SD Public Utilities

Annual Reports and Summary

Point Loma Wastewater Treatment Plant & Ocean Outfall

NPDES Permit No. CA 0107409
SDRWQCB Order No. R9-2009-0001

and amended by Order No. R9-2017-0007
(effective 10/1/17)

2017

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City of San Diego
Public Utilities Department (PUD)

2017 Annual Reports and Summary
for the
Point Loma Wastewater
Treatment Plant & Ocean Outfall

This report consists of the 2017 Point Loma Wastewater Treatment Plant and Ocean Outfall Annual Reports and Summary, as specified in discharge Order No. R9-2009-0001 and amended by R9-2017-007 on October 1, 2017, NPDES Permit No. CA0107409.

Section I is an Executive Summary providing general background information regarding the review and summary of findings and conclusions for 2017.

Section II through IX contain reports and information for 2017 as listed in the Table of Contents.

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City of San Diego
Public Utilities Department
Environmental Monitoring and Technical Services Division
PLWTP Annual Reports and Summary

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Point Loma Wastewater Treatment Plant and Ocean Outfall Annual Monitoring Report
2017

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I. Introduction

A. Executive Summary

Purpose:
This report meets the annual reporting requirements as specified in San Diego Regional Water Quality Control Board, Order No. R9-2009-0001[1] and the amending Order No. R9-2017-0007 that became effective October 1, 2017 for NPDES Permit No. CA0107409 for the E. W. Blom Point Loma Wastewater Treatment Plant (PLWTP). It also serves as a comprehensive historical record and reference of operational and compliance metrics.

Background:
The Point Loma Wastewater Treatment Plant is located at 1902 Gatchell Road, San Diego, California and is the main treatment facility in the Metropolitan Wastewater System. Located on a 40-acre site at the western end of Point Loma, the plant went into operation in 1963 to serve the growing needs of the region. The plant serves approximately 2.2 million people and treats approximately 152 million gallons (5-year average) of wastewater per day with a maximum capacity of 240 million gallons per day (mgd). In 1993, the outfall was extended from a length of two miles to its present length of four and a half miles off the coast of Point Loma. The 12-foot diameter outfall pipe terminates at a depth of approximately 320 feet in the Pacific Ocean in a Y-shaped diffuser structure to ensure dispersal of effluent. The Advanced Primary[2] Treatment system includes chemically enhanced primary sedimentation and anaerobic biosolids processing. For a detailed discussion of the plant and treatment process, see subsection D. and section III. Plant Operations Summary.

[1] This is a Clean Water Act section 301(h) modified permit (Clean Water Act), as modified by the Ocean Pollution Reduction Act of 1994 (OPRA).
[2] Sometimes called Chemically Enhanced Primary Treatment (CEPT).

The following table summarizes the 2017 results, as annual averages or annual ranges, of analyses obtained during the monitoring of the effluent at the PLWTP.

2017 NPDES Compliance Assessment for Conventional Pollutants for the Point Loma WWTP (Amending Order No. R9-2017-0007 to Order No. R9-2009-0001/NPDES No. CA0107409)				
Parameter	**NPDES Permit Limits**		**Values and Annual Ranges**	**Note**
BOD_5	Average Annual % Removal	≥ 58 %	58.3 – 65.3%	System-wide (monthly averages).
TSS	Average Monthly % Removal	≥ 80 %	85.5– 91.1%	System-wide (monthly averages).
	Average Monthly	75 mg/L	34 – 52	
	Mass Emissions (Order No. R9-2017-0007)	none		
	Mass Emissions (Order No. R9-2009-0001)	13,598 mt/yr	7,112	
Oil and Grease	Average Monthly	25 mg/L	9.5 – 16.0	
		42,743 lbs/day	11,618 – 17,160	
	Average Weekly*	40 mg/L	8.1 – 18.4	
		68,388 lbs/day	10,874-20,259	
	Instant. Maximum	75 mg/L	27.1	
		128,228 lbs/day	28,729	
Settleable Solids	Average Monthly	1.0 mL/L	ND – 0.5	
	Average Weekly*	1.5 mL/L	ND – 0.8	
	Instant. Maximum	3.0 mL/L	3.15	Limit exceeded on 11/28/2017
Turbidity	Average Monthly	75 NTU	27-63	
	Average Weekly*	100 NTU	20.3 – 64.1	
	Instant. Maximum	225 NTU	92	
pH	Range	6.0 – 9.0 pH	7.07 - 7.27	

* = **Weekly Average:** defined as the highest allowable average of daily discharges over a calendar week (Sunday through Saturday). Data averaged from 01-Jan-2017 to 30-Dec-2017 as per weekly average definition.

Other Key Metrics for 2017	**Annual Daily Average**	**Annual Total** (million gallons)
Effluent Flow (mgd)	139.3	50,788

Parameter	**Annual Daily Average** (mg/L)	**System-wide Removal** (%)	**Plant Removal** (%)	**Annual Mass Emission** (metric tons)
TSS[3]	37	89.9	89.6	7,112
BOD[4]	124	62.8	59.9	23,834

Compliance:

The required monitoring program creates over 15,000 opportunities to be in non-compliance, as well as several dozen annual Mass Emissions Benchmarks applicable to the discharge from the PLWTP. The settleable solids exceedance resulted from a sampling event performed during dewatering operations at high peak flow. The plant is susceptible to momentary solids upset during maintenance or operational activities that can stir up solids in the sedimentation tanks. The major permit discharge limitations including flows, TSS and BOD removals were within discharge requirements.

[3] Total Suspended Solids; mg/L, i.e. parts per million
[4] Biochemical Oxygen Demand; mg/L

B. Explanatory Notes

The purpose of this document is to meet the requirements of the Monitoring and Reporting Program (MRP) in Order No. R9-2009-0001 and amending Order NO. R9-2017-0007 that became effective October 1, 2017 for NPDES Permit No. CA0107409, and to provide a reference source and resource tools for both regulatory agencies and City staff and their consultants. To this end, the past year's data are presented in tabular and graphical form. Monitoring results only reported annually are presented, as well as the special items and discussions itemized in Order No. R9-2009-0001.

This document is comprehensive, including supporting information on analytical methods, frequency and changes in analyses, long term tables of selected analytes, operational data, background analyses, and treatment plant process control. Where the permit sets limits or requests the analysis of various groups of compounds (such as chlorinated and non-chlorinated phenols, PCBs, hexachlorocyclohexanes, etc.), we have provided summaries and averages of these groups and the individual compounds.

For averaging and other calculations, "less than" (<) and "not detected" (nd) values were treated as zero. In many parts of the report, zero values are found. Our Laboratory Information Management System (LIMS) reads "less than" values as zero in calculating summary values such as monthly or annual averages. When zeros are found, the reader can reasonably apply the method detection limits (MDL) in evaluating the data. Because "less than" values are averaged as zero, values in summary tables may be less than detection limits; these are simple numeric means (or minimums). The data tables may also contain values expressed as a <X (less than), where X represents the MDL. MDLs are typically included in the summary tables.

A further limitation is that statistical confidence in the results of an analysis is heavily dependent upon the concentration relative to the Method Detection Limit (MDL). Essentially all of our detection limits have been established using the procedure in 40 CFR, part 136. This statistical basis for the MDL results in a defined statistical confidence (at the 99% Confidence Interval) of essentially ±100% where the result is at or near the MDL. Only at concentrations approximately 5 times the MDL is the confidence interval at ±20%. While the precision of our methods generally ranges from 2–3 significant figures, the above limitations of confidence should always be considered.

Where possible, the influent and effluent values of a given parameter have been included on the same graph to make the removals and other relationships readily apparent. Please note that many of the graphs are on expanded scales where the y-axes (concentration) do not start at zero, but instead are scaled to highlight the range of concentrations where variation takes place. These expanded scales make differences and some trends obvious that might normally not be noticed; however, they also may inadvertently place more weight on relatively minor changes or trends than they deserve. Please reference the chart axis scales.

Detected, Not Quantifiable (“DNQ” Qualifier):

The “DNQ” qualifier is used for NPDES effluent reporting. DNQ is a qualifier associated with analytical results that are less than the minimum level (ML), but greater than or equal to the MDL. Data annotated with DNQ will include a value, and the method’s MDL (see example below).

Source			PLE	PLE	PLE	PLE	PLE	PLE
Date			13-JUL-2016	02-AUG-2016	14-SEP-2016	04-OCT-2016	07-NOV-2016	07-DEC-2016
Analyte	MDL	Units	P874990	P878338	P893657	P895088	P904899	P909662
Demeton O	.15	UG/L	ND	ND	ND	ND	ND	ND
Demeton S	.08	UG/L	ND	ND	ND	ND	ND	ND
Diazinon	.04	UG/L	ND	ND	ND	ND	ND	ND
Guthion	.15	UG/L	ND	ND	ND	ND	ND	ND
Malathion	.06	UG/L	DNQ0.11	ND	ND	ND	ND	ND
Chlorpyrifos	.04	UG/L	ND	ND	ND	ND	ND	ND
Coumaphos	.15	UG/L	ND	ND	ND	ND	ND	ND
Dichlorvos	.05	UG/L	ND	ND	ND	0.1	ND	ND
Dimethoate	.12	UG/L	ND	ND	NR	NR	NR	NR
Disulfoton	.04	UG/L	ND	ND	ND	ND	ND	ND
Stirophos	.05	UG/L	ND	ND	ND	ND	ND	ND
Thiophosphorus Pesticides	.15	UG/L	0.00	0.00	0.00	0.00	0.00	0.00
Demeton -O, -S	.15	UG/L	0.00	0.00	0.00	0.00	0.00	0.00
Total Organophosphorus Pesticides	.15	UG/L	0.00	0.00	0.00	0.10	0.00	0.00

E" Qualifier, estimated concentrations:

Ocean data for chlorinated pesticides and PCB congeners contain values that are qualified with a prefixed "**E**" (see example below). This indicates estimated concentrations. The GC/MS-MS analytical technique is sufficiently specific and sensitive enough so that qualitative identification has high confidence while the quantitative data are below 40CFR136 confidence intervals for MDL concentrations. The concentrations reported with this qualifier indicate that one or more tests identified the compound as present but below detection limits for quantification. When reported as part of annual averages, an "E" qualifier may accompany average concentration values either below or above MDLs.

Analyte	MDL	Units	SD-14 2001 Avg	SD-17 2001 Avg	SD-18 2001 Avg	SD-19 2001 Avg	SD-20 2001 Avg	SD-21 2001 Avg	RF-1 2001 Avg
Hexachlorobenzene	13.3	UG/KG	<13.3	<13.3	<13.3	<13.3	E3.7	<13.3	**E2.8**
BHC, Gamma isomer	100	UG/KG	ND	ND	ND	ND	ND	ND	ND
Heptachlor	20	UG/KG	ND	ND	ND	ND	ND	ND	ND
Aldrin	133	UG/KG	ND	ND	ND	ND	ND	ND	ND
Heptachlor epoxide	20	UG/KG	ND	ND	ND	ND	ND	ND	ND
o,p-DDE	13.3	UG/KG	<13.3	E43.5	<13.3	E107.0	<13.3	<13.3	**E22.0**
Alpha Endosulfan	133	UG/KG	ND	ND	ND	ND	ND	ND	ND
Alpha (cis) Chlordane	13.3	UG/KG	<13.3	<13.3	ND	<13.3	<13.3	ND	<13.3
Trans Nonachlor	20	UG/KG	E11.3	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0
p,p-DDE	13.3	UG/KG	713.0	1460.0	459.0	2030.0	618.0	693.0	712.0
Dieldrin	20	UG/KG	ND	ND	ND	ND	ND	ND	ND
o,p-DDD	13.3	UG/KG	ND	ND	ND	<13.3	<13.3	<13.3	<13.3
Endrin	20	UG/KG	ND	ND	ND	ND	ND	ND	ND
o,p-DDT	13.3	UG/KG	<13.3	ND	ND	<13.3	<13.3	ND	<13.3
p,p-DDD	13.3	UG/KG	E7.5	E5.5	<13.3	<13.3	E7.8	<13.3	E18.2
p,p-DDT	13.3	UG/KG	E5.9	<13.3	<13.3	<13.3	E5.4	<13.3	<13.3
Mirex	13.3	UG/KG	<13.3	ND	ND	ND	ND	ND	ND

nd= not detected
NA= not analyzed
NS= not sampled
E=estimated value, value is less than the Method Detection Limit but confirmed by GC/MS-MS

Variation in summary data in tables

Very small differences may occur (<0.1%), between tables for annual or monthly averages, totals, and other[5] statistical summary data due to rounding differences or how the underlying data are treated. For example, the computerized report programs may perform summary calculations using daily values (even though only monthly values display on the table) or monthly averages. There will be small rounding variation between the two approaches.

Typically, mass emissions reported in the monthly summary tables are calculated from the monthly averages shown in the table. In these tables, raw data are rounded one significant figure on the intermediate result. A calculation rounded only after the result will generally be slightly different in the last significant figure. Additionally, statistical summary data of calculated values (e.g. mass emissions, dry tons, etc.) may be calculated from monthly averages or using the annual average data. This may also introduce variation that is statistically insignificant.

[5] e.g. mass emissions, percent removals, etc.

C. Overview of the Metro System

The City operates wastewater facilities to transport, treat, reclaim, reuse, and discharge wastewater and its by-products collected from the Metropolitan Wastewater System (the System). The System serves a population of approximately 2.2 million people in providing conveyance, treatment, reuse, and disposal of wastewater within a 450-square mile service area. The Metro System currently consists of several service areas including the City of San Diego (serviced by the Municipal Sub-System) and the 15 regional Participating Agencies. Wastewater treatment for the System is provided at the North City Water Reclamation Plant (NCWRP), the South Bay Water Reclamation Plant (SBWRP), and the Point Loma Wastewater Treatment Plant (PLWTP). Solids treatment and handling are provided at the PLWTP and the Metro Biosolids Center (MBC).

Each Participating Agency is responsible for the wastewater collection system within its boundaries to the point of discharge to the System. Wastewater flows from the Municipal Sub-System comprise approximately 65% of the Metro Sub-System flows. All System facilities are owned by the City of San Diego and are managed by PUD.

A map detailing major facilities in the System and the participating agencies is included.

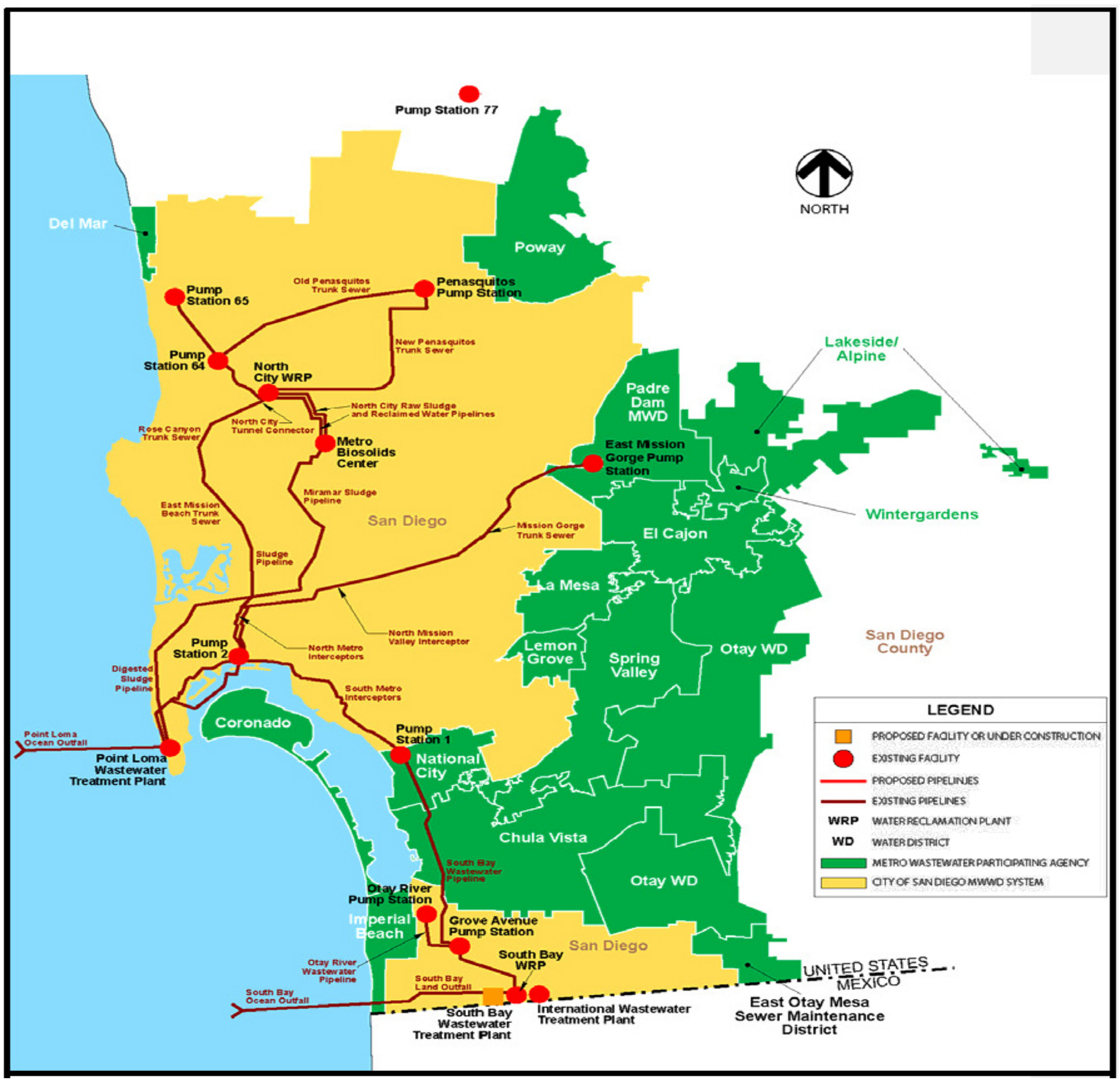
The System is a complex network of pipelines and pump stations that collect wastewater and convey it for treatment and disposal or reuse. The PLWTP serves as the terminus for the System and is capable of treating all flows generated within the System. Within the System are two water reclamation plants, the NCWRP and the SBWRP, that pull flow from the sewers for treatment and reuse. The System also includes the Metro Biosolids Center (MBC) that treats and disposes of all treatment process solids material removed by the treatment plants.

The PLWTP is the largest of the wastewater treatment plants in the System and is the terminus of the system. It is an advanced primary treatment plant that uses chemical addition to increase performance of the primary clarifiers. The PLWTP discharges effluent through the Point Loma Ocean Outfall (PLOO). As an advanced primary treatment plant, performance and effluent limits are singly determined by effluent quality, but also against the California Ocean Plan and the Basin Plan that, combined, address the water quality and beneficial uses of the Pacific Ocean.

The plant has a rated capacity of 240 million gallons per day (mgd) and currently operates at an average daily flow rate of 132 mgd. The NCWRP has a rated capacity of 30 mgd and currently operates at a nominal flow rate of 15.4 mgd. The SBWRP has a rated capacity of 15 mgd and is currently treating a nominal 8.0 mgd. The PLWTP is a modern primary treatment facility and the NCWRP and SBWRP are both modern tertiary treatment facilities.

The other two facilities, NCWRP and SBWRP, are scalping plants that divert water from the System and treat it for reclamation purposes. Both plants currently operate as secondary treatment plants and reclaim water to tertiary standards to meet demand. Demand will fluctuate depending on the time of year and the type and number of customers. The NCWRP returns all secondary effluent that is not reclaimed back to the System for treatment at the PLWTP. However, the solids that are removed, either by sedimentation or biological oxidation, are pumped to the MBC for further treatment. The SBWRP discharges excess secondary effluent to the South Bay Ocean Outfall (SBOO) and returns all solids removed from the sewage to the System for transport to the PLWTP. Performance of both water reclamation plants is measured by each facility's ability to treat reclaimed water to the required standards when discharging to the reclaimed system. Performance of the SBWRP is also measured via secondary treatment standards, as defined in the facility's NPDES permit, when discharging to SBOO.

The MBC processes primary and secondary solids from the NCWRP through anaerobic digestion and dewatering, and processes the digested biosolids from the PLWTP through dewatering. The dewatered biosolids are beneficially used as cover at a local landfill or used as a soil amendment for agricultural purposes. The centrate from the centrifuges is returned to the sewer and treated at the PLWTP. Performance of this facility is measured by the quality of the solids product generated for use or disposal.



ISO 14001 Certification

Wastewater Treatment and Disposal Division (formerly called Operations and Maintenance Division) and the Monitoring and Reporting Programs operated by the Environmental Monitoring and Technical Services Division are certified in ISO[6] 14001, Environmental Management Systems.

[6] International Organization for Standardization.

D. Overview of Point Loma Wastewater Treatment Plant

The Point Loma Wastewater Treatment Plant (PLWTP) is the largest treatment facility in the Metropolitan Wastewater System. The facility is located on a 40-acre site on the Fort Rosecrans military reservation and adjoins the Cabrillo National Monument at the southern tip of Point Loma in the City of San Diego. The plant was first put into operation in 1963 discharging primary treated wastewater 2.5 miles off the coast of Point Loma. In 1993, the existing outfall was lengthened to 4.5 miles which extends 320 feet below the surface in a Y-shaped diffuser to provide for a wide dispersal of effluent into ocean waters.

Presently, the plant is an advanced primary treatment plant capable of removing 85% to 90% of the influent solids and processes approximately 155 million gallons of sewage per day generated by about 2.2 million people. It is the terminal treatment plant in the Metro System. The removed solids are treated in anaerobic digesters before being pumped to the MBC. The current plant configuration can treat up to 240 mgd average daily flow and 432 mgd peak wet weather flow.

Removed solids are anaerobically digested on site. The digestion process yields two products: methane gas and digested biosolids. The methane gas is utilized onsite to fuel electrical generators that produce enough power to make the PLWTP energy self-sufficient. Additional co-generation of electrical power comes from on-site hydroelectric generator utilizing the millions of gallons of daily effluent flow and the energy in the approximately 90-foot drop from the plant to outfall. The plant sells the excess energy it produces to the local electricity grid, offsetting the energy costs at pump stations throughout the service area. The biosolids are conveyed, via a 17-mile pipeline, to the Metro Biosolids Center for dewatering and beneficial use (e.g. soil amendments and landfill cover) or disposal.

The Point Loma Wastewater Treatment Plant earned the 2014 Platinum Peak Performance Award from the National Association of Clean Water Agencies (NACWA) in recognition of twenty one years of 100% compliance with National Pollutant Discharge Elimination System permit requirements. For 2016, the plant received a NACWA Silver Peak Performance Award that is presented to facilities with no more than five NPDES permit violations. In 2017, a Gold Peak Performance Award was received. The plant must receive four more consecutive Gold Awards to again be eligible for another Platinum Award.

E. Discussion of Compliance Record

All permit limits and benchmarks are shown for reference in Chapter 2, Influent and Effluent Data, of this report.

Chemical and Physical Parameters

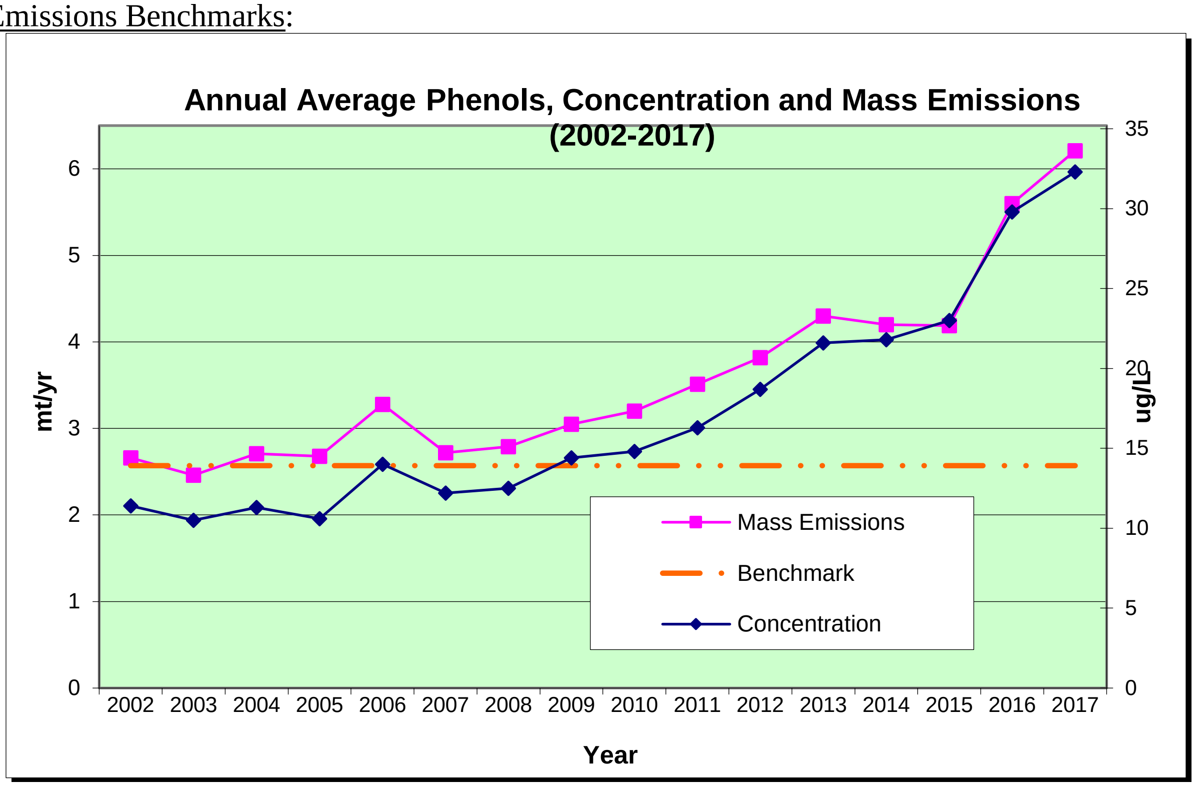
The Point Loma Wastewater Treatment Plant met the two key discharge limits based on annual performance, including BOD (Biochemical Oxygen Demand) annual average removal and TSS (Total Suspended Solids) mass emissions.

Annual Requirement	2017 Annual Average System-wide Removal (%)	Plant Removal (%)
BOD - met the required ≥58% BOD removal on both the system-wide (required) and plant-only basis.	62.8	59.7
	2017 Annual Mass Emission(metric tons)	
TSS - Mass emission of TSS shall be no greater than 15,000 mt/yr.	7,112	

Other chemical parameters, microbiology, and toxicity.

Note: Permit limits are detailed in Section 1 of this report and effluent data are presented in summary tables in section 2 of this report.

Mass Emissions Benchmarks:



All Mass Emissions Benchmarks were met with the continued exception of non-chlorinated

phenols. The Mass Emissions Rate (MER) of 6.21 metric tons/year, for non-chlorinated phenols[7] was higher than the bench mark of 2.57 metric tons/year and higher than last year's 5.60 metric tons.
This was based on an average concentration of 32.3 ug/L, which represents approximately 37.5 pounds per day. On average, in 2017 the plant removed 22.5% of the phenol and 32.2% last year.

Tijuana Interceptor Closure Summary

The Tijuana Interceptor (emergency connection) continues to be a non-factor in the operation of the Metropolitan (Metro) Wastewater System and Point Loma WWTP operations. We received no flows from the connector during the year. There are no monitoring data to report and the previously included section discussing the interceptor in the annual reports has been discontinued.

According to the International Boundary Water Commission's staff reports and our flow meter section data, there was no flow of wastewater through the Tijuana Interceptor for 2017. IBWC staff reported that the emergency connection was not open during 2017.

No samples were taken the entire year of 2017.

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[7] All found was as phenol itself.

F. Plant Facility Operation Report

POINT LOMA 2017 ANNUAL FACILITY REPORT
Document prepared under the direction of Plant Superintendent David Marlow.

The facility report addresses Process Control concerns and considerations and summarizes Plant Operations and Engineering activities.

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PROCESS CONTROL: FACTORS IMPACTING PLANT PERFORMANCE 2017
The following information is being reported in an effort to identify some of the factors, operational and otherwise, that may have impacted plant performance during 2017. Much of the information contained herein is based on assumptions regarding plant performance for this period. The main point of this effort is to continue identifying possible factors influencing plant performance which in turn will help to more effectively operate this facility. The information is presented in chronological order when possible. **Please note that the numerical values used here are largely based on analysis performed by Plant staff at the Process Laboratory and have not always been validated for official reporting purposes.**

Areas that will be covered include: influent temperature and seasonal impacts, sludge blanket levels in the sedimentation basins and raw sludge pumping volumes, plant performance and coagulation chemical application.

INFLUENT TEMPERATURE AND SEASONAL IMPACTS
Influent temperature variations at the Point Loma Facility are usually minimal throughout the year. The temperature of the influent flow, for 2017, ranged from 73.7 to 83.1 degrees Fahrenheit. Typically, the influent temperature changes are very subtle as each season progresses. The most pronounced changes in this parameter occur during the winter, after the rainy season begins and during the summer, after periods of sustained warm weather. Temperature changes related to rain storms were normal in 2017. The effect of these temperature changes is difficult to analyze due to the number of variables affected by the rainfall. The average daily influent temperature was calculated for the same period of time seen previously in this report, and the results are recorded below.

For The Period from January 1 through December 31	
Year	Average Daily Influent Temperature
2004	76.7 degrees Fahrenheit
2005	76.8 degrees Fahrenheit
2006	77.0 degrees Fahrenheit
2007	77.0 degrees Fahrenheit
2008	77.5 degrees Fahrenheit
2009	77.6 degrees Fahrenheit
2010	77.0 degrees Fahrenheit
2011	76.3 degrees Fahrenheit
2012	77.4 degrees Fahrenheit
2013	77.6 degrees Fahrenheit
2014	78.8 degrees Fahrenheit
2015	79.1 degrees Fahrenheit
2016	79.1 degrees Fahrenheit
2017	78.6 degrees Fahrenheit

SLUDGE BLANKET LEVELS AND RAW SLUDGE PUMPING VOLUMES

In most circumstances it is assumed that maintaining lower sludge blanket levels in sedimentation basins and increased raw sludge pumping will produce a plant effluent with a lower total suspended solids (TSS) concentration. Review of data, for daily average sludge blanket levels and daily average total raw sludge pumped shows that the averages for the last ten years were too close to draw any conclusions about the validity of the above assumption.

The average effluent TSS concentration was calculated for 2003, 2004, 2005, 2006, 2007, 2008, 2009, 2010, 2011, 2012, 2013, 2014, 2015, 2016, and 2017. This average was then compared to the average sludge blanket level, for all basins in operation, and the average daily raw sludge pumping volume for this same period. The information below reflects the data gathered for this comparison.

For The Period from January 1 through December 31			
Year	Effluent TSS Average Concentration	Average Daily Sludge Blanket Level	Average Daily Raw Sludge Volume
2003	42.0 mg/L	158.0 inches	1.15 MGD
2004	42.6 mg/L	168.0 inches	1.09 MGD
2005	40.7 mg/L	159.0 inches	1.11 MGD
2006	34.9 mg/L	161.0 inches	0.99 MGD
2007	33.9 mg/L	166.0 inches	0.95 MGD
2008	32.2 mg/L	156.4 inches	1.04 MGD
2009	32.2 mg/L	166.2 inches	1.17 MGD
2010	37.1 mg/L	166.5 inches	1.15 MGD
2011	41.3 mg/L	165.5 inches	1.17 MGD
2012	37.1 mg/L	171.0 inches	1.18 MGD
2013	33.5 mg/L	172.0 inches	1.22 MGD
2014	27.3 mg/L	165.0 inches	1.12 MGD
2015	29.6 mg/L	168.7 inches	1.08 MGD
2016	44.3 mg/L	188.3 inches	1.04 MGD
2017	36.43 mg/L	175.0 inches	1.04 MGD

PLANT PERFORMANCE

The patented PRISC-CEPT (Peroxide Regeneration of Iron for Sulfide Control and Chemically Enhanced Primary Treatment) technology in partnership with US Peroxide was utilized in 2017. Essentially, the process consists of ferrous chloride addition at Pump Station 1 for hydrogen sulfide control, hydrogen peroxide addition at Pump Station 2 to regenerate the available iron, hydrogen peroxide addition upstream of PLWTP for regeneration of the available iron, and then ferric chloride addition at the plant for coagulation at a target dose rate of 10.5 mg/L, increased to 12.5 in August 2013. In addition, the PRISC process has been implemented upstream of PLWWTP and North City Water Reclamation Plant (NCWRP). City staff is looking at additional sites within the Metro System to implement the PRISC-CEPT process.

The table below demonstrates the average daily gallons of each chemical utilized in the treatment process at the Pump Stations as well as Point Loma Wastewater Treatment Plant for 2007 (baseline) and 2017. For comparison purposes, the average gallons per day from January 1 – December 31 will be utilized for both years. It should be noted that the ferric chloride and anionic polymer application at PLWTP is flow paced. The ferrous chloride used for hydrogen sulfide control at PLWTP is dependent on the digester gas hydrogen sulfide levels.

1/1 -12/31 2007 Daily Average	Ferric Chloride gallons	Ferrous Chloride gallons	Anionic Polymer lbs.	Hydrogen Peroxide Gallons
Pump Station 1	0	4034	0	0
Pump Station 2	2317	0	0	0
PLWTP	6937*	1346	189*	0
Total	9254	5380	189	0

*Flow paced

1/1 – 12/31 2017 Daily Average	Ferric Chloride gallons	Ferrous Chloride gallons	Anionic Polymer lbs.	Hydrogen Peroxide gallons
Pump Station 1	0	4740	0	0
Pump Station 2	0	0	0	782
PLWTP	3108*	3440	196*	722
Total	3108	8180	196	1504

*Flow paced

The PRISC-CEPT technology has proven to provide TSS and BOD removal rates well above the permit requirements, while reducing the reliance on iron by regenerating the available iron, reducing the amount of iron in the effluent, and reducing costs.

Turbidity testing at the sedimentation basin effluents continued in 2017. This has continued to help identify basins where mechanical or other problems are occurring. Analysis of 24-hour discrete effluent samples for TSS concentration continues on an as-needed basis and is providing data on diurnal variations in plant performance. Data from this analytical work has been and will be used to help develop more effective chemical dosing strategies in the plant.

COAGULATION CHEMICAL APPLICATION

Data for ferric chloride and anionic polymer doses was reviewed to determine the impact that rates of product application have on plant performance. The average daily dose for each chemical was calculated and compared to the TSS and BOD concentrations and removal rates.

For The Period from January 1 through December 31						
Year	Ferric Chloride	Polymer	Average Effluent TSS Concentration	Average Effluent TSS Removal Rate	Average Effluent BOD Concentration	Average Effluent BOD Removal Rate
	Average Daily Dose					
2004	29.7 mg/L	0.17 mg/L	42.6 mg/L	85.2%	101.8 mg/L	60.2%
2005	26.5 mg/L	0.17 mg/L	40.7 mg/L	85.1%	104.5 mg/L	58.4%
2006	24.0 mg/L	0.14 mg/L	34.9 mg/L	87.7%	101.8 mg/L	62.3%
2007	24.0 mg/L	0.14 mg/L	33.9 mg/L	89.1%	95.3 mg/L	68.4%
2008	15.0 mg/L*	0.14 mg/L	32.2 mg/L	88.2%	96.0 mg/L	65.5%
2009	10.9 mg/L*	0.14 mg/	32.0 mg/L	89.6%	100 mg/L	65.5%
2010	10.7 mg/L*	0.14 mg/L	37.1 mg/L	88.3%	104 mg/L	63.6%
2011	10.5 mg/L*	0.14 mg/L	41.3 mg/L	87.5%	108 mg/L	62.0%
2012	10.4 mg/L*	0.14 mg/L	37.2 mg/L	89.4%	116 mg/L	62.0%
2013	11.3 mg/L	0.16 mg/L	33.5 mg/L	90.4%	106 mg/L	63.0%
2014	12.5 mg/L	0.17 mg/L	27.3 mg/L	92.1%	109 mg/L	66.4%
2015	13.5 mg/L	0.17 mg/L	29.6 mg/L	91.7%	109 mg/L	66.9%
2016	15.4 mg/L	0.18 mg/L	44.4 mg/L	87.8%	132 mg/L	60.7%
2017	13.4 mg/L	0.17 mg/L	36.43 mg/L	89.5%	124 mg/L	59.6%

*PRISC related reduction

SPECIAL PROJECTS

On September 3, 2008 PLWTP initiated operation of a prototype effluent disinfection system. This was implemented because of a recent determination by USEPA that bacterial water quality objectives in the San Diego Region apply surface to bottom, up to three nautical miles from shore. USEPA's interpretation of the applicability of bacterial objectives was incorporated into the requirements of Order Number R9-2009-0001, NPDES Number CA0107409. In 2016, Environmental Monitoring and Technical Services (EMTS) along with Plant Staff collected samples and compiled data to determine the ability of the plant to comply with both the bacterial objectives and chlorine residual parameters in the NPDES permit. Continuous monitoring of the chlorine residual was incorporated into the new permit. Plant staff initiated a search to find an available technology that would provide reliable monitoring taking into consideration the quality of the plant's effluent. This has proved to be very difficult due to the nature of the application, the effluent quality, and the limitations of current technology. Plant staff continue the search for an appropriate in-line monitoring device. In 2012, Brown and Caldwell was commissioned to assist in finding a chlorine residual analyzer that will work with the plant's effluent characteristics.

To date, there has been only occasional detectable total chlorine residual in the manual grabs of effluent. The in-line continuous monitoring equipment has not detected total chlorine residual in the effluent during this time period. A chlorine analyzer that utilizes new monitoring technology was installed in 2016 and is currently being evaluated. In conjunction with evaluating the performance of this new technology, plant staff are also working with vendors on a filtration method that aims to improve effluent quality in an effort to mitigate analyzer performance issues. If this unit is found to be successful, the result of this new technology should allow the implementation of continuous chlorine residual monitoring at Point Loma. Laboratory testing, according to the previously approved protocols, is being continued.

In October of 2017, a special study was conducted by Brown and Caldwell to assess the impact on plant performance from the addition of a brine waste stream coming from Phase 1 of the planned Pure Water program. Although the completion of Phase 1 of the Pure Water program is still years away, it was determined prudent to conduct an analysis to determine the feasibility of treating this brine waste stream. In conclusion, it was determined that the effects from the addition of brine under Phase 1 could potentially be mitigated by increasing the coagulant dose at the facility.

CONCLUSIONS

Plant performance in the year 2017 complied with all NPDES Permit requirements.

ENGINEERING REPORT 2017

The following engineering projects were completed during the 2017 reporting period:

- Completion of the Cleaning of Digesters S1/S2 and 7
- Digester S1 Gas Compressor Fin Fan Cooling System installation
- Digester 7 mixing pump #1 seal water retrofit project
- 2016 Gould flow meter certification (completed in 2017)
- GUF Heat Exchanger Replacement
- Point Loma Arc Flash Study
- Abel Main Sludge Pump P-safe replacement project Phases I and II

Status of the Operations and Maintenance Manual

Point Loma WWTP:

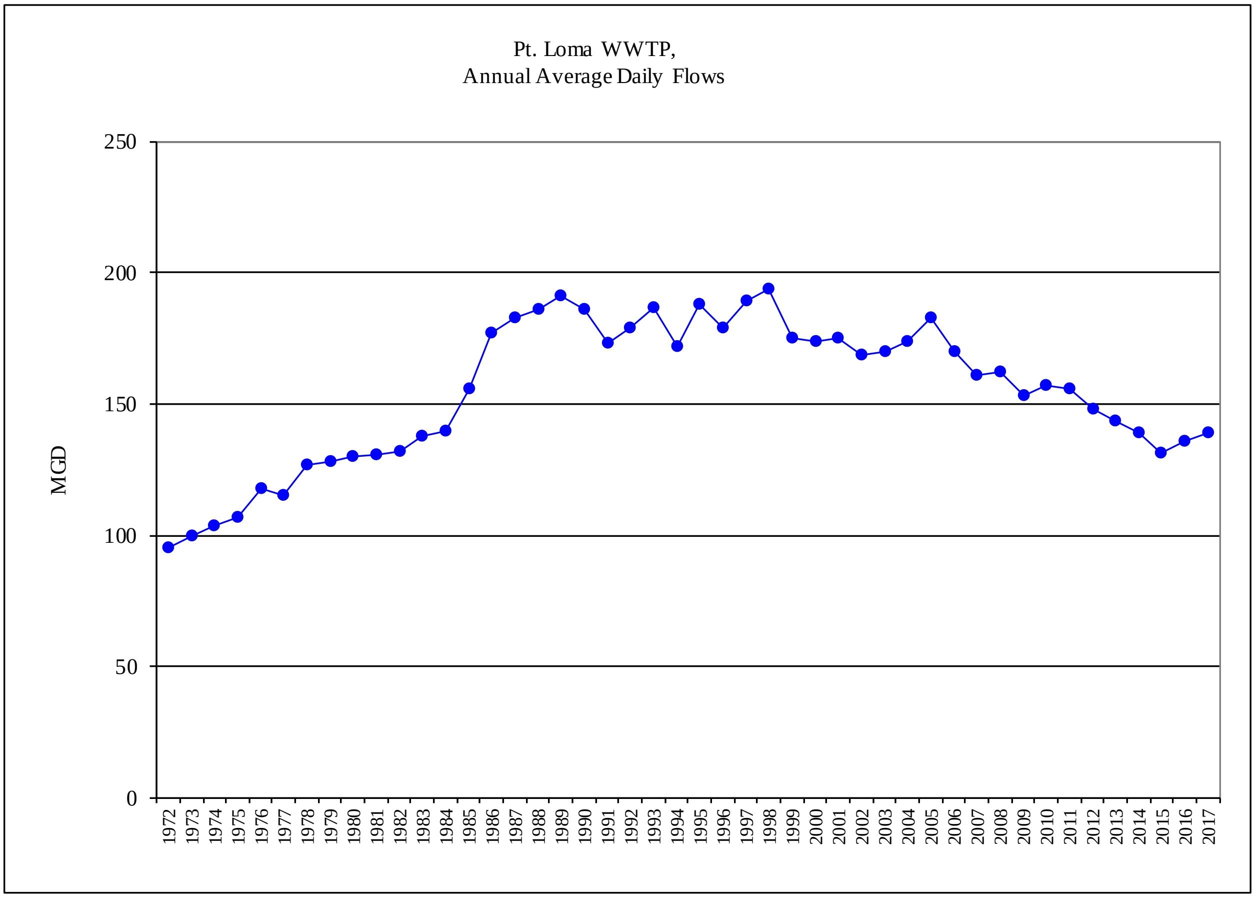
There is an approved O&M Manual for the PLWTP. Plant staff continue to review and update the Manual and associated Standard Operating Procedures (SOPs) as necessary to keep current with changes in equipment, processes, and standards of practice. New procedures are included as needs are identified. For example: PLWWTP Staff, in conjunction with the Safety Staff, have developed and established a standard Lock-Out/Tag-Out Program to serve all PUD Facilities.

Plant Personnel continue the ISO certification and operate the PLWTP facility under the guidelines of the Environmental Management System established under our ISO 14001 program. This program has helped to organize and consolidate facility SOPs, and has been effective in enhancing plant personnel's awareness of industrial and environmental issues as they relate to the work place.

G. Correlations of Results to Plant Conditions

Flow

The 2017 daily average influent flow to the Point Loma WWTP was 139.3 MGD.

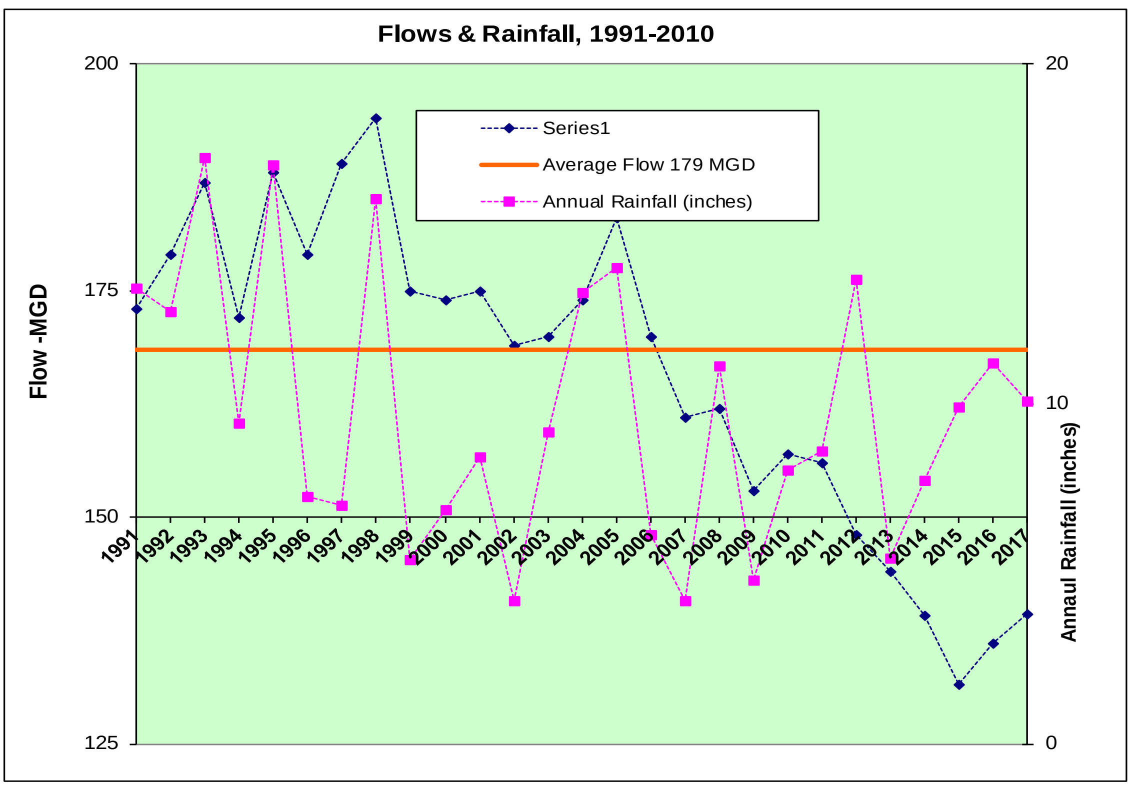


Despite predictions of water usage generated in the 1970s and '80s based on population growth, the data show a continued reduction in the wastewater flow. It appears that the reduced flows caused by drought-induced water conservation efforts have become permanent. In the past 20-years, there is no discernible increase in flows on a sustained basis.

It is likely that recycling water by North City Water Reclamation Plant is also having an impact on the total system flows. We have not yet quantified and evaluated these contributions.

Annual Totals

Year	SBWRP Influent (million gals)	SBWRP Discharge to South Bay Outfall (million gals)	System Return Stream (million gals)	Net removed from Metro (million gals)	SBWRP Distributed Recycled Water (million gals)	NCWRP Reclaimed Water Flow to Distribution System (million gals)
2017	2699	1268	357	2366	1098	2220
2016	2732	1209	401	2,326	1117	2041
2015	2724	1274	479	2,230	956	2022
2014	2,908	1075	586	2,291	1,216	2,428
2013	2,948	1,171	590	2,343	1,172	2,182
2012	2,942	1,194	479	2,441	1,247	2,082
2011	3,000	1,288	505	2,465	1,177	1,831
2010	3,003	1,248	571	2,404	1,156	1,588
2009	3,042	957	564	2,458	1,501	1,672
2008	3,173	1,167	601	2,555	1,388	1,731
2007	3,158	1,467	527	2,568	1,101	1,630



Precipitation:

The total rainfall of 10.10 inches in 2017 was lower than the total rainfall of 11.22 inches in 2016.

Historical perspective:

The table on this page shows flows from 1972 to the present. New Parshall flumes were installed and calibrated in 1985 and fine-tuned over the next year; this accounts for the jump in flow rates from 1984 to 1986. Since 1986, multiple meters on the flumes have been calibrated yearly and closely match Venturi meter data at Pump Station II (see tables in the Plant Operations section).

A historical synopsis of changes to the flow rates and the factors affecting those changes are discussed comprehensively in previous Annual Reports. Those factors include:

- Weather patterns, drought, and water conservation;
- The Tijuana Interceptor;
- Water Reclamation and Reuse by the North City Water Reclamation Plant, and later, by the South Bay Water Reclamation Plant;
- Population;
- Industrial discharger.

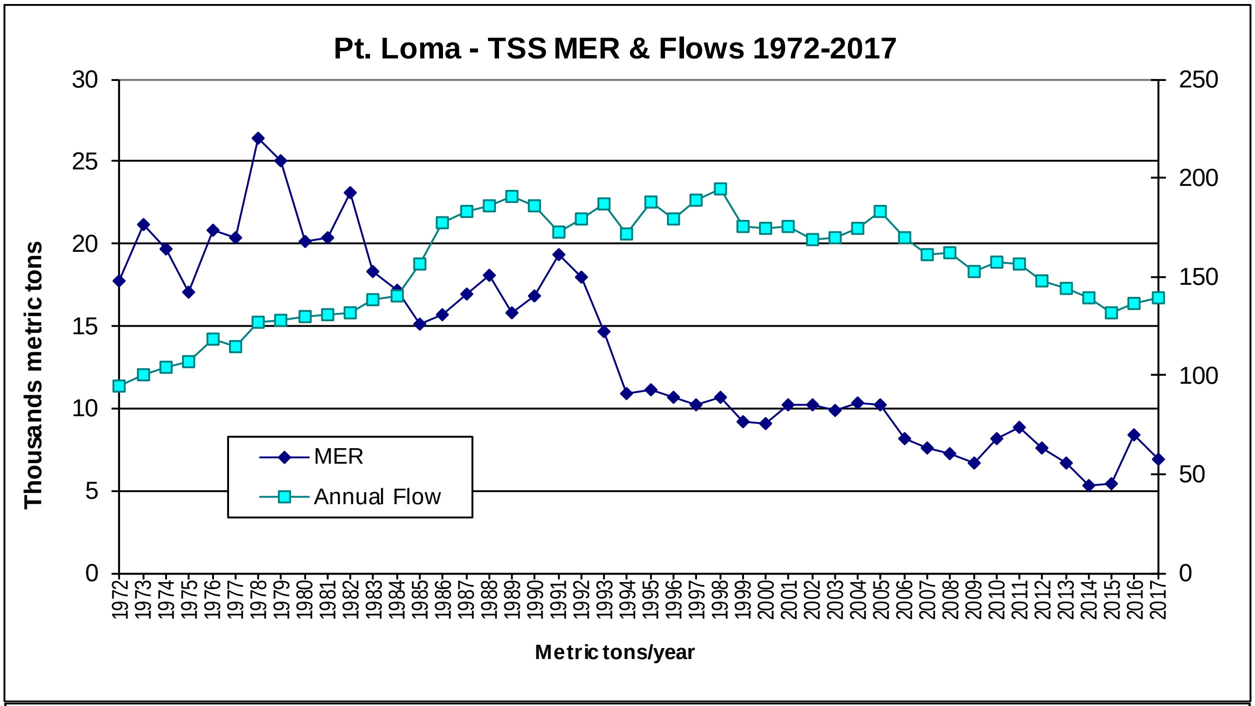
Weather and the various components of water conservation have emerged as more significant factors affecting flows, supplanting the historical role that population growth played.

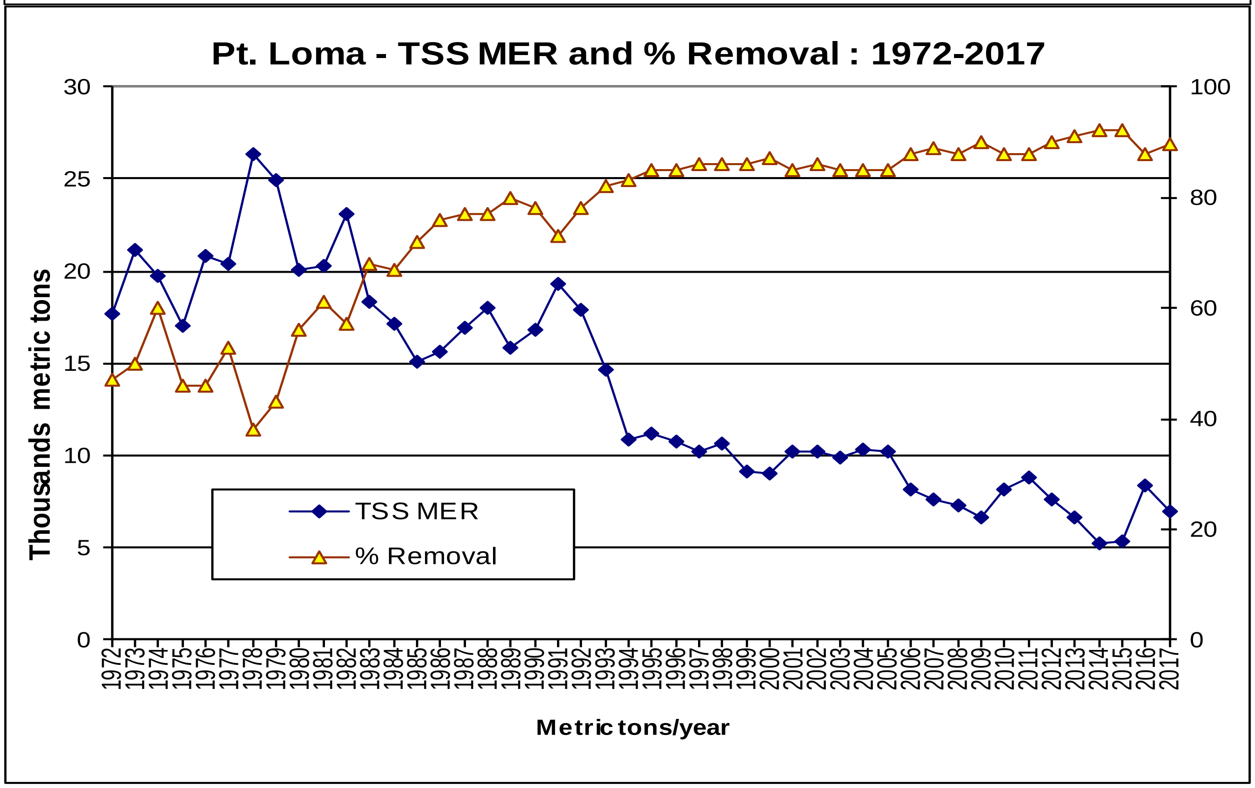
Historical Average Daily Flows

YEAR	FLOW (MGD)	YEAR	FLOW (MGD)
		1994	172
1972	95	1995	188
1973	100	1996	179
1974	104	1997	189
1975	107	1998	194
1976	118	1999	175
1977	115	2000	174
1978	127	2001	175
1979	128	2002	169
1980	130	2003	170
1981	131	2004	174
1982	132	2005	183
1983	138	2006	170
1984	140	2007	161
1985	156	2008	162
1986	177	2009	153
1987	183	2010	157
1988	186	2011	156
1989	191	2012	148
1990	186	2013	144
1991	173	2014	139
1992	179	2015	132
1993	187	2016	136
		2017	139

Suspended Solids, Volatile Suspended Solids and Percent Suspended Solids Removal:

Year 2017 data showed that influent TSS concentrations ranged from 214 to 598 mg/L and averaged 350 mg/L.





The historical picture of changes in the annual TSS removals and MER and the factors effecting those changes are discussed comprehensively in previous Annual Reports. The factors include:

- Changes in base industries (e.g., tuna canneries);
- Weather and infiltration;
- Sludge handling;
- Water reclamation plants;
- Population changes;
- Tijuana Interceptor.

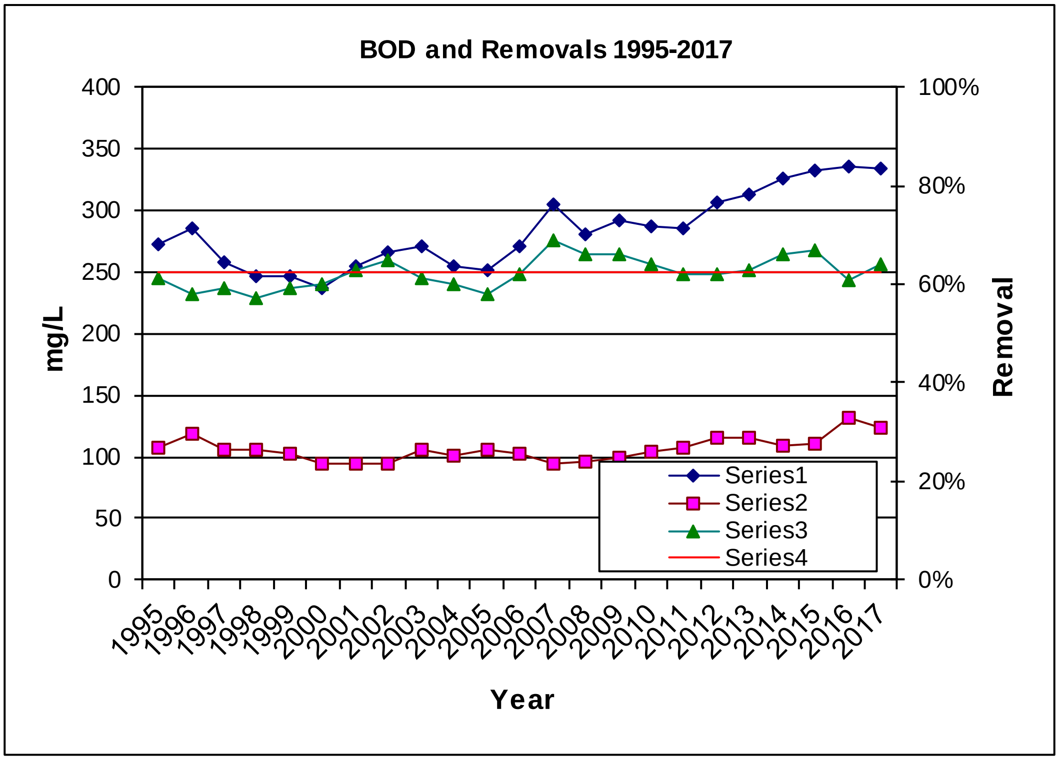
Effluent TSS concentrations also correlate similarly to the MER pattern.

SUSPENDED SOLIDS TRENDS
AVERAGE DAILY SOLIDS

Year	Flow, Annual Average Daily (mgd)	Rainfall, Annual Total (inches)	TSS INFLUENT (mg/L)	TSS EFFLUENT (mg/L)	TSS % Removal	TSS Mass Emission (lbs/day)	TSS Mass Emission (metric tons /year)
1972	95		257	135	47	106,600	17,697
1973	100		310	154	50	127,947	21,183
1974	104		346	138	60	119,143	19,726
1975	107		215	115	46	103,135	17,075
1976	118		238	127	46	125,281	20,799
1977	115		273	128	53	123,277	20,410
1978	127		245	151	38	159,428	26,396
1979	128		248	143	43	150,933	24,989
1980	130		255	113	56	121,088	20,103
1981	131		289	114	61	122,705	20,316
1982	132		296	126	57	139,563	23,107
1983	138		310	98	68	110,789	18,343
1984	140		272	90	67	103,175	17,129
1985	156		251	70	72	91,190	15,098
1986	177		261	64	76	94,476	15,642
1987	183		289	67	77	102,257	16,930
1988	186		303	70	77	108,587	18,027
1989	191	3.8	305	60	80	95,576	15,824
1990	186	7.29	307	65	78	101,301	16,772
1991	173	13.46	295	81	73	116,810	19,340
1992	179	12.71	317	72	78	107,903	17,914
1993	187	17.26	298	55	82	88,724	14,690
1994	172	9.43	276	46	83	65,777	10,890
1995	188	17.04	289	43	85	67,492	11,174
1996	179	7.27	295	43	85	64,541	10,715
1997	189	7	284	39	86	61,923	10,252
1998	194	16.05	278	39	86	64,171	10,624
1999	175	5.43	273	38	86	55,130	9,128
2000	174	6.9	278	37	87	54,413	9,034
2001	175	8.45	275	43	85	61,931	10,254
2002	169	4.23	287	44	86	61,493	10,181
2003	170	9.18	285	42	85	59,459	9,844
2004	174	12.69	291	43	85	62,028	10,298
2005	183	14.02	274	41	85	61,768	10,227
2006	170	6.16	287	35	88	49,581	8,209
2007	161	4.23	319	34	89	45,822	7,586
2008	162	11.11	277	32	88	43,802	7,272
2009	153	4.83	308	32	90	40,214	6,658
2010	157	8.06	323	37	88	49,361	8,172
2011	156	8.62	332	42	88	53,439	8,848
2012	148	13.67	354	37	90	46,039	7,622
2013	144	5.46	349	34	91	40,311	6,674
2014	139.2	7.75	348	27	92	31,830	5,270
2015	131.6	9.89	361	30	92	32,570	5,392
2016	136.1	11.22	365	45	87.7	50,900	8,427
2017	139.3	10.1	350	37	89.6	41,943	6,944

(In the table there is more scatter in the data before 1980 because monthly averages were calculated using only the two suspended solids values done on "complete analysis" days, rather than averaging all of the daily test results).

BOD – Biochemical Oxygen Demand



BOD Concentration mg/L

	Influent	Effluent	% Removal		Influent	Effluent	% Removal
1995 - Total	273	107	61%	2006 - Total	271	102	62%
Adjusted Total*	270	107	60%	System-wide Total	295	102	65%
Soluble	99	79	20%	Soluble	87	73	16%
1996 - Total	285	119	58%	2007 - Total	304	95	69%
Adjusted Total*	283	119	58%	System-wide Total	317	95	70%
Soluble	104	89	14%	Soluble	85	69	19%
1997 - Total	258	105	59%	2008 - Total	280	96	66%
Adjusted Total*	256	105	59%	System-wide Total	296	96	68%
Soluble	92	79	14%	Soluble	85	69	19%
1998 - Total	246	106	57%	2009 - Total	292	100	66%
Adjusted Total*	244	106	57%	System-wide Total	310	100	68%
Soluble	89	81	9%	Soluble	76	68	11%
1999- Total	247	102	59%	2010 - Total	287	104	64%
System-wide Total	251	102	59%	System-wide Total	312	104	66%
Soluble	96	79	18%	Soluble	72	70	3%
2000 - Total	237	94	60%	2011 - Total	285	108	62%
System-wide Total	248	94	62%	System-wide Total	312	108	66%
Soluble	84	69	18%	Soluble	77	73	5%
2001 - Total	254	94	63%	2012- Total	306	116	62%
System-wide Total	270	94	65%	System-wide Total	328	116	65%
Soluble	84	58	31%	Soluble	84	79	3%
2002 - Total	266	94	65%	2013- Total	313	115	63%
System-wide Total	287	94	67%	System-wide Total	328	115	65%
Soluble	86	59	31%	Soluble	84	81	4%
2003 - Total	271	105	61%	2014- Total	326	109	66%
System-wide Total	292	105	64%	System-wide Total	352	109	69%
Soluble	86	70	19%	Soluble	92	82	10%
2004 - Total	255	101	60%	2015- Total	332	110	67%
System-wide Total	273	101	63%	System-wide Total	367	110	70%
Soluble	80	70	12%	Soluble	96	83	14%
2005 - Total	252	105	58%	2016- Total	336	132	61%
System-wide Total	269	105	61%	System-wide Total	368	132	64%
Soluble	88	75	15%	Soluble	104	98	6%
				2017- Total	307	124	60%
				System-wide Total	333	124	63%
				Soluble	98	98	0%

H. Special Studies

Partial Disinfection System Status Report

Regulatory History:
On August 13, 2008 Addendum No. 2 to Order No. R9-2002-0025 (NPDES NO. CA0107409) was approved by the San Diego Regional Water Control Board. This addendum permitted the use of sodium hypochlorite (NaOCl) in a prototype partial disinfection system of Point Loma Ocean Outfall (PLOO) effluent.

On August 1, 2010 Order No. R9-2009-001 became effective requiring continuous monitoring of residual chlorine within 180 days.

The system:
Since sodium hypochlorite solution was already in use for odor control at the Point Loma facility, metering pumps and distribution piping were installed and connected to an existing bulk storage tank. Administration of concentrated hypochlorite solution is accomplished by a feed system that adds a flow-proportional dose of hypochlorite necessary to achieve a predetermined nominal concentration of hypochlorite in effluent. The hypochlorite solution is delivered by tanker truck in concentrate form (~12.5%) and added to the hypochlorite bulk storage. Hypochlorite solution is added to the feed tanks on demand. Hypochlorite and carrier water are injected into the effluent channel just after sedimentation tanks at the mid-point of the effluent channel.

Operations:
The first administration of hypochlorite solution began on September 3, 2008. Hypochlorite feed started at an initial rate calculated to obtain a nominal dose of 6 ppm hypochlorite in effluent. An 8.0 ppm dose rate was obtained on the September 4, 2008. Between September 17 and the 24th, feed rates were incrementally increased to a nominal dose of 11 ppm. On October 1, 2008 the dose was increased to 12ppm. During September and October 2008 the system was shutdown several times to make minor repairs and to make modifications in the feed system to allow for better mixing of the hypochlorite within the effluent. By the end of October 2008 the system was back in continuous operation and nominal chlorine feed rates was maintained at 12 ppm until February 2009. From February 25th, 2009 to April 4, 2012 the nominal feed rate target remained at 10 ppm. In April 2012 the target dose was gradually increased during the year from 10 ppm to 20 ppm. The dose was lowered to a nominal feed rate target of 18 ppm on 10/20/2012 and adjusted manually. In 2013 the dose rate continued to be manually adjusted daily according to flow, lowered during high flow and increased during low flow. January 2013 started with a flow rate around 18 mg/L and went as high as 50 mg/L in November. The dosage was then lowered below 20 mg/L due to one bulk sodium hypochlorite tank out for repairs. As a result of an analysis of compliance in the ocean, in August of 2014, the dose rate was reduced to 15 ppm and in October 2014 it was reduced to 6 ppm. It has remained at 6 ppm since October 2014.

Monitoring:
Monitoring in accordance with Addendum 2 was initiated on September 3, 2008, coincidental with the initial use of hypochlorite, and has continued. This monitoring consists of 4 daily grab samples taken during the work day at 2 hour intervals.

Pilot testing and use of an in-line continuous monitoring equipment for chlorine residual monitoring began in the winter of 2010. The first summary report of instrument output from the in-line continuous monitoring equipment was included in the monthly SMR.

Summary reports of the 2017 instantaneous maximum values of both the in-line continuous monitoring and the laboratory analysis of daily manual grabs are included in this annual report. There has been only occasional detectable total chlorine residual in the manual grabs of effluent. The in-line continuous monitoring equipment has not detected total chlorine residual in the effluent during this time period. The new chlorine analyzer that utilizes a built-in chlorine bias was installed in 2016 and evaluated, but was very maintenance intense. Plant staff are also working with another vendor on a filtration method aimed to improve effluent quality to mitigate analyzer performance issues as well as waiting for a different analyzer to be brought in for testing. If this unit is found to be successful, the result of this new technology should allow the implementation of continuous chlorine residual monitoring at Point Loma. Laboratory testing according to the previously approved protocols is being continued.

No impacts on conventional monitoring parameters, e.g. BOD, pH, TSS, and turbidity, have been observed.

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II. Influent and Effluent Data Summary

The results of all analyses performed on the PLWTP influent and effluent are summarized in tables with monthly and annual averages calculated. In some cases, annual totals are also calculated. Graphs of monthly averages are also presented.

A. Mass Emissions
B. Discharge Limits
C. Influent and Effluent Data Summaries
D. Influent and Effluent Graphs
E. Daily Values of selected Parameters
F. Toxicity Bioassays

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A. Mass Emissions

Mass Emissions of Effluent Using 2017 Monthly Averages

DISCHARGE SPECIFICATIONS from NPDES Permit No. CA0107409/RWQCB Order No. R9-2009-0001 effective on August 1, 2010 with limits on pollutant discharges.

Constituent/Property	Benchmarks (mt/yr)	2017 Mass Emissions (mt/yr)	2017 Concentration	Units
Flow (MGD)			**139.3**	MGD
Total Suspended Solids	<u>13,598</u>	7,112	37	mg/L
BOD	-	23,834	124	mg/L
Arsenic	0.88	0.10	0.51	ug/L
Cadmium	1.4	0.00	0.00	ug/L
Chromium	14.2	0.25	1.3	ug/L
Copper	26	2.85	14.8	ug/L
Lead	14.2	0.14	0.7	ug/L
Mercury	0.19	0.002	0.0119	ug/L
Nickel	11.3	0.88	4.6	ug/L
Selenium	0.44	0.22	1.14	ug/L
Silver	2.8	0.02	0.13	ug/L
Zinc	18.3	5.19	27	ug/L
Cyanide	1.57	0.04	0.0002	mg/L
Residual Chlorine	--	0.58	0.003	mg/L
Ammonia	8018	7,746	40.3	mg/L
Non-Chor. Phenols	2.57	6.21	32.3	ug/L
Chlorinated Phenols	1.73	0.00	0.00	ug/L
Endosulfan	0.006	0.0000	0.00	ng/L
Endrin	0.008	0.00	0.00	ng/L
hexachlorocyclohexanes *(HCH)	0.025	0.0000	0.00	ng/L
* (all as Lindane, the gamma isomer)				
Acrolein	17.6	0.00	0.00	ug/L
Antimony	56.6	0.04	0.2	ug/L
Bis(2-chloroethoxy) methane	1.5	0.00	0.00	ug/L
Bis(2-chloroisopropyl) ether	1.61	0.00	0.00	ug/L
Chlorobenzene	1.7	0.00	0.00	ug/L
Chromium (III)	--	--		
di-n-butyl phthalate	1.33	0.00	0.00	ug/L
dichlorobenzenes	2.8	0.00	0.00	ug/L
1,1-dichloroethylene	0.79	0.00	0.00	ug/L
Diethyl phthalate	6.23	1.17	6.1	ug/L
Dimethyl phthalate	1.59	0.00	0.00	ug/L
4,6-dinitro-2-methylphenol	6.8	0.00	0.00	ug/L
2,4-dinitrophenol	11.9	0.00	0.00	ug/L
Ethylbenzene	2.04	0.00	0.00	ug/L
Fluoranthene	0.62	0.00	0.00	ug/L
Nitrobenzene	2.07	0.00	0.00	ug/L
Thallium	36.8	0.00	0.00	ug/L
Toluene	3.31	0.56	DNQ2.9	ug/L
1,1,2,2-tetrachloroethane	1.95	0.00	0.00	ug/L

Constituent/Property	Benchmarks (mt/yr)	2017 Mass Emissions (mt/yr)	2017 Concentration	Units
Tributyltin	0.001	0.00	0.00	ug/L
1,1,1-trichloroethane	2.51	0.00	0.00	ug/L
1,1,2-trichloroethane	1.42	0.00	0.00	ug/L
Acrylonitrile	5.95	0.00	0.00	ug/L
Aldrin	0.006	0.00	0.00	ng/L
Benzene	1.25	0.00	0.00	ug/L
Benzidine	12.5	0.00	0.00	ug/L
Beryllium	1.42	0.000	0.000	ug/L
Bis(2-chloroethyl) ether	1.61	0.00	0.00	ug/L
Bis(2-ethylhexyl) phthalate	2.89	1.33	6.9	ug/L
Carbon Tetrachloride	0.79	0.00	0.00	ug/L
Chlordane	0.014	0.0000	0.00	ng/L
Chloroform	2.19	0.71	3.7	ug/L
DDT	0.043	0.00	0.00	ng/L
1,4-dichlorobenzene	1.25	0.00000	0	ug/L
3,3-dichlorobenzidine	4.67	0.00	0.00	ug/L
1,2-dichloroethane	0.79	0.00	0.00	ug/L
Dichloromethane (Methylene Chloride)	13.7	0.13	DNQ0.69	ug/L
1,3-dichloropropene	1.42	0.00	0.00	ug/L
Dieldrin	0.011	0.00	0.00	ng/L
2,4-dinitrotoluene	1.61	0.00	0.00	ug/L
1,2-diphenylhydrazine	1.52	0.00	0.00	ug/L
Halomethanes	5.86	0.54	2.8	ug/L
Heptachlor	0.001	0.00000	0.00	ng/L
Heptachlor epoxide	0.024	0.00	0.00	ng/L
Hexachlorobenzene	0.54	0.00	0.00	ug/L
Hexachlorobutadiene	0.054	0.00	0.00	ug/L
Hexachloroethane	1.13	0.00	0.00	ug/L
Isophorone	0.71	0.00	0.00	ug/L
N-nitrosodimethylamine	0.76	0.00	0.00	ug/L
N-nitrosodiphenylamine	1.47	0.00	0.00	ug/L
PAHs	15.45	0.00	0.00	ug/L
PCBs	0.275	0.00	0.00	ng/L
TCDD equivalents	--	0.000000000	0.000	pg/L
Tetrachloroethylene	4	0.00	0.00	ug/L
Toxaphene	0.068	0.00	0.00	ng/L
Trichloroethylene	1.56	0.00	0.00	ug/L
2,4,6-trichlorophenol	0.96	0.00	0.00	ug/L
Vinyl Chloride	0.4	0.00	0.00	ug/L

DNQ= Detected but not quantified. Sample result is less than minimum Level but greater than or equal to MDL.

B. Discharge Limits

DISCHARGE SPECIFICATIONS from NPDES Permit No. CA0107409/RWQCB amending Order No. R9-2017-0007 effective on October 1, 2017 with limits on pollutant discharges.
The discharge of waste through the Point Loma Ocean Outfall containing pollutants in excess of the following effluent limitations are prohibited:

Table 5. Effluent Limitations, Discharge Point No. 001[1]

Parameter	Units	Effluent Limitations[2,3]						
		Average Annual	Average Monthly	Average Weekly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum	Six-month Median
Flow	MGD	--	240	--	--	--	--	--
TSS	milligram per liter (mg/L)	--	60[4]	--	--	--	--	--
TSS	Facility percent removal	--	75[4]	--	--	--	--	--
TSS	System-wide percent removal	--	≥80[5]	--	--	--	--	--
TSS	metric ton per year (mt/yr)	12,000[6]	--	--	--	--	--	--
TSS	metric ton per year (mt/yr)	11,999[7]	--	--	--	--	--	--
BOD_5	System-wide percent removal	≥58[5]	--	--	--	--	--	--
Oil and Grease	mg/L	--	25	40	--	--	75	--
Oil and Grease	pounds per day (lbs/day)	--	42,743	68,388	--	--	128,228	--
Settleable Solids	milliliter per liter (ml/L)	--	1.0	1.5	--	--	3.0	--
Turbidity	nephelometric turbidity unit (NTU)	--	75	100	--	--	225	--
pH	standard units	--	--	--	--	6.0	9.0	--
BASED ON OCEAN PLAN OBJECTIVES FOR PROTECTION OF MARINE AQUATIC LIFE								
Total Residual Chlorine	microgram per liter (µg/L)	--	--	--	1.6E+03	--	1.2E+04	4.1E+02
Total Residual Chlorine	lbs/day	--	--	--	2.7E+03	--	2.1E+04	7.0E+02
Chronic Toxicity (Test of Significant Toxicity)[8,9]	"Pass" / "Fail"	--	--	--	"Pass"	--	--	--
BASED ON OCEAN PLAN OBJECTIVES FOR PROTECTION OF HUMAN HEALTH – CARCINOGENS								
Aldrin	µg/L	--	4.5E-03	--	--	--	--	--
Aldrin	lbs/day	--	7.7E-03	--	--	--	--	--

1. See Attachment A for definitions of abbreviations and a glossary of common terms used in this Order/Permit.
2. The mass emission rate (MER) limitation, in lbs/day, was calculated based on the following equation: MER (lbs/day) = 8.34 x Q x C, where Q is the 301(h)-variance-based flow of 205 MGD and C is the concentration (in mg/L). The 301(h)-variance-based flow rate of 205 MGD was taken from the 1995 301(h) application and carried over from Orders Nos. 95-106, R9-2002-0025, and R9-2009-0001 (see section II.C of the Fact Sheet (Attachment F) for more info).
3. Scientific "E" notation is used to express certain values. In scientific "E" notation, the number following the "E" indicates the position of the decimal point in the value. Negative numbers after the "E" indicate that the value is less than 1, and positive numbers after the "E" indicate that the value is greater than 1. In this notation a value of 6.1E-02 represents 6.1 x 10^{-2} or 0.061, 6.1E+02 represents 6.1 x 10^2 or 610, and 6.1E+00 represents 6.1 x 10^0 or 6.1.
4. The Dischargers shall, as an average monthly, remove 75% of suspended solids from the influent stream before discharging wastewaters to the ocean, except that the effluent limitation to be met shall not be lower than 60 mg/l. This effluent limitation was derived from the Ocean Plan, Table 2.
5. The average monthly system-wide percent removal was derived from CWA sections 301(h) and (j)(5). Percent removal shall be calculated on a system-wide basis, as provided in section VII.G of this Order/Permit. Section VII.G of this Order/Permit is carried over from Orders Nos. R9-2002-0025 and R9-2009-0001.

NPDES Permit No. CA0107409/RWQCB Order No. R9-2009-0001

DISCHARGE SPECIFICATIONS from NPDES Permit No. CA0107409/RWQCB Order No. R9-2009-0001 effective on August 1, 2010 to October 1, 2017 with limits on pollutant discharges.
The discharge of waste through the Point Loma Ocean Outfall containing pollutants in excess of the following effluent limitations are prohibited:

NPDES Permit No. CA0107409/RWQCB Order No. R9-2009-0001 as modified by addendum 2 to the order

Constituent	Units	6-month Median	30-day Average	7-Day Average	Daily Maximum	Instantaneous Maximum
Biochemical Oxygen Demand BOD$_5$ @ 20°C	% removal[1]	The "Mean Annual Percent Removal" limit for BOD is 58%. There is no mass emission limit.				
Total Suspended Solids	% removal[1]		>80			
	mg/L		75[4]			
	metric tons/year		15,000[2]			
	metric tons/year		13,598[3]			
pH	pH units	Within the limits of 6.0 - 9.0 at all times.				
Grease & Oil	mg/L		25	40		75
	lb/day		42,743	68,388		128,228
Settleable Solids	mL/L		1.0	1.5		3.0
Turbidity	NTU		75	100		225
Acute Toxicity	TUa				6.42	
Arsenic	ug/L	1,000			5,900	16,000
Cadmium	ug/L	210			820	2,100
Chromium[8] (Hexavalent)	ug/L	410			1,600	4,100
Copper	ug/L	210			2,100	5,700
Lead	ug/L	410			1,600	4,100
Mercury	ug/L	8.1			33	82
Nickel	ug/L	1,000			4,100	10,000
Selenium	ug/L	3,100			12,000	31,000
Silver	ug/L	110			540	1,000
Zinc	ug/L	2,500			15,000	39,400
Cyanide	mg/L	0.2			0.8	2.1
Total Residual Chlorine(TRC)	mg/L	0.41			1.6	12
Ammonia	mg/L	120			490	1,200
Chronic Toxicity	TUc				205	
Phenolic Compounds (non- chlorinated)	ug/L	6,200			25,000	62,000
Chlorinated Phenolics	ug/L	210			820	2,100
Endosulfan	ng/L	1,800			3,700	5,500

1 To be calculated on a system-wide basis, as provided In Addendum No.1 to Order No. R9-2002-0025.
2 To be achieved on permit effective date through December 31, 2013. Applies only to TSS discharges from POTWs owned and operated by the Discharger and the Discharger's wastewater generated in the Metro System service area; does not apply to wastewater (and the resulting TSS) generated in Mexico which, as a result of upset or shutdown, is treated at and discharged from Point Loma WTP.
3 To be achieved on January 1, 2014. Applies only to TSS discharges from POTWs owned and operated by the Discharger and the Discharger's wastewater generated in the Metro System service area; does not apply to wastewater (and the resulting TSS) generated in Mexico which, as a result of upset or shutdown, is treated at and discharged from Point loma WTP.
4 Based on average monthly performance data (1990 through 1994) for the Point Loma WTP provided by the Discharger for the 1995 301 (h) application.

NPDES Permit No. CA0107409/RWQCB Order No. R9-2009-0001 as modified by addendum 2 to the order						
Constituent	Units	6-month Median	30-day Average	7-Day Average	Daily Maximum	Instantaneous Maximum
		820			1,600	2,500

LIMITATIONS FOR PROTECTION OF HUMAN HEALTH--NONCARCINOGENS		
Constituent	Units	Monthly Average (30-Day)
Acrolein	ug/L	45,000
Antimony	ug/L	250,000
Bis(2-chloroethoxy) methane	ug/L	900
Bis(2-chloroisopropyl) ether	ug/L	250,000
Chlorobenzene	ug/L	120,000
Chromium (III)[12]	ug/L	39,000,000
di-n-butyl phthalate	ug/L	720,000
dichlorobenzenes	ug/L	1,000,000
Diethyl phthalate	ug/L	6,800,000
Dimethyl phthalate	ug/L	170,000,000
4,6-dinitro-2-methylphenol	ug/L	45,000
2,4-dinitrophenol	ug/L	820
Ethylbenzene	ug/L	840,000
Fluoranthene	ug/L	3,100
Hexachlorocyclopentadiene	ug/L	12,000
Nitrobenzene	ug/L	1,000
Thallium	ug/L	400
Toluene	ug/L	17,000,000
Tributyltin	ug/L	0.29
1,1,1-trichloroethane	ug/L	110,000,000

LIMITATIONS FOR PROTECTION OF HUMAN HEALTH—CARCINOGENS		
Constituent	Units	Monthly Average (30-Day)
Acrylonitrile	ug/L	21
Aldrin	ng/L	4.5
Benzene	ug/L	1,200
Benzidine	ug/L	0.014
Beryllium	ug/L	6.8
Bis(2-chloroethyl)ether	ug/L	9.2
Bis(2-ethylhexyl)phthalate	ug/L	720
Carbon Tetrachloride	ug/L	180
Chlordane	ng/L	4.7
Chloroform	ug/L	27,000
DDT	ng/L	35
1,1,2,2-tetrachloroethane	ug/L	470
1,1-dichloroethylene	ug/L	200
1,1,2-trichloroethane	ug/L	1,900
1,4-dichlorobenzene	ug/L	3,700
3,3-dichlorobenzidine	ug/L	1.7
1,2-dichloroethane	ug/L	5,700
Dichloromethane	ug/L	92,000
1,3-dichloropropene	ug/L	1,800
Dieldrin	ng/L	8.20
2,4-dinitrotoluene	ug/L	530
1,2-diphenylhydrazine	ug/L	33
Halomethanes	ug/L	27,000
Heptachlor	ng/L	10
Hexachlorobenzene	ug/L	0.043
Hexachlorobutadiene	ug/L	2,900
Hexachloroethane	ug/L	510
Isophorone	ug/L	150,000
N-nitrosodimethylamine	ug/L	1,500
N-nitrosodiphenylamine	ug/L	510
PAHs	ug/L	1.80
PCBs	ng/L	3.90
TCDD equivalents	pg/L	0.8
Tetrachloroethylene	ug/L	410
Toxaphene	ng/L	430
Trichloroethylene	ug/L	5,500
Vinyl Chloride	ug/L	7,400

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C. Influent and Effluent Data Summaries

The results of all analyses performed on the PLWTP influent and effluent are summarized in tables with monthly and annual averages. In some cases, annual totals are also calculated.

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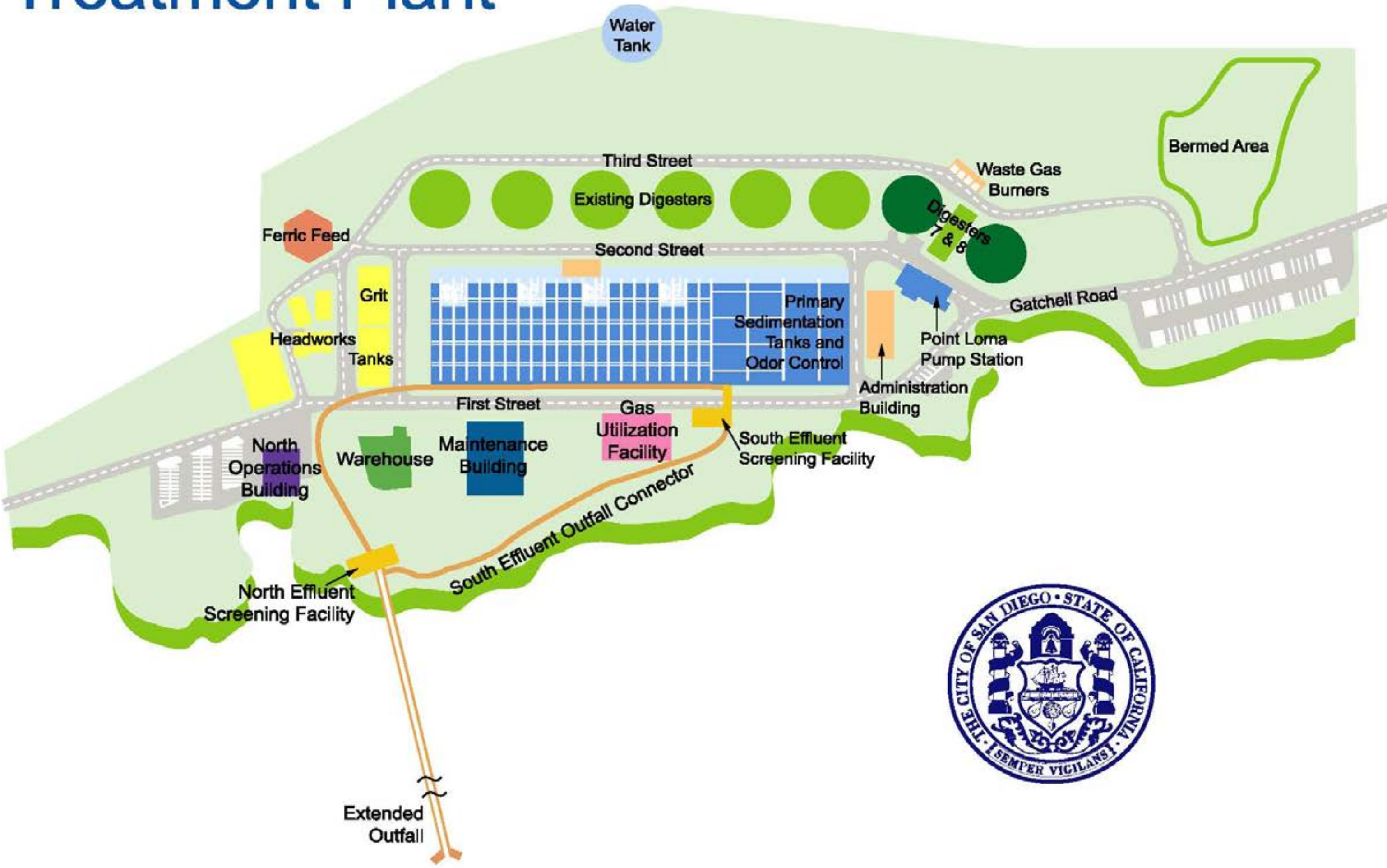
Point Loma Wastewater Treatment Plant



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POINT LOMA WASTEWATER TREATMENT PLANT
SEWAGE ANNUAL

Annual 2017

Biochemical Oxygen Demand Concentration
SM 5210B
(24-hour composite)

Date	Flow	Daily Influent Value (mg/L)	Daily Influent Value (lbs/Day)	Daily Effluent Value (mg/L)	Daily Effluent Value (lbs/Day)	Percent Removal BOD (%)
JANUARY -2017	172.0	277	397351	102	146317	63.2
FEBRUARY -2017	165.0	290	399069	109	149995	62.4
MARCH -2017	157.1	305	399615	111	145434	63.6
APRIL -2017	141.0	327	384532	126	148168	61.5
MAY -2017	138.7	317	366692	126	145752	60.3
JUNE -2017	129.3	316	340762	134	144501	57.6
JULY -2017	130.1	312	338531	135	146480	56.7
AUGUST -2017	128.6	309	331410	135	144791	56.3
SEPTEMBER-2017	127.8	300	319756	118	125771	60.7
OCTOBER -2017	127.5	307	326448	117	124412	61.9
NOVEMBER -2017	126.8	307	324656	124	131131	59.6
DECEMBER -2017	127.3	321	340800	145	153944	54.8
Average	139.3	307	355802	124	142225	59.9

Total Suspended Solids Concentration
SM 2540D
(24-hour composite)

Date	Flow	Daily Influent TSS (mg/L)	Daily Influent VSS (mg/L)	Percent VSS of TSS (%)	Daily Influent Value (lbs/Day)	Daily Effluent TSS (mg/L)	Daily Effluent VSS (mg/L)	Percent VSS of TSS (%)	Daily Effluent Value (lbs/Day)
JANUARY -2017	172.0	306	264	86.3	438951	30	24	80.0	43034
FEBRUARY -2017	165.0	343	291	84.8	472002	34	27	79.4	46787
MARCH -2017	157.1	332	290	87.3	434991	30	24	80.0	39306
APRIL -2017	141.0	348	310	89.1	409227	32	25	78.1	37630
MAY -2017	138.7	344	306	89.0	397925	34	27	79.4	39330
JUNE -2017	129.3	365	319	87.4	393602	39	31	79.5	42056
JULY -2017	130.1	369	325	88.1	400378	40	32	80.0	43401
AUGUST -2017	128.6	358	315	88.0	383964	42	34	81.0	45046
SEPTEMBER-2017	127.8	368	322	87.5	392234	34	27	79.4	36239
OCTOBER -2017	127.5	359	315	87.7	381743	34	28	82.4	36154
NOVEMBER -2017	126.8	358	315	88.0	378589	37	30	81.1	39128
DECEMBER -2017	127.3	352	314	89.2	373712	52	42	80.8	55207
Average	139.3	350	307		404777	37	29		41943

Date	Percent Removal TSS (%)	Percent Removal VSS (%)
JANUARY -2017	90.2	90.9
FEBRUARY -2017	90.1	90.7
MARCH -2017	91.0	91.7
APRIL -2017	90.8	91.9
MAY -2017	90.1	91.2
JUNE -2017	89.3	90.3
JULY -2017	89.2	90.2
AUGUST -2017	88.3	89.2
SEPTEMBER-2017	90.8	91.6
OCTOBER -2017	90.5	91.1
NOVEMBER -2017	89.7	90.5
DECEMBER -2017	85.2	86.6
Average	89.6	90.5

Annual Mass Emissions are calculated from monthly averages of flow and TSS, whereas monthly report average mass emissions are calculated from average daily mass emissions.

POINT LOMA WASTEWATER TREATMENT PLANT

Systemwide BOD Removals

Annual 2017

MONTH	Pt. Loma Influent Mass Emissions	NCWRP PS64 Mass Emissions	NCWRP Penasquitos Mass Emissions	MBC Return Mass Emissions	NCWRP Return Mass Emissions	Total Return Mass Emissions	Pt. Loma Effluent Mass Emissions	System wide Adjusted BOD Removals	Pt. Loma Daily BOD Removals	Pt. Loma Daily BOD Eff Conc.
01-2017	402,162	23,639	16,768	5,097	9,583	14,680	148,909	65.2	62.9	104
02-2017	391,850	22,888	16,786	5,348	8,926	14,274	147,174	64.4	62.2	109
03-2017	396,243	18,448	16,200	5,422	4,794	10,216	145,206	65.3	63.2	111
04-2017	384,827	29,352	15,917	5,269	6,580	11,849	148,685	64.4	61.3	126
05-2017	367,768	28,172	15,215	3,842	9,442	13,284	145,958	63.0	60.0	126
06-2017	341,495	31,253	13,415	4,065	6,506	10,572	145,218	61.3	57.4	135
07-2017	338,363	30,195	12,216	4,726	6,230	10,957	146,260	60.4	56.6	135
08-2017	334,456	30,880	11,040	5,079	4,805	9,884	144,249	60.5	56.8	134
09-2017	322,377	28,989	10,518	4,475	12,227	16,703	127,094	62.9	60.4	119
10-2017	330,284	30,738	11,765	5,689	7,827	13,515	126,154	64.8	61.6	119
11-2017	325,810	32,470	9,832	5,507	4,973	10,481	131,118	63.2	59.6	124
12-2017	340,069	33,973	11,430	7,466	6,931	14,397	153,460	58.3	54.5	145
avg	356,309	28,416	13,425	5,165	7,402	12,568	142,457	62.8	59.7	124

Systemwide TSS Removals

Annual 2017

MONTH	Pt. Loma Influent Mass Emissions Lbs/day	NCWRP PS64 Mass Emissions Lbs/day	NCWRP Penasquitos Mass Emissions Lbs/day	MBC Return Mass Emissions Lbs/day	NCWRP Return Mass Emissions Lbs/day	Total Return Mass Emissions Lbs/day	Pt. Loma Effluent Mass Emissions Lbs/day	System wide Adjusted TSS Removals	Pt. Loma Daily TSS Removals	Pt. Loma Daily TSS Eff Conc. mg/L
01-2017	437,343	21,854	21,270	14,655	9,462	24,118	44,206	90.4	90.0	30
02-2017	467,600	23,968	21,455	12,376	12,124	24,500	47,466	90.4	89.9	34
03-2017	430,817	18,604	20,099	14,223	9,563	23,786	39,810	91.0	90.7	30
04-2017	409,464	23,936	16,309	13,218	9,603	22,821	37,695	91.1	90.8	32
05-2017	396,390	24,742	16,909	9,612	11,504	21,116	39,407	90.5	90.0	34
06-2017	393,108	29,059	16,636	8,814	11,265	20,078	42,607	89.6	88.9	40
07-2017	400,073	28,670	13,322	10,945	9,755	20,700	43,165	89.7	89.2	40
08-2017	384,307	28,116	12,704	13,027	8,996	22,023	45,500	88.6	88.0	42
09-2017	392,419	28,083	13,071	12,063	16,640	28,702	35,935	91.0	90.8	34
10-2017	382,077	28,984	13,850	13,414	11,541	24,956	36,400	90.7	90.2	34
11-2017	377,794	28,279	11,774	12,015	11,575	23,591	39,428	89.8	89.4	37
12-2017	372,947	30,039	13,094	15,579	12,469	28,048	54,765	85.5	84.8	52
avg	403,695	26,195	15,874	12,495	11,208	23,703	42,199	89.9	89.4	37

Annual mass emissions are calculated from monthly averages of flow and TSS, whereas monthly report average mass emissions are calculated from average daily mass emissions.

POINT LOMA WASTEWATER TREATMENT PLANT

Annual 2017

Influent to Plant
(PLR)

Date	pH	Settleable Solids (ml/L)	Biochemical Oxygen Demand (mg/L)	Hexane Extractable Material (mg/L)	Temperature (C)	Floating Particulates (mg/L)	Turbidity (NTU)
JANUARY -2017	7.43	16.5	277	39.8	23.2	<1.40	115
FEBRUARY -2017	7.42	16.1	290	45.3	23.2	<1.40	109
MARCH -2017	7.39	16.8	305	46.1	24.1	<1.40	105
APRIL -2017	7.30	15.9	327	54.1	25.0	<1.40	107
MAY -2017	7.27	19.3	317	59.5	25.5	<1.40	118
JUNE -2017	7.27	18.5	316	59.8	26.5	<1.40	109
JULY -2017	7.20	17.5	312	66.3	27.6	<1.40	115
AUGUST -2017	7.22	18.6	309	61.0	28.2	<1.40	110
SEPTEMBER-2017	7.27	18.3	300	60.5	28.4	<1.00	124
OCTOBER -2017	7.28	17.9	307	64.4	27.7	<1.00	106
NOVEMBER -2017	7.29	18.4	307	64.1	26.7	<1.00	115
DECEMBER -2017	7.24	15.8	321	61.6	25.0	1.00	116
Average	7.30	17.5	307	56.9	25.9	<1.40	112

Effluent to Ocean Outfall
(PLE)

Date	pH	Settleable Solids (ml/L)	Biochemical Oxygen Demand (mg/L)	Hexane Extractable Material (mg/L)	Temperature (C)	Floating Particulates (mg/L)	Turbidity (NTU)
JANUARY -2017	7.27	0.2	102	9.5	23.5	<1.40	27
FEBRUARY -2017	7.24	0.1	109	10.1	23.4	<1.40	27
MARCH -2017	7.23	0.1	111	10.6	24.3	<1.40	30
APRIL -2017	7.18	0.2	126	12.0	25.2	<1.40	41
MAY -2017	7.15	0.2	126	13.1	25.9	<1.40	44
JUNE -2017	7.14	0.2	134	14.1	26.8	<1.40	45
JULY -2017	7.11	0.2	135	15.1	28.0	<1.40	56
AUGUST -2017	7.07	0.5	135	16.0	28.5	<1.40	63
SEPTEMBER-2017	7.18	0.1	118	10.9	28.7	<1.00	50
OCTOBER -2017	7.18	0.2	117	12.5	27.9	<1.00	46
NOVEMBER -2017	7.14	0.3	124	13.1	26.9	<1.00	47
DECEMBER -2017	7.12	0.2	145	13.4	25.4	<1.00	42
Average	7.17	0.2	124	12.5	26.2	<1.40	43

pH by SM4500H
Setteble Solids by SM4540F
BOD by SM5210B
HEM by EPA 1664B
Turbidity by SM2130B

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

POINT LOMA WASTEWATER TREATMENT PLANT

ANNUAL 2017

Trace Metals
EPA Method 200.7 and 200.8

Analyte:	Antimony	Antimony	Arsenic	Arsenic	Beryllium	Beryllium	Cadmium	Cadmium
MDL	2.44	2.44	1.84	1.84	.12	.12	.26	.26
Units	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L
Source:	PLR	PLE	PLR	PLE	PLR	PLE	PLR	PLE
JANUARY -2017	ND	ND	1.61	0.85	ND	ND	1.08	ND
FEBRUARY -2017	<2.44	<2.44	2.18	1.30	<0.05	ND	<0.26	<0.26
MARCH -2017	4.34	<2.44	1.61	0.67	0.09	<0.05	<0.26	<0.26
APRIL -2017	<2.44	<2.44	1.45	0.87	ND	ND	<0.26	ND
MAY -2017	<2.44	ND	1.24	0.79	ND	ND	<0.26	ND
JUNE -2017	<2.44	ND	1.27	0.90	ND	ND	0.39	ND
JULY -2017	<2.44	<2.44	1.21	0.71	ND	<0.05	<0.26	ND
AUGUST -2017	<0.12	<0.12	2.08	<1.84	ND	ND	<0.075	ND
SEPTEMBER-2017	0.90	0.55	<1.84	ND	ND	ND	0.14	ND
OCTOBER -2017	0.94	0.55	<1.84	ND	ND	ND	0.09	ND
NOVEMBER -2017	1.06	0.59	<1.84	ND	ND	ND	0.16	ND
DECEMBER -2017	1.07	0.59	<1.84	ND	ND	ND	0.17	ND
AVERAGE	0.69	0.19	1.05	0.51	0.01	0.00	0.17	0.00

Analyte:	Chromium	Chromium	Copper	Copper	Iron	Iron	Lead	Lead
MDL	.54	.54	2.16	2.16	17.1	17.1	1.68	1.68
Units	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L
Source:	PLR	PLE	PLR	PLE	PLR	PLE	PLR	PLE
JANUARY -2017	7.77	1.67	110	19.4	9270	3220	2.53	<1.68
FEBRUARY -2017	4.57	1.15	115	18.0	8710	3100	3.20	<1.68
MARCH -2017	4.48	1.32	104	17.6	8440	3370	3.46	ND
APRIL -2017	4.52	1.37	108	20.1	8250	3390	3.34	ND
MAY -2017	4.17	1.20	104	13.5	8350	3040	3.15	<1.68
JUNE -2017	5.19	1.51	106	15.2	8670	3440	5.89	6.46
JULY -2017	5.00	1.56	118	15.2	8830	2980	4.39	<1.68
AUGUST -2017	3.78	1.55	77.8	16.3	6560	3290	2.30	<0.074
SEPTEMBER-2017	3.96	1.06	92.7	9.4	8470	2570	2.86	0.55
OCTOBER -2017	3.46	0.92	83.7	9.7	7390	2450	1.89	0.29
NOVEMBER -2017	4.15	1.03	89.8	10.9	8080	2700	2.91	0.96
DECEMBER -2017	4.68	1.00	90.9	11.7	8350	3000	2.35	0.29
AVERAGE	4.64	1.28	100	14.8	8281	3046	3.19	0.71

Note: MDL values were updated in August 2017.

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

POINT LOMA WASTEWATER TREATMENT PLANT

ANNUAL 2017

Trace Metals
EPA Method 200.7 and 200.8

Analyte:	Nickel	Nickel	Selenium	Selenium	Silver	Silver	Thallium	Thallium
MDL	.53	.53	.662	.662	.73	.73	3.12	3.12
Units	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L
Source:	PLR	PLE	PLR	PLE	PLR	PLE	PLR	PLE
JANUARY -2017	13.8	4.76	1.46	1.50	ND	ND	ND	ND
FEBRUARY -2017	7.35	4.60	2.73	1.47	0.79	<0.73	ND	ND
MARCH -2017	8.64	5.15	1.71	1.11	<0.73	ND	ND	ND
APRIL -2017	6.80	4.56	1.32	0.86	<0.73	ND	ND	ND
MAY -2017	6.74	4.20	1.45	0.86	<0.73	1.53	ND	ND
JUNE -2017	7.02	4.71	1.38	0.89	<0.73	ND	ND	ND
JULY -2017	7.57	5.16	1.60	0.76	<0.73	ND	ND	ND
AUGUST -2017	6.74	4.82	2.39	1.64	<0.024	<0.024	ND	ND
SEPTEMBER-2017	7.24	4.48	1.78	0.71	0.42	ND	ND	ND
OCTOBER -2017	5.73	4.06	2.48	1.73	0.42	ND	ND	ND
NOVEMBER -2017	6.34	4.63	1.80	1.19	0.35	<0.02	ND	ND
DECEMBER -2017	6.36	3.92	1.76	0.98	0.53	0.04	ND	ND
AVERAGE	7.53	4.59	1.82	1.14	0.21	0.13	ND	ND

Analyte:	Zinc	Zinc	Mercury	Mercury
MDL	4.19	4.19	.002	.001
Units	UG/L	UG/L	UG/L	UG/L
Source:	PLR	PLE	PLR	PLE
JANUARY -2017	192	42.0	0.0643	0.0080
FEBRUARY -2017	209	29.3	0.1250	0.0089
MARCH -2017	171	30.6	0.1008	0.0111
APRIL -2017	177	31.9	0.1303	0.0137
MAY -2017	182	22.4	0.1398	0.0106
JUNE -2017	180	28.5	0.0882	0.0287
JULY -2017	205	30.2	0.1463	0.0101
AUGUST -2017	129	28.9	0.0934	0.0127
SEPTEMBER-2017	167	19.6	0.1128	0.0076
OCTOBER -2017	142	18.9	0.0750	0.0100
NOVEMBER -2017	150	25.4	0.1210	0.0100
DECEMBER -2017	131	16.2	0.1013	0.0114
AVERAGE	170	27.0	0.1082	0.0119

Mercury by EPA Method 1631E

Note: MDL values were updated in August 2017.

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

POINT LOMA WASTEWATER TREATMENT PLANT

ANNUAL 2017

Ammonia-Nitrogen and Total Cyanides

Analyte	Ammonia-N	Ammonia-N	Cyanide, Total	Cyanide, Total
MDL/Units	.3 MG/L	.3 MG/L	.005 MG/L	.005 MG/L
Source	PLR	PLE	PLR	PLE
Limit		123		0.200
JANUARY -2017	34.4	34.2	<0.0020	<0.0020
FEBRUARY -2017	36.7	36.2	<0.0020	0.0024
MARCH -2017	37.0	36.5	<0.0020	<0.0020
APRIL -2017	42.7	42.3	0.0020	<0.0020
MAY -2017	41.7	41.8	0.0023	<0.0020
JUNE -2017	43.0	42.6	<0.0020	<0.0020
JULY -2017	42.5	42.1	<0.0050	<0.0050
AUGUST -2017	42.5	41.2	<0.0050	<0.0050
SEPTEMBER-2017	41.8	41.0	<0.0050	<0.0050
OCTOBER -2017	43.2	42.6	<0.0050	<0.0050
NOVEMBER -2017	42.6	41.8	<0.0050	<0.0050
DECEMBER -2017	42.3	41.5	<0.0050	<0.0050
Average:	40.9	40.3	0.0004	0.0002

Analyte	Chlorine Residual, Total
MDL/Units	.03 MG/L
Source	PLE
JANUARY -2017	0.037
FEBRUARY -2017	<0.030
MARCH -2017	<0.030
APRIL -2017	ND
MAY -2017	ND
JUNE -2017	ND
JULY -2017	ND
AUGUST -2017	ND
SEPTEMBER-2017	ND
OCTOBER -2017	ND
NOVEMBER -2017	ND
DECEMBER -2017	ND
Average:	0.003

Ammonia by SM5210B
Cyanide by SM4500-CN B/E
Chlorine by SM4500-Cl G

Note: MDL values for total cyanide were updated in July 2017.

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

POINT LOMA WASTEWATER TREATMENT PLANT

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Radioactivity
EPA Method 900.0

Source	Month	Gross Alpha Radiation	Gross Beta Radiation
PLR	JANUARY -2017	5.5±2.9	13.7±2.5
PLR	FEBRUARY -2017	11.0±3.1	15.4±2.2
PLR	MARCH -2017	9.3±2.9	12.3±2.0
PLR	APRIL -2017	9.0±2.9	19.8±2.3
PLR	MAY -2017	7.9±2.6	17.1±2.2
PLR	JUNE -2017	4.4±1.7	13.8±1.7
PLR	JULY -2017	5.3±2.7	15.5±2.8
PLR	AUGUST -2017	13.9±2.8	11.9±2.1
PLR	SEPTEMBER-2017	5.7±2.4	17.7±2.6
PLR	OCTOBER -2017	2.9±2.1	23.7±2.9
PLR	NOVEMBER -2017	1.6±2.0	24.3±2.7
PLR	DECEMBER -2017	9.0±2.7	12.9±2.0
AVERAGE		6.9±2.5	16.5±2.3

Source	Month	Gross Alpha Radiation	Gross Beta Radiation
PLE	JANUARY -2017	5.7±2.3	13.8±1.9
PLE	FEBRUARY -2017	8.9±2.8	14.5±2.0
PLE	MARCH -2017	11.8±2.1	13.1±1.6
PLE	APRIL -2017	7.9±1.8	13.5±1.6
PLE	MAY -2017	5.6±1.9	4.7±1.5
PLE	JUNE -2017	6.8±2.5	19.3±2.4
PLE	JULY -2017	5.8±3.2	15.4±2.8
PLE	AUGUST -2017	4.9±2.0	12.7±1.9
PLE	SEPTEMBER-2017	2.7±1.9	19.1±2.8
PLE	OCTOBER -2017	2.8±1.8	21.2±2.8
PLE	NOVEMBER -2017	2.6±2.1	21.6±2.7
PLE	DECEMBER -2017	6.7±3.3	20.3±2.4
AVERAGE		5.8±2.4	15.8±2.2

Analyzed by: FGL Environmental Agricultural Analytical

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

Units in picocuries/liter (pCi/L)

POINT LOMA WASTEWATER TREATMENT PLANT

ANNUAL 2017

Chlorinated Pesticide Analysis
EPA Method 608

Source Analyte	MDL	Units	PLR JAN Avg	PLR FEB Avg	PLR MAR Avg	PLR APR Avg	PLR MAY Avg	PLR JUN Avg	PLR JUL Avg	PLR AUG Avg	PLR SEP Avg	PLR OCT Avg	PLR NOV Avg	PLR DEC Avg	PLR Average
Aldrin	100	NG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Dieldrin	200	NG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BHC, Alpha isomer	200	NG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BHC, Beta isomer	50	NG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BHC, Gamma isomer	100	NG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BHC, Delta isomer	50	NG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
p,p-DDD	16	NG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND*	ND	ND	ND
p,p-DDE	200	NG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
p,p-DDT	50	NG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
o,p-DDD	10	NG/L	ND	ND	ND	ND	ND	ND	ND	ND	NA	ND	ND	ND	ND
o,p-DDE	20	NG/L	ND	ND	ND	ND	ND	ND	ND	ND	NA	ND	ND	ND	ND
o,p-DDT	5	NG/L	ND	ND	ND	ND	ND	ND	ND	ND	NA	ND	ND	ND	ND
Heptachlor	50	NG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Heptachlor epoxide	50	NG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Alpha (cis) Chlordane	45	NG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Gamma (trans) Chlordane	45	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	1.21	NG/L	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	ND	ND	ND
Trans Nonachlor	5	NG/L	ND	ND	ND	ND	ND	ND	ND	ND	NA	ND	ND	ND	ND
Cis Nonachlor	5	NG/L	ND	ND	ND	ND	ND	ND	ND	ND	NA	ND	ND	ND	ND
Alpha Endosulfan	210	NG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Beta Endosulfan	200	NG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Endosulfan Sulfate	880	NG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Endrin	50	NG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Endrin aldehyde	73	NG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Mirex	5	NG/L	ND	ND	ND	ND	ND	ND	ND	ND	NA	ND	ND	ND	ND
Methoxychlor	460	NG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	ND	ND	ND
Toxaphene	2500	NG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PCB 1016	2500	NG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PCB 1221	2500	NG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PCB 1232	2100	NG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PCB 1242	2000	NG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PCB 1248	1400	NG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PCB 1254	2500	NG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PCB 1260	2500	NG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PCB 1262	500	NG/L	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	ND	ND	ND
Aldrin + Dieldrin	200	NG/L	0	0	0	0	0	0	0	0	0	0	0	0	0
Hexachlorocyclohexanes	200	NG/L	0	0	0	0	0	0	0	0	0	0	0	0	0
DDT and derivatives	200	NG/L	0	0	0	0	0	0	0	0	0	0	0	0	0
Chlordane + related cmpds.	45	NG/L	0	0	0	0	0	0	0	0	0	0	0	0	0
Polychlorinated biphenyls	2500	NG/L	0	0	0	0	0	0	0	0	0	0	0	0	0
Endosulfans	880	NG/L	0	0	0	0	0	0	0	0	0	0	0	0	0
Heptachlors	50	NG/L	0	0	0	0	0	0	0	0	0	0	0	0	0
Chlorinated Hydrocarbons	2500	NG/L	0	0	0	0	0	0	0	0	0	0	0	0	0

* = One or more quality control criteria not met; value not used in average calculations.

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

POINT LOMA WASTEWATER TREATMENT PLANT

ANNUAL 2017

Chlorinated Pesticide Analysis
EPA Method 608

Source Analyte	MDL	Units	PLE JAN Avg	PLE FEB Avg	PLE MAR Avg	PLE APR Avg	PLE MAY Avg	PLE JUN Avg	PLE JUL Avg	PLE AUG Avg	PLE SEP Avg	PLE OCT Avg	PLE NOV Avg	PLE DEC Avg	PLE Average
Aldrin	100	NG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Dieldrin	200	NG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BHC, Alpha isomer	200	NG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BHC, Beta isomer	50	NG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BHC, Gamma isomer	100	NG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BHC, Delta isomer	50	NG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
p,p-DDD	16	NG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND*	ND	ND	ND
p,p-DDE	200	NG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
p,p-DDT	50	NG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
o,p-DDD	10	NG/L	ND	ND	ND	ND	ND	ND	ND	ND	NA	ND	ND	ND	ND
o,p-DDE	20	NG/L	ND	ND	ND	ND	ND	ND	ND	ND	NA	ND	ND	ND	ND
o,p-DDT	5	NG/L	ND	ND	ND	ND	ND	ND	ND	ND	NA	ND	ND	ND	ND
Heptachlor	50	NG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Heptachlor epoxide	50	NG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Alpha (cis) Chlordane	45	NG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Gamma (trans) Chlordane	45	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	1.21	NG/L	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	ND	ND	ND
Trans Nonachlor	5	NG/L	ND	ND	ND	ND	ND	ND	ND	ND	NA	ND	ND	ND	ND
Cis Nonachlor	5	NG/L	ND	ND	ND	ND	ND	ND	ND	ND	NA	ND	ND	ND	ND
Alpha Endosulfan	210	NG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Beta Endosulfan	200	NG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Endosulfan Sulfate	880	NG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Endrin	50	NG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Endrin aldehyde	73	NG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Mirex	5	NG/L	ND	ND	ND	ND	ND	ND	ND	ND	NA	ND	ND	ND	ND
Methoxychlor	460	NG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	ND	ND	ND
Toxaphene	2500	NG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PCB 1016	2500	NG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PCB 1221	2500	NG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PCB 1232	2100	NG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PCB 1242	2000	NG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PCB 1248	1400	NG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PCB 1254	2500	NG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PCB 1260	2500	NG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PCB 1262	500	NG/L	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	ND	ND	ND
Aldrin + Dieldrin	200	NG/L	0	0	0	0	0	0	0	0	0	0	0	0	0
Hexachlorocyclohexanes	200	NG/L	0	0	0	0	0	0	0	0	0	0	0	0	0
DDT and derivatives	200	NG/L	0	0	0	0	0	0	0	0	0	0	0	0	0
Chlordane + related cmpds.	45	NG/L	0	0	0	0	0	0	0	0	0	0	0	0	0
Polychlorinated biphenyls	2500	NG/L	0	0	0	0	0	0	0	0	0	0	0	0	0
Endosulfans	880	NG/L	0	0	0	0	0	0	0	0	0	0	0	0	0
Heptachlors	50	NG/L	0	0	0	0	0	0	0	0	0	0	0	0	0
Chlorinated Hydrocarbons	2500	NG/L	0	0	0	0	0	0	0	0	0	0	0	0	0

* = One or more quality control criteria not met; value not used in average calculations.

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

POINT LOMA WASTEWATER TREATMENT PLANT

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Organophosphorus Pesticides
EPA Method 614

Source			PLR	PLR	PLR	PLR	PLR	PLR
Date			09-JAN-2017	07-FEB-2017	06-MAR-2017	12-APR-2017	02-MAY-2017	08-JUN-2017
Analyte	MDL	Units	P916018	P919163	P926350	P933028	P936544	P946712
Demeton O	.01	UG/L	ND	ND	ND	ND	ND	ND
Demeton S	.04	UG/L	ND	ND	ND	ND	ND	ND
Diazinon	.02	UG/L	ND	ND	ND	ND	ND	ND
Guthion	.03	UG/L	ND	ND	ND	ND	ND	ND
Malathion	.02	UG/L	ND	ND	DNQ0.04	ND	DNQ0.08	0.10
Parathion	.01	UG/L	ND	ND	ND	ND	ND	ND
Chlorpyrifos	.02	UG/L	ND	ND	ND	ND	ND	ND
Coumaphos	.05	UG/L	ND	ND	ND	ND	ND	ND
Dichlorvos	.01	UG/L	ND	ND	ND	DNQ0.01	ND	ND
Disulfoton	.01	UG/L	ND	ND	ND	ND	ND	ND
Stirophos	.01	UG/L	ND	ND	ND	ND	ND	0.3
Thiophosphorus Pesticides	.03	UG/L	0.00	0.00	0.00	0.00	0.00	0.10
Demeton -O, -S	.04	UG/L	0.00	0.00	0.00	0.00	0.00	0.00
Total Organophosphorus Pesticides	.05	UG/L	0.00	0.00	0.00	0.00	0.00	0.40

Source			PLR	PLR	PLR	PLR	PLR	PLR
Date			12-JUL-2017	01-AUG-2017	13-SEP-2017	03-OCT-2017	06-NOV-2017	13-DEC-2017
Analyte	MDL	Units	P954715	P959720	P967832	P973069	P981464	P987753
Demeton O	.01	UG/L	ND	ND	ND	ND	ND	ND
Demeton S	.04	UG/L	ND	ND	ND	ND	ND	ND
Diazinon	.02	UG/L	ND	ND	ND	ND	ND	ND
Guthion	.03	UG/L	ND	ND	ND	ND	ND	ND
Malathion	.02	UG/L	ND	DNQ0.07	ND	ND	ND	ND
Parathion	.01	UG/L	ND	ND	ND	ND	ND	ND
Chlorpyrifos	.02	UG/L	ND	NA	ND	ND	ND	DNQ0.1
Coumaphos	.05	UG/L	ND	ND	ND	ND	ND	ND
Dichlorvos	.01	UG/L	ND	ND	ND	ND	ND	ND
Disulfoton	.01	UG/L	ND	ND	ND	ND	ND	ND
Stirophos	.01	UG/L	ND	ND	ND	ND	ND	ND
Thiophosphorus Pesticides	.03	UG/L	0.00	0.00	0.00	0.00	0.00	0.00
Demeton -O, -S	.04	UG/L	0.00	0.00	0.00	0.00	0.00	0.00
Total Organophosphorus Pesticides	.05	UG/L	0.00	0.00	0.00	0.00	0.00	0.00

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

DNQ= Detected but not quantified. Sample result is less than the Minimum Level but greater than or equal to MDL.

POINT LOMA WASTEWATER TREATMENT PLANT

ANNUAL 2017

Organophosphorus Pesticides
EPA Method 614

Analyte	MDL	Units	PLE 09-JAN-2017 P916015	PLE 07-FEB-2017 P919157	PLE 06-MAR-2017 P926347	PLE 12-APR-2017 P933025	PLE 02-MAY-2017 P936538	PLE 08-JUN-2017 P946709
Demeton O	.01	UG/L	ND	ND	ND	ND	ND	ND
Demeton S	.04	UG/L	ND	ND	ND	ND	ND	ND
Diazinon	.02	UG/L	ND	ND	ND	ND	ND	ND
Guthion	.03	UG/L	ND	ND	ND	ND	ND	ND
Malathion	.02	UG/L	ND	DNQ0.02	DNQ0.05	ND	DNQ0.10	DNQ0.06
Parathion	.01	UG/L	ND	ND	ND	ND	ND	ND
Chlorpyrifos	.02	UG/L	ND	ND	ND	ND	ND	ND
Coumaphos	.05	UG/L	ND	ND	ND	ND	ND	ND
Dichlorvos	.01	UG/L	ND	DNQ0.01	ND	DNQ0.1	ND	ND
Disulfoton	.01	UG/L	ND	ND	ND	ND	ND	ND
Stirophos	.01	UG/L	ND	ND	ND	ND	ND	ND
Thiophosphorus Pesticides	.03	UG/L	0.00	0.00	0.00	0.00	0.00	0.00
Demeton -O, -S	.04	UG/L	0.00	0.00	0.00	0.00	0.00	0.00
Total Organophosphorus Pesticides	.05	UG/L	0.00	0.00	0.00	0.00	0.00	0.00

Analyte	MDL	Units	PLE 12-JUL-2017 P954712	PLE 01-AUG-2017 P959714	PLE 13-SEP-2017 P967829	PLE 03-OCT-2017 P973063	PLE 06-NOV-2017 P981461	PLE 13-DEC-2017 P987750
Demeton O	.01	UG/L	ND	ND	ND	ND	ND	ND
Demeton S	.04	UG/L	ND	ND	ND	ND	ND	ND
Diazinon	.02	UG/L	ND	ND	ND	ND	ND	ND
Guthion	.03	UG/L	ND	ND	ND	ND	ND	ND
Malathion	.02	UG/L	ND	0.17	DNQ0.07	ND	ND	ND
Parathion	.01	UG/L	ND	ND	ND	ND	ND	ND
Chlorpyrifos	.02	UG/L	ND	NA	ND	ND	ND	ND
Coumaphos	.05	UG/L	ND	ND	ND	ND	ND	ND
Dichlorvos	.01	UG/L	ND	ND	ND	ND	ND	ND
Disulfoton	.01	UG/L	ND	ND	ND	ND	ND	ND
Stirophos	.01	UG/L	ND	ND	ND	ND	ND	ND
Thiophosphorus Pesticides	.03	UG/L	0.00	0.17	0.00	0.00	0.00	0.00
Demeton -O, -S	.04	UG/L	0.00	0.00	0.00	0.00	0.00	0.00
Total Organophosphorus Pesticides	.05	UG/L	0.00	0.17	0.00	0.00	0.00	0.00

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

DNQ= Detected but not quantified. Sample result is less than the Minimum Level but greater than or equal to MDL.

POINT LOMA WASTEWATER TREATMENT PLANT

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Tributyl Tin analysis

Source			PLR	PLR	PLR	PLR	PLR	PLR	PLR	PLR	PLR
			JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
Analyte	MDL	Units									
Dibutyltin	.0102	UG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND
Monobutyltin	.013	UG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tributyltin	.0083	UG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND

Source			PLR	PLR	PLR	
			OCT	NOV	DEC	
Analyte	MDL	Units				Average
Dibutyltin	.0102	UG/L	ND	ND	ND	ND
Monobutyltin	.013	UG/L	ND	NA	ND	ND
Tributyltin	.0083	UG/L	ND	ND	ND	ND

Source			PLE	PLE	PLE	PLE	PLE	PLE	PLE	PLE	PLE
			JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
Analyte	MDL	Units									
Dibutyltin	.0102	UG/L	ND	ND	0.041	ND	ND	ND	ND	ND	ND
Monobutyltin	.013	UG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tributyltin	.0083	UG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND

Source			PLE	PLE	PLE	
			OCT	NOV	DEC	
Analyte	MDL	Units				Average
Dibutyltin	.0102	UG/L	ND	ND	ND	0.003
Monobutyltin	.013	UG/L	ND	NA	ND	ND
Tributyltin	.0083	UG/L	ND	ND	ND	ND

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

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Phenolic Compounds
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Source Analyte	MDL	Units	PLR JAN Avg	PLR FEB Avg	PLR MAR Avg	PLR APR Avg	PLR MAY Avg	PLR JUN Avg	PLR JUL Avg	PLR AUG Avg	PLR SEP Avg	PLR OCT Avg	PLR NOV Avg	PLR DEC Avg	Average
2-Chlorophenol	1.32	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-Dichlorophenol	1.01	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
2-Methyl-4,6-dinitrophenol	1.52	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
4-Nitrophenol	1.14	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	36.0	36.8	29.8	39.8	42.4	41.8	46.8	50.6	40.1	46.7	45.1	44.6	41.7
2,4,6-Trichlorophenol	1.65	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	36.0	36.8	29.8	39.8	42.4	41.8	46.8	50.6	40.1	46.7	45.1	44.6	41.7
Phenols	2.16	UG/L	36.0	36.8	29.8	39.8	42.4	41.8	46.8	50.6	40.1	46.7	45.1	44.6	41.7

Additional Analytes Determined:

Analyte	MDL	Units	PLR JAN Avg	PLR FEB Avg	PLR MAR Avg	PLR APR Avg	PLR MAY Avg	PLR JUN Avg	PLR JUL Avg	PLR AUG Avg	PLR SEP Avg	PLR OCT Avg	PLR NOV Avg	PLR DEC Avg	Average
2-Methylphenol	2.15	UG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
4-Methylphenol(3-MP is unresolved)	2.11	UG/L	61.3	64.0	55.1	68.4	72.8	65.9	67.1	70.9	53.9	57.4	70.1	71.5	64.9
2,4,5-Trichlorophenol	1.66	UG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

Source Analyte	MDL	Units	PLE JAN Avg	PLE FEB Avg	PLE MAR Avg	PLE APR Avg	PLE MAY Avg	PLE JUN Avg	PLE JUL Avg	PLE AUG Avg	PLE SEP Avg	PLE OCT Avg	PLE NOV Avg	PLE DEC Avg	Average
2-Chlorophenol	1.32	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-Dichlorophenol	1.01	UG/L	ND	ND	ND	ND	ND	ND	ND	<1.01	ND	ND	ND	ND	ND
2,4-Dimethylphenol	2.01	UG/L	ND	<2.01	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2,4-Dinitrophenol	2.16	UG/L	ND	ND	ND	ND	ND	<2.16	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
2-Nitrophenol	1.55	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
Pentachlorophenol	1.12	UG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Phenol	1.76	UG/L	29.4	26.6	32.3	34.7	31.8	32.0	30.9	35.4	34.7	35.2	32.0	32.9	32.3
2,4,6-Trichlorophenol	1.65	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	29.4	26.6	32.3	34.7	31.8	32.0	30.9	35.4	34.7	35.2	32.0	32.9	32.3
Phenols	2.16	UG/L	29.4	26.6	32.3	34.7	31.8	32.0	30.9	35.4	34.7	35.2	32.0	32.9	32.3

Additional Analytes Determined:

Analyte	MDL	Units	PLE JAN Avg	PLE FEB Avg	PLE MAR Avg	PLE APR Avg	PLE MAY Avg	PLE JUN Avg	PLE JUL Avg	PLE AUG Avg	PLE SEP Avg	PLE OCT Avg	PLE NOV Avg	PLE DEC Avg	Average
2-Methylphenol	2.15	UG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
4-Methylphenol(3-MP is unresolved)	2.11	UG/L	55.1	48.4	61.2	55.0	54.0	47.9	46.8	42.8	36.4	42.6	38.8	41.2	47.5
2,4,5-Trichlorophenol	1.66	UG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

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

POINT LOMA WASTEWATER TREATMENT PLANT

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Priority Pollutants Base/Neutrals
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Source Analyte	MDL	Units	PLR JAN Avg	PLR FEB Avg	PLR MAR Avg	PLR APR Avg	PLR MAY Avg	PLR JUN Avg	PLR JUL Avg	PLR AUG Avg	PLR SEP Avg	PLR OCT Avg	PLR NOV Avg	PLR DEC Avg	PLR Average
Acenaphthene	1.8	UG/L	ND	ND	ND	ND	ND	ND*	ND	ND	ND	ND	ND	ND	ND
Acenaphthylene	1.77	UG/L	ND	ND	ND	ND	ND	ND*	ND	ND	ND	ND	ND	ND	ND
Anthracene	1.29	UG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzidine	1.52	UG/L	ND*	ND	ND*	ND	ND*	ND	ND	ND	ND#	ND	ND	ND	ND
Benzo[a]anthracene	1.1	UG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
3,4-Benzo(b)fluoranthene	1.35	UG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzo[k]fluoranthene	1.49	UG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzo[a]pyrene	1.25	UG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzo[g,h,i]perylene	1.09	UG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
4-Bromophenyl phenyl ether	1.4	UG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bis-(2-chloroethoxy) methane	1.01	UG/L	ND	ND	ND	ND	ND	ND*	ND	ND	ND	ND	ND	ND	ND
Bis-(2-chloroethyl) ether	1.38	UG/L	ND	ND	ND	ND	ND	ND*	ND	ND	ND	ND	ND	ND	ND
Bis-(2-chloroisopropyl) ether	1.16	UG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
4-Chlorophenyl phenyl ether	1.57	UG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2-Chloronaphthalene	1.87	UG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chrysene	1.16	UG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Dibenzo(a,h)anthracene	1.01	UG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Butyl benzyl phthalate	2.84	UG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Di-n-butyl phthalate	3.96	UG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bis-(2-ethylhexyl) phthalate	8.96	UG/L	12.5	10.3	50.8	ND	ND	ND	ND	ND	9.78	ND	ND	ND	6.90
Diethyl phthalate	3.05	UG/L	4.8	3.5	ND	3.8	3.8	ND	ND	3.2	5.2	ND	3.2	7.1	2.9
Dimethyl phthalate	1.44	UG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Di-n-octyl phthalate	1	UG/L	ND	ND	ND	ND	ND	ND	3.9	ND	ND	ND	ND	ND	0.3
3,3-Dichlorobenzidine	2.44	UG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND#	ND	ND	ND	ND
2,4-Dinitrotoluene	1.36	UG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2,6-Dinitrotoluene	1.53	UG/L	ND	ND	ND	ND	ND	ND*	ND	ND	ND	ND	ND	ND	ND
1,2-Diphenylhydrazine	1.37	UG/L	ND	ND	ND	ND	ND	ND*	ND	ND	ND	ND	ND	ND	ND
Fluoranthene	1.33	UG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Fluorene	1.61	UG/L	ND	ND	ND	ND	ND	ND*	ND	ND	ND	ND	ND	ND	ND
Hexachlorobenzene	1.48	UG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Hexachlorobutadiene	1.64	UG/L	ND	ND	ND	ND	ND	ND*	ND	ND	ND	ND	ND	ND	ND
Hexachlorocyclopentadiene	1.25	UG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Hexachloroethane	1.32	UG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Indeno(1,2,3-CD)pyrene	1.14	UG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Isophorone	1.53	UG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Naphthalene	1.65	UG/L	ND	ND	ND	ND	ND	ND*	ND	ND	ND	ND	ND	ND	ND
Nitrobenzene	1.6	UG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
N-nitrosodimethylamine	1.27	UG/L	ND	ND	ND	ND	ND	ND*	ND	ND	ND	ND	ND	ND	ND
N-nitrosodi-n-propylamine	1.16	UG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
N-nitrosodiphenylamine	3.48	UG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Phenanthrene	1.34	UG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Pyrene	1.43	UG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2,4-Trichlorobenzene	1.52	UG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Polynuc. Aromatic Hydrocarbons	1.77	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
Base/Neutral Compounds	8.96	UG/L	17.3	13.8	50.8	3.8	3.8	0.0	3.9	3.2	15.0	0.0	3.2	7.1	10.2

Additional Analytes Determined:

Analyte	MDL	Units	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Average
Benzo[e]pyrene	1.44	UG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Biphenyl	2.29	UG/L	ND	ND	ND	ND	ND	ND*	ND	ND	ND	ND	ND	ND	ND
2,6-Dimethylnaphthalene	2.16	UG/L	ND	ND	ND	ND	ND	ND*	ND	ND	ND	ND	ND	ND	ND
1-Methylnaphthalene	2.18	UG/L	ND	ND	ND	ND	ND	ND*	ND	ND	ND	ND	ND	ND	ND
1-Methylphenanthrene	1.46	UG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2-Methylnaphthalene	2.14	UG/L	ND	ND	ND	ND	ND	ND*	ND	ND	ND	ND	ND	ND	ND
2,3,5-Trimethylnaphthalene	2.18	UG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perylene	1.41	UG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

* = Recovery of compound in internal check and/or matrix spike sample outside method acceptance limits; value is not used in average calculations.

= Known concentration of Benzidine and 3,3-dichlorobenzidine was added to the Internal Check and Matrix Spike samples during the base neutral phase of the extraction procedure. Sample result is non-reportable and not included in average calculations.

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

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Source / Analyte	MDL	Units	PLE JAN Avg	PLE FEB Avg	PLE MAR Avg	PLE APR Avg	PLE MAY Avg	PLE JUN Avg	PLE JUL Avg	PLE AUG Avg	PLE SEP Avg	PLE OCT Avg	PLE NOV Avg	PLE DEC Avg	PLE Average
Acenaphthene	1.8	UG/L	ND	ND	ND	ND	ND	ND*	ND	ND	ND	ND	ND	ND	ND
Acenaphthylene	1.77	UG/L	ND	ND	ND	ND	ND	ND*	ND	ND	ND	ND	ND	ND	ND
Anthracene	1.29	UG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzidine	1.52	UG/L	ND*	ND	ND*	ND	ND*	ND	ND	ND	ND#	ND	ND	ND	ND
Benzo[a]anthracene	1.1	UG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
3,4-Benzo(b)fluoranthene	1.35	UG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzo[k]fluoranthene	1.49	UG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzo[a]pyrene	1.25	UG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzo[g,h,i]perylene	1.09	UG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
4-Bromophenyl phenyl ether	1.4	UG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bis-(2-chloroethoxy) methane	1.01	UG/L	ND	ND	ND	ND	ND	ND*	ND	ND	ND	ND	ND	ND	ND
Bis-(2-chloroethyl) ether	1.38	UG/L	ND	ND	ND	ND	ND	ND*	ND	ND	ND	ND	ND	ND	ND
Bis-(2-chloroisopropyl) ether	1.16	UG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
4-Chlorophenyl phenyl ether	1.57	UG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2-Chloronaphthalene	1.87	UG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chrysene	1.16	UG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Dibenzo(a,h)anthracene	1.01	UG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Butyl benzyl phthalate	2.84	UG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Di-n-butyl phthalate	3.96	UG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bis-(2-ethylhexyl) phthalate	8.96	UG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Diethyl phthalate	3.05	UG/L	4.3	<3.1	<3.1	4.1	ND	ND	4.9	ND	5.4	3.3	47.4	4.1	6.1
Dimethyl phthalate	1.44	UG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Di-n-octyl phthalate	1	UG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
3,3-Dichlorobenzidine	2.44	UG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND#	ND	ND	ND	ND
2,4-Dinitrotoluene	1.36	UG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2,6-Dinitrotoluene	1.53	UG/L	ND	ND	ND	ND	ND	ND*	ND	ND	ND	ND	ND	ND	ND
1,2-Diphenylhydrazine	1.37	UG/L	ND	ND	ND	ND	ND	ND*	ND	ND	ND	ND	ND	ND	ND
Fluoranthene	1.33	UG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Fluorene	1.61	UG/L	ND	ND	ND	ND	ND	ND*	ND	ND	ND	ND	ND	ND	ND
Hexachlorobenzene	1.48	UG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Hexachlorobutadiene	1.64	UG/L	ND	ND	ND	ND	ND	ND*	ND	ND	ND	ND	ND	ND	ND
Hexachlorocyclopentadiene	1.25	UG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Hexachloroethane	1.32	UG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Indeno(1,2,3-CD)pyrene	1.14	UG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Isophorone	1.53	UG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Naphthalene	1.65	UG/L	ND	ND	ND	ND	ND	ND*	ND	ND	ND	ND	ND	ND	ND
Nitrobenzene	1.6	UG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
N-nitrosodimethylamine	1.27	UG/L	ND	ND	ND	ND	ND	ND*	ND	ND	ND	ND	ND	ND	ND
N-nitrosodi-n-propylamine	1.16	UG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
N-nitrosodiphenylamine	3.48	UG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Phenanthrene	1.34	UG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Pyrene	1.43	UG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2,4-Trichlorobenzene	1.52	UG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Polynuc. Aromatic Hydrocarbons	1.77	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
Base/Neutral Compounds	8.96	UG/L	4.3	0.0	0.0	4.1	0.0	0.0	4.9	0.0	5.4	3.3	47.4	4.1	6.1

Additional Analytes Determined:

Analyte	MDL	Units	PLE JAN Avg	PLE FEB Avg	PLE MAR Avg	PLE APR Avg	PLE MAY Avg	PLE JUN Avg	PLE JUL Avg	PLE AUG Avg	PLE SEP Avg	PLE OCT Avg	PLE NOV Avg	PLE DEC Avg	PLE Average
Benzo[e]pyrene	1.44	UG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Biphenyl	2.29	UG/L	ND	ND	ND	ND	ND	ND*	ND	ND	ND	ND	ND	ND	ND
2,6-Dimethylnaphthalene	2.16	UG/L	ND	ND	ND	ND	ND	ND*	ND	ND	ND	ND	ND	ND	ND
1-Methylnaphthalene	2.18	UG/L	ND	ND	ND	ND	ND	ND*	ND	ND	ND	ND	ND	ND	ND
1-Methylphenanthrene	1.46	UG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2-Methylnaphthalene	2.14	UG/L	ND	ND	ND	ND	ND	ND*	ND	ND	ND	ND	ND	ND	ND
2,3,5-Trimethylnaphthalene	2.18	UG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perylene	1.41	UG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

* = Recovery of compound in internal check and/or matrix spike sample outside method acceptance limits; value is not used in average calculations.

= Known concentration of Benzidine and 3,3-dichlorobenzidine was added to the Internal Check and Matrix Spike samples during the base neutral phase of the extraction procedure. Sample result is non-reportable and not included in average calculations.

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

POINT LOMA WASTEWATER TREATMENT PLANT

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Priority Pollutants Purgeables
EPA Method 8260B

Source Analyte	MDL	Units	PLR JAN Avg	PLR FEB Avg	PLR MAR Avg	PLR APR Avg	PLR MAY Avg	PLR JUN Avg	PLR JUL Avg	PLR AUG Avg	PLR SEP Avg	PLR OCT Avg	PLR NOV Avg	PLR DEC Avg	PLR Average
Acrolein	.94	UG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Acrylonitrile	.48	UG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzene	.37	UG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bromodichloromethane	.37	UG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bromoform	.36	UG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bromomethane	.22	UG/L	ND	DNQ.3*	ND	ND	ND	ND	DNQ.5*	DNQ.4*	DNQ.3*	DNQ.4*	DNQ.3*	ND	0.0
Carbon tetrachloride	.4	UG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chlorobenzene	.46	UG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloroethane	.24	UG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloroform	.31	UG/L	3.4	2.9	DNQ1.5	2.8	3.7	2.2	2.9	2.8	2.5	11.9	DNQ1.5	2.3	3.1
Chloromethane	.27	UG/L	ND	ND	ND	ND	ND	DNQ0.3	ND	ND	ND	ND	ND	ND	DNQ0.03
Dibromochloromethane	.34	UG/L	ND	DNQ0.4	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	DNQ0.03
1,2-Dichlorobenzene	.36	UG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,3-Dichlorobenzene	.47	UG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,4-Dichlorobenzene	.46	UG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Dichlorodifluoromethane	2.39	UG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	.32	UG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane	.32	UG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethene	.37	UG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,2-dichloroethene	.34	UG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloropropane	.43	UG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,3-dichloropropene	.38	UG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,3-dichloropropene	.35	UG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ethylbenzene	.43	UG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methylene chloride	.37	UG/L	1.0	DNQ1.5*	ND	ND	DNQ1.2	DNQ0.9	DNQ1.0	DNQ1.1	DNQ.9	DNQ1.1*	DNQ1.1*	DNQ1.9	DNQ0.1
1,1,2,2-Tetrachloroethane	.34	UG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethene	.5	UG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	.45	UG/L	ND	DNQ0.5	DNQ0.6	DNQ0.7	DNQ1.0	DNQ1.1	DNQ0.7	DNQ0.6	DNQ0.7	2.8	DNQ0.6	DNQ1.0	DNQ0.2
1,1,1-Trichloroethane	.4	UG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,2-Trichloroethane	.32	UG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichloroethene	.43	UG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichlorofluoromethane	.43	UG/L	ND	ND	ND	ND	ND	ND	DNQ0.5	ND	ND	ND	ND	ND	0.0
Vinyl chloride	.33	UG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

Analyte	MDL	Units	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Average
Halomethane Purgeable Cmpnds	.36	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
Dichlorobenzenes	.47	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 Chloromethanes	.4	UG/L	4.4	2.9	0.0	2.8	3.7	2.2	2.9	2.8	2.5	11.9	0.0	2.3	3.2
Purgeable Compounds	2.39	UG/L	4.4	2.9	0.0	2.8	3.7	2.2	2.9	2.8	2.5	14.7	0.0	2.3	3.4

Additional Analytes Determined:

Analyte	MDL	Units	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Average
Acetone	16	UG/L	740	1020	757	478	526	590	621	283	489	849	321	942	635
Allyl chloride	.44	UG/L	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzyl chloride	.65	UG/L	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2-Butanone	5.56	UG/L	5.6	ND	71.4	13.2	25.8	ND	DNQ7.8	DNQ6.0	DNQ8.8	DNQ8.3	DNQ6.2	DNQ17.0	DNQ14.2
Carbon disulfide	1	UG/L	2.4	1.1	DNQ0.9	1.9	2.3	2.3	2.1	2.2	2.7	2.1	1.8	3.1	DNQ2.0
Chloroprene	.09	UG/L	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dibromoethane	.41	UG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Isopropylbenzene	.41	UG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methyl Iodide	.32	UG/L	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methyl methacrylate	.32	UG/L	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methyl tert-butyl ether	.36	UG/L	ND	ND	ND	ND	3.1	ND	ND	DNQ0.5	ND	ND	ND	DNQ0.4	DNQ0.33
2-Nitropropane	.49	UG/L	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.0
ortho-xylene	.34	UG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	DNQ0.6	ND	DNQ0.6	DNQ0.1
Styrene	.38	UG/L	ND	DNQ0.7	DNQ0.7	DNQ0.7	DNQ0.4	ND	ND	ND	ND	ND	ND	ND	DNQ0.21
1,2,4-Trichlorobenzene	1.52	UG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
meta,para xylenes	.85	UG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	DNQ1.2	ND	DNQ1.0	DNQ0.18
2-Chloroethylvinyl ether	.29	UG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
4-Methyl-2-pentanone	.52	UG/L	ND	ND	DNQ1.0	ND	DNQ1.7	ND	ND	ND	ND	ND	ND	DNQ1.0	DNQ0.3

* = Method blank value above the MDL; sample result not included in average calculations.

DNQ= Detected but not quantified. Sample result is less than minimum Level but greater than or equal to MDL.
ND=not detected; NS=not sampled; NA=not analyzed

POINT LOMA WASTEWATER TREATMENT PLANT

ANNUAL 2017

Priority Pollutants Purgeables
EPA Method 8260B

Source Analyte	MDL	Units	PLE JAN Avg	PLE FEB Avg	PLE MAR Avg	PLE APR Avg	PLE MAY Avg	PLE JUN Avg	PLE JUL Avg	PLE AUG Avg	PLE SEP Avg	PLE OCT Avg	PLE NOV Avg	PLE DEC Avg	PLE Average
Acrolein	.94	UG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Acrylonitrile	.48	UG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzene	.37	UG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bromodichloromethane	.37	UG/L	1.6	DNQ0.9	ND	ND	ND	ND	ND	DNQ0.6	ND	ND	ND	DNQ0.8	DNQ0.33
Bromoform	.36	UG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bromomethane	.22	UG/L	ND	DNQ.3*	ND	DNQ.2	ND	ND	DNQ.4*	DNQ.4*	DNQ.6*	DNQ.5*	DNQ.4*	DNQ1.2	DNQ0.02
Carbon tetrachloride	.4	UG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chlorobenzene	.46	UG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloroethane	.24	UG/L	ND	ND	ND	ND	ND	ND	ND	DNQ0.7	ND	ND	ND	2.5	DNQ0.3
Chloroform	.31	UG/L	4.1	3.2	2.1	3.3	4.5	3.1	2.9	4.7	4.5	2.3	2.5	7.2	3.7
Chloromethane	.27	UG/L	ND	DNQ0.9	DNQ0.5	DNQ1.5	DNQ1.8	3.2	2.5	4.5	3.3	2.4	2.4	16.2	DNQ3.3
Dibromochloromethane	.34	UG/L	1.2	DNQ0.6	ND	ND	ND	ND	ND	<0.3	ND	ND	ND	<0.3	0.15
1,2-Dichlorobenzene	.36	UG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,3-Dichlorobenzene	.47	UG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,4-Dichlorobenzene	.46	UG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Dichlorodifluoromethane	2.39	UG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	.32	UG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane	.32	UG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethene	.37	UG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,2-dichloroethene	.34	UG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloropropane	.43	UG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,3-dichloropropene	.38	UG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,3-dichloropropene	.35	UG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ethylbenzene	.43	UG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methylene chloride	.37	UG/L	ND	DNQ.7*	DNQ1.1	ND	DNQ.8	DNQ1.2	DNQ1.2	DNQ1.0	DNQ1.1	DNQ1.3*	DNQ1.3*	DNQ1.9	DNQ0.69
1,1,2,2-Tetrachloroethane	.34	UG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethene	.5	UG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	.45	UG/L	18.0	2.4	DNQ1.7	DNQ0.7	DNQ0.8	DNQ1.4	DNQ0.9	DNQ0.9	DNQ1.9	2.2	DNQ1.9	DNQ1.7	DNQ2.9
1,1,1-Trichloroethane	.4	UG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,2-Trichloroethane	.32	UG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichloroethene	.43	UG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichlorofluoromethane	.43	UG/L	ND	ND	ND	ND	ND	ND	DNQ0.4	ND	ND	ND	ND	ND	DNQ0.03
Vinyl chloride	.33	UG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Halomethane Purgeable Cmpnds	.36	UG/L	0.0	0.0	0.0	0.0	0.0	3.2	2.5	4.5	3.3	2.4	2.4	16.2	2.8
Dichlorobenzenes	.47	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 Chloromethanes	.4	UG/L	4.1	3.2	2.1	3.3	4.5	6.3	5.3	4.7	4.5	4.7	4.9	23.4	5.9
Purgeable Compounds	2.39	UG/L	24.9	5.6	2.1	3.3	4.5	6.3	5.3	9.2	7.8	6.9	4.9	25.9	8.9
Additional Analytes Determined:															
Acetone	16	UG/L	730	1460	643	1010	974	496	526	418	359	608	467	846	711
Allyl chloride	.44	UG/L	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzyl chloride	.65	UG/L	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	DNQ1.6	DNQ0.13
2-Butanone	5.56	UG/L	7.2	ND	DNQ5.6	14.9	15.6	DNQ7.5	DNQ7.0	16.7	DNQ6.2	DNQ9.5	DNQ6.9	23.2	DNQ10.03
Carbon disulfide	1	UG/L	2.0	1.1	1.3	1.9	2.3	2.9	2.7	2.9	2.0	2.0	1.7	3.0	2.2
Chloroprene	.09	UG/L	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dibromoethane	.41	UG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Isopropylbenzene	.41	UG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methyl Iodide	.32	UG/L	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methyl methacrylate	.32	UG/L	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methyl tert-butyl ether	.36	UG/L	ND	ND	1.2	ND	2.0	ND	ND	ND	ND	ND	ND	ND	0.3
2-Nitropropane	.49	UG/L	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
ortho-xylene	.34	UG/L	ND	ND	DNQ0.5	ND	ND	ND	ND	ND	ND	DNQ0.5	ND	DNQ0.5	DNQ0.013
Styrene	.38	UG/L	ND	DNQ0.5	ND	DNQ0.5	DNQ0.4	ND	ND	ND	ND	ND	ND	ND	DNQ0.12
1,2,4-Trichlorobenzene	1.52	UG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
meta,para xylenes	.85	UG/L	ND	ND	DNQ1.0	ND	ND	ND	ND	ND	ND	DNQ0.9	ND	DNQ0.9	DNQ0.23
2-Chloroethylvinyl ether	.29	UG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
4-Methyl-2-pentanone	.52	UG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	2.0	0.2

* = Method blank value above the MDL; sample result not included in average calculations.

DNQ= Detected but not quantified. Sample result is less than minimum Level but greater than or equal to MDL.

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

POINT LOMA WASTEWATER TREATMENT

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Dioxin and Furan Analysis
EPA Method 1613

SOurce			PLR	PLR	PLR	PLR	PLR	PLR	PLR	PLR
Month			JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG
Analyte	MDL	Units	P914715	P919163	P925684	P932305	P936544	P946048	P953432	P959720
2,3,7,8-tetra CDD	.209	PG/L	ND	ND	ND	ND	ND	ND	ND	ND
1,2,3,7,8-penta CDD	.366	PG/L	ND	ND	ND	ND	ND	ND	ND	ND
1,2,3,4,7,8_hexa_CDD	.331	PG/L	ND	ND	ND	ND	ND	ND	ND	ND
1,2,3,6,7,8-hexa CDD	.37	PG/L	ND	ND	ND	ND	ND	ND	ND	ND
1,2,3,7,8,9-hexa CDD	.324	PG/L	ND	ND	ND	ND	ND	ND	ND	ND
1,2,3,4,6,7,8-hepta CDD	.408	PG/L	DNQ14.5	DNQ22.4	DNQ12.8	DNQ16.2	DNQ18.3	DNQ16.8	DNQ17.1	DNQ12.7
octa CDD	1.1	PG/L	160	180	110	160	190	140	140	100
2,3,7,8-tetra CDF	.196	PG/L	ND	ND	ND	ND	ND	DNQ1.09	ND	ND
1,2,3,7,8-penta CDF	.32	PG/L	ND	ND	ND	ND	ND	ND	ND	ND
2,3,4,7,8-penta CDF	.303	PG/L	ND	ND	ND	ND	ND	ND	ND	ND
1,2,3,4,7,8-hexa CDF	.29	PG/L	ND	ND	ND	ND	ND	ND	ND	ND
1,2,3,6,7,8-hexa CDF	.311	PG/L	ND	DNQ1.10	ND	ND	2.02	DNQ2.29	DNQ2.61	ND
1,2,3,7,8,9-hexa CDF	.359	PG/L	ND	ND	ND	ND	ND	ND	ND	ND
2,3,4,6,7,8-hexa CDF	.376	PG/L	ND	ND	ND	ND	ND	ND	DNQ2.150	ND
1,2,3,4,6,7,8-hepta CDF	.346	PG/L	DNQ4.25	DNQ3.24	DNQ2.33	DNQ3.23	DNQ4.70	DNQ3.86	DNQ4.15	DNQ3.08
1,2,3,4,7,8,9-hepta CDF	.484	PG/L	ND	ND	ND	ND	ND	ND	ND	ND
octa CDF	.858	PG/L	DNQ11.0	DNQ7.82	DNQ5.72	DNQ7.48	DNQ8.70	DNQ8.84	DNQ8.62	DNQ7.64

Source			PLR	PLR	PLR	PLR
Month			SEP	OCT	NOV	DEC
Analyte	MDL	Units	P970354	P973069	P979793	P986773
2,3,7,8-tetra CDD	.209	PG/L	ND	ND	ND	ND
1,2,3,7,8-penta CDD	.366	PG/L	ND	ND	ND	ND
1,2,3,4,7,8_hexa_CDD	.331	PG/L	ND	ND	ND	ND
1,2,3,6,7,8-hexa CDD	.37	PG/L	ND	ND	ND	ND
1,2,3,7,8,9-hexa CDD	.324	PG/L	ND	ND	ND	ND
1,2,3,4,6,7,8-hepta CDD	.408	PG/L	DNQ17.6	DNQ12.6	DNQ13.8	DNQ10.8
octa CDD	1.1	PG/L	140	110	150	99.0
2,3,7,8-tetra CDF	.196	PG/L	ND	ND	DNQ0.932	DNQ0.853
1,2,3,7,8-penta CDF	.32	PG/L	ND	ND	ND	ND
2,3,4,7,8-penta CDF	.303	PG/L	ND	ND	ND	ND
1,2,3,4,7,8-hexa CDF	.29	PG/L	ND	ND	ND	ND
1,2,3,6,7,8-hexa CDF	.311	PG/L	ND	ND	ND	ND
1,2,3,7,8,9-hexa CDF	.359	PG/L	ND	ND	ND	ND
2,3,4,6,7,8-hexa CDF	.376	PG/L	ND	ND	ND	ND
1,2,3,4,6,7,8-hepta CDF	.346	PG/L	DNQ4.73	DNQ4.21	DNQ4.43	DNQ3.31
1,2,3,4,7,8,9-hepta CDF	.484	PG/L	ND	ND	ND	ND
octa CDF	.858	PG/L	DNQ8.56	DNQ7.75	DNQ7.43	DNQ7.75

Above are permit required CDD/CDF isomers.

ND=not detected; NS=not sampled; NA=not analyzed; NR=not required

DNQ= Detected but not quantified. Sample result is less than minimum Level but greater than or equal to MDL.

ANALYZED BY: Frontier Analytical Laboratories

POINT LOMA WASTEWATER TREATMENT

ANNUAL 2017

Dioxin and Furan Analysis
EPA Method 1613

Source			PLE	PLE	PLE	PLE	PLE	PLE	PLE	PLE
Month			JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG
Analyte	MDL	Units	P914712	P919157	P925681	P932302	P936538	P946045	P953429	P959714
2,3,7,8-tetra CDD	.316	PG/L	ND	ND	ND	ND	ND	ND	ND	ND
1,2,3,7,8-penta CDD	.607	PG/L	ND	ND	ND	ND	ND	ND	ND	ND
1,2,3,4,7,8_hexa_CDD	.808	PG/L	ND	ND	ND	ND	ND	ND	ND	ND
1,2,3,6,7,8-hexa CDD	.891	PG/L	ND	ND	ND	ND	ND	ND	ND	ND
1,2,3,7,8,9-hexa CDD	.756	PG/L	ND	ND	ND	ND	ND	ND	ND	ND
1,2,3,4,6,7,8-hepta CDD	.857	PG/L	DNQ2.47	DNQ2.43	DNQ2.69	DNQ2.56	DNQ3.00	DNQ3.10	DNQ3.64	DNQ3.35
octa CDD	1.2	PG/L	DNQ15.0	DNQ14.0	DNQ15.0	DNQ16.0	DNQ21.0	DNQ17.0	DNQ45.0	DNQ21.0
2,3,7,8-tetra CDF	.307	PG/L	ND	ND	ND	ND	ND	ND	ND	ND
1,2,3,7,8-penta CDF	.421	PG/L	ND	ND	ND	ND	ND	ND	ND	ND
2,3,4,7,8-penta CDF	.431	PG/L	ND	ND	ND	ND	ND	ND	ND	ND
1,2,3,4,7,8-hexa CDF	.486	PG/L	ND	ND	ND	ND	ND	ND	ND	ND
1,2,3,6,7,8-hexa CDF	.521	PG/L	ND	ND	ND	ND	ND	ND	ND	ND
1,2,3,7,8,9-hexa CDF	.663	PG/L	ND	ND	ND	ND	ND	ND	ND	ND
2,3,4,6,7,8-hexa CDF	.556	PG/L	ND	ND	ND	ND	ND	ND	ND	ND
1,2,3,4,6,7,8-hepta CDF	.489	PG/L	ND	ND	ND	ND	ND	ND	ND	ND
1,2,3,4,7,8,9-hepta CDF	.69	PG/L	ND	ND	ND	ND	ND	ND	ND	ND
octa CDF	1.7	PG/L	ND	ND	ND	ND	ND	ND	DNQ2.50	ND

			PLE	PLE	PLE	PLE
			SEP	OCT	NOV	DEC
Analyte	MDL	Units	P970351	P973063	P979790	P986770
2,3,7,8-tetra CDD	.316	PG/L	ND	ND	ND	ND
1,2,3,7,8-penta CDD	.607	PG/L	ND	ND	ND	ND
1,2,3,4,7,8_hexa_CDD	.808	PG/L	ND	ND	ND	ND
1,2,3,6,7,8-hexa CDD	.891	PG/L	ND	ND	ND	ND
1,2,3,7,8,9-hexa CDD	.756	PG/L	ND	ND	ND	ND
1,2,3,4,6,7,8-hepta CDD	.857	PG/L	DNQ2.53	DNQ2.33	ND	DNQ2.49
octa CDD	1.2	PG/L	DNQ16.0	DNQ11.0	DNQ8.90	DNQ17.0
2,3,7,8-tetra CDF	.307	PG/L	ND	ND	ND	ND
1,2,3,7,8-penta CDF	.421	PG/L	ND	ND	ND	ND
2,3,4,7,8-penta CDF	.431	PG/L	ND	ND	ND	ND
1,2,3,4,7,8-hexa CDF	.486	PG/L	ND	ND	ND	ND
1,2,3,6,7,8-hexa CDF	.521	PG/L	ND	ND	ND	ND
1,2,3,7,8,9-hexa CDF	.663	PG/L	ND	ND	ND	ND
2,3,4,6,7,8-hexa CDF	.556	PG/L	ND	ND	ND	ND
1,2,3,4,6,7,8-hepta CDF	.489	PG/L	ND	ND	ND	ND
1,2,3,4,7,8,9-hepta CDF	.69	PG/L	ND	ND	ND	ND
octa CDF	1.7	PG/L	ND	ND	ND	ND

Above are permit required CDD/CDF isomers.

ND=not detected; NS=not sampled; NA=not analyzed; NR=not required

DNQ= Detected but not quantified. Sample result is less than minimum Level but greater than or equal to MDL.

ANALYZED BY: Frontier Analytical Laboratories

POINT LOMA WASTEWATER TREATMENT

ANNUAL 2017

Dioxin and Furan Analysis

EPA Method 1613

Source				PLR	PLR	PLR	PLR	PLR	PLR
				TCDD	TCDD	TCDD	TCDD	TCDD	TCDD
Month				JAN	FEB	MAR	MAY	JUN	JUL
Analyte	MDL	Units	Equiv	P914715	P919163	P925684	P936544	P946048	P953432
2,3,7,8-tetra CDD	.209	PG/L	1.000	ND	ND	ND	ND	ND	ND
1,2,3,7,8-penta CDD	.366	PG/L	0.500	ND	ND	ND	ND	ND	ND
1,2,3,4,7,8_hexa_CDD	.331	PG/L	0.100	ND	ND	ND	ND	ND	ND
1,2,3,6,7,8-hexa CDD	.37	PG/L	0.100	ND	ND	ND	ND	ND	ND
1,2,3,7,8,9-hexa CDD	.324	PG/L	0.100	ND	ND	ND	ND	ND	ND
1,2,3,4,6,7,8-hepta CDD	.408	PG/L	0.010	DNQ0.145	DNQ0.224	DNQ0.128	DNQ0.183	DNQ0.168	DNQ0.171
octa CDD	1.1	PG/L	0.001	0.160	0.180	0.110	0.190	0.140	0.140
2,3,7,8-tetra CDF	.196	PG/L	0.100	ND	ND	ND	ND	ND	DNQ0.109
1,2,3,7,8-penta CDF	.32	PG/L	0.050	ND	ND	ND	ND	ND	ND
2,3,4,7,8-penta CDF	.303	PG/L	0.500	ND	ND	ND	ND	ND	ND
1,2,3,4,7,8-hexa CDF	.29	PG/L	0.100	ND	ND	ND	ND	ND	ND
1,2,3,6,7,8-hexa CDF	.311	PG/L	0.100	ND	DNQ0.110	ND	0.202	DNQ0.229	DNQ0.261
1,2,3,7,8,9-hexa CDF	.359	PG/L	0.100	ND	ND	ND	ND	ND	ND
2,3,4,6,7,8-hexa CDF	.376	PG/L	0.100	ND	ND	ND	ND	ND	ND
1,2,3,4,6,7,8-hepta CDF	.346	PG/L	0.010	DNQ0.043	DNQ0.032	DNQ0.023	DNQ0.047	DNQ0.039	DNQ0.042
1,2,3,4,7,8,9-hepta CDF	.484	PG/L	0.010	ND	ND	ND	ND	ND	ND
octa CDF	.858	PG/L	0.001	DNQ0.011	DNQ0.008	DNQ0.006	DNQ0.009	DNQ0.009	DNQ0.009

Source				PLR	PLR	PLR	PLR
				TCDD	TCDD	TCDD	TCDD
Month				SEP	OCT	NOV	DEC
Analyte	MDL	Units	Equiv	P970354	P973069	P979793	P986773
2,3,7,8-tetra CDD	.209	PG/L	1.000	ND	ND	ND	ND
1,2,3,7,8-penta CDD	.366	PG/L	0.500	ND	ND	ND	ND
1,2,3,4,7,8_hexa_CDD	.331	PG/L	0.100	ND	ND	ND	ND
1,2,3,6,7,8-hexa CDD	.37	PG/L	0.100	ND	ND	ND	ND
1,2,3,7,8,9-hexa CDD	.324	PG/L	0.100	ND	ND	ND	ND
1,2,3,4,6,7,8-hepta CDD	.408	PG/L	0.010	DNQ0.176	DNQ0.126	DNQ0.138	DNQ0.108
octa CDD	1.1	PG/L	0.001	0.140	0.110	0.150	0.099
2,3,7,8-tetra CDF	.196	PG/L	0.100	ND	ND	DNQ0.093	DNQ0.085
1,2,3,7,8-penta CDF	.32	PG/L	0.050	ND	ND	ND	ND
2,3,4,7,8-penta CDF	.303	PG/L	0.500	ND	ND	ND	ND
1,2,3,4,7,8-hexa CDF	.29	PG/L	0.100	ND	ND	ND	ND
1,2,3,6,7,8-hexa CDF	.311	PG/L	0.100	ND	ND	ND	ND
1,2,3,7,8,9-hexa CDF	.359	PG/L	0.100	ND	ND	ND	ND
2,3,4,6,7,8-hexa CDF	.376	PG/L	0.100	ND	ND	ND	ND
1,2,3,4,6,7,8-hepta CDF	.346	PG/L	0.010	DNQ0.047	DNQ0.042	DNQ0.044	DNQ0.033
1,2,3,4,7,8,9-hepta CDF	.484	PG/L	0.010	ND	ND	ND	ND
octa CDF	.858	PG/L	0.001	DNQ0.009	DNQ0.008	DNQ0.007	DNQ0.008

Above are permit required CDD/CDF isomers.

ND=not detected; NS=not sampled; NA=not analyzed; NR=not required

DNQ= Detected but not quantified. Sample result is less than minimum Level but greater than or equal to MDL.

ANALYZED BY: Frontier Analytical Laboratories

POINT LOMA WASTEWATER TREATMENT

ANNUAL 2017

Dioxin and Furan Analysis

EPA Method 1613

Source				PLE	PLE	PLE	PLE	PLE	PLE
				TCDD	TCDD	TCDD	TCDD	TCDD	TCDD
Month				JAN	FEB	MAR	MAY	JUN	JUL
Analyte	MDL	Units	Equiv	P914712	P919157	P925681	P936538	P946045	P953429
2,3,7,8-tetra CDD	.316	PG/L	1.000	ND	ND	ND	ND	ND	ND
1,2,3,7,8-penta CDD	.607	PG/L	0.500	ND	ND	ND	ND	ND	ND
1,2,3,4,7,8_hexa_CDD	.808	PG/L	0.100	ND	ND	ND	ND	ND	ND
1,2,3,6,7,8-hexa CDD	.891	PG/L	0.100	ND	ND	ND	ND	ND	ND
1,2,3,7,8,9-hexa CDD	.756	PG/L	0.100	ND	ND	ND	ND	ND	ND
1,2,3,4,6,7,8-hepta CDD	.857	PG/L	0.010	DNQ0.025	DNQ0.024	DNQ0.027	DNQ0.030	DNQ0.031	DNQ0.036
octa CDD	1.2	PG/L	0.001	DNQ0.015	DNQ0.014	DNQ0.015	DNQ0.021	DNQ0.017	DNQ0.045
2,3,7,8-tetra CDF	.307	PG/L	0.100	ND	ND	ND	ND	ND	ND
1,2,3,7,8-penta CDF	.421	PG/L	0.050	ND	ND	ND	ND	ND	ND
2,3,4,7,8-penta CDF	.431	PG/L	0.500	ND	ND	ND	ND	ND	ND
1,2,3,4,7,8-hexa CDF	.486	PG/L	0.100	ND	ND	ND	ND	ND	ND
1,2,3,6,7,8-hexa CDF	.521	PG/L	0.100	ND	ND	ND	ND	ND	ND
1,2,3,7,8,9-hexa CDF	.663	PG/L	0.100	ND	ND	ND	ND	ND	ND
2,3,4,6,7,8-hexa CDF	.556	PG/L	0.100	ND	ND	ND	ND	ND	ND
1,2,3,4,6,7,8-hepta CDF	.489	PG/L	0.010	ND	ND	ND	ND	ND	ND
1,2,3,4,7,8,9-hepta CDF	.69	PG/L	0.010	ND	ND	ND	ND	ND	ND
octa CDF	1.7	PG/L	0.001	ND	ND	ND	ND	ND	DNQ0.003

Source				PLE	PLE	PLE	PLE
				TCDD	TCDD	TCDD	TCDD
Month				SEP	OCT	NOV	DEC
Analyte	MDL	Units	Equiv	P970351	P973063	P979790	P986770
2,3,7,8-tetra CDD	.316	PG/L	1.000	ND	ND	ND	ND
1,2,3,7,8-penta CDD	.607	PG/L	0.500	ND	ND	ND	ND
1,2,3,4,7,8_hexa_CDD	.808	PG/L	0.100	ND	ND	ND	ND
1,2,3,6,7,8-hexa CDD	.891	PG/L	0.100	ND	ND	ND	ND
1,2,3,7,8,9-hexa CDD	.756	PG/L	0.100	ND	ND	ND	ND
1,2,3,4,6,7,8-hepta CDD	.857	PG/L	0.010	DNQ0.025	DNQ0.023	ND	DNQ0.025
octa CDD	1.2	PG/L	0.001	DNQ0.016	DNQ0.011	DNQ0.009	DNQ0.017
2,3,7,8-tetra CDF	.307	PG/L	0.100	ND	ND	ND	ND
1,2,3,7,8-penta CDF	.421	PG/L	0.050	ND	ND	ND	ND
2,3,4,7,8-penta CDF	.431	PG/L	0.500	ND	ND	ND	ND
1,2,3,4,7,8-hexa CDF	.486	PG/L	0.100	ND	ND	ND	ND
1,2,3,6,7,8-hexa CDF	.521	PG/L	0.100	ND	ND	ND	ND
1,2,3,7,8,9-hexa CDF	.663	PG/L	0.100	ND	ND	ND	ND
2,3,4,6,7,8-hexa CDF	.556	PG/L	0.100	ND	ND	ND	ND
1,2,3,4,6,7,8-hepta CDF	.489	PG/L	0.010	ND	ND	ND	ND
1,2,3,4,7,8,9-hepta CDF	.69	PG/L	0.010	ND	ND	ND	ND
octa CDF	1.7	PG/L	0.001	ND	ND	ND	ND

Above are permit required CDD/CDF isomers.

ND=not detected; NS=not sampled; NA=not analyzed; NR=not required

DNQ= Detected but not quantified. Sample result is less than minimum Level but greater than or equal to MDL.

ANALYZED BY: Frontier Analytical Laboratories

2017
Point Loma Wastewater Treatment Plant

Bacteriological Parameters

The following are the monthly bacteriological results of the Point Loma Wastewater Treatment Plant Effluent. The values are stated in terms of Most Probable Number (MPN) per 100 milliliters for the total and fecal coliform densities and in terms of Colony Forming Unit (CFU) per 100 millilitiers for enterococcus.

DATE	COLIFORM* (MPN Index/100ml)		ENTEROCOCCUS** (CFU/100 ml)
	Total	Fecal	
January 3, 2017	3,300,000	330,000	3,000
January 9, 2017	7,000,000	7,000,000	40,000
January 17, 2017	11,000,000	2,200,000	25,000
January 23, 2017	4,900,000	1,100,000	50,000e
January 30, 2017	1,100,000	230,000	700e
Average	5,500,000	2,200,000	24,000

DATE	COLIFORM* (MPN Index/100ml)		ENTEROCOCCUS** (CFU/100 ml)
	Total	Fecal	
February 7, 2017	7,900,000	1,100,000	90,000e
February 13, 2017	7,900,000	4,900,000	240,000
February 21, 2017	7,900,000	1,700,000	33,000
February 27, 2017	79,000,000	14,000,000	240,000
Average	26,000,000	5,400,000	150,000

DATE	COLIFORM* (MPN Index/100ml)		ENTEROCOCCUS** (CFU/100 ml)
	Total	Fecal	
March 6, 2017	13,000,000	2,200,000	34,000
March 14, 2017	2,300,000	790,000	80,000e
March 20, 2017	13,000,000	1,400,000	13,000e
March 27, 2017	17,000,000	7,000,000	42,000
Average	11,000,000	2,800,000	42,000

DATE	COLIFORM* (MPN Index/100ml)		ENTEROCOCCUS** (CFU/100 ml)
	Total	Fecal	
April 3 2017	24,000,000	3,300,000	80,000e
April 11, 2017	24,000,000	7,900,000	260,000
April 17, 2017	13,000,000	2,200,000	28,000
April 24, 2017	11,000,000	7,000,000	170,000e
Average	18,000,000	5,100,000	130,000

DATE	COLIFORM* (MPN Index/100ml)		ENTEROCOCCUS** (CFU/100 ml)
	Total	Fecal	
May 1, 2017	11,000,000	2,300,000	160,000e
May 8, 2017	17,000,000	4,600,000	70,000e
May 15, 2017	7,900,000	3,300,000	36,000
May 22, 2017	13,000,000	4,900,000	58,000
May 31, 2017	54,000,000	24,000,000	170,000
Average	21,000,000	7,800,000	99,000

DATE	COLIFORM* (MPN Index/100ml)		ENTEROCOCCUS** (CFU/100 ml)
	Total	Fecal	
June 5, 2017	13,000,000	3,300,000	76,000e
June 12, 2017	11,000,000	2,300,000	290,000
June 19, 2017	7,900,000	2,300,000	16,000e
June 26, 2017	35,000,000	4,900,000	90,000e
Average	17,000,000	3,200,000	120,000

DATE	COLIFORM* (MPN Index/100ml)		ENTEROCOCCUS** (CFU/100 ml)
	Total	Fecal	
July 3, 2017	11,000,000	1,700,000	36,000
July 10, 2017	54,000,000	7,900,000	170,000e
July 17, 2017	13,000,000	3,300,000	110,000e
July 24, 2017	35,000,000	13,000,000	60,000e
July 31, 2017	35,000,000	4,900,000	52,000
Average	30,000,000	6,200,000	86,000

DATE	COLIFORM* (MPN Index/100ml)		ENTEROCOCCUS** (CFU/100 ml)
	Total	Fecal	
August 7, 2017	35,000,000	4,900,000	27,000
August 14, 2017	35,000,000	13,000,000	53,000
August 21, 2017	14,000,000	4,900,000	44,000
August 28, 2017	17,000,000	3,300,000	43,000
Average	25,000,000	6,500,000	42,000

DATE	COLIFORM* (MPN Index/100ml)		ENTEROCOCCUS** (CFU/100 ml)
	Total	Fecal	
September 5, 2017	17,000,000	13,000,000	30,000
September 12, 2017	13,000,000	2,200,000	190,000e
September 18, 2017	11,000,000	7,000,000	180,000e
September 25, 2017	24,000,000	4,900,000	25,000
Average	16,000,000	6,800,000	110,000

DATE	COLIFORM* (MPN Index/100ml)		ENTEROCOCCUS** (CFU/100 ml)
	Total	Fecal	
October 2, 2017	11,000,000	9,900,000	24,000
October 9, 2017	24,000,000	4,900,000	57,000
October 16, 2017	22,000,000	4,900,000	47,000
October 23, 2017	13,000,000	7,900,000	59,000
October 30, 2017	54,000,000	4,600,000	34,000
Average	25,000,000	5,400,000	44,000

DATE	COLIFORM* (MPN Index/100ml)		ENTEROCOCCUS** (CFU/100 ml)
	Total	Fecal	
November 7, 2017	35,000,000	7,900,000	310,000
November 13, 2017	17,000,000	3,100,000	480,000
November 20, 2017	7,000,000	3,300,000	15,000e
November 27, 2017	7,900,000	3,300,000	24,000
Average	17,000,000	4,400,000	210,000

DATE	COLIFORM* (MPN Index/100ml)		ENTEROCOCCUS** (CFU/100 ml)
	Total	Fecal	
December 4, 2017	11,000,000	2,300,000	40,000
December 11, 2017	7,900,000	2,300,000	42,000
December 18, 2017	28,000,000	4,900,000	110,000e
December 26, 2017	24,000,000	13,000,000	34,000
Average	18,000,000	5,600,000	57,000

*Multiple tube Fermentation Technique (MTF) SM 9221B (Total Coliform) & SM9221E (Fecal coliform)
**Membrane Filtration (MF) – EPA 1600
"e", estimated value, plate count falls outside the acceptable range per EPA method guidelines.
^Method used for this analysis is IDEXX Quanti-Tray using Colilert Reagents.

POINT LOMA WASTEWATER TREATMENT PLANT

ANNUAL 2017

Analyte	Total Hardness		Calcium Hardness		Magnesium Hardness		Calcium		Magnesium	
MDL/Units	.878	mg/L	.335	mg/L	.544	mg/L	.134	mg/L	.132	mg/L
Source	PLR	PLE	PLR	PLE	PLR	PLE	PLR	PLE	PLR	PLE
JANUARY -2017	409	403	208	205	201	198	83.4	82.1	48.6	48.0
FEBRUARY -2017	434	424	220	215	215	209	88.0	86.0	52.1	50.9
MARCH -2017	418	421	212	213	207	208	84.8	85.4	50.2	50.5
APRIL -2017	391	384	190	187	200	197	76.3	74.9	48.6	48.0
MAY -2017	365	356	174	169	192	187	69.4	67.7	46.6	45.4
JUNE -2017	364	356	162	160	203	196	64.7	64.0	49.2	47.7
JULY -2017	353	356	157	159	196	197	62.7	63.7	47.7	47.8
AUGUST -2017	365	361	165	162	200	199	66.3	64.9	48.6	48.4
SEPTEMBER-2017	359	353	161	158	198	195	64.6	63.2	48.1	47.4
OCTOBER -2017	553	385	296	167	257	219	118	66.7	62.4	53.2
NOVEMBER -2017	387	388	165	165	222	223	66.1	66.3	53.9	54.1
DECEMBER -2017	397	391	163	160	234	230	65.1	64.3	56.9	55.9
Average:	400	382	189	177	210	205	75.8	70.8	51.1	49.8

Analyte	Alkalinity		Total Solids		Total Vol. Solids		Conductivity		Fluoride	
MDL/Units	20	mg/L	10	mg/L	100	mg/L	10umhos/cm		.05	mg/L
Source	PLR	PLE	PLR	PLE	PLR	PLE	PLR	PLE	PLR	PLE
JANUARY -2017	309	292	1830	1550	535	313	2630	2650	0.55	0.53
FEBRUARY -2017	326	305	1990	1670	594	364	2770	2780	0.73	0.73
MARCH -2017	329	312	2060	1710	640	386	2760	2770	0.63	0.64
APRIL -2017	330	314	1980	1630	686	413	2770	2760	0.61	0.68
MAY -2017	317	302	1880	1560	589	316	2710	2730	0.87	0.88
JUNE -2017	327	306	1930	1570	615	337	2760	2760	0.85	0.79
JULY -2017	320	304	1940	1610	595	326	2750	2790	0.75	0.73
AUGUST -2017	316	298	1990	1680	605	338	2860	2870	0.90	0.89
SEPTEMBER-2017	316	300	1890	1590	564	306	2750	2740	0.77	0.71
OCTOBER -2017	320	307	2060	1760	612	393	2950	2970	0.62	0.72
NOVEMBER -2017	318	303	2020	1690	618	356	2970	2970	0.66	0.62
DECEMBER -2017	313	298	2080	1770	620	319	3100	3120	1.23	1.16
Average:	320	303	1971	1649	606	347	2815	2826	0.76	0.76

Analyte	Chloride		Bromide		Sulfate		Nitrate		Ortho Phosphate	
MDL/Units	7	mg/L	.1	mg/L	9	mg/L	.04	mg/L	.2	mg/L
Source	PLR	PLE	PLR	PLE	PLR	PLE	PLR	PLE	PLR	PLE
JANUARY -2017	511	523	1.2	1.1	270	264	<0.04	0.14	2.6	1.3
FEBRUARY -2017	526	539	1.1	1.1	274	270	0.08	0.16	3.3	1.5
MARCH -2017	535	543	1.2	1.2	255	248	0.06	0.44	3.8	2.3
APRIL -2017	549	568	1.4	1.3	202	203	0.04	0.57	6.3	4.8
MAY -2017	562	567	1.7	1.5	166	159	ND	0.21	6.0	4.9
JUNE -2017	577	578	1.6	1.5	161	151	0.08	0.34	6.8	5.5
JULY -2017	591	597	1.6	1.6	144	136	0.06	0.27	7.4	6.5
AUGUST -2017	617	621	1.6	1.5	147	141	0.07	0.23	7.2	6.5
SEPTEMBER-2017	591	604	1.4	1.3	141	134	0.06	0.32	7.0	6.0
OCTOBER -2017	867	659	0.8	1.2	122	157	0.26	0.11	4.1	5.0
NOVEMBER -2017	635	647	1.6	0.9	152	146	0.06	0.47	6.5	4.7
DECEMBER -2017	681	690	2.7	2.6	158	152	0.04	0.14	7.0	5.0
Average:	604	595	1.5	1.4	183	180	0.07	0.28	5.7	4.5

METALS by EPA 200.8
ANIONS/CATIONS by EPA 300.0
ALKALINITY by SM2320B
ND=not detected; NS=not sampled; NA=not analyzed

POINT LOMA WASTEWATER TREATMENT PLANT

ANNUAL 2017

Analyte	Lithium		Sodium		Potassium		Chemical Oxygen Demand		Soluble BOD	
MDL/Units	.015	mg/L	1.89	mg/L	.84	mg/L	18	mg/L	2	mg/L
Source	PLR	PLE	PLR	PLE	PLR	PLE	PLR	PLE	PLR	PLE
JANUARY -2017	0.045	0.046	321	319	25.0	24.3	609	252	83	85
FEBRUARY -2017	0.048	0.048	339	337	26.5	25.7	682	266	88	89
MARCH -2017	0.039	0.039	347	349	25.0	25.1	686	281	88	90
APRIL -2017	0.034	0.033	341	342	29.3	28.8	793	318	103	106
MAY -2017	0.030	0.028	344	348	29.6	28.9	780	285	98	102
JUNE -2017	0.032	0.030	355	349	29.8	29.0	738	299	102	104
JULY -2017	0.027	0.028	356	359	30.9	30.9	780	316	102	104
AUGUST -2017	0.030	0.031	378	383	30.7	30.6	726	326	106	105
SEPTEMBER-2017	0.026	0.026	374	376	29.8	29.2	736	271	101	95
OCTOBER -2017	0.026	0.027	391	397	38.5	29.7	674	259	101	95
NOVEMBER -2017	0.024	0.023	392	397	30.7	30.0	743	292	96	97
DECEMBER -2017	0.023	0.022	419	417	33.0	32.2	766	323	109	108
Average:	0.03	0.03	363	364	29.9	28.7	726	291	98	98

Analyte	Total Disolved Solids		Floatables		Turbidity		Aluminum		Barium	
MDL/Units	250	mg/L	1.4	mg/L	.13	NTU	23.8	ug/L	.7	ug/L
Source	PLR	PLE	PLR	PLE	PLR	PLE	PLR	PLE	PLR	PLE
JANUARY -2017	1520	1500	<1.40	ND	115	27	766	96	115	45
FEBRUARY -2017	1530	1510	<1.40	<1.40	109	27	714	71	117	47
MARCH -2017	1630	1620	<1.40	ND	105	30	694	67	102	41
APRIL -2017	1550	1530	<1.40	ND	107	41	531	55	86	33
MAY -2017	1480	1460	<1.40	ND	118	44	605	57	77	27
JUNE -2017	1550	1510	<1.40	ND	109	45	540	71	71	26
JULY -2017	1530	1520	<1.40	ND	115	56	619	69	74	27
AUGUST -2017	1570	1540	<1.40	ND	110	63	429	75	62	31
SEPTEMBER-2017	1510	1500	<1.00	ND	124	50	699	154	74	25
OCTOBER -2017	1630	1600	<1.00	ND	106	46	681	181	72	27
NOVEMBER -2017	1610	1580	<1.00	<1.00	115	47	647	46	76	28
DECEMBER -2017	1680	1660	1.00	ND	116	42	630	47	73	23
Average:	1566	1544	0.08	0.00	112	43	630	82	83	32

Analyte	Boron		Cobalt		Molybdenum		Manganese		Vanadium	
MDL/Units	1.4	ug/L	.24	ug/L	.32	ug/L	.78	ug/L	2.77	ug/L
Source	PLR	PLE	PLR	PLE	PLR	PLE	PLR	PLE	PLR	PLE
JANUARY -2017	407	407	1.530	0.877	10.40	7.50	142	128	4.86	0.66
FEBRUARY -2017	403	397	1.780	1.220	9.95	7.81	155	137	5.73	1.30
MARCH -2017	408	406	1.910	1.060	10.40	8.08	150	132	4.77	1.34
APRIL -2017	400	396	1.480	1.060	7.90	6.02	159	142	3.88	1.19
MAY -2017	413	412	1.410	0.945	7.77	5.73	162	139	3.89	0.88
JUNE -2017	403	399	1.450	1.040	7.64	5.77	158	146	3.41	0.82
JULY -2017	421	418	1.430	0.907	9.35	5.51	153	139	3.36	0.71
AUGUST -2017	459	454	1.030	0.763	8.33	6.20	148	152	4.59	<2.77
SEPTEMBER-2017	449	441	0.745	0.373	8.73	5.74	148	141	6.30	<2.77
OCTOBER -2017	468	463	0.766	0.420	7.91	5.37	147	141	5.98	<2.77
NOVEMBER -2017	455	459	0.838	0.484	8.38	5.46	152	145	4.28	<2.77
DECEMBER -2017	399	412	0.867	0.484	8.82	5.96	147	138	4.59	ND
Average:	424	422	1.270	0.803	8.80	6.26	152	140	4.64	0.74

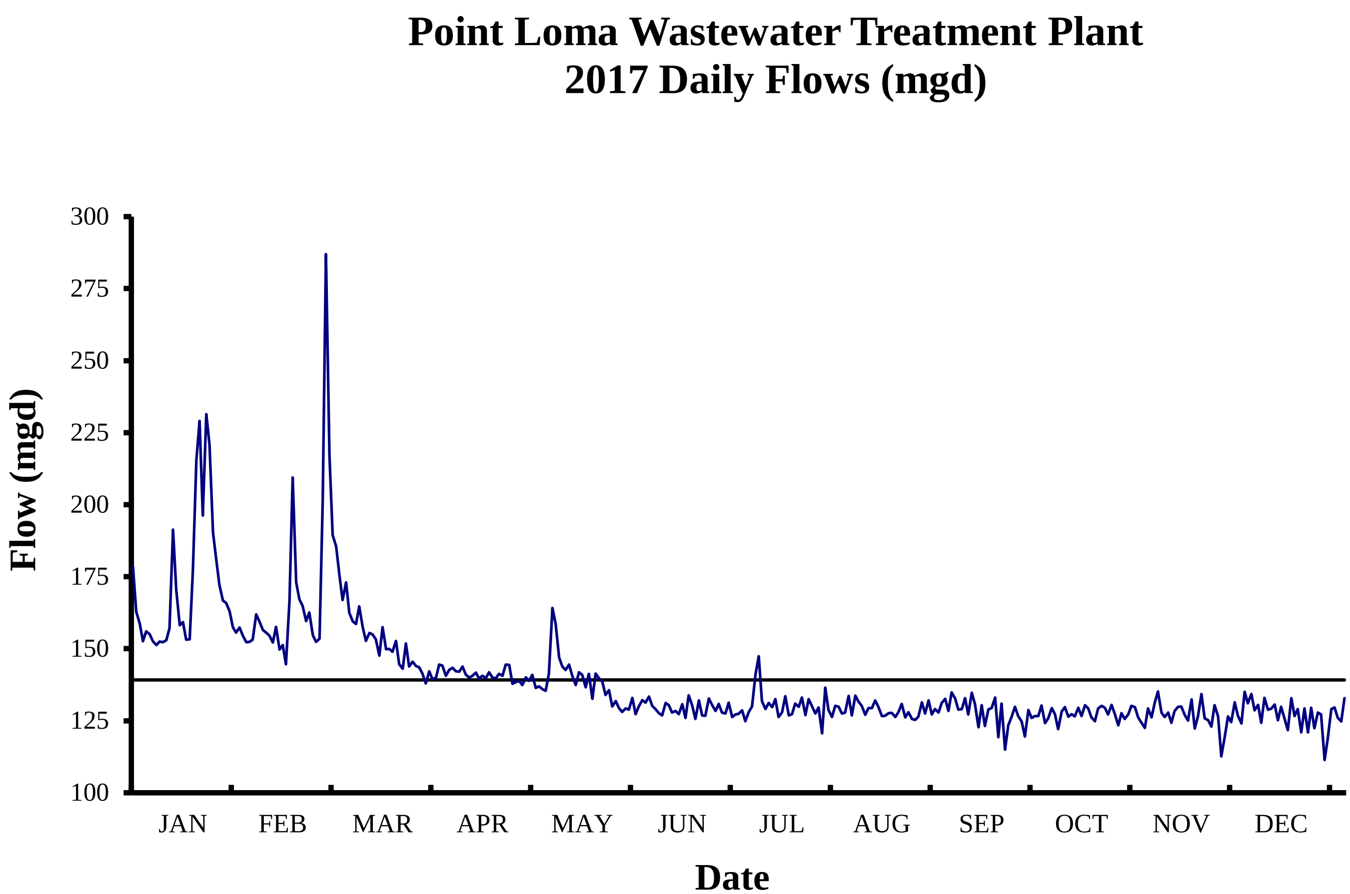
Metals by EPA 200.8
Turbidity by SM2130B
TDS by SM2540C
COD by HACH 8000
ND=not detected; NS=not sampled; NA=not analyzed

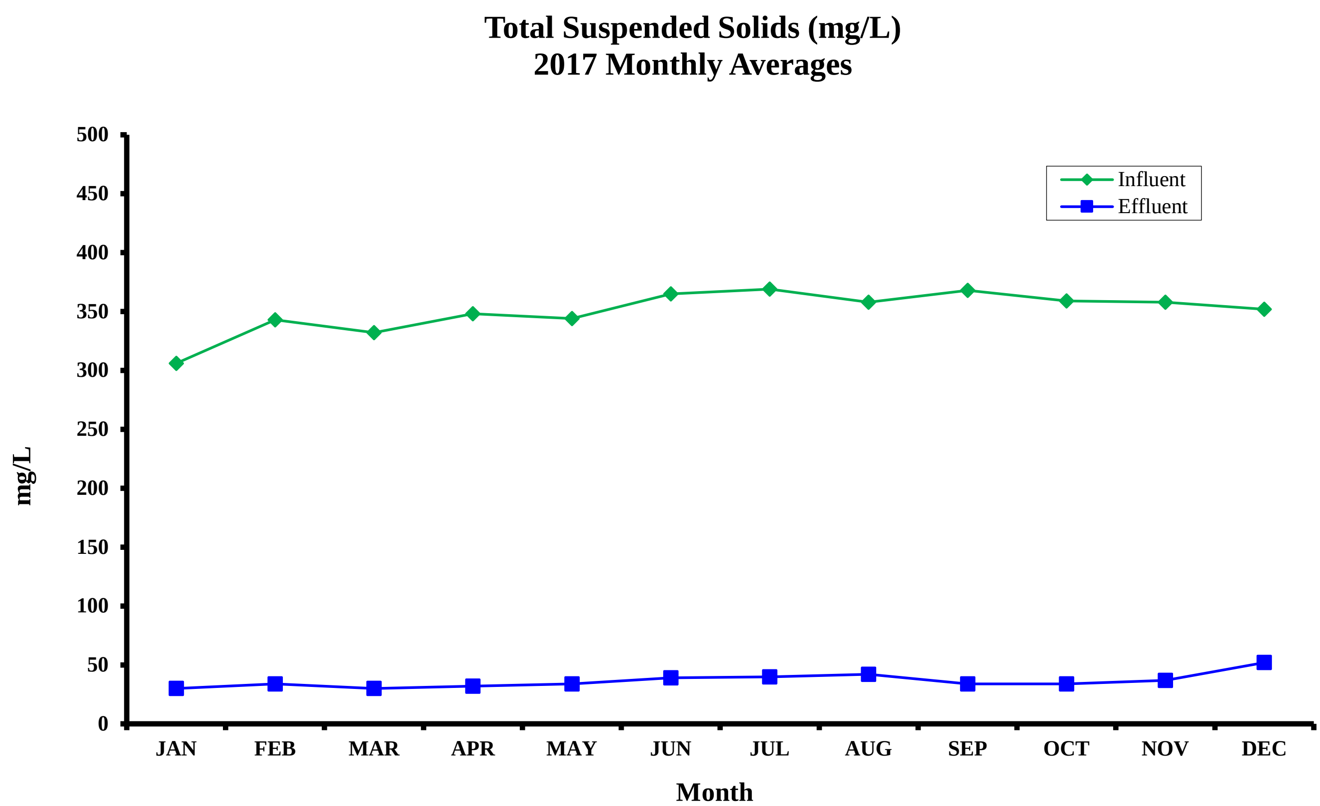
D. Influent and Effluent Graphs

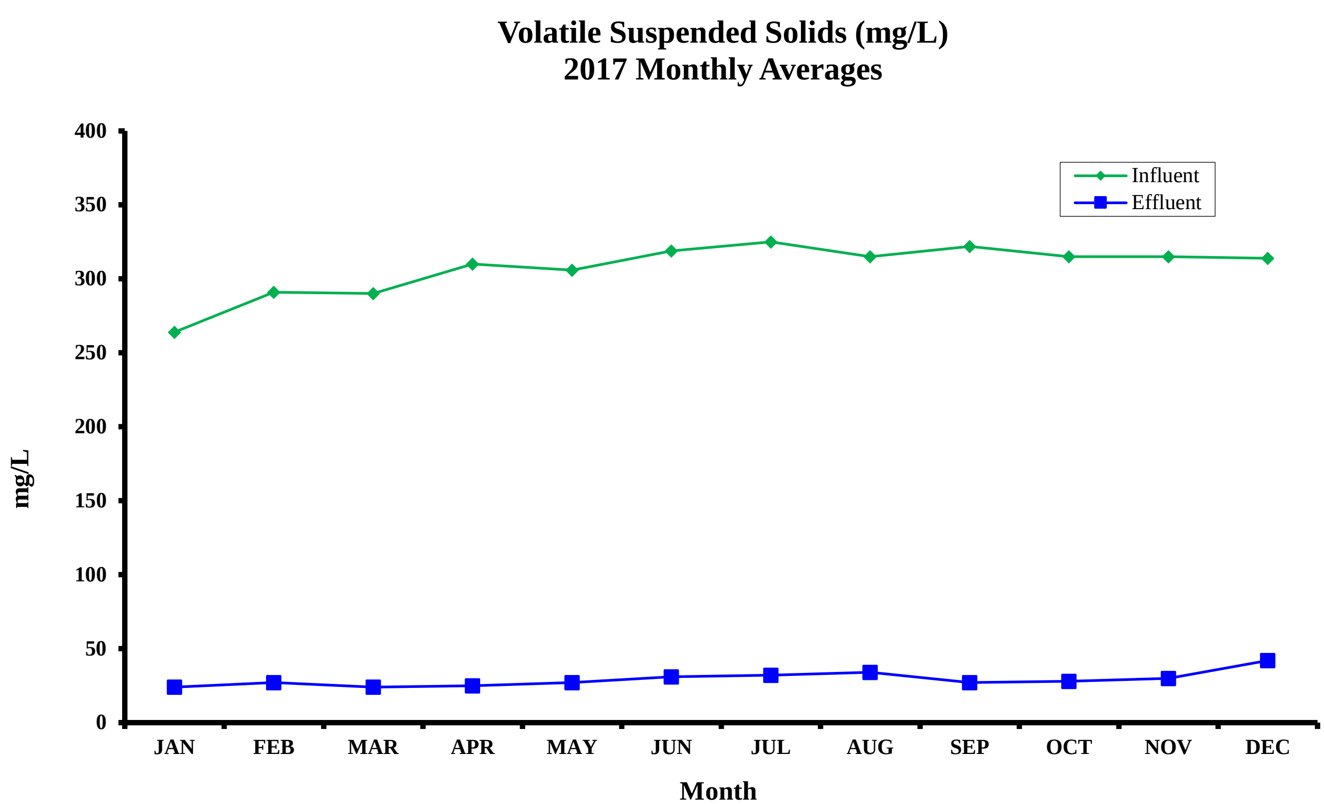
Graphs of monthly averages for permit parameters with measurable concentration averages are presented in this section.

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 may not 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 normally might 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.

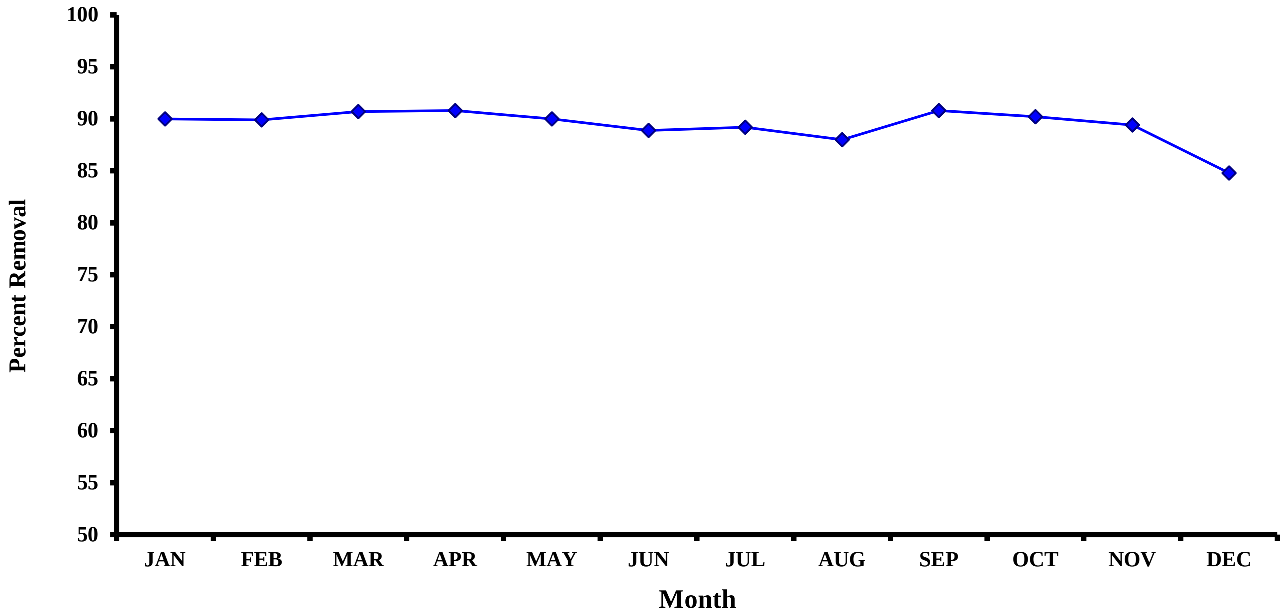
The trend for percent BOD and TSS removals in the last three months of 2016 was slightly lower than the norm as the plant experienced problems in effectively getting raw sludge out of sedimentation tanks and into digesters due to vivianite buildup in the raw sludge pipes. Nonetheless, percent removal requirements per the NPDES permit have been met. Operations staff promptly resolved the issue by contracting with a vendor to clean the pipelines, and implemented operational changes to eliminate or reduce vivianite buildup.



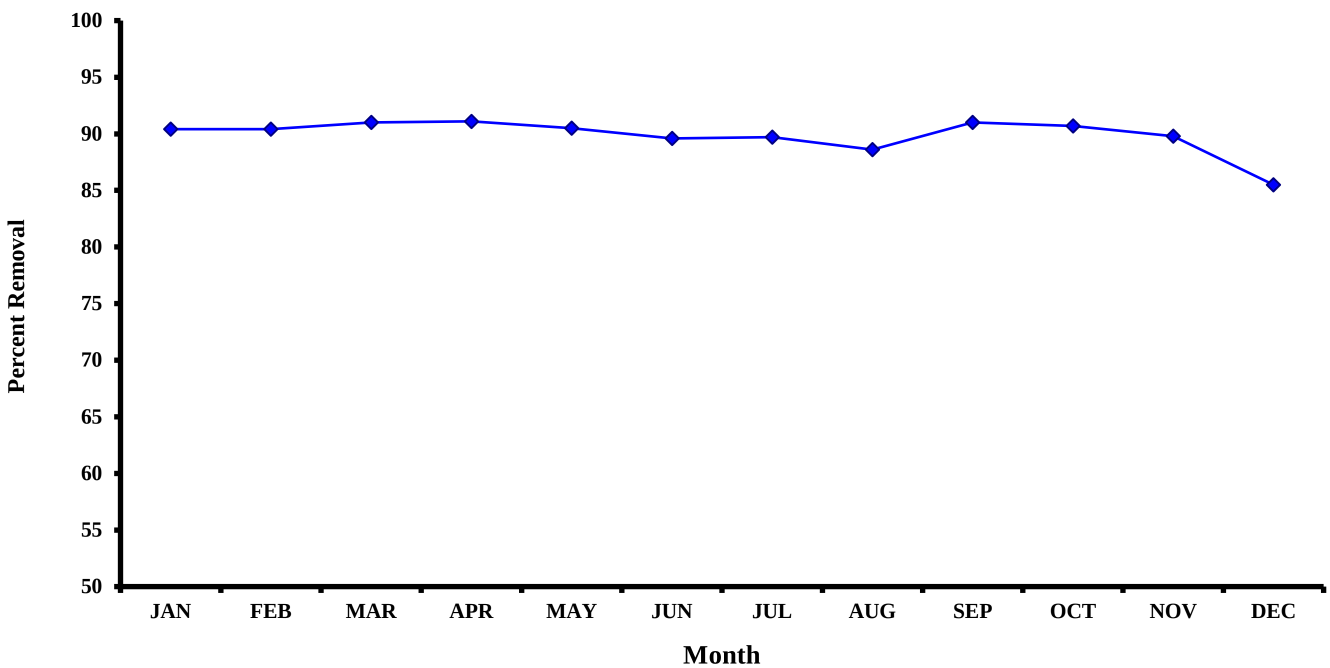

Total Suspended Solids (mg/L)
2017 Monthly Averages
Influent
Effluent
mg/L
500
450
400
350
300
250
200
150
100
50
0
JAN
FEB
MAR
APR
MAY
JUN
JUL
AUG
SEP
OCT
NOV
DEC
Month

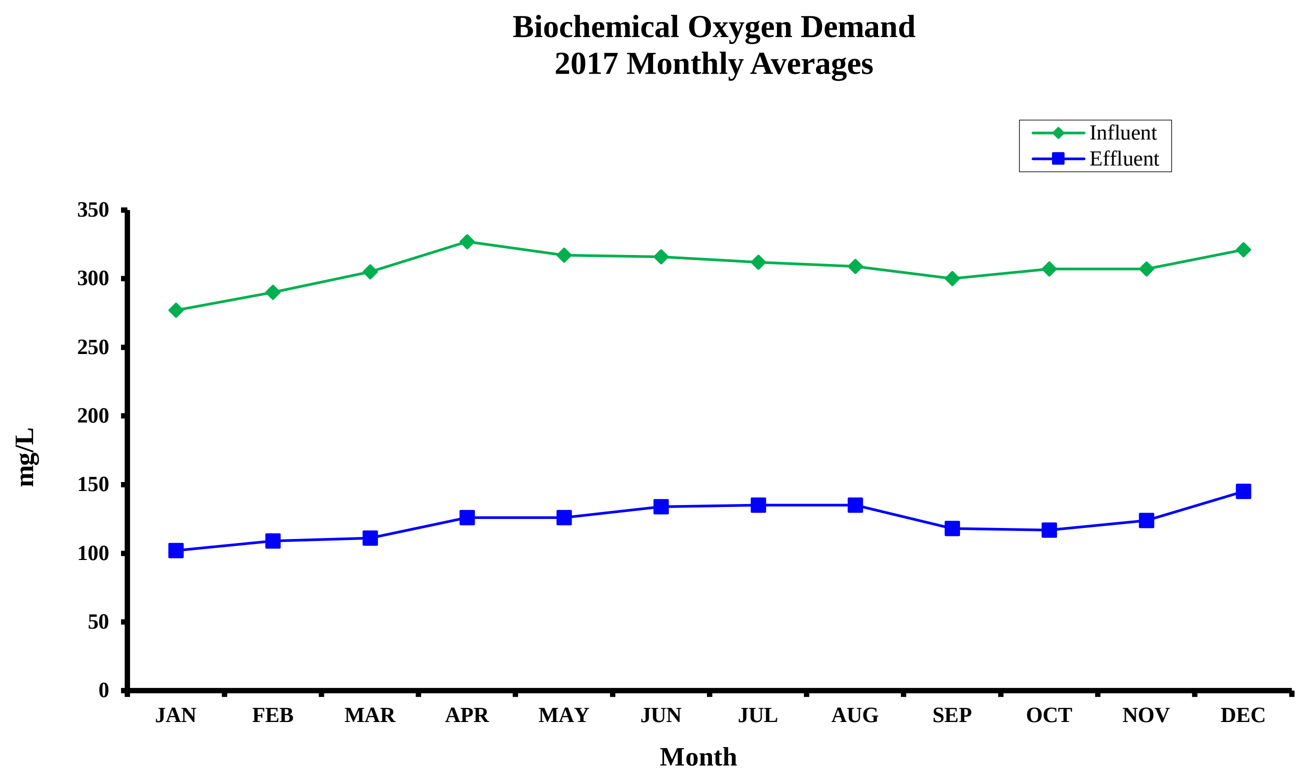

Volatile Suspended Solids (mg/L)
2017 Monthly Averages
Influent
Effluent
mg/L
400
350
300
250
200
150
100
50
0
JAN
FEB
MAR
APR
MAY
JUN
JUL
AUG
SEP
OCT
NOV
DEC
Month

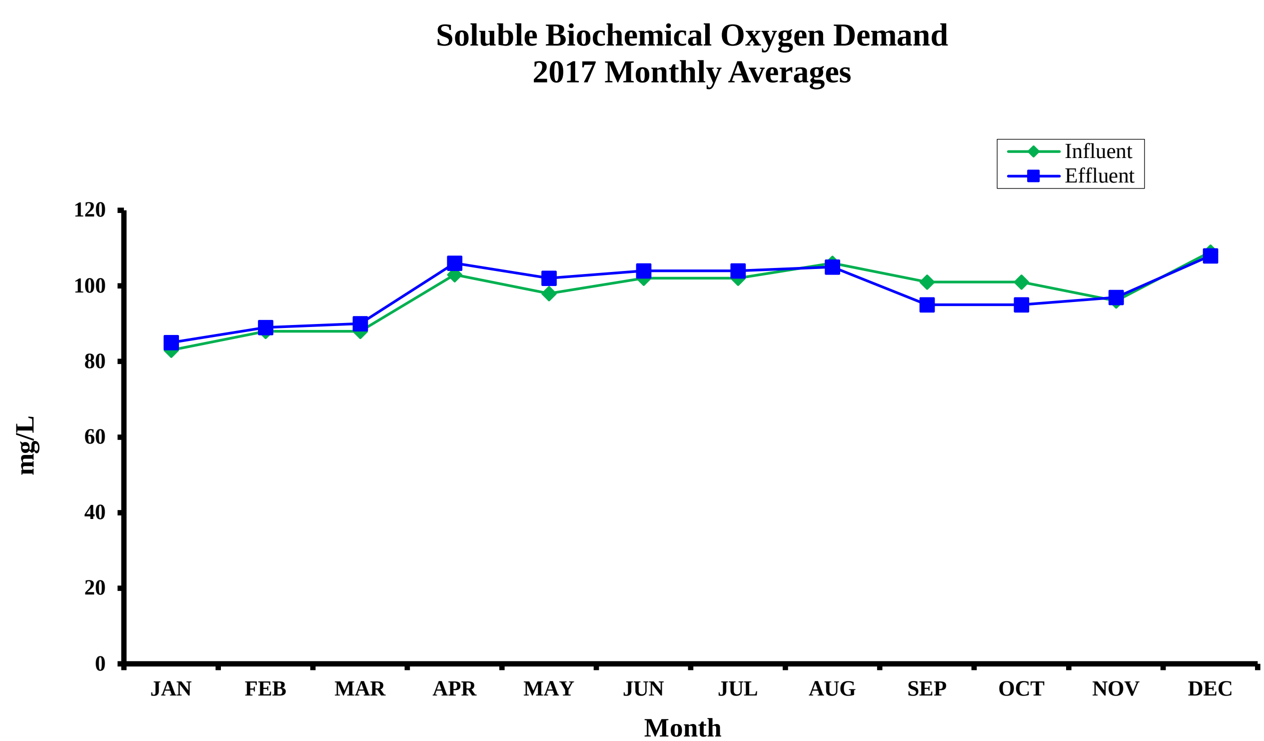
Total Suspended Solids (%) Removal
2017 Monthly Averages



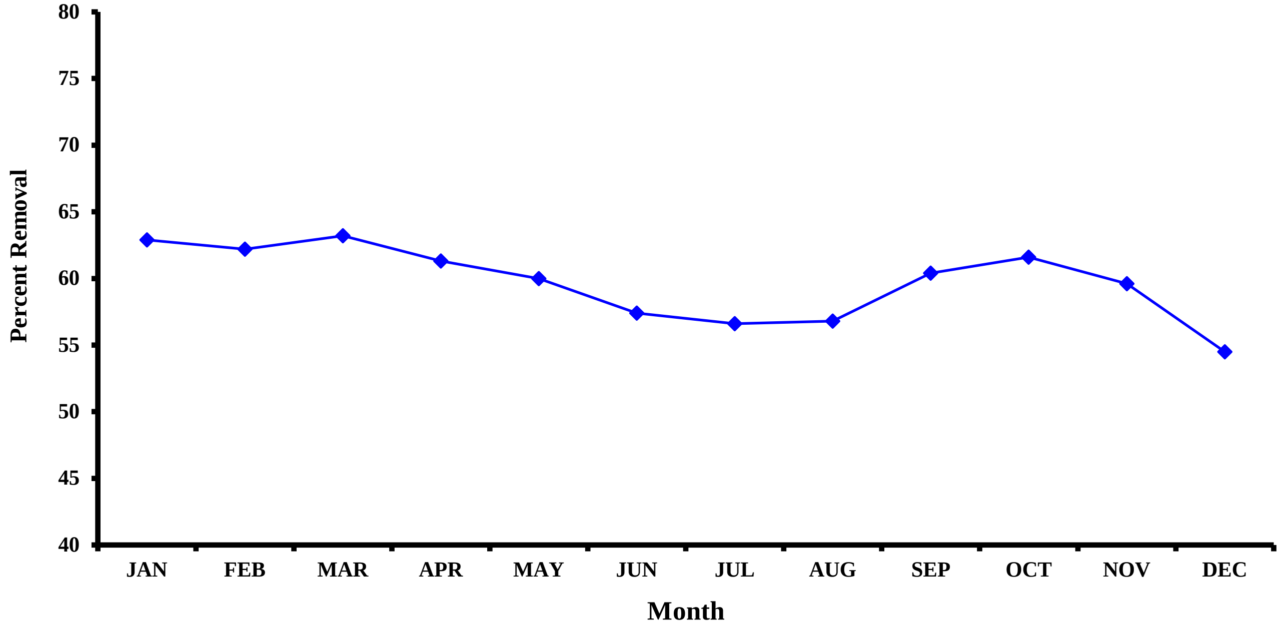
Total Suspended Solids (%) Removal
2017 Monthly Averages Systemwide



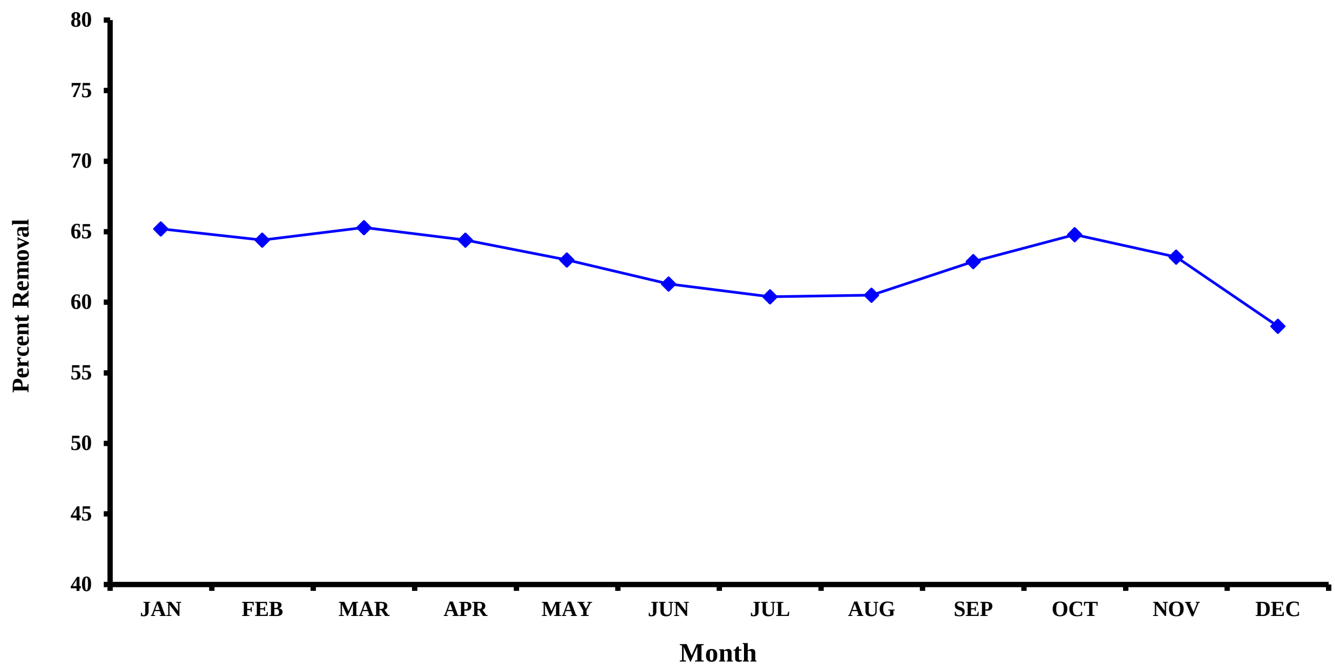

Biochemical Oxygen Demand
2017 Monthly Averages
Influent
Effluent
350
300
250
200
150
100
50
0
mg/L
JAN
FEB
MAR
APR
MAY
JUN
JUL
AUG
SEP
OCT
NOV
DEC
Month


Soluble Biochemical Oxygen Demand
2017 Monthly Averages
Influent
Effluent
120
100
80
60
40
20
0
mg/L
JAN
FEB
MAR
APR
MAY
JUN
JUL
AUG
SEP
OCT
NOV
DEC
Month

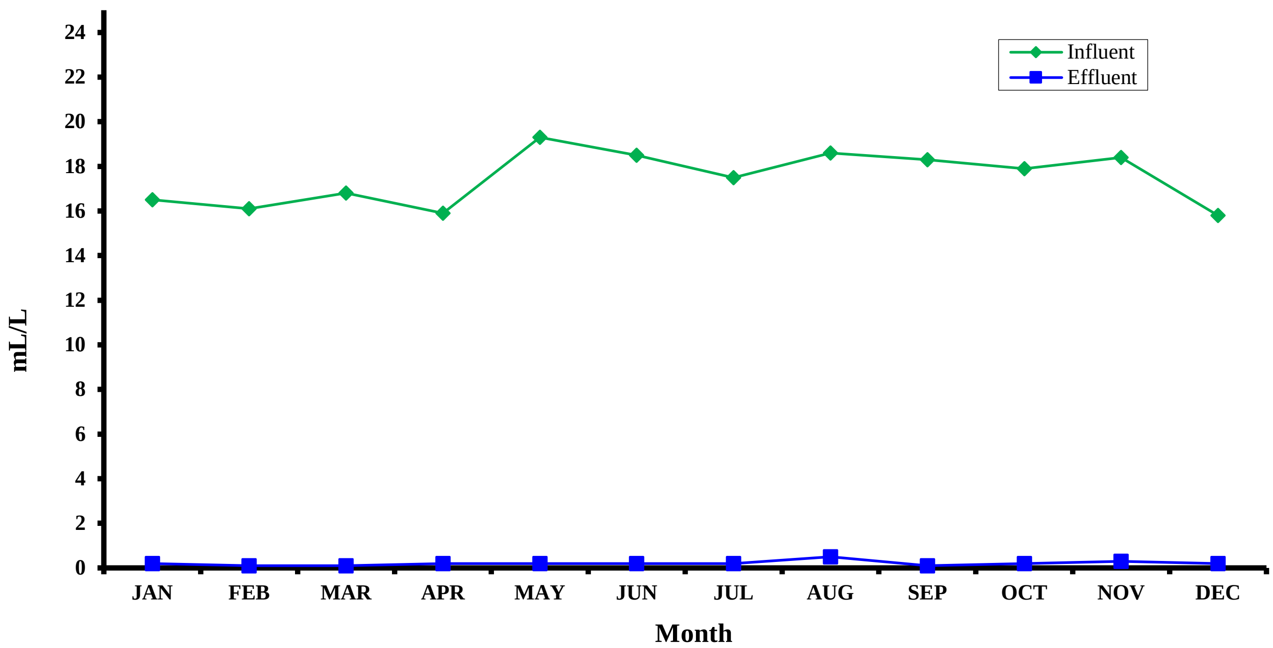
Biochemical Oxygen Demand (%) Removal
2017 Monthly Averages



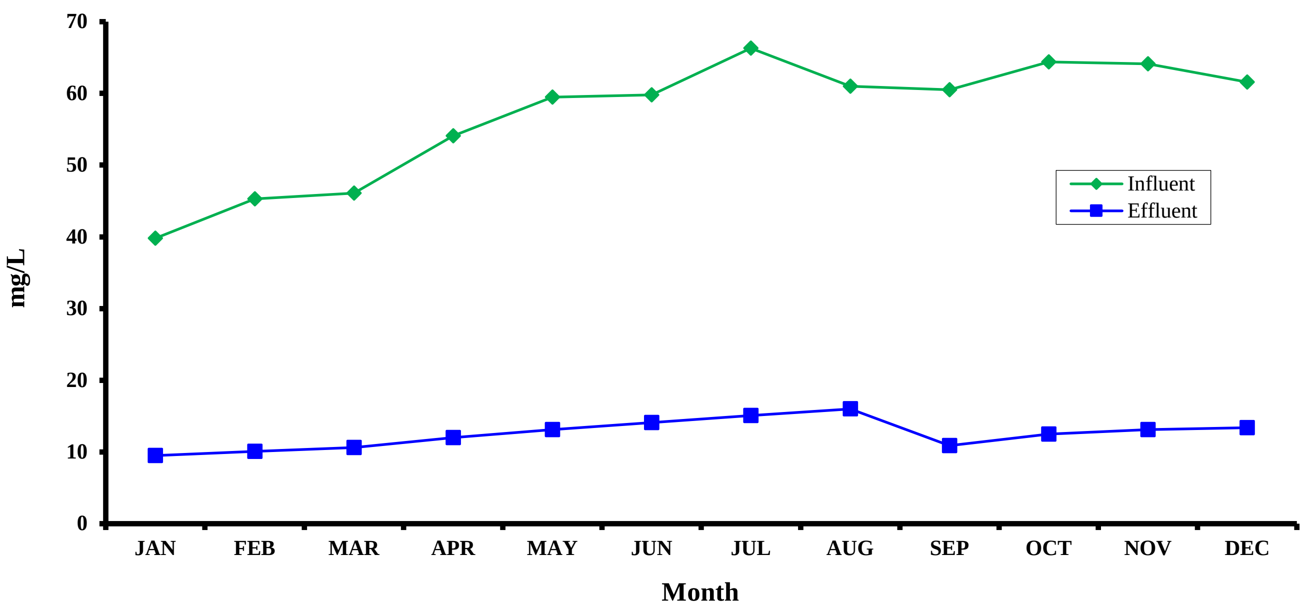
Biochemical Oxygen Demand (%) Removal
2017 Monthly Averages Systemwide

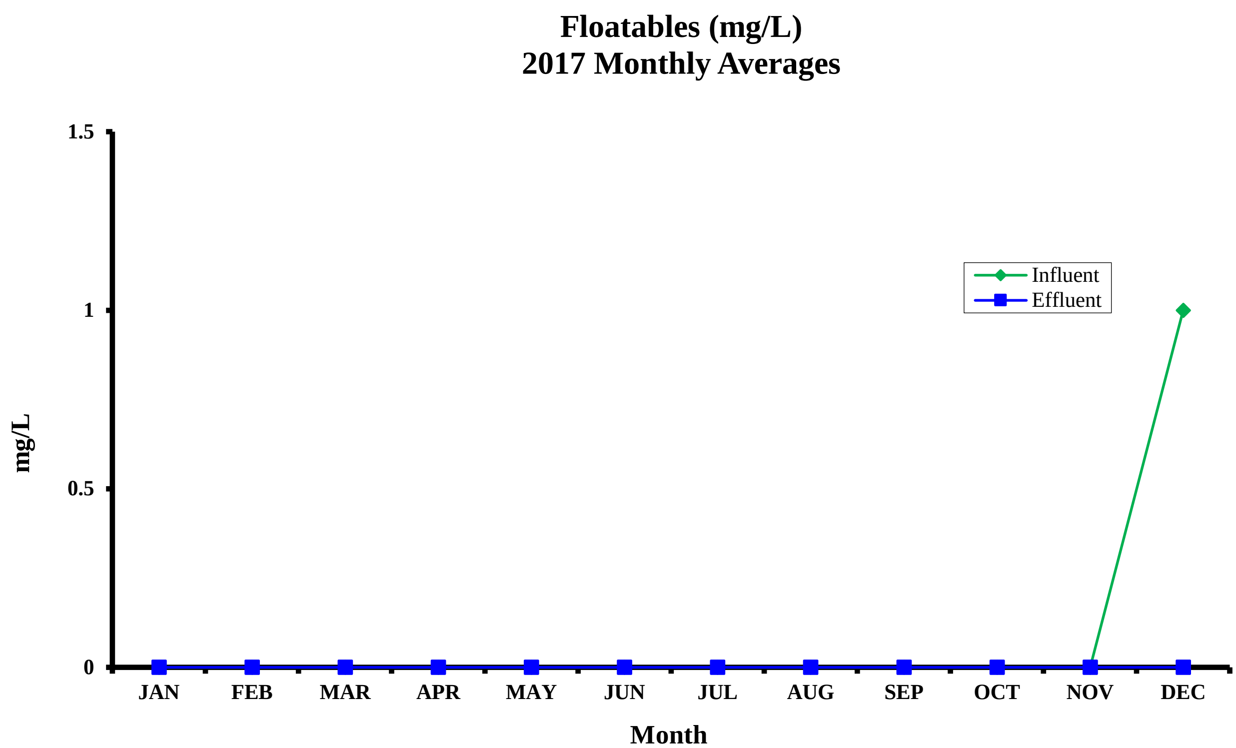


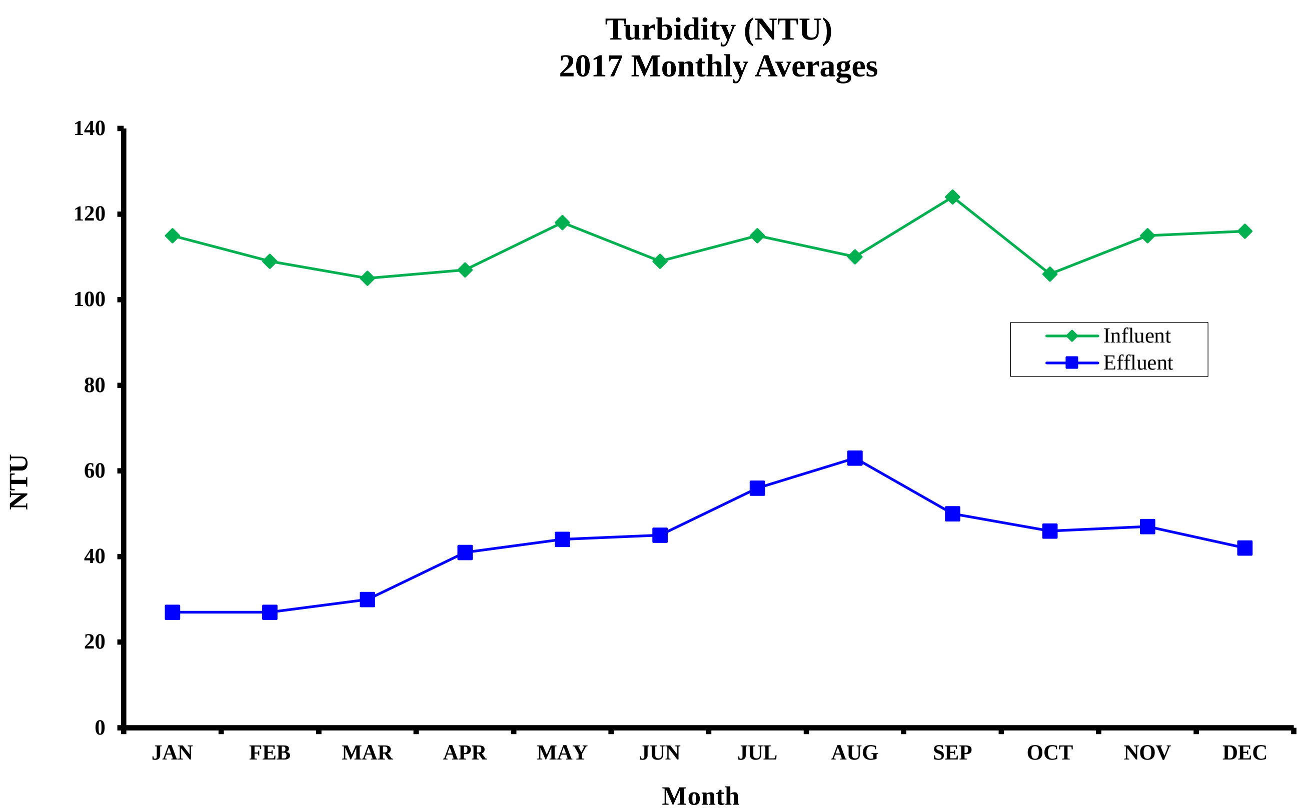
Settleable Solids (mL/L)
2017 Monthly Averages

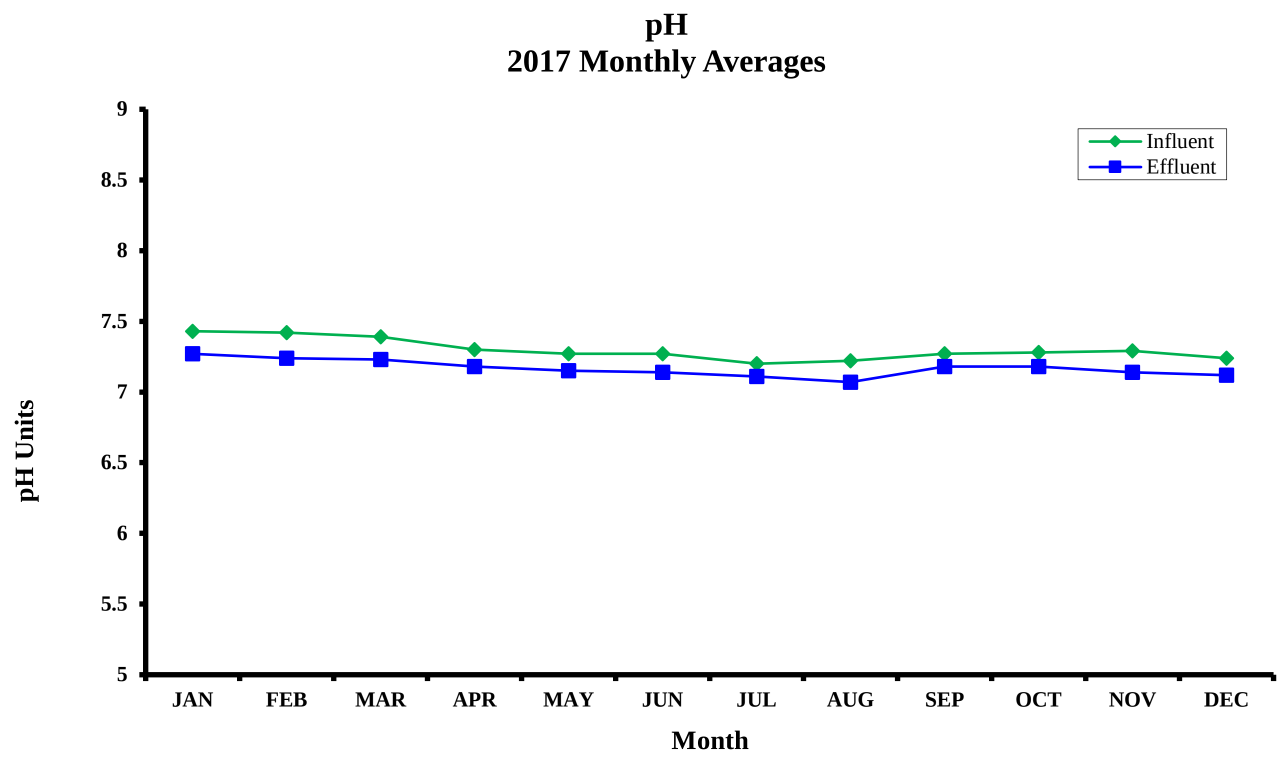


Hexane Extractable Material (mg/L)
2017 Monthly Averages

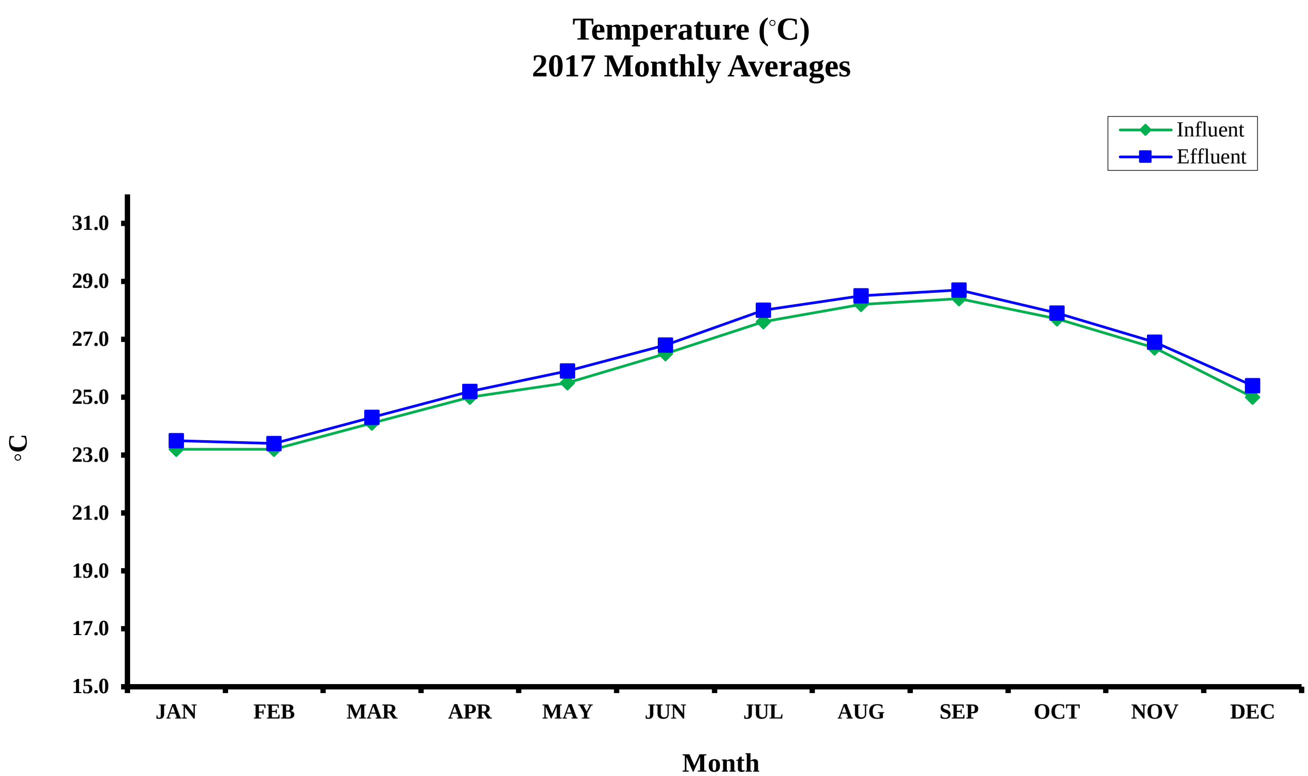



Floatables (mg/L)
2017 Monthly Averages
1.5
1
0.5
0
mg/L
Influent
Effluent
JAN
FEB
MAR
APR
MAY
JUN
JUL
AUG
SEP
OCT
NOV
DEC
Month


Turbidity (NTU)
2017 Monthly Averages
140
120
100
80
60
40
20
0
NTU
Influent
Effluent
JAN
FEB
MAR
APR
MAY
JUN
JUL
AUG
SEP
OCT
NOV
DEC
Month

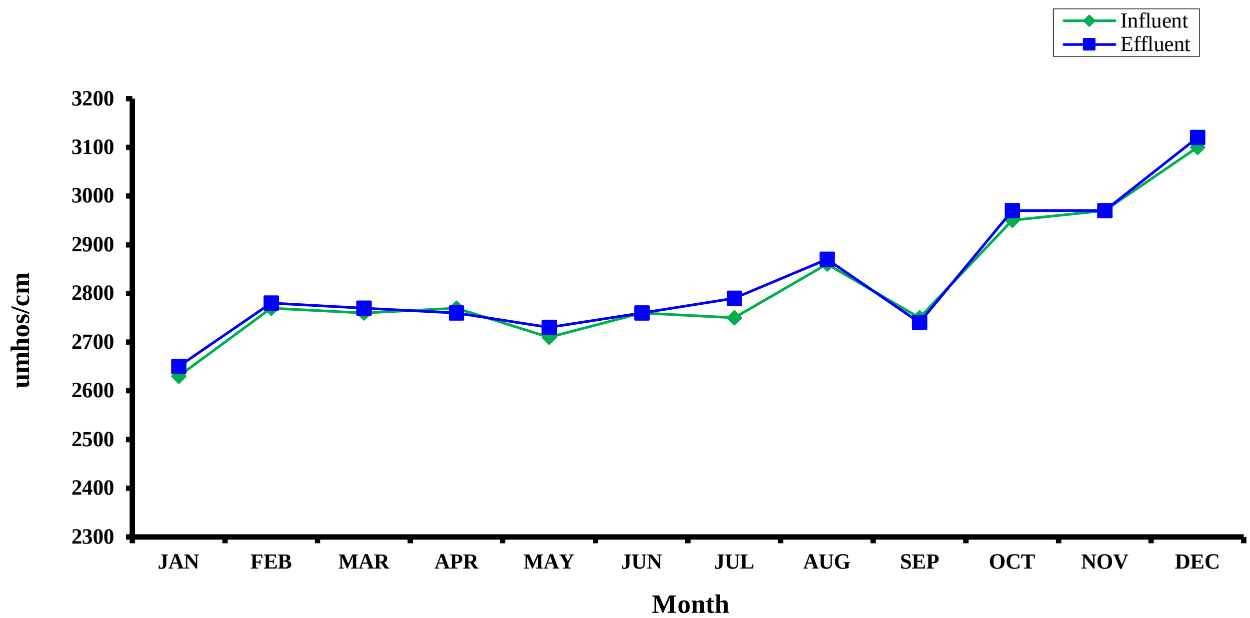


pH
2017 Monthly Averages
Influent
Effluent
pH Units
9
8.5
8
7.5
7
6.5
6
5.5
5
JAN
FEB
MAR
APR
MAY
JUN
JUL
AUG
SEP
OCT
NOV
DEC
Month

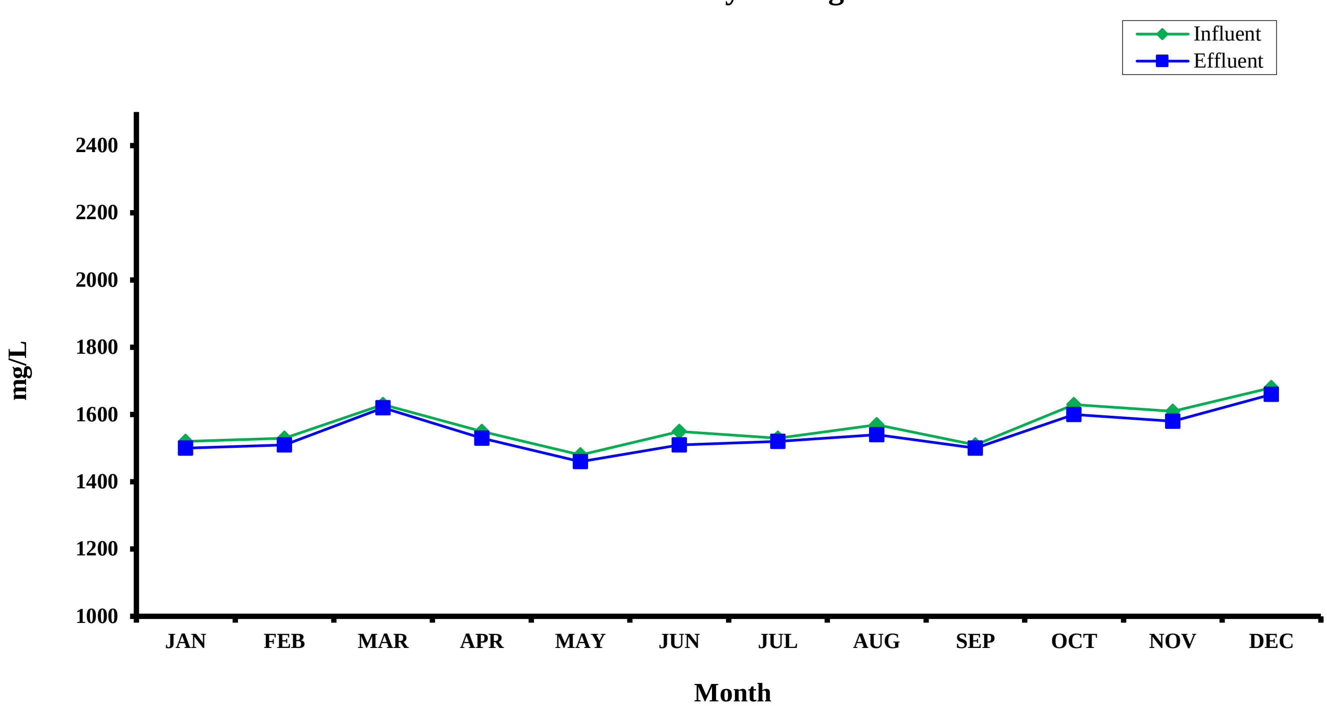


Temperature (°C)
2017 Monthly Averages
Influent
Effluent
°C
31.0
29.0
27.0
25.0
23.0
21.0
19.0
17.0
15.0
JAN
FEB
MAR
APR
MAY
JUN
JUL
AUG
SEP
OCT
NOV
DEC
Month

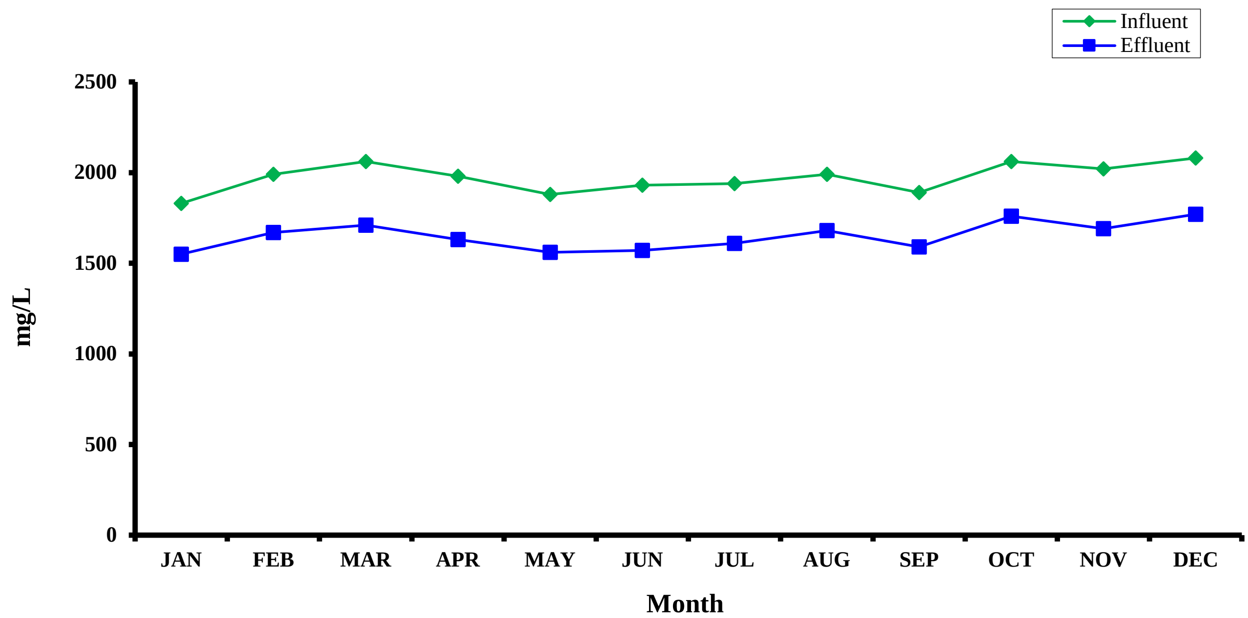
Conductivity (umhos/cm)
2017 Monthly Averages



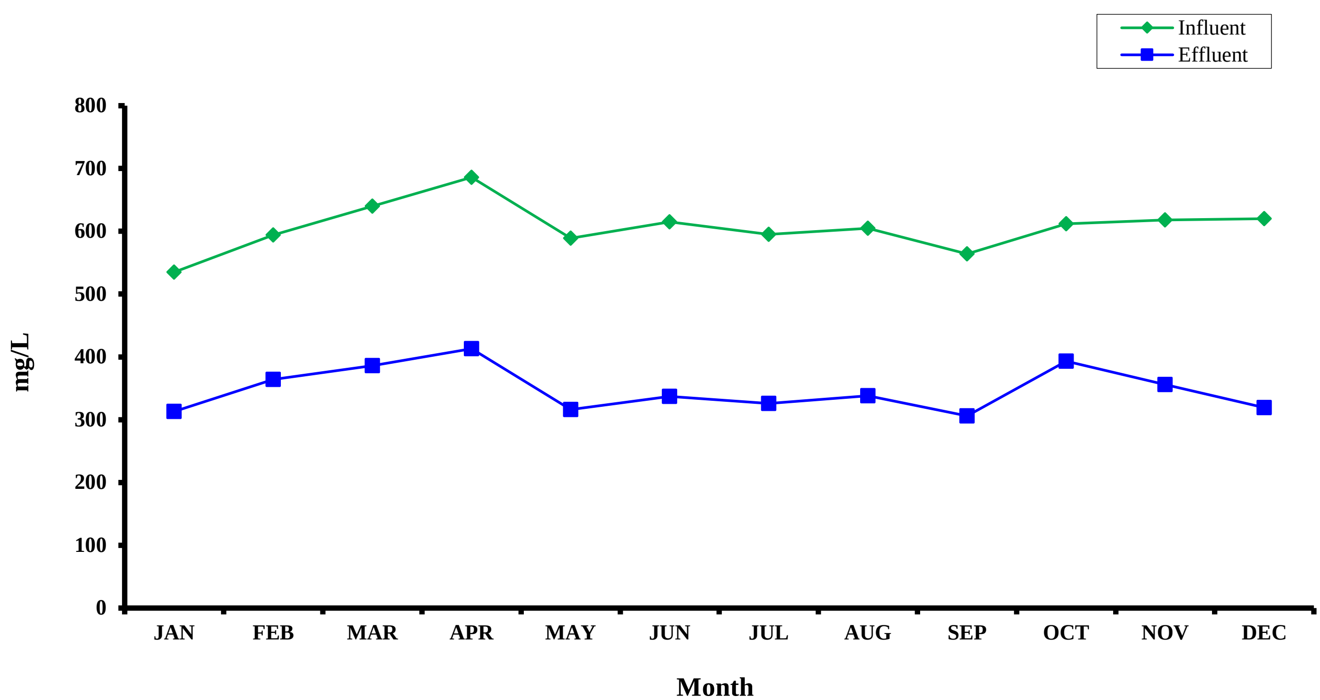
Total Dissolved Solids (mg/L)
2017 Monthly Averages



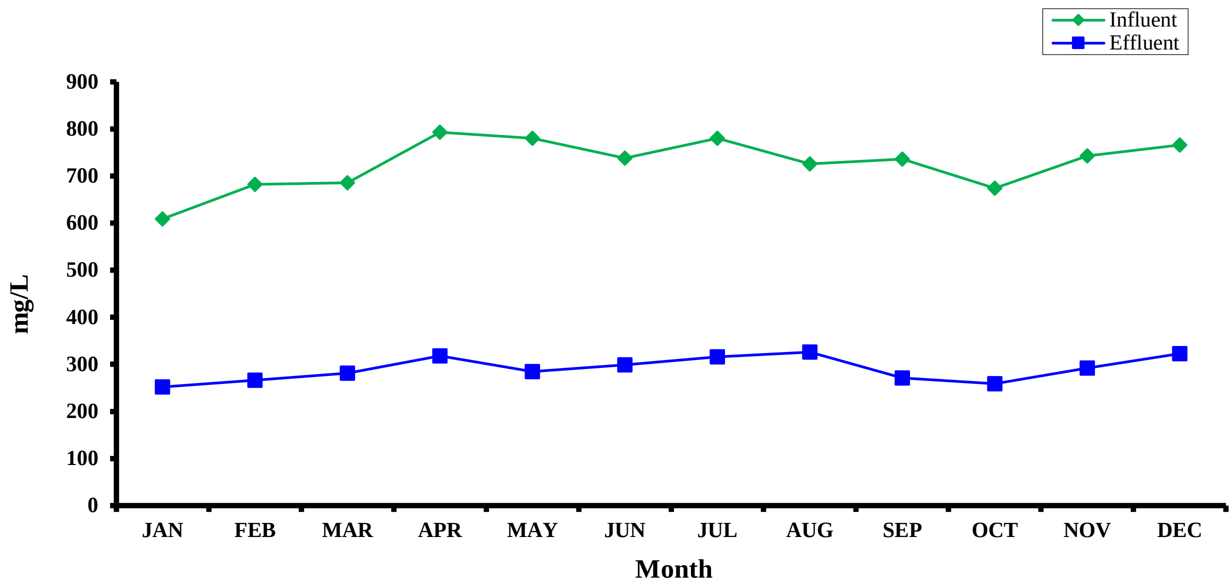
Total Solids (mg/L)
2017 Monthly Averages



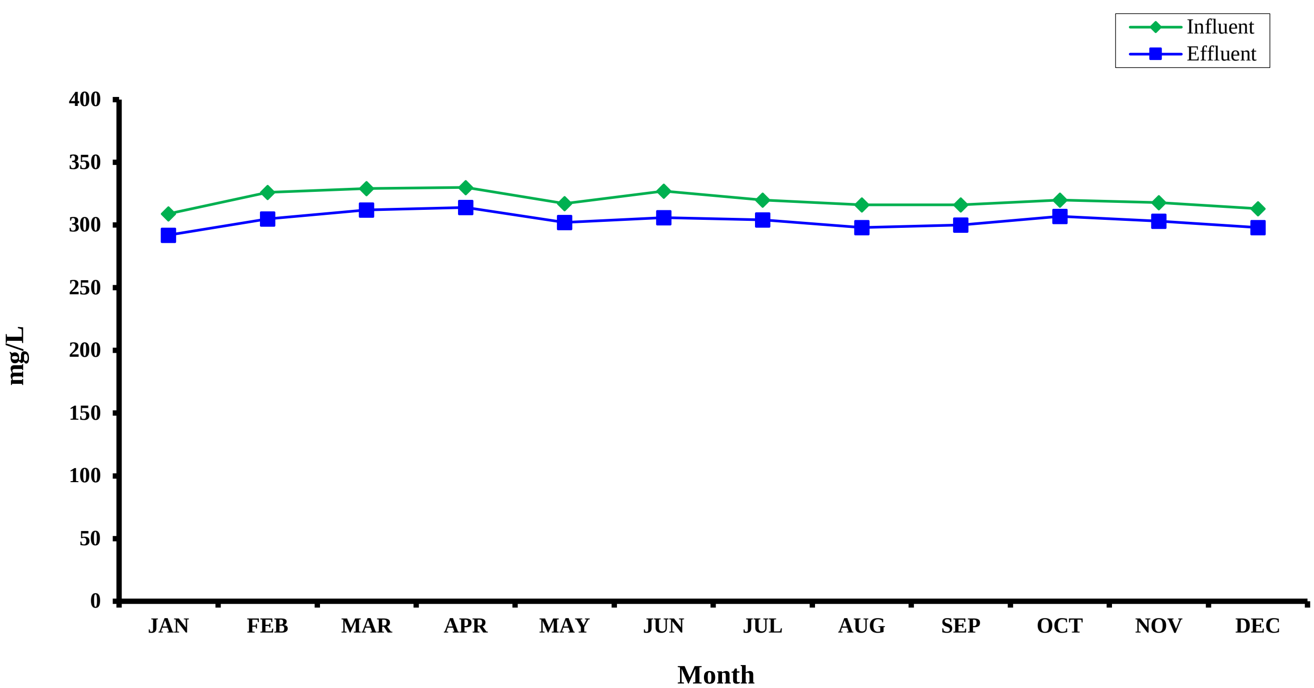
Total Volatile Solids (mg/L)
2017 Monthly Averages

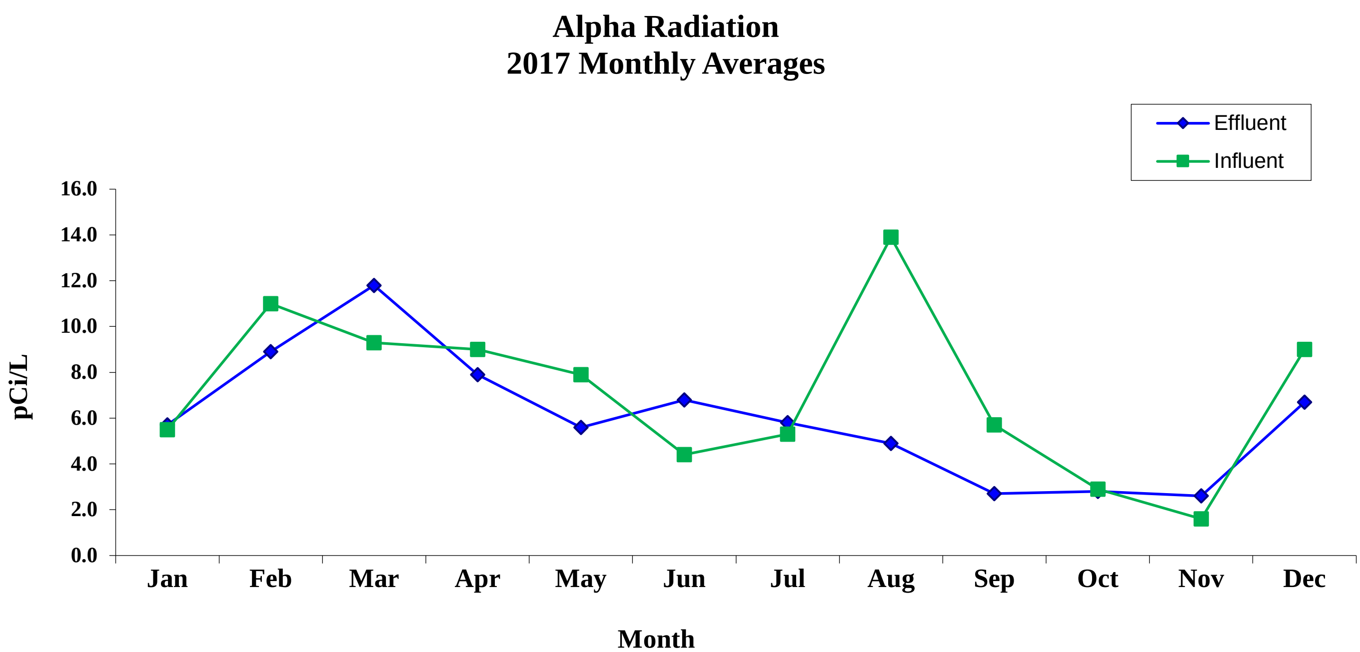


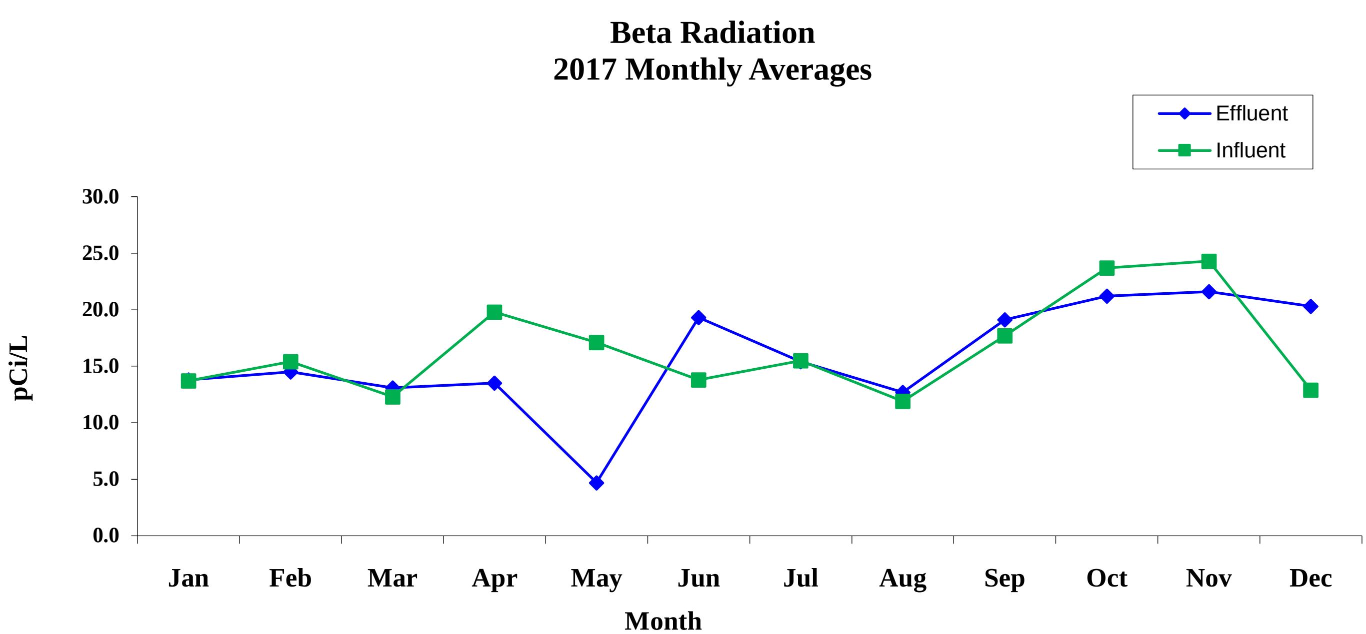
Chemical Oxygen Demand (mg/L)
2017 Monthly Averages

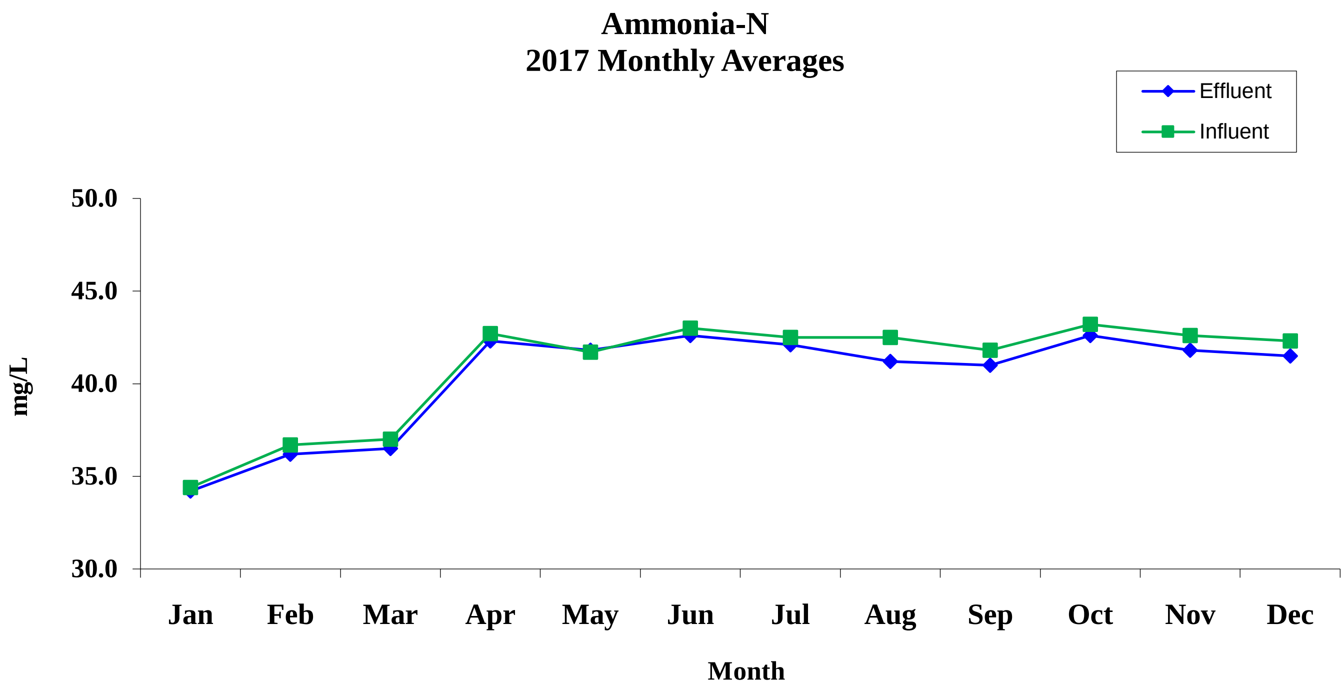


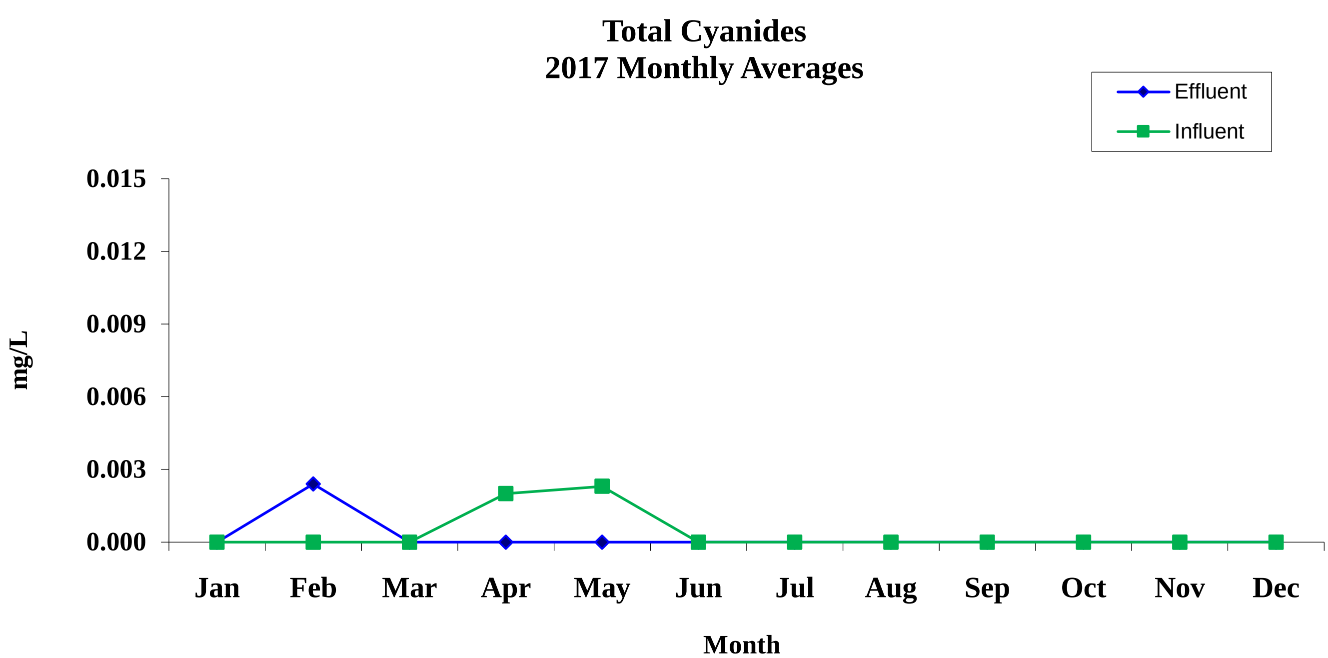
Alkalinity (mg/L)
2017 Monthly Averages

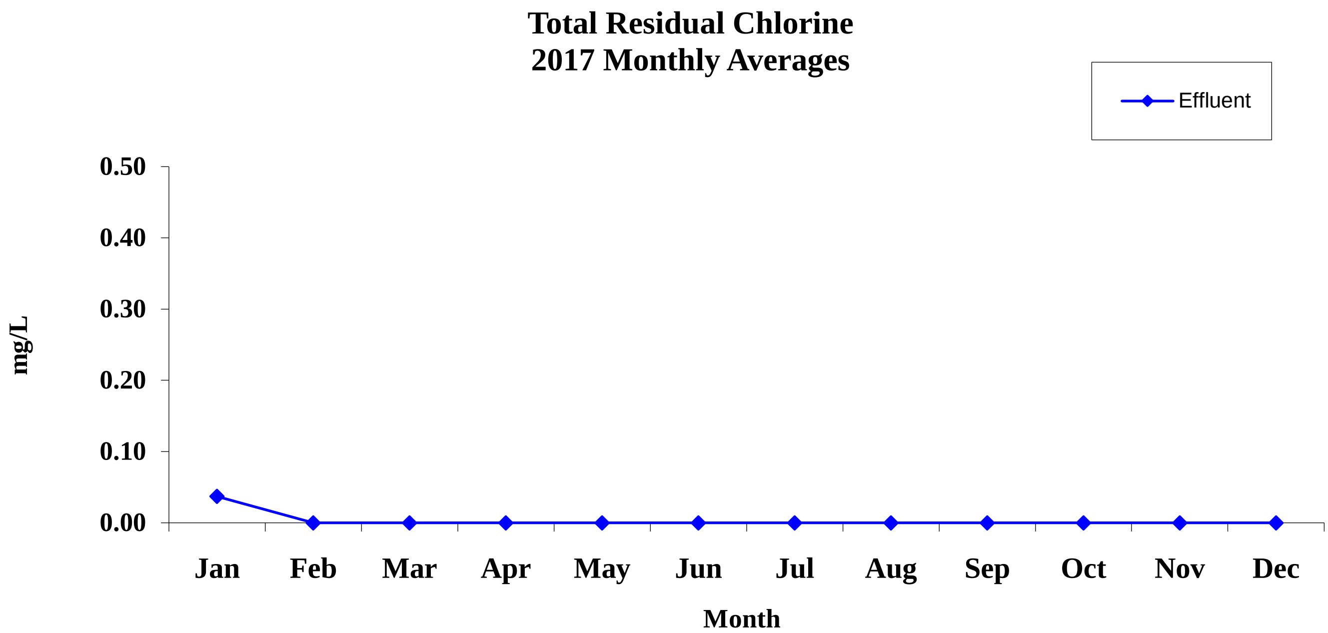


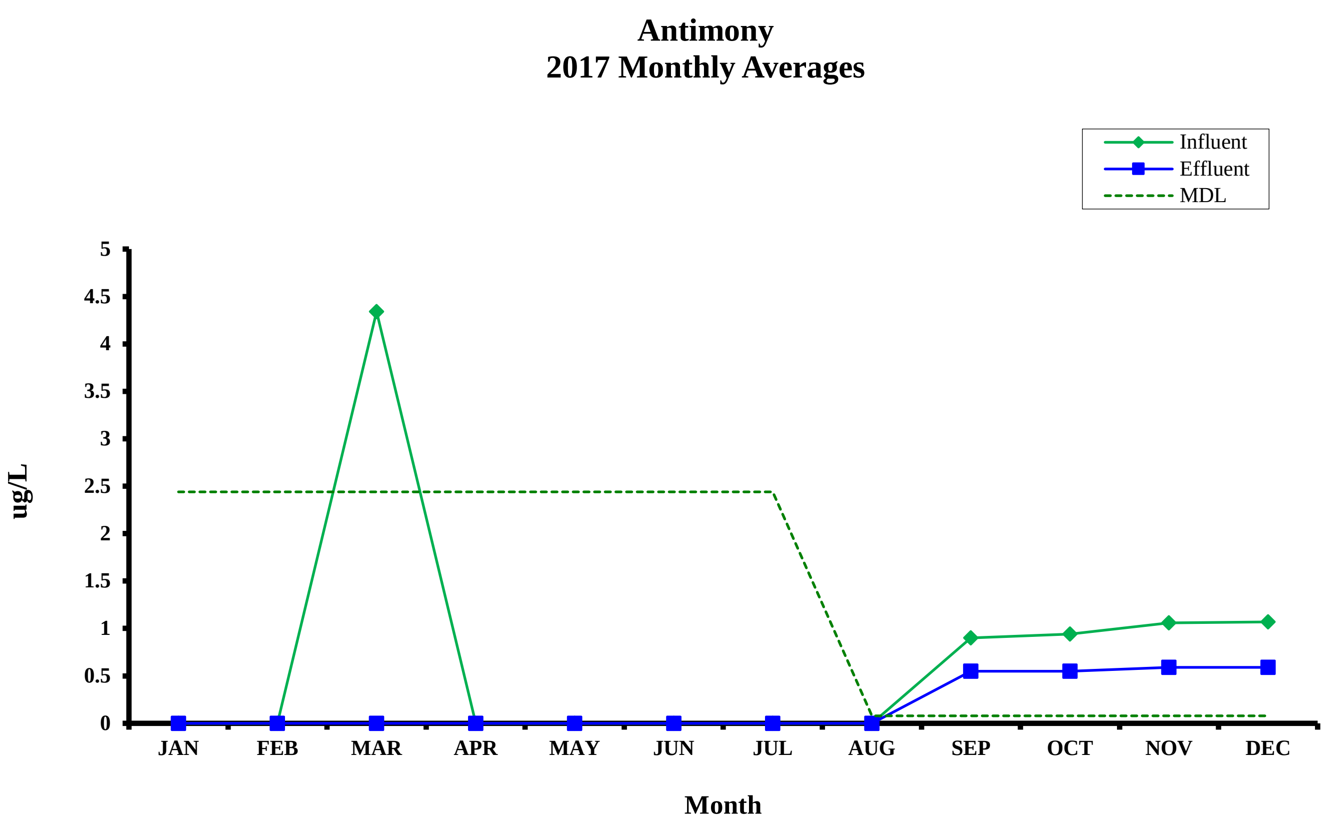

Alpha Radiation
2017 Monthly Averages
Effluent
Influent
16.0
14.0
12.0
10.0
8.0
6.0
4.0
2.0
0.0
pCi/L
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Month

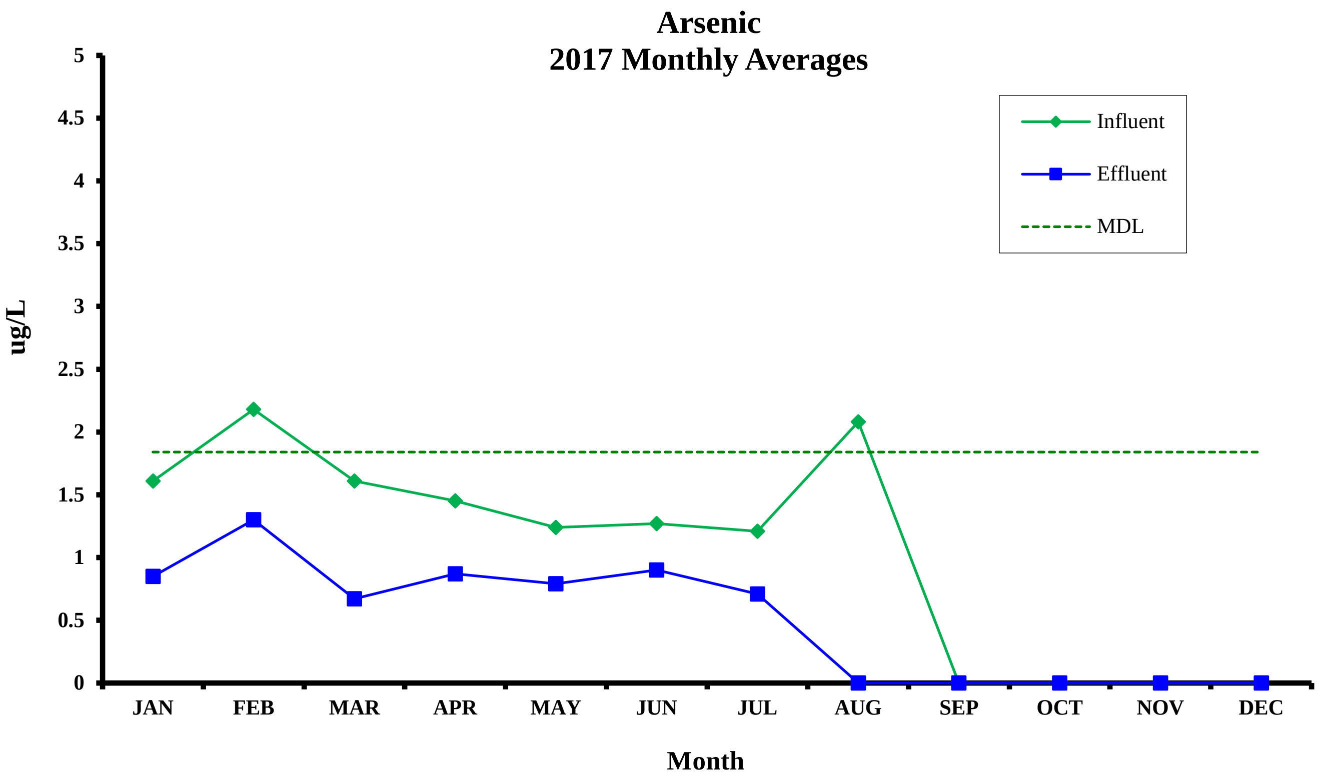

Beta Radiation
2017 Monthly Averages
Effluent
Influent
30.0
25.0
20.0
15.0
10.0
5.0
0.0
pCi/L
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Month

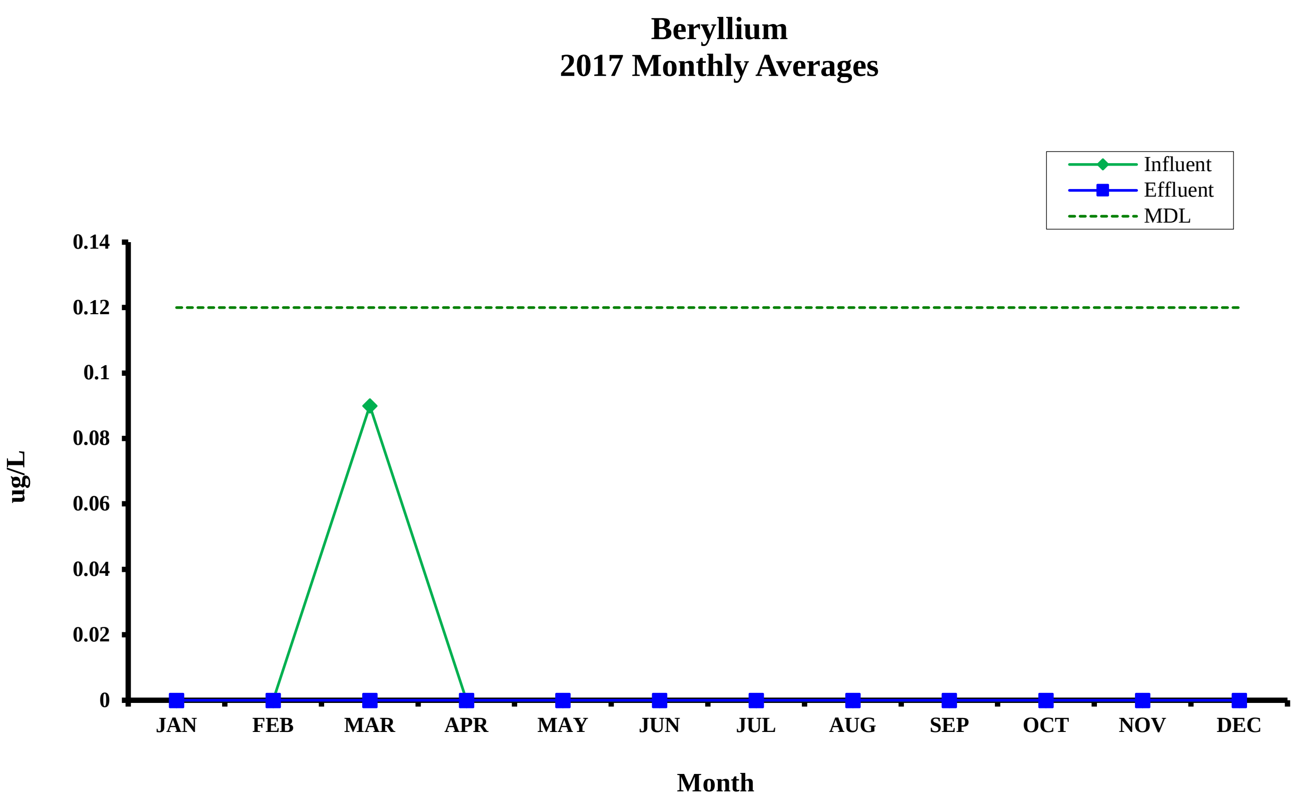

Ammonia-N
2017 Monthly Averages
Effluent
Influent
50.0
45.0
40.0
35.0
30.0
mg/L
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Month


Total Cyanides
2017 Monthly Averages
Effluent
Influent
0.015
0.012
0.009
0.006
0.003
0.000
mg/L
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Month

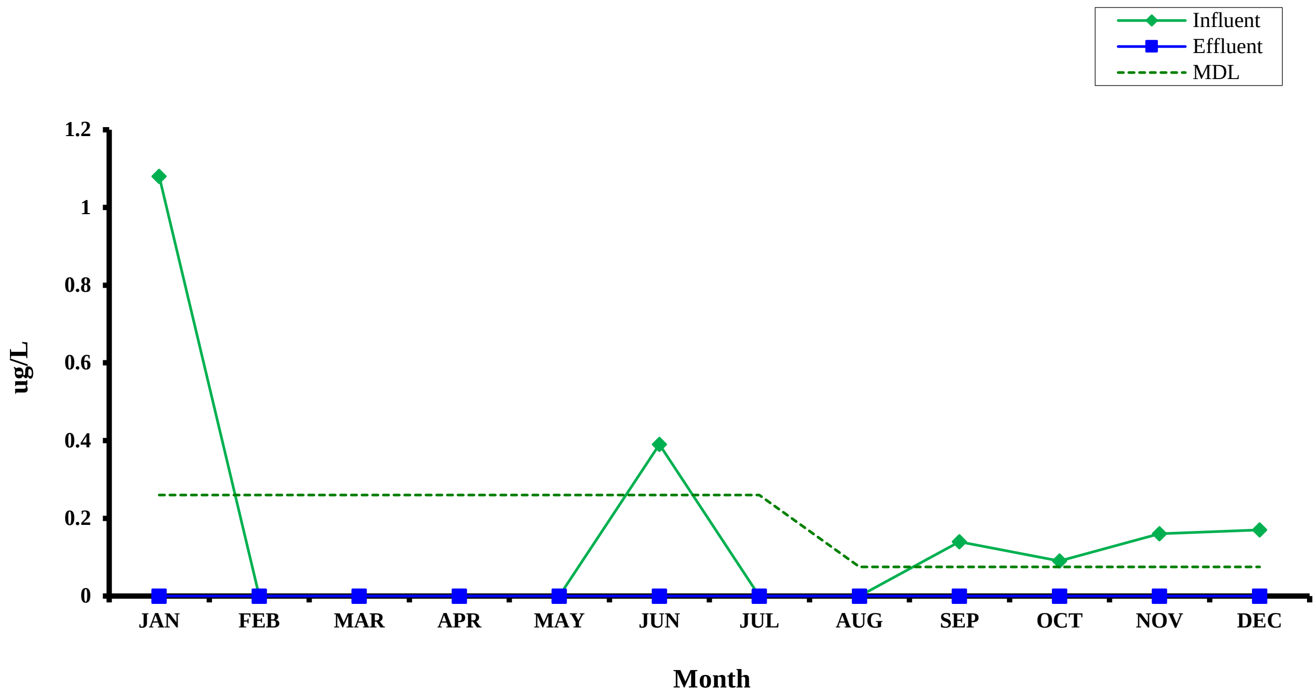

Total Residual Chlorine
2017 Monthly Averages
Effluent
0.50
0.40
0.30
0.20
0.10
0.00
mg/L
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Month


Antimony
2017 Monthly Averages
Influent
Effluent
MDL
5
4.5
4
3.5
3
2.5
2
1.5
1
0.5
0
ug/L
JAN
FEB
MAR
APR
MAY
JUN
JUL
AUG
SEP
OCT
NOV
DEC
Month

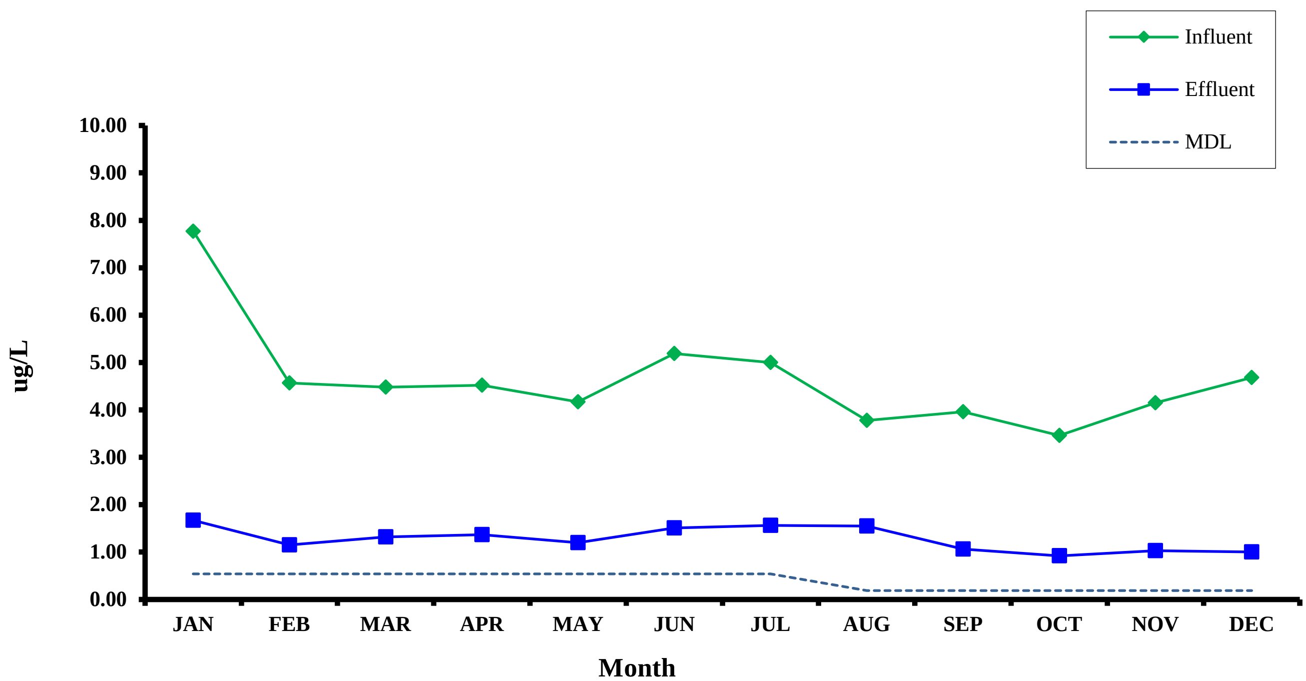

Arsenic
2017 Monthly Averages
Influent
Effluent
MDL
ug/L
5
4.5
4
3.5
3
2.5
2
1.5
1
0.5
0
JAN FEB MAR APR MAY JUN JUL AUG SEP OCT NOV DEC
Month

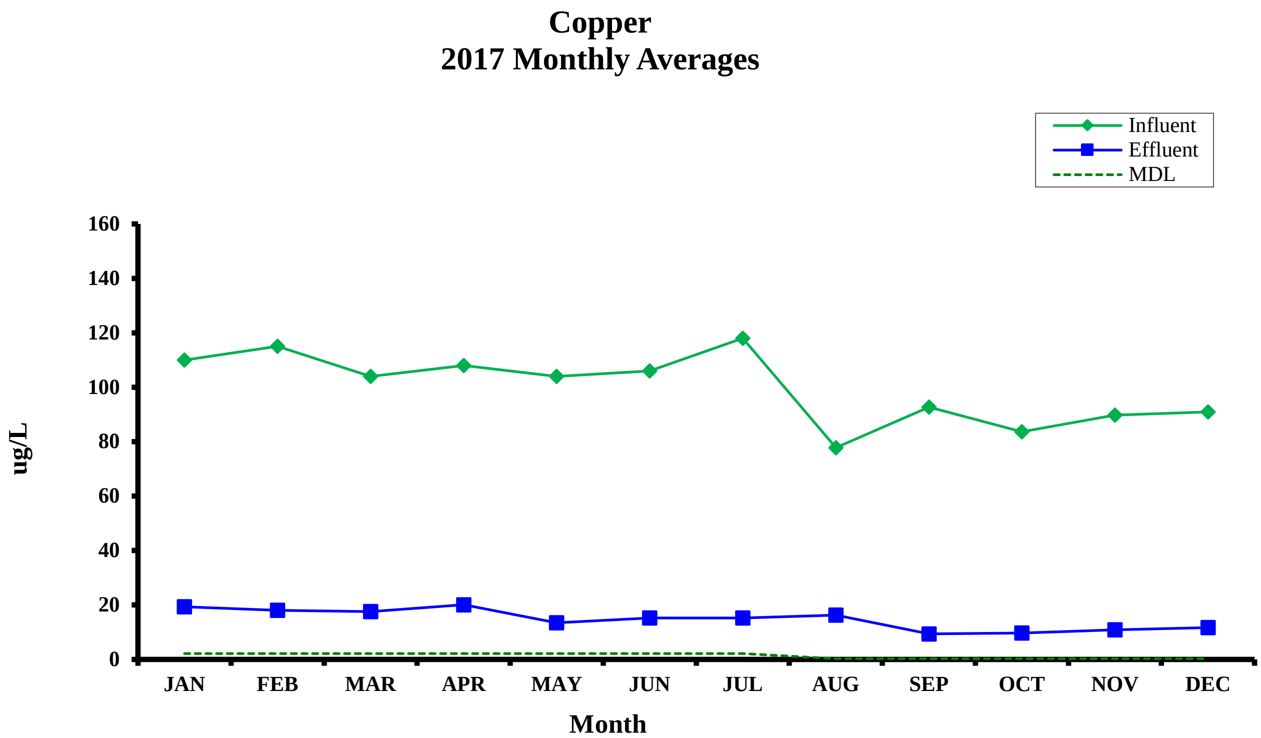

Beryllium
2017 Monthly Averages
Influent
Effluent
MDL
ug/L
0.14
0.12
0.1
0.08
0.06
0.04
0.02
0
JAN FEB MAR APR MAY JUN JUL AUG SEP OCT NOV DEC
Month

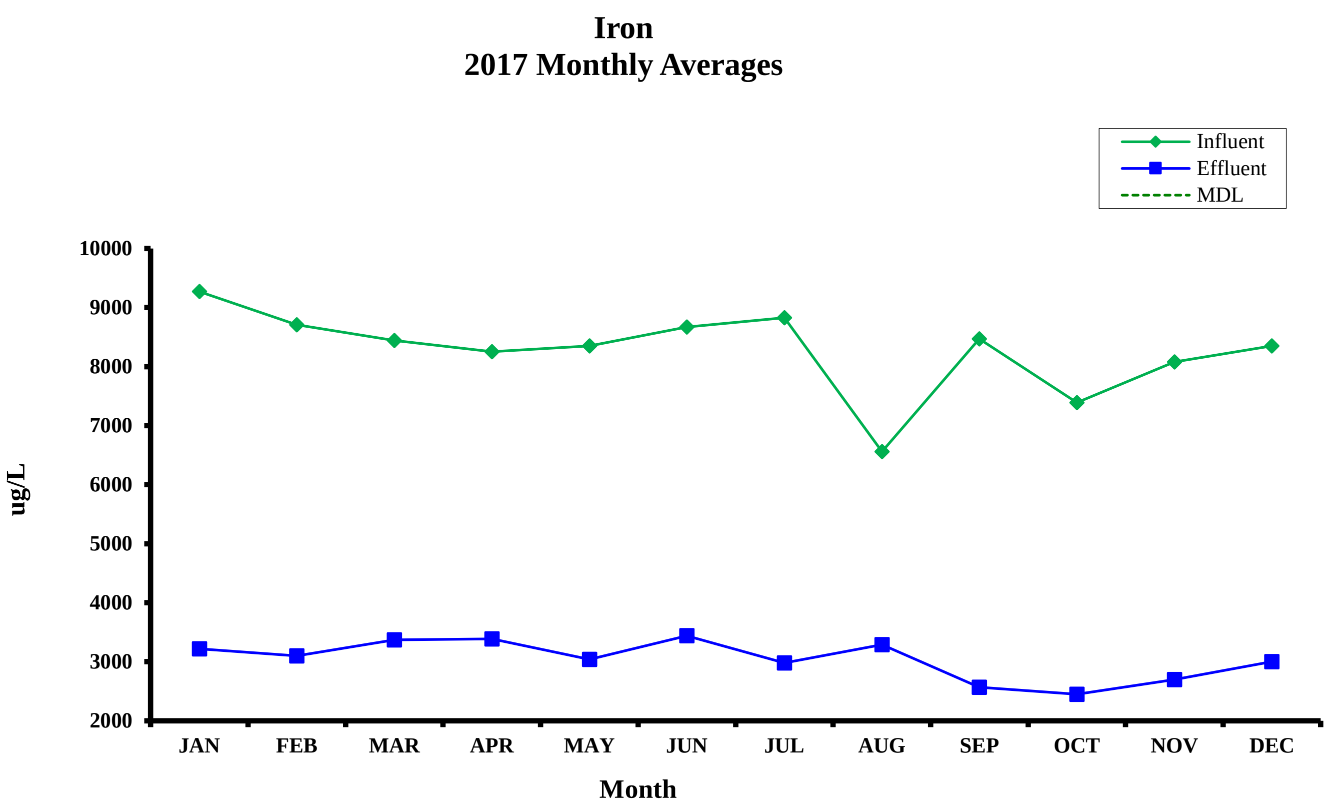
Cadmium
2017 Monthly Averages

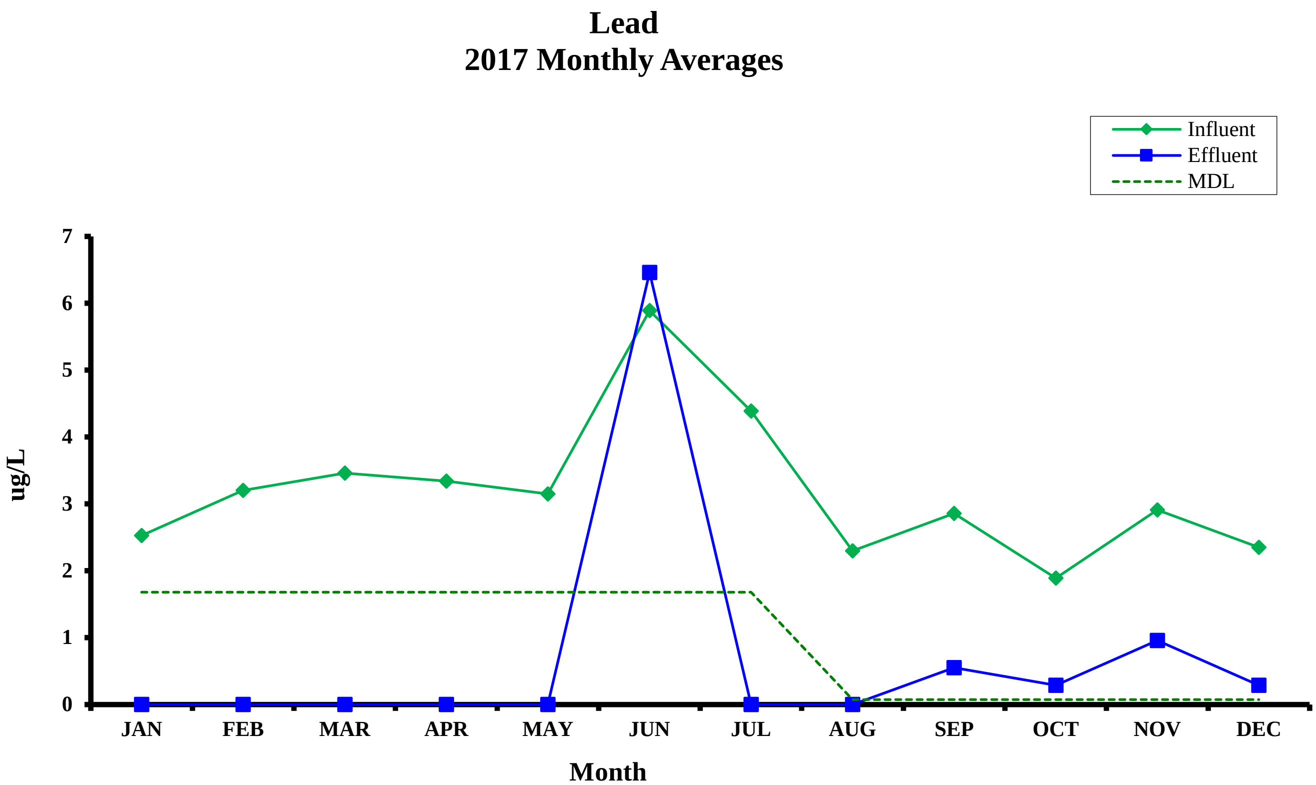


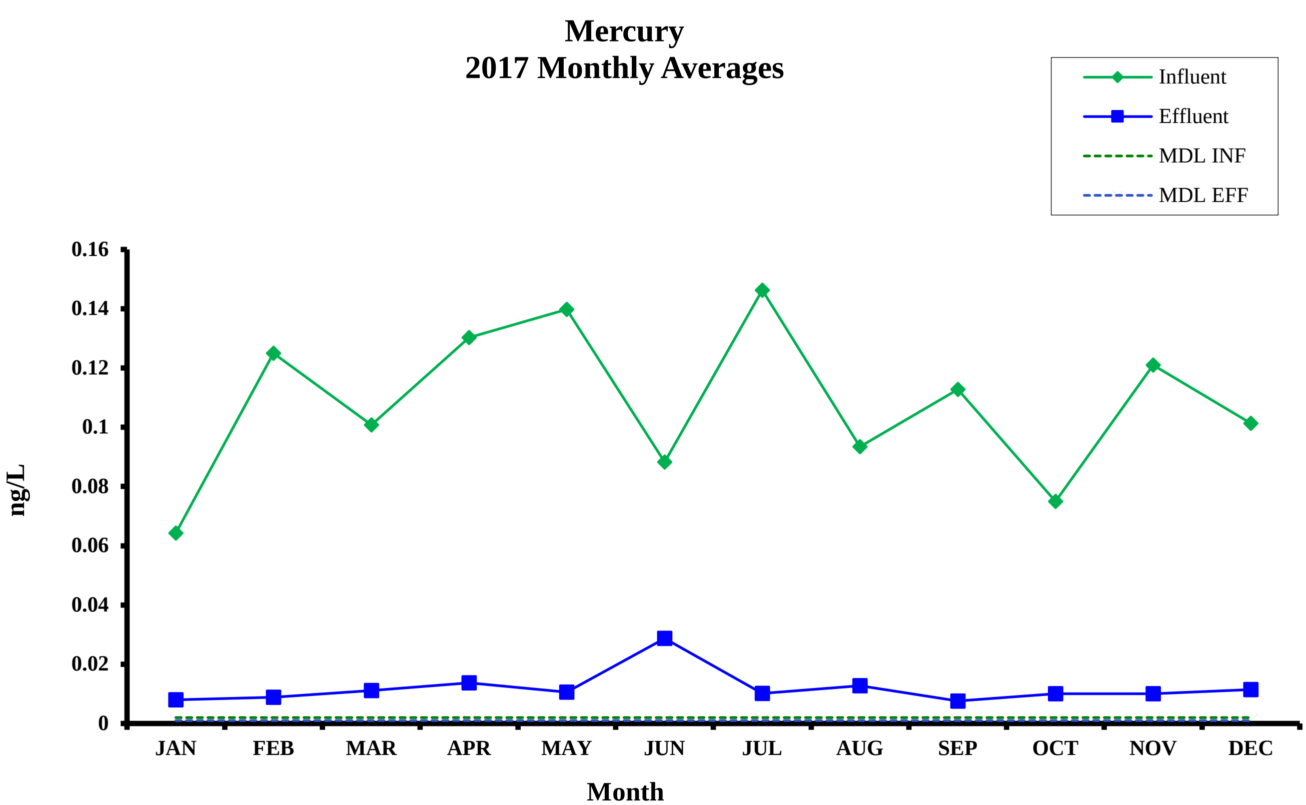
Chromium
2017 Monthly Averages

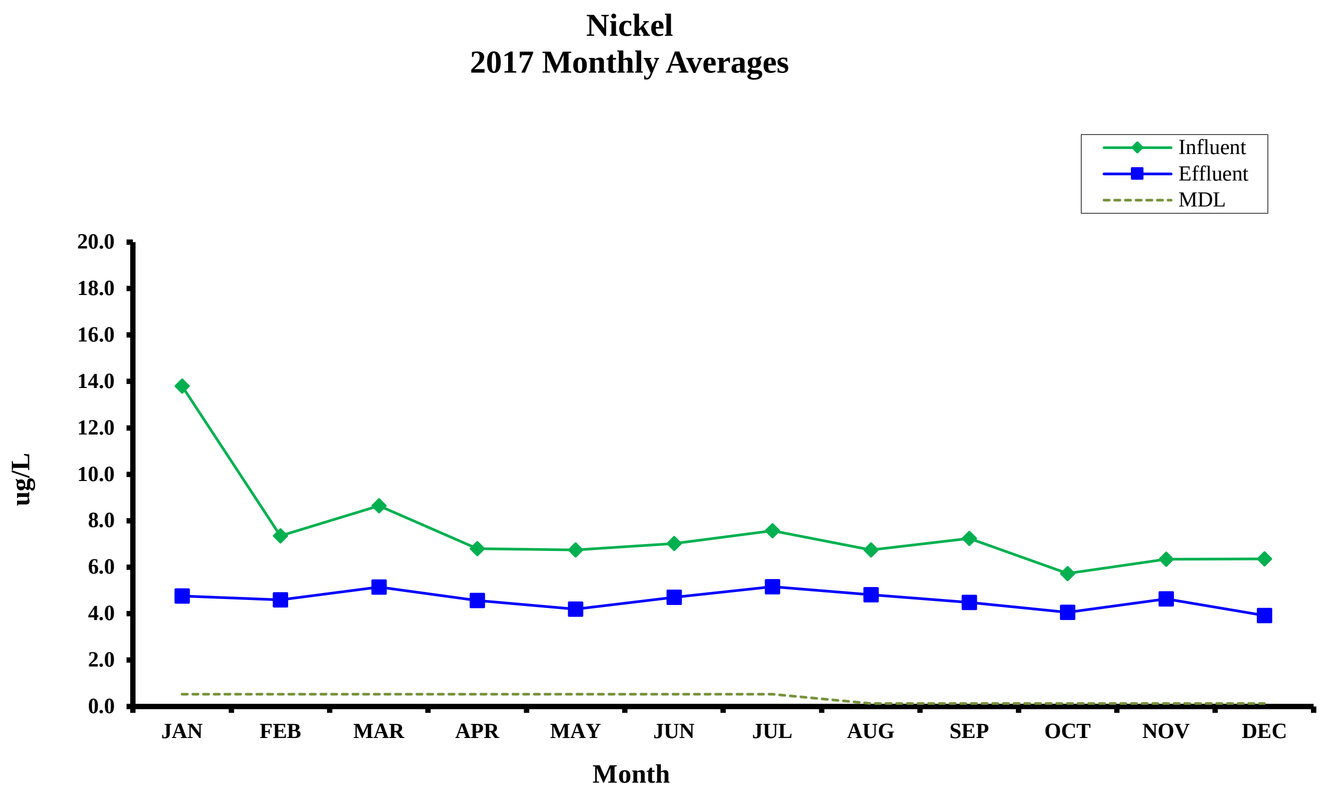



Copper
2017 Monthly Averages
Influent
Effluent
MDL
160
140
120
100
80
60
40
20
0
ug/L
JAN
FEB
MAR
APR
MAY
JUN
JUL
AUG
SEP
OCT
NOV
DEC
Month

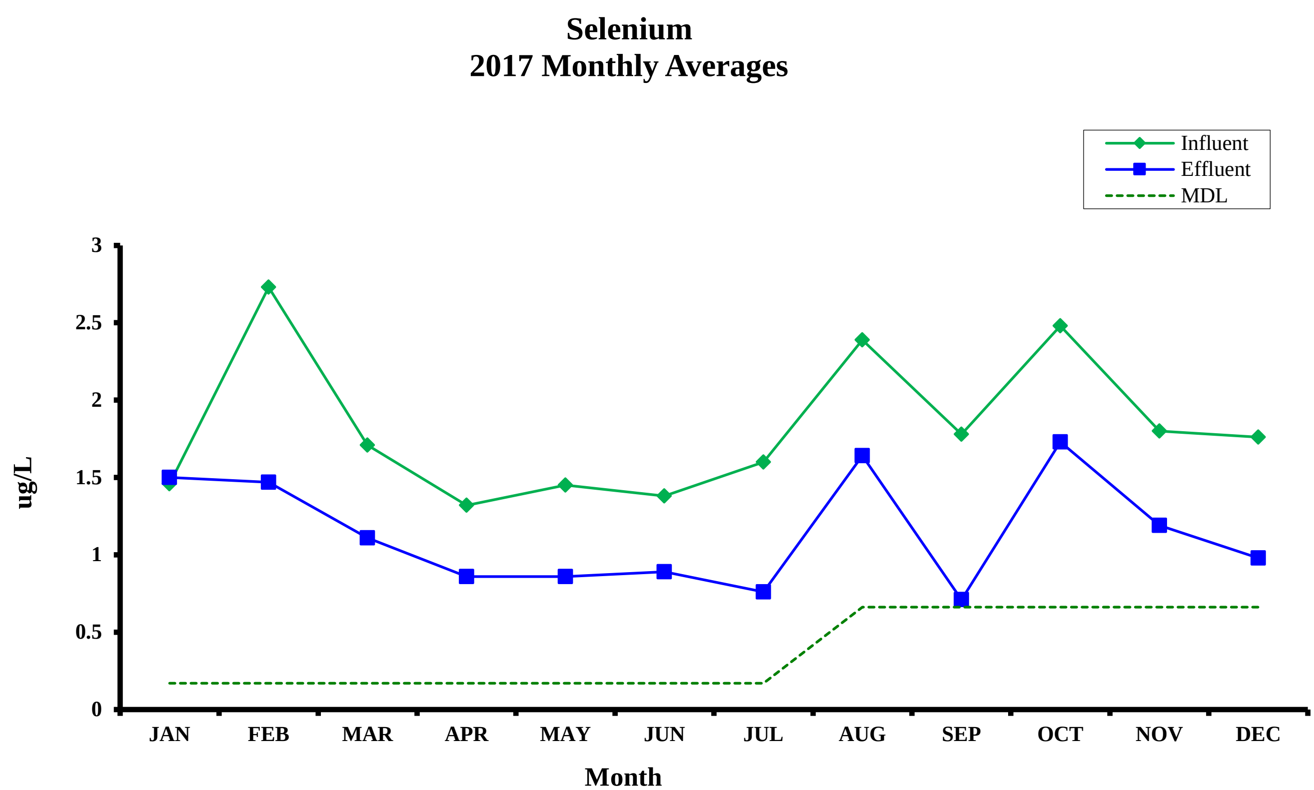

Iron
2017 Monthly Averages
Influent
Effluent
MDL
10000
9000
8000
7000
6000
5000
4000
3000
2000
ug/L
JAN
FEB
MAR
APR
MAY
JUN
JUL
AUG
SEP
OCT
NOV
DEC
Month


Lead
2017 Monthly Averages
Influent
Effluent
MDL
ug/L
7
6
5
4
3
2
1
0
JAN
FEB
MAR
APR
MAY
JUN
JUL
AUG
SEP
OCT
NOV
DEC
Month


Mercury
2017 Monthly Averages
Influent
Effluent
MDL INF
MDL EFF
ng/L
0.16
0.14
0.12
0.1
0.08
0.06
0.04
0.02
0
JAN
FEB
MAR
APR
MAY
JUN
JUL
AUG
SEP
OCT
NOV
DEC
Month

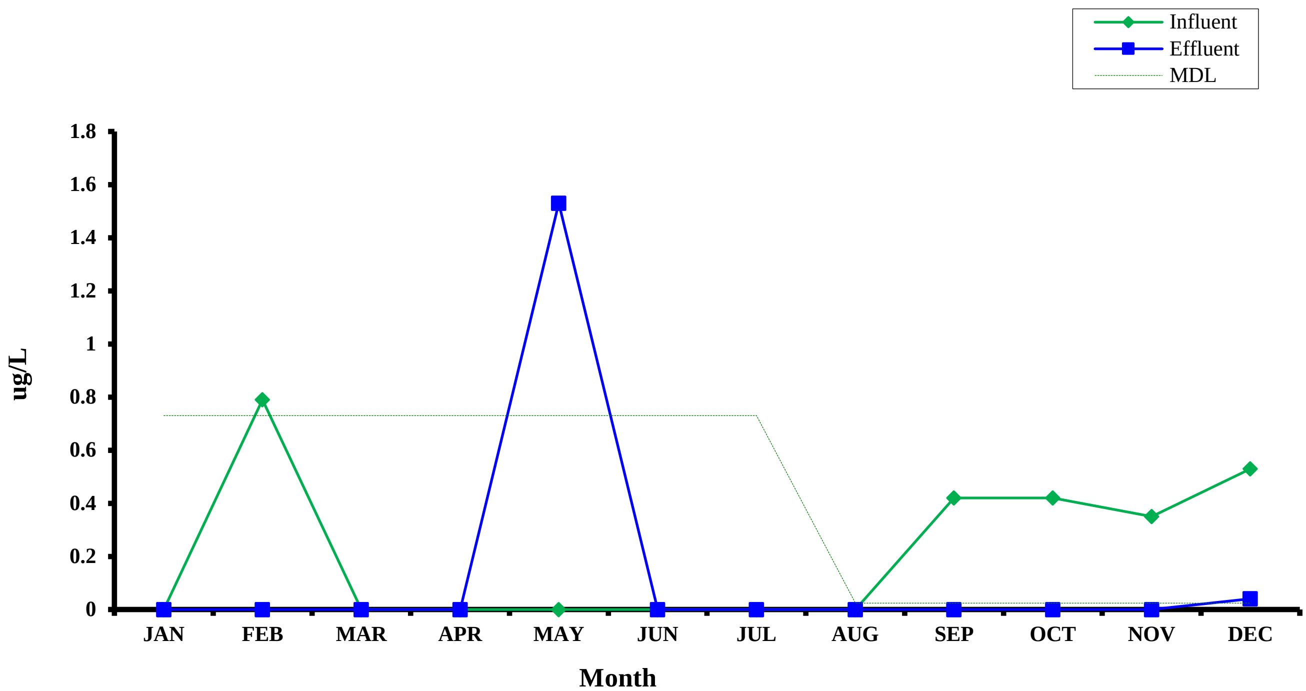


Nickel
2017 Monthly Averages
Influent
Effluent
MDL
20.0
18.0
16.0
14.0
12.0
10.0
8.0
6.0
4.0
2.0
0.0
ug/L
JAN
FEB
MAR
APR
MAY
JUN
JUL
AUG
SEP
OCT
NOV
DEC
Month

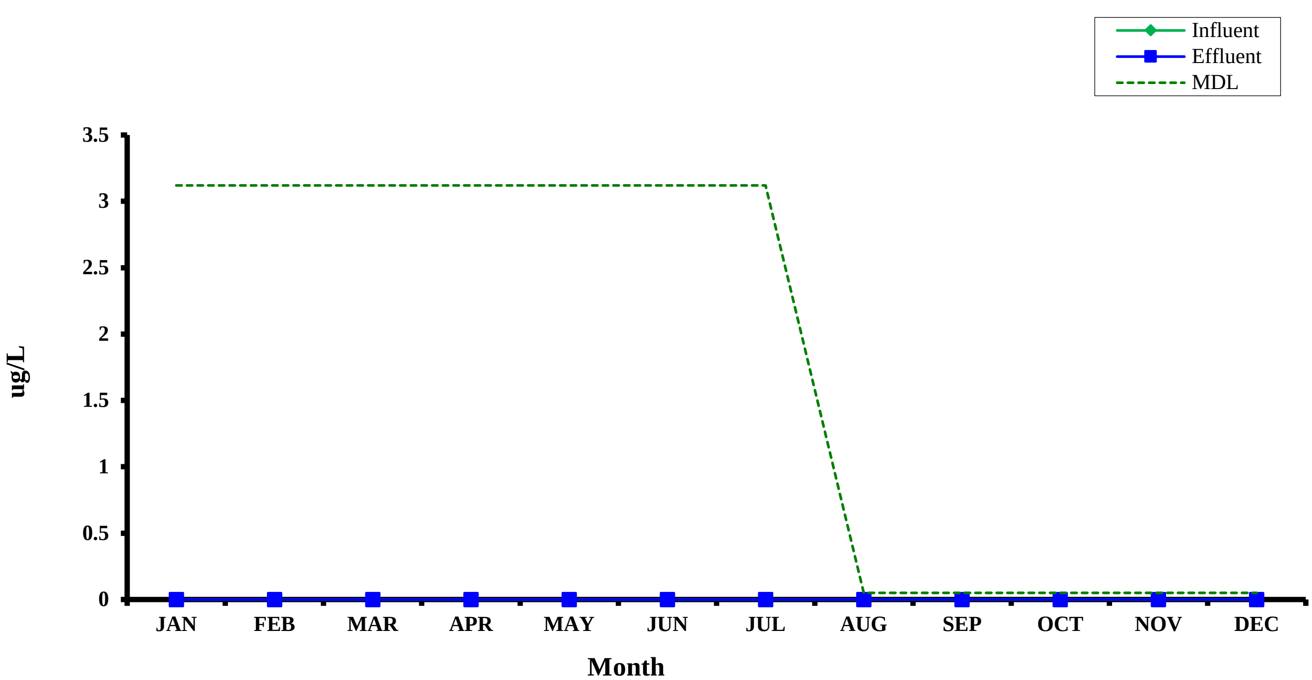


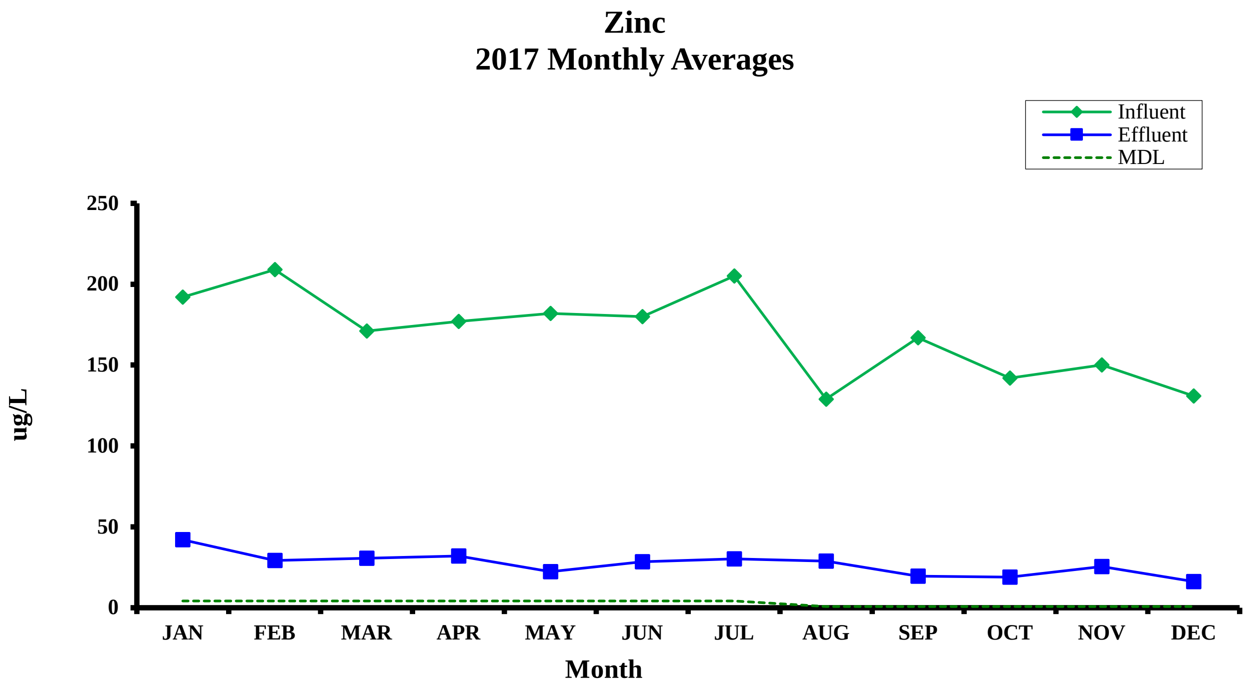
Selenium
2017 Monthly Averages
Influent
Effluent
MDL
3
2.5
2
1.5
1
0.5
0
ug/L
JAN
FEB
MAR
APR
MAY
JUN
JUL
AUG
SEP
OCT
NOV
DEC
Month

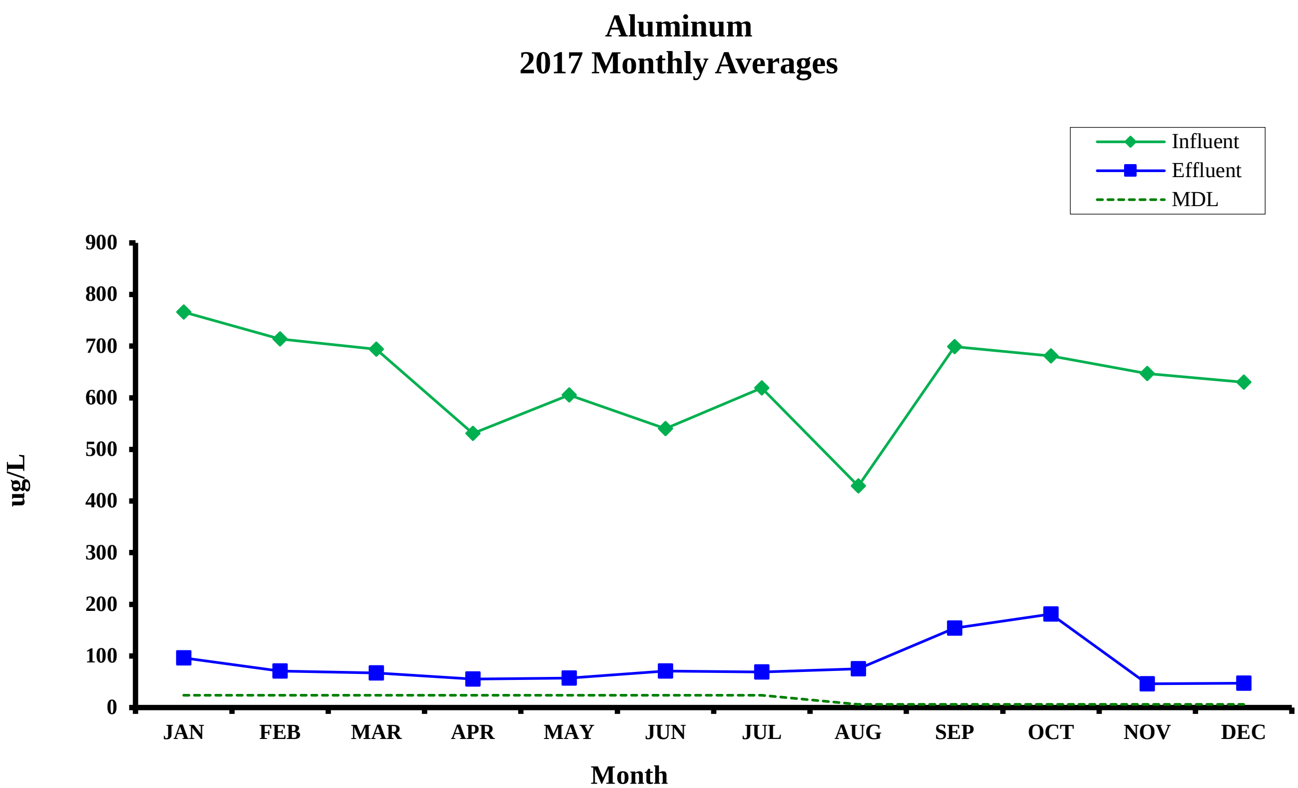
Silver
2017 Monthly Averages

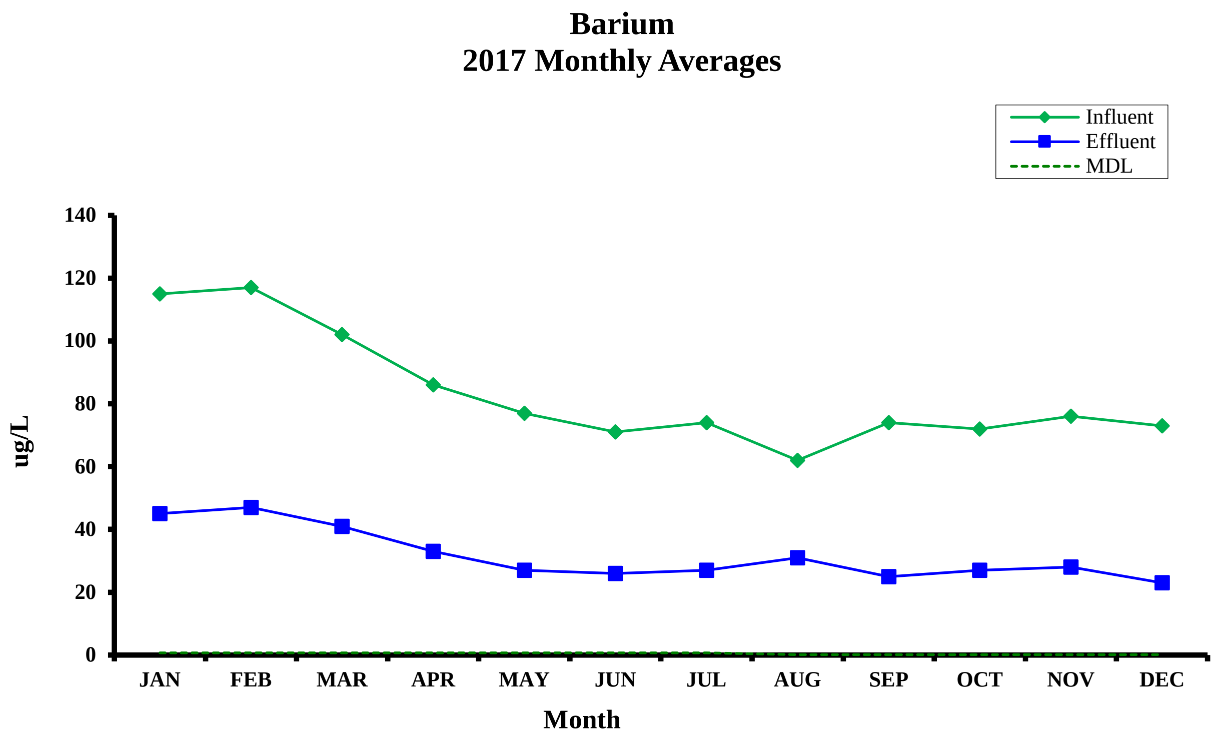


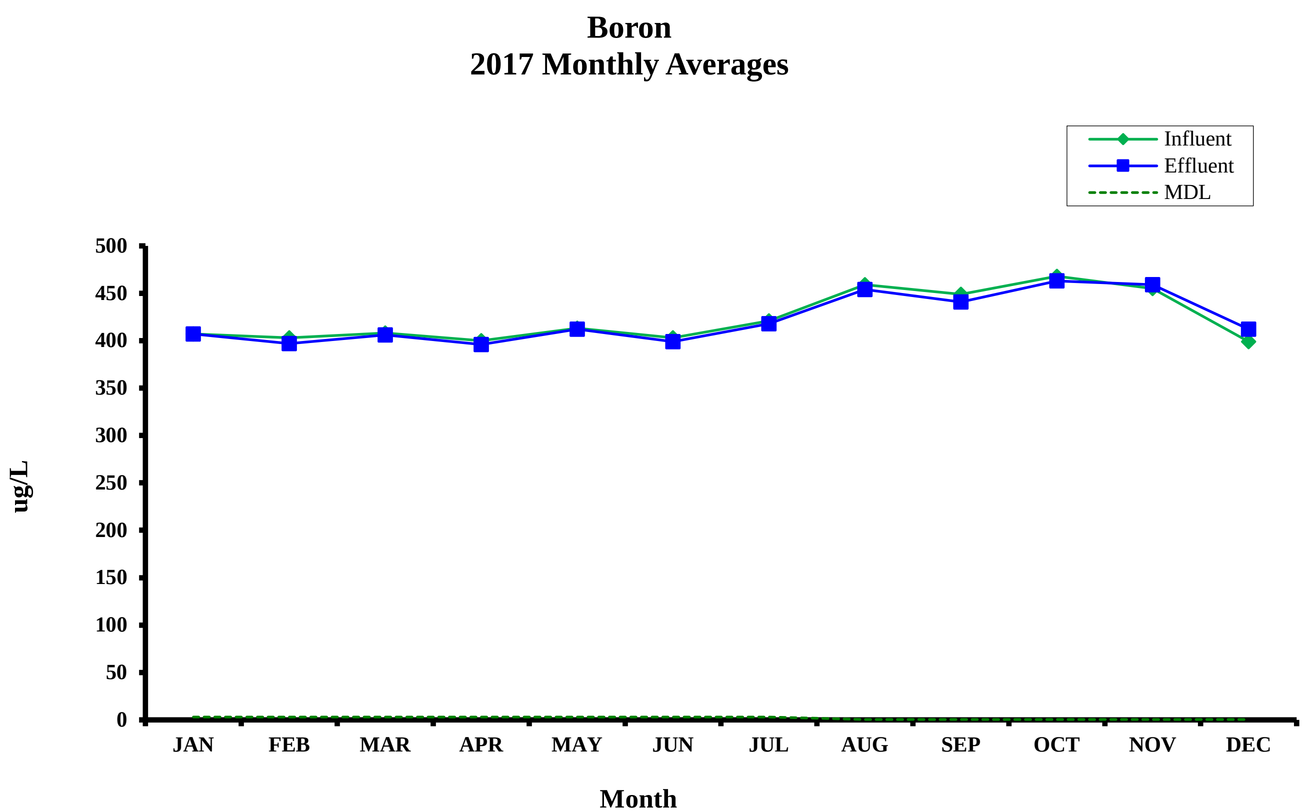
Thallium
2017 Monthly Averages

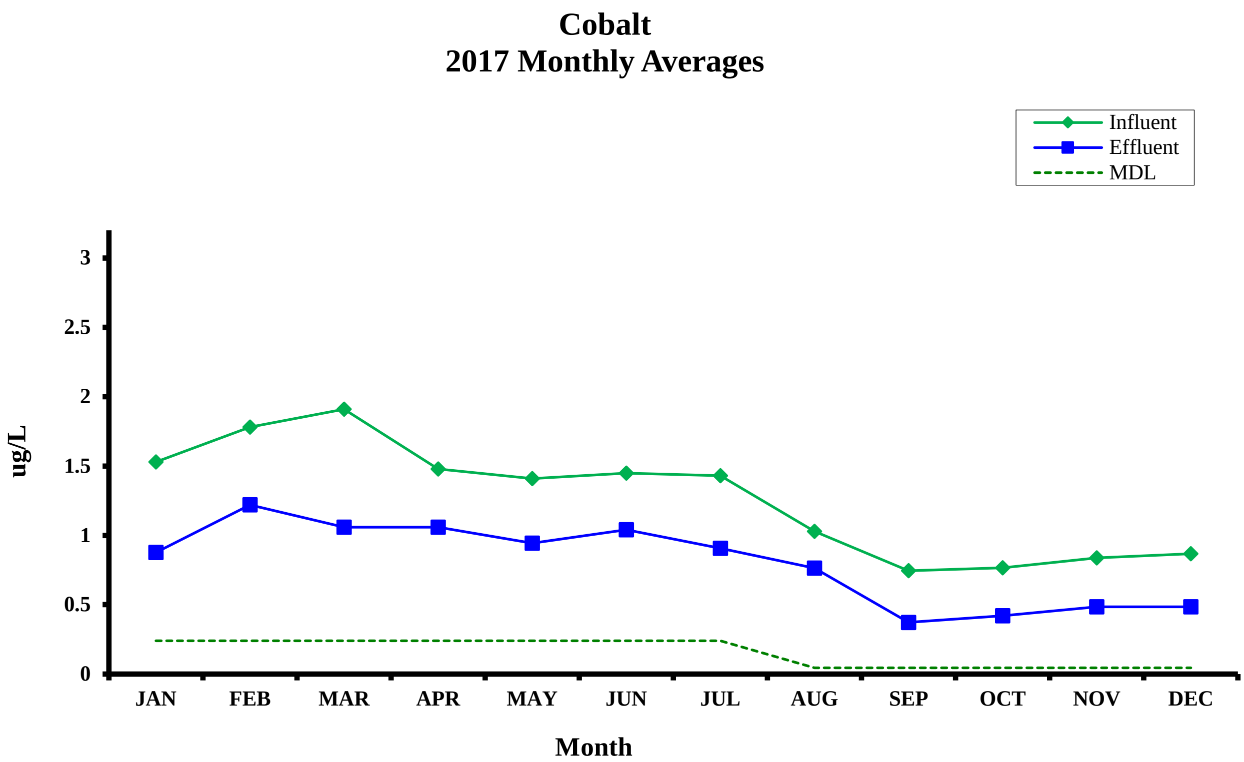


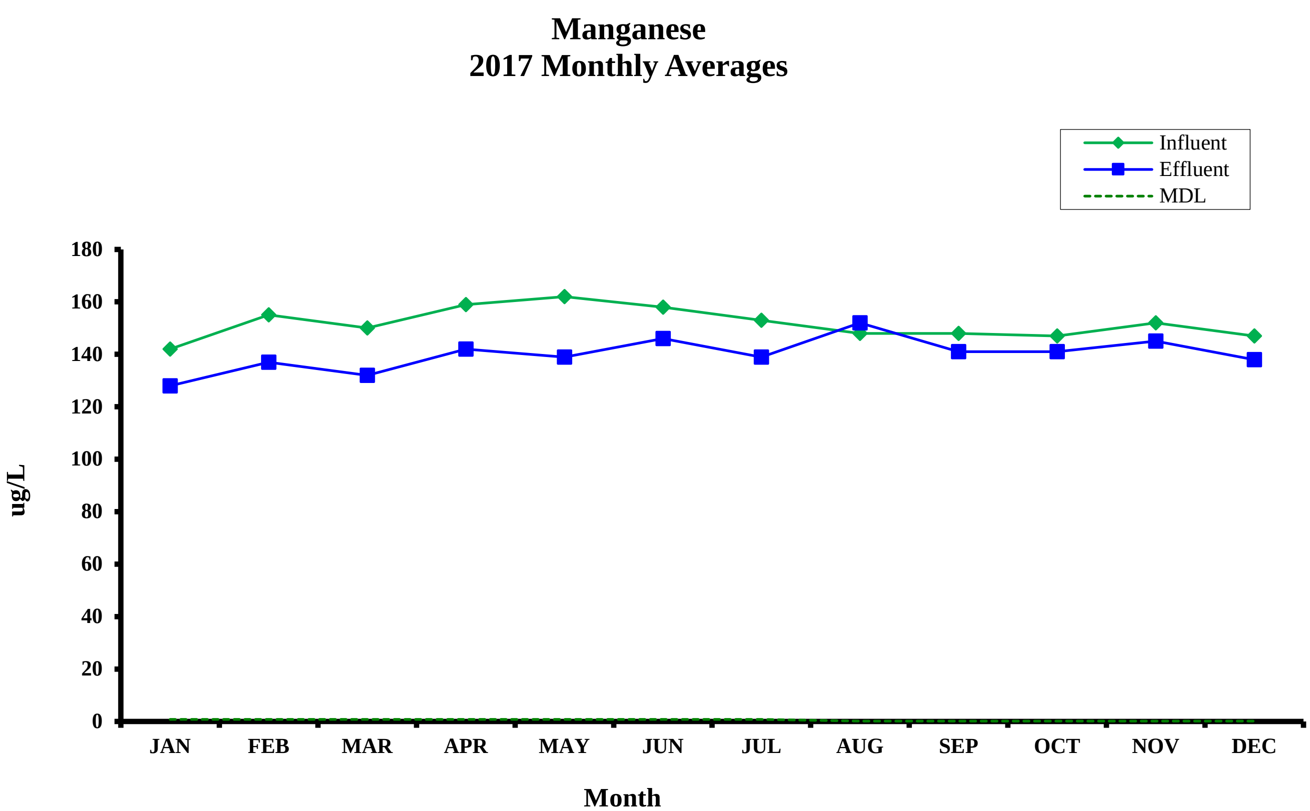

Zinc
2017 Monthly Averages
Influent
Effluent
MDL
250
200
150
100
50
0
ug/L
JAN
FEB
MAR
APR
MAY
JUN
JUL
AUG
SEP
OCT
NOV
DEC
Month

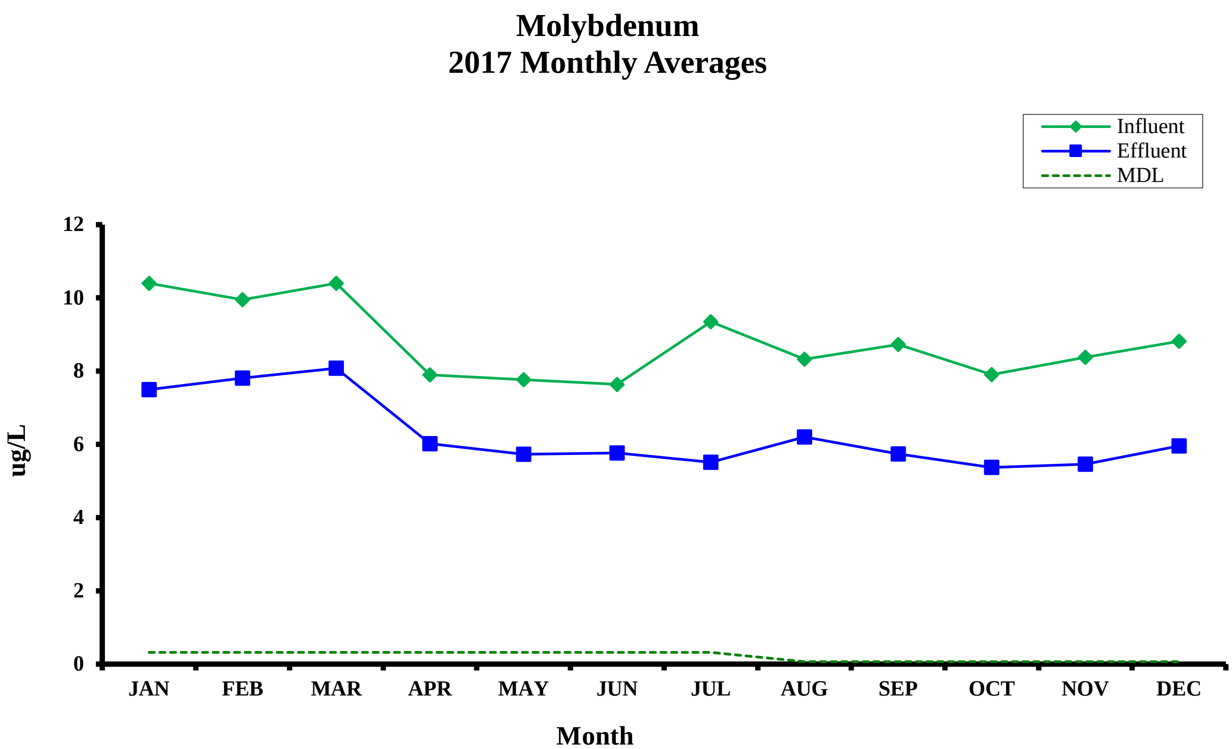

Aluminum
2017 Monthly Averages
Influent
Effluent
MDL
900
800
700
600
500
400
300
200
100
0
ug/L
JAN
FEB
MAR
APR
MAY
JUN
JUL
AUG
SEP
OCT
NOV
DEC
Month

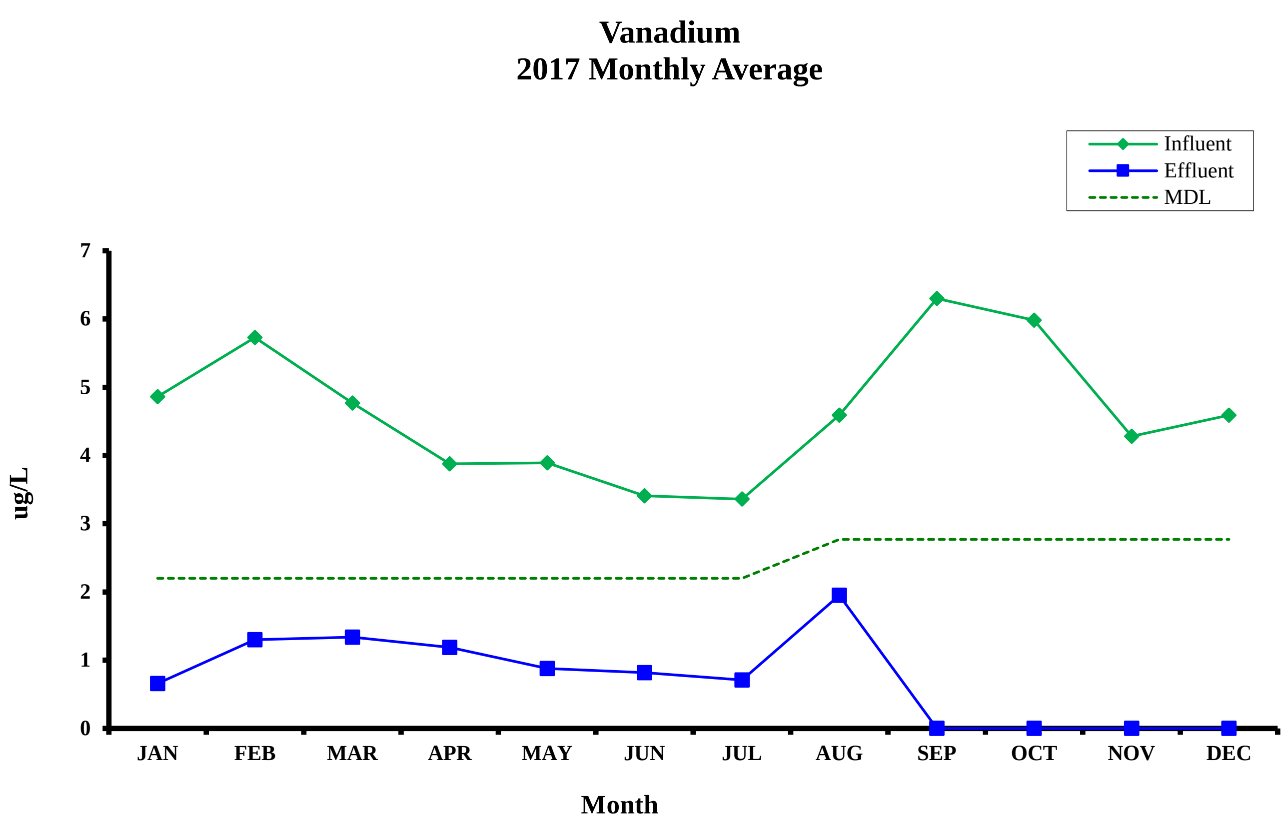

Barium
2017 Monthly Averages
Influent
Effluent
MDL
140
120
100
80
60
40
20
0
ug/L
JAN
FEB
MAR
APR
MAY
JUN
JUL
AUG
SEP
OCT
NOV
DEC
Month


Boron
2017 Monthly Averages
Influent
Effluent
MDL
500
450
400
350
300
250
200
150
100
50
0
ug/L
JAN
FEB
MAR
APR
MAY
JUN
JUL
AUG
SEP
OCT
NOV
DEC
Month

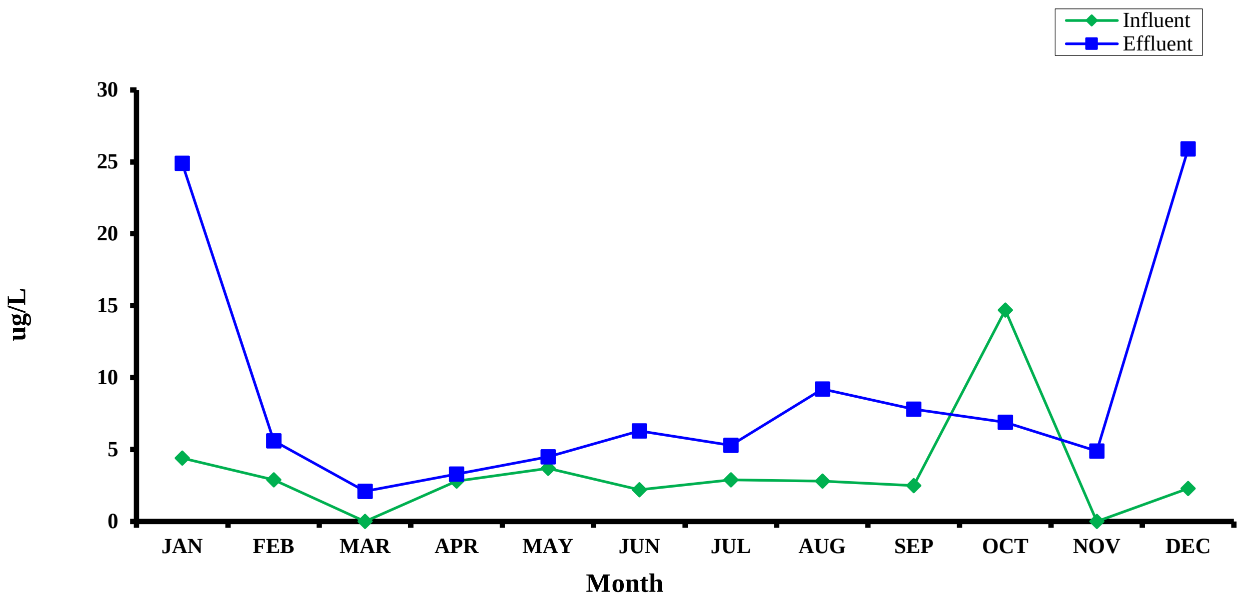

Cobalt
2017 Monthly Averages
Influent
Effluent
MDL
ug/L
3
2.5
2
1.5
1
0.5
0
JAN
FEB
MAR
APR
MAY
JUN
JUL
AUG
SEP
OCT
NOV
DEC
Month


Manganese
2017 Monthly Averages
Influent
Effluent
MDL
ug/L
180
160
140
120
100
80
60
40
20
0
JAN
FEB
MAR
APR
MAY
JUN
JUL
AUG
SEP
OCT
NOV
DEC
Month

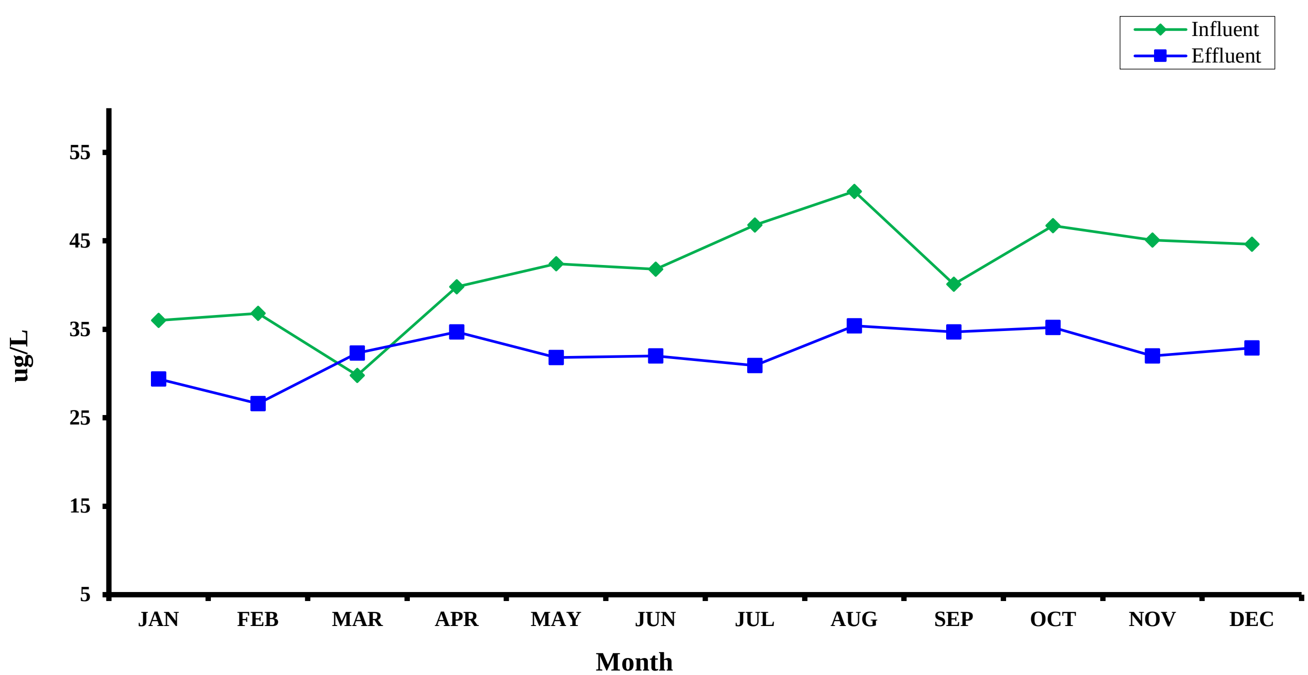

Molybdenum
2017 Monthly Averages
Influent
Effluent
MDL
12
10
8
6
4
2
0
ug/L
JAN
FEB
MAR
APR
MAY
JUN
JUL
AUG
SEP
OCT
NOV
DEC
Month

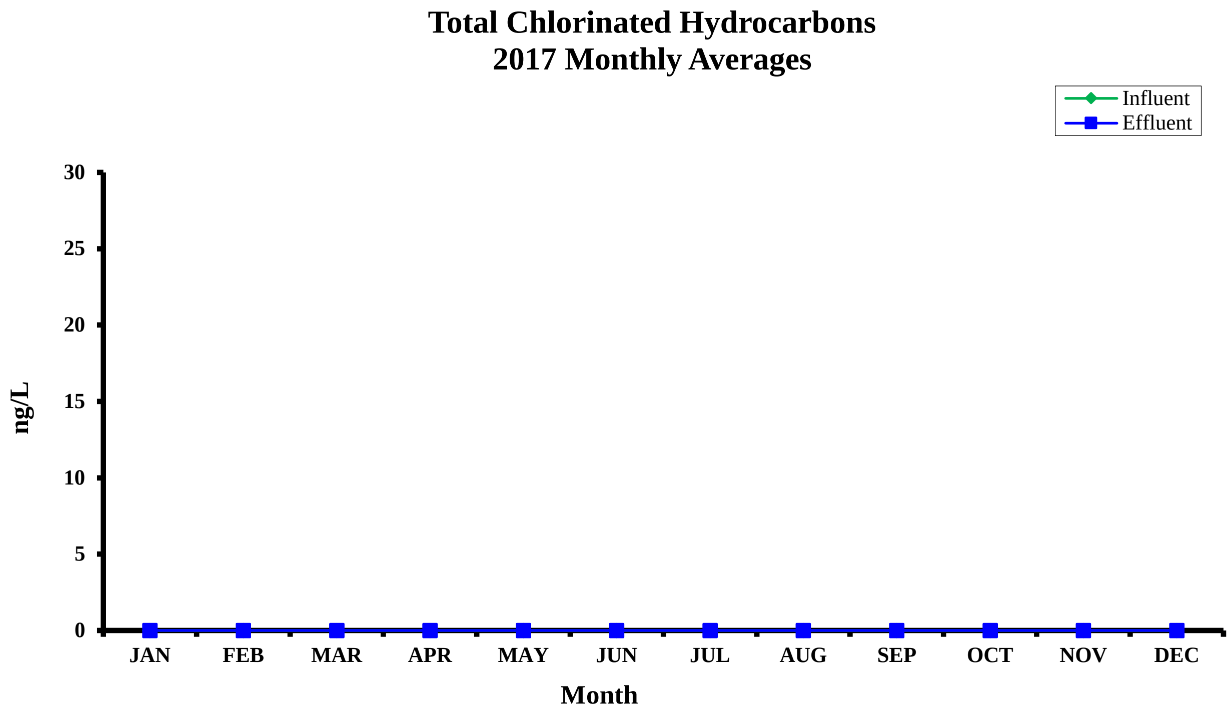

Vanadium
2017 Monthly Average
Influent
Effluent
MDL
7
6
5
4
3
2
1
0
ug/L
JAN
FEB
MAR
APR
MAY
JUN
JUL
AUG
SEP
OCT
NOV
DEC
Month

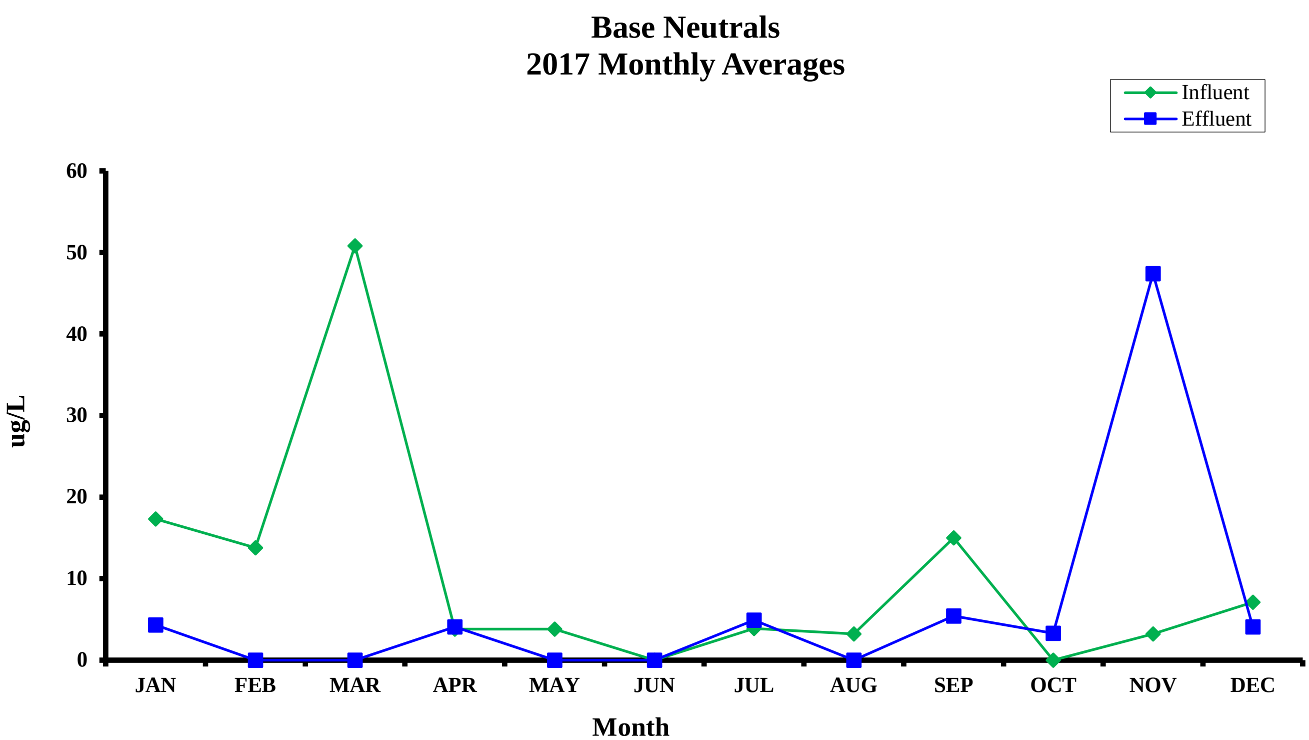
Purgeables Organic Compunds
2017 Monthly Averages

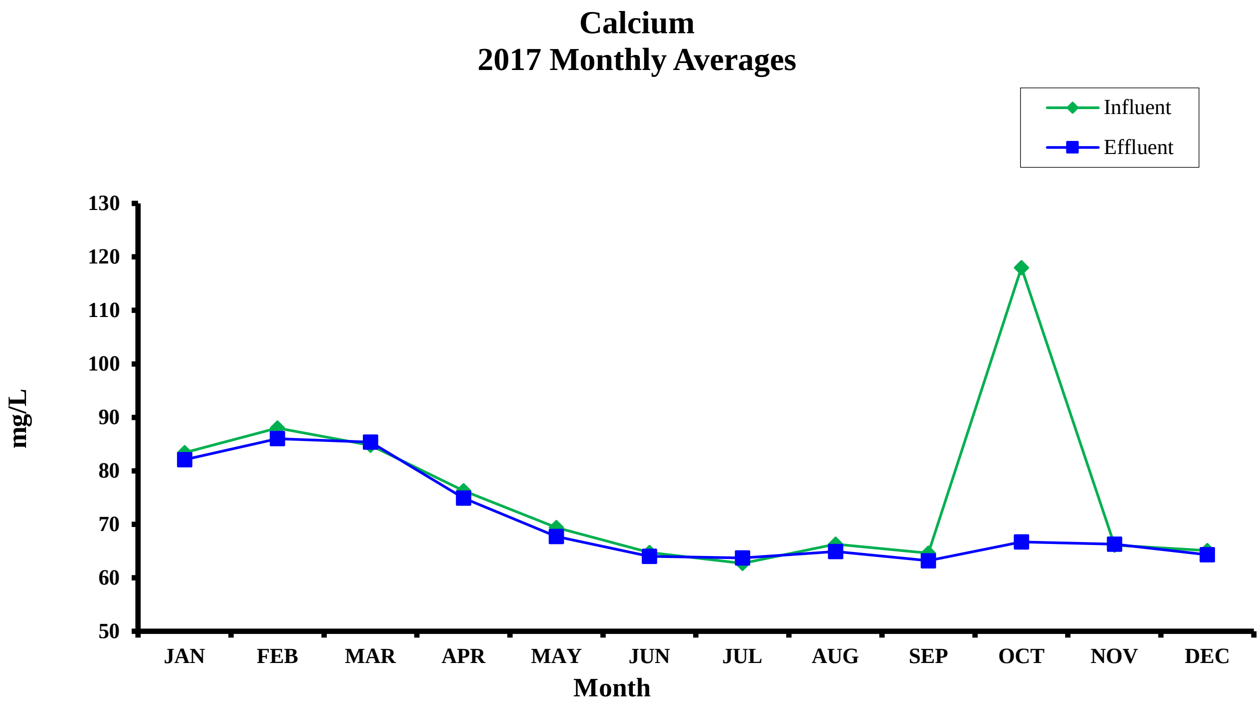


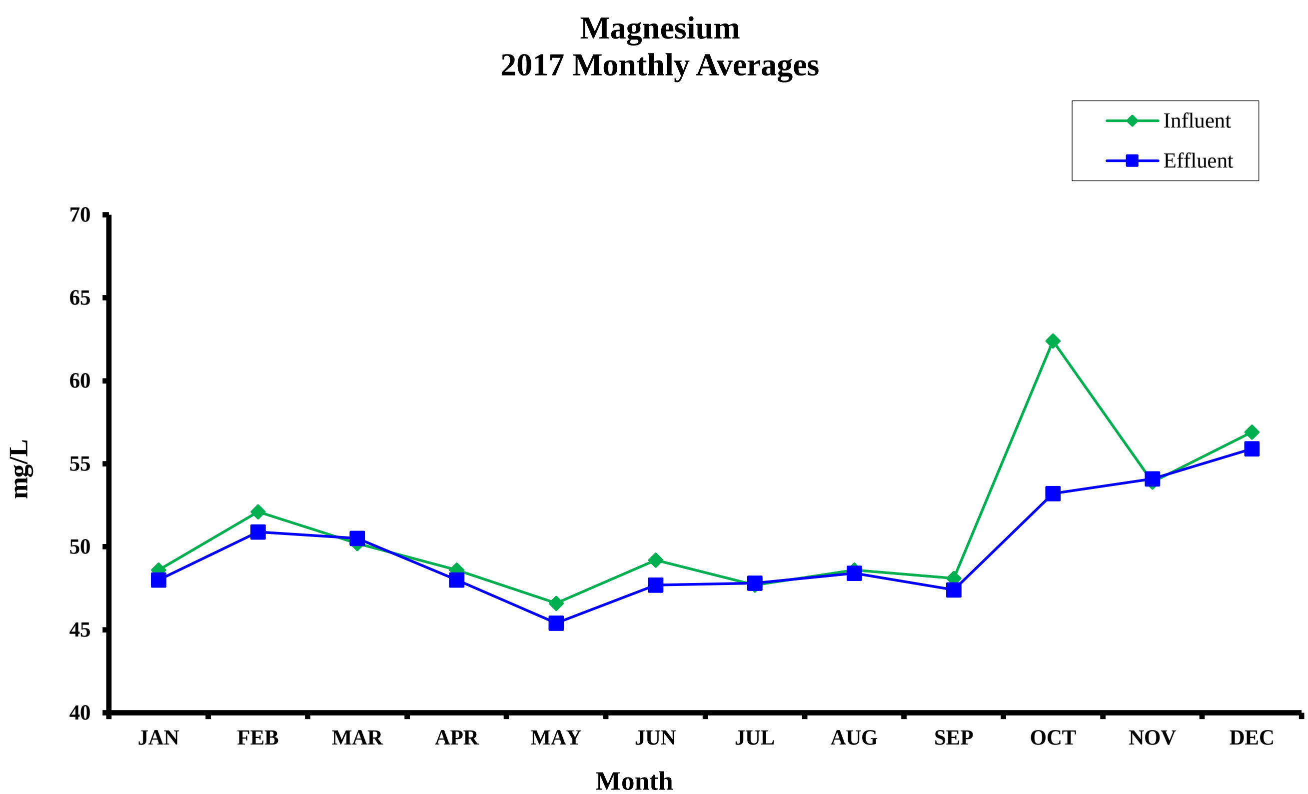
Phenols
2017 Monthly Averages

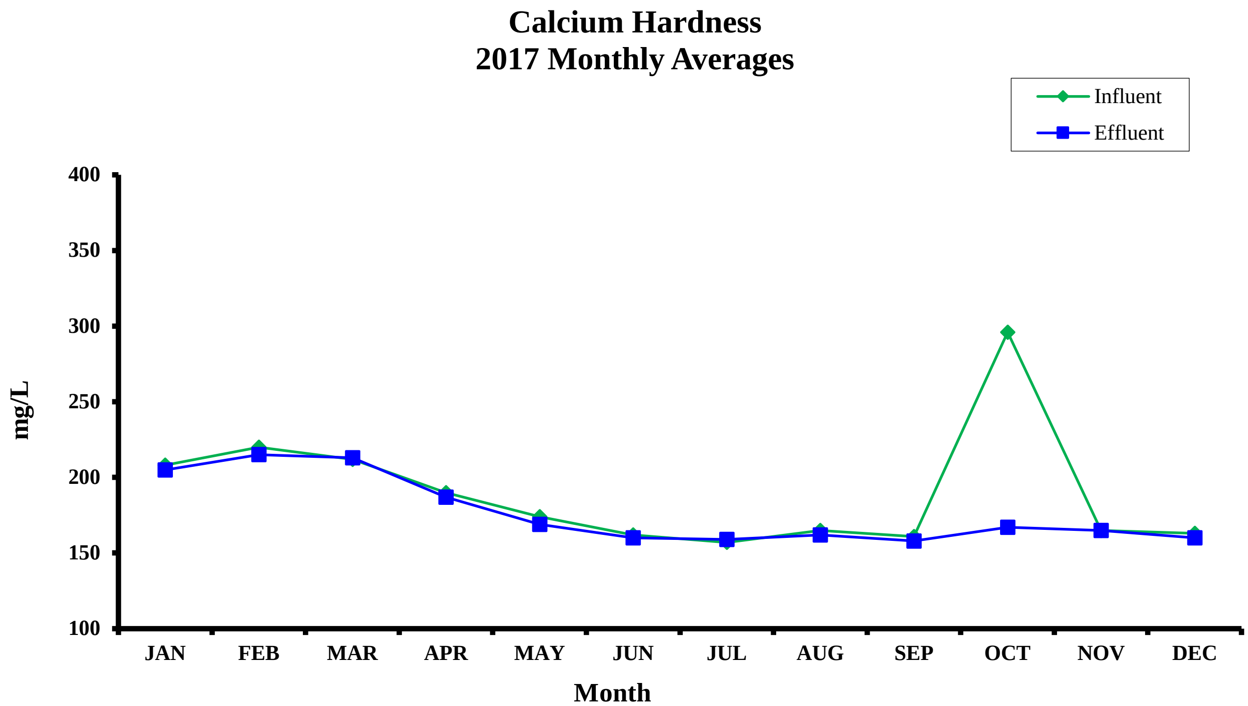


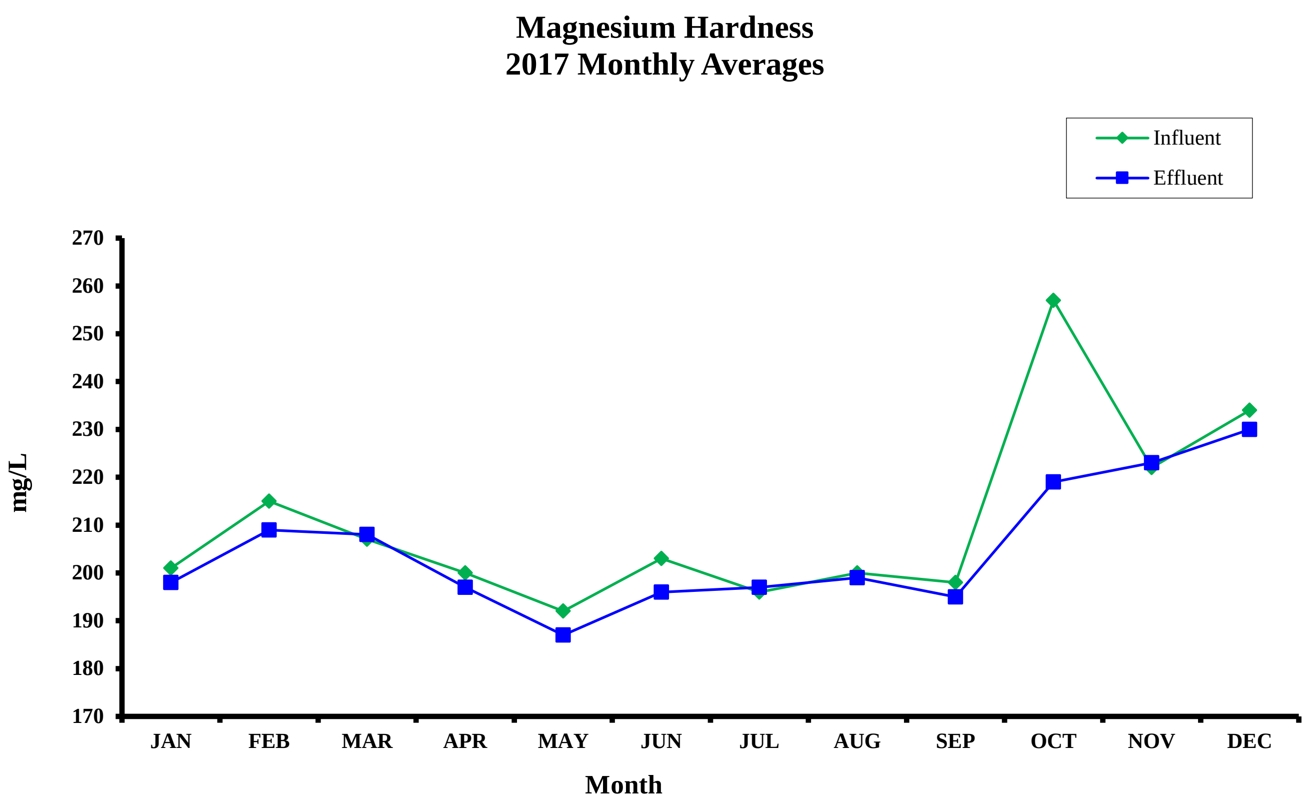

Total Chlorinated Hydrocarbons
2017 Monthly Averages
Influent
Effluent
30
25
20
15
10
5
0
ng/L
JAN
FEB
MAR
APR
MAY
JUN
JUL
AUG
SEP
OCT
NOV
DEC
Month


Base Neutrals
2017 Monthly Averages
Influent
Effluent
60
50
40
30
20
10
0
ug/L
JAN
FEB
MAR
APR
MAY
JUN
JUL
AUG
SEP
OCT
NOV
DEC
Month

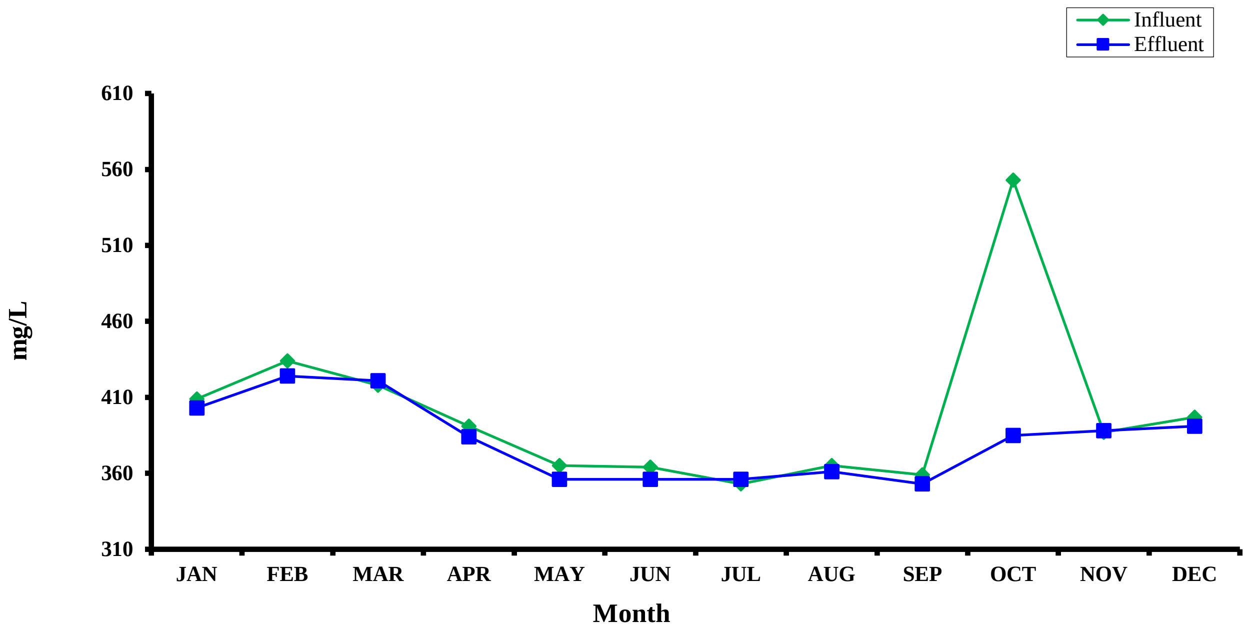

Calcium
2017 Monthly Averages
Influent
Effluent
130
120
110
100
90
80
70
60
50
mg/L
JAN
FEB
MAR
APR
MAY
JUN
JUL
AUG
SEP
OCT
NOV
DEC
Month


Magnesium
2017 Monthly Averages
Influent
Effluent
70
65
60
55
50
45
40
mg/L
JAN
FEB
MAR
APR
MAY
JUN
JUL
AUG
SEP
OCT
NOV
DEC
Month

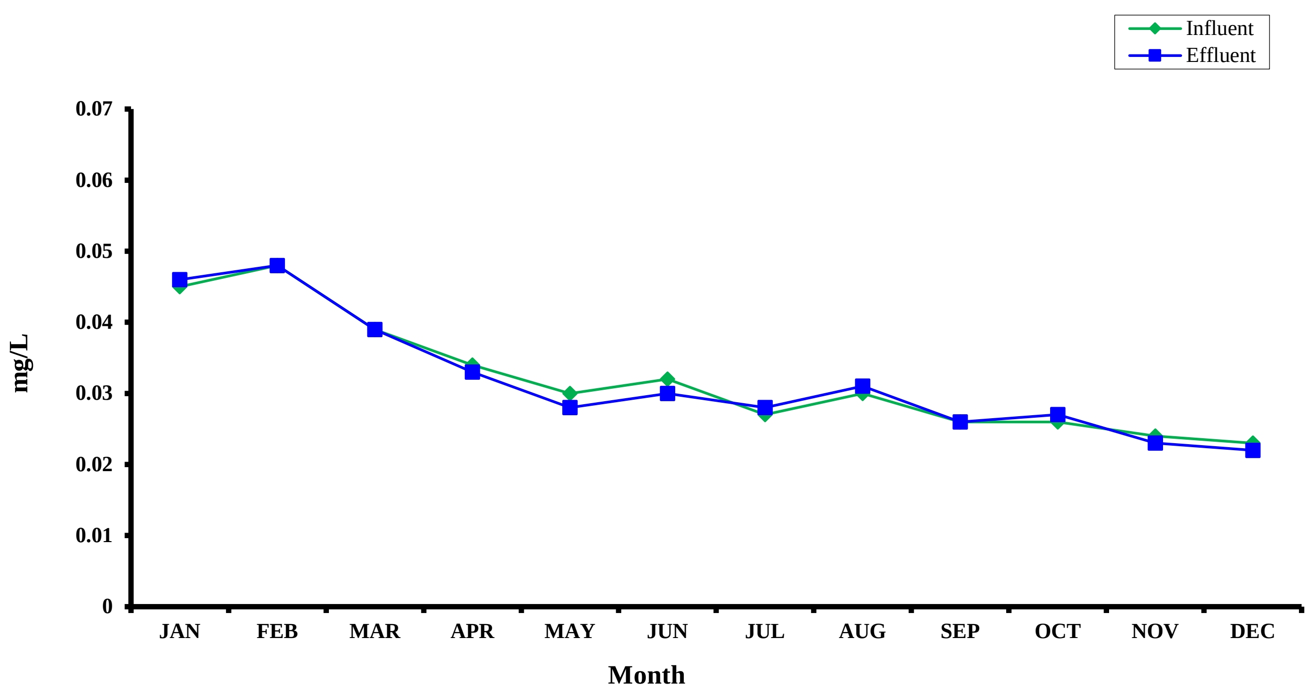

Calcium Hardness
2017 Monthly Averages
Influent
Effluent
400
350
300
250
200
150
100
mg/L
JAN
FEB
MAR
APR
MAY
JUN
JUL
AUG
SEP
OCT
NOV
DEC
Month

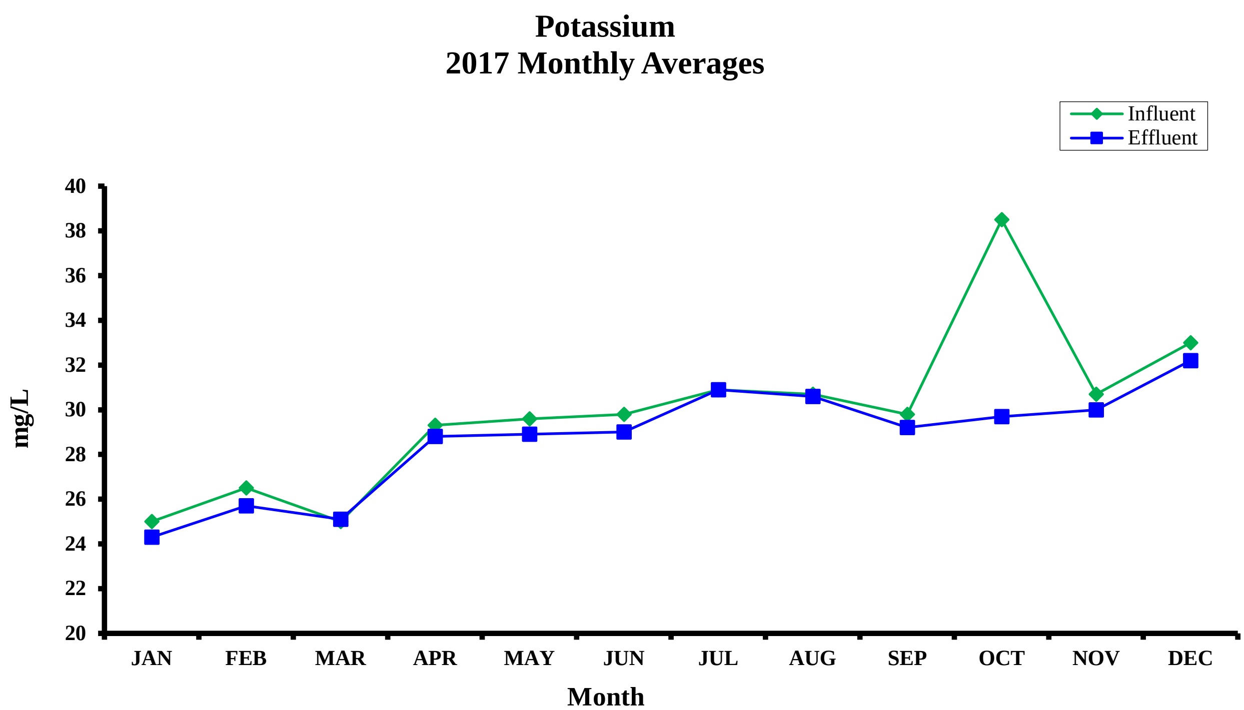

Magnesium Hardness
2017 Monthly Averages
Influent
Effluent
270
260
250
240
230
220
210
200
190
180
170
mg/L
JAN
FEB
MAR
APR
MAY
JUN
JUL
AUG
SEP
OCT
NOV
DEC
Month

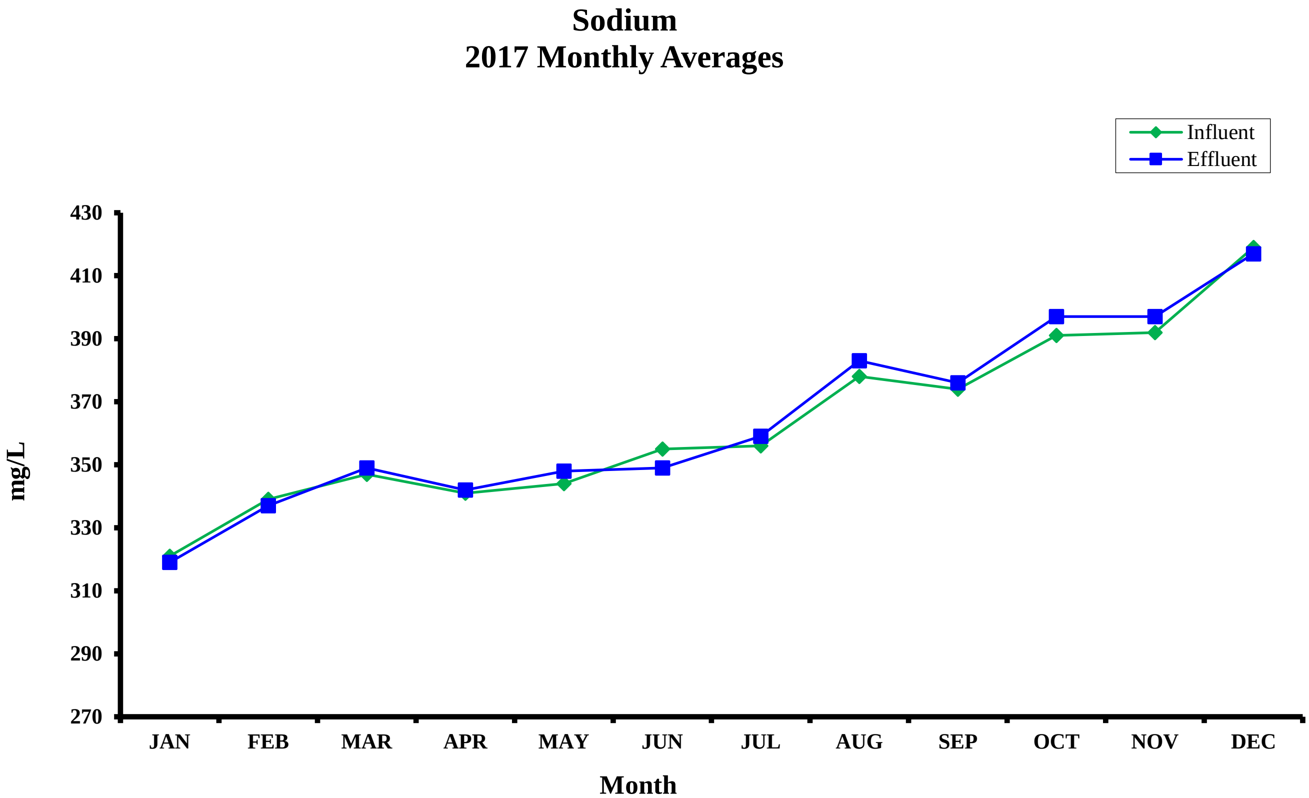
Total Hardness
2017 Monthly Averages

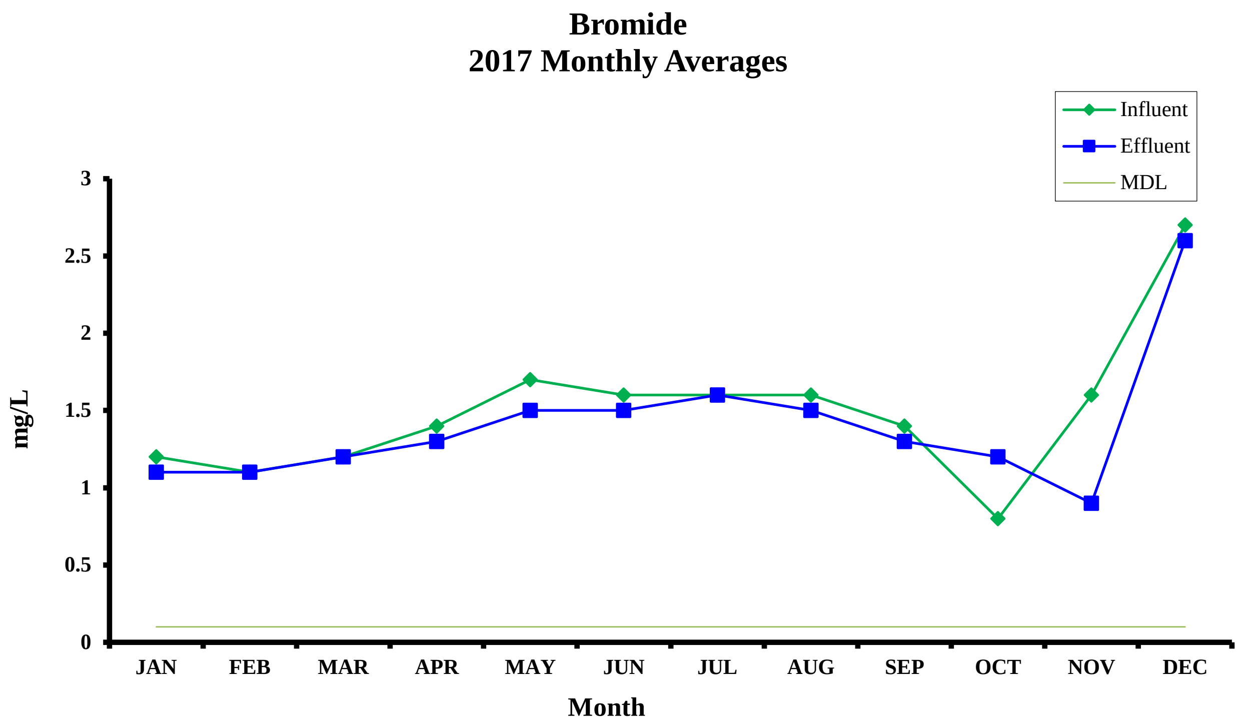


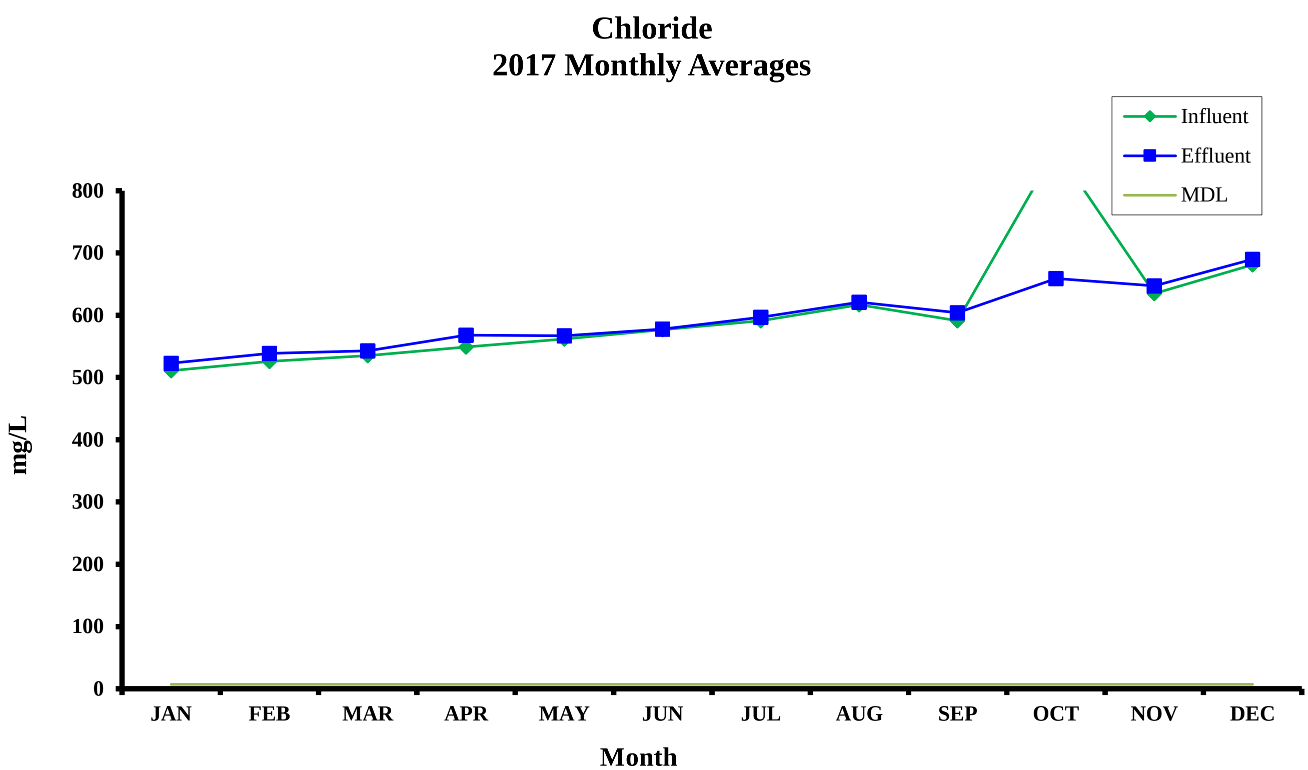
Lithium
2017 Monthly Averages



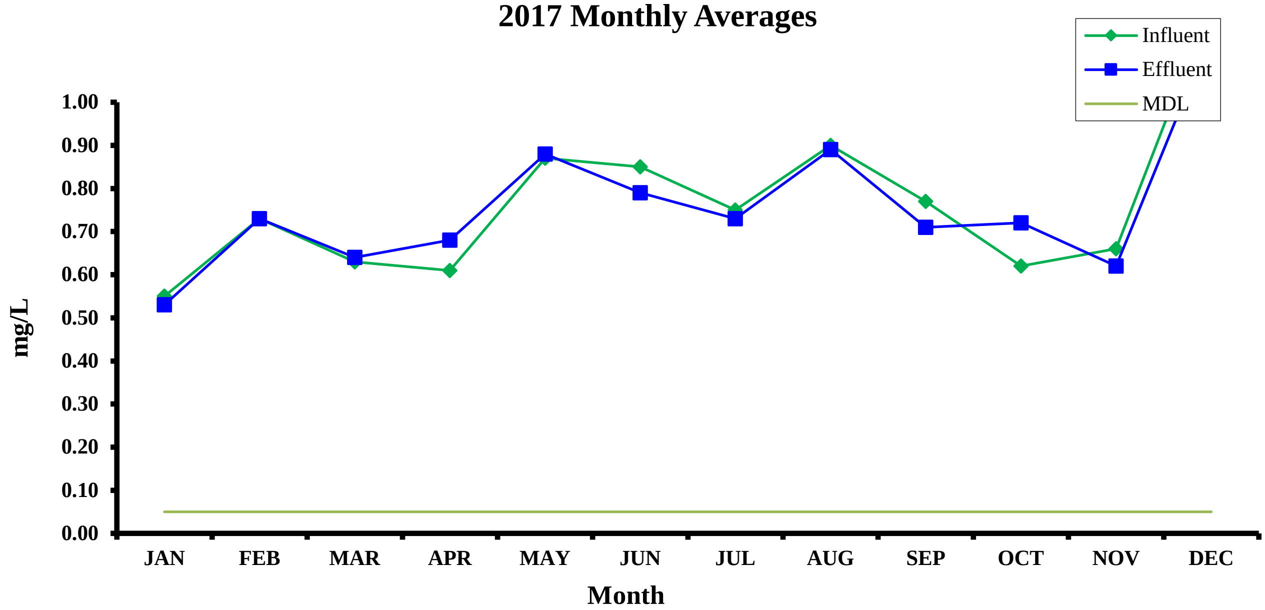

Potassium
2017 Monthly Averages
Influent
Effluent
40
38
36
34
32
30
28
26
24
22
20
mg/L
JAN
FEB
MAR
APR
MAY
JUN
JUL
AUG
SEP
OCT
NOV
DEC
Month


Sodium
2017 Monthly Averages
Influent
Effluent
430
410
390
370
350
330
310
290
270
mg/L
JAN
FEB
MAR
APR
MAY
JUN
JUL
AUG
SEP
OCT
NOV
DEC
Month

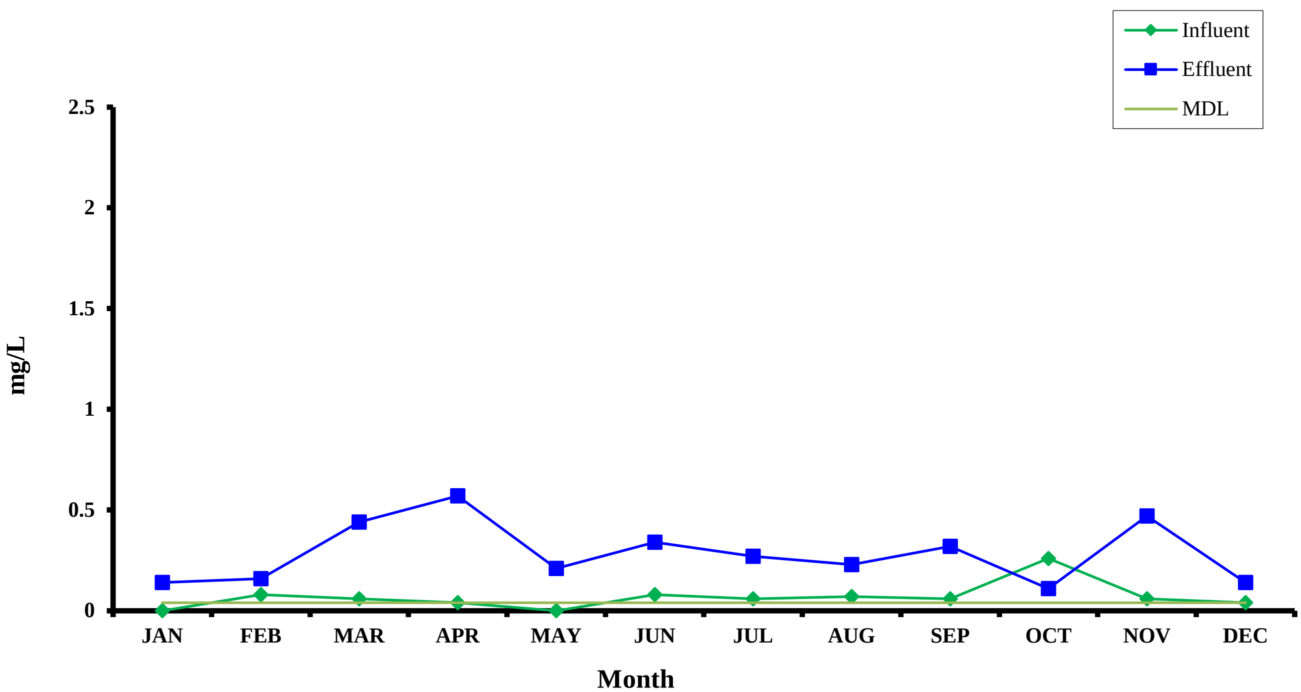

Bromide
2017 Monthly Averages
Influent
Effluent
MDL
3
2.5
2
1.5
1
0.5
0
mg/L
JAN
FEB
MAR
APR
MAY
JUN
JUL
AUG
SEP
OCT
NOV
DEC
Month


Chloride
2017 Monthly Averages
Influent
Effluent
MDL
800
700
600
500
400
300
200
100
0
mg/L
JAN
FEB
MAR
APR
MAY
JUN
JUL
AUG
SEP
OCT
NOV
DEC
Month

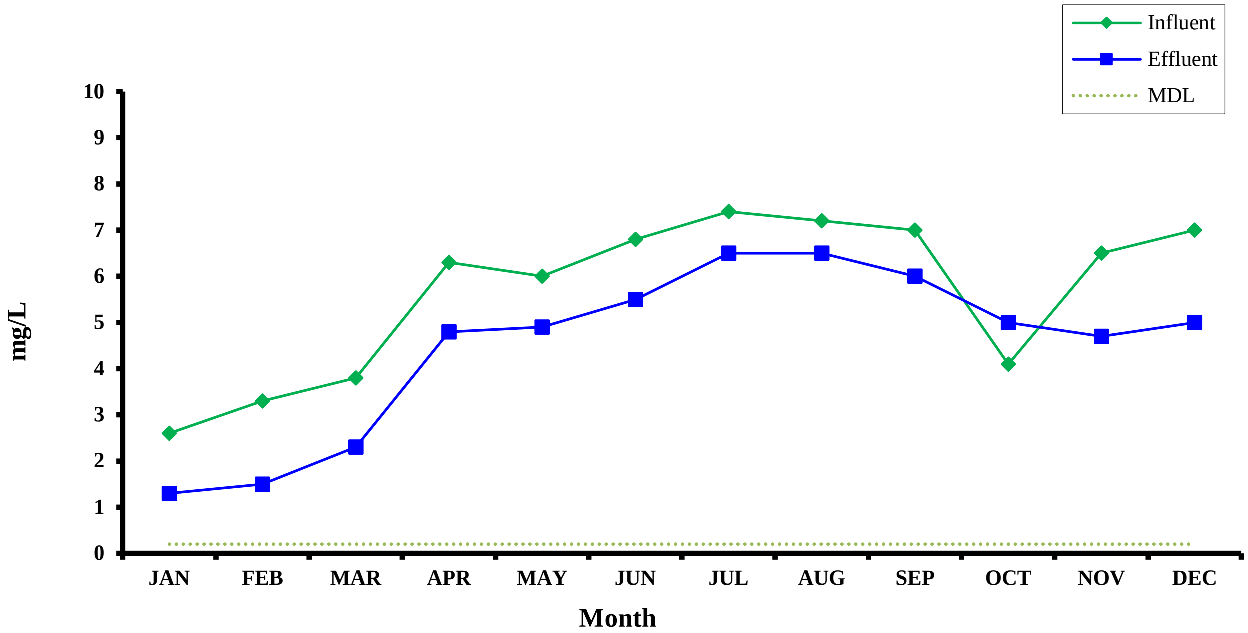
Fluoride
2017 Monthly Averages



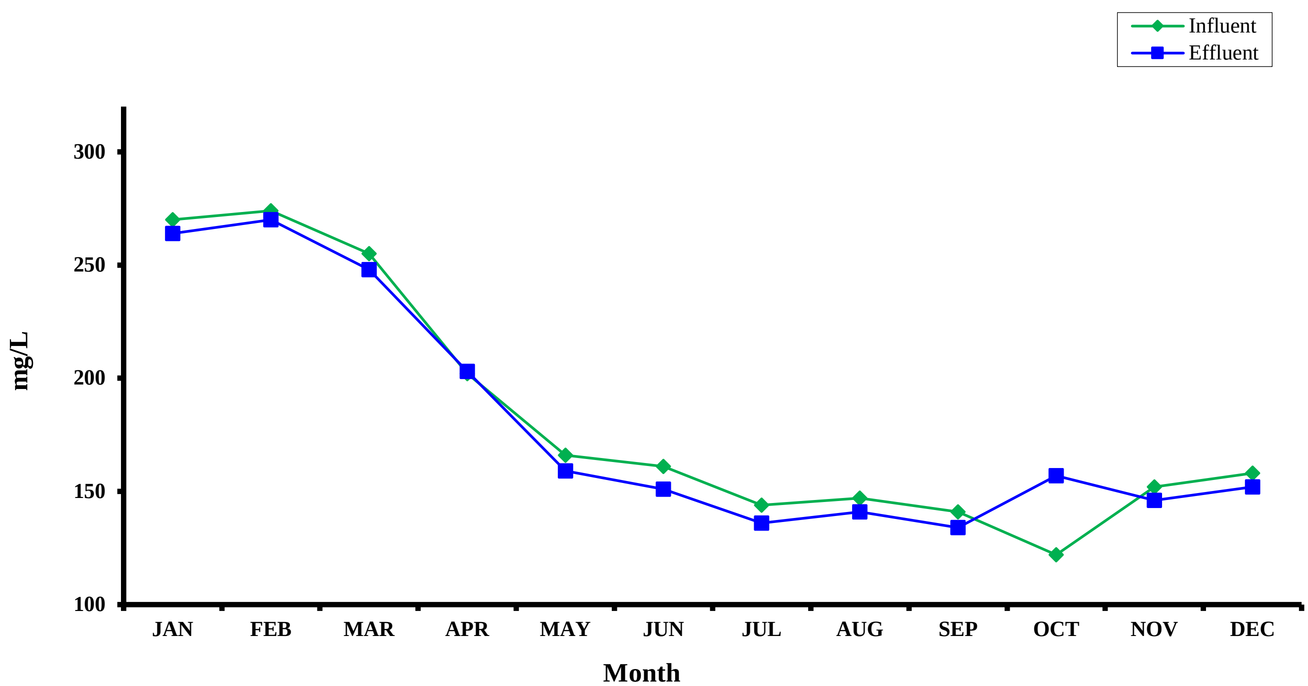
Nitrate
2017 Monthly Averages



O-Phosphate
2017 Monthly Averages



Sulfate
2017 Monthly Averages



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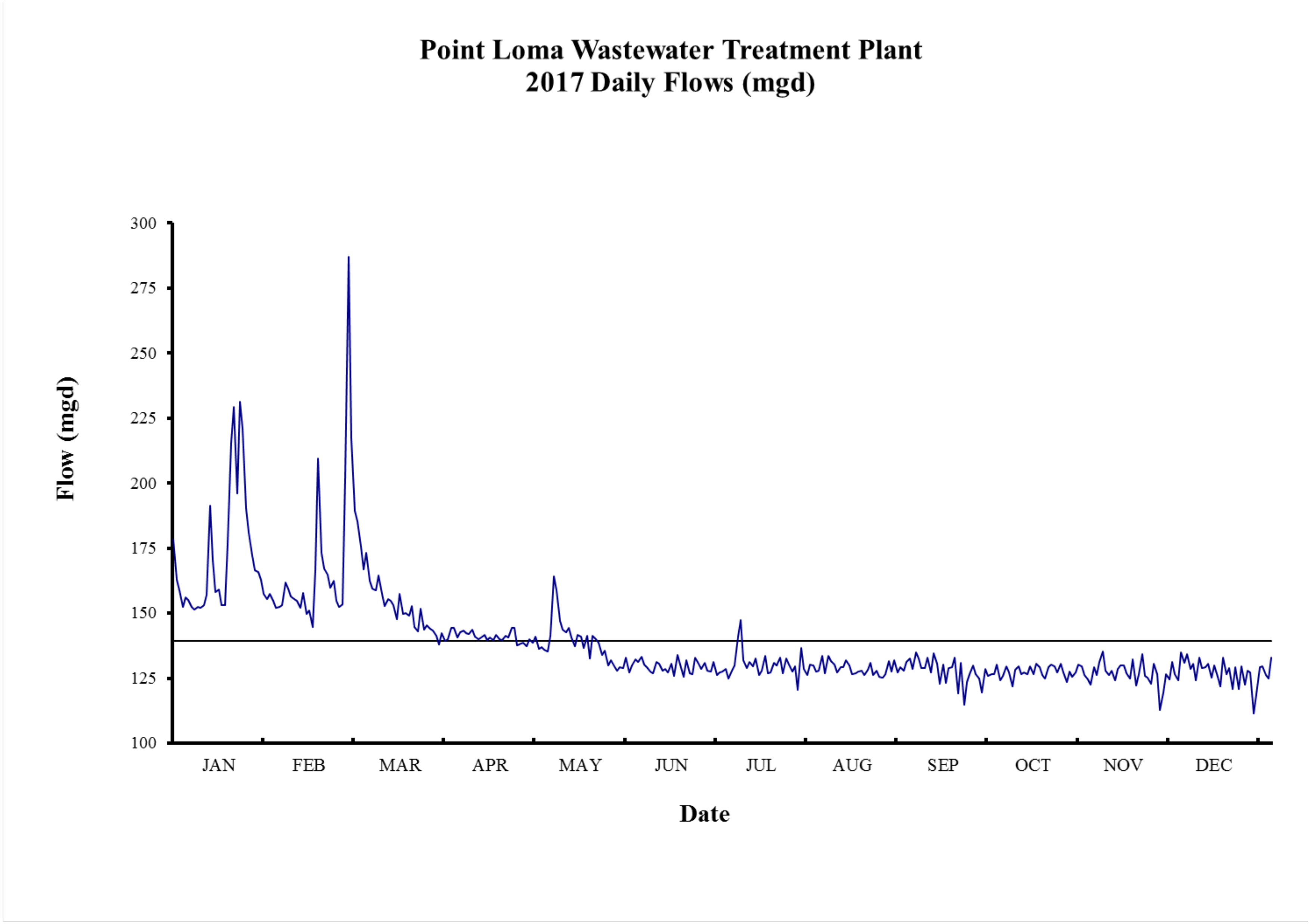
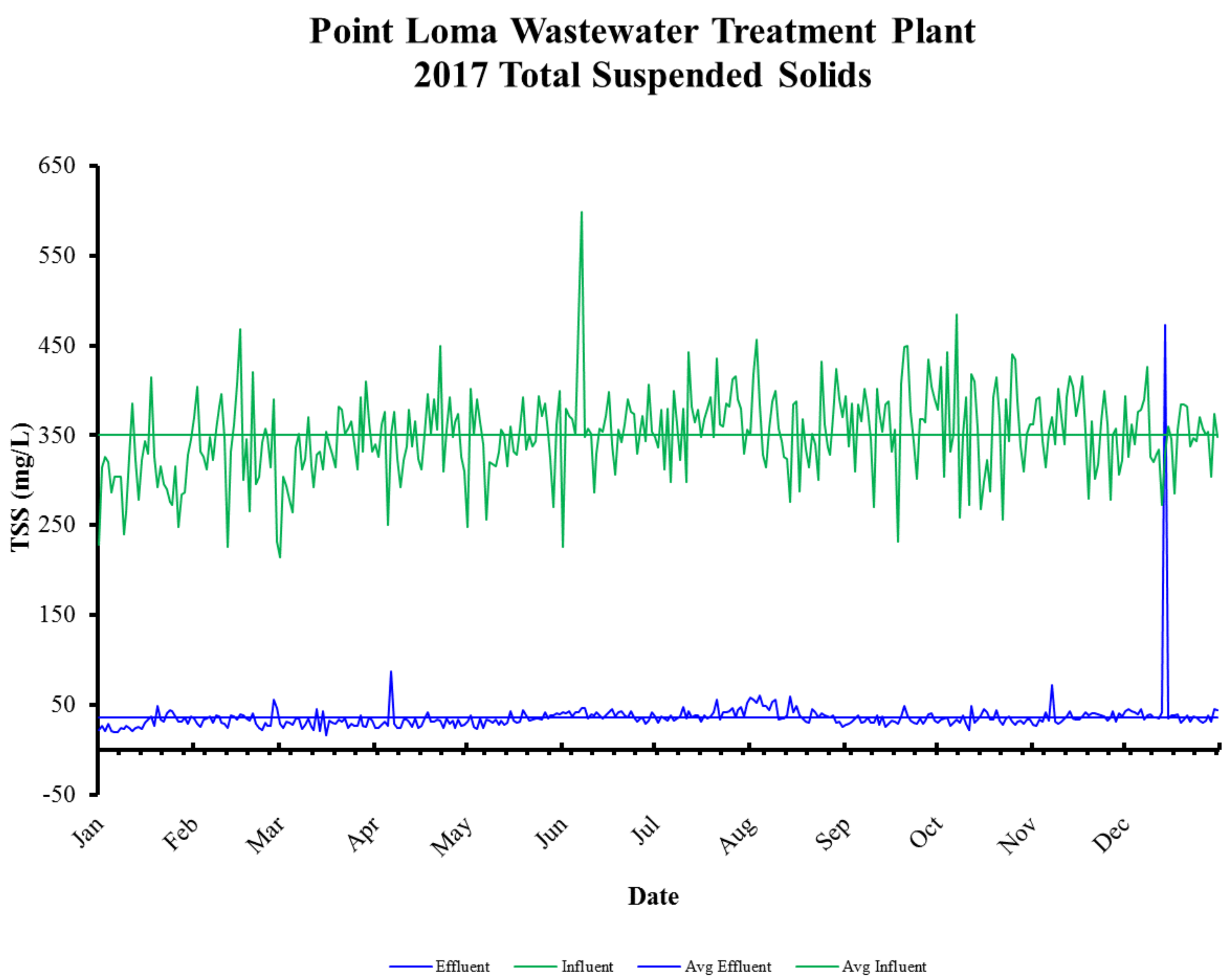
E. Daily Values of Selected Parameters

Daily values and statistical summaries of selected parameters (e.g. TSS, Flow, TSS Removals, etc.) are tabulated and presented graphically. The straight horizontal lines on the graphs in this section represent annual means for the constituent.


Point Loma Wastewater Treatment Plant
2017 Daily Flows (mgd)
Flow (mgd)
300
275
250
225
200
175
150
125
100
JAN
FEB
MAR
APR
MAY
JUN
JUL
AUG
SEP
OCT
NOV
DEC
Date

Point Loma Wastewater Treatment Plant
2017 Flows (mgd)

Day	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Summary
1	178.4	155.6	217.1	139.4	141.0	127.3	127.1	129.9	131.1	130.3	122.5	135.0	
2	162.8	157.3	189.4	139.9	136.4	130.0	127.4	127.5	132.7	124.2	129.3	131.0	
3	158.7	154.6	185.4	144.5	137.0	132.2	128.6	127.9	128.5	125.9	126.2	134.3	
4	152.6	152.2	175.7	144.2	136.0	131.3	124.8	133.6	134.9	129.5	131.2	128.6	
5	156.1	152.3	167.0	140.6	135.4	133.4	128.0	126.9	132.8	127.3	135.1	130.5	
6	155.1	153.1	173.1	142.7	141.4	130.1	129.9	133.8	128.8	122.0	127.8	124.3	
7	152.6	162.0	162.5	143.4	164.2	129.1	141.1	131.6	129.1	128.2	126.3	133.0	
8	151.3	159.4	159.5	142.2	158.8	127.6	147.3	130.2	132.9	129.7	127.9	128.8	
9	152.4	156.5	158.6	142.1	147.0	126.8	131.9	127.1	127.2	126.5	124.3	129.2	
10	152.2	155.6	164.7	143.8	143.8	131.2	129.1	129.4	134.7	127.3	128.4	130.6	
11	153.0	154.6	157.5	141.1	142.6	130.4	131.2	129.4	130.7	126.5	129.8	125.2	
12	157.2	152.1	152.7	140.0	144.5	127.9	129.7	132.0	122.7	129.6	129.9	129.9	
13	191.4	157.6	155.5	140.6	140.6	128.4	132.5	129.8	130.4	126.6	126.9	125.7	
14	170.5	149.7	154.9	141.7	137.4	127.3	126.3	126.6	123.1	130.4	125.0	121.7	
15	158.2	151.2	153.2	139.6	141.8	130.7	128.0	126.8	129.0	129.3	132.4	132.8	
16	159.3	144.6	147.6	140.6	141.0	125.9	133.6	127.7	129.4	126.2	122.3	126.6	
17	153.1	166.5	157.5	139.8	136.6	133.9	126.8	127.8	133.0	124.8	126.5	129.0	
18	153.2	209.5	149.8	141.8	141.3	130.2	127.3	126.3	119.3	129.3	134.3	120.9	
19	177.0	173.1	149.9	140.0	132.6	125.6	130.9	128.1	131.0	130.2	125.8	129.3	
20	215.5	167.2	148.9	139.7	141.4	132.0	129.9	130.9	114.9	129.5	125.2	120.9	
21	229.1	164.9	152.7	141.3	139.9	126.9	133.1	126.2	123.4	127.1	122.9	129.5	
22	196.2	159.7	144.6	140.6	138.6	126.7	126.9	128.0	126.5	130.5	130.4	122.4	
23	231.4	162.7	143.0	144.5	134.0	132.8	132.6	125.6	129.9	127.4	126.5	127.8	
24	220.9	154.7	151.8	144.4	135.6	130.5	130.2	125.3	126.6	123.4	112.7	127.2	
25	190.3	152.3	143.8	137.8	130.0	128.4	127.5	126.4	124.7	127.7	119.5	111.4	
26	181.0	153.4	145.5	138.4	131.9	130.8	129.6	131.5	119.5	125.7	126.5	118.9	
27	172.2	201.6	144.0	138.8	129.4	127.8	120.6	127.5	128.7	127.2	124.5	129.1	
28	166.7	287.0	143.5	137.4	128.1	127.6	136.6	132.0	125.9	130.2	131.4	129.6	
29	165.9		141.3	140.1	129.3	131.3	128.7	127.2	126.7	129.8	126.7	126.1	
30	163.0		138.0	138.8	128.9	126.3	126.2	129.1	126.6	126.2	124.1	124.7	
31	157.5		142.2		133.0		130.2	127.9		124.4		132.8	
Average	172.1	165.0	157.1	141.0	138.7	129.4	130.1	128.7	127.8	127.5	126.8	127.3	139.2
Minimum	151.3	144.6	138.0	137.4	128.1	125.6	120.6	125.3	114.9	122.0	112.7	111.4	111.4
Maximum	231.4	287.0	217.1	144.5	164.2	133.9	147.3	133.8	134.9	130.5	135.1	135.0	287.0
Total	5334.5	4621.3	4871.1	4229.7	4299.1	3880.6	4033.6	3989.7	3834.8	3952.9	3802.7	3947.2	50797

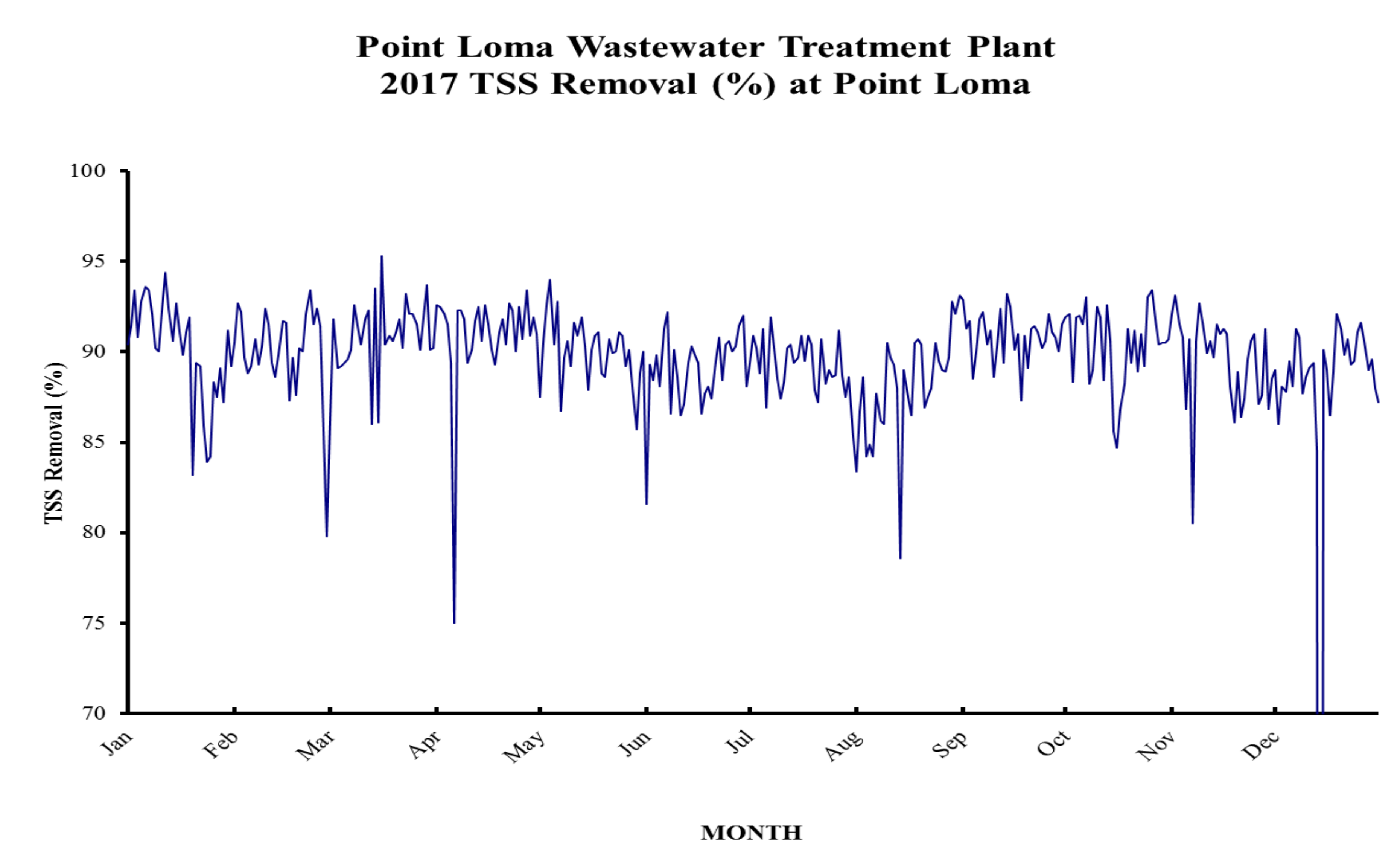

Point Loma Wastewater Treatment Plant
2017 Total Suspended Solids
TSS (mg/L)
650
550
450
350
250
150
50
-50
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Date
Effluent
Influent
Avg Effluent
Avg Influent

Point Loma Wastewater Treatment Plant

2017 Total Suspended Solids (mg/L)

	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	228	22	370	35	214	30	340	25	248	31	226	42	348	37	350	58	394	28	378	31	362	29	394	44
2	314	27	404	30	304	25	326	25	402	38	380	41	336	31	418	56	338	30	426	34	390	27	326	45.5
3	326	22	332	26	294	32	362	29	350	26	372	43	378	37	456	52	386	32	304	36	392	34	362	43
4	320	30	326	34	278	30	376	32	390	24	368	38	312	35	384	61	310	36	442	36	344	32	340	41.5
5	286	21	312	35	264	28	250	27	364	35	350	42	380	33	328	50	384	39	332	27	314	42	376	39.5
6	304	20	348	38	336	35	350	88	340	25	478	42	298	39	314	50	366	30	352	30	354	33	378	45
7	304	20	322	30	352	35	376	29	256	34	598	47	400	33	358	44	402	32	484	34	370	72	390	34
8	304	24	356	38	312	23	324	25	320	33	348	47	362	36	388	54	380	37	258	31	340	32	426	39
9	240	24	382	37	324	28	292	24	318	30	358	36	322	37	400	56	346	31	350	39	402	30	326	40
10	264	27	396	30	370	35.5	322	34	316	34	352	40	380	48	358	34	270	31	392	30	370	31	320	36.5
11	326	25	346	30	316	26	338	34	332	28	286	39	298	35	344	36	402	39	272	22	340	35	330	36
12	386	22	226	24	292	22.5	378	32	356	33	330	43	442	44	326	35	376	29	418	49	392	37	334	35.5
13	322	25	332	38	328	46	338	26	350	29	358	38	382	37	324	39	354	38	410	31	416	43	272	42
14	278	26	362	37	332	21.5	366	35	316	31	354	35	364	39	276	59	384	26	358	34	404	35	330	473
15	322	24	408	34	312	43.5	324	24	360	44	372	38	378	39	384	42	388	29	268	39	372	34	360	35.5
16	344	31	468	40	354	16.5	312	27	332	33	398	42	348	32	388	49	332	33	298	46	390	34	346	38
17	330	34	300	38	340	32.5	352	35	328	30	340	46	368	39	288	39	356	32	322	43	416	38	285	38.5
18	414	37	346	36	328	30	396	43	358	32	306	38	380	35	368	35	232	30	288	34	354	42	356	39.5
19	326	27	266	33	314	29.5	352	32	392	44	356	43	392	38	334	31	408	37	392	34	280	39	384	30.5
20	292	49	420	41	382	34	390	32	334	38	342	43	348	42	314	30	448	49	414	44	366	41	384	33.5
21	316	34	296	30	378	31	356	34	350	33	362	38	436	56	352	46	450	39	368	33	302	41	382	39
22	296	32	304	24	352	34.5	450	33	338	34	390	36	362	34	340	42	376	33	256	29	318	40	338	31.5
23	290	41	342	23	358	24.5	310	24	344	35	376	44	360	43	300	36	342	31	390	35	366	38	347	37
24	276	45	358	31	366	29	356	36	394	35	374	36	386	43	432	41	302	30	344	37	400	38	343	36
25	272	43	348	27	340	27	392	30	372	34	330	31	382	44	362	38	368	35	440	31	362	33	370	33
26	316	37	314	27	312	26.5	348	33	386	42	356	36	412	47	336	37	368	29	434	29	278	36	358	30
27	248	31	390	56	392	39	364	24	352	35	372	36	416	37	328	37	364	33	388	32	350	44	350	33
28	284	31	232	47	332	27	374	34	324	39	344	30	390	44	372	39	434	40	338	33	358	31	354	39
29	286	37			410	25.8	326	27	270	39	406	33	380	48	424	31	404	41	310	30	306	41	304	31.5
30	328	29			364	36	310	28	362	41	354	42	330	38	390	31	390	33	352	34	322	37	374	45
31	346	38			332	32.5			400	40			356	53	370	26			362	34			348	44.5
Avg	306	30	343	34	332	30	348	32	344	34	365	39	369	39	358	42	368	33	359	34	358	37	351	52
Min	228	20	226	23	214	17	250	24	248	24	226	30	298	31	276	26	232	26	256	22	278	27	272	30
Max	414	49	468	56	410	46	450	88	402	44	598	47	442	56	456	61	450	49	484	49	416	72	426	473

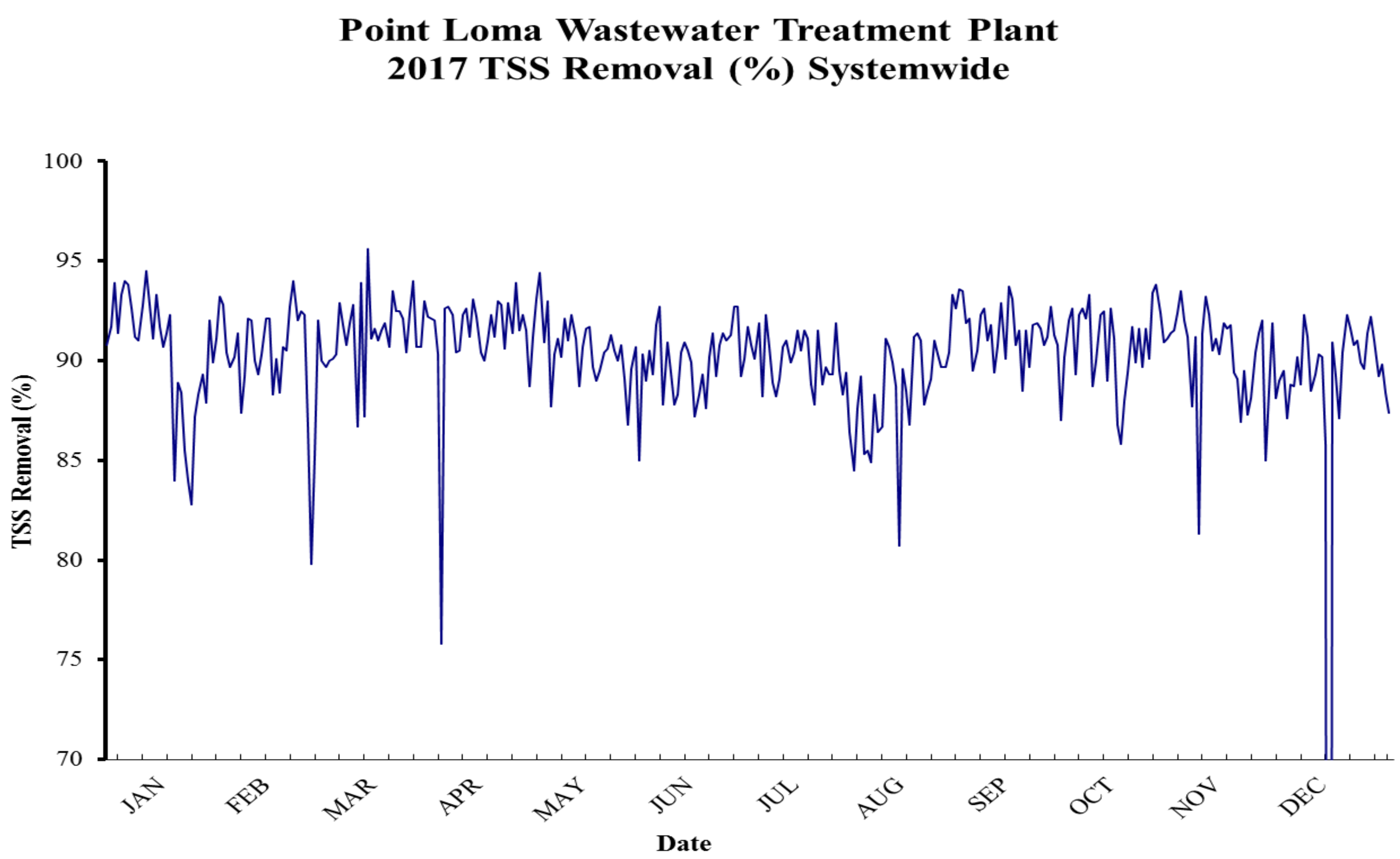
	Summary	
	Inf	Eff
Avg	350	36
Min	214	17
Max	598	473


Point Loma Wastewater Treatment Plant
2017 TSS Removal (%) at Point Loma
100
95
90
85
80
75
70
TSS Removal (%)
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
MONTH

Point Loma Wastewater Treatment Plant

2017 Total Suspended Solids Removals (%) at Point Loma

Day	Jan % Rem	Feb % Rem	Mar % Rem	Apr % Rem	May % Rem	Jun % Rem	Jul % Rem	Aug % Rem	Sep % Rem	Oct % Rem	Nov % Rem	Dec % Rem	Annual Summary
1	90.4	90.5	86.2	92.6	87.5	81.6	89.4	83.4	92.9	91.9	92.1	89.0	
2	91.4	92.7	91.8	92.5	90.5	89.3	90.9	86.7	91.3	92.1	93.1	86.0	
3	93.4	92.2	89.1	92.1	92.6	88.4	90.2	88.6	91.7	88.3	91.5	88.1	
4	90.8	89.7	89.2	91.5	94.0	89.8	88.8	84.2	88.5	91.9	90.8	87.8	
5	92.8	88.8	89.4	89.4	90.4	88.1	91.3	84.9	90.0	92.0	86.8	89.5	
6	93.6	89.2	89.6	75.0	92.8	91.3	86.9	84.2	91.8	91.5	90.7	88.1	
7	93.4	90.7	90.1	92.3	86.7	92.2	91.9	87.7	92.2	93.0	80.5	91.3	
8	92.1	89.3	92.6	92.3	89.7	86.6	90.2	86.2	90.4	88.2	90.6	90.8	
9	90.2	90.3	91.4	91.8	90.6	90.1	88.5	86.0	91.2	89.0	92.7	87.7	
10	90.0	92.4	90.4	89.4	89.2	88.6	87.4	90.5	88.6	92.5	91.6	88.6	
11	92.3	91.5	91.8	90.1	91.6	86.5	88.3	89.7	90.3	91.9	89.9	89.1	
12	94.4	89.4	92.3	91.7	90.9	87.1	90.2	89.3	92.4	88.4	90.6	89.4	
13	92.4	88.6	86.0	92.5	91.9	89.4	90.4	88.0	89.4	92.6	89.7	84.6	
14	90.6	89.8	93.5	90.6	90.3	90.3	89.4	78.6	93.2	90.6	91.5	-43.3	
15	92.7	91.7	86.1	92.6	87.9	89.8	89.7	89.0	92.5	85.6	91.0	90.1	
16	91.1	91.6	95.3	91.5	90.1	89.4	90.9	87.5	90.1	84.7	91.3	89.0	
17	89.8	87.3	90.4	90.1	90.9	86.6	89.5	86.5	91.0	86.8	91.0	86.5	
18	91.1	89.7	90.9	89.3	91.1	87.7	90.9	90.5	87.3	88.2	88.1	88.9	
19	91.9	87.6	90.6	91.1	88.8	88.1	90.4	90.7	90.9	91.3	86.1	92.1	
20	83.2	90.2	91.1	91.8	88.6	87.4	87.9	90.4	89.1	89.4	88.9	91.3	
21	89.4	90.0	91.8	90.4	90.7	89.5	87.2	86.9	91.3	91.2	86.4	89.8	
22	89.2	92.1	90.2	92.7	89.9	90.8	90.7	87.5	91.4	88.9	87.4	90.7	
23	85.9	93.4	93.2	92.3	90.0	88.4	88.2	88.0	91.1	91.0	89.6	89.3	
24	83.9	91.5	92.1	90.0	91.1	90.4	89.0	90.5	90.2	89.2	90.6	89.5	
25	84.2	92.4	92.1	92.5	90.9	90.6	88.6	89.5	90.6	93.0	91.0	91.1	
26	88.3	91.4	91.5	90.7	89.2	90.0	88.7	89.0	92.1	93.4	87.1	91.6	
27	87.5	85.6	90.1	93.4	90.1	90.3	91.2	88.9	91.1	91.8	87.6	90.6	
28	89.1	79.8	91.9	90.9	88.1	91.4	88.7	89.7	90.8	90.4	91.3	89.0	
29	87.2		93.7	91.9	85.7	92.0	87.5	92.8	90.0	90.5	86.8	89.6	
30	91.2		90.1	91.0	88.8	88.1	88.6	92.1	91.5	90.5	88.5	88.0	
31	89.2		90.2		90.0		85.3	93.1		90.7		87.2	
Avg	90.1	90.0	90.8	90.9	90.0	89.0	89.3	88.1	90.8	90.3	89.5	84.9	89.5
Min	83.2	79.8	86.0	75.0	85.7	81.6	85.3	78.6	87.3	84.7	80.5	-43.3	-43.3
Max	94.4	93.4	95.3	93.4	94.0	92.2	91.9	93.1	93.2	93.4	93.1	92.1	95.3

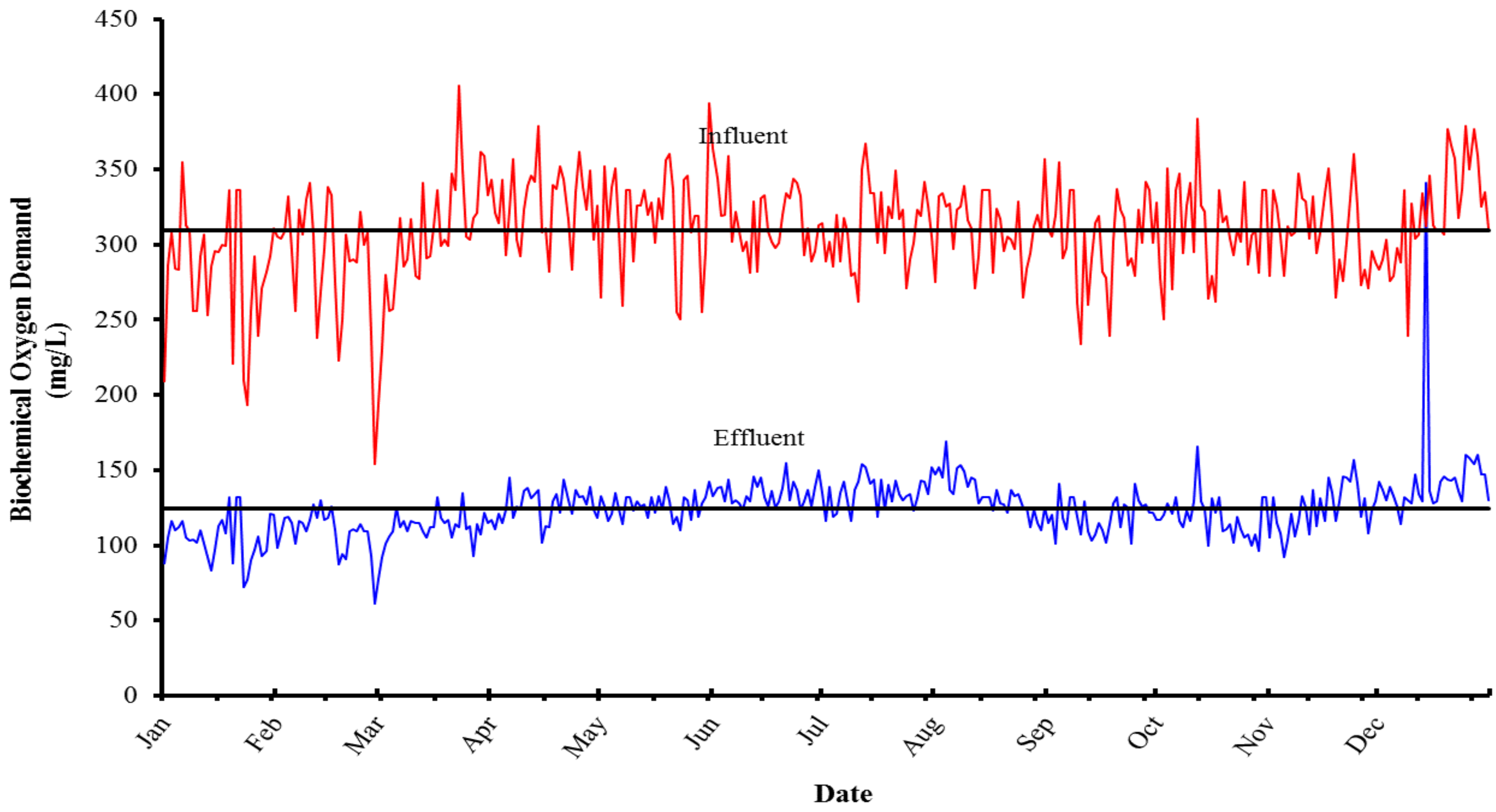

Point Loma Wastewater Treatment Plant
2017 TSS Removal (%) Systemwide
TSS Removal (%)
100
95
90
85
80
75
70
JAN
FEB
MAR
APR
MAY
JUN
JUL
AUG
SEP
OCT
NOV
DEC
Date

Point Loma Wastewater Treatment Plant

2017 Total Suspended Solids Removals (%) Systemwide

Day	Jan % Rem	Feb % Rem	Mar % Rem	Apr % Rem	May % Rem	Jun % Rem	Jul % Rem	Aug % Rem	Sep % Rem	Oct % Rem	Nov % Rem	Dec % Rem	
1	90.8	91.1	92.0	92.2	91.2	90.3	91.7	87.6	91.9	92.6	93.5	87.1	
2	91.7	93.2	90.0	92.1	93.1	89.0	90.8	89.2	92.1	89.3	92.0	88.8	
3	93.9	92.8	89.7	92.0	94.4	90.5	90.1	85.3	89.5	92.3	91.2	88.7	
4	91.4	90.4	90.0	90.3	90.9	89.3	91.9	85.5	90.5	92.6	87.7	90.2	
5	93.3	89.7	90.1	75.8	93.0	91.8	88.2	84.9	92.3	92.1	91.2	88.8	
6	94.0	90.2	90.3	92.6	87.7	92.7	92.3	88.3	92.6	93.3	81.3	92.3	
7	93.8	91.4	92.9	92.7	90.3	87.8	90.7	86.4	91.0	88.7	91.4	91.2	
8	92.6	87.4	91.8	92.3	91.1	90.9	88.9	86.7	91.8	90.0	93.2	88.5	
9	91.2	89.2	90.8	90.4	90.2	89.4	88.2	91.1	89.4	92.3	92.3	89.3	
10	91.0	92.1	91.9	90.5	92.1	87.8	89.1	90.7	90.8	92.5	90.5	90.3	
11	92.8	92.0	92.8	92.3	91.0	88.3	90.7	89.9	92.9	89.0	91.1	90.2	
12	94.5	90.0	86.7	92.6	92.3	90.4	91.0	88.7	90.1	92.6	90.3	85.8	
13	92.8	89.3	93.9	91.2	91.1	90.9	89.9	80.7	93.7	91.1	91.9	-31.1	
14	91.1	90.3	87.2	93.1	88.7	90.5	90.4	89.6	93.1	86.8	91.6	90.9	
15	93.3	92.1	95.6	92.2	90.7	89.9	91.5	88.5	90.8	85.8	91.8	89.2	
16	91.7	92.1	91.1	90.4	91.6	87.2	90.5	86.8	91.5	88.0	89.4	87.1	
17	90.7	88.3	91.6	90.0	91.7	88.3	91.5	91.2	88.5	89.4	89.1	90.4	
18	91.4	90.1	91.0	91.0	89.7	89.3	91.1	91.4	91.5	91.7	86.9	92.3	
19	92.3	88.4	91.5	92.3	89.0	87.6	88.8	91.0	89.7	89.9	89.5	91.6	
20	84.0	90.7	91.9	91.2	89.5	90.2	87.8	87.8	91.8	91.6	87.3	90.8	
21	88.9	90.5	90.7	93.0	90.4	91.4	91.5	88.5	91.9	89.7	88.1	91.0	
22	88.4	92.7	93.5	92.8	90.6	89.2	88.8	89.1	91.6	91.6	90.4	89.9	
23	85.5	94.0	92.5	90.6	91.3	90.8	89.7	91.0	90.8	90.1	91.4	89.6	
24	84.0	92.0	92.5	92.9	90.5	91.4	89.3	90.3	91.2	93.4	92.0	91.4	
25	82.8	92.5	92.1	91.4	90.0	91.0	89.3	89.7	92.7	93.8	85.0	92.2	
26	87.2	92.3	90.4	93.9	90.8	91.3	91.9	89.7	91.3	92.4	88.5	91.0	
27	88.3	86.7	92.4	91.5	89.1	92.7	89.5	90.4	90.8	90.9	91.9	89.2	
28	89.3	79.8	94.0	92.3	86.8	92.7	88.3	93.3	87.0	91.1	88.1	89.8	
29	87.9	85.2	90.7	91.5	89.6	89.2	89.4	92.6	90.2	91.4	89.0	88.4	
30	92.0		90.7	88.7	90.7	90.1	86.4	93.6	92.0	91.5	89.5	87.4	Annual
31	89.9		93.0		85.0		84.5	93.5		92.4		0.0	Summary
Avg	90.4	90.2	91.5	91.2	90.5	90.1	89.8	89.1	91.2	91.0	89.9	83.0	89.8
Min	82.8	79.8	86.7	75.8	85.0	87.2	84.5	80.7	87.0	85.8	81.3	-31.1	-31.1
Max	94.5	94.0	95.6	93.9	94.4	92.7	92.3	93.6	93.7	93.8	93.5	92.3	95.6

Point Loma Wastewater Treatment Plant
2017 Biochemical Oxygen Demand

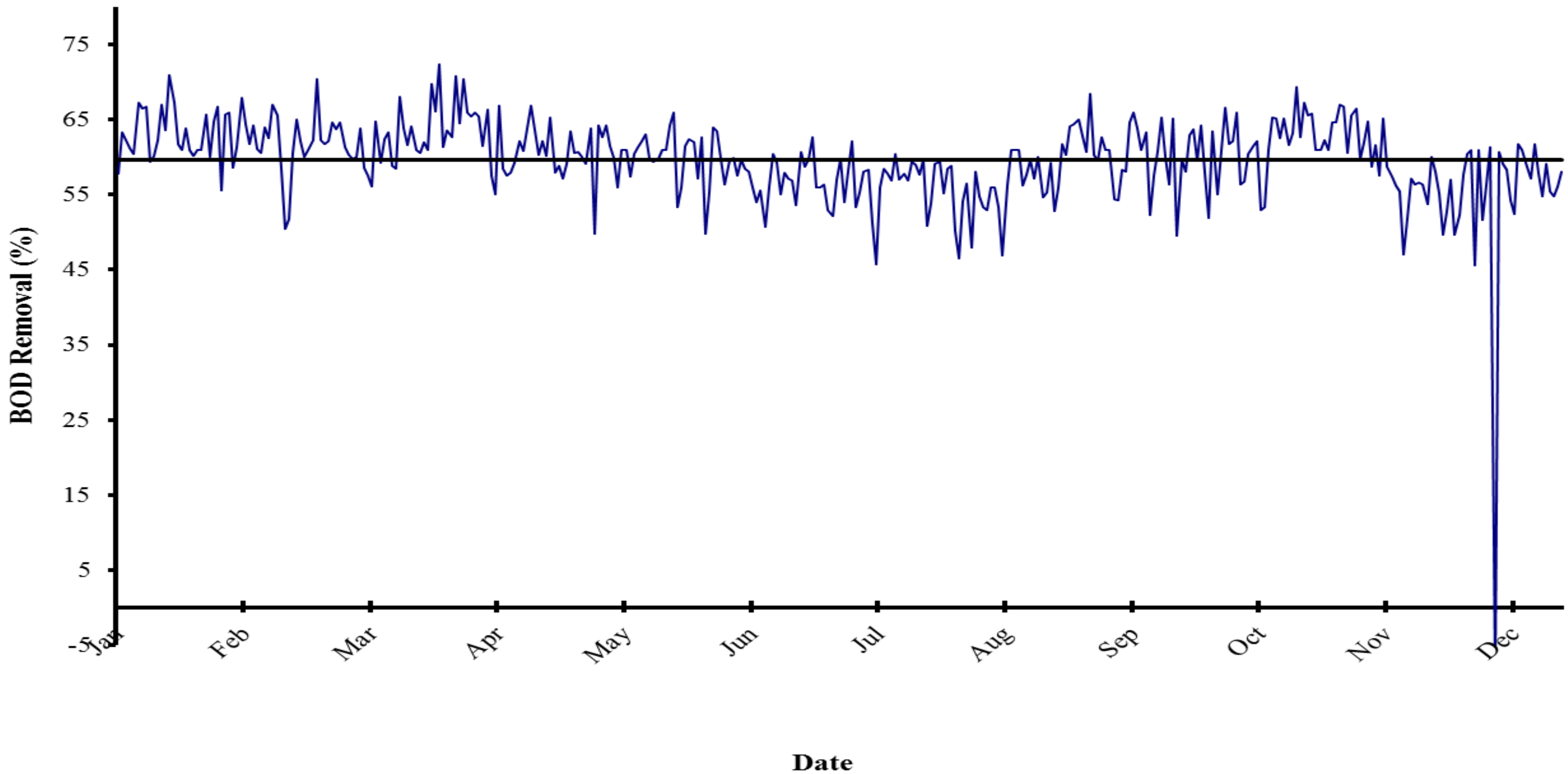


Point Loma Wastewater Treatment Plant

2017 Biochemical Oxygen Demand (mg/L)

	Jan		Feb		Mar		Apr		May		Jun		Jul		Aug		Sep		Oct		Nov		Dec		Summary	
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	Inf	Eff
1	209	88	305	98	194	78	343	117	265	133	364	133	314	135	275	147	310	115	328	117	279	105	283	142		
2	286	105	304	108	230	92	321	111	352	126	344	138	289	116	332	152	305	120	278	117	336	132	290	137		
3	308	116	309	118	280	101	314	121	311	116	319	139	302	139	334	145	320	101	250	120	325	115	303	130		
4	284	110	332	119	256	106	343	115	338	121	320	129	285	119	325	169	355	141	351	128	305	108	276	139		
5	283	112	296	115	257	109	293	124	351	135	359	144	320	121	327	137	291	118	270	121	279	92	279	133		
6	355	116	256	101	285	125	323	145	309	124	302	128	289	135	297	134	298	111	336	132	312	104	298	126		
7	313	105	323	116	318	112	357	118	259	114	322	130	318	142	323	151	336	132	347	116	306	121	288	114		
8	309	103	307	115	285	116	303	126	336	132	309	128	308	129	325	153	336	132	294	112	308	106	336	132		
9	256	104	330	109	290	109	292	124	336	132	296	124	279	116	339	149	261	119	326	123	347	116	239	130		
10	256	102	341	117	317	116	323	136	289	123	302	133	281	137	316	139	234	107	341	116	331	133	327	128		
11	292	110	306	127	279	115	339	138	326	129	281	129	262	142	311	145	309	129	295	129	329	125	304	147		
12	307	101	238	118	277	115	346	131	326	126	329	146	350	154	271	144	260	109	384	166	304	107	307	134		
13	253	92	269	130	341	109	342	134	336	127	282	139	367	152	292	128	291	103	326	129	332	137	334	129		
14	285	83	297	117	291	105	379	137	320	118	331	145	334	141	336	132	314	107	322	124	294	113	312	341		
15	296	97	338	118	292	112	308	102	328	132	333	132	334	144	336	132	319	115	264	100	308	131	346	136		
16	295	113	333	126	312	112	311	113	301	122	309	126	301	119	336	132	282	110	279	131	334	116	313	128		
17	300	117	275	110	336	132	282	112	331	133	302	136	335	144	281	123	278	102	262	122	351	145	309	129		
18	299	108	223	87	299	118	340	129	317	124	298	125	294	124	324	137	239	114	336	132	317	135	310	142		
19	336	132	250	94	303	115	337	134	356	139	301	129	325	140	317	128	302	128	315	109	265	116	307	146		
20	221	88	307	91	299	117	352	122	360	129	320	138	318	129	296	127	337	132	319	111	290	129	377	144		
21	336	132	289	109	347	105	343	144	336	114	334	155	349	143	305	122	323	112	304	114	276	146	366	143		
22	336	132	290	111	336	114	316	130	255	119	331	130	317	134	303	137	318	127	293	102	302	145	357	145		
23	210	72	288	109	406	112	283	121	250	110	344	142	323	130	297	133	286	125	310	119	331	142	318	136		
24	193	77	322	114	350	135	335	137	343	132	341	137	271	133	329	134	291	101	302	111	360	157	337	129		
25	256	90	300	109	305	111	362	132	346	130	332	124	290	134	265	125	279	141	342	105	325	141	379	160		
26	292	97	308	109	303	113	338	133	308	117	293	129	301	123	284	125	323	130	287	107	273	119	350	158		
27	239	106	240	93	318	93	323	127	319	137	311	137	323	131	294	112	301	126	306	100	283	131	377	154		
28	271	93	154	61	321	114	349	139	319	119	289	126	319	143	312	124	342	127	310	107	271	108	359	160		
29	282	96			362	107	303	124	255	128	296	139	342	142	320	115	336	122	281	96	296	124	325	147		
30	292	121			359	122	326	118	296	132	313	150	326	134	309	110	301	122	336	132	288	129	335	147		
31	311	120			333	115			394	142			305	152	357	125			336	132			310	130		
Avg	283	104	290	109	306	111	328	126	318	126	361	135	312	135	312	134	303	119	311	119	309	124	321	145	313	124
Min	193	72	154	61	194	78	282	102	250	110	281	124	262	116	265	110	234	101	250	96	265	92	239	114	154	61
Max	355	132	341	130	406	135	379	145	394	142	364	155	367	154	357	169	355	141	384	166	360	157	379	341	406	341

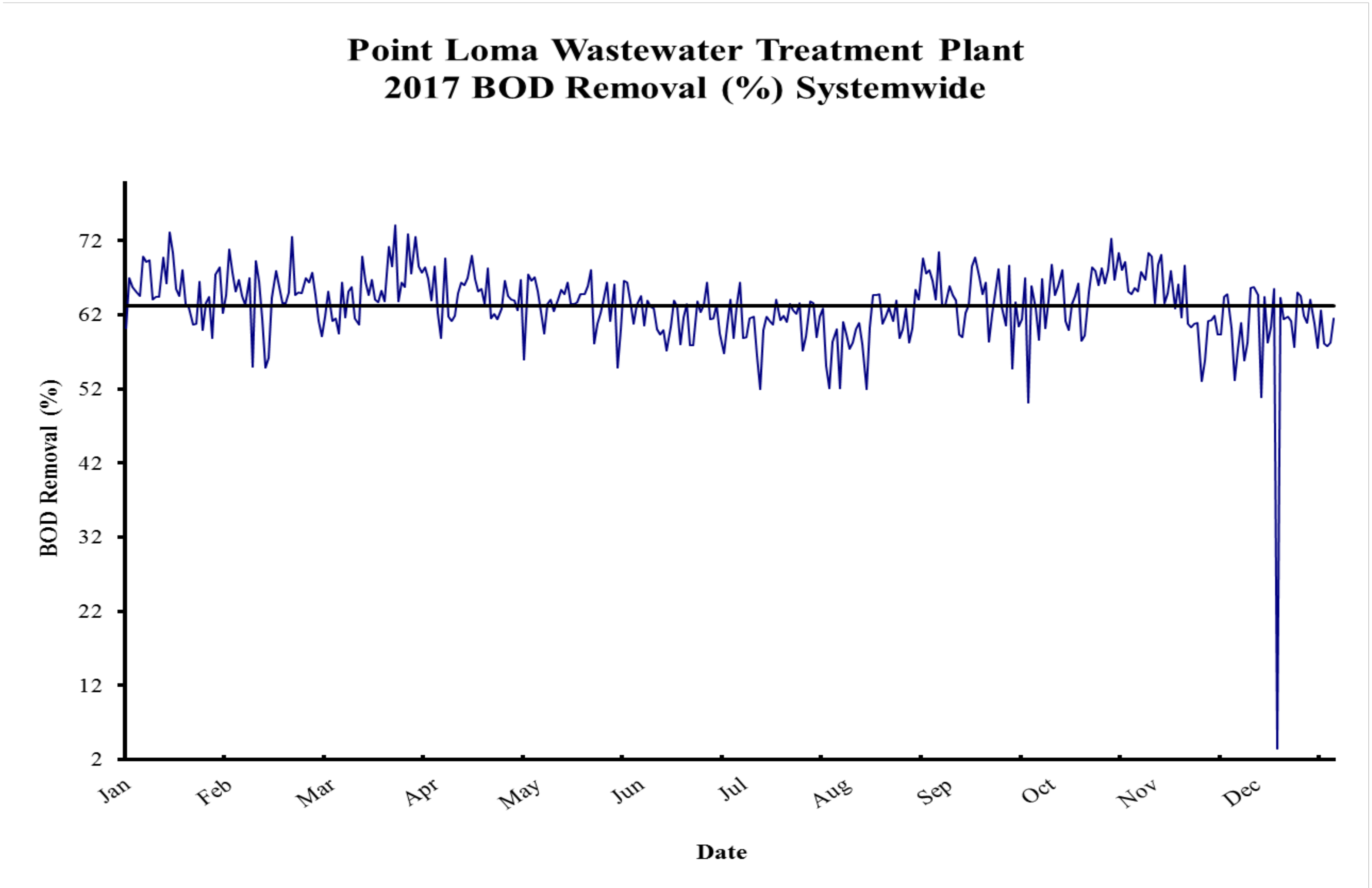
Point Loma Wastewater Treatment
2017 BOD Removal (%) at Point Loma



Point Loma Wastewater Treatment Plant

2017 Biochemical Oxygen Demand Removals (%) at Point Loma

Day	Jan % Rem	Feb % Rem	Mar % Rem	Apr % Rem	May % Rem	Jun % Rem	Jul % Rem	Aug % Rem	Sep % Rem	Oct % Rem	Nov % Rem	Dec % Rem	Annual Summary
1	57.8	67.9	59.8	65.9	49.8	63.4	57.0	46.5	62.8	64.3	62.3	49.7	
2	63.3	64.4	60.0	65.4	64.2	59.8	59.8	54.1	60.7	57.9	60.9	52.8	
3	62.3	61.8	63.9	61.5	62.7	56.4	54.0	56.5	68.4	51.9	64.6	57.0	
4	61.2	64.2	58.6	66.4	64.2	59.6	58.2	47.9	60.3	63.5	64.6	49.6	
5	60.4	61.1	57.5	57.6	61.5	59.9	62.2	58.1	59.5	55.1	67.0	52.3	
6	67.3	60.5	56.1	55.1	59.9	57.5	53.3	54.8	62.7	60.9	66.7	57.7	
7	66.5	64.0	64.8	66.9	56.0	59.6	55.3	53.3	60.9	66.6	60.5	60.4	
8	66.7	62.5	59.3	58.4	60.9	58.5	58.1	52.9	60.9	61.8	65.5	60.9	
9	59.4	67.0	62.4	57.5	60.9	58.1	58.3	56.0	54.4	62.2	66.5	45.6	
10	60.2	65.6	63.3	57.9	57.4	56.0	51.2	56.0	54.2	66.0	59.8	60.9	
11	62.3	58.5	58.8	59.3	60.4	54.0	45.7	53.4	58.3	56.3	62.0	51.6	
12	67.0	50.4	58.5	62.1	61.3	55.6	56.0	46.9	58.1	56.7	64.7	56.3	
13	63.6	51.7	68.0	60.8	62.2	50.7	58.5	56.2	64.6	60.4	58.7	61.3	
14	70.9	60.5	63.9	63.8	63.1	56.1	57.8	60.9	65.9	61.5	61.6	-9.5	
15	67.2	65.0	61.6	66.9	59.8	60.4	56.9	60.9	63.9	62.1	57.5	60.7	
16	61.7	62.2	64.1	63.6	59.4	59.2	60.4	60.9	61.0	53.0	65.2	59.1	
17	61.0	60.0	60.9	60.3	59.8	55.0	57.0	56.2	63.3	53.4	58.7	58.3	
18	63.8	61.0	60.5	62.1	60.9	58.0	57.8	57.7	52.3	60.9	57.4	54.2	
19	60.9	62.3	62.0	60.2	61.0	57.1	56.9	59.6	57.5	65.3	56.2	52.4	
20	60.2	70.4	60.9	65.3	64.2	56.9	59.4	57.1	60.8	65.1	55.5	61.8	
21	60.9	62.3	69.7	58.0	66.0	53.6	59.0	60.0	65.3	62.5	47.0	60.9	
22	60.9	61.7	66.1	58.9	53.3	60.7	57.7	54.7	60.0	65.1	51.9	59.3	
23	65.7	62.2	72.4	57.2	56.0	58.7	59.7	55.3	56.3	61.6	57.1	57.2	
24	60.1	64.6	61.4	59.1	61.5	59.8	50.9	59.2	65.2	63.2	56.4	61.8	
25	64.8	63.7	63.6	63.5	62.4	62.7	53.8	52.8	49.5	69.3	56.6	57.8	
26	66.7	64.6	62.7	60.6	62.0	56.0	59.1	56.0	59.7	62.7	56.4	54.8	
27	55.6	61.3	70.8	60.7	57.1	55.9	59.4	61.8	58.1	67.3	53.7	59.1	
28	65.7	60.3	64.5	60.1	62.7	56.4	55.2	60.3	62.9	65.5	60.1	55.4	
29	65.9		70.4	59.1	49.8	53.0	58.5	64.1	63.7	65.8	58.1	54.8	
30	58.6		66.0	63.8	55.4	52.1	58.8	64.4	59.5	60.9	55.2	56.1	
31	61.4		65.4		64.0		50.2	65.0		60.9		58.1	
Avg	62.9	62.2	63.2	61.3	60.0	57.4	56.6	56.8	60.4	61.6	59.6	54.5	59.7
Min	55.6	50.4	56.1	55.1	49.8	50.7	45.7	46.5	49.5	51.9	47.0	-9.5	-9.5
Max	70.9	70.4	72.4	66.9	66.0	63.4	62.2	65.0	68.4	69.3	67.0	61.8	72.4

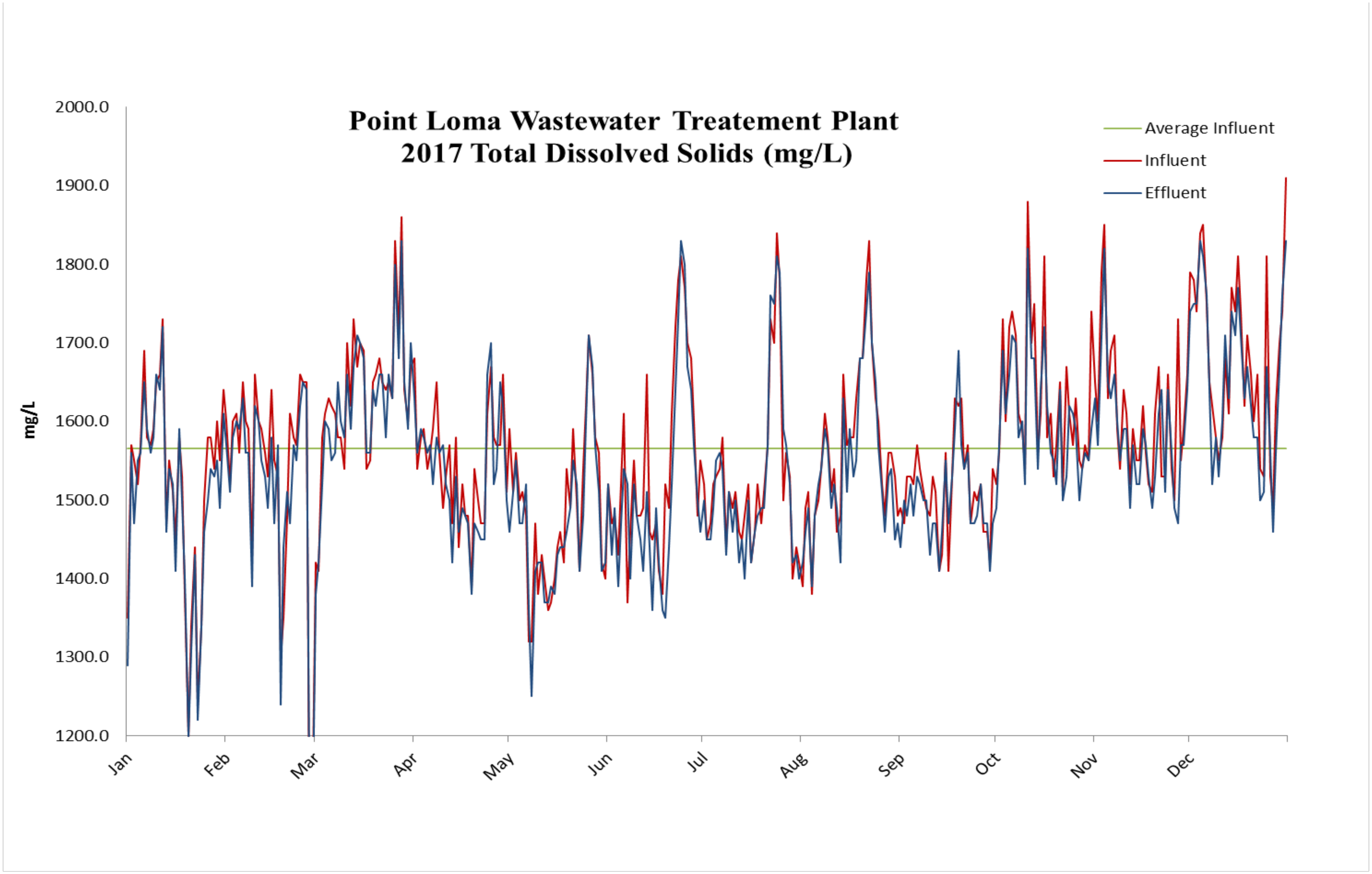


Point Loma Wastewater Treatment Plant
2017 BOD Removal (%) Systemwide
BOD Removal (%)
72
62
52
42
32
22
12
2
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Date

Point Loma Wastewater Treatment Plant

2017 Biochemical Oxygen Demand Removals (%) Systemwide

Day	Jan % Rem	Feb % Rem	Mar % Rem	Apr % Rem	May % Rem	Jun % Rem	Jul % Rem	Aug % Rem	Sep % Rem	Oct % Rem	Nov % Rem	Dec % Rem	Annual Summary
1	60.2	70.8	59.1	68.4	55.9	66.4	60.5	52.1	66.6	65.9	65.6	53.2	
2	66.9	67.7	61.8	66.8	67.5	63.8	64.0	58.4	64.0	62.9	65.1	57.4	
3	65.8	65.1	65.1	63.9	66.6	60.8	58.8	60.1	70.5	58.6	67.8	60.9	
4	65.0	66.7	61.2	68.5	67.1	63.3	63.3	52.1	63.3	66.8	66.7	55.8	
5	64.5	64.5	61.5	62.2	65.1	64.5	66.4	61.0	63.3	60.2	70.4	58.2	
6	69.8	63.3	59.4	58.8	62.3	60.6	58.9	59.3	65.9	63.9	69.8	65.6	
7	69.1	67.0	66.3	69.6	59.5	63.9	59.0	57.4	64.6	68.8	63.6	65.8	
8	69.4	55.0	61.6	61.7	63.4	63.1	61.5	58.2	63.9	64.7	68.8	64.6	
9	64.0	69.2	65.1	61.1	64.1	62.9	61.7	60.1	59.3	65.9	70.1	50.9	
10	64.4	66.5	65.8	61.9	62.5	60.1	56.4	60.9	59.0	68.1	63.6	64.4	
11	64.4	61.4	61.5	64.9	64.0	59.3	52.0	58.0	62.2	61.2	64.9	58.2	
12	69.7	54.8	60.7	66.3	65.4	60.0	59.9	51.9	63.3	59.9	67.9	60.3	
13	66.2	56.2	69.9	66.0	64.8	57.2	61.8	60.3	68.5	63.4	62.9	65.5	
14	73.1	64.3	66.5	66.9	66.4	60.4	61.1	64.6	69.7	64.5	66.1	3.5	
15	70.3	67.9	64.7	70.0	63.5	63.9	60.7	64.6	67.1	66.2	61.6	64.3	
16	65.5	65.7	66.7	66.8	63.5	63.1	64.1	64.8	64.8	58.5	68.6	61.4	
17	64.5	63.6	64.1	65.1	63.7	58.0	61.3	60.8	66.4	59.2	60.8	61.7	
18	68.0	63.6	63.7	65.5	64.8	61.6	61.9	61.7	58.4	65.1	60.3	61.2	
19	63.4	65.0	65.3	63.4	64.8	63.4	61.0	63.0	62.1	68.4	60.8	57.7	
20	63.0	72.5	63.8	68.3	65.9	57.9	63.5	61.1	65.0	67.9	60.9	65.0	
21	60.7	64.6	71.2	61.5	68.0	57.9	62.6	63.9	68.2	66.0	53.1	64.5	
22	60.8	65.0	68.5	62.1	58.1	63.8	62.1	58.9	63.1	68.3	55.8	61.9	
23	66.5	64.9	74.1	61.4	60.8	62.4	63.6	60.1	60.6	66.2	61.2	60.9	
24	60.0	67.0	63.8	62.8	62.2	63.3	57.1	62.9	68.6	68.0	61.3	64.1	
25	63.6	66.4	66.3	66.6	64.2	66.3	59.1	58.3	54.7	72.3	61.9	60.8	
26	64.4	67.7	65.7	64.5	66.3	61.4	63.8	60.2	63.7	66.7	59.3	57.5	
27	58.8	64.6	72.9	64.0	61.1	61.5	63.6	65.4	60.4	70.4	59.3	62.6	
28	67.5	61.1	67.6	63.9	66.1	63.3	59.0	64.0	61.4	68.1	64.4	58.1	
29	68.4		72.5	62.6	54.9	59.4	61.8	69.6	66.9	69.1	64.8	57.8	
30	62.2		68.5	66.7	60.1	56.8	62.8	67.6	50.2	65.2	60.2	58.3	
31	64.7		67.7		66.6		55.1	68.1		64.8		61.5	
Avg	65.3	64.7	65.6	64.7	63.5	61.7	60.9	60.9	63.5	65.3	63.6	58.8	63.2
Min	58.8	54.8	59.1	58.8	54.9	56.8	52.0	51.9	50.2	58.5	53.1	3.5	3.5
Max	73.1	72.5	74.1	70.0	68.0	66.4	66.4	69.6	70.5	72.3	70.4	65.8	74.1


Point Loma Wastewater Treatement Plant
2017 Total Dissolved Solids (mg/L)
Average Influent
Influent
Effluent
mg/L
2000.0
1900.0
1800.0
1700.0
1600.0
1500.0
1400.0
1300.0
1200.0
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec

Point Loma Wastewater Treatment Plant

2017 Total Dissolved Solids (mg/L)

	Jan		Feb		Mar		Apr		May		Jun		Jul		Aug		Sep		Oct		Nov		Dec		Summary	
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	Influent	Effluent
1	1350	1290	1600	1570	1420	1380	1680	1630	1590	1460	1520	1520	1520	1500	1390	1420	1490	1440	1520	1490	1650	1630	1790	1740		
2	1570	1560	1520	1510	1410	1420	1540	1560	1510	1510	1470	1430	1450	1450	1490	1460	1470	1500	1560	1570	1600	1570	1780	1750		
3	1550	1470	1600	1580	1580	1520	1580	1590	1560	1550	1480	1490	1470	1450	1510	1490	1530	1480	1730	1690	1790	1710	1740	1750		
4	1520	1550	1610	1600	1610	1600	1590	1580	1500	1470	1430	1390	1520	1490	1380	1390	1530	1520	1600	1610	1850	1820	1840	1830		
5	1570	1560	1560	1590	1630	1590	1540	1560	1510	1470	1520	1470	1530	1550	1480	1480	1520	1480	1720	1660	1630	1650	1850	1810		
6	1690	1650	1650	1630	1620	1550	1560	1570	1480	1520	1610	1540	1540	1560	1500	1520	1570	1530	1740	1710	1690	1630	1750	1760		
7	1580	1590	1600	1560	1610	1560	1590	1520	1320	1360	1370	1520	1580	1540	1540	1540	1540	1520	1710	1700	1710	1660	1650	1640		
8	1570	1560	1590	1560	1580	1650	1650	1580	1320	1250	1460	1400	1440	1430	1610	1590	1510	1500	1610	1580	1590	1600	1620	1520		
9	1590	1580	1430	1390	1580	1600	1560	1560	1470	1410	1550	1520	1510	1510	1580	1570	1490	1500	1590	1600	1540	1550	1580	1580		
10	1650	1660	1660	1620	1540	1580	1490	1570	1380	1420	1480	1480	1490	1460	1510	1490	1480	1430	1540	1520	1640	1590	1550	1530		
11	1660	1640	1600	1600	1700	1660	1530	1520	1430	1420	1480	1450	1510	1500	1540	1520	1530	1470	1880	1820	1610	1590	1580	1600		
12	1730	1720	1590	1550	1620	1590	1570	1500	1400	1370	1490	1410	1460	1420	1460	1490	1510	1470	1700	1680	1520	1490	1680	1710		
13	1470	1460	1560	1530	1730	1670	1470	1420	1360	1370	1660	1510	1450	1450	1480	1420	1410	1410	1750	1680	1590	1570	1610	1630		
14	1550	1540	1530	1490	1670	1710	1580	1530	1370	1390	1460	1440	1480	1400	1660	1630	1430	1460	1560	1540	1550	1520	1770	1740		
15	1510	1520	1640	1580	1700	1700	1440	1460	1400	1380	1450	1360	1520	1500	1570	1510	1560	1550	1610	1640	1550	1520	1740	1710		
16	1450	1410	1550	1470	1690	1680	1520	1490	1440	1430	1470	1490	1420	1420	1580	1590	1410	1470	1810	1720	1620	1590	1810	1770		
17	1580	1590	1530	1570	1540	1560	1480	1480	1460	1440	1410	1420	1460	1460	1580	1530	1530	1530	1580	1620	1560	1570	1740	1710		
18	1530	1500	1300	1240	1550	1560	1480	1470	1420	1440	1380	1360	1520	1480	1630	1550	1630	1590	1610	1560	1520	1530	1620	1630		
19	1380	1400	1350	1440	1650	1640	1390	1380	1540	1460	1520	1350	1470	1490	1680	1680	1620	1690	1530	1550	1510	1490	1710	1670		
20	1200	1200	1480	1510	1660	1620	1540	1470	1490	1490	1490	1440	1510	1490	1680	1680	1630	1570	1570	1520	1610	1530	1660	1620		
21	1340	1310	1610	1470	1680	1660	1500	1460	1590	1550	1610	1520	1570	1570	1780	1740	1540	1540	1650	1640	1670	1610	1600	1580		
22	1440	1430	1580	1570	1650	1660	1470	1450	1500	1520	1720	1640	1730	1760	1830	1790	1570	1560	1510	1500	1530	1640	1660	1580		
23	1240	1220	1570	1550	1640	1580	1470	1450	1410	1410	1780	1730	1700	1750	1700	1700	1470	1470	1670	1530	1530	1510	1540	1500		
24	1340	1340	1660	1620	1650	1660	1610	1660	1540	1480	1810	1830	1840	1810	1630	1650	1510	1470	1610	1620	1660	1640	1530	1510		
25	1500	1460	1650	1650	1630	1630	1670	1700	1620	1600	1770	1800	1780	1790	1600	1570	1500	1480	1570	1610	1540	1560	1810	1670		
26	1580	1500	1650	1640	1830	1800	1580	1520	1710	1710	1700	1670	1500	1590	1520	1510	1520	1520	1630	1590	1500	1490	1530	1560		
27	1580	1540	1090	1140	1710	1680	1570	1540	1660	1670	1680	1640	1560	1570	1480	1460	1460	1470	1550	1500	1730	1470	1490	1460		
28	1540	1530	1070	1040	1860	1830	1570	1650	1580	1570	1600	1570	1530	1520	1560	1530	1460	1470	1540	1540	1550	1570	1620	1560		
29	1600	1550			1640	1650	1660	1620	1560	1510	1480	1500	1400	1420	1560	1540	1420	1410	1570	1560	1590	1570	1700	1670		
30	1550	1490			1600	1590	1510	1500	1420	1410	1550	1460	1440	1430	1530	1450	1540	1470	1550	1550	1660	1640	1740	1760		
31	1640	1610			1670	1700			1400	1420			1420	1400	1480	1470			1740	1590			1910	1830		
Avg	1518	1498	1530	1510	1634	1622	1546	1533	1482	1466	1547	1512	1526	1521	1565	1547	1513	1499	1629	1603	1610	1584	1684	1657	1565	1546
Min	1200	1200	1070	1040	1410	1380	1390	1380	1320	1250	1370	1350	1400	1400	1380	1390	1410	1410	1510	1490	1500	1470	1490	1460	1070	1040
Max	1730	1720	1660	1650	1860	1830	1680	1700	1710	1710	1810	1830	1840	1810	1830	1790	1630	1690	1880	1820	1850	1820	1910	1830	1910	1830

Point Loma Wastewater Treatment Plant
2017 Instantaneous Maximum Chlorine (mg/L) - online meter

Day	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
9	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
19	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
26	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
28	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
29	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
30	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	Annual
31	0.00		0.00		0.00		0.00	0.00		0.00		0.00	Summary
Avg	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Min	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Max	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Continuous monitoring was initiated on February 1, 2011. To ensure daily monitoring of chlorine residual, during periods when the continuous monitoring equipment was off-line or down for maintenance, monitoring of chlorine was accomplished by the on-site laboratory following the schedule previously stipulated in Addendum No. 2 of Order R9-2002-0025.

Point Loma Wastewater Treatment Plant
2017 Instantaneous Maximum Chlorine (mg/L) - Laboratory Grab

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	
1	0	0	1.95	0	0	0	0	0	0	0	0	0	
2	0	0	0.22	0	0	0	0	0	0	0	0	0	
3	0	0	0	0	0	0	0	0	0	0	0	0	
4	0	0	0	0	0	0	0	0	0	0	0	0	
5	0	0	0	0	0	0	0	0	0	0	0	0	
6	0	0	0	0	0	0	0	0	0	0	0	0	
7	0	0	0	0	0	0	0	0	0	0	0	0	
8	0	0	0	0	0	0	0	0	0	0	0	0	
9	0	0	0	0	0	0	0	0	0	0	0	0	
10	0	0	0	0	0	0	0	0	0	0	0	0	
11	0	0	0	0	0	0	0	0	0	0	0	0	
12	0	0	0	0	0	0	0	0	0	0	0	0	
13	0	0	0	0	0	0	0	0	0	0	0	0	
14	0	0	0	0	0	0	0	0	0	0	0	0	
15	0	0	0	0	0	0	0	0	0	0	0	0	
16	0	0	0	0	0	0	0	0	0	0	0	0	
17	0	0	0	0	0	0	0	0	0	0	0	0	
18	0	0	0	0	0	0	0	0	0	0	0	0	
19	0	0	0	0	0	0	0	0	0	0	0	0	
20	0	0	0	0	0	0	0	0	0	0	0	0	
21	2.16	0	0	0	0	0	0	0	0	0	0	0	
22	1.15	0	0	0	0	0	0	0	0	0	0	0	
23	0	0	0	0	0	0	0	0	0	0	0	0	
24	0	0	0	0	0	0	0	0	0	0	0	0	
25	0	0	0	0	0	0	0	0	0	0	0	0	
26	0	0	0	0	0	0	0	0	0	0	0	0	
27	0	0	0	0	0	0	0	0	0	0	0	0	
28	0	1.4	0	0	0	0	0	0	0	0	0	0	
29	0		0	0	0	0	0	0	0	0	0	0	
30	0		0	0	0	0	0	0	0	0	0	0	Annual
31	0		0		0		0	0		0		0	Summary
Average	0.11	0.05	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02
Maximum	2.16	1.40	1.95	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.16

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F. Toxicity Bioassays

Toxicity Testing: Point Loma Wastewater Treatment Plant 2017

INTRODUCTION

The City of San Diego's Toxicology Laboratory (CSDTL) conducted aquatic toxicity tests (bioassays) for the Point Loma Wastewater Treatment Plant (PLWTP) as required by NPDES Permit No. CA0107409 (Order No. R9-2009-0001) from January 1 to September 30, 2017; and (Order No. R9-2017-0007) from October 1 to December 31, 2017. The testing requirements are designed to determine the acute and chronic toxicity of effluent samples collected from the PLWTP. This chapter presents summaries and discussion of all toxicity tests conducted in the calendar year 2017.

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 animals. The City of San Diego was required to conduct acute toxicity tests of PLWTP effluent on a semiannual schedule under NPDES Permit No. CA0107409 (Order No. R9-2009-0001). Order No. R9-2017-0007, effective October 1, 2017, removed performance goals and monitoring requirements for acute toxicity and retained effluent limitations for chronic toxicity only.

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 detecting toxicants than acute tests in that adverse effects can be identified at lower toxicant concentrations. The City of San Diego is required to conduct monthly critical/early life stage chronic tests of PLWTP effluent that are intermediate between the acute and chronic toxicity testing protocols discussed above. These test results serve as short-term estimates of chronic toxicity.

All required toxicity analyses in 2017 were performed by the CSDTL's internal toxicology laboratory. The laboratory is certified by the California State Water Resources Control Board Environmental Laboratory Accreditation Program (Certificate No. 1989).

MATERIALS & METHODS

Test Materials

Under Permit Order No. R9-2009-0001, effective from January 1 to September 30, 2017 twenty-four hour, flow-weighted, composite effluent samples were collected at the PLWTP and stored between 0 – 6 ºC with minimal light exposure 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 percent (nominal) for the acute tests and 0.15, 0.27, 0.49, 0.88, and 1.56 percent for the chronic tests. Un-impacted receiving water from station B8 was used as dilution water in accordance with permit requirements. A receiving water control was included for all acute and chronic tests.

The B8 receiving water samples were collected from a depth of 2 m and stored at 0 – 6 ºC until the initiation of chronic tests within 96 hours of collection. For the acute tests, receiving water may be collected and stored at 0 – 6 ºC for up to two weeks prior to test initiation. The station coordinates are as follows:

Collection Location	Latitude/Longitude	Station Depth (m)
B-8	32° 45.50' N, 117° 20.77' W	88.4

Dilution water for the acute and chronic reference toxicant tests was obtained from the Scripps Institution of Oceanography (SIO), filtered to 0.2 µm, and held at the appropriate test temperature until test initiation. All toxicity tests were conducted according to established USEPA protocols for each bioassay, and detailed descriptions for all tests are provided in the CSDTL Quality Assurance Manual (City of San Diego 2017).

Under Permit Order No. R9-2017-0007, effective October 1, 2017, twenty-four hour, flow-weighted, composite effluent samples were collected at the PLWTP and stored between 0 – 6 ºC with minimal light exposure until test initiation. All tests were initiated within 36 hours of sample collection. Permit Order No. R9-2017-0007 updates effluent testing requirements from an exposure series to a single-concentration test at the discharge In-stream Waste Concentration (IWC). The discharge In-stream Waste Concentration for chronic toxicity is 0.49 percent effluent. Test results are determined by comparing control performance with the IWC for chronic toxicity (0.49 % effluent). Dilution water for all tests (effluent and reference toxicant) was obtained from the Scripps Institution of Oceanography (SIO), filtered to 0.2 µm, held at approximately 15 ºC, and used within 96 hours of collection or frozen to produce hypersaline brine. Detailed descriptions for all toxicity test procedures are provided in the City of San Diego Toxicology Laboratory Quality Assurance Manual (City of San Diego, 2017).

Acute Bioassays

Mysid Survival Bioassay

Under Permit Order No. R9-2009-0001, effective from January 1 to September 30, 2017, acute bioassays using the mysid shrimp *Americamysis bahia* (*Mysidopsis bahia*), were conducted for the PLWTP Effluent as a part of the biennial monitoring in June in accordance with USEPA protocol EPA-821-R02-012 (USEPA 2002). Permit Order No. R9-2017-0007, effective October 1, 2017, no longer requires acute monitoring and therefore a second biennial testing event was not conducted.

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 prior to test initiation. Upon test initiation, the mysids (5 per replicate) were exposed for 96 ± 2 h in a static-renewal system to the effluent exposure series. Receiving water and salt controls were also tested. The test solutions were renewed at 48 hours and the organisms were fed twice 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 consisted of natural seawater from SIO held at test temperature. Upon conclusion of the exposure period, percent survival was recorded. Tests were declared valid if mean control mortality did not exceed 10 percent.

Chronic Bioassays

In 2016 the City conducted chronic bioassays of the PLWTP effluent in accordance with the biennial species sensitivity re-screening requirement using the red abalone (*Haliotis rufescens)*, giant kelp (*Macrocystis pyrifera)*, and topsmelt (*Atherinops affinis)*. The giant kelp was selected as the most sensitive species for continued monitoring of the PLWTP effluent in accordance with USEPA protocol EPA/600/R-95/136 (USEPA 1995).

Kelp Germination and Growth Test

During the current reporting period (January–December 2017), chronic bioassays using the giant kelp, *Macrocystis pyrifera,* were conducted for the PLWTP effluent on a monthly basis as a part of routine monitoring 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 Point Loma and/or La Jolla, California, one day prior to test initiation. The zoospores were exposed in a static system for 48 ± 3 hours to the effluent exposure series. At the end of the exposure period, 100 randomly-selected zoospores from each replicate were examined and the percent germination was recorded. In addition, germination tube (germ-tube) length was measured as an estimate of growth and recorded for 10 of the germinated zoospores.

Simultaneous reference toxicant testing was performed using reagent grade copper chloride. The exposure series consisted of 10, 32, 100, 180, 320, and 560 µg/L copper. An SIO seawater control was also tested.

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" (USEPA 1995).

Statistical Methods

All data were analyzed using a combination of multiple comparison and point estimation methods prescribed by USEPA (1995, 2002). Comprehensive Environmental Toxicity Information System (CETIS) Software (Tidepool Scientific 2016) was used for statistical analyses. In addition, all multi-concentration tests were subjected to an evaluation of the concentration-response relationship.

In accordance with USEPA guidelines on method variability, the lower "Percent Minimum Significant Difference" (PMSD) bound was also evaluated for chronic toxicity test data in order to minimize Type 1 error (i.e., false positives). If the relative difference between an exposure concentration and the control was smaller than the 10^{th} percentile PMSD value listed for the test method in the USEPA guidance document, then the exposure concentration was further evaluated using other EPA-approved statistical strategies (USEPA 2000).

Under Permit Order No. R9-2017-0007, effective October 1, 2017, the PLWTP effluent discharge performance at the IWC was evaluated using the Test of Significant Toxicity (TST) statistical t-test approach described in National Pollutant Discharge Elimination System Test of Significant Toxicity Implementation Document (EPA 833-R-10-004, 2010). The TST is a statistical analysis that determines if the means of two test concentrations (the laboratory control and IWC) are statistically different (i.e., if the IWC concentration differs from the control). The TST test results are reported as "Pass" or "Fail," and "Percent Effect" at the discharge IWC relative to control performance.

RESULTS & DISCUSSION

Acute Toxicity of PLWTP Effluent

In 2017, all acute bioassays of the PLWTP effluent using the mysid shrimp met the acceptability criterion of > 90 percent mean control survival and demonstrated compliance with permit standards (Table T.1).

TABLE T.1

Results of PLWTP effluent semi-annual acute toxicity tests conducted in 2017. Data are presented as acute toxic units (TUa[1]).

Sample Date	Mysid 96-Hour Bioassay
06/05/2017	4.0
NA[2]	NA[2]
N	1
No. in compliance	1
Mean TUa	4.0

[1]NPDES permit limit: 6.42 TUa

[2]Permit Order No. R9-2017-0007, effective October 1, 2017, no longer requires acute monitoring and therefore a second biennial testing event was not conducted.

Chronic Toxicity of PLWTP Effluent

All chronic bioassays in 2017 were conducted with Giant kelp, *Macrocystis pyrifera*, and met the test acceptability criteria and the NPDES permit's chronic toxicity performance goal (Table T.2 and T.3).

TABLE T.2

Results of PLWTP effluent monthly chronic toxicity tests conducted from January 1, 2017 to September 30, 2017 as required by Permit Order No. R9-2009-0001. Data are presented as chronic toxic units (TUc).

	Giant Kelp	
Sample Date	Germination	Growth
01/17/2017	<64.1	114
02/06/2017	<64.1	<64.1
03/06/2017	<64.1	<64.1
04/10/2017	114	<64.1
05/15/2017	<64.1	<64.1
06/05/2017	<64.1	<64.1
07/17/2017	114	114
08/07/2017	<64.1	<64.1
09/18/2017	<64.1	114
N	9	9
No. in Compliance	9	9
Median TUc	<64.1	<64.1
Mean TUc (Detected values)	<75.2	<80.7

NPDES permit limit: 205 TUc

TABLE T.3

Results of PLWTP effluent monthly chronic toxicity tests conducted from October 1, 2017 to December 31, 2017 as required by Permit Order No. R9-2017-0007. Data are presented using TST test results which are reported as "Pass" or "Fail," and "Percent Effect" at the discharge IWC relative to control performance.

Sample Date	Giant Kelp			
	Germination		Growth	
	TST Result[3]	Percent Effect[4]	TST result[3]	Percent Effect[4]
10/16/2017	Pass	- 0.7	Pass	- 6.4
11/06/2017	Pass	- 1.3	Pass	- 0.9
12/06/2016	Pass	- 0.9	Pass	0.8
N	3	3	3	3
No. in Compliance	3	3	3	3
Median Percent Effect	NA	-0.9	NA	-0.9
Mean Percent Effect	NA	-1.0	NA	-2.2

[3] TST = Test of Significant Toxicity conducted on the Discharge In-stream Waste Concentration (IWC) for Chronic Toxicity (0.49 % effluent)
[4] Percent Effect at the IWC = ((Mean control response - Mean discharge IWC response) ÷ Mean control response) × 100. A negative Percent Effect indicates that the IWC outperformed the control.
Permit Compliance Limit = Pass

LITERATURE CITED

City of San Diego. 2017. Quality Assurance Manual for Toxicity Testing. City of San Diego Ocean Monitoring Program, Public Utilities Department, Environmental Monitoring and Technical Services Division, San Diego, CA.

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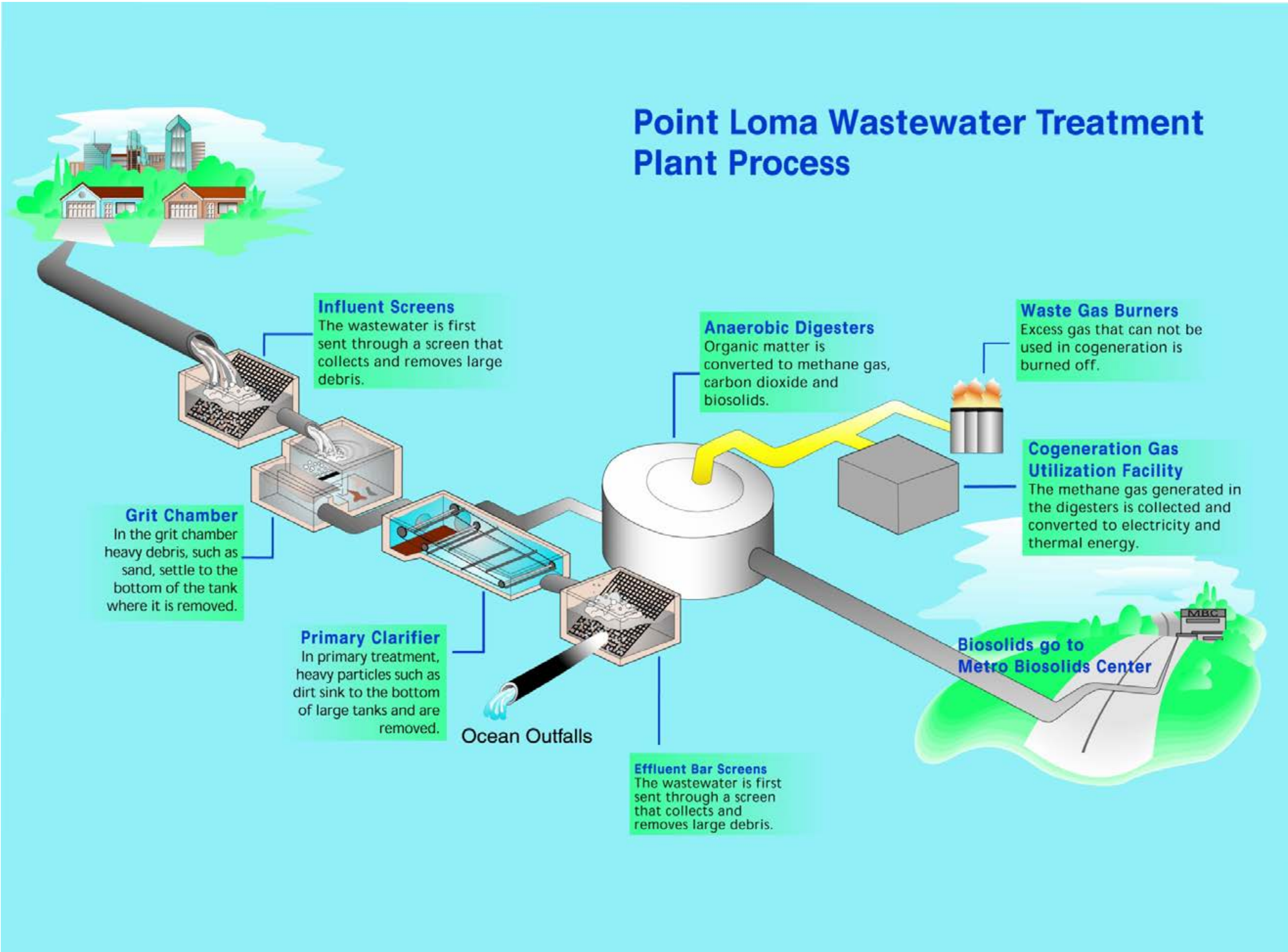
USEPA. 1995. Short-Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to West Coast Marine and Estuarine Organisms. U.S. Environmental Protection Agency, Environmental Monitoring and Support Laboratory, Cincinnati, OH, EPA/600/R-95-136.

USEPA. 2000. Understanding and Accounting for Method Variability in Whole Effluent Toxicity Applications Under the National Pollutant Discharge Elimination System Program. U.S. Environmental Protection Agency, Office of Water (4203), EPA 833-R-00-003.

USEPA. 2002. Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms. Fifth Edition. U.S. Environmental Protection Agency, Office of Water (4303T), Washington, DC, EPA-821-R-02-012.



Point Loma Wastewater Treatment Plant Process
Influent Screens
The wastewater is first sent through a screen that collects and removes large debris.
Grit Chamber
In the grit chamber heavy debris, such as sand, settle to the bottom of the tank where it is removed.
Primary Clarifier
In primary treatment, heavy particles such as dirt sink to the bottom of large tanks and are removed.
Ocean Outfalls
Effluent Bar Screens
The wastewater is first sent through a screen that collects and removes large debris.
Anaerobic Digesters
Organic matter is converted to methane gas, carbon dioxide and biosolids.
Waste Gas Burners
Excess gas that can not be used in cogeneration is burned off.
Cogeneration Gas Utilization Facility
The methane gas generated in the digesters is collected and converted to electricity and thermal energy.
Biosolids go to Metro Biosolids Center
MBC

POINT LOMA TREATMENT PLANT PROCESS FLOW DIAGRAM

Wastewater Laboratory Testing

S1 Suspended solids and B.O.D, as well as all permit required parameters tested to show plant removal efficiencies

S2 Contract specifications tests run on Ferric Chloride

S3 specification testing done.

S4 Total and volatile solids tested to later determine if solids reduction meets treatment standard

S5 Digester volatile acids, pH, and alkalinity tested to determine if this feed rate, temperature and mixing are in the correct balance for the right microbial population to digest the sludge

S6 Volatile solids tested and removal rates used to determine how well the sludge was stabilized and if it meets EPA standards for nuisance & biological hazard reduction.

S7 Final Biosolids tested for all EPA and health dept. standards to determine the best beneficial reuse options.

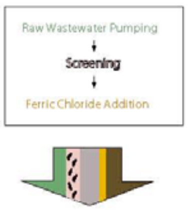
S8 Digester gas tested for percent methane, to determine if the microbial populations in the digester are in proper balance, and to indicate fuel value of digester gas. Hydrogen Sulfide tested to determine the corrosivity of the gas to the power generation equipment and air pollution potential.

S9 % percent moisture tested to assure that landfill criteria are met

S10 All priority pollutants and other chemicals of concern are tested and the results compared to our discharge standards and reported to state and national regulators. The removal rates for solids on B.O.D. are used by Operations to guide adjustments to the treatment plant.

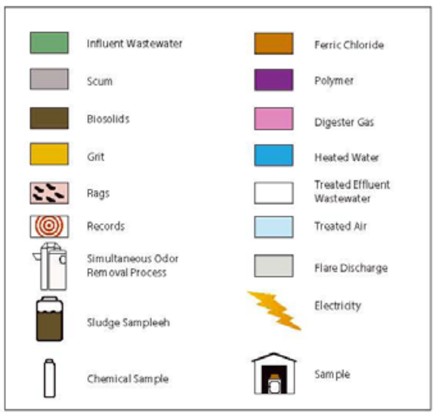
S11 Ocean water, sediments and fish tested to see if our discharge has an impact

Pump Station 1

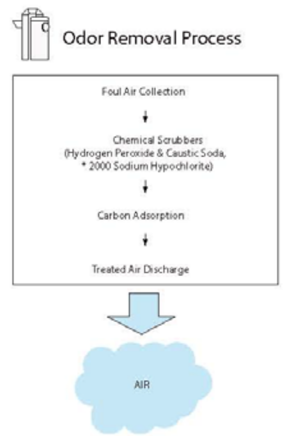


Pump Station 2

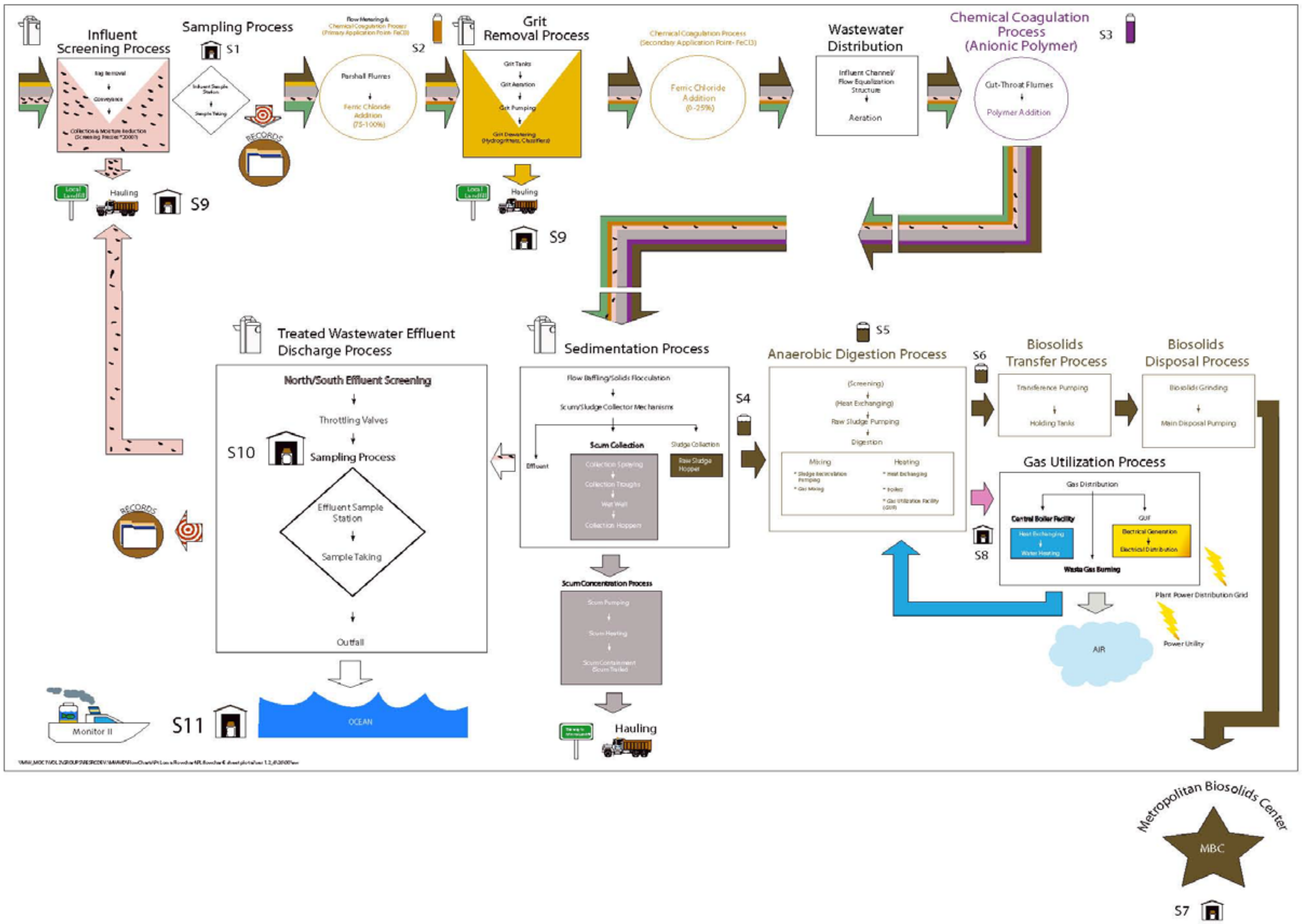
Legend



Odor Removal Process



Point Loma Wastewater Treatment Plant



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III. Plant Operations Summary

A. Flows
B. Rain Days
C. Solids Production
D. Chemical Usage
E. Gas Production
F. Graphs of Chemical Usage
G. Grit Analyses
H. Raw Sludge Data Summary
I. Digester and Digested Sludge Data Summary

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A. Flows

Point Loma Wastewater Treatment Plant Annual Monitoring Report
Flow Report - 2017

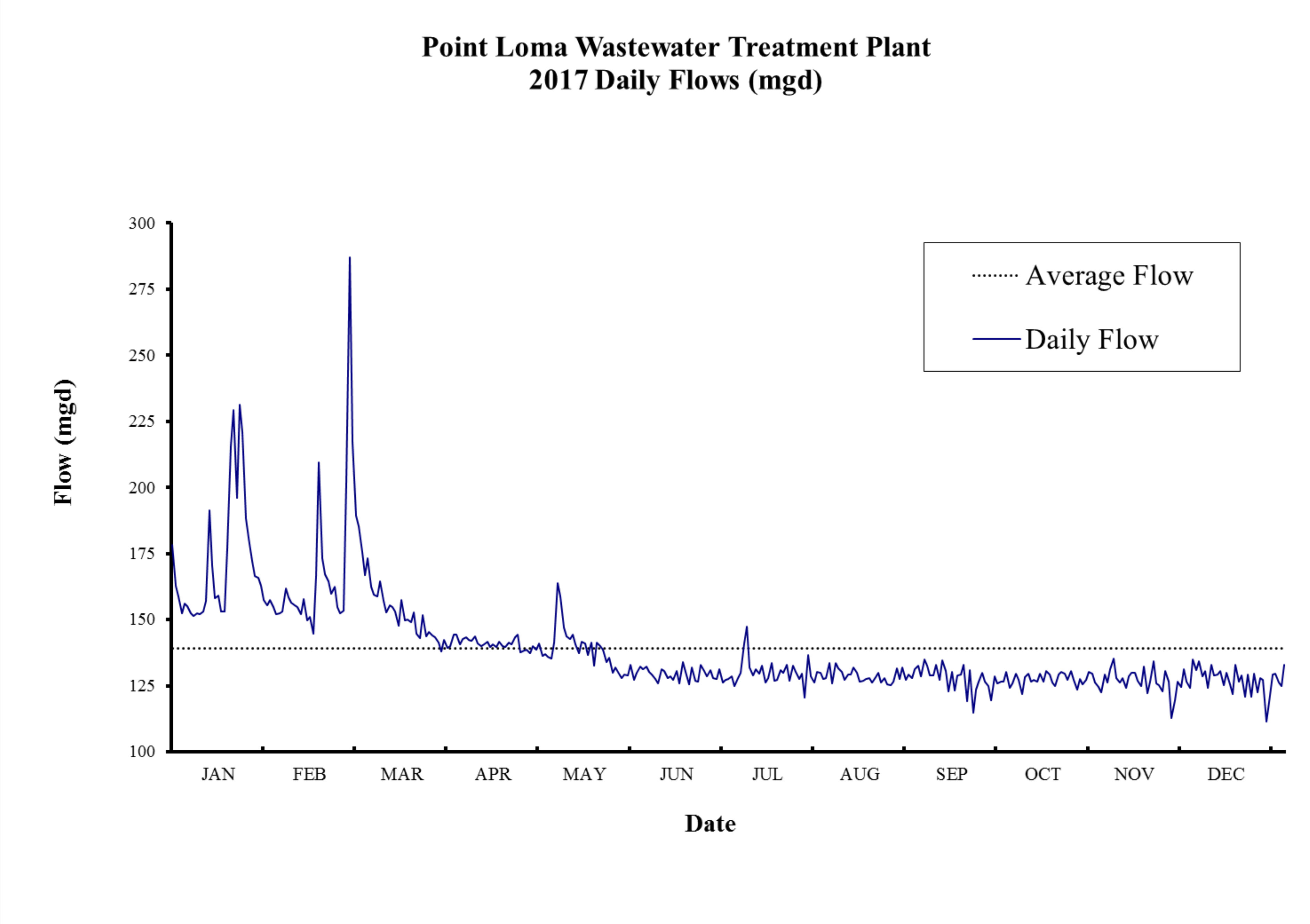
WASTEWATER FLOWS
Daily Average Flows - Millions of Gallons

Mon	Pt. L Gould	Pt. L ADS	PS#2 Flow	PS#2 Pumps	PS#1 Flows
01	172.0	169.4	169.4	160.6	62.5
02	165.0	161.3	165.9	153.3	57.1
03	157.1	154.4	157.0	120.1	53.7
04	141.0	140.3	141.7	72.1	48.5
05	138.7	137.1	136.6	68.0	47.9
06	129.3	133.9	129.8	81.0	49.2
07	130.1	134.9	130.5	124.8	50.9
08	128.6	120.6	129.9	124.1	49.4
09	127.8	112.9	129.9	131.6	48.6
10	127.5	120.3	128.7	126.9	48.4
11	126.8	126.3	127.6	123.8	49.4
12	127.3	129.9	127.9	120.3	50.8
avg	139.3	136.8	139.6	117.2	51.4
sum	1,671.2	1,641.5	1,675.1	1,406.7	616.4

WASTEWATER FLOWS
Monthly Total Flows - Millions of Gallons

Mon	Pt. L Gould	Pt. L ADS	PS#2 Flow	PS#2 Pumps	PS#1 Flows
01	5,333	5,253	5,251	4,977	1,937
02	4,620	4,517	4,646	4,294	1,598
03	4,871	4,787	4,867	3,722	1,664
04	4,229	4,208	4,250	2,164	1,456
05	4,299	4,251	4,234	2,109	1,485
06	3,879	4,018	3,894	2,430	1,475
07	4,034	4,183	4,046	3,869	1,578
08	3,988	3,739	4,028	3,848	1,530
09	3,835	3,386	3,898	3,947	1,457
10	3,953	3,730	3,991	3,935	1,501
11	3,803	3,788	3,829	3,714	1,483
12	3,947	4,028	3,966	3,731	1,576
avg	4,232	4,157	4,242	3,562	1,562
sum	50,788	49,890	50,900	42,740	18,740

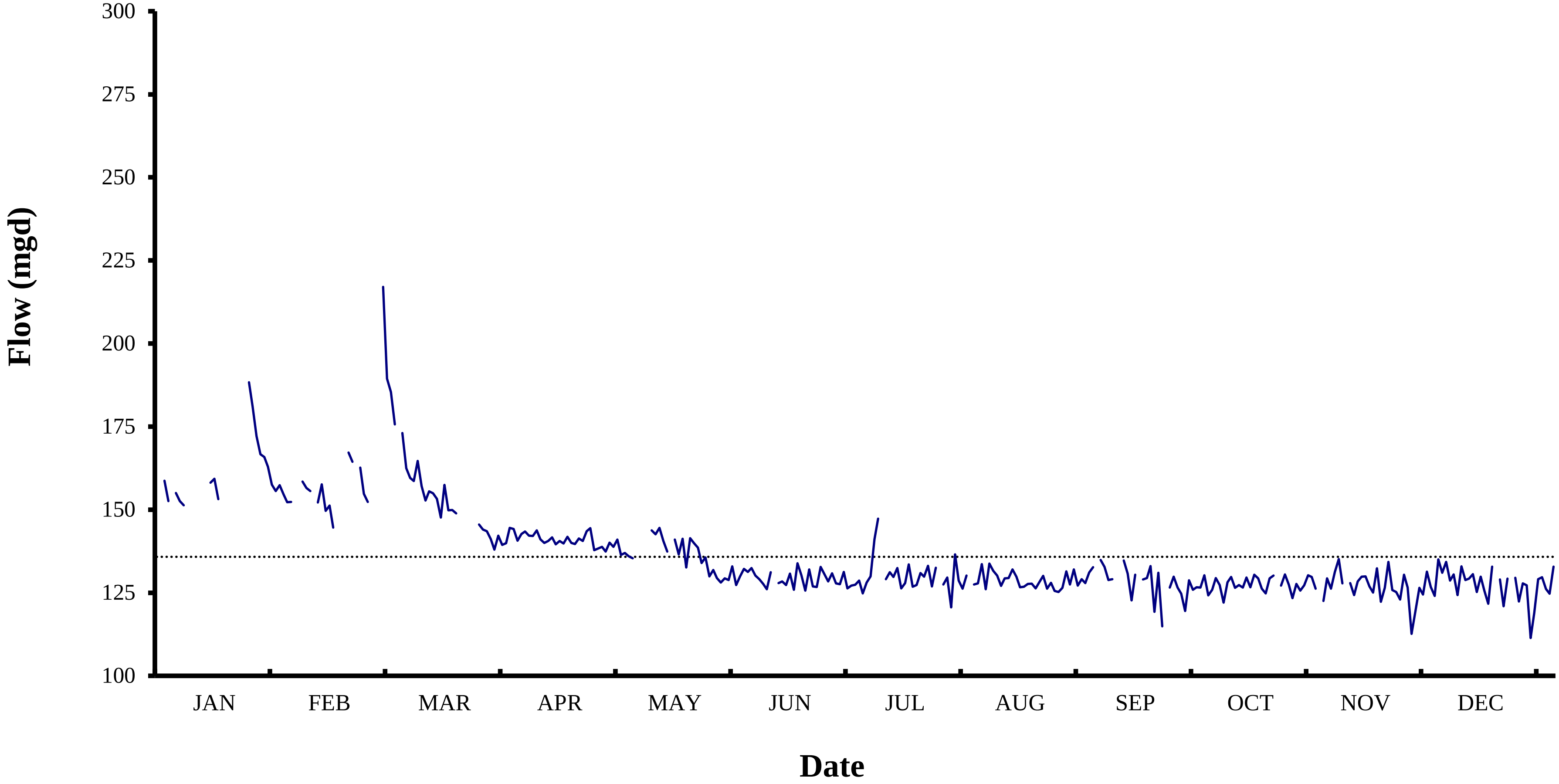
NOTES: Flows taken at the Point Loma WTP are from the Parshall flumes at the headworks. Water depth in the flume is measured by 2 meters: the Gould meters measure water pressure while the ADS meters are sonar devices that measure the distance of the water level below the meter. The flows through Pump Station II (PS#2) are from Venturi meters. PS#2 flow is the flow from the totalizer to which all of the Venturi meters feed. PS#2 Pumps is the sum of the readings on the individual Venturi meters which are connected to each of the pumps at the pump station. PS#1 is the flow from the Venturi meters at Pump Station 1.


Point Loma Wastewater Treatment Plant
2017 Daily Flows (mgd)
Average Flow
Daily Flow
Flow (mgd)
300
275
250
225
200
175
150
125
100
JAN
FEB
MAR
APR
MAY
JUN
JUL
AUG
SEP
OCT
NOV
DEC
Date

Point Loma Wastewater Treatment Plant
2017 Flows (mgd)

Day	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
1	178.4	155.6	217.1	139.4	141.0	127.3	127.1	129.9	131.1	130.3	122.5	135.0	
2	162.8	157.3	189.4	139.9	136.4	130.0	127.4	127.5	132.7	124.2	129.3	131.0	
3	158.7	154.6	185.4	144.5	137.0	132.2	128.6	127.9	128.5	125.9	126.2	134.3	
4	152.6	152.2	175.7	144.2	136.0	131.3	124.8	133.6	134.9	129.5	131.2	128.6	
5	156.1	152.3	167.0	140.6	135.4	132.4	128.0	126.1	132.8	127.3	135.1	130.5	
6	155.1	153.1	173.1	142.7	141.4	130.1	129.9	133.8	128.8	122.0	127.8	124.3	
7	152.6	162.0	162.5	143.4	163.8	129.1	141.1	131.6	129.1	128.2	126.3	133.0	
8	151.3	158.4	159.5	142.2	158.8	127.6	147.3	130.2	132.9	129.7	127.9	128.8	
9	152.4	156.5	158.6	142.1	147.0	126.0	131.9	127.1	127.2	126.5	124.3	129.2	
10	152.2	155.6	164.7	143.8	143.8	131.2	129.1	129.4	134.7	127.3	128.4	130.6	
11	153.0	154.6	157.1	141.1	142.6	130.4	131.2	129.4	130.7	126.5	129.8	125.2	
12	157.2	152.1	152.7	140.0	144.5	127.9	129.7	132.0	122.7	129.6	129.9	129.9	
13	191.4	157.6	155.5	140.6	140.6	128.4	132.5	129.8	130.4	126.6	126.9	125.7	
14	170.5	149.7	154.9	141.7	137.4	127.3	126.3	126.6	123.1	130.4	125.0	121.7	
15	158.2	151.2	153.2	139.6	141.8	130.7	128.0	126.8	129.0	129.3	132.4	132.8	
16	159.3	144.6	147.6	140.6	141.0	125.9	133.6	127.7	129.4	126.2	122.3	126.6	
17	153.1	166.5	157.5	139.8	136.6	133.9	126.8	127.8	133.0	124.8	126.5	129.0	
18	153.2	209.5	149.8	141.8	141.3	130.2	127.3	126.3	119.3	129.3	134.3	120.9	
19	177.0	173.1	149.9	140.0	132.6	125.6	130.9	128.1	131.0	130.2	125.8	129.3	
20	215.5	167.2	148.9	139.7	141.4	132.0	129.9	130.1	114.9	129.5	125.2	120.9	
21	229.1	164.4	152.7	141.3	139.9	126.9	133.1	126.2	123.4	127.1	122.9	129.5	
22	196.2	159.7	144.6	140.6	138.6	126.7	126.9	128.0	126.5	130.5	130.4	122.4	
23	231.4	162.7	143.0	143.5	134.0	132.8	132.6	125.6	129.9	127.4	126.5	127.8	
24	220.9	154.7	151.8	144.4	135.6	130.5	130.2	125.3	126.6	123.4	112.7	127.2	
25	188.3	152.3	143.8	137.8	130.0	128.4	127.5	126.4	124.7	127.7	119.5	111.4	
26	181.0	153.4	145.5	138.4	131.9	130.8	129.6	131.5	119.5	125.7	126.5	118.9	
27	172.2	201.6	144.0	138.8	129.4	127.8	120.6	127.5	128.7	127.2	124.5	129.1	
28	166.7	287.0	143.5	137.4	128.1	127.6	136.6	132.0	125.9	130.2	131.4	129.6	
29	165.9		141.2	140.1	129.3	131.3	128.7	127.2	126.7	129.8	126.7	126.1	
30	163.0		138.0	138.8	128.9	126.3	126.2	129.1	126.6	126.2	124.1	124.7	Annual
31	157.5		142.2		133.0		130.2	127.9		124.4		132.8	Summary
Average	172.0	165.0	157.1	141.0	138.7	129.3	130.1	128.6	127.8	127.5	126.8	127.3	139.1
Minimum	151.3	144.6	138.0	137.4	128.1	125.6	120.6	125.3	114.9	122.0	112.7	111.4	111.4
Maximum	231.4	287.0	217.1	144.5	163.8	133.9	147.3	133.8	134.9	130.5	135.1	135.0	287.0
Total	5332.5	4619.8	4870.6	4228.7	4298.7	3878.8	4033.6	3988.1	3834.8	3952.9	3802.7	3947.2	50788

Point Loma Wastewater Treatment Plant
2017 Dry Wethaer Flows (mgd)



Point Loma Wastewater Treatment Plant
2017 Dry Weather Flows (mgd)

Day	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Summary
1		155.6	217.1	139.4	141.0	127.3	127.1		131.1	130.3	122.5	135.0	
2		157.3	189.4	139.9	136.4	130.0	127.4	127.5	132.7	124.2	129.3	131.0	
3	158.7	154.6	185.4	144.5	137.0	132.2	128.6	127.9		125.9	126.2	134.3	
4	152.6	152.2	175.7	144.2	136.0	131.3	124.8	133.6	134.9	129.5	131.2	128.6	
5		152.3		140.6	135.4	132.4	128.0	126.1	132.8	127.3	135.1	130.5	
6	155.1		173.1	142.7		130.1	129.9	133.8	128.8	122.0	127.8	124.3	
7	152.6		162.5	143.4		129.1	141.1	131.6	129.1	128.2		133.0	
8	151.3	158.4	159.5	142.2		127.6	147.3	130.2		129.7	127.9	128.8	
9		156.5	158.6	142.1		126.0		127.1		126.5	124.3	129.2	
10	152.2	155.6	164.7	143.8	143.8	131.2	129.1	129.4	134.7	127.3	128.4	130.6	
11			157.1	141.1	142.6		131.2	129.4	130.7	126.5	129.8	125.2	
12		152.1	152.7	140.0	144.5	127.9	129.7	132.0	122.7	129.6	129.9	129.9	
13		157.6	155.5	140.6	140.6	128.4	132.5	129.8	130.4	126.6	126.9	125.7	
14		149.7	154.9	141.7	137.4	127.3	126.3	126.6		130.4	125.0	121.7	
15	158.2	151.2	153.2	139.6		130.7	128.0	126.8	129.0	129.3	132.4	132.8	
16	159.3	144.6	147.6	140.6	141.0	125.9	133.6	127.7	129.4	126.2	122.3		
17	153.1		157.5	139.8	136.6	133.9	126.8	127.8	133.0	124.8	126.5	129.0	
18			149.8	141.8	141.3	130.2	127.3	126.3	119.3	129.3	134.3	120.9	
19			149.9	140.0	132.6	125.6	130.9	128.1	131.0	130.2	125.8	129.3	
20		167.2	148.9	139.7	141.4	132.0	129.9	130.1	114.9		125.2		
21		164.4		141.3	139.9	126.9	133.1	126.2		127.1	122.9	129.5	
22				140.6	138.6	126.7	126.9	128.0	126.5	130.5	130.4	122.4	
23		162.7		143.5	134.0	132.8	132.6	125.6	129.9	127.4	126.5	127.8	
24		154.7		144.4	135.6	130.5		125.3	126.6	123.4	112.7	127.2	
25	188.3	152.3		137.8	130.0	128.4	127.5	126.4	124.7	127.7	119.5	111.4	
26	181.0		145.5	138.4	131.9	130.8	129.6	131.5	119.5	125.7	126.5	118.9	
27	172.2		144.0	138.8	129.4	127.8	120.6	127.5	128.7	127.2	124.5	129.1	
28	166.7		143.5	137.4	128.1	127.6	136.6	132.0	125.9	130.2	131.4	129.6	
29	165.9		141.2	140.1	129.3	131.3	128.7	127.2	126.7	129.8	126.7	126.1	
30	163.0		138.0	138.8	128.9	126.3	126.2	129.1	126.6	126.2	124.1	124.7	
31	157.5		142.2		133.0		130.2	127.9				132.8	
Average	161.7	155.5	158.7	141.0	136.4	129.3	130.1	128.6	128.0	127.5	126.8	127.6	135.8
Minimum	151.3	144.6	138.0	137.4	128.1	125.6	120.6	125.3	114.9	122.0	112.7	111.4	111.4
Maximum	188.3	167.2	217.1	144.5	144.5	133.9	147.3	133.8	134.9	130.5	135.1	135.0	217.1
Total	2587.4	2799.3	3967.7	4228.7	3546.0	3748.4	3771.6	3858.2	3199.7	3698.9	3676.4	3699.7	42782

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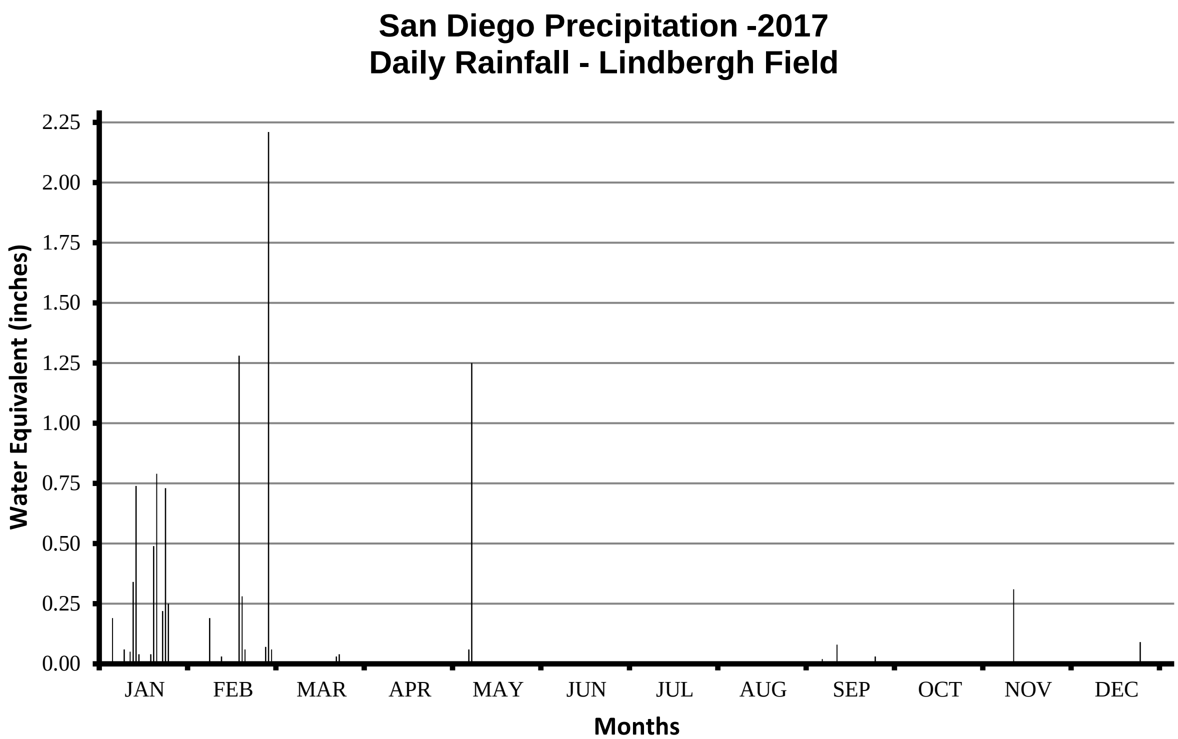
B. Rain Days



San Diego Precipitation -2017
Daily Rainfall - Lindbergh Field
Water Equivalent (inches)
2.25
2.00
1.75
1.50
1.25
1.00
0.75
0.50
0.25
0.00
JAN
FEB
MAR
APR
MAY
JUN
JUL
AUG
SEP
OCT
NOV
DEC
Months

San Diego Precipitation – 2017
Daily Rainfall – Lindbergh Field

Total Annual Precipitation = 10.1 **Maximum=2.21** **Trace=0**

First Quarter		Second Quarter		Third Quarter		Fourth Quarter	
Date	Rain	Date	Rain	Date	Rain	Date	Rain
1-Jan-17	0.03	6-May-17	0.06	9-Jul-17	T	20-Oct-17	T
2-Jan-17	T	7-May-17	1.25	24-Jul-17	0.01	31-Oct-17	T
5-Jan-17	0.19	8-May-17	0.01	1-Aug-17	T	7-Nov-17	0.31
9-Jan-17	0.06	9-May-17	T	3-Sep-17	0.02	16-Dec-17	T
11-Jan-17	0.05	15-May-17	T	8-Sep-17	0.08	20-Dec-17	0.09
12-Jan-17	0.34	11-Jun-17	T	9-Sep-17	T		
13-Jan-17	0.74			14-Sep-17	T		
14-Jan-17	0.04			21-Sep-17	0.03		
18-Jan-17	0.04						
19-Jan-17	0.49						
20-Jan-17	0.79						
21-Jan-17	T						
22-Jan-17	0.22						
23-Jan-17	0.73						
24-Jan-17	0.25						
6-Feb-17	T						
7-Feb-17	0.19						
11-Feb-17	0.03						
17-Feb-17	1.28						
18-Feb-17	0.28						
19-Feb-17	0.06						
22-Feb-17	T						
26-Feb-17	0.07						
27-Feb-17	2.21						
28-Feb-17	0.06						
5-Mar-17	0.01						
21-Mar-17	0.01						
22-Mar-17	0.03						
23-Mar-17	0.04						
24-Mar-17	T						
25-Mar-17	T						
TOTALS	8.24		1.32		0.14		0.4

C. Solids Production

Point Loma Annual Monitoring Report
Solids Report – TOTALS

From 01-JAN-2017 TO 31-DEC-2017

Month	Pt. Loma Raw sludge Gallons	Dry Tons	Pt.Loma Digested Sludge Gallons	Dry Tons	MBC Combined Centrate Gallons	Dry Tons	MBC Dewatered Sludge Wet Tons	Dry Tons
01	33,670,810	6,190	33,670,810	3,510	57,994,171	843	10,763	3,022
02	31,276,951	5,703	31,276,951	3,247	57,666,252	915	9,857	2,861
03	36,002,141	6,205	36,002,141	3,705	67,944,095	877	11,508	3,331
04	54,495,260	9,544	54,495,260	5,386	62,845,958	917	10,428	2,903
05	34,924,265	6,080	34,731,909	3,397	62,785,603	895	10,548	2,973
06	29,936,461	5,579	29,936,461	3,041	60,664,332	810	10,845	2,979
07	31,475,133	5,684	31,475,133	3,203	62,215,032	891	10,807	2,920
08	31,941,239	5,512	31,941,239	3,233	63,349,032	903	10,639	2,833
09	31,905,776	5,782	31,232,303	3,230	62,114,078	850	9,940	2,607
10	31,611,776	5,405	31,611,776	3,236	66,166,985	899	10,963	2,908
11	28,409,517	4,976	28,409,517	2,902	63,721,425	846	11,301	2,982
12	28,471,501	5,030	28,471,501	2,980	65,677,716	835	10,412	2,756
avg	33,676,736	5,974	33,604,583	3,423	62,762,057	873	10,668	2,923
sum	404,120,830	71,690	403,255,001	41,070	753,144,679	10,481	128,012	35,075

Point Loma Annual Monitoring Report
Solids Report - Daily Averages by Month

From 01-JAN-2017 TO 31-DEC-2017

Year Month	Pt. Loma Raw sludge Gallons	%TS	Dry Tons	Pt.Loma Digested Sludge Gallons	%TS	Dry Tons	MBC Combined Centrate Gallons	%TS	Dry Tons	MBC Dewatered Sludge Wet Tons	%TS	Dry Tons
17-01	1,086,155	4.4	200	1,086,155	2.5	113	1,870,780	0.35	27.2	347	28.1	97.5
17-02	1,117,034	4.4	205	1,117,034	2.5	116	2,059,509	0.38	32.6	352	29.0	102.2
17-03	1,161,359	4.1	201	1,161,359	2.5	121	2,191,745	0.31	28.4	371	28.9	107.5
17-04	1,816,509	4.2	322	1,816,509	2.4	184	2,094,865	0.35	30.5	348	27.8	96.8
17-05	1,126,589	4.2	197	1,120,384	2.3	111	2,025,342	0.34	28.8	340	28.2	95.9
17-06	997,882	4.5	189	997,882	2.4	100	2,022,144	0.32	27.1	362	27.5	99.3
17-07	1,015,327	4.3	185	1,015,327	2.4	103	2,006,937	0.34	28.9	349	27.0	94.2
17-08	1,030,363	4.1	177	1,030,363	2.4	104	2,043,517	0.34	29.5	343	26.6	91.4
17-09	1,063,526	4.3	188	1,041,077	2.5	107	2,070,469	0.33	28.4	331	26.2	86.9
17-10	1,019,735	4.1	174	1,019,735	2.5	104	2,134,419	0.33	29.1	354	26.5	93.8
17-11	946,984	4.2	168	946,984	2.5	96	2,124,048	0.32	28.2	377	26.4	99.4
17-12	918,436	4.2	164	918,436	2.5	96	2,118,636	0.30	26.9	336	26.5	88.9
avg	1,108,325	4.3	198	1,105,937	2.5	113	2,063,534	0.33	28.8	351	27.4	96.1

Note: A ton is a “short ton” or 2000 lbs of dry solids.
The mechanical condition of the cake pumps and the variability of sludge concentrations can affect the overall accuracies of these reported values.

D. Chemical Usage

Point Loma Annual Chemical Usage Report
Monthly Totals

Annual 2017

Month	Polymer Pt.Loma Gallons	ACTIVE Polymer Pt.Loma Lbs.	Ferric Chloride PS #2 Gallons	Ferrous Chloride PS #2 Gallons	Ferric Chloride Pt.Loma Gallons	Sodium hydroxide PS #1 Gallons	Sodium hydroxide PS #2 Gallons	Sodium hydroxide Pt.Loma Gallons	NaOCl PS #1 Gallons	NaOCl PS #2 Gallons	NaOCl Pt.Loma Gallons	Salt PS #1 Lbs.	Salt PS #2 Lbs.	Salt Pt.Loma Lbs.
01	179,944	7,563			116,325	642	48	3,303	537	2,852	157,398	550	909	15,500
02	151,481	6,367			102,151	257	35	2,361	1,872	1,922	184,693	500	350	14,000
03	155,985	6,560			105,822	270	40	2,914	924	2,042	209,334	700	1,450	15,500
04	135,509	5,693			92,202	70	45	2,947	2,819	1,736	204,303	650	1,850	15,000
05	137,404	5,776			93,949	54	106	3,944	2,185	1,988	186,492	600	2,100	15,500
06	124,049	5,215			84,459	15	72	4,671	3,434	1,922	181,533	550	1,750	15,000
07	128,955	5,420			87,434	7	68	4,800	1,840	2,075	190,859	550	1,950	15,500
08	135,598	5,699			89,297	5	134	4,586	2,170	1,808	184,059	800	3,150	15,500
09	132,323	5,561			84,669	5	60	4,520	2,215	1,922	191,725	400	4,350	15,000
10	142,513	5,991			92,358	0	122	4,592	1,780	2,046	188,083	650	1,400	15,500
11	136,976	5,760			90,080	0	20	4,410	2,028	2,438	188,667	150	900	15,000
12	142,267	5,984			95,822	0	80	3,743	2,350	3,348	189,525	350	1,000	15,500
avg	141,917	5,966			94,547	110	69	3,899	2,013	2,175	188,056	538	1,763	15,208
sum	1,703,004	71,589			1,134,568	1,325	830	46,791	24,154	26,099	2,256,671	6,450	21,159	182,500

E. Gas Production

Point Loma Wastewater Treatment Plant
Gas Report

Annual 2017

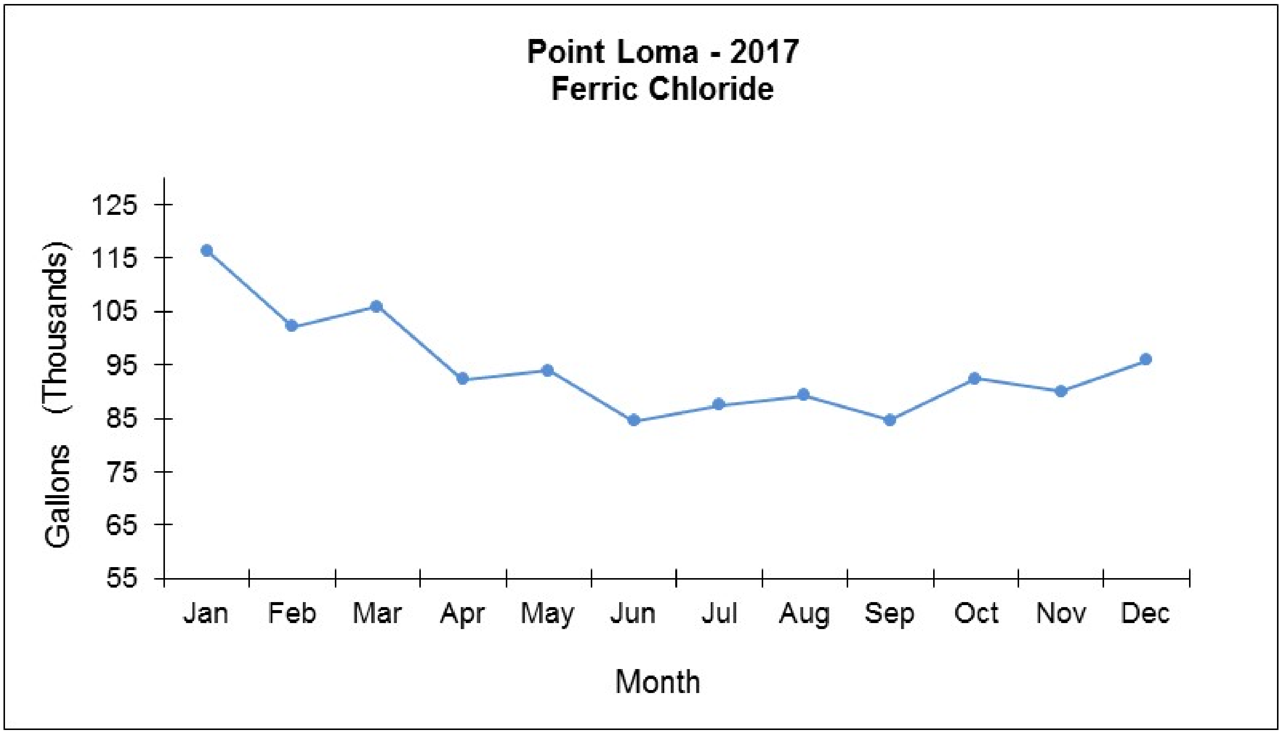
Daily Monthly Averages

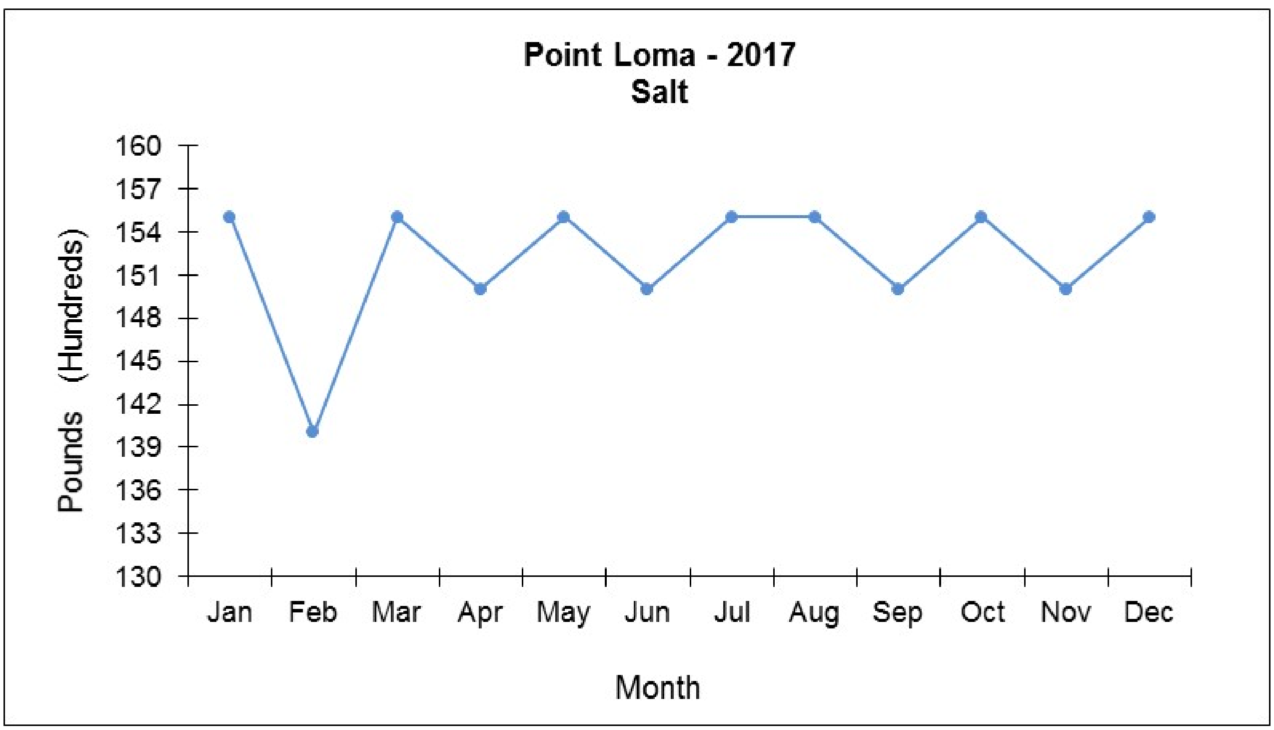
Month	GAS PRODUCTION (x1000 Cu. Ft.) N-1-P	N-2-P	C-1-P	C-2-P	S-1-P	S-2-P	Dig 7	Dig 8	Total	GAS CONSUMPTION (x1000 Cu. Ft.) Boilers	Burners	GUF	Total
01	518.7	566.4	549.1	428.5	.0	464.1	120.5	744.6	2,526.7	227	1,085	1,817	3,129
02	534.5	556.5	515.7	420.7	.0	422.6	104.8	779.4	2,450.0	280	1,053	1,824	3,157
03	593.3	682.6	605.8	482.4	.0	1.7	119.3	889.0	2,365.8	171	1,220	1,738	3,128
04	583.3	670.6	607.9	485.6	.0	.0	120.8	893.3	2,347.4	142	625	1,515	2,282
05	558.0	629.7	633.9	484.0	.0	.0	100.9	826.3	2,305.6	34	929	1,598	2,561
06	533.0	589.5	649.8	491.4	.0	.0	15.8	807.3	2,263.6	18	839	1,826	2,683
07	506.8	605.1	633.9	487.5	.0	.0	.0	775.1	2,233.4	16	925	1,730	2,671
08	479.8	580.8	578.8	450.7	.0	.0	34.5	653.1	2,090.2	17	150	1,813	1,980
09	454.7	562.0	589.8	421.3	270.9	.0	124.1	627.0	2,298.7	16	193	1,833	2,042
10	411.1	544.1	606.4	416.5	489.4	.0	111.0	553.6	2,467.5	21	400	1,772	2,192
11	381.0	537.3	666.1	414.0	466.2	.0	113.7	507.9	2,464.5	19	111	1,799	1,929
12	383.1	546.2	672.0	435.0	461.6	.0	126.5	558.4	2,497.9	42	201	1,799	2,042
avg	494.8	589.2	609.1	451.5	140.7	74.0	91.0	717.9	2,359.3	83	644	1,755	2,483

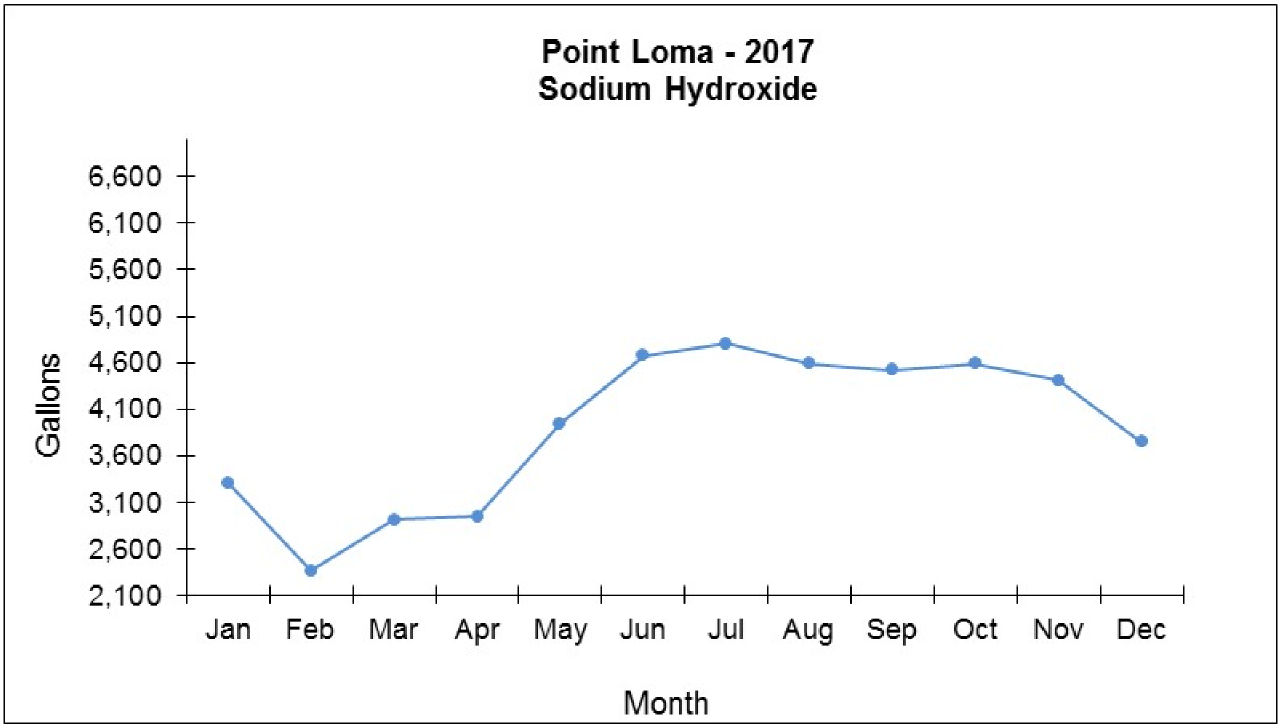
Monthly Totals

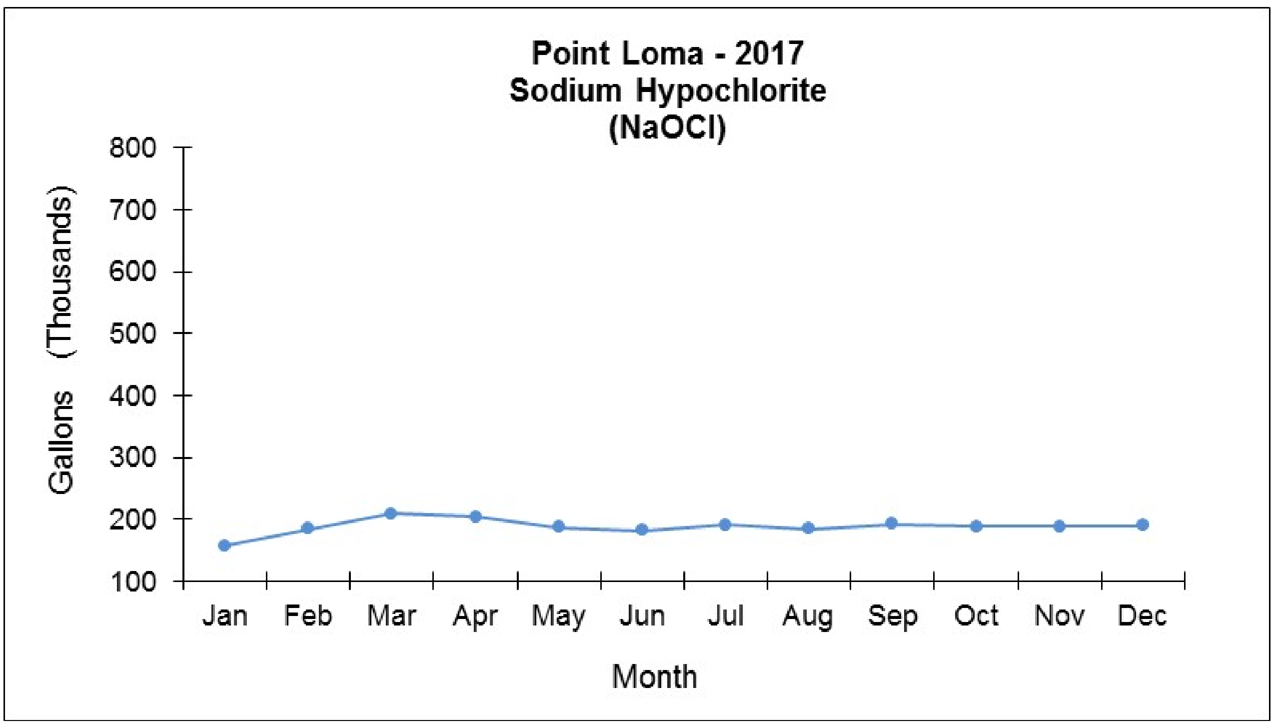
Month	GAS PRODUCTION (x1000 Cu. Ft.) N-1-P	N-2-P	C-1-P	C-2-P	S-1-P	S-2-P	Dig 7	Dig 8	Total	GAS CONSUMPTION (x1000 Cu. Ft.) Boilers	Burners	GUF	Total
01	16,079.0	17,557.0	17,022.0	13,283.0	.0	14,386.0	3,737.0	23,084.0	78,327.0	7,033	33,628	56,336	96,997
02	14,965.0	15,582.0	14,440.0	11,779.0	.0	11,834.0	2,934.0	21,824.0	68,600.0	7,830	29,488	51,085	88,403
03	18,392.0	21,160.0	18,780.0	14,954.0	.0	54.0	3,697.0	27,560.0	73,340.0	5,302	37,807	53,872	96,981
04	17,499.0	20,117.0	18,238.0	14,568.0	.0	.0	3,625.0	26,798.0	70,422.0	4,266	18,738	45,451	68,455
05	17,299.0	19,521.0	19,650.0	15,005.0	.0	.0	3,128.0	25,614.0	71,475.0	1,044	28,807	49,538	79,389
06	15,990.0	17,684.0	19,493.0	14,742.0	.0	.0	475.0	24,219.0	67,909.0	528	25,163	54,788	80,479
07	15,710.0	18,759.0	19,652.0	15,113.0	.0	.0	.0	24,027.0	69,234.0	487	28,679	53,634	82,800
08	14,875.0	18,005.0	17,944.0	13,973.0	.0	.0	1,070.0	20,246.0	64,797.0	539	4,637	56,190	61,366
09	13,641.0	16,860.0	17,693.0	12,640.0	8,127.0	.0	3,722.0	18,810.0	68,961.0	486	5,793	54,995	61,274
10	12,743.0	16,868.0	18,799.0	12,910.0	15,172.0	.0	3,441.0	17,161.0	76,492.0	643	12,398	54,925	67,966
11	11,431.0	16,118.0	19,982.0	12,419.0	13,986.0	.0	3,411.0	15,236.0	73,936.0	571	3,324	53,968	57,863
12	11,876.0	16,932.0	20,831.0	13,485.0	14,310.0	.0	3,921.0	17,311.0	77,434.0	1,289	6,229	55,774	63,292
avg	15,041.7	17,930.3	18,543.7	13,739.3	4,299.6	2,189.5	2,763.4	21,824.2	71,743.9	2,502	19,558	53,380	75,439
sum	180,500.0	215,163.0	222,524.0	164,871.0	51,595.0	26,274.0	33,161.0	261,890.0	860,927.0	30,018	234,691	640,556	905,265

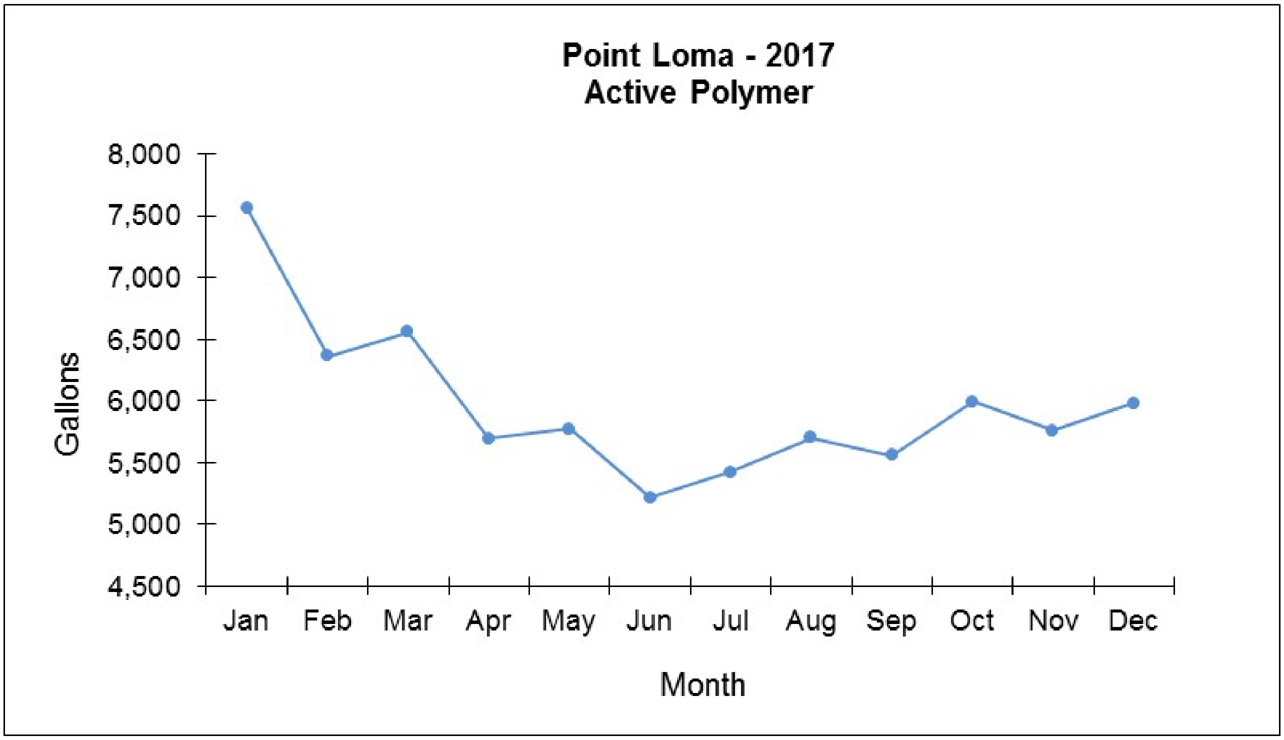
F. Graphs of Chemical Usage






Point Loma - 2017
Sodium Hydroxide
Gallons
6,600
6,100
5,600
5,100
4,600
4,100
3,600
3,100
2,600
2,100
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Month


Point Loma - 2017
Sodium Hypochlorite
(NaOCl)
Gallons (Thousands)
800
700
600
500
400
300
200
100
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Month


Point Loma - 2017
Active Polymer
8,000
7,500
7,000
6,500
6,000
5,500
5,000
4,500
Gallons
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Month

G. Grit and Screenings

The following are reports of the analyses of grit samples taken from the Point Loma WTP headworks (grit removal chambers) in 2017. Reports include Title 22 analyses and Total Solids. Title 22 sampling and analysis of PLR grit occurs on a Semi-Annual basis. Samples from the grit bins are taken daily for 7 consecutive days and composited together to form the Semi-Annual sample. While PLR refers to Point Loma WTP raw influent sewage everywhere else in this report, in this section it refers to the grit removed from the grit chambers at the headworks building at the influent end of the plant.

Point Loma Wastewater Treatment Plant
Grit and Screenings 2017- Monthly Total Solids Averages (% WT)

Grit		Headworks Screenings		Sludge Screenings	
JAN	73.4	JAN	38.2	JAN	50.3
FEB	72.2	FEB	38.9	FEB	46.1
MAR	73.9	MAR	38.8	MAR	46.8
APR	69.2	APR	39.8	APR	41.2
MAY	65.2	MAY	40.0	MAY	49.6
JUN	74.5	JUN	39.6	JUN	44.0
JUL	75.2	JUL	40.4	JUL	45.4
AUG	75.4	AUG	40.9	AUG	41.1
SEP	77.7	SEP	40.9	SEP	46.3
OCT	76.7	OCT	41.8	OCT	41.2
NOV	78.8	NOV	41.4	NOV	44.0
DEC	61.0	DEC	39.6	DEC	48.7
AVG	**72.8**	**AVG**	**40.0**	**AVG**	**45.4**

Point Loma Wastewater Treatment Plant

2017 Grit Total Solid (%WT)

	Average	Minimum	Maximum
	%WT	%WT	%WT
JAN	73.4	66.6	83.7
FEB	72.2	57.2	84.8
MAR	73.9	62.3	85.3
APR	69.2	64.2	81.7
MAY	65.2	55.8	83.2
JUN	74.5	53.9	86.9
JUL	75.2	53.0	85.9
AUG	75.4	63.8	89.1
SEP	77.7	71.2	87.0
OCT	76.7	62.7	84.8
NOV	78.8	67.1	91.0
DEC	61.0	52.8	76.2

2017 Sludge Screenings Total Solids (%WT)

	Average	Minimum	Maximum
	%WT	%WT	%WT
JAN	50.3	40.0	63.6
FEB	46.1	36.8	50.9
MAR	46.8	40.4	54.5
APR	41.2	25.9	52.7
MAY	49.6	39.8	59.1
JUN	44.0	33.6	52.1
JUL	45.4	34.1	57.6
AUG	41.1	31.1	48.7
SEP	46.3	35.4	57.1
OCT	41.2	35.8	54.5
NOV	44.0	37.9	49.1
DEC	48.7	37.6	63.8

2017 Headworks Screenings Total Solids (%WT)

	Average	Minimum	Maximum
	%WT	%WT	%WT
JAN	38.2	32.7	46.5
FEB	38.9	33.6	44.3
MAR	38.8	35.5	44.1
APR	39.8	35.6	48.8
MAY	40.0	33.8	45.9
JUN	39.6	34.2	45.3
JUL	40.4	34.5	46.4
AUG	40.9	36.5	44.9
SEP	40.9	37.2	44.9
OCT	41.8	38.1	47.2
NOV	41.4	36.6	45.3
DEC	39.6	36.2	41.9

POINT LOMA WASTEWATER TREATMENT PLANT
CALIFORNIA HAZARDOUS WASTE IDENTIFICATION TESTS (Title 22)
Metro Biosolids Center Dewatered Sludge

2017 Annual

Source: PLR
Sample ID: P943304
Sample Date: 01-JUN-17

Constituent	MDL.	Units	Total Dry Wt. mg/Kg	Total Wet Wt. mg/Kg	TTLC Wet Wt. mg/Kg	W.E.T. Wet Wt. mg/L	STLC Wet Wt. mg/L	40 CFR 503 Limits ** mg/Kg	CA Health & Safety code Limits *** mg/Kg
Antimony	0.8	MG/KG	3.85	2.60	500	*	15.00		
Arsenic	0.14	MG/KG	1.76	1.18	500	*	5.00	41	
Barium	0.08	MG/KG	132	89.2	10000	*	100.00		
Beryllium	0.02	MG/KG	0.02	0.013	75	*	0.75		
Cadmium	0.1	MG/KG	0.57	0.385	100	*	1.00	39	
Chromium (VI)			NA	NA	500	NA	5.00		
Chromium	0.1	MG/KG	50.2	33.9	2500	*	560.00	1,200	
Cobalt	0.2	MG/KG	4.36	2.95	8000	*	80.00		
Copper	0.7	MG/KG	444	300	2500	*	25.00	1,500	2,500
Lead#	0.3	MG/KG	16.9	11.4	1000	*	5.00	300	350
Mercury	0.2	MG/KG	0.12	0.081	20	*	0.20	17	
Molybdenum	0.2	MG/KG	8.05	5.44	3500	*	350.00		
Nickel	0.3	MG/KG	33.3	22.5	2000	*	20.00	420	2,000
Selenium	0.19	MG/KG	0.53	0.358	100	*	1.00	100	
Silver	0.21	MG/KG	2.42	1.64	500	*	5.00		
Thallium	0.4	MG/KG	0.43	0.29	700	*	7.00		
Vanadium	0.3	MG/KG	17.7	11.9	2400	*	24.00		
Zinc	1.5	MG/KG	589	398	5000	*	250.00	2,800	
Total Solids		WT%	67.6						
Total Volatile Solids		WT%	25.4						
pH		PH	7.36		>2 - <12				
Aldrin	0.0002	MG/KG	ND	ND	1.4	*	0.14		
Chlordanes	0.0005	MG/KG	ND	ND	2.5	*	0.25		
DDT, DDE, DDD	0.0003	MG/KG	ND	ND	1.0	*	0.10		
Dieldrin	0.0002	MG/KG	ND	ND	8.0	*	0.80		
Endrin	0.0003	MG/KG	ND	ND	0.2	*	0.02		
Heptachlor	0.0001	MG/KG	ND	ND	4.7	*	0.47		
Lindane	0.0009	MG/KG	ND	ND	4.0	*	0.40		
Kepone			NA	NA	21	NA	2.10		
BHC, Total	0.0003	MG/KG	ND	ND	4.0	*	0.40		
Methoxychlor	0.0002	MG/KG	ND	ND	100	*	10.00		
Mirex	0.0003	MG/KG	ND	ND	21	*	2.10		
Pentachlorophenol	1.17	MG/KG	ND	ND	17	*	1.70		
PCBs (Arochlors)	0.67	MG/KG	ND	ND	50	*	5.00		
Toxaphene	0.05	MG/KG	ND	ND	5	*	0.50		
Trichloroethene	0.003	MG/KG	ND	ND	2040	*	204.00		
2,4,5-TP	2.87	MG/KG	ND	ND	10	*	1.00		

On the basis of these analyses, I certify that this dried sludge is non-hazardous as defined by California Code, Title 22, Section 66699.

TTLC = Total Threshold Limit Concentration.
STLC = Soluble Threshold Limit Concentration.
W.E.T. = Waste Extraction Technique.
* = The total wet concentration is less than 10 times the STLC. Therefore by definition,
. this substance is present in concentrations that are less than the limits for hazardous wastes.
** = Limits are in mg/Kg (dry weight) based on 40 CFR part 503.13 Table 3 "Limits for Land Application".
*** = The California State Health and Safety Code 25157.8 established lower a limit for Lead.
NA = Not Analyzed, ND= Not Detected, NS= Not Sampled, NR= Not Required
MDL = Method Detection Limit (are in mg/Kg per dry weight; except for pH and Total and Volatile Solids)
MBCDEWCN = Metro Biosolids Center Dewatered Centrifuged Sludge.
# = Calibration did not meet requirements.

POINT LOMA WASTEWATER TREATMENT PLANT
CALIFORNIA HAZARDOUS WASTE IDENTIFICATION TESTS (Title 22)
Metro Biosolids Center Dewatered Sludge

2017 Annual

Source: PLR
Sample ID: P991093
Sample Date: 26-DEC-17

Constituent	MDL.	Units	Total Dry Wt. mg/Kg	Total Wet Wt. mg/Kg	TTLC Wet Wt. mg/Kg	W.E.T. Wet Wt. mg/L	STLC Wet Wt. mg/L	40 CFR 503 Limits ** mg/Kg	CA Health & Safety code Limits *** mg/Kg
Antimony	1.5	MG/KG	ND	ND	500	*	15.00		
Arsenic	0.14	MG/KG	1.51	0.945	500	*	5.00	41	
Barium	0.51	MG/KG	69	43.2	10000	*	100.00		
Beryllium	0.08	MG/KG	ND	ND	75	*	0.75		
Cadmium	0.1	MG/KG	0.15	0.093	100	*	1.00	39	
Chromium (VI)			NA		500	NA	5.00		
Chromium	0.1	MG/KG	17.4	10.9	2500	*	560.00	1,200	
Cobalt	0.2	MG/KG	2.24	1.40	8000	*	80.00		
Copper	0.7	MG/KG	193	121	2500	*	25.00	1,500	2,500
Lead	0.3	MG/KG	6.7	4.2	1000	*	5.00	300	350
Mercury	0.2	MG/KG	0.25	0.156	20	*	0.20	17	
Molybdenum	0.1	MG/KG	3.68	2.30	3500	*	350.00		
Nickel	0.1	MG/KG	15.9	9.95	2000	*	20.00	420	2,000
Selenium	1.7	MG/KG	ND	ND	100	*	1.00	100	
Silver	0.21	MG/KG	0.72	0.450	500	*	5.00		
Thallium	0.2	MG/KG	ND	ND	700	*	7.00		
Vanadium	0.3	MG/KG	7.2	4.50	2400	*	24.00		
Zinc	1.5	MG/KG	192	119	5000	*	250.00	2,800	
Total Solids		WT%	62.6						
Total Volatile Solids		WT%	39.3						
pH		PH	7.11		>2 - <12				
Aldrin#	0.0002	MG/KG	ND	ND	1.4	*	0.14		
Chlordanes#	0.0005	MG/KG	ND	ND	2.5	*	0.25		
DDT, DDE, DDD#	0.0003	MG/KG	ND	ND	1.0	*	0.10		
Dieldrin#	0.0002	MG/KG	ND	ND	8.0	*	0.80		
Endrin#	0.0003	MG/KG	ND	ND	0.2	*	0.02		
Heptachlor#	0.0001	MG/KG	ND	ND	4.7	*	0.47		
Lindane#	0.0009	MG/KG	ND	ND	4.0	*	0.40		
Kepone			NA	NA	21	NA	2.10		
BHC, Total#	0.0003	MG/KG	ND	ND	4.0	*	0.40		
Methoxychlor#	0.0002	MG/KG	ND	ND	100	*	10.00		
Mirex#	0.0003	MG/KG	ND	ND	21	*	2.10		
Pentachlorophenol	0.8	MG/KG	ND	ND	17	*	1.70		
PCBs (Arochlors)#	0.67	MG/KG	ND	ND	50	*	5.00		
Toxaphene#	0.05	MG/KG	ND	ND	5	*	0.50		
Trichloroethene	0.003	MG/KG	ND	ND	2040	*	204.00		
2,4,5-TP	17		ND	ND	10	*	1.00		

On the basis of these analyses, I certify that this dried sludge is non-hazardous as defined by California Code, Title 22, Section 66699.

TTLC = Total Threshold Limit Concentration.
STLC = Soluble Threshold Limit Concentration.
W.E.T. = Waste Extraction Technique.
* = The total wet concentration is less than 10 times the STLC. Therefore by definition,
. this substance is present in concentrations that are less than the limits for hazardous wastes.
** = Limits are in mg/Kg (dry weight) based on 40 CFR part 503.13 Table 3 "Limits for Land Application".
*** = The California State Health and Safety Code 25157.8 established lower a limit for Lead.
NA = Not Analyzed, ND= Not Detected, NS= Not Sampled, NR= Not Required
MDL = Method Detection Limit (are in mg/Kg per dry weight; except for pH and Total and Volatile Solids)
MBCDEWCN = Metro Biosolids Center Dewatered Centrifuged Sludge.
\# = Samples analyzed out of holding time.

POINT LOMA WASTEWATER TREATMENT PLANT

ANNUAL 2017

GRIT COMPOSITES
Inorganics and Organics

Source			GRIT COMP	GRIT COMP
Date			01-JUN-2017	26-DEC-2017
Analyte	MDL	Units	P943304	P991093
Aluminum	18	MG/KG	3680	2280
Antimony	1.47	MG/KG	3.9	<1.47
Arsenic	.308	MG/KG	1.76	DNQ1.67
Barium	.511	MG/KG	132	69.1
Beryllium	.02	MG/KG	<0.02	ND
Cadmium	.13	MG/KG	0.6	<0.13
Chromium	.136	MG/KG	50.2	17.3
Cobalt	.15	MG/KG	4.4	2.3
Copper	1.9	MG/KG	444	193
Iron	5.97	MG/KG	51400	22200
Lead	.3	MG/KG	ND	7
Manganese	.359	MG/KG	293	95
Mercury	.2	MG/KG	<0.20	0.25
Molybdenum	.15	MG/KG	8.1	3.8
Nickel	.3	MG/KG	33	16
Selenium	1.7	MG/KG	0.53	<1.70
Silver	.295	MG/KG	2.4	DNQ0.7
Thallium	.43	MG/KG	<0.43	ND
Vanadium	.32	MG/KG	17.7	7.1
Zinc	1.45	MG/KG	589	193
pH		PH	7.36	7.11
Total Solids	.24	WT%	67.6	62.6
Total Volatile Solids	.11	WT%	25.4	39.3
2,4-D	.025	MG/KG	ND	ND
Aldrin	.000169	MG/KG	ND	ND*
Dieldrin	.000178	MG/KG	ND	ND*
Endrin	.000305	MG/KG	ND	ND*
Heptachlor	.000129	MG/KG	ND	ND*
BHC, Gamma isomer	.000266	MG/KG	ND	ND*
Methoxychlor	.000214	MG/KG	ND	ND*
Pentachlorophenol	1.17	MG/KG	ND	ND
Toxaphene	.04866	MG/KG	ND	ND*
Trichloroethene	.0026	MG/KG	ND	ND
2,4,5-TP (Silvex)	.027	MG/KG	ND	ND

* = Sample analyzed outside holding time; therefore is non-reportable.

NA= Not Analyzed, ND= Not Detected, NS= Not Sampled, NR= Not Required

Metals by EPA200.7
pH by SM4500H
Pesticides by EPA608
Herbicides by EPA8151
Total Solids by SM2540B

POINT LOMA WASTEWATER TREATMENT PLANT

ANNUAL 2017

Chlorinated Pesticide Analysis
EPA METHOD 8081A/8082

Grit

Source			PLR	PLR
Date			01-JUN-2017	26-DEC-2017
Analyte	MDL	Units	P943304	P991093*
Aldrin	169	NG/KG	ND	ND
Dieldrin	178	NG/KG	ND	ND
BHC, Alpha isomer	88	NG/KG	ND	ND
BHC, Beta isomer	274	NG/KG	ND	ND
BHC, Gamma isomer	266	NG/KG	ND	ND
BHC, Delta isomer	198	NG/KG	ND	ND
o,p-DDD	202	NG/KG	ND	ND
o,p-DDE	309	NG/KG	ND	ND
o,p-DDT	274	NG/KG	ND	ND
p,p-DDD	218	NG/KG	ND	ND
p,p-DDE	294	NG/KG	ND	ND
p,p-DDT	119	NG/KG	ND	ND
Heptachlor	129	NG/KG	ND	ND
Heptachlor epoxide	369	NG/KG	ND	ND
Alpha (cis) Chlordane	363	NG/KG	ND	ND
Gamma (trans) Chlordane	452	NG/KG	ND	ND
Alpha Chlordene		NG/KG	NA	NA
Gamma Chlordene		NG/KG	NA	NA
Oxychlordane	288	NG/KG	ND	ND
Trans Nonachlor	331	NG/KG	ND	ND
Cis Nonachlor	265	NG/KG	ND	ND
Alpha Endosulfan	256	NG/KG	ND	ND
Beta Endosulfan	113	NG/KG	ND	ND
Endosulfan Sulfate	70	NG/KG	ND	ND
Endrin	305	NG/KG	ND	ND
Endrin aldehyde	197	NG/KG	ND	ND
Toxaphene	48660	NG/KG	ND	ND
Mirex	340	NG/KG	ND	ND
Methoxychlor	214	NG/KG	ND	ND
PCB 1016	83300	NG/KG	ND	ND
PCB 1221	667000	NG/KG	ND	ND
PCB 1232	500000	NG/KG	ND	ND
PCB 1242	66860	NG/KG	ND	ND
PCB 1248	83300	NG/KG	ND	ND
PCB 1254	83300	NG/KG	ND	ND
PCB 1260	333000	NG/KG	ND	ND
PCB 1262	83300	NG/KG	ND	ND
Aldrin + Dieldrin	178	NG/KG	0	0
Hexachlorocyclohexanes	274	NG/KG	0	0
DDT and derivatives	309	NG/KG	0	0
Chlordane + related cmpds.	452	NG/KG	0	0
Polychlorinated biphenyls	667000	NG/KG	0	0
Chlorinated Hydrocarbons	667000	NG/KG	0	0

* = Sample collected on 26-DEC-2017 was analyzed out of holding time.

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

POINT LOMA WASTEWATER TREATMENT PLANT

ANNUAL 2017

GRIT
ACID EXTRACTABLE COMPOUNDS
EPA Method 8270C

Source			PLR	PLR
Date			01-JUN-2017	26-DEC-2017
Analyte	MDL	Units	P943304	P991093
2-Chlorophenol	1310	UG/KG	ND	ND
4-Chloro-3-methylphenol	1900	UG/KG	ND	ND
2,4-Dichlorophenol	914	UG/KG	ND	ND
2,4-Dimethylphenol	1070	UG/KG	ND	ND
2,4-Dinitrophenol	330	UG/KG	ND	ND
2-Methyl-4,6-dinitrophenol	800	UG/KG	ND	ND
2-Nitrophenol	1600	UG/KG	ND	ND
4-Nitrophenol	800	UG/KG	ND	ND
Pentachlorophenol	1170	UG/KG	ND	ND
Phenol	1440	UG/KG	ND	ND
2,4,6-Trichlorophenol	1600	UG/KG	ND	ND
Total Chlorinated Phenols	1900	UG/KG	0.0	0.0
Total Non-Chlorinated Phenols	1600	UG/KG	0.0	0.0
Phenols	1900	UG/KG	0.0	0.0

POINT LOMA WASTEWATER TREATMENT PLANT

ANNUAL 2017

GRIT
Base/Neutral Compounds
EPA METHOD 8270C

Source			PLR	PLR
Date			01-JUN-2017	26-DEC-2017
Sample	MDL	Units	P943304	P991093
Acenaphthene	863	UG/KG	ND	ND
Acenaphthylene	584	UG/KG	ND	ND
Anthracene	986	UG/KG	ND	ND
Benzidine	330	UG/KG	ND	ND
Benzo[a]anthracene	1100	UG/KG	ND	ND
3,4-Benzo(b)fluoranthene	1127	UG/KG	ND	ND
Benzo[k]fluoranthene	1930	UG/KG	ND	ND
Benzo[a]pyrene	741	UG/KG	ND	ND
Benzo[g,h,i]perylene	330	UG/KG	384	ND
4-Bromophenyl phenyl ether	1030	UG/KG	ND	ND
Bis-(2-chloroethoxy) methane	1630	UG/KG	ND	ND
Bis-(2-chloroethyl) ether	1420	UG/KG	ND	ND
Bis-(2-chloroisopropyl) ether	1090	UG/KG	ND	ND
4-Chlorophenyl phenyl ether	362	UG/KG	ND	ND
2-Chloronaphthalene		UG/KG	ND	63
Chrysene	352	UG/KG	ND	ND
Dibenzo(a,h)anthracene	616	UG/KG	ND	ND
Butyl benzyl phthalate	2210	UG/KG	ND	ND
Di-n-butyl phthalate	1450	UG/KG	<1450	ND
Bis-(2-ethylhexyl) phthalate	3960	UG/KG	<3960	ND
Diethyl phthalate	1400	UG/KG	ND	<330
Dimethyl phthalate	356	UG/KG	675	ND
Di-n-octyl phthalate	3460	UG/KG	ND	ND
3,3-Dichlorobenzidine	2030	UG/KG	ND	ND
2,4-Dinitrotoluene	1030	UG/KG	ND	ND
2,6-Dinitrotoluene	1890	UG/KG	ND	ND
1,2-Diphenylhydrazine	1590	UG/KG	ND	ND
Fluoranthene	330	UG/KG	1330	365
Fluorene	2520	UG/KG	ND	ND
Hexachlorobenzene	813	UG/KG	ND	ND
Hexachlorobutadiene	940	UG/KG	ND	ND
Hexachlorocyclopentadiene	1890	UG/KG	ND	ND
Hexachloroethane	382	UG/KG	ND	ND
Indeno(1,2,3-CD)pyrene	953	UG/KG	ND	ND
Isophorone	1820	UG/KG	ND	ND
Naphthalene	2150	UG/KG	ND	ND
Nitrobenzene	2800	UG/KG	ND	ND
N-nitrosodimethylamine	330	UG/KG	ND	ND
N-nitrosodi-n-propylamine	1360	UG/KG	ND	ND
N-nitrosodiphenylamine	1330	UG/KG	ND	ND
Phenanthrene	1040	UG/KG	ND	ND
Pyrene	1150	UG/KG	1190	394
1,2,4-Trichlorobenzene	330	UG/KG	ND	ND
1,3-Dichlorobenzene	733	UG/KG	ND	ND
1,2-Dichlorobenzene	342	UG/KG	ND	ND
1,4-Dichlorobenzene	1270	UG/KG	ND	<330
Polynuc. Aromatic Hydrocarbons	2520	UG/KG	1574	394
Total Dichlorobenzenes	733	UG/KG	0	0
Base/Neutral Compounds	3960	UG/KG	3579	822

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

POINT LOMA WASTEWATER TREATMENT PLANT

ANNUAL 2017

GRIT
Priority Pollutants Purgeable Compounds
EPA METHOD 8260B

Source			PLR	PLR
Date			01-JUN-2017	26-DEC-2017
Analyte	MDL	Units	P943304	P991093
Acrolein	6.4	UG/KG	ND	ND
Acrylonitrile	3.9	UG/KG	ND	ND
Benzene	2.1	UG/KG	ND	ND
Bromodichloromethane	2.2	UG/KG	ND	ND
Bromoform	2.4	UG/KG	ND	ND
Bromomethane	6.9	UG/KG	ND	ND
Carbon tetrachloride	3	UG/KG	ND	ND
Chlorobenzene	1	UG/KG	ND	DNQ4.6
Chloroethane	3.6	UG/KG	ND	ND
Chloroform	2.3	UG/KG	ND	DNQ3.2
Chloromethane	3.4	UG/KG	ND	ND
Dibromochloromethane	2.4	UG/KG	ND	ND
1,2-Dichlorobenzene	1.5	UG/KG	ND	ND
1,3-Dichlorobenzene	1.8	UG/KG	ND	ND
1,4-Dichlorobenzene	1.5	UG/KG	267	445
1,1-Dichloroethane	1.9	UG/KG	ND	ND
1,1-Dichloroethene	5	UG/KG	ND	ND
1,2-Dichloroethane	3.6	UG/KG	ND	ND
trans-1,2-dichloroethene	3.5	UG/KG	ND	ND
1,2-Dichloropropane	2.6	UG/KG	ND	ND
cis-1,3-dichloropropene	2.5	UG/KG	ND	ND
trans-1,3-dichloropropene	2.1	UG/KG	ND	ND
Ethylbenzene	1.4	UG/KG	ND	DNQ4.7
Methylene chloride	3.5	UG/KG	ND	DNQ6.2
1,1,2,2-Tetrachloroethane	5.9	UG/KG	ND	ND
Tetrachloroethene	2.8	UG/KG	ND	ND
Toluene	1.2	UG/KG	54.9*	200
1,1,1-Trichloroethane	3.2	UG/KG	ND	ND
1,1,2-Trichloroethane	2.8	UG/KG	ND	ND
Trichloroethene	2.6	UG/KG	ND	ND
Vinyl chloride	4.8	UG/KG	ND	ND
Halomethane Purgeable Cmpnds	6.9	UG/KG	0.0	0.0
Total Dichlorobenzenes	1.8	UG/KG	267	0.0
Purgeable Compounds	6.9	UG/KG	267	645

Additional Analytes determined:

Acetone	31.4	UG/KG	793	9930
Allyl chloride	3.6	UG/KG	ND	ND
Benzyl chloride	4.3	UG/KG	ND	ND
2-Butanone	36.3	UG/KG	ND	2450
Carbon disulfide	4.7	UG/KG	38.8	51.6
Chloroprene	3.1	UG/KG	ND	ND
1,2-Dibromoethane	2.5	UG/KG	ND	ND
Isopropylbenzene	1.3	UG/KG	ND	10.0
Methyl Iodide	3.8	UG/KG	ND	ND
Methyl methacrylate	2.4	UG/KG	ND	ND
2-Nitropropane	45.8	UG/KG	ND	ND
ortho-xylene	1.9	UG/KG	DNQ3.4	DNQ5.6
Styrene	1.7	UG/KG	DNQ1.7	DNQ3.8
1,2,4-Trichlorobenzene	979	UG/KG	ND	ND
meta,para xylenes	4.2	UG/KG	DNQ5.8	DNQ11.4
Trichlorofluoromethane	2.2	UG/KG	ND	ND
2-Chloroethylvinyl ether	5.5	UG/KG	ND	ND
4-Methyl-2-pentanone	9.7	UG/KG	ND	ND

* = Method blank value above the MDL; sample result not included in average calculations.

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

DNQ (detected but not quantified) = estimated analyte concentration is above the method detection limit (MDL) but below the minimum level (ML).

POINT LOMA WASTEWATER TREATMENT PLANT

ANNUAL 2017

GRIT
Herbicides
EPA METHOD 8151

Analyte	MDL	Units	PLR 01-JUN-2017 P943304	PLR 26-DEC-2017 P991093
2,4-Dichlorophenoxyacetic acid	2.66	MG/KG	ND	ND
2,4,5-TP (Silvex)	2.87	MG/KG	ND	ND

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

H. Raw Sludge Data Summary

POINT LOMA WASTEWATER TREATMENT PLANT ANNUAL REPORT
ANNUAL 2017

Raw Sludge
Monthly average of daily average

Month	pH	%Total Solids	%Total Volatile Solids
January	5.92	4.4	77.7
February	5.91	4.4	78.0
March	5.89	4.1	78.5
April	5.62	4.2	80.0
May	5.58	4.2	79.5
June	5.38	4.5	79.9
July	5.36	4.3	80.0
August	5.42	4.1	79.6
September	5.52	4.4	79.5
October	5.60	4.2	79.1
November	5.44	4.2	79.6
December	5.48	4.2	79.0
Averages	**5.59**	**4.3**	**79.2**

I. Digester and Digested Sludge Data Summary

Point Loma Wastewater Treatment Plant Annual Report
Digesters

Annual: 2017

N1P

	pH	Total Solids (%)	Volatile Solids (%)	Alkal-inity (mg/L)	Volatile Acids (mg/L)	Methane (%)	Carbon Dioxide (%)
JANUARY -2017	7.11	2.5	60.4	2440	60	61.6	38.2
FEBRUARY -2017	7.25	2.5	60.3	2630	75	61.9	37.8
MARCH -2017	7.17	2.6	58.9	2610	76	61.6	38.1
APRIL -2017	7.16	2.4	62.9	2270	69	61.8	37.9
MAY -2017	7.11	2.3	63.1	2280	66	61.4	38.4
JUNE -2017	7.15	2.4	64.6	2320	72	61.8	37.8
JULY -2017	7.16	2.4	64.7	2270	73	62.0	37.7
AUGUST -2017	7.13	2.4	64.9	2100	65	61.9	37.9
SEPTEMBER-2017	7.07	2.5	64.2	2000	60	61.7	38.1
OCTOBER -2017	7.08	2.4	63.0	2170	67	61.8	37.9
NOVEMBER -2017	7.05	2.4	62.7	2120	60	61.7	38.1
DECEMBER -2017	7.18	2.3	61.5	2140	57	61.9	37.9
Average:	7.14	2.4	62.6	2279	67	61.8	38.0

N2P

	pH	Total Solids (%)	Volatile Solids (%)	Alkal-inity (mg/L)	Volatile Acids (mg/L)	Methane (%)	Carbon Dioxide (%)
JANUARY -2017	7.12	2.4	60.6	2450	58	61.7	38.0
FEBRUARY -2017	7.22	2.4	60.5	2640	73	61.9	37.9
MARCH -2017	7.17	2.4	59.7	2620	76	61.6	38.1
APRIL -2017	7.12	2.3	62.8	2290	70	61.9	37.9
MAY -2017	7.09	2.3	63.2	2310	67	61.3	38.5
JUNE -2017	7.14	2.4	64.1	2350	72	61.8	37.9
JULY -2017	7.13	2.4	64.6	2250	72	62.0	37.7
AUGUST -2017	7.14	2.4	64.7	2090	65	62.1	37.6
SEPTEMBER-2017	7.07	2.4	65.0	1940	62	62.0	37.7
OCTOBER -2017	7.05	2.4	63.8	2100	68	61.9	37.7
NOVEMBER -2017	7.00	2.4	63.5	2010	62	61.8	37.9
DECEMBER -2017	7.17	2.4	62.7	2060	59	62.0	37.7
Average:	7.12	2.4	62.9	2259	67	61.8	37.9

C1P

	pH	Total Solids (%)	Volatile Solids (%)	Alkal-inity (mg/L)	Volatile Acids (mg/L)	Methane (%)	Carbon Dioxide (%)	H2S ppm
JANUARY -2017	7.06	2.6	60.4	2340	69	61.8	38.0	24
FEBRUARY -2017	7.20	2.4	60.2	2570	76	61.9	37.8	25
MARCH -2017	7.12	2.4	59.8	2480	83	61.7	38.1	29
APRIL -2017	7.10	2.4	63.4	2150	72	61.9	37.8	29
MAY -2017	7.03	2.4	63.9	2110	67	61.3	38.4	29
JUNE -2017	7.11	2.5	64.9	2090	72	61.6	38.1	30
JULY -2017	7.01	2.5	65.7	2030	72	62.1	37.7	31
AUGUST -2017	7.03	2.5	65.5	1830	61	62.1	37.7	30
SEPTEMBER-2017	6.99	2.5	65.2	1720	61	61.6	38.1	32
OCTOBER -2017	6.98	2.6	64.2	1820	63	61.6	38.1	30
NOVEMBER -2017	6.92	2.5	65.9	1650	58	61.5	38.1	28
DECEMBER -2017	7.04	2.5	64.7	1650	58	61.9	37.8	29
Average:	7.05	2.5	63.7	2037	68	61.8	38.0	29

Point Loma Wastewater Treatment Plant Annual Report
Digesters

Annual: 2017

C2P

	pH	Total Solids (%)	Volatile Solids (%)	Alkal-inity (mg/L)	Volatile Acids (mg/L)	Methane (%)	Carbon Dioxide (%)
JANUARY -2017	7.12	2.4	59.8	2400	64	61.6	38.0
FEBRUARY -2017	7.13	2.4	58.9	2650	76	61.9	37.6
MARCH -2017	7.16	2.4	58.3	2630	77	61.5	38.1
APRIL -2017	7.11	2.4	61.3	2260	71	61.8	37.9
MAY -2017	7.06	2.3	62.0	2290	65	61.3	38.4
JUNE -2017	7.12	2.4	63.4	2310	71	61.9	37.9
JULY -2017	7.07	2.5	64.2	2210	69	61.9	37.9
AUGUST -2017	7.07	2.4	62.7	2070	67	61.9	37.7
SEPTEMBER-2017	7.07	2.5	62.9	1960	61	61.6	37.9
OCTOBER -2017	7.04	2.4	62.0	2070	62	61.7	37.9
NOVEMBER -2017	6.99	2.4	61.8	2070	57	61.6	38.0
DECEMBER -2017	7.12	2.4	61.5	2040	53	61.9	37.8
Average:	7.09	2.4	61.6	2247	66	61.7	37.9

S1P

	pH	Total Solids (%)	Volatile Solids (%)	Alkal-inity (mg/L)	Volatile Acids (mg/L)	Methane (%)	Carbon Dioxide (%)	H2S ppm
JANUARY -2017	*	*	*	*	*	*	*	*
FEBRUARY -2017	*	*	*	*	*	*	*	*
MARCH -2017	*	*	*	*	*	*	*	*
APRIL -2017	*	*	*	*	*	*	*	*
MAY -2017	*	*	*	*	*	*	*	*
JUNE -2017	*	*	*	*	*	*	*	*
JULY -2017	7.40	0.8	58.9	2970	85	*	*	*
AUGUST -2017	7.21	2.7	61.4	2310	81	*	*	*
SEPTEMBER-2017	7.17	2.5	64.3	2270	67	59.6	33.8	*
OCTOBER -2017	7.08	2.4	63.4	2150	66	62.1	37.6	*
NOVEMBER -2017	7.06	2.6	63.2	2210	68	61.8	37.7	*
DECEMBER -2017	7.20	2.7	61.9	2410	66	62.1	37.6	*
Average:	7.19	2.3	62.2	2387	72	61.4	36.7	*

S2P

	pH	Total Solids (%)	Volatile Solids (%)	Alkal-inity (mg/L)	Volatile Acids (mg/L)	Methane (%)	Carbon Dioxide (%)	H2S ppm
JANUARY -2017	7.05	2.5	60.7	2340	66	61.6	38.0	*
FEBRUARY -2017	7.19	2.6	60.2	2530	81	62.0	37.7	*
MARCH -2017	*	*	*	*	*	*	*	*
APRIL -2017	*	*	*	*	*	*	*	*
MAY -2017	*	*	*	*	*	*	*	*
JUNE -2017	*	*	*	*	*	*	*	*
JULY -2017	*	*	*	*	*	*	*	*
AUGUST -2017	*	*	*	*	*	*	*	*
SEPTEMBER-2017	*	*	*	*	*	*	*	*
OCTOBER -2017	*	*	*	*	*	*	*	*
NOVEMBER -2017	*	*	*	*	*	*	*	*
DECEMBER -2017	*	*	*	*	*	*	*	*
Average:	7.12	2.6	60.5	2435	74	61.8	37.9	*

*Note in service.

Point Loma Wastewater Treatment Plant Annual Report
Digesters

Annual: 2017

DIG 7

	pH	Total Solids (%)	Volatile Solids (%)	Alkal-inity (mg/L)	Volatile Acids (mg/L)	Methane (%)	Carbon Dioxide (%)	H2S ppm
JUNE -1905	*	*	*	*	*	*	*	*
JANUARY -2017	7.09	2.2	60.2	2560	63	63.5	36.0	*
FEBRUARY -2017	7.24	2.3	59.5	2690	76	64.1	35.5	*
MARCH -2017	7.20	2.2	58.3	2750	80	64.0	35.7	*
APRIL -2017	7.15	2.2	61.4	2370	71	64.3	35.3	*
MAY -2017	7.11	2.2	61.9	2380	66	64.0	35.7	*
JUNE -2017	7.14	2.3	64.0	2260	73	64.1	35.6	*
JULY -2017	7.09	2.4	65.5	2160	71	*	*	*
AUGUST -2017	7.15	2.3	65.1	2100	65	48.7	28.8	*
SEPTEMBER-2017	7.14	2.3	63.9	2090	65	62.6	37.0	*
OCTOBER -2017	7.14	2.4	62.0	2220	67	62.6	37.1	*
NOVEMBER -2017	7.10	2.2	63.1	2130	62	62.7	36.9	*
DECEMBER -2017	7.20	2.2	61.5	2180	57	62.8	36.9	*
Average:	7.15	2.3	62.2	2324	68	62.1	35.5	*

DIG 8

	pH	Total Solids (%)	Volatile Solids (%)	Alkal-inity (mg/L)	Volatile Acids (mg/L)	Methane (%)	Carbon Dioxide (%)	H2S ppm
JUNE -1905	*	*	*	*	*	*	*	*
JANUARY -2017	7.09	2.4	60.5	2420	62	61.7	38.0	*
FEBRUARY -2017	7.25	2.3	60.3	2580	73	62.0	37.7	*
MARCH -2017	7.16	2.4	59.9	2500	78	61.5	38.3	*
APRIL -2017	7.12	2.3	63.6	2120	69	61.7	38.0	*
MAY -2017	7.06	2.3	63.3	2160	62	61.5	38.3	*
JUNE -2017	7.12	2.4	64.7	2190	71	61.7	37.9	*
JULY -2017	7.08	2.5	65.2	2120	71	62.0	37.8	*
AUGUST -2017	7.12	2.3	65.0	1960	63	62.1	37.5	*
SEPTEMBER-2017	7.04	2.4	65.2	1830	63	61.9	37.8	*
OCTOBER -2017	7.05	2.3	63.2	2080	69	61.8	37.9	*
NOVEMBER -2017	7.03	2.3	63.9	2030	60	62.1	37.6	*
DECEMBER -2017	7.17	2.2	62.7	2140	62	62.1	37.6	*
Average:	7.11	2.3	63.1	2178	67	61.8	37.9	*

*Not in service.

IV. Metro Biosolids Center (MBC) Data

A. MBC Diagrams
B. Return Stream Data Summary
C. Digester and Digested Sludge Data Summary
D. Gas Production
E. Chemical Usage
F. Graphs of Chemical Usage
G. Solids Handling Annual Report
H. Results of "Title 22" Sludge Hazardous Waste Tests

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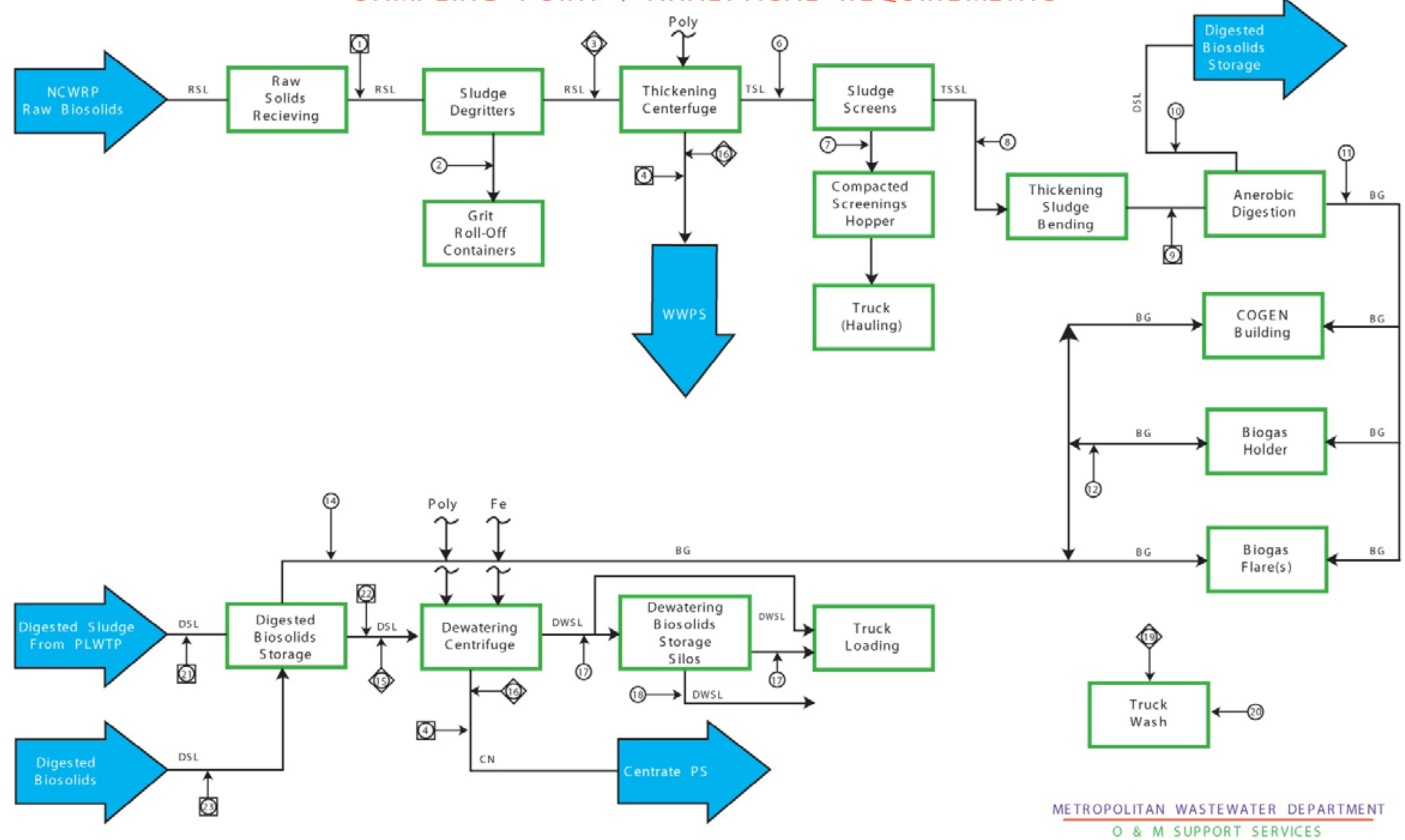
A. MBC Diagrams

METROPOLITAN BIOSOLIDS CENTER
PROCESS FLOW DIAGRAM
SAMPLING POINT / ANALYTICAL REQUIREMENTS



○ GRAB SAMPLER
▢ AUTOSAMPLER
◇ ANALYZER/METER

LOCATION	DESCRIPTION
1	Raw Solids Sampler (73 AU 9040): Volatile Solids, Total Solids, pH,
	Alkilinity
2	Grit: Volitile Solids, % Moisture
3	Thickened Sludge Feed Loop (76 DE 2140): Total Solids, Volatile
4	Centrate (Dewatering & Thickening) Sampler (76 AU 2635): Total
5	Suspended Solids, pH, BOD_5
6	Thickened Biosolids: Total Solids, Volatile Solids, pH
7	Sludge Screening: Volitile Solids, % Moisture
8	Thickened Screen Sludge: Total Sludge, Volatile Solids

LOCATION	DESCRIPTION
9	Thickened Sludge (73 AU 9050): Total Solids, Volatile Solids, Temperature, pH, Alkalinity, Volatile Acids,
	Iron
10	Anaerobically Digested Sludge: % Total Solids, % Volatile Solids, Temperature, pH, Alkalinity,
11	Volatile Acids
12	Biogas from Digestion: Methane (CH_4), Carbon Dioxide (CO_2), Hydrogen Sulfide (H_2S)
13	Biogas to Biogas Holder: Methane (CH_4), Carbon Dioxide (CO_2), H_2S
14	Biogas from Digestion: Methane (CH_4), Carbon Dioxide (CO_2)
15	Dewatering Centrifuge Feed Loop (76 DE 2502): Total Solids

LOCATION	DESCRIPTION
16	Centrate (Dewatering & Thickening) Analyzers: Total Suspended Solids
17	Dewatered Biosolids: Total Solids, Volatile Solids, pH, TKN, PCB, Trace Metals
18	Dewatered Biosolids Cake: Total Solids, Volatile Solids, pH, TKN, PCB, Trace Metals
19	Truck Wash: (87 AIT 9011): CL_2 Residule
20	Truck Wash: BOD_5, Coliform
21	Digested Sludge from PLWTP (80 AU 9009): Total Solids, Volatile Solids, pH, Iron
22	Digested Sludge from DBST (80 AU 2115): Total Solids, Volatile Solids, pH
23	Digester Samplers: Digester#1 80 AU 9006, Digester#2 9007, Digester#3 9008
	Total Solids, Volatile Solids, pH, Alkalinity, Iron

Revision Date: 02/11/04

B. Return Stream Data Summary

This section presents the results of analyses of the Metro Biosolids Center (MBC) return stream (MBC_COMBCN) for 2017. This return stream is continuously sampled by a flow-proportioned autosampler connected to the return stream lines at MBC. Each 24-hour composite is collected and analyzed for pH, BOD, TSS, TVSS, TS, and TVS daily. An aliquot is preserved and added to a monthly (calendar month) composite for analysis of trace metals.

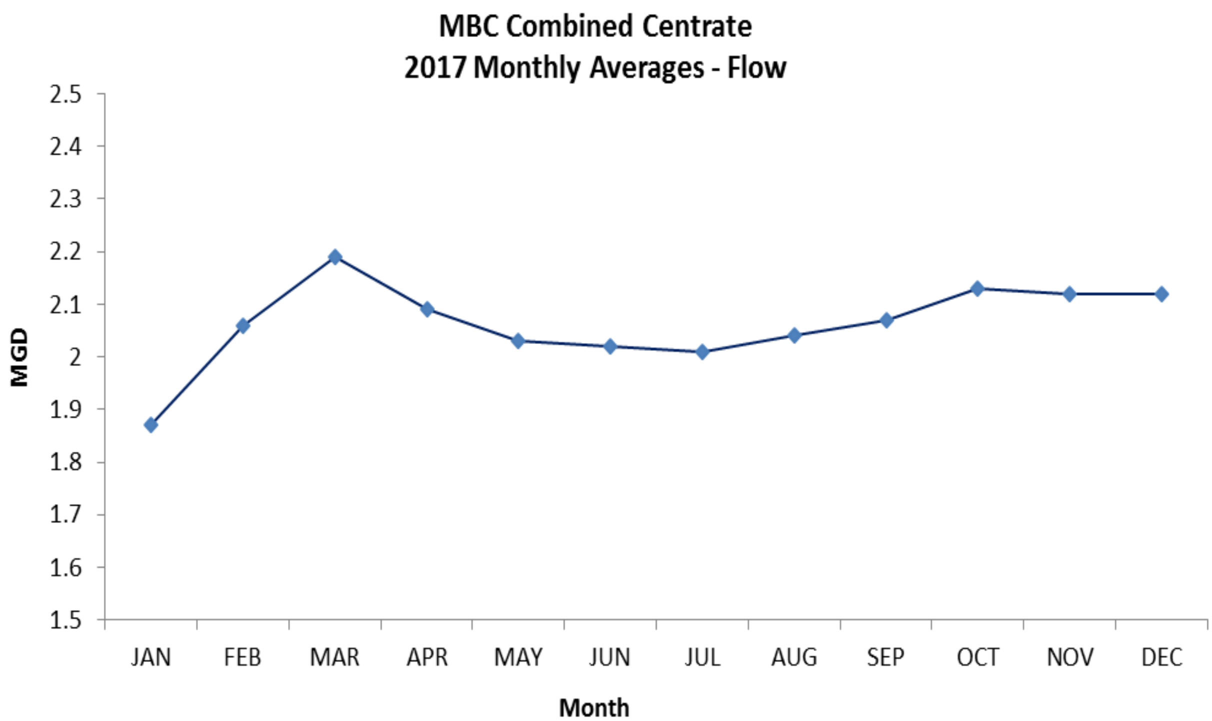
The data is presented in tables of monthly averages and graphs of the monthly averages of select parameters. Tables of daily values for select parameters (such as TSS, Flow, etc.) along with graphs are also provided.

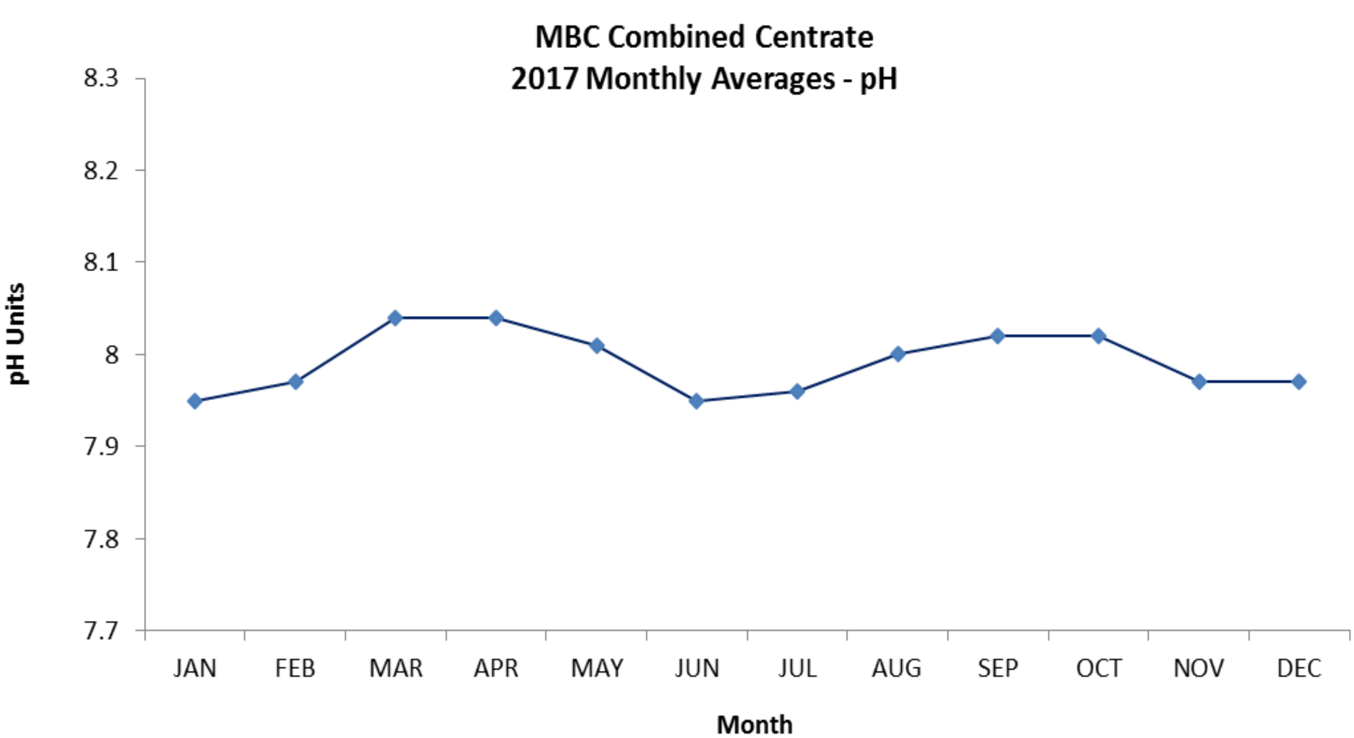
Metro Biosolids Center
Annual Summary
Combined Sludge Concentrate
Annual 2017

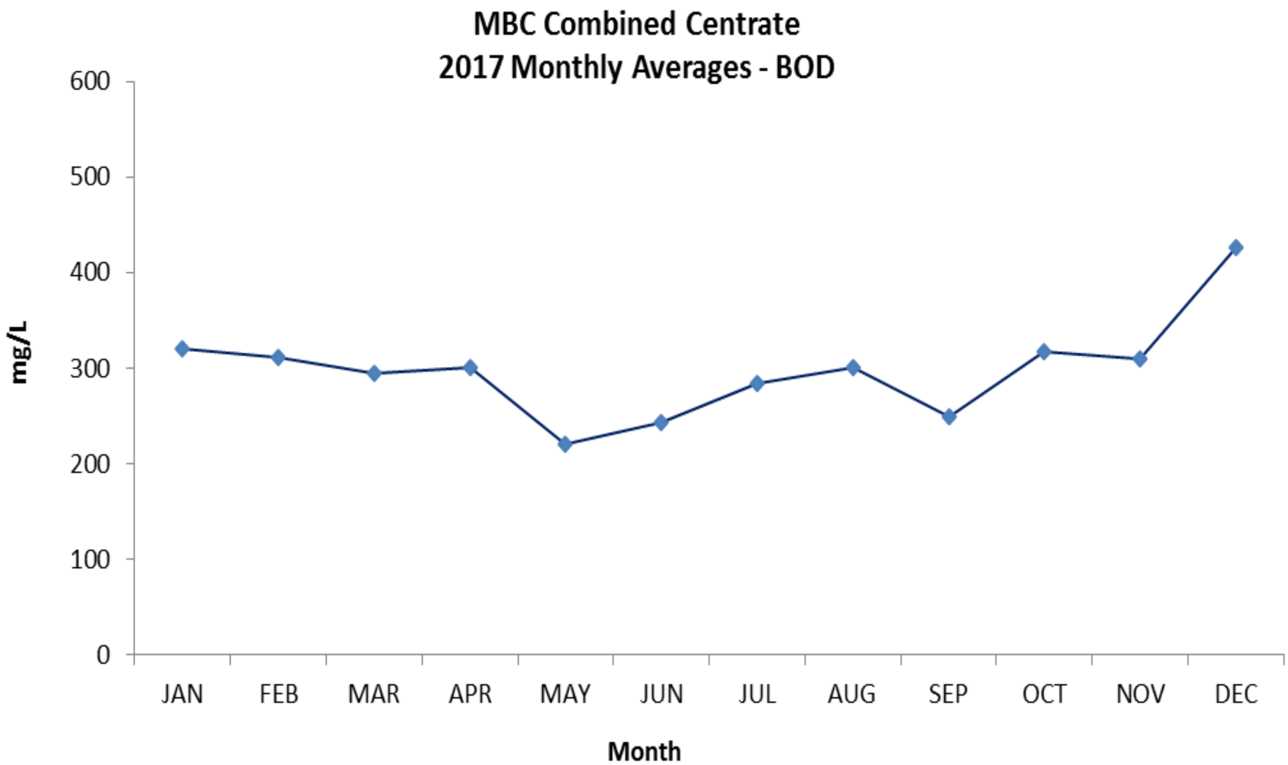
	FLOW MGD	PH pH Units	BOD mg/L	TSS mg/L	VSS mg/L	TS Wt%	TVS Wt%	TSS Mass Emmissions (lbs/Day)
JANUARY -2017	1.87	7.95	320	925	664	0.35	43	14426
FEBRUARY -2017	2.06	7.97	311	727	557	0.38	43	12490
MARCH -2017	2.19	8.04	295	775	581	0.31	44	14155
APRIL -2017	2.09	8.04	300	751	586	0.35	47	13090
MAY -2017	2.03	8.01	221	570	436	0.34	48	9650
JUNE -2017	2.02	7.95	243	520	403	0.32	48	8760
JULY -2017	2.01	7.96	284	656	508	0.34	48	10997
AUGUST -2017	2.04	8.00	300	767	584	0.34	46	13049
SEPTEMBER-2017	2.07	8.02	250	700	532	0.33	44	12085
OCTOBER -2017	2.13	8.02	317	748	569	0.33	37	13288
NOVEMBER -2017	2.12	7.97	310	676	523	0.32	40	11952
DECEMBER -2017	2.12	7.97	426	882	676	0.31	41	15594
Average	2.06	7.99	298	725	552	0.34	44	12461

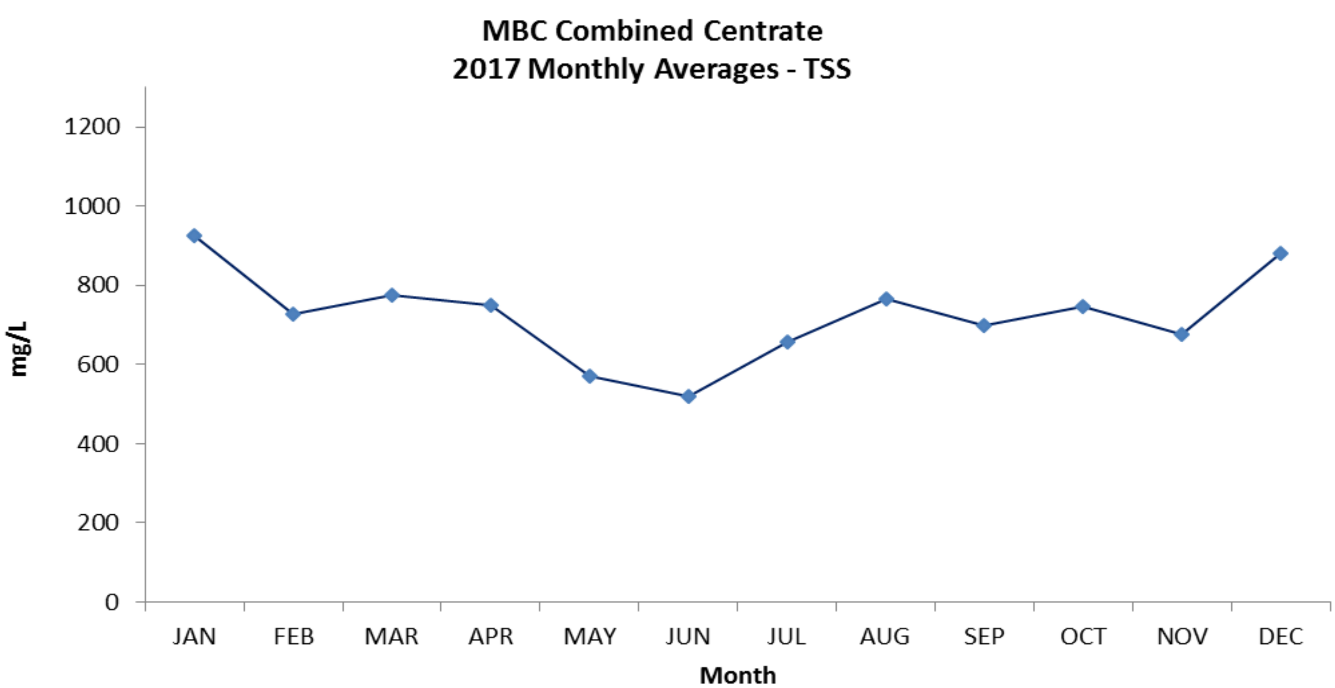
pH by SM4500H
BOD by SM5210B
TSS by SM 2540D
Total Solids by SM2540B

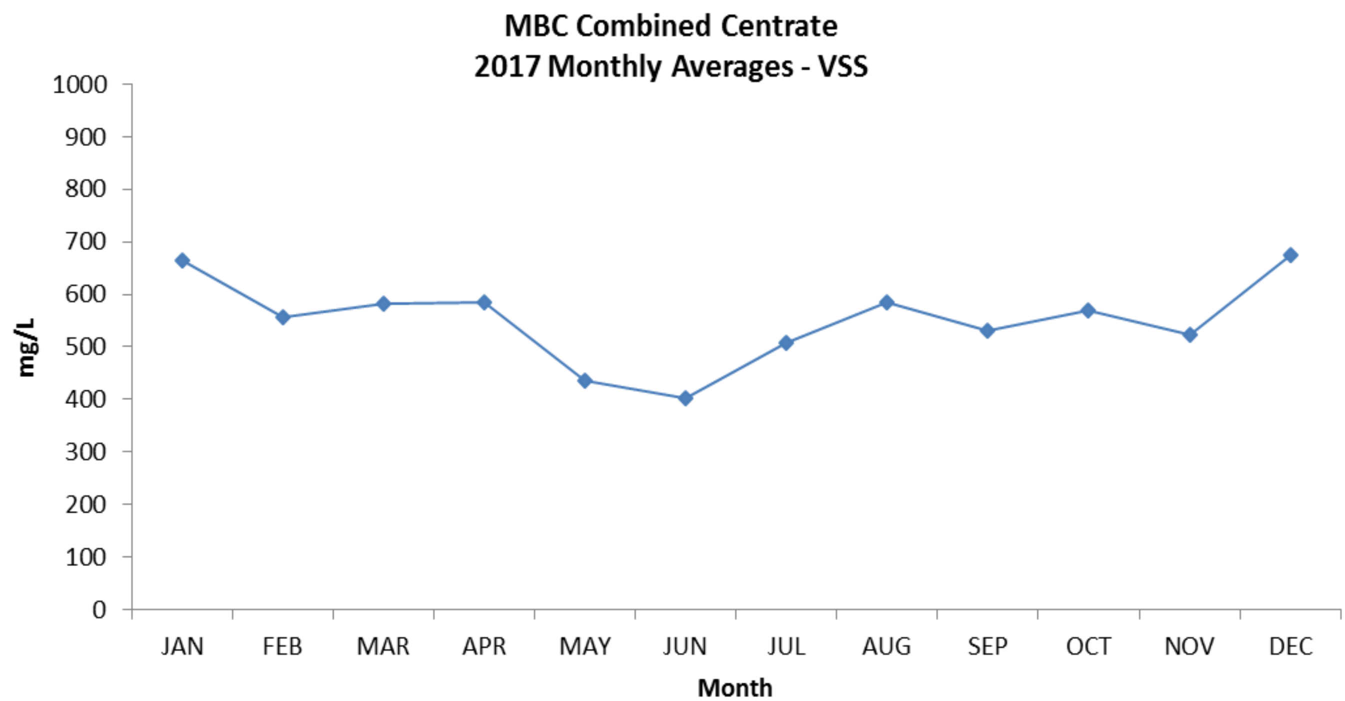
'Average' = Annual average of Monthly Averages.

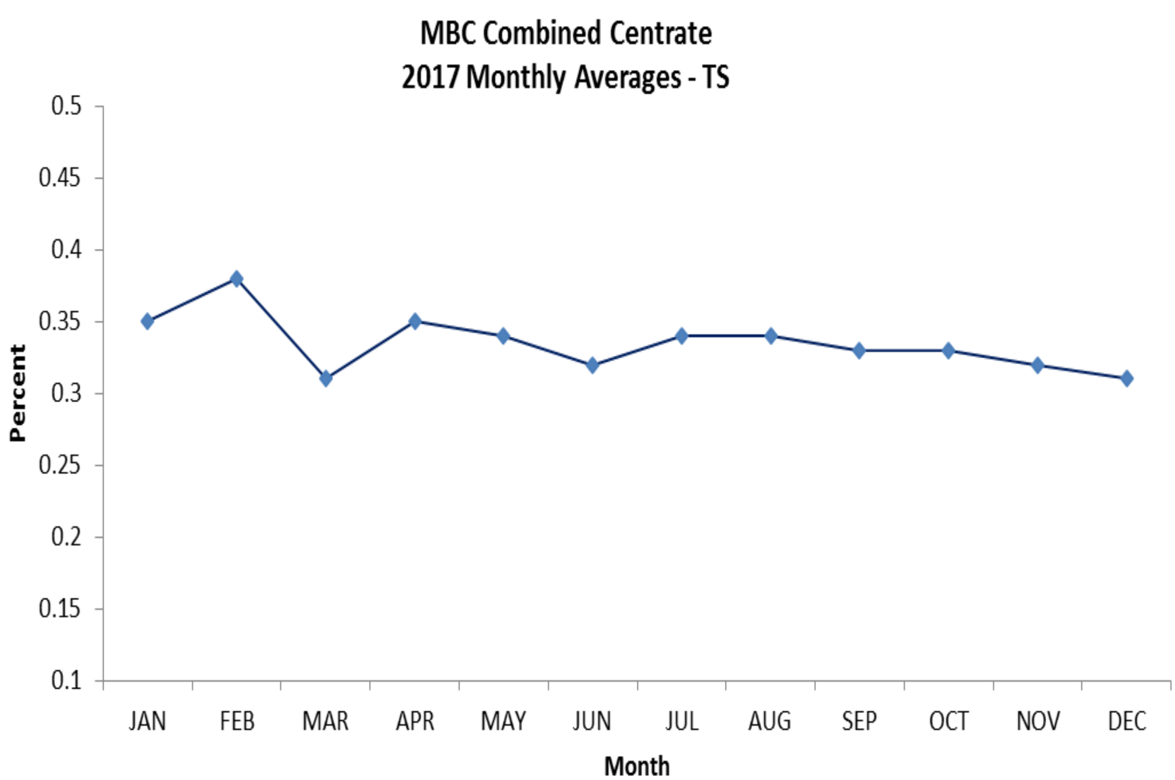

MBC Combined Centrate
2017 Monthly Averages - Flow
MGD
2.5
2.4
2.3
2.2
2.1
2
1.9
1.8
1.7
1.6
1.5
JAN
FEB
MAR
APR
MAY
JUN
JUL
AUG
SEP
OCT
NOV
DEC
Month

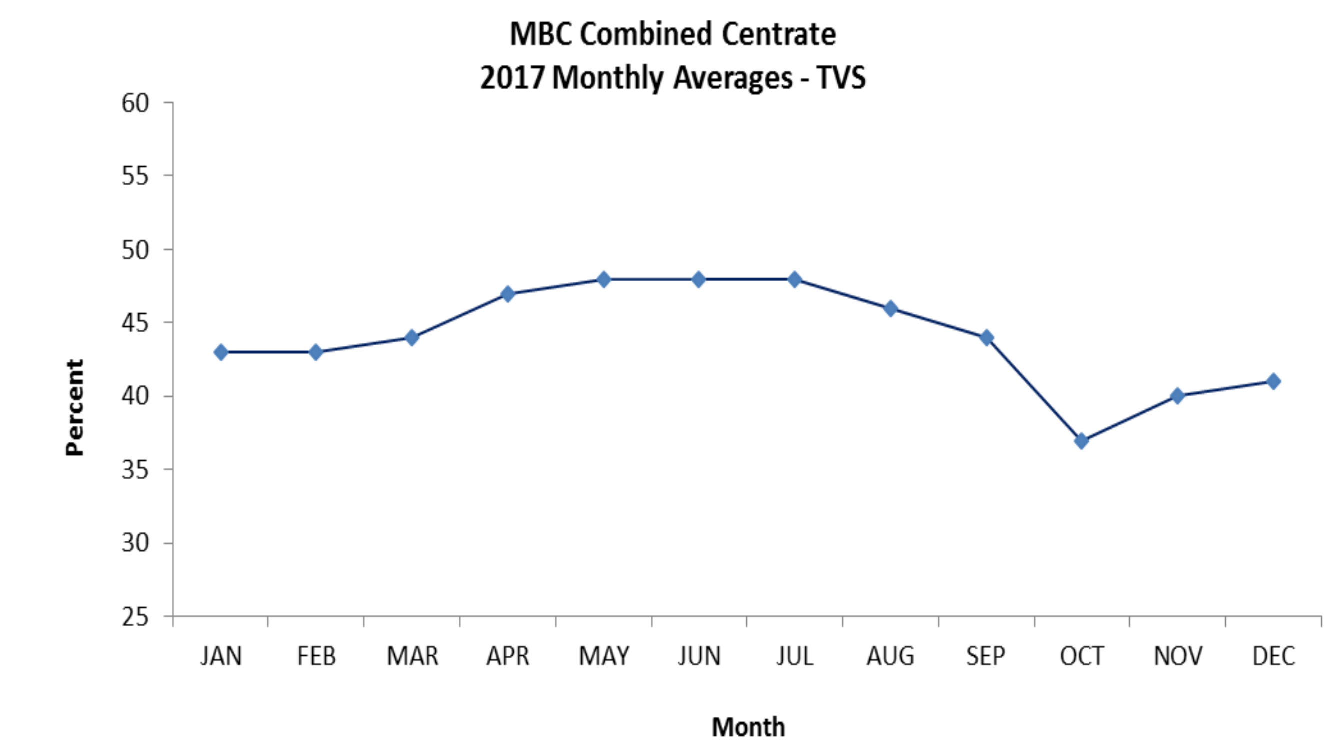

MBC Combined Centrate
2017 Monthly Averages - pH
pH Units
8.3
8.2
8.1
8
7.9
7.8
7.7
JAN
FEB
MAR
APR
MAY
JUN
JUL
AUG
SEP
OCT
NOV
DEC
Month


MBC Combined Centrate
2017 Monthly Averages - BOD
600
500
400
300
200
100
0
mg/L
JAN
FEB
MAR
APR
MAY
JUN
JUL
AUG
SEP
OCT
NOV
DEC
Month

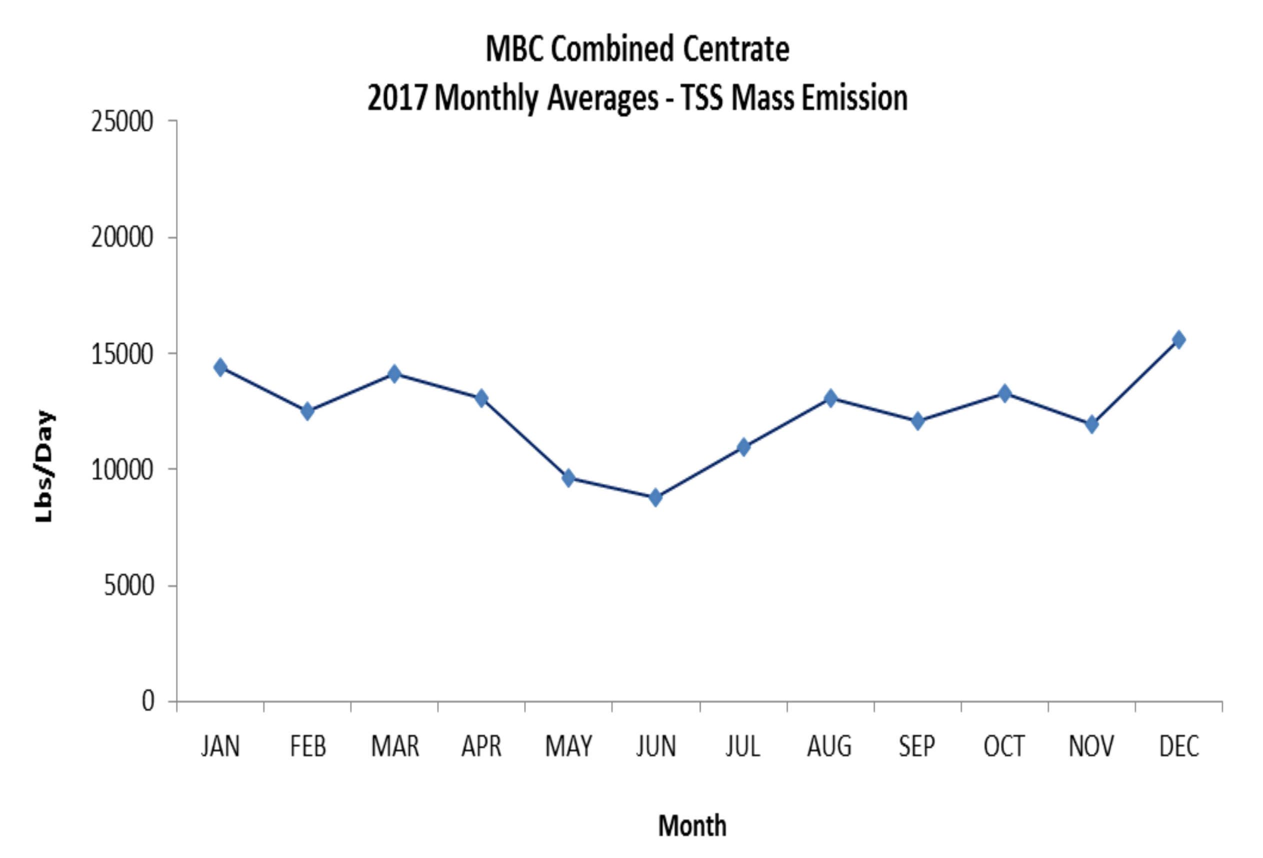

MBC Combined Centrate
2017 Monthly Averages - TSS
1200
1000
800
600
400
200
0
mg/L
JAN
FEB
MAR
APR
MAY
JUN
JUL
AUG
SEP
OCT
NOV
DEC
Month


MBC Combined Centrate
2017 Monthly Averages - VSS
mg/L
1000
900
800
700
600
500
400
300
200
100
0
JAN
FEB
MAR
APR
MAY
JUN
JUL
AUG
SEP
OCT
NOV
DEC
Month


MBC Combined Centrate
2017 Monthly Averages - TS
Percent
0.5
0.45
0.4
0.35
0.3
0.25
0.2
0.15
0.1
JAN
FEB
MAR
APR
MAY
JUN
JUL
AUG
SEP
OCT
NOV
DEC
Month

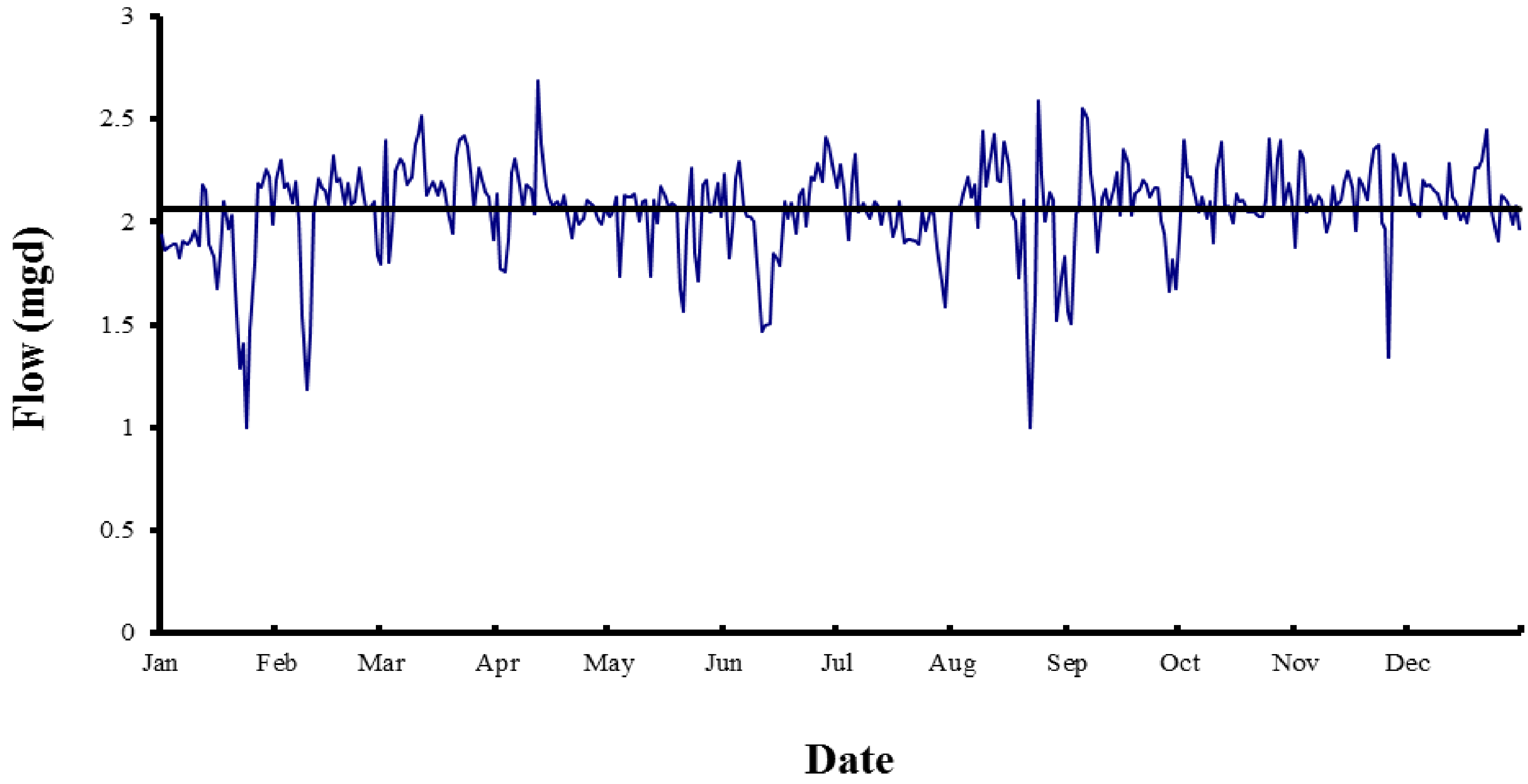


MBC Combined Centrate
2017 Monthly Averages - TVS
60
55
50
45
40
35
30
25
Percent
JAN
FEB
MAR
APR
MAY
JUN
JUL
AUG
SEP
OCT
NOV
DEC
Month



MBC Combined Centrate
2017 Monthly Averages - TSS Mass Emission
25000
20000
15000
10000
5000
0
Lbs/Day
JAN
FEB
MAR
APR
MAY
JUN
JUL
AUG
SEP
OCT
NOV
DEC
Month

2017 MBC Return Stream Flow (mgd)



Metro Biosolids Center

2017 MBC Return Stream Daily Flows (mgd)

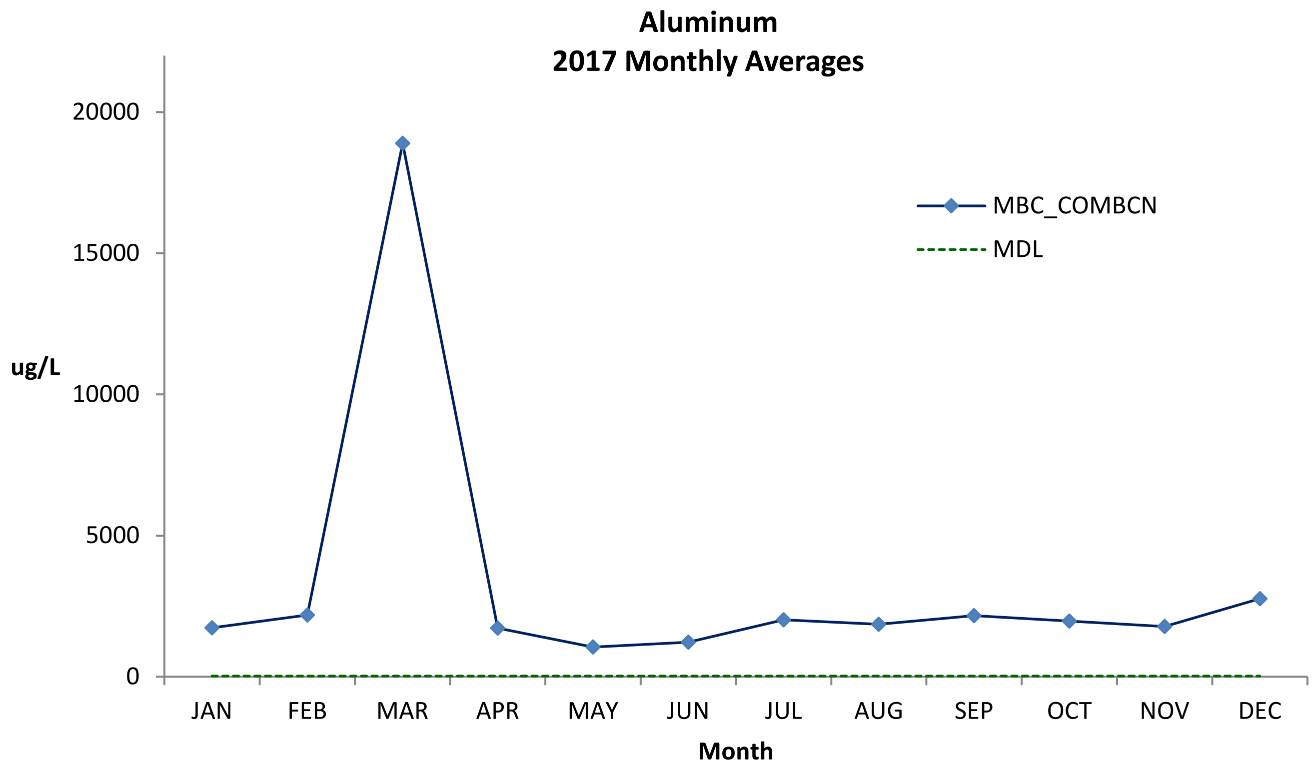
Day	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
1	1.93	2.21	1.80	2.14	2.03	2.23	2.17	2.06	1.56	2.04	1.88	2.17	
2	1.86	2.30	2.40	1.77	2.06	1.82	2.28	2.06	1.51	2.40	2.35	2.08	
3	1.88	2.17	1.80	1.76	2.12	1.97	2.17	2.07	2.04	2.22	2.31	2.08	
4	1.89	2.19	1.97	1.91	1.74	2.21	1.91	2.14	2.07	2.22	2.05	2.02	
5	1.89	2.09	2.25	2.24	2.13	2.30	2.19	2.22	2.55	2.11	2.13	2.20	
6	1.83	2.20	2.31	2.31	2.12	2.06	2.33	2.12	2.50	2.05	2.06	2.17	
7	1.91	2.00	2.28	2.17	2.12	2.02	2.05	2.18	2.23	2.13	2.13	2.18	
8	1.89	1.54	2.18	2.06	2.14	2.02	2.09	1.97	2.11	2.01	2.11	2.15	
9	1.91	1.18	2.22	2.18	2.00	2.01	2.05	2.44	1.85	2.10	1.95	2.14	
10	1.96	1.46	2.38	2.16	2.10	1.69	2.02	2.17	2.12	1.90	2.01	2.08	
11	1.88	2.04	2.43	2.04	2.11	1.47	2.10	2.28	2.16	2.25	2.18	2.02	
12	2.18	2.21	2.51	2.69	1.74	1.50	2.08	2.43	2.07	2.39	2.08	2.28	
13	2.15	2.16	2.13	2.38	2.11	1.50	1.99	2.21	2.16	2.07	2.11	2.12	
14	1.89	2.15	2.17	2.17	2.00	1.85	2.07	2.19	2.24	2.08	2.20	2.10	
15	1.83	2.08	2.20	2.11	2.17	1.83	2.04	2.39	2.04	2.00	2.25	2.01	
16	1.67	2.32	2.13	2.08	2.12	1.79	1.93	2.27	2.35	2.14	2.17	2.05	
17	1.85	2.20	2.20	2.10	2.07	2.10	1.98	2.04	2.28	2.10	1.96	1.99	
18	2.10	2.21	2.15	2.06	2.09	2.02	2.10	2.00	2.04	2.11	2.22	2.15	
19	1.96	2.09	2.06	2.13	2.07	2.09	1.90	1.73	2.14	2.05	2.19	2.27	
20	2.04	2.19	1.94	2.04	1.68	1.94	1.92	2.11	2.16	2.05	2.11	2.26	
21	1.68	2.09	2.31	1.92	1.57	2.13	1.92	1.46	2.20	2.05	2.26	2.30	
22	1.29	2.10	2.40	2.06	1.96	2.16	1.90	1.00	2.19	2.03	2.35	2.45	
23	1.41	2.27	2.42	1.99	2.27	1.98	1.89	1.64	2.12	2.02	2.37	2.09	
24	1.00	2.15	2.37	2.02	1.85	2.22	2.05	2.59	2.17	2.11	2.00	2.01	
25	1.47	2.06	2.24	2.11	1.71	2.20	1.96	2.22	2.17	2.40	1.97	1.91	
26	1.80	2.07	2.06	2.09	2.18	2.29	2.05	2.00	2.00	2.06	1.34	2.13	
27	2.19	2.10	2.27	2.08	2.21	2.19	2.04	2.15	1.94	2.31	2.33	2.12	
28	2.17	1.84	2.20	2.01	2.05	2.41	1.87	2.11	1.66	2.40	2.26	2.09	
29	2.26		2.15	1.99	2.06	2.37	1.71	1.52	1.81	2.08	2.13	1.99	
30	2.22		2.12	2.07	2.19	2.28	1.59	1.73	1.68	2.19	2.29	2.08	
31	1.99		1.92		2.03		1.86	1.83		2.10		1.97	Annual Summary
Avg	1.87	2.06	2.19	2.09	2.03	2.02	2.01	2.04	2.07	2.13	2.12	2.12	2.06
Min	1.00	1.18	1.80	1.76	1.57	1.47	1.59	1.00	1.51	1.90	1.34	1.91	1.00
Max	2.26	2.32	2.51	2.69	2.27	2.41	2.33	2.59	2.55	2.40	2.37	2.45	2.69

POINT LOMA WASTEWATER TREATMENT PLANT
METRO BIOSOLIDS CENTER
ANNUAL 2017
Trace Metals
EPA METHOD 200.7

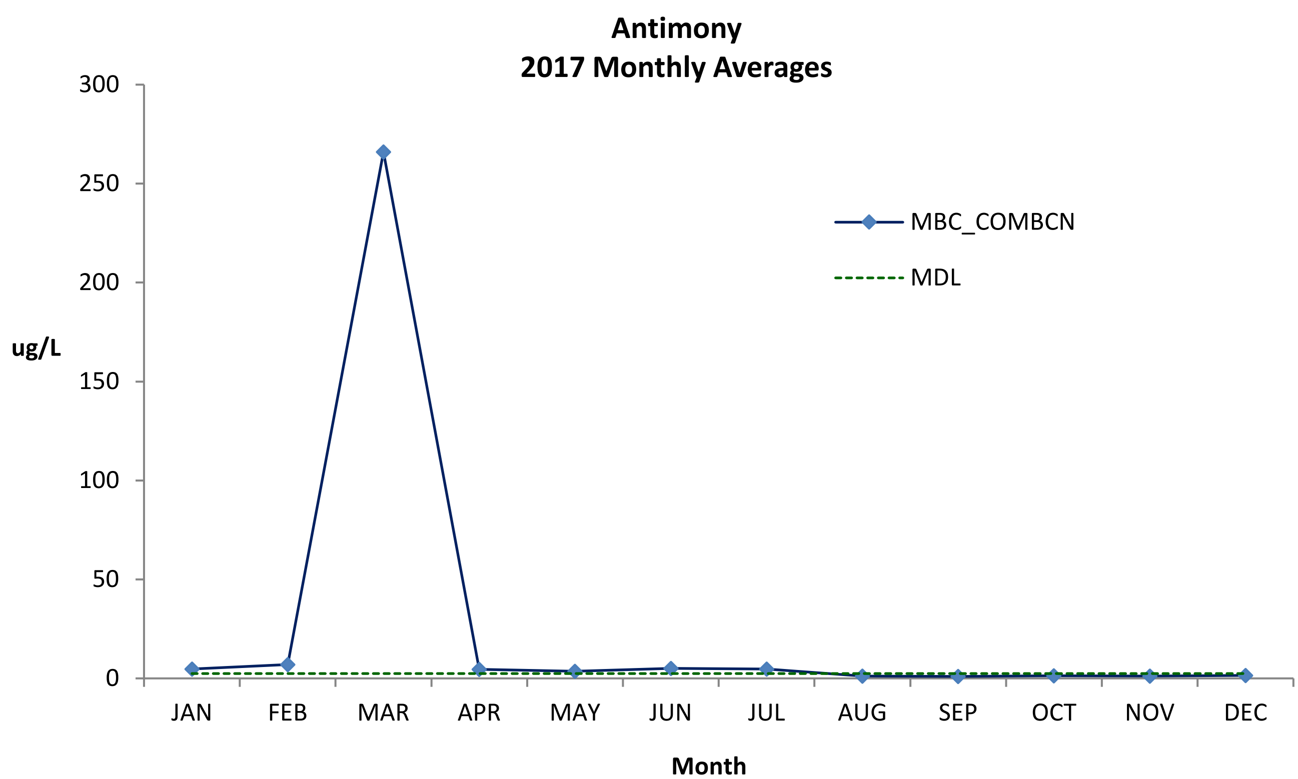
Source:			MBC_COMBCN	MBC_COMBCN	MBC_COMBCN	MBC_COMBCN	MBC_COMBCN	MBC_COMBCN
Date:			31-JAN-2017	28-FEB-2017	31-MAR-2017	30-APR-2017	31-MAY-2017	30-JUN-2017
Sample ID:			P920342	P925829	P932212	P937937	P945970	P953131
==========	====	====	============	============	============	============	============	============
Aluminum	23.8	UG/L	1730	2190	18900	1720	1050	1220
Antimony	2.44	UG/L	4.78	6.95	266.00	4.53	3.55	4.99
Arsenic	1.84	UG/L	5.56	5.99	6.42	3.53	2.39	2.35
Barium	.7	UG/L	442	390	576	262	180	166
Beryllium	.12	UG/L	ND	0.07	16.10	ND	ND	ND
Cadmium	.26	UG/L	0.40	0.54	35.30	0.59	ND	0.93
Chromium	.54	UG/L	21.4	20.2	16.0	15.4	10.0	12.4
Cobalt	.24	UG/L	6.95	7.05	64.20	6.36	5.11	5.17
Copper	2.16	UG/L	304	287	221	260	138	153
Iron	17.1	UG/L	61000	51800	30200	40600	34000	33000
Lead	1.68	UG/L	6.29	8.76	156.00	7.91	3.44	7.30
Manganese	.78	UG/L	409	406	424	457	424	404
Mercury	.02	UG/L	0.25	0.40	0.23	0.21	0.18	0.17
Molybdenum	.32	UG/L	12.80	11.30	58.30	8.27	6.09	7.50
Nickel	.53	UG/L	25.1	25.2	44.9	20.2	17.0	20.3
Selenium	.662	UG/L	1.09	3.54	3.46	2.35	2.16	2.83
Silver	.73	UG/L	2.05	2.26	53.60	2.06	ND	ND
Thallium	3.12	UG/L	ND	ND	24.60	ND	ND	ND
Vanadium	2.77	UG/L	6.52	9.11	ND	5.68	2.55	3.31
Zinc	4.19	UG/L	471	426	6640	408	237	274

Source:			MBC_COMBCN	MBC_COMBCN	MBC_COMBCN	MBC_COMBCN	MBC_COMBCN	MBC_COMBCN
Date:			31-JUL-2017	30-AUG-2017	30-SEP-2017	31-OCT-2017	30-NOV-2017	31-DEC-2017
Sample ID:			P959637	P966458	P974185	P979342	P986441	***Multiple***
==========	====	====	============	============	============	============	============	============
Aluminum	23.8	UG/L	2020	1860	2160	1970	1780	2760
Antimony	2.44	UG/L	4.72	1.12	0.99	1.29	1.15	1.51
Arsenic	1.84	UG/L	2.64	4.23	4.35	5.67	4.47	4.98
Barium	.7	UG/L	188	174	167	200	195	257
Beryllium	.12	UG/L	ND	ND	ND	ND	ND	ND
Cadmium	.26	UG/L	0.30	0.39	0.16	0.25	0.19	0.34
Chromium	.54	UG/L	15.6	12.0	12.4	15.4	12.5	20.2
Cobalt	.24	UG/L	5.71	4.29	4.07	4.50	4.14	5.14
Copper	2.16	UG/L	225	185	177	213	174	245
Iron	17.1	UG/L	43700	37500	37800	42400	35800	47700
Lead	1.68	UG/L	5.28	4.49	3.17	3.32	2.69	3.81
Manganese	.78	UG/L	561	512	502	530	495	512
Mercury	.02	UG/L	0.04	0.17	0.13	0.17	0.05	0.20
Molybdenum	.32	UG/L	9.69	10.70	8.41	7.50	7.31	9.66
Nickel	.53	UG/L	20.5	19.2	19.2	20.5	18.9	23.0
Selenium	.662	UG/L	2.69	1.88	4.05	5.30	2.84	4.61
Silver	.73	UG/L	ND	1.15	2.13	1.11	0.82	4.11
Thallium	3.12	UG/L	ND	ND	ND	ND	ND	ND
Vanadium	2.77	UG/L	3.78	2.92	2.99	12.60	3.89	5.69
Zinc	4.19	UG/L	340	282	257	300	262	343

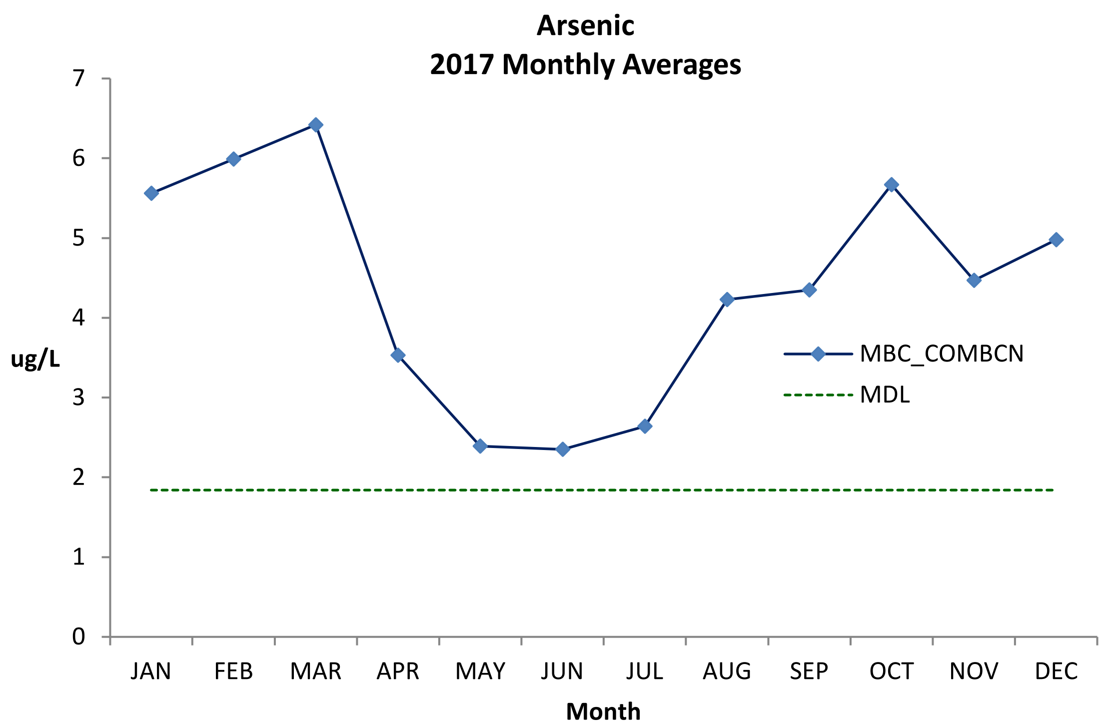
ND= Not Detected
MBC_COMBCN= Metro Biosolids Center Combined Sludge Centrate.



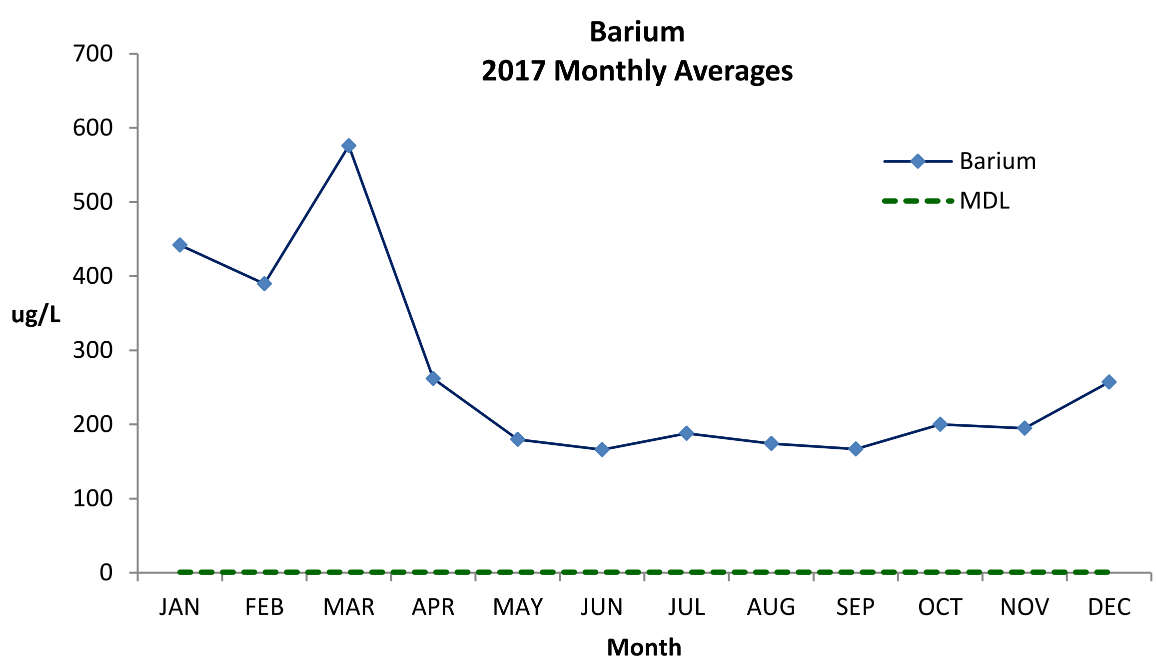
Aluminum
2017 Monthly Averages
20000
15000
10000
5000
0
ug/L
MBC_COMBCN
MDL
JAN
FEB
MAR
APR
MAY
JUN
JUL
AUG
SEP
OCT
NOV
DEC
Month



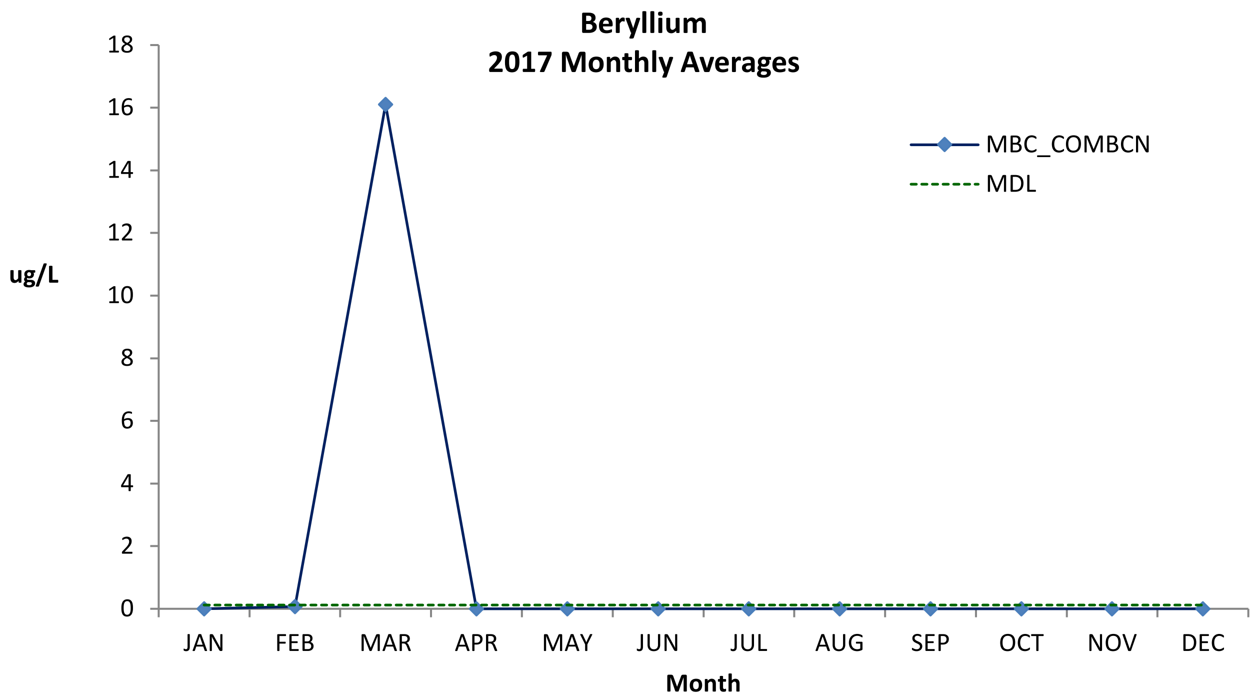
Antimony
2017 Monthly Averages
300
250
200
150
100
50
0
ug/L
MBC_COMBCN
MDL
JAN
FEB
MAR
APR
MAY
JUN
JUL
AUG
SEP
OCT
NOV
DEC
Month

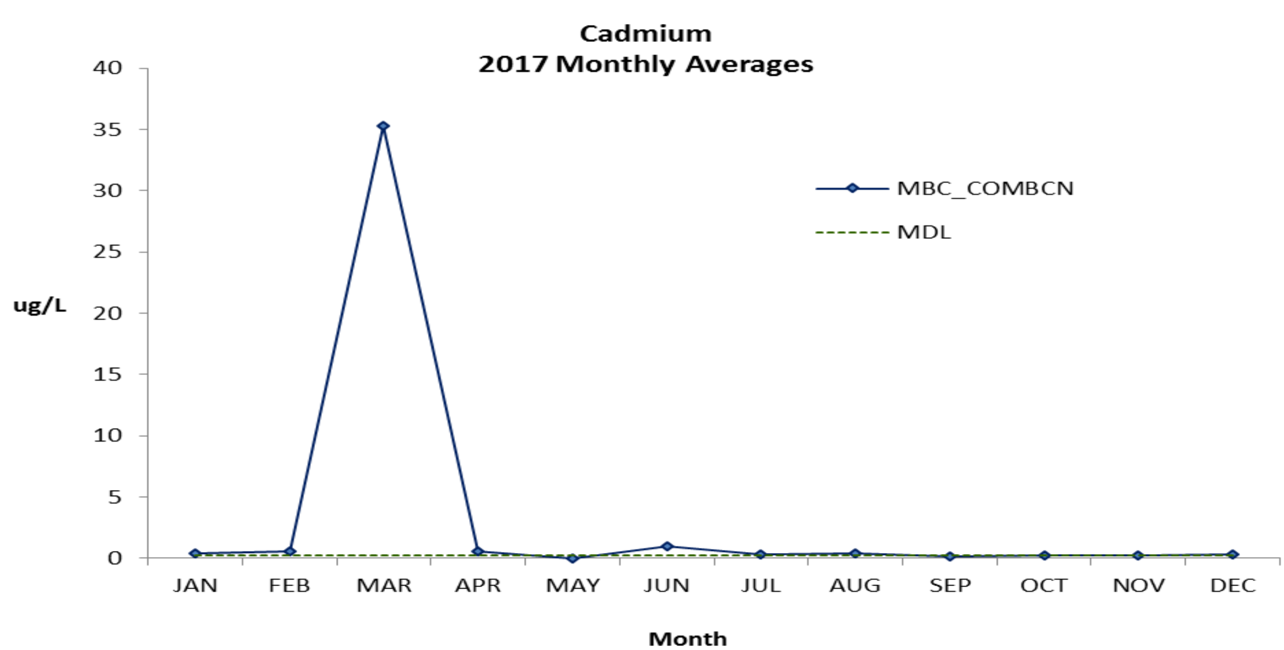


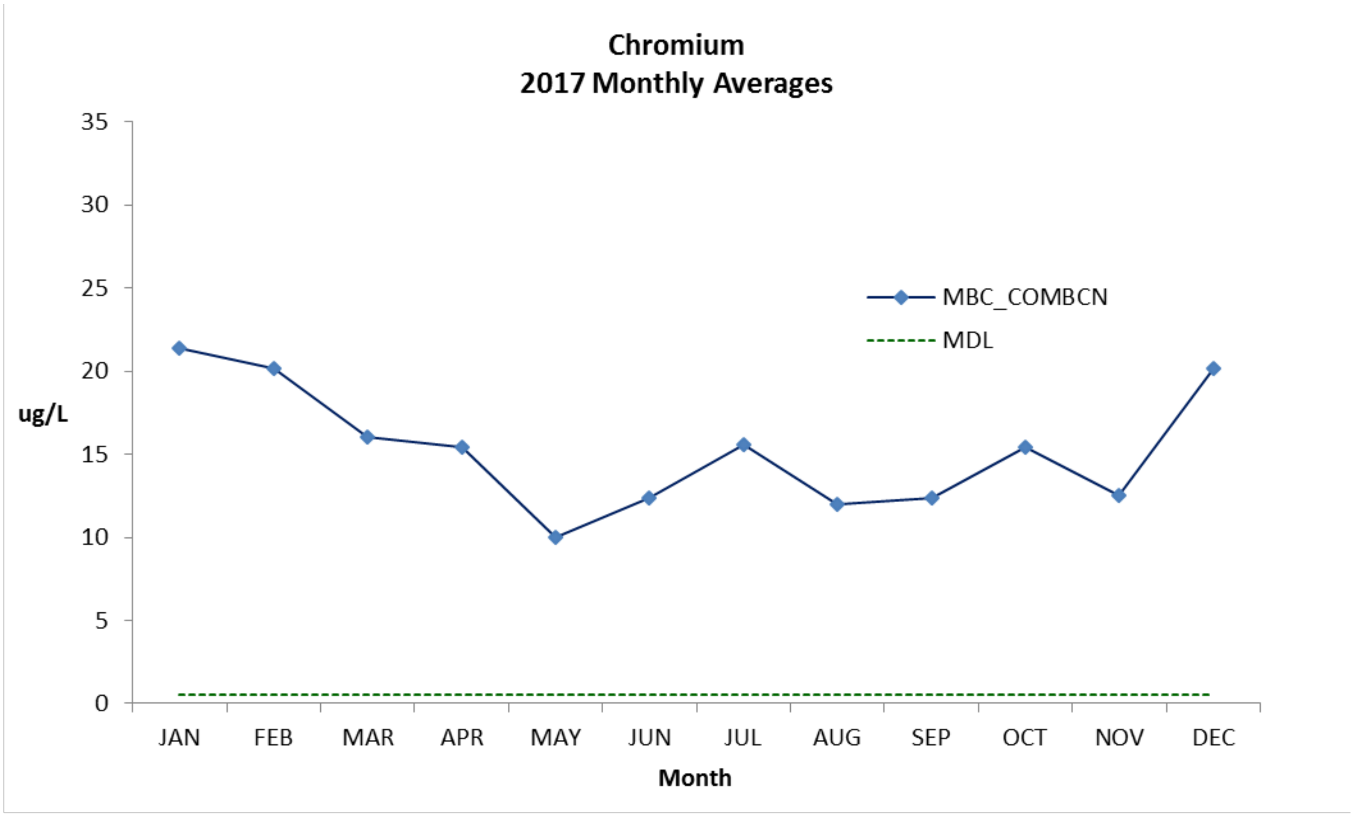
Arsenic
2017 Monthly Averages
7
6
5
4
3
2
1
0
ug/L
MBC_COMBCN
MDL
JAN
FEB
MAR
APR
MAY
JUN
JUL
AUG
SEP
OCT
NOV
DEC
Month

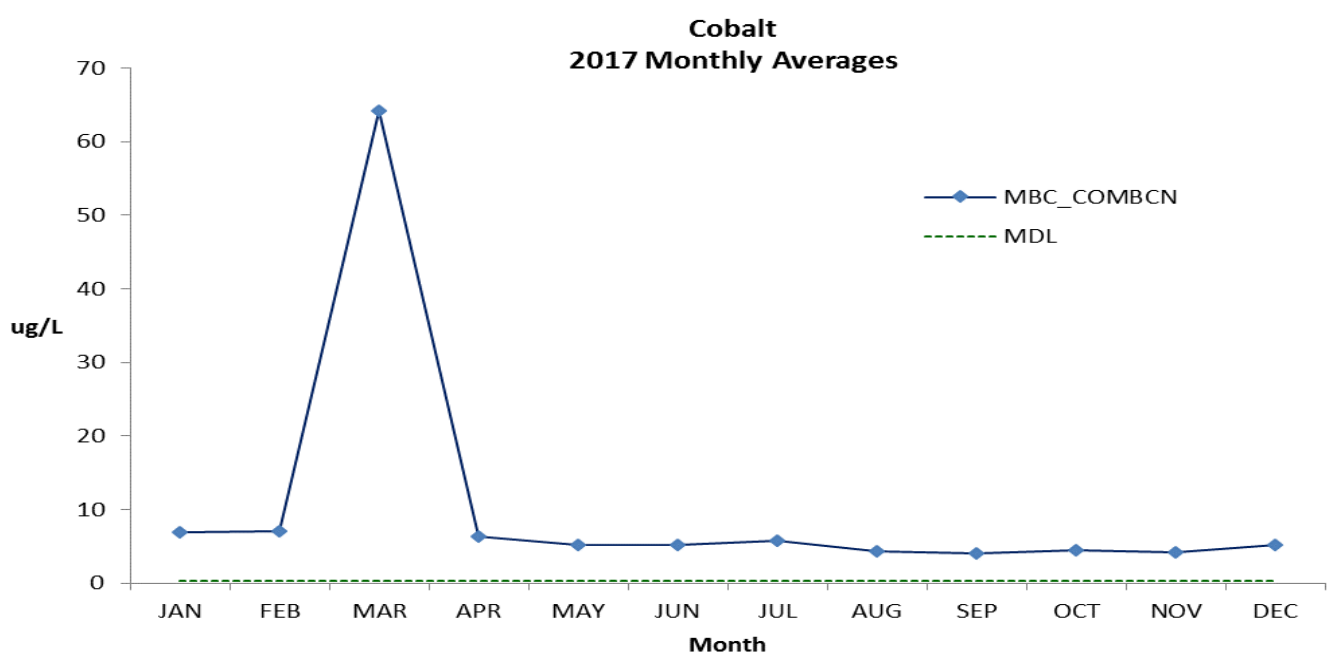


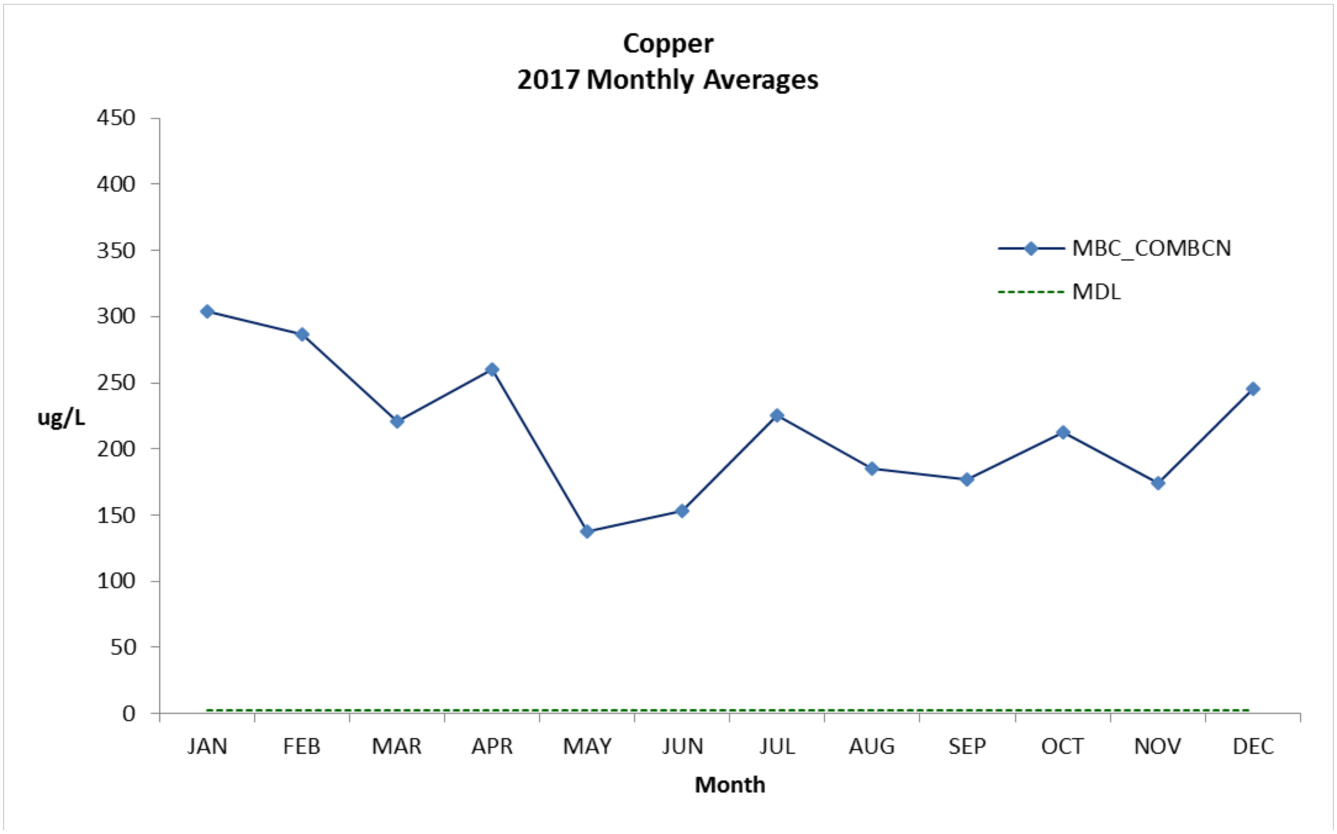
Barium
2017 Monthly Averages
700
600
500
400
300
200
100
0
ug/L
Barium
MDL
JAN
FEB
MAR
APR
MAY
JUN
JUL
AUG
SEP
OCT
NOV
DEC
Month

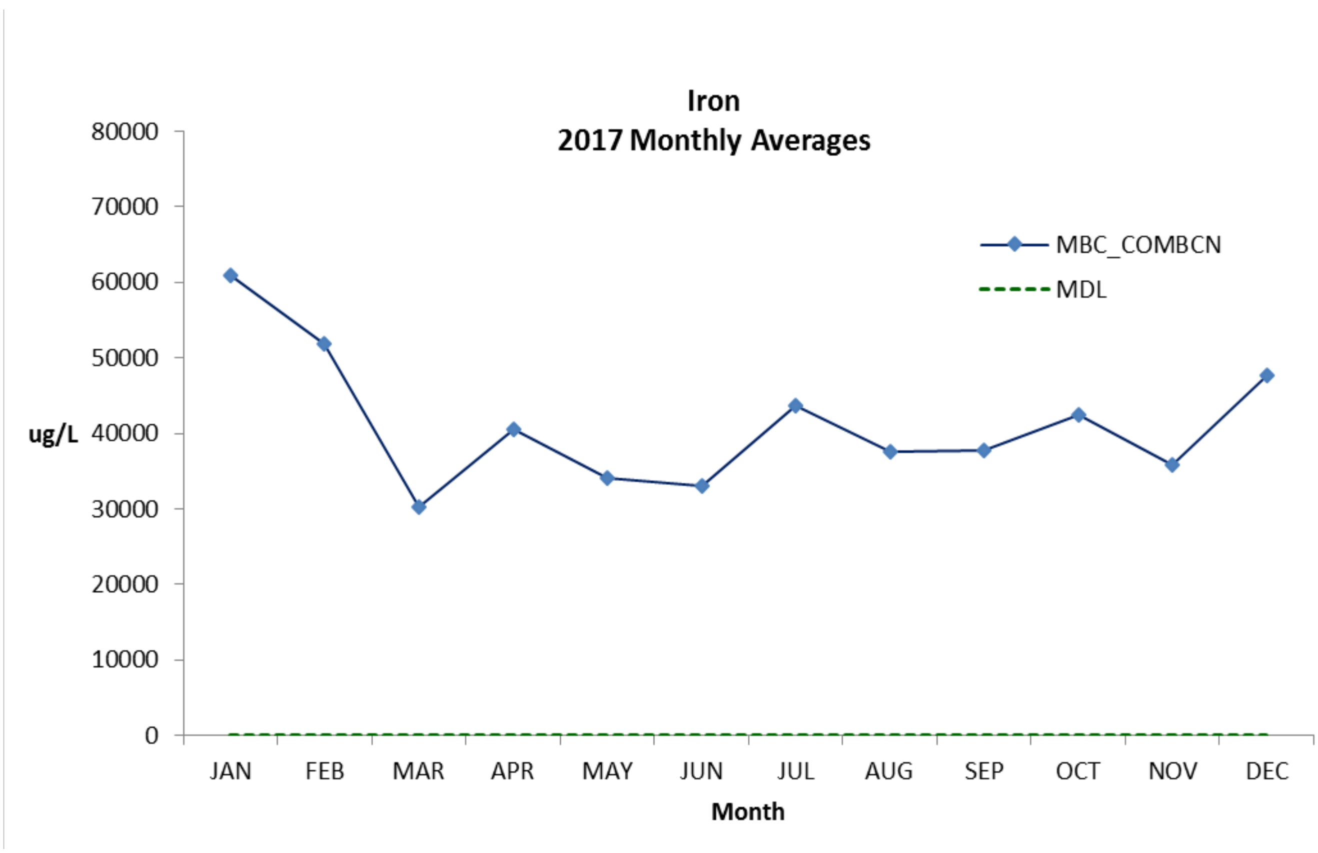

Beryllium
2017 Monthly Averages
18
16
14
12
10
8
6
4
2
0
ug/L
MBC_COMBCN
MDL
JAN
FEB
MAR
APR
MAY
JUN
JUL
AUG
SEP
OCT
NOV
DEC
Month

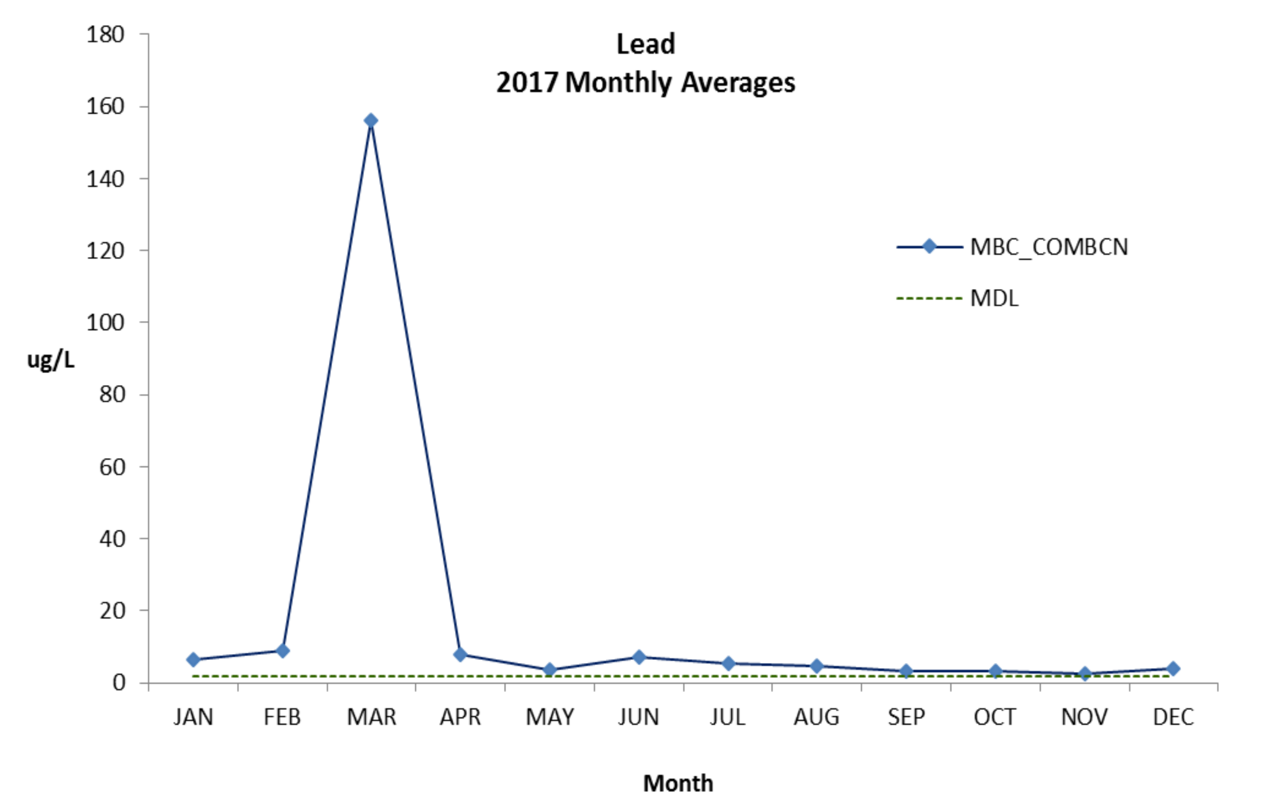

Cadmium
2017 Monthly Averages
40
35
30
25
20
15
10
5
0
ug/L
MBC_COMBCN
MDL
JAN
FEB
MAR
APR
MAY
JUN
JUL
AUG
SEP
OCT
NOV
DEC
Month

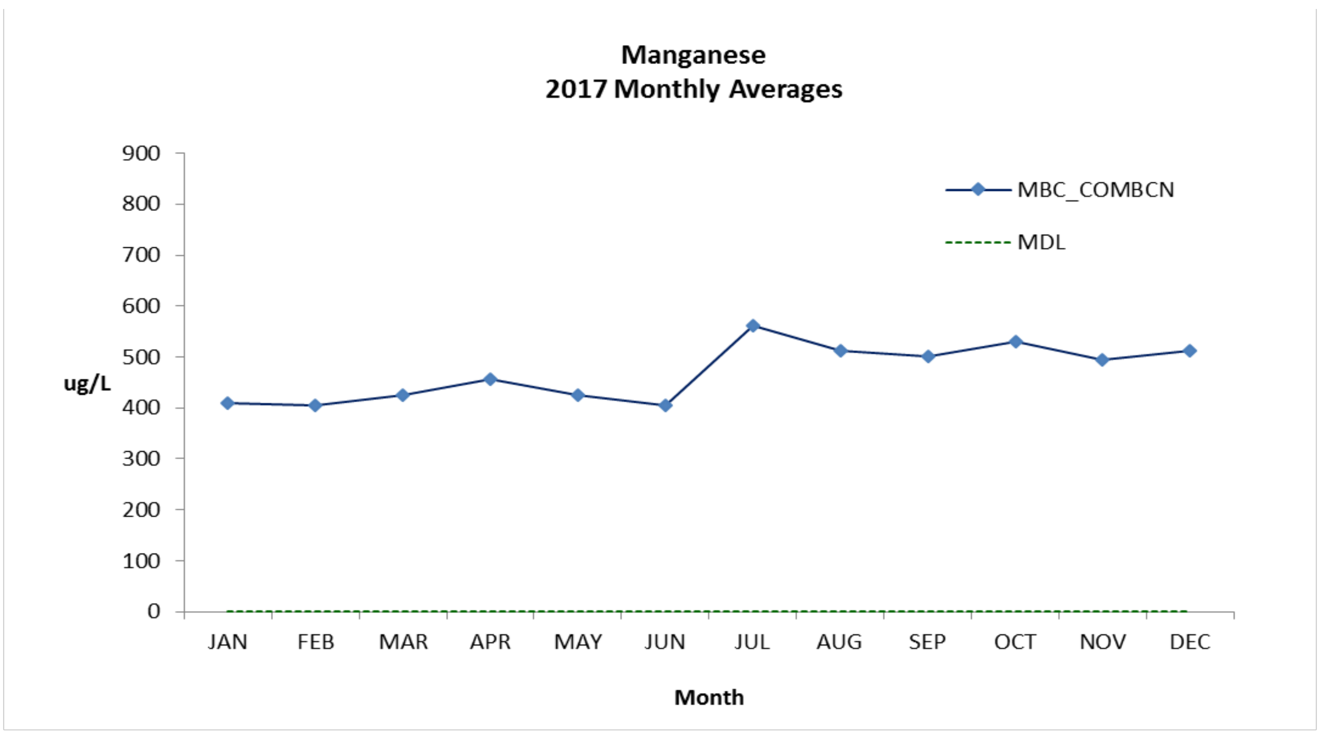

Chromium
2017 Monthly Averages
35
30
25
20
15
10
5
0
ug/L
MBC_COMBCN
MDL
JAN
FEB
MAR
APR
MAY
JUN
JUL
AUG
SEP
OCT
NOV
DEC
Month

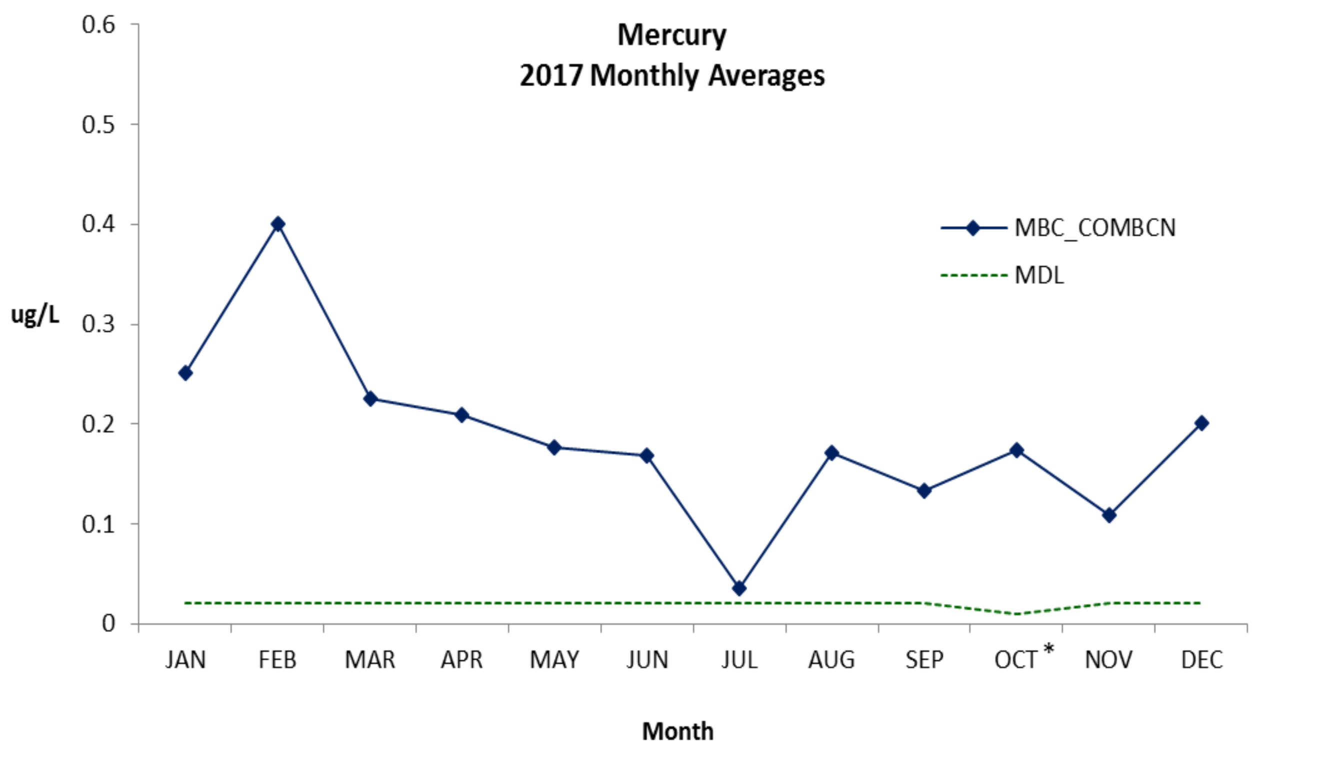

Cobalt
2017 Monthly Averages
70
60
50
40
30
20
10
0
ug/L
MBC_COMBCN
MDL
JAN
FEB
MAR
APR
MAY
JUN
JUL
AUG
SEP
OCT
NOV
DEC
Month


Copper
2017 Monthly Averages
450
400
350
300
250
200
150
100
50
0
ug/L
MBC_COMBCN
MDL
JAN
FEB
MAR
APR
MAY
JUN
JUL
AUG
SEP
OCT
NOV
DEC
Month

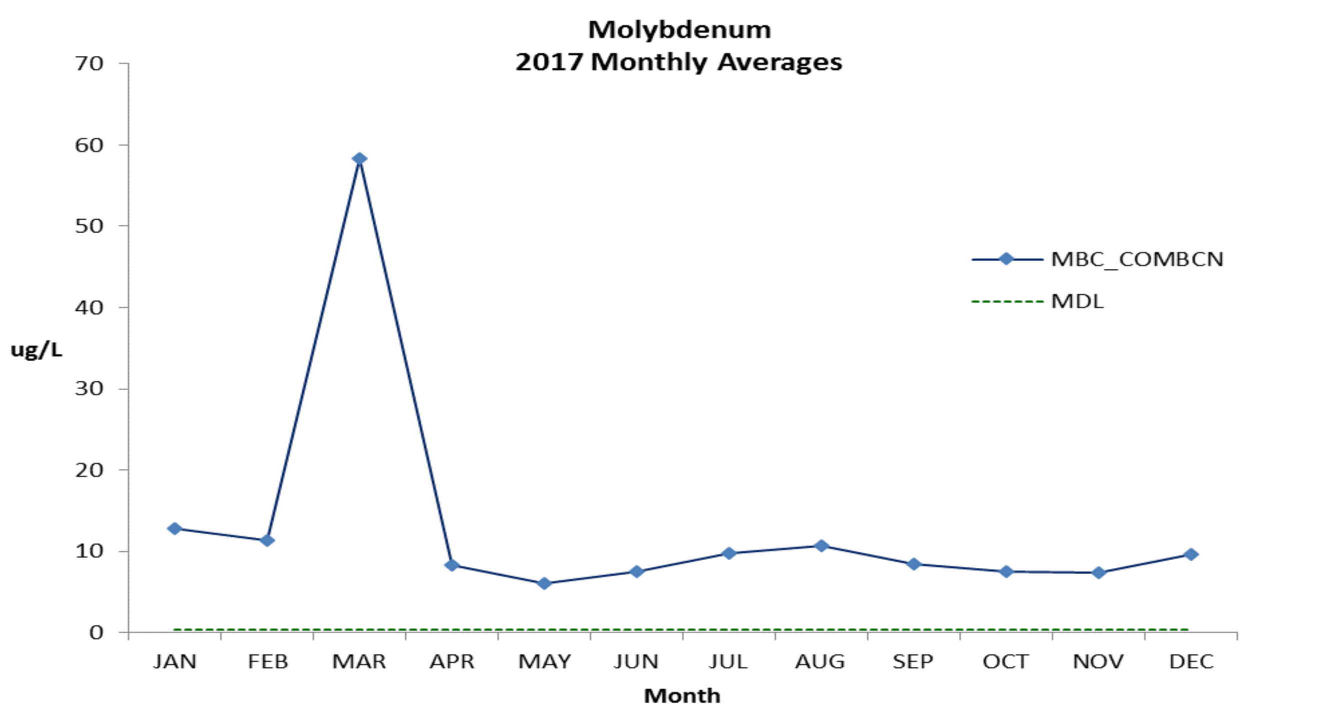

Iron
2017 Monthly Averages
80000
70000
60000
50000
40000
30000
20000
10000
0
ug/L
MBC_COMBCN
MDL
JAN
FEB
MAR
APR
MAY
JUN
JUL
AUG
SEP
OCT
NOV
DEC
Month

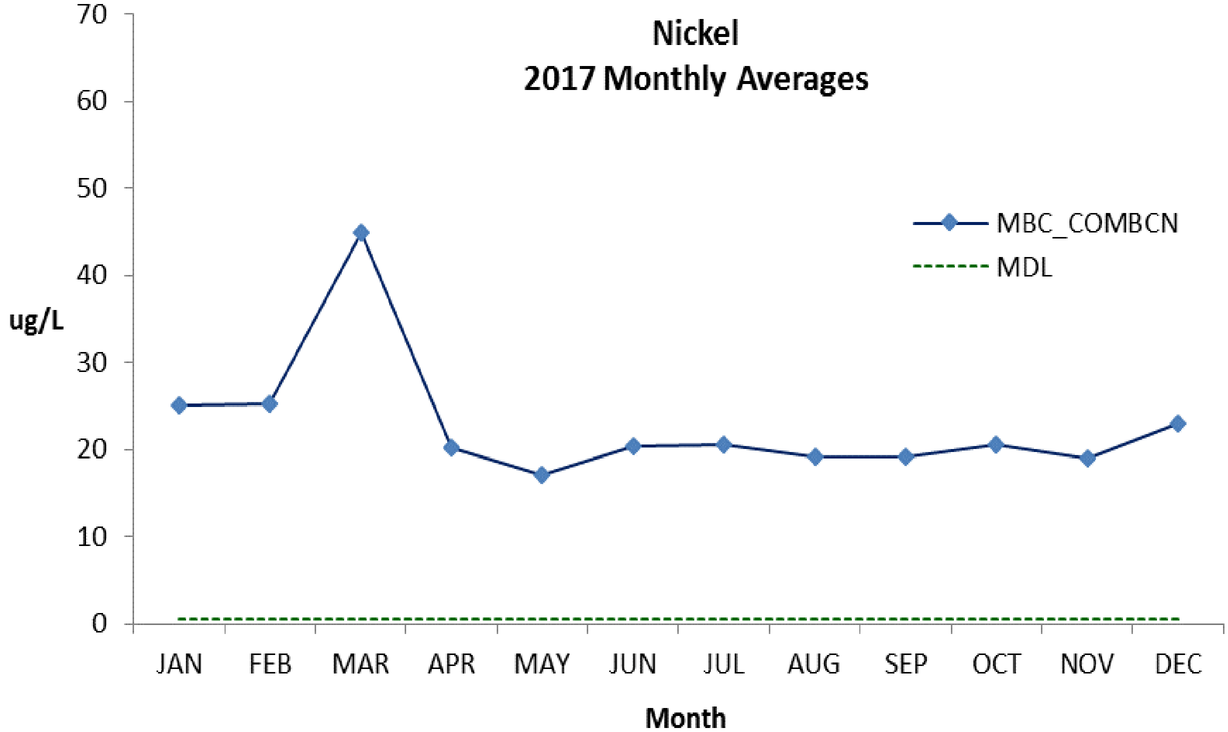

Lead
2017 Monthly Averages
180
160
140
120
100
80
60
40
20
0
ug/L
MBC_COMBCN
MDL
JAN
FEB
MAR
APR
MAY
JUN
JUL
AUG
SEP
OCT
NOV
DEC
Month

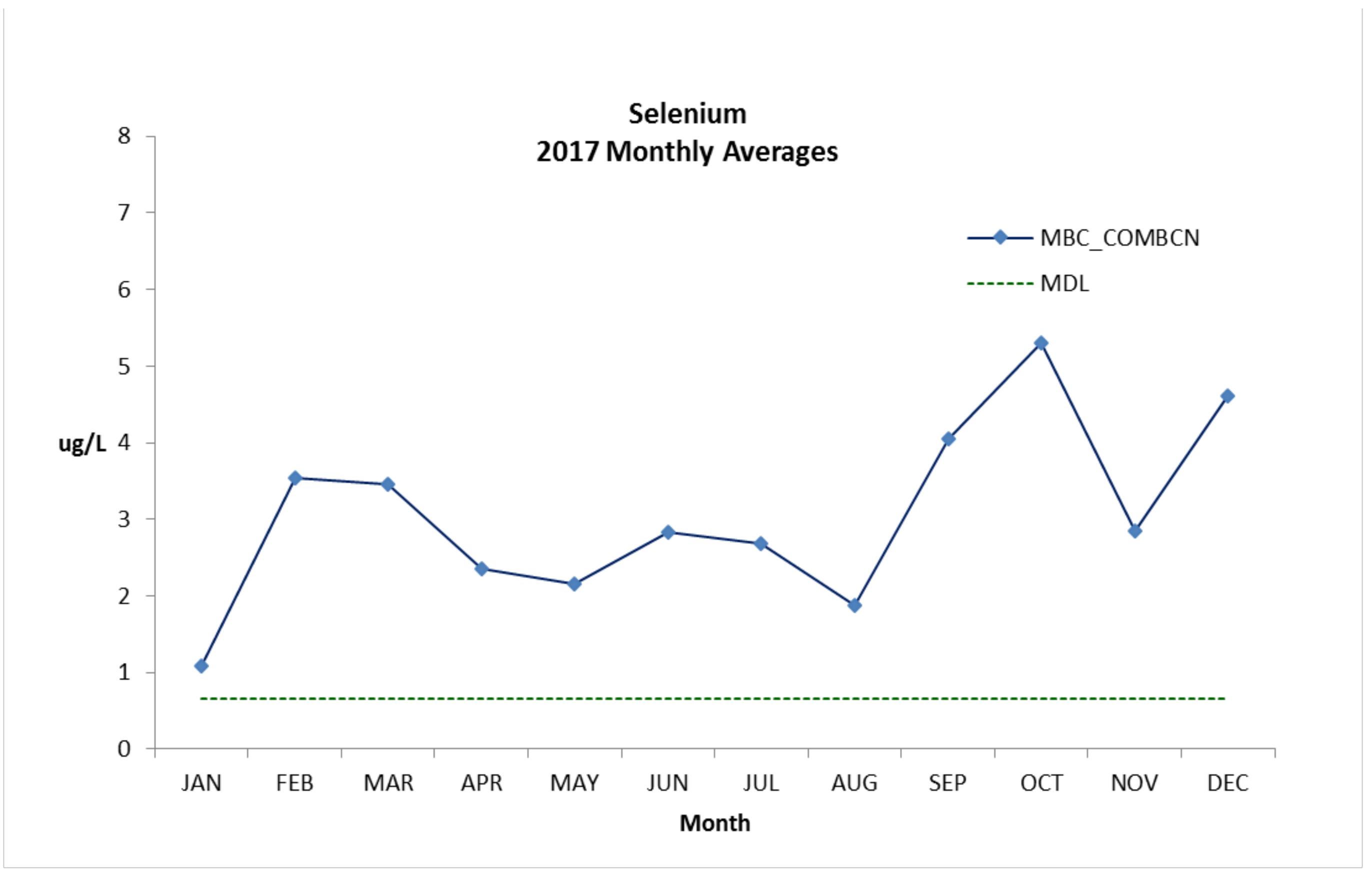

Manganese
2017 Monthly Averages
900
800
700
600
500
400
300
200
100
0
ug/L
MBC_COMBCN
MDL
JAN
FEB
MAR
APR
MAY
JUN
JUL
AUG
SEP
OCT
NOV
DEC
Month

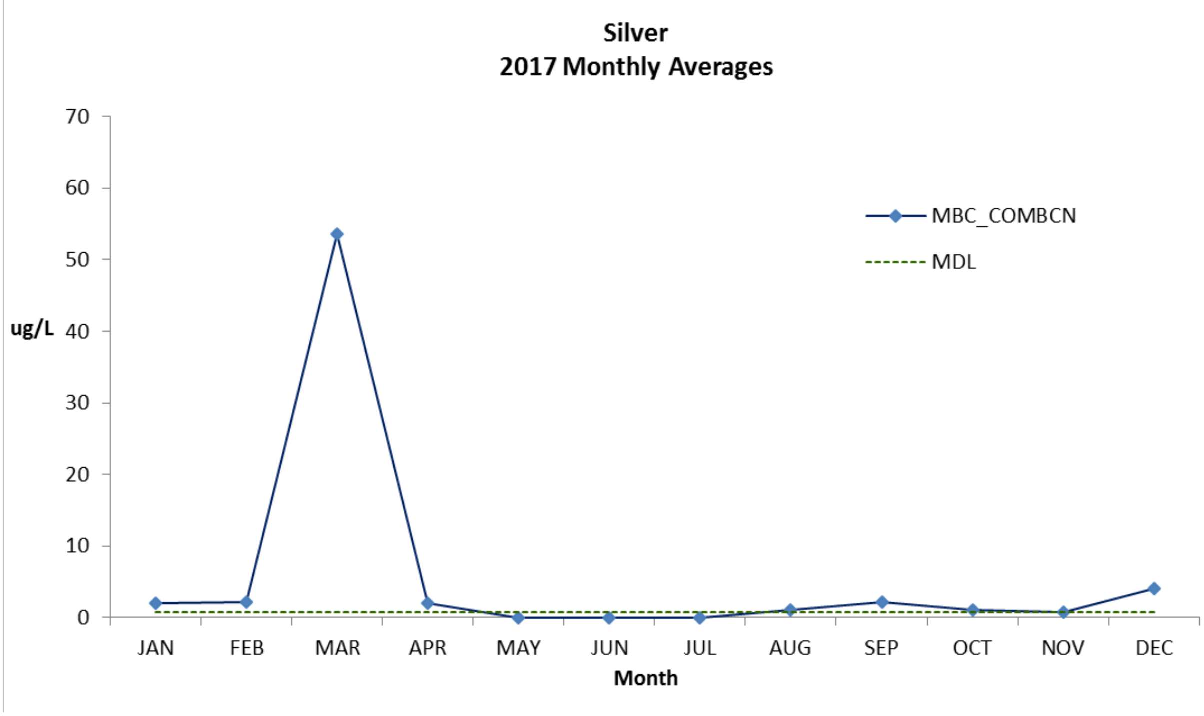


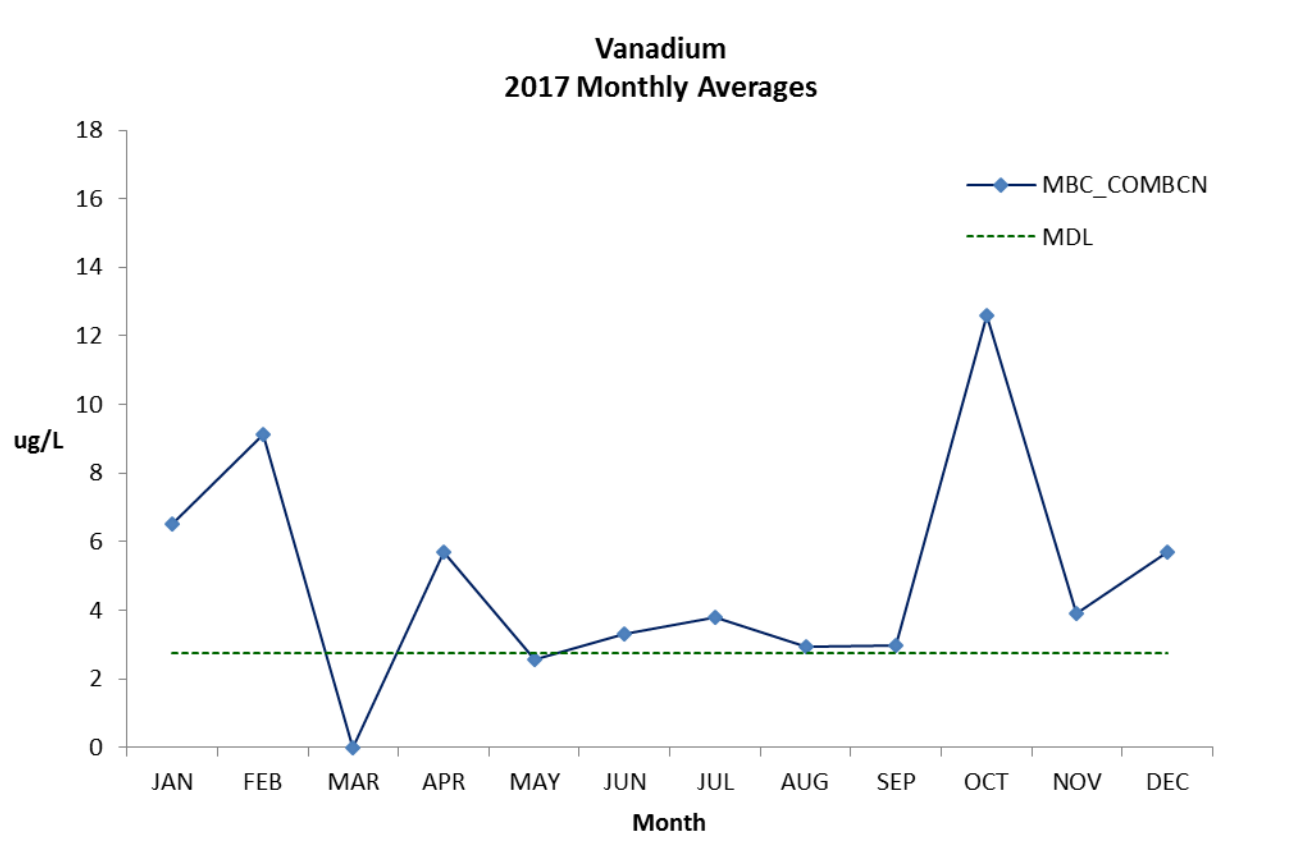
*October analysis run under different method. Result was 170 ng/L with 0.5 ng/L MDL.

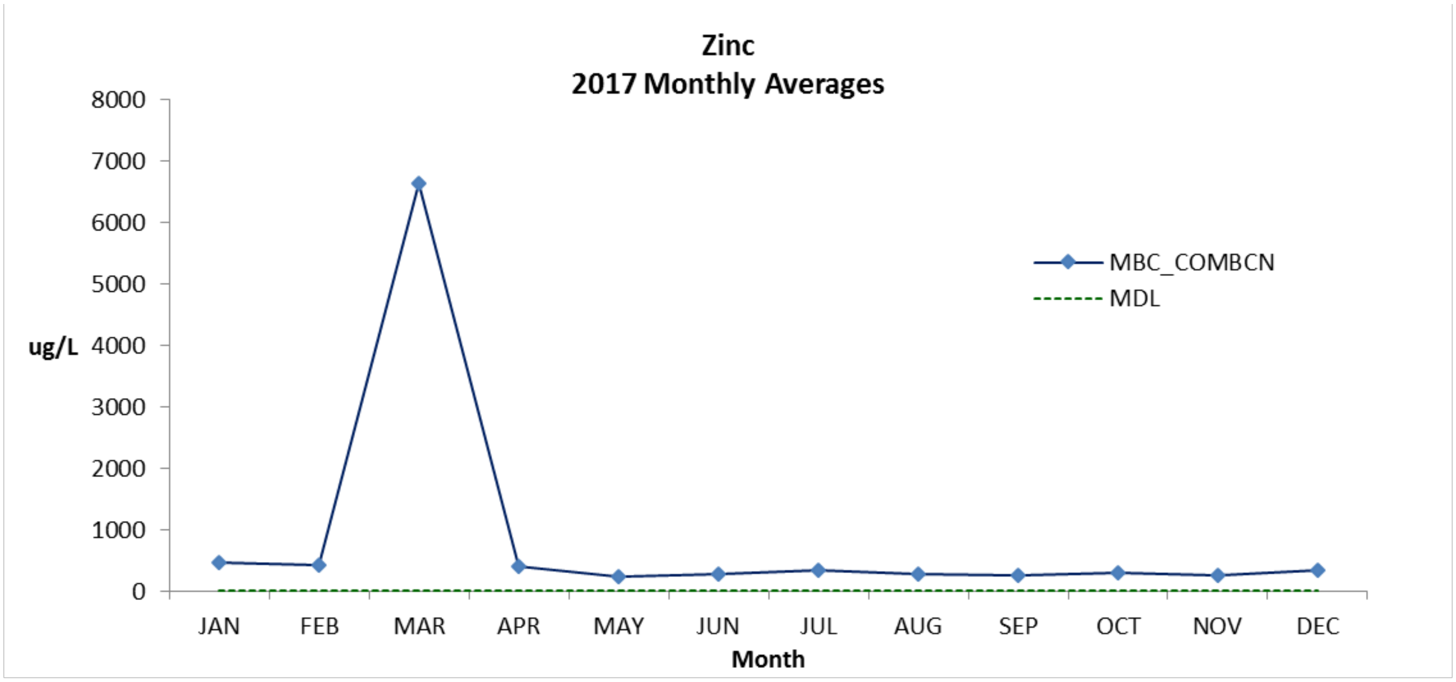



Nickel
2017 Monthly Averages
70
60
50
40
30
20
10
0
ug/L
MBC_COMBCN
MDL
JAN
FEB
MAR
APR
MAY
JUN
JUL
AUG
SEP
OCT
NOV
DEC
Month


Selenium
2017 Monthly Averages
8
7
6
5
4
3
2
1
0
ug/L
MBC_COMBCN
MDL
JAN
FEB
MAR
APR
MAY
JUN
JUL
AUG
SEP
OCT
NOV
DEC
Month


Silver
2017 Monthly Averages
70
60
50
40
30
20
10
0
ug/L
MBC_COMBCN
MDL
JAN
FEB
MAR
APR
MAY
JUN
JUL
AUG
SEP
OCT
NOV
DEC
Month


Vanadium
2017 Monthly Averages
18
16
14
12
10
8
6
4
2
0
ug/L
MBC_COMBCN
MDL
JAN
FEB
MAR
APR
MAY
JUN
JUL
AUG
SEP
OCT
NOV
DEC
Month


Zinc
2017 Monthly Averages
8000
7000
6000
5000
4000
3000
2000
1000
0
ug/L
MBC_COMBCN
MDL
JAN
FEB
MAR
APR
MAY
JUN
JUL
AUG
SEP
OCT
NOV
DEC
Month

C. MBC Digester and Digested Sludge Data Summary

Metro Biosolids Center Annual Report
Digesters

Annual 2017

Digester 1

	pH	Total Solids (%)	Volatile Solids (%)	Alkal-inity (mg/L)	Volatile Acids (mg/L)	Methane (%)	Carbon Dioxide (%)	H2S ppm
JANUARY -2017				NOT IN SERVICE				
FEBRUARY -2017								
MARCH -2017								
APRIL -2017								
MAY -2017								
JUNE -2017								
JULY -2017								
AUGUST -2017								
SEPTEMBER-2017								
OCTOBER -2017								
NOVEMBER -2017								
DECEMBER -2017								
Average:	*	*	*	*	*	*	*	*

Digester 2

	pH	Total Solids (%)	Volatile Solids (%)	Alkal-inity (mg/L)	Volatile Acids (mg/L)	Methane (%)	Carbon Dioxide (%)	H2S ppm
JANUARY -2017				NOT IN SERVICE				
FEBRUARY -2017								
MARCH -2017								
APRIL -2017								
MAY -2017								
JUNE -2017								
JULY -2017								
AUGUST -2017								
SEPTEMBER-2017								
OCTOBER -2017								
NOVEMBER -2017								
DECEMBER -2017								
Average:	*	*	*	*	*	*	*	*

Digester 3

	pH	Total Solids (%)	Volatile Solids (%)	Alkal-inity (mg/L)	Volatile Acids (mg/L)	Methane (%)	Carbon Dioxide (%)	H2S ppm
JANUARY -2017	6.90	2.0	63.4	1640	37	60.9	39.1	20
FEBRUARY -2017	6.91	2.2	66.6	1700	40	60.3	39.7	21
MARCH -2017	6.95	2.2	66.6	1810	41	59.9	40.1	21
APRIL -2017	6.89	2.0	69.1	1530	40	60.1	39.9	22
MAY -2017	6.85	2.0	68.8	1540	43	60.6	39.4	23
JUNE -2017	6.89	2.4	69.6	1700	39	59.8	40.2	22
JULY -2017	6.86	2.3	69.4	1630	40	60.1	39.9	20
AUGUST -2017	6.83	2.2	69.4	1540	44	60.8	39.2	20
SEPTEMBER-2017	6.85	2.3	68.3	1560	43	59.5	40.5	19
OCTOBER -2017	6.79	2.2	66.0	1540	40	60.9	39.1	15
NOVEMBER -2017	6.78	2.0	69.9	1590	42	60.8	39.2	12
DECEMBER -2017	6.84	2.2	69.0	1710	44	59.8	40.2	17
Average:	6.86	2.2	68.0	1624	41	60.3	39.7	19

D. Gas Production

Metro Biosolids Center

Gas Report - 2017

Daily Monthly Averages

	GAS PRODUCTION (x1000 Cu. Ft.)				GAS CONSUMPTION (x1000 Cu. Ft.)		
Month	DIG 1	DIG 2	DIG 3	Total Gas Production	GAS FLARES	GAS COGENERATION	Total Gas Consumption
01			198,941.9	198,941.9	743	203,204	203,947
02			277,681.2	277,681.2	1,155	269,289	270,444
03			285,503.4	285,503.4	1,613	276,213	277,826
04			290,342.0	290,342.0	1,292	281,622	282,913
05			287,520.0	287,520.0	6,526	276,575	283,100
06			324,195.7	324,195.7	3,999	320,516	324,516
07			275,279.2	275,279.2	1,523	315,587	317,110
08			282,360.5	282,360.5	1,899	326,043	327,942
09			247,088.7	247,088.7	647	272,816	273,463
10			250,213.3	250,213.3	3,543	276,206	279,749
11			268,765.7	268,765.7	2,010	280,878	282,888
12	.0		250,751.2	250,751.2	1,219	264,539	265,758
avg	.0		269,886.9	269,886.9	2,181	280,291	282,471

Monthly Totals

	GAS PRODUCTION (x1000 Cu. Ft.)				GAS CONSUMPTION (x1000 Cu. Ft.)		
Month	DIG 1	DIG 2	DIG 3	Total Gas Production	Gas Flares	Gas Cogeneration	Total Gas Consumption
01			6,167,198.0	6,167,198.0	23,034	6,299,323	6,322,357
02			7,775,074.0	7,775,074.0	32,335	7,540,084	7,572,419
03			8,850,606.0	8,850,606.0	50,006	8,562,593	8,612,599
04			8,710,260.0	8,710,260.0	38,746	8,448,652	8,487,398
05			8,913,121.0	8,913,121.0	202,295	8,573,820	8,776,115
06			9,725,872.0	9,725,872.0	119,983	9,615,491	9,735,474
07			8,533,654.0	8,533,654.0	47,215	9,783,191	9,830,406
08			8,753,177.0	8,753,177.0	58,873	10,107,336	10,166,209
09			7,412,660.0	7,412,660.0	19,411	8,184,482	8,203,893
10			7,756,613.0	7,756,613.0	109,846	8,562,380	8,672,226
11			8,062,972.0	8,062,972.0	60,307	8,426,344	8,486,651
12			7,773,288.0	7,773,288.0	37,799	8,200,694	8,238,493
avg			8,202,874.6	8,202,874.6	66,654	8,525,366	8,592,020
sum			98,434,495.0	98,434,495.0	799,850	102,304,390	103,104,240

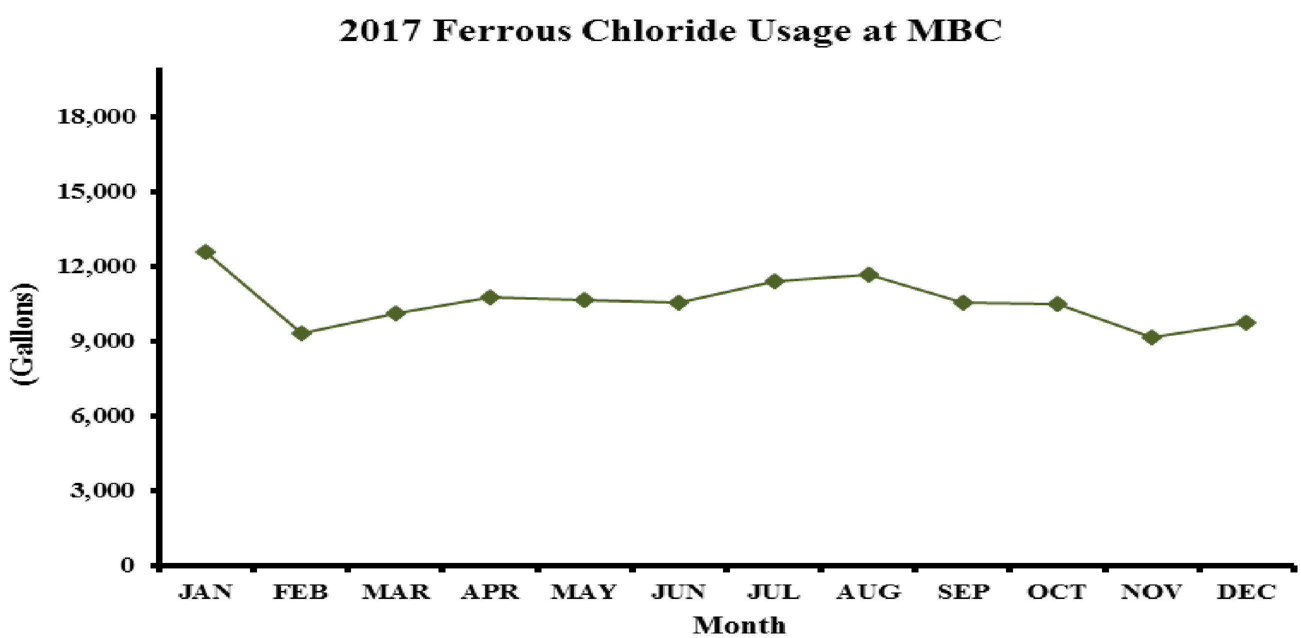
E. Chemical Usage

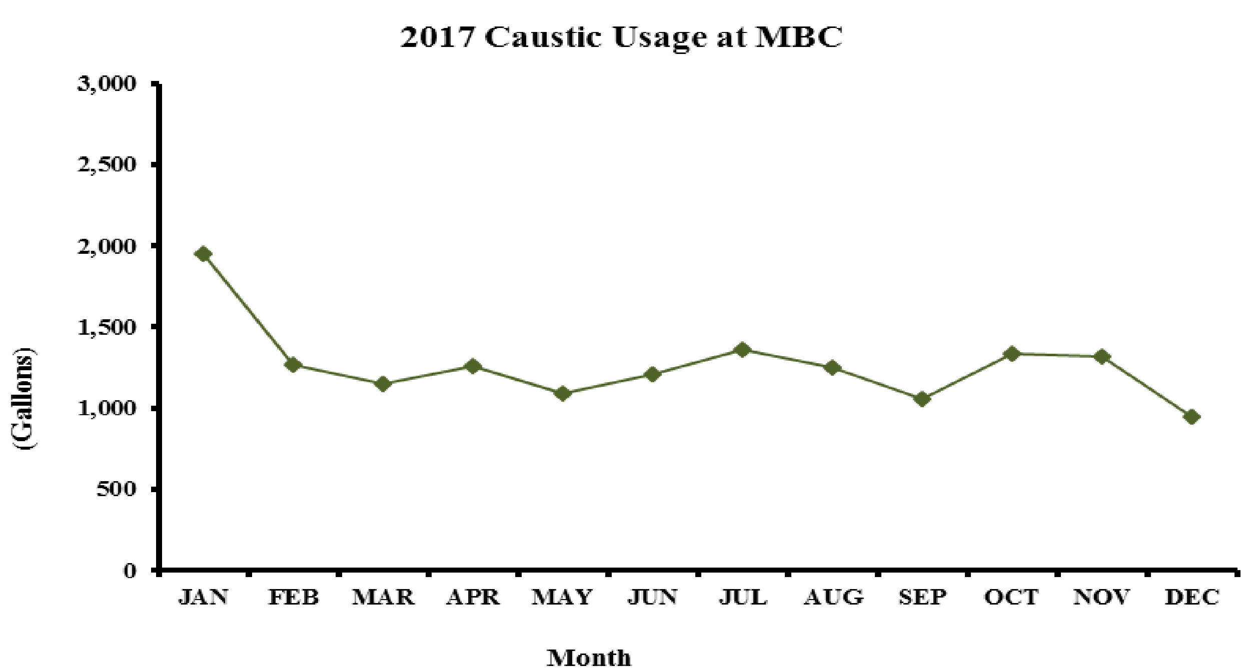
Metro Biosolids Center - Monthly Chemical Usage Report

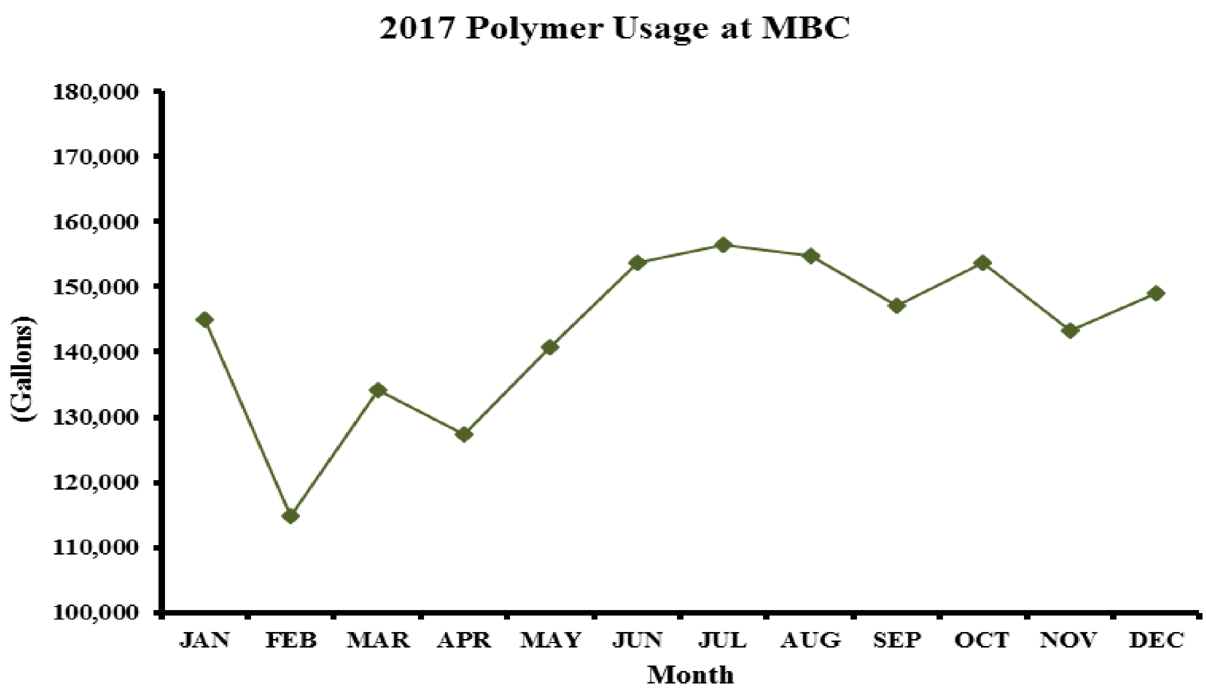
Annual 2017

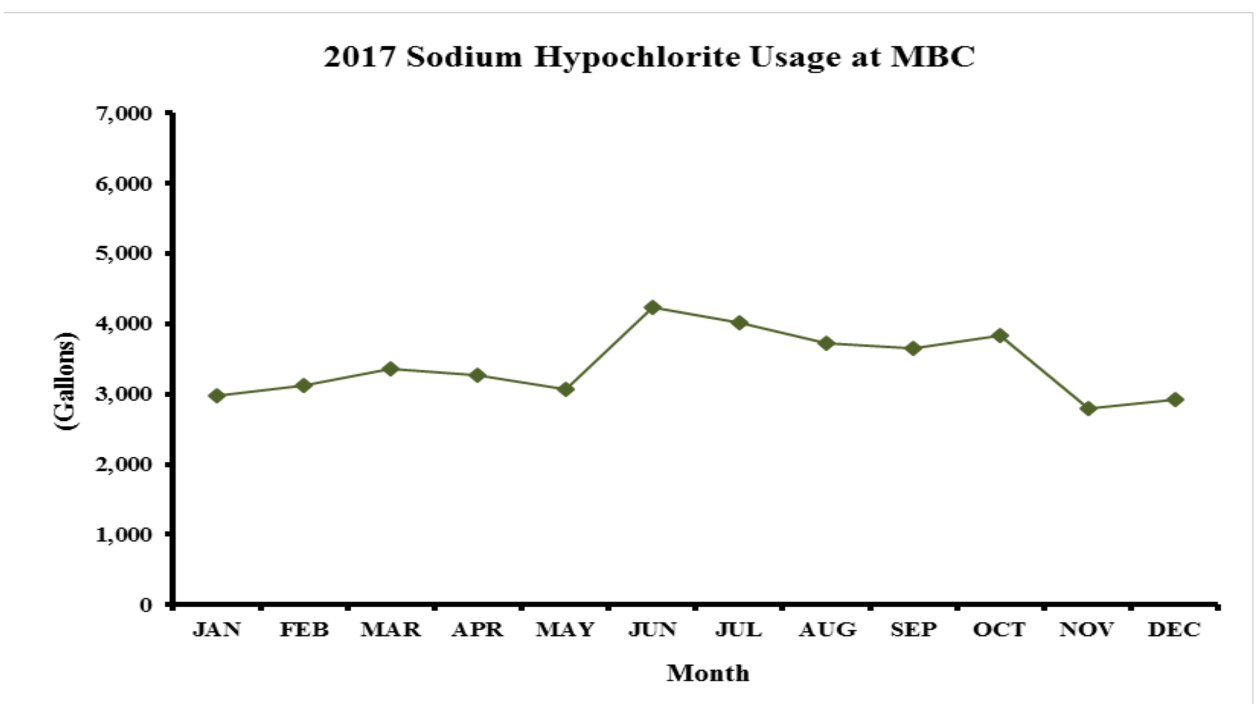
MONTH	Polymer Gallons	Ferric Chloride Gallons	Ferrous Chloride Gallons	Sodium Hydroxide Gallons	Sodium Hypochlorite Gallons	Sulfuric Acid Gallons
01	144,928	0	12,593	1,953	2,985	0
02	114,796	0	9,347	1,271	3,115	0
03	134,095	0	10,100	1,146	3,365	0
04	127,268	0	10,766	1,257	3,266	72
05	140,772	0	10,636	1,095	3,073	0
06	153,727	0	10,579	1,208	4,241	0
07	156,553	0	11,415	1,359	4,017	0
08	154,754	0	11,663	1,249	3,719	43
09	147,070	0	10,544	1,054	3,660	181
10	153,638	0	10,483	1,335	3,827	0
11	143,243	0	9,152	1,317	2,801	43
12	149,054	0	9,746	952	2,915	0
avg	143,325	0	10,585	1,266	3,415	28
sum	1,719,898	0	127,024	15,196	40,984	339

F. Graphs of Monthly Chemical Usage






2017 Polymer Usage at MBC
180,000
170,000
160,000
150,000
140,000
130,000
120,000
110,000
100,000
(Gallons)
JAN
FEB
MAR
APR
MAY
JUN
JUL
AUG
SEP
OCT
NOV
DEC
Month


2017 Sodium Hypochlorite Usage at MBC
7,000
6,000
5,000
4,000
3,000
2,000
1,000
0
(Gallons)
JAN
FEB
MAR
APR
MAY
JUN
JUL
AUG
SEP
OCT
NOV
DEC
Month

G. Solids Handling Annual Report

2017 Annual Biosolids Beneficial Use & Disposal Report

Facilities:

Sources of biosolids:	Biosolids treatment and processing:
Point Loma Wastewater Treatment Plant (PLWWTP) 1902 Gatchell Rd., San Diego, CA	Metro Biosolids Center (MBC) 5240 Convoy Street, San Diego, CA 92111
North City Water Reclamation Plant (NCWRP) 4949 Eastgate Mall, San Diego, CA 92121	Point Loma Wastewater Treatment Plant (PLWWTP) 1902 Gatchell Rd., San Diego, CA

The Point Loma Wastewater Treatment Plant (PLWWTP) and the North City Water Reclamation Plant produced and disposed of **128,011.77** wet tons or **35,058.64** dry tons (**31,805.20** dry metric tons) of digested sludge (biosolids) in 2017.

All digested sludge produced at the Point Loma WWTP was pumped to the Metro Biosolids Center (MBC) for dewatering by centrifuges. All biosolids were then hauled to a disposal site (Local Landfill) or beneficial use site. During this reporting period all of the raw sludge produced at the North City Water Reclamation Plant (NCWRP) was diverted to the Metro Biosolids Center for thickening, degritting, digestion and blended with the digested solids from the PLWWTP prior to dewatering. The MBC Monthly Biosolids Processing Reports include the biosolids processed from the PLWWTP and the NCWRP. Copies of the MBC Monthly Biosolids Processing Reports and the MBC Biosolids Beneficial Use and Disposal Monthly Summary Reports detailing daily biosolids processing and beneficial use/disposal are included as Enclosures 1 and 5, respectively.

All of the sludge/biosolids produced by the City of San Diego at Point Loma Wastewater Treatment Plant and North City Water Reclamation Plant were dewatered at the Metro Biosolids Center(MBC) and disposition is summarized in the following table.

Disposition	Wet tons (short)	Dry tons[13]	Dry metric tons
Disposal in sanitary landfill	**12,155.43**	**3,454.64**	**3,134.05**
Beneficial reuse as Alternative Daily Cover (ADC) at landfill	**108,181.47**	**29,529.40**	**26,789.07**
Land application in Arizona	**7,674.87**	**2,074.60**	**1,882.08**

All Biosolids produced by the City of San Diego were treated to Class B standards through Anaerobic Digestion for a minimum of 15 days at a temperature of 35 to 55 degrees Centigrade (Alternative 3, Process 3). Vector Attraction requirements were achieved by reducing the volatile solids content to a minimum of 38 percent
(Option 1).

Land Applier: **Solids Solutions, LLC**

Address: 2001 Key Street Colton, CA 92324
Period: January 1, 2017 - December 31, 2017

[13] (based on sum of monthly total tons)

Reuse method: Direct land application. Digested dewatered sludge from the MBC centrifuges were land applied directly to fields in Yuma County, AZ. The sludge was certified by the City of San Diego as meeting Class B pathogen and vector attraction reduction requirements of 40 CFR 503. Copies of the City of San Diego's certifications (which also serve as notification of nitrogen content) are included as Enclosure 2. Copies of Solid Solutions' certification statements are included as Enclosures 11 & 12.

The MBC provides two essential treatment processes, thickening and digestion of the raw solids from the NCWRP and dewatering of biosolids generated at the NCWRP and the PLWWTP. The digested biosolids from the PLWWTP are pumped to MBC in a 17-mile pipeline into one of the two storage tanks on site where it is blended with the digested biosolids from the NCWRP. Before these biosolids are sent to the dewatering process polymer is added to condition the biosolids, which enhances the dewaterability of the biosolids and minimizes the potential of scale formation.

Eight dewatering centrifuges are used to separate the liquid and solids fractions of the conditioned biosolids. The liquid fraction, (centrate), is returned to the PLWWTP via the Rose Canyon Interceptor and the solids recovered, (cake), is pumped to one of the ten storage silos on site before it is loaded into trucks for disposal and beneficial use as Alternative Daily Cover at Otay Landfill or beneficially used for land application in Yuma County, Arizona (Tables 1B and Table 1C).

The digested biosolids, centrate and dewatered cake are sampled on a daily basis to ensure regulatory compliance and to track plant process performance. Grab samples are collected daily on the incoming biosolids from the PLWWTP and the blended biosolids, which include the digested biosolids from the NCWRP. The operations staff also collect a 24-hour composite sample from the centrate return stream from the dewatering process and from the blended centrate return stream that includes the centrate flow from the thickening and dewatering processes.

Daily grab samples of dewatered cake are collected from each individual dewatering centrifuge that are in operation during the 24-hour period , and a portion of each of these grab samples are combined to provide a daily composite of dewatered cake produced. All sampling at MBC is performed by Wastewater lab staff who are certified by the State of California and in conformance with established sampling techniques listed in Standard Methods.

Because the dewatered cake samples are a daily composite and the Land Applier's (Solids Solutions) samples are a monthly grab sample, the dry ton calculations may differ slightly.

Biosolids used for all uses in 2017 continued to meet all regulatory requirements. Concentration of pollutants were all below the limits listed in California Title 22 Hazardous Waste thresholds including TTLC (Total Threshold Limit Concentration), STLC (Soluble Threshold Limit Concentration), and 40 CFR part 503.13 Table 3 "Limits for Land Application", the lower lead limit established by the California State Health and Safety Code 25157.8. It also met the A.C.C. (Arizona Administrative Code) R18-9-1005 Table 2. Monthly Average Pollutant Concentration limits.

Additional analyses, including the rest of the "priority pollutant list"[14], were performed during 2017 and the reports of these analyses are included in Enclosure 7.

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[14] Includes volatile organic compounds, phenols, base/neutral organic compounds, organophosphorus pesticides, chlorinated pesticides and PCBs.

Table 1.A. Landfill location used during 2017 is as follows:

Otay Landfill 1700 Maxwell Road Chula Vista, San Diego County, CA 91911	**12,155 wet tons (3,455 dry tons or 3,134 dry metric** tons), based on sum of monthly totals disposed of from January to December 2017 at this landfill.

No biosolids were shipped to or disposed of at a surface disposal site.

No biosolids were disposed of or reused by any other method than those listed above.

Table 1B. Biosolids Production for MBC

2017 Month	Otay Landfill Beneficial Use[1] (PTL) (wet Tons)	Otay Landfill Beneficial Use[1] (MBC) (wet Tons)	Otay Landfill (PTL) (wet Tons)	Otay Landfill (MBC) (wet Tons)	Otay Landfill Total (wet Tons)	Copper Mountain, Yuma, AZ Beneficial Use[2] (wet Tons)	Cullison Farms, Yuma, AZ Beneficial Use[2] (wet Tons)	Norris Farm Aztec, Yuma County, AZ Beneficial Use[2] (wet Tons)	Desert Ridge Farms Yuma, AZ Beneficial Use[2] (wet Tons)	Otay & AZ Total (wet Tons)	%TS	Total Dry Tons	Total Biosolids (dry metric tons)
January		6,005.14			6,005.14		270.49			6,275.63	28.1	1,762.20	1,598.67
February	630.96	5,082.81		4,404.00	10,117.77	149.94	370.18			10,637.89	29.0	3,087.12	2,800.63
March	951.68	8,544.21		2,691.09	12,186.98		272.24			12,459.22	29.0	3,606.94	3,272.22
April		10,206.46	61.42		10,267.88		221.94			10,489.82	27.8	2,920.37	2,649.36
May		9,573.20	72.68	423.86	10,069.74		551.06			10,620.80	28.2	2,994.00	2,716.16
June		10,220.05	1,147.40		11,367.45		624.96			11,992.41	27.5	3,294.32	2,988.60
July		9,929.18	1,748.19		11,677.37		877.97			12,555.34	27.0	3,392.45	3,077.63
August		9,237.64			9,237.64		1,401.30			10,638.94	26.6	2,833.15	2,570.23
September		8,447.19			8,447.19		1,492.90			9,940.09	26.2	2,607.29	2,365.33
October		10,053.62			10,053.62		909.31			10,962.93	26.5	2,908.47	2,638.56
November		10,594.48		148.78	10,743.26		557.73			11,300.99	26.4	2,982.33	2,705.57
December		10,287.49			10,287.49		124.79			10,412.28	26.5	2,756.13	2,500.36
Total:	1,582.64	108,181.47			120,461.53	149.94	7,674.87	0.00	0.00	128,286.34		35,144.76	31,883.32
Monthly Average:		9,015.12			10,038.46	149.94	639.57			10,690.53	27.4	2,928.73	2,656.94

1 beneficial use as Alternative Daily Cover. Point Loma (PTL) or Metro Biosolids Center (MBC) or YUMA AZ

2 beneficial use in Land Application.

Table 1C. 2017 Biosolids Land Application

		Desert Ridge , Yuma City, AZ		Norris, Yuma City, AZ		Cullison, Yuma County, AZ		Butler Diamond, Yuma County, AZ		Total Monthly	Total Monthly	Total Metric
2017 Month	**%TS**	**wet tons**	**dry tons**	**wet tons**	**dry tons**	**wet tons**	**dry tons**	**wet tons**	**dry tons**	**wet tons**	**dry tons**	**dry tons**
January	28.1		0.00		0.00	270.49	75.95		0.00	270.49	75.95	68.91
February	29.0		0.00		0.00	370.18	107.35		0.00	370.18	107.35	97.39
March	29.0		0.00		0.00	272.24	78.95		0.00	272.24	78.95	71.62
April	27.8		0.00		0.00	221.94	61.70		0.00	221.94	61.70	55.97
May	28.2		0.00		0.00	551.06	155.40		0.00	551.06	155.40	140.98
June	27.5		0.00		0.00	624.96	171.86		0.00	624.96	171.86	155.92
July	27.0		0.00		0.00	877.97	237.05		0.00	877.97	237.05	215.05
August	26.6		0.00		0.00	1,401.30	372.75		0.00	1,401.30	372.75	338.15
September	26.2		0.00		0.00	1,492.90	391.14		0.00	1,492.90	391.14	354.84
October	26.5		0.00		0.00	909.31	240.97		0.00	909.31	240.97	218.61
November	26.4		0.00		0.00	557.73	147.24		0.00	557.73	147.24	133.58
December	26.5		0.00		0.00	124.79	33.07		0.00	124.79	33.07	30.00
2017 Totals	Avg =27.4	0.00	0.00	0.00	0.00	7,674.87	2,073.43	0.00	0.00	7,674.87	2,073.43	1,881.02

Table 1D. Other Solids disposal (weights are gross wet weight)

2017 Month:	Copper Mountain Landfill **Scum** (Tons)	Otay Landfill **Scum** (Tons)	Otay Landfill **Digester Cleanings** (Tons)	South Yuma Landfill **Scum** (Tons)	Miramar Landfill **Grit** (Tons)	Miramar Landfill **Rags & Screenings** (Tons)
January	27.79	9.09	0.00		120.70	413.15
February	26.35		630.96		109.22	535.34
March	31.45		951.68		138.61	614.77
April	29.28		61.42		72.15	476.86
May	15.32		72.68		119.58	602.40
June	31.36	8.75	1,147.40		117.29	618.64
July	14.60		1,748.19		98.86	627.12
August	29.30	4.86	0.00		81.23	581.49
September	17.46		0.00		73.53	718.80
October	34.81		0.00		84.47	630.94
November	17.42	8.53	0.00		100.81	566.87
December	15.95		0.00		70.42	584.02
Total:	291.09	31.23	4,612.33		1,186.87	6,970.40
Average:	**24.26**	**7.81**	**384.36**		**98.91**	**580.87**

Point Loma Annual Monitoring Report
Solids Report – TOTALS

Annual 2017

Month	Pt. Loma Raw sludge Gallons	Dry Tons	Pt.Loma Digested Sludge Gallons	Dry Tons	MBC Combined Centrate Gallons	Dry Tons	MBC Dewatered Sludge Wet Tons	Dry Tons
01	33,670,810	6,190	33,670,810	3,510	57,994,171	843	10,763	3,022
02	31,276,951	5,703	31,276,951	3,247	57,666,252	915	9,857	2,861
03	36,002,141	6,205	36,002,141	3,705	67,944,095	877	11,508	3,331
04	54,495,260	9,544	54,495,260	5,386	62,845,958	917	10,428	2,903
05	34,924,265	6,080	34,731,909	3,397	62,785,603	895	10,548	2,973
06	29,936,461	5,579	29,936,461	3,041	60,664,332	810	10,845	2,979
07	31,475,133	5,684	31,475,133	3,203	62,215,032	891	10,807	2,920
08	31,941,239	5,512	31,941,239	3,233	63,349,032	903	10,639	2,833
09	31,905,776	5,782	31,232,303	3,230	62,114,078	850	9,940	2,607
10	31,611,776	5,405	31,611,776	3,236	66,166,985	899	10,963	2,908
11	28,409,517	4,976	28,409,517	2,902	63,721,425	846	11,301	2,982
12	28,471,501	5,030	28,471,501	2,980	65,677,716	835	10,412	2,756
avg	33,676,736	5,974	33,604,583	3,423	62,762,057	873	10,668	2,923
sum	404,120,830	71,690	403,255,001	41,070	753,144,679	10,481	128,012	35,075

Point Loma Annual Monitoring Report
Solids Report - Daily Averages by Month

Annual 2017

Year Month	Pt. Loma Raw sludge Gallons	%TS	Dry Tons	Pt.Loma Digested Sludge Gallons	%TS	Dry Tons	MBC Combined Centrate Gallons	%TS	Dry Tons	MBC Dewatered Sludge Wet Tons	%TS	Dry Tons
17-01	1,086,155	4.4	200	1,086,155	2.5	113	1,870,780	0.35	27.2	347	28.1	97.5
17-02	1,117,034	4.4	205	1,117,034	2.5	116	2,059,509	0.38	32.6	352	29.0	102.2
17-03	1,161,359	4.1	201	1,161,359	2.5	121	2,191,745	0.31	28.4	371	28.9	107.5
17-04	1,816,509	4.2	322	1,816,509	2.4	184	2,094,865	0.35	30.5	348	27.8	96.8
17-05	1,126,589	4.2	197	1,120,384	2.3	111	2,025,342	0.34	28.8	340	28.2	95.9
17-06	997,882	4.5	189	997,882	2.4	100	2,022,144	0.32	27.1	362	27.5	99.3
17-07	1,015,327	4.3	185	1,015,327	2.4	103	2,006,937	0.34	28.9	349	27.0	94.2
17-08	1,030,363	4.1	177	1,030,363	2.4	104	2,043,517	0.34	29.5	343	26.6	91.4
17-09	1,063,526	4.3	188	1,041,077	2.5	107	2,070,469	0.33	28.4	331	26.2	86.9
17-10	1,019,735	4.1	174	1,019,735	2.5	104	2,134,419	0.33	29.1	354	26.5	93.8
17-11	946,984	4.2	168	946,984	2.5	96	2,124,048	0.32	28.2	377	26.4	99.4
17-12	918,436	4.2	164	918,436	2.5	96	2,118,636	0.30	26.9	336	26.5	88.9
avg	1,108,325	4.3	198	1,105,937	2.5	113	2,063,534	0.33	28.8	351	27.4	96.1

Note: A ton is a “short ton” or 2000 lbs of dry solids.
The mechanical condition of the cake pumps and the variability of sludge concentrations can affect the overall accuracies of these reported values.

Enclosure 7 Results of other analyses of dewatered biosolids for 2017

Tables showing the analyses for metals (including priority pollutants), pH, total and volatile solids, pesticides & PCBs, and organic priority pollutant compounds of sewage biosolids samples taken in 2017.

POINT LOMA WASTEWATER TREATMENT PLANT

ANNUAL 2017

Trace Metals

Source:			MBCDEWCN	MBCDEWCN	MBCDEWCN	MBCDEWCN	MBCDEWCN	MBCDEWCN
Date:			31-JAN-2017	28-FEB-2017	31-MAR-2017	30-APR-2017	31-MAY-2017	30-JUN-2017
Sample ID:	MDL	Units	P920340	P925827	P932213	P937935	P945968	P953132
Aluminum	18	MG/KG	3810	3500	5490	3890	3450	3580
Antimony	2.5	MG/KG	6.5	5.8	6.0	6.3	3.7	5.8
Arsenic	.54	MG/KG	6.40	6.45	8.22	5.38	3.41	3.73
Barium	.65	MG/KG	465	514	472	385	337	316
Beryllium	.08	MG/KG	0.06	0.09	0.07	0.05	0.03	0.04
Cadmium	.13	MG/KG	ND	0.4	0.3	0.9	0.6	0.8
Chromium	.21	MG/KG	44	44	43	40	43	46
Cobalt	.15	MG/KG	4.0	4.0	4.0	3.6	2.4	3.8
Cyanide, Total	.1	MG/KG	NR	4.65	NR	NR	58.2	NR
Copper	1.9	MG/KG	633	719	695	634	611	603
Iron	5.97	MG/KG	106000	81100	93800	89400	101000	86200
Lead	.3	MG/KG	15	16	16	15	9	14
Manganese	.359	MG/KG	359	366	367	370	366	351
Mercury	.2	MG/KG	1.07	0.61	1.09	1.05	1.47	1.67
Molybdenum	.15	MG/KG	19	17	16	16	10	18
Nickel	.3	MG/KG	24	26	28	24	15	26
Selenium	1.7	MG/KG	4.26	1.56	4.11	2.10	4.53	4.49
Silver	.295	MG/KG	3.30	4.24	3.72	3.63	2.10	3.12
Thallium	.43	MG/KG	ND	<0.43	<0.43	ND	<0.43	ND
Vanadium	.52	MG/KG	24	28	30	22	13	19
Zinc	1.7	MG/KG	984	990	1010	951	968	946
Sulfides-Reactive	11	MG/KG	125	44	40*	39*	52	43
Sulfides-Total	500	MG/KG	13200	10200	4200	11700	13900	10800
Total Nitrogen	100	MG/KG	46400	47000	47000	56000	52700	52600
Total Kjeldahl Nitrogen	.04	WT%	4.99	4.70	4.71	5.60	5.26	5.26
Total Volatile Solids		WT%	60.5	59.4	58.4	62.2	62.3	63.6
Total Solids		WT%	27.1	28.4	28.0	27.3	27.1	27.0
pH		PH	7.95	7.97	7.97	7.91	7.94	7.84

ND= Not Detected
NA= Not Analyzed
NS= Not Sampled
NR= Not Required

* = Recovery of compound in internal check and matrix spike sample outside method acceptance limits; value is not used in average calculations.

MBCDEWCN= Metro Biosolids Center Dewatered Centrifuged Sludge.

POINT LOMA WASTEWATER TREATMENT PLANT

ANNUAL 2017

Trace Metals

Source:			MBCDEWCN	MBCDEWCN	MBCDEWCN	MBCDEWCN	MBCDEWCN	MBCDEWCN
Date:			31-JUL-2017	31-AUG-2017	30-SEP-2017	31-OCT-2017	30-NOV-2017	31-DEC-2017
Sample ID:	MDL	Units	P959635	P966456	P974186	P979340	P986442	P992862
Aluminum	18	MG/KG	3760	3870	990	880	3330	3460
Antimony	2.5	MG/KG	7.0	6.8	ND	ND	8.2	6.3
Arsenic	.54	MG/KG	3.55	3.36	4.10	DNQ1.40	2.78	DNQ2.53
Barium	.65	MG/KG	320	301	82	47	285	276
Beryllium	.08	MG/KG	0.05	0.08	0.06	DNQ0.02	ND	ND
Cadmium	.13	MG/KG	0.8	0.9	0.4	DNQ0.3	0.7	0.8
Chromium	.21	MG/KG	44	46	13	11	50	45
Cobalt	.15	MG/KG	3.8	4.1	1.1	DNQ0.9	3.7	3.9
Cyanide, Total	.1	MG/KG	NR	7.55	NR	3.70	NR	NR
Copper	1.9	MG/KG	652	659	180	150	653	609
Iron	5.97	MG/KG	91100	91300	25000	21000	99500	102000
Lead	.3	MG/KG	14	16	5	4	17	14
Manganese	.359	MG/KG	352	336	100	86	387	360
Mercury	.2	MG/KG	1.11	1.27	1.09	0.85	0.63	0.68
Molybdenum	.15	MG/KG	21	24	6	5	20	19
Nickel	.3	MG/KG	26	26	8	6	20	21
Selenium	1.7	MG/KG	4.72	4.15	ND	NA	3.25	4.85
Silver	.295	MG/KG	3.88	3.58	1.20	DNQ0.80	2.92	3.78
Thallium	.43	MG/KG	ND	ND	ND	ND	ND	ND
Vanadium	.52	MG/KG	19	17	4	4	13	14
Zinc	1.7	MG/KG	1000	1050	250	220	915	906
Sulfides-Reactive	11	MG/KG	79	58	33	47	61	77
Sulfides-Total	500	MG/KG	17600	8250	15000	18900	14000	19900
Total Nitrogen	100	MG/KG	52500	52300	54300	52000	52400	52500
Total Kjeldahl Nitrogen	.04	WT%	5.25	5.23	5.43	5.20	5.24	5.25
Total Volatile Solids		WT%	65.2	64.0	63.7	63.4	63.7	63.4
Total Solids		WT%	26.8	26.4	25.3	26.1	26.3	26.8
pH		PH	7.85	7.85	7.91	7.94	7.82	7.88

ND= Not Detected
NA= Not Analyzed
NS= Not Sampled
NR= Not Required

DNQ= Detected but not quantified. Sample result is less than minimum Level but greater than or equal to MDL.

MBCDEWCN= Metro Biosolids Center Dewatered Centrifuged Sludge.

POINT LOMA WASTEWATER TREATMENT PLANT

ANNUAL 2017

TOTAL NITROGEN

Source:			MBCDEWCN	MBCDEWCN	MBCDEWCN	MBCDEWCN	MBCDEWCN	MBCDEWCN
Date:			31-JAN-2017	28-FEB-2017	31-MAR-2017	30-APR-2017	31-MAY-2017	30-JUN-2017
Sample ID:	MDL	Units	P920340	P925827	P932213	P937935	P945968	P953132
Total Nitrogen	100	MG/KG	46400	47000	47000	56000	52700	52600

Source:			MBCDEWCN	MBCDEWCN	MBCDEWCN	MBCDEWCN	MBCDEWCN	MBCDEWCN
Date:			31-JUL-2017	31-AUG-2017	30-SEP-2017	31-OCT-2017	30-NOV-2017	31-DEC-2017
Sample ID:	MDL	Units	P959635	P966456	P974186	P979340	P986442	P992862
Total Nitrogen	100	MG/KG	52500	52300	54300	52000	52400	52500

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

POINT LOMA WASTEWATER TREATMENT PLANT
ANNUAL 2017

Radioactivity
Analyzed by FGL Environmental

Source	Sample Date	Sample ID	Gross Alpha Radiation	Gross Beta Radiation
PLE	07-FEB-2017	P919157	8.9±2.8	14.5±2.0
PLE	02-MAY-2017	P936538	5.6±1.5	4.7±1.5
PLE	01-AUG-2017	P959714	4.9±2.0	12.7±1.9
PLE	03-OCT-2017	P973063	2.8±1.8	21.2±2.8
PLE	ANNUAL	AVERAGE	4.9±2.2	13.3±2.1
PLR	07-FEB-2017	P919163	11.0±3.1	15.4±2.2
PLR	02-MAY-2017	P936544	7.9±2.6	17.1±2.2
PLR	01-AUG-2017	P959720	13.9±2.8	11.9±2.1
PLR	03-OCT-2017	P973069	2.9±2.1	23.7±2.9
PLR	ANNUAL	AVERAGE	8.2±2.6	17.0±2.3
MBC_COMBCN	07-FEB-2017	P919174	10.7±4.3	35.9±2.8
MBC_COMBCN	02-MAY-2017	P936555	8.3±2.6	34.0±2.7
MBC_COMBCN	01-AUG-2017	P959726	5.8±2.9	37.2±2.9
MBC_COMBCN	03-OCT-2017	P973075	4.9±2.4	38.6±3.3
MBC_COMBCN	ANNUAL	AVERAGE	7.4±3.1	36.4±2.9

Units in picocuries per Liter (pCi/L)

ND= Not Detected
NA= Not Analyzed
NS= Not Sampled
NR= Not Required

POINT LOMA WASTEWATER TREATMENT PLANT

ANNUAL 2017

Radioactivity
Analyzed by FGL Environmental

Source	Sample Date	Sample ID	Gross Alpha Radiation	Gross Beta Radiation
MBCDEWCN	28-FEB-2017	P925827	9950.0±1340	6500.0±1280
MBCDEWCN	31-MAY-2017	P945968	31100.0±3180	18500.0±2430
MBCDEWCN	31-AUG-2017	P966456	0.015.0±0.00176	0.0106±0.00168
MBCDEWCN	31-OCT-2017	P979340	0.0128±0.002	0.006±0.0016

ND= Not Detected
NA= Not Analyzed
NS= Not Sampled
NR= Not Required

Units in picocuries/liter (pCi/kg)

POINT LOMA WASTEWATER TREATMENT PLANT

ANNUAL 2017

Chlorinated Pesticide Analysis

Source			MBCDEWCN	MBCDEWCN	MBCDEWCN	MBCDEWCN	MBCDEWCN
Date			31-JAN-2017	28-FEB-2017	31-MAR-2017	30-APR-2017	31-MAY-2017
Analyte	MDL	Units	P920340	P925827	P932213	P937935	P945968
Aldrin	180000	NG/KG	ND	ND	ND	ND	ND
Dieldrin	190000	NG/KG	ND	ND	ND	ND	ND
BHC, Alpha isomer	220000	NG/KG	ND	ND	ND	ND	ND
BHC, Beta isomer	250000	NG/KG	ND	ND	ND	ND	ND
BHC, Gamma isomer	210000	NG/KG	ND	ND	ND	ND	ND
BHC, Delta isomer	200000	NG/KG	ND	ND	ND	ND	ND
p,p-DDD	190000	NG/KG	ND	ND	ND	ND	ND
p,p-DDE	170000	NG/KG	ND	ND	ND	ND	ND
p,p-DDT	230000	NG/KG	ND	ND	ND	ND	ND
o,p-DDD	970	NG/KG	ND	ND	ND	ND	ND
o,p-DDE	640	NG/KG	ND	ND	ND	ND	ND
o,p-DDT	940	NG/KG	ND	ND	ND	ND	ND
Heptachlor	270000	NG/KG	ND	ND	ND	ND	ND
Heptachlor epoxide	240000	NG/KG	ND	ND	ND	ND	ND
Alpha (cis) Chlordane	840	NG/KG	ND	ND	ND	ND	ND
Gamma (trans) Chlordane	540	NG/KG	ND	ND	ND	ND	ND
Alpha Chlordene		NG/KG	NA	NA	NA	NA	NA
Gamma Chlordene		NG/KG	NA	NA	NA	NA	NA
Oxychlordane	360	NG/KG	ND	ND	ND	ND	ND
Trans Nonachlor	1000	NG/KG	ND	ND	ND	ND	ND
Cis Nonachlor	850	NG/KG	ND	ND	ND	ND	ND
Alpha Endosulfan	200000	NG/KG	ND	ND	ND	ND	ND
Beta Endosulfan	240000	NG/KG	ND	ND	ND	ND	ND
Endosulfan Sulfate	190000	NG/KG	ND	ND	ND	ND	ND
Endrin aldehyde	200000	NG/KG	ND	ND	ND	ND	ND
Toxaphene	7400000	NG/KG	ND	ND	ND	ND	ND
Mirex	680	NG/KG	ND	ND	ND	ND	ND
Methoxychlor	250000	NG/KG	ND	ND	ND	ND	ND
PCB 1016	3800000	NG/KG	ND	ND	ND	ND	ND
PCB 1221	33000000	NG/KG	ND	ND	ND	ND	ND
PCB 1232	6700000	NG/KG	ND	ND	ND	ND	ND
PCB 1242	39000000	NG/KG	ND	ND	ND	ND	ND
PCB 1248	29000000	NG/KG	ND	ND	ND	ND	ND
PCB 1254	1100000	NG/KG	ND	ND	ND	ND	ND
PCB 1260	3800000	NG/KG	ND	ND	ND	ND	ND
PCB 1262	83300	NG/KG	ND	ND	ND	ND	ND
Aldrin + Dieldrin	190000	NG/KG	0	0	0	0	0
Hexachlorocyclohexanes	250000	NG/KG	0	0	0	0	0
DDT and derivatives	230000	NG/KG	0	0	0	0	0
Chlordane + related cmpds.	840	NG/KG	0	0	0	0	0
Polychlorinated biphenyls	39000000	NG/KG	0	0	0	0	0
Chlorinated Hydrocarbons	39000000	NG/KG	0	0	0	0	0

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

POINT LOMA WASTEWATER TREATMENT PLANT

ANNUAL 2017

Chlorinated Pesticide Analysis

Source			MBCDEWCN	MBCDEWCN	MBCDEWCN	MBCDEWCN	MBCDEWCN
Date			30-JUN-2017	31-JUL-2017	31-AUG-2017	30-SEP-2017	31-OCT-2017
Analyte	MDL	Units	P953132	P959635	P966456	P974186	P979340
Aldrin	180000	NG/KG	ND	ND	ND	ND	ND
Dieldrin	190000	NG/KG	ND	ND	ND	ND	ND
BHC, Alpha isomer	220000	NG/KG	ND	ND	ND	ND	ND
BHC, Beta isomer	250000	NG/KG	ND	ND	ND	ND	ND
BHC, Gamma isomer	210000	NG/KG	ND	ND	ND	ND	ND
BHC, Delta isomer	200000	NG/KG	ND	ND	ND	ND	ND
p,p-DDD	190000	NG/KG	ND	ND	ND	ND	ND
p,p-DDE	170000	NG/KG	ND	ND	ND	ND	ND
p,p-DDT	230000	NG/KG	ND	ND	ND	ND	ND
o,p-DDD	970	NG/KG	ND	ND	NA	NA	ND
o,p-DDE	640	NG/KG	ND	ND	NA	NA	ND
o,p-DDT	940	NG/KG	ND	ND	NA	NA	ND
Heptachlor	270000	NG/KG	ND	ND	ND	ND	ND
Heptachlor epoxide	240000	NG/KG	ND	ND	ND	ND	ND
Alpha (cis) Chlordane	840	NG/KG	ND	ND	NA	NA	ND
Gamma (trans) Chlordane	540	NG/KG	ND	ND	NA	NA	ND
Alpha Chlordene		NG/KG	NA	NA	NA	NA	NA
Gamma Chlordene		NG/KG	NA	NA	NA	NA	NA
Oxychlordane	360	NG/KG	ND	ND	NA	NA	ND
Trans Nonachlor	1000	NG/KG	ND	ND	NA	NA	ND
Cis Nonachlor	850	NG/KG	ND	ND	NA	NA	ND
Alpha Endosulfan	200000	NG/KG	ND	ND	ND	ND	ND
Beta Endosulfan	240000	NG/KG	ND	ND	ND	ND	ND
Endosulfan Sulfate	190000	NG/KG	ND	ND	ND	ND	ND
Endrin aldehyde	200000	NG/KG	ND	ND	ND	ND	ND
Toxaphene	7400000	NG/KG	ND	ND	ND	ND	ND
Mirex	680	NG/KG	ND	ND	NA	NA	ND
Methoxychlor	250000	NG/KG	ND	ND	ND	ND	ND
PCB 1016	3800000	NG/KG	ND	ND	ND	ND	ND
PCB 1221	33000000	NG/KG	ND	ND	ND	ND	ND
PCB 1232	6700000	NG/KG	ND	ND	ND	ND	ND
PCB 1242	39000000	NG/KG	ND	ND	ND	ND	ND
PCB 1248	29000000	NG/KG	ND	ND	ND	ND	ND
PCB 1254	1100000	NG/KG	ND	ND	ND	ND	ND
PCB 1260	3800000	NG/KG	ND	ND	ND	ND	ND
PCB 1262	83300	NG/KG	ND	ND	NA	NA	ND
Aldrin + Dieldrin	190000	NG/KG	0	0	0	0	0
Hexachlorocyclohexanes	250000	NG/KG	0	0	0	0	0
DDT and derivatives	230000	NG/KG	0	0	0	0	0
Chlordane + related cmpds.	840	NG/KG	0	0	*	*	0
Polychlorinated biphenyls	39000000	NG/KG	0	0	0	0	0
Chlorinated Hydrocarbons	39000000	NG/KG	0	0	0	0	0

* = No chlordane sum available, analytes not analyzed by BABCOCK LABORATORIES.

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

POINT LOMA WASTEWATER TREATMENT PLANT

ANNUAL 2017

Chlorinated Pesticide Analysis

Source			MBCDEWCN	MBCDEWCN	
Date			30-NOV-2017	31-DEC-2017	Annual
Analyte	MDL	Units	P986442	P992862	Average
Aldrin	180000	NG/KG	ND	ND	ND
Dieldrin	190000	NG/KG	ND	ND	ND
BHC, Alpha isomer	220000	NG/KG	ND	ND	ND
BHC, Beta isomer	250000	NG/KG	ND	ND	ND
BHC, Gamma isomer	210000	NG/KG	ND	ND	ND
BHC, Delta isomer	200000	NG/KG	ND	ND	ND
p,p-DDD	190000	NG/KG	ND	ND	ND
p,p-DDE	170000	NG/KG	ND	ND	ND
p,p-DDT	230000	NG/KG	ND	ND	ND
o,p-DDD	970	NG/KG	ND	ND	ND
o,p-DDE	640	NG/KG	ND	ND	ND
o,p-DDT	940	NG/KG	ND	ND	ND
Heptachlor	270000	NG/KG	ND	ND	ND
Heptachlor epoxide	240000	NG/KG	ND	ND	ND
Alpha (cis) Chlordane	840	NG/KG	ND	ND	ND
Gamma (trans) Chlordane	540	NG/KG	ND	ND	ND
Alpha Chlordene		NG/KG	NA	NA	NA
Gamma Chlordene		NG/KG	NA	NA	NA
Oxychlordane	360	NG/KG	ND	ND	ND
Trans Nonachlor	1000	NG/KG	ND	ND	ND
Cis Nonachlor	850	NG/KG	ND	ND	ND
Alpha Endosulfan	200000	NG/KG	ND	ND	ND
Beta Endosulfan	240000	NG/KG	ND	ND	ND
Endosulfan Sulfate	190000	NG/KG	ND	ND	ND
Endrin aldehyde	200000	NG/KG	ND	ND	ND
Toxaphene	7400000	NG/KG	ND	ND	ND
Mirex	680	NG/KG	ND	ND	ND
Methoxychlor	250000	NG/KG	ND	ND	ND
PCB 1016	3800000	NG/KG	ND	ND	ND
PCB 1221	33000000	NG/KG	ND	ND	ND
PCB 1232	6700000	NG/KG	ND	ND	ND
PCB 1242	39000000	NG/KG	ND	ND	ND
PCB 1248	29000000	NG/KG	ND	ND	ND
PCB 1254	1100000	NG/KG	ND	ND	ND
PCB 1260	3800000	NG/KG	ND	ND	ND
PCB 1262	83300	NG/KG	ND	ND	ND
Aldrin + Dieldrin	190000	NG/KG	0	0	0
Hexachlorocyclohexanes	250000	NG/KG	0	0	0
DDT and derivatives	230000	NG/KG	0	0	0
Chlordane + related cmpds.	840	NG/KG	0	0	0
Polychlorinated biphenyls	39000000	NG/KG	0	0	0
Chlorinated Hydrocarbons	39000000	NG/KG	0	0	0

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

POINT LOMA WASTEWATER TREATMENT PLANT

ANNUAL 2017

Tributyl Tin (Sludge)

Source			MBCDEWCN	MBCDEWCN
Date			31-MAY-2017	31-OCT-2017
Analyte			P945968	P979340
============	======	=====	===========	===========
Dibutyltin	9.9012	UG/KG	ND	ND
Monobutyltin	5.8174	UG/KG	ND	ND
Tributyltin	7.7925	UG/KG	ND	ND

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

POINT LOMA WASTEWATER TREATMENT PLANT

ANNUAL 2017

HERBICIDES

Analyte	Max** MDL	Units	MBCDEWCN 28-FEB-2017 P925827	MBCDEWCN 31-MAY-2017 P945968	MBCDEWCN 31-AUG-2017 P966456
2,4-Dichlorophenoxyacetic acid	3300	UG/KG	ND	ND	*
2,4,5-TP (Silvex)	3300	UG/KG	ND	ND	12.0

* not analyzed by Babcock Lab
**Sample P925827 MDL 3300ug/kg, 10x dilution due to matrix effect.
Sample P945968 MDL 2.66 and 2.87 ug/kg for 2,4-Dichlorophenoxyacetic acid and 2,4,5-TP (Silvex), respectively.
Sample P966456 MDL 11 ug/kg for 2,4,5-TP (Silvex).

nd= not detected
NA= not analyzed
NS= not sampled

POINT LOMA WASTEWATER TREATMENT PLANT

ANNUAL 2017

Organophosphorus Pesticides

Source			PLR	PLR	PLR	PLR	PLR	PLR
Date			09-JAN-2017	07-FEB-2017	06-MAR-2017	12-APR-2017	02-MAY-2017	08-JUN-2017
Analyte	MDL	Units	P916018	P919163	P926350	P933028	P936544	P946712
Demeton O	.01	UG/L	ND	ND	ND	ND	ND	ND
Demeton S	.04	UG/L	ND	ND	ND	ND	ND	ND
Diazinon	.02	UG/L	ND	ND	ND	ND	ND	ND
Guthion	.03	UG/L	ND	ND	ND	ND	ND	ND
Malathion	.02	UG/L	ND	ND	DNQ0.04	ND	DNQ0.08	0.10
Parathion	.01	UG/L	ND	ND	ND	ND	ND	ND
Chlorpyrifos	.02	UG/L	ND	ND	ND	ND	ND	ND
Coumaphos	.05	UG/L	ND	ND	ND	ND	ND	ND
Dichlorvos	.01	UG/L	ND	ND	ND	DNQ0.01	ND	ND
Disulfoton	.01	UG/L	ND	ND	ND	ND	ND	ND
Stirophos	.01	UG/L	ND	ND	ND	ND	ND	0.3
Thiophosphorus Pesticides	.03	UG/L	0.00	0.00	0.00	0.00	0.00	0.10
Demeton -O, -S	.04	UG/L	0.00	0.00	0.00	0.00	0.00	0.00
Total Organophosphorus Pesticides	.05	UG/L	0.00	0.00	0.00	0.00	0.00	0.40

Source			PLR	PLR	PLR	PLR	PLR	PLR
Date			12-JUL-2017	01-AUG-2017	13-SEP-2017	03-OCT-2017	06-NOV-2017	13-DEC-2017
Analyte	MDL	Units	P954715	P959720	P967832	P973069	P981464	P987753
Demeton O	.01	UG/L	ND	ND	ND	ND	ND	ND
Demeton S	.04	UG/L	ND	ND	ND	ND	ND	ND
Diazinon	.02	UG/L	ND	ND	ND	ND	ND	ND
Guthion	.03	UG/L	ND	ND	ND	ND	ND	ND
Malathion	.02	UG/L	ND	DNQ0.07	ND	ND	ND	ND
Parathion	.01	UG/L	ND	ND	ND	ND	ND	ND
Chlorpyrifos	.02	UG/L	ND	NA	ND	ND	ND	DNQ0.1
Coumaphos	.05	UG/L	ND	ND	ND	ND	ND	ND
Dichlorvos	.01	UG/L	ND	ND	ND	ND	ND	ND
Disulfoton	.01	UG/L	ND	ND	ND	ND	ND	ND
Stirophos	.01	UG/L	ND	ND	ND	ND	ND	ND
Thiophosphorus Pesticides	.03	UG/L	0.00	0.00	0.00	0.00	0.00	0.00
Demeton -O, -S	.04	UG/L	0.00	0.00	0.00	0.00	0.00	0.00
Total Organophosphorus Pesticides	.05	UG/L	0.00	0.00	0.00	0.00	0.00	0.00

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

POINT LOMA WASTEWATER TREATMENT PLANT

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Organophosphorus Pesticides

Source			PLE	PLE	PLE	PLE	PLE	PLE
Date			09-JAN-2017	07-FEB-2017	06-MAR-2017	12-APR-2017	02-MAY-2017	08-JUN-2017
Analyte	MDL	Units	P916015	P919157	P926347	P933025	P936538	P946709
Demeton O	.01	UG/L	ND	ND	ND	ND	ND	ND
Demeton S	.04	UG/L	ND	ND	ND	ND	ND	ND
Diazinon	.02	UG/L	ND	ND	ND	ND	ND	ND
Guthion	.03	UG/L	ND	ND	ND	ND	ND	ND
Malathion	.02	UG/L	ND	DNQ0.02	DNQ0.05	ND	DNQ0.10	DNQ0.06
Parathion	.01	UG/L	ND	ND	ND	ND	ND	ND
Chlorpyrifos	.02	UG/L	ND	ND	ND	ND	ND	ND
Coumaphos	.05	UG/L	ND	ND	ND	ND	ND	ND
Dichlorvos	.01	UG/L	ND	DNQ0.01	ND	DNQ0.1	ND	ND
Disulfoton	.01	UG/L	ND	ND	ND	ND	ND	ND
Stirophos	.01	UG/L	ND	ND	ND	ND	ND	ND
Thiophosphorus Pesticides	.03	UG/L	0.00	0.00	0.00	0.00	0.00	0.00
Demeton -O, -S	.04	UG/L	0.00	0.00	0.00	0.00	0.00	0.00
Total Organophosphorus Pesticides	.05	UG/L	0.00	0.00	0.00	0.00	0.00	0.00

Source			PLE	PLE	PLE	PLE	PLE	PLE
Date			12-JUL-2017	01-AUG-2017	13-SEP-2017	03-OCT-2017	06-NOV-2017	13-DEC-2017
Analyte	MDL	Units	P954712	P959714	P967829	P973063	P981461	P987750
Demeton O	.01	UG/L	ND	ND	ND	ND	ND	ND
Demeton S	.04	UG/L	ND	ND	ND	ND	ND	ND
Diazinon	.02	UG/L	ND	ND	ND	ND	ND	ND
Guthion	.03	UG/L	ND	ND	ND	ND	ND	ND
Malathion	.02	UG/L	ND	0.17	DNQ0.07	ND	ND	ND
Parathion	.01	UG/L	ND	ND	ND	ND	ND	ND
Chlorpyrifos	.02	UG/L	ND	NA	ND	ND	ND	ND
Coumaphos	.05	UG/L	ND	ND	ND	ND	ND	ND
Dichlorvos	.01	UG/L	ND	ND	ND	ND	ND	ND
Disulfoton	.01	UG/L	ND	ND	ND	ND	ND	ND
Stirophos	.01	UG/L	ND	ND	ND	ND	ND	ND
Thiophosphorus Pesticides	.03	UG/L	0.00	0.17	0.00	0.00	0.00	0.00
Demeton -O, -S	.04	UG/L	0.00	0.00	0.00	0.00	0.00	0.00
Total Organophosphorus Pesticides	.05	UG/L	0.00	0.17	0.00	0.00	0.00	0.00

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

POINT LOMA WASTEWATER TREATMENT PLANT

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Organophosphorus Pesticides

Source			MBC_COMBCN	MBC_COMBCN
Date			02-MAY-2017	03-OCT-2017
Analyte	MDL	Units	P936555	P973075
Demeton O	.01	UG/L	ND	ND
Demeton S	.04	UG/L	ND	ND
Diazinon	.02	UG/L	ND	ND
Guthion	.03	UG/L	ND	ND
Malathion	.02	UG/L	ND	ND
Parathion	.01	UG/L	ND	ND
Chlorpyrifos	.02	UG/L	ND	ND
Coumaphos	.05	UG/L	ND	ND
Dichlorvos	.01	UG/L	ND	ND
Disulfoton	.01	UG/L	ND	ND
Stirophos	.01	UG/L	ND	ND
Thiophosphorus Pesticides	.03	UG/L	0.00	0.00
Demeton -O, -S	.04	UG/L	0.00	0.00
Total Organophosphorus Pesticides	.05	UG/L	0.00	0.00

Source			MBC_NC_DSL	MBC_NC_DSL
Date			02-MAY-2017	03-OCT-2017
Analyte	MDL	Units	P936609	P973109
Demeton O	.01	UG/L	ND	ND
Demeton S	.04	UG/L	ND	ND
Diazinon	.02	UG/L	ND	ND
Guthion	.03	UG/L	ND	ND
Malathion	.02	UG/L	ND	ND
Parathion	.01	UG/L	ND	ND
Chlorpyrifos	.02	UG/L	ND	ND
Coumaphos	.05	UG/L	ND	ND
Dichlorvos	.01	UG/L	ND	ND
Disulfoton	.01	UG/L	ND	ND
Stirophos	.01	UG/L	ND	ND
Thiophosphorus Pesticides	.03	UG/L	0.00	0.00
Demeton -O, -S	.04	UG/L	0.00	0.00
Total Organophosphorus Pesticides	.05	UG/L	0.00	0.00

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

POINT LOMA WASTEWATER TREATMENT PLANT

ANNUAL 2017

Organophosphorus Pesticides

Source			MBC_NC_RSL	MBC_NC_RSL
Date			02-MAY-2017	03-OCT-2017
Analyte	MDL	Units	P936607	P973107
Demeton O	.01	UG/L	ND	ND
Demeton S	.04	UG/L	ND	ND
Diazinon	.02	UG/L	ND	ND
Guthion	.03	UG/L	ND	ND
Malathion	.02	UG/L	ND	ND
Parathion	.01	UG/L	ND	ND
Chlorpyrifos	.02	UG/L	ND	ND
Coumaphos	.05	UG/L	ND	ND
Dichlorvos	.01	UG/L	ND	ND
Disulfoton	.01	UG/L	ND	ND
Stirophos	.01	UG/L	ND	ND
Thiophosphorus Pesticides	.03	UG/L	0.00	0.00
Demeton -O, -S	.04	UG/L	0.00	0.00
Total Organophosphorus Pesticides	.05	UG/L	0.00	0.00

Source			RAW COMP	RAW COMP
Date			02-MAY-2017	03-OCT-2017
Analyte	MDL	Units	P936580	P973080
Demeton O	.01	UG/L	ND	ND
Demeton S	.04	UG/L	ND	ND
Diazinon	.02	UG/L	ND	ND
Guthion	.03	UG/L	ND	ND
Malathion	.02	UG/L	ND	ND
Parathion	.01	UG/L	ND	ND
Chlorpyrifos	.02	UG/L	ND	ND
Coumaphos	.05	UG/L	ND	ND
Dichlorvos	.01	UG/L	ND	ND
Disulfoton	.01	UG/L	ND	ND
Stirophos	.01	UG/L	ND	ND
Thiophosphorus Pesticides	.03	UG/L	0.00	0.00
Demeton -O, -S	.04	UG/L	0.00	0.00
Total Organophosphorus Pesticides	.05	UG/L	0.00	0.00

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

POINT LOMA WASTEWATER TREATMENT PLANT

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Organophosphorus Pesticides

Source			DIG COMP	DIG COMP
Date			02-MAY-2017	03-OCT-2017
Analyte	MDL	Units	P936594	P973094
Demeton O	.01	UG/L	ND	ND
Demeton S	.04	UG/L	ND	ND
Diazinon	.02	UG/L	ND	ND
Guthion	.03	UG/L	ND	ND
Malathion	.02	UG/L	ND	ND
Parathion	.01	UG/L	ND	ND
Chlorpyrifos	.02	UG/L	ND	ND
Coumaphos	.05	UG/L	ND	ND
Dichlorvos	.01	UG/L	ND	ND
Disulfoton	.01	UG/L	ND	ND
Stirophos	.01	UG/L	ND	ND
Thiophosphorus Pesticides	.03	UG/L	0.00	0.00
Demeton -O, -S	.04	UG/L	0.00	0.00
Total Organophosphorus Pesticides	.05	UG/L	0.00	0.00

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

POINT LOMA WASTEWATER TREATMENT PLANT

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Organophosphorus Pesticides

Source			MBCDEWCN	MBCDEWCN
Date			31-MAY-2017	31-OCT-2017
Analyte	MDL	Units	P945968	P979340
Demeton O	2.41	UG/KG	ND	ND
Demeton S	11.7	UG/KG	ND	ND
Diazinon	1.57	UG/KG	ND	ND
Guthion	13.2	UG/KG	ND	ND
Malathion	1.78	UG/KG	ND	ND
Parathion	2.04	UG/KG	ND	ND
Chlorpyrifos	1.94	UG/KG	42.3	ND
Coumaphos	5.54	UG/KG	ND	ND
Dichlorvos	1.12	UG/KG	ND	ND
Disulfoton	4.1	UG/KG	ND	ND
Stirophos	3.55	UG/KG	ND	ND
Thiophosphorus Pesticides	13.2	UG/KG	0.0	0.0
Demeton -O, -S	11.7	UG/KG	0.0	0.0
Total Organophosphorus Pesticides	13.2	UG/KG	42.3	0.0

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

POINT LOMA WASTEWATER TREATMENT PLANT

ANNUAL 2017

Base/Neutrals

Source			MBCDEWCN	MBCDEWCN	MBCDEWCN	MBCDEWCN
Date			28-FEB-2017	31-MAY-2017	31-AUG-2017	31-OCT-2017
Analyte	MDL	Units	P925827	P945968	P966456	P979340
Acenaphthene	330	UG/KG	ND	ND	ND	ND
Acenaphthylene	330	UG/KG	ND	ND	ND	ND
Anthracene	330	UG/KG	ND	ND	ND	ND
Benzidine	330	UG/KG	ND	ND	ND	ND
3,4-Benzo(b)fluoranthene	330	UG/KG	ND	ND	ND	ND
Benzo[k]fluoranthene	330	UG/KG	ND	ND	ND	ND
Benzo[a]anthracene	330	UG/KG	ND	ND	ND	ND
Benzo[a]pyrene	330	UG/KG	ND	ND	ND	ND
Benzo[g,h,i]perylene	330	UG/KG	ND	ND	ND	ND
4-Bromophenyl phenyl ether	330	UG/KG	ND	ND	ND	ND
Bis-(2-chloroethoxy) methane	330	UG/KG	ND	ND	ND	ND
Bis-(2-chloroethyl) ether	330	UG/KG	ND	ND	ND	ND
Bis-(2-chloroisopropyl) ether	330	UG/KG	ND	ND	ND	ND
4-Chlorophenyl phenyl ether	330	UG/KG	ND	ND	ND	ND
2-Chloronaphthalene		UG/KG	ND	ND	ND	ND
Chrysene	330	UG/KG	ND	ND	ND	ND
Dibenzo(a,h)anthracene	330	UG/KG	ND	ND	ND	ND
Butyl benzyl phthalate	330	UG/KG	ND	ND	ND	620
Di-n-butyl phthalate	330	UG/KG	ND	<330	ND	ND
Bis-(2-ethylhexyl) phthalate	330	UG/KG	53700	64900	ND	70900
Diethyl phthalate	330	UG/KG	ND	ND	ND	ND
Dimethyl phthalate	330	UG/KG	ND	ND	ND	ND
Di-n-octyl phthalate	330	UG/KG	ND	ND	660	ND
3,3-Dichlorobenzidine	330	UG/KG	ND	ND	ND	ND
2,4-Dinitrotoluene	330	UG/KG	ND	ND	ND	ND
2,6-Dinitrotoluene	330	UG/KG	ND	ND	ND	ND
1,2-Diphenylhydrazine		UG/KG	ND	ND	ND	ND
Fluoranthene	330	UG/KG	<330	ND	ND	ND
Fluorene	330	UG/KG	ND	ND	ND	ND
Hexachlorobenzene	330	UG/KG	ND	ND	ND	ND
Hexachlorobutadiene	330	UG/KG	ND	ND	ND	ND
Hexachlorocyclopentadiene	330	UG/KG	ND	ND	ND	ND
Hexachloroethane	330	UG/KG	ND	ND	ND	ND
Indeno(1,2,3-CD)pyrene	330	UG/KG	ND	ND	ND	ND
Isophorone	330	UG/KG	ND	ND	ND	ND
Naphthalene	330	UG/KG	385	399	ND	ND
Nitrobenzene	330	UG/KG	ND	ND	ND	ND
N-nitrosodimethylamine	330	UG/KG	ND	ND	ND	ND
N-nitrosodi-n-propylamine	330	UG/KG	ND	ND	ND	ND
N-nitrosodiphenylamine	330	UG/KG	ND	ND	ND	ND
Phenanthrene	330	UG/KG	632	407	385	ND
Pyrene	330	UG/KG	<330	ND	ND	<330
1,2,4-Trichlorobenzene	330	UG/KG	ND	ND	ND	ND
1,2-Dichlorobenzene	330	UG/KG	ND	ND	ND	ND
1,3-Dichlorobenzene	330	UG/KG	ND	ND	ND	ND
1,4-Dichlorobenzene	330	UG/KG	ND	ND	ND	ND
PolyNuc. Aromatic Hydrocarbons	330	UG/KG	632	407	385	0
Dichlorobenzenes	330	UG/KG	0	0	0	0
Base/Neutral Compounds	330	UG/KG	54717	65706	1045	71520

Additional Analytes Determined;

Benzo[e]pyrene		UG/KG	ND	ND	ND	ND
Biphenyl		UG/KG	ND	195	ND	ND
2,6-Dimethylnaphthalene		UG/KG	2020	1390	1160	1420
1-Methylnaphthalene		UG/KG	ND	ND	ND	ND
1-Methylphenanthrene		UG/KG	ND	ND	ND	ND
2-Methylnaphthalene		UG/KG	1060	542	415	345
2,3,5-Trimethylnaphthalene		UG/KG	ND	ND	ND	ND
Perylene	330	UG/KG	ND	ND	ND	ND
Pyridine		UG/KG	ND	ND	218	ND

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

POINT LOMA WASTEWATER TREATMENT PLANT

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Phenolics

Source			MBCDEWCN	MBCDEWCN	MBCDEWCN	MBCDEWCN	
Date			28-FEB-2017	31-MAY-2017	31-AUG-2017	31-OCT-2017	
Analyte	MDL	Units	P925827	P945968	P966456	P979340	Average
2-Chlorophenol	330	UG/KG	ND	ND	ND	ND	ND
4-Chloro-3-methylphenol	330	UG/KG	ND	ND	ND	ND	ND
2,4-Dichlorophenol	330	UG/KG	ND	ND	ND	ND	ND
2,4-Dimethylphenol	330	UG/KG	ND	ND	ND	ND	ND
2,4-Dinitrophenol	330	UG/KG	ND	ND	ND	ND	ND
2-Methyl-4,6-dinitrophenol	800	UG/KG	ND	ND	ND	ND	ND
2-Nitrophenol	330	UG/KG	ND	ND	ND	ND	ND
4-Nitrophenol	800	UG/KG	ND	ND	ND	ND	ND
Pentachlorophenol	800	UG/KG	ND	ND	ND	ND	ND
Phenol	330	UG/KG	4090	4630	4510	3270	4125
2,4,6-Trichlorophenol	330	UG/KG	ND	ND	ND	ND	ND
Total Chlorinated Phenols	800	UG/KG	0	0	0	0	0
Total Non-Chlorinated Phenols	800	UG/KG	4970	8150	6910	4240	6068
Phenols	800	UG/KG	4970	8150	6910	4240	6068

Additional Analytes Determined:

2-Methylphenol	330	UG/KG	ND	1690	ND	ND	423
4-Methylphenol(3-MP is unresolved)	330	UG/KG	880	1830	2400	970	1520
2,4,5-Trichlorophenol	800	UG/KG	ND	ND	ND	ND	ND
Phenols average	800	UG/KG	372	421	410	297	375

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

POINT LOMA WASTEWATER TREATMENT PLANT

ANNUAL 2017

Purgeables

Source			MBCDEWCN	MBCDEWCN	MBCDEWCN	MBCDEWCN	MBCDEWCN	MBCDEWCN
Date			31-JAN-2017	28-FEB-2017	31-MAR-2017	30-APR-2017	31-MAY-2017	30-JUN-2017
Analyte	MDL	Units	P920340	P925827	P932213	P937935	P945968	P953132
Acrolein	6.4	UG/KG	ND	ND	ND	ND	ND	ND
Acrylonitrile	3.9	UG/KG	ND	ND	ND	ND	ND	ND
Benzene	2.1	UG/KG	ND	ND	ND	ND	ND	DNQ11.2
Bromodichloromethane	2.2	UG/KG	ND	ND	ND	ND	ND	ND
Bromoform	2.4	UG/KG	ND	ND	ND	ND	ND	ND
Bromomethane	6.9	UG/KG	ND	ND	ND	ND	ND	DNQ7.5
Carbon tetrachloride	3	UG/KG	ND	ND	ND	ND	ND	ND
Chlorobenzene	1	UG/KG	ND	ND	ND	ND	ND	ND
Chloroethane	3.6	UG/KG	ND	ND	ND	ND	ND	ND
Chloroform	2.3	UG/KG	ND	ND	ND	ND	ND	ND
Chloromethane	3.4	UG/KG	ND	ND	ND	ND	ND	ND
Dibromochloromethane	2.4	UG/KG	ND	ND	ND	ND	ND	ND
1,2-Dichlorobenzene	1.5	UG/KG	ND	ND	ND	ND	ND	ND
1,3-Dichlorobenzene	1.8	UG/KG	ND	ND	ND	ND	ND	ND
1,4-Dichlorobenzene	1.5	UG/KG	64.2	77.2	91.2	108	85.1	66.1
Dichlorodifluoromethane	5.56	UG/KG	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	1.9	UG/KG	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane	3.6	UG/KG	ND	ND	ND	ND	ND	ND
1,1-Dichloroethene	5	UG/KG	ND	ND	ND	ND	ND	ND
trans-1,2-dichloroethene	3.5	UG/KG	ND	ND	ND	ND	ND	ND
1,2-Dichloropropane	2.6	UG/KG	ND	ND	ND	ND	ND	ND
cis-1,3-dichloropropene	2.5	UG/KG	ND	ND	ND	ND	ND	ND
trans-1,3-dichloropropene	2.1	UG/KG	ND	ND	ND	ND	ND	ND
Ethylbenzene	1.4	UG/KG	311	409	428	499	440	355
Methylene chloride	3.5	UG/KG	DNQ18.4	ND	ND	DNQ7.1	DNQ5.4	DNQ5.3
1,1,2,2-Tetrachloroethane	5.9	UG/KG	ND	ND	ND	ND	ND	ND
Tetrachloroethene	2.8	UG/KG	ND	ND	ND	ND	ND	ND
Toluene	1.2	UG/KG	103	133	132	144*	127	122
1,1,1-Trichloroethane	3.2	UG/KG	ND	ND	ND	ND	ND	ND
1,1,2-Trichloroethane	2.8	UG/KG	ND	ND	ND	ND	ND	ND
Trichloroethene	2.6	UG/KG	ND	ND	ND	ND	ND	ND
Trichlorofluoromethane	2.2	UG/KG	ND	ND	ND	ND	ND	ND
Vinyl chloride	4.8	UG/KG	ND	ND	ND	ND	ND	ND
1,2,4-Trichlorobenzene	2.5	UG/KG	ND	ND	ND	ND	ND	ND
Halomethane Purgeable Compounds	6.9	UG/KG	0.0	0.0	0.0	0.0	0.0	0.0
Purgeable Compounds	6.9	UG/KG	239.1	619.2	651.2	607.0	652.1	543.1

Additional Analytes Determined:

Analyte	MDL	Units	P920340	P925827	P932213	P937935	P945968	P953132
Acetone	31.4	UG/KG	23200	19400	26200	24600	24400	36800
Allyl chloride	3.6	UG/KG	ND	ND	ND	ND	ND	ND
Benzyl chloride	4.3	UG/KG	ND	ND	ND	ND	ND	ND
2-Butanone	36.3	UG/KG	7020	5860	7400	7590	6530	15200
Carbon disulfide	4.7	UG/KG	75.5	71.1	98.6	113	127	94.5
Chloroprene	3.1	UG/KG	ND	ND	ND	ND	ND	ND
1,2-Dibromoethane	2.5	UG/KG	ND	ND	ND	ND	ND	ND
Isopropylbenzene	1.3	UG/KG	ND	ND	ND	ND	ND	ND
Methyl Iodide	3.8	UG/KG	ND	ND	ND	ND	ND	ND
Methyl methacrylate	2.4	UG/KG	ND	ND	ND	ND	ND	ND
Methyl tert-butyl ether	3.4	UG/KG	ND	ND	ND	ND	ND	ND
2-Nitropropane	45.8	UG/KG	ND	ND	ND	ND	ND	ND
ortho-xylene	1.9	UG/KG	35.6	41.4	38.0	45.4	42.1	37.8
Styrene	1.7	UG/KG	47.7	66.5	60.2	78.9	70.5	82.3
meta,para xylenes	4.2	UG/KG	73.3	77.5	72.1	83.7	77.8	68.8
2-Chloroethylvinyl ether	5.5	UG/KG	ND	ND	ND	ND	ND	ND
4-Methyl-2-pentanone	9.7	UG/KG	31.2	31.5	43.1	38.3	44.8	89.0

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

* = Method blank value above the MDL; sample result not included in average calculations.

DNQ= Detected but not quantified. Sample result is less than minimum Level but greater than or equal to MDL.

POINT LOMA WASTEWATER TREATMENT PLANT

ANNUAL 2017

Purgeables

Source			MBCDEWCN	MBCDEWCN	MBCDEWCN	MBCDEWCN	MBCDEWCN	Average
Date			31-JUL-2017	31-AUG-2017	30-SEP-2017	31-OCT-2017	31-DEC-2017	
Analyte	MDL	Units	P959635	P966456	P974186	P979340	P992862	
Acrolein	6.4	UG/KG	ND	ND	ND	ND	ND	ND
Acrylonitrile	3.9	UG/KG	ND	ND	ND	ND	ND	ND
Benzene	2.1	UG/KG	DNQ4.7	ND	ND	ND	ND	0.0
Bromodichloromethane	2.2	UG/KG	ND	ND	ND	ND	ND	ND
Bromoform	2.4	UG/KG	ND	ND	ND	ND	ND	ND
Bromomethane	6.9	UG/KG	ND	ND	ND	ND	ND	0.0
Carbon tetrachloride	3	UG/KG	ND	ND	ND	ND	ND	ND
Chlorobenzene	1	UG/KG	ND	ND	ND	ND	ND	ND
Chloroethane	3.6	UG/KG	ND	ND	ND	ND	ND	ND
Chloroform	2.3	UG/KG	ND	ND	ND	ND	ND	ND
Chloromethane	3.4	UG/KG	ND	ND	ND	ND	ND	ND
Dibromochloromethane	2.4	UG/KG	ND	ND	ND	ND	ND	ND
1,2-Dichlorobenzene	1.5	UG/KG	ND	ND	ND	ND	ND	ND
1,3-Dichlorobenzene	1.8	UG/KG	ND	ND	ND	ND	ND	ND
1,4-Dichlorobenzene	1.5	UG/KG	57.3	49.2	65.1	57.2	63.2	71.3
Dichlorodifluoromethane	5.56	UG/KG	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	1.9	UG/KG	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane	3.6	UG/KG	ND	ND	ND	ND	ND	ND
1,1-Dichloroethene	5	UG/KG	ND	ND	ND	ND	ND	ND
trans-1,2-dichloroethene	3.5	UG/KG	ND	ND	ND	ND	ND	ND
1,2-Dichloropropane	2.6	UG/KG	ND	ND	ND	ND	ND	ND
cis-1,3-dichloropropene	2.5	UG/KG	ND	ND	ND	ND	ND	ND
trans-1,3-dichloropropene	2.1	UG/KG	ND	ND	ND	ND	ND	ND
Ethylbenzene	1.4	UG/KG	362	278	321	303	247	360
Methylene chloride	3.5	UG/KG	DNQ5.2	DNQ4.8	101*	ND	DNQ6.4	0.0
1,1,2,2-Tetrachloroethane	5.9	UG/KG	ND	ND	ND	ND	ND	ND
Tetrachloroethene	2.8	UG/KG	ND	ND	ND	ND	ND	ND
Toluene	1.2	UG/KG	175	137	146	109	125	131
1,1,1-Trichloroethane	3.2	UG/KG	ND	ND	ND	ND	ND	ND
1,1,2-Trichloroethane	2.8	UG/KG	ND	ND	ND	ND	ND	ND
Trichloroethene	2.6	UG/KG	ND	ND	ND	ND	ND	ND
Trichlorofluoromethane	2.2	UG/KG	ND	ND	ND	ND	ND	ND
Vinyl chloride	4.8	UG/KG	ND	ND	ND	ND	ND	ND
1,2,4-Trichlorobenzene	2.5	UG/KG	ND	ND	ND	ND	ND	ND
Halomethane Purgeable Compounds	6.9	UG/KG	0.0	0.0	0.0	0.0	0.0	0.0
Purgeable Compounds	6.9	UG/KG	594.3	464.2	532.1	469.2	435.2	562

Additional Analytes Determined:

Acetone	31.4	UG/KG	29900	22800	19400	18200	18900	23982
Allyl chloride	3.6	UG/KG	ND	ND	ND	ND	ND	ND
Benzyl chloride	4.3	UG/KG	ND	ND	ND	ND	ND	ND
2-Butanone	36.3	UG/KG	8650	4930	5840	5300	5830	7287
Carbon disulfide	4.7	UG/KG	99.0	119	102	80.3	88.4	97.1
Chloroprene	3.1	UG/KG	ND	ND	ND	ND	ND	ND
1,2-Dibromoethane	2.5	UG/KG	ND	ND	ND	ND	ND	ND
Isopropylbenzene	1.3	UG/KG	ND	ND	ND	ND	ND	ND
Methyl Iodide	3.8	UG/KG	ND	ND	ND	ND	ND	ND
Methyl methacrylate	2.4	UG/KG	ND	ND	ND	ND	ND	ND
Methyl tert-butyl ether	3.4	UG/KG	ND	ND	ND	ND	ND	ND
2-Nitropropane	45.8	UG/KG	ND	ND	ND	ND	ND	ND
ortho-xylene	1.9	UG/KG	39.0	38.5	40.2	35.5	32.9	38.8
Styrene	1.7	UG/KG	92.8	141	45.3	39.8	39.6	69.5
meta,para xylenes	4.2	UG/KG	72.4	68.4	72.9	65.7	60.4	72.1
2-Chloroethylvinyl ether	5.5	UG/KG	ND	ND	ND	ND	ND	ND
4-Methyl-2-pentanone	9.7	UG/KG	43.1	39.5	26.6	30.2	30.8	40.7

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

* = Method blank value above the MDL; sample result not included in average calculations.

DNQ= Detected but not quantified. Sample result is less than minimum Level but greater than or equal to MDL.

POINT LOMA WASTEWATER TREATMENT PLANT

ANNUAL 2017

Dioxin and Furan AnalysiS

Source			MBCDEWCN	MBCDEWCN	MBCDEWCN	MBCDEWCN	MBCDEWCN	MBCDEWCN	MBCDEWCN
Date			31-JAN-2017	28-FEB-2017	31-MAR-2017	30-APR-2017	31-MAY-2017	30-JUN-2017	31-JUL-2017
Analyte	MDL	Units	P920340	P925827	P932213	P937935	P945968	P953132	P959635
2,3,7,8-tetra CDD	.315	PG/G	DNQ0.902	ND	DNQ0.733	ND	ND	DNQ0.887	ND
1,2,3,7,8-penta CDD	.084	PG/G	DNQ2.78	DNQ2.26	DNQ5.4	ND	ND	DNQ2.58	DNQ2.19
1,2,3,4,7,8_hexa_CDD	.0793	PG/G	DNQ2.29	DNQ1.58	DNQ1.81	DNQ1.87	DNQ1.89	DNQ1.69	DNQ1.69
1,2,3,6,7,8-hexa CDD	.094	PG/G	16.0	13.3	14.9	18.3	11.0	14.7	11.2
1,2,3,7,8,9-hexa CDD	.0823	PG/G	DNQ6.70	DNQ5.41	DNQ6.39	DNQ6.81	DNQ4.63	DNQ4.98	DNQ4.06
1,2,3,4,6,7,8-hepta CDD	.0842	PG/G	338	289	281	280	205	246	212
octa CDD	.172	PG/G	1570	1400	1400	1240	1030	1150	934
2,3,7,8-tetra CDF	.0277	PG/G	4.22	3.70	3.70	5.07	4.02	476	4.64
1,2,3,7,8-penta CDF	.0449	PG/G	DNQ1.68	DNQ1.15	DNQ1.43	DNQ1.78	DNQ1.65	DNQ1.67	DNQ1.67
2,3,4,7,8-penta CDF	.0468	PG/G	DNQ2.01	DNQ1.37	DNQ2.36	DNQ2.10	DNQ2.76	DNQ1.46	DNQ1.73
1,2,3,4,7,8-hexa CDF	.0437	PG/G	DNQ2.16	DNQ1.81	DNQ2.20	DNQ2.37	DNQ1.89	DNQ2.32	DNQ2.31
1,2,3,6,7,8-hexa CDF	.0417	PG/G	DNQ2.13	DNQ1.49	DNQ2.08	DNQ2.35	DNQ2.64	DNQ3.21	DNQ2.66
1,2,3,7,8,9-hexa CDF	.0657	PG/G	DNQ0.981	DNQ0.625	DNQ0.946	DNQ1.12	DNQ0.929	DNQ1.04	DNQ0.816
2,3,4,6,7,8-hexa CDF	.0574	PG/G	DNQ2.31	DNQ1.86	DNQ2.26	DNQ2.41	DNQ2.11	DNQ2.71	DNQ2.67
1,2,3,4,6,7,8-hepta CDF	.0747	PG/G	25.2	18.3	22.8	23.2	18.8	21.3	19.6
1,2,3,4,7,8,9-hepta CDF	.0883	PG/G	DNQ1.84	DNQ1.30	DNQ1.75	DNQ1.57	DNQ1.45	DNQ1.71	DNQ1.06
octa CDF	.776	PG/G	61.9	46.4	58.9	56.9	43.3	54.9	42.7

Source			MBCDEWCN	MBCDEWCN	MBCDEWCN	MBCDEWCN	MBCDEWCN
Date			31-AUG-2017	30-SEP-2017	31-OCT-2017	30-NOV-2017	31-DEC-2017
Analyte	MDL	Units	P966456	P974186	P979340	P986442	P992862
2,3,7,8-tetra CDD	.315	PG/G	ND	DNQ0.644	ND	DNQ0.799	ND
1,2,3,7,8-penta CDD	.084	PG/G	DNQ2.09	DNQ2.88	DNQ4.21	DNQ5.05	ND
1,2,3,4,7,8_hexa_CDD	.0793	PG/G	DNQ1.58	DNQ1.63	DNQ1.72	DNQ1.76	DNQ1.66
1,2,3,6,7,8-hexa CDD	.094	PG/G	14.3	11.2	16.0	15.5	10.6
1,2,3,7,8,9-hexa CDD	.0823	PG/G	DNQ4.79	DNQ3.96	DNQ5.15	DNQ5.62	DNQ3.86
1,2,3,4,6,7,8-hepta CDD	.0842	PG/G	247	235	248	251	225
octa CDD	.172	PG/G	993	1180	1040	1010	1100
2,3,7,8-tetra CDF	.0277	PG/G	3.71	4.48	4.60	4.11	3.84
1,2,3,7,8-penta CDF	.0449	PG/G	DNQ1.60	DNQ1.64	DNQ2.06	DNQ2.35	DNQ1.79
2,3,4,7,8-penta CDF	.0468	PG/G	DNQ2.80	DNQ1.67	DNQ2.38	DNQ2.19	DNQ1.95
1,2,3,4,7,8-hexa CDF	.0437	PG/G	DNQ2.16	DNQ2.46	DNQ2.26	DNQ2.54	DNQ2.57
1,2,3,6,7,8-hexa CDF	.0417	PG/G	DNQ2.15	DNQ2.01	DNQ2.17	DNQ2.07	DNQ3.23
1,2,3,7,8,9-hexa CDF	.0657	PG/G	DNQ1.15	DNQ1.01	DNQ1.23	DNQ1.11	DNQ0.942
2,3,4,6,7,8-hexa CDF	.0574	PG/G	DNQ2.52	DNQ2.76	DNQ2.90	DNQ2.94	DNQ2.69
1,2,3,4,6,7,8-hepta CDF	.0747	PG/G	18.9	20.8	19.8	21.0	20.5
1,2,3,4,7,8,9-hepta CDF	.0883	PG/G	DNQ1.76	DNQ1.65	DNQ2.36	DNQ1.63	DNQ1.61
octa CDF	.776	PG/G	40.0	47.1	44.9	48.2	48.5

Above are permit required CDD/CDF isomers.

ND=not detected; NS=not sampled; NA=not analyzed; NR=not required

DNQ= Detected but not quantified. Sample result is less than minimum Level but greater than or equal to MDL.

ANALYZED BY: Frontier Analytical Laboratories

H. Results of "Title 22" Sludge Hazardous Waste Tests

Title 22 CCR Summary Tables

Concentrations of Title 22 analytes (metals and organics) both on a wet weight and dry weight basis for monthly composite of daily samples of sludge being hauled from the Metro Biosolids Center are presented.

The tables also list the TTLC (Total Threshold Limit Concentration) or STLC (Soluble Threshold Limit Concentration) limits in the left column for each analyte.

Definition:
MBCDEWCN = Metro Biosolids Center dewatered sludge.

CALIFORNIA HAZARDOUS WASTE IDENTIFICATION TEST (TITLE 22)

METRO BIOSOLIDS CENTER (MBC)

METALS **WET WEIGHT Concentration (calculated)**

ANALYTE	TTLC Wet wt mg/Kg	MBCDEWCN Jan-17 P920340	MBCDEWCN Feb-17 P925827	MBCDEWCN Mar-17 P932213	MBCDEWCN Apr-17 P937935	MBCDEWCN May-17 P945968	MBCDEWCN Jun-17 P953132	MBCDEWCN Jul-17 P959635	MBCDEWCN Aug-17 P966456	MBCDEWCN Sep-17 P974186	MBCDEWCN Oct-17 P979340	MBCDEWCN Nov-17 P986442	MBCDEWCN Dec-17 P992862
ANTIMONY	500	1.76	1.65	1.68	1.71	1.01	1.56	1.88	1.78	< 0.091	< 0.09	2.16	1.52
ARSENIC	500	1.8	1.83	2.3	1.47	0.92	1.01	0.43	0.89	1.0	0.37	0.73	0.78
BARIUM	10000	126	146	132	105	91.3	85	85.8	79.5	20.7	12.3	75.0	78.5
BERYLLIUM	75	0.016	0.026	0.86	0.014	0.008	0.01	0.013	0.021	DNQ 0.015	0.005	< 0.017	< 0.005
CADMIUM	100	< 0.027	0.105	0.09	0.25	0.154	0.22	0.22	0.238	DNQ 0.10	0.078	0.187	0.198
CHROMIUM(VI)	500	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CHROMIUM(total)	2500	12	12.6	12.1	11	11.7	12.4	11.9	12.038	3.29	2.87	13.1	11.2
COBALT	8000	1.08	1.13	1.13	0.994	0.64	1.02	1.01	1.09	DNQ 0.278	0.232	0.970	0.949
COPPER	2500	172	204	195	173	166	163	175	174	45.5	39.2	172	172
LEAD	1000	4.1	4.5	4.4	4.0	2.4	3.7	3.7	4.1	1.2	1.0	4.3	3.4
MERCURY^	20	0.29	0.17	0.305	0.289	0.398	0.45	0.297	0.335	0.276	0.222	0.231	0.064
MERCURY#	20	0.33	0.202	0.308	0.281	0.350	0.437	0.306	0.441	0.309	0.081	0.037	0.241
MOLYBDENUM	3500	5.23	4.88	4.34	4.23	2.82	4.78	5.60	6.23	1.62	1.28	5.26	4.72
NICKEL	2000	6.48	7.33	7.87	6.47	3.96	7.1	6.97	6.84	1.97	1.62	5.26	5.68
SELENIUM	100	1.44	0.443	1.15	0.573	1.23	1.21	1.26	1.10	< 0.43	< 0.14	0.855	0.99
SILVER	500	0.89	1.2	1.04	0.99	0.569	0.842	1.04	0.942	DNQ 0.304	0.209	0.768	0.943
THALLIUM	700	< 0.11	0.122	0.12	< 0.11	0.117	< 0.108	< 0.11	< 0.106	< 0.129	< 0.08	< 0.05	< 0.11
VANADIUM	2400	6.37	7.90	7.50	6.06	3.44	5.24	4.96	4.49	0.89	0.99	5.42	3.56
ZINC	5000	267	281	283	260	262	255	269	276	63	57	241	260
FLUORIDE	18000	8.21	9.34	8.09	9.25	9.85	7.91	8.20	8.32	8.93	7.5	8.1	7.48
SULFIDES-REACTIVE	NA	34	12	11.2	10.6	14	12	21	15	8	12.3	16	21
SULFIDES-TOTAL	NA	3577	2883	1176	3194	5753	2916	4717	2170	3795	4933	3669	5320
TOTAL SOLIDS (%)		27.1	28.4	28.0	27.3	27	27.0	26.8	26.4	25.3	26.1	26.3	26.8

DRY WEIGHT Concentration

ANALYTE	TTLC Wet wt mg/Kg	MBCDEWCN Jan-17 P920340	MBCDEWCN Feb-17 P925827	MBCDEWCN Mar-17 P932213	MBCDEWCN Apr-17 P937935	MBCDEWCN May-17 P945968	MBCDEWCN Jun-17 P953132	MBCDEWCN Jul-17 P959635	MBCDEWCN Aug-17 P966456	MBCDEWCN Sep-17 P974186	MBCDEWCN Oct-17 P979340	MBCDEWCN Nov-17 P986442	MBCDEWCN Dec-17 P992862
ANTIMONY	500	6.5	5.8	6.0	6	3.74	5.77	7.01	6.74	< 0.4	< 0.36	8.2	5.66
ARSENIC	500	6.66	6.45	8.22	5.38	3.41	3.73	1.59	3.36	4.1	DNQ 1.40	2.78	2.9
BARIUM	10000	465	514	472	385	337	316	320	301	82	47	285	293
BERYLLIUM	75	0.06	0.09	3.07	0.05	0.03	0.04	0.05	0.08	DNQ 0.06	DNQ 0.02	< 0.07	< 0.02
CADMIUM	100	< 0.1	0.37	0.32	0.92	0.57	0.81	0.82	0.9	DNQ 0.39	DNQ 0.3	0.71	0.74
CHROMIUM(VI)	500	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CHROMIUM(total)	2500	44.2	44.3	43.2	40.2	43.2	45.9	44.4	45.6	13.0	11	49.8	41.9
COBALT	8000	3.99	3.98	4.03	3.6	2.36	3.76	3.76	4.13	DNQ 1.1	DNQ 0.9	3.69	3.54
COPPER	2500	633	719	695	634	611	603	652	659	180	150	653	643
LEAD	1000	15.3	15.7	15.8	14.5	8.9	13.8	13.8	15.5	4.8	4	16.5	12.6
MERCURY^	20	1.07	0.61	1.09	1.06	1.47	1.67	1.11	1.27	1.09	0.85	0.88	0.24
MERCURY#		1.2	0.71	1.1	1.03	1.29	1.62	1.14	1.67	1.22	0.3	0.14	0.9
MOLYBDENUM	3500	19.3	17.2	15.5	15.5	10.4	17.7	20.9	23.6	6.4	4.9	20	17.6
NICKEL	2000	23.9	25.8	28.1	23.7	14.6	26.4	26.0	25.9	7.8	6.2	20	21.2
SELENIUM	100	5.33	1.56	4.11	2.1	4.53	4.49	4.72	4.15	< 1.7	< 0.55	3.25	3.7
SILVER	500	3.3	4.24	3.72	3.63	2.1	3.12	3.88	3.57	DNQ 1.2	DNQ 0.8	2.92	3.52
THALLIUM	700	< 0.4	0.43	0.43	< 0.4	0.43	< 0.4	< 0.4	< 0.4	< 0.51	< 0.32	< 0.19	< 0.4
VANADIUM	2400	23.5	27.8	26.8	22.2	12.7	19.4	18.5	17.0	3.5	3.80	13.0	13.3
ZINC	5000	984	990	1010	951	968	946	1003	1045	250	220	915	969
FLUORIDE	18000	30.3	32.9	28.9	33.9	36.35	29.3	30.6	31.5	35.3	28.7	30.9	27.9
SULFIDES-REACTIVE	NA	125	44	40	39	52	43	79	57	33	47	61.0	77
SULFIDES-TOTAL	NA	13200	10150	4200	11700	13850	10800	17600	8220	15000	18900	13950	19850

TTLC = Total Threshold Limit Concentration STLC = Soluble Threshold Limit Concentratioı ^ = To comply with CA ELAP Certificatioı # = To comply with Arizona Certification.
NA = Not Analyzed, NS = Not Sampled * = The total concentration is less than 10 times the the STLC, therefore by definition this substance is below hazardous concentrations.

ORGANICS

WET WEIGHT Concentration (calculated)

ANALYTE	TTLC Wet wt mg/Kg	MBCDEWCN Jan-17 P920340	MBCDEWCN Feb-17 P925827	MBCDEWCN Mar-17 P932213	MBCDEWCN Apr-17 P937935	MBCDEWCN May-17 P945968	MBCDEWCN Jun-17 P953132	MBCDEWCN Jul-17 P959635	MBCDEWCN Aug-17 P966456	MBCDEWCN Sep-17 P974186	MBCDEWCN Oct-17 P979340	MBCDEWCN Nov-17 P986442	MBCDEWCN Dec-17 P992862
ALDRIN	1.4	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
CHLORDANE	2.5	nd	nd	nd	nd	nd	nd	nd	NA	nd	nd	nd	nd
DDT,DDE,DDD	1.0	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
2,4-DCPAA	100	NA	NA	NA	NA	nd		NA	nd	NA	nd	nd	0.000
DIELDRIN	8.0	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
ENDRIN	0.2	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
HEPTACHLOR	4.7	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
KEPONE	21	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
LINDANE	4.0	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
METHOXYCHLOR	100	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
MIREX	21	nd	nd	nd	nd	nd	nd	nd	NA	NA	nd	nd	nd
PENTACHLOROPHENOL	17	NA	nd	nd	NA	nd		NA	nd	NA	nd	NA	NA
PCBs (TOTAL)	50	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
TOXAPHENE	5	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
TRICHLOROETHENE	2040	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
2,4,5-TCPPA	10	NA	NA	NA	NA	nd	NA	NA	0.012	NA	nd	NA	NA
TOTAL SOLIDS (%)		27.1	28.4	28.0	27.3	27.1	27.0	26.8	26.4	25.3	26.1	26.3	26.8
pH	>2-<12	7.95	7.97	7.97	7.91	7.94	7.84	7.85	7.85	7.91	7.94	7.8	7.88

DRY WEIGHT Concentration

ANALYTE	TTLC Wet wt mg/Kg	MBCDEWCN Jan-17 P920340	MBCDEWCN Feb-17 P925827	MBCDEWCN Mar-17 P932213	MBCDEWCN Apr-17 P937935	MBCDEWCN May-17 P945968	MBCDEWCN Jun-17 P953132	MBCDEWCN Jul-17 P959635	MBCDEWCN Aug-17 P966456	MBCDEWCN Sep-17 P974186	MBCDEWCN Oct-17 P979340	MBCDEWCN Nov-17 P986442	MBCDEWCN Dec-17 P992862
ALDRIN	1.4	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
CHLORDANE	2.5	nd	nd	nd	nd	nd	nd	nd	NA	nd	nd	nd	nd
DDT,DDE,DDD	1.0	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
2,4-DCPAA	100	NA	NA	NA	NA	nd	nd	NA	nd	NA	nd	nd	
DIELDRIN	8.0	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
ENDRIN	0.2	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
HEPTACHLOR	4.7	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
KEPONE	21	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
LINDANE	4	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
METHOXYCHLOR	100	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
MIREX	21	nd	nd	nd	nd	nd	nd	nd	NA	NA	nd	nd	nd
PENTACHLOROPHENOL	17	NA	nd	nd	NA	nd	NA	NA	nd	NA	nd	NA	NA
PCBs (TOTAL)	50	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
TOXAPHENE	5	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
TRICHLOROETHENE	2040	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
2,4,5-TCPPA	10	NA	NA	NA	NA	nd	NA	NA	nd	NA	nd	NA	NA

TTLC = Total Threshold Limit Concentration STLC = Soluble Threshold Limit Concentration

	STLC	MBCDEWCN	MBCDEWCN	MBCDEWCN	MBCDEWCN	MBCDEWCN	MBCDEWCN	MBCDEWCN	MBCDEWCN	MBCDEWCN	MBCDEWCN	MBCDEWCN	MBCDEWCN
	Wet wt	Jan-17	Feb-17	Mar-17	Apr-17	May-17	Jun-17	Jul-17	Aug-17	Sep-17	Oct-17	Nov-17	Dec-17
ANALYTE	mg/L	P920340	P925827	P932213	P937935	P945968	P953132	P959635	P966456	P974186	P979340	P986442	P992862
ANTIMONY	15.0	*	*	*	*	*	*	*	*	*	*	*	*
ARSENIC	5.0	*	*	*	*	*	*	*	*	*	*	*	*
BARIUM	100.0	*	*	*	*	*	*	*	*	*	*	*	*
BERYLLIUM	0.75	*	*	*	*	*	*	*	*	*	*	*	*
CADMIUM	1.0	*	*	*	*	*	*	*	*	*	*	*	*
CHROMIUM(VI)	5.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CHROMIUM(total)	560.0	*	*	*	*	*	*	*	*	*	*	*	*
COBALT	80.0	*	*	*	*	*	*	*	*	*	*	*	*
COPPER	25.0	*	*	*	*	*	*	*	*	*	*	*	*
LEAD	5.0	*	*	*	*	*	*	*	*	*	*	*	*
MERCURY^	0.20	*	*	*	*	*	*	*	*	*	*	*	NA
MERCURY#	0.20	*	*	*	*	*	*	*	*	*	*	*	*
MOLYBDENUM	350.0	*	*	*	*	*	*	*	*	*	*	*	*
NICKEL	20.0	*	*	*	*	*	*	*	*	*	*	*	*
SELENIUM	1.0	*	*	*	*	*	*	*	*	*	*	*	*
SILVER	5.0	*	*	*	*	*	*	*	*	*	*	*	*
THALLIUM	7.0	*	*	*	*	*	*	*	*	*	*	*	*
VANADIUM	24.0	*	*	*	*	*	*	*	*	*	*	*	*
ZINC	250.0	*	*	*	*	*	*	*	*	*	*	*	*

* = The total concentrations are less than 10 times the the STLC, this substance is below STLC limits by definition.

WASTE EXTRACTION TEST - ORGANICS

	STLC	MBCDEWCN	MBCDEWCN	MBCDEWCN	MBCDEWCN	MBCDEWCN	MBCDEWCN	MBCDEWCN	MBCDEWCN	MBCDEWCN	MBCDEWCN	MBCDEWCN	MBCDEWCN
	Wet wt	Jan-17	Feb-17	Mar-17	Apr-17	May-17	Jun-17	Jul-17	Aug-17	Sep-17	Oct-17	Nov-17	Dec-17
ANALYTE	mg/L	P920340	P925827	P932213	P937935	P945968	P953132	P575132	P966456	P974186	P979340	P986442	P992862
ALDRIN	0.14	*	*	*	*	*	*	*	*	*	*	*	*
CHLORDANE	0.25	*	*	*	*	*	*	*	NA	*	*	*	*
DDT,DDE,DDD	0.1	*	*	*	*	*	*	*	*	*	*	*	*
2,4-DCPAA	10.0	NA	NA	NA	NA	*	NA	NA	*	NA	*		
DIELDRIN	0.80	*	*	*	*	*	*	*	*	*	*	*	*
ENDRIN	0.02	*	*	*	*	*	*	*	*	*	*	*	*
HEPTACHLOR	0.47	*	*	*	*	*	*	*	*	*	*	*	*
KEPONE	2.10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
LINDANE	0.40	*	*	*	*	*	*	*	*	*	*	*	*
METHOXYCHLOR	10.0	*	*	*	*	*	*	*	*	*	*	*	*
MIREX	2.10	*	*	*	*	*	*	*	NA	NA	*	*	*
PENTACHLOROPHENOL	1.70	NA	*	NA	NA	*	NA	NA	*	NA	*	NA	NA
PCBs (TOTAL)	5.00	*	*	*	*	*	*	*	*	*	*	*	*
TOXAPHENE	0.50	*	*	*	*	*	*	*	*	*	*	*	*
TRICHLOROETHENE	204.0	*	*	*	*	*	*	*	*	*	*	*	*
2,4,5-TCPPA	1.00	NA	NA	NA	NA	*	NA	NA	*	NA	*	NA	NA

TTLC = Total Threshold Limit Concentration   STLC = Soluble Threshold Limit Concentration

NA = Not Analyzed,   NS = Not Sampled   ^ = To comply with CA ELAP Certification.   # = To comply with Arizona Certification.

* = The total concentrations are less than 10 times the the STLC, this substance is below STLC limits by definition.

2017 POINT LOMA WASTEWATER TREATMENT PLANT ANNUAL REPORT

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CALIFORNIA HAZARDOUS WASTE IDENTIFICATION TEST (TITLE 22)

METRO BIOSOLIDS CENTER (MBC)

METALS

DRY WEIGHT Concentration

ANALYTE	TTLC Wet wt mg/Kg	MBCDEWCN Jan-17 P920340	MBCDEWCN Feb-17 P925827	MBCDEWCN Mar-17 P932213	MBCDEWCN Apr-17 P937935	MBCDEWCN ###### P945968	MBCDEWCN Jun-17 P953132	MBCDEWCN Jul-17 P959635	MBCDEWCN Aug-17 P966456	MBCDEWCN Sep-17 P974186	MBCDEWCN Oct-17 P979340	MBCDEWCN Nov-17 P986442	MBCDEWCN Dec-17 P992862
AMMONIA-N		5700	7260	6105	4660	8430	8215	8240	7240	8465	6285	6610	6595
NITRITE AND NITRATE CALCULATION		7.1	8.47	11.01	6.75	7.91	5.17	5.51	4.51	5.76	4.75	13.40	14.50
ORGANIC NITROGEN CALCULATION		44200	39.69	40945	51300	44170	44335	44210	45010	45785	45715	45740	45855
TOTAL KJELDAHL NITROGEN	0.04	49900	46950	47050	55960	52600	52550	52450	52250	54250	52000	52350	52450

TTLC = Total Threshold Limit Concentration

NA = Not Analyzed, NS = Not Sampled

V. Ocean Monitoring Data Summary

Please refer to our Ocean Monitoring Reports located on the City's website at

https://www.sandiego.gov/mwwd/environment/oceanmonitor/reports

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VI. Annual Pretreatment Program Analyses

2017 Annual Pretreatment Program Analyses
(QUARTERLY SLUDGE PROJECT)

The Quarterly Sludge Project is part of the Point Loma WWTP NPDES (Permit No. CA0107409/Order No. R9-2009-0001) monitoring requirements. The sampling plan is designed to provide a "snapshot" of all of the physical and chemical characteristics monitored of the wastewater treatment waste streams for a short interval of time (1-2 days). This is conducted quarterly.

The Quarterly Sludge Project was conducted four times during 2017. Sampling occurred on February 07, May 02, August 01, and October 03. Monthly composite samples of MBC dewatered sludge during the respective calendar months were taken and analyzed for a similar suite of parameters. The tables showing the results of these analyses in this section follow.

Point Loma WTP Influent (PLR) and effluent (PLE) sewage are flow-proportioned 24-hr composites* taken by a refrigerated automatic continuous autosampler over the 24-hr periods from midnight to midnight of the sampling days. Two days of sampling were required for all of the required samples. The sampling locations are the influent and effluent channels.

Digested and raw sludge are sampled by Operations staff and composited by the laboratory. The digested sludge sample is composited from 12 manual grab samples collected at two-hour intervals from Digester 7. The raw sludge sample is composited from 12 manual grabs collected at two hour intervals.

The Metro Biosolids Center (MBC) uses a centrifuge dewatering process; the MBC centrate is the return stream source. This is a 24-hr composite collected with the refrigerated automatic composite sampler currently installed on the MBC combined centrate return stream line. MBC_NC_DSL and MBC_NC_RSL are the MBC Digested Sludge Line and NCWRP to MBC Raw Sludge Line, respectively. MBC_NC_DSL composite sample is compiled from grabs collected every 2 hours for the 24 hours of the sampling program each quarter while MBC_NC_RSL is a 24-hr composite collected with the refrigerated automatic composite sampler.

***** pH, Grease & Oils, temperature, and conductivity are determined from grab samples.

Abbreviations:

PLR	Point Loma WTP influent.	RAW COMP	Point Loma WTP raw sludge composite
PLE	Point Loma WTP effluent.	DIG COMP	Point Loma WTP digested sludge composite
MBCDEWCN	MBC dewatered sludge from centrifuges	MBC_COMBCN	MBC combined centrate from dewatering centrifuges.
MBC_NC_RSL	NCWRP to MBC raw sludge line	MBC_NC_DSL	MBC digested sludge line

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A. Point Loma Wastewater Treatment Plant and Metro Biosolids Center Sources

POINT LOMA WASTEWATER TREATMENT PLANT
Physical/Aggregate Properties Report

Annual 2017

Point Loma

Source Analyte	MDL	Units	PLR 07-FEB-2017	PLR 02-MAY-2017	PLR 01-AUG-2017	PLR 03-OCT-2017
Conductivity	10	umhos/cm	2820	2790	2720	2970
HEM (Grease & Oil)	1.01	mg/L	45.6	54.1	64.2	69.5
Total Suspended Solids	2.5	mg/L	322	402	350	304
Volatile Suspended Solids	2.5	mg/L	282	362	296	278
Total Alkalinity (bicarbonate)	20	mg/L	324	333	318	323
Total Solids	10	mg/L	1950	1950	1850	2110
Total Volatile Solids	100	mg/L	528	624	536	616
Total Kjeldahl Nitrogen	1.2	mg/L	52	76	61	57
BOD (Biochemical Oxygen Demand)	2	mg/L	323	352	275	250
Chemical Oxygen Demand	18	mg/L	684	881	725	670
pH (grab)		pH Units	7.45	7.31	7.16	7.21
Ammonia-N	.3	mg/L	35.8	43.4	43.8	43.1
Turbidity	.13	NTU	115	146	115	113
Total Dissolved Solids	250	mg/L	1600	1510	1390	1730
MBAS (Surfactants)	.03	mg/L	5.36	6.94*	6.18	6.00

Source Analyte	MDL	Units	PLE 07-FEB-2017	PLE 02-MAY-2017	PLE 01-AUG-2017	PLE 03-OCT-2017
Conductivity	10	umhos/cm	2840	2850	2710	2930
HEM (Grease & Oil)	1.01	mg/L	10.9	12.9	19.3	11.1
Total Suspended Solids	2.5	mg/L	30	38	58	36
Volatile Suspended Solids	2.5	mg/L	24	29	48	33
Total Alkalinity (bicarbonate)	20	mg/L	302	313	304	307
Total Solids	10	mg/L	1680	1610	1580	1840
Total Volatile Solids	100	mg/L	286	326	300	406
Total Kjeldahl Nitrogen	1.2	mg/L	41	53	52	47
BOD (Biochemical Oxygen Demand)	2	mg/L	116	126	147	120
Chemical Oxygen Demand	18	mg/L	263	291	349	257
pH (grab)		pH Units	7.27	7.17	7.08	7.19
Ammonia-N	.3	mg/L	36.1	43.5	42.5	42.7
Turbidity	.13	NTU	23.5	47.0	66.9	37.8
Total Dissolved Solids	250	mg/L	1560	1510	1420	1690
MBAS (Surfactants)	.03	mg/L	4.19	4.66*	4.81	4.79

* = Sample collected on May 8th, 2017.

BOD by SM5210B/4500-O C,G
TSS/VSS by SM2540D
pH by SM4500-H
Turbidity by SM2130B
HEM by EPA 1664B
Ammonia by SM5210B
Conductivity by SM2510B
Total Solids by SM2540B
Alkalinity by SM2320B
TDS by SM2540C
TKN by SM4500-NorgB
COD by HACH8000
MBAS by SM5540C

POINT LOMA WASTEWATER TREATMENT PLANT
Physical/Aggregate Properties Report

Point Loma

Source Analyte	MDL	Units	RAW COMP 08-FEB-2017	RAW COMP 02-MAY-2017	RAW COMP 01-AUG-2017	RAW COMP 03-OCT-2017
Total Alkalinity (bicarbonate)	20	mg/L	455	440	386	417
Total Solids		Wt%	4.05	4.25	3.65	4.20
Total Volatile Solids		Wt%	79	81	79	80
Total Kjeldahl Nitrogen	.04	Wt%	3.3	3.4	3.6	2.7
pH (grab)		pH Units	5.95	5.68	5.39	5.48

Source Analyte	MDL	Units	DIG COMP 08-FEB-2017	DIG COMP 02-MAY-2017	DIG COMP 01-AUG-2017	DIG COMP 03-OCT-2017
Total Alkalinity (bicarbonate)	20	mg/L	2600	2350	2100	2170
Volatile Organic Acids	5	mg/L	66	80	69	65
Total Solids		Wt%	2.20	2.20	2.25	2.20
Total Volatile Solids		Wt%	59	62	65	62
Total Kjeldahl Nitrogen	.04	Wt%	7.3	6.9	6.7	5.6
pH (grab)		pH Units	7.42	7.13	7.03	7.05

MBC

Source Analyte	MDL	Units	MBC_COMBCN 07-FEB-2017	MBC_COMBCN 02-MAY-2017	MBC_COMBCN 01-AUG-2017	MBC_COMBCN 03-OCT-2017
Conductivity	10	umhos/cm	5700	5420	5210	5020*
HEM (Grease & Oil)	1.01	mg/L	4.0	17.2	39.6	37.7
Total Suspended Solids	2.5	mg/L	525	690	860	737
Volatile Suspended Solids	2.5	mg/L	450	520	637	554
Total Alkalinity (bicarbonate)	20	mg/L	1630	1390	1150	1160*
Total Solids		Wt%	0.4	0.4	0.3	0.4
Total Volatile Solids		Wt%	52	53	40	47
Total Kjeldahl Nitrogen	1.2	mg/L	517	430	398	375
BOD (Biochemical Oxygen Demand)	2	mg/L	248	241	332	234
Chemical Oxygen Demand	18	mg/L	956	1240	688	1760
pH		pH Units	7.91	8.02	8.09	8.01
pH (grab sample)		pH Units	7.69	7.79	7.69	7.68
Ammonia-N	.3	mg/L	378	338	NR	NR

* = Sample analyzed outside holding time; result is not used in average calculations.

ND=not detected; NS=not sampled; NA=not analyzed; NR=not required

BOD by SM5210B/4500-O C,G
TSS/VSS by SM2540D
pH by SM4500-H
Turbidity by SM2130B
HEM by EPA 1664B
Ammonia by SM5210B
Conductivity by SM2510B
Total Solids by SM2540B
Alkalinity by SM2320B
TDS by SM2540C
TKN by SM4500-NorgB
COD by HACH8000

POINT LOMA WASTEWATER TREATMENT PLANT
Physical/Aggregate Properties Report

Annual 2017

MBC

Source / Analyte	MDL	Units	MBCDEWCN 28-FEB-2017	MBCDEWCN 31-MAY-2017	MBCDEWCN 31-AUG-2017	MBCDEWCN 31-OCT-2017
Total Solids		Wt%	28.4	27.1	26.4	26.1
Total Volatile Solids		Wt%	59	62	64	63
Total Kjeldahl Nitrogen	.04	Wt%	4.7	5.3	5.2	5.2
pH		pH Units	7.97	7.94	7.85	7.94

Source / Analyte	MDL	Units	MBC_NC_DSL 07-FEB-2017	MBC_NC_DSL 02-MAY-2017	MBC_NC_DSL 01-AUG-2017	MBC_NC_DSL 03-OCT-2017
Total Alkalinity (bicarbonate)	20	mg/L	1590	1390	1460	1420
Total Solids		Wt%	2.1	2.0	NR	2.9
Total Volatile Solids		Wt%	68	72	NR	51
Total Kjeldahl Nitrogen	1.2	mg/L	1420	1630	1540	1100
pH		pH Units	6.88	6.81	6.84	6.78

Source / Analyte	MDL	Units	MBC_NC_RSL 07-FEB-2017	MBC_NC_RSL 02-MAY-2017	MBC_NC_RSL 01-AUG-2017	MBC_NC_RSL 03-OCT-2017
Total Suspended Solids	2.5	mg/L	6850	2100	6500	1860
Volatile Suspended Solids	2.5	mg/L	5700	1750	5380	1640
Total Alkalinity (bicarbonate)	20	mg/L	350	390	356	381
Total Solids		Wt%	0.8	0.3	0.7	0.3
Total Volatile Solids		Wt%	74	66	76	63
Total Kjeldahl Nitrogen	1.2	mg/L	69	95	238	65
pH		pH Units	6.90	6.79	7.03	6.58

ND=not detected; NS=not sampled; NA=not analyzed; NR=not required

Total Solids by SM2540B
Alkalinity by SM2320B
TSS/VSS by SM2540D
TKN by SM4500-NorgB
pH by SM4500-H

POINT LOMA WASTEWATER TREATMENT PLANT
QUARTERLY SLUDGE PROJECT

(Metals from Digestion and Ions from Supernatant)

ANNUAL 2017

Source:			PLR	PLR	PLR	PLR
Date:			07-FEB-2017	02-MAY-2017	01-AUG-2017	03-OCT-2017
Sample ID:	MDL	Units	P919163	P936544	P959720	P973069
Aluminum	23.8	UG/L	657	713	322	917
Antimony	2.44	UG/L	ND	ND	ND	1.02
Arsenic	1.84	UG/L	2.18	1.53	1.85	2.15
Barium	.7	UG/L	116	93.4	48.4	86.0
Beryllium	.12	UG/L	0.0610	ND	ND	ND
Boron	1.4	UG/L	394	408	428	409
Cadmium	.26	UG/L	0.572	0.394	ND	0.157
Chromium	.54	UG/L	4.66	4.59	2.64	4.85
Cobalt	.24	UG/L	2.22	1.44	1.39	1.03
Copper	2.16	UG/L	128	126	64.3	110
Iron	17.1	UG/L	7940	8620	5100	9460
Lead	1.68	UG/L	3.49	3.99	ND	2.69
Manganese	.78	UG/L	148	163	156	157
Mercury	.02	UG/L	0.180	0.194	0.138	0.074
Molybdenum	.32	UG/L	11.00	9.36	9.45	7.72
Nickel	.53	UG/L	8.20	6.91	5.32	6.88
Selenium	.662	UG/L	NA	1.43	2.06	2.98
Silver	.73	UG/L	0.811	1.290	ND	0.741
Thallium	3.12	UG/L	ND	ND	ND	ND
Vanadium	2.77	UG/L	6.08	3.94	1.79	5.76
Zinc	4.19	UG/L	305	219	96.7	181
Calcium	.059	MG/L	89.2	78.3	63.2	278
Lithium	.002	MG/L	0.053	0.034	0.030	0.035
Magnesium	.078	MG/L	52.6	48.8	47.2	88.0
Potassium	.1	MG/L	26.9	30.1	28.9	63.2
Sodium	.927	MG/L	348	362	367	384
Bromide	.1	MG/L	1.14	1.70	1.53	ND
Chloride	7	MG/L	541	574	574	1530
Fluoride	.05	MG/L	0.857	0.911	1.380	0.272
Nitrate	.04	MG/L	0.058	ND	0.061	0.742
Ortho Phosphate (as PO4)	.2	MG/L	3.39	6.37	8.65	0.42
Sulfate	9	MG/L	269	191	142	ND
Calcium Hardness	.147	MG/L	223	196	158	694
Magnesium Hardness	.321	MG/L	217	201	194	362
Total Hardness	.469	MG/L	440	397	352	1060
Cyanide, Total	.005	MG/L	0.00200	0.00300	<0.005	<0.005
Sulfides-Total	.35	MG/L	1.79	3.57	9.36	5.43
Total Kjeldahl Nitrogen	1.2	MG/L	52.4	76.4	61.3	57.2

NA= Not Analyzed, ND= Not Detected, NS= Not Sampled, NR= Not Required

Metals by EPA Method 200.7 and 200.8
Arsenic and Selenium by SM3114B
Mercury by EPA Method 1631E
Cations by EPA 300.0
Hardness Calculcation by SM2340B
Cyanide by SM4500-CN B/C
Sulfides by Section 7.3 SW-846
TKN by SM4500-NorgB

POINT LOMA WASTEWATER TREATMENT PLANT
QUARTERLY SLUDGE PROJECT
(Metals from Digestion and Ions from Supernatant)

ANNUAL 2017

Source:			PLE	PLE	PLE	PLE
Date:			07-FEB-2017	02-MAY-2017	01-AUG-2017	03-OCT-2017
Sample ID:	MDL	Units	P919157	P936538	P959714	P973063
Aluminum	23.8	UG/L	76.9	48.9	101	174
Antimony	2.44	UG/L	ND	ND	ND	0.52
Arsenic	1.84	UG/L	1.40	0.80	1.01	ND
Barium	.7	UG/L	46.3	32.3	29.9	27.8
Beryllium	.12	UG/L	ND	ND	ND	ND
Boron	1.4	UG/L	404	422	426	420
Cadmium	.26	UG/L	ND	ND	ND	ND
Chromium	.54	UG/L	1.67	1.11	1.47	0.92
Cobalt	.24	UG/L	1.72	0.73	0.91	0.43
Copper	2.16	UG/L	23.0	13.5	22.9	10.6
Iron	17.1	UG/L	3250	2760	3510	2370
Lead	1.68	UG/L	<1.68	ND	<1.68	0.30
Manganese	.78	UG/L	149	137	155	144
Mercury	.02	UG/L	0.0090	0.0095	0.0130	0.0100
Molybdenum	.32	UG/L	9.03	6.78	8.39	4.84
Nickel	.53	UG/L	5.58	4.17	5.00	3.94
Selenium	.662	UG/L	1.37	0.77	1.93	1.32
Silver	.73	UG/L	ND	ND	ND	ND
Thallium	3.12	UG/L	ND	ND	ND	ND
Vanadium	2.77	UG/L	1.16	0.80	0.64	ND
Zinc	4.19	UG/L	32.1	21.9	31.3	14.9
Calcium	.059	MG/L	86.4	79.7	65.1	73.7
Lithium	.002	MG/L	0.0500	0.0320	0.0270	0.0330
Magnesium	.078	MG/L	51.4	47.9	47.1	53.9
Potassium	.1	MG/L	27.0	29.4	28.7	29.8
Sodium	.927	MG/L	346	366	367	405
Bromide	.1	MG/L	1.18	1.46	1.44	1.36
Chloride	7	MG/L	554	589	574	663
Fluoride	.05	MG/L	0.807	0.976	1.300	0.801
Nitrate	.04	MG/L	0.136	0.187	0.0635	0.0570
Ortho Phosphate (as PO4)	.2	MG/L	1.54	5.47	7.02	5.83
Sulfate	9	MG/L	265	188	135	167
Calcium Hardness	.147	MG/L	216	199	162	184
Magnesium Hardness	.321	MG/L	212	197	194	222
Total Hardness	.469	MG/L	428	396	356	406
Cyanide, Total	.005	MG/L	0.00300	0.00300	<0.00500	<0.00500
Sulfides-Total	.35	MG/L	0.390	0.650	1.10	0.810
Total Kjeldahl Nitrogen	1.2	MG/L	40.8	53.4	51.6	46.6

NA= Not Analyzed, ND= Not Detected, NS= Not Sampled, NR= Not Required

Metals by EPA Method 200.7 and 200.8
Arsenic and Selenium by SM3114B
Mercury by EPA Method 1631E
Cations by EPA 300.0
Hardness Calculcation by SM2340B
Cyanide by SM4500-CN B/C
Sulfides by Section 7.3 SW-846
TKN by SM4500-NorgB

POINT LOMA WASTEWATER TREATMENT PLANT
QUARTERLY SLUDGE PROJECT
(Metals from Digestion and Ions from Supernatant)

ANNUAL 2017

Source:			MBC_COMBCN	MBC_COMBCN	MBC_COMBCN	MBC_COMBCN
Date:			07-FEB-2017	02-MAY-2017	01-AUG-2017	03-OCT-2017
Sample ID:	MDL	Units	P919174	P936555	P959726	P973075
Aluminum	23.8	UG/L	711	2310	213	3420
Antimony	2.44	UG/L	5.29	5.41	0.78	1.26
Arsenic	1.84	UG/L	5.72	3.43	2.69	5.15
Barium	.7	UG/L	291	254	92.9	206
Beryllium	.12	UG/L	ND	ND	ND	ND
Boron	1.4	UG/L	377	362	363	327
Cadmium	.26	UG/L	0.368	0.435	ND	0.331
Chromium	.54	UG/L	9.80	16.4	3.79	19.4
Cobalt	.24	UG/L	6.21	6.20	3.48	4.25
Copper	2.16	UG/L	110	230	28.0	245
Iron	17.1	UG/L	30000	45900	20600	48900
Lead	1.68	UG/L	3.57	5.16	1.00	4.58
Manganese	.78	UG/L	330	489	414	586
Mercury	.02	UG/L	0.087	0.153	0.039	0.161
Molybdenum	.32	UG/L	6.50	8.73	5.36	9.20
Nickel	.53	UG/L	21.3	17.9	14.1	20.1
Selenium	.662	UG/L	2.56	1.80	3.55	2.78
Silver	.73	UG/L	1.62	ND	0.135	1.80
Thallium	3.12	UG/L	ND	ND	<0.08	ND
Vanadium	2.77	UG/L	4.04	4.04	ND	3.13
Zinc	4.19	UG/L	170	360	55.4	332
Calcium	.059	MG/L	202	178	164	169
Lithium	.002	MG/L	0.0540	0.038*	0.0310	0.0280
Magnesium	.078	MG/L	67.1	56.3	56.7	57.0
Potassium	.1	MG/L	53.7	51.9	46.9	44.8
Sodium	.927	MG/L	297	273	295	271
Bromide	.1	MG/L	0.692	0.863	1.010	0.471
Chloride	7	MG/L	941	893	938	926
Fluoride	.05	MG/L	0.279	0.455	0.482	0.402
Nitrate	.04	MG/L	0.212	0.248	0.147	0.141
Ortho Phosphate (as PO4)	.2	MG/L	3.42	7.30	3.26	2.02
Sulfate	9	MG/L	44.5	20.9	23.2	25.8
Calcium Hardness	.147	MG/L	503	444	410	423
Magnesium Hardness	.321	MG/L	276	232	233	235
Total Hardness	.469	MG/L	779	676	643	658
Cyanide, Total	.005	MG/L	0.0530	0.0760	<0.005	<0.005#
Sulfides-Total	.35	MG/L	1.480	6.820	1.340	6.080
Total Kjeldahl Nitrogen	1.2	MG/L	517.0	430.0	398.0	375.0

* = Relative percent difference of sample duplicates outside method acceptance criteria; value is not used in average calculations.

= Minimum level acceptance criteria was not met, sample result not included in average calculations.

NA= Not Analyzed, ND= Not Detected, NS= Not Sampled, NR= Not Required

Metals by EPA Method 200.7 and 200.8
Arsenic and Selenium by SM3114B
Mercury by EPA Method 245.7
Cations by EPA 300.0
Hardness Calculcation by SM2340B
Cyanide by SM4500-CN B/C
Sulfides by Section 7.3 SW-846
TKN by SM4500-NorgB

POINT LOMA WASTEWATER TREATMENT PLANT
QUARTERLY SLUDGE PROJECT
(Metals from Digestion and Ions from Supernatant)

ANNUAL 2017

Source:			MBC_NC_DSL	MBC_NC_DSL	MBC_NC_DSL	MBC_NC_DSL
Date:			07-FEB-2017	02-MAY-2017	01-AUG-2017	03-OCT-2017
Sample ID:	MDL	Units	P919228	P936609	P959760	P973109
Aluminum	23.8	UG/L	68100	110000	132000	127000
Antimony	2.44	UG/L	116	93.2	64.4	22.1
Arsenic	1.84	UG/L	114	81.5	101	105
Barium	.7	UG/L	8510	5340	5450	5380
Beryllium	.12	UG/L	2.64	2.09	1.32	0.83
Boron	1.4	UG/L	794	710	776	750
Cadmium	.26	UG/L	7.08	9.14	10.1	10.8
Chromium	.54	UG/L	965	784	899	870
Cobalt	.24	UG/L	89.0	63.8	62.8	81.8
Copper	2.16	UG/L	11500	10600	12900	10200
Iron	17.1	UG/L	1900000	1390000	1570000	1660000
Lead	1.68	UG/L	165	151	164	131
Manganese	.78	UG/L	7710	6770	7650	8210
Mercury	.2	UG/L	15.0	11.5	12.3	10.5
Molybdenum	.32	UG/L	275	272	290	296
Nickel	.53	UG/L	477	389	449	491
Selenium	.662	UG/L	93.5	20.7	106	33.0
Silver	.73	UG/L	153	46.9	61.4	183
Thallium	3.12	UG/L	ND	ND	ND	ND
Vanadium	2.77	UG/L	227	164	196	167
Zinc	4.19	UG/L	12000	12800	14500	11500
Calcium	.059	MG/L	224	152	149	183
Lithium	.002	MG/L	0.0530	0.0420*	0.0310	0.0290
Magnesium	.078	MG/L	70.7	54.3	48.9	57.8
Potassium	.1	MG/L	52.3	54.8	45.5	48.4
Sodium	.927	MG/L	213	206	168	177
Bromide	.1	MG/L	0.259	0.576	0.487	ND
Chloride	7	MG/L	1140	948	951	1090
Fluoride	.05	MG/L	0.373	0.501	0.409	0.425
Nitrate	.04	MG/L	0.168	0.503	0.208	0.277
Ortho Phosphate (as PO4)	.2	MG/L	ND	ND	1.2	0.8
Sulfate	9	MG/L	16.9	19.4	21.5	20.5
Cyanide, Total	.002	MG/L	0.0180	0.0170	0.0140	0.0155
Sulfides-Reactive	11	MG/KG	68.0	58.0#	93.0	100
Total Kjeldahl Nitrogen	1.2	MG/L	1420	1630	1540	1100

* = Relative percent difference of sample duplicates outside method acceptance criteria; value is not used in average calculations.

=Recovery of compound in internal check and matrix spike sample outside method acceptance limits; value is not used in average calculations.

NA= Not Analyzed, ND= Not Detected, NS= Not Sampled, NR= Not Required

Metals by EPA Method 200.7 and 200.8
Arsenic and Selenium by SM3114B
Mercury by EPA Method 245.7
Cations by EPA 300.0
Hardness Calculcation by SM2340B
Cyanide by SM4500-CN B/C
Sulfides by Section 7.3 SW-846
TKN by SM4500-NorgB

POINT LOMA WASTEWATER TREATMENT PLANT

QUARTERLY SLUDGE PROJECT
(Metals from Digestion and Ions from Supernatant)

ANNUAL 2017

Source:			MBC_NC_RSL	MBC_NC_RSL	MBC_NC_RSL	MBC_NC_RSL
Date:			07-FEB-2017	02-MAY-2017	01-AUG-2017	03-OCT-2017
Sample ID:	MDL	Units	P919226	P936607	P959758	P973107
Aluminum	23.8	UG/L	1810	6220	10100	35600
Antimony	2.44	UG/L	4.46	5.84	8.48	5.81
Arsenic	1.84	UG/L	4.29	5.42	13.3	31.5
Barium	.7	UG/L	164	161	787	1040
Beryllium	.12	UG/L	ND	ND	ND	ND
Boron	1.4	UG/L	318	357	385	409
Cadmium	.26	UG/L	0.439	0.487	1.280	1.24
Chromium	.54	UG/L	18.3	26.5	119	179
Cobalt	.24	UG/L	2.92	3.96	8.12	13.6
Copper	2.16	UG/L	282	311	1930	2230
Iron	17.1	UG/L	40200	59900	196000	257000
Lead	1.68	UG/L	1.81	4.39	24.2	42.3
Manganese	.78	UG/L	492	578	1220	1720
Mercury	.2	UG/L	0.165	0.375	1.21	0.090
Molybdenum	.32	UG/L	8.83	11.2	49.8	64.1
Nickel	.53	UG/L	14.8	16.4	65.2	91.8
Selenium	.662	UG/L	2.26	3.64	4.80	32.3
Silver	.73	UG/L	5.18	ND	10.9	23.0
Thallium	3.12	UG/L	ND	ND	<3.12	ND
Vanadium	2.77	UG/L	4.39	5.34	24.1	29.1
Zinc	4.19	UG/L	337	478	2240	2580
Calcium	.059	MG/L	87.5	65.1	60.6	60.5
Lithium	.002	MG/L	0.045	0.0280*	0.0250	0.0220
Magnesium	.078	MG/L	43.0	31.9	32.0	30.5
Potassium	.1	MG/L	26.8	29.1	28.6	27.7
Sodium	.927	MG/L	201	181	176	164
Bromide	.1	MG/L	0.470	0.523	0.608	0.480
Chloride	7	MG/L	385	368	355	339
Fluoride	.05	MG/L	0.474	0.462	0.485	0.402
Nitrate	.04	MG/L	0.175	0.218	0.136	0.147
Ortho Phosphate (as PO4)	.2	MG/L	10.6	19.3	13.4	13.7
Sulfate	9	MG/L	76.5	22.8	21.9	21.0
Cyanide, Total	.002	MG/L	0.0120	0.0130	0.0070	0.0090
Sulfides-Reactive	11	MG/KG	13.0	ND#	24.0	ND
Total Kjeldahl Nitrogen	1.2	MG/L	69.2	94.5	238	64.6

* = Relative percent difference of sample duplicates outside method acceptance criteria; value is not used in average calculations.

=Recovery of compound in internal check and matrix spike sample outside method acceptance limits; value is not used in average calculations.

NA= Not Analyzed, ND= Not Detected, NS= Not Sampled, NR= Not Required

Metals by EPA Method 200.7 and 200.8
Arsenic and Selenium by SM3114B
Mercury by EPA Method 245.7
Cations by EPA 300.0
Hardness Calculcation by SM2340B
Cyanide by SM4500-CN B/C
Sulfides by Section 7.3 SW-846
TKN by SM4500-NorgB

POINT LOMA WASTEWATER TREATMENT PLANT

QUARTERLY SLUDGE PROJECT
(Metals from Digestion and Ions from Supernatant)

ANNUAL 2017

Source:			RAW COMP	RAW COMP	RAW COMP	RAW COMP
Date:			08-FEB-2017	02-MAY-2017	01-AUG-2017	03-OCT-2017
Sample ID:	MDL	Units	P919199	P936580	P959731	P973080
Aluminum	16.1	MG/KG	1670	1650	1900	1540
Antimony	2.5	MG/KG	2.92	2.59	3.62	2.90
Arsenic	.54	MG/KG	2.20	2.04	1.41	NA
Barium	.65	MG/KG	214	152	148	133
Beryllium	.066	MG/KG	ND	ND	ND	ND
Boron	.64	MG/KG	7.44	15.40	9.14	7.62
Cadmium	.13	MG/KG	ND	0.392	0.514	DNQ0.400
Chromium	.21	MG/KG	19.7	17.4	23.3	17.1
Cobalt	.15	MG/KG	2.36	1.89	2.07	1.69
Copper	1.73	MG/KG	348	275	346	292
Iron	5.29	MG/KG	40900	39100	47200	42100
Lead	.3	MG/KG	6.31	6.62	7.33	6.27
Manganese	.34	MG/KG	170	175	170	132
Mercury	.2	MG/KG	0.282	0.555	0.393	0.258
Molybdenum	.15	MG/KG	6.48	8.21	11.10	8.08
Nickel	.3	MG/KG	12.1	10.1	12.9	8.1
Selenium	.19	MG/KG	ND	0.38	2.18	NA
Silver	.26	MG/KG	1.42	1.54	1.35	1.24
Thallium	.43	MG/KG	ND	ND	ND	ND
Vanadium	.52	MG/KG	13.0	7.6	10.5	7.9
Zinc	1.7	MG/KG	492	453	553	450
Bromide	3	MG/KG	69.9	164	340	239
Chloride	180	MG/KG	25200	33400	40700	32400
Fluoride	1	MG/KG	3.41	5.59	6.46	4.11
Nitrate	1	MG/KG	ND	4.99	5.42	3.88
Ortho Phosphate (as PO4)	4	MG/KG	37.9	164	888	1180
Sulfate	220	MG/KG	710	439	594	502
Cyanide, Total	.1	MG/KG	4.10	6.70	4.60	6.90
Cyanide, Releaseable	.018	MG/KG	0.0230	ND	ND	ND
Sulfides-Total	500	MG/KG	5400	8700	14000	12700
Sulfides-Reactive	11	MG/KG	64.0	103*	108	105
Total Kjeldahl Nitrogen	.04	WT%	3.31	3.37	3.57	2.72

* = Recovery of compound in internal check and matrix spike sample outside method acceptance limits; value is not used in average calculations.

NA= Not Analyzed, ND= Not Detected, NS= Not Sampled, NR= Not Required

RAW COMP = Point Loma Raw Sludge Composite

Metals by EPA Method 200.7
Arsenic and Selenium by SM3114B
Mercury by EPA Method 245.7
Cyanide by SM4500-CN B/C
Sulfides by Section 7.3 SW-846
TKN by SM4500-NorgB

POINT LOMA WASTEWATER TREATMENT PLANT

QUARTERLY SLUDGE PROJECT
(Metals from Digestion and Ions from Supernatant)

ANNUAL 2017

Source:			DIG COMP	DIG COMP	DIG COMP	DIG COMP
Date:			08-FEB-2017	02-MAY-2017	01-AUG-2017	03-OCT-2017
Sample ID:	MDL	Units	P919213	P936594	P959745	P973094
Aluminum	16.1	MG/KG	3850	3020	2980	2700
Antimony	2.5	MG/KG	5.41	6.04	6.61	5.59
Arsenic	.54	MG/KG	7.33	3.69	2.84	NA
Barium	.65	MG/KG	452	346	283	259
Beryllium	.066	MG/KG	0.0880	0.0230	0.0310	ND
Boron	.64	MG/KG	21.5	19.2	22.1	17.8
Cadmium	.13	MG/KG	0.142	0.939	0.832	0.686
Chromium	.21	MG/KG	38.0	35.5	39.5	36.5
Cobalt	.15	MG/KG	3.63	3.65	3.71	3.17
Copper	1.73	MG/KG	605	576	613	561
Iron	5.29	MG/KG	84100	79600	79300	86400
Lead	.3	MG/KG	13.6	12.1	13.1	12.3
Manganese	.34	MG/KG	317	332	311	295
Mercury	.2	MG/KG	0.770	0.524	0.885	1.08
Molybdenum	.15	MG/KG	15.1	14.9	20.0	17.2
Nickel	.3	MG/KG	22.7	18.7	21.4	18.3
Selenium	.19	MG/KG	3.27	2.34	3.52	NA
Silver	.26	MG/KG	3.03	3.18	2.47	2.66
Thallium	.43	MG/KG	ND	ND	ND	ND
Vanadium	.52	MG/KG	26.8	19.5	16.5	13.1
Zinc	1.7	MG/KG	911	908	961	849
Bromide	3	MG/KG	37.8	62.8	63.7	442
Chloride	180	MG/KG	50200	58500	65400	62900
Fluoride	1	MG/KG	13.6	30.2	27.1	7.42
Nitrate	1	MG/KG	7.13	11.8	8.76	7.47
Ortho Phosphate (as PO4)	4	MG/KG	88.6	61.3	53.8	2040
Sulfate	220	MG/KG	790	872	973	976
Cyanide, Total	.1	MG/KG	11.9	12.3	10.3	14.2
Cyanide, Releaseable	.018	MG/KG	0.0216	ND	ND	ND
Sulfides-Total	500	MG/KG	14800	17200	24000	26200
Sulfides-Reactive	11	MG/KG	101	125*	124	113
Total Kjeldahl Nitrogen	.04	WT%	7.32	6.87	6.68	5.55

NA= Not Analyzed, ND= Not Detected, NS= Not Sampled, NR= Not Required

DIG COMP = Point Loma Digested Sludge Composite

Metals by EPA Method 200.7
Arsenic and Selenium by SM3114B
Mercury by EPA Method 245.7
Cyanide by SM4500-CN B/C
Sulfides by Section 7.3 SW-846
TKN by SM4500-NorgB

POINT LOMA WASTEWATER TREATMENT PLANT

QUARTERLY SLUDGE PROJECT
(Metals from Digestion and Ions from Supernatant)

ANNUAL 2017

Source:			MBCDEWCN	MBCDEWCN	MBCDEWCN	MBCDEWCN
Date:			28-FEB-2017	31-MAY-2017	31-AUG-2017	31-OCT-2017
Sample ID:	MDL	Units	P925827	P945968	P966456	P979340
Aluminum	16.1	MG/KG	3500	3450	3870	880
Antimony	2.5	MG/KG	5.82	3.74	6.75	ND
Arsenic	.54	MG/KG	6.45	3.41	3.36	DNQ1.40
Barium	.65	MG/KG	514	337	301	47
Beryllium	.066	MG/KG	0.0925	0.0300	0.0785	DNQ0.024
Boron	.64	MG/KG	12.20	6.75	13.40	DNQ9.20
Cadmium	.13	MG/KG	0.370	0.574	0.902	DNQ0.300
Chromium	.21	MG/KG	44.3	43.2	45.6	11.0
Cobalt	.15	MG/KG	3.98	2.36	4.13	DNQ0.89
Copper	1.73	MG/KG	719	611	659	150
Iron	5.29	MG/KG	81100	101000	91300	21000
Lead	.3	MG/KG	15.7	8.90	15.5	4.00
Manganese	.34	MG/KG	366	366	336	86
Mercury	.2	MG/KG	0.613	1.47	1.27	0.848
Molybdenum	.15	MG/KG	17.2	10.4	23.6	4.90
Nickel	.3	MG/KG	25.8	14.6	25.9	6.2
Selenium	.19	MG/KG	1.56	4.53	4.15	NA
Silver	.26	MG/KG	4.24	2.10	3.58	DNQ0.80
Thallium	.43	MG/KG	0.430	<0.430	ND	ND
Vanadium	.52	MG/KG	27.8	12.7	17.0	3.8
Zinc	1.7	MG/KG	990	968	1050	220
Fluoride	1	MG/KG	32.9	36.4	31.5	28.7
Nitrate	1	MG/KG	21.1	14.4	15.0	16.6
Cyanide, Total	.1	MG/KG	4.65	58.2	7.55	3.70
Cyanide, Releaseable	.018	MG/KG	0.0714	0.0525	ND	ND
Sulfides-Total	500	MG/KG	10200	13900	8250	18900
Sulfides-Reactive	11	MG/KG	43.5	51.5	58.0	46.5
Total Kjeldahl Nitrogen	.04	WT%	4.70	5.26	5.23	5.20

NA= Not Analyzed, ND= Not Detected, NS= Not Sampled, NR= Not Required

DNQ= Detected but not quantified. Sample result is less than minimum Level but greater than or equal to MDL.

MBCDEWCN = MBC Dewatered Sludge Composite

Metals by EPA Method 200.7
Arsenic and Selenium by SM3114B
Mercury by EPA Method 245.7
Cyanide by SM4500-CN B/C
Sulfides by Section 7.3 SW-846
TKN by SM4500-NorgB

POINT LOMA WASTEWATER TREATMENT PLANT
Radioactivity

Method: EPA 900.0

Annual 2017

Source	Sample Date	Sample ID	Gross Alpha Radiation	Gross Beta Radiation
PLE	07-FEB-2017	P919157	8.9±2.8	14.5±2.0
PLE	02-MAY-2017	P936538	5.6±1.5	4.7±1.5
PLE	01-AUG-2017	P959714	4.9±2.0	12.7±1.9
PLE	03-OCT-2017	P973063	2.8±1.8	21.2±2.8
PLR	07-FEB-2017	P919163	11.0±3.1	15.4±2.2
PLR	02-MAY-2017	P936544	7.9±2.6	17.1±2.2
PLR	01-AUG-2017	P959720	13.9±2.8	11.9±2.1
PLR	03-OCT-2017	P973069	2.9±2.1	23.7±2.9
MBC_COMBCN	07-FEB-2017	P919174	10.7±4.3	35.9±2.8
MBC_COMBCN	02-MAY-2017	P936555	8.3±2.6	34.0±2.7
MBC_COMBCN	01-AUG-2017	P959726	5.8±2.9	37.2±2.9
MBC_COMBCN	03-OCT-2017	P973075	4.9±2.4	38.6±3.3

Units in picocuries per Liter (pCi/L)

Source	Sample Date	Sample ID		Gross Alpha Radiation	Gross Beta Radiation
MBCDEWCN	28-FEB-2017	P925827		9950.0±1340	6500.0±1280
MBCDEWCN	31-MAY-2017	P945968		31100.0±3180	18500.0±2430
MBCDEWCN	31-AUG-2017	P966456		0.015.0±0.00176	0.0106±0.00168
MBCDEWCN	31-OCT-2017	P979340		0.0128±0.002	0.006±0.0016

ND= Not Detected
NA= Not Analyzed
NS= Not Sampled
NR= Not Required

Units in picocuries/liter (pCi/kg)

Analyzed by: FGL Environmental Agricultural Analytical

POINT LOMA WASTEWATER TREATMENT PLANT

ANNUAL 2017

CHLORINATED PESTICIDES
EPA Method 608

Source			PLR	PLR	PLR	PLR	PLE	PLE
Date			07-FEB-2017	02-MAY-2017	01-AUG-2017	03-OCT-2017	07-FEB-2017	02-MAY-2017
Analyte	MDL	Units	P919163	P936544	P959720	P973069	P919157	P936538
Aldrin	1.13	NG/L	ND	ND	ND	ND*	ND	ND
BHC, Alpha isomer	2.15	NG/L	ND	ND	ND	ND*	ND	ND
BHC, Beta isomer	250	NG/L	ND	ND	ND	ND	ND	ND
BHC, Delta isomer	.83	NG/L	ND	ND	ND	ND*	ND	ND
BHC, Gamma isomer	1000	NG/L	ND	ND	ND	ND	ND	ND
Alpha (cis) Chlordane	50	NG/L	ND	ND	ND	ND	ND	ND
Gamma (trans) Chlordane	50	NG/L	ND	ND	ND	ND	ND	ND
Alpha Chlordene		NG/L	NA	NA	NA	NA	NA	NA
Gamma Chlordene		NG/L	NA	NA	NA	NA	NA	NA
Cis Nonachlor	50	NG/L	ND	ND	ND	ND	ND	ND
Dieldrin	.71	NG/L	ND	ND	ND	ND*	ND	ND
Endosulfan Sulfate	1.11	NG/L	ND	ND	ND	ND*	ND	ND
Alpha Endosulfan	.8	NG/L	ND	ND	ND	ND*	ND	ND
Beta Endosulfan	2.69	NG/L	ND	ND	ND	ND*	ND	ND
Endrin	500	NG/L	ND	ND	ND	ND	ND	ND
Endrin aldehyde	500	NG/L	ND	ND	ND	ND	ND	ND
Heptachlor	500	NG/L	ND	ND	ND	ND	ND	ND
Heptachlor epoxide	500	NG/L	ND	ND	ND	ND	ND	ND
Methoxychlor	460	NG/L	ND	ND	ND	NA	ND	ND
Mirex	50	NG/L	ND	ND	ND	ND	ND	ND
o,p-DDD	100	NG/L	ND	ND	ND	ND	ND	ND
o,p-DDE	200	NG/L	ND	ND	ND	ND	ND	ND
o,p-DDT	50	NG/L	ND	ND	ND	ND	ND	ND
Oxychlordane	1.21	NG/L	ND	ND	ND	NA	ND	ND
PCB 1016	25000	NG/L	ND	ND	ND	ND	ND	ND
PCB 1221	25000	NG/L	ND	ND	ND	ND	ND	ND
PCB 1232	21000	NG/L	ND	ND	ND	ND	ND	ND
PCB 1242	20000	NG/L	ND	ND	ND	ND	ND	ND
PCB 1248	14000	NG/L	ND	ND	ND	ND	ND	ND
PCB 1254	25000	NG/L	ND	ND	ND	ND	ND	ND
PCB 1260	25000	NG/L	ND	ND	ND	ND	ND	ND
PCB 1262	500	NG/L	ND	ND	ND	NA	ND	ND
p,p-DDD	.69	NG/L	ND	ND	ND	ND*	ND	ND
p,p-DDE	.97	NG/L	ND	ND	ND	ND*	ND	ND
p,p-DDT	500	NG/L	ND	ND	ND	ND	ND	ND
Toxaphene	25000	NG/L	ND	ND	ND	ND	ND	ND
Trans Nonachlor	50	NG/L	ND	ND	ND	ND	ND	ND
Heptachlors	500	NG/L	0.00	0.00	0.00	0.00	0.00	0.00
Endosulfans	2.69	NG/L	0.00	0.00	0.00	0.00*	0.00	0.00
Polychlorinated biphenyls	25000	NG/L	0.00	0.00	0.00	0.00	0.00	0.00
Chlordane + related cmpds.	50	NG/L	0.00	0.00	0.00	0.00	0.00	0.00
DDT and derivatives	500	NG/L	0.00	0.00	0.00	0.00	0.00	0.00
Hexachlorocyclohexanes	1000	NG/L	0.00	0.00	0.00	0.00	0.00	0.00
Aldrin + Dieldrin	1.13	NG/L	0.00	0.00	0.00	0.00*	0.00	0.00
Chlorinated Hydrocarbons	25000	NG/L	0.00	0.00	0.00	0.00	0.00	0.00

Standards for alpha and gamma chlordene are no longer available in the U.S. for the analysis of these compounds.

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NA= Not Analyzed, ND= Not Detected, NS= Not Sampled

POINT LOMA WASTEWATER TREATMENT PLANT

ANNUAL 2017

CHLORINATED PESTICIDES
EPA Method 608

Source			PLE	PLE	MBC_COMBCN	MBC_COMBCN	MBC_COMBCN	MBC_COMBCN
Date			01-AUG-2017	03-OCT-2017	07-FEB-2017	02-MAY-2017	01-AUG-2017	03-OCT-2017
Analyte	MDL	Units	P959714	P973063	P919174	P936555	P959726	P973075
Aldrin	1.13	NG/L	ND	ND*	ND	ND	ND	ND*
BHC, Alpha isomer	2.15	NG/L	ND	ND*	ND	ND	ND	ND*
BHC, Beta isomer	250	NG/L	ND	ND	ND	ND	ND	ND
BHC, Delta isomer	.83	NG/L	ND	ND*	ND	ND	ND	ND*
BHC, Gamma isomer	1000	NG/L	ND	ND	ND	ND	ND	ND
Alpha (cis) Chlordane	50	NG/L	ND	ND	ND	ND	ND	ND
Gamma (trans) Chlordane	50	NG/L	ND	ND	ND	ND	ND	ND
Alpha Chlordene		NG/L	NA	NA	NA	NA	NA	NA
Gamma Chlordene		NG/L	NA	NA	NA	NA	NA	NA
Cis Nonachlor	50	NG/L	ND	ND	ND	ND	ND	ND
Dieldrin	.71	NG/L	ND	ND*	ND	ND	ND	ND*
Endosulfan Sulfate	1.11	NG/L	ND	ND*	ND	ND	ND	ND*
Alpha Endosulfan	.8	NG/L	ND	ND*	ND	ND	ND	ND*
Beta Endosulfan	2.69	NG/L	ND	ND*	ND	ND	ND	ND*
Endrin	500	NG/L	ND	ND	ND	ND	ND	ND
Endrin aldehyde	500	NG/L	ND	ND	ND	ND	ND	ND
Heptachlor	500	NG/L	ND	ND	ND	ND	ND	ND
Heptachlor epoxide	500	NG/L	ND	ND	ND	ND	ND	ND
Methoxychlor	460	NG/L	ND	NA	ND	ND	ND	NA
Mirex	50	NG/L	ND	ND	ND	ND	ND	ND
o,p-DDD	100	NG/L	ND	ND	ND	ND	ND	ND
o,p-DDE	200	NG/L	ND	ND	ND	ND	ND	ND
o,p-DDT	50	NG/L	ND	ND	ND	ND	ND	ND
Oxychlordane	1.21	NG/L	ND	NA	ND	ND	ND	NA
PCB 1016	25000	NG/L	ND	ND	ND	ND	ND	ND
PCB 1221	25000	NG/L	ND	ND	ND	ND	ND	ND
PCB 1232	21000	NG/L	ND	ND	ND	ND	ND	ND
PCB 1242	20000	NG/L	ND	ND	ND	ND	ND	ND
PCB 1248	14000	NG/L	ND	ND	ND	ND	ND	ND
PCB 1254	25000	NG/L	ND	ND	ND	ND	ND	ND
PCB 1260	25000	NG/L	ND	ND	ND	ND	ND	ND
PCB 1262	500	NG/L	ND	NA	ND	ND	ND	NA
p,p-DDD	.69	NG/L	ND	ND*	ND	ND	ND	ND*
p,p-DDE	.97	NG/L	ND	ND*	ND	ND	ND	ND*
p,p-DDT	500	NG/L	ND	ND	ND	ND	ND	ND
Toxaphene	25000	NG/L	ND	ND	ND	ND	ND	ND
Trans Nonachlor	50	NG/L	ND	ND	ND	ND	ND	ND
Heptachlors	500	NG/L	0.00	0.00	0.00	0.00	0.00	0.00
Endosulfans	2.69	NG/L	0.00	0.00*	0.00	0.00	0.00	0.00*
Polychlorinated biphenyls	25000	NG/L	0.00	0.00	0.00	0.00	0.00	0.00
Chlordane + related cmpds.	50	NG/L	0.00	0.00	0.00	0.00	0.00	0.00
DDT and derivatives	500	NG/L	0.00	0.00	0.00	0.00	0.00	0.00
Hexachlorocyclohexanes	1000	NG/L	0.00	0.00	0.00	0.00	0.00	0.00
Aldrin + Dieldrin	1.13	NG/L	0.00	0.00*	0.00	0.00	0.00	0.00*
Chlorinated Hydrocarbons	25000	NG/L	0.00	0.00	0.00	0.00	0.00	0.00

Standards for alpha and gamma chlordene are no longer available in the U.S. for the analysis of these compounds.

* = Calibration Verification recovery was above the method control limit for this analyte.

NA= Not Analyzed, ND= Not Detected, NS= Not Sampled

POINT LOMA WASTEWATER TREATMENT PLANT

ANNUAL 2017

CHLORINATED PESTICIDES
EPA Method 608

Source			MBC_NC_DSL	MBC_NC_DSL	MBC_NC_DSL	MBC_NC_DSL
Date			07-FEB-2017	02-MAY-2017	01-AUG-2017	03-OCT-2017
Analyte	MDL	Units	P919228	P936609	P959760	P973109
Aldrin	1.13	NG/L	ND	ND	ND	ND*
BHC, Alpha isomer	2.15	NG/L	ND	ND	ND	ND*
BHC, Beta isomer	250	NG/L	ND	ND	ND	ND
BHC, Delta isomer	.83	NG/L	ND	ND	ND	ND*
BHC, Gamma isomer	1000	NG/L	ND	ND	ND	ND
Alpha (cis) Chlordane	50	NG/L	ND	ND	ND	ND
Gamma (trans) Chlordane	50	NG/L	ND	ND	ND	ND
Alpha Chlordene		NG/L	NA	NA	NA	NA
Gamma Chlordene		NG/L	NA	NA	NA	NA
Cis Nonachlor	50	NG/L	ND	ND	ND	ND
Dieldrin	.71	NG/L	ND	ND	ND	ND*
Endosulfan Sulfate	1.11	NG/L	ND	ND	ND	ND*
Alpha Endosulfan	.8	NG/L	ND	ND	ND	ND*
Beta Endosulfan	2.69	NG/L	ND	ND	ND	ND*
Endrin	500	NG/L	ND	ND	ND	ND
Endrin aldehyde	500	NG/L	ND	ND	ND	ND
Heptachlor	500	NG/L	ND	ND	ND	ND
Heptachlor epoxide	500	NG/L	ND	ND	ND	ND
Methoxychlor	460	NG/L	ND	ND	ND	NA
Mirex	50	NG/L	ND	ND	ND	ND
o,p-DDD	100	NG/L	ND	ND	ND	ND
o,p-DDE	200	NG/L	ND	ND	ND	ND
o,p-DDT	50	NG/L	ND	ND	ND	ND
Oxychlordane	1.21	NG/L	ND	ND	ND	NA
PCB 1016	25000	NG/L	ND	ND	ND	ND
PCB 1221	25000	NG/L	ND	ND	ND	ND
PCB 1232	21000	NG/L	ND	ND	ND	ND
PCB 1242	20000	NG/L	ND	ND	ND	ND
PCB 1248	14000	NG/L	ND	ND	ND	ND
PCB 1254	25000	NG/L	ND	ND	ND	ND
PCB 1260	25000	NG/L	ND	ND	ND	ND
PCB 1262	500	NG/L	ND	ND	ND	NA
p,p-DDD	.69	NG/L	ND	ND	ND	ND*
p,p-DDE	.97	NG/L	ND	ND	ND	ND*
p,p-DDT	500	NG/L	ND	ND	ND	ND
Toxaphene	25000	NG/L	ND	ND	ND	ND
Trans Nonachlor	50	NG/L	ND	ND	ND	ND
Heptachlors	500	NG/L	0.00	0.00	0.00	0.00
Endosulfans	2.69	NG/L	0.00	0.00	0.00	0.00*
Polychlorinated biphenyls	25000	NG/L	0.00	0.00	0.00	0.00
Chlordane + related cmpds.	50	NG/L	0.00	0.00	0.00	0.00
DDT and derivatives	500	NG/L	0.00	0.00	0.00	0.00
Hexachlorocyclohexanes	1000	NG/L	0.00	0.00	0.00	0.00
Aldrin + Dieldrin	1.13	NG/L	0.00	0.00	0.00	0.00*
Chlorinated Hydrocarbons	25000	NG/L	0.00	0.00	0.00	0.00

Standards for alpha and gamma chlordene are no longer available in the U.S. for the analysis of these compounds.

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POINT LOMA WASTEWATER TREATMENT PLANT

ANNUAL 2017

CHLORINATED PESTICIDES
EPA Method 608

Source			MBC_NC_RSL	MBC_NC_RSL	MBC_NC_RSL	MBC_NC_RSL	RAW COMP	RAW COMP
Date			07-FEB-2017	02-MAY-2017	01-AUG-2017	03-OCT-2017	08-FEB-2017	02-MAY-2017
Analyte	MDL	Units	P919226	P936607	P959758	P973107	P919199	P936580
Aldrin	1.13	NG/L	ND	ND	ND	ND*	ND	ND
BHC, Alpha isomer	2.15	NG/L	ND	ND	ND	ND*	ND	ND
BHC, Beta isomer	250	NG/L	ND	ND	ND	ND	ND	ND
BHC, Delta isomer	.83	NG/L	ND	ND	ND	ND*	ND	ND
BHC, Gamma isomer	1000	NG/L	ND	ND	ND	ND	ND	ND
Alpha (cis) Chlordane	50	NG/L	ND	ND	ND	ND	ND	ND
Gamma (trans) Chlordane	50	NG/L	ND	ND	ND	ND	ND	ND
Alpha Chlordene		NG/L	NA	NA	NA	NA	NA	NA
Gamma Chlordene		NG/L	NA	NA	NA	NA	NA	NA
Cis Nonachlor	50	NG/L	ND	ND	ND	ND	ND	ND
Dieldrin	.71	NG/L	ND	ND	ND	ND*	ND	ND
Endosulfan Sulfate	1.11	NG/L	ND	ND	ND	ND*	ND	ND
Alpha Endosulfan	.8	NG/L	ND	ND	ND	ND*	ND	ND
Beta Endosulfan	2.69	NG/L	ND	ND	ND	ND*	ND	ND
Endrin	500	NG/L	ND	ND	ND	ND	ND	ND
Endrin aldehyde	500	NG/L	ND	ND	ND	ND	ND	ND
Heptachlor	500	NG/L	ND	ND	ND	ND	ND	ND
Heptachlor epoxide	500	NG/L	ND	ND	ND	ND	ND	ND
Methoxychlor	460	NG/L	ND	ND	ND	NA	ND	ND
Mirex	50	NG/L	ND	ND	ND	ND	ND	ND
o,p-DDD	100	NG/L	ND	ND	ND	ND	ND	ND
o,p-DDE	200	NG/L	ND	ND	ND	ND	ND	ND
o,p-DDT	50	NG/L	ND	ND	ND	ND	ND	ND
Oxychlordane	1.21	NG/L	ND	ND	ND	NA	ND	ND
PCB 1016	25000	NG/L	ND	ND	ND	ND	ND	ND
PCB 1221	25000	NG/L	ND	ND	ND	ND	ND	ND
PCB 1232	21000	NG/L	ND	ND	ND	ND	ND	ND
PCB 1242	20000	NG/L	ND	ND	ND	ND	ND	ND
PCB 1248	14000	NG/L	ND	ND	ND	ND	ND	ND
PCB 1254	25000	NG/L	ND	ND	ND	ND	ND	ND
PCB 1260	25000	NG/L	ND	ND	ND	ND	ND	ND
PCB 1262	500	NG/L	ND	ND	ND	NA	ND	ND
p,p-DDD	.69	NG/L	ND	ND	ND	ND*	ND	ND
p,p-DDE	.97	NG/L	ND	ND	ND	ND*	ND	ND
p,p-DDT	500	NG/L	ND	ND	ND	ND	ND	ND
Toxaphene	25000	NG/L	ND	ND	ND	ND	ND	ND
Trans Nonachlor	50	NG/L	ND	ND	ND	ND	ND	ND
Heptachlors	500	NG/L	0.00	0.00	0.00	0.00	0.00	0.00
Endosulfans	2.69	NG/L	0.00	0.00	0.00	0.00*	0.00	0.00
Polychlorinated biphenyls	25000	NG/L	0.00	0.00	0.00	0.00	0.00	0.00
Chlordane + related cmpds.	50	NG/L	0.00	0.00	0.00	0.00	0.00	0.00
DDT and derivatives	500	NG/L	0.00	0.00	0.00	0.00	0.00	0.00
Hexachlorocyclohexanes	1000	NG/L	0.00	0.00	0.00	0.00	0.00	0.00
Aldrin + Dieldrin	1.13	NG/L	0.00	0.00	0.00	0.00*	0.00	0.00
Chlorinated Hydrocarbons	25000	NG/L	0.00	0.00	0.00	0.00	0.00	0.00

Standards for alpha and gamma chlordene are no longer available in the U.S. for the analysis of these compounds.

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NA= Not Analyzed, ND= Not Detected, NS= Not Sampled

POINT LOMA WASTEWATER TREATMENT PLANT

ANNUAL 2017

CHLORINATED PESTICIDES
EPA Method 608

Source			RAW COMP	RAW COMP	DIG COMP	DIG COMP	DIG COMP	DIG COMP
Date			01-AUG-2017	03-OCT-2017	08-FEB-2017	02-MAY-2017	01-AUG-2017	03-OCT-2017
Analyte	MDL	Units	P959731	P973080	P919213	P936594	P959745	P973094
Aldrin	1.13	NG/L	ND	ND*	ND	ND	ND	ND*
BHC, Alpha isomer	2.15	NG/L	ND	ND*	ND	ND	ND	ND*
BHC, Beta isomer	250	NG/L	ND	ND	ND	ND	ND	ND
BHC, Delta isomer	.83	NG/L	ND	ND*	ND	ND	ND	ND*
BHC, Gamma isomer	1000	NG/L	ND	ND	ND	ND	ND	ND
Alpha (cis) Chlordane	50	NG/L	ND	ND	ND	ND	ND	ND
Gamma (trans) Chlordane	50	NG/L	ND	ND	ND	ND	ND	ND
Alpha Chlordene		NG/L	NA	NA	NA	NA	NA	NA
Gamma Chlordene		NG/L	NA	NA	NA	NA	NA	NA
Cis Nonachlor	50	NG/L	ND	ND	ND	ND	ND	ND
Dieldrin	.71	NG/L	ND	ND*	ND	ND	ND	ND*
Endosulfan Sulfate	1.11	NG/L	ND	ND*	ND	ND	ND	ND*
Alpha Endosulfan	.8	NG/L	ND	ND*	ND	ND	ND	ND*
Beta Endosulfan	2.69	NG/L	ND	ND*	ND	ND	ND	ND*
Endrin	500	NG/L	ND	ND	ND	ND	ND	ND
Endrin aldehyde	500	NG/L	ND	ND	ND	ND	ND	ND
Heptachlor	500	NG/L	ND	ND	ND	ND	ND	ND
Heptachlor epoxide	500	NG/L	ND	ND	ND	ND	ND	ND
Methoxychlor	460	NG/L	ND	NA	ND	ND	ND	NA
Mirex	50	NG/L	ND	ND	ND	ND	ND	ND
o,p-DDD	100	NG/L	ND	ND	ND	ND	ND	ND
o,p-DDE	200	NG/L	ND	ND	ND	ND	ND	ND
o,p-DDT	50	NG/L	ND	ND	ND	ND	ND	ND
Oxychlordane	1.21	NG/L	ND	NA	ND	ND	ND	NA
PCB 1016	25000	NG/L	ND	ND	ND	ND	ND	ND
PCB 1221	25000	NG/L	ND	ND	ND	ND	ND	ND
PCB 1232	21000	NG/L	ND	ND	ND	ND	ND	ND
PCB 1242	20000	NG/L	ND	ND	ND	ND	ND	ND
PCB 1248	14000	NG/L	ND	ND	ND	ND	ND	ND
PCB 1254	25000	NG/L	ND	ND	ND	ND	ND	ND
PCB 1260	25000	NG/L	ND	ND	ND	ND	ND	ND
PCB 1262	500	NG/L	ND	NA	ND	ND	ND	NA
p,p-DDD	.69	NG/L	ND	ND*	ND	ND	ND	ND*
p,p-DDE	.97	NG/L	ND	ND*	ND	ND	ND	ND*
p,p-DDT	500	NG/L	ND	ND	ND	ND	ND	ND
Toxaphene	25000	NG/L	ND	ND	ND	ND	ND	ND
Trans Nonachlor	50	NG/L	ND	ND	ND	ND	ND	ND
Heptachlors	500	NG/L	0.00	0.00	0.00	0.00	0.00	0.00
Endosulfans	2.69	NG/L	0.00	0.00*	0.00	0.00	0.00	0.00*
Polychlorinated biphenyls	25000	NG/L	0.00	0.00	0.00	0.00	0.00	0.00
Chlordane + related cmpds.	50	NG/L	0.00	0.00	0.00	0.00	0.00	0.00
DDT and derivatives	500	NG/L	0.00	0.00	0.00	0.00	0.00	0.00
Hexachlorocyclohexanes	1000	NG/L	0.00	0.00	0.00	0.00	0.00	0.00
Aldrin + Dieldrin	1.13	NG/L	0.00	0.00*	0.00	0.00	0.00	0.00*
Chlorinated Hydrocarbons	25000	NG/L	0.00	0.00	0.00	0.00	0.00	0.00

Standards for alpha and gamma chlordene are no longer available in the U.S. for the analysis of these compounds.

* = Calibration Verification recovery was above the method control limit for this analyte.

NA= Not Analyzed, ND= Not Detected, NS= Not Sampled

POINT LOMA WASTEWATER TREATMENT PLANT

ANNUAL 2017

Chlorinated Pesticide Analysis
EPA Method 8081A

Source			MBCDEWCN	MBCDEWCN	MBCDEWCN	MBCDEWCN	MBCDEWCN
Date			31-JAN-2017	28-FEB-2017	31-MAR-2017	30-APR-2017	31-MAY-2017
Analyte	MDL	Units	P920340	P925827	P932213	P937935	P945968
Aldrin	180000	NG/KG	ND	ND	ND	ND	ND
Dieldrin	190000	NG/KG	ND	ND	ND	ND	ND
BHC, Alpha isomer	220000	NG/KG	ND	ND	ND	ND	ND
BHC, Beta isomer	250000	NG/KG	ND	ND	ND	ND	ND
BHC, Gamma isomer	210000	NG/KG	ND	ND	ND	ND	ND
BHC, Delta isomer	200000	NG/KG	ND	ND	ND	ND	ND
p,p-DDD	190000	NG/KG	ND	ND	ND	ND	ND
p,p-DDE	170000	NG/KG	ND	ND	ND	ND	ND
p,p-DDT	230000	NG/KG	ND	ND	ND	ND	ND
o,p-DDD	970	NG/KG	ND	ND	ND	ND	ND
o,p-DDE	640	NG/KG	ND	ND	ND	ND	ND
o,p-DDT	940	NG/KG	ND	ND	ND	ND	ND
Heptachlor	270000	NG/KG	ND	ND	ND	ND	ND
Heptachlor epoxide	240000	NG/KG	ND	ND	ND	ND	ND
Alpha (cis) Chlordane	840	NG/KG	ND	ND	ND	ND	ND
Gamma (trans) Chlordane	540	NG/KG	ND	ND	ND	ND	ND
Alpha Chlordene		NG/KG	NA	NA	NA	NA	NA
Gamma Chlordene		NG/KG	NA	NA	NA	NA	NA
Oxychlordane	360	NG/KG	ND	ND	ND	ND	ND
Trans Nonachlor	1000	NG/KG	ND	ND	ND	ND	ND
Cis Nonachlor	850	NG/KG	ND	ND	ND	ND	ND
Alpha Endosulfan	200000	NG/KG	ND	ND	ND	ND	ND
Beta Endosulfan	240000	NG/KG	ND	ND	ND	ND	ND
Endosulfan Sulfate	190000	NG/KG	ND	ND	ND	ND	ND
Endrin aldehyde	200000	NG/KG	ND	ND	ND	ND	ND
Toxaphene	7400000	NG/KG	ND	ND	ND	ND	ND
Mirex	680	NG/KG	ND	ND	ND	ND	ND
Methoxychlor	250000	NG/KG	ND	ND	ND	ND	ND
PCB 1016	3800000	NG/KG	ND	ND	ND	ND	ND
PCB 1221	33000000	NG/KG	ND	ND	ND	ND	ND
PCB 1232	6700000	NG/KG	ND	ND	ND	ND	ND
PCB 1242	39000000	NG/KG	ND	ND	ND	ND	ND
PCB 1248	29000000	NG/KG	ND	ND	ND	ND	ND
PCB 1254	1100000	NG/KG	ND	ND	ND	ND	ND
PCB 1260	3800000	NG/KG	ND	ND	ND	ND	ND
PCB 1262	83300	NG/KG	ND	ND	ND	ND	ND
Aldrin + Dieldrin	190000	NG/KG	0	0	0	0	0
Hexachlorocyclohexanes	250000	NG/KG	0	0	0	0	0
DDT and derivatives	230000	NG/KG	0	0	0	0	0
Chlordane + related cmpds.	840	NG/KG	0	0	0	0	0
Polychlorinated biphenyls	39000000	NG/KG	0	0	0	0	0
Chlorinated Hydrocarbons	39000000	NG/KG	0	0	0	0	0

Standards for alpha and gamma chlordene are no longer available in the U.S. for the analysis of these compounds.

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

POINT LOMA WASTEWATER TREATMENT PLANT

ANNUAL 2017

Chlorinated Pesticide Analysis
EPA Method 8081A

Source			MBCDEWCN	MBCDEWCN	MBCDEWCN	MBCDEWCN	MBCDEWCN
Date			30-JUN-2017	31-JUL-2017	31-AUG-2017	30-SEP-2017	31-OCT-2017
Analyte	MDL	Units	P953132	P959635	P966456	P974186	P979340
Aldrin	180000	NG/KG	ND	ND	ND	ND	ND
Dieldrin	190000	NG/KG	ND	ND	ND	ND	ND
BHC, Alpha isomer	220000	NG/KG	ND	ND	ND	ND	ND
BHC, Beta isomer	250000	NG/KG	ND	ND	ND	ND	ND
BHC, Gamma isomer	210000	NG/KG	ND	ND	ND	ND	ND
BHC, Delta isomer	200000	NG/KG	ND	ND	ND	ND	ND
p,p-DDD	190000	NG/KG	ND	ND	ND	ND	ND
p,p-DDE	170000	NG/KG	ND	ND	ND	ND	ND
p,p-DDT	230000	NG/KG	ND	ND	ND	ND	ND
o,p-DDD	970	NG/KG	ND	ND	NA	NA	ND
o,p-DDE	640	NG/KG	ND	ND	NA	NA	ND
o,p-DDT	940	NG/KG	ND	ND	NA	NA	ND
Heptachlor	270000	NG/KG	ND	ND	ND	ND	ND
Heptachlor epoxide	240000	NG/KG	ND	ND	ND	ND	ND
Alpha (cis) Chlordane	840	NG/KG	ND	ND	NA	NA	ND
Gamma (trans) Chlordane	540	NG/KG	ND	ND	NA	NA	ND
Alpha Chlordene		NG/KG	NA	NA	NA	NA	NA
Gamma Chlordene		NG/KG	NA	NA	NA	NA	NA
Oxychlordane	360	NG/KG	ND	ND	NA	NA	ND
Trans Nonachlor	1000	NG/KG	ND	ND	NA	NA	ND
Cis Nonachlor	850	NG/KG	ND	ND	NA	NA	ND
Alpha Endosulfan	200000	NG/KG	ND	ND	ND	ND	ND
Beta Endosulfan	240000	NG/KG	ND	ND	ND	ND	ND
Endosulfan Sulfate	190000	NG/KG	ND	ND	ND	ND	ND
Endrin aldehyde	200000	NG/KG	ND	ND	ND	ND	ND
Toxaphene	7400000	NG/KG	ND	ND	ND	ND	ND
Mirex	680	NG/KG	ND	ND	NA	NA	ND
Methoxychlor	250000	NG/KG	ND	ND	ND	ND	ND
PCB 1016	3800000	NG/KG	ND	ND	ND	ND	ND
PCB 1221	33000000	NG/KG	ND	ND	ND	ND	ND
PCB 1232	6700000	NG/KG	ND	ND	ND	ND	ND
PCB 1242	39000000	NG/KG	ND	ND	ND	ND	ND
PCB 1248	29000000	NG/KG	ND	ND	ND	ND	ND
PCB 1254	1100000	NG/KG	ND	ND	ND	ND	ND
PCB 1260	3800000	NG/KG	ND	ND	ND	ND	ND
PCB 1262	83300	NG/KG	ND	ND	NA	NA	ND
Aldrin + Dieldrin	190000	NG/KG	0	0	0	0	0
Hexachlorocyclohexanes	250000	NG/KG	0	0	0	0	0
DDT and derivatives	230000	NG/KG	0	0	0	0	0
Chlordane + related cmpds.	840	NG/KG	0	0	*	*	0
Polychlorinated biphenyls	39000000	NG/KG	0	0	0	0	0
Chlorinated Hydrocarbons	39000000	NG/KG	0	0	0	0	0

* = No chlordane sum available, chlordane related compounds were not analyzed by BABCOCK LABORATORIES.

Standards for alpha and gamma chlordene are no longer available in the U.S. for the analysis of these compounds.

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

POINT LOMA WASTEWATER TREATMENT PLANT

ANNUAL 2017

Chlorinated Pesticide Analysis
EPA Method 8081A

Source			MBCDEWCN	MBCDEWCN	
Date			30-NOV-2017	31-DEC-2017	Annual
Analyte	MDL	Units	P986442	P992862	Average
Aldrin	180000	NG/KG	ND	ND	ND
Dieldrin	190000	NG/KG	ND	ND	ND
BHC, Alpha isomer	220000	NG/KG	ND	ND	ND
BHC, Beta isomer	250000	NG/KG	ND	ND	ND
BHC, Gamma isomer	210000	NG/KG	ND	ND	ND
BHC, Delta isomer	200000	NG/KG	ND	ND	ND
p,p-DDD	190000	NG/KG	ND	ND	ND
p,p-DDE	170000	NG/KG	ND	ND	ND
p,p-DDT	230000	NG/KG	ND	ND	ND
o,p-DDD	970	NG/KG	ND	ND	ND
o,p-DDE	640	NG/KG	ND	ND	ND
o,p-DDT	940	NG/KG	ND	ND	ND
Heptachlor	270000	NG/KG	ND	ND	ND
Heptachlor epoxide	240000	NG/KG	ND	ND	ND
Alpha (cis) Chlordane	840	NG/KG	ND	ND	ND
Gamma (trans) Chlordane	540	NG/KG	ND	ND	ND
Alpha Chlordene		NG/KG	NA	NA	NA
Gamma Chlordene		NG/KG	NA	NA	NA
Oxychlordane	360	NG/KG	ND	ND	ND
Trans Nonachlor	1000	NG/KG	ND	ND	ND
Cis Nonachlor	850	NG/KG	ND	ND	ND
Alpha Endosulfan	200000	NG/KG	ND	ND	ND
Beta Endosulfan	240000	NG/KG	ND	ND	ND
Endosulfan Sulfate	190000	NG/KG	ND	ND	ND
Endrin aldehyde	200000	NG/KG	ND	ND	ND
Toxaphene	7400000	NG/KG	ND	ND	ND
Mirex	680	NG/KG	ND	ND	ND
Methoxychlor	250000	NG/KG	ND	ND	ND
PCB 1016	3800000	NG/KG	ND	ND	ND
PCB 1221	33000000	NG/KG	ND	ND	ND
PCB 1232	6700000	NG/KG	ND	ND	ND
PCB 1242	39000000	NG/KG	ND	ND	ND
PCB 1248	29000000	NG/KG	ND	ND	ND
PCB 1254	1100000	NG/KG	ND	ND	ND
PCB 1260	3800000	NG/KG	ND	ND	ND
PCB 1262	83300	NG/KG	ND	ND	ND
Aldrin + Dieldrin	190000	NG/KG	0	0	0
Hexachlorocyclohexanes	250000	NG/KG	0	0	0
DDT and derivatives	230000	NG/KG	0	0	0
Chlordane + related cmpds.	840	NG/KG	0	0	0
Polychlorinated biphenyls	39000000	NG/KG	0	0	0
Chlorinated Hydrocarbons	39000000	NG/KG	0	0	0

Standards for alpha and gamma chlordene are no longer available in the U.S. for the analysis of these compounds.

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

POINT LOMA WASTEWATER TREATMENT PLANT

ANNUAL 2017

Organophosphorus Pesticides
EPA Method 614

Source			PLR	PLR	PLR	PLR	PLR	PLR
Date			09-JAN-2017	07-FEB-2017	06-MAR-2017	12-APR-2017	02-MAY-2017	08-JUN-2017
Analyte	MDL	Units	P916018	P919163	P926350	P933028	P936544	P946712
Demeton O	.01	UG/L	ND	ND	ND	ND	ND	ND
Demeton S	.04	UG/L	ND	ND	ND	ND	ND	ND
Diazinon	.02	UG/L	ND	ND	ND	ND	ND	ND
Guthion	.03	UG/L	ND	ND	ND	ND	ND	ND
Malathion	.02	UG/L	ND	ND	DNQ0.04	ND	DNQ0.08	0.10
Parathion	.01	UG/L	ND	ND	ND	ND	ND	ND
Chlorpyrifos	.02	UG/L	ND	ND	ND	ND	ND	ND
Coumaphos	.05	UG/L	ND	ND	ND	ND	ND	ND
Dichlorvos	.01	UG/L	ND	ND	ND	DNQ0.01	ND	ND
Disulfoton	.01	UG/L	ND	ND	ND	ND	ND	ND
Stirophos	.01	UG/L	ND	ND	ND	ND	ND	0.3
Thiophosphorus Pesticides	.03	UG/L	0.00	0.00	0.00	0.00	0.00	0.10
Demeton -O, -S	.04	UG/L	0.00	0.00	0.00	0.00	0.00	0.00
Total Organophosphorus Pesticides	.05	UG/L	0.00	0.00	0.00	0.00	0.00	0.40

Source			PLR	PLR	PLR	PLR	PLR	PLR
Date			12-JUL-2017	01-AUG-2017	13-SEP-2017	03-OCT-2017	06-NOV-2017	13-DEC-2017
Analyte	MDL	Units	P954715	P959720	P967832	P973069	P981464	P987753
Demeton O	.01	UG/L	ND	ND	ND	ND	ND	ND
Demeton S	.04	UG/L	ND	ND	ND	ND	ND	ND
Diazinon	.02	UG/L	ND	ND	ND	ND	ND	ND
Guthion	.03	UG/L	ND	ND	ND	ND	ND	ND
Malathion	.02	UG/L	ND	DNQ0.07	ND	ND	ND	ND
Parathion	.01	UG/L	ND	ND	ND	ND	ND	ND
Chlorpyrifos	.02	UG/L	ND	NA	ND	ND	ND	DNQ0.1
Coumaphos	.05	UG/L	ND	ND	ND	ND	ND	ND
Dichlorvos	.01	UG/L	ND	ND	ND	ND	ND	ND
Disulfoton	.01	UG/L	ND	ND	ND	ND	ND	ND
Stirophos	.01	UG/L	ND	ND	ND	ND	ND	ND
Thiophosphorus Pesticides	.03	UG/L	0.00	0.00	0.00	0.00	0.00	0.00
Demeton -O, -S	.04	UG/L	0.00	0.00	0.00	0.00	0.00	0.00
Total Organophosphorus Pesticides	.05	UG/L	0.00	0.00	0.00	0.00	0.00	0.00

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

POINT LOMA WASTEWATER TREATMENT PLANT

ANNUAL 2017

Organophosphorus Pesticides
EPA Method 614

Source			PLE	PLE	PLE	PLE	PLE	PLE
Date			09-JAN-2017	07-FEB-2017	06-MAR-2017	12-APR-2017	02-MAY-2017	08-JUN-2017
Analyte	MDL	Units	P916015	P919157	P926347	P933025	P936538	P946709
Demeton O	.01	UG/L	ND	ND	ND	ND	ND	ND
Demeton S	.04	UG/L	ND	ND	ND	ND	ND	ND
Diazinon	.02	UG/L	ND	ND	ND	ND	ND	ND
Guthion	.03	UG/L	ND	ND	ND	ND	ND	ND
Malathion	.02	UG/L	ND	DNQ0.02	DNQ0.05	ND	DNQ0.10	DNQ0.06
Parathion	.01	UG/L	ND	ND	ND	ND	ND	ND
Chlorpyrifos	.02	UG/L	ND	ND	ND	ND	ND	ND
Coumaphos	.05	UG/L	ND	ND	ND	ND	ND	ND
Dichlorvos	.01	UG/L	ND	DNQ0.01	ND	DNQ0.1	ND	ND
Disulfoton	.01	UG/L	ND	ND	ND	ND	ND	ND
Stirophos	.01	UG/L	ND	ND	ND	ND	ND	ND
Thiophosphorus Pesticides	.03	UG/L	0.00	0.00	0.00	0.00	0.00	0.00
Demeton -O, -S	.04	UG/L	0.00	0.00	0.00	0.00	0.00	0.00
Total Organophosphorus Pesticides	.05	UG/L	0.00	0.00	0.00	0.00	0.00	0.00

Source			PLE	PLE	PLE	PLE	PLE	PLE
Date			12-JUL-2017	01-AUG-2017	13-SEP-2017	03-OCT-2017	06-NOV-2017	13-DEC-2017
Analyte	MDL	Units	P954712	P959714	P967829	P973063	P981461	P987750
Demeton O	.01	UG/L	ND	ND	ND	ND	ND	ND
Demeton S	.04	UG/L	ND	ND	ND	ND	ND	ND
Diazinon	.02	UG/L	ND	ND	ND	ND	ND	ND
Guthion	.03	UG/L	ND	ND	ND	ND	ND	ND
Malathion	.02	UG/L	ND	0.17	DNQ0.07	ND	ND	ND
Parathion	.01	UG/L	ND	ND	ND	ND	ND	ND
Chlorpyrifos	.02	UG/L	ND	NA	ND	ND	ND	ND
Coumaphos	.05	UG/L	ND	ND	ND	ND	ND	ND
Dichlorvos	.01	UG/L	ND	ND	ND	ND	ND	ND
Disulfoton	.01	UG/L	ND	ND	ND	ND	ND	ND
Stirophos	.01	UG/L	ND	ND	ND	ND	ND	ND
Thiophosphorus Pesticides	.03	UG/L	0.00	0.17	0.00	0.00	0.00	0.00
Demeton -O, -S	.04	UG/L	0.00	0.00	0.00	0.00	0.00	0.00
Total Organophosphorus Pesticides	.05	UG/L	0.00	0.17	0.00	0.00	0.00	0.00

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

POINT LOMA WASTEWATER TREATMENT PLANT

ANNUAL 2017

Organophosphorus Pesticides
EPA Method 614

Source			MBC_COMBCN	MBC_COMBCN
Date			02-MAY-2017	03-OCT-2017
Analyte	MDL	Units	P936555	P973075
Demeton O	.01	UG/L	ND	ND
Demeton S	.04	UG/L	ND	ND
Diazinon	.02	UG/L	ND	ND
Guthion	.03	UG/L	ND	ND
Malathion	.02	UG/L	ND	ND
Parathion	.01	UG/L	ND	ND
Chlorpyrifos	.02	UG/L	ND	ND
Coumaphos	.05	UG/L	ND	ND
Dichlorvos	.01	UG/L	ND	ND
Disulfoton	.01	UG/L	ND	ND
Stirophos	.01	UG/L	ND	ND
Thiophosphorus Pesticides	.03	UG/L	0.00	0.00
Demeton -O, -S	.04	UG/L	0.00	0.00
Total Organophosphorus Pesticides	.05	UG/L	0.00	0.00

Source			MBC_NC_DSL	MBC_NC_DSL
Date			02-MAY-2017	03-OCT-2017
Analyte	MDL	Units	P936609	P973109
Demeton O	.01	UG/L	ND	ND
Demeton S	.04	UG/L	ND	ND
Diazinon	.02	UG/L	ND	ND
Guthion	.03	UG/L	ND	ND
Malathion	.02	UG/L	ND	ND
Parathion	.01	UG/L	ND	ND
Chlorpyrifos	.02	UG/L	ND	ND
Coumaphos	.05	UG/L	ND	ND
Dichlorvos	.01	UG/L	ND	ND
Disulfoton	.01	UG/L	ND	ND
Stirophos	.01	UG/L	ND	ND
Thiophosphorus Pesticides	.03	UG/L	0.00	0.00
Demeton -O, -S	.04	UG/L	0.00	0.00
Total Organophosphorus Pesticides	.05	UG/L	0.00	0.00

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

POINT LOMA WASTEWATER TREATMENT PLANT

ANNUAL 2017

Organophosphorus Pesticides
EPA Method 614

Source			MBC_NC_RSL	MBC_NC_RSL
Date			02-MAY-2017	03-OCT-2017
Analyte	MDL	Units	P936607	P973107
Demeton O	.01	UG/L	ND	ND
Demeton S	.04	UG/L	ND	ND
Diazinon	.02	UG/L	ND	ND
Guthion	.03	UG/L	ND	ND
Malathion	.02	UG/L	ND	ND
Parathion	.01	UG/L	ND	ND
Chlorpyrifos	.02	UG/L	ND	ND
Coumaphos	.05	UG/L	ND	ND
Dichlorvos	.01	UG/L	ND	ND
Disulfoton	.01	UG/L	ND	ND
Stirophos	.01	UG/L	ND	ND
Thiophosphorus Pesticides	.03	UG/L	0.00	0.00
Demeton -O, -S	.04	UG/L	0.00	0.00
Total Organophosphorus Pesticides	.05	UG/L	0.00	0.00

Source			RAW COMP	RAW COMP
Date			02-MAY-2017	03-OCT-2017
Analyte	MDL	Units	P936580	P973080
Demeton O	.01	UG/L	ND	ND
Demeton S	.04	UG/L	ND	ND
Diazinon	.02	UG/L	ND	ND
Guthion	.03	UG/L	ND	ND
Malathion	.02	UG/L	ND	ND
Parathion	.01	UG/L	ND	ND
Chlorpyrifos	.02	UG/L	ND	ND
Coumaphos	.05	UG/L	ND	ND
Dichlorvos	.01	UG/L	ND	ND
Disulfoton	.01	UG/L	ND	ND
Stirophos	.01	UG/L	ND	ND
Thiophosphorus Pesticides	.03	UG/L	0.00	0.00
Demeton -O, -S	.04	UG/L	0.00	0.00
Total Organophosphorus Pesticides	.05	UG/L	0.00	0.00

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

POINT LOMA WASTEWATER TREATMENT PLANT

ANNUAL 2017

Organophosphorus Pesticides
EPA Method 614

Source			DIG COMP	DIG COMP
Date			02-MAY-2017	03-OCT-2017
Analyte	MDL	Units	P936594	P973094
Demeton O	.01	UG/L	ND	ND
Demeton S	.04	UG/L	ND	ND
Diazinon	.02	UG/L	ND	ND
Guthion	.03	UG/L	ND	ND
Malathion	.02	UG/L	ND	ND
Parathion	.01	UG/L	ND	ND
Chlorpyrifos	.02	UG/L	ND	ND
Coumaphos	.05	UG/L	ND	ND
Dichlorvos	.01	UG/L	ND	ND
Disulfoton	.01	UG/L	ND	ND
Stirophos	.01	UG/L	ND	ND
Thiophosphorus Pesticides	.03	UG/L	0.00	0.00
Demeton -O, -S	.04	UG/L	0.00	0.00
Total Organophosphorus Pesticides	.05	UG/L	0.00	0.00

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

POINT LOMA WASTEWATER TREATMENT PLANT

ANNUAL 2017

Organophosphorus Pesticides
EPA Method 8141A

Source			MBCDEWCN	MBCDEWCN
Date			31-MAY-2017	31-OCT-2017
Analyte	MDL	Units	P945968	P979340
Demeton O	2.41	UG/KG	ND	ND
Demeton S	11.7	UG/KG	ND	ND
Diazinon	1.57	UG/KG	ND	ND
Guthion	13.2	UG/KG	ND	ND
Malathion	1.78	UG/KG	ND	ND
Parathion	2.04	UG/KG	ND	ND
Chlorpyrifos	1.94	UG/KG	42.3	ND
Coumaphos	5.54	UG/KG	ND	ND
Dichlorvos	1.12	UG/KG	ND	ND
Disulfoton	4.1	UG/KG	ND	ND
Stirophos	3.55	UG/KG	ND	ND
Thiophosphorus Pesticides	13.2	UG/KG	0.0	0.0
Demeton -O, -S	11.7	UG/KG	0.0	0.0
Total Organophosphorus Pesticides	13.2	UG/KG	42.3	0.0

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

POINT LOMA WASTEWATER TREATMENT PLANT

ANNUAL 2017

Tributyl Tin

Source	PLE	PLE	PLE	PLE	PLR	PLR	PLR
Date	07-FEB-2017	02-MAY-2017	01-AUG-2017	03-OCT-2017	07-FEB-2017	02-MAY-2017	01-AUG-2017
Analye	P919157	P936538	P959714	P973063	P919163	P936544	P959720
Monobutyltin	ND	ND	ND	ND	ND	ND	ND
Dibutyltin	ND	ND	ND	ND	ND	ND	ND
Tributyltin	ND	ND	ND	ND	ND	ND	ND

Source	PLR	MBC_COMBCN	MBC_COMBCN	MBC_COMBCN	MBC_COMBCN	MBCDEWCN	MBCDEWCN
Date	03-OCT-2017	07-FEB-2017	02-MAY-2017	01-AUG-2017	03-OCT-2017	31-MAY-2017	31-OCT-2017
Analyte	P973069	P919174	P936555	P959726	P973075	P945968	P979340
Monobutyltin	ND	ND	ND	ND	ND	ND	ND
Dibutyltin	ND	ND	ND	ND	ND	ND	ND
Tributyltin	ND	ND	ND	ND	ND	ND	ND

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

POINT LOMA WASTEWATER TREATMENT PLANT

ANNUAL 2017

HERBICIDES
EPA Method 8151A

Source			MBCDEWCN	MBCDEWCN
Date			28-FEB-2017	31-AUG-2017
Sample	MDL	Units	P925827	P966456
2,4-Dichlorophenoxyacetic acid	11	MG/KG	ND	NA*
2,4,5-TP (Silvex)	11	MG/KG	ND	12

* = Not analyzed by Weck laboratories.

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

POINT LOMA WASTEWATER TREATMENT PLANT

ANNUAL 2017

ACID EXTRACTABLE COMPOUNDS
EPA Method 625

Source			PLR	PLR	PLR	PLR	PLE	PLE
Date			07-FEB-2017	02-MAY-2017	01-AUG-2017	03-OCT-2017	07-FEB-2017	02-MAY-2017
Analyte	MDL	Units	P919163	P936544	P959720	P973069	P919157	P936538
2-Chlorophenol	1.32	UG/L	ND	ND	ND	ND	ND	ND
4-Chloro-3-methylphenol	1.67	UG/L	ND	ND	ND	ND	ND	ND
2,4-Dichlorophenol	1.01	UG/L	ND	ND	ND	ND	ND	ND
2,4-Dimethylphenol	2.01	UG/L	ND	ND	ND	ND	ND	ND
2,4-Dinitrophenol	2.16	UG/L	ND	ND	ND	ND	ND	ND
2-Methyl-4,6-dinitrophenol	1.52	UG/L	ND	ND	ND	ND	ND	ND
2-Nitrophenol	1.55	UG/L	ND	ND	ND	ND	ND	ND
4-Nitrophenol	1.14	UG/L	ND	ND	ND	ND	ND	ND
Pentachlorophenol	1.12	UG/L	ND	ND	ND	ND	ND	ND
Phenol	1.76	UG/L	34.2	34.3	48.3	32.6	27.2	28.9
2,4,6-Trichlorophenol	1.65	UG/L	ND	ND	ND	ND	ND	ND
Total Chlorinated Phenols	1.67	UG/L	0.00	0.00	0.00	0.00	0.00	0.00
Total Non-Chlorinated Phenols	2.16	UG/L	34.2	34.3	48.3	32.6	27.2	28.9
Phenols	2.16	UG/L	34.2	34.3	48.3	32.6	27.2	28.9

Additional Analytes Determined:

Analyte	MDL	Units	P919163	P936544	P959720	P973069	P919157	P936538
2-Methylphenol	2.15	UG/L	ND	ND	ND	ND	ND	ND
4-Methylphenol(3-MP is unresolved)	2.11	UG/L	72.6	71.0	71.6	52.7	52.8	55.3
2,4,5-Trichlorophenol	1.66	UG/L	ND	ND	ND	ND	ND	ND

Source			PLE	PLE	MBC_COMBCN	MBC_COMBCN	MBC_COMBCN	MBC_COMBCN
Date			01-AUG-2017	03-OCT-2017	07-FEB-2017	02-MAY-2017	01-AUG-2017	03-OCT-2017
Analyte	MDL	Units	P959714	P973063	P919174	P936555	P959726	P973075
2-Chlorophenol	1.32	UG/L	ND	ND	ND	ND	ND	ND
4-Chloro-3-methylphenol	1.67	UG/L	ND	ND	ND	ND	ND	ND
2,4-Dichlorophenol	1.01	UG/L	ND	ND	ND	ND	ND	ND
2,4-Dimethylphenol	2.01	UG/L	ND	ND	25.2	18.3	ND	3.5
2,4-Dinitrophenol	2.16	UG/L	ND	ND	ND	ND	ND	ND
2-Methyl-4,6-dinitrophenol	1.52	UG/L	ND	ND	ND	ND	ND	ND
2-Nitrophenol	1.55	UG/L	ND	ND	ND	ND	ND	ND
4-Nitrophenol	1.14	UG/L	ND	ND	ND	ND	ND	ND
Pentachlorophenol	1.12	UG/L	ND	ND	ND	ND	ND	ND
Phenol	1.76	UG/L	26.5	28.0	ND	ND	ND	ND
2,4,6-Trichlorophenol	1.65	UG/L	ND	ND	ND	ND	ND	ND
Total Chlorinated Phenols	1.67	UG/L	0.00	0.00	0.00	0.00	0.00	0.00
Total Non-Chlorinated Phenols	2.16	UG/L	26.5	28.0	25.2	18.3	0.00	3.50
Phenols	2.16	UG/L	26.5	28.0	25.2	18.3	0.00	3.50

Additional Analytes Determined:

Analyte	MDL	Units	P959714	P973063	P919174	P936555	P959726	P973075
2-Methylphenol	2.15	UG/L	ND	ND	ND	ND	ND	ND
4-Methylphenol(3-MP is unresolved)	2.11	UG/L	36.4	40.9	ND	ND	2.29	2.50
2,4,5-Trichlorophenol	1.66	UG/L	ND	ND	ND	ND	ND	ND

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

POINT LOMA WASTEWATER TREATMENT PLANT

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ACID EXTRACTABLE COMPOUNDS
EPA Method 625

Source			PLE	PLE	MBC_COMBCN	MBC_COMBCN	MBC_COMBCN	MBC_COMBCN
Date			01-AUG-2017	03-OCT-2017	07-FEB-2017	02-MAY-2017	01-AUG-2017	03-OCT-2017
Analyte	MDL	Units	P959714	P973063	P919174	P936555	P959726	P973075
2-Chlorophenol	1.32	UG/L	ND	ND	ND	ND	ND	ND
4-Chloro-3-methylphenol	1.67	UG/L	ND	ND	ND	ND	ND	ND
2,4-Dichlorophenol	1.01	UG/L	ND	ND	ND	ND	ND	ND
2,4-Dimethylphenol	2.01	UG/L	ND	ND	25.2	18.3	ND	3.5
2,4-Dinitrophenol	2.16	UG/L	ND	ND	ND	ND	ND	ND
2-Methyl-4,6-dinitrophenol	1.52	UG/L	ND	ND	ND	ND	ND	ND
2-Nitrophenol	1.55	UG/L	ND	ND	ND	ND	ND	ND
4-Nitrophenol	1.14	UG/L	ND	ND	ND	ND	ND	ND
Pentachlorophenol	1.12	UG/L	ND	ND	ND	ND	ND	ND
Phenol	1.76	UG/L	26.5	28.0	ND	ND	ND	ND
2,4,6-Trichlorophenol	1.65	UG/L	ND	ND	ND	ND	ND	ND
Total Chlorinated Phenols	1.67	UG/L	0.00	0.00	0.00	0.00	0.00	0.00
Total Non-Chlorinated Phenols	2.16	UG/L	26.5	28.0	25.2	18.3	0.00	3.50
Phenols	2.16	UG/L	26.5	28.0	25.2	18.3	0.00	3.50

Additional Analytes Determined:

2-Methylphenol	2.15	UG/L	ND	ND	ND	ND	ND	ND
4-Methylphenol(3-MP is unresolved)	2.11	UG/L	36.4	40.9	ND	ND	2.29	2.50
2,4,5-Trichlorophenol	1.66	UG/L	ND	ND	ND	ND	ND	ND

Source			RAW COMP	RAW COMP	RAW COMP	DIG COMP	DIG COMP	DIG COMP
Date			08-FEB-2017	02-MAY-2017	01-AUG-2017	08-FEB-2017	02-MAY-2017	01-AUG-2017
Analyte	MDL	Units	P919199	P936580	P959731	P919213	P936594	P959745
2-Chlorophenol	1.32	UG/L	ND	ND	ND	ND	ND	DNQ8.9
4-Chloro-3-methylphenol	1.67	UG/L	ND	ND	ND	ND	ND	ND
2,4-Dichlorophenol	1.01	UG/L	ND	ND	ND	ND	ND	ND
2,4-Dimethylphenol	2.01	UG/L	ND	ND	ND	38.3	46.7	DNQ7.3
2,4-Dinitrophenol	2.16	UG/L	ND	ND	ND	ND	ND	ND
2-Methyl-4,6-dinitrophenol	1.52	UG/L	ND	ND	ND	ND	ND	ND
2-Nitrophenol	1.55	UG/L	ND	ND	ND	ND	ND	ND
4-Nitrophenol	1.14	UG/L	ND	ND	ND	ND	ND	ND
Pentachlorophenol	1.12	UG/L	ND	ND	ND	ND	ND	ND
Phenol	1.76	UG/L	99.5	86.7	59.7	ND	ND	ND
2,4,6-Trichlorophenol	1.65	UG/L	ND	ND	ND	ND	ND	ND
Total Chlorinated Phenols	1.67	UG/L	0.00	0.00	0.00	0.00	0.00	8.90
Total Non-Chlorinated Phenols	2.16	UG/L	99.5	86.7	59.7	38.3	46.7	7.30
Phenols	2.16	UG/L	99.5	86.7	59.7	38.3	46.7	16.2

Additional Analytes Determined:

2-Methylphenol	2.15	UG/L	ND	ND	ND	ND	ND	DNQ8.3
4-Methylphenol(3-MP is unresolved)	2.11	UG/L	503	364	188	DNQ4.16	DNQ5.11	DNQ8.99
2,4,5-Trichlorophenol	1.66	UG/L	ND	ND	ND	ND	ND	ND

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

DNQ= Detected but not quantified. Sample result is less than minimum Level but greater than or equal to MDL.

POINT LOMA WASTEWATER TREATMENT PLANT

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Source			DIG COMP	MBC_NC_DSL	MBC_NC_DSL	MBC_NC_DSL	MBC_NC_DSL	MBC_NC_RSL
Date			03-OCT-2017	07-FEB-2017	02-MAY-2017	01-AUG-2017	03-OCT-2017	07-FEB-2017
Analyte	MDL	Units	P973094	P919228	P936609	P959760	P973109	P919226
2-Chlorophenol	1.32	UG/L	ND	ND	ND	ND	ND	ND
4-Chloro-3-methylphenol	1.67	UG/L	ND	ND	ND	ND	ND	ND
2,4-Dichlorophenol	1.01	UG/L	ND	ND	ND	ND	ND	ND
2,4-Dimethylphenol	2.01	UG/L	DNQ9.7	24.1	26.1	ND	19.9	ND
2,4-Dinitrophenol	2.16	UG/L	ND	ND	ND	ND	ND	ND
2-Methyl-4,6-dinitrophenol	1.52	UG/L	ND	ND	ND	ND	ND	ND
2-Nitrophenol	1.55	UG/L	ND	ND	ND	ND	ND	ND
4-Nitrophenol	1.14	UG/L	ND	ND	ND	ND	ND	ND
Pentachlorophenol	1.12	UG/L	ND	ND	ND	ND	ND	ND
Phenol	1.76	UG/L	ND	ND	ND	ND	ND	ND
2,4,6-Trichlorophenol	1.65	UG/L	ND	ND	ND	ND	ND	ND
Total Chlorinated Phenols	1.67	UG/L	0.00	0.00	0.00	0.00	0.00	0.00
Total Non-Chlorinated Phenols	2.16	UG/L	9.70	24.1	26.1	0.00	19.9	0.00
Phenols	2.16	UG/L	9.70	24.1	26.1	0.00	19.9	0.00

Additional Analytes Determined:

Analyte	MDL	Units	DIG COMP 03-OCT-2017 P973094	MBC_NC_DSL 07-FEB-2017 P919228	MBC_NC_DSL 02-MAY-2017 P936609	MBC_NC_DSL 01-AUG-2017 P959760	MBC_NC_DSL 03-OCT-2017 P973109	MBC_NC_RSL 07-FEB-2017 P919226
2-Methylphenol	2.15	UG/L	ND	ND	ND	ND	ND	ND
4-Methylphenol(3-MP is unresolved)	2.11	UG/L	DNQ4.97	DNQ8.90	DNQ6.06	ND	20.2	57.4
2,4,5-Trichlorophenol	1.66	UG/L	ND	ND	ND	ND	ND	ND

Source			MBC_NC_RSL	MBC_NC_RSL	MBC_NC_RSL
Date			02-MAY-2017	01-AUG-2017	03-OCT-2017
Analyte	MDL	Units	P936607	P959758	P973107
2-Chlorophenol	1.32	UG/L	ND	ND	ND
4-Chloro-3-methylphenol	1.67	UG/L	ND	ND	ND
2,4-Dichlorophenol	1.01	UG/L	ND	ND	ND
2,4-Dimethylphenol	2.01	UG/L	ND	ND	ND
2,4-Dinitrophenol	2.16	UG/L	ND	ND	ND
2-Methyl-4,6-dinitrophenol	1.52	UG/L	ND	ND	ND
2-Nitrophenol	1.55	UG/L	ND	ND	ND
4-Nitrophenol	1.14	UG/L	ND	ND	ND
Pentachlorophenol	1.12	UG/L	DNQ2.8	ND	ND
Phenol	1.76	UG/L	ND	ND	ND
2,4,6-Trichlorophenol	1.65	UG/L	ND	ND	ND
Total Chlorinated Phenols	1.67	UG/L	2.80	0.00	0.00
Total Non-Chlorinated Phenols	2.16	UG/L	0.00	0.00	0.00
Phenols	2.16	UG/L	2.80	0.00	0.00

Additional Analytes Determined:

Analyte	MDL	Units	MBC_NC_RSL 02-MAY-2017 P936607	MBC_NC_RSL 01-AUG-2017 P959758	MBC_NC_RSL 03-OCT-2017 P973107
2-Methylphenol	2.15	UG/L	<2.2	ND	ND
4-Methylphenol(3-MP is unresolved)	2.11	UG/L	DNQ31.70	66.30	88.30
2,4,5-Trichlorophenol	1.66	UG/L	ND	ND	ND

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

DNQ= Detected but not quantified. Sample result is less than minimum Level but greater than or equal to MDL.

POINT LOMA WASTEWATER TREATMENT PLANT

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ACID EXTRACTABLE COMPOUNDS
EPA Method 625

Source			MBCDEWCN	MBCDEWCN	MBCDEWCN	MBCDEWCN
Date			28-FEB-2017	31-MAY-2017	31-AUG-2017	31-OCT-2017
Analyte	MDL	Units	P925827	P945968	P966456	P979340
2-Chlorophenol	330	UG/KG	ND	ND	ND	ND
4-Chloro-3-methylphenol	330	UG/KG	ND	ND	ND	ND
2,4-Dichlorophenol	330	UG/KG	ND	ND	ND	ND
2,4-Dimethylphenol	330	UG/KG	ND	ND	ND	ND
2,4-Dinitrophenol	330	UG/KG	ND	ND	ND	ND
2-Methyl-4,6-dinitrophenol	800	UG/KG	ND	ND	ND	ND
2-Nitrophenol	330	UG/KG	ND	ND	ND	ND
4-Nitrophenol	800	UG/KG	ND	ND	ND	ND
Pentachlorophenol	3300	UG/KG	ND	ND	ND	ND
Phenol	330	UG/KG	4090	4630	4510	3270
2,4,6-Trichlorophenol	330	UG/KG	ND	ND	ND	ND
Total Chlorinated Phenols	3300	UG/KG	0.0	0.0	0.0	0.0
Total Non-Chlorinated Phenols	800	UG/KG	4090	4630	4510	3270
Phenols	3300	UG/KG	4090	4630	4510	3270

Additional Analytes Determined:

2-Methylphenol	330	UG/KG	ND	1690	ND	ND
4-Methylphenol(3-MP is unresolved)	330	UG/KG	880	1830	2400	970
2,4,5-Trichlorophenol	800	UG/KG	ND	ND	ND	ND

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

POINT LOMA WASTEWATER TREATMENT PLANT

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PURGEABLE COMPOUNDS
EPA Method 8260B

Source			PLR	PLR	PLR	PLR	PLE	PLE
Date			07-FEB-2017	02-MAY-2017	01-AUG-2017	03-OCT-2017	07-FEB-2017	02-MAY-2017
Analyte	MDL	Units	P919166	P936547	P959723	P973072	P919160	P936541
Acrolein	.94	UG/L	ND	ND	ND	ND	ND	ND
Acrylonitrile	.48	UG/L	ND	ND	ND	ND	ND	ND
Benzene	.37	UG/L	ND	ND	ND	ND	ND	ND
Bromodichloromethane	.37	UG/L	ND	ND	ND	ND	DNQ0.900	ND
Bromoform	.36	UG/L	ND	ND	ND	ND	ND	ND
Bromomethane	.22	UG/L	DNQ0.3*	ND	DNQ0.4*	DNQ0.4*	DNQ0.3*	ND
Carbon tetrachloride	.4	UG/L	ND	ND	ND	ND	ND	ND
Chlorobenzene	.4	UG/L	ND	ND	ND	ND	ND	ND
Chloroethane	.24	UG/L	ND	ND	ND	ND	ND	ND
Chloroform	.3	UG/L	2.88	3.68	2.83	11.9	3.19	4.53
Chloromethane	.19	UG/L	ND	ND	ND	ND	DNQ0.910	DNQ1.84
Dibromochloromethane	.34	UG/L	DNQ0.370	ND	ND	ND	DNQ0.645	ND
1,2-Dichlorobenzene	.36	UG/L	ND	ND	ND	ND	ND	ND
1,3-Dichlorobenzene	.47	UG/L	ND	ND	ND	ND	ND	ND
1,4-Dichlorobenzene	.46	UG/L	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	.28	UG/L	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane	.32	UG/L	ND	ND	ND	ND	ND	ND
1,1-Dichloroethene	.37	UG/L	ND	ND	ND	ND	ND	ND
trans-1,2-dichloroethene	.34	UG/L	ND	ND	ND	ND	ND	ND
1,2-Dichloropropane	.43	UG/L	ND	ND	ND	ND	ND	ND
cis-1,3-dichloropropene	.38	UG/L	ND	ND	ND	ND	ND	ND
trans-1,3-dichloropropene	.35	UG/L	ND	ND	ND	ND	ND	ND
Ethylbenzene	.41	UG/L	ND	ND	ND	ND	ND	ND
Methylene chloride	.37	UG/L	DNQ1.5*	DNQ1.16	DNQ1.09	DNQ1.1*	DNQ0.7*	DNQ0.820
1,1,2,2-Tetrachloroethane	.33	UG/L	ND	ND	ND	ND	ND	ND
Tetrachloroethene	.4	UG/L	ND	ND	ND	ND	ND	ND
Toluene	.37	UG/L	DNQ0.540	DNQ0.980	DNQ0.570	2.820	2.42	DNQ0.800
1,1,1-Trichloroethane	.4	UG/L	ND	ND	ND	ND	ND	ND
1,1,2-Trichloroethane	.32	UG/L	ND	ND	ND	ND	ND	ND
Trichloroethene	.43	UG/L	ND	ND	ND	ND	ND	ND
Trichlorofluoromethane	.26	UG/L	ND	ND	ND	ND	ND	ND
Vinyl chloride	.24	UG/L	ND	ND	ND	ND	ND	ND
Halomethane Purgeable Cmpnds	.36	UG/L	0.000	0.000	0.000	0.000	0.000	0.000
Total Dichlorobenzenes	.47	UG/L	0.000	0.000	0.000	0.000	0.000	0.000
Purgeable Compounds	.94	UG/L	3.42	3.68	2.83	14.7	5.61	4.53

Additional volatile organic compounds determined;

Acetone	6.74	UG/L	1020	526	283	849	1460	974
Allyl chloride	.44	UG/L	ND	ND	ND	ND	ND	ND
Benzyl chloride	.65	UG/L	ND	ND	ND	ND	ND	ND
2-Butanone	5.56	UG/L	ND	25.8	DNQ5.95	DNQ8.32	ND	15.6
Carbon disulfide	.37	UG/L	1.09	2.25	2.24	2.06	1.14	2.34
Chloroprene	.09	UG/L	ND	ND	ND	ND	ND	ND
1,2-Dibromoethane	.41	UG/L	ND	ND	ND	ND	ND	ND
Isopropylbenzene	.41	UG/L	ND	ND	ND	ND	ND	ND
Methyl Iodide	.32	UG/L	ND	ND	ND	ND	ND	ND
Methyl methacrylate	.32	UG/L	ND	ND	ND	ND	ND	ND
2-Nitropropane	.49	UG/L	ND	ND	ND	ND	ND	ND
ortho-xylene	.34	UG/L	ND	ND	ND	DNQ0.610	ND	ND
Styrene	.38	UG/L	DNQ0.670	DNQ0.390	ND	ND	DNQ0.510	DNQ0.420
1,2,4-Trichlorobenzene	.51	UG/L	ND	ND	ND	ND	ND	ND
meta,para xylenes	.85	UG/L	ND	ND	ND	DNQ1.22	ND	ND
2-Chloroethylvinyl ether	.25	UG/L	ND	ND	ND	ND	ND	ND
4-Methyl-2-pentanone	.39	UG/L	ND	DNQ1.68	ND	ND	ND	ND

* = Method blank value above the MDL; sample result not included in average calculations.

ND= not detected, NA= not analyzed, NS= not sampled
DNQ= Detected but not quantified. Sample result is less than minimum Level but greater than or equal to MDL.

POINT LOMA WASTEWATER TREATMENT PLANT

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PURGEABLE COMPOUNDS
EPA Method 8260B

Source			PLE	PLE	MBC_COMBCN	MBC_COMBCN	MBC_COMBCN	MBC_COMBCN
Date			01-AUG-2017	03-OCT-2017	07-FEB-2017	02-MAY-2017	01-AUG-2017	03-OCT-2017
Analyte	MDL	Units	P959717	P973066	P919177	P936558	P959729	P973078
Acrolein	.94	UG/L	ND	ND	ND	ND	ND	ND
Acrylonitrile	.48	UG/L	ND	ND	ND	ND	ND	ND
Benzene	.37	UG/L	ND	ND	ND	ND	ND	ND
Bromodichloromethane	.37	UG/L	DNQ0.550	ND	ND	ND	ND	DNQ0.910
Bromoform	.36	UG/L	ND	ND	ND	ND	ND	ND
Bromomethane	.22	UG/L	DNQ0.4*	DNQ0.5*	ND	ND	DNQ0.4*	DNQ0.35*
Carbon tetrachloride	.4	UG/L	ND	ND	ND	ND	ND	ND
Chlorobenzene	.4	UG/L	ND	ND	ND	ND	ND	ND
Chloroethane	.24	UG/L	DNQ0.665	ND	ND	ND	ND	ND
Chloroform	.3	UG/L	4.68	2.30	2.37	DNQ1.11	DNQ1.05	3.75
Chloromethane	.19	UG/L	4.51	2.38	ND	DNQ0.330	DNQ0.440	ND
Dibromochloromethane	.34	UG/L	<0.340	ND	ND	ND	ND	DNQ0.400
1,2-Dichlorobenzene	.36	UG/L	ND	ND	ND	ND	ND	ND
1,3-Dichlorobenzene	.47	UG/L	ND	ND	ND	ND	ND	ND
1,4-Dichlorobenzene	.46	UG/L	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	.28	UG/L	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane	.32	UG/L	ND	ND	ND	ND	ND	ND
1,1-Dichloroethene	.37	UG/L	ND	ND	ND	ND	ND	ND
trans-1,2-dichloroethene	.34	UG/L	ND	ND	ND	ND	ND	ND
1,2-Dichloropropane	.43	UG/L	ND	ND	ND	ND	ND	ND
cis-1,3-dichloropropene	.38	UG/L	ND	ND	ND	ND	ND	ND
trans-1,3-dichloropropene	.35	UG/L	ND	ND	ND	ND	ND	ND
Ethylbenzene	.41	UG/L	ND	ND	DNQ0.910	DNQ0.660	ND	ND
Methylene chloride	.37	UG/L	DNQ1.02	DNQ1.3*	DNQ0.840	DNQ1.04	DNQ1.01	DNQ1.9*
1,1,2,2-Tetrachloroethane	.33	UG/L	ND	ND	ND	ND	ND	ND
Tetrachloroethene	.4	UG/L	ND	ND	ND	ND	ND	ND
Toluene	.37	UG/L	DNQ0.850	2.23	DNQ0.840	2.75	DNQ1.70	2.38
1,1,1-Trichloroethane	.4	UG/L	ND	ND	ND	ND	ND	ND
1,1,2-Trichloroethane	.32	UG/L	ND	ND	ND	ND	ND	ND
Trichloroethene	.43	UG/L	ND	ND	ND	ND	ND	ND
Trichlorofluoromethane	.26	UG/L	ND	ND	ND	ND	ND	ND
Vinyl chloride	.24	UG/L	ND	ND	ND	ND	ND	ND
Halomethane Purgeable Cmpnds	.36	UG/L	4.51	2.38	0.000	0.000	0.000	0.000
Total Dichlorobenzenes	.47	UG/L	0.000	0.000	0.000	0.000	0.000	0.000
Purgeable Compounds	.94	UG/L	9.19	6.91	2.37	2.75	0.000	6.13

Additional volatile organic compounds determined;

Analyte	MDL	Units	P959717	P973066	P919177	P936558	P959729	P973078
Acetone	6.74	UG/L	418	608	20.1	155	138	143
Allyl chloride	.44	UG/L	ND	ND	ND	ND	ND	ND
Benzyl chloride	.65	UG/L	ND	ND	ND	ND	ND	ND
2-Butanone	5.56	UG/L	16.7	DNQ9.45	ND	ND	ND	DNQ6.05
Carbon disulfide	.37	UG/L	2.90	1.98	DNQ0.700	ND	ND	DNQ0.940
Chloroprene	.09	UG/L	ND	ND	ND	ND	ND	ND
1,2-Dibromoethane	.41	UG/L	ND	ND	ND	ND	ND	ND
Isopropylbenzene	.41	UG/L	ND	ND	ND	ND	ND	ND
Methyl Iodide	.32	UG/L	ND	ND	ND	ND	ND	ND
Methyl methacrylate	.32	UG/L	ND	ND	ND	ND	ND	ND
2-Nitropropane	.49	UG/L	ND	ND	ND	ND	ND	ND
ortho-xylene	.34	UG/L	ND	DNQ0.485	ND	ND	ND	ND
Styrene	.38	UG/L	ND	ND	ND	ND	ND	ND
1,2,4-Trichlorobenzene	.51	UG/L	ND	ND	ND	ND	ND	ND
meta,para xylenes	.85	UG/L	ND	DNQ0.885	ND	ND	ND	ND
2-Chloroethylvinyl ether	.25	UG/L	ND	ND	ND	ND	ND	ND
4-Methyl-2-pentanone	.39	UG/L	ND	ND	1.20	ND	DNQ0.760	ND

* = Method blank value above the MDL; sample result not included in average calculations.

ND= not detected, NA= not analyzed, NS= not sampled
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PURGEABLE COMPOUNDS
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Source Date Analyte	MDL	Units	DIG COMP 08-FEB-2017 P919213	DIG COMP 02-MAY-2017 P936594	DIG COMP 01-AUG-2017 P959745	DIG COMP 03-OCT-2017 P973094	RAW COMP 08-FEB-2017 P919199	RAW COMP 02-MAY-2017 P936580
Acrolein	6.4	UG/KG	ND	ND	ND	ND	ND	ND
Acrylonitrile	3.9	UG/KG	ND	ND	ND	ND	ND	ND
Benzene	2.1	UG/KG	ND	ND	ND	ND	ND	ND
Bromodichloromethane	2.2	UG/KG	ND	ND	ND	ND	ND	ND
Bromoform	2.4	UG/KG	ND	ND	ND	ND	ND	ND
Bromomethane	6.9	UG/KG	DNQ58.9	ND	DNQ89.6	DNQ76.7*	ND	ND
Carbon tetrachloride	3	UG/KG	ND	ND	ND	ND	ND	ND
Chlorobenzene	1	UG/KG	ND	ND	ND	ND	ND	ND
Chloroethane	3.6	UG/KG	ND	ND	ND	ND	ND	ND
Chloroform	2.3	UG/KG	ND	ND	ND	ND	ND	ND
Chloromethane	3.4	UG/KG	DNQ275	ND	ND	ND	ND	ND
Dibromochloromethane	2.4	UG/KG	ND	ND	ND	ND	ND	ND
1,2-Dichlorobenzene	1.5	UG/KG	ND	ND	ND	ND	ND	ND
1,3-Dichlorobenzene	1.8	UG/KG	ND	ND	ND	ND	ND	ND
1,4-Dichlorobenzene	1.5	UG/KG	ND	ND	ND	ND	1010	ND
1,1-Dichloroethane	1.9	UG/KG	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane	3.6	UG/KG	ND	ND	ND	ND	ND	ND
1,1-Dichloroethene	5	UG/KG	ND	ND	ND	ND	ND	ND
trans-1,2-dichloroethene	3.5	UG/KG	ND	ND	ND	ND	ND	ND
1,2-Dichloropropane	2.6	UG/KG	ND	ND	ND	ND	ND	ND
cis-1,3-dichloropropene	2.5	UG/KG	ND	ND	ND	ND	ND	ND
trans-1,3-dichloropropene	2.1	UG/KG	ND	ND	ND	ND	ND	ND
Ethylbenzene	1.4	UG/KG	DNQ158	806	DNQ93	DNQ355	DNQ49	DNQ86
Methylene chloride	3.5	UG/KG	11500	ND	ND	678*	400000	DNQ82.1
1,1,2,2-Tetrachloroethane	5.9	UG/KG	ND	ND	ND	ND	ND	ND
Tetrachloroethene	2.8	UG/KG	ND	ND	ND	ND	ND	ND
Toluene	1.2	UG/KG	564	DNQ419	DNQ240	DNQ234	484	444
1,1,1-Trichloroethane	3.2	UG/KG	ND	ND	ND	ND	ND	ND
1,1,2-Trichloroethane	2.8	UG/KG	ND	ND	ND	ND	ND	ND
Trichloroethene	2.6	UG/KG	ND	ND	ND	ND	ND	ND
Trichlorofluoromethane	2.2	UG/KG	ND	ND	ND	ND	ND	ND
Vinyl chloride	4.8	UG/KG	ND	ND	ND	ND	ND	ND
Halomethane Purgeable Cmpnds	6.9	UG/KG	0.00	0.00	0.00	0.00	0.00	0.00
Total Dichlorobenzenes	1.8	UG/KG	0.00	0.00	0.00	0.00	0.00	0.00
Purgeable Compounds	6.9	UG/KG	12064	806	0.00	0.00	401494	444

Additional volatile organic compounds determined;

Analyte	MDL	Units	DIG COMP 08-FEB-2017 P919213	DIG COMP 02-MAY-2017 P936594	DIG COMP 01-AUG-2017 P959745	DIG COMP 03-OCT-2017 P973094	RAW COMP 08-FEB-2017 P919199	RAW COMP 02-MAY-2017 P936580
Acetone	31.4	UG/KG	ND	DNQ5230	DNQ2750	3370*	54300	19400
Allyl chloride	3.6	UG/KG	ND	ND	ND	ND	ND	ND
Benzyl chloride	4.3	UG/KG	ND	ND	ND	ND	ND	ND
2-Butanone	36.3	UG/KG	DNQ703	DNQ1610	DNQ557	DNQ968	4110	4340
Carbon disulfide	4.7	UG/KG	DNQ120	288	ND	DNQ124	DNQ94	128
Chloroprene	3.1	UG/KG	ND	ND	ND	ND	ND	ND
1,2-Dibromoethane	2.5	UG/KG	ND	ND	ND	ND	ND	ND
Isopropylbenzene	1.3	UG/KG	ND	ND	ND	ND	ND	ND
Methyl Iodide	3.8	UG/KG	ND	ND	ND	ND	ND	ND
Methyl methacrylate	2.4	UG/KG	ND	ND	ND	ND	ND	ND
2-Nitropropane	45.8	UG/KG	ND	ND	ND	ND	ND	ND
ortho-xylene	1.9	UG/KG	ND	ND	ND	ND	ND	ND
Styrene	1.7	UG/KG	DNQ28.7	DNQ83.0	DNQ24.7	DNQ37.8	476	566
1,2,4-Trichlorobenzene	2.5	UG/KG	ND	ND	ND	ND	ND	ND
meta,para xylenes	4.2	UG/KG	DNQ42.7	DNQ106	DNQ23.5	DNQ71.9	DNQ133	DNQ219
2-Chloroethylvinyl ether	5.5	UG/KG	ND	ND	ND	ND	ND	ND
4-Methyl-2-pentanone	9.7	UG/KG	ND	ND	ND	ND	ND	ND

* = Method blank value above the MDL; sample result not included in average calculations.

ND= not detected, NA= not analyzed, NS= not sampled
DNQ= Detected but not quantified. Sample result is less than minimum Level but greater than or equal to MDL.

POINT LOMA WASTEWATER TREATMENT PLANT

ANNUAL 2017

PURGEABLE COMPOUNDS
EPA Method 8260B

Source			RAW COMP	RAW COMP
Date			01-AUG-2017	03-OCT-2017
Analyte	MDL	Units	P959731	P973080
Acrolein	6.4	UG/KG	ND	ND
Acrylonitrile	3.9	UG/KG	ND	ND
Benzene	2.1	UG/KG	ND	ND
Bromodichloromethane	2.2	UG/KG	ND	ND
Bromoform	2.4	UG/KG	ND	ND
Bromomethane	6.9	UG/KG	DNQ40.2	ND
Carbon tetrachloride	3	UG/KG	ND	ND
Chlorobenzene	1	UG/KG	ND	ND
Chloroethane	3.6	UG/KG	ND	ND
Chloroform	2.3	UG/KG	DNQ14.8	ND
Chloromethane	3.4	UG/KG	ND	ND
Dibromochloromethane	2.4	UG/KG	ND	ND
1,2-Dichlorobenzene	1.5	UG/KG	ND	ND
1,3-Dichlorobenzene	1.8	UG/KG	ND	ND
1,4-Dichlorobenzene	1.5	UG/KG	ND	DNQ122
1,1-Dichloroethane	1.9	UG/KG	ND	ND
1,2-Dichloroethane	3.6	UG/KG	ND	ND
1,1-Dichloroethene	5	UG/KG	ND	ND
trans-1,2-dichloroethene	3.5	UG/KG	ND	ND
1,2-Dichloropropane	2.6	UG/KG	ND	ND
cis-1,3-dichloropropene	2.5	UG/KG	ND	ND
trans-1,3-dichloropropene	2.1	UG/KG	ND	ND
Ethylbenzene	1.4	UG/KG	DNQ71	DNQ90
Methylene chloride	3.5	UG/KG	DNQ80.4	DNQ128*
1,1,2,2-Tetrachloroethane	5.9	UG/KG	ND	ND
Tetrachloroethene	2.8	UG/KG	DNQ18.4	ND
Toluene	1.2	UG/KG	537	613
1,1,1-Trichloroethane	3.2	UG/KG	ND	ND
1,1,2-Trichloroethane	2.8	UG/KG	ND	ND
Trichloroethene	2.6	UG/KG	ND	ND
Trichlorofluoromethane	2.2	UG/KG	ND	ND
Vinyl chloride	4.8	UG/KG	ND	ND
Halomethane Purgeable Cmpnds	6.9	UG/KG	0.00	0.00
Total Dichlorobenzenes	1.8	UG/KG	0.00	0.00
Purgeable Compounds	6.9	UG/KG	537	613

Additional volatile organic compounds determined;

Acetone	31.4	UG/KG	18300	12100
Allyl chloride	3.6	UG/KG	ND	ND
Benzyl chloride	4.3	UG/KG	ND	ND
2-Butanone	36.3	UG/KG	2800	2530
Carbon disulfide	4.7	UG/KG	DNQ103	115
Chloroprene	3.1	UG/KG	ND	ND
1,2-Dibromoethane	2.5	UG/KG	ND	ND
Isopropylbenzene	1.3	UG/KG	ND	ND
Methyl Iodide	3.8	UG/KG	ND	ND
Methyl methacrylate	2.4	UG/KG	ND	ND
2-Nitropropane	45.8	UG/KG	ND	ND
ortho-xylene	1.9	UG/KG	DNQ48.3	DNQ108
Styrene	1.7	UG/KG	254	478
1,2,4-Trichlorobenzene	2.5	UG/KG	ND	ND
meta,para xylenes	4.2	UG/KG	DNQ101	DNQ226
2-Chloroethylvinyl ether	5.5	UG/KG	ND	ND
4-Methyl-2-pentanone	9.7	UG/KG	ND	ND

* = Method blank value above the MDL; sample result not included in average calculations.

ND= not detected, NA= not analyzed, NS= not sampled
DNQ= Detected but not quantified. Sample result is less than minimum Level but greater than or equal to MDL.

POINT LOMA WASTEWATER TREATMENT PLANT

ANNUAL 2017

Purgeables

Analyte	MDL	Units	MBCDEWCN 31-JAN-2017 P920340	MBCDEWCN 28-FEB-2017 P925827	MBCDEWCN 31-MAR-2017 P932213	MBCDEWCN 30-APR-2017 P937935	MBCDEWCN 31-MAY-2017 P945968	MBCDEWCN 30-JUN-2017 P953132
Acrolein	6.4	UG/KG	ND	ND	ND	ND	ND	ND
Acrylonitrile	3.9	UG/KG	ND	ND	ND	ND	ND	ND
Benzene	2.1	UG/KG	ND	ND	ND	ND	ND	DNQ11.2
Bromodichloromethane	2.2	UG/KG	ND	ND	ND	ND	ND	ND
Bromoform	2.4	UG/KG	ND	ND	ND	ND	ND	ND
Bromomethane	6.9	UG/KG	ND	ND	ND	ND	ND	DNQ7.5
Carbon tetrachloride	3	UG/KG	ND	ND	ND	ND	ND	ND
Chlorobenzene	1	UG/KG	ND	ND	ND	ND	ND	ND
Chloroethane	3.6	UG/KG	ND	ND	ND	ND	ND	ND
Chloroform	2.3	UG/KG	ND	ND	ND	ND	ND	ND
Chloromethane	3.4	UG/KG	ND	ND	ND	ND	ND	ND
Dibromochloromethane	2.4	UG/KG	ND	ND	ND	ND	ND	ND
1,2-Dichlorobenzene	1.5	UG/KG	ND	ND	ND	ND	ND	ND
1,3-Dichlorobenzene	1.8	UG/KG	ND	ND	ND	ND	ND	ND
1,4-Dichlorobenzene	1.5	UG/KG	64.2	77.2	91.2	108	85.1	66.1
Dichlorodifluoromethane	5.56	UG/KG	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	1.9	UG/KG	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane	3.6	UG/KG	ND	ND	ND	ND	ND	ND
1,1-Dichloroethene	5	UG/KG	ND	ND	ND	ND	ND	ND
trans-1,2-dichloroethene	3.5	UG/KG	ND	ND	ND	ND	ND	ND
1,2-Dichloropropane	2.6	UG/KG	ND	ND	ND	ND	ND	ND
cis-1,3-dichloropropene	2.5	UG/KG	ND	ND	ND	ND	ND	ND
trans-1,3-dichloropropene	2.1	UG/KG	ND	ND	ND	ND	ND	ND
Ethylbenzene	1.4	UG/KG	311	409	428	499	440	355
Methylene chloride	3.5	UG/KG	DNQ18.4	ND	ND	DNQ7.1	DNQ5.4	DNQ5.3
1,1,2,2-Tetrachloroethane	5.9	UG/KG	ND	ND	ND	ND	ND	ND
Tetrachloroethene	2.8	UG/KG	ND	ND	ND	ND	ND	ND
Toluene	1.2	UG/KG	103	133	132	144*	127	122
1,1,1-Trichloroethane	3.2	UG/KG	ND	ND	ND	ND	ND	ND
1,1,2-Trichloroethane	2.8	UG/KG	ND	ND	ND	ND	ND	ND
Trichloroethene	2.6	UG/KG	ND	ND	ND	ND	ND	ND
Trichlorofluoromethane	2.2	UG/KG	ND	ND	ND	ND	ND	ND
Vinyl chloride	4.8	UG/KG	ND	ND	ND	ND	ND	ND
1,2,4-Trichlorobenzene	2.5	UG/KG	ND	ND	ND	ND	ND	ND
Halomethane Purgeable Compounds	6.9	UG/KG	0.0	0.0	0.0	0.0	0.0	0.0
Purgeable Compounds	6.9	UG/KG	478	619	651	607	652	543

Additional Analytes Determined:

Analyte	MDL	Units	31-JAN-2017	28-FEB-2017	31-MAR-2017	30-APR-2017	31-MAY-2017	30-JUN-2017
Acetone	31.4	UG/KG	23200	19400	26200	24600	24400	36800
Allyl chloride	3.6	UG/KG	ND	ND	ND	ND	ND	ND
Benzyl chloride	4.3	UG/KG	ND	ND	ND	ND	ND	ND
2-Butanone	36.3	UG/KG	7020	5860	7400	7590	6530	15200
Carbon disulfide	4.7	UG/KG	75.5	71.1	98.6	113	127	94.5
Chloroprene	3.1	UG/KG	ND	ND	ND	ND	ND	ND
1,2-Dibromoethane	2.5	UG/KG	ND	ND	ND	ND	ND	ND
Isopropylbenzene	1.3	UG/KG	ND	ND	ND	ND	ND	ND
Methyl Iodide	3.8	UG/KG	ND	ND	ND	ND	ND	ND
Methyl methacrylate	2.4	UG/KG	ND	ND	ND	ND	ND	ND
Methyl tert-butyl ether	3.4	UG/KG	ND	ND	ND	ND	ND	ND
2-Nitropropane	45.8	UG/KG	ND	ND	ND	ND	ND	ND
ortho-xylene	1.9	UG/KG	35.6	41.4	38.0	45.4	42.1	37.8
Styrene	1.7	UG/KG	47.7	66.5	60.2	78.9	70.5	82.3
meta,para xylenes	4.2	UG/KG	73.3	77.5	72.1	83.7	77.8	68.8
2-Chloroethylvinyl ether	5.5	UG/KG	ND	ND	ND	ND	ND	ND
4-Methyl-2-pentanone	9.7	UG/KG	31.2	31.5	43.1	38.3	44.8	89.0

ND= not detected, NA= not analyzed, NS= not sampled
* = Method blank value above the MDL; sample result not included in average calculations.
DNQ= Detected but not quantified. Sample result is less than minimum Level but greater than or equal to MDL.

POINT LOMA WASTEWATER TREATMENT PLANT

ANNUAL 2017

Purgeables

Source			MBCDEWCN	MBCDEWCN	MBCDEWCN	MBCDEWCN	MBCDEWCN
Date			31-JUL-2017	31-AUG-2017	30-SEP-2017	31-OCT-2017	31-DEC-2017
Analyte	MDL	Units	P959635	P966456	P974186	P979340	P992862
Acrolein	6.4	UG/KG	ND	ND	ND	ND	ND
Acrylonitrile	3.9	UG/KG	ND	ND	ND	ND	ND
Benzene	2.1	UG/KG	DNQ4.7	ND	ND	ND	ND
Bromodichloromethane	2.2	UG/KG	ND	ND	ND	ND	ND
Bromoform	2.4	UG/KG	ND	ND	ND	ND	ND
Bromomethane	6.9	UG/KG	ND	ND	ND	ND	ND
Carbon tetrachloride	3	UG/KG	ND	ND	ND	ND	ND
Chlorobenzene	1	UG/KG	ND	ND	ND	ND	ND
Chloroethane	3.6	UG/KG	ND	ND	ND	ND	ND
Chloroform	2.3	UG/KG	ND	ND	ND	ND	ND
Chloromethane	3.4	UG/KG	ND	ND	ND	ND	ND
Dibromochloromethane	2.4	UG/KG	ND	ND	ND	ND	ND
1,2-Dichlorobenzene	1.5	UG/KG	ND	ND	ND	ND	ND
1,3-Dichlorobenzene	1.8	UG/KG	ND	ND	ND	ND	ND
1,4-Dichlorobenzene	1.5	UG/KG	57.3	49.2	65.1	57.2	63.2
Dichlorodifluoromethane	5.56	UG/KG	ND	ND	ND	ND	ND
1,1-Dichloroethane	1.9	UG/KG	ND	ND	ND	ND	ND
1,2-Dichloroethane	3.6	UG/KG	ND	ND	ND	ND	ND
1,1-Dichloroethene	5	UG/KG	ND	ND	ND	ND	ND
trans-1,2-dichloroethene	3.5	UG/KG	ND	ND	ND	ND	ND
1,2-Dichloropropane	2.6	UG/KG	ND	ND	ND	ND	ND
cis-1,3-dichloropropene	2.5	UG/KG	ND	ND	ND	ND	ND
trans-1,3-dichloropropene	2.1	UG/KG	ND	ND	ND	ND	ND
Ethylbenzene	1.4	UG/KG	362	278	321	303	247
Methylene chloride	3.5	UG/KG	DNQ5.2	DNQ4.8	101*	ND	DNQ6.4
1,1,2,2-Tetrachloroethane	5.9	UG/KG	ND	ND	ND	ND	ND
Tetrachloroethene	2.8	UG/KG	ND	ND	ND	ND	ND
Toluene	1.2	UG/KG	175	137	146	109	125
1,1,1-Trichloroethane	3.2	UG/KG	ND	ND	ND	ND	ND
1,1,2-Trichloroethane	2.8	UG/KG	ND	ND	ND	ND	ND
Trichloroethene	2.6	UG/KG	ND	ND	ND	ND	ND
Trichlorofluoromethane	2.2	UG/KG	ND	ND	ND	ND	ND
Vinyl chloride	4.8	UG/KG	ND	ND	ND	ND	ND
1,2,4-Trichlorobenzene	2.5	UG/KG	ND	ND	ND	ND	ND
Halomethane Purgeable Compounds	6.9	UG/KG	0.0	0.0	0.0	0.0	0.0
Purgeable Compounds	6.9	UG/KG	594	464	532	469	435

Additional Analytes Determined:

Analyte	MDL	Units	P959635	P966456	P974186	P979340	P992862
Acetone	31.4	UG/KG	29900	22800	19400	18200	18900
Allyl chloride	3.6	UG/KG	ND	ND	ND	ND	ND
Benzyl chloride	4.3	UG/KG	ND	ND	ND	ND	ND
2-Butanone	36.3	UG/KG	8650	4930	5840	5300	5830
Carbon disulfide	4.7	UG/KG	99.0	119	102	80.3	88.4
Chloroprene	3.1	UG/KG	ND	ND	ND	ND	ND
1,2-Dibromoethane	2.5	UG/KG	ND	ND	ND	ND	ND
Isopropylbenzene	1.3	UG/KG	ND	ND	ND	ND	ND
Methyl Iodide	3.8	UG/KG	ND	ND	ND	ND	ND
Methyl methacrylate	2.4	UG/KG	ND	ND	ND	ND	ND
Methyl tert-butyl ether	3.4	UG/KG	ND	ND	ND	ND	ND
2-Nitropropane	45.8	UG/KG	ND	ND	ND	ND	ND
ortho-xylene	1.9	UG/KG	39.0	38.5	40.2	35.5	32.9
Styrene	1.7	UG/KG	92.8	141	45.3	39.8	39.6
meta,para xylenes	4.2	UG/KG	72.4	68.4	72.9	65.7	60.4
2-Chloroethylvinyl ether	5.5	UG/KG	ND	ND	ND	ND	ND
4-Methyl-2-pentanone	9.7	UG/KG	43.1	39.5	26.6	30.2	30.8

ND= not detected, NA= not analyzed, NS= not sampled
* = Method blank value above the MDL; sample result not included in average calculations.
DNQ= Detected but not quantified. Sample result is less than minimum Level but greater than or equal to MDL.

POINT LOMA WASTEWATER TREATMENT PLANT

ANNUAL 2017

Purgeables
EPA Method 8260B

Source			MBCDEWCN#	Average
Date			30-NOV-2017	
Analyte	MDL	Units	P986442	
Acrolein		UG/KG	NA	0.0
Acrylonitrile	79	UG/KG	ND	0.0
Benzene	27	UG/KG	ND	0.0
Bromodichloromethane	11	UG/KG	ND	0.0
Bromoform	87	UG/KG	ND	0.0
Bromomethane	250	UG/KG	ND	0.0
Carbon tetrachloride	18	UG/KG	ND	0.0
Chlorobenzene	32	UG/KG	ND	0.0
Chloroethane	26	UG/KG	ND	0.0
Chloroform	14	UG/KG	ND	0.0
Chloromethane	50	UG/KG	ND	0.0
Dibromochloromethane	100	UG/KG	ND	0.0
1,2-Dichlorobenzene	43	UG/KG	ND	0.0
1,3-Dichlorobenzene	22	UG/KG	ND	0.0
1,4-Dichlorobenzene	21	UG/KG	ND	71.3
Dichlorodifluoromethane	70	UG/KG	ND	0.0
1,1-Dichloroethane	16	UG/KG	ND	0.0
1,2-Dichloroethane	34	UG/KG	ND	0.0
1,1-Dichloroethene	23	UG/KG	ND	0.0
trans-1,2-dichloroethene	27	UG/KG	ND	0.0
1,2-Dichloropropane	25	UG/KG	ND	0.0
cis-1,3-dichloropropene	17	UG/KG	ND	0.0
trans-1,3-dichloropropene	15	UG/KG	ND	0.0
Ethylbenzene	22	UG/KG	ND	360
Methylene chloride	300	UG/KG	ND	0.0
1,1,2,2-Tetrachloroethane	50	UG/KG	ND	0.0
Tetrachloroethene	26	UG/KG	ND	0.0
Toluene	39	UG/KG	ND	131
1,1,1-Trichloroethane	21	UG/KG	ND	0.0
1,1,2-Trichloroethane	24	UG/KG	ND	0.0
Trichloroethene	29	UG/KG	ND	0.0
Trichlorofluoromethane	27	UG/KG	ND	0.0
Vinyl chloride	42	UG/KG	ND	0.0
1,2,4-Trichlorobenzene	62	UG/KG	ND	0.0
Halomethane Purgeable Compounds	390	UG/KG	0.0	0.0
Purgeable Compounds	300	UG/KG	0.0	562
Acetone	1000	UG/KG	7200	22583
Allyl chloride		UG/KG	NA	0.0
Benzyl chloride		UG/KG	NA	0.0
2-Butanone	500	UG/KG	ND	7287
Carbon disulfide		UG/KG	NA	97.1
Chloroprene		UG/KG	NA	0.0
1,2-Dibromoethane	36	UG/KG	ND	0.0
Isopropylbenzene		UG/KG	NA	0.0
Methyl Iodide		UG/KG	NA	0.0
Methyl methacrylate		UG/KG	NA	0.0
Methyl tert-butyl ether	32	UG/KG	ND	0.0
2-Nitropropane		UG/KG	NA	0.0
ortho-xylene	24	UG/KG	ND	38.8
Styrene	17	UG/KG	ND	69.5
meta,para xylenes	200	UG/KG	ND	72.1
2-Chloroethylvinyl ether		UG/KG	NA	0.0
4-Methyl-2-pentanone		UG/KG	NA	40.7

= Sample analyzed by Babcock Laboratories.

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

POINT LOMA WASTEWATER TREATMENT PLANT
ANNUAL 2017

BASE/NEUTRAL COMPOUNDS
EPA Method 625

Source			PLR	PLR	PLR	PLR	PLE	PLE
Date			07-FEB-2017	02-MAY-2017	01-AUG-2017	03-OCT-2017	07-FEB-2017	02-MAY-2017
Analyte	MDL	Units	P919163	P936544	P959720	P973069	P919157	P936538
Acenaphthene	1.8	UG/L	ND	ND	ND	ND	ND	ND
Acenaphthylene	1.77	UG/L	ND	ND	ND	ND	ND	ND
Anthracene	1.29	UG/L	ND	ND	ND	ND	ND	ND
Benzidine	1.52	UG/L	ND	ND*	ND	ND	ND	ND*
Benzo[a]anthracene	1.1	UG/L	ND	ND	ND	ND	ND	ND
3,4-Benzo(b)fluoranthene	1.35	UG/L	ND	ND	ND	ND	ND	ND
Benzo[k]fluoranthene	1.49	UG/L	ND	ND	ND	ND	ND	ND
Benzo[a]pyrene	1.25	UG/L	ND	ND	ND	ND	ND	ND
Benzo[g,h,i]perylene	1.09	UG/L	ND	ND	ND	ND	ND	ND
4-Bromophenyl phenyl ether	1.4	UG/L	ND	ND	ND	ND	ND	ND
Bis-(2-chloroethoxy) methane	1.01	UG/L	ND	ND	ND	ND	ND	ND
Bis-(2-chloroisopropyl) ether	1.16	UG/L	ND	ND	ND	ND	ND	ND
Bis-(2-chloroethyl) ether	1.38	UG/L	ND	ND	ND	ND	ND	ND
4-Chlorophenyl phenyl ether	1.57	UG/L	ND	ND	ND	ND	ND	ND
Chrysene	1.16	UG/L	ND	ND	ND	ND	ND	ND
Dibenzo(a,h)anthracene	1.01	UG/L	ND	ND	ND	ND	ND	ND
Butyl benzyl phthalate	2.84	UG/L	ND	ND	ND	ND	ND	ND
Di-n-butyl phthalate	3.96	UG/L	ND	ND	ND	ND	ND	ND
Bis-(2-ethylhexyl) phthalate	8.96	UG/L	10.3	ND	ND	ND	ND	ND
Diethyl phthalate	3.05	UG/L	3.54	3.75	3.22	ND	<3.05	ND
Dimethyl phthalate	1.44	UG/L	ND	ND	ND	ND	ND	ND
Di-n-octyl phthalate	1	UG/L	ND	ND	ND	ND	ND	ND
3,3-Dichlorobenzidine	2.44	UG/L	ND	ND	ND	ND	ND	ND
2,4-Dinitrotoluene	1.36	UG/L	ND	ND	ND	ND	ND	ND
2,6-Dinitrotoluene	1.53	UG/L	ND	ND	ND	ND	ND	ND
1,2-Diphenylhydrazine	1.37	UG/L	ND	ND	ND	ND	ND	ND
Fluoranthene	1.33	UG/L	ND	ND	ND	ND	ND	ND
Fluorene	1.61	UG/L	ND	ND	ND	ND	ND	ND
Hexachlorobenzene	1.48	UG/L	ND	ND	ND	ND	ND	ND
Hexachlorobutadiene	1.64	UG/L	ND	ND	ND	ND	ND	ND
Hexachlorocyclopentadiene	1.25	UG/L	ND	ND	ND	ND	ND	ND
Hexachloroethane	1.32	UG/L	ND	ND	ND	ND	ND	ND
Indeno(1,2,3-CD)pyrene	1.14	UG/L	ND	ND	ND	ND	ND	ND
Isophorone	1.53	UG/L	ND	ND	ND	ND	ND	ND
Naphthalene	1.65	UG/L	ND	ND	ND	ND	ND	ND
Nitrobenzene	1.6	UG/L	ND	ND	ND	ND	ND	ND
N-nitrosodimethylamine	1.27	UG/L	ND	ND	ND	ND	ND	ND
N-nitrosodi-n-propylamine	1.16	UG/L	ND	ND	ND	ND	ND	ND
N-nitrosodiphenylamine	3.48	UG/L	ND	ND	ND	ND	ND	ND
Phenanthrene	1.34	UG/L	ND	ND	ND	ND	ND	ND
Pyrene	1.43	UG/L	ND	ND	ND	ND	ND	ND
1,2,4-Trichlorobenzene	1.52	UG/L	ND	ND	ND	ND	ND	ND
Polynuc. Aromatic Hydrocarbons	1.77	UG/L	0.0	0.0	0.0	0.0	0.0	0.0
Base/Neutral Compounds	8.96	UG/L	13.8	3.8	3.2	0.0	0.0	0.0

Additional Analytes Determined:

Benzo[e]pyrene	1.44	UG/L	ND	ND	ND	ND	ND	ND
Biphenyl	2.29	UG/L	ND	ND	ND	ND	ND	ND
2,6-Dimethylnaphthalene	2.16	UG/L	ND	ND	ND	ND	ND	ND
1-Methylnaphthalene	2.18	UG/L	ND	ND	ND	ND	ND	ND
1-Methylphenanthrene	1.46	UG/L	ND	ND	ND	ND	ND	ND
2-Methylnaphthalene	2.14	UG/L	ND	ND	ND	ND	ND	ND
2,3,5-Trimethylnaphthalene	2.18	UG/L	ND	ND	ND	ND	ND	ND
Perylene	1.41	UG/L	ND	ND	ND	ND	ND	ND
2-Chloronaphthalene	1.87	UG/L	ND	ND	ND	ND	ND	ND

* = Recovery of compound in internal check and/or matrix spike sample outside method acceptance limits; value is not used in average calculations.

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

POINT LOMA WASTEWATER TREATMENT PLANT
ANNUAL 2017

BASE/NEUTRAL COMPOUNDS
EPA Method 625

Source Date Analyte	MDL	Units	PLE 01-AUG-2017 P959714	PLE 03-OCT-2017 P973063	MBC_COMBCN 07-FEB-2017 P919174	MBC_COMBCN 02-MAY-2017 P936555	MBC_COMBCN 01-AUG-2017 P959726	MBC_COMBCN 03-OCT-2017 P973075
Acenaphthene	1.8	UG/L	ND	ND	ND	ND	ND	ND
Acenaphthylene	1.77	UG/L	ND	ND	ND	ND	ND	ND
Anthracene	1.29	UG/L	ND	ND	ND	ND	ND	ND
Benzidine	1.52	UG/L	ND	ND	ND	ND*	DNQ1.6	ND
Benzo[a]anthracene	1.1	UG/L	ND	ND	ND	ND	ND	ND
3,4-Benzo(b)fluoranthene	1.35	UG/L	ND	ND	ND	ND	ND	ND
Benzo[k]fluoranthene	1.49	UG/L	ND	ND	ND	ND	ND	ND
Benzo[a]pyrene	1.25	UG/L	ND	ND	ND	ND	ND	ND
Benzo[g,h,i]perylene	1.09	UG/L	ND	ND	ND	ND	ND	ND
4-Bromophenyl phenyl ether	1.4	UG/L	ND	ND	ND	ND	ND	ND
Bis-(2-chloroethoxy) methane	1.01	UG/L	ND	ND	ND	ND	ND	ND
Bis-(2-chloroisopropyl) ether	1.16	UG/L	ND	ND	ND	ND	ND	ND
Bis-(2-chloroethyl) ether	1.38	UG/L	ND	ND	ND	ND	ND	ND
4-Chlorophenyl phenyl ether	1.57	UG/L	ND	ND	ND	ND	ND	ND
Chrysene	1.16	UG/L	ND	ND	ND	ND	ND	ND
Dibenzo(a,h)anthracene	1.01	UG/L	ND	ND	ND	ND	ND	ND
Butyl benzyl phthalate	2.84	UG/L	ND	ND	ND	ND	ND	ND
Di-n-butyl phthalate	3.96	UG/L	ND	ND	ND	ND	ND	ND
Bis-(2-ethylhexyl) phthalate	8.96	UG/L	ND	ND	22.8	ND	ND	ND
Diethyl phthalate	3.05	UG/L	ND	3.33	ND	ND	ND	ND
Dimethyl phthalate	1.44	UG/L	ND	ND	ND	ND	ND	ND
Di-n-octyl phthalate	1	UG/L	ND	ND	ND	1.1	ND	ND
3,3-Dichlorobenzidine	2.44	UG/L	ND	ND	ND	ND	ND	ND
2,4-Dinitrotoluene	1.36	UG/L	ND	ND	ND	ND	ND	ND
2,6-Dinitrotoluene	1.53	UG/L	ND	ND	ND	ND	ND	ND
1,2-Diphenylhydrazine	1.37	UG/L	ND	ND	ND	ND	ND	ND
Fluoranthene	1.33	UG/L	ND	ND	ND	ND	ND	ND
Fluorene	1.61	UG/L	ND	ND	ND	ND	ND	ND
Hexachlorobenzene	1.48	UG/L	ND	ND	ND	ND	ND	ND
Hexachlorobutadiene	1.64	UG/L	ND	ND	ND	ND	ND	ND
Hexachlorocyclopentadiene	1.25	UG/L	ND	ND	ND	ND	ND	ND
Hexachloroethane	1.32	UG/L	ND	ND	ND	ND	ND	ND
Indeno(1,2,3-CD)pyrene	1.14	UG/L	ND	ND	ND	ND	ND	ND
Isophorone	1.53	UG/L	ND	ND	ND	ND	ND	ND
Naphthalene	1.65	UG/L	ND	ND	ND	ND	ND	ND
Nitrobenzene	1.6	UG/L	ND	ND	ND	ND	ND	ND
N-nitrosodimethylamine	1.27	UG/L	ND	ND	DNQ2.92	ND	ND	ND
N-nitrosodi-n-propylamine	1.16	UG/L	ND	ND	ND	ND	ND	ND
N-nitrosodiphenylamine	3.48	UG/L	ND	ND	ND	ND	ND	ND
Phenanthrene	1.34	UG/L	ND	ND	ND	ND	ND	ND
Pyrene	1.43	UG/L	ND	ND	ND	ND	ND	ND
1,2,4-Trichlorobenzene	1.52	UG/L	ND	ND	ND	ND	ND	ND
Polynuc. Aromatic Hydrocarbons	1.77	UG/L	0.0	0.0	0.0	0.0	0.0	0.0
Base/Neutral Compounds	8.96	UG/L	0.0	3.3	22.8	1.1	0.0	0.0

Additional Analytes Determined:

Analyte	MDL	Units	PLE 01-AUG-2017 P959714	PLE 03-OCT-2017 P973063	MBC_COMBCN 07-FEB-2017 P919174	MBC_COMBCN 02-MAY-2017 P936555	MBC_COMBCN 01-AUG-2017 P959726	MBC_COMBCN 03-OCT-2017 P973075
Benzo[e]pyrene	1.44	UG/L	ND	ND	ND	ND	ND	ND
Biphenyl	2.29	UG/L	ND	ND	ND	ND	ND	ND
2,6-Dimethylnaphthalene	2.16	UG/L	ND	ND	ND	ND	ND	ND
1-Methylnaphthalene	2.18	UG/L	ND	ND	ND	ND	ND	ND
1-Methylphenanthrene	1.46	UG/L	ND	ND	ND	ND	ND	ND
2-Methylnaphthalene	2.14	UG/L	ND	ND	ND	ND	ND	ND
2,3,5-Trimethylnaphthalene	2.18	UG/L	ND	ND	ND	ND	ND	ND
Perylene	1.41	UG/L	ND	ND	ND	ND	ND	ND
2-Chloronaphthalene	1.87	UG/L	ND	ND	ND	ND	ND	ND

* = Recovery of compound in internal check and/or matrix spike sample outside method acceptance limits; value is not used in average calculations.

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

POINT LOMA WASTEWATER TREATMENT PLANT

ANNUAL 2017

BASE/NEUTRAL COMPOUNDS
EPA Method 8270C

Source			MBCDEWCN	MBCDEWCN	MBCDEWCN	MBCDEWCN
Date			28-FEB-2017	31-MAY-2017	31-AUG-2017	31-OCT-2017
Analyte	MDL	Units	P925827	P945968	P966456	P979340
Acenaphthene	330	UG/KG	ND	ND	ND	ND
Acenaphthylene	330	UG/KG	ND	ND	ND	ND
Anthracene	330	UG/KG	ND	ND	ND	ND
Benzidine	330	UG/KG	ND	ND	ND	ND
3,4-Benzo(b)fluoranthene	330	UG/KG	ND	ND	ND	ND
Benzo[k]fluoranthene	330	UG/KG	ND	ND	ND	ND
Benzo[a]anthracene	330	UG/KG	ND	ND	ND	ND
Benzo[a]pyrene	330	UG/KG	ND	ND	ND	ND
Benzo[g,h,i]perylene	330	UG/KG	ND	ND	ND	ND
4-Bromophenyl phenyl ether	330	UG/KG	ND	ND	ND	ND
Bis-(2-chloroethoxy) methane	330	UG/KG	ND	ND	ND	ND
Bis-(2-chloroethyl) ether	330	UG/KG	ND	ND	ND	ND
Bis-(2-chloroisopropyl) ether	330	UG/KG	ND	ND	ND	ND
4-Chlorophenyl phenyl ether	330	UG/KG	ND	ND	ND	ND
2-Chloronaphthalene		UG/KG	ND	ND	ND	ND
Chrysene	330	UG/KG	ND	ND	ND	ND
Dibenzo(a,h)anthracene	330	UG/KG	ND	ND	ND	ND
Butyl benzyl phthalate	330	UG/KG	ND	ND	ND	620
Di-n-butyl phthalate	330	UG/KG	ND	<330	ND	ND
Bis-(2-ethylhexyl) phthalate	330	UG/KG	53700	64900	ND	70900
Diethyl phthalate	330	UG/KG	ND	ND	ND	ND
Dimethyl phthalate	330	UG/KG	ND	ND	ND	ND
Di-n-octyl phthalate	330	UG/KG	ND	ND	660	ND
3,3-Dichlorobenzidine	330	UG/KG	ND	ND	ND	ND
2,4-Dinitrotoluene	330	UG/KG	ND	ND	ND	ND
2,6-Dinitrotoluene	330	UG/KG	ND	ND	ND	ND
1,2-Diphenylhydrazine		UG/KG	ND	ND	ND	ND
Fluoranthene	330	UG/KG	<330	ND	ND	ND
Fluorene	330	UG/KG	ND	ND	ND	ND
Hexachlorobenzene	330	UG/KG	ND	ND	ND	ND
Hexachlorobutadiene	330	UG/KG	ND	ND	ND	ND
Hexachlorocyclopentadiene	330	UG/KG	ND	ND	ND	ND
Hexachloroethane	330	UG/KG	ND	ND	ND	ND
Indeno(1,2,3-CD)pyrene	330	UG/KG	ND	ND	ND	ND
Isophorone	330	UG/KG	ND	ND	ND	ND
Naphthalene	330	UG/KG	385	399	ND	ND
Nitrobenzene	330	UG/KG	ND	ND	ND	ND
N-nitrosodimethylamine	330	UG/KG	ND	ND	ND	ND
N-nitrosodi-n-propylamine	330	UG/KG	ND	ND	ND	ND
N-nitrosodiphenylamine	330	UG/KG	ND	ND	ND	ND
Phenanthrene	330	UG/KG	632	407	385	ND
Pyrene	330	UG/KG	<330	ND	ND	<330
1,2,4-Trichlorobenzene	330	UG/KG	ND	ND	ND	ND
1,2-Dichlorobenzene	330	UG/KG	ND	ND	ND	ND
1,3-Dichlorobenzene	330	UG/KG	ND	ND	ND	ND
1,4-Dichlorobenzene	330	UG/KG	ND	ND	ND	ND
PolyNuc. Aromatic Hydrocarbons	330	UG/KG	632	407	385	0
Dichlorobenzenes	330	UG/KG	0	0	0	0
Base/Neutral Compounds	330	UG/KG	54717	65706	1045	71520

Additional Analytes Determined;

Analyte	MDL	Units	P925827	P945968	P966456	P979340
Benzo[e]pyrene		UG/KG	ND	ND	ND	ND
Biphenyl		UG/KG	ND	195	ND	ND
2,6-Dimethylnaphthalene		UG/KG	2020	1390	1160	1420
1-Methylnaphthalene		UG/KG	ND	ND	ND	ND
1-Methylphenanthrene		UG/KG	ND	ND	ND	ND
2-Methylnaphthalene		UG/KG	1060	542	415	345
2,3,5-Trimethylnaphthalene		UG/KG	ND	ND	ND	ND
Perylene	330	UG/KG	ND	ND	ND	ND
Pyridine		UG/KG	ND	ND	218	ND

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

POINT LOMA WASTEWATER TREATMENT

ANNUAL 2017

Dioxin and Furan Analysis
EPA Method 1613

Source			PLR	PLR	PLR	PLR	PLR	PLR	PLR	PLR
Month			JAN	MAR	APR	MAY	JUN	JUL	AUG	SEP
Analyte	MDL	Units	P914715	P925684	P932305	P936544	P946048	P953432	P959720	P970354
2,3,7,8-tetra CDD	.209	PG/L	ND	ND	ND	ND	ND	ND	ND	ND
1,2,3,7,8-penta CDD	.366	PG/L	ND	ND	ND	ND	ND	ND	ND	ND
1,2,3,4,7,8_hexa_CDD	.331	PG/L	ND	ND	ND	ND	ND	ND	ND	ND
1,2,3,6,7,8-hexa CDD	.37	PG/L	ND	ND	ND	ND	ND	ND	ND	ND
1,2,3,7,8,9-hexa CDD	.324	PG/L	ND	ND	ND	ND	ND	ND	ND	ND
1,2,3,4,6,7,8-hepta CDD	.408	PG/L	DNQ14.5	DNQ12.8	DNQ16.2	DNQ18.3	DNQ16.8	DNQ17.1	DNQ12.7	DNQ17.6
octa CDD	1.1	PG/L	160	110	160	190	140	140	100	140
2,3,7,8-tetra CDF	.196	PG/L	ND	ND	ND	ND	ND	DNQ1.09	ND	ND
1,2,3,7,8-penta CDF	.32	PG/L	ND	ND	ND	ND	ND	ND	ND	ND
2,3,4,7,8-penta CDF	303	PG/L	ND	ND	ND	ND	ND	ND	ND	ND
1,2,3,4,7,8-hexa CDF	.29	PG/L	ND	ND	ND	ND	ND	ND	ND	ND
1,2,3,6,7,8-hexa CDF	.311	PG/L	ND	ND	ND	2.02	DNQ2.29	DNQ2.61	ND	ND
1,2,3,7,8,9-hexa CDF	.359	PG/L	ND	ND	ND	ND	ND	ND	ND	ND
2,3,4,6,7,8-hexa CDF	.376	PG/L	ND	ND	ND	ND	ND	ND	DNQ2.150	ND
1,2,3,4,6,7,8-hepta CDF	.346	PG/L	DNQ4.25	DNQ2.33	DNQ3.23	DNQ4.70	DNQ3.86	DNQ4.15	DNQ3.08	DNQ4.73
1,2,3,4,7,8,9-hepta CDF	.484	PG/L	ND	ND	ND	ND	ND	ND	ND	ND
octa CDF	.858	PG/L	DNQ11.0	DNQ5.72	DNQ7.48	DNQ8.70	DNQ8.84	DNQ8.62	DNQ7.64	DNQ8.56

Source			PLR	PLR
Month			NOV	DEC
Analyte	MDL	Units	P979793	P986773
2,3,7,8-tetra CDD	.209	PG/L	ND	ND
1,2,3,7,8-penta CDD	.366	PG/L	ND	ND
1,2,3,4,7,8_hexa_CDD	.331	PG/L	ND	ND
1,2,3,6,7,8-hexa CDD	.37	PG/L	ND	ND
1,2,3,7,8,9-hexa CDD	.324	PG/L	ND	ND
1,2,3,4,6,7,8-hepta CDD	.408	PG/L	DNQ13.8	DNQ10.8
octa CDD	1.1	PG/L	150	99.0
2,3,7,8-tetra CDF	.196	PG/L	DNQ0.932	DNQ0.853
1,2,3,7,8-penta CDF	.32	PG/L	ND	ND
2,3,4,7,8-penta CDF	303	PG/L	ND	ND
1,2,3,4,7,8-hexa CDF	.29	PG/L	ND	ND
1,2,3,6,7,8-hexa CDF	.311	PG/L	ND	ND
1,2,3,7,8,9-hexa CDF	.359	PG/L	ND	ND
2,3,4,6,7,8-hexa CDF	.376	PG/L	ND	ND
1,2,3,4,6,7,8-hepta CDF	.346	PG/L	DNQ4.43	DNQ3.31
1,2,3,4,7,8,9-hepta CDF	.484	PG/L	ND	ND
octa CDF	.858	PG/L	DNQ7.43	DNQ7.75

Above are permit required CDD/CDF isomers.

ND=not detected; NS=not sampled; NA=not analyzed; NR=not required

DNQ= Detected but not quantified. Sample result is less than the Minimum Level but greater than or equal to MDL.

ANALYZED BY: Frontier Analytical Laboratories

POINT LOMA WASTEWATER TREATMENT

ANNUAL 2017

Dioxin and Furan Analysis
EPA Method 1613

Source Month Analyte	MDL	Units	PLE JAN P914712	PLE FEB P919157	PLE MAR P925681	PLE APR P932302	PLE MAY P936538	PLE JUN P946045	PLE JUL P953429	PLE AUG P959714
2,3,7,8-tetra CDD	.316	PG/L	ND	ND	ND	ND	ND	ND	ND	ND
1,2,3,7,8-penta CDD	.607	PG/L	ND	ND	ND	ND	ND	ND	ND	ND
1,2,3,4,7,8_hexa_CDD	.808	PG/L	ND	ND	ND	ND	ND	ND	ND	ND
1,2,3,6,7,8-hexa CDD	.891	PG/L	ND	ND	ND	ND	ND	ND	ND	ND
1,2,3,7,8,9-hexa CDD	.756	PG/L	ND	ND	ND	ND	ND	ND	ND	ND
1,2,3,4,6,7,8-hepta CDD	.857	PG/L	DNQ2.47	DNQ2.43	DNQ2.69	DNQ2.56	DNQ3.00	DNQ3.10	DNQ3.64	DNQ3.35
octa CDD	1.2	PG/L	DNQ15.0	DNQ14.0	DNQ15.0	DNQ16.0	DNQ21.0	DNQ17.0	DNQ45.0	DNQ21.0
2,3,7,8-tetra CDF	.307	PG/L	ND	ND	ND	ND	ND	ND	ND	ND
1,2,3,7,8-penta CDF	.421	PG/L	ND	ND	ND	ND	ND	ND	ND	ND
2,3,4,7,8-penta CDF	.431	PG/L	ND	ND	ND	ND	ND	ND	ND	ND
1,2,3,4,7,8-hexa CDF	.486	PG/L	ND	ND	ND	ND	ND	ND	ND	ND
1,2,3,6,7,8-hexa CDF	.521	PG/L	ND	ND	ND	ND	ND	ND	ND	ND
1,2,3,7,8,9-hexa CDF	.663	PG/L	ND	ND	ND	ND	ND	ND	ND	ND
2,3,4,6,7,8-hexa CDF	.556	PG/L	ND	ND	ND	ND	ND	ND	ND	ND
1,2,3,4,6,7,8-hepta CDF	.489	PG/L	ND	ND	ND	ND	ND	ND	ND	ND
1,2,3,4,7,8,9-hepta CDF	.69	PG/L	ND	ND	ND	ND	ND	ND	ND	ND
octa CDF	1.7	PG/L	ND	ND	ND	ND	ND	ND	DNQ2.50	ND

Analyte	MDL	Units	PLE SEP P970351	PLE OCT P973063	PLE NOV P979790	PLE DEC P986770
2,3,7,8-tetra CDD	.316	PG/L	ND	ND	ND	ND
1,2,3,7,8-penta CDD	.607	PG/L	ND	ND	ND	ND
1,2,3,4,7,8_hexa_CDD	.808	PG/L	ND	ND	ND	ND
1,2,3,6,7,8-hexa CDD	.891	PG/L	ND	ND	ND	ND
1,2,3,7,8,9-hexa CDD	.756	PG/L	ND	ND	ND	ND
1,2,3,4,6,7,8-hepta CDD	.857	PG/L	DNQ2.53	DNQ2.33	ND	DNQ2.49
octa CDD	1.2	PG/L	DNQ16.0	DNQ11.0	DNQ8.90	DNQ17.0
2,3,7,8-tetra CDF	.307	PG/L	ND	ND	ND	ND
1,2,3,7,8-penta CDF	.421	PG/L	ND	ND	ND	ND
2,3,4,7,8-penta CDF	.431	PG/L	ND	ND	ND	ND
1,2,3,4,7,8-hexa CDF	.486	PG/L	ND	ND	ND	ND
1,2,3,6,7,8-hexa CDF	.521	PG/L	ND	ND	ND	ND
1,2,3,7,8,9-hexa CDF	.663	PG/L	ND	ND	ND	ND
2,3,4,6,7,8-hexa CDF	.556	PG/L	ND	ND	ND	ND
1,2,3,4,6,7,8-hepta CDF	.489	PG/L	ND	ND	ND	ND
1,2,3,4,7,8,9-hepta CDF	.69	PG/L	ND	ND	ND	ND
octa CDF	1.7	PG/L	ND	ND	ND	ND

Above are permit required CDD/CDF isomers.

ND=not detected; NS=not sampled; NA=not analyzed; NR=not required

DNQ= Detected but not quantified. Sample result is less than the Minimum Level but greater than or equal to MDL.

ANALYZED BY: Frontier Analytical Laboratories

POINT LOMA WASTEWATER TREATMENT

ANNUAL 2017

Dioxin and Furan Analysis
EPA Method 1613

Source				PLR TCDD	PLR TCDD	PLR TCDD	PLR TCDD	PLR TCDD	PLR TCDD
Month				JAN	FEB	MAR	MAY	JUN	JUL
Analyte	MDL	Units	Equiv	P914715	P919163	P925684	P936544	P946048	P953432
2,3,7,8-tetra CDD	.209	PG/L	1.000	ND	ND	ND	ND	ND	ND
1,2,3,7,8-penta CDD	.366	PG/L	0.500	ND	ND	ND	ND	ND	ND
1,2,3,4,7,8_hexa_CDD	.331	PG/L	0.100	ND	ND	ND	ND	ND	ND
1,2,3,6,7,8-hexa CDD	.37	PG/L	0.100	ND	ND	ND	ND	ND	ND
1,2,3,7,8,9-hexa CDD	.324	PG/L	0.100	ND	ND	ND	ND	ND	ND
1,2,3,4,6,7,8-hepta CDD	.408	PG/L	0.010	DNQ0.145	DNQ0.224	DNQ0.128	DNQ0.183	DNQ0.168	DNQ0.171
octa CDD	1.1	PG/L	0.001	0.160	0.180	0.110	0.190	0.140	0.140
2,3,7,8-tetra CDF	.196	PG/L	0.100	ND	ND	ND	ND	ND	DNQ0.109
1,2,3,7,8-penta CDF	.32	PG/L	0.050	ND	ND	ND	ND	ND	ND
2,3,4,7,8-penta CDF	.303	PG/L	0.500	ND	ND	ND	ND	ND	ND
1,2,3,4,7,8-hexa CDF	.29	PG/L	0.100	ND	ND	ND	ND	ND	ND
1,2,3,6,7,8-hexa CDF	.311	PG/L	0.100	ND	DNQ0.110	ND	0.202	DNQ0.229	DNQ0.261
1,2,3,7,8,9-hexa CDF	.359	PG/L	0.100	ND	ND	ND	ND	ND	ND
2,3,4,6,7,8-hexa CDF	.376	PG/L	0.100	ND	ND	ND	ND	ND	ND
1,2,3,4,6,7,8-hepta CDF	.346	PG/L	0.010	DNQ0.043	DNQ0.032	DNQ0.023	DNQ0.047	DNQ0.039	DNQ0.042
1,2,3,4,7,8,9-hepta CDF	.484	PG/L	0.010	ND	ND	ND	ND	ND	ND
octa CDF	.858	PG/L	0.001	DNQ0.011	DNQ0.008	DNQ0.006	DNQ0.009	DNQ0.009	DNQ0.009

Source				PLR TCDD	PLR TCDD	PLR TCDD	PLR TCDD
Month				SEP	OCT	NOV	DEC
Analyte	MDL	Units	Equiv	P970354	P973069	P979793	P986773
2,3,7,8-tetra CDD	.209	PG/L	1.000	ND	ND	ND	ND
1,2,3,7,8-penta CDD	.366	PG/L	0.500	ND	ND	ND	ND
1,2,3,4,7,8_hexa_CDD	.331	PG/L	0.100	ND	ND	ND	ND
1,2,3,6,7,8-hexa CDD	.37	PG/L	0.100	ND	ND	ND	ND
1,2,3,7,8,9-hexa CDD	.324	PG/L	0.100	ND	ND	ND	ND
1,2,3,4,6,7,8-hepta CDD	.408	PG/L	0.010	DNQ0.176	DNQ0.126	DNQ0.138	DNQ0.108
octa CDD	1.1	PG/L	0.001	0.140	0.110	0.150	0.099
2,3,7,8-tetra CDF	.196	PG/L	0.100	ND	ND	DNQ0.093	DNQ0.085
1,2,3,7,8-penta CDF	.32	PG/L	0.050	ND	ND	ND	ND
2,3,4,7,8-penta CDF	.303	PG/L	0.500	ND	ND	ND	ND
1,2,3,4,7,8-hexa CDF	.29	PG/L	0.100	ND	ND	ND	ND
1,2,3,6,7,8-hexa CDF	.311	PG/L	0.100	ND	ND	ND	ND
1,2,3,7,8,9-hexa CDF	.359	PG/L	0.100	ND	ND	ND	ND
2,3,4,6,7,8-hexa CDF	.376	PG/L	0.100	ND	ND	ND	ND
1,2,3,4,6,7,8-hepta CDF	.346	PG/L	0.010	DNQ0.047	DNQ0.042	DNQ0.044	DNQ0.033
1,2,3,4,7,8,9-hepta CDF	.484	PG/L	0.010	ND	ND	ND	ND
octa CDF	.858	PG/L	0.001	DNQ0.009	DNQ0.008	DNQ0.007	DNQ0.008

Above are permit required CDD/CDF isomers.

ND=not detected; NS=not sampled; NA=not analyzed; NR=not required

DNQ= Detected but not quantified. Sample result is less than the Minimum Level but greater than or equal to MDL.

ANALYZED BY: Frontier Analytical Laboratories

POINT LOMA WASTEWATER TREATMENT

ANNUAL 2017

Dioxin and Furan Analysis
EPA Method 1613

Source				PLE	PLE	PLE	PLE	PLE	PLE
				TCDD	TCDD	TCDD	TCDD	TCDD	TCDD
Month				JAN	FEB	MAR	MAY	JUN	JUL
Analyte	MDL	Units	Equiv	P914712	P919157	P925681	P936538	P946045	P953429
2,3,7,8-tetra CDD	.316	PG/L	1.000	ND	ND	ND	ND	ND	ND
1,2,3,7,8-penta CDD	.607	PG/L	0.500	ND	ND	ND	ND	ND	ND
1,2,3,4,7,8_hexa_CDD	.808	PG/L	0.100	ND	ND	ND	ND	ND	ND
1,2,3,6,7,8-hexa CDD	.891	PG/L	0.100	ND	ND	ND	ND	ND	ND
1,2,3,7,8,9-hexa CDD	.756	PG/L	0.100	ND	ND	ND	ND	ND	ND
1,2,3,4,6,7,8-hepta CDD	.857	PG/L	0.010	DNQ0.025	DNQ0.024	DNQ0.027	DNQ0.030	DNQ0.031	DNQ0.036
octa CDD	1.2	PG/L	0.001	DNQ0.015	DNQ0.014	DNQ0.015	DNQ0.021	DNQ0.017	DNQ0.045
2,3,7,8-tetra CDF	.307	PG/L	0.100	ND	ND	ND	ND	ND	ND
1,2,3,7,8-penta CDF	.421	PG/L	0.050	ND	ND	ND	ND	ND	ND
2,3,4,7,8-penta CDF	.431	PG/L	0.500	ND	ND	ND	ND	ND	ND
1,2,3,4,7,8-hexa CDF	.486	PG/L	0.100	ND	ND	ND	ND	ND	ND
1,2,3,6,7,8-hexa CDF	.521	PG/L	0.100	ND	ND	ND	ND	ND	ND
1,2,3,7,8,9-hexa CDF	.663	PG/L	0.100	ND	ND	ND	ND	ND	ND
2,3,4,6,7,8-hexa CDF	.556	PG/L	0.100	ND	ND	ND	ND	ND	ND
1,2,3,4,6,7,8-hepta CDF	.489	PG/L	0.010	ND	ND	ND	ND	ND	ND
1,2,3,4,7,8,9-hepta CDF	.69	PG/L	0.010	ND	ND	ND	ND	ND	ND
octa CDF	1.7	PG/L	0.001	ND	ND	ND	ND	ND	DNQ0.003

Source				PLE	PLE	PLE	PLE
				TCDD	TCDD	TCDD	TCDD
Month				SEP	OCT	NOV	DEC
Analyte	MDL	Units	Equiv	P970351	P973063	P979790	P986770
2,3,7,8-tetra CDD	.316	PG/L	1.000	ND	ND	ND	ND
1,2,3,7,8-penta CDD	.607	PG/L	0.500	ND	ND	ND	ND
1,2,3,4,7,8_hexa_CDD	.808	PG/L	0.100	ND	ND	ND	ND
1,2,3,6,7,8-hexa CDD	.891	PG/L	0.100	ND	ND	ND	ND
1,2,3,7,8,9-hexa CDD	.756	PG/L	0.100	ND	ND	ND	ND
1,2,3,4,6,7,8-hepta CDD	.857	PG/L	0.010	DNQ0.025	DNQ0.023	ND	DNQ0.025
octa CDD	1.2	PG/L	0.001	DNQ0.016	DNQ0.011	DNQ0.009	DNQ0.017
2,3,7,8-tetra CDF	.307	PG/L	0.100	ND	ND	ND	ND
1,2,3,7,8-penta CDF	.421	PG/L	0.050	ND	ND	ND	ND
2,3,4,7,8-penta CDF	.431	PG/L	0.500	ND	ND	ND	ND
1,2,3,4,7,8-hexa CDF	.486	PG/L	0.100	ND	ND	ND	ND
1,2,3,6,7,8-hexa CDF	.521	PG/L	0.100	ND	ND	ND	ND
1,2,3,7,8,9-hexa CDF	.663	PG/L	0.100	ND	ND	ND	ND
2,3,4,6,7,8-hexa CDF	.556	PG/L	0.100	ND	ND	ND	ND
1,2,3,4,6,7,8-hepta CDF	.489	PG/L	0.010	ND	ND	ND	ND
1,2,3,4,7,8,9-hepta CDF	.69	PG/L	0.010	ND	ND	ND	ND
octa CDF	1.7	PG/L	0.001	ND	ND	ND	ND

Above are permit required CDD/CDF isomers.

ND=not detected; NS=not sampled; NA=not analyzed; NR=not required

DNQ= Detected but not quantified. Sample result is less than minimum Level but greater than or equal to MDL.

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POINT LOMA WASTEWATER TREATMENT PLANT

ANNUAL 2017

Dioxin and Furan AnalysiS
EPA Method 8290

Source			MBCDEWCN	MBCDEWCN	MBCDEWCN	MBCDEWCN	MBCDEWCN	MBCDEWCN	MBCDEWCN
Date			31-JAN-2017	28-FEB-2017	31-MAR-2017	30-APR-2017	31-MAY-2017	30-JUN-2017	31-JUL-2017
Analyte	MDL	Units	P920340	P925827	P932213	P937935	P945968	P953132	P959635
2,3,7,8-tetra CDD	.315	PG/G	DNQ0.902	ND	DNQ0.733	ND	ND	DNQ0.887	ND
1,2,3,7,8-penta CDD	.084	PG/G	DNQ2.78	DNQ2.26	DNQ5.4	ND	ND	DNQ2.58	DNQ2.19
1,2,3,4,7,8_hexa_CDD	.0793	PG/G	DNQ2.29	DNQ1.58	DNQ1.81	DNQ1.87	DNQ1.89	DNQ1.69	DNQ1.69
1,2,3,6,7,8-hexa CDD	.094	PG/G	16.0	13.3	14.9	18.3	11.0	14.7	11.2
1,2,3,7,8,9-hexa CDD	.0823	PG/G	DNQ6.70	DNQ5.41	DNQ6.39	DNQ6.81	DNQ4.63	DNQ4.98	DNQ4.06
1,2,3,4,6,7,8-hepta CDD	.0842	PG/G	338	289	281	280	205	246	212
octa CDD	.172	PG/G	1570	1400	1400	1240	1030	1150	934
2,3,7,8-tetra CDF	.0277	PG/G	4.22	3.70	3.70	5.07	4.02	476	4.64
1,2,3,7,8-penta CDF	.0449	PG/G	DNQ1.68	DNQ1.15	DNQ1.43	DNQ1.78	DNQ1.65	DNQ1.67	DNQ1.67
2,3,4,7,8-penta CDF	.0468	PG/G	DNQ2.01	DNQ1.37	DNQ2.36	DNQ2.10	DNQ2.76	DNQ1.46	DNQ1.73
1,2,3,4,7,8-hexa CDF	.0437	PG/G	DNQ2.16	DNQ1.81	DNQ2.20	DNQ2.37	DNQ1.89	DNQ2.32	DNQ2.31
1,2,3,6,7,8-hexa CDF	.0417	PG/G	DNQ2.13	DNQ1.49	DNQ2.08	DNQ2.35	DNQ2.64	DNQ3.21	DNQ2.66
1,2,3,7,8,9-hexa CDF	.0657	PG/G	DNQ0.981	DNQ0.625	DNQ0.946	DNQ1.12	DNQ0.929	DNQ1.04	DNQ0.816
2,3,4,6,7,8-hexa CDF	.0574	PG/G	DNQ2.31	DNQ1.86	DNQ2.26	DNQ2.41	DNQ2.11	DNQ2.71	DNQ2.67
1,2,3,4,6,7,8-hepta CDF	.0747	PG/G	25.2	18.3	22.8	23.2	18.8	21.3	19.6
1,2,3,4,7,8,9-hepta CDF	.0883	PG/G	DNQ1.84	DNQ1.30	DNQ1.75	DNQ1.57	DNQ1.45	DNQ1.71	DNQ1.06
octa CDF	.776	PG/G	61.9	46.4	58.9	56.9	43.3	54.9	42.7

Source			MBCDEWCN	MBCDEWCN	MBCDEWCN	MBCDEWCN	MBCDEWCN
Date			31-AUG-2017	30-SEP-2017	31-OCT-2017	30-NOV-2017	31-DEC-2017
Analyte	MDL	Units	P966456	P974186	P979340	P986442	P992862
2,3,7,8-tetra CDD	.315	PG/G	ND	DNQ0.644	ND	DNQ0.799	ND
1,2,3,7,8-penta CDD	.084	PG/G	DNQ2.09	DNQ2.88	DNQ4.21	DNQ5.05	ND
1,2,3,4,7,8_hexa_CDD	.0793	PG/G	DNQ1.58	DNQ1.63	DNQ1.72	DNQ1.76	DNQ1.66
1,2,3,6,7,8-hexa CDD	.094	PG/G	14.3	11.2	16.0	15.5	10.6
1,2,3,7,8,9-hexa CDD	.0823	PG/G	DNQ4.79	DNQ3.96	DNQ5.15	DNQ5.62	DNQ3.86
1,2,3,4,6,7,8-hepta CDD	.0842	PG/G	247	235	248	251	225
octa CDD	.172	PG/G	993	1180	1040	1010	1100
2,3,7,8-tetra CDF	.0277	PG/G	3.71	4.48	4.60	4.11	3.84
1,2,3,7,8-penta CDF	.0449	PG/G	DNQ1.60	DNQ1.64	DNQ2.06	DNQ2.35	DNQ1.79
2,3,4,7,8-penta CDF	.0468	PG/G	DNQ2.80	DNQ1.67	DNQ2.38	DNQ2.19	DNQ1.95
1,2,3,4,7,8-hexa CDF	.0437	PG/G	DNQ2.16	DNQ2.46	DNQ2.26	DNQ2.54	DNQ2.57
1,2,3,6,7,8-hexa CDF	.0417	PG/G	DNQ2.15	DNQ2.01	DNQ2.17	DNQ2.07	DNQ3.23
1,2,3,7,8,9-hexa CDF	.0657	PG/G	DNQ1.15	DNQ1.01	DNQ1.23	DNQ1.11	DNQ0.942
2,3,4,6,7,8-hexa CDF	.0574	PG/G	DNQ2.52	DNQ2.76	DNQ2.90	DNQ2.94	DNQ2.69
1,2,3,4,6,7,8-hepta CDF	.0747	PG/G	18.9	20.8	19.8	21.0	20.5
1,2,3,4,7,8,9-hepta CDF	.0883	PG/G	DNQ1.76	DNQ1.65	DNQ2.36	DNQ1.63	DNQ1.61
octa CDF	.776	PG/G	40.0	47.1	44.9	48.2	48.5

Above are permit required CDD/CDF isomers.

ND=not detected; NS=not sampled; NA=not analyzed; NR=not required

DNQ= Detected but not quantified. Sample result is less than the Minimum Level but greater than or equal to MDL.

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VII. Other Required Information

A. Notes on Specific Analysis
B. Report of Operator Certification
C. Status of the Operations and Maintenance Manual

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A. Notes on Specific Analysis

1. It should be noted that some of the reference methods are equivalent. The organic priority pollutant analyses listed in EPA's Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, SW-846 (ref. c) are equivalent to the methods EPA prescribes for water in Methods for Chemical Analysis of Water and Wastes, (ref. a). Specifically, wastewater methods 3510 and 8270 (ref. d) together are the same as water method 625 (ref. a), and Method 8260B (ref. c) is equivalent to Method 624 (ref .a). Methods 3550 and 8270 together are equivalent to the E.P.A. Contract Laboratory Program's (ref. aa) method for ultrasonication and gas chromatograph-mass spectrometric analysis. The EPA's metals analyses for water (ref. a) generally just refers to the procedure in Standard Methods (ref. b, bb).

2. Detection Limit
MDLs for various analyses were updated in 2017. The MDLs referenced in this report are the maximum MDL for the calendar year. The following is a table listing the changes in the laboratory MDLs that occurred in 2017, by Analyses Code and Analyte Name. All MDL studies were performed following CFR136.3. MDL studies utilized clean matrix, i.e. Deionized Water or clean sand.

ANALYSIS_CODE	ANALYTE_NAME	EFFECTIVE_DATE	CURRENT_MDL	PAST_MDL	UNITS
BN_GRIT	1,2,4-Trichlorobenzene	1-Oct-17	330	979	UG/KG
BN_GRIT	1,2-Dichlorobenzene	1-Oct-17	330	342	UG/KG
BN_GRIT	1,3-Dichlorobenzene	1-Oct-17	330	733	UG/KG
BN_GRIT	1,4-Dichlorobenzene	1-Oct-17	330	1270	UG/KG
OPHOS_DSLDG	Chlorpyrifos	5-Apr-17	1.94	2	UG/KG
OPHOS_DSLDG	Coumaphos	5-Apr-17	5.54	33	UG/KG
OPHOS_DSLDG	Demeton O	5-Apr-17	2.41	67	UG/KG
OPHOS_DSLDG	Demeton S	5-Apr-17	11.7	27	UG/KG
OPHOS_DSLDG	Diazinon	5-Apr-17	1.57	2	UG/KG
OPHOS_DSLDG	Dichlorvos	5-Apr-17	1.12	17	UG/KG
OPHOS_DSLDG	Disulfoton	5-Apr-17	4.1	20	UG/KG
OPHOS_DSLDG	Guthion	5-Apr-17	13.2	33	UG/KG
OPHOS_DSLDG	Malathion	5-Apr-17	1.78	20	UG/KG
OPHOS_DSLDG	Parathion	5-Apr-17	2.04	20	UG/KG
OPHOS_DSLDG	Stirophos	5-Apr-17	3.55	20	UG/KG

B. Report of Operator Certification

Report of Operator Certification

The following list includes all Wastewater Treatment Plant Operators working for the Public Utilities Wastewater Department at the Point Loma Wastewater Treatment Plant and their California State certification status **as of January 2018.** Name, Certification Grade, Certification Number, and expiration date are shown for each operator.

NAME	Grade	Cert #	Expiration
Chief Plant Operator of the Metro Wastewater System:			
Juan C. Guerreiro	V	27670	Dec 2020
PTL Superintendent:			
Marlow, David	V	10216	Dec 2018
Senior Operations Supervisors:			
Moreno, Daniel G	V	40707	Dec 2018
Operations Supervisors:			
Avila, Juan	III	28383	Dec 2020
Decatur, Herb	III	28880	Jun 2020
Gonzales-Bueno Noemi	III	41833	Jul 2020
Nuñez, Carlos	III	7626	Jun 2021
Hayvert, William	III	27959	Dec 2020
Plant Operators:			
Ayers, Jeffrey	II	40253	May 2021
Carroll, Gregory	II	34033	May 2020
Childress, Linda	II	41589	Jan 2020
Dornfeld, Michael	II	7678	Dec 2018
Hernandez, Ricardo	OIT		Feb 2021
Hill, Shalamar	II	43545	Apr 2021
Jaime, Eugene	OIT		Feb 2021

NAME	Grade	Cert #	Expiration
Jimenez, Francisco	OIT		Feb 2021
Langford, Craig	II	41084	Aug 2021
Majors, Michael	OIT		Jan 2020
Mohler, Victor	III	28869	Jun 2021
Robosa, Michael	III	42729	Jun 2021
Sardina, Michael	II	42415	Sept 2018
Valenzuela, Sam	II	40695	Jan 2020
Wade, Brian	II	9141	Dec 2018

The following list includes all Wastewater Treatment Plant Operators working for the Public Utilities Wastewater Department at the Metro Biosolids Center and their California State certification status **as of June 2018**, Name, Certification Grade, Certification Number, and expiration date are shown for each operator.

NAME	Grade	Cert #	Expiration
MBC Superintendent:			
Richard Pitchford	V	9851	Jun 2020
Senior Operations Supervisors:			
Paul Farnsworth	V	9664	Dec 2020
Operations Supervisors:			
John Cauzza	III	8563	Jun 2021
Dedric Evans	III	10196	Jun 2021
Adolfo Gonzalez	III	40774	Feb 2021
Eric Griffiths	III	28975	Dec 2020
Matt Tomas	III	29044	Dec 2020
Javier Zavala	III	9635	Jun 2020
Plant Operators:			
Larren Colum	II	41857	Dec 2018
Joaquun Contreras	OIT		Dec 2020
Raymond Crowder	III	40563	Aug 2021
Montrell Harris	III	43222	Aug 2021
Laura Kaiser	II	28842	Jun 2021
Boun Keokham	OIT		Jun 2021
Robert Lane	III	42574	Feb 2021
Eric Neptune	II	28839	Jun 2020
John Reeder	III	42592	Feb 2021
Ben Reynolds	II	6638	Dec 2020

The following list includes all Wastewater Treatment Plant Operators working for the Public Utilities Wastewater Department at the Metro Biosolids Center and their California State certification status **as of June 2018.** Name, Certification Grade, Certification Number, and expiration date are shown for each operator.

NAME	Grade	Cert #	Expiration
COMC			
Senior Operations Supervisors:			
Paul Farnsworth	V	9664	Dec 2020
Operations Supervisors:			
Barry Calton	III	10178	Jun 2021
Romeo Feliciano	III	28436	Jun 2020
Frank Perea	III	7968	Jun 2020
Sony Reth	III	29023	Jun 2021
Senior Wastewater Operator			
Traci Squyres	III	35602	Sep 2018
Gilbert Alpas	III	6314	12/31/18

The following list includes all Wastewater Treatment Plant Operators working for the Public Utilities Wastewater Department at the North City Water Reclamation Plant (NCWRP) and their California State certification status **as of June 2017.** Name, Certification Grade, Certification Number, and expiration date are shown for each operator.

NAME	Grade	Cert #	Expiration
NCWRP Superintendent:			
Tom Rosales	V	7529	12/14/2018
Senior Operations Supervisors:			
Elisabete Pinto	V	10265	06/30/2020
Steven Bates	V	42759	04/28/2020
Operations Supervisors:			
John Cozad	III	7138	12/31/2020
Richie Jacques	III	27921	06/30/2021
John Carroll	V	28867	06/09/2020
Rob Relph	III	6742	12/31/2018
Plant Operators:			
George Wendorf	II	9774	12/31/2020
Carlos Costa	OIT - II	N/A	02/21/2021
Nahdia Mohammed	OIT - I	N/A	04/04/2020

NAME	Grade	Cert #	Expiration
Kira Woodson	OIT – I	N/A	06/15/2021
Giacomo Vitko	OIT – II	N/A	08/15/2021
Marshall Hullin	III	42679	04/11/2020
Mathew Birchett	III	42338	04/10/2021
Noel Saulog	II	10299	12/31/2018

The following list includes all Wastewater Treatment Plant Operators working for the Public Utilities Wastewater Department at the South Bay Water Reclamation Plant (SBWRP) and their California State certification status **as of June 2017.** Name, Certification Grade, Certification Number, and expiration date are shown for each operator.

NAME	Grade	Cert #	Expiration
SBWRP Superintendent:			
Ernesto Molas	V	7227	12/31/2020
Senior Wastewater Operations Supervisors:			
Eileen McNeil	V	28965	4/29/2020
Wastewater Operations Supervisors-PC:			
Eddy Mata	III	7027	6/30/2020
Wastewater Operations Supervisors:			
Teresa Gardiner	III	10657	12/31/2020
William Mercado	III	41838	9/23/2020
Wastewater Operators:			
Austin Maddox	IV	44147	10/23/2020
Douglas Evans	II	9844	6/30/2018
Romeo Millan	II	9846	6/30/2018
Gabriel Duresseau	II	28294	7/1/2018
James Johnson	II	29021	6/30/2020
Mohamed Dembele	OIT-I		7/9/2021

C. Status of the Operations and Maintenance Manual

<u>Point Loma WTP</u>:

There is an approved O&M Manual for the PLWTP. Plant staff continues to review and update the Manual and Standard Operating Procedures (SOP's) as necessary to keep current with changes in equipment, processes, and standards of practice. New procedures are included as needs are identified. For example, PLWTP Staff, in conjunction with the Safety Staff, have developed and established a standard Lock-Out/Tag-Out Program to serve all Public Utilities Department Facilities.

VIII. Appendices

A. Terms and Abbreviations used in this Report
B. Methods of Analysis
C. Frequency of Analysis and Type of Sample
D. Laboratories contributing Results used in this report
E. QA Summary Report
F. Staff Contributing to this Report
G. System wide calculation definition

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A. Terms and Abbreviations used in this Report

Along with standard abbreviations the following is a list of local/uncommon abbreviations and terms for the readers' reference.

TERMINOLOGY and ABBREVIATIONS for REFERENCE

Biosolids	- Digested or processed sludge
C-1-P	- Central Digester Number 1, Primary, Point Loma
C-2-P	- Central Digester Number 2, Primary, Point Loma
Dig 1	- MBC Digester number 1
Dig 2	- MBC Digester number 2
Dig 3	- MBC Digester number 3
Dig 7	- Digester Number 7, Primary, Point Loma
Dig 8	- Digester Number 8, Primary, Point Loma
DIG COMP	- Digested Biosolids Composite; a composite of grabs taken from each of the in-service digesters
DNQ	- Detected, but Not Quantified
EFF	- Effluent
Field Replicate	- Separate samples collected at approximately the same time from the same sample site
INF	- Influent
MBC	- Metro Biosolids Center
MBC_COMBCN	- MBC Combined Centrate; the centrate from all the dewatering centrifuges (The return stream from MBC to the sewer system)
MBC_NC_DSL	- North City to Metropolitan Biosolids Center (MBC) Digested Sludge Line
MBCDEWCN	- Metro Biosolids Center Dewatering Centrifuges; typically the dewatered biosolids from these these centrifuges
MGD	- million gallons per day
N01-PEN	- The plant primary Influent from the Penasquitos Pump Station
N01-PS_INF	- The plant primary Influent from Pump Station 64
N10-PSP COMB	- raw sludge
N15-WAS LCP	- Waste Activated Sludge – low capacity pumps
N-1-P	- North Digester Number 1, Primary, Point Loma
N-2-P	- North Digester Number 2, Primary, Point Loma
N30-DFE	- NCWRP Disinfected Final Effluent
N34-REC WATER	- NCWRP Reclaimed Water
NA	- not analyzed
NCWRP	- North City Water Reclamation Plant
ND	- not dectected
NPDES	- National Pollutant Discharge Elimination System
NR	- not required
NS	- not sampled
PLE	- Point Loma Effluent (effluent from the plant)
PLR	- Point Loma Raw (influent to the plant)
PLWTP	- Point Loma Wastewater Treatment Plant
RAW COMP	- A Composite of Raw Sludge taken over the preceding 24 hours
S-1-P	- South Digester Number 1, Primary, Point Loma
S-2-P	- South Digester Number 2, Primary, Point Loma
U.S.EPA	- United States Environmental Protection Agency
WRP	- Water Reclamation Plant
WTP	- Wastewater Treatment Plant

UNITS

mg/L .... milligrams per liter
ug/L ....micrograms per liter = 0.001 mg/L
ng/L .... nanograms per liter = 0.001 ug/L
mg/Kg.................................. milligrams per kilogram
ug/Kg................................. micrograms per kilogram
ng/Kg................................... nanograms per kilogram
pg/L .... picograms per liter
pg/Kg.....................................picograms per kilogram
pc/L or pCi/L .... pico curies per liter
TU.. toxicity units
ntu................................. nephelometric turbidity units
^{o}C .... degrees Celsius = degrees centigrade
MGD..................................... million gallons per day
umhos/cm. . ... micromhos per centimeter
uS..microsiemens = umhos
mils/100 mL...................... millions per 100 milliliters
nd..not detected
NA .... not analyzed (when in a data column)
NR ....not required
NS...not sampled

CHEMICAL TERMS & ABBREVIATIONS:

AA ....Atomic Absorption Spectroscopy
BOD....................Biochemical Oxygen Demand
BOD_5 .... 5-Day Biochemical Oxygen Demand
CN^-......................Cyanide
COD....................Chemical Oxygen Demand
Cr^{6+} ....Hexavalent Chromium
D.O. ....Dissolved Oxygen
DDD ....Dichlorodiphenyldichloroethane
...........................(a.k.a. TDE-tetrachlorodiphenylethane)
DDE....................Dichlorodiphenyldichloroethylene
DDT....................Dichlorodiphenyltrichloroethane
$FeCl_3$...................Ferric Chloride
G&O ....Grease and Oil
GC ....Gas chromatography.
GC-ECD ....Electron Capture Detector
GC-FID...............Flame Ionization Detector
GC-FPD..............Flame Photometric Detector
GC-MS ....Mass Spectroscopy
H_2S......................Hydrogen Sulfide
Hg ....Mercury
IC ....Ion Chromatography
ICP-AES ....Inductively Coupled Plasma-Atomic Emission Spectroscopy

MDL ....Method Detection Limit
MSD ....Mass Spectroscopy Detector
NH_3....................Ammonia
NH_3-N.................Ammonia Nitrogen
NH_4^+ ....Ammonium ion
NO_3^- ....Nitrate
PAD ....Pulsed Amperometric Detector
PCB ....Polychlorinated Biphenyls
PO_4^{3-} ....Phosphate
SO_4^{2-} ....Sulfate
SS........................Suspended Solids
TBT ....Tributyl tin
TCH ....Total Chlorinated Hydrocarbons (i.e. chlorinated pesticides & PCB's)
TCLP ....Toxicity Characteristic Leaching Procedure
TDS ....Total Dissolved Solids
TS ....Total Solids
TVS ....Total Volatile Solids
VSS.....................Volatile Suspended Solids

B. Methods of Analysis

WASTEWATER INFLUENT and EFFLUENT (General)

Analyte	Description 2017	Instrumentation 2016	Instrumentation 2017	Method 2017
Alkalinity	Selected Endpoint Titration	Mettler DL-21 & 25 Titrator Orion 950 Mettler DL-15	Mettler DL-21 & 25 Titrator Orion 950 Mettler DL-15	SM 2320 B-1997
Ammonia Nitrogen	Distillation and Titration	Buchi Distillation Unit K-314, B-324, K-350 Orion 950 pH Meter Mettler DL25 titrator Mettler DL15 titrator Orion 250A	Buchi Distillation Unit K-314 & K-350 Orion 950 pH Meter/Titrator	SM 4500-NH3 B,C-1997
Biochemical Oxygen Demand (BOD-5 Day)	Dissolved Oxygen Meter with Dissolved Oxygen Probe	YSI-5000 DO Meter YSI-5100 DO Meter YSI 59 DO Meter (5905 Probe)	YSI-5000 DO Meter YSI-5100 DO Meter YSI 59 DO Meter (5905 Probe)	SM 5210 B-2001
Biochemical Oxygen Demand (BOD-Soluble)	Dissolved Oxygen Probe	YSI-5000 DO Meter YSI-5100 DO Meter YSI 59 DO Meter (5905 Probe)	YSI-5000 DO Meter YSI-5100 DO Meter YSI 59 DO Meter (5905 Probe) YSI Probe 5010	SM 5210 B-2001
Chemical Oxygen Demand (COD)	Closed Reflux / Colorimetric	Hach DR-2010 UV/Vis spectrophotometer Hach DR2700	Hach DR-2010 UV/Vis spectrophotometer Hach DR2700 Hach DR1900	HACH 8000
Conductivity	Conductivity Meter with Wheatstone Bridge probe	YSI-3100, YSI-3200, Orion 115A,Orion 250, Accumet Model 150	YSI-3100, YSI-3200, Orion 115A,Orion 250, Accumet Model 150	SM 2510 B-1997
Cyanide	Acid Digest/Distil./Colorimetric	Hach DR-4000/Vis	Hot plate distillation and Hach DR4000 Midi-Vap 4000 Distillation & Hach DR1900	SM4500-CN E 1999 & SM4500 CN B or C 1999 EPA 335.4
Floating Particulates	Flotation Funnel	Various models of balances.	Metler Toledo ML204T analytical balance	SM 2530 B-2010
Flow	Continuous Meter	Gould (pressure sensor), ADS (sonic sensor), or Venturi (velocity sensor)	Gould (pressure sensor), ADS (sonic sensor), or Venturi (velocity sensor)	
Hardness; Ca, Mg, Total	ICP-OES / Calculation	IRIS INTREPID DUO & ICAP 6300	ICAP 6300 & ICAP 7600	EPA 200.7, Rev. 4.4 (1994) & SM 2340 B-1997
Kjeldahl Nitrogen (TKN)	Macro-Digestion / Titration	Velp scientificA Buchi K-314 distiller & Orion 950 pH meter	Buchi Distillation Unit K-314 & K-350 Orion 950 pH Meter/Titrator	SM-4500-Norg B-1997
Oil and Grease	Hexane Extraction / Gravimetric	Various models of balances.	Various models of balances.	EPA 1664B
Organic Carbon (TOC)	Catalytic Oxidation / IR Water Production Laboratory)	Shimadzu ASI-5000	Shimadzu ASI-5000	5310 B (Water Production Laboratory)

Analyte	Description 2017	Instrumentation 2016	Instrumentation 2017	Method 2017
pH	Hydrogen+Reference Electrode	Various models of pH meters.	Various models of pH meters.	SM 4500-H\+\ B-2000
Radiation (alpha & beta)	Alpha Spectroscopy Gamma Spectroscopy	External Laboratory (FGL)	External Laboratory (FGL)	EPA 900 (External Laboratory)
Sulfides	Acid Digest-Distillation / Titration	Class A Manual Buret	Hot plate distillation/Class A Manual Buret	EPA 9034 & EPA 9030B (Distillation)
Solids, Dissolved-Total	Gravimetric @ 180°C using analytical balance	Various models of balances.	Various models of balances.	SM 2540 C-1997
Solids, Settleable	Volumetric	Imhoff Cone	Imhoff Cone	SM 2540 F-1997
Solids, Suspended-Total	Gravimetric @ 103-105°C	Various models of balances.	Various models of balances.	SM 2540 D-1997
Solids, Suspended-Volatile	Gravimetric @ 500°C	Various models of balances.	Various models of balances.	SM 2540 E-1997
Solids, Total	Gravimetric @ 103-105°C	Various models of balances.	Various models of balances.	SM 2540 B-1997
Solids, Total-Volatile	Gravimetric @ 500°C	Various models of balances.	Various models of balances.	EPA 160.4 (Issued 1971)
Temperature	Direct Reading	Fisher Digital Thermometer	Fisher Digital Thermometer	SM 2550 B-2010
Turbidity	Nephelometer Turbidimeter	Hach 2100-N Meter Hach 2100-AN Meter	Hach 2100-N Meter Hach 2100-AN Meter	SM 2130B-2001
Bromide, Chloride, Fluoride, Nitrate, Phosphate, Sulfate	Ion Chromatography	Dionex ICS-3000	Dionex ICS-3000	EPA 300.0, Rev 2.1 (1993)

WASTEWATER INFLUENT and EFFLUENT (Metals)

Analyte	Description 2017	Instrumentation 2016	Instrumentation 2017	Method 2017
Aluminum	Acid Digestion / ICP-OES	ICAP 6300	ICAP 6300 & NexION 300X	EPA 200.7 Rev. 4.4 (1994) & EPA 200.8 Rev 5.4 (1994)
Antimony	Acid Digestion / ICP-OES	ICAP 6300	ICAP 6300/NexION 300X	EPA 200.7 Rev. 4.4 (1994) & EPA 200.8 Rev 5.4 (1994)
Arsenic	Hydride Generation AA / ICP-MS	Thermo iCE 3000	ICAP 6300 & NexION 300X	EPA 200.7 Rev. 4.4 (1994) & EPA 200.8 Rev 5.4 (1994)
Barium	Acid Digestion / ICP-OES	ICAP 6300	ICAP 6300 & NexION 300X	EPA 200.7 Rev. 4.4 (1994) & EPA 200.8 Rev 5.4 (1994)
Beryllium	Acid Digestion / ICP-OES	ICAP 6300	ICAP 6300 & NexION 300X	EPA 200.7 Rev. 4.4 (1994) & EPA 200.8 Rev 5.4 (1994)
Boron	Acid Digestion / ICP-OES	ICAP 6300	ICAP 6300 & NexION 300X	EPA 200.7 Rev. 4.4 (1994) & EPA 200.8 Rev 5.4 (1994)
Cadmium	Acid Digestion / ICP-OES	ICAP 6300	ICAP 6300 & NexION 300X	EPA 200.7 Rev. 4.4 (1994) & EPA 200.8 Rev 5.4 (1994)
Calcium	ICP-OES	IRIS INTREPID DUO & ICAP 6300	ICAP 6300 & ICAP 7600	EPA 200.7, Rev. 4.4 (1994)
Chromium	Acid Digestion / ICP-OES	ICAP 6300	ICAP 6300 & NexION 300X	EPA 200.7 Rev. 4.4 (1994) & EPA 200.8 Rev 5.4 (1994)
Cobalt	Acid Digestion / ICP-OES	ICAP 6300	ICAP 6300 & NexION 300X	EPA 200.7 Rev. 4.4 (1994) & EPA 200.8 Rev 5.4 (1994)

Analyte	Description 2017	Instrumentation 2016	Instrumentation 2017	Method 2017
Copper	Acid Digestion / ICP-OES	ICAP 6300	ICAP 6300 & NexION 300X	EPA 200.7 Rev. 4.4 (1994) & EPA 200.8 Rev 5.4 (1994)
Lead	Acid Digestion / ICP-OES	ICAP 6300	ICAP 6300 & NexION 300X	EPA 200.7 Rev. 4.4 (1994) & EPA 200.8 Rev 5.4 (1994)
Lithium	ICP-OES	IRIS INTREPID DUO & ICAP 6300	ICAP 6300 & ICAP 7600	EPA 200.7, Rev. 4.4 (1994)
Magnesium	ICP-OES	IRIS INTREPID DUO & ICAP 6300	ICAP 6300 & ICAP 7600	EPA 200.7, Rev. 4.4 (1994)
Manganese	Acid Digestion / ICP-OES	ICAP 6300	ICAP 6300 & NexION 300X	EPA 200.7 Rev. 4.4 (1994) & EPA 200.8 Rev 5.4 (1994)
Mercury	Cold vapor atomic fluorescence spectroscopy (CVAF)	PSAnalytical PSA 10.035 Millennium Merlin 1631	PSAnalytical PSA 10.035 Millennium Merlin 1631	EPA 1631E for Point Loma samples only/EPA 245.7
Molybdenum	Acid Digestion / ICP-AES	ICAP 6300	ICAP 6300 & NexION 300X	EPA 200.7 Rev. 4.4 (1994) & EPA 200.8 Rev 5.4 (1994)
Nickel	Acid Digestion / ICP-AES	ICAP 6300	ICAP 6300 & NexION 300X	EPA 200.7 Rev. 4.4 (1994) & EPA 200.8 Rev 5.4 (1994)
Potassium	Acid Digestion / ICP-AES	ICAP 6300	ICAP 6300 & NexION 300X	EPA 200.7 Rev. 4.4 (1994) & EPA 200.8 Rev 5.4 (1994)
Selenium	Hydride Generation AA / ICP-MS	Thermo iCE 3000	Thermo iCE 3000/ NexION 300X	SM 3114 B-2009 & SM 3114 C-2009 & EPA 200.8 Rev 5.4 (1994)
Silver	Acid Digestion / ICP-AES	ICAP 6300	ICAP 6300 & NexION 300X	EPA 200.7 Rev. 4.4 (1994) & EPA 200.8 Rev 5.4 (1994)
Sodium	ICP-OES	IRIS INTREPID DUO & ICAP 6300	ICAP 6300 & ICAP 7600	EPA 200.7 Rev. 4.4 (1994) & EPA 200.8 Rev 5.4 (1994)
Thallium	Acid Digestion / ICP-AES	ICAP 6300	ICAP 6300 & NexION 300X	EPA 200.7 Rev. 4.4 (1994) & EPA 200.8 Rev 5.4 (1994)
Vanadium	Acid Digestion / ICP-AES	ICAP 6300	ICAP 6300 & NexION 300X	EPA 200.7 Rev. 4.4 (1994) & EPA 200.8 Rev 5.4 (1994)
Zinc	Acid Digestion / ICP-AES	ICAP 6300	ICAP 6300 & NexION 300X	EPA 200.7 Rev. 4.4 (1994) & EPA 200.8 Rev 5.4 (1994)

WASTEWATER INFLUENT and EFFLUENT (Organics)

Analyte	Description 2017	Instrumentation 2016	Instrumentation 2017	Method 2017
Acrolein and Acrylonitrile	Purge & Trap, GC-MSD	O-I Analytical Eclipse 4660purge&trap/4552autosampler Agilent-6890N GC /5973N MSD Capillary J&W DB-624	O-I Analytical Eclipse 4660purge&trap/4552autosampler Agilent-6890N GC /5973N MSD Capillary J&W DB-624	EPA 8260 B
Base/Neutral Extractables	Basic / Methylene Chloride continuous extraction, GC-MSD	HP-6890GC / 5973MSD Capillary DB-5.625	Agilent 7890A GC / 5975C MSD Capillary DB-5.625	EPA 625
Benzidines	Basic / Methylene Chloride continuous extraction, GC-MSD	HP-6890GC / 5973MSD Capillary DB-5.625	Agilent 7890A GC / 5975C MSD Capillary DB-5.625	EPA 625
Chlorinated Compounds	Methylene Chloride extraction, GC-ECD	Perkin Elmer Clarus 680 Elite-CLP 30M/0.32mm/0.5um Elite-CLP2 30M/0.32mm/0.25um	Agilent 7890B GC-ECD Elite-CLP 30M/0.32mm/0.5um Elite-CLP2 30M/0.32mm/0.25um	EPA 608
Dioxin	Outside Contract (Frontier)	External Laboratory (Frontier & TestAmerica)	External Laboratory (Frontier)	EPA 1613 (external laboratory)
Organophosphorus Pesticides	Methylene Chloride 15% / Hexane 85% extraction, GC-PFPD	Shimadzu GC-2010 PFPD RTX-OPP 30m/0.32mm/0.5um RTX-OPP2 30m/0.32mm/0.32um	Shimadzu GC-2010 PFPD RTX-OPP 30m/0.32mm/0.5um RTX-OPP2 30m/0.32mm/0.32um	EPA 614
Phenolic Compounds	Acidic / Methylene Chloride continuous extraction, GC-MSD	HP-6890GC / 5973MSD Capillary DB-5.625	Agilent 7890A GC / 5975C MSD Capillary DB-5.625	EPA 625
Purgeables (VOCs)	Purge & Trap, GC-MSD	O-I Analytical Eclipse 4660purge&trap/4552autosampler Agilent-6890N GC /5973N MSD Capillary J&W DB-624	O-I Analytical Eclipse 4660purge&trap/4552autosampler Agilent-6890N GC /5973N MSD Capillary J&W DB-624	EPA 8260 B
Tri, Di, and Monobutyl Tin	Methylene Chloride extraction, derivatization, hexane exchange, GC-PFPD & GC-FPD	Varian 3400 GC-FPD DB-608/30m DB-1/30m & Shimadzu GC-2010PFPD RTX-1 30m/0.25mm/1um RTX-5 30m/0.25mm/1um	Shimadzu GC-2010PFPD RTX-1 30m/0.25mm/1um RTX-5 30m/0.25mm/1um	In house method

LIQUID SLUDGE: Raw, Digested, and Filtrate (General)

Analyte	Description 2017	Instrumentation 2016	Instrumentation 2017	Method 2017
Alkalinity	Selected Endpoint Titration	Mettler 25 Titrator Orion 950	Mettler 25 Titrator Orion 950	SM 2320 B-1997
Cyanide	Acid Digest-Distil / Colorimetric	Hach DR/4000V	Hot plate distillation & Hach DR4000 Hot plate distillation & Hach DR6000	EPA 9014 & EPA 9010B (Distillation)
pH	Hydrogen+Reference Electrode	Various models of pH meters.	Various models of pH meters.	SM 4500-H\+\ B-2000
Radiation (alpha & beta)	Alpha Spectroscopy Gamma Spectroscopy	External Laboratory (FGL)	External Laboratory (FGL)	EPA 900
Sulfides	Acid Digest-Distil / Titration	Class A Manual Buret	Class A Manual Buret	EPA 9034 & EPA 9030B (Distillation)
Sulfides, reactive	Distillation / Titration	Class A Manual Buret	Class A Manual Buret	Section 7.3 SW-846 EPA 9034
Solids, Total	Gravimetric @ 103-105°C	Various models of balances.	Various models of balances.	SM 2540G 1997
Solids, Total-Volatile	Gravimetric @ 500°C	Various models of balances.	Various models of balances.	SM 2540G 1997

LIQUID SLUDGE: Raw, Digested, and Filtrate (Metals)

Analyte	Description 2017	Instrumentation 2016	Instrumentation 2017	Method 2017
Aluminum	Acid Digestion / ICP-OES	IRIS INTREPID DUO & ICAP 6300	ICAP 6300	EPA 6010B
Antimony	Acid Digestion / ICP-OES	IRIS INTREPID DUO & ICAP 6300	ICAP 6300	EPA 6010B
Arsenic	Hydride Generation / AA	Thermo iCE 3000	Thermo iCE 3000	EPA 7062
Beryllium	Acid Digestion / ICP-OES	IRIS INTREPID DUO & ICAP 6300	ICAP 6300	EPA 6010B
Barium	Acid Digestion / ICP-OES	IRIS INTREPID DUO & ICAP 6300	ICAP 6300	EPA 6010B
Boron	Acid Digestion / ICP-OES	IRIS INTREPID DUO & ICAP 6300	ICAP 6300	EPA 6010B
Cadmium	Acid Digestion / ICP-OES	IRIS INTREPID DUO & ICAP 6300	ICAP 6300	EPA 6010B
Chromium	Acid Digestion / ICP-OES	IRIS INTREPID DUO & ICAP 6300	ICAP 6300	EPA 6010B
Cobalt	Acid Digestion / ICP-OES	IRIS INTREPID DUO & ICAP 6300	ICAP 6300	EPA 6010B
Copper	Acid Digestion / ICP-OES	IRIS INTREPID DUO & ICAP 6300	ICAP 6300	EPA 6010B
Iron	Acid Digestion / ICP-OES	IRIS INTREPID DUO & ICAP 6300	ICAP 6300	EPA 6010B
Lead	Acid Digestion / ICP-OES	IRIS INTREPID DUO & ICAP 6300	ICAP 6300	EPA 6010B
Manganese	Acid Digestion / ICP-OES	IRIS INTREPID DUO & ICAP 6300	ICAP 6300	EPA 6010B
Mercury	Cold Vapor Atomic Absorption (CVAA) & backup method Thermal decomposition atomic absorption	PSAnalytical PSA 10.045 Millennium Backup: Milestone DMA80 (thermal decomposition, amalgamation, and atomic absorption spectrophotometry)	PSAnalytical PSA 10.045 Millennium Backup: Milestone DMA80 (thermal decomposition, amalgamation, and atomic absorption spectrophotometry)	EPA 7471A and Backup: EPA 7473
Molybdenum	Acid Digestion / ICP-OES	IRIS INTREPID DUO & ICAP 6300	ICAP 6300	EPA 6010B
Nickel	Acid Digestion / ICP-OES	IRIS INTREPID DUO & ICAP 6300	ICAP 6300	EPA 6010B
Selenium	Hydride Generation / AA	Thermo iCE 3000	Thermo iCE 3000	EPA 7742
Silver	Acid Digestion / ICP-OES	IRIS INTREPID DUO & ICAP 6300	ICAP 6300	EPA 6010B
Thallium	Acid Digestion / ICP-OES	IRIS INTREPID DUO & ICAP 6300	ICAP 6300	EPA 6010B
Vanadium	Acid Digestion / ICP-OES	IRIS INTREPID DUO & ICAP 6300	ICAP 6300	EPA 6010B
Zinc	Acid Digestion / ICP-OES	IRIS INTREPID DUO & ICAP 6300	ICAP 6300	EPA 6010B

LIQUID SLUDGE: Raw, Digested, and Decant (Organics)

Analyte	Description 2017	Instrumentation 2016	Instrumentation 2017	Method 2017
Acrolein and Acrylonitrile	Purge & Trap, GC-MSD	O-I Analytical Eclipse 4660purge&trap/4552autosampler Agilent-6890N GC /5973N MSD Capillary J&W DB-624	O-I Analytical Eclipse 4660purge&trap/4552autosampler Agilent-6890N GC /5973N MSD Capillary J&W DB-624	EPA 8260B
Base/Neutral Extractables	Basic / Methylene Chloride continuous extraction, GC-MSD	HP-6890GC / 5973MSD Capillary DB-5.625	Agilent 7890A GC / 5975C MSD Capillary DB-5.625	EPA 625
Benzidines	Basic / Methylene Chloride continuous extraction, GC-MSD	HP-6890GC / 5973MSD Capillary DB-5.625	Agilent 7890A GC / 5975C MSD Capillary DB-5.625	EPA 625
Chlorinated Compounds	Methylene Chloride extraction, GC-ECD	Perkin Elmer Clarus 680 Elite-CLP 30M/0.32mm/0.5um Elite-CLP2 30M/0.32mm/0.25um	Agilent 7890B GC-ECD Elite-CLP 30M/0.32mm/0.5um Elite-CLP2 30M/0.32mm/0.25um	EPA 8081A
PCBs	Methylene Chloride extraction, GC-ECD	Perkin Elmer Clarus 680 Elite-CLP 30M/0.32mm/0.5um Elite-CLP2 30M/0.32mm/0.25um	Agilent 7890B GC-ECD Elite-CLP 30M/0.32mm/0.5um Elite-CLP2 30M/0.32mm/0.25um	EPA 8082
Dioxin	Outside Contract (Frontier)	External Laboratory (Frontier & TestAmerica)	External Laboratory (Frontier & TestAmerica)	EPA 8290 (External Laboratory)
Organophosphorus Pesticides	Methylene Chloride 15% / Hexane 85% extraction, GC-PFPD	Shimadzu GC-2010 PFPD RTX-OPP 30m/0.32mm/0.5um RTX-OPP2 30m/0.32mm/0.32um	Shimadzu GC-2010 PFPD RTX-OPP 30m/0.32mm/0.5um RTX-OPP2 30m/0.32mm/0.32um	EPA 614
Phenolic Compounds	Acidic / Methylene Chloride continuous extraction, GC-MSD	HP-6890GC / 5973MSD Capillary DB-5.625	Agilent 7890A GC / 5975C MSD Capillary DB-5.625	EPA 625
Purgeables (VOCs)	Purge & Trap, GC-MSD	O-I Analytical Eclipse 4660purge&trap/4552autosampler Agilent-6890N GC /5973N MSD Capillary J&W DB-624	O-I Analytical Eclipse 4660purge&trap/4552autosampler Agilent-6890N GC /5973N MSD Capillary J&W DB-624	EPA 8260B
Tri, Di, and Monobutyl Tin	Methylene Chloride extraction, derivatization, hexane exchange, GC-PFPD & GC-FPD	Varian 3400 GC-FPD DB-608/30m DB-1/30m & Shimadzu GC-2010PFPD RTX-1 30m/0.25mm/1um RTX-5 30m/0.25mm/1um	Shimadzu GC-2010PFPD RTX-1 30m/0.25mm/1um RTX-5 30m/0.25mm/1um	In house method

LIQUID SLUDGE: Raw, Digested, and Decant (Digester Gases)

Analyte	Description 2017	Instrumentation 2016	Instrumentation 2017	Method 2017
Methane	Gas Chromatography	SRI 8610C GC EG&G 100AGC	SRI 8610C GC EG&G 100AGC	In house method (Based on 2720C)
Carbon Dioxide	Gas Chromatography	SRI 8610C GC EG&G 100AGC	SRI 8610C GC EG&G 100AGC	In house method (Based on 2720C)
Hydrogen Sulfide	Colorimetric	Drager H_2S	Drager H_2S	Commercial Tubes

DRIED SLUDGE: Metro Biosolids Center (General)

Analyte	Description 2017	Instrumentation 2016	Instrumentation 2017	Method 2017
Cyanide	Acid Digest-Distillation Colorimetric	Hach DR/4000V UV/Vis	Hot plate distillation & Hach DR4000 Hot plate distillation & Hach DR6000	EPA 9014 & EPA 9010B (Distillation)
Cyanide Reactive	Distillation / Colorimetric	Hach DR/4000V UV/Vis	Hot plate distillation & Hach DR4000 Hot plate distillation & Hach DR6000	EPA SW-846 Chapter 7.3 & EPA 9014
pH	Hydrogen+Reference Electrode	Various models of pH meters	Various models of pH meters	EPA 9045C
Radiation (alpha & beta)	Alpha Spectroscopy Gamma Spectroscopy	External Laboratory (FGL)	External Laboratory (FGL)	External Laboratory
Sulfides	Acid Digest-Distil / Titration	Class A Manual Buret	Class A Manual Buret	EPA 9034 & EPA 9030B (Distillation)
Sulfides, reactive	Distillation / Titration	Class A Manual Buret	Class A Manual Buret	Section 7.3 SW-846 EPA 9034
Solids, Total	Gravimetric @ 103-105 Cº	Various models balances	Various models balances	SM 2540G 1997
Solids, Total- Volatile	Gravimetric @ 500 Cº	Various models balances	Various models balances	SM 2540G 1997

DRIED SLUDGE: Metro Biosolids Center (Metals)

Analyte	Description 2017	Instrumentation 2016	Instrumentation 2017	Method 2017
Aluminum	Acid Digestion / ICP-OES	IRIS INTREPID DUO & ICAP 6300	ICAP 6300	EPA 6010B for CA & EPA 6010C for AZ
Antimony	Acid Digestion / ICP-OES	IRIS INTREPID DUO & ICAP 6300	ICAP 6300	EPA 6010B for CA & EPA 6010C for AZ
Arsenic	Hydride Generation / AA	Thermo iCE 3000	Thermo iCE 3000	EPA 7062
Barium	Acid Digestion / ICP-OES	IRIS INTREPID DUO & ICAP 6300	ICAP 6300	EPA 6010B for CA & EPA 6010C for AZ
Beryllium	Acid Digestion / ICP-OES	IRIS INTREPID DUO & ICAP 6300	ICAP 6300	EPA 6010B for CA & EPA 6010C for AZ
Boron	Acid Digestion / ICP-OES	IRIS INTREPID DUO & ICAP 6300	ICAP 6300	EPA 6010B for CA & EPA 6010C for AZ
Cadmium	Acid Digestion / ICP-OES	IRIS INTREPID DUO & ICAP 6300	ICAP 6300	EPA 6010B for CA & EPA 6010C for AZ
Chromium	Acid Digestion / ICP-OES	IRIS INTREPID DUO & ICAP 6300	ICAP 6300	EPA 6010B for CA & EPA 6010C for AZ
Cobalt	Acid Digestion / ICP-OES	IRIS INTREPID DUO & ICAP 6300	ICAP 6300	EPA 6010B for CA & EPA 6010C for AZ
Copper	Acid Digestion / ICP-OES	IRIS INTREPID DUO & ICAP 6300	ICAP 6300	EPA 6010B for CA & EPA 6010C for AZ
Iron	Acid Digestion / ICP-OES	IRIS INTREPID DUO & ICAP 6300	ICAP 6300	EPA 6010B for CA & EPA 6010C for AZ
Lead	Acid Digestion / ICP-OES	IRIS INTREPID DUO & ICAP 6300	ICAP 6300	EPA 6010B for CA & EPA 6010C for AZ
Manganese	Acid Digestion / ICP-OES	IRIS INTREPID DUO & ICAP 6300	ICAP 6300	EPA 6010B for CA & EPA 6010C for AZ
Mercury	Cold Vapor Atomic Absorption (CVAA) & Thermal decomposition atomic absorption	PSAnalytical PSA 10.045 Millennium & Milestone DMA80 (thermal decomposition, amalgamation, and atomic absorption spectrophotometry)	PSAnalytical PSA 10.045 Millennium & Milestone DMA80 (thermal decomposition, amalgamation, and atomic absorption spectrophotometry)	EPA Methods 7471A for California & 7473 for Arizona
Molybdenum	Acid Digestion / ICP-OES	IRIS INTREPID DUO & ICAP 6300	ICAP 6300	EPA 6010B for CA & EPA 6010C for AZ
Nickel	Acid Digestion / ICP-AES	IRIS INTREPID DUO & ICAP 6000	IRIS INTREPID DUO & ICAP 6000	EPA 6010B
Selenium	Hydride Generation / AA	Thermo iCE 3000	Thermo iCE 3000	EPA 7742
Silver	Acid Digestion / ICP-OES	IRIS INTREPID DUO & ICAP 6300	ICAP 6300	EPA 6010B for CA & EPA 6010C for AZ
Thallium	Acid Digestion / ICP-OES	IRIS INTREPID DUO & ICAP 6300	ICAP 6300	EPA 6010B for CA & EPA 6010C for AZ
Vanadium	Acid Digestion / ICP-OES	IRIS INTREPID DUO & ICAP 6300	ICAP 6300	EPA 6010B for CA & EPA 6010C for AZ
Zinc	Acid Digestion / ICP-OES	IRIS INTREPID DUO & ICAP 6300	ICAP 6300	EPA 6010B for CA & EPA 6010C for AZ

DRIED SLUDGE: Metro Biosolids Center (Organics)

Analyte	Description 2017	Instrument 2016	Instrument 2017	Method 2017
Acrolein and Acrylonitrile	Purge & Trap, GC-MSD	O-I Analytical Eclipse 4660purge&trap/4552autosampler Agilent-6890N GC /5973N MSD Capillary J&W DB-624	O-I Analytical Eclipse 4660purge&trap/4552autosampler Agilent-6890N GC /5973N MSD Capillary J&W DB-624	EPA 8260B
Base/Neutral Extractable	Methylene Chloride 50% / Acetone 50% Sonication Extraction GC-MSD	Agilent-7890GC/5975 MSD Capillary DB-5.625	Agilent-7890GC/5975 MSD Capillary DB-5.625	EPA 8270C EPA 3550A
Chlorinated Compounds	Methylene Chloride 50% / Acetone 50% Sonication Extraction, Hexane exchange GC-ECD	Perkin Elmer Clarus 680 Elite-CLP 30M/0.32mm/0.5um Elite-CLP2 30M/0.32mm/0.25um	Perkin Elmer Clarus 680 Elite-CLP 30M/0.32mm/0.5um Elite-CLP2 30M/0.32mm/0.25um	EPA 8081A
PCBs	Methylene Chloride 50% / Acetone 50% Sonication Extraction, Hexane exchange GC-ECD	Perkin Elmer Clarus 680 Elite-CLP 30M/0.32mm/0.5um Elite-CLP2 30M/0.32mm/0.25um	Perkin Elmer Clarus 680 Elite-CLP 30M/0.32mm/0.5um Elite-CLP2 30M/0.32mm/0.25um	EPA 8082
Dioxin	Outside Contract (Frontier)	External Laboratory (Frontier & TestAmerica)	External Laboratory (Frontier)	EPA 8290 External Laboratory
Organophosphorus Pesticides	Methylene Chloride 50% / Acetone 50% Sonication Extraction, hexane exchange, GC-PFPD	Shimadzu GC-2010 PFPD RTX-OPP 30m/0.32mm/0.5um RTX-OPP2 30m/0.32mm/0.32um	Shimadzu GC-2010 PFPD RTX-OPP 30m/0.32mm/0.5um RTX-OPP2 30m/0.32mm/0.32um	EPA 8141A
Phenolic Compounds	Methylene Chloride 50% / Acetone 50% Sonication Extraction GC-MSD	Agilent-7890GC/5975 MSD Capillary DB-5.625	Agilent-7890GC/5975 MSD Capillary DB-5.625	EPA 8270C EPA 3550A
Purgeables (VOCs)	Purge & Trap, GC-MSD	O-I Analytical Eclipse 4660purge&trap/4552autosampler Agilent-6890N GC /5973N MSD Capillary J&W DB-624	O-I Analytical Eclipse 4660purge&trap/4552autosampler Agilent-6890N GC /5973N MSD Capillary J&W DB-624	EPA 8260B

Analyte	Description 2017	Instrumentation 2016	Instrumentation 2017	Method 2017
Tri, Di, and Monobutyl Tin	Hexane extraction, derivatization, GC-PFPD	Varian 3400 GC-FPD DB-608/30m DB-1/30m & Shimadzu GC-2010PFPD RTX-1 30m/0.25mm/1um RTX-5 30m/0.25mm/1um	Varian 3400 GC-FPD DB-608/30m DB-1/30m & Shimadzu GC-2010PFPD RTX-1 30m/0.25mm/1um RTX-5 30m/0.25mm/1um	In house method
Total Nitrogen (TN)	Calculation Sum all Nitrogen (TKN, NO_2, NO_3)	Calculation: Sum all Nitrogen (TKN, NO_2, NO_3)	Calculation: Sum all Nitrogen (TKN, NO_2, NO_3)	Calculation Sum all Nitrogen (TKN, NO_2, NO_3)

OCEAN SEDIMENT (General)

Analyte	Description 2017	Instrumentation 2016	Instrumentation 2017	Method 2017
Biochemical Oxygen Demand (BOD-5 Day)	Dissolved Oxygen Probe	YSI-5000 DO Meter	YSI-5000 DO Meter	SM 5210 B-2001 modified
Particle Size	Coarse fraction by sieve; fine fraction by laser scatter	Horiba Partica LA-950V2	Horiba Partica LA-950V2	EPA/CE-81-1
Sulfides	Acid Digest-Distil / IC-PAD	Dionex ICS3000-PAD(Ag)	Dionex ICS3000-PAD(Ag)	DIONEX AU 107 & EPA 9030B Distillation
Solids, Total	Gravimetric @ 103-105 Cº	Various balances	Various balances	SM 2540 G
Solids, Total-Volatile	Gravimetric @ 500 Cº	Various balances	Various balances	SM 2540 G
Total Organic Carbon (TOC) and Total Nitrogen (TN)	Combustion / GC-TCD	Carlo-Erba NC-2500 Porapak QS & FLASH 2000	FLASH 2000	In house method based on “TOC/TN in Marine Sediments...”, SCCWRP Annual Report, 1990-1991, and 1991-1992 & EPA 9060

OCEAN SEDIMENT (Metals)

Analyte	Description 2017	Instrument 2016	Instrument 2017	Method 2017
Aluminum	Acid Digestion / ICP-OES	IRIS INTREPID DUO & ICAP 6300	ICAP 6300	EPA 6010B
Antimony	Acid Digestion / ICP-OES	IRIS INTREPID DUO & ICAP 6300	ICAP 6300	EPA 6010B

OCEAN SEDIMENT (Metals)

Analyte	Description 2017	Instrumentation 2016	Instrumentation 2017	Method 2017
Arsenic	Hydride Generation AA & Acid Digestion / ICP-OES	IRIS INTREPID DUO & ICAP 6300	ICAP 6300	EPA 7062 & EPA 6010B
Beryllium	Acid Digestion / ICP-OES	IRIS INTREPID DUO & ICAP 6300	ICAP 6300	EPA 6010B
Cadmium	Acid Digestion / ICP-OES	IRIS INTREPID DUO & ICAP 6300	ICAP 6300	EPA 6010B
Chromium	Acid Digestion / ICP-OES	IRIS INTREPID DUO & ICAP 6300	ICAP 6300	EPA 6010B
Copper	Acid Digestion / ICP-OES	IRIS INTREPID DUO & ICAP 6300	ICAP 6300	EPA 6010B
Iron	Acid Digestion / ICP-OES	IRIS INTREPID DUO & ICAP 6300	ICAP 6300	EPA 6010B
Lead	Acid Digestion / ICP-OES	IRIS INTREPID DUO & ICAP 6300	ICAP 6300	EPA 6010B
Manganese	Acid Digestion / ICP-OES	IRIS INTREPID DUO & ICAP 6300	ICAP 6300	EPA 6010B
Mercury	Thermal decomposition atomic absorption	Milestone DMA80	Milestone DMA80	EPA 7473
Nickel	Acid Digestion / ICP-OES	IRIS INTREPID DUO & ICAP 6300	ICAP 6300	EPA 6010B
Selenium	Hydride Generation AA & Acid Digestion / ICP-OES	Thermo iCE 3000	Thermo iCE 3000 & ICAP 6300	EPA 7742 & EPA 6010B
Silver	Acid Digestion / ICP-OES	IRIS INTREPID DUO & ICAP 6300	ICAP 6300	EPA 6010B
Thallium	Acid Digestion / ICP-OES	IRIS INTREPID DUO & ICAP 6300	ICAP 6300	EPA 6010B
Tin	Acid Digestion / ICP-OES	IRIS INTREPID DUO & ICAP 6300	ICAP 6300	EPA 6010B
Zinc	Acid Digestion / ICP-OES	IRIS INTREPID DUO & ICAP 6300	ICAP 6300	EPA 6010B

OCEAN SEDIMENT (Organics)

Analyte	Description 2017	Instrumentation 2016	Instrumentation 2017	Method 2017
Base/Neutral Extractables	Methylene Chloride 50% / Acetone 50% Accelerated Solvent (ASE) Extraction GC-MSD	Dionex ASE-350 Agilent-7890GC/5975 MSD Capillary DB-5.625	Dionex ASE-350 Agilent-7890GC/5975 MSD Capillary DB-5.625	EPA 8270C / EPA 3545A
Chlorinated Compounds	Methylene Chloride 50% / Hexane 50% extraction, Accelerated Solvent Extraction GC-MS/MS	Dionex ASE-350 Varian 3800 GC Saturn 2000 MS-Ion Trap DB-XLB/60m	Dionex ASE-350 Varian 3800 GC Saturn 2000 MS-Ion Trap DB-XLB/60m	EPA 8081A / EPA 3545A
PCBs as Congeners	Methylene Chloride 50% / Hexane 50% extraction, Accelerated Solvent (ASE) Extraction GC-MS/MS	Dionex ASE-350 Varian 3800 GC Saturn 2000 MS-Ion Trap DB-XLB/60m	Dionex ASE-350 Varian 3800 GC Saturn 2000 MS-Ion Trap DB-XLB/60m	EPA 8082 / EPA 3545A

FISH TISSUE: Liver, Muscle, and Whole (General)

Analyte	Description 2017	Instrumentation 2016	Instrumentation 2017	Method 2017
Solids, Total	Freeze Drying Gravimetric	Labconco Freezone 6 Various balances	Labconco Freezone 6 Various balances	”A Guide to Freeze Drying for the Laboratory...”, LABCONCO, 3-53-5/94-Rosse-5M-R3, 1994
Lipids	Hexane/Acetone Extraction Gravimetric	Dionex ASE-350 Various balances	Dionex ASE-350 Various balances	In house method

FISH TISSUE: Liver, Muscle, and Whole (Metals)

Analyte	Description 2017	Instrumentation 2016	Instrumentation 2017	Method 2017
Aluminum	Acid Digestion / ICP-OES	IRIS INTREPID DUO & ICAP 6300	ICAP 6300	EPA 200.7 / EPA 200.3
Antimony	Acid Digestion / ICP-OES	IRIS INTREPID DUO & ICAP 6300	ICAP 6300	EPA 200.7 / EPA 200.3
Arsenic	Hydride Generation AA & Acid Digestion / ICP-OES	IRIS INTREPID DUO & ICAP 6300	Thermo iCE 3000 & ICAP 6300	EPA 200.7 / EPA 200.3
Beryllium	Acid Digestion / ICP-OES	IRIS INTREPID DUO & ICAP 6300	ICAP 6300	EPA 200.7 / EPA 200.3
Cadmium	Acid Digestion / ICP-OES	IRIS INTREPID DUO & ICAP 6300	ICAP 6300	EPA 200.7 / EPA 200.3
Chromium	Acid Digestion / ICP-OES	IRIS INTREPID DUO & ICAP 6300	ICAP 6300	EPA 200.7 / EPA 200.3
Copper	Acid Digestion / ICP-OES	IRIS INTREPID DUO & ICAP 6300	ICAP 6300	EPA 200.7 / EPA 200.3
Iron	Acid Digestion / ICP-OES	IRIS INTREPID DUO & ICAP 6300	ICAP 6300	EPA 200.7 / EPA 200.3
Lead	Acid Digestion / ICP-OES	IRIS INTREPID DUO & ICAP 6300	ICAP 6300	EPA 200.7 / EPA 200.3
Manganese	Acid Digestion / ICP-OES	IRIS INTREPID DUO & ICAP 6300	ICAP 6300	EPA 200.7 / EPA 200.3
Mercury	Thermal decomposition, amalgamation, and atomic absorption spectrophotometry	Milestone DMA80	Milestone DMA80	EPA 7473
Nickel	Acid Digestion / ICP-OES	IRIS INTREPID DUO & ICAP 6300	ICAP 6300	EPA 200.7 / EPA 200.3
Selenium	Hydride Generation AA & Acid Digestion / ICP-OES	Thermo iCE 3000	Thermo iCE 3000 & ICAP 6300	EPA 7742
Silver	Acid Digestion / ICP-OES	IRIS INTREPID DUO & ICAP 6300	ICAP 6300	EPA 200.7 / EPA 200.3
Thallium	Acid Digestion / ICP-OES	IRIS INTREPID DUO & ICAP 6300	ICAP 6300	EPA 200.7 / EPA 200.3
Tin	Acid Digestion / ICP-OES	IRIS INTREPID DUO & ICAP 6300	ICAP 6300	EPA 200.7 / EPA 200.3
Zinc	Acid Digestion / ICP-OES	IRIS INTREPID DUO & ICAP 6300	ICAP 6300	EPA 200.7 / EPA 200.3

FISH TISSUE: Liver, Muscle, and Whole (Organics)

Analyte	Description 2017	Instrumentation 2016	Instrumentation 2017	Method 2017
Base/Neutral Extractable	Basic / Methylene Chloride ASE extraction, GC-MSD	Dionex ASE-350 Agilent-7890GC/5975 MSD Capillary DB-5.625	Dionex ASE-350 Agilent-7890GC/5975 MSD Capillary DB-5.625	EPA 8270C / 3545A
Chlorinated Compounds	Methylene Chloride 50% / Hexane 50% extraction, exchange, GC- MS/MS	Bruker 450-GC Bruker 300MS DB-XLB/60m	Bruker 450-GC Bruker 300MS DB-XLB/60m	EPA 8081A / EPA 3545A
PCBs	Methylene Chloride 50% / Hexane 50% extraction, hexane exchange, GC- MS/MS	Bruker 450-GC Bruker 300MS DB-XLB/60m	Bruker 450-GC Bruker 300MS DB-XLB/60m	EPA 8082 / EPA 3545A

Method References: Methods of Analysis Used to Produce the Data Presented in this Report.

a) Methods for Chemical Analysis of Water and Wastes,
EPA, Environmental Monitoring and Support Laboratory, Cincinnati, Ohio,
March 1979 (EPA-600/4-79-020), 1983 Revision, and March 1984 (EPA-600/4-84-017).

b) U.S. EPA Contract Laboratory Program, Statement of Work for Organic Analysis,
Multi-Media, Multi-Concentration, 7/85 revision and 1/91 revision.

c) Test Methods for Evaluating Solid Waste, Physical/Chemical Methods,
U.S. EPA Office of Solid Waste and emergency Response,
Washington, D.C. 20460, November 1986, SW-846, Third Edition.
Revision 0 September 1994, December 1996, Revision 2

d) The Determination of Inorganic Anions in Water by Ion Chromatography,
Revision 2.1, August 1993

e) U.S. EPA. The Determination of Metals and Trace Elements in Water and Wastes by Inductively Coupled Plasma-Atomic Emission Spectrometry. Method 200.7, Revision 4.4, EMMC Version, 1994

f) U.S. EPA. Determination of Trace Elements in Water and Wastes by Inductively Coupled Plasma-Mass Spectrometry. Method 200.8, Revision 5.4, EMMC Version, 1994

g) Standard Methods for the Examination of Water and Wastewater,
APHA, AWWA, WPCF, 18th Edition, 1992.

h) Standard Methods for the Examination of Water and Wastewater,
APHA, AWWA, WPCF, 19th Edition, 1995.

i) Standard Methods for the Examination of Water and Wastewater,
APHA, AWWA, WPCF, 20th Edition, 1998.

j) Criteria for Identification of Hazardous and Extremely Hazardous Wastes,
California Code of Regulations (CCR), Title 22.

k) DIONEX AU 107, R.D.Rocklin and E.L.Johnson, ANAL. CHEM., 1986, 55, 4

l) Adaptation of method by the Naval Ocean Systems Center, San Diego, Marine Environment Branch, San Diego, CA 92152-5000

m) ”TOC/TN in Marine Sediments...”, SCCWRP Annual Report, 1990-1991, and 1991-1992.

n) ”A Guide to Freeze Drying for the Laboratory...”, LABCONCO, 3-53-5/94-Rosse-5M-R3, 1994.

o) ”Lipids Content in Fish Tissues via Accelerated Solvent Extraction...”,WWChem, EMTS/MWWD, 1998

p) Standard Methods for the Examination of Water and Wastewater,
APHA, AWWA, WPCF, 22th Edition, 2012.

v) Procedures for Handling and Chemical Analysis of Sediment and Water Samples,
Russel H. Plumb, Jr., May 1981, EPA/Corp of Engineers Technical Committee on
Criteria for Dredged and Fill Material, EPA Contract 4805572010.

w) Method 1631, Revision E:
Mercury in water by oxidation, purge and trap, and cold vapor atomic fluorescence spectrometry

y) Method 245.7
Mercury in Water by Cold Vapor Atomic Fluorescend Spectrometry, Revision 2.0, February 2005

C. Frequency of analysis and Type of Sample - 2017

CONSTITUENT	Frequency	Sample Type	Permit Required Influent	Permit Required Effluent	Comments
Process Control					
Biochemical Oxygen Demand -Total	Daily	Composite	X	X	
Biochemical Oxygen Demand -Soluble*	Daily	Composite			Monday-Friday
Chemical Oxygen Demand*	Weekly	Composite			
Conductivity*	Weekly	Composite			
Floating Particulates	Daily	Composite	X	X	
Flow	Daily		X	X	Same meter used
Oil and Grease	Daily	Grab	X	X	
pH	Daily	Grab	X	X	
Settleable Solids	Daily	Grab	X	X	
Temperature	Daily	Grab	X	X	
Total Dissolved Solids	Daily	Composite	X	X	
Total Solids*	Weekly	Composite			
Total Suspended Solids	Daily	Composite	X	X	
Total Volatile Solids	Daily	Composite		X	
Turbidity	Daily	Composite	X	X	
Volatile Suspended Solids	Daily	Composite	X	X	
Metals					
As,Cd,Cr,Cu,Pb,Hg,Ni,Se,Ag,Zn	Weekly	Composite	X	X	
Sb, Be, Tl	Weekly	Composite	X	X	Req. Frequency=Monthly
Fe	Weekly	Composite			
Ions					
Alkalinity	Weekly	Composite			
Ammonia-Nitrogen	Weekly	Composite	X	X	
Anions (F-,Cl-,Br-,SO42-,NO3-,PO43-)	Weekly	Composite			
Cations (Ca2+, Mg2+, Li+,Na+,K+)	Weekly	Composite			
Cyanide	Weekly	Composite	X	X	
Hardness (Total, Ca, Mg)	Weekly	Composite			By calculation
Organic Priority Pollutants					
Acrolein and Acrylonitrile	Monthly	Grab	X	X	Method 8260
Base/Neutral Compounds	Monthly	Composite	X	X	Method 625
Benzidines	Monthly	Composite	X	X	Method 625
Dioxin	Monthly	Composite	X	X	Method 1613
Pesticides, chlorinated	Monthly	Composite	X	X	Weekly, DDT
Pesticides, organophosphorus	Semi-Annual	Composite			
Phenols, non-chlorinated	Weekly	Composite	X	X	Method 625
Phenols, chlorinated	Weekly	Composite	X	X	Method 625
Polychlorinated Biphenyls	Weekly	Composite	X	X	
Purgeable (Volatile) Compounds	Monthly	Grab	X	X	Method 8260/624
Tri, Di, & monobutyl tins	Monthly	Composite	X	X	
Miscellaneous					
Radiation	Monthly	Composite	X	X	Performed by a contract lab.
Toxicity (Acute & Chronic)	Monthly	Composite	X	X	Reported in the monthly Toxicity Testing Report by the Biology Section
* not required in R9-2017-0007					

D. QA Report Summary

Summary and Overview:

The Environmental Chemistry Services (ECS) Section of the Environmental Monitoring and Technical Services (EMTS) Division performs most of the NPDES permits and other regulatory permits analytical and/or reporting functions for the City of San Diego Public Utilities Department's wastewater treatment facilities. In addition, the section provides process control testing services for the City of San Diego's E.W. Bloom Point Loma Wastewater Treatment Plant (PLWTP), South Bay Water Reclamation Plant (SBWRP), and the Metro Biosolids Center (MBC) at its laboratories located onsite each plant. The section continues to analyze North City Water Reclamation Plant (NCWRP) parameters related to the Point Loma NPDES permit.

The ECS laboratory staff also performs the chemical and physical testing of ocean sediment and fish tissue samples in support of the Ocean Monitoring Program for the City of San Diego's Point Loma Ocean Outfall (PLOO) and the SBWRP Ocean Outfall (SBOO), which is shared with the International Boundary and Water Commission's International Water Treatment Plant (IWTP). Recently, these analytical services have also been expanded to strengthen the City of San Diego's Industrial Waste Control Program (IWCP) in its compliance evaluation of industrial facilities discharging into the Metro sewerage System. Work for the IWCP also includes quarterly sampling and analysis throughout the collection system to support the annual review of local wastewater discharge limits (Local Limits) as required by the PLWTP NPDES permit. Additionally, laboratory staff provide environmental testing services to various customers, both internal to the City of San Diego and to other external agencies, e.g. other municipal water districts within the San Diego county.

The QA/QC activities of the Laboratory are comprehensive and extensive. Of the 49,015 samples received in the Laboratory in 2017, approximately 38.1% were Quality Control (QC) samples, such as blanks, check samples, and standard reference materials. A total of 147 different analyses were performed throughout the year resulting in 436,666 analytical determinations that consist of 166,836 (~38.2%) QC determinations (e.g. blanks, laboratory replicates, matrix spikes, surrogates, etc.) used to determine the accuracy, precision, and performance of each analysis and batch.

There are four (4) separate laboratory facility locations, each is independently certified by the California ELAP (Environmental Laboratory Accreditation Program) for the fields of testing required under California regulations, and one of these laboratories also owns a certification for fields of testing under the Arizona Department of Health Services (ADHS). Copies of these certifications are included as Attachment 1. These are rigorous programs involving continuing independent blind performance testing, biannual comprehensive audits, and extensive documentation requirements. California ELAP and Arizona DHS certify fields of testing for Water, Wastewater, and Hazardous Materials with methods published in the Federal Register, or specifically approved in regulation by the United States Environmental Protection Agency (USEPA). Additionally, the Laboratory performs analyses using methods for which certification does not exist, such as ocean sediment and sea water determinations. These methods have been developed in-house, derived from, or in collaboration with other scientific laboratories (e.g. Scripps Institute of Oceanography, Southern California Coastal Water Research Project, et. al.) and have been used extensively in multi-agency EPA and State sponsored studies over the past several years. Methods of analysis developed for matrices and applications not within ELAP jurisdiction have been adapted from ELAP listed methods to which we apply generally accepted standards of performance and quality control.

Furthermore, the Wastewater Treatment & Disposal Division (WWTD) facilities and all EMTS laboratories maintained International Standards Organization (ISO) 14001 Environmental Management Systems certification. Contract laboratories are also required to use only approved methods for which they hold ELAP certification, and/or are approved by the appropriate regulatory agency (e.g. San Diego RWQCB). Copies of their certifications are included as Attachment 2.

The following report summarizes the QA/QC activities during 2017 and documents the laboratory information and certifications for those laboratories which provided data used in NPDES and other permit monitoring or environmental testing during the year.

E. Laboratories Contributing Results used in this report.

Laboratory Name	EPA Lab Code	ADHS Cert#	ELAP Cert.#	Address	Phone #	Contribution
Alvarado Environmental* Chemistry Laboratory	CA00380	AZ0783*	ELAP 1609	5530 Kiowa Drive L Mesa, CA 91942	(619) 668-3212	All results except those listed below.
Pt. Loma Wastewater Chemistry Laboratory	CA01435		2474	1902 Gatchell Road San Diego, CA 92106	(619) 221-8765	Process Control analyses and wet methods for the treatment plant.
Metro Biosolids Center Chemistry Laboratory	CA01437		2478	5240 Convoy Street San Diego, CA 92111	(858) 614-5834	Process Control analyses and wet methods for the treatment plant.
South Bay Wastewater Chemistry Laboratory	CA00080		2539	2411 Dairy Mart Road San Diego, CA 92173	(619) 428-7349	Process Control analyses and wet methods for the treatment plant.
City of San Diego Water Quality Laboratory	CA01393		1058	5530 Kiowa Drive La Mesa, CA 91942	(619) 668-3237	Total Organic Carbon in Wastewater; Thallium in Water
North City Wastewater Chemistry Laboratory	CA01436		2477	4949 Eastgate Mall San Diego, CA 92121	(858) 824-6009	Process Control analyses and wet methods for the treatment plant.
City of San Diego- Marine Microbiology	CA01302		2185	2392 Kincaid Road San Diego, CA 92101	(619) 758-2312	Microbiology
City of San Diego Toxicology Laboratory			1989	2392 Kincaid Road San Diego, CA 92101	(619) 758-2341	Bioassays
Nautilus Environmental			1802	4340 Vandever Ave San Diego, CA 92120	(858) 587-7333	Bioassays
TestAmerica Laboratories, Inc			2425	2800 George Washington Way, Richland, WA 99354	(509) 375-3131	Gross Alpha/Beta Radioactivity
TestAmerica Nashville Division			01168CA	2960 Foster Creighton Drive Nashville, TN 37204	(615) 756-0177	Herbicides
Frontier Analytical Laboratory			02113CA	5172 Hillsdale Circle El Dorado Hills, CA 95762	(916) 934-0900	Dioxin/Furan in Wastewater and Solids
Weck Laboratories, Inc.			1132	14859 East Clark Avenue City of Industry, CA 91745	626-336-2139 x141	Organics (Volatile & semi-volatile); Herbicides
Fruit Growers Laboratories, Inc.			1573	853 Corporation Street Santa Paula, CA 93060	(805) 392-2000	Gross Alpha/Beta Radioactivity
Babcock Laboratories, Inc.			2698	6100 Quail Valley Court Riverside CA, 92507	(951) 653-3351	Chlorinated Pesticides (608), Aroclors 8081/8082, 8151A, 200.8

* Licensed & certified as Arizona Out-of-State Laboratory

Facilities & Scope:

The Environmental Chemistry Services (ECS) comprises four geographically separated laboratories - the main laboratory facilities located at the Alvarado Joint Laboratory building in La Mesa and three satellite chemistry laboratories located at Public Utilities Department's wastewater treatment plants. Each maintains individual California Environmental Laboratory Accreditation Program (ELAP) certification in its respective Fields of Testing (FoT). The Alvarado laboratory is also certified by the state of Arizona as an out of–state laboratory. Each laboratory also has its own USEPA Lab Code as shown in the following table.

Laboratory Facility	Laboratory	Address	Phone #	EPA Lab Code	ADHS Cert#	ELAP Cert.#
Alvarado Laboratory	Wastewater Chemistry Laboratory	5530 Kiowa Drive La Mesa, CA 91942	619.668.3215	CA00380	AZ0783	1609
Point Loma Satellite Lab	Pt. Loma Wastewater Chemistry Laboratory	1902 Gatchell Road San Diego, CA 92106	619.221.8765	CA01435		2474
Metro Biosolids Center Satellite Lab	Metro Biosolids Center Chemistry Laboratory	5240 Convoy Street San Diego, CA 92111	858.614.5834	CA01437		2478
South Bay Water Reclamation Plant Satellite Lab	South Bay Wastewater Chemistry Laboratory	2411 Dairy Mart Road San Diego, CA 92173	619.428.7349	CA01460		2539

The information presented in this report applies to ECS, including all of the laboratories listed above, unless specified otherwise. The main office for ECS is headquartered at the Alvarado laboratory, which also houses the most extensive laboratory facilities of the section. Along with a variety of process control and wet chemistry analyses, the main laboratory also handles all of the trace metals, pesticides, organics determinations, and other analyses. The satellite laboratories are primarily dedicated to process control, wet chemistry, and other analyses to directly support operations of the co-located wastewater treatment plants.

As previously reported, the North City Water Reclamation Plant Satellite Laboratory was shifted to the City of San Diego's Water Quality Chemistry Services (WQCS) Section that also consists of the Water Quality Laboratory during the October 2015 divisional restructuring. With this realignment, the now obsolete Industrial Waste Laboratory (IWL) was similarly moved to become part of ECS. Though separate databases are still maintained to simplify sectional operation, a final integration is expected with the upcoming acquisition of a new divisional Laboratory Information Management System (LIMS) in Fall 2018. Please note that ECS QA data will include only IWL samples analyzed by ECS and logged in ECS's database for the reporting period of January to December 2017.

Environmental Chemistry Services performs most of the NPDES analytical monitoring requirements and other permit process control chemical and physical testing for the:

- E.W. Blom, Point Loma Wastewater Treatment Plant (PLWTP), NPDES No. CA0107409/ Order No. R9-2017-0007, including the ocean monitoring program.
- Metro Biosolids Center (MBC), no permit, but monitoring requirements are contained in Permit No. R9-2017-0007.
- South Bay Water Reclamation Plant (SBWRP), NPDES No. CA0109045/ Order No. R9-2013-0006.
- North City Water Reclamation Plant (NCWRP), Order No. R9-2015-0091.

- City of San Diego's Industrial Pretreatment Program
- Ocean monitoring program for the PLOO and SBOO, which is shared with the International Boundary and Water Commission's International Treatment Plant.
- Other environmental testing services for various customers, both internal to the City of San Diego and other external public agencies.

A small portion of the analyses required for permit monitoring was outsourced to laboratories certified by ELAP, specifically:

- Gross Alpha- and Beta radiations to Test America Laboratories, Inc. (Richland Division) and Fruit Growers Laboratory
- Herbicides to Test America Laboratories, Inc. (Nashville Division) and Weck Laboratories
- Total organic carbon (TOC) and thallium in water to the Water Quality Laboratory, City of San Diego, Public Utilities Department
- Dioxin and Furans in solids and wastewater to Frontier Analytical Laboratories
- Organics (Semi-volatile & Volatile) analyses to Weck Laboratories, Inc.

The City of San Diego pays for additional QC samples (replicates, blanks, and spikes) as a routine quality check on contracted laboratory work. This is beyond the usual and customary practices with contract laboratory work.

Ocean Monitoring:

While there are no recognized State certifications for laboratory analyses of marine environmental samples (e.g. seawater, sediments, various tissues, etc.), the City of San Diego has been a leader in the development and standardization of analytical methods for determinations in these areas.

Many of the methods are novel approaches developed after extensive research and development from other published work (e.g. organotin analyses, sediment grain size, etc.) or adaptations of existing EPA methods (e.g. SW 846 Method 8082 for PCB congeners in sediments, etc.). For example, standards which are received as tin chlorides and sample extracts must be alkylated in order to be detected by gas chromatography for organotin determination. Recently, the laboratory successfully investigated and adopted a new, safer derivatization procedure using sodium tetraethylborate (STEB). This work was completed in collaboration with OI Analytical and results presented at Pittcon 2018.

The laboratory participate in extensive inter-laboratory calibration studies. Some of the most extensive studies have involved several academic/research, public, and private laboratories under the umbrella of the Southern California Coastal Water Research Project (SCCWRP). These studies are repeated periodically as part of the Southern California Bight Regional Monitoring/Survey Project, which is a massive sampling and monitoring program, participated in by all of the major Publicly Owned Treatment Works (POTWs), California Water Resource Control Boards, and research organizations.

Our laboratory is a reference (referee) laboratory for the NRCC (National Research Council of Canada) CARP-2 Certified Reference Material (CRM) for fish tissue. This sample was adopted as the standard reference material for QC requirement of the Southern California Bight Regional Project, and also used worldwide as a standard reference material. Additionally, we have worked with NIST to develop a West Coast marine sediment and fish tissue standard reference material (SRM).

QA/QC Activities Summary:

Report for January 1, 2017 - December 31, 2017.[15]

The sample distribution increased 5.1% in year 2017 from 2016. Of the 434,447 analytical determinations made on 49,014 samples received by the Laboratory in 2017 (see table A.) 19,085 or 38.94% were Quality Control (QC) samples: 12.22% blanks; and 25.96% were check or reference samples.

	2017		2016
Table A. Samples	**Number of Samples**	**Percent of total samples**	**% Difference**
Customer/Environmental samples	**29,929**	**61.06%**	**5.1%**
Quality Control (QC) samples	**19,085**	**38.94%**	**0.5%**
Total Samples	**49,014**	**100.00%**	**3.3%**
QC Samples:			
Blanks:			
FIELD_BLANK	**244**	**0.50%**	**2.9%**
REAGENT_BLANK	**33**	**0.07%**	**-69.7%**
TRIP BLANK	**1**	**0.00%**	**-500.0%**
METHOD_BLANK	**5,713**	**11.66%**	**-3.4%**
Total Blanks:	**5,991**	**12.22%**	
Check samples:			
External Check samples	**5,591**	**11.41%**	**-3.9%**
Internal Check samples	**7,084**	**14.45%**	**-1.5%**
Low Level MDL Verification	**19**	**0.04%**	**-100.0%**
SRMs (Standard Reference Material)	**31**	**0.06%**	**-51.6%**
Total Check Samples:	**12,725**	**25.96%**	**-2.8%**
Total QC Samples:	**18,716**	**38.19%**	**-3.1%**

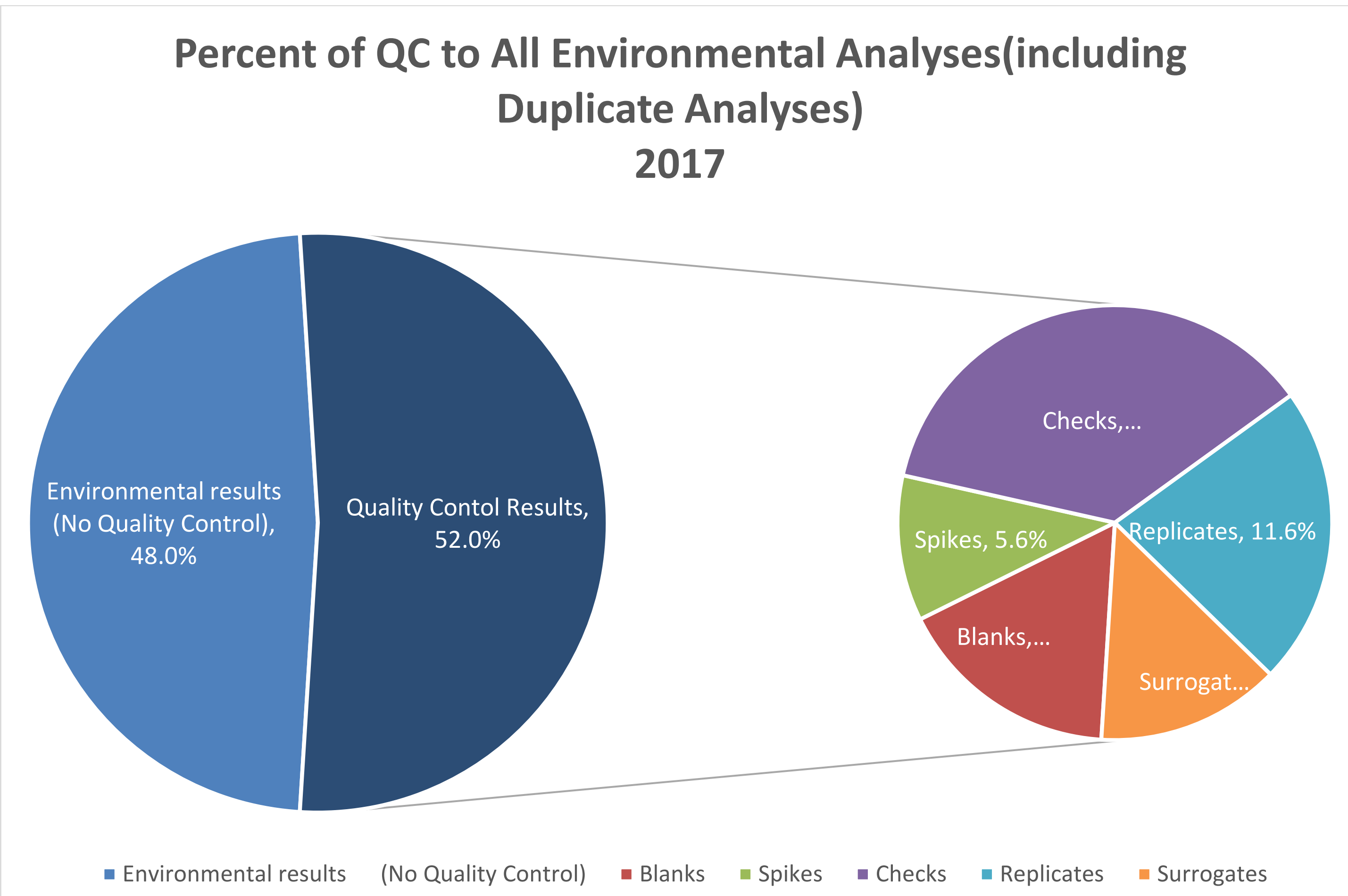
A high level of Quality Control is used for laboratory determinations. Of the 434,447 determinations (see Table A.2), 50.3% were QC (e.g. blanks, lab replicates, matrix spikes, surrogates, etc.). If calculated for the 420,173 customer determinations only, the percentage increases to 52.0%.

A small percentage (3.3%) of the total results did not meet internal QA review due to a variety of reasons - e.g. unsuccessful calibration, unacceptable QC performance, outside acceptance criteria, etc. Samples from analytical determinations that were rejected are either reanalyzed, the data is not reported, or data is reported and flagged as having not met data quality objectives and may not be suitable for compliance determination.

[15] Data counts (metrics) were obtained on March 12, 2018 and do not include analyses that were underway but incomplete as of that time. All table data is based on samples collected between January 1, 2017 and December 31, 2017. This data summary is comprehensive and includes all laboratory analyses work for all customers, projects, and programs unless otherwise indicated.

Table A.2. Analyses (results) - 2017

	Number	Percent of total (434447)	Percent of total (420173)
Total number of analytes/results determined:	**434,447**	NA	
Total results not complete[2]:	14,274	3.3%	
No. of results for Customer/Environmental Samples[1,3]:	**420,173**	**96.7%**	
Total number of rejected results:	140,513	36.06%	
No. of results for blanks[3]:	36,425	8.4%	8.7%
No. of results for matrix spikes[3]:	23,666	5.4%	5.6%
No. of results for Check samples[3]:	79,789	18.4%	19.0%
No. of results for Replicates[3]:	48,625	11.2%	11.6%
No. of results for surrogates[3]:	29,925	6.9%	7.1%
Total QC analyses run[3] :	**218,430**	**50.3%**	**52.0%**



1 – matrix spike, replicates, surrogates are also part of the total for Customer/Environmental samples.
2 – as of March 26, 2017.
3 – percent of QC samples calculated from grand total of 420,173.

NOTE: Analysis, for metrics purposes used in this report, generally refers to a parameter determined in each sample in a batch. Determination of several metals in a sample (e.g. iron, nickel, lead) would equal as three (3) analyses in the expression of totals such as those in the Analyses table on the preceding page. This means of calculation that has been used for many years with batch and method, is a useful comparative measure of laboratory performance and is one of the fundamental constants in applying quality control measures.

	No. of Batches	Percent of total
Total number of analytical batches:	15,695	100.00%
Total number of rejected analytical batches:	147	0.94%
Incomplete batches (as of March 26, 2017):	360	2.29%
	16,202	

Outside laboratories

A small number of permit required analyses are contracted out, as summarized below.

Results from sub-contracted labs.		
Laboratory	Analytes	Total in-house Analytes
Frontier Analytical	4533	1.43%
Weck Laboratory	37	0.01%
Fruit Growers Laboratory, Inc.	94	0.03%
San Diego Water Quality Laboratory	110	0.03%
Test America	682	0.22%
Total outside results:	5,456	1.72%

* Nautilus Environmental results not included in calculations.

QA Plan:

A copy of our Laboratory's current Quality Assurance Plan is included as Attachment 4. The Quality Assurance Plan was updated in March 2018.

Summary of 2017 Performance Testing (PT) Studies:

The Environmental Chemistry Services Laboratories participated in required ELAP and USEPA PT studies throughout the year. Each of the geographically separated laboratory facilities participated individually (as required by ELAP) in 31 PT studies for 2017. PT studies successfully completed were purchased from ERA, Absolute Standards, and Phenova. When results submitted were determined to be outside of study acceptance limits, the laboratory reviewed its internal protocols, modified procedures as necessary, and participated in a subsequent study for the analytes in question. A PT study was completed with satisfactory results for all analytes by in-house chemistry laboratories.

The results of the Laboratory PT studies for 2017 are summarized in the following tables.

Alvarado Environmental Chemistry Laboratory: See attachment 6 for copy of reports.

PT Study	Number of Analytes	Number of Acceptable results	Success Rate (%)
WP 0070	1	1	100%
R20556 (DRO GRO CN)	3	3	100%
R20556 (Pest in WW)	19	14	74%
R20557 (OPP in soil)	11	11	100%
R2557 (PCBs in soil)	7	7	100%
R2557 (Pest in soil)	15	15	100%
R20673 (Pest in WW)	19	19	100%
HW0117	28	28	100%
HW0417	125	122	98%
HW0717	31	31	100%
WP2017	14	14	100%
WP267	2	2	100%
WP268	31	31	100%
WP270	2	2	100%
WP0317	169	167	99%
WP0417	18	18	100%
WP266	8	8	100%
Total analytes:	**503**	**493**	**98%**

Metro Biosolids Center (MBC) Chemistry Laboratory: See attachment 8 for copy of reports.

PT Study	Number of Analytes	Number of Acceptable results	Success Rate (%)
WP0317	5	5	100%
HW0417	2	2	100%
Total analytes:	**7**	**7**	**100%**

Pt. Loma Environmental Chemistry Laboratory: See attachment 9 for copy of reports.

PT Study	Number of Analytes	Number of Acceptable results	Success Rate (%)
HW0417	2	2	100%
WP0317	10	10	100%
WP0417	1	1	100%
WP0517	1	1	100%
HW0717	2	2	100%
Total analytes:	**16**	**16**	**100%**

South Bay Wastewater Chemistry Laboratory: See attachment 10 for copy of reports.

PT Study	Number of Analytes	Number of Acceptable results	Success Rate (%)
HW07017	2	2	100%
WP267	1	1	100%
WP268	2	2	100%
WP270	1	1	100%
WP0417	15	14	93%
WP0517	2	2	100%
WS249	1	1	100%
Total analytes:	**24**	**23**	**96%**

F. Staff Contributing to this Report

Staff Contributing to this Report in 2017

Initials	ID	First Name	Last Name	Signature
KB	KBANU	Khaleda	Banu	
VB	VBASILAN	Virginia	Basilan	
EB	EBLANCO	Enrique	Blanco	
TC	TJCANNON	Tim	Cannon	
JC	JCASTRO	Jose	Castro	
JCM	JCAZARES	Jacqueline	Cazares-Medina	
KC	KCHAUVIN	Kai	Chauvin	
BC	BCHING	Brett	Ching	
MC	MCORONEL	Maricela	Coronel	
~~CM~~	CCORRAO	Christine	Corrao	
JCM	JCZAJKOWSKI	Jerry	Czajkowski	
KD	KDANG	Ken	Dang	
MM	MMDAOUD	Mike	Daoud	
SD	SDAUGHTERS	Susan	Daughters	
BD	BDONAHUE	Brad	Donahue	
BLD	BDOWELL	Brenda	Dowell	
ACD	ADURAN	Angelica	Duran	
AJE	AJENTERA	Angela	Entera	
MF	MFERRY	Matthew	Ferry	
EFITZ	EFITZGERALD	Erica	Fitzgerald	
GAF	GAFLORES	Gabriel	Flores	
AF	AFULLER	Alma	Fuller	
BSG	BSGARCIA	Brenda	Garcia	
TG	TGARCIA	Tatsiana	Garcia	
NG	NGRIMAUD	Nicole	Grimaud	
DH	DHUANTE	Daniel	Huante	
EH	EHUNT	Eric	Hunt	
RJ	RJARDINE	Ron	Jardine	
BK	BKELLEY	Brett	Kelley	
~~LK~~ LNK	LKING	Lee	King	
JK	JKIRBY	Jeanette	Kirby	
GK	GKOBAYAHI	Glen	Kobayashi	
VK	VKOZAREV	Vesselka	Kozarev	
EL	ELANEZ	Estela	Lanez	
AM	AMARTINEZ	Armando	Martinez	
FM	FMARTINEZ	Fernando	Martinez	
CGM	CONNIEM	Connie	Mata	
JM	JMCANALLY	Jeff	McAnally	
EM	EMERCADO	Elvie	Mercado	
OM	OMIRANDASAND	Oscar	Miranda	
JN	JNIETO	Jesus	Nieto	
MN	MNOLLER	Maria	Noller	
PP	PPARRA	Paola	Parra	
CP	CPAYAN	Ciara	Payan	
AP	ALFREDOP	Alfredo	Perez	
TGP	TPRIEST	Taylor	Priest	
LP	LPRZYBYLO	Leonard	Przybylo	
CAQ	CQUINATA	Corinna	Quinata	
YXR	YREYNOSOMAR	Yolanda	Reynoso Martin	
SR	SEROMERO	Sonji	Romero	
RR	RRONSAIRO	Rowena	Ronsairo	
RS	RSANDOVAL	Robert	Sandoval	
VS	VSANTIBANEZ	Victoria	Santibanez	
GS	GSCHLIMME	Greg	Schlimme	
SV	SVALENZUELA	Sandra	Valenzuela	
FV	FVEGA	Felipe	Vega	
JW	JWEBB	Julie	Webb	
EW	EWESTCOTT	Erica	Westcott	
MY	MYOUNAN	Michael	Younan	

Figure 1. Chemistry Laboratory Organization Chart.

Public Utilities Department
Environmental Monitoring and Technical Services Division
Environmental Chemistry Services

Deputy Director
Peter Vroom, Ph.D.

Senior Chemist *1.00*
Elvira R. Mercado

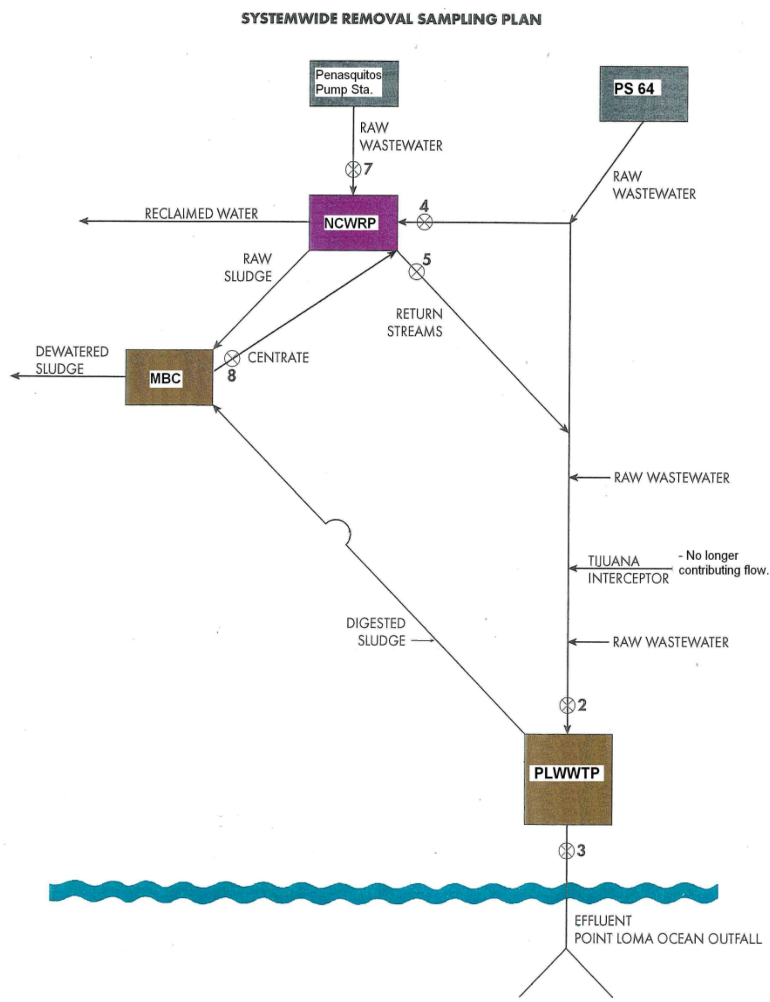
South Bay WRP Group	***Pt. Loma WWTP / MBC Group***	***Inorganic/ Wet Chemistry Group***	***Metals Group***	***Pesticides Group***	***GC/MS Group***	***QA/DM Group***
Associate Chemist 1.00 SONJI ROMERO	*Associate Chemist 1.00* VESSELKA KOZAREV	*Associate Chemist 1.00* ROBERT SANDOVAL	*Associate Chemist 1.00* SANDRA VALENZUELA	*Associate Chemist 1.00* RONALD JARDINE	*Associate Chemist 1.00* ESTELA LANEZ	*Associate Chemist 1.00* LEE KING
Assistant Chemists: 1.00 GREG SCHLIMME	*Assistant Chemists: 2.00* JERRY CZAJKOWSKI TATSIANA GARCIA	*Assistant Chemists: 4.00* JACQUELINE CAZARES-MEDINA KEN DANG LEONARD PRZYBYLO MICHAEL YOUNAN	*Assistant Chemists: 5.00* SUSAN DAUGHTERS ALMA FULLER ERICA FITZGERALD OSCAR MIRANDA JESUS NIETO	*Assistant Chemists: 4.00* BRENDA DOWELL MATTHEW FERRY ERIC HUNT PAOLA PARRA	*Assistant Chemists: 6.00* VIRGINIA BASILAN* ENRIQUE BLANCO BRETT CHING CHRISTINE CORRAO CONNIE MATA YOLANDA REYNOSO-MARTIN	*Assistant Chemists: 4.00* ARMANDO MARTINEZ FERNANDO MARTINEZ MARIA NOLLER JULIE WEBB
Laboratory Technician: 2.00 JOSE CASTRO ANGELICA DURAN	*Laboratory Technician: 4.00* ALFREDO PEREZ* FELIPE VEGA* ERICA WESTCOTT* BRENDA GARCIA*	*Laboratory Technician: 2.00* DANIEL HUANTE ROWENA RONSAIRO*	*Laboratory Technician: 1.00* TIM CANNON	*Laboratory Technician: 2.00* MARICELA CORONEL* TAYLOR-GRACE PRIEST	*Laboratory Technician: 2.00* GABRIEL FLORES* GLEN KOBAYASHI	*Laboratory Technician: 2.00* KAI CHAUVIN JEANETTE KIRBY
			Intern:	Intern:		*Word Processing Operator: 1.00* CORINNA QUINATA

*Primarily assigned to this group but performs additional assignment in support of another ECS work group.

G. System-wide calculation definition

System-wide removals are a practical extension of the "Adjusted Removals" previously reported. Adjusted removals were used to determine removal efficiency of TSS and BOD, during the period when biosolids dewatering occurred at Fiesta Island. The wastewater removed by dewatering (e.g. belt filter press or drying bed decant) was returned to the Point Loma WWTP headworks and contained a certain amount of solids. In order to account for the removal and return of TSS and BOD, on a complete mass-balance basis, the Adjusted Removals were determined. That calculation was relatively straight forward and included removing the contribution to the Pt. Loma WWTP influent of the returned stream. The calculation was done on a mass balance basis to fully account for the solids and BOD contributions returned back to the system.

With the replacement of Fiesta Island biosolids processing by the Metro Biosolids Center (MBC) and the addition of the NCWRP (North City Water Reclamation Plant) in the Metro System, the removal and return of solids to Pt. Loma WWTP was complicated by the addition of multiple inputs and outputs to the system. To calculate the system-wide removals, the net total inputs and outputs were determined and included in the updated calculation13. The determination of System-wide removals is represented by Equation 1 on the next page. This simplified diagram graphically shows the relationships of the input and output streams. The Tijuana interceptor (emergency connection) has not contributed flows since September 2003. The South Bay Water Reclamation Plant (SBWRP) is not shown since it currently has no net contribution or solids removal.



13 Calculations are performed by a computer database application working with Metro System flow and concentration data.

Equation 1.

$$\text{System-wide \%Removal} = \frac{(\sum \text{System Influents}) - (\sum \text{Return Streams}) - (\sum \text{Outfall Discharge})}{\sum \text{System Influents} - \sum \text{Return Streams}} \times 100\%$$

Where,

System Influents = Point Loma Wastewater Treatment Plant Influents,
NCWRP Influent Pump Station (i.e. Pump station 64),
NCWRP Influent from Penasquitos Pump Station

Return Streams = NCWRP Filter Backwash,
NCWRP Plant Drain,
NCWRP Secondary Effluent,
NCWRP Un-disinfected Filtered Effluent Bypass,
NCWRP Final Effluent
Metro Biosolids Center Centrate

The TSS and BOD_5 concentrations, together with the flow rate, of each stream are measured daily and mass emissions (pounds a day) for each stream determined. The above formula is applied on the resultant mass balances and the system-wide removals calculated for each day. In the event that a data value (e.g. flow rate measurement, TSS concentration or BOD_5 concentration) is not available for a stream, the median value for the previous calendar year for that stream is used as a surrogate number to allow completion of the calculation. The annual averages and summaries in the system-wide data tables are derived (arithmetic mean) from the monthly averages of the daily calculated mass emissions values and removal rates.

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