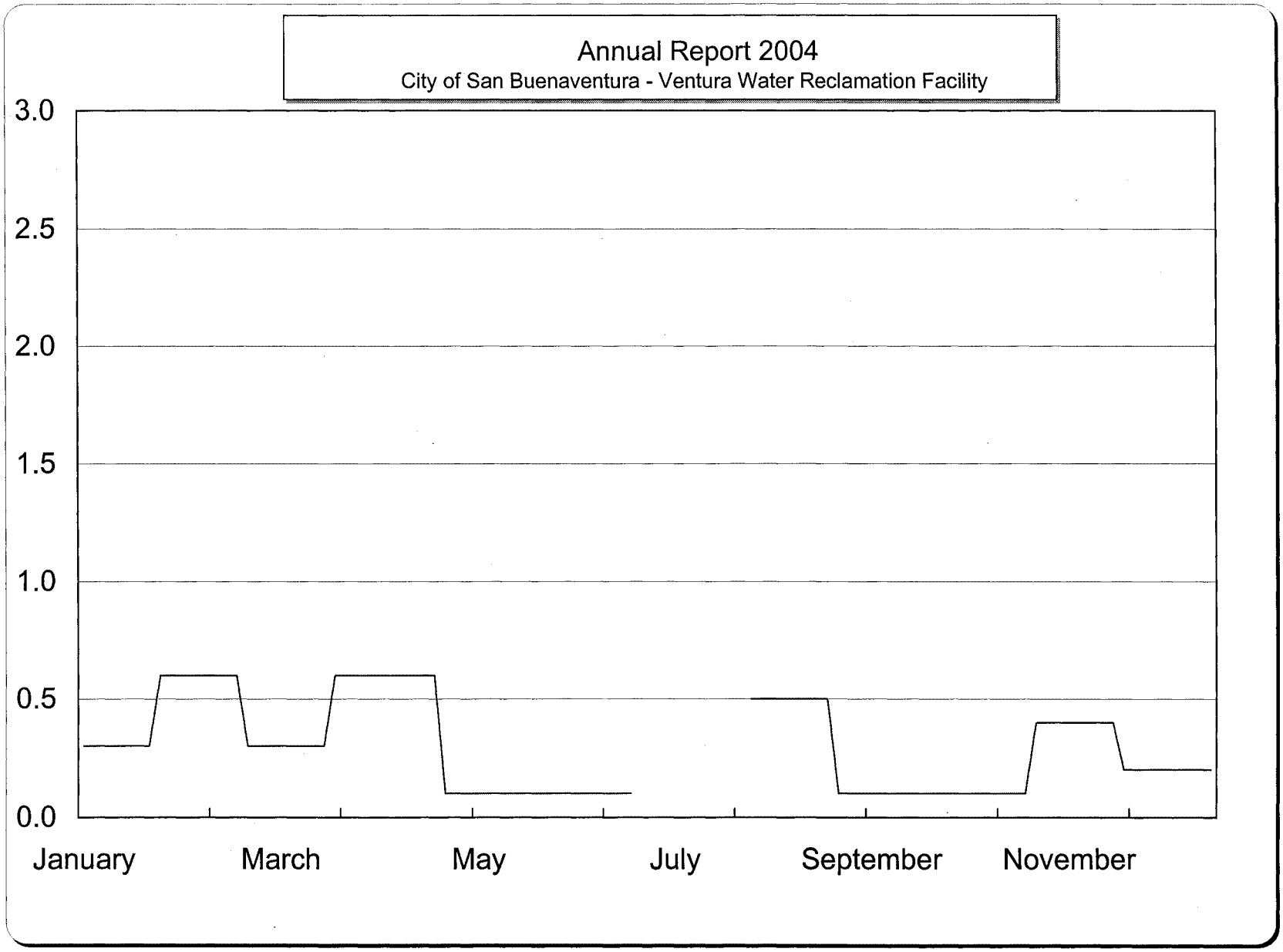
Receiving Water Station - R3
Monthly Ammonia-N - mg/L

Bimonthly Period



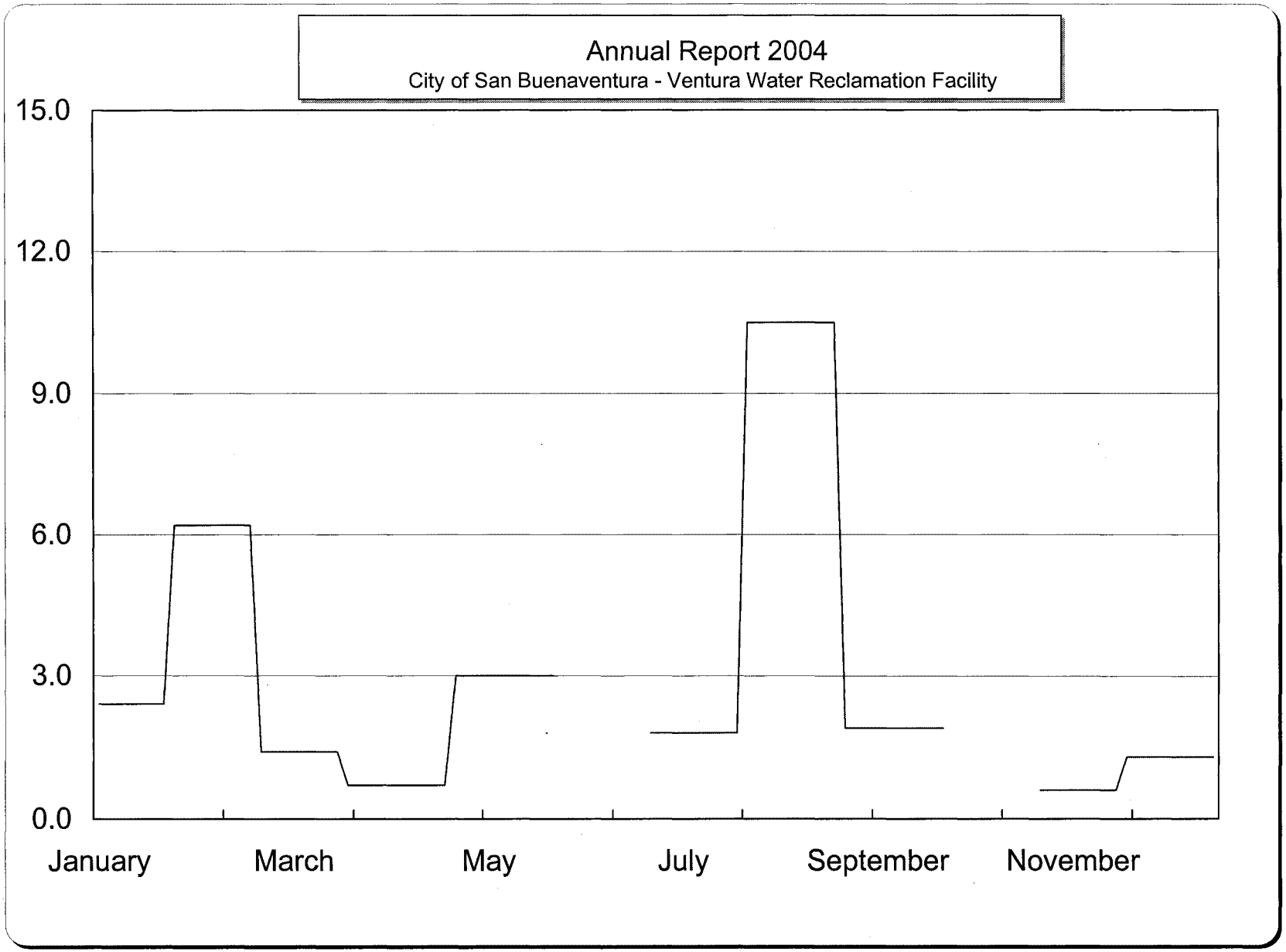
Receiving Water Station - R4
Monthly Ammonia-N - mg/L

Bimonthly Period



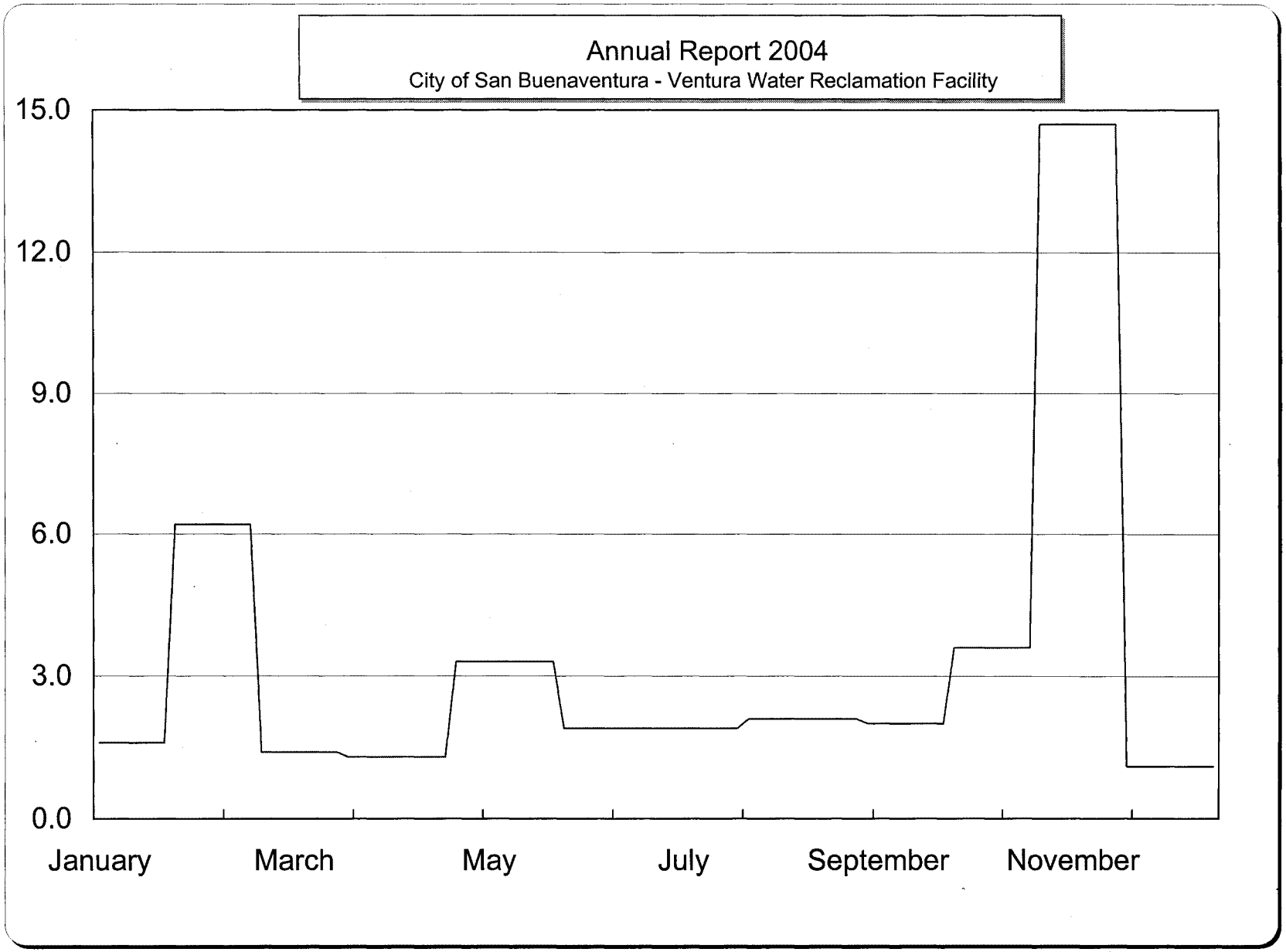
Receiving Water Station - L5
Monthly Ammonia-N - mg/L

Bimonthly Period



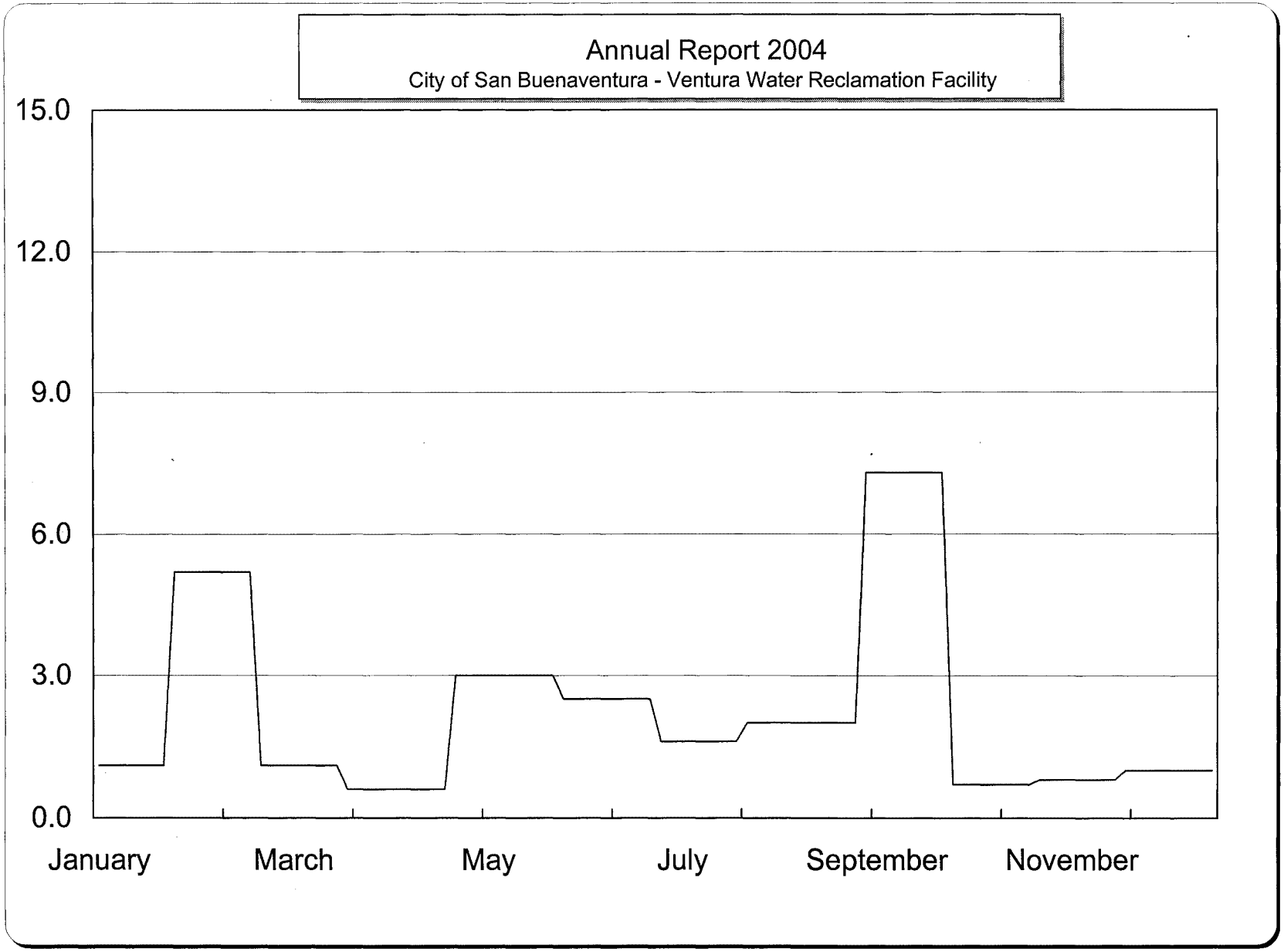
Receiving Water Station - R1
Monthly TKN-N - mg/L

Bimonthly Period



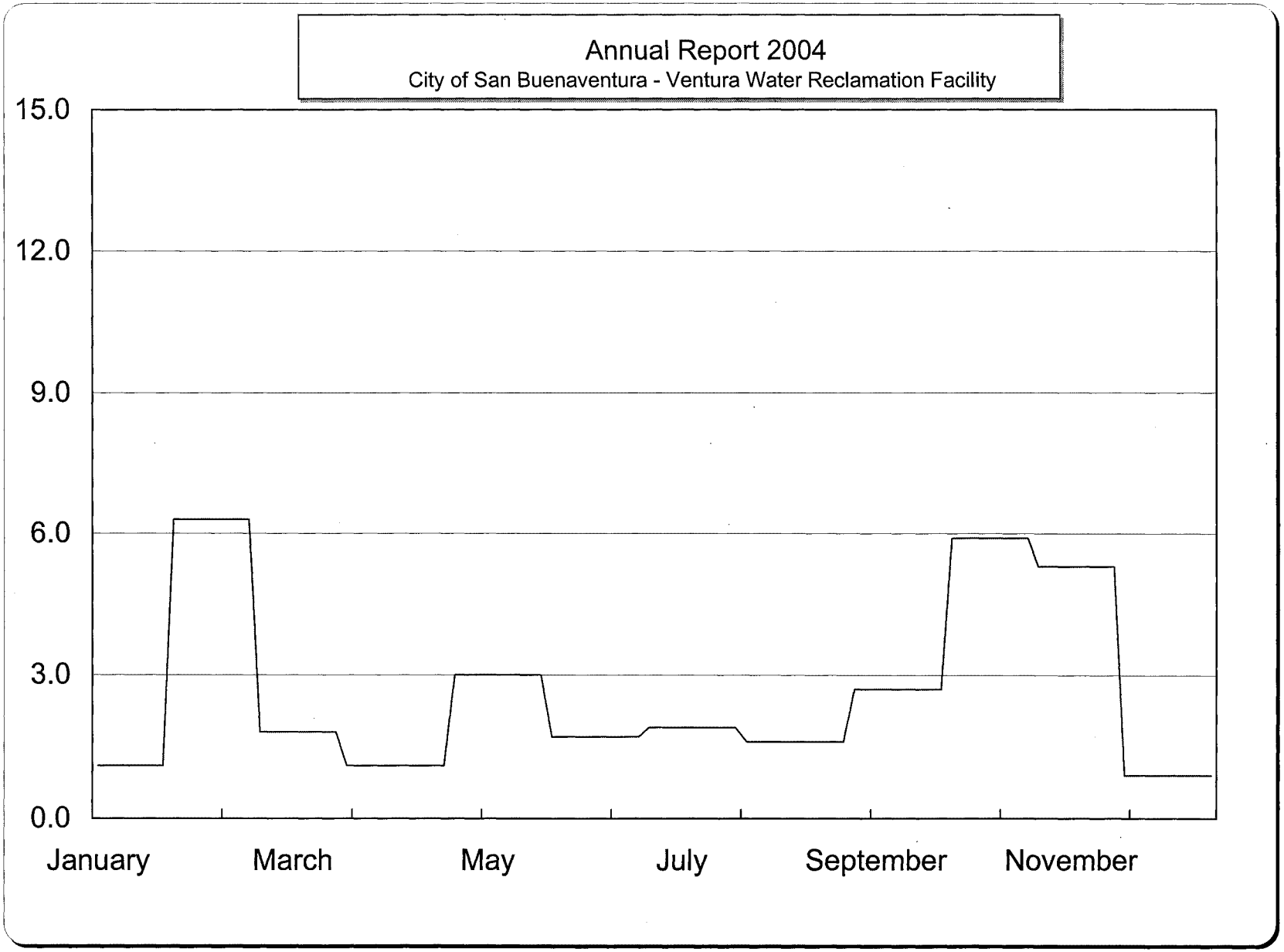
Receiving Water Station - R2
Monthly TKN-N - mg/L

Bimonthly Period



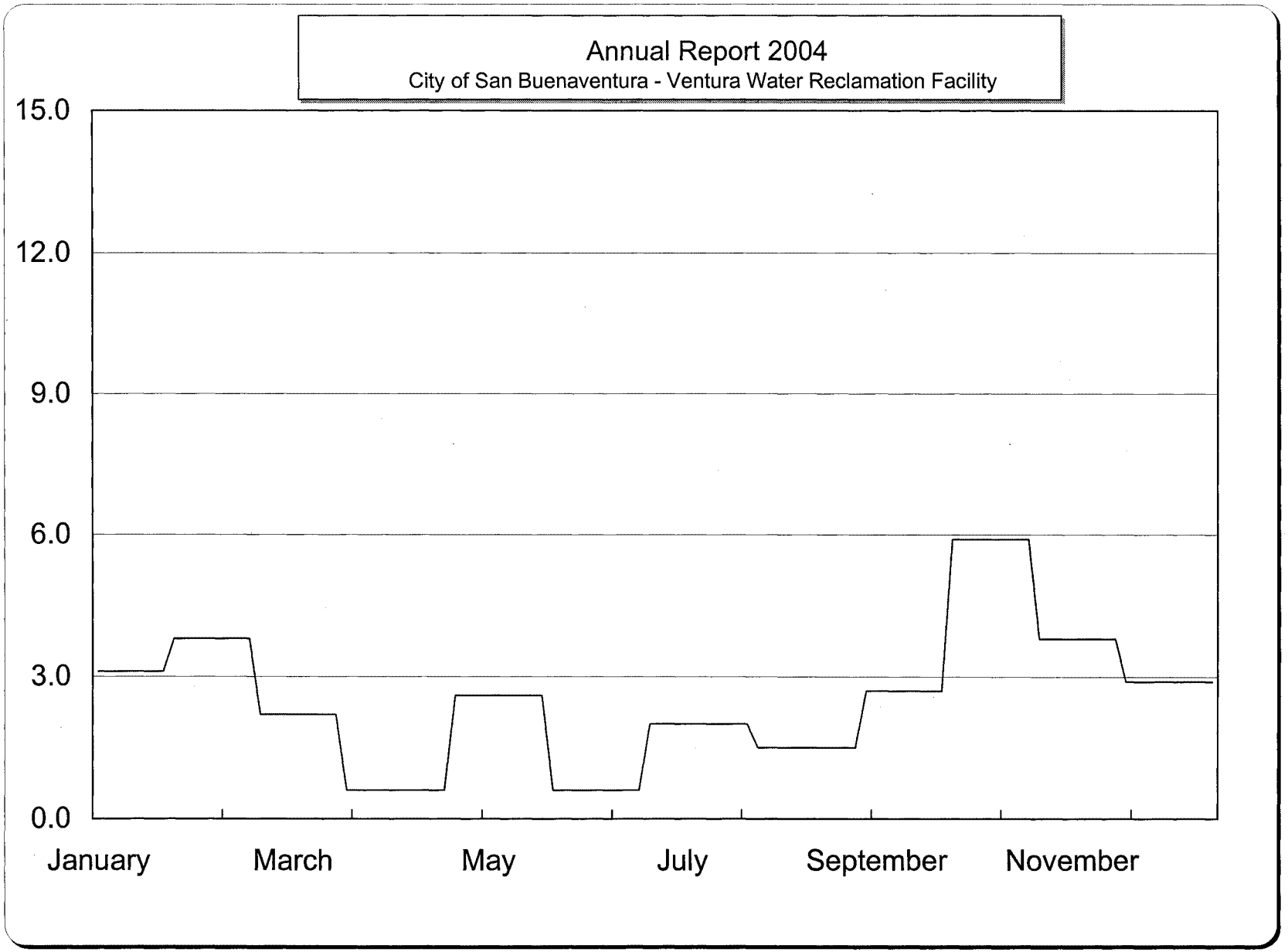
Receiving Water Station - R3
Monthly TKN-N - mg/L

Bimonthly Period



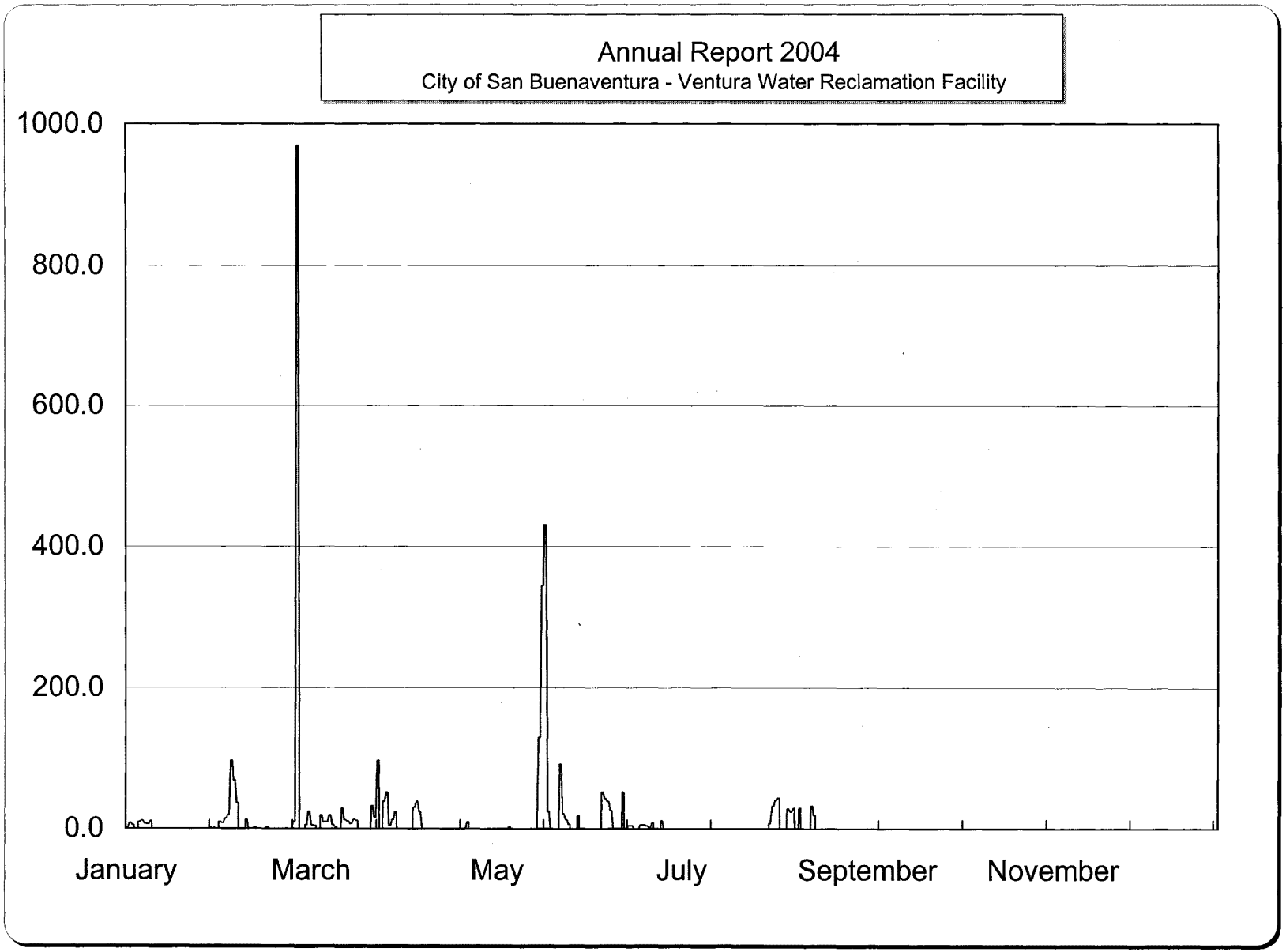
Receiving Water Station - R4
Monthly TKN-N - mg/L

Bimonthly Period



Receiving Water Station - L5
Monthly TKN-N - mg/L

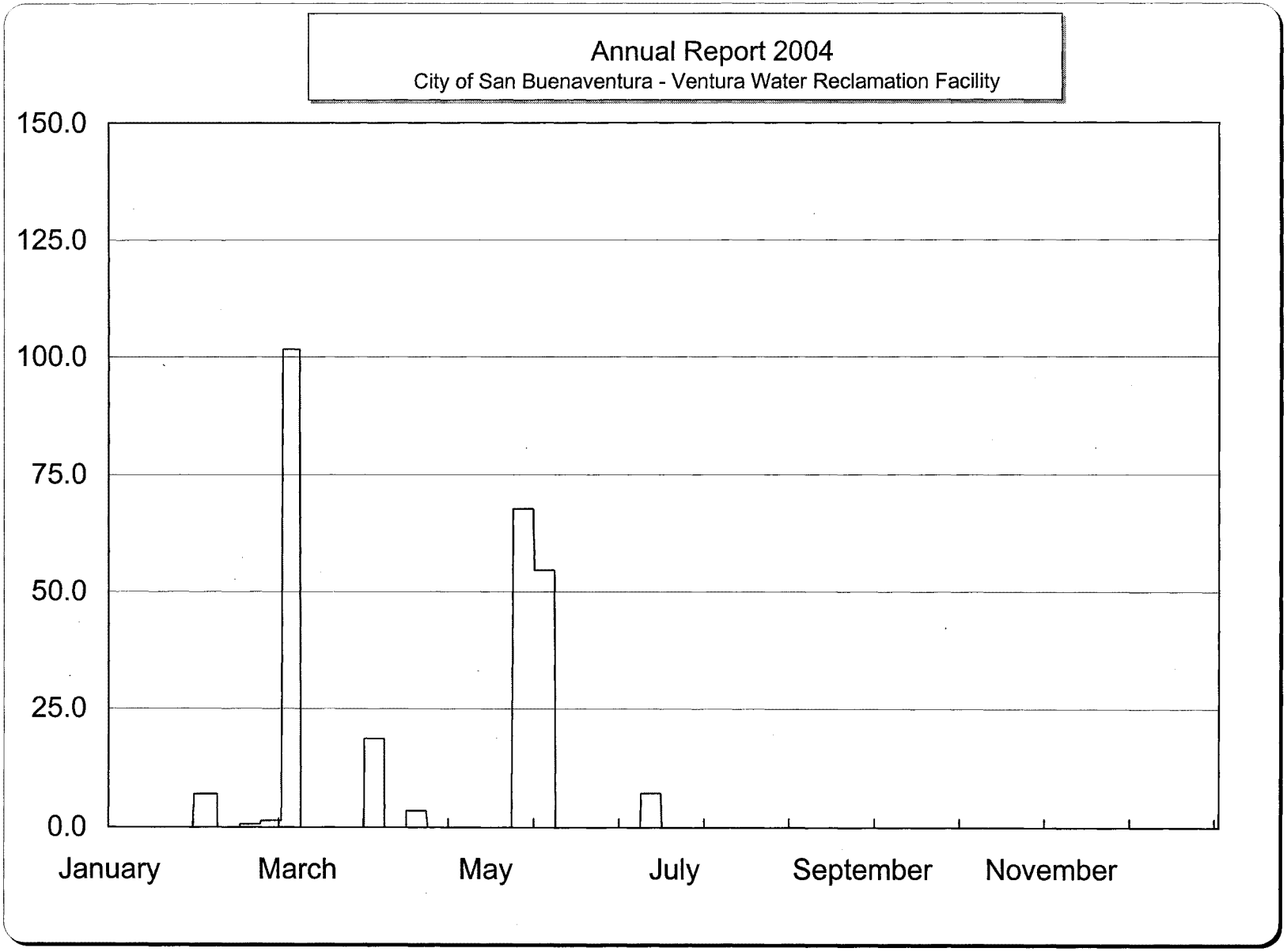
Bimonthly Period



Santa Clara Tidal Prism

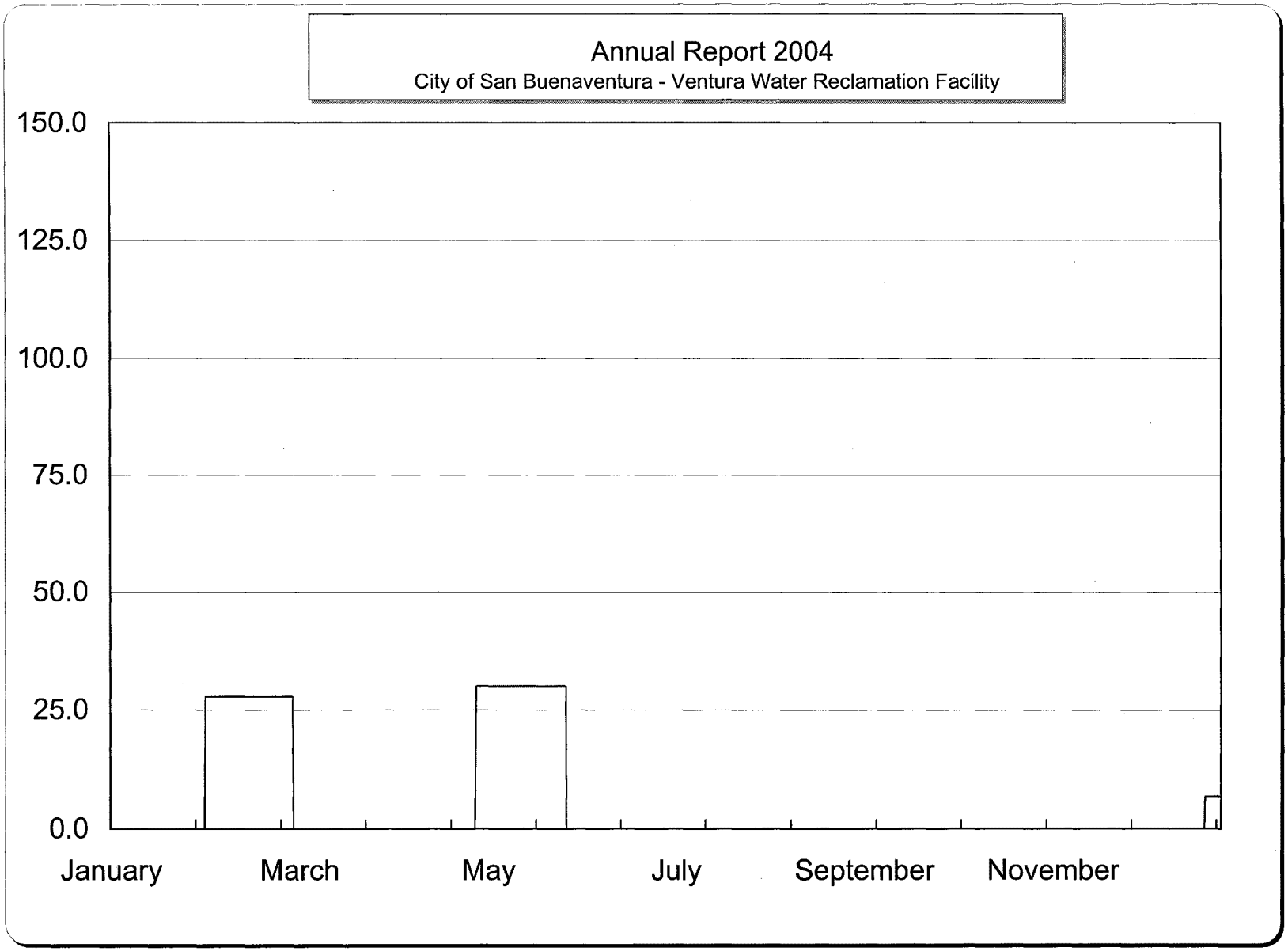
Bimonthly Period

Estimated Daily Discharge to the Pacific Ocean - MGD



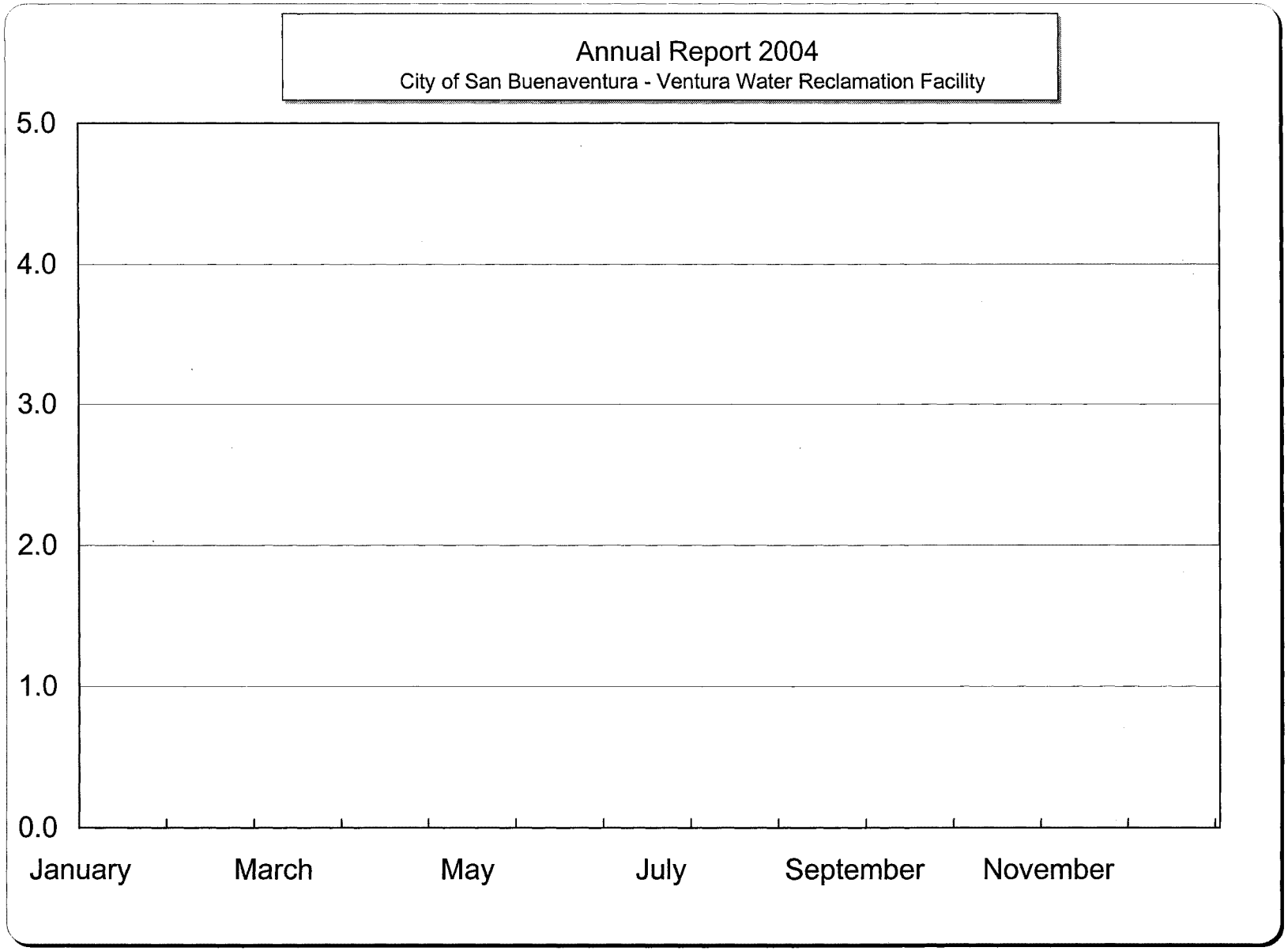
Santa Clara Tidal Prism

Bimonthly Period Estimated 7 Day Average Discharge to the Pacific Ocean - MGD

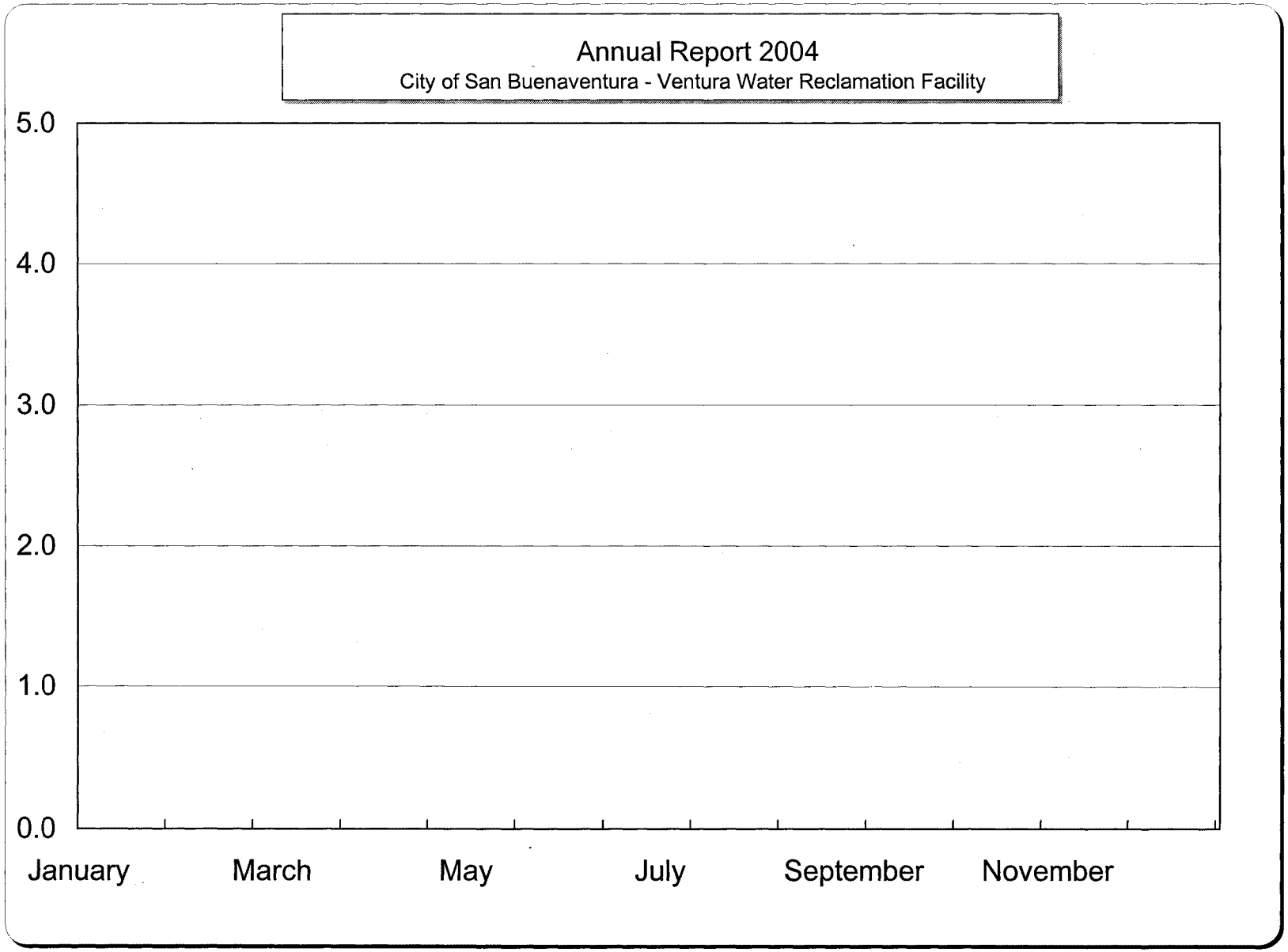


Santa Clara Tidal Prism

Bimonthly Period Estimated 30 Day Average Discharge to the Pacific Ocean - MGD



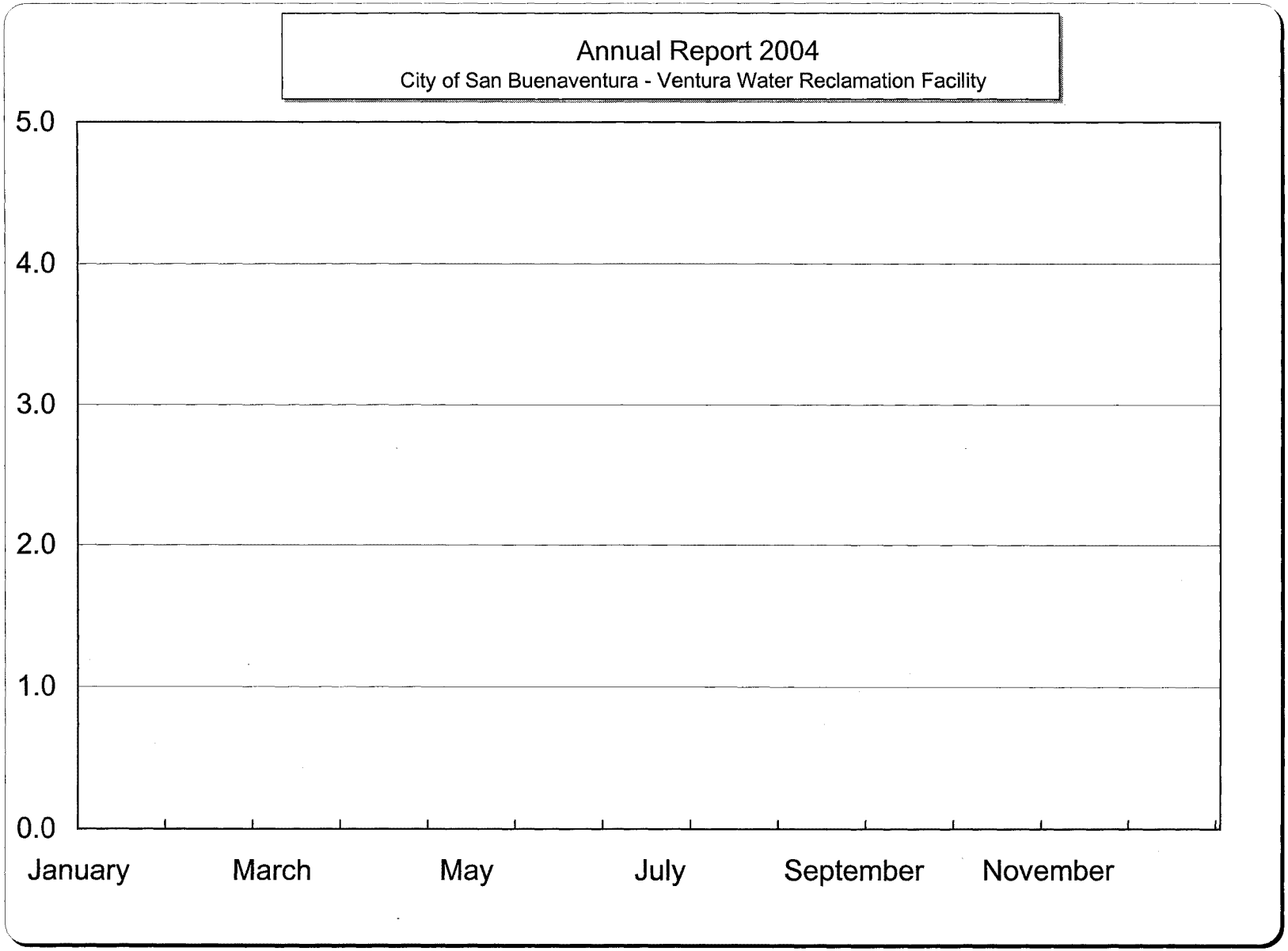
Santa Clara Tidal Prism
Bimonthly Period
Estimated Daily Influx to the Pacific Ocean - MGD



Santa Clara Tidal Prism

Bimonthly Period

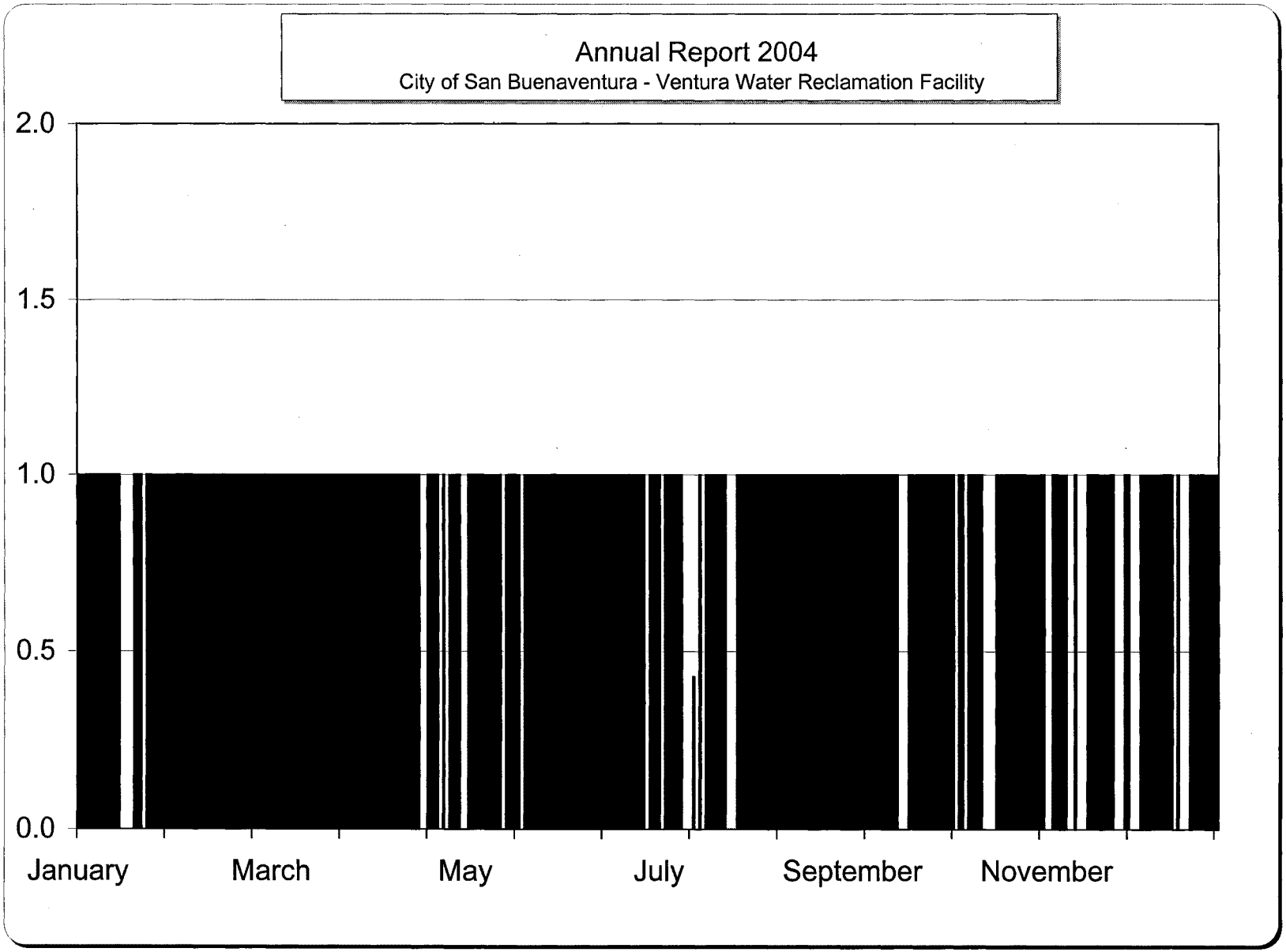
Estimated 7 Day Average Influx to the Pacific Ocean - MGD



Santa Clara Tidal Prism

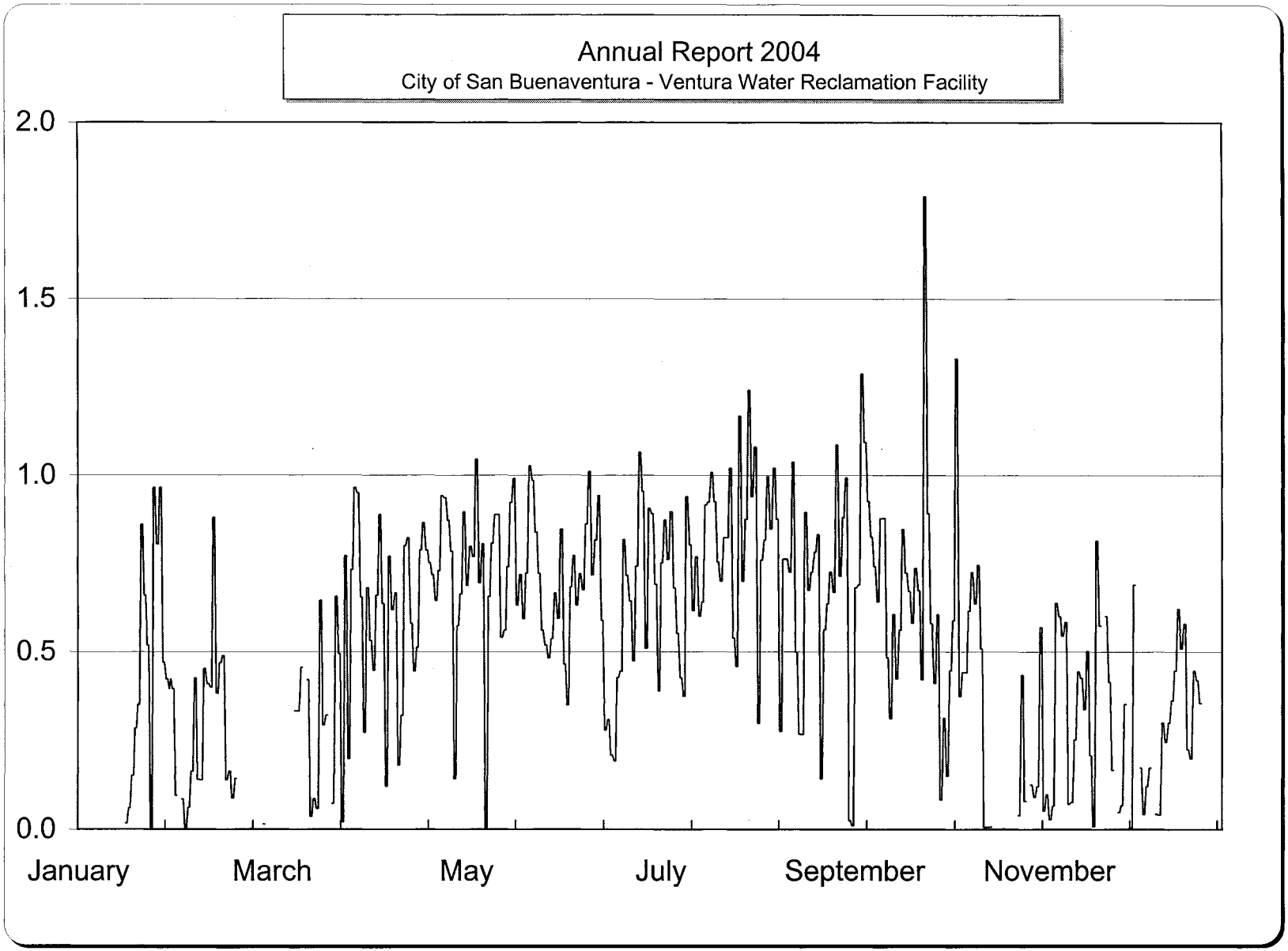
Bimonthly Period

Estimated 30 Day Average Influx to the Pacific Ocean - MGD



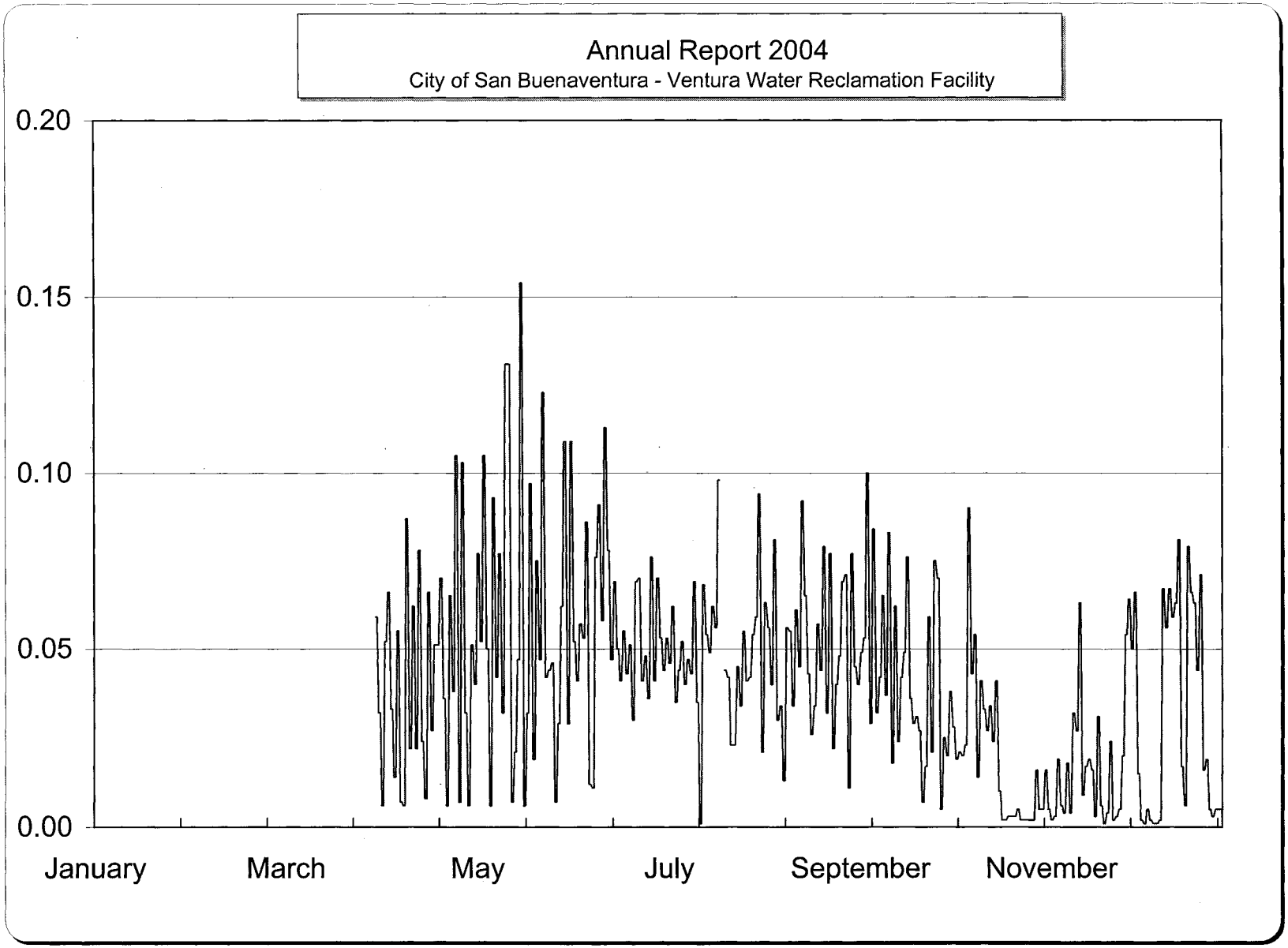
Santa Clara Tidal Prism
Observed Exchange Between the Tidal Prism

Bimonthly Period



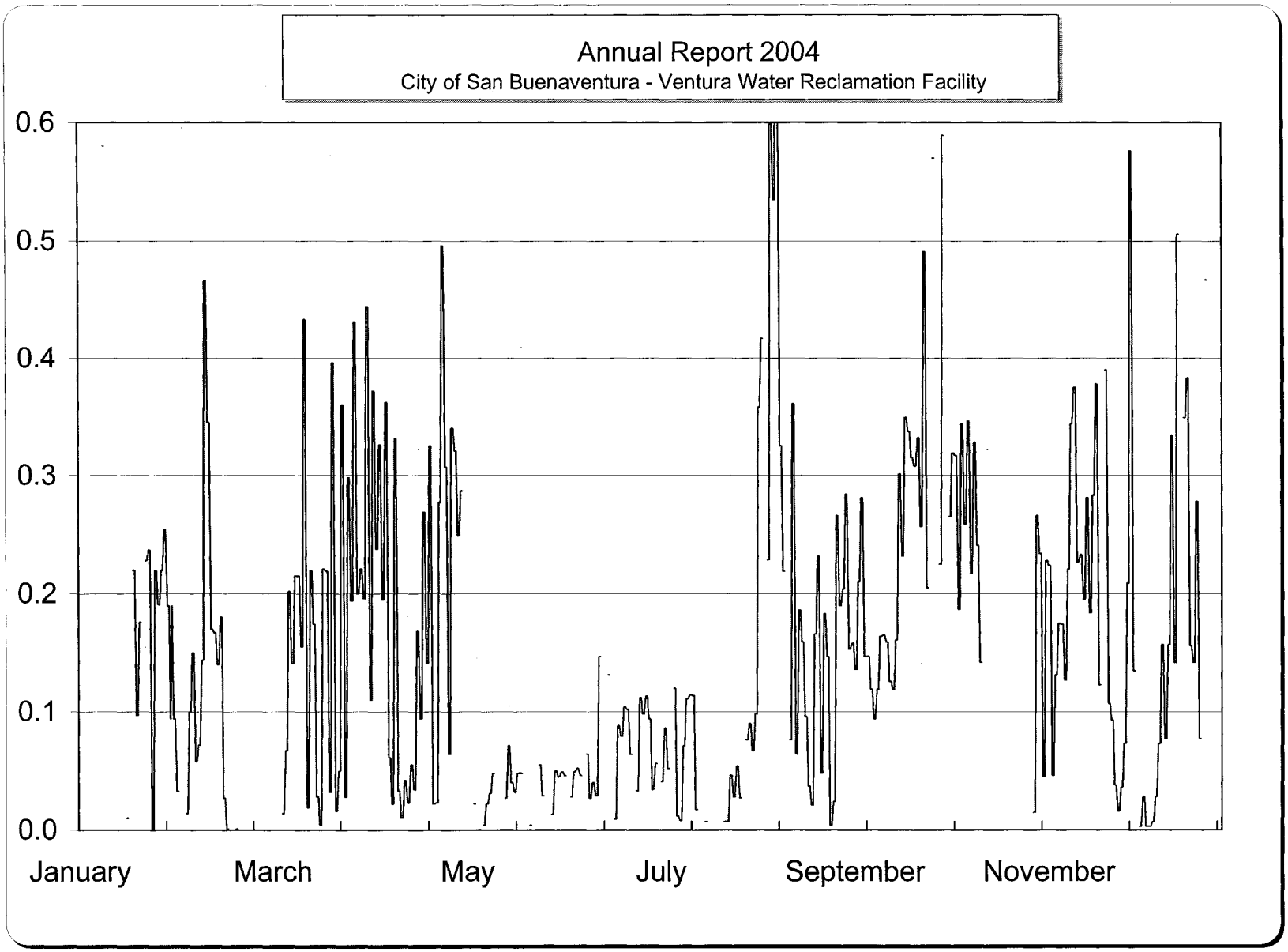
Olivas Pump Station
Daily Reclaimed Water Delivery - MGD

Bimonthly Period



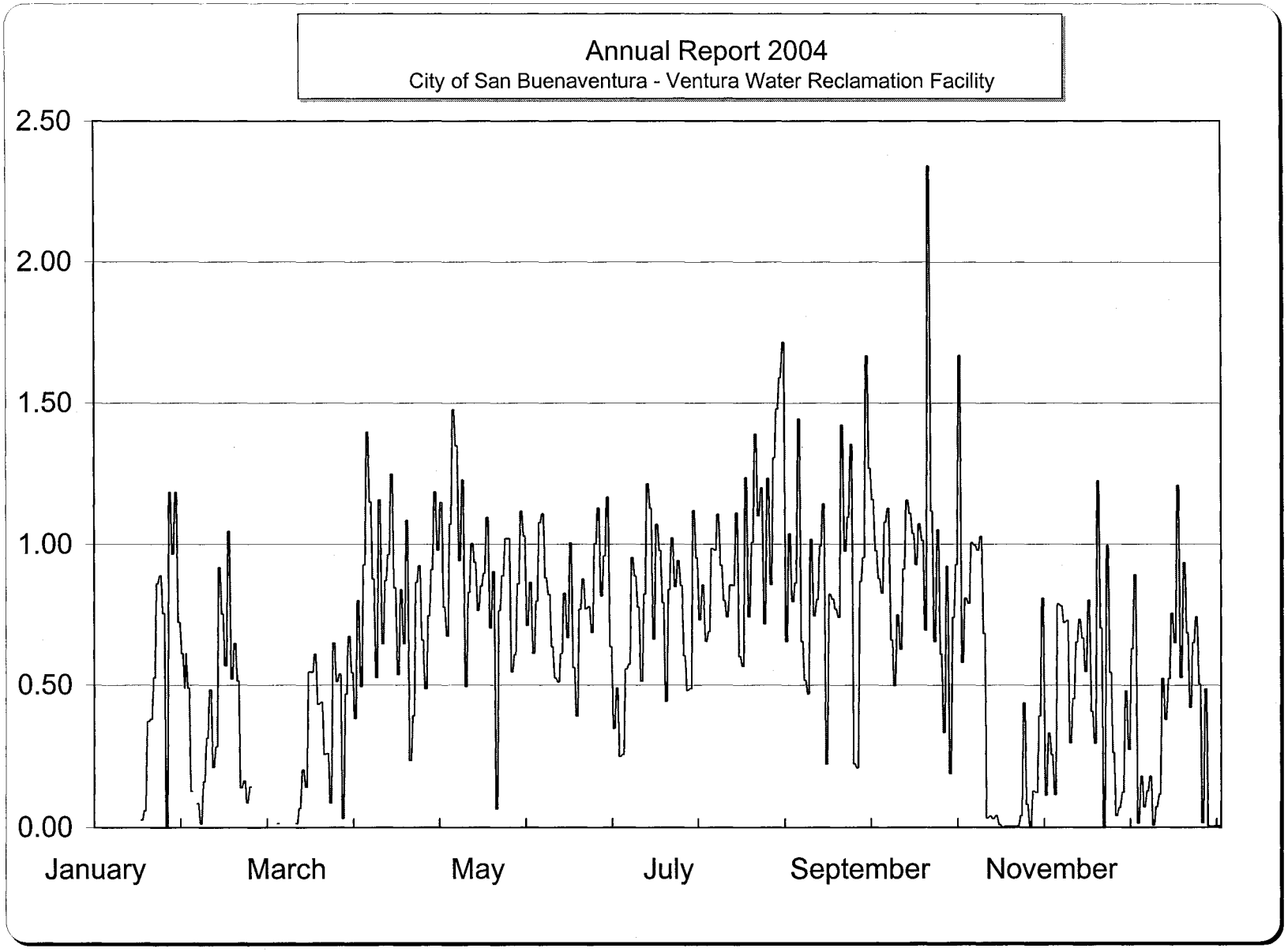
Marina Park Irrigation System
Daily Reclaimed Water Delivery - MGD

Bimonthly Period



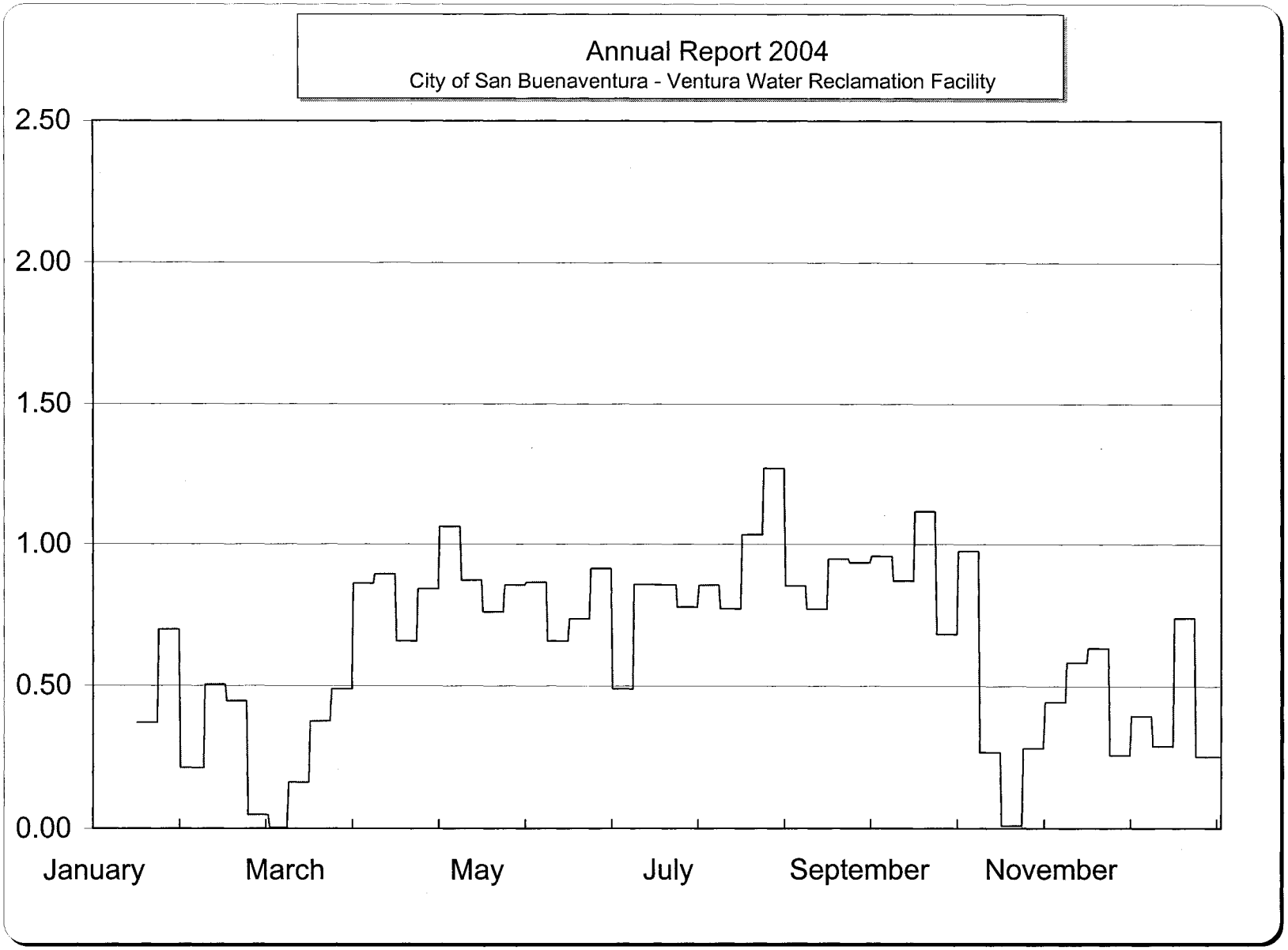
Buena Pump Station
Daily Reclaimed Water Delivery - MGD

Bimonthly Period



All Irrigation Deliveries
Daily Reclaimed Water Delivery - MGD

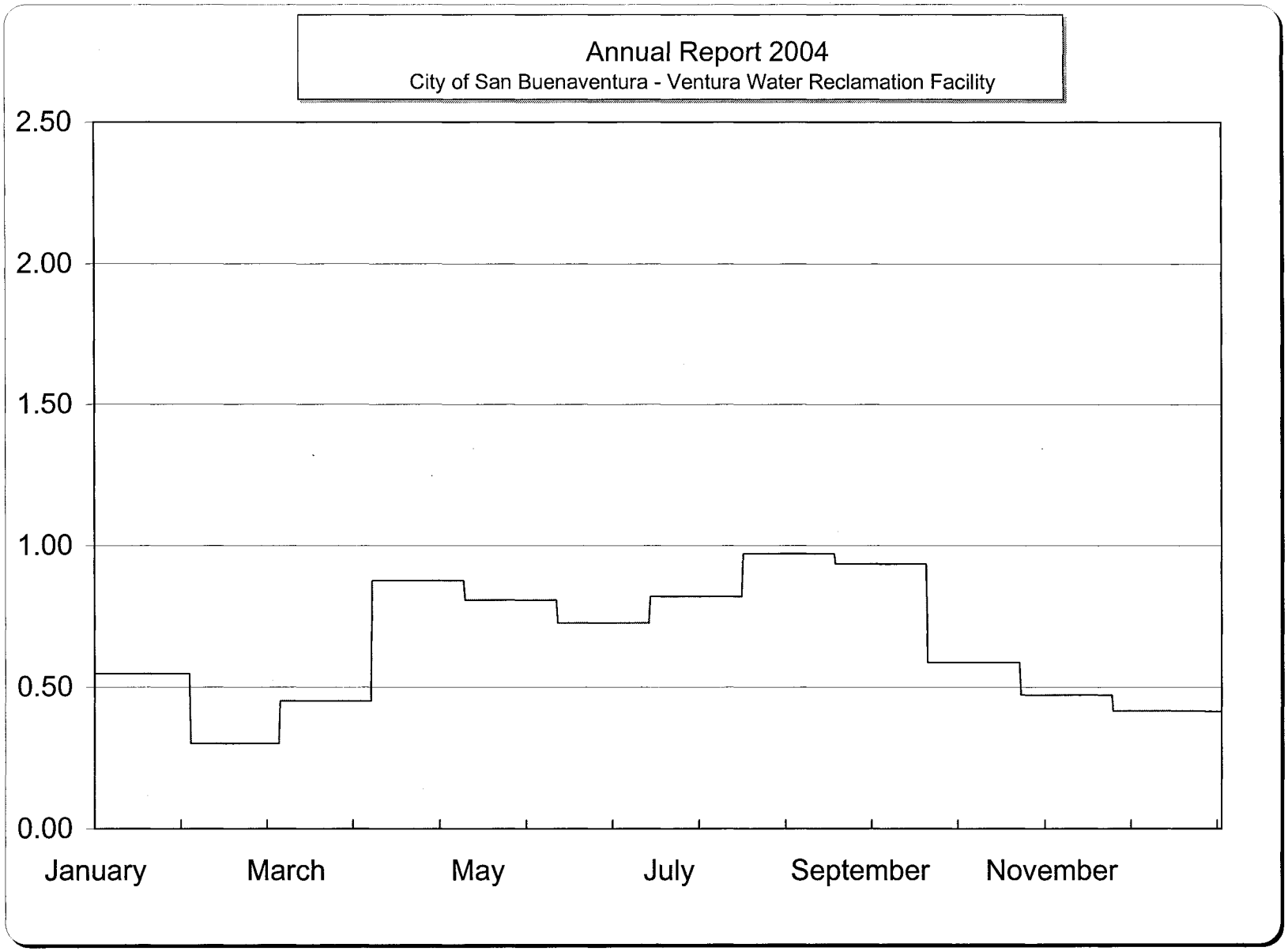
Bimonthly Period



All Irrigation Deliveries

Bimonthly Period

Daily Reclaimed Water 7 Day Average Delivery - MGD



All Irrigation Deliveries

Bimonthly Period

Daily Reclaimed Water 30 Day Average Delivery - MGD

ANALYTICAL QUALITY ASSURANCE PROGRAM 2004

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.

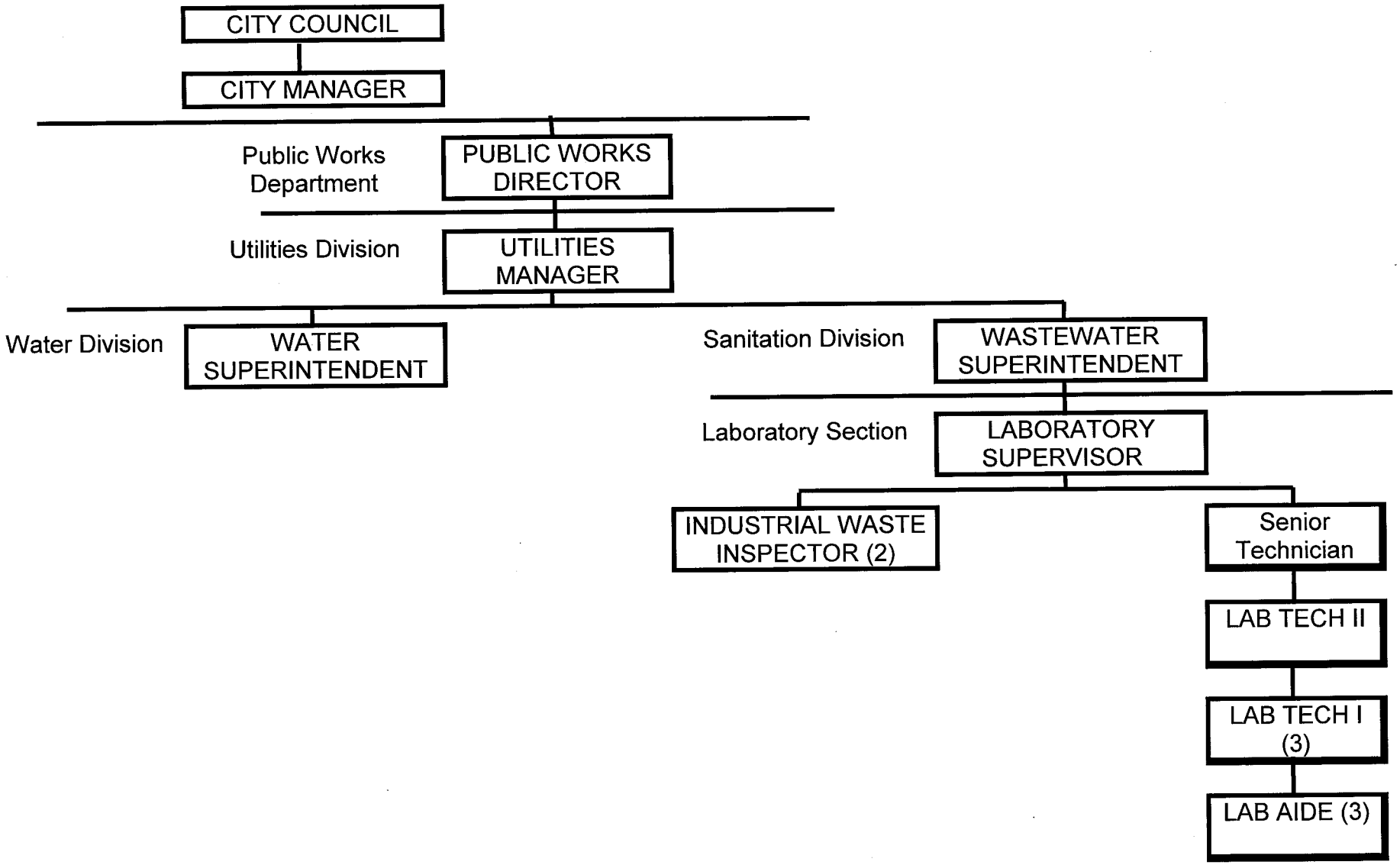
Current State of California Department of Health Services laboratory approval is attached.

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.

B. Laboratory Personnel Qualifications and Experience

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

Education:

Bachelor of Sciences Fort Valley State College Major - Biology

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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: **Michele G. Holmes – 1989 to Present**

Education:

Associate of Arts, Ventura College, Major - Natural Science

Experience:

Laboratory Technician, BTC Laboratories, Ventura California

Laboratory Technician, SOCI Laboratory, Westlake, California

Laboratory Technician, City of Oxnard, Oxnard, 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.

Lab Tech I: **Lourdes A Geise - 2000 to Present**

Education:

Bachelor of Science in Chemistry – Far Eastern University, Manila, Philippines

Experience:

City of Simi Valley Sanitation Laboratory

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. Record and input laboratory data.

Lab Tech I: **Craig Jones – 2000 to Present**

Education:

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

Experience:

Laboratory Technician, Ventura County Waterworks

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. Record and input laboratory data.

Lab Tech I: **Catherine Lee – 2001 to Present**

Education:

Bachelor of Science in Soil Science – Cal Poly Pomona

Experience:

Analytical Chemist, FGL Environmental, Santa Paula, CA

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. Record and input 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	HP
	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	HP
Purge/Trap system	HP 7695	HP
Dispenser/Diluter	Gilson 222	Division
Samplers	4 ISCO Model 6712Fr	Division
	2 ISCO Model 3700	Division
	5 American Sigma 800SL	Division
	2 American Sigma 900	Division
	1 ECOA Model E	Division
Agilent Technologies (HP)	-- Agilent Technologies Van Nuys, Ca	
Getinge/ Castle	-- Getinge/Castle Rochester, New York	
Idexx	--Idexx Westbrook, Maine	
Varian	-- Varian Sugarland, Texax	
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 agency.

Sample 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 container must be a material that will not produce positive or negative errors or cause contamination to the sample. Sampler 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 contaminate or cause interference producing erroneous results. Sample collection is done on a daily, weekly, monthly, quarterly, annually or, as in the case of special request, one time basis.

2. Sample Preservation

Sample preservation will be done in accordance with the analysis to be performed.

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

The industrial waste inspector will preserve the samples when collected for metals, cyanide and total sulfide analyses. The lab technician performing the analysis will preserve all other industrial waste samples. Sample preservation will be 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 to be preserved and refrigerated at 4° C and remain in storage until the analysis is complete and data has been approved. The technician responsible for performing the required analysis should 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 can be held in storage varies from .5 hours to 6 months depending upon the analysis to be performed. Check the holding time for each sample placed into storage to ensure that the analysis is done within that time frame.

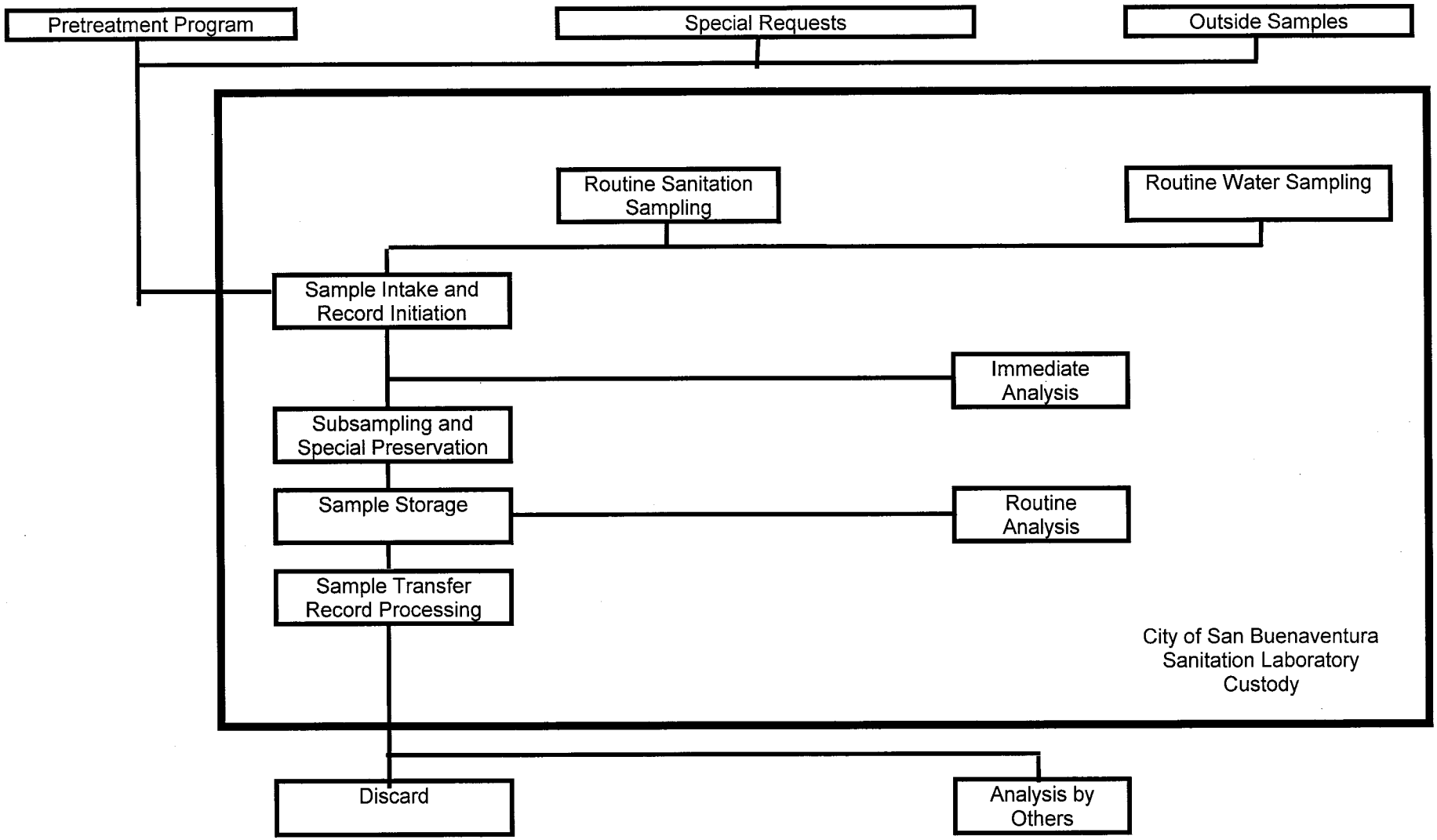
4. Disposal

A sample can be disposed only after the analysis such as in the case of pH has been completed or after the data has been reviewed by the Laboratory Supervisor and Industrial Waste Inspector. Samples should be dispose 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 of the 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 are evaporated under the fume hood or at hazardous waste disposal site.

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 unique Laboratory Identification Number (LID) other Water or Wastewater samples, 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.

Custody

Change of custody occurs when a sample enters or leaves the laboratory unit. All samples done on 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 Laboratory Identification Number, identify the sample collector and document 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 Standard Operation Procedures.

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, EPA Chemical Method for Analysis of Water and Wastes and EPA 40 CFR.

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 routinely examined. 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 for determining 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.

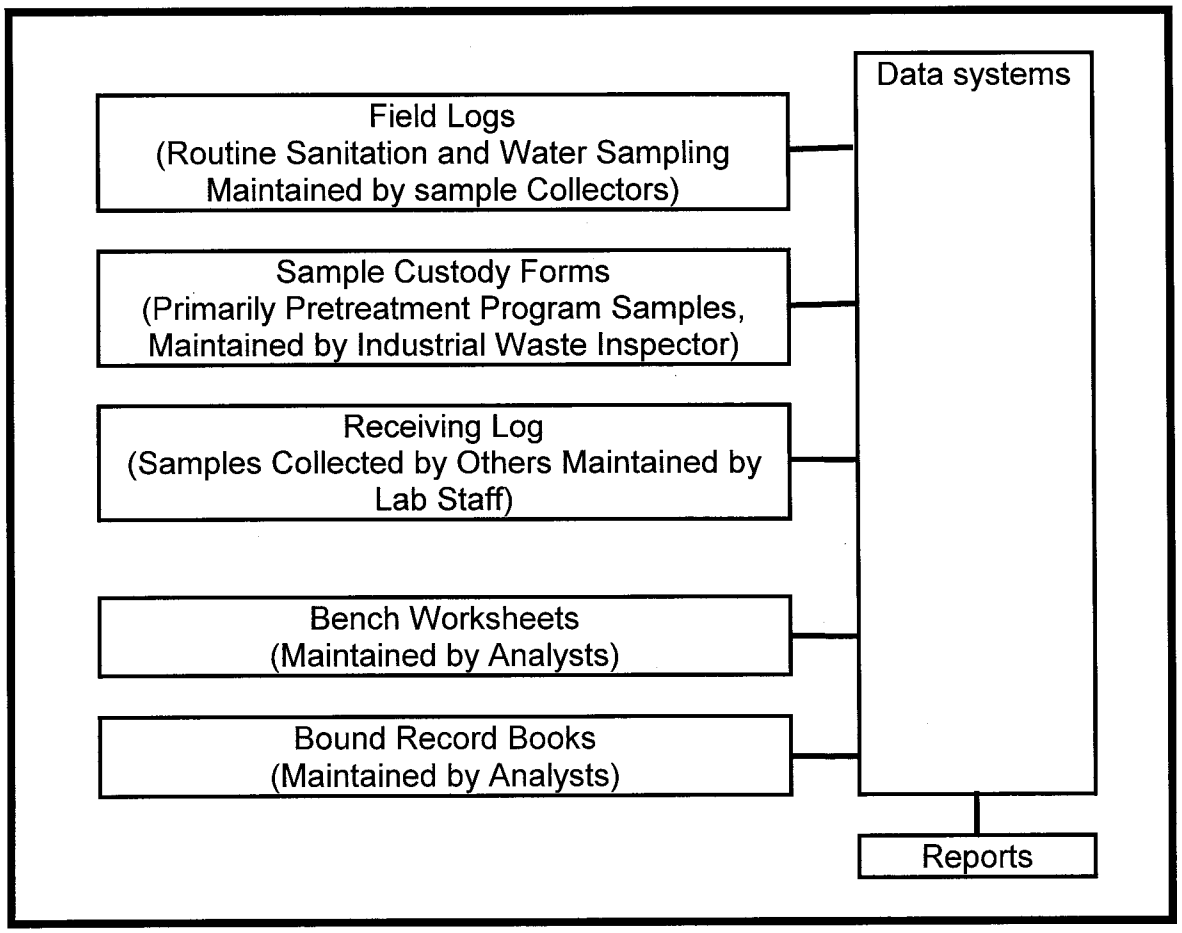
Record	Function	Retention
Field Logs	Record of Field Measurements and Circumstances of Sampling	7 Years
Receiving Log	Record of Samples Received from Others	7 Years
Sample/Custody Form	Pretreatment Program Sampling	7 Years
Chromatographs	Analysis from Gas Chromatograph, Ion Chromatograph and Atomic Absorption	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 such reports. Reports of routine monitoring are provided by computer methods designed to meet these specifications. Reports for Water and Wastewater schedule samples are generated from data entered into Run: Input 2, Ioutil, Organic, Metals, Phenols, and Bactin. Industrial Waste and other unscheduled samples reports are obtain from data entered into Run: 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 analytical results are available from 1971 to date. 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	Chemistry	Report Reviewed	Lab Supervisor
Drinking Water	Quarterly	THM, Pesticides, Phenols & Met	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	Weekly Composite	MBAS	Analysis Complete	Analysts
Wastewater	Monthly Composite	Minerals	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 Grab	Bioassay	Test Setup	Analysts
Wastewater	Quarterly Composite	Metals,	Report Reviewed	Lab Supervisor
Wastewater	Quarterly Composite	Pesticides, Phenol	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.

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

B. Laboratory Equipment

Equipment subject to read-out drift for 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	Prior to Use
Turbidimeters	Calibrate with Certified Standards	Prior to Use
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 should be logged with the amount weight out, lot number, finally volume, initials of the preparer, date prepared and discard date. The storage container should be labeled with this information also. Check the method for the stability and storage of the stock solution or the reagent.

Titration reagents used on a daily basis should be standardized weekly. The results from that standardization; the multiplication factor adjustments; the normality of the reagent; and the initials of the person doing the standardization should be on the buret and the worksheet put in the file. 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, to determine when a reagent must be discarded and for purposes of determining calculation factors to avoid determinant errors in analysis results.

E. Day-to-day Control of Accuracy of Results

Testing for chemical and physical composition is routinely conducted on a batch basis. Each sample batch is run with controls, spikes and acceptance of sample results as valid is based on the results of the control analysis.

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 run 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 redoing 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 same material was accurate you will have to record the reason 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. As with all QA analysis the data cannot 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 an Orion SL9 portable meter. Calibration is done daily.

Reference materials are analyzed as noted below.

Analysis	Reference Material	Frequency of Reference Analysis
Acute Toxicity	Copper Sulfate	With Every Test Sample
Algae Growth Chronic Toxicity	Cadmium Chloride	With Every Test Sample
Ceriodaphnia Survival and Reproduction	Copper Sulfate	With Every Test Sample
Larval Fathead Minnow Survival and Growth	Copper Sulfate	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 Coliert and recreational water by Idexx method.

The Laboratory is equipped to perform MTF tests 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 directed primarily toward control of the MTF procedures. Other procedures above are utilized at irregular intervals and generally for other than compliance monitoring. Basic media and equipment quality control for these other procedures is conducted similar to that for MTF analysis described herein.

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.

Reviewed 2/2/05

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 23rd,day of March, 2005, at Ventura, CA.

Daniel Pfeifer
Wastewater Superintendent

Florence B. Jay
Laboratory Supervisor