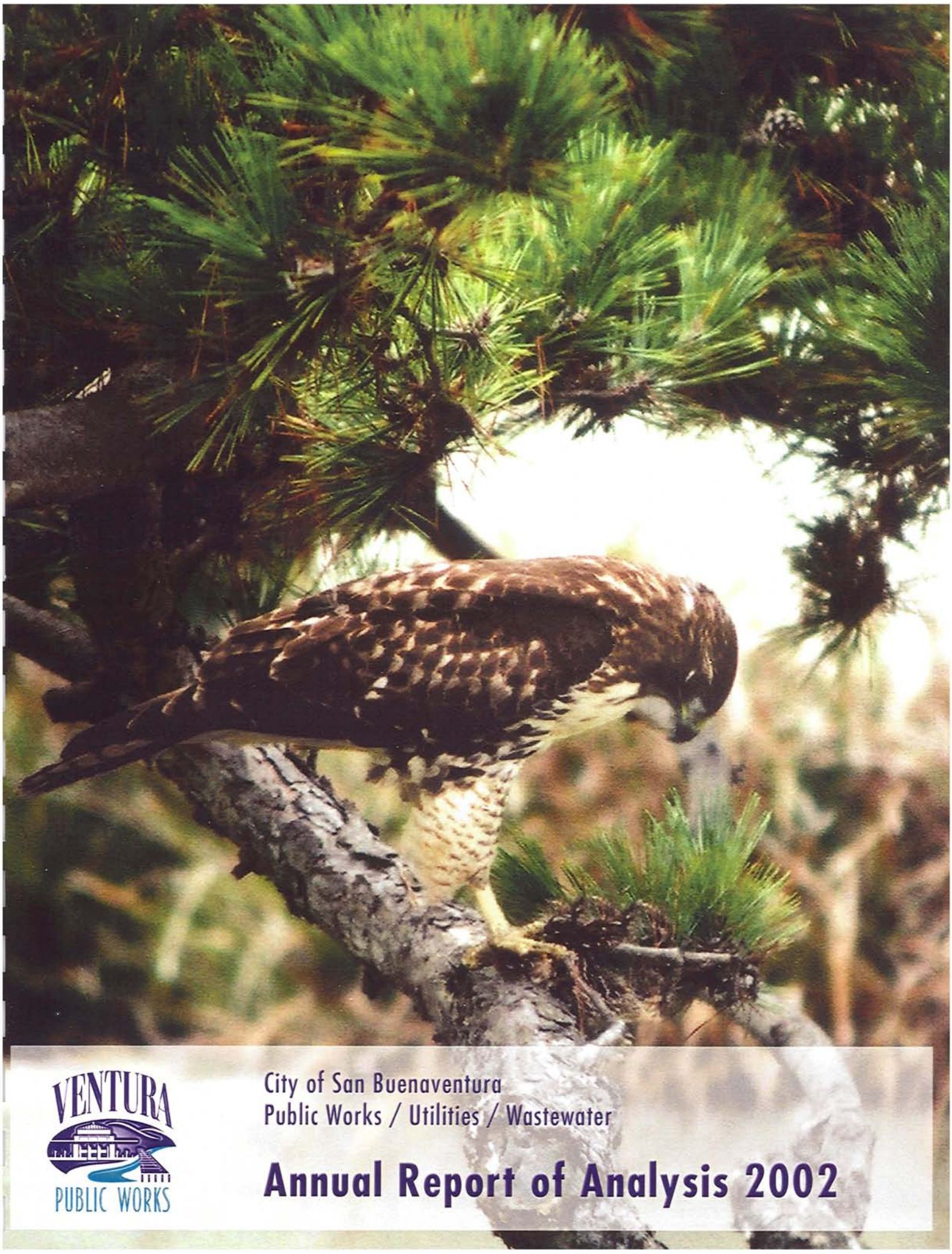

VENTURA
PUBLIC WORKS

City of San Buenaventura
Public Works / Utilities / Wastewater

Annual Report of Analysis 2002

Cover: Photo of a Hawk was taken by Mr. Darrel Smith, Ventura Water Reclamation Facility Employee

ANNUAL REPORT OF ANALYSIS

CITY OF SAN BUENAVENTURA

VENTURA WATER RECLAMATION FACILITY

2002

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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, for the community of Cabrillo Village 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 400 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 2002 include comminution, grit removal, primary sedimentation, primary flow equalization, activated sludge secondary biological treatment, tertiary effluent filtration and Chlorination.

In response to turbidity violations due to denitrification in the activated sludge secondary clarifiers the process was modified to include a biological selector. A re-circulation pump was installed and an anoxic zone established in the first 25% of the aerator. This effectively lowered the nitrate loading to the secondary clarifiers and the amount of denitrification. This nitrified effluent presented problems in the disinfection system due to the formation non-germicidal chlorine residuals. In order to return to break point chlorination and control the chlorine residual species the addition of ammonia hydroxide was started. This addition is successful and has improved the effectiveness of the disinfection process.

In 2002 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 2002 the daily average volume of treated effluent reclaimed was 876,179

gallons. The maximum daily reuse volume measured in 2002 was 2,671,000 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 325 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.

II. PROCESS PERFORMANCE AND COMPLIANCE WITH DISCHARGE REQUIREMENTS

On 17 days during 2002 the effluent total coliform failed to meet compliance exceeding the 7-day coliform median of 2.2 MPN.

Three samples during 2002 failed to meet compliance exceeding the number of coliform organisms of less than 23 for no more than one sample in a 30-day period.

On 9 days during 2002 the turbidity of the filtered effluent failed to meet compliance exceeding the 24-hour average limit of 2.0 NTU.

III. IRRIGATION EFFLUENT QUALITY

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

Year	Avg TDS	Avg Chloride	Avg Sulfate	Avg Boron	Avg Fluoride
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
1976	1474	366	398	1.4	0.65
1977	1479	372	383	1.2	0.64
1978	1525	358	409	1.0	0.80
1979	1527	359	481	1.1	0.89
1980	1451	342	463	1.2	0.73
1981	1330	312	424	0.9	0.88
1982	1452	334	443	0.8	0.80
1983	1367	308	435	0.7	0.81
1984	1398	312	454	0.7	0.80
1985	1380	313	393	0.8	0.78
1986	1411	309	415	0.8	0.62
1987	1309	317	371	0.8	0.63
1988	1457	333	412	0.8	0.58
1989	1424	324	418	0.7	0.59
1990	1561	328	444	0.9	0.67
1991	1583	334	418	0.9	0.56
1992	1569	333	456	0.7	0.55
1993	1493	315	446	0.7	0.67
1994	1403	304	416	0.7	0.71
1995	1508	293	460	0.8	0.66
1996	1425	295	425	0.7	0.52
1997	1310	279	366	0.7	0.41
1998	1387	263	405	0.6	0.71
1999	1348	285	388	0.7	0.72
2000	1474	286	423	0.8	0.58
2001	1370	241	435	0.7	0.63
2002	1370	277	418	0.7	0.62

Year	Avg Na	Avg Ca	Avg Mg	Avg K
1975	354	112	45	17
1976	331	118	36	15
1977	320	109	40	15
1978	325	110	40	17
1979	308	117	45	14
1980	295	120	43	15
1981	278	117	41	18
1982	280	136	46	17
1983	275	125	43	13
1984	257	130	42	20
1985	249	126	42	16
1986	269	132	44	19
1987	240	117	39	19
1988	274	123	44	17
1989	274	117	43	17
1990	307	126	46	18
1991	308	130	46	20
1992	283	140	46	18
1993	295	138	46	18
1994	289	131	44	19
1995	286	145	38	16
1996	273	130	42	20
1997	249	115	40	19
1998	261	124	43	19
1999	249	116	43	21
2000	287	130	48	23
2001	265	115	48	20
202	255	121	43	21

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 2002.

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 sampler used here is an ECOA model E dip sampler controlled by a PLC using the signal from the influent flow meters.

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 sampler used here is an ISCO Model 3700 sampler 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 sampler used here is an ISCO Model 2700 sampler 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 sampler used here is a Sigma Model 900 sampler 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

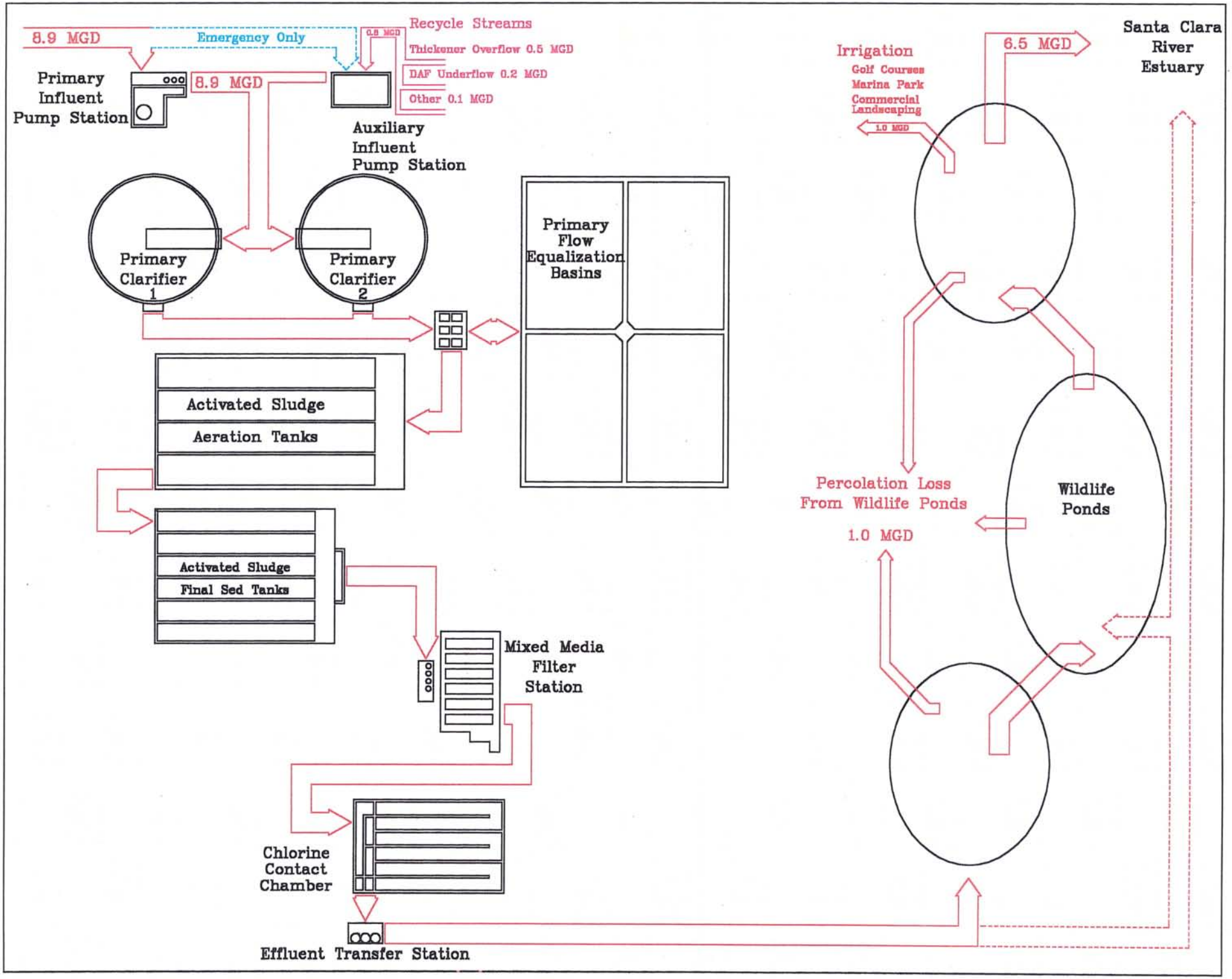
Five sample stations, designated R1 through R4 and L5 within the Santa Clara Tidal Prism are specified by the Los Angeles Regional Water Quality Control Board in the facility NPDES permit. The City monitored this additional station voluntarily until 1995 when the renewed NPDES permit made it a required monitoring station.

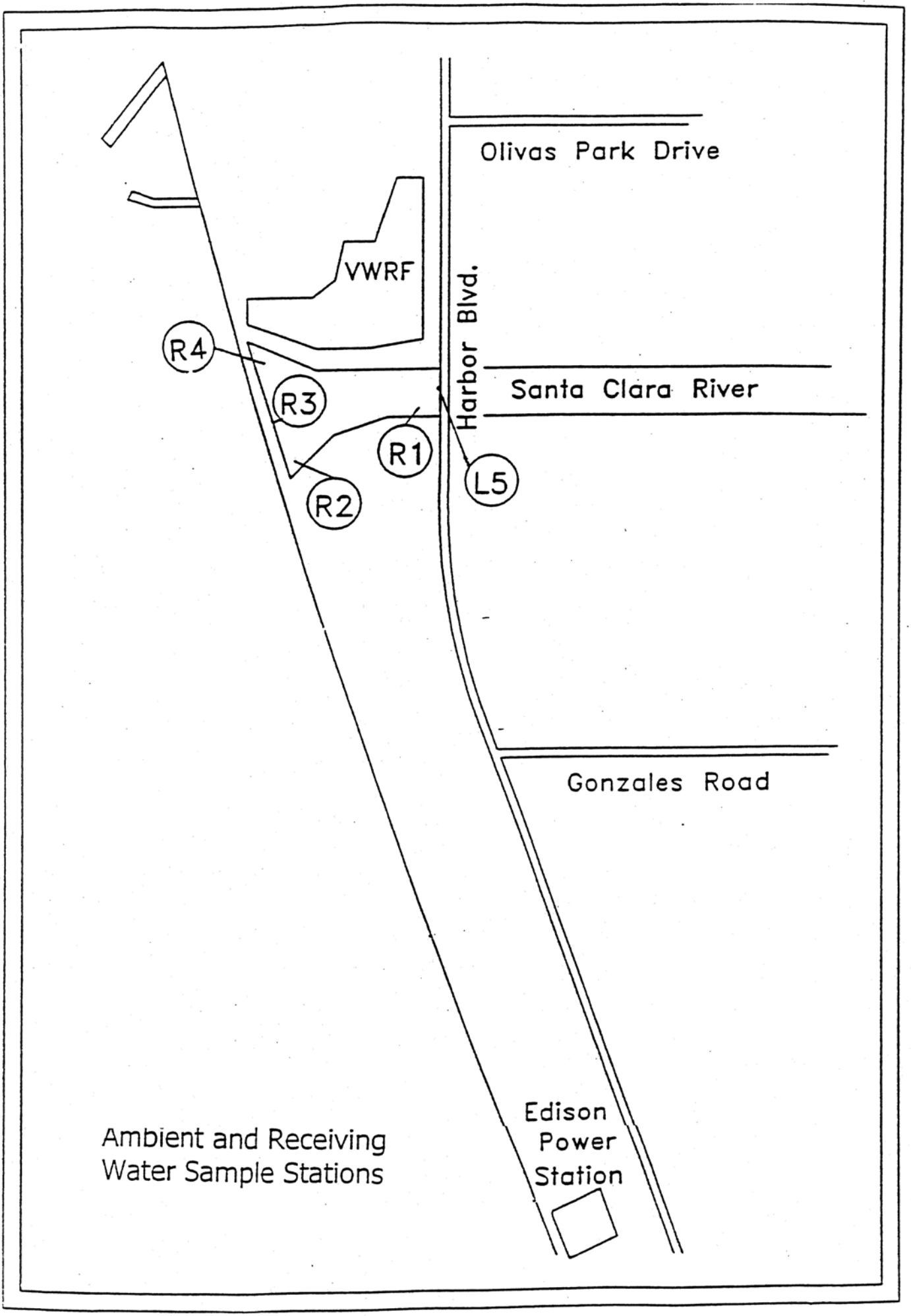
Water quality Observations, Temperature, Salinity, Chlorine Residual and Dissolved Oxygen are measurements are made at each of these sites.

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.


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


Olivas Park Drive
VWRF
Harbor Blvd.
R4
R3
R1
R2
L5
Santa Clara River
Gonzales Road
Edison
Power
Station
Ambient and Receiving
Water Sample Stations

Ventura Water Reclamation Facility
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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	8.95	7.49	254	229	496	25.4	
February	9.07	7.35	250	264	537	26.4	47.3
March	9.23	7.28	301	321	620	25.6	34.6
April	9.09	7.30	313	318	640	25.9	34.6
May	9.17	7.34	340	332	663	29.9	48.0
June	9.31	7.29	375	371	696	27.2	44.2
July	9.42	7.12	343	350	732	27.9	43.0
August	9.31	7.05	388	388	854	29.4	54.2
September	9.18	7.09	280	360	770	24.3	
October	8.90	7.21	296	351	779	25.2	42.3
November	9.26	7.30	324	345	774	27.6	44.0
December	9.35	7.29	373	386	826	26.5	44.3
Average	9.19	7.26	319	335	695	27.1	43.4
Maximum	10.97	7.63	742	590	1180	34.2	54.2
Minimum	8.03	6.69	111	121	306	21.0	34.6
Total	3334.66						

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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 *	1.692	0.0026	<0.002	0.1080	<0.0002	<0.004	0.01330	0.0049	0.1990	
February	1.165	0.0038	<0.0003	0.0963	0.00006	0.0002	0.00480	0.0071	0.1233	0.166
May	2.368	0.0071	0.0003	0.1388	0.0001	0.0005	0.0027	0.0014	0.1989	1.500
August *	2.010	0.0032	<0.002	0.1160	<0.0002	<0.004	0.08550	0.0018	0.1990	
August	2.160	0.0011	0.0006	0.1118	<0.00002	0.0009	0.00390	0.0019	0.1326	2.800
November	1.065	0.0014	0.0021	0.1279	<0.00002	0.0006	0.00390	0.0013	0.1997	1.500
Average	1.743	0.0032		0.1165			0.0190	0.0031	0.1754	1.492
Maximum	2.368	0.0071		0.1388			0.0855	0.0071	0.1997	2.800
Minimum	1.065	0.0011		0.0963			0.0027	0.0013	0.1233	0.166

*Analyzed by American Scientific Laboratories, Los Angeles, CA

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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*	<0.0050	<0.0002	0.0200	0.0195	0.0120	0.0046	<0.0010	<0.1000	0.0093	0.2110
February	0.0040	0.0006	0.0137	0.0061	<0.0005	0.0381	<0.0001		0.0184	0.2330
May	<0.0012	0.0013	0.0155	0.0214	0.0016	0.0115	<0.0002		0.0357	0.2019
August*	<0.0050	<0.0002	0.0153	0.0125	0.0047	<0.0002	<0.0010	<0.1000	<0.0040	0.2130
August	0.0089	0.0012	0.0071	0.0311	0.0007	0.0006	<0.0002		0.0049	0.2629
November	0.0051	0.0009	0.0084	0.0084	0.0006	0.0021	<0.0002		0.0132	0.2011
Average	0.003	0.001	0.013	0.017	0.003	0.009			0.014	0.220
Maximum	0.009	0.001	0.020	0.031	0.012	0.038			0.036	0.263
Minimum			0.007	0.006						0.201

*Analyzed by American Scientific Laboratories, Los Angeles, CA

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Influent Pump Station

Month	Acetone	Chloroform	1,4 Dichlorobenzene	Ethylbenzene
February *	0.0831	0.0030	0.0017	0.0023
August *	0.9110	0.0119	0.0019	0.0037

Month	Tetrachloroethylene	Toluene	1,1,1-Trichloroethane	Xylenes
February *	0.03150	0.0123	<0.00003	0.0171
August *	0.0043	0.0165	<0.00003	0.0289

*Analyzed by American Scientific Laboratories, Los Angeles, CA

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Flow Equalization Basin

Month	pH Units	Suspended Solids mg/l	BOD mg/l	COD mg/l	MBAS mg/l	Ammonia Nitrogen mg/l	Total Kjeldahl Nitrogen mg/l
January	7.46	89.3	163	356	7.1	29.3	42.5
February	7.55	87.2	151	332	6.0	26.0	39.8
March	7.36	79.8	179	366	7.3	27.0	40.4
April	7.43	77.0	173	340	6.9	26.5	40.5
May	7.53	79.5	158	334	5.7	27.8	37.4
June	7.52	75.7	165	334	6.6	29.6	40.0
July	7.40	76.3	188	380	7.8	26.4	34.6
August	7.39	67.8	190	390	5.4	28.1	48.9
September	7.41	74.9	201	420		26.5	
October	7.43	68.8	194	387	6.8	24.8	42.2
November	7.44	82.5	178	367	6.0	27.7	39.7
December	7.37	83.5	181	372	6.8	29.2	40.9
Average	7.44	78.6	178	366	6.6	27.4	40.6
Maximum	7.76	164.0	354	569	7.8	39.2	48.9
Minimum	7.11	49.7	120	207	5.4	22.0	34.6

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Mixed Media Filter Station Influent

Month	Average Flow MGD	Suspended Solids mg/l	BOD mg/l	COD mg/l	MBAS mg/l	Nitrate Nitrogen mg/l	Nitrite Nitrogen mg/l	Ammonia Nitrogen mg/l	Total Kjeldahl Nitrogen mg/l
January	9.45	9.96	11.5	36.1	0	12.85	0.05	0.73	0.7
February	9.69	8.74	9.4	31.8	<0.05	14.53	0.08	0.65	1.6
March	9.77	14.77	12.6	44.6	<0.05	13.10	0.53	0.83	
April	9.42	16.67	11.2	37.9	<0.05	12.50	0.05	0.52	2.1
May	9.39	16.62	13.4	42.7	<0.05	12.96	0.10	1.31	2.0
June	9.46	8.97	9.6	38.7	<0.05	10.58	<0.40	0.50	1.9
July	9.34	5.94	12.6	37.4	<0.05	8.03	1.66	4.55	1.8
August	9.30	4.24	15.5	37.8	<0.05	7.58	2.60	1.70	6.2
September	9.16	8.13	18.8	44.7	0.052	8.23	1.55	0.49	2.2
October	9.17	13.01	11.9	50.8	<0.05	11.60	0.65	0.64	0.1
November	9.56	15.17	12.8	56.5	<0.05	11.26	1.46	0.66	5.7
December	9.60	9.22	10.5	40.8	0.050	10.63	0.60	0.35	2.7
Average	9.44	10.92	12.5	41.7	0.07	11.12	0.88	1.09	2.2
Maximum	12.63	55.20	150.0	112.4	0.110	17.00	3.30	9.40	6.2
Minimum	7.62	2.20	1.5	16.9	<0.05	4.00	<0.40	0.10	0.1

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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
January	6.73	1.04	82	1357	2177	1.9	155	25.7	<0.1
February	6.90	1.62	141	1382	2140	2.2	187	26.3	<0.1
March	6.97	2.42	138	1509	2293	2.0	113	25.4	<0.1
April	6.76	1.96	93	1460	2237	2.2	104	29.1	<0.1
May	6.74	1.56	70	1293	2020	2.2	100	27.5	<0.1
June	6.65	1.36	66	1244	1941	1.8	84	26.7	<0.1
July	6.76	1.95	94	1276	2005	2.1	100	28.2	<0.1
August	6.89	2.17	109	1346	2111	2.7	137	30.8	<0.1
September	6.71	1.95	97	1385	2173	1.7	80	32.3	<0.1
October	6.66	2.78	142	1398	2167	2.2	110	30.2	<0.1
November	6.98	1.36	78	1415	2197	1.2	66	25.2	<0.1
December	7.06	1.00	56	1388	2179	1.4	79	22.3	<0.1
Annual Average	6.82	1.75	96	1370	2136	2.0	110	27.5	<0.1
Maximum	7.60	10.88	537	1676	2440	11.4	565	53.2	-0.1
Minimum	5.89	0.14	6	980	1541	<0.3	<19	17.7	<0.1
Limitations of Permit CA0053651									
Maximum		45.00	5250			45	5250		0.3
7 Day Average		40.00	4670			30	3500		
30 Day Average		15.00	1751			20	2340		0.1

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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	1.00*	1.00*	1.00*	1.00*	1.00*
February					
March					
April					
May	1.00*	1.00*			
June					
July					
August					
September					
October					
November					
December	1.79*	3.13*	1.00*	1.00*	1.00*
Annual Average	1.26	1.71	1.00	1.00	1.00
Maximum	1.79	3.13	1.00	1.00	1.00
Minimum					
Limitations of Permit CA0053651					
Maximum					
7 Day Average					
30 Day Average					

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

Ventura Water Reclamation Facility
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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 Kjeldahl Nitrogen mg/l	L5 Tot Kjeldahl Nitrogen mg/l
January	0.2	0.1	0.1	0.1	0.1	0.8	0.2	0.8	0.7	1.3
February	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	0.2	0.1	0.2	0.2
March	1.4	0.9	0.5	0.3	0.2	13.2	1.7	1.7	1.5	1.5
April	0.4	0.5	0.4	0.5	0.3	12.6	13.2	11.9	10.7	16.9
May	0.2	0.6	0.3	0.6	0.2	3.2	3.6	4.5	3.2	4.1
June	0.3	0.3	0.4	0.4	0.2	3.8	5.5	3.8	6.0	4.2
July	1.0	0.4	0.2	0.3	0.2	5.4	2.6	2.9	2.6	3.3
August	0.6	0.9	0.4	0.5	0.3	8.6	7.1	8.2	7.6	6.5
September	0.3	0.2	0.4	0.3	0.9	4.6	8.3	7.6	9.4	5.7
October	1.5	0.2	0.2	0.4	0.1	4.3	4.0	4.9	4.7	4.6
November	1.2	0.4	0.5	0.2	0.3	2.6	2.8	2.8	3.2	2.3
December	1.1	0.2	0.2	0.3	0.2	2.7	2.0	2.3	2.6	2.6
Annual Average	0.7	0.4	0.3	0.3	0.2	5.2	4.3	4.3	4.4	4.4
Maximum	1.5	0.9	0.5	0.6	0.9	13.2	13.2	11.9	10.7	16.9
Minimum	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	0.2	0.1	0.2	0.2

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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	6.30	12.60	6.70	14.20	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4
February	3.00	9.80	3.20	13.50	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4
March	<0.4	4.30	4.30	4.00	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4
April	4.70	4.40	4.40	4.00	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4
May	4.40	4.40	4.50	4.80	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4
June	0.80	1.00	1.00	1.00	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4
July	<0.4	0.40	<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	1.30	2.00	1.90	2.60	1.20	0.9	1.1	1.1	0.8	<0.4
October	3.90	4.30	4.30	4.30	-0.40	<0.4	0.5	0.6	0.4	<0.4
November	3.00	3.50	3.50	3.50	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4
December	7.90	6.40	6.40	6.50	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4
Annual Average	2.8	4.4	3.3	4.8	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4
Maximum	7.9	12.6	6.7	14.2	1.2	0.9	1.1	1.1	0.8	<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 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 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	0.72	0.50	0.48	<0.1	0.71	1963	3425	3795	2520	1849
February	0.17	1.21	0.28	1.16	0.11	2670	5280	5420	2888	2460
March	1.76	0.89	<0.1	0.82	0.79	1405	2675	2425	2170	1943
April	1.25	1.13	0.94	1.02	1.22	1753	2450	2925	1845	1350
May	0.87	0.89	1.01	0.94	0.91	1066	2000	2000	1064	1014
June	1.04	1.02	0.96	1.01	0.98	1458	2450	1825	1250	1389
July	0.70	0.73	0.76	0.76	0.74	923	1025	1225	960	911
August	0.55	0.52	0.60	0.58	0.48	1054	3080	3180	1532	1075
September	0.27	0.43	0.30	0.90	0.32	1125	2560	2553	2440	1135
October	0.04	0.04	0.18	0.27	0.05	825	814	814	792	816
November	0.04	0.18	0.09	0.08	0.04	1548	2630	2964	1956	1574
December	0.04	0.48	0.06	0.03	0.04	1835	2173	3573	1425	1469
Annual Average	0.62	0.67	0.54	0.66	0.53	1502	2548	2712	1723	1446
Maximum	1.76	1.21	1.01	1.16	1.22	5280	7700	7100	6550	5230
Minimum	0.04	0.04	<0.1	<0.1	0.04	670	660	660	540	685

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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
14-Feb-02	FILTER PRESS 1 RUN 1 *	<6.9	<34.7	<6.9	15.8
08-May-02	FILTER PRESS 2 RUN 2 *	<.34	<.34	<0.068	<.75
14-Aug-02	FILTER PRESS 2 RUN 1 *	32.6	<16.8	<5.6	<1.12
06-Nov-02	FILTER PRESS 2 RUN 1*	<22.7	<13.6	<4.5	<0.91

Date	Sample		Bis (2-Ethylhexyl)phthalate	TOX
14-Feb-02	FILTER PRESS 1 RUN 1 *	33.7	6.9	<34.7
08-May-02	FILTER PRESS 2 RUN 2 *	0.92	221.9	<34.2
14-Aug-02	FILTER PRESS 2 RUN 1 *	11.3	20.6	<27.9
06-Nov-02	FILTER PRESS 2 RUN 1*	5.7	10	<34

*Analyzed by American Scientific Laboratories, Los Angeles, CA

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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
06-Feb-02	FILTER PRESS 1 RUN 1	6.4				778
06-Feb-02	FILTER PRESS 1 RUN 2	2.3				745
06-Feb-02	FILTER PRESS 2 RUN 2	2.0				751
06-Feb-02	FILTER PRESS 2 RUN 3	2.7				732
14-Feb-02	FILTER PRESS 1 RUN 1 *	43.4	<3.5	<3.5	6.7	1306
08-May-02	FILTER PRESS 2 RUN 1 *	46.9	<3.4	<34.2	8.3	863
01-May-02	FILTER PRESS 1 RUN 2	2.3				646
01-May-02	FILTER PRESS 1 RUN 3	2.0				654
01-May-02	FILTER PRESS 2 RUN 1	2.1				669
01-May-02	FILTER PRESS 2 RUN 2	2.2				667
07-Aug-02	FILTER PRESS 1 RUN 1	2.0				690
07-Aug-02	FILTER PRESS 1 RUN 2	2.7				684
07-Aug-02	FILTER PRESS 2 RUN 1	4.2				687
07-Aug-02	FILTER PRESS 2 RUN 2	4.4				723
14-Aug-02	FILTER PRESS 2 RUN 1*	2.8	<2.8	<27.9	4.1	883
06-Nov-02	FILTER PRESS 1 RUN 1	1.5				709
06-Nov-02	FILTER PRESS 1 RUN 2	1.8				713
06-Nov-02	FILTER PRESS 2 RUN 1	1.5				715
06-Nov-02	FILTER PRESS 2 RUN 2	1.6				689
06-Nov-02	FILTER PRESS 2 RUN 1*	33.8	<2.3	<22.7	9.6	955
Average		8.4	0.0	0.0	7.2	763
Maximum		46.9	0.0	0.0	9.6	1306
Minimum		1.5	<2.7	<2.5	4.1	646

*Analyzed by American Scientific Laboratories, Los Angeles, CA

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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
06-Feb-02	FILTER PRESS 1 RUN 1		937	47.1			28.3	
06-Feb-02	FILTER PRESS 1 RUN 2		946	47.7			26.5	
06-Feb-02	FILTER PRESS 2 RUN 2		945	49.6			26.3	
06-Feb-02	FILTER PRESS 2 RUN 3		932	46.1			25.4	
14-Feb-02	FILTER PRESS 1 RUN 1 *	4.4	903	11.2	<1.4	21.0	27.4	12.4
08-May-02	FILTER PRESS 2 RUN 1 *	8.4	1419	21.4	<1.4	29.6	29.7	16.2
01-May-02	FILTER PRESS 1 RUN 2		1128	33.8			21.8	
01-May-02	FILTER PRESS 1 RUN 3		1122	26.4			22.3	
01-May-02	FILTER PRESS 2 RUN 1		1153	37.4			23.1	
01-May-02	FILTER PRESS 2 RUN 2		1164	36.5			21.9	
07-Aug-02	FILTER PRESS 1 RUN 1		965	44.8			22.8	
07-Aug-02	FILTER PRESS 1 RUN 2		974	41.7			22.6	
07-Aug-02	FILTER PRESS 2 RUN 1		956	43.2			22.1	
07-Aug-02	FILTER PRESS 2 RUN 2		982	41.5			22.6	
14-Aug-02	FILTER PRESS 2 RUN 1*	5.2	916	15.2	<1.1	22.7	23.8	11.6
06-Nov-02	FILTER PRESS 1 RUN 1		1166	44.5			35.9	
06-Nov-02	FILTER PRESS 1 RUN 2		1178	46.1			36.5	
06-Nov-02	FILTER PRESS 2 RUN 1		1230	47.5			35.5	
06-Nov-02	FILTER PRESS 2 RUN 2		1165	47.0			34.3	
06-Nov-02	FILTER PRESS 2 RUN 1 *	7.0	950	16.3	1.2	21.6	34.0	11.2
Average		6.3	1056.6	37.3	0.3	23.7	27.1	12.9
Maximum		8.4	1419.0	49.6	1.2	29.6	36.5	16.2
Minimum		4.4	903.0	11.2	<0.91	<2.7	21.8	11.2

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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
06-Feb-02	FILTER PRESS 1 RUN 1						4.2	24.0
06-Feb-02	FILTER PRESS 1 RUN 2						4.3	22.5
06-Feb-02	FILTER PRESS 2 RUN 2						4.2	23.3
06-Feb-02	FILTER PRESS 2 RUN 3						4.3	22.3
14-Feb-02	FILTER PRESS 1 RUN 1 *	9861	<3.5	<3.5	285	<3.5	<3.5	26.0
08-May-02	FILTER PRESS 2 RUN 1 *	13219	<3.4	<3.4	455	<3.4	<3.4	27.9
01-May-02	FILTER PRESS 1 RUN 2						3.9	19.1
01-May-02	FILTER PRESS 1 RUN 3						6.5	18.9
01-May-02	FILTER PRESS 2 RUN 1						3.9	18.9
01-May-02	FILTER PRESS 2 RUN 2						3.8	18.2
07-Aug-02	FILTER PRESS 1 RUN 1						3.7	16.6
07-Aug-02	FILTER PRESS 1 RUN 2						3.7	16.6
07-Aug-02	FILTER PRESS 2 RUN 1						3.6	16.1
07-Aug-02	FILTER PRESS 2 RUN 2						3.6	16.5
14-Aug-02	FILTER PRESS 2 RUN 1 *	7765	<2.8	<2.8	293	<2.8	<2.8	20.8
06-Nov-02	FILTER PRESS 1 RUN 1						4.4	25.4
06-Nov-02	FILTER PRESS 1 RUN 2						4.6	26.4
06-Nov-02	FILTER PRESS 2 RUN 1						4.7	27.8
06-Nov-02	FILTER PRESS 2 RUN 2						4.5	26.8
06-Nov-02	FILTER PRESS 2 RUN 1*	8409	<2.3	<2.3	319	<2.3	<2.3	25.8
Average		9814	<2.8	<2.8	338	<2.8	3.4	22
Maximum		13219			455		7	28
Minimum		7765	<2.3	<2.3	285	1.8	<2.3	16

*Analyzed by American Scientific Laboratories, Los Angeles, CA

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	1.8	6.9	352.0	19.8	11.1	1.0	434.0
May	1.7	7.6	793.0	15.0	10.6	0.6	266.0
August	2.0	4.2	511.0	22.7	10.7	1.0	273.0
November	2.2	8.4	872.6	22.7	11.6	0.7	265.9
Average	1.9	6.8	632.2	20.1	11.0	0.8	309.7

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	1.2	5.7	490.0	12.9	7.8	2.2	200.0
May	1.6	8.0	255.0	16.6	8.3	0.6	261.9
August	2.0	6.3	270.0	24.2	10.5	0.8	383.0
November	1.8	9.4	443.9	24.5	9.8	1.0	281.7
Average	1.6	7.4	364.7	19.5	9.1	1.1	281.6

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Receiving Water Stations

Month	R1 Dissovlved Oxygen Mg/L R1 DO	R2 Dissolved Oxygen Mg/L R2 DO	R3 Dissolved Osygen Mg/L R1 Salin	R4 Dissolved Oxygen Mg/L R4 DO	L5 Dissolved Oxygen Mg/L L5 DO	R1 Salinity PPT R1 Salin	R2 Salinity PPT R2 Salin	R3 Salinity PPT R3 Salin	R4 Salinity PPT R4 Salin	L5 Salinity PPT R5 Salin
January	10.1	9.2	10.3	11.0	9.2	10.3	11.6	18.4	8.7	8.7
February	11.2	9.1	11.4	9.2	10.6	11.4	13.7	15.4	15.6	11.2
March	15.3	14.9	4.8	15.4	13.5	4.8	8.0	7.5	4.9	8.2
April	10.1	8.7	7.0	9.7	11.4	7.0	14.5	14.3	4.4	5.2
May	14.3	14.5	2.9	11.5	10.5	2.9	2.5	2.7	2.8	2.4
June	10.6	15.8	5.7	14.8	10.6	5.7	4.7	7.2	4.0	4.7
July	8.0	8.5	2.6	8.8	7.8	2.6	2.3	2.5	2.1	2.6
August	6.9	7.8	2.6	7.1	7.5	2.6	13.8	13.5	5.9	2.2
September	8.8	8.4	4.2	8.9	9.1	4.2	8.7	8.5	6.7	3.6
October	10.9	11.2	2.5	11.8	10.6	2.5	6.9	7.3	5.7	2.6
November	10.0	9.2	8.3	10.1	11.9	8.3	14.5	15.9	10.8	6.4
December										
Annual Average	10.5	10.5	10.2	10.7	10.1	5.4	9.2	10.5	6.5	5.2
Maximum	20.0	20.0	20.0	20.0	20.0	26.8	31.8	32.1	26.6	22.9
Minimum	3.2	5.4	4.7	3.5	0.5	1.6	<.1	<.1	0.4	1.0

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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 Chlorophyll A* ug/l	R2 Chlorophyll A* ug/l	R3 Chlorophyll A* ug/l	R4 Chlorophyll A* ug/l	L5 Chlorophyll A* ug/l
January	<0.1	<0.1	<0.1	<0.1	<0.1	30	6	12	9	94
February	<0.1	<0.1	<0.1	<0.1	<0.1	7	2	2	3	6
March	<0.1	<0.1	<0.1	<0.1	<0.1	-2	-2	-2	-2	-2
April	<0.1	<0.1	<0.1	<0.1	<0.1	62	110	140	60	250
May	<0.1	<0.1	<0.1	<0.1	<0.1	14	31	46	22	-2
June	<0.1	<0.1	<0.1	<0.1	<0.1	160	82	140	140	160
July	<0.1	<0.1	<0.1	<0.1	<0.1	220	79	130	65	110
August	<0.1	<0.1	<0.1	<0.1	<0.1	210	210	210	200	200
September	<0.1	<0.1	<0.1	<0.1	<0.1	85	150	130	95	74
October	<0.1	<0.1	<0.1	<0.1	<0.1	12	200	200	210	290
November	<0.1	<0.1	<0.1	<0.1	<0.1	39	160	190	170	210
December	<0.1	<0.1	<0.1	<0.1	<0.1	-2	42	20	25	14
Annual Average	<0.1	<0.1	<0.1	<0.1	<0.1	70	89	102	83	117
Maximum						220	210	210	210	290
Minimum						<2	< 2	<.2	<2	<2

* Analyzed by Aquatic Bioassay Consulting Laboratories, Ventura, CA

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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	13.2	14.8	14.2	15.2	12.6	14.8	14.6	13.3	14.3	12.9
February	15.0	16.7	15.4	15.8	16.4	16.7	16.2	13.2	14.7	15.2
March	16.8	15.6	16.0	16.0	15.8	15.6	16.4	16.7	17.9	16.9
April	19.1	16.1	16.1	16.2	16.6	16.1	16.3	17.1	17.3	18.9
May	21.4	18.7	18.7	18.3	18.8	18.7	18.9	20.2	20.5	20.1
June	22.2	20.9	19.6	20.8	20.8	20.9	21.1	22.3	22.1	22.1
July	23.7	23.0	22.9	22.7	23.2	23.0	23.5	23.4	22.9	23.6
August	21.9	20.0	19.9	19.7	20.2	20.0	19.8	20.8	21.6	21.9
September	22.2	19.3	19.6	20.0	19.5	19.3	19.9	21.1	22.1	21.4
October	18.6	17.6	18.0	18.1	18.0	17.6	18.0	18.3	18.4	18.1
November	17.2	19.7	20.0	19.6	19.7	19.7	19.8	16.7	17.0	17.5
December	15.1	17.4	16.9	17.5	17.0	17.4	16.7	13.8	14.5	14.7
Annual Average	18.8	18.2	18.0	18.2	18.2	18.2	18.3	18.0	18.6	18.6
Maximum	24.9	25.5	24.3	25.0	25.7	25.5	26.5	26.0	27.7	25.8
Minimum	8.2	7.4	7.2	11.4	3.0	7.4	8.5	11.3	13.1	8.7

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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	10.00*	>1.00*	3.13*	3.13*	1.79*
February					
March					
April					
May	1.00*	1.00*			
June					
July					
August					
September					
October					
November					
December	1.79*	1.79*	1.00*	1.00*	1.00*
Annual Average	4.26	1.26	2.07	2.07	1.40
Maximum	10.00	1.79	3.13	3.13	1.79
Minimum					
Limitations of Permit CA0053651					
Maximum					
7 Day Average					
30 Day Average					

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

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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	5.56*	>1.00*	1.79*	1.79*	1.00*
February					
March					
April					
May	1.00*	1.00*			
June					
July					
August					
September					
October					
November					
December	1.79*	1.79*	1.00	1.00*	1.00*
Annual Average	2.78	1.26	1.40	1.40	1.00
Maximum	5.56	1.79	1.79	1.79	1.00
Minimum					

Limitations of Permit CA0053651

Maximum	*Analysis performed by Aquatic Bioassay Consulting Laboratories, Inc.; Ventura, California 93001
7 Day Average	
30 Day Average	

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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			1.00
March			1.00
April			1.00
May			1.00
June			1.00
July			1.00
August			1.00
September			1.00
October			1.79*
November			1.00
December	1.00*	1.00*	1.79*
Annual Average	1.00	1.00	1.07
Maximum	1.00	1.00	1.00
Minimum	1.00	1.00	1.00

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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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	9.52	<0.1	17.36	100%*	1.00*	1.00*
February	10.40	<0.1	17.91			
March	6.55	<0.1	18.98			
April	5.65	<0.1	20.77			
May	5.43	<0.1	22.65			
June	5.82	<0.1	23.85			
July	5.80	<0.1	24.21			
August	6.04	<0.1	23.66			
September	5.91	<0.1	23.40			
October	6.09	<0.1	21.60			
November	6.63	<0.1	19.67			
December	6.76	<0.1	17.58		1.00*	1.00*
Annual Average	6.69	<0.1	20.98	100.00%	1.00	1.00
Maximum	11.67		25.90			
Minimum	3.86		15.40			

'ermit CA0053651
* Analysis performed by Aquatic Bioassay Consulting Labotories, Inc.; Ventura, California 93001

Maximum	70
7 Day Average	
30 Day Average	90

Ventura Water Reclamation Facility
Annual Report 2002

Irrigation Reuse Flows

Month	Olivas Pump Station Flow MGD	Marina Park Flow MGD	Buena Pump Station Flow MGD	Total Irrigation Flow MGD
January	0.1297	0.0036	0.1106	0.2439
February	0.2319	0.0839	0.2253	0.5411
March	0.5890	0.2489	0.2852	1.1232
April	0.7368	0.1531	0.3294	1.2193
May	0.8732	0.2624	0.5022	1.6378
June	0.8537	0.0028	0.2470	1.1036
July	0.8937	0.0039	0.3962	1.2938
August	0.8035	0.0033	0.3969	1.2037
September	0.6801	0.0015	0.8195	1.5012
October	0.6431		0.5638	1.2069
November			0.4503	0.4503
December			0.1250	0.1250
Annual Average	0.6480	0.0852	0.3799	0.8718
Maximum	1.5710	1.0140	1.7710	2.6170
Minimum				

'ermit CA0053651

Maximum	
7 Day Average	
30 Day Average	

Ventura Water Reclamation Facility
Annual Report 2002

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 *	<0.0036	<0.00020	0.00519	0.01320	<0.0005	<0.0002
May	<0.00161					
May *	<0.00161	<0.00020	<0.00250	<0.0005	<0.0005	<0.0002
August	<0.00161					
August *	<0.0036	<0.00020	<0.00250	0.0084	<0.0005	<0.0002
November	<0.00108					
November *	<0.0036	<0.00020	<0.00250	<0.00050	<0.0005	<0.0002
Annual Average						0.0000
Maximum						0.0000
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
** Analyzed by FGL Environmental, Santa Paula, CA

Ventura Water Reclamation Facility
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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 *	<0.0002	0.1050	0.0737	0.04060	<0.00012	<0.0005
May *	<0.0002	0.1410	0.0450	0.02440	<0.00012	<0.0005
August *	0.0011	0.0450	0.02130	0.01090	<0.00012	<0.0005
November *	<0.0002	0.0768	0.0549	0.02560	<0.00012	<0.0005
Annual Average	0.00028	0.09195	0.04873	0.02538	<0.0002	<0.0005
Maximum	0.00110	0.14100	0.07370	0.04060		<0.0005
Minimum		0.04500	0.02130	<0.0009		<0.0005

Limitations of Permit CA0053651

Maximum
7 Day Average
30 Day Average

*Analyzed by American Scientific Laboratories, Los Angeles, CA

Ventura Water Reclamation Facility
Annual Report 2002

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	<0.00039				
February *	<0.000004	<0.000003	<0.000006	<0.000009	<0.000004	<0.000065	<0.000014	<0.010000	<0.002800	<0.000018
May	<0.000003	<0.000006	<0.000005	<0.000012	<0.000007	<0.00039	<0.000361	<0.000529	<0.000010	<0.000029
August	<0.000003	<0.000006	<0.000004	<0.000011	<0.000007	<0.00039	<0.000361	<0.000529	<0.000009	<0.000030
August *	<0.000004	<0.000003	<0.000006	<0.000009	<0.000004	<0.000065	<0.000014	<0.010000	<0.002800	<0.000018
November	<0.000003	0.000007	<0.000004	0.000039	<0.000007	<0.00039	<0.000360	<0.000529	<0.000009	<0.000029
Annual Average								0.0000		0.0000
Maximum								0.0000		0.0000
Minimum										
Limitations of Permit CA0053651										
Maximum	0.00130				0.0002					
7 Day Average										
30 Day Average										

*Analyzed by American Scientific Laboratories, Los Angeles, CA

Ventura Water Reclamation Facility
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Effluent Transfer Station

Month	Iron mg/l	Manganese mg/l
January	<0.1	<0.02
February	<0.1	<0.02
March	<0.1	<0.02
April	<0.1	<0.02
May	<0.1	<0.02
June	<0.1	0.07
July	<0.1	0.13
August	<0.1	0.130
September	<0.1	0.04
October	<0.1	0.03
November	<0.1	<0.02
December	<0.1	<0.02
Annual Average	<0.1	
Maximum	0.200	1
Minimum	<0.1	<0.03

Limitations of Permit CA0053651

Maximum
7 Day Average
30 Day Average

Ventura Water Reclamation Facility
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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			0.0077						0.0612
February *	0.0071	<0.0002	0.0200	<0.010	0.0074	<0.0002	<0.0010	<0.100	0.0050	0.0422
February	<0.0011	<0.0010	0.0110	0.0039	<0.0005	<0.0002	<0.0001		0.0170	0.0881
March	0.0017			0.0044						0.1102
April	<0.0011			0.0018						0.0286
May	<0.0012	0.0009	0.0145	<0.0008	0.0012	0.0099	<0.0002		0.0320	0.0553
June	<0.0012			0.0021						0.0247
July	0.0160			0.0023						0.3050
August*	<0.005	<0.0002	0.0109	<0.010	<0.002	<0.0002	<0.0010	<0.100	0.0051	0.0555
August	<0.0012	0.0005	0.0115	0.0171	0.0007	0.0005	<0.0002		0.0109	0.0603
September	<0.0012			0.0076						0.0346
October	<0.0012			0.0008						0.0186
November	<0.0012	0.0007	0.0108	0.0770	<0.0005	0.0019	<0.0002		0.0049	0.1619
December	<0.0012			0.0015						0.0135
Annual Average	0.002	0.000	0.0131	0.0090	0.0016	0.002	<0.001	<0.100	0.0125	0.0757
Maximum	0.016	0.0009	0.0200	0.0770	0.0074	0.0099			0.0320	0.3050
Minimum	<0.005	<0.0002	0.011							<0.050
Limitations of Permit CA0053651										
Maximum	0.077	0.003		0.271		0.0270	2			1
7 Day Average										
30 Day Average										

*Analyzed by American Scientific Laboratories, Los Angeles, CA

Ventura Water Reclamation Facility
Annual Report 2002

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										0.0265
February	<0.004	0.3592	0.0045	<0.0003	0.0383	0.00004	<0.0001	0.0016	<0.0007	0.0227
February *		0.0900	<0.001	<0.0020	0.0240	<0.0002	<0.0040	<0.0070	0.002	0.0071
March										0.0081
April										0.0051
May	0.005	0.1331	0.0066	0.0005	0.0351	0.00010	<0.0002	<0.0006	<0.0007	0.0144
June										0.0561
July										0.0160
August	0.060	0.2040	0.0013	<0.0003	0.0353	<0.00002	<0.0001	<0.0004	<0.0007	0.0258
August *		0.3410	<0.001	<0.0020	0.0291	<0.00002	<0.0002	0.0008	<0.0007	0.0075
September										0.0064
October										0.0170
November	0.003	0.1000	0.0017	<0.0003	0.0371	<0.00002	<0.0040	0.0017	<0.0007	0.0116
December										0.0099
Annual Average	0.017	0.205	<0.001	0.0001	0.0332				0.0003	0.0167
Maximum	0.060	0.3592		0.0005	0.0383				0.0019	0.0561
Minimum									<0.0007	<0.001
Limitations of Permit CA0053651										
Maximum	0.012			0.0760			0.016			0.098
7 Day Average										
30 Day Average								0.050		

*Analyzed by American Scientific Laboratories, Los Angeles, CA

Ventura Water Reclamation Facility
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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	13.0	11.2	13.2	11.5
February	14.8	12.6	14.6	13.7
March	14.6	11.1	12.8	12.5
April	13.2	10.4	10.0	11.2
May	12.9	9.7	10.9	10.5
June	14.6	12.4	12.0	13.6
July	12.9	10.5	8.8	12.0
August	12.2	12.5	10.4	13.7
September	14.6	12.3	11.1	12.9
October	12.6	10.0	10.4	10.4
November	11.9	9.6	12.1	10.2
December	11.9	12.3	12.1	10.7
Annual Average	13.3	11.1	11.5	11.9
Maximum	25.7	24.5	28.0	25.8
Minimum	1.7	3.1	3.1	4.5

Limitations of Permit CA0053651

Maximum
7 Day Average
30 Day Average

Ventura Water Reclamation Facility
Annual Report 2002

Effluent Transfer Station

Month	Sodium mg/l	Calcium mg/l	Magnesium mg/l	Potassium mg/l
January	271	154	37.3	19.9
February	257	125	45.9	19.2
March	256	124	45.6	19.9
April	254	116	42.7	20.3
May	252	119	42.5	20.0
June	264	131	44.9	20.1
July	251	120	43.4	21.3
August	251	117	42.5	21.0
September	249	115	43.1	21.7
October	258	101	39.7	21.6
November	233	93	35.3	22.2
December	258	140	46.7	21.3
Annual Average	255	121	42.5	20.7
Maximum	271	154	46.7	22.2
Minimum	233	93	35.3	19.2

Limitations of Permit CA0053651

Maximum
7 Day Average
30 Day Average

Ventura Water Reclamation Facility
Annual Report 2002

Effluent Transfer Station

Month	MBAS mg/l	Chloride mg/l	Sulfate mg/l	Phosphate mg/l	Total Phosphorus mg/l	Fluoride mg/l	Boron mg/l
January	0.18	334	520	3.93	3.97	0.67	0.77
February	0.12	294	455	2.41	3.21	0.74	0.72
March	0.06	277	455	2.35	2.46	0.70	0.86
April	0.06	288	438	2.64	3.28	0.61	0.64
May	0.16	281	407	3.36	4.40	0.61	0.77
June	0.08	294	463	0.44	0.83	0.63	0.67
July	0.08	228	417	0.82	1.32	0.62	0.67
August	<0.05	274	368	0.29	0.42	0.68	0.67
September	0.09	256	326	0.04	0.07	0.53	0.67
October	0.07	251	340	2.41	2.60	0.49	0.80
November	0.11	279	421	6.86	6.49	0.61	0.73
December	0.16	282	451	2.82	0.98	0.52	0.71
Annual Average	0.09	277	418	2.36	2.50	0.62	0.72
Maximum	0.18	352	700	6.86	6.49	0.74	0.86
Minimum	<0.05	168	255	0.04	0.07	0.49	0.64

Limitations of Permit CA0053651

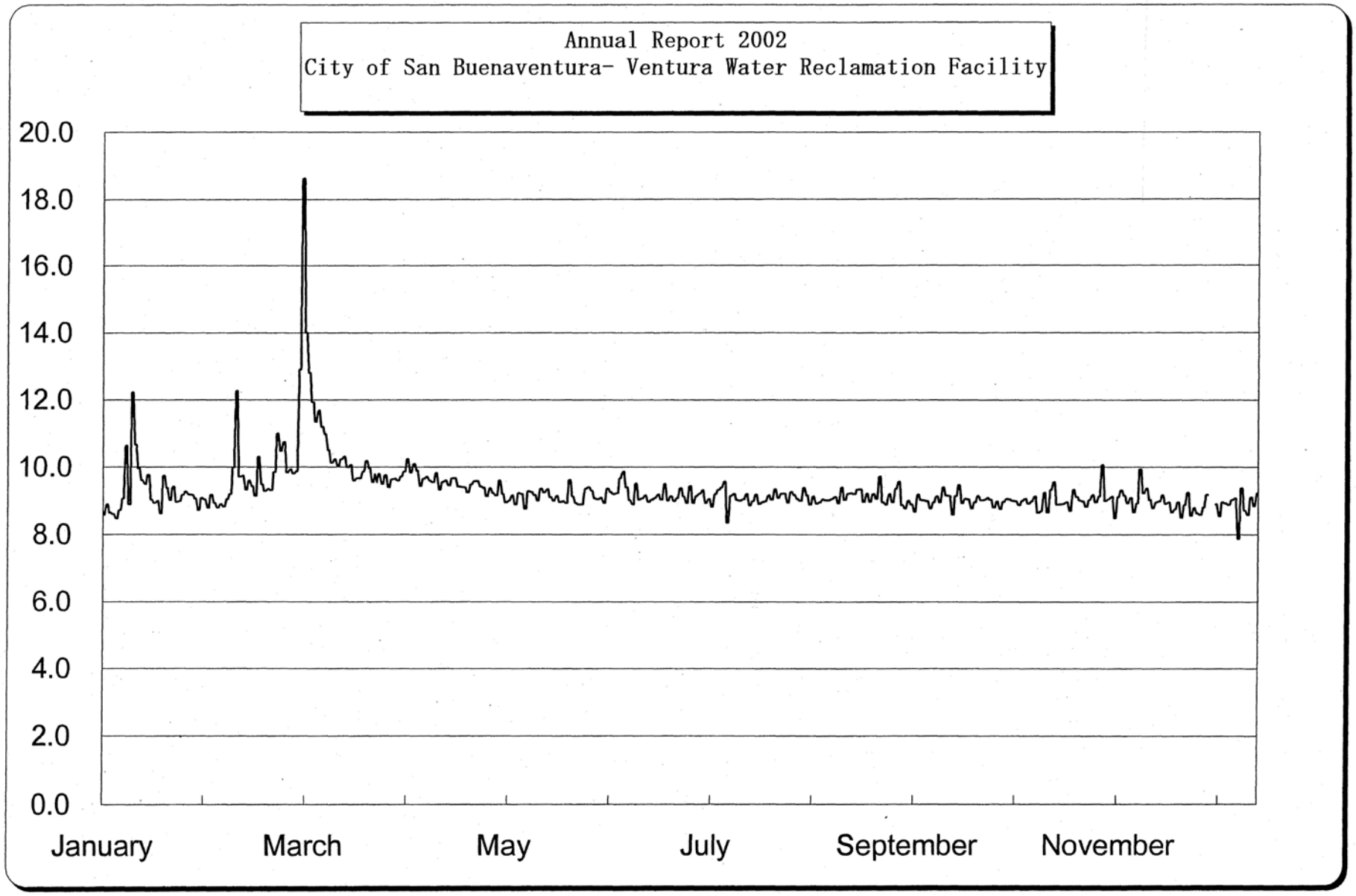
Maximum
7 Day Average
30 Day Average

Ventura Water Reclamation Facility
Annual Report 2002

Effluent Transfer Station

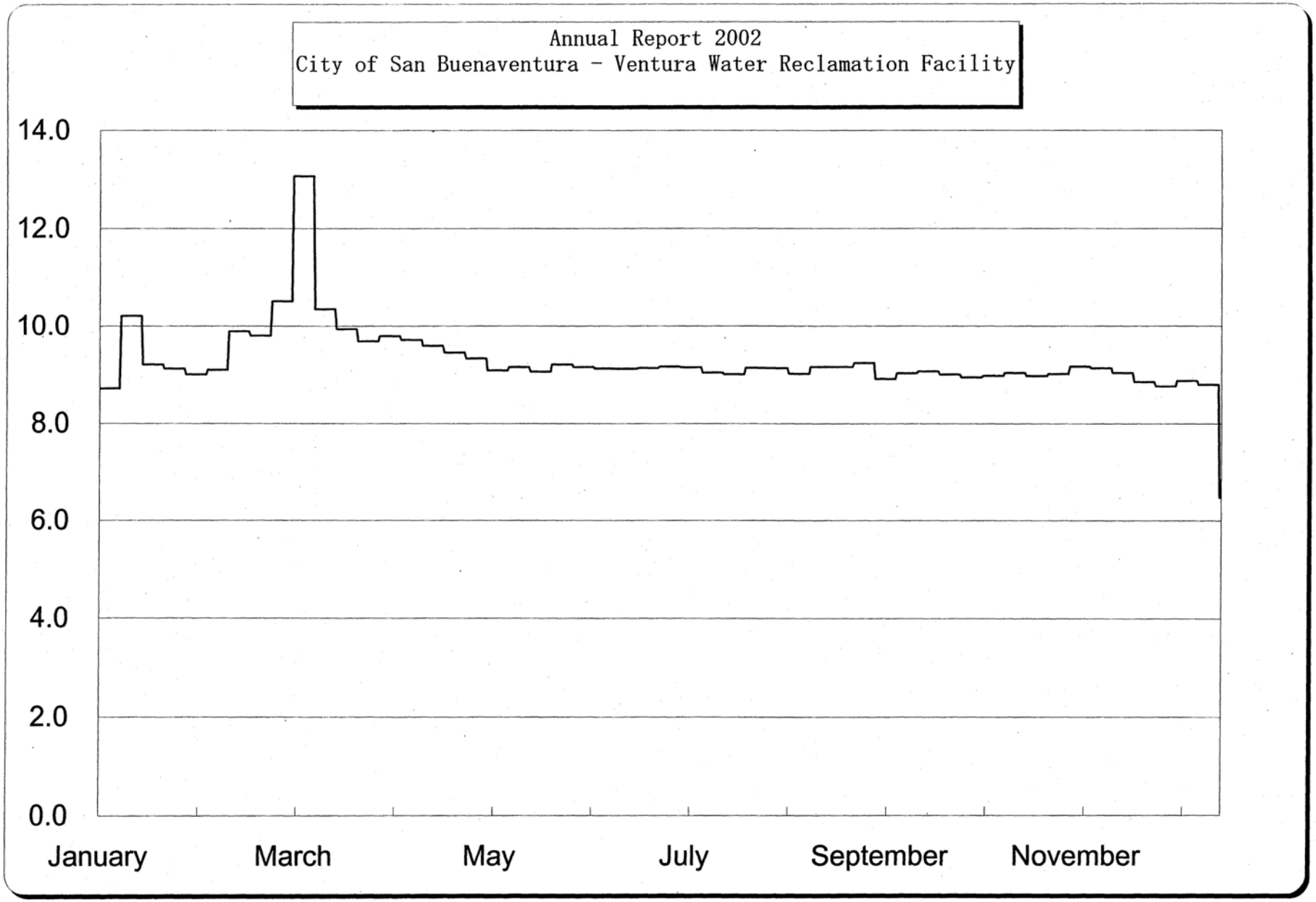
Month	Grease and Oil mg/l	lb/day	Continuous Turbidity NTU	Nitrate Nitrogen mg/l	Nitrite Nitrogen mg/l	Ammonia Nitrogen mg/l	Total Kjeldahl Nitrogen mg/l	Chlorophyll A* ug/l
January	1.0	0	0.5	14.5	<0.4	0.8	1.9	<2
February	0.7	0	0.8	14.5	<0.4	0.4	0.9	<2
March	0.6	0	0.9	12.4	<0.4	0.5	1.3	<2
April	1.5	0	0.7	13.3	<0.4	0.7	1.3	<2
May	1.2	0	1.0	14.1	<0.4	1.0	1.4	20.0
June	1.5	0	0.7	11.1	<0.4	1.0	2.2	<2
July	2.0	0	1.0	10.7	<0.4	2.5	1.1	<2
August	2.6	0	0.9	10.6	<0.4	1.4	2.7	<2
September	0.9	0	1.1	11.3	<0.4	0.9	0.7	<2
October	0.5	0	1.1	13.2	<0.4	0.2	0.2	140.0
November	1.3	0	0.9	13.8	<0.4	0.2	2.5	170.0
December	1.3	0	0.7	14.0	<0.4	0.3	2.1	170.0
Annual Average	1.3	0	0.9	12.8	<0.4	0.8	1.5	41.7
Maximum	4.9	0	3.4	19.5	0.50	6.5	2.7	170.0
Minimum	<0.1	<7	0.4	9.5	<0.4	0.1	0.2	<2
Limitations of Permit CA0053651								
Maximum	15.0	1750	2.0					
7 Day Average								
30 Day Average	10.0	1170						

*Analyzed by Aquatic Bioassy Consulting Laboratories, Ventura, CA



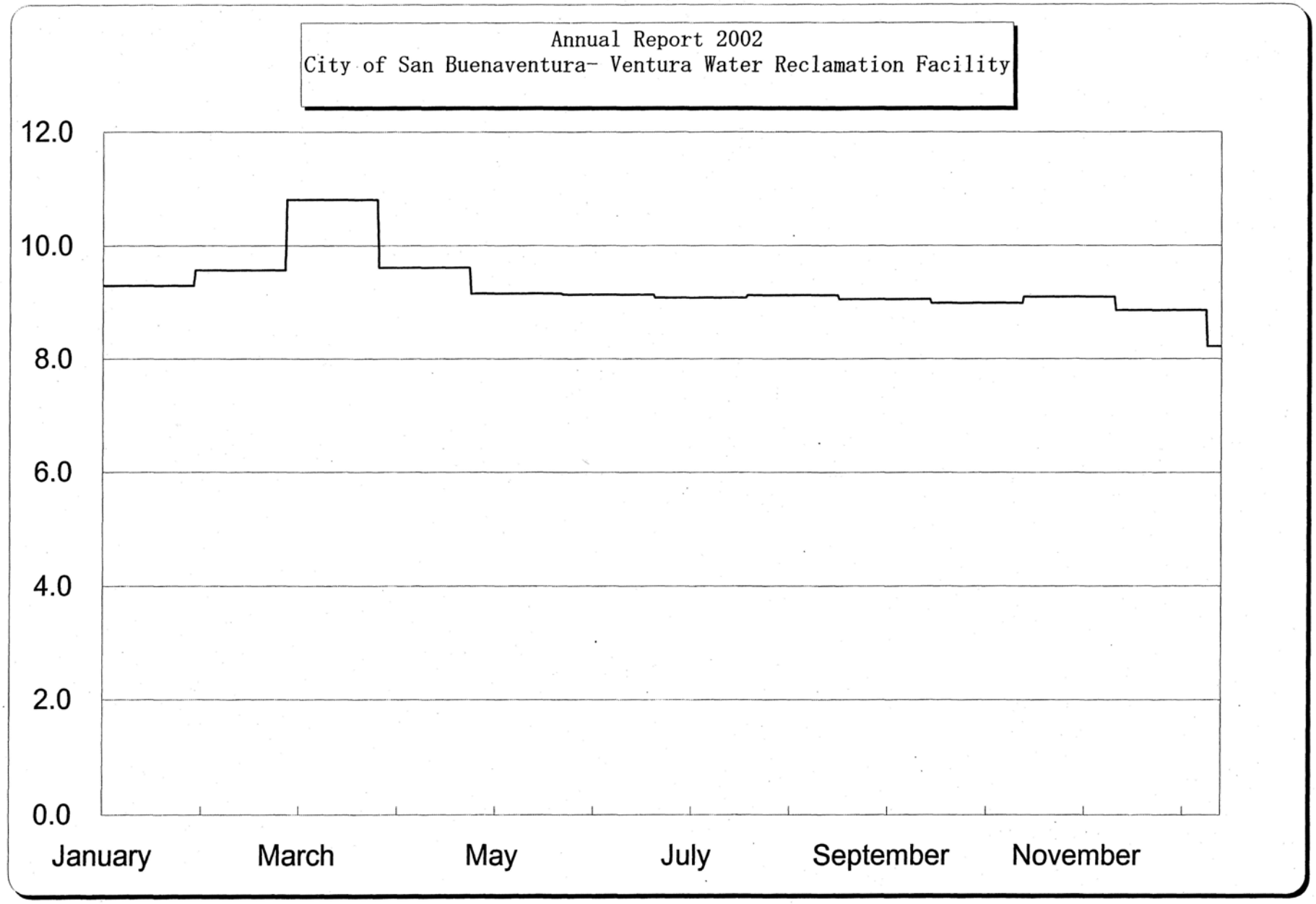
Bimonthly Period Beginning

Influent Pump Station
Daily Influent Raw Sewage Average Flow - MGD



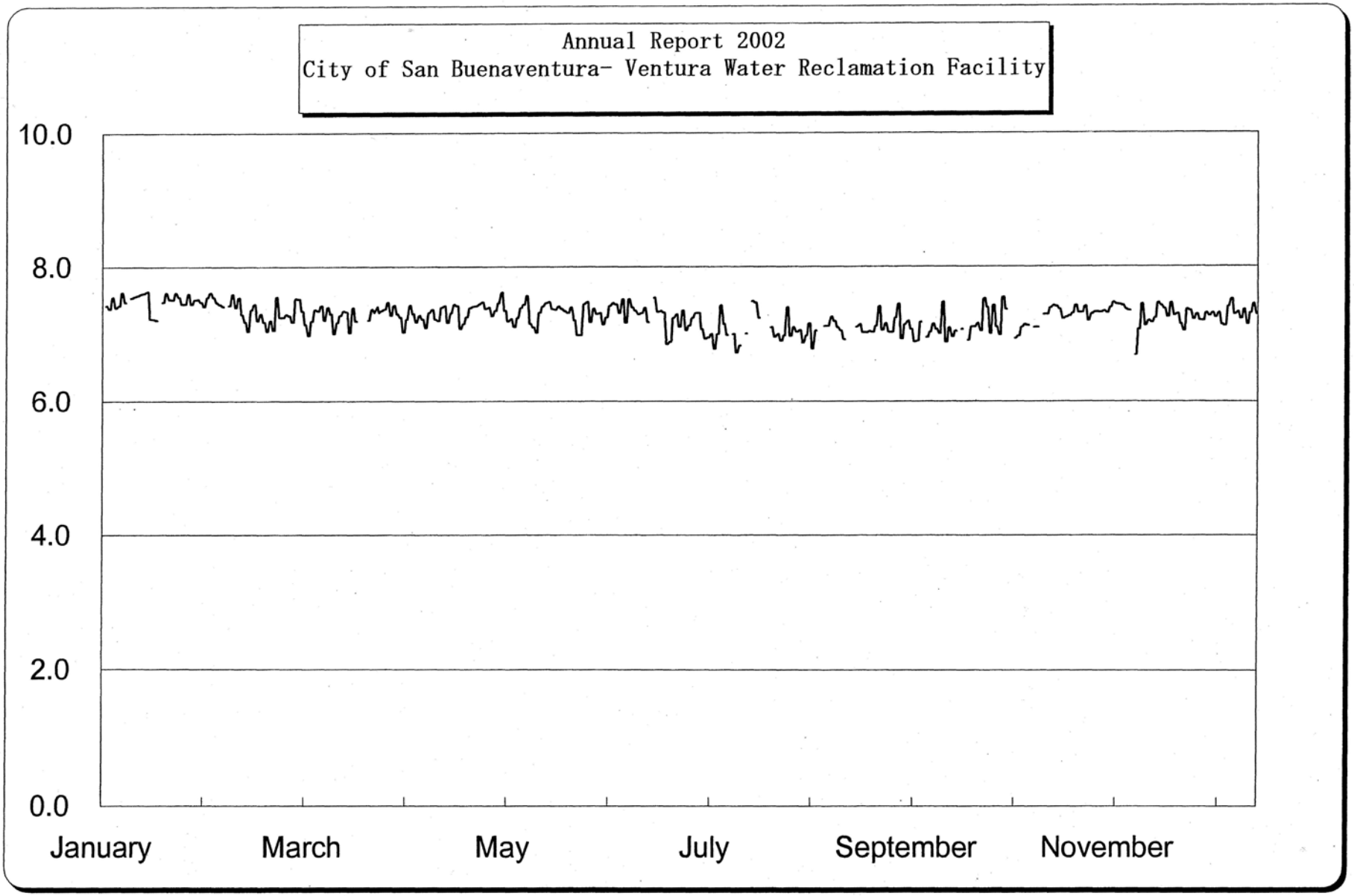
Bimonthly Period Beginning

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



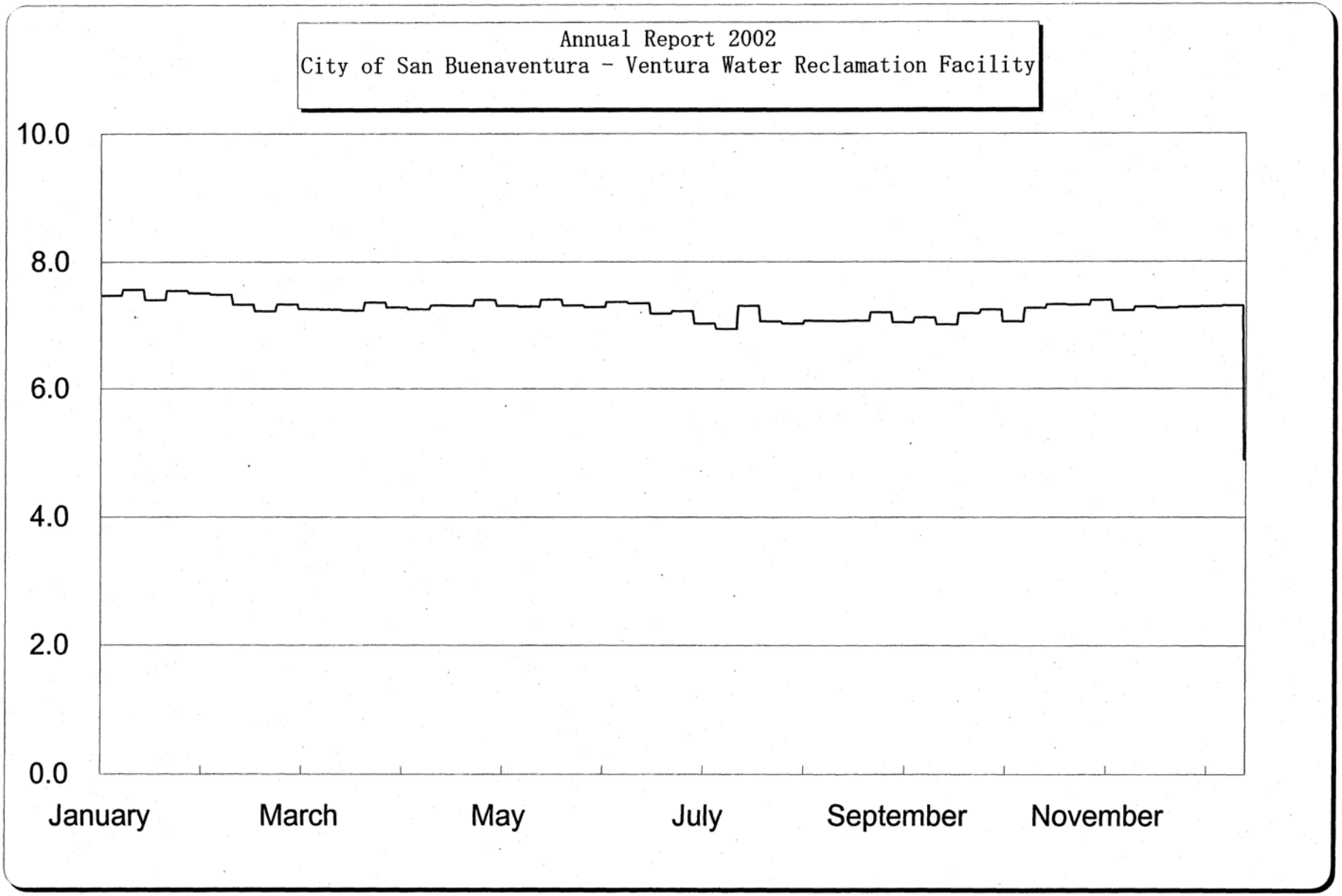
Bimonthly Period Beginning

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



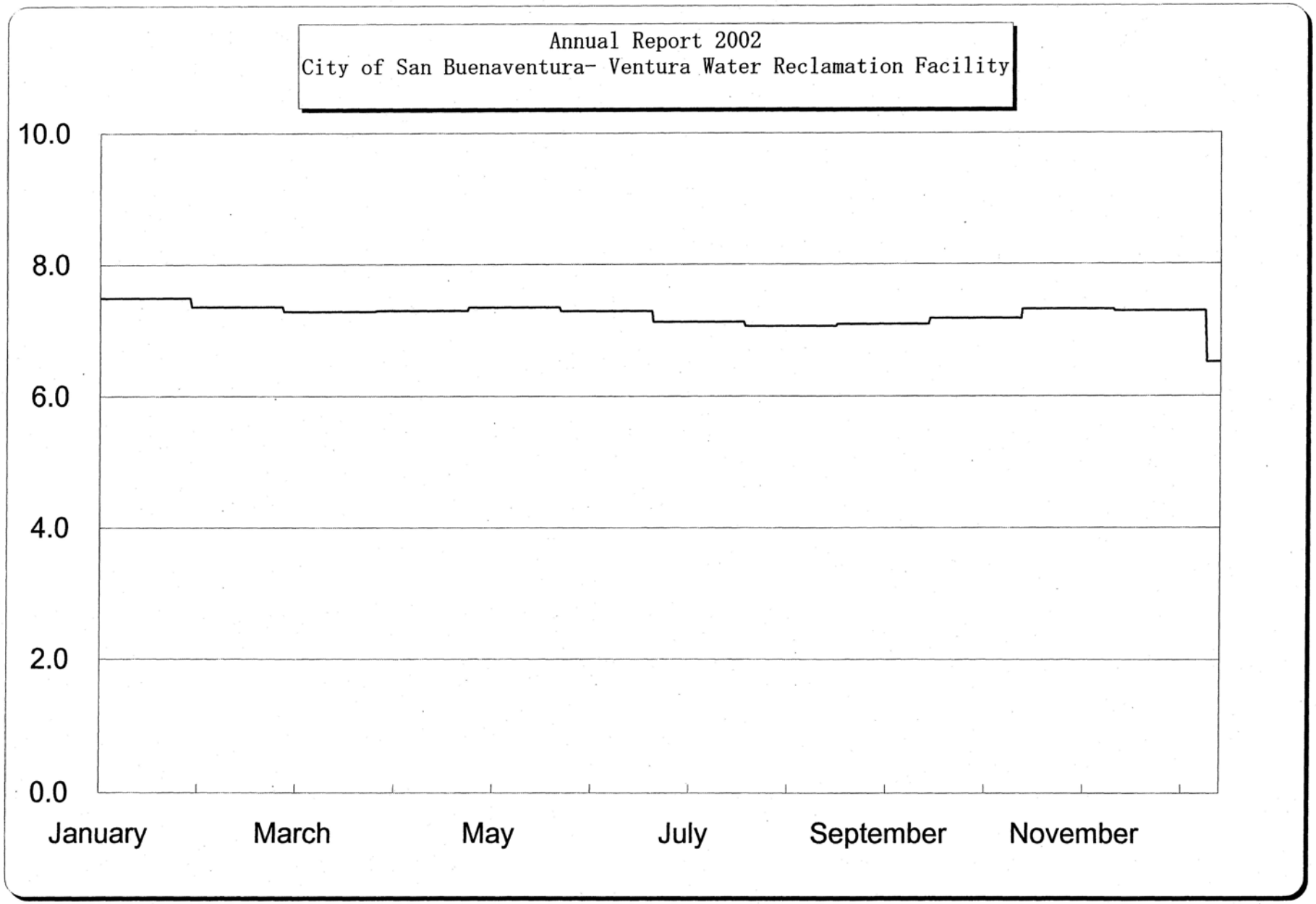
Bimonthly Period Beginning

Influent Pump Station
Daily Influent Raw Sewage pH - pH Units



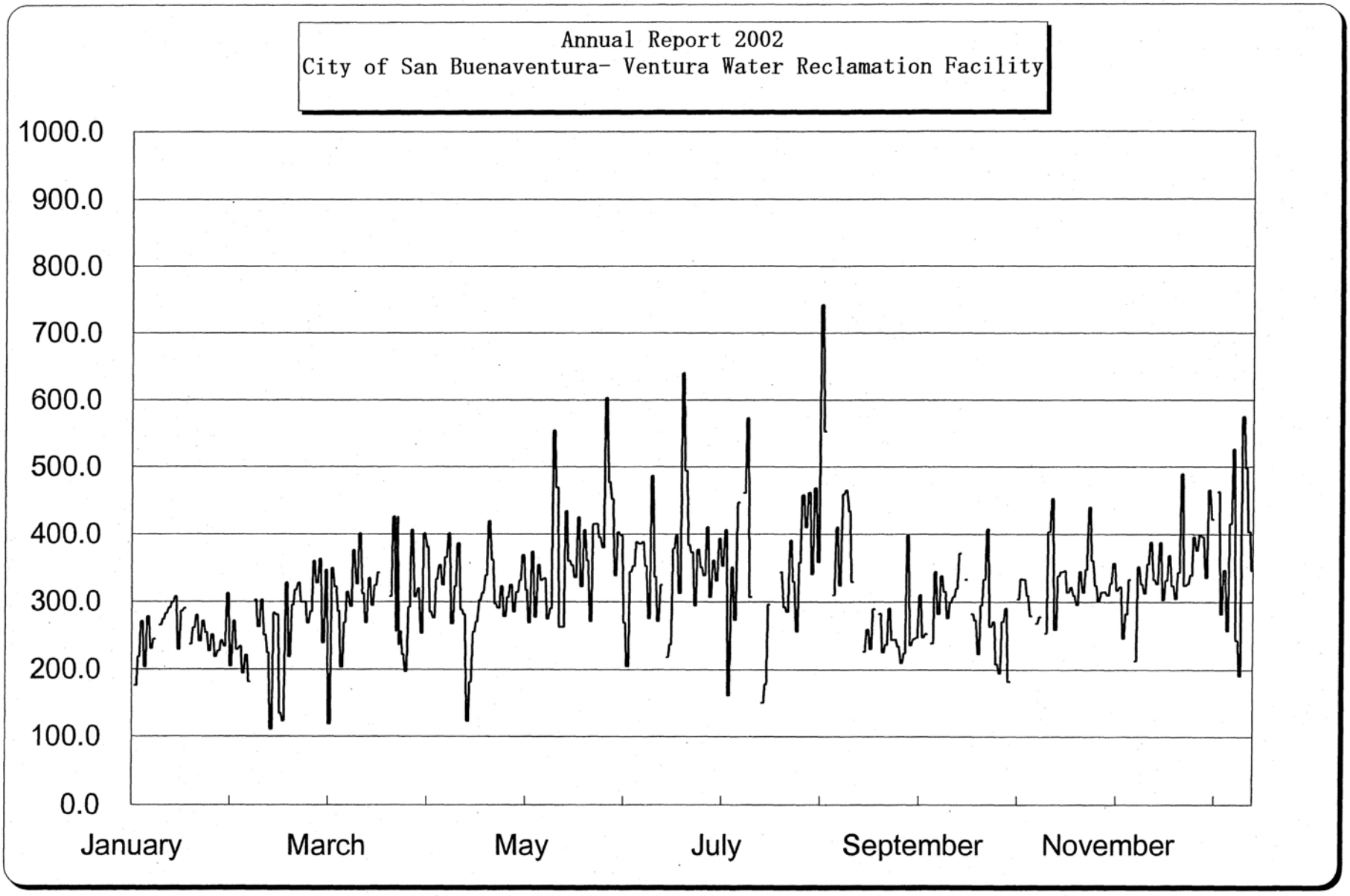
Influent Pump Station
Daily Influent Raw Sewage 7 Day Average pH - mg/l

Bimonthly Period Beginning



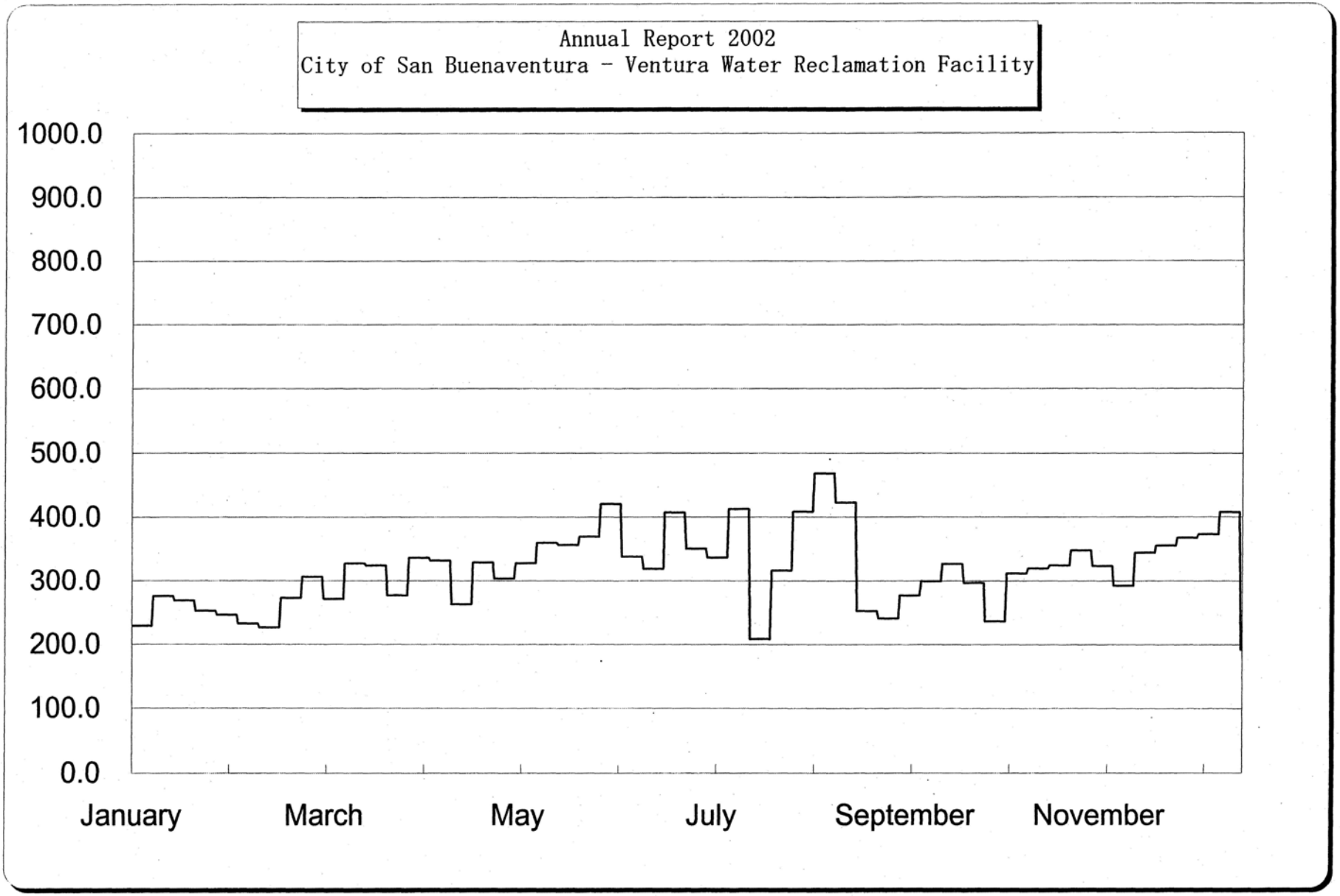
Bimonthly Period Beginning

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



Bimonthly Period Beginning

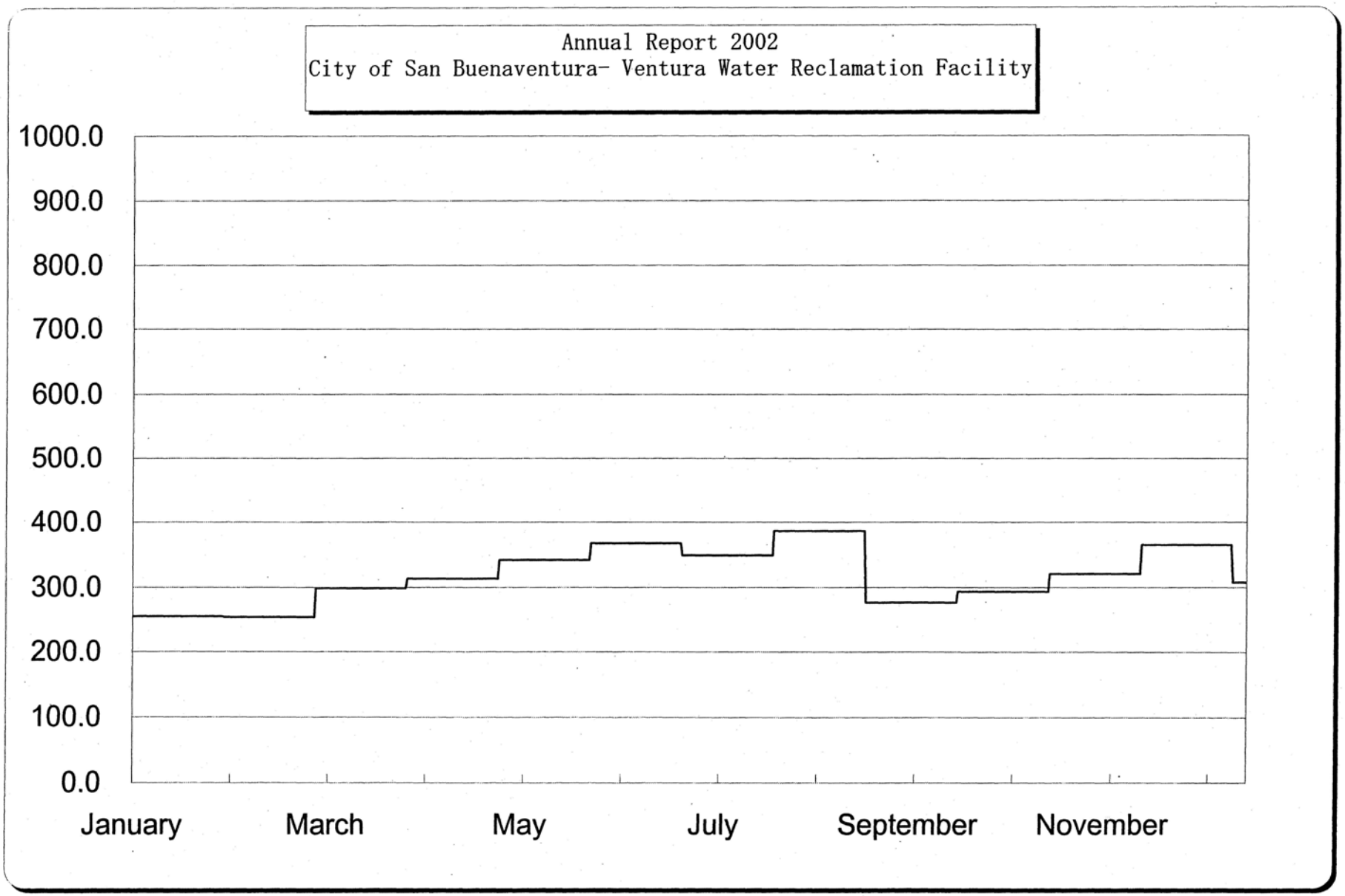
Influent Pump Station
Daily Influent Raw Sewage Suspended Solids - mg/l



Influent Pump Station

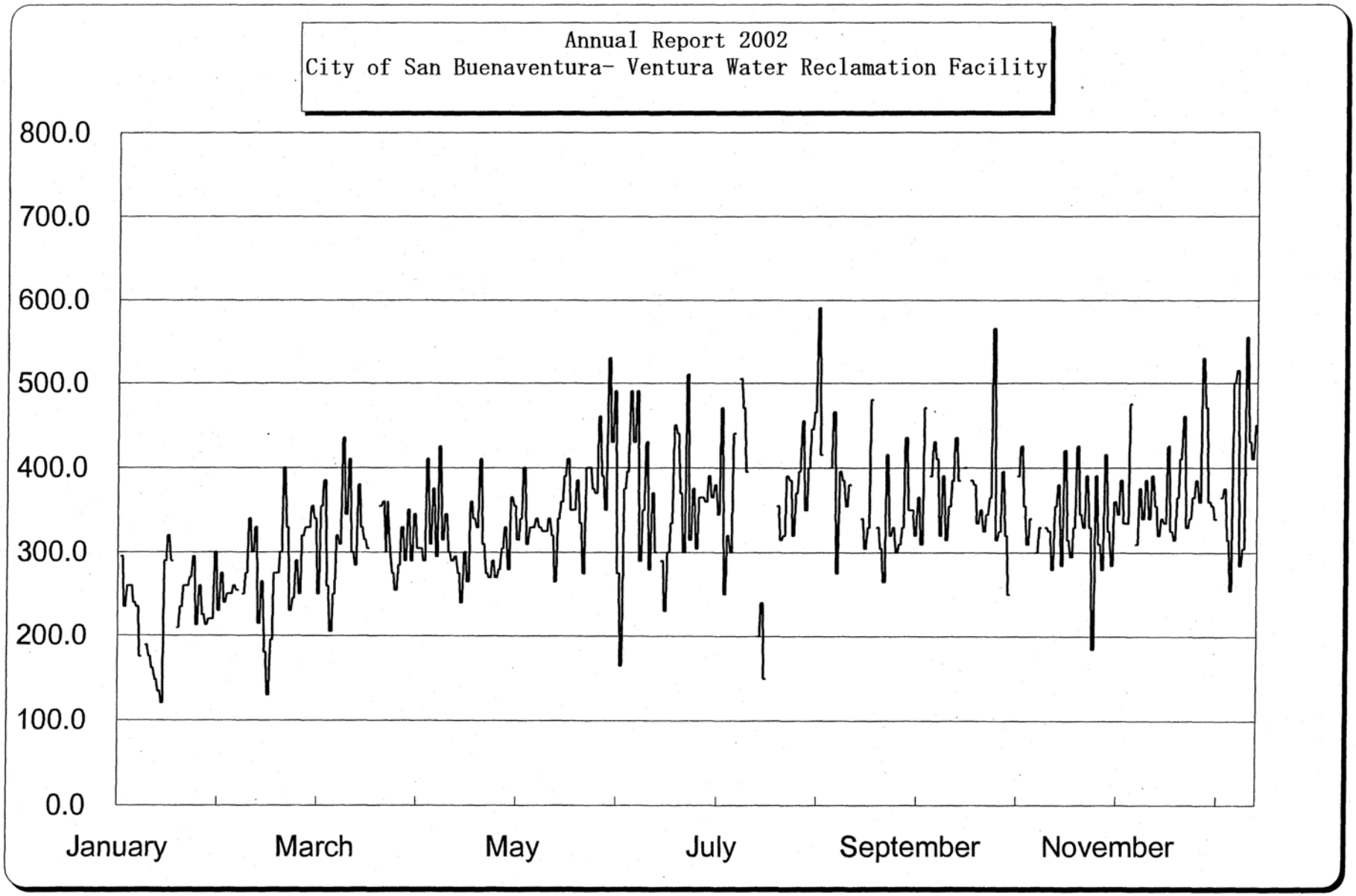
Daily Influent Raw Sewage 7 Day Average Suspended Solids - mg/l

Bimonthly Period Beginning



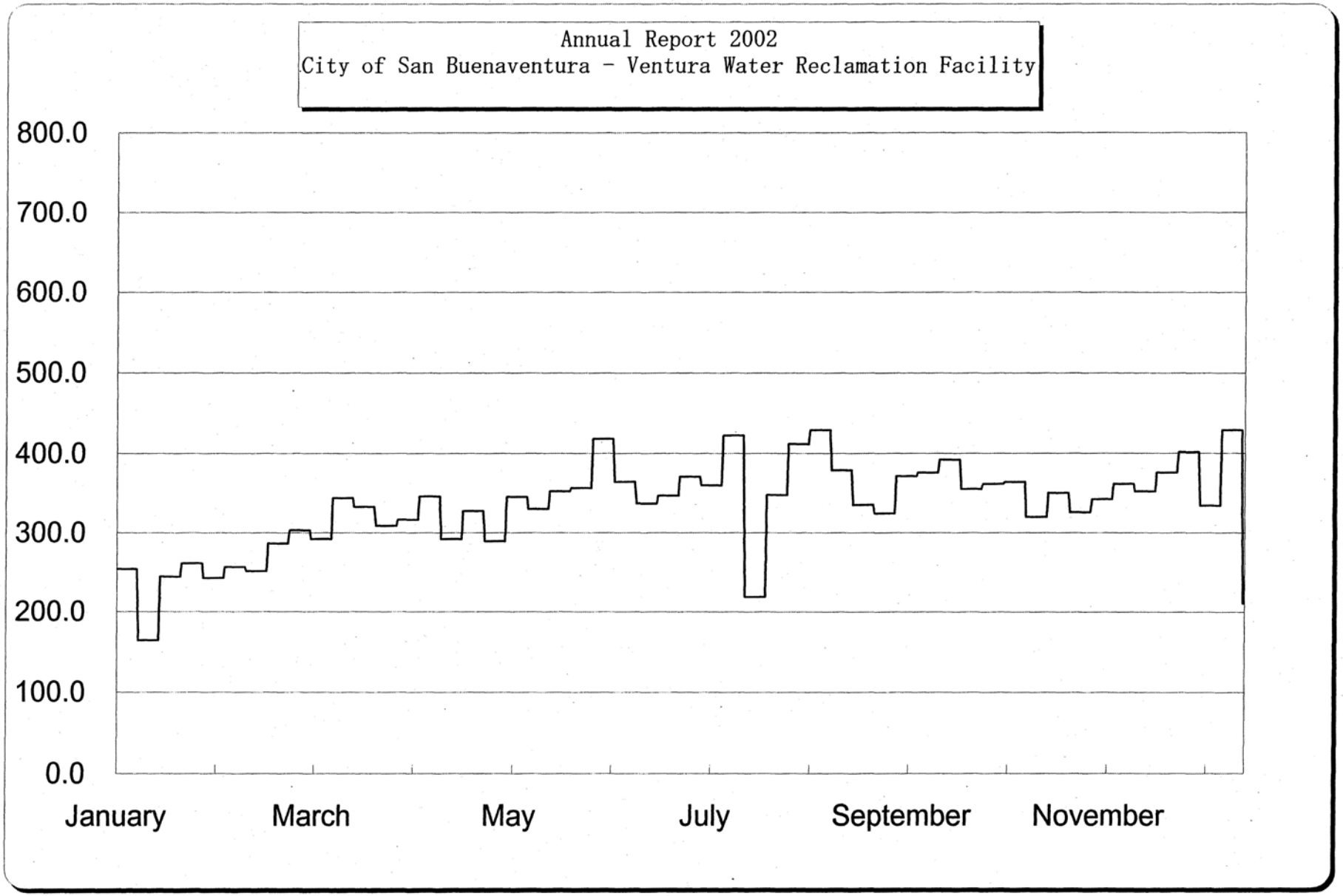
Influent Pump Station
Daily Influent Raw Sewage 30 Day Average Suspended Solids - mg/l

Bimonthly Period Beginning



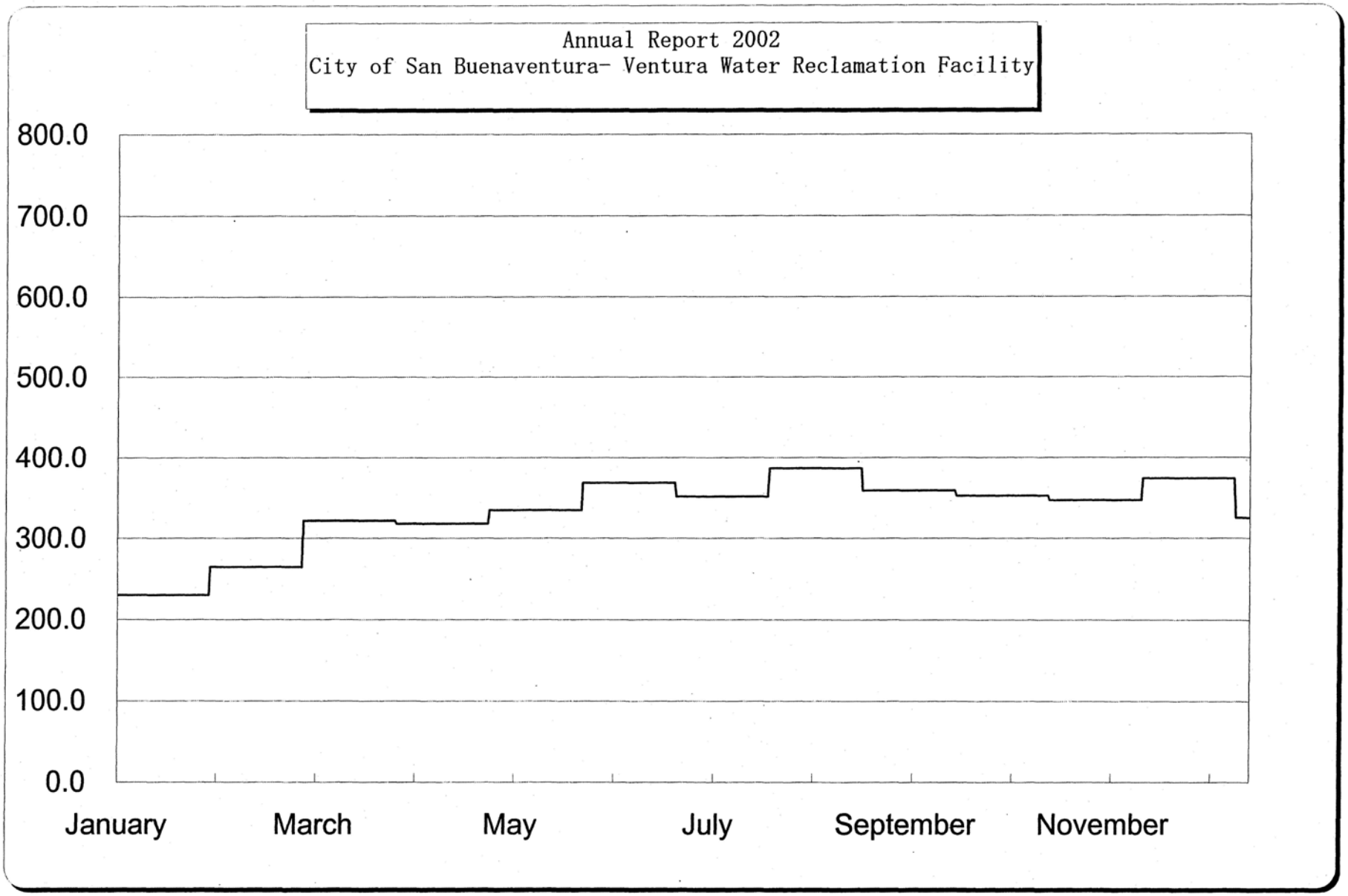
Bimonthly Period Beginning

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



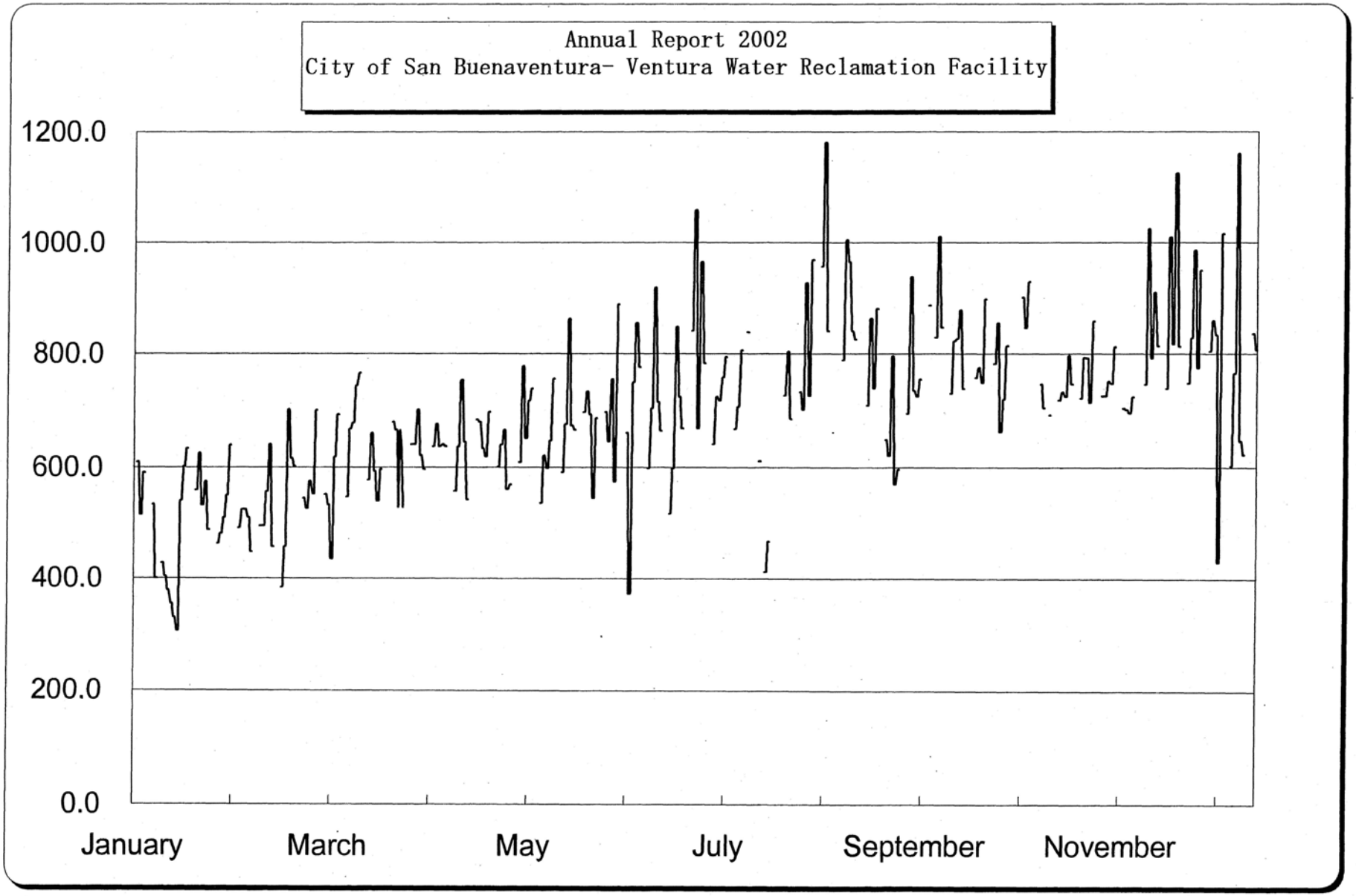
Influent Pump Station
Daily Influent Raw Sewage 7 Day Average BOD - mg/l

Bimonthly Period Beginning



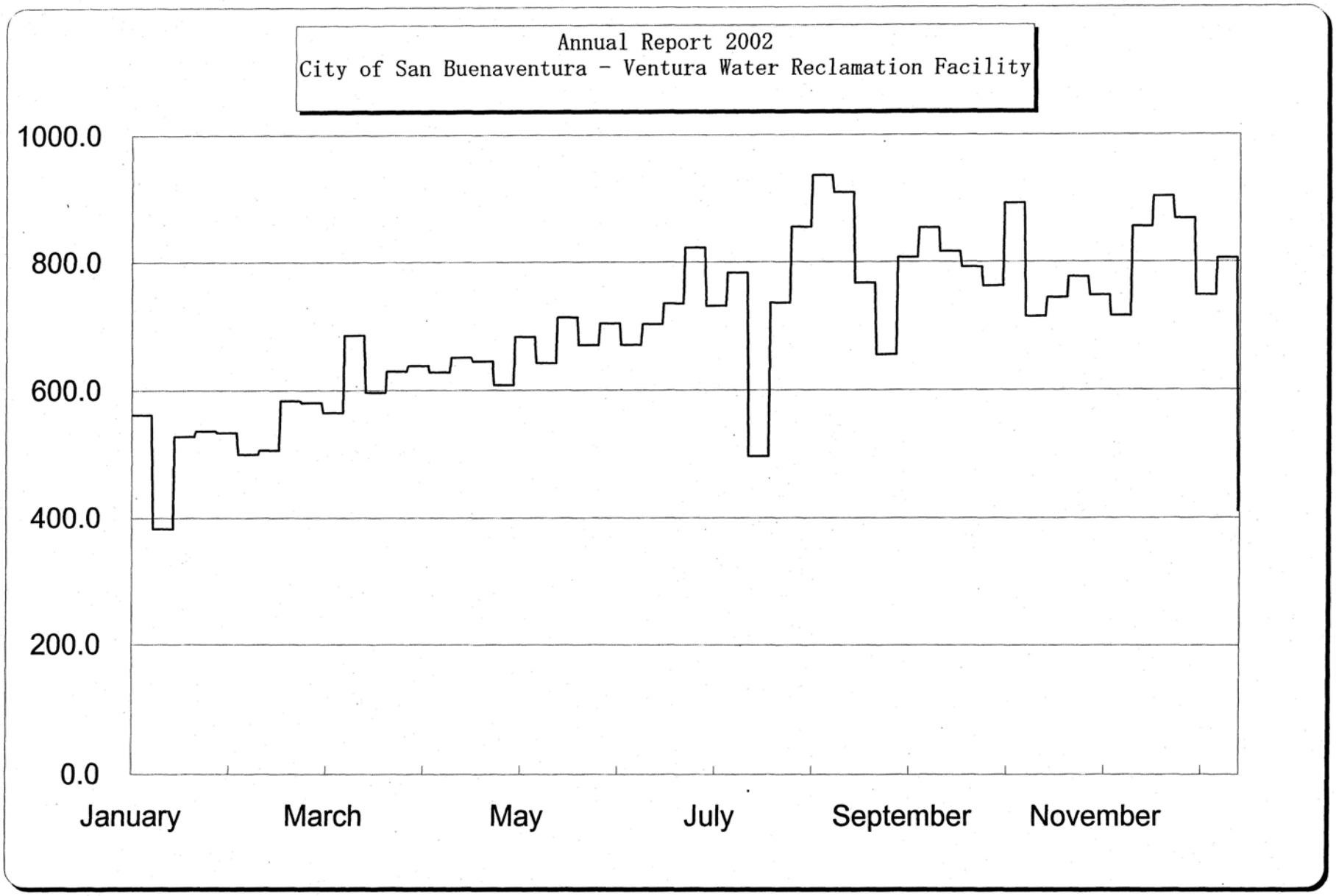
Influent Pump Station
Daily Influent Raw Sewage 30 Day Average BOD - mg/l

Bimonthly Period Beginning



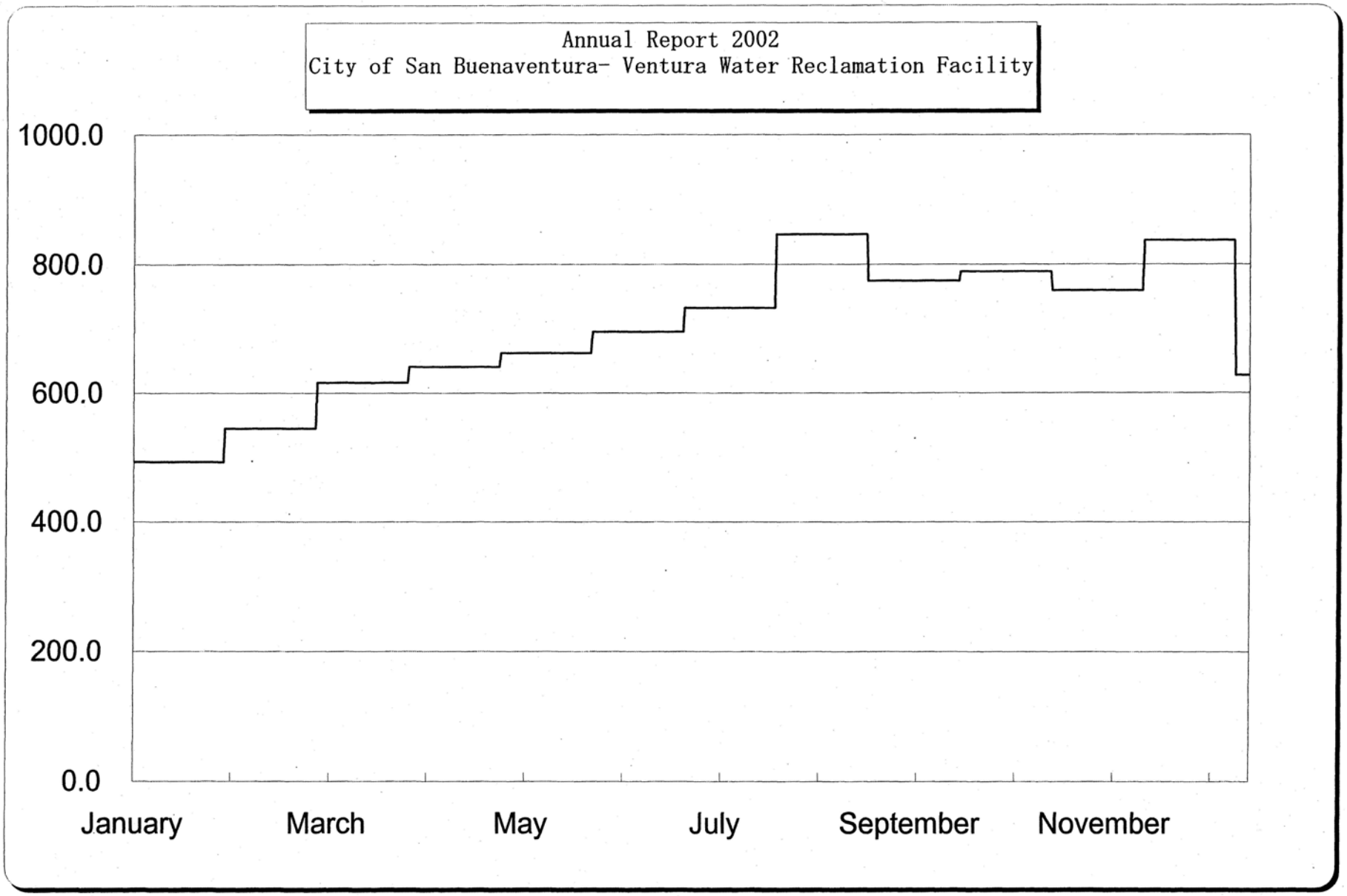
Bimonthly Period Beginning

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



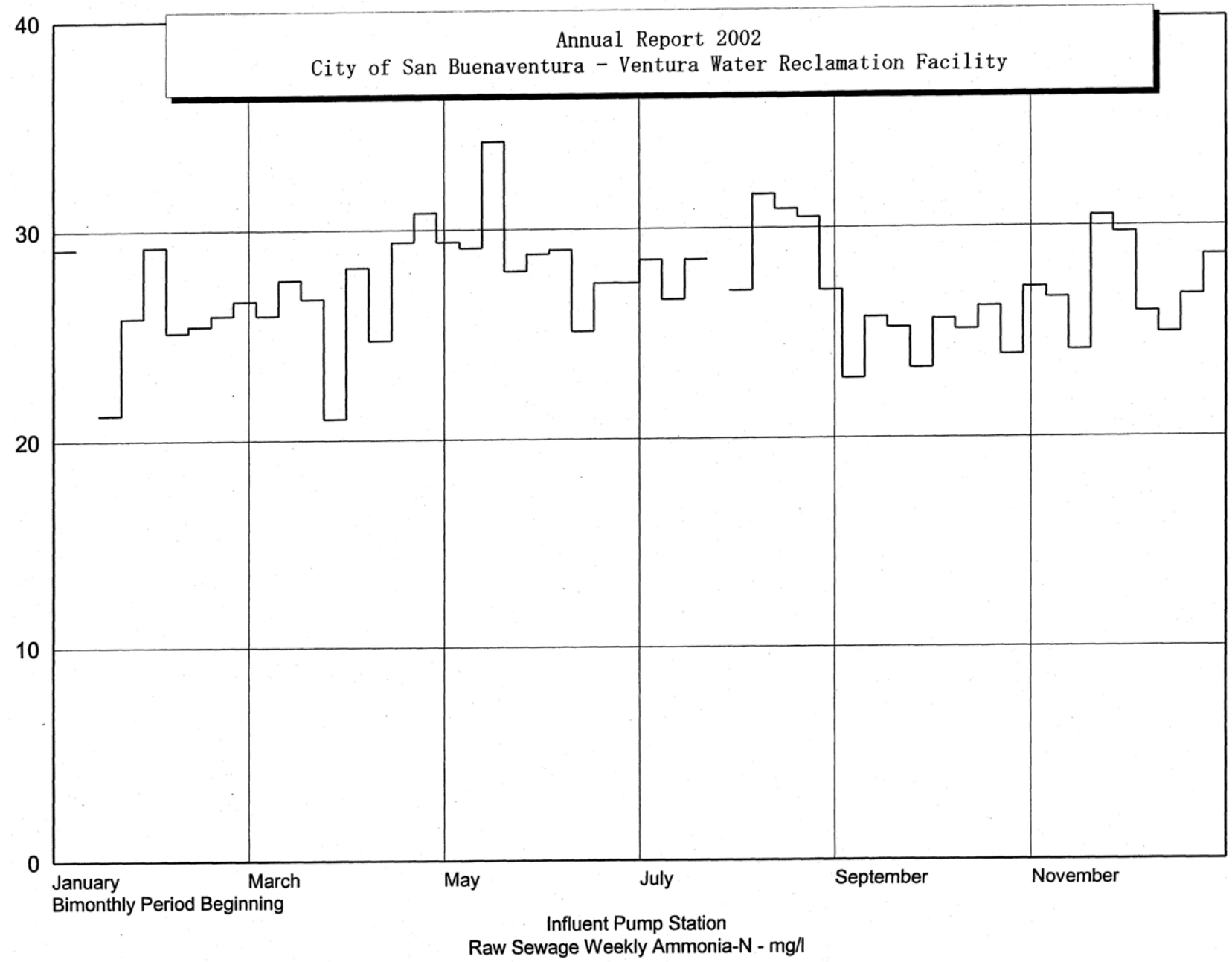
Influent Pump Station
Daily Influent Raw Sewage 7 Day Average COD - mg/l

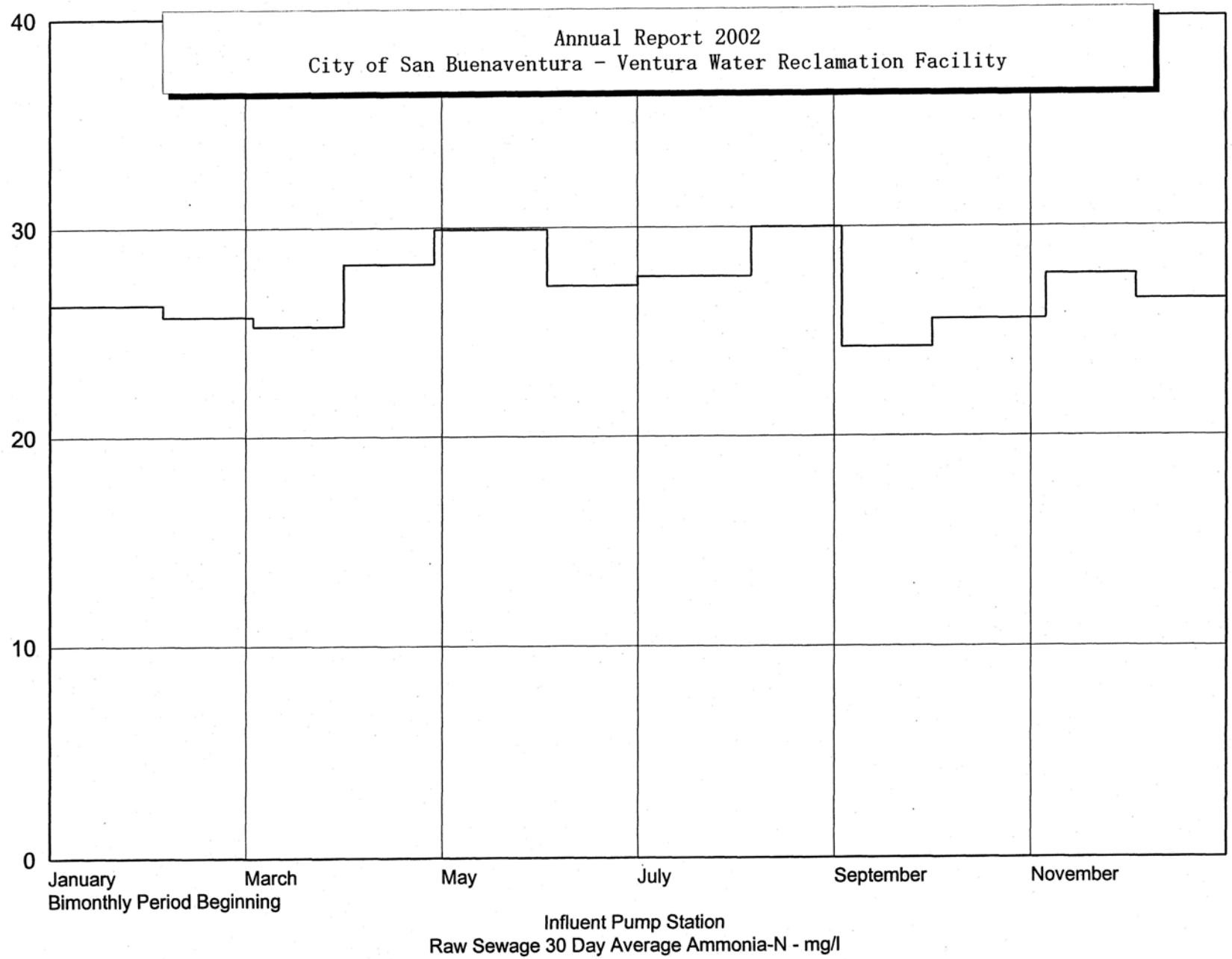
Bimonthly Period Beginning



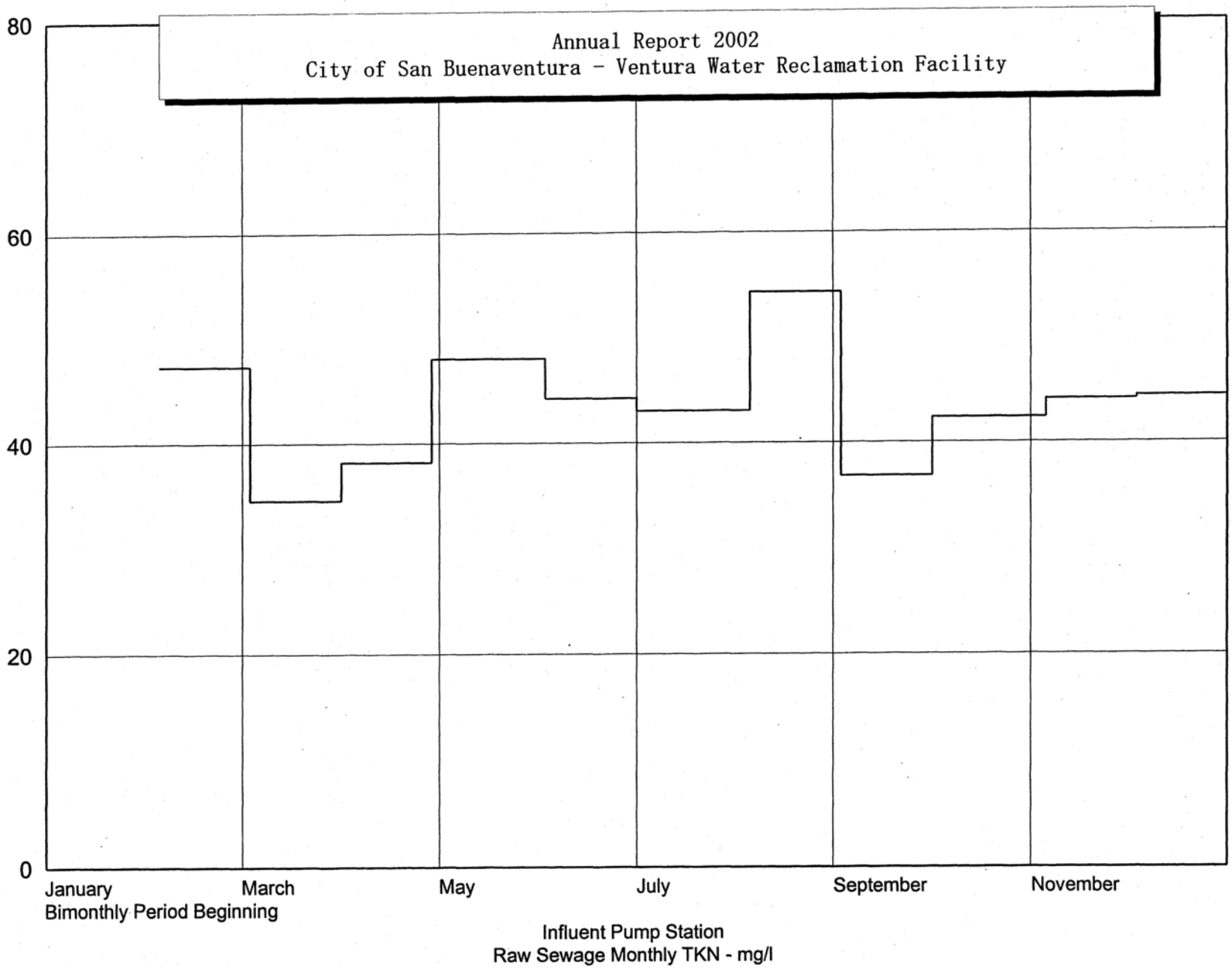
Influent Pump Station
Daily Influent Raw Sewage 30 Day Average COD - mg/l

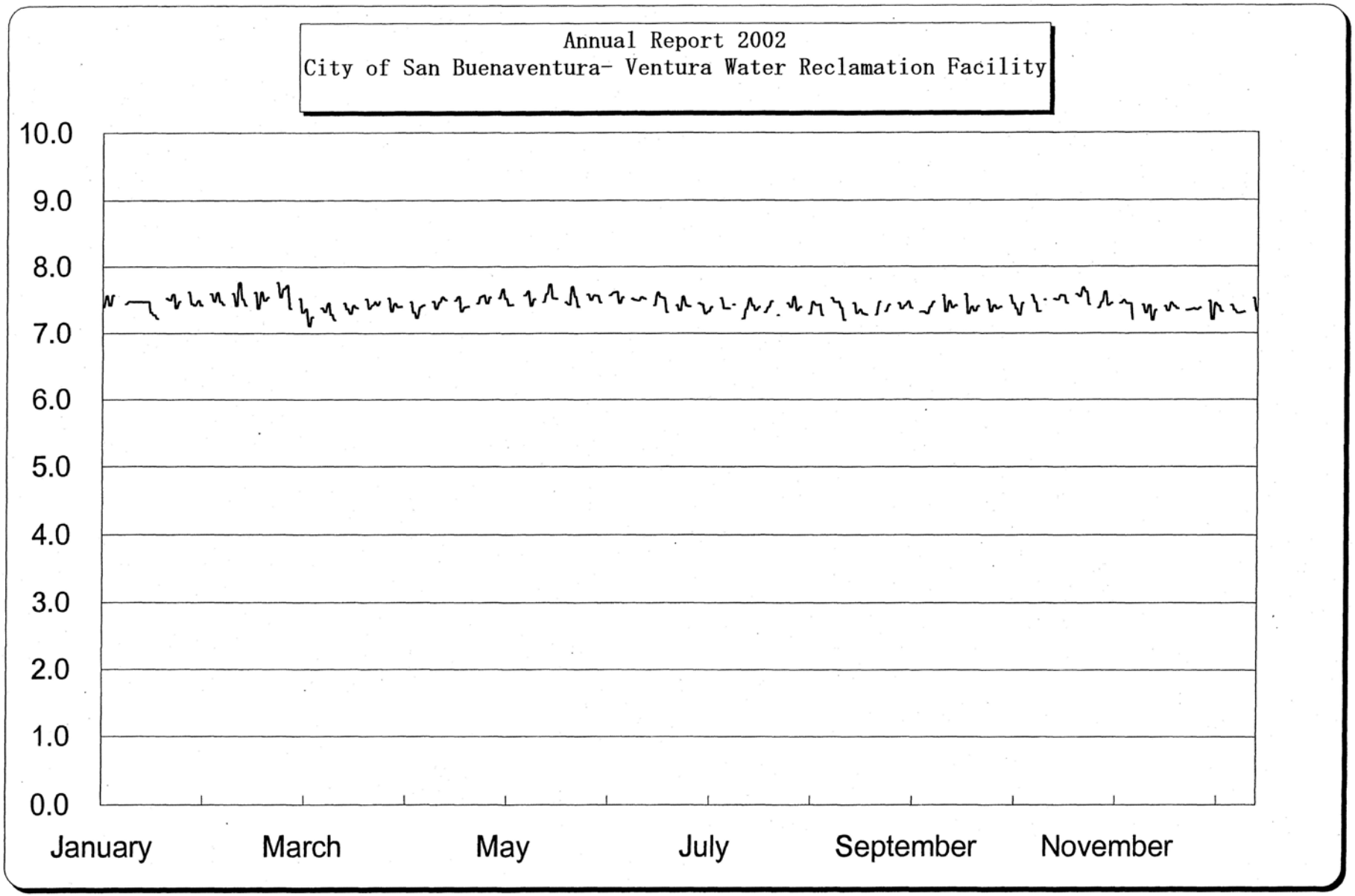
Bimonthly Period Beginning


Annual Report 2002
City of San Buenaventura - Ventura Water Reclamation Facility
40
30
20
10
0
January
March
May
July
September
November
Bimonthly Period Beginning
Influent Pump Station
Raw Sewage Weekly Ammonia-N - mg/l



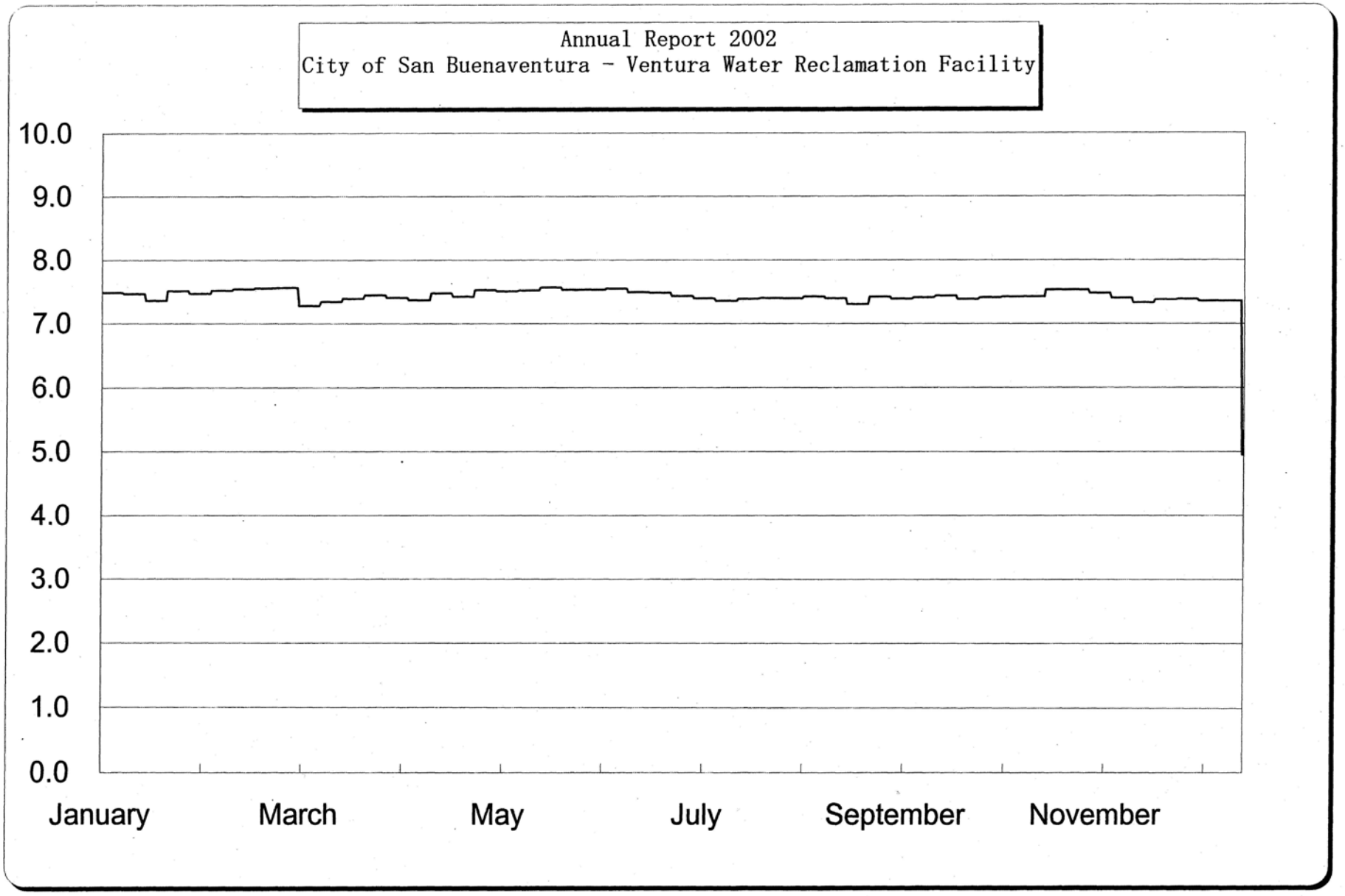
Influent Pump Station
Raw Sewage 30 Day Average Ammonia-N - mg/l


Annual Report 2002
City of San Buenaventura - Ventura Water Reclamation Facility
80
60
40
20
0
January
March
May
July
September
November
Bimonthly Period Beginning
Influent Pump Station
Raw Sewage Monthly TKN - mg/l



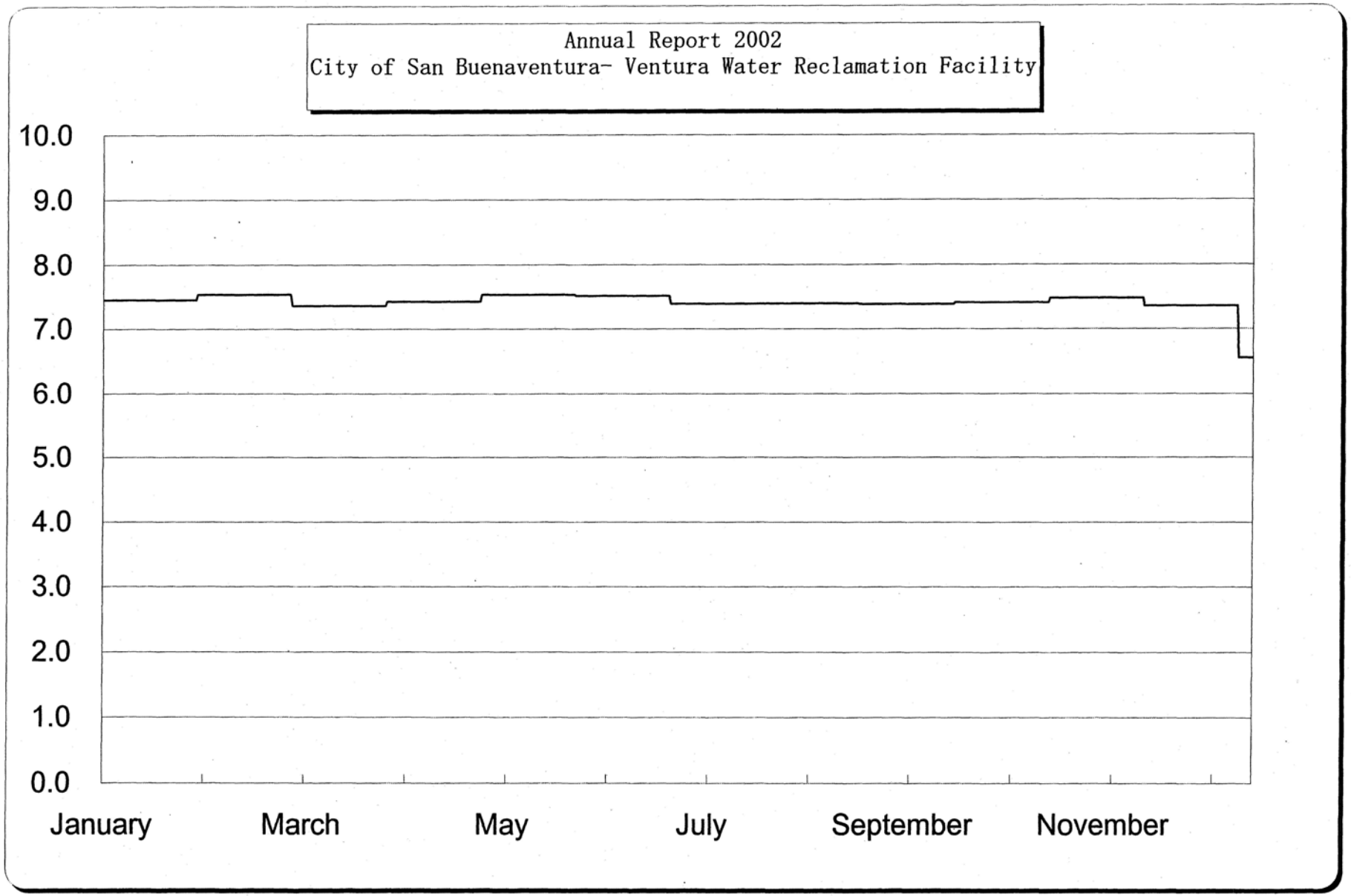
Bimonthly Period Beginning

Flow Equalization Basin
Primary Effluent pH - pH Units



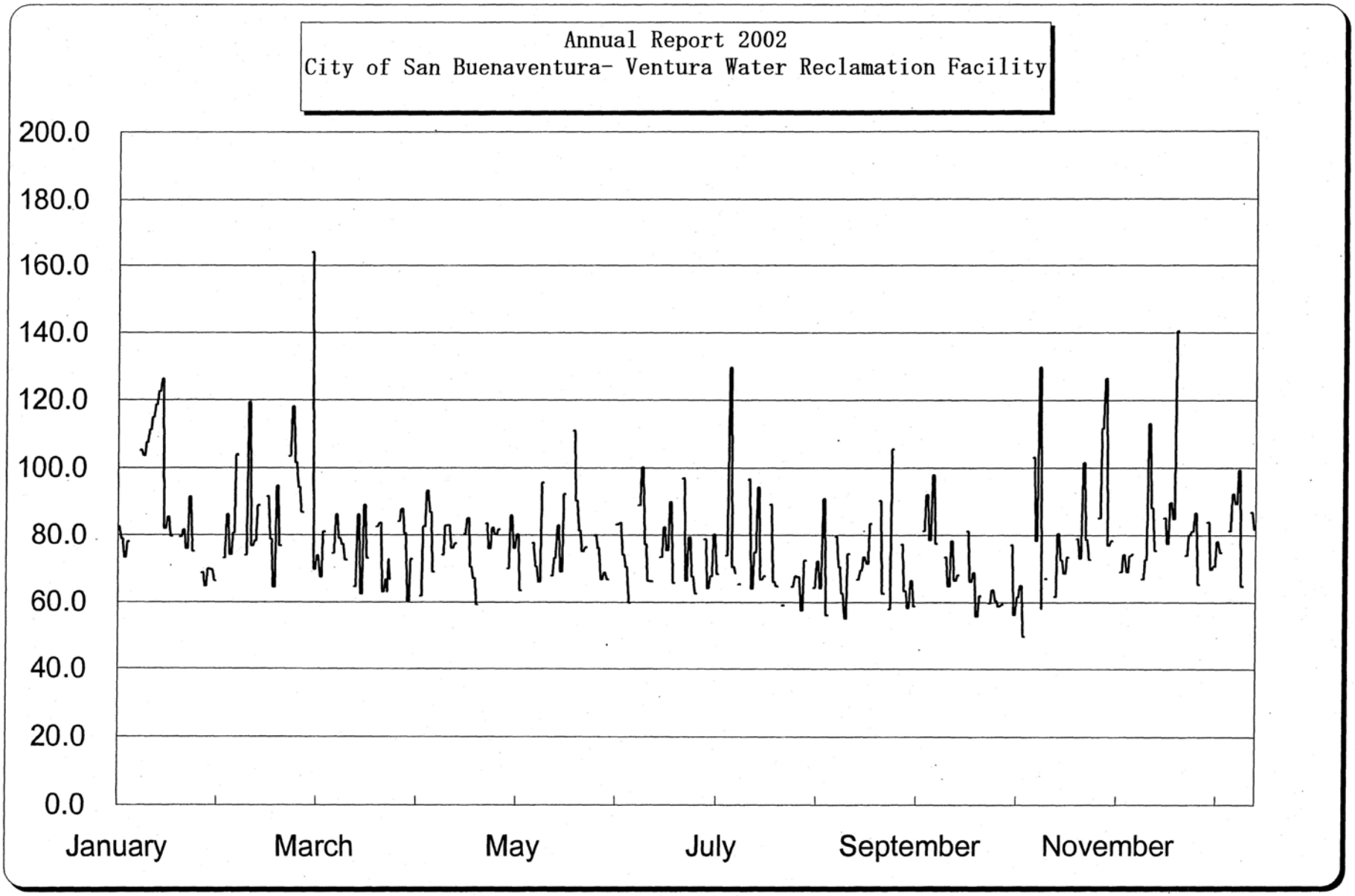
Flow Equalization Basin
Primary Effluent 7 Day Average pH - pH Units

Bimonthly Period Beginning



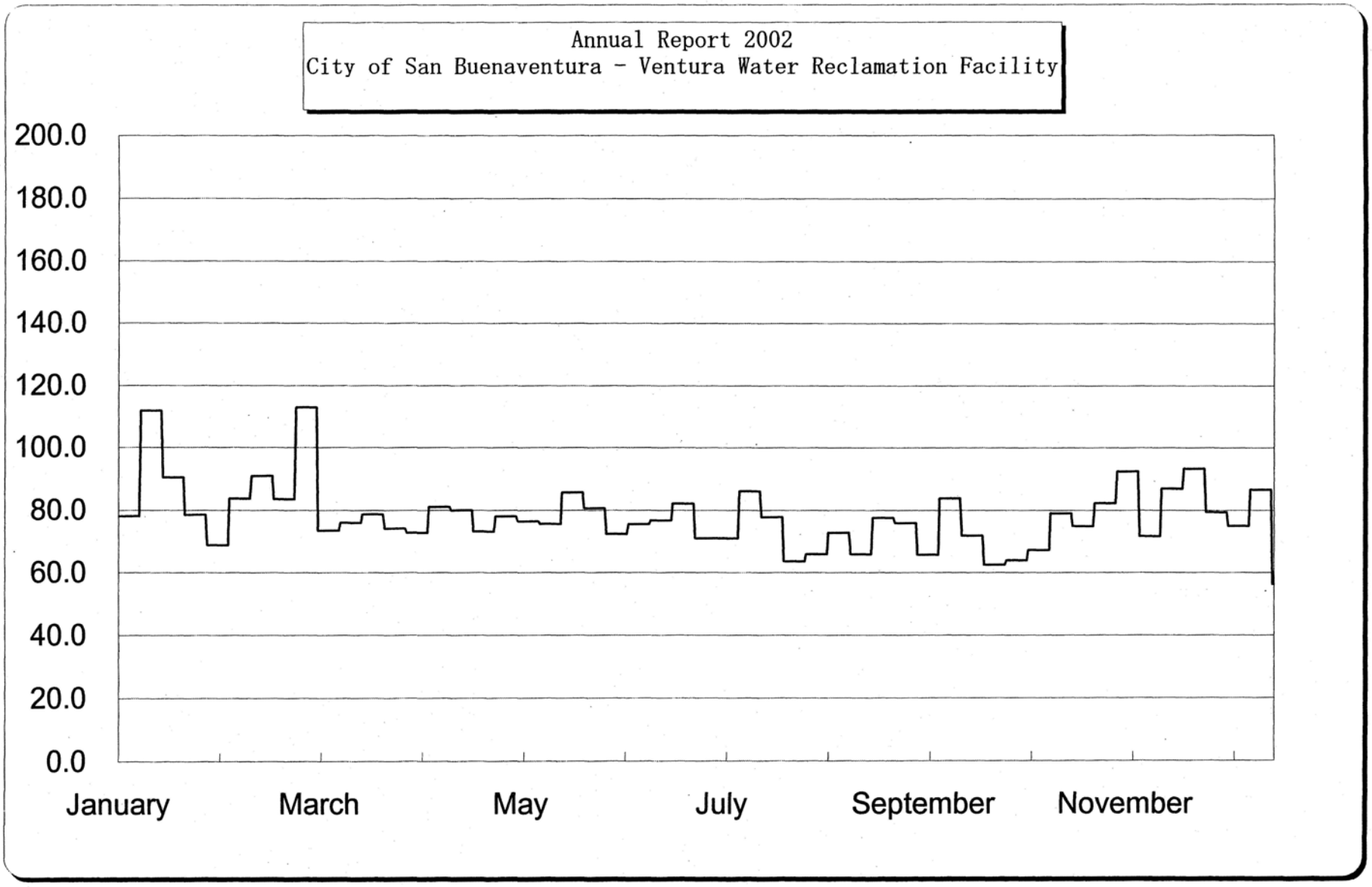
Flow Equalization Basin
Primary Effluent 30 Day Average pH - pH Units

Bimonthly Period Beginning



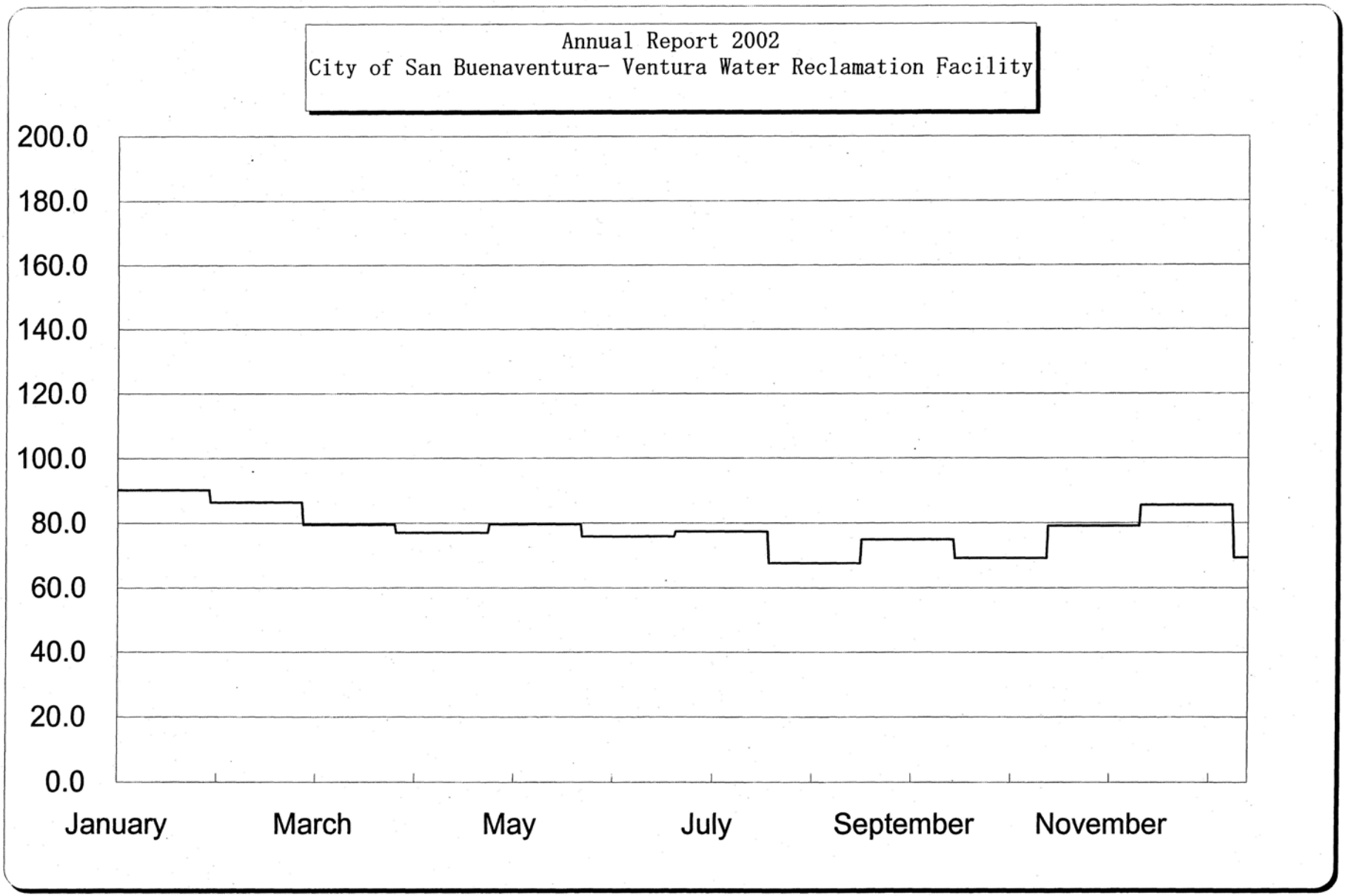
Flow Equalization Basin
Primary Effluent Suspended Solids - mg/l

Bimonthly Period Beginning



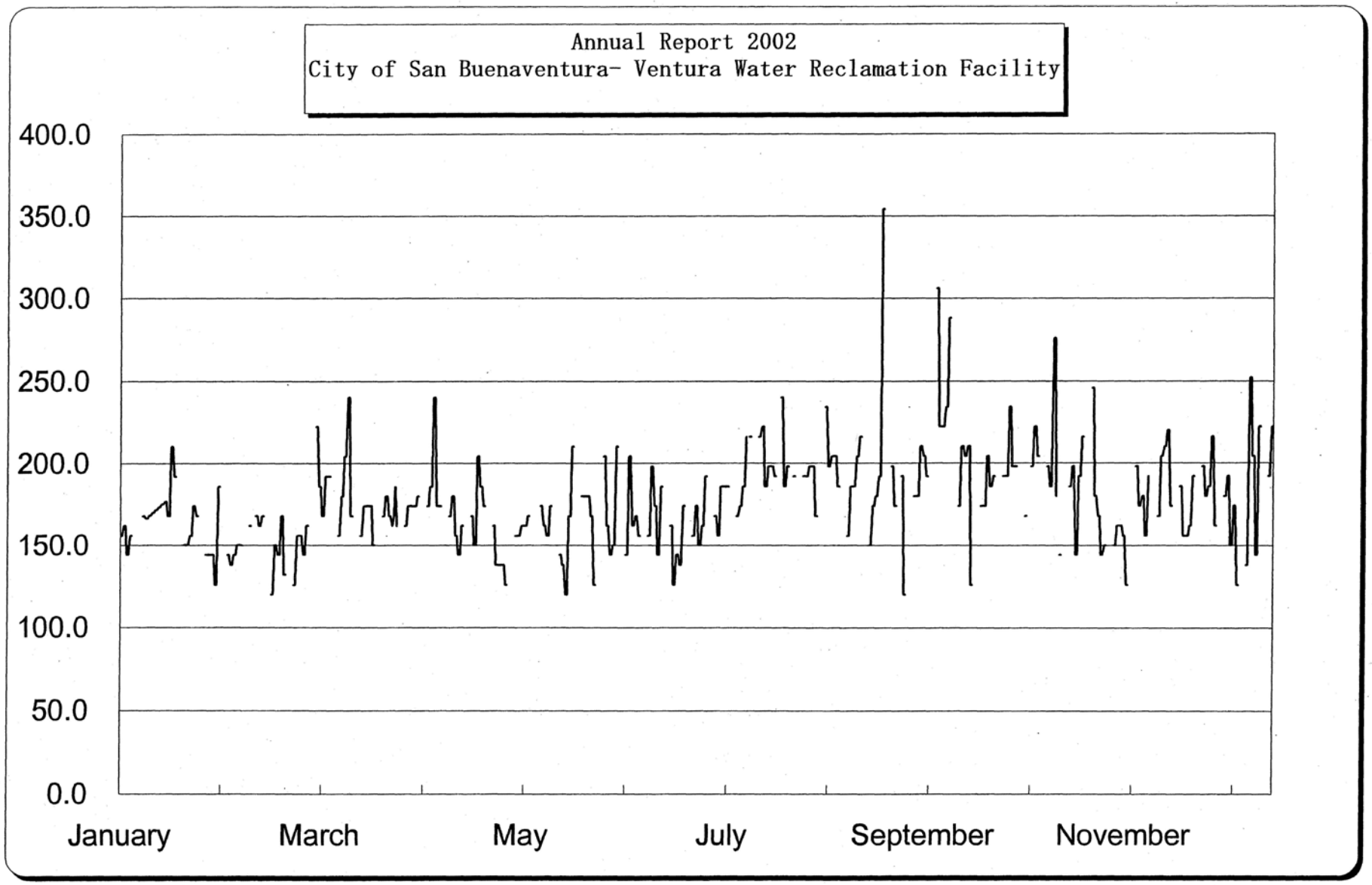
Flow Equalization Basin
Primary Effluent 7 Day Average Suspended Solids - mg/l

Bimonthly Period Beginning



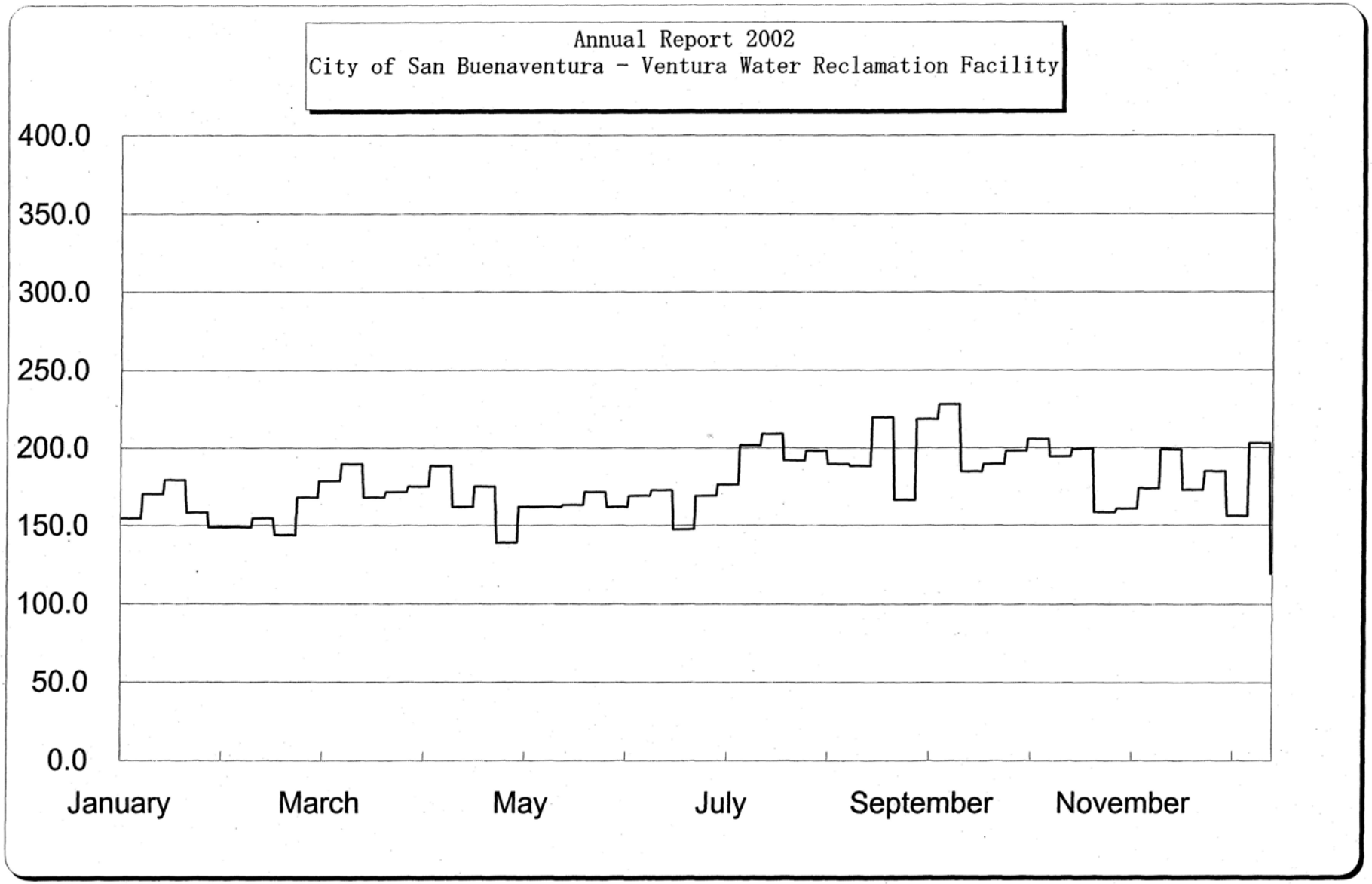
Flow Equalization Basin
Primary Effluent 30 Day Average Suspended Solids - mg/l

Bimonthly Period Beginning



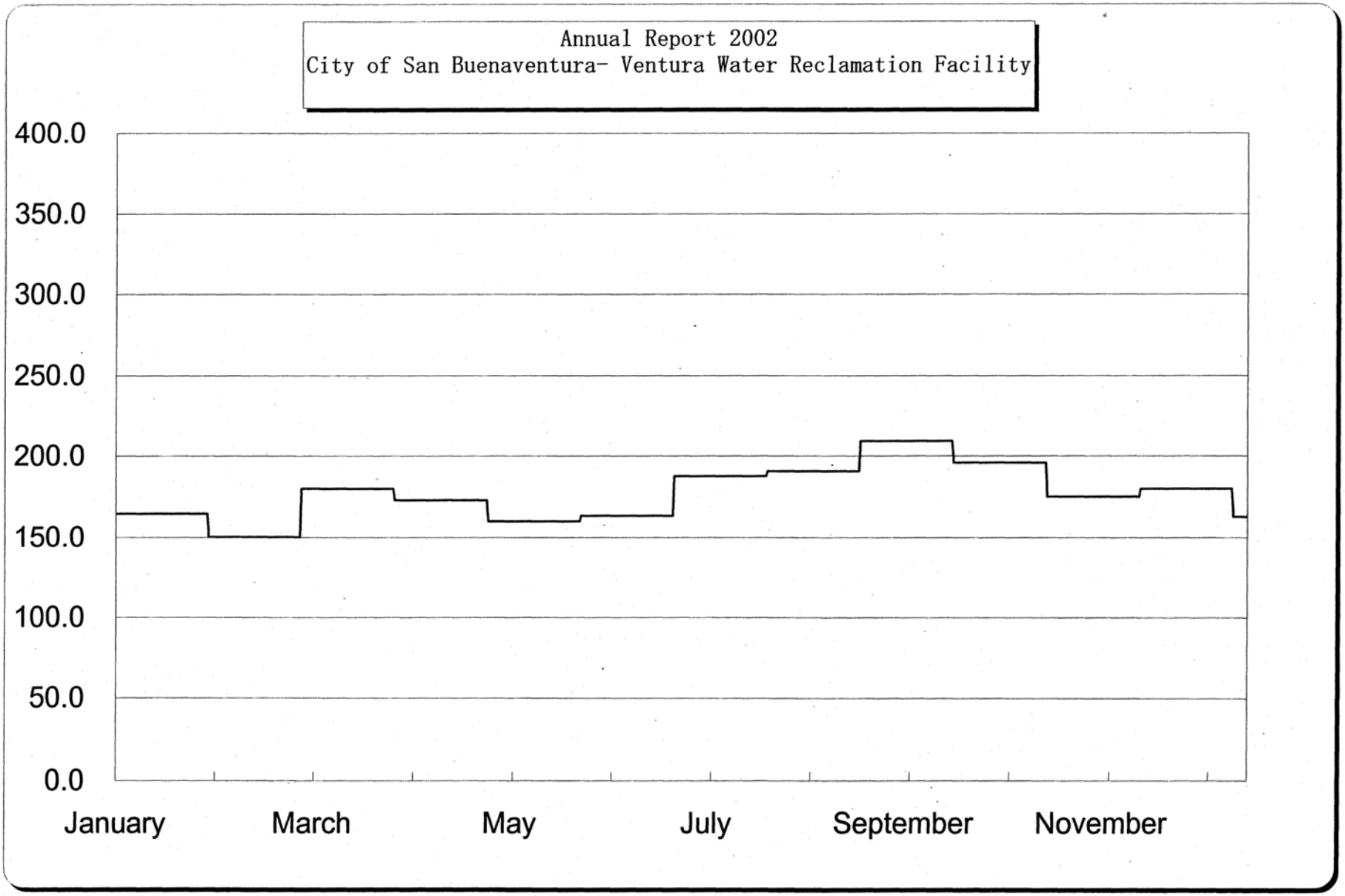
Flow Equalization Basin
Primary Effluent BOD - mg/l

Bimonthly Period Beginning



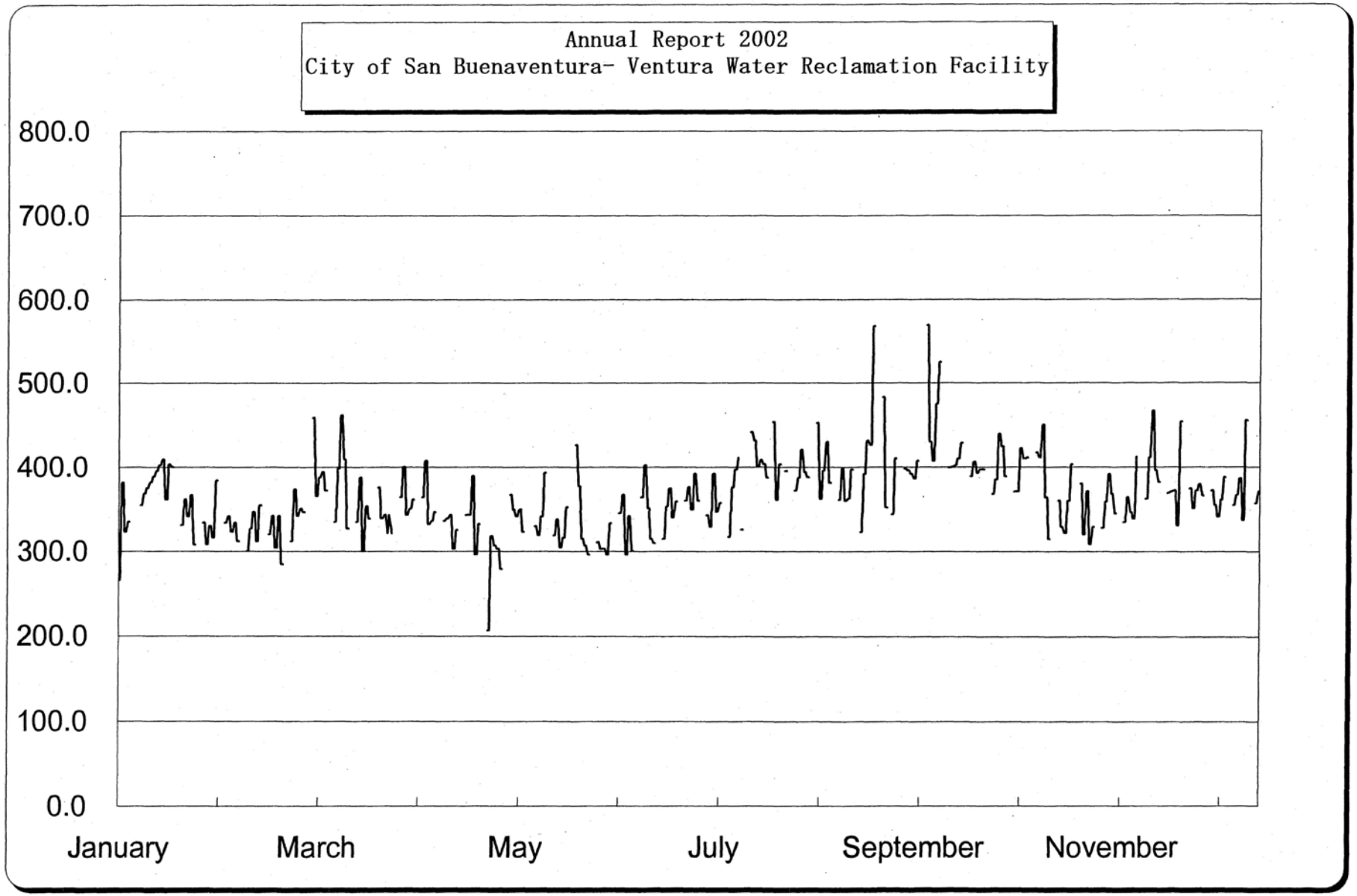
Flow Equalization Basin
Primary Effluent 7 Day Average BOD - mg/l

Bimonthly Period Beginning



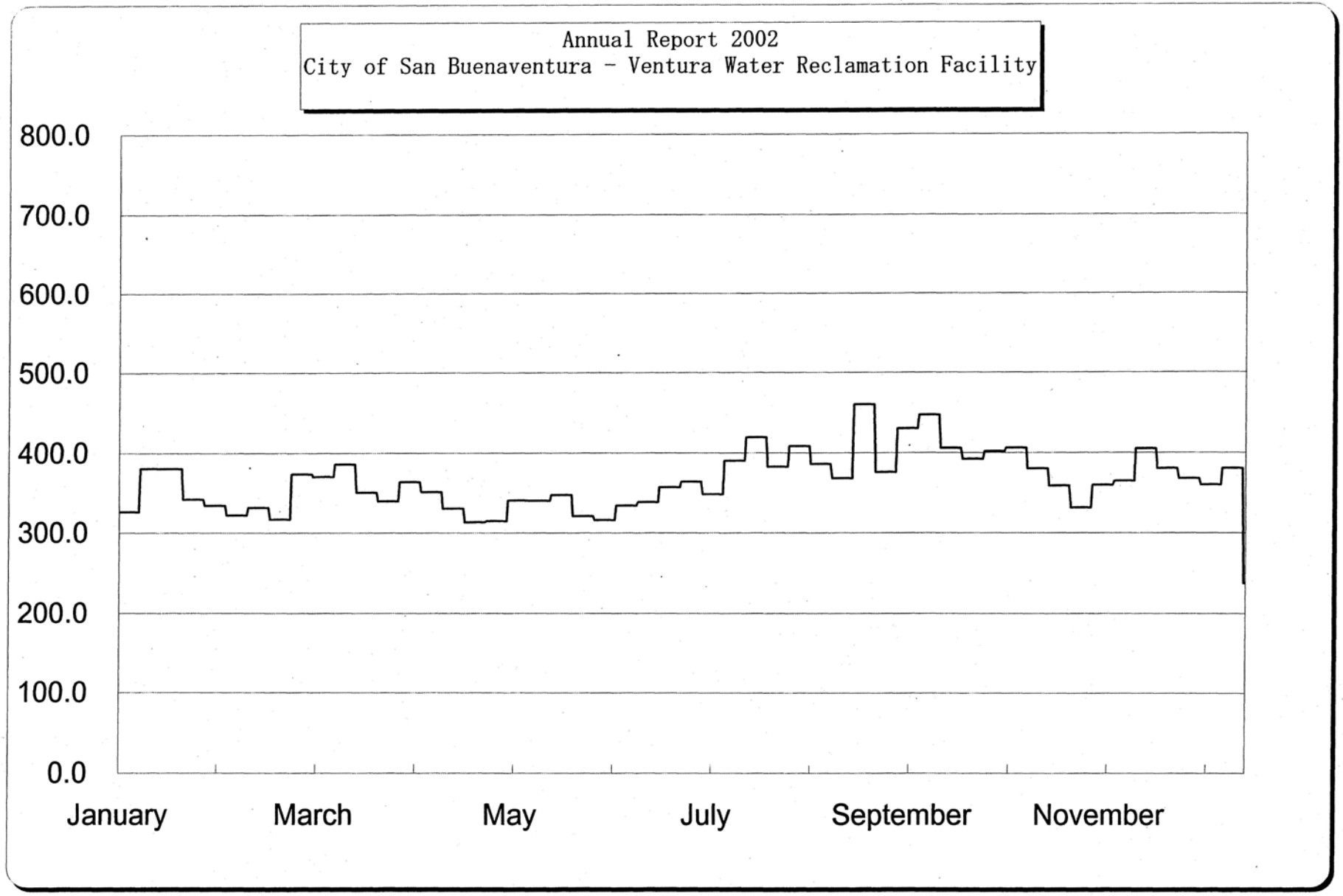
Flow Equalization Basin
Primary Effluent 30 Day Average BOD - mg/l

Bimonthly Period Beginning



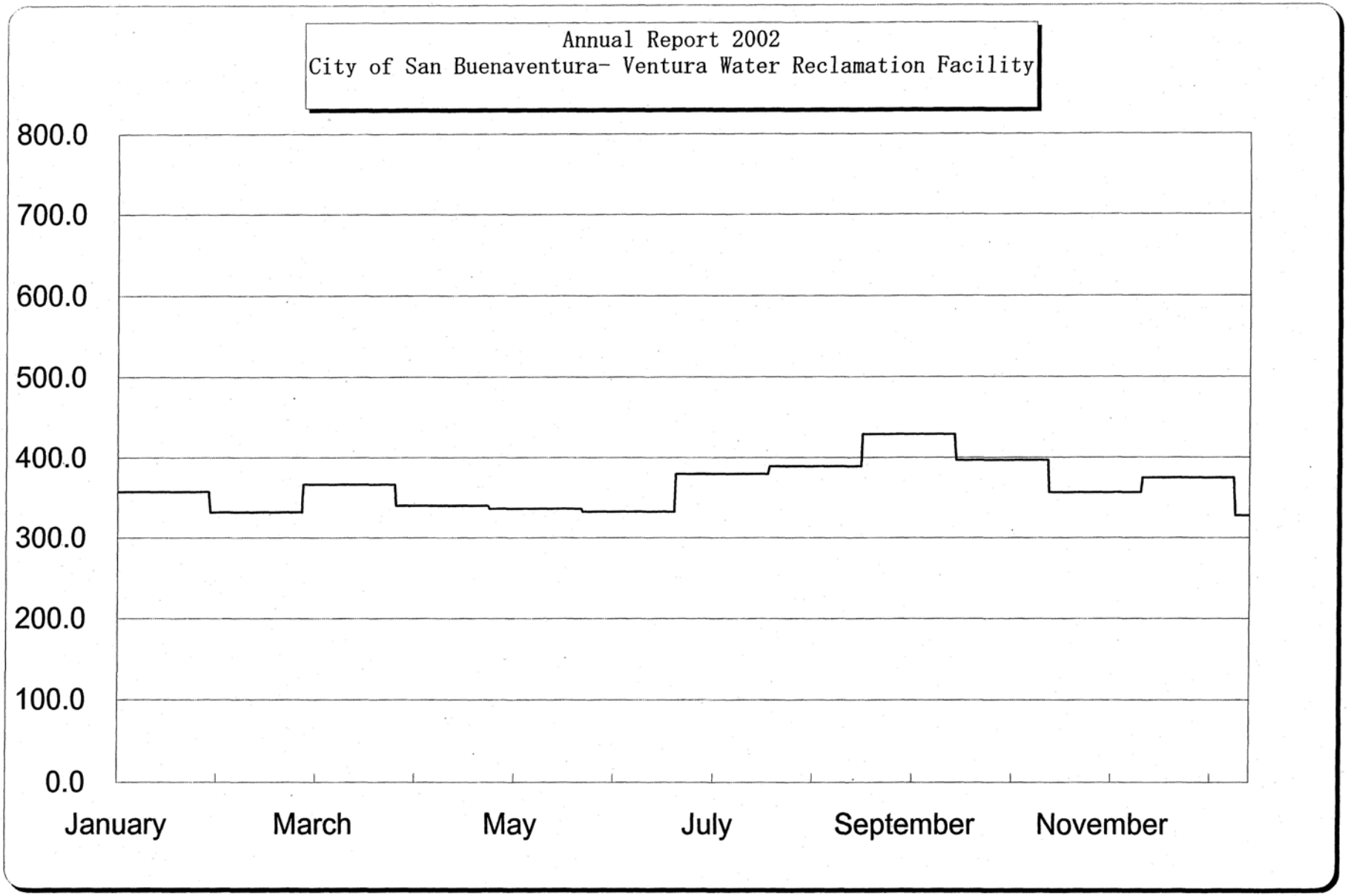
Bimonthly Period Beginning

Flow Equalization Basin
Primary Effluent COD - mg/l



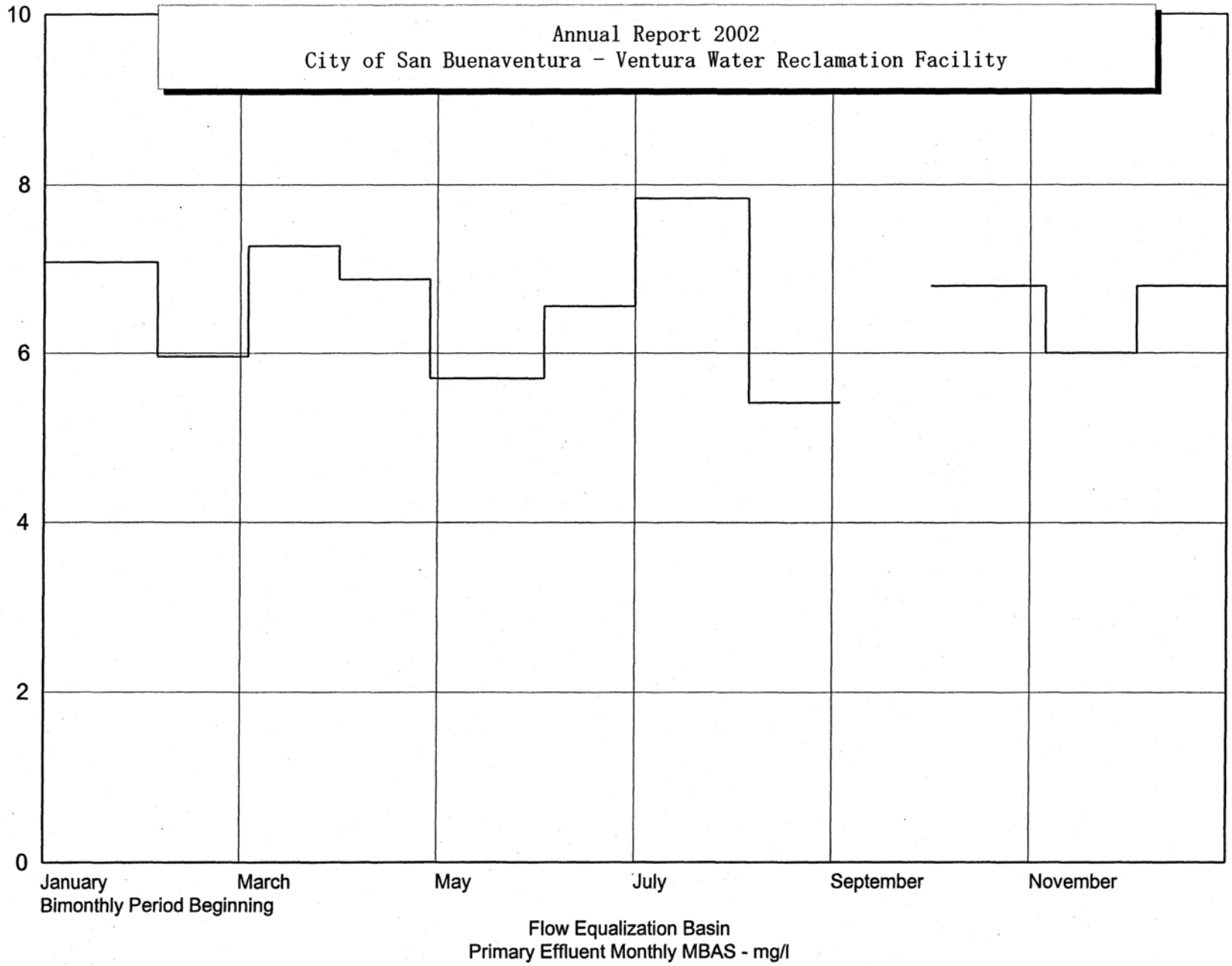
Bimonthly Period Beginning

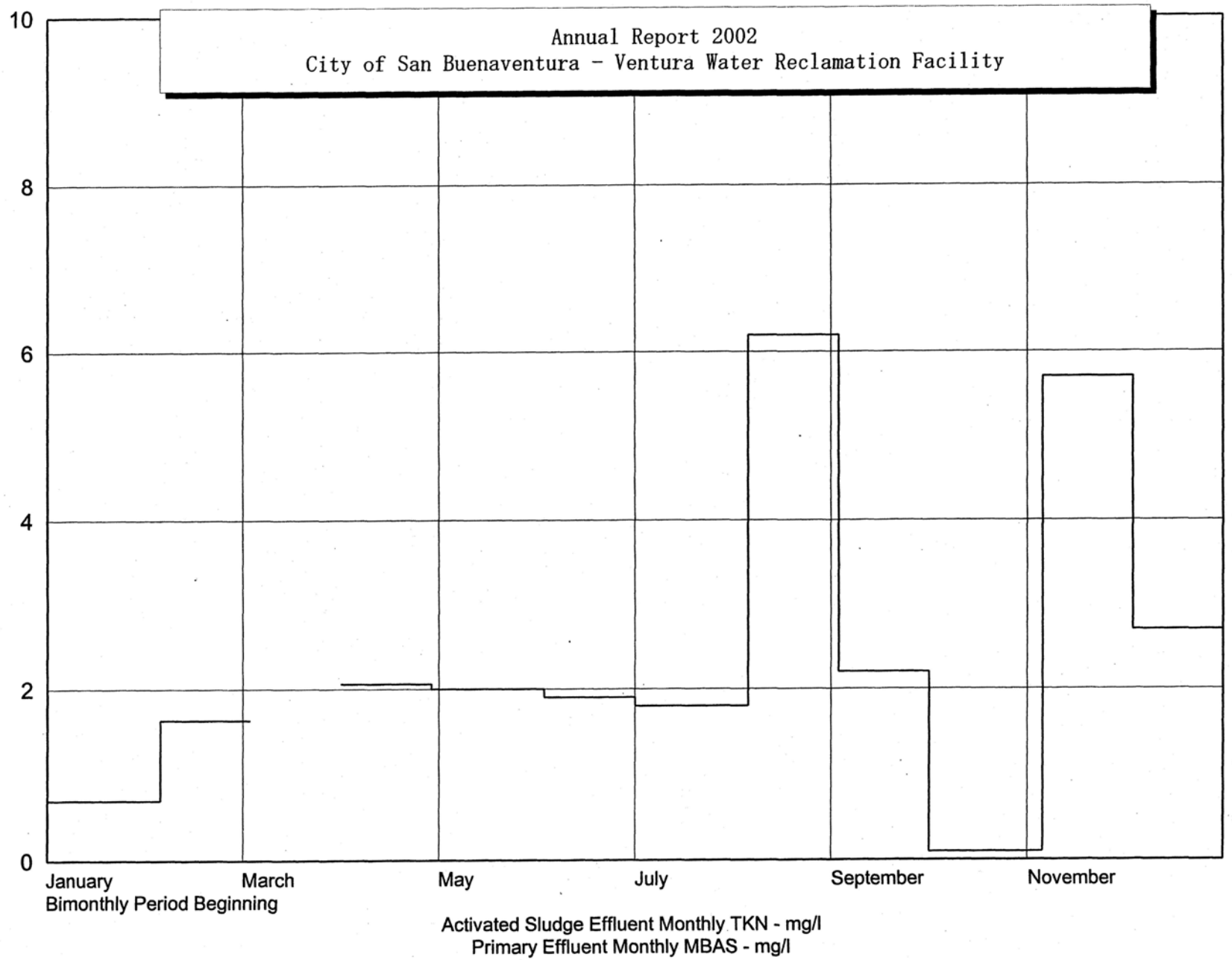
Flow Equalization Basin
Primary Effluent 7 Day Average COD - mg/l



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

Bimonthly Period Beginning


Annual Report 2002
City of San Buenaventura - Ventura Water Reclamation Facility
10
8
6
4
2
0
January
March
May
July
September
November
Bimonthly Period Beginning
Flow Equalization Basin
Primary Effluent Monthly MBAS - mg/l


Annual Report 2002
City of San Buenaventura - Ventura Water Reclamation Facility
10
8
6
4
2
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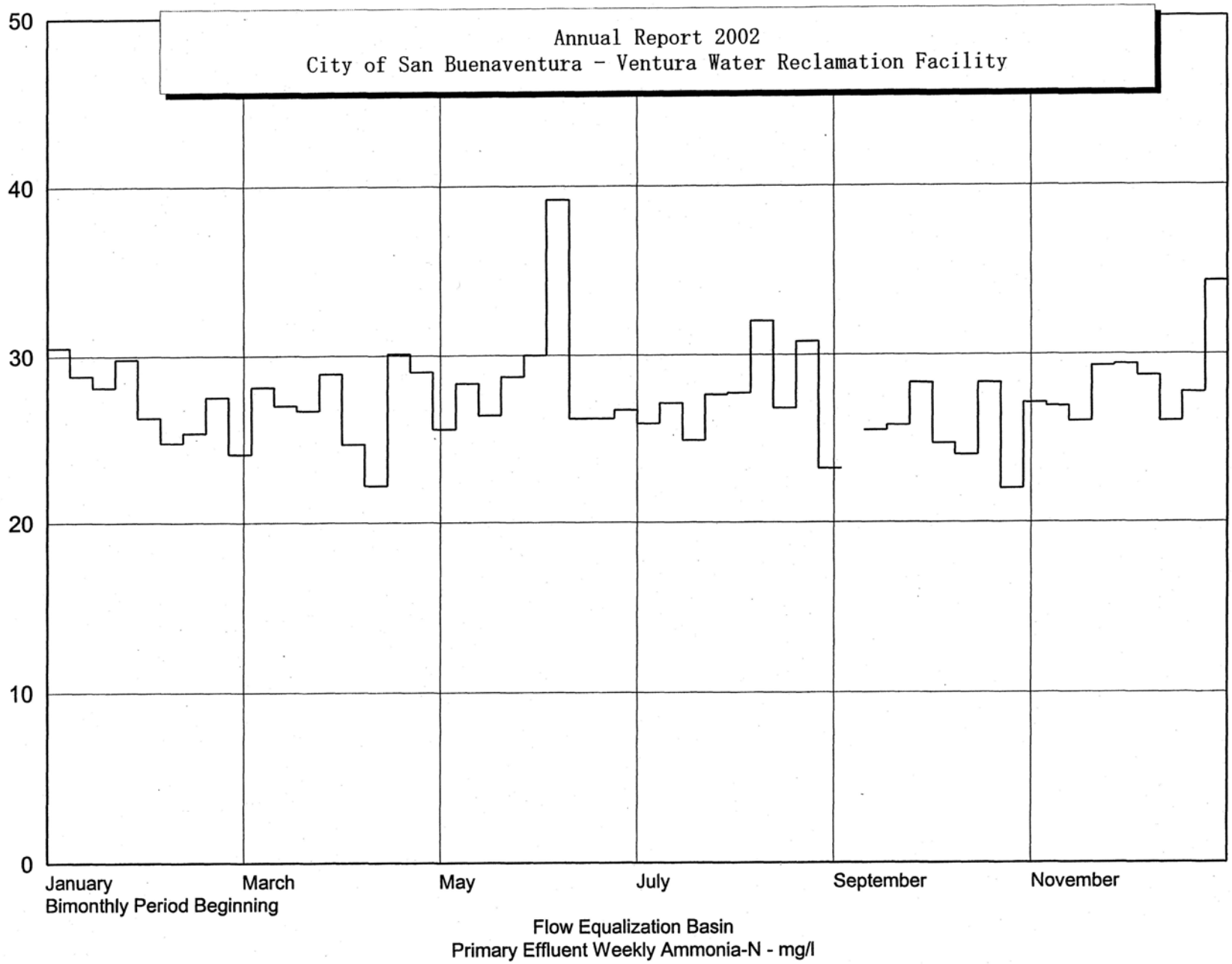
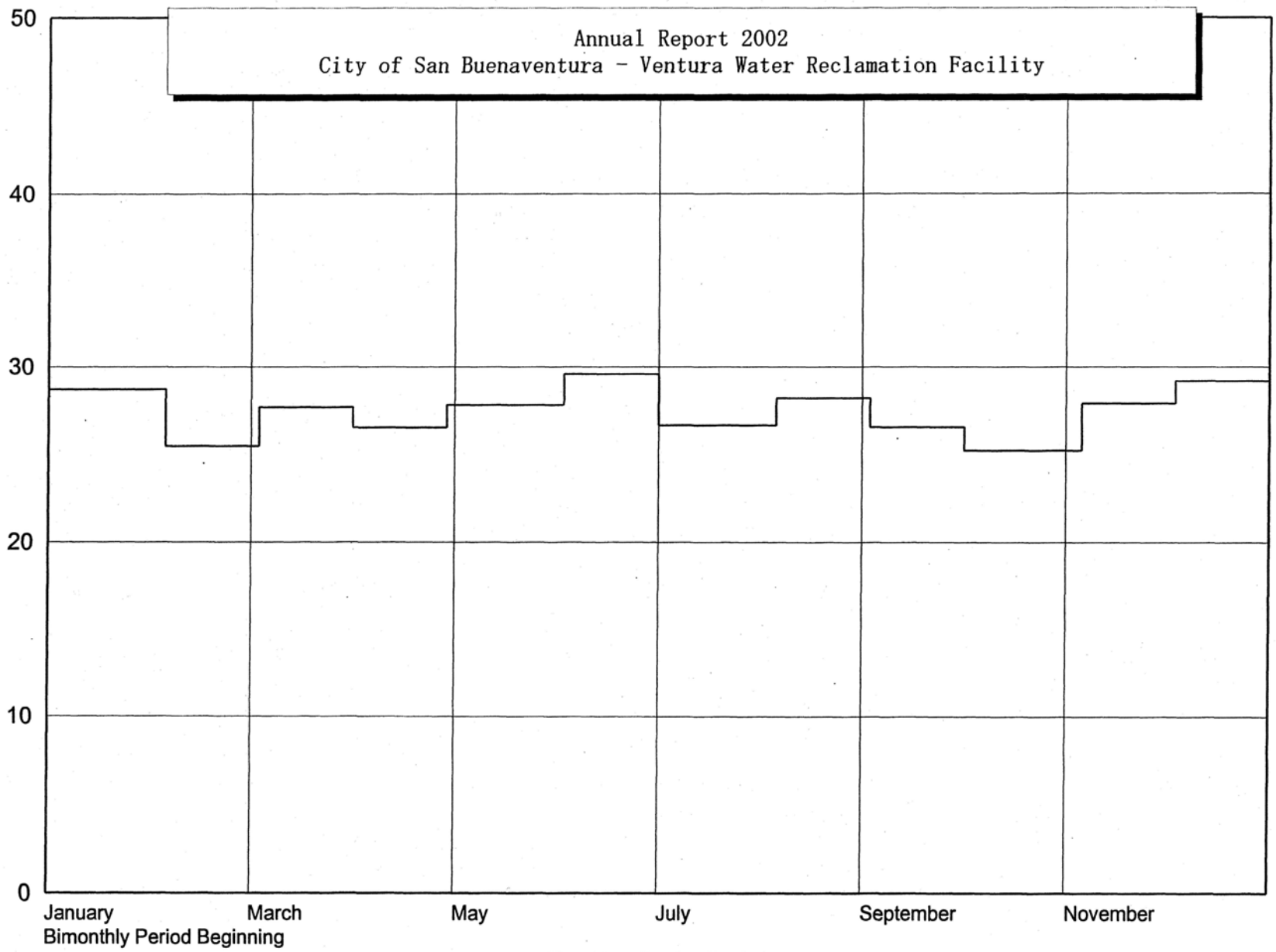
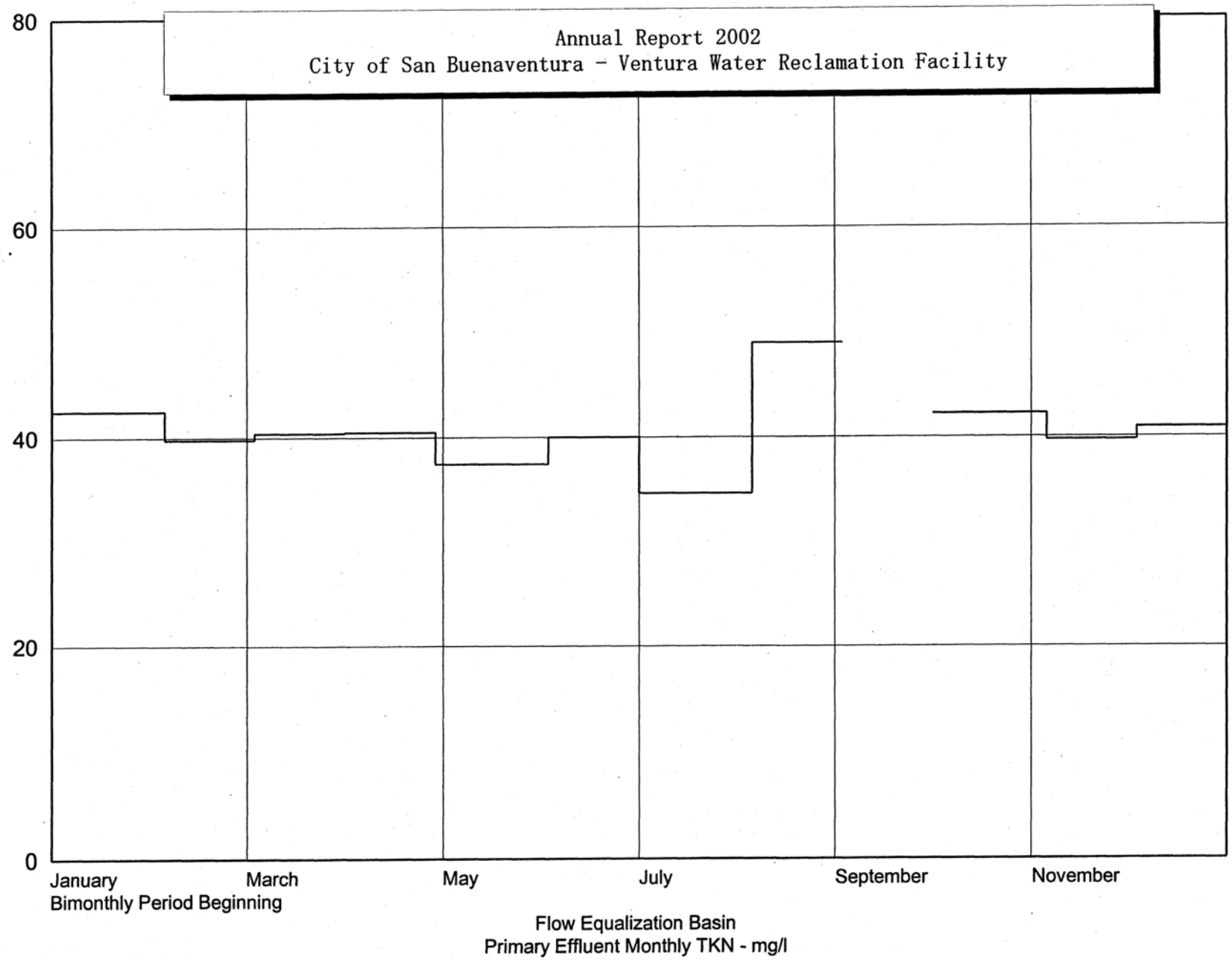
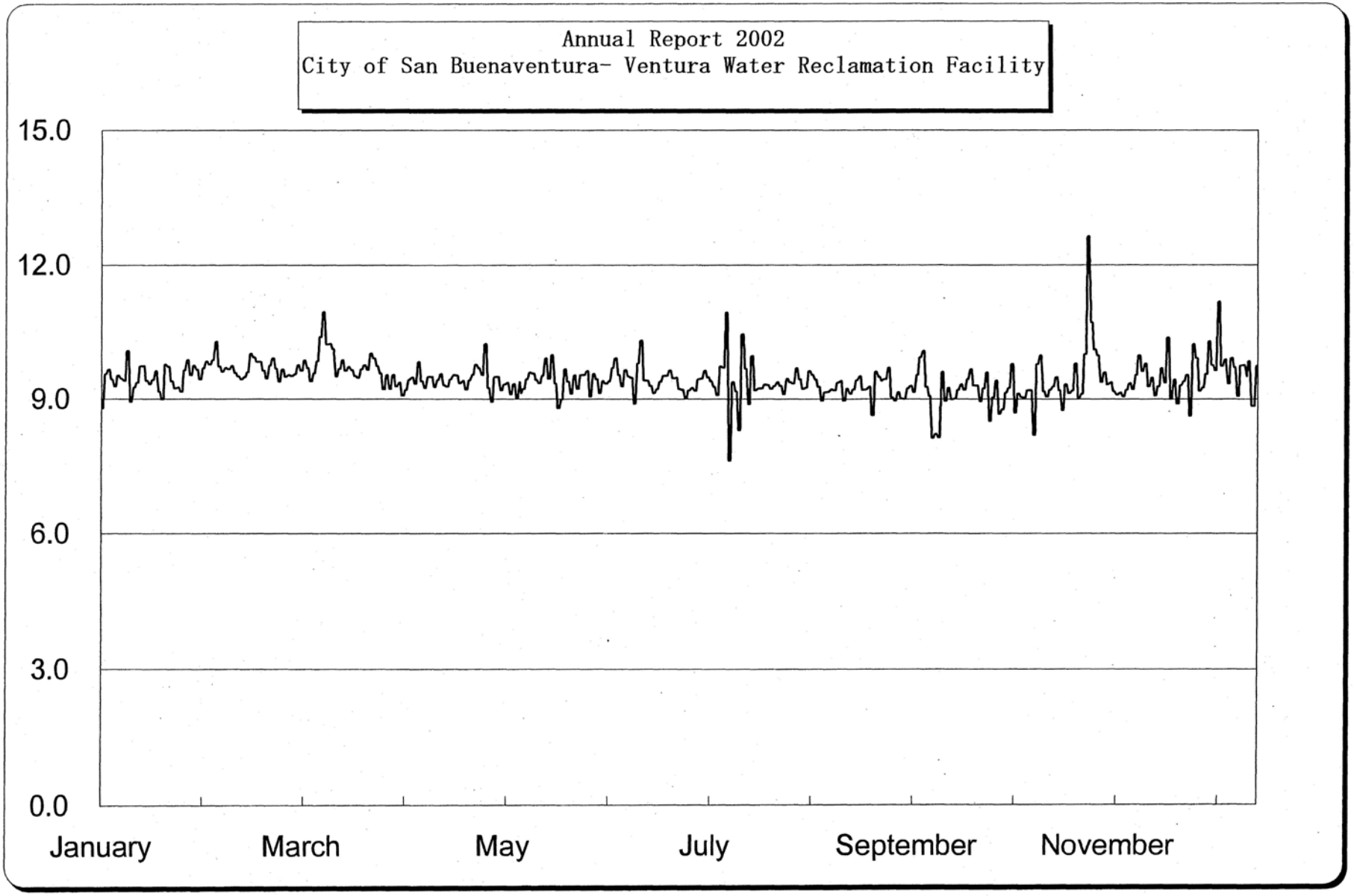
January
March
May
July
September
November
Bimonthly Period Beginning
Activated Sludge Effluent Monthly TKN - mg/l
Primary Effluent Monthly MBAS - mg/l


Annual Report 2002
City of San Buenaventura - Ventura Water Reclamation Facility
50
40
30
20
10
0
January
March
May
July
September
November
Bimonthly Period Beginning
Flow Equalization Basin
Primary Effluent Weekly Ammonia-N - mg/l



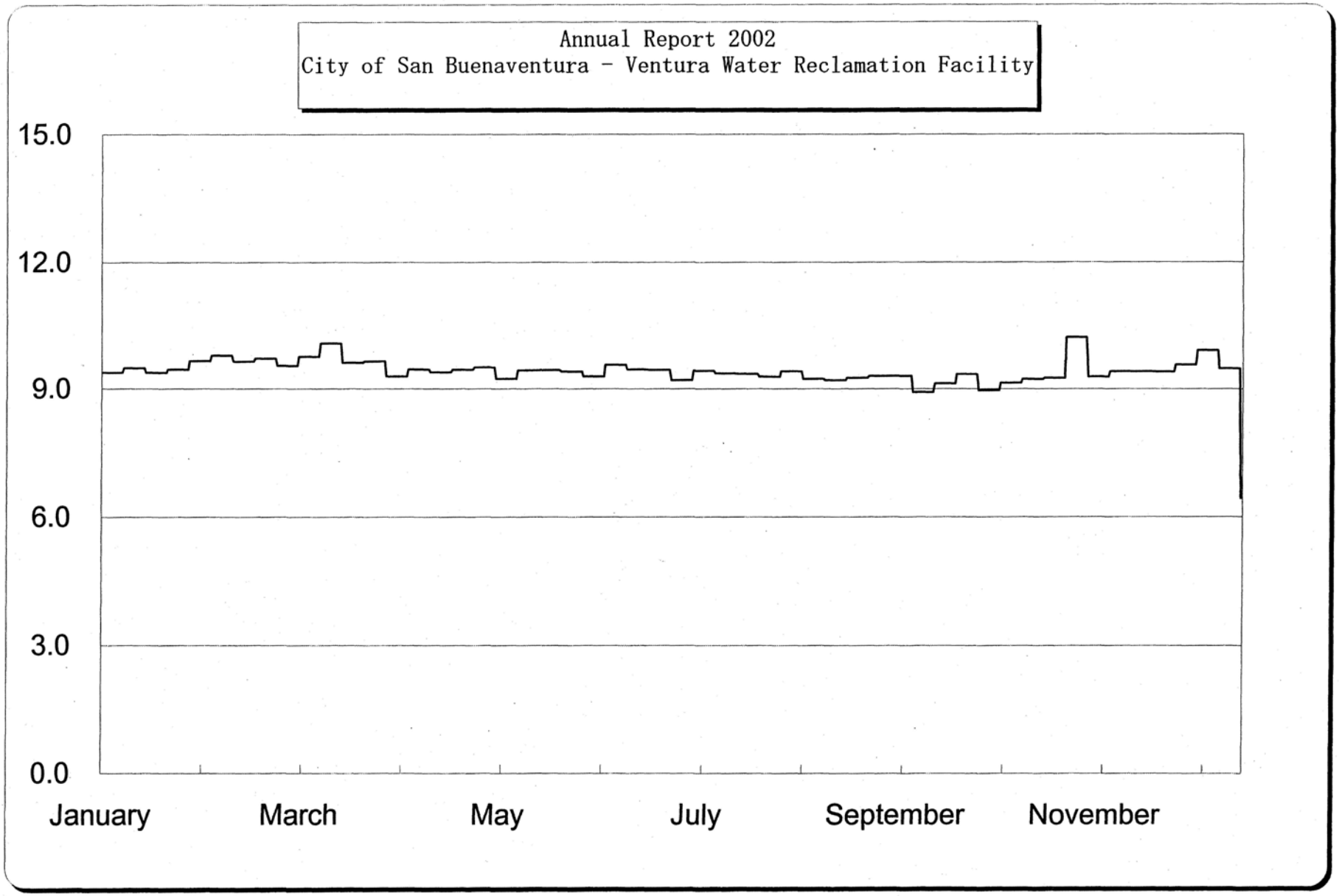
Flow Equalization Basin
Primary Effluent 30 Day Average Ammonia-N - mg/l


Annual Report 2002
City of San Buenaventura - Ventura Water Reclamation Facility
80
60
40
20
0
January
March
May
July
September
November
Bimonthly Period Beginning
Flow Equalization Basin
Primary Effluent Monthly TKN - mg/l



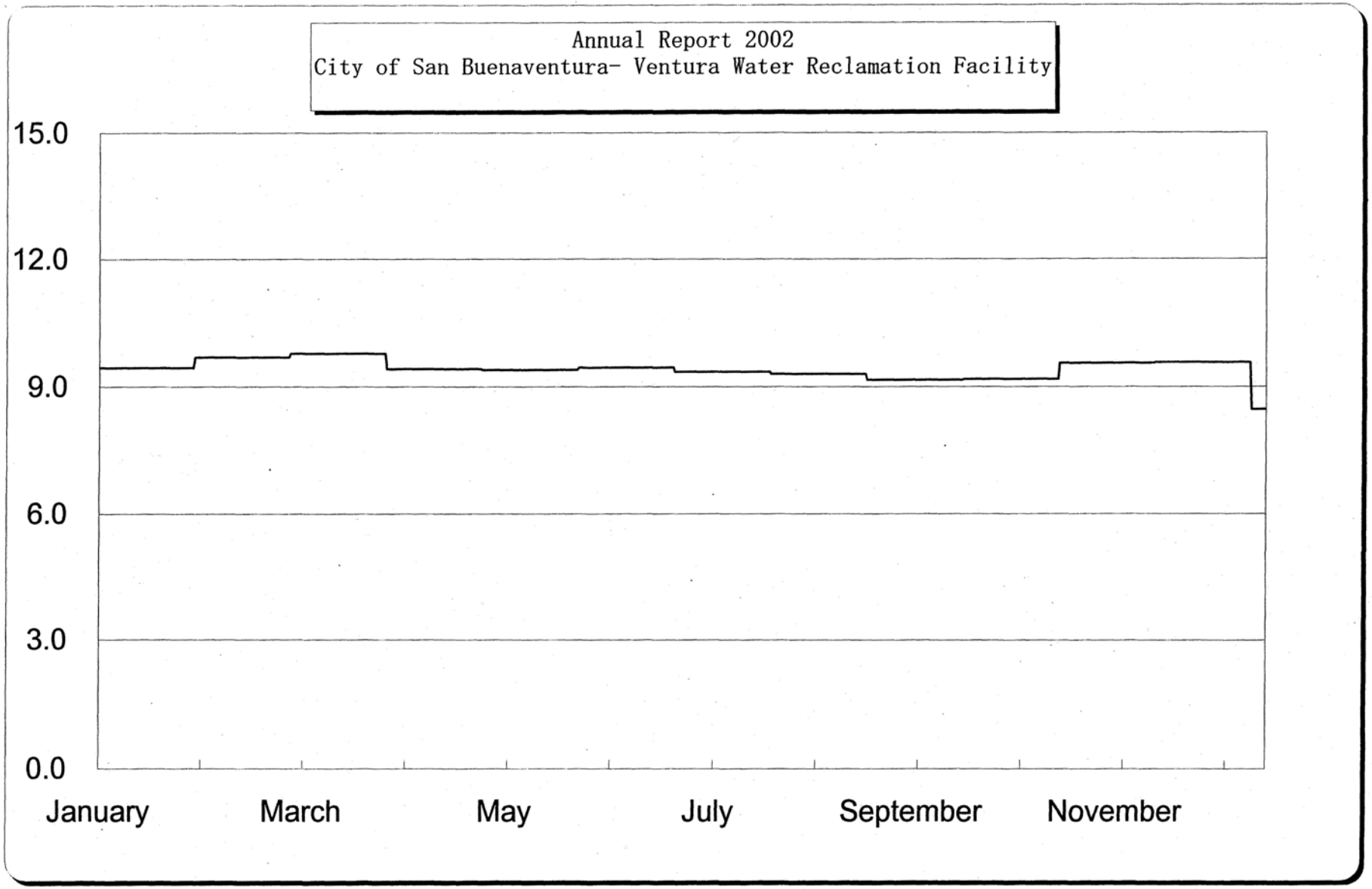
Bimonthly Period Beginning

Mixed Media Filter Station
Mixed Media Filter Flow - MGD



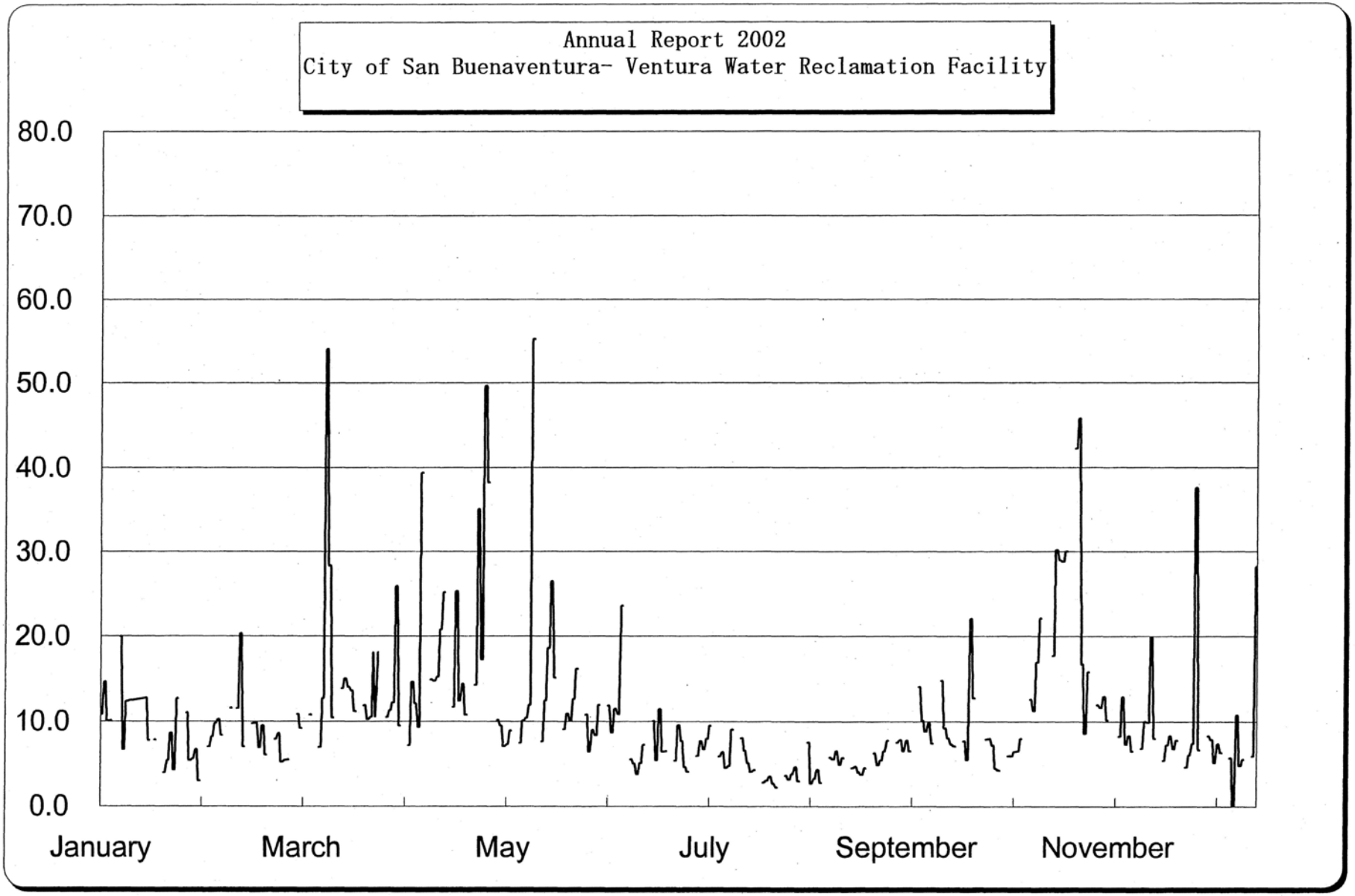
Mixed Media Filter Station
Mixed Media Filter 7 Day Average Flow - MGD

Bimonthly Period Beginning



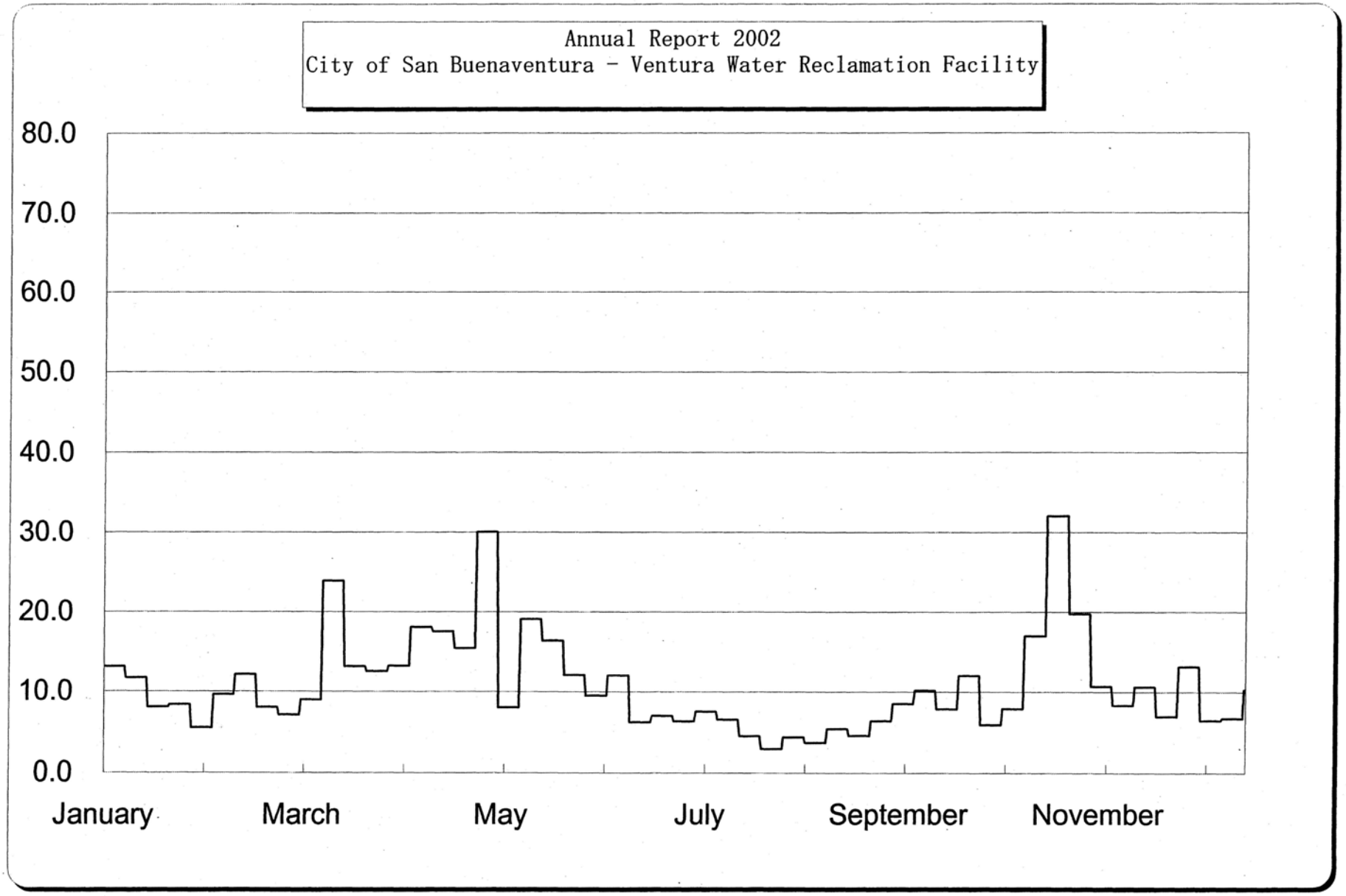
Mixed Media Filter Station
Mixed Media Filter 30 Day Average Flow - MGD

Bimonthly Period Beginning



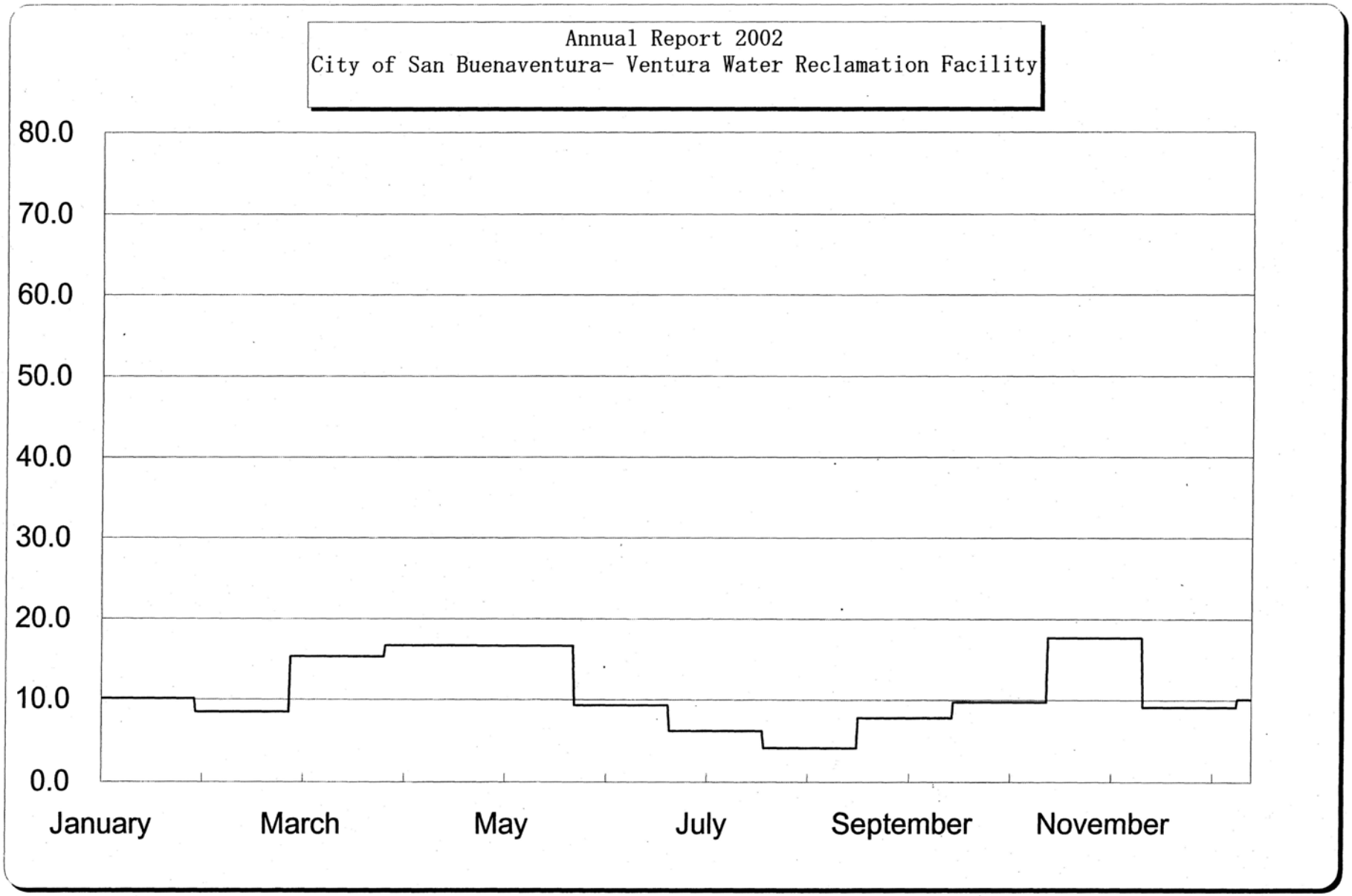
Mixed Media Filter Station Influent
Activated Sludge Effluent Suspended Solids - mg/l

Bimonthly Period Beginning



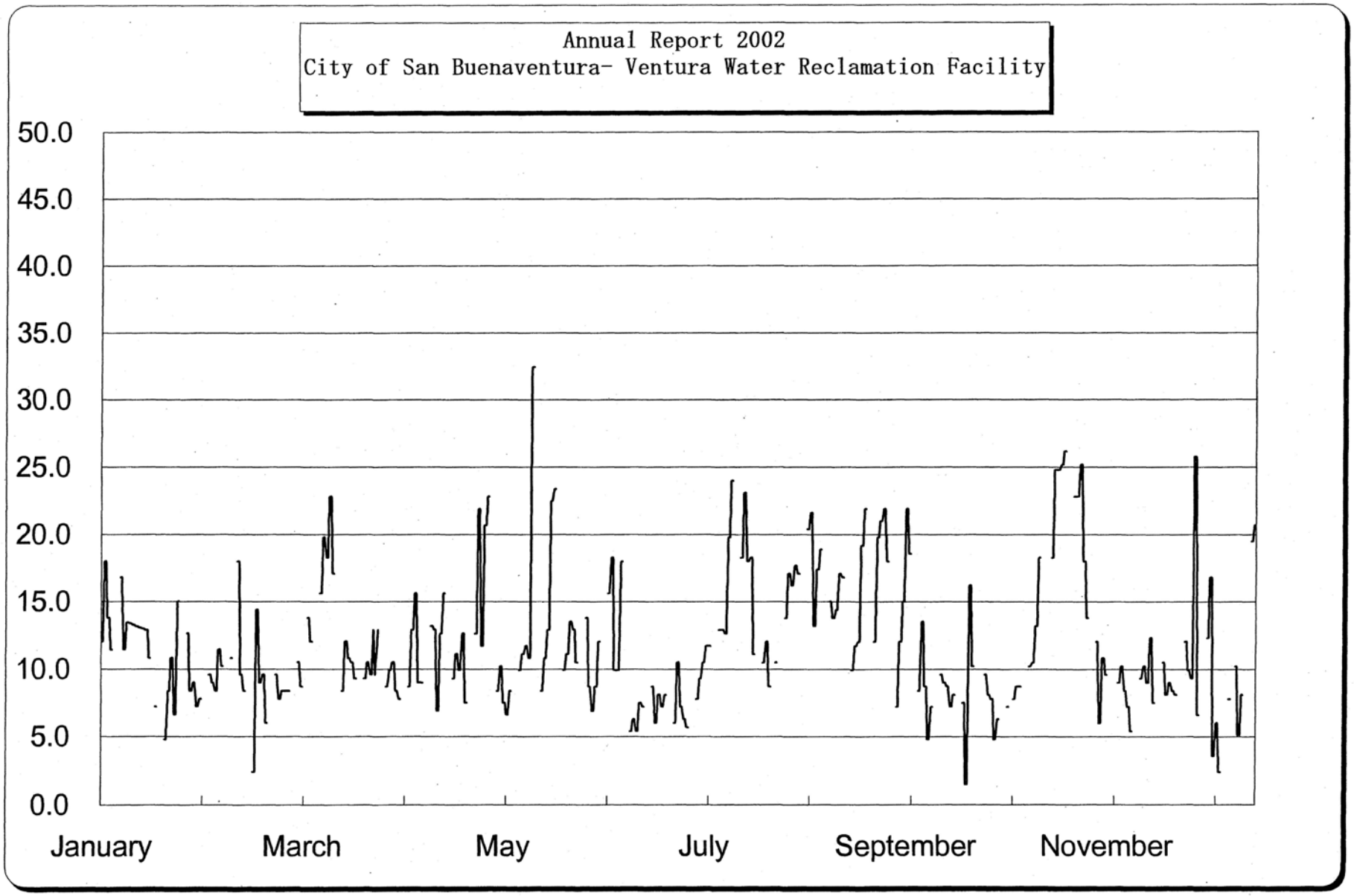
Mixed Media Filter Station Influent
Activated Sludge Effluent 7 Day Average Suspended Solids - mg/l

Bimonthly Period Beginning



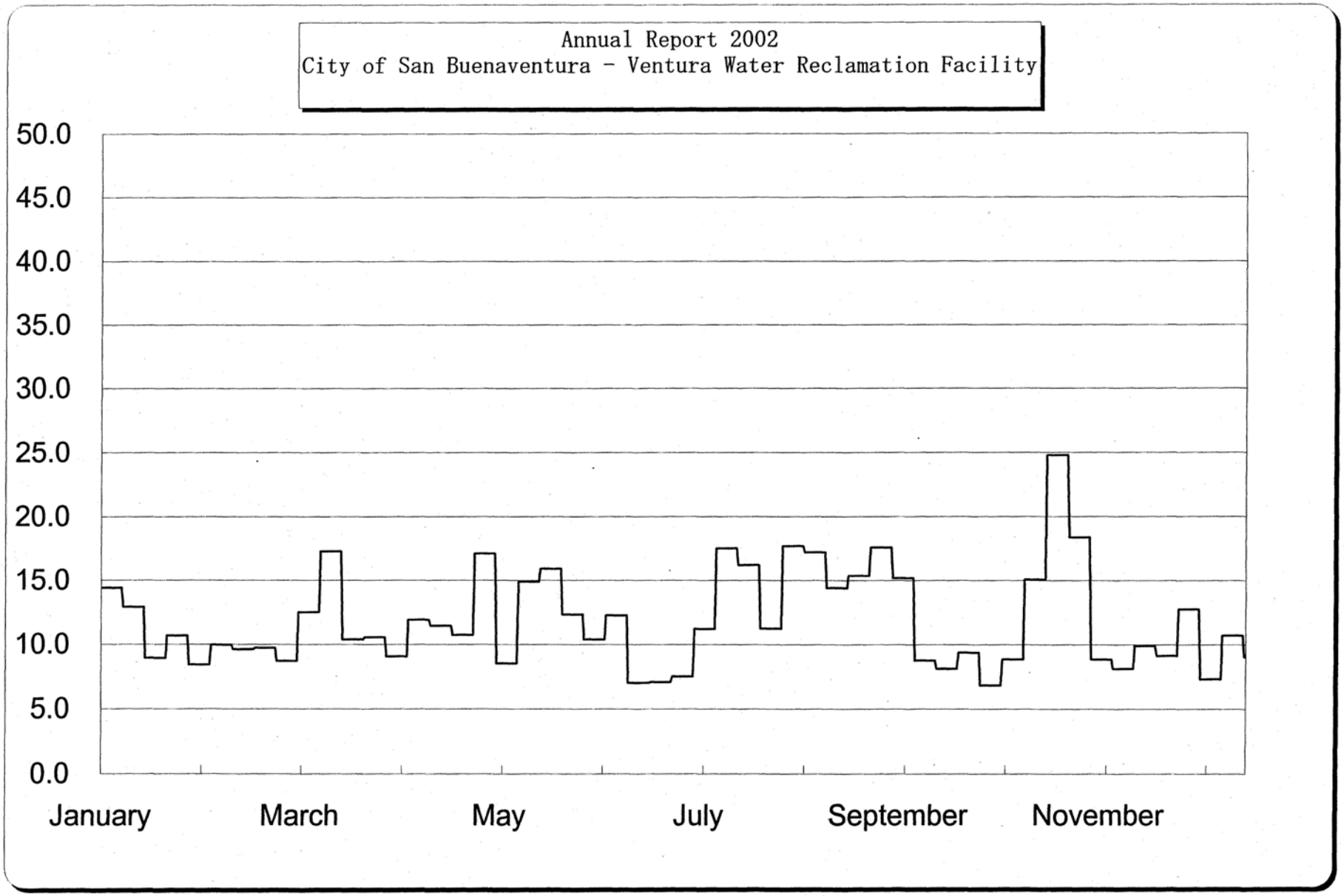
Mixed Media Filter Station Influent
Activated Sludge Effluent 30 Day Average Suspended Solids - mg/l

Bimonthly Period Beginning



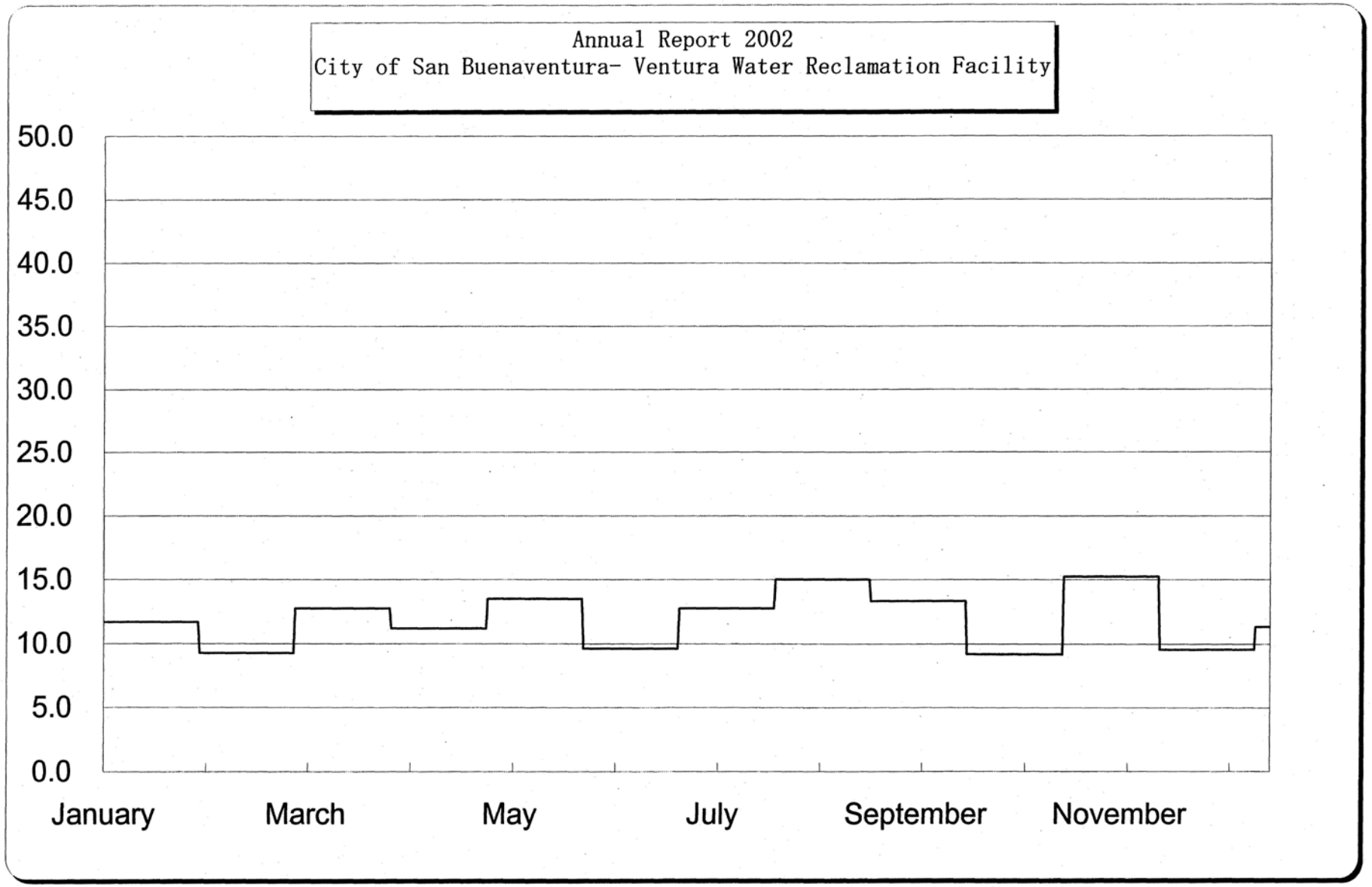
Bimonthly Period Beginning

Mixed Media Filter Station Influent
Activated Sludge Effluent BOD - mg/l



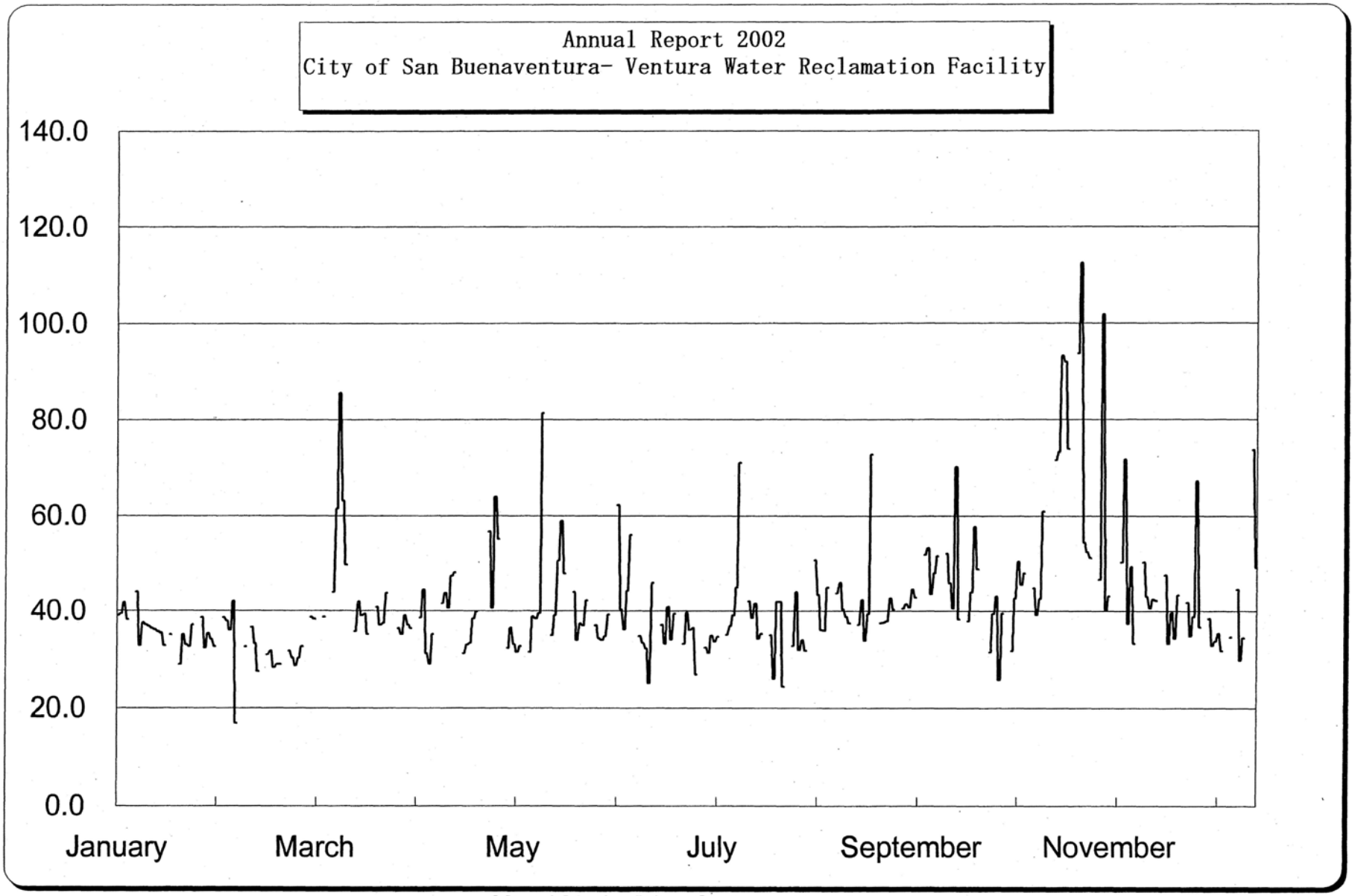
Mixed Media Filter Station Influent
Activated Sludge Effluent 7 Day Average BOD - mg/l

Bimonthly Period Beginning



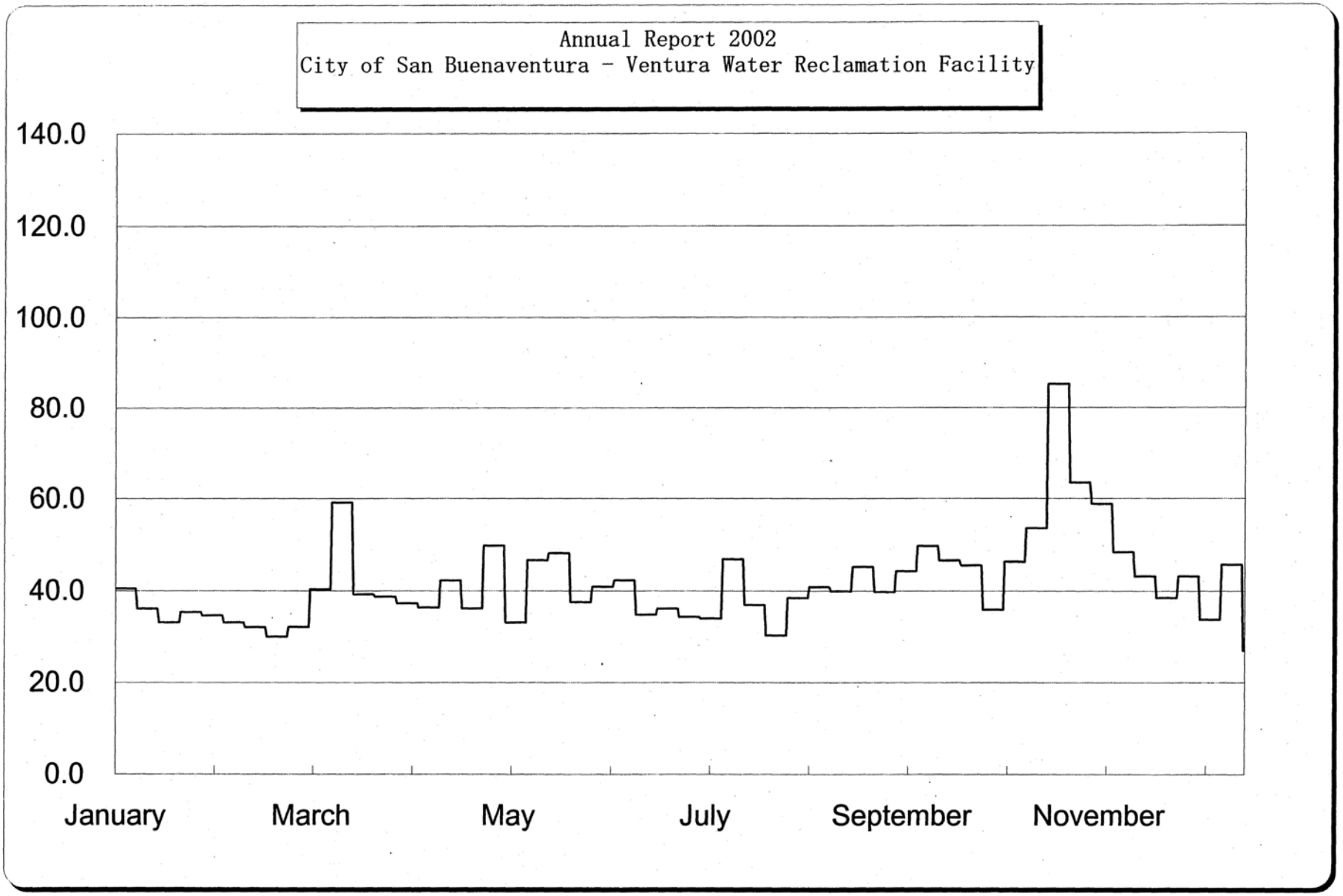
Mixed Media Filter Station Influent
Activated Sludge Effluent 30 Day Average BOD - mg/l

Bimonthly Period Beginning



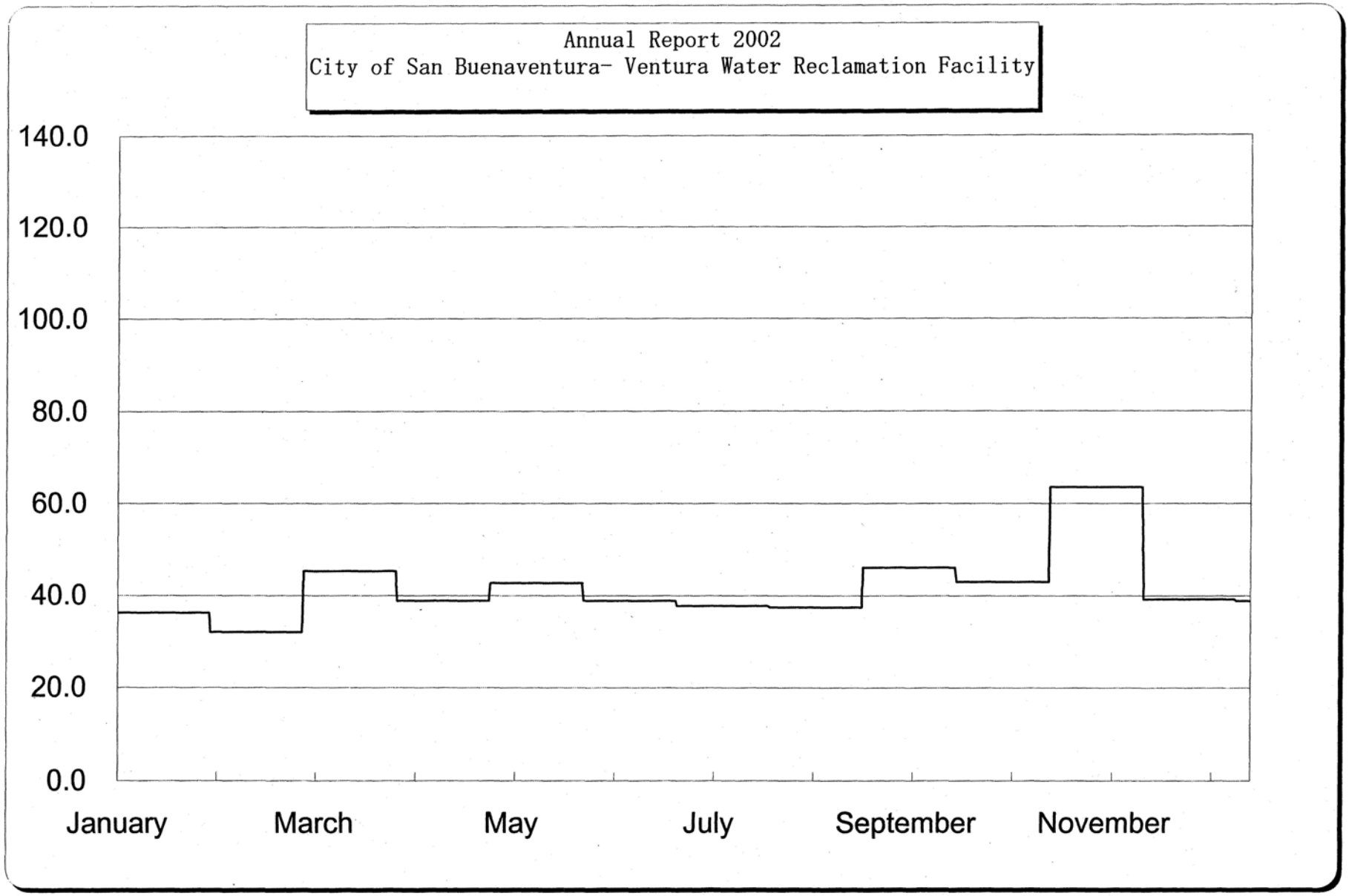
Mixed Media Filter Station Influent
Activated Sludge Effluent COD - mg/l

Bimonthly Period Beginning



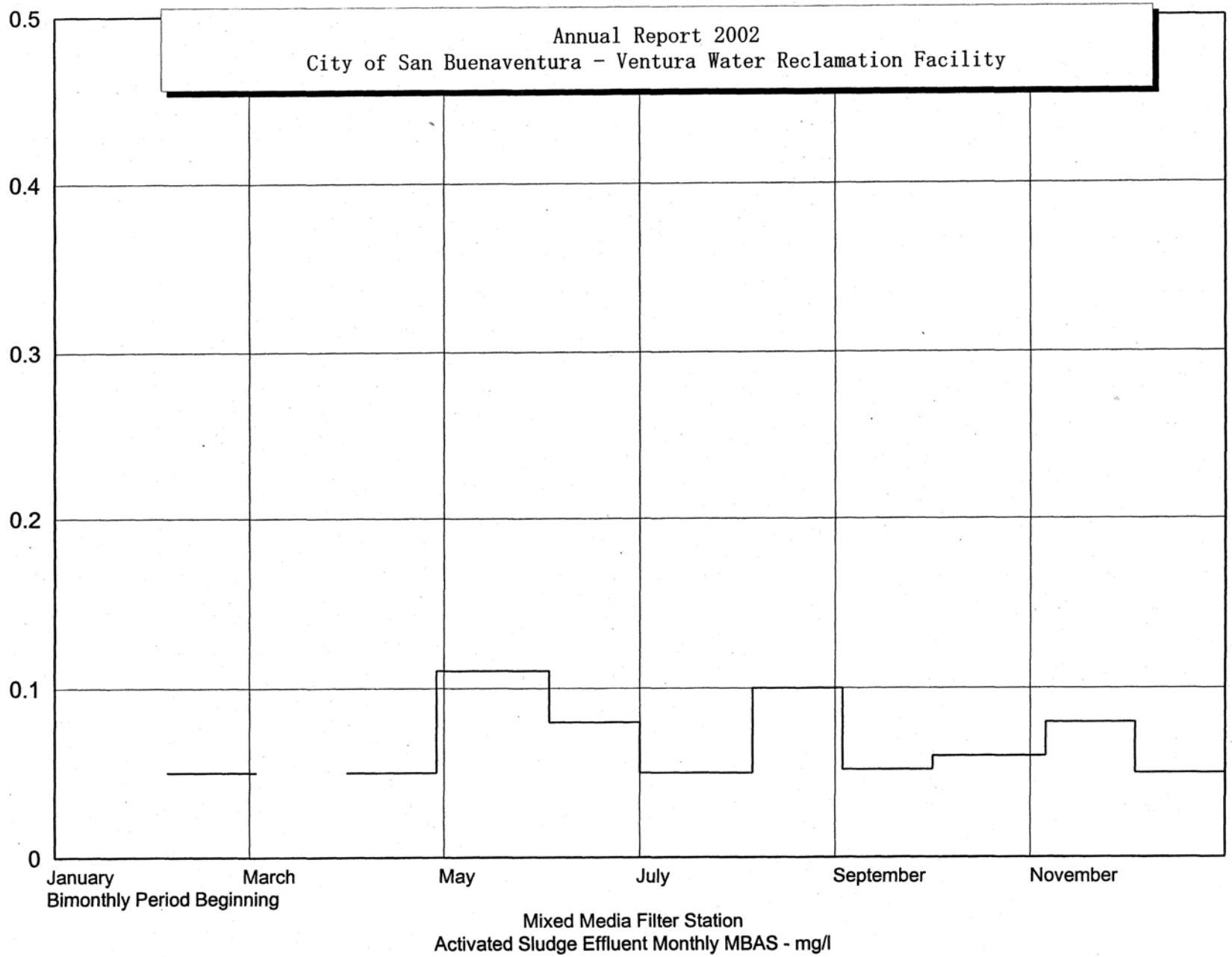
Mixed Media Filter Station Influent
Activated Sludge Effluent 7 Day Average COD - mg/l

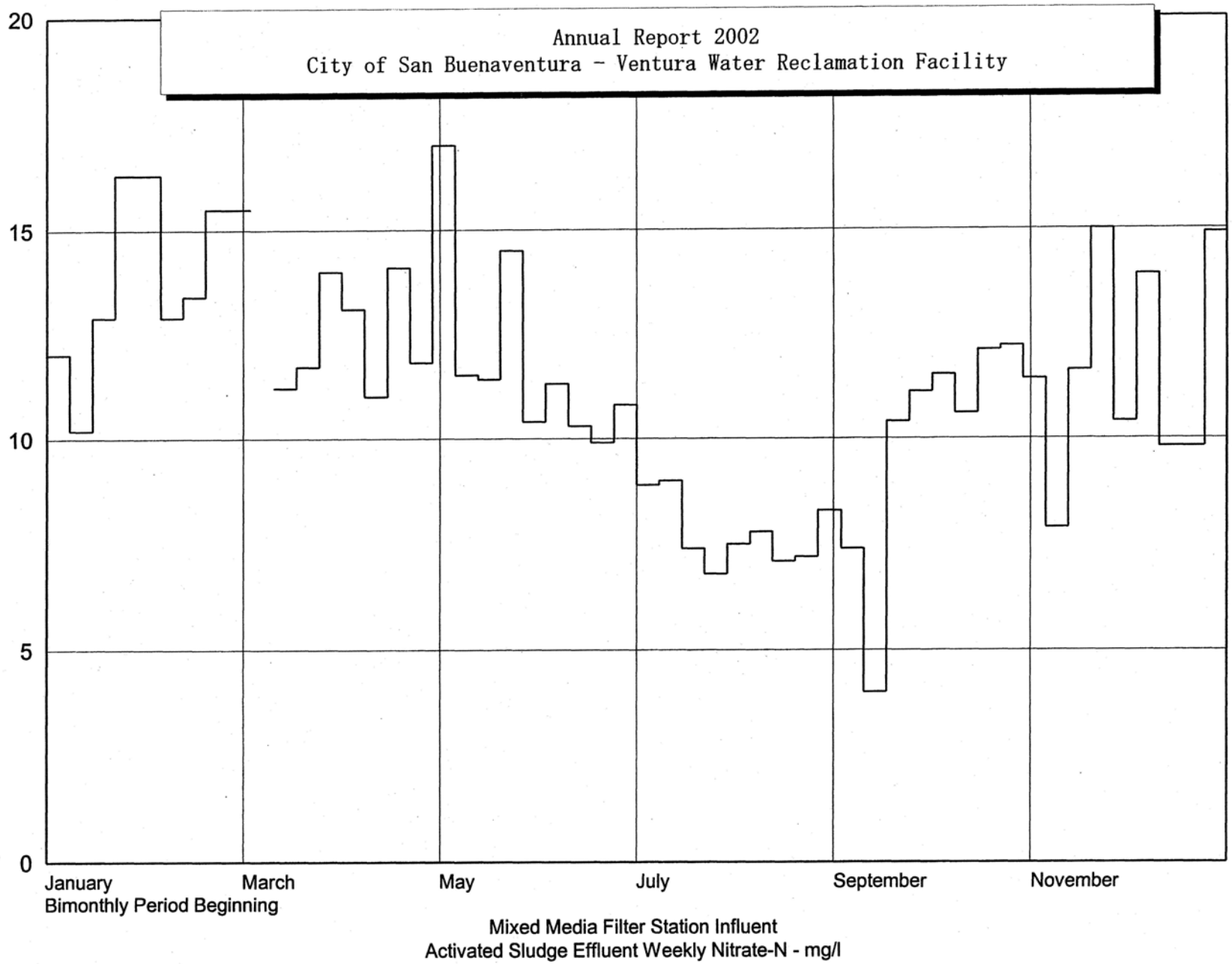
Bimonthly Period Beginning

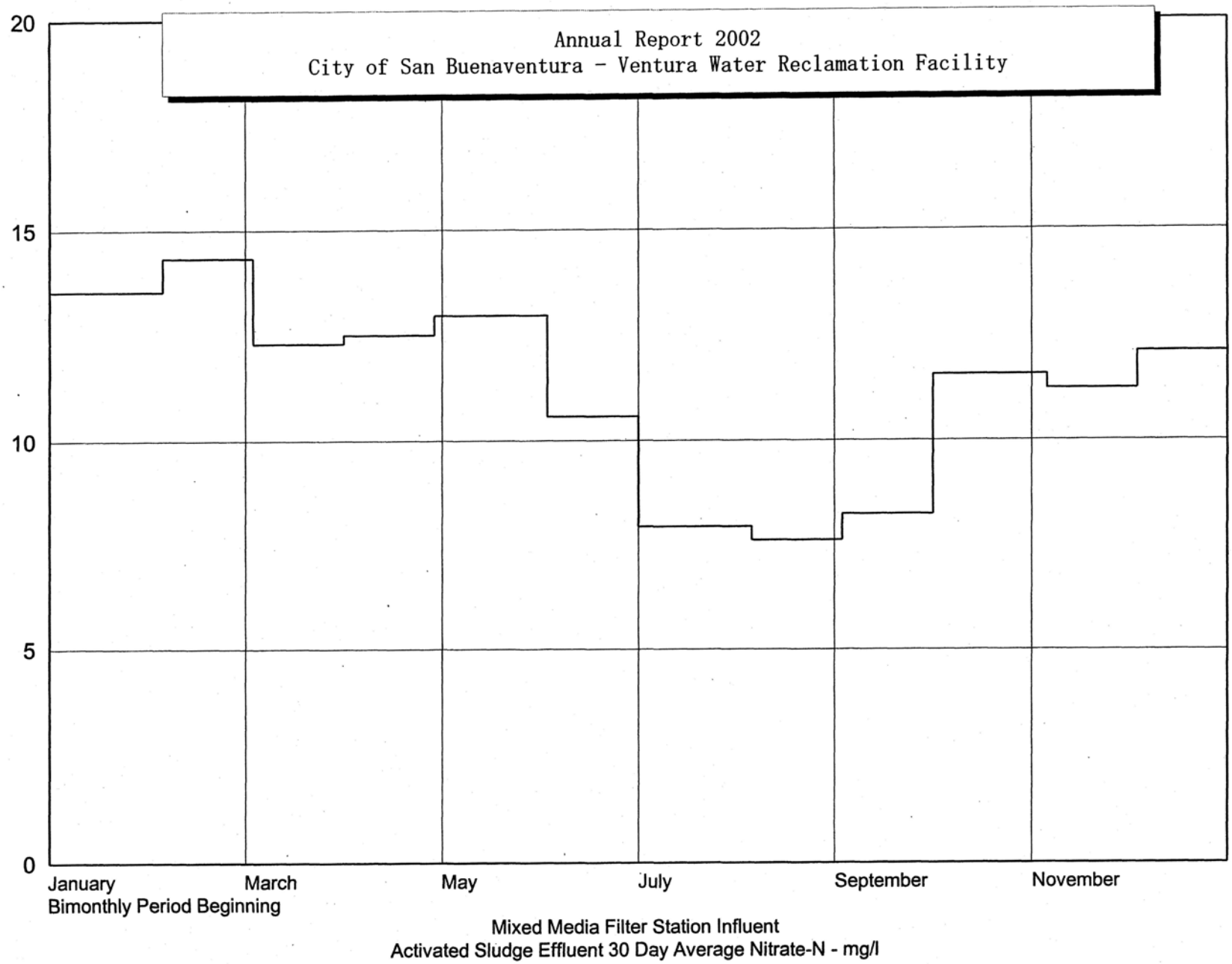


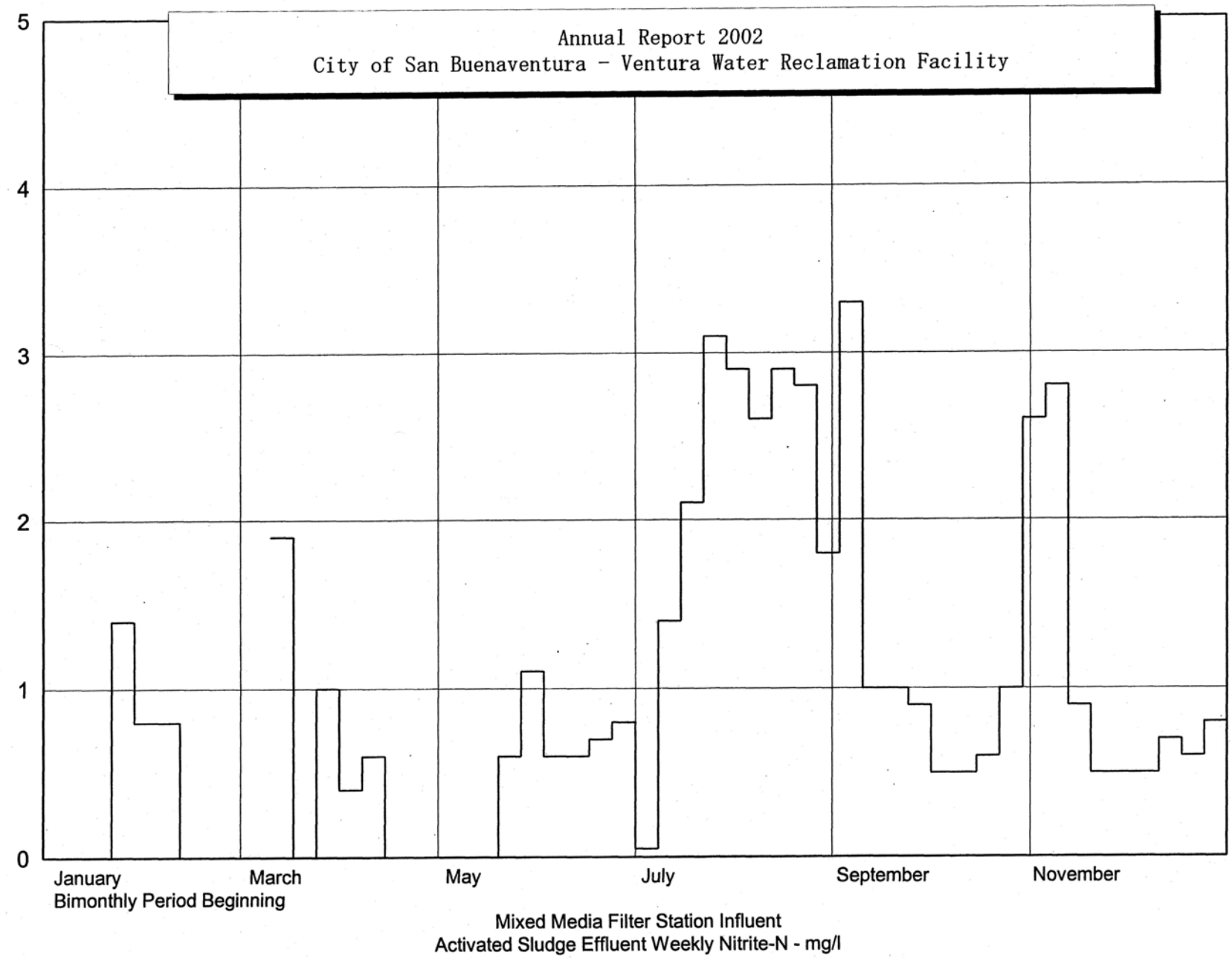
Mixed Media Filter Station Influent
Activated Sludge Effluent 30 Day Average COD - mg/l

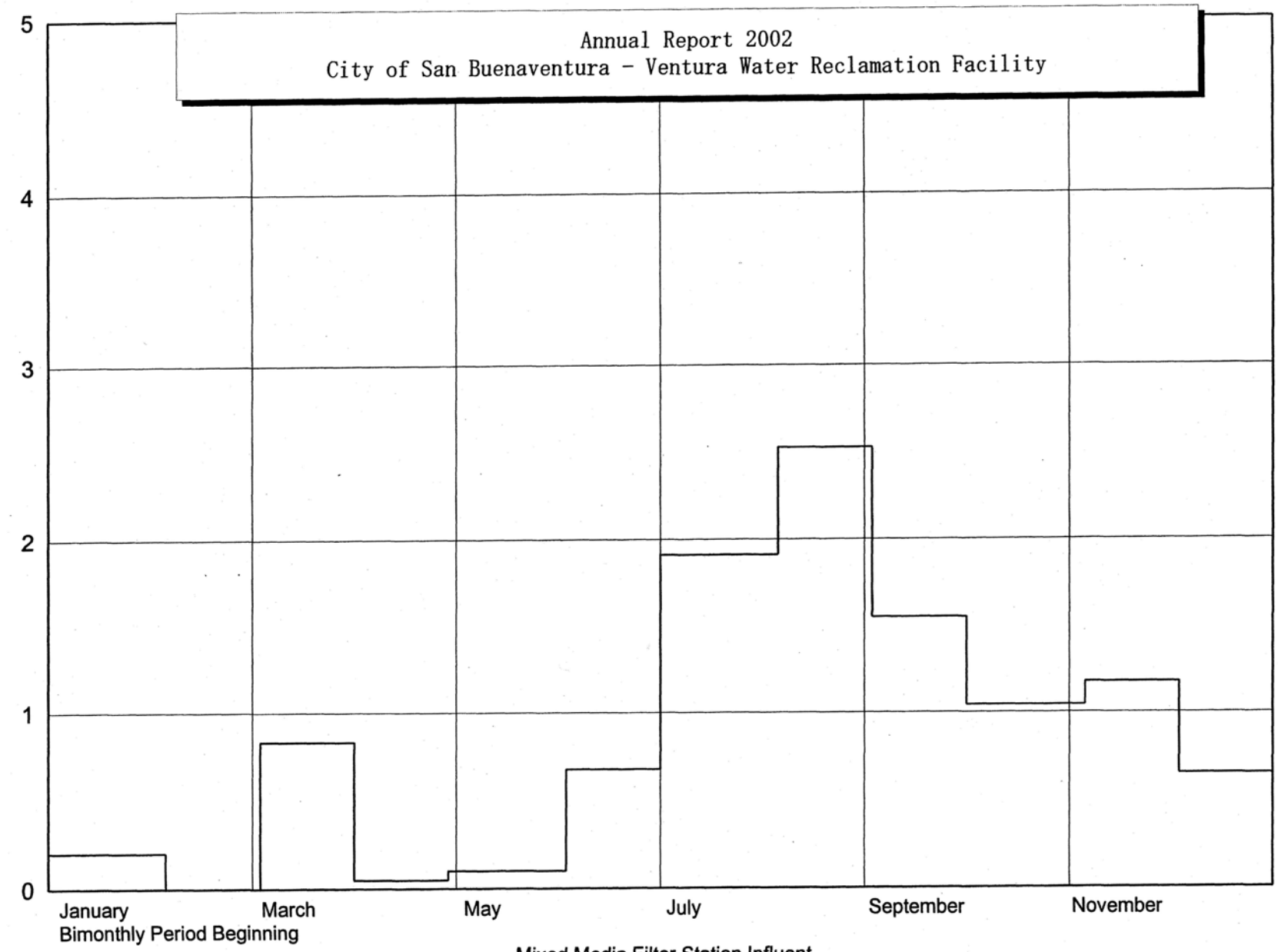
Bimonthly Period Beginning


Annual Report 2002
City of San Buenaventura - Ventura Water Reclamation Facility
0.5
0.4
0.3
0.2
0.1
0
January
March
May
July
September
November
Bimonthly Period Beginning
Mixed Media Filter Station
Activated Sludge Effluent Monthly MBAS - mg/l

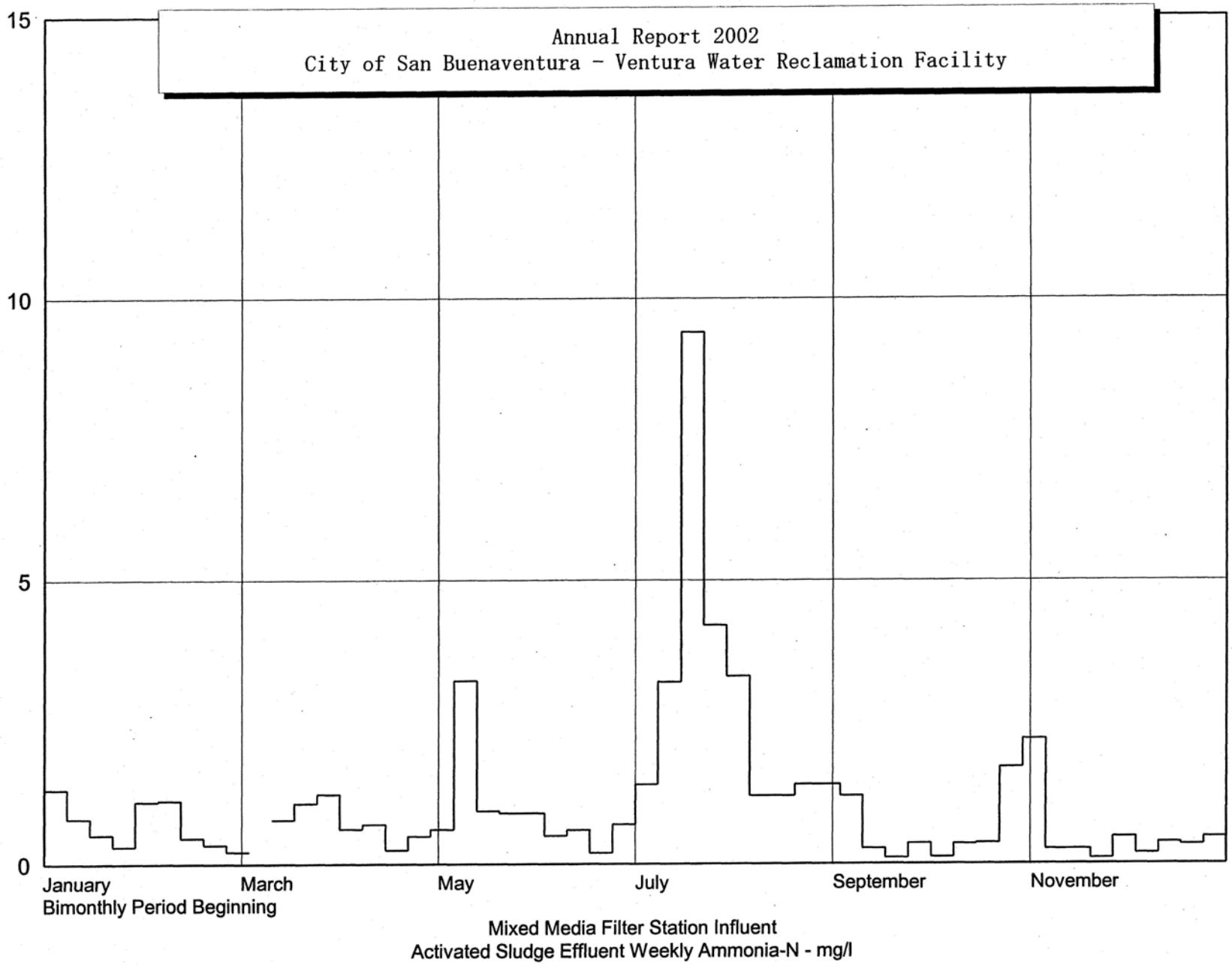

Annual Report 2002
City of San Buenaventura - Ventura Water Reclamation Facility
20
15
10
5
0
January
March
May
July
September
November
Bimonthly Period Beginning
Mixed Media Filter Station Influent
Activated Sludge Effluent Weekly Nitrate-N - mg/l

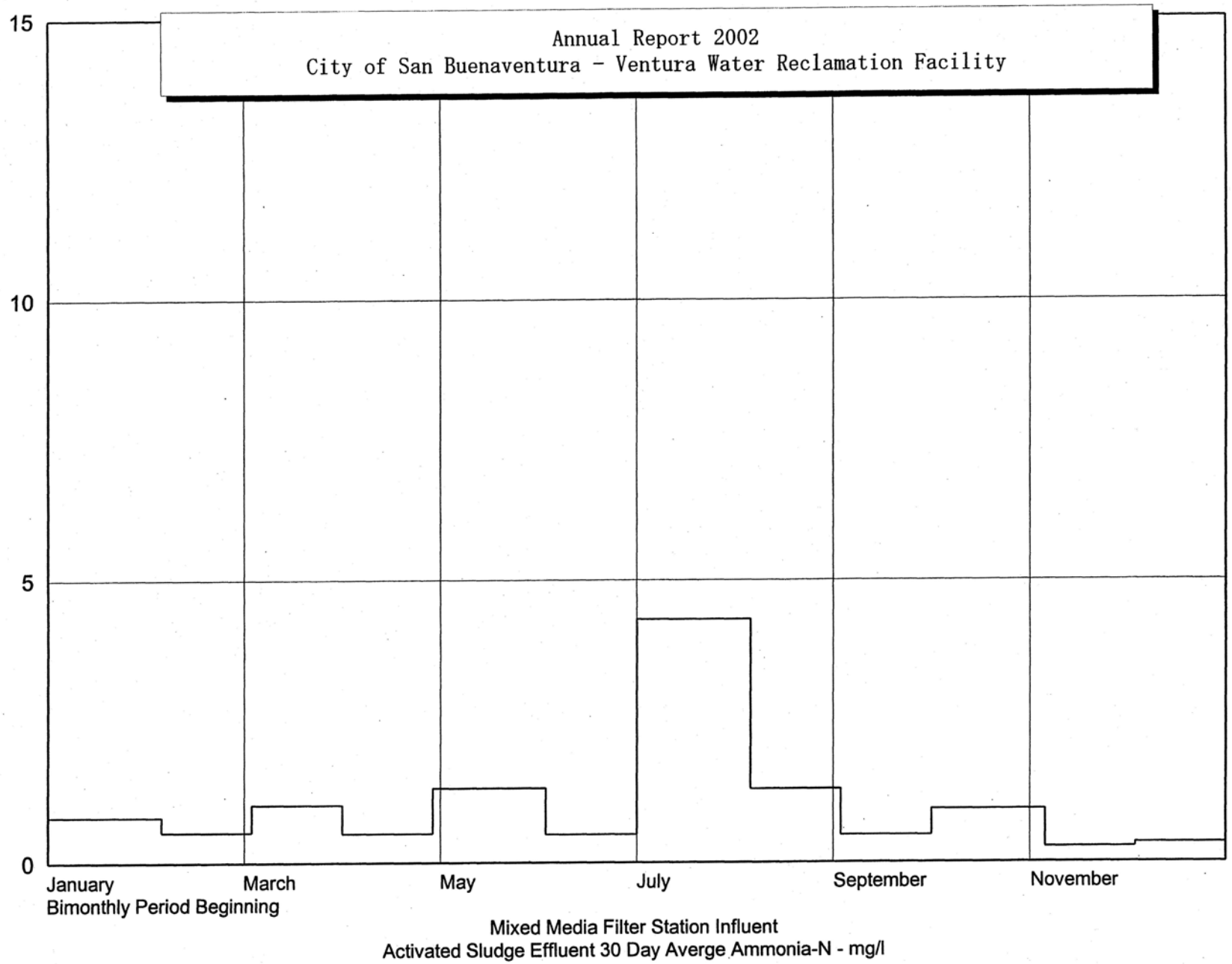

Annual Report 2002
City of San Buenaventura - Ventura Water Reclamation Facility
20
15
10
5
0
January
March
May
July
September
November
Bimonthly Period Beginning
Mixed Media Filter Station Influent
Activated Sludge Effluent 30 Day Average Nitrate-N - mg/l

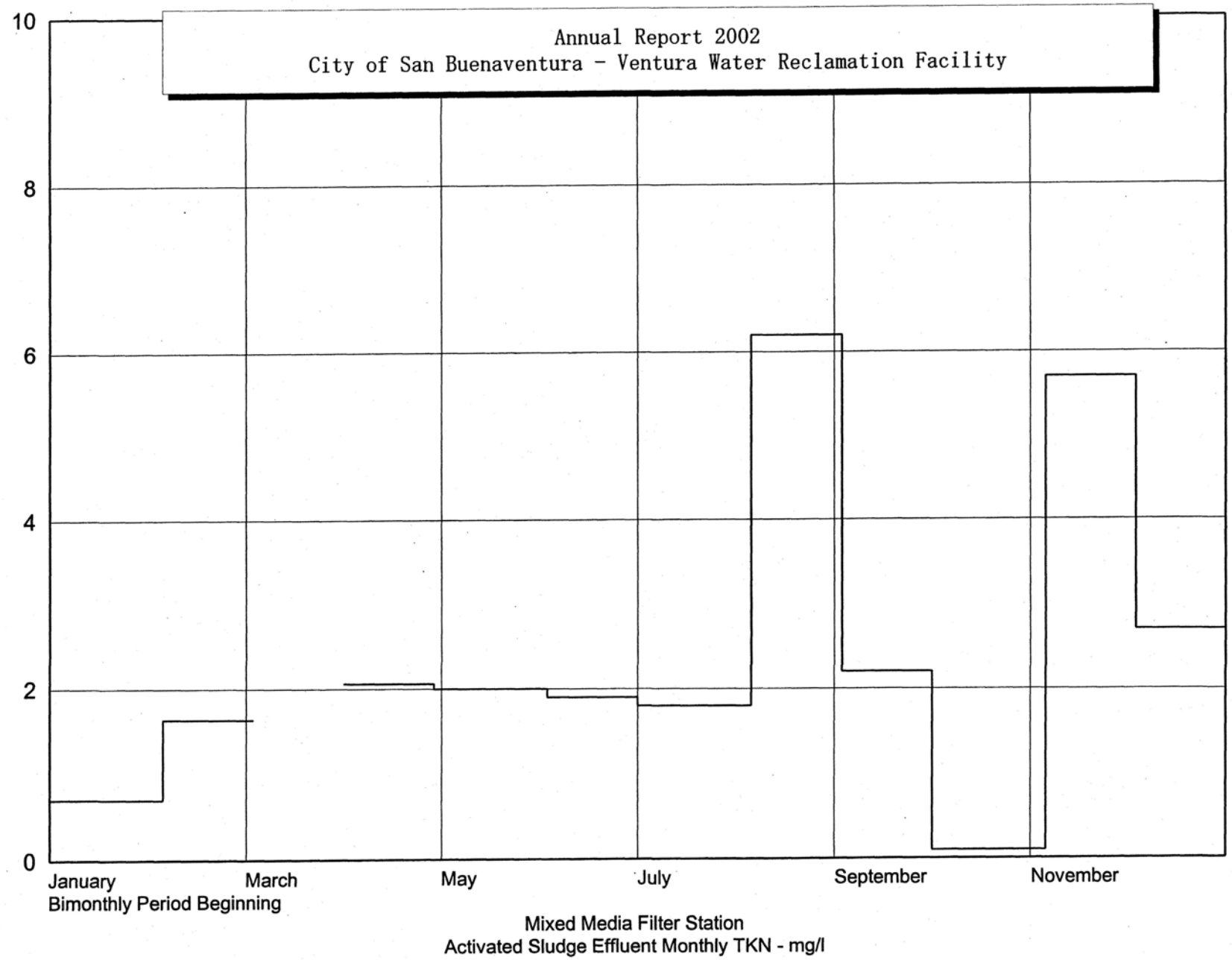

Annual Report 2002
City of San Buenaventura - Ventura Water Reclamation Facility
5
4
3
2
1
0
January
March
May
July
September
November
Bimonthly Period Beginning
Mixed Media Filter Station Influent
Activated Sludge Effluent Weekly Nitrite-N - mg/l

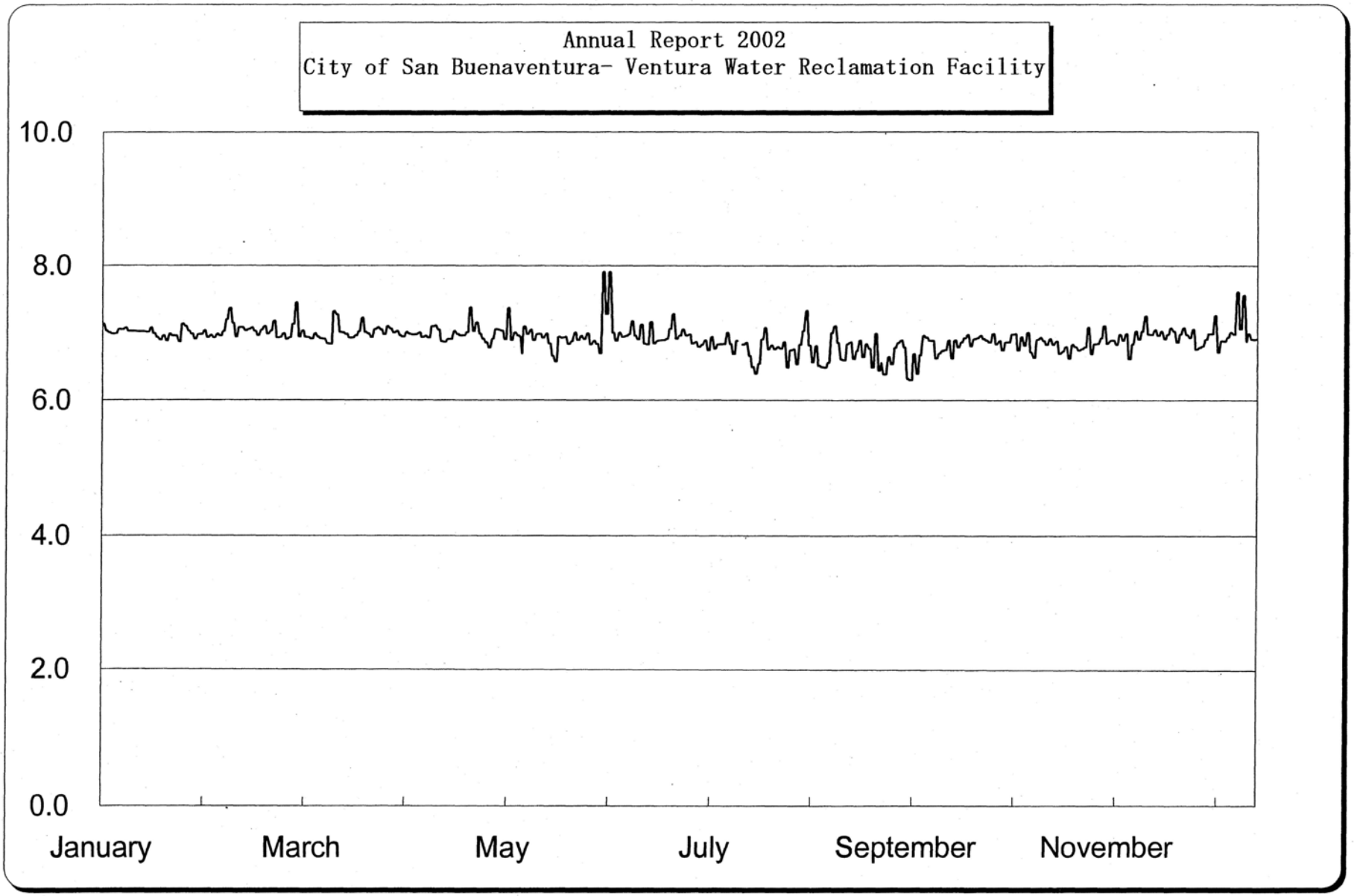


Mixed Media Filter Station Influent
Activated Sludge Effluent 30 Day Average Nitrite-N - mg/l


Annual Report 2002
City of San Buenaventura - Ventura Water Reclamation Facility
15
10
5
0
January
March
May
July
September
November
Bimonthly Period Beginning
Mixed Media Filter Station Influent
Activated Sludge Effluent Weekly Ammonia-N - mg/l

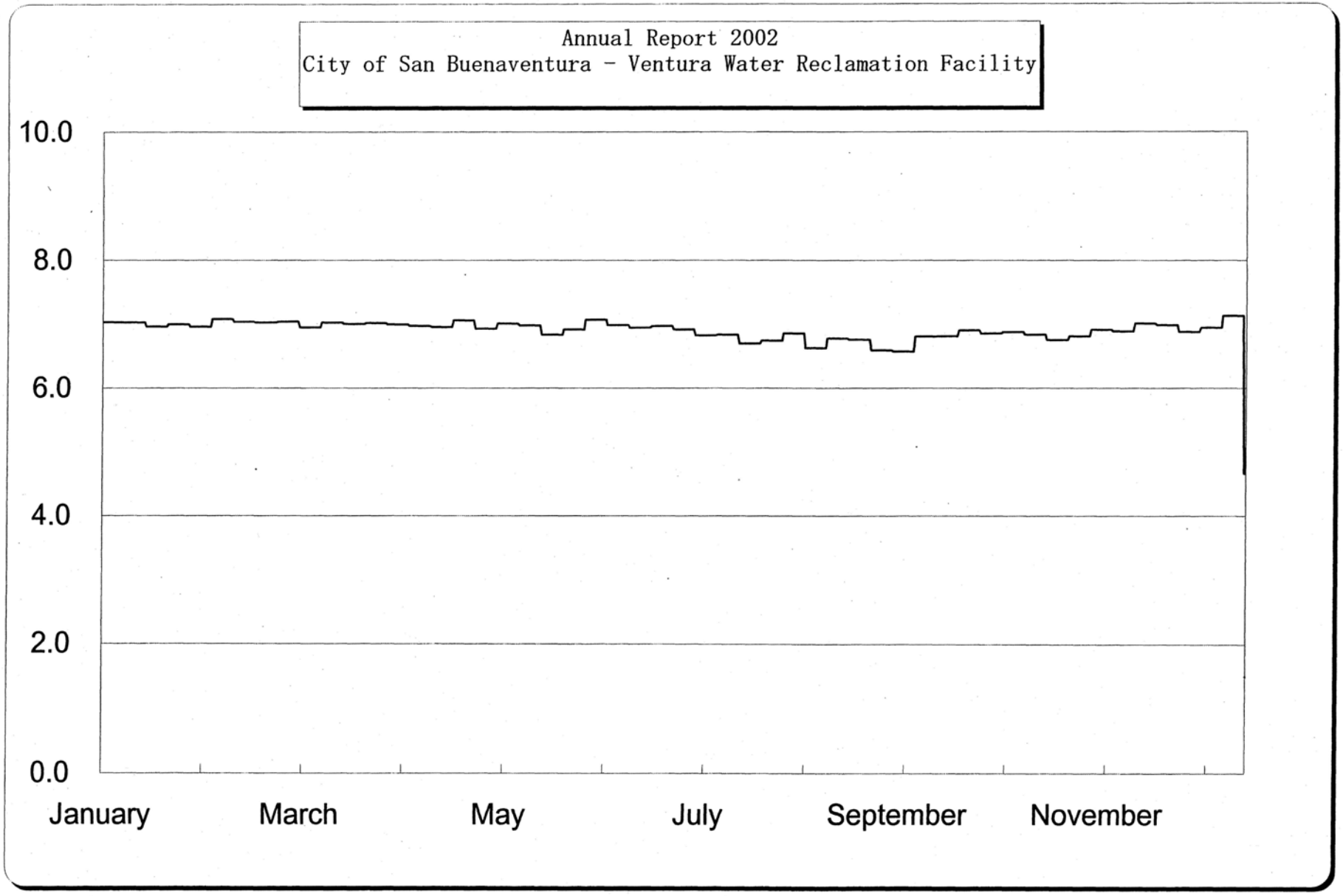

Annual Report 2002
City of San Buenaventura - Ventura Water Reclamation Facility
15
10
5
0
January
March
May
July
September
November
Bimonthly Period Beginning
Mixed Media Filter Station Influent
Activated Sludge Effluent 30 Day Averge Ammonia-N - mg/l


Annual Report 2002
City of San Buenaventura - Ventura Water Reclamation Facility
10
8
6
4
2
0
January
March
May
July
September
November
Bimonthly Period Beginning
Mixed Media Filter Station
Activated Sludge Effluent Monthly TKN - mg/l



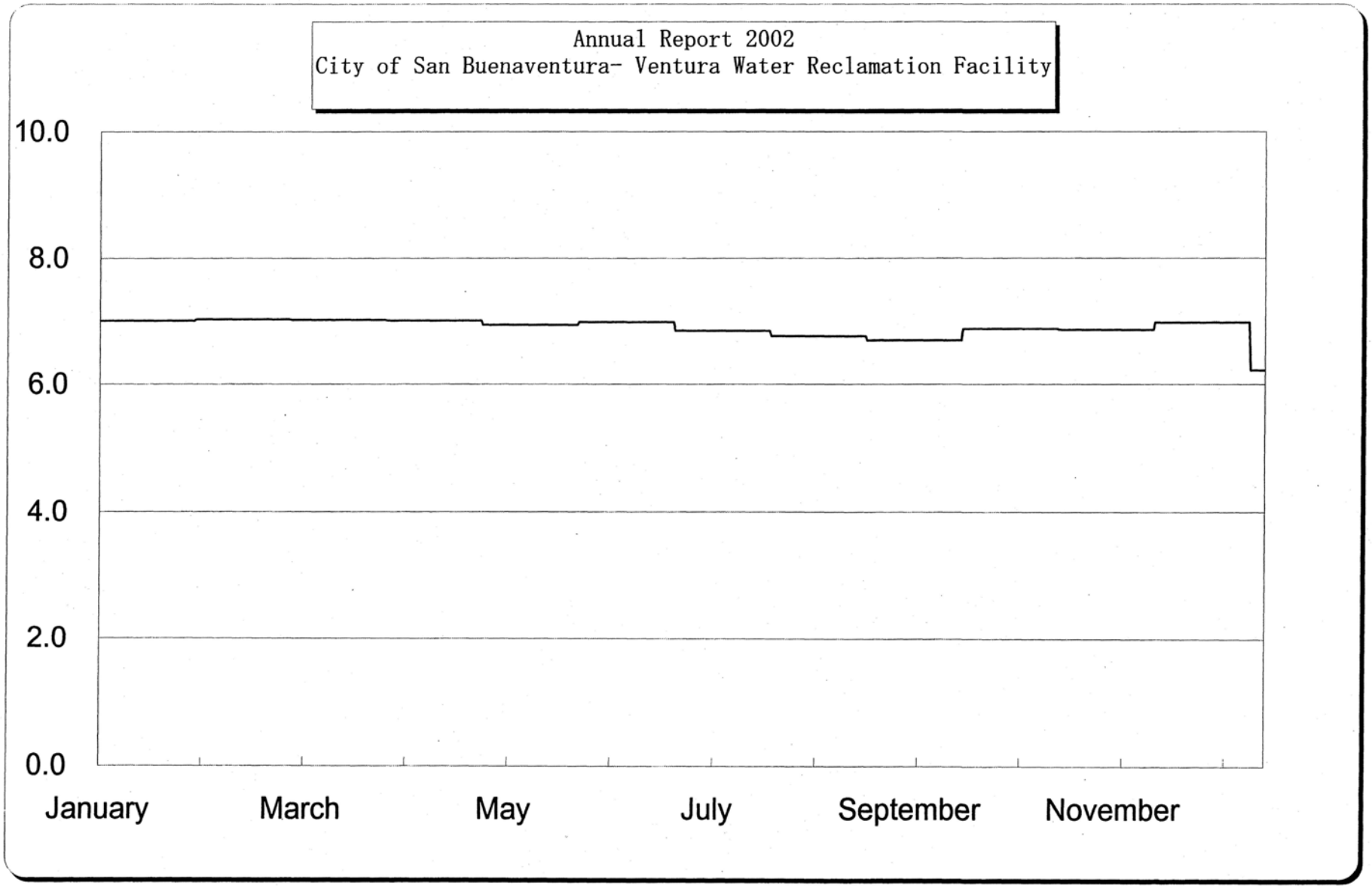
Bimonthly Period Beginning

Effluent Transfer Station
Effluent pH - pH Units



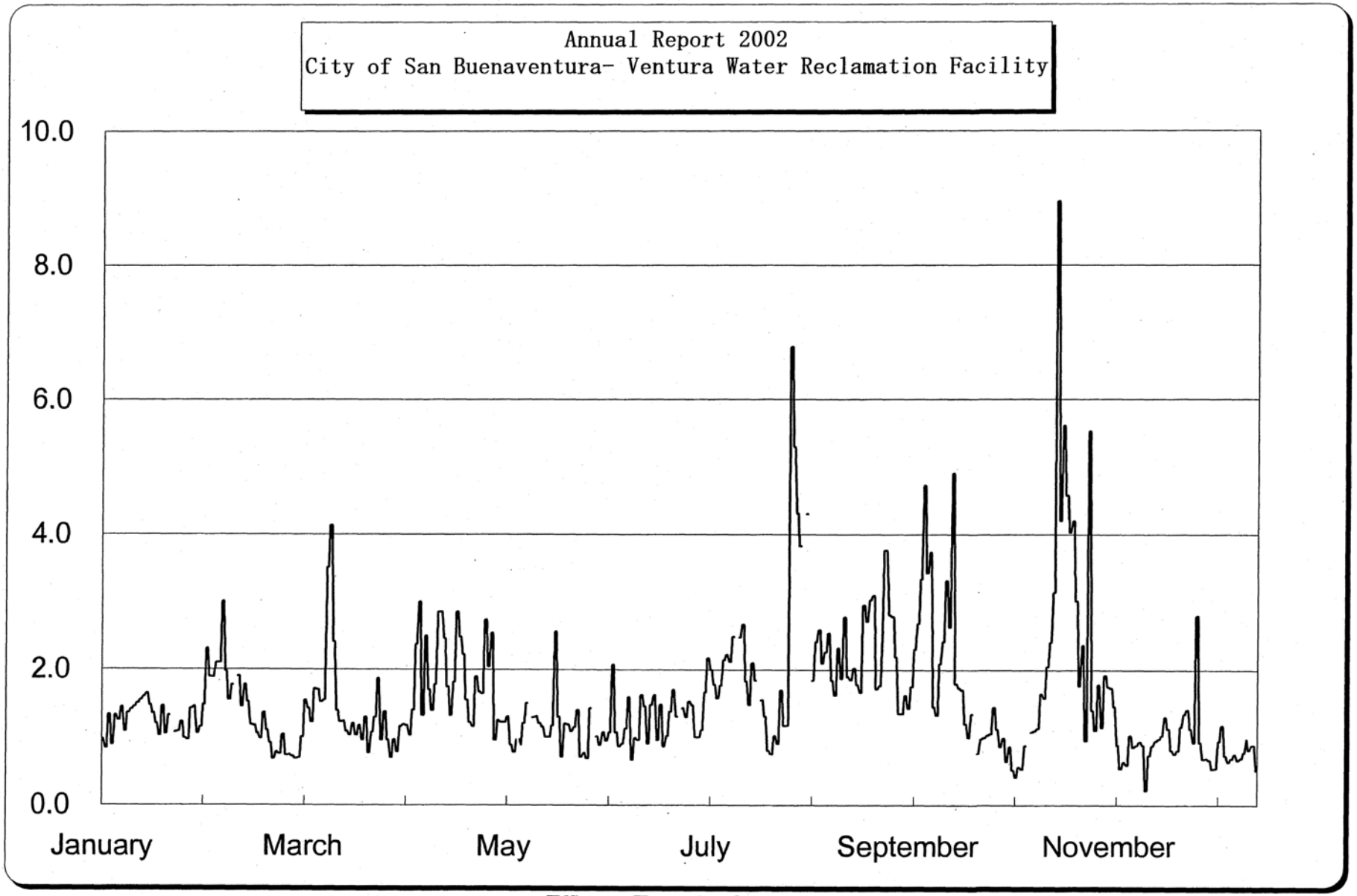
Bimonthly Period Beginning

Effluent Transfer Station
Effluent 7 Day Average pH - pH Units



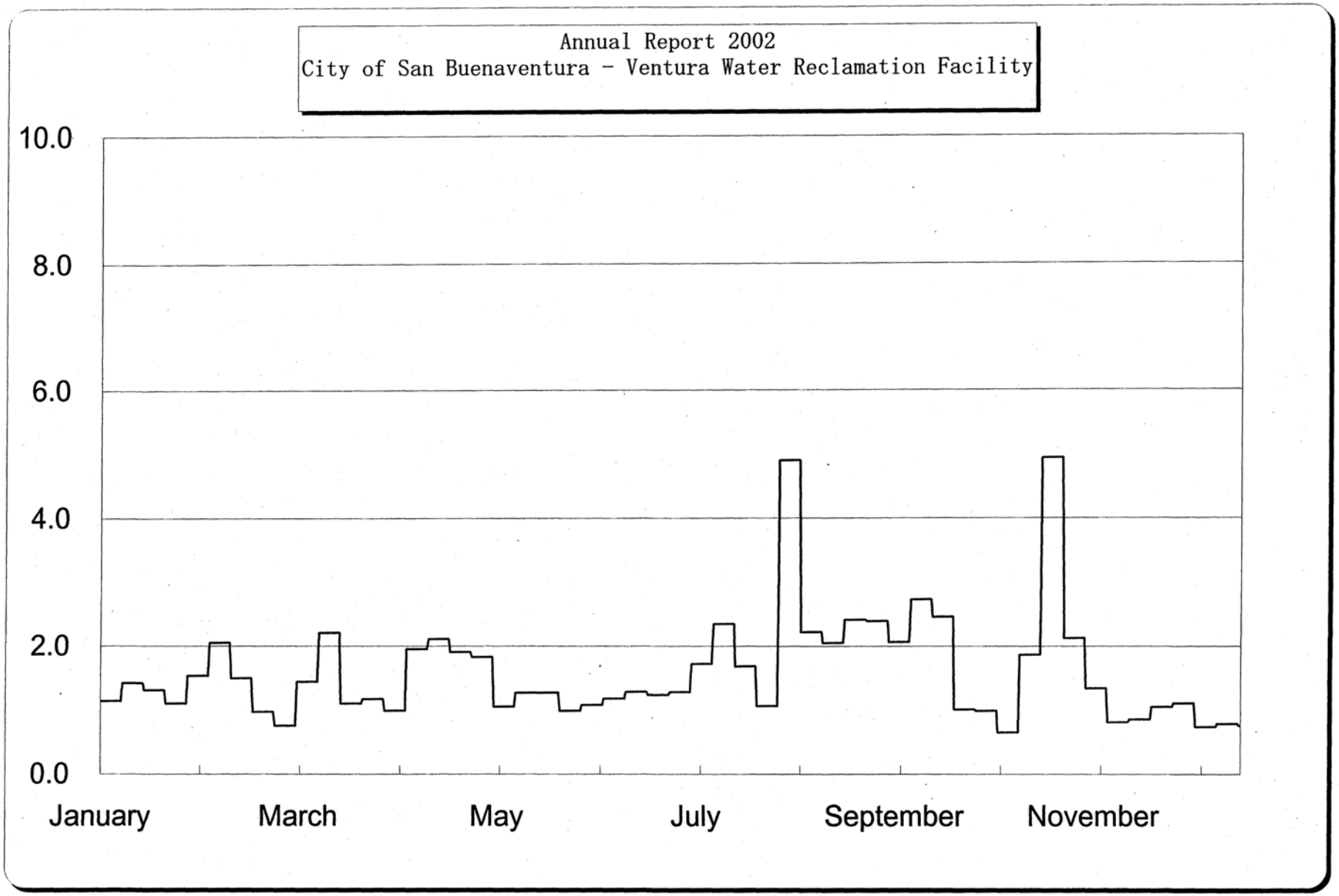
Effluent Transfer Station
Effluent 30 Day Average pH - pH Units

Bimonthly Period Beginning



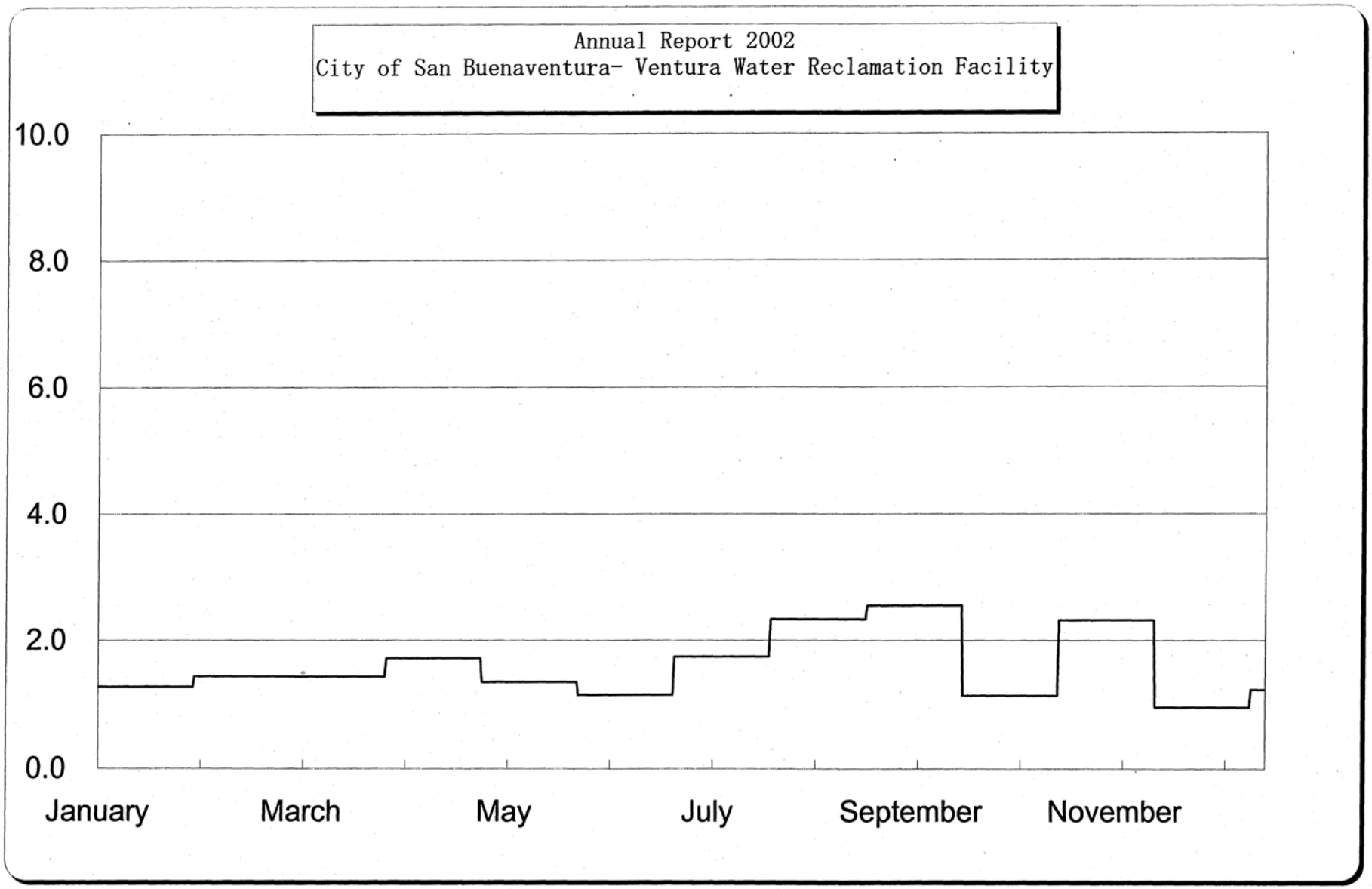
Effluent Transfer Station
Effluent Suspended Solids - mg/l

Bimonthly Period Beginning



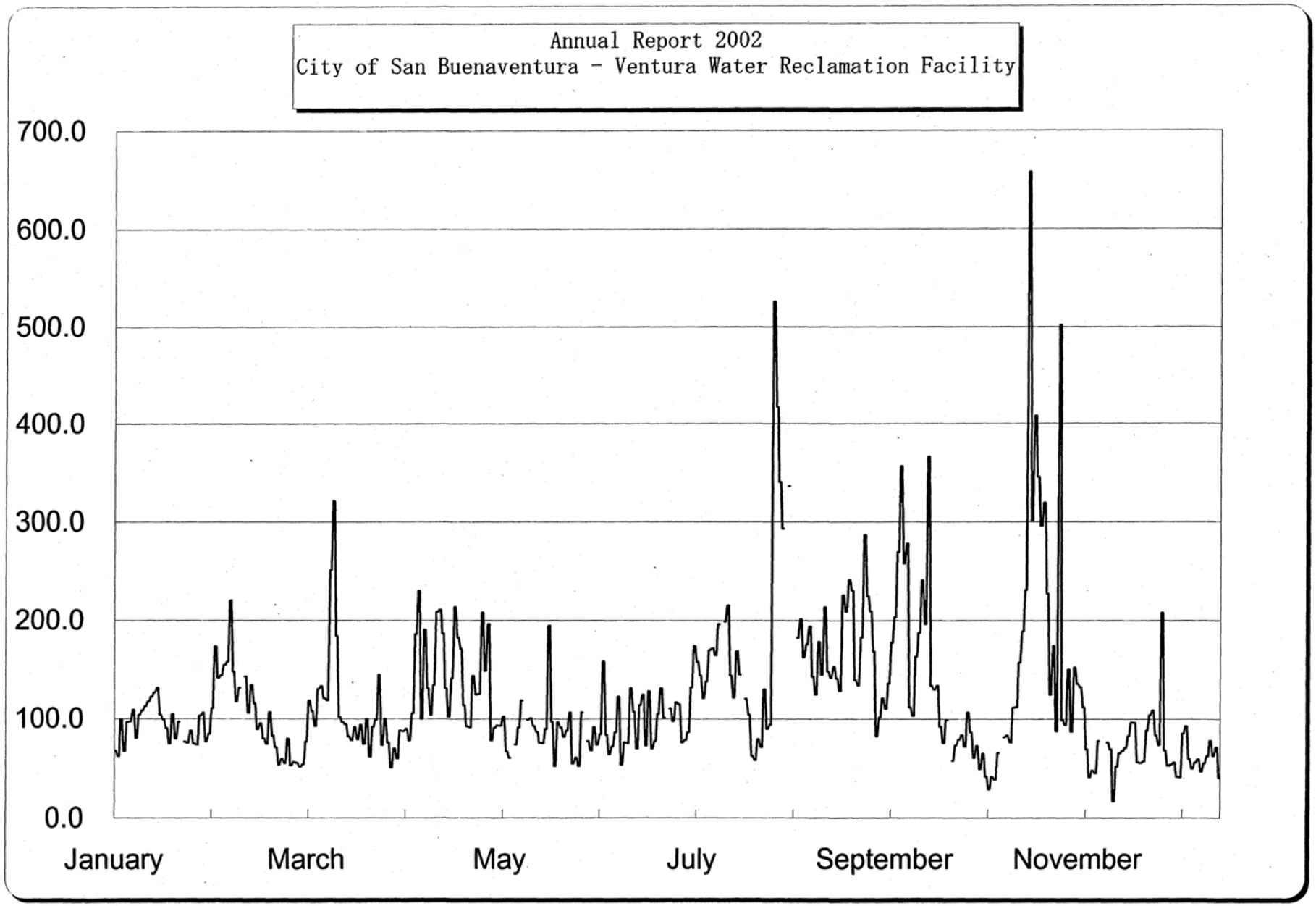
Bimonthly Period Beginning

Effluent Transfer Station
Effluent 7 Day Average Suspended Solids - mg/l



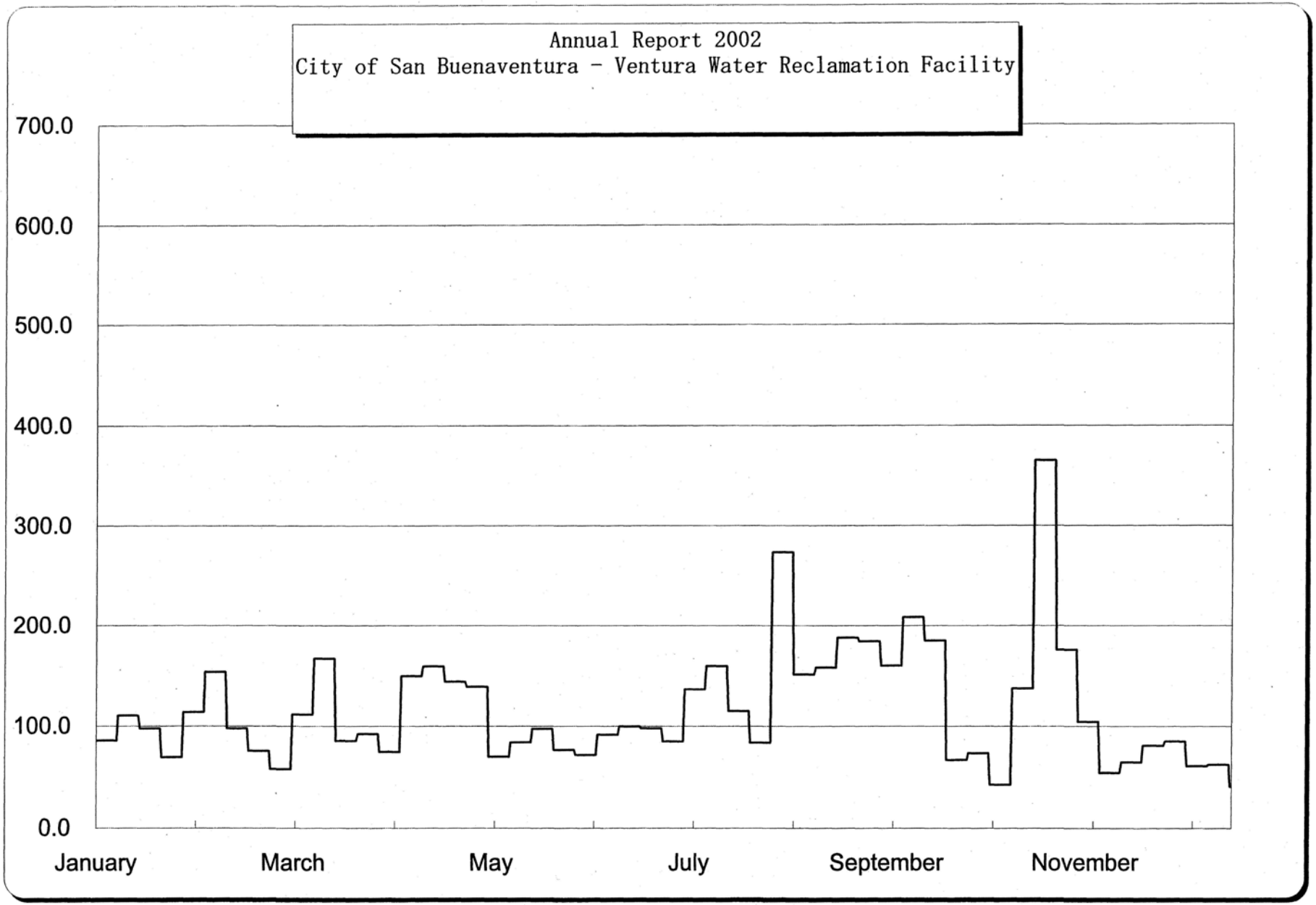
Effluent Transfer Station
Effluent 30 Day Average Suspended Solids - mg/l

Bimonthly Period Beginning



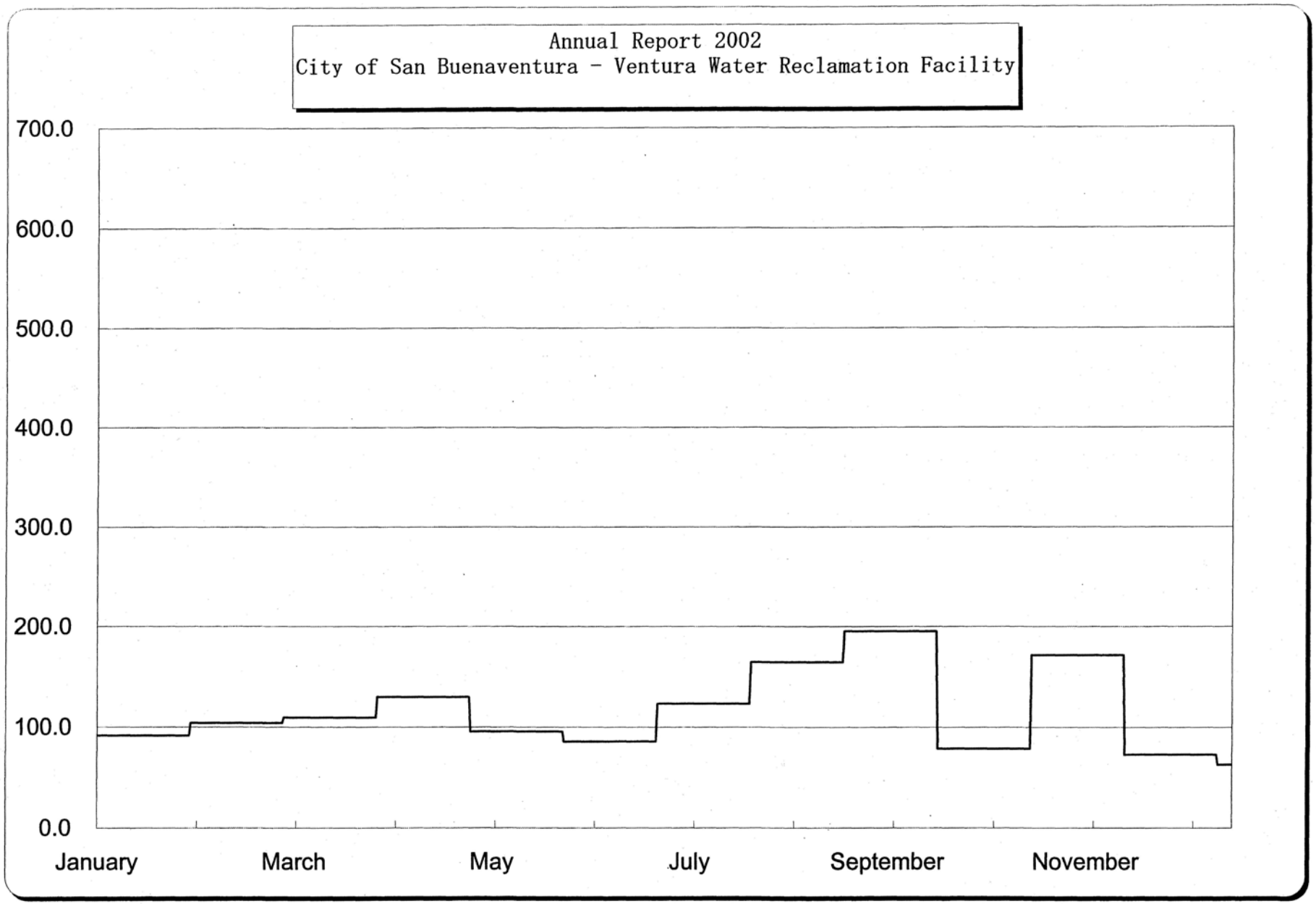
Effluent Transfer Station
Effluent Suspended Solids Mass Emission Rate - lbs/Day

Bimonthly Period Beginning



Effluent Transfer Station
Effluent 7 Day Average Suspended Solids Mass Emission Rate - lbs/Day

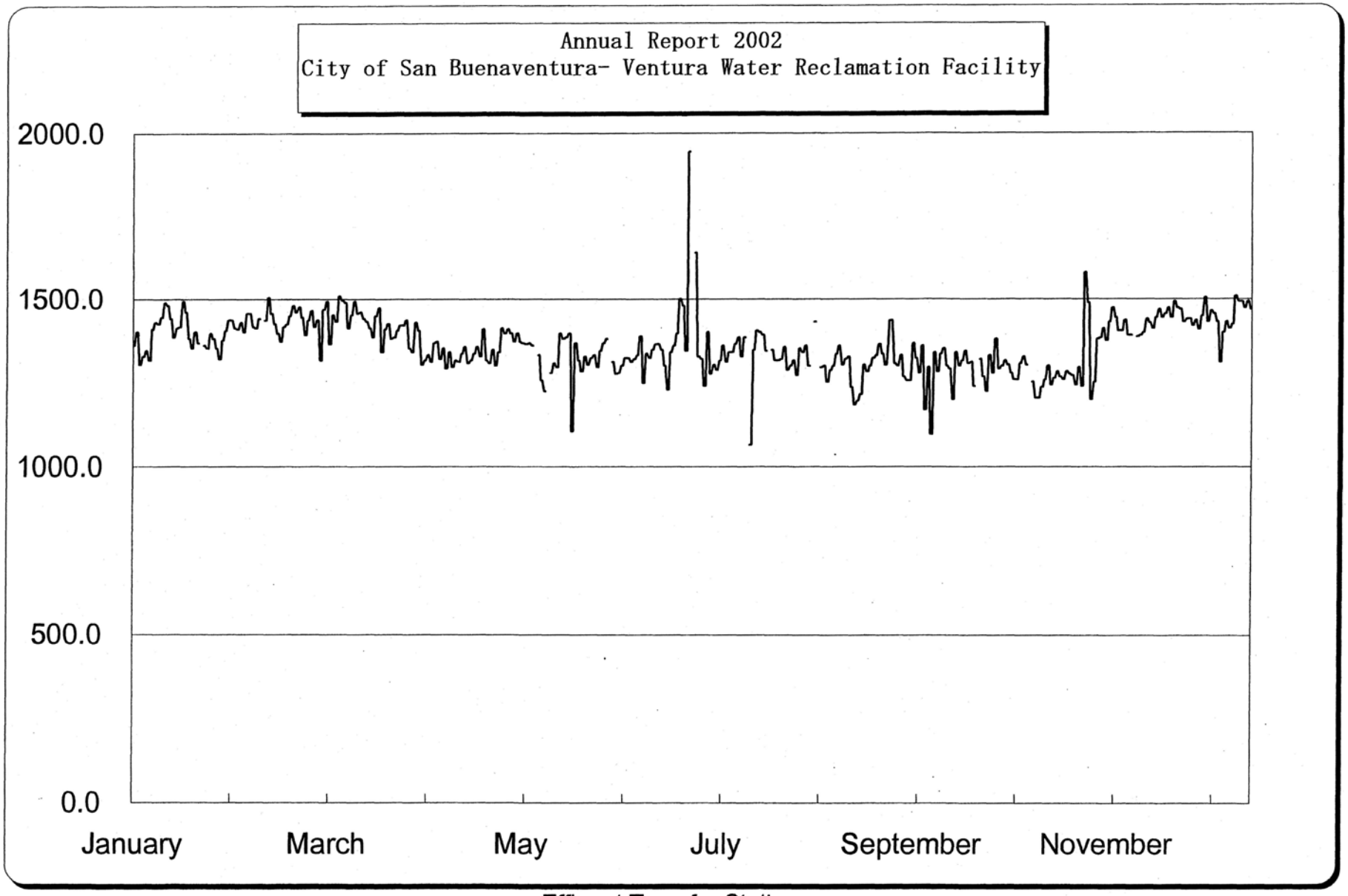
Bimonthly Period Beginning



Effluent Transfer Station

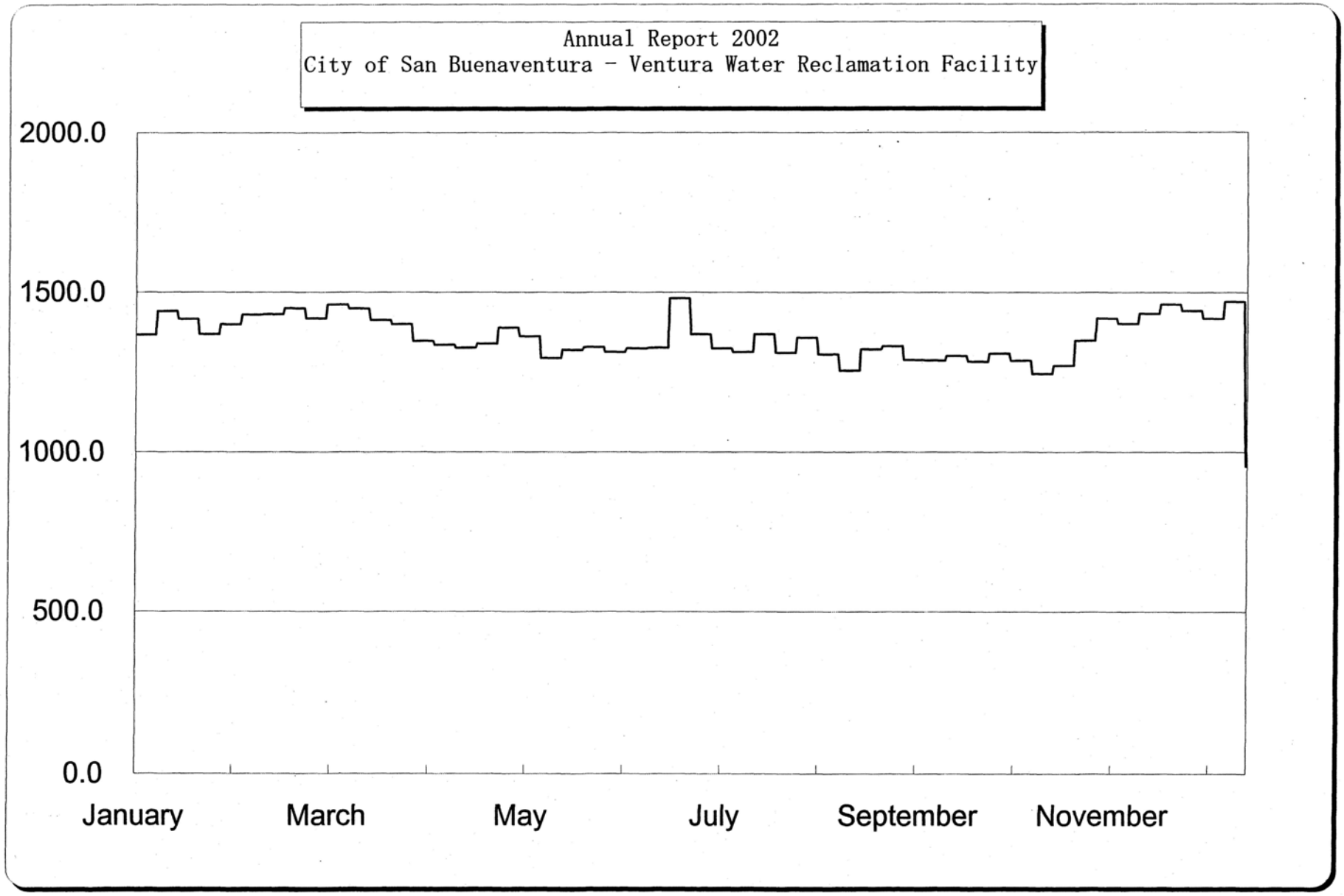
Effluent 30 Day Average Suspended Solids Mass Emission Rate - lbs/Day

Bimonthly Period Beginning



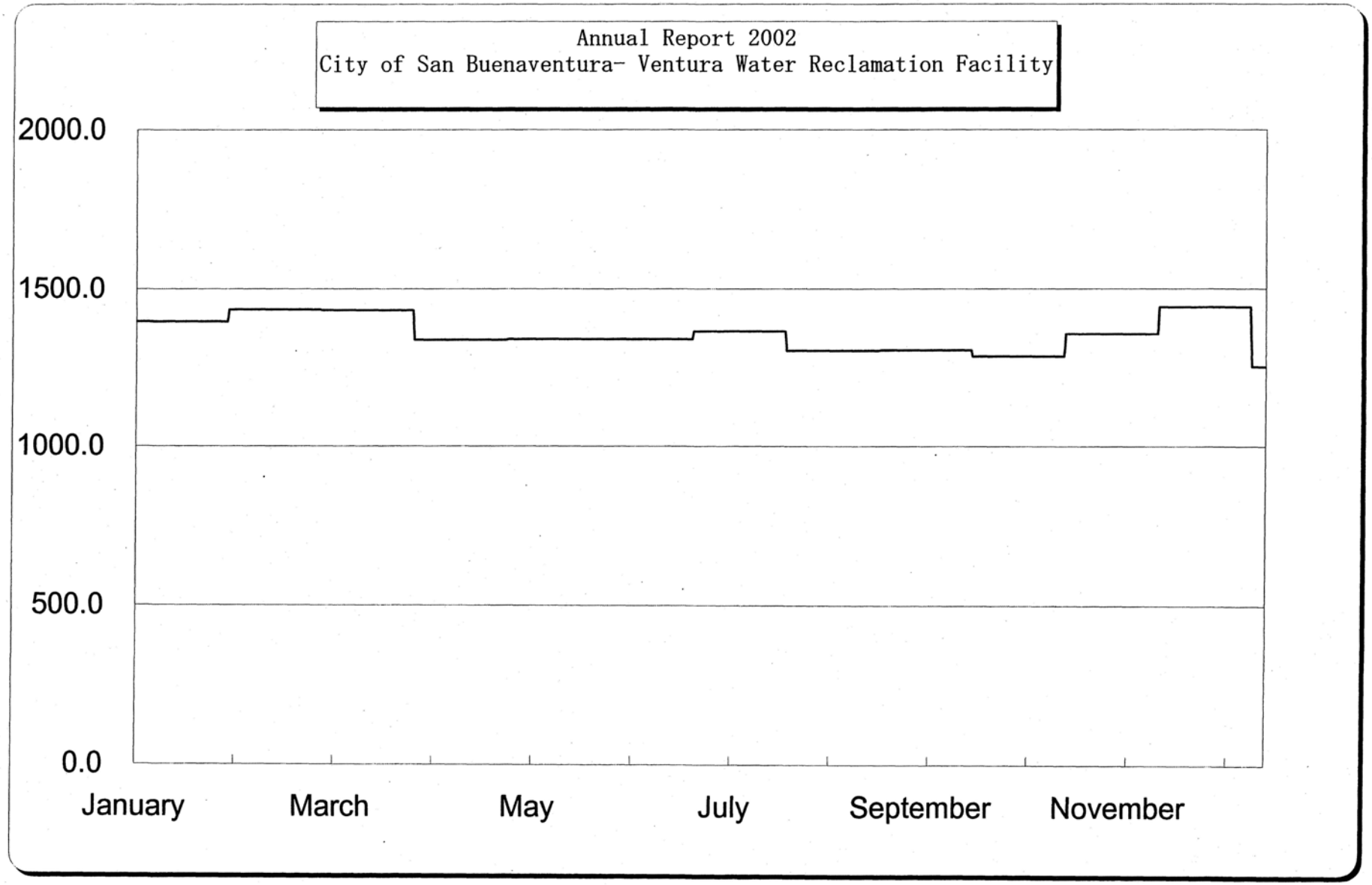
Effluent Transfer Station
Effluent Total Dissolved Solids - mg/l

Bimonthly Period Beginning



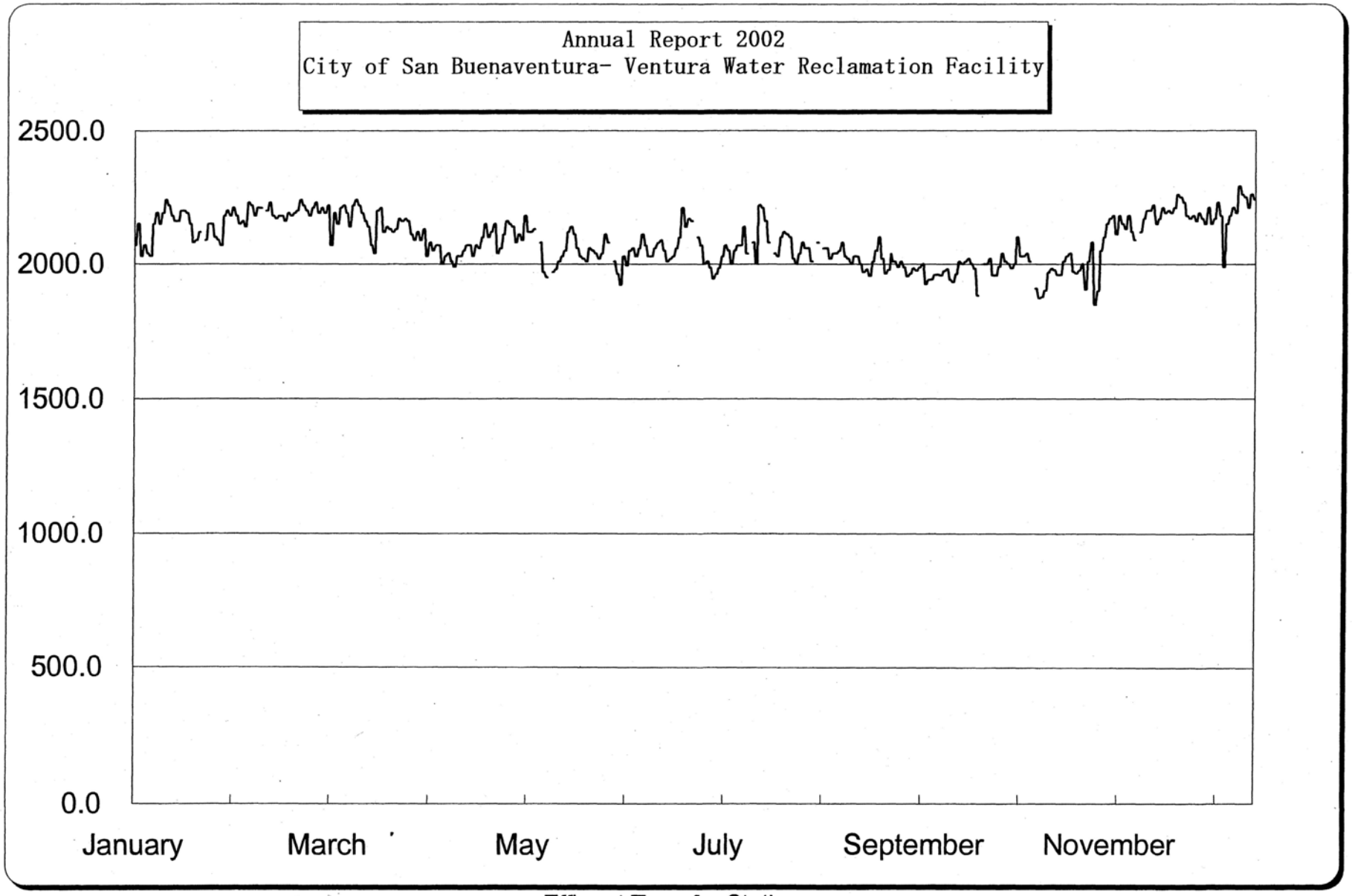
Bimonthly Period Beginning

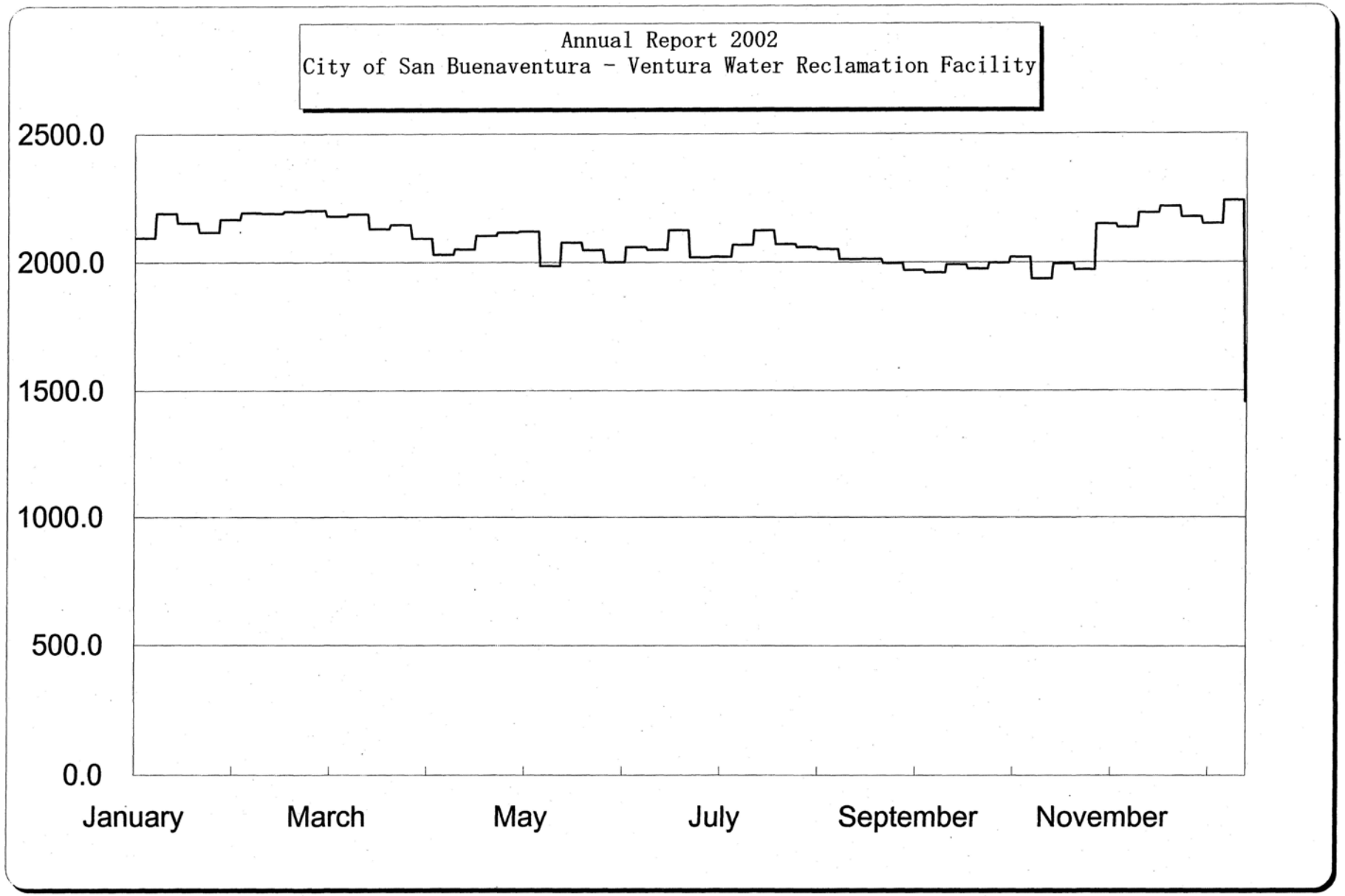
Effluent Transfer Station
Effluent 7 Day Average Total Dissolved Solids - mg/l



Effluent Transfer Station
Effluent 30 Day Average Total Dissolved Solids - mg/l

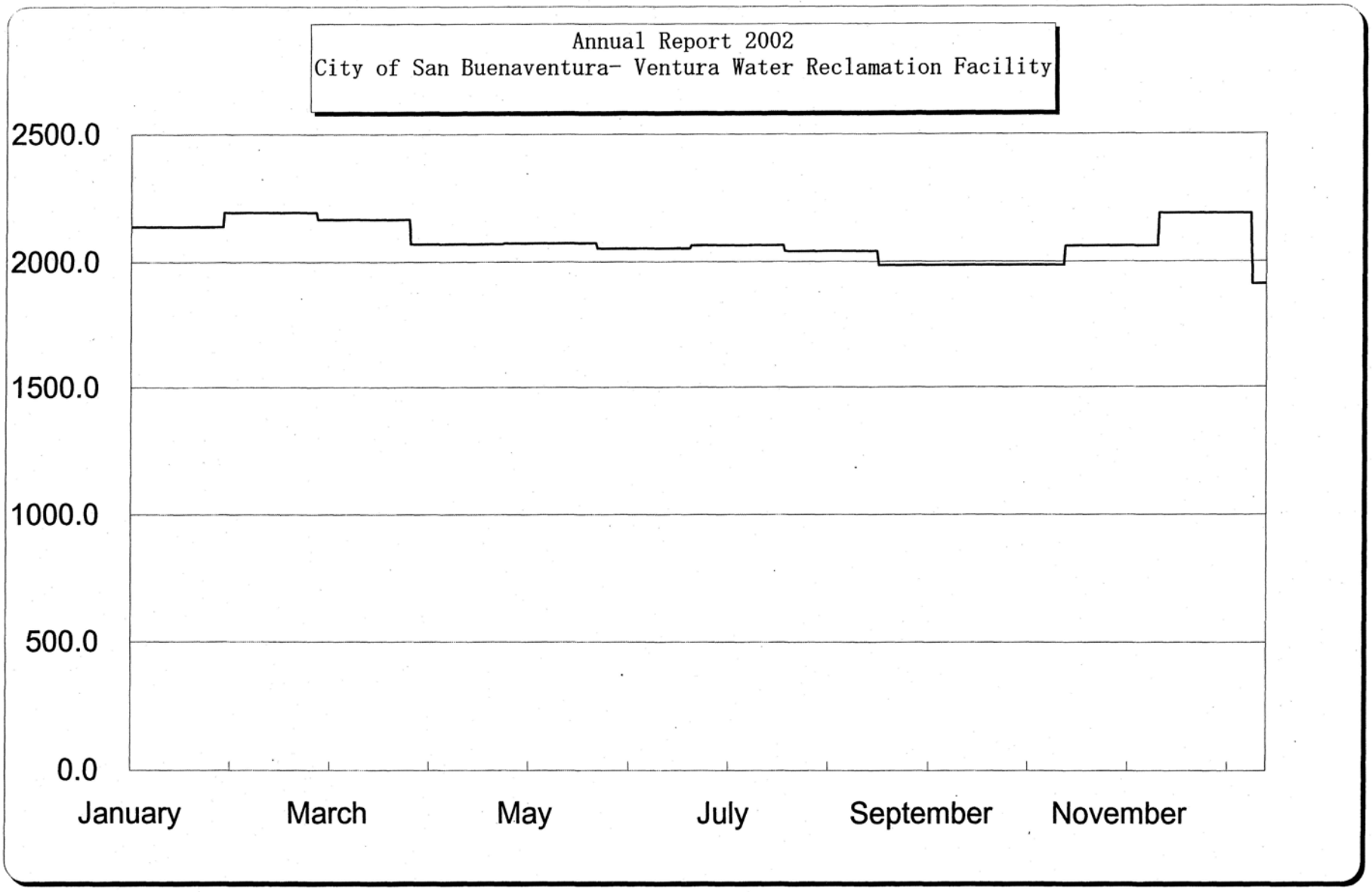
Bimonthly Period Beginning


Annual Report 2002
City of San Buenaventura- Ventura Water Reclamation Facility
2500.0
2000.0
1500.0
1000.0
500.0
0.0
January
March
May
July
September
November
Effluent Transfer Station
Effluent Conductivity - uMHO
Bimonthly Period Beginning



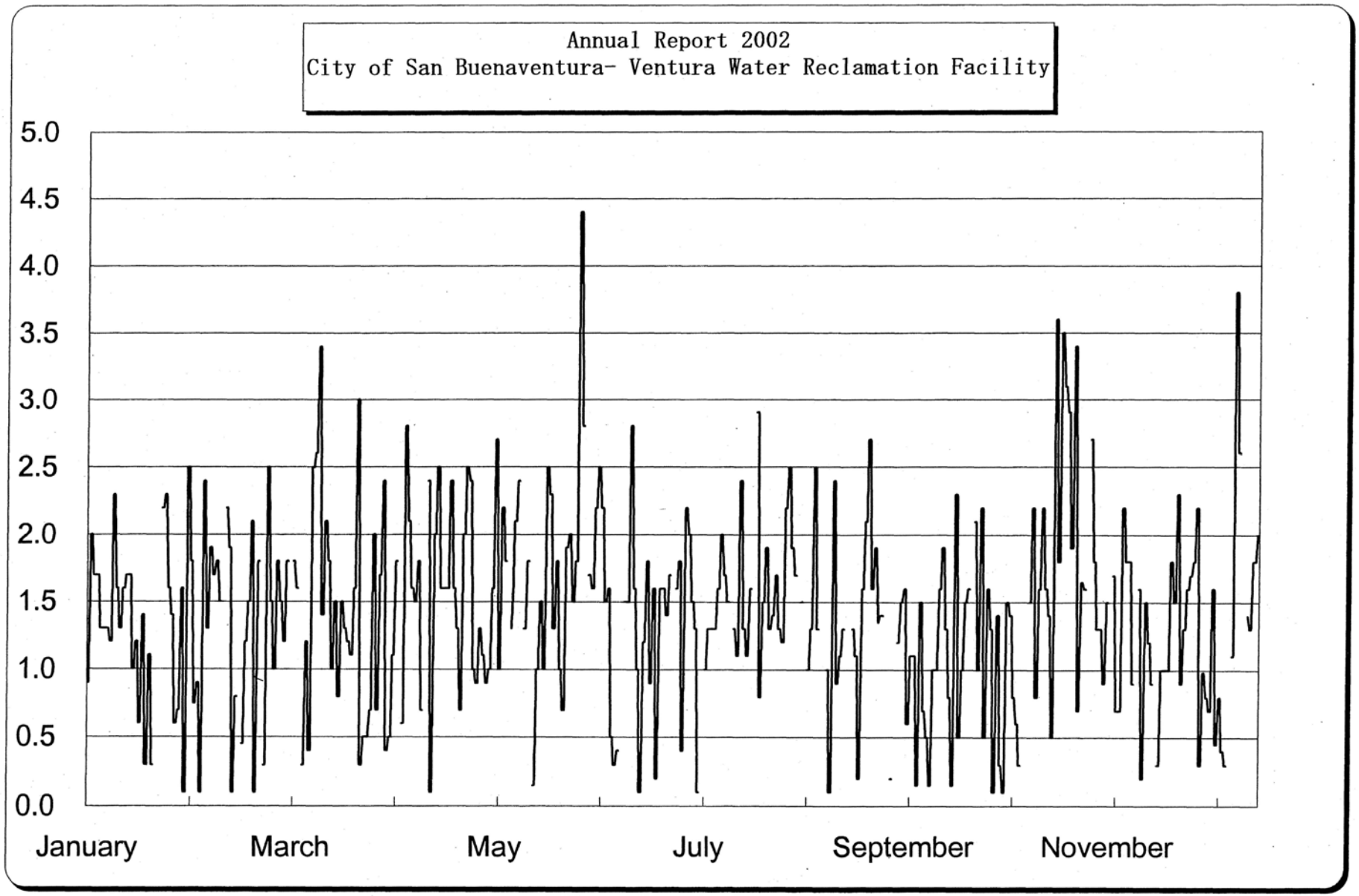
Effluent Transfer Station
Effluent 7 Day Average Conductivity - uMHO

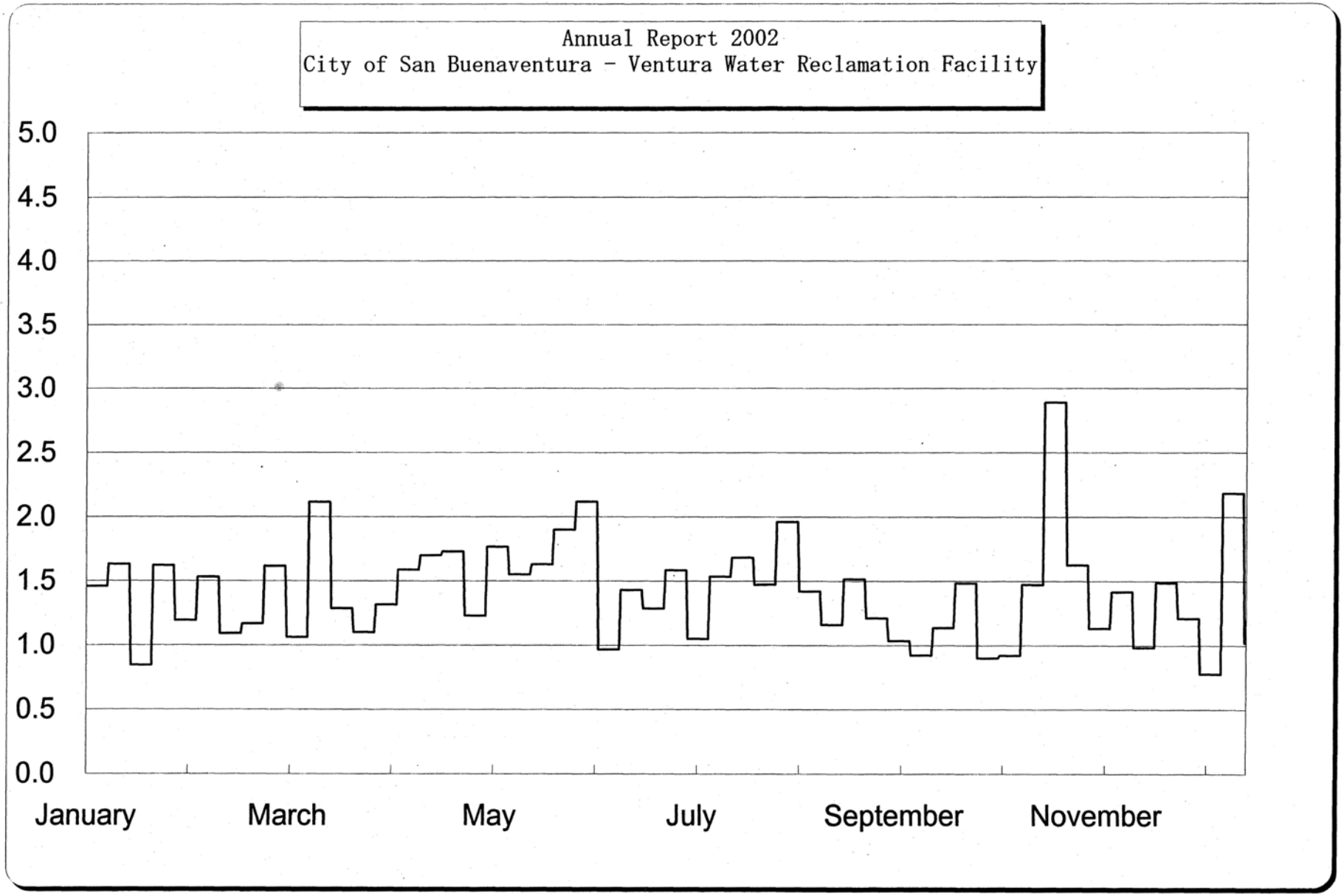
Bimonthly Period Beginning



Effluent Transfer Station
Effluent 30 Day Average Conductivity - uMHO

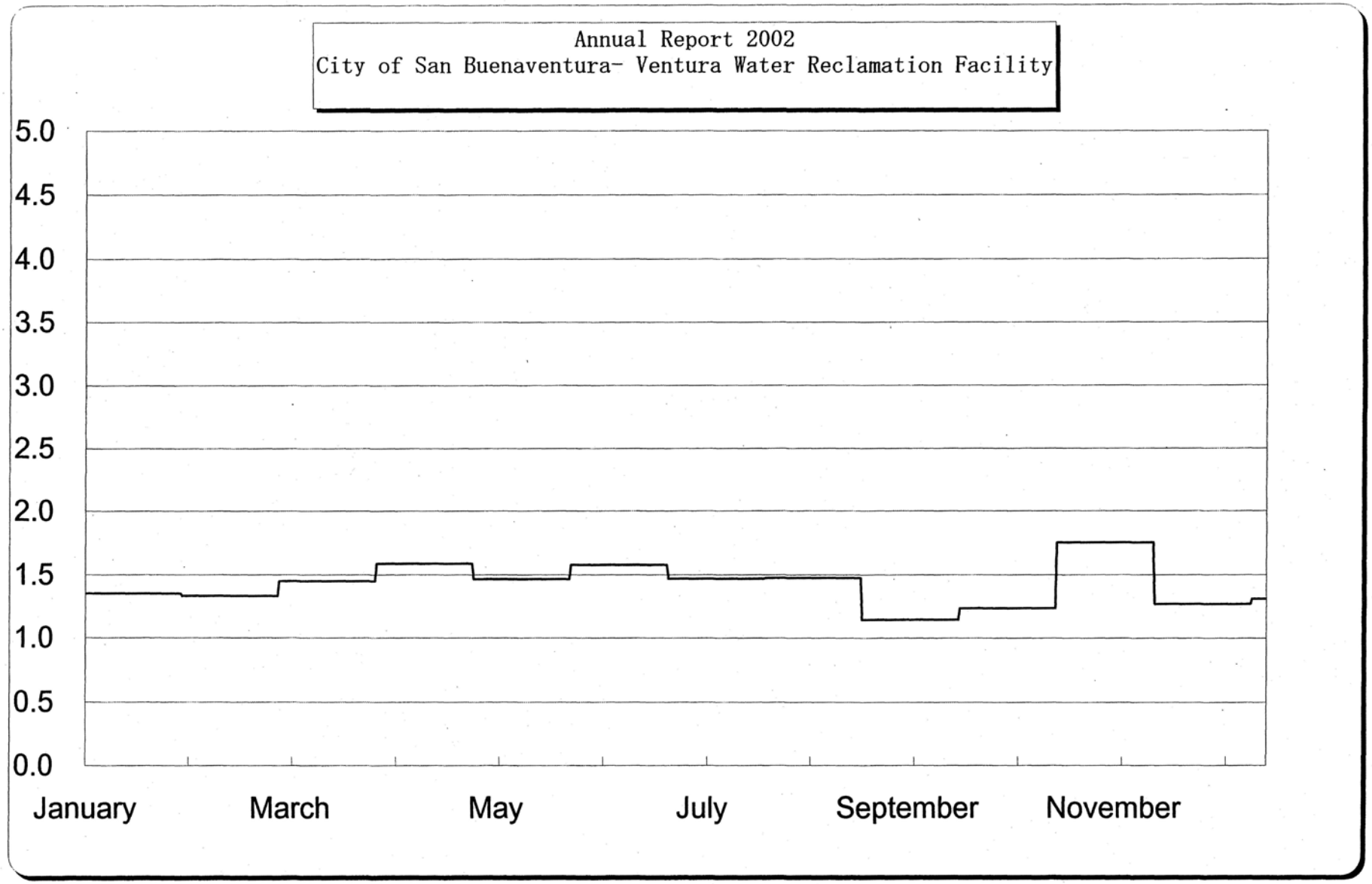
Bimonthly Period Beginning


Annual Report 2002
City of San Buenaventura- Ventura Water Reclamation Facility
5.0
4.5
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
January
March
May
July
September
November
Effluent Transfer Station
Effluent BOD - mg/l
Bimonthly Period Beginning



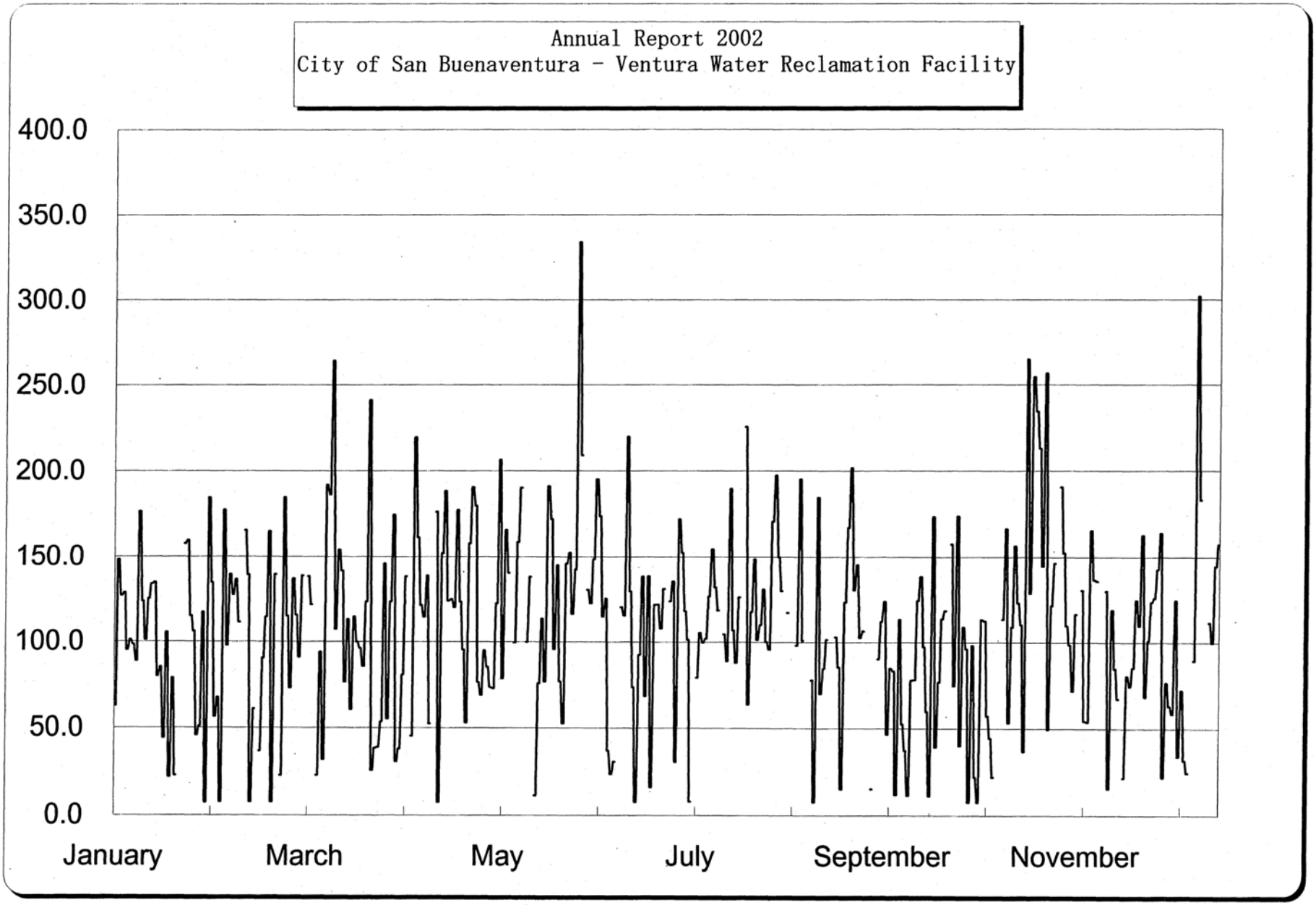
Effluent Transfer Station
Effluent 7 Day Average BOD - mg/l

Bimonthly Period Beginning



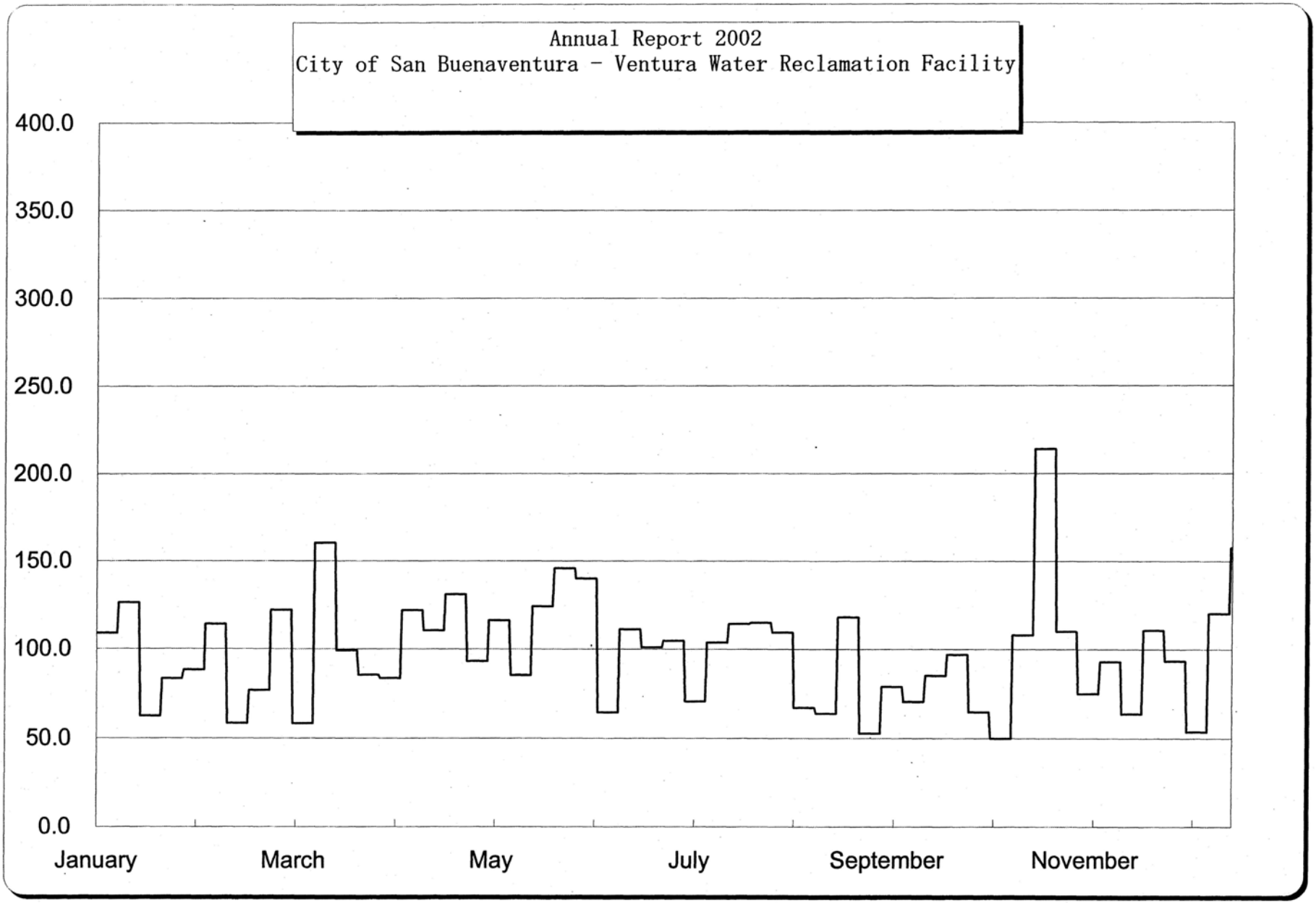
Effluent Transfer Station
Effluent 30 Day Average BOD - mg/l

115 Bimonthly Period Beginning



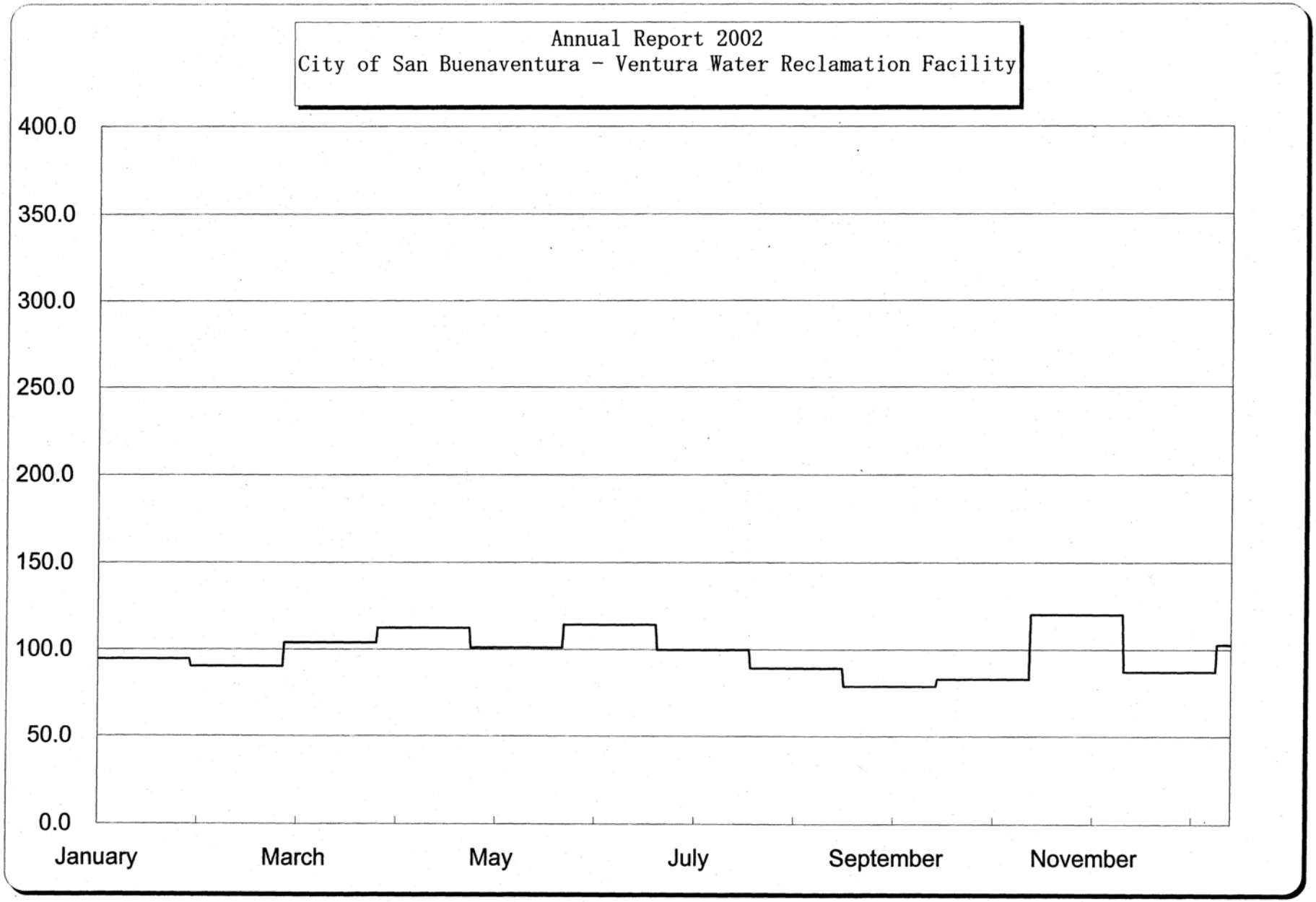
Bimonthly Period Beginning

Effluent Transfer Station
Effluent BOD Mass Emission Rate - mg/l



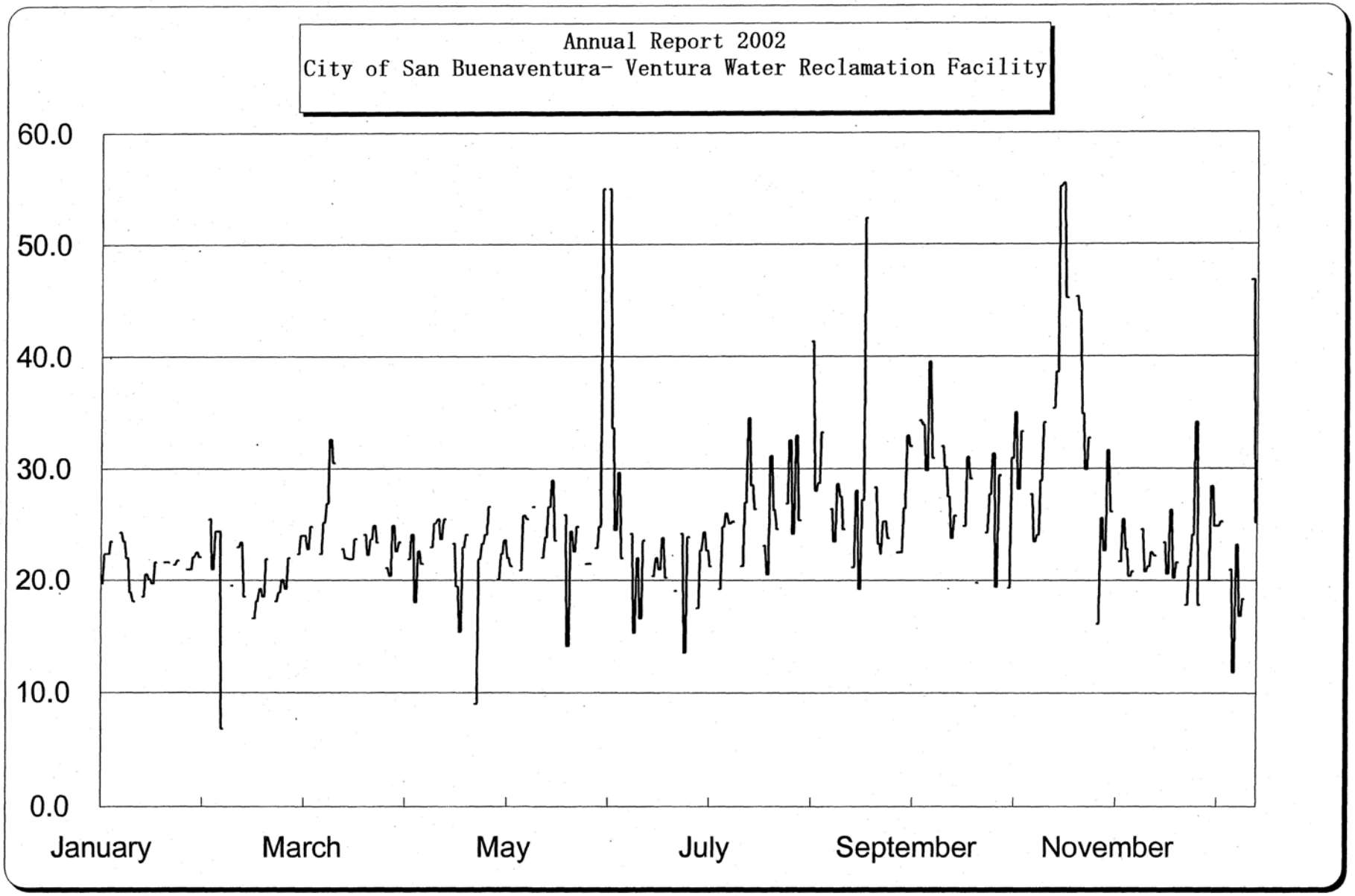
Effluent Transfer Station
Effluent 7 Day Average BOD Mass Emission Rate - lbs/Day

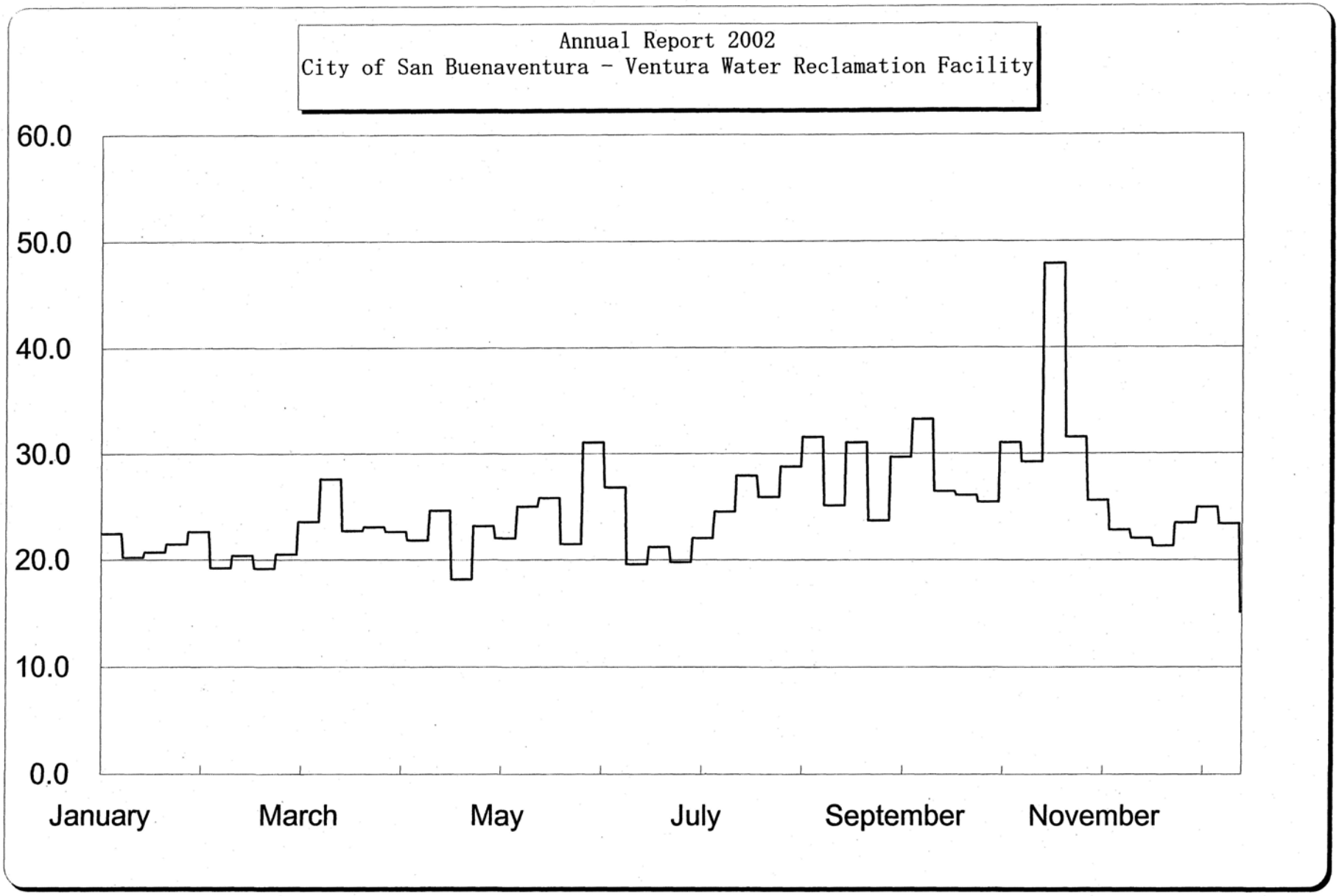
Bimonthly Period Beginning



Bimonthly Period Beginning

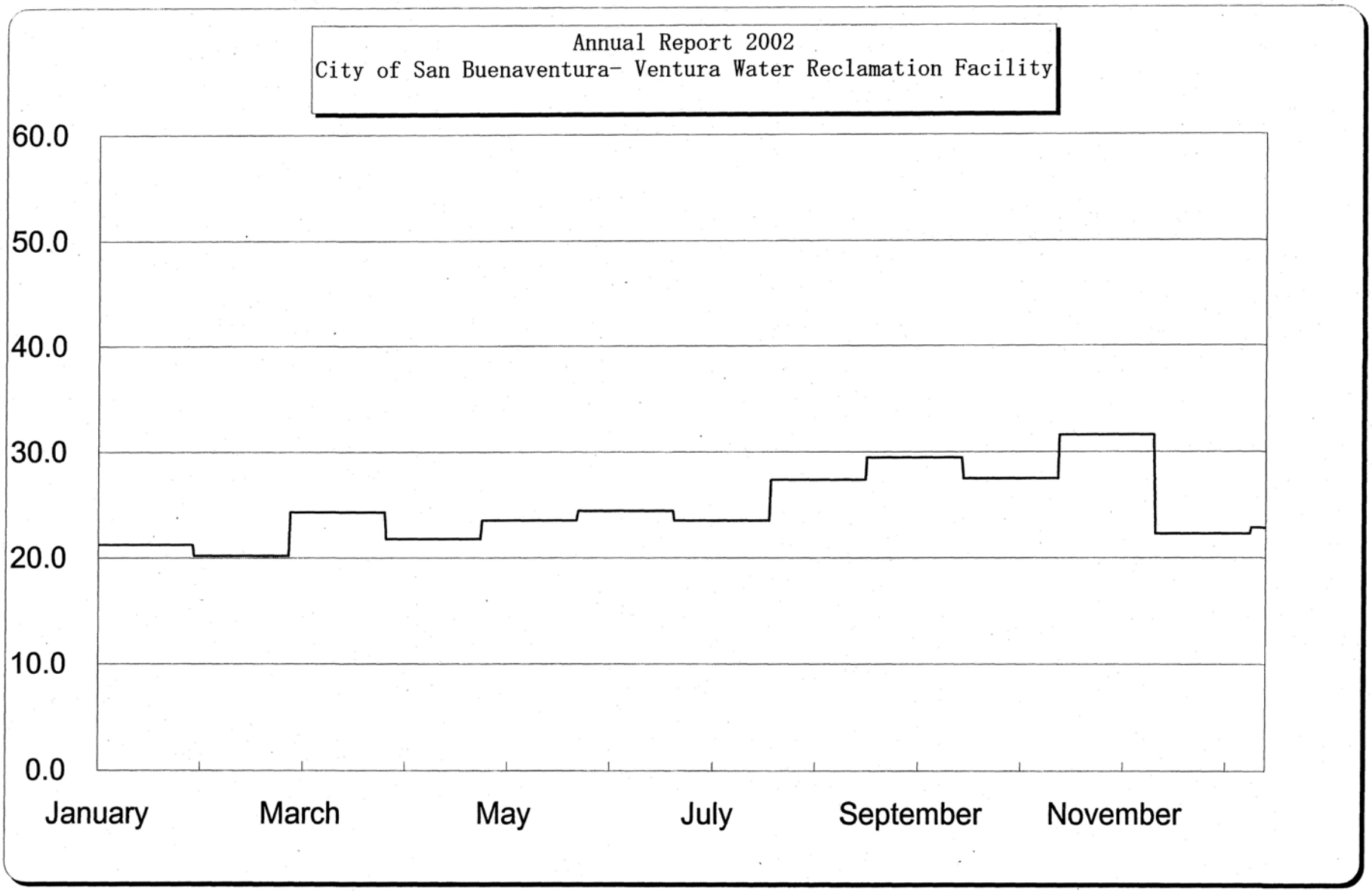
Effluent Transfer Station
Effluent 30 Day Average BOD Mass Emission Rate - lbs/Day


Annual Report 2002
City of San Buenaventura- Ventura Water Reclamation Facility
60.0
50.0
40.0
30.0
20.0
10.0
0.0
January
March
May
July
September
November
Effluent Transfer Station
Effluent COD - mg/l
Bimonthly Period Beginning



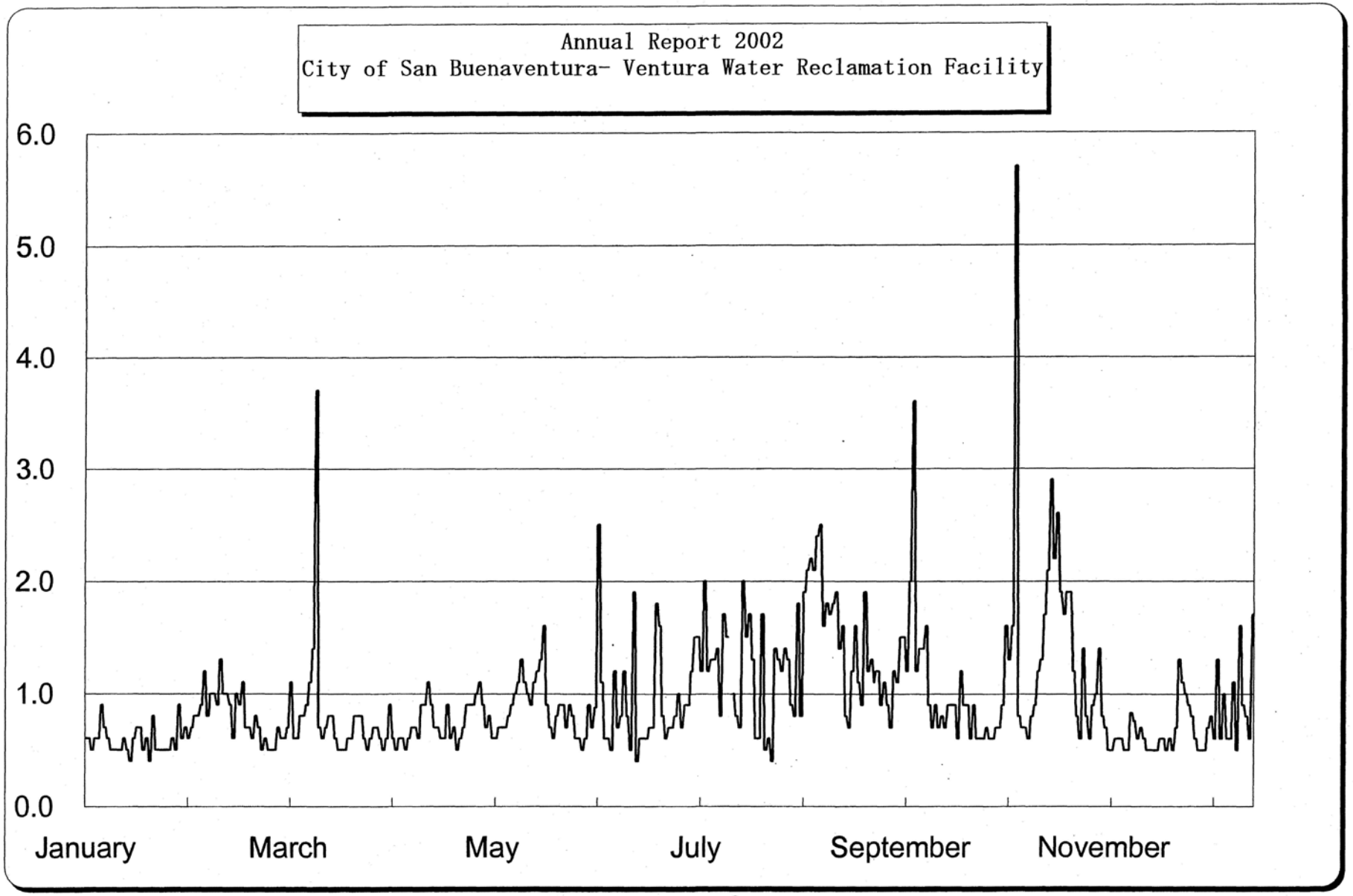
Bimonthly Period Beginning

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



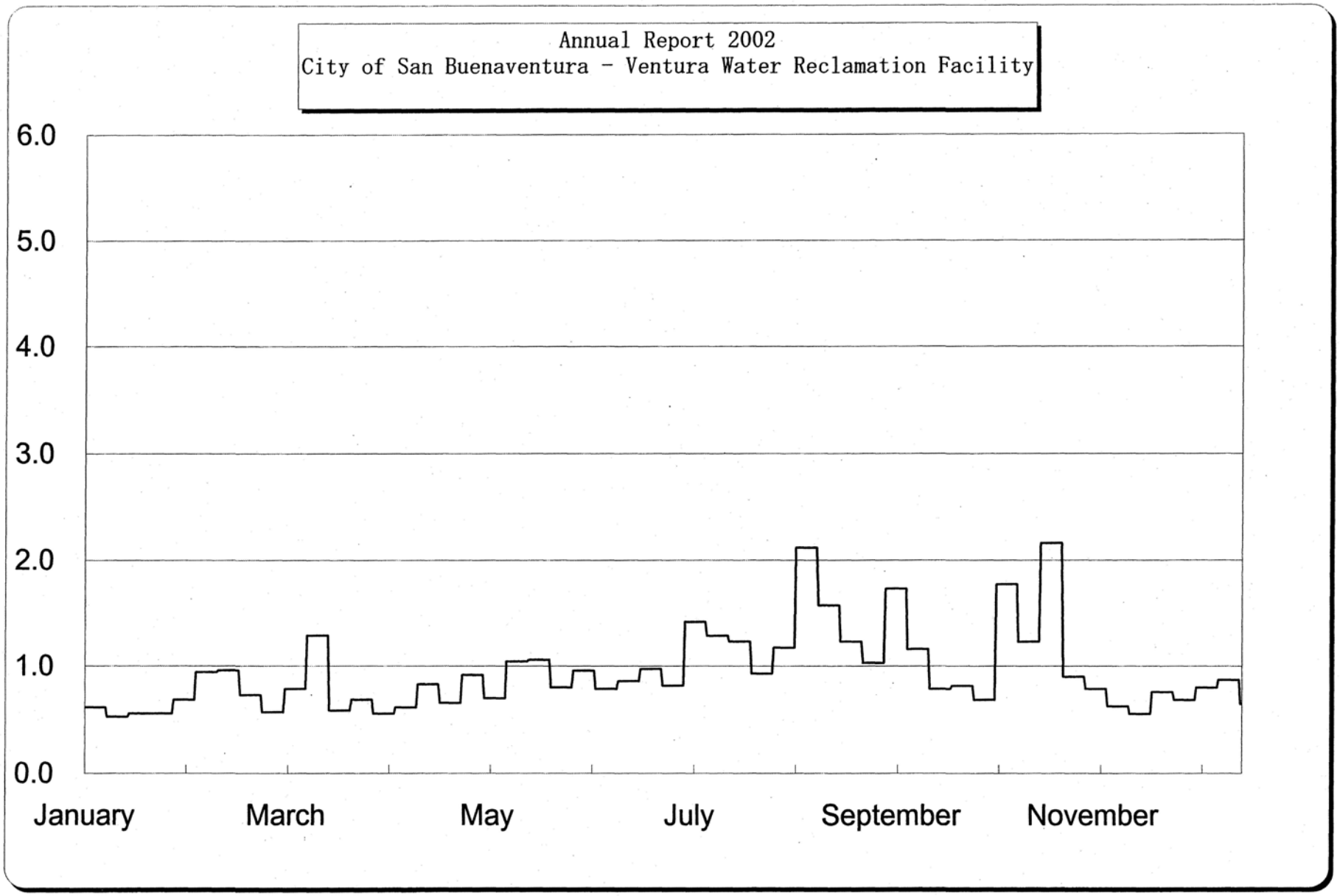
Effluent Transfer Station
Effluent 30 Day Average COD - mg/l

Bimonthly Period Beginning



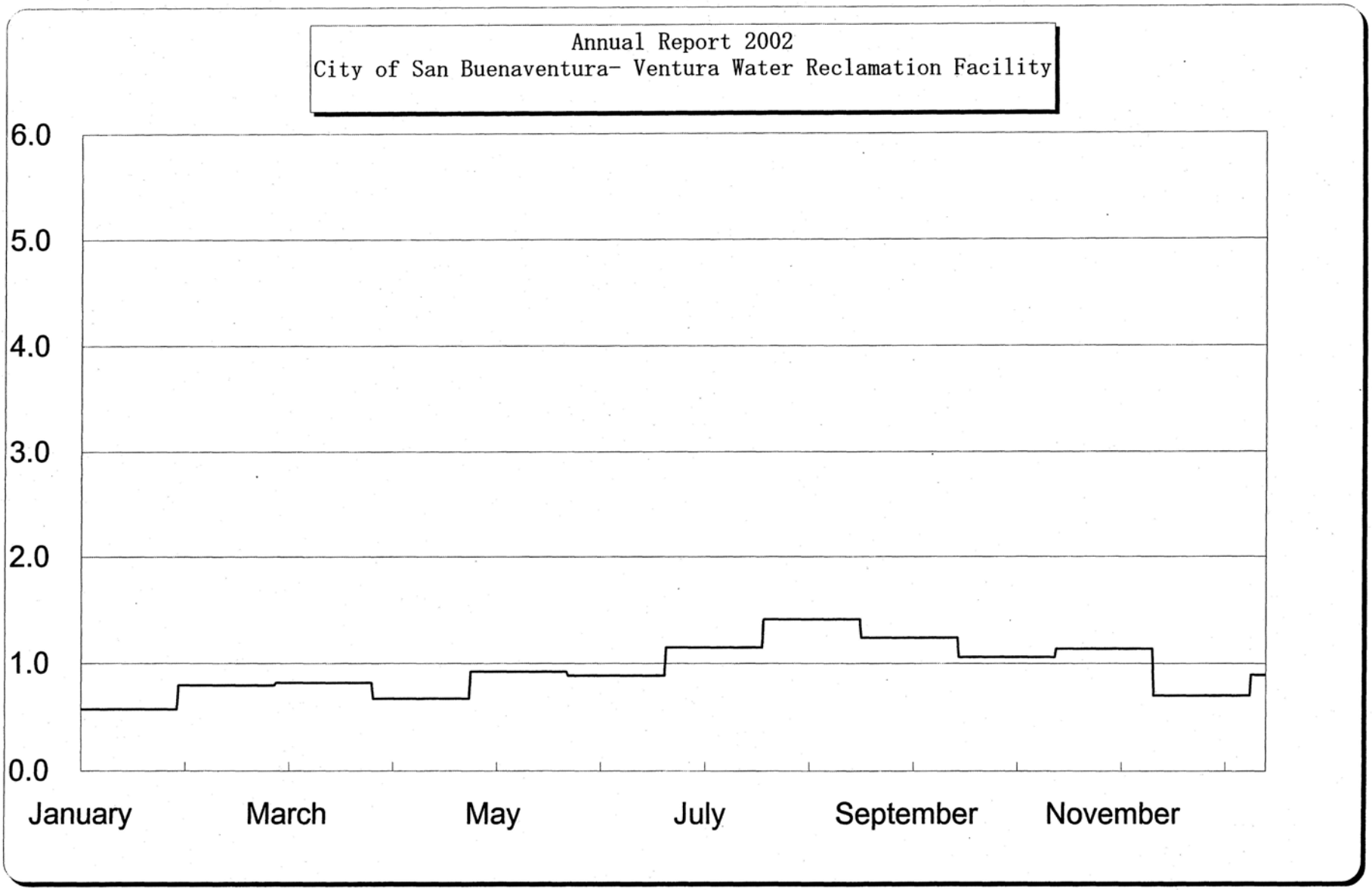
Effluent Transfer Station
Effluent Daily Turbidity - NTU

Bimonthly Period Beginning



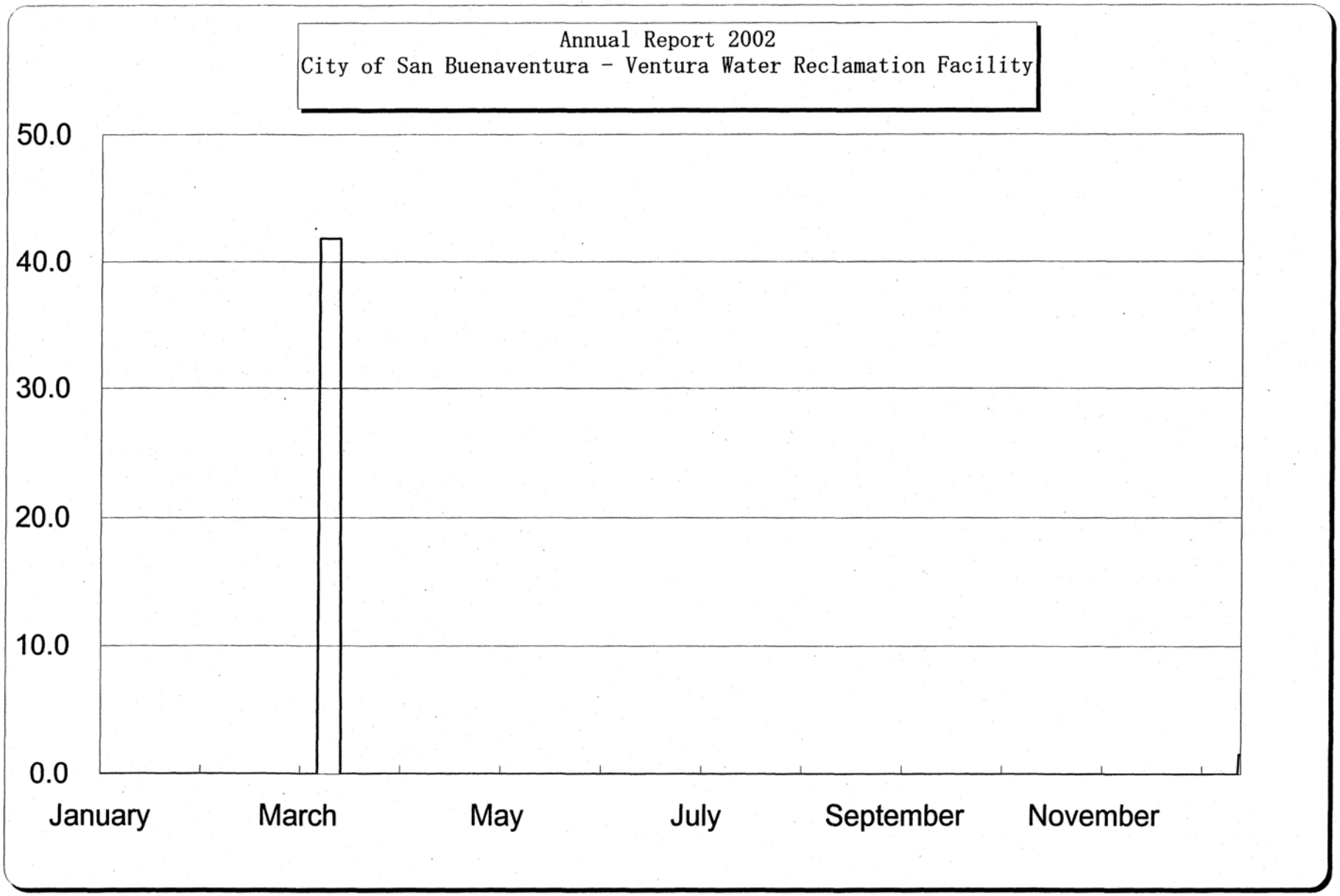
Effluent Transfer Station
Effluent 7 Day Average Turbidity - NTU

Bimonthly Period Beginning



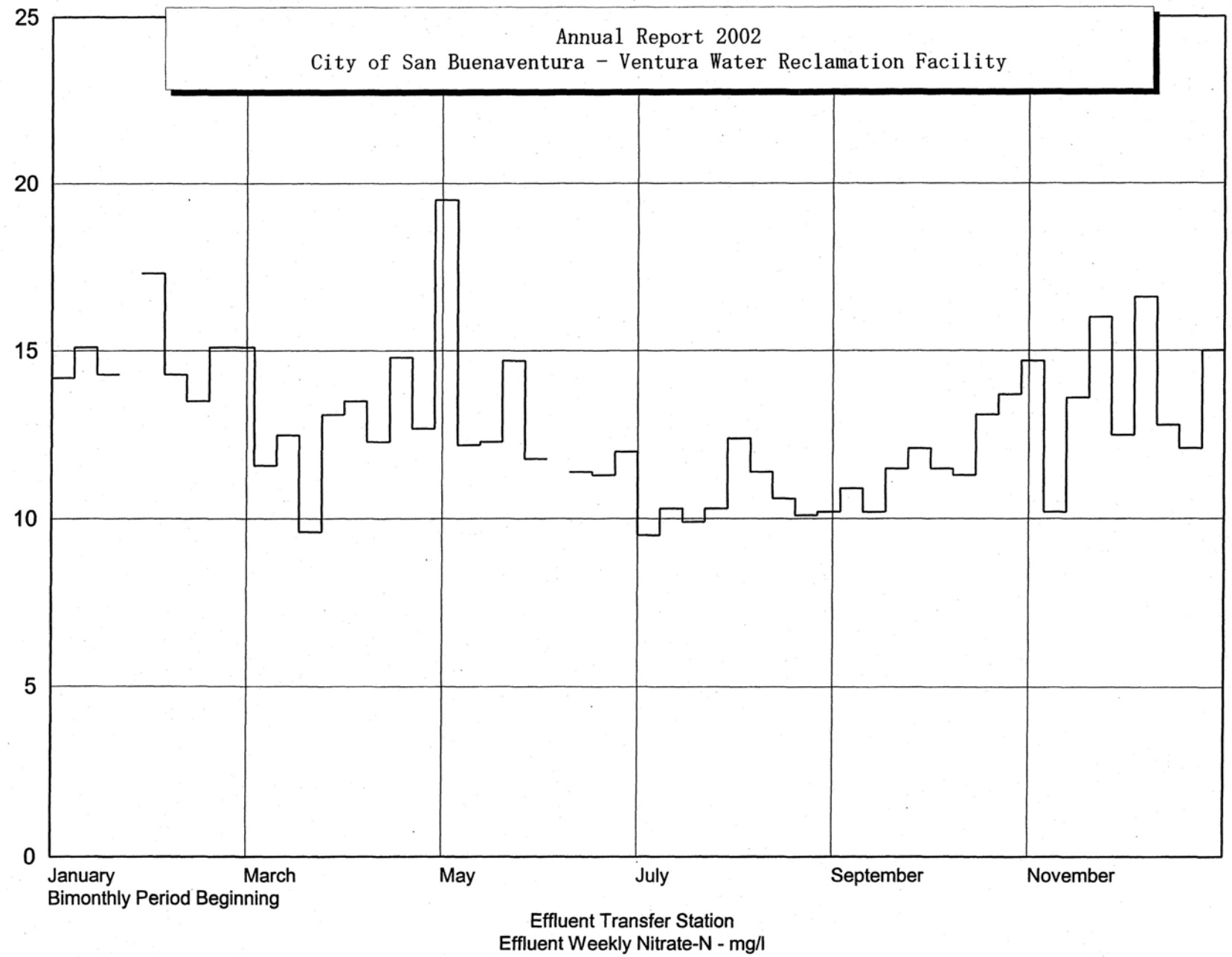
Effluent Transfer Station
Effluent 30 Day Average Turbidity - NTU

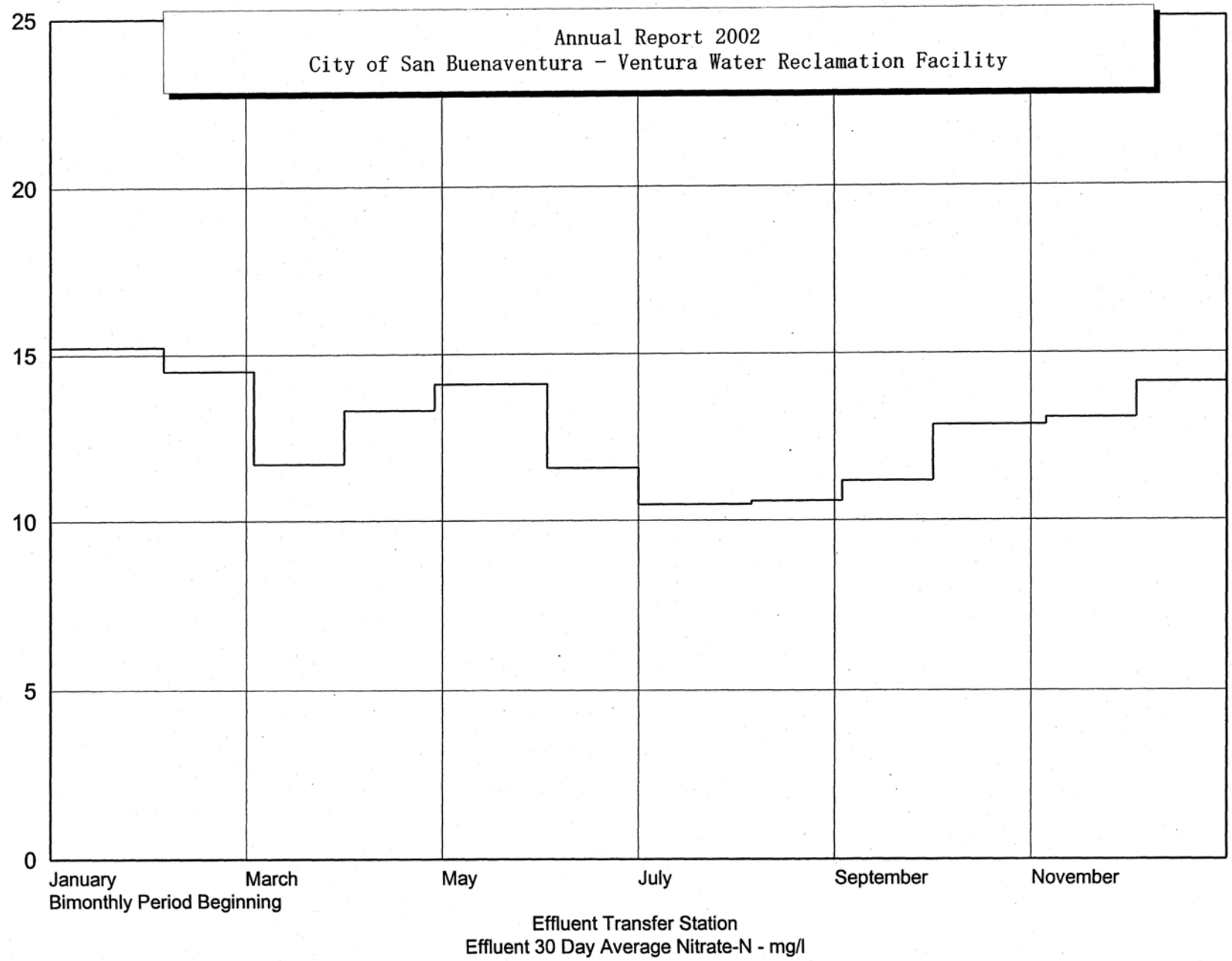
Bimonthly Period Beginning

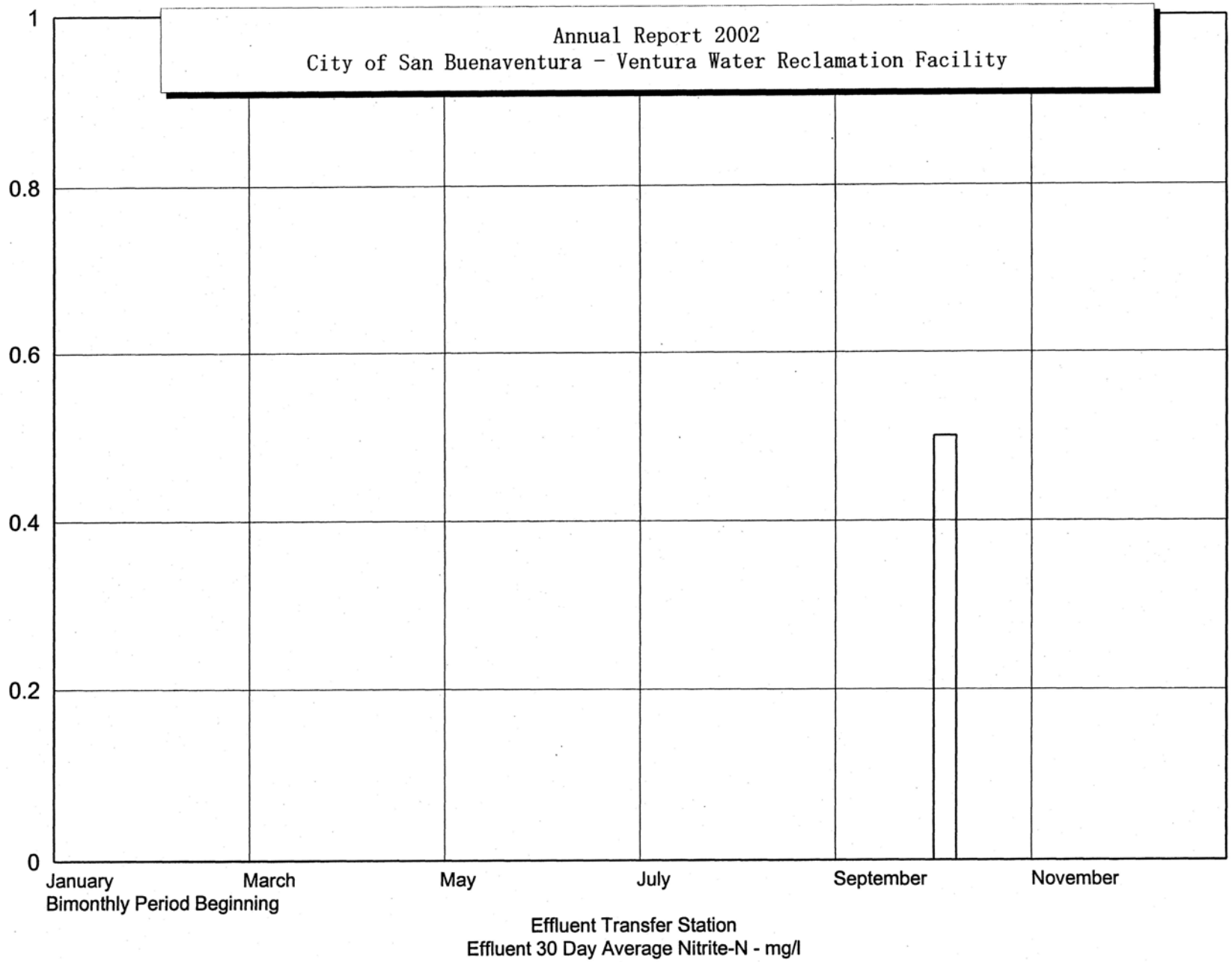


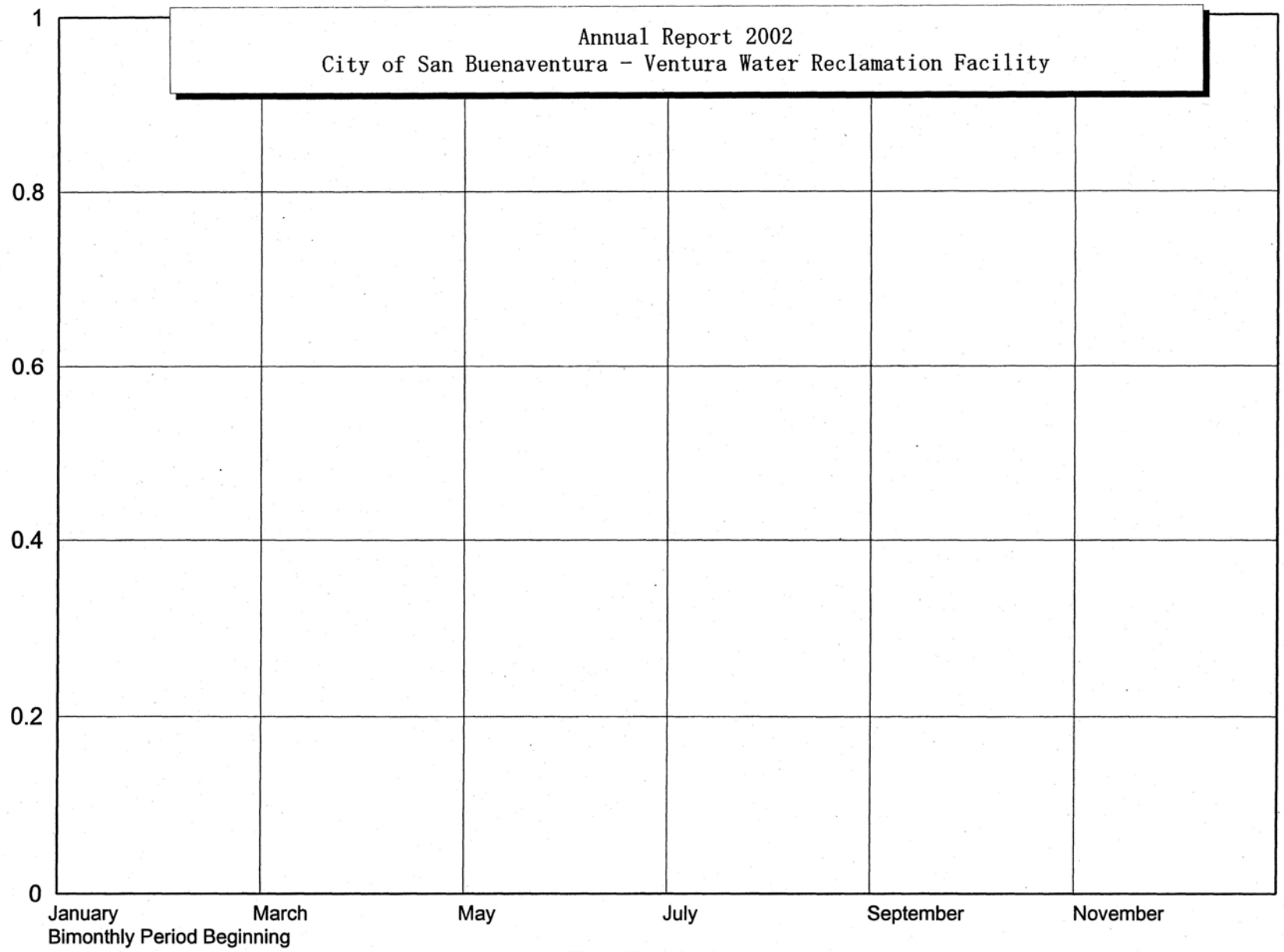
Bimonthly Period Beginning

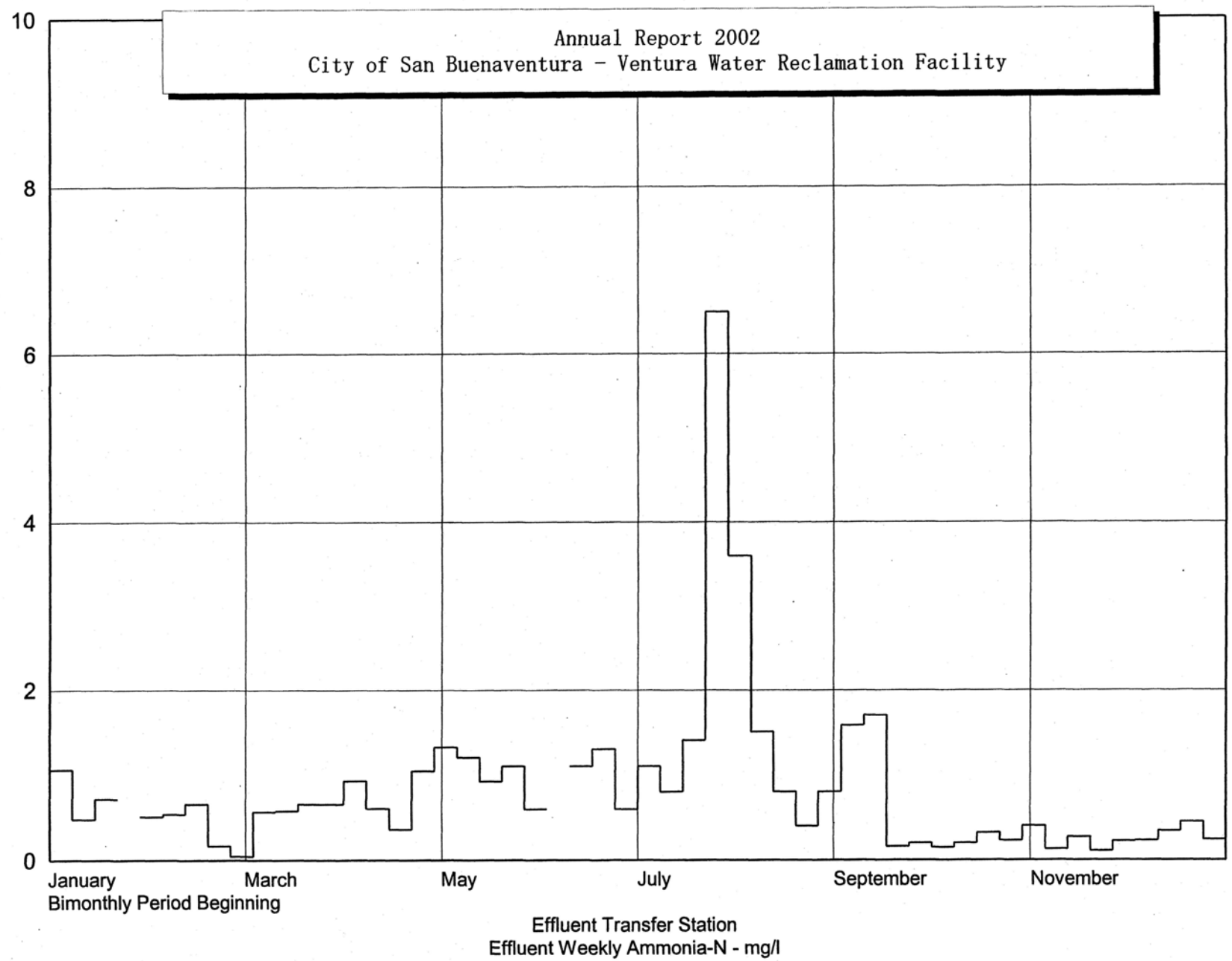
Effluent Transfer Station
Effluent Turbidity Exceeding 5 NTU - %

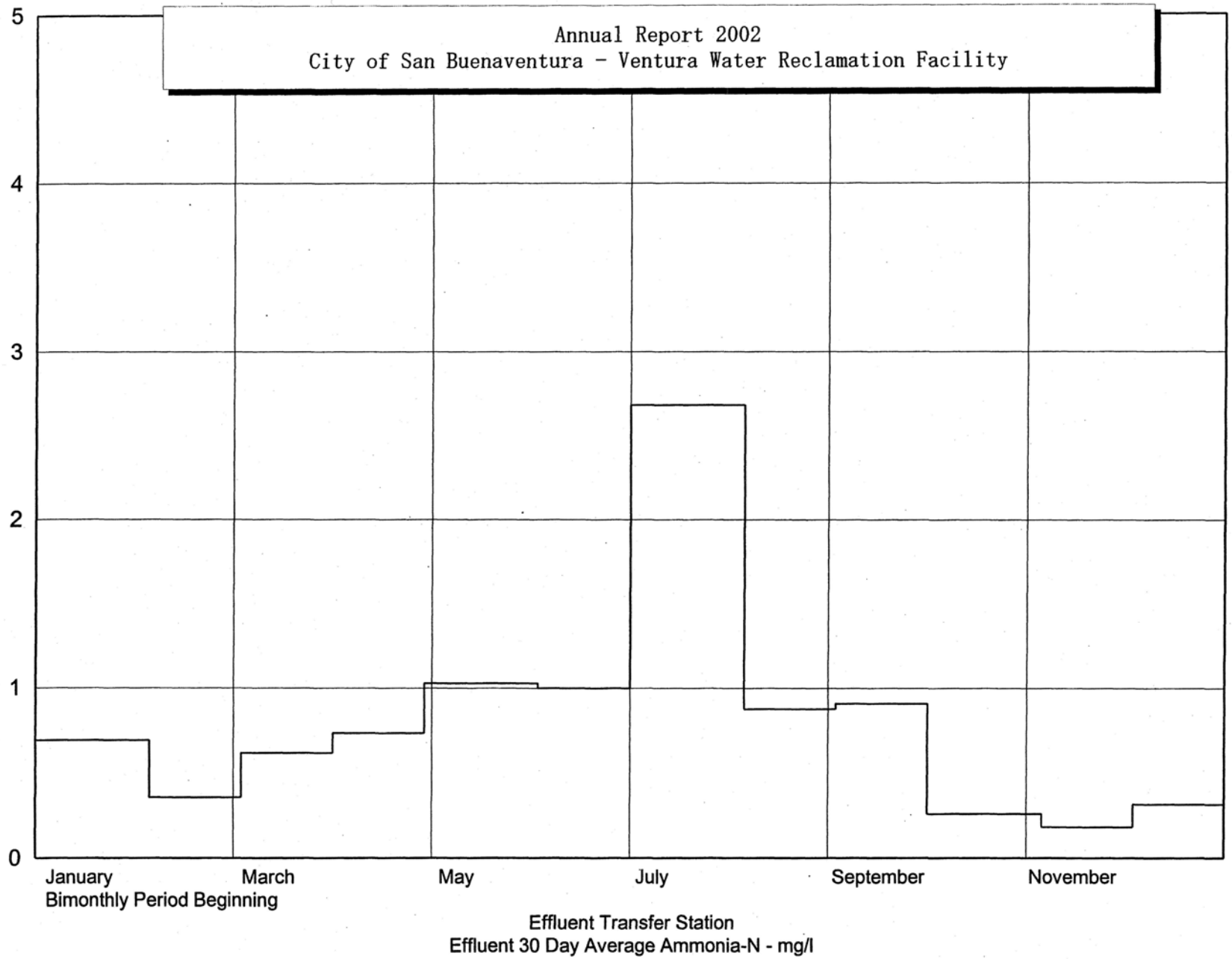

Annual Report 2002
City of San Buenaventura - Ventura Water Reclamation Facility
25
20
15
10
5
0
January
March
May
July
September
November
Bimonthly Period Beginning
Effluent Transfer Station
Effluent Weekly Nitrate-N - mg/l

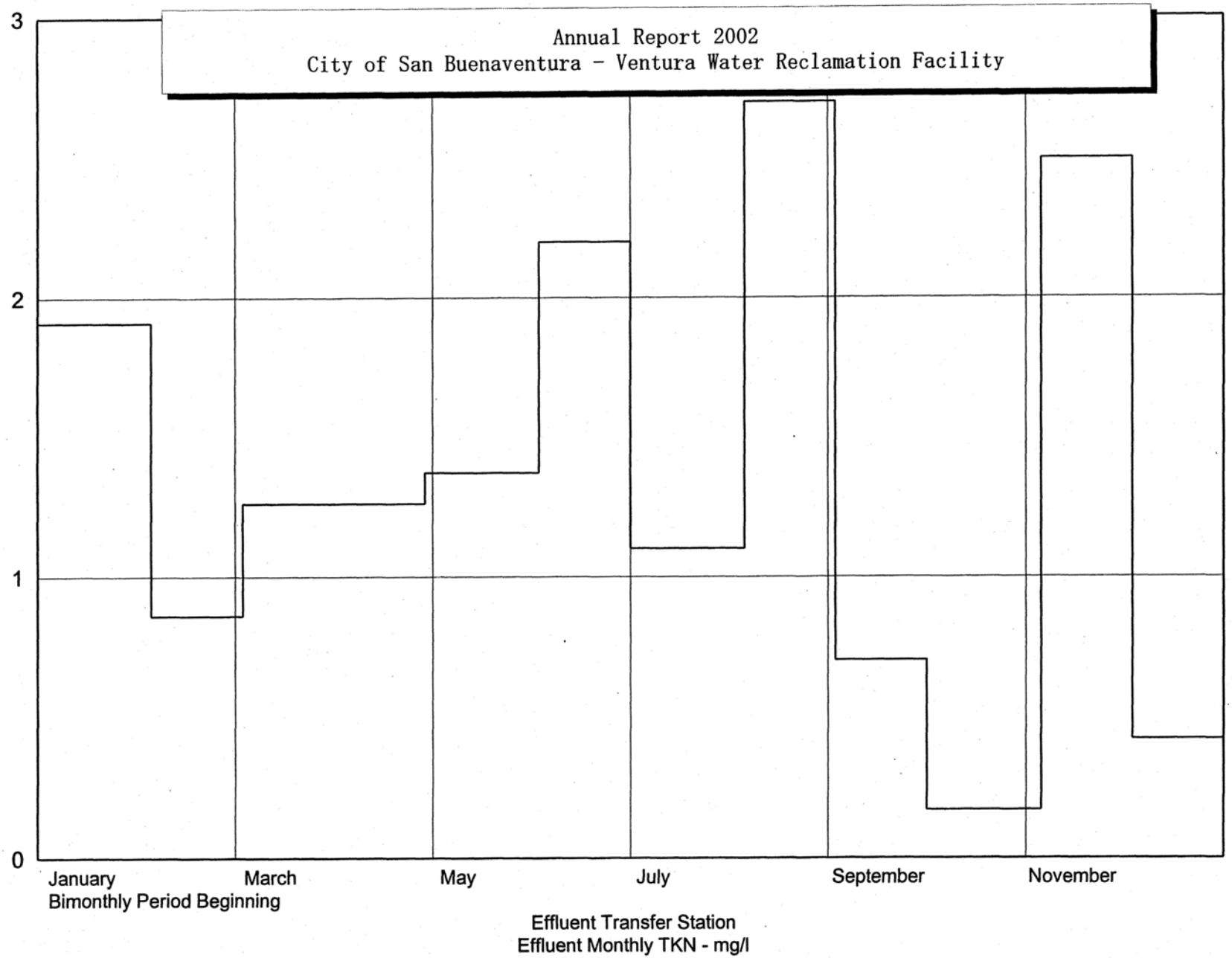

Annual Report 2002
City of San Buenaventura - Ventura Water Reclamation Facility
25
20
15
10
5
0
January
March
May
July
September
November
Bimonthly Period Beginning
Effluent Transfer Station
Effluent 30 Day Average Nitrate-N - mg/l

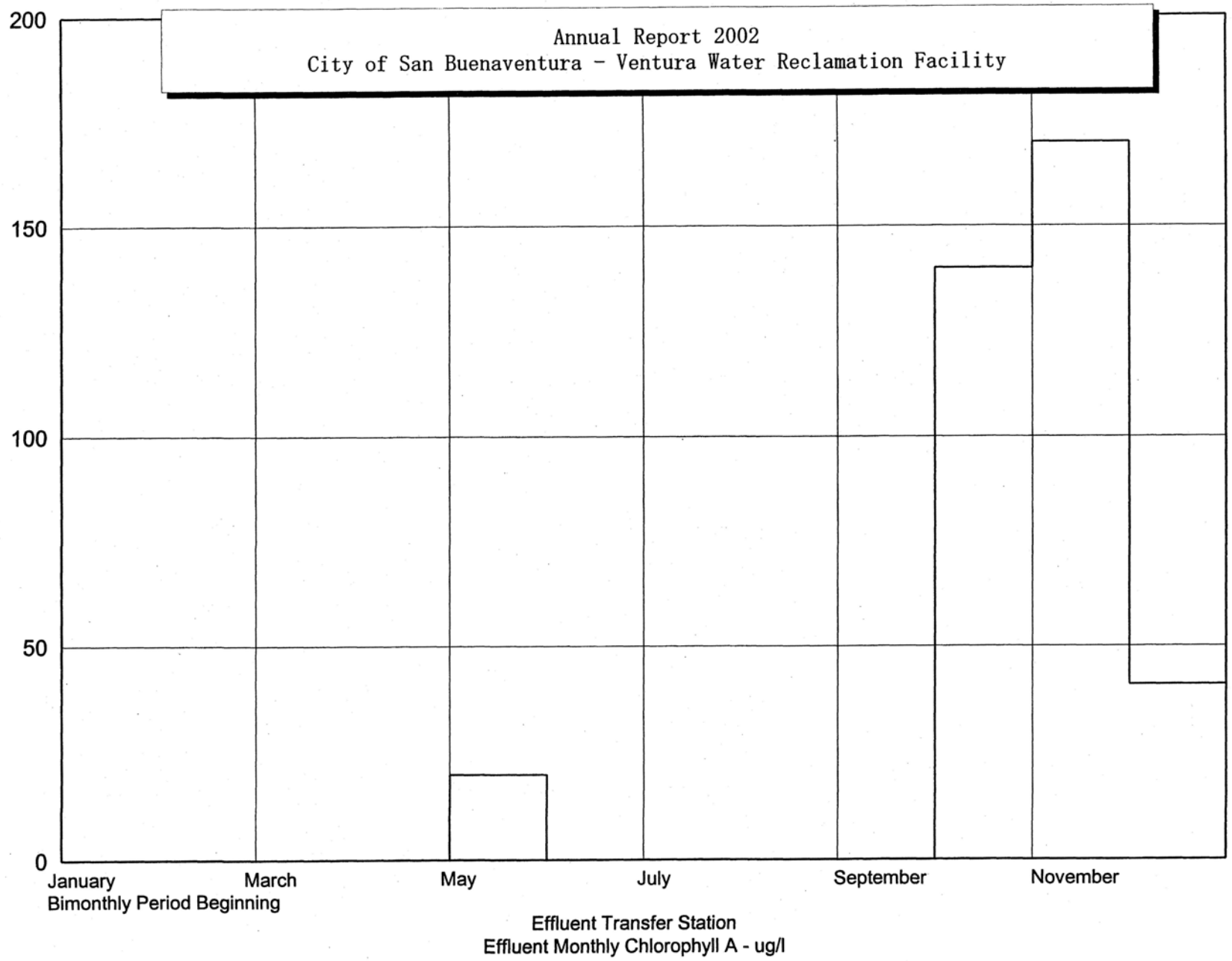

Annual Report 2002
City of San Buenaventura - Ventura Water Reclamation Facility
1
0.8
0.6
0.4
0.2
0
January
March
May
July
September
November
Bimonthly Period Beginning
Effluent Transfer Station
Effluent 30 Day Average Nitrite-N - mg/l

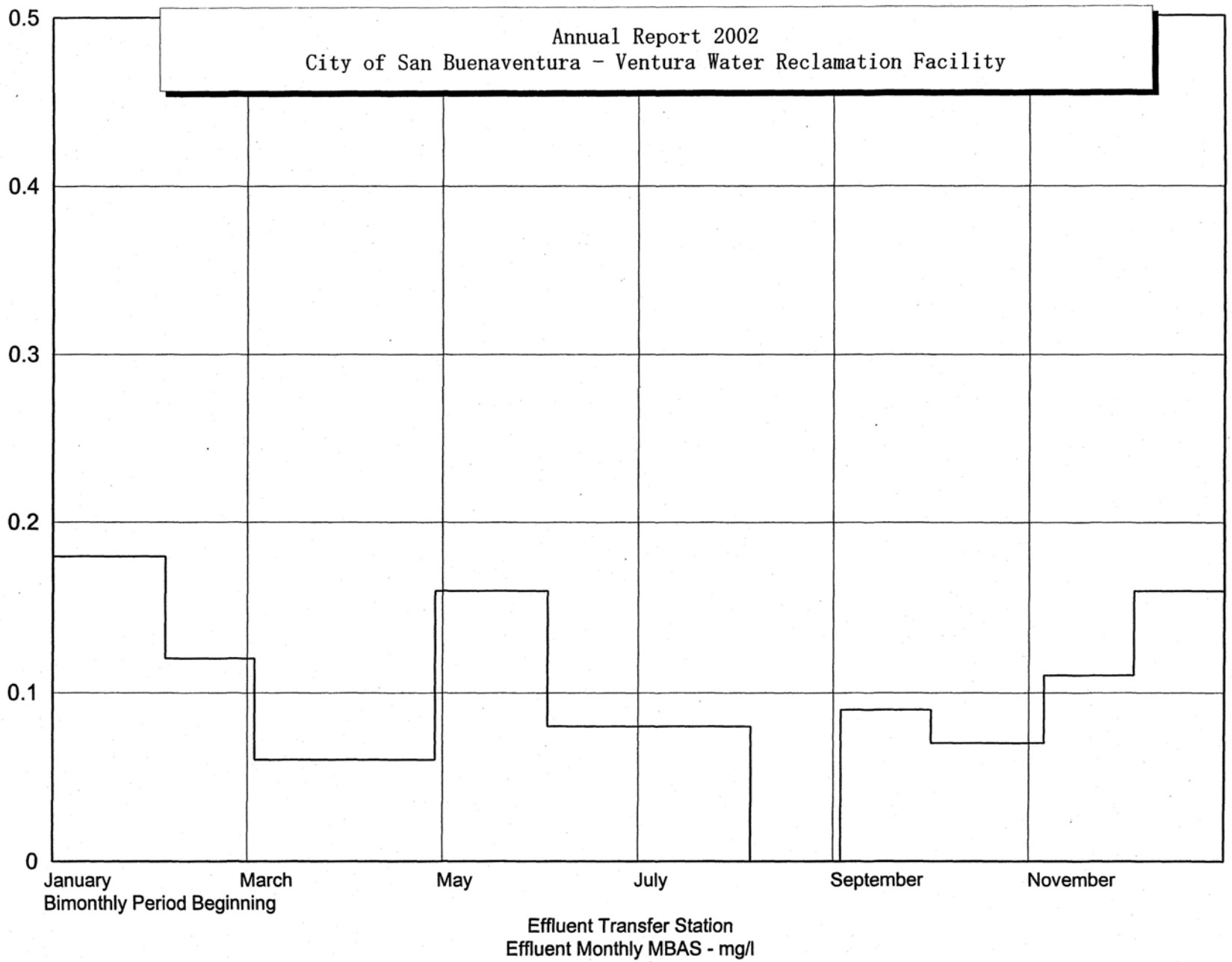

Annual Report 2002
City of San Buenaventura - Ventura Water Reclamation Facility
1
0.8
0.6
0.4
0.2
0
January
March
May
July
September
November
Bimonthly Period Beginning
Effluent Transfer Station
Effluent 30 Day Average Nitrite-N - mg/l

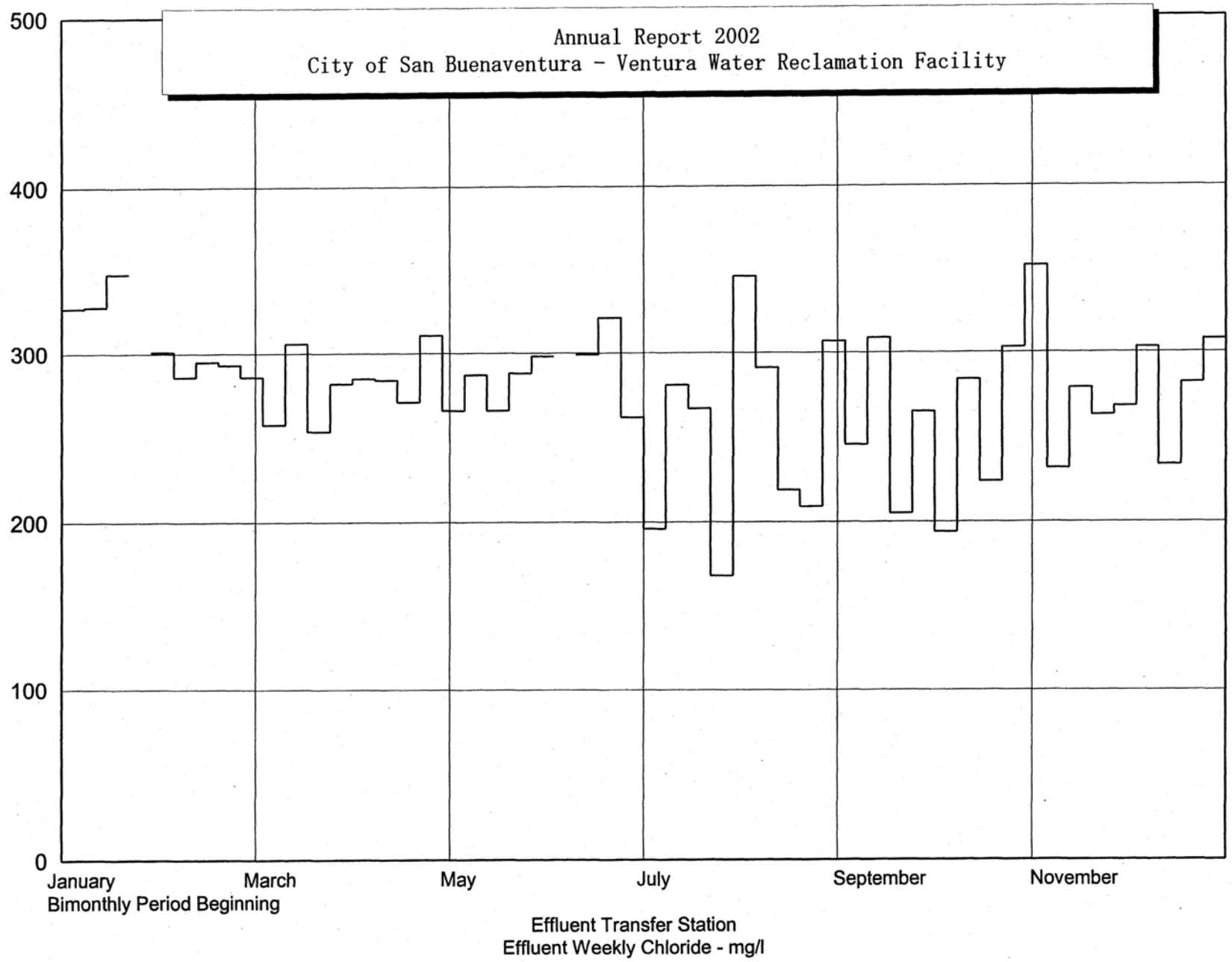

Annual Report 2002
City of San Buenaventura - Ventura Water Reclamation Facility
10
8
6
4
2
0
January
March
May
July
September
November
Bimonthly Period Beginning
Effluent Transfer Station
Effluent Weekly Ammonia-N - mg/l

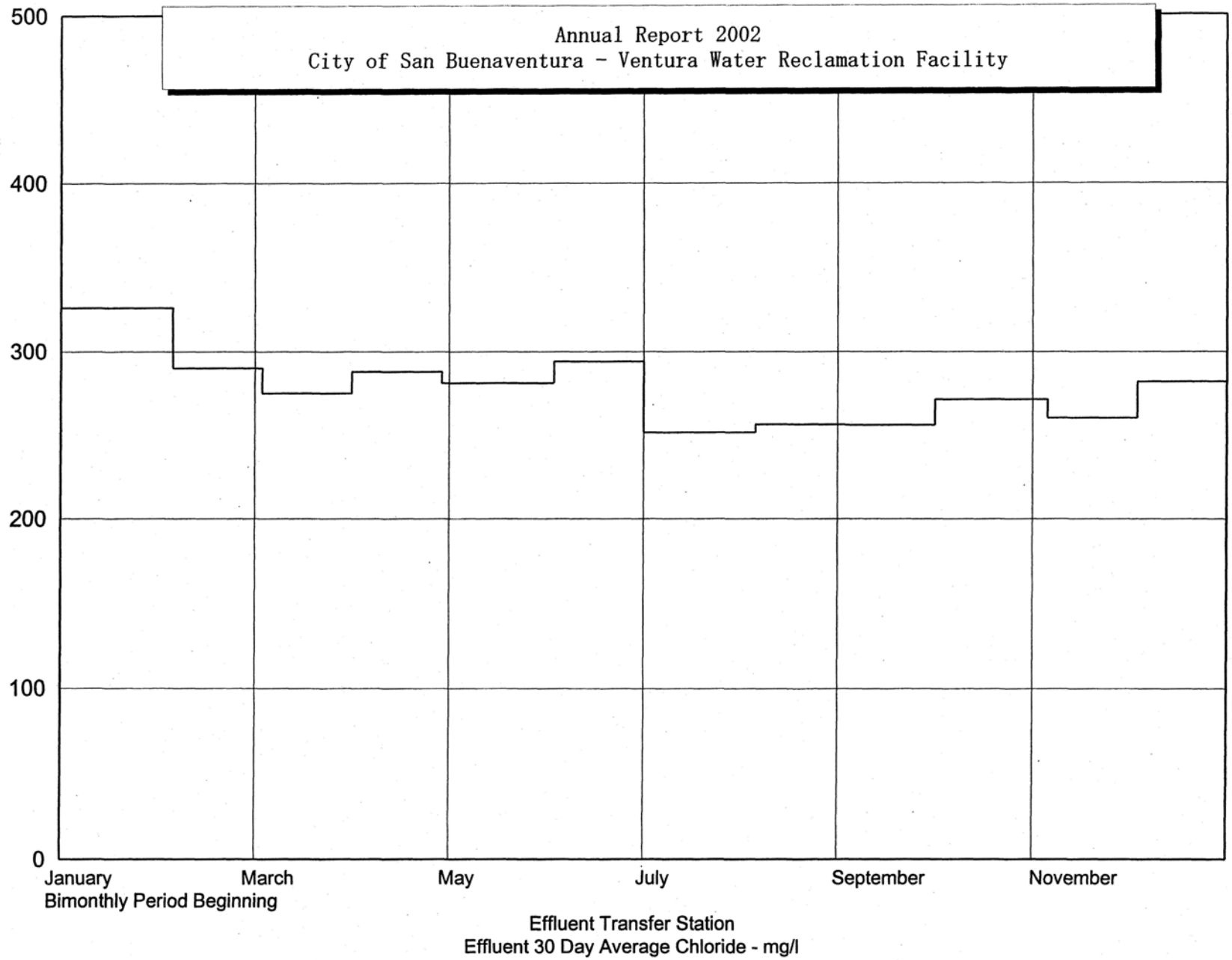

Annual Report 2002
City of San Buenaventura - Ventura Water Reclamation Facility
5
4
3
2
1
0
January
March
May
July
September
November
Bimonthly Period Beginning
Effluent Transfer Station
Effluent 30 Day Average Ammonia-N - mg/l

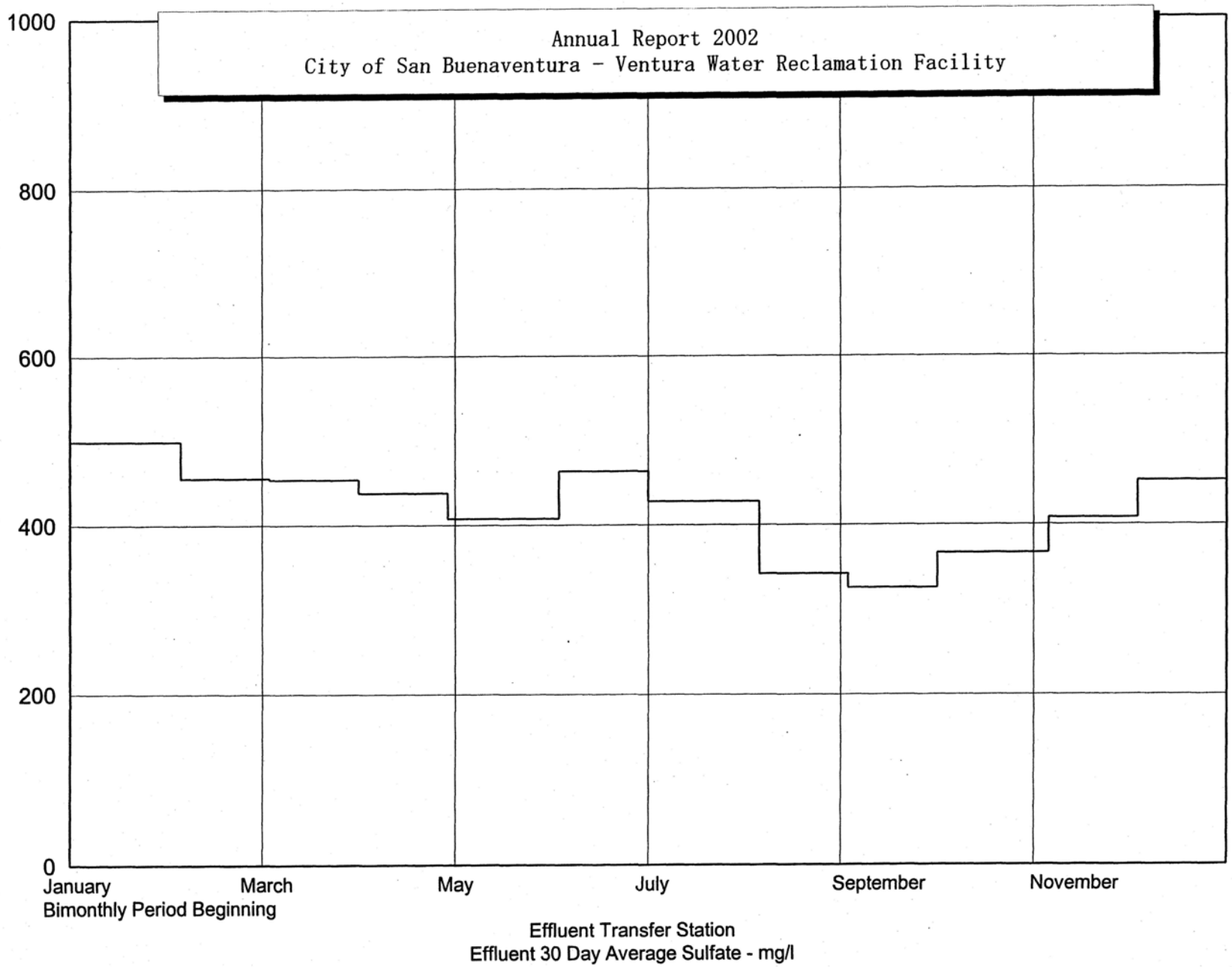

Annual Report 2002
City of San Buenaventura - Ventura Water Reclamation Facility
3
2
1
0
January
March
May
July
September
November
Bimonthly Period Beginning
Effluent Transfer Station
Effluent Monthly TKN - mg/l

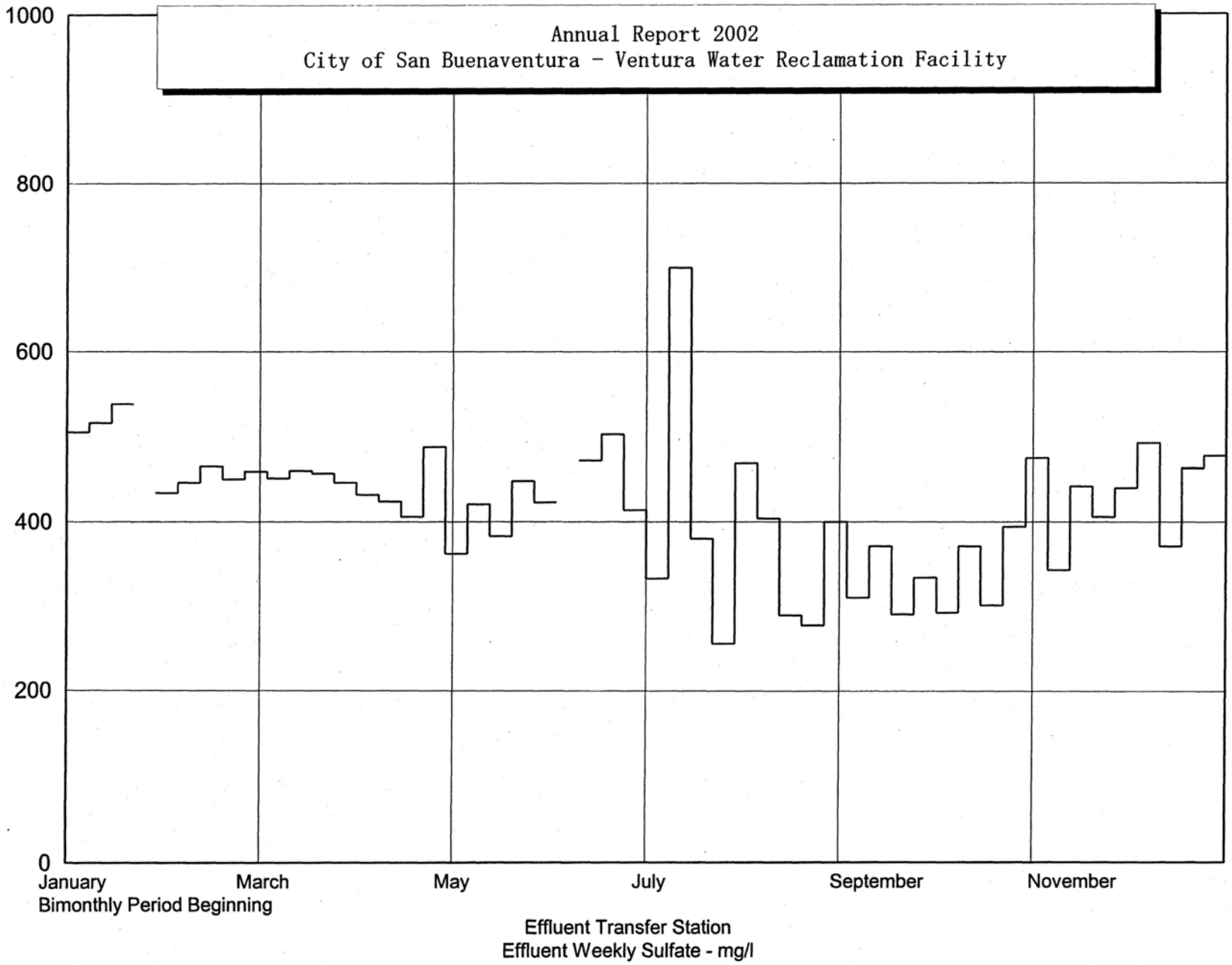

Annual Report 2002
City of San Buenaventura - Ventura Water Reclamation Facility
200
150
100
50
0
January
March
May
July
September
November
Bimonthly Period Beginning
Effluent Transfer Station
Effluent Monthly Chlorophyll A - ug/l

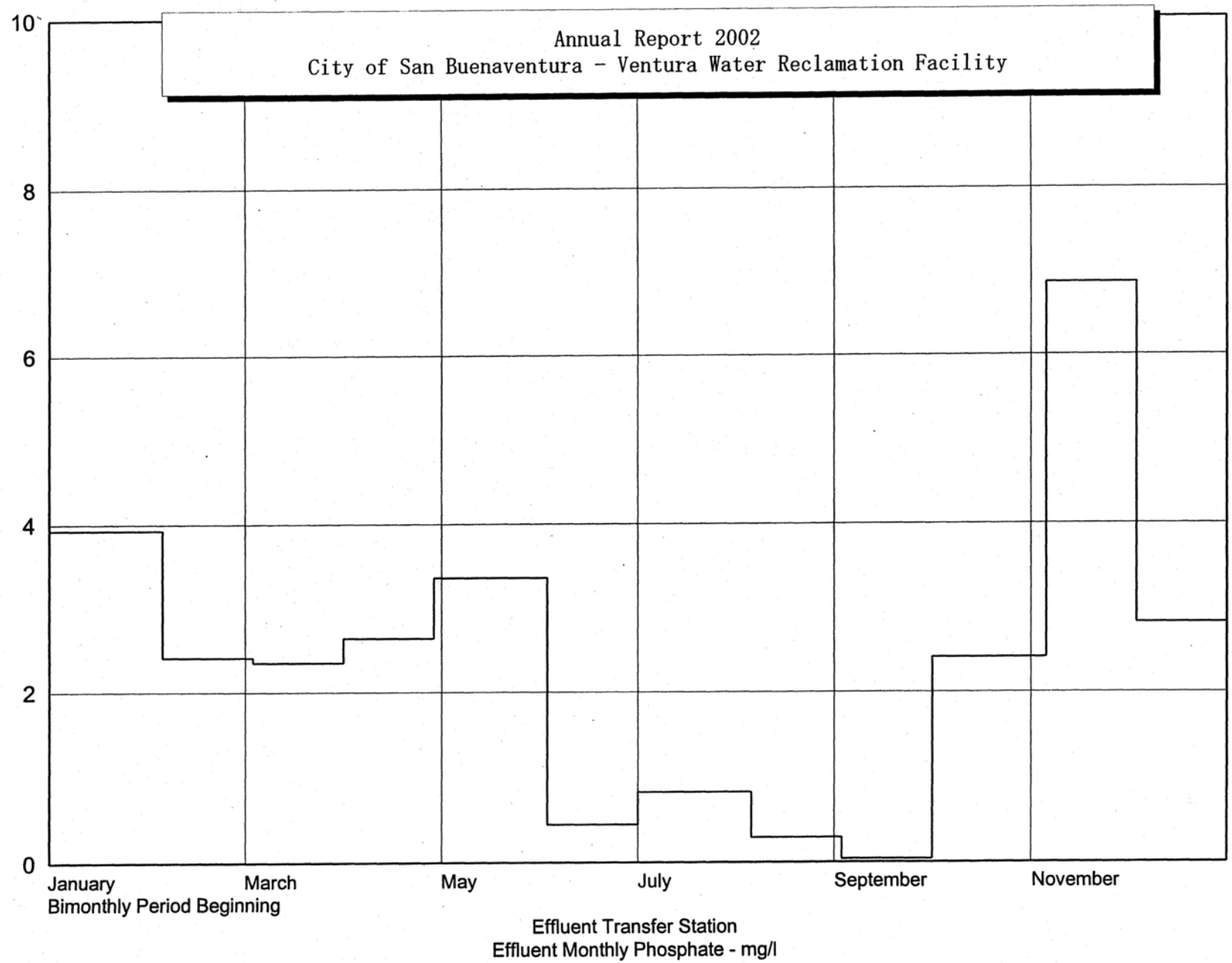

Annual Report 2002
City of San Buenaventura - Ventura Water Reclamation Facility
0.5
0.4
0.3
0.2
0.1
0
January
March
May
July
September
November
Bimonthly Period Beginning
Effluent Transfer Station
Effluent Monthly MBAS - mg/l

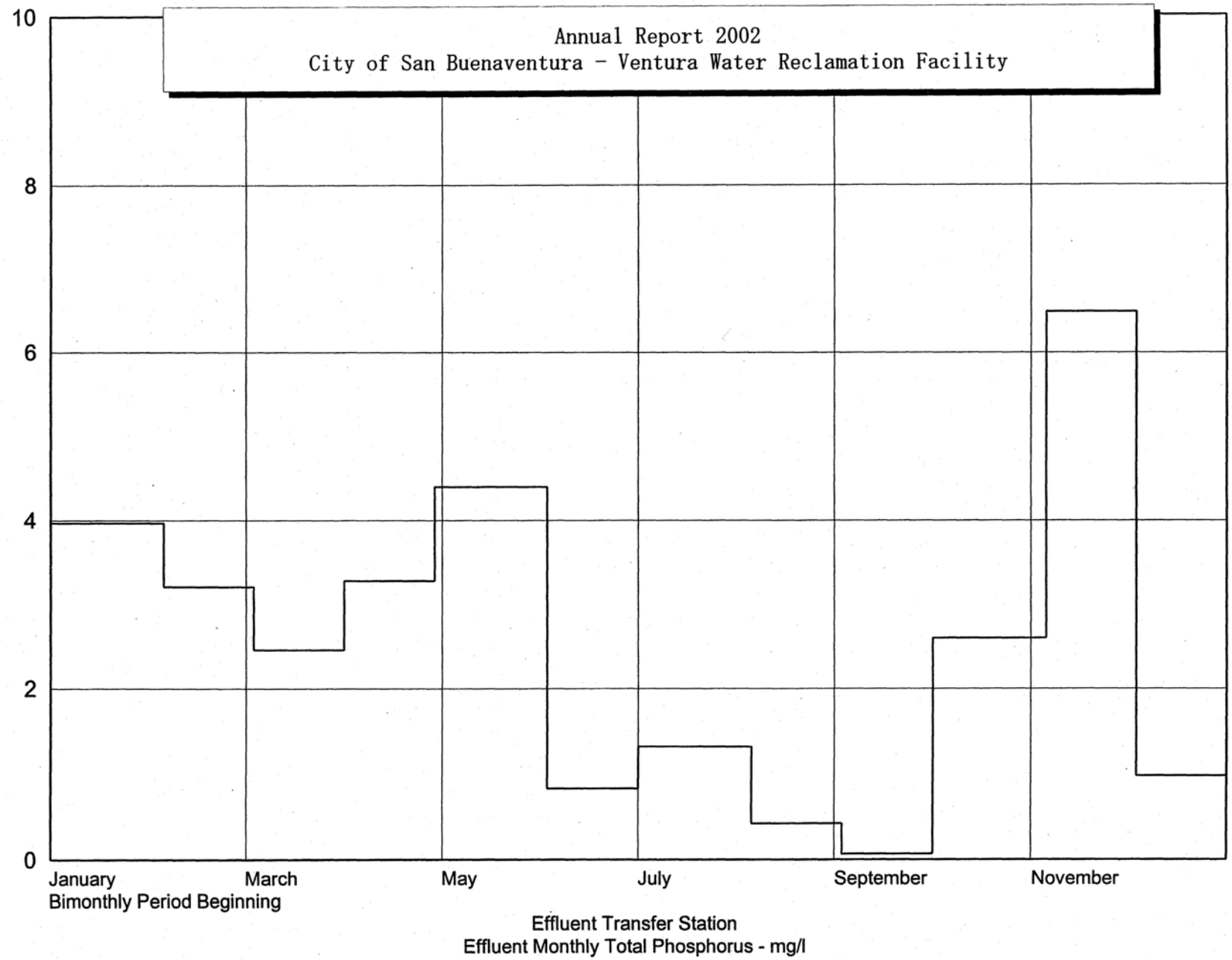

Annual Report 2002
City of San Buenaventura - Ventura Water Reclamation Facility
500
400
300
200
100
0
January
March
May
July
September
November
Bimonthly Period Beginning
Effluent Transfer Station
Effluent Weekly Chloride - mg/l

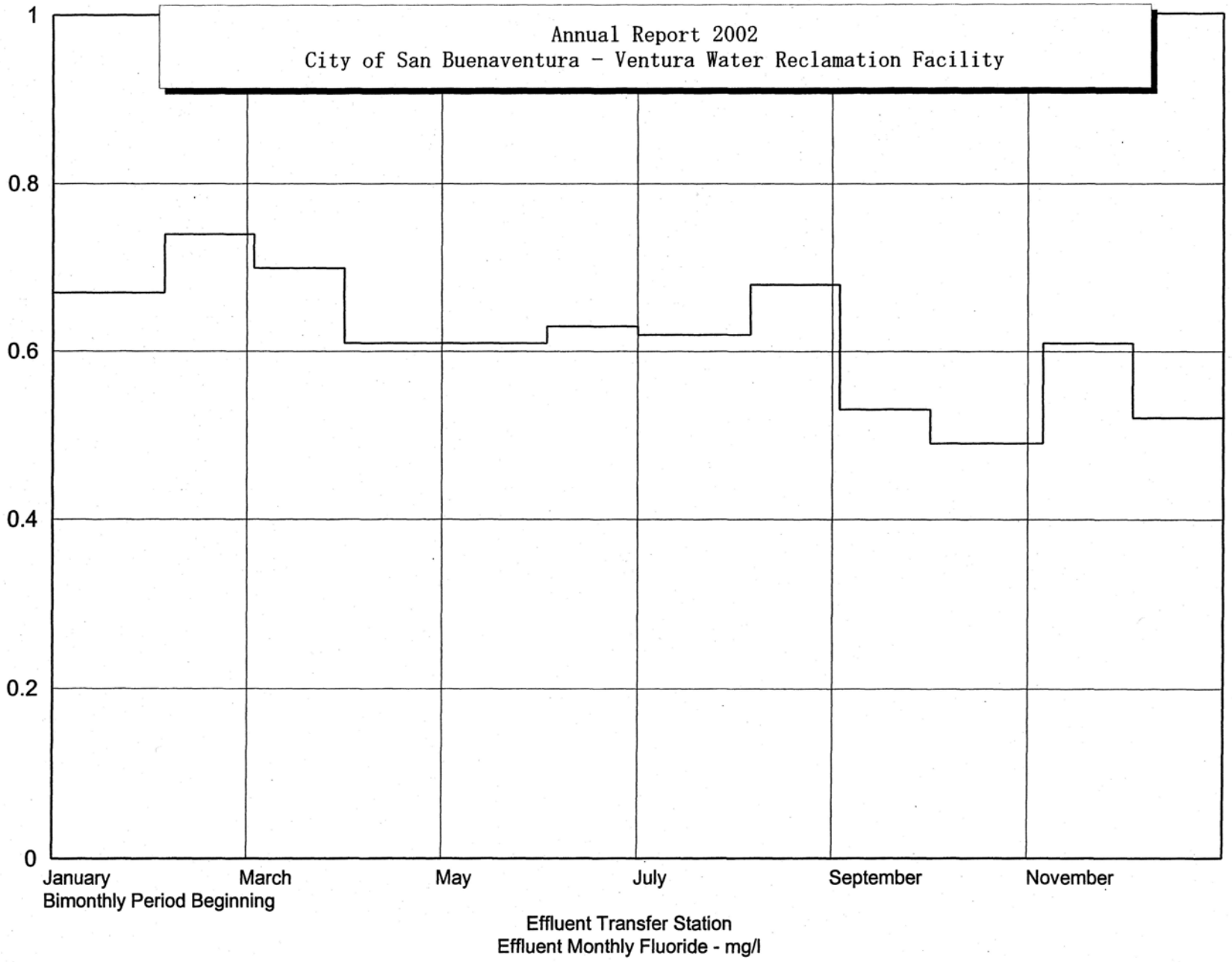

Annual Report 2002
City of San Buenaventura - Ventura Water Reclamation Facility
500
400
300
200
100
0
January
March
May
July
September
November
Bimonthly Period Beginning
Effluent Transfer Station
Effluent 30 Day Average Chloride - mg/l

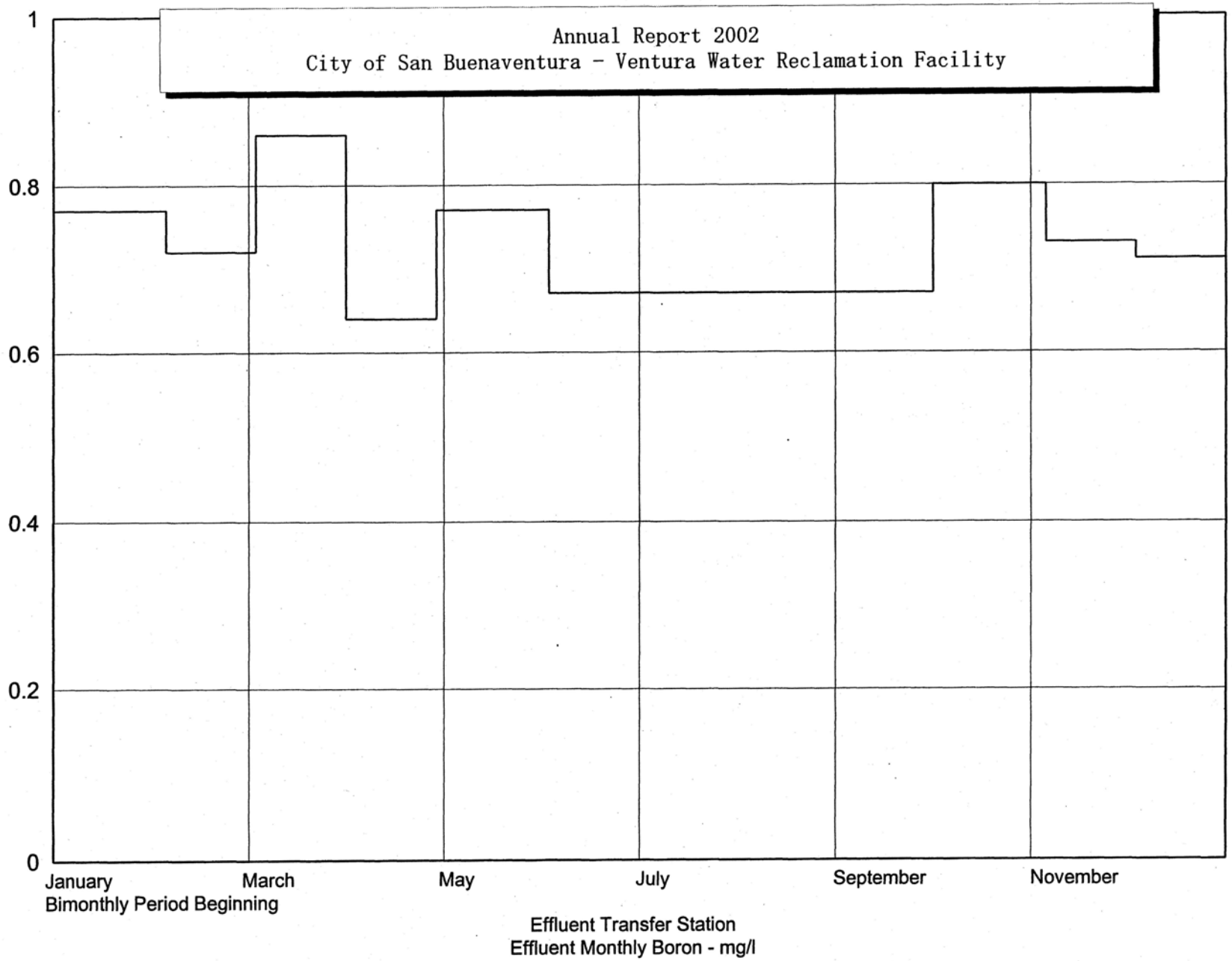

Annual Report 2002
City of San Buenaventura - Ventura Water Reclamation Facility
1000
800
600
400
200
0
January
March
May
July
September
November
Bimonthly Period Beginning
Effluent Transfer Station
Effluent 30 Day Average Sulfate - mg/l

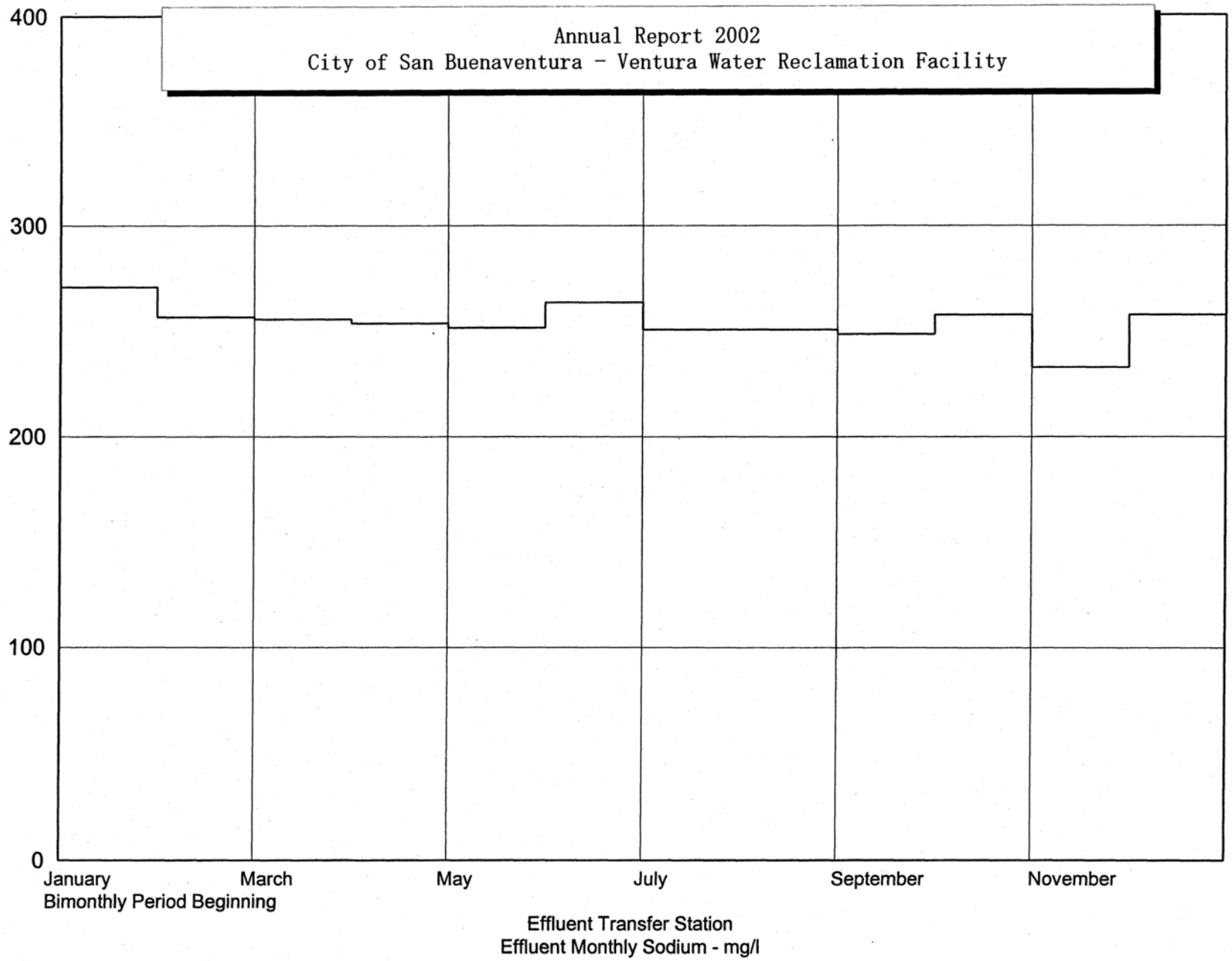

Annual Report 2002
City of San Buenaventura - Ventura Water Reclamation Facility
1000
800
600
400
200
0
January
March
May
July
September
November
Bimonthly Period Beginning
Effluent Transfer Station
Effluent Weekly Sulfate - mg/l

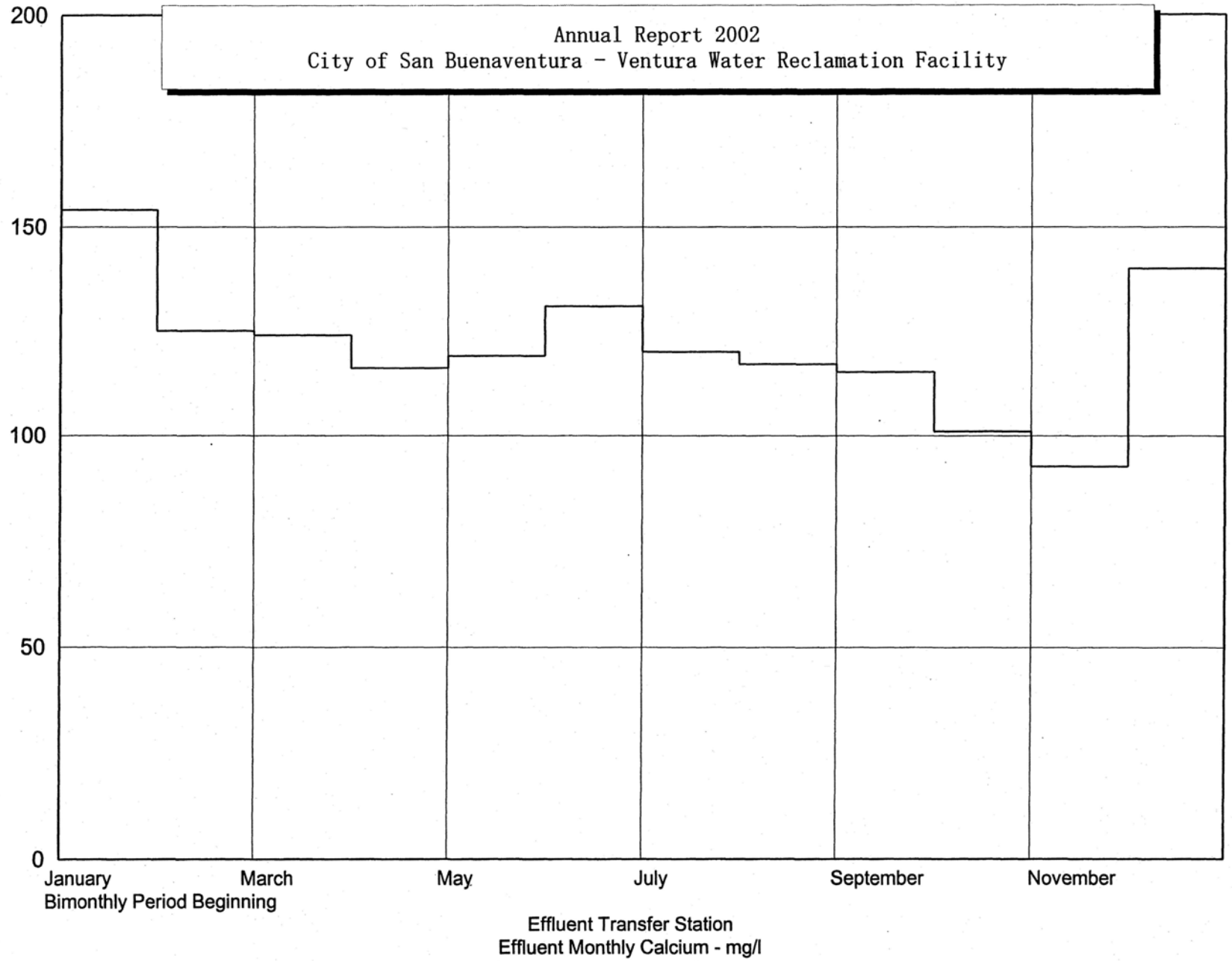

Annual Report 2002
City of San Buenaventura - Ventura Water Reclamation Facility
10
8
6
4
2
0
January
March
May
July
September
November
Bimonthly Period Beginning
Effluent Transfer Station
Effluent Monthly Phosphate - mg/l

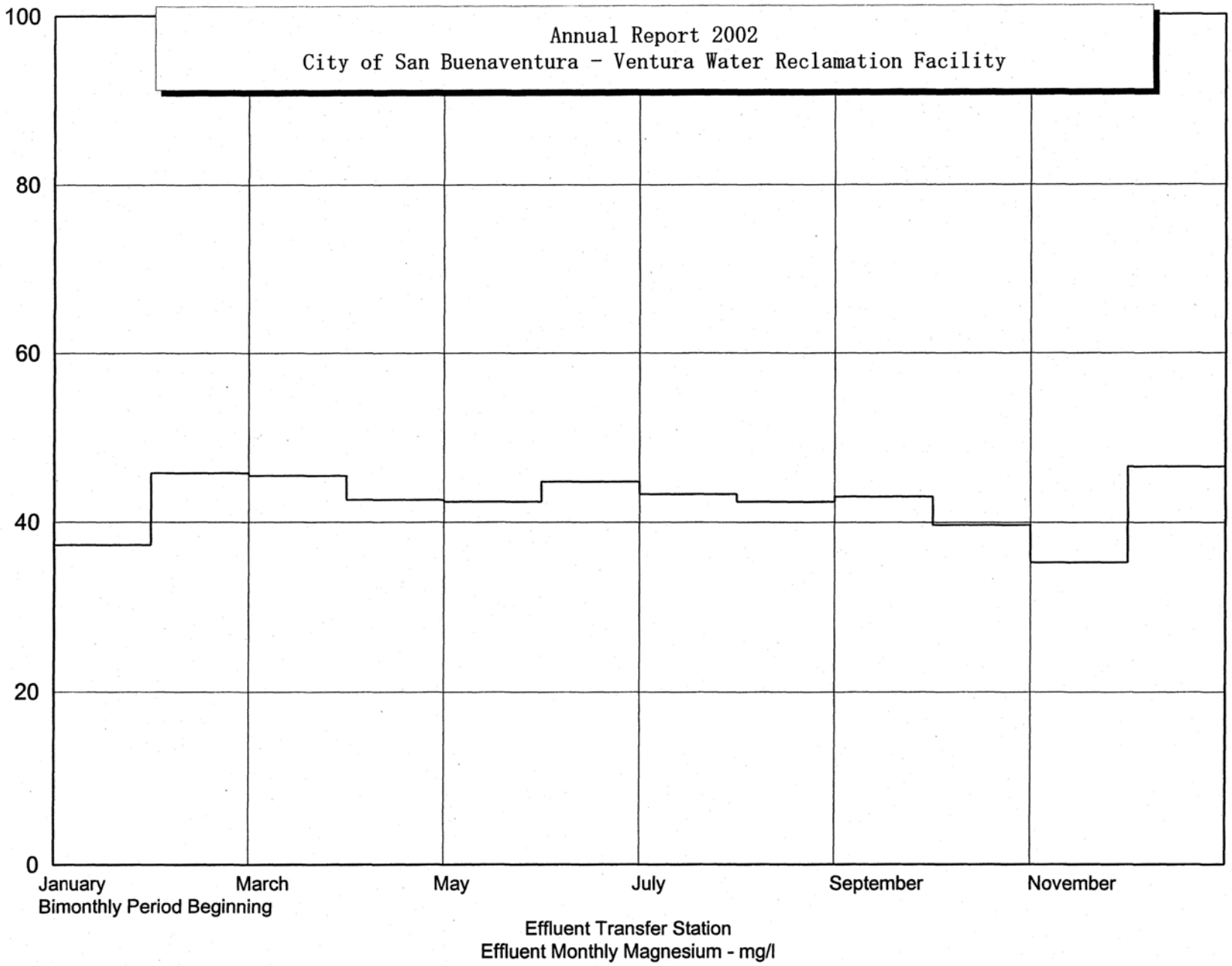

Annual Report 2002
City of San Buenaventura - Ventura Water Reclamation Facility
10
8
6
4
2
0
January
March
May
July
September
November
Bimonthly Period Beginning
Effluent Transfer Station
Effluent Monthly Total Phosphorus - mg/l

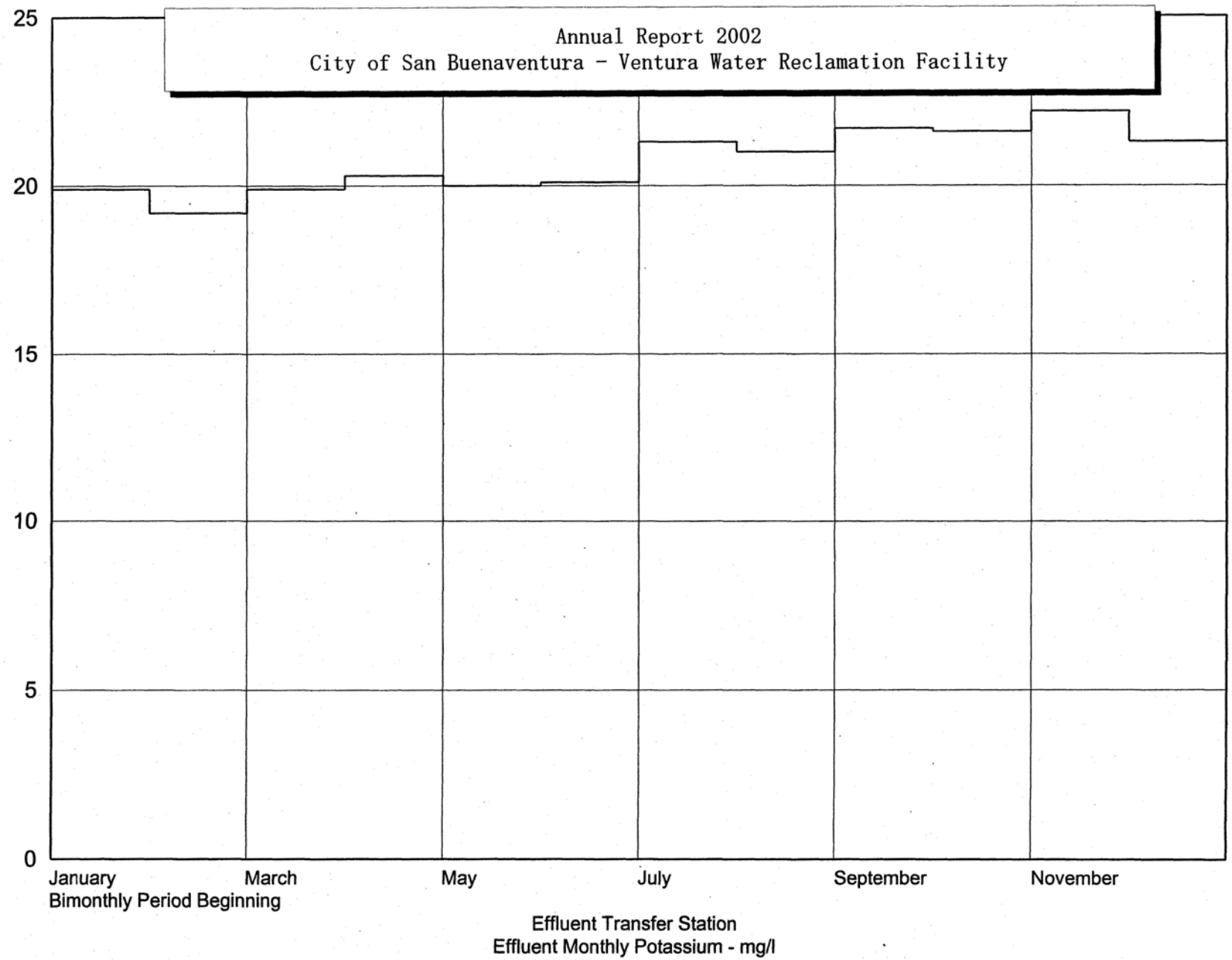

Annual Report 2002
City of San Buenaventura - Ventura Water Reclamation Facility
1
0.8
0.6
0.4
0.2
0
January
March
May
July
September
November
Bimonthly Period Beginning
Effluent Transfer Station
Effluent Monthly Fluoride - mg/l

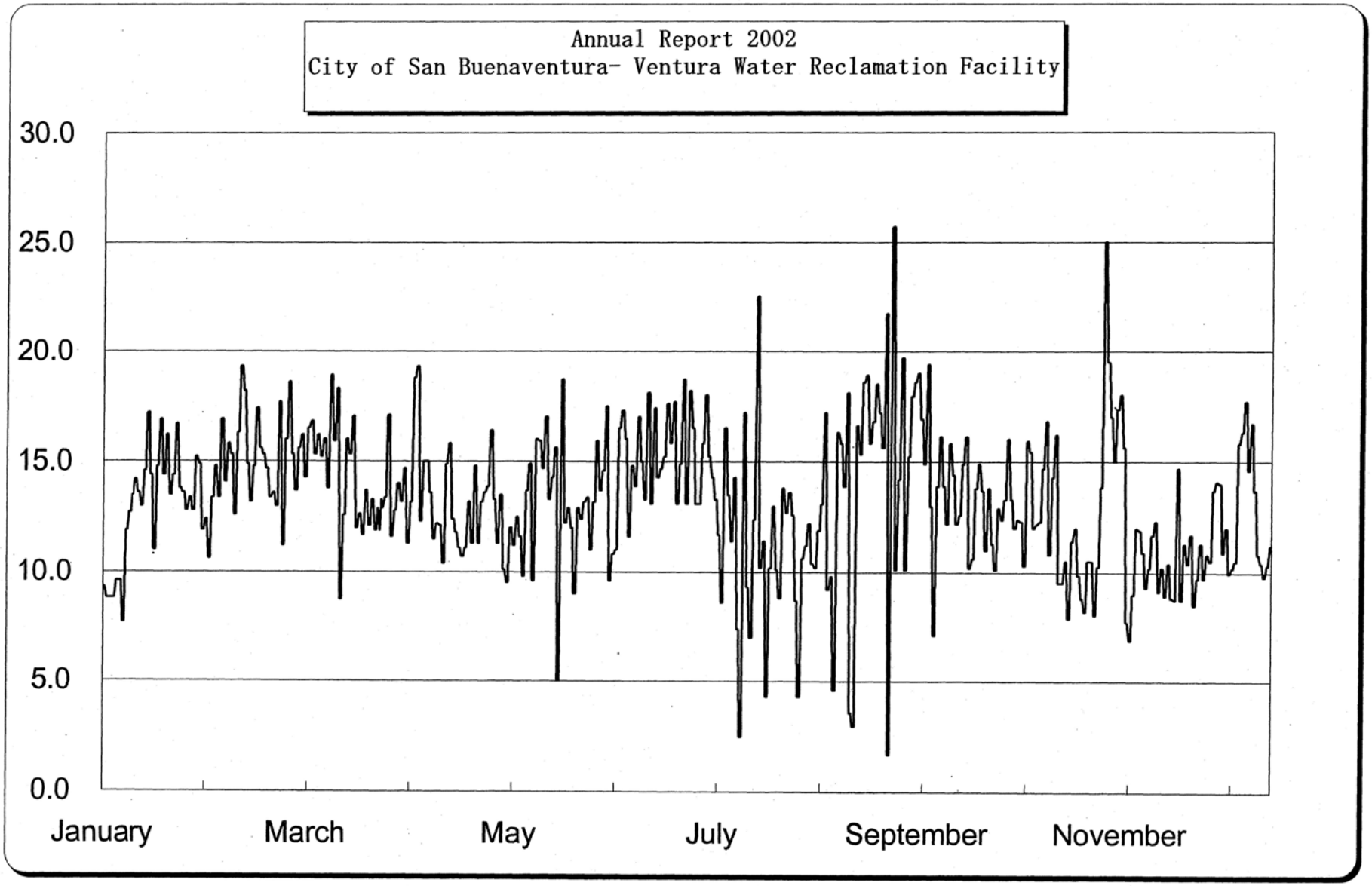

Annual Report 2002
City of San Buenaventura - Ventura Water Reclamation Facility
1
0.8
0.6
0.4
0.2
0
January
March
May
July
September
November
Bimonthly Period Beginning
Effluent Transfer Station
Effluent Monthly Boron - mg/l


Annual Report 2002
City of San Buenaventura - Ventura Water Reclamation Facility
400
300
200
100
0
January
March
May
July
September
November
Bimonthly Period Beginning
Effluent Transfer Station
Effluent Monthly Sodium - mg/l


Annual Report 2002
City of San Buenaventura - Ventura Water Reclamation Facility
200
150
100
50
0
January
March
May
July
September
November
Bimonthly Period Beginning
Effluent Transfer Station
Effluent Monthly Calcium - mg/l

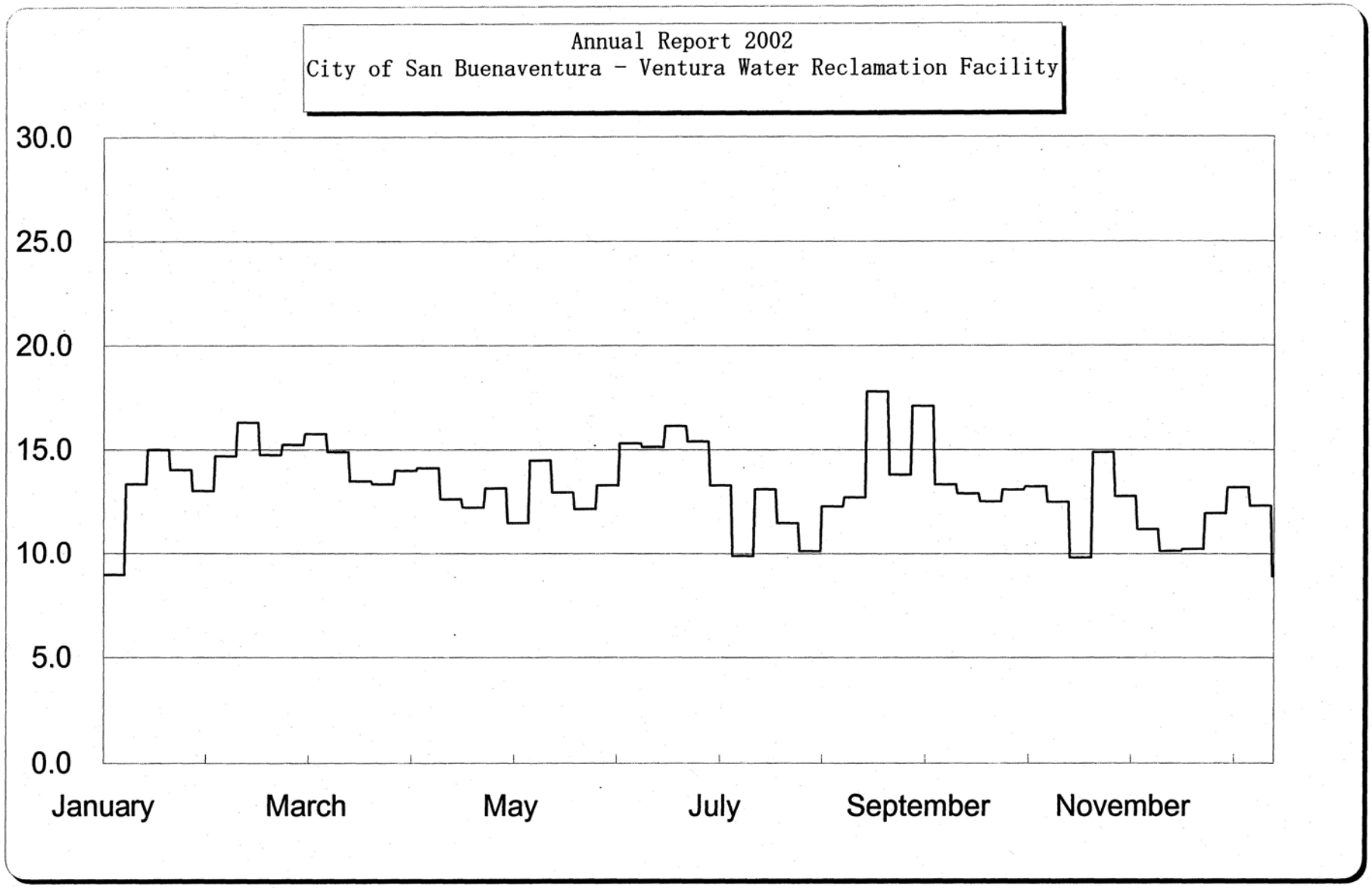

Annual Report 2002
City of San Buenaventura - Ventura Water Reclamation Facility
100
80
60
40
20
0
January
March
May
July
September
November
Bimonthly Period Beginning
Effluent Transfer Station
Effluent Monthly Magnesium - mg/l


Annual Report 2002
City of San Buenaventura - Ventura Water Reclamation Facility
25
20
15
10
5
0
January
March
May
July
September
November
Bimonthly Period Beginning
Effluent Transfer Station
Effluent Monthly Potassium - mg/l



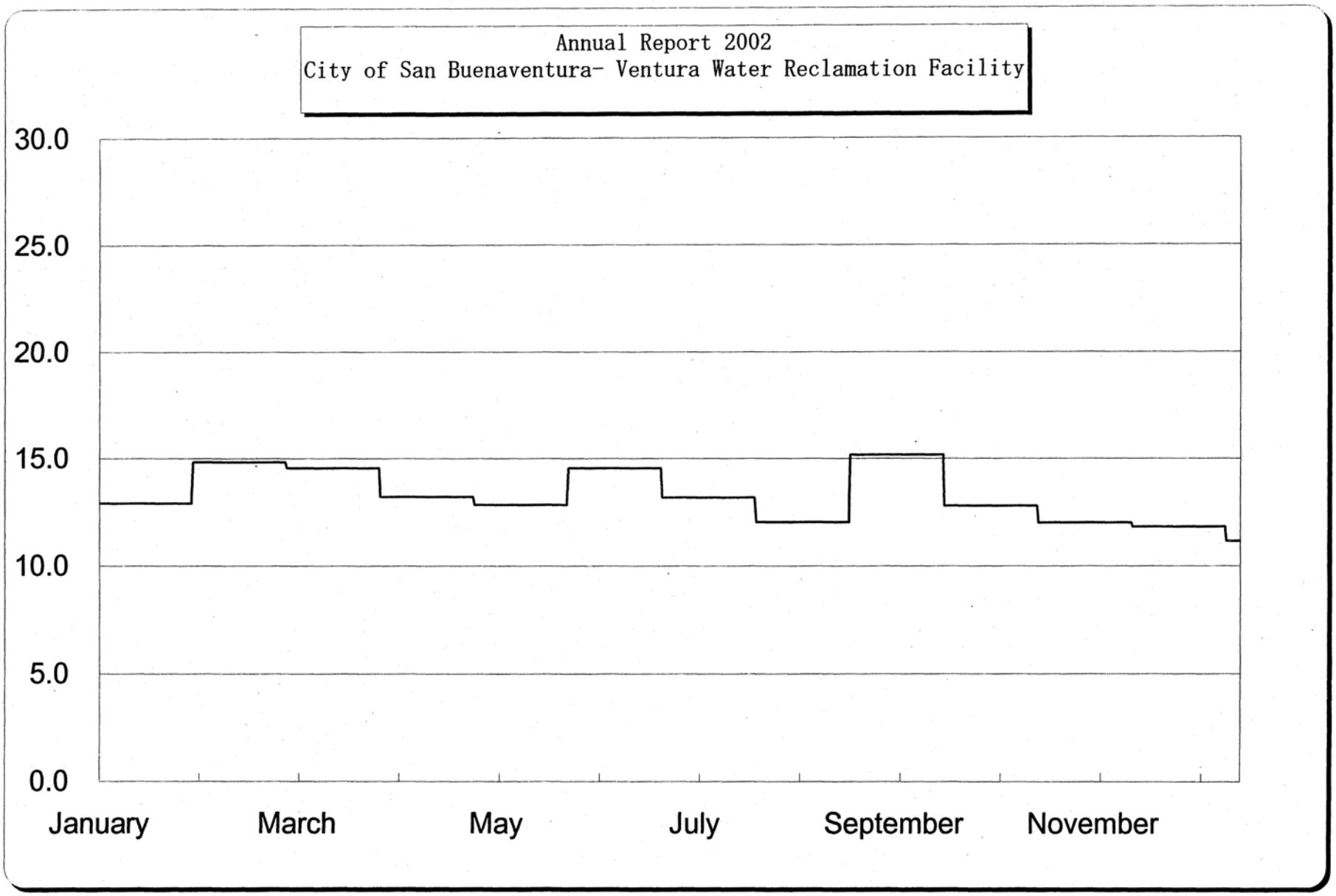
Effluent Transfer Station
Bay 1 Chlorine Residual at 7:00 AM - mg/l

Bimonthly Period Beginning



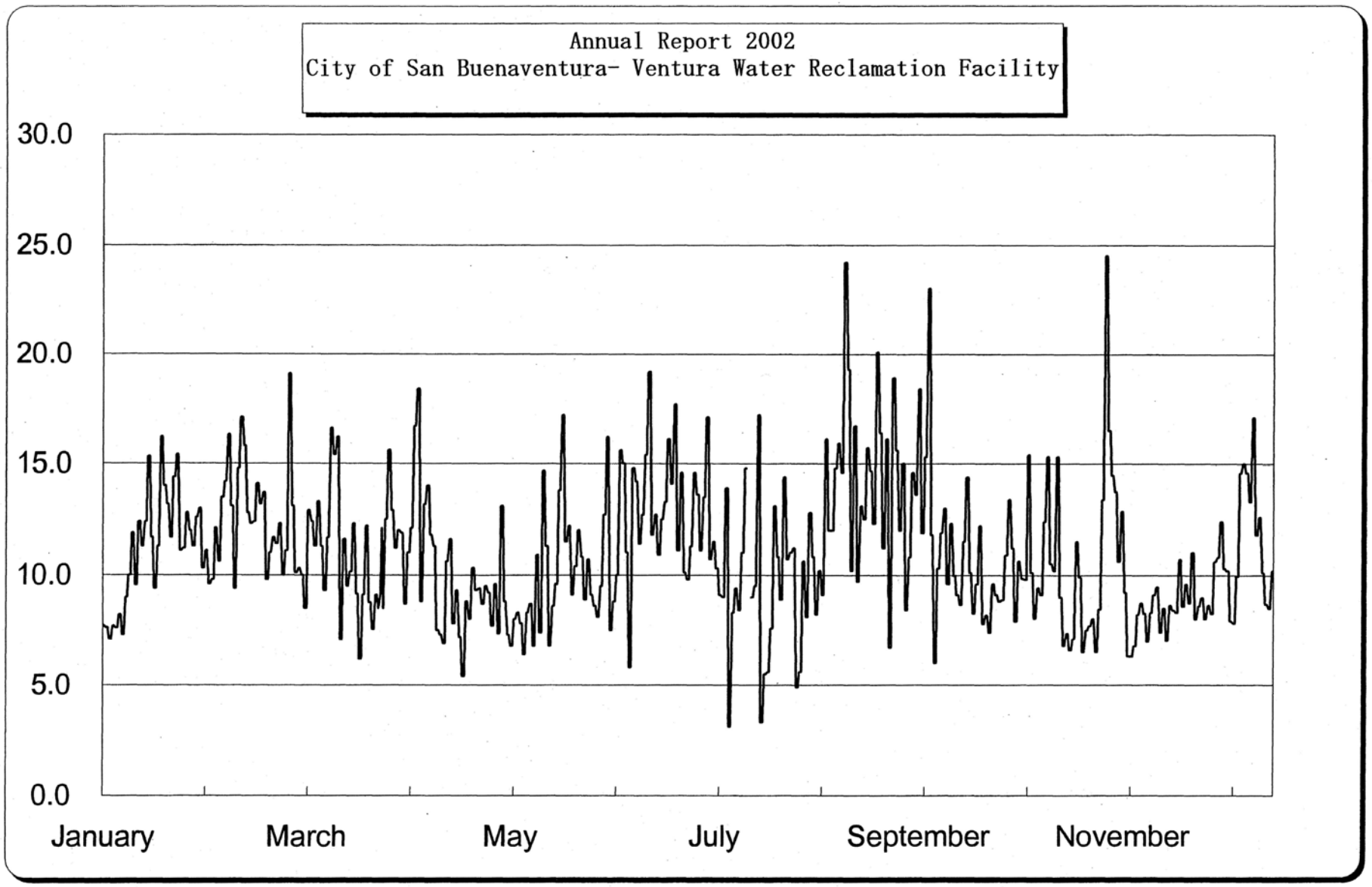
Effluent Transfer Station
Bay 1 7 Day Average Chlorine Residual at 7:00 AM - mg/l

Bimonthly Period Beginning



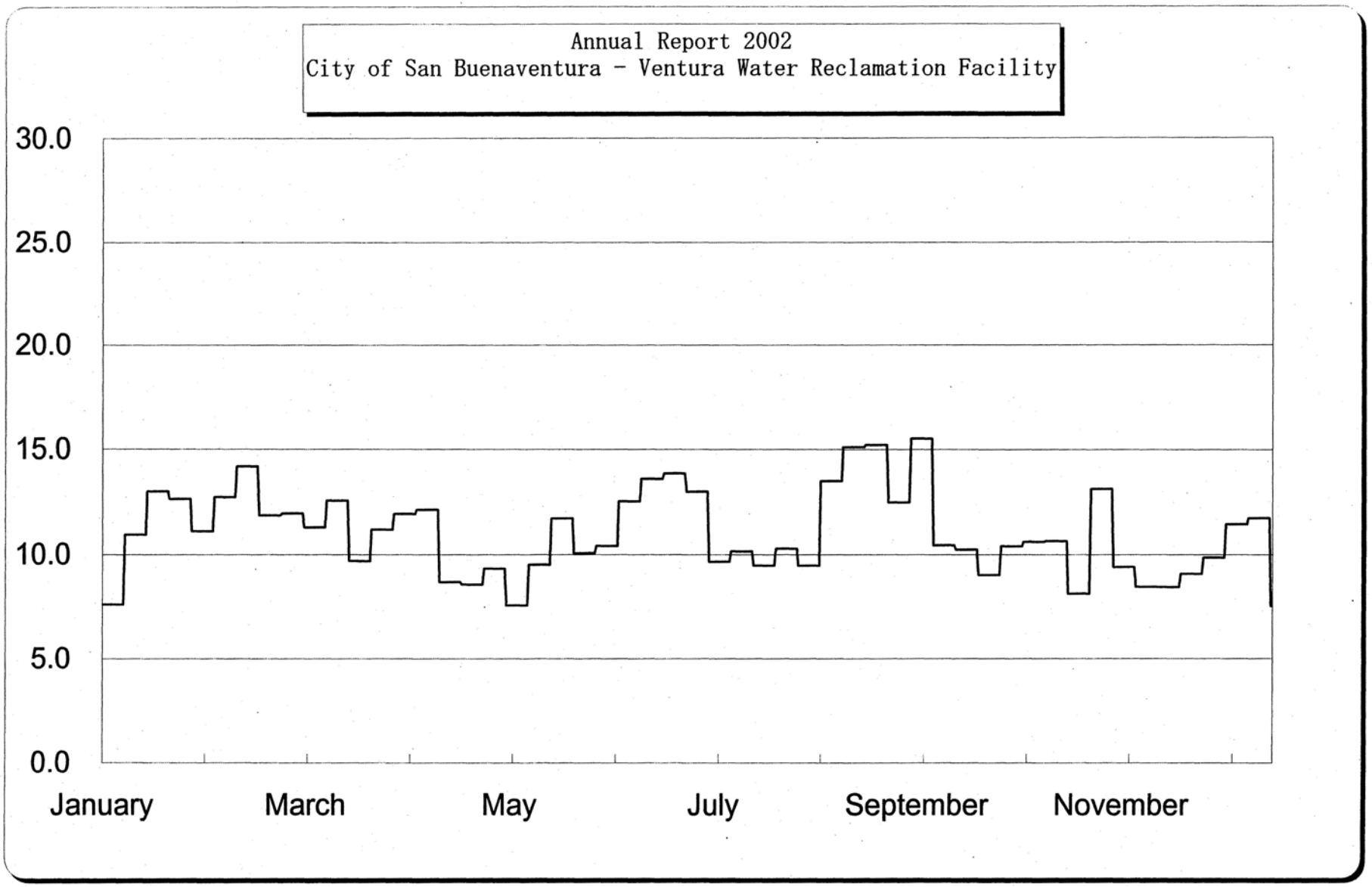
Effluent Transfer Station
Bay 1 30 Day Average Chlorine Residual at 7:00 AM - mg/l

Bimonthly Period Beginning



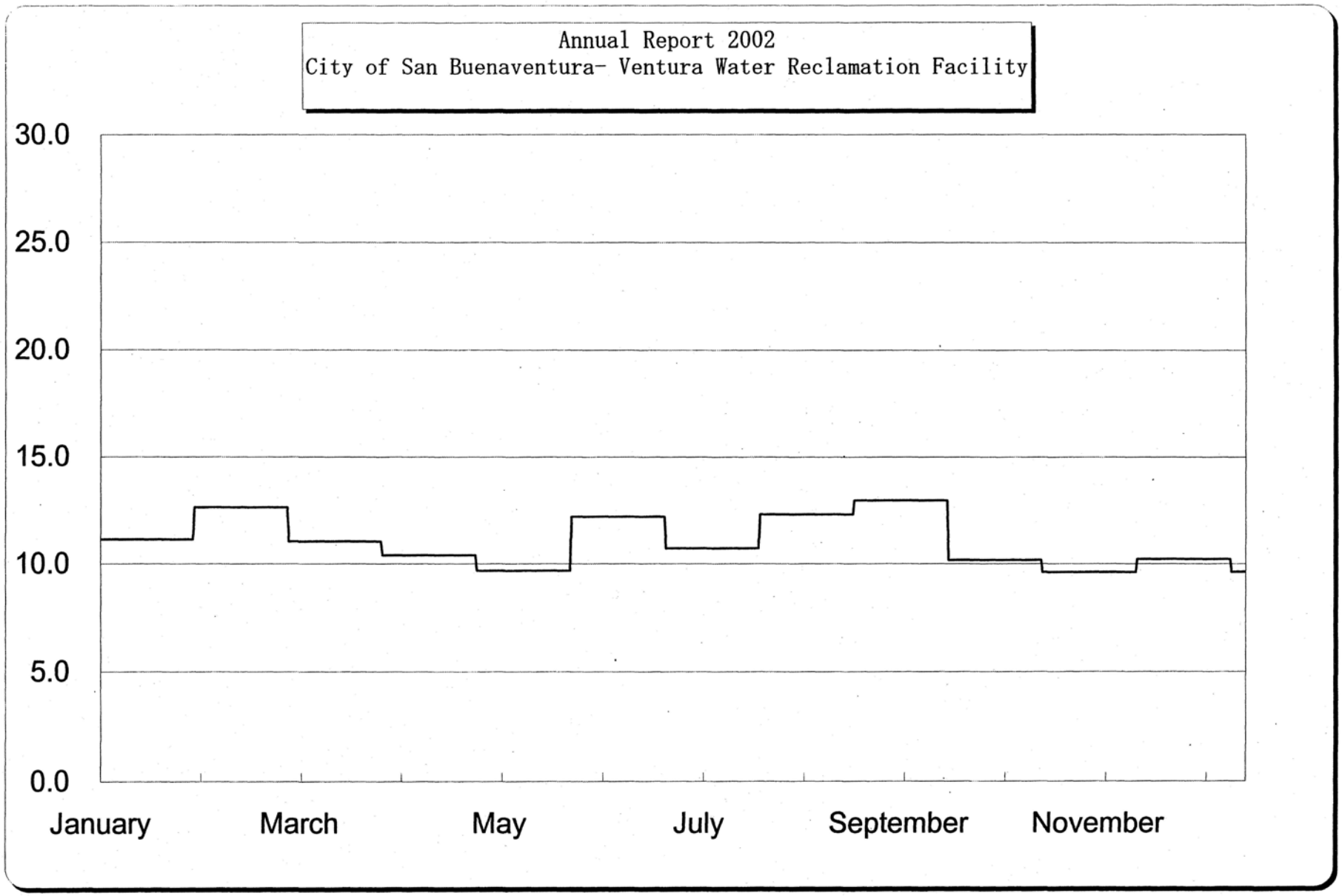
Effluent Transfer Station
Bay 1 Chlorine Residual at 11:00 AM - mg/l

Bimonthly Period Beginning



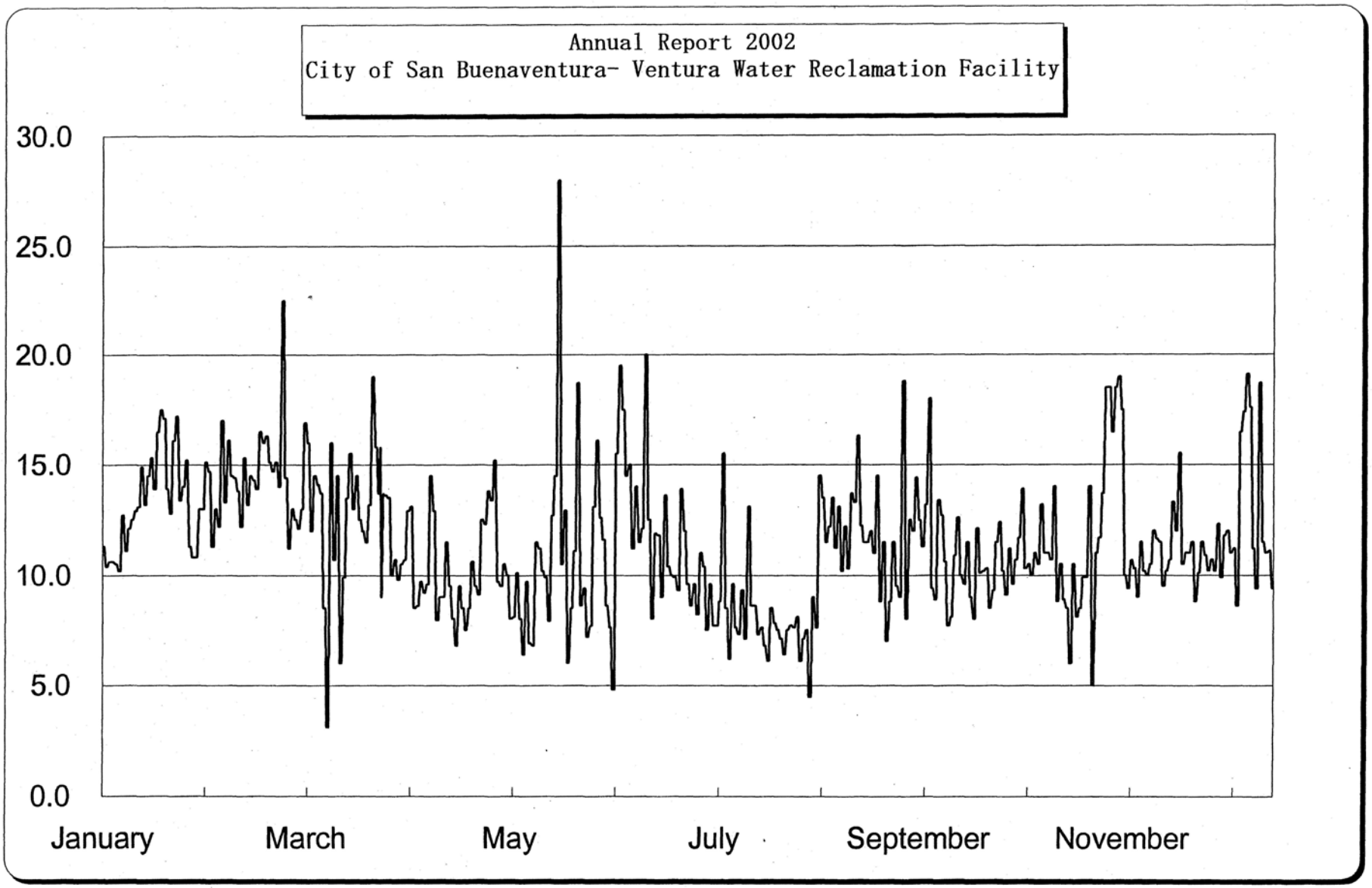
Effluent Transfer Station
Bay 1 7 Day Average Chlorine Residual at 11:00 AM - mg/l

Bimonthly Period Beginning



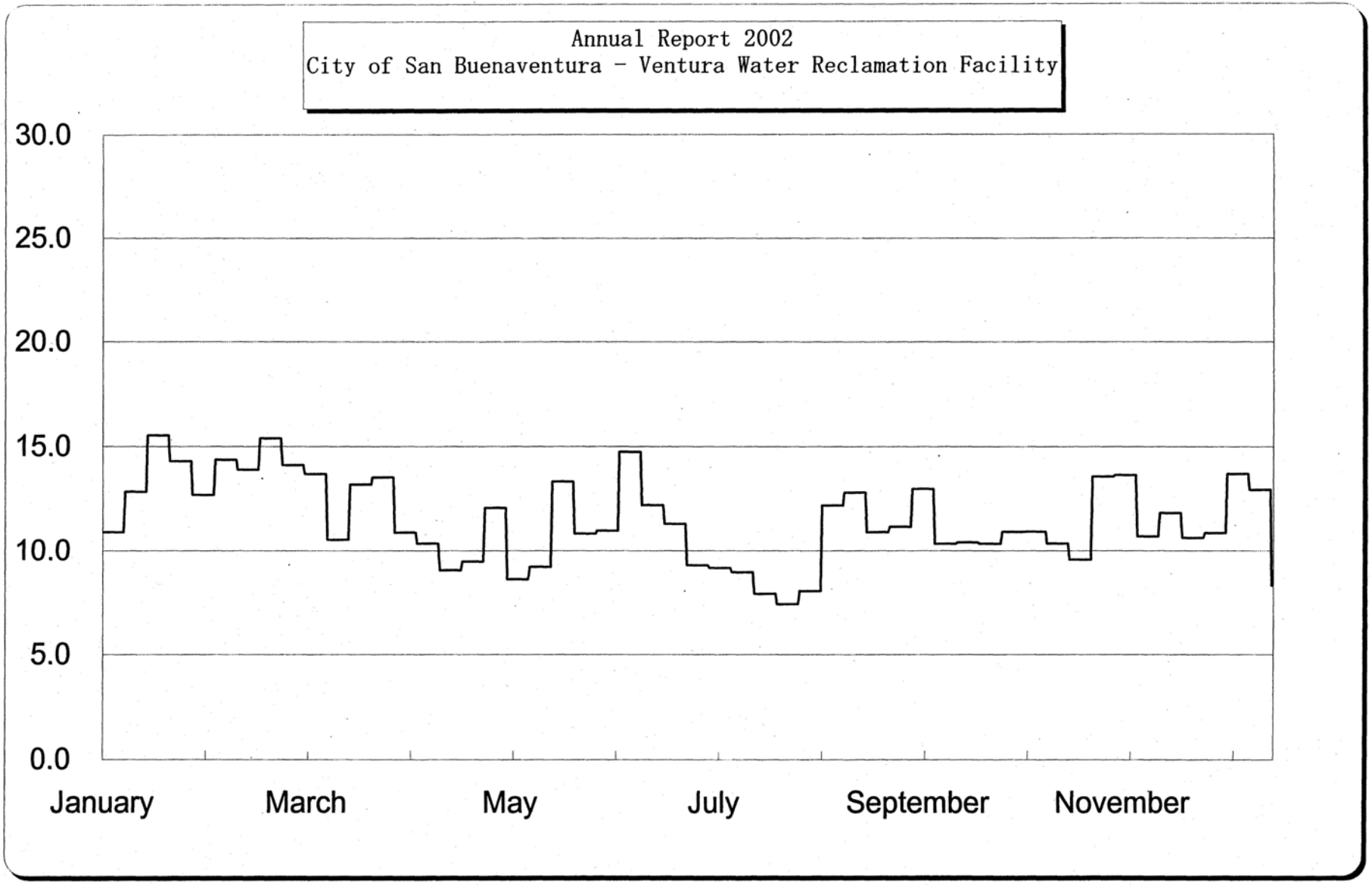
Effluent Transfer Station
Bay 1 30 Day Average Chlorine Residual at 11:00 AM - mg/l

Bimonthly Period Beginning



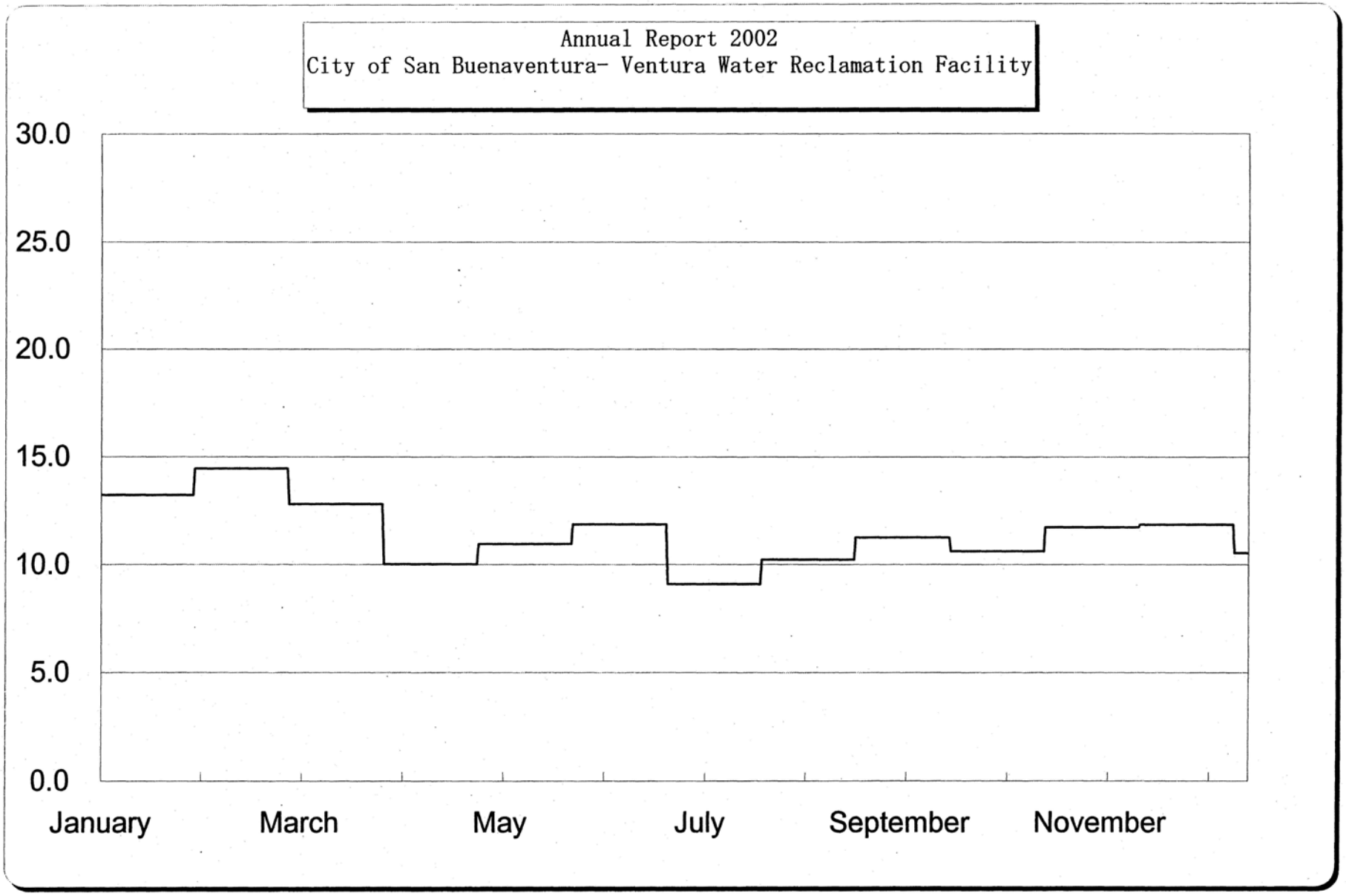
Effluent Transfer Station
Bay 1 Chlorine Residual at 8:00 PM - mg/l

Bimonthly Period Beginning



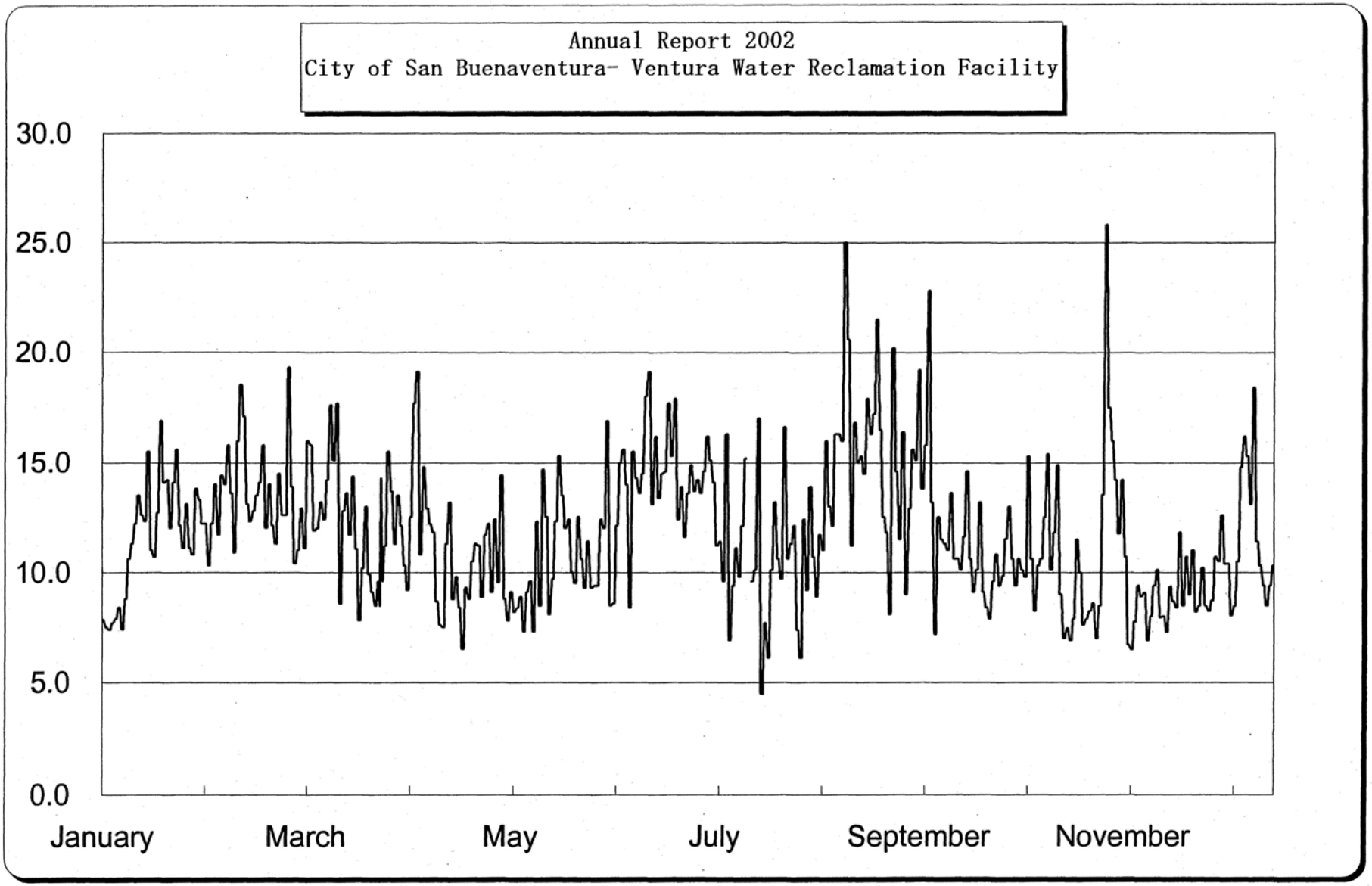
Effluent Transfer Station
Bay 1 7 Day Average Chlorine Residual at 8:00 PM - mg/l

Bimonthly Period Beginning



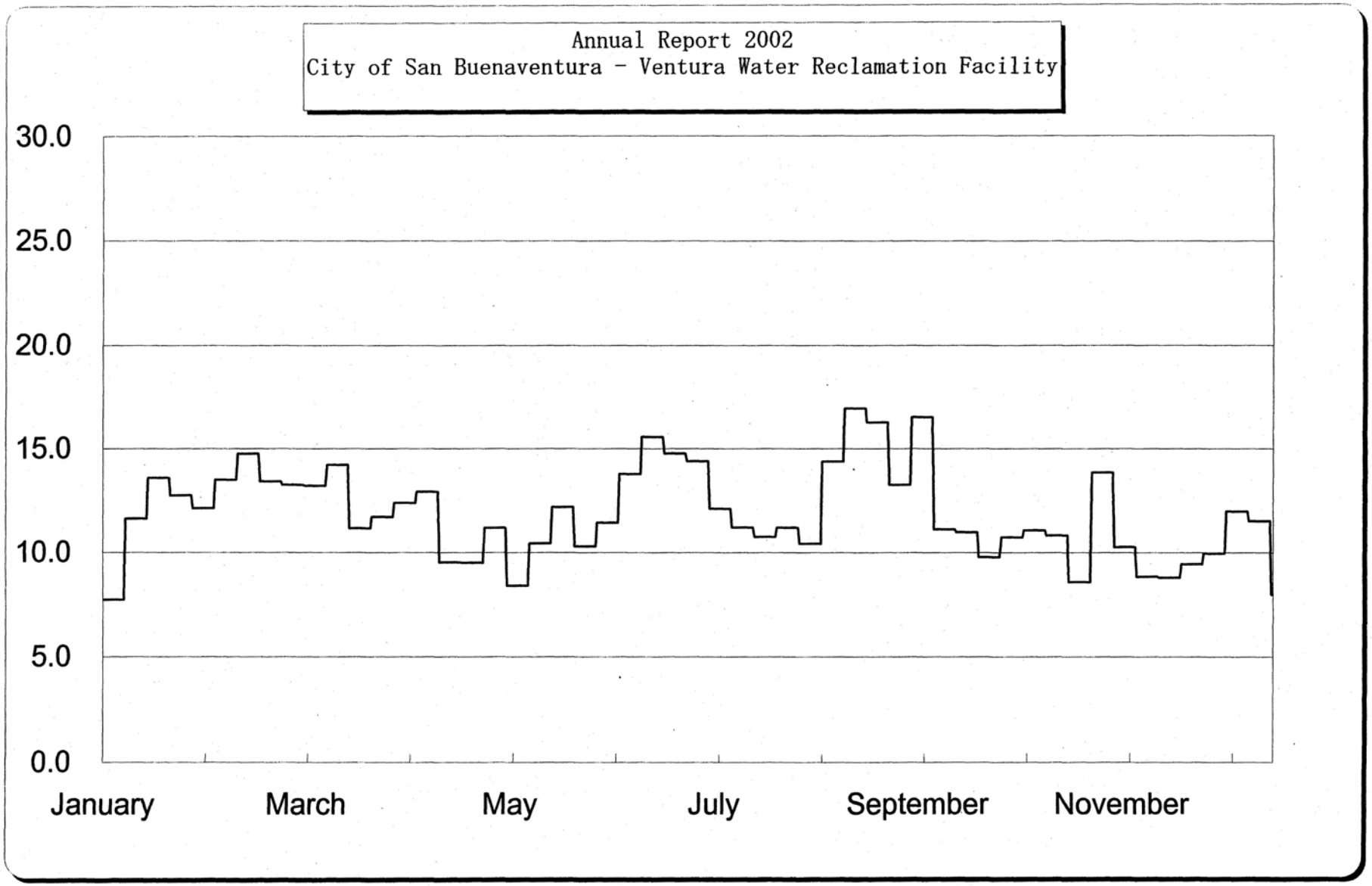
Effluent Transfer Station
Bay 1 30 Day Average Chlorine Residual at 8:00 PM - mg/l

Bimonthly Period Beginning



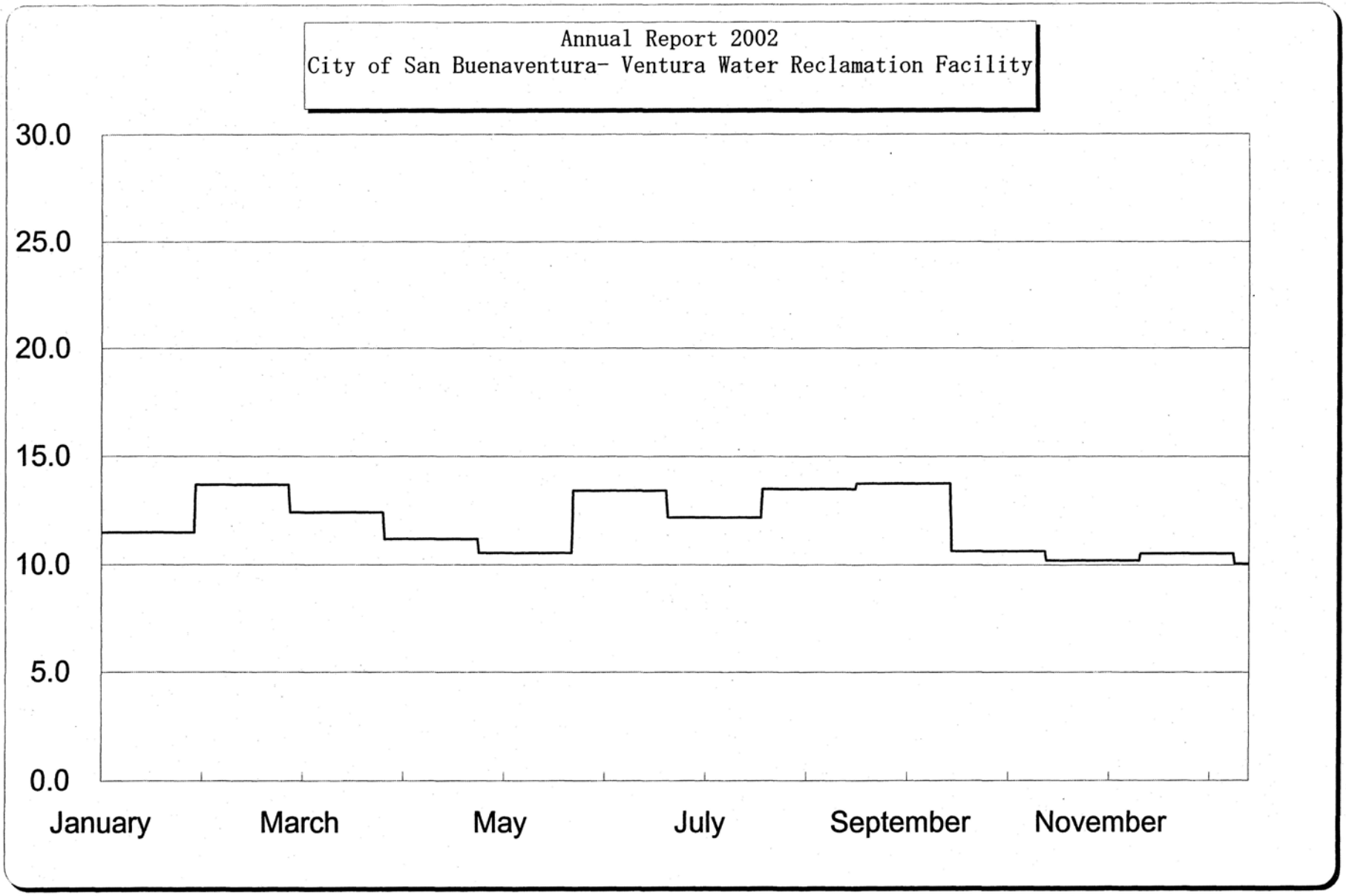
Effluent Transfer Station
Effluent Chlorine Residual at 11:00 AM - mg/l

Bimonthly Period Beginning



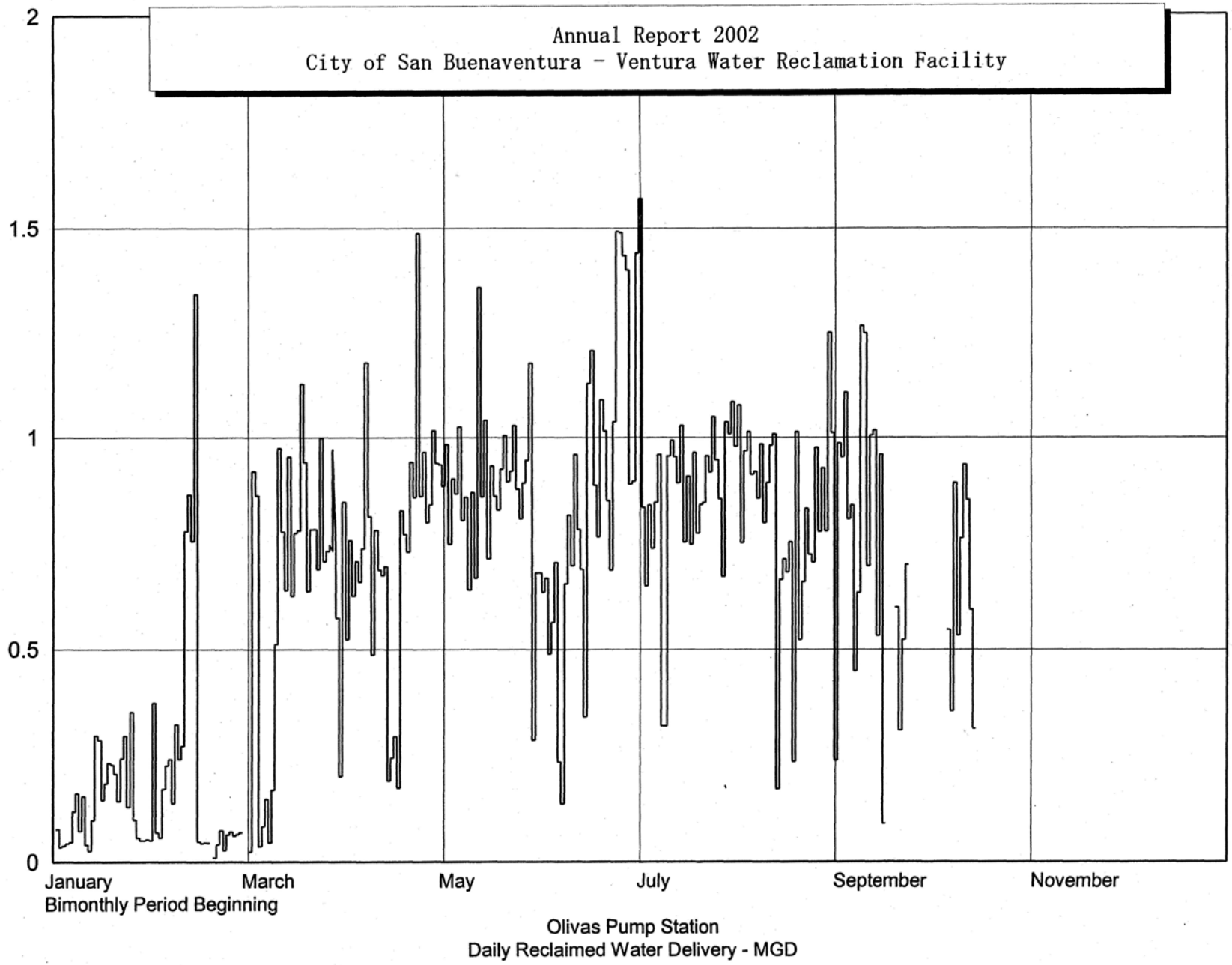
Effluent Transfer Station
Effluent 7 Day Average Chlorine Residual at 11:00 AM - mg/l

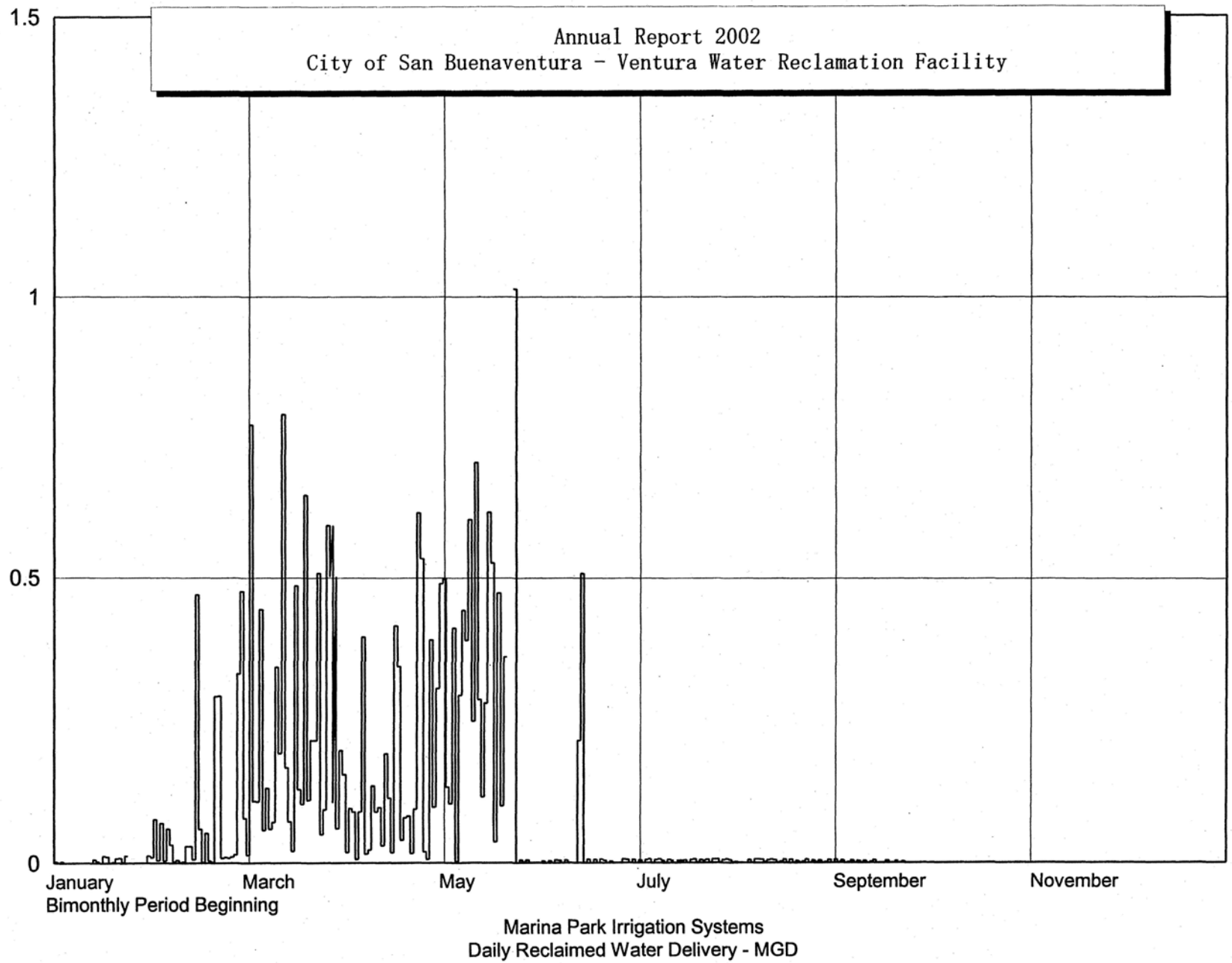
Bimonthly Period Beginning

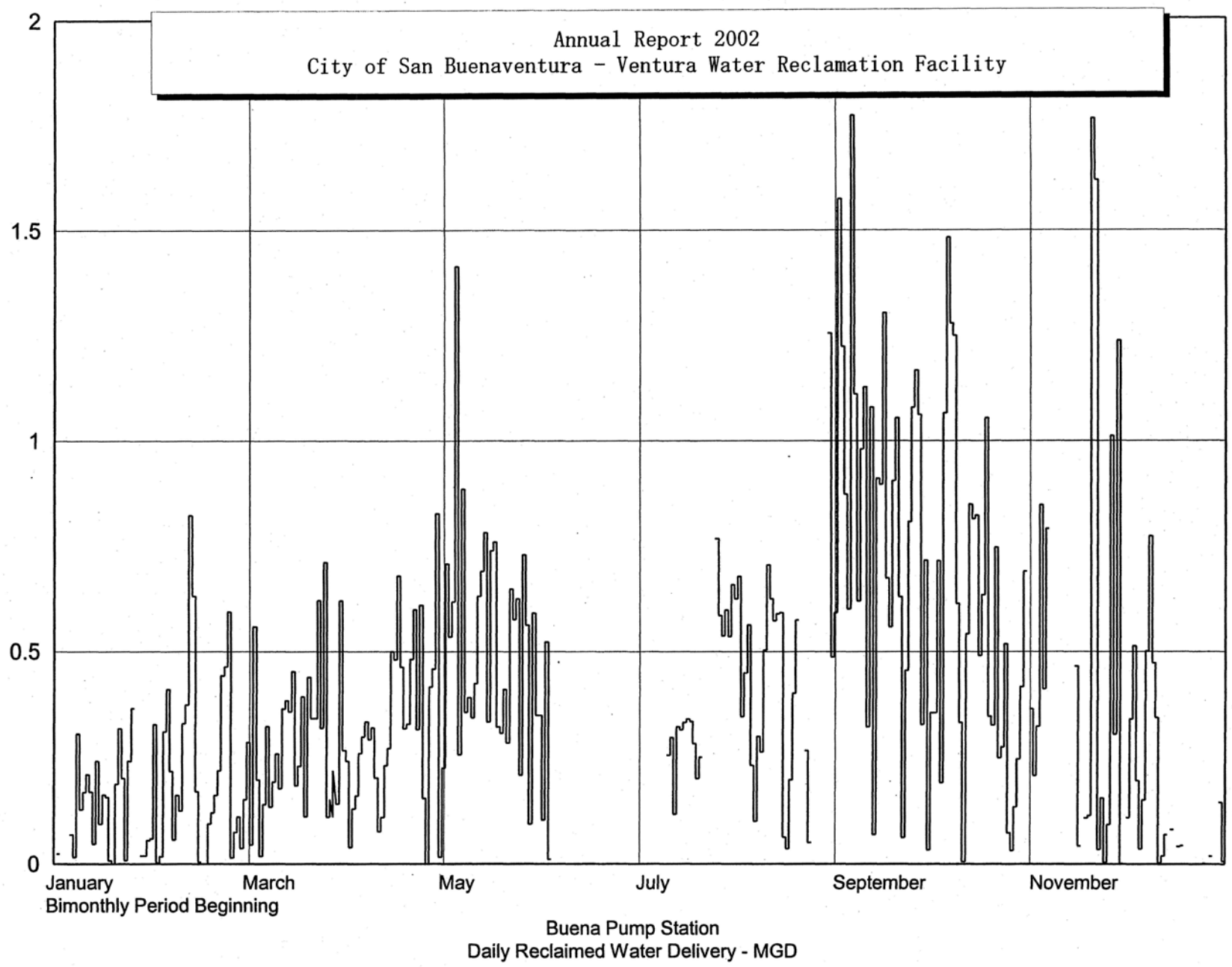


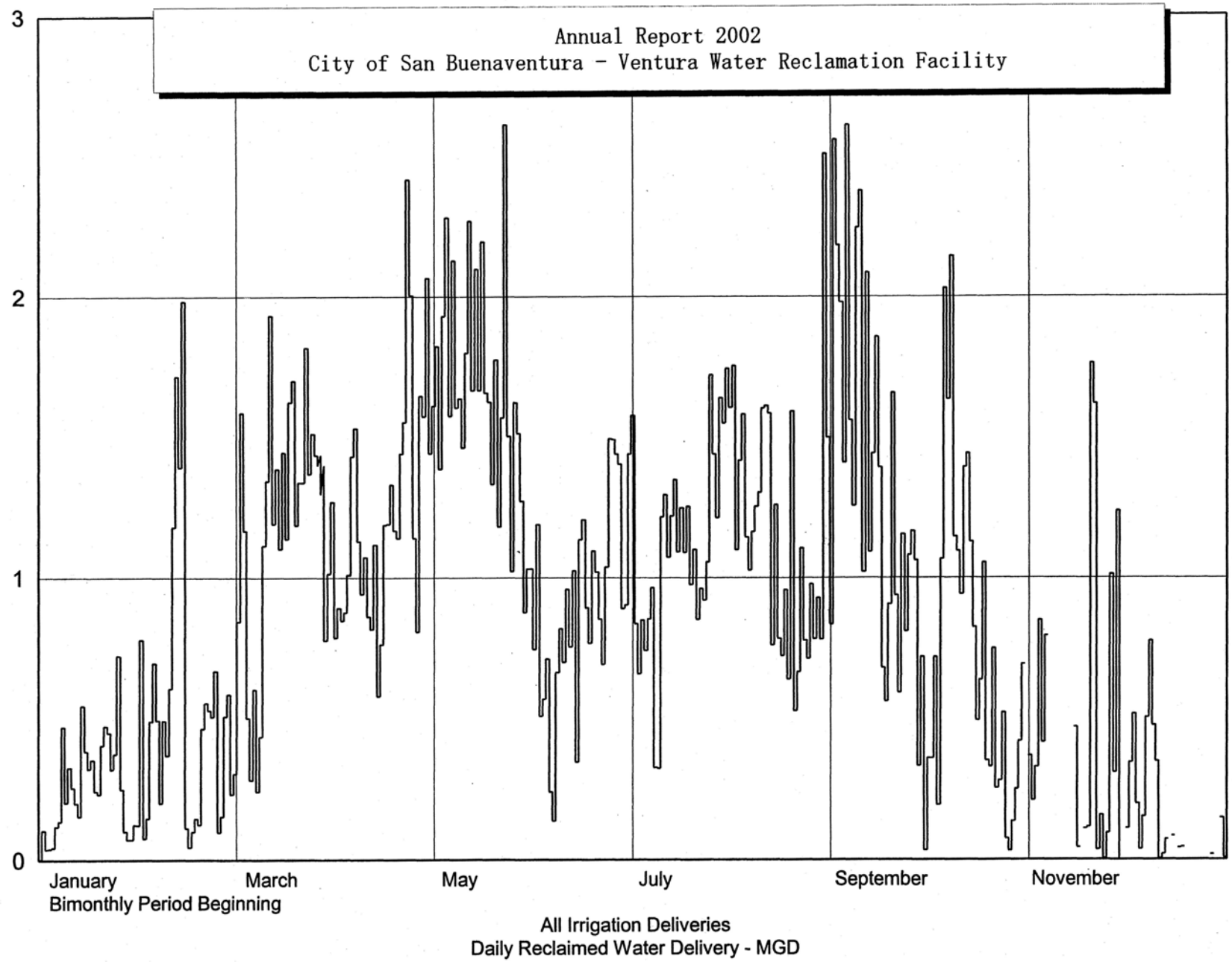
Effluent Transfer Station
Effluent 30 Day Average Chlorine Residual at 11:00 AM - mg/l

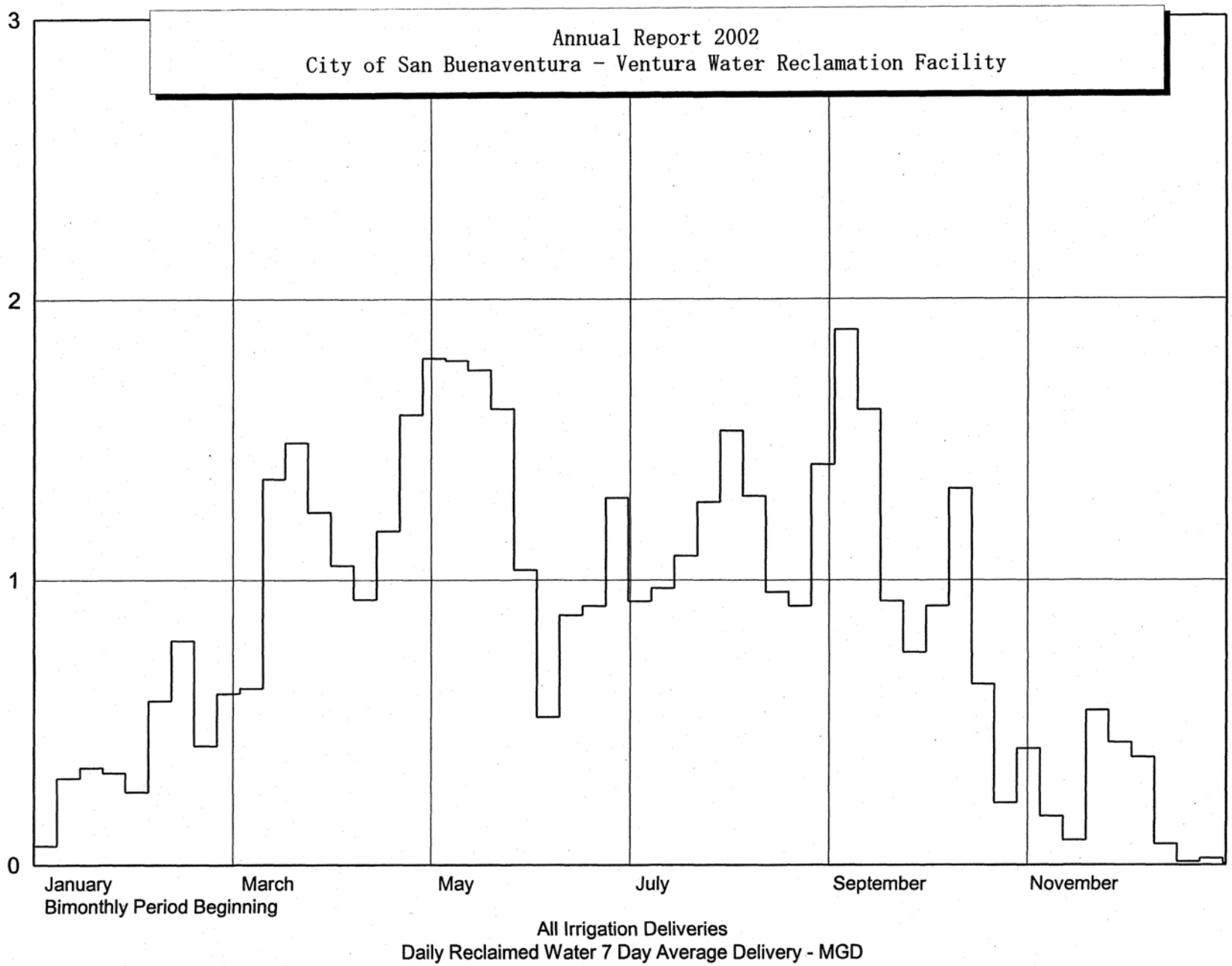
Bimonthly Period Beginning

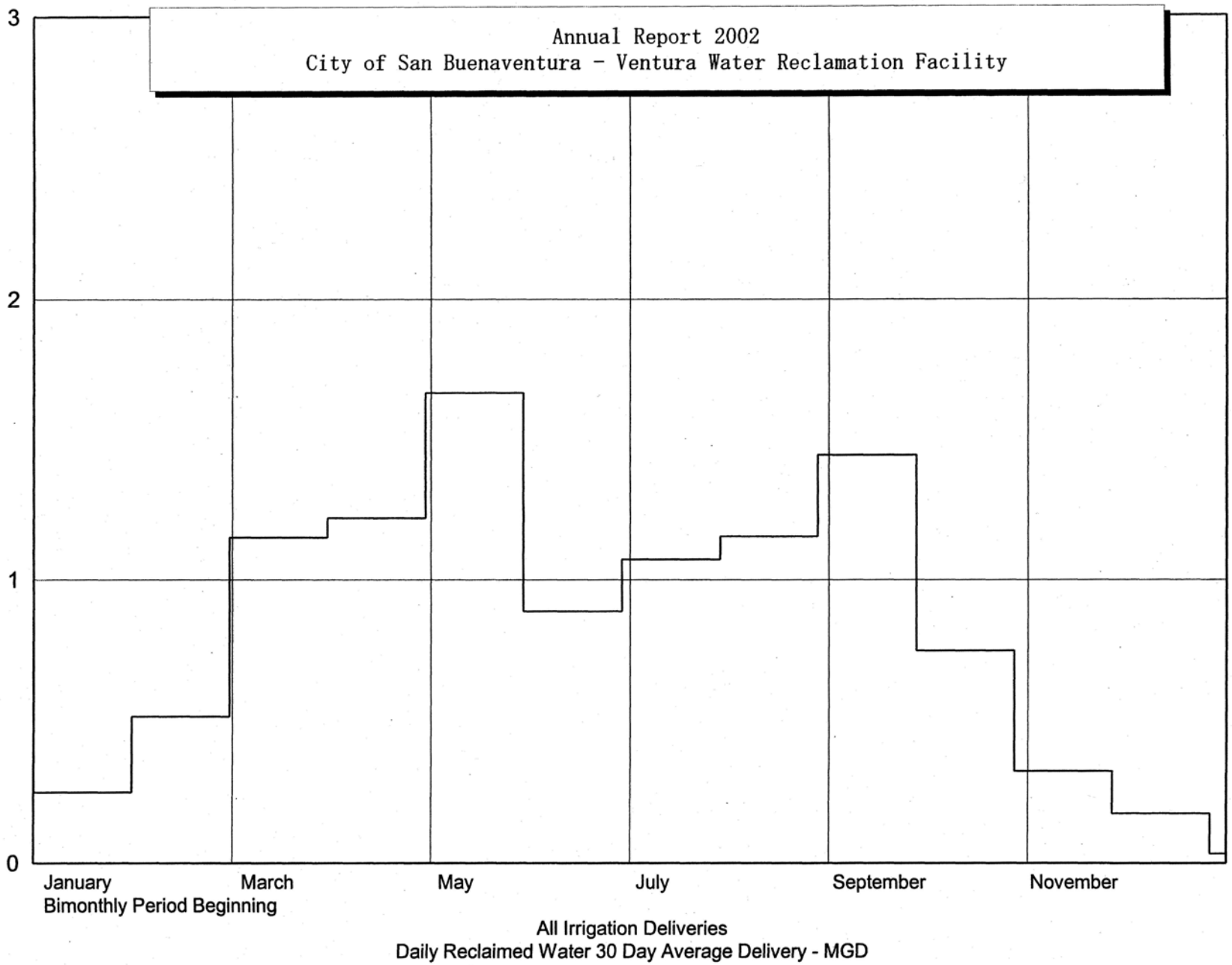

Annual Report 2002
City of San Buenaventura - Ventura Water Reclamation Facility
2
1.5
1
0.5
0
January
March
May
July
September
November
Bimonthly Period Beginning
Olivas Pump Station
Daily Reclaimed Water Delivery - MGD

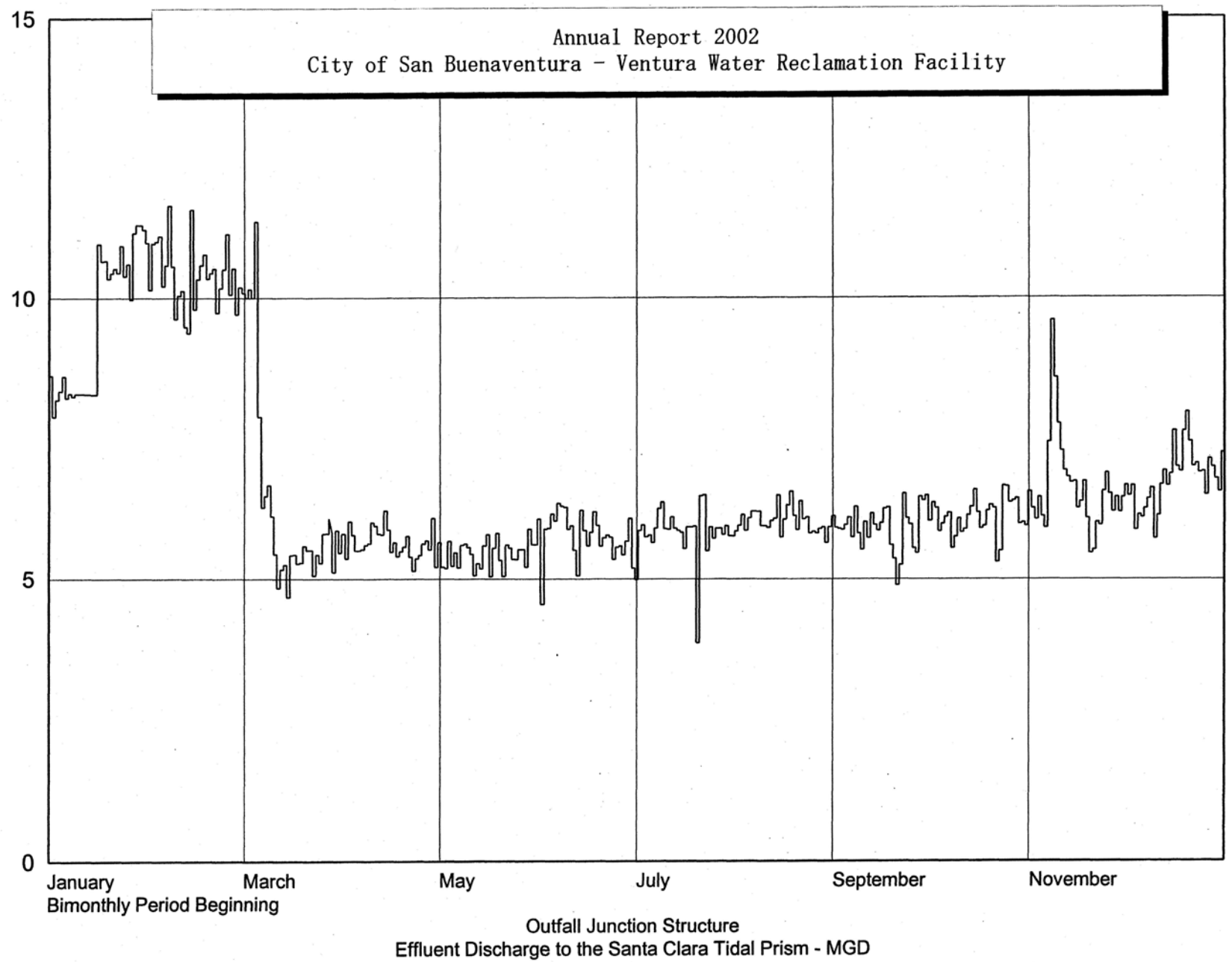

Annual Report 2002
City of San Buenaventura - Ventura Water Reclamation Facility
1.5
1
0.5
0
January
March
May
July
September
November
Bimonthly Period Beginning
Marina Park Irrigation Systems
Daily Reclaimed Water Delivery - MGD

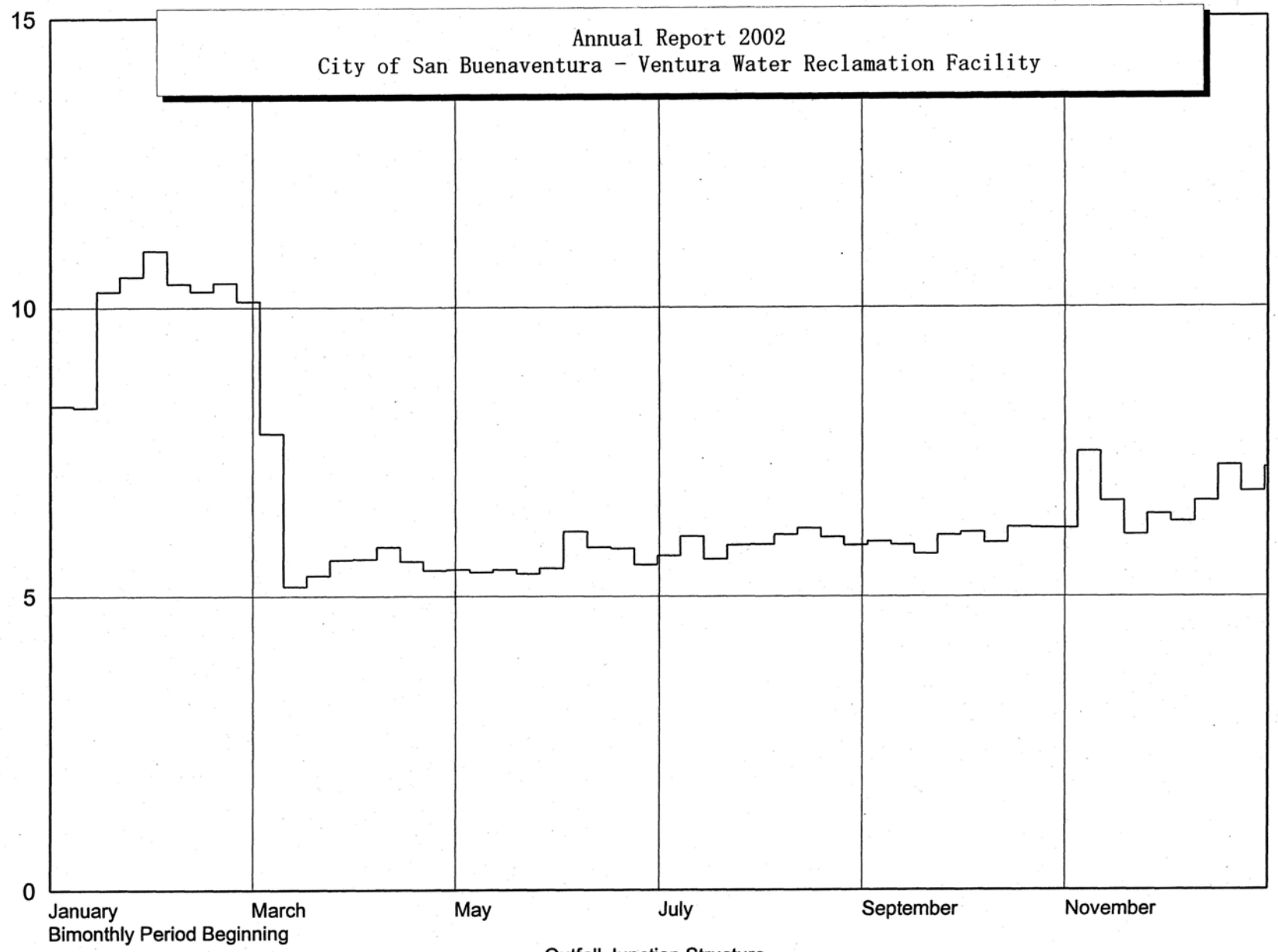

Annual Report 2002
City of San Buenaventura - Ventura Water Reclamation Facility
2
1.5
1
0.5
0
January
March
May
July
September
November
Bimonthly Period Beginning
Buena Pump Station
Daily Reclaimed Water Delivery - MGD

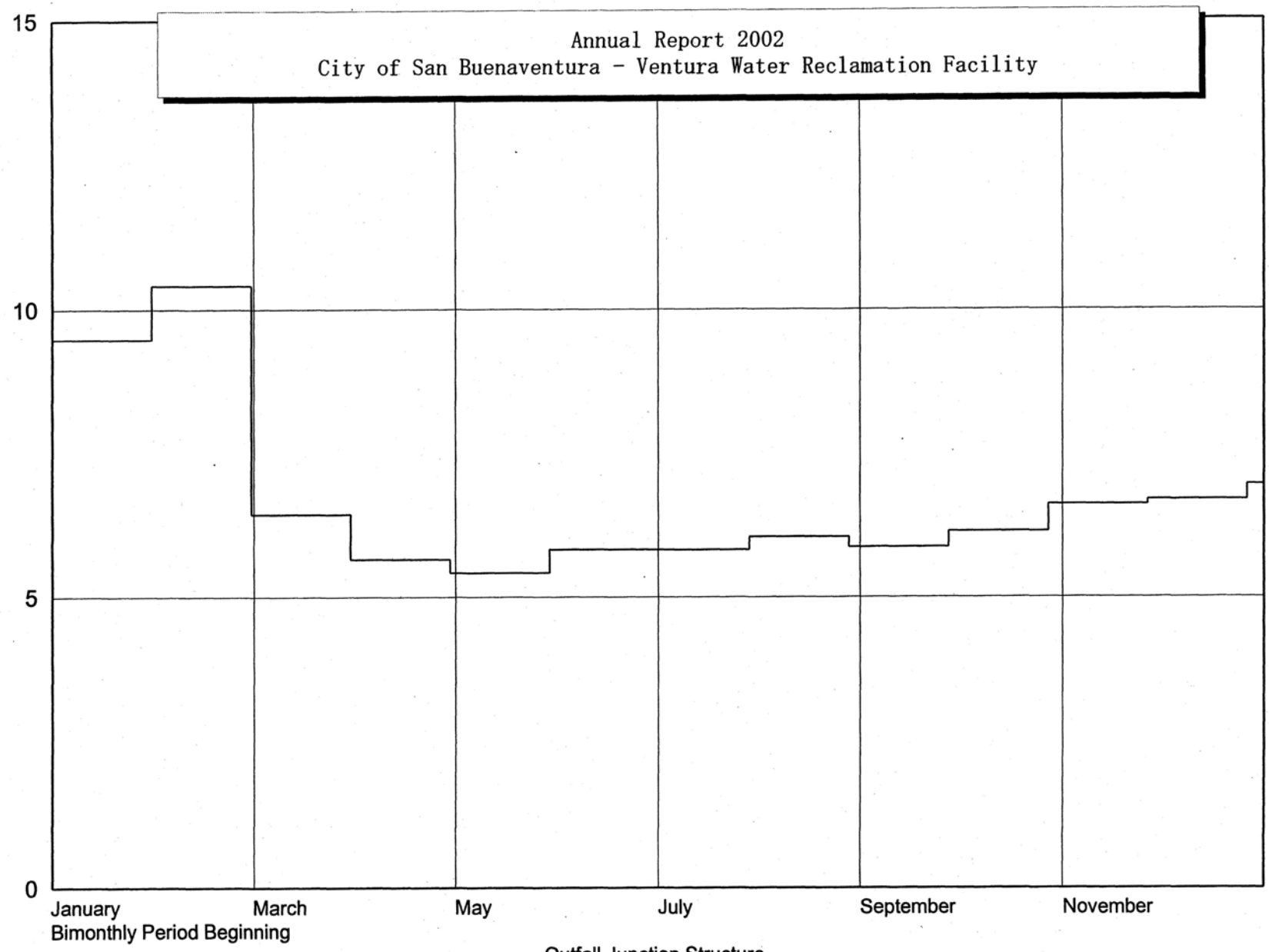

Annual Report 2002
City of San Buenaventura - Ventura Water Reclamation Facility
3
2
1
0
January
March
May
July
September
November
Bimonthly Period Beginning
All Irrigation Deliveries
Daily Reclaimed Water Delivery - MGD

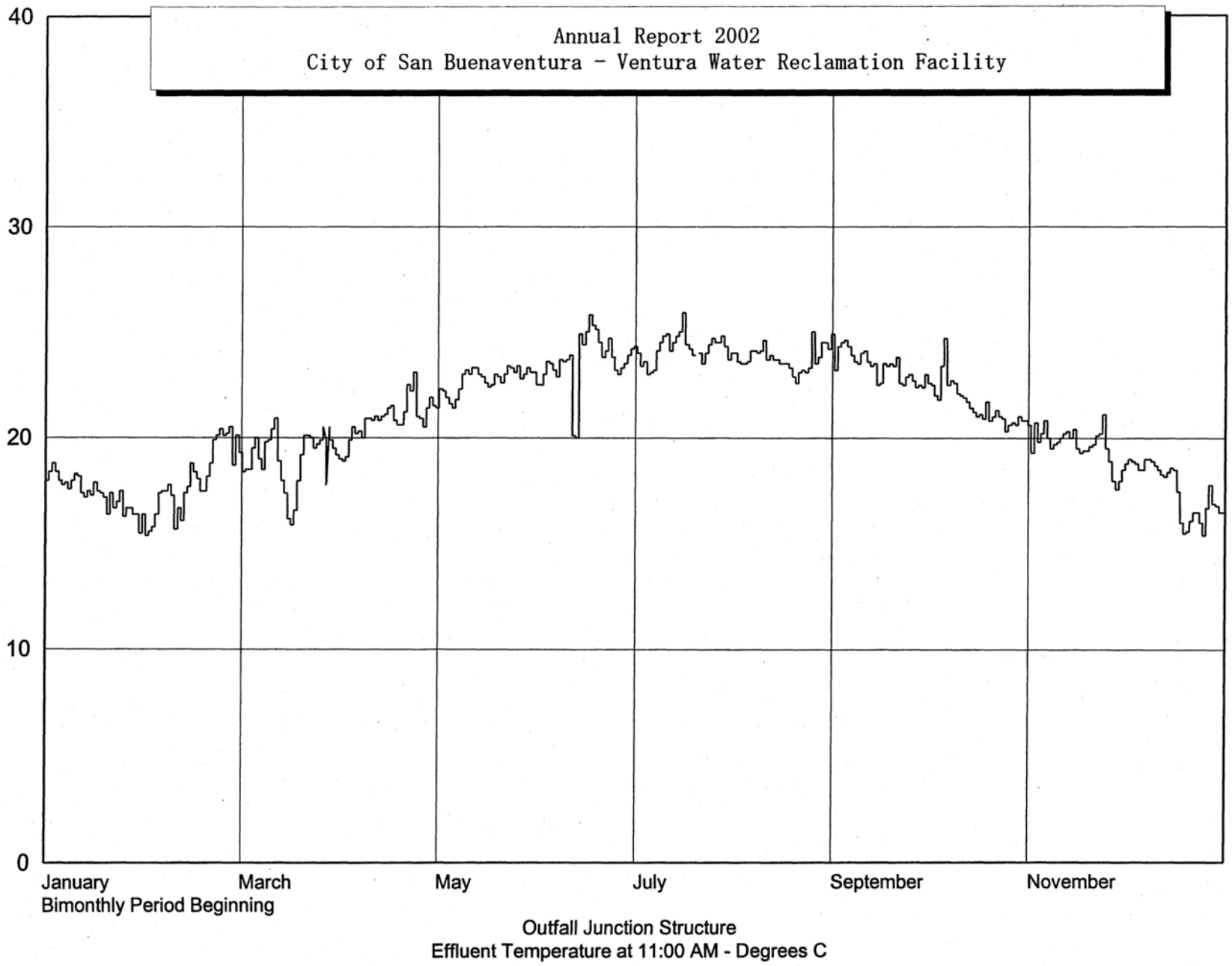

Annual Report 2002
City of San Buenaventura - Ventura Water Reclamation Facility
3
2
1
0
January
March
May
July
September
November
Bimonthly Period Beginning
All Irrigation Deliveries
Daily Reclaimed Water 7 Day Average Delivery - MGD

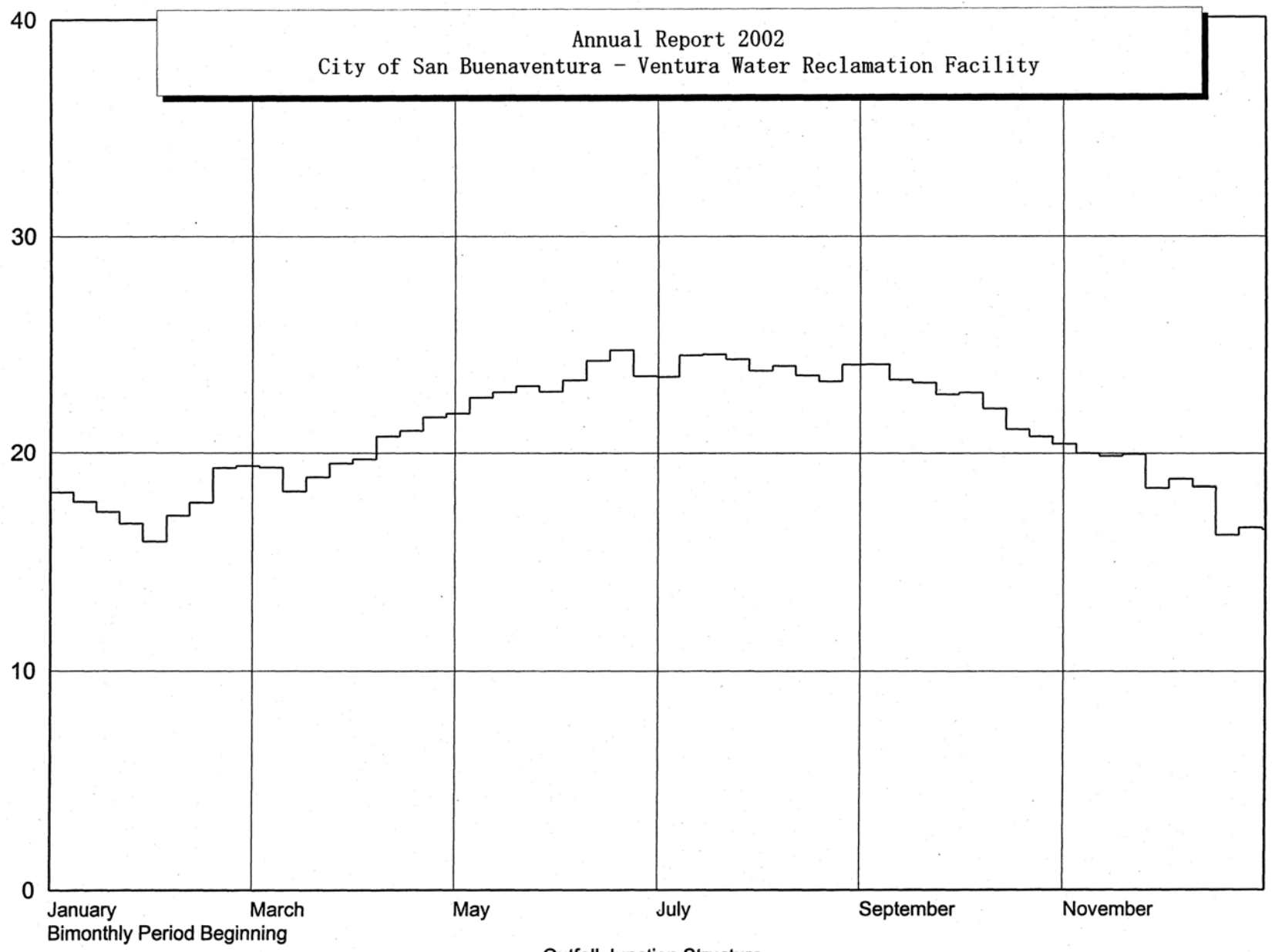

Annual Report 2002
City of San Buenaventura - Ventura Water Reclamation Facility
3
2
1
0
January
March
May
July
September
November
Bimonthly Period Beginning
All Irrigation Deliveries
Daily Reclaimed Water 30 Day Average Delivery - MGD

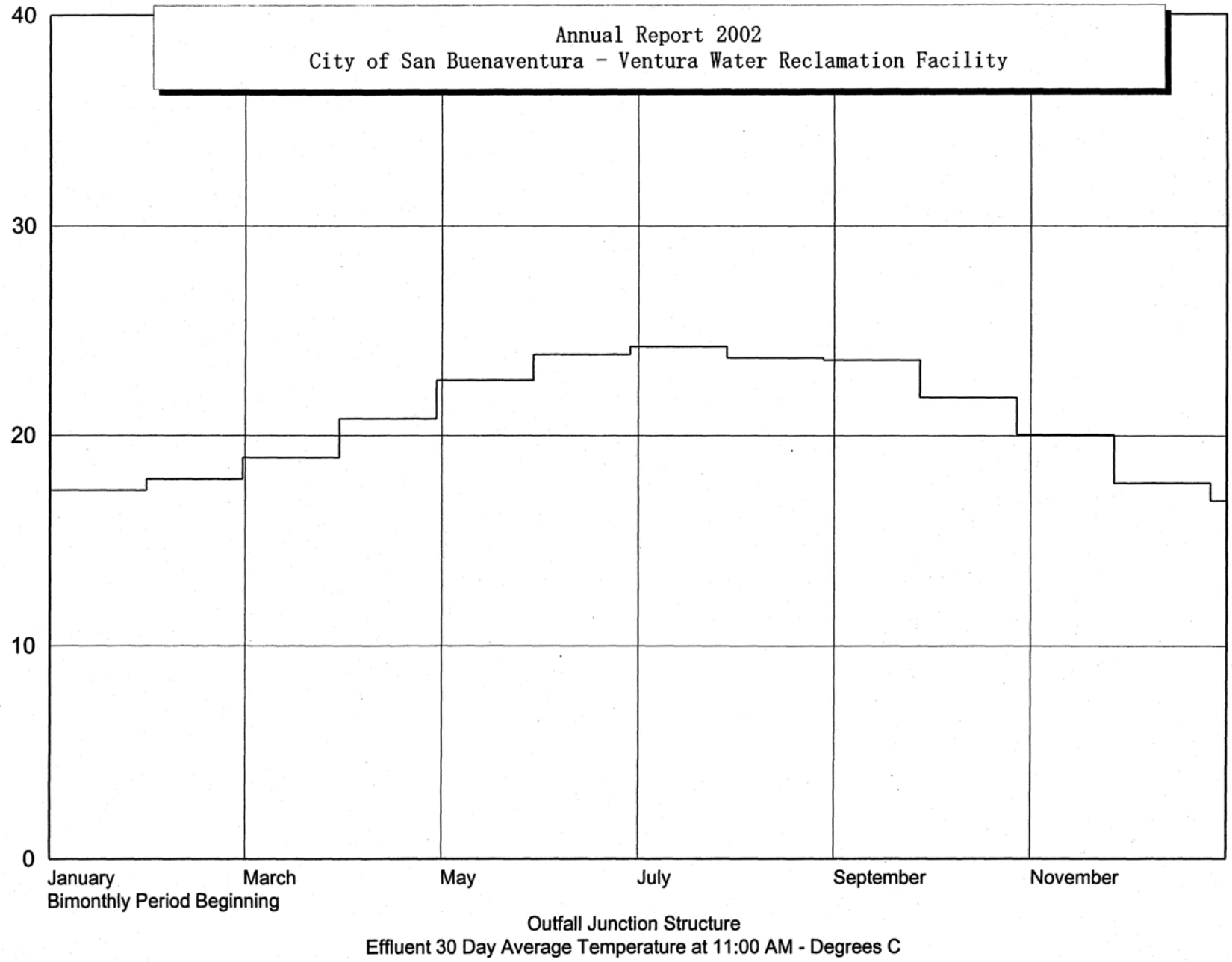

Annual Report 2002
City of San Buenaventura - Ventura Water Reclamation Facility
15
10
5
0
January
March
May
July
September
November
Bimonthly Period Beginning
Outfall Junction Structure
Effluent Discharge to the Santa Clara Tidal Prism - MGD


Annual Report 2002
City of San Buenaventura - Ventura Water Reclamation Facility
15
10
5
0
January
March
May
July
September
November
Bimonthly Period Beginning
Outfall Junction Structure
Effluent Discharge 7 Day Average to the Santa Clara Tidal Prism - MGD

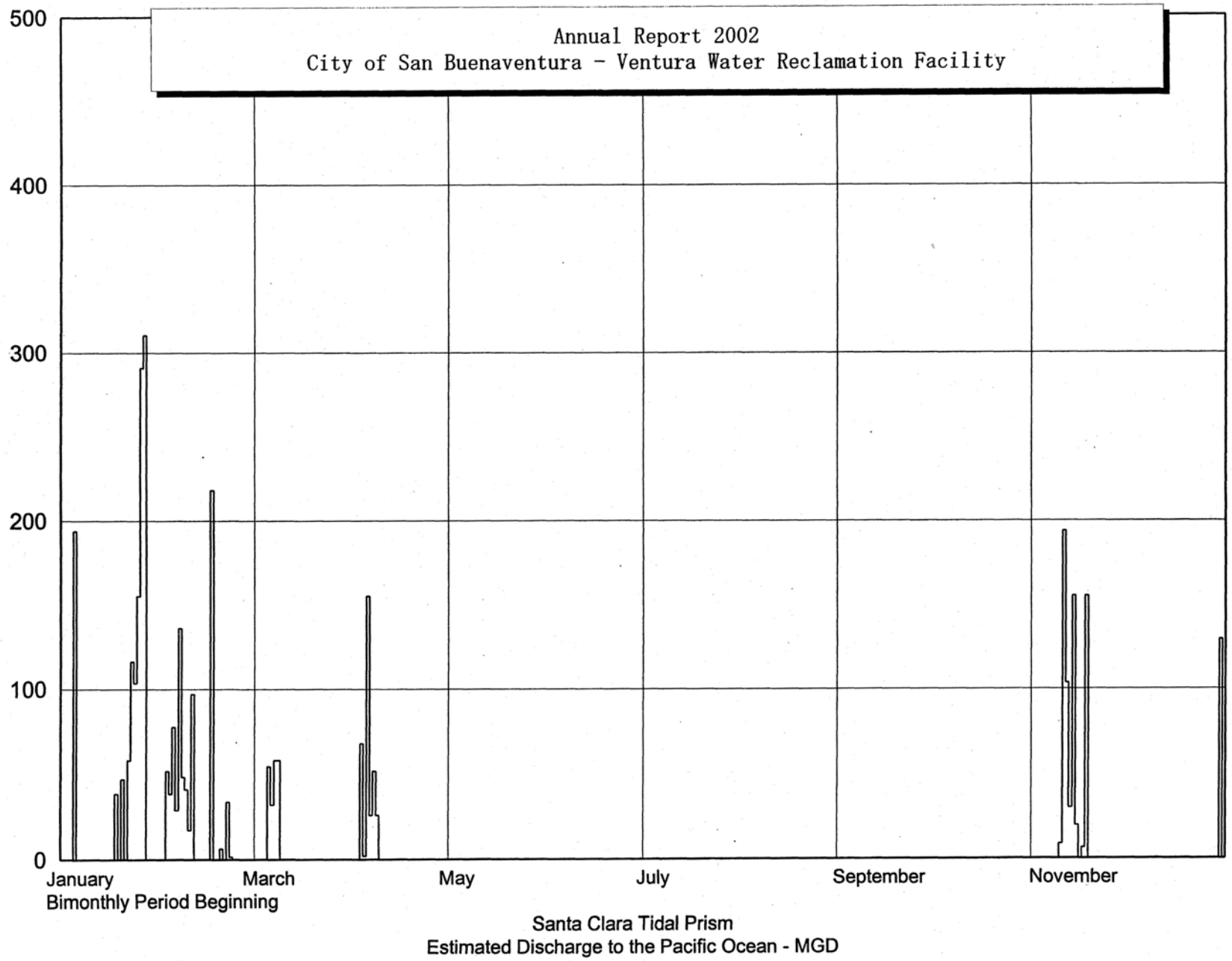

Annual Report 2002
City of San Buenaventura - Ventura Water Reclamation Facility
15
10
5
0
January
March
May
July
September
November
Bimonthly Period Beginning
Outfall Junction Structure
Effluent Discharge 30 Day Average to the Santa Clara Tidal Prism - MGD

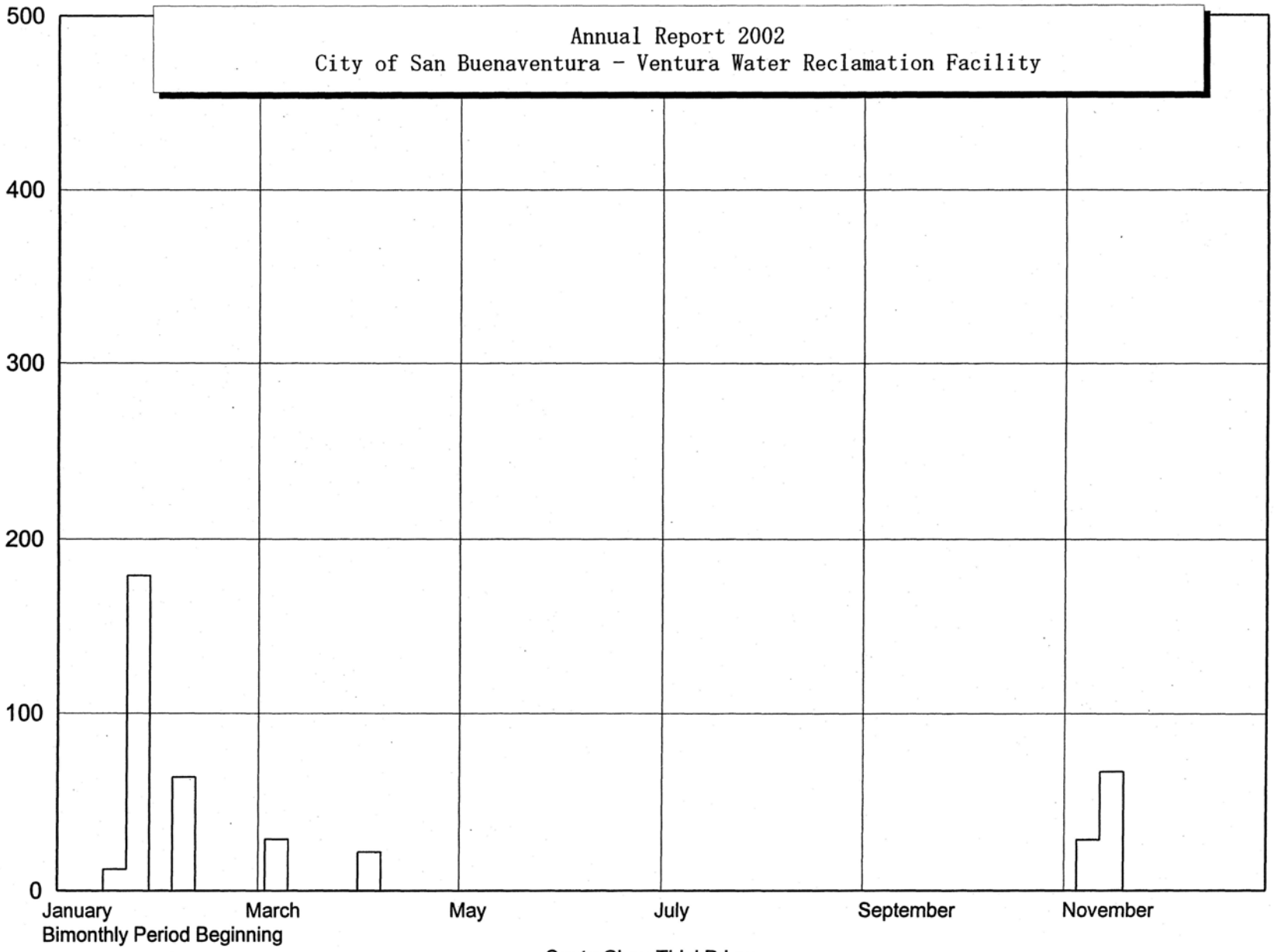

Annual Report 2002
City of San Buenaventura - Ventura Water Reclamation Facility
40
30
20
10
0
January
March
May
July
September
November
Bimonthly Period Beginning
Outfall Junction Structure
Effluent Temperature at 11:00 AM - Degrees C

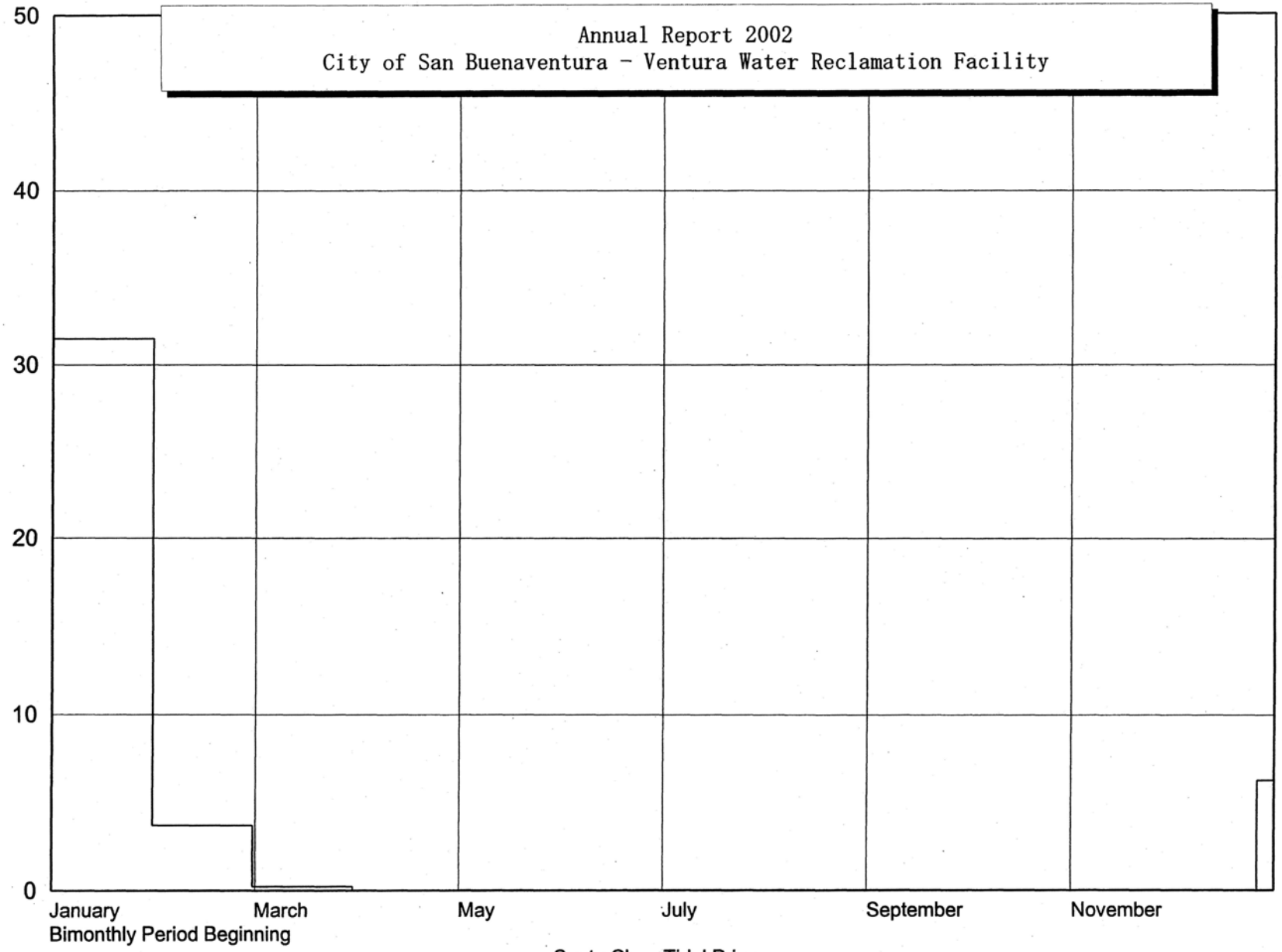

Annual Report 2002
City of San Buenaventura - Ventura Water Reclamation Facility
40
30
20
10
0
January
March
May
July
September
November
Bimonthly Period Beginning
Outfall Junction Structure
Effluent 7 Day Average Temperature at 11:00 AM - Degrees C



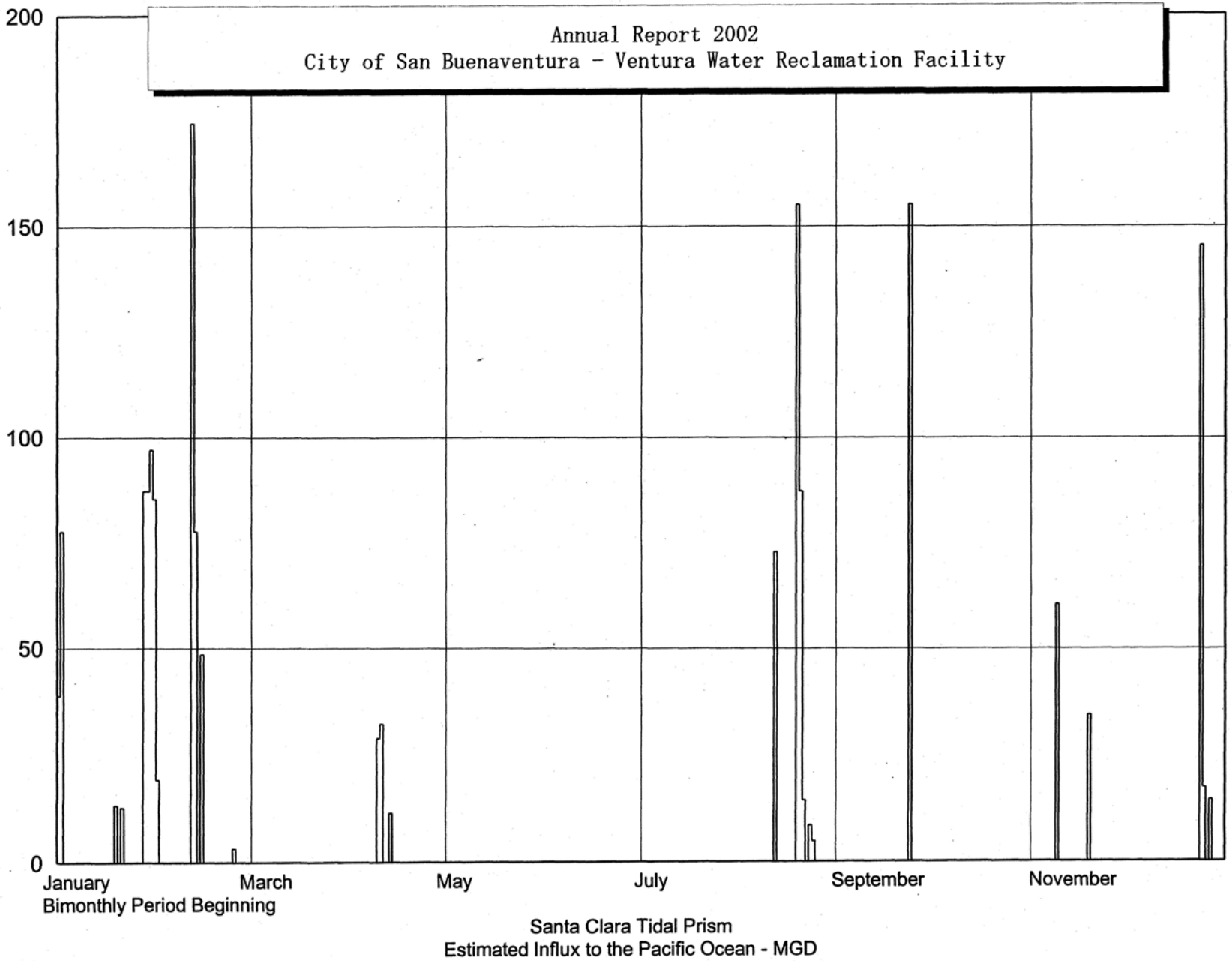
Outfall Junction Structure
Effluent 30 Day Average Temperature at 11:00 AM - Degrees C

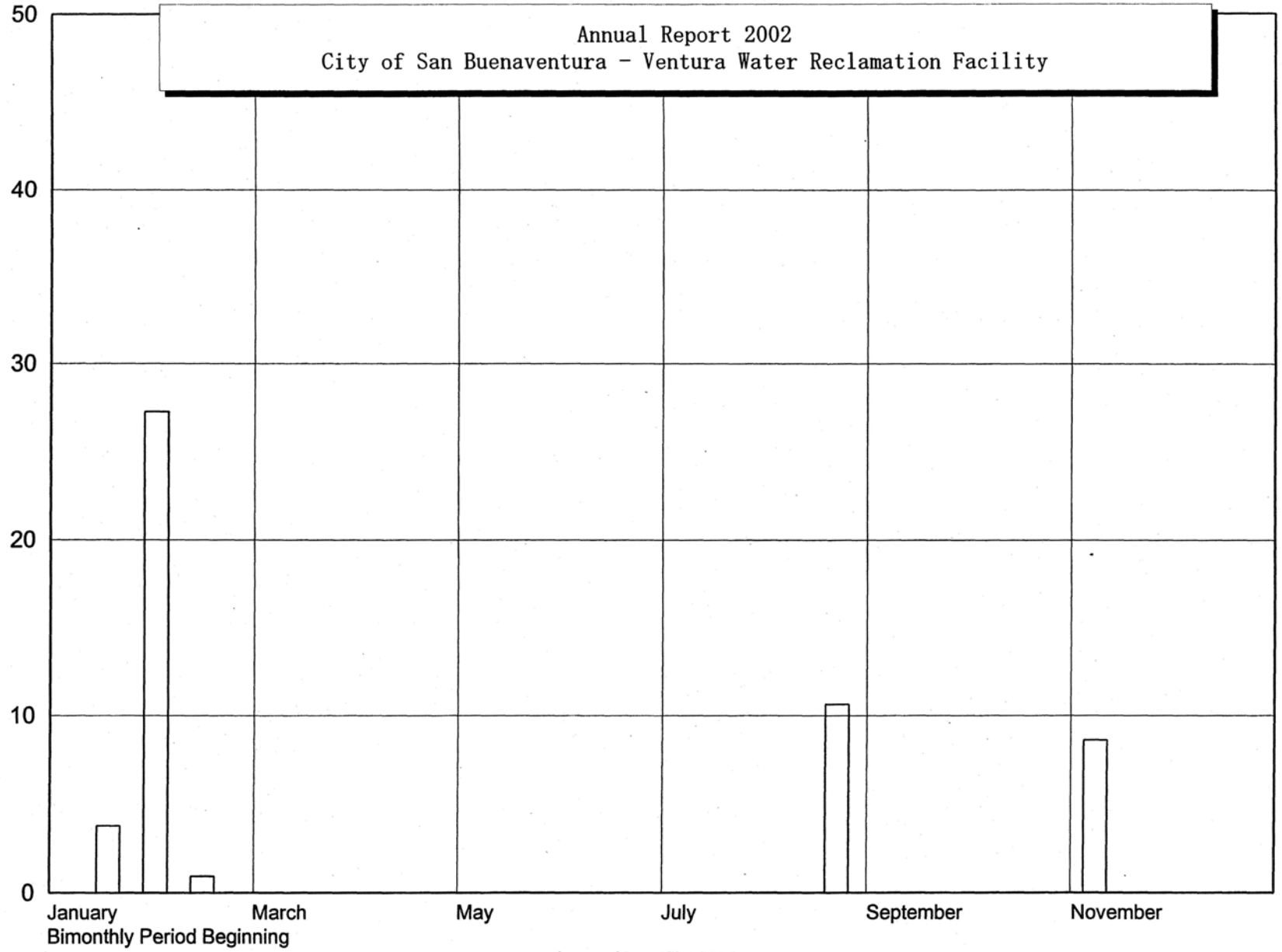

Annual Report 2002
City of San Buenaventura - Ventura Water Reclamation Facility
500
400
300
200
100
0
January
March
May
July
September
November
Bimonthly Period Beginning
Santa Clara Tidal Prism
Estimated Discharge to the Pacific Ocean - MGD


Annual Report 2002
City of San Buenaventura - Ventura Water Reclamation Facility
500
400
300
200
100
0
January
March
May
July
September
November
Bimonthly Period Beginning
Santa Clara Tidal Prism
Estimated 7 Day Average Discharge to the Pacific Ocean - MGD

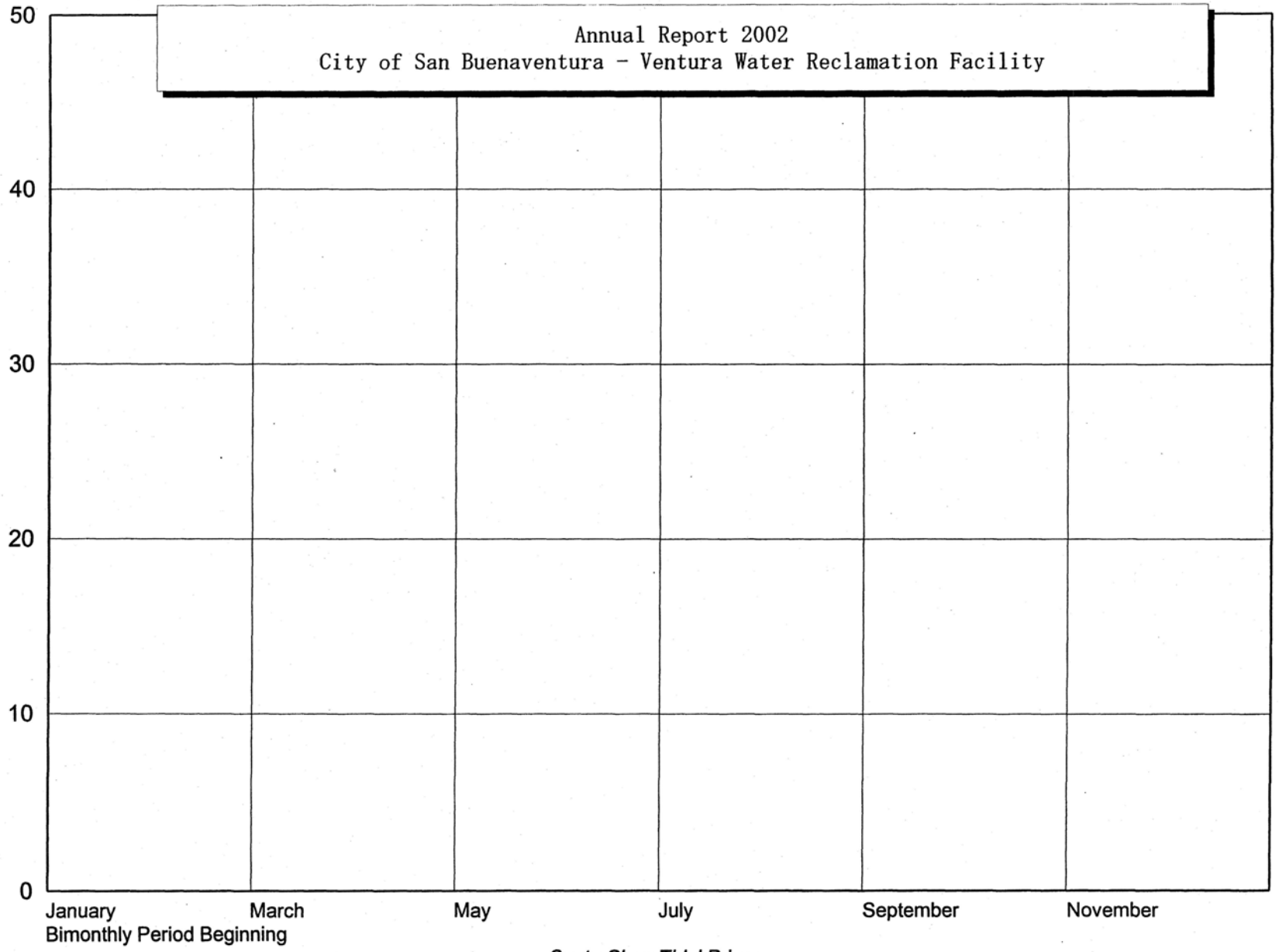


Santa Clara Tidal Prism
Estimated 30 Day Average Discharge to the Pacific Ocean - MGD

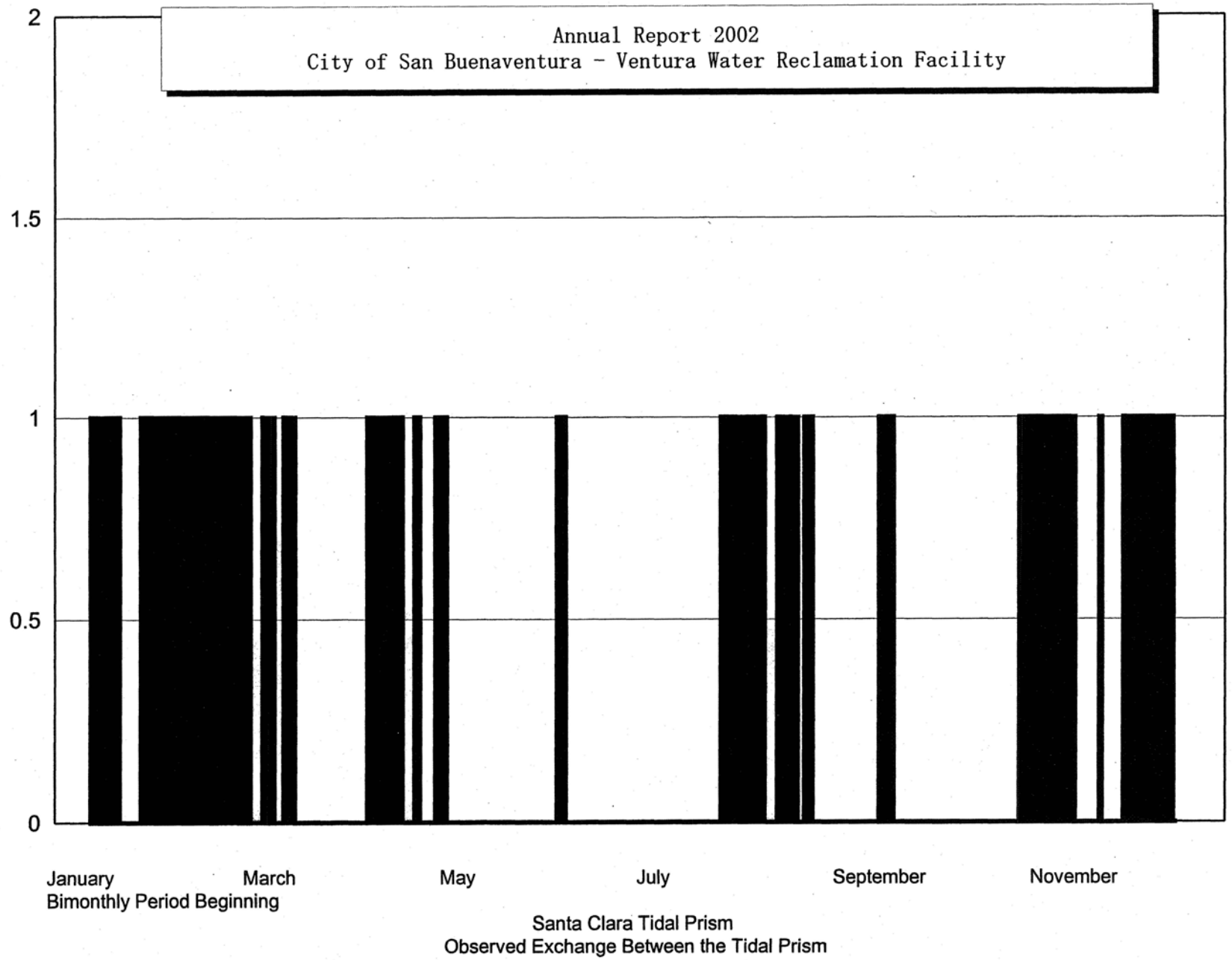

Annual Report 2002
City of San Buenaventura - Ventura Water Reclamation Facility
200
150
100
50
0
January
March
May
July
September
November
Bimonthly Period Beginning
Santa Clara Tidal Prism
Estimated Influx to the Pacific Ocean - MGD

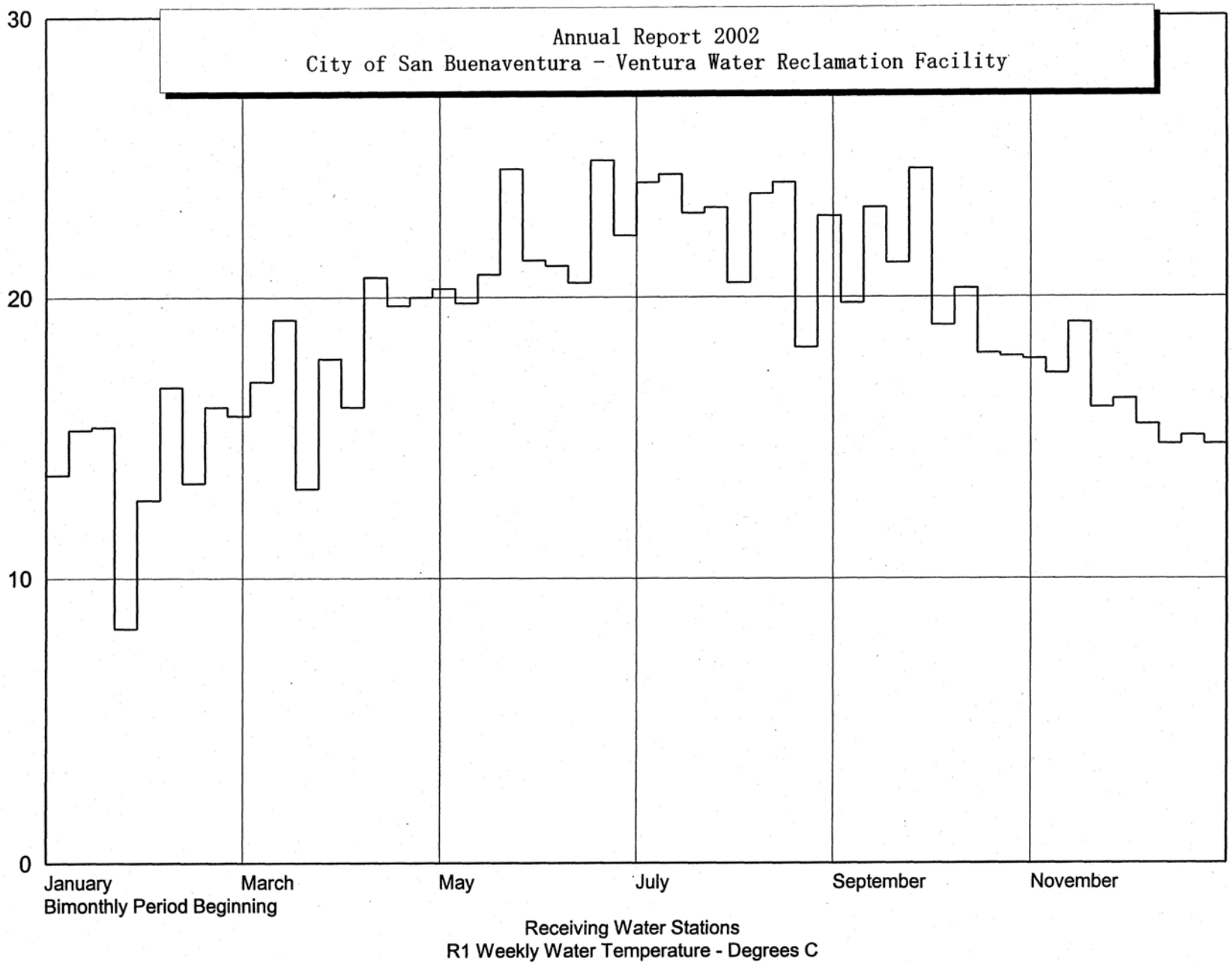


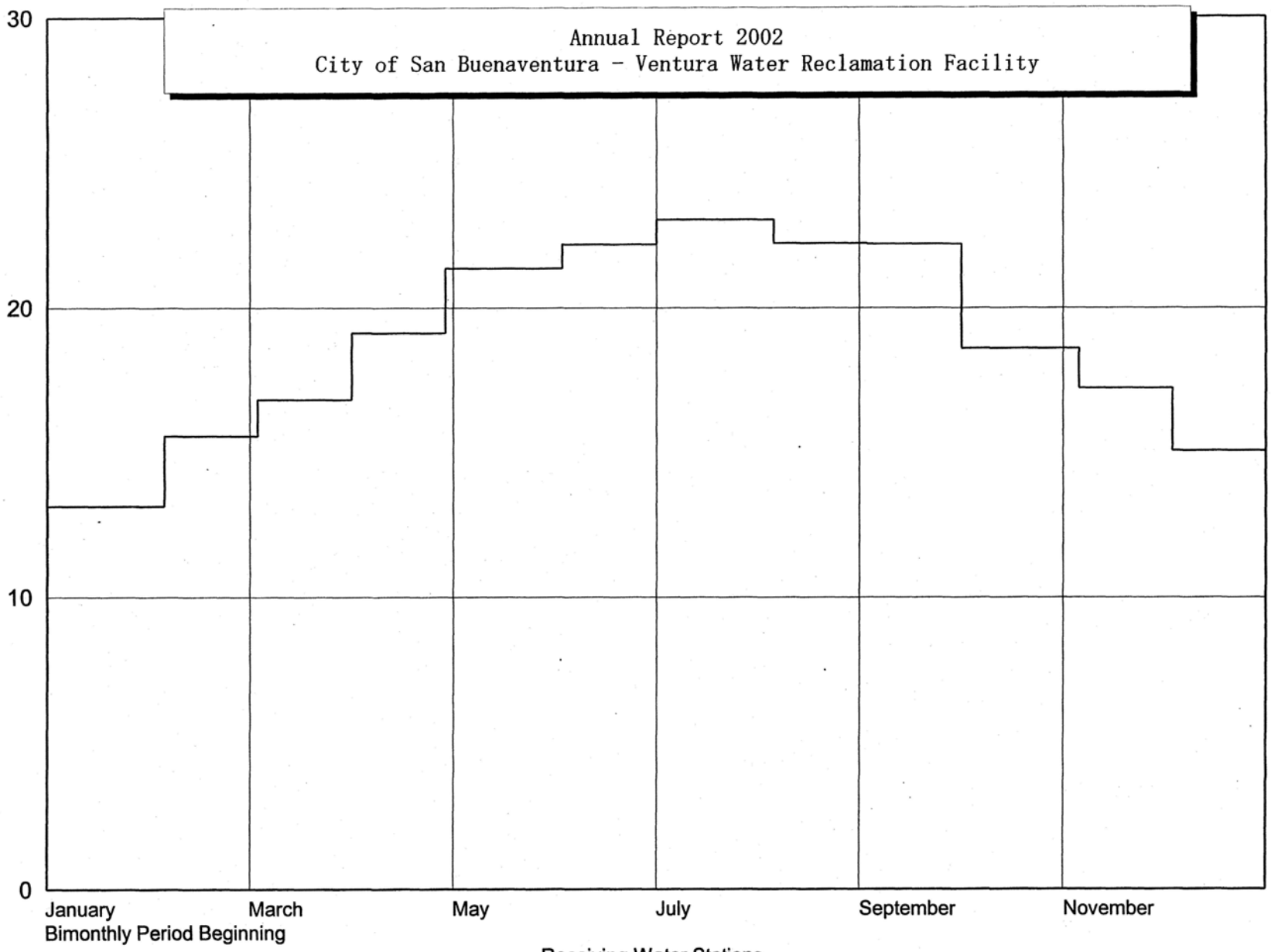
Santa Clara Tidal Prism
Estimated 7 Day Average Influx to the Pacific Ocean - MGD



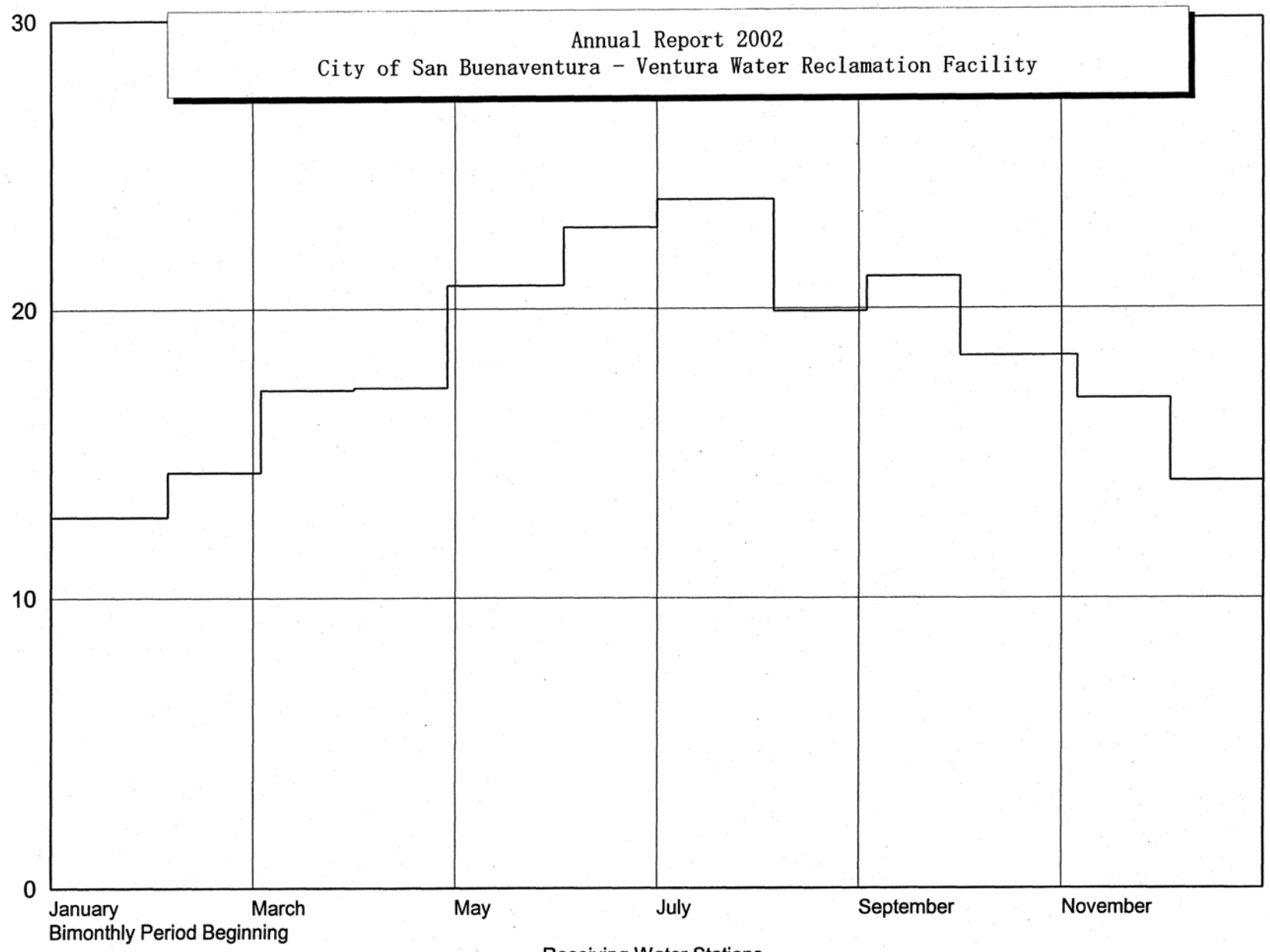
Santa Clara Tidal Prism
Estimated 30 Day Average Influx to the Pacific Ocean - MGD

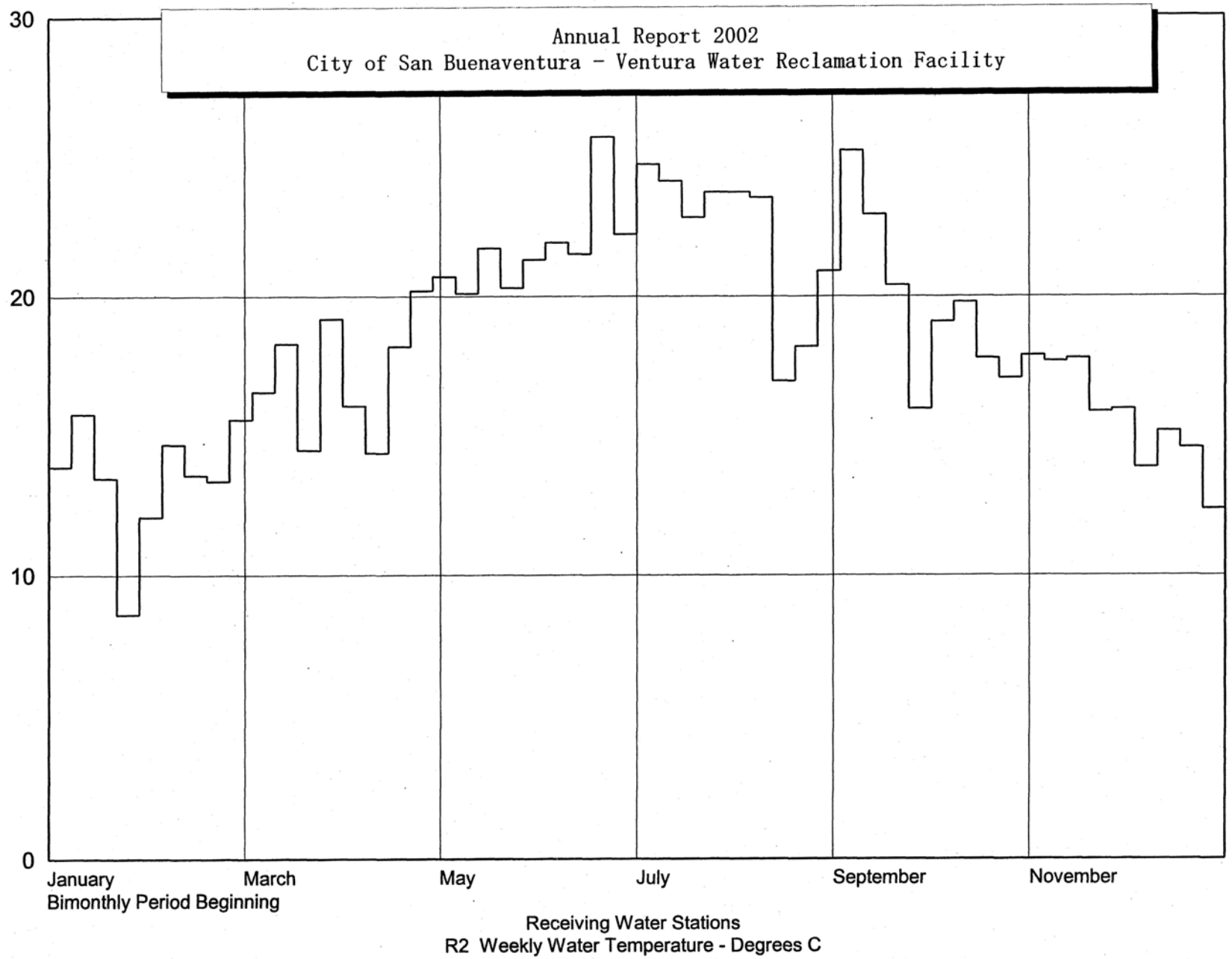

Annual Report 2002
City of San Buenaventura - Ventura Water Reclamation Facility
2
1.5
1
0.5
0
January
March
May
July
September
November
Bimonthly Period Beginning
Santa Clara Tidal Prism
Observed Exchange Between the Tidal Prism

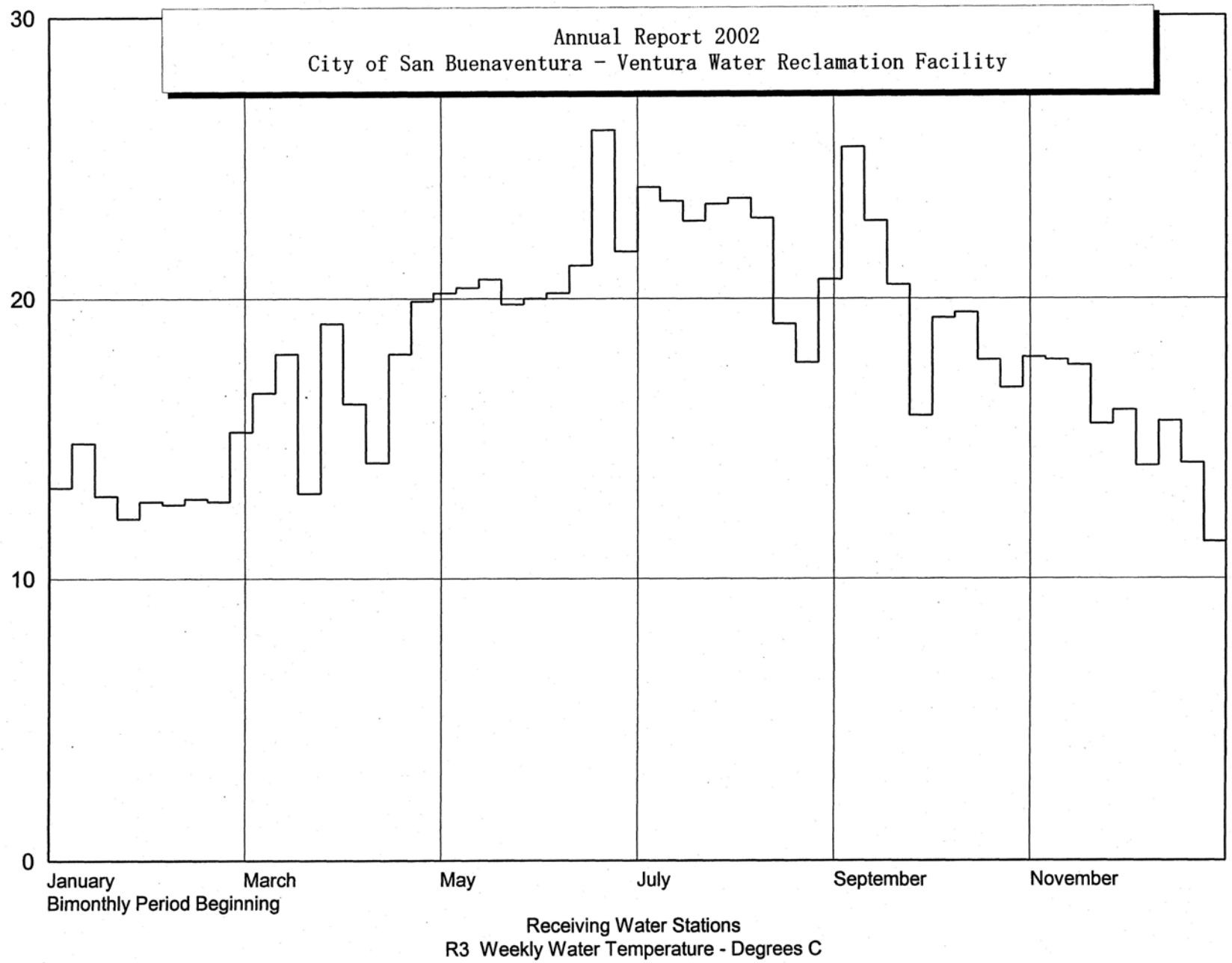

Annual Report 2002
City of San Buenaventura - Ventura Water Reclamation Facility
30
20
10
0
January
March
May
July
September
November
Bimonthly Period Beginning
Receiving Water Stations
R1 Weekly Water Temperature - Degrees C

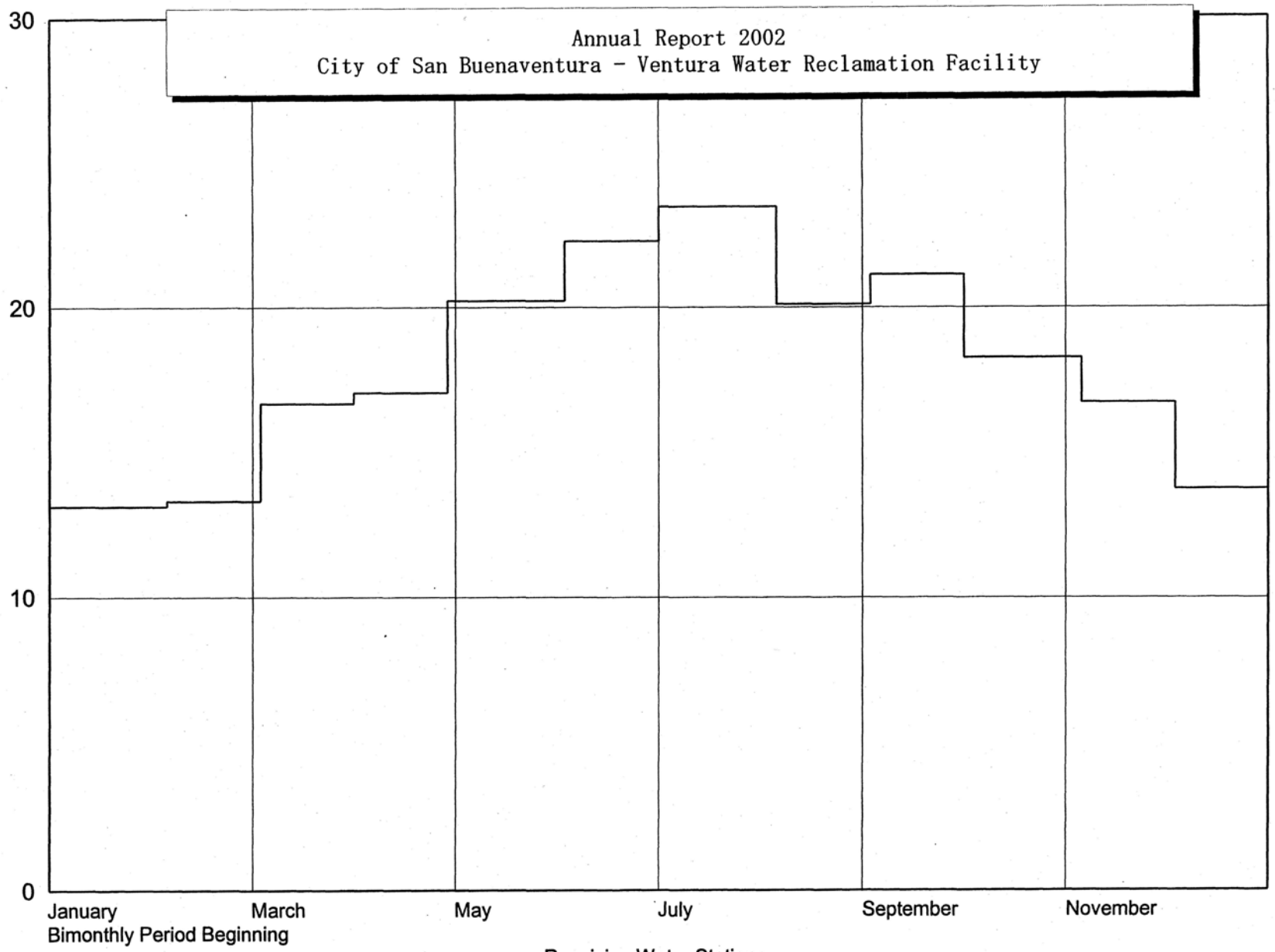


Receiving Water Stations
R1 30 Day Average Water Temperature - Degrees C

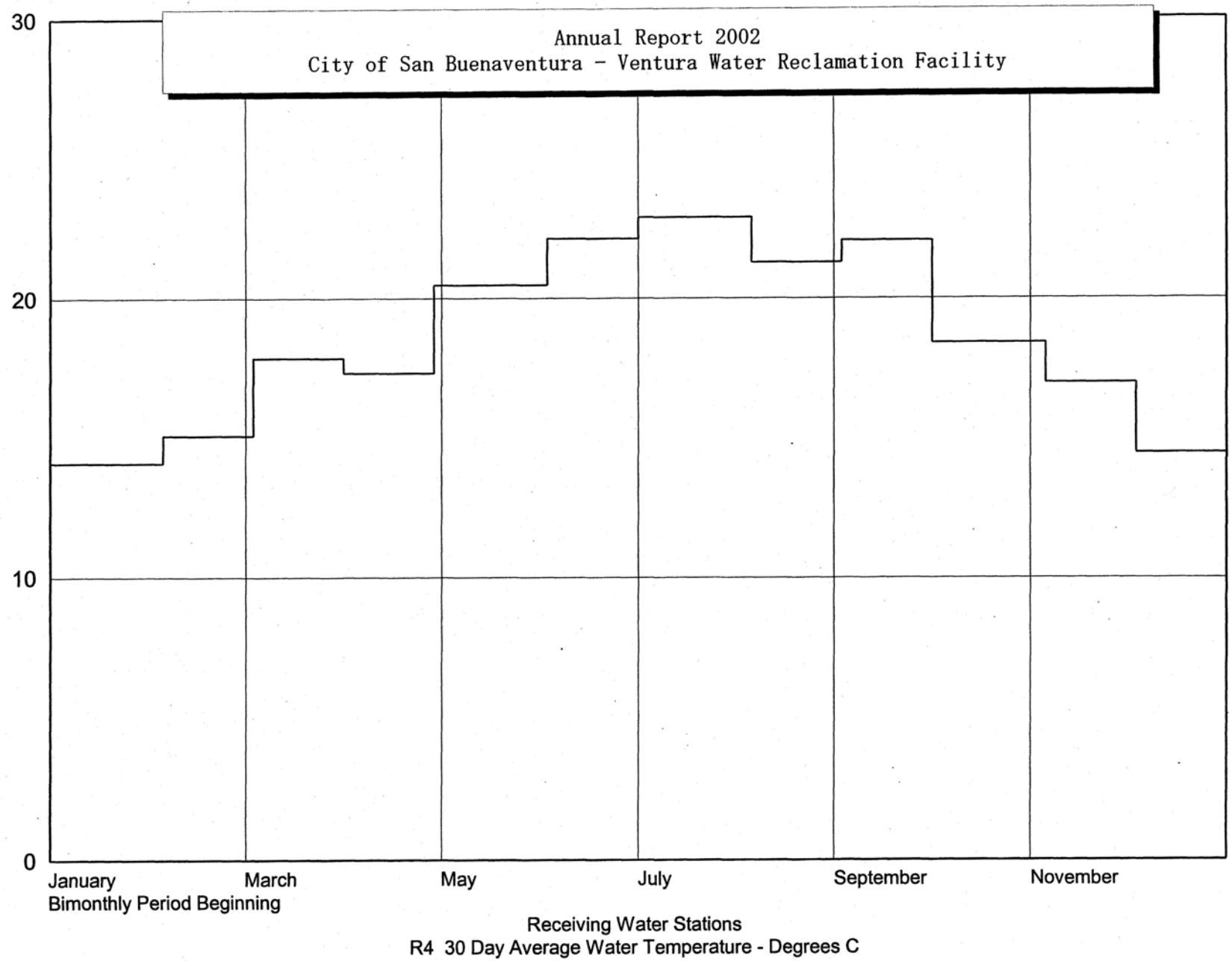

Annual Report 2002
City of San Buenaventura - Ventura Water Reclamation Facility
30
20
10
0
January
March
May
July
September
November
Bimonthly Period Beginning
Receiving Water Stations
R2 30 Day Average Water Temperature - Degrees C

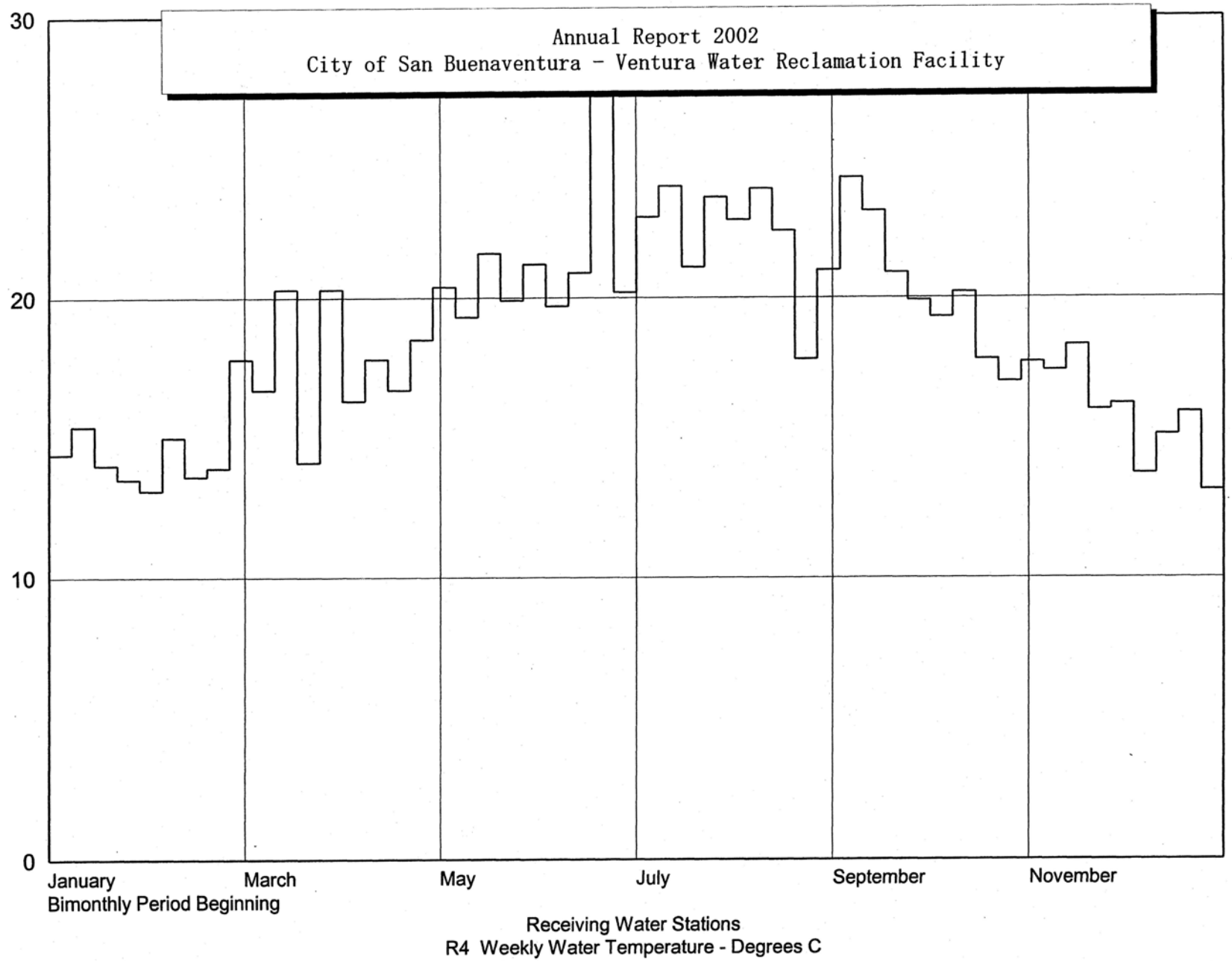

Annual Report 2002
City of San Buenaventura - Ventura Water Reclamation Facility
30
20
10
0
January
March
May
July
September
November
Bimonthly Period Beginning
Receiving Water Stations
R2 Weekly Water Temperature - Degrees C

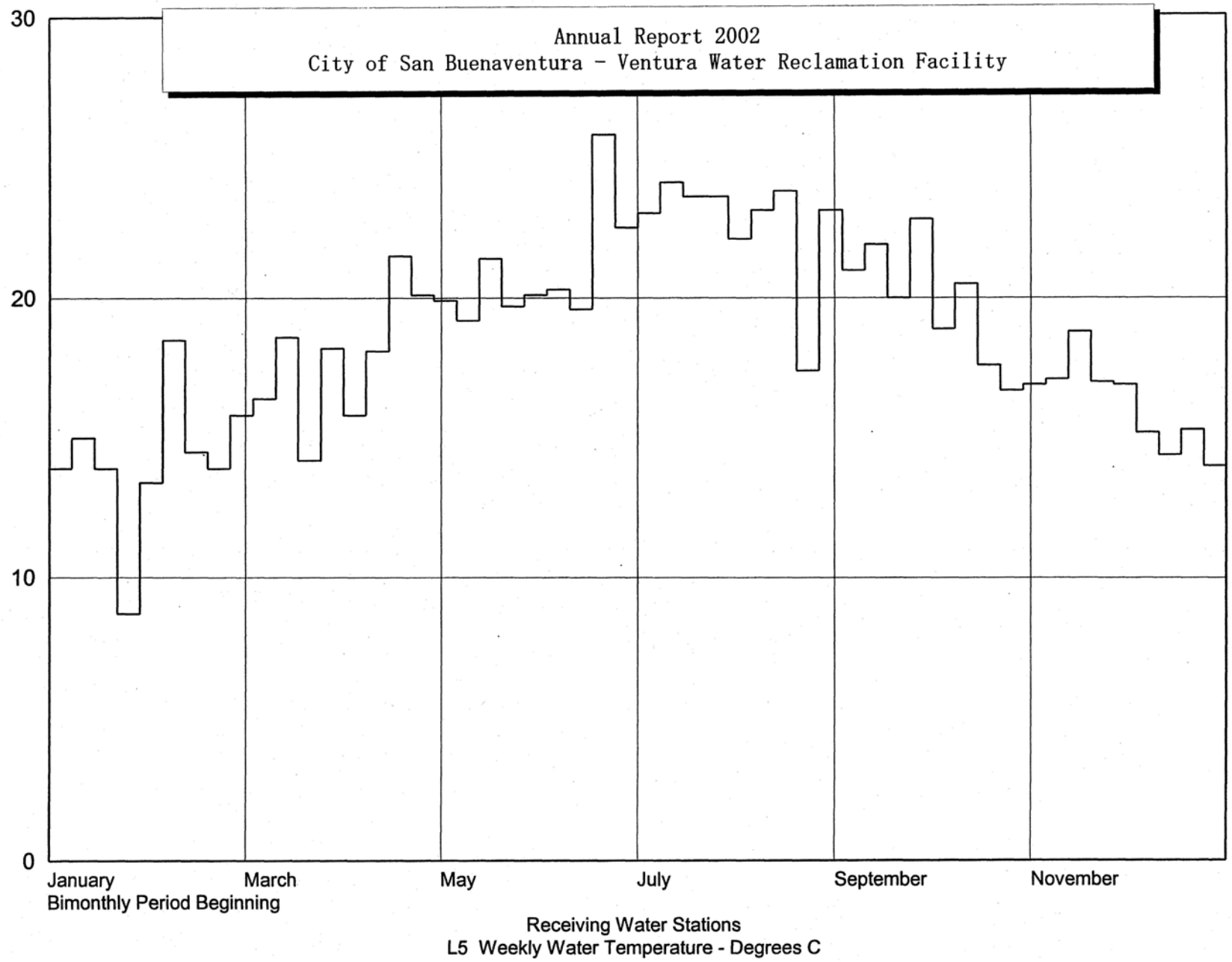

Annual Report 2002
City of San Buenaventura - Ventura Water Reclamation Facility
30
20
10
0
January
March
May
July
September
November
Bimonthly Period Beginning
Receiving Water Stations
R3 Weekly Water Temperature - Degrees C



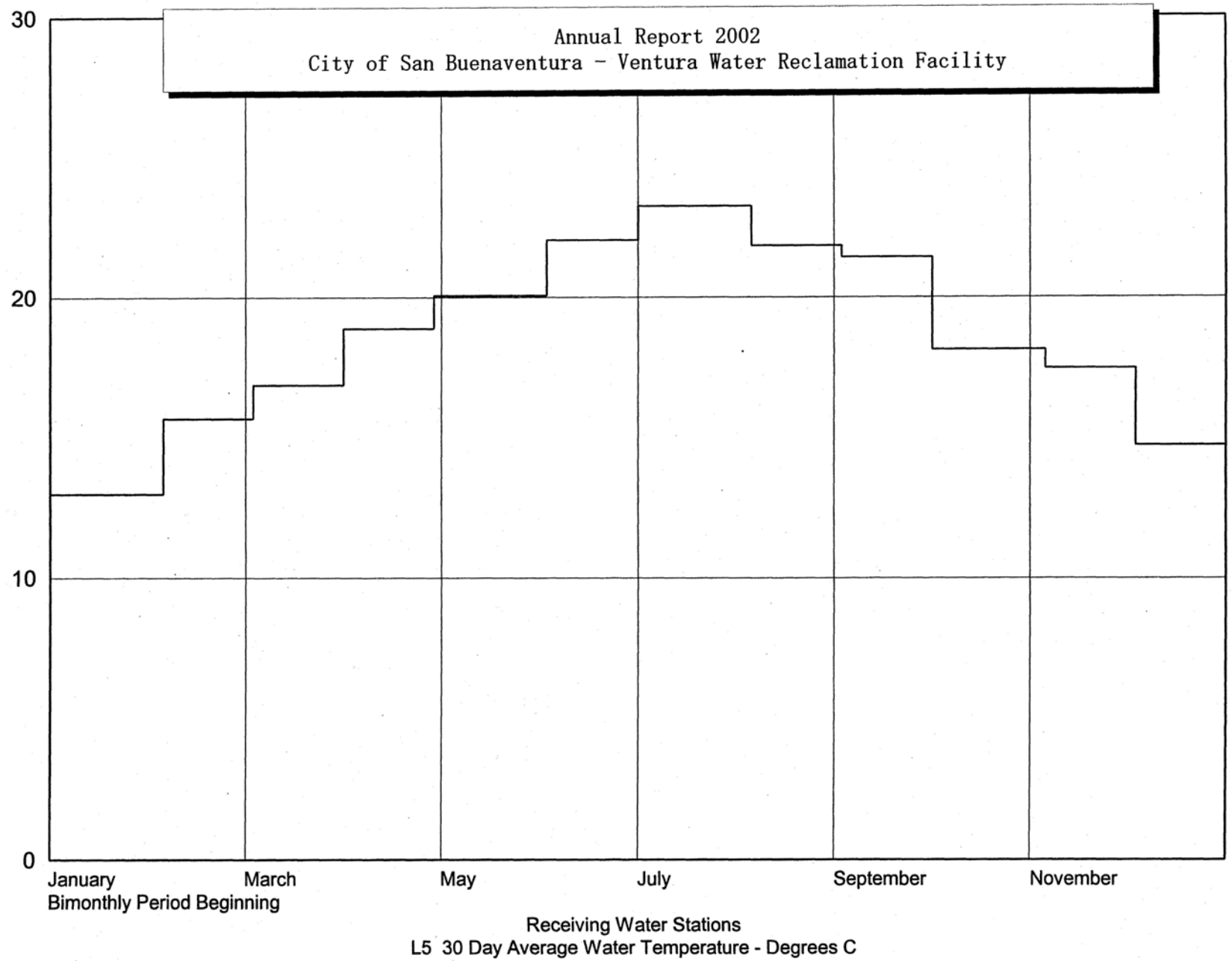
Receiving Water Stations
R3 30 Day Average Water Temperature - Degrees C

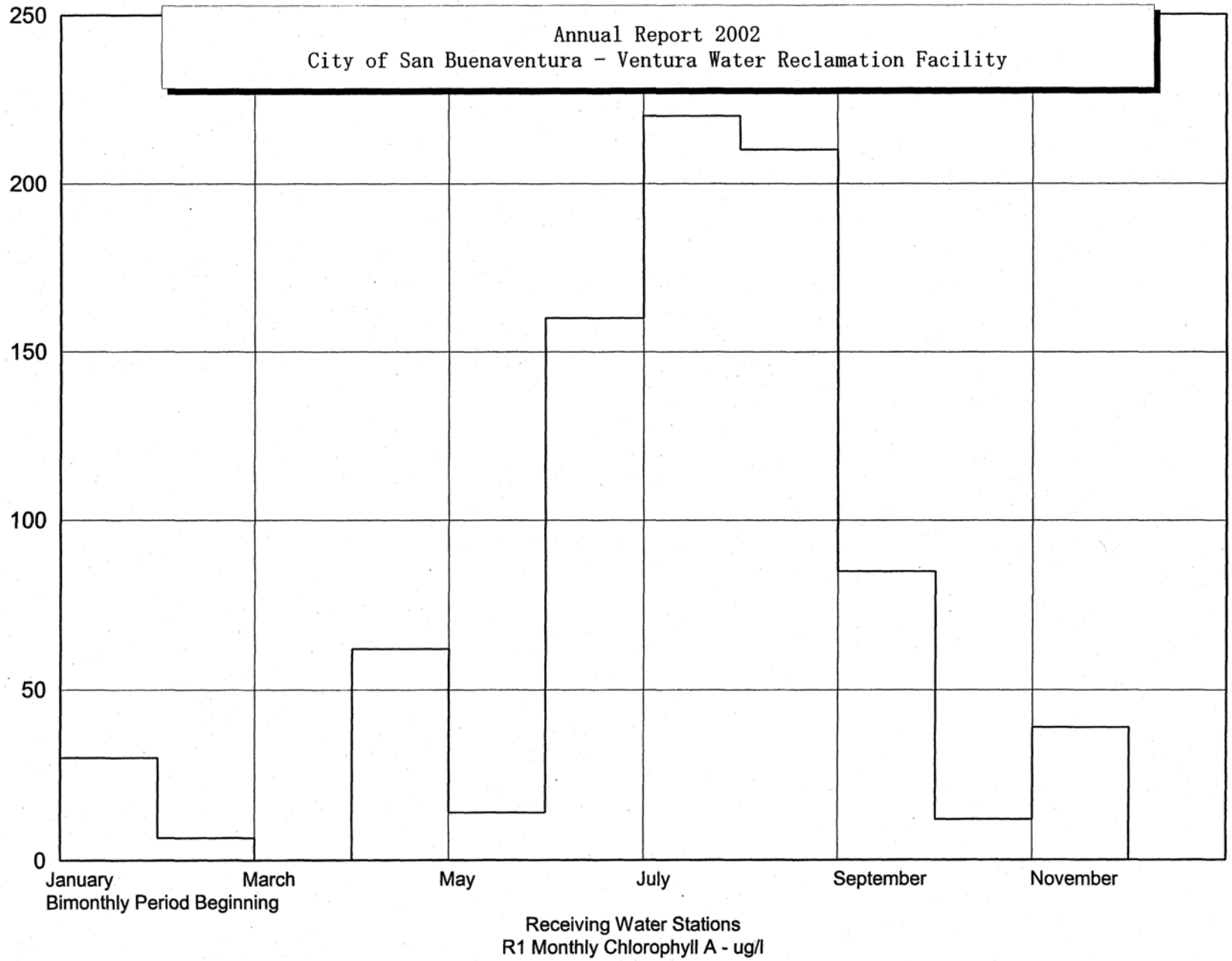

Annual Report 2002
City of San Buenaventura - Ventura Water Reclamation Facility
30
20
10
0
January
March
May
July
September
November
Bimonthly Period Beginning
Receiving Water Stations
R4 30 Day Average Water Temperature - Degrees C

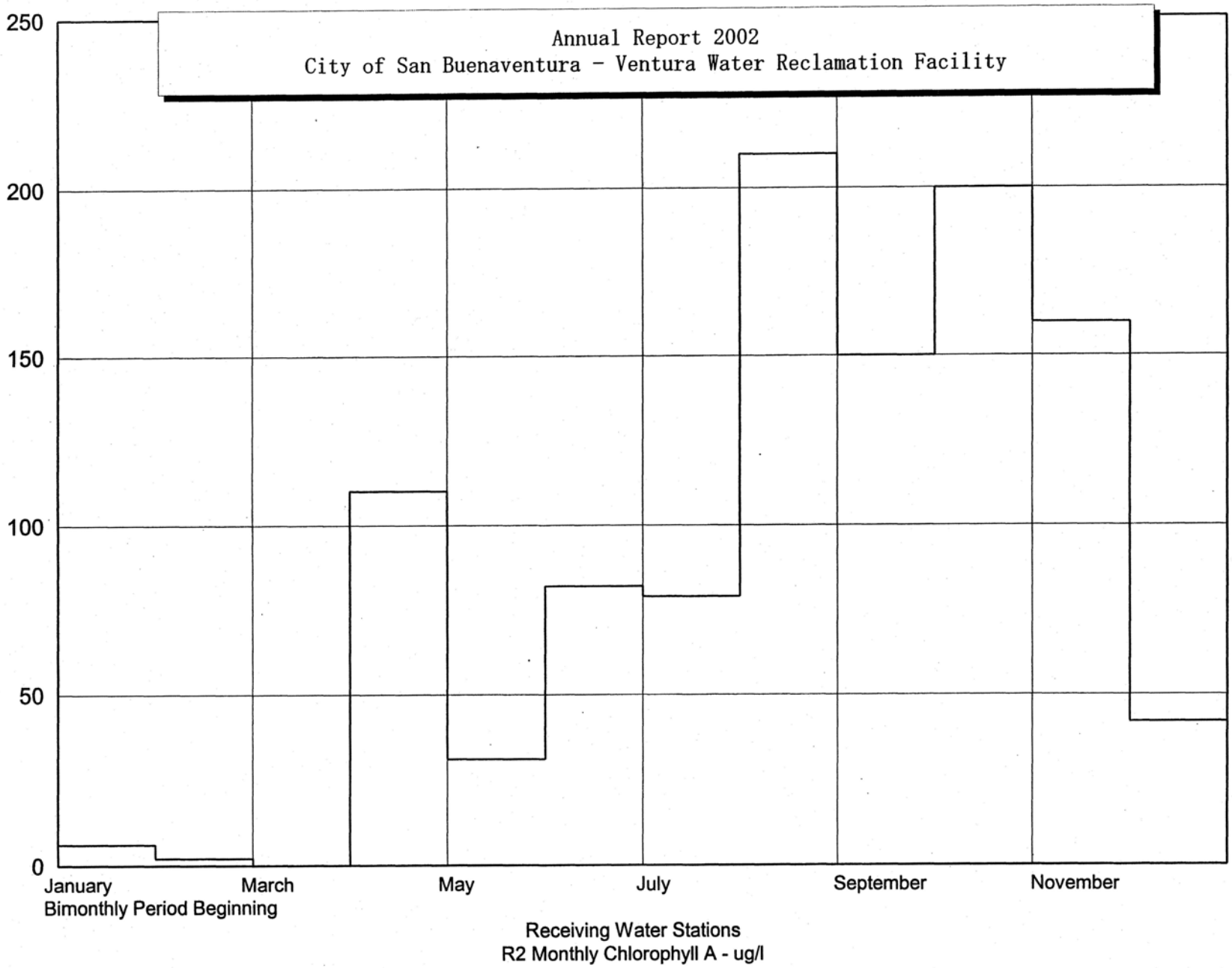

Annual Report 2002
City of San Buenaventura - Ventura Water Reclamation Facility
30
20
10
0
January
March
May
July
September
November
Bimonthly Period Beginning
Receiving Water Stations
R4 Weekly Water Temperature - Degrees C

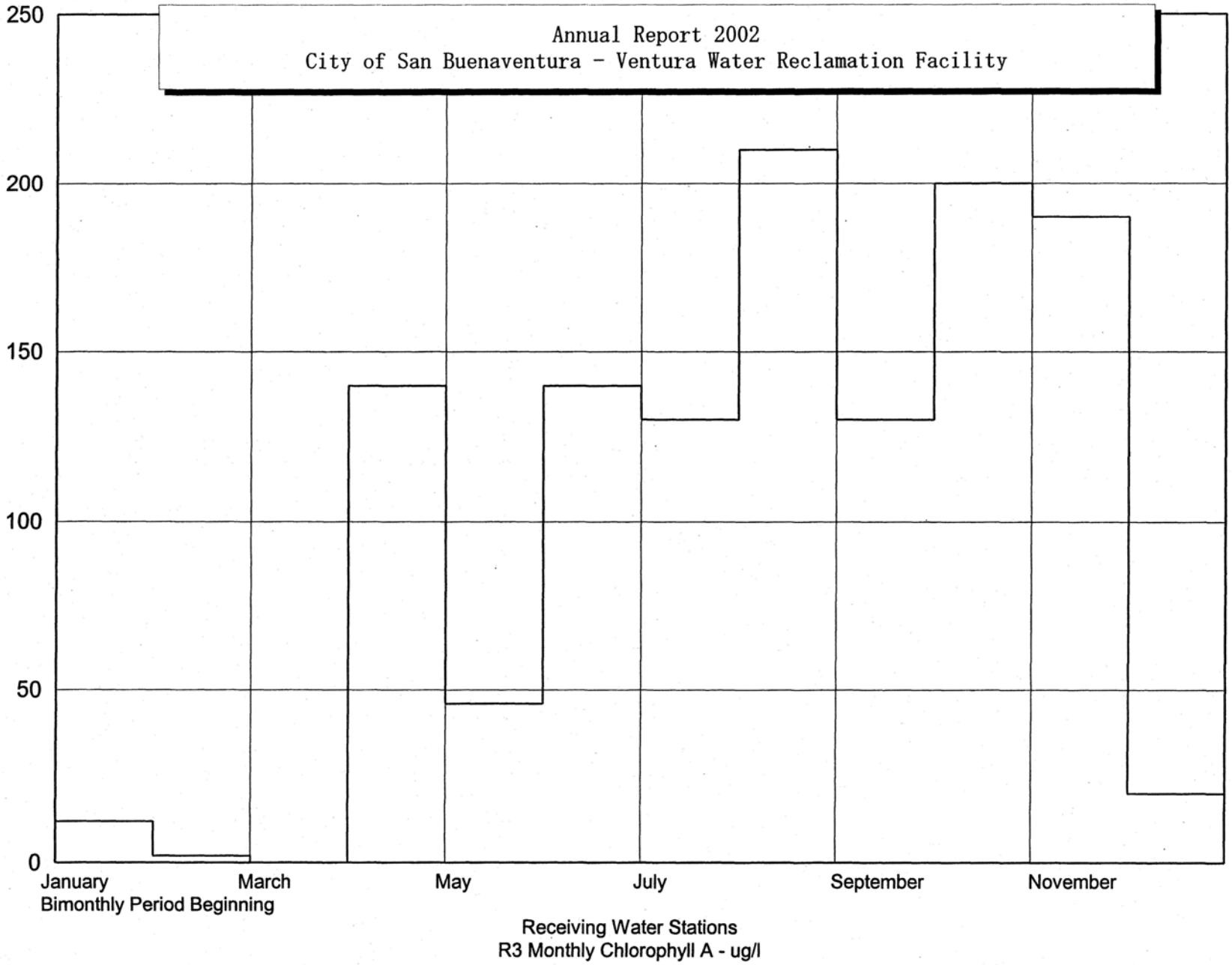


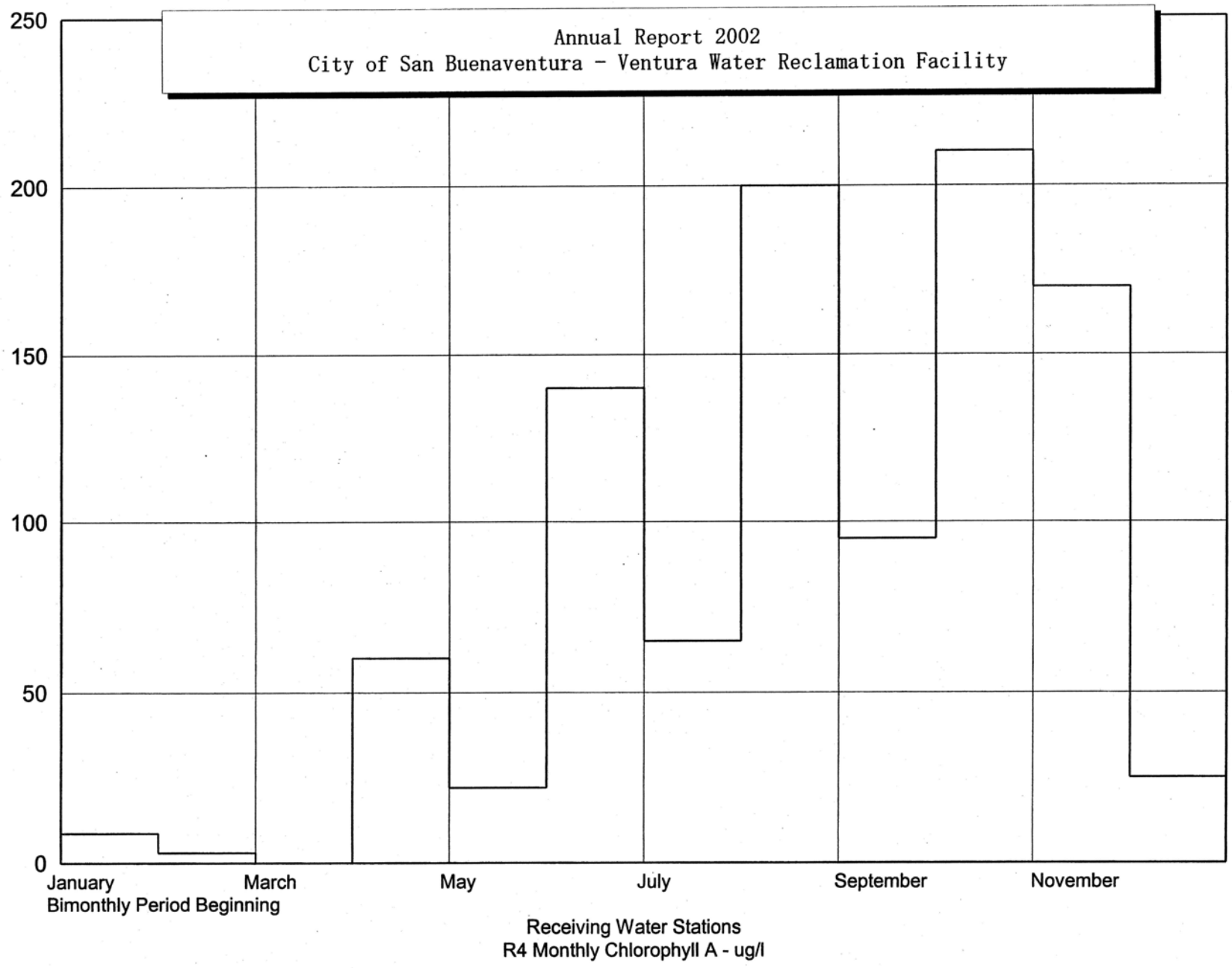
Receiving Water Stations
L5 Weekly Water Temperature - Degrees C

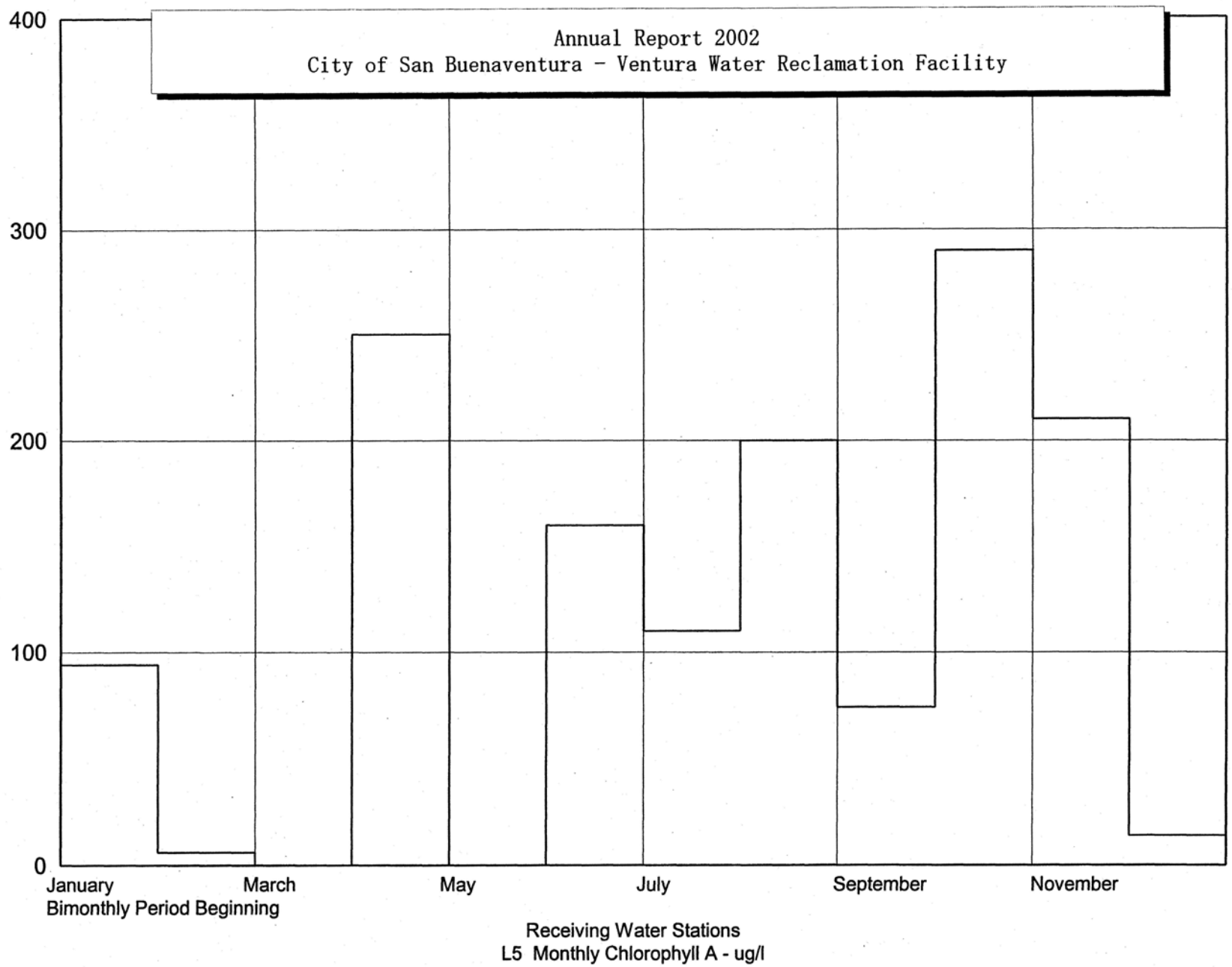

Annual Report 2002
City of San Buenaventura - Ventura Water Reclamation Facility
30
20
10
0
January
March
May
July
September
November
Bimonthly Period Beginning
Receiving Water Stations
L5 30 Day Average Water Temperature - Degrees C

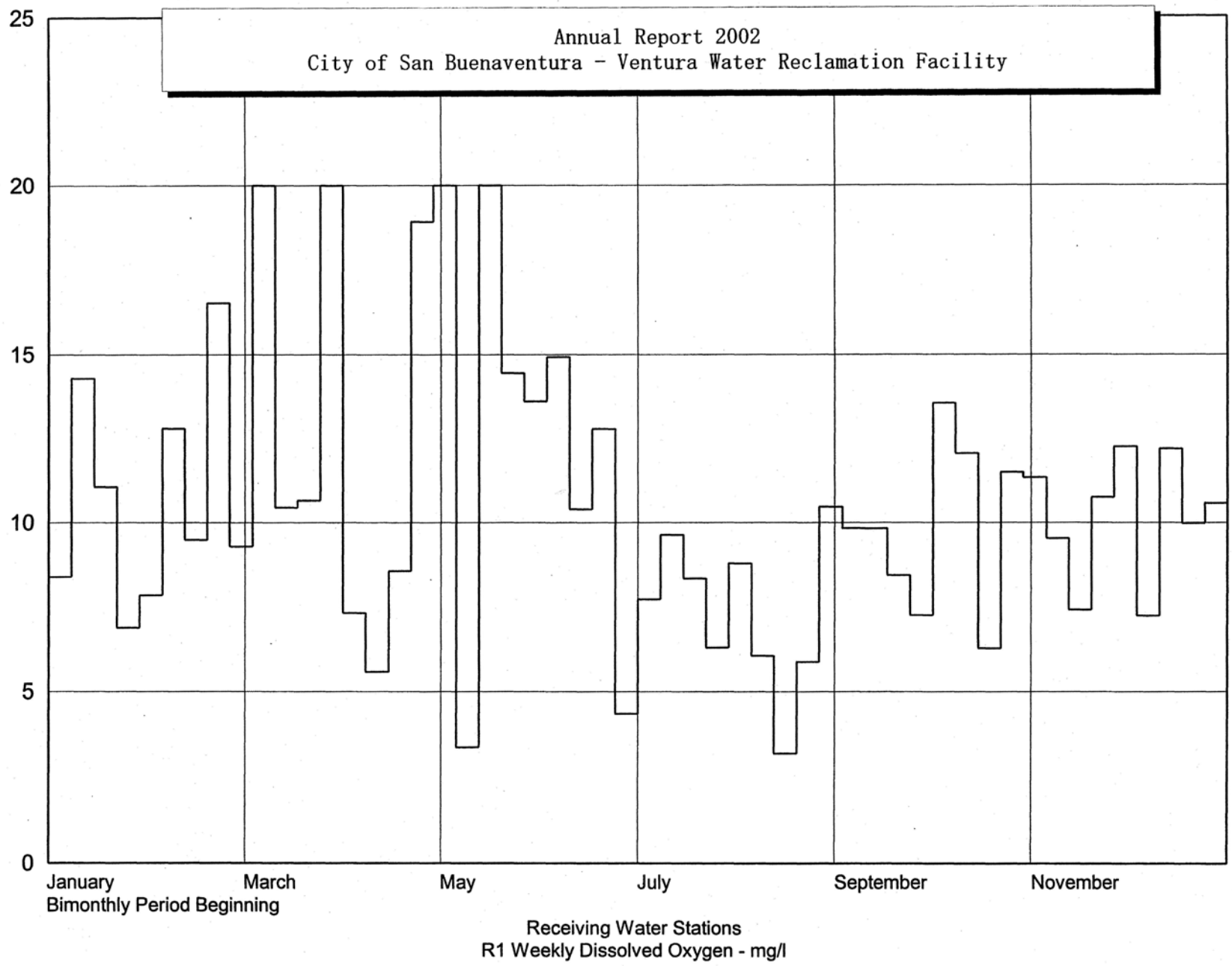

Annual Report 2002
City of San Buenaventura - Ventura Water Reclamation Facility
250
200
150
100
50
0
January
March
May
July
September
November
Bimonthly Period Beginning
Receiving Water Stations
R1 Monthly Chlorophyll A - ug/l


Annual Report 2002
City of San Buenaventura - Ventura Water Reclamation Facility
250
200
150
100
50
0
January
March
May
July
September
November
Bimonthly Period Beginning
Receiving Water Stations
R2 Monthly Chlorophyll A - ug/l

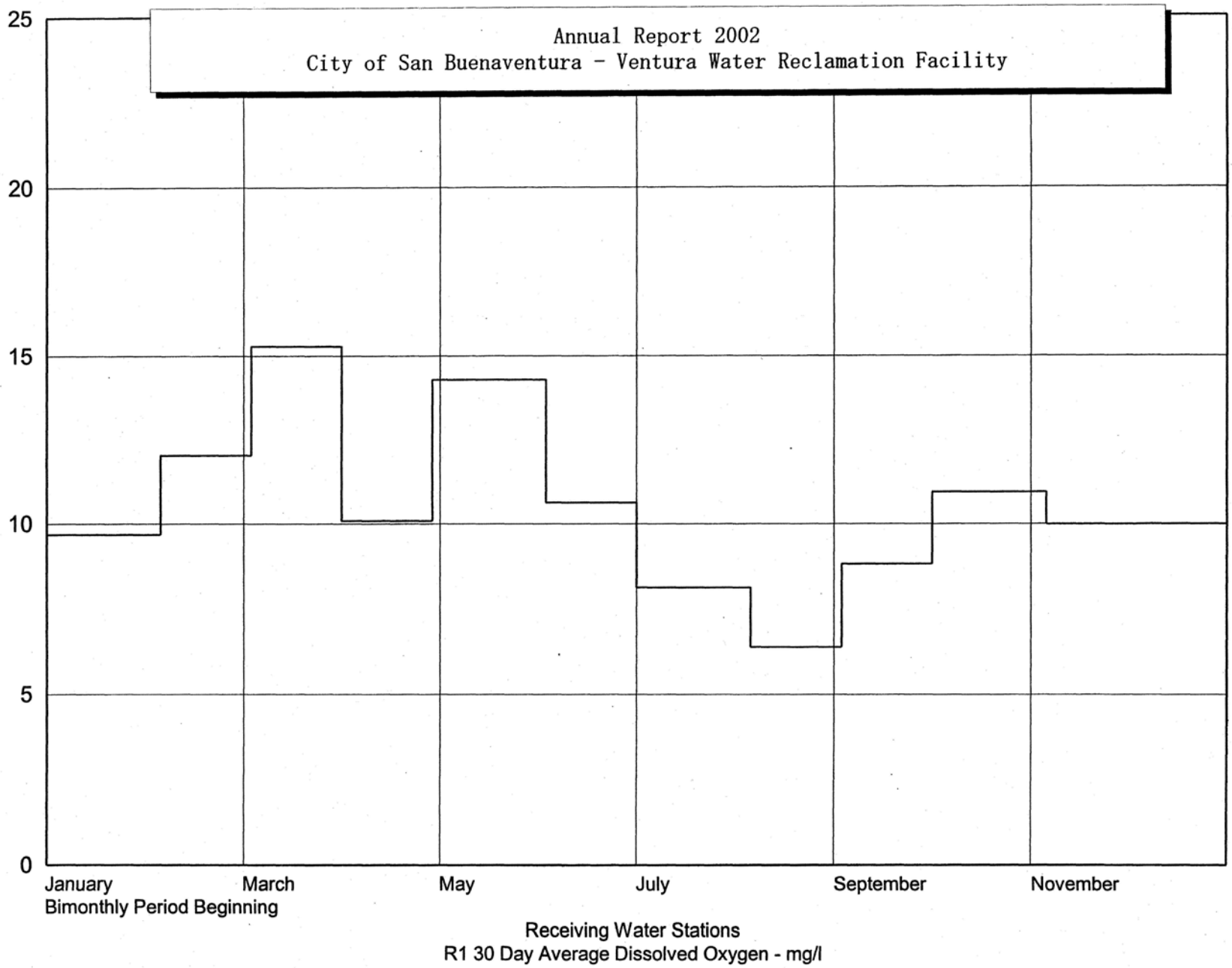

Annual Report 2002
City of San Buenaventura - Ventura Water Reclamation Facility
250
200
150
100
50
0
January
March
May
July
September
November
Bimonthly Period Beginning
Receiving Water Stations
R3 Monthly Chlorophyll A - ug/l

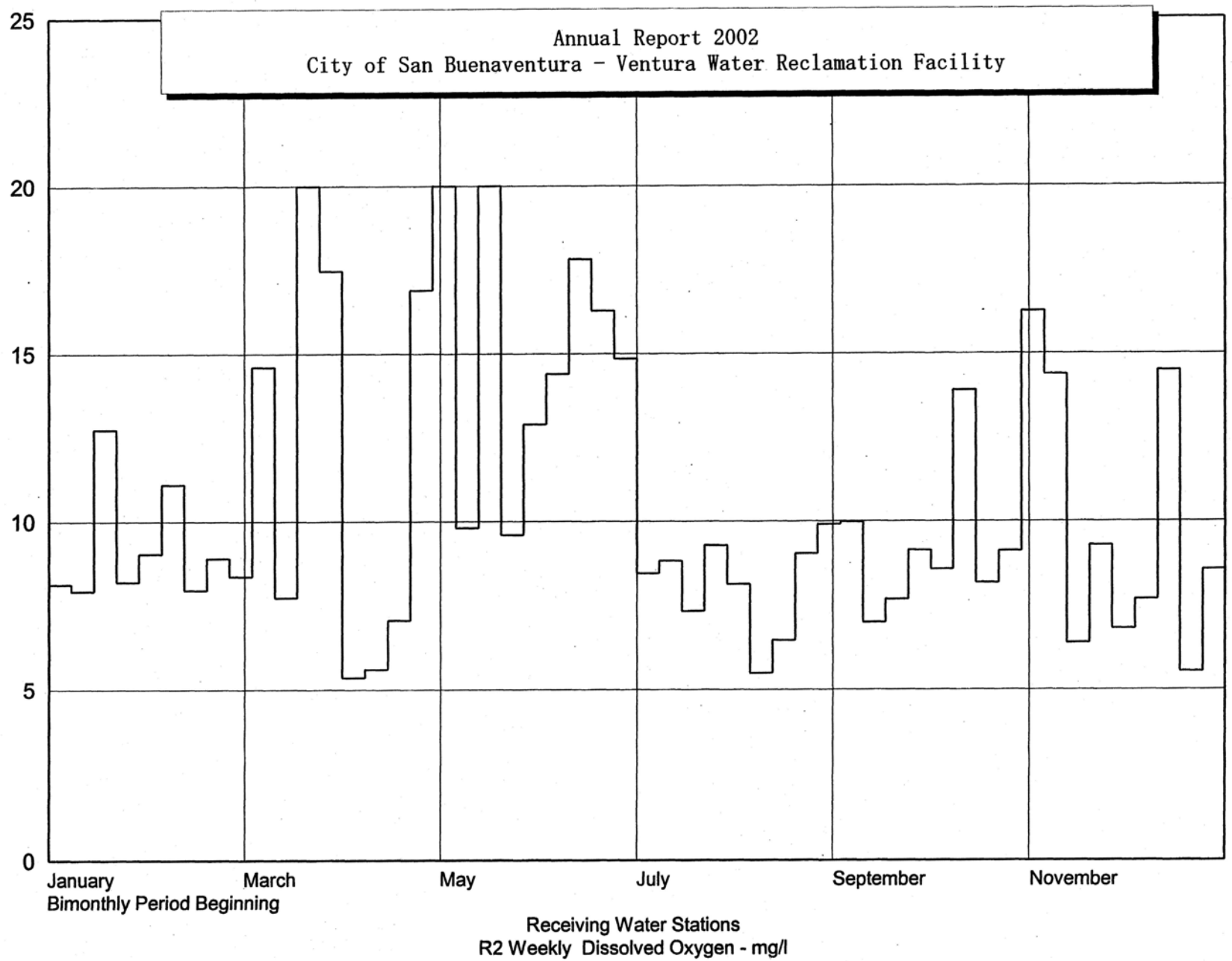

Annual Report 2002
City of San Buenaventura - Ventura Water Reclamation Facility
250
200
150
100
50
0
January
March
May
July
September
November
Bimonthly Period Beginning
Receiving Water Stations
R4 Monthly Chlorophyll A - ug/l

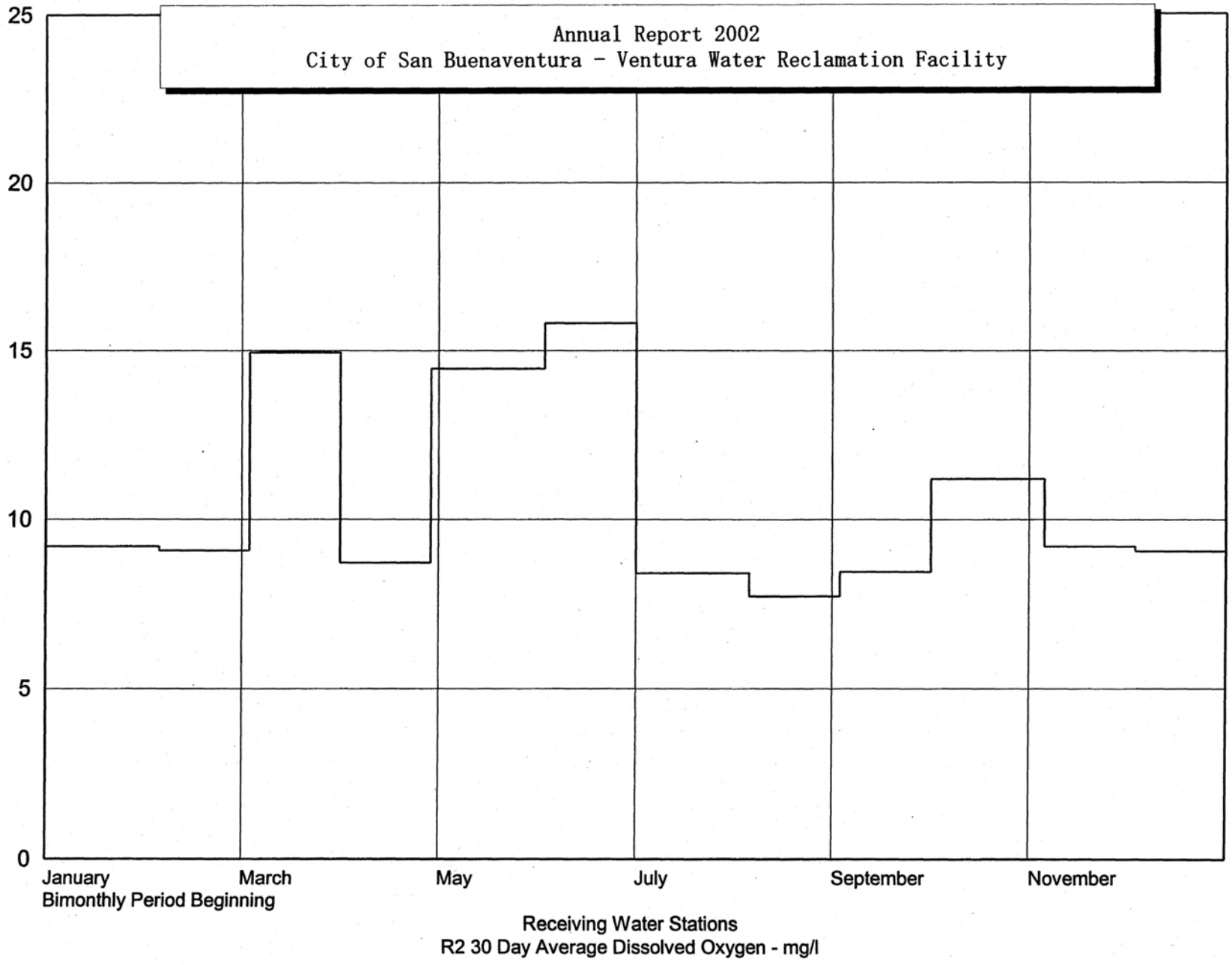

Annual Report 2002
City of San Buenaventura - Ventura Water Reclamation Facility
400
300
200
100
0
January
March
May
July
September
November
Bimonthly Period Beginning
Receiving Water Stations
L5 Monthly Chlorophyll A - ug/l

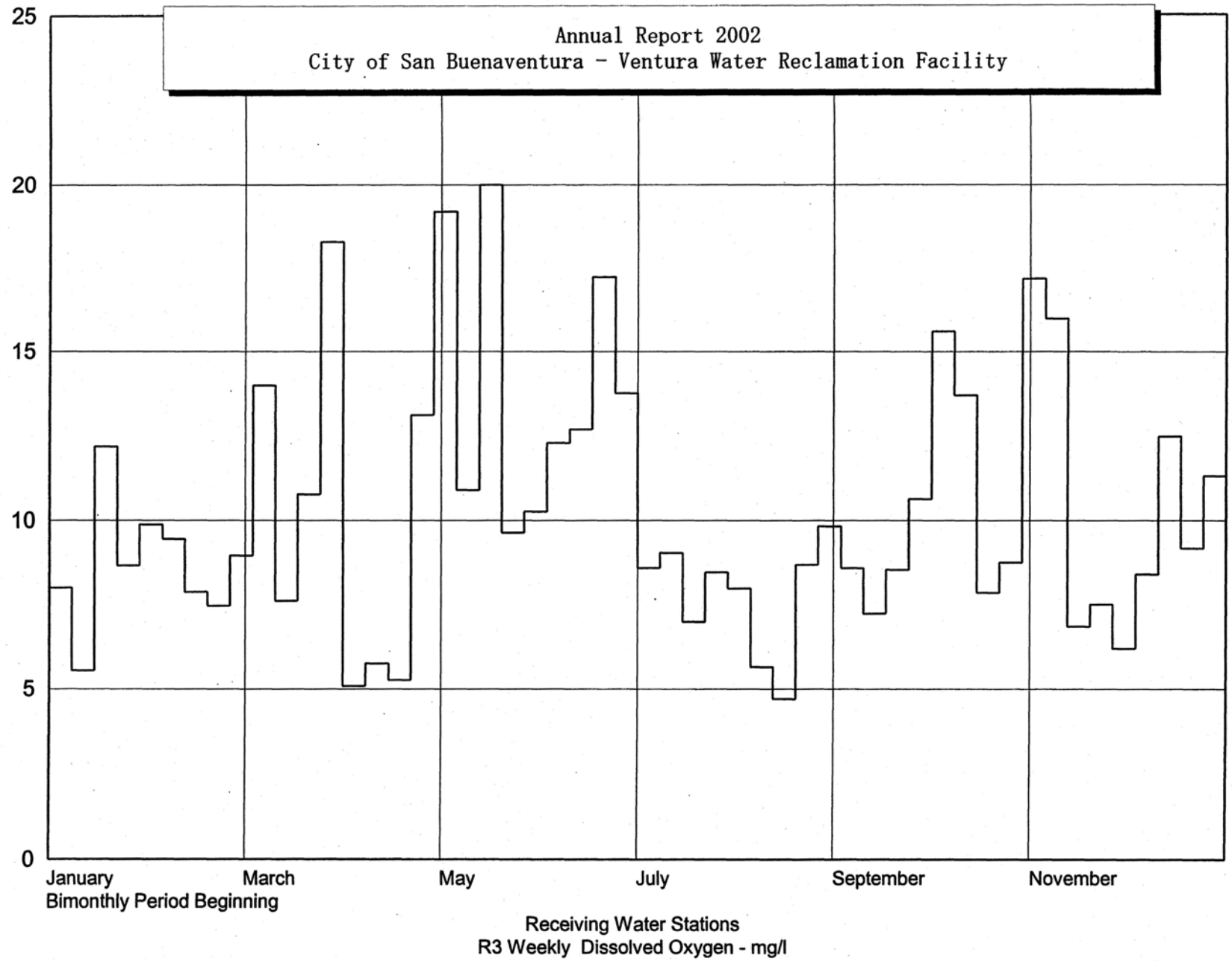


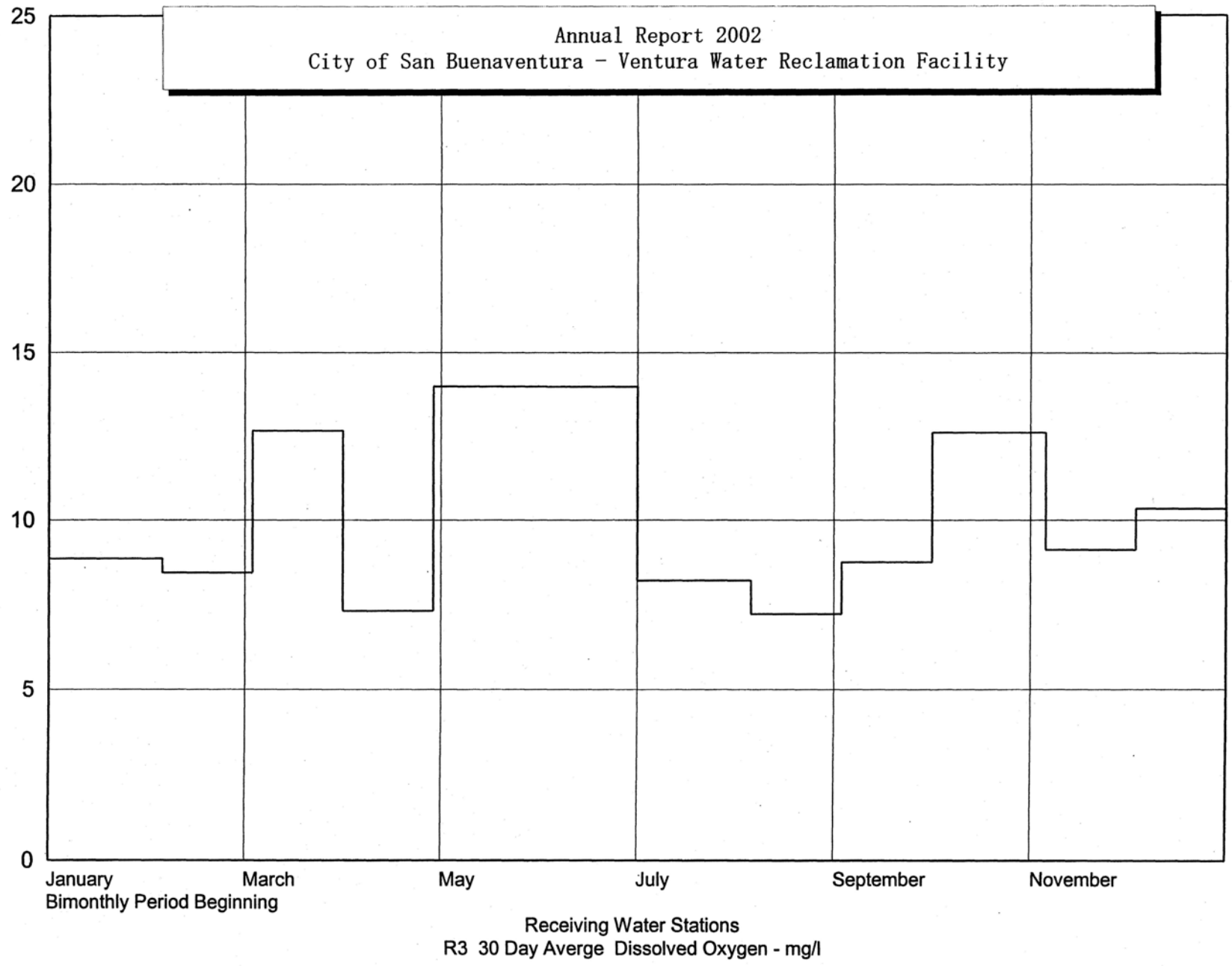
Receiving Water Stations
R1 Weekly Dissolved Oxygen - mg/l


Annual Report 2002
City of San Buenaventura - Ventura Water Reclamation Facility
25
20
15
10
5
0
January
March
May
July
September
November
Bimonthly Period Beginning
Receiving Water Stations
R1 30 Day Average Dissolved Oxygen - mg/l


Annual Report 2002
City of San Buenaventura - Ventura Water Reclamation Facility
25
20
15
10
5
0
January
March
May
July
September
November
Bimonthly Period Beginning
Receiving Water Stations
R2 Weekly Dissolved Oxygen - mg/l


Annual Report 2002
City of San Buenaventura - Ventura Water Reclamation Facility
25
20
15
10
5
0
January
March
May
July
September
November
Bimonthly Period Beginning
Receiving Water Stations
R2 30 Day Average Dissolved Oxygen - mg/l


Annual Report 2002
City of San Buenaventura - Ventura Water Reclamation Facility
25
20
15
10
5
0
January
March
May
July
September
November
Bimonthly Period Beginning
Receiving Water Stations
R3 Weekly Dissolved Oxygen - mg/l


Annual Report 2002
City of San Buenaventura - Ventura Water Reclamation Facility
25
20
15
10
5
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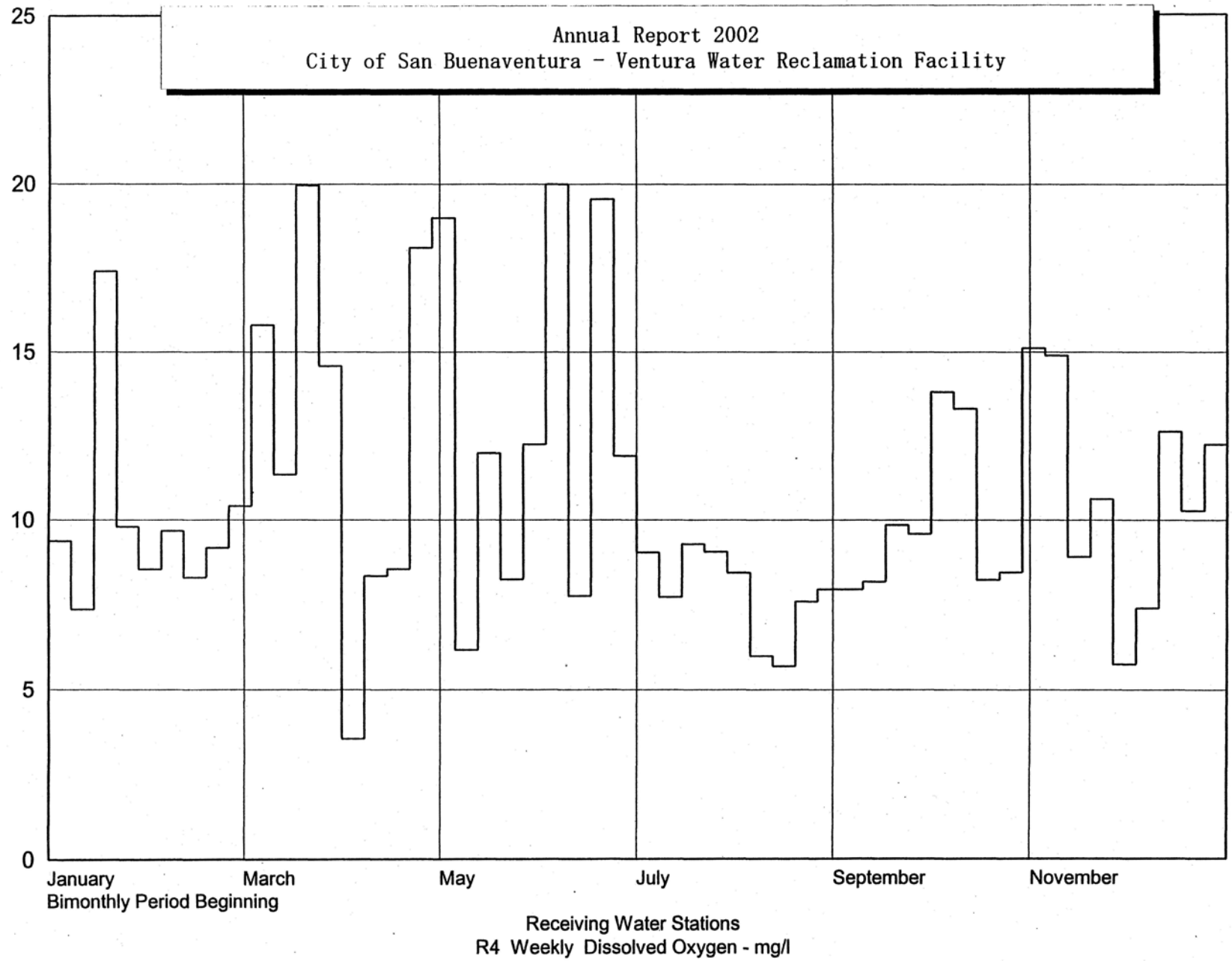
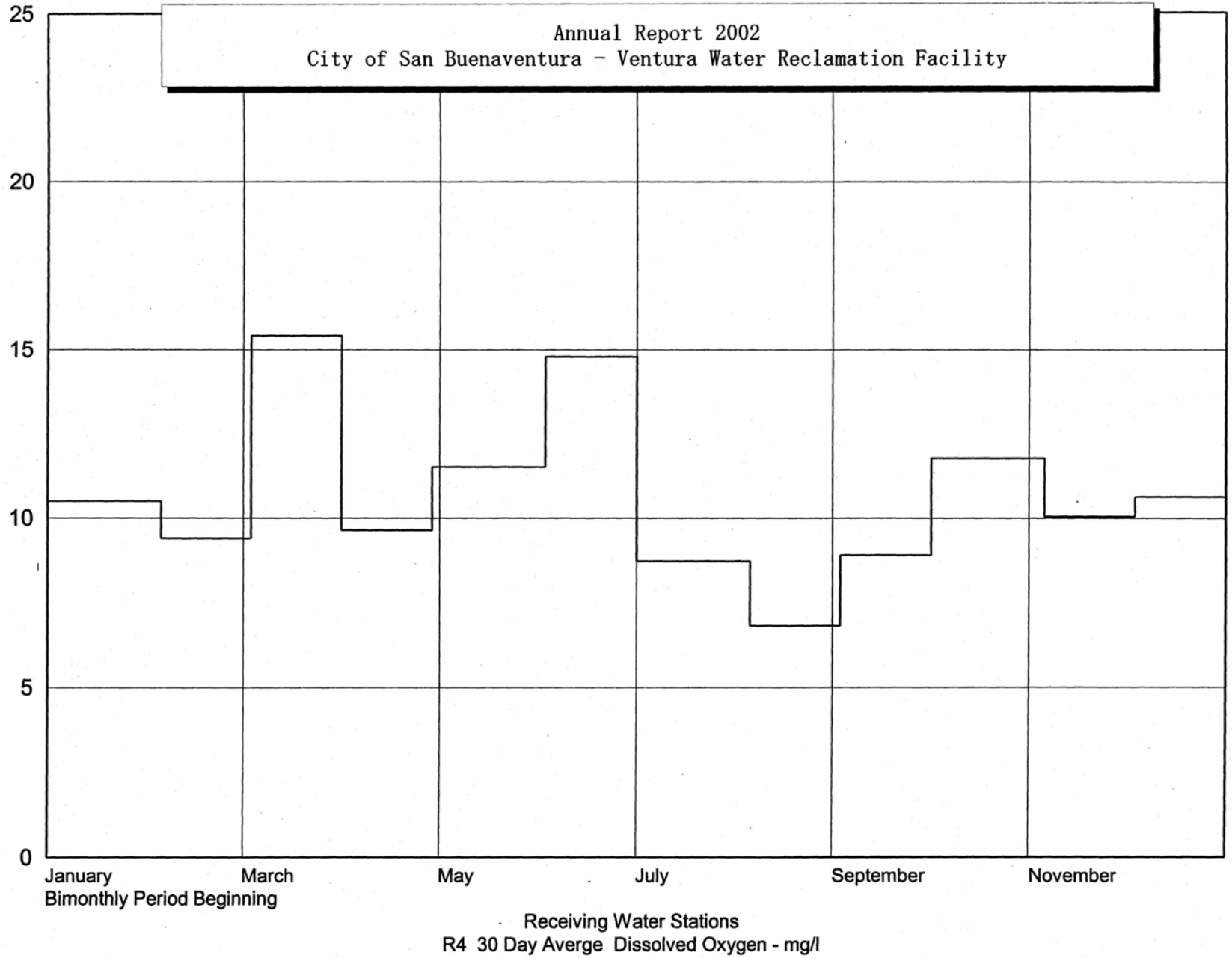
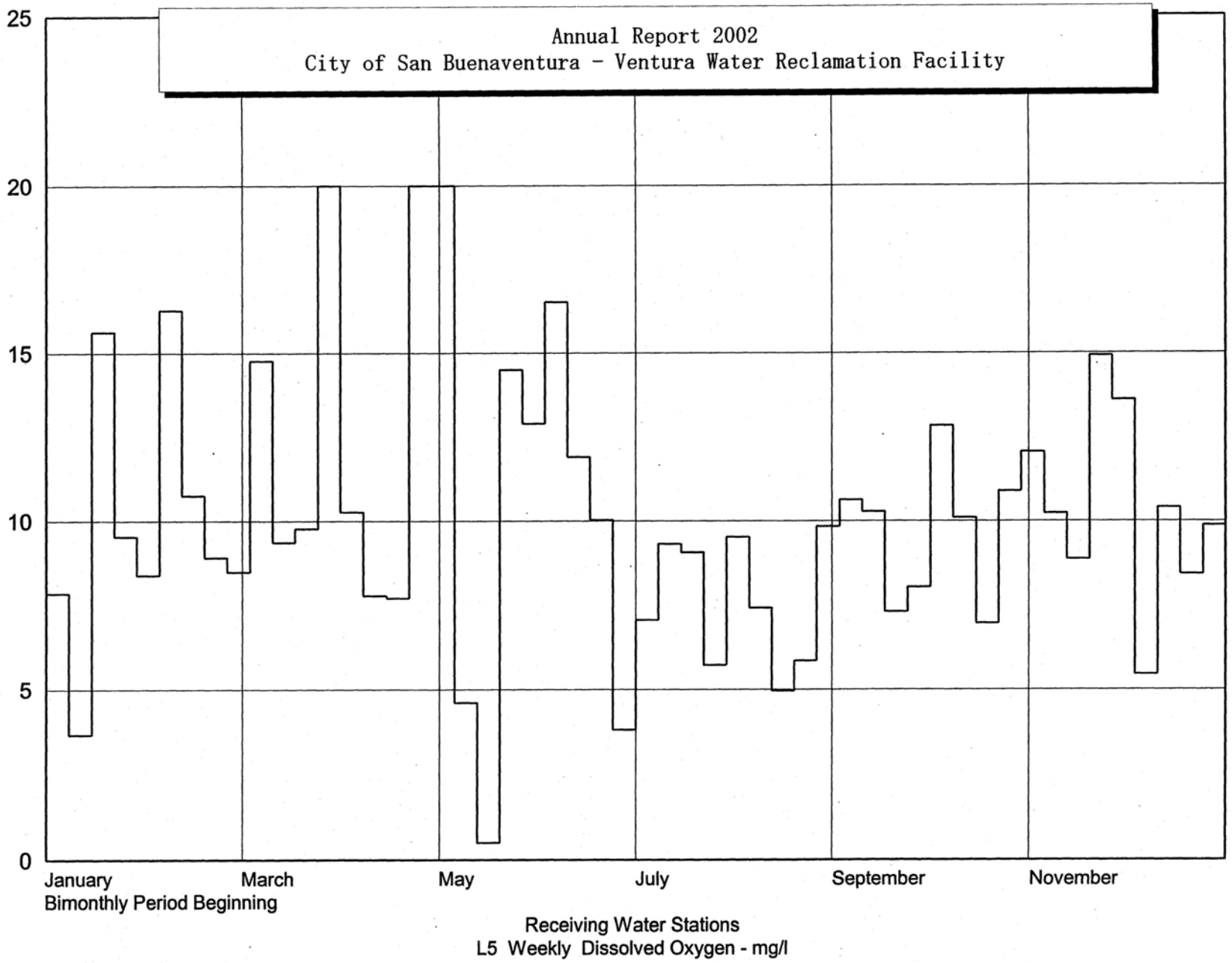
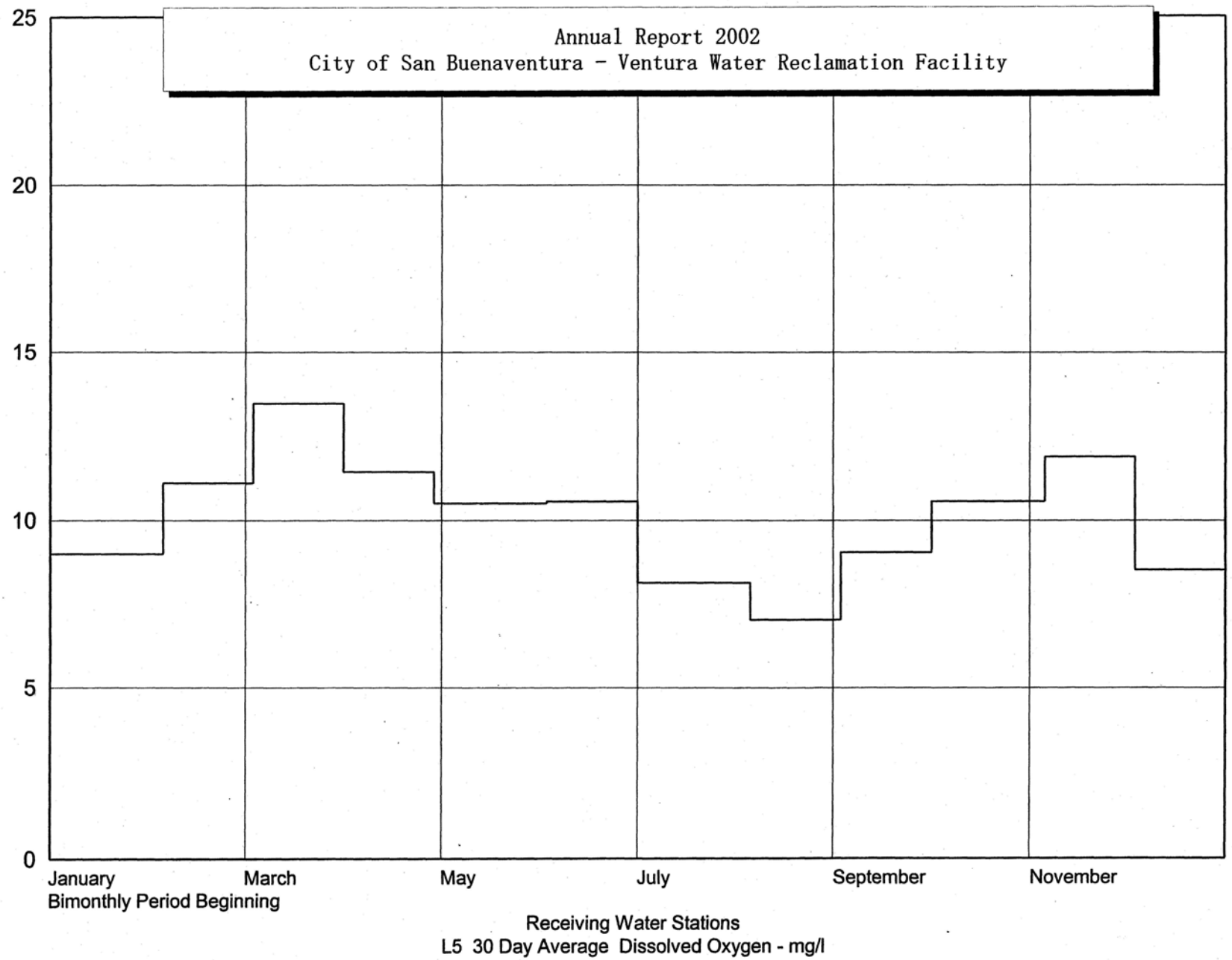
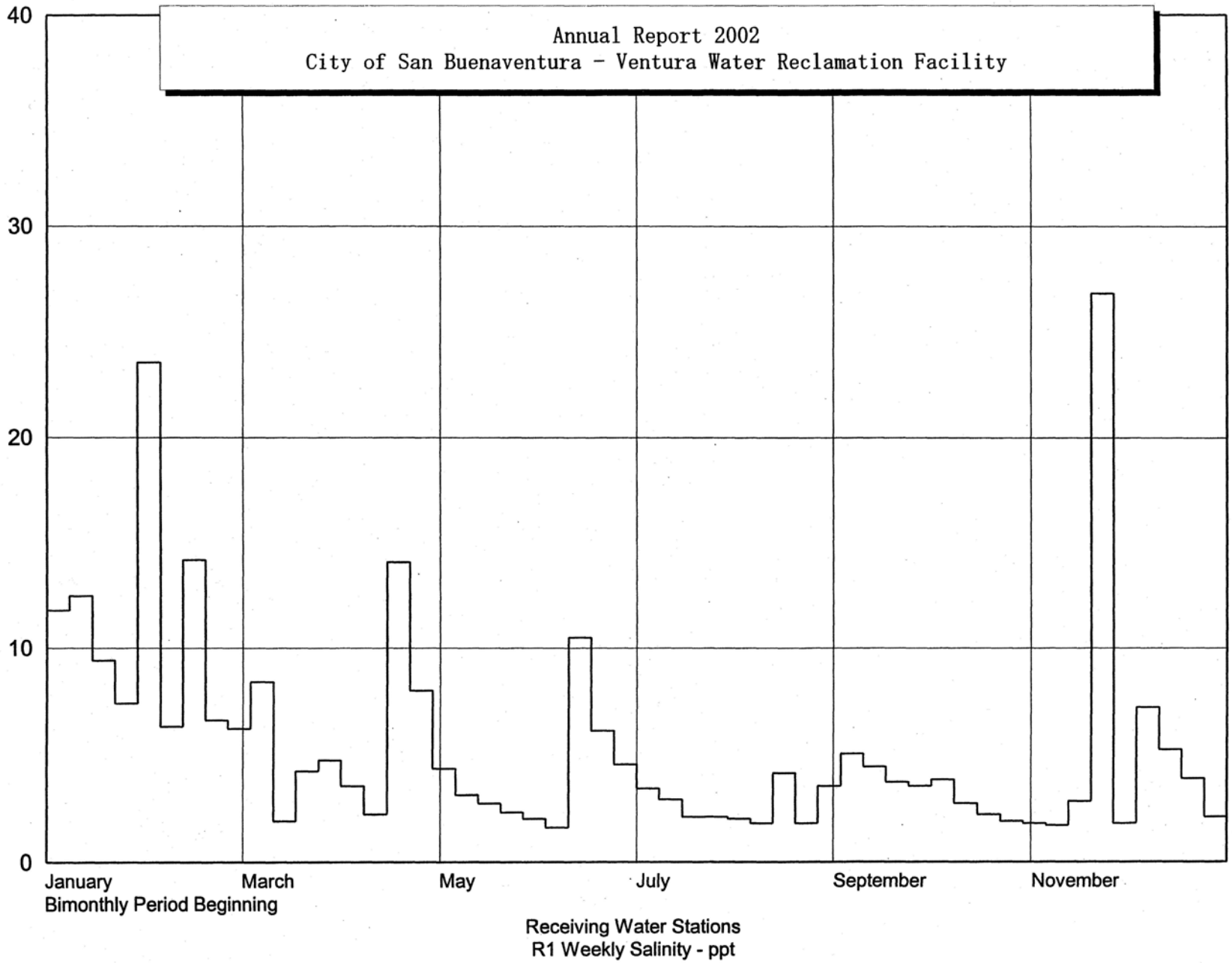
January
March
May
July
September
November
Bimonthly Period Beginning
Receiving Water Stations
R3 30 Day Averge Dissolved Oxygen - mg/l

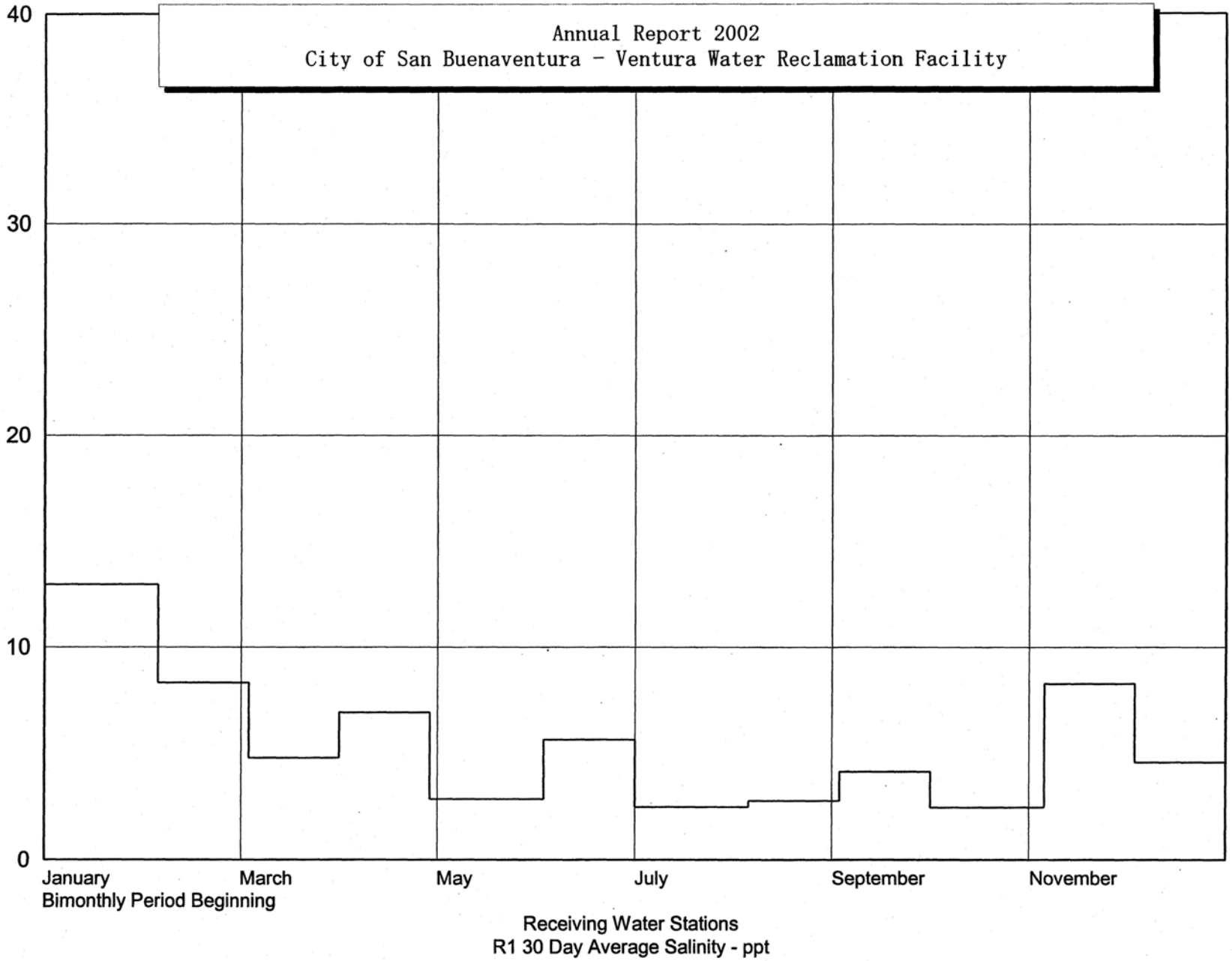

Annual Report 2002
City of San Buenaventura - Ventura Water Reclamation Facility
25
20
15
10
5
0
January
March
May
July
September
November
Bimonthly Period Beginning
Receiving Water Stations
R4 Weekly Dissolved Oxygen - mg/l

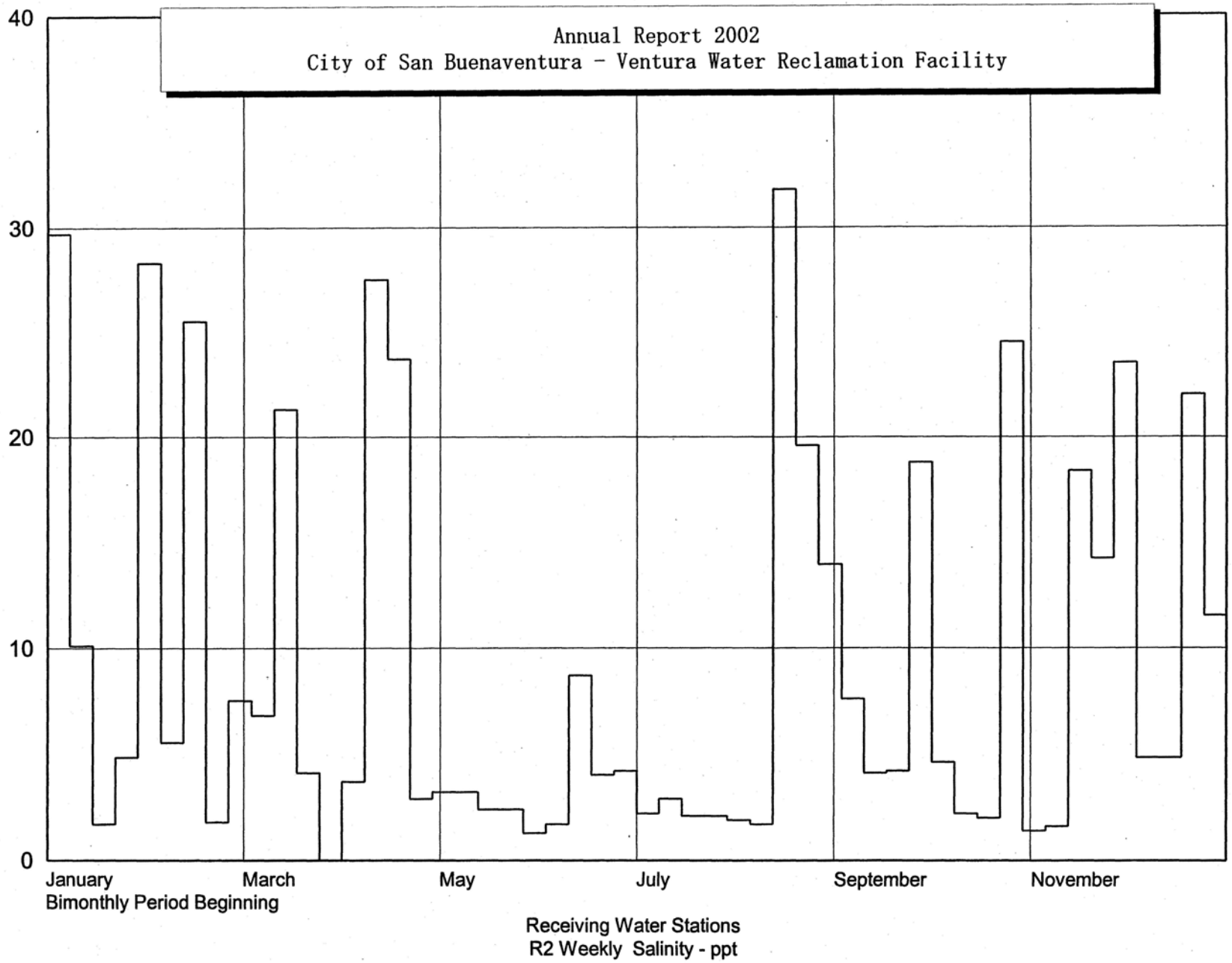

Annual Report 2002
City of San Buenaventura - Ventura Water Reclamation Facility
25
20
15
10
5
0
January
March
May
July
September
November
Bimonthly Period Beginning
Receiving Water Stations
R4 30 Day Averge Dissolved Oxygen - mg/l

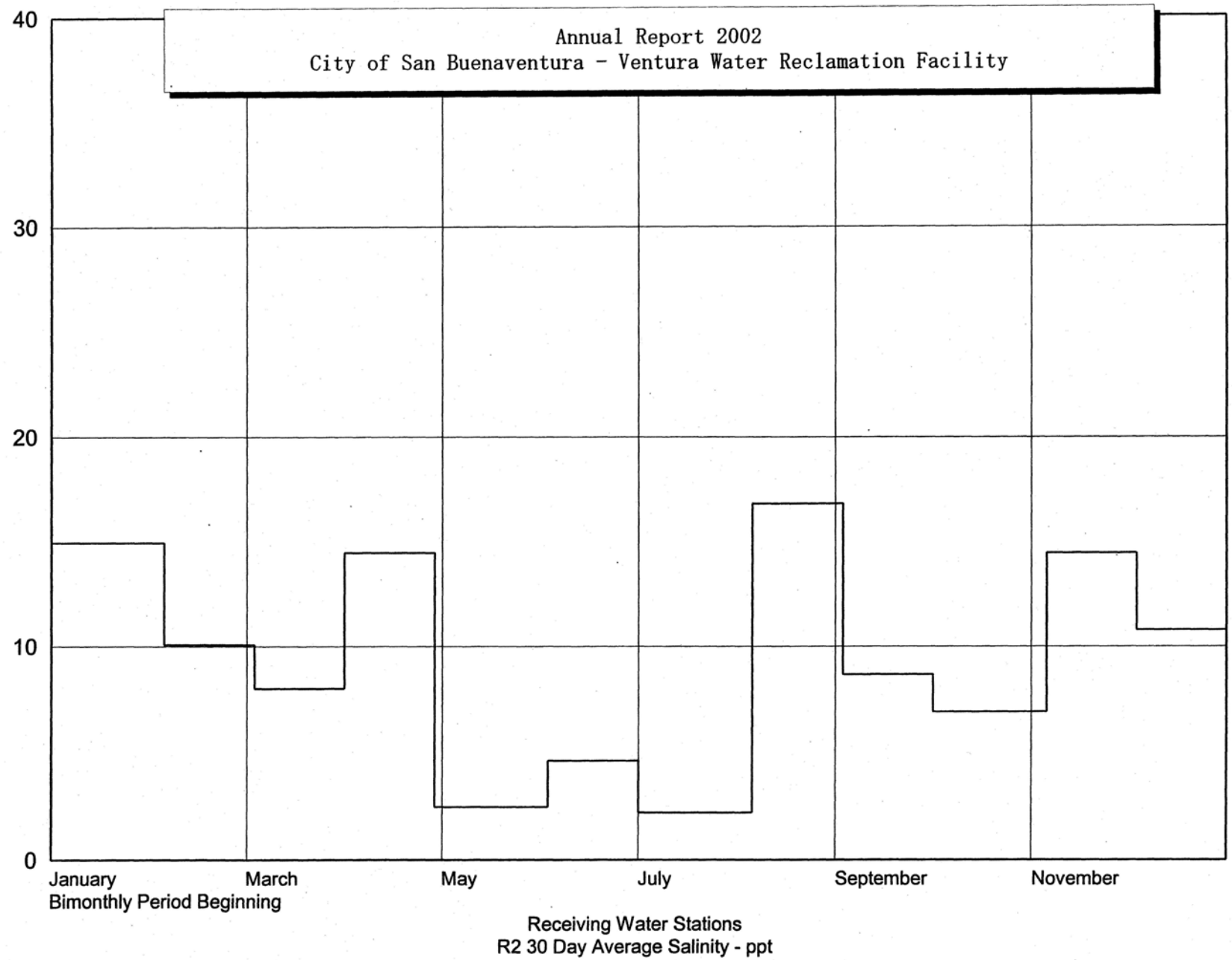

Annual Report 2002
City of San Buenaventura - Ventura Water Reclamation Facility
25
20
15
10
5
0
January
March
May
July
September
November
Bimonthly Period Beginning
Receiving Water Stations
L5 Weekly Dissolved Oxygen - mg/l

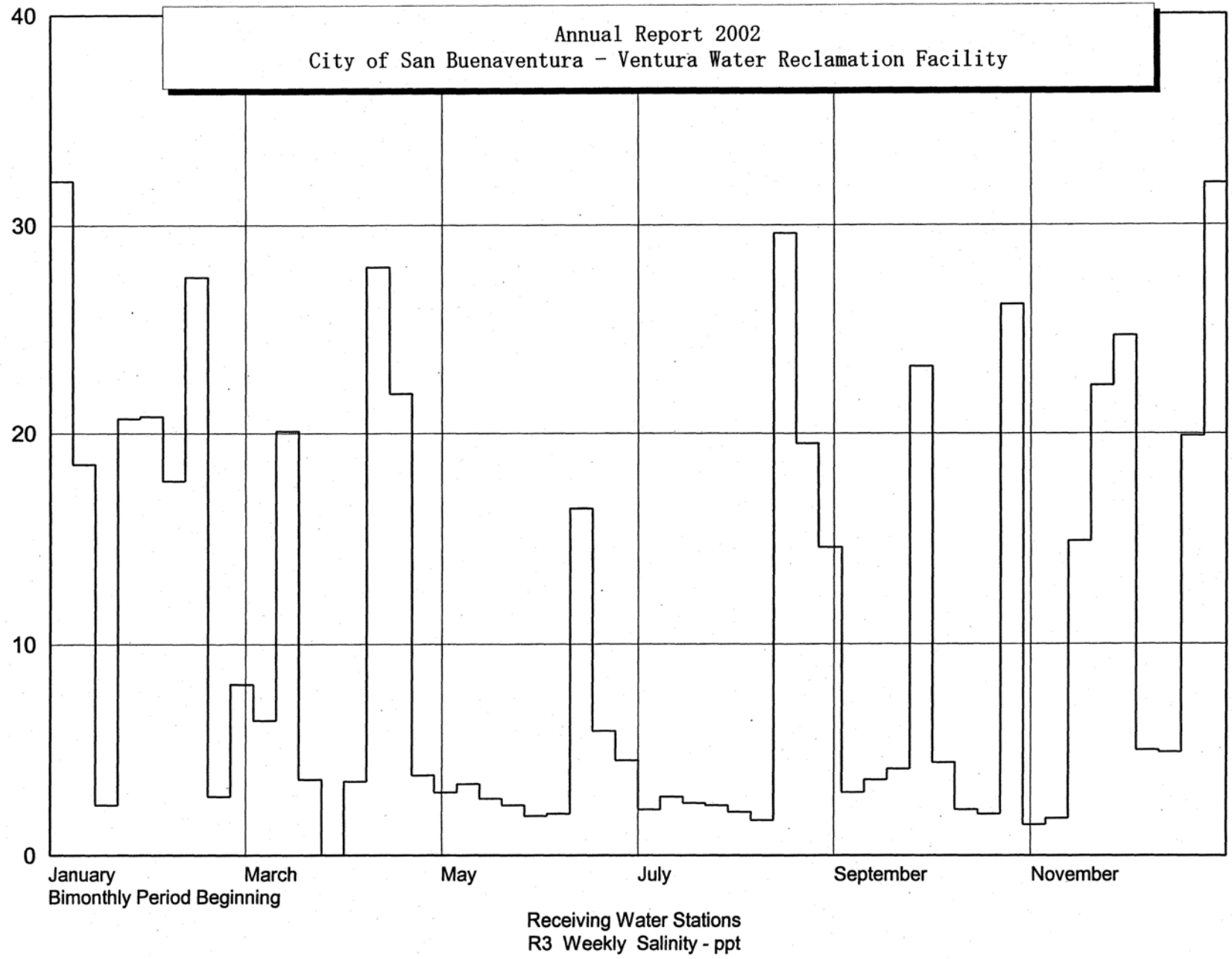

Annual Report 2002
City of San Buenaventura - Ventura Water Reclamation Facility
25
20
15
10
5
0
January
March
May
July
September
November
Bimonthly Period Beginning
Receiving Water Stations
L5 30 Day Average Dissolved Oxygen - mg/l

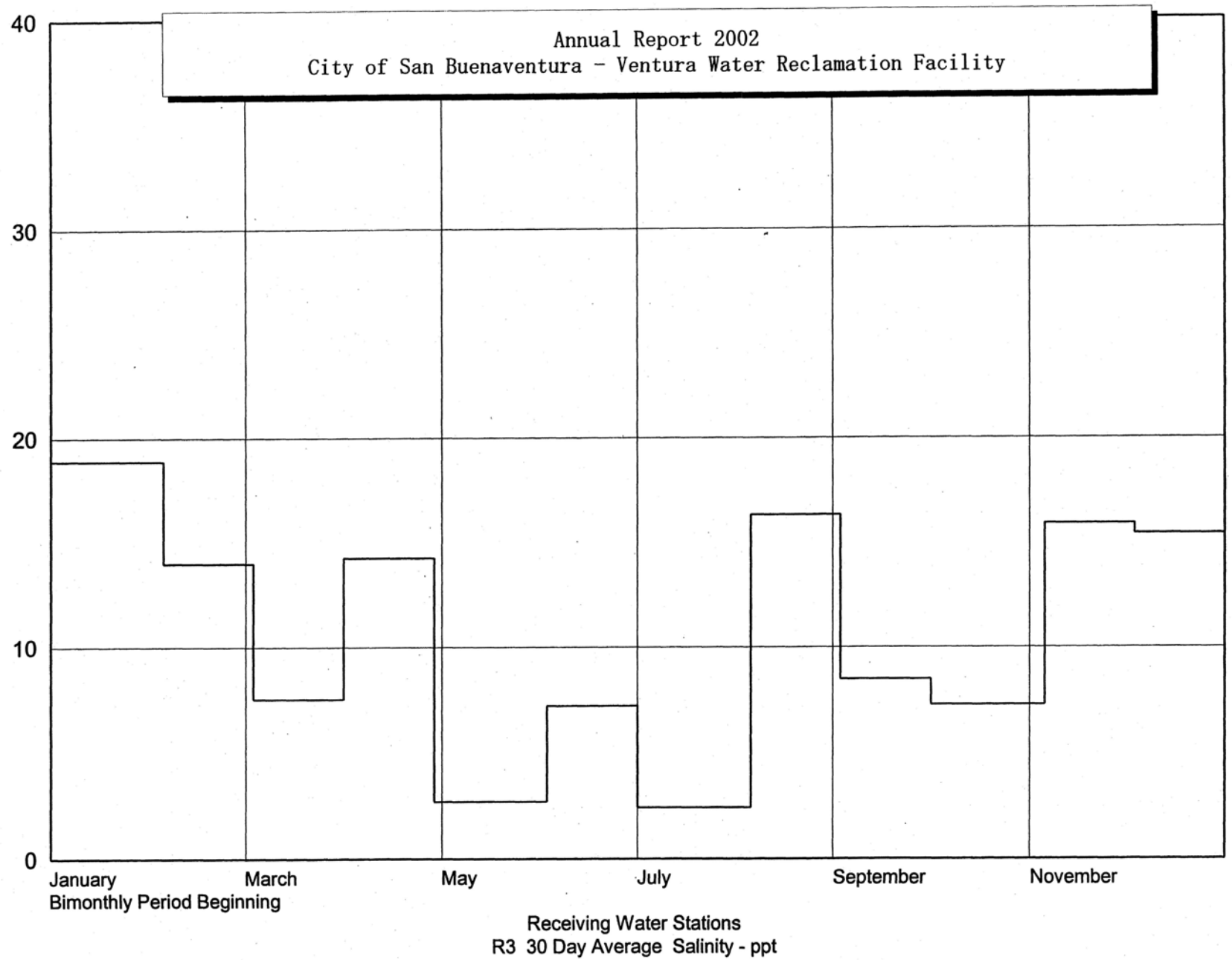

Annual Report 2002
City of San Buenaventura - Ventura Water Reclamation Facility
40
30
20
10
0
January
March
May
July
September
November
Bimonthly Period Beginning
Receiving Water Stations
R1 Weekly Salinity - ppt

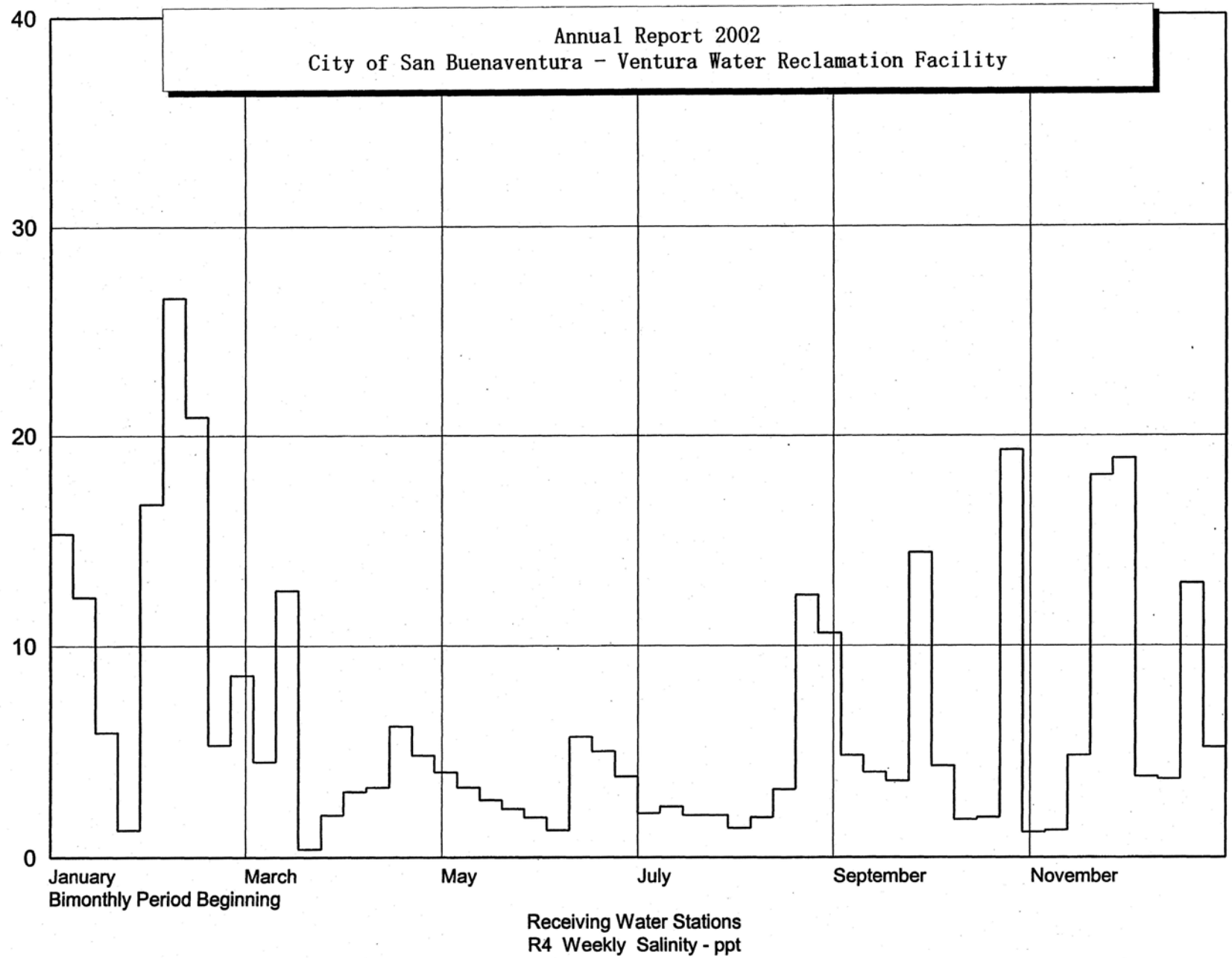

Annual Report 2002
City of San Buenaventura - Ventura Water Reclamation Facility
40
30
20
10
0
January
March
May
July
September
November
Bimonthly Period Beginning
Receiving Water Stations
R1 30 Day Average Salinity - ppt

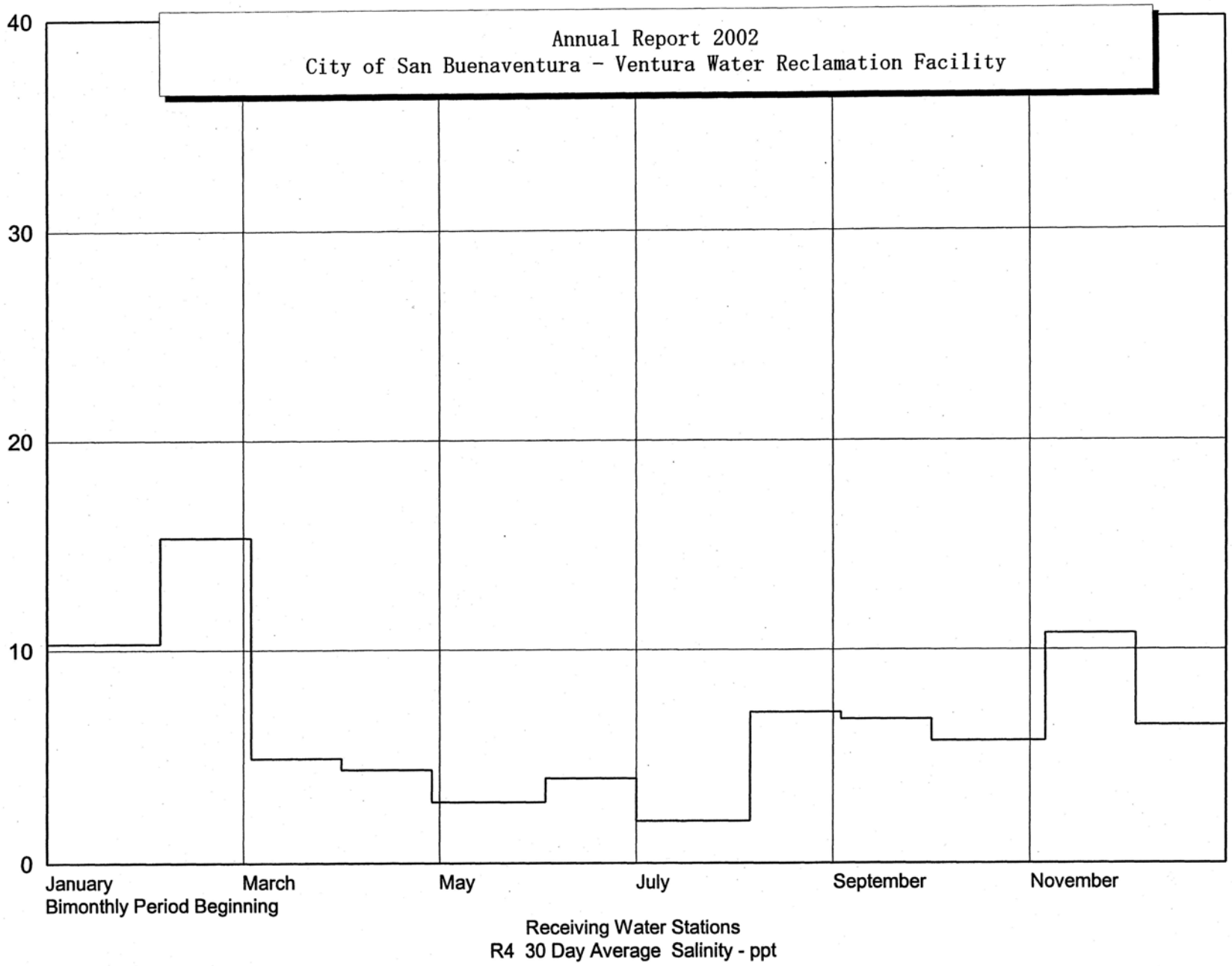

Annual Report 2002
City of San Buenaventura - Ventura Water Reclamation Facility
40
30
20
10
0
January
March
May
July
September
November
Bimonthly Period Beginning
Receiving Water Stations
R2 Weekly Salinity - ppt

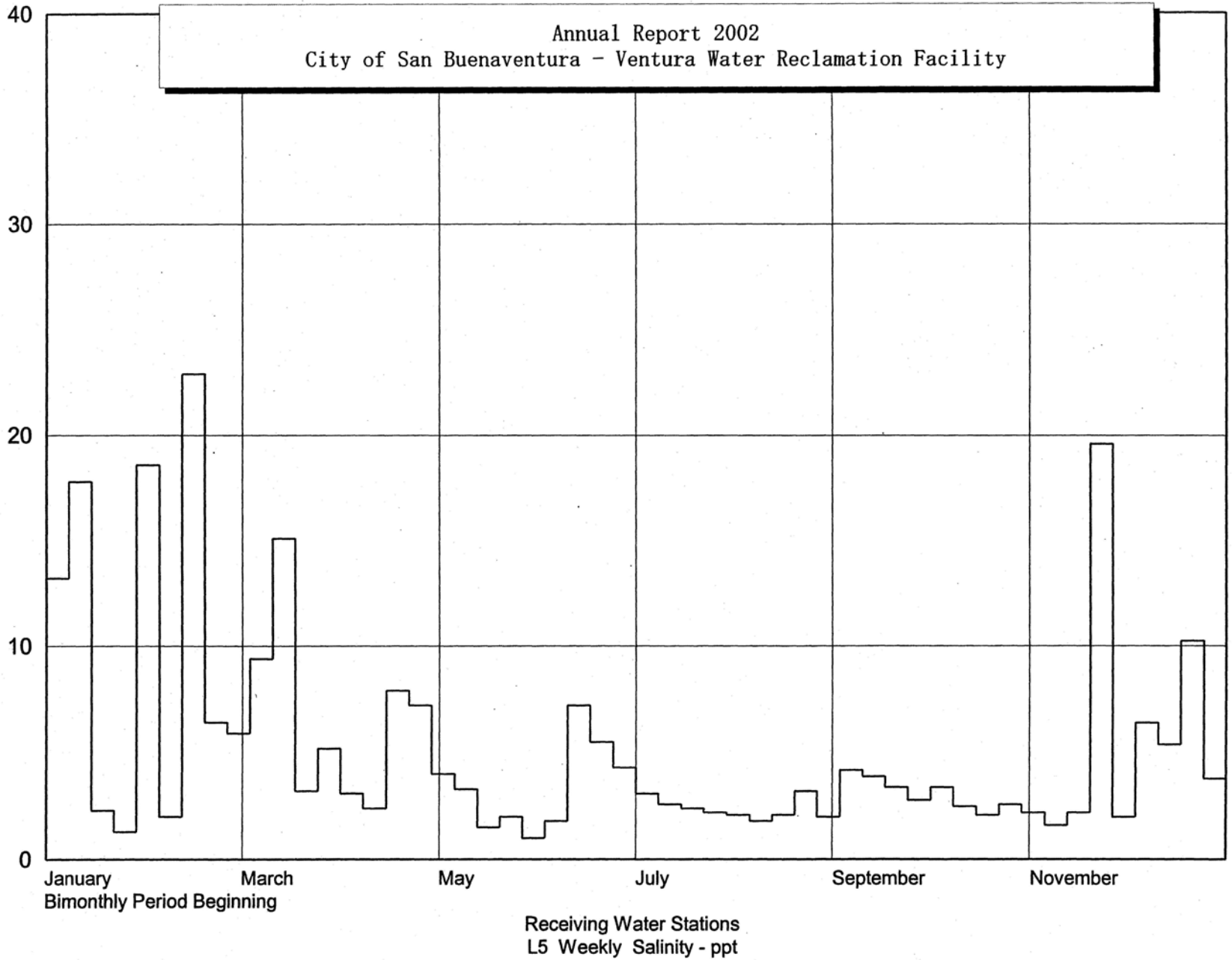

Annual Report 2002
City of San Buenaventura - Ventura Water Reclamation Facility
40
30
20
10
0
January
March
May
July
September
November
Bimonthly Period Beginning
Receiving Water Stations
R2 30 Day Average Salinity - ppt

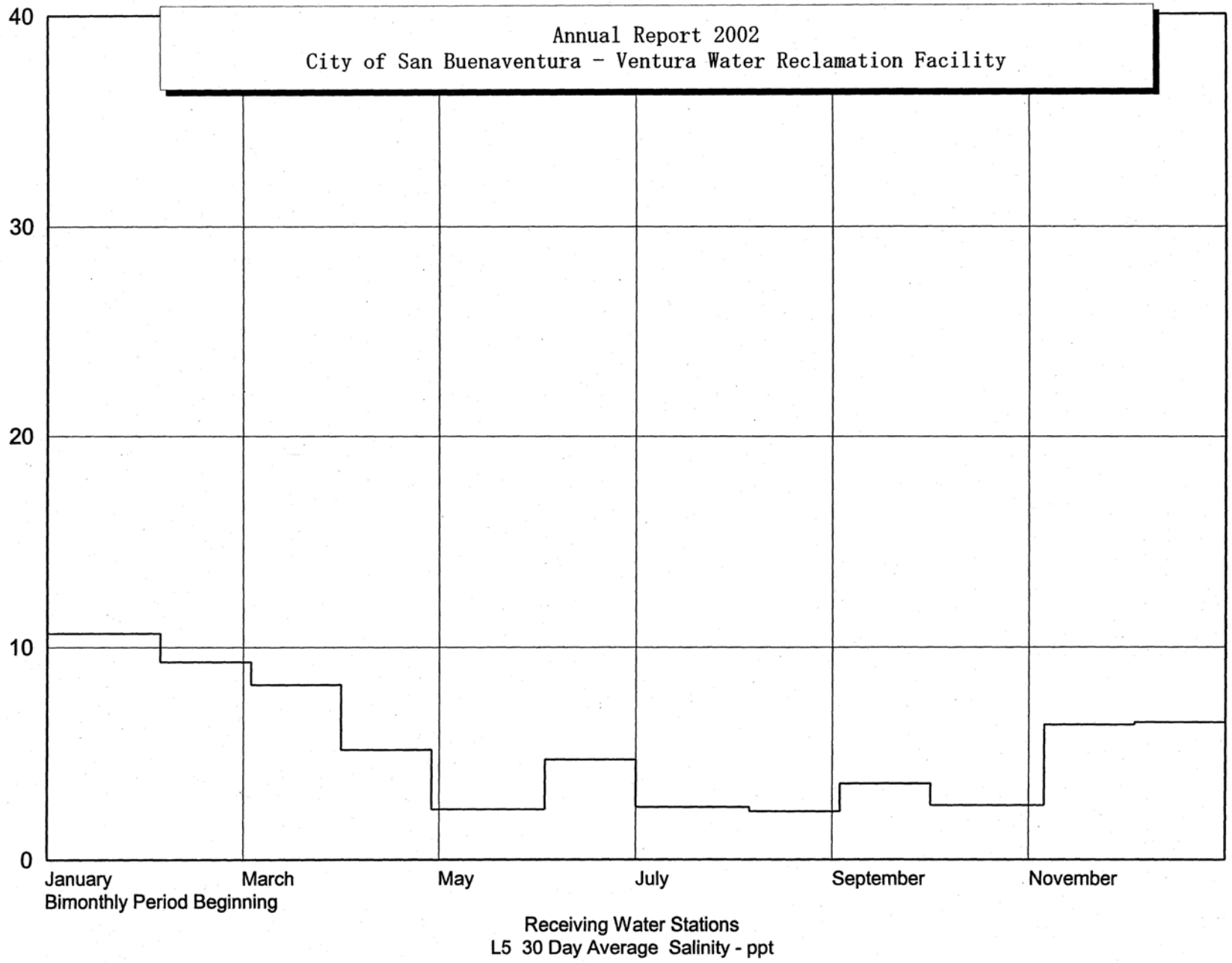

Annual Report 2002
City of San Buenaventura - Ventura Water Reclamation Facility
40
30
20
10
0
January
March
May
July
September
November
Bimonthly Period Beginning
Receiving Water Stations
R3 Weekly Salinity - ppt

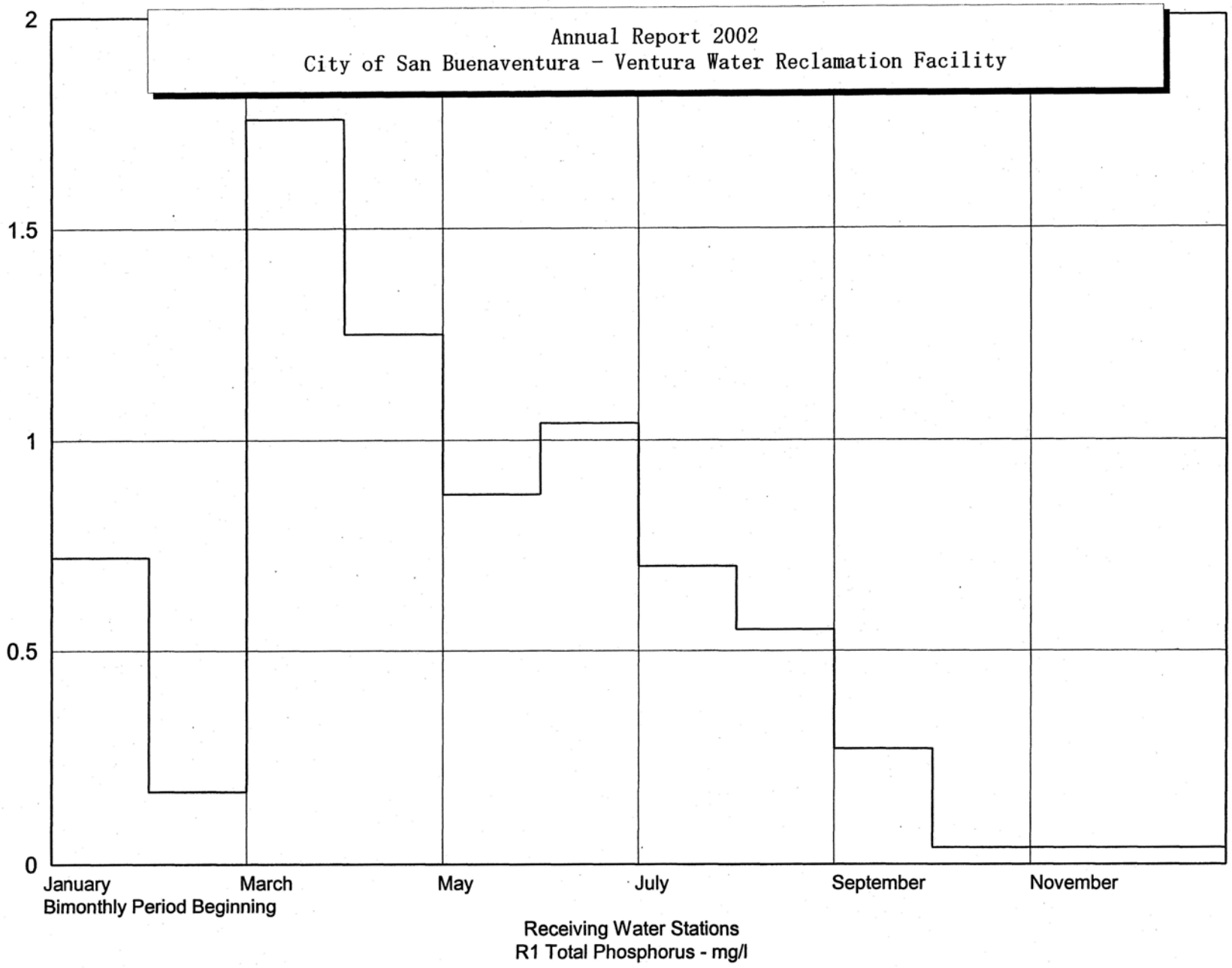

Annual Report 2002
City of San Buenaventura - Ventura Water Reclamation Facility
40
30
20
10
0
January
March
May
July
September
November
Bimonthly Period Beginning
Receiving Water Stations
R3 30 Day Average Salinity - ppt

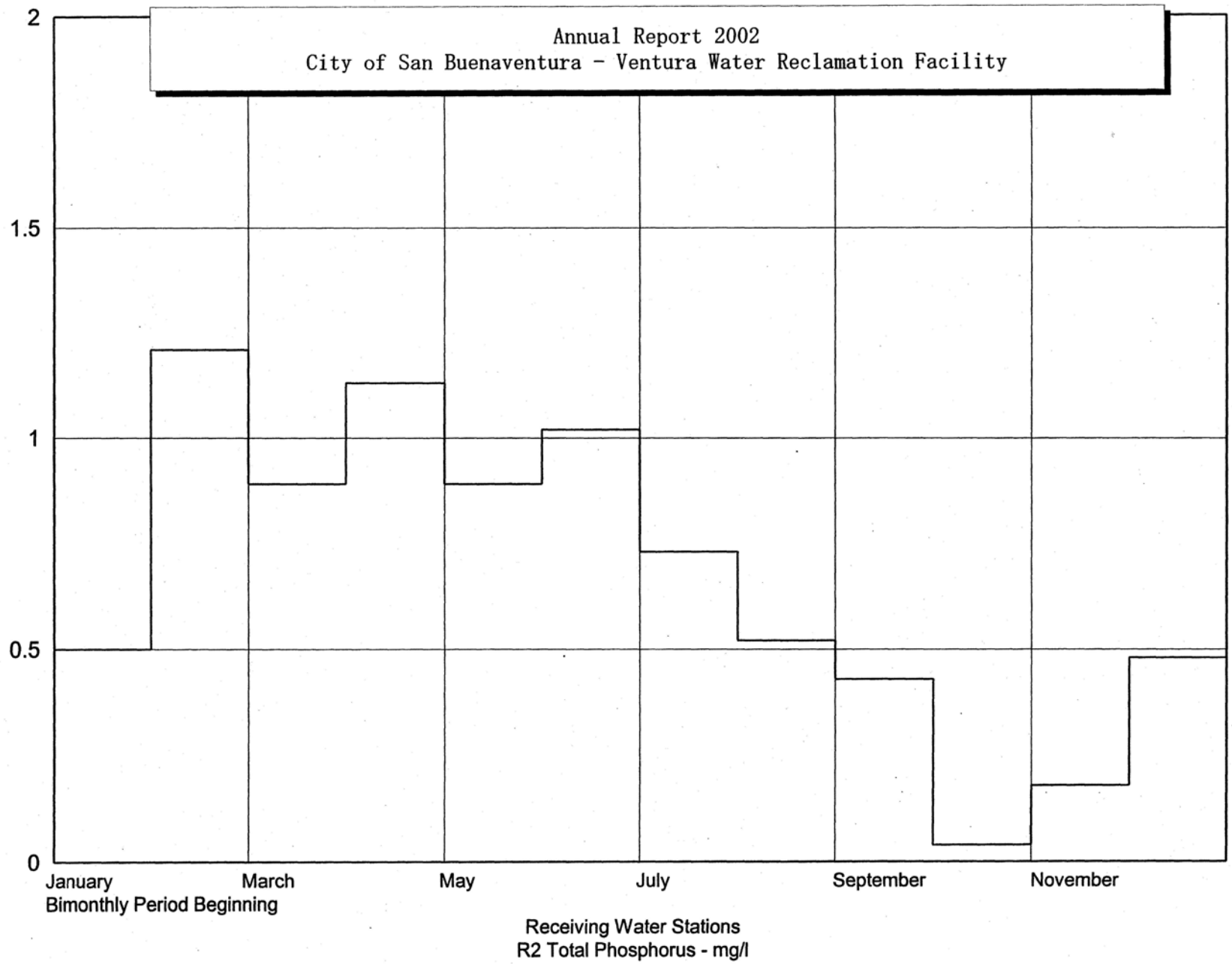

Annual Report 2002
City of San Buenaventura - Ventura Water Reclamation Facility
40
30
20
10
0
January
March
May
July
September
November
Bimonthly Period Beginning
Receiving Water Stations
R4 Weekly Salinity - ppt

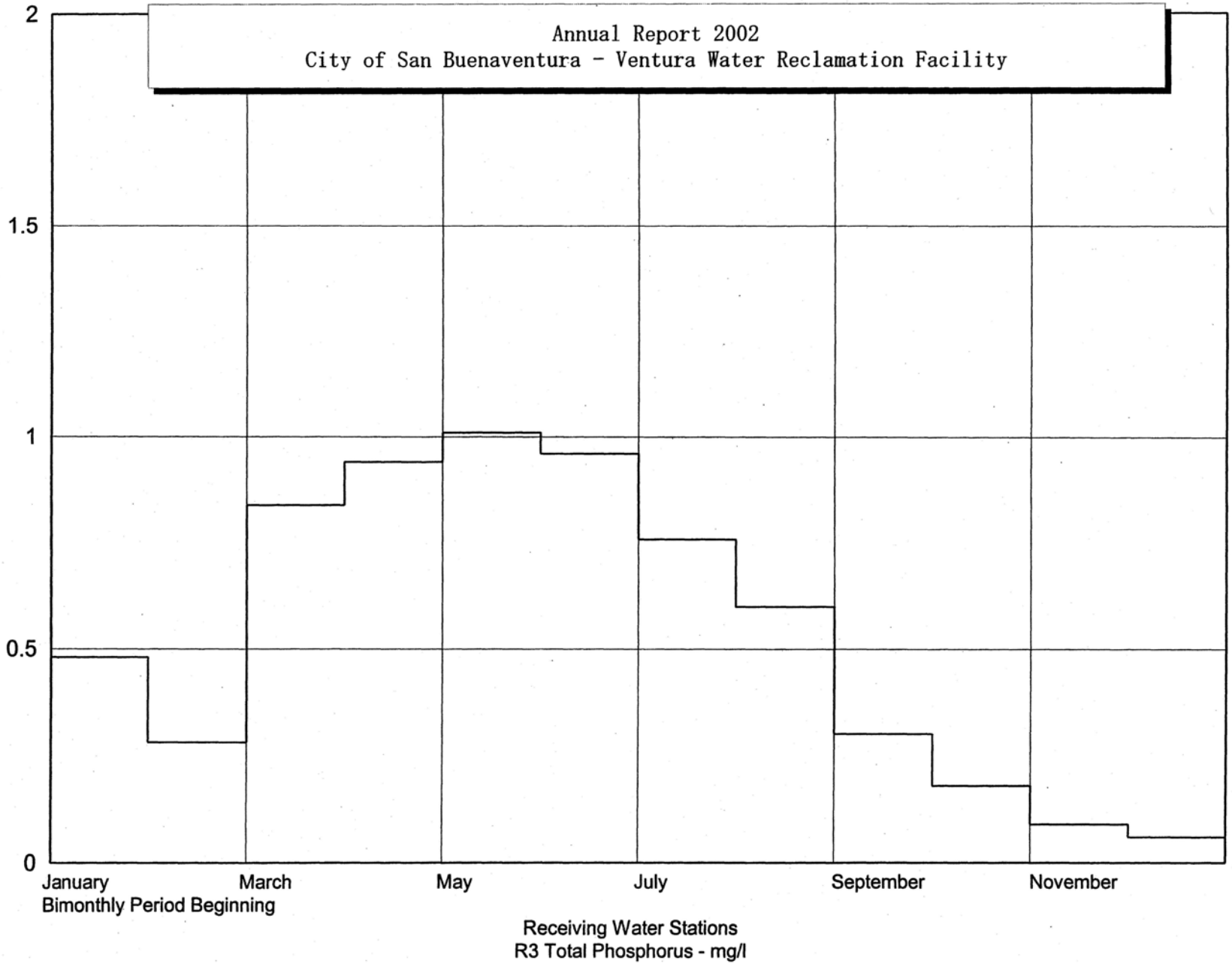

Annual Report 2002
City of San Buenaventura - Ventura Water Reclamation Facility
40
30
20
10
0
January
March
May
July
September
November
Bimonthly Period Beginning
Receiving Water Stations
R4 30 Day Average Salinity - ppt

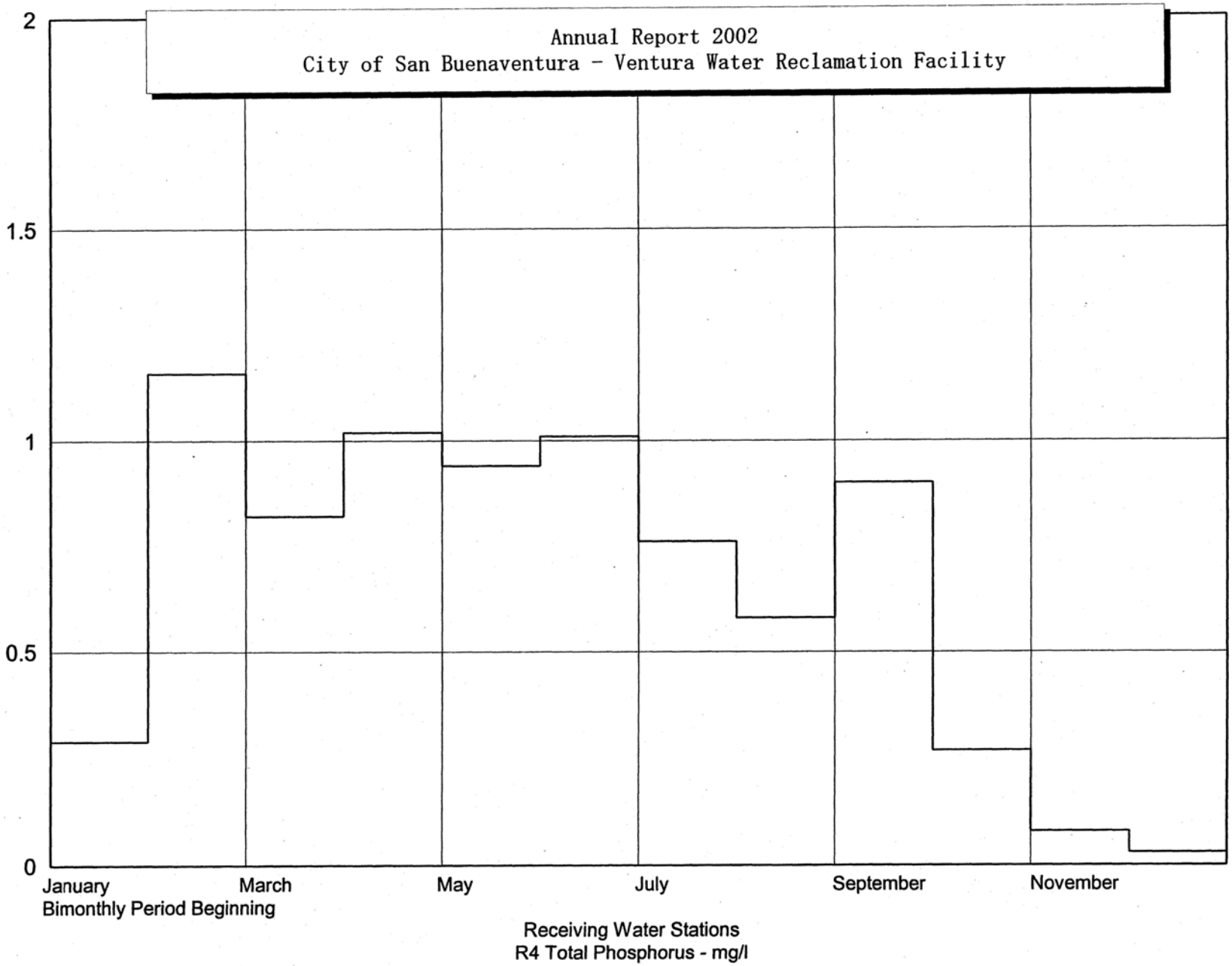

Annual Report 2002
City of San Buenaventura - Ventura Water Reclamation Facility
40
30
20
10
0
January
March
May
July
September
November
Bimonthly Period Beginning
Receiving Water Stations
L5 Weekly Salinity - ppt

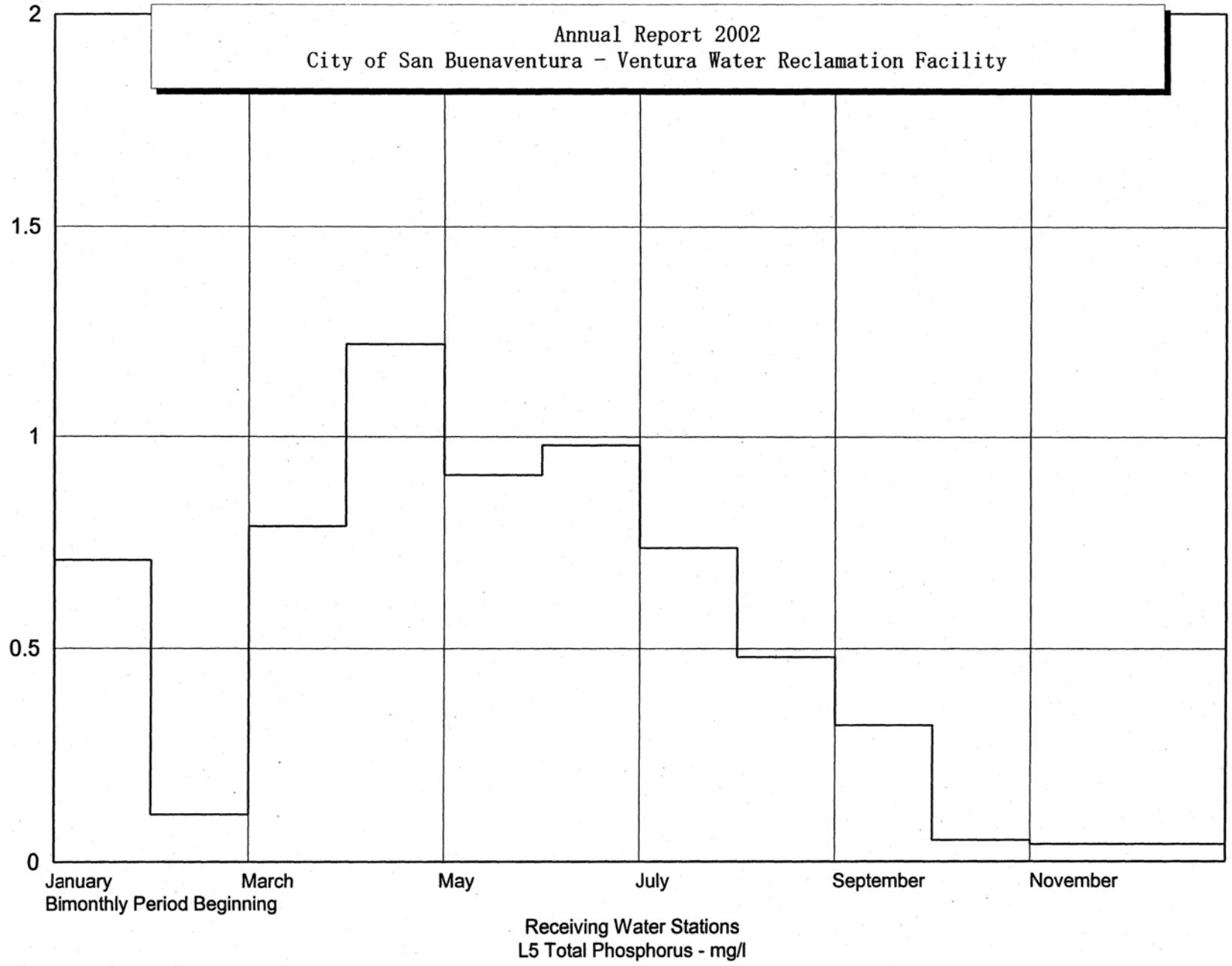

Annual Report 2002
City of San Buenaventura - Ventura Water Reclamation Facility
40
30
20
10
0
January
March
May
July
September
November
Bimonthly Period Beginning
Receiving Water Stations
L5 30 Day Average Salinity - ppt

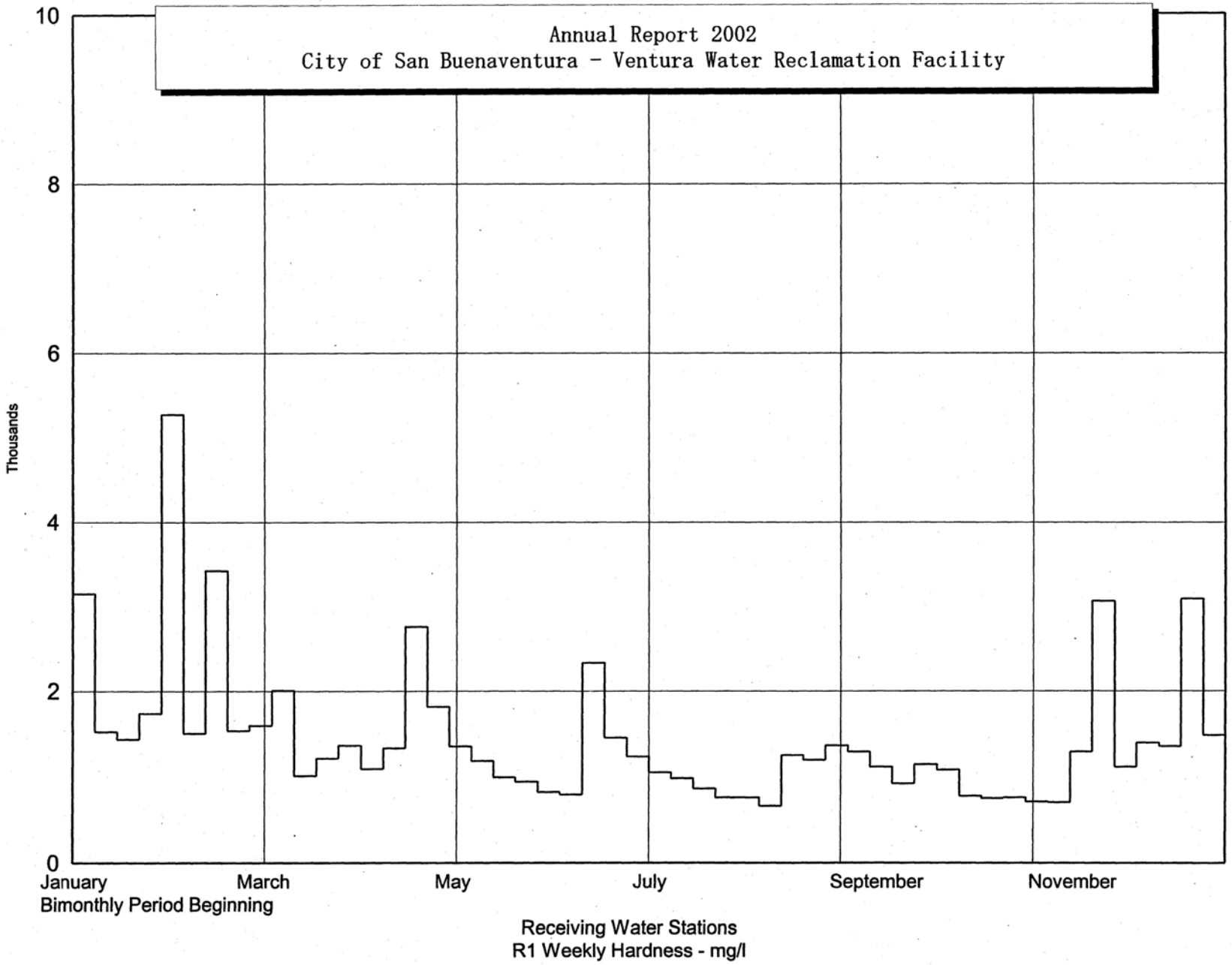

Annual Report 2002
City of San Buenaventura - Ventura Water Reclamation Facility
2
1.5
1
0.5
0
January
March
May
July
September
November
Bimonthly Period Beginning
Receiving Water Stations
R1 Total Phosphorus - mg/l

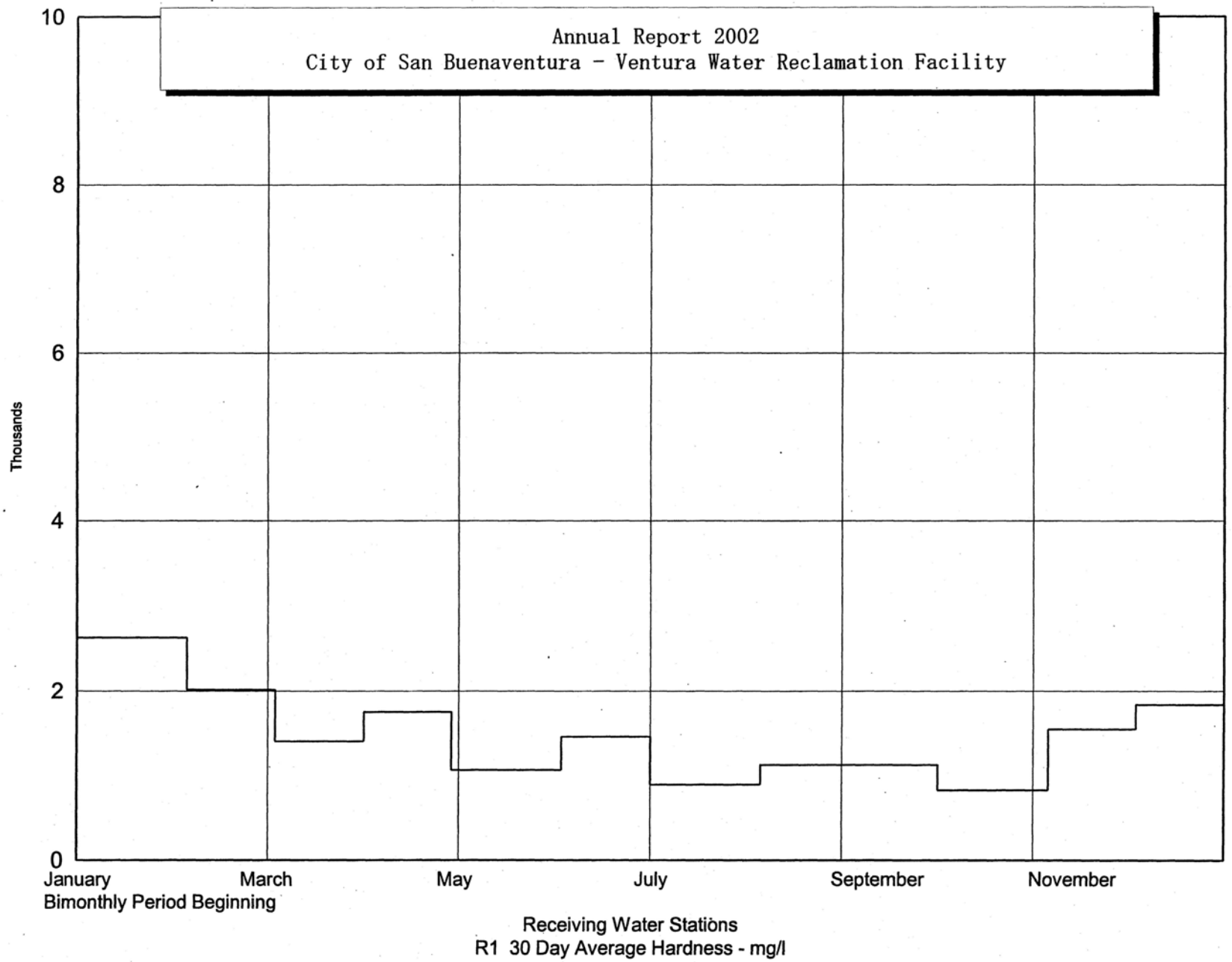

Annual Report 2002
City of San Buenaventura - Ventura Water Reclamation Facility
2
1.5
1
0.5
0
January
March
May
July
September
November
Bimonthly Period Beginning
Receiving Water Stations
R2 Total Phosphorus - mg/l

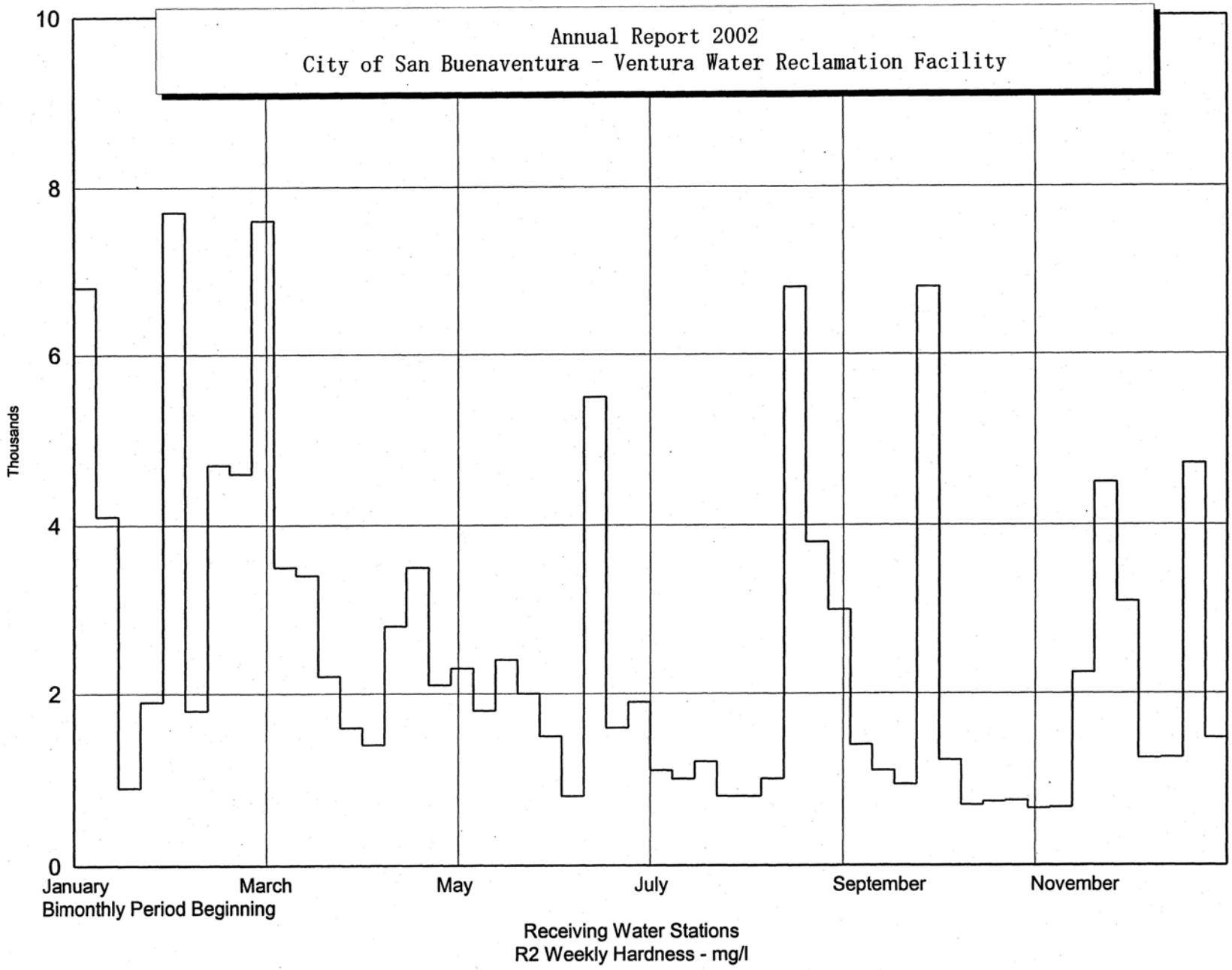

Annual Report 2002
City of San Buenaventura - Ventura Water Reclamation Facility
2
1.5
1
0.5
0
January
March
May
July
September
November
Bimonthly Period Beginning
Receiving Water Stations
R3 Total Phosphorus - mg/l

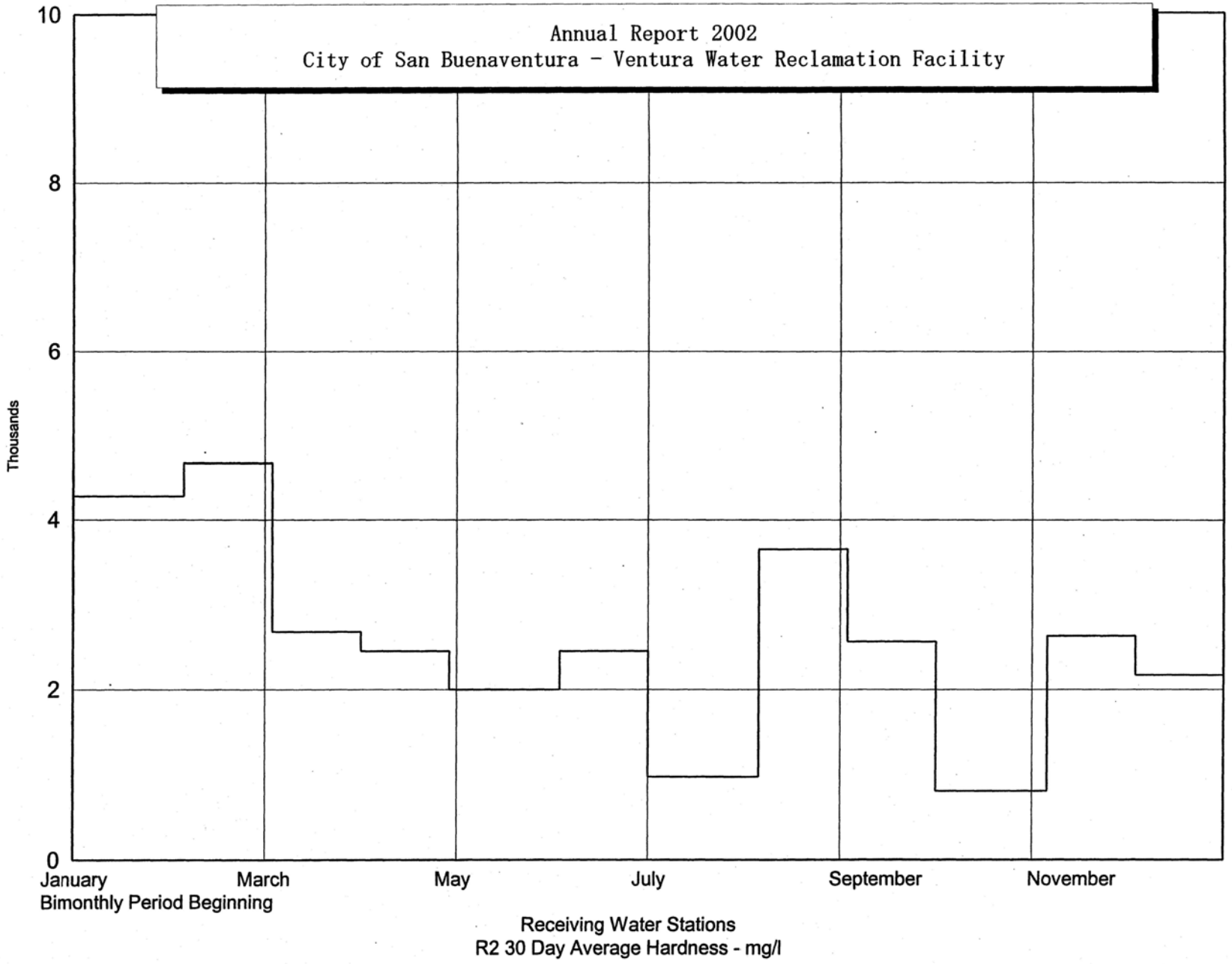

Annual Report 2002
City of San Buenaventura - Ventura Water Reclamation Facility
2
1.5
1
0.5
0
January
March
May
July
September
November
Bimonthly Period Beginning
Receiving Water Stations
R4 Total Phosphorus - mg/l

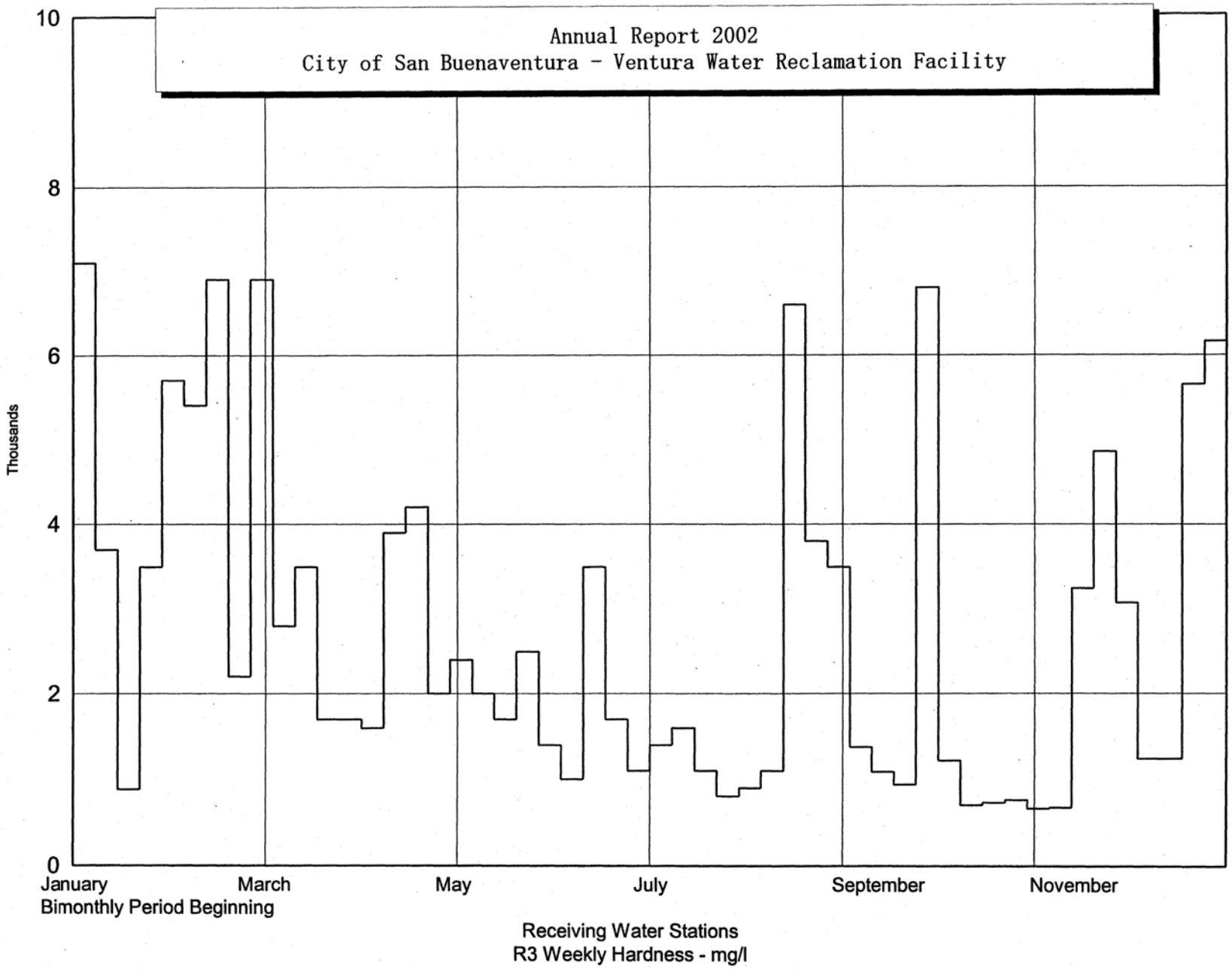

Annual Report 2002
City of San Buenaventura - Ventura Water Reclamation Facility
2
1.5
1
0.5
0
January
March
May
July
September
November
Bimonthly Period Beginning
Receiving Water Stations
L5 Total Phosphorus - mg/l

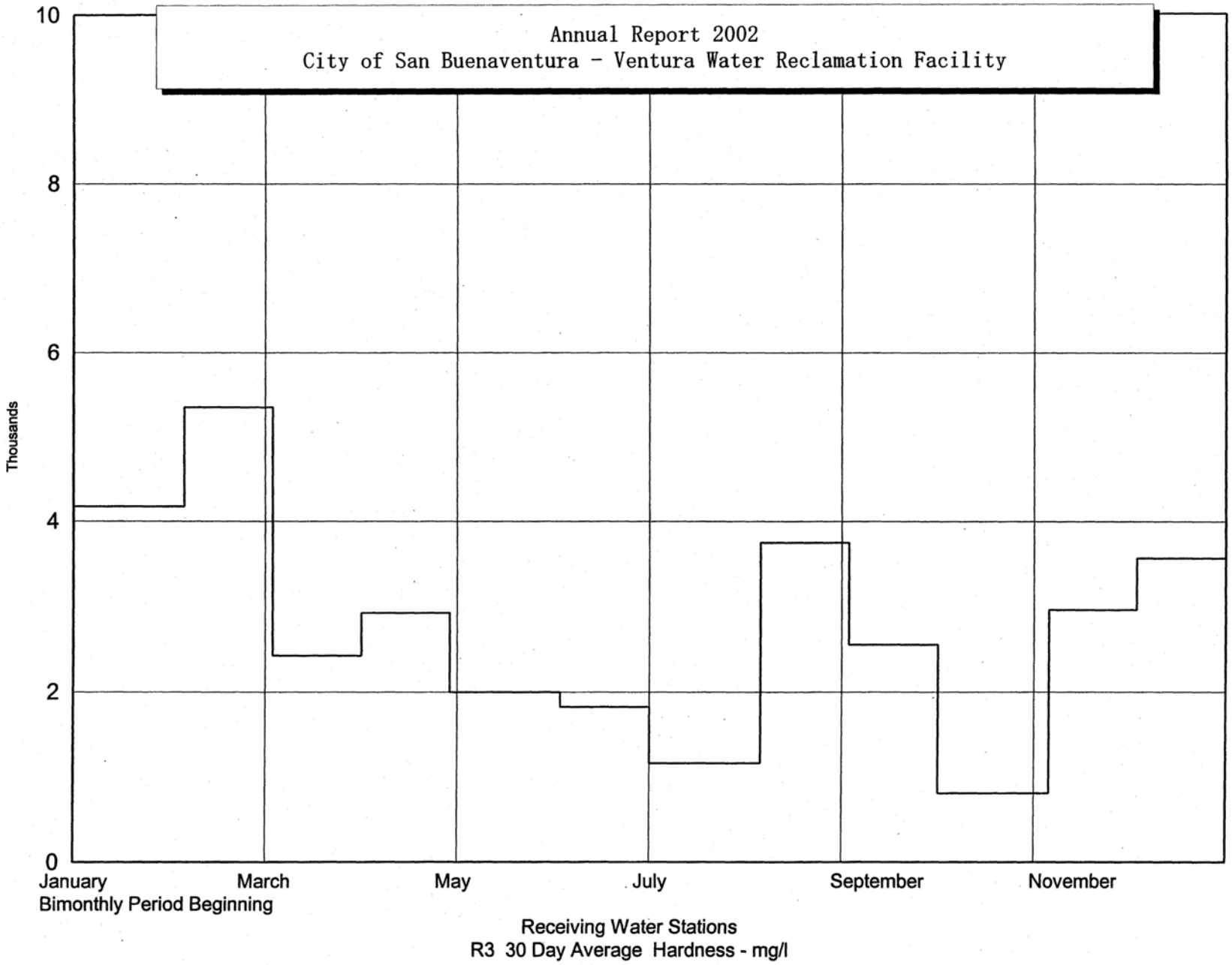

Annual Report 2002
City of San Buenaventura - Ventura Water Reclamation Facility
10
8
6
4
2
0
Thousands
January
March
May
July
September
November
Bimonthly Period Beginning
Receiving Water Stations
R1 Weekly Hardness - mg/l

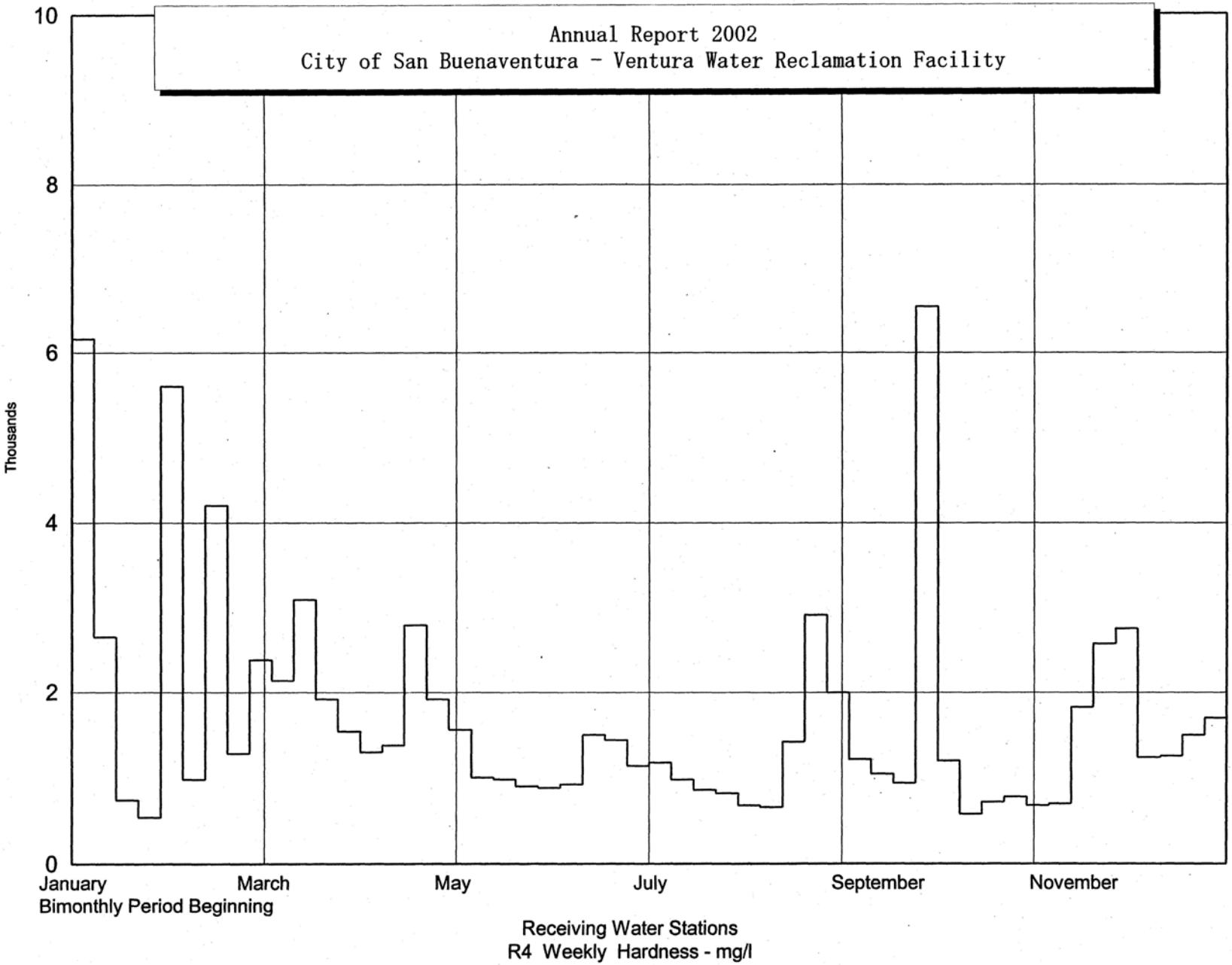

Annual Report 2002
City of San Buenaventura - Ventura Water Reclamation Facility
10
8
6
4
2
0
Thousands
January
March
May
July
September
November
Bimonthly Period Beginning
Receiving Water Stations
R1 30 Day Average Hardness - mg/l

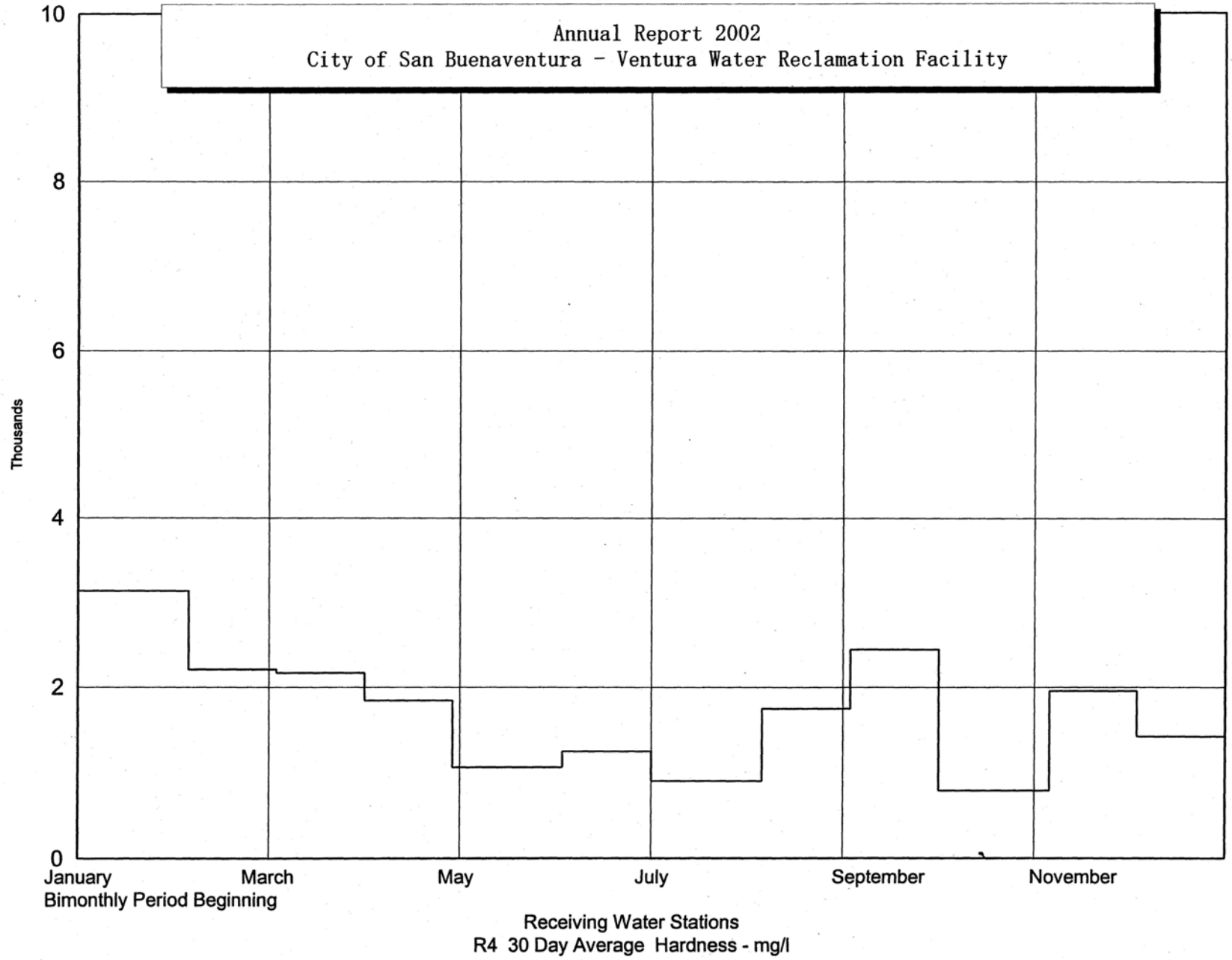

Annual Report 2002
City of San Buenaventura - Ventura Water Reclamation Facility
10
8
6
4
2
0
Thousands
January
March
May
July
September
November
Bimonthly Period Beginning
Receiving Water Stations
R2 Weekly Hardness - mg/l

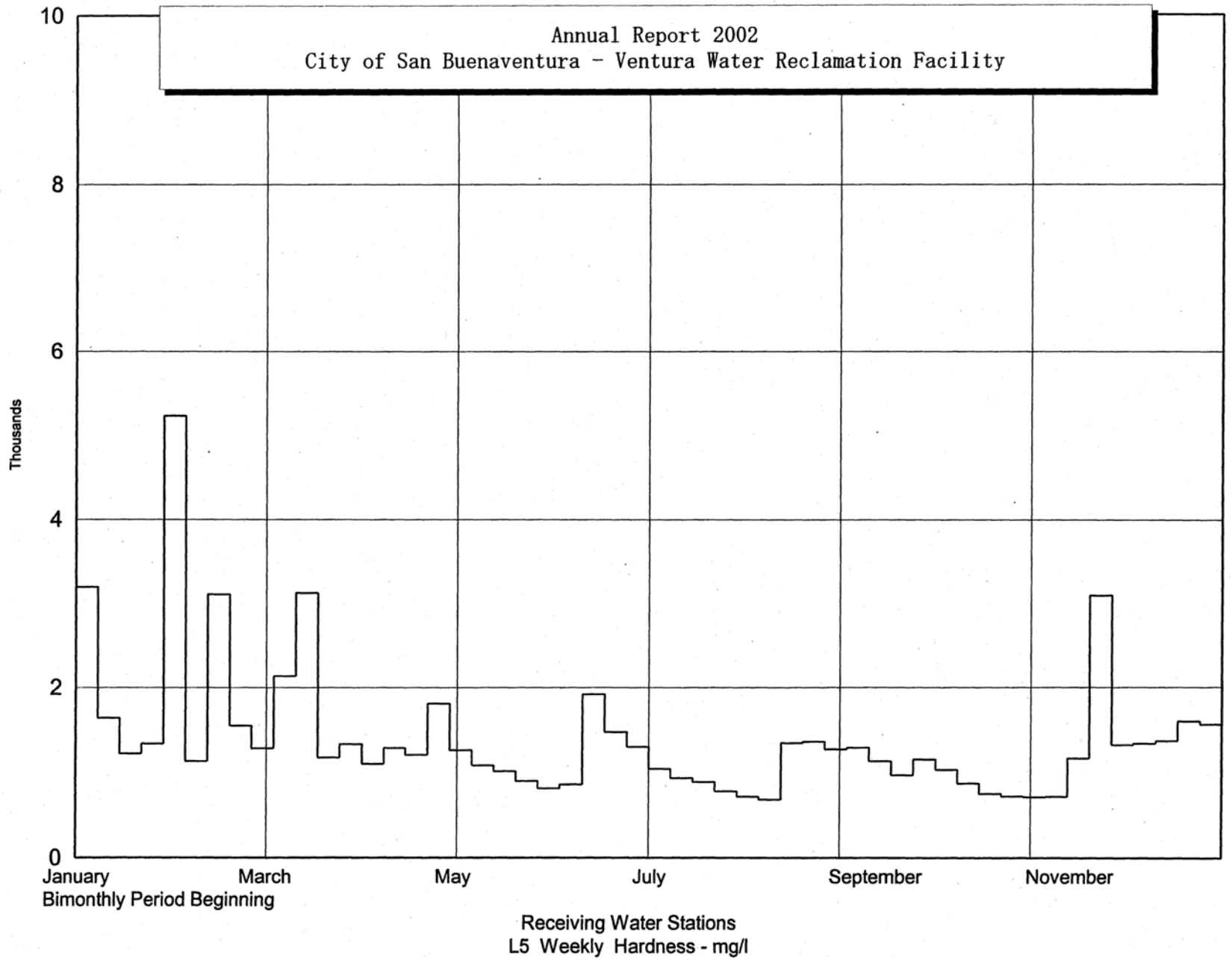

Annual Report 2002
City of San Buenaventura - Ventura Water Reclamation Facility
10
8
6
4
2
0
Thousands
January
March
May
July
September
November
Bimonthly Period Beginning
Receiving Water Stations
R2 30 Day Average Hardness - mg/l

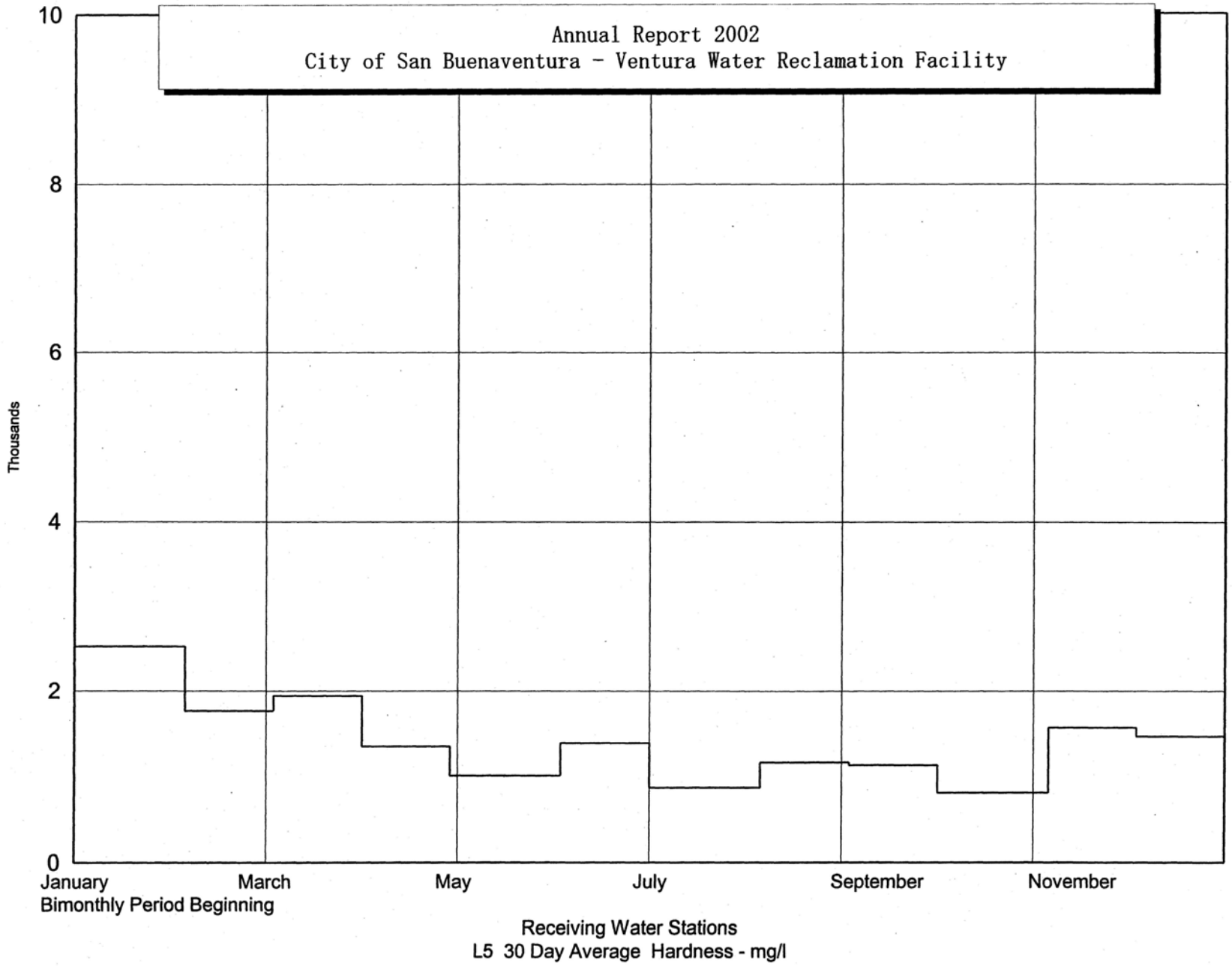

Annual Report 2002
City of San Buenaventura - Ventura Water Reclamation Facility
10
8
6
4
2
0
Thousands
January
March
May
July
September
November
Bimonthly Period Beginning
Receiving Water Stations
R3 Weekly Hardness - mg/l

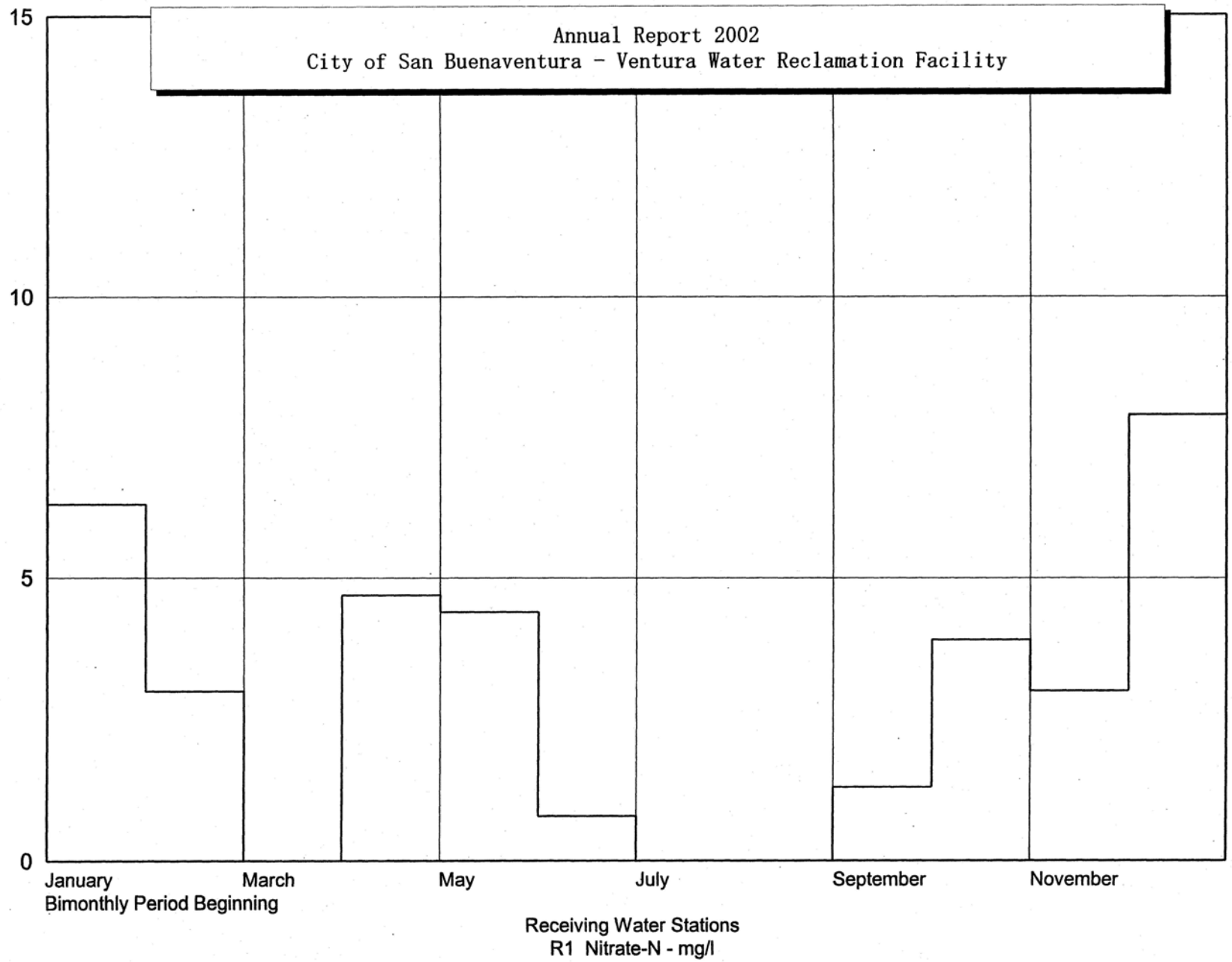

Annual Report 2002
City of San Buenaventura - Ventura Water Reclamation Facility
10
8
6
4
2
0
Thousands
January
March
May
July
September
November
Bimonthly Period Beginning
Receiving Water Stations
R3 30 Day Average Hardness - mg/l

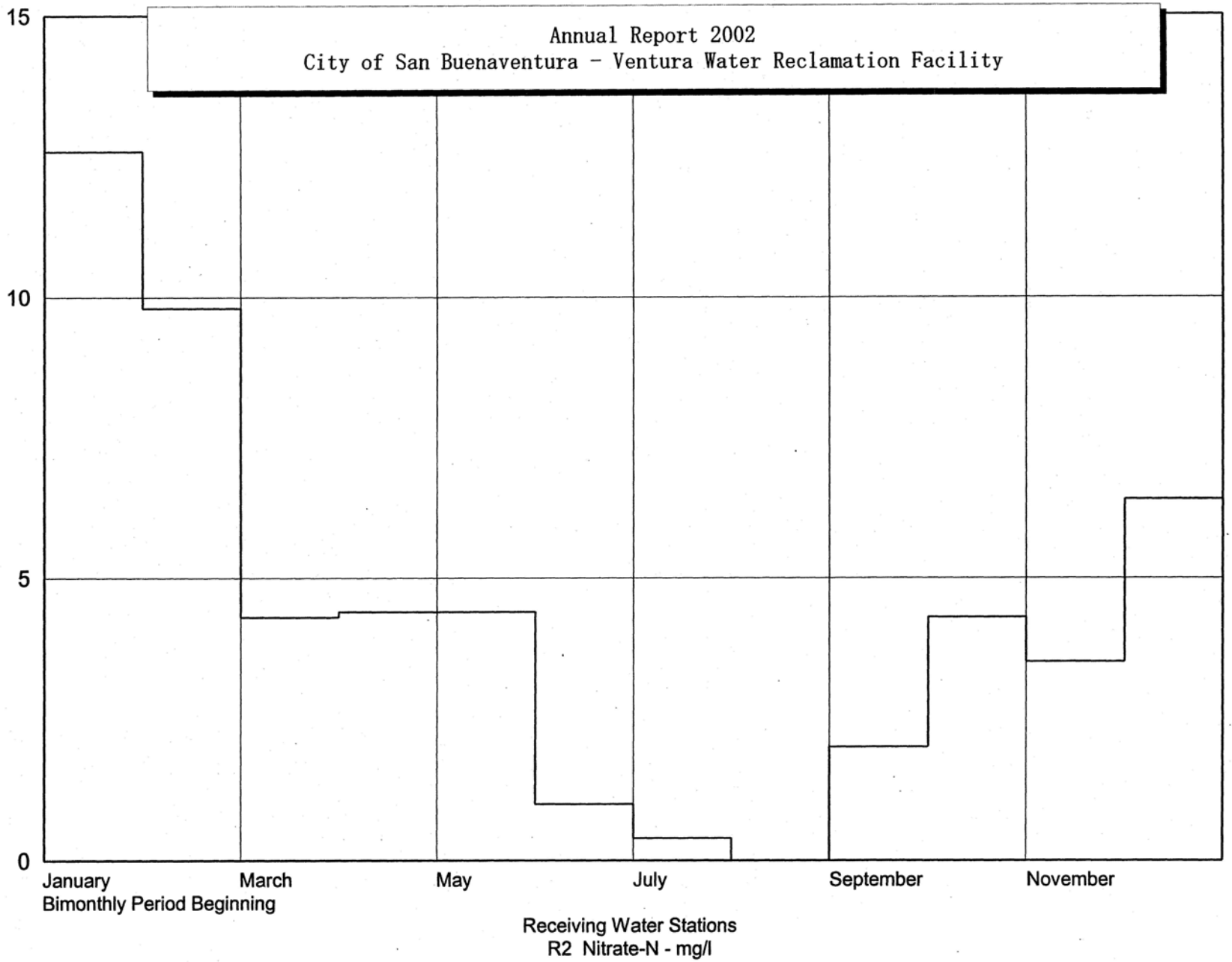

Annual Report 2002
City of San Buenaventura - Ventura Water Reclamation Facility
10
8
6
4
2
0
Thousands
January
March
May
July
September
November
Bimonthly Period Beginning
Receiving Water Stations
R4 Weekly Hardness - mg/l


Annual Report 2002
City of San Buenaventura - Ventura Water Reclamation Facility
10
8
6
4
2
0
Thousands
January
March
May
July
September
November
Bimonthly Period Beginning
Receiving Water Stations
R4 30 Day Average Hardness - mg/l


Annual Report 2002
City of San Buenaventura - Ventura Water Reclamation Facility
10
8
6
4
2
0
Thousands
January
March
May
July
September
November
Bimonthly Period Beginning
Receiving Water Stations
L5 Weekly Hardness - mg/l


Annual Report 2002
City of San Buenaventura - Ventura Water Reclamation Facility
10
8
6
4
2
0
Thousands
January
March
May
July
September
November
Bimonthly Period Beginning
Receiving Water Stations
L5 30 Day Average Hardness - mg/l


Annual Report 2002
City of San Buenaventura - Ventura Water Reclamation Facility
15
10
5
0
January
March
May
July
September
November
Bimonthly Period Beginning
Receiving Water Stations
R1 Nitrate-N - mg/l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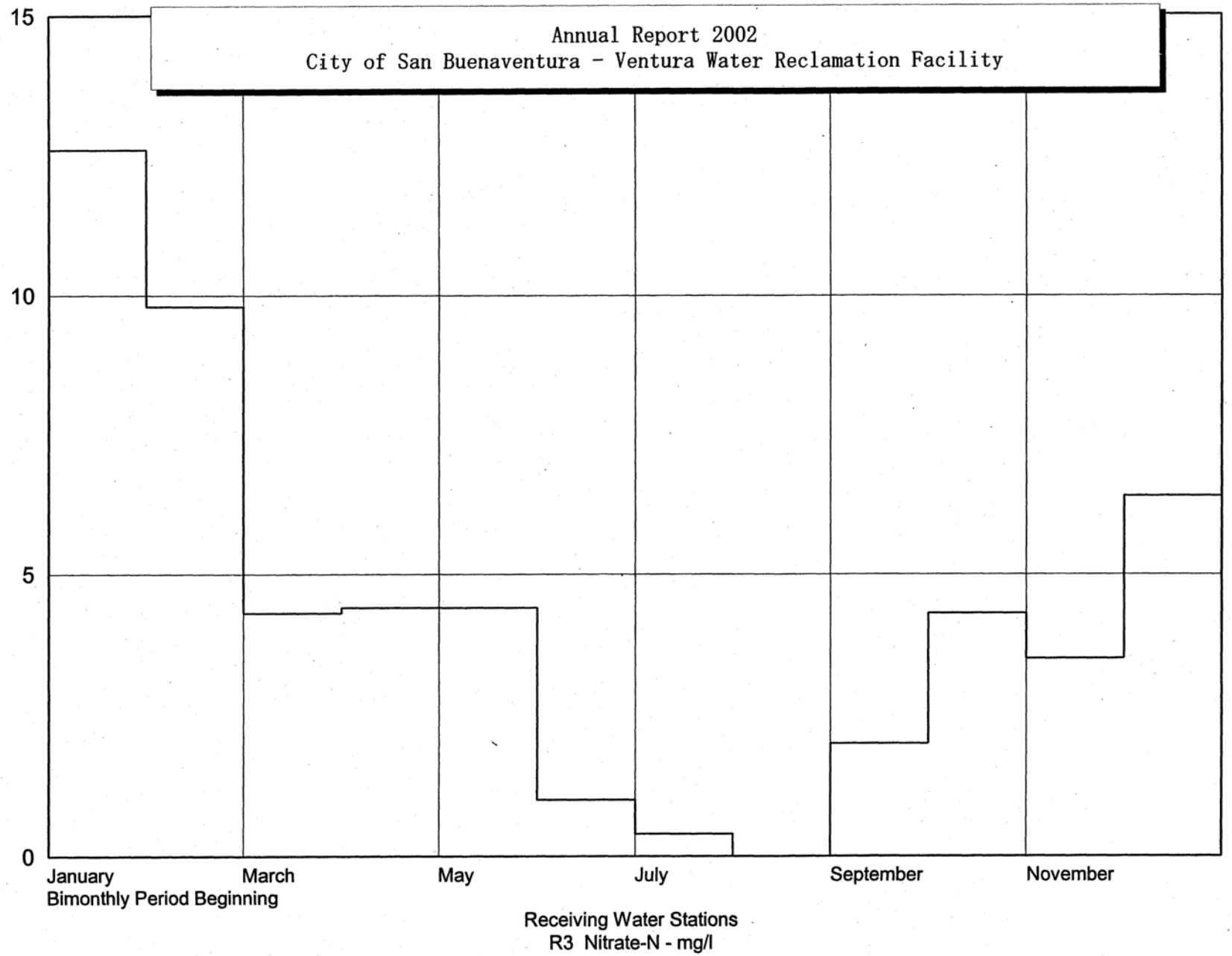
R2 Nitrate-N - mg/l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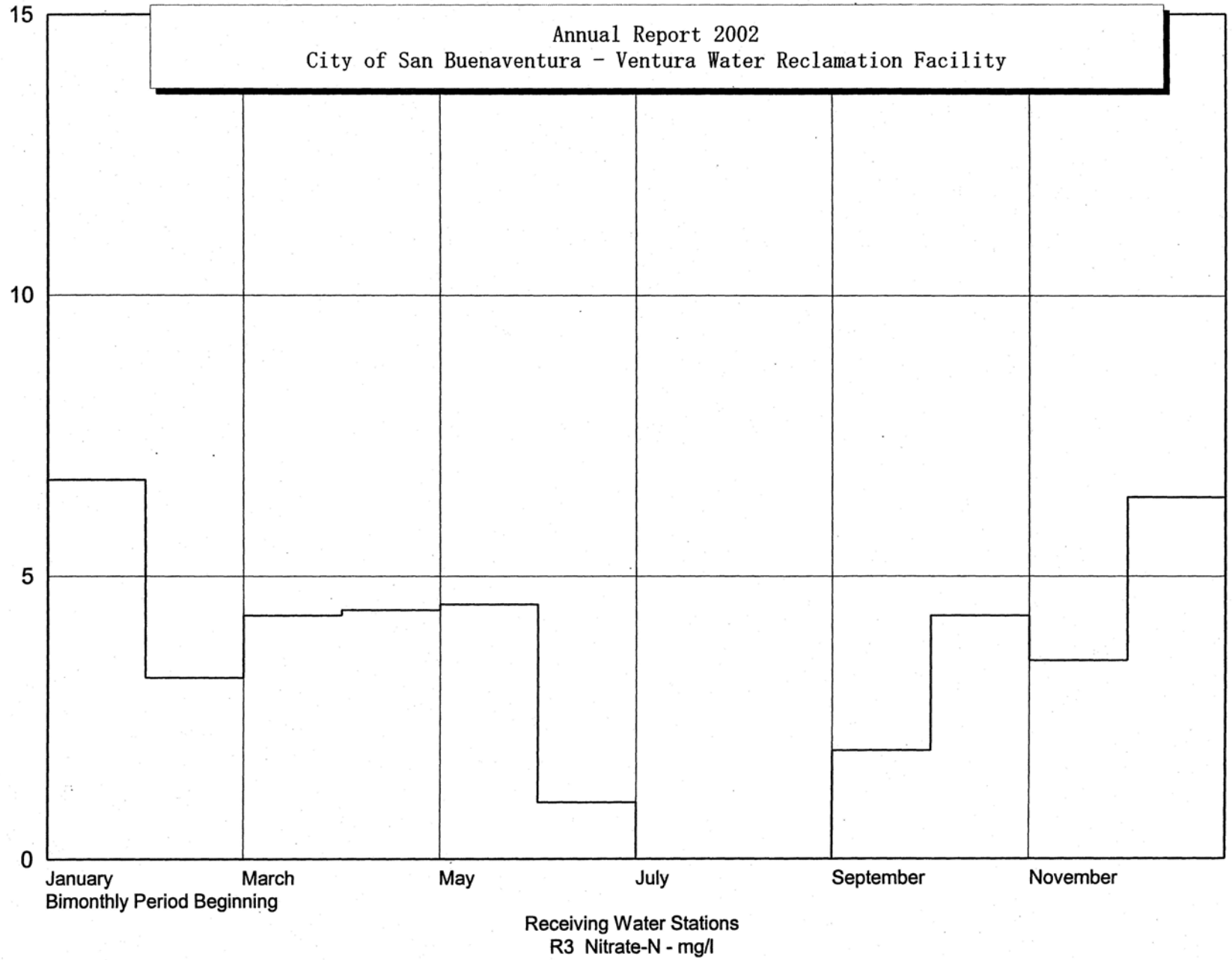
R3 Nitrate-N - mg/l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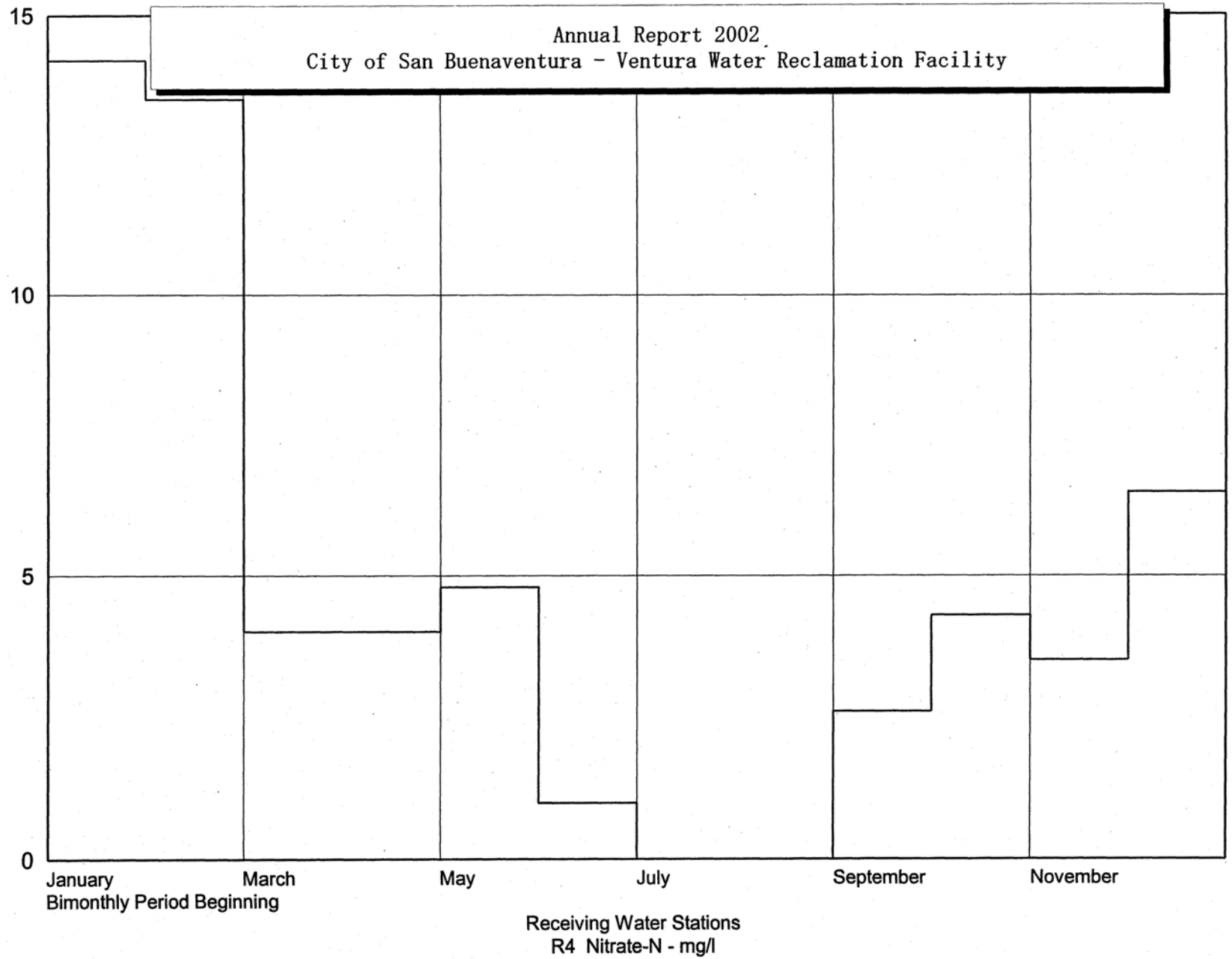
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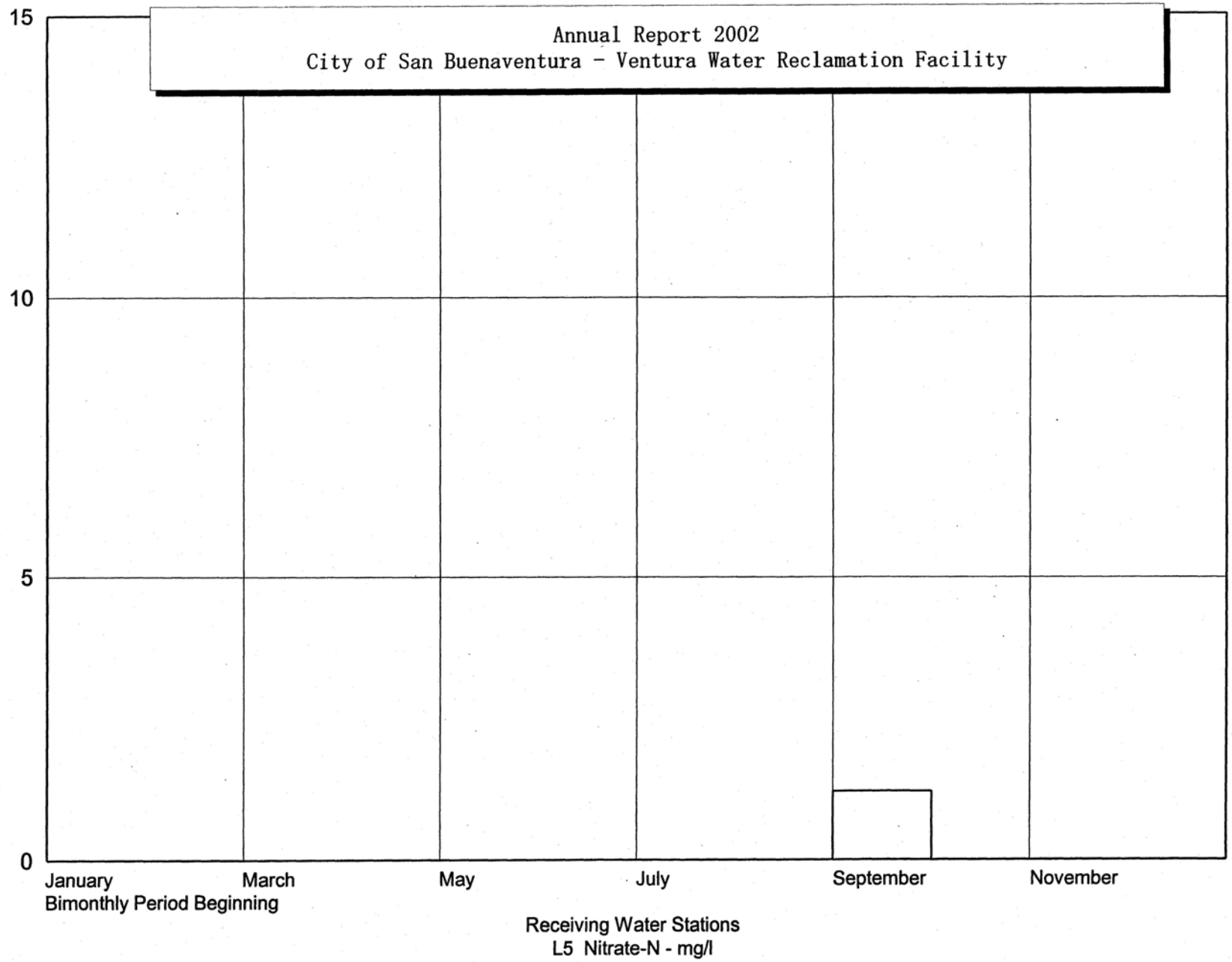
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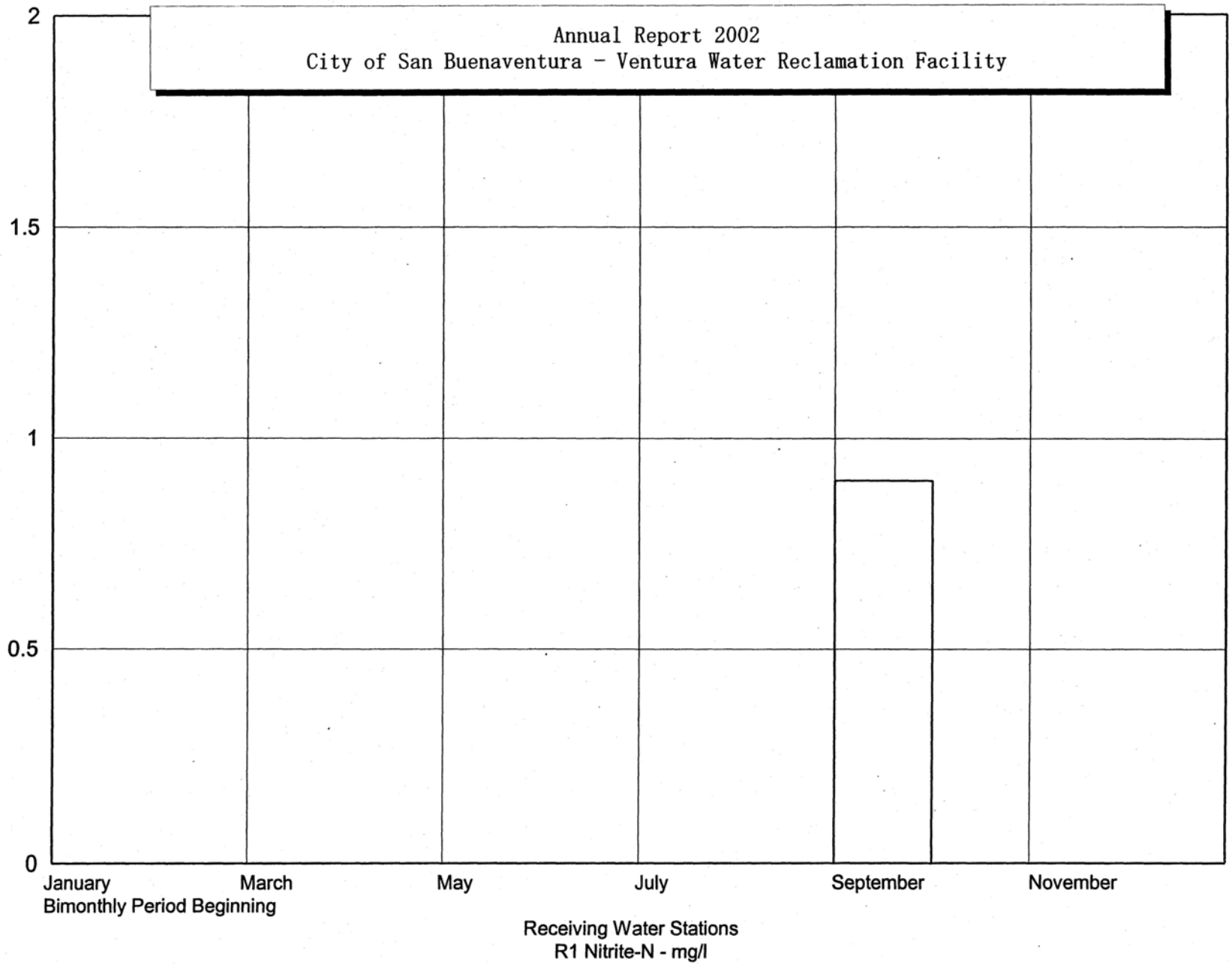
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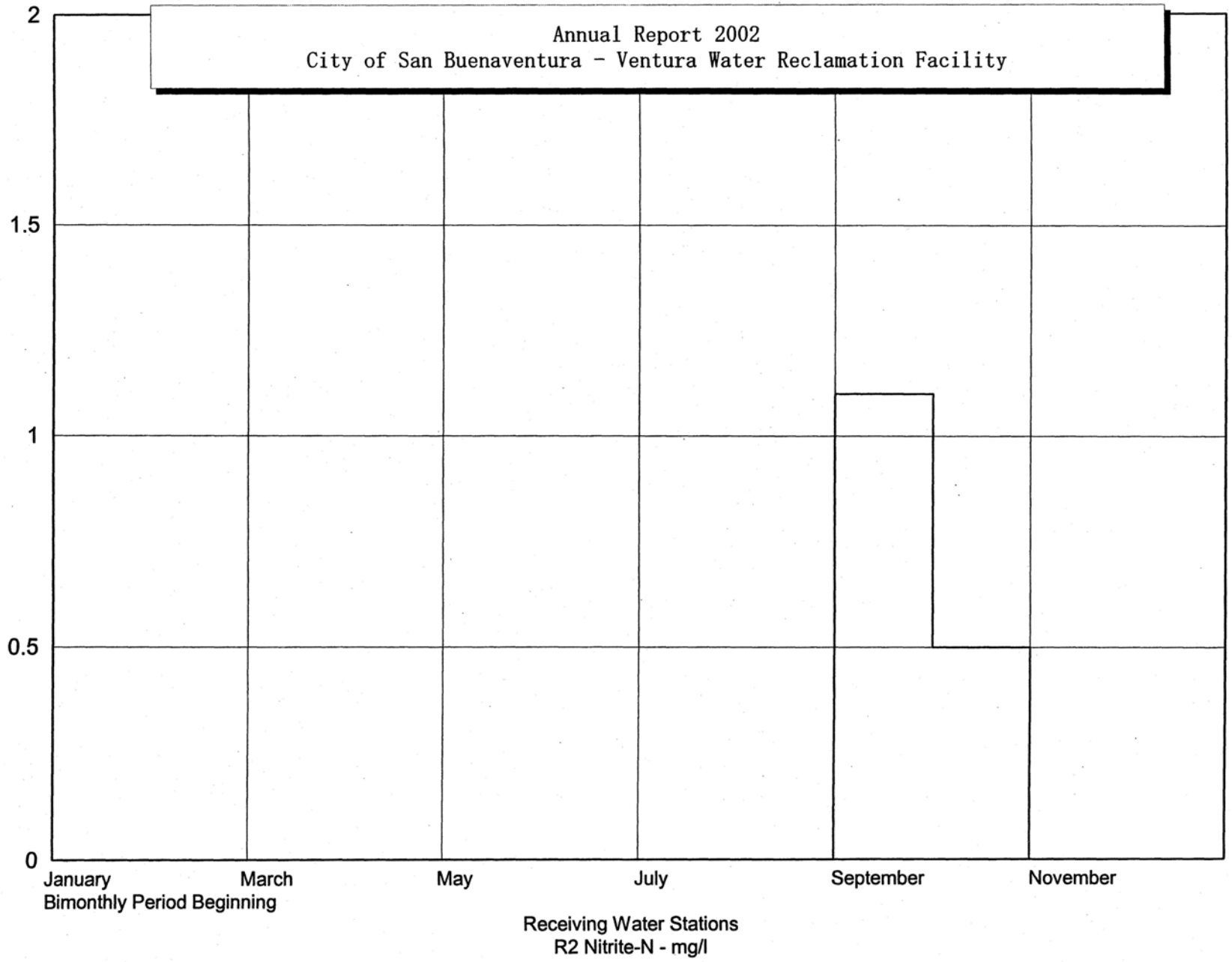
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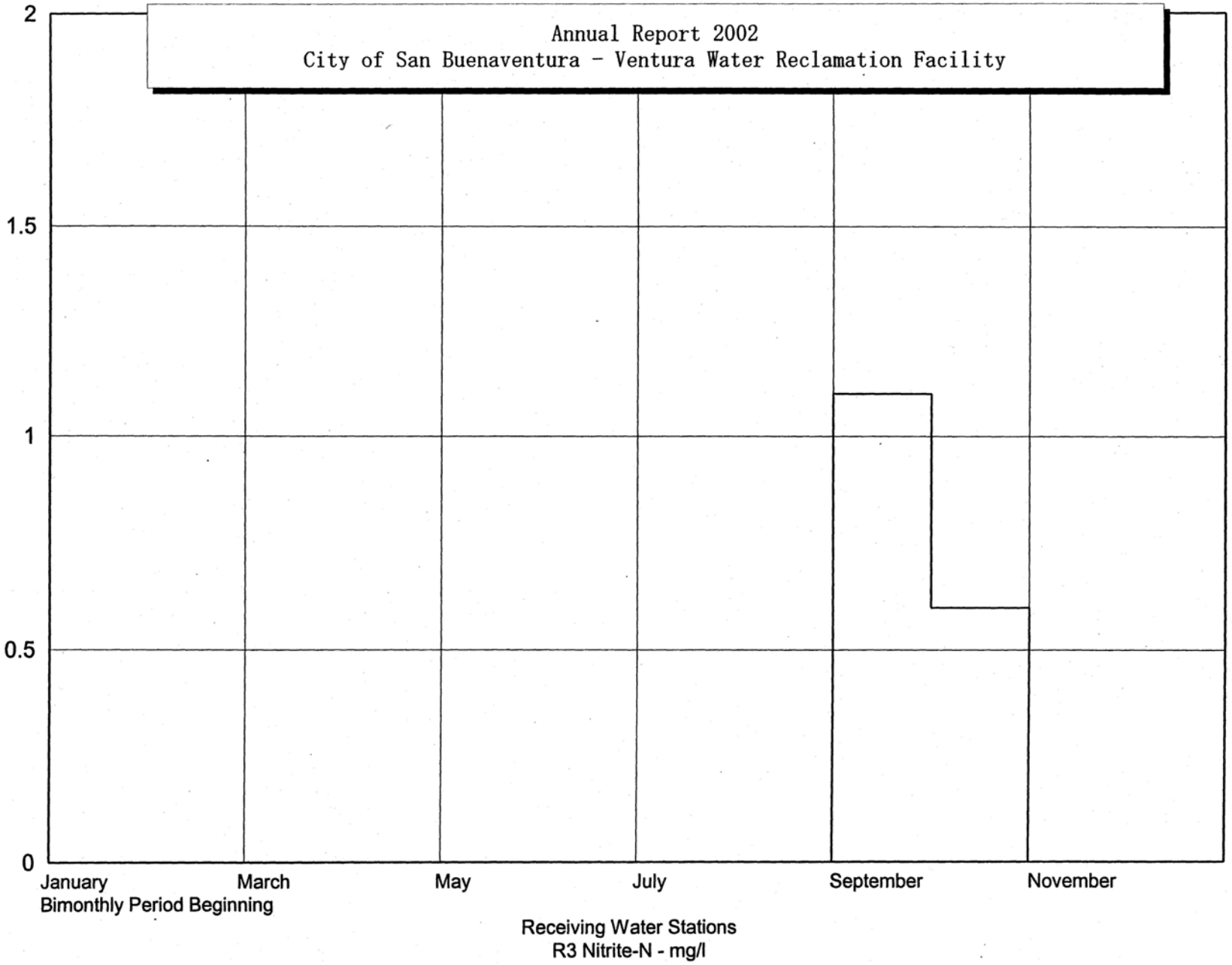
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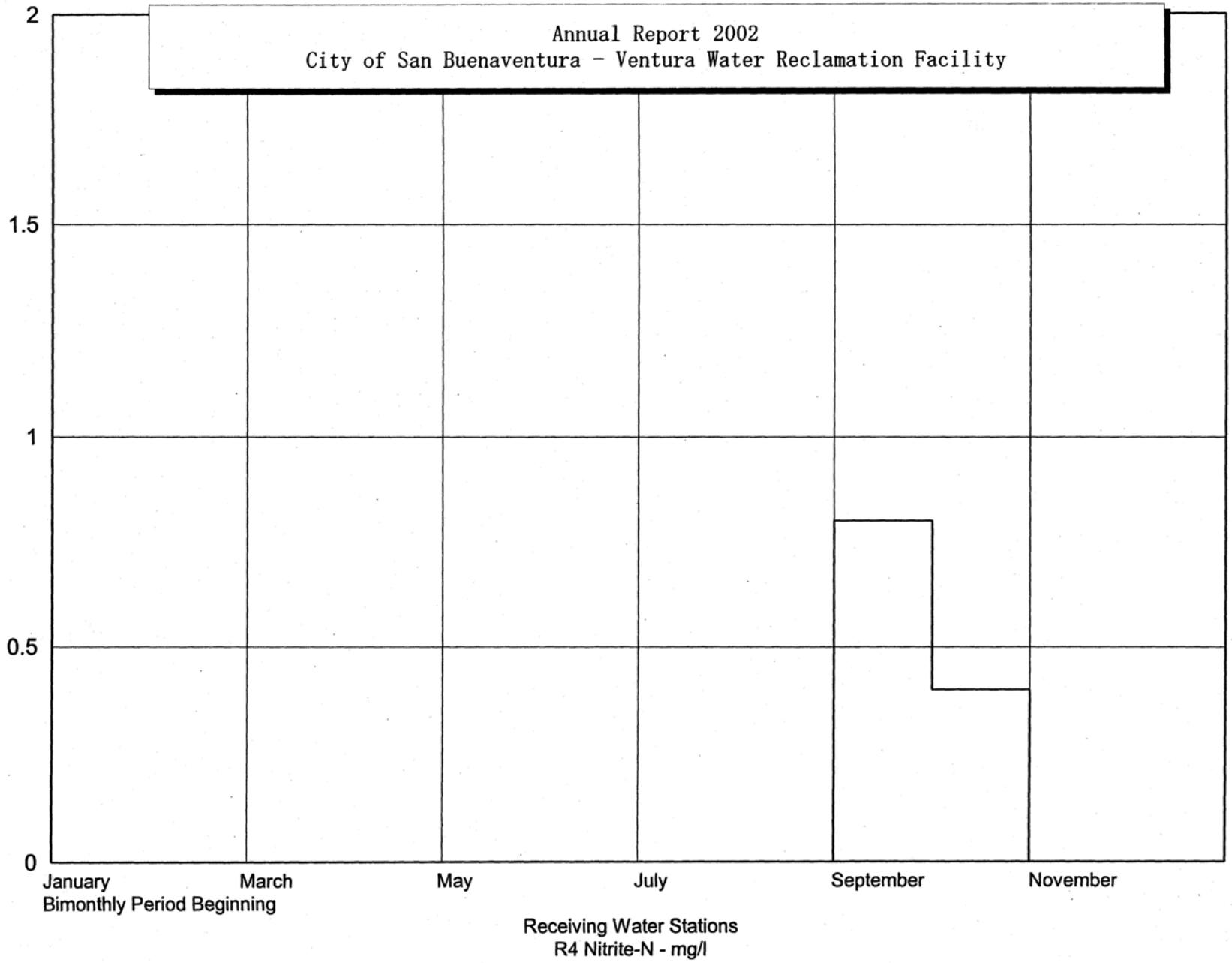
R3 Nitrite-N - mg/l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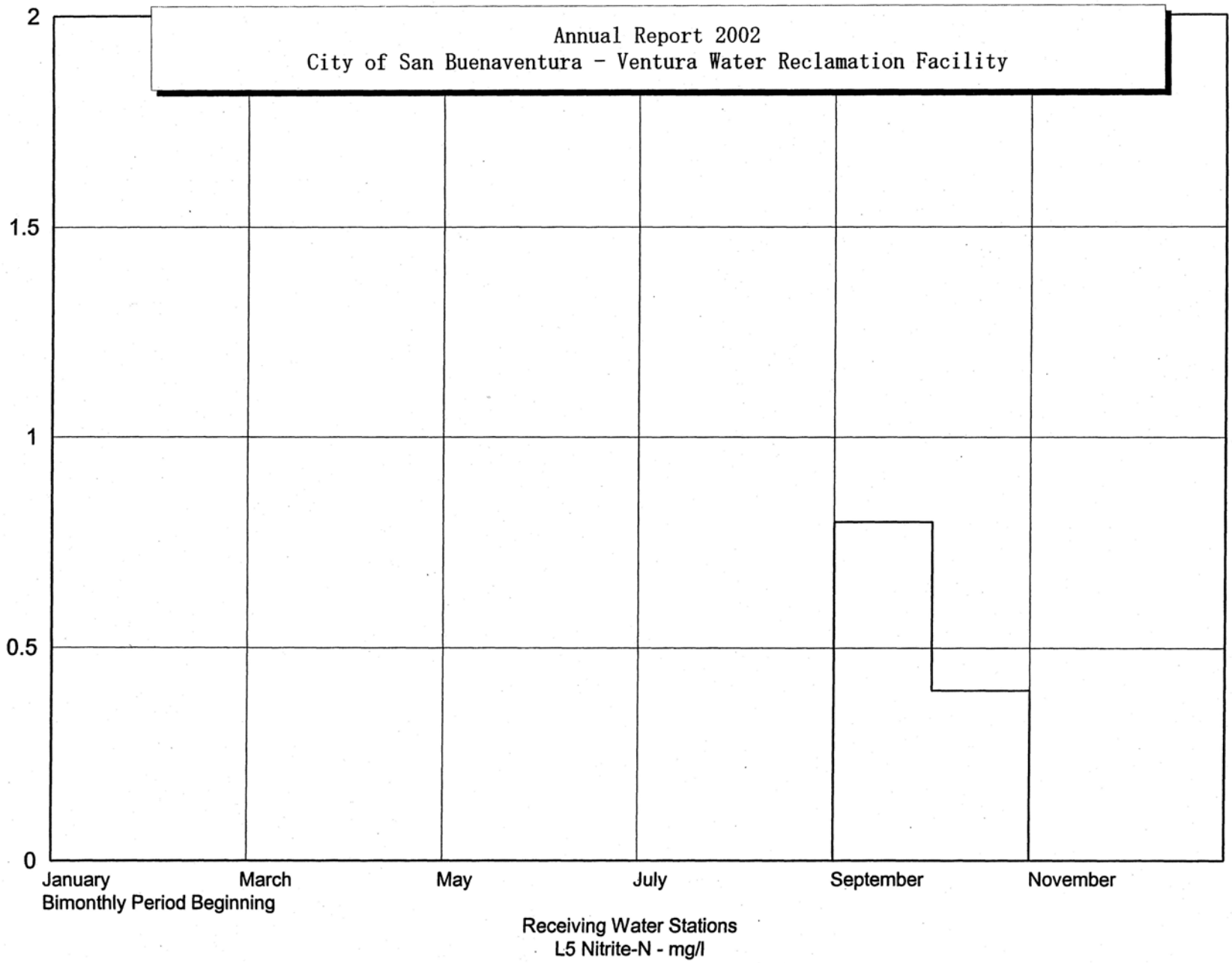
R4 Nitrite-N - mg/l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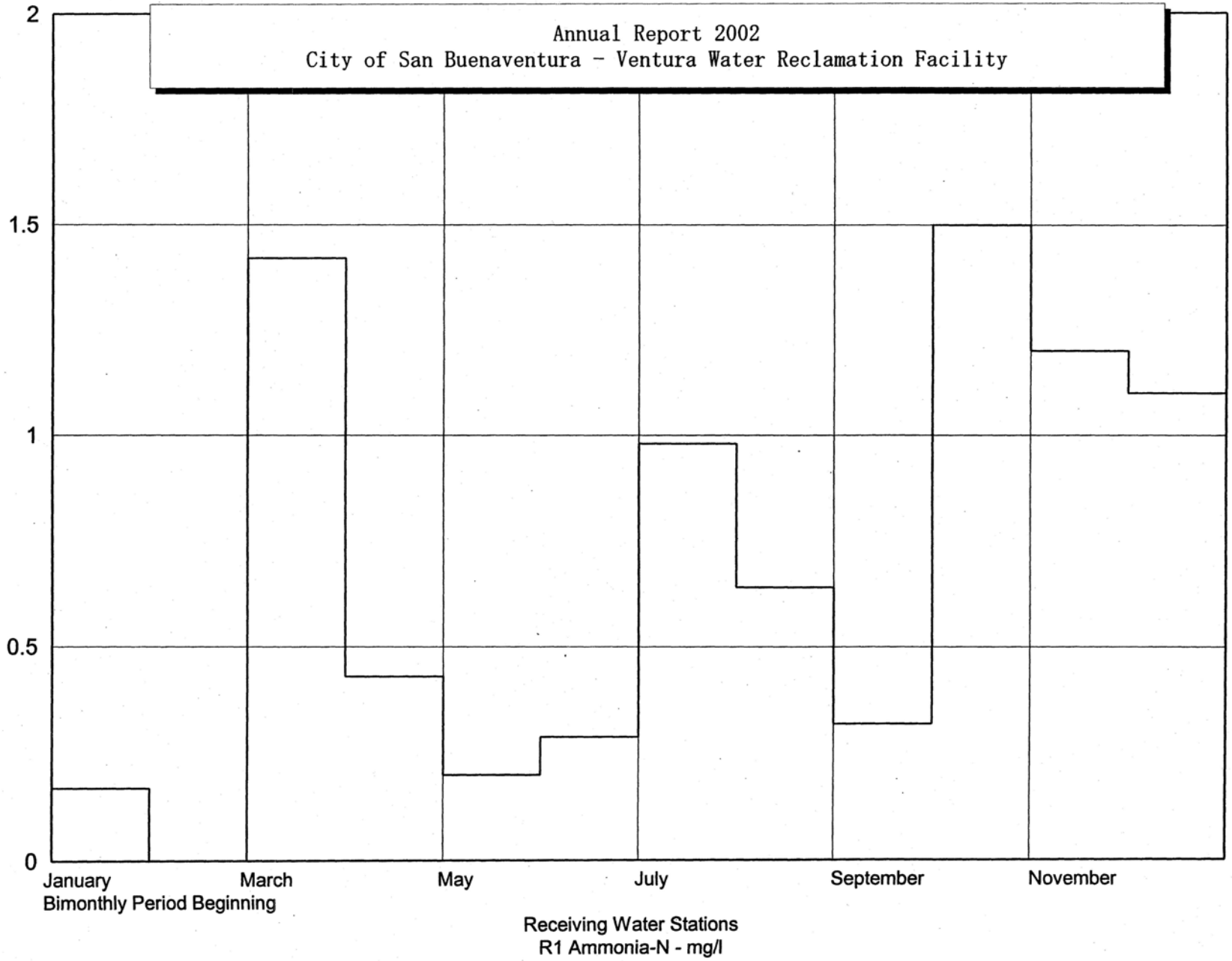
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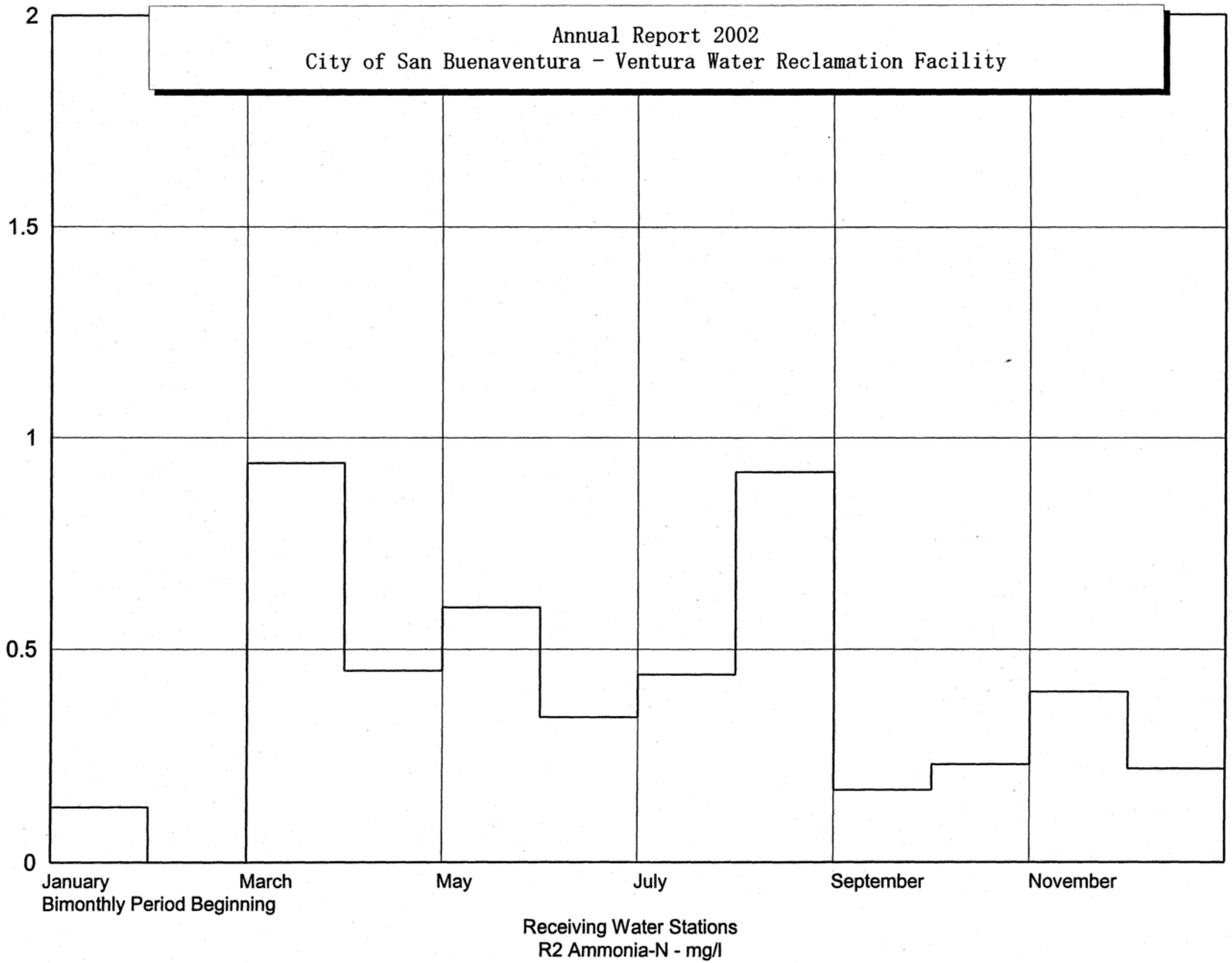
R1 Ammonia-N - mg/l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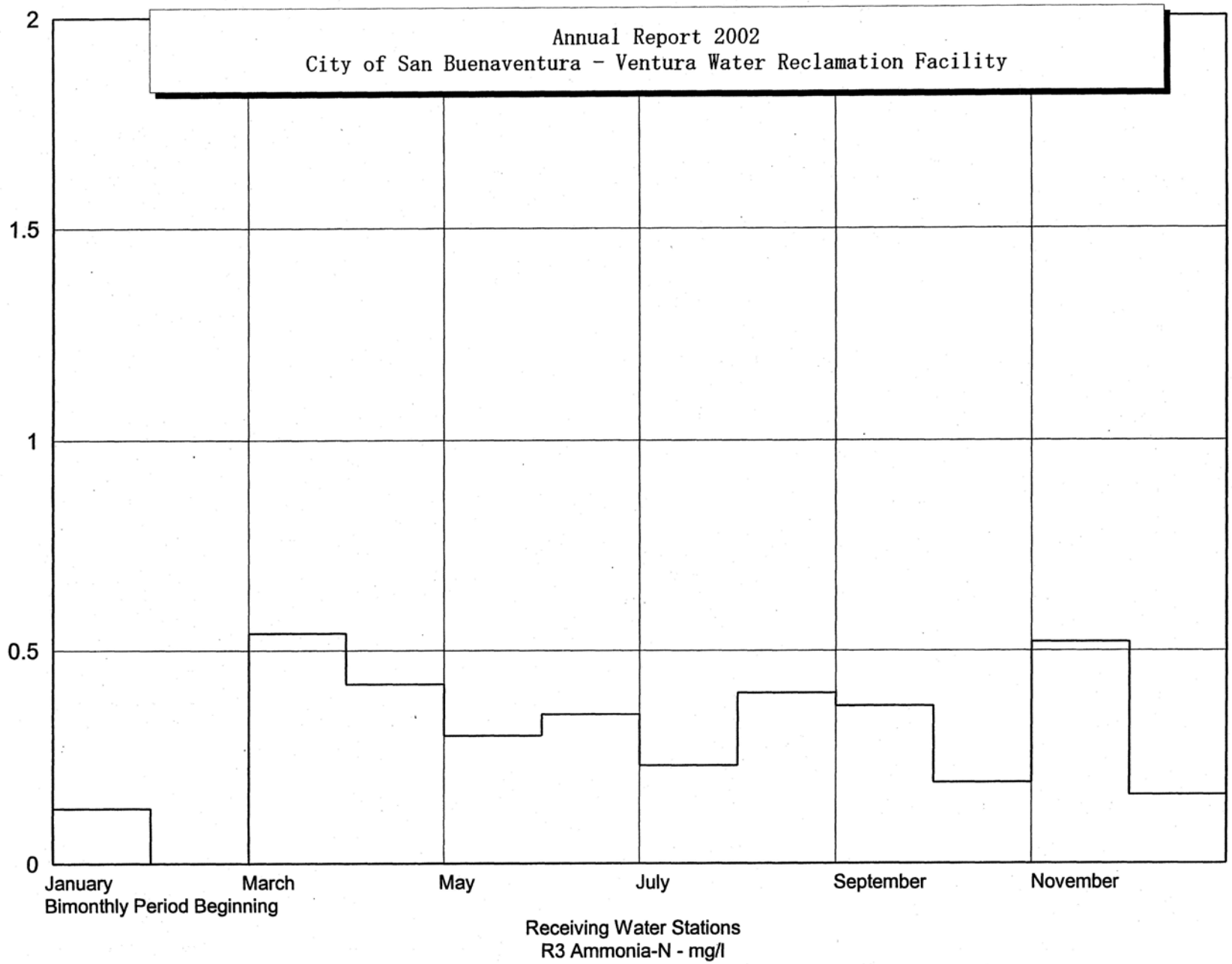
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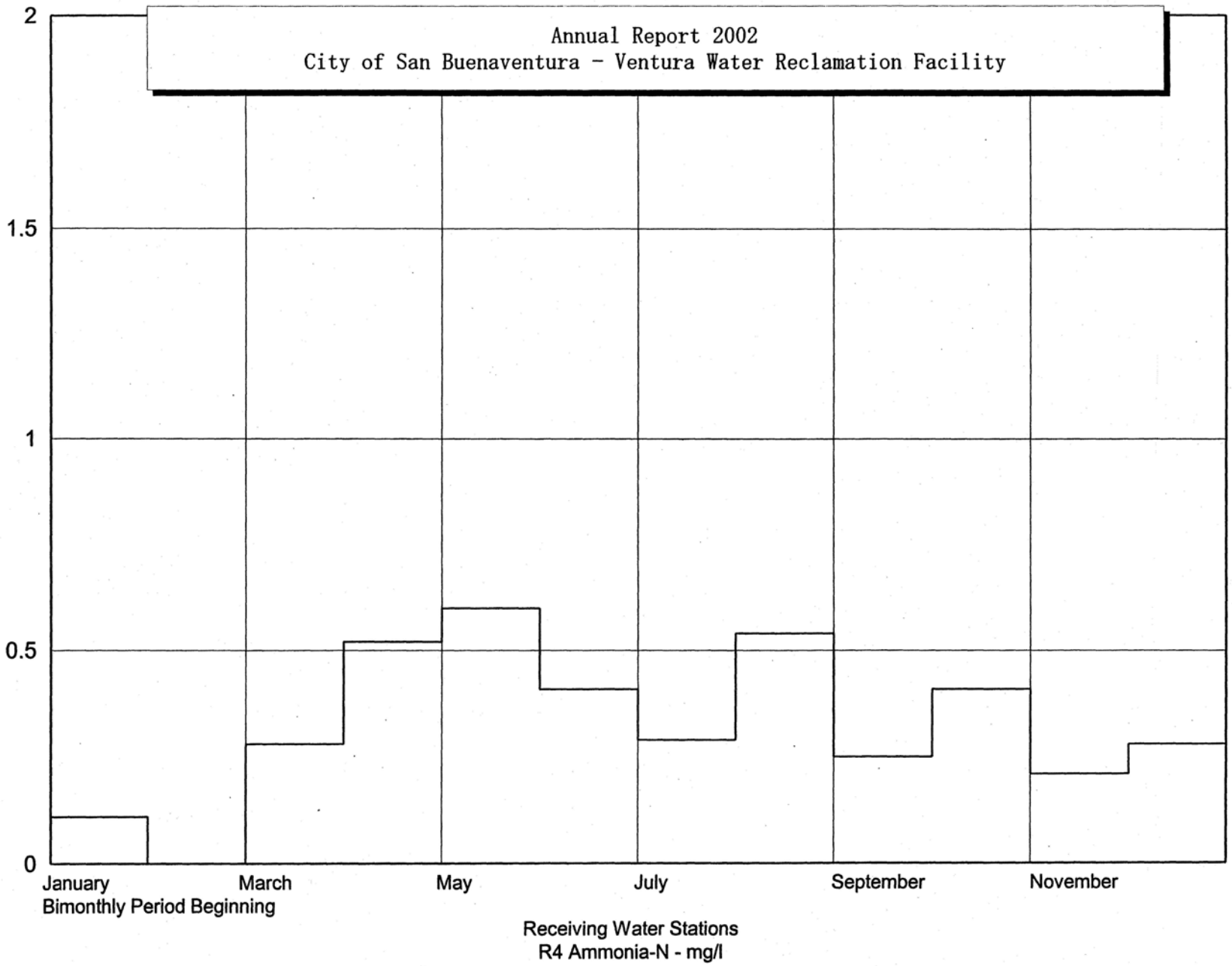
R3 Ammonia-N - mg/l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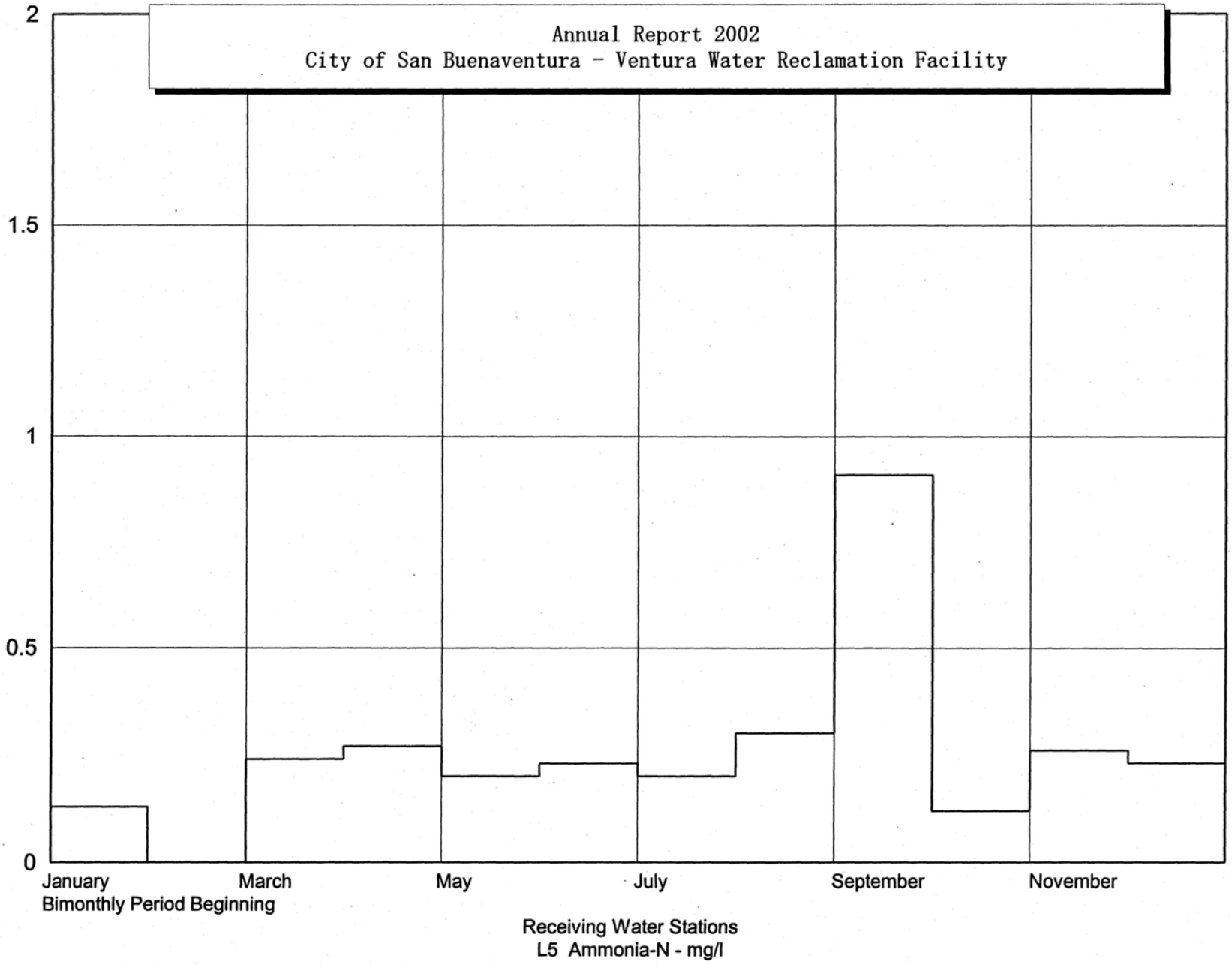
R4 Ammonia-N - mg/l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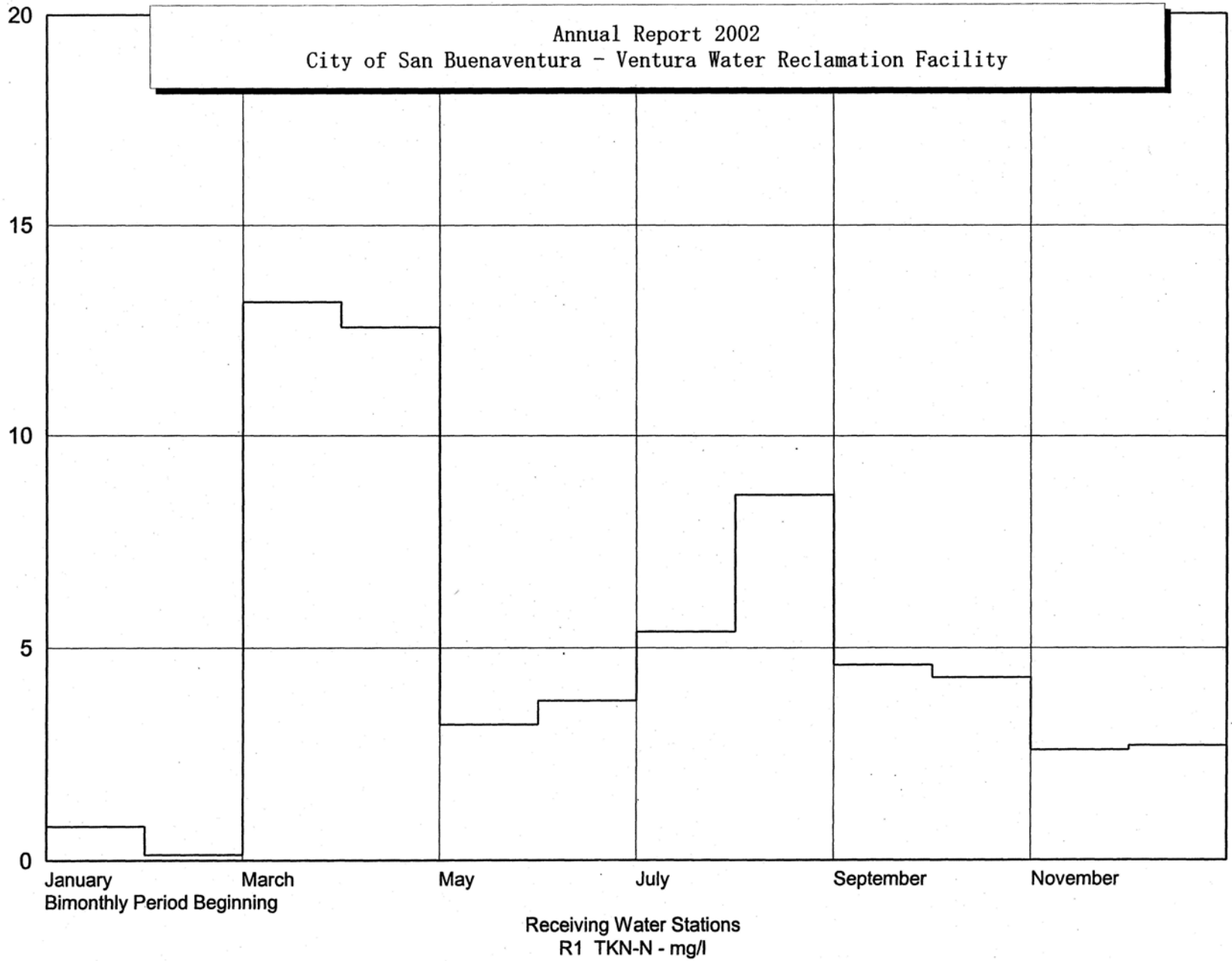
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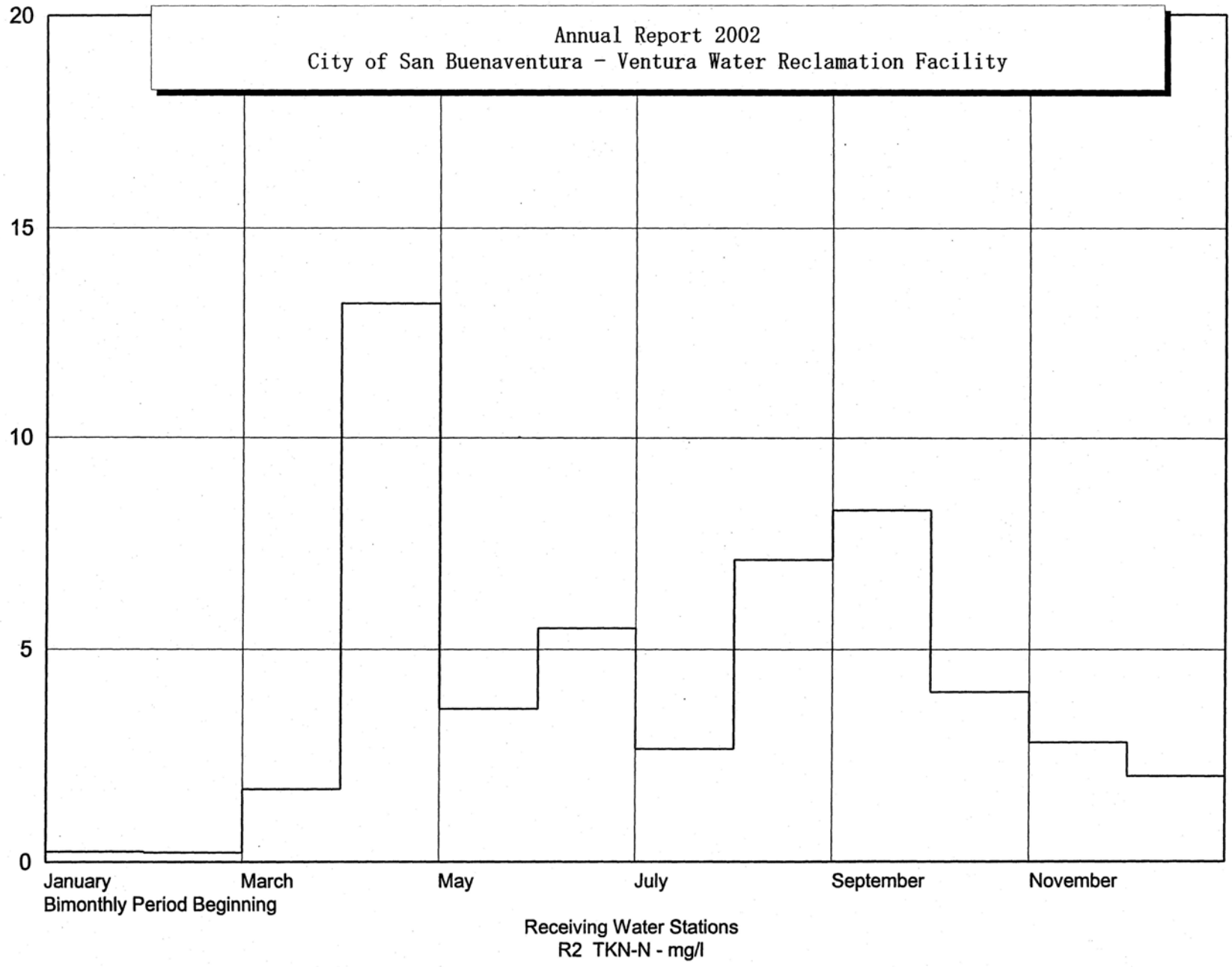
R1 TKN-N - mg/l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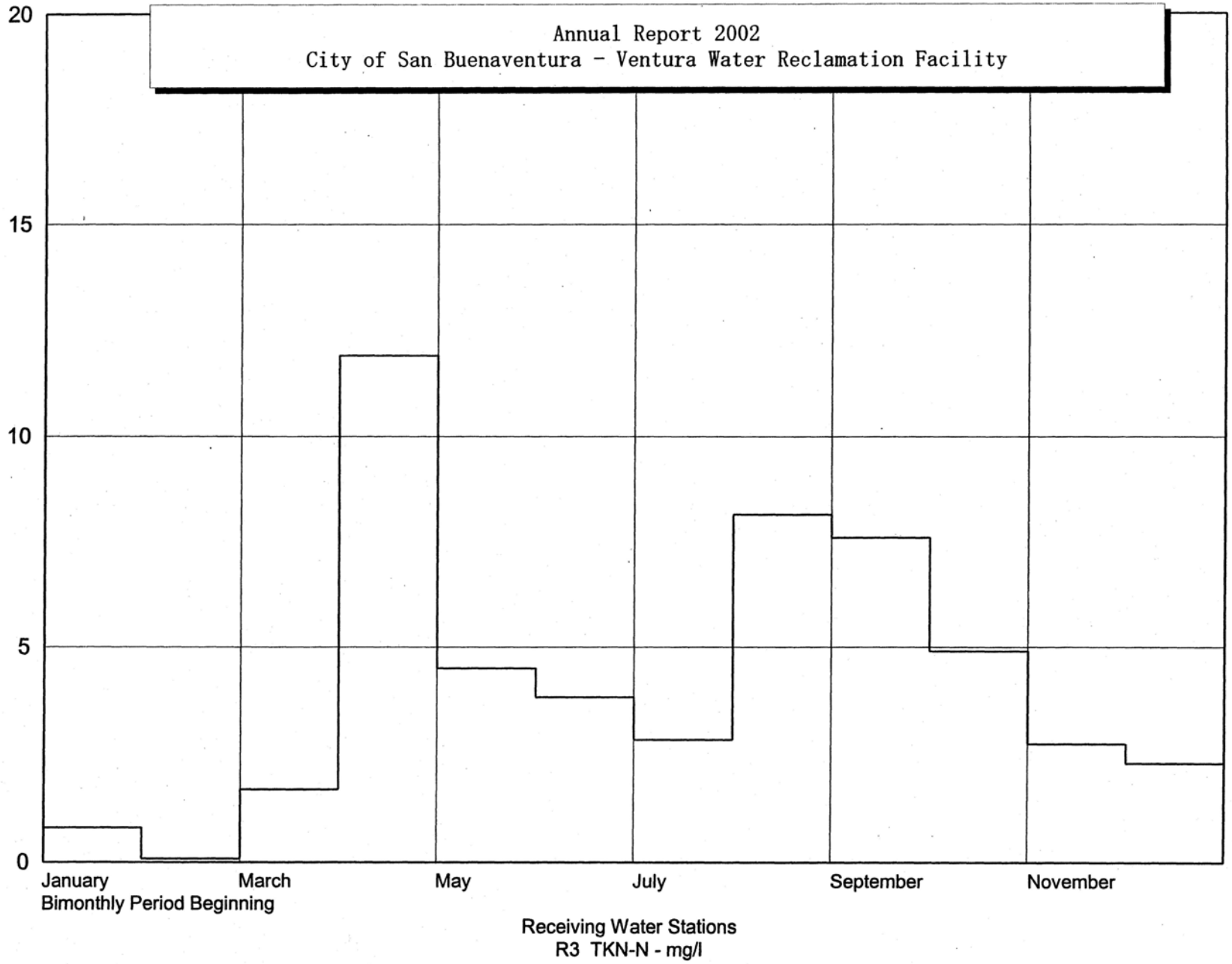
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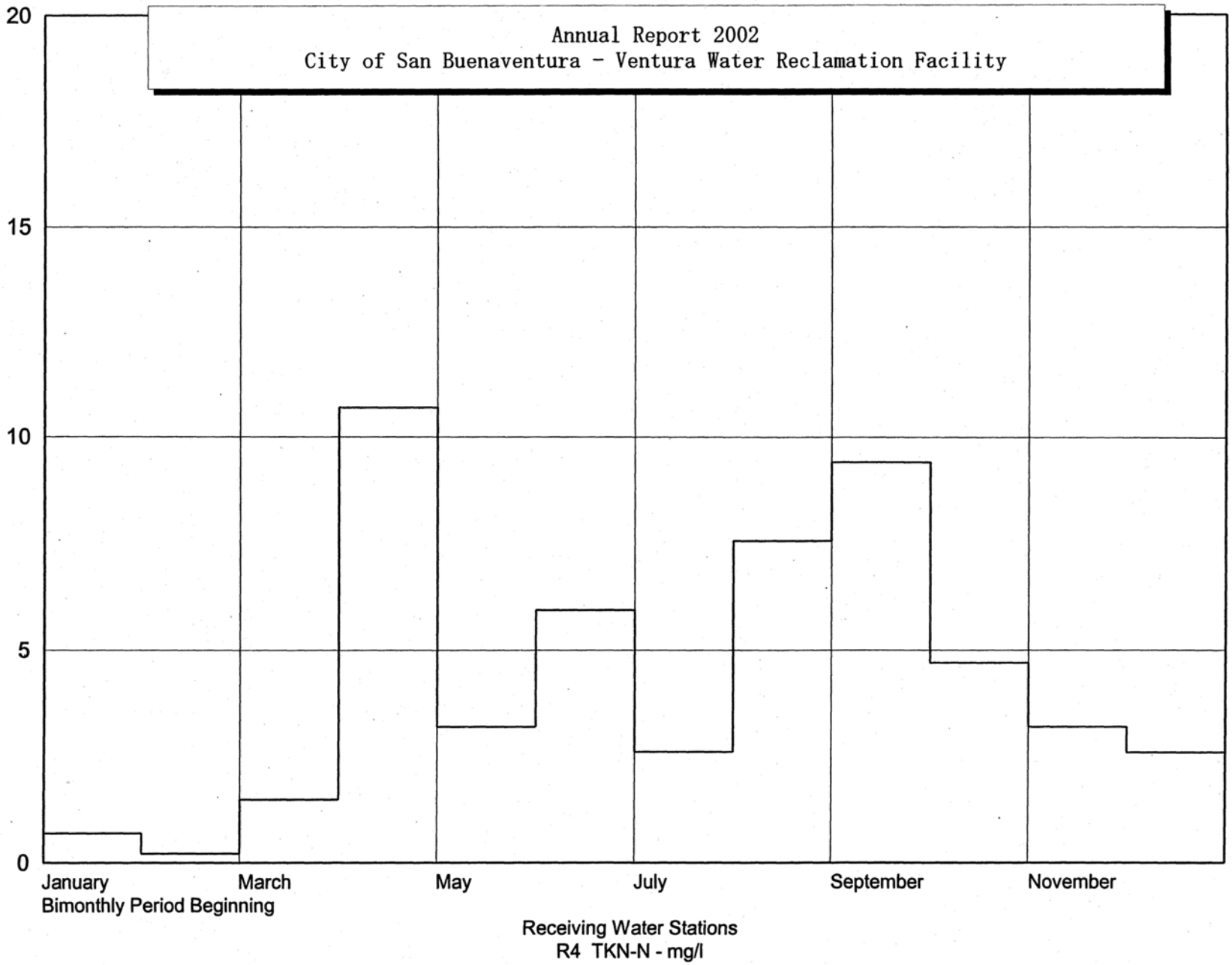
R3 TKN-N - mg/l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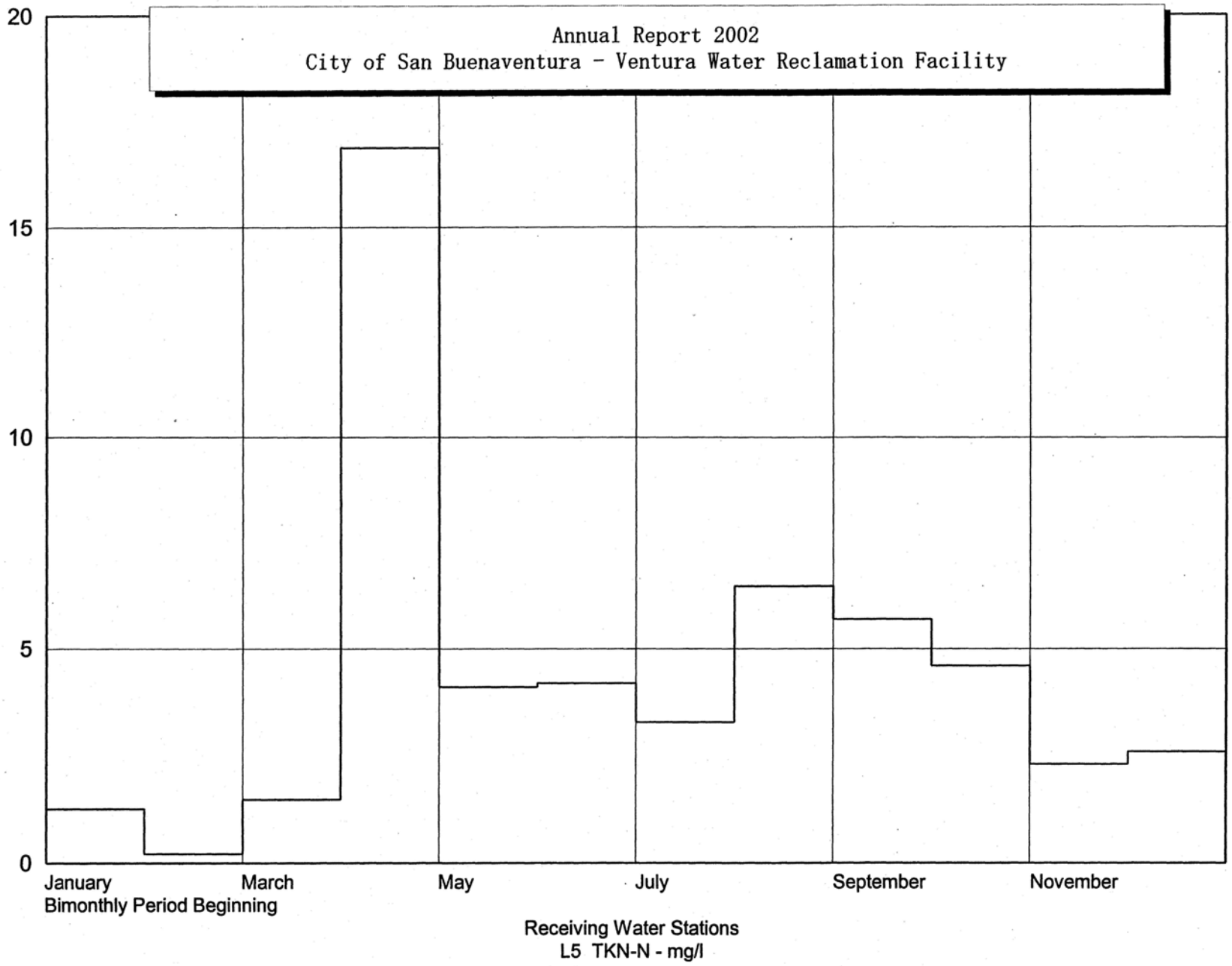
R4 TKN-N - mg/l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Receiving Water Stations
L5 TKN-N - mg/l

ANALYTICAL QUALITY ASSURANCE PROGRAM 2002

I. LABORATORY DUTIES AND OBJECTIVES

The City of San Buenaventura Sanitation Division 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.

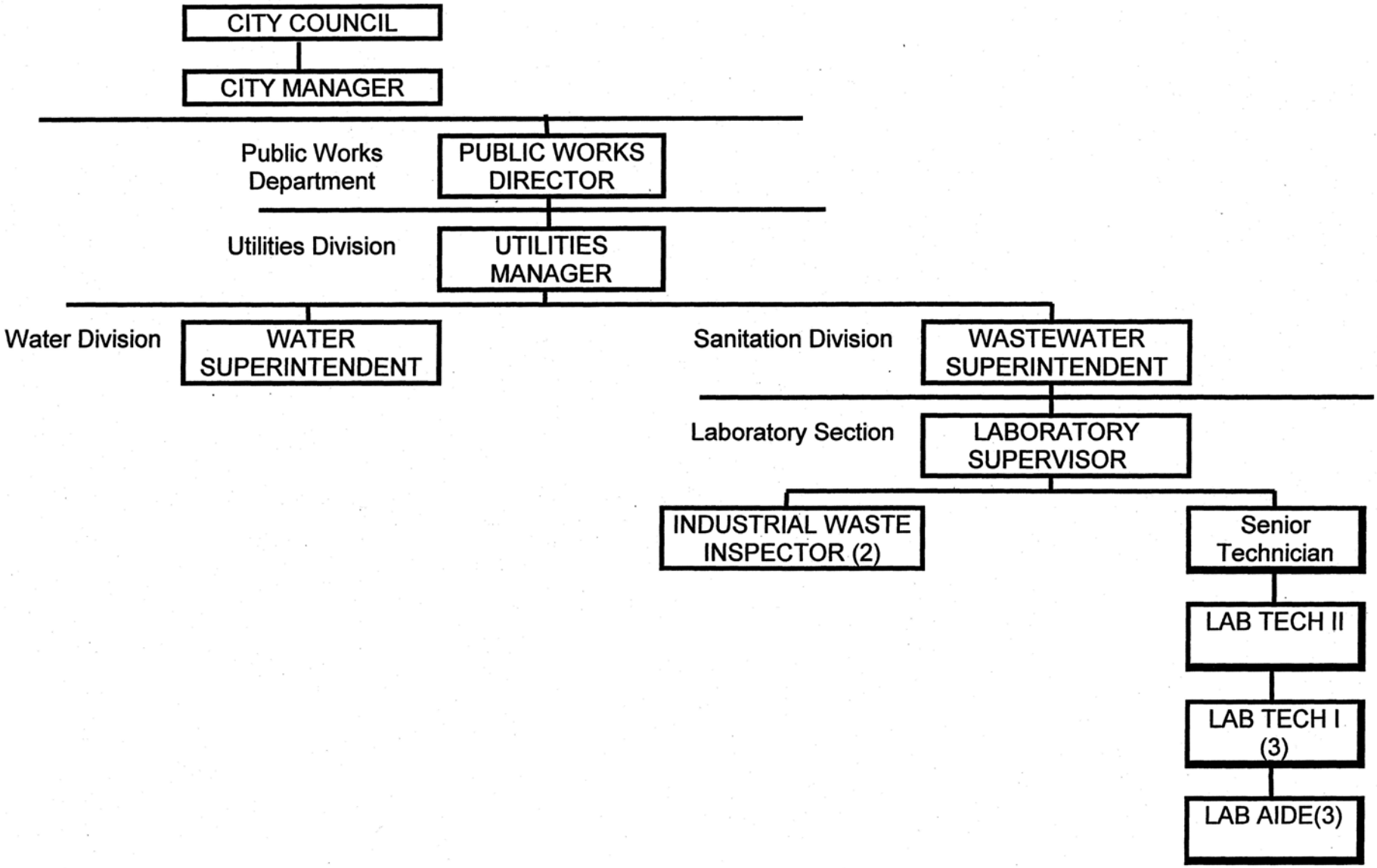
Current State of California Department of Health Services laboratory approval is attached.

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**

1979 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:

Responsibility for the laboratory service including planning, budget, employee evaluations and QA functions. Perform and supervise others in performing routine and sophisticated chemical, physical and biological analysis of water, wastewater and industrial waste.

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 perform routine and sophisticated chemical, physical and biological analysis of water, wastewater and industrial waste.

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:

Under supervision, perform routine and sophisticated chemical, physical and biological analysis of water, wastewater and industrial waste.

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:

Under supervision, perform routine chemical, physical and biological analysis of water, wastewater and industrial waste.

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:

Under supervision, perform routine chemical, physical and biological analysis of water, wastewater and industrial waste.

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:

Under supervision perform routine chemical, physical and biological analysis of water, wastewater and industrial waste.

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	Divison
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 (Water Bath)	Blue M Magniwhirl Model 1110A	Division
Incubator (Water Bath)	Precision Circulating Bath Model 270	
Incubator (BOD)	Freas Model 815	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
Nepthelometers	Hach Model 2100A	Division
	Hach Ratio/XR	Division
Analytical Balances	Mettler Model AT 201 Mettler Model AE 163	Division
Top-Loading Balances	Mettler Model PM2000	Division
	Mettler Model PM2000	Division
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	1 ISCO Model 2700	Division
	3 ISCO Model 2900	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 Sanitation Laboratory for analysis by Wastewater personnel (laboratory staff and plant operators), Industrial Waste Inspector, Water Division and other agency.

Sample collection maybe a grab or a 24-hour composite. All composite samples are collected using ISCO Models 2900 & 3700, American Sigma Models 800SL and 900. Samplers are set to operate in flow proportion by utilizing the non-uniform time option of the control electronics.

Sample container must be of 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^{o} 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.

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.

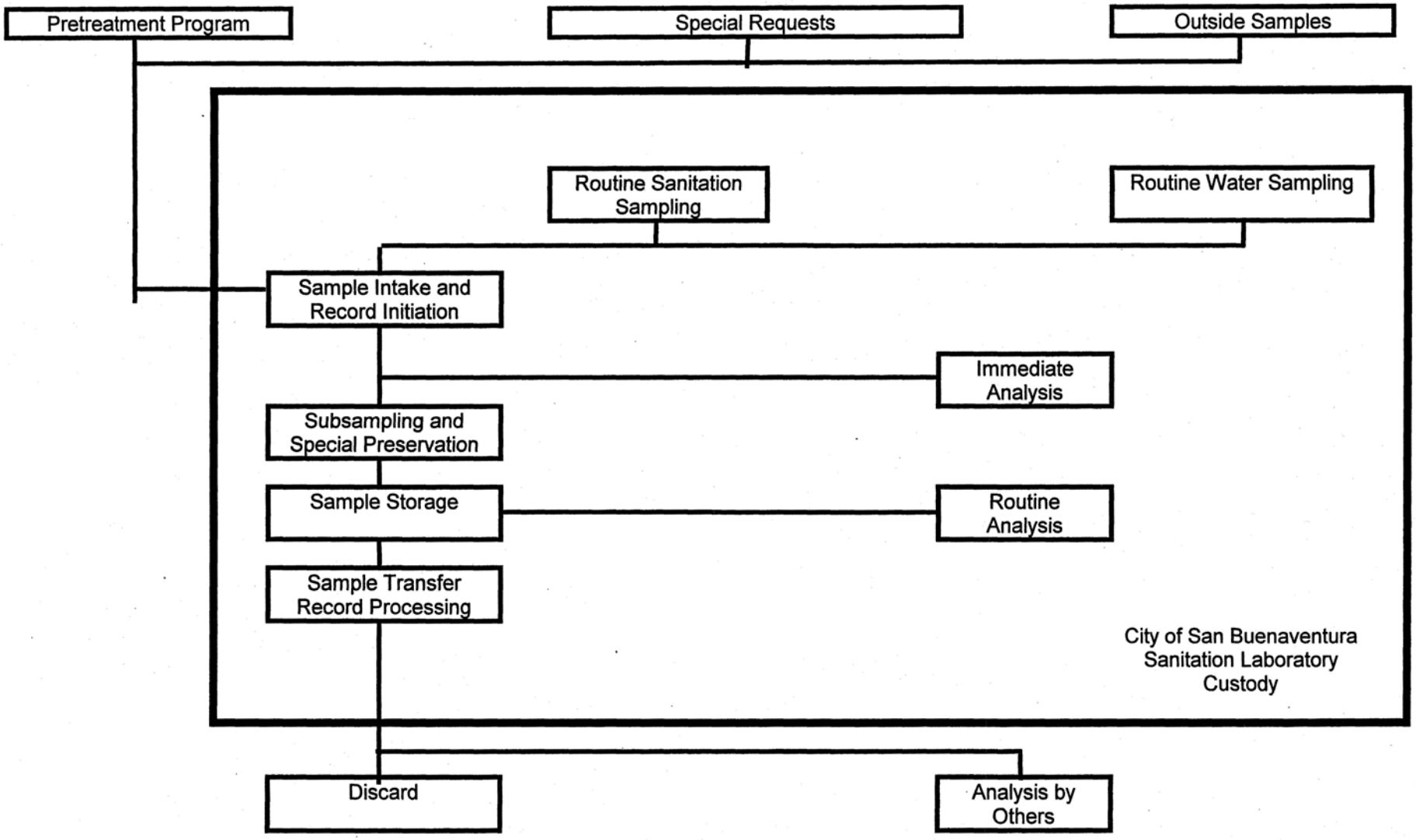
4. Disposal

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 mineral or metal samples while others have to neutralize before they can be disposed as in the case of COD samples. Samples that have been analyzed for Pesticides or Phenols are evaporated under the fume hood.

The laboratory sample path is shown in the chart 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	Report Reviewed	Lab Supervisor
Drinking Water	Annual	Metals, Organics	Report Reviewed	Lab Supervisor
Conjunctive Use	Any	All	Report Reviewed	Lab Supervisor
Surface and Ocean	Any	Bacti	Inoculation Complete	Analysts
Wastewater	Daily Grab	pH, Turbidity, Residual, Oil and Grease	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	Analysis Complete	Analysts
Wastewater	Weekly Composite	MBAS	Analysis Complete	Analysts
Wastewater	Weekly Composite	Sulfate	Report Reviewed	Lab Supervisor
Wastewater	Monthly Composite	Phenols	Report Reviewed	Lab Supervisor
Wastewater	Monthly Composite	Minerals	Report Reviewed	Lab Supervisor
Wastewater	Monthly Composite	CN, PO4, Alkalinity, B, F	Analysis Complete	Analysts
Wastewater	Monthly Grab	Bioassay	Test Setup	Analysts
Wastewater	Quarterly Composite	Metals	Report Reviewed	Lab Supervisor
Wastewater	Quarterly Composite	Pesticides	Report Reviewed	Lab Supervisor
Source Control	Any	All	Report Reviewed	IW Inspector
Special	Any	All	Report Reviewed	Lab Supervisor

Sample Identification

Sampling sites for routine Sanitation and Drinking Water which are monitored daily, weekly, quarterly or 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.

Other Water or Sanitation samples, Industrial Waste samples and any non-routine sample received is assigned a unique Laboratory Identification Number (LID) by the Laboratory Computer Data System. 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 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

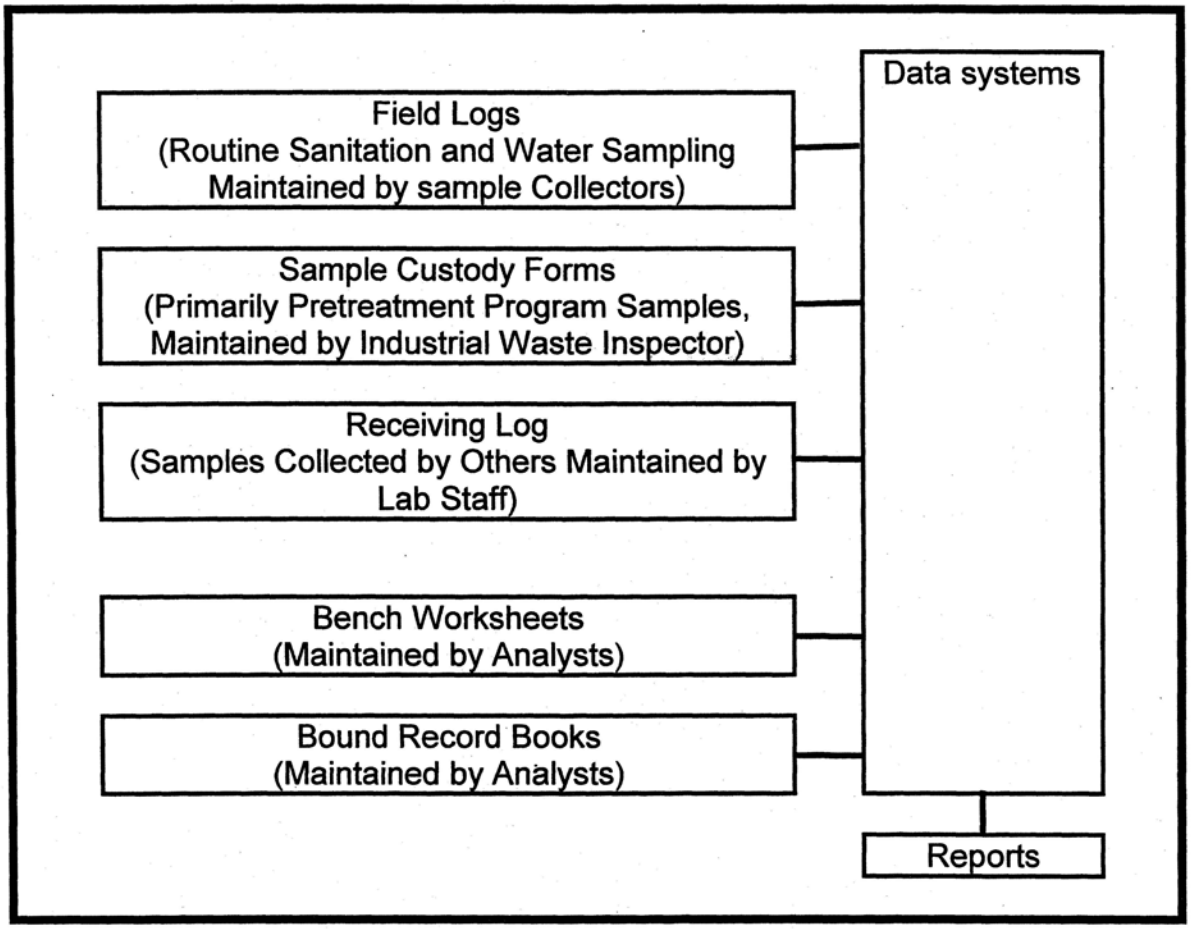
D. Reports

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.



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 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 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.

The Laboratory is equipped to perform MTF tests for Total Coliform, Fecal Coliform and Fecal Streptococci; Membrane Filter tests for Total and Fecal Coliform; Idexx Coliform analyses and Heterotrophic Plate Count.

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 routinely 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 routinely 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.

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 21th day of March, 2003, at Ventura, CA.

Daniel Pfeifer
Wastewater Superintendent

Florence B. Jay
Laboratory Supervisor