II. Influent and Effluent Data Summary

A. Mass Emissions

B. Discharge Limits

C. Influent and Effluent Data Summaries

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A. Mass Emissions

Mass Emissions of Effluent Using 2011 Monthly Averages

DISCHARGE SPECIFICATIONS from NPDES Permit No. CA0109045/RWQCB Order No. 2006-067 effective on January 1st 2007 with limits on pollutant discharges.

Effluent Limitations Based on Secondary Treatment Standards

Constituent/Property	Limit: Monthly Average (30 day) (lbs/day)	2011 Mass Emissions (lbs/day)[1]	2011 Average Concentration	Units
Flow (MGD)			**3.54**	MGD
Total Suspended Solids	3,750	**214**	**6.6**	mg/L
BOD	3,750	**410**	**13.1**	mg/L
Oil & Grease	3,130	97	3.3	mg/L

Effluent Limitations Based on 2005 California Ocean Plan

Constituent/Property	Limit: Daily Maximum (lbs/day)	2011 Mass Emissions (lbs/day)[1]	2011 Average Concentration	Units
Arsenic	350	0.025	0.85	ug/L
Cadmium	48	0	0	ug/L
Chromium	96	0.000	0	ug/L
Copper	120	0.4	13	ug/L
Lead	96	0.009	0.3	ug/L
Mercury	1.9	0.00003	0.001	ug/L
Nickel	2.4	0.18	6.11	ug/L
Selenium	720	0.013	0.45	ug/L
Silver	32	0.003	0.1	ug/L
Zinc	860	0.8	28.7	ug/L
Cyanide	48	0.006	0.0002	mg/L
Residual Chlorine	96	4.1	0.14	mg/L
Ammonia	29,000	78.9	2.7	mg/L
Non-Chor. Phenols	1,400	0	0	ug/L
Chlorinated Phenols	48	0	0	ug/L
Endosulfan	0.21	0.0	0	ng/L
Endrin	0.05	0.0	0	ng/L
hexachlorocyclohexanes *(HCH)	0.1	0.0	0	ng/L

* (all as Lindane, the gamma isomer)

Effluent Limitations Based on 2005 California Ocean Plan				
Constituent/Property	Limit: Daily Maximum (lbs/day)	2011 Mass Emissions (lbs/day)[1]	2011 Average Concentration	Units
Acrolein	2,600	0	0	ug/L
Antimony	14,000	0.018	0.62	ug/L
Bis(2-chloroethoxy) methane	53	0	0	ug/L
Bis(2-chloroisopropyl) ether	14,000	0	0	ug/L
Chlorobenzene	6,800	0	0	ug/L
Chromium (III)	--	--	--	
di-n-butyl phthalate	42,000	0	0	ug/L
dichlorobenzenes	61,000	0	0	ug/L
1,1-dichloroethylene	11	0	0	ug/L
Diethyl phthalate	390,000	0.000	0	ug/L
Dimethyl phthalate	9,800,000	0	0	ug/L
4,6-dinitro-2-methylphenol	2,600	0	0	ug/L
2,4-dinitrophenol	480	0	0	ug/L
Ethylbenzene	49,000	0.00	0	ug/L
Fluoranthene	180	0	0	ug/L
Hexachlorocyclopentadiene	690	0	0	ug/L
Isophorone	70,000	0	0	ug/L
Nitrobenzene	59	0	0	ug/L
Thallium	24	0	0	ug/L
Toluene	1,000,000	0.00	0	ug/L
1,1,2,2-tetrachloroethane	27	0.000	0	ug/L
Tributyltin	0.02	0.00	0	ug/L
1,1,1-trichloroethane	6,500,000	0	0	ug/L
1,1,2-trichloroethane	110	0	0	ug/L
Acrylonitrile	1.2	0.0	0	ug/L
Aldrin	0.00026	0	0	ng/L
Benzene	71	0	0	ug/L
Benzidine	82,000	0	0	ug/L
Beryllium	0.39	0.001	0.026	ug/L
Bis(2-chloroethyl)ether	0.54	0.0	0	ug/L
Bis(2-ethylhexyl)phthalate	42	0.000	0	ug/L
Carbon Tetrachloride	11	0	0	ug/L
Chlordane	0.00027	0.00000	0	ng/L
Chlorodibromomethane	100	0	0	ug/L
Chloroform	1,500	0.02	0.8	ug/L
DDT	0.002	0.000	0	ng/L
1,4-dichlorobenzene	210	0	0	ug/L
3,3-dichlorobenzidine	0.097	0.00	0	ug/L
1,2-dichloroethane	330	0	0	ug/L
Dichlorobromomethane	74	0	0	ug/L
Dichloromethane (methylene chloride)	5,400	0.54	18.5	ug/L
1,3-dichloropropene	110	0	0	ug/L
Dieldrin	0.00048	0.00000	0	ng/L

Effluent Limitations Based on 2005 California Ocean Plan				
Constituent/Property	Limit: Daily Maximum (lbs/day)	2011 Mass Emissions (lbs/day)[1]	2011 Average Concentration	Units
2,4-dinitrotoluene	31	0	0	ug/L
1,2-diphenylhydrazine	1.9	0.0	0	ug/L
Halomethanes	1,500	0	0	ug/L
Heptachlor	0.0006	0.000000	0	ng/L
Heptachlor epoxide	0.00024	0.0000	0	ng/L
Hexachlorobenzene	0.0025	0.0000	0	ug/L
Hexachlorobutadiene	170	0	0	ug/L
Hexachloroethane	30	0	0	ug/L
N-nitrosodimethylamine	87	0	0	ug/L
N-nitrosodi-N-Propylamine	4.5	0	0	ug/L
N-nitrosodiphenylamine	30	0	0	ug/L
PAHs	0.11	0.00	0	ug/L
PCBs	0.00023	0.000	0	ng/L
TCDD equivalents	0.000000048	0.0000	0	pg/L
Tetrachloroethylene	24	0	0	ug/L
Toxaphene	0.0025	0	0	ng/L
Trichloroethylene	320	0	0	ug/L
2,4,6-trichlorophenol	3.5	0	0	ug/L
Vinyl Chloride	430	0	0	ug/L

[1] Mass emissions is calculated assuming the density of effluent is 1. The mean constituent value and mean daily flow value over the year is used to compute the mass emissions, assuming that constant concentration over 365 days.

B. Discharge Limits

DISCHARGE SPECIFICATIONS from NPDES Permit No. CA0109045/RWQCB Order No. 2006-067 effective on January 1st, 2007 with limits on pollutant discharges.

The discharge of effluent through the South Bay Ocean Outfall(E-001) shall maintain compliance with the following effluent limitations:

Effluent Limitations based on Secondary Treatment Standards						
Constituent	Units	6-month Median	30-day Average	7-Day Average	Daily Maximum	Instantaneous Maximum
Biochemical Oxygen Demand(BOD_5)@ 20°C	mg/L		30	45		50
	lb/day		3,750	5,630		6,260
Total Suspended Solids	mg/L		30	45		50
	lb/day		3,750	5,630		6,260
pH	pH units		Within the limits of 6.0 - 9.0 at all times.			

Effluent Limitations based on 2005 California Ocean Plan						
Constituent	Units	6-month Median	30-day Average	7-Day Average	Daily Maximum	Instantaneous Maximum
Grease & Oil	mg/L		25	40		75
	lb/day		3,100	5,000		9,400
Settleable Solids	mL/L		1	2		3
Turbidity	NTU		75	100		230
Total Residual Chlorine(TRC)	mg/L	0.19			0.76	5.7
	lb/day	24			96	720
Copper, Total Recoverable	ug/L	97			960	2,700
	lb/day	12			120	330

Constituents that do not have reasonable potential or had inconclusive reasonable potential analysis results are referred to as performance goal constituents and are assigned the performace goals listed in the following table. Performance goal constituents shall also be monitored at E-001.

Performance Goals Based on 2005 California Ocean Plan				
Constituent	Units	6-month Median	Daily Maximum	Instantaneous Maximum
Arsenic	ug/L	480	2,800	7,400
	lb/day	60	350	920
Cadmium	ug/L	96	380	960
	lb/day	12	48	120
Chromium[2](Hexavalent)	ug/L	190	760	1900
	lb/day	24	96	240
Lead	ug/L	190	760	1,900
	lb/day	24	96	240
Mercury	ug/L	38	15.0	3.8
	lb/day	4.8	1.9	0.48
Nickel	ug/L	480	1,900	4,800
	lb/day	60	240	600
Selenium	ug/L	1,400	5,700	14,000
	lb/day	180	720	1800
Silver	ug/L	52	250	650
	lb/day	6.5	32	82
Zinc	ug/L	1,100	6,900	18,000
	lb/day	140	860	2300
Cyanide	mg/L	0.096	0.38	0.96
	lb/day	12	48	120
Ammonia (expressed as Nitrogen)	mg/L	57	230	570
	lb/day	7200	29,000	72,000
Acute Toxicity	TUa		3.1[3]	
Chronic Toxicity	TUc		96	
Phenolic Compounds(non-chlorinated)	ug/L	2,900	11,000	29,000
	lb/day	360	1400	3600
Chlorinated Phenolics	ug/L	96	380	960
	lb/day	12	48	120
Endosulfan	ng/L	860	1,700	2,600
	lb/day	0.11	0.21	0.32
Endrin	ng/L	190	380	570
	lb/day	0.02	0.05	0.07
HCH (hexachlorocyclohexanes)	ng/L	380	760	1,100
	lb/day	0.04	0.1	0.14
Radioactivity	Not to exceed limits specified in Title 17 California Code of Regulations Section 30253, Standards for Protection Against Radiation			

[2] Hexavalent Chromium limit met as Total Chromium.

[3] Permit shows 2.9×10^{-1} which reflects an apparent error in calculation as discussed with SDRWQCB staff. Correction to 3.1 TUa referenced by email of Friday, January 26, 2007 4:14 PM, From: Melissa Valdovinos [mailto:mvaldovinos@waterboards.ca.gov] To: Stebbins, Tim, [Tstebbins@sandiego.gov]

Performance Goals Based on 2005 California Ocean Plan Continued

Constituent	Monthly Average (30-Day)	
	ug/L	lbs/day
Acrolein	21,000	2600
Antimony	110,000	14,000
Bis(2-chloroethoxy) methane	420	53
Bis(2-chloroisopropyl) ether	110,000	14,000
Chlorobenzene	54,000	6800
Chromium (III)[4]	18,000,000	2,300,000
di-n-butyl phthalate	330,000	42,000
Dichlorobenzenes	490,000	61,000
Diethyl phthalate	3,100,000	390,000
Dimethyl phthalate	78,000,000	9,800,000
4,6-dinitro-2-methylphenol	21,000	2600
2,4-dinitrophenol	3800	480
Ethylbenzene	390,000	49,000
Fluoranthene	1,400	180
Hexachlorocyclopentadiene	5,500	690
Nitrobenzene	470	59
Thallium	190	24
Toluene	8,100,000	1,000,000
Tributyltin	0.13	0.020
1,1,1-trichloroethane	52,000,000	6,500,000
Acrylonitrile	9.6	1.2
Benzene	560	71
Benzidine	0.0066	82,000
Beryllium	3.1	0.39
Bis(2-chloroethyl)ether	4.3	0.54
Bis(2-ethylhexyl)phthalate	330	42
Carbon Tetrachloride	86	11
Chloroform	12,000	1500
1,4-dichlorobenzene	1,700	210
3,3-dichlorobenzidine	0.77	0.097
1,2-dichloroethane	2,700	330
1,1-dichloroethylene	86	11
Dichlorobormomethane	590	74
Dichloromethane	43,000	5400
1,3-dichloropropene	850	110
2,4-dinitrotoluene	250	31
1,2-diphenylhydrazine	15	1.9
Halomethanes	12,000	1500

Performance Goals Based on 2005 California Ocean Plan Continued

Constituent	Monthly Average (30-Day)	
	ug/L	lbs/day
Hexachlorobenzene	0.02	0.0025
Hexachlorobutadiene	1,300	170
Hexachloroethane	240	30
Isophorone	70,000	8700
N-nitrosodimethylamine	700	87
N-nitrosodi-N-propylamine	36	4.5
N-nitrosodiphenylamine	240	30
PAHs	0.84	0.11
1,1,2,2-tetrachloroethane	220	27
Tetrachloroethylene	190	24
Trichloroethylene	2,600	320
1,1,2-trichloroethane	900	110
2,4,6-trichlorophenol	28	3.5
Vinyl Chloride	3,400	430

	ng/L	lbs/day
Aldrin	2.1	0.00026
Chlordane	2,200,000	0.00027
DDT	16	0.0026
Dieldrin	3.8	0.00048
Heptachlor	48	.00060
Heptachlor Epoxide	1.9	0.00024
PCBs	1.8	0.00023
Toxaphene	200	0.0025

	pg/L	lbs/day
TCDD equivalents	0.37	0.000000047

[4] Chromium (III) limit is met by Total Chromium.

C. Influent and Effluent Data Summaries

The results of all analyses performed on the SBWRP influent and effluent are summarized in tables with monthly and annual averages (and in some cases annual totals) calculated. Data that has been reevaluated as discussed in Section 1.E are explicitly indicated. All other tables and charts include all data.

SOUTH BAY WATER RECLAMATION PLANT
SEWAGE INFLUENT and EFFLUENT

Annual 2011

Biochemical Oxygen Demand Concentration
(24-hour composite)

	Influent Flow	Daily Influent Value (mg/L)	Daily Influent Value (lbs/Day)	Effluent Flow	Daily Effluent Value (mg/L)	Daily Effluent Value (lbs/Day)	Percent Removal BOD (%)
JANUARY -2011	8.34	313	21771	5.89	16.8	825	94.6
FEBRUARY -2011	8.39	284	19872	5.50	13.6	624	95.2
MARCH -2011	8.41	280	19639	6.23	17.2	894	93.9
APRIL -2011	8.37	321	22408	4.02	12.2	409	96.2
MAY -2011	8.45	329	23186	2.52	19.2	404	94.2
JUNE -2011	8.38	316	22085	1.50	14.4	180	95.4
JULY -2011	8.40	290	20316	1.17	16.4	160	94.3
AUGUST -2011	8.29	321	22193	0.46	7.5	29	97.7
SEPTEMBER-2011	7.82	333	21718	0.83	8.3	57	97.5
OCTOBER -2011	7.80	309	20101	2.06	9.2	158	97.0
NOVEMBER -2011	7.98	293	19500	5.95	9.8	486	96.7
DECEMBER -2011	8.02	327	21872	6.35	13.1	694	96.0
Average	8.22	310	21222	3.54	13.1	410	95.7

Annual Mass Emissions are calculated from monthly averages of flow for BOD, wheras
Monthly Report average mass emissions are calculated from average daily mass emissions.

ND=not detected
NS=not sampled
NA=not analyzed

SOUTH BAY WATER RECLAMATION PLANT
SEWAGE INFLUENT and EFFLUENT

Annual 2011

Total Suspended Solids Concentration
(24-hour composite)

	Influent Flow (MGD)	Daily Influent TSS (mg/L)	Daily Influent VSS (mg/L)	Percent VSS (%)	Daily Influent Mass Emission (lbs/Day)
JANUARY -2011	8.34	286	254	88.8	19893
FEBRUARY -2011	8.39	278	245	88.1	19452
MARCH -2011	8.41	297	266	89.6	20831
APRIL -2011	8.37	317	280	88.3	22128
MAY -2011	8.45	304	271	89.1	21424
JUNE -2011	8.38	312	277	88.8	21805
JULY -2011	8.40	309	275	89.0	21647
AUGUST -2011	8.29	318	283	89.0	21986
SEPTEMBER-2011	7.82	402	365	90.8	26218
OCTOBER -2011	7.80	287	264	92.0	18670
NOVEMBER -2011	7.98	287	261	90.9	19101
DECEMBER -2011	8.02	299	271	90.6	19999
Average	8.22	308	276		21096

Total Suspended Solids Concentration
(24-hour composite)

	Effluent Flow (MGD)	Daily Effluent TSS (mg/L)	Daily Effluent VSS (mg/L)	Percent VSS (%)	Daily Effluent Mass Emission (lbs/Day)	Percent Removal TSS (%)	Percent Removal VSS (%)
JANUARY -2011	5.89	6.7	5.9	88.1	329	97.7	97.7
FEBRUARY -2011	5.50	5.8	5.0	86.2	266	97.9	98.0
MARCH -2011	6.23	8.2	7.2	87.8	426	97.2	97.3
APRIL -2011	4.02	6.6	5.7	86.4	221	97.9	98.0
MAY -2011	2.52	8.9	7.9	88.8	187	97.1	97.1
JUNE -2011	1.50	5.5	4.7	85.5	69	98.2	98.3
JULY -2011	1.17	5.4	4.6	85.2	53	98.3	98.3
AUGUST -2011	0.46	5.4	4.6	85.2	21	98.3	98.4
SEPTEMBER-2011	0.83	4.2	3.6	85.7	29	99.0	99.0
OCTOBER -2011	2.06	5.2	4.7	90.4	89	98.2	98.2
NOVEMBER -2011	5.95	6.5	5.7	87.7	323	97.7	97.8
DECEMBER -2011	6.35	10.5	9.2	87.6	556	96.5	96.6
Average	3.54	6.6	5.7		214	97.8	97.9

Annual Mass Emissions are calculated from monthly averages of flow for TSS, whereas
Monthly Report average mass emissions are calculated from average daily mass emissions.

VSS= Volatile Suspended Solids
TSS= Total Suspended Solids

SOUTH BAY WATER RECLAMATION PLANT

Annual 2011

Effluent to Ocean Outfall
(SB_OUTFALL_01)

Analyte:	Flow	pH	Settleable	Biochemical Oxygen	Total Suspended	Volatile Suspended	Total Dissolved
Units:	(mgd) 15		Solids (ml/L)	Demand (mg/L)	Solids (mg/L)	Solids (mg/L)	Solids (mg/L)
JANUARY -2011	5.89	7.35	ND	16.8	6.7	5.9	1030
FEBRUARY -2011	5.50	7.28	ND	13.6	5.8	5.0	872
MARCH -2011	6.23	7.29	ND	17.2	8.2	7.2	958
APRIL -2011	4.02	7.31	ND	12.2	6.6	5.7	971
MAY -2011	2.52	7.31	ND	19.2	8.9	7.9	986
JUNE -2011	1.50	7.41	ND	14.4	5.5	4.7	938
JULY -2011	1.17	7.38	ND	16.4	5.4	4.6	985
AUGUST -2011	0.46	7.34	ND	7.5	5.4	4.6	1030
SEPTEMBER-2011	0.83	7.37	ND	8.3	4.2	3.6	938
OCTOBER -2011	2.06	7.24	ND	9.2	5.2	4.7	845
NOVEMBER -2011	5.95	7.27	ND	9.8	6.5	5.7	896
DECEMBER -2011	6.35	7.22	ND	13.1	10.5	9.2	898
Average	3.54	7.31	0.0	13.1	6.6	5.7	946

Analyte:	Oil & Grease	Outfall Temperature	Residual Chlorine	Turbidity	Dissolved Oxygen
Units:	(mg/L)	(C)	(mg/L)	(NTU)	(mg/L)
JANUARY -2011	4.4	22.1	0.05	3.17	4.01
FEBRUARY -2011	5.5	21.6	0.05	2.77	4.05
MARCH -2011	3.7	21.8	0.06	3.44	2.55
APRIL -2011	1.3	22.7	0.07	2.74	2.70
MAY -2011	3.6	24.7	0.11	4.08	3.21
JUNE -2011	<1.2	25.0	0.05	2.51	2.84
JULY -2011	6.5	26.4	0.06	2.56	3.37
AUGUST -2011	1.5	27.0	0.14	2.68	1.55
SEPTEMBER-2011	3.2	27.0	0.06	2.23	2.08
OCTOBER -2011	2.9	26.5	0.05	2.82	1.74
NOVEMBER -2011	3.7	24.5	0.91	3.08	2.49
DECEMBER -2011	3.3	22.9	0.04	3.98	1.63
Average	3.3	24.4	0.14	3.01	2.69

ND=not detected
NR=not required

SOUTH BAY WATER RECLAMATION PLANT

Annual 2011

Influent to Plant
(SB_INF_02)

Analyte:	Flow	pH	Total Dissolved Solids	Biochemical Oxygen Demand	Total Suspended Solids	Volatile Suspended Solids	Turbidity
Units:	(mgd)		(mg/L)	(mg/L)	(mg/L)	(mg/L)	(NTU)
JANUARY -2011	8.34	NR	1010	313	286	254	NR
FEBRUARY -2011	8.39	7.78	942	284	278	245	174
MARCH -2011	8.41	NR	972	280	297	266	NR
APRIL -2011	8.37	NR	961	321	317	280	NR
MAY -2011	8.45	7.48	958	329	304	271	166
JUNE -2011	8.38	NR	987	316	312	277	NR
JULY -2011	8.40	NR	971	290	309	275	233
AUGUST -2011	8.29	7.58	970	321	318	283	196
SEPTEMBER-2011	7.82	NR	928	333	402	365	NR
OCTOBER -2011	7.80	7.57	888	309	287	264	144
NOVEMBER -2011	7.98	NR	844	293	287	261	NR
DECEMBER -2011	8.02	NR	889	327	299	271	NR
Average	8.22	7.60	943	310	308	276	183

ND=not detected
NR=not required

SOUTH BAY WATER RECLAMATION PLANT
2011 ANNUAL SEWAGE

Trace Metals

Analyte:	Aluminum	Aluminum	Antimony	Antimony	Arsenic	Arsenic
MAX MDL Units:	47 UG/L	47 UG/L	2.9 UG/L	2.9 UG/L	.4 UG/L	.4 UG/L
Source:	Influent	Effluent	Influent	Effluent	Influent	Effluent
Month/Limit:						2800
JANUARY -2011	1040	95	ND	3.8	1.05	0.83
FEBRUARY -2011	1400	230	ND	ND	0.80	1.17
MARCH -2011	818	141	ND	ND	1.08	1.08
APRIL -2011	742	175	ND	ND	1.30	1.17
MAY -2011	878	149	ND	ND	0.50	0.80
JUNE -2011	751	ND	ND	ND	1.20	0.93
JULY -2011	588	ND	3.8	3.6	0.88	0.60
AUGUST -2011	598	ND	3.3	ND	ND	0.44
SEPTEMBER-2011	564	ND	ND	ND	0.53	0.61
OCTOBER -2011	843	199	ND	ND	1.04	1.05
NOVEMBER -2011	633	60	ND	ND	0.88	0.73
DECEMBER -2011	583	80	ND	ND	1.04	0.81
AVERAGE	787	94	0.59	0.62	0.86	0.85

Analyte:	Barium	Barium	Beryllium	Beryllium	Boron	Boron
MAX MDL Units:	.039 UG/L	.039 UG/L	.022 UG/L	.022 UG/L	7 UG/L	7 UG/L
Source:	Influent	Effluent	Influent	Effluent	Influent	Effluent
Month/Limit:						
JANUARY -2011	79.8	52.6	ND	ND	292	320
FEBRUARY -2011	101	53.8	ND	0.024	326	327
MARCH -2011	63.9	48.8	0.024	0.043	216	284
APRIL -2011	77.2	48.6	0.046	0.056	272	291
MAY -2011	85.8	52.6	0.042	0.046	288	310
JUNE -2011	88.6	45.4	0.145	0.145	318	252
JULY -2011	76.8	47.3	0.031	ND	303	332
AUGUST -2011	86.4	45.4	ND	ND	306	328
SEPTEMBER-2011	63.5	34.3	ND	ND	337	301
OCTOBER -2011	63.1	39.2	ND	ND	296	341
NOVEMBER -2011	58.4	31.9	ND	ND	259	166
DECEMBER -2011	62.5	38.4	ND	ND	272	288
AVERAGE	75.6	44.9	0.024	0.026	290	295

Analyte:	Cadmium	Cadmium	Chromium	Chromium	Cobalt	Cobalt
MAX MDL Units:	.53 UG/L	.53 UG/L	1.2 UG/L	1.2 UG/L	.85 UG/L	.85 UG/L
Source:	Influent	Effluent	Influent	Effluent	Influent	Effluent
Month/Limit:		48		760		
JANUARY -2011	0.58	<0.53	2.9	ND	NR	ND
FEBRUARY -2011	ND	ND	2.7	ND	ND	ND
MARCH -2011	ND	ND	1.6	ND	NR	ND
APRIL -2011	ND	ND	2.8	ND	NR	ND
MAY -2011	ND	ND	2.4	ND	ND	ND
JUNE -2011	0.54	ND	4.7	ND	NR	ND
JULY -2011	ND	ND	3.3	ND	NR	ND
AUGUST -2011	ND	ND	2.3	ND	ND	ND
SEPTEMBER-2011	ND	ND	ND	ND	NR	ND
OCTOBER -2011	ND	ND	2.1	ND	ND	ND
NOVEMBER -2011	ND	ND	7.6	ND	NR	ND
DECEMBER -2011	0.83	ND	2.5	ND	NR	ND
AVERAGE	0.16	0.0	2.9	0.0	0.0	0.0

ND= not detected
NA= not analyzed
NS= not sampled

SOUTH BAY WATER RECLAMATION PLANT
2011 ANNUAL SEWAGE

Trace Metals

Analyte:	Copper	Copper	Iron	Iron	Lead	Lead
MAX MDL Units:	2 UG/L	2 UG/L	37 UG/L	37 UG/L	2 UG/L	2 UG/L
Source:	Influent	Effluent	Influent	Effluent	Influent	Effluent
Month/Limit:		960				760
JANUARY -2011	62	17	518	59	ND	ND
FEBRUARY -2011	69	16	825	94	2.8	ND
MARCH -2011	55	13	538	47	ND	ND
APRIL -2011	65	18	538	55	3.4	ND
MAY -2011	70	22	754	ND	2.5	ND
JUNE -2011	158	13	812	ND	ND	ND
JULY -2011	128	11	698	72	ND	ND
AUGUST -2011	72	6	647	ND	ND	ND
SEPTEMBER-2011	80	7	679	75	3.1	ND
OCTOBER -2011	70	7	562	41	ND	ND
NOVEMBER -2011	71	9	707	39	4.5	3.4
DECEMBER -2011	126	12	564	61	ND	ND
AVERAGE	86	13	654	45	1.4	0.3

Analyte:	Manganese	Manganese	Mercury	Mercury	Molybdenum	Molybdenum
MAX MDL Units:	.24 UG/L	.24 UG/L	.005 UG/L	.005 UG/L	.89 UG/L	.89 UG/L
Source:	Influent	Effluent	Influent	Effluent	Influent	Effluent
Month/Limit:				15.00		
JANUARY -2011	67.7	29.4	0.054	ND	NR	12.0
FEBRUARY -2011	74.9	49.2	0.111	ND	6.1	3.8
MARCH -2011	55.8	29.0	0.164	ND	NR	4.6
APRIL -2011	64.4	20.3	0.514	ND	NR	3.2
MAY -2011	71.4	33.7	0.270	0.006	4.9	2.5
JUNE -2011	83.0	34.3	0.119	ND	NR	3.1
JULY -2011	68.6	31.0	0.051	ND	NR	5.5
AUGUST -2011	70.0	20.8	0.322	ND	7.1	3.5
SEPTEMBER-2011	64.7	22.3	0.096	ND	NR	5.6
OCTOBER -2011	64.8	18.0	0.109	ND	5.5	3.5
NOVEMBER -2011	59.7	23.7	0.283	ND	NR	3.1
DECEMBER -2011	83.2	42.2	0.099	ND	NR	2.1
AVERAGE	69.0	29.5	0.183	0.001	5.9	4.4

ND= not detected
NA= not analyzed
NR= not required

SOUTH BAY WATER RECLAMATION PLANT
2011 ANNUAL SEWAGE

Trace Metals

Analyte:	Nickel	Nickel	Selenium	Selenium	Silver	Silver
MAX MDL Units:	.53 UG/L	.53 UG/L	.28 UG/L	.28 UG/L	.4 UG/L	.4 UG/L
Source:	Influent	Effluent	Influent	Effluent	Influent	Effluent
Month/Limit:		1900		5700		250
JANUARY -2011	4.53	5.34	1.65	0.58	0.6	ND
FEBRUARY -2011	5.55	5.27	1.18	0.69	0.7	ND
MARCH -2011	4.30	4.21	1.04	0.68	0.8	ND
APRIL -2011	4.77	6.32	1.35	0.90	ND	ND
MAY -2011	4.95	4.96	0.90	0.55	0.7	ND
JUNE -2011	19.5	5.11	1.64	0.72	0.8	ND
JULY -2011	8.28	5.77	1.61	0.39	ND	ND
AUGUST -2011	1.21	2.75	0.78	ND	ND	ND
SEPTEMBER-2011	7.57	8.12	0.81	ND	2.2	0.6
OCTOBER -2011	5.49	6.69	0.50	ND	ND	ND
NOVEMBER -2011	7.73	5.96	1.05	0.41	ND	ND
DECEMBER -2011	22.4	12.8	1.29	0.51	1.7	ND
AVERAGE	8.02	6.11	1.15	0.45	0.6	0.1

Analyte:	Thallium	Thallium	Vanadium	Vanadium	Zinc	Zinc
MAX MDL Units:	3.9 UG/L	3.9 UG/L	.64 UG/L	.64 UG/L	2.5 UG/L	2.5 UG/L
Source:	Influent	Effluent	Influent	Effluent	Influent	Effluent
Month/Limit:						6900
JANUARY -2011	ND	ND	NR	ND	124	29.0
FEBRUARY -2011	ND	ND	2.5	<0.64	140	28.3
MARCH -2011	ND	ND	NR	1.48	118	36.0
APRIL -2011	ND	ND	NR	1.60	144	27.4
MAY -2011	ND	ND	3.2	1.41	149	30.2
JUNE -2011	ND	ND	NR	1.22	243	25.5
JULY -2011	ND	ND	NR	1.82	194	21.4
AUGUST -2011	ND	ND	2.2	0.87	159	28.1
SEPTEMBER-2011	ND	ND	NR	ND	177	30.6
OCTOBER -2011	ND	ND	0.9	ND	153	29.9
NOVEMBER -2011	ND	ND	NR	ND	153	26.4
DECEMBER -2011	ND	ND	NR	1.17	132	31.0
AVERAGE	0.0	0.0	2.2	0.8	157	28.7

ND= not detected
NA= not analyzed
NR= not required

SOUTH BAY WATER RECLAMATION PLANT
2011 Annual Sewage

Cations

Analyte:	Calcium		Magnesium		Lithium	
MDL/Units:	.04 mg/L		.1 mg/L		.002 mg/L	
Source:	INFLUENT	EFFLUENT	INFLUENT	EFFLUENT	INFLUENT	EFFLUENT
JANUARY -2011	78.6	77.4	37.1	35.9	0.031	0.027
FEBRUARY -2011	64.7	69.4	27.4	28.8	0.031	0.031
MARCH -2011	60.5	65.4	28.3	29.6	0.024	0.023
APRIL -2011	67.2	67.0	27.8	27.0	0.031	0.030
MAY -2011	69.4	70.8	30.0	30.8	0.032	0.028
JUNE -2011	62.8	63.2	27.4	27.7	0.028	0.026
JULY -2011	59.8	61.7	27.6	26.9	0.027	0.026
AUGUST -2011	61.9	65.6	31.9	30.7	0.025	0.021
SEPTEMBER-2011	56.2	57.0	30.0	28.9	0.021	0.019
OCTOBER -2011	59.1	61.6	30.1	30.1	0.020	0.019
NOVEMBER -2011	47.3	50.1	21.3	21.2	0.019	0.020
DECEMBER -2011	60.8	61.0	27.9	27.0	0.023	0.021
Average:	62.4	64.2	28.9	28.7	0.026	0.024

Analyte:	Sodium		Potassium	
MDL/Units:	1 mg/L		.3 mg/L	
Source:	INFLUENT	EFFLUENT	INFLUENT	EFFLUENT
JANUARY -2011	216	213	20.8	18.9
FEBRUARY -2011	167	184	19.1	17.5
MARCH -2011	169	184	16.4	16.8
APRIL -2011	170	172	17.8	16.7
MAY -2011	175	188	19.3	17.7
JUNE -2011	168	187	16.5	16.9
JULY -2011	175	183	19.3	17.4
AUGUST -2011	198	188	21.6	17.8
SEPTEMBER-2011	179	182	18.7	18.4
OCTOBER -2011	187	189	19.6	18.5
NOVEMBER -2011	155	174	17.6	17.0
DECEMBER -2011	182	188	19.4	18.3
Average:	178	186	18.8	17.7

ND=not detected

SOUTH BAY WATER RECLAMATION PLANT
2011 ANNUAL SEWAGE

Anions

Analyte:	Bromide	Bromide	Chloride	Chloride	Fluoride	Fluoride
MDL:	.1	.1	7	7	.05	.05
Units:	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L
Source:	INFLUENT	EFFLUENT	INFLUENT	EFFLUENT	INFLUENT	EFFLUENT
JANUARY -2011	0.79	0.53	269	276	0.592	0.575
FEBRUARY -2011	0.42	0.40	226	241	0.588	0.630
MARCH -2011	0.46	0.44	255	250	0.658	0.709
APRIL -2011	0.48	0.43	251	234	0.710	0.780
MAY -2011	0.41	0.48	248	261	0.635	1.080
JUNE -2011	0.39	0.39	235	259	0.647	0.714
JULY -2011	0.53	0.47	238	246	0.712	0.742
AUGUST -2011	0.41	0.49	242	246	0.711	0.729
SEPTEMBER-2011	0.54	0.77	233	236	0.642	0.573
OCTOBER -2011	0.40	0.47	226	246	0.720	0.847
NOVEMBER -2011	0.40	0.41	213	223	0.544	0.792
DECEMBER -2011	0.43	0.33	218	242	0.701	0.834
AVERAGE	0.47	0.47	238	247	0.655	0.750

Analyte:	Nitrate	Nitrate	Ortho Phosph	Ortho Phosphate	Sulfate	Sulfate
MDL:	.04	.04	.2	.2	9	9
Units:	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L
Source:	INFLUENT	EFFLUENT	INFLUENT	EFFLUENT	INFLUENT	EFFLUENT
JANUARY -2011	0.195	21.9	11.0	5.08	175	188
FEBRUARY -2011	0.209	20.2	10.4	6.13	140	179
MARCH -2011	0.107	27.8	9.3	6.30	156	167
APRIL -2011	0.058	18.3	10.4	5.46	156	184
MAY -2011	0.125	29.4	10.5	6.67	152	181
JUNE -2011	0.728	14.6	10.1	6.30	124	172
JULY -2011	0.821	19.8	10.0	ND	131	158
AUGUST -2011	0.796	38.9	10.6	1.61	120	159
SEPTEMBER-2011	0.625	30.8	11.9	5.40	116	146
OCTOBER -2011	0.807	33.4	11.2	6.84	113	145
NOVEMBER -2011	0.363	33.2	10.7	5.65	100	115
DECEMBER -2011	2.230	35.3	12.1	6.07	88	128
AVERAGE	0.589	27.0	10.7	5.13	131	160

ND= not detected
NA= not analyzed
NS= not sampled

SOUTH BAY WATER RECLAMATION PLANT
2011 ANNUAL SEWAGE

Ammonia-Nitrogen and Total Cyanides

Analyte:	Ammonia-N	Ammonia-N	Total Cyanides	Total Cyanides
MDL/Units:	.3 MG/L	.3 MG/L	.002 MG/L	.002 MG/L
Source:	INFLUENT	EFFLUENT	INFLUENT	EFFLUENT
JANUARY -2011	NR	3.6	ND	ND
FEBRUARY -2011	32.7	4.7	ND	0.002
MARCH -2011	34.0	2.1	ND	ND
APRIL -2011	37.3	0.8	ND	ND
MAY -2011	30.8	2.6	ND	ND
JUNE -2011	36.5	5.6	ND	ND
JULY -2011	33.5	11.8	ND	ND
AUGUST -2011	34.7	ND	0.002	ND
SEPTEMBER-2011	40.3	ND	ND	ND
OCTOBER -2011	25.1	ND	ND	ND
NOVEMBER -2011	34.5	ND	0.002	ND
DECEMBER -2011	34.3	1.0	ND	ND
Average:	34.0	2.7	0.0003	0.0002

ND= not detected

SOUTH BAY WATER RECLAMATION PLANT
Radioactivity
Effluent to the Ocean (SB_OUTFALL_01)

Analyzed by: TestAmerica Laboratories Richland

Annual 2011

Month	Gross Alpha Radiation	Gross Beta Radiation
JANUARY -2011	2.5 ± 2.1	22.7 ± 5.8
FEBRUARY -2011	3.9 ± 1.9	19.3 ± 4.5
MARCH -2011	1.2 ± 2.6	24.5 ± 6.2
APRIL -2011	1.0 ± 1.7	18.1 ± 4.2
MAY -2011	2.7 ± 1.9	21.1 ± 5.4
JUNE -2011	3.5 ± 2.3	24.9 ± 5.7
JULY -2011	5.4 ± 3.4	24.1 ± 7.5
AUGUST -2011	1.8 ± 1.7	19.1 ± 4.0
SEPTEMBER-2011	2.4 ± 2.4	18.0 ± 4.2
OCTOBER -2011	0.4 ± 3.2	18.5 ± 4.4
NOVEMBER -2011	0.5 ± 2.6	22.4 ± 4.5
DECEMBER -2011	2.5 ± 3.3	17.5 ± 4.3
AVERAGE	2.3 ± 2.4	20.9 ± 5.1

Units in picocuries/liter (pCi/L)

SOUTH BAY WATER RECLAMATION PLANT
SEWAGE ANNUAL - Chlorinated Pesticide Analysis

Annual 2011

Analyte	MDL	Units	EFF JAN	EFF FEB	EFF MAR	EFF APR	EFF MAY	EFF JUN	EFF JUL	EFF AUG	EFF SEP	EFF OCT	EFF NOV	EFF DEC	EFF Avg
Aldrin	7	NG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	*	ND
Dieldrin	3	NG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	*	ND
BHC, Alpha isomer	7	NG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BHC, Beta isomer	3	NG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BHC, Gamma isomer	5	NG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	*	ND
BHC, Delta isomer	3	NG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
p,p-DDD	3	NG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
p,p-DDE	4	NG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
p,p-DDT	8	NG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	*	ND
o,p-DDD	4	NG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
o,p-DDE	5	NG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
o,p-DDT	3	NG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Heptachlor	8	NG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	*	ND
Heptachlor epoxide	4	NG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Alpha (cis) Chlordane	3	NG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Gamma (trans) Chlordane	4	NG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Alpha Chlordene		NG/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Gamma Chlordene		NG/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Oxychlordane	6	NG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trans Nonachlor	5	NG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Cis Nonachlor	3	NG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Alpha Endosulfan	4	NG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Beta Endosulfan	2	NG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Endosulfan Sulfate	6	NG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Endrin	2	NG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	*	ND
Endrin aldehyde	9	NG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Mirex	10	NG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methoxychlor	10	NG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Toxaphene	330	NG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PCB 1016	4000	NG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PCB 1221	4000	NG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PCB 1232	360	NG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PCB 1242	4000	NG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PCB 1248	2000	NG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PCB 1254	2000	NG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PCB 1260	2000	NG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PCB 1262	930	NG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Aldrin + Dieldrin	7	NG/L	0	0	0	0	0	0	0	0	0	0	0	*	0
Hexachlorocyclohexanes	7	NG/L	0	0	0	0	0	0	0	0	0	0	0	0	0
DDT and derivatives	8	NG/L	0	0	0	0	0	0	0	0	0	0	0	0	0
Chlordane + related cmpds.	6	NG/L	0	0	0	0	0	0	0	0	0	0	0	0	0
Polychlorinated biphenyls	4000	NG/L	0	0	0	0	0	0	0	0	0	0	0	0	0
Endosulfans	6	NG/L	0	0	0	0	0	0	0	0	0	0	0	0	0
Heptachlors	8	NG/L	0	0	0	0	0	0	0	0	0	0	0	0	0
Chlorinated Hydrocarbons	4000	NG/L	0	0	0	0	0	0	0	0	0	0	0	0	0

*=This sample was erroneously spiked in the laboratory for BHC_G, Hetachlor, Aldrin, Dieldrin, Endrin and PP_DDT and no data is being reported for these compounds.

ND= not detected
NA= not analyzed
NS= not sampled
Standards for alpha and gamma chlordene are no longer available in the U.S. for the analysis of these compounds.

SOUTH BAY WATER RECLAMATION PLANT
SEWAGE ANNUAL - Chlorinated Pesticide Analysis

Annual 2011

Analyte	MDL	Units	INF FEB	INF MAY	INF AUG	INF OCT	INF Avg
Aldrin	7	NG/L	ND	ND	ND	ND	ND
Dieldrin	3	NG/L	ND	ND	ND	ND	ND
BHC, Alpha isomer	7	NG/L	ND	ND	ND	ND	ND
BHC, Beta isomer	3	NG/L	ND	ND	ND	ND	ND
BHC, Gamma isomer	5	NG/L	ND	ND	ND	ND	ND
BHC, Delta isomer	3	NG/L	ND	ND	ND	ND	ND
p,p-DDD	3	NG/L	ND	ND	ND	ND	ND
p,p-DDE	4	NG/L	ND	6	ND	ND	2
p,p-DDT	8	NG/L	ND	ND	ND	ND	ND
o,p-DDD	4	NG/L	ND	ND	ND	ND	ND
o,p-DDE	5	NG/L	ND	ND	ND	ND	ND
o,p-DDT	3	NG/L	ND	ND	ND	ND	ND
Heptachlor	8	NG/L	ND	ND	ND	ND	ND
Heptachlor epoxide	4	NG/L	ND	ND	ND	ND	ND
Alpha (cis) Chlordane	3	NG/L	ND	ND	ND	ND	ND
Gamma (trans) Chlordane	4	NG/L	ND	ND	ND	ND	ND
Alpha Chlordene		NG/L	NA	NA	NA	NA	NA
Gamma Chlordene		NG/L	NA	NA	NA	NA	NA
Oxychlordane	6	NG/L	ND	ND	ND	ND	ND
Trans Nonachlor	5	NG/L	ND	ND	ND	ND	ND
Cis Nonachlor	3	NG/L	ND	ND	ND	ND	ND
Alpha Endosulfan	4	NG/L	ND	ND	ND	ND	ND
Beta Endosulfan	2	NG/L	ND	ND	ND	ND	ND
Endosulfan Sulfate	6	NG/L	ND	ND	ND	ND	ND
Endrin	2	NG/L	ND	ND	ND	ND	ND
Endrin aldehyde	9	NG/L	ND	ND	ND	ND	ND
Mirex	10	NG/L	ND	ND	ND	ND	ND
Methoxychlor	10	NG/L	ND	ND	ND	ND	ND
Toxaphene	330	NG/L	ND	ND	ND	ND	ND
PCB 1016	4000	NG/L	ND	ND	ND	ND	ND
PCB 1221	4000	NG/L	ND	ND	ND	ND	ND
PCB 1232	360	NG/L	ND	ND	ND	ND	ND
PCB 1242	4000	NG/L	ND	ND	ND	ND	ND
PCB 1248	2000	NG/L	ND	ND	ND	ND	ND
PCB 1254	2000	NG/L	ND	ND	ND	ND	ND
PCB 1260	2000	NG/L	ND	ND	ND	ND	ND
PCB 1262	930	NG/L	ND	ND	ND	ND	ND
Aldrin + Dieldrin	7	NG/L	0	0	0	0	0
Hexachlorocyclohexanes	7	NG/L	0	0	0	0	0
DDT and derivatives	8	NG/L	0	6	0	0	2
Chlordane + related cmpds.	6	NG/L	0	0	0	0	0
Polychlorinated biphenyls	4000	NG/L	0	0	0	0	0
Endosulfans	6	NG/L	0	0	0	0	0
Heptachlors	8	NG/L	0	0	0	0	0
Chlorinated Hydrocarbons	4000	NG/L	0	6	0	0	2

ND= not detected
NA= not analyzed
NS= not sampled
Standards for alpha and gamma chlordene are no longer available in the U.S. for the analysis of these compounds.

SOUTH BAY WATER RECLAMATION PLANT
Organophosphorus PesticidesEPA Method 614/622 (with additions)

INFLUENT & EFFLUENT

Annual 2011

Analyte	MDL	Units	Effluent 03-MAY-2011 P558042	Effluent 04-OCT-2011 P584731	Influent 03-MAY-2011 P558037	Influent 04-OCT-2011 P584726
Demeton O	.15	UG/L	ND	ND	ND	ND
Demeton S	.08	UG/L	ND	ND	ND	ND
Diazinon	.03	UG/L	ND	ND	ND	ND
Guthion	.15	UG/L	ND	ND	ND	ND
Malathion	.03	UG/L	ND	ND	ND	ND
Parathion	.03	UG/L	ND	ND	ND	ND
Dichlorvos	.05	UG/L	ND	ND	ND	ND
Disulfoton	.02	UG/L	ND	ND	ND	ND
Dimethoate	.04	UG/L	ND	ND	ND	ND
Stirophos	.03	UG/L	ND	ND	ND	0.1
Coumaphos	.15	UG/L	ND	ND	ND	ND
Chlorpyrifos	.03	UG/L	ND	ND	ND	ND
Thiophosphorus Pesticides	.15	UG/L	0.0	0.0	0.0	0.0
Demeton -O, -S	.15	UG/L	0.0	0.0	0.0	0.0
Total Organophosphorus Pesticides	.15	UG/L	0.0	0.0	0.0	0.1

ND=not detected
NR=not required

SOUTH BAY WATER RECLAMATION PLANT
ANNUAL SEWAGE - Tributyl Tin Analysis

Annual 2011

Effluent

Analyte	MDL	Units	FEB	MAY	AUG	OCT	Average
Dibutyltin	7	UG/L	ND	ND	ND	ND	ND
Monobutyltin	16	UG/L	ND	ND	ND	ND	ND
Tributyltin	2	UG/L	ND	ND	ND	ND	ND

Influent

Analyte	MDL	Units	FEB	MAY	AUG	OCT	Average
Dibutyltin	7	UG/L	ND	ND	ND	ND	ND
Monobutyltin	16	UG/L	ND	ND	ND	ND	ND
Tributyltin	2	UG/L	ND	ND	ND	ND	ND

ND=not detected

SOUTH BAY WATER RECLAMATION PLANT
SEWAGE ANNUAL - Acid Extractables

Annual 2011

EFFLUENT

Analyte	MDL	Units	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVG
2-Chlorophenol	1.32	UG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2,4-Dichlorophenol	1.01	UG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
4-Chloro-3-methylphenol	1.67	UG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2,4,6-Trichlorophenol	1.65	UG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Pentachlorophenol	1.12	UG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Phenol	1.76	UG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2-Nitrophenol	1.55	UG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2,4-Dimethylphenol	2.01	UG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2,4-Dinitrophenol	2.16	UG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
4-Nitrophenol	1.14	UG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2-Methyl-4,6-dinitrophenol	1.52	UG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Total Chlorinated Phenols	1.67	UG/L	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Non-Chlorinated Phenols	2.16	UG/L	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Phenols	2.16	UG/L	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2-Methylphenol	2.15	UG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
3-Methylphenol(4-MP is unresolved)		UG/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Methylphenol(3-MP is unresolved)	2.11	UG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2,4,5-Trichlorophenol	1.66	UG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

INFLUENT

Analyte	MDL	Units	FEB	MAY	AUG	OCT	AVG
2-Chlorophenol	1.32	UG/L	ND	ND	ND	ND	ND
2,4-Dichlorophenol	1.01	UG/L	ND	ND	ND	ND	ND
4-Chloro-3-methylphenol	1.67	UG/L	ND	ND	ND	ND	ND
2,4,6-Trichlorophenol	1.65	UG/L	ND	ND	ND	ND	ND
Pentachlorophenol	1.12	UG/L	ND	ND	ND	ND	ND
Phenol	1.76	UG/L	35.6	41.8	39.8	43.8	40.3
2-Nitrophenol	1.55	UG/L	ND	ND	ND	ND	ND
2,4-Dimethylphenol	2.01	UG/L	ND	ND	ND	ND	ND
2,4-Dinitrophenol	2.16	UG/L	ND	ND	ND	ND	ND
4-Nitrophenol	1.14	UG/L	ND	ND	ND	ND	ND
2-Methyl-4,6-dinitrophenol	1.52	UG/L	ND	ND	ND	ND	ND
Total Chlorinated Phenols	1.67	UG/L	0.0	0.0	0.0	0.0	0.0
Total Non-Chlorinated Phenols	2.16	UG/L	35.6	41.8	39.8	43.8	40.3
Total Phenols	2.16	UG/L	35.6	41.8	39.8	43.8	40.3
2-Methylphenol	2.15	UG/L	ND	ND	ND	ND	ND
3-Methylphenol(4-MP is unresolved)		UG/L	NA	NA	NA	NA	NA
4-Methylphenol(3-MP is unresolved)	2.11	UG/L	116	116	110	88.9	108
2,4,5-Trichlorophenol	1.66	UG/L	ND	ND	ND	ND	ND

ND=not detected
NS=not sampled
NA=not analyzed

SOUTH BAY WATER RECLAMATION PLANT
SEWAGE ANNUAL Priority Pollutants Base/Neutrals

Annual 2011

Analyte	MDL	Units	EFF FEB Avg	EFF MAY Avg	EFF AUG Avg	EFF OCT Avg	EFF Average
Bis-(2-chloroethyl) ether	1.38	UG/L	ND	ND	ND	ND	ND
Bis-(2-chloroisopropyl) ether	1.16	UG/L	ND	ND	ND	ND	ND
N-nitrosodi-n-propylamine	1.16	UG/L	ND	ND	ND	ND	ND
Nitrobenzene	1.6	UG/L	ND	ND	ND	ND	ND
Hexachloroethane	1.32	UG/L	ND	ND	ND	ND	ND
Isophorone	1.53	UG/L	ND	ND	ND	ND	ND
Bis-(2-chloroethoxy) methane	1.01	UG/L	ND	ND	ND	ND	ND
1,2,4-Trichlorobenzene	1.52	UG/L	ND	ND	ND	ND	ND
Naphthalene	1.65	UG/L	ND	ND	ND	ND	ND
Hexachlorobutadiene	1.64	UG/L	ND	ND	ND	ND	ND
Hexachlorocyclopentadiene	1.25	UG/L	ND	ND	ND	ND	ND
Acenaphthylene	1.77	UG/L	ND	ND	ND	ND	ND
Dimethyl phthalate	1.44	UG/L	ND	ND	ND	ND	ND
2,6-Dinitrotoluene	1.53	UG/L	ND	ND	ND	ND	ND
Acenaphthene	1.8	UG/L	ND	ND	ND	ND	ND
2,4-Dinitrotoluene	1.36	UG/L	ND	ND	ND	ND	ND
Fluorene	1.61	UG/L	ND	ND	ND	ND	ND
4-Chlorophenyl phenyl ether	1.57	UG/L	ND	ND	ND	ND	ND
Diethyl phthalate	3.05	UG/L	ND	ND	ND	ND	ND
N-nitrosodiphenylamine	3.48	UG/L	ND	ND	ND	ND	ND
4-Bromophenyl phenyl ether	1.4	UG/L	ND	ND	ND	ND	ND
Hexachlorobenzene	1.48	UG/L	ND	ND	ND	ND	ND
Phenanthrene	1.34	UG/L	ND	ND	ND	ND	ND
Anthracene	1.29	UG/L	ND	ND	ND	ND	ND
Di-n-butyl phthalate	3.96	UG/L	ND	ND	ND	ND	ND
N-nitrosodimethylamine	1.27	UG/L	ND	ND	ND	ND	ND
Fluoranthene	1.33	UG/L	ND	ND	ND	ND	ND
Pyrene	1.43	UG/L	ND	ND	ND	ND	ND
Benzidine	1.52	UG/L	ND	ND	ND	ND	ND
Butyl benzyl phthalate	2.84	UG/L	ND	ND	ND	ND	ND
Chrysene	1.16	UG/L	ND	ND	ND	ND	ND
Benzo[a]anthracene	1.1	UG/L	ND	ND	ND	ND	ND
Bis-(2-ethylhexyl) phthalate	8.96	UG/L	ND	ND	ND	ND	ND
Di-n-octyl phthalate	1	UG/L	ND	ND	ND	ND	ND
3,3-Dichlorobenzidine	2.44	UG/L	ND	ND	ND	ND	ND
Benzo[k]fluoranthene	1.49	UG/L	ND	ND	ND	ND	ND
3,4-Benzo(b)fluoranthene	1.35	UG/L	ND	ND	ND	ND	ND
Benzo[a]pyrene	1.25	UG/L	ND	ND	ND	ND	ND
Indeno(1,2,3-CD)pyrene	1.14	UG/L	ND	ND	ND	ND	ND
Dibenzo(a,h)anthracene	1.01	UG/L	ND	ND	ND	ND	ND
Benzo[g,h,i]perylene	1.09	UG/L	ND	ND	ND	ND	ND
1,2-Diphenylhydrazine	1.37	UG/L	ND	ND	ND	ND	ND
Polynuc. Aromatic Hydrocarbons	1.77	UG/L	0.0	0.0	0.0	0.0	0.0
Base/Neutral Compounds	8.96	UG/L	0.0	0.0	0.0	0.0	0.0
1-Methylnaphthalene	2.18	UG/L	ND	ND	ND	ND	ND
2-Methylnaphthalene	2.14	UG/L	ND	ND	ND	ND	ND
2,6-Dimethylnaphthalene	2.16	UG/L	ND	ND	ND	ND	ND
2,3,5-Trimethylnaphthalene	2.18	UG/L	ND	ND	ND	ND	ND
1-Methylphenanthrene	1.46	UG/L	ND	ND	ND	ND	ND
Benzo[e]pyrene	1.44	UG/L	ND	ND	ND	ND	ND
Perylene	1.41	UG/L	ND	ND	ND	ND	ND
Biphenyl	2.29	UG/L	ND	ND	ND	ND	ND

ND=not detected

SOUTH BAY WATER RECLAMATION PLANT
SEWAGE ANNUAL Priority Pollutants Base/Neutrals

Annual 2011

Analyte	MDL	Units	INF FEB Avg	INF MAY Avg	INF AUG Avg	INF OCT Avg	INF Average
Bis-(2-chloroethyl) ether	1.38	UG/L	ND	ND	ND	ND	ND
Bis-(2-chloroisopropyl) ether	1.16	UG/L	ND	ND	ND	ND	ND
N-nitrosodi-n-propylamine	1.16	UG/L	ND	ND	ND	ND	ND
Nitrobenzene	1.6	UG/L	ND	ND	ND	ND	ND
Hexachloroethane	1.32	UG/L	ND	ND	ND	ND	ND
Isophorone	1.53	UG/L	ND	ND	ND	ND	ND
Bis-(2-chloroethoxy) methane	1.01	UG/L	ND	ND	ND	ND	ND
1,2,4-Trichlorobenzene	1.52	UG/L	ND	ND	ND	ND	ND
Naphthalene	1.65	UG/L	ND	ND	ND	ND	ND
Hexachlorobutadiene	1.64	UG/L	ND	ND	ND	ND	ND
Hexachlorocyclopentadiene	1.25	UG/L	ND	ND	ND	ND	ND
Acenaphthylene	1.77	UG/L	ND	ND	ND	ND	ND
Dimethyl phthalate	1.44	UG/L	ND	ND	ND	ND	ND
2,6-Dinitrotoluene	1.53	UG/L	ND	ND	ND	ND	ND
Acenaphthene	1.8	UG/L	ND	ND	ND	ND	ND
2,4-Dinitrotoluene	1.36	UG/L	ND	ND	ND	ND	ND
Fluorene	1.61	UG/L	ND	ND	ND	ND	ND
4-Chlorophenyl phenyl ether	1.57	UG/L	ND	ND	ND	ND	ND
Diethyl phthalate	3.05	UG/L	9.0	8.9	6.7	6.0	7.7
N-nitrosodiphenylamine	3.48	UG/L	ND	ND	ND	ND	ND
4-Bromophenyl phenyl ether	1.4	UG/L	ND	ND	ND	ND	ND
Hexachlorobenzene	1.48	UG/L	ND	ND	ND	ND	ND
Phenanthrene	1.34	UG/L	ND	ND	ND	ND	ND
Anthracene	1.29	UG/L	ND	ND	ND	ND	ND
Di-n-butyl phthalate	3.96	UG/L	ND	ND	ND	ND	ND
N-nitrosodimethylamine	1.27	UG/L	ND	ND	ND	ND	ND
Fluoranthene	1.33	UG/L	ND	ND	ND	ND	ND
Pyrene	1.43	UG/L	ND	ND	ND	ND	ND
Benzidine	1.52	UG/L	ND	ND	ND	ND	ND
Butyl benzyl phthalate	2.84	UG/L	ND	ND	ND	ND	ND
Chrysene	1.16	UG/L	ND	ND	ND	ND	ND
Benzo[a]anthracene	1.1	UG/L	ND	ND	ND	ND	ND
Bis-(2-ethylhexyl) phthalate	8.96	UG/L	ND	9.4	12.1	17.8	9.8
Di-n-octyl phthalate	1	UG/L	ND	ND	ND	ND	ND
3,3-Dichlorobenzidine	2.44	UG/L	ND	ND	ND	ND	ND
Benzo[k]fluoranthene	1.49	UG/L	ND	ND	ND	ND	ND
3,4-Benzo(b)fluoranthene	1.35	UG/L	ND	ND	ND	ND	ND
Benzo[a]pyrene	1.25	UG/L	ND	ND	ND	ND	ND
Indeno(1,2,3-CD)pyrene	1.14	UG/L	ND	ND	ND	ND	ND
Dibenzo(a,h)anthracene	1.01	UG/L	ND	ND	ND	ND	ND
Benzo[g,h,i]perylene	1.09	UG/L	ND	ND	ND	ND	ND
1,2-Diphenylhydrazine	1.37	UG/L	ND	ND	ND	ND	ND
Polynuc. Aromatic Hydrocarbons	1.77	UG/L	0.0	0.0	0.0	0.0	0.0
Base/Neutral Compounds	8.96	UG/L	9.0	18.3	18.8	23.8	17.5
1-Methylnaphthalene	2.18	UG/L	ND	ND	ND	ND	ND
2-Methylnaphthalene	2.14	UG/L	ND	ND	ND	ND	ND
2,6-Dimethylnaphthalene	2.16	UG/L	ND	ND	ND	ND	ND
2,3,5-Trimethylnaphthalene	2.18	UG/L	ND	ND	ND	ND	ND
1-Methylphenanthrene	1.46	UG/L	ND	ND	ND	ND	ND
Benzo[e]pyrene	1.44	UG/L	ND	ND	ND	ND	ND
Perylene	1.41	UG/L	ND	ND	ND	ND	ND
Biphenyl	2.29	UG/L	ND	ND	ND	ND	ND

ND=not detected

SOUTH BAY WATER RECLAMATION PLANT
SEWAGE ANNUAL Priority Pollutants Purgeables

Annual 2011

Analyte	MDL	Units	EFF FEB	EFF MAY	EFF AUG	EFF OCT	EFF Average
Dichlorodifluoromethane	.66	UG/L	ND	ND	ND	ND	ND
Chloromethane	.5	UG/L	ND	ND	ND	ND	ND
Vinyl chloride	.4	UG/L	ND	ND	ND	ND	ND
Bromomethane	.7	UG/L	ND	ND	ND	ND	ND
Chloroethane	.9	UG/L	ND	ND	ND	ND	ND
Trichlorofluoromethane	.3	UG/L	ND	ND	ND	ND	ND
Acrolein	1.3	UG/L	ND	ND	ND	ND	ND
1,1-Dichloroethane	.4	UG/L	ND	ND	ND	ND	ND
Methylene chloride	.3	UG/L	72.6	0.7	ND	0.6	18.5
trans-1,2-dichloroethene	.6	UG/L	ND	ND	ND	ND	ND
1,1-Dichloroethene	.4	UG/L	ND	ND	ND	ND	ND
Acrylonitrile	.7	UG/L	ND	ND	ND	ND	ND
Chloroform	.2	UG/L	0.2	0.6	1.1	1.4	0.8
1,1,1-Trichloroethane	.4	UG/L	ND	ND	ND	ND	ND
Carbon tetrachloride	.4	UG/L	ND	ND	ND	ND	ND
Benzene	.4	UG/L	ND	ND	ND	ND	ND
1,2-Dichloroethane	.5	UG/L	ND	ND	ND	ND	ND
Trichloroethene	.7	UG/L	ND	ND	ND	ND	ND
1,2-Dichloropropane	.3	UG/L	ND	ND	ND	ND	ND
Bromodichloromethane	.5	UG/L	ND	ND	ND	ND	ND
2-Chloroethylvinyl ether	1.1	UG/L	ND	ND	ND	ND	ND
cis-1,3-dichloropropene	.3	UG/L	ND	ND	ND	ND	ND
Toluene	.4	UG/L	ND	ND	ND	ND	ND
trans-1,3-dichloropropene	.5	UG/L	ND	ND	ND	ND	ND
1,1,2-Trichloroethane	.5	UG/L	ND	ND	ND	ND	ND
Tetrachloroethene	1.1	UG/L	ND	ND	ND	ND	ND
Dibromochloromethane	.6	UG/L	ND	ND	ND	ND	ND
Chlorobenzene	.4	UG/L	ND	ND	ND	ND	ND
Ethylbenzene	.3	UG/L	ND	ND	ND	ND	ND
Bromoform	.5	UG/L	ND	ND	ND	ND	ND
1,1,2,2-Tetrachloroethane	.5	UG/L	ND	ND	ND	ND	ND
1,3-Dichlorobenzene	.5	UG/L	ND	ND	ND	ND	ND
1,4-Dichlorobenzene	.4	UG/L	ND	ND	0.64*	ND	ND
1,2-Dichlorobenzene	.4	UG/L	ND	ND	ND	ND	ND
Halomethane Purgeable Cmpnds	.7	UG/L	0.0	0.0	0.0	0.0	0.0
Total Dichlorobenzenes	.5	UG/L	0.0	0.0	0.0	0.0	0.0
Total Chloromethanes	.5	UG/L	72.8	1.3	1.1	2.0	19.3
Purgeable Compounds	1.3	UG/L	72.8	1.3	1.1	2.0	19.3
Methyl Iodide	.6	UG/L	ND	ND	ND	ND	ND
Carbon disulfide	.6	UG/L	ND	ND	ND	ND	ND
Acetone	4.5	UG/L	ND	ND	ND	ND	ND
Allyl chloride	.6	UG/L	ND	ND	ND	ND	ND
Methyl tert-butyl ether	.4	UG/L	ND	ND	ND	ND	ND
Chloroprene	.4	UG/L	ND	ND	ND	ND	ND
1,2-Dibromoethane	.3	UG/L	ND	ND	ND	ND	ND
2-Butanone	6.3	UG/L	ND	ND	ND	ND	ND
Methyl methacrylate	.8	UG/L	ND	ND	ND	ND	ND
2-Nitropropane	12	UG/L	ND	ND	ND	ND	ND
4-Methyl-2-pentanone	1.3	UG/L	ND	ND	ND	ND	ND
meta,para xylenes	.6	UG/L	ND	ND	ND	ND	ND
ortho-xylene	.4	UG/L	ND	ND	ND	ND	ND
Isopropylbenzene	.3	UG/L	ND	ND	ND	ND	ND
Styrene	.3	UG/L	ND	ND	ND	ND	ND
Benzyl chloride	1.1	UG/L	ND	ND	ND	ND	ND
1,2,4-Trichlorobenzene	1.52	UG/L	ND	ND	ND	ND	ND

*= The blank in this batch was 0.55 UG/L, result above the MDL. Result is not used in computations.

ND=not detected

SOUTH BAY WATER RECLAMATION PLANT
SEWAGE ANNUAL Priority Pollutants Purgeables

Annual 2011

Analyte	MDL	Units	INF FEB	INF MAY	INF AUG	INF OCT	INF Average
Dichlorodifluoromethane	.66	UG/L	ND	ND	ND	ND	ND
Chloromethane	.5	UG/L	ND	ND	ND	ND	ND
Vinyl chloride	.4	UG/L	ND	ND	ND	ND	ND
Bromomethane	.7	UG/L	ND	ND	ND	ND	ND
Chloroethane	.9	UG/L	ND	ND	ND	ND	ND
Trichlorofluoromethane	.3	UG/L	ND	ND	ND	ND	ND
Acrolein	1.3	UG/L	ND	ND	ND	ND	ND
1,1-Dichloroethane	.4	UG/L	ND	ND	ND	ND	ND
Methylene chloride	.3	UG/L	3.5	1.1	1.2	0.9	1.7
trans-1,2-dichloroethene	.6	UG/L	ND	ND	ND	ND	ND
1,1-Dichloroethene	.4	UG/L	ND	ND	ND	ND	ND
Acrylonitrile	.7	UG/L	ND	ND	ND	ND	ND
Chloroform	.2	UG/L	2.1	1.6	2.0	1.6	1.8
1,1,1-Trichloroethane	.4	UG/L	ND	ND	ND	ND	ND
Carbon tetrachloride	.4	UG/L	ND	ND	ND	ND	ND
Benzene	.4	UG/L	ND	ND	ND	ND	ND
1,2-Dichloroethane	.5	UG/L	ND	ND	ND	ND	ND
Trichloroethene	.7	UG/L	ND	ND	ND	ND	ND
1,2-Dichloropropane	.3	UG/L	ND	ND	ND	ND	ND
Bromodichloromethane	.5	UG/L	ND	ND	ND	ND	ND
2-Chloroethylvinyl ether	1.1	UG/L	ND	ND	ND	ND	ND
cis-1,3-dichloropropene	.3	UG/L	ND	ND	ND	ND	ND
Toluene	.4	UG/L	0.6	0.8	1.0	1.0	0.9
trans-1,3-dichloropropene	.5	UG/L	ND	ND	ND	ND	ND
1,1,2-Trichloroethane	.5	UG/L	ND	ND	ND	ND	ND
Tetrachloroethene	1.1	UG/L	ND	ND	ND	ND	ND
Dibromochloromethane	.6	UG/L	ND	ND	ND	ND	ND
Chlorobenzene	.4	UG/L	ND	ND	ND	ND	ND
Ethylbenzene	.3	UG/L	ND	ND	ND	ND	ND
Bromoform	.5	UG/L	ND	ND	ND	ND	ND
1,1,2,2-Tetrachloroethane	.5	UG/L	ND	ND	ND	ND	ND
1,3-Dichlorobenzene	.5	UG/L	ND	ND	ND	ND	ND
1,4-Dichlorobenzene	.4	UG/L	0.7	0.8	0.92*	0.8	0.8
1,2-Dichlorobenzene	.4	UG/L	ND	ND	ND	ND	ND
Halomethane Purgeable Cmpnds	.7	UG/L	0.0	0.0	0.0	0.0	0.0
Total Dichlorobenzenes	.5	UG/L	0.0	0.0	0.0	0.0	0.0
Total Chloromethanes	.5	UG/L	5.6	2.7	3.2	2.5	3.5
Purgeable Compounds	1.3	UG/L	6.9	4.3	4.2	4.3	4.9
Methyl Iodide	.6	UG/L	ND	ND	ND	ND	ND
Carbon disulfide	.6	UG/L	1.9	2.6	1.7	1.5	1.9
Acetone	4.5	UG/L	141	125	217	264	187
Allyl chloride	.6	UG/L	ND	ND	ND	ND	ND
Methyl tert-butyl ether	.4	UG/L	ND	ND	ND	ND	ND
Chloroprene	.4	UG/L	ND	ND	ND	ND	ND
1,2-Dibromoethane	.3	UG/L	ND	ND	ND	ND	ND
2-Butanone	6.3	UG/L	6.5	8.1	7.2	9.2	7.8
Methyl methacrylate	.8	UG/L	ND	ND	ND	ND	ND
2-Nitropropane	12	UG/L	ND	ND	ND	ND	ND
4-Methyl-2-pentanone	1.3	UG/L	ND	ND	ND	ND	ND
meta,para xylenes	.6	UG/L	ND	ND	ND	ND	ND
ortho-xylene	.4	UG/L	ND	ND	ND	ND	ND
Isopropylbenzene	.3	UG/L	ND	ND	ND	ND	ND
Styrene	.3	UG/L	ND	ND	ND	ND	ND
Benzyl chloride	1.1	UG/L	ND	ND	ND	ND	ND
1,2,4-Trichlorobenzene	1.52	UG/L	ND	ND	ND	ND	ND

*= The blank in this batch was 0.55 UG/L, result above the MDL. Result is not used in computations.

ND= not detected

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Analyte	MDL	Units	Equiv	INF JAN P547834	INF FEB P549339	INF MAR P555199	INF APR P559882
2,3,7,8-tetra CDD	125	PG/L	1.000	ND	ND	ND	ND
1,2,3,7,8-penta CDD	123	PG/L	0.500	ND	ND	ND	ND
1,2,3,4,7,8_hexa_CDD	113	PG/L	0.100	ND	ND	ND	ND
1,2,3,6,7,8-hexa CDD	98	PG/L	0.100	ND	ND	ND	ND
1,2,3,7,8,9-hexa CDD	111	PG/L	0.100	ND	ND	ND	ND
1,2,3,4,6,7,8-hepta CDD	137	PG/L	0.010	ND	ND	ND	ND
octa CDD	247	PG/L	0.001	ND	ND	ND	ND
2,3,7,8-tetra CDF	115	PG/L	0.100	ND	ND	ND	ND
1,2,3,7,8-penta CDF	140	PG/L	0.050	ND	ND	ND	ND
2,3,4,7,8-penta CDF	118	PG/L	0.500	ND	ND	ND	ND
1,2,3,4,7,8-hexa CDF	147	PG/L	0.100	ND	ND	ND	ND
1,2,3,6,7,8-hexa CDF	107	PG/L	0.100	ND	ND	ND	ND
1,2,3,7,8,9-hexa CDF	152	PG/L	0.100	ND	ND	ND	ND
2,3,4,6,7,8-hexa CDF	148	PG/L	0.100	ND	ND	ND	ND
1,2,3,4,6,7,8-hepta CDF	90	PG/L	0.010	ND	ND	ND	ND
1,2,3,4,7,8,9-hepta CDF	166	PG/L	0.010	ND	ND	ND	ND
octa CDF	222	PG/L	0.001	ND	ND	ND	ND

Analyte	MDL	Units	Equiv	INF MAY P558037	INF JUN P566832	INF JUL P571268	INF AUG P564981
2,3,7,8-tetra CDD	125	PG/L	1.000	ND	ND	ND	ND
1,2,3,7,8-penta CDD	123	PG/L	0.500	ND	ND	ND	ND
1,2,3,4,7,8_hexa_CDD	113	PG/L	0.100	ND	ND	ND	ND
1,2,3,6,7,8-hexa CDD	98	PG/L	0.100	ND	ND	ND	ND
1,2,3,7,8,9-hexa CDD	111	PG/L	0.100	ND	ND	ND	ND
1,2,3,4,6,7,8-hepta CDD	137	PG/L	0.010	ND	ND	ND	ND
octa CDD	247	PG/L	0.001	ND	ND	ND	ND
2,3,7,8-tetra CDF	115	PG/L	0.100	ND	ND	ND	ND
1,2,3,7,8-penta CDF	140	PG/L	0.050	ND	ND	ND	ND
2,3,4,7,8-penta CDF	118	PG/L	0.500	ND	ND	ND	ND
1,2,3,4,7,8-hexa CDF	147	PG/L	0.100	ND	ND	ND	ND
1,2,3,6,7,8-hexa CDF	107	PG/L	0.100	ND	ND	ND	ND
1,2,3,7,8,9-hexa CDF	152	PG/L	0.100	ND	ND	ND	ND
2,3,4,6,7,8-hexa CDF	148	PG/L	0.100	ND	ND	ND	ND
1,2,3,4,6,7,8-hepta CDF	90	PG/L	0.010	ND	ND	ND	ND
1,2,3,4,7,8,9-hepta CDF	166	PG/L	0.010	ND	ND	ND	ND
octa CDF	222	PG/L	0.001	ND	ND	ND	ND

Analyte	MDL	Units	Equiv	INF SEP P580883	INF OCT P584726	INF NOV P591174	INF DEC P592523
2,3,7,8-tetra CDD	125	PG/L	1.000	ND	ND	ND	ND
1,2,3,7,8-penta CDD	123	PG/L	0.500	ND	ND	ND	ND
1,2,3,4,7,8_hexa_CDD	113	PG/L	0.100	ND	ND	ND	ND
1,2,3,6,7,8-hexa CDD	98	PG/L	0.100	ND	ND	ND	ND
1,2,3,7,8,9-hexa CDD	111	PG/L	0.100	ND	ND	ND	ND
1,2,3,4,6,7,8-hepta CDD	137	PG/L	0.010	DNQ12.8	DNQ16.3	DNQ21.5	44.4
octa CDD	247	PG/L	0.001	140	160	250	710
2,3,7,8-tetra CDF	115	PG/L	0.100	ND	ND	ND	ND
1,2,3,7,8-penta CDF	140	PG/L	0.050	ND	ND	ND	ND
2,3,4,7,8-penta CDF	118	PG/L	0.500	ND	ND	ND	ND
1,2,3,4,7,8-hexa CDF	147	PG/L	0.100	ND	ND	ND	ND
1,2,3,6,7,8-hexa CDF	107	PG/L	0.100	ND	ND	ND	ND
1,2,3,7,8,9-hexa CDF	152	PG/L	0.100	ND	ND	ND	ND
2,3,4,6,7,8-hexa CDF	148	PG/L	0.100	ND	ND	ND	ND
1,2,3,4,6,7,8-hepta CDF	90	PG/L	0.010	ND	ND	DNQ6.18	DNQ3.87
1,2,3,4,7,8,9-hepta CDF	166	PG/L	0.010	ND	ND	ND	ND
octa CDF	222	PG/L	0.001	DNQ7.35	DNQ10.0	DNQ14.0	DNQ19.8

ND= not detected
DNQ= (Detected but not quantified). Estimated analyte concentration below calibration range.

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Analyte	MDL	Units	Equiv	EFF JAN P547838	EFF FEB P549344	EFF MAR P555203	EFF APR P559886
2,3,7,8-tetra CDD	125	PG/L	1.000	ND	ND	ND	ND
1,2,3,7,8-penta CDD	123	PG/L	0.500	ND	ND	ND	ND
1,2,3,4,7,8_hexa_CDD	113	PG/L	0.100	ND	ND	ND	ND
1,2,3,6,7,8-hexa CDD	98	PG/L	0.100	ND	ND	ND	ND
1,2,3,7,8,9-hexa CDD	111	PG/L	0.100	ND	ND	ND	ND
1,2,3,4,6,7,8-hepta CDD	137	PG/L	0.010	ND	ND	ND	ND
octa CDD	247	PG/L	0.001	ND	ND	ND	ND
2,3,7,8-tetra CDF	115	PG/L	0.100	ND	ND	ND	ND
1,2,3,7,8-penta CDF	140	PG/L	0.050	ND	ND	ND	ND
2,3,4,7,8-penta CDF	118	PG/L	0.500	ND	ND	ND	ND
1,2,3,4,7,8-hexa CDF	147	PG/L	0.100	ND	ND	ND	ND
1,2,3,6,7,8-hexa CDF	107	PG/L	0.100	ND	ND	ND	ND
1,2,3,7,8,9-hexa CDF	152	PG/L	0.100	ND	ND	ND	ND
2,3,4,6,7,8-hexa CDF	148	PG/L	0.100	ND	ND	ND	ND
1,2,3,4,6,7,8-hepta CDF	90	PG/L	0.010	ND	ND	ND	ND
1,2,3,4,7,8,9-hepta CDF	166	PG/L	0.010	ND	ND	ND	ND
octa CDF	222	PG/L	0.001	ND	ND	ND	ND

Analyte	MDL	Units	Equiv	EFF MAY P558042	EFF JUN P566836	EFF JUL P571272	EFF AUG P564986
2,3,7,8-tetra CDD	125	PG/L	1.000	ND	ND	ND	ND
1,2,3,7,8-penta CDD	123	PG/L	0.500	ND	ND	ND	ND
1,2,3,4,7,8_hexa_CDD	113	PG/L	0.100	ND	ND	ND	ND
1,2,3,6,7,8-hexa CDD	98	PG/L	0.100	ND	ND	ND	ND
1,2,3,7,8,9-hexa CDD	111	PG/L	0.100	ND	ND	ND	ND
1,2,3,4,6,7,8-hepta CDD	137	PG/L	0.010	ND	ND	ND	ND
octa CDD	247	PG/L	0.001	ND	ND	ND	ND
2,3,7,8-tetra CDF	115	PG/L	0.100	ND	ND	ND	ND
1,2,3,7,8-penta CDF	140	PG/L	0.050	ND	ND	ND	ND
2,3,4,7,8-penta CDF	118	PG/L	0.500	ND	ND	ND	ND
1,2,3,4,7,8-hexa CDF	147	PG/L	0.100	ND	ND	ND	ND
1,2,3,6,7,8-hexa CDF	107	PG/L	0.100	ND	ND	ND	ND
1,2,3,7,8,9-hexa CDF	152	PG/L	0.100	ND	ND	ND	ND
2,3,4,6,7,8-hexa CDF	148	PG/L	0.100	ND	ND	ND	ND
1,2,3,4,6,7,8-hepta CDF	90	PG/L	0.010	ND	ND	ND	ND
1,2,3,4,7,8,9-hepta CDF	166	PG/L	0.010	ND	ND	ND	ND
octa CDF	222	PG/L	0.001	ND	ND	ND	ND

Analyte	MDL	Units	Equiv	EFF SEP P580887	EFF OCT P584731	EFF NOV P591177	EFF DEC P592527
2,3,7,8-tetra CDD	125	PG/L	1.000	ND	ND	ND	ND
1,2,3,7,8-penta CDD	123	PG/L	0.500	ND	ND	ND	ND
1,2,3,4,7,8_hexa_CDD	113	PG/L	0.100	ND	ND	ND	ND
1,2,3,6,7,8-hexa CDD	98	PG/L	0.100	ND	ND	ND	ND
1,2,3,7,8,9-hexa CDD	111	PG/L	0.100	ND	ND	ND	ND
1,2,3,4,6,7,8-hepta CDD	137	PG/L	0.010	ND	ND	ND	ND
octa CDD	247	PG/L	0.001	DNQ3.45	DNQ6.13	DNQ5.93	DNQ7.71
2,3,7,8-tetra CDF	115	PG/L	0.100	ND	ND	ND	ND
1,2,3,7,8-penta CDF	140	PG/L	0.050	ND	ND	ND	ND
2,3,4,7,8-penta CDF	118	PG/L	0.500	ND	ND	ND	ND
1,2,3,4,7,8-hexa CDF	147	PG/L	0.100	ND	ND	ND	ND
1,2,3,6,7,8-hexa CDF	107	PG/L	0.100	ND	ND	ND	ND
1,2,3,7,8,9-hexa CDF	152	PG/L	0.100	ND	ND	ND	ND
2,3,4,6,7,8-hexa CDF	148	PG/L	0.100	ND	ND	ND	ND
1,2,3,4,6,7,8-hepta CDF	90	PG/L	0.010	ND	ND	ND	ND
1,2,3,4,7,8,9-hepta CDF	166	PG/L	0.010	ND	ND	ND	ND
octa CDF	222	PG/L	0.001	ND	ND	ND	ND

ND= not detected
DNQ= (Detected but not quantified). Estimated analyte concentration below calibration range.

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Analyte	MDL	Units	Equiv	INF TCCD JAN P547834	INF TCCD FEB P549339	INF TCCD MAR P555199	INF TCCD APR P559882
2,3,7,8-tetra CDD	125	PG/L	1.000	ND	ND	ND	ND
1,2,3,7,8-penta CDD	123	PG/L	0.500	ND	ND	ND	ND
1,2,3,4,7,8_hexa_CDD	113	PG/L	0.100	ND	ND	ND	ND
1,2,3,6,7,8-hexa CDD	98	PG/L	0.100	ND	ND	ND	ND
1,2,3,7,8,9-hexa CDD	111	PG/L	0.100	ND	ND	ND	ND
1,2,3,4,6,7,8-hepta CDD	137	PG/L	0.010	ND	ND	ND	ND
octa CDD	247	PG/L	0.001	ND	ND	ND	ND
2,3,7,8-tetra CDF	115	PG/L	0.100	ND	ND	ND	ND
1,2,3,7,8-penta CDF	140	PG/L	0.050	ND	ND	ND	ND
2,3,4,7,8-penta CDF	118	PG/L	0.500	ND	ND	ND	ND
1,2,3,4,7,8-hexa CDF	147	PG/L	0.100	ND	ND	ND	ND
1,2,3,6,7,8-hexa CDF	107	PG/L	0.100	ND	ND	ND	ND
1,2,3,7,8,9-hexa CDF	152	PG/L	0.100	ND	ND	ND	ND
2,3,4,6,7,8-hexa CDF	148	PG/L	0.100	ND	ND	ND	ND
1,2,3,4,6,7,8-hepta CDF	90	PG/L	0.010	ND	ND	ND	ND
1,2,3,4,7,8,9-hepta CDF	166	PG/L	0.010	ND	ND	ND	ND
octa CDF	222	PG/L	0.001	ND	ND	ND	ND

Analyte	MDL	Units	Equiv	INF TCCD MAY P558037	INF TCCD JUN P566832	INF TCCD JUL P571268	INF TCCD AUG P564981
2,3,7,8-tetra CDD	125	PG/L	1.000	ND	ND	ND	ND
1,2,3,7,8-penta CDD	123	PG/L	0.500	ND	ND	ND	ND
1,2,3,4,7,8_hexa_CDD	113	PG/L	0.100	ND	ND	ND	ND
1,2,3,6,7,8-hexa CDD	98	PG/L	0.100	ND	ND	ND	ND
1,2,3,7,8,9-hexa CDD	111	PG/L	0.100	ND	ND	ND	ND
1,2,3,4,6,7,8-hepta CDD	137	PG/L	0.010	ND	ND	ND	ND
octa CDD	247	PG/L	0.001	ND	ND	ND	ND
2,3,7,8-tetra CDF	115	PG/L	0.100	ND	ND	ND	ND
1,2,3,7,8-penta CDF	140	PG/L	0.050	ND	ND	ND	ND
2,3,4,7,8-penta CDF	118	PG/L	0.500	ND	ND	ND	ND
1,2,3,4,7,8-hexa CDF	147	PG/L	0.100	ND	ND	ND	ND
1,2,3,6,7,8-hexa CDF	107	PG/L	0.100	ND	ND	ND	ND
1,2,3,7,8,9-hexa CDF	152	PG/L	0.100	ND	ND	ND	ND
2,3,4,6,7,8-hexa CDF	148	PG/L	0.100	ND	ND	ND	ND
1,2,3,4,6,7,8-hepta CDF	90	PG/L	0.010	ND	ND	ND	ND
1,2,3,4,7,8,9-hepta CDF	166	PG/L	0.010	ND	ND	ND	ND
octa CDF	222	PG/L	0.001	ND	ND	ND	ND

Analyte	MDL	Units	Equiv	INF TCCD SEP P580883	INF TCCD OCT P584726	INF TCCD NOV P591174	INF TCCD DEC P592523
2,3,7,8-tetra CDD	125	PG/L	1.000	ND	ND	ND	ND
1,2,3,7,8-penta CDD	123	PG/L	0.500	ND	ND	ND	ND
1,2,3,4,7,8_hexa_CDD	113	PG/L	0.100	ND	ND	ND	ND
1,2,3,6,7,8-hexa CDD	98	PG/L	0.100	ND	ND	ND	ND
1,2,3,7,8,9-hexa CDD	111	PG/L	0.100	ND	ND	ND	ND
1,2,3,4,6,7,8-hepta CDD	137	PG/L	0.010	DNQ0.13	DNQ0.16	DNQ0.22	0.44
octa CDD	247	PG/L	0.001	0.14	0.16	0.25	0.71
2,3,7,8-tetra CDF	115	PG/L	0.100	ND	ND	ND	ND
1,2,3,7,8-penta CDF	140	PG/L	0.050	ND	ND	ND	ND
2,3,4,7,8-penta CDF	118	PG/L	0.500	ND	ND	ND	ND
1,2,3,4,7,8-hexa CDF	147	PG/L	0.100	ND	ND	ND	ND
1,2,3,6,7,8-hexa CDF	107	PG/L	0.100	ND	ND	ND	ND
1,2,3,7,8,9-hexa CDF	152	PG/L	0.100	ND	ND	ND	ND
2,3,4,6,7,8-hexa CDF	148	PG/L	0.100	ND	ND	ND	ND
1,2,3,4,6,7,8-hepta CDF	90	PG/L	0.010	ND	ND	DNQ0.06	DNQ0.04
1,2,3,4,7,8,9-hepta CDF	166	PG/L	0.010	ND	ND	ND	ND
octa CDF	222	PG/L	0.001	DNQ0.007	DNQ0.01	DNQ0.014	DNQ0.02

ND= not detected DNQ= (Detected but not quantified).

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Analyte	MDL	Units	Equiv	EFF TCCD JAN P547838	EFF TCCD FEB P549344	EFF TCCD MAR P555203	EFF TCCD APR P559886
2,3,7,8-tetra CDD	125	PG/L	1.000	ND	ND	ND	ND
1,2,3,7,8-penta CDD	123	PG/L	0.500	ND	ND	ND	ND
1,2,3,4,7,8_hexa_CDD	113	PG/L	0.100	ND	ND	ND	ND
1,2,3,6,7,8-hexa CDD	98	PG/L	0.100	ND	ND	ND	ND
1,2,3,7,8,9-hexa CDD	111	PG/L	0.100	ND	ND	ND	ND
1,2,3,4,6,7,8-hepta CDD	137	PG/L	0.010	ND	ND	ND	ND
octa CDD	247	PG/L	0.001	ND	ND	ND	ND
2,3,7,8-tetra CDF	115	PG/L	0.100	ND	ND	ND	ND
1,2,3,7,8-penta CDF	140	PG/L	0.050	ND	ND	ND	ND
2,3,4,7,8-penta CDF	118	PG/L	0.500	ND	ND	ND	ND
1,2,3,4,7,8-hexa CDF	147	PG/L	0.100	ND	ND	ND	ND
1,2,3,6,7,8-hexa CDF	107	PG/L	0.100	ND	ND	ND	ND
1,2,3,7,8,9-hexa CDF	152	PG/L	0.100	ND	ND	ND	ND
2,3,4,6,7,8-hexa CDF	148	PG/L	0.100	ND	ND	ND	ND
1,2,3,4,6,7,8-hepta CDF	90	PG/L	0.010	ND	ND	ND	ND
1,2,3,4,7,8,9-hepta CDF	166	PG/L	0.010	ND	ND	ND	ND
octa CDF	222	PG/L	0.001	ND	ND	ND	ND

Analyte	MDL	Units	Equiv	EFF TCCD MAY P558042	EFF TCCD JUN P566836	EFF TCCD JUL P571272	EFF TCCD AUG P564986
2,3,7,8-tetra CDD	125	PG/L	1.000	ND	ND	ND	ND
1,2,3,7,8-penta CDD	123	PG/L	0.500	ND	ND	ND	ND
1,2,3,4,7,8_hexa_CDD	113	PG/L	0.100	ND	ND	ND	ND
1,2,3,6,7,8-hexa CDD	98	PG/L	0.100	ND	ND	ND	ND
1,2,3,7,8,9-hexa CDD	111	PG/L	0.100	ND	ND	ND	ND
1,2,3,4,6,7,8-hepta CDD	137	PG/L	0.010	ND	ND	ND	ND
octa CDD	247	PG/L	0.001	ND	ND	ND	ND
2,3,7,8-tetra CDF	115	PG/L	0.100	ND	ND	ND	ND
1,2,3,7,8-penta CDF	140	PG/L	0.050	ND	ND	ND	ND
2,3,4,7,8-penta CDF	118	PG/L	0.500	ND	ND	ND	ND
1,2,3,4,7,8-hexa CDF	147	PG/L	0.100	ND	ND	ND	ND
1,2,3,6,7,8-hexa CDF	107	PG/L	0.100	ND	ND	ND	ND
1,2,3,7,8,9-hexa CDF	152	PG/L	0.100	ND	ND	ND	ND
2,3,4,6,7,8-hexa CDF	148	PG/L	0.100	ND	ND	ND	ND
1,2,3,4,6,7,8-hepta CDF	90	PG/L	0.010	ND	ND	ND	ND
1,2,3,4,7,8,9-hepta CDF	166	PG/L	0.010	ND	ND	ND	ND
octa CDF	222	PG/L	0.001	ND	ND	ND	ND

Analyte	MDL	Units	Equiv	EFF TCCD SEP P580887	EFF TCCD OCT P584731	EFF TCCD NOV P591177	EFF TCCD DEC P592527
2,3,7,8-tetra CDD	125	PG/L	1.000	ND	ND	ND	ND
1,2,3,7,8-penta CDD	123	PG/L	0.500	ND	ND	ND	ND
1,2,3,4,7,8_hexa_CDD	113	PG/L	0.100	ND	ND	ND	ND
1,2,3,6,7,8-hexa CDD	98	PG/L	0.100	ND	ND	ND	ND
1,2,3,7,8,9-hexa CDD	111	PG/L	0.100	ND	ND	ND	ND
1,2,3,4,6,7,8-hepta CDD	137	PG/L	0.010	ND	ND	ND	ND
octa CDD	247	PG/L	0.001	DNQ0.003	DNQ0.006	DNQ0.006	DNQ0.008
2,3,7,8-tetra CDF	115	PG/L	0.100	ND	ND	ND	ND
1,2,3,7,8-penta CDF	140	PG/L	0.050	ND	ND	ND	ND
2,3,4,7,8-penta CDF	118	PG/L	0.500	ND	ND	ND	ND
1,2,3,4,7,8-hexa CDF	147	PG/L	0.100	ND	ND	ND	ND
1,2,3,6,7,8-hexa CDF	107	PG/L	0.100	ND	ND	ND	ND
1,2,3,7,8,9-hexa CDF	152	PG/L	0.100	ND	ND	ND	ND
2,3,4,6,7,8-hexa CDF	148	PG/L	0.100	ND	ND	ND	ND
1,2,3,4,6,7,8-hepta CDF	90	PG/L	0.010	ND	ND	ND	ND
1,2,3,4,7,8,9-hepta CDF	166	PG/L	0.010	ND	ND	ND	ND
octa CDF	222	PG/L	0.001	ND	ND	ND	ND

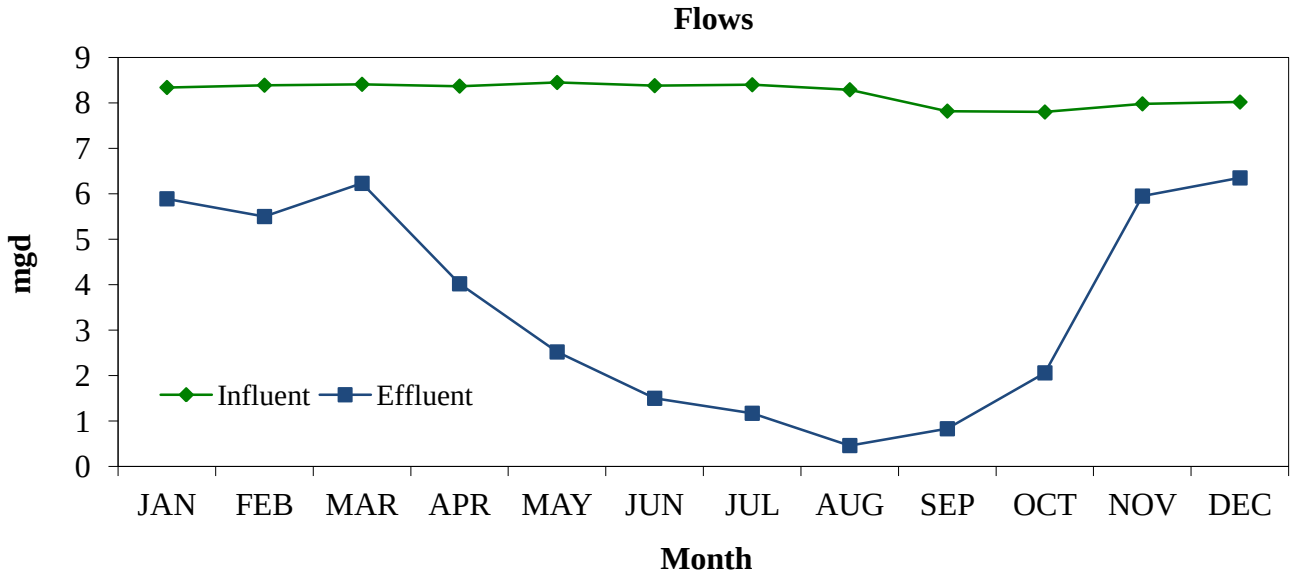
ND= not detected DNQ= (Detected but not quantified).

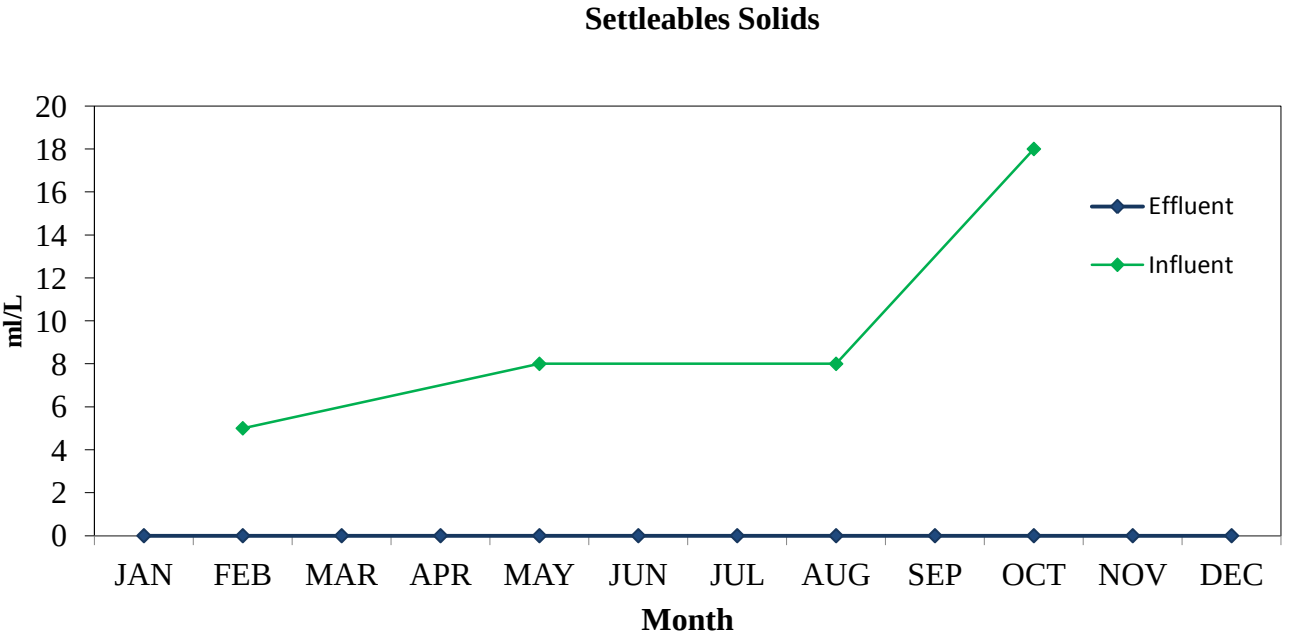
D. Influent and Effluent Graphs

Graphs of monthly averages for permit parameters with measurable concentration averages.

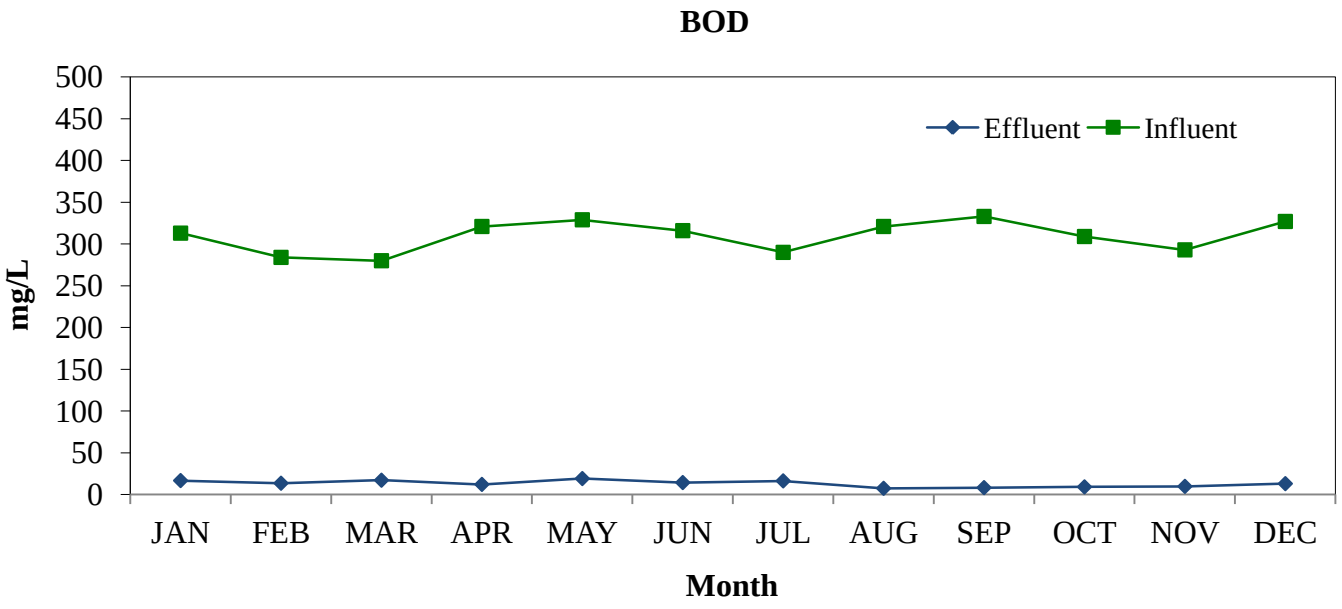
Where possible, the influent and effluent values of a given parameter have been included on the same graph so that removals and other relationships are readily apparent. Please note that many of the graphs are on expanded scales. That is, they normally don't go to zero concentrations but show, in magnified scale, that range of concentrations where variation takes place. This makes differences and some trends obvious that might normally not be noticed. However, it also provides the temptation to interpret minor changes or trends as being of more significance than they are. Frequent reference to the scales and the actual differences in concentrations is therefore necessary.

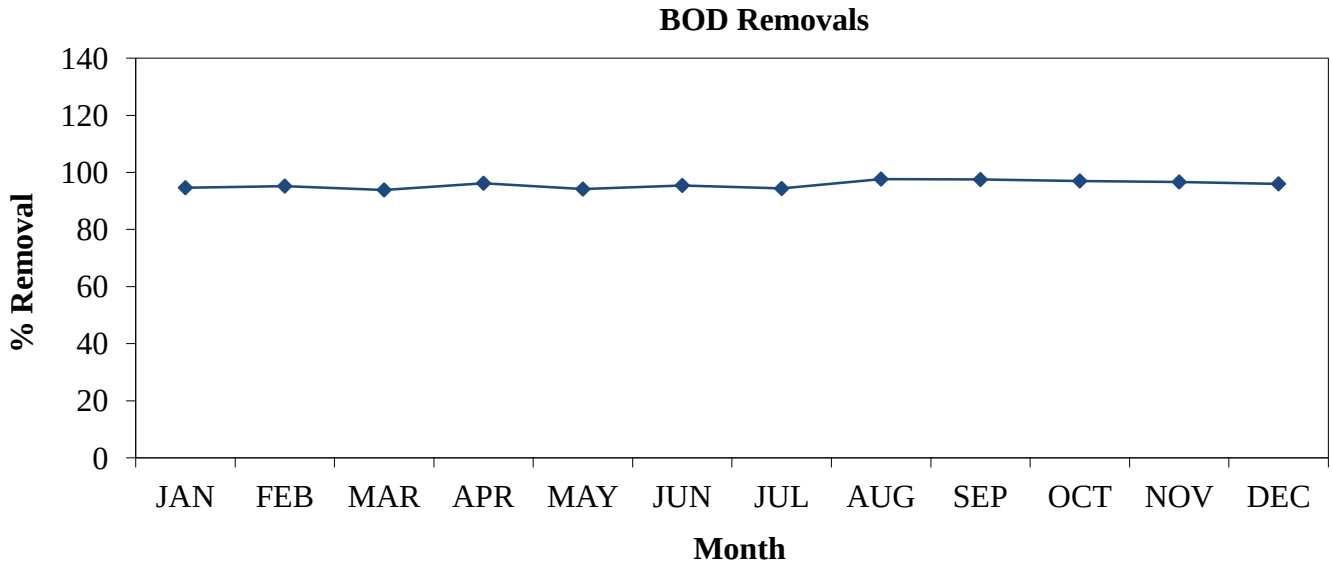
2011 South Bay Water Reclamation Plant
Monthly Averages



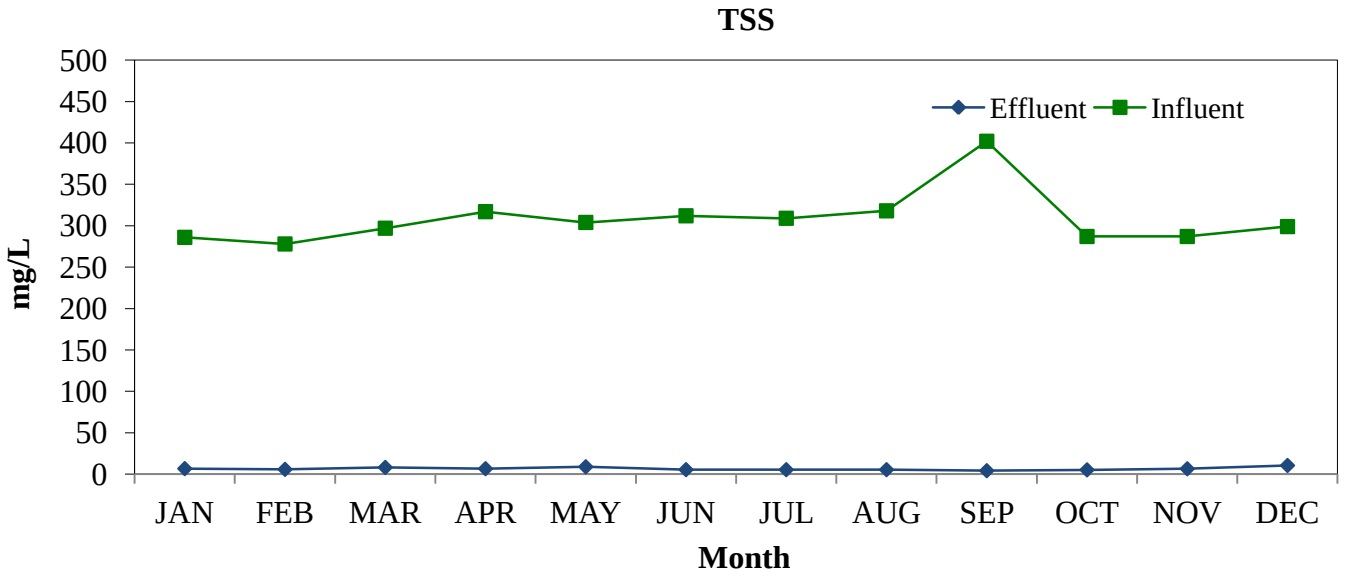


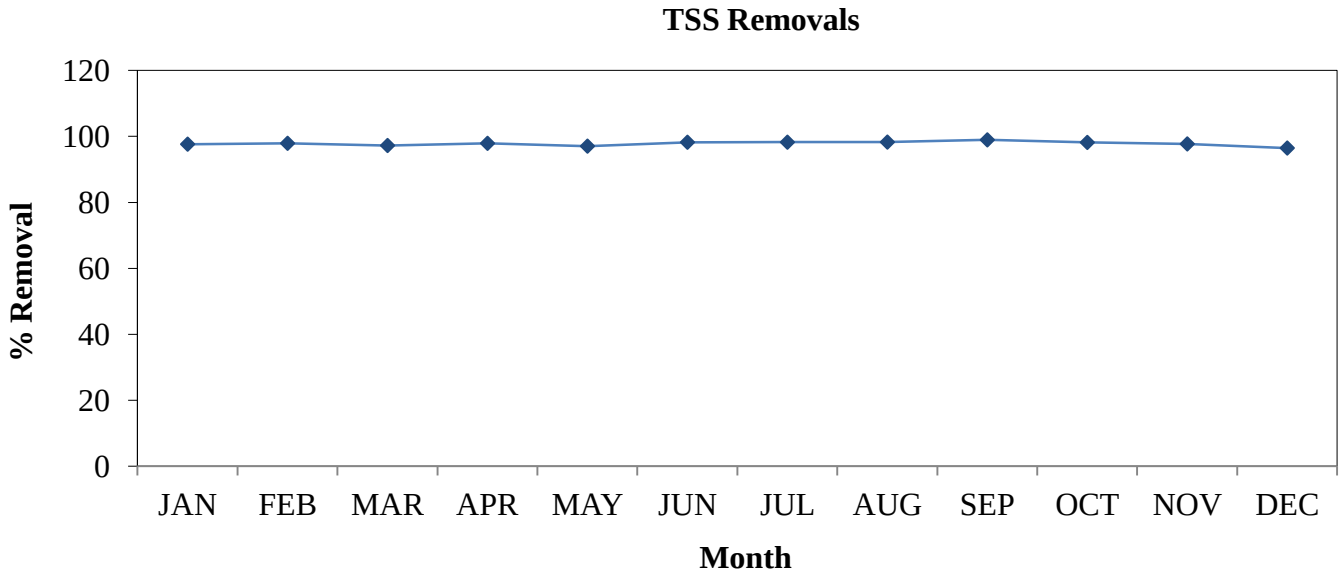
2011 South Bay Water Reclamation Plant
Monthly Averages



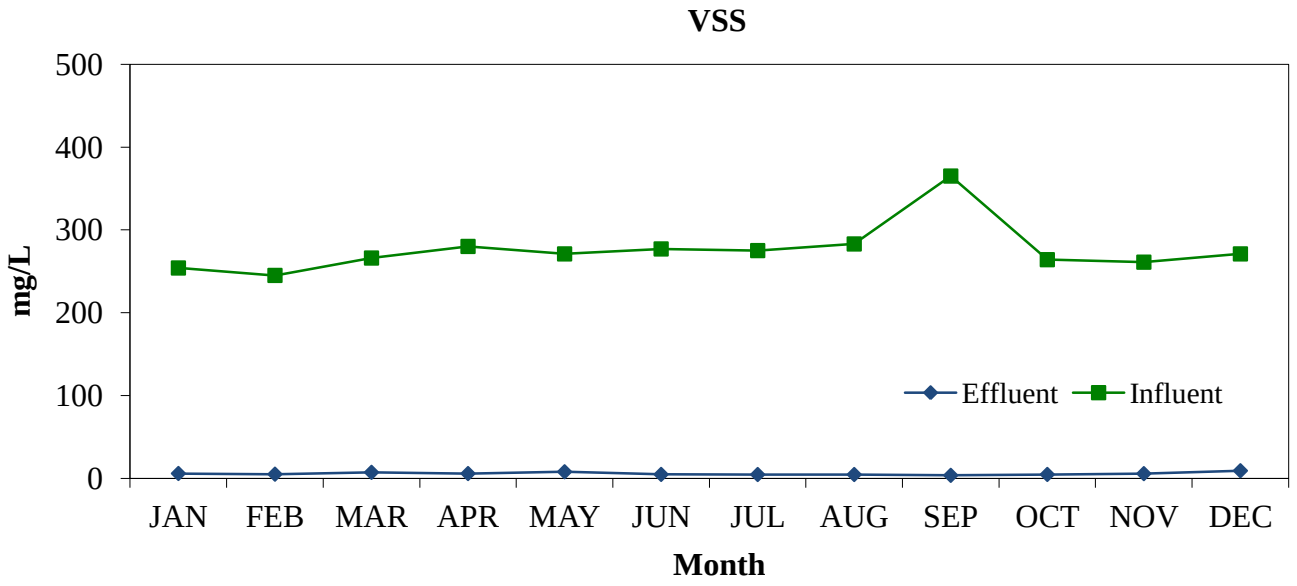


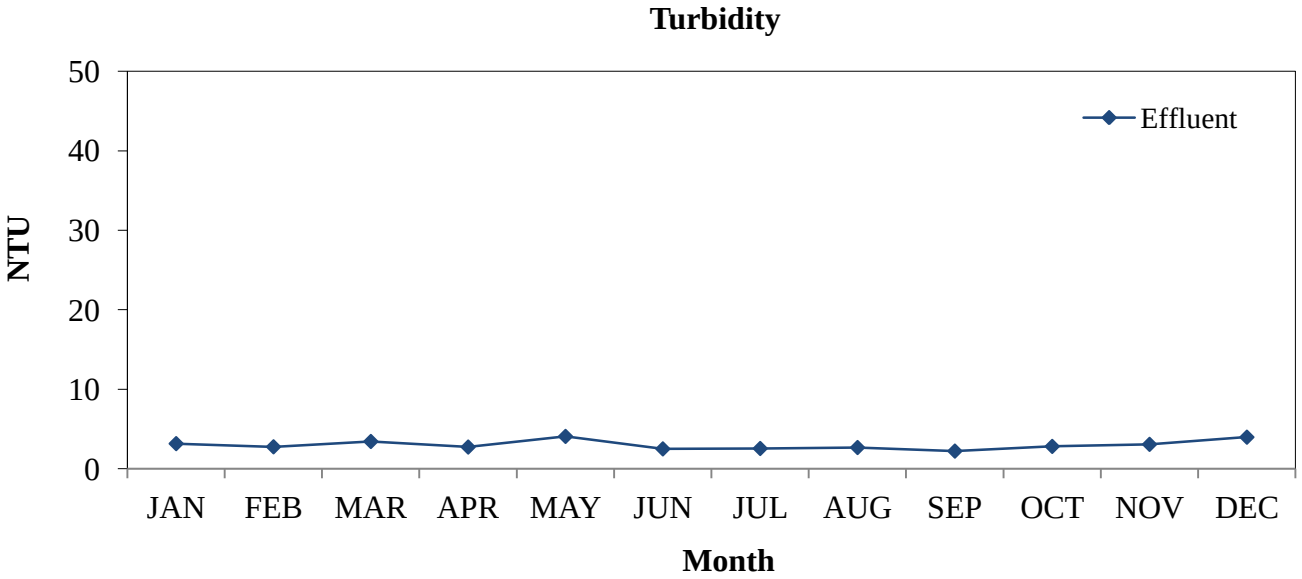
2011 South Bay Water Reclamation Plant
Monthly Averages



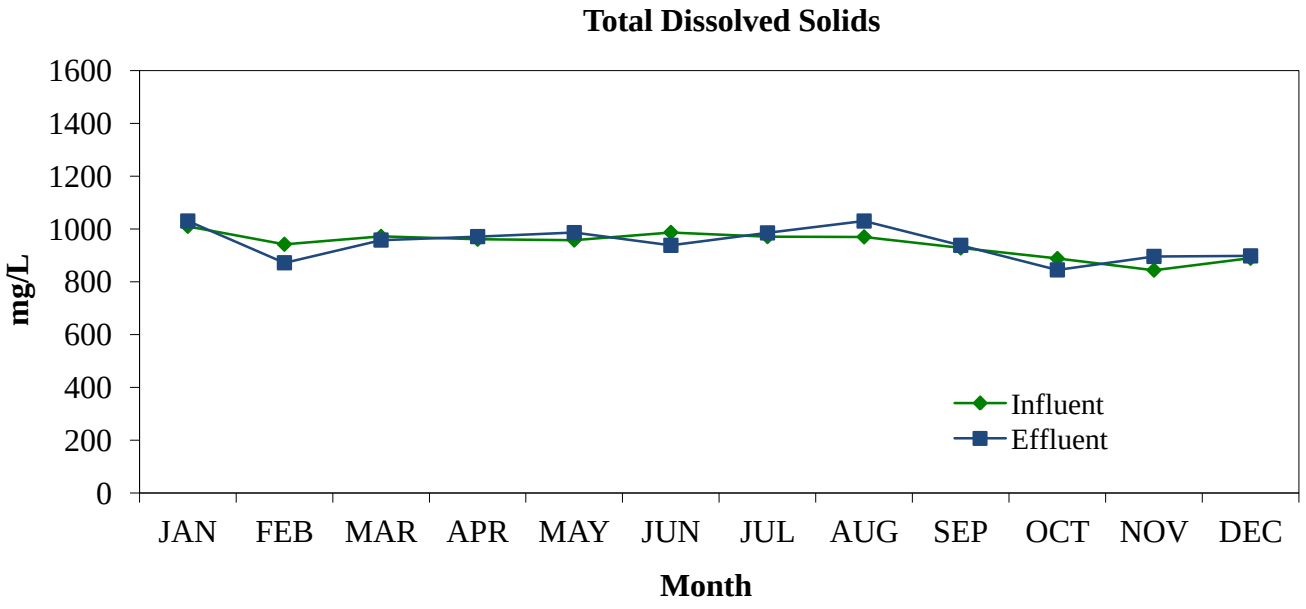


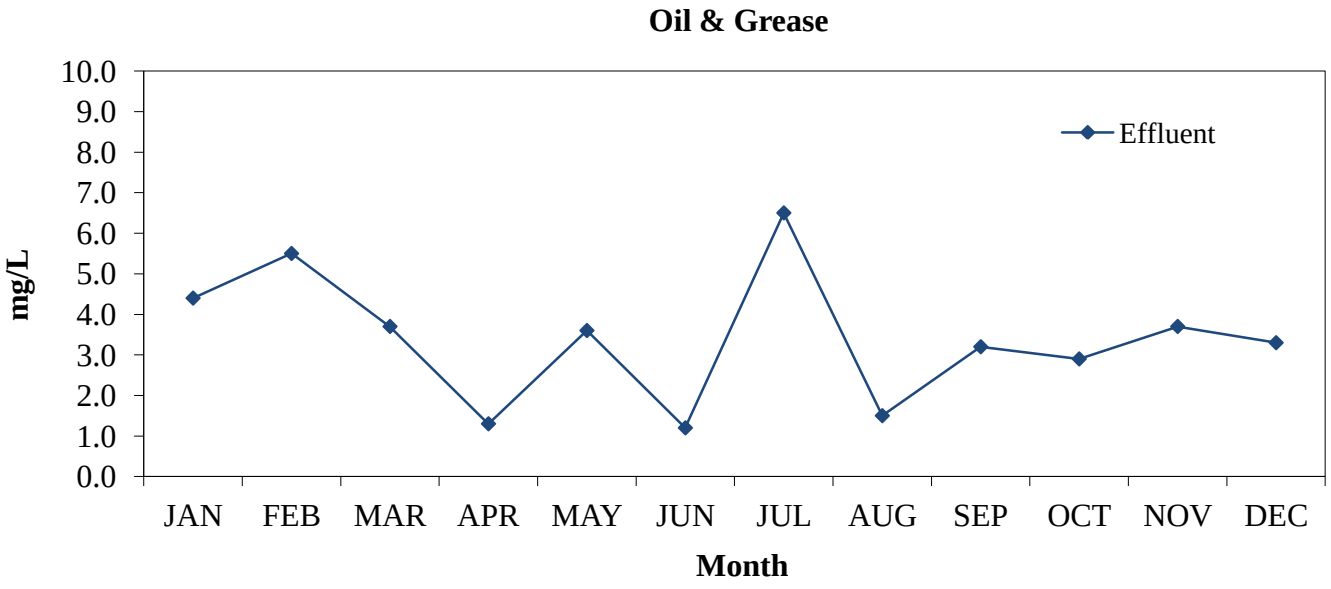
2011 South Bay Water Reclamation Plant
Monthly Averages





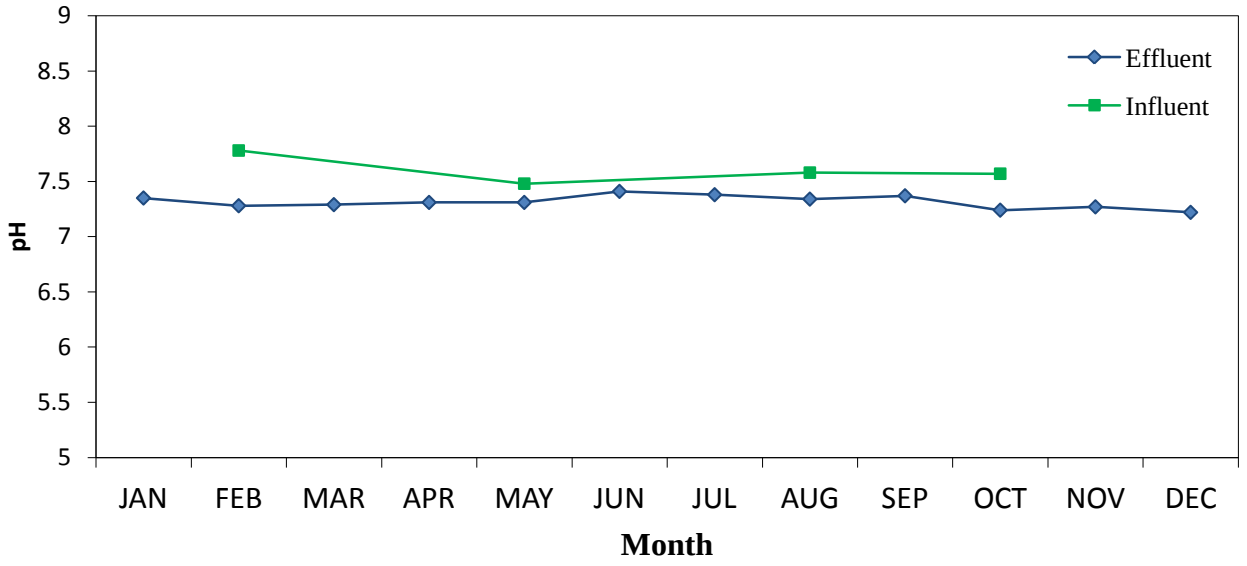
2011 South Bay Water Reclamation Plant
Monthly Averages



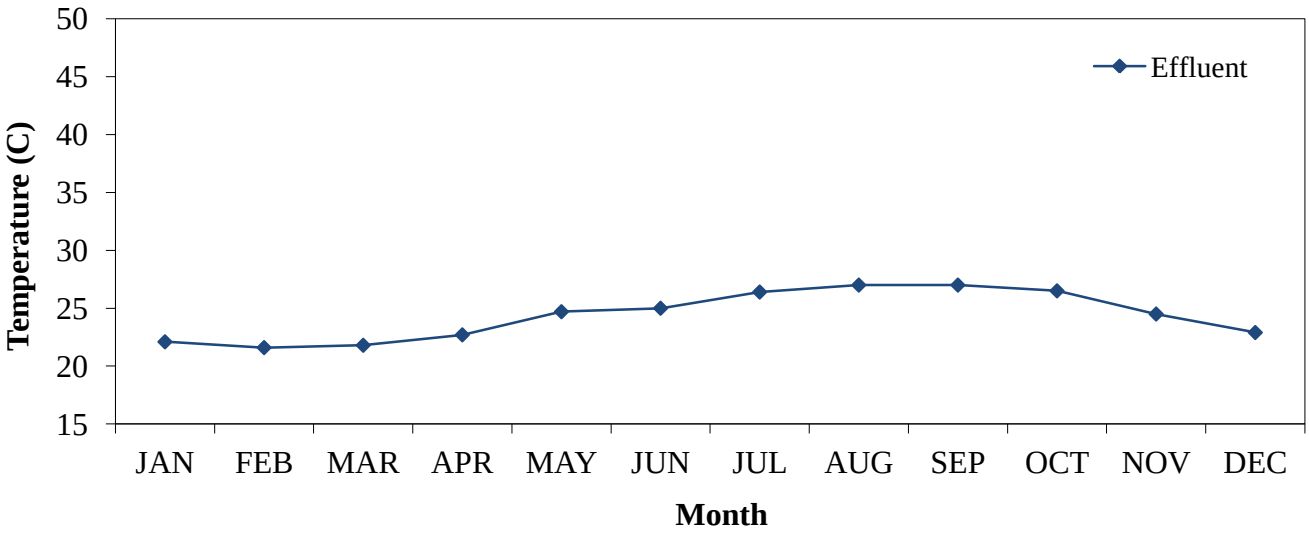


2011 South Bay Water Reclamation Plant
Monthly Averages

pH

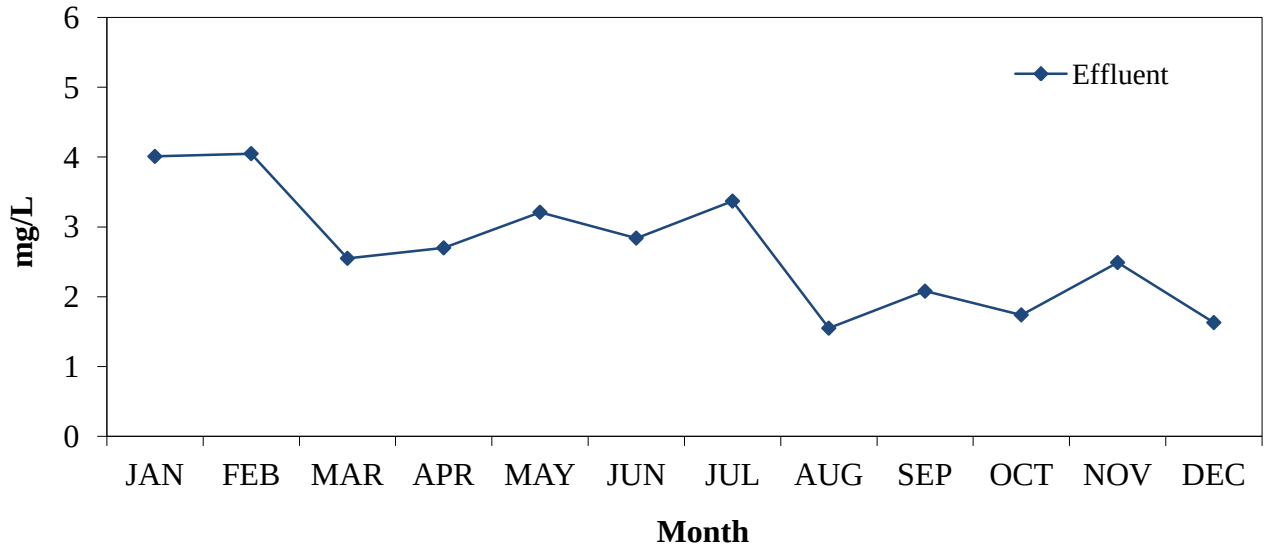


Temperature

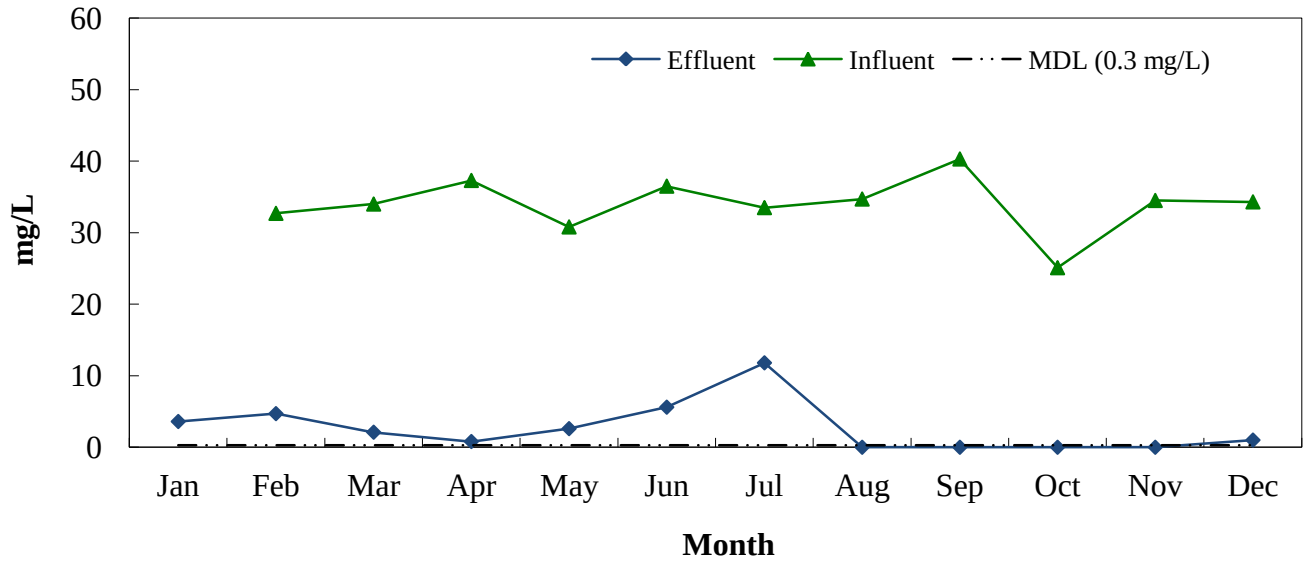


2011 South Bay Water Reclamation Plant
Monthly Averages

Dissolved Oxygen

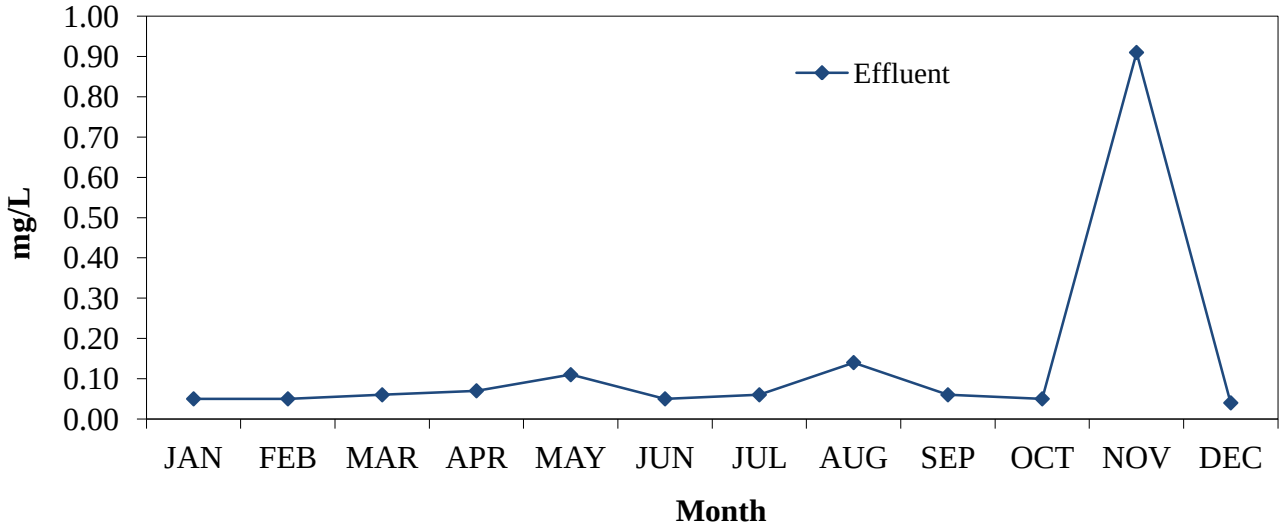


Ammonia-N

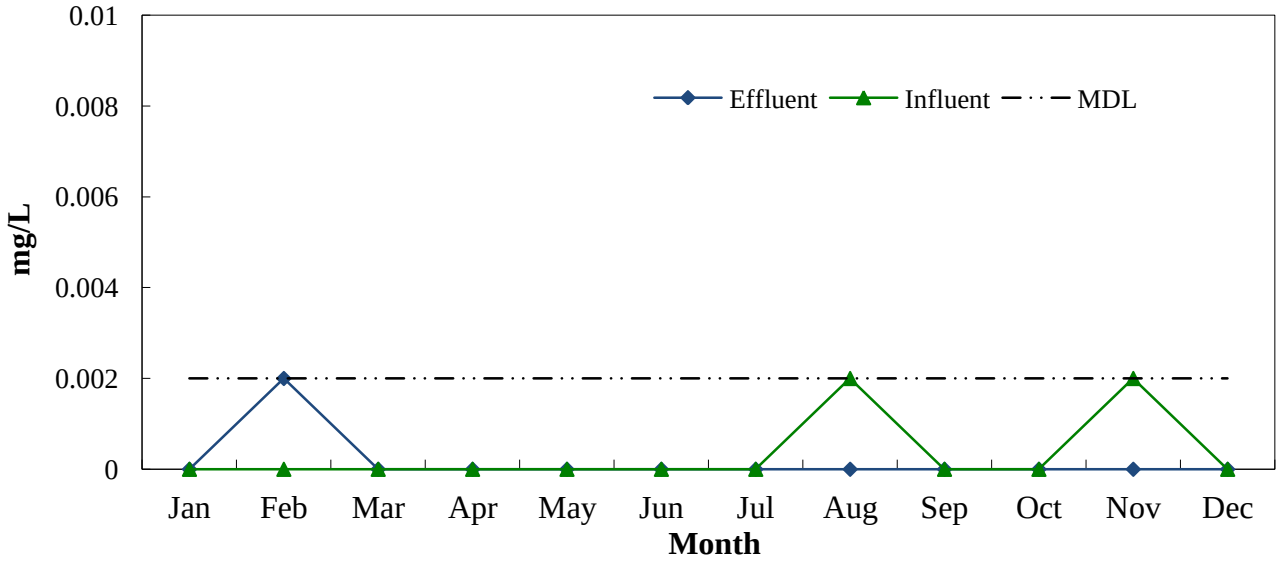


2011 South Bay Water Reclamation Plant
Monthly Averages

Residual Chlorine

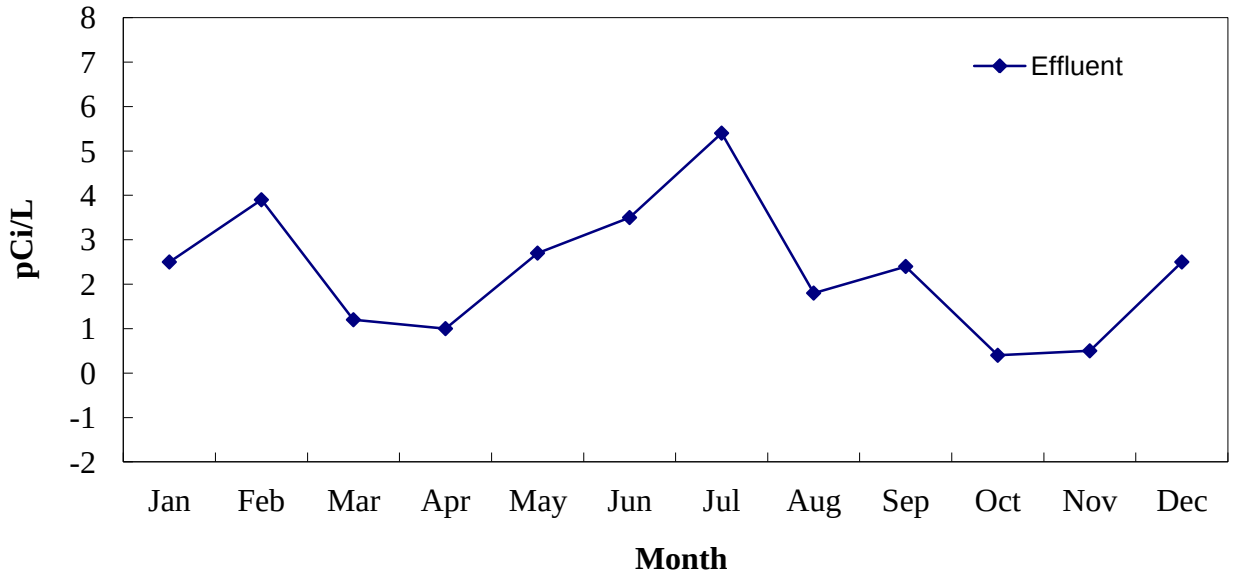


Total Cyanides

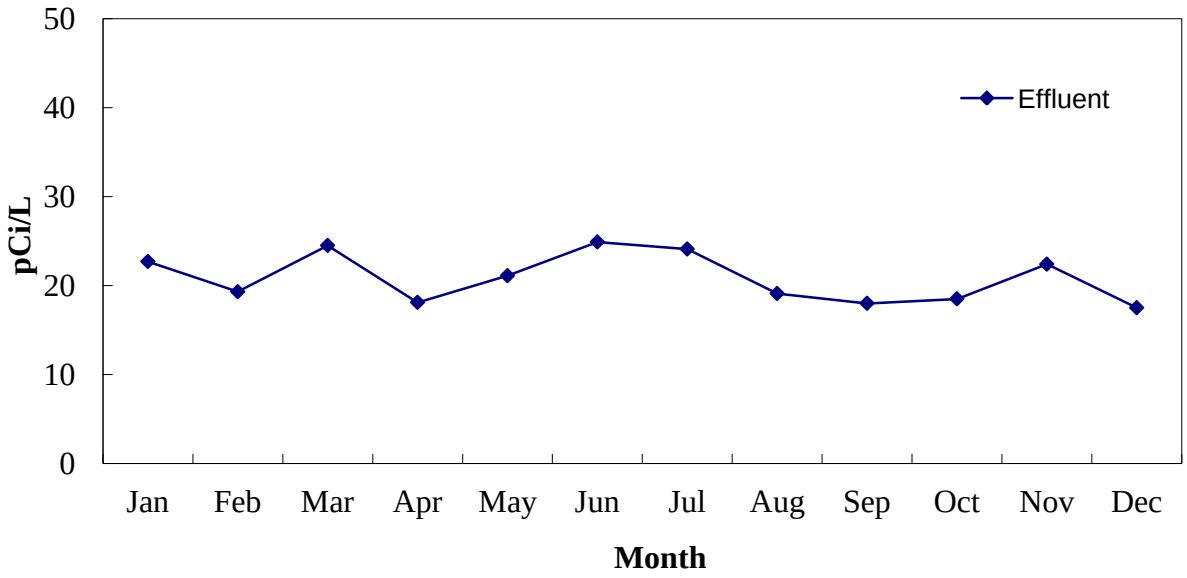


2011 South Bay Water Reclamation Plant
Monthly Averages

Alpha Radiation

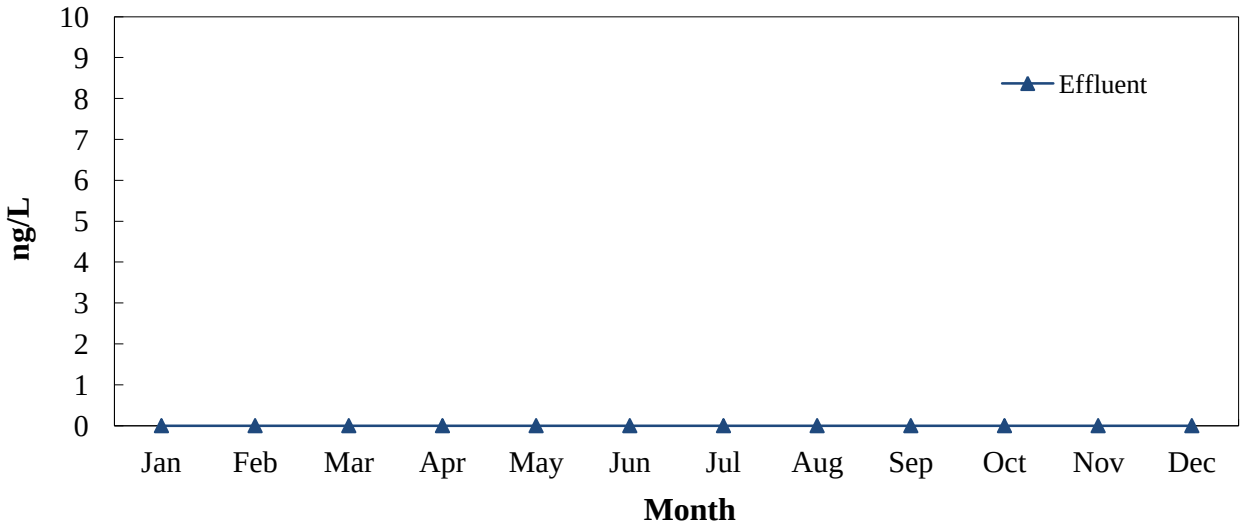


Beta Radiation

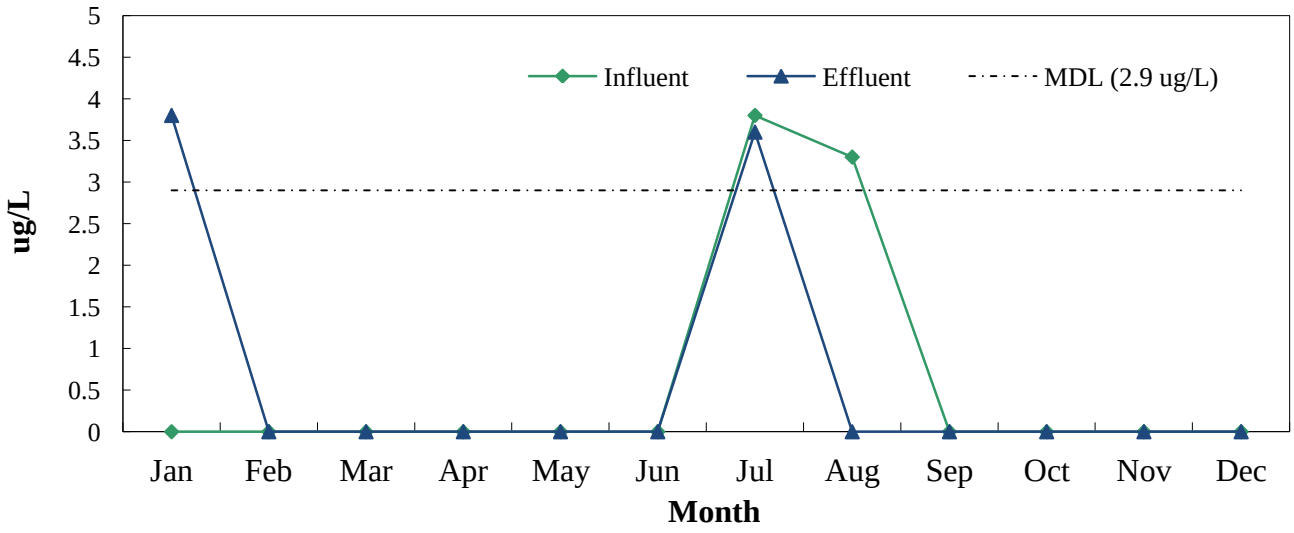


2011 South Bay Water Reclamation Plant
Monthly Averages

Total Chlorinated Hydrocarbons

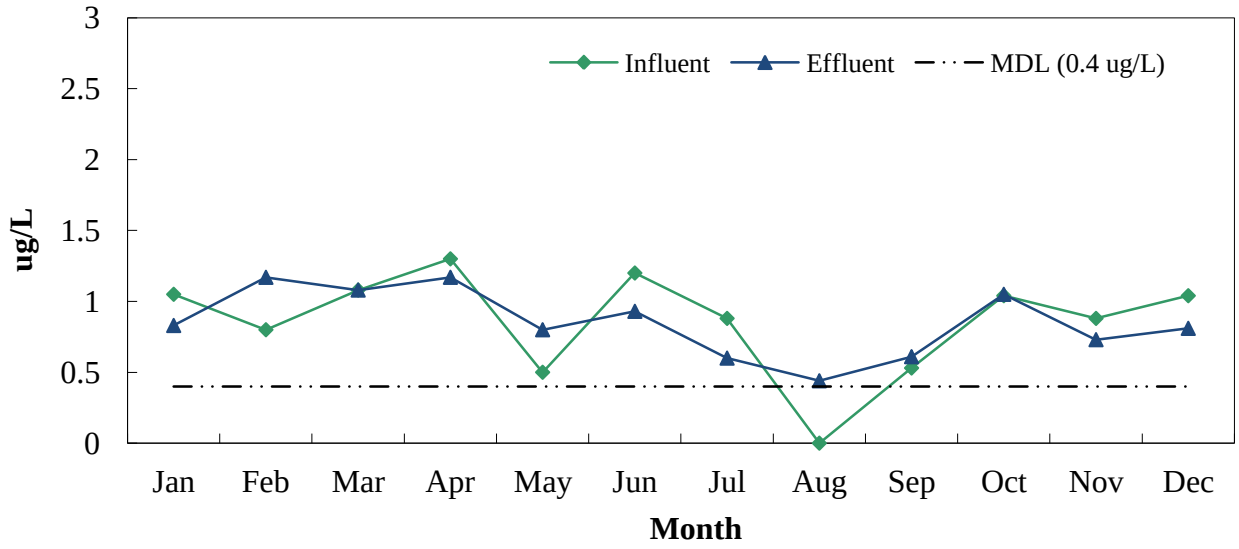


Antimony

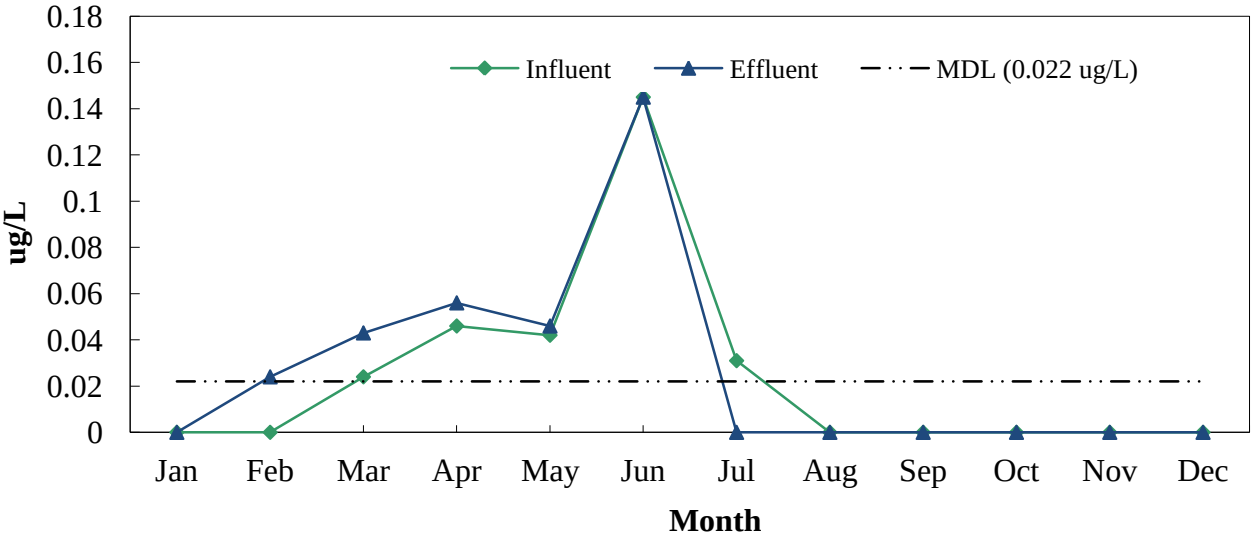


2011 South Bay Water Reclamation Plant
Monthly Averages

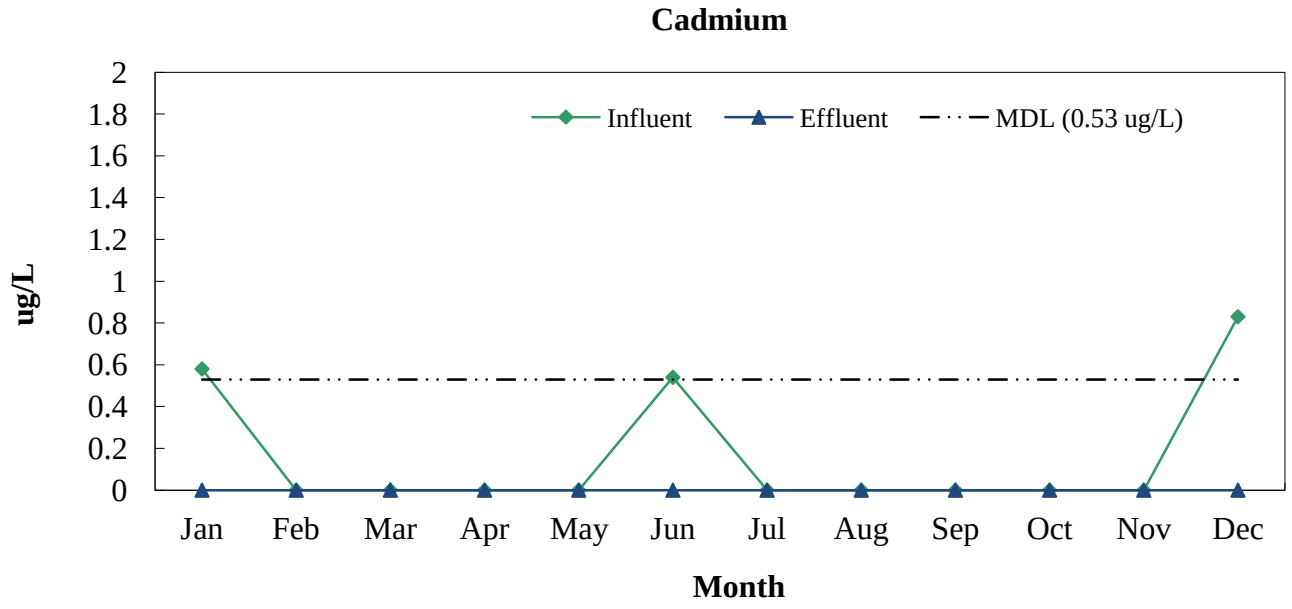
Arsenic

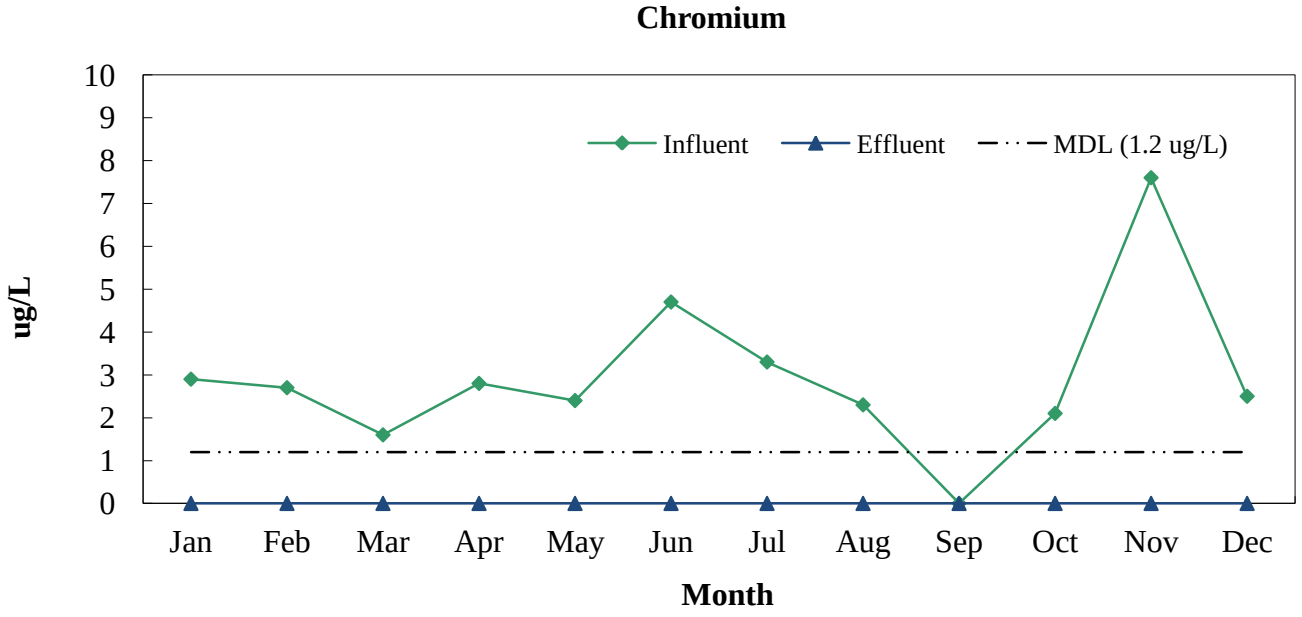


Beryllium

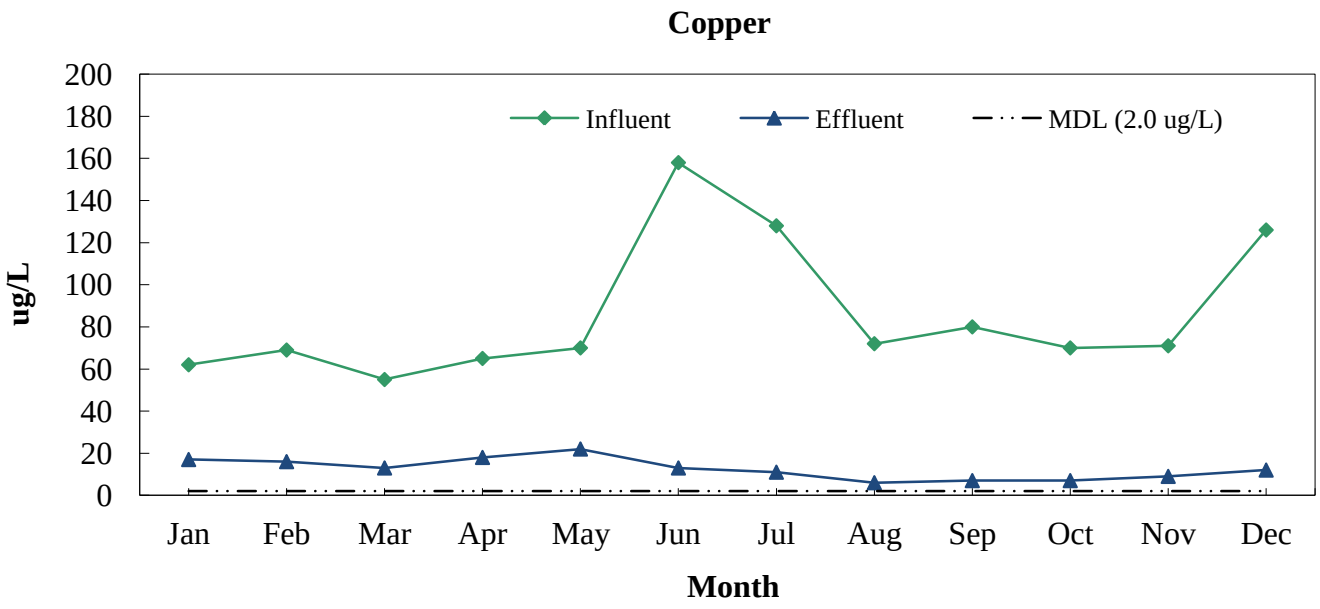


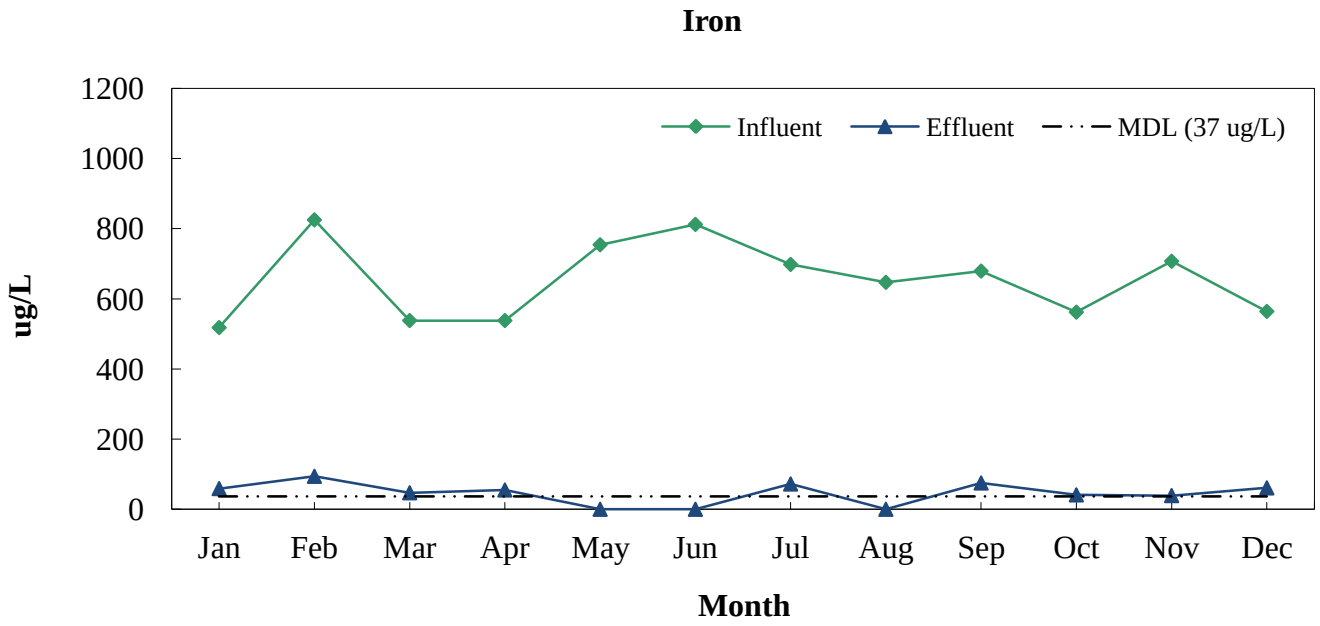
2011 South Bay Water Reclamation Plant
Monthly Averages





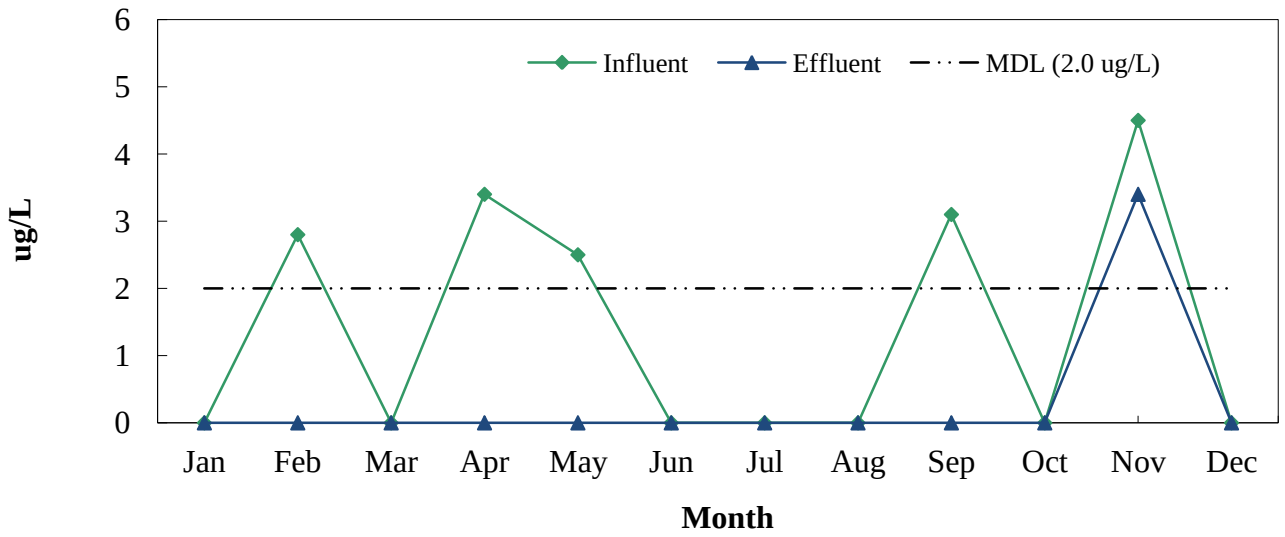
2011 South Bay Water Reclamation Plant
Monthly Averages



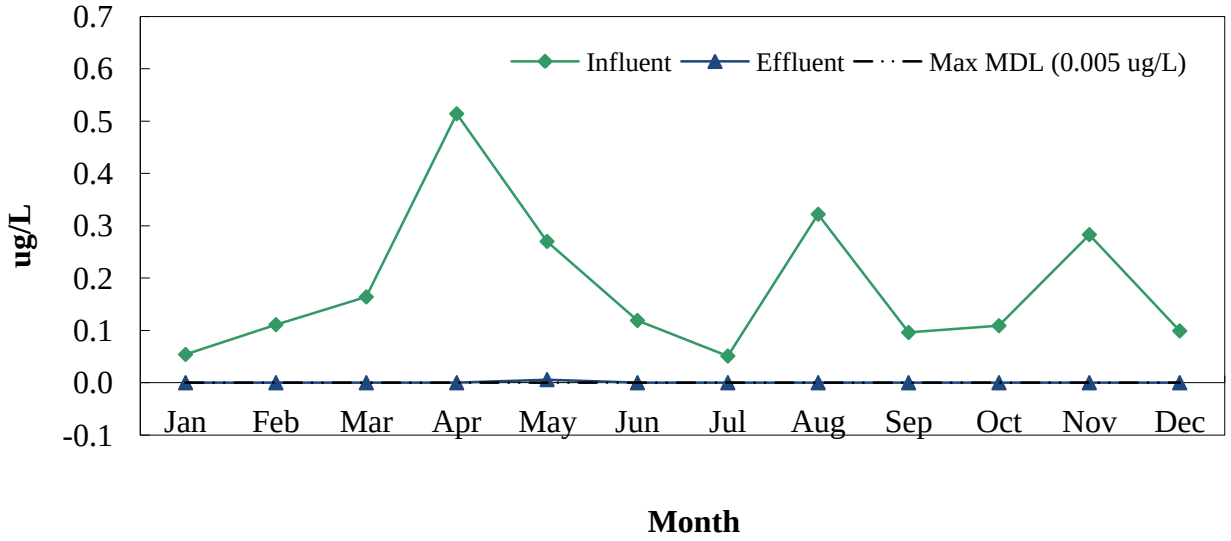


2011 South Bay Water Reclamation Plant
Monthly Averages

Lead

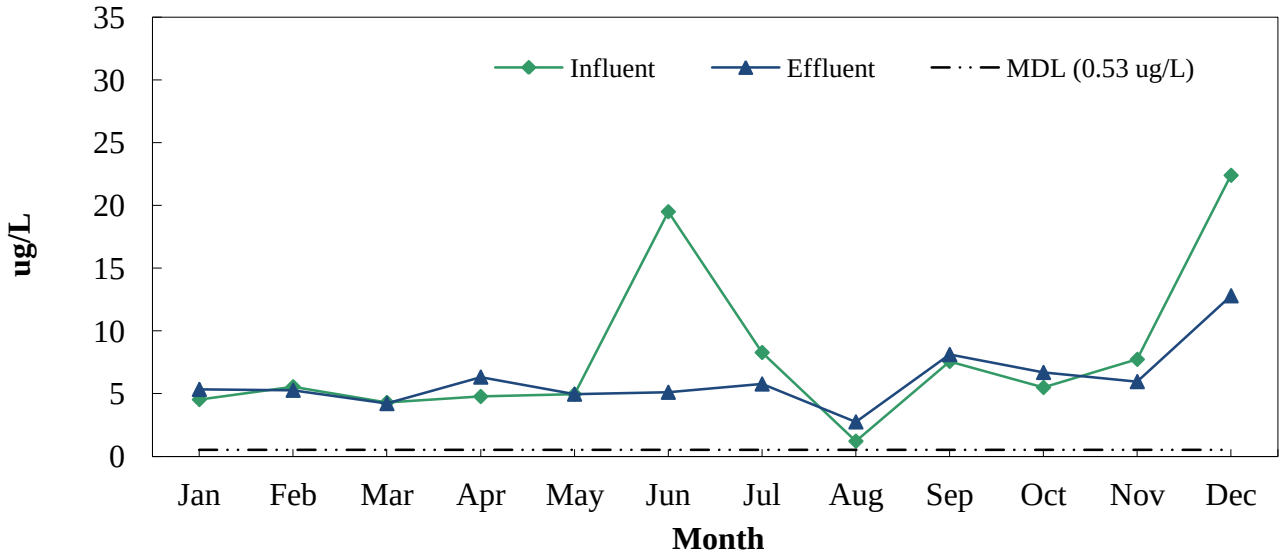


Mercury

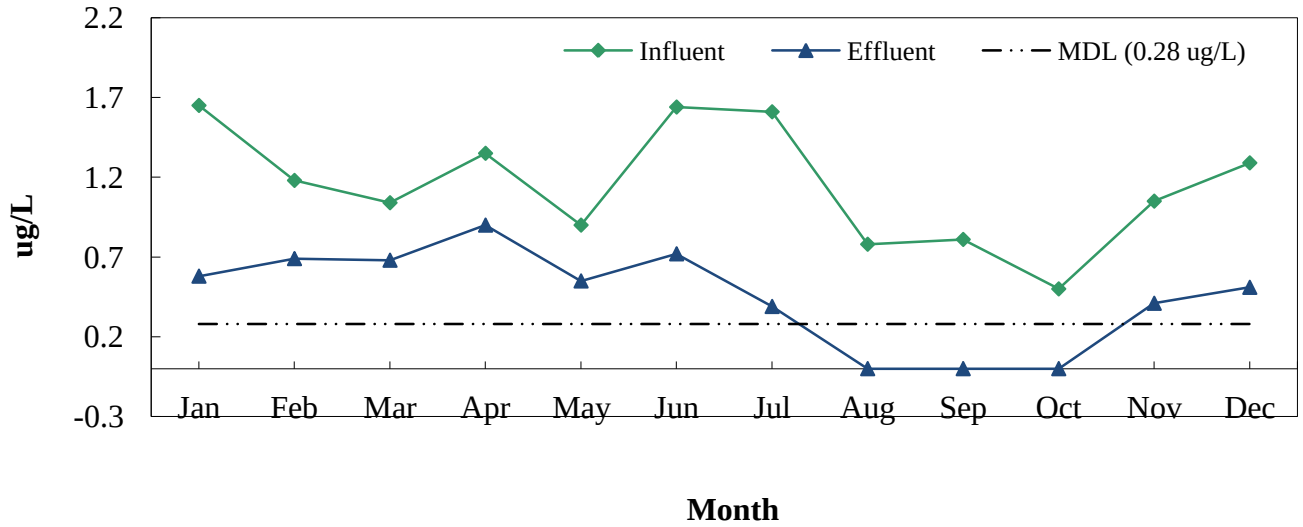


2011 South Bay Water Reclamation Plant
Monthly Averages

Nickel

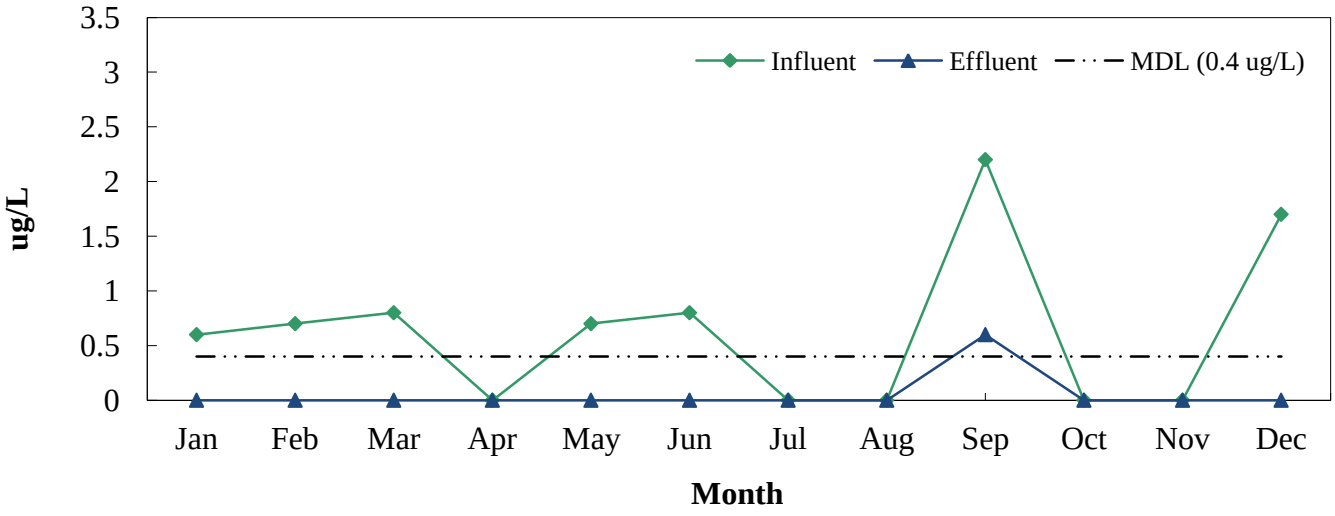


Selenium

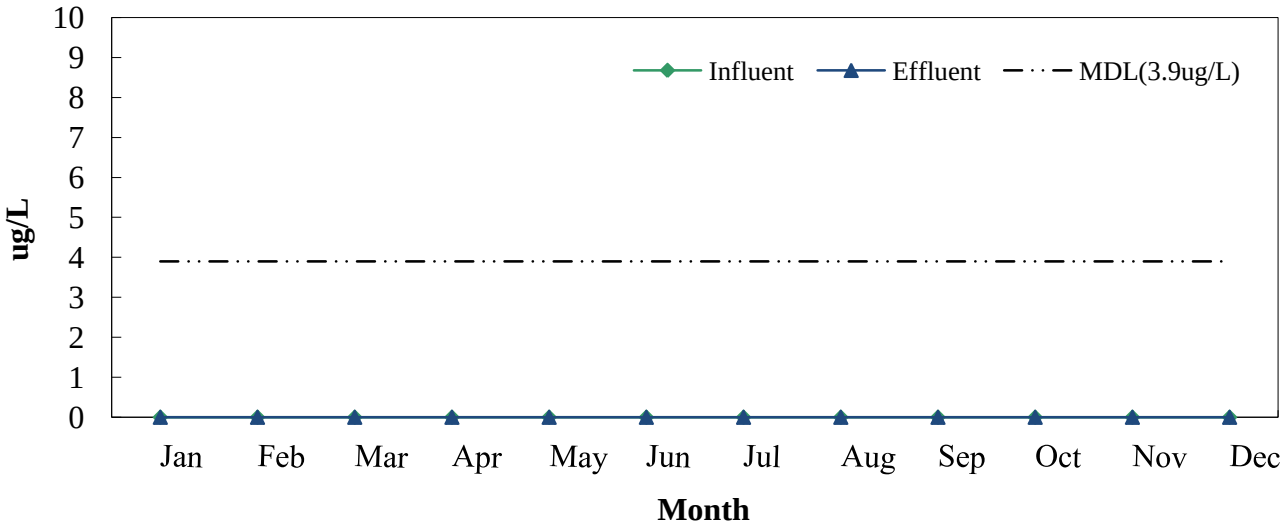


2011 South Bay Water Reclamation Plant
Monthly Averages

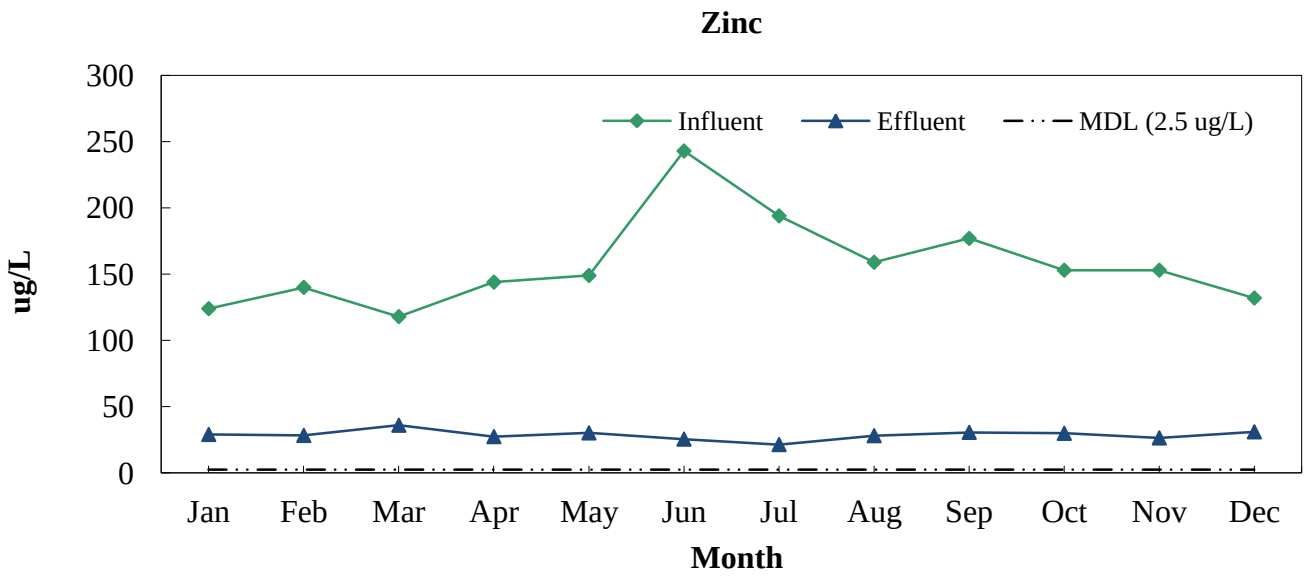
Silver

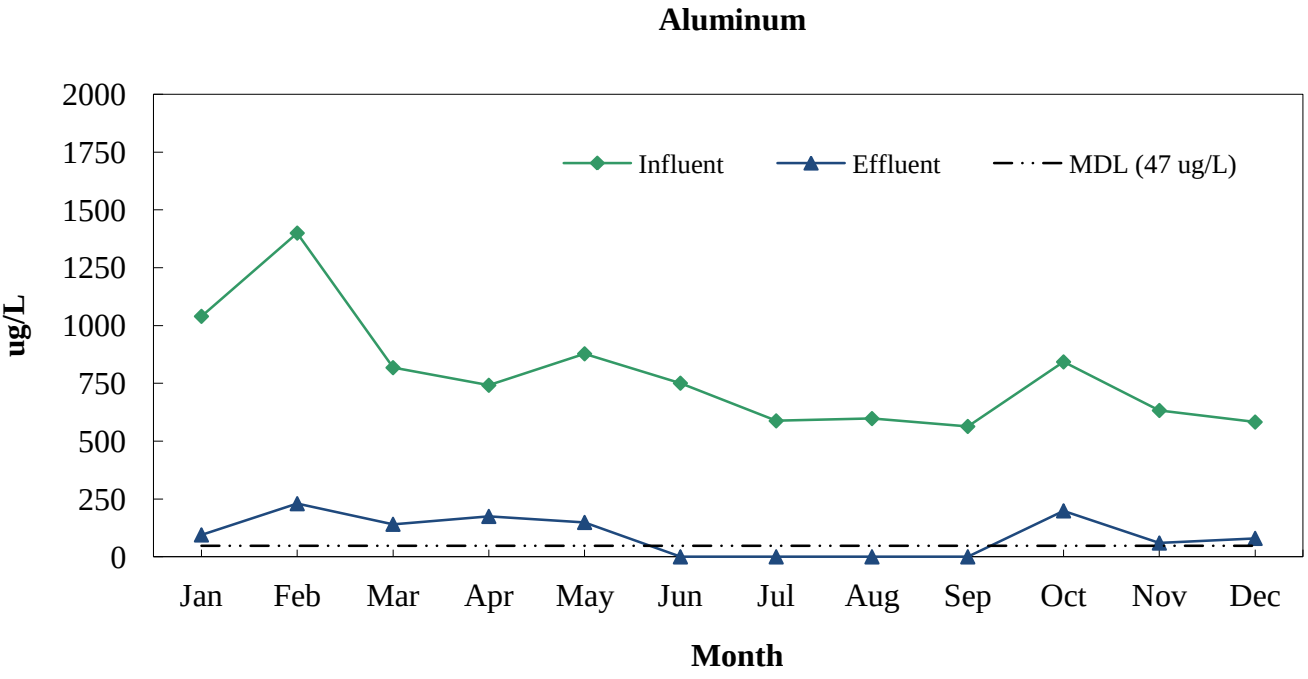


Thallium



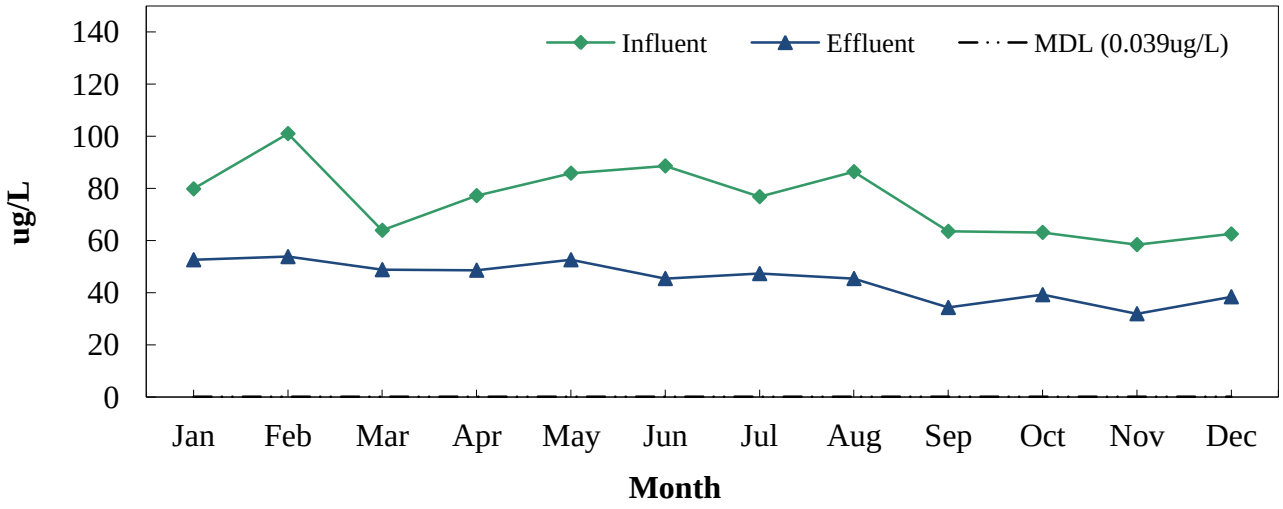
2011 South Bay Water Reclamation Plant
Monthly Averages



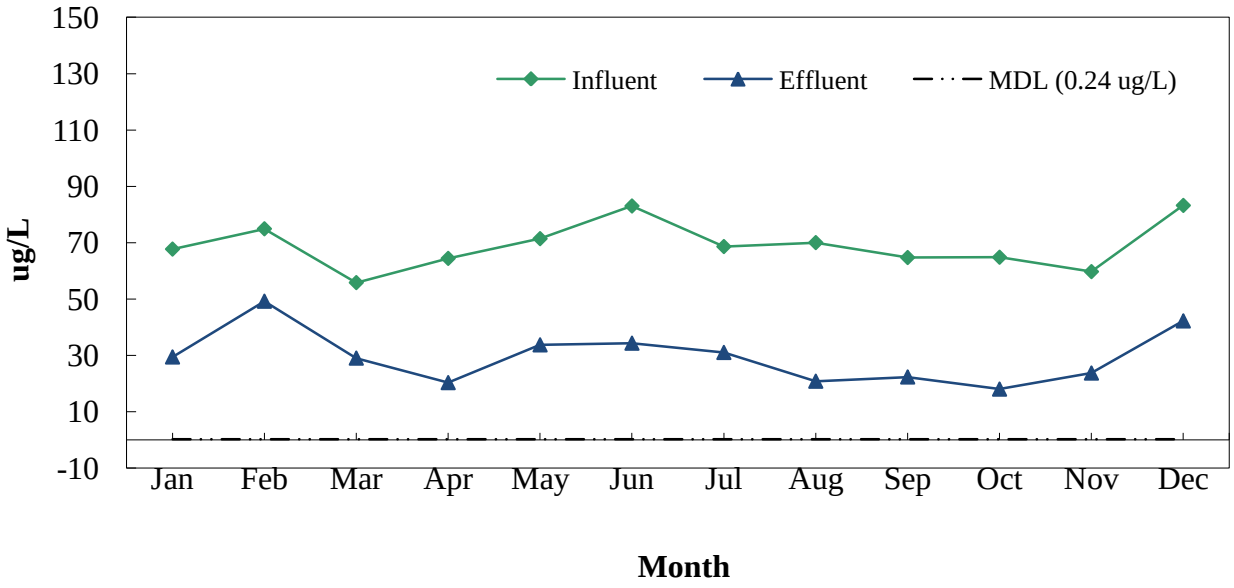


2011 South Bay Water Reclamation Plant
Monthly Averages

Barium

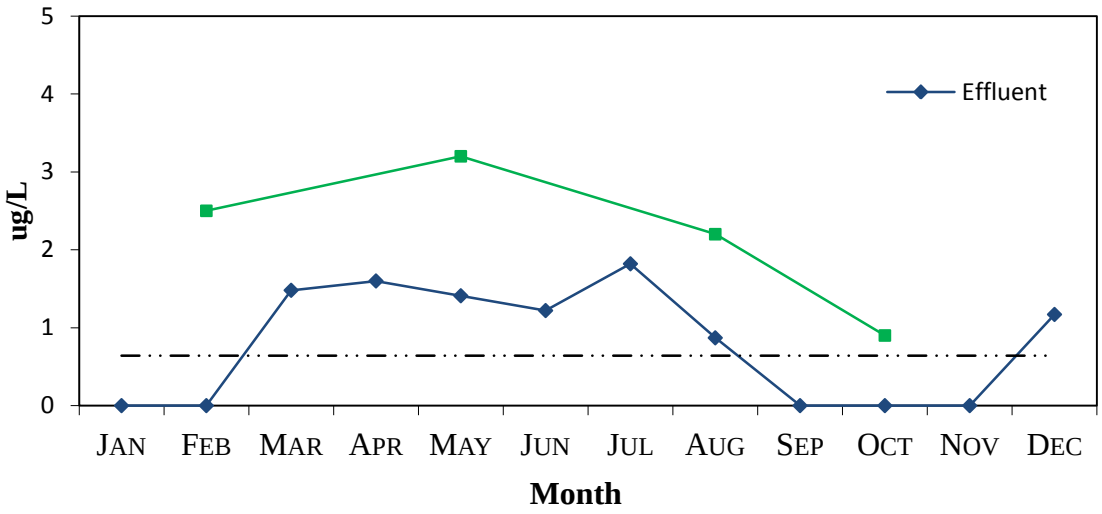


Manganese

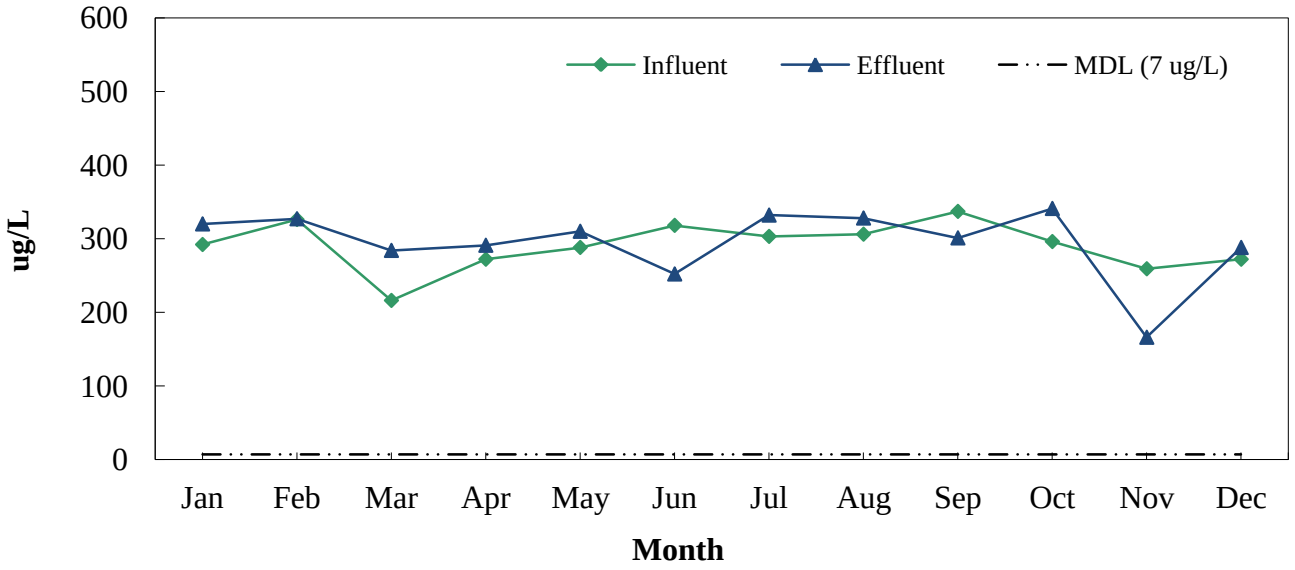


2011 South Bay Water Reclamation Plant
Monthly Averages

Vanadium

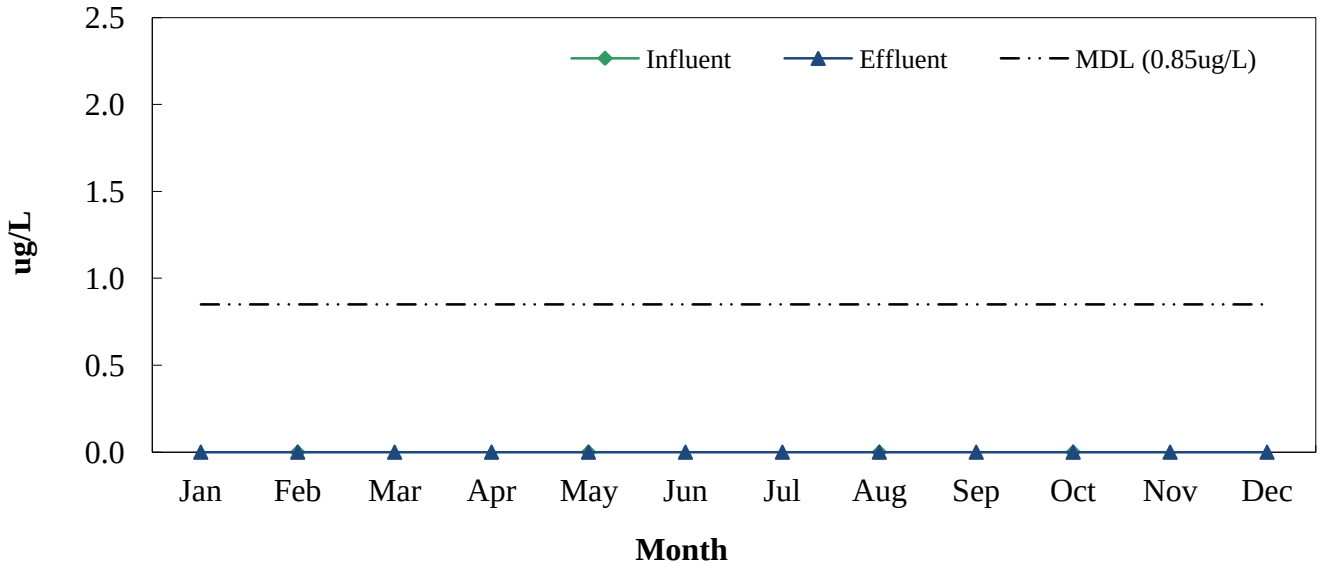


Boron

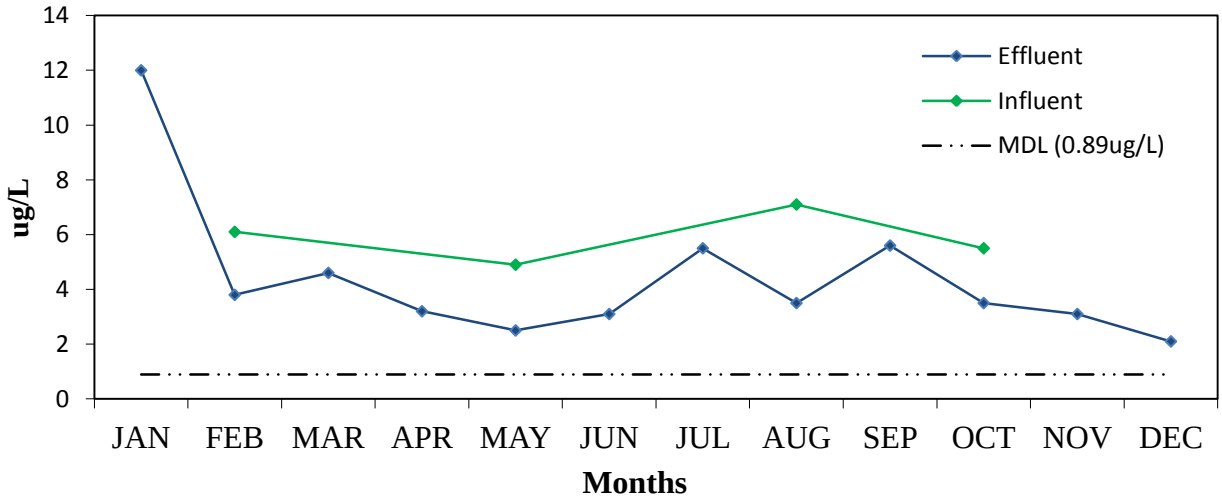


2011 South Bay Water Reclamation Plant
Monthly Averages

Cobalt

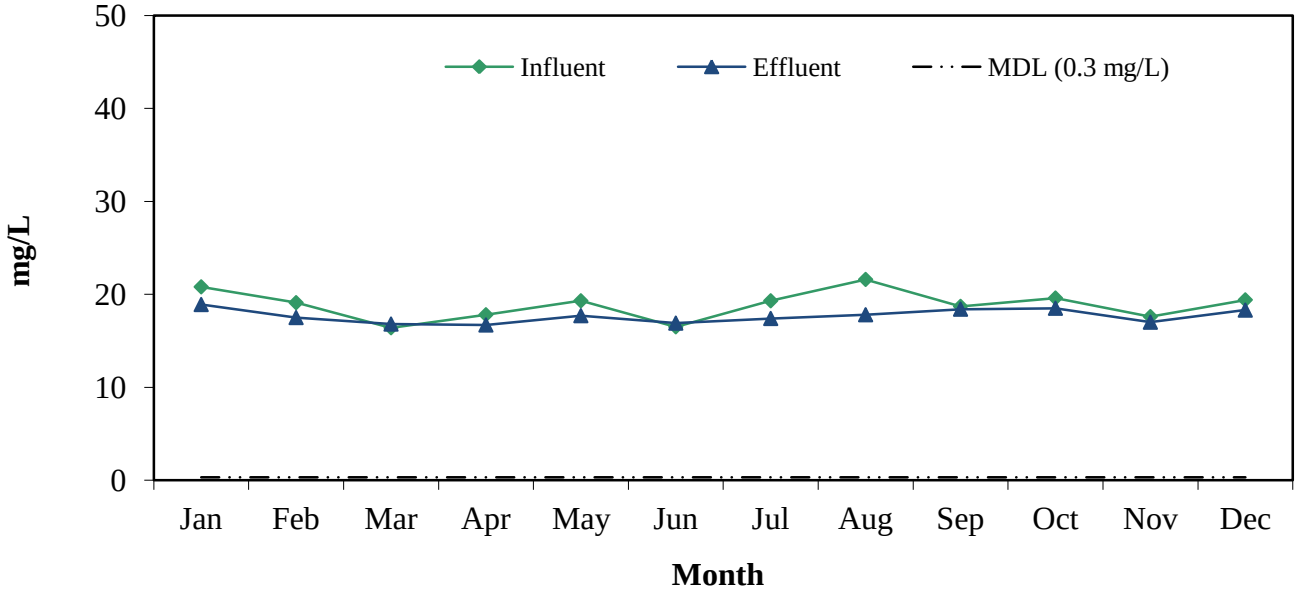


Molybdenum

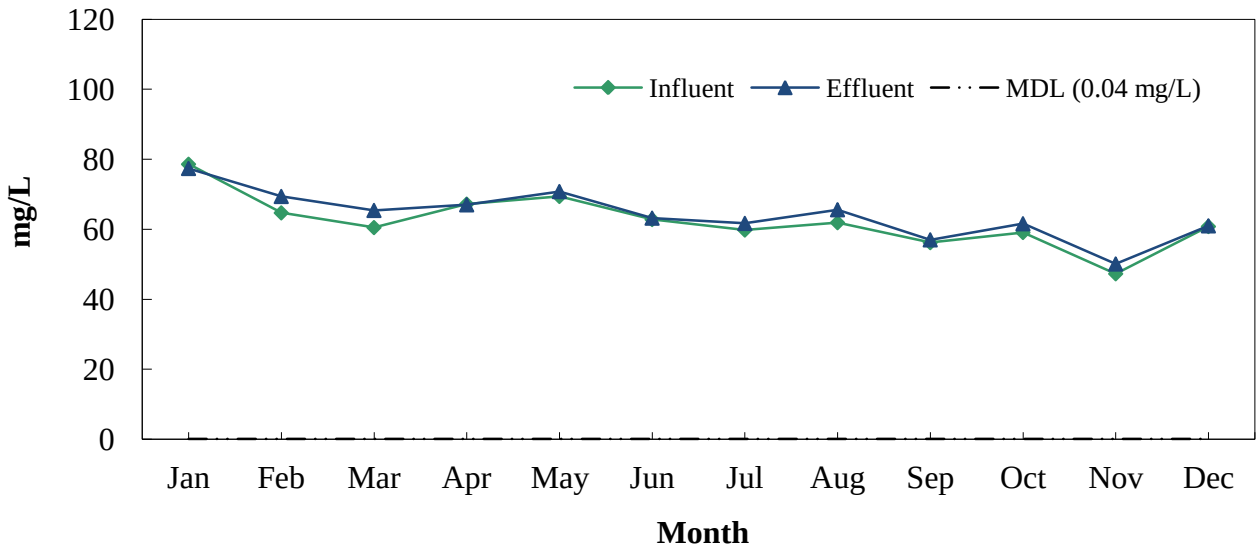


2011 South Bay Water Reclamation Plant
Monthly Averages

Potassium

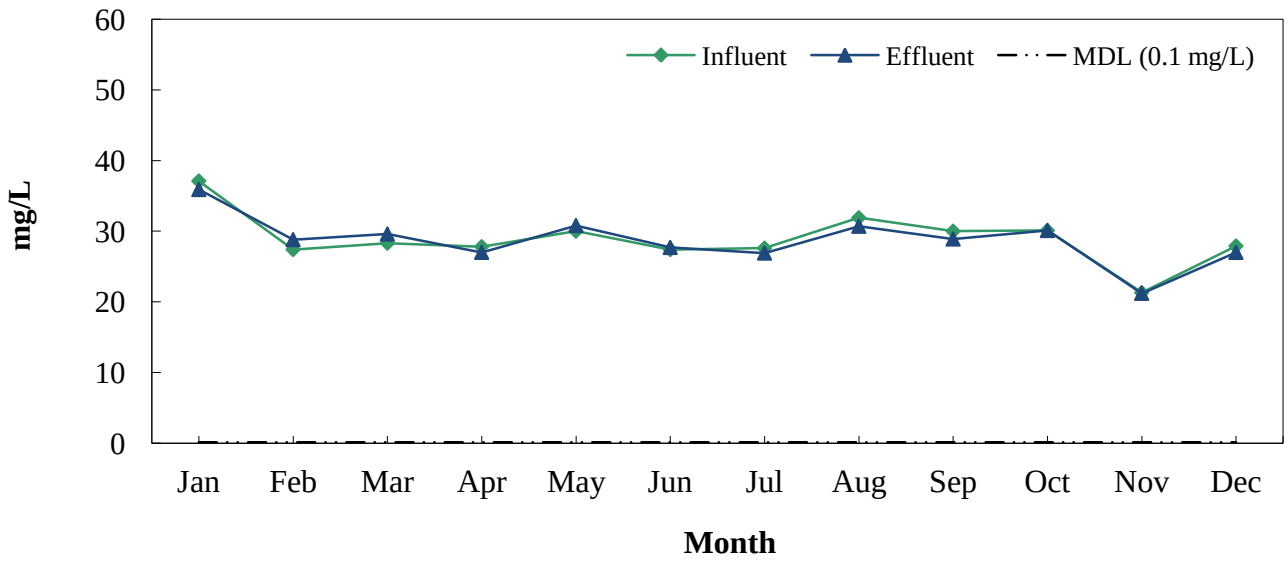


Calcium

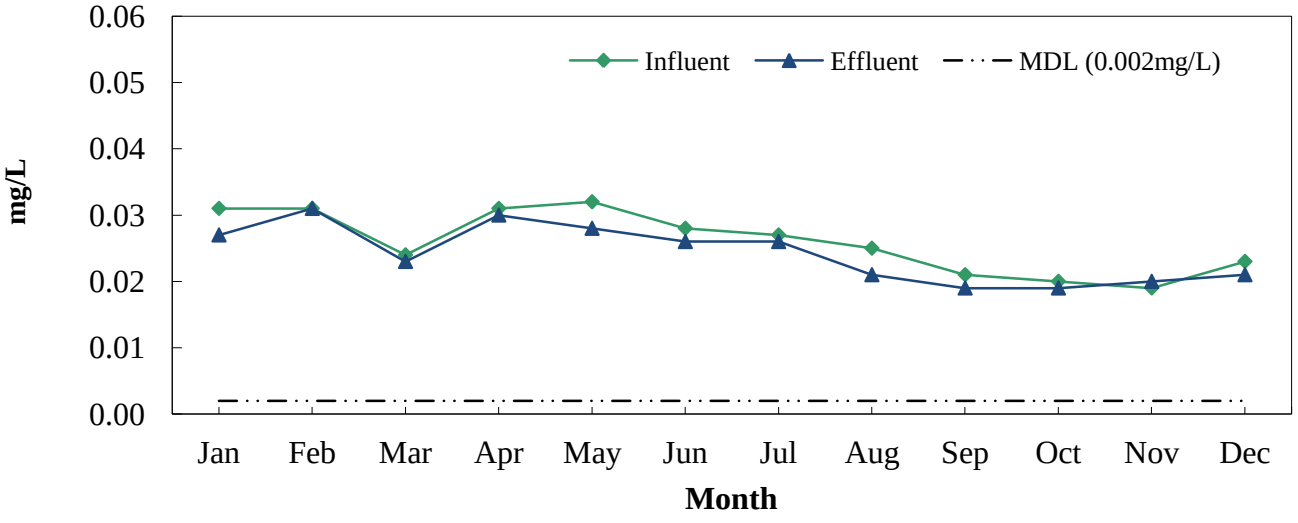


2011 South Bay Water Reclamation Plant
Monthly Averages

Magnesium

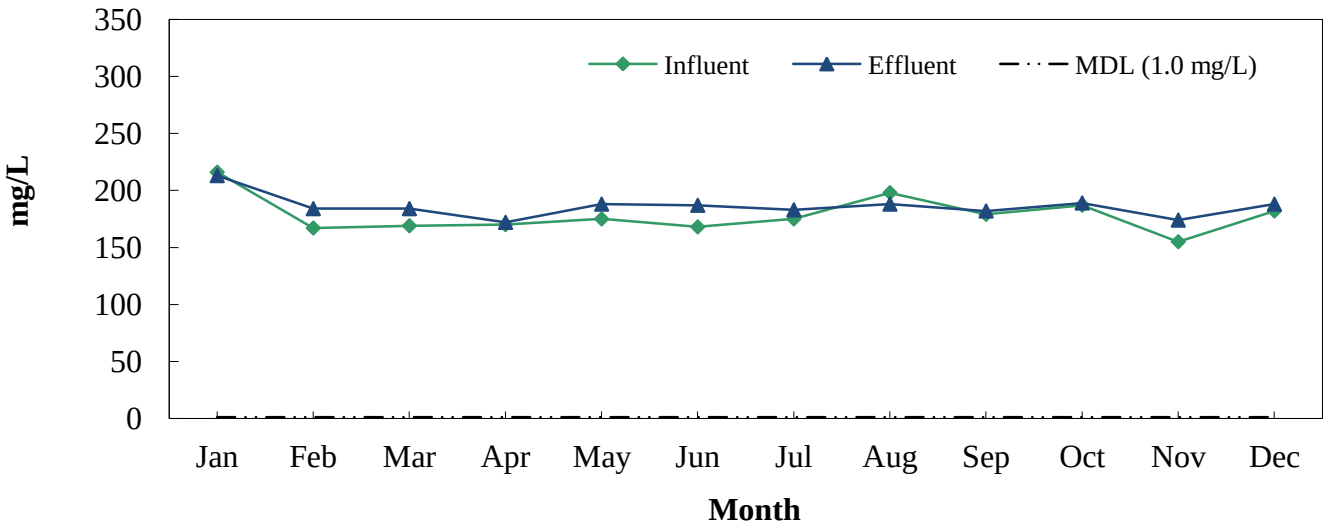


Lithium

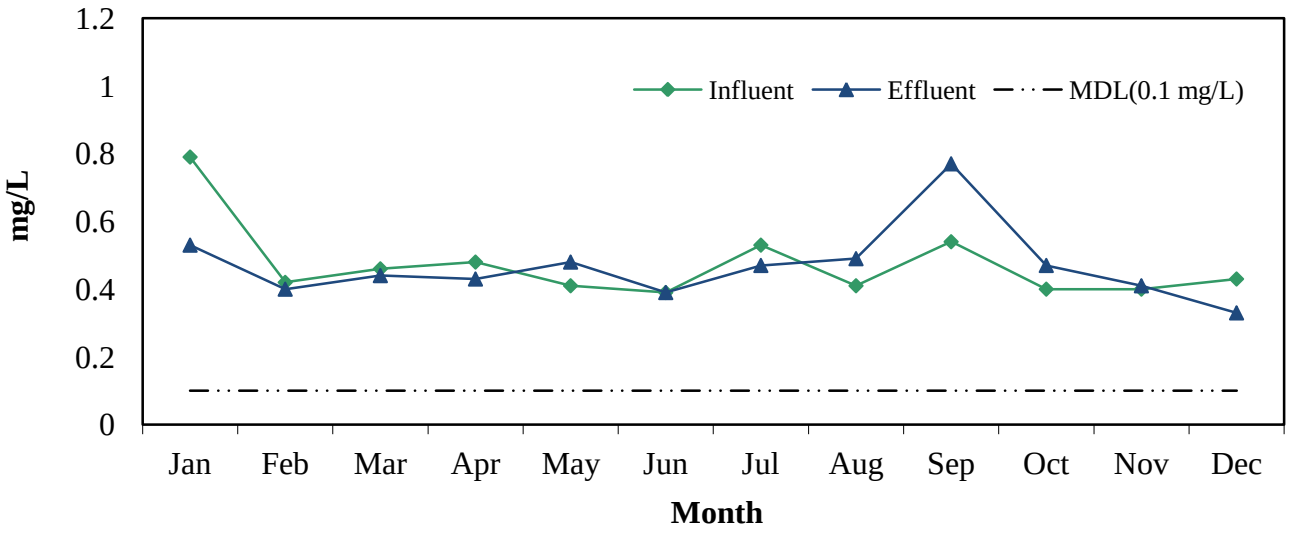


2011 South Bay Water Reclamation Plant
Monthly Averages

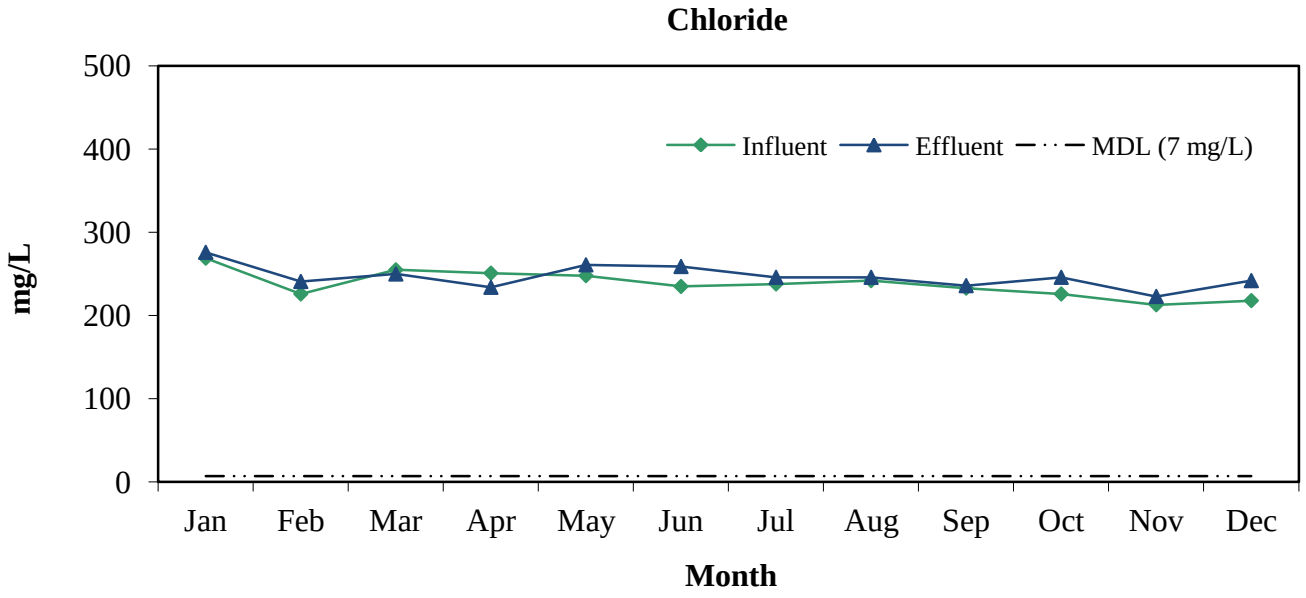
Sodium

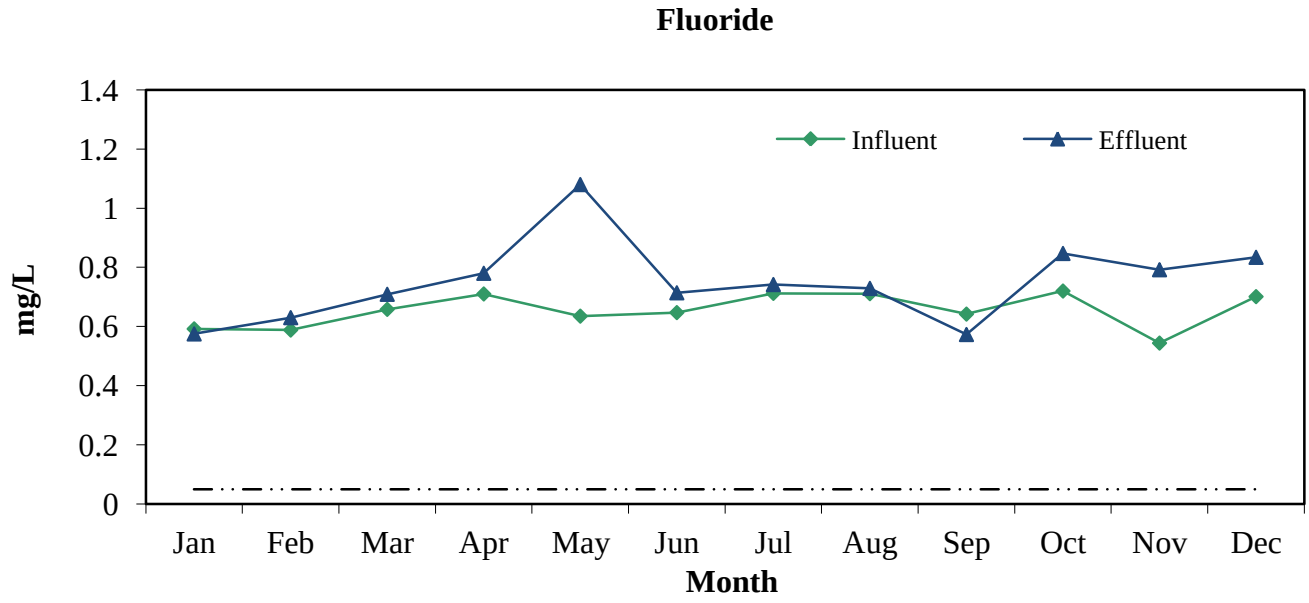


Bromide

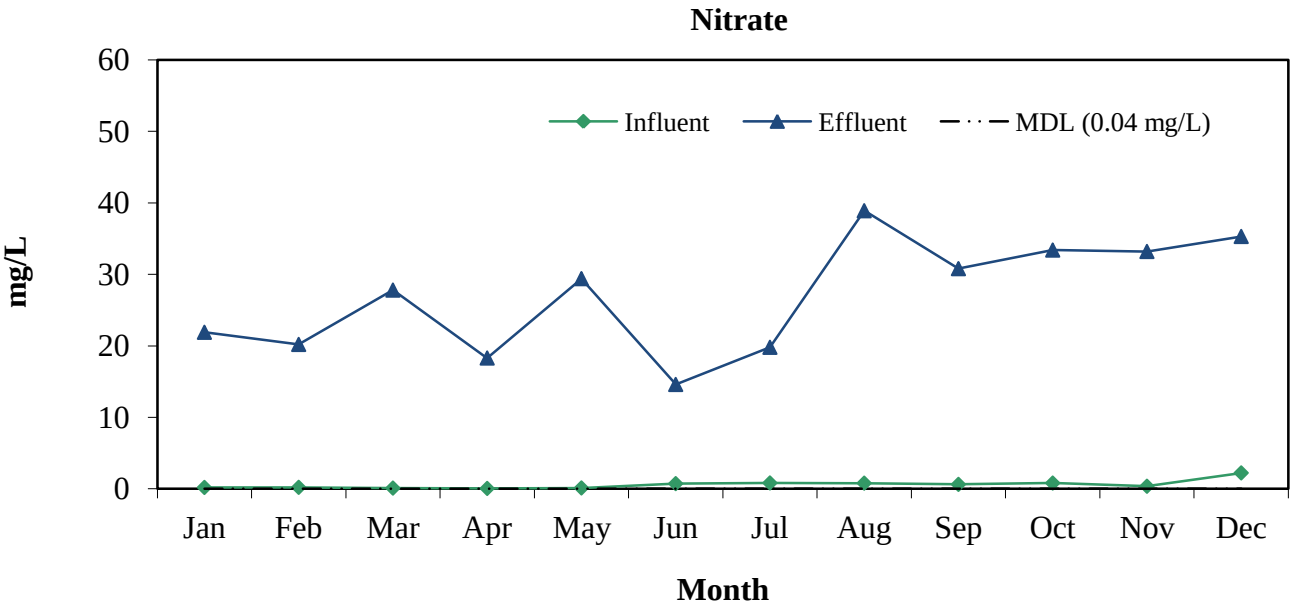


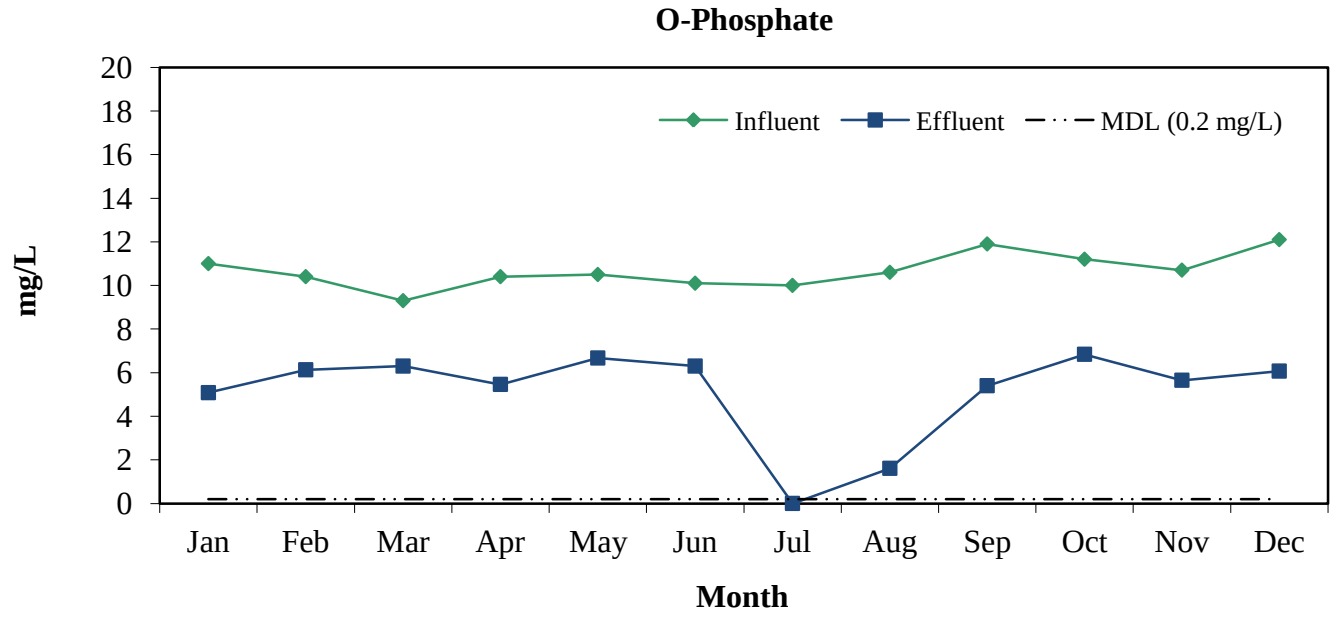
2011 South Bay Water Reclamation Plant
Monthly Averages



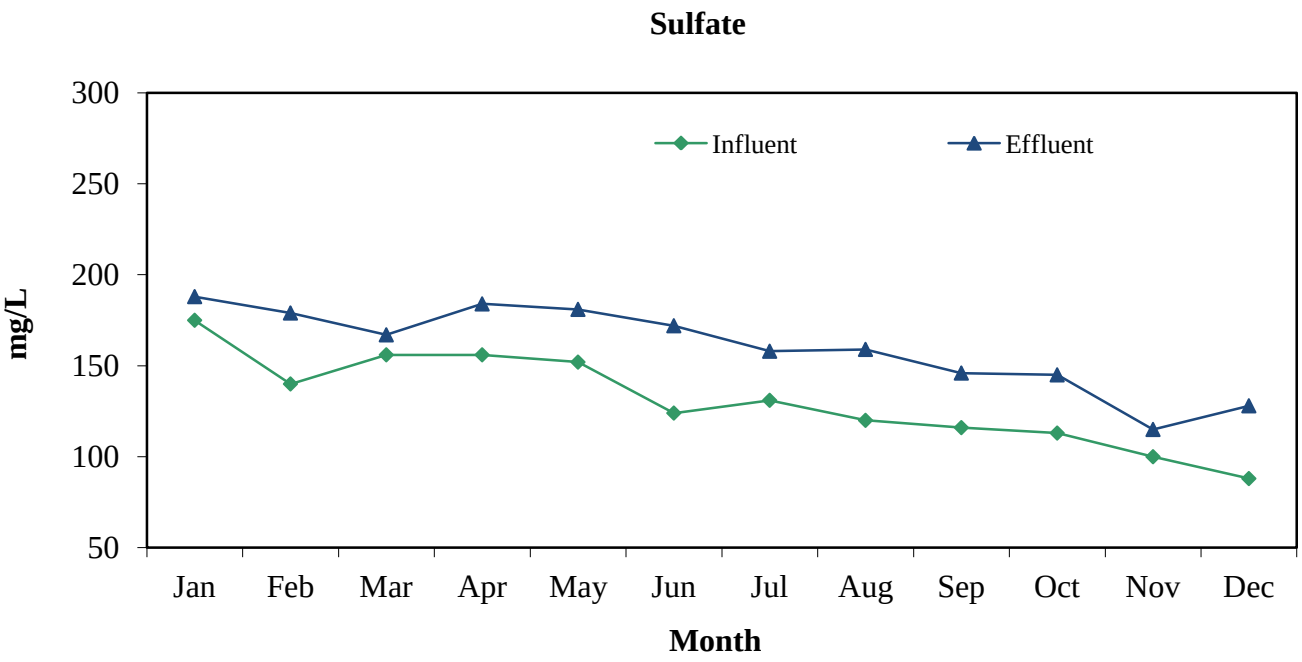


2011 South Bay Water Reclamation Plant
Monthly Averages





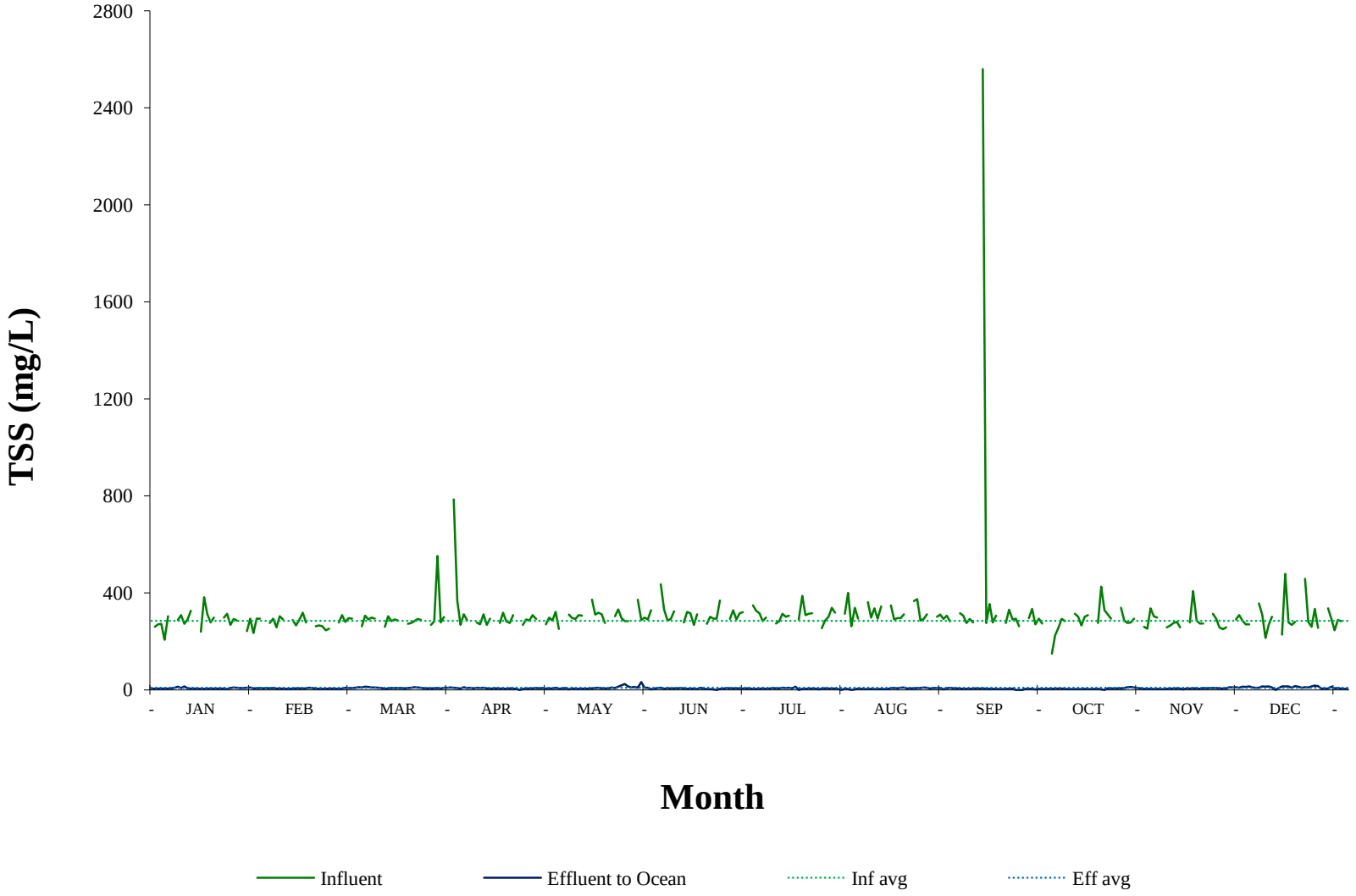
2011 South Bay Water Reclamation Plant
Monthly Averages



E. Daily Values of Selected Parameters.

Daily values of selected parameters (e.g. TSS, Flow, TSS Removals, etc.) are tabulated and presented graphically; statistical summary information is provided.

South Bay Wastewater Reclamation Plant
2011 Total Suspended Solids



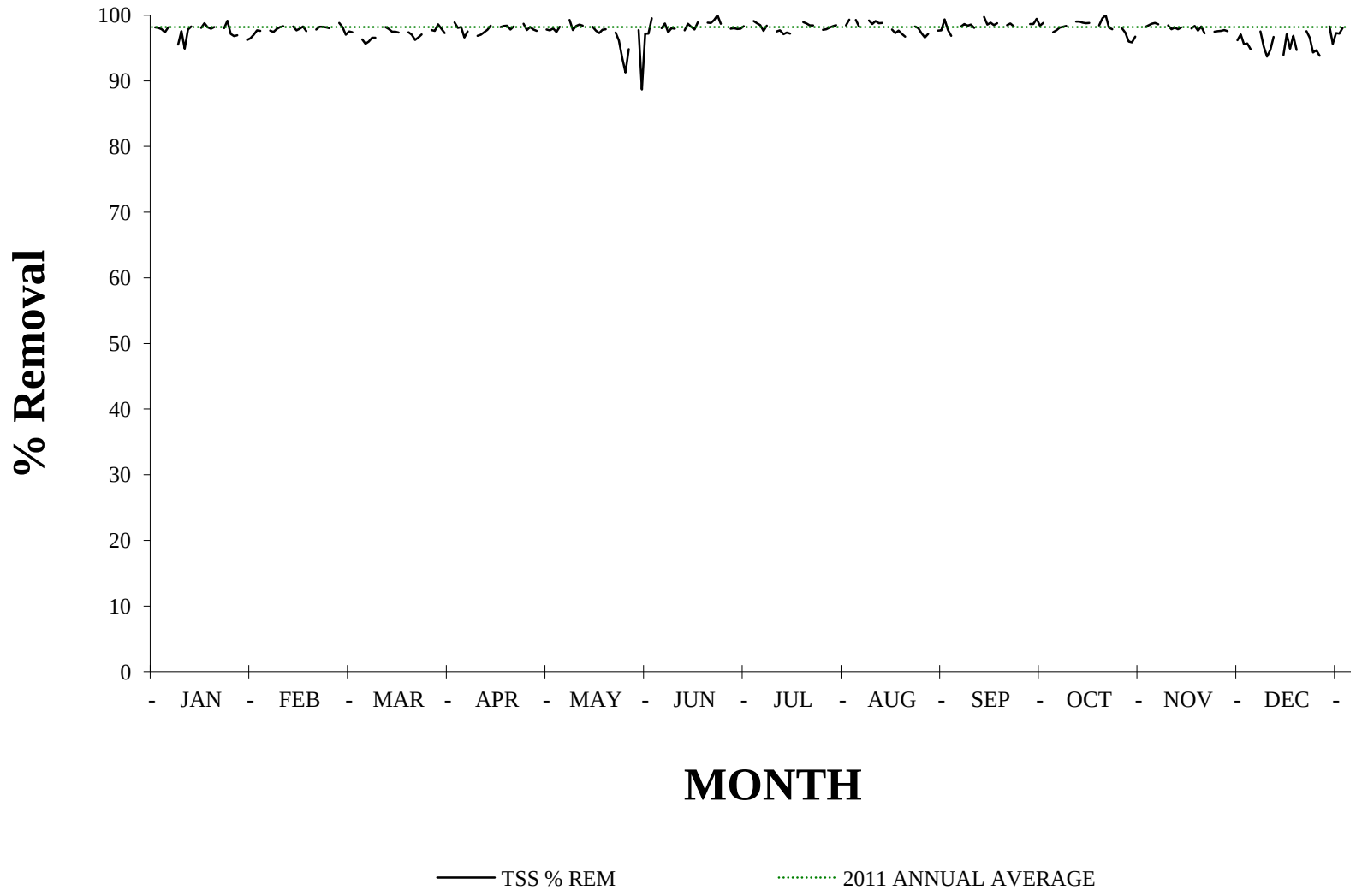
Total Suspended Solids-2011

	Jan		Feb		Mar		Apr		May		Jun		Jul		Aug		Sep		Oct		Nov		Dec	
Day	INF	EFF	INF	EFF	INF	EFF	INF	EFF	INF	EFF	INF	EFF	INF	EFF	INF	EFF	INF	EFF	INF	EFF	INF	EFF	INF	EFF
1		4.35	234	6.90	280	8.29		8.6	270	5.83	290	8.14		6.19	400	2.60	282	8.86		4.00	336	4.40	270	14.00
2	260	4.80	294	6.70	296	7.29		9.5	298	6.86	328	1.50		6.70	262			6.94	150	3.90	304	3.60		9.60
3	270	5.20	294	7.00	294	7.60	785	8.7	286	5.71		4.77	348	3.00	338	2.40		6.71	226	5.20	298	4.10		8.80
4	272	5.80		6.59		9.01	368	7.0	322	8.14		8.00	326	4.00	294	5.10	316	5.43	256	4.80		2.90	356	8.80
5	206	5.30		7.25		11.20	268	4.8	251	4.43	436	8.50	316	4.70		3.80	306	4.14	292	5.10		3.20	310	14.70
6	304	5.62	276	6.50	262	9.67	312	10.6		6.07	332	4.20	284	6.70		3.30	276	4.43	284	4.62	258	4.00	214	13.50
7		6.45	294	7.50	306	13.30	288	7.1		7.57	286	7.38	298	4.70	362	2.80	292	4.10		3.40	266	5.63	268	14.20
8		8.20	258	5.40	290	11.60		8.9	310	2.20	292	5.75		5.15	298	4.00	278	5.38		3.00	276	5.14	302	10.00
9	288	12.80	304	5.50	298	10.20		6.0	296	6.63	324	6.63		7.10	336	3.00		6.86	314	3.00	280	6.00		
10	308	7.50	290	4.80	294	10.00	278	8.7	292	4.70		5.93	274	6.80	294	3.50		5.33	302	2.90	258	4.75		7.20
11	272	13.80		4.03		9.09	270	8.0	308	4.40		7.43	284	6.50	344	4.00	2560	6.14	266	3.00		2.40	228	13.80
12	290	6.30		4.37		7.22	312	8.1	306	4.89	278	6.38	314	9.00		3.00	276	3.90	302	3.70		6.14	478	13.80
13	326	5.60	288	4.90	260	4.67	268	5.9		4.25	322	4.20	302	7.88		3.40	354	4.00	308	3.60	278	5.57	278	14.20
14		5.45	266	6.10	304	6.37	294	4.7		4.94	316	5.50	306	8.50	348	7.62	278	4.20		3.50	408	6.67	268	8.40
15		5.50	290	5.90	284	7.14		6.8	372	6.50	268	5.80		5.94	290	7.88	306	3.70		3.88	286	6.67	280	14.80
16	240	4.58	318	5.50	290	7.29		6.8	310	7.25	312	3.40		13.20	296	6.90		3.40	276	4.24	274	4.67		13.20
17	382	4.70	278	6.70	286	7.57	276	5.0	318	8.57		8.13	290	ND	296	8.38		2.90	426	1.90	274	7.57		8.20
18	312	5.70		8.53		7.75	318	5.2	312	6.86		5.56	388	4.00	312	10.10	276	4.20	328			6.14	458	11.10
19	278	5.70		7.62		6.57	282	4.4	276	5.86	272	3.10	308	3.90		5.75	330	4.10	312	5.88		7.71	280	9.57
20	298	5.40	262	5.63	272	7.00	276	6.0		5.32	302	3.50	314	4.80		5.87	290	4.80	294	6.25	314	7.83	260	14.70
21		5.50	266	4.70	276	8.17	308	5.3		9.68	294	2.10	316	4.90	366	6.30	294			5.43	294	7.14	334	17.90
22		5.45	262	4.60	284	10.70		4.1	304	8.00	294			4.80	374	7.37	262			6.14	258	6.17	256	15.80
23	298	5.80	246	4.50	292	9.86			332	12.70	368	4.70		2.40	286	7.88			338	6.83	250	5.67		5.10
24	314	2.60	252	4.90	288	8.43	268	3.5	296	19.20		5.55	254	5.60	292	9.86		4.10	286	7.67	258	6.29		5.10
25	268	7.60		5.63		6.57	290	6.6	284	24.80		7.86	286	6.10	312	8.83	296	3.90	276	11.00		10.80	336	5.80
26	292	9.30		5.45		6.02	286	5.2	284	14.70	292	6.00	302	5.70		5.32	334	4.50	278	11.50		9.60	294	12.80
27	286	8.70	278	3.30	268	6.00	308	6.7		9.49	328	6.37	338	5.60		7.00	270	1.50	294	9.60	290	11.00	246	6.70
28		7.70	308	5.50	282	6.75	292	7.0		12.20	290	6.00	318	4.80	302	7.00	294	4.60		7.33	308	9.00	288	8.00
29		7.00			552	7.50		6.0	372	8.33	316	6.50		3.38	310	7.13	274	3.20		6.40	286	12.60	284	5.50
30	242	9.10			278	5.74		7.2	288	32.60	320	5.40			292	1.80		3.70	260	4.62	270	11.60		4.43
31	294	10.30			300	8.13			298	8.29			314	4.90	306	6.71			252	3.87				4.13
Ave	286	6.70	278	5.79	297	8.15	317	6.63	304	8.93	312	5.66	309	5.56	318	5.62	402	4.63	287	5.21	287	6.50	299	10.07
Min	206	2.60	234	3.30	260	4.67	268	3.50	251	2.20	268	1.50	254	2.40	262	1.80	262	1.50	150	1.90	250	2.40	214	4.13
Max	382	13.8	318	8.5	552	13.30	785	10.6	372	32.60	436	8.5	388	13.2	400	10.1	2560	8.86	426	11.50	408	12.60	478	17.9

Annual Summary

INF	EFF
308	6.62
240	2.66
625	13.5

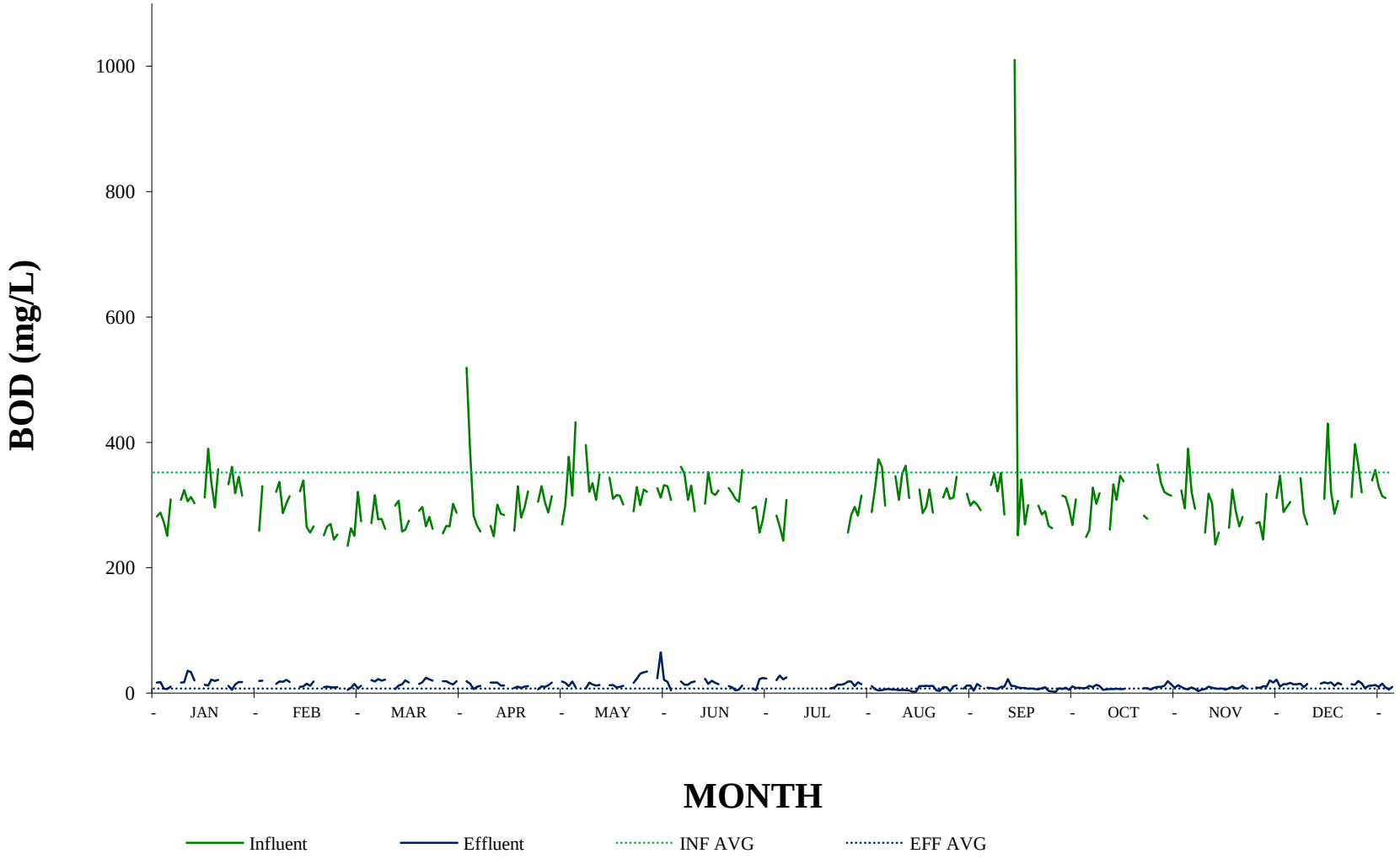
South Bay Wastewater Reclamation Plant
2011 TSS Percent Removal



2011 TSS Percent Removals

Day	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
1		97.1	97.0		97.8	97.2		99.4	96.9		98.7	94.8	
2	98.2	97.7	97.5		97.7	99.5				97.4	98.8		
3	98.1	97.6	97.4	98.9	98.0		99.1	99.3		97.7	98.6		
4	97.9			98.1	97.5		98.8	98.3	98.3	98.1		97.5	
5	97.4			98.2	98.2	98.1	98.5		98.6	98.3		95.3	
6	98.2	97.6	96.3	96.6		98.7	97.6		98.4	98.4	98.4	93.7	
7		97.4	95.7	97.5		97.4	98.4	99.2	98.6		97.9	94.7	
8		97.9	96.0		99.3	98.0		98.7	98.1		98.1	96.7	
9	95.6	98.2	96.6		97.8	98.0		99.1		99.0	97.9		
10	97.6	98.3	96.6	96.9	98.4		97.5	98.8		99.0	98.2		
11	94.9			97.0	98.6		97.7	98.8	99.8	98.9		93.9	
12	97.8			97.4	98.4	97.7	97.1		98.6	98.8		97.1	
13	98.3	98.3	98.2	97.8		98.7	97.4		98.9	98.8	98.0	94.9	
14		97.7	97.9	98.4		98.3	97.2	97.8	98.5		98.4	96.9	
15		98.0	97.5		98.3	97.8		97.3	98.8		97.7	94.7	
16	98.1	98.3	97.5		97.7	98.9		97.7		98.5	98.3		
17	98.8	97.6	97.4	98.2	97.3			97.2		99.6	97.2		
18	98.2			98.4	97.8		99.0	96.8	98.5			97.6	
19	97.9			98.4	97.9	98.9	98.7		98.8	98.1		96.6	
20	98.2	97.9	97.4	97.8		98.8	98.5		98.3	97.9	97.5	94.3	
21		98.2	97.0	98.3		99.3	98.4	98.3			97.6	94.6	
22		98.2	96.2		97.4			98.0			97.6	93.8	
23	98.1	98.2	96.6		96.2	98.7		97.2		98.0	97.7		
24	99.2	98.1	97.1	98.7	93.5		97.8	96.6		97.3	97.6		
25	97.2			97.7	91.3		97.9	97.2	98.7	96.0		98.3	
26	96.8			98.2	94.8	97.9	98.1		98.7	95.9		95.6	
27	97.0	98.8	97.8	97.8		98.1	98.3		99.4	96.7	96.2	97.3	
28		98.2	97.6	97.6		97.9	98.5	97.7	98.4		97.1	97.2	
29			98.6		97.8	97.9		97.7	98.8		95.6	98.1	
30	96.2		97.9		88.7	98.3		99.4		98.2	95.7		
31	96.5		97.3		97.2		98.4	97.8		98.5			Annual Summary
Average	97.5	98.0	97.2	97.9	96.8	98.3	98.2	98.1	98.6	98.0	97.7	95.9	97.7
Minimum	94.9	97.1	95.7	96.6	88.7	97.2	97.1	96.6	96.9	95.9	95.6	93.7	88.7
Maximum	99.2	98.8	98.6	98.9	99.3	99.5	99.1	99.4	99.8	99.6	98.8	98.3	99.8

South Bay Wastewater Reclamation Plant
2011 Biochemical Oxygen Demand

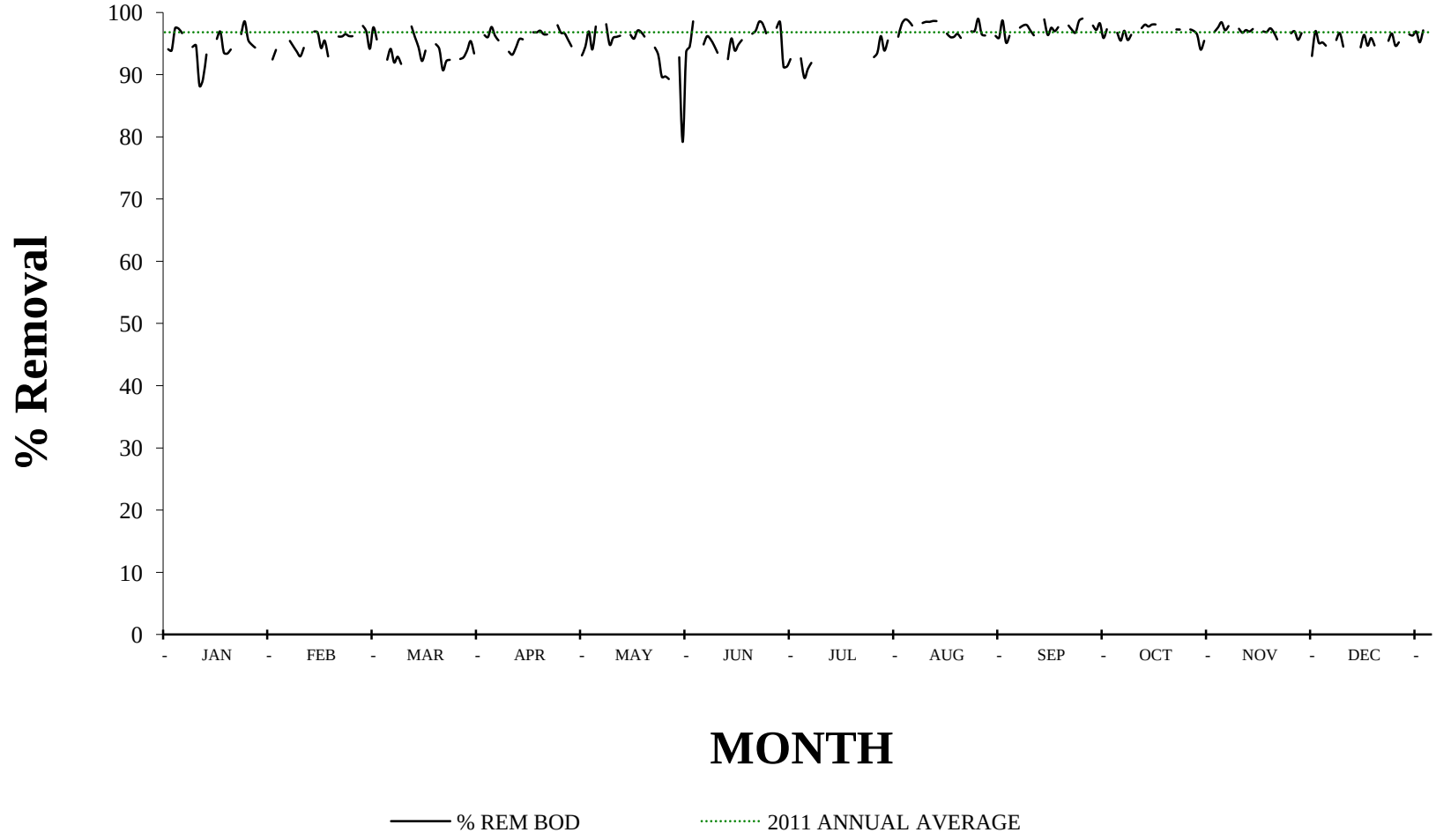


Biochemical Oxygen Demand 2011

	Jan		Feb		Mar		Apr		May		Jun		Jul		Aug		Sep		Oct		Nov		Dec	
Day	INF	EFF	INF	EFF	INF	EFF	INF	EFF	INF	EFF	INF	EFF	INF	EFF	INF	EFF	INF	EFF	INF	EFF	INF	EFF	INF	EFF
1			259	19.6	251	14.7			269	18.6	330	18.3			329	6.17	292	11		7.73	390	6.15	305	16.3
2	282	16.7	330	19.9	321	7.73			300	16.5	308	4.45			373	4.23			249	8.15	321	9.19		13.7
3	288	17.6			274	11.9	519	19	377	11.5			283	20.9	361	5.01		8.55	260	11.8	294	6.45		14.5
4	272	6.9					387	15.3	315	18.8			266	28	299	6.31	332	8.14	328	9.66		3.05	343	15.2
5	251	6.6					283	6.61	432	9.78	361	18.6	243	22.1		6.66	350	7.28	302	13.4		5.78	286	9.49
6	309	10.3	321	14.7	271	20.6	268	10			350	13.4	308	25		5.89	322	6.59	319	11.5	256	6.73	269	14.8
7			337	18.4	316	18.5	258	11.6			308	13.3			346	5.9	351	10.2		5.13	318	10.4		
8			287	18.1	277	22.3			396	7.51	331	17.5			308	4.64	285	10.5		6.17	303	8.62	312	6.63
9	308	17.1	303	21.4	278	19.8			321	16.7	290	18.8			350	5.34		22.4	261	6.59	237	7.29		
10	324	17.2	314	17.9	262	21.7	267	16.9	335	13.7					363	5		11.6	333	6.54	256	6.83		15.2
11	306	36.0					250	17	308	12.1					311	4.35	1010	11.3	308	6.99		7.52	310	17.4
12	313	33.7					301	17.1	349	13.1	302	22.7				2.41	252	9.14	347	6.75		5.78	430	15.5
13	303	20.5	322	9.88	299	6.74	286	12.3			353	14.8				2.31	341	8.41	338	6.54	264	8.06	321	17.2
14			339	11	307	12.3	284	12.3			320	19.7			325	11.1	269	8.13			325	10.2	286	11.8
15			265	15.2	258	14.4			344	12.4	316	16.4			287	11.4	300	7.15			290	7.4	307	16.3
16	312	13.3	256	11.6	261	20.4			310	13.1	323	14.4			297	11.7		7.23			266	8.46		13.7
17	390	12.1	266	18.8	275	16.9	259	8.26	316	9.26					325	11.2		6.55			281	12.2		
18	335	21.6					330	10.6	315	9.87					288	11.8	299	6.32				7.99		
19	296	19.6					280	8.22	301	11.7	327	11.2	301	7.92		4.24	285	8.05	283	7.76			313	14.3
20	357	21.3	252	9.76	291	14.9	296	10.4			319	9.36		8.65		3.53	290	9.42	278	7.66			397	13.5
21			266	10.3	297	17.5	322	11.4			310	4.61	356	13.8	312	9.49	267	3.65		5.69	271	9.1	364	19.5
22			270	9.44	266	24.7			290	16.4	305	5.52		13.6	327	9.73	263	2.6		8.61	273	8.29	320	15.4
23	333	11.6	245	9.33	281	22			329	22.7	356	12		14.6	310	3.13		2	365	10	245	10.8		7.72
24	361	5.2	253	9.68	262	20	305	6.27	300	31.1			256	18.4	312	10.9		7.97	336	10	318	10.6		11.7
25	319	14.0					330	10.8	325	33.4			284	18.4	345	12.8	315	6.66	321	11.6		20.4	339	12
26	345	17.8					304	10.2	321	34.4	295	7.31	297	11.3			313	8.81	317	19		17	356	13.2
27	315	17.8	235	5.09	255	19.1	288	12.6			298	4.65	283	17.4		7.48	294	5.14	315	14.4	311	21.8	329	10.1
28			263	8.15	267	19.2	314	17.1			256	22.4	315	14.2	318	12	268	11		8.72	347	10.5	314	15.1
29					266	16.2			327	23.6	276	24			299	12.2	309	8.38		12.6	289	14.2	311	8.98
30	332				302	13.9			312	65	310	23.3			306	3.91		8.62	323	10	297	14.3		5.71
31					288	19			332	21.2			289	11.3	301	14.6			295	7.08				10.1
Avg	317	16.84	283	13.59	279	17.15	307	12.20	327	19.24	316	14.40	290	16.37	321	7.51	334	8.37	313	9.23	293	10.13	327	13.1
Min	251	5.15	235	5.09	251	6.74	250	6.27	269	7.51	256	4.45	243	7.92	287	2.31	252	2.00	249	5.13	237	3.05	269	5.71
Max	390	36.00	339	21.4	321	24.7	519	19.0	432	65.0	361	24.0	356	28.00	373	14.6	1010	22.40	365	19.0	390	21.8	430	19.5

Annual Summary	
INF	EFF
309	13.18
235	2.00
1010	65.0

South Bay Wastewater Reclamation Plant
2011 BOD Percent Removal



2011 BOD Percent Removals

Day	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
1		92.4	94.1		93.1	94.5		98.1	96.2		98.4	94.7	
2	94.1	94.0	97.6		94.5	98.6		98.9		96.7	97.1		
3	93.9		95.7	96.3	96.9		92.6	98.6		95.5	97.8		
4	97.5			96.0	94.0		89.5	97.9	97.5	97.1		95.6	
5	97.4			97.7	97.7	94.8	90.9		97.9	95.6		96.7	
6	96.7	95.4	92.4	96.3		96.2	91.9		98.0	96.4	97.4	94.5	
7		94.5	94.1	95.5		95.7		98.3	97.1		96.7		
8		93.7	91.9		98.1	94.7		98.5	96.3		97.2	97.9	
9	94.4	92.9	92.9		94.8	93.5		98.5		97.5	96.9		
10	94.7	94.3	91.7	93.7	95.9			98.6		98.0	97.3		
11	88.2			93.2	96.1			98.6	98.9	97.7		94.4	
12	89.2			94.3	96.2	92.5			96.4	98.1		96.4	
13	93.2	96.9	97.7	95.7		95.8			97.5	98.1	96.9	94.6	
14		96.8	96.0	95.7		93.8		96.6	97.0		96.9	95.9	
15		94.3	94.4		96.4	94.8		96.0	97.6		97.4	94.7	
16	95.7	95.5	92.2		95.8	95.5		96.1			96.8		
17	96.9	92.9	93.9	96.8	97.1			96.6			95.7		
18	93.6			96.8	96.9			95.9	97.9				
19	93.4			97.1	96.1	96.6	97.4		97.2	97.3		95.4	
20	94.0	96.1	94.9	96.5		97.1			96.8	97.2		96.6	
21		96.1	94.1	96.5		98.5	96.1	97.0	98.6		96.6	94.6	
22		96.5	90.7		94.3	98.2		97.0	99.0		97.0	95.2	
23	96.5	96.2	92.2		93.1	96.6		99.0		97.3	95.6		
24	98.6	96.2	92.4	97.9	89.6		92.8	96.5		97.0	96.7		
25	95.6			96.7	89.7		93.5	96.3	97.9	96.4		96.5	
26	94.8			96.6	89.3	97.5	96.2		97.2	94.0		96.3	
27	94.3	97.8	92.5	95.6		98.4	93.9		98.3	95.4	93.0	96.9	
28		96.9	92.8	94.6		91.3	95.5	96.2	95.9		97.0	95.2	
29			93.9		92.8	91.3		95.9	97.3		95.1	97.1	
30			95.4		79.2	92.5		98.7		96.9	95.2		
31			93.4		93.6		96.1	95.1		97.6			Annual Summary
Average	94.6	95.24	93.8	96.0	94.0	95.4	93.9	97.3	97.4	96.8	96.6	95.7	95.6
Minimum	88.2	92.43	90.7	93.2	79.2	91.3	89.5	95.1	95.9	94.0	93.0	94.4	79.2
Maximum	98.6	97.8	97.7	97.9	98.1	98.6	97.4	99.0	99.0	98.1	98.4	97.9	99.0

F. Toxicity Testing: South Bay Water Reclamation Plant 2011

INTRODUCTION

The City of San Diego's Toxicology Laboratory (CSDTL) conducted aquatic toxicity tests (bioassays) as required by its NPDES Permit No. CA0109045, Order No. R9-2006-0067 for the South Bay Water Reclamation Plant (SBWRP). The testing requirements are designed to determine the acute and chronic toxicity of effluent samples collected from the SBWRP. In accordance with the above Order, the City also conducted toxicity tests of the combined effluent samples for the SBWRP and adjacent International Wastewater Treatment Plant (IWTP). This chapter presents summaries and discussion of all toxicity tests conducted in 2011.

Toxicity testing of wastewater effluent measures the bioavailability of toxicants in a complex mixture, accounts for interactions among potential toxicants, and integrates the effects of all constituents. Acute and chronic bioassays are characterized by the duration of exposure of test organisms to a toxicant as well as the adverse effect (measured response) produced as the result of exposure to a toxicant.

Acute toxicity testing consists of a short-term exposure period, usually 96 hours or less, and the acute effect refers to mortality of the test organism. The City of San Diego is required to conduct acute toxicity tests of SBWRP effluent and the SBWRP/IWTP combined effluent on a quarterly schedule.

Chronic toxicity testing, in the classic sense, refers to long-term exposure of the test organism to a potential toxicant. This may involve exposing the test organism for its entire reproductive life cycle, which may exceed 12 months for organisms such as fish. In general, chronic tests are inherently more sensitive to toxicants than acute tests in that adverse effects are detected at lower toxicant concentrations. The City of San Diego is required to conduct monthly critical/early life stage chronic tests of SBWRP effluent that are intermediate between the acute and chronic toxicity testing protocols discussed above. In addition, the City is required to conduct chronic toxicity tests of the SBWRP/IWTP combined effluent on a quarterly basis. These test results serve as short-term estimates of chronic toxicity.

MATERIALS & METHODS

Test Material

SBWRP Effluent

Twenty-four hour, flow-weighted, effluent composite samples were collected at the in-stream sampling site (designated SB_Outfall_00) for the SBWRP and stored at 4 ºC until test initiation. All tests were initiated within 36 hours of sample collection. The effluent exposure series

consisted of 3.88, 7.75, 15.5, 31.0, and 62.0% (nominal) for the acute tests and 0.26, 0.53, 1.05, 2.10, and 4.20% for the chronic tests. Dilution water for all tests (effluent and reference toxicant) was obtained from the Scripps Institution of Oceanography (SIO), filtered, held at 4 ºC, and used within 96 hours of collection or frozen to produce hypersaline brine. Detailed descriptions for all toxicity tests are provided in the City of San Diego Toxicology Laboratory Quality Assurance Manual (City of San Diego 2012).

Combined Effluent

Composite samples for these bioassays were collected during overlapping 24-hour sampling period by SBWRP and IWTP personnel at their respective facilities and combined in the laboratory in accordance with a ratio that is proportional to the flow from each treatment plant at the time of sample collection.

Effluent samples were stored at 4 ºC and testing was initiated within 36 hours of sample collection. The effluent exposure series consisted of 3.88, 7.75, 15.5, 31.0, and 62.0% (nominal) for the acute tests and 0.26, 0.53, 1.05, 2.10, and 4.20% for the chronic tests. Dilution water for all tests (effluent and reference toxicant) was obtained from the Scripps Institution of Oceanography (SIO), filtered, held at 4 ºC, and used within 96 hours of collection or frozen to produce hypersaline brine. Detailed descriptions for all toxicity tests are provided in the City of San Diego Toxicology Laboratory Quality Assurance Manual (City of San Diego 2012).

Acute Bioassays

Topsmelt Survival Bioassay

During the current reporting period, acute bioassays using the topsmelt *Atherinops affinis* were conducted for the SBWRP effluent and the IWTP/SBWRP combined effluent (Combined Effluent) on a quarterly basis. For the SBWRP effluent, these tests were performed as a part of the routine monitoring program. For the Combined Effluent, these tests were performed as a part of the mandated multiple-species screening effort. All tests were conducted in accordance with USEPA protocol EPA-821-R-02-012 (USEPA 2002).

Larval topsmelt (9-14 days old) were purchased from Aquatic Bio Systems (Fort Collins, CO), and acclimated to test temperature and salinity for at least 24 hours. Upon test initiation, the topsmelt (10 per replicate) were exposed for 96 hours in a static-renewal system to the effluent exposure series. Dilution water and brine controls were also tested. The test solutions were renewed at 48 hours and the organisms were fed once daily.

Simultaneous reference toxicant testing was performed using reagent grade copper chloride plus a negative control (i.e., SIO seawater). Test concentrations consisted of 56, 100, 180, 320, and 560 µg/L copper. Dilution water was obtained from SIO, filtered, held at 4 ºC, and used within 96 hours of collection. Upon conclusion of the exposure period, percent survival was recorded. Tests were declared valid if control mortality did not exceed 10%. Data were analyzed using a multiple comparison and point estimation methods prescribed by USEPA (2002). ToxCalc

(Tidepool Scientific Software 2002) and CETIS (Tidepool Scientific Software 2010) were used for all statistical analyses. In addition, all multi-concentration tests conducted according to EPA-821-R02-012 are subjected to an evaluation of the concentration-response relationship.

Mysid Survival Bioassay

During the current reporting period, acute bioassays using the topsmelt *Atherinops affinis* were conducted for the IWTP/SBWRP combined effluent (Combined Effluent) on a quarterly basis as a part of the mandated multiple-species screening effort. All tests were conducted in accordance with USEPA protocol EPA-821-R-02-012 (USEPA 2002).

Larval mysids (4-5 days old) were purchased from Aquatic Bio Systems (Fort Collins, CO), and acclimated to test temperature and salinity for at least 24 hours. Upon test initiation, the mysids (10 per replicate) were exposed for 96 hours in a static-renewal system to the effluent exposure series. Dilution water and brine controls were also tested. The test solutions were renewed at 48 hours and the organisms were fed once daily.

Simultaneous reference toxicant testing was performed using reagent grade copper chloride plus a negative control (i.e., SIO seawater). Test concentrations consisted of 56, 100, 180, 320, and 560 µg/L copper. Dilution water was obtained from SIO, filtered, held at 4 ºC, and used within 96 hours of collection. Upon conclusion of the exposure period, percent survival was recorded. Tests were declared valid if control mortality did not exceed 10%. Data were analyzed using a multiple comparison and point estimation methods prescribed by USEPA (2002). ToxCalc (Tidepool Scientific Software 2002) and CETIS (Tidepool Scientific Software 2010) were used for all statistical analyses. In addition, all multi-concentration tests conducted according to EPA-821-R02-012 are subjected to an evaluation of the concentration-response relationship.

Chronic Bioassays

Kelp Germination and Growth Test

During the current reporting period, chronic bioassays using the giant kelp, *Macrocystis pyrifera*, were conducted for the IWTP/SBWRP combined effluent (Combined Effluent) on a quarterly basis as a part of the routine monitoring program. All tests were conducted in accordance with USEPA protocol EPA/600/R-95/136 (USEPA 1995).

Kelp zoospores were obtained from the reproductive blades (sporophylls) of adult *Macrocystis* plants at the kelp beds near La Jolla, California one day prior to test initiation. The zoospores were exposed in a static system for 48 hours to the effluent exposure series. A SIO water control was also tested.

Simultaneous reference toxicant testing was performed using reagent grade copper chloride. The concentrations of copper in the exposure series were 5.6, 10, 18, 32, 100, and 180 µg/L. A SIO seawater control was also tested.

At the end of the exposure period, 100 randomly-selected zoospores from each replicate were examined and the percent germination was recorded. In addition, germ-tube length was measured and recorded for 10 of the germinated zoospores.

Data were analyzed in accordance with "Flowchart for statistical analysis of giant kelp, *Macrocystis pyrifera*, germination data" and "Flowchart for statistical analysis of giant kelp, *Macrocystis pyrifera*, growth data" (see USEPA 1995). ToxCalc (Tidepool Scientific Software 2002) and CETIS (Tidepool Scientific Software 2010) were used for all statistical analyses.

Red Abalone Development Bioassay

During the current reporting period, chronic bioassays using the red abalone *Haliotis rufescens* were attempted for the SBWRP effluent on a monthly basis in accordance with USEPA protocol EPA/600/R-95/136 (USEPA 1995). Due to a region-wide shortage of gravid organisms, no valid results were obtained in June despite three separate attempts, and no red abalone tests were conducted during November or December.

Test organisms were purchased from Cultured Abalone (Goleta, California), and/or American Abalone Farm (Davenport, California), and shipped via overnight delivery to the CSDTL. Mature male and female abalones were placed in gender-specific natural seawater tanks and held at 15 ºC. For each test event, spawning was induced in 6-10 abalones in gender-specific vessels. Eggs and sperm were retained and examined under magnification to ensure good quality. Once deemed acceptable, the sperm stock was used to fertilize the eggs, and a specific quantity of fertilized embryos was added to each test replicate and exposed to the effluent series for 48 hours. A SIO water control was also tested.

Simultaneous reference toxicant testing was performed using reagent grade zinc sulfate. The exposure series consisted of 10, 18, 32, 56, and 100 µg/L. A SIO seawater control was also tested.

At the end of the exposure period, 100 randomly-selected embryos were examined and the number of normally and abnormally developed embryos was recorded. The percentage of normally developed embryos for each replicate was arcsine square root transformed. Data were analyzed in accordance with "Flowchart for statistical analysis of red abalone *Haliotis rufescens*, development data" (USEPA 1995). ToxCalc (Tidepool Scientific Software 2002) and CETIS (Tidepool Scientific Software 2010) were used for all statistical analyses.

The red abalone tests were scored both inclusive and exclusive of unicellular embryos, which can be indicative of poor animal quality. As shown in previous studies, the inclusive scoring method induced greater variability and reduced test sensitivity. Moreover, data from past and present studies showed no association between the distribution of unicellular embryos and exposure to the reference toxicant, which further support the use of the exclusive method in scoring the red abalone tests.

Purple Sea Urchin Fertilization Bioassay

During the current reporting period, chronic bioassays using the purple sea urchin *Strongylocentrotus purpuratus* were conducted for the SBWRP effluent as an alternate to the red abalone fertilization bioassay during months in which gravid red abalones were not available or of questionable quality. All tests were conducted in accordance with USEPA protocol EPA/600/R-95/136 (USEPA 1995).

Test organisms were obtained from the Point Loma kelp beds by City of San Diego personnel and delivered to the CSDTL immediately following collection. The urchins were evaluated for health and evidence of spawning prior to being placed in natural seawater tanks and held at 15 ºC. For each test event, spawning was induced in at least 6 urchins and gametes from each animal were examined for quantity and quality. Eggs from at least two females and sperm from at least two males were used to create separate egg and sperm stocks. Density of the sperm and egg stocks were separately determine using a hemacytometer and a well slide, respectively.

Test initiation began upon delivery of 90,000 sperm into each test replicate. Following a 20-minute sperm-only exposure, 2,000 eggs were delivered into each test replicate and incubated for an additional 20 minutes to allow fertilization. A SIO seawater control was also tested.

Simultaneous reference toxicant testing was performed using reagent grade copper chloride. The exposure series consisted 10, 18, 32, 56, 100, and 180 µg/L copper. A SIO seawater control was also tested.

At the end of the test period, 100 randomly-selected eggs were examined and the number of fertilized and unfertilized eggs was recorded. The percentage of fertilized eggs for each replicate was arcsine square root transformed. Data were analyzed in accordance with "Flowchart for statistical analysis of sea urchin and sand dollar fertilization data" (USEPA 1995). ToxCalc (Tidepool Scientific Software 2002) and CETIS (Tidepool Scientific Software 2010) were used for all statistical analyses.

RESULTS & DISCUSSION

Acute Toxicity of SBWRP Effluent

In 2011, the City conducted quarterly acute bioassays of the SBWRP effluent using the topsmelt. All tests met the test acceptability criterion and the NPDES permit's acute toxicity performance goal (Table T.1).

Chronic Toxicity of SBWRP Effluent

In 2011, the City conducted monthly chronic bioassays of the SBWRP effluent using the red abalone and purple sea urchin. All valid tests met the NPDES permit's chronic toxicity performance goal (Table T.2).

Combined Effluent Toxicity

The City also conducted quarterly chronic and acute bioassays for the Combined Effluent in 2011. All chronic tests were conducted using the giant kelp and, with the exception of the November germination endpoint, met the acceptability criteria (Table T.3).

During the first three quarterly acute events, the City tested two species concurrently in order to enable a side-by-side comparison of test sensitivity between the topsmelt and mysid bioassays. The results showed greater sensitivity in the topsmelt tests to the Combined Effluent when compared to the mysid tests. Therefore, the City conducted all subsequent routine acute toxicity monitoring tests with the topsmelt. All tests met the acceptability criterion (Table T.4).

Although this combined effluent testing is a requirement of the SBWRP monitoring program, there are no compliance limits or performance goals for these data.

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Table T.1
Results of 2011 SBWRP effluent acute toxicity tests. Data are presented as acute toxic units (TUa).

Sample Date	Topsmelt 96-Hour Survival
02/22/2011	<1.50
04/17/2011	<1.55
08/14/2011	<1.52
10/30/2011	<1.50
N	4
No. in compliance	4
Mean TUa	<1.52

NPDES permit performance goal: 3.1 TUa.

Table T.2

Results of 2011 SBWRP effluent chronic toxicity tests. Data are presented as chronic toxic units (TUc).

Sample Date	Red Abalone		Purple Urchin
	Development		Fertilization
	Exclusive	Inclusive	
01/10/2011	(*)	23.8	-
02/07/2011	23.8	23.8	-
03/07/2011	23.8	23.8	-
04/05/2011	23.8	23.8	-
05/10/2011	23.8	23.8	-
06/20/2011	N.V.	N.V.	-
06/23/2011	N.V.	N.V.	23.8
06/29/2011	N.V.	N.V.	23.8
07/05/2011	N.V.	N.V.	-
07/13/2011	23.8	23.8	23.8
08/01/2011	23.8	23.8	-
09/06/2011	23.8	23.8	-
10/11/2011	23.8	23.8	-
11/07/2011	G.A.N.A.	G.A.N.A.	23.8
12/18/2011	G.A.N.A.	G.A.N.A.	23.8
N	8	9	5
No. in compliance	8	9	5
Mean TUc	23.8	23.8	23.8

NPDES permit performance goal is 95.6 TUc.

N.V.: Test not valid

G.A.N.A.: Gravid animals not available

(*): Unicellular embryos were detected in less than 2% of the total observations, therefore, no exclusions were made.

Table T.3

Results of 2011 SBWRP/IWTP combined effluent acute toxicity tests. Data are presented as acute toxic units (TUa).

Sample Date	Topsmelt 96-Hour Survival	Mysid 96-Hour Survival
03/14/2011	<1.67	<1.54
05/23/2011	<1.50	<1.50
07/14/2011	<1.51	<1.51
10/17/2011	<1.50	-

Table T.4

Results of 2011 SBWRP/IWTP combined effluent chronic toxicity tests. Data are presented as chronic toxic units (TUc).

Sample Date	Giant Kelp	
	Germination	Growth
03/11/2011	23.8	23.8
05/17/2011	95.2	23.8
08/10/2011	23.8	23.8
11/15/2011	N.V.	23.8

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