SD Public Utilities

Annual Reports and Summary

Point Loma
Wastewater Treatment Plant
& Ocean Outfall

Monitoring and Reporting
Program No. R9-2009-0001
NPDES No. CA 0107409

2016

Environmental Monitoring and Technical Services
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The City of
SAN DIEGO
Public Utilities Department
Environmental Monitoring & Technical Services Division

June 30, 2017

David W. Gibson, Executive Officer
California Regional Water Quality Control Board
2375 Northside Drive, Suite 100
San Diego, CA 92108

Attn: POTW Compliance Unit

Dear Mr. Gibson:

Enclosed is the 2016 Pt. Loma Wastewater Treatment Plant Ocean Outfall Annual Reports and Summary, as specified in discharge permit Order No. R9-2009-0001, NPDES No. CA0107409 (Point Loma).

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, I certify that the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Sincerely,

Peter S. Vroom, Ph.D.
Public Utilities Deputy Director

ERM/caq

Enclosure

cc: EPA Region 9
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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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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. R-2009-0001[1] (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 2016 results, as annual averages or annual ranges, of analyses obtained during the monitoring of the effluent at the PLWTP.

2016 NPDES Compliance Assessment for Conventional Pollutants for the Point Loma WWTP (Order No. R9-2009-0001/NPDES No. CA0107409)

Parameter	NPDES Permit Limits		Values and Annual Ranges	Note
BOD_5	Mean Annual % Removal	≥ 58 %	57.4** – 68.7%	System-wide (monthly averages).
TSS	Mean Monthly % Removal	≥ 80 %	80.6– 91.6%	System-wide (monthly averages).
	Monthly Average	75 mg/L	32 – 74	
	Mass Emissions	13,598 mt/yr	8,457	
Oil and Grease	Monthly Average	25 mg/L	9.6 – 22.3	
		42,743 lbs/day	11,033 – 24,476	
	Weekly Average*	40 mg/L	7.4 – 29.2	
		68,388 lbs/day	9,380 – 33,607	
	Maximum at any time	75 mg/L	49.1	
		128,228 lbs/day	54,913	
Settleable Solids	Monthly Average	1.0 mL/L	ND – 1.0	
	Weekly Average*	1.5 mL/L	ND – 1.6	Limit exceeded on the week of 11/27–12/3/17
	Maximum at any time	3.0 mL/L	4.5	Limit exceeded on 2/2/16
Turbidity	Monthly Average	75 NTU	33-67	
	Weekly Average*	100 NTU	30.9 – 82	
	Maximum at any time	225 NTU	122	
pH	Range	6.0 – 9.0 pH	7.10 - 7.24	

* = **Weekly Average:** defined as the highest allowable average of daily discharges over a calendar week (Sunday through Saturday). Data averaged from 27-Dec-2015 to 31-Dec-2016 as per weekly average definition.

** = BOD monthly average value lower than the permit-required system-wide percent annual average removal, but is not a permit violation.

Other Key Metrics for 2016	**Annual Daily Average**	**Annual Total** (million gallons)
Effluent Flow (mgd)	136.1	48,834

Parameter	**Annual Daily Average** (mg/L)	**System-wide Removal** (%)	**Plant Removal** (%)	**Annual Mass Emission** (metric tons)
TSS[3]	45	88.6	87.7	8,457
BOD[4]	131	64.1	60.9	24,806

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, 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 also of 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.

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 final 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.

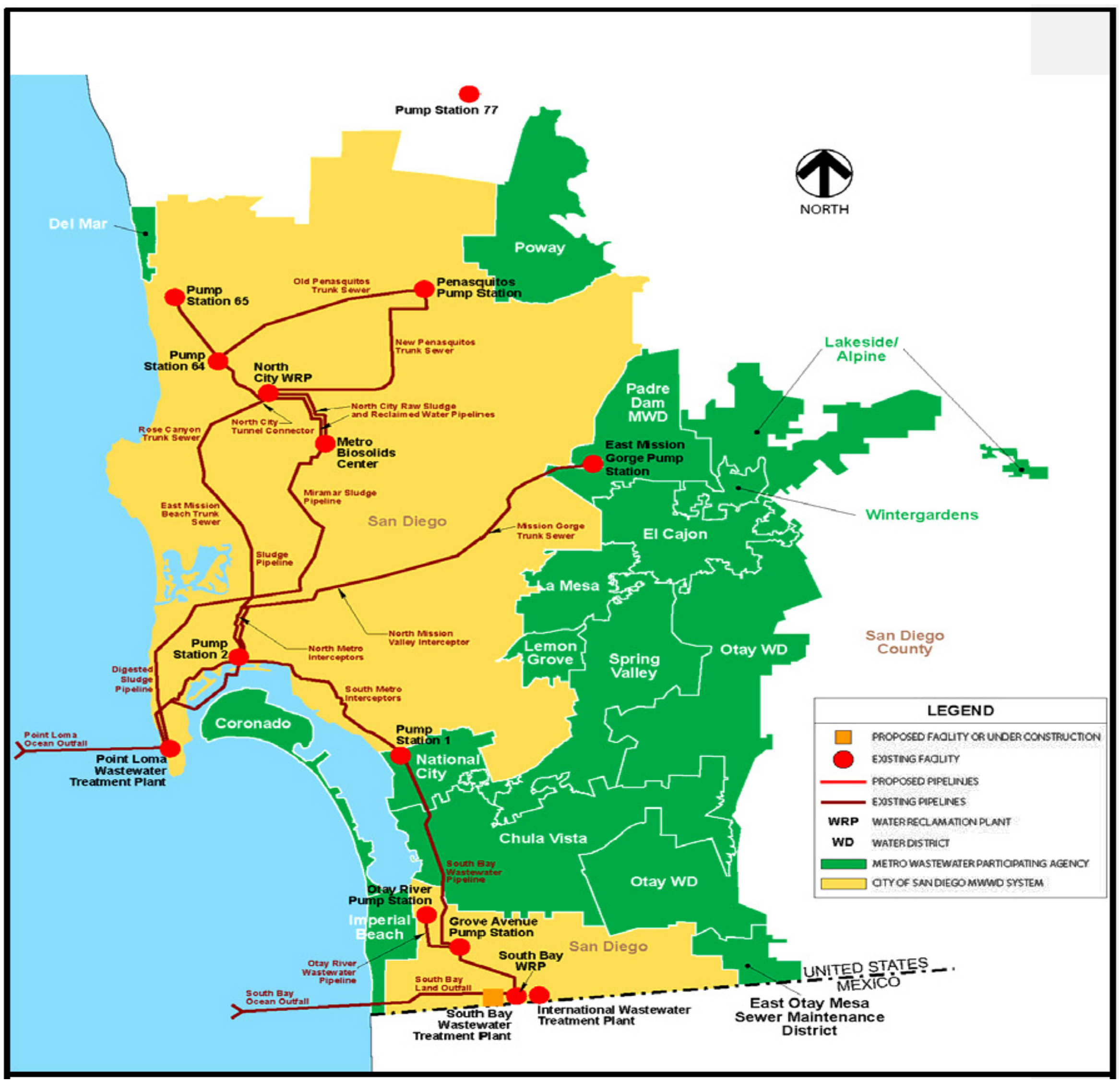
The System is a complex network of pipelines and pump stations that collect wastewater and convey it for treatment and disposal or reuse. The PLWTP serves as the terminus for the System and is capable of treating all flows generated within the System. Within the System are two water reclamation plants, 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 2013 Platinum Peak Performance Award from the National Association of Clean Water Agencies (NACWA) in recognition of twenty years of 100% compliance with National Pollution 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.

E. Discussion of Compliance Record

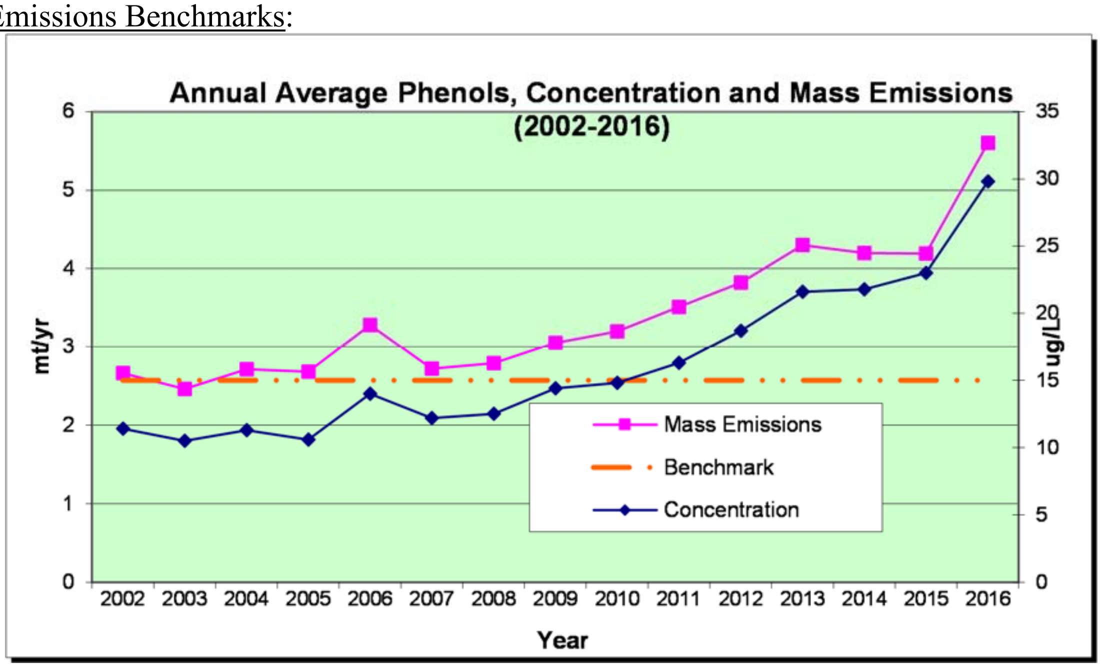
All permit limits and benchmarks are shown for reference in Chapter 2, Influent and Effluent Data, of this report.

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	**2016 Annual Average System-wide Removal** (%)	Plant Removal (%)
BOD - met the required ≥58% BOD removal on both the system-wide (required) and plant-only basis.	64.1	60.9
	2016 Annual Mass Emission(metric tons)	
TSS - Mass emission of TSS shall be no greater than 15,000 mt/yr.	8,457	

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 5.6 metric tons/year, for non-chlorinated phenols[7]

[7] All found was as phenol itself.

was higher than the bench mark of 2.57 metric tons/year and higher than last year's 4.19 metric tons.
This was based on an average concentration of 29.8 ug/L, which represents approximately 34 pounds per day. On average, the plant removed 32.2% of the phenol.

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 2016. IBWC staff reported that the emergency connection was not open during 2016.

No samples were taken the entire year of 2016.

F. Plant Facility Operation Report

POINT LOMA 2016 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.

□ □ □

PROCESS CONTROL: FACTORS IMPACTING PLANT PERFORMANCE 2016
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 2016. 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 2016, ranged from 69.3 to 85.8 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 2016. 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

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 and 2016. 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

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 2016. 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 2016. 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 2016 Daily Average	Ferric Chloride gallons	Ferrous Chloride gallons	Anionic Polymer lbs.	Hydrogen Peroxide gallons
Pump Station 1	0	5099	0	0
Pump Station 2	0	0	0	891
PLWTP	3431*	3450	203*	705
Total	3431	8549	203	1506

*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 2016. 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%

*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.

CONCLUSIONS

Plant performance in the year 2016 complied with all NPDES Permit requirements.

ENGINEERING REPORT 2016

The following engineering projects were completed during the 2016 reporting period:

- Grit Improvement Project Handrail Installation
- Internal Inspection of the Point Loma WWTP Outfall
- Repair of the Vortex Structure Drain Pipe
- Influent Diversion Structure Concrete and Lining Repair
- Influent Structure Lining Repair
- SHC Tank #1 Replacement
- Gas Utilization Facility Intake Filter Replacement Project
- Hydro Facility Intake Blower Fan Replacement

Status of the Operations and Maintenance Manual

Point Loma WWTP:

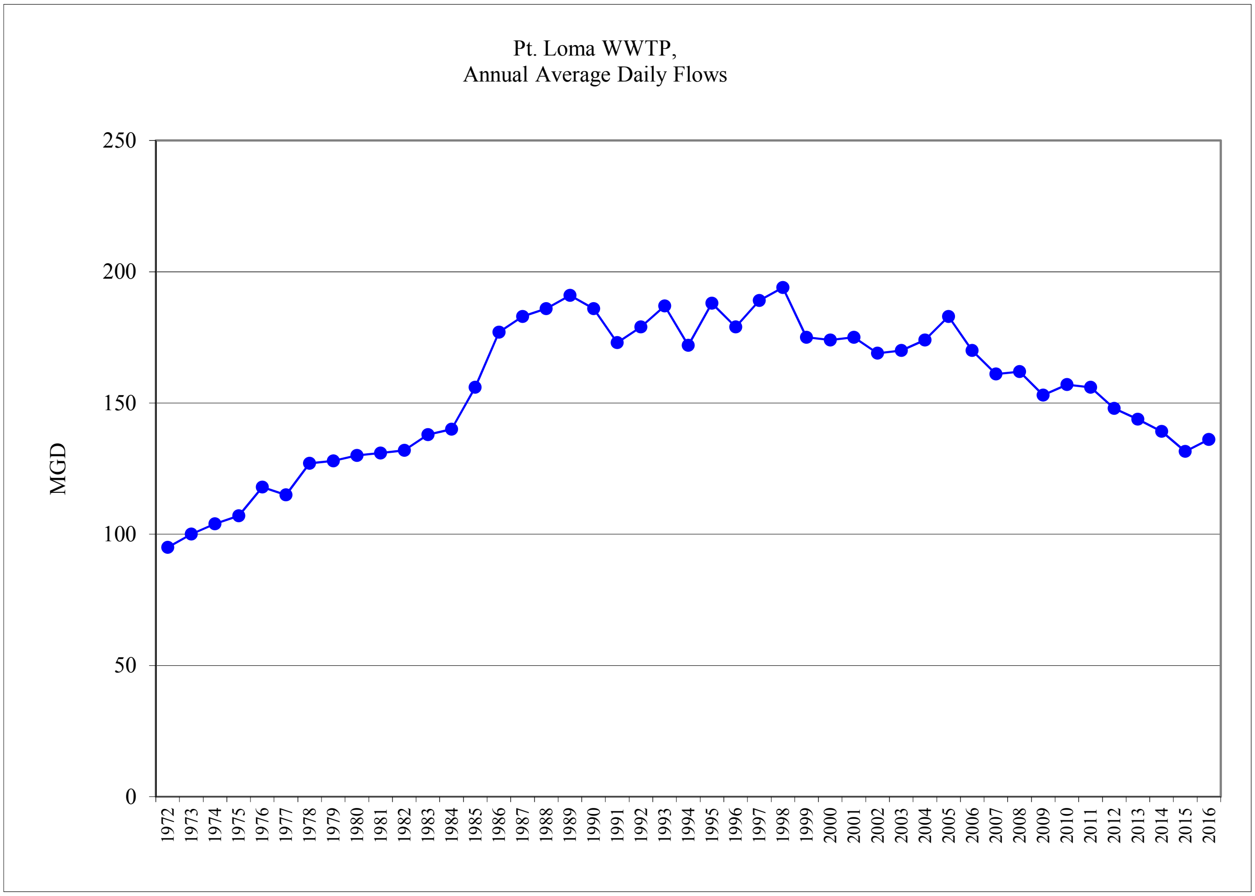
There is an approved O&M Manual for the PLWTP. Plant staff continue to review and update the Manual and associated Standard Operating Procedures (SOPs) as necessary to keep current with changes in equipment, processes, and standards of practice. New procedures are included as needs are identified. For 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 2016 daily average influent flow to the Point Loma WWTP was 136.1 MGD.

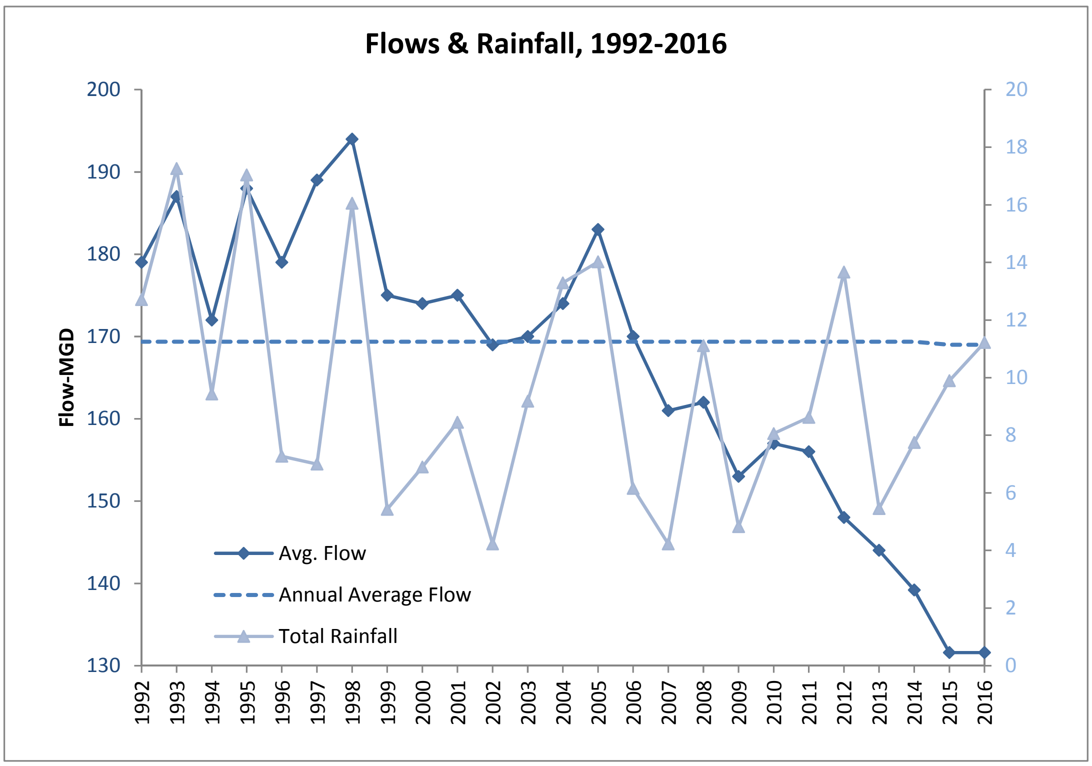


Despite predictions of water usage generated in the 1970s and ‘80s based on population growth, the data show a continued reduction in the wastewater flow. It appears that the reduced flows caused by drought-induced water conservation efforts have become permanent. In the past 20-years, there is no discernible 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)
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 11.22 inches in 2016 was higher than the total rainfall of 9.89 inches in 2015.

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.

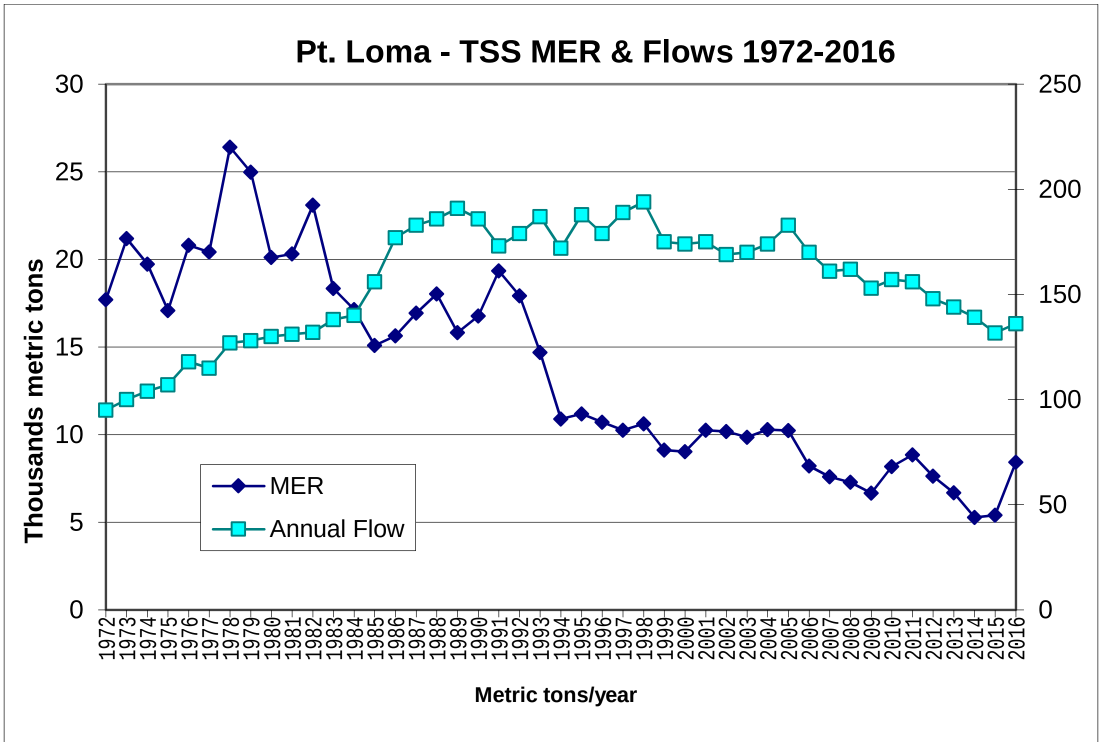
Weather and the various components of water conservation have emerged as more significant factors affecting flows, supplanting the historical role that population growth played.

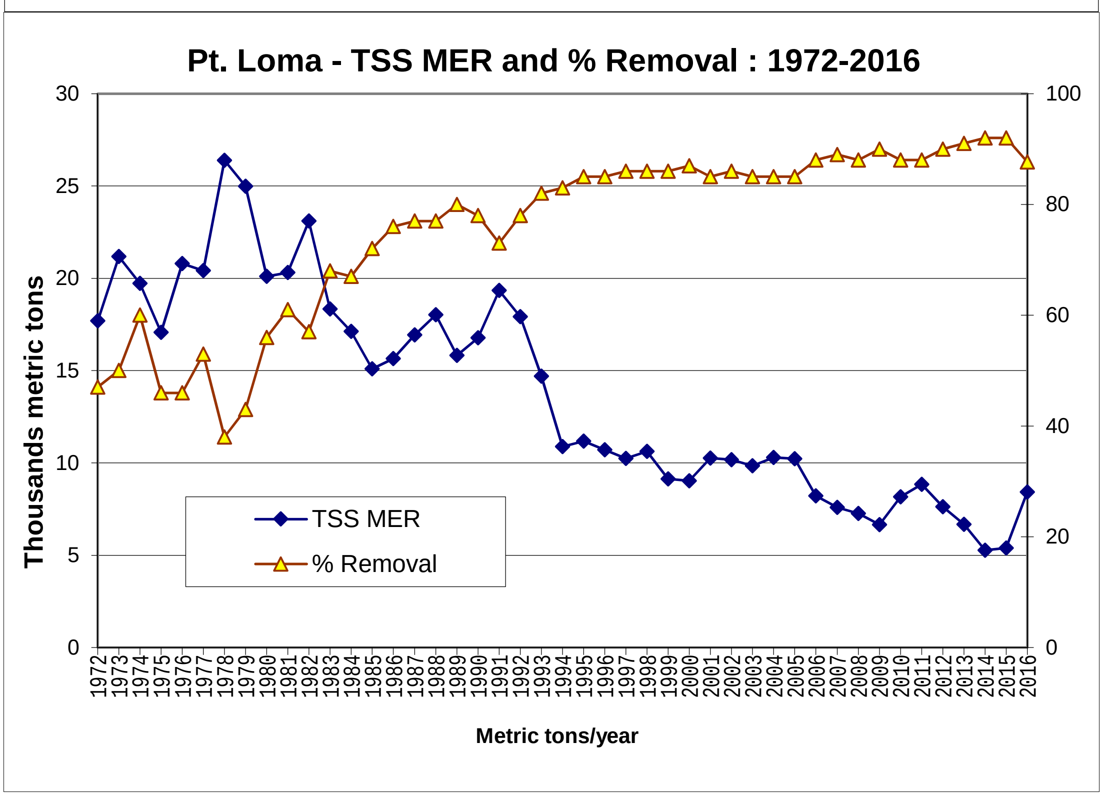
Historical Average Daily Flows

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

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

Year 2016 data showed that influent TSS concentrations ranged from 222 to 555 mg/L and averaged 365 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.

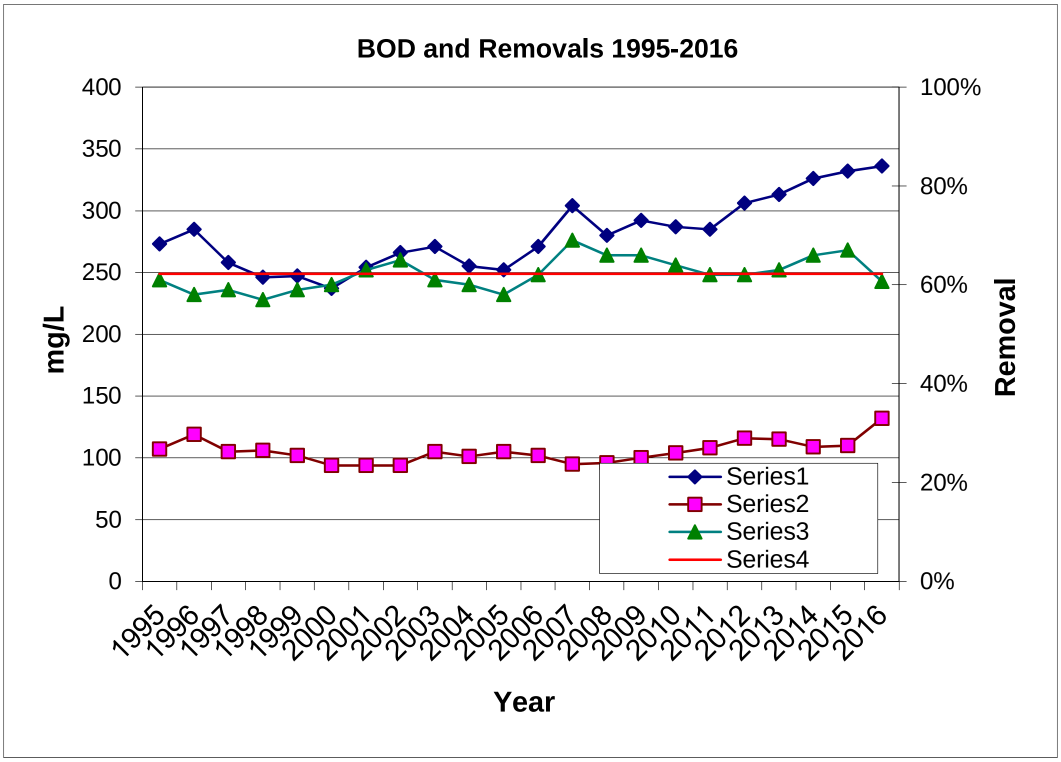
Effluent TSS concentrations also correlate similarly to the MER pattern.

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

(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%

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 2016 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. A chlorine analyzer that utilizes new monitoring technology was installed in 2016 and is currently being evaluated. Plant staff are also working with vendors on a filtration method aimed to improve effluent quality 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.

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 2016 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)	2016 Mass Emissions (mt/yr)	2016 Concentration	Units
Flow (MGD)			**136.1**	MGD
Total Suspended Solids	13,598	8,457	45	mg/L
BOD	-	24,806	132	mg/L
Arsenic	0.88	0.20	1.05	ug/L
Cadmium	1.4	0.00	0.00	ug/L
Chromium	14.2	0.56	3.0	ug/L
Copper	26	3.71	19.7	ug/L
Lead	14.2	0.09	0.5	ug/L
Mercury	0.19	0.003	0.0152	ug/L
Nickel	11.3	1.10	5.9	ug/L
Selenium	0.44	0.26	1.4	ug/L
Silver	2.8	0.01	0.07	ug/L
Zinc	18.3	7.40	39.4	ug/L
Cyanide	1.57	0.00	0.000	mg/L
Residual Chlorine	--	0.00	0.00	mg/L
Ammonia	8018	7,442	39.6	mg/L
Non-Chor. Phenols	2.57	5.60	29.8	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) * (all as Lindane, the gamma isomer)	0.025	0.0000	0.00	ng/L
Acrolein	17.6	0.00	0.00	ug/L
Antimony	56.6	0.08	0.4	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	0.45	2.4	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	0.04	DNQ.2	ug/L
Fluoranthene	0.62	0.00	0.00	ug/L
Hexachlorocyclopentadiene	B	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	0.39	DNQ2.1	ug/L
1,1,2,2-tetrachloroethane	1.95	0.00	0.00	ug/L

Constituent/Property	Benchmarks (mt/yr)	2016 Mass Emissions (mt/yr)	2016 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	1.86	9.9	ug/L
Carbon Tetrachloride	0.79	0.00	0.00	ug/L
Chlordane	0.014	0.0000	0.00	ng/L
Chloroform	2.19	0.66	3.5	ug/L
DDT	0.043	0.00	0.00	ng/L
1,4-dichlorobenzene	1.25	0.00006	0.3	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	0.24	DNQ1.3	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	0.39	2.1	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	0.28	1.5	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

B. Discharge Limits

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 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[8]	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[9]			
	metric tons/year		13,598[10]			
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[11] (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
Endrin	ng/L	410			820	1,200

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

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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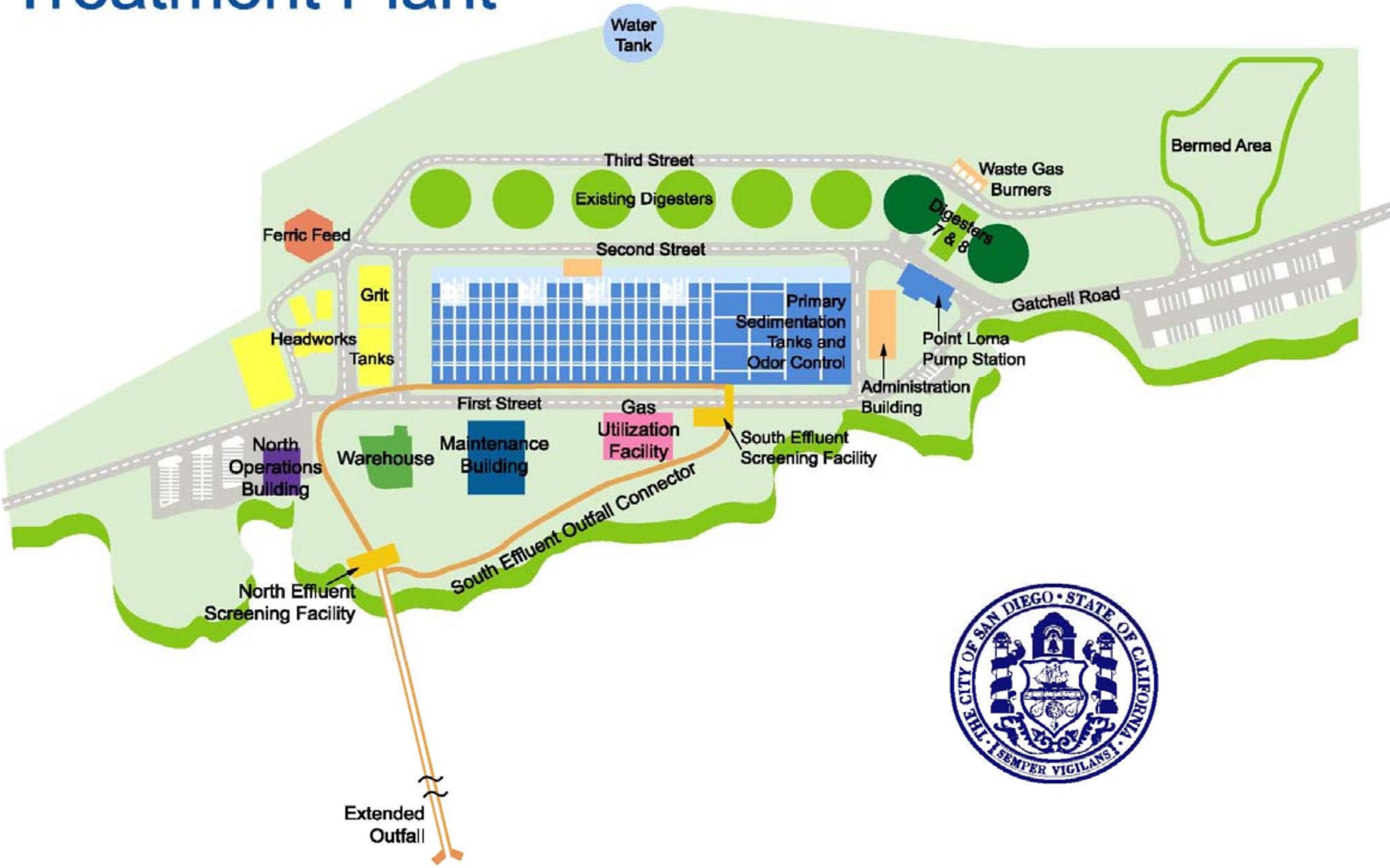
Point Loma Wastewater Treatment Plant



POINT LOMA WASTEWATER TREATMENT PLANT
SEWAGE ANNUAL

Annual 2016

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

	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 -2016	147.6	324	398839	103	126791	68.2
FEBRUARY -2016	130.7	346	377153	120	130805	65.3
MARCH -2016	135.7	333	376869	115	130150	65.5
APRIL -2016	137.8	321	368910	112	128716	65.1
MAY -2016	134.9	344	387023	135	151884	60.8
JUNE -2016	134.5	362	406066	145	162651	59.9
JULY -2016	132.7	356	393992	140	154941	60.7
AUGUST -2016	132.3	333	367426	133	146750	60.1
SEPTEMBER-2016	130.6	328	357259	126	137240	61.6
OCTOBER -2016	132.6	334	369365	150	165883	55.1
NOVEMBER -2016	133.5	337	375212	160	178142	52.5
DECEMBER -2016	150.5	312	391613	144	180744	53.8
Average	136.1	336	380811	132	149558	60.7

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

	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 -2016	147.6	359	306	85.2	441923	41	32	78.0	50470
FEBRUARY -2016	130.7	361	316	87.5	393504	38	30	78.9	41421
MARCH -2016	135.7	353	310	87.8	399504	38	30	78.9	43006
APRIL -2016	137.8	353	309	87.5	405686	32	25	78.1	36776
MAY -2016	134.9	368	319	86.7	414024	36	28	77.8	40502
JUNE -2016	134.5	391	341	87.2	438596	40	31	77.5	44869
JULY -2016	132.7	372	324	87.1	411699	37	30	81.1	40949
AUGUST -2016	132.3	368	323	87.8	406045	33	27	81.8	36412
SEPTEMBER-2016	130.6	364	318	87.4	396470	35	28	80.0	38122
OCTOBER -2016	132.6	370	321	86.8	409177	62	50	80.6	68565
NOVEMBER -2016	133.5	367	319	86.9	408614	69	55	79.7	76824
DECEMBER -2016	150.5	349	302	86.5	438054	74	59	79.7	92883
Average	136.1	365	317		413608	45	35		50900

	Percent Removal TSS (%)	Percent Removal VSS (%)
JANUARY -2016	88.6	89.5
FEBRUARY -2016	89.5	90.5
MARCH -2016	89.2	90.3
APRIL -2016	90.9	91.9
MAY -2016	90.2	91.2
JUNE -2016	89.8	90.9
JULY -2016	90.1	90.7
AUGUST -2016	91.0	91.6
SEPTEMBER-2016	90.4	91.2
OCTOBER -2016	83.2	84.4
NOVEMBER -2016	81.2	82.8
DECEMBER -2016	78.8	80.5
Average	87.7	88.8

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 2016

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.
01-2016	395,195	25,343	18,383	3,942	23,475	27,417	126,476	68.7	67.7	103
02-2016	376,674	28,032	18,169	8,497	7,081	15,578	130,148	68.0	65.4	120
03-2016	376,410	25,481	16,371	8,603	5,897	14,500	129,972	67.7	65.4	115
04-2016	368,305	27,164	16,935	4,916	5,283	10,199	128,557	68.0	65.0	112
05-2016	387,331	26,839	16,992	6,231	1,952	8,183	150,581	64.4	61.1	134
06-2016	402,264	32,020	13,695	3,891	1,976	5,868	158,127	64.2	60.7	141
07-2016	393,071	33,768	17,193	6,658	2,067	8,725	155,425	64.2	60.2	140
08-2016	367,050	35,722	9,669	5,380	3,034	8,414	147,140	63.5	59.8	133
09-2016	357,749	48,116	0	5,100	1,614	6,713	136,864	65.6	61.6	126
10-2016	369,403	31,676	9,869	4,717	3,408	8,125	163,117	59.2	55.5	148
11-2016	373,442	29,496	11,560	4,287	3,946	8,233	172,837	57.4	53.6	155
12-2016	389,267	27,767	13,421	3,750	1,554	5,304	177,337	58.2	54.3	143
avg	379,680	30,952	13,521	5,498	5,107	10,605	148,048	64.1	60.9	131

Systemwide TSS Removals

Annual 2016

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
01-2016	439,596	26,347	23,115	9,468	5,966	15,434	51,093	89.2	88.4	41
02-2016	393,214	25,445	20,437	20,557	3,837	24,394	41,464	89.9	89.4	38
03-2016	399,630	23,623	20,769	23,335	3,562	26,897	41,952	89.8	89.4	37
04-2016	405,171	26,415	21,553	12,297	2,703	14,999	36,692	91.6	90.9	32
05-2016	413,628	25,200	21,170	15,734	1,985	17,719	40,460	90.8	90.2	36
06-2016	437,663	32,758	17,925	10,112	2,807	12,920	44,773	90.5	89.7	40
07-2016	413,914	28,964	20,206	14,930	2,082	17,011	40,723	90.9	90.2	37
08-2016	406,062	34,524	11,937	14,358	2,273	16,631	36,790	91.5	90.8	33
09-2016	396,178	43,217	0	13,683	2,694	16,376	37,849	91.1	90.4	35
10-2016	408,939	30,241	12,801	9,939	2,390	12,329	68,863	84.2	83.1	62
11-2016	407,998	30,583	14,725	9,656	2,268	11,924	76,996	82.6	81.1	69
12-2016	434,874	25,364	17,456	9,211	2,258	11,469	90,698	80.6	79.2	74
avg	413,072	29,390	16,841	13,607	2,902	16,509	50,696	88.6	87.7	45

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 2016

Influent to Plant
(PLR)

	pH	Settleable Solids (ml/L)	Biochemical Oxygen Demand (mg/L)	Hexane Extractable Material (mg/L)	Temperature (C)	Floating Particulates (mg/L)	Turbidity (NTU)
JANUARY -2016	7.35	15.9	324	47.6	23.5	1.79	159
FEBRUARY -2016	7.35	18.4	346	51.8	23.6	1.86	150
MARCH -2016	7.34	17.2	333	54.7	24.5	<1.40	138
APRIL -2016	7.34	16.4	321	51.2	25.2	<1.40	148
MAY -2016	7.26	18.5	344	54.3	25.9	<1.40	166
JUNE -2016	7.30	19.8	362	58.3	26.9	<1.40	174
JULY -2016	7.33	20.9	356	61.1	28.0	<1.40	178
AUGUST -2016	7.27	19.8	333	54.2	28.7	<1.40	134
SEPTEMBER-2016	7.34	19.8	328	50.7	28.5	<1.40	137
OCTOBER -2016	7.39	20.2	334	54.5	27.9	<1.40	158
NOVEMBER -2016	7.36	20.5	337	54.9	26.6	<1.40	136
DECEMBER -2016	7.33	17.2	312	47.8	24.7	<1.40	141
Average	7.33	18.7	336	53.4	26.2	0.3	152

Effluent to Ocean Outfall
(PLE)

	pH	Settleable Solids (ml/L)	Biochemical Oxygen Demand (mg/L)	Hexane Extractable Material (mg/L)	Temperature (C)	Floating Particulates (mg/L)	Turbidity (NTU)
JANUARY -2016	7.24	0.3	103	9.8	23.6	ND	33
FEBRUARY -2016	7.20	0.2	120	10.7	24.1	ND	33
MARCH -2016	7.24	0.2	115	10.8	24.8	ND	35
APRIL -2016	7.24	0.2	112	9.6	25.6	ND	36
MAY -2016	7.11	0.3	135	10.3	26.3	ND	48
JUNE -2016	7.11	0.4	145	14.4	27.1	ND	52
JULY -2016	7.18	0.3	140	13.7	28.3	ND	49
AUGUST -2016	7.22	0.4	133	11.1	29.1	ND	45
SEPTEMBER-2016	7.19	0.5	126	12.7	28.9	ND	46
OCTOBER -2016	7.14	1.0	150	22.3	28.3	ND	67
NOVEMBER -2016	7.10	1.0	160	20.2	27.0	ND	65
DECEMBER -2016	7.11	0.9	144	19.5	24.9	ND	60
Average	7.17	0.5	132	13.8	26.5	ND	47

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

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

POINT LOMA WASTEWATER TREATMENT PLANT

ANNUAL 2016

Trace Metals
EPA Method 200.7

Analyte:	Antimony	Antimony	Arsenic	Arsenic	Beryllium	Beryllium	Cadmium	Cadmium
MDL	2.44	2.44	.824	.412	.05	.05	.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 -2016	3.00	<2.44	1.09	0.85	ND	ND	0.45	<0.26
FEBRUARY -2016	<2.44	ND	0.96	0.57	ND	ND	<0.26	ND
MARCH -2016	3.37	<2.44	1.21	0.69	ND	ND	<0.26	ND
APRIL -2016	<2.44	<2.44	1.09	0.63	ND	ND	0.36	<0.26
MAY -2016	ND	ND	1.04	0.73	ND	ND	0.31	ND
JUNE -2016	<2.44	ND	1.23	0.80	ND	<0.05	<0.26	<0.26
JULY -2016	<2.44	ND	3.55	2.69	ND	ND	0.28	ND
AUGUST -2016	<2.44	ND	1.69	1.89	ND	<0.05	0.24	<0.05
SEPTEMBER-2016	ND	ND	1.54	1.09	ND	ND	0.38	<0.26
OCTOBER -2016	ND	ND	1.03	0.82	ND	ND	0.29	ND
NOVEMBER -2016	4.99	4.76	1.80	1.11	ND	ND	ND	ND
DECEMBER -2016	ND	ND	1.09	0.77	ND	ND	<0.26	<0.26
AVERAGE	0.95	0.40	1.44	1.05	ND	0.00	0.19	0.00

Analyte:	Chromium	Chromium	Copper	Copper	Iron	Iron	Lead	Lead
MDL	.73	.54	2.16	2.16	15.6	15.6	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 -2016	10.10	3.31	120	16.5	10300	3620	3.50	<1.68
FEBRUARY -2016	7.13	4.25	133	21.8	9060	3510	2.01	<1.68
MARCH -2016	5.91	2.30	114	14.3	9210	3060	2.85	<1.68
APRIL -2016	7.01	2.41	117	14.0	9490	2590	3.94	<1.68
MAY -2016	6.79	2.92	127	14.1	9870	4640	2.40	<1.68
JUNE -2016	7.06	4.00	120	17.8	9500	4580	3.95	<1.68
JULY -2016	5.33	1.45	106	14.2	11300	3000	3.75	0.92
AUGUST -2016	7.12	4.66	156	21.3	10500	2610	4.34	1.86
SEPTEMBER-2016	6.29	2.50	138	22.3	11000	2760	4.43	3.01
OCTOBER -2016	7.37	3.72	144	23.1	11000	3950	3.76	<1.68
NOVEMBER -2016	6.00	2.39	130	30.2	11300	5010	<1.68	ND
DECEMBER -2016	5.19	2.09	105	26.7	9540	4760	2.54	ND
AVERAGE	6.78	3.00	126	19.7	10173	3674	3.12	0.48

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

POINT LOMA WASTEWATER TREATMENT PLANT

ANNUAL 2016

Trace Metals
EPA Method 200.7

Analyte:	Nickel	Nickel	Selenium	Selenium	Silver	Silver	Thallium	Thallium
MDL	.53	.53	.17	.17	.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 -2016	11.6	6.73	1.81	1.44	<0.73	<0.73	ND	ND
FEBRUARY -2016	9.74	7.05	1.78	1.21	<0.73	ND	ND	ND
MARCH -2016	12.6	7.61	2.30	1.46	<0.73	<0.73	ND	ND
APRIL -2016	10.2	6.00	2.29	1.33	ND	ND	ND	ND
MAY -2016	10.1	6.21	2.16	1.36	0.82	<0.73	ND	ND
JUNE -2016	9.72	6.91	1.65	1.05	<0.73	<0.73	ND	ND
JULY -2016	7.29	4.43	4.50	3.13	<0.73	ND	ND	<0.16
AUGUST -2016	7.73	4.95	1.55	1.06	0.83	ND	ND	ND
SEPTEMBER-2016	8.72	5.08	1.67	1.26	<0.73	ND	ND	ND
OCTOBER -2016	8.01	5.53	1.95	1.22	0.93	ND	ND	ND
NOVEMBER -2016	7.06	4.80	1.90	1.22	1.10	0.88	ND	<3.12
DECEMBER -2016	7.50	5.03	1.53	1.01	ND	ND	ND	ND
AVERAGE	9.19	5.86	2.09	1.40	0.31	0.07	ND	0.00

Analyte:	Zinc	Zinc	Mercury	Mercury
MDL	4.19	4.19	.0025	.001
Units	UG/L	UG/L	UG/L	UG/L
Source:	PLR	PLE	PLR	PLE
JANUARY -2016	181	37.6	0.0633	0.0052
FEBRUARY -2016	188	38.5	0.0960	0.0074
MARCH -2016	187	39.0	0.1053	0.0071
APRIL -2016	185	26.4	0.0945	0.0068
MAY -2016	199	32.3	0.1798	0.0078
JUNE -2016	210	51.8	0.0974	0.0097
JULY -2016	217	32.4	0.1360	0.0088
AUGUST -2016	239	54.6	0.1620	0.0080
SEPTEMBER-2016	203	24.9	0.1853	0.0216
OCTOBER -2016	220	43.1	0.0763	0.0576
NOVEMBER -2016	211	44.7	0.1253	0.0193
DECEMBER -2016	182	47.2	0.1070	0.0227
AVERAGE	202	39.4	0.1190	0.0152

Mercury by EPA Method 1631E

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

POINT LOMA WASTEWATER TREATMENT PLANT

ANNUAL 2016

Ammonia-Nitrogen and Total Cyanides

Analyte	Ammonia-N	Ammonia-N	Cyanide, Total	Cyanide, Total
MDL/Units	.3 MG/L	.3 MG/L	.002 MG/L	.002 MG/L
Source	PLR	PLE	PLR	PLE
Limit		123		0.200
JANUARY -2016	38.0	38.0	<0.002	<0.002
FEBRUARY -2016	40.6	40.1	<0.002	<0.002
MARCH -2016	40.8	40.2	ND	<0.002
APRIL -2016	41.4	40.0	ND	ND
MAY -2016	41.2	40.4	<0.002	<0.002
JUNE -2016	39.5	38.7	<0.002	<0.002
JULY -2016	40.2	40.0	<0.002	<0.002
AUGUST -2016	39.3	39.3	<0.002	<0.002
SEPTEMBER-2016	40.8	40.3	<0.002	<0.002
OCTOBER -2016	39.3	39.6	ND	<0.002
NOVEMBER -2016	39.9	39.5	ND	ND
DECEMBER -2016	37.3	39.0	<0.002	<0.002
Average:	39.9	39.6	0.000	0.000

Analyte	Chlorine Residual, Total
MDL/Units	.03 MG/L
Source	PLE
JANUARY -2016	<0.030
FEBRUARY -2016	ND
MARCH -2016	ND
APRIL -2016	ND
MAY -2016	ND
JUNE -2016	ND
JULY -2016	ND
AUGUST -2016	ND
SEPTEMBER-2016	ND
OCTOBER -2016	ND
NOVEMBER -2016	ND
DECEMBER -2016	<0.030
Average:	0.000

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

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

POINT LOMA WASTEWATER TREATMENT PLANT

ANNUAL 2016

Radioactivity
EPA Method 900.0

Source	Month	Gross Alpha Radiation	Gross Beta Radiation
PLR	JANUARY -2016*	5.2±7.0	35.4±8.1
PLR	FEBRUARY -2016*	3.8±7.9	34.1±7.4
PLR	MARCH -2016*	5.5±6.6	32.8±6.8
PLR	APRIL -2016*	2.0±7.3	36.1±9.5
PLR	MAY -2016	7.2±1.9	7.7±1.5
PLR	JUNE -2016	2.1±2.0	3.3±1.9
PLR	JULY -2016	4.0±2.3	6.4±1.5
PLR	AUGUST -2016	2.4±1.5	3.3±1.5
PLR	SEPTEMBER-2016	4.6±2.0	7.2±2.1
PLR	OCTOBER -2016	1.3±3.3	24.4±3.4
PLR	NOVEMBER -2016	8.6±3.5	13.4±2.2
PLR	DECEMBER -2016	4.9±3.0	16.2±2.3
AVERAGE		4.3±4.0	18.4±4.0

Source	Month	Gross Alpha Radiation	Gross Beta Radiation
PLE	JANUARY -2016*	2.8±5.4	28.9±8.3
PLE	FEBRUARY -2016*	3.8±6.3	36.1±7.8
PLE	MARCH -2016*	1.5±5.8	28.9±6.3
PLE	APRIL -2016*	8.5±9.2	26.6±7.9
PLE	MAY -2016	5.9±1.9	6.2±1.4
PLE	JUNE -2016	3.9±2.1	7.5±2.0
PLE	JULY -2016	6.7±2.1	8.3±1.5
PLE	AUGUST -2016	2.2±1.9	4.2±1.2
PLE	SEPTEMBER-2016	1.8±2.6	8.5±2.3
PLE	OCTOBER -2016	8.8±2.6	12.5±2.8
PLE	NOVEMBER -2016	9.6±2.9	18.6±2.2
PLE	DECEMBER -2016	6.8±3.4	23.0±3.5
AVERAGE		5.2±3.8	17.4±3.9

Analyzed by: FGL Environmental Agricultural Analytical

* =TestAmerica Laboratories Richland

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

Units in picocuries/liter (pCi/L)

POINT LOMA WASTEWATER TREATMENT PLANT

ANNUAL 2016

Chlorinated Pesticide Analysis
EPA Method 608

Source			PLR	PLR	PLR	PLR	PLR	PLR	PLR	PLR	PLR	PLR	PLR	PLR	PLR
Month			JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	
Analyte	MDL	Units	Avg	Avg	Avg	Avg	Avg	Avg	Avg	Avg	Avg	Avg	Avg	Avg	Average
Aldrin	4	NG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Dieldrin	4.3	NG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BHC, Alpha isomer	2.15	NG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BHC, Beta isomer	2	NG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BHC, Gamma isomer	1.71	NG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BHC, Delta isomer	2	NG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
p,p-DDD	4	NG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
p,p-DDE	1.4	NG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
p,p-DDT	3	NG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
o,p-DDD	4	NG/L	ND	ND	ND	ND	ND	ND	ND	ND	35	ND	ND	ND	3
o,p-DDE	2	NG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
o,p-DDT	2.4	NG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Heptachlor	.89	NG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Heptachlor epoxide	9.4	NG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Alpha (cis) Chlordane	1.4	NG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Gamma (trans) Chlordane	1.83	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	2	NG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trans Nonachlor	1.1	NG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Cis Nonachlor	4	NG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Alpha Endosulfan	1.5	NG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Beta Endosulfan	3.1	NG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Endosulfan Sulfate	7	NG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Endrin	6	NG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Endrin aldehyde	5.4	NG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Mirex	2.3	NG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methoxychlor	20	NG/L	ND	ND	425	ND	ND	ND	ND	ND	ND	ND	ND	ND	35
Toxaphene	250	NG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PCB 1016	250	NG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PCB 1221	2000	NG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PCB 1232	750	NG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PCB 1242	250	NG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PCB 1248	250	NG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PCB 1254	500	NG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PCB 1260	500	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	ND	ND	ND	ND	ND
Aldrin + Dieldrin	4.3	NG/L	0	0	0	0	0	0	0	0	0	0	0	0	0
Hexachlorocyclohexanes	2.15	NG/L	0	0	0	0	0	0	0	0	0	0	0	0	0
DDT and derivatives	4	NG/L	0	0	0	0	0	0	0	0	35	0	0	0	3
Chlordane + related cmpds.	2	NG/L	0	0	0	0	0	0	0	0	0	0	0	0	0
Polychlorinated biphenyls	2000	NG/L	0	0	0	0	0	0	0	0	0	0	0	0	0
Endosulfans	7	NG/L	0	0	0	0	0	0	0	0	0	0	0	0	0
Heptachlors	9.4	NG/L	0	0	0	0	0	0	0	0	0	0	0	0	0
Chlorinated Hydrocarbons	2000	NG/L	0	0	425	0	0	0	0	0	35	0	0	0	38

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

POINT LOMA WASTEWATER TREATMENT PLANT

ANNUAL 2016

Chlorinated Pesticide Analysis
EPA Method 608

Source			PLE	PLE	PLE	PLE	PLE	PLE	PLE	PLE	PLE	PLE	PLE	PLE	PLE
Month			JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	
Analyte	MDL	Units	Avg	Avg	Avg	Avg	Avg	Avg	Avg	Avg	Avg	Avg	Avg	Avg	Average
Aldrin	4	NG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Dieldrin	4.3	NG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BHC, Alpha isomer	2.15	NG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BHC, Beta isomer	2	NG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BHC, Gamma isomer	1.71	NG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BHC, Delta isomer	2	NG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
p,p-DDD	4	NG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
p,p-DDE	1.4	NG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
p,p-DDT	3	NG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
o,p-DDD	4	NG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
o,p-DDE	2	NG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
o,p-DDT	2.4	NG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Heptachlor	.89	NG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Heptachlor epoxide	9.4	NG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Alpha (cis) Chlordane	1.4	NG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Gamma (trans) Chlordane	1.83	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	2	NG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trans Nonachlor	1.1	NG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Cis Nonachlor	4	NG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Alpha Endosulfan	1.5	NG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Beta Endosulfan	3.1	NG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Endosulfan Sulfate	7	NG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Endrin	6	NG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Endrin aldehyde	5.4	NG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Mirex	2.3	NG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methoxychlor	20	NG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Toxaphene	250	NG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PCB 1016	250	NG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PCB 1221	2000	NG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PCB 1232	750	NG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PCB 1242	250	NG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PCB 1248	250	NG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PCB 1254	500	NG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PCB 1260	500	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	ND	ND	ND	ND	ND
Aldrin + Dieldrin	4.3	NG/L	0	0	0	0	0	0	0	0	0	0	0	0	0
Hexachlorocyclohexanes	2.15	NG/L	0	0	0	0	0	0	0	0	0	0	0	0	0
DDT and derivatives	4	NG/L	0	0	0	0	0	0	0	0	0	0	0	0	0
Chlordane + related cmpds.	2	NG/L	0	0	0	0	0	0	0	0	0	0	0	0	0
Polychlorinated biphenyls	2000	NG/L	0	0	0	0	0	0	0	0	0	0	0	0	0
Endosulfans	7	NG/L	0	0	0	0	0	0	0	0	0	0	0	0	0
Heptachlors	9.4	NG/L	0	0	0	0	0	0	0	0	0	0	0	0	0
Chlorinated Hydrocarbons	2000	NG/L	0	0	0	0	0	0	0	0	0	0	0	0	0

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

POINT LOMA WASTEWATER TREATMENT PLANT

ANNUAL 2016

Organophosphorus Pesticides
EPA Method 614

Source			PLR	PLR	PLR	PLR	PLR	PLR
Date			11-JAN-2016	02-FEB-2016	14-MAR-2016	13-APR-2016	03-MAY-2016	05-JUN-2016
Analyte	MDL	Units	P829756	P831365	P846302	P853024	P857684	P866367
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	ND	ND	0.17	ND	ND	ND
Parathion	.07	UG/L	ND	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	ND	ND	ND
Dimethoate	.12	UG/L	ND	ND	ND	ND	ND	ND
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	0.17	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	0.17	0.00	0.00	0.00

Source			PLR	PLR	PLR	PLR	PLR	PLR
Date			13-JUL-2016	02-AUG-2016	14-SEP-2016	04-OCT-2016	07-NOV-2016	07-DEC-2016
Analyte	MDL	Units	P874993	P878344	P893660	P895094	P904902	P909665
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	ND	ND	ND	ND	ND	ND
Parathion	.07	UG/L	ND	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

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

POINT LOMA WASTEWATER TREATMENT PLANT

ANNUAL 2016

Organophosphorus Pesticides
EPA Method 614

Source			PLE	PLE	PLE	PLE	PLE	PLE
Date			11-JAN-2016	02-FEB-2016	14-MAR-2016	13-APR-2016	03-MAY-2016	05-JUN-2016
Analyte	MDL	Units	P829753	P831359	P846299	P853021	P857678	P866364
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	ND	ND	0.25	ND	ND	ND
Parathion	.07	UG/L	ND	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	ND	ND	ND
Dimethoate	.12	UG/L	ND	ND	ND	ND	ND	ND
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	0.25	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	0.25	0.00	0.00	0.00

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

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

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

POINT LOMA WASTEWATER TREATMENT PLANT

ANNUAL 2016

Tributyl Tin analysis

Analyte	MDL	Units	PLR JAN	PLR FEB	PLR MAR	PLR APR	PLR MAY	PLR JUN	PLR JUL	PLR AUG	PLR SEP	Average
Dibutyltin	7	UG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Monobutyltin	16	UG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tributyltin	2	UG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

Analyte	MDL	Units	PLR OCT	PLR NOV	PLR DEC	Average
Dibutyltin	.0102	UG/L	ND	ND	DNQ0.017	DNQ0.006
Tributyltin	.012	UG/L	ND	ND	ND	ND

Analyte	MDL	Units	PLE JAN	PLE FEB	PLE MAR	PLE APR	PLE MAY	PLE JUN	PLE JUL	PLE AUG	PLE SEP	Average
Dibutyltin	7	UG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Monobutyltin	16	UG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tributyltin	2	UG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

Analyte	MDL	Units	PLE OCT	PLE NOV	PLE DEC	Average
Dibutyltin	.0102	UG/L	ND	ND	DNQ0.011	DNQ0.004
Tributyltin	.012	UG/L	ND	ND	ND	ND

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

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

Phenolic Compounds
EPA Method 625

Source Month 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	38.9	42.9	44.0	35.3	52.4	42.7	42.2	54.6	52.0	39.1	39.9	44.0	44.0
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	38.9	42.9	44.0	35.3	52.4	42.7	42.2	54.6	52.0	39.1	39.9	44.0	44.0
Phenols	2.16	UG/L	38.9	42.9	44.0	35.3	52.4	42.7	42.2	54.6	52.0	39.1	39.9	44.0	44.0
Additional Analytes Determined:															
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	69.4	81.8	75.3	57.2	90.4	71.6	63.5	69.8	71.8	54.3	66.3	80.4	71.0
2,4,5-Trichlorophenol	1.66	UG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

Source Month 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	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	<1.1	ND	ND	ND	ND	ND	ND	0.0
Phenol	1.76	UG/L	25.8	26.8	33.9	26.5	28.0	25.2	33.2	39.3	33.4	27.1	25.5	32.8	29.8
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	25.8	26.8	33.9	26.5	28.0	25.2	33.2	39.3	33.4	27.1	25.5	32.8	29.8
Phenols	2.16	UG/L	25.8	26.8	33.9	26.5	28.0	25.2	33.2	39.3	33.4	27.1	25.5	32.8	29.8
Additional Analytes Determined:															
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	51.4	54.3	62.3	46.4	54.3	45.0	51.8	54.2	47.3	40.0	47.0	60.7	51.2
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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Base/Neutrals
EPA Method 625

Source			PLR	PLR	PLR	PLR	PLR	PLR	PLR	PLR	PLR	PLR	PLR	PLR	PLR
Month			JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	
Analyte	MDL	Units	Avg	Avg	Avg	Avg	Avg	Avg	Avg	Avg	Avg	Avg	Avg	Avg	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	DNQ5.0	ND	ND	ND	ND	ND	ND	ND	ND	0.4
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	11.1	ND	ND	16.2	ND	8.99	17.6	14.6	14.6	15.0	9.00	11.4	9.90
Diethyl phthalate	3.05	UG/L	ND	3.8	ND	ND	3.2	ND	3.7	3.7	ND	3.4	5.3	5.4	2.4
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	18.0	ND	ND	ND	ND	ND	ND	ND	ND	1.5
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	11.1	3.8	0.0	34.2	3.2	9.0	21.3	18.3	14.6	18.4	14.3	16.8	14.2

Additional Analytes Determined:

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 matrix spike sample outside method acceptance limits; value is not used in average calculations.
DNQ= Detected but not quantified. Sample result is less than the Minimum Level but greater than or equal to MDL.
ND=not detected; NS=not sampled; NA=not analyzed

POINT LOMA WASTEWATER TREATMENT PLANT

ANNUAL 2016

Base/Neutrals
EPA Method 625

Source Month 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	<8.96	ND	ND	<8.96	ND	ND	<8.96	<8.96	ND	ND	<8.96	0.00
Diethyl phthalate	3.05	UG/L	3.6	4.0	ND	<3.1	ND	ND	3.3	<3.1	<3.1	3.8	5.3	5.9	2.2
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	3.6	4.0	0.0	0.0	0.0	0.0	3.3	0.0	0.0	3.8	5.3	5.9	2.2

Additional Analytes Determined:

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 matrix spike sample outside method acceptance limits; value is not used in average calculations.

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

POINT LOMA WASTEWATER TREATMENT PLANT

ANNUAL 2016

Priority Pollutants Purgeables
EPA Method 8260B

Source Month 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	1.3	UG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.0
Acrylonitrile	.7	UG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.0
Benzene	.4	UG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.0
Bromodichloromethane	.5	UG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.0
Bromoform	.5	UG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.0
Bromomethane	.7	UG/L	ND	ND	ND	ND	ND	ND	ND	DNQ.6#	DNQ.6	DNQ.7	DNQ.9	ND	0.0
Carbon tetrachloride	.4	UG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.0
Chlorobenzene	.46	UG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.0
Chloroethane	.9	UG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.0
Chloroform	.31	UG/L	3.2	2.5	2.3	2.2	2.8	DNQ2.0	3.2	2.4	2.7	2.9	3.8	2.0	2.5
Chloromethane	.5	UG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.0
Dibromochloromethane	.6	UG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.0
1,2-Dichlorobenzene	.4	UG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.0
1,3-Dichlorobenzene	.5	UG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.0
1,4-Dichlorobenzene	.46	UG/L	ND	ND	DNQ.6	ND	DNQ1.1	DNQ.6	DNQ.9	ND	ND	ND	DNQ1.2	ND	0.0
Dichlorodifluoromethane	2.39	UG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.0
1,1-Dichloroethane	.4	UG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.0
1,2-Dichloroethane	.5	UG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.0
1,1-Dichloroethene	.4	UG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.0
trans-1,2-dichloroethene	.6	UG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.0
1,2-Dichloropropane	.43	UG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.0
cis-1,3-dichloropropene	.38	UG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.0
trans-1,3-dichloropropene	.5	UG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.0
Ethylbenzene	.43	UG/L	DNQ.5	DNQ1.3	ND	ND	ND	ND	ND	ND	ND	DNQ0.5	ND	ND	0.0
Methylene chloride	.37	UG/L	DNQ1.1^	DNQ1.0	DNQ.8	DNQ.8	DNQ.9#	DNQ1.6	DNQ.9	DNQ1.2	DNQ.9	DNQ.8	DNQ1.2	1.5	0.1
1,1,2,2-Tetrachloroethane	.5	UG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.0
Tetrachloroethene	1.1	UG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.0
Toluene	.45	UG/L	DNQ.7	DNQ1.5	DNQ.6	DNQ.9	2.4	DNQ.6	DNQ.8	DNQ.8	DNQ.5	DNQ1.0	DNQ1.2	ND	0.2
1,1,1-Trichloroethane	.4	UG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.0
1,1,2-Trichloroethane	.5	UG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.0
Trichloroethene	.7	UG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.0
Trichlorofluoromethane	.43	UG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.0
Vinyl chloride	.4	UG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.0
Halomethane Purgeable Cmpnds	.7	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	.5	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	.5	UG/L	3.2	2.5	2.3	2.2	2.8	0.0	3.2	2.4	2.7	2.9	3.8	2.0	1.7
Purgeable Compounds	2.39	UG/L	3.2	2.5	2.3	2.2	5.2	0.0	3.2	2.4	2.7	2.9	3.8	3.5	2.0

Additional Analytes Determined:

Analyte	MDL	Units	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP*	OCT*	NOV*	DEC	Average
Acetone	7.9	UG/L	240	422	773	481	657	358	1850	1730	1010	1140	3970	230	1072
Allyl chloride	.6	UG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	0.0
Benzyl chloride	1.1	UG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	0.0
2-Butanone	6.3	UG/L	ND	DNQ7.0	ND	DNQ6.5	12.3	ND	15.4	30.9	19.4	215	10.7	5.2	33.8
Carbon disulfide	1	UG/L	2.0	2.4	1.8	2.9	1.8	2.3	4.8	3.7	3.6	3.0	4.8	5.6	3.2
Chloroprene	.4	UG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	0.0
1,2-Dibromoethane	.41	UG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.0
Isopropylbenzene	.41	UG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.0
Methyl Iodide	.6	UG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	0.0
Methyl methacrylate	.8	UG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	0.0
Methyl tert-butyl ether	.4	UG/L	ND	DNQ.6	DNQ.5	DNQ.6	DNQ.7	ND	ND	ND	ND	ND	DNQ.4	ND	0.0
2-Nitropropane	12	UG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	0.0
ortho-xylene	.4	UG/L	ND	DNQ0.6	ND	ND	ND	ND	ND	ND	ND	DNQ0.5	DNQ0.4	ND	0.0
Styrene	.38	UG/L	DNQ.7	DNQ.6	DNQ.8	DNQ.4	DNQ.5	DNQ.3	ND	ND	ND	ND	DNQ.5	ND	0.0
1,2,4-Trichlorobenzene	1.52	UG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.0
meta,para xylenes	.85	UG/L	ND	DNQ1.8	DNQ.6	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.0
2-Chloroethylvinyl ether	1.1	UG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.0
4-Methyl-2-pentanone	1.3	UG/L	ND	ND	ND	ND	ND	ND	ND	DNQ.5	ND	2.2	ND	ND	0.2

* = Sample analyzed out of the 12-hour period for BFB instrument tuning per method requirement. Value not used in average calculations.
^ = Calibration verification outside ± 15% acceptance criteria; value not used in average calculations.
# = Method blank value above the MDL; sample result not included in average calculations.
DNQ= Detected but not quantified. Sample result is less than the Minimum Level but greater than or equal to MDL.
ND=not detected; NS=not sampled; NA=not analyzed

POINT LOMA WASTEWATER TREATMENT PLANT

ANNUAL 2016

Priority Pollutants Purgeables
EPA Method 8260B

Source Month 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	1.3	UG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.0
Acrylonitrile	.7	UG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.0
Benzene	.4	UG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.0
Bromodichloromethane	.5	UG/L	DNQ.5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.0
Bromoform	.5	UG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.0
Bromomethane	.7	UG/L	ND	ND	ND	DNQ.9	ND	ND	ND	DNQ.7#	DNQ.6	DNQ.9	DNQ.9	ND	0.0
Carbon tetrachloride	.4	UG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.0
Chlorobenzene	.46	UG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.0
Chloroethane	.9	UG/L	ND	ND	ND	1.4	ND	ND	ND	ND	ND	ND	ND	ND	0.1
Chloroform	.31	UG/L	4.1	2.5	2.9	4.3	3.6	2.8	3.1	4.1	3.2	3.9	3.8	4.1	3.5
Chloromethane	.5	UG/L	DNQ1.6	ND	DNQ1.2	7.4	2.7	2.2	2.8	2.5	2.2	DNQ1.9	DNQ1.7	1.9	1.6
Dibromochloromethane	.6	UG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.0
1,2-Dichlorobenzene	.4	UG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.0
1,3-Dichlorobenzene	.5	UG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.0
1,4-Dichlorobenzene	.46	UG/L	ND	ND	DNQ.5	<0.4	ND	DNQ.7	DNQ1.1	DNQ.5	ND	ND	ND	ND	0.0
Dichlorodifluoromethane	2.39	UG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.0
1,1-Dichloroethane	.4	UG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.0
1,2-Dichloroethane	.5	UG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.0
1,1-Dichloroethene	.4	UG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.0
trans-1,2-dichloroethene	.6	UG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.0
1,2-Dichloropropane	.43	UG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.0
cis-1,3-dichloropropene	.38	UG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.0
trans-1,3-dichloropropene	.5	UG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.0
Ethylbenzene	.43	UG/L	ND	DNQ.7	ND	DNQ.4	ND	ND	DNQ.4	ND	ND	ND	ND	ND	0.0
Methylene chloride	.37	UG/L	DNQ.91^	DNQ.8	DNQ.9	DNQ.9	DNQ1#	2.9	DNQ1.1	DNQ1.5	DNQ.9	DNQ1.1	DNQ1.3	1.8	1.3
1,1,2,2-Tetrachloroethane	.5	UG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.0
Tetrachloroethene	1.1	UG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.0
Toluene	.45	UG/L	DNQ1.8	2.8	DNQ1.5	DNQ2.0	DNQ1.6	DNQ1.2	2.5	DNQ1.1	DNQ1.1	2.9	2.9	3.6	2.1
1,1,1-Trichloroethane	.4	UG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.0
1,1,2-Trichloroethane	.5	UG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.0
Trichloroethene	.7	UG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.0
Trichlorofluoromethane	.43	UG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.0
Vinyl chloride	.4	UG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.0
Halomethane Purgeable Cmpnds	.7	UG/L	0.0	0.0	0.0	7.4	2.7	2.2	2.8	2.5	2.2	0.0	0.0	1.9	1.6
Dichlorobenzenes	.5	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	.5	UG/L	4.1	2.5	2.9	4.3	6.3	7.9	5.9	6.6	5.4	3.9	3.8	7.8	7.0
Purgeable Compounds	2.39	UG/L	4.1	5.3	2.9	13.4	6.3	7.9	8.4	6.8	5.4	6.8	6.7	11.4	5.5
Additional Analytes Determined:															
Acetone	7.9	UG/L	366	423	1020	779	997	413	913	840	1470	1150	3470	550	1033
Allyl chloride	.6	UG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	0.0
Benzyl chloride	1.1	UG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	0.0
2-Butanone	6.3	UG/L	DNQ8.8	DNQ8.4	DNQ9.5	ND	DNQ9.2	DNQ6.9	DNQ8.6	13.2	25.4	12.8	10.1	11.0	5.2
Carbon disulfide	1	UG/L	1.9	1.4	2.1	2.4	1.8	2.0	3.5	3.8	4.0	4.6	6.1	2.6	3.0
Chloroprene	.4	UG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	0.0
1,2-Dibromoethane	.41	UG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.0
Isopropylbenzene	.41	UG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.0
Methyl Iodide	.6	UG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	0.0
Methyl methacrylate	.8	UG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	0.0
Methyl tert-butyl ether	.4	UG/L	ND	DNQ.4	DNQ.5	DNQ.8	DNQ.8	DNQ.6	DNQ1.0	ND	ND	DNQ.4	DNQ.5	ND	0.0
2-Nitropropane	12	UG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	0.0
ortho-xylene	.4	UG/L	ND	DNQ0.8	ND	DNQ0.6	ND	ND	DNQ0.4	ND	ND	DNQ0.4	DNQ0.5	ND	0.0
Styrene	.38	UG/L	ND	DNQ0.4	DNQ0.4	DNQ0.3	DNQ0.4	DNQ0.7	ND	ND	ND	ND	ND	ND	0.0
1,2,4-Trichlorobenzene	1.52	UG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.0
meta,para xylenes	.85	UG/L	ND	2.1	ND	DNQ1.2	ND	ND	DNQ1.0	ND	ND	ND	DNQ1.0	ND	0.2
2-Chloroethylvinyl ether	1.1	UG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.0
4-Methyl-2-pentanone	1.3	UG/L	ND	ND	ND	ND	ND	ND	ND	ND	DNQ0.6	ND	ND	ND	0.0

* = Sample analyzed out of the 12-hour period for BFB instrument tuning per method requirement. Value not used in average calculations.
^ = Calibration verification outside ± 15% acceptance criteria; value not used in average calculations.
\# = Method blank value above the MDL; sample result not included in average calculations.
DNQ= Detected but not quantified. Sample result is less than the Minimum Level but greater than or equal to MDL.
ND=not detected; NS=not sampled; NA=not analyzed

POINT LOMA WASTEWATER TREATMENT

ANNUAL 2016

Dioxin and Furan Analysis
EPA Method 1613

Source			PLR	PLR	PLR	PLR	PLR	PLR	PLR	PLR	PLR
Month			JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
Analyte	MDL	Units		P831365	P845020	P851608	P857684	P863772	P872703	P878344	P893660
2,3,7,8-tetra CDD	.316	PG/L	ND	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	ND
1,2,3,4,7,8_hexa_CDD	.808	PG/L	ND	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	ND
1,2,3,7,8,9-hexa CDD	.756	PG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2,3,4,6,7,8-hepta CDD	.857	PG/L	DNQ14.6	DNQ24.2	ND	DNQ17.4	DNQ18.7	DNQ14.9	DNQ15.0	DNQ20.6	DNQ18.1
octa CDD	1.2	PG/L	160	270	ND	200	230	150	DNQ133	190	190
2,3,7,8-tetra CDF	.307	PG/L	DNQ0.735	ND	ND	DNQ1.46	ND	ND	DNQ1.26	ND	DNQ0.981
1,2,3,7,8-penta CDF	.421	PG/L	ND	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	ND
1,2,3,4,7,8-hexa CDF	.486	PG/L	DNQ0.394	ND	ND	ND	ND	ND	ND	ND	ND
1,2,3,6,7,8-hexa CDF	.521	PG/L	DNQ1.180	ND	ND	ND	ND	ND	ND	ND	ND
1,2,3,7,8,9-hexa CDF	.556	PG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND
2,3,4,6,7,8-hexa CDF	.663	PG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2,3,4,6,7,8-hepta CDF	.489	PG/L	DNQ4.69	DNQ6.22	ND	DNQ4.40	DNQ4.23	DNQ4.06	DNQ2.91	DNQ4.91	DNQ3.98
1,2,3,4,7,8,9-hepta CDF	.69	PG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND
octa CDF	1.7	PG/L	DNQ10.0	DNQ15.9	ND	DNQ9.96	DNQ10.2	DNQ8.03	DNQ9.19	DNQ13.2	DNQ11.4

Source			PLR	PLR	PLR
Month			OCT	NOV	DEC
Analyte	MDL	Units	P895094	P903287	P907874
2,3,7,8-tetra CDD	.316	PG/L	ND	ND	ND
1,2,3,7,8-penta CDD	.607	PG/L	ND	ND	ND
1,2,3,4,7,8_hexa_CDD	.808	PG/L	ND	ND	ND
1,2,3,6,7,8-hexa CDD	.891	PG/L	ND	ND	ND
1,2,3,7,8,9-hexa CDD	.756	PG/L	ND	ND	ND
1,2,3,4,6,7,8-hepta CDD	.857	PG/L	DNQ14.7	DNQ16.1	DNQ12.1
octa CDD	1.2	PG/L	150	160	120
2,3,7,8-tetra CDF	.307	PG/L	DNQ1.27	ND	ND
1,2,3,7,8-penta CDF	.421	PG/L	ND	ND	ND
2,3,4,7,8-penta CDF	.431	PG/L	ND	ND	ND
1,2,3,4,7,8-hexa CDF	.486	PG/L	ND	ND	ND
1,2,3,6,7,8-hexa CDF	.521	PG/L	ND	ND	DNQ2.51
1,2,3,7,8,9-hexa CDF	.556	PG/L	ND	ND	ND
2,3,4,6,7,8-hexa CDF	.663	PG/L	ND	ND	ND
1,2,3,4,6,7,8-hepta CDF	.489	PG/L	DNQ4.76	DNQ5.280	DNQ3.31
1,2,3,4,7,8,9-hepta CDF	.69	PG/L	ND	ND	ND
octa CDF	1.7	PG/L	DNQ8.92	DNQ10.7	DNQ9.25

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 2016

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		P831359	P845017	P851605	P857678	P863769	P872700	P878338
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	DNQ3.41	DNQ3.19	DNQ4.18	DNQ2.02	ND	ND	DNQ1.86	DNQ3.86
octa CDD	1.2	PG/L	DNQ26.0	DNQ31.0	DNQ31.0	DNQ13.0	DNQ12.0	DNQ14.0	DNQ9.90	DNQ26.0
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	.556	PG/L	ND	ND	ND	ND	ND	ND	ND	ND
2,3,4,6,7,8-hexa CDF	.663	PG/L	ND	ND	ND	ND	ND	ND	ND	ND
1,2,3,4,6,7,8-hepta CDF	.489	PG/L	DNQ1.03	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	DNQ2.00	ND	ND	ND	ND	ND	ND	ND

Source			PLE	PLE	PLE	PLE
Month			SEP	OCT	NOV	DEC
Analyte	MDL	Units	P893657	P895088	P903284	P907871
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	DNQ2.07	DNQ2.95	DNQ3.90	DNQ4.99
octa CDD	1.2	PG/L	DNQ14.0	DNQ22.0	DNQ30.0	DNQ42.0
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	.556	PG/L	ND	ND	ND	ND
2,3,4,6,7,8-hexa CDF	.663	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 2016

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		P831365	P845020	P857684	P863772	P872703
2,3,7,8-tetra CDD	.316	PG/L	1.000	ND	ND	ND	ND	ND	ND
1,2,3,7,8-penta CDD	.3035	PG/L	0.500	ND	ND	ND	ND	ND	ND
1,2,3,4,7,8_hexa_CDD	.0808	PG/L	0.100	ND	ND	ND	ND	ND	ND
1,2,3,6,7,8-hexa CDD	.0891	PG/L	0.100	ND	ND	ND	ND	ND	ND
1,2,3,7,8,9-hexa CDD	.0756	PG/L	0.100	ND	ND	ND	ND	ND	ND
1,2,3,4,6,7,8-hepta CDD	.00857	PG/L	0.010	DNQ0.146	DNQ0.242	ND	DNQ0.187	DNQ0.149	DNQ0.150
octa CDD	.0012	PG/L	0.001	0.160	0.270	ND	0.230	0.150	DNQ0.133
2,3,7,8-tetra CDF	.0307	PG/L	0.100	DNQ0.074	ND	ND	ND	ND	DNQ0.126
1,2,3,7,8-penta CDF	.02105	PG/L	0.050	ND	ND	ND	ND	ND	ND
2,3,4,7,8-penta CDF	.2155	PG/L	0.500	ND	ND	ND	ND	ND	ND
1,2,3,4,7,8-hexa CDF	.0486	PG/L	0.100	DNQ0.039	ND	ND	ND	ND	ND
1,2,3,6,7,8-hexa CDF	.0521	PG/L	0.100	DNQ0.118	ND	ND	ND	ND	ND
1,2,3,7,8,9-hexa CDF	.0556	PG/L	0.100	ND	ND	ND	ND	ND	ND
2,3,4,6,7,8-hexa CDF	.0663	PG/L	0.100	ND	ND	ND	ND	ND	ND
1,2,3,4,6,7,8-hepta CDF	.00489	PG/L	0.010	DNQ0.047	DNQ0.062	ND	DNQ0.042	DNQ0.041	DNQ0.029
1,2,3,4,7,8,9-hepta CDF	.0069	PG/L	0.010	ND	ND	ND	ND	ND	ND
octa CDF	.0017	PG/L	0.001	DNQ0.010	DNQ0.016	ND	DNQ0.010	DNQ0.008	DNQ0.009

Source				PLR	PLR	PLR	PLR
				TCDD	TCDD	TCDD	TCDD
Month				SEP	OCT	NOV	DEC
Analyte	MDL	Units	Equiv	P893660	P895094	P903287	P907874
2,3,7,8-tetra CDD	.316	PG/L	1.000	ND	ND	ND	ND
1,2,3,7,8-penta CDD	.3035	PG/L	0.500	ND	ND	ND	ND
1,2,3,4,7,8_hexa_CDD	.0808	PG/L	0.100	ND	ND	ND	ND
1,2,3,6,7,8-hexa CDD	.0891	PG/L	0.100	ND	ND	ND	ND
1,2,3,7,8,9-hexa CDD	.0756	PG/L	0.100	ND	ND	ND	ND
1,2,3,4,6,7,8-hepta CDD	.00857	PG/L	0.010	DNQ0.181	DNQ0.147	DNQ0.161	DNQ0.121
octa CDD	.0012	PG/L	0.001	0.190	0.150	0.160	0.120
2,3,7,8-tetra CDF	.0307	PG/L	0.100	DNQ0.098	DNQ0.127	ND	ND
1,2,3,7,8-penta CDF	.02105	PG/L	0.050	ND	ND	ND	ND
2,3,4,7,8-penta CDF	.2155	PG/L	0.500	ND	ND	ND	ND
1,2,3,4,7,8-hexa CDF	.0486	PG/L	0.100	ND	ND	ND	ND
1,2,3,6,7,8-hexa CDF	.0521	PG/L	0.100	ND	ND	ND	DNQ0.251
1,2,3,7,8,9-hexa CDF	.0556	PG/L	0.100	ND	ND	ND	ND
2,3,4,6,7,8-hexa CDF	.0663	PG/L	0.100	ND	ND	ND	ND
1,2,3,4,6,7,8-hepta CDF	.00489	PG/L	0.010	DNQ0.040	DNQ0.048	DNQ0.053	DNQ0.033
1,2,3,4,7,8,9-hepta CDF	.0069	PG/L	0.010	ND	ND	ND	ND
octa CDF	.0017	PG/L	0.001	DNQ0.011	DNQ0.009	DNQ0.011	DNQ0.009

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 2016

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		P831359	P845017	P857678	P863769	P872700
2,3,7,8-tetra CDD	.316	PG/L	1.000	ND	ND	ND	ND	ND	ND
1,2,3,7,8-penta CDD	.3035	PG/L	0.500	ND	ND	ND	ND	ND	ND
1,2,3,4,7,8_hexa_CDD	.0808	PG/L	0.100	ND	ND	ND	ND	ND	ND
1,2,3,6,7,8-hexa CDD	.0891	PG/L	0.100	ND	ND	ND	ND	ND	ND
1,2,3,7,8,9-hexa CDD	.0756	PG/L	0.100	ND	ND	ND	ND	ND	ND
1,2,3,4,6,7,8-hepta CDD	.00857	PG/L	0.010	DNQ0.034	DNQ0.032	DNQ0.042	ND	ND	DNQ0.019
octa CDD	.0012	PG/L	0.001	DNQ0.026	DNQ0.031	DNQ0.031	DNQ0.012	DNQ0.014	DNQ0.010
2,3,7,8-tetra CDF	.0307	PG/L	0.100	ND	ND	ND	ND	ND	ND
1,2,3,7,8-penta CDF	.02105	PG/L	0.050	ND	ND	ND	ND	ND	ND
2,3,4,7,8-penta CDF	.2155	PG/L	0.500	ND	ND	ND	ND	ND	ND
1,2,3,4,7,8-hexa CDF	.0486	PG/L	0.100	ND	ND	ND	ND	ND	ND
1,2,3,6,7,8-hexa CDF	.0521	PG/L	0.100	ND	ND	ND	ND	ND	ND
1,2,3,7,8,9-hexa CDF	.0556	PG/L	0.100	ND	ND	ND	ND	ND	ND
2,3,4,6,7,8-hexa CDF	.0663	PG/L	0.100	ND	ND	ND	ND	ND	ND
1,2,3,4,6,7,8-hepta CDF	.00489	PG/L	0.010	DNQ0.010	ND	ND	ND	ND	ND
1,2,3,4,7,8,9-hepta CDF	.0069	PG/L	0.010	ND	ND	ND	ND	ND	ND
octa CDF	.0017	PG/L	0.001	DNQ0.002	ND	ND	ND	ND	ND

Source				PLE	PLE	PLE	PLE
				TCDD	TCDD	TCDD	TCDD
Month				SEP	OCT	NOV	DEC
Analyte	MDL	Units	Equiv	P893657	P895088	P903284	P907871
2,3,7,8-tetra CDD	.316	PG/L	1.000	ND	ND	ND	ND
1,2,3,7,8-penta CDD	.3035	PG/L	0.500	ND	ND	ND	ND
1,2,3,4,7,8_hexa_CDD	.0808	PG/L	0.100	ND	ND	ND	ND
1,2,3,6,7,8-hexa CDD	.0891	PG/L	0.100	ND	ND	ND	ND
1,2,3,7,8,9-hexa CDD	.0756	PG/L	0.100	ND	ND	ND	ND
1,2,3,4,6,7,8-hepta CDD	.00857	PG/L	0.010	DNQ0.021	DNQ0.030	DNQ0.039	DNQ0.050
octa CDD	.0012	PG/L	0.001	DNQ0.014	DNQ0.022	DNQ0.030	DNQ0.042
2,3,7,8-tetra CDF	.0307	PG/L	0.100	ND	ND	ND	ND
1,2,3,7,8-penta CDF	.02105	PG/L	0.050	ND	ND	ND	ND
2,3,4,7,8-penta CDF	.2155	PG/L	0.500	ND	ND	ND	ND
1,2,3,4,7,8-hexa CDF	.0486	PG/L	0.100	ND	ND	ND	ND
1,2,3,6,7,8-hexa CDF	.0521	PG/L	0.100	ND	ND	ND	ND
1,2,3,7,8,9-hexa CDF	.0556	PG/L	0.100	ND	ND	ND	ND
2,3,4,6,7,8-hexa CDF	.0663	PG/L	0.100	ND	ND	ND	ND
1,2,3,4,6,7,8-hepta CDF	.00489	PG/L	0.010	ND	ND	ND	ND
1,2,3,4,7,8,9-hepta CDF	.0069	PG/L	0.010	ND	ND	ND	ND
octa CDF	.0017	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 the Minimum Level but greater than or equal to MDL.

ANALYZED BY: Frontier Analytical Laboratories

2016
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 4, 2016	9,400,000	790,000	20,000e
January 11, 2016	7,000,000	1,700,000	11,000e
January 20, 2016	15,650,000^	4,106,000^	50,000
January 25, 2016	13,000,000	2,300,000	15,000e
Average	11,000,000	2,200,000	24,000

DATE	COLIFORM* (MPN Index/100ml)		ENTEROCOCCUS** (CFU/100 ml)
	Total	Fecal	
February 2, 2016	13,000,000	2,200,000	300,000
February 8, 2016	35,000,000	7,900,000	56,000
February 16, 2016	24,000,000	2,800,000	670,000e
February 23, 2016	11,000.000	2,300,000	380,000
February 29, 2016	4,900,000	2,300,000	60,000e
Average	18,000,000	3,500,000	290,000

DATE	COLIFORM* (MPN Index/100ml)		ENTEROCOCCUS** (CFU/100 ml)
	Total	Fecal	
March 8, 2016	24,000,000	3,300,000	53,000
March 16, 2016	54,000,000	11,000,000	560,000
March 21, 2016	7,000,000	3,300,000	60,000
March 28, 2016	35,000,000	13,000,000	110,000e
Average	30,000,000	7,600,000	200,000

DATE	COLIFORM* (MPN Index/100ml)		ENTEROCOCCUS** (CFU/100 ml)
	Total	Fecal	
April 4 2016	13,000,000	3,300,000	1,000e
April 11, 2016	24,000,000	4,900,000	350,000
April 18, 2016	36,540,000^	6,131,000^	38,730^
April 25, 2016	35,000,000	17,000,000	330,000
Average	27,000,000	7,800,000	180,000

DATE	COLIFORM* (MPN Index/100ml)		ENTEROCOCCUS** (CFU/100 ml)
	Total	Fecal	
May 2, 2016	22,000,000	4,600,000	160,000e
May 9, 2016	35,000,000	2,300,000	970,000e
May 16, 2016	11,000,000	4,900,000	40,000
May 23, 2016	21,000,000	4,600,000	63,000e
May 31, 2016	35,000,000	35,000,000	200,000
Average	25,000,000	10,000,000	290,000

DATE	COLIFORM* (MPN Index/100ml)		ENTEROCOCCUS** (CFU/100 ml)
	Total	Fecal	
June 6, 2016	7,900,000	1,300,000	70,000e
June 13, 2016	9,200,000	3,500,000	57,000
June 20, 2016	11,000,000	4,600,000	110,000e
June 27, 2016	92,000,000	7,900,000	110,000e
Average	30,000,000	4,300,000	87,000

DATE	COLIFORM* (MPN Index/100ml)		ENTEROCOCCUS** (CFU/100 ml)
	Total	Fecal	
July 5, 2016	35,000,000	11,000,000	710,000e
July 11, 2016	17,000,000	4,900,000	58,000
July 18, 2016	35,000,000	4,900,000	60,000e
July 25, 2016	54,000,000	11,000,000	110,000e
Average	35,000,000	8,00,000	230,000

DATE	COLIFORM* (MPN Index/100ml)		ENTEROCOCCUS** (CFU/100 ml)
	Total	Fecal	
August 1, 2016	35,000,000	11,000,000	130,000e
August 8, 2016	24,000,000	24,000,000	110,000e
August 15, 2016	35,000,000	35,000,000	60,000e
August 22, 2016	7,900,000	4,900,000	240,000
August 29, 2016	17,000,000	11,000,000	290,000
Average	24,000,000	17,000,000	170,000

DATE	COLIFORM* (MPN Index/100ml)		ENTEROCOCCUS** (CFU/100 ml)
	Total	Fecal	
September 9, 2016	9,400,000	9,400,000	5,000e
September 12, 2016	24,000,000	13,000,000	80,000e
September 19, 2016	13,000,000	7,900,000	68,000e
September 26, 2016	92,000,000	17,000,000	67,000
Average	35,000,000	12,000,000	55,000

DATE	COLIFORM* (MPN Index/100ml)		ENTEROCOCCUS** (CFU/100 ml)
	Total	Fecal	
October 3, 2016	35,000,000	17,000,000	120,000e
October 10, 2016	35,000,000	4,900,000	75,000e
October 17, 2016	35,000,000	3,300,000	600,000
October 24, 2016	24,000,000	13,000,000	780,000
October 31, 2016	14,000,000	6,300,000	90,000e
Average	29,000,000	8,900,000	330,000

DATE	COLIFORM* (MPN Index/100ml)		ENTEROCOCCUS** (CFU/100 ml)
	Total	Fecal	
November 7, 2016	11,000,000	1,100,000	67,000e
November 14, 2016	24,000,000	4,900,000	19,000e
November 21, 2016	17,000,000	3,300,000	190,000e
November 28, 2016	7,900,000	2,300,000	130,000e
Average	15,000,000	2,900,000	100,000

DATE	COLIFORM* (MPN Index/100ml)		ENTEROCOCCUS** (CFU/100 ml)
	Total	Fecal	
December 5, 2016	11,000,000	3,300,000	58,000e
December 12, 2016	13,000,000	3,300,000	53,000
December 19, 2016	7,900,000	790,000	63,000e
December 27, 2016	24,000,000	2,300,000	20,000
Average	14,000,000	2,400,000	48,000

*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

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	Total Hardness		Calcium Hardness		Magnesium Hardness		Calcium		Magnesium	
MDL:	.878	mg/L	.335	mg/L	.544	mg/L	.134	mg/L	.132	mg/L
	PLR	PLE	PLR	PLE	PLR	PLE	PLR	PLE	PLR	PLE
JANUARY -2016	466	462	233	233	233	230	93.2	93.1	56.6	55.7
FEBRUARY -2016	444	435	215	210	229	225	86.0	84.0	55.7	54.7
MARCH -2016	447	440	212	208	236	232	84.7	83.0	57.2	56.4
APRIL -2016	443	437	219	218	225	220	87.5	87.2	54.5	53.4
MAY -2016	469	483	239	241	230	242	95.6	96.4	55.7	58.8
JUNE -2016	419	419	212	212	206	207	85.2	84.9	50.1	50.3
JULY -2016	425	430	207	209	218	220	82.8	83.9	52.9	53.5
AUGUST -2016	464	442	229	210	235	232	91.7	84.2	57.1	56.4
SEPTEMBER-2016	397	398	194	197	203	202	77.7	78.8	49.3	49.0
OCTOBER -2016	436	448	209	215	227	233	83.8	85.9	55.1	56.7
NOVEMBER -2016	479	481	232	235	247	246	92.7	94.2	59.9	59.8
DECEMBER -2016	445	456	220	226	226	230	88.0	90.5	54.7	55.9
Average:	445	444	218	218	226	227	87.4	87.2	54.9	55.1

	Alkalinity		Total Solids		Total Vol. Solids		Conductivity		Fluoride	
MDL:	20	mg/L	10	mg/L	100	mg/L	10umhos/cm		.05	mg/L
	PLR	PLE	PLR	PLE	PLR	PLE	PLR	PLE	PLR	PLE
JANUARY -2016	307	296	2110	1800	584	330	3030	3040	0.35	0.36
FEBRUARY -2016	330	315	2120	1760	601	303	3070	3090	0.32	0.33
MARCH -2016	331	316	2130	1790	644	362	2960	2970	0.30	0.28
APRIL -2016	335	321	2180	1830	631	336	3050	3090	0.79	0.74
MAY -2016	344	317	2220	1890	654	350	3100	3180	0.98	0.97
JUNE -2016	329	309	2260	1870	712	366	3050	3090	0.74	0.74
JULY -2016	330	320	2300	1960	662	371	3210	3240	0.77	0.75
AUGUST -2016	333	321	2230	1880	636	339	3220	3230	0.65	0.63
SEPTEMBER-2016	331	317	2180	1840	626	338	3140	3130	0.80	0.78
OCTOBER -2016	335	323	2180	1850	610	346	3170	3170	0.67	0.57
NOVEMBER -2016	336	317	2140	1820	619	352	3140	3140	0.61	0.58
DECEMBER -2016	326	313	2040	1790	516	311	3040	3080	0.59	0.55
Average:	331	315	2174	1840	625	342	3098	3121	0.63	0.61

	Chloride		Bromide		Sulfate		Nitrate		Ortho Phosphate	
MDL:	7	mg/L	.1	mg/L	9	mg/L	.04	mg/L	.2	mg/L
	PLR	PLE	PLR	PLE	PLR	PLE	PLR	PLE	PLR	PLE
JANUARY -2016	595	597	1.3	1.2	292	281	0.05	0.13	3.5	2.4
FEBRUARY -2016	611	607	1.4	1.3	275	267	<0.04	0.11	4.2	2.4
MARCH -2016	587	599	1.4	1.4	237	231	ND	ND	5.3	3.8
APRIL -2016	617	640	1.6	1.6	275	272	0.45	0.10	4.4	4.7
MAY -2016	595	654	1.6	1.7	279	276	<0.04	0.50	4.5	2.5
JUNE -2016	612	636	1.6	1.6	272	264	0.05	0.24	6.2	3.5
JULY -2016	661	674	1.8	1.8	259	250	0.11	0.08	5.2	4.6
AUGUST -2016	644	653	1.7	1.6	251	241	0.04	0.11	4.7	5.5
SEPTEMBER-2016	634	642	1.7	1.6	256	244	0.07	0.20	3.2	5.1
OCTOBER -2016	649	653	1.6	1.6	272	261	<0.04	0.32	4.5	5.2
NOVEMBER -2016	638	643	1.6	1.7	268	256	<0.04	0.24	4.9	4.1
DECEMBER -2016	605	620	1.4	1.5	275	266	ND	0.23	3.6	3.6
Average:	621	635	1.6	1.6	268	259	0.06	0.19	4.5	4.0

METALS by EPA 200.7
CATIONS by EPA 300.0
ALKALINITY by SM2320B
ND=not detected; NS=not sampled; NA=not analyzed

POINT LOMA WASTEWATER TREATMENT PLANT

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	Lithium		Sodium		Potassium		Chemical Oxygen Demand		Soluble BOD	
MDL:	.015	mg/L	1	mg/L	.84	mg/L	18	mg/L	2	mg/L
	PLR	PLE	PLR	PLE	PLR	PLE	PLR	PLE	PLR	PLE
JANUARY -2016	0.057	0.057	386	382	29.1	28.3	650	252	96	79
FEBRUARY -2016	0.057	0.057	389	384	30.6	29.6	760	313	109	92
MARCH -2016	0.051	0.052	386	383	32.1	31.3	755	303	105	87
APRIL -2016	0.057	0.057	382	380	30.5	30.3	676	260	102	85
MAY -2016	0.060*	0.062*	385	411	32.8	32.5	712	292	107	104
JUNE -2016	0.053	0.053	361	368	29.0	29.0	730	301	125	108
JULY -2016	0.055	0.058	388	395	30.9	30.3	735	307	116	109
AUGUST -2016	0.047	0.045	403	408	31.9	31.2	664	365	107	103
SEPTEMBER-2016	0.053	0.054	358	360	28.7	28.6	735	304	97	97
OCTOBER -2016	0.057	0.054	394	405	31.1	31.3	713	320	94	106
NOVEMBER -2016	0.053	0.056	424	439	30.4	30.6	699	342	98	106
DECEMBER -2016	0.051	0.052	383	400	28.6	29.9	717	341	91	102
Average:	0.05	0.05	387	393	30.5	30.2	712	308	104	98

	Total Disolved Solids		Floatables		Turbidity		Aluminum		Barium	
MDL:	250	mg/L	1.4	mg/L	.13	NTU	23.8	ug/L	.7	ug/L
	PLR	PLE	PLR	PLE	PLR	PLE	PLR	PLE	PLR	PLE
JANUARY -2016	1700	1680	1.79	ND	159	33	808	41	123	39
FEBRUARY -2016	1740	1700	1.86	ND	150	33	687	30	121	47
MARCH -2016	1730	1700	<1.40	ND	138	35	672	49	106	39
APRIL -2016	1740	1710	<1.40	ND	148	36	710	33	121	45
MAY -2016	1750	1740	<1.40	ND	166	48	830	46	131	51
JUNE -2016	1800	1790	<1.40	ND	174	52	659	56	125	55
JULY -2016	1870	1840	<1.40	ND	178	49	722	55	137	53
AUGUST -2016	1800	1770	<1.40	ND	134	45	722	45	129	53
SEPTEMBER-2016	1820	1770	<1.40	ND	137	46	714	59	127	53
OCTOBER -2016	1780	1740	<1.40	ND	158	67	685	114	134	60
NOVEMBER -2016	1740	1720	<1.40	ND	136	65	734	135	125	60
DECEMBER -2016	1630	1630	<1.40	ND	141	60	608	128	115	56
Average:	1758	1733	0.30	ND	152	47	713	66	125	51

	Boron		Cobalt		Molybdenum		Manganese		Vanadium	
MDL:	2.66	ug/L	.24	ug/L	.32	ug/L	.78	ug/L	2.2	ug/L
	PLR	PLE	PLR	PLE	PLR	PLE	PLR	PLE	PLR	PLE
JANUARY -2016	442	438	1.630	1.060	9.73	6.66	196	168	6.08	1.33
FEBRUARY -2016	437	433	1.580	1.070	9.52	6.71	137	123	5.68	1.47
MARCH -2016	405	402	1.520	1.110	10.60	7.97	258	188	4.86	1.44
APRIL -2016	397	385	1.880	1.160	10.90	7.41	141	124	5.60	0.91
MAY -2016	425	415	1.740	1.110	11.70	7.96	137	136	6.75	1.42
JUNE -2016	429	428	1.680	1.250	10.10	6.93	128	137	5.08	0.84
JULY -2016	522	564	0.942	0.464	10.60	6.70	147	136	7.12	3.39
AUGUST -2016	410	403	1.820	1.350	12.90	7.56	138	122	11.5**	5.39**
SEPTEMBER-2016	376	374	1.700	1.130	11.60	6.74	138	127	3.26	0.81
OCTOBER -2016	396	397	1.870	1.460	13.20	8.66	142	142	2.96	0.85
NOVEMBER -2016	415	414	2.200	1.720	13.60	9.21	154	154	4.46	0.90
DECEMBER -2016	389	392	1.080	0.766	11.50	11.40	135	138	3.63	0.88
Average:	420	420	1.637	1.138	11.33	7.83	154	141	5.04	1.29

* = Method blank value above the MDL; sample result not included in average calculations.
** = Laboratory error; sample result not included in average calculations.
Metals by EPA 200.7
Turbidity by SM2130B
TDS by SM2540C
COD by HACH 8000
ND=not detected; NS=not sampled; NA=not analyzed

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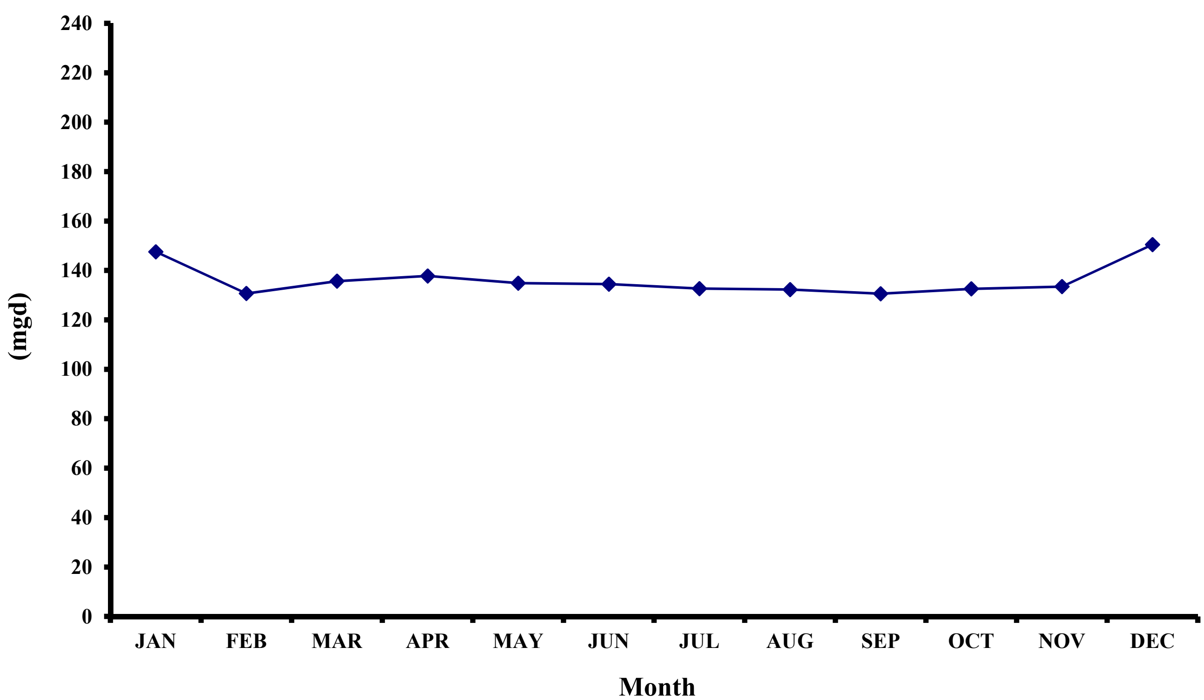
D. Influent and Effluent Graphs

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

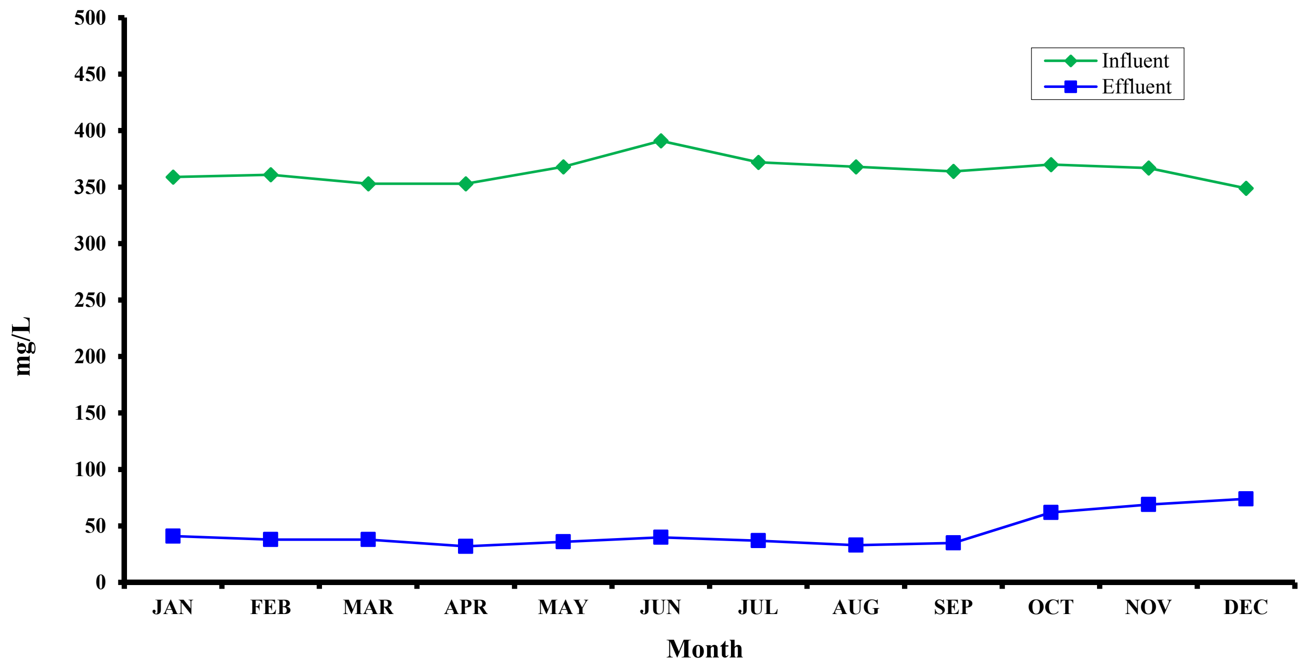
Where possible, the influent and effluent values of a given parameter have been included on the same graph so that removals and other relationships are readily apparent. Please note that many of the graphs are on expanded scales. That is, they may not go to zero concentrations but show, in magnified 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.

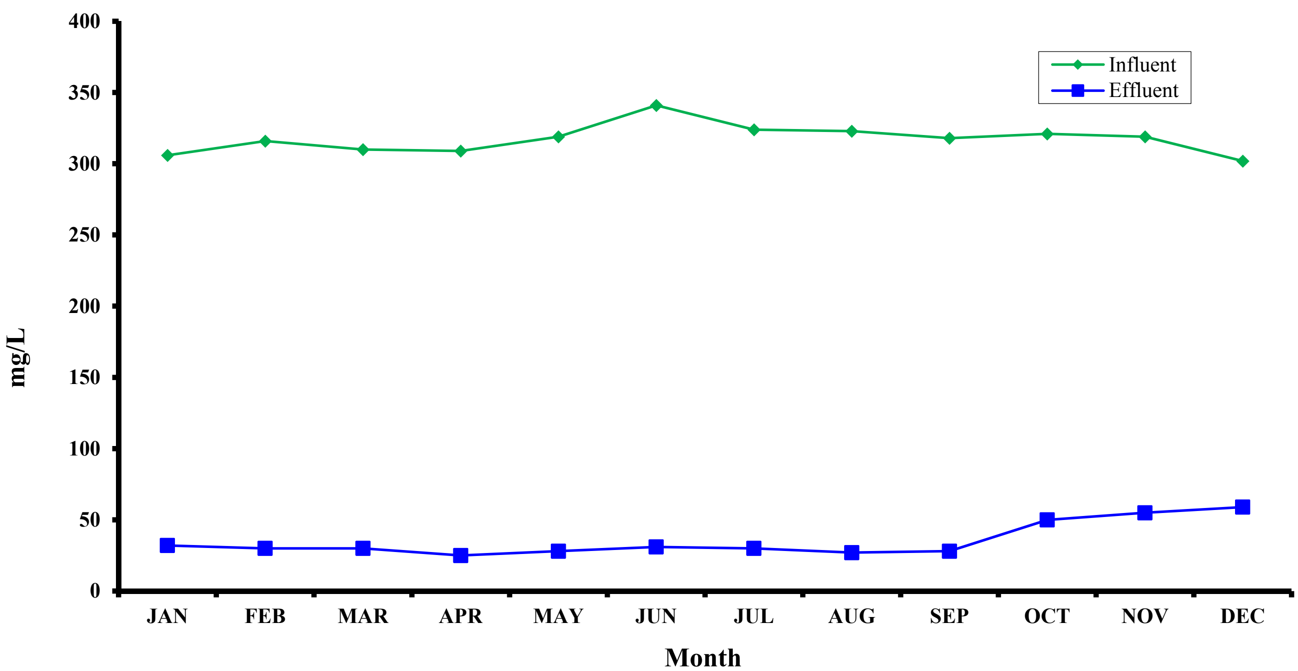
PLWTP Flows (mgd)
2016 Monthly Averages



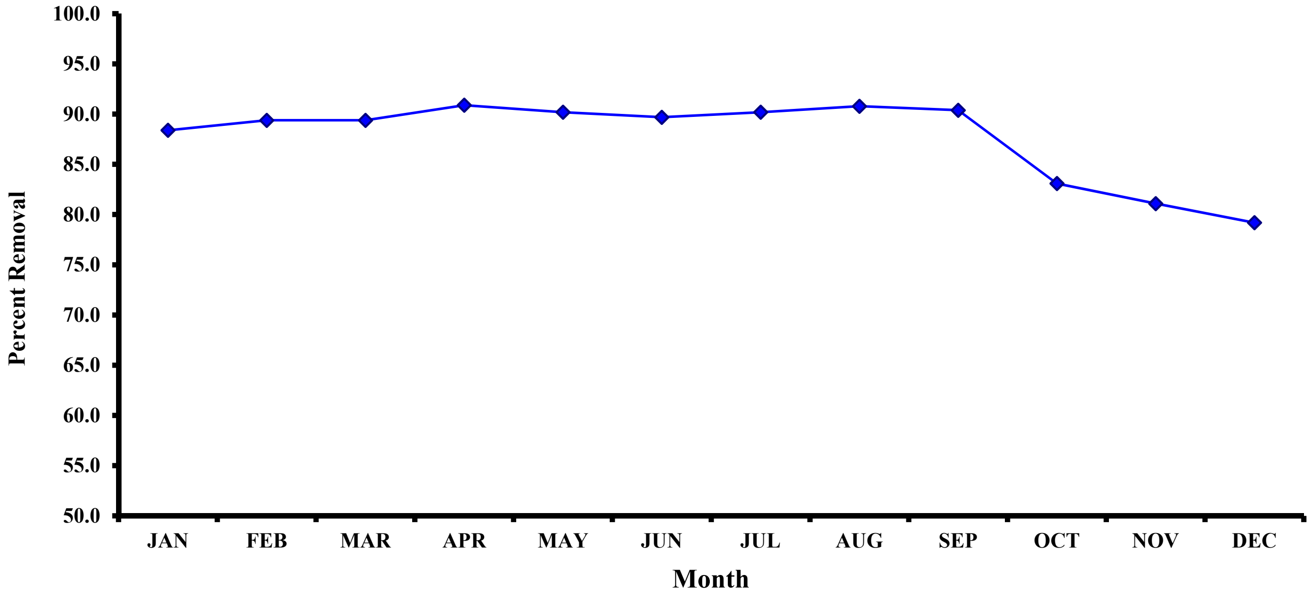
Total Suspended Solids (mg/L)
2016 Monthly Averages



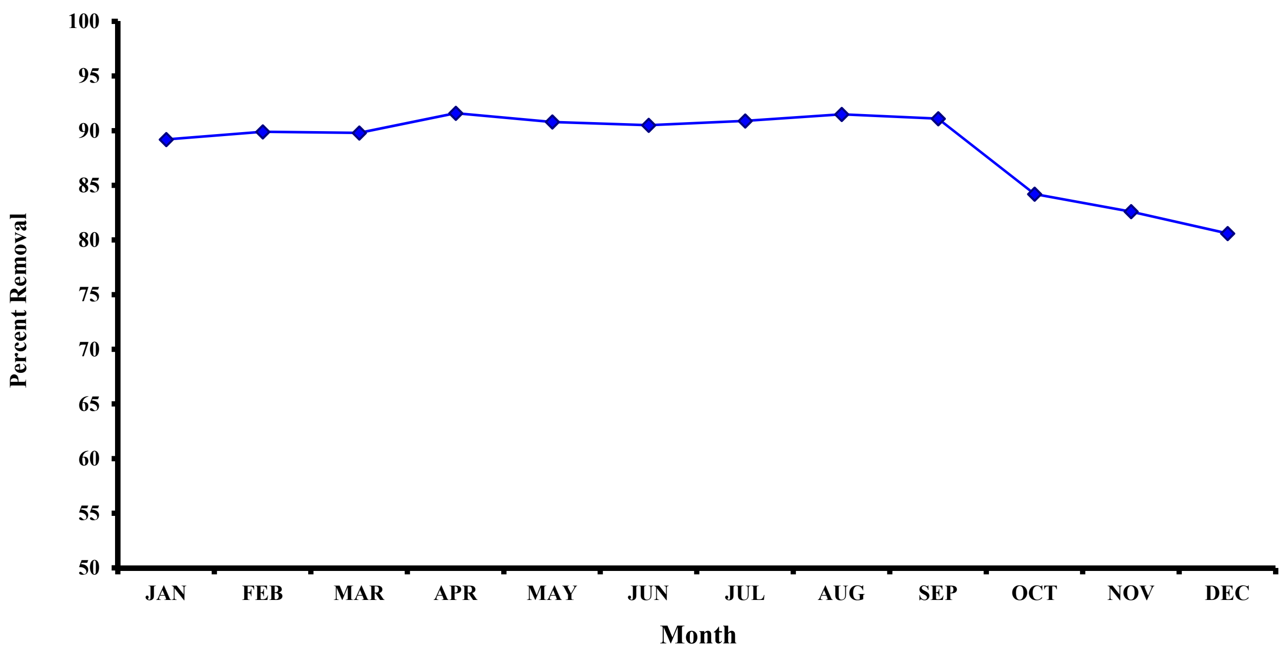
Volatile Suspended Solids (mg/L)
2016 Monthly Averages



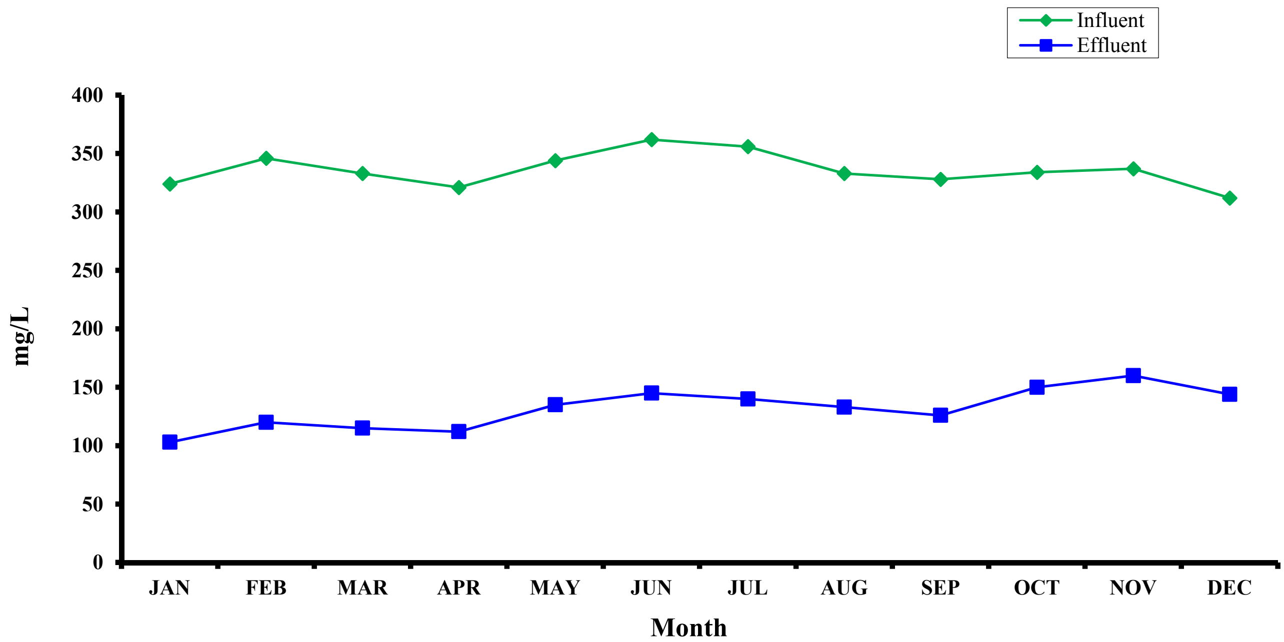
Total Suspended Solids (%) Removal
2016 Monthly Averages



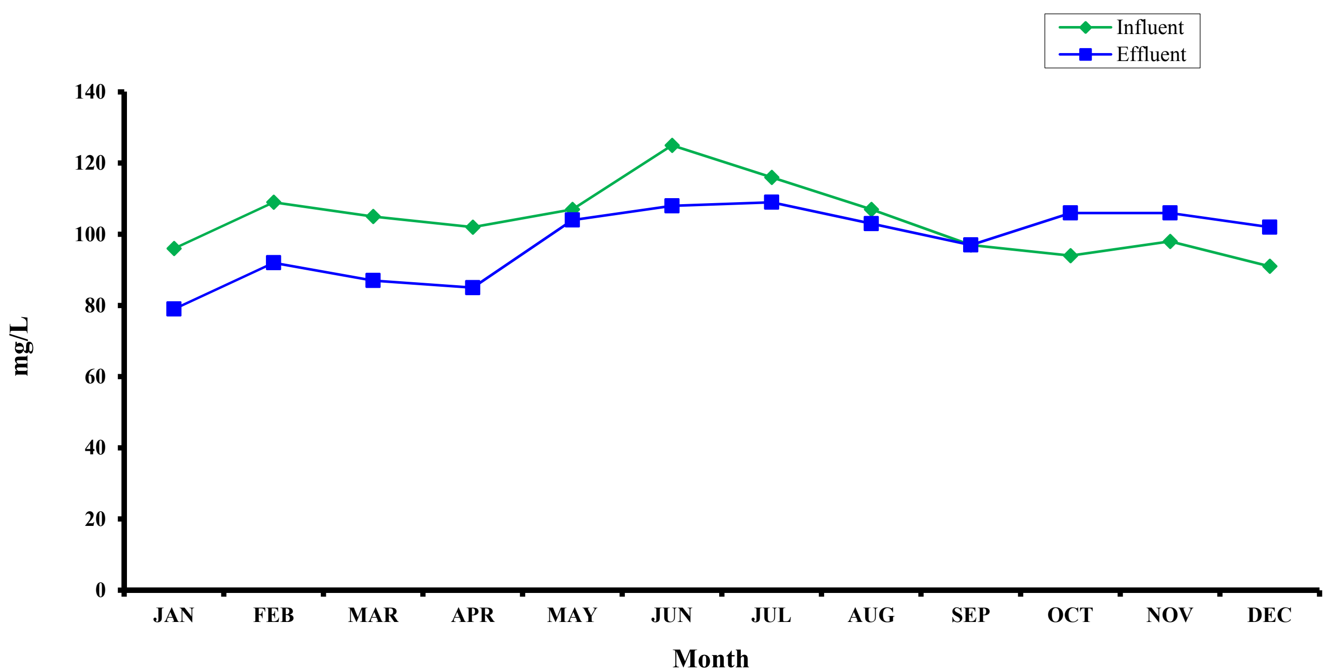
Total Suspended Solids (%) Removal
2016 Monthly Averages Systemwide



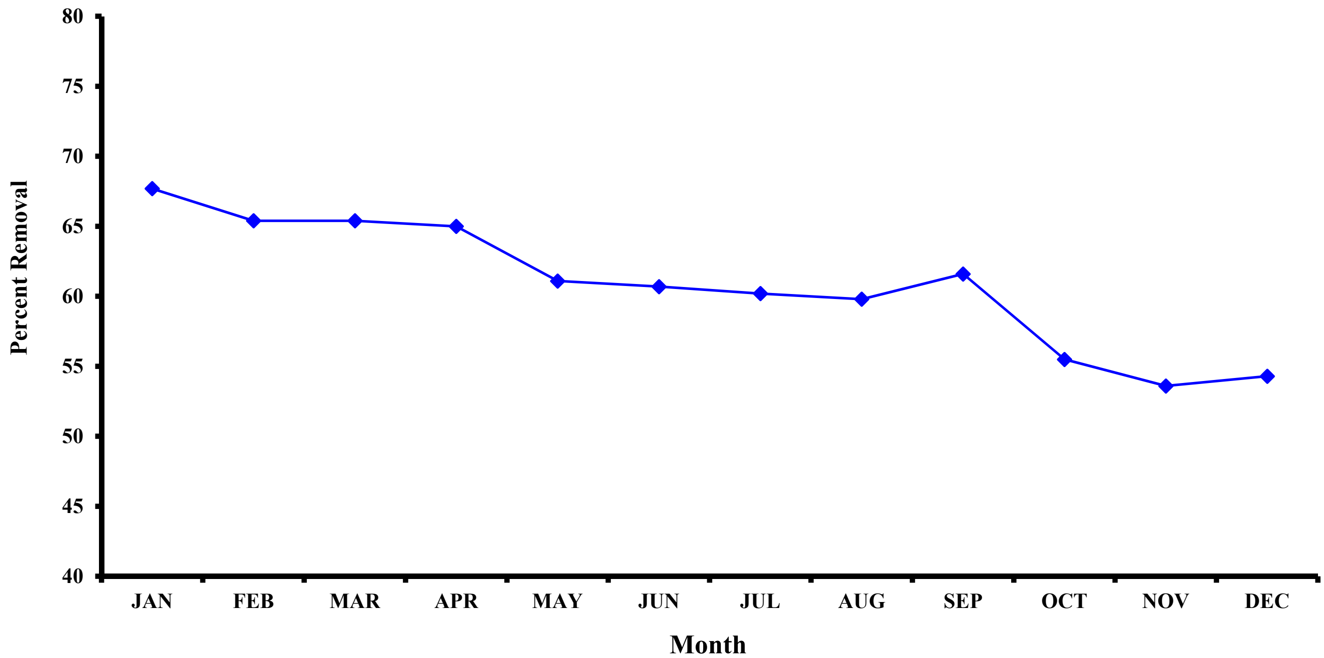
Biochemical Oxygen Demand
2016 Monthly Averages



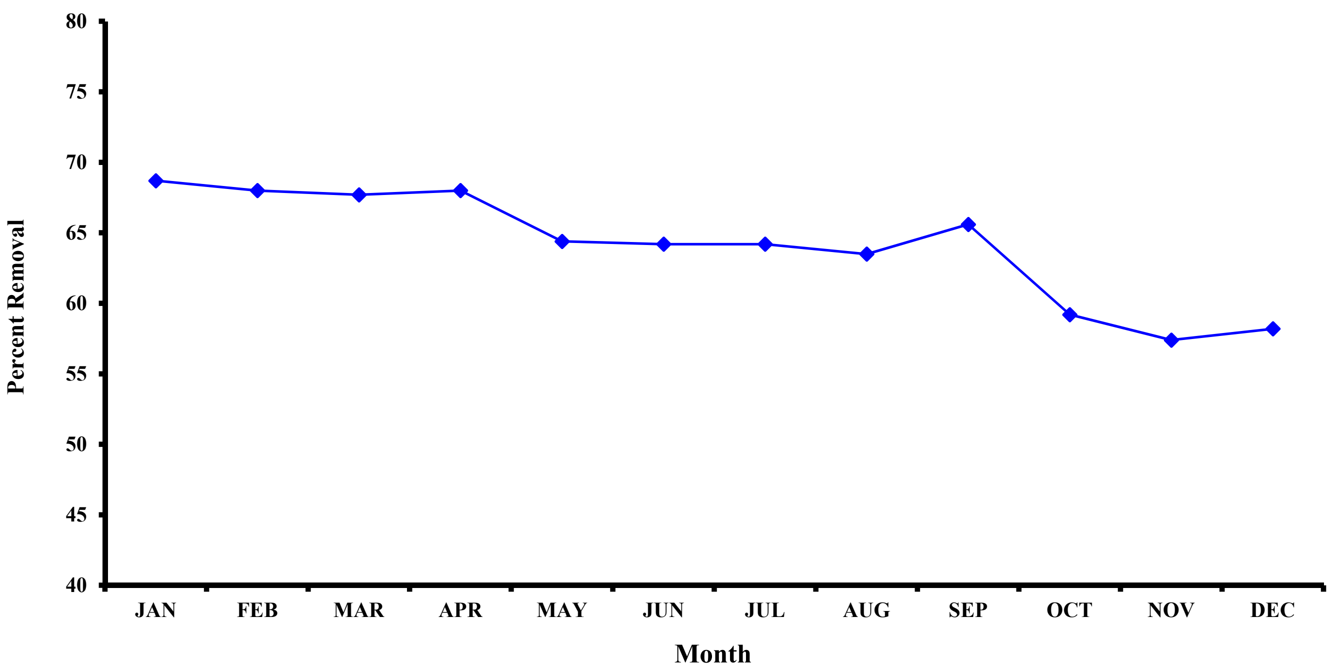
Soluble Biochemical Oxygen Demand
2016 Monthly Averages



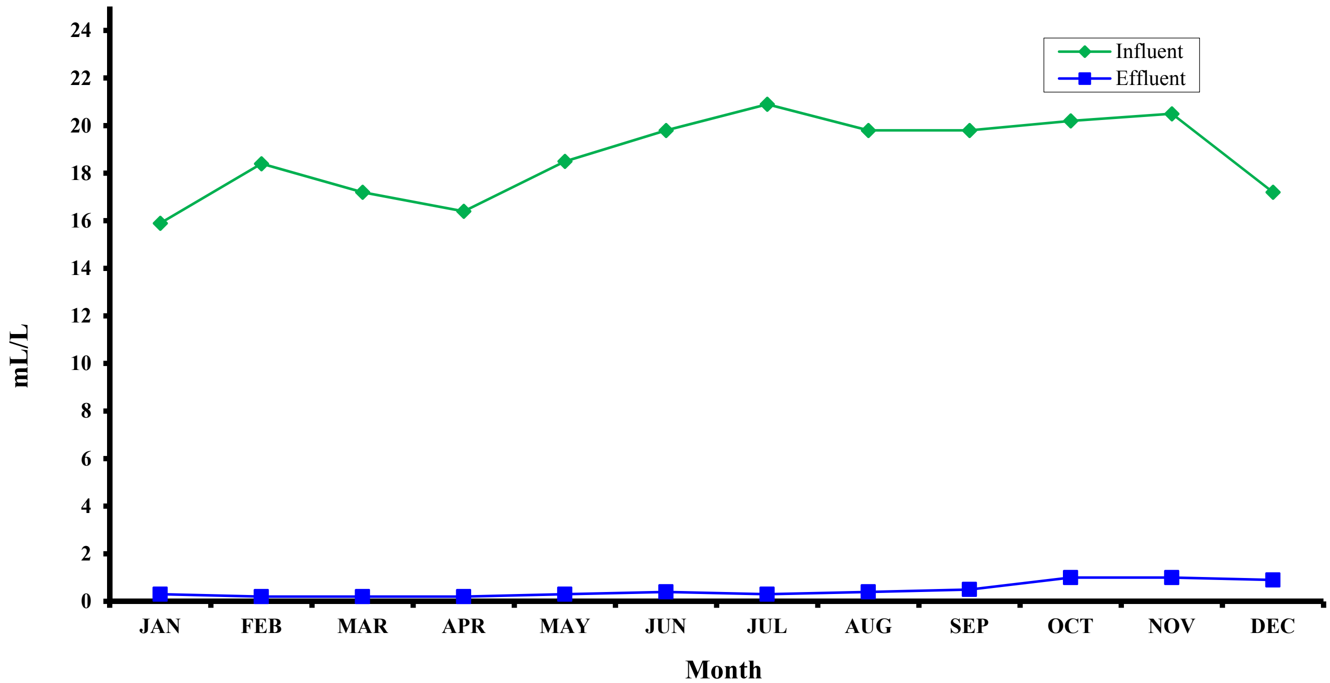
Biochemical Oxygen Demand (%) Removal
2016 Monthly Averages



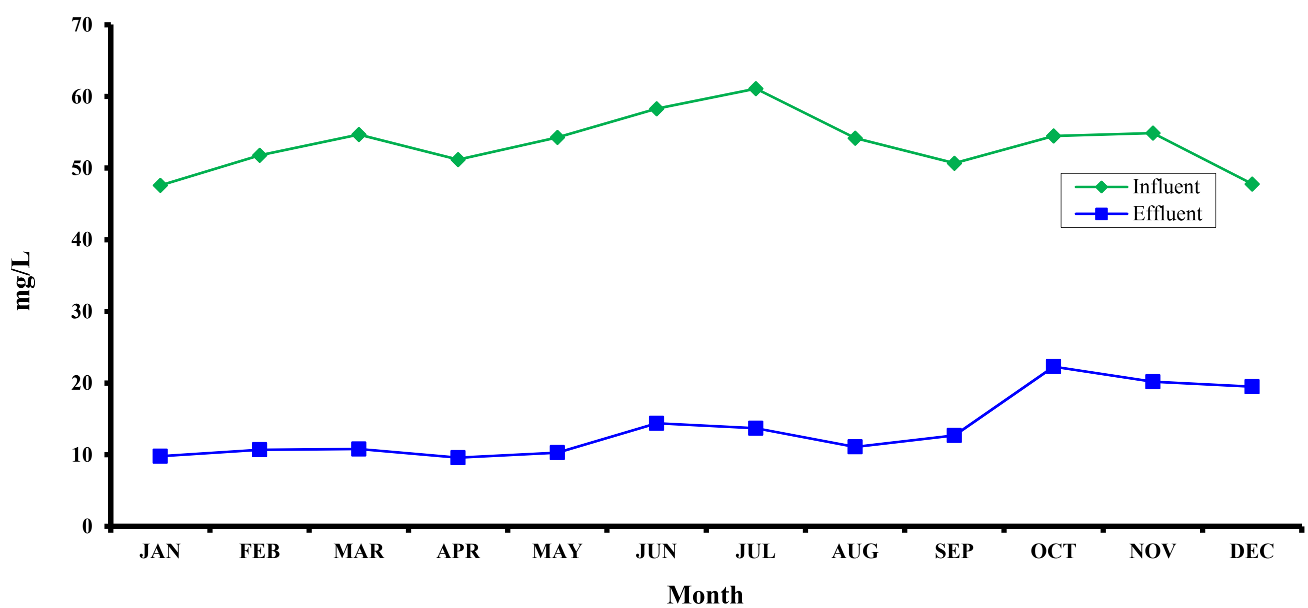
Biochemical Oxygen Demand (%) Removal
2016 Monthly Averages Systemwide

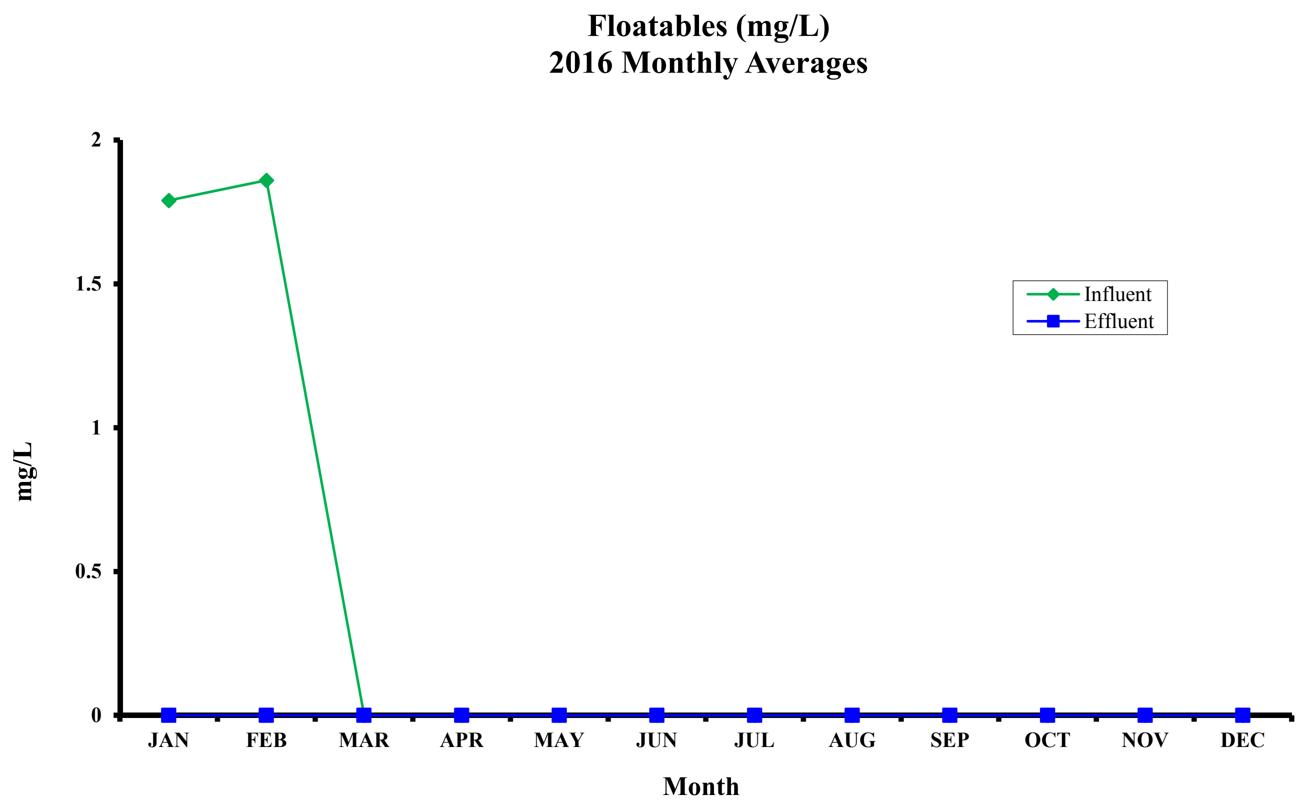


Settleable Solids (mL/L)
2016 Monthly Averages

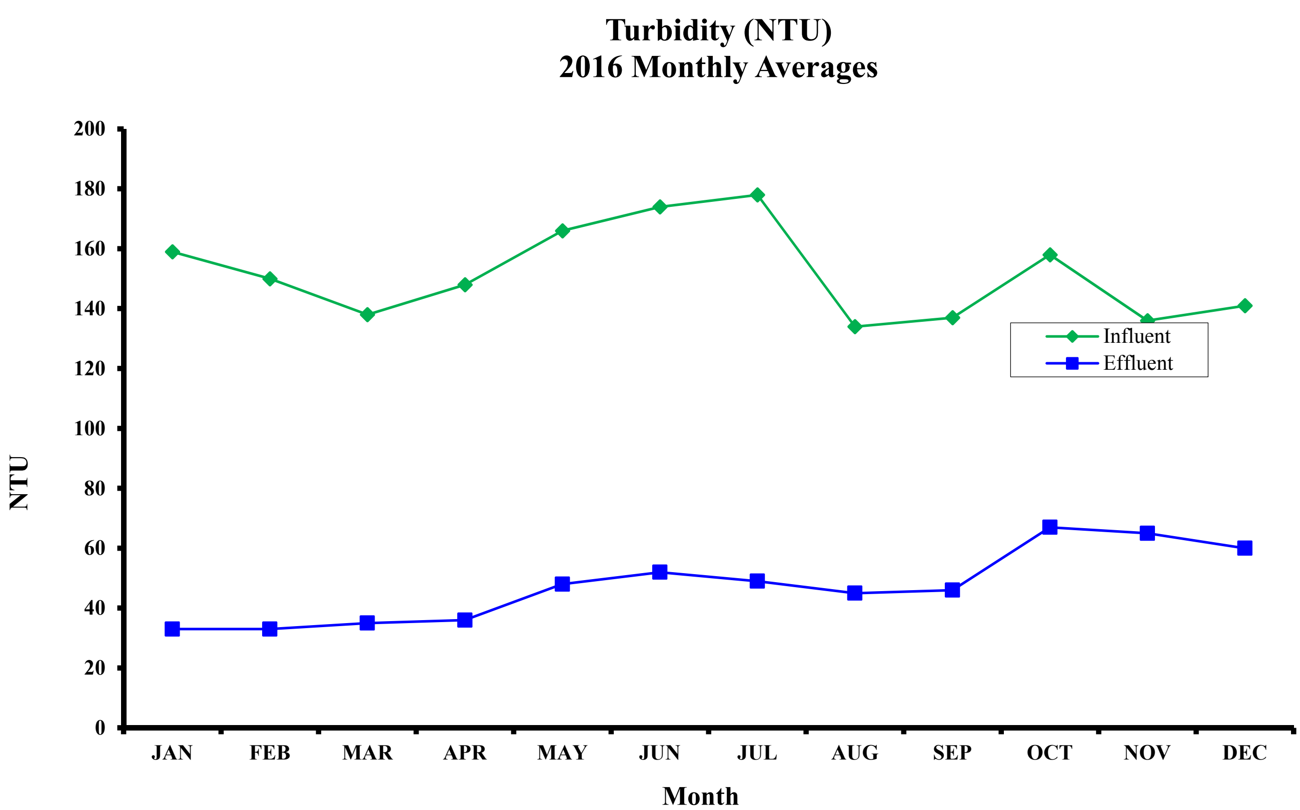


Hexane Extractable Material (mg/L)
2016 Monthly Averages

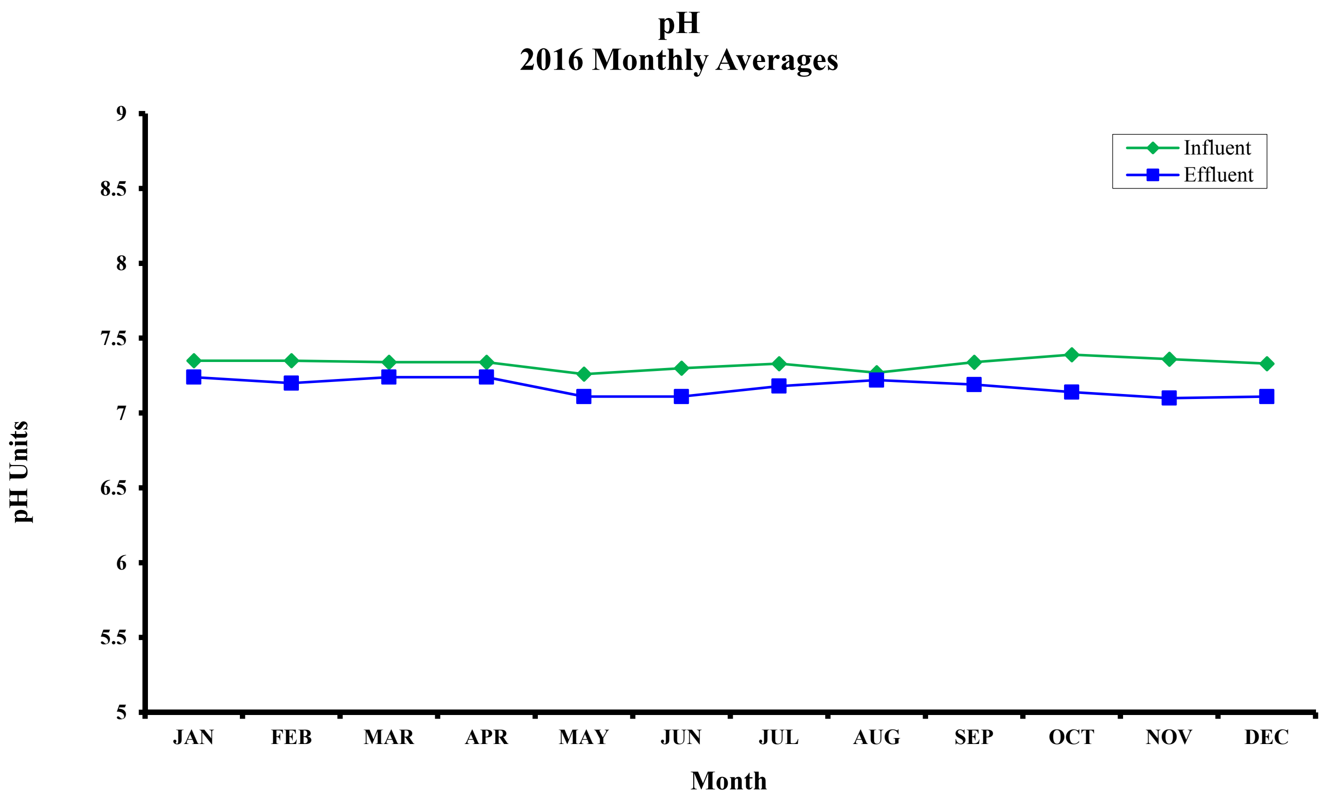


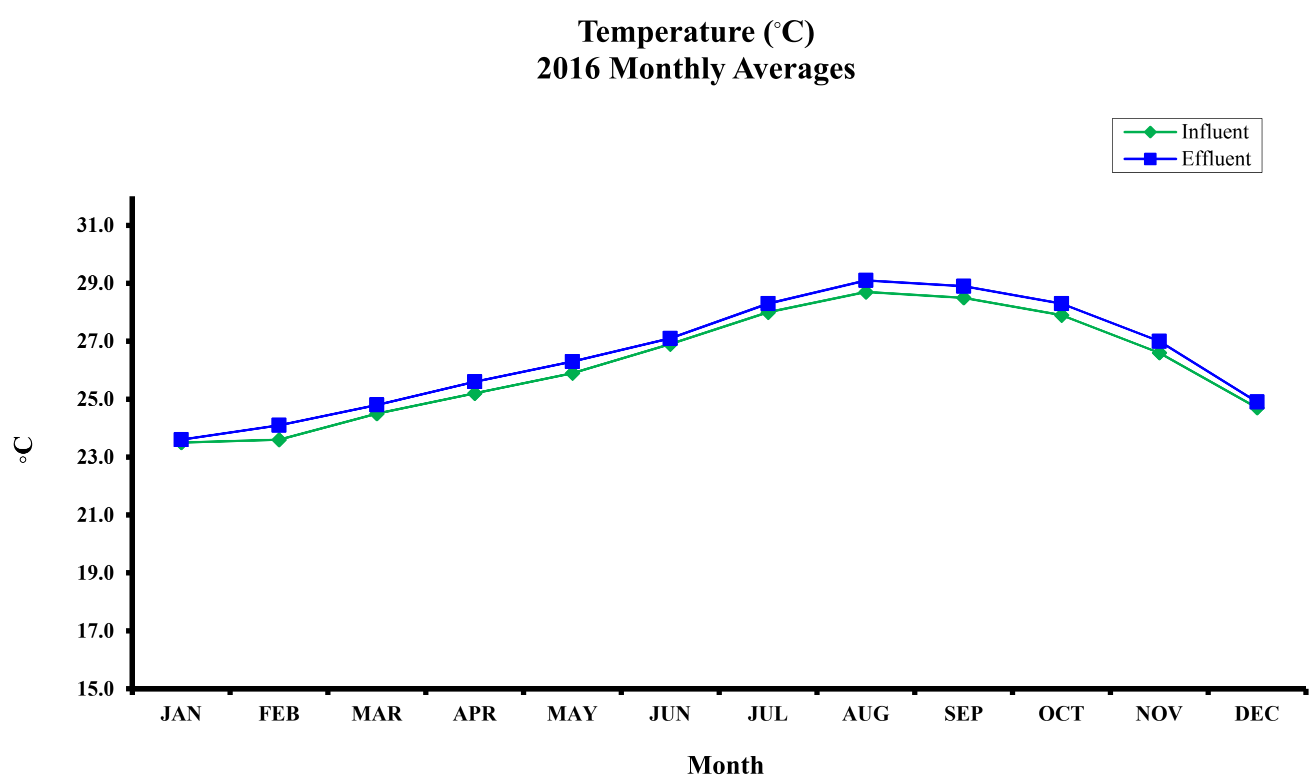


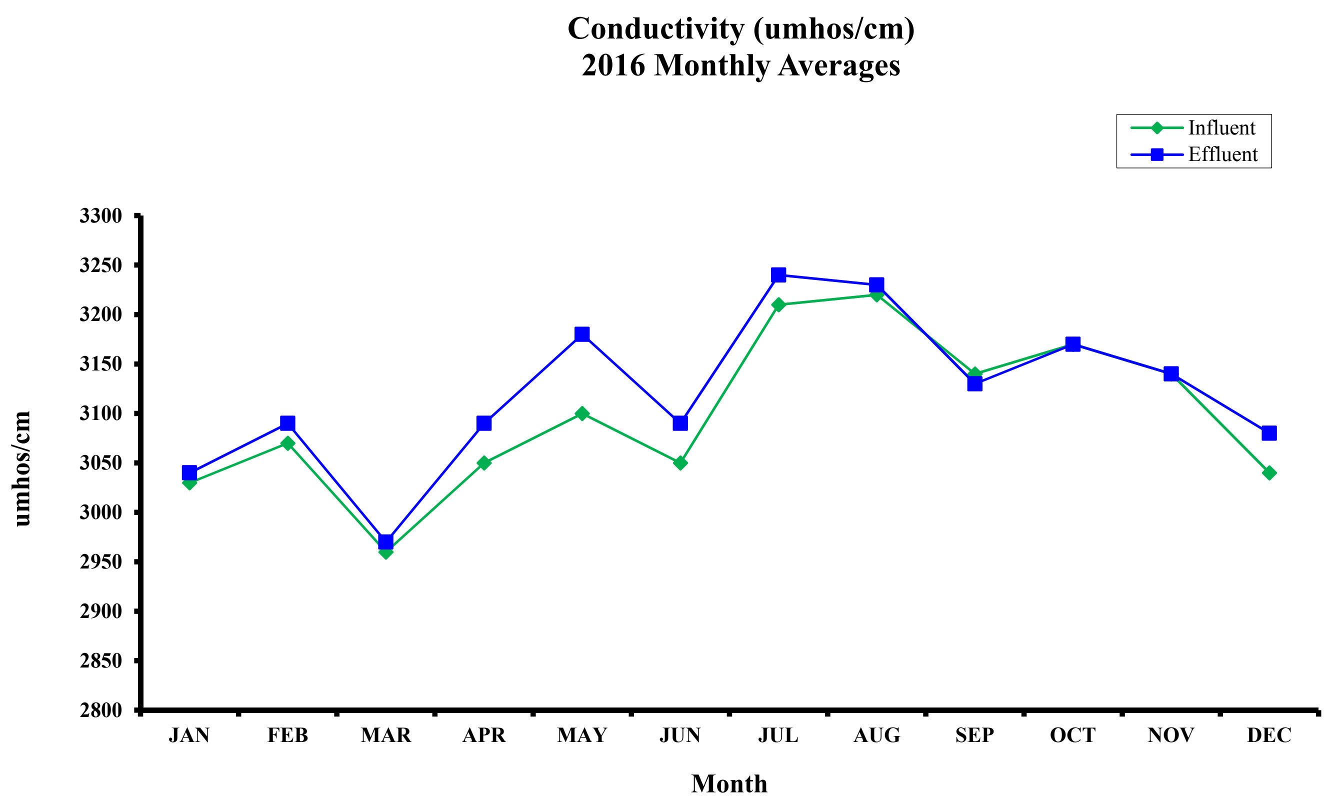
Floatables (mg/L)
2016 Monthly Averages
mg/L
2
1.5
1
0.5
0
JAN
FEB
MAR
APR
MAY
JUN
JUL
AUG
SEP
OCT
NOV
DEC
Month
Influent
Effluent



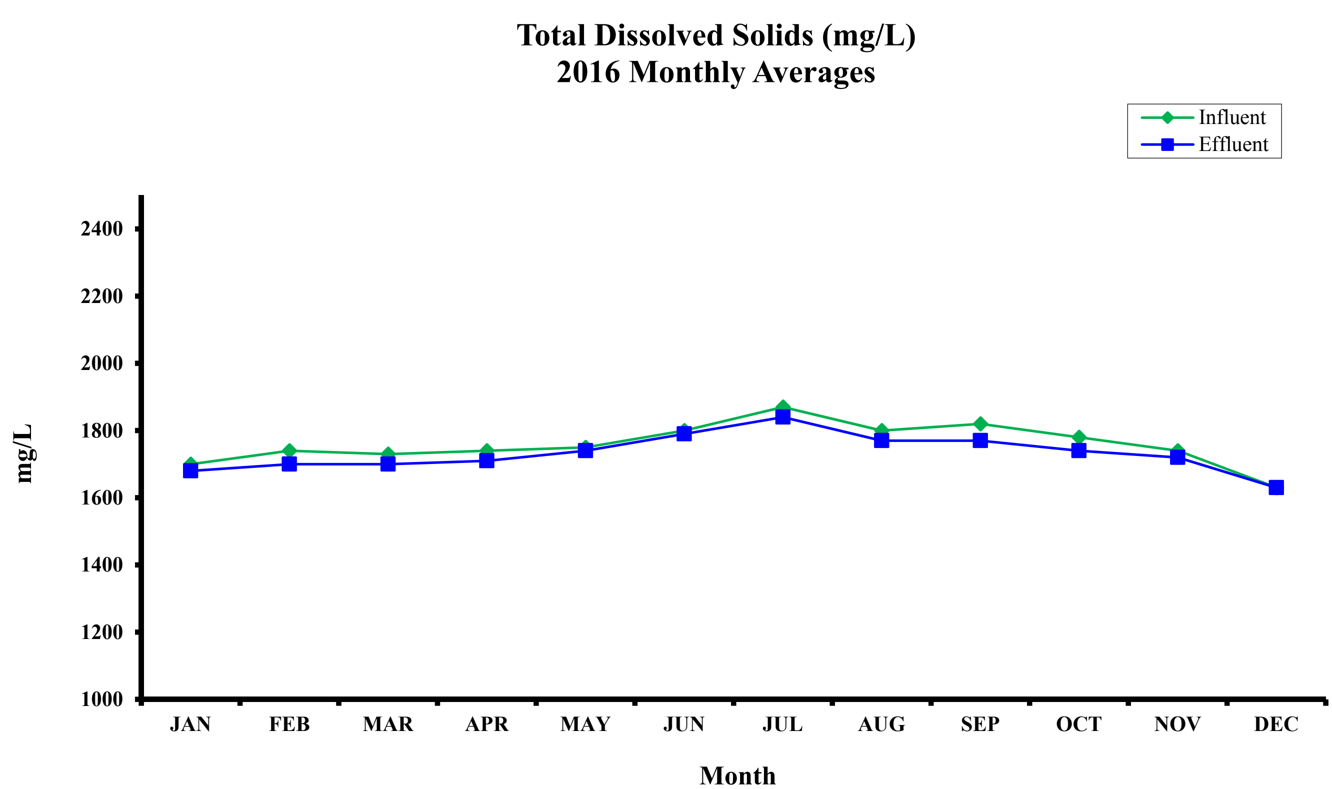
Turbidity (NTU)
2016 Monthly Averages
NTU
200
180
160
140
120
100
80
60
40
20
0
JAN
FEB
MAR
APR
MAY
JUN
JUL
AUG
SEP
OCT
NOV
DEC
Month
Influent
Effluent


pH
2016 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

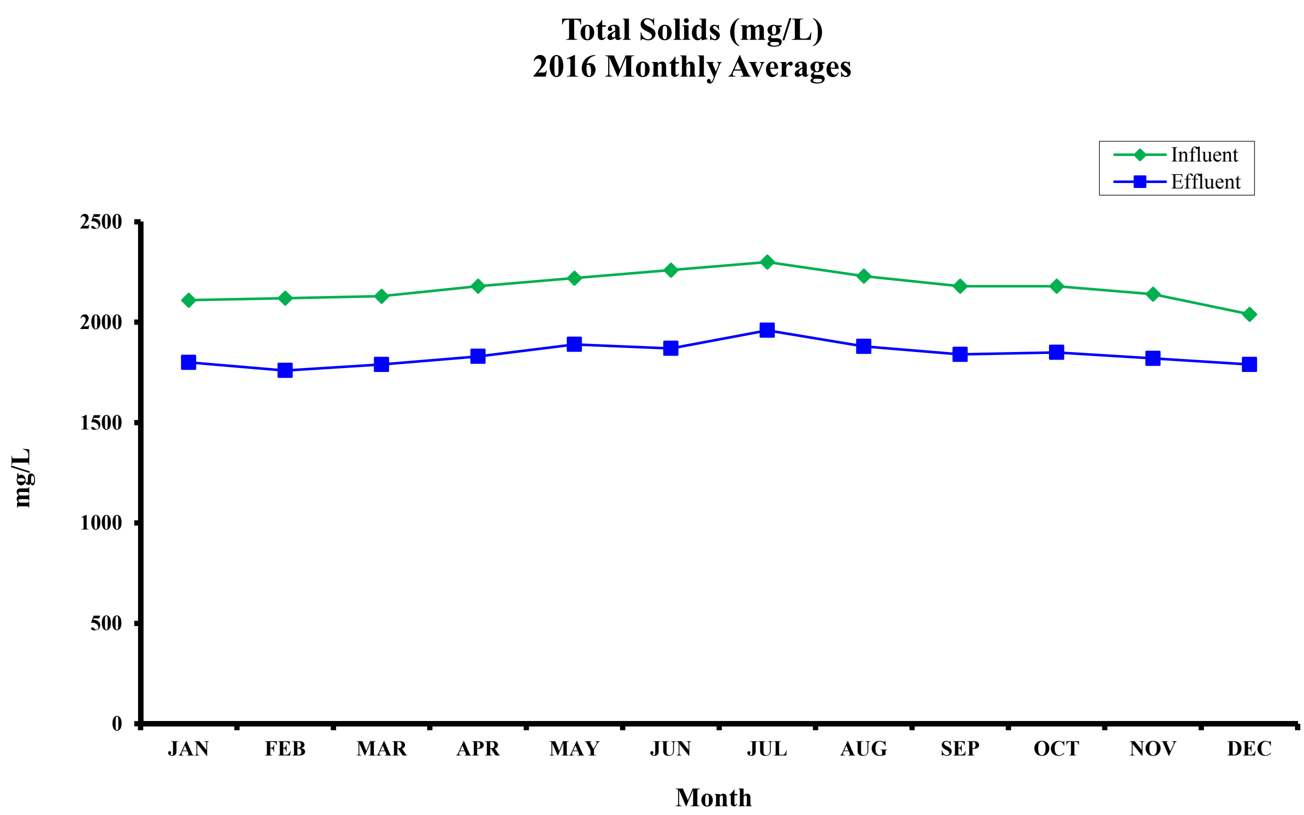

Temperature (°C)
2016 Monthly Averages
Influent
Effluent
°C
31.0
29.0
27.0
25.0
23.0
21.0
19.0
17.0
15.0
JAN
FEB
MAR
APR
MAY
JUN
JUL
AUG
SEP
OCT
NOV
DEC
Month

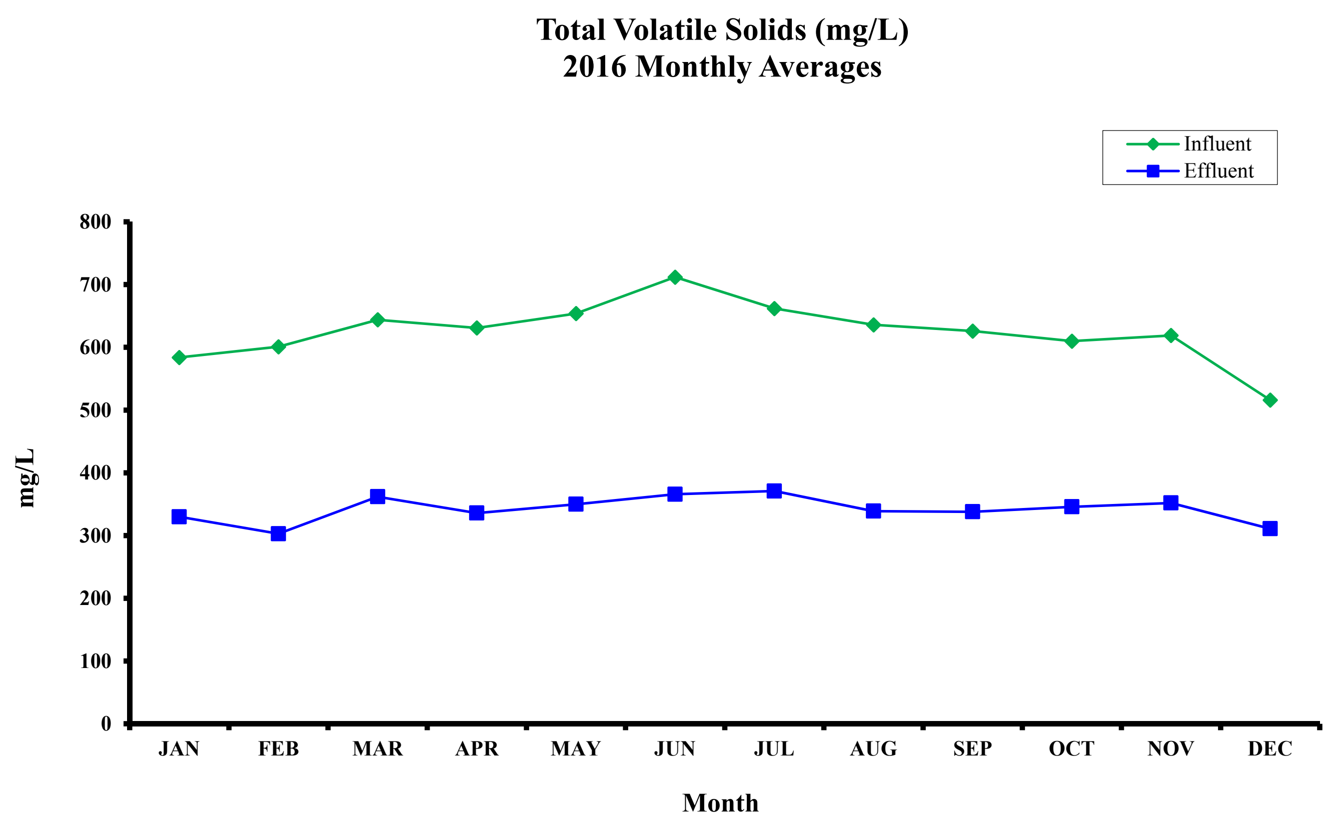


Conductivity (umhos/cm)
2016 Monthly Averages
Influent
Effluent
3300
3250
3200
3150
3100
3050
3000
2950
2900
2850
2800
umhos/cm
JAN
FEB
MAR
APR
MAY
JUN
JUL
AUG
SEP
OCT
NOV
DEC
Month

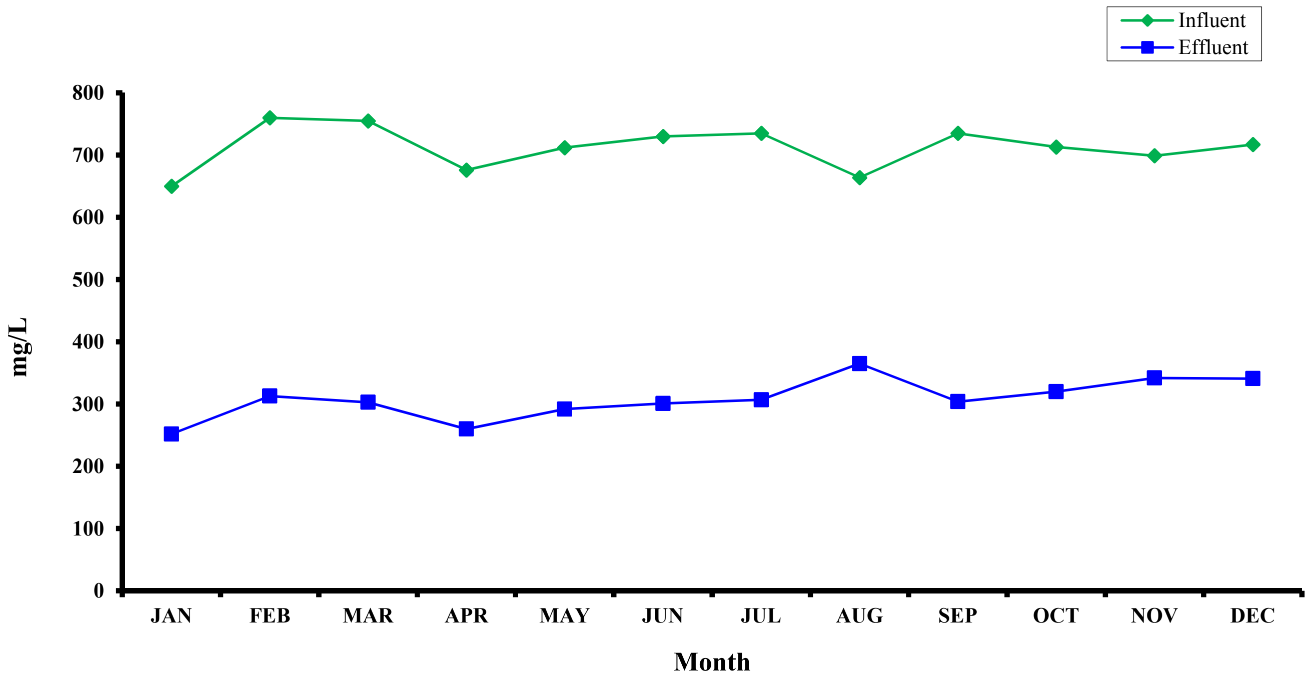


Total Dissolved Solids (mg/L)
2016 Monthly Averages
Influent
Effluent
2400
2200
2000
1800
1600
1400
1200
1000
mg/L
JAN
FEB
MAR
APR
MAY
JUN
JUL
AUG
SEP
OCT
NOV
DEC
Month

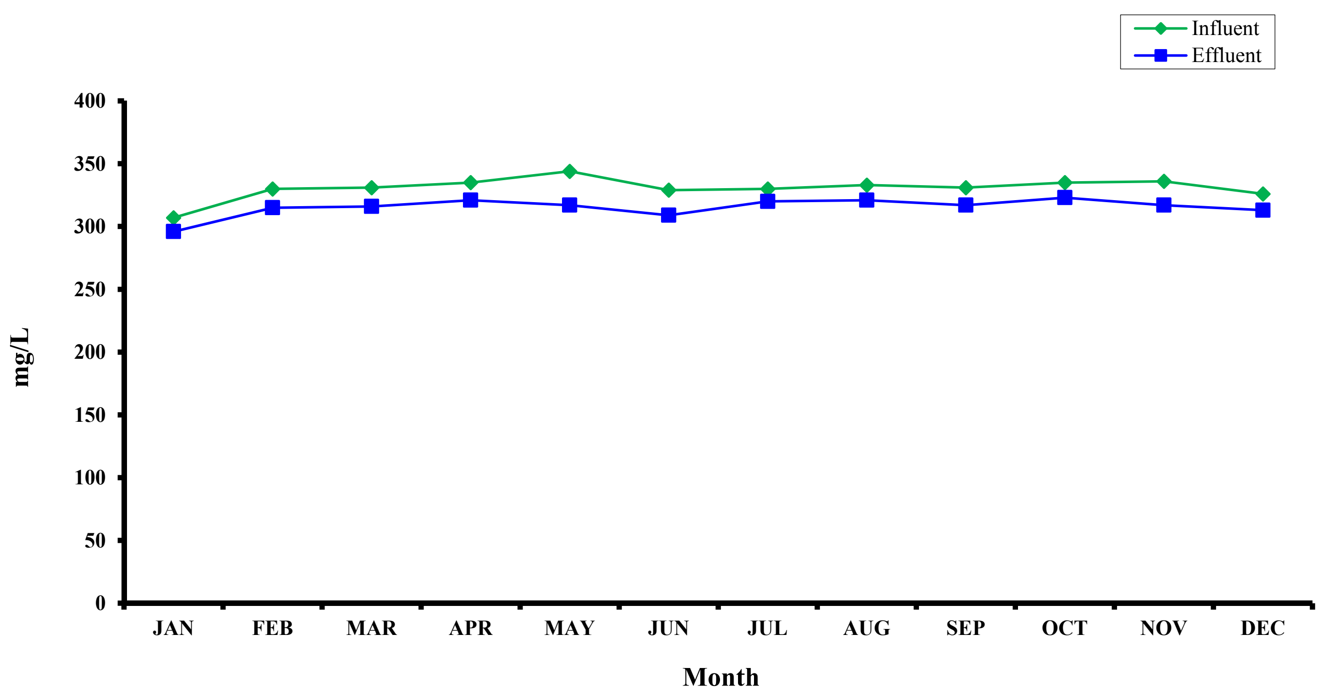

Total Solids (mg/L)
2016 Monthly Averages
Influent
Effluent
2500
2000
1500
1000
500
0
mg/L
JAN
FEB
MAR
APR
MAY
JUN
JUL
AUG
SEP
OCT
NOV
DEC
Month

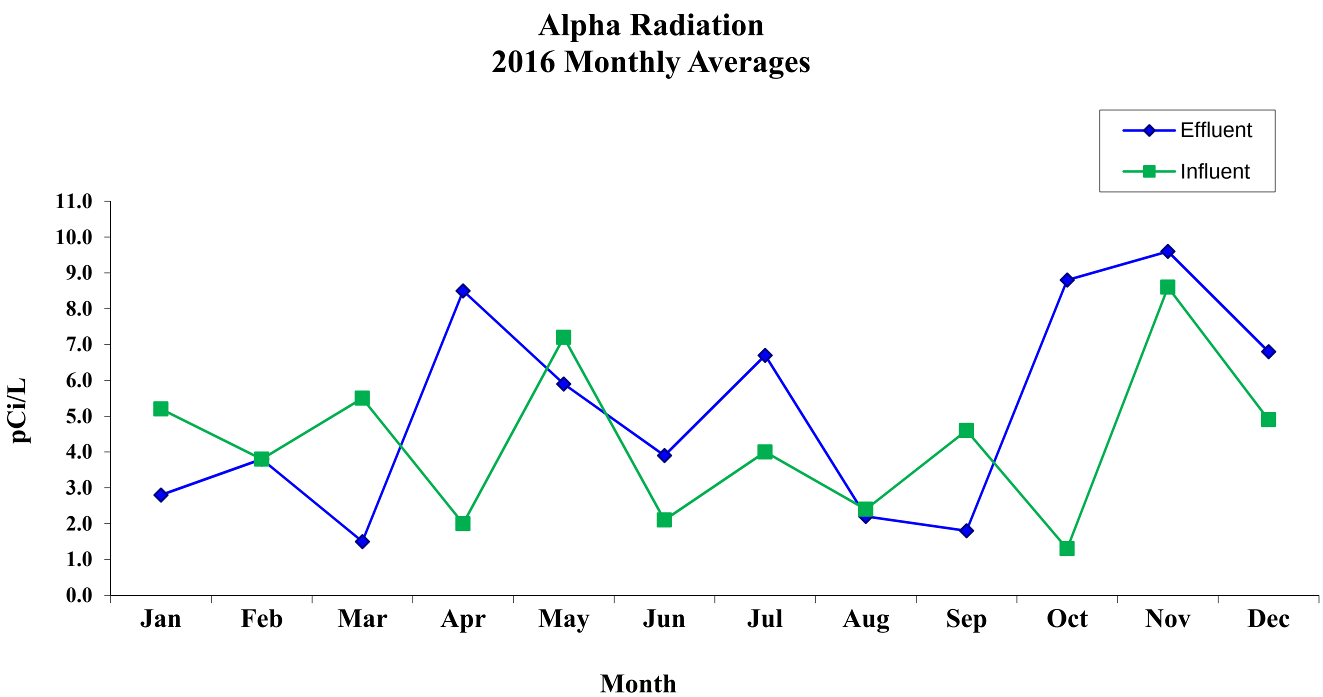

Total Volatile Solids (mg/L)
2016 Monthly Averages
Influent
Effluent
800
700
600
500
400
300
200
100
0
mg/L
JAN
FEB
MAR
APR
MAY
JUN
JUL
AUG
SEP
OCT
NOV
DEC
Month

Chemical Oxygen Demand (mg/L)
2016 Monthly Averages

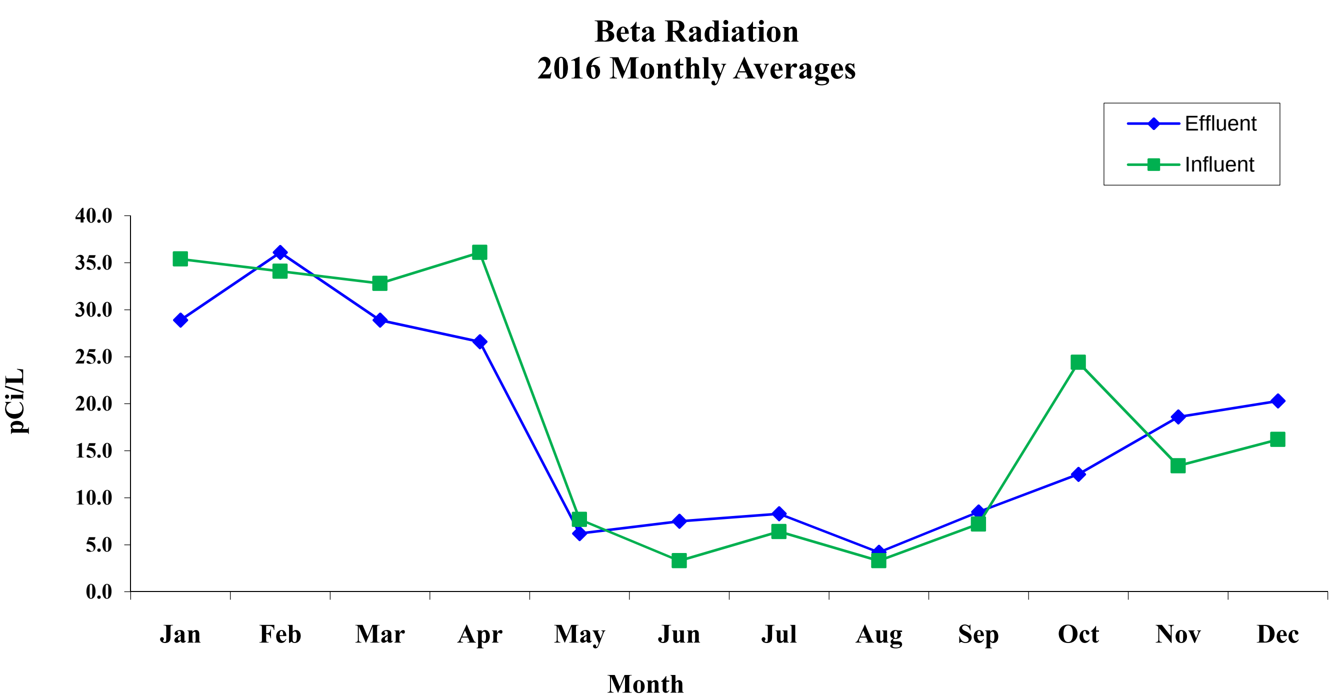


Alkalinity (mg/L)
2016 Monthly Averages

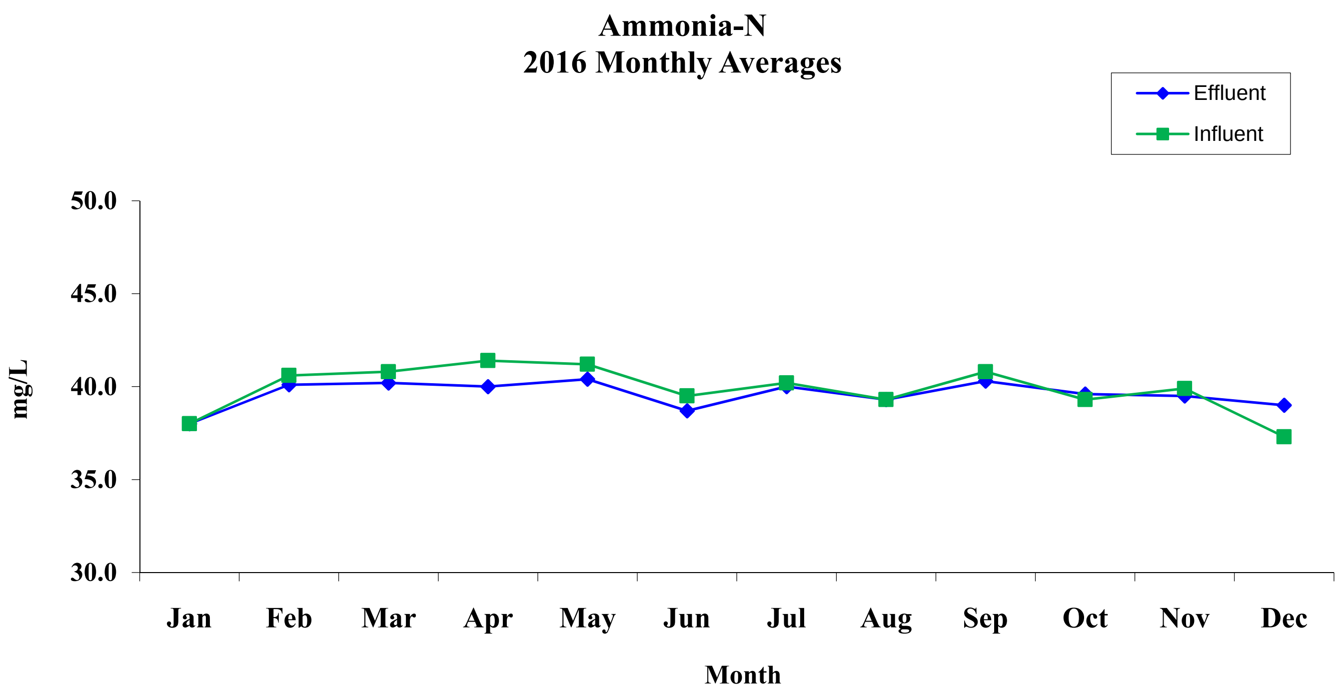


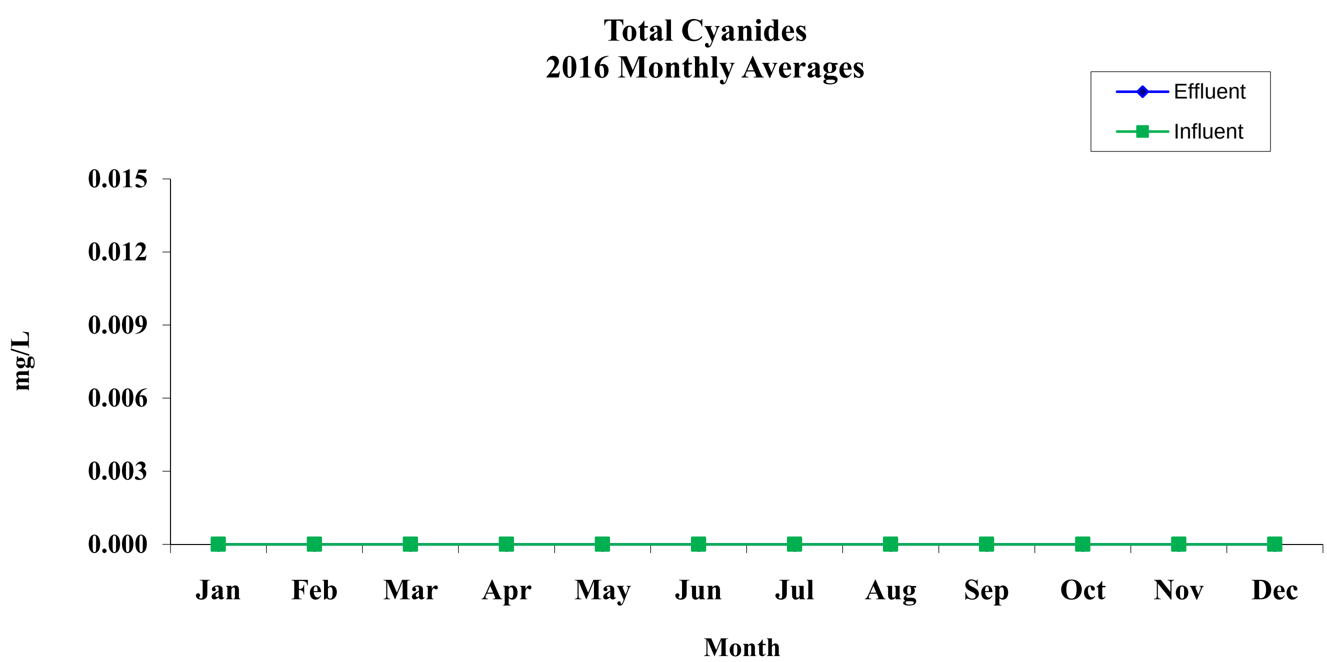


Alpha Radiation
2016 Monthly Averages
Effluent
Influent
pCi/L
11.0
10.0
9.0
8.0
7.0
6.0
5.0
4.0
3.0
2.0
1.0
0.0
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Month

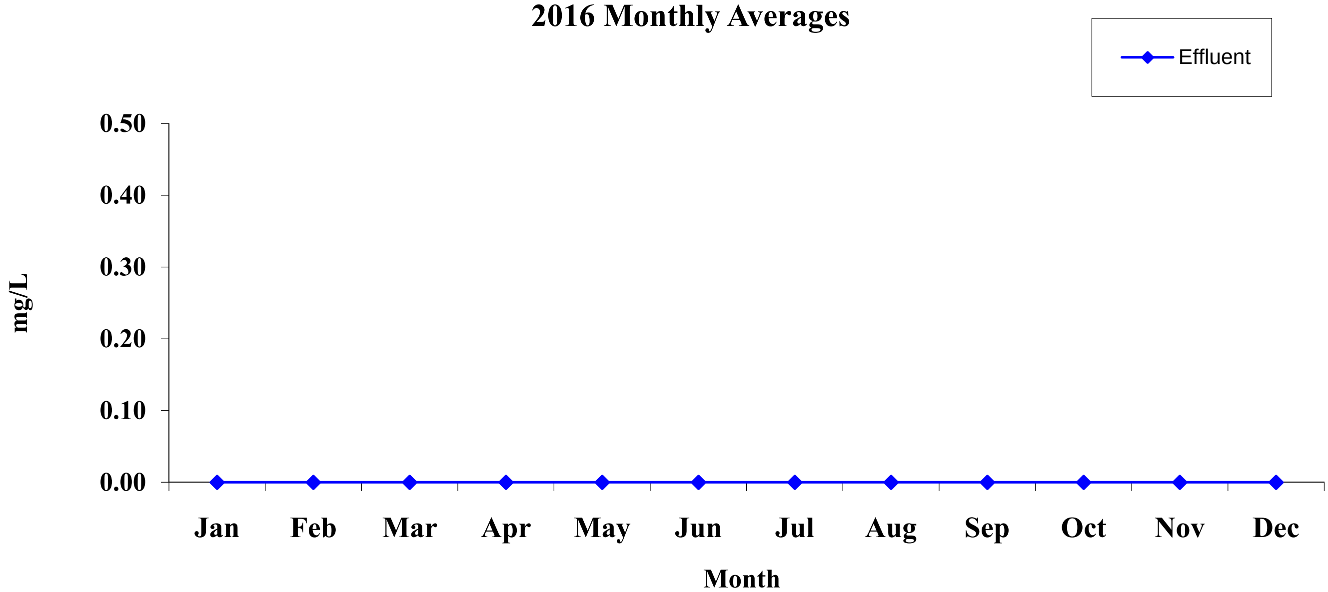


Beta Radiation
2016 Monthly Averages
Effluent
Influent
pCi/L
40.0
35.0
30.0
25.0
20.0
15.0
10.0
5.0
0.0
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Month

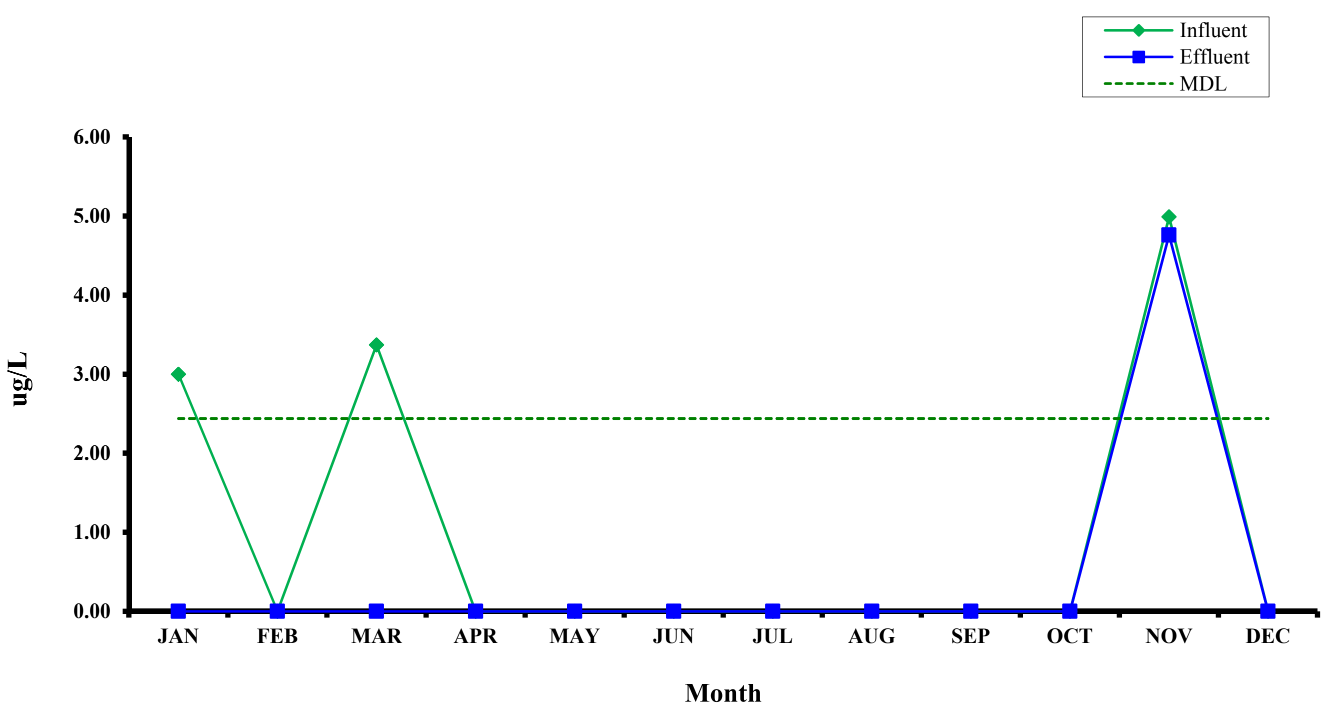

Ammonia-N
2016 Monthly Averages
Effluent
Influent
50.0
45.0
40.0
35.0
30.0
mg/L
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Month

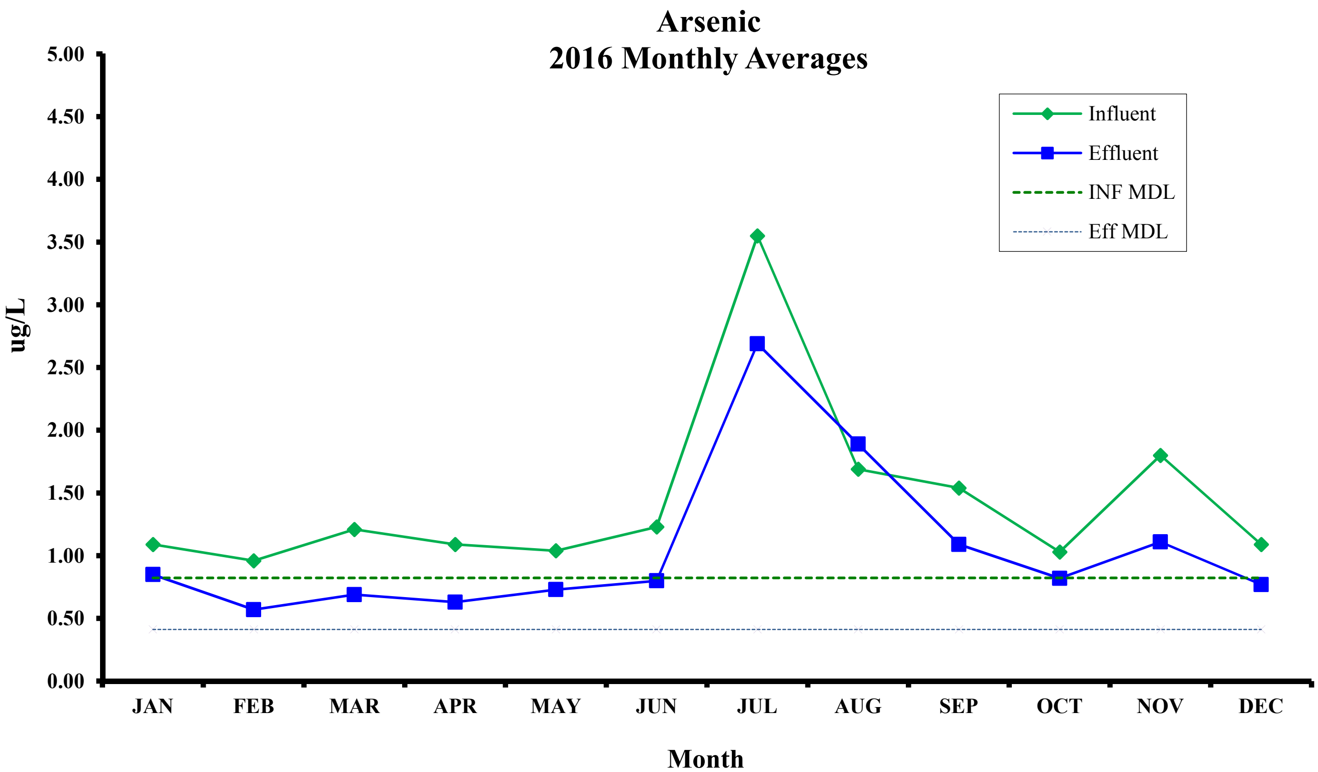

Total Cyanides
2016 Monthly Averages
Effluent
Influent
0.015
0.012
0.009
0.006
0.003
0.000
mg/L
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Month

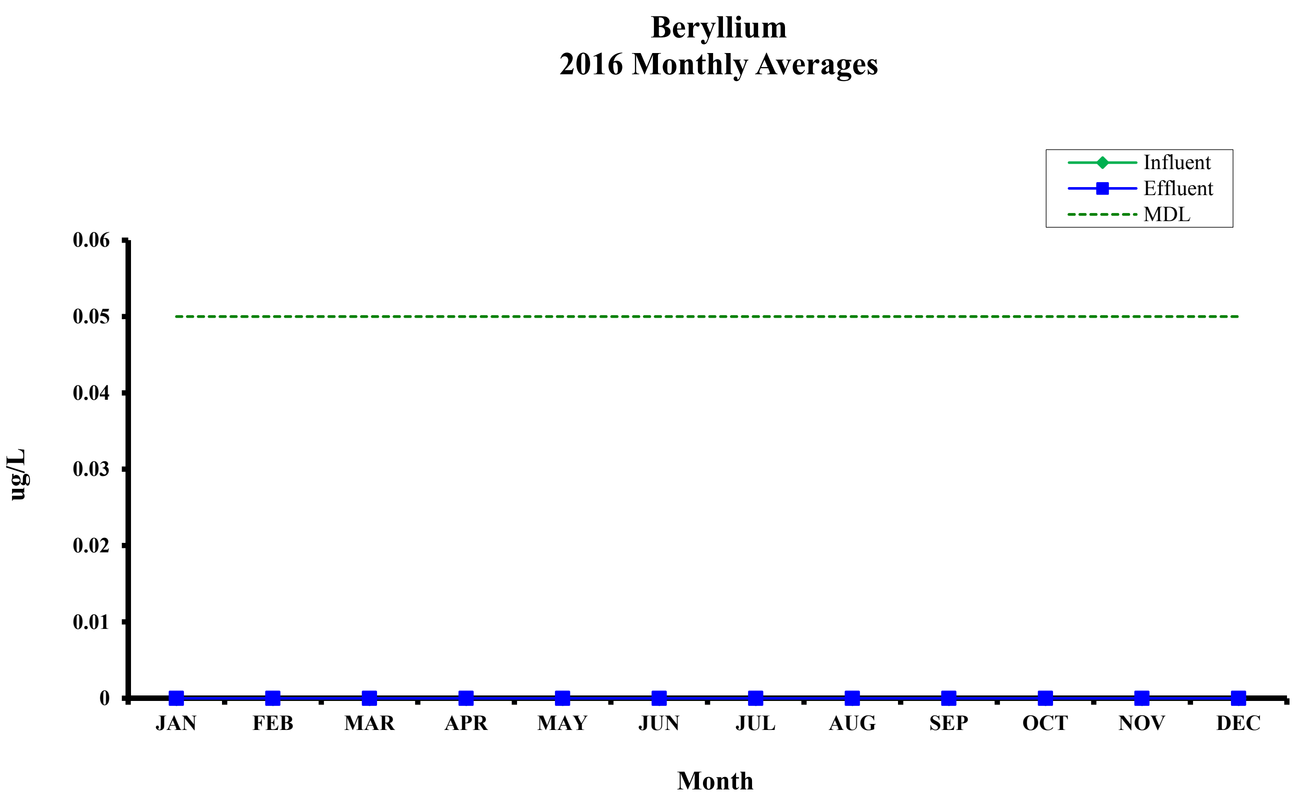
Total Residual Chlorine
2016 Monthly Averages

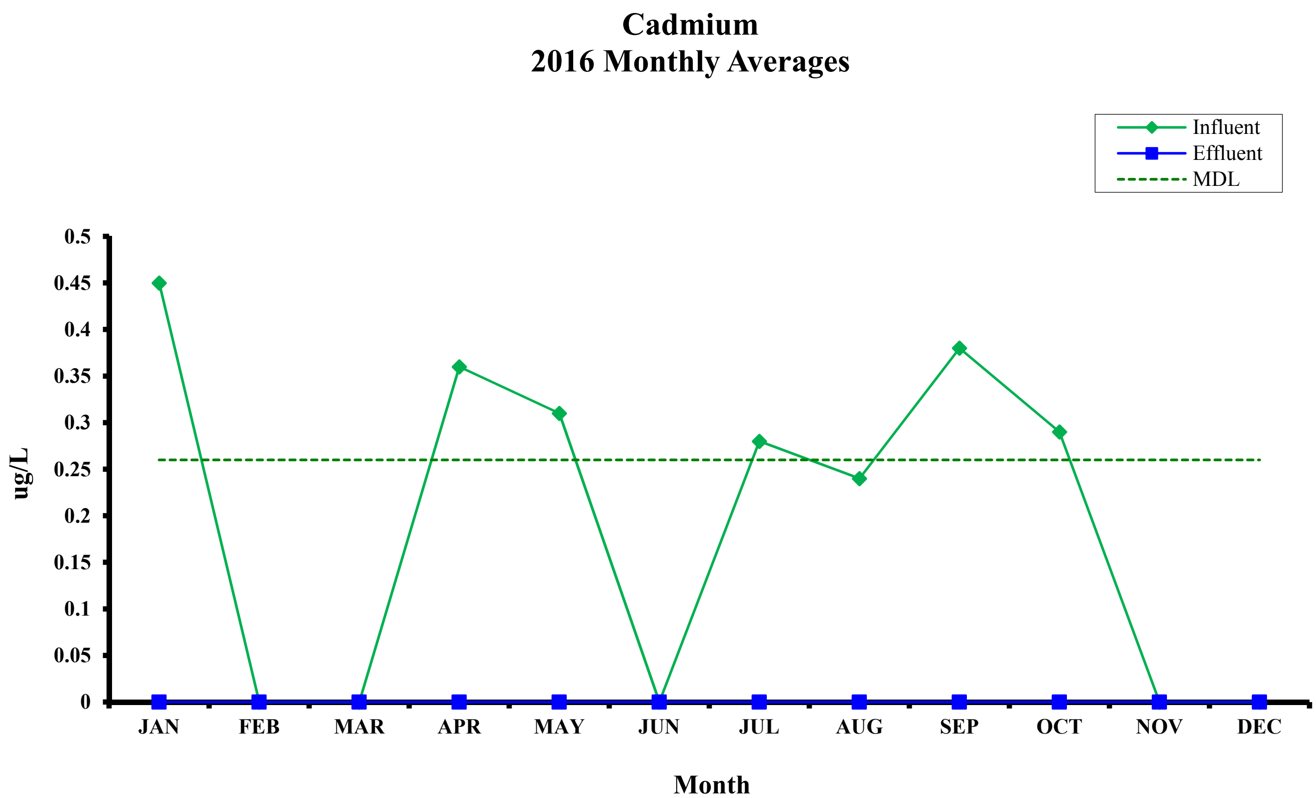


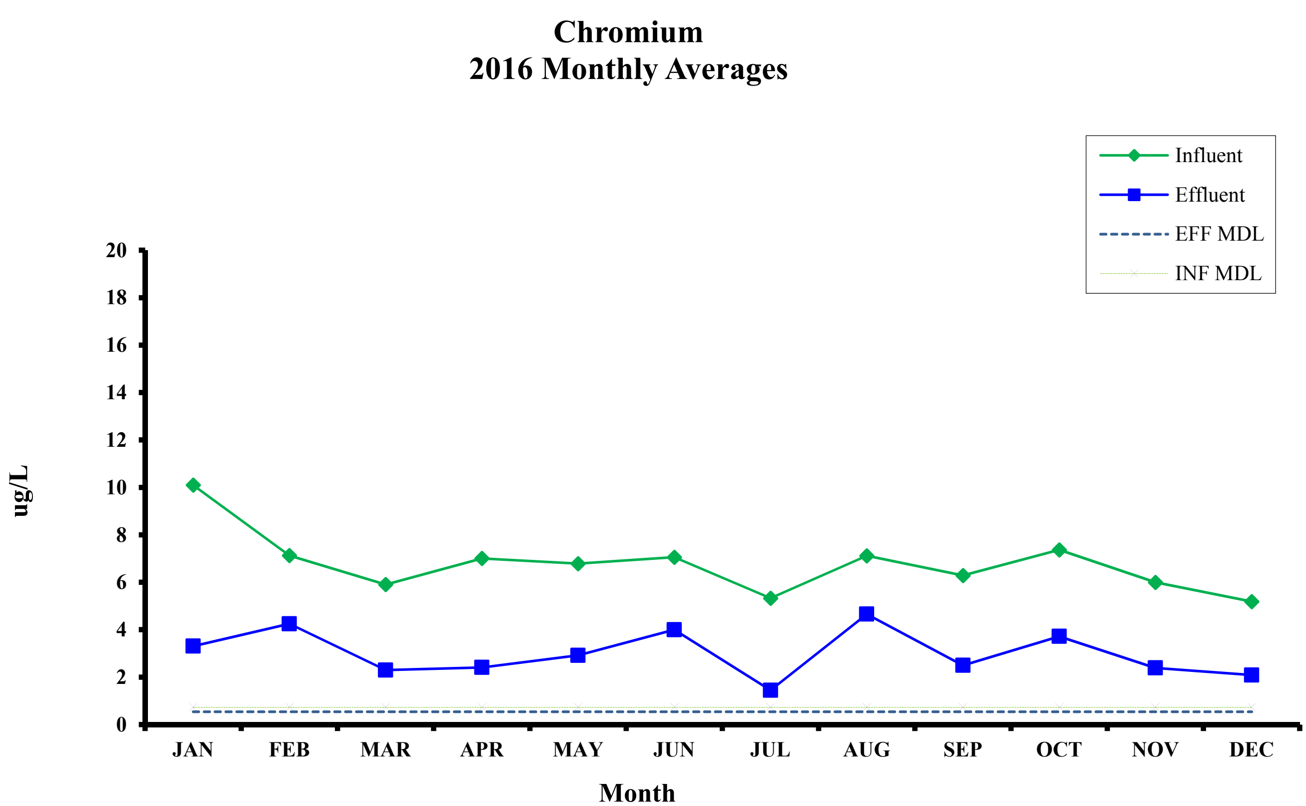
Antimony
2016 Monthly Averages

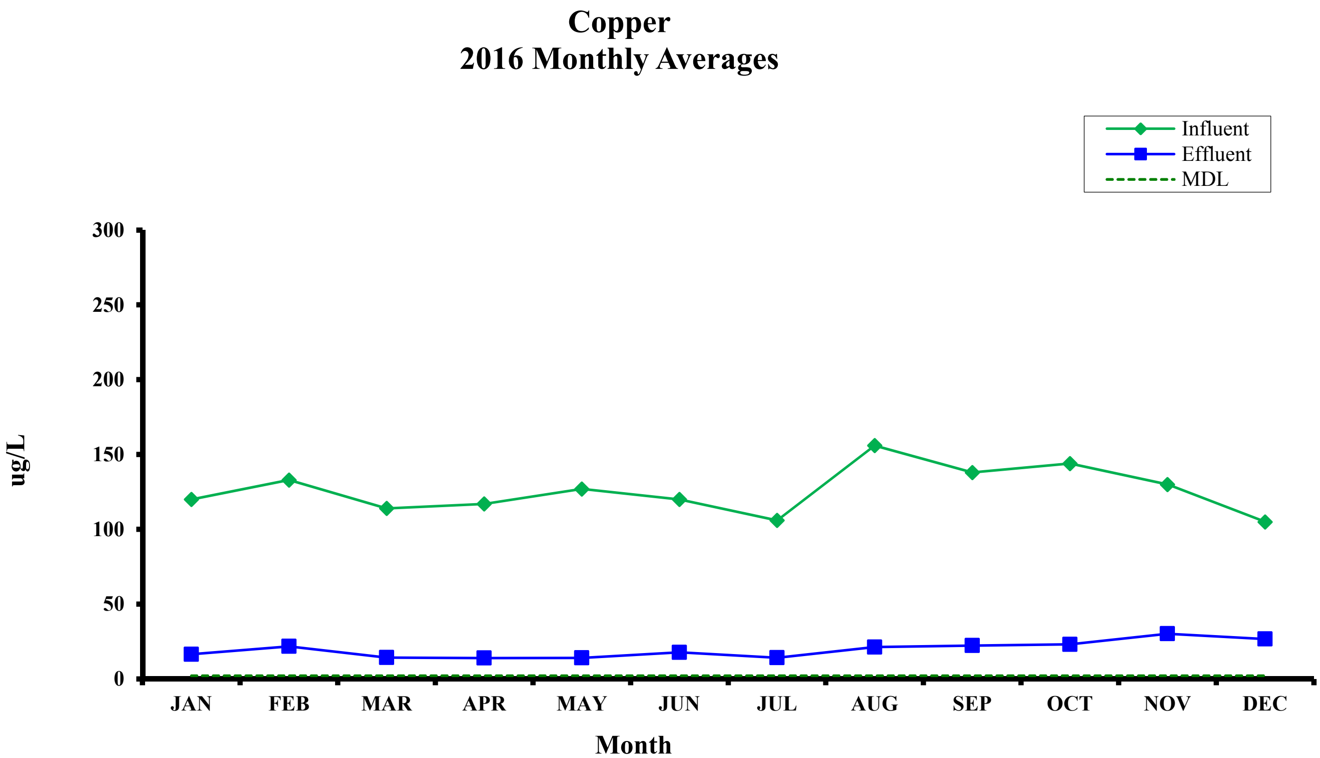


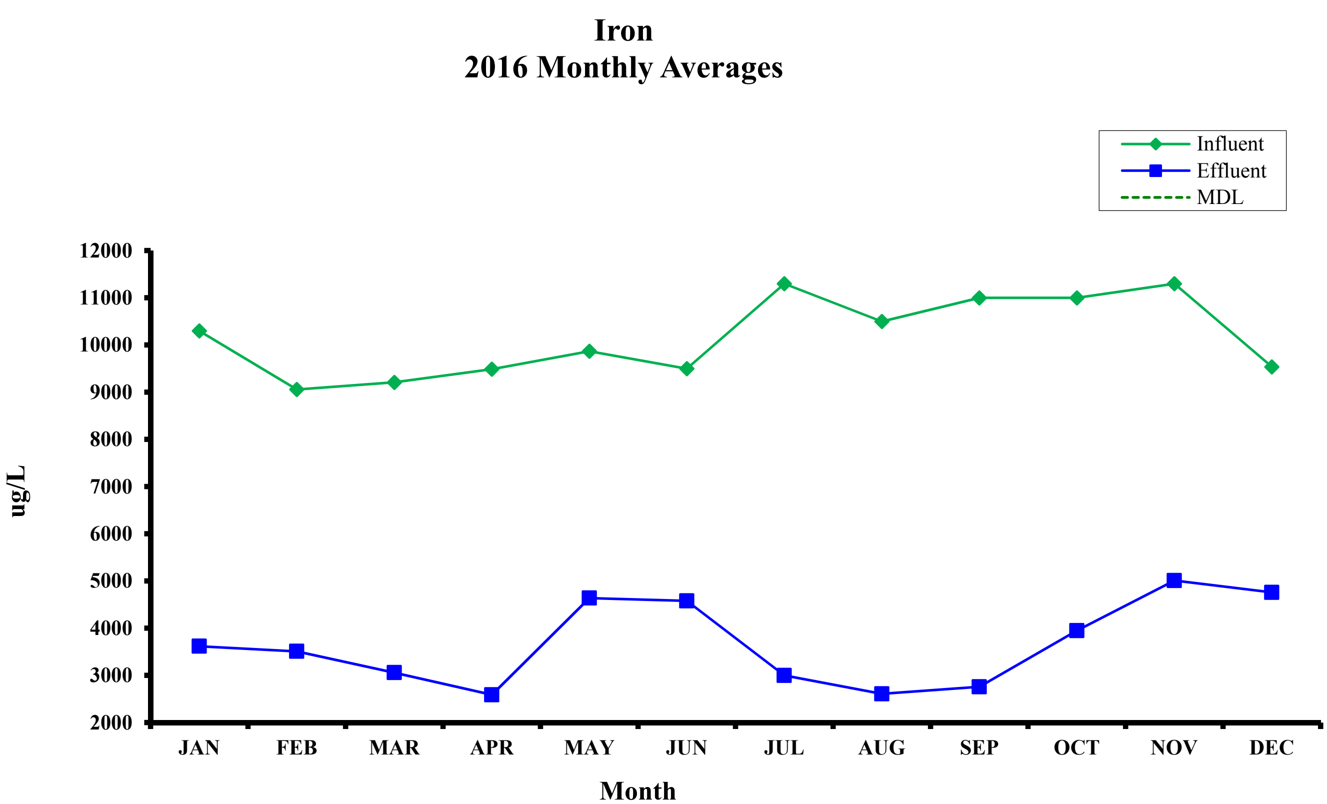

Arsenic
2016 Monthly Averages
Influent
Effluent
INF MDL
Eff MDL
ug/L
5.00
4.50
4.00
3.50
3.00
2.50
2.00
1.50
1.00
0.50
0.00
JAN
FEB
MAR
APR
MAY
JUN
JUL
AUG
SEP
OCT
NOV
DEC
Month

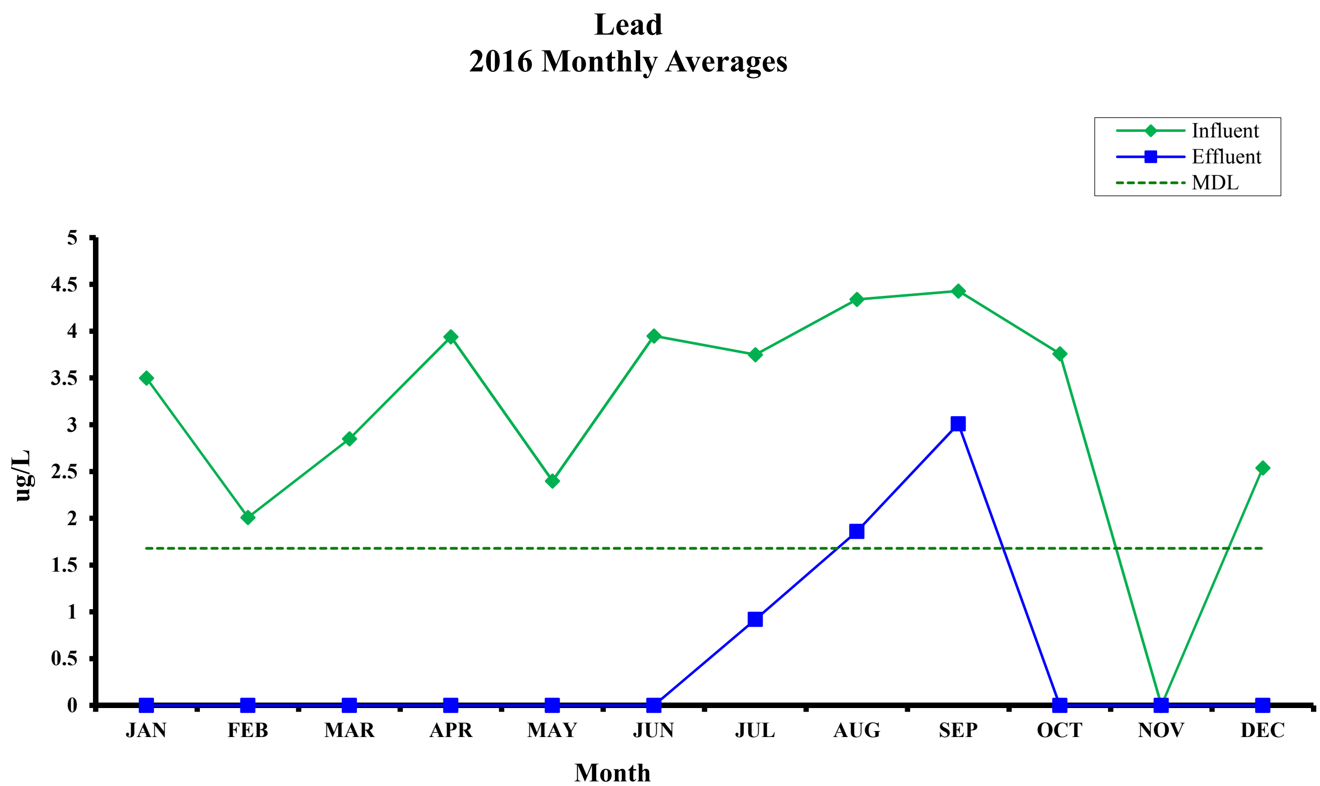

Beryllium
2016 Monthly Averages
Influent
Effluent
MDL
ug/L
0.06
0.05
0.04
0.03
0.02
0.01
0
JAN
FEB
MAR
APR
MAY
JUN
JUL
AUG
SEP
OCT
NOV
DEC
Month

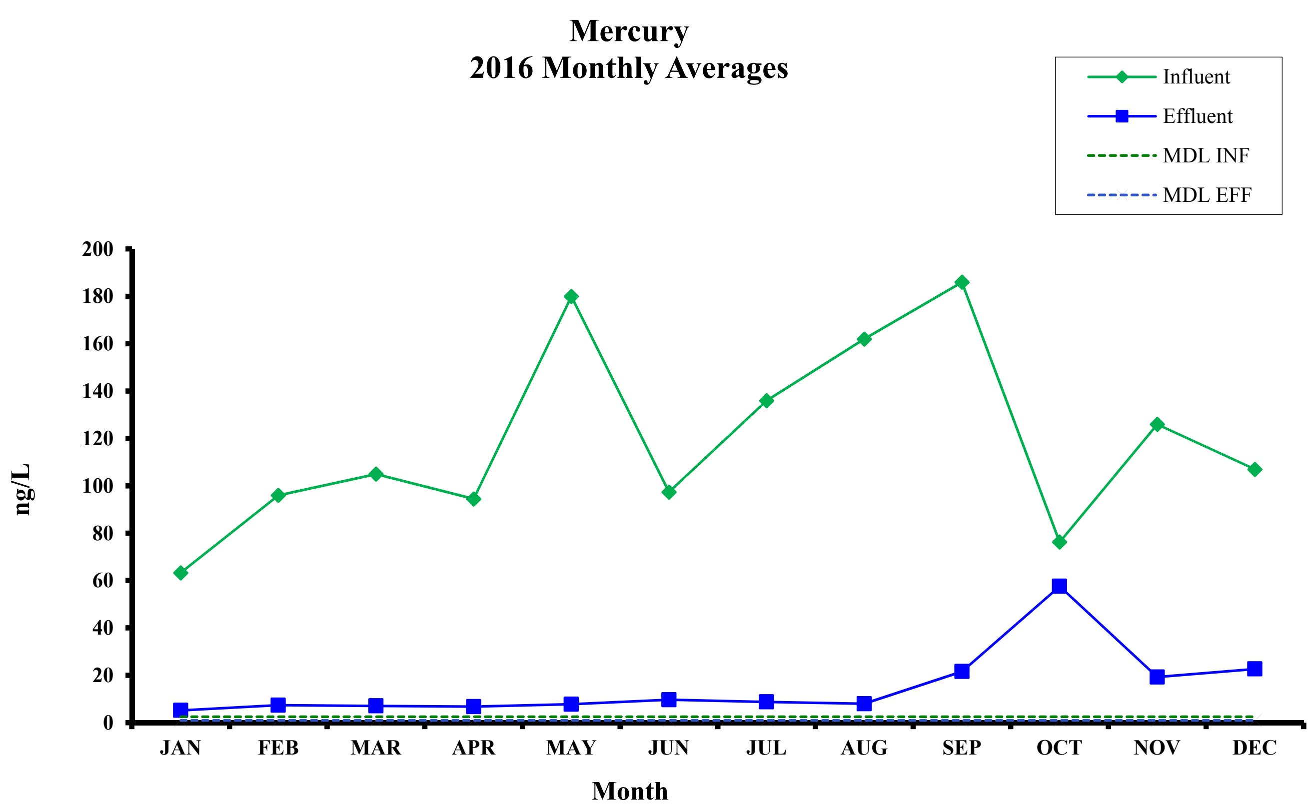

Cadmium
2016 Monthly Averages
Influent
Effluent
MDL
0.5
0.45
0.4
0.35
0.3
0.25
0.2
0.15
0.1
0.05
0
ug/L
JAN
FEB
MAR
APR
MAY
JUN
JUL
AUG
SEP
OCT
NOV
DEC
Month


Chromium
2016 Monthly Averages
Influent
Effluent
EFF MDL
INF MDL
20
18
16
14
12
10
8
6
4
2
0
ug/L
JAN
FEB
MAR
APR
MAY
JUN
JUL
AUG
SEP
OCT
NOV
DEC
Month

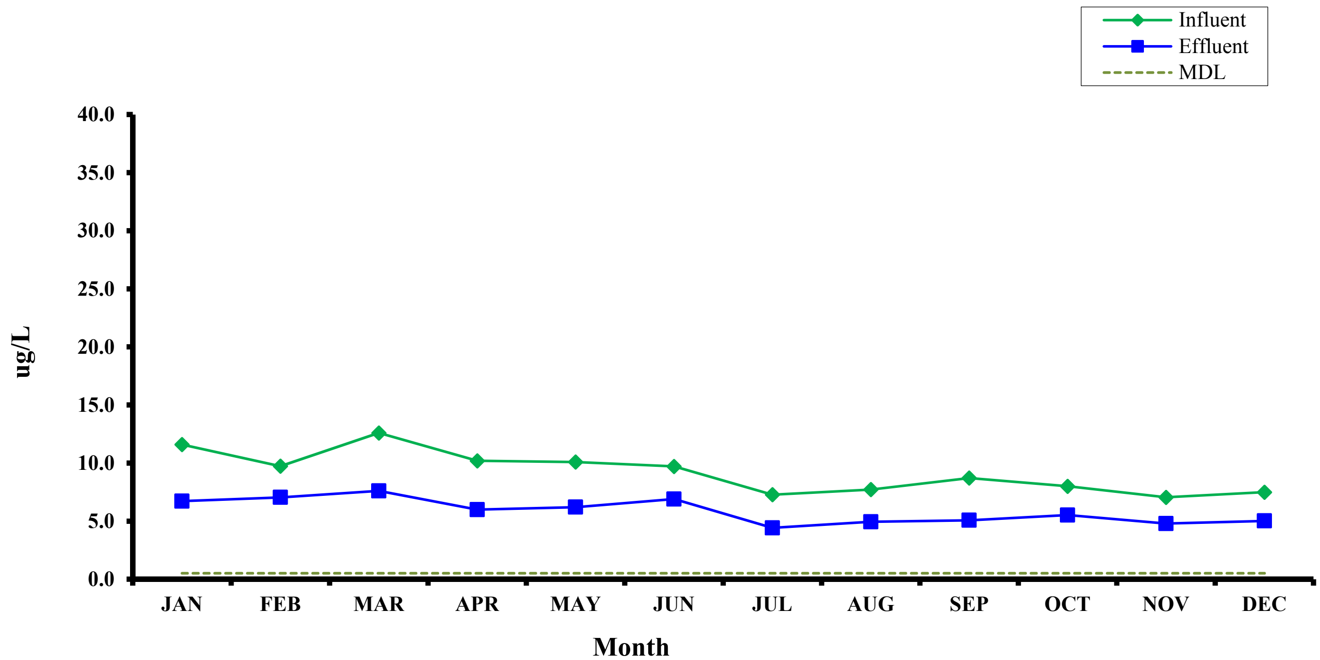

Copper
2016 Monthly Averages
Influent
Effluent
MDL
300
250
200
150
100
50
0
ug/L
JAN
FEB
MAR
APR
MAY
JUN
JUL
AUG
SEP
OCT
NOV
DEC
Month


Iron
2016 Monthly Averages
Influent
Effluent
MDL
12000
11000
10000
9000
8000
7000
6000
5000
4000
3000
2000
ug/L
JAN
FEB
MAR
APR
MAY
JUN
JUL
AUG
SEP
OCT
NOV
DEC
Month

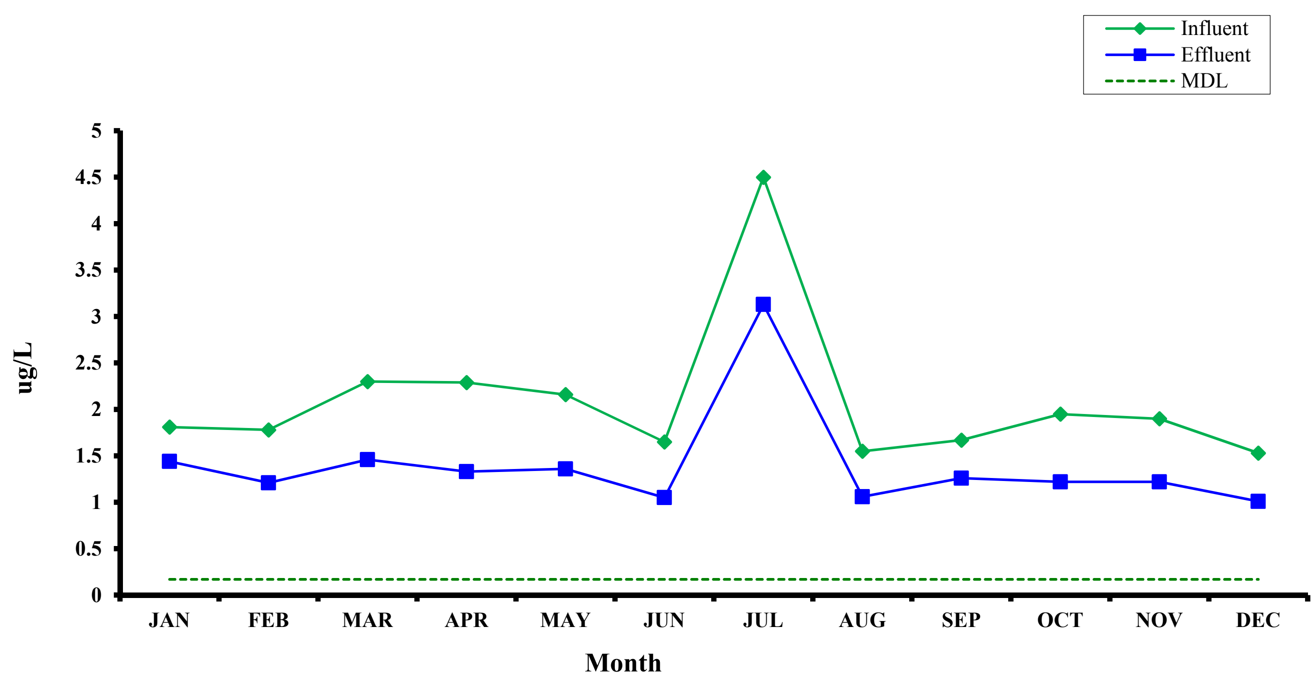

Lead
2016 Monthly Averages
Influent
Effluent
MDL
ug/L
5
4.5
4
3.5
3
2.5
2
1.5
1
0.5
0
JAN
FEB
MAR
APR
MAY
JUN
JUL
AUG
SEP
OCT
NOV
DEC
Month


Mercury
2016 Monthly Averages
Influent
Effluent
MDL INF
MDL EFF
ng/L
200
180
160
140
120
100
80
60
40
20
0
JAN
FEB
MAR
APR
MAY
JUN
JUL
AUG
SEP
OCT
NOV
DEC
Month

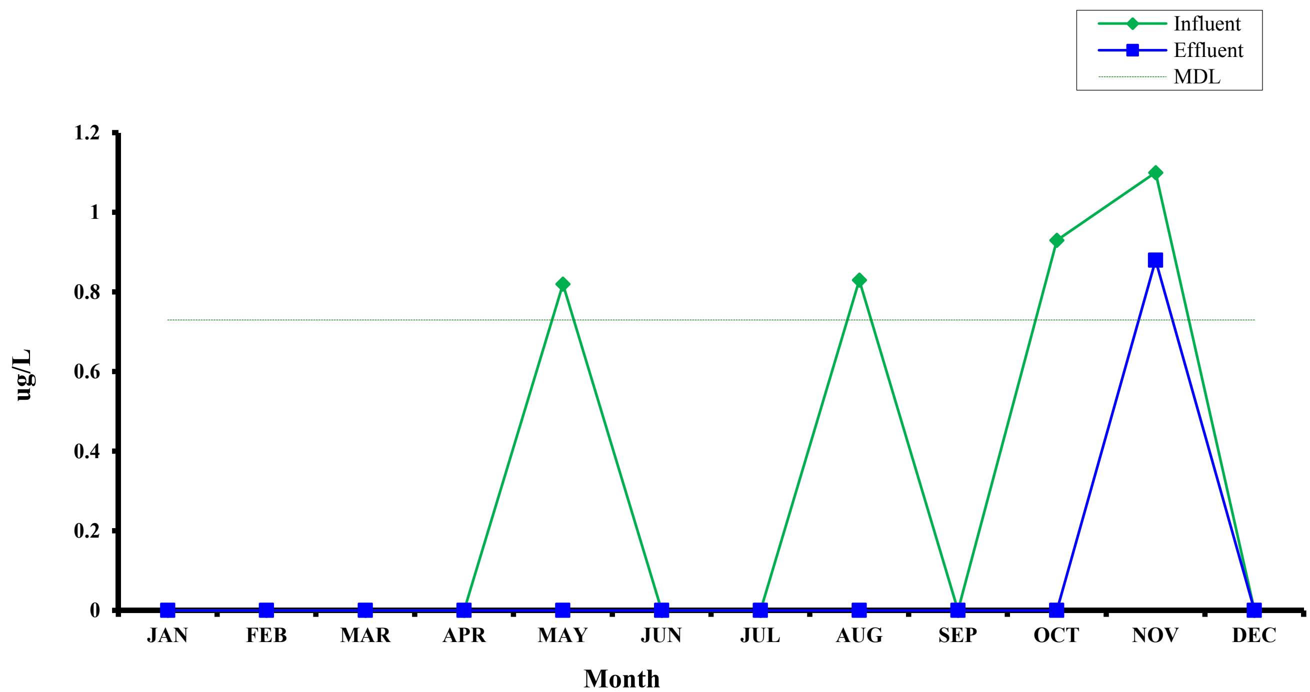
Nickel
2016 Monthly Averages



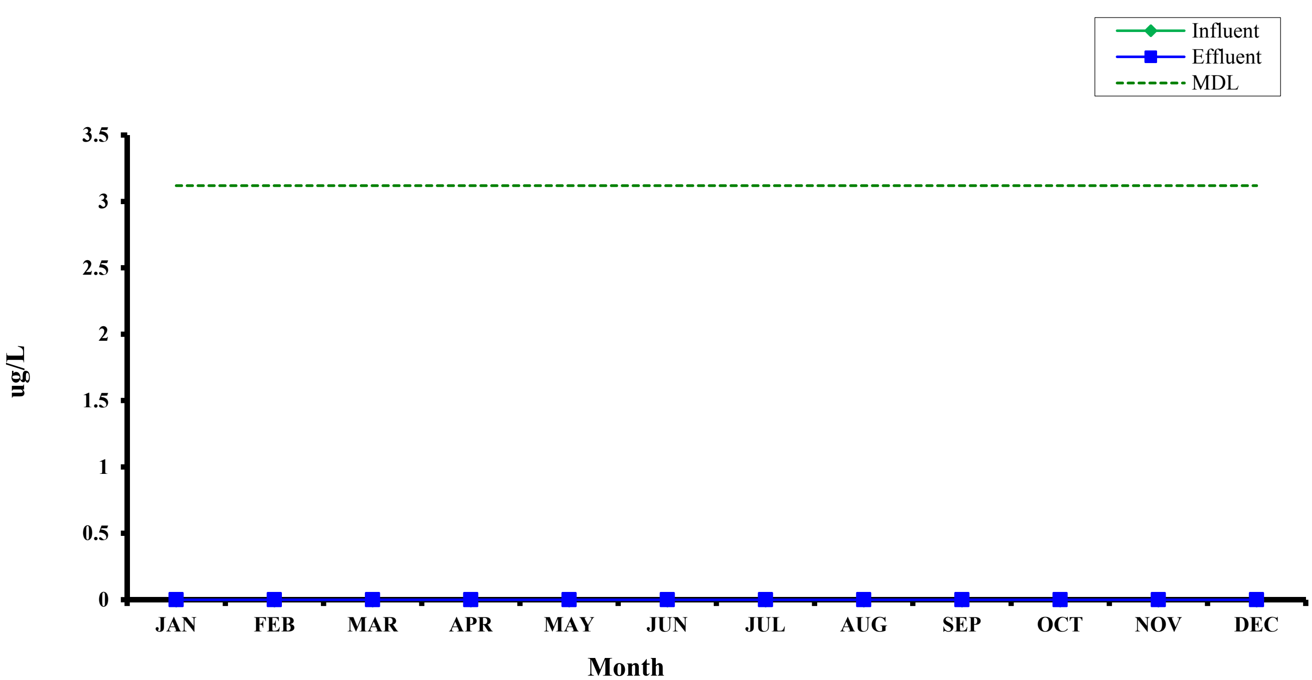
Selenium
2016 Monthly Averages

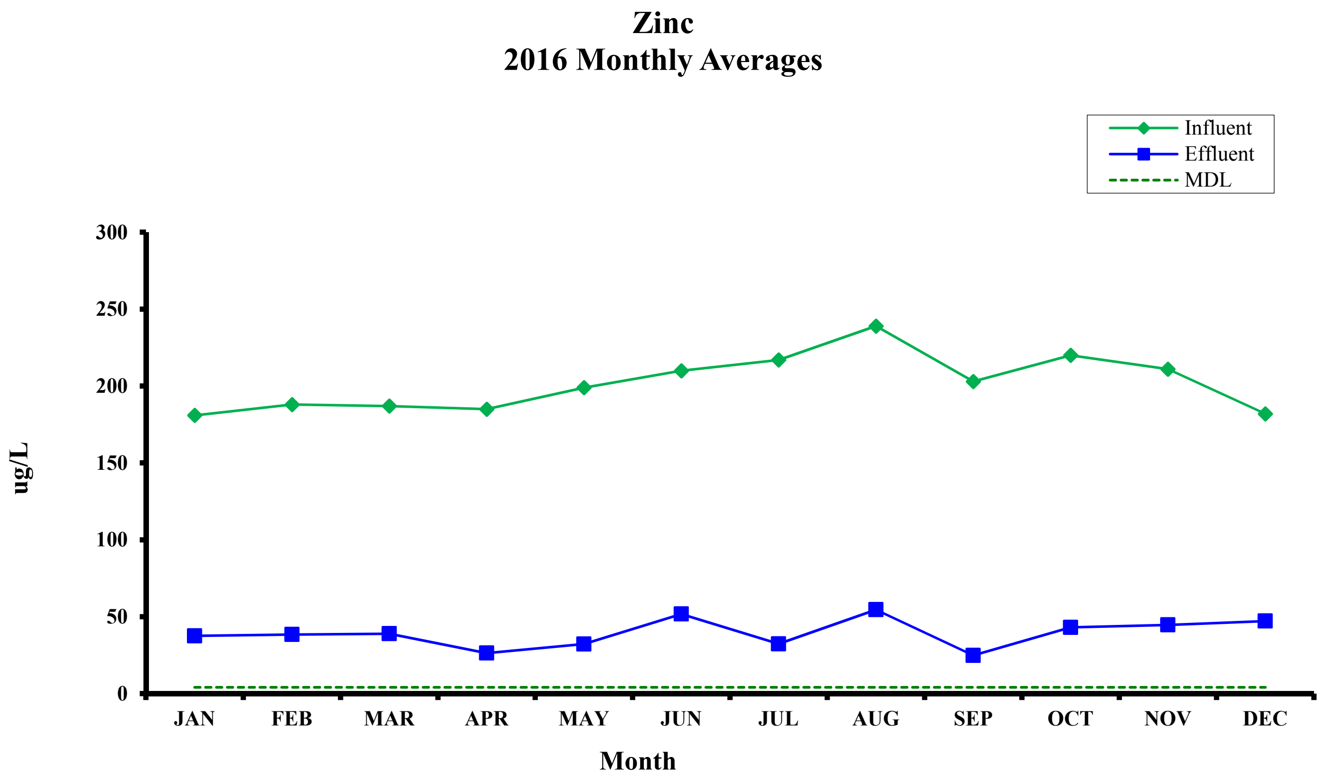


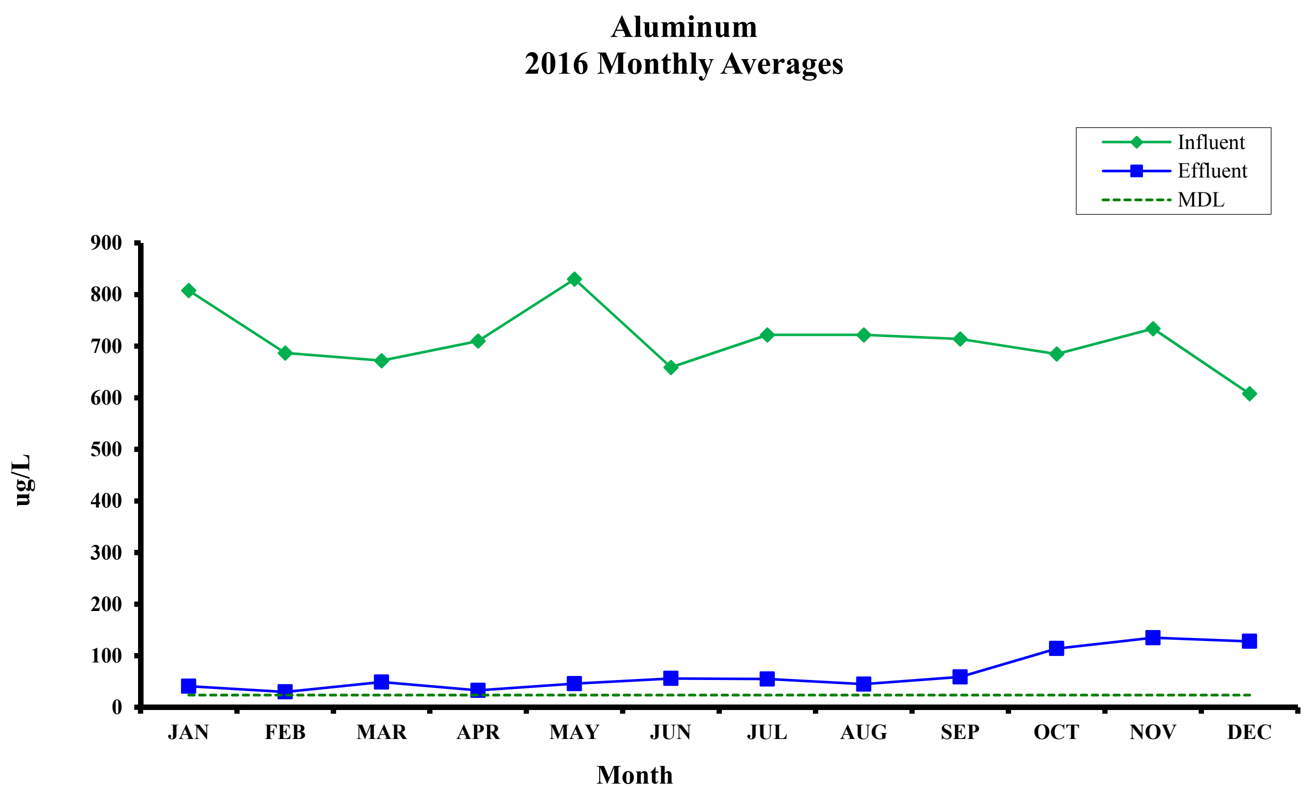
Silver
2016 Monthly Averages



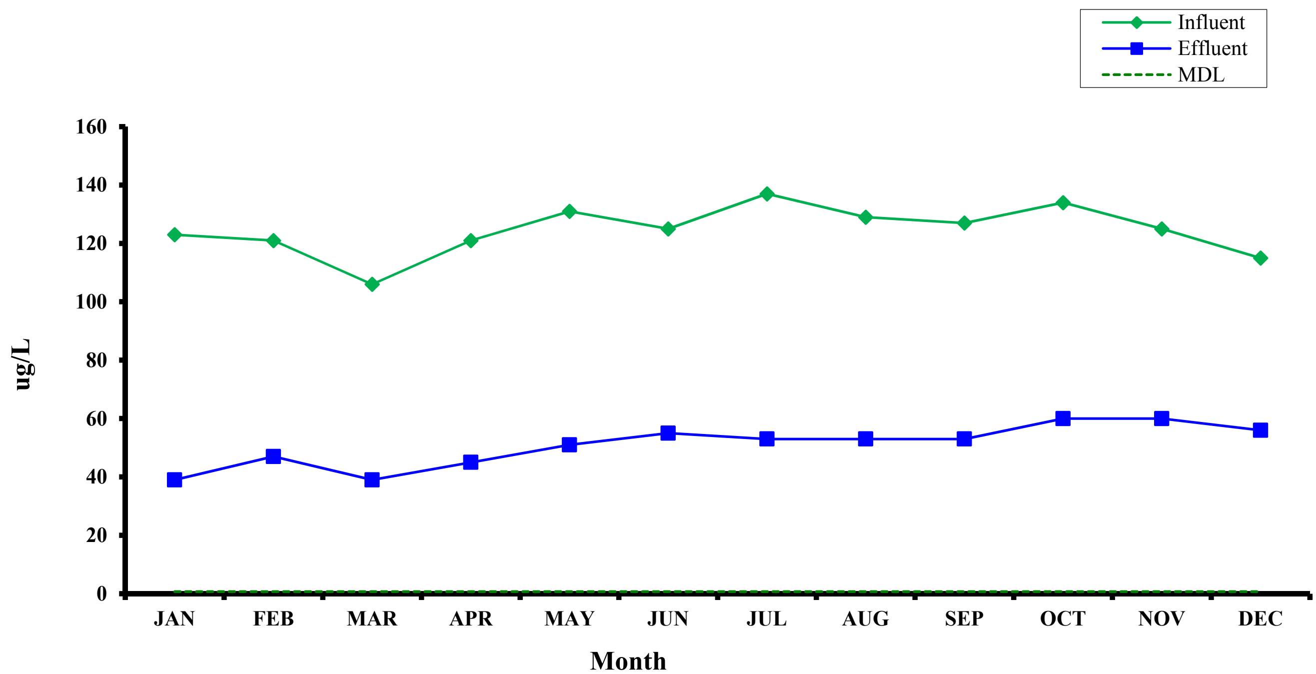
Thallium
2016 Monthly Averages



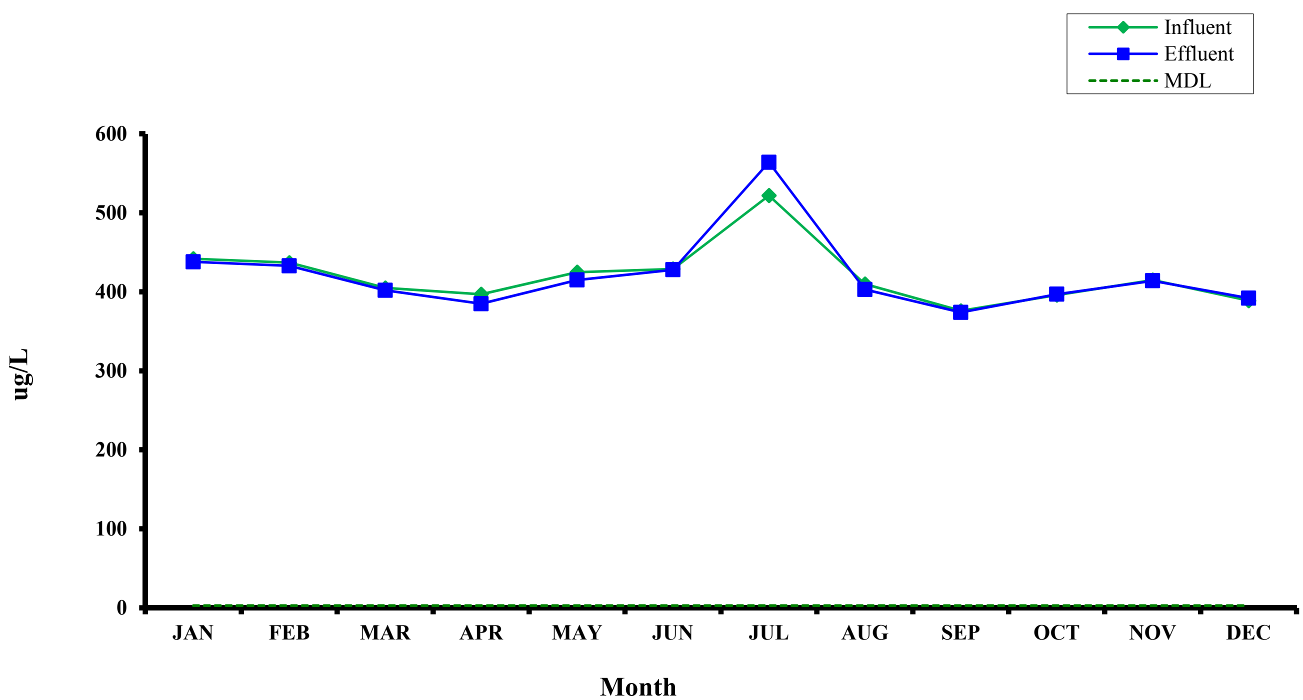

Zinc
2016 Monthly Averages
Influent
Effluent
MDL
300
250
200
150
100
50
0
ug/L
JAN
FEB
MAR
APR
MAY
JUN
JUL
AUG
SEP
OCT
NOV
DEC
Month


Aluminum
2016 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

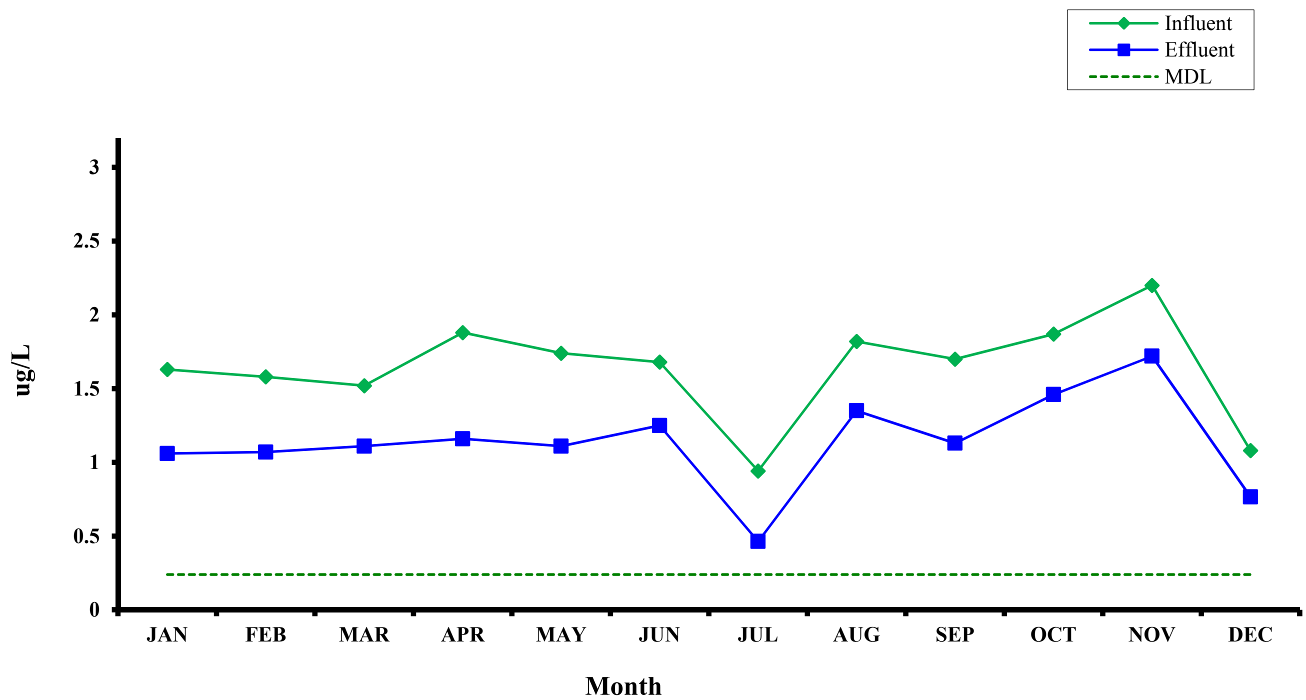
Barium
2016 Monthly Averages



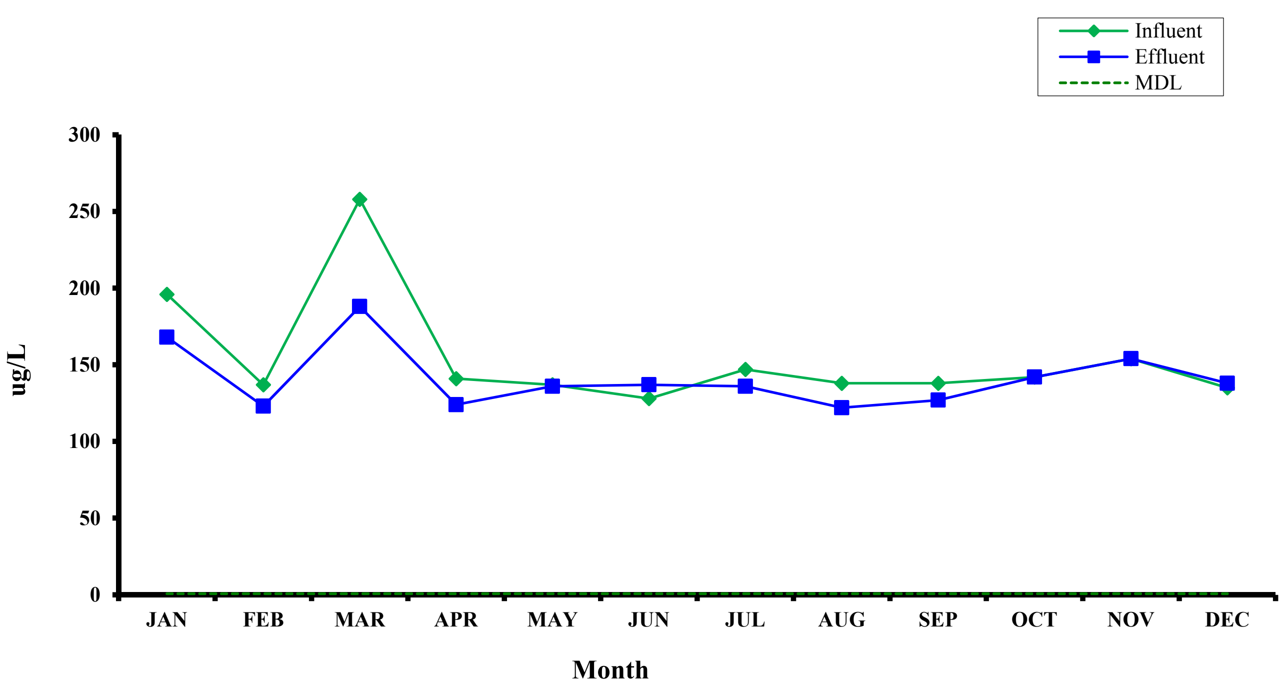
Boron
2016 Monthly Averages



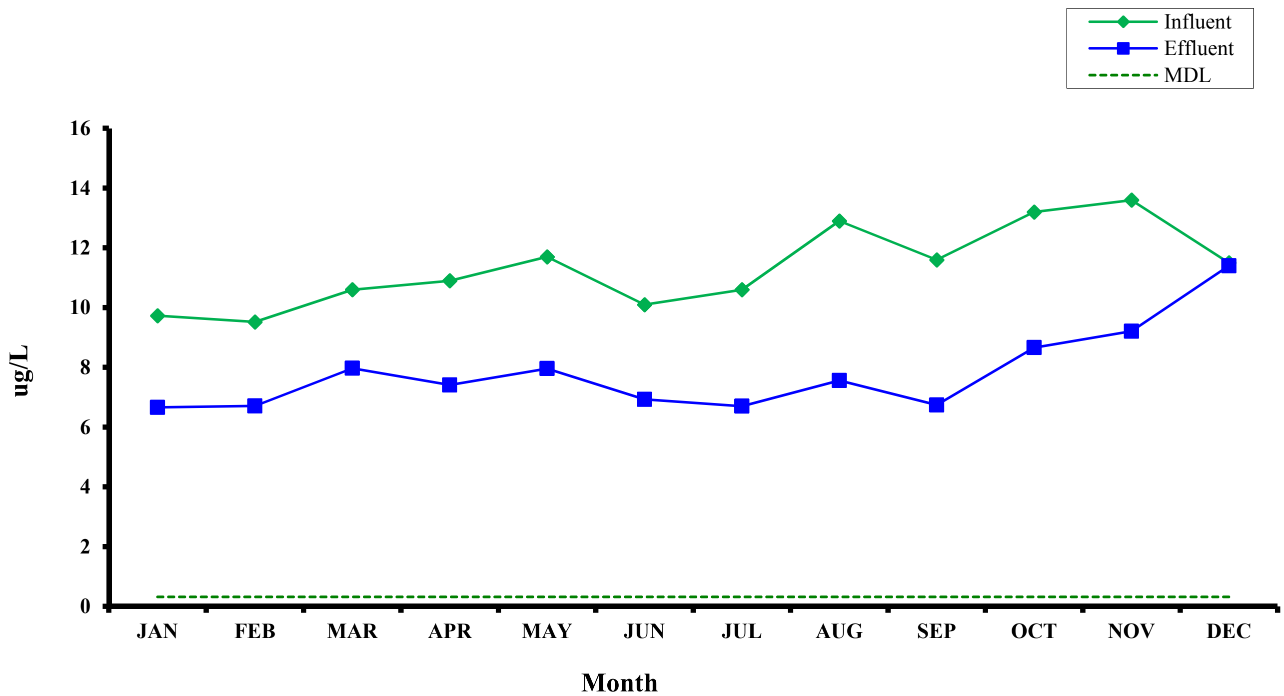
Cobalt
2016 Monthly Averages



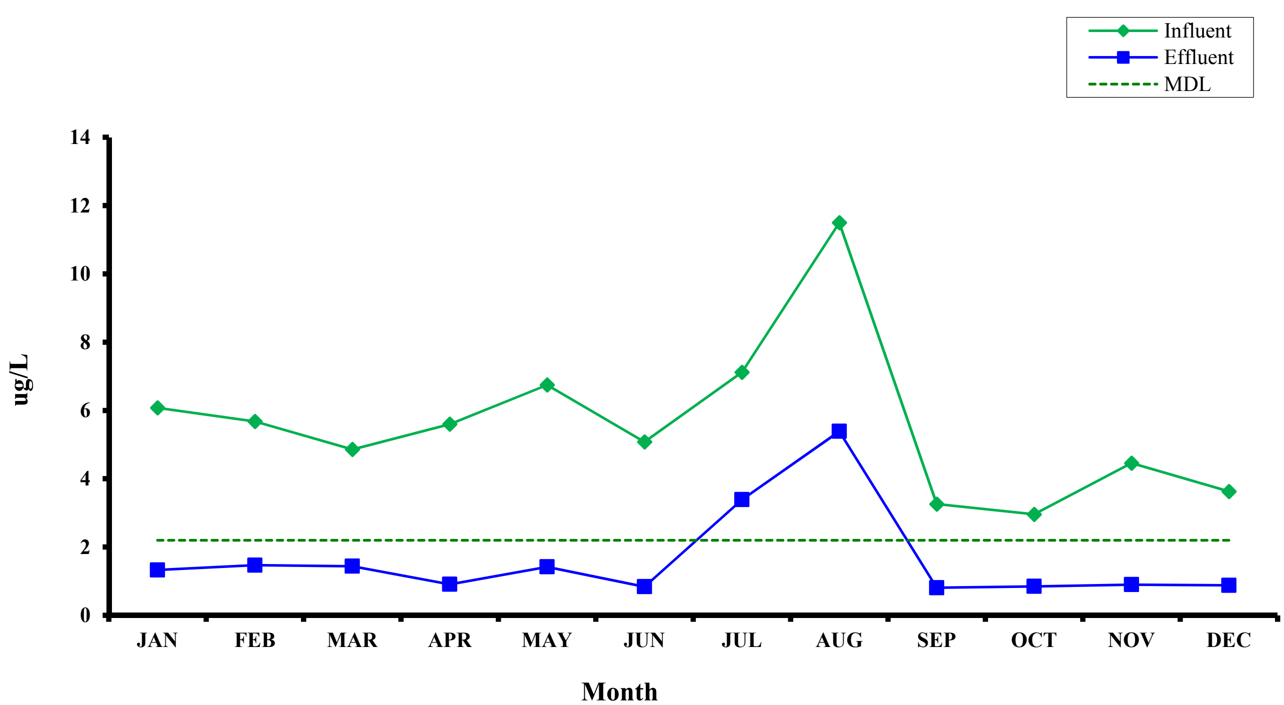
Manganese
2016 Monthly Averages



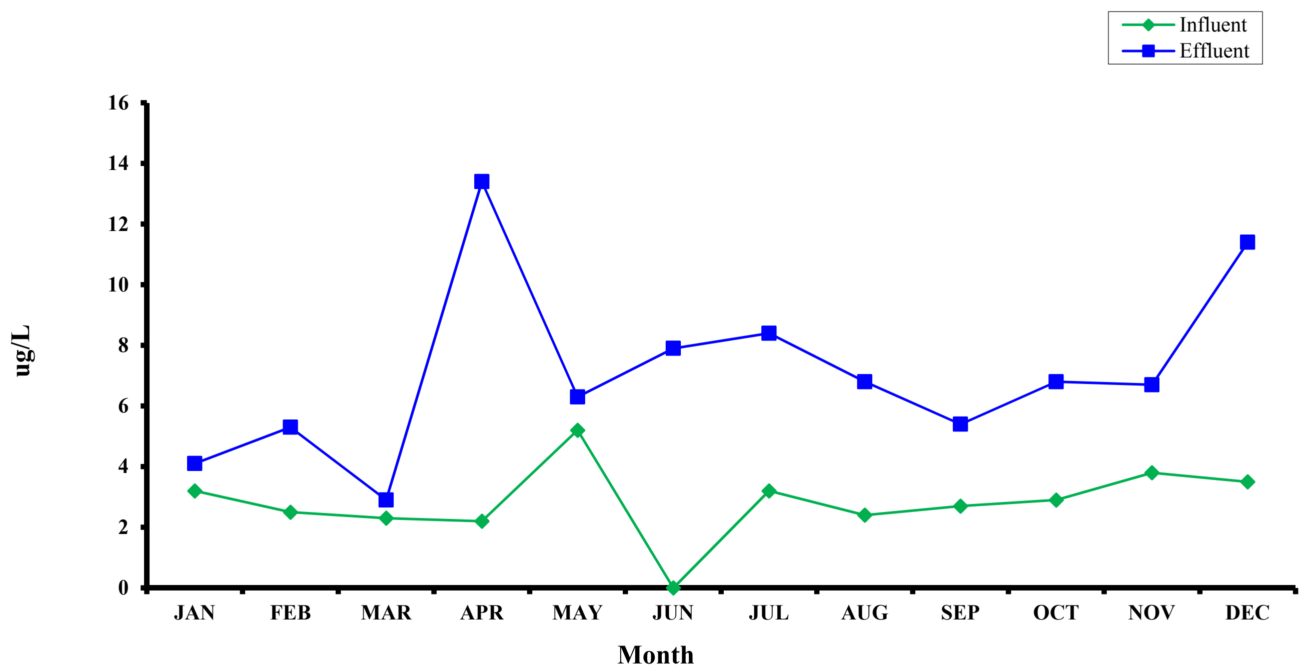
Molybdenum
2016 Monthly Averages



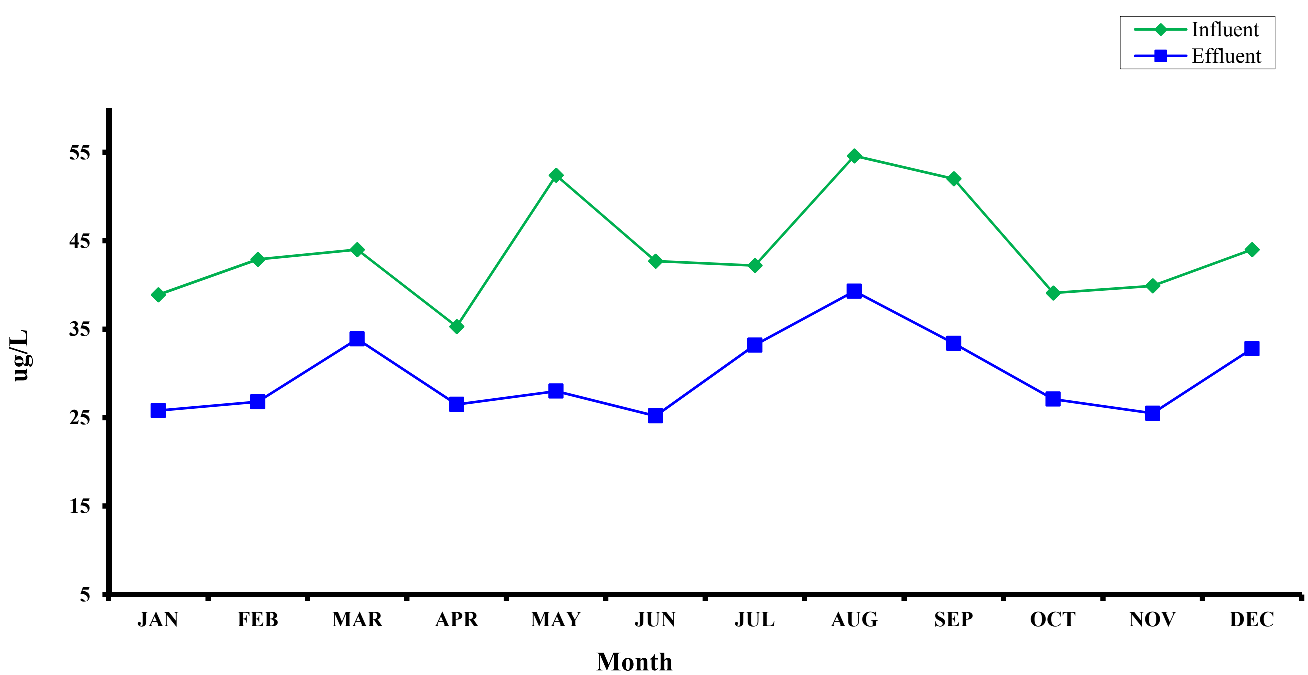
Vanadium
2016 Monthly Average

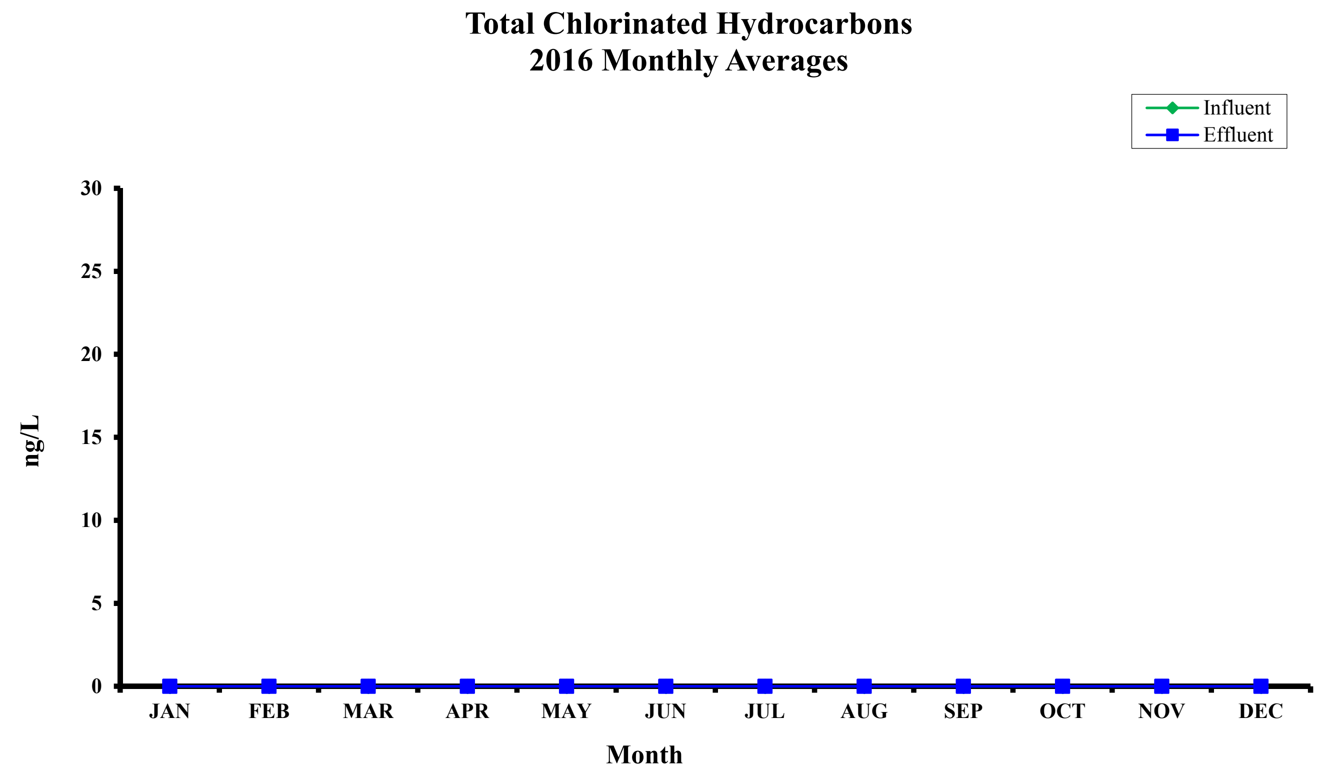


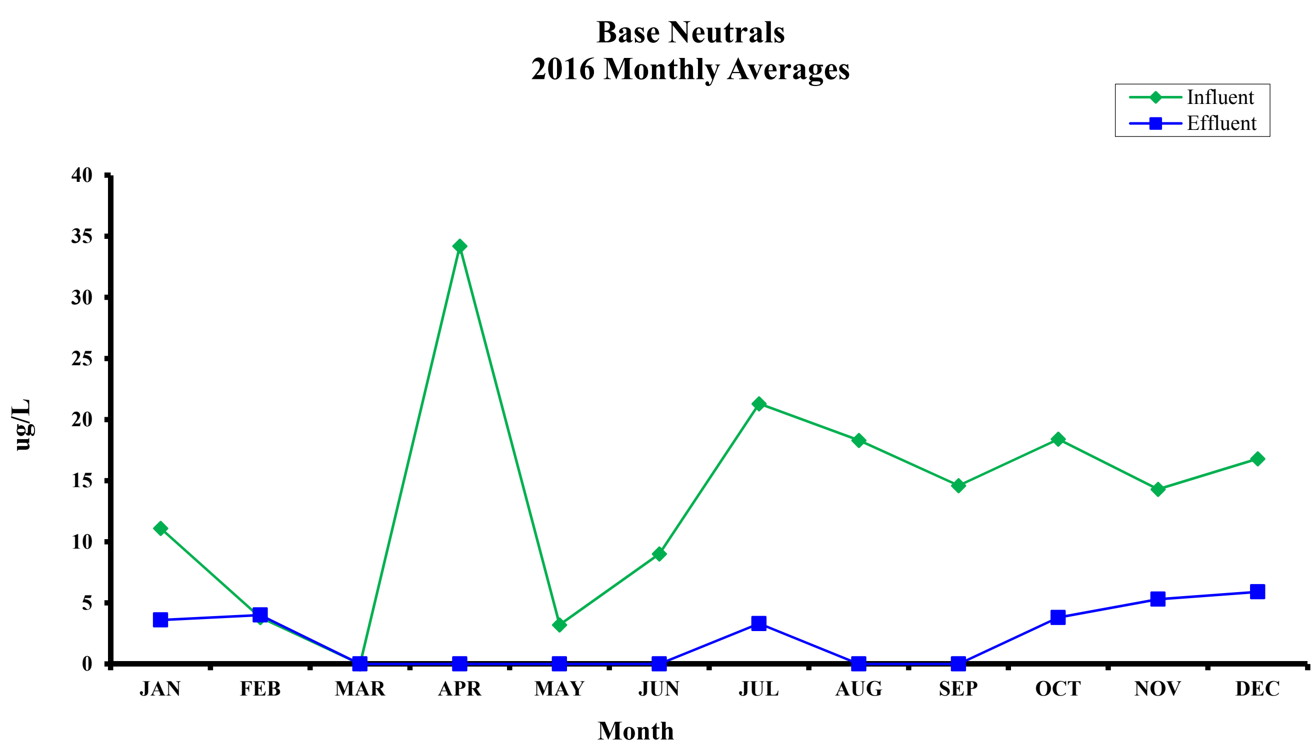
Purgeables Organic Compunds
2016 Monthly Averages



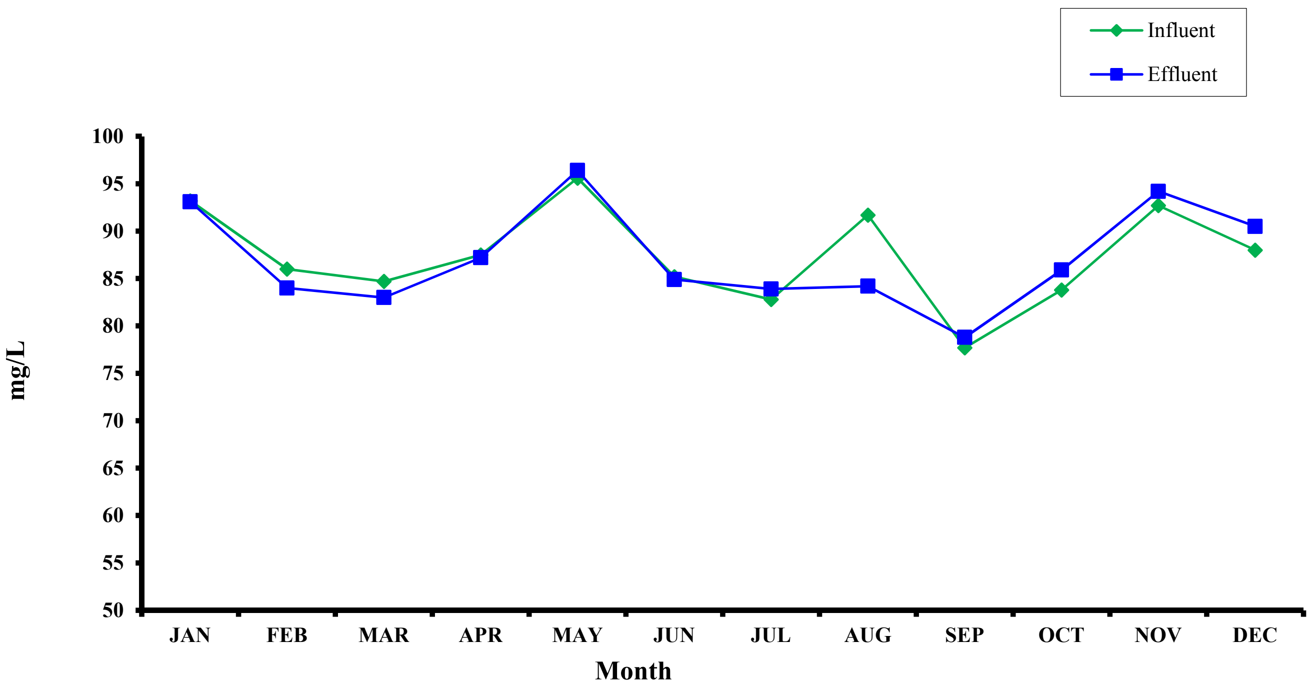
Phenols
2016 Monthly Averages



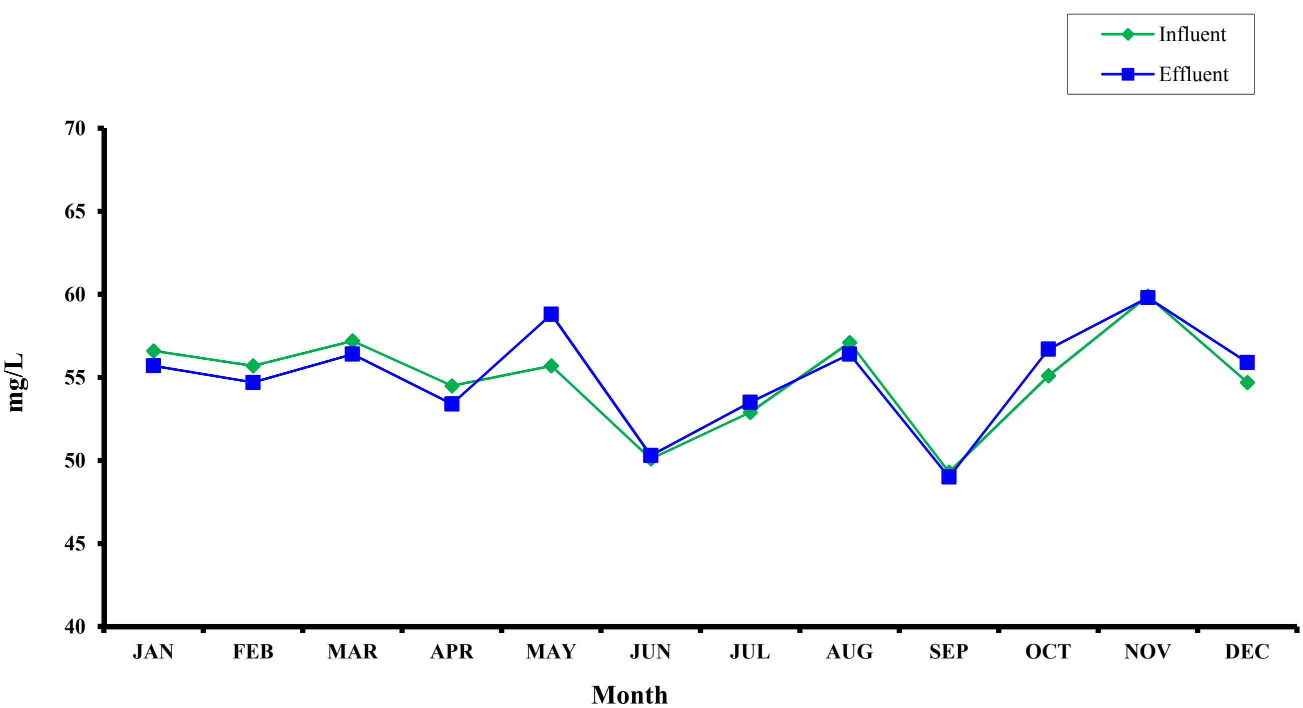

Total Chlorinated Hydrocarbons
2016 Monthly Averages
Influent
Effluent
30
25
20
15
10
5
0
ng/L
JAN
FEB
MAR
APR
MAY
JUN
JUL
AUG
SEP
OCT
NOV
DEC
Month

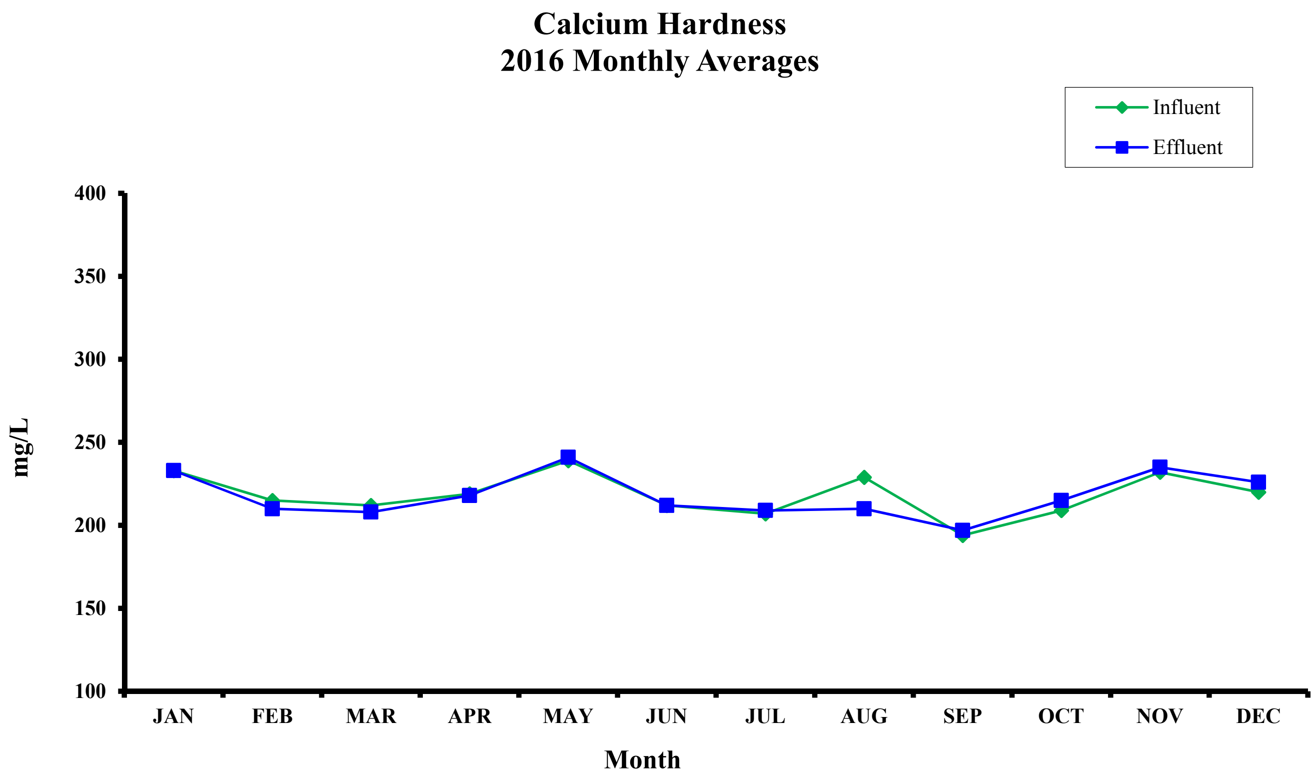

Base Neutrals
2016 Monthly Averages
Influent
Effluent
40
35
30
25
20
15
10
5
0
ug/L
JAN
FEB
MAR
APR
MAY
JUN
JUL
AUG
SEP
OCT
NOV
DEC
Month

Calcium
2016 Monthly Averages

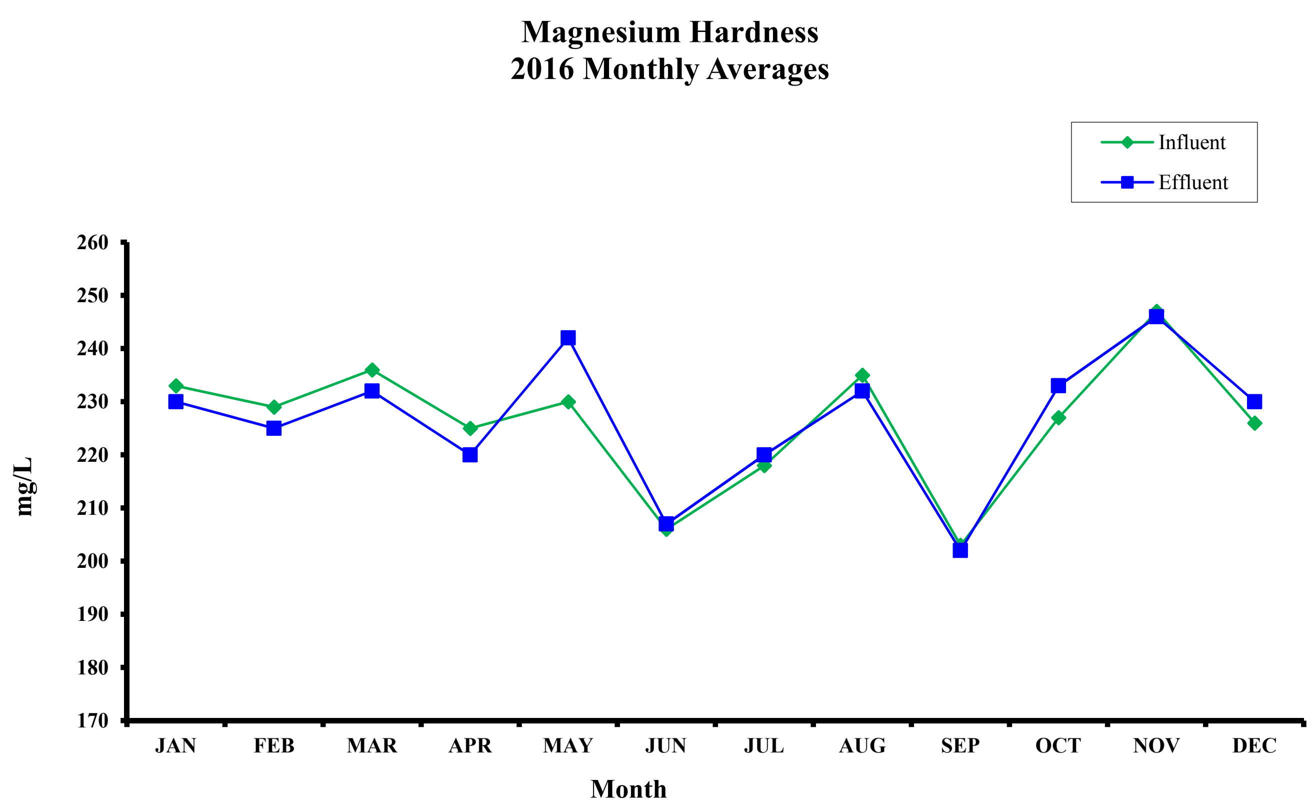


Magnesium
2016 Monthly Averages



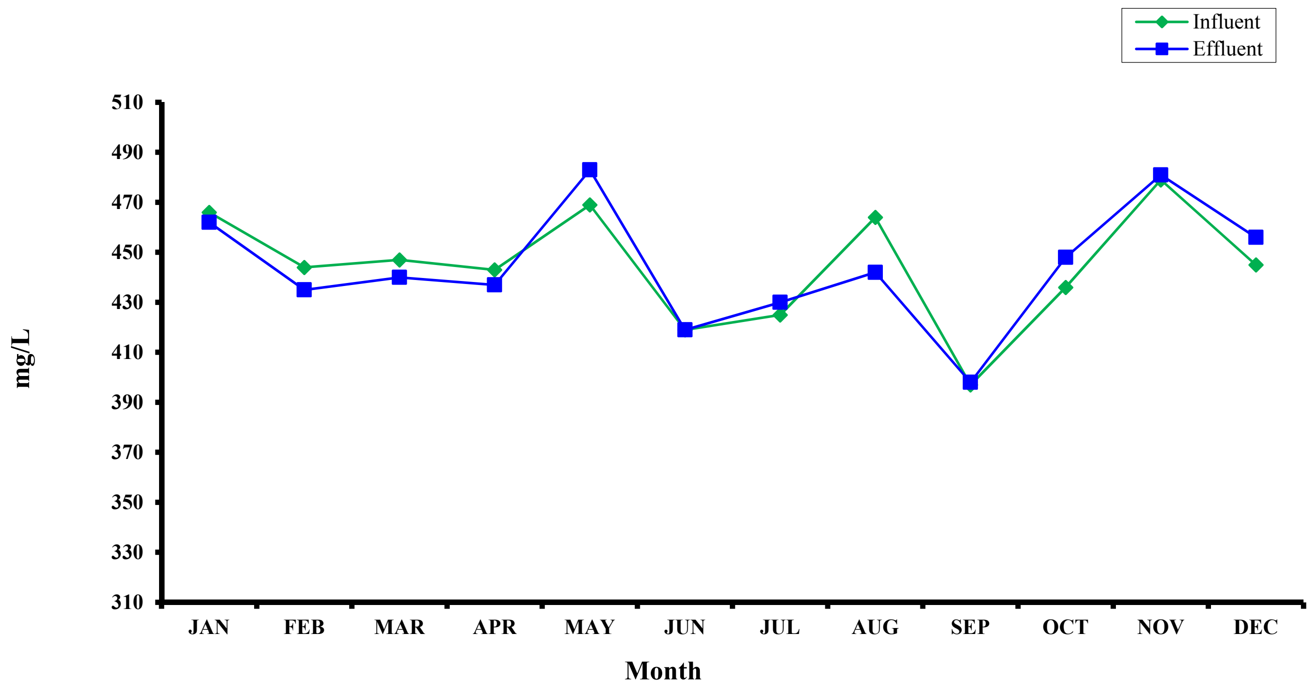


Calcium Hardness
2016 Monthly Averages
Influent
Effluent
400
350
300
250
200
150
100
mg/L
JAN
FEB
MAR
APR
MAY
JUN
JUL
AUG
SEP
OCT
NOV
DEC
Month

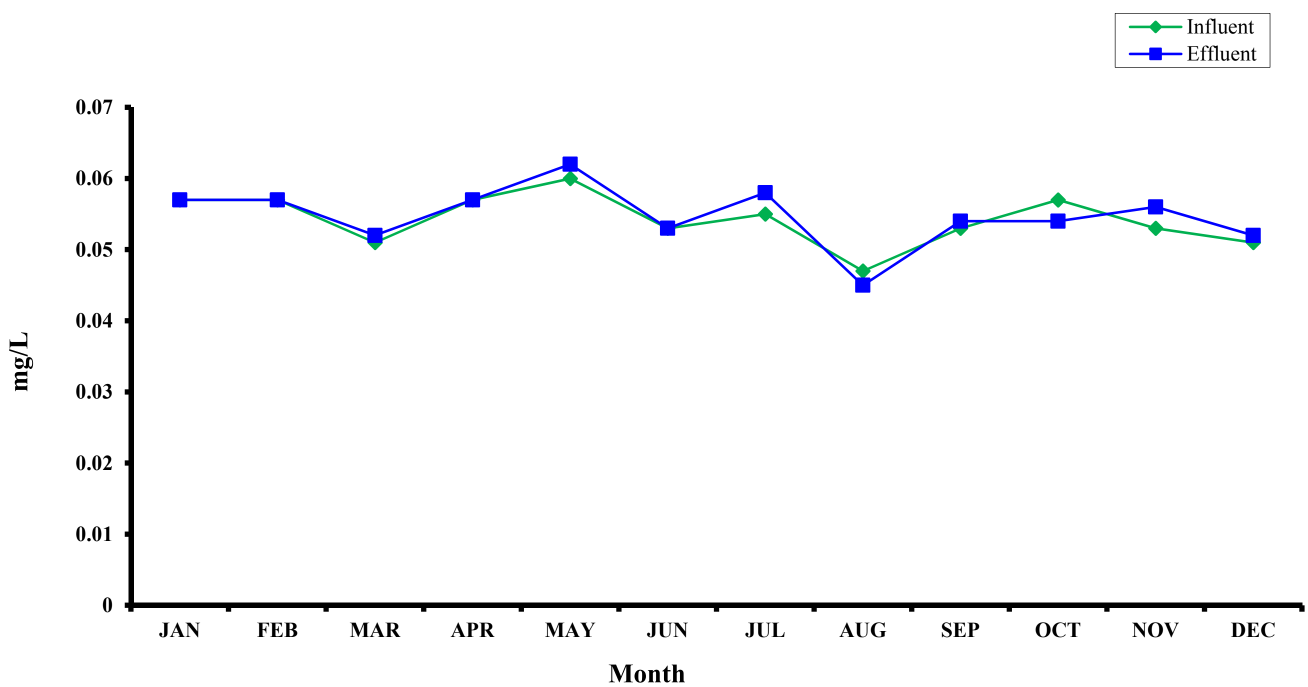


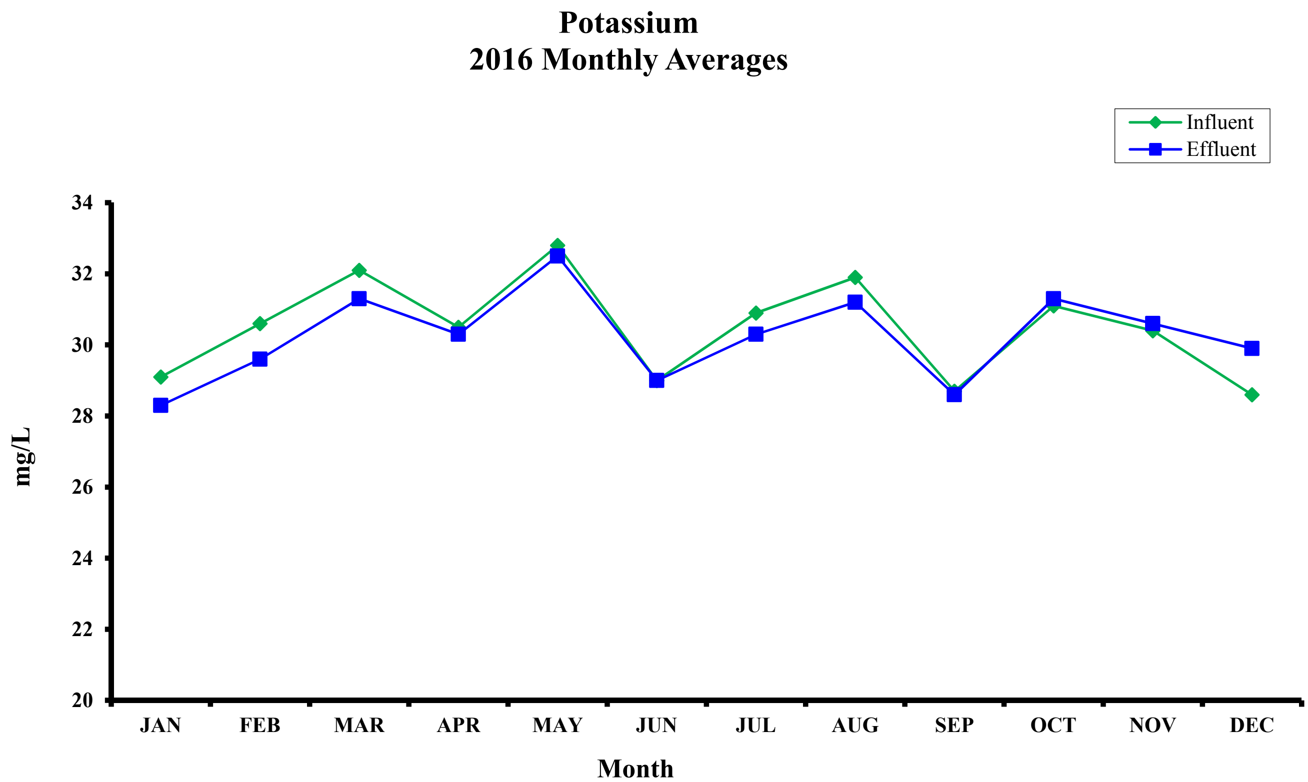
Magnesium Hardness
2016 Monthly Averages
Influent
Effluent
260
250
240
230
220
210
200
190
180
170
mg/L
JAN
FEB
MAR
APR
MAY
JUN
JUL
AUG
SEP
OCT
NOV
DEC
Month

Total Hardness
2016 Monthly Averages

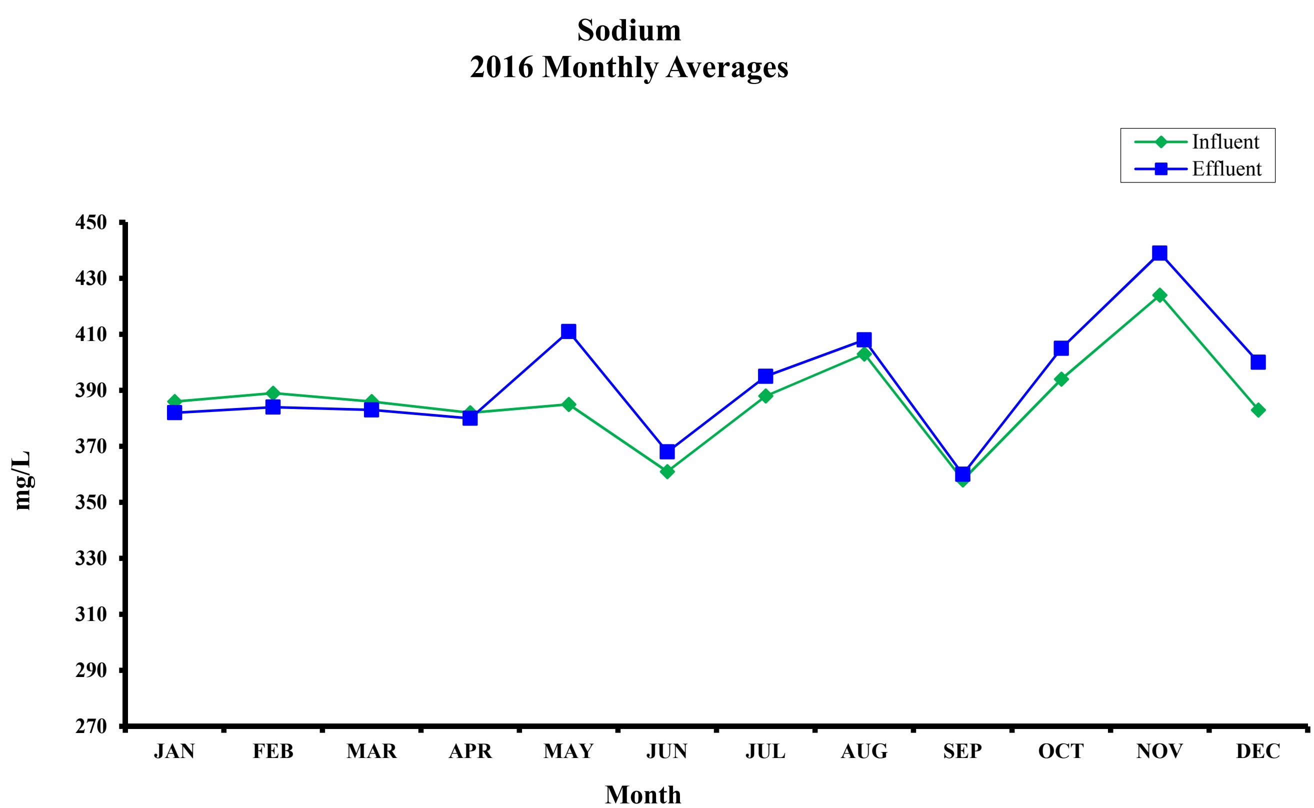


Lithium
2016 Monthly Averages

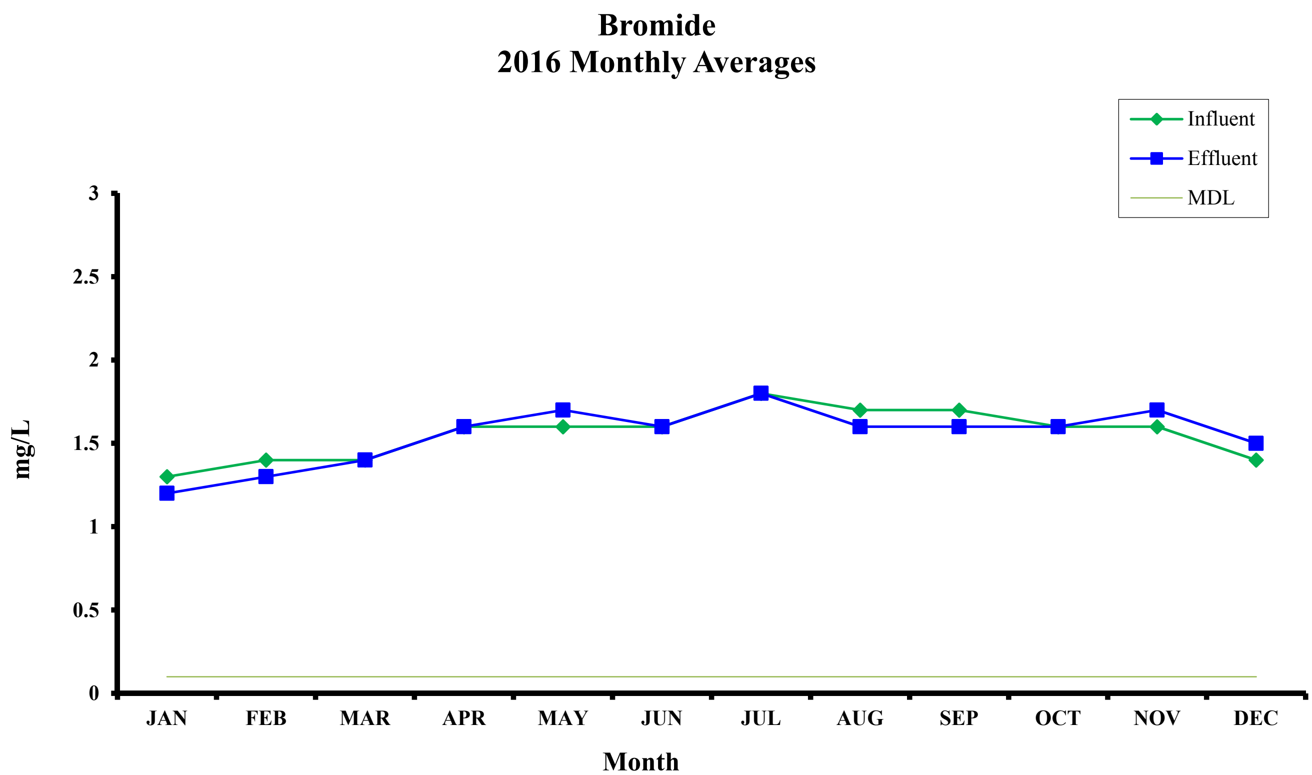




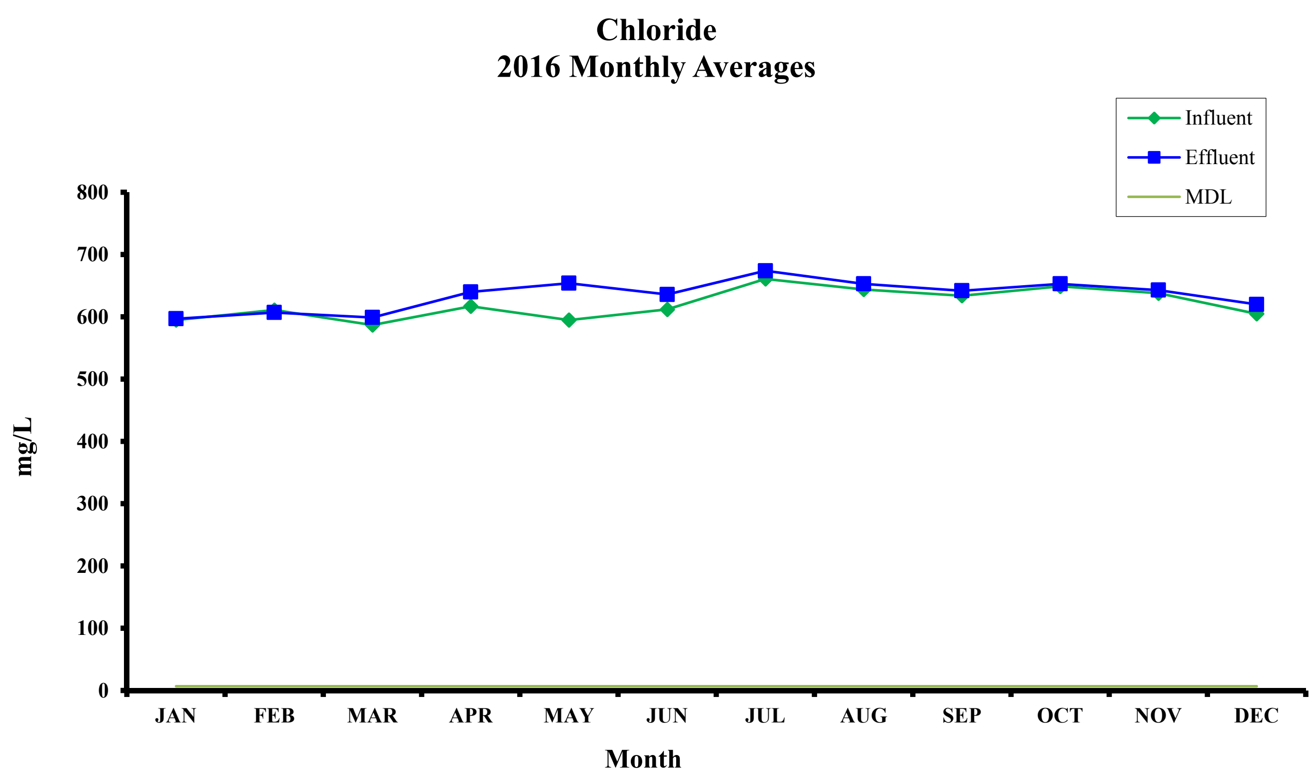
Potassium
2016 Monthly Averages
Influent
Effluent
34
32
30
28
26
24
22
20
mg/L
JAN
FEB
MAR
APR
MAY
JUN
JUL
AUG
SEP
OCT
NOV
DEC
Month



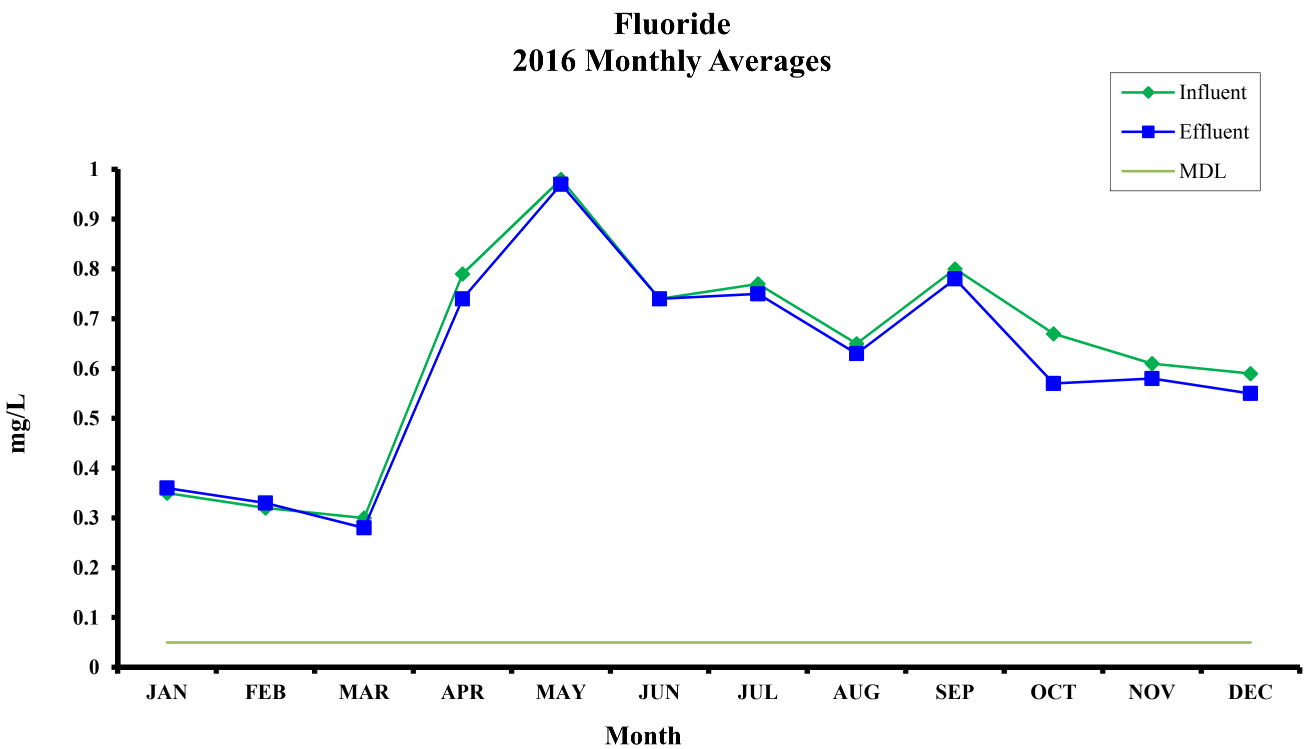
Sodium
2016 Monthly Averages
Influent
Effluent
450
430
410
390
370
350
330
310
290
270
mg/L
JAN
FEB
MAR
APR
MAY
JUN
JUL
AUG
SEP
OCT
NOV
DEC
Month

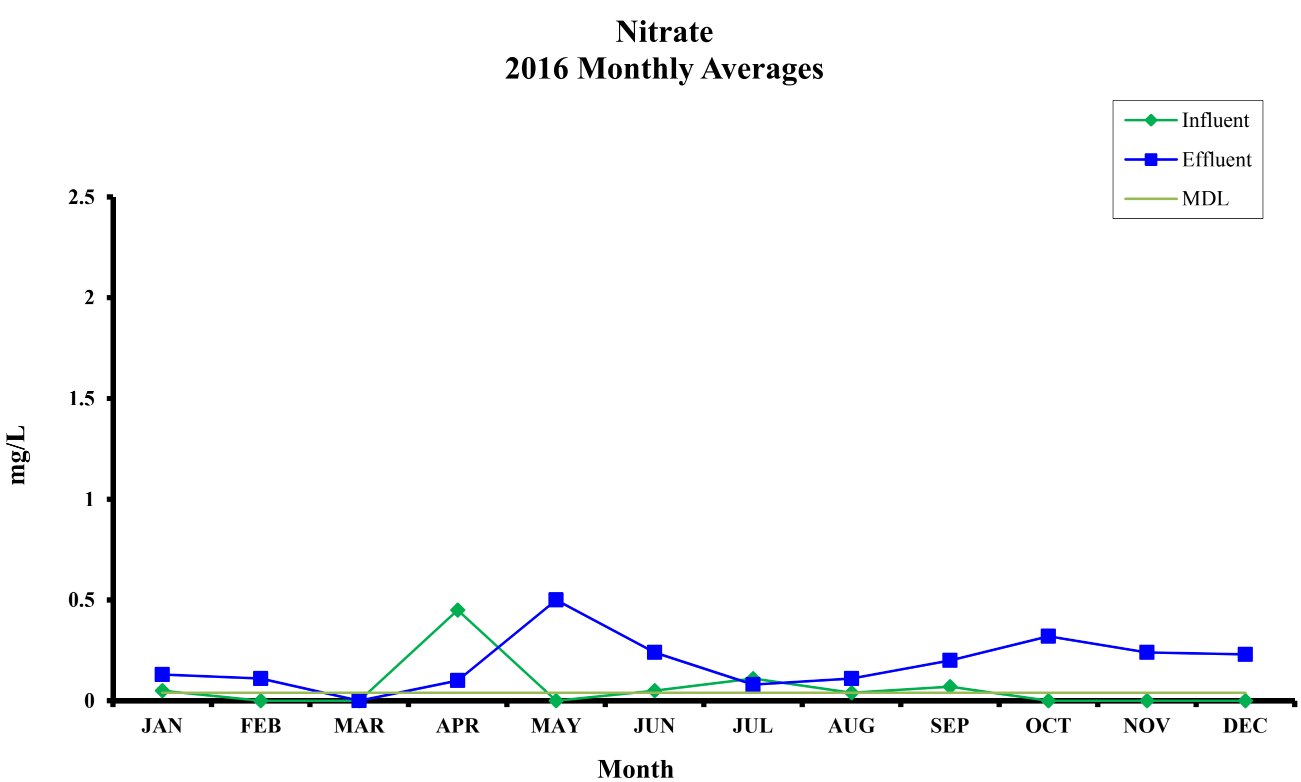


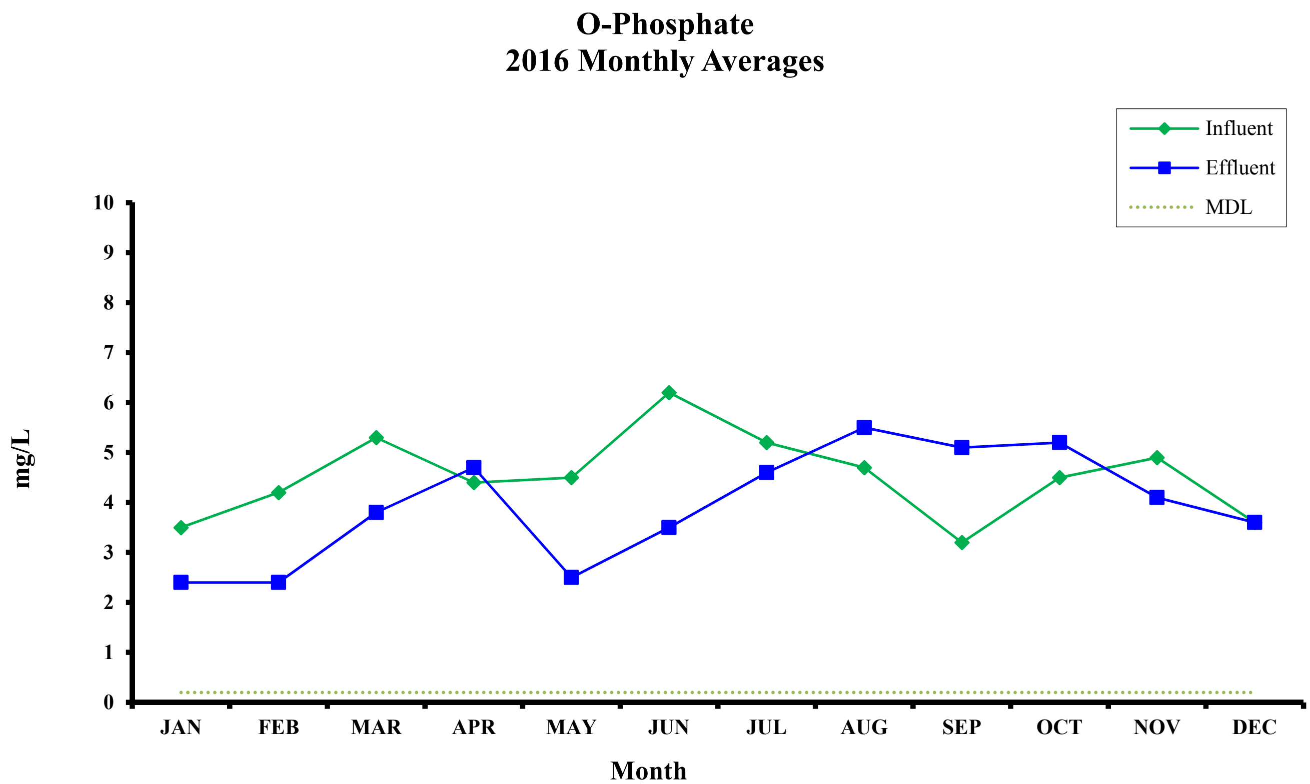
Bromide
2016 Monthly Averages
Influent
Effluent
MDL
3
2.5
2
1.5
1
0.5
0
mg/L
JAN
FEB
MAR
APR
MAY
JUN
JUL
AUG
SEP
OCT
NOV
DEC
Month

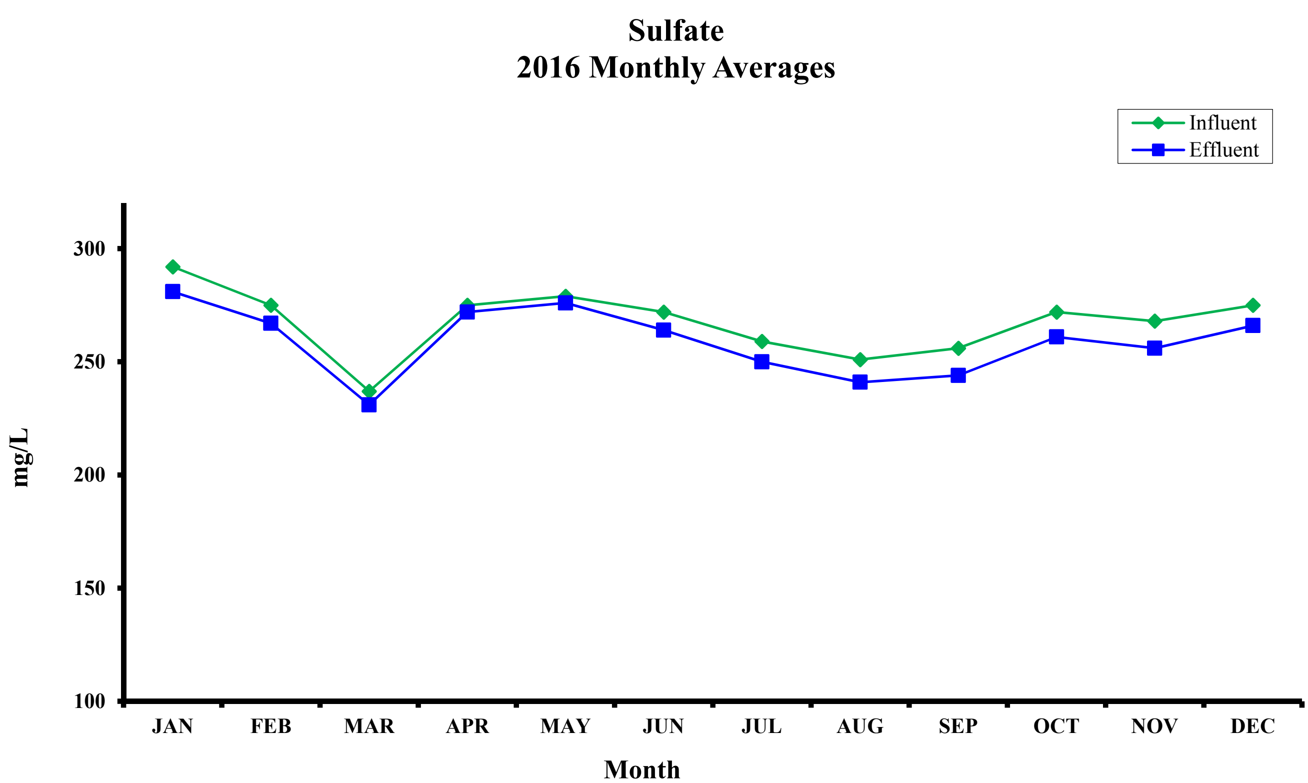


Chloride
2016 Monthly Averages
Influent
Effluent
MDL
800
700
600
500
400
300
200
100
0
mg/L
JAN
FEB
MAR
APR
MAY
JUN
JUL
AUG
SEP
OCT
NOV
DEC
Month


Fluoride
2016 Monthly Averages
Influent
Effluent
MDL
mg/L
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
JAN
FEB
MAR
APR
MAY
JUN
JUL
AUG
SEP
OCT
NOV
DEC
Month


Nitrate
2016 Monthly Averages
Influent
Effluent
MDL
mg/L
2.5
2
1.5
1
0.5
0
JAN
FEB
MAR
APR
MAY
JUN
JUL
AUG
SEP
OCT
NOV
DEC
Month


O-Phosphate
2016 Monthly Averages
Influent
Effluent
MDL
mg/L
0
1
2
3
4
5
6
7
8
9
10
JAN
FEB
MAR
APR
MAY
JUN
JUL
AUG
SEP
OCT
NOV
DEC
Month


Sulfate
2016 Monthly Averages
Influent
Effluent
mg/L
100
150
200
250
300
JAN
FEB
MAR
APR
MAY
JUN
JUL
AUG
SEP
OCT
NOV
DEC
Month

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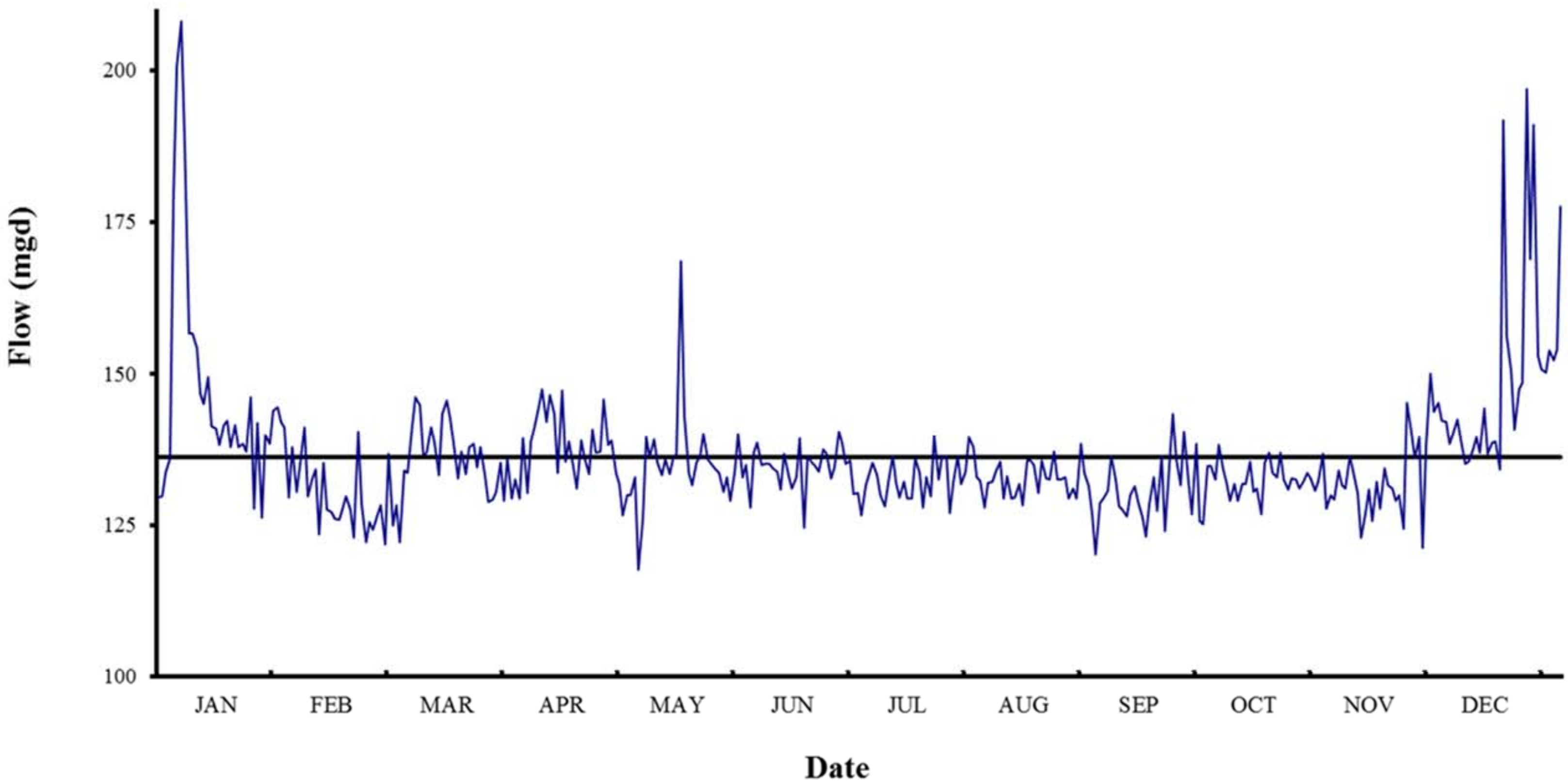
E. Daily Values of Selected Parameters

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
2016 Daily Flows (mgd)

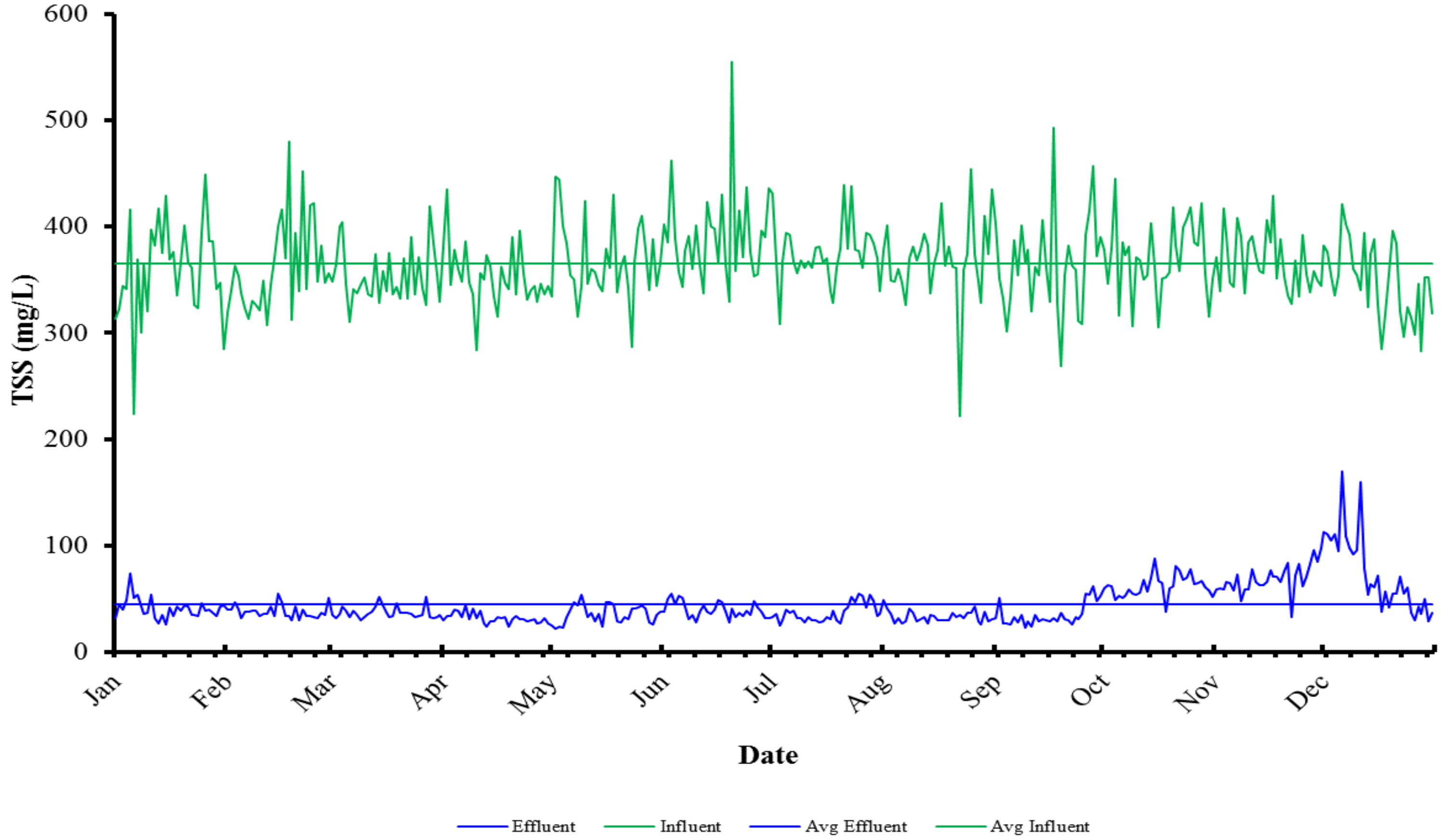


Point Loma Wastewater Treatment Plant
2016 Flows (mgd)

Flow (mgd)

Day	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
1	129.6	144.5	136.8	136.0	126.7	132.8	130.2	132.8	120.1	134.8	129.9	142.2	
2	129.7	142.1	125.0	129.4	129.9	135.0	126.5	132.4	128.7	132.5	129.2	138.4	
3	133.7	141.3	128.3	132.6	130.0	127.9	131.5	127.9	129.3	138.3	134.0	140.1	
4	135.9	129.7	122.3	129.3	132.9	136.9	133.4	131.9	130.7	134.1	131.6	142.5	
5	178.6	137.9	134.1	139.4	117.7	138.6	135.3	132.2	136.3	132.0	131.1	139.3	
6	200.5	130.5	133.6	130.3	126.1	134.9	133.3	133.9	132.5	129.0	136.4	135.1	
7	208.1	134.9	141.3	138.9	139.6	135.1	129.9	135.6	128.2	131.8	133.7	135.5	
8	188.4	141.2	146.2	141.0	136.3	135.0	128.1	129.4	127.5	129.1	130.3	137.5	
9	156.6	129.8	144.9	144.5	139.1	134.5	132.0	133.0	126.4	131.8	122.9	139.5	
10	156.8	132.7	136.6	147.6	135.3	133.8	136.5	129.3	129.9	131.7	127.0	137.0	
11	154.4	134.2	136.9	142.1	133.3	130.8	132.0	129.7	131.4	135.4	130.9	144.3	
12	146.7	123.5	141.3	146.5	135.9	136.9	129.6	131.8	128.8	130.5	125.6	136.8	
13	145.1	135.3	138.7	143.5	133.5	133.2	132.2	128.3	126.3	131.1	132.2	138.6	
14	149.5	127.6	133.2	133.6	136.0	131.1	129.3	135.8	123.1	126.8	127.7	138.9	
15	141.4	127.2	143.4	147.3	136.7	132.9	129.3	135.7	128.5	135.3	134.5	134.1	
16	141.0	126.0	145.6	135.5	168.6	139.4	135.9	134.8	132.9	137.0	131.6	191.8	
17	138.3	125.8	142.8	138.8	143.3	124.6	133.5	130.2	127.4	133.7	131.0	156.4	
18	141.5	127.8	138.7	134.6	133.6	136.5	127.8	135.7	136.3	133.0	129.0	150.4	
19	142.2	129.8	132.7	131.0	131.6	135.3	132.9	132.7	124.1	136.9	130.0	140.9	
20	137.9	127.6	137.2	139.1	135.5	134.7	129.8	132.6	135.1	132.6	124.3	147.5	
21	141.6	123.0	133.4	136.1	136.2	133.9	139.7	137.2	143.3	130.9	145.2	148.6	
22	137.9	140.5	137.8	133.4	140.2	137.5	132.4	132.5	136.1	132.7	140.2	196.9	
23	138.4	128.5	138.4	140.9	135.8	136.8	136.5	132.5	131.6	132.5	136.0	168.8	
24	137.2	122.3	134.5	137.0	135.0	132.7	136.4	132.8	140.4	131.1	139.5	191.1	
25	146.2	125.5	137.8	137.1	134.1	134.6	127.0	129.4	132.2	132.3	121.2	152.9	
26	127.7	124.2	133.3	145.8	133.6	140.5	132.0	131.1	126.7	133.7	137.8	150.9	
27	142.0	126.7	128.9	138.3	130.6	138.5	136.5	129.4	138.4	132.7	150.1	150.2	
28	126.2	128.2	129.2	139.0	132.8	135.2	131.8	138.4	125.8	130.6	143.7	153.9	
29	139.9	121.9	130.4	133.6	128.9	135.7	133.8	133.6	125.2	132.3	145.3	152.3	
30	138.4		135.3	131.9	133.8	130.1	139.6	131.5	134.7	136.9	142.4	154.1	Annual
31	144.0		129.1		140.1		137.9	126.8		127.6		177.6	Summary
Average	147.6	130.7	135.7	137.8	134.9	134.5	132.7	132.3	130.6	132.6	133.5	150.5	136.2
Minimum	126.2	121.9	122.3	129.3	117.7	124.6	126.5	126.8	120.1	126.8	121.2	134.1	117.7
Maximum	208.1	144.5	146.2	147.6	168.6	140.5	139.7	138.4	143.3	138.3	150.1	196.9	208.1
Total	4575.3	3789.9	4207.4	4133.9	4182.8	4035.1	4112.8	4100.6	3917.8	4110.3	4004.0	4664.1	49834

Point Loma Wastewater Treatment Plant
2016 Total Suspended Solids



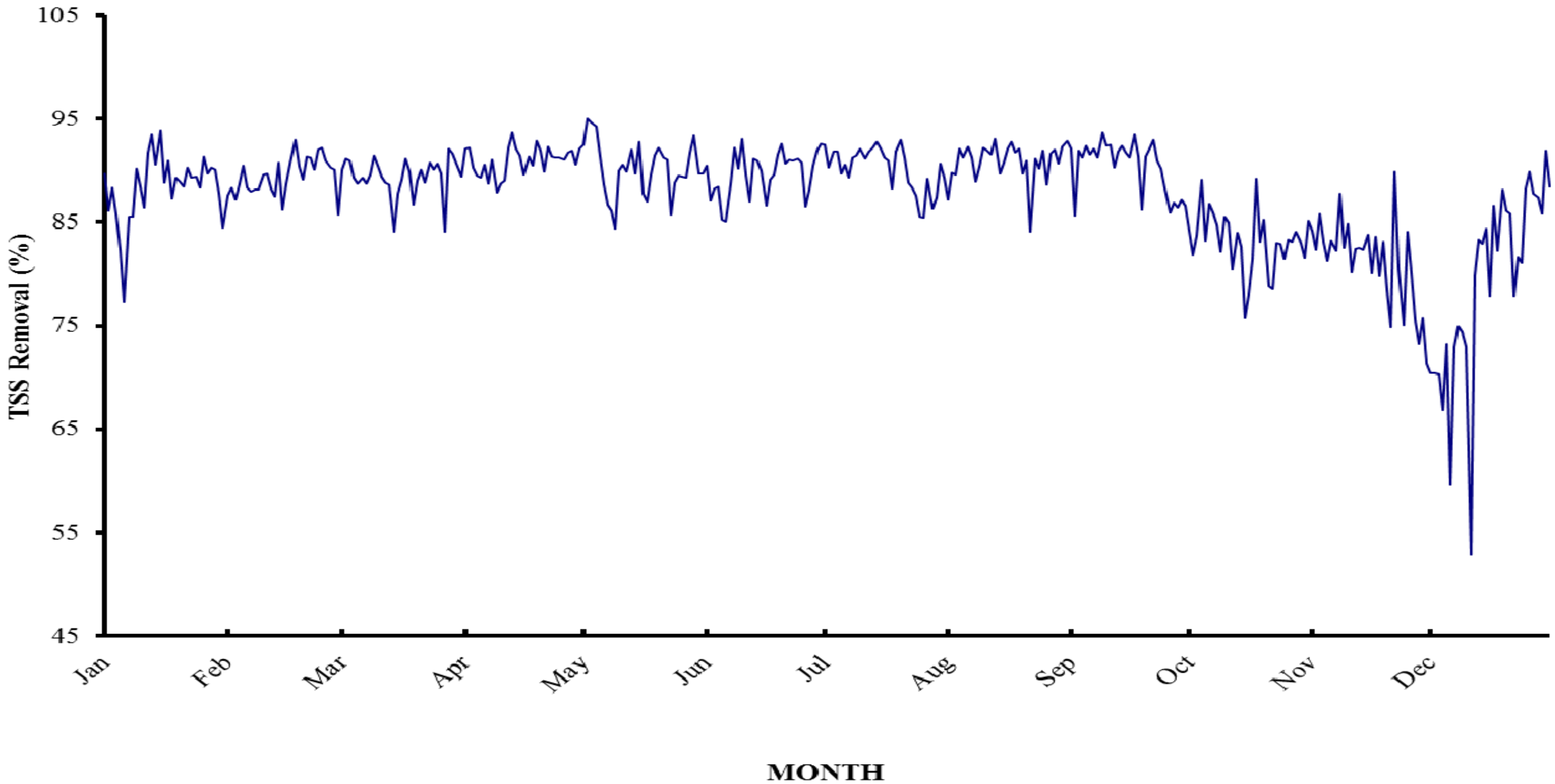
Point Loma Wastewater Treatment Plant

2016 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	313	32	319	40	348	35	381	30	334	25	402	38	431	33	377	48	402	32	378	60	371	59	382	113
2	322	45	340	40	364	32.4	435	34	447	22	385	50	368	36	401	41	351	50	346	63	339	60	376	111
3	344	40	363	46	400	36.4	345	34	444	24	462	55	308	25	349	36	332	27	380	62	417	59	354	105
4	341	49	353	40	404	43.3	378	40	400	23	389	45	366	30	348	27	301	27	445	49	392	66	335	111
5	416	74	337	32	346	39.2	360	39	384	33	357	53	394	40	360	32	334	26	316	53	347	65	354	94.7
6	224	51	323	38	310	33.3	348	33	354	40	343	51	392	37	347	27	387	33	385	51	343	58	421	170
7	369	54	313	38	341	38.7	386	44	350	47	377	43	367	39	326	29	354	28	373	53	408	73	402	109
8	300	43	330	39	337	34.9	347	31	315	44	391	31	356	32	370	41	401	35	381	58	390	48	392	98
9	365	36	326	39	345	29.8	336	41	344	54	360	35	368	33	381	37	365	23	306	55	337	59	360	92
10	320	37	321	34	352	33.3	283	32	424	42	401	29	361	28	368	29	378	29	371	54	385	58	354	96
11	397	54	349	36	336	35.5	356	39	346	33	364	38	367	33	378	31	320	24	368	56	391	77	340	160
12	382	32	307	36	334	37.5	350	27	360	37	337	44	361	30	393	33	362	35	350	68	372	66	394	79
13	417	27	345	43	374	42.5	373	24	357	29	423	38	380	30	382	27	354	29	354	57	358	62	324	54
14	375	35	370	34	328	52	363	29	345	36	400	37	381	28	337	35	406	31	403	70	356	63	374	64
15	429	26	400	55	358	44.2	334	29	339	24	398	41	366	29	365	34	361	30	361	88	406	66	388	60.7
16	369	42	416	47	339	36.9	315	33	379	47	366	49	370	33	378	30	329	29	305	67	385	77	326	72
17	376	34	370	34	375	33.2	362	32	361	47	430	47	339	31	422	30	493	32	351	65	429	71	284	38
18	335	43	480	34	336	33.8	347	33	430	45	364	38	328	39	363	30	328	29	352	38	351	71	318	56.5
19	366	39	312	30	343	45.6	341	24	338	29	329	28	361	30	381	30	268	37	357	60	388	65	356	42.2
20	401	44	394	43	332	36.5	390	31	362	28	555	41	379	27	362	37	354	31	418	62	353	76	396	55
21	366	43	339	30	370	36.5	336	34	372	33	358	33	439	39	361	33	382	30	382	81	335	84	384	54.5
22	361	35	452	40	332	37.1	396	31	342	31	415	37	379	42	222	35	363	26	358	77	327	33	320	70.7
23	326	35	341	34	390	35.7	356	31	286	41	371	34	438	51	359	32	359	33	399	68	368	71	296	54.5
24	323	34	420	34	336	33.3	331	29	366	41	437	39	378	47	374	37	311	31	407	70	334	83	324	61.3
25	394	46	422	33	371	34.4	340	30	398	42	376	35	377	55	454	37	308	36	418	78	392	62	314	37
26	449	39	348	32	342	35.3	344	31	410	44	353	48	361	53	374	43	392	55	385	64	355	71	298	30
27	386	40	382	37	326	51.7	329	27	378	41	355	42	394	42	348	29	415	54	382	65	338	83	346	42.5
28	386	37	347	35	419	32.9	346	28	340	28	396	38	392	54	328	26	457	62	422	67	358	96	282	35.5
29	341	34	356	51	384	32.3	336	32	388	26	390	32	384	48	410	38	372	48	355	61	349	85	352	50
30	347	43			354	32.8	344	27	344	35	436	32	370	34	374	29	390	52	315	58	344	98	352	28.5
31	284	44			329	35			366	38			339	36	435	31			351	52			318	37
Avg	359	41	361	38	353	37	353	32	368	36	391	40	374	37	369	33	364	35	370	62	367	69	349	74
Min	224	26	307	30	310	30	283	24	286	22	329	28	308	25	222	26	268	23	305	38	327	33	282	29
Max	449	74	480	55	419	52	435	44	447	54	555	55	439	55	454	48	493	62	445	88	429	98	421	170

	Summary	
	Inf	Eff
Avg	365	44
Min	222	22
Max	555	170

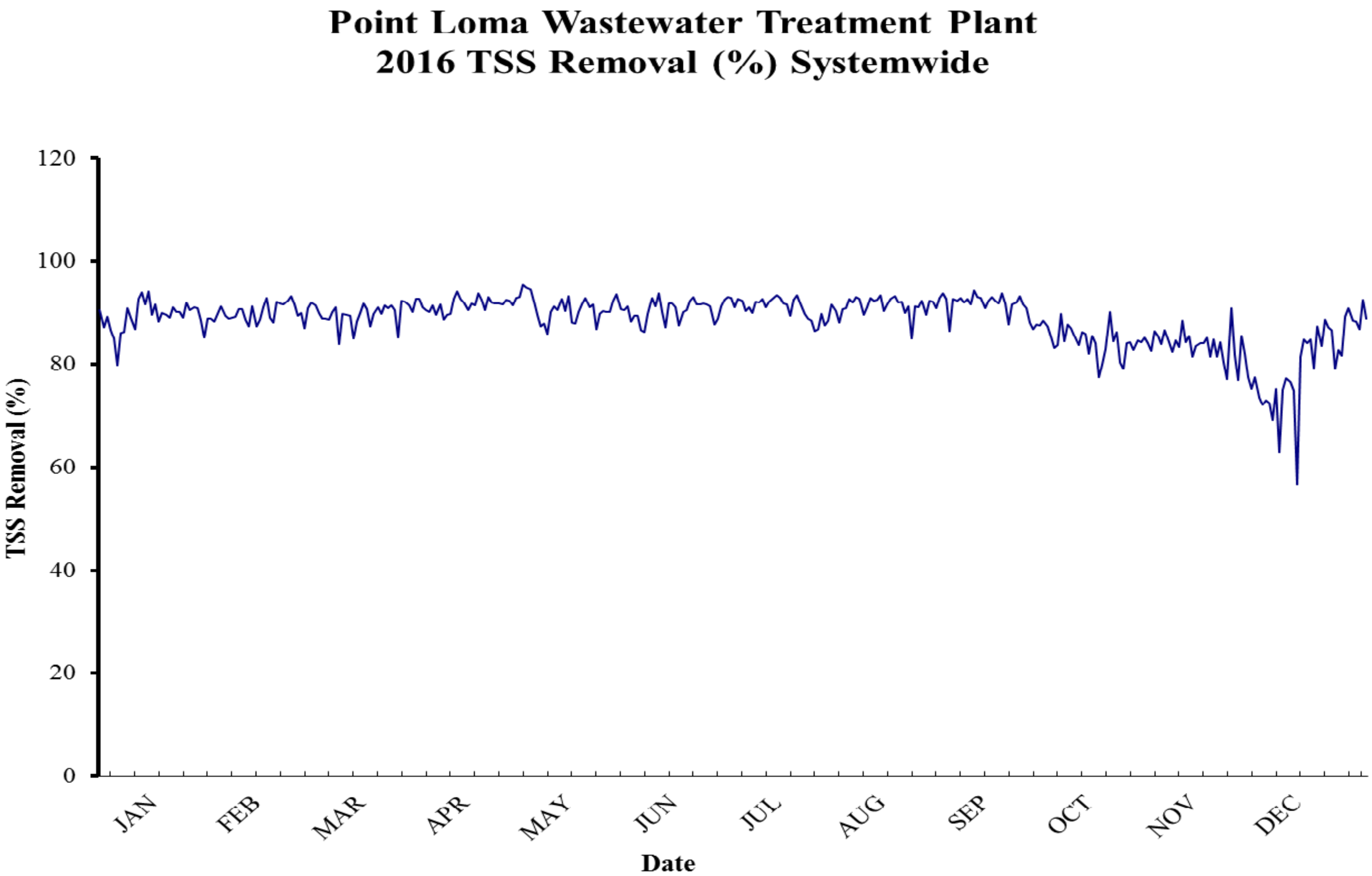
Point Loma Wastewater Treatment Plant
2016 TSS Removal (%) at Point Loma



Point Loma Wastewater Treatment Plant

2016 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	89.7	87.6	90.1	92.1	92.5	90.5	92.5	87.2	92.1	84.2	84.2	70.4	
2	86.1	88.3	91.1	92.2	95.0	87.1	90.3	89.8	85.6	81.8	82.3	70.4	
3	88.3	87.2	90.9	90.3	94.6	88.2	91.8	89.6	91.9	83.7	85.8	70.3	
4	85.7	88.7	89.3	89.5	94.2	88.4	91.8	92.1	91.2	89.1	83.1	66.8	
5	82.3	90.5	88.7	89.3	91.3	85.2	89.7	91.2	92.4	83.2	81.3	73.2	
6	77.3	88.3	89.3	90.6	88.6	85.0	90.6	92.3	91.5	86.8	83.2	59.6	
7	85.5	87.9	88.7	88.7	86.7	88.7	89.3	91.2	92.1	85.9	82.2	72.9	
8	85.5	88.1	89.6	91.0	86.1	92.2	91.2	88.9	91.2	84.7	87.7	75.0	
9	90.2	88.1	91.4	87.8	84.4	90.2	91.4	90.4	93.7	82.1	82.5	74.4	
10	88.4	89.6	90.5	88.7	90.0	93.1	92.1	92.2	92.4	85.5	84.8	72.9	
11	86.4	89.7	89.4	89.0	90.6	89.6	91.1	91.9	92.5	84.9	80.2	52.9	
12	91.7	88.2	88.8	92.2	89.9	87.0	91.8	91.5	90.3	80.5	82.4	79.9	
13	93.5	87.5	88.6	93.7	92.0	91.1	92.2	93.1	91.8	84.0	82.5	83.3	
14	90.6	90.8	84.1	92.1	89.7	90.9	92.8	89.7	92.4	82.6	82.3	82.9	
15	93.9	86.2	87.7	91.4	92.8	90.0	92.1	90.8	91.7	75.7	83.8	84.4	
16	88.8	88.7	89.1	89.6	87.7	86.6	91.2	92.1	91.2	78.1	80.1	77.9	
17	90.9	90.7	91.1	91.3	87.0	89.1	90.9	92.8	93.5	81.4	83.6	86.6	
18	87.3	93.0	89.9	90.5	89.6	89.6	88.2	91.7	91.3	89.2	79.8	82.2	
19	89.3	90.4	86.7	92.9	91.4	91.5	91.8	92.1	86.2	83.1	83.1	88.1	
20	88.9	89.1	89.0	91.9	92.2	92.6	93.0	89.7	91.3	85.2	78.4	86.1	
21	88.4	91.3	90.1	89.9	91.2	90.7	91.2	90.9	92.1	78.8	74.9	85.8	
22	90.3	91.2	88.8	92.3	91.0	91.0	88.8	84.1	93.0	78.5	89.9	77.9	
23	89.3	90.1	90.8	91.3	85.7	90.9	88.3	91.1	90.9	83.0	80.6	81.6	
24	89.4	92.0	90.1	91.2	88.8	91.1	87.6	90.2	90.2	82.9	75.1	81.1	
25	88.3	92.2	90.7	91.2	89.5	90.8	85.5	91.9	88.2	81.4	84.1	88.2	
26	91.3	90.9	89.7	91.0	89.4	86.5	85.4	88.6	85.9	83.3	80.1	89.9	
27	89.7	90.3	84.1	91.7	89.3	88.1	89.2	91.6	86.9	83.1	75.5	87.7	
28	90.3	90.1	92.1	91.9	91.7	90.5	86.3	92.0	86.4	84.1	73.2	87.4	
29	90.1	85.7	91.6	90.6	93.4	91.9	87.4	90.7	87.2	83.0	75.7	85.8	
30	87.7		90.7	92.1	89.7	92.6	90.7	92.3	86.6	81.5	71.4	91.9	
31	84.5		89.4		89.7		89.3	92.9		85.1		88.4	
Avg	88.4	89.4	89.4	90.9	90.2	89.7	90.2	90.9	90.5	83.1	81.1	79.2	87.7
Min	77.3	85.7	84.1	87.8	84.4	85.0	85.4	84.1	85.6	75.7	71.4	52.9	52.9
Max	93.9	93.0	92.1	93.7	95.0	93.1	93.0	93.1	93.7	89.2	89.9	91.9	95.0



Point Loma Wastewater Treatment Plant
2016 TSS Removal (%) Systemwide
TSS Removal (%)
120
100
80
60
40
20
0
JAN
FEB
MAR
APR
MAY
JUN
JUL
AUG
SEP
OCT
NOV
DEC
Date

Point Loma Wastewater Treatment Plant

2016 Total Suspended Solids Removals (%) Systemwide

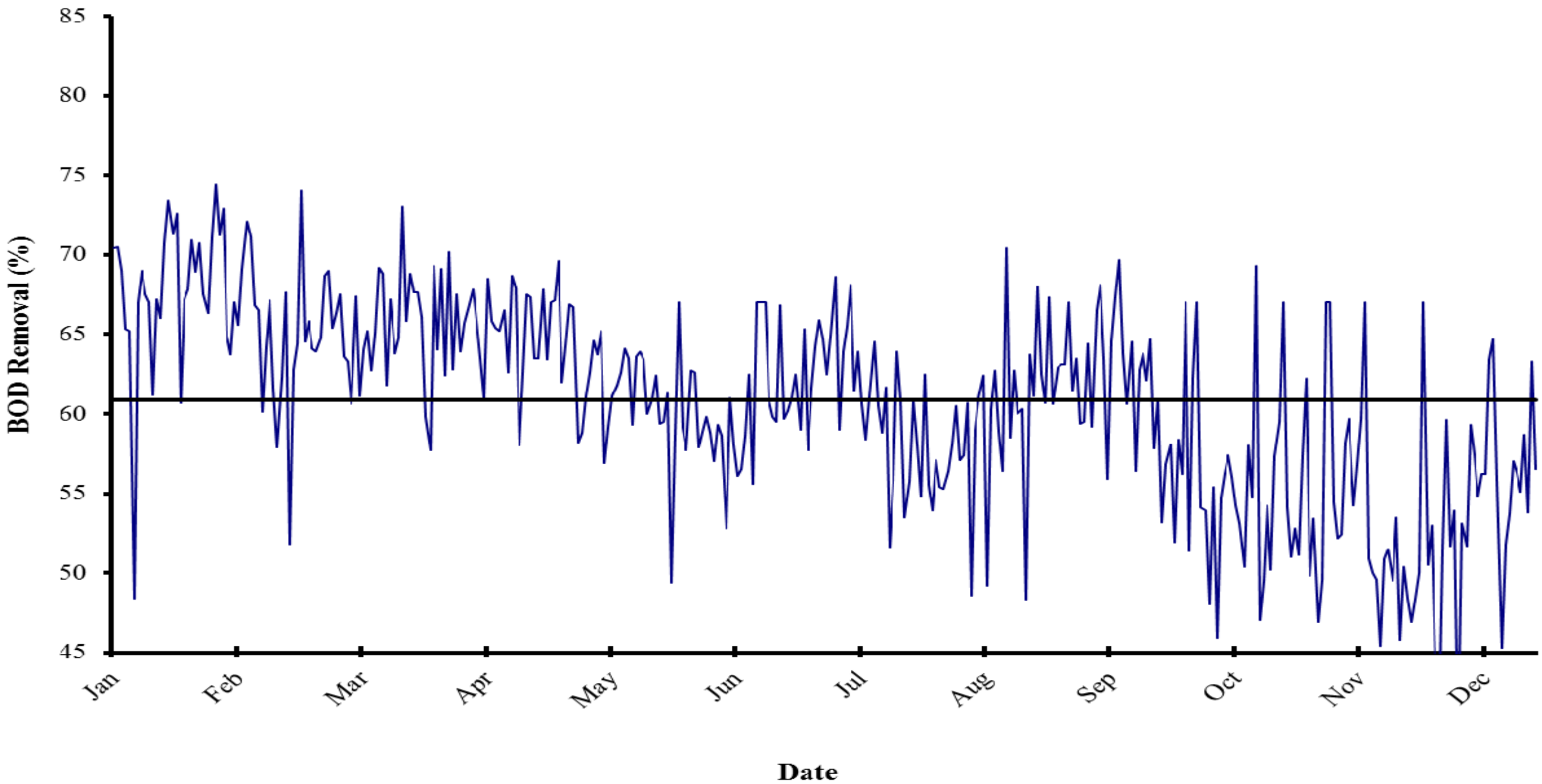
Day	Jan % Rem	Feb % Rem	Mar % Rem	Apr % Rem	May % Rem	Jun % Rem	Jul % Rem	Aug % Rem	Sep % Rem	Oct % Rem	Nov % Rem	Dec % Rem	Annual Summary
1	90.5	88.8	90.8	92.7	93.1	91.2	92.9	88.1	92.6	85.3	85.5	72.1	
2	87.2	88.9	91.9	92.7	95.4	88.2	91.0	90.6	86.5	83.2	83.8	73.0	
3	89.2	88.3	91.4	91.1	94.8	89.3	92.7	90.8	92.6	83.6	86.7	72.4	
4	86.7	89.7	89.9	90.4	94.6	89.3	92.4	92.7	92.4	89.7	84.2	69.2	
5	85.0	91.2	88.9	90.1	92.1	86.7	90.3	91.9	92.8	84.4	82.4	75.3	
6	79.9	89.4	88.9	91.4	89.6	86.3	91.1	93.0	92.0	87.8	84.6	62.9	
7	86.0	88.9	88.7	89.5	87.4	89.8	90.0	92.7	92.7	87.0	83.4	75.1	
8	86.2	89.1	90.1	91.6	87.9	92.9	92.1	89.6	91.5	85.6	88.5	77.2	
9	90.8	89.2	91.1	88.6	85.9	91.2	92.0	91.0	94.3	83.6	84.2	76.5	
10	89.1	90.6	83.8	89.5	90.2	93.7	92.6	92.8	93.0	86.3	85.6	74.9	
11	86.8	90.7	89.8	89.7	91.3	90.2	91.1	92.3	92.8	85.9	81.4	56.6	
12	92.6	88.6	89.6	92.7	90.5	87.2	92.2	92.5	90.9	82.1	83.5	81.5	
13	93.9	87.4	89.3	94.1	92.7	91.7	92.8	93.5	92.4	85.6	84.1	84.7	
14	91.5	91.3	84.9	92.6	90.3	91.8	93.4	90.3	93.0	84.1	84.1	84.1	
15	94.2	87.3	88.2	92.0	93.2	91.1	92.9	91.5	92.4	77.5	85.1	84.7	
16	89.5	88.7	90.0	90.4	88.0	87.6	91.7	92.6	91.7	80.0	81.5	79.2	
17	91.5	91.1	91.8	91.8	87.9	90.2	91.6	93.2	93.8	83.0	84.8	87.3	
18	88.3	92.9	90.6	91.4	90.2	90.4	89.4	91.9	91.8	90.1	81.4	83.5	
19	89.9	89.0	87.4	93.7	91.5	92.3	92.5	92.2	87.7	84.5	84.3	88.7	
20	89.5	88.0	89.8	92.5	92.9	93.0	93.5	90.0	91.6	86.3	80.4	87.1	
21	89.1	92.1	91.0	90.5	91.1	91.6	91.7	91.3	91.9	80.3	77.0	86.6	
22	91.1	91.8	89.7	93.0	91.6	91.6	89.8	84.9	93.3	79.1	90.8	79.0	
23	90.1	91.5	91.4	91.9	86.8	91.7	88.8	91.3	91.6	84.0	81.8	82.8	
24	90.2	92.3	90.9	91.8	89.7	91.6	88.5	91.0	90.9	84.2	76.8	81.6	
25	89.0	93.2	91.4	91.8	90.3	91.3	86.4	92.4	88.1	82.8	85.5	89.2	
26	92.0	91.5	90.5	91.6	90.1	87.7	86.8	89.5	86.8	84.6	82.0	90.8	
27	90.4	89.4	85.1	92.5	90.2	88.9	89.8	92.3	87.8	84.3	77.5	88.5	
28	91.0	89.9	92.4	92.4	92.3	91.2	87.5	92.1	87.6	85.2	75.2	88.3	
29	90.9	86.9	92.1	91.4	93.6	92.5	88.4	90.9	88.4	84.0	77.5	86.8	
30	88.5		91.4	92.9	90.6	93.1	91.5	92.8	87.3	82.5	73.5	92.5	
31	85.2		90.2		90.5		90.3	93.7		86.5		88.9	
Avg	89.2	89.9	89.8	91.6	90.8	90.5	90.9	91.5	91.1	84.3	82.6	80.7	88.6
Min	79.9	86.9	83.8	88.6	85.9	86.3	86.4	84.9	86.5	77.5	73.5	56.6	56.6
Max	94.2	93.2	92.4	94.1	95.4	93.7	93.5	93.7	94.3	90.1	90.8	92.5	95.4

Point Loma Wastewater Treatment Plant

2016 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	315	93	332	110	313	115	345	114	309	120	368	148	394	139	370	165	320	118	297	130	340	145	316	158		
2	336	99	288	99	313	123	370	119	364	136	338	139	379	142	330	144	332	110	392	129	389	147	332	110		
3	313	97	343	106	362	118	325	111	339	120	365	157	319	112	353	148	352	136	370	180	271	136	307	152		
4	291	101	358	100	350	136	307	112	331	120	391	159	491	154	340	134	313	114	327	123	356	166	317	149		
5	285	99	318	92	361	130	274	107	353	123	346	143	330	135	334	143	347	141	332	110	311	165	320	180		
6	142	73	343	114	325	113	346	109	323	139	352	166	341	123	333	142	309	125	327	150	312	157	356	214		
7	332	110	284	95	335	125	330	113	338	138	326	127	365	126	295	116	323	115	337	155	332	110	359	174		
8	255	79	338	135	296	103	292	101	306	119	360	151	411	131	368	189	299	122	275	143	332	110	359	145		
9	308	100	324	116	334	103	328	114	374	143	358	157	361	139	344	141	347	116	287	128	349	159	340	164		
10	332	110	343	113	340	106	266	89	356	133	379	165	332	120	326	127	385	123	292	158	329	157	356	164		
11	327	127	329	126	296	113	310	116	351	126	382	158	368	145	343	129	322	118	325	147	364	173	322	196		
12	296	97	330	139	373	122	294	92	334	122	339	127	325	135	341	173	338	149	344	150	376	157	324	152		
13	327	111	390	147	309	112	321	103	332	135	333	148	335	130	343	136	337	119	296	126	368	148	315	152		
14	362	106	361	117	355	125	305	128	343	125	332	110	341	121	301	112	350	114	387	170	336	154	349	142		
15	361	96	320	154	319	86	262	98	327	118	332	110	347	137	360	148	360	109	358	164	341	147	324	138		
16	352	101	345	128	316	108	372	121	385	141	332	110	347	143	292	127	351	127	303	142	345	139	299	135		
17	325	89	337	120	315	98	322	105	340	136	419	164	337	129	412	122	327	129	337	167	332	110	274	120		
18	336	132	393	102	349	113	340	124	340	133	373	150	323	156	292	121	302	107	336	141	334	164	299	131		
19	363	119	355	126	358	116	299	109	360	135	287	116	324	143	333	124	287	125	351	159	358	179	314	115		
20	339	109	381	130	313	106	370	119	350	142	467	155	371	134	345	138	309	115	495	152	330	166	365	129		
21	354	103	354	127	366	147	345	126	341	138	350	141	383	150	302	120	310	112	314	166	295	161	313	138		
22	338	105	388	140	284	120	332	110	308	119	337	134	359	167	265	137	301	114	325	164	328	161	232	127		
23	365	107	347	122	343	105	383	126	322	163	347	135	369	163	331	120	363	128	319	146	342	166	260	125		
24	314	102	351	110	350	126	329	100	332	137	395	148	335	131	334	130	301	127	305	152	366	185	259	120		
25	351	118	374	116	366	113	316	120	332	110	376	154	377	158	369	118	320	125	330	141	398	185	263	113		
26	340	98	358	124	336	126	291	104	360	147	334	116	332	150	352	132	333	156	343	139	306	166	302	132		
27	352	90	374	126	332	99	309	102	397	168	364	154	398	149	321	126	333	144	332	110	299	148	294	132		
28	379	109	327	106	333	124	289	96	360	134	334	128	349	155	306	100	349	146	347	159	304	157	305	126		
29	344	93	352	128	345	112	309	129	377	141	372	133	343	158	327	129	296	142	308	151	322	171	286	132		
30	359	126			324	117	357	147	347	146	384	131	336	144	321	119	349	145	312	147	328	169	366	134		
31	278	101			312	107			338	139			303	135	347	128			358	175			278	121	Inf	Eff
Avg	325	103	346	120	333	115	321	112	344	134	359	141	356	140	333	133	329	126	334	148	336	155	313	143	336	131
Min	142	73	284	92	284	86	262	89	306	110	287	110	303	112	265	100	287	107	275	110	271	110	232	110	142	73
Max	379	132	393	154	373	147	383	147	397	168	467	166	491	167	412	189	385	156	495	180	398	185	366	214	495	214

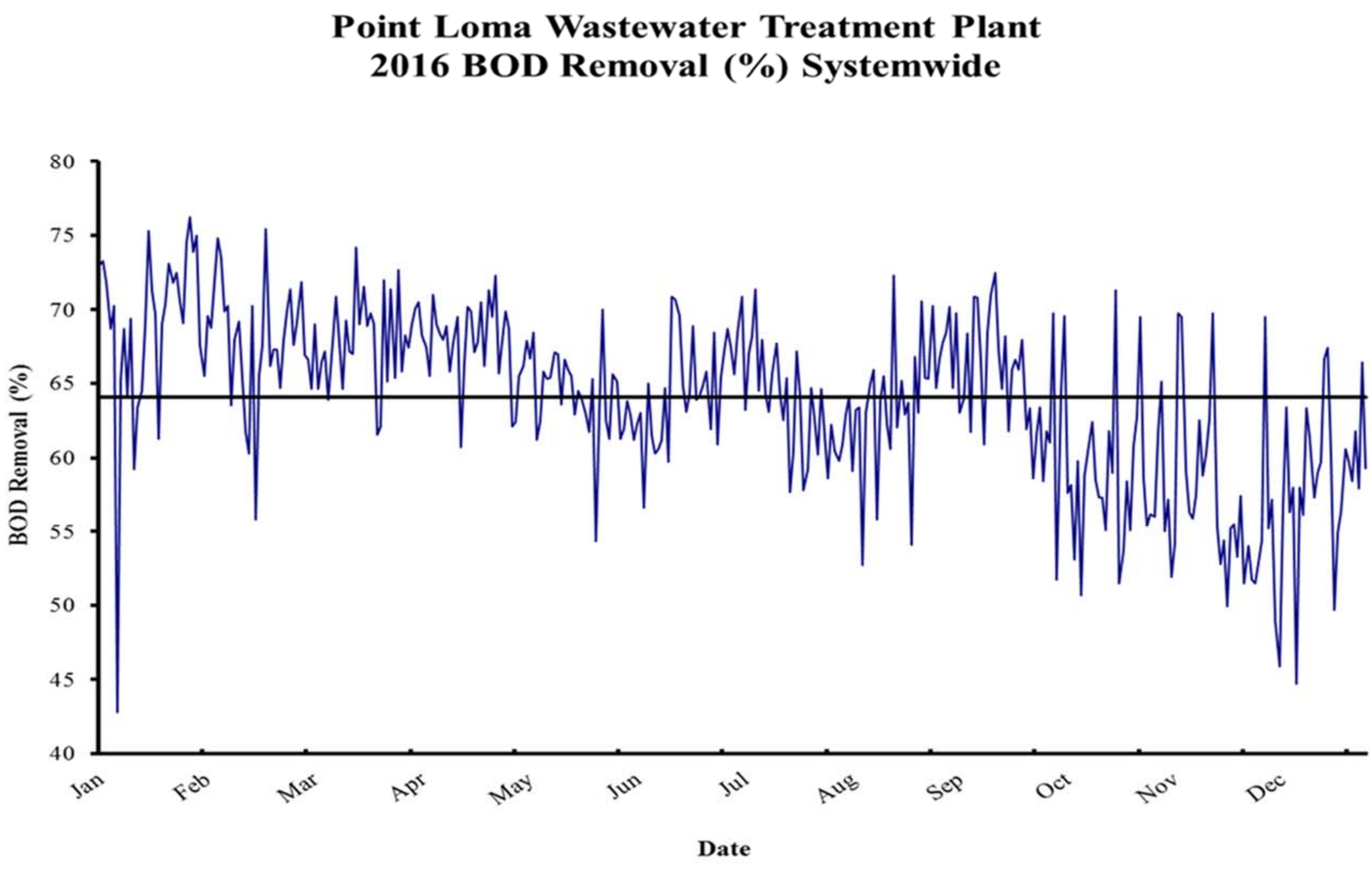
Point Loma Wastewater Treatment
2016 BOD Removal (%) at Point Loma



Point Loma Wastewater Treatment Plant

2016 Biochemical Oxygen Demand Removals (%) at Point Loma

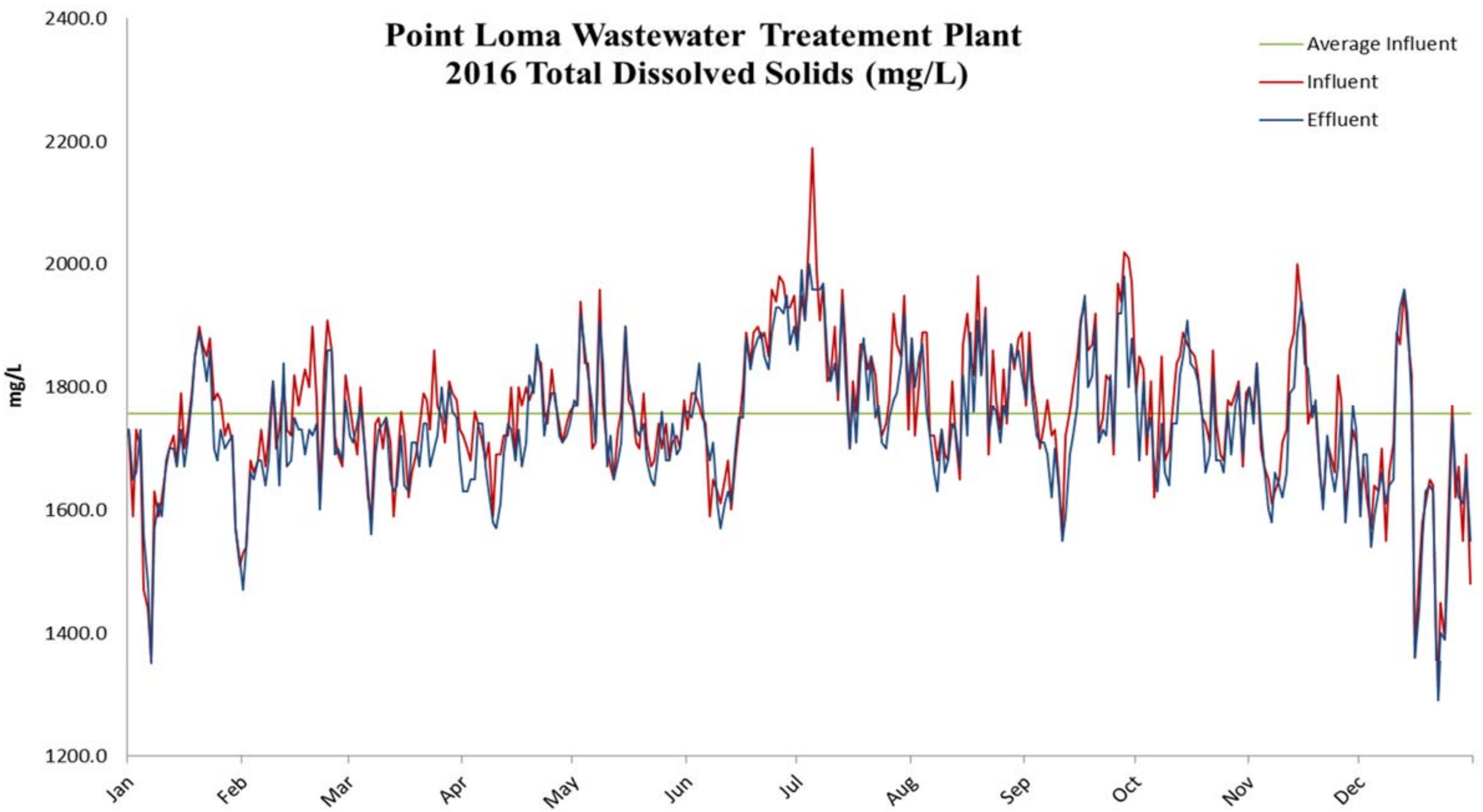
Day	Jan % Rem	Feb % Rem	Mar % Rem	Apr % Rem	May % Rem	Jun % Rem	Jul % Rem	Aug % Rem	Sep % Rem	Oct % Rem	Nov % Rem	Dec % Rem	Annual Summary
1	70.4	67.0	63.3	66.9	61.1	59.8	64.7	55.3	63.1	56.2	57.4	50.0	
2	70.5	65.6	60.6	67.8	62.6	58.8	62.5	56.4	67.0	67.0	62.2	67.0	
3	69.0	69.1	67.4	65.8	64.6	57.0	64.9	58.1	61.4	51.4	49.8	50.5	
4	65.3	72.1	61.1	63.5	63.7	59.3	68.6	60.5	63.5	62.3	53.4	53.0	
5	65.2	71.1	64.0	60.9	65.2	58.6	59.0	57.1	59.4	67.0	46.9	43.8	
6	48.4	66.8	65.2	68.5	56.9	52.8	63.9	57.4	59.5	54.1	49.6	39.8	
7	67.0	66.5	62.7	65.8	59.2	61.0	65.5	60.7	64.4	53.9	67.0	51.5	
8	69.0	60.1	65.1	65.4	61.1	58.0	68.1	48.6	59.2	48.0	67.0	59.6	
9	67.5	64.2	69.2	65.2	61.8	56.1	61.4	59.0	66.5	55.4	54.4	51.7	
10	67.0	67.1	68.8	66.5	62.6	56.5	63.9	61.0	68.1	45.9	52.2	53.9	
11	61.2	61.6	61.8	62.6	64.1	58.6	60.6	62.4	63.4	54.7	52.4	39.1	
12	67.2	57.9	67.2	68.7	63.5	62.5	58.4	49.2	55.9	56.3	58.2	53.1	
13	66.0	62.3	63.8	67.9	59.3	55.6	61.1	60.3	64.6	57.4	59.7	51.7	
14	70.7	67.6	64.8	58.0	63.6	67.0	64.5	62.7	67.4	56.0	54.2	59.3	
15	73.4	51.8	73.0	62.6	63.9	67.0	60.5	58.9	69.7	54.2	56.8	57.4	
16	71.3	62.8	65.8	67.5	63.4	67.0	58.8	56.4	63.8	53.1	59.7	54.8	
17	72.6	64.4	68.8	67.3	60.0	60.8	61.7	70.4	60.6	50.4	67.0	56.2	
18	60.7	74.0	67.6	63.5	60.9	59.8	51.6	58.5	64.5	58.0	50.9	56.2	
19	67.2	64.5	67.6	63.5	62.4	59.5	55.8	62.7	56.4	54.7	50.0	63.4	
20	67.8	65.8	66.1	67.8	59.4	66.8	63.9	60.0	62.8	69.3	49.6	64.7	
21	70.9	64.1	59.8	63.4	59.5	59.7	60.8	60.3	63.8	47.0	45.4	55.8	
22	68.9	63.9	57.7	67.0	61.3	60.2	53.5	48.3	62.1	49.5	50.9	45.3	
23	70.7	64.8	69.3	67.1	49.4	61.0	55.8	63.7	64.7	54.2	51.5	51.8	
24	67.5	68.7	64.0	69.6	58.7	62.5	60.8	61.1	57.8	50.2	49.5	53.7	
25	66.3	69.0	69.1	62.0	67.0	59.0	58.0	68.0	60.9	57.3	53.5	57.0	
26	71.1	65.4	62.4	64.3	59.1	65.3	54.8	62.5	53.2	59.5	45.8	56.3	
27	74.4	66.3	70.2	66.9	57.7	57.7	62.5	60.7	56.8	67.0	50.4	55.1	
28	71.2	67.5	62.8	66.7	62.7	61.7	55.5	67.3	58.1	54.1	48.4	58.7	
29	72.9	63.6	67.5	58.2	62.6	64.2	53.9	60.6	51.9	51.0	46.9	53.8	
30	64.9		63.9	58.8	57.9	65.9	57.1	62.9	58.4	52.8	48.4	63.3	
31	63.7		65.7		58.9		55.4	63.1		51.1		56.5	
Avg	67.7	65.4	65.4	65.0	61.1	60.7	60.2	59.8	61.6	55.5	53.6	54.3	60.9
Min	48.4	51.8	57.7	58.0	49.4	52.8	51.6	48.3	51.9	45.9	45.4	39.1	39.1
Max	74.4	74.0	73.0	69.6	67.0	67.0	68.6	70.4	69.7	69.3	67.0	67.0	74.4


Point Loma Wastewater Treatment Plant
2016 BOD Removal (%) Systemwide
80
75
70
65
60
55
50
45
40
BOD Removal (%)
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Date

Point Loma Wastewater Treatment Plant

2016 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	73.0	69.6	66.6	70.1	65.5	63.8	67.4	59.8	68.5	61.0	61.6	54.4	
2	73.3	68.8	64.6	70.5	66.2	62.8	65.6	60.9	70.2	69.8	65.1	69.5	
3	71.9	71.8	69.0	68.3	67.9	61.2	68.5	62.9	64.7	51.7	55.0	55.2	
4	68.7	74.8	64.6	67.4	66.7	62.3	70.9	64.1	69.8	64.3	57.2	57.2	
5	70.3	73.5	66.4	65.5	68.5	63.0	63.2	59.1	63.0	69.6	51.9	49.0	
6	42.8	69.9	67.2	71.0	61.2	56.6	67.0	63.2	64.0	57.6	54.2	45.9	
7	65.2	70.3	63.9	69.0	62.4	65.0	68.2	63.4	68.4	58.2	69.8	56.6	
8	68.7	63.5	67.8	68.4	65.8	61.5	71.4	52.7	61.7	53.1	69.5	63.4	
9	64.2	68.0	70.9	68.0	65.3	60.3	64.5	63.0	70.9	59.8	59.1	56.3	
10	69.4	69.2	67.8	68.9	65.4	60.6	68.0	65.0	70.8	50.7	56.3	58.0	
11	59.2	65.4	64.6	65.8	67.1	61.2	64.3	65.9	66.7	58.8	55.9	44.7	
12	63.4	61.7	69.3	67.7	67.0	64.7	63.1	55.8	60.9	60.4	57.5	58.0	
13	64.5	60.3	67.2	69.5	63.6	59.7	65.7	63.8	68.5	62.4	62.5	56.1	
14	69.0	70.3	67.0	60.7	66.6	70.9	67.7	65.5	71.0	58.5	58.8	63.3	
15	75.3	55.8	74.2	66.3	65.9	70.7	64.3	62.2	72.5	57.3	60.3	61.2	
16	71.3	65.5	69.0	70.2	65.5	69.6	62.5	60.6	67.3	57.3	62.6	57.3	
17	69.7	67.6	71.6	69.9	62.9	64.9	65.4	72.3	64.6	55.1	69.8	59.0	
18	61.3	75.4	68.9	67.1	64.5	63.1	57.7	62.0	68.2	61.8	55.3	59.7	
19	69.0	66.2	69.8	67.8	64.0	64.3	60.4	65.2	61.8	59.0	52.8	66.7	
20	70.4	67.3	69.0	70.5	62.9	68.9	67.2	62.9	65.9	71.3	54.4	67.4	
21	73.1	67.3	61.5	66.2	61.7	63.9	64.2	63.7	66.6	51.5	49.9	60.2	
22	71.8	64.7	62.1	71.3	65.3	64.2	57.8	54.1	65.9	53.7	55.2	49.7	
23	72.5	67.9	72.0	69.5	54.3	64.9	59.2	66.8	68.0	58.4	55.5	54.9	
24	70.6	69.9	65.1	72.3	62.9	65.8	64.7	63.0	61.9	55.1	53.3	56.4	
25	69.1	71.4	71.4	65.7	70.0	61.9	62.6	70.6	63.3	60.8	57.4	60.6	
26	74.5	67.6	65.4	67.9	62.5	68.5	60.2	65.4	58.6	62.7	51.5	59.7	
27	76.2	69.2	72.7	69.9	61.3	60.9	64.6	65.3	61.5	69.5	54.0	58.4	
28	73.9	71.9	65.8	68.7	65.6	65.4	61.6	70.3	63.4	58.6	51.7	61.8	
29	75.0	66.9	68.3	62.1	65.1	67.2	58.6	64.7	58.4	55.4	51.5	57.9	
30	67.6		67.4	62.4	61.3	68.7	62.2	66.7	61.8	56.2	52.9	66.4	
31	65.5		69.0		61.9		60.5	67.8		56.0		59.3	
Avg	68.7	68.0	67.7	68.0	64.4	64.2	64.2	63.5	65.6	59.2	57.4	58.2	64.1
Min	42.8	55.8	61.5	60.7	54.3	56.6	57.7	52.7	58.4	50.7	49.9	44.7	42.8
Max	76.2	75.4	74.2	72.3	70.0	70.9	71.4	72.3	72.5	71.3	69.8	69.5	76.2


Point Loma Wastewater Treatement Plant
2016 Total Dissolved Solids (mg/L)
Average Influent
Influent
Effluent
mg/L
2400.0
2200.0
2000.0
1800.0
1600.0
1400.0
1200.0
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec

Point Loma Wastewater Treatment Plant

2016 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	1730	1730	1530	1470	1770	1720	1720	1630	1770	1780	1730	1760	1870	1860	1880	1880	1770	1780	1790	1800	1800	1800	1630	1590		
2	1590	1650	1540	1540	1730	1710	1700	1630	1770	1770	1790	1750	1950	1990	1720	1800	1890	1860	1850	1680	1760	1740	1670	1690		
3	1730	1660	1680	1660	1690	1740	1680	1650	1940	1920	1790	1780	1910	1910	1810	1850	1810	1780	1830	1810	1840	1840	1620	1690		
4	1700	1730	1660	1650	1800	1770	1760	1650	1840	1860	1770	1840	2050	2000	1890	1870	1760	1720	1690	1720	1700	1730	1570	1540		
5	1470	1560	1680	1680	1700	1700	1740	1740	1840	1820	1750	1770	2190	1960	1890	1760	1700	1710	1810	1750	1670	1670	1640	1590		
6	1440	1480	1730	1680	1620	1640	1710	1740	1700	1770	1740	1720	1990	1960	1720	1720	1740	1710	1620	1670	1650	1600	1630	1630		
7	1360	1350	1670	1640	1590	1560	1680	1670	1710	1710	1590	1680	1910	1960	1720	1660	1780	1690	1690	1630	1610	1580	1700	1660		
8	1630	1570	1720	1680	1740	1690	1710	1630	1960	1910	1650	1710	1970	1970	1680	1630	1720	1620	1850	1740	1630	1660	1550	1610		
9	1590	1610	1810	1810	1750	1730	1590	1580	1770	1840	1630	1610	1810	1850	1730	1730	1730	1700	1680	1660	1650	1640	1660	1640		
10	1620	1590	1700	1740	1700	1740	1690	1570	1700	1670	1610	1570	1820	1810	1690	1660	1640	1630	1700	1640	1710	1620	1710	1650		
11	1670	1680	1730	1640	1750	1750	1690	1610	1670	1720	1650	1610	1900	1840	1680	1680	1560	1550	1760	1740	1730	1660	1890	1880		
12	1700	1700	1810	1840	1710	1650	1720	1690	1650	1650	1680	1630	1780	1790	1810	1740	1720	1590	1840	1740	1860	1790	1870	1930		
13	1720	1700	1730	1670	1590	1630	1720	1740	1730	1680	1600	1610	1960	1940	1720	1730	1760	1690	1850	1820	1890	1800	1960	1960		
14	1670	1670	1720	1680	1660	1640	1800	1730	1760	1710	1680	1700	1870	1820	1650	1670	1800	1720	1890	1850	2000	1890	1890	1920		
15	1790	1730	1820	1750	1760	1720	1680	1680	1900	1900	1730	1750	1700	1700	1870	1820	1850	1770	1870	1910	1930	1940	1820	1780		
16	1700	1670	1770	1730	1720	1640	1800	1730	1780	1810	1800	1750	1810	1790	1920	1720	1910	1900	1860	1840	1900	1840	1360	1360		
17	1730	1710	1800	1730	1620	1630	1770	1670	1760	1770	1890	1880	1760	1710	1850	1890	1940	1950	1850	1830	1740	1830	1500	1440		
18	1790	1780	1830	1690	1660	1710	1800	1710	1710	1730	1840	1830	1870	1840	1820	1760	1860	1800	1820	1810	1770	1750	1580	1550		
19	1850	1850	1800	1730	1690	1710	1780	1820	1700	1720	1890	1860	1870	1880	1980	1910	1870	1820	1750	1750	1760	1780	1610	1630		
20	1900	1890	1900	1720	1730	1670	1800	1790	1790	1740	1900	1880	1830	1780	1820	1820	1920	1900	1740	1660	1660	1670	1650	1640		
21	1870	1860	1780	1740	1790	1740	1850	1870	1710	1680	1880	1890	1850	1850	1930	1920	1720	1710	1710	1690	1610	1600	1640	1630		
22	1850	1810	1620	1600	1780	1740	1840	1820	1670	1650	1890	1850	1820	1750	1690	1720	1750	1730	1860	1820	1710	1720	1300	1290		
23	1880	1860	1830	1750	1730	1670	1760	1720	1680	1640	1850	1830	1750	1770	1860	1770	1820	1720	1740	1680	1690	1670	1450	1400		
24	1780	1700	1910	1860	1860	1700	1740	1760	1740	1700	1960	1890	1720	1710	1780	1760	1810	1820	1690	1680	1660	1630	1390	1390		
25	1790	1680	1860	1860	1770	1720	1830	1790	1700	1760	1940	1930	1740	1700	1730	1710	1690	1710	1680	1660	1820	1670	1580	1520		
26	1780	1730	1720	1690	1750	1800	1780	1790	1740	1680	1980	1930	1780	1750	1830	1770	1970	1920	1780	1760	1780	1760	1770	1750		
27	1720	1700	1690	1700	1710	1740	1740	1720	1680	1680	1970	1920	1920	1780	1740	1750	1940	1920	1770	1690	1600	1580	1620	1660		
28	1740	1710	1670	1680	1810	1800	1710	1710	1710	1740	1930	1950	1870	1790	1870	1870	2020	1980	1790	1770	1660	1650	1670	1620		
29	1710	1720	1820	1780	1790	1760	1740	1720	1720	1690	1930	1870	1850	1840	1830	1840	2010	1800	1810	1800	1730	1770	1550	1610		
30	1570	1570			1780	1750	1760	1740	1700	1700	1950	1900	1950	1920	1880	1860	1970	1880	1670	1690	1710	1730	1690	1670		
31	1510	1520			1730	1680			1780	1760			1730	1790	1890	1820			1790	1770			1480	1550		
Avg	1696	1683	1742	1703	1725	1705	1743	1710	1751	1747	1800	1788	1865	1839	1803	1777	1814	1769	1775	1744	1741	1720	1634	1628	1757	1735
Min	1360	1350	1530	1470	1590	1560	1590	1570	1650	1640	1590	1570	1700	1700	1650	1630	1560	1550	1620	1630	1600	1580	1300	1290	1300	1290
Max	1900	1890	1910	1860	1860	1800	1850	1870	1960	1920	1980	1950	2190	2000	1980	1920	2020	1980	1890	1910	2000	1940	1960	1960	2190	2000

Point Loma Wastewater Treatment Plant
2016 Instantaneous Maximum Chlorine (mg/L) - Laboratory Grab

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	
1	0	0	0	0	0	0	0	0	0	0	0	0	
2	0	0	0	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	0.49	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	0.1	0	0	0	0	0	0	0	0	0	0	0.04	
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	0	0	0	0	0	0	0	0	0	0	0	0	
22	0	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	0	0	0	0	0	0	0	0	0	0	0	
29	0	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	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Maximum	0.49	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.49

Point Loma Wastewater Treatment Plant
2016 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	0.61	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	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	0.02	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	0.61	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.61

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.

F. Toxicity Bioassays

Toxicity Testing: Point Loma Wastewater Treatment Plant 2016

INTRODUCTION

The City of San Diego's Toxicology Laboratory (CSDTL) oversaw aquatic toxicity tests (bioassays) as required by NPDES Permit No. CA0107409, Order No. R9-2009-0001 for the Point Loma Wastewater Treatment Plant (PLWTP). 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 2016.

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 is required to conduct acute toxicity tests of PLWTP effluent on a semiannual schedule.

Chronic toxicity testing, in the classic sense, refers to long-term exposure of the test organism to a potential toxicant. This may involve exposing the test organism for its entire reproductive life cycle, which may exceed 12 months for organisms such as fish. In general, chronic tests are inherently more sensitive to 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 2016 were performed by the CSDTL's external contract lab for toxicology services, Nautilus Environmental (4340 Vandever Ave, San Diego, CA 92120). Nautilus Environmental is accredited in accordance with NELAP by the State of Oregon Environmental Laboratory Accreditation Program (Certificate No. 4053). It is also certified by the California State Water Resources Control Board Environmental Laboratory Accreditation Program (Certificate No. 1802), and the State of Washington Department of Ecology (Lab ID C552).

MATERIALS & METHODS

Test Materials

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 2016).

Acute Bioassays

Mysid Survival Bioassay

During the current reporting period (January–December 2016), acute bioassays using the mysid shrimp *Americamysis bahia* (*Mysidopsis bahia*), were conducted for the PLWTP Effluent as a part of the mandated multiple-species screening effort in May and as a part of the routine monitoring in July in accordance with USEPA protocol EPA-821-R02-012 (USEPA 2002).

Larval mysids (4-5 days old) were purchased from Aquatic Bio Systems (Fort Collins, CO), and acclimated to test temperature and salinity for at least 24 hours 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 50, 100, 200, 400, and 800 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.

Topsmelt Survival Bioassay

During the current reporting period (January–December 2016), acute bioassays using the topsmelt *Atherinops affinis* were conducted for the PLWTP effluent as a part of the mandated multiple-species screening effort in May in accordance with USEPA protocol EPA-821-R02-012 (USEPA 2002).

Larval topsmelt (9-14 days old) were purchased from Aquatic Bio Systems (Fort Collins, CO), and acclimated to test temperature and salinity for at least 24 hours. Upon test initiation, the topsmelt (5 per replicate) were exposed for 96 ± 2 hours 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 once daily.

Simultaneous reference toxicant testing was performed using reagent grade copper chloride plus a negative control (i.e., SIO seawater). Test concentrations consisted of 50, 100, 200, 400, and 800 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

Kelp Germination and Growth Test

During the current reporting period (January–December 2016), chronic bioassays using the giant kelp, *Macrocystis pyrifera,* were conducted for the PLWTP effluent as a part of the mandated multiple-species screening effort in August, September, and October, and 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 between Point Loma and 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 haphazardly-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).

Red Abalone Development Bioassay

During the current reporting period (January–December 2016), chronic bioassays using the red abalone, *Haliotis rufescens*, were conducted for the PLWTP effluent as a part of the mandated multiple-species screening effort in August, September, and October in accordance with USEPA protocol EPA/600/R-95/136 (USEPA 1995).

Test organisms were purchased from American Abalone Farm (Davenport, California), and shipped via overnight delivery to Nautilus Environmental. Mature male and female abalones were placed in gender-specific natural seawater tanks and held at 15 ± 1 ºC. For each test event, spawning was induced in 8 abalones in gender-specific vessels. Eggs and sperm were retained and examined under magnification to ensure good quality. Once deemed acceptable, the sperm stock was used to fertilize the eggs, and a specific quantity of fertilized embryos was added to each test replicate and exposed to the effluent series for 48 ± 2 hours.

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

At the end of the exposure period, 100 haphazardly-selected embryos were examined and the number of normally and abnormally developed embryos was recorded. Data were analyzed in accordance with "Flowchart for statistical analysis of red abalone *Haliotis rufescens*, development data" (USEPA 1995).

Topsmelt Survival and Growth Bioassays

During the current reporting period (January–December 2016), chronic bioassays using the topsmelt, *Atherinops affinis*, were conducted for the PLWTP effluent as a part of the mandated multiple-species screening effort in August, September, and October in accordance with EPA/600/R-95/136 (USEPA 1995).

Larval topsmelt (9-14 days old) were purchased from Aquatic Bio Systems (Fort Collins, CO) and exposed for seven days in a static-renewal system to the effluent. The test endpoints are survival and growth (dry biomass).

Simultaneous reference toxicant testing was performed using reagent grade copper chloride. The exposure series consisted of 37.5, 75, 150, 300, and 600 µg/L copper. A SIO seawater control was also tested.

Upon conclusion of the exposure period, percent survival and dry biomass were recorded. Data were analyzed in accordance with "Flowchart for statistical analysis of the topsmelt, *Atherinops affinis*, larval survival data" and "Flowchart for statistical analysis of the topsmelt, *Atherinops affinis*, larval 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 2013) 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). Although PMSD bounds have not been established for the topsmelt, percentiles of PMSD for a comparable method using the inland silverside (*Menidia beryllina*) may be considered (Hemmer 1992). If the relative difference between an exposure concentration and the control was smaller than the 10th 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).

RESULTS & DISCUSSION

Acute Toxicity of PLWTP Effluent

In 2016, all acute bioassays of the PLWTP effluent using the mysid shrimp and topsmelt 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 2016. Data are presented as acute toxic units (TUa).

Sample Date	Mysid 96-Hour Bioassay	Topsmelt 96-Hour Bioassay
05/23/2016	6.28	2.53
07/18/2016	2.53	-
N	2	1
No. in compliance	2	1
Mean TUa	4.41	2.53

NPDES permit limit: 6.42 TUa

Chronic Toxicity of PLWTP Effluent

In 2016, routine chronic bioassays of the PLWTP effluent using the giant kelp as the primary test species were conducted. Chronic bioassays using the red abalone and topsmelt were also conducted as part of the mandated multiple-species screening effort. All chronic tests from 2016 were within the compliance limit (Table T.2).

TABLE T.2

Results of PLWTP effluent monthly chronic toxicity tests conducted in 2016. Data are presented as chronic toxic units (TUc).

	Giant Kelp		Red Abalone	Topsmelt	
Sample Date	Germination	Growth	Development	Survival	Growth
01/05/2016	<64.1	<64.1	-	-	-
02/02/2016	<64.1	<64.1	-	-	-
03/01/2016	<64.1	<64.1	-	-	-
04/05/2016	<64.1	<64.1	-	-	-
05/03/2016	<64.1	<64.1	-	-	-
06/07/2016	<64.1	<64.1	-	-	-
07/12/2016	<64.1	<64.1	-	-	-
08/01/2016	<64.1	<64.1	114	<64.1	<64.1
09/06/2016	<64.1	204	<64.1	<64.1	<64.1
10/04/2016	<64.1	<64.1	114	<64.1	<64.1
11/07/2016	<64.1	<64.1	-	-	-
12/06/2016	114	204	-	-	-
N	12	12	3	3	3
No. in Compliance	12	12	3	3	3
Median TUc	<64.1	<64.1	114	<64.1	<64.1
Mean TUc (Detected values)	<68.3	<87.4	<97.4	<64.1	<64.1

NPDES permit limit: 205 TUc

LITERATURE CITED

City of San Diego. 2016. 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.

Hemmer, MJ, DP Middaugh, V Comparetta. 1992. Comparative Acute Sensitivity of Larval Topsmelt, *Atherinops affinis*, and Inland Silverside, *Menidia beryllina*, to 11 Chemicals. Environmental Toxicology and Chemistry, 11(3): 401-408.

Tidepool Scientific Software. 2013. Comprehensive Environmental Toxicity Information System Software. Version 1.8.7.20.

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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.

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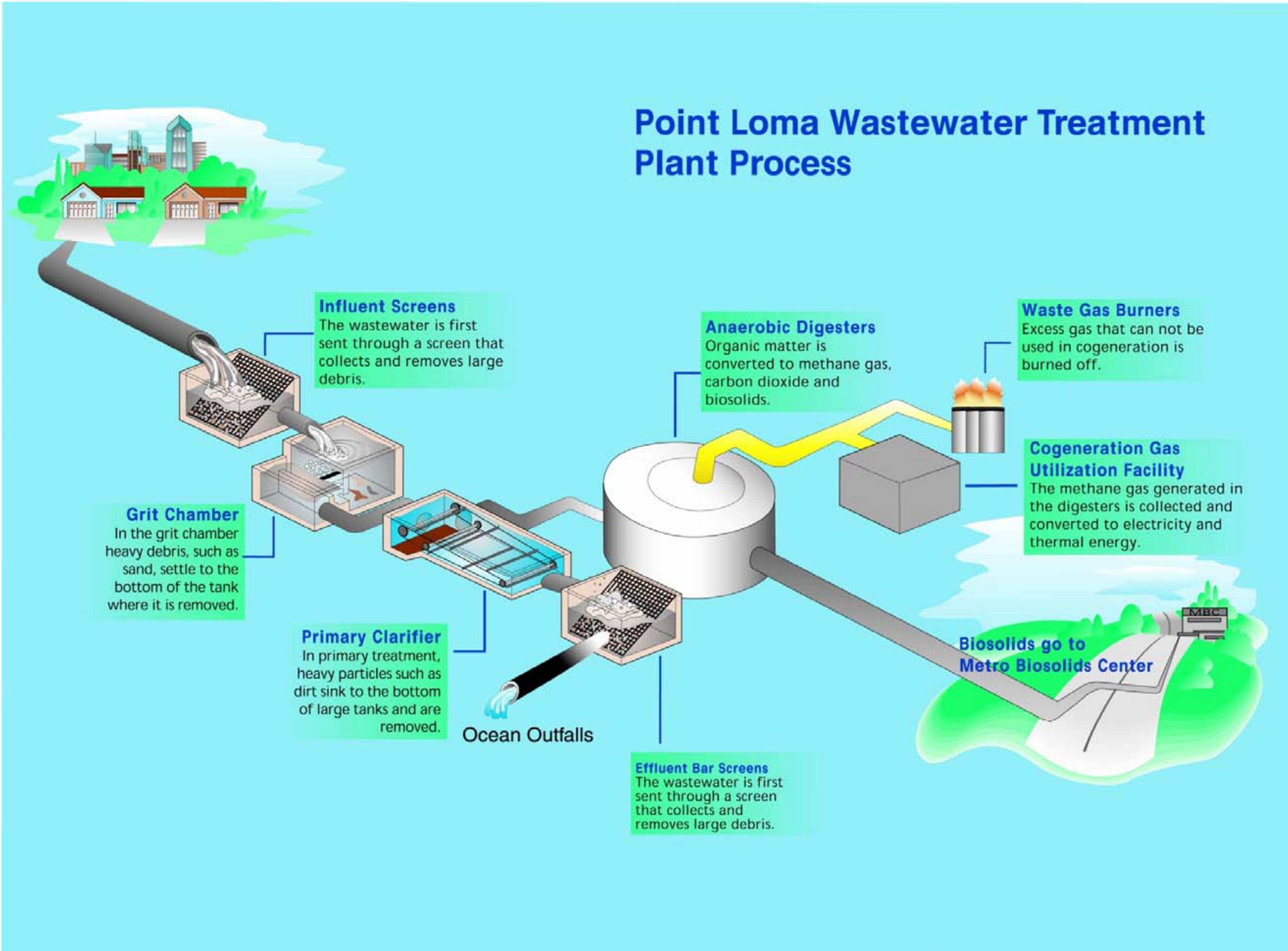

Point Loma Wastewater Treatment Plant Process
Influent Screens
The wastewater is first sent through a screen that collects and removes large debris.
Grit Chamber
In the grit chamber heavy debris, such as sand, settle to the bottom of the tank where it is removed.
Primary Clarifier
In primary treatment, 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.

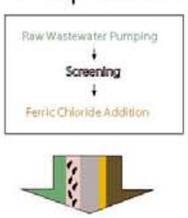
S8 Digester gas tested for percent methane, to determine if the microbial populations in the digester are in proper balance, and to indicate fuel value of digester gas. Hydrogen Sulfide tested to determine the corrosivity of the gas to the power generation equipment and air pollution potential.

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.

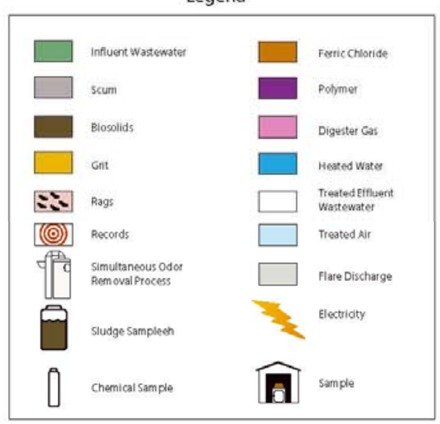
S11 Ocean water, sediments and fish tested to see if our discharge has an impact

Pump Station 1

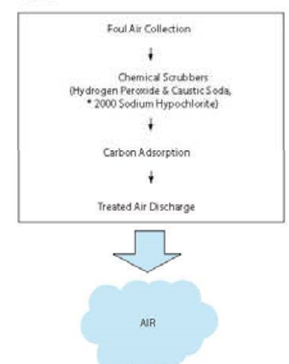


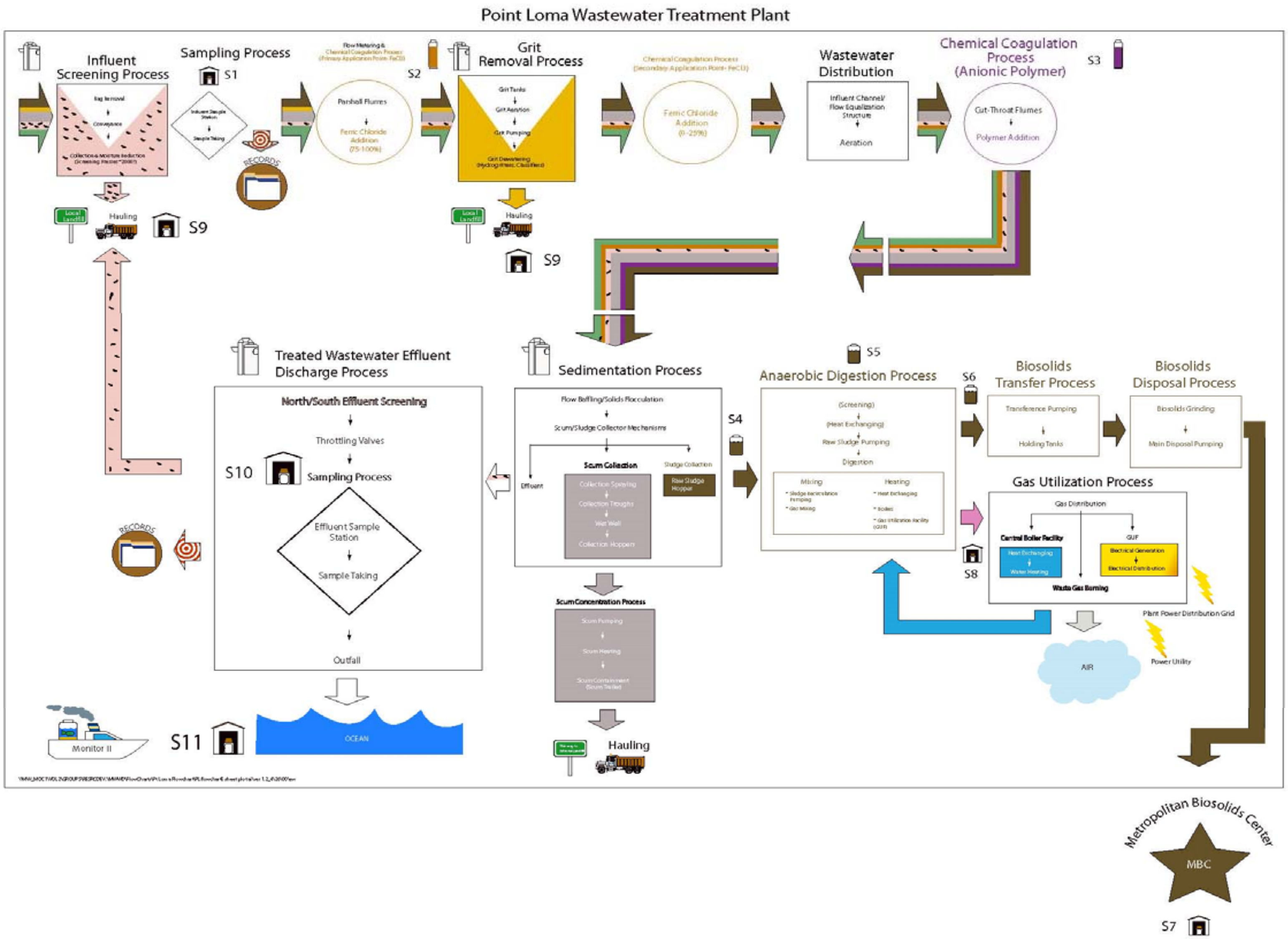
Pump Station 2

Legend



Odor Removal Process





Point Loma Wastewater Treatment Plant
Influent Screening Process
Sampling Process
S1
S2
Grit Removal Process
Wastewater Distribution
Chemical Coagulation Process (Anionic Polymer)
S3
Parshall Flumes
Ferric Chloride Addition
Influent Channel/ Flow Equalization Structure
Aeration
Gut-Throat Flumes
Polymer Addition
RECORDS
Hauling
S9
Treated Wastewater Effluent Discharge Process
North/South Effluent Screening
Throttling Valves
S10
Sampling Process
Effluent Sample Station
Sample Taking
Outfall
Sedimentation Process
Flow Baffling/Solids Flocculation
Scum/Sludge Collector Mechanisms
Scum Collection
Sludge Collection
Effluent
Raw Sludge Hopper
Scum Concentration Process
S4
S5
Anaerobic Digestion Process
(Screening)
(Heat Exchanging)
Raw Sludge Pumping
Digestion
Mixing
Heating
S6
Biosolids Transfer Process
Transference Pumping
Holding Tanks
Biosolids Disposal Process
Biosolids Grinding
Main Disposal Pumping
Gas Utilization Process
Gas Distribution
Central Boiler Facility
GUF
Waste Gas Burning
S8
Plant Power Distribution Grid
AIR
Power Utility
OCEAN
Monitor II
S11
Hauling
Metropolitan Biosolids Center
MBC
S7

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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 - 2016

WASTEWATER FLOWS
Daily Average Flows - Millions of Gallons

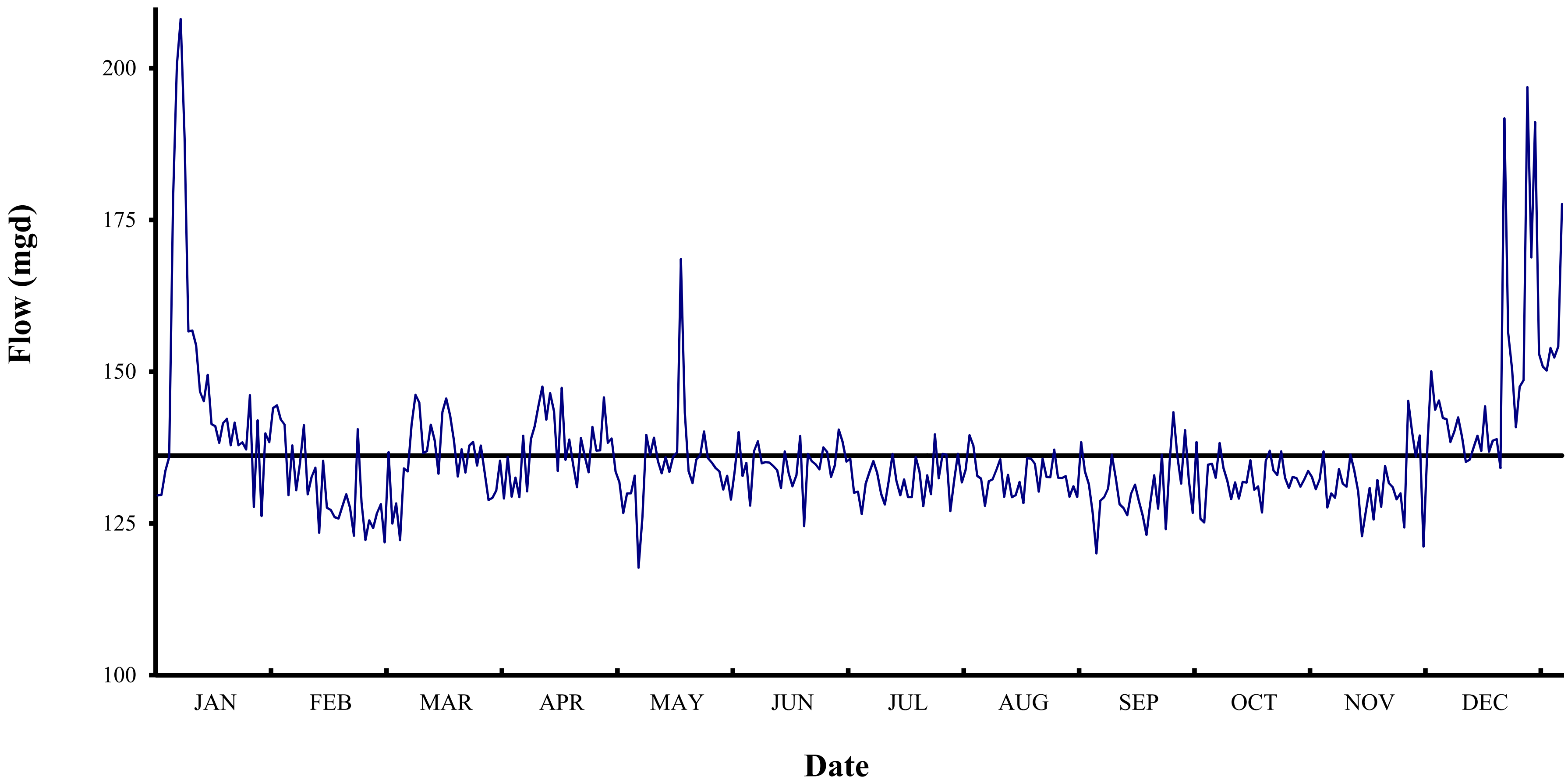
Mon	Pt. L Gould	Pt. L ADS	PS#2 Flow	PS#2 Pumps	PS#1 Flows
01	147.6	141.0	151.4	127.2	53.2
02	130.7	133.6	131.9	125.4	50.2
03	135.7	135.5	136.1	123.4	50.4
04	137.8	133.2	136.8	131.8	49.8
05	134.9	129.6	131.6	130.4	48.3
06	134.5	134.2	131.6	110.0	46.8
07	132.7	132.6	133.1	123.0	48.4
08	132.3	132.9	131.8	116.5	49.4
09	130.6	131.2	128.5	113.2	53.9
10	132.6	134.6	128.7	105.5	54.9
11	133.5	134.6	129.9	116.4	50.4
12	150.5	146.2	149.2	137.9	56.8
avg	136.1	134.9	135.1	121.7	51.0
sum	1,633.3	1,619.1	1,620.6	1,460.8	612.3

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	4,575	4,370	4,694	3,944	1,650
02	3,790	3,874	3,825	3,637	1,457
03	4,207	4,199	4,220	3,825	1,561
04	4,134	3,996	4,104	3,955	1,493
05	4,183	4,017	4,080	4,042	1,498
06	4,035	4,026	3,948	3,301	1,403
07	4,113	4,110	4,126	3,814	1,499
08	4,101	4,119	4,085	3,610	1,531
09	3,918	3,937	3,854	3,397	1,617
10	4,110	4,174	3,991	3,270	1,700
11	4,004	4,038	3,896	3,491	1,512
12	4,664	4,532	4,624	4,274	1,760
avg	4,153	4,116	4,121	3,713	1,557
sum	49,834	49,392	49,448	44,561	18,680

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.

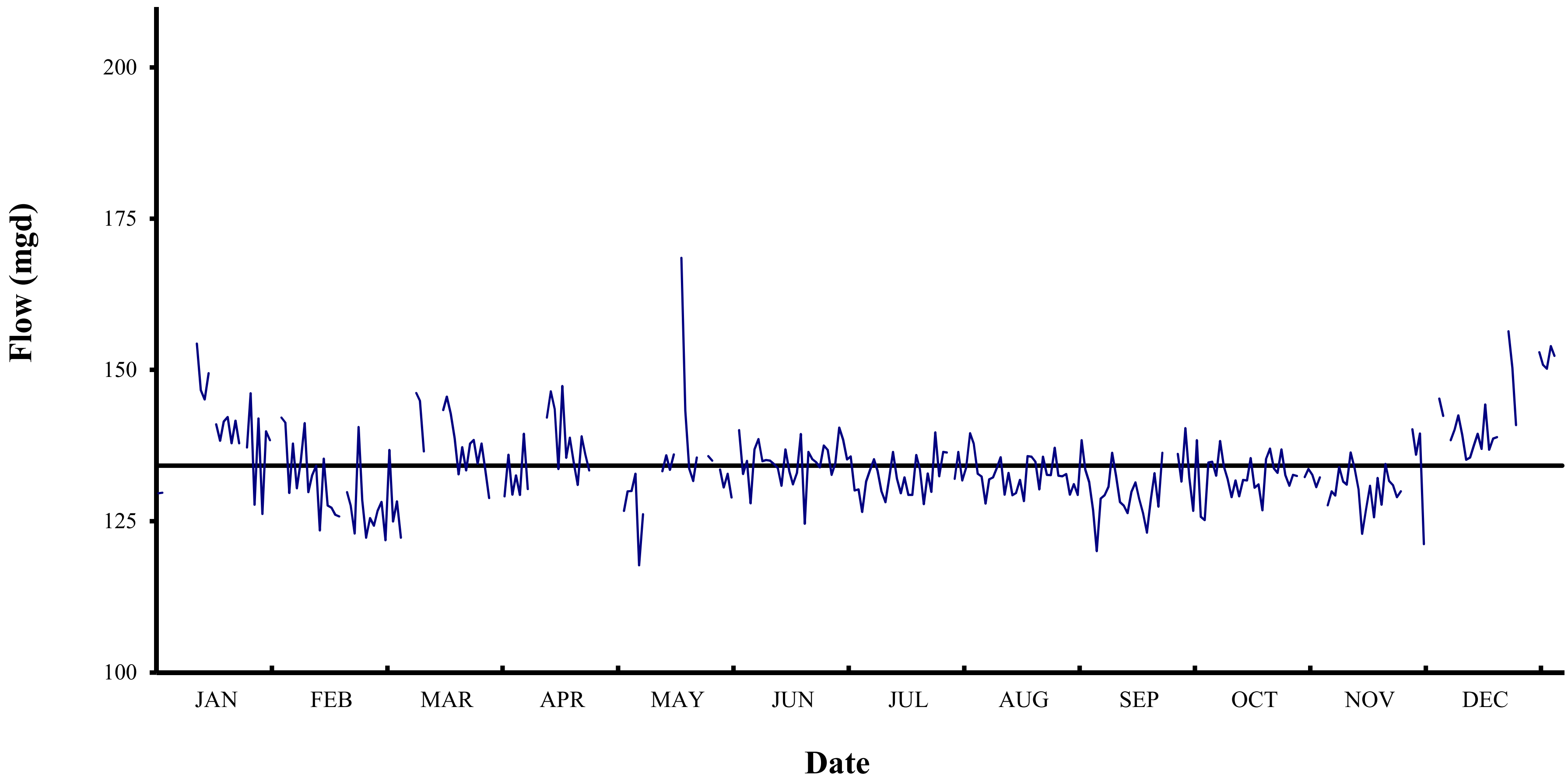
Point Loma Wastewater Treatment Plant
2016 Daily Flows (mgd)



Point Loma Wastewater Treatment Plant
2016 Flows (mgd)

Day	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
1	129.6	144.5	136.8	136.0	126.7	132.8	130.2	132.8	120.1	134.8	129.9	142.2	
2	129.7	142.1	125.0	129.4	129.9	135.0	126.5	132.4	128.7	132.5	129.2	138.4	
3	133.7	141.3	128.3	132.6	130.0	127.9	131.5	127.9	129.3	138.3	134.0	140.1	
4	135.9	129.7	122.3	129.3	132.9	136.9	133.4	131.9	130.7	134.1	131.6	142.5	
5	178.6	137.9	134.1	139.4	117.7	138.6	135.3	132.2	136.3	132.0	131.1	139.3	
6	200.5	130.5	133.6	130.3	126.1	134.9	133.3	133.9	132.5	129.0	136.4	135.1	
7	208.1	134.9	141.3	138.9	139.6	135.1	129.9	135.6	128.2	131.8	133.7	135.5	
8	188.4	141.2	146.2	141.0	136.3	135.0	128.1	129.4	127.5	129.1	130.3	137.5	
9	156.6	129.8	144.9	144.5	139.1	134.5	132.0	133.0	126.4	131.8	122.9	139.5	
10	156.8	132.7	136.6	147.6	135.3	133.8	136.5	129.3	129.9	131.7	127.0	137.0	
11	154.4	134.2	136.9	142.1	133.3	130.8	132.0	129.7	131.4	135.4	130.9	144.3	
12	146.7	123.5	141.3	146.5	135.9	136.9	129.6	131.8	128.8	130.5	125.6	136.8	
13	145.1	135.3	138.7	143.5	133.5	133.2	132.2	128.3	126.3	131.1	132.2	138.6	
14	149.5	127.6	133.2	133.6	136.0	131.1	129.3	135.8	123.1	126.8	127.7	138.9	
15	141.4	127.2	143.4	147.3	136.7	132.9	129.3	135.7	128.5	135.3	134.5	134.1	
16	141.0	126.0	145.6	135.5	168.6	139.4	135.9	134.8	132.9	137.0	131.6	191.8	
17	138.3	125.8	142.8	138.8	143.3	124.6	133.5	130.2	127.4	133.7	131.0	156.4	
18	141.5	127.8	138.7	134.6	133.6	136.5	127.8	135.7	136.3	133.0	129.0	150.4	
19	142.2	129.8	132.7	131.0	131.6	135.3	132.9	132.7	124.1	136.9	130.0	140.9	
20	137.9	127.6	137.2	139.1	135.5	134.7	129.8	132.6	135.1	132.6	124.3	147.5	
21	141.6	123.0	133.4	136.1	136.2	133.9	139.7	137.2	143.3	130.9	145.2	148.6	
22	137.9	140.5	137.8	133.4	140.2	137.5	132.4	132.5	136.1	132.7	140.2	196.9	
23	138.4	128.5	138.4	140.9	135.8	136.8	136.5	132.5	131.6	132.5	136.0	168.8	
24	137.2	122.3	134.5	137.0	135.0	132.7	136.4	132.8	140.4	131.1	139.5	191.1	
25	146.2	125.5	137.8	137.1	134.1	134.6	127.0	129.4	132.2	132.3	121.2	152.9	
26	127.7	124.2	133.3	145.8	133.6	140.5	132.0	131.1	126.7	133.7	137.8	150.9	
27	142.0	126.7	128.9	138.3	130.6	138.5	136.5	129.4	138.4	132.7	150.1	150.2	
28	126.2	128.2	129.2	139.0	132.8	135.2	131.8	138.4	125.8	130.6	143.7	153.9	
29	139.9	121.9	130.4	133.6	128.9	135.7	133.8	133.6	125.2	132.3	145.3	152.3	
30	138.4		135.3	131.9	133.8	130.1	139.6	131.5	134.7	136.9	142.4	154.1	Annual
31	144.0		129.1		140.1		137.9	126.8		127.6		177.6	Summary
Average	147.6	130.7	135.7	137.8	134.9	134.5	132.7	132.3	130.6	132.6	133.5	150.5	136.2
Minimum	126.2	121.9	122.3	129.3	117.7	124.6	126.5	126.8	120.1	126.8	121.2	134.1	117.7
Maximum	208.1	144.5	146.2	147.6	168.6	140.5	139.7	138.4	143.3	138.3	150.1	196.9	208.1
Total	4575.3	3789.9	4207.4	4133.9	4182.8	4035.1	4112.8	4100.6	3917.8	4110.3	4004.0	4664.1	49834

Point Loma Wastewater Treatment Plant
2016 Dry Wethaer Flows (mgd)



Point Loma Wastewater Treatment Plant
2016 Dry Weather Flows (mgd)

Day	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Summary
1	129.6		136.8	136.0	126.7	132.8	130.2	132.8	120.1	134.8	129.9		
2	129.7	142.1	125.0	129.4	129.9	135.0	126.5	132.4	128.7	132.5	129.2	138.4	
3		141.3	128.3	132.6	130.0	127.9	131.5	127.9	129.3	138.3	134.0	140.1	
4		129.7	122.3	129.3	132.9	136.9	133.4	131.9	130.7	134.1	131.6	142.5	
5		137.9		139.4		138.6	135.3	132.2	136.3	132.0	131.1	139.3	
6		130.5		130.3		134.9	133.3	133.9	132.5	129.0	136.4	135.1	
7		134.9				135.1	129.9	135.6	128.2	131.8	133.7	135.5	
8		141.2	146.2			135.0	128.1	129.4	127.5	129.1	130.3	137.5	
9		129.8	144.9		139.1	134.5	132.0	133.0	126.4	131.8	122.9	139.5	
10		132.7	136.6		135.3	133.8	136.5	129.3	129.9	131.7	127.0	137.0	
11	154.4	134.2		142.1	133.3	130.8	132.0	129.7	131.4	135.4	130.9	144.3	
12	146.7	123.5	141.3	146.5	135.9	136.9	129.6	131.8	128.8	130.5	125.6	136.8	
13	145.1	135.3		143.5	133.5	133.2	132.2	128.3	126.3	131.1	132.2	138.6	
14	149.5	127.6		133.6	136.0	131.1	129.3	135.8	123.1	126.8	127.7	138.9	
15		127.2	143.4	147.3		132.9	129.3	135.7	128.5	135.3	134.5		
16	141.0	126.0	145.6	135.5	168.6	139.4	135.9	134.8	132.9	137.0	131.6		
17	138.3	125.8	142.8	138.8	143.3	124.6	133.5	130.2	127.4	133.7	131.0	156.4	
18	141.5		138.7	134.6	133.6	136.5	127.8	135.7	136.3	133.0	129.0	150.4	
19	142.2	129.8	132.7	131.0	131.6	135.3	132.9	132.7		136.9	130.0	140.9	
20	137.9	127.6	137.2	139.1	135.5	134.7	129.8	132.6		132.6			
21	141.6	123.0	133.4	136.1		133.9	139.7	137.2		130.9			
22	137.9	140.5	137.8	133.4		137.5	132.4	132.5	136.1	132.7	140.2		
23		128.5	138.4		135.8	136.8	136.5	132.5	131.6	132.5	136.0		
24	137.2	122.3	134.5	137.0	135.0	132.7	136.4	132.8	140.4		139.5		
25	146.2	125.5	137.8			134.6		129.4	132.2	132.3	121.2	152.9	
26	127.7	124.2	133.3	145.8	133.6	140.5	132.0	131.1	126.7	133.7		150.9	
27	142.0	126.7	128.9		130.6	138.5	136.5	129.4	138.4	132.7		150.2	
28	126.2	128.2			132.8	135.2	131.8	138.4	125.8	130.6		153.9	
29	139.9	121.9		133.6	128.9	135.7	133.8	133.6	125.2	132.3	145.3	152.3	
30	138.4					130.1	139.6	131.5	134.7		142.4		
31			129.1		140.1		137.9	126.8		127.6			
Average	139.6	130.3	136.1	136.9	135.5	134.5	132.9	132.3	130.2	132.5	132.1	143.4	134.3
Minimum	126.2	121.9	122.3	129.3	126.7	124.6	126.5	126.8	120.1	126.8	121.2	135.1	120.1
Maximum	154.4	142.1	146.2	147.3	168.6	140.5	139.7	138.4	140.4	138.3	145.3	156.4	168.6
Total	2792.9	3517.7	2994.7	2874.8	2981.9	4035.1	3985.8	4100.6	3515.3	3842.4	3302.9	3011.3	40955

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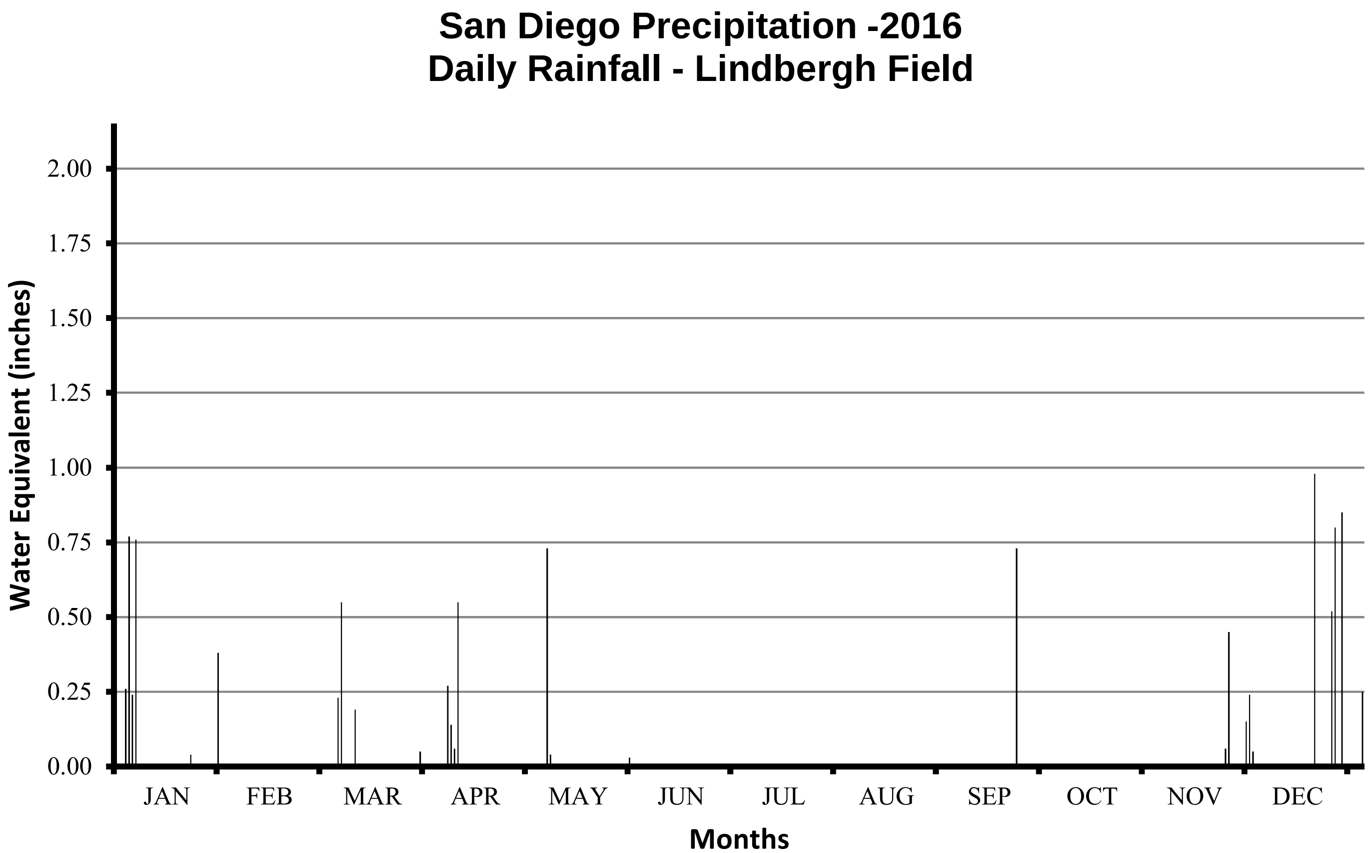
B. Rain Days


San Diego Precipitation -2016
Daily Rainfall - Lindbergh Field
Water Equivalent (inches)
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 – 2016
Daily Rainfall – Lindbergh Field

Total Annual Precipitation = 11.22 **Maximum=0.98** **Trace=0**

First Quarter		Second Quarter		Third Quarter		Fourth Quarter	
Date	Rain	Date	Rain	Date	Rain	Date	Rain
3-Jan-16	0.01	7-Apr-16	0.27	25-Jul-16	T	24-Oct-16	T
4-Jan-16	0.26	8-Apr-16	0.14	19-Sep-16	T	30-Oct-16	T
5-Jan-16	0.77	9-Apr-16	0.06	20-Sep-16	0.73	20-Nov-16	0.06
6-Jan-16	0.24	10-Apr-16	0.55	21-Sep-16	0.01	21-Nov-16	0.45
7-Jan-16	0.76	23-Apr-16	0.01			26-Nov-16	0.15
8-Jan-16	0.01	25-Apr-16	T			27-Nov-16	0.24
9-Jan-16	T	27-Apr-16	0.01			28-Nov-16	0.05
10-Jan-16	0.01	28-Apr-16	T			1-Dec-16	0.01
15-Jan-16	T	30-Apr-16	T			15-Dec-16	T
23-Jan-16	0.04	5-May-16	T			16-Dec-16	0.98
31-Jan-16	0.38	6-May-16	0.73			20-Dec-16	0.01
1-Feb-16	T	7-May-16	0.04			21-Dec-16	0.52
18-Feb-16	0.01	8-May-16	T			22-Dec-16	0.8
5-Mar-16	0.01	15-May-16	T			23-Dec-16	0.01
6-Mar-16	0.23	21-May-16	T			24-Dec-16	0.85
7-Mar-16	0.55	22-May-16	T			30-Dec-16	0.25
11-Mar-16	0.19	25-May-16	T			31-Dec-16	0.74
13-Mar-16	T	30-May-16	0.03				
14-Mar-16	T						
28-Mar-16	T						
29-Mar-16	T						
30-Mar-16	0.05						
TOTALS	3.52		1.84		0.74		5.12

C. Solids Production

Point Loma Wastewater Treatment Plant Annual Monitoring Report
Solids Report – TOTALS

Annual 2016

Month	Pt. Loma Raw sludge Gallons	Dry Tons	Point Loma Digested Sludge Gallons	Dry Tons	MBC Combined Centrate Gallons	Dry Tons	MBC Dewatered Sludge Wet Tons	Dry Tons
01	31,905,475	6,231	31,905,475	3,487	54,114,429	837	10,458	2,875
02	30,253,423	5,482	30,253,423	3,059	58,196,435	895	10,567	2,948
03	33,006,748	5,938	33,006,748	3,303	65,731,296	1,061	10,956	3,003
04	31,580,770	5,762	31,580,770	3,330	60,509,385	849	11,449	3,027
05	32,766,530	5,623	32,766,530	3,279	65,209,792	1,044	11,515	3,037
06	31,768,316	5,442	31,768,316	3,203	57,322,793	924	11,961	3,186
07	31,859,635	5,569	31,859,635	3,255	70,492,017	1,034	11,133	2,933
08	31,896,722	5,832	31,896,722	3,383	64,093,553	1,052	12,315	3,237
09	29,562,659	5,301	29,562,659	3,088	60,634,955	1,011	11,313	2,977
10	29,432,997	4,834	29,432,997	3,033	59,996,380	936	10,057	2,674
11	32,093,869	4,573	32,093,869	3,098	56,513,891	809	10,487	2,827
12	34,334,556	5,274	34,334,556	3,129	61,412,850	876	10,340	2,840
avg	31,705,142	5,488	31,705,142	3,221	61,185,648	944	11,046	2,964
sum	380,461,700	65,859	380,461,700	38,647	734,227,776	11,329	132,550	35,564

Point Loma Wastewater Treatment Plant Annual Monitoring Report
Solids Report - Daily Averages by Month

Annual 2016

Year Month	Pt. Loma Raw sludge Gallons	%TS	Dry Tons	Point Loma Digested Sludge Gallons	%TS	Dry Tons	MBC Combined Centrate Gallons	%TS	Dry Tons	MBC Dewatered Sludge Wet Tons	%TS	Dry Tons
16-01	1,029,209	4.7	205	1,029,209	2.6	115	1,745,627	0.37	26.0	337	27.5	92.7
16-02	1,043,221	4.3	195	1,043,221	2.4	108	2,006,774	0.37	31.2	364	27.9	101.6
16-03	1,064,734	4.3	191	1,064,734	2.4	107	2,120,364	0.39	34.3	353	27.4	96.9
16-04	1,052,692	4.4	193	1,052,692	2.5	111	2,016,980	0.34	28.1	382	26.4	100.9
16-05	1,056,985	4.1	180	1,056,985	2.4	105	2,103,542	0.38	33.7	371	26.4	98.0
16-06	1,058,944	4.1	182	1,058,944	2.4	107	1,910,760	0.39	30.8	399	26.6	106.2
16-07	1,027,730	4.2	178	1,027,730	2.5	105	2,273,936	0.35	33.2	359	26.3	94.6
16-08	1,028,927	4.4	189	1,028,927	2.5	109	2,067,534	0.39	33.8	397	26.3	104.4
16-09	985,422	4.3	177	985,422	2.5	102	2,021,165	0.40	33.7	377	26.3	99.2
16-10	949,452	3.9	157	949,452	2.5	97	1,935,367	0.37	30.2	324	26.6	86.3
16-11	1,069,796	3.4	154	1,069,796	2.3	103	1,883,796	0.34	27.0	350	27.0	94.2
16-12	1,107,566	3.7	163	1,107,566	2.2	100	1,981,060	0.34	28.3	334	27.5	91.6
avg	1,039,556	4.2	180	1,039,556	2.4	106	2,005,575	0.37	30.9	362	26.9	97.2

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 Wastewater Treatment Plant Annual Chemical Usage Report
Monthly Totals

Annual 2016

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	154,593	6,502			103,588	187	111	2,955	1,218	1,820	187,338	600	1,550	15,500
02	129,655	5,449			86,495	1,311	83	3,008	1,383	2,605	172,507	500	1,300	14,500
03	142,945	6,007			96,136	866	16	2,827	742	3,424	183,198	1,050	2,200	15,500
04	142,029	5,966			95,201	245	32	2,520	111	1,733	219,936	953	1,952	15,000
05	142,166	5,976			158,585	131	48	3,363	1,014	1,177	221,119	600	1,050	15,500
06	152,678	6,419			127,249	1,175	68	4,055	148	2,040	213,970	350	1,150	15,000
07	148,100	6,227			92,728	1,201	68	3,245	40	2,537	208,529	300	1,400	15,500
08	147,220	6,191			92,596	488	48	4,050	52	1,965	221,660	500	1,400	15,500
09	140,985	5,927			88,969	257	58	3,448	591	2,133	203,626	250	1,450	15,000
10	147,578	6,201			93,299	1,046	62	2,539	919	2,478	210,375	100	1,200	15,500
11	149,654	6,288			113,059	1,030	86	3,825	444	2,046	196,091	450	500	15,000
12	175,172	7,366			107,764	892	47	3,809	1,073	1,827	215,867	400	600	15,500
avg	147,731	6,210			104,639	736	61	3,304	645	2,149	204,518	504	1,313	15,250
sum	1,772,775	74,519			1,255,669	8,829	727	39,644	7,735	25,785	2,454,216	6,053	15,752	183,000

E. Gas Production

Point Loma Wastewater Treatment Plant
Gas Report

Annual 2016

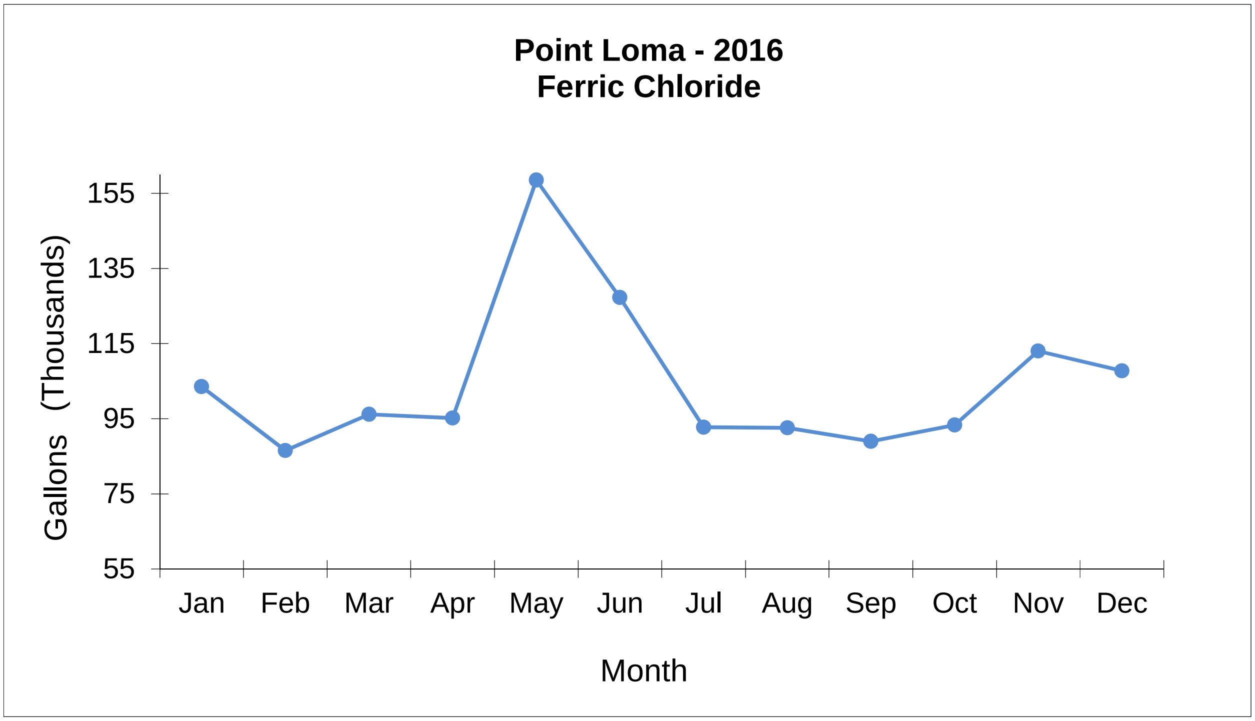
Daily Monthly Averages

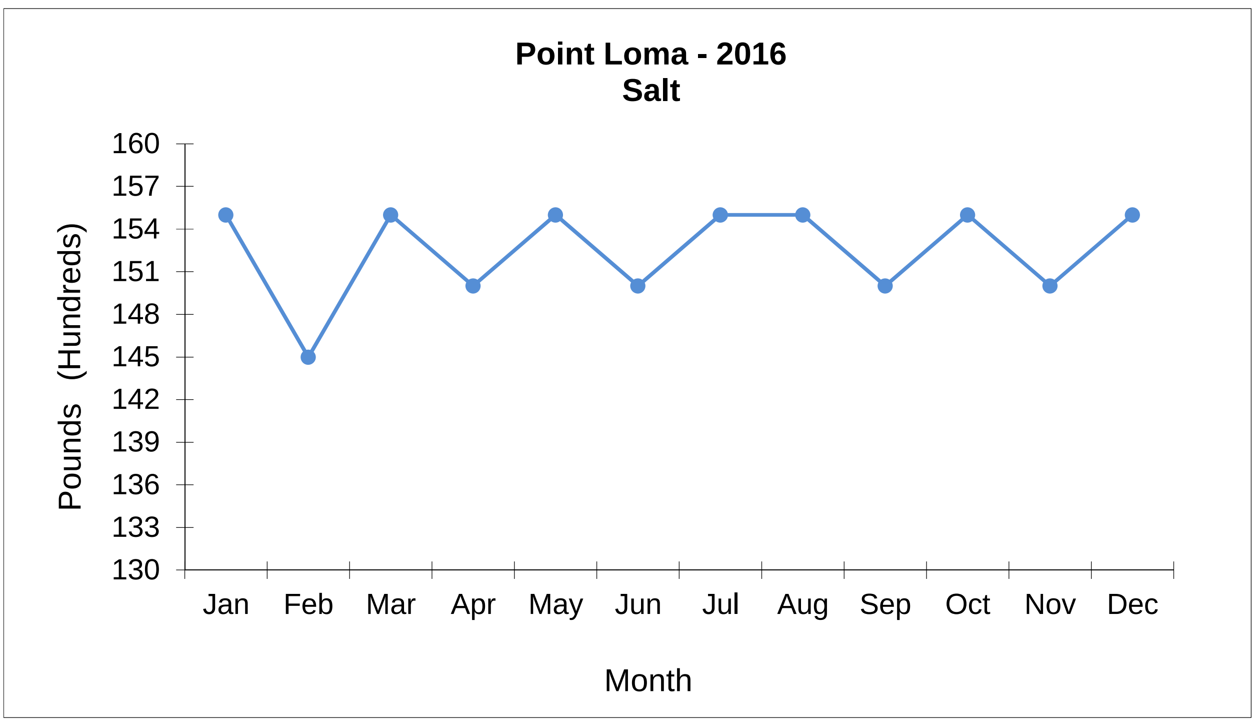
	GAS PRODUCTION (x1000 Cu. Ft.)									GAS CONSUMPTION (x1000 Cu. Ft.)			
Month	N-1-P	N-2-P	C-1-P	C-2-P	S-1-P	S-2-P	Dig 7	Dig 8	Total	Boilers	Burners	GUF	Total
01	362.1	474.9	381.9	347.3	664.9	313.0	95.1	623.1	2,544.2	96	501	1,818	2,416
02	397.0	492.5	393.7	357.6	535.6	386.9	93.4	651.4	2,563.2	88	351	1,822	2,261
03	404.8	493.3	389.3	360.1	546.7	397.0	90.4	687.0	2,591.2	85	457	1,844	2,386
04	390.5	486.4	379.1	350.5	544.1	397.7	77.5	661.2	2,548.4	171	893	1,167	2,230
05	385.9	443.9	358.2	327.7	524.5	381.4	84.0	622.4	2,421.5	43	173	1,834	2,049
06	363.6	445.8	356.2	318.3	515.7	364.0	91.0	623.9	2,363.6	20	234	1,825	2,079
07	333.9	464.9	353.9	319.3	504.3	349.5	86.6	663.4	2,325.7	21	157	1,809	1,987
08	335.3	464.1	355.2	315.1	497.7	344.2	75.8	696.5	2,311.5	28	68	1,837	1,932
09	321.8	407.5	327.4	288.4	471.2	327.7	77.0	678.9	2,144.2	376	201	1,800	2,377
10	278.7	365.3	299.0	264.2	422.2	292.5	64.5	590.2	1,922.0	70	355	1,801	2,226
11	285.0	373.0	302.2	272.2	382.7	285.1	86.5	488.2	1,900.2	99	72	1,800	1,971
12	414.1	478.3	412.4	354.3	.0	336.4	118.3	635.6	1,995.5	154	277	1,746	2,177
avg	356.1	449.2	359.0	322.9	467.5	348.0	86.7	635.2	2,302.6	104	311	1,759	2,174

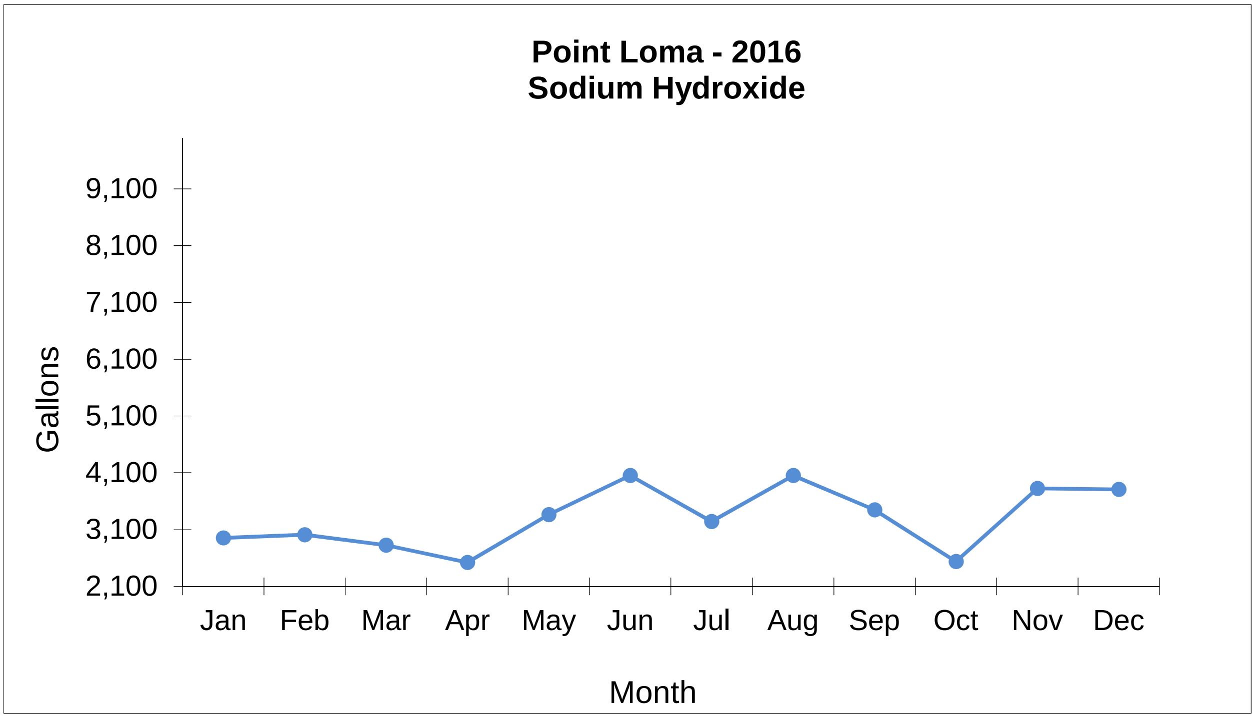
Monthly Totals

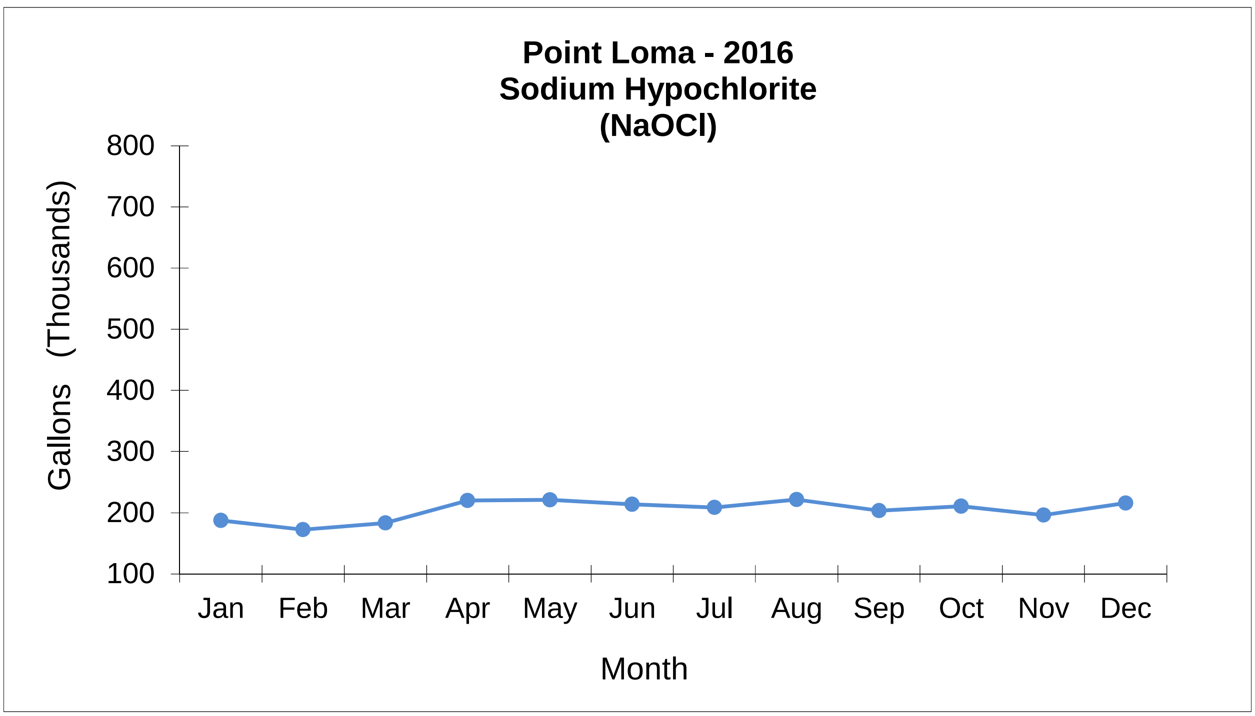
	GAS PRODUCTION (x1000 Cu. Ft.)									GAS CONSUMPTION (x1000 Cu. Ft.)			
Month	N-1-P	N-2-P	C-1-P	C-2-P	S-1-P	S-2-P	Dig 7	Dig 8	Total	Boilers	Burners	GUF	Total
01	11,226.0	14,723.0	11,838.0	10,767.0	20,611.0	9,704.0	2,949.0	19,317.0	78,869.0	2,991	15,532	56,371	74,894
02	11,514.0	14,282.0	11,417.0	10,369.0	15,532.0	11,219.0	2,708.0	18,892.0	74,333.0	2,544	10,179	52,844	65,567
03	12,550.0	15,291.0	12,067.0	11,162.0	16,949.0	12,307.0	2,801.0	21,297.0	80,326.0	2,646	14,175	57,160	73,981
04	11,715.0	14,591.0	11,373.0	10,516.0	16,324.0	11,932.0	2,325.0	19,837.0	76,451.0	5,124	26,786	35,000	66,910
05	11,964.0	13,760.0	11,105.0	10,159.0	16,258.0	11,822.0	2,605.0	19,293.0	75,068.0	1,327	5,348	56,856	63,531
06	10,908.0	13,375.0	10,686.0	9,548.0	15,471.0	10,919.0	2,730.0	18,718.0	70,907.0	608	7,010	54,747	62,365
07	10,350.0	14,412.0	10,971.0	9,897.0	15,634.0	10,834.0	2,686.0	20,565.0	72,098.0	652	4,864	56,083	61,599
08	10,393.0	14,387.0	11,010.0	9,767.0	15,429.0	10,671.0	2,349.0	21,590.0	71,657.0	867	2,097	56,936	59,900
09	9,655.0	12,226.0	9,823.0	8,653.0	14,137.0	9,831.0	2,310.0	20,367.0	64,325.0	11,281	6,026	54,001	71,308
10	8,640.0	11,325.0	9,270.0	8,189.0	13,089.0	9,068.0	1,999.0	18,295.0	59,581.0	2,155	11,014	55,845	69,014
11	8,549.0	11,189.0	9,067.0	8,167.0	11,481.0	8,554.0	2,594.0	14,646.0	57,007.0	2,970	2,145	54,009	59,124
12	12,838.0	14,826.0	12,784.0	10,982.0	1.0	10,429.0	3,668.0	19,704.0	61,860.0	4,771	8,582	54,127	67,480
avg	10,858.5	13,698.9	10,950.9	9,848.0	14,243.0	10,607.5	2,643.7	19,376.8	70,206.8	3,161	9,480	53,665	66,306
sum	130,302.0	164,387.0	131,411.0	118,176.0	170,916.0	127,290.0	31,724.0	232,521.0	842,482.0	37,936	113,758	643,979	795,673

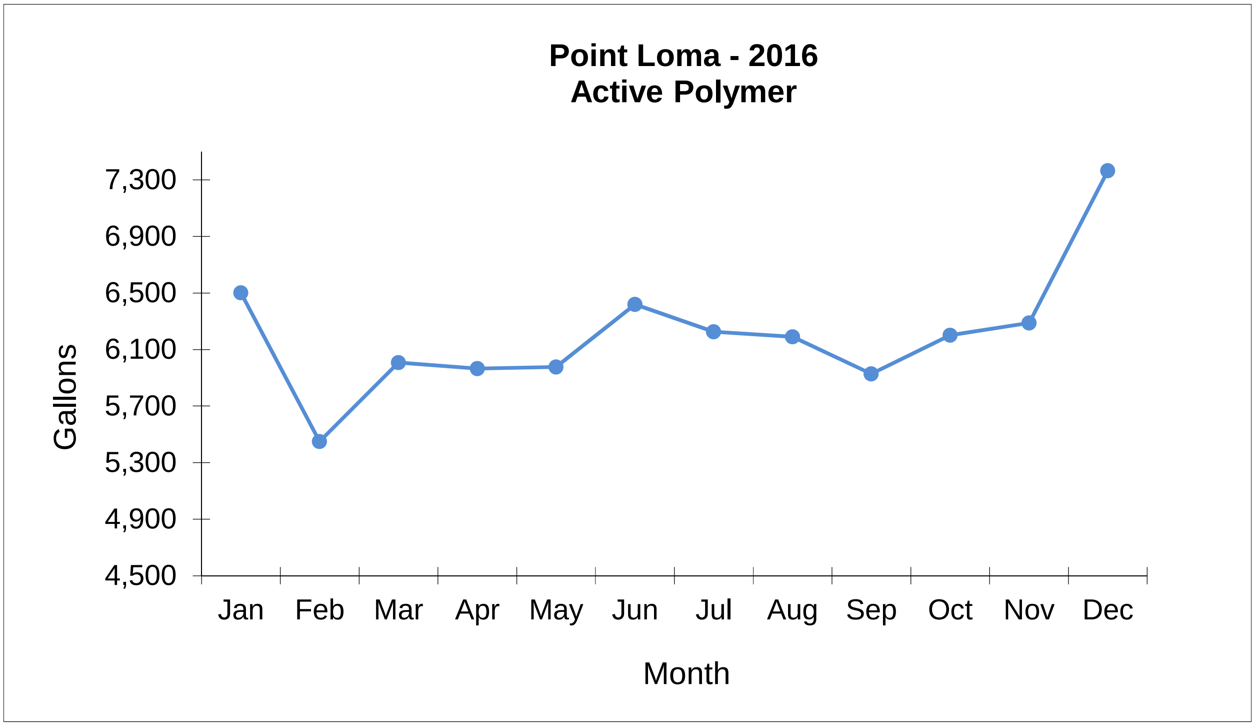
F. Graphs of Chemical Usage






Point Loma - 2016
Sodium Hydroxide
Gallons
9,100
8,100
7,100
6,100
5,100
4,100
3,100
2,100
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Month


Point Loma - 2016
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 - 2016
Active Polymer
7,300
6,900
6,500
6,100
5,700
5,300
4,900
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 2016. 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 2016- Monthly Total Solids Averages (% WT)

Grit		Headworks Screenings		Sludge Screenings	
JAN	79.4	JAN	39.9	JAN	47.3
FEB	67.1	FEB	40.6	FEB	44.6
MAR	73.1	MAR	39.4	MAR	42.9
APR	71.2	APR	38.5	APR	43.9
MAY	73.3	MAY	39.4	MAY	44.5
JUN	75.7	JUN	39.6	JUN	40.2
JUL	70.0	JUL	39.0	JUL	41.2
AUG	70.2	AUG	38.7	AUG	43.2
SEP	80.1	SEP	39.6	SEP	42.0
OCT	69.9	OCT	40.1	OCT	48.7
NOV	71.8	NOV	39.0	NOV	52.2
DEC	79.3	DEC	38.9	DEC	47.3
AVG	**73.4**	**AVG**	**39.4**	**AVG**	**44.8**

Point Loma Wastewater Treatment Plant

2016 Grit Total Solid (%WT)

	Average	Minimum	Maximum
	%WT	%WT	%WT
JAN	79.4	65.6	92.0
FEB	67.1	56.5	83.5
MAR	73.1	54.6	92.8
APR	71.2	56.1	84.2
MAY	73.3	62.5	85.1
JUN	75.7	65.9	82.3
JUL	70.0	60.4	79.5
AUG	70.2	63.2	77.5
SEP	80.1	70.3	88.6
OCT	69.9	66.4	74.5
NOV	71.8	65.1	83.2
DEC	79.3	73.8	84.6

2016 Sludge Screenings Total Solids (%WT)

	Average	Minimum	Maximum
	%WT	%WT	%WT
JAN	47.3	41.0	52.9
FEB	44.6	33.7	63.9
MAR	42.9	36.7	48.9
APR	43.9	36.6	53.1
MAY	44.5	31.9	56.1
JUN	40.2	32.8	46.4
JUL	41.2	36.7	51.9
AUG	43.2	33.9	48.2
SEP	42.0	36.0	48.2
OCT	48.7	41.8	68.6
NOV	52.2	42.0	61.8
DEC	47.3	35.5	56.8

2016 Headworks Screenings Total Solids (%WT)

	Average	Minimum	Maximum
	%WT	%WT	%WT
JAN	39.9	36.0	42.4
FEB	40.6	37.5	47.2
MAR	39.4	35.7	44.6
APR	38.5	31.6	41.9
MAY	39.4	36.6	47.7
JUN	39.6	37.3	44.4
JUL	39.0	36.0	42.9
AUG	38.7	36.0	43.8
SEP	39.6	35.5	47.1
OCT	40.1	36.7	46.0
NOV	39.0	35.9	42.9
DEC	38.9	35.4	43.6

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

2016 Annual

Source: PLR
Sample ID: P863848
Sample Date: 06-JUN-16

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	0.5	MG/KG	1.9	1.27	500	*	15.0		
Arsenic	0.07	MG/KG	.79	0.53	500	*	5.0	41	
Barium	0.05	MG/KG	219	146.7	10000	*	100.0		
Beryllium	0.02	MG/KG	ND	ND	75	*	0.75		
Cadmium	0.1	MG/KG	.36	0.241	100	*	1.0	39	
Chromium (VI)			NA		500	NA	5.0		
Chromium	0.3	MG/KG	92.6	62.0	2500	*	560.0	1,200	
Cobalt	0.2	MG/KG	4.86	3.26	8000	*	80.0		
Copper	0.4	MG/KG	1420	951	2500	*	25.0	1,500	2,500
Lead	2	MG/KG	54.3	36.4	1000	*	5.0	300	350
Mercury	0.2	MG/KG	.41	0.272	20	*	0.20	17	
Molybdenum	0.1	MG/KG	9.97	6.68	3500	*	350.0		
Nickel	0.3	MG/KG	89	59.6	2000	*	20.0	420	2,000
Selenium	0.07	MG/KG	1.4	0.94	100	*	1.0	100	
Silver	0.07	MG/KG	3.05	2.04	500	*	5.0		
Thallium	1	MG/KG	ND	ND	700	*	7.0		
Vanadium	0.2	MG/KG	16.1	10.8	2400	*	24.0		
Zinc	0.5	MG/KG	787	527.3	5000	*	250.0	2,800	
Total Solids		WT%	67						
Total Volatile Solids		WT%	28.7						
pH		PH	7.33		>2 - <12				
Aldrin	0.001	MG/KG	ND	ND	1.4	*	0.14		
Chlordanes	0.001	MG/KG	ND	ND	2.5	*	0.25		
DDT, DDE, DDD	0.001	MG/KG	ND	ND	1.0	*	0.10		
2,4-D			NA	NA	100	NA	10.00		
Dieldrin	0.002	MG/KG	ND	ND	8.0	*	0.80		
Endrin	0.002	MG/KG	ND	ND	0.2	*	0.02		
Heptachlor	0.002	MG/KG	ND	ND	4.7	*	0.47		
Kepone			NA	NA	21	NA	2.10		
Lindane	0.0009	MG/KG	ND	ND	4.0	*	0.40		
Methoxychlor	0.001	MG/KG	ND	ND	100	*	10.00		
Mirex	0.001	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			NA		10	NA	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.

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

2016 Annual

Source: PLR
Sample ID: P900924
Sample Date: 31-OCT-16

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	5	3.47	500	*	15.0		
Arsenic	0.07	MG/KG	.79	0.55	500	*	5.0	41	
Barium	0.08	MG/KG	166	115	10000	*	100.0		
Beryllium	0.02	MG/KG	ND	ND	75	*	0.75		
Cadmium	0.1	MG/KG	.36	0.247	100	*	1.0	39	
Chromium (VI)			NA		500	NA	5.0		
Chromium	0.3	MG/KG	92.6	62	2500	*	560.0	1,200	
Cobalt	0.2	MG/KG	3.49	2.42	8000	*	80.0		
Copper	0.7	MG/KG	548	367	2500	*	25.0	1,500	2,500
Lead	2	MG/KG	54.3	36.4	1000	*	5.0	300	350
Mercury	0.2	MG/KG	.58	0.389	20	*	0.2	17	
Molybdenum	0.2	MG/KG	9.98	6.69	3500	*	350.0		
Nickel	0.3	MG/KG	89	61.7	2000	*	20.0	420	2,000
Selenium	0.19	MG/KG	.33	0.229	100	*	1.0	100	
Silver	0.21	MG/KG	1	0.693	500	*	5.0		
Thallium	0.4	MG/KG	ND	ND	700	*	7.0		
Vanadium	0.32	MG/KG	12.4	8.59	2400	*	24.0		
Zinc	0.5	MG/KG	787	527	5000	*	250.0	2,800	
Total Solids		WT%	69.3						
Total Volatile Solids		WT%	24						
pH		PH	7.41		>2 - <12				
Aldrin	0.001	MG/KG	ND	ND	1.4	*	0.14		
Chlordanes	0.001	MG/KG	ND	ND	2.5	*	0.25		
DDT, DDE, DDD	0.001	MG/KG	ND	ND	1.0	*	0.10		
2,4-D	720		ND	ND	100	*	10.00		
Dieldrin	0.002	MG/KG	ND	ND	8.0	*	0.80		
Endrin	0.002	MG/KG	ND	ND	0.2	*	0.02		
Heptachlor	0.002	MG/KG	ND	ND	4.7	*	0.47		
Kepone			NA	NA	21	NA	2.10		
Lindane	0.0009	MG/KG	ND	ND	4.0	*	0.40		
Methoxychlor	0.001	MG/KG	ND	ND	100	*	10.00		
Mirex	0.001	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	720		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

POINT LOMA WASTEWATER TREATMENT PLANT

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GRIT COMPOSITES
Inorganics and Organics

Source			GRIT COMP	GRIT COMP
Date			06-JUN-2016	31-OCT-2016
Analyte	MDL	Units:	P863848	P900924
Aluminum	4	MG/KG	3700	2750
Antimony	.79	MG/KG	1.9	5.0
Arsenic	.14	MG/KG	0.79	0.35
Barium	.08	MG/KG	219	166
Beryllium	.02	MG/KG	ND	ND
Cadmium	.13	MG/KG	0.4	0.2
Chromium	.3	MG/KG	92.6	36.1
Cobalt	.2	MG/KG	4.9	3.5
Copper	.695	MG/KG	1420	548
Iron	20	MG/KG	44600	34100
Lead	2	MG/KG	54	17
Manganese	.2	MG/KG	225	166
Mercury	.2	MG/KG	0.41	0.58
Molybdenum	.15	MG/KG	10.0	10.0
Nickel	.3	MG/KG	89	31
Selenium	.19	MG/KG	1.40	0.33
Silver	.206	MG/KG	3.1	1.0
Thallium	1	MG/KG	ND	ND
Vanadium	.32	MG/KG	16.1	12.4
Zinc	1.45	MG/KG	787	559
pH		PH	7.33	7.41
Total Solids	.24	WT%	67.0	69.3
Total Volatile Solids	.11	WT%	28.7	24.0
Aldrin	.00064	MG/KG	ND	ND
2,4-Dichlorophenoxyacetic acid	.72	MG/KG	NA	ND
Dieldrin	.0017	MG/KG	ND	ND
Endrin	.00189	MG/KG	ND	ND
Heptachlor	.0017	MG/KG	ND	ND
BHC, Gamma isomer	.00043	MG/KG	ND	ND
Methoxychlor	.00146	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)	.72	MG/KG	NA	ND

* = Sample analyzed outside the 12-hour period for BFB instrument tuning per method requirement.

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

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

POINT LOMA WASTEWATER TREATMENT PLANT

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Chlorinated Pesticide Analysis
EPA METHOD 8081A/8082

Grit

Source			PLR	PLR
Date			06-JUN-2016	31-OCT-2016
Analyte	MDL	Units	P863848	P900924
Aldrin	640	NG/KG	ND	ND
Dieldrin	1700	NG/KG	ND	ND
BHC, Alpha isomer	390	NG/KG	ND	ND
BHC, Beta isomer	860	NG/KG	ND	ND
BHC, Gamma isomer	430	NG/KG	ND	ND
BHC, Delta isomer	940	NG/KG	ND	ND
o,p-DDD	970	NG/KG	ND	ND
o,p-DDE	640	NG/KG	ND	ND
o,p-DDT	940	NG/KG	ND	ND
p,p-DDD	690	NG/KG	ND	ND
p,p-DDE	700	NG/KG	ND	ND
p,p-DDT	840	NG/KG	ND	ND
Heptachlor	1700	NG/KG	ND	ND
Heptachlor epoxide	2560	NG/KG	ND	ND
Alpha (cis) Chlordane	840	NG/KG	ND	ND
Gamma (trans) Chlordane	540	NG/KG	ND	ND
Alpha Chlordene		NG/KG	NA	NA
Gamma Chlordene		NG/KG	NA	NA
Oxychlordane	360	NG/KG	ND	ND
Trans Nonachlor	1000	NG/KG	ND	ND
Cis Nonachlor	850	NG/KG	ND	ND
Alpha Endosulfan	760	NG/KG	ND	ND
Beta Endosulfan	570	NG/KG	ND	ND
Endosulfan Sulfate	1020	NG/KG	ND	ND
Endrin	1890	NG/KG	ND	ND
Endrin aldehyde	1000	NG/KG	ND	ND
Toxaphene	48660	NG/KG	ND	ND
Mirex	680	NG/KG	ND	ND
Methoxychlor	1460	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	1700	NG/KG	0	0
Hexachlorocyclohexanes	940	NG/KG	0	0
DDT and derivatives	970	NG/KG	0	0
Chlordane + related cmpds.	1000	NG/KG	0	0
Polychlorinated biphenyls	667000	NG/KG	0	0
Chlorinated Hydrocarbons	667000	NG/KG	0	0

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

POINT LOMA WASTEWATER TREATMENT PLANT

ANNUAL 2016

GRIT
ACID EXTRACTABLE COMPOUNDS
EPA Method 8270C

Source			PLR	PLR
Date			06-JUN-2016	31-OCT-2016
Analyte	MDL	Units	P863848	P900924
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		UG/KG	ND	ND
2-Methyl-4,6-dinitrophenol		UG/KG	ND	ND
2-Nitrophenol	1600	UG/KG	ND	ND
4-Nitrophenol		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 2016

GRIT
Base/Neutral Compounds
EPA METHOD 8270C

Source			PLR	PLR
Date			06-JUN-2016	31-OCT-2016
Sample	MDL	Units	P863848	P900924
Acenaphthene	863	UG/KG	ND	ND
Acenaphthylene	584	UG/KG	ND	ND
Anthracene	986	UG/KG	ND	ND
Benzidine		UG/KG	ND	ND
Benzo[a]anthracene	1100	UG/KG	ND	<1100
3,4-Benzo(b)fluoranthene	1127	UG/KG	ND	<1127
Benzo[k]fluoranthene	1930	UG/KG	ND	ND
Benzo[a]pyrene	741	UG/KG	ND	<741
Benzo[g,h,i]perylene	301	UG/KG	ND	524
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	ND
Chrysene	352	UG/KG	555	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	ND	ND
Bis-(2-ethylhexyl) phthalate	3960	UG/KG	6170	ND
Diethyl phthalate	1400	UG/KG	ND	ND
Dimethyl phthalate	356	UG/KG	ND	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	216	UG/KG	965	1800
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		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	<1150	<1150
1,2,4-Trichlorobenzene	2.5	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	ND
Polynuc. Aromatic Hydrocarbons	2520	UG/KG	555	524
Total Dichlorobenzenes	733	UG/KG	0	0
Base/Neutral Compounds	3960	UG/KG	7690	2324

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

POINT LOMA WASTEWATER TREATMENT PLANT

ANNUAL 2016

GRIT
Priority Pollutants Purgeable Compounds
EPA METHOD 8260B

Source			PLR	PLR
Date			06-JUN-2016	31-OCT-2016
Analyte	MDL	Units	P863848	P900924
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	DNQ3.5	DNQ8.7
Chloroethane	3.6	UG/KG	ND	ND
Chloroform	2.3	UG/KG	ND	DNQ4.5
Chloromethane	3.4	UG/KG	ND	ND
Dibromochloromethane	2.4	UG/KG	ND	ND
1,2-Dichlorobenzene	1.5	UG/KG	DNQ3.1	ND
1,3-Dichlorobenzene	1.8	UG/KG	ND	ND
1,4-Dichlorobenzene	1.5	UG/KG	248	360
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	DNQ4.0	DNQ3.0
Methylene chloride	3.5	UG/KG	DNQ4.9	DNQ7.2
1,1,2,2-Tetrachloroethane	5.9	UG/KG	ND	ND
Tetrachloroethene	2.8	UG/KG	ND	ND
Toluene	1.2	UG/KG	215	168
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	0.0	0.0
Purgeable Compounds	6.9	UG/KG	215	168

Additional Analytes determined:

Acetone	31.4	UG/KG	2980	562
Allyl chloride	3.6	UG/KG	ND	ND
Benzyl chloride	4.3	UG/KG	ND	ND
2-Butanone	36.3	UG/KG	856	DNQ59.1
Carbon disulfide	4.7	UG/KG	75.6	82.5
Chloroprene	3.1	UG/KG	ND	ND
1,2-Dibromoethane	2.5	UG/KG	ND	ND
Isopropylbenzene	1.3	UG/KG	ND	DNQ5.5
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	DNQ6.1	DNQ5.5
Styrene	1.7	UG/KG	20.7	ND
1,2,4-Trichlorobenzene	2.5	UG/KG	ND	ND
meta,para xylenes	4.2	UG/KG	DNQ11.3	DNQ10.1
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

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.

POINT LOMA WASTEWATER TREATMENT PLANT

ANNUAL 2016

GRIT
Herbicides
EPA METHOD 8151

Source			PLR
Date			31-OCT-2016
Analyte	MDL	Units	P900924
2,4-Dichlorophenoxyacetic acid	.72	MG/KG	ND
2,4,5-TP (Silvex)	.72	MG/KG	ND

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

H. Raw Sludge Data Summary

POINT LOMA WASTEWATER TREATMENT PLANT ANNUAL REPORT
ANNUAL 2016

Raw Sludge
Monthly average of daily average

Month	pH	%Total Solids	%Total Volatile Solids
January	5.63	4.7	76.7
February	5.61	4.3	78.6
March	5.58	4.3	78.1
April	5.52	4.4	78.5
May	5.40	4.1	77.0
June	5.39	4.1	77.5
July	5.33	4.2	77.0
August	5.45	4.4	77.6
September	5.41	4.3	77.5
October	5.26	3.9	76.7
November	5.24	3.4	75.3
December	5.26	3.7	76.3
Averages	**5.42**	**4.2**	**77.2**

I. Digester and Digested Sludge Data Summary

Point Loma Wastewater Treatment Plant Annual Report
Digesters

Annual 2016

N1P

	pH	Total Solids (%)	Volatile Solids (%)	Alkal-inity (mg/L)	Volatile Acids (mg/L)	Methane (%)	Carbon Dioxide (%)
JANUARY -2016	7.18	2.6	57.3	2540	108	61.8	37.9
FEBRUARY -2016	7.17	2.4	57.7	2710	138	61.9	38.0
MARCH -2016	7.19	2.4	58.7	2670	84	61.7	38.1
APRIL -2016	7.16	2.4	59.1	2490	80	61.7	38.1
MAY -2016	7.19	2.4	58.3	2400	78	62.3	37.4
JUNE -2016	7.22	2.4	58.7	2350	86	62.3	37.5
JULY -2016	7.15	2.4	58.8	2240	86	62.1	37.7
AUGUST -2016	7.11	2.5	59.4	2150	79	61.9	37.8
SEPTEMBER-2016	7.09	2.5	59.5	2100	70	61.8	38.0
OCTOBER -2016	7.11	2.5	59.2	2210	74	62.9	37.0
NOVEMBER -2016	7.04	2.3	59.9	2070	75	63.0	36.8
DECEMBER -2016	7.08	2.2	60.8	2020	72	63.3	36.5
Average:	7.14	2.4	59.0	2329	86	62.2	37.6

N2P

	pH	Total Solids (%)	Volatile Solids (%)	Alkal-inity (mg/L)	Volatile Acids (mg/L)	Methane (%)	Carbon Dioxide (%)
JANUARY -2016	7.16	2.5	57.5	2500	101	62.0	37.8
FEBRUARY -2016	7.16	2.4	57.7	2690	136	61.9	37.9
MARCH -2016	7.15	2.4	58.8	2670	86	61.7	38.0
APRIL -2016	7.13	2.4	59.0	2500	83	61.6	38.2
MAY -2016	7.14	2.4	58.5	2390	81	62.4	37.4
JUNE -2016	7.16	2.4	58.6	2390	89	62.4	37.3
JULY -2016	7.11	2.4	59.1	2240	87	62.2	37.6
AUGUST -2016	7.09	2.5	59.5	2130	78	62.0	37.7
SEPTEMBER-2016	7.08	2.4	59.2	2100	70	61.8	37.9
OCTOBER -2016	7.08	2.4	59.4	2230	78	62.9	37.0
NOVEMBER -2016	7.04	2.2	59.8	2090	76	62.9	36.9
DECEMBER -2016	7.05	2.1	60.9	2030	73	63.4	36.4
Average:	7.11	2.4	59.0	2330	87	62.3	37.5

C1P

	pH	Total Solids (%)	Volatile Solids (%)	Alkal-inity (mg/L)	Volatile Acids (mg/L)	Methane (%)	Carbon Dioxide (%)	H2S ppm
JANUARY -2016	7.18	2.6	57.1	2470	107	62.1	37.7	*
FEBRUARY -2016	7.16	2.4	57.7	2650	136	62.0	37.8	*
MARCH -2016	7.17	2.4	58.5	2610	85	61.8	38.0	*
APRIL -2016	7.11	2.9	56.5	2480	83	61.9	37.8	*
MAY -2016	7.13	2.4	58.3	2390	79	62.4	37.4	*
JUNE -2016	7.15	2.4	58.4	2350	86	62.5	37.3	*
JULY -2016	7.12	2.4	58.8	2230	89	62.3	37.4	*
AUGUST -2016	7.07	2.5	59.1	2130	81	62.2	37.5	*
SEPTEMBER-2016	7.02	2.5	59.1	2070	71	62.1	37.6	*
OCTOBER -2016	7.03	2.4	59.2	2180	79	63.0	36.7	*
NOVEMBER -2016	7.00	2.2	59.5	2040	76	63.1	36.7	*
DECEMBER -2016	7.02	2.2	61.2	1990	73	63.4	36.4	27
Average:	7.10	2.4	58.6	2299	87	62.4	37.4	27

Point Loma Wastewater Treatment Plant Annual Report
Digesters

Annual 2016

C2P

	pH	Total Solids (%)	Volatile Solids (%)	Alkal-inity (mg/L)	Volatile Acids (mg/L)	Methane (%)	Carbon Dioxide (%)
JANUARY -2016	7.21	2.5	56.9	2540	95	62.1	37.6
FEBRUARY -2016	7.17	2.4	57.4	2670	135	62.2	37.5
MARCH -2016	7.16	2.4	58.4	2640	86	61.9	37.7
APRIL -2016	7.12	2.4	58.3	2500	84	61.9	37.8
MAY -2016	7.14	2.4	57.7	2410	78	62.5	37.1
JUNE -2016	7.16	2.4	57.9	2370	86	62.6	37.2
JULY -2016	7.09	2.4	58.6	2260	89	62.1	37.6
AUGUST -2016	7.09	2.5	58.6	2160	80	62.4	37.2
SEPTEMBER-2016	7.03	2.5	58.2	2080	72	62.1	37.5
OCTOBER -2016	7.06	2.4	58.4	2190	78	63.1	36.6
NOVEMBER -2016	7.03	2.2	58.5	2060	74	63.2	36.6
DECEMBER -2016	7.02	2.1	60.9	2020	73	63.4	36.3
Average:	7.11	2.4	58.3	2325	86	62.5	37.2

S1P

	pH	Total Solids (%)	Volatile Solids (%)	Alkal-inity (mg/L)	Volatile Acids (mg/L)	Methane (%)	Carbon Dioxide (%)	H2S ppm
JANUARY -2016	7.16	2.9	59.3	2280	90	62.0	37.7	*
FEBRUARY -2016	7.13	2.5	59.8	2520	138	62.1	37.6	*
MARCH -2016	7.12	2.5	60.2	2470	87	61.8	37.9	*
APRIL -2016	7.07	2.6	60.9	2290	81	61.8	37.9	*
MAY -2016	7.12	2.5	60.1	2210	75	62.5	37.2	*
JUNE -2016	7.13	2.6	60.3	2220	87	62.5	37.2	*
JULY -2016	7.08	2.6	60.3	2120	88	62.4	37.3	*
AUGUST -2016	7.05	2.7	60.5	1980	77	62.2	37.5	*
SEPTEMBER-2016	7.01	2.5	60.4	1860	65	62.1	37.6	*
OCTOBER -2016	7.06	2.6	60.3	2190	77	63.0	36.7	*
NOVEMBER -2016	6.97	2.6	59.4	1880	72	63.0	36.8	*
DECEMBER -2016	7.14	2.5	58.1	2180	73	65.3	34.5	*
Average:	7.09	2.6	60.0	2183	84	62.6	37.2	*

S2P

	pH	Total Solids (%)	Volatile Solids (%)	Alkal-inity (mg/L)	Volatile Acids (mg/L)	Methane (%)	Carbon Dioxide (%)	H2S ppm
JANUARY -2016	7.24	2.6	58.4	2420	99	62.0	37.8	25
FEBRUARY -2016	7.19	2.4	59.0	2520	127	62.1	37.7	31
MARCH -2016	7.19	2.4	60.0	2470	86	61.8	37.9	32
APRIL -2016	7.08	2.5	60.6	2270	80	61.8	37.9	31
MAY -2016	7.16	2.4	59.8	2170	76	62.4	37.3	27
JUNE -2016	7.18	2.4	59.8	2190	82	62.4	37.3	30
JULY -2016	7.10	2.4	60.0	2080	86	62.2	37.5	29
AUGUST -2016	7.08	2.6	60.0	2000	78	62.2	37.4	29
SEPTEMBER-2016	7.02	2.6	59.2	1940	69	62.2	37.5	28
OCTOBER -2016	7.08	2.5	60.0	2070	76	63.1	36.7	27
NOVEMBER -2016	7.01	2.3	60.8	1930	71	63.0	36.8	27
DECEMBER -2016	7.04	2.3	60.4	2000	73	63.4	36.4	24
Average:	7.11	2.5	59.8	2172	84	62.4	37.4	28

Point Loma Wastewater Treatment Plant Annual Report
Digesters

Annual 2016

DIG 7

	pH	Total Solids (%)	Volatile Solids (%)	Alkal-inity (mg/L)	Volatile Acids (mg/L)	Methane (%)	Carbon Dioxide (%)	H2S ppm
JANUARY -2016	7.23	2.4	57.2	2580	122	63.5	36.2	*
FEBRUARY -2016	7.21	2.3	57.1	2750	139	63.8	36.0	*
MARCH -2016	7.23	2.2	58.2	2700	87	63.2	36.5	*
APRIL -2016	7.16	2.3	59.0	2530	83	63.6	36.1	*
MAY -2016	7.17	2.1	56.3	2440	79	64.0	35.7	*
JUNE -2016	7.19	2.2	58.2	2400	85	63.8	35.9	*
JULY -2016	7.15	2.3	58.4	2280	87	64.1	35.7	*
AUGUST -2016	7.09	2.4	58.6	2150	80	64.1	35.5	*
SEPTEMBER-2016	7.06	2.4	59.2	2080	70	64.0	35.7	*
OCTOBER -2016	7.08	2.3	58.9	2210	80	64.6	35.1	*
NOVEMBER -2016	7.04	2.1	59.4	2100	76	64.1	35.6	*
DECEMBER -2016	7.07	2.0	60.3	2120	75	64.6	35.2	*
Average:	7.14	2.3	58.4	2362	89	64.0	35.8	*

DIG 8

	pH	Total Solids (%)	Volatile Solids (%)	Alkal-inity (mg/L)	Volatile Acids (mg/L)	Methane (%)	Carbon Dioxide (%)	H2S ppm
JANUARY -2016	7.22	2.5	57.5	2490	107	61.9	37.9	*
FEBRUARY -2016	7.15	2.4	58.1	2610	137	62.0	37.8	*
MARCH -2016	7.15	2.4	59.3	2480	83	61.6	38.2	*
APRIL -2016	7.13	2.4	60.2	2320	80	61.8	38.0	*
MAY -2016	7.14	2.4	58.8	2230	77	62.2	37.6	*
JUNE -2016	7.16	2.4	59.0	2180	80	62.3	37.5	*
JULY -2016	7.11	2.4	59.7	2040	81	62.1	37.7	*
AUGUST -2016	7.06	2.5	60.4	1880	72	61.9	37.9	*
SEPTEMBER-2016	6.97	2.5	60.5	1810	65	61.9	37.9	*
OCTOBER -2016	7.05	2.4	60.5	1960	72	62.9	37.0	*
NOVEMBER -2016	7.01	2.2	60.6	1940	72	62.9	36.9	*
DECEMBER -2016	7.06	2.1	61.7	1940	74	63.2	36.7	*
Average:	7.10	2.4	59.7	2157	83	62.2	37.6	*

IV. Metro Biosolids Center (MBC) Data

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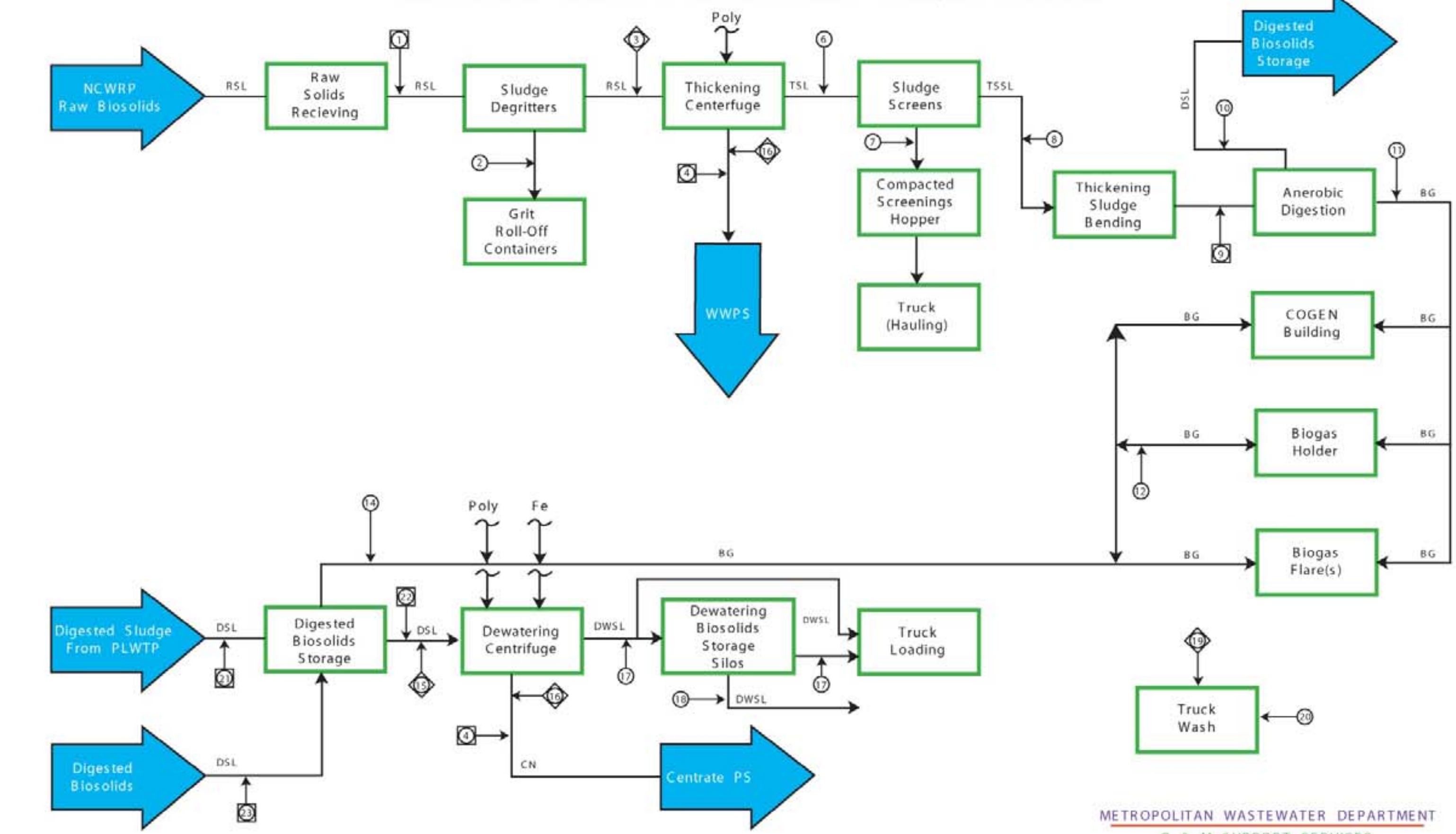
A. MBC Diagrams

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: Voltile 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: Voltile 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 2016. 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.

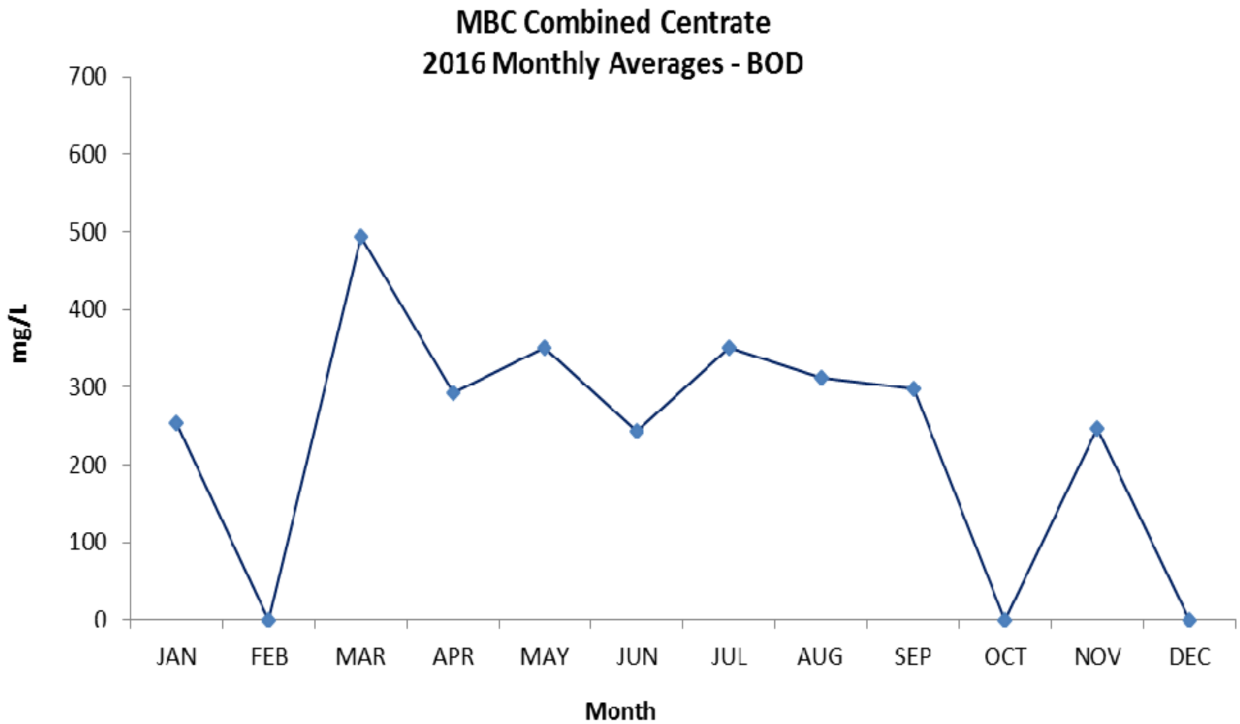
The data is presented in tables of monthly averages and graphs of the monthly averages of select parameters. Tables of daily values for select parameters (such as TSS, Flow, etc.) along with graphs are also provided.

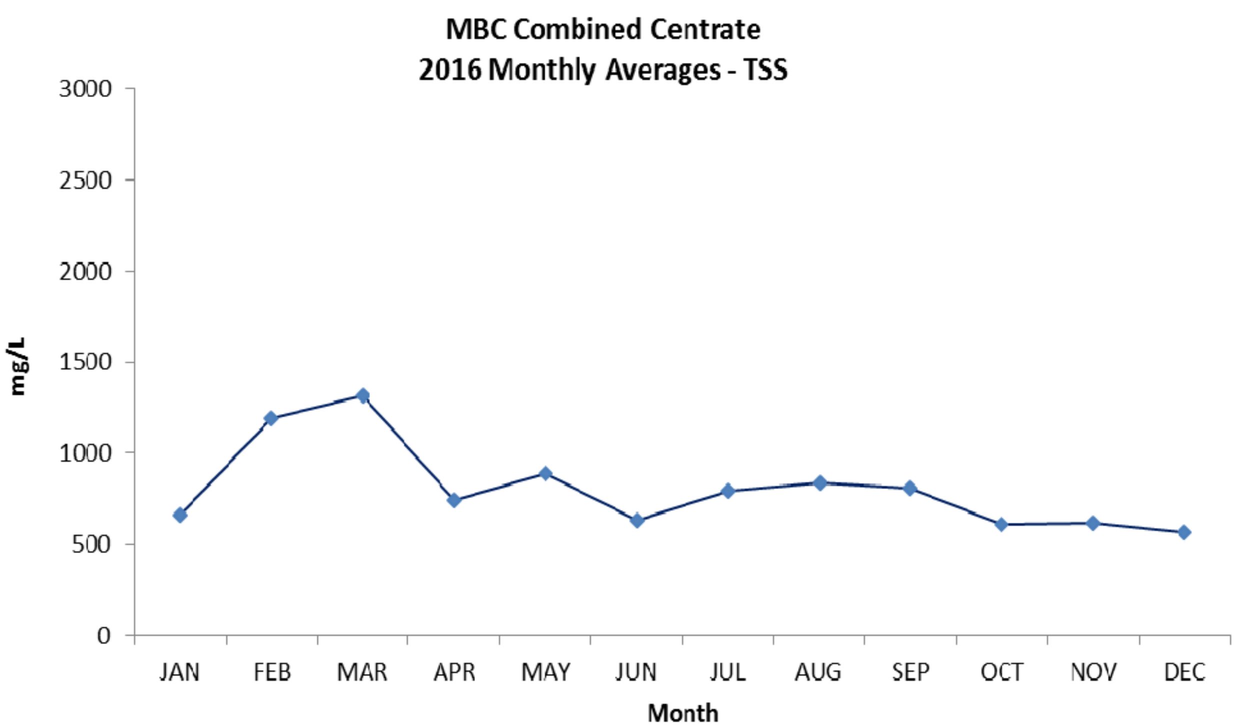
Metro Biosolids Center
Sludge Project – Annual Summary
Combined Sludge Concentrate
Annual 2016

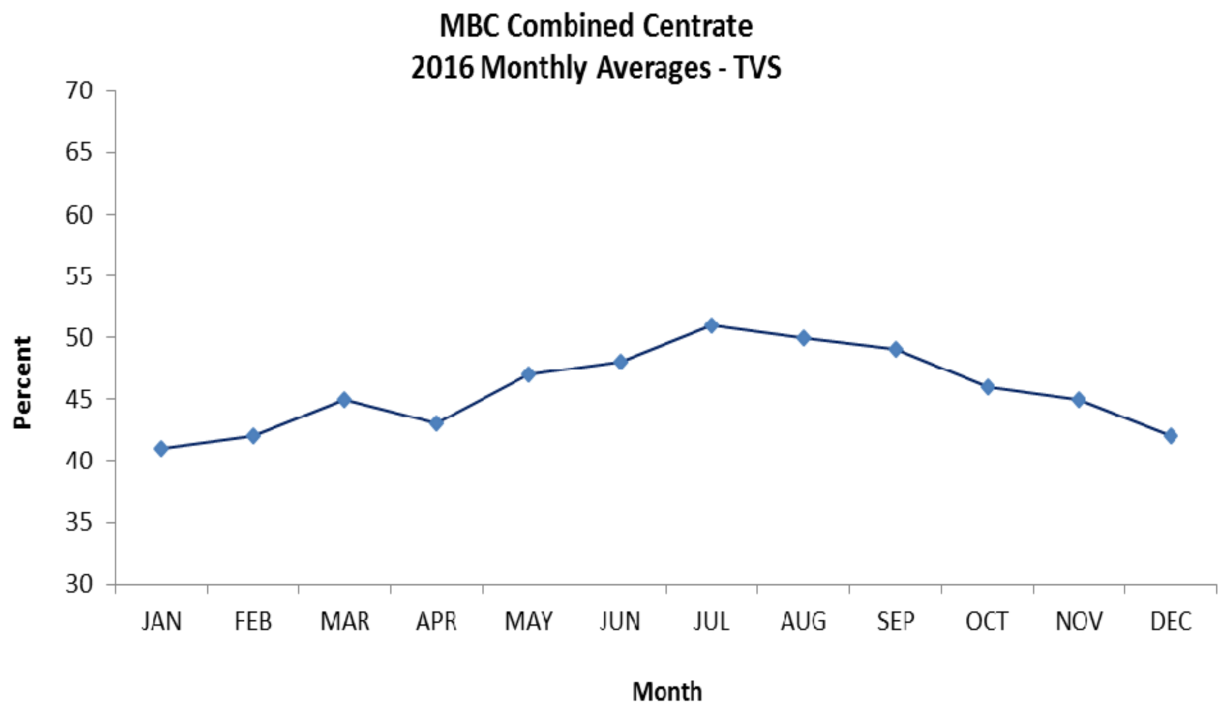
	FLOW	PH	BOD	TSS	VSS	TS	TVS	TSS Mass Emmissions
	MGD	pH Units	mg/L	mg/L	mg/L	Wt%	Wt%	(lbs/Day)
JANUARY -2016	1.75	7.78	254	663	442	0.37	41	9676
FEBRUARY -2016	2.01	7.84	<476	1190	878	0.37	42	19948
MARCH -2016	2.12	7.87	493	1320	969	0.39	45	23339
APRIL -2016	2.02	7.82	293	740	548	0.34	43	12467
MAY -2016	2.10	7.81	350	887	639	0.38	47	15535
JUNE -2016	1.91	7.87	244	633	445	0.39	48	10083
JULY -2016	2.27	7.88	350	791	564	0.35	51	14975
AUGUST -2016	2.07	7.87	312	834	620	0.39	50	14398
SEPTEMBER-2016	2.02	7.84	297	808	599	0.40	49	13612
OCTOBER -2016	1.94	7.83	<258	607	451	0.37	46	9821
NOVEMBER -2016	1.88	7.88	247	613	448	0.34	45	9611
DECEMBER -2016	1.98	7.89	<209	561	403	0.34	42	9264
Average	2.01	7.85	315	804	584	0.37	46	13561

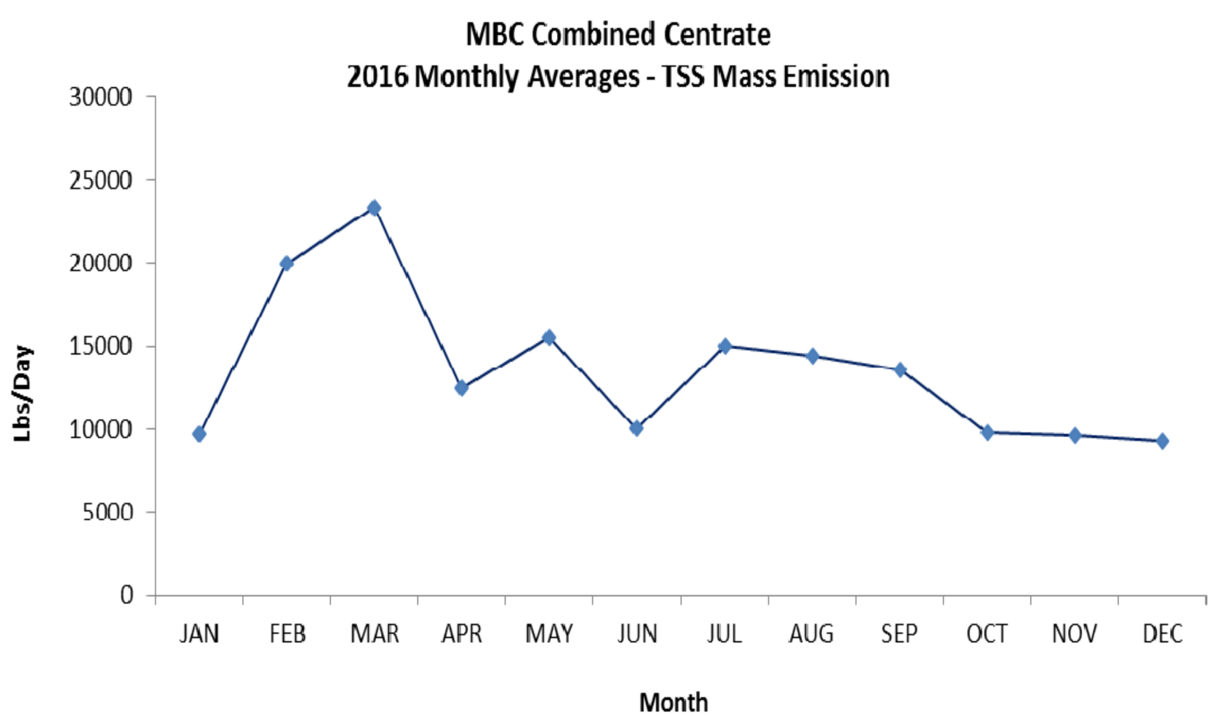
pH by SM4500H
BOD by SM5210B
TSS by SM 2540D
Total Solids by SM2540B

'Average' = Annual average of Monthly Averages.


MBC Combined Centrate
2016 Monthly Averages - BOD
700
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
2016 Monthly Averages - TSS
3000
2500
2000
1500
1000
500
0
mg/L
JAN
FEB
MAR
APR
MAY
JUN
JUL
AUG
SEP
OCT
NOV
DEC
Month


MBC Combined Centrate
2016 Monthly Averages - TVS
Percent
70
65
60
55
50
45
40
35
30
JAN
FEB
MAR
APR
MAY
JUN
JUL
AUG
SEP
OCT
NOV
DEC
Month


MBC Combined Centrate
2016 Monthly Averages - TSS Mass Emission
Lbs/Day
30000
25000
20000
15000
10000
5000
0
JAN
FEB
MAR
APR
MAY
JUN
JUL
AUG
SEP
OCT
NOV
DEC
Month

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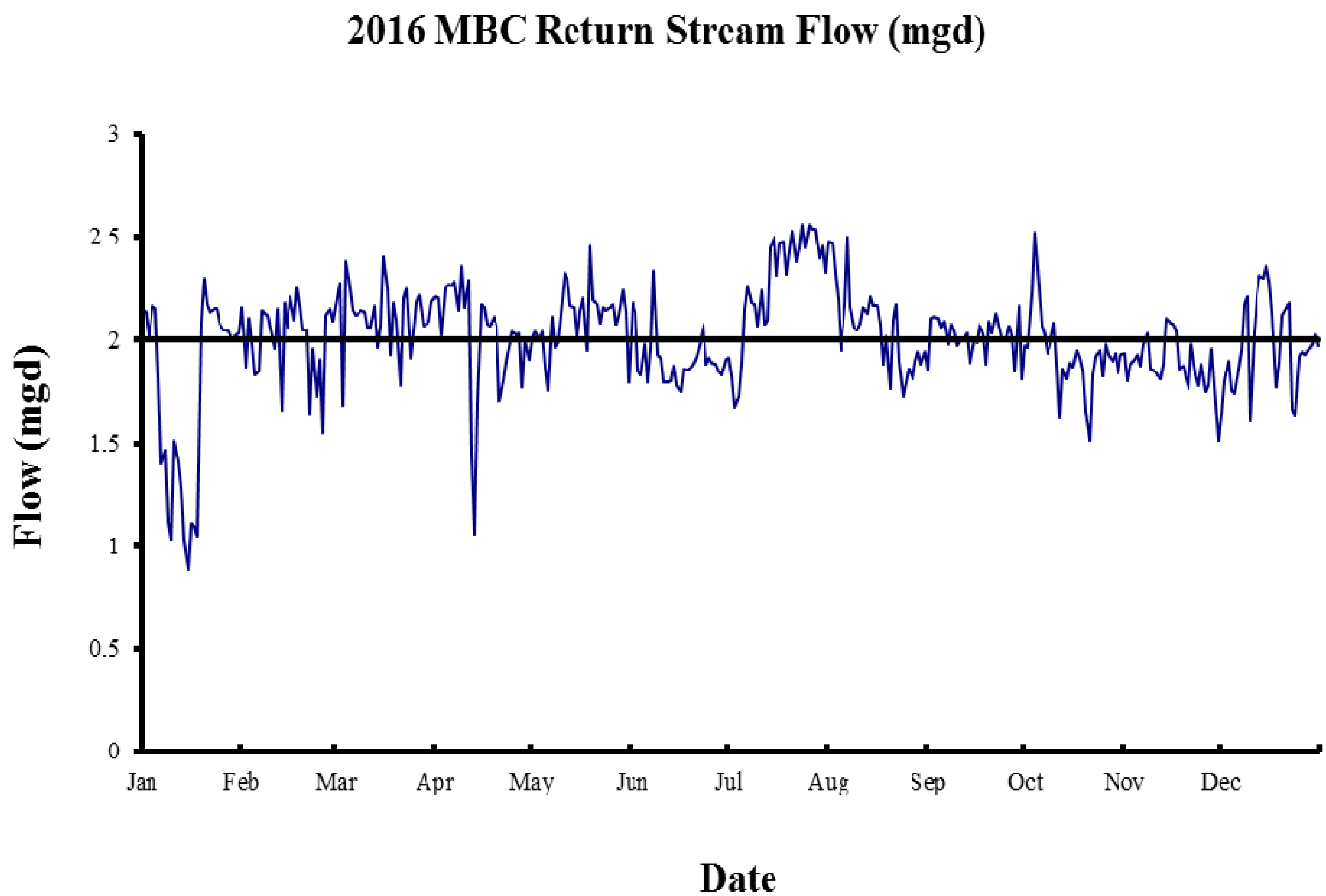

2016 MBC Return Stream Flow (mgd)
Flow (mgd)
3
2.5
2
1.5
1
0.5
0
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Date

Metro Biosolids Center

2016 MBC Return Stream Daily Flows (mgd)

Day	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Summary
1	2.15	2.16	2.17	2.22	2.01	2.19	1.92	2.48	1.86	1.97	1.94	1.64	
2	2.14	1.87	2.28	2.20	2.04	2.14	1.83	2.47	2.11	1.97	1.80	1.80	
3	2.02	2.11	1.69	2.02	2.00	1.85	1.68	2.32	2.12	2.23	1.88	1.90	
4	2.17	1.98	2.38	2.26	2.04	1.83	1.73	2.20	2.11	2.53	1.91	1.76	
5	2.15	1.83	2.30	2.27	1.87	1.98	1.89	1.95	2.06	2.34	1.93	1.74	
6	1.82	1.85	2.15	2.27	1.76	1.80	2.15	2.18	2.10	2.07	1.88	1.81	
7	1.40	2.14	2.12	2.28	2.12	1.96	2.26	2.50	1.98	2.03	1.98	1.95	
8	1.46	2.13	2.13	2.14	1.97	2.34	2.18	2.16	2.08	1.94	2.03	2.18	
9	1.12	2.12	2.15	2.36	2.00	1.93	2.18	2.06	2.04	1.97	1.86	2.21	
10	1.03	2.02	2.14	2.16	2.20	1.91	2.07	2.05	1.97	2.09	1.85	1.61	
11	1.51	1.96	2.06	2.30	2.33	1.79	2.24	2.09	2.01	1.87	1.84	2.04	
12	1.41	2.16	2.06	1.44	2.30	1.79	2.08	2.16	2.01	1.62	1.81	2.22	
13	1.28	1.66	2.17	1.06	2.17	1.81	2.10	2.13	2.03	1.86	1.88	2.32	
14	1.02	2.18	1.97	1.70	2.16	1.88	2.45	2.21	1.89	1.81	2.11	2.30	
15	0.89	2.06	2.07	2.17	2.02	1.78	2.51	2.17	2.01	1.89	2.09	2.36	
16	1.11	2.21	2.40	2.16	2.15	1.75	2.31	2.17	1.99	1.87	2.08	2.29	
17	1.10	2.10	2.25	2.08	2.21	1.86	2.47	2.08	2.08	1.95	2.04	2.13	
18	1.05	2.25	1.93	2.07	1.95	1.86	2.48	1.89	2.03	1.91	1.87	1.77	
19	2.09	2.17	2.18	2.11	2.45	1.87	2.32	2.02	1.88	1.86	1.88	1.89	
20	2.30	2.05	2.10	2.07	2.20	1.89	2.44	1.77	2.09	1.65	1.81	2.13	
21	2.18	2.04	1.78	1.71	2.17	1.92	2.53	2.10	2.04	1.52	1.77	2.15	
22	2.13	1.64	2.21	1.80	2.08	1.97	2.39	2.18	2.13	1.83	1.98	2.19	
23	2.15	1.96	2.25	1.90	2.16	2.08	2.45	1.90	2.07	1.92	1.83	1.67	
24	2.15	1.73	1.91	1.97	2.15	1.88	2.56	1.73	2.01	1.95	1.78	1.63	
25	2.09	1.91	2.05	2.04	2.16	1.92	2.45	1.79	2.01	1.83	1.89	1.92	
26	2.04	1.55	2.19	2.03	2.17	1.89	2.56	1.86	2.07	1.98	1.75	1.94	
27	2.05	2.13	2.22	2.04	2.08	1.88	2.54	1.81	2.02	1.93	1.78	1.93	
28	2.04	2.15	2.07	1.77	2.13	1.84	2.54	1.90	1.85	1.90	1.96	1.95	
29	2.01	2.09	2.07	2.01	2.24	1.84	2.40	1.94	2.17	1.94	1.78	1.98	
30	2.02		2.09	1.91	2.14	1.90	2.46	1.89	1.81	1.84	1.51	2.03	
31	2.03		2.19		1.80		2.33	1.95		1.93		1.97	
Avg	1.75	2.01	2.12	2.02	2.10	1.91	2.27	2.07	2.02	1.94	1.88	1.98	2.01
Min	0.89	1.55	1.69	1.06	1.76	1.75	1.68	1.73	1.81	1.52	1.51	1.61	0.89
Max	2.30	2.25	2.40	2.36	2.45	2.34	2.56	2.50	2.17	2.53	2.11	2.36	2.56

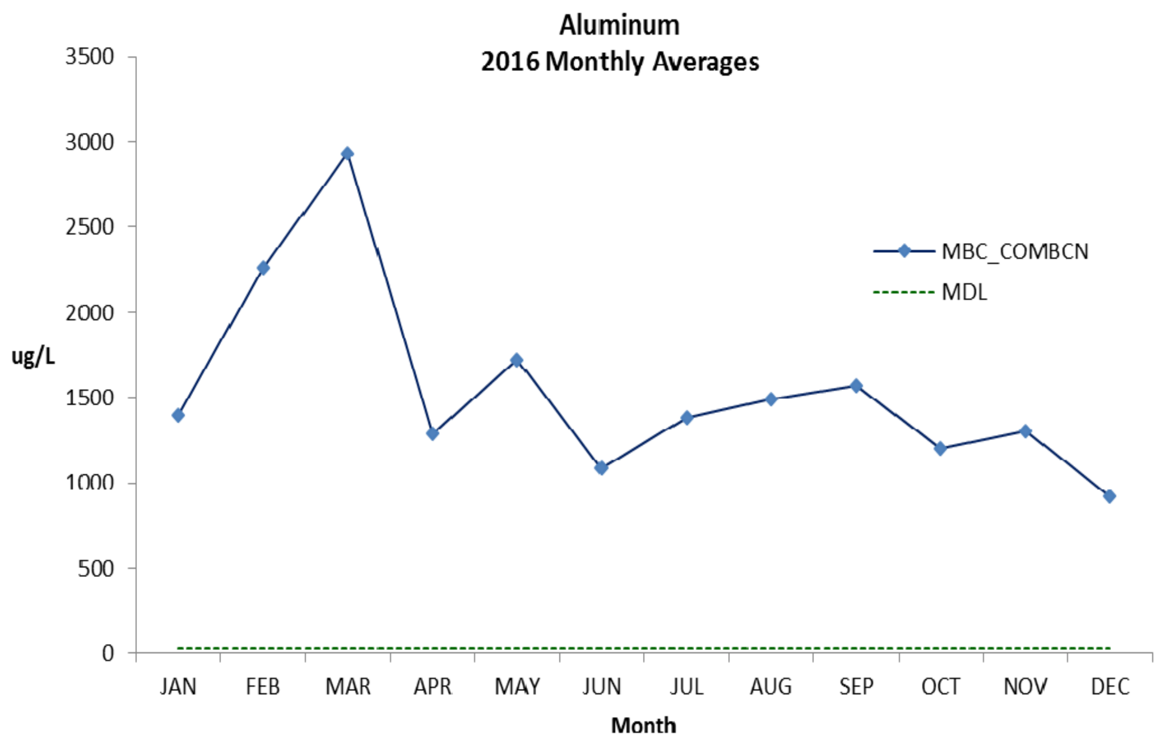
POINT LOMA WASTEWATER TREATMENT PLANT
METRO BIOSOLIDS CENTER

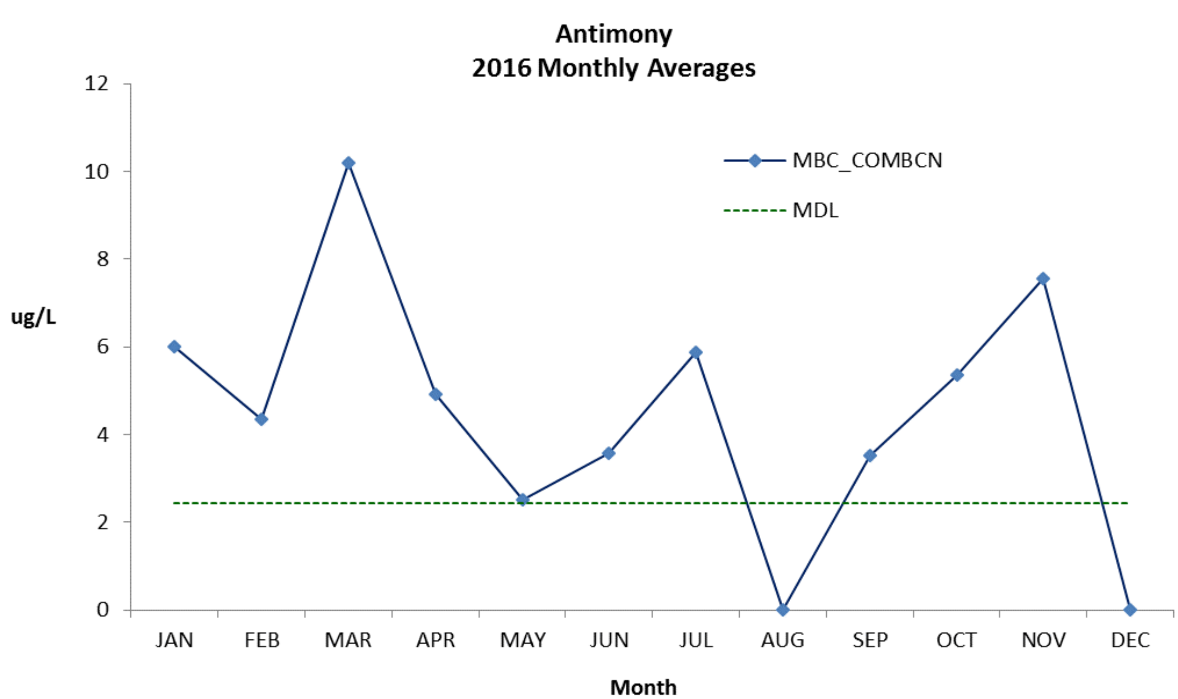
ANNUAL 2016
Trace Metals
EPA Method 200.7

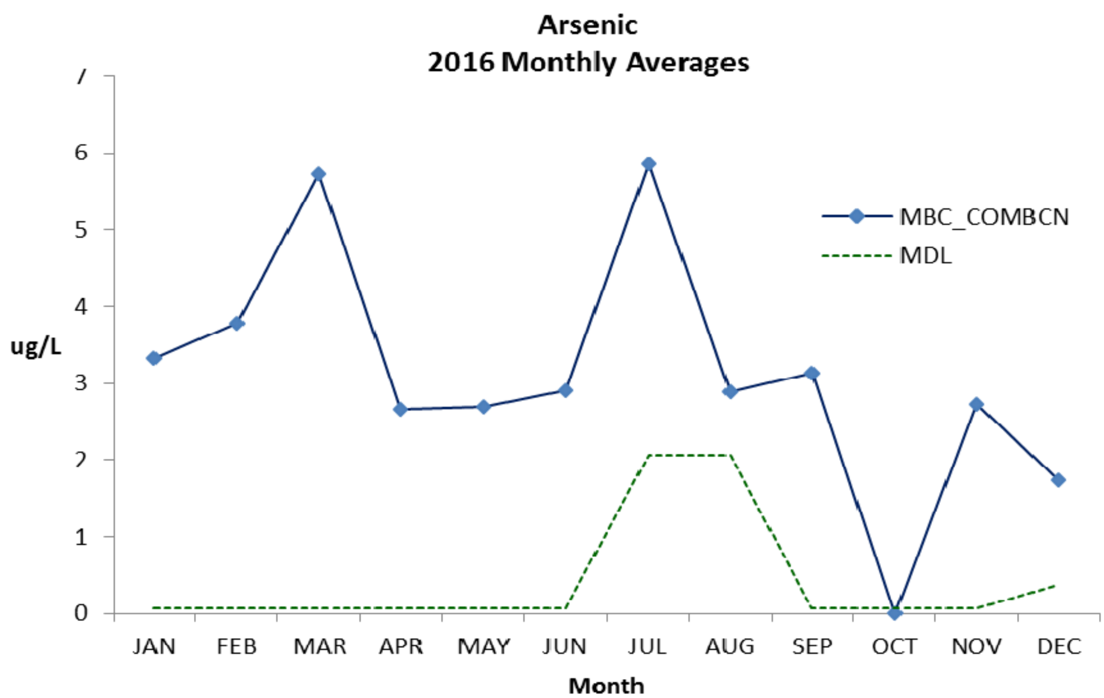
Source:			MBC_COMBCN	MBC_COMBCN	MBC_COMBCN	MBC_COMBCN	MBC_COMBCN	MBC_COMBCN
Date:			31-JAN-2016	29-FEB-2016	31-MAR-2016	30-APR-2016	31-MAY-2016	30-JUN-2016
Sample ID:			P834071	P844125	P851304	P858085	P863686	P873440
Aluminum	23.8	UG/L	1400	2260	2930	1290	1720	1090
Antimony	2.44	UG/L	6.00	4.34	10.20	4.91	2.52	3.58
Arsenic	2.06	UG/L	3.33	3.78	5.73	2.66	2.70	2.91
Barium	.89	UG/L	352	447	496	296	386	314
Beryllium	.18	UG/L	ND	ND	ND	ND	ND	ND
Cadmium	.26	UG/L	0.30	ND	0.56	ND	ND	ND
Chromium	1.2	UG/L	10.2	21.4	29.6	13.8	16.6	14.7
Cobalt	.24	UG/L	7.30	7.51	8.02	6.53	6.92	6.78
Copper	2.16	UG/L	190	442	490	227	293	212
Iron	18.4	UG/L	59300	68900	87800	55200	74600	49200
Lead	1.68	UG/L	10.0	13.6	12.7	8.95	10.8	8.12
Manganese	.78	UG/L	301	381	648	537	541	427
Mercury	.125	UG/L	0.12	0.30	0.27	0.17	0.22	0.19
Molybdenum	.32	UG/L	14.70	12.00	14.20	10.40	12.30	9.44
Nickel	.53	UG/L	33.2	35.8	45.2	30.4	33.2	26.4
Selenium	.54	UG/L	3.03	3.57	3.09	3.64	3.45	1.51
Silver	.73	UG/L	ND	ND	2.42	ND	1.14	1.35
Thallium	3.12	UG/L	ND	ND	ND	ND	ND	ND
Vanadium	11.1	UG/L	14.70	24.70	21.30	12.10	18.70	12.40
Zinc	4.19	UG/L	279	490	637	322	400	316

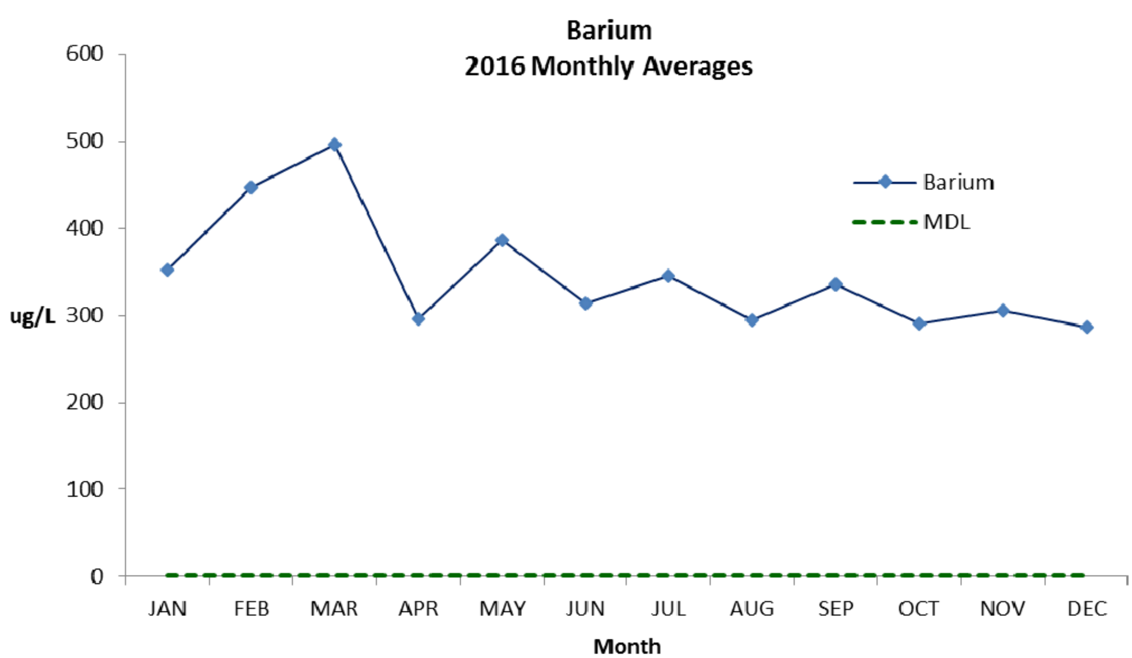
Source:			MBC_COMBCN	MBC_COMBCN	MBC_COMBCN	MBC_COMBCN	MBC_COMBCN	MBC_COMBCN
Date:			31-JUL-2016	31-AUG-2016	30-SEP-2016	31-OCT-2016	30-NOV-2016	31-DEC-2016
Sample ID:			P880437	P890182	P896145	P902772	P908687	P914708
Aluminum	23.8	UG/L	1380	1490	1570	1200	1300	918
Antimony	2.44	UG/L	5.87	ND	3.52	5.36	7.56	ND
Arsenic	2.06	UG/L	5.85	2.88	3.13	ND	2.72	1.74
Barium	.89	UG/L	345	294	336	290	306	286
Beryllium	.18	UG/L	ND	ND	ND	ND	ND	ND
Cadmium	.26	UG/L	0.33	0.41	0.42	0.28	ND	0.40
Chromium	1.2	UG/L	13.3	16.8	19.3	16.4	18.1	13.4
Cobalt	.24	UG/L	5.50	5.08	6.09	6.09	6.41	4.75
Copper	2.16	UG/L	228	273	309	223	241	150
Iron	18.4	UG/L	62000	43300	60600	50500	48300	40900
Lead	1.68	UG/L	3.87	9.74	7.02	5.63	3.39	5.96
Manganese	.78	UG/L	519	335	491	433	431	376
Mercury	.125	UG/L	0.795*	0.17	0.21	0.12	0.20	0.19
Molybdenum	.32	UG/L	12.5	16.4	12.8	12.8	12.0	8.92
Nickel	.53	UG/L	16.3	15.8	16.8	16.9	18.4	19.2
Selenium	.54	UG/L	6.15	3.87	2.18	1.64	2.77	1.89
Silver	.73	UG/L	0.77	0.76	1.50	1.60	1.32	0.90
Thallium	3.12	UG/L	ND	<0.81	ND	ND	ND	ND
Vanadium	11.1	UG/L	11.10	NA	2.20	3.33	3.83	3.95
Zinc	4.19	UG/L	328	355	393	323	347	264

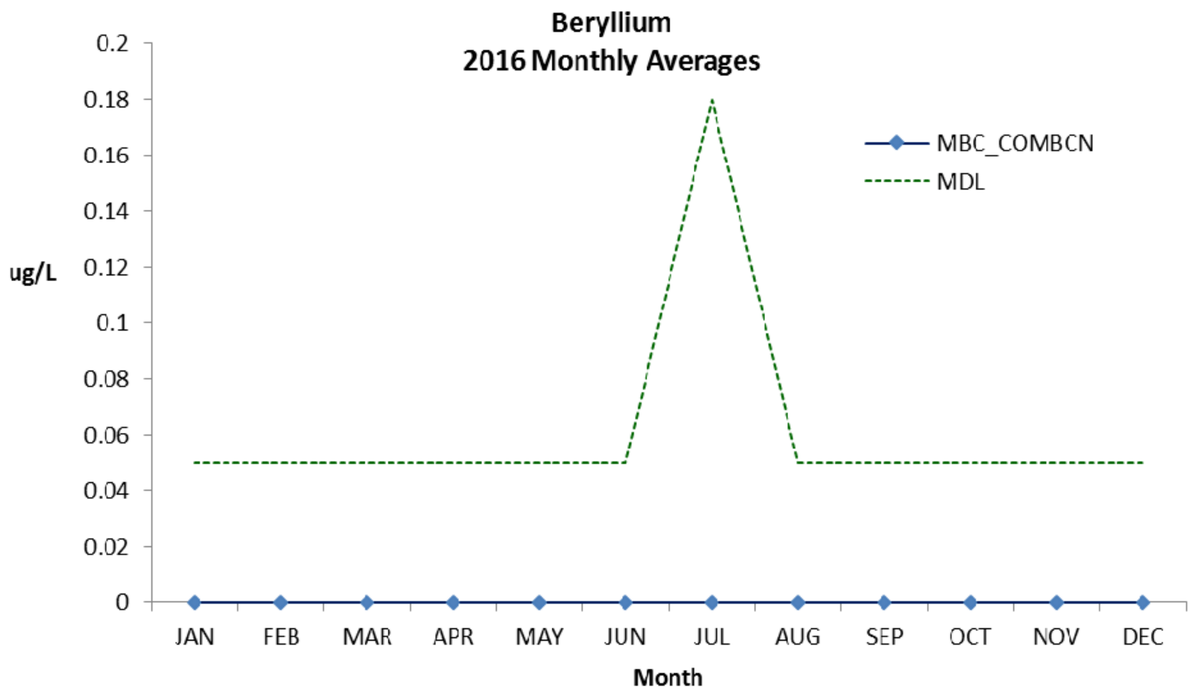
*= Not reportable, possible contamination.
ND= Not Detected
NA= Not Analyzed
MBC_COMBCN= Metro Biosolids Center Combined Sludge Centrate.

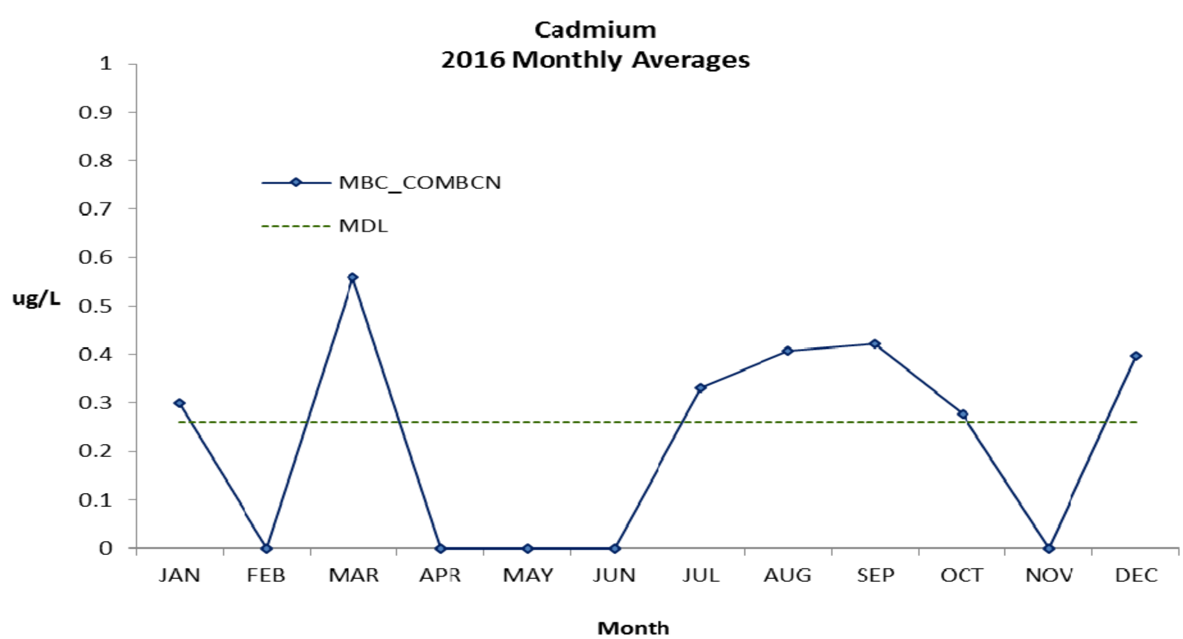

Aluminum
2016 Monthly Averages
3500
3000
2500
2000
1500
1000
500
0
ug/L
MBC_COMBCN
MDL
JAN
FEB
MAR
APR
MAY
JUN
JUL
AUG
SEP
OCT
NOV
DEC
Month

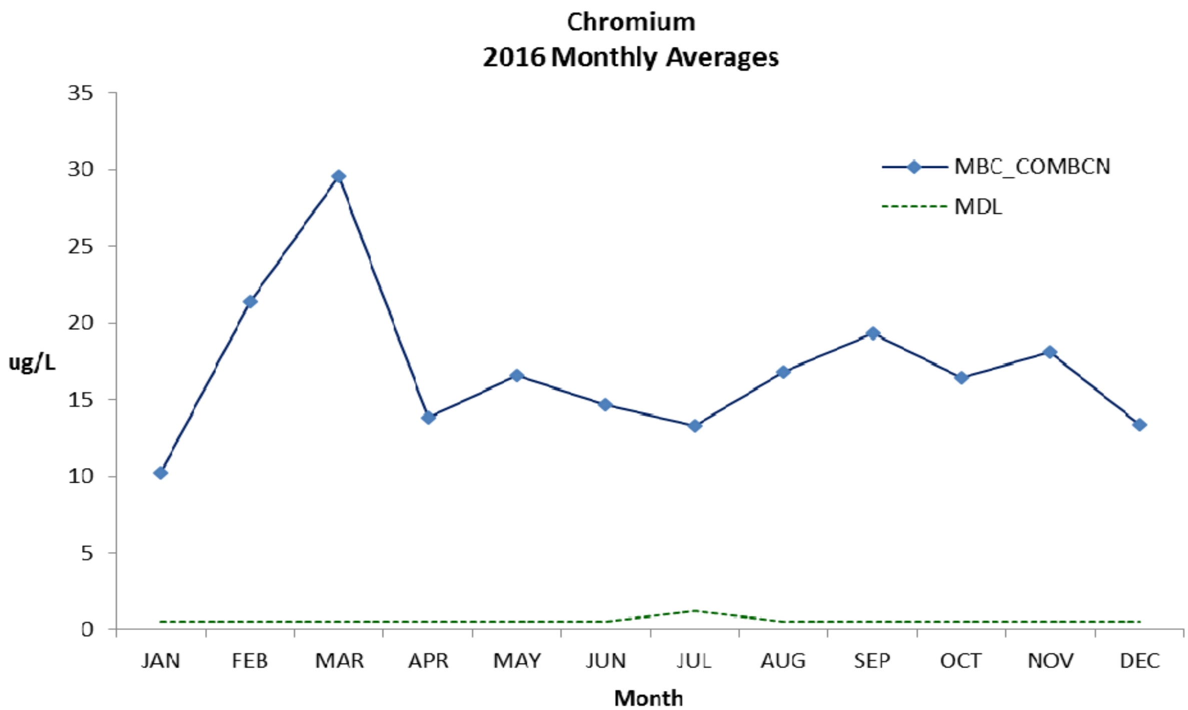

Antimony
2016 Monthly Averages
12
10
8
6
4
2
0
ug/L
MBC_COMBCN
MDL
JAN
FEB
MAR
APR
MAY
JUN
JUL
AUG
SEP
OCT
NOV
DEC
Month

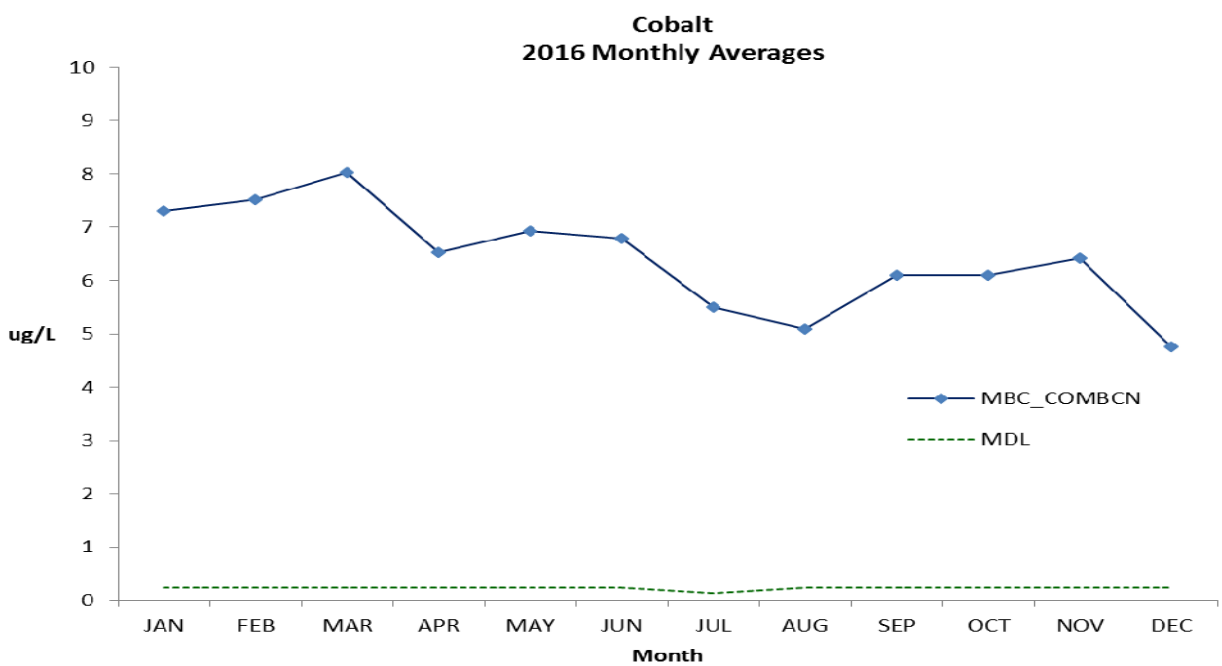

Arsenic
2016 Monthly Averages
7
6
5
4
3
2
1
0
ug/L
JAN
FEB
MAR
APR
MAY
JUN
JUL
AUG
SEP
OCT
NOV
DEC
Month
MBC_COMBCN
MDL

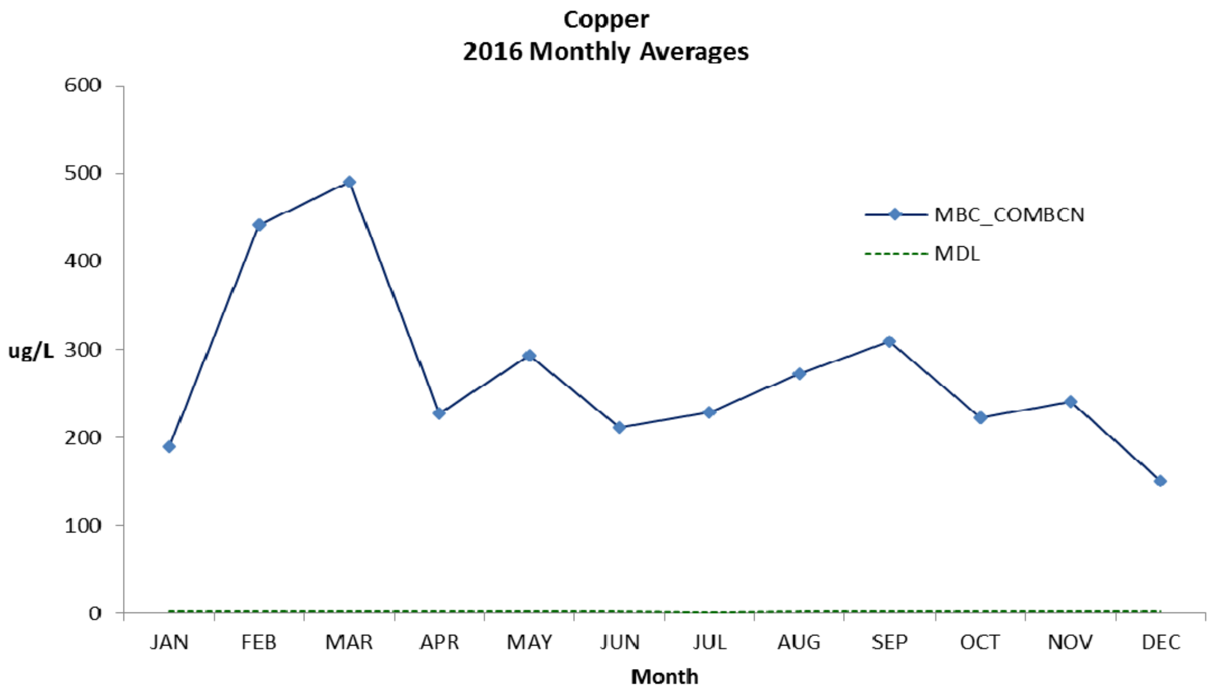

Barium
2016 Monthly Averages
600
500
400
300
200
100
0
ug/L
JAN
FEB
MAR
APR
MAY
JUN
JUL
AUG
SEP
OCT
NOV
DEC
Month
Barium
MDL

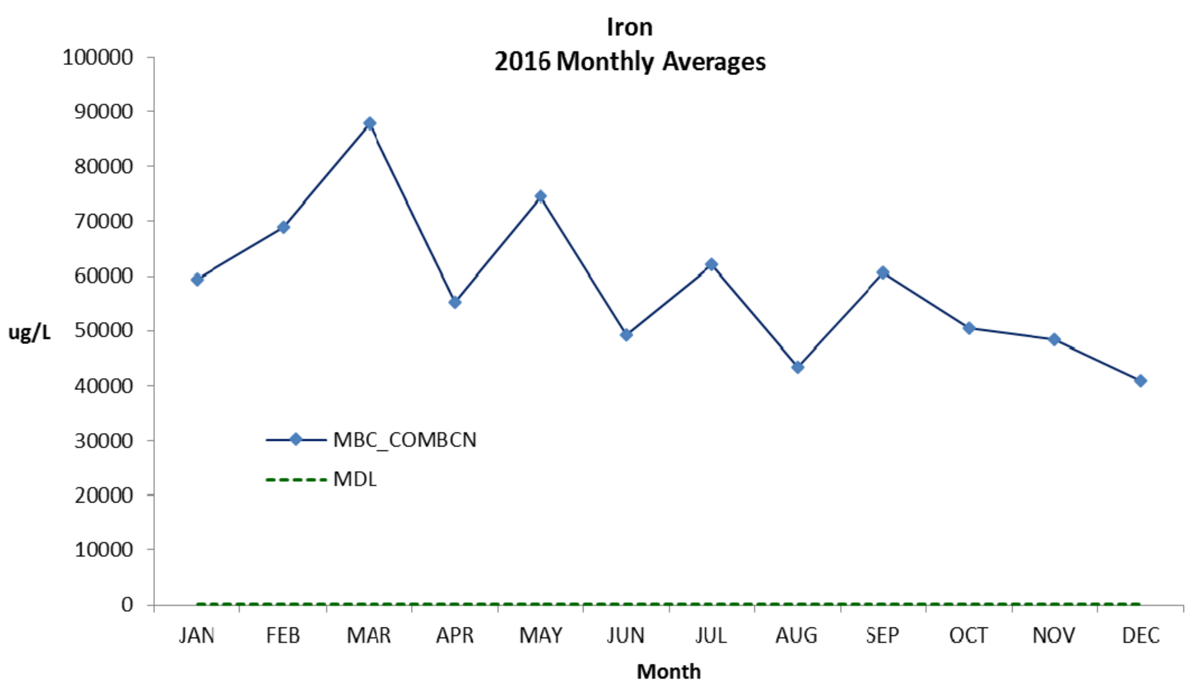

Beryllium
2016 Monthly Averages
0.2
0.18
0.16
0.14
0.12
0.1
0.08
0.06
0.04
0.02
0
ug/L
MBC_COMBCN
MDL
JAN
FEB
MAR
APR
MAY
JUN
JUL
AUG
SEP
OCT
NOV
DEC
Month

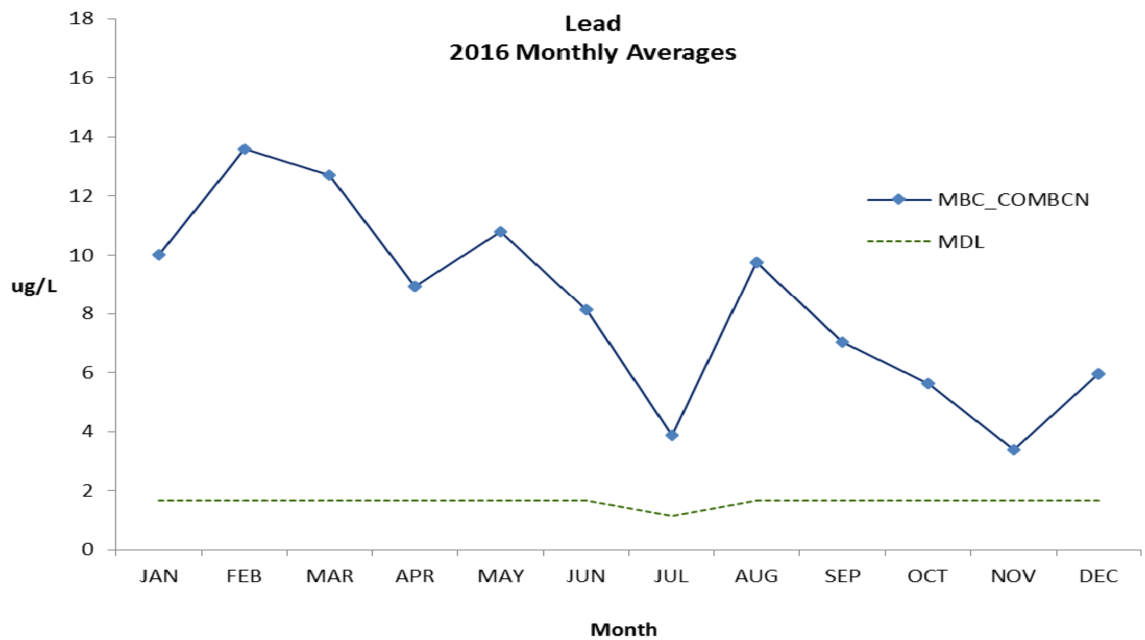

Cadmium
2016 Monthly Averages
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
ug/L
MBC_COMBCN
MDL
JAN
FEB
MAR
APR
MAY
JUN
JUL
AUG
SEP
OCT
NOV
DEC
Month


Chromium
2016 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

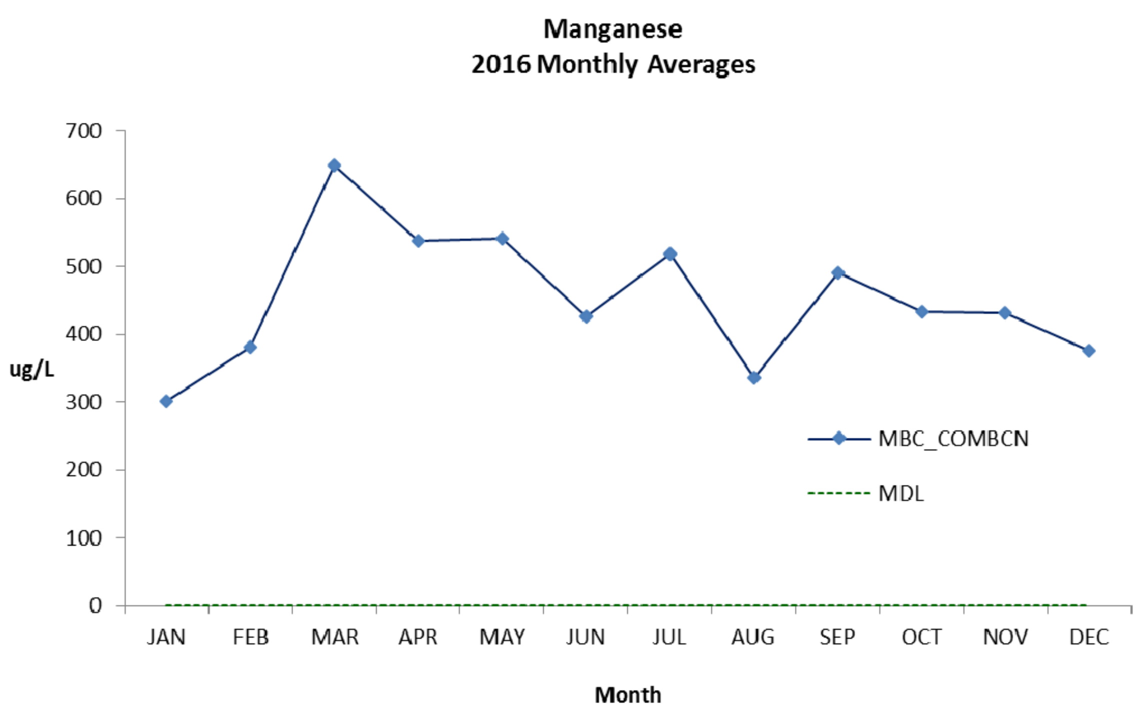

Cobalt
2016 Monthly Averages
10
9
8
7
6
5
4
3
2
1
0
ug/L
MBC_COMBCN
MDL
JAN
FEB
MAR
APR
MAY
JUN
JUL
AUG
SEP
OCT
NOV
DEC
Month


Copper
2016 Monthly Averages
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

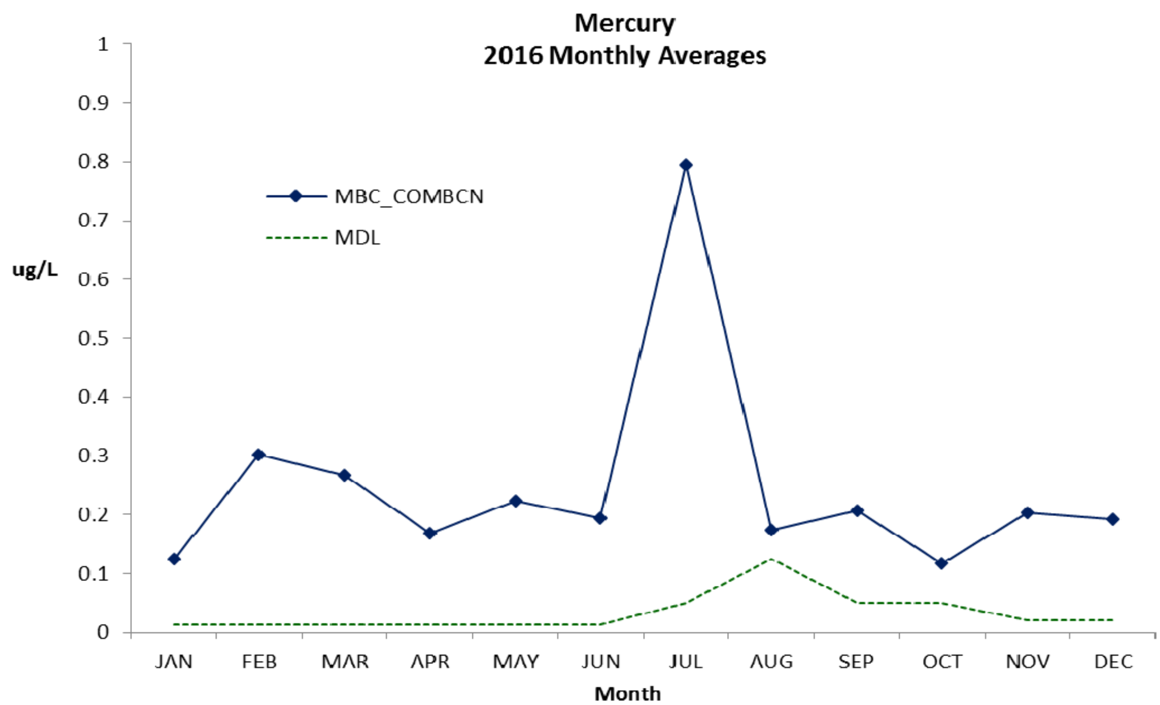

Iron
2016 Monthly Averages
100000
90000
80000
70000
60000
50000
40000
30000
20000
10000
0
ug/L
MBC_COMBCN
MDL
JAN
FEB
MAR
APR
MAY
JUN
JUL
AUG
SEP
OCT
NOV
DEC
Month

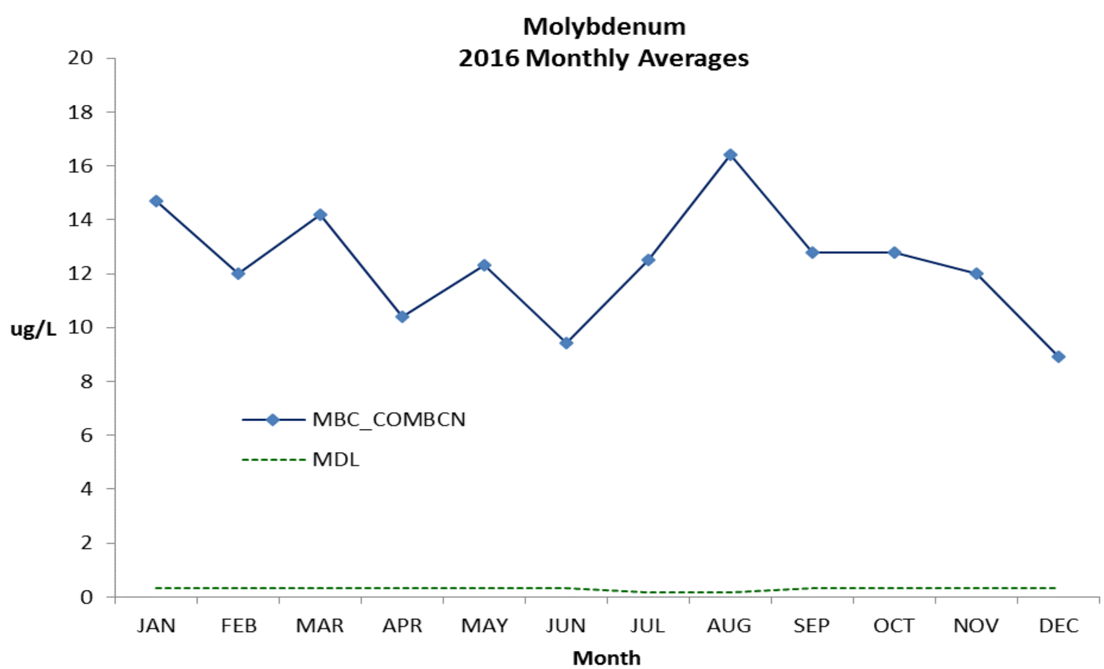


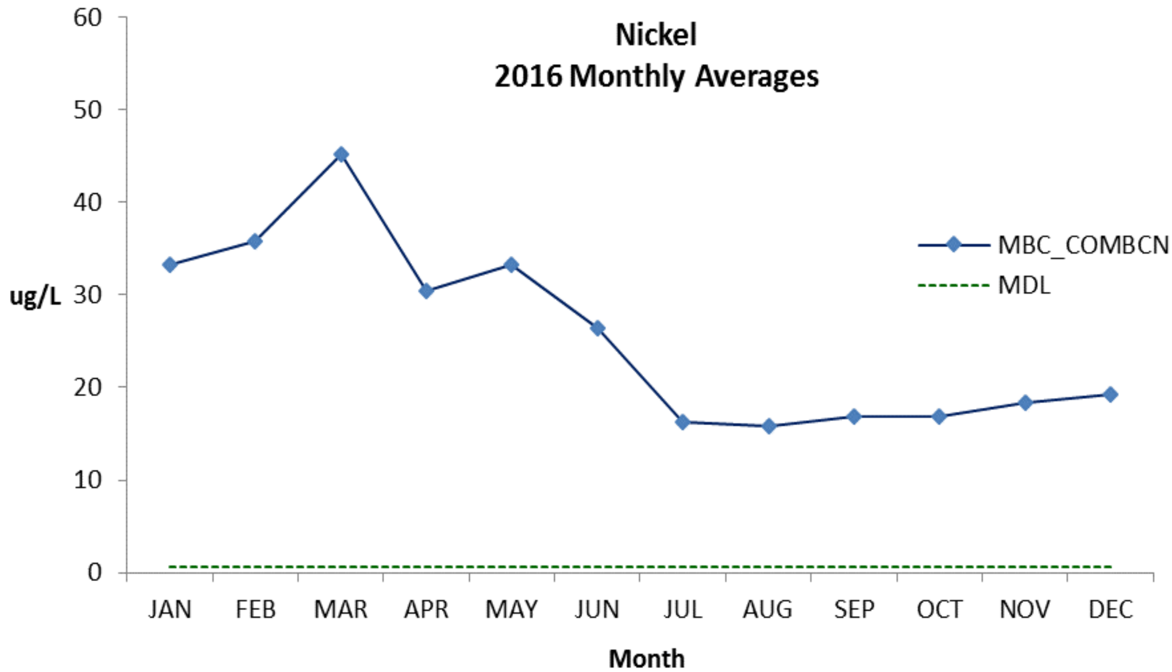
Lead
2016 Monthly Averages
18
16
14
12
10
8
6
4
2
0
ug/L
JAN
FEB
MAR
APR
MAY
JUN
JUL
AUG
SEP
OCT
NOV
DEC
Month
MBC_COMBCN
MDL

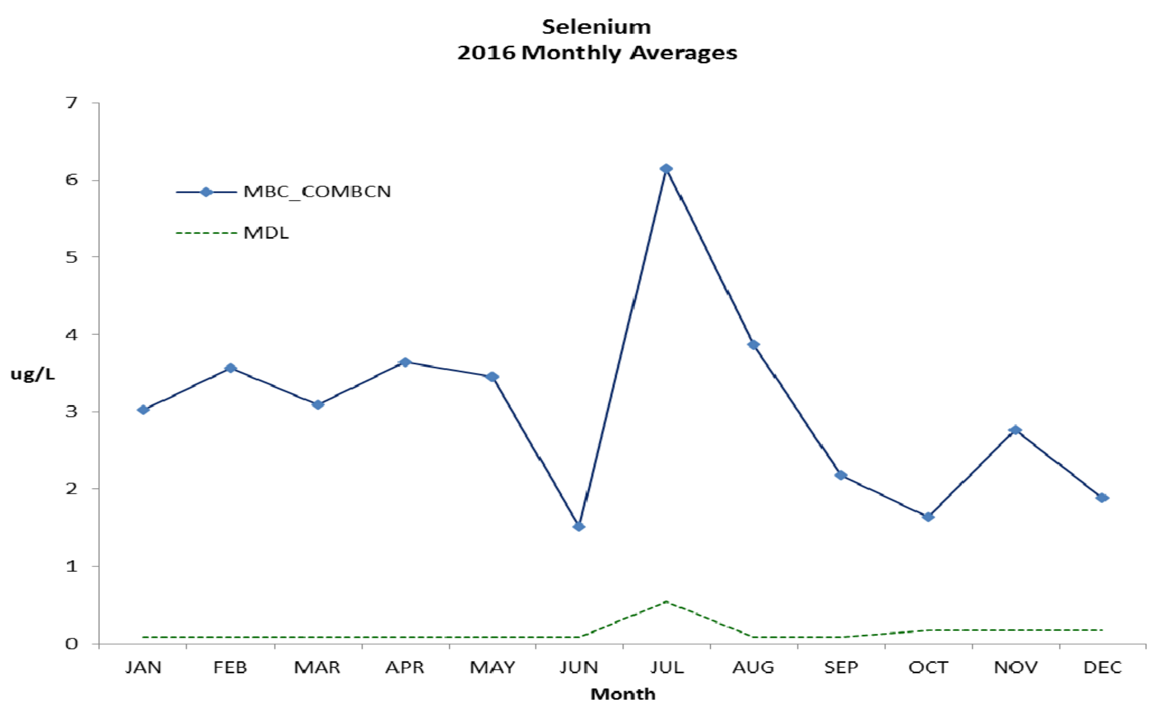


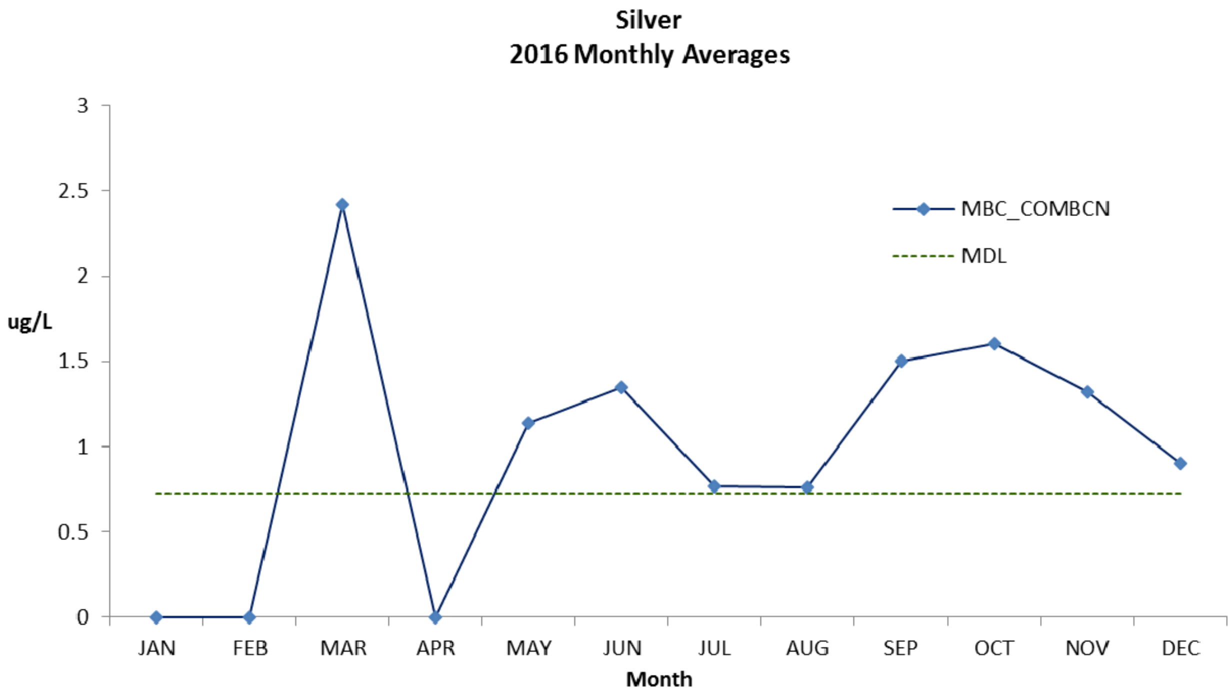
Manganese
2016 Monthly Averages
700
600
500
400
300
200
100
0
ug/L
JAN
FEB
MAR
APR
MAY
JUN
JUL
AUG
SEP
OCT
NOV
DEC
Month
MBC_COMBCN
MDL


Mercury
2016 Monthly Averages
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
ug/L
MBC_COMBCN
MDL
JAN
FEB
MAR
APR
MAY
JUN
JUL
AUG
SEP
OCT
NOV
DEC
Month

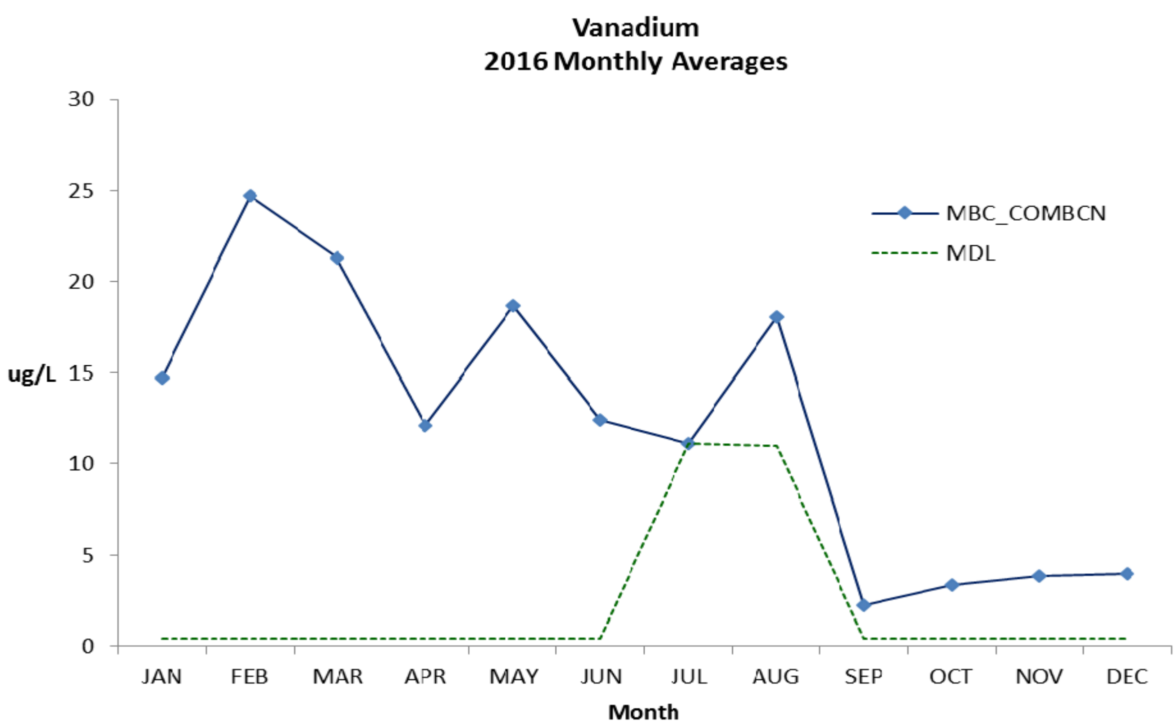

Molybdenum
2016 Monthly Averages
20
18
16
14
12
10
8
6
4
2
0
ug/L
MBC_COMBCN
MDL
JAN
FEB
MAR
APR
MAY
JUN
JUL
AUG
SEP
OCT
NOV
DEC
Month


Nickel
2016 Monthly Averages
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

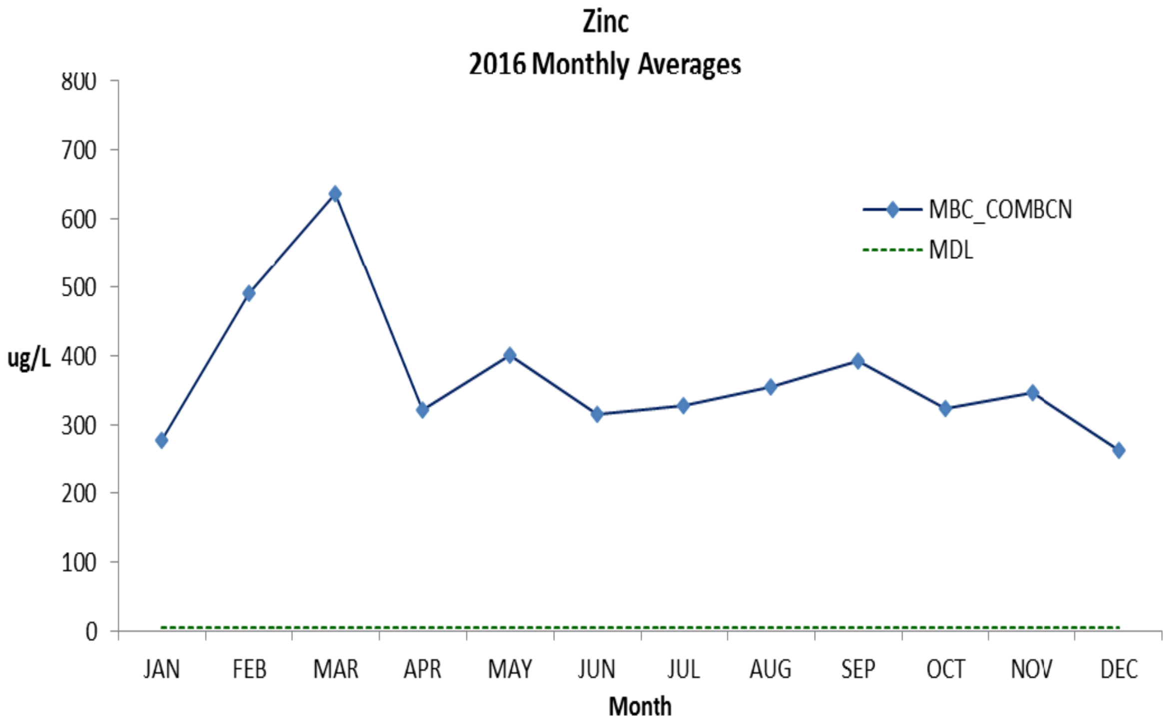

Selenium
2016 Monthly Averages
7
6
5
4
3
2
1
0
ug/L
MBC_COMBCN
MDL
JAN
FEB
MAR
APR
MAY
JUN
JUL
AUG
SEP
OCT
NOV
DEC
Month



Silver
2016 Monthly Averages
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
MBC_COMBCN
MDL



Vanadium
2016 Monthly Averages
ug/L
30
25
20
15
10
5
0
JAN
FEB
MAR
APR
MAY
JUN
JUL
AUG
SEP
OCT
NOV
DEC
Month
MBC_COMBCN
MDL



Zinc
2016 Monthly Averages
800
700
600
500
ug/L 400
300
200
100
0
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
Digesters Report
Annual 2016

Digester 1

	pH	Total Solids (%)	Volatile Solids (%)	Alkal-inity (mg/L)	Volatile Acids (mg/L)	Methane (%)	Carbon Dioxide (%)	H2S ppm
JANUARY -2016				NOT IN SERVICE				
FEBRUARY -2016								
MARCH -2016								
APRIL -2016								
MAY -2016								
JUNE -2016								
JULY -2016								
AUGUST -2016								
SEPTEMBER-2016								
OCTOBER -2016								
NOVEMBER -2016								
DECEMBER -2016								
Average:								

Digester 2

	pH	Total Solids (%)	Volatile Solids (%)	Alkal-inity (mg/L)	Volatile Acids (mg/L)	Methane (%)	Carbon Dioxide (%)	H2S ppm
JANUARY -2016				NOT IN SERVICE				
FEBRUARY -2016								
MARCH -2016								
APRIL -2016								
MAY -2016								
JUNE -2016								
JULY -2016								
AUGUST -2016								
SEPTEMBER-2016								
OCTOBER -2016								
NOVEMBER -2016								
DECEMBER -2016								
Average:								

Digester 3

	pH	Total Solids (%)	Volatile Solids (%)	Alkal-inity (mg/L)	Volatile Acids (mg/L)	Methane (%)	Carbon Dioxide (%)	H2S ppm
JANUARY -2016	6.90	2.3	61.5	1380	74	61.2	38.8	27
FEBRUARY -2016	6.98	2.3	64.6	1520	74	59.7	40.3	31
MARCH -2016	6.88	2.4	66.5	1540	72	60.2	39.8	49
APRIL -2016	6.85	2.4	65.9	1420	64	59.8	40.2	40
MAY -2016	6.76	2.5	66.6	1260	78	59.9	40.1	48
JUNE -2016	6.77	2.4	65.4	1300	88	59.6	40.4	28
JULY -2016	6.86	2.4	65.6	1430	84	60.1	39.9	20
AUGUST -2016	6.91	2.3	65.3	1570	94	60.2	39.8	23
SEPTEMBER-2016	6.92	2.2	68.2	1780	95	59.3	40.7	20
OCTOBER -2016	6.93	2.2	67.0	1700	82	60.6	39.4	19
NOVEMBER -2016	6.98	2.1	65.5	1630	72	60.5	39.5	18
DECEMBER -2016	6.92	1.9	65.2	1660	68	60.6	39.4	21
Average	6.89	2.3	65.6	1516	79	60.1	39.9	29

D. Gas Production

Metro Biosolids Center
Gas Report

Annual 2016

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			188,465.0	188,465.0	890	176,750	177,639
02			280,807.5	280,807.5	548	264,917	265,465
03			282,126.1	282,126.1	3,826	268,745	272,570
04			272,247.4	272,247.4	993	257,508	258,501
05			285,561.0	285,561.0	1,063	271,553	272,615
06			253,670.0	253,670.0	1,630	238,053	239,683
07			290,282.8	290,282.8	1,426	270,130	271,556
08			283,332.3	283,332.3	606	263,755	264,360
09			297,886.6	297,886.6	1,306	275,845	277,150
10			273,055.5	273,055.5	3,662	251,476	255,138
11			260,042.6	260,042.6	2,926	246,105	249,031
12			243,048.7	243,048.7	3,374	235,370	238,744
avg			267,543.8	267,543.8	1,854	251,684	253,538

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			5,842,414.0	5,842,414.0	27,576	5,479,240	5,506,816
02			8,143,417.0	8,143,417.0	15,884	7,682,598	7,698,482
03			8,745,910.0	8,745,910.0	118,593	8,331,091	8,449,684
04			8,167,423.0	8,167,423.0	29,791	7,725,249	7,755,040
05			8,852,392.0	8,852,392.0	32,946	8,418,132	8,451,078
06			7,610,100.0	7,610,100.0	48,902	7,141,585	7,190,487
07			8,998,767.0	8,998,767.0	44,208	8,374,020	8,418,228
08			8,783,301.0	8,783,301.0	18,772	8,176,402	8,195,174
09			8,936,599.0	8,936,599.0	39,166	8,275,345	8,314,511
10			8,464,720.0	8,464,720.0	113,507	7,795,758	7,909,265
11			7,801,279.0	7,801,279.0	87,770	7,383,146	7,470,916
12			7,534,511.0	7,534,511.0	104,603	7,296,466	7,401,069
avg			8,156,736.1	8,156,736.1	56,810	7,673,253	7,730,063
sum			97,880,833.0	97,880,833.0	681,718	92,079,032	92,760,750

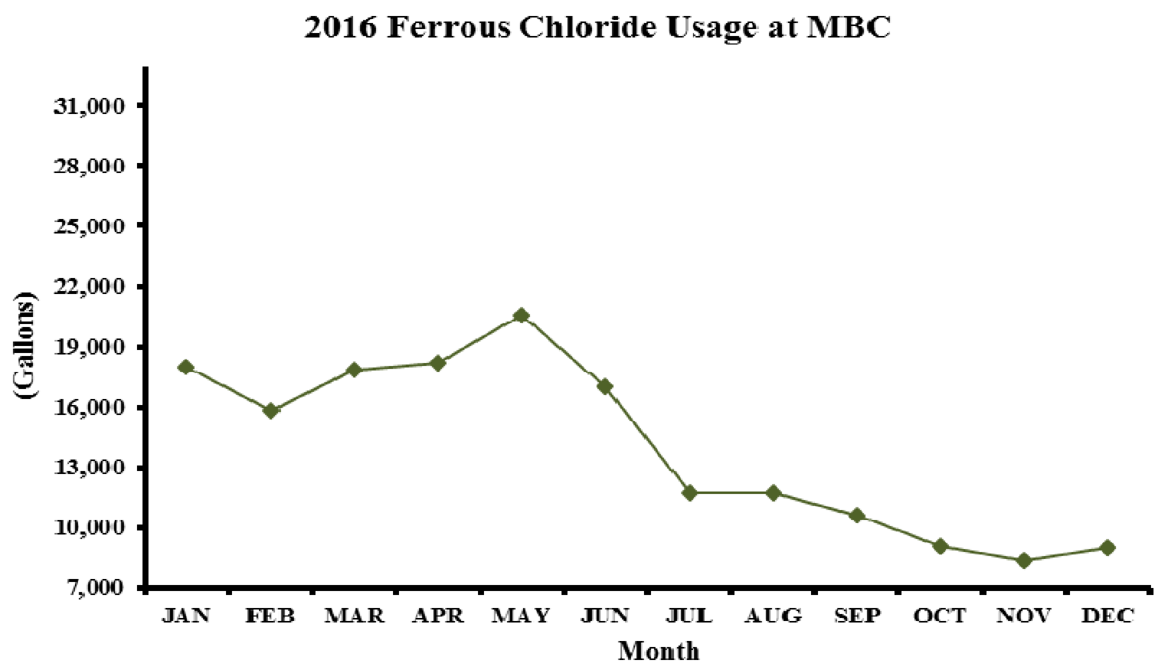
E. Chemical Usage

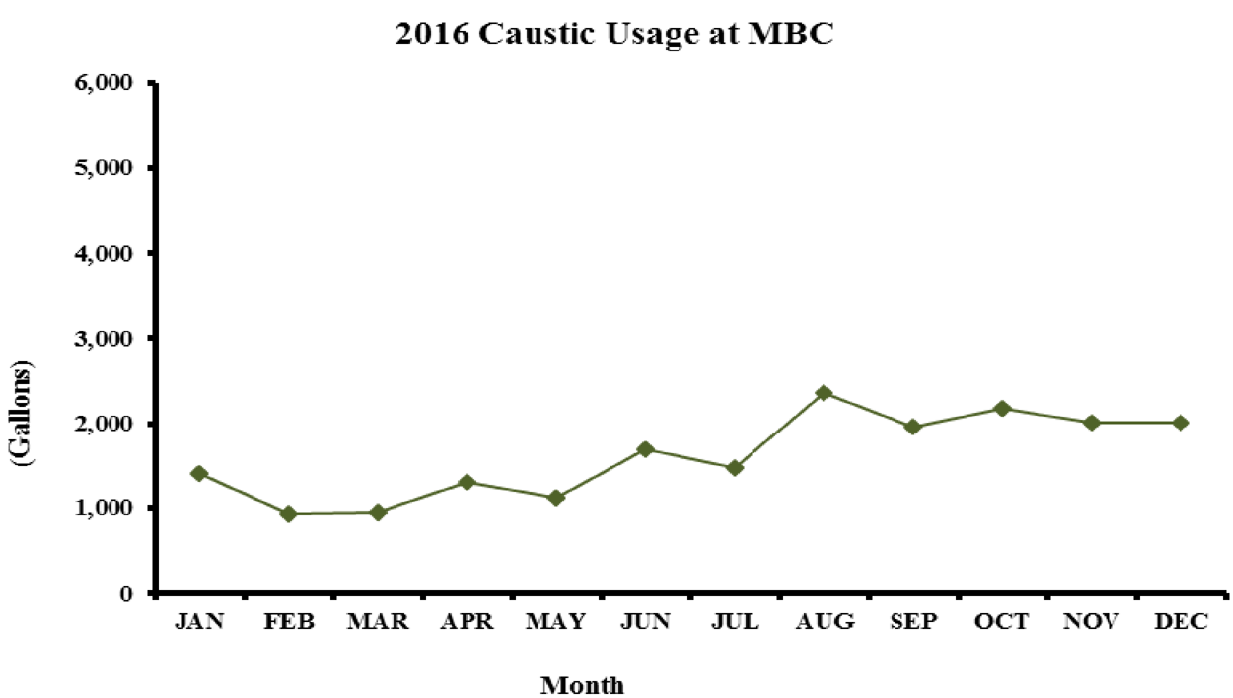
Metro Biosolids Center
Monthly Chemical Usage Report

Annual 2016

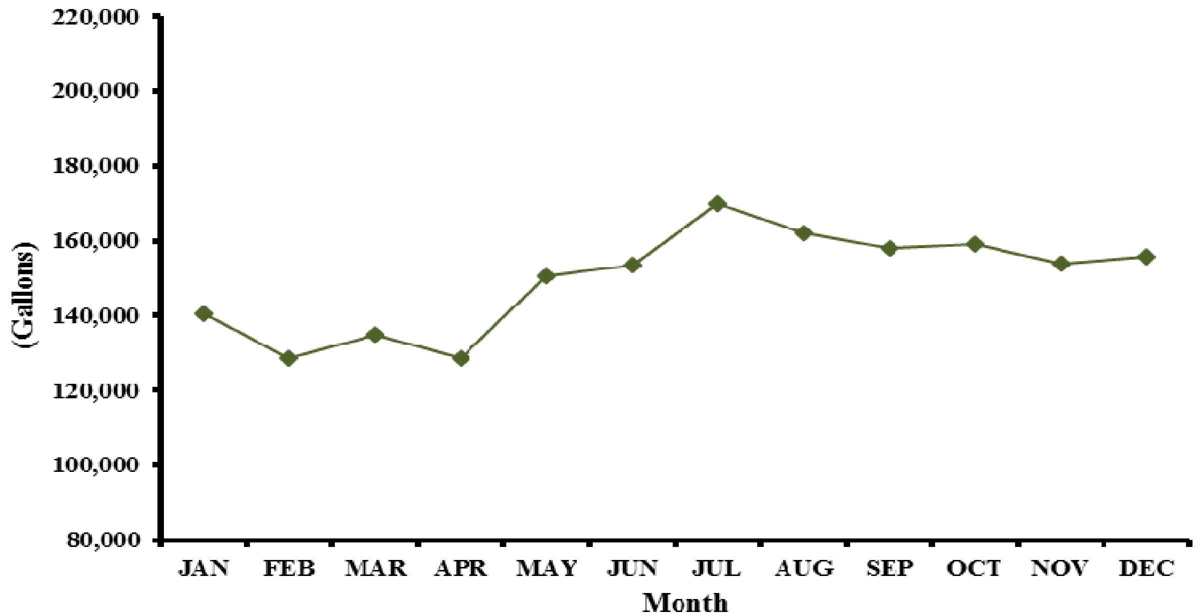
MON	Polymer Gallons	Ferric Chloride Gallons	Ferrous Chloride Gallons	Sodium Hydroxide Gallons	Hypochlorite Gallons	Sulfuric Acid Gallons
01	140,381	0	18,015	1,413	2,552	0
02	128,471	0	15,844	930	2,588	0
03	134,810	0	17,835	958	2,860	0
04	128,777	0	18,243	1,306	3,294	0
05	150,446	0	20,545	1,119	2,861	0
06	153,593	0	17,029	1,698	3,454	0
07	169,852	0	11,729	1,481	4,138	0
08	162,060	0	11,753	2,362	4,795	0
09	158,030	0	10,630	1,968	3,322	0
10	159,013	0	9,122	2,176	2,911	0
11	153,898	0	8,405	2,007	2,917	0
12	155,722	0	9,035	2,014	3,839	0
avg	149,588	0	14,015	1,619	3,294	0
sum	1,795,051	0	168,184	19,431	39,531	0

F. Graphs of Monthly Chemical Usage

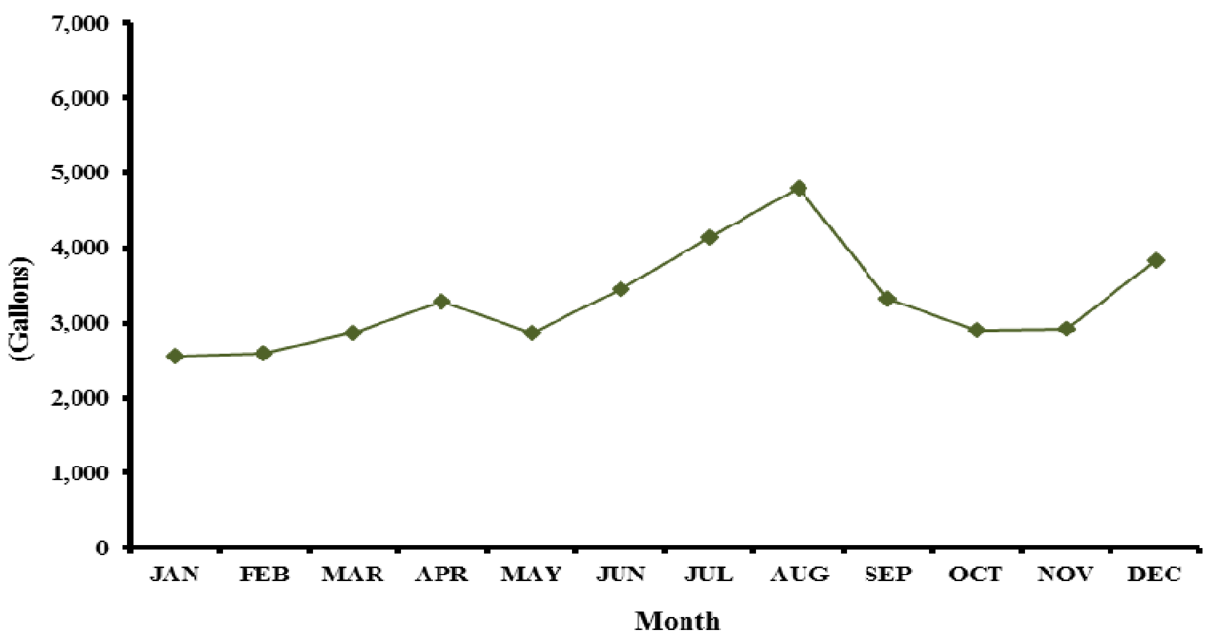




2016 Polymer Usage at MBC



2016 Sodium Hypochlorite Usage at MBC



G. Solids Handling Annual Report

2016 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 92106	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 92106

The Point Loma Wastewater Treatment Plant (PLWWTP) and the North City Water Reclamation Plant produced and disposed of **132,974** wet tons or **35,681** dry tons (**32,370** dry metric tons) of digested sludge (biosolids) in 2016.

All digested sludge produced at the Pt. 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, Pt. 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[1]	Dry metric tons
Disposal in sanitary landfill	5,608	1,531	1,389
Beneficial reuse as Alternative Daily Cover (ADC) at landfill	120,873	32,401	29,394
Land application in Arizona	6,493	1,750	1,588

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 a minimum of 38 percent (Option 1).

Land Applier: **Denali Water Solutions, LLC**

Address: 2001 Key Street Colton, CA 92324
Period: January 1, 2016 - December 31, 2016
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.

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.

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 PLWTP and the blended biosolids, which includes the digested biosolids from the NCWRP. The Operations staff also collects a twenty-four 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 laboratory 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 2016 continued to meet all regulatory requirements. Concentration of pollutants were all well 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"[13], were performed

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

during 2016 and the reports of these analyses are included in Enclosure 7.

Table 1.A. Landfill location used during 2016 is as follows:

Otay Landfill 1700 Maxwell Road Chula Vista, San Diego County, CA 91911	**5,608 wet tons (1,531dry tons/1,389 dry metric** tons), based on sum of monthly totals disposed of from January to December 2016 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

2016 Month	Otay Landfill Beneficial Use[1] (PTL) (wet Tons)	Otay Landfill Beneficial Use[1] (MBC) (wet Tons)	Otay Landfill Total (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)	Butler Diamond Farms Yuma, AZ Beneficial Use[2] (wet Tons)	Total (wet Tons)	%TS	Total Dry Tons	Total Biosolids (dry metric tons)
January	2,419.39	7,427.21	9,846.60	611.35				10,457.95	27.5	2,874.76	2,607.98
February		9,801.82	9,801.82	765.22				10,567.04	27.9	2,947.84	2,674.28
March		9,840.41	9,840.41	1,115.05				10,955.46	27.4	3,003.30	2,724.59
April	549.38	10,451.30	11,000.68	448.21				11,448.89	26.4	3,026.70	2,745.83
May		11,143.25	11,143.25	372.07				11,515.32	26.4	3,037.07	2,755.23
June		11,466.57	11,466.57	494.54				11,961.11	26.6	3,186.44	2,890.74
July		10,785.69	10,785.69	347.67				11,133.36	26.3	2,933.28	2,661.07
August		11,594.61	11,594.61	720.44				12,315.05	26.3	3,237.07	2,936.67
September		10,886.78	10,886.78	425.72				11,312.50	26.3	2,976.70	2,700.46
October		9,681.20	9,681.20	375.47				10,056.67	26.6	2,673.86	2,425.72
November	907.28	9,004.05	9,911.33	575.32				10,486.65	27.0	2,827.20	2,564.84
December	1,731.95	8,790.49	10,522.44	241.96				10,764.40	27.5	2,957.08	2,682.67
Total:	5,608.00	120,873.38	126,481.38	6,493.02	0.00	0.00	0.00	132,974.40		35,681.30	32,370.08
Monthly Average:		10,072.78	10,540.12	541.09				11,081.20	26.9	2,973.44	2,697.51

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

[2] beneficial use in Land Application.

Table 1C. 2015 Biosolids Land Application

2016 Month	%TS	Desert Ridge , Yuma City, AZ wet tons	dry tons	Norris, Yuma City, AZ wet tons	dry tons	Cullison, Yuma County, AZ wet tons	dry tons	Butler Diamond, Yuma County, AZ wet tons	dry tons	Total Monthly wet tons	Total Monthly dry tons	Total Metric dry tons
January	27.5		0.00		0.00	611.35	168.06		0.00	611.35	168.06	152.46
February	27.9		0.00		0.00	765.22	213.50		0.00	765.22	213.50	193.68
March	27.4		0.00		0.00	1,115.05	305.52		0.00	1,115.05	305.52	277.17
April	26.4		0.00		0.00	448.21	118.33		0.00	448.21	118.33	107.35
May	26.4		0.00		0.00	372.07	98.23		0.00	372.07	98.23	89.11
June	26.6		0.00		0.00	494.54	131.55		0.00	494.54	131.55	119.34
July	26.4		0.00		0.00	347.67	91.78		0.00	347.67	91.78	83.27
August	26.3		0.00		0.00	720.44	189.48		0.00	720.44	189.48	171.89
September	26.3		0.00		0.00	425.72	111.96		0.00	425.72	111.96	101.57
October	26.6		0.00		0.00	375.47	99.88		0.00	375.47	99.88	90.61
November	27.0		0.00		0.00	575.32	155.34		0.00	575.32	155.34	140.92
December	27.5		0.00		0.00	241.96	66.54		0.00	241.96	66.54	60.36
2016 Totals	Avg =26.9	0.00	0.00	0.00	0.00	6,493.02	1,750.16	0.00	0.00	6,493.02	1,750.16	1,587.74

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

2016 Month:	Copper Mountain Landfill **Scum (Tons)**	Otay Landfill **Scum (Tons)**	South Yuma Landfill **Scum (Tons)**	Otay Landfill **Digester Cleanings (Tons)**	Miramar Landfill **Grit (Tons)**	Miramar Landfill **Rags & Screenings (Tons)**
January	35.98	6.58		2,419.39	188.64	531.63
February	31.19			0.00	83.22	487.31
March	34.25			0.00	95.61	602.02
April	30.67			549.38	115.16	636.62
May	46.71			0.00	138.40	607.68
June	46.59	5.99		0.00	122.33	620.27
July	45.15			0.00	132.05	608.84
August	44.78			0.00	129.79	5,248.97
September	21.91			0.00	107.50	664.54
October	52.99	13.94		0.00	31.01	582.82
November	15.59			907.28	112.35	543.25
December	33.93			1,731.95	87.35	512.19
Total:	439.74	26.51		5,608.00	1,343.41	11,646.14
Average:	**36.65**	**8.84**		**467.33**	**111.95**	**970.51**

Annual Monitoring Report
Solids Report – TOTALS

Annual 2016

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	31,905,475	6,231	31,905,475	3,487	54,114,429	837	10,458	2,875
02	30,253,423	5,482	30,253,423	3,059	58,196,435	895	10,567	2,948
03	33,006,748	5,938	33,006,748	3,303	65,731,296	1,061	10,956	3,003
04	31,580,770	5,762	31,580,770	3,330	60,509,385	849	11,449	3,027
05	32,766,530	5,623	32,766,530	3,279	65,209,792	1,044	11,515	3,037
06	31,768,316	5,442	31,768,316	3,203	57,322,793	924	11,961	3,186
07	31,859,635	5,569	31,859,635	3,255	70,492,017	1,034	11,133	2,933
08	31,896,722	5,832	31,896,722	3,383	64,093,553	1,052	12,315	3,237
09	29,562,659	5,301	29,562,659	3,088	60,634,955	1,011	11,313	2,977
10	29,432,997	4,834	29,432,997	3,033	59,996,380	936	10,057	2,674
11	32,093,869	4,573	32,093,869	3,098	56,513,891	809	10,487	2,827
12	34,334,556	5,274	34,334,556	3,129	61,412,850	876	10,340	2,840
avg	31,705,142	5,488	31,705,142	3,221	61,185,648	944	11,046	2,964
sum	380,461,700	65,859	380,461,700	38,647	734,227,776	11,329	132,550	35,564

Annual Monitoring Report
Solids Report - Daily Averages by Month

Annual 2016

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
16-01	1,029,209	4.7	205	1,029,209	2.6	115	1,745,627	0.37	26.0	337	27.5	92.7
16-02	1,043,221	4.3	195	1,043,221	2.4	108	2,006,774	0.37	31.2	364	27.9	101.6
16-03	1,064,734	4.3	191	1,064,734	2.4	107	2,120,364	0.39	34.3	353	27.4	96.9
16-04	1,052,692	4.4	193	1,052,692	2.5	111	2,016,980	0.34	28.1	382	26.4	100.9
16-05	1,056,985	4.1	180	1,056,985	2.4	105	2,103,542	0.38	33.7	371	26.4	98.0
16-06	1,058,944	4.1	182	1,058,944	2.4	107	1,910,760	0.39	30.8	399	26.6	106.2
16-07	1,027,730	4.2	178	1,027,730	2.5	105	2,273,936	0.35	33.2	359	26.3	94.6
16-08	1,028,927	4.4	189	1,028,927	2.5	109	2,067,534	0.39	33.8	397	26.3	104.4
16-09	985,422	4.3	177	985,422	2.5	102	2,021,165	0.40	33.7	377	26.3	99.2
16-10	949,452	3.9	157	949,452	2.5	97	1,935,367	0.37	30.2	324	26.6	86.3
16-11	1,069,796	3.4	154	1,069,796	2.3	103	1,883,796	0.34	27.0	350	27.0	94.2
16-12	1,107,566	3.7	163	1,107,566	2.2	100	1,981,060	0.34	28.3	334	27.5	91.6
avg	1,039,556	4.2	180	1,039,556	2.4	106	2,005,575	0.37	30.9	362	26.9	97.2

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 2016

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 2016.

METRO BIOSOLIDS CENTER

ANNUAL 2016

Trace Metals
EPA Method 6010B

Source			MBCDEWCN	MBCDEWCN	MBCDEWCN	MBCDEWCN	MBCDEWCN	MBCDEWCN
Date			31-JAN-2016	29-FEB-2016	31-MAR-2016	30-APR-2016	31-MAY-2016	30-JUN-2016
Sample ID	MDL	Units	P834072	P844126	P851302	P858086	P863684	P873441
Aluminum	4	MG/KG	3340	3600	3460	3320	3050	3100
Antimony	.79	MG/KG	3.2	2.7	3.2	3.0	3.1	3.5
Arsenic	1.5	MG/KG	4.59	4.27	3.26	3.79	2.31	2.84
Barium	.13	MG/KG	424	427	426	405	371	370
Beryllium	.02	MG/KG	0.06	0.04	0.05	<0.02	0.05	0.04
Cadmium	.13	MG/KG	0.9	0.7	0.9	0.8	0.9	0.8
Chromium	.3	MG/KG	32	29	45	38	41	41
Cobalt	.2	MG/KG	4.2	3.3	4.1	4.2	4.4	4.7
Cyanide, Total	.3	MG/KG	NR	3.45	NR	NR	14.30	NR
Copper	.695	MG/KG	425	561	666	621	603	588
Iron	20	MG/KG	81000	93700	98000	98700	97000	104000
Lead	2	MG/KG	20	16	21	18	20	21
Manganese	.2	MG/KG	317	293	423	488	344	278
Mercury	.2	MG/KG	0.88	1.51	1.07	1.57	0.94	1.15
Molybdenum	.15	MG/KG	14	11	15	15	17	19
Nickel	.3	MG/KG	26	22	29	24	27	29
Selenium	1.7	MG/KG	5.23	4.25	4.99	6.30	4.51	4.68
Silver	.206	MG/KG	2.43	2.21	2.71	2.68	2.61	2.47
Thallium	1.3	MG/KG	ND	3.1	ND	ND	1.5	1.8
Vanadium	.32	MG/KG	39	32	34	28	31	37
Zinc	3.4	MG/KG	654	859	907	889	859	894
Sulfides-Reactive	11	MG/KG	36	44	62	102	66	76
Sulfides-Total	500	MG/KG	16400	21900	15400	12500	13700	18400
Total Nitrogen	100	MG/KG	47600	68900	72600	45300	61500	63600
Total Kjeldahl Nitrogen	.04	WT%	4.76	6.89	7.26	6.48	6.16	6.38
Total Volatile Solids		WT%	58.7	59.2	60.3	60.6	60.7	61.4
Total Solids		WT%	27.6	27.3	27.2	26.0	25.5	26.2
pH		PH	7.92	7.97	7.97	7.86	7.88	7.87

Sulfides by Section 7.3 SW-846
Total Kjeldahl Nitrogen by SM4500-NorgB
Total Solids by SM2540B
pH by SM4500H

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

MBCDEWCN= Metro Biosolids Center Dewatered Centrifuged Sludge.

METRO BIOSOLIDS CENTER

ANNUAL 2016

Trace Metals
EPA Method 6010B

Source			MBCDEWCN	MBCDEWCN	MBCDEWCN	MBCDEWCN	MBCDEWCN	MBCDEWCN
Date			31-JUL-2016	31-AUG-2016	30-SEP-2016	31-OCT-2016	30-NOV-2016	30-DEC-2016
Sample ID	MDL	Units	P880435	P890180	P896143	P902770	P908688	P914706
Aluminum	4	MG/KG	3090	3520	3390	3420	3830	3670
Antimony	.79	MG/KG	3.7	3.8	3.8	7.3	8.1	7.0
Arsenic	1.5	MG/KG	2.02	3.70	4.72	3.98	4.36	4.97
Barium	.13	MG/KG	389	360	398	422	482	447
Beryllium	.02	MG/KG	ND	ND	ND	ND	0.02	<0.02
Cadmium	.13	MG/KG	0.8	0.8	0.9	1.1	1.0	ND
Chromium	.3	MG/KG	39	44	43	42	52	52
Cobalt	.2	MG/KG	4.1	4.5	4.5	4.2	5.2	4.6
Cyanide, Total	.3	MG/KG	NR	4.45	NR	5.75	NR	NR
Copper	.695	MG/KG	585	596	627	657	751	664
Iron	20	MG/KG	101000	107000	104000	99600	109000	108000
Lead	2	MG/KG	21	22	20	18	18	15
Manganese	.2	MG/KG	280	310	309	292	321	343
Mercury	.2	MG/KG	1.04	0.80	0.92	0.95	1.34	1.34
Molybdenum	.15	MG/KG	19	24	23	24	29	25
Nickel	.3	MG/KG	25	28	28	24	29	29
Selenium	1.7	MG/KG	1.99	3.69	4.78	5.65	4.19	4.38
Silver	.206	MG/KG	2.57	2.99	2.07	2.57	3.13	4.38
Thallium	1.3	MG/KG	1.4	<1.3	<1.3	ND	ND	ND
Vanadium	.32	MG/KG	27	25	21	16	18	19
Zinc	3.4	MG/KG	893	990	970	1020	1070	1060
Sulfides-Reactive	11	MG/KG	74	59	83	88*	97*	79
Sulfides-Total	500	MG/KG	22500	16200	15800	16400	22300	16100
Total Nitrogen	100	MG/KG	52200	52900	55400	49700	47300	44100
Total Kjeldahl Nitrogen	.04	WT%	5.22	5.29	5.54	4.90	6.11	5.12
Total Volatile Solids		WT%	61.6	61.5	61.8	61.7	62.1	62.1
Total Solids		WT%	25.8	25.9	25.3	26.0	26.7	27.0
pH		PH	7.86	8.02	7.62	7.91	7.90	7.88

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

Sulfides by Section 7.3 SW-846
Total Kjeldahl Nitrogen by SM4500-NorgB
Total Solids by SM2540B
pH by SM4500H

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

MBCDEWCN= Metro Biosolids Center Dewatered Centrifuged Sludge.

METRO BIOSOLIDS CENTER

ANNUAL 2016

TOTAL NITROGEN

Source			MBCDEWCN	MBCDEWCN	MBCDEWCN	MBCDEWCN	MBCDEWCN	MBCDEWCN
Date			31-JAN-2016	29-FEB-2016	31-MAR-2016	30-APR-2016	31-MAY-2016	30-JUN-2016
Sample ID	MDL	Units	P834072	P844126	P851302	P858086	P863684	P873441
Total Nitrogen	100	MG/KG	47600	68900	72600	45300	61500	63600

Source			MBCDEWCN	MBCDEWCN	MBCDEWCN	MBCDEWCN	MBCDEWCN	MBCDEWCN
Date			31-JUL-2016	31-AUG-2016	30-SEP-2016	31-OCT-2016	30-NOV-2016	30-DEC-2016
Sample ID	MDL	Units	P880435	P890180	P896143	P902770	P908688	P914706
Total Nitrogen	100	MG/KG	52200	52900	55400	49700	47300	44100

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

METRO BIOSOLIDS CENTER

ANNUAL 2016

Radioactivity
EPA Method 900.0

Source	Sample Date	Sample ID	Gross Alpha Radiation	Gross Beta Radiation
PLE	02-FEB-2016	P831359	3.8±6.3	36.1±7.8
PLE	03-MAY-2016	P857678	5.9±1.9	6.2±1.4
PLE	02-AUG-2016	P878338	2.2±1.9	4.2±1.2
PLE	04-OCT-2016	P895088	8.8±2.6	12.5±2.8
PLE	ANNUAL	AVERAGE	5.2±3.2	14.8±3.3
PLR	02-FEB-2016	P831365	3.8±7.9	34.1±7.4
PLR	03-MAY-2016	P857684	7.2±1.9	7.7±1.5
PLR	02-AUG-2016	P878344	2.4±1.5	3.3±1.5
PLR	04-OCT-2016	P895094	1.3±3.3	24.4±3.4
PLR	ANNUAL	AVERAGE	3.7±3.7	17.4±3.4
MBC_COMBCN	02-FEB-2016	P831376	8.7±10.0	68.8±14.0
MBC_COMBCN	03-MAY-2016	P857695	6.2±1.7	9.1±1.6
MBC_COMBCN	02-AUG-2016	P878355	3.3±2.0	8.6±1.9
MBC_COMBCN	04-OCT-2016	P895105	10.0±4.6	30.9±4.1
MBC_COMBCN	ANNUAL	AVERAGE	7.1±4.5	29.4±5.4

Units in picocuries per Liter (pCi/L)

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

ANALYZED BY: TestAmerica Labs Inc.

METRO BIOSOLIDS CENTER

Radioactivity

2016 Annual

Source	Sample Date	Sample ID		Gross Alpha Radiation	Gross Beta Radiation
MBCDEWCN	29-FEB-2016	P844126		4940.0±4400.0	9760.0±1950.0
MBCDEWCN	31-MAY-2016	P863684		16300.0±4890.0	5790.0±3670.0
MBCDEWCN	31-AUG-2016	P890180		13700.0±4910.0	0.0±2770.0
MBCDEWCN	31-OCT-2016	P902770		12.7±4.4	6.7±3.2
AVERAGE				8738.2±3551.1	3889.2±2098.3

Units in picocuries/liter (pCi/kg)

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

ANALYZED BY: TestAmerica Labs Inc.

METROBIOSOLIDS CENTER
ANNUAL 2016

Chlorinated Pesticide Analysis
EPA Method 8081A

Source			MBCDEWCN	MBCDEWCN	MBCDEWCN	MBCDEWCN	MBCDEWCN
Date			31-JAN-2016	29-FEB-2016	31-MAR-2016	30-APR-2016	31-MAY-2016
Analyte	MDL	Units	P834072	P844126	P851302	P858086	P863684
Aldrin	640	NG/KG	ND	ND	ND	ND	ND
Dieldrin	1700	NG/KG	ND	ND	ND	ND	ND
BHC, Alpha isomer	390	NG/KG	ND	ND	ND	ND	ND
BHC, Beta isomer	860	NG/KG	ND	ND	ND	ND	ND
BHC, Gamma isomer	430	NG/KG	ND	ND	ND	ND	ND
BHC, Delta isomer	940	NG/KG	ND	ND	ND	ND	ND
p,p-DDD	690	NG/KG	ND	ND	ND	ND	ND
p,p-DDE	700	NG/KG	ND	ND	ND	ND	ND
p,p-DDT	840	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	1700	NG/KG	ND	ND	ND	ND	ND
Heptachlor epoxide	2560	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	760	NG/KG	ND	ND	ND	ND	ND
Beta Endosulfan	570	NG/KG	ND	ND	ND	ND	ND
Endosulfan Sulfate	1020	NG/KG	ND	ND	ND	ND	ND
Endrin aldehyde	1000	NG/KG	ND	ND	ND	ND	ND
Toxaphene	48660	NG/KG	ND	ND	ND	ND	ND
Mirex	680	NG/KG	ND	ND	ND	ND	ND
Methoxychlor	1460	NG/KG	ND	ND	ND	ND	ND
PCB 1016	83300	NG/KG	ND	ND	ND	ND	ND
PCB 1221	667000	NG/KG	ND	ND	ND	ND	ND
PCB 1232	500000	NG/KG	ND	ND	ND	ND	ND
PCB 1242	66860	NG/KG	ND	ND	ND	ND	ND
PCB 1248	83300	NG/KG	ND	ND	ND	ND	ND
PCB 1254	83300	NG/KG	ND	ND	ND	ND	ND
PCB 1260	333000	NG/KG	ND	ND	ND	ND	ND
PCB 1262	83300	NG/KG	ND	ND	ND	ND	ND
Aldrin + Dieldrin	1700	NG/KG	0	0	0	0	0
Hexachlorocyclohexanes	940	NG/KG	0	0	0	0	0
DDT and derivatives	970	NG/KG	0	0	0	0	0
Chlordane + related cmpds.	840	NG/KG	0	0	0	0	0
Polychlorinated biphenyls	667000	NG/KG	0	0	0	0	0
Chlorinated Hydrocarbons	667000	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

METROBIOSOLIDS CENTER

ANNUAL 2016

Chlorinated Pesticide Analysis
EPA Method 8081A

Source			MBCDEWCN	MBCDEWCN	MBCDEWCN	MBCDEWCN	MBCDEWCN
Date			30-JUN-2016	31-JUL-2016	31-AUG-2016	30-SEP-2016	31-OCT-2016
Analyte	MDL	Units	P873441	P880435	P890180	P896143	P902770
Aldrin	640	NG/KG	ND	ND	ND	ND	ND
Dieldrin	1700	NG/KG	ND	ND	ND	ND	ND
BHC, Alpha isomer	390	NG/KG	ND	ND	ND	ND	ND
BHC, Beta isomer	860	NG/KG	ND	ND	ND	ND	ND
BHC, Gamma isomer	430	NG/KG	ND	ND	ND	ND	ND
BHC, Delta isomer	940	NG/KG	ND	ND	ND	ND	ND
p,p-DDD	690	NG/KG	ND	ND	ND	ND	ND
p,p-DDE	700	NG/KG	ND	ND	ND	ND	ND
p,p-DDT	840	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	1700	NG/KG	ND	ND	ND	ND	ND
Heptachlor epoxide	2560	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	760	NG/KG	ND	ND	ND	ND	ND
Beta Endosulfan	570	NG/KG	ND	ND	ND	ND	ND
Endosulfan Sulfate	1020	NG/KG	ND	ND	ND	ND	ND
Endrin aldehyde	1000	NG/KG	ND	ND	ND	ND	ND
Toxaphene	48660	NG/KG	ND	ND	ND	ND	ND
Mirex	680	NG/KG	ND	ND	ND	ND	ND
Methoxychlor	1460	NG/KG	ND	ND	ND	ND	ND
PCB 1016	83300	NG/KG	ND	ND	ND	ND	ND
PCB 1221	667000	NG/KG	ND	ND	ND	ND	ND
PCB 1232	500000	NG/KG	ND	ND	ND	ND	ND
PCB 1242	66860	NG/KG	ND	ND	ND	ND	ND
PCB 1248	83300	NG/KG	ND	ND	ND	ND	ND
PCB 1254	83300	NG/KG	ND	ND	ND	ND	ND
PCB 1260	333000	NG/KG	ND	ND	ND	ND	ND
PCB 1262	83300	NG/KG	ND	ND	ND	ND	ND
Aldrin + Dieldrin	1700	NG/KG	0	0	0	0	0
Hexachlorocyclohexanes	940	NG/KG	0	0	0	0	0
DDT and derivatives	970	NG/KG	0	0	0	0	0
Chlordane + related cmpds.	840	NG/KG	0	0	0	0	0
Polychlorinated biphenyls	667000	NG/KG	0	0	0	0	0
Chlorinated Hydrocarbons	667000	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

METROBIOSOLIDS CENTER

ANNUAL 2016

Chlorinated Pesticide Analysis
EPA Method 8081A

Source			MBCDEWCN	MBCDEWCN	
Date			30-NOV-2016	30-DEC-2016	Annual
Analyte	MDL	Units	P908688	P914706	Average
Aldrin	640	NG/KG	ND	ND	ND
Dieldrin	1700	NG/KG	ND	ND	ND
BHC, Alpha isomer	390	NG/KG	ND	ND	ND
BHC, Beta isomer	860	NG/KG	ND	ND	ND
BHC, Gamma isomer	430	NG/KG	ND	ND	ND
BHC, Delta isomer	940	NG/KG	ND	ND	ND
p,p-DDD	690	NG/KG	ND	ND	ND
p,p-DDE	700	NG/KG	ND	ND	ND
p,p-DDT	840	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	1700	NG/KG	ND	ND	ND
Heptachlor epoxide	2560	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	760	NG/KG	ND	ND	ND
Beta Endosulfan	570	NG/KG	ND	ND	ND
Endosulfan Sulfate	1020	NG/KG	ND	ND	ND
Endrin aldehyde	1000	NG/KG	ND	ND	ND
Toxaphene	48660	NG/KG	ND	ND	ND
Mirex	680	NG/KG	ND	ND	ND
Methoxychlor	1460	NG/KG	ND	ND	ND
PCB 1016	83300	NG/KG	ND	ND	ND
PCB 1221	667000	NG/KG	ND	ND	ND
PCB 1232	500000	NG/KG	ND	ND	ND
PCB 1242	66860	NG/KG	ND	ND	ND
PCB 1248	83300	NG/KG	ND	ND	ND
PCB 1254	83300	NG/KG	ND	ND	ND
PCB 1260	333000	NG/KG	ND	ND	ND
PCB 1262	83300	NG/KG	ND	ND	ND
Aldrin + Dieldrin	1700	NG/KG	0	0	0
Hexachlorocyclohexanes	940	NG/KG	0	0	0
DDT and derivatives	970	NG/KG	0	0	0
Chlordane + related cmpds.	840	NG/KG	0	0	0
Polychlorinated biphenyls	667000	NG/KG	0	0	0
Chlorinated Hydrocarbons	667000	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

METRO BIOSOLIDS CENTER

ANNUAL 2016

Tributyl Tin (Sludge)

Source			MBCDEWCN	MBCDEWCN
Date			31-MAY-2016	31-OCT-2016
Analyte			P863684	P902770
Dibutyltin	.52	UG/KG	NR	ND
Monobutyltin	4000	UG/KG	ND	NR
Tributyltin	2600	UG/KG	ND	ND

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

METRO BIOSOLIDS CENTER

ANNUAL 2016

HERBICIDES
EPA Method 8151

Source			MBCDEWCN*	MBCDEWCN
Date			31-AUG-2016	31-OCT-2016
Sample	MDL	Units	P890180	P902770
2,4-Dichlorophenoxyacetic acid	1700	MG/KG	ND	ND
2,4,5-TP (Silvex)	1700	MG/KG	ND	ND

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

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

METRO BIOSOLIDS CENTER

ANNUAL 2016

Organophosphorus Pesticides
EPA Method 614/8141A

Source			MBC_COMBCN	MBC_COMBCN
Date			03-MAY-2016	04-OCT-2016
Analyte	MDL	Units	P857695	P895105
Demeton O	.15	UG/L	ND	ND
Demeton S	.08	UG/L	ND	ND
Diazinon	.04	UG/L	ND	ND
Guthion	.15	UG/L	ND	ND
Malathion	.06	UG/L	ND	ND
Parathion	.07	UG/L	ND	ND
Chlorpyrifos	.04	UG/L	ND	ND
Coumaphos	.15	UG/L	ND	ND
Dichlorvos	.05	UG/L	ND	ND
Dimethoate	.12	UG/L	ND	NR
Disulfoton	.04	UG/L	ND	ND
Stirophos	.05	UG/L	ND	ND
Thiophosphorus Pesticides	.15	UG/L	0.00	0.00
Demeton -O, -S	.15	UG/L	0.00	0.00
Total Organophosphorus Pesticides	.15	UG/L	0.00	0.00

Source			MBC_NC_DSL	MBC_NC_DSL
Date			03-MAY-2016	04-OCT-2016
Analyte	MDL	Units	P857749	P895159
Demeton O	.15	UG/L	ND	ND
Demeton S	.08	UG/L	ND	ND
Diazinon	.04	UG/L	ND	ND
Guthion	.15	UG/L	ND	ND
Malathion	.06	UG/L	ND	ND
Parathion	.07	UG/L	ND	ND
Chlorpyrifos	.04	UG/L	ND	ND
Coumaphos	.15	UG/L	ND	ND
Dichlorvos	.05	UG/L	ND	ND
Dimethoate	.12	UG/L	ND	NR
Disulfoton	.04	UG/L	ND	ND
Stirophos	.05	UG/L	ND	ND
Thiophosphorus Pesticides	.15	UG/L	0.00	0.00
Demeton -O, -S	.15	UG/L	0.00	0.00
Total Organophosphorus Pesticides	.15	UG/L	0.00	0.00

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

METRO BIOSOLIDS CENTER
ANNUAL 2016

Organophosphorus Pesticides
EPA Method 614/8141A

Source			MBC_NC_RSL	MBC_NC_RSL
Date			03-MAY-2016	04-OCT-2016
Analyte	MDL	Units	P857747	P895157
Demeton O	.15	UG/L	ND	ND
Demeton S	.08	UG/L	ND	ND
Diazinon	.04	UG/L	ND	ND
Guthion	.15	UG/L	ND	ND
Malathion	.06	UG/L	ND	ND
Parathion	.07	UG/L	ND	ND
Chlorpyrifos	.04	UG/L	ND	ND
Coumaphos	.15	UG/L	ND	ND
Dichlorvos	.05	UG/L	ND	ND
Dimethoate	.12	UG/L	ND	NR
Disulfoton	.04	UG/L	ND	ND
Stirophos	.05	UG/L	ND	ND
Thiophosphorus Pesticides	.15	UG/L	0.00	0.00
Demeton -O, -S	.15	UG/L	0.00	0.00
Total Organophosphorus Pesticides	.15	UG/L	0.00	0.00

Source			RAW COMP	RAW COMP
Date			03-MAY-2016	04-OCT-2016
Analyte	MDL	Units	P857720	P895130
Demeton O	.15	UG/L	ND	ND
Demeton S	.08	UG/L	ND	ND
Diazinon	.04	UG/L	ND	ND
Guthion	.15	UG/L	ND	ND
Malathion	.06	UG/L	ND	ND
Parathion	.07	UG/L	ND	ND
Chlorpyrifos	.04	UG/L	ND	ND
Coumaphos	.15	UG/L	ND	ND
Dichlorvos	.05	UG/L	ND	ND
Dimethoate	.12	UG/L	ND	NR
Disulfoton	.04	UG/L	ND	ND
Stirophos	.05	UG/L	ND	ND
Thiophosphorus Pesticides	.15	UG/L	0.00	0.00
Demeton -O, -S	.15	UG/L	0.00	0.00
Total Organophosphorus Pesticides	.15	UG/L	0.00	0.00

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

METRO BIOSOLIDS CENTER
ANNUAL 2016

Organophosphorus Pesticides
EPA Method 8141A

Source			DIG COMP	DIG COMP
Date			03-MAY-2016	04-OCT-2016
Analyte	MDL	Units	P857734	P895144
Demeton O	.15	UG/L	ND	ND
Demeton S	.08	UG/L	ND	ND
Diazinon	.04	UG/L	ND	ND
Guthion	.15	UG/L	ND	ND
Malathion	.06	UG/L	ND	ND
Parathion	.07	UG/L	ND	ND
Chlorpyrifos	.04	UG/L	DNQ0.6	ND
Coumaphos	.15	UG/L	ND	ND
Dichlorvos	.05	UG/L	ND	ND
Dimethoate	.12	UG/L	ND	NR
Disulfoton	.04	UG/L	ND	ND
Stirophos	.05	UG/L	ND	ND
Thiophosphorus Pesticides	.15	UG/L	0.00	0.00
Demeton -O, -S	.15	UG/L	0.00	0.00
Total Organophosphorus Pesticides	.15	UG/L	0.00	0.00

Source			MBCDEWCN	MBCDEWCN
Date			31-MAY-2016	31-OCT-2016
Analyte	MDL	Units	P863684	P902770
Demeton O	67	UG/KG	ND	ND
Demeton S	27	UG/KG	ND	ND
Diazinon	2	UG/KG	ND	ND
Guthion	33	UG/KG	ND	ND
Malathion	20	UG/KG	ND	ND
Parathion	20	UG/KG	ND	ND
Chlorpyrifos	2	UG/KG	ND	ND
Coumaphos	33	UG/KG	ND	ND
Dichlorvos	17	UG/KG	ND	ND
Dimethoate	27	UG/KG	ND	ND
Disulfoton	20	UG/KG	ND	ND
Stirophos	20	UG/KG	ND	ND
Thiophosphorus Pesticides	33	UG/KG	0.0	0.0
Demeton -O, -S	67	UG/KG	0.0	0.0
Total Organophosphorus Pesticides	67	UG/KG	0.0	0.0

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

METRO BIOSOLIDS CENTER

ANNUAL 2016

Base/Neutrals
EPA Method 8070C

Source			MBCDEWCN	MBCDEWCN	MBCDEWCN	MBCDEWCN
Date			29-FEB-2016	31-MAY-2016	31-AUG-2016	31-OCT-2016
Analyte	MDL	Units	P844126	P863684	P890180	P902770
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	1110	1210	ND	1140
Di-n-butyl phthalate	330	UG/KG	ND	ND	ND	ND
Bis-(2-ethylhexyl) phthalate	330	UG/KG	30800	66900	71800	66100
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	840	ND	354	ND
3,3-Dichlorobenzidine	330	UG/KG	30300	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	ND	ND	<330	416
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	ND	550	371	411
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	445	572	561	570
Pyrene	330	UG/KG	ND	<330	ND	346
1,2,4-Trichlorobenzene	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
1,2-Dichlorobenzene	330	UG/KG	ND	ND	ND	ND
Dichlorobenzenes	330	UG/KG	0	0	0	0
PolyNuc. Aromatic Hydrocarbons	330	UG/KG	445	572	561	916
Base/Neutral Compounds	330	UG/KG	63495	69232	73086	68983
Benzo[e]pyrene		UG/KG	ND	ND	ND	ND
Biphenyl		UG/KG	ND	605	ND	ND
2,6-Dimethylnaphthalene		UG/KG	1060	1220	1330	1330
1-Methylnaphthalene		UG/KG	ND	ND	ND	ND
1-Methylphenanthrene		UG/KG	ND	ND	ND	ND
2-Methylnaphthalene		UG/KG	195	369	246	493
2,3,5-Trimethylnaphthalene		UG/KG	ND	ND	ND	ND
Perylene	330	UG/KG	ND	ND	ND	ND
Pyridine		UG/KG	325	ND	ND	ND

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

METRO BIOSOLIDS CENTER

ANNUAL 2016

Phenolics
EPA Method 8070C

Source			MBCDEWCN	MBCDEWCN	MBCDEWCN	MBCDEWCN	
Date			29-FEB-2016	31-MAY-2016	31-AUG-2016	31-OCT-2016	
Analyte	MDL	Units	P844126	P863684	P890180	P902770	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	3560	5420	3240	2800	3755
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	4255	6660	4270	3910	4774
Phenols	800	UG/KG	4255	6660	4270	3910	4774

Additional Analytes Determined:

Analyte	MDL	Units	P844126	P863684	P890180	P902770	Average
2-Methylphenol	330	UG/KG	ND	ND	ND	ND	ND
4-Methylphenol(3-MP is unresolved)	330	UG/KG	695	1240	1030	1110	1019
2,4,5-Trichlorophenol	800	UG/KG	ND	ND	ND	ND	ND
Phenols average	800	UG/KG	324	493	295	255	342

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

METRO BIOSOLIDS CENTER
ANNUAL 2016

Purgeables by EPA Method 8260B

Source			MBCDEWCN	MBCDEWCN	MBCDEWCN	MBCDEWCN	MBCDEWCN	MBCDEWCN
Date			31-JAN-2016	29-FEB-2016	31-MAR-2016	30-APR-2016	31-MAY-2016	30-JUN-2016
Analyte	MDL	Units	P834072	P844126	P851302	P858086	P863684	P873441
Acrolein	440	UG/KG	ND	ND	ND	ND	ND	ND
Acrylonitrile	410	UG/KG	ND	ND	ND	ND	ND	ND
Benzene	340	UG/KG	ND	ND	DNQ3.4	DNQ3.3	DNQ7.1	DNQ2.9
Bromodichloromethane	170	UG/KG	ND	ND	ND	ND	ND	ND
Bromoform	200	UG/KG	ND	ND	ND	ND	ND	ND
Bromomethane	290	UG/KG	ND	ND	ND	ND	ND	ND
Carbon tetrachloride	390	UG/KG	ND	ND	ND	ND	ND	ND
Chlorobenzene	140	UG/KG	ND	ND	DNQ3.0	DNQ2.9	ND	DNQ3.0
Chloroethane	460	UG/KG	ND	ND	ND	ND	ND	ND
Chloroform	220	UG/KG	ND	ND	ND	ND	ND	ND
Chloromethane	140	UG/KG	ND	DNQ12.1	DNQ20.0	DNQ10.9	ND	ND
Dibromochloromethane	390	UG/KG	ND	ND	ND	ND	ND	ND
1,2-Dichlorobenzene	150	UG/KG	ND	ND	ND	ND	ND	ND
1,3-Dichlorobenzene	170	UG/KG	ND	ND	ND	ND	ND	ND
1,4-Dichlorobenzene	170	UG/KG	59.8	57.9	59.9	DNQ2.15#	59.7	73.3
Dichlorodifluoromethane	200	UG/KG	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	210	UG/KG	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane	290	UG/KG	ND	ND	ND	ND	ND	ND
1,1-Dichloroethene	240	UG/KG	ND	ND	ND	ND	ND	ND
trans-1,2-dichloroethene	290	UG/KG	ND	ND	ND	ND	ND	ND
1,2-Dichloropropane	230	UG/KG	ND	ND	ND	ND	ND	ND
cis-1,3-dichloropropene	200	UG/KG	ND	ND	ND	ND	ND	ND
trans-1,3-dichloropropene	320	UG/KG	ND	ND	ND	ND	ND	ND
Ethylbenzene	87	UG/KG	148	276	264	242	287	296
Methylene chloride	170	UG/KG	DNQ8.1	DNQ10.9	DNQ9.8	DNQ9.9	DNQ11.1	82.7
1,1,2,2-Tetrachloroethane	220	UG/KG	ND	ND	ND	ND	ND	ND
Tetrachloroethene	360	UG/KG	ND*	ND	ND	ND	ND	DNQ8.6
Toluene	270	UG/KG	79.4	108	150	ND#	106	105
1,1,1-Trichloroethane	340	UG/KG	ND	ND	ND	ND	ND	ND
1,1,2-Trichloroethane	340	UG/KG	ND	ND	ND	ND	ND	ND
Trichloroethene	240	UG/KG	ND	ND	ND	ND	ND	DNQ8.8
Trichlorofluoromethane	630	UG/KG	ND	ND	ND	ND	ND	ND
Vinyl chloride	230	UG/KG	ND	ND	ND	ND	ND	ND
1,2,4-Trichlorobenzene	230	UG/KG	ND	ND	ND	ND	ND	ND
Halomethane Purgeable Compounds	390	UG/KG	0.0	0.0	0.0	0.0	0.0	0.0
Purgeable Compounds	630	UG/KG	287	442	474	242	453	557

Additional Analytes Determined:

Acetone	610	UG/KG	21400	14000	15900	23200	21300	28300
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	360	UG/KG	6290	3900	4650	6830	5820	10700
Carbon disulfide	4.7	UG/KG	119	109	131	155	113	192
Chloroprene	3.1	UG/KG	ND	ND	ND	ND	ND	ND
1,2-Dibromoethane	390	UG/KG	ND	ND	ND	ND	ND	ND
Isopropylbenzene	140	UG/KG	ND	ND	ND	ND	DNQ16.4	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	240	UG/KG	ND	ND	ND	ND	ND	ND
2-Nitropropane	45.8	UG/KG	ND	ND	ND	ND	ND	ND
ortho-xylene	130	UG/KG	31.8	43.7	46.8	43.5	44.4	42.1
Styrene	190	UG/KG	26.6	40.8	50.8	44.2	48.4	45.7
meta,para xylenes	340	UG/KG	58.9	80.4	87.8	83.1	85.2	81.3
2-Chloroethylvinyl ether	240	UG/KG	ND	ND	ND	ND	ND	ND
4-Methyl-2-pentanone	340	UG/KG	33.2	18.4	34.8	30.2	32.0	43.8

*= Recovery of compound in internal check and matrix spike sample outside method acceptance limits; value is not used in average calculations.
# = 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 the Minimum Level but greater than or equal to MDL.

METRO BIOSOLIDS CENTER
ANNUAL 2016

Purgeables by EPA Method 8260B

Source			MBCDEWCN	MBCDEWCN	MBCDEWCN	MBCDEWCN	MBCDEWCN*
Date			31-JUL-2016	31-AUG-2016	30-SEP-2016	31-OCT-2016	30-NOV-2016
Analyte	MDL	Units	P880435	P890180	P896143	P902770	P908688
Acrolein	440	UG/KG	ND	ND	ND	ND	ND
Acrylonitrile	410	UG/KG	ND	ND	ND	ND	ND
Benzene	340	UG/KG	DNQ2.8	DNQ2.4	DNQ3.6	ND	ND
Bromodichloromethane	170	UG/KG	ND	ND	ND	ND	ND
Bromoform	200	UG/KG	ND	ND	ND	ND	ND
Bromomethane	290	UG/KG	DNQ8.1	ND	ND	ND	ND
Carbon tetrachloride	390	UG/KG	ND	ND	ND	ND	ND
Chlorobenzene	140	UG/KG	DNQ3.4	DNQ3.7	ND	ND	ND
Chloroethane	460	UG/KG	ND	ND	ND	ND	ND
Chloroform	220	UG/KG	ND	ND	ND	ND	ND
Chloromethane	140	UG/KG	DNQ9.3	ND	ND	DNQ12.5	ND
Dibromochloromethane	390	UG/KG	ND	ND	ND	ND	ND
1,2-Dichlorobenzene	150	UG/KG	DNQ5.8	DNQ5.3	ND	ND	ND
1,3-Dichlorobenzene	170	UG/KG	DNQ2.6	DNQ2.9	ND	ND	ND
1,4-Dichlorobenzene	170	UG/KG	90.2	79.3	73.0	79.6	ND
Dichlorodifluoromethane	200	UG/KG	ND	ND	ND	ND	ND
1,1-Dichloroethane	210	UG/KG	ND	ND	ND	ND	ND
1,2-Dichloroethane	290	UG/KG	ND	ND	ND	ND	ND
1,1-Dichloroethene	240	UG/KG	ND	ND	ND	ND	ND
trans-1,2-dichloroethene	290	UG/KG	ND	ND	ND	ND	ND
1,2-Dichloropropane	230	UG/KG	ND	ND	ND	ND	ND
cis-1,3-dichloropropene	200	UG/KG	ND	ND	ND	ND	ND
trans-1,3-dichloropropene	320	UG/KG	ND	ND	ND	ND	ND
Ethylbenzene	87	UG/KG	418	389	275	244	ND
Methylene chloride	170	UG/KG	DNQ12.3	DNQ7.4	DNQ29.3	92.0	ND
1,1,2,2-Tetrachloroethane	220	UG/KG	<5.9	ND	ND	ND	ND
Tetrachloroethene	360	UG/KG	ND	ND	ND	ND	ND
Toluene	270	UG/KG	142	129	179	195	ND
1,1,1-Trichloroethane	340	UG/KG	ND	ND	ND	ND	ND
1,1,2-Trichloroethane	340	UG/KG	ND	ND	ND	ND	ND
Trichloroethene	240	UG/KG	ND	ND	ND	ND	ND
Trichlorofluoromethane	630	UG/KG	ND	ND	ND	ND	ND
Vinyl chloride	230	UG/KG	ND	ND	ND	ND	ND
1,2,4-Trichlorobenzene	230	UG/KG	DNQ10.8	DNQ12.1	ND	ND	ND
Halomethane Purgeable Compounds	390	UG/KG	0.0	0.0	0.0	0.0	0.0
Purgeable Compounds	630	UG/KG	650	597	527	611	0.0

Additional Analytes Determined:

Acetone	610	UG/KG	25500	20000	31500	33400	2900
Allyl chloride	3.6	UG/KG	ND	ND	ND	ND	NA
Benzyl chloride	4.3	UG/KG	DNQ17.3	DNQ8.0	ND	ND	NA
2-Butanone	360	UG/KG	7590	6310	12100	10100	1500
Carbon disulfide	4.7	UG/KG	171	166	221	142	NA
Chloroprene	3.1	UG/KG	ND	ND	ND	ND	NA
1,2-Dibromoethane	390	UG/KG	ND	ND	ND	ND	ND
Isopropylbenzene	140	UG/KG	20.0	DNQ17.7	23.0	DNQ21.2	ND
Methyl Iodide	3.8	UG/KG	ND	ND	ND	ND	NA
Methyl methacrylate	2.4	UG/KG	ND	ND	ND	ND	NA
Methyl tert-butyl ether	240	UG/KG	ND	ND	ND	ND	ND
2-Nitropropane	45.8	UG/KG	DNQ72.5	<45.8	ND	ND	NA
ortho-xylene	130	UG/KG	61.0	54.7	58.3	57.3	ND
Styrene	190	UG/KG	59.1	55.1	52.2	38.6	ND
meta,para xylenes	340	UG/KG	125	107	112	111	ND
2-Chloroethylvinyl ether	240	UG/KG	ND	ND	ND	ND	ND
4-Methyl-2-pentanone	340	UG/KG	33.0	25.7	79.2	40.0	ND

* = Sample analyzed out of the 12-hour period for BFB instrument tuning per method requirement. Value not used 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.

METRO BIOSOLIDS CENTER
ANNUAL 2016

Purgeables
EPA Method 8260B

Source			MBCDEWCN	Average
Date			30-DEC-2016	
Analyte	MDL	Units	P914706	
Acrolein	440	UG/KG	ND	0.0
Acrylonitrile	410	UG/KG	ND	0.0
Benzene	340	UG/KG	ND	0.0
Bromodichloromethane	170	UG/KG	ND	0.0
Bromoform	200	UG/KG	ND	0.0
Bromomethane	290	UG/KG	ND	0.0
Carbon tetrachloride	390	UG/KG	ND	0.0
Chlorobenzene	140	UG/KG	ND	0.0
Chloroethane	460	UG/KG	ND	0.0
Chloroform	220	UG/KG	ND	0.0
Chloromethane	140	UG/KG	ND	0.0
Dibromochloromethane	390	UG/KG	ND	0.0
1,2-Dichlorobenzene	150	UG/KG	ND	0.0
1,3-Dichlorobenzene	170	UG/KG	ND	0.0
1,4-Dichlorobenzene	170	UG/KG	ND	52.7
Dichlorodifluoromethane	200	UG/KG	ND	0.0
1,1-Dichloroethane	210	UG/KG	ND	0.0
1,2-Dichloroethane	290	UG/KG	ND	0.0
1,1-Dichloroethene	240	UG/KG	ND	0.0
trans-1,2-dichloroethene	290	UG/KG	ND	0.0
1,2-Dichloropropane	230	UG/KG	ND	0.0
cis-1,3-dichloropropene	200	UG/KG	ND	0.0
trans-1,3-dichloropropene	320	UG/KG	ND	0.0
Ethylbenzene	87	UG/KG	ND	218
Methylene chloride	170	UG/KG	ND	14.5
1,1,2,2-Tetrachloroethane	220	UG/KG	ND	0.0
Tetrachloroethene	360	UG/KG	ND	0.7
Toluene	270	UG/KG	ND	99.5
1,1,1-Trichloroethane	340	UG/KG	ND	0.0
1,1,2-Trichloroethane	340	UG/KG	ND	0.0
Trichloroethene	240	UG/KG	ND	0.0
Trichlorofluoromethane	630	UG/KG	ND	0.0
Vinyl chloride	230	UG/KG	ND	0.0
1,2,4-Trichlorobenzene	230	UG/KG	ND	0.0
Halomethane Purgeable Compounds	390	UG/KG	0.0	0.0
Purgeable Compounds	630	UG/KG	0.0	384.4
Acetone	610	UG/KG	2900	18484
Allyl chloride	3.6	UG/KG	NA	0.0
Benzyl chloride	4.3	UG/KG	NA	0.0
2-Butanone	360	UG/KG	ND	5830
Carbon disulfide	4.7	UG/KG	NA	138.1
Chloroprene	3.1	UG/KG	NA	0.0
1,2-Dibromoethane	390	UG/KG	ND	0.0
Isopropylbenzene	140	UG/KG	ND	3.6
Methyl Iodide	3.8	UG/KG	NA	0.0
Methyl methacrylate	2.4	UG/KG	NA	0.0
Methyl tert-butyl ether	240	UG/KG	ND	0.0
2-Nitropropane	45.8	UG/KG	NA	0.0
ortho-xylene	130	UG/KG	ND	37.2
Styrene	190	UG/KG	ND	35.5
meta,para xylenes	340	UG/KG	ND	71.7
2-Chloroethylvinyl ether	240	UG/KG	ND	0.0
4-Methyl-2-pentanone	340	UG/KG	ND	28.5

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

METROBIOSOLIDS CENTER

ANNUAL 2016

Dioxin and Furan AnalysiS
EPA Method 8290

Source			MBCDEWCN	MBCDEWCN	MBCDEWCN	MBCDEWCN	MBCDEWCN	MBCDEWCN
Date			31-JAN-2016	29-FEB-2016	31-MAR-2016	30-APR-2016	31-MAY-2016	30-JUN-2016
Analyte	MDL	Units	P834072	P844126	P851302	P858086	P863684	P873441
2,3,7,8-tetra CDD	.353	NG/KG	DNQ0.0005	ND	DNQ0.0005	DNQ0.0006	DNQ0.0004	DNQ0.0006
1,2,3,7,8-penta CDD	.575	NG/KG	ND	ND	DNQ0.0035	DNQ0.0042	ND	DNQ0.0026
1,2,3,4,7,8_hexa_CDD	.758	NG/KG	DNQ0.0018	DNQ0.0020	DNQ0.0013	DNQ0.0018	DNQ0.0012	DNQ0.0015
1,2,3,6,7,8-hexa CDD	.823	NG/KG	0.0091	0.0102	0.0097	0.0170	0.0062	0.0127
1,2,3,7,8,9-hexa CDD	.704	NG/KG	DNQ0.0043	DNQ0.0043	DNQ0.0037	0.0056	DNQ0.0029	0.0051
1,2,3,4,6,7,8-hepta CDD	.845	NG/KG	0.182	0.231	0.208	0.252	0.140	0.213
octa CDD	.136	NG/KG	1.52	1.51	1.28	1.29	1.13	1.11
2,3,7,8-tetra CDF	.277	NG/KG	0.0042	0.0045	0.0049	0.0054	0.0038	0.0045
1,2,3,7,8-penta CDF	.45	NG/KG	DNQ0.0017	DNQ0.0015	DNQ0.0016	DNQ0.0017	DNQ0.0013	DNQ0.0017
2,3,4,7,8-penta CDF	.462	NG/KG	DNQ0.0019	DNQ0.0018	DNQ0.0018	DNQ0.0019	DNQ0.0022	DNQ0.0020
1,2,3,4,7,8-hexa CDF	.456	NG/KG	DNQ0.0028	DNQ0.0026	DNQ0.0026	DNQ0.0026	DNQ0.0018	DNQ0.0023
1,2,3,6,7,8-hexa CDF	.408	NG/KG	DNQ0.0025	DNQ0.0020	DNQ0.0021	DNQ0.0023	DNQ0.0020	DNQ0.0024
1,2,3,7,8,9-hexa CDF	.544	NG/KG	DNQ0.0011	DNQ0.0007	DNQ0.0009	DNQ0.0008	ND	DNQ0.0009
2,3,4,6,7,8-hexa CDF	.421	NG/KG	DNQ0.0028	DNQ0.0027	DNQ0.0025	DNQ0.0023	DNQ0.0020	DNQ0.0023
1,2,3,4,6,7,8-hepta CDF	.446	NG/KG	0.0247	0.0224	0.0201	0.0227	0.0158	0.017
1,2,3,4,7,8,9-hepta CDF	.555	NG/KG	0.0019	DNQ0.0016	DNQ0.0018	DNQ0.0020	DNQ0.0013	DNQ0.0015
octa CDF	.102	NG/KG	0.0610	0.0529	0.0487	0.0578	0.0372	0.0440

Source			MBCDEWCN	MBCDEWCN	MBCDEWCN	MBCDEWCN	MBCDEWCN	MBCDEWCN
Date			31-JUL-2016	31-AUG-2016	30-SEP-2016	31-OCT-2016	30-NOV-2016	30-DEC-2016
Analyte	MDL	Units	P880435	P890180	P896143	P902770	P908688	P914706
2,3,7,8-tetra CDD	.353	NG/KG	ND	DNQ0.0007	DNQ0.0009	DNQ0.0006	DNQ0.0009	ND
1,2,3,7,8-penta CDD	.575	NG/KG	DNQ0.0025	ND	0.0031	DNQ0.0031	ND	DNQ0.0042
1,2,3,4,7,8_hexa_CDD	.758	NG/KG	DNQ0.0017	DNQ0.0021	DNQ0.0020	DNQ0.0023	DNQ0.0016	DNQ0.0016
1,2,3,6,7,8-hexa CDD	.823	NG/KG	0.0135	0.0188	0.0181	0.0134	0.0131	0.0161
1,2,3,7,8,9-hexa CDD	.704	NG/KG	DNQ0.0044	DNQ0.0060	DNQ0.0051	DNQ0.0045	DNQ0.0046	DNQ0.0057
1,2,3,4,6,7,8-hepta CDD	.845	NG/KG	0.213	0.249	0.212	0.205	0.223	ND
octa CDD	.136	NG/KG	1.01	1.09	0.940	1.01	1.11	ND
2,3,7,8-tetra CDF	.277	NG/KG	0.0049	0.0045	0.0049	0.0051	0.0052	0.0051
1,2,3,7,8-penta CDF	.45	NG/KG	DNQ0.0018	DNQ0.0019	DNQ0.0017	DNQ0.0017	DNQ0.0021	DNQ0.0020
2,3,4,7,8-penta CDF	.462	NG/KG	DNQ0.0021	DNQ0.0020	DNQ0.0026	DNQ0.0019	DNQ0.0021	DNQ0.0013
1,2,3,4,7,8-hexa CDF	.456	NG/KG	DNQ0.0023	DNQ0.0029	DNQ0.0025	DNQ0.0025	DNQ0.0028	DNQ0.0026
1,2,3,6,7,8-hexa CDF	.408	NG/KG	DNQ0.0024	DNQ0.0020	DNQ0.0023	DNQ0.0023	DNQ0.0025	DNQ0.0025
1,2,3,7,8,9-hexa CDF	.544	NG/KG	DNQ0.0008	DNQ0.0010	DNQ0.0010	DNQ0.0009	DNQ0.0010	DNQ0.0010
2,3,4,6,7,8-hexa CDF	.421	NG/KG	DNQ0.0023	DNQ0.0021	DNQ0.0020	DNQ0.0026	DNQ0.0027	DNQ0.0026
1,2,3,4,6,7,8-hepta CDF	.446	NG/KG	0.0164	0.0200	0.0167	0.0184	0.0203	0.0221
1,2,3,4,7,8,9-hepta CDF	.555	NG/KG	DNQ0.0011	DNQ0.0017	DNQ0.0011	DNQ0.0016	DNQ0.0015	DNQ0.0015
octa CDF	.102	NG/KG	0.0407	0.0436	0.0379	0.0419	0.0459	0.0569

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

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	TILC Wet wt mgKg	MBCDEWCN Jan-16 P834072	MBCDEWCN Feb-16 P844126	MBCDEWCN Mar-16 P81302	MBCDEWCN Apr-16 P858086	MBCDEWCN May-16 P863684	MBCDEWCN Jun-16 P873441	MBCDEWCN Jul-15 P880435	MBCDEWCN Aug-16 P890180	MBCDEWCN Sep-16 P896143	MBCDEWCN Oct-16 P902770	MBCDEWCN Nov-16 P908688	MBCDEWCN Dec-16 P914706
ANTIMONY	500	0.883	0.737	0.867	0.780	0.791	0.917	0.95	0.984	0.936	1.90	2.16	1.89
ARSENIC	500	1.27	1.17	0.88	0.99	0.59	0.74	1.04	0.96	1.19	1.03	1.16	1.3
BARIUM	10000	117	116	115	105	94.6	96.9	100	93.2	101	110	129	121
BERYLLIUM	75	0.017	0.01	0.014	0.003	0.013	0.010	< 0.005	< 0.005	< 0.005	< 0.005	0.005	< 0.003
CADMIUM	100	0.235	0.19	0.257	0.218	0.237	0.217	0.2	0.220	0.23	0.273	0.272	0.2
CHROMIUM(VI)	500	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CHROMIUM(total)	2500	8.80	7.86	12	9.85	10.5	10.8	10	11.4	10.9	10.9	13.8	14
COBALT	8000	1.16	0.909	1.10	1.09	1.13	1.23	1.1	1.17	1.14	1.09	1.39	1.2
COPPER	2500	117	153	180	161	154	154	152	154	159	171	201	179
LEAD	1000	5.4	4.5	5.56	4.6	5.1	5.6	5	5.7	5.1	4.6	4.7	4
MERCURY^	20	0.243	0.412	0.290	0.408	0.237	0.301	0.27	0.181	0.233	0.244	0.358	0.36
MERCURY#	20	0.411	0.276	0.518	0.273	0.293	0.225		0.220	0.230	0.26	0.312	
MOLYBDENUM	3500	3.73	3.11	4.09	3.80	4.34	5.08	5.0	6.14	5.79	6.34	7.74	6.8
NICKEL	2000	7.15	5.95	7.78	6.19	6.89	7.49	6	7.23	7.13	6.29	7.69	8
SELENIUM	100	1.44	1.16	1.35	1.64	1.15	1.23	1.0	0.956	1.21	1.47	1.12	1.2
SILVER	500	0.671	0.603	0.734	0.697	0.666	0.647	1	0.774	0.524	0.668	0.836	1
THALLIUM	700	< 0.28	0.91	< 0.27	< 0.26	0.143	0.202	0.14	0.300	0.144	< 0.10	< 0.11	< 0.11
VANADIUM	2400		8.65			7.98	9.64	7	6.53	5.19	4.24	4.89	5
ZINC	5000	181	235	246	231	219	234	230	256	245	265	284	285
FLUORIDE	18000	6.15	4.5	4.55	11.4	11.6	11.4	NA	6.40	6.83	7.2	6.62	NA
SULFIDES-REACTIVE	NA	10	12	17	27	17	20	19	15	21	22.9	25.9	21
SULFIDES-TOTAL	NA	4526	5979	4160	3250	3481	4821	5792	4196	3997	4251	5954	4334
TOTAL SOLIDS (%)		27.6	27.3	27.1	26.0	25.5	26.2	25.8	25.9	25.3	26	26.7	27.0

DRY WEIGHT Concentration

ANALYTE	TILC Wet wt mgKg	MBCDEWCN Jan-16 P834072	MBCDEWCN Feb-16 P844126	MBCDEWCN Mar-16 P81302	MBCDEWCN Apr-16 P858086	MBCDEWCN May-16 P863684	MBCDEWCN Jun-16 P873441	MBCDEWCN Jul-16 P880435	MBCDEWCN Aug-16 P890180	MBCDEWCN Sep-16 P896143	MBCDEWCN Oct-16 P902770	MBCDEWCN Nov-16 P908688	MBCDEWCN Dec-16 P914706
ANTIMONY	500	3.2	2.7	3.2	3	3.1	3.5	3.7	3.8	3.7	7.30	8.1	7.0
ARSENIC	500	4.6	4.27	3.26	3.79	2.31	2.84	4.04	3.7	4.72	3.98	4.36	4.97
BARIUM	10000	424	426	426	405	371	370	389	360	398	422	482	447
BERYLLIUM	75	0.06	0.04	0.05	0.01	0.05	0.04	< 0.02	< 0.02	< 0.02	< 0.02	0.02	< 0.01
CADMIUM	100	0.85	0.7	0.95	0.84	0.9	0.83	0.83	0.85	0.92	1.05	1.02	0.9
CHROMIUM(VI)	500	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CHROMIUM(total)	2500	31.9	28.8	44.5	37.9	41.0	41.4	38.7	44.2	43	42	51.7	52.1
COBALT	8000	4.2	3.33	4.05	4.2	4.43	4.7	4.12	4.52	4.5	4.2	5.19	4.6
COPPER	2500	425	561	666	621	603	588	588	596	627	657	751	664
LEAD	1000	19.5	16.4	20.5	17.5	20.0	21.3	20.5	22.2	20.2	17.8	17.5	15.2
MERCURY^	20	0.88	1.51	1.07	1.57	0.93	1.15	1.04	0.7	0.92	0.94	1.34	1.3
MERCURY#		1.49	1.01	1.91	1.05	1.15	0.86	0.98	0.85	0.91	1.0	1.17	1.1
MOLYBDENUM	3500	13.5	11.4	15.1	14.6	17.0	19.4	19.4	23.7	22.9	24.4	29.0	25.1
NICKEL	2000	25.9	21.8	28.7	23.8	27.0	28.6	24.8	27.9	28.2	24.2	28.8	29
SELENIUM	100	5.23	4.25	4.99	6.3	4.51	4.68	3.97	3.69	4.78	5.65	4.19	4.38
SILVER	500	2.43	2.21	2.71	2.68	2.61	2.47	2.57	2.99	2.07	2.57	3.13	4.38
THALLIUM	700	< 1	3.34	< 1	< 1	0.56	0.77	0.56	1.16	0.57	< 0.4	< 0.4	< 0.4
VANADIUM	2400		31.7			31.3	36.8	27.2	25.2	20.5	16.30	18.3	18.8
ZINC	5000	654	859	907	889	859	894	893	990	970	1020	1065	1055
FLUORIDE	18000	22.3	16.5	16.8	43.7	45.3	43.6	34.0	24.7	27	27.7	24.8	28.2
SULFIDES-REACTIVE	NA	36	44	62	102	66	76	74.0	59	83	88	97.0	79
SULFIDES-TOTAL	NA	16400	21900	15350	12500	13650	18400	22450	16200	15800	16350	22300	16050

TTLC = Total Threshold Limit Concentration STLC = Soluble Threshold Limit Concentratior ^ = To comply with CAELAP Certificatio # = 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-16 P834072	MBCDEWCN Feb-16 P844126	MBCDEWCN Mar-16 P81302	MBCDEWCN Apr-16 P858086	MBCDEWCN May-16 P863684	MBCDEWCN Jun-16 P873441	MBCDEWCN Jul-16 P880435	MBCDEWCN Aug-16 P890180	MBCDEWCN Sep-16 P896143	MBCDEWCN Oct-16 P902770	MBCDEWCN Nov-16 P908688	MBCDEWCN Dec-16 P914706
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	nd	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	NA	NA	NA	nd	NA	NA
DIELDRIN	8.0	nd	nd	nd	nd	NA	nd	nd	nd	nd	nd	nd	nd
ENDRIN	0.20	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	nd	nd	nd	nd	nd
PENTACHLOROPHENOL	17	NA	nd	nd	NA	nd	NA	nd	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	NA	NA	NA	NA	NA	nd	NA	NA
TOTAL SOLIDS (%)		27.6	27.3	27.1	26.0	25.5	26.2	25.8	25.9	25.3	26.0	26.7	27.0
pH	>2-<12	7.92	7.97	7.97	7.86	7.88	7.87	7.86	8.02	7.62	7.91	7.9	7.88

DRY WEIGHT Concentration

ANALYTE	TTLC Wet wt mg/Kg	MBCDEWCN Jan-16 P834072	MBCDEWCN Feb-16 P844126	MBCDEWCN Mar-16 P81302	MBCDEWCN Apr-16 P858086	MBCDEWCN May-16 P863684	MBCDEWCN Jun-16 P873441	MBCDEWCN Jul-16 P880435	MBCDEWCN Aug-16 P890180	MBCDEWCN Sep-16 P896143	MBCDEWCN Oct-16 P902770	MBCDEWCN Nov-16 P908688	MBCDEWCN Dec-16 P914706
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	nd	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	NA	NA	NA	nd	NA	NA
DIELDRIN	8.0	nd	nd	nd	nd	NA	nd	nd	nd	nd	nd	nd	nd
ENDRIN	0.20	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	nd	nd	nd	nd	nd
PENTACHLOROPHENOL	17	NA	nd	nd	NA	nd	NA	nd	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	NA	NA	NA	NA	NA	nd	NA	NA

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

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V. Ocean Monitoring Data Summary

A. Ocean Sediment Chemistry Data Tables
B. Fish Tissue Chemistry Data Tables

Maps of sampling sites are included in this section.

Summary of Sampling Technique[14]:

Sediments

Benthic sediment is obtained using a $0.1m^2$, chain-rigged Tandem van Veen grab sampler deployed from a City ocean monitoring vessel. Sediment samples are collected from the top 2 cm of an undisturbed grab surface and then placed into an appropriately labeled sample container. Subsamples are placed on ice and subsequently shipped to the laboratory for chemical analysis. Preservatives are used in accordance with the requirements of 40 CFR and our Quality Assurance Plan. Sediment concentrations are based on the dry weight of a sample.

Fish Tissue

Several species of flatfish and rockfish are collected by otter trawl and/or rig fishing. Dissected muscle and liver tissues from these fish are frozen and delivered to the laboratory for analysis. Tissue samples are kept frozen until prepared for analyses. Addendum 1 (June 2003) to MRP R9-2002-0025/NPDES CA0107409 changed the station definitions for trawl and rig fishing sampling, primarily eliminating or redefining stations. Trawl stations SD-7 through SD-14 were reorganized into zones. Additionally, determinations of Poly Aromatic Hydrocarbon (PAHs) were removed by the modifications.

[14] For complete description of the sampling protocols, dissection techniques, equipment, vessels, etc. related to the sampling of ocean sediments and fish, please refer to the City of San Diego, Annual Receiving Waters Monitoring Report for the Point Loma Ocean Outfall 2008.

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A. Ocean Sediment Chemistries.

The data for Biochemical Oxygen Demand (BOD) and Total Volatile Solids (TVS), all measures of organic enrichment, as well as total sulfides and temperature, are all presented by quarter and averaged. The quarterly particle size analysis does not lend itself to summarization and each quarter's analysis is presented separately. For the data from all the metals, cyanide, radiation and all of the numerous organic priority pollutant analyses (except dioxin, presented by quarter) only the average of the four quarters is presented here; the values for each quarter has been reported in the Quarterly Monitoring Reports and are on file.

Sampling stations may also be identified by either a 3-digit number and/or a letter-number identification code. All "A" stations are 100 series and "B" stations are 200 series designations. For example, the station A-15 is also called 115 and station B-7 would be 207.

Chemistries for benthic sediments for 22 “Core Stations” are identified in the following table.

Core Stations

B-8	E-1	E-9	E-20
B-9	E-2	E-11	E-21
B-10	E-3	E-14	E-23
B-11	E-5	E-15	E-25
B-12	E-7	E-17	E-26
	E-8	E-19	

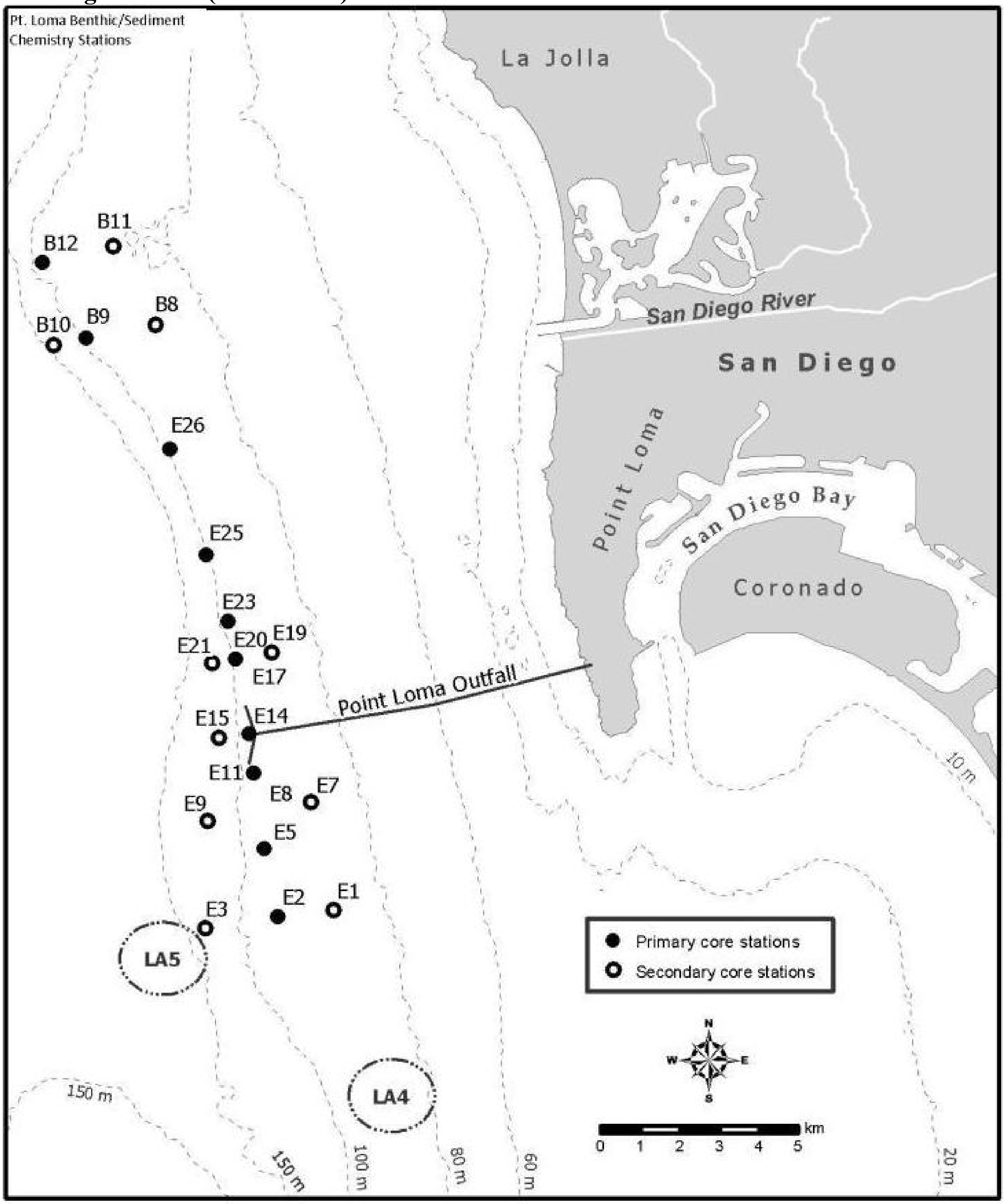
NPDES Permit No. CA 0107409/SDRWQCB Order No. R9-2002-0025 was modified in 2005 to incorporate 8 “Recovery Stations” (listed in following table) in the regular monitoring program as an on-going special study. The suite of analyses is not inclusive, e.g. BOD and PAHs are not a required part of the monitoring program for these stations and may not be included.

Recovery Stations

A-2	A-15
A-5	A-16
A-8	B-3
A-9	B-5

.

San Diego Benthic (chemistries) stations



POINT LOMA WASTEWATER TREATMENT PLANT
OCEAN SEDIMENT

Annual 2016

Biochemical Oxygen Demand
(mg/Kg)

Standard Method 5210B

STATION	First Quarter	Third Quarter	All Quarters
B-8	460	378	419
B-9	302	298	300
B-10	200	269	235
B-11	476	476	476
B-12	469	433	451
E-1	252	240	246
E-2	294	228	261
E-3	290	146	218
E-5	229	194	212
E-7	424	261	343
E-8	218	213	216
E-9	287	202	245
E-11	246	328	287
E-11-H	NS	263	263
E-14	592	393	493
E-14-H	NS	330	330
E-15	239	226	233
E-15-H	NS	239	239
E-17	252	359	359
E-17-H	NS	300	300
E-19	390	350	370
E-20	189	225	207
E-21	235	NS	235
E-23	301	264	283
E-25	193	262	228
E-26	290	317	304

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

POINT LOMA WASTEWATER TREATMENT PLANT
OCEAN SEDIMENT

Annual 2016

Sulfides, Total
(mg/Kg)

Dionex_AU107 method

STATION	First Quarter	Third Quarter	All Quarters
A-2	NS	3.7	3.7
A-5	NS	5.0	5.0
A-8	NS	5.7	5.7
A-9	NS	18.1	18.1
A-15	NS	11.9	11.9
A-16	NS	7.5	7.5
B-3	NS	4.4	4.4
B-5	NS	3.4	3.4
B-8	9.2	2.9	6.1
B-9	2.7	2.7	2.7
B-10	7.7	3.3	5.5
B-11	16.1	3.0	9.6
B-12	7.2	4.7	6.0
E-1	3.3	3.9	3.6
E-2	29.5	5.0	17.3
E-3	18.8	3.1	11.0
E-5	15.2	3.0	9.1
E-7	3.4	8.2	5.8
E-8	5.7	4.1	4.9
E-9	6.8	3.4	5.1
E-11	6.5	9.2	7.9
E-11-H	NS	6.2	6.2
E-14	9.3	36.0	22.7
E-14-H	NS	19.5	19.5
E-15	43.2	3.0	23.1
E-15-H	NS	4.8	4.8
E-17	10.2	8.1	9.2
E-17-H	NS	6.0	6.0
E-19	50.9	3.2	27.1
E-20	3.3	7.1	5.2
E-21	4.5	2.3	3.4
E-23	11.8	2.5	7.2
E-25	14.9	3.1	9.0
E-26	13.7	2.8	8.3

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

POINT LOMA WASTEWATER TREATMENT PLANT
OCEAN SEDIMENT

Annual 2016

Total Volatile Solids
(% Weight)

EPA Method 160.4 / SM2540B

STATION	First Quarter	Third Quarter	Average of All Quarters
A-2	NS	2.2	2.2
A-5	NS	2.4	2.4
A-8	NS	2.2	2.2
A-9	NS	2.4	2.4
A-15	NS	2.6	2.6
A-16	NS	2.2	2.2
B-3	NS	2.2	2.2
B-5	NS	2.5	2.5
B-8	3.0	2.9	3.0
B-9	2.6	2.7	2.7
B-10	2.1	2.0	2.1
B-11	3.1	3.8	3.5
B-12	2.5	2.7	2.6
E-1	2.1	2.0	2.1
E-2	2.4	2.4	2.4
E-3	1.8	1.6	1.7
E-5	1.8	1.8	1.8
E-7	2.0	2.1	2.1
E-8	1.6	1.9	1.8
E-9	2.0	2.0	2.0
E-11	1.7	1.8	1.8
E-11-H	NS	1.7	1.7
E-14	1.4	1.7	1.6
E-14-H	NS	1.5	1.5
E-15	1.6	1.9	1.8
E-15-H	NS	1.9	1.9
E-17	1.5	1.6	1.6
E-17-H	NS	1.6	1.6
E-19	2.2	2.3	2.3
E-20	1.8	1.8	1.8
E-21	1.6	2.1	1.9
E-23	2.2	2.0	2.1
E-25	1.8	2.2	2.0
E-26	2.2	2.1	2.2

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

POINT LOMA WASTEWATER TREATMENT PLANT
OCEAN SEDIMENT

Annual 2016

Grain Size
(all values are in percent distribution)

Source		A-2	A-5	A-8	A-9	A-15	A-16	B-3
		P878837	P878845	P878848	P878852	P878829	P878832	P878859
Analyte	Units:	13-JUL-2016	13-JUL-2016	13-JUL-2016	13-JUL-2016	13-JUL-2016	13-JUL-2016	13-JUL-2016
>0.5 to 1.0		0.000	0.000	0.000	0.000	0.000	0.000	0.000
>1.0 to 2.0		0.000	0.000	0.000	0.000	0.000	0.000	0.000
>2.0 to 3.9		0.531	0.370	0.312	0.542	0.520	0.309	0.330
>3.9 to 7.8		4.360	4.520	3.870	4.800	4.720	4.200	4.710
>7.8 to 15.6		9.850	11.400	9.570	11.400	11.200	10.900	12.600
>15.6 to 31		7.530	9.550	7.680	9.020	8.600	8.650	9.840
>31 to 62.5		20.000	24.900	21.300	22.600	21.000	22.300	21.500
>62.5 to 125		42.900	39.200	43.300	39.600	40.400	40.900	37.700
>125 to 250		14.000	9.500	13.200	11.300	12.800	12.000	12.700
>250 to 500		0.841	0.557	0.781	0.718	0.793	0.744	0.709
>500 to 1000		0.000	0.000	0.000	0.000	0.000	0.000	0.000
>1000 to 2000		0.000	0.000	0.000	0.000	0.000	0.000	0.000
>2000*		ND	ND	ND	ND	ND	ND	ND
Totals:		100.012	99.997	100.013	99.980	100.033	100.003	100.089

Source		B-5	B-8	B-8	B-9	B-9	B-10	B-11
		P880627	P833967	P880654	P833973	P880657	P880632	P880640
Analyte	Units:	18-JUL-2016	13-JAN-2016	18-JUL-2016	13-JAN-2016	18-JUL-2016	18-JUL-2016	18-JUL-2016
>0.5 to 1.0		0.000	0.000	0.000	0.000	0.000	0.000	0.000
>1.0 to 2.0		0.000	0.000	0.000	0.000	0.000	0.000	0.000
>2.0 to 3.9		0.531	0.168	0.984	0.161	0.544	0.404	0.690
>3.9 to 7.8		5.680	4.810	6.630	4.620	5.360	4.570	6.760
>7.8 to 15.6		13.500	14.700	15.900	12.500	12.600	6.050	15.600
>15.6 to 31		8.710	13.100	13.800	8.410	8.900	3.200	9.650
>31 to 62.5		18.800	29.000	28.300	19.100	20.000	12.700	13.800
>62.5 to 125		38.800	31.800	28.800	38.500	37.400	47.100	21.500
>125 to 250		13.200	6.260	5.390	15.100	13.700	23.400	13.100
>250 to 500		0.821	0.135	0.113	1.560	1.530	2.610	7.760
>500 to 1000		0.000	0.000	0.000	0.000	0.000	0.000	5.750
>1000 to 2000		0.000	0.000	0.000	0.000	0.000	0.000	4.720
>2000*		ND	ND	ND	ND	ND	ND	ND
Totals:		100.042	99.973	99.917	99.951	100.034	100.034	99.330

*=A value in this field reflects a percentage of 30 grams remaining on a 2000 micron sieve. This value must be subtracted from the total percentage.

ND= Not Detected

POINT LOMA WASTEWATER TREATMENT PLANT
OCEAN SEDIMENT

Annual 2016

Grain Size
(all values are in percent distribution)

Source		B-12	E-1	E-1	E-2	E-2	E-3	E-5
		P880647	P833788	P877164	P833799	P877169	P877178	P834914
Analyte	Units:	18-JUL-2016	12-JAN-2016	12-JUL-2016	12-JAN-2016	12-JUL-2016	12-JUL-2016	19-JAN-2016
>0.5 to 1.0		0.000	0.000	0.000	0.000	0.000	0.000	0.000
>1.0 to 2.0		0.000	0.000	0.000	0.000	0.000	0.000	0.000
>2.0 to 3.9		0.768	0.154	0.540	0.148	0.142	0.363	0.127
>3.9 to 7.8		5.130	4.070	5.230	4.090	4.350	4.540	3.350
>7.8 to 15.6		7.090	11.400	12.500	11.000	12.600	8.200	8.850
>15.6 to 31		4.860	9.180	9.260	7.950	9.010	6.150	6.560
>31 to 62.5		10.300	18.900	18.000	18.400	18.700	10.300	18.600
>62.5 to 125		19.400	30.600	29.700	34.600	34.000	16.300	44.300
>125 to 250		23.400	20.300	19.600	19.200	18.000	28.200	17.000
>250 to 500		18.700	5.380	5.190	4.670	3.150	20.400	1.240
>500 to 1000		9.940	0.000	0.000	0.000	0.000	5.590	0.000
>1000 to 2000		0.467	0.000	0.000	0.000	0.000	0.000	0.000
>2000*		ND	ND	ND	ND	ND	ND	ND
Totals:		100.055	99.984	100.020	100.058	99.952	100.043	100.027

Source		E-5	E-7	E-7	E-8	E-8	E-9	E-11
		P879169	P834918	P879179	P834926	P879181	P879192	P834878
Analyte	Units:	14-JUL-2016	19-JAN-2016	14-JUL-2016	19-JAN-2016	14-JUL-2016	14-JUL-2016	19-JAN-2016
>0.5 to 1.0		0.000	0.000	0.000	0.000	0.000	0.000	0.000
>1.0 to 2.0		0.000	0.000	0.000	0.000	0.000	0.000	0.000
>2.0 to 3.9		0.151	0.301	0.364	0.153	0.283	0.707	0.113
>3.9 to 7.8		3.410	3.830	4.560	3.120	3.430	4.860	2.870
>7.8 to 15.6		8.240	9.640	11.300	7.400	7.760	6.000	7.350
>15.6 to 31		5.900	8.570	9.330	5.980	5.710	4.340	5.630
>31 to 62.5		17.500	26.500	25.000	19.300	18.400	17.700	19.900
>62.5 to 125		44.400	41.100	38.800	45.000	46.000	27.100	47.800
>125 to 250		18.700	9.940	10.200	17.500	17.100	7.850	15.600
>250 to 500		1.690	0.177	0.523	1.540	1.320	3.760	0.783
>500 to 1000		0.000	0.000	0.000	0.000	0.000	17.700	0.000
>1000 to 2000		0.000	0.000	0.000	0.000	0.000	10.000	0.000
>2000*		ND	ND	ND	ND	ND	ND	ND
Totals:		99.991	100.058	100.077	99.993	100.003	100.017	100.046

*=A value in this field reflects a percentage of 30 grams remaining on a 2000 micron sieve. This value must be subtracted from the total percentage.

ND= Not Detected

POINT LOMA WASTEWATER TREATMENT PLANT
OCEAN SEDIMENT

Annual 2016

Grain Size
(all values are in percent distribution)

Source		E-11	E-11-H	E-14	E-14	E-14-H	E-15	E-15
		P876783	P876801	P834887	P876789	P876806	P834888	P876796
Analyte	Units:	11-JUL-2016	11-JUL-2016	19-JAN-2016	11-JUL-2016	11-JUL-2016	19-JAN-2016	11-JUL-2016
>0.5 to 1.0		0.000	0.000	0.000	0.000	0.000	0.000	0.000
>1.0 to 2.0		0.000	0.000	0.000	0.000	0.000	0.000	0.000
>2.0 to 3.9		0.143	0.284	0.155	0.370	0.342	0.302	0.307
>3.9 to 7.8		3.190	3.480	3.810	4.290	4.110	3.390	4.030
>7.8 to 15.6		7.890	7.920	6.620	5.770	6.450	6.700	9.800
>15.6 to 31		5.830	5.810	3.520	3.100	3.690	4.510	7.050
>31 to 62.5		17.800	19.100	14.200	13.500	15.400	16.200	18.600
>62.5 to 125		46.800	47.100	53.500	40.200	52.100	50.300	44.900
>125 to 250		17.000	15.500	17.400	10.600	16.700	17.800	14.500
>250 to 500		1.300	0.851	0.737	2.560	1.220	0.831	0.795
>500 to 1000		0.000	0.000	0.000	9.340	0.000	0.000	0.000
>1000 to 2000		0.000	0.000	0.000	10.300	0.000	0.000	0.000
>2000*		ND	ND	ND	ND	ND	ND	ND
Totals:		99.953	100.045	99.942	100.030	100.012	100.033	99.982

Source		E-15-H	E-17	E-17	E-17-H	E-19	E-19	E-20
		P876781	P834899	P883142	P883171	P834902	P880666	P833976
Analyte	Units:	11-JUL-2016	19-JAN-2016	27-JUL-2016	27-JUL-2016	19-JAN-2016	18-JUL-2016	13-JAN-2016
>0.5 to 1.0		0.000	0.000	0.000	0.000	0.000	0.000	0.000
>1.0 to 2.0		0.000	0.000	0.000	0.000	0.000	0.000	0.000
>2.0 to 3.9		0.300	0.111	0.117	0.268	0.128	0.352	0.229
>3.9 to 7.8		3.720	2.530	2.740	3.150	3.590	4.420	3.440
>7.8 to 15.6		8.290	5.980	6.750	7.130	10.600	11.000	8.150
>15.6 to 31		5.590	4.500	5.180	5.580	9.730	9.590	6.460
>31 to 62.5		16.900	17.700	18.800	20.300	29.800	28.100	22.000
>62.5 to 125		47.300	51.100	49.700	48.400	39.000	38.500	46.500
>125 to 250		16.700	17.300	16.000	14.500	7.100	7.820	12.600
>250 to 500		1.240	0.724	0.735	0.665	0.119	0.156	0.539
>500 to 1000		0.000	0.000	0.000	0.000	0.000	0.000	0.000
>1000 to 2000		0.000	0.000	0.000	0.000	0.000	0.000	0.000
>2000*		ND	ND	ND	ND	ND	ND	ND
Totals:		100.040	99.945	100.022	99.993	100.067	99.938	99.918

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ND= Not Detected

POINT LOMA WASTEWATER TREATMENT PLANT
OCEAN SEDIMENT

Annual 2016

Grain Size
(all values are in percent distribution)

Source		E-20	E-21	E-21	E-23	E-23	E-25	E-26
		P880672	P833984	P883272	P833991	P880673	P880681	P833999
Analyte	Units:	18-JUL-2016	13-JAN-2016	28-JUL-2016	13-JAN-2016	18-JUL-2016	18-JUL-2016	13-JAN-2016
>0.5 to 1.0		0.000	0.000	0.000	0.000	0.000	0.000	0.000
>1.0 to 2.0		0.000	0.000	0.000	0.000	0.000	0.000	0.000
>2.0 to 3.9		0.145	0.139	0.155	0.125	0.365	0.337	0.658
>3.9 to 7.8		3.310	3.360	3.060	3.360	3.900	4.400	5.100
>7.8 to 15.6		8.130	8.070	6.830	9.130	8.720	10.800	11.000
>15.6 to 31		6.220	5.520	5.120	7.500	7.200	8.520	8.650
>31 to 62.5		21.000	18.200	18.900	24.200	23.800	24.400	23.900
>62.5 to 125		47.300	49.300	50.700	44.600	44.200	40.300	40.300
>125 to 250		13.300	14.900	14.700	10.900	11.300	10.600	10.200
>250 to 500		0.582	0.583	0.609	0.170	0.543	0.623	0.190
>500 to 1000		0.000	0.000	0.000	0.000	0.000	0.000	0.000
>1000 to 2000		0.000	0.000	0.000	0.000	0.000	0.000	0.000
>2000*		ND	ND	ND	ND	ND	ND	ND
Totals:		99.987	100.072	100.074	99.985	100.028	99.980	99.998

Source		E-26
		P880685
Analyte	Units:	18-JUL-2016
>0.5 to 1.0		0.000
>1.0 to 2.0		0.000
>2.0 to 3.9		0.376
>3.9 to 7.8		4.880
>7.8 to 15.6		11.900
>15.6 to 31		9.050
>31 to 62.5		23.400
>62.5 to 125		40.000
>125 to 250		10.300
>250 to 500		0.182
>500 to 1000		0.000
>1000 to 2000		0.000
>2000*		ND
Totals:		100.088

*=A value in this field reflects a percentage of 30 grams remaining on a 2000 micron sieve. This value must be subtracted from the total percentage.

ND= Not Detected

POINT LOMA WASTEWATER TREATMENT PLANT
OCEAN SEDIMENT

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Total Organic Carbon/Total Nitrogen

Source / Analyte	MDL	Units	A-2 Avg 2016	A-5 Avg 2016	A-8 Avg 2016	A-9 Avg 2016	A-15 Avg 2016	A-16 Avg 2016	B-3 Avg 2016
Total Nitrogen	.01	WT%	0.044	0.052	0.056	0.059	0.060	0.060	0.063
Total Organic Carbon	.04	WT%	0.406	0.433	0.454	0.521	0.570	0.461	0.578

Source / Analyte	MDL	Units	B-5 Avg 2016	B-8 Avg 2016	B-9 Avg 2016	B-10 Avg 2016	B-11 Avg 2016	B-12 Avg 2016	E-1 Avg 2016
Total Nitrogen	.01	WT%	0.054	0.074	0.059	0.043	0.082	0.056	0.058
Total Organic Carbon	.04	WT%	0.441	0.681	0.558	0.489	1.230	1.490	0.517

Source / Analyte	MDL	Units	E-2 Avg 2016	E-3 Avg 2016	E-5 Avg 2016	E-7 Avg 2016	E-8 Avg 2016	E-9 Avg 2016	E-11 Avg 2016
Total Nitrogen	.01	WT%	0.066	0.051	0.045	0.057	0.040	0.057	0.042
Total Organic Carbon	.04	WT%	0.547	0.460	0.387	0.497	0.340	0.747	0.311

Source / Analyte	MDL	Units	E-11-H Avg 2016	E-14 Avg 2016	E-14-H Avg 2016	E-15 Avg 2016	E-15-H Avg 2016	E-17 Avg 2016	E-17-H Avg 2016
Total Nitrogen	.01	WT%	0.039	0.040	0.038	0.041	0.040	0.041	0.039
Total Organic Carbon	.04	WT%	0.296	0.307	0.301	0.333	0.314	0.338	0.368

Source / Analyte	MDL	Units	E-19 Avg 2016	E-20 Avg 2016	E-21 Avg 2016	E-23 Avg 2016	E-25 Avg 2016	E-26 Avg 2016
Total Nitrogen	.01	WT%	0.055	0.050	0.046	0.034	0.054	0.058
Total Organic Carbon	.04	WT%	0.512	0.401	0.378	0.259	0.432	0.500

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

POINT LOMA WASTEWATER TREATMENT PLANT
OCEAN SEDIMENT

Annual 2016

Trace Metals
EPA Method 6010B

Source			A-2	A-5	A-8	A-9	A-15	A-16	B-3
Date			2016	2016	2016	2016	2016	2016	2016
Analyte	MDL	Units	Average	Average	Average	Average	Average	Average	Average
Aluminum	2.4	MG/KG	9580	10100	9170	10800	10800	9710	4630
Antimony	.79	MG/KG	1.1	1.2	1.1	1.2	1.3	1.0	ND
Arsenic	.33	MG/KG	2.29	2.27	2.64	2.29	2.27	2.73	1.68
Barium	.08	MG/KG	51.2	54.6	47.8	56.7	57.8	53.2	21.4
Beryllium	.02	MG/KG	ND	ND	ND	ND	ND	ND	ND
Cadmium	.13	MG/KG	<0.13	0.17	ND	0.16	0.14	0.14	ND
Chromium	.136	MG/KG	23.6	25.7	22.1	28.9	28.5	25.3	10.1
Copper	.695	MG/KG	6.1	6.4	5.0	7.2	7.1	6.7	3.1
Iron	9	MG/KG	12300	12900	11800	13600	13800	12400	6900
Lead	.8	MG/KG	4.5	4.8	4.2	5.1	5.0	4.4	2.7
Manganese	.19	MG/KG	123	126	117	135	135	127	53
Mercury	.004	MG/KG	0.031	0.033	0.026	0.042	0.037	0.034	0.026
Nickel	.3	MG/KG	6.4	7.0	5.9	7.4	7.3	6.4	4.3
Selenium	.24	MG/KG	0.29	ND	ND	0.32	0.26	0.24	ND
Silver	.206	MG/KG	ND	ND	ND	ND	ND	ND	ND
Thallium	.5	MG/KG	ND	ND	ND	ND	ND	ND	ND
Tin	.409	MG/KG	0.8	0.9	0.9	1.0	0.9	0.8	0.5
Zinc	1.45	MG/KG	33.6	38.0	31.6	37.6	38.0	37.1	16.0

Source			B-5	B-8	B-9	B-10	B-11	B-12	E-1
Date			2016	2016	2016	2016	2016	2016	2016
Analyte	MDL	Units	Average	Average	Average	Average	Average	Average	Average
Aluminum	2.4	MG/KG	6540	8660	8790	7760	8300	6630	10400
Antimony	.79	MG/KG	ND	<0.8	1.3	<0.8	1.0	1.3	0.9
Arsenic	.33	MG/KG	1.65	2.27	2.38	4.31	3.94	5.27	2.70
Barium	.08	MG/KG	30.2	42.8	54.1	30.6	31.8	19.8	49.2
Beryllium	.02	MG/KG	ND	ND	ND	ND	ND	0.03	ND
Cadmium	.13	MG/KG	ND	ND	ND	1.34	ND	ND	ND
Chromium	.136	MG/KG	14.4	17.5	26.3	21.7	21.8	28.2	21.0
Copper	.695	MG/KG	3.3	5.6	4.9	5.8	4.5	1.2	40.7
Iron	9	MG/KG	7990	10900	15900	16500	14900	20900	13400
Lead	.8	MG/KG	2.8	4.5	4.9	3.9	3.8	3.6	56.9
Manganese	.19	MG/KG	71	98	106	92	87	67	112
Mercury	.004	MG/KG	0.022	0.031	0.028	0.014	0.048	0.011	0.035
Nickel	.3	MG/KG	4.0	6.4	7.4	5.8	6.0	5.0	6.9
Selenium	.24	MG/KG	0.40	0.44	0.40	0.35	0.63	0.41	<0.24
Silver	.206	MG/KG	ND	ND	ND	ND	ND	ND	ND
Thallium	.5	MG/KG	ND	ND	ND	ND	ND	ND	ND
Tin	.409	MG/KG	0.8	1.6	0.8	0.6	0.6	0.6	1.0
Zinc	1.45	MG/KG	18.6	26.3	35.0	32.6	31.6	33.4	31.9

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

POINT LOMA WASTEWATER TREATMENT PLANT
OCEAN SEDIMENT

Annual 2016

Trace Metals
EPA Method 6010B

Source			E-2	E-3	E-5	E-7	E-8	E-9	E-11
Date			2016	2016	2016	2016	2016	2016	2016
Analyte	MDL	Units	Average	Average	Average	Average	Average	Average	Average
Aluminum	2.4	MG/KG	10700	9100	7510	9630	7570	7490	6700
Antimony	.79	MG/KG	1.0	0.9	0.8	0.8	<0.8	1.0	<0.8
Arsenic	.33	MG/KG	2.17	1.97	2.17	2.34	2.10	2.37	2.25
Barium	.08	MG/KG	51.7	54.3	29.4	42.9	28.4	28.1	23.6
Beryllium	.02	MG/KG	ND	ND	ND	ND	ND	ND	ND
Cadmium	.13	MG/KG	ND	ND	ND	ND	ND	ND	ND
Chromium	.136	MG/KG	21.9	17.7	15.5	19.8	15.7	20.2	14.2
Copper	.695	MG/KG	8.5	9.9	4.5	6.2	4.4	10.8	3.6
Iron	9	MG/KG	13900	12500	9810	11500	9750	11900	8900
Lead	.8	MG/KG	4.8	16.3	3.3	3.9	3.0	4.9	2.5
Manganese	.19	MG/KG	115	110	85	108	86	81	77
Mercury	.004	MG/KG	0.037	0.040	0.034	0.027	0.017	0.021	0.015
Nickel	.3	MG/KG	7.0	5.2	5.3	7.1	5.5	5.7	4.9
Selenium	.24	MG/KG	<0.24	ND	<0.24	0.24	0.26	0.35	ND
Silver	.206	MG/KG	ND	ND	ND	ND	ND	ND	1.58
Thallium	.5	MG/KG	ND	ND	ND	ND	ND	ND	ND
Tin	.409	MG/KG	0.8	0.7	0.6	0.7	0.5	0.7	<0.4
Zinc	1.45	MG/KG	33.9	35.5	23.4	28.7	23.4	41.4	21.0

Source			E-11-H	E-14	E-14-H	E-15	E-15-H	E-17	E-17-H
Date			2016	2016	2016	2016	2016	2016	2016
Analyte	MDL	Units	Average	Average	Average	Average	Average	Average	Average
Aluminum	2.4	MG/KG	6600	5890	5540	6800	6910	7200	6820
Antimony	.79	MG/KG	ND	<0.8	ND	<0.8	0.8	<0.8	0.8
Arsenic	.33	MG/KG	2.00	1.84	1.77	1.95	1.58	2.22	1.81
Barium	.08	MG/KG	24.0	22.0	20.5	23.3	26.1	26.1	27.1
Beryllium	.02	MG/KG	ND	ND	ND	ND	ND	ND	ND
Cadmium	.13	MG/KG	ND	<0.13	ND	ND	ND	ND	ND
Chromium	.136	MG/KG	16.2	13.5	14.7	15.2	18.5	15.5	17.2
Copper	.695	MG/KG	3.3	4.5	4.7	4.3	4.2	7.6	4.2
Iron	9	MG/KG	8780	7880	7910	9100	9460	9240	9330
Lead	.8	MG/KG	2.5	2.5	2.5	2.7	2.9	2.9	2.9
Manganese	.19	MG/KG	74	73	69	78	79	88	78
Mercury	.004	MG/KG	0.015	0.014	0.013	0.015	0.018	0.020	0.032
Nickel	.3	MG/KG	4.8	5.0	4.6	5.0	5.1	5.5	5.3
Selenium	.24	MG/KG	ND	ND	ND	ND	ND	ND	ND
Silver	.206	MG/KG	ND	ND	ND	ND	ND	ND	ND
Thallium	.5	MG/KG	ND	ND	ND	ND	ND	ND	ND
Tin	.409	MG/KG	<0.4	0.5	0.5	<0.4	0.5	0.5	0.5
Zinc	1.45	MG/KG	21.3	21.3	20.6	21.2	22.3	21.7	21.6

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

POINT LOMA WASTEWATER TREATMENT PLANT
OCEAN SEDIMENT

Annual 2016

Trace Metals
EPA Method 6010B

Source			E-19	E-20	E-21	E-23	E-25	E-26
Date			2016	2016	2016	2016	2016	2016
Analyte	MDL	Units	Average	Average	Average	Average	Average	Average
Aluminum	2.4	MG/KG	11400	8230	7380	9010	9010	9180
Antimony	.79	MG/KG	1.0	0.8	<0.8	0.8	0.8	0.9
Arsenic	.33	MG/KG	2.43	2.15	2.25	2.30	2.11	2.55
Barium	.08	MG/KG	50.3	31.0	26.7	36.0	35.0	36.0
Beryllium	.02	MG/KG	ND	ND	ND	ND	ND	ND
Cadmium	.13	MG/KG	ND	ND	ND	ND	ND	ND
Chromium	.136	MG/KG	23.8	17.0	15.9	18.9	19.2	17.8
Copper	.695	MG/KG	7.1	4.5	4.1	5.3	4.9	5.2
Iron	9	MG/KG	13600	10400	9600	11200	11200	11800
Lead	.8	MG/KG	4.5	3.1	3.1	3.6	3.7	3.8
Manganese	.19	MG/KG	125	93	84	102	101	102
Mercury	.004	MG/KG	0.029	0.016	0.017	0.022	0.020	0.031
Nickel	.3	MG/KG	8.2	6.2	5.7	6.6	6.5	6.8
Selenium	.24	MG/KG	0.34	<0.24	ND	0.29	<0.24	0.25
Silver	.206	MG/KG	ND	ND	ND	ND	ND	ND
Thallium	.5	MG/KG	ND	ND	ND	ND	ND	ND
Tin	.409	MG/KG	0.8	0.5	0.5	0.6	0.6	0.7
Zinc	1.45	MG/KG	32.8	23.9	22.0	26.2	26.3	27.8

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

POINT LOMA WASTEWATER TREATMENT PLANT
OCEAN SEDIMENT

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Chlorinated Pesticide Analysis
EPA Method 8081A

Source			A-2	A-5	A-8	A-9	A-15	A-16	B-3	B-5
			2016	2016	2016	2016	2016	2016	2016	2016
Analyte	MDL	Units	Average	Average	Average	Average	Average	Average	Average	Average
Aldrin	300	NG/KG	ND	ND	ND	ND	ND	ND	ND	ND
Dieldrin	370	NG/KG	ND	ND	ND	ND	ND	ND	ND	ND
BHC, Alpha isomer	730	NG/KG	ND	ND	ND	ND	ND	ND	ND	ND
BHC, Beta isomer	52.7	NG/KG	ND	ND	ND	ND	ND	ND	ND	ND
BHC, Gamma isomer	500	NG/KG	ND	ND	ND	ND	ND	ND	ND	ND
BHC, Delta isomer	160	NG/KG	ND	ND	ND	ND	ND	ND	ND	ND
p,p-DDD	120	NG/KG	DNQ64	DNQ71	DNQ62	E52	DNQ156	DNQ102	DNQ54	E25
p,p-DDE	90	NG/KG	322	491	355	281	446	474	330	245
p,p-DDMU	46	NG/KG	DNQ47	DNQ54	DNQ48	DNQ37	DNQ76	DNQ57	DNQ45	DNQ34
p,p-DDT	52	NG/KG	DNQ72	357	DNQ77	DNQ113	DNQ85	DNQ150	DNQ83	ND
o,p-DDD	90	NG/KG	E23	DNQ36	E14	E23	DNQ181	DNQ50	ND	ND
o,p-DDE	110	NG/KG	ND	ND	ND	ND	DNQ41	ND	E21	ND
o,p-DDT	73	NG/KG	ND	ND	ND	ND	ND	DNQ45	ND	ND
Heptachlor	76	NG/KG	ND	ND	ND	ND	ND	ND	ND	ND
Heptachlor epoxide	212	NG/KG	ND	ND	ND	ND	ND	ND	ND	ND
Alpha (cis) Chlordane	170	NG/KG	ND	ND	ND	E37	DNQ94	ND	E32	ND
Gamma (trans) Chlordane	61	NG/KG	ND	ND	ND	E24	DNQ63	DNQ55	E22	ND
Alpha Chlordene		NG/KG	NA	NA	NA	NA	NA	NA	NA	NA
Gamma Chlordene		NG/KG	NA	NA	NA	NA	NA	NA	NA	NA
Oxychlordane	210	NG/KG	ND	ND	ND	ND	ND	ND	ND	ND
Trans Nonachlor	150	NG/KG	ND	ND	ND	ND	DNQ44	ND	ND	ND
Cis Nonachlor	210	NG/KG	ND	ND	ND	ND	E49	ND	ND	ND
Alpha Endosulfan	380	NG/KG	ND	ND	ND	ND	ND	ND	ND	ND
Beta Endosulfan	230	NG/KG	ND	ND	ND	ND	ND	ND	ND	ND
Endosulfan Sulfate	570	NG/KG	ND	ND	ND	ND	ND	ND	ND	ND
Endrin	1000	NG/KG	ND	ND	ND	ND	ND	ND	ND	ND
Endrin aldehyde	1800	NG/KG	ND	ND	ND	ND	ND	ND	ND	ND
Mirex	61	NG/KG	ND	ND	ND	ND	ND	ND	ND	ND
Methoxychlor	250	NG/KG	ND	ND	ND	ND	ND	ND	ND	ND
Aldrin + Dieldrin	370	NG/KG	0	0	0	0	0	0	0	0
Hexachlorocyclohexanes	730	NG/KG	0	0	0	0	0	0	0	0
DDT and derivatives	120	NG/KG	322	848	355	281	449	474	330	245
Chlordane + related cmpds.	210	NG/KG	0	0	0	0	0	0	0	0
Chlorinated Hydrocarbons	1800	NG/KG	322	848	355	281	449	474	330	245

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

E=estimated value, value is less than the Method Detection Limit but confirmed by GC/MS-MS

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

POINT LOMA WASTEWATER TREATMENT PLANT
OCEAN SEDIMENT

ANNUAL 2016

Chlorinated Pesticide Analysis
EPA Method 8081A

Source			B-8	B-9	B-10	B-11	B-12	E-1	E-2	E-3
			2016	2016	2016	2016	2016	2016	2016	2016
Analyte	MDL	Units	Average	Average	Average	Average	Average	Average	Average	Average
Aldrin	300	NG/KG	ND	ND	ND	ND	ND	ND	ND	ND
Dieldrin	370	NG/KG	ND	ND	ND	ND	ND	ND	ND	ND
BHC, Alpha isomer	730	NG/KG	ND	ND	ND	ND	ND	ND	ND	ND
BHC, Beta isomer	52.7	NG/KG	ND	ND	ND	ND	ND	ND	DNQ80	90
BHC, Gamma isomer	500	NG/KG	ND	ND	ND	ND	ND	ND	ND	ND
BHC, Delta isomer	160	NG/KG	ND	ND	ND	ND	ND	ND	ND	ND
p,p-DDD	120	NG/KG	DNQ43	DNQ37	E20	DNQ28	ND	DNQ51	ND	85
p,p-DDE	90	NG/KG	547	619	519	750	522	567	393	580
p,p-DDMU	46	NG/KG	DNQ36	DNQ25	DNQ22	DNQ41	DNQ20	DNQ22	DNQ67	DNQ18
p,p-DDT	52	NG/KG	DNQ58	DNQ41	DNQ33	DNQ51	DNQ27	DNQ350	95	DNQ60
o,p-DDD	90	NG/KG	ND	ND	E12	ND	ND	E12	ND	ND
o,p-DDE	110	NG/KG	E35	ND	DNQ22	DNQ24	DNQ28	ND	ND	E9
o,p-DDT	73	NG/KG	DNQ26	ND	ND	DNQ26	ND	ND	ND	ND
Heptachlor	76	NG/KG	ND	ND	ND	ND	DNQ16	ND	ND	ND
Heptachlor epoxide	212	NG/KG	ND	ND	ND	ND	ND	ND	ND	ND
Alpha (cis) Chlordane	170	NG/KG	ND	ND	DNQ26	DNQ30	ND	E71	E21	DNQ187
Gamma (trans) Chlordane	61	NG/KG	ND	ND	E19	E20	E19	DNQ35	E22	DNQ264
Alpha Chlordene		NG/KG	NA	NA	NA	NA	NA	NA	NA	NA
Gamma Chlordene		NG/KG	NA	NA	NA	NA	NA	NA	NA	NA
Oxychlordane	210	NG/KG	ND	ND	ND	ND	ND	ND	ND	ND
Trans Nonachlor	150	NG/KG	ND	ND	ND	ND	ND	DNQ30	DNQ15	DNQ135
Cis Nonachlor	210	NG/KG	ND	ND	ND	ND	ND	ND	ND	75
Alpha Endosulfan	380	NG/KG	ND	ND	ND	ND	ND	ND	ND	ND
Beta Endosulfan	230	NG/KG	ND	ND	ND	ND	ND	ND	ND	ND
Endosulfan Sulfate	570	NG/KG	ND	ND	ND	ND	ND	ND	ND	ND
Endrin	1000	NG/KG	ND	ND	ND	ND	ND	ND	ND	ND
Endrin aldehyde	1800	NG/KG	ND	ND	ND	ND	ND	ND	ND	ND
Mirex	61	NG/KG	ND	ND	ND	ND	ND	ND	ND	ND
Methoxychlor	250	NG/KG	ND	ND	ND	DNQ56	ND	ND	ND	ND
Aldrin + Dieldrin	370	NG/KG	0	0	0	0	0	0	0	0
Hexachlorocyclohexanes	730	NG/KG	0	0	0	0	0	0	0	90
DDT and derivatives	120	NG/KG	547	619	519	750	522	567	488	580
Chlordane + related cmpds.	210	NG/KG	0	0	0	0	0	0	0	0
Chlorinated Hydrocarbons	1800	NG/KG	547	619	519	750	522	567	488	670

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POINT LOMA WASTEWATER TREATMENT PLANT
OCEAN SEDIMENT

ANNUAL 2016

Chlorinated Pesticide Analysis
EPA Method 8081A

Source			E-5	E-7	E-8	E-9	E-11	E-14	E-15	E-17
			2016	2016	2016	2016	2016	2016	2016	2016
Analyte	MDL	Units	Average	Average	Average	Average	Average	Average	Average	Average
Aldrin	300	NG/KG	ND	ND	ND	ND	ND	ND	ND	ND
Dieldrin	370	NG/KG	ND	ND	ND	ND	ND	ND	ND	ND
BHC, Alpha isomer	730	NG/KG	ND	ND	ND	ND	ND	ND	ND	ND
BHC, Beta isomer	52.7	NG/KG	ND	ND	ND	ND	ND	ND	ND	ND
BHC, Gamma isomer	500	NG/KG	ND	ND	ND	ND	ND	ND	ND	ND
BHC, Delta isomer	160	NG/KG	ND	ND	ND	ND	ND	ND	ND	ND
p,p-DDD	120	NG/KG	E20	E21	E16	E9	ND	E26	ND	ND
p,p-DDE	90	NG/KG	323	377	344	DNQ258	279	313	303	280
p,p-DDMU	46	NG/KG	DNQ13	DNQ18	DNQ22	DNQ11	DNQ19	DNQ29	DNQ19	ND
p,p-DDT	52	NG/KG	DNQ27	DNQ29	E22	ND	ND	ND	ND	ND
o,p-DDD	90	NG/KG	ND	ND	E9	ND	ND	ND	ND	ND
o,p-DDE	110	NG/KG	ND	E13	DNQ16	ND	ND	ND	ND	ND
o,p-DDT	73	NG/KG	ND	ND	E11	ND	ND	ND	ND	ND
Heptachlor	76	NG/KG	ND	ND	ND	ND	ND	ND	ND	ND
Heptachlor epoxide	212	NG/KG	ND	ND	ND	ND	ND	ND	ND	ND
Alpha (cis) Chlordane	170	NG/KG	ND	ND	ND	ND	ND	ND	ND	ND
Gamma (trans) Chlordane	61	NG/KG	ND	ND	ND	ND	ND	ND	ND	ND
Alpha Chlordene		NG/KG	NA	NA	NA	NA	NA	NA	NA	NA
Gamma Chlordene		NG/KG	NA	NA	NA	NA	NA	NA	NA	NA
Oxychlordane	210	NG/KG	ND	ND	ND	ND	ND	ND	ND	ND
Trans Nonachlor	150	NG/KG	ND	ND	ND	ND	ND	ND	ND	ND
Cis Nonachlor	210	NG/KG	ND	ND	ND	ND	ND	ND	ND	ND
Alpha Endosulfan	380	NG/KG	ND	ND	ND	ND	ND	ND	ND	ND
Beta Endosulfan	230	NG/KG	ND	ND	ND	ND	ND	ND	ND	ND
Endosulfan Sulfate	570	NG/KG	ND	ND	ND	ND	ND	ND	ND	ND
Endrin	1000	NG/KG	ND	ND	ND	ND	ND	ND	ND	ND
Endrin aldehyde	1800	NG/KG	ND	ND	ND	ND	ND	ND	ND	ND
Mirex	61	NG/KG	ND	ND	ND	ND	ND	ND	ND	ND
Methoxychlor	250	NG/KG	ND	ND	ND	ND	ND	ND	ND	ND
Aldrin + Dieldrin	370	NG/KG	0	0	0	0	0	0	0	0
Hexachlorocyclohexanes	730	NG/KG	0	0	0	0	0	0	0	0
DDT and derivatives	120	NG/KG	323	377	344	0	279	313	303	280
Chlordane + related cmpds.	210	NG/KG	0	0	0	0	0	0	0	0
Chlorinated Hydrocarbons	1800	NG/KG	323	377	344	0	279	313	303	280

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

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POINT LOMA WASTEWATER TREATMENT PLANT
OCEAN SEDIMENT

ANNUAL 2016

Chlorinated Pesticide Analysis
EPA Method 8081A

Source			E-19	E-20	E-21	E-23	E-25	E-26
			2016	2016	2016	2016	2016	2016
Analyte	MDL	Units	Average	Average	Average	Average	Average	Average
Aldrin	300	NG/KG	ND	ND	ND	ND	ND	ND
Dieldrin	370	NG/KG	ND	ND	ND	ND	ND	ND
BHC, Alpha isomer	730	NG/KG	ND	ND	ND	ND	ND	ND
BHC, Beta isomer	52.7	NG/KG	ND	ND	ND	ND	ND	ND
BHC, Gamma isomer	500	NG/KG	ND	ND	ND	ND	ND	ND
BHC, Delta isomer	160	NG/KG	ND	ND	ND	ND	ND	ND
p,p-DDD	120	NG/KG	DNQ33	E20	ND	E21	E26	E22
p,p-DDE	90	NG/KG	526	428	300	474	551	487
p,p-DDMU	46	NG/KG	DNQ33	DNQ26	ND	DNQ26	DNQ22	DNQ27
p,p-DDT	52	NG/KG	DNQ42	DNQ41	ND	DNQ55	DNQ41	DNQ35
o,p-DDD	90	NG/KG	E13	ND	ND	E10	E9	E12
o,p-DDE	110	NG/KG	DNQ24	ND	ND	ND	E13	DNQ17
o,p-DDT	73	NG/KG	ND	ND	ND	ND	E12	ND
Heptachlor	76	NG/KG	ND	ND	ND	ND	ND	ND
Heptachlor epoxide	212	NG/KG	ND	ND	ND	ND	ND	ND
Alpha (cis) Chlordane	170	NG/KG	DNQ25	ND	ND	ND	ND	ND
Gamma (trans) Chlordane	61	NG/KG	E13	ND	ND	ND	ND	ND
Alpha Chlordene		NG/KG	NA	NA	NA	NA	NA	NA
Gamma Chlordene		NG/KG	NA	NA	NA	NA	NA	NA
Oxychlordane	210	NG/KG	ND	ND	ND	ND	ND	ND
Trans Nonachlor	150	NG/KG	ND	ND	ND	ND	ND	ND
Cis Nonachlor	210	NG/KG	ND	ND	ND	ND	ND	ND
Alpha Endosulfan	380	NG/KG	ND	ND	ND	ND	ND	ND
Beta Endosulfan	230	NG/KG	ND	ND	ND	ND	ND	ND
Endosulfan Sulfate	570	NG/KG	ND	ND	ND	ND	ND	ND
Endrin	1000	NG/KG	ND	ND	ND	ND	ND	ND
Endrin aldehyde	1800	NG/KG	ND	ND	ND	ND	ND	ND
Mirex	61	NG/KG	ND	ND	ND	ND	ND	ND
Methoxychlor	250	NG/KG	ND	ND	ND	ND	ND	ND
Aldrin + Dieldrin	370	NG/KG	0	0	0	0	0	0
Hexachlorocyclohexanes	730	NG/KG	0	0	0	0	0	0
DDT and derivatives	120	NG/KG	526	428	300	474	551	487
Chlordane + related cmpds.	210	NG/KG	0	0	0	0	0	0
Chlorinated Hydrocarbons	1800	NG/KG	526	428	300	474	551	487

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E=estimated value, value is less than the Method Detection Limit but confirmed by GC/MS-MS

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POINT LOMA WASTEWATER TREATMENT PLANT
OCEAN SEDIMENT

ANNUAL 2016

PCB Congeners
EPA Method 8082

Source Analyte	MDL	Units	A-2 2016 Avg	A-5 2016 Avg	A-8 2016 Avg	A-9 2016 Avg	A-15 2016 Avg	A-16 2016 Avg	B-3 2016 Avg	B-5 2016 Avg
PCB 18	90	NG/KG	E12	ND	<54	E18	E24	E40	E22	E38
PCB 28	96	NG/KG	E39	ND	DNQ45	DNQ45	DNQ49	DNQ82	ND	E34
PCB 52	37	NG/KG	E30	DNQ43	E47	E33	DNQ47	DNQ85	E25	E23
PCB 49	34.4	NG/KG	E29	E30	E28	E29	DNQ45	DNQ56	E19	E18
PCB 44	38.8	NG/KG	E24	E35	<39	E26	DNQ44	DNQ61	E18	E22
PCB 37	47	NG/KG	ND	ND	ND	ND	ND	ND	ND	ND
PCB 74	51	NG/KG	DNQ19	DNQ29	DNQ20	E17	DNQ30	DNQ41	E13	E9
PCB 70	58	NG/KG	DNQ29	DNQ49	DNQ40	DNQ28	DNQ51	DNQ84	DNQ25	E15
PCB 66	72	NG/KG	DNQ49	DNQ60	DNQ50	DNQ37	DNQ67	DNQ87	DNQ40	DNQ23
PCB 101	50	NG/KG	DNQ62	DNQ79	DNQ89	DNQ64	DNQ87	DNQ131	DNQ41	E34
PCB 99	80	NG/KG	DNQ48	DNQ84	DNQ60	DNQ48	DNQ75	DNQ85	E27	<31
PCB 119	59	NG/KG	ND	ND	ND	ND	ND	ND	ND	ND
PCB 87	44	NG/KG	DNQ40	E24	<31	ND	ND	DNQ43	E25	ND
PCB 110	53.6	NG/KG	DNQ78	DNQ99	DNQ89	DNQ56	DNQ80	DNQ123	E48	E30
PCB 81	22.3	NG/KG	ND	ND	ND	E12	ND	ND	ND	ND
PCB 151	81	NG/KG	E23	E38	ND	ND	E32	E29	ND	ND
PCB 77	110	NG/KG	ND	ND	<24	E12	E22	E18	ND	ND
PCB 149	59.6	NG/KG	DNQ92	DNQ104	DNQ100	DNQ72	DNQ102	DNQ119	DNQ68	<60
PCB 123	79	NG/KG	ND	ND	ND	E19	ND	ND	ND	ND
PCB 118	110	NG/KG	DNQ80	DNQ85	DNQ120	DNQ67	DNQ104	DNQ143	DNQ71	DNQ37
PCB 114	78	NG/KG	ND	ND	ND	ND	ND	ND	ND	ND
PCB 105	37	NG/KG	DNQ47	DNQ50	E43	DNQ30	DNQ48	DNQ52	DNQ25	E14
PCB 138	45.5	NG/KG	DNQ99	DNQ94	DNQ110	DNQ72	DNQ108	DNQ156	DNQ55	DNQ57
PCB 158	57	NG/KG	ND	ND	<27	E20	E17	E19	E10	<27
PCB 187	96	NG/KG	DNQ67	DNQ53	DNQ45	DNQ51	DNQ64	DNQ80	DNQ47	DNQ47
PCB 183	55	NG/KG	DNQ32	E22	<29	E22	DNQ32	DNQ43	E27	ND
PCB 126	98	NG/KG	ND	ND	ND	ND	ND	ND	ND	ND
PCB 128	110	NG/KG	DNQ42	E28	E35	E29	DNQ52	DNQ50	E26	E15
PCB 167	37	NG/KG	ND	ND	ND	ND	ND	ND	ND	ND
PCB 177	37	NG/KG	ND	DNQ34	ND	DNQ32	DNQ55	DNQ47	ND	ND
PCB 201	51	NG/KG	ND	ND	ND	ND	ND	E11	ND	ND
PCB 156	57	NG/KG	E20	E20	ND	E27	ND	DNQ29	ND	ND
PCB 157	62	NG/KG	ND	ND	ND	ND	ND	ND	ND	ND
PCB 180	100	NG/KG	DNQ64	DNQ61	E65	DNQ59	DNQ70	DNQ147	E49	E57
PCB 170	72	NG/KG	DNQ54	DNQ47	DNQ47	E38	ND	DNQ73	E36	<44
Total PCB's	110	NG/KG	0	0	0	0	0	0	0	0

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

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POINT LOMA WASTEWATER TREATMENT PLANT
OCEAN SEDIMENT

ANNUAL 2016

PCB Congeners
EPA Method 8082

Source Analyte	MDL	Units	B-8 2016 Avg	B-9 2016 Avg	B-10 2016 Avg	B-11 2016 Avg	B-12 2016 Avg	E-1 2016 Avg	E-2 2016 Avg	E-3 2016 Avg
PCB 18	90	NG/KG	<90	<90	<90	<90	<90	<90	<90	150
PCB 28	96	NG/KG	<96	<96	<96	ND	ND	<96	E50	200
PCB 52	37	NG/KG	<37	<37	<37	<37	<37	DNQ120	DNQ130	690
PCB 49	34.4	NG/KG	<32	<32	<32	<32	<32	DNQ65	DNQ54	300
PCB 44	38.8	NG/KG	<37	<37	<37	<37	<37	DNQ72	DNQ71	410
PCB 37	47	NG/KG	ND	ND	ND	ND	ND	ND	ND	<47
PCB 74	51	NG/KG	<51	<51	<51	<51	<51	E38	<51	210
PCB 70	58	NG/KG	<58	<58	<58	<58	<58	DNQ100	DNQ82	570
PCB 66	72	NG/KG	<72	<72	<72	E44	<72	DNQ93	DNQ75	420
PCB 101	50	NG/KG	<50	<50	<50	<50	<50	290	250	1200
PCB 99	80	NG/KG	<80	<80	<80	<80	<80	DNQ130	DNQ110	510
PCB 119	59	NG/KG	ND	ND	<59	ND	ND	<59	<59	<59
PCB 87	44	NG/KG	ND	ND	ND	ND	ND	DNQ90	DNQ62	550
PCB 110	53.6	NG/KG	<54	<54	<48	<54	<48	280	270	1300
PCB 81	22.3	NG/KG	ND	ND	<18	ND	ND	ND	ND	ND
PCB 151	81	NG/KG	<81	ND	<81	<81	ND	<81	<81	180
PCB 77	110	NG/KG	<110	ND	<110	ND	ND	ND	<110	<110
PCB 149	59.6	NG/KG	<60	<60	<54	DNQ67	<60	310	240	920
PCB 123	79	NG/KG	<79	<79	ND	ND	ND	ND	<79	<79
PCB 118	110	NG/KG	<110	<110	<110	<110	<110	320	290	1300
PCB 114	78	NG/KG	ND	ND	ND	ND	ND	ND	ND	ND
PCB 105	37	NG/KG	<37	<37	<37	<37	ND	DNQ110	DNQ97	490
PCB 138	45.5	NG/KG	DNQ61	DNQ47	<46	DNQ54	<46	300	250	1100
PCB 158	57	NG/KG	ND	ND	<57	ND	ND	<57	<57	160
PCB 187	96	NG/KG	<96	<96	E20	<96	<96	150	<96	500
PCB 183	55	NG/KG	<55	ND	<55	<55	ND	<55	<55	230
PCB 126	98	NG/KG	ND	ND	ND	ND	ND	ND	ND	<98
PCB 128	110	NG/KG	<110	ND	<110	<110	ND	<110	<110	310
PCB 167	37	NG/KG	ND	ND	ND	ND	ND	<37	<37	DNQ43
PCB 177	37	NG/KG	<37	ND	ND	ND	ND	DNQ39	<37	97
PCB 201	51	NG/KG	ND	ND	ND	ND	ND	<51	ND	DNQ150
PCB 156	57	NG/KG	ND	ND	ND	ND	ND	<57	<57	160
PCB 157	62	NG/KG	ND	ND	ND	ND	ND	ND	<62	<62
PCB 180	100	NG/KG	<100	<100	ND	<100	ND	170	<100	740
PCB 170	72	NG/KG	ND	ND	ND	ND	ND	<72	<72	250
Total PCB's	110	NG/KG	0	0	0	0	0	1650	1300	12947

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POINT LOMA WASTEWATER TREATMENT PLANT
OCEAN SEDIMENT

ANNUAL 2016

PCB Congeners
EPA Method 8082

Source			E-5	E-7	E-8	E-9	E-11	E-14	E-15	E-17
			2016	2016	2016	2016	2016	2016	2016	2016
Analyte	MDL	Units	Avg	Avg	Avg	Avg	Avg	Avg	Avg	Avg
PCB 18	90	NG/KG	ND	<90	<90	<90	ND	<90	<90	ND
PCB 28	96	NG/KG	<96	<96	ND	<96	ND	<96	<96	ND
PCB 52	37	NG/KG	<37	DNQ100	<37	180	<37	<37	<37	ND
PCB 49	34.4	NG/KG	ND	E31	<32	DNQ70	<32	<32	<32	ND
PCB 44	38.8	NG/KG	<37	E48	<37	E98	<37	<37	<37	ND
PCB 37	47	NG/KG	ND	ND	ND	ND	ND	ND	ND	ND
PCB 74	51	NG/KG	<51	<51	<51	<51	ND	ND	<51	ND
PCB 70	58	NG/KG	<58	E80	<58	E130	<58	<58	<58	ND
PCB 66	72	NG/KG	E32	E50	<72	E90	<72	<72	<72	E53
PCB 101	50	NG/KG	<50	170	<50	210	<50	<50	<50	ND
PCB 99	80	NG/KG	<80	<80	<80	E100	<80	<80	<80	ND
PCB 119	59	NG/KG	ND	ND	ND	<59	ND	ND	ND	ND
PCB 87	44	NG/KG	<44	DNQ72	ND	DNQ77	ND	ND	ND	ND
PCB 110	53.6	NG/KG	<54	230	<54	250	<48	ND	<48	ND
PCB 81	22.3	NG/KG	ND	ND	<18	ND	ND	ND	ND	ND
PCB 151	81	NG/KG	ND	ND	ND	<81	ND	<81	ND	ND
PCB 77	110	NG/KG	ND	<110	<110	ND	ND	ND	ND	ND
PCB 149	59.6	NG/KG	<60	E140	<60	200	<54	ND	E46	E44
PCB 123	79	NG/KG	ND	ND	ND	ND	ND	ND	ND	ND
PCB 118	110	NG/KG	<110	190	<110	220	ND	<110	<110	E70
PCB 114	78	NG/KG	ND	ND	ND	ND	ND	ND	ND	ND
PCB 105	37	NG/KG	<37	DNQ55	<37	DNQ110	ND	<37	<37	ND
PCB 138	45.5	NG/KG	<46	190	<46	240	<46	<46	ND	ND
PCB 158	57	NG/KG	ND	<57	<57	<57	ND	<57	ND	ND
PCB 187	96	NG/KG	<96	<96	<96	<96	E12	<96	<96	ND
PCB 183	55	NG/KG	<55	<55	<55	<55	ND	<55	<55	ND
PCB 126	98	NG/KG	ND	ND	ND	ND	ND	ND	ND	ND
PCB 128	110	NG/KG	<110	<110	<110	<110	ND	<110	ND	ND
PCB 167	37	NG/KG	ND	<37	ND	ND	ND	ND	ND	ND
PCB 177	37	NG/KG	ND	ND	ND	DNQ42	ND	ND	ND	ND
PCB 201	51	NG/KG	ND	ND	ND	ND	ND	ND	ND	ND
PCB 156	57	NG/KG	<57	<57	ND	<57	<57	ND	ND	ND
PCB 157	62	NG/KG	ND	ND	ND	ND	ND	ND	ND	ND
PCB 180	100	NG/KG	<100	<100	<100	120	ND	ND	ND	ND
PCB 170	72	NG/KG	ND	<72	<72	<72	ND	ND	ND	ND
Total PCB's	110	NG/KG	0	610	0	1120	0	0	0	0

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

E=estimated value, value is less than the Method Detection Limit but confirmed by GC/MS-MS

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

POINT LOMA WASTEWATER TREATMENT PLANT
OCEAN SEDIMENT

ANNUAL 2016

PCB Congeners
EPA Method 8082

Source			E-19	E-20	E-21	E-23	E-25	E-26
			2016	2016	2016	2016	2016	2016
Analyte	MDL	Units	Avg	Avg	Avg	Avg	Avg	Avg
PCB 18	90	NG/KG	ND	ND	ND	<90	ND	<90
PCB 28	96	NG/KG	ND	ND	ND	ND	ND	<96
PCB 52	37	NG/KG	<37	<37	ND	<37	<37	<37
PCB 49	34.4	NG/KG	<32	<32	ND	<32	<32	<32
PCB 44	38.8	NG/KG	<37	<37	ND	<37	<37	<37
PCB 37	47	NG/KG	ND	ND	ND	ND	ND	ND
PCB 74	51	NG/KG	<51	<51	ND	<51	<51	<51
PCB 70	58	NG/KG	<58	<58	ND	<58	<58	<58
PCB 66	72	NG/KG	E44	<72	ND	E38	<72	<72
PCB 101	50	NG/KG	DNQ60	<50	ND	<50	<50	<50
PCB 99	80	NG/KG	<80	<80	ND	<80	<80	<80
PCB 119	59	NG/KG	ND	ND	ND	ND	ND	ND
PCB 87	44	NG/KG	ND	ND	ND	ND	ND	ND
PCB 110	53.6	NG/KG	DNQ56	<48	ND	<48	<48	<54
PCB 81	22.3	NG/KG	ND	ND	ND	ND	ND	ND
PCB 151	81	NG/KG	<81	ND	ND	ND	ND	ND
PCB 77	110	NG/KG	<110	ND	ND	ND	ND	<110
PCB 149	59.6	NG/KG	<60	<54	ND	<54	<60	<60
PCB 123	79	NG/KG	ND	ND	ND	ND	ND	<79
PCB 118	110	NG/KG	<110	<110	ND	<110	<110	<110
PCB 114	78	NG/KG	ND	ND	ND	ND	ND	ND
PCB 105	37	NG/KG	<37	<37	ND	<37	<37	<37
PCB 138	45.5	NG/KG	DNQ50	<46	ND	DNQ80	<46	DNQ49
PCB 158	57	NG/KG	<57	ND	ND	<57	ND	ND
PCB 187	96	NG/KG	<96	<96	ND	<96	<96	<96
PCB 183	55	NG/KG	<55	<55	ND	ND	<55	ND
PCB 126	98	NG/KG	ND	ND	ND	ND	ND	ND
PCB 128	110	NG/KG	<110	<110	ND	ND	ND	<110
PCB 167	37	NG/KG	ND	ND	ND	ND	ND	ND
PCB 177	37	NG/KG	ND	ND	ND	<37	ND	ND
PCB 201	51	NG/KG	ND	ND	ND	ND	ND	ND
PCB 156	57	NG/KG	<57	ND	ND	ND	ND	ND
PCB 157	62	NG/KG	ND	ND	ND	ND	ND	ND
PCB 180	100	NG/KG	<100	<100	ND	<100	<100	<100
PCB 170	72	NG/KG	ND	ND	ND	ND	ND	ND
Total PCB's	110	NG/KG	0	0	0	0	0	0

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

E=estimated value, value is less than the Method Detection Limit but confirmed by GC/MS-MS

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

POINT LOMA WASTEWATER TREATMENT PLANT
OCEAN SEDIMENT

ANNUAL 2016

Base/Neutrals
EPA Method 8260B

Source Analyte	MDL	Units	B-8 2016 Avg	B-9 2016 Avg	B-10 2016 Avg	B-11 2016 Avg	B-12 2016 Avg	E-1 2016 Avg	E-2 2016 Avg	E-3 2016 Avg	E-5 2016 Avg	E-7 2016 Avg	E-8 2016 Avg	E-9 2016 Avg	E-11 2016 Avg
Acenaphthene	20	UG/KG	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Acenaphthylene	30	UG/KG	ND	ND	ND	ND	ND	ND	ND	<16	ND	ND	ND	ND	ND
Anthracene	20	UG/KG	ND	ND	ND	ND	ND	<16	<16	E9	ND	ND	ND	ND	ND
Benzo[a]anthracene	20	UG/KG	ND	ND	ND	ND	ND	ND	ND	23	ND	ND	ND	ND	ND
Benzo[a]pyrene	20	UG/KG	ND	ND	ND	ND	ND	E23	E13	38	ND	ND	ND	<13	ND
3,4-Benzo(b)fluoranthene	20	UG/KG	ND	ND	ND	<20	ND	30	<20	49	ND	E8	ND	E12	ND
Benzo[e]pyrene	20	UG/KG	<20	ND	ND	ND	ND	E17	E10	30	ND	<11	ND	<11	ND
Benzo[g,h,i]perylene	20	UG/KG	<20	ND	ND	ND	ND	E19	E10	E31	ND	ND	ND	<16	ND
Benzo[k]fluoranthene	20	UG/KG	ND	ND	ND	ND	ND	E11	ND	E18	ND	ND	ND	ND	ND
Biphenyl	30	UG/KG	ND	ND	ND	ND	ND	ND	<21	ND	ND	ND	ND	ND	ND
Chrysene	40	UG/KG	ND	ND	ND	ND	ND	E21	ND	E21	<40	ND	ND	ND	ND
Dibenzo(a,h)anthracene	20	UG/KG	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2,6-Dimethylnaphthalene	20	UG/KG	<20	<20	<20	<20	<20	E9	<20	E7	<20	E8	<20	E7	E8
Fluoranthene	20	UG/KG	ND	ND	ND	ND	ND	E22	E10	24	ND	ND	ND	ND	ND
Fluorene	20	UG/KG	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Indeno(1,2,3-CD)pyrene	20	UG/KG	ND	ND	ND	ND	ND	E14	ND	22	ND	ND	ND	ND	ND
1-Methylphenanthrene	20	UG/KG	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2-Methylnaphthalene	23.2	UG/KG	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	<23	ND
1-Methylnaphthalene	22.5	UG/KG	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Naphthalene	32.9	UG/KG	ND	ND	ND	ND	ND	ND	ND	<30	ND	ND	ND	ND	ND
Perylene	30	UG/KG	ND	ND	ND	ND	ND	ND	ND	<30	ND	ND	ND	ND	ND
Phenanthrene	30	UG/KG	ND	ND	ND	ND	ND	<30	ND	E14	ND	ND	ND	ND	ND
Pyrene	20	UG/KG	E8	ND	ND	ND	ND	E23	E13	E31	<20	<15	ND	<15	ND
2,3,5-Trimethylnaphthalene	20	UG/KG	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Base/Neutral Compounds	40	UG/KG	0	0	0	0	0	30	0	186	0	0	0	0	0

Source Analyte	MDL	Units	E-14 2016 Avg	E-15 2016 Avg	E-17 2016 Avg	E-19 2016 Avg	E-20 2016 Avg	E-21 2016 Avg	E-23 2016 Avg	E-25 2016 Avg	E-26 2016 Avg
Acenaphthene	20	UG/KG	ND	ND	ND	ND	ND	ND	ND	ND	ND
Acenaphthylene	30	UG/KG	ND	ND	ND	ND	ND	ND	ND	ND	ND
Anthracene	20	UG/KG	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzo[a]anthracene	20	UG/KG	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzo[a]pyrene	20	UG/KG	ND	ND	ND	ND	ND	ND	ND	ND	ND
3,4-Benzo(b)fluoranthene	20	UG/KG	ND	ND	ND	<20	ND	ND	ND	ND	E7
Benzo[e]pyrene	20	UG/KG	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzo[g,h,i]perylene	20	UG/KG	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzo[k]fluoranthene	20	UG/KG	ND	ND	ND	ND	ND	ND	ND	ND	ND
Biphenyl	30	UG/KG	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chrysene	40	UG/KG	ND	ND	ND	ND	ND	ND	ND	ND	ND
Dibenzo(a,h)anthracene	20	UG/KG	ND	ND	ND	ND	ND	ND	ND	ND	ND
2,6-Dimethylnaphthalene	20	UG/KG	<20	<20	<20	<20	<20	ND	E9	<20	E9
Fluoranthene	20	UG/KG	ND	ND	ND	ND	ND	ND	ND	ND	ND
Fluorene	20	UG/KG	ND	ND	ND	ND	ND	ND	ND	ND	ND
Indeno(1,2,3-CD)pyrene	20	UG/KG	ND	ND	ND	ND	ND	ND	ND	ND	ND
1-Methylphenanthrene	20	UG/KG	ND	ND	ND	ND	ND	ND	ND	ND	ND
2-Methylnaphthalene	23.2	UG/KG	ND	ND	ND	ND	ND	ND	ND	ND	ND
1-Methylnaphthalene	22.5	UG/KG	ND	ND	ND	ND	ND	ND	ND	ND	ND
Naphthalene	32.9	UG/KG	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perylene	30	UG/KG	ND	ND	ND	ND	ND	ND	ND	ND	ND
Phenanthrene	30	UG/KG	ND	ND	ND	ND	ND	ND	ND	ND	ND
Pyrene	20	UG/KG	ND	ND	ND	<20	ND	ND	<15	ND	ND
2,3,5-Trimethylnaphthalene	20	UG/KG	ND	ND	ND	ND	ND	ND	ND	ND	ND
Base/Neutral Compounds	40	UG/KG	0	0	0	0	0	0	0	0	0

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

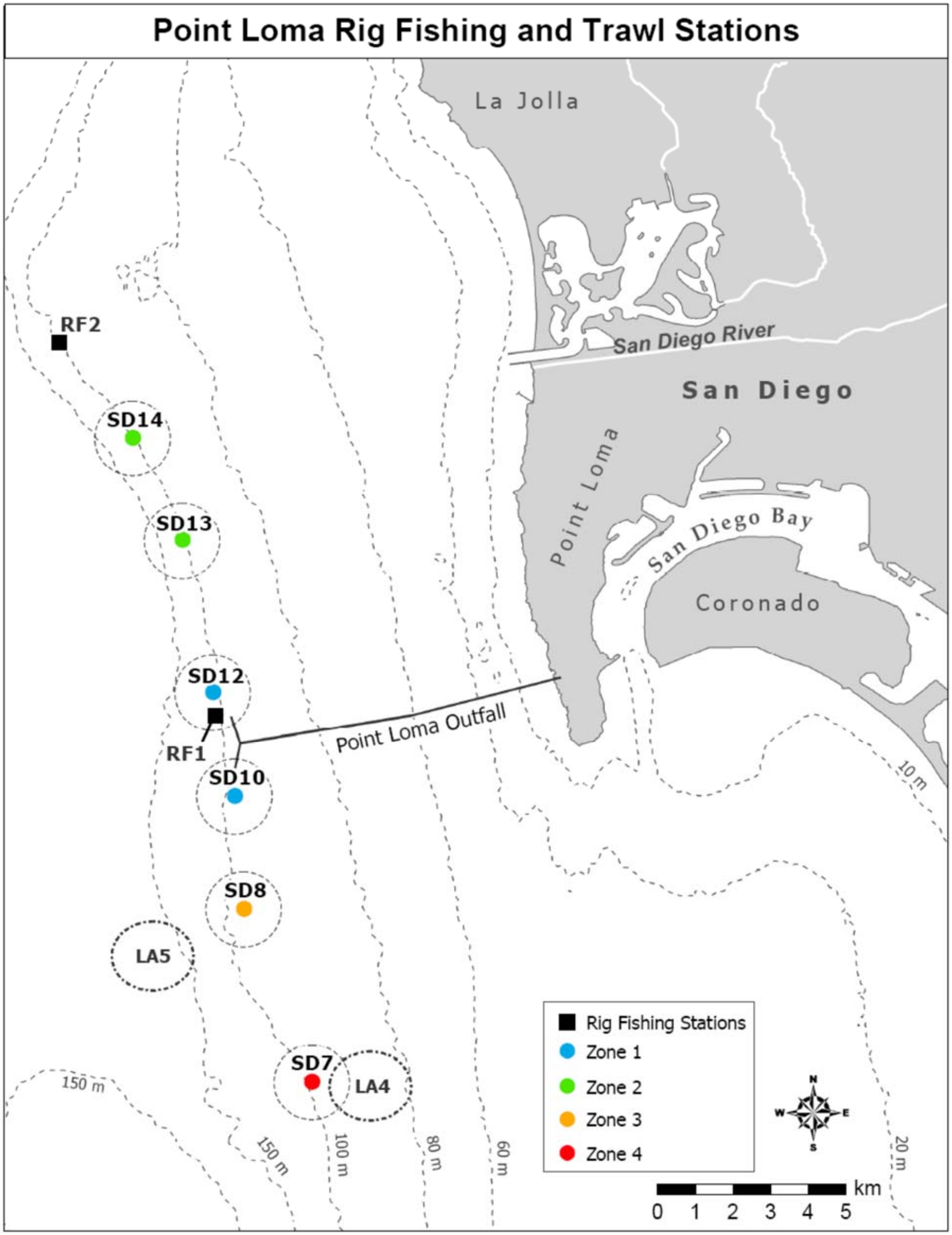
B. Fish Tissue Data.

Fish were taken from the stations shown in the below tables during 2015. The fish were dissected, preserved by freezing, and each sample analyzed for trace metals, chlorinated pesticides, PCBs, Lipids, and total solids.

The reported values are annual averages. Results for individual sampling events are contained in the previously published quarterly reports.

Station	Matrix
RF-1	FISH_MUSCLE
RF-2	FISH_MUSCLE

Station	Matrix
TFZONE1 (SD-10 & 12)	FISH_LIVER
TFZONE2 (SD-13 & 14)	FISH_LIVER
TFZONE3 (SD-8)	FISH_LIVER
TFZONE4 (SD-7)	FISH_LIVER



San Diego Rig Fishing and Trawl Stations

POINT LOMA WASTEWATER TREATMENT PLANT
Annual Fish Tissue - Muscle/Liver

Annual 2016

FISH - Lipids & Total Solids

Source				RF-1	RF-2	TFZONE1	TFZONE2	TFZONE3	TFZONE4
				2016	2016	2016	2016	2016	2016
Tissue	Analyte	MDL	Units	Avg	Avg	Avg	Avg	Avg	Avg
Liver	Lipids	.09	WT%	NR	NR	49.4	49.3	50.8	48.6
Liver	Total Solids	.4	WT%	NR	NR	64.6	63.6	60.7	56.8
Muscle	Lipids	.09	WT%	0.31	0.49	NR	NR	NR	NR
Muscle	Total Solids	.4	WT%	21.4	21.6	NR	NR	NR	NR

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

POINT LOMA WASTEWATER TREATMENT PLANT
Annual Fish Tissue - Muscle/Liver

Annual 2016

Trace Metals
EPA Method 6010B

Source			TFZONE1	TFZONE2	TFZONE3	TFZONE4
Date			2016	2016	2016	2016
Analyte	MDL	Units	Average	Average	Average	Average
Aluminum	2.4	MG/KG	ND	<2.40	ND	ND
Antimony	.79	MG/KG	ND	ND	ND	ND
Arsenic	.308	MG/KG	5.73	5.63	7.07	5.47
Beryllium	.02	MG/KG	ND	ND	ND	ND
Cadmium	.13	MG/KG	1.37	2.63	1.37	1.73
Chromium	.136	MG/KG	0.33	0.50	0.93	0.77
Copper	.69	MG/KG	2.57	4.13	4.27	3.37
Iron	2.88	MG/KG	84	95	52	36
Lead	.326	MG/KG	ND	ND	ND	ND
Manganese	.19	MG/KG	0.70	0.67	0.87	0.70
Mercury	.002	MG/KG	0.045	0.051	0.037	0.037
Nickel	.3	MG/KG	ND	ND	<0.30	<0.30
Selenium	.19	MG/KG	0.62	0.70	0.78	0.79
Silver	.206	MG/KG	ND	ND	ND	ND
Thallium	.43	MG/KG	ND	ND	ND	ND
Tin	.33	MG/KG	0.53	0.53	0.70	0.53
Zinc	1.45	MG/KG	20.0	21.3	25.3	20.7
Total Solids	.4	WT%	64.6	63.6	60.7	56.8

Source			RF-1	RF-2
Date			2016	2016
Analyte	MDL	Units	Average	Average
Aluminum	2.4	MG/KG	ND	ND
Antimony	.79	MG/KG	ND	ND
Arsenic	.308	MG/KG	6.40	3.73
Beryllium	.02	MG/KG	ND	ND
Cadmium	.13	MG/KG	ND	ND
Chromium	.136	MG/KG	<0.136	<0.136
Copper	.69	MG/KG	ND	ND
Iron	2.88	MG/KG	22.0	15.3
Lead	.326	MG/KG	ND	ND
Manganese	.19	MG/KG	3.80	3.90
Mercury	.002	MG/KG	0.044	0.128
Nickel	.3	MG/KG	ND	ND
Selenium	.19	MG/KG	0.453	0.49
Silver	.206	MG/KG	ND	ND
Thallium	.43	MG/KG	ND	ND
Tin	.33	MG/KG	0.40	0.40
Zinc	1.45	MG/KG	4.00	4.00
Total Solids	.4	WT%	21.4	21.6

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

POINT LOMA WASTEWATER TREATMENT PLANT
Annual Fish Tissue - Muscle/Liver

Annual 2016

Chlorinated Pesticides
EPA Method 8081A

Source			TFZONE1	TFZONE2	TFZONE3	TFZONE4
			2016	2016	2016	2016
Analyte	MDL	Units	Avg	Avg	Avg	Avg
Hexachlorobenzene		UG/KG	E7.84*	E11.7	E9.26*	E9.72*
BHC, Gamma isomer	3.68	UG/KG	ND	ND	<3.68	ND
Heptachlor	1.86	UG/KG	ND	ND	ND	ND
Aldrin	2.98	UG/KG	ND	ND	ND	ND
Heptachlor epoxide	2.97	UG/KG	ND	ND	ND	ND
o,p-DDE	3.16	UG/KG	<3.16	E1.06	E1.68	E1.20
Alpha Endosulfan	1.77	UG/KG	ND	ND	ND	ND
Alpha (cis) Chlordane	5.89	UG/KG	ND	ND	ND	ND
Trans Nonachlor	5.12	UG/KG	<5.12	<5.12	<5.12	ND
p,p-DDE	1.75	UG/KG	461	319	357	282
p,p-DDMU	3.44	UG/KG	13.1	12.8	10.9	9.70
o,p-DDD	2.03	UG/KG	ND	ND	ND	ND
o,p-DDT	2.92	UG/KG	E0.67	<2.92	<2.92	<2.92
p,p-DDD	2.62	UG/KG	E2.98	E2.05	E1.95	<2.62
p,p-DDT	2.66	UG/KG	E3.06	E1.73	E2.20	<2.66
Mirex	1.99	UG/KG	<1.99	ND	<1.99	<1.99
Endosulfan Sulfate	2.31	UG/KG	ND	ND	ND	ND

Source			RF-1	RF-2
			2016	2016
Analyte	MDL	Units	Avg	Avg
Hexachlorobenzene		UG/KG	E0.47*	E0.07*
BHC, Gamma isomer	.37	UG/KG	<0.37	ND
Heptachlor	.19	UG/KG	ND	ND
Aldrin	.3	UG/KG	ND	ND
Heptachlor epoxide	.29	UG/KG	<0.29	ND
o,p-DDE	.31	UG/KG	<0.31	E0.01
Alpha Endosulfan	.17	UG/KG	ND	ND
Alpha (cis) Chlordane	.59	UG/KG	ND	ND
Trans Nonachlor	.51	UG/KG	ND	ND
p,p-DDE	.18	UG/KG	DNQ0.70	DNQ0.90
p,p-DDMU	.34	UG/KG	<0.34	ND
Dieldrin		UG/KG	ND**	ND**
o,p-DDD	.21	UG/KG	ND	ND
Endrin		UG/KG	ND**	ND**
o,p-DDT	.29	UG/KG	ND	ND
p,p-DDD	.26	UG/KG	ND	ND
Beta Endosulfan		UG/KG	ND^	ND^
p,p-DDT	.27	UG/KG	ND	<0.27
Mirex	.2	UG/KG	ND	ND
Endosulfan Sulfate	.23	UG/KG	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

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

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

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

^ = Data not reportable due to possible Alumina interference during clean up process.

POINT LOMA WASTEWATER TREATMENT PLANT
Annual Fish Tissue – Liver

Annual 2016

Poly Chlorinated Biphenyls (PCB's)
EPA Method 8082

Source			TFZONE1	TFZONE2	TFZONE3	TFZONE4
			2016	2016	2016	2016
Analyte	MDL	Units	Avg	Avg	Avg	Avg
PCB 18	1.21	UG/KG	ND	ND	<1.21	ND
PCB 28	1.65	UG/KG	<1.65	E1.11	E1.39	E1.05
PCB 49	.97	UG/KG	DNQ1.91	E1.11	DNQ2.86	DNQ1.40
PCB 37	1.43	UG/KG	ND	ND	ND	ND
PCB 70	1.4	UG/KG	DNQ2.0	E1.1	DNQ1.9	E1.6
PCB 101	1.49	UG/KG	DNQ6.66	DNQ3.48	DNQ6.92	6.31
PCB 119	1.96	UG/KG	<1.96	<1.96	ND	<1.96
PCB 87	1.39	UG/KG	<1.39	<1.39	E1.44	<1.39
PCB 110	1.42	UG/KG	DNQ4.91	DNQ2.71	DNQ5.36	DNQ3.94
PCB 151	1.31	UG/KG	E1.87	E0.87	E0.82	E1.51
PCB 77	1.81	UG/KG	ND	<1.81	<1.81	ND
PCB 149	1.79	UG/KG	DNQ4.84	DNQ2.64	DNQ4.15	DNQ3.82
PCB 123	1.94	UG/KG	DNQ2.27	<1.94	DNQ2.77	<1.94
PCB 118	2.38	UG/KG	22.4	13.3	20.5	24.2
PCB 114	1.31	UG/KG	ND	ND	ND	<1.3
PCB 153/168	2.79	UG/KG	58.80	35.40	44.60	46.50
PCB 105	1.83	UG/KG	DNQ7.62	DNQ4.76	DNQ6.06	7.92
PCB 138	2.51	UG/KG	35.3	20.3	30.6	30.0
PCB 158	1.45	UG/KG	DNQ1.61	E1.16	DNQ2.06	DNQ2.18
PCB 187	1.16	UG/KG	17.7	9.46	16.1	16.4
PCB 183	1.14	UG/KG	DNQ6.21	DNQ3.48	DNQ5.39	DNQ6.32
PCB 126	1.34	UG/KG	ND	ND	ND	ND
PCB 128	1.43	UG/KG	10.1	DNQ4.60	DNQ8.99	11.4
PCB 167	1.59	UG/KG	E2.13	<1.59	E1.83	DNQ2.11
PCB 177	2.31	UG/KG	DNQ3.53	<2.31	DNQ3.97	E2.89
PCB 156	1.86	UG/KG	DNQ3.90	E2.03	DNQ3.11	DNQ3.53
PCB 157	3.2	UG/KG	<3.20	<3.20	E0.67	<3.20
PCB 180	2.54	UG/KG	21.8	11.9	18.8	19.6
PCB 170	2.02	UG/KG	6.99	DNQ5.02	DNQ6.18	DNQ6.55
PCB 169	2.72	UG/KG	<2.72	<2.72	ND	<2.72
PCB 189	1.44	UG/KG	<1.44	ND	<1.44	<1.44
PCB 194	1.76	UG/KG	DNQ6.83	DNQ3.68	DNQ5.80	DNQ5.95
PCB 206	1.31	UG/KG	DNQ8.68	DNQ3.46	DNQ6.53	DNQ6.19

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

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 Fish Tissue – Liver

Annual 2016

Poly Chlorinated Biphenyls (PCB's)
EPA Method 8082

Source Analyte	MDL	Units	RF-1 2016 Avg	RF-2 2016 Avg
PCB 18	.12	UG/KG	ND	ND
PCB 28	.16	UG/KG	<0.16	<0.16
PCB 49		UG/KG	E0.02	E0.02
PCB 37	.14	UG/KG	<0.14	<0.14
PCB 70	.14	UG/KG	<0.14	<0.14
PCB 101	.15	UG/KG	<0.15	<0.15
PCB 119	.2	UG/KG	<0.20	ND
PCB 87	.14	UG/KG	ND	ND
PCB 110	.14	UG/KG	<0.14	<0.14
PCB 151	.14	UG/KG	ND	ND
PCB 77	.18	UG/KG	<0.18	ND
PCB 149	.18	UG/KG	<0.18	<0.18
PCB 123	.19	UG/KG	<0.19	ND
PCB 118	.24	UG/KG	E0.05	<0.24
PCB 114	.13	UG/KG	ND	ND
PCB 153/168		UG/KG	E0.11	E0.10
PCB 105	.19	UG/KG	<0.19	<0.19
PCB 138	.25	UG/KG	<0.25	E0.07
PCB 158	.14	UG/KG	ND	ND
PCB 187	.12	UG/KG	<0.12	E0.03
PCB 183	.11	UG/KG	ND	<0.11
PCB 126	.13	UG/KG	ND	ND
PCB 128	.14	UG/KG	<0.14	E0.01
PCB 167	.16	UG/KG	<0.16	<0.16
PCB 177	.23	UG/KG	ND	<0.23
PCB 156	.19	UG/KG	<0.19	<0.19
PCB 157	.32	UG/KG	ND	ND
PCB 180	.26	UG/KG	E0.04	<0.26
PCB 170	.21	UG/KG	<0.21	<0.21
PCB 169	.27	UG/KG	<0.27	<0.27
PCB 189	.14	UG/KG	ND	ND
PCB 194	.18	UG/KG	<0.18	<0.18
PCB 206		UG/KG	E0.06	E0.04

ND= not detected

E=estimated value, value is less than the Method Detection Limit but confirmed by GC/MS-MS.

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VI. Annual Pretreatment Program Analyses

2016 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 2016. Sampling occurred on February 02, May 03, August 02, and October 04. 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 2016

Point Loma

Source Analyte	MDL	Units	PLR 02-FEB-2016	PLR 03-MAY-2016	PLR 02-AUG-2016	PLR 04-OCT-2016
Conductivity	10	umhos/cm	2980	3210	3280	3280
HEM (Grease & Oil)	.8	mg/L	61.8	56.6	54.3	46.6
Total Suspended Solids	2.5	mg/L	340	444	401	445
Volatile Suspended Solids	2.5	mg/L	295	373	353	381
Total Alkalinity (bicarbonate)	20	mg/L	320*	342	328	336
Total Solids	10	mg/L	2070	2410	2440	2210
Total Volatile Solids	100	mg/L	609	772	742	616
Total Kjeldahl Nitrogen	1.6	mg/L	64	57	56	57
BOD (Biochemical Oxygen Demand)	2	mg/L	288	339	330	327
Chemical Oxygen Demand	18	mg/L	713	622	771	683
pH (grab)		pH Units	7.38	7.35	7.21	7.43
Ammonia-N	.3	mg/L	38.7*	40.8	39.0	39.5
Turbidity	.13	NTU	171	189	162	195
Total Dissolved Solids	250	mg/L	1540	1940	1720	1690
MBAS (Surfactants)	.03	mg/L	7.12	6.14	5.14	8.37

Source Analyte	MDL	Units	PLE 02-FEB-2016	PLE 03-MAY-2016	PLE 02-AUG-2016	PLE 04-OCT-2016
Conductivity	10	umhos/cm	3020	3260	3360	3290
HEM (Grease & Oil)	.8	mg/L	34.1	9.5	13.3	49.1
Total Suspended Solids	2.5	mg/L	40	24	41	49
Volatile Suspended Solids	2.5	mg/L	31	19	33	38
Total Alkalinity (bicarbonate)	20	mg/L	307*	314	320	325
Total Solids	10	mg/L	1710	2000	1980	1840
Total Volatile Solids	100	mg/L	310	404	300	313
Total Kjeldahl Nitrogen	1.6	mg/L	53	45	46	46
BOD (Biochemical Oxygen Demand)	2	mg/L	99	120	144	123
Chemical Oxygen Demand	18	mg/L	294	257	326	277
pH (grab)		pH Units	7.20	7.07	7.14	7.16
Ammonia-N	.3	mg/L	39.9*	41.3	40.1	40.1
Turbidity	.13	NTU	34.2	39.4	55.0	48.9
Total Dissolved Solids	250	mg/L	1540	1920	1800	1720
MBAS (Surfactants)	.03	mg/L	4.36	4.58	4.64	3.58

* = Sample analyzed with an expired buffer solution; value not used in average calculations.

BOD by SM5210B/4500-O C,G
TSS/VSS by SM2540D
pH by SM4500-H
Turbidity by SM2130B
HEM by EPA 1664A
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 02-FEB-2016	RAW COMP 03-MAY-2016	RAW COMP 02-AUG-2016	RAW COMP 04-OCT-2016
Total Alkalinity (bicarbonate)	20	mg/L	581	710	571	581
Total Solids		Wt%	4.55	4.35	4.35	4.15
Total Volatile Solids		Wt%	79	78	78	76
Total Kjeldahl Nitrogen	.04	Wt%	3.6	3.8	3.8	3.8
pH (grab)		pH Units	5.61	5.47	5.44	5.47

Source Analyte	MDL	Units	DIG COMP 02-FEB-2016	DIG COMP 03-MAY-2016	DIG COMP 02-AUG-2016	DIG COMP 04-OCT-2016
Total Alkalinity (bicarbonate)	20	mg/L	2760	2460	2180	2120
Volatile Organic Acids	5	mg/L	166	NR	70	66
Total Solids		Wt%	2.30	2.30	2.30	2.27
Total Volatile Solids		Wt%	57	60	59	58
Total Kjeldahl Nitrogen	.04	Wt%	7.2	7.8	7.0	7.3
pH (grab)		pH Units	7.40	7.46	7.39	7.44

MBC

Source Analyte	MDL	Units	MBC_COMBCN 02-FEB-2016	MBC_COMBCN 03-MAY-2016	MBC_COMBCN 02-AUG-2016	MBC_COMBCN 04-OCT-2016
Conductivity	10	umhos/cm	6160	5000	4860	4730
HEM (Grease & Oil)	.8	mg/L	11.8	18.7	52.3	67.9
Total Suspended Solids	2.5	mg/L	460	1460	785	675
Volatile Suspended Solids	2.5	mg/L	330	1070	560	485
Total Alkalinity (bicarbonate)	20	mg/L	1650	1260	NR	1030
Total Solids		Wt%	0.30	0.40	0.30	0.30
Total Volatile Solids		Wt%	36	51	48	48
Total Kjeldahl Nitrogen	1.6	mg/L	519	379	358	343
BOD (Biochemical Oxygen Demand)	2	mg/L	225	504	252	NR
Chemical Oxygen Demand	18	mg/L	1130	39700	944	765
pH		pH Units	7.82	7.75	7.80	7.72
pH (grab sample)		pH Units	7.55	7.70	7.70	7.60
Ammonia-N	.3	mg/L	243	342	NR	245

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 1664A
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 2016

Source / Analyte	MDL	Units	MBCDEWCN 29-FEB-2016	MBCDEWCN 31-MAY-2016	MBCDEWCN 31-AUG-2016	MBCDEWCN 31-OCT-2016
Total Solids		Wt%	27.30	25.50	25.90	26.00
Total Volatile Solids		Wt%	59	61	62	62
Total Kjeldahl Nitrogen	.04	Wt%	6.9	6.2	5.3	4.9
pH		pH Units	7.97	7.88	8.02	7.91

Source / Analyte	MDL	Units	MBC_NC_DSL 02-FEB-2016	MBC_NC_DSL 03-MAY-2016	MBC_NC_DSL 02-AUG-2016	MBC_NC_DSL 04-OCT-2016
Total Alkalinity (bicarbonate)	20	mg/L	1390	1190	1430	1860
Total Solids		Wt%	2.20	2.40	2.30	2.20
Total Volatile Solids		Wt%	63	66	66	68
Total Kjeldahl Nitrogen	1.6	mg/L	1600	1910	1600	1730
pH		pH Units	7.01	7.01	6.92	7.04

Source / Analyte	MDL	Units	MBC_NC_RSL 02-FEB-2016	MBC_NC_RSL 03-MAY-2016	MBC_NC_RSL 02-AUG-2016	MBC_NC_RSL 04-OCT-2016
Total Suspended Solids	2.5	mg/L	6950	7600	7750	370
Volatile Suspended Solids	2.5	mg/L	5400	6250	6050	310
Total Alkalinity (bicarbonate)	20	mg/L	281	201	371	268
Total Solids		Wt%	0.60	0.80	0.80	0.20
Total Volatile Solids		Wt%	67	74	72	36
Total Kjeldahl Nitrogen	1.6	mg/L	175	127	255	159
pH		pH Units	7.13	7.02	7.04	7.07

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 2016

Source			PLR	PLR	PLR	PLR
Date			02-FEB-2016	03-MAY-2016	02-AUG-2016	04-OCT-2016
Sample ID	MDL	Units	P831365	P857684	P878344	P895094
Aluminum	23.8	UG/L	839	817	994	547
Antimony	2.44	UG/L	ND	ND	ND	ND
Arsenic	2.06	UG/L	0.94	1.07	1.66	1.30
Barium	.7	UG/L	111	136	142	129
Beryllium	.05	UG/L	ND	ND	ND	ND
Boron	1.4	UG/L	406	402	460	395
Cadmium	.26	UG/L	ND	0.42	0.20	<0.26
Chromium	.54	UG/L	6.35	7.74	8.54	6.69
Cobalt	.24	UG/L	1.77	1.94	1.89	1.49
Copper	2.16	UG/L	126	130	164	126
Iron	15.6	UG/L	8860	12400	11400	10900
Lead	1.68	UG/L	2.05	3.19	6.43	3.18
Manganese	.78	UG/L	152	149	150	131
Mercury	.05	UG/L	0.21*	0.19	0.12	0.17
Molybdenum	.32	UG/L	9.3	12.6	15.1	10.5
Nickel	.53	UG/L	9.49	11.00	8.04	8.12
Selenium	.17	UG/L	1.55	2.14	1.55	1.98
Silver	.73	UG/L	ND	1.3	1.0	1.1
Thallium	3.12	UG/L	ND	ND	ND	ND
Vanadium	.45	UG/L	6.08	6.91	NR	1.57
Zinc	4.19	UG/L	178	207	290	191
Calcium	.04	MG/L	84.9	94.5	93.7	82.6
Lithium	.012	MG/L	0.05	0.06*	0.05	0.05
Magnesium	.1	MG/L	55	57	60	57
Potassium	.3	MG/L	29	33	33	31
Sodium	1	MG/L	378	395	427	409
Bromide	.1	MG/L	1.40	1.77	1.67	1.65
Chloride	7	MG/L	598	659	669	687
Fluoride	.05	MG/L	0.46	1.09	0.80	0.74
Nitrate	.04	MG/L	ND	ND	ND	ND
Ortho Phosphate (as PO4)	.2	MG/L	4.10	4.61	6.57	5.64
Sulfate	9	MG/L	249	298	258	274
Calcium Hardness	.1	MG/L	212	236	234	206
Magnesium Hardness	.412	MG/L	225	236	245	235
Total Hardness	.512	MG/L	437	472	479	441
Cyanide, Total	.002	MG/L	ND	ND	ND	ND
Sulfides-Total	.4	MG/L	1.78	5.16	3.77	4.55
Total Kjeldahl Nitrogen	1.6	MG/L	64.4	56.5	55.9	57.0

* = Method blank value above the MDL; 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
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 2016

Source			PLE	PLE	PLE	PLE
Date			02-FEB-2016	03-MAY-2016	02-AUG-2016	04-OCT-2016
Sample ID	MDL	Units	P831359	P857678	P878338	P895088
Aluminum	23.8	UG/L	67.8	36.3	41.1	75.7
Antimony	2.44	UG/L	ND	ND	ND	ND
Arsenic	2.06	UG/L	0.57	0.69	1.50	1.07
Barium	.7	UG/L	41	46	58	51
Beryllium	.05	UG/L	ND	ND	ND	ND
Boron	1.4	UG/L	391	392	409	411
Cadmium	.26	UG/L	ND	ND	<0.05	ND
Chromium	.54	UG/L	4.61	3.22	8.54	6.18
Cobalt	.24	UG/L	0.88	1.21	1.44	1.53
Copper	2.16	UG/L	18.5	10.2	30.2	14.2
Iron	15.6	UG/L	3520	3530	2810	3130
Lead	1.68	UG/L	1.84	<1.68	3.22	1.68
Manganese	.78	UG/L	130	140	123	135
Mercury	.05	UG/L	0.01*	0.01	0.01	0.02
Molybdenum	.32	UG/L	7.0	8.6	9.7	7.1
Nickel	.53	UG/L	8.23	6.61	5.71	7.10
Selenium	.17	UG/L	1.05	1.51	0.98	1.05
Silver	.73	UG/L	ND	ND	ND	ND
Thallium	3.12	UG/L	ND	ND	ND	ND
Vanadium	.45	UG/L	1.59	1.16	NR	0.94
Zinc	4.19	UG/L	38	28	65	41
Calcium	.04	MG/L	82.5	98.2	87.2	85.9
Lithium	.012	MG/L	0.05	0.06*	0.05	0.05
Magnesium	.1	MG/L	53	61	60	59
Potassium	.3	MG/L	28	33	33	31
Sodium	1	MG/L	372	428	446	422
Bromide	.1	MG/L	1.25	1.74	1.73	1.72
Chloride	7	MG/L	582	685	698	694
Fluoride	.05	MG/L	0.54	1.10	0.75	0.64
Nitrate	.04	MG/L	0.23	0.40	ND	0.20
Ortho Phosphate (as PO4)	.2	MG/L	2.50	2.72	6.14	5.88
Sulfate	9	MG/L	241	289	257	267
Calcium Hardness	.1	MG/L	206	245	218	215
Magnesium Hardness	.412	MG/L	218	250	247	243
Total Hardness	.512	MG/L	424	495	465	457
Cyanide, Total	.002	MG/L	ND	ND	ND	ND
Sulfides-Total	.4	MG/L	0.61	0.71	0.72	0.94
Total Kjeldahl Nitrogen	1.6	MG/L	52.5	44.6	46.1	45.8

* = Method blank value above the MDL; 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
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 2016

Source			MBC_COMBCN	MBC_COMBCN	MBC_COMBCN	MBC_COMBCN
Date			02-FEB-2016	03-MAY-2016	02-AUG-2016	04-OCT-2016
Sample ID	MDL	Units	P831376	P857695	P878355	P895105
Aluminum	23.8	UG/L	1050	1690	1410	996
Antimony	2.44	UG/L	5.23	2.98	ND	5.52
Arsenic	2.06	UG/L	2.76	2.62	2.78	2.24
Barium	.7	UG/L	274	352	254	277
Beryllium	.05	UG/L	ND	ND	ND	ND
Boron	1.4	UG/L	371	360	330	339
Cadmium	.26	UG/L	ND	ND	0.31	ND
Chromium	.54	UG/L	11.0	19.3	12.5	16.1
Cobalt	.24	UG/L	6.75	6.42	4.68	5.44
Copper	2.16	UG/L	156	299	254	224
Iron	15.6	UG/L	40100	74600	36700	49100
Lead	1.68	UG/L	ND	11.10	7.78	6.11
Manganese	.78	UG/L	276	565	290	389
Mercury	.05	UG/L	0.12	0.20	0.36	0.34
Molybdenum	.32	UG/L	7.1	11.4	15.1	17.1
Nickel	.53	UG/L	30.0	33.4	16.4	14.6
Selenium	.17	UG/L	2.97	2.61	2.93	2.58
Silver	.73	UG/L	ND	1.4	ND	3.0
Thallium	3.12	UG/L	ND	ND	ND	ND
Vanadium	.45	UG/L	13.3	15.9	NR	ND
Zinc	4.19	UG/L	259	420	323	283
Calcium	.04	MG/L	139	185	190	176
Lithium	.012	MG/L	0.07	0.07*	0.05	0.06
Magnesium	.1	MG/L	69	68	56	57
Potassium	.3	MG/L	54	56	40	42
Sodium	1	MG/L	343	353	284	293
Bromide	.1	MG/L	1.00	1.09	0.67	0.62
Chloride	7	MG/L	1080	1100	805	823
Fluoride	.05	MG/L	ND	0.47	0.26	0.19
Nitrate	.04	MG/L	0.26	3.15	0.91	0.12
Ortho Phosphate (as PO4)	.2	MG/L	2.20	0.79	5.34	1.20
Sulfate	9	MG/L	51	59	46	71
Calcium Hardness	.1	MG/L	347	462	474	438
Magnesium Hardness	.412	MG/L	283	280	229	236
Total Hardness	.512	MG/L	630	742	703	674
Cyanide, Total	.002	MG/L	0.052	0.037	0.047	0.044
Sulfides-Total	.4	MG/L	3.69	1.19	7.62	11.80
Total Kjeldahl Nitrogen	1.6	MG/L	519	379	358	343

* = Method blank value above the MDL; 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
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 2016

Source			MBC_NC_DSL	MBC_NC_DSL	MBC_NC_DSL	MBC_NC_DSL
Date			02-FEB-2016	03-MAY-2016	02-AUG-2016	04-OCT-2016
Sample ID	MDL	Units	P831430	P857749	P878409	P895159
Aluminum	23.8	UG/L	75900	89500	95700	91200
Antimony	2.44	UG/L	140	120	126	103
Arsenic	4.12	UG/L	83.4	25.2	75.8	3.6
Barium	.7	UG/L	8800	8420	8820	10100
Beryllium	.05	UG/L	ND	ND	ND	ND
Boron	1.4	UG/L	773	661	647	776
Cadmium	.52	UG/L	ND	ND	5.4	13.0
Chromium	.54	UG/L	579	759	666	921
Cobalt	.24	UG/L	106	95	80	87
Copper	2.16	UG/L	10400	11000	14900	15800
Iron	15.6	UG/L	2400000	2500000	2010000	1640000
Lead	1.68	UG/L	84	468	348	253
Manganese	.78	UG/L	6630	7850	6070	5540
Mercury	2	UG/L	22.9	17.6	10.7	13.6
Molybdenum	.34	UG/L	329	365	460	425
Nickel	.53	UG/L	569	566	430	361
Selenium	.17	UG/L	6.60	2.24	53.5	5.76
Silver	.73	UG/L	44.5	80.0	62.2	76.2
Thallium	3.12	UG/L	ND	ND	<1.6	ND
Vanadium	.45	UG/L	1230	832	NA	ND
Zinc	4.19	UG/L	11900	12800	13900	16100
Calcium	.04	MG/L	245	266	178	139
Lithium	.012	MG/L	0.08	0.08*	0.06	0.05
Magnesium	.1	MG/L	70	69	52	47
Potassium	.3	MG/L	54	54	41	50
Sodium	1	MG/L	231	248	198	191
Bromide	.1	MG/L	0.60	1.17	0.41	0.32
Chloride	7	MG/L	1480	1830	846	731
Fluoride	.05	MG/L	ND	0.9	0.3	0.4
Nitrate	.04	MG/L	0.39	0.29	0.17	0.10
Ortho Phosphate (as PO4)	.2	MG/L	ND	ND	ND	ND
Sulfate	9	MG/L	20	23	15	16
Cyanide, Total	.002	MG/L	0.004	0.011	0.022	0.016
Sulfides-Reactive	11	MG/KG	65	94	122	123
Total Kjeldahl Nitrogen	1.6	MG/L	1600	1910	1600	1730

* = Method blank value above the MDL; 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
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 2016

Source			MBC_NC_RSL	MBC_NC_RSL	MBC_NC_RSL	MBC_NC_RSL
Date			02-FEB-2016	03-MAY-2016	02-AUG-2016	04-OCT-2016
Sample ID	MDL	Units	P831428	P857747	P878407	P895157
Aluminum	23.8	UG/L	10800	4430	20100	8860
Antimony	2.44	UG/L	20	6	6	5
Arsenic	4.12	UG/L	12.4	1.6	28.8	11.3
Barium	.7	UG/L	1320	483	1270	1130
Beryllium	.05	UG/L	ND	ND	ND	ND
Boron	1.4	UG/L	383	357	379	366
Cadmium	.52	UG/L	0.4	ND	1.2	0.9
Chromium	.54	UG/L	80	32	106	101
Cobalt	.24	UG/L	16	3	11	9
Copper	2.16	UG/L	1630	600	2270	1530
Iron	15.6	UG/L	265000	128000	233000	179000
Lead	1.68	UG/L	33	24	61	29
Manganese	.78	UG/L	877	874	869	914
Mercury	2	UG/L	1.9	2.8	2.8	3.1
Molybdenum	.34	UG/L	40	21	87	50
Nickel	.53	UG/L	85	27	67	30
Selenium	.17	UG/L	5.84	1.53	9.87	16.40
Silver	.73	UG/L	3.4	5.6	9.3	7.8
Thallium	3.12	UG/L	ND	ND	ND	ND
Vanadium	.45	UG/L	172	32	NA	ND
Zinc	4.19	UG/L	1910	807	2190	1590
Calcium	.04	MG/L	90	124	160	83
Lithium	.012	MG/L	0.06	0.07*	0.05	0.06
Magnesium	.1	MG/L	42	46	45	36
Potassium	.3	MG/L	28	32	30	28
Sodium	1	MG/L	210	237	192	201
Bromide	.1	MG/L	0.40	0.47	0.37	0.39
Chloride	7	MG/L	396	575	336	409
Fluoride	.05	MG/L	0.5	0.5	0.3	0.5
Nitrate	.04	MG/L	0.32	ND	ND	ND
Ortho Phosphate (as PO4)	.2	MG/L	5	ND	61	4
Sulfate	9	MG/L	41	83	23	70
Cyanide, Total	.002	MG/L	0.006	0.007	ND	0.008
Sulfides-Reactive	11	MG/KG	20	ND	54	21
Total Kjeldahl Nitrogen	1.6	MG/L	175	127	255	159

* = Method blank value above the MDL; 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
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
Radioactivity

Method: EPA 900.0

Annual 2016

Source	Sample Date	Sample ID	Gross Alpha Radiation pCi/L	Gross Beta Radiation pCi/L
PLR	02-FEB-2016	P831365	3.8±7.9	34.1±7.4
PLR	03-MAY-2016	P857684	7.2±1.9	7.7±1.5
PLR	02-AUG-2016	P878344	2.4±1.5	3.3±1.5
PLR	04-OCT-2016	P895094	1.3±3.3	24.4±3.4
PLE	02-FEB-2016	P831359	3.8±6.3	36.1±7.8
PLE	03-MAY-2016	P857678	5.9±1.9	6.2±1.4
PLE	02-AUG-2016	P878338	2.2±1.9	4.2±1.2
PLE	04-OCT-2016	P895088	8.8±2.6	12.5±2.8
MBC_COMBCN	02-FEB-2016	P831376	8.7±10.0	68.8±14.0
MBC_COMBCN	03-MAY-2016	P857695	6.2±1.7	9.1±1.6
MBC_COMBCN	02-AUG-2016	P878355	3.3±2.0	8.6±1.9
MBC_COMBCN	04-OCT-2016	P895105	10.0±4.6	30.9±4.1

Units in picocuries per Liter (pCi/L)

Source	Sample Date	Sample ID	Gross Alpha Radiation pCi/kg	Gross Beta Radiation pCi/kg
MBCDEWCN	29-FEB-2016	P844126	4940±4400	9760±1950
MBCDEWCN	31-MAY-2016	P863684	16300±4890	5790±3670
MBCDEWCN	31-AUG-2016	P890180	13700±4910	0±2770
MBCDEWCN	31-OCT-2016	P902770	13±4	7±3

Units in picocuries per Kilogram (pCi/Kg)

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

Analyzed by: FGL Environmental Agricultural Analytical

POINT LOMA WASTEWATER TREATMENT PLANT

ANNUAL 2016

CHLORINATED PESTICIDES
EPA Method 608

Source Date Analyte	MDL	Units	PLR 02-FEB-2016 P831365	PLR 03-MAY-2016 P857684	PLR 02-AUG-2016 P878344	PLR 04-OCT-2016 P895094	PLE 02-FEB-2016 P831359	PLE 03-MAY-2016 P857678
Aldrin	4	NG/L	ND	ND	ND	ND	ND	ND
BHC, Alpha isomer	2.15	NG/L	ND	ND	ND	ND	ND	ND
BHC, Beta isomer	2	NG/L	ND	ND	ND	ND	ND	ND
BHC, Delta isomer	2	NG/L	ND	ND	ND	ND	ND	ND
BHC, Gamma isomer	1.71	NG/L	ND	ND	ND	ND	ND	ND
Alpha (cis) Chlordane	1.4	NG/L	ND	ND	ND	ND	ND	ND
Gamma (trans) Chlordane	1.83	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	4	NG/L	ND	ND	ND	ND	ND	ND
Dieldrin	4.3	NG/L	ND	ND	ND	ND	ND	ND
Endosulfan Sulfate	7	NG/L	ND	ND	ND	ND	ND	ND
Alpha Endosulfan	1.5	NG/L	ND	ND	ND	ND	ND	ND
Beta Endosulfan	3.1	NG/L	ND	ND	ND	ND	ND	ND
Endrin	6	NG/L	ND	ND	ND	ND	ND	ND
Endrin aldehyde	5.4	NG/L	ND	ND	ND	ND	ND	ND
Heptachlor	.89	NG/L	ND	ND	ND	ND	ND	ND
Heptachlor epoxide	9.4	NG/L	ND	ND	ND	ND	ND	ND
Methoxychlor	20	NG/L	ND	ND	ND	ND	ND	ND
Mirex	2.3	NG/L	ND	ND	ND	ND	ND	ND
o,p-DDD	4	NG/L	ND	ND	ND	ND	ND	ND
o,p-DDE	2	NG/L	ND	ND	ND	ND	ND	ND
o,p-DDT	2.4	NG/L	ND	ND	ND	ND	ND	ND
Oxychlordane	2	NG/L	ND	ND	ND	ND	ND	ND
PCB 1016	250	NG/L	ND	ND	ND	ND	ND	ND
PCB 1221	2000	NG/L	ND	ND	ND	ND	ND	ND
PCB 1232	750	NG/L	ND	ND	ND	ND	ND	ND
PCB 1242	250	NG/L	ND	ND	ND	ND	ND	ND
PCB 1248	250	NG/L	ND	ND	ND	ND	ND	ND
PCB 1254	500	NG/L	ND	ND	ND	ND	ND	ND
PCB 1260	500	NG/L	ND	ND	ND	ND	ND	ND
PCB 1262	500	NG/L	ND	ND	ND	ND	ND	ND
p,p-DDD	4	NG/L	ND	ND	ND	ND	ND	ND
p,p-DDE	1.4	NG/L	ND	ND	ND	ND	ND	ND
p,p-DDT	3	NG/L	ND	ND	ND	ND	ND	ND
Toxaphene	250	NG/L	ND	ND	ND	ND	ND	ND
Trans Nonachlor	1.1	NG/L	ND	ND	ND	ND	ND	ND
Heptachlors	9.4	NG/L	0.0	0.0	0.0	0.0	0.0	0.0
Endosulfans	7	NG/L	0.0	0.0	0.0	0.0	0.0	0.0
Polychlorinated biphenyls	2000	NG/L	0.0	0.0	0.0	0.0	0.0	0.0
Chlordane + related cmpds.	4	NG/L	0.0	0.0	0.0	0.0	0.0	0.0
DDT and derivatives	4	NG/L	0.0	0.0	0.0	0.0	0.0	0.0
Hexachlorocyclohexanes	2.15	NG/L	0.0	0.0	0.0	0.0	0.0	0.0
Aldrin + Dieldrin	4.3	NG/L	0.0	0.0	0.0	0.0	0.0	0.0
Chlorinated Hydrocarbons	2000	NG/L	0.0	0.0	0.0	0.0	0.0	0.0

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

POINT LOMA WASTEWATER TREATMENT PLANT

ANNUAL 2016

CHLORINATED PESTICIDES
EPA Method 608

Source			PLE	PLE	MBC_COMBCN	MBC_COMBCN	MBC_COMBCN	MBC_COMBCN
Date			02-AUG-2016	04-OCT-2016	02-FEB-2016	03-MAY-2016	02-AUG-2016	04-OCT-2016
Analyte	MDL	Units	P878338	P895088	P831376	P857695	P878355	P895105
Aldrin	4	NG/L	ND	ND	ND	ND	ND	ND
BHC, Alpha isomer	2.15	NG/L	ND	ND	ND	ND	ND	ND
BHC, Beta isomer	2	NG/L	ND	ND	ND	ND	ND	ND
BHC, Delta isomer	2	NG/L	ND	ND	ND	ND	ND	ND
BHC, Gamma isomer	1.71	NG/L	ND	ND	ND	ND	ND	ND
Alpha (cis) Chlordane	1.4	NG/L	ND	ND	ND	ND	ND	ND
Gamma (trans) Chlordane	1.83	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	4	NG/L	ND	ND	ND	ND	ND	ND
Dieldrin	4.3	NG/L	ND	ND	ND	ND	ND	ND
Endosulfan Sulfate	7	NG/L	ND	ND	ND	ND	ND	ND
Alpha Endosulfan	1.5	NG/L	ND	ND	ND	ND	ND	ND
Beta Endosulfan	3.1	NG/L	ND	ND	ND	ND	ND	ND
Endrin	6	NG/L	ND	ND	ND	ND	ND	ND
Endrin aldehyde	5.4	NG/L	ND	ND	ND	ND	ND	ND
Heptachlor	.89	NG/L	ND	ND	ND	ND	ND	ND
Heptachlor epoxide	9.4	NG/L	ND	ND	ND	ND	ND	ND
Methoxychlor	20	NG/L	ND	ND	ND	ND	ND	ND
Mirex	2.3	NG/L	ND	ND	ND	ND	ND	ND
o,p-DDD	4	NG/L	ND	ND	ND	ND	ND	ND
o,p-DDE	2	NG/L	ND	ND	ND	ND	ND	ND
o,p-DDT	2.4	NG/L	ND	ND	ND	ND	ND	ND
Oxychlordane	2	NG/L	ND	ND	ND	ND	ND	ND
PCB 1016	250	NG/L	ND	ND	ND	ND	ND	ND
PCB 1221	2000	NG/L	ND	ND	ND	ND	ND	ND
PCB 1232	750	NG/L	ND	ND	ND	ND	ND	ND
PCB 1242	250	NG/L	ND	ND	ND	ND	ND	ND
PCB 1248	250	NG/L	ND	ND	ND	ND	ND	ND
PCB 1254	500	NG/L	ND	ND	ND	ND	ND	ND
PCB 1260	500	NG/L	ND	ND	ND	ND	ND	ND
PCB 1262	500	NG/L	ND	ND	ND	ND	ND	ND
p,p-DDD	4	NG/L	ND	ND	ND	ND	ND	ND
p,p-DDE	1.4	NG/L	ND	ND	ND	ND	ND	ND
p,p-DDT	3	NG/L	ND	ND	ND	ND	ND	ND
Toxaphene	250	NG/L	ND	ND	ND	ND	ND	ND
Trans Nonachlor	1.1	NG/L	ND	ND	ND	ND	ND	ND
Heptachlors	9.4	NG/L	0.0	0.0	0.0	0.0	0.0	0.0
Endosulfans	7	NG/L	0.0	0.0	0.0	0.0	0.0	0.0
Polychlorinated biphenyls	2000	NG/L	0.0	0.0	0.0	0.0	0.0	0.0
Chlordane + related cmpds.	4	NG/L	0.0	0.0	0.0	0.0	0.0	0.0
DDT and derivatives	4	NG/L	0.0	0.0	0.0	0.0	0.0	0.0
Hexachlorocyclohexanes	2.15	NG/L	0.0	0.0	0.0	0.0	0.0	0.0
Aldrin + Dieldrin	4.3	NG/L	0.0	0.0	0.0	0.0	0.0	0.0
Chlorinated Hydrocarbons	2000	NG/L	0.0	0.0	0.0	0.0	0.0	0.0

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

POINT LOMA WASTEWATER TREATMENT PLANT

ANNUAL 2016

CHLORINATED PESTICIDES
EPA Method 608

Source			MBC_NC_DSL	MBC_NC_DSL	MBC_NC_DSL	MBC_NC_DSL
Date			02-FEB-2016	03-MAY-2016	02-AUG-2016	04-OCT-2016
Analyte	MDL	Units	P831430	P857749	P878409	P895159
Aldrin	4	NG/L	ND	ND	ND	ND
BHC, Alpha isomer	2.15	NG/L	ND	ND	ND	ND
BHC, Beta isomer	2	NG/L	ND	ND	ND	ND
BHC, Delta isomer	2	NG/L	ND	ND	ND	ND
BHC, Gamma isomer	1.71	NG/L	ND	ND	ND	ND
Alpha (cis) Chlordane	1.4	NG/L	ND	ND	ND	ND
Gamma (trans) Chlordane	1.83	NG/L	ND	ND	ND	ND
Alpha Chlordene		NG/L	NA	NA	NA	NA
Gamma Chlordene		NG/L	NA	NA	NA	NA
Cis Nonachlor	4	NG/L	ND	ND	ND	ND
Dieldrin	4.3	NG/L	ND	ND	ND	ND
Endosulfan Sulfate	7	NG/L	ND	ND	ND	ND
Alpha Endosulfan	1.5	NG/L	ND	ND	ND	ND
Beta Endosulfan	3.1	NG/L	ND	ND	ND	ND
Endrin	6	NG/L	ND	ND	ND	ND
Endrin aldehyde	5.4	NG/L	ND	ND	ND	ND
Heptachlor	.89	NG/L	ND	ND	ND	ND
Heptachlor epoxide	9.4	NG/L	ND	ND	ND	ND
Methoxychlor	20	NG/L	ND	ND	ND	ND
Mirex	2.3	NG/L	ND	ND	ND	ND
o,p-DDD	4	NG/L	ND	ND	ND	ND
o,p-DDE	2	NG/L	ND	ND	ND	ND
o,p-DDT	2.4	NG/L	ND	ND	ND	ND
Oxychlordane	2	NG/L	ND	ND	ND	ND
PCB 1016	250	NG/L	ND	ND	ND	ND
PCB 1221	2000	NG/L	ND	ND	ND	ND
PCB 1232	750	NG/L	ND	ND	ND	ND
PCB 1242	250	NG/L	ND	ND	ND	ND
PCB 1248	250	NG/L	ND	ND	ND	ND
PCB 1254	500	NG/L	ND	ND	ND	ND
PCB 1260	500	NG/L	ND	ND	ND	ND
PCB 1262	500	NG/L	ND	ND	ND	ND
p,p-DDD	4	NG/L	ND	ND	ND	ND
p,p-DDE	1.4	NG/L	ND	ND	ND	ND
p,p-DDT	3	NG/L	ND	ND	ND	ND
Toxaphene	250	NG/L	ND	ND	ND	ND
Trans Nonachlor	1.1	NG/L	ND	ND	ND	ND
Heptachlors	9.4	NG/L	0.0	0.0	0.0	0.0
Endosulfans	7	NG/L	0.0	0.0	0.0	0.0
Polychlorinated biphenyls	2000	NG/L	0.0	0.0	0.0	0.0
Chlordane + related cmpds.	4	NG/L	0.0	0.0	0.0	0.0
DDT and derivatives	4	NG/L	0.0	0.0	0.0	0.0
Hexachlorocyclohexanes	2.15	NG/L	0.0	0.0	0.0	0.0
Aldrin + Dieldrin	4.3	NG/L	0.0	0.0	0.0	0.0
Chlorinated Hydrocarbons	2000	NG/L	0.0	0.0	0.0	0.0

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

POINT LOMA WASTEWATER TREATMENT PLANT

ANNUAL 2016

CHLORINATED PESTICIDES
EPA Method 608

Source			MBC_NC_RSL	MBC_NC_RSL	MBC_NC_RSL	MBC_NC_RSL	RAW COMP	RAW COMP
Date			02-FEB-2016	03-MAY-2016	02-AUG-2016	04-OCT-2016	02-FEB-2016	03-MAY-2016
Analyte	MDL	Units	P831428	P857747	P878407	P895157	P831401	P857720
Aldrin	4	NG/L	ND	ND	ND	ND	ND	ND
BHC, Alpha isomer	2.15	NG/L	ND	ND	ND	ND	ND	ND
BHC, Beta isomer	2	NG/L	ND	ND	ND	ND	ND	ND
BHC, Delta isomer	2	NG/L	ND	ND	ND	ND	ND	ND
BHC, Gamma isomer	1.71	NG/L	ND	ND	ND	ND	ND	ND
Alpha (cis) Chlordane	1.4	NG/L	ND	ND	ND	ND	ND	ND
Gamma (trans) Chlordane	1.83	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	4	NG/L	ND	ND	ND	ND	ND	ND
Dieldrin	4.3	NG/L	ND	ND	ND	ND	ND	ND
Endosulfan Sulfate	7	NG/L	ND	ND	ND	ND	ND	ND
Alpha Endosulfan	1.5	NG/L	ND	ND	ND	ND	ND	ND
Beta Endosulfan	3.1	NG/L	ND	ND	ND	ND	ND	ND
Endrin	6	NG/L	ND	ND	ND	ND	ND	ND
Endrin aldehyde	5.4	NG/L	ND	ND	ND	ND	ND	ND
Heptachlor	.89	NG/L	ND	ND	ND	ND	ND	ND
Heptachlor epoxide	9.4	NG/L	ND	ND	ND	ND	ND	ND
Methoxychlor	20	NG/L	ND	ND	ND	ND	ND	ND
Mirex	2.3	NG/L	ND	ND	ND	ND	ND	ND
o,p-DDD	4	NG/L	ND	ND	ND	ND	ND	ND
o,p-DDE	2	NG/L	ND	ND	ND	ND	ND	ND
o,p-DDT	2.4	NG/L	ND	ND	ND	ND	ND	ND
Oxychlordane	2	NG/L	ND	ND	ND	ND	ND	ND
PCB 1016	250	NG/L	ND	ND	ND	ND	ND	ND
PCB 1221	2000	NG/L	ND	ND	ND	ND	ND	ND
PCB 1232	750	NG/L	ND	ND	ND	ND	ND	ND
PCB 1242	250	NG/L	ND	ND	ND	ND	ND	ND
PCB 1248	250	NG/L	ND	ND	ND	ND	ND	ND
PCB 1254	500	NG/L	ND	ND	ND	ND	ND	ND
PCB 1260	500	NG/L	ND	ND	ND	ND	ND	ND
PCB 1262	500	NG/L	ND	ND	ND	ND	ND	ND
p,p-DDD	4	NG/L	ND	ND	ND	ND	ND	ND
p,p-DDE	1.4	NG/L	ND	ND	ND	ND	ND	ND
p,p-DDT	3	NG/L	ND	ND	ND	ND	ND	ND
Toxaphene	250	NG/L	ND	ND	ND	ND	ND	ND
Trans Nonachlor	1.1	NG/L	ND	ND	ND	ND	ND	ND
Heptachlors	9.4	NG/L	0.0	0.0	0.0	0.0	0.0	0.0
Endosulfans	7	NG/L	0.0	0.0	0.0	0.0	0.0	0.0
Polychlorinated biphenyls	2000	NG/L	0.0	0.0	0.0	0.0	0.0	0.0
Chlordane + related cmpds.	4	NG/L	0.0	0.0	0.0	0.0	0.0	0.0
DDT and derivatives	4	NG/L	0.0	0.0	0.0	0.0	0.0	0.0
Hexachlorocyclohexanes	2.15	NG/L	0.0	0.0	0.0	0.0	0.0	0.0
Aldrin + Dieldrin	4.3	NG/L	0.0	0.0	0.0	0.0	0.0	0.0
Chlorinated Hydrocarbons	2000	NG/L	0.0	0.0	0.0	0.0	0.0	0.0

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

POINT LOMA WASTEWATER TREATMENT PLANT

ANNUAL 2016

CHLORINATED PESTICIDES
EPA Method 608

Source			RAW COMP	RAW COMP	DIG COMP	DIG COMP	DIG COMP	DIG COMP
Date			02-AUG-2016	04-OCT-2016	02-FEB-2016	03-MAY-2016	02-AUG-2016	04-OCT-2016
Analyte	MDL	Units	P878380	P895130	P831415	P857734	P878394	P895144
Aldrin	4	NG/L	ND	ND	ND	ND	ND	ND
BHC, Alpha isomer	2.15	NG/L	ND	ND	ND	ND	ND	ND
BHC, Beta isomer	2	NG/L	ND	ND	ND	ND	ND	ND
BHC, Delta isomer	2	NG/L	ND	ND	ND	ND	ND	ND
BHC, Gamma isomer	1.71	NG/L	ND	ND	ND	ND	ND	ND
Alpha (cis) Chlordane	1.4	NG/L	ND	ND	ND	ND	ND	ND
Gamma (trans) Chlordane	1.83	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	4	NG/L	ND	ND	ND	ND	ND	ND
Dieldrin	4.3	NG/L	ND	ND	ND	ND	ND	ND
Endosulfan Sulfate	7	NG/L	ND	ND	ND	ND	ND	ND
Alpha Endosulfan	1.5	NG/L	ND	ND	ND	ND	ND	ND
Beta Endosulfan	3.1	NG/L	ND	ND	ND	ND	ND	ND
Endrin	6	NG/L	ND	ND	ND	ND	ND	ND
Endrin aldehyde	5.4	NG/L	ND	ND	ND	ND	ND	ND
Heptachlor	.89	NG/L	ND	ND	ND	ND	ND	ND
Heptachlor epoxide	9.4	NG/L	ND	ND	ND	ND	ND	ND
Methoxychlor	20	NG/L	ND	ND	ND	ND	ND	ND
Mirex	2.3	NG/L	ND	ND	ND	ND	ND	ND
o,p-DDD	4	NG/L	ND	ND	ND	ND	ND	ND
o,p-DDE	2	NG/L	ND	ND	ND	ND	ND	ND
o,p-DDT	2.4	NG/L	ND	ND	ND	ND	ND	ND
Oxychlordane	2	NG/L	ND	ND	ND	ND	ND	ND
PCB 1016	250	NG/L	ND	ND	ND	ND	ND	ND
PCB 1221	2000	NG/L	ND	ND	ND	ND	ND	ND
PCB 1232	750	NG/L	ND	ND	ND	ND	ND	ND
PCB 1242	250	NG/L	ND	ND	ND	ND	ND	ND
PCB 1248	250	NG/L	ND	ND	ND	ND	ND	ND
PCB 1254	500	NG/L	ND	ND	ND	ND	ND	ND
PCB 1260	500	NG/L	ND	ND	ND	ND	ND	ND
PCB 1262	500	NG/L	ND	ND	ND	ND	ND	ND
p,p-DDD	4	NG/L	ND	ND	ND	ND	ND	ND
p,p-DDE	1.4	NG/L	ND	ND	ND	ND	ND	ND
p,p-DDT	3	NG/L	ND	ND	ND	ND	ND	ND
Toxaphene	250	NG/L	ND	ND	ND	ND	ND	ND
Trans Nonachlor	1.1	NG/L	ND	ND	ND	ND	ND	ND
Heptachlors	9.4	NG/L	0.0	0.0	0.0	0.0	0.0	0.0
Endosulfans	7	NG/L	0.0	0.0	0.0	0.0	0.0	0.0
Polychlorinated biphenyls	2000	NG/L	0.0	0.0	0.0	0.0	0.0	0.0
Chlordane + related cmpds.	4	NG/L	0.0	0.0	0.0	0.0	0.0	0.0
DDT and derivatives	4	NG/L	0.0	0.0	0.0	0.0	0.0	0.0
Hexachlorocyclohexanes	2.15	NG/L	0.0	0.0	0.0	0.0	0.0	0.0
Aldrin + Dieldrin	4.3	NG/L	0.0	0.0	0.0	0.0	0.0	0.0
Chlorinated Hydrocarbons	2000	NG/L	0.0	0.0	0.0	0.0	0.0	0.0

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

POINT LOMA WASTEWATER TREATMENT PLANT

ANNUAL 2016

Chlorinated Pesticide Analysis
EPA Method 8081A

Source			MBCDEWCN	MBCDEWCN	MBCDEWCN	MBCDEWCN	MBCDEWCN
Date			31-JAN-2016	29-FEB-2016	31-MAR-2016	30-APR-2016	31-MAY-2016
Analyte	MDL	Units	P834072	P844126	P851302	P858086	P863684
Aldrin	640	NG/KG	ND	ND	ND	ND	ND
Dieldrin	1700	NG/KG	ND	ND	ND	ND	ND
BHC, Alpha isomer	390	NG/KG	ND	ND	ND	ND	ND
BHC, Beta isomer	860	NG/KG	ND	ND	ND	ND	ND
BHC, Gamma isomer	430	NG/KG	ND	ND	ND	ND	ND
BHC, Delta isomer	940	NG/KG	ND	ND	ND	ND	ND
p,p-DDD	690	NG/KG	ND	ND	ND	ND	ND
p,p-DDE	700	NG/KG	ND	ND	ND	ND	ND
p,p-DDT	840	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	1700	NG/KG	ND	ND	ND	ND	ND
Heptachlor epoxide	2560	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	760	NG/KG	ND	ND	ND	ND	ND
Beta Endosulfan	570	NG/KG	ND	ND	ND	ND	ND
Endosulfan Sulfate	1020	NG/KG	ND	ND	ND	ND	ND
Endrin aldehyde	1000	NG/KG	ND	ND	ND	ND	ND
Toxaphene	48660	NG/KG	ND	ND	ND	ND	ND
Mirex	680	NG/KG	ND	ND	ND	ND	ND
Methoxychlor	1460	NG/KG	ND	ND	ND	ND	ND
PCB 1016	83300	NG/KG	ND	ND	ND	ND	ND
PCB 1221	667000	NG/KG	ND	ND	ND	ND	ND
PCB 1232	500000	NG/KG	ND	ND	ND	ND	ND
PCB 1242	66860	NG/KG	ND	ND	ND	ND	ND
PCB 1248	83300	NG/KG	ND	ND	ND	ND	ND
PCB 1254	83300	NG/KG	ND	ND	ND	ND	ND
PCB 1260	333000	NG/KG	ND	ND	ND	ND	ND
PCB 1262	83300	NG/KG	ND	ND	ND	ND	ND
Aldrin + Dieldrin	1700	NG/KG	0	0	0	0	0
Hexachlorocyclohexanes	940	NG/KG	0	0	0	0	0
DDT and derivatives	970	NG/KG	0	0	0	0	0
Chlordane + related cmpds.	840	NG/KG	0	0	0	0	0
Polychlorinated biphenyls	667000	NG/KG	0	0	0	0	0
Chlorinated Hydrocarbons	667000	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 2016

Chlorinated Pesticide Analysis
EPA Method 8081A

Source			MBCDEWCN	MBCDEWCN	MBCDEWCN	MBCDEWCN	MBCDEWCN
Date			30-JUN-2016	31-JUL-2016	31-AUG-2016	30-SEP-2016	31-OCT-2016
Analyte	MDL	Units	P873441	P880435	P890180	P896143	P902770
Aldrin	640	NG/KG	ND	ND	ND	ND	ND
Dieldrin	1700	NG/KG	ND	ND	ND	ND	ND
BHC, Alpha isomer	390	NG/KG	ND	ND	ND	ND	ND
BHC, Beta isomer	860	NG/KG	ND	ND	ND	ND	ND
BHC, Gamma isomer	430	NG/KG	ND	ND	ND	ND	ND
BHC, Delta isomer	940	NG/KG	ND	ND	ND	ND	ND
p,p-DDD	690	NG/KG	ND	ND	ND	ND	ND
p,p-DDE	700	NG/KG	ND	ND	ND	ND	ND
p,p-DDT	840	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	1700	NG/KG	ND	ND	ND	ND	ND
Heptachlor epoxide	2560	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	760	NG/KG	ND	ND	ND	ND	ND
Beta Endosulfan	570	NG/KG	ND	ND	ND	ND	ND
Endosulfan Sulfate	1020	NG/KG	ND	ND	ND	ND	ND
Endrin aldehyde	1000	NG/KG	ND	ND	ND	ND	ND
Toxaphene	48660	NG/KG	ND	ND	ND	ND	ND
Mirex	680	NG/KG	ND	ND	ND	ND	ND
Methoxychlor	1460	NG/KG	ND	ND	ND	ND	ND
PCB 1016	83300	NG/KG	ND	ND	ND	ND	ND
PCB 1221	667000	NG/KG	ND	ND	ND	ND	ND
PCB 1232	500000	NG/KG	ND	ND	ND	ND	ND
PCB 1242	66860	NG/KG	ND	ND	ND	ND	ND
PCB 1248	83300	NG/KG	ND	ND	ND	ND	ND
PCB 1254	83300	NG/KG	ND	ND	ND	ND	ND
PCB 1260	333000	NG/KG	ND	ND	ND	ND	ND
PCB 1262	83300	NG/KG	ND	ND	ND	ND	ND
Aldrin + Dieldrin	1700	NG/KG	0	0	0	0	0
Hexachlorocyclohexanes	940	NG/KG	0	0	0	0	0
DDT and derivatives	970	NG/KG	0	0	0	0	0
Chlordane + related cmpds.	840	NG/KG	0	0	0	0	0
Polychlorinated biphenyls	667000	NG/KG	0	0	0	0	0
Chlorinated Hydrocarbons	667000	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 2016

Chlorinated Pesticide Analysis
EPA Method 8081A

Source Date Analyte	MDL	Units	MBCDEWCN 30-NOV-2016 P908688	MBCDEWCN 30-DEC-2016 P914706	Annual Average
Aldrin	640	NG/KG	ND	ND	ND
Dieldrin	1700	NG/KG	ND	ND	ND
BHC, Alpha isomer	390	NG/KG	ND	ND	ND
BHC, Beta isomer	860	NG/KG	ND	ND	ND
BHC, Gamma isomer	430	NG/KG	ND	ND	ND
BHC, Delta isomer	940	NG/KG	ND	ND	ND
p,p-DDD	690	NG/KG	ND	ND	ND
p,p-DDE	700	NG/KG	ND	ND	ND
p,p-DDT	840	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	1700	NG/KG	ND	ND	ND
Heptachlor epoxide	2560	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	760	NG/KG	ND	ND	ND
Beta Endosulfan	570	NG/KG	ND	ND	ND
Endosulfan Sulfate	1020	NG/KG	ND	ND	ND
Endrin aldehyde	1000	NG/KG	ND	ND	ND
Toxaphene	48660	NG/KG	ND	ND	ND
Mirex	680	NG/KG	ND	ND	ND
Methoxychlor	1460	NG/KG	ND	ND	ND
PCB 1016	83300	NG/KG	ND	ND	ND
PCB 1221	667000	NG/KG	ND	ND	ND
PCB 1232	500000	NG/KG	ND	ND	ND
PCB 1242	66860	NG/KG	ND	ND	ND
PCB 1248	83300	NG/KG	ND	ND	ND
PCB 1254	83300	NG/KG	ND	ND	ND
PCB 1260	333000	NG/KG	ND	ND	ND
PCB 1262	83300	NG/KG	ND	ND	ND
Aldrin + Dieldrin	1700	NG/KG	0	0	0
Hexachlorocyclohexanes	940	NG/KG	0	0	0
DDT and derivatives	970	NG/KG	0	0	0
Chlordane + related cmpds.	840	NG/KG	0	0	0
Polychlorinated biphenyls	667000	NG/KG	0	0	0
Chlorinated Hydrocarbons	667000	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 2016

Organophosphorus Pesticides
EPA Method 614

Source			PLR	PLR	PLR	PLR	PLR	PLR
Date			11-JAN-2016	02-FEB-2016	14-MAR-2016	13-APR-2016	03-MAY-2016	05-JUN-2016
Analyte	MDL	Units	P829756	P831365	P846302	P853024	P857684	P866367
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	ND	ND	0.17	ND	ND	ND
Parathion	.07	UG/L	ND	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	ND	ND	ND
Dimethoate	.12	UG/L	ND	ND	ND	ND	ND	ND
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	0.17	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	0.17	0.00	0.00	0.00

Source			PLR	PLR	PLR	PLR	PLR	PLR
Date			13-JUL-2016	02-AUG-2016	14-SEP-2016	04-OCT-2016	07-NOV-2016	07-DEC-2016
Analyte	MDL	Units	P874993	P878344	P893660	P895094	P904902	P909665
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	ND	ND	ND	ND	ND	ND
Parathion	.07	UG/L	ND	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

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

POINT LOMA WASTEWATER TREATMENT PLANT

ANNUAL 2016

Organophosphorus Pesticides
EPA Method 614

Source			PLE	PLE	PLE	PLE	PLE	PLE
Date			11-JAN-2016	02-FEB-2016	14-MAR-2016	13-APR-2016	03-MAY-2016	05-JUN-2016
Analyte	MDL	Units	P829753	P831359	P846299	P853021	P857678	P866364
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	ND	ND	0.25	ND	ND	ND
Parathion	.07	UG/L	ND	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	ND	ND	ND
Dimethoate	.12	UG/L	ND	ND	ND	ND	ND	ND
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	0.25	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	0.25	0.00	0.00	0.00

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

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

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

POINT LOMA WASTEWATER TREATMENT PLANT
ANNUAL 2016

Organophosphorus Pesticides
EPA Method 614/8141A

Source			MBC_COMBCN	MBC_COMBCN
Date			03-MAY-2016	04-OCT-2016
Analyte	MDL	Units	P857695	P895105
Demeton O	.15	UG/L	ND	ND
Demeton S	.08	UG/L	ND	ND
Diazinon	.04	UG/L	ND	ND
Guthion	.15	UG/L	ND	ND
Malathion	.06	UG/L	ND	ND
Parathion	.07	UG/L	ND	ND
Chlorpyrifos	.04	UG/L	ND	ND
Coumaphos	.15	UG/L	ND	ND
Dichlorvos	.05	UG/L	ND	ND
Dimethoate	.12	UG/L	ND	NR
Disulfoton	.04	UG/L	ND	ND
Stirophos	.05	UG/L	ND	ND
Thiophosphorus Pesticides	.15	UG/L	0.00	0.00
Demeton -O, -S	.15	UG/L	0.00	0.00
Total Organophosphorus Pesticides	.15	UG/L	0.00	0.00

Source			MBC_NC_DSL	MBC_NC_DSL
Date			03-MAY-2016	04-OCT-2016
Analyte	MDL	Units	P857749	P895159
Demeton O	.15	UG/L	ND	ND
Demeton S	.08	UG/L	ND	ND
Diazinon	.04	UG/L	ND	ND
Guthion	.15	UG/L	ND	ND
Malathion	.06	UG/L	ND	ND
Parathion	.07	UG/L	ND	ND
Chlorpyrifos	.04	UG/L	ND	ND
Coumaphos	.15	UG/L	ND	ND
Dichlorvos	.05	UG/L	ND	ND
Dimethoate	.12	UG/L	ND	NR
Disulfoton	.04	UG/L	ND	ND
Stirophos	.05	UG/L	ND	ND
Thiophosphorus Pesticides	.15	UG/L	0.00	0.00
Demeton -O, -S	.15	UG/L	0.00	0.00
Total Organophosphorus Pesticides	.15	UG/L	0.00	0.00

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

POINT LOMA WASTEWATER TREATMENT PLANT
ANNUAL 2016

Organophosphorus Pesticides
EPA Method 614/8141A

Source			MBC_NC_RSL	MBC_NC_RSL
Date			03-MAY-2016	04-OCT-2016
Analyte	MDL	Units	P857747	P895157
Demeton O	.15	UG/L	ND	ND
Demeton S	.08	UG/L	ND	ND
Diazinon	.04	UG/L	ND	ND
Guthion	.15	UG/L	ND	ND
Malathion	.06	UG/L	ND	ND
Parathion	.07	UG/L	ND	ND
Chlorpyrifos	.04	UG/L	ND	ND
Coumaphos	.15	UG/L	ND	ND
Dichlorvos	.05	UG/L	ND	ND
Dimethoate	.12	UG/L	ND	NR
Disulfoton	.04	UG/L	ND	ND
Stirophos	.05	UG/L	ND	ND
Thiophosphorus Pesticides	.15	UG/L	0.00	0.00
Demeton -O, -S	.15	UG/L	0.00	0.00
Total Organophosphorus Pesticides	.15	UG/L	0.00	0.00

Source			RAW COMP	RAW COMP
Date			03-MAY-2016	04-OCT-2016
Analyte	MDL	Units	P857720	P895130
Demeton O	.15	UG/L	ND	ND
Demeton S	.08	UG/L	ND	ND
Diazinon	.04	UG/L	ND	ND
Guthion	.15	UG/L	ND	ND
Malathion	.06	UG/L	ND	ND
Parathion	.07	UG/L	ND	ND
Chlorpyrifos	.04	UG/L	ND	ND
Coumaphos	.15	UG/L	ND	ND
Dichlorvos	.05	UG/L	ND	ND
Dimethoate	.12	UG/L	ND	NR
Disulfoton	.04	UG/L	ND	ND
Stirophos	.05	UG/L	ND	ND
Thiophosphorus Pesticides	.15	UG/L	0.00	0.00
Demeton -O, -S	.15	UG/L	0.00	0.00
Total Organophosphorus Pesticides	.15	UG/L	0.00	0.00

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

POINT LOMA WASTEWATER TREATMENT PLANT
ANNUAL 2016

Organophosphorus Pesticides
EPA Method 8141A

Source			DIG COMP	DIG COMP
Date			03-MAY-2016	04-OCT-2016
Analyte	MDL	Units	P857734	P895144
Demeton O	.15	UG/L	ND	ND
Demeton S	.08	UG/L	ND	ND
Diazinon	.04	UG/L	ND	ND
Guthion	.15	UG/L	ND	ND
Malathion	.06	UG/L	ND	ND
Parathion	.07	UG/L	ND	ND
Chlorpyrifos	.04	UG/L	DNQ0.6	ND
Coumaphos	.15	UG/L	ND	ND
Dichlorvos	.05	UG/L	ND	ND
Dimethoate	.12	UG/L	ND	NR
Disulfoton	.04	UG/L	ND	ND
Stirophos	.05	UG/L	ND	ND
Thiophosphorus Pesticides	.15	UG/L	0.00	0.00
Demeton -O, -S	.15	UG/L	0.00	0.00
Total Organophosphorus Pesticides	.15	UG/L	0.00	0.00

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

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

POINT LOMA WASTEWATER TREATMENT PLANT

ANNUAL 2016

Organophosphorus Pesticides
EPA Method 8141A

Source			MBCDEWCN	MBCDEWCN
Date			31-MAY-2016	31-OCT-2016
Analyte	MDL	Units	P863684	P902770
Demeton O	67	UG/KG	ND	ND
Demeton S	27	UG/KG	ND	ND
Diazinon	2	UG/KG	ND	ND
Guthion	33	UG/KG	ND	ND
Malathion	20	UG/KG	ND	ND
Parathion	20	UG/KG	ND	ND
Chlorpyrifos	2	UG/KG	ND	ND
Coumaphos	33	UG/KG	ND	ND
Dichlorvos	17	UG/KG	ND	ND
Dimethoate	27	UG/KG	ND	ND
Disulfoton	20	UG/KG	ND	ND
Stirophos	20	UG/KG	ND	ND
Thiophosphorus Pesticides	33	UG/KG	0.0	0.0
Demeton -O, -S	67	UG/KG	0.0	0.0
Total Organophosphorus Pesticides	67	UG/KG	0.0	0.0

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

POINT LOMA WASTEWATER TREATMENT PLANT

ANNUAL 2016

Tributyl Tin

Source	PLE	PLE	PLE	PLE	PLR	PLR	PLR
Date	02-FEB-2016	03-MAY-2016	02-AUG-2016	04-OCT-2016	02-FEB-2016	03-MAY-2016	02-AUG-2016
Analye	P831359	P857678	P878338	P895088	P831365	P857684	P878344
Monobutyltin	ND	ND	ND	NR	ND	ND	ND
Tributyltin	ND	ND	ND	ND	ND	ND	ND

Source	PLR	MBC_COMBCN	MBC_COMBCN	MBC_COMBCN	MBC_COMBCN	MBCDEWCN	MBCDEWCN
Date	04-OCT-2016	02-FEB-2016	03-MAY-2016	02-AUG-2016	04-OCT-2016	31-MAY-2016	31-OCT-2016
Analyte	P895094	P831376	P857695	P878355	P895105	P863684	P902770
Monobutyltin	NR	ND	ND	ND	NR	ND	NR
Tributyltin	ND	ND	ND	ND	ND	ND	ND

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

POINT LOMA WASTEWATER TREATMENT PLANT

ANNUAL 2016

HERBICIDES
EPA Method 8151A

Source			MBCDEWCN*	MBCDEWCN
Date			31-AUG-2016	31-OCT-2016
Sample	MDL	Units	P890180	P902770
2,4-Dichlorophenoxyacetic acid	1700	MG/KG	ND	ND
2,4,5-TP (Silvex)	1700	MG/KG	ND	ND

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

Analyzed by: TestAmerica

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

POINT LOMA WASTEWATER TREATMENT PLANT

ANNUAL 2016

ACID EXTRACTABLE COMPOUNDS
EPA Method 625

Source			PLR	PLR	PLR	PLR	PLE	PLE
Date			02-FEB-2016	03-MAY-2016	02-AUG-2016	04-OCT-2016	02-FEB-2016	03-MAY-2016
Analyte	MDL	Units	P831365	P857684	P878344	P895094	P831359	P857678
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	23.1	38.5	49.5	44.7	19.8	21.1
2,4,6-Trichlorophenol	1.65	UG/L	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
Total Non-Chlorinated Phenols	2.16	UG/L	23.1	38.5	49.5	44.7	19.8	21.1
Phenols	2.16	UG/L	23.1	38.5	49.5	44.7	19.8	21.1
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	60.2	76.5	74.1	69.8	46.9	40.9
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			02-AUG-2016	04-OCT-2016	02-FEB-2016	03-MAY-2016	02-AUG-2016	04-OCT-2016
Analyte	MDL	Units	P878338	P895088	P831376	P857695	P878355	P895105
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	15.8	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	32.7	29.0	6.0	2.6	ND	ND
2,4,6-Trichlorophenol	1.65	UG/L	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
Total Non-Chlorinated Phenols	2.16	UG/L	32.7	29.0	6.0	2.6	15.8	0.0
Additional Analytes Determined:								
Phenols	2.16	UG/L	32.7	29.0	6.0	2.6	15.8	0.0
2-Methylphenol	2.15	UG/L	ND	ND	ND	ND	ND	ND
4-Methylphenol(3-MP is unresolved)	2.11	UG/L	46.6	44.6	4.3	ND	11.3	4.7
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

ANNUAL 2016

ACID EXTRACTABLE COMPOUNDS
EPA Method 625

Source			DIG COMP	MBC_NC_DSL	MBC_NC_DSL	MBC_NC_DSL	MBC_NC_DSL	MBC_NC_RSL
Date			04-OCT-2016	02-FEB-2016	03-MAY-2016	02-AUG-2016	04-OCT-2016	02-FEB-2016
Analyte	MDL	Units	P895144	P831430	P857749	P878409	P895159	P831428
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	53.9	ND	ND	23.0	34.7	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	0.0	0.0	0.0	0.0	0.0	0.0
Total Non-Chlorinated Phenols	2.16	UG/L	53.9	0.0	0.0	23.0	34.7	0.0
Phenols	2.16	UG/L	53.9	0.0	0.0	23.0	34.7	0.0
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	DNQ3.4	137	DNQ4.4	DNQ7.8	DNQ2.9	301
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			03-MAY-2016	02-AUG-2016	04-OCT-2016	02-FEB-2016	03-MAY-2016	02-AUG-2016
Analyte	MDL	Units	P857720	P878380	P895130	P831415	P857734	P878394
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	52.1
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	26.2	80.2	68.9	ND	ND	ND
2,4,6-Trichlorophenol	1.65	UG/L	ND	ND	ND	ND	ND	ND
Total Chlorinated Phenols	1.67	UG/L	0.0	0.0	0.0	0.0	0.0	0.0
Total Non-Chlorinated Phenols	2.16	UG/L	26.2	80.2	68.9	0.0	0.0	52.1
Phenols	2.16	UG/L	26.2	80.2	68.9	0.0	0.0	52.1
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	295	225	268	DNQ3.8	DNQ4.9	DNQ4.1
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

ANNUAL 2016

ACID EXTRACTABLE COMPOUNDS
EPA Method 8270C

Source			MBC_NC_RSL	MBC_NC_RSL	MBC_NC_RSL
Date			03-MAY-2016	02-AUG-2016	04-OCT-2016
Analyte	MDL	Units	P857747	P878407	P895157
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	ND	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	0.0	0.0	0.0
Total Non-Chlorinated Phenols	2.16	UG/L	0.0	0.0	0.0
Phenols	2.16	UG/L	0.0	0.0	0.0

Additional Analytes Determined:

2-Methylphenol	2.15	UG/L	ND	ND	ND
4-Methylphenol(3-MP is unresolved)	2.11	UG/L	244	14.2	DNQ5.9
2,4,5-Trichlorophenol	1.66	UG/L	ND	ND	ND

Source			MBCDEWCN	MBCDEWCN	MBCDEWCN	MBCDEWCN
Date			29-FEB-2016	31-MAY-2016	31-AUG-2016	31-OCT-2016
Analyte	MDL	Units	P844126	P863684	P890180	P902770
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	800	UG/KG	ND	ND	ND	ND
Phenol	330	UG/KG	3560	5420	3240	2800
2,4,6-Trichlorophenol	330	UG/KG	ND	ND	ND	ND
Total Chlorinated Phenols	800	UG/KG	0.0	0.0	0.0	0.0
Total Non-Chlorinated Phenols	800	UG/KG	3560	5420	3240	2800
Phenols	800	UG/KG	3560	5420	3240	2800

Additional Analytes Determined:

2-Methylphenol	330	UG/KG	ND	ND	ND	ND
4-Methylphenol(3-MP is unresolved)	330	UG/KG	695	1240	1030	1110
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

ANNUAL 2016

PURGEABLE COMPOUNDS
EPA Method 8260B

Source			PLR	PLR	PLR	PLR*	PLE	PLE
Date			02-FEB-2016	03-MAY-2016	02-AUG-2016	04-OCT-2016	02-FEB-2016	03-MAY-2016
Analyte	MDL	Units	P831090	P857687	P878347	P895097	P831084	P857681
Acrolein	1.3	UG/L	ND	ND	ND	ND	ND	ND
Acrylonitrile	.7	UG/L	ND	ND	ND	ND	ND	ND
Benzene	.4	UG/L	ND	ND	ND	ND	ND	ND
Bromodichloromethane	.5	UG/L	ND	ND	ND	ND	ND	ND
Bromoform	.5	UG/L	ND	ND	ND	ND	ND	ND
Bromomethane	.7	UG/L	ND	ND	DNQ.6#	DNQ0.7	ND	ND
Carbon tetrachloride	.4	UG/L	ND	ND	ND	ND	ND	ND
Chlorobenzene	.4	UG/L	ND	ND	ND	ND	ND	ND
Chloroethane	.9	UG/L	ND	ND	ND	ND	ND	ND
Chloroform	.3	UG/L	2.5	2.8	2.4	2.9	2.5	3.6
Chloromethane	.5	UG/L	ND	ND	ND	ND	ND	2.7
Dibromochloromethane	.6	UG/L	ND	ND	ND	ND	ND	ND
1,2-Dichlorobenzene	.4	UG/L	ND	ND	ND	ND	ND	ND
1,3-Dichlorobenzene	.5	UG/L	ND	ND	ND	ND	ND	ND
1,4-Dichlorobenzene	.46	UG/L	ND	DNQ1.1	ND	ND	ND	ND
1,1-Dichloroethane	.4	UG/L	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane	.5	UG/L	ND	ND	ND	ND	ND	ND
1,1-Dichloroethene	.4	UG/L	ND	ND	ND	ND	ND	ND
trans-1,2-dichloroethene	.6	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	.5	UG/L	ND	ND	ND	ND	ND	ND
Ethylbenzene	.41	UG/L	DNQ1.3	ND	ND	DNQ0.5	DNQ0.7	ND
Methylene chloride	.37	UG/L	DNQ1.0	DNQ0.9#	DNQ1.2	DNQ0.8	DNQ0.8	DNQ1.0#
1,1,2,2-Tetrachloroethane	.5	UG/L	ND	ND	ND	ND	ND	ND
Tetrachloroethene	1.1	UG/L	ND	ND	ND	ND	ND	ND
Toluene	.4	UG/L	DNQ1.5	2.4	DNQ0.8	DNQ1.0	2.8	DNQ1.6
1,1,1-Trichloroethane	.4	UG/L	ND	ND	ND	ND	ND	ND
1,1,2-Trichloroethane	.5	UG/L	ND	ND	ND	ND	ND	ND
Trichloroethene	.7	UG/L	ND	ND	ND	ND	ND	ND
Trichlorofluoromethane	.3	UG/L	ND	ND	ND	ND	ND	ND
Vinyl chloride	.4	UG/L	ND	ND	ND	ND	ND	ND
Halomethane Purgeable Cmpnds	.7	UG/L	0.0	0.0	0.0	0.0	0.0	2.7
Total Dichlorobenzenes	.5	UG/L	0.0	0.0	0.0	0.0	0.0	0.0
Purgeable Compounds	1.3	UG/L	2.5	5.2	2.4	2.9	5.3	6.3

Additional Analytes Determined:

Analyte	MDL	Units	PLR 02-FEB-2016 P831090	PLR 03-MAY-2016 P857687	PLR 02-AUG-2016 P878347	PLR* 04-OCT-2016 P895097	PLE 02-FEB-2016 P831084	PLE 03-MAY-2016 P857681
Acetone	6.74	UG/L	422	657	1730	1140	423	997
Allyl chloride	.6	UG/L	ND	ND	ND	ND	ND	ND
Benzyl chloride	1.1	UG/L	ND	ND	ND	ND	ND	ND
2-Butanone	6.3	UG/L	DNQ7.0	12.3	30.9	215.0	DNQ8.4	DNQ9.2
Carbon disulfide	.6	UG/L	2.4	1.8	3.7	3.0	1.4	1.8
Chloroprene	.4	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	.6	UG/L	ND	ND	ND	ND	ND	ND
Methyl methacrylate	.8	UG/L	ND	ND	ND	ND	ND	ND
2-Nitropropane	12	UG/L	ND	ND	ND	ND	ND	ND
ortho-xylene	.4	UG/L	DNQ0.6	ND	ND	DNQ0.5	DNQ0.8	ND
Styrene	.38	UG/L	DNQ0.6	DNQ0.5	ND	ND	DNQ0.4	DNQ0.4
1,2,4-Trichlorobenzene	.7	UG/L	ND	ND	ND	ND	ND	ND
meta,para xylenes	.85	UG/L	DNQ1.8	ND	ND	ND	2.1	ND
2-Chloroethylvinyl ether	1.1	UG/L	ND	ND	ND	ND	ND	ND
4-Methyl-2-pentanone	1.3	UG/L	ND	ND	DNQ0.5	2.2	ND	ND

* = Sample analyzed out of the 12-hour period for BFB instrument tuning per method requirement. Value not used in average calculations.
# = 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 the Minimum Level but greater than or equal to MDL.

POINT LOMA WASTEWATER TREATMENT PLANT

ANNUAL 2016

PURGEABLE COMPOUNDS
EPA Method 8260B

Source			PLE	PLE*	MBC_COMBCN	MBC_COMBCN	MBC_COMBCN	MBC_COMBCN
Date			02-AUG-2016	04-OCT-2016	02-FEB-2016	03-MAY-2016	02-AUG-2016	04-OCT-2016
Analyte	MDL	Units	P878341	P895091	P831101	P857698	P878358	P895108
Acrolein	1.3	UG/L	ND	ND	ND	ND	ND	ND
Acrylonitrile	.7	UG/L	ND	ND	ND	ND	ND	ND
Benzene	.4	UG/L	ND	ND	ND	ND	ND	ND
Bromodichloromethane	.5	UG/L	ND	ND	ND	ND	6.9	2.2
Bromoform	.5	UG/L	ND	ND	ND	ND	DNQ0.4	ND
Bromomethane	.7	UG/L	DNQ.7#	DNQ0.9	ND	ND	DNQ0.54#	DNQ0.7
Carbon tetrachloride	.4	UG/L	ND	ND	ND	ND	ND	ND
Chlorobenzene	.4	UG/L	ND	ND	ND	ND	ND	ND
Chloroethane	.9	UG/L	ND	ND	ND	ND	ND	ND
Chloroform	.3	UG/L	4.1	3.9	DNQ0.6	DNQ0.6	10.9	9.5
Chloromethane	.5	UG/L	2.5	DNQ1.9	ND	ND	ND	ND
Dibromochloromethane	.6	UG/L	ND	ND	ND	ND	3.8	DNQ0.9
1,2-Dichlorobenzene	.4	UG/L	ND	ND	ND	ND	ND	ND
1,3-Dichlorobenzene	.5	UG/L	ND	ND	ND	ND	ND	ND
1,4-Dichlorobenzene	.46	UG/L	DNQ0.5	ND	ND	DNQ0.8^	ND	ND
1,1-Dichloroethane	.4	UG/L	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane	.5	UG/L	ND	ND	ND	ND	ND	ND
1,1-Dichloroethene	.4	UG/L	ND	ND	ND	ND	ND	ND
trans-1,2-dichloroethene	.6	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	.5	UG/L	ND	ND	ND	ND	ND	ND
Ethylbenzene	.41	UG/L	ND	ND	ND	ND	DNQ0.5	ND
Methylene chloride	.37	UG/L	DNQ1.5	DNQ1.1	DNQ0.4	DNQ0.32#	DNQ1.9#	3.2
1,1,2,2-Tetrachloroethane	.5	UG/L	ND	ND	ND	ND	ND	ND
Tetrachloroethene	1.1	UG/L	ND	ND	ND	ND	ND	ND
Toluene	.4	UG/L	DNQ1.1	2.9	DNQ1.2	DNQ1.0	DNQ1.2	2.5
1,1,1-Trichloroethane	.4	UG/L	ND	ND	ND	ND	ND	ND
1,1,2-Trichloroethane	.5	UG/L	ND	ND	ND	ND	ND	ND
Trichloroethene	.7	UG/L	ND	ND	ND	ND	ND	ND
Trichlorofluoromethane	.3	UG/L	ND	ND	ND	ND	ND	ND
Vinyl chloride	.4	UG/L	ND	ND	ND	ND	ND	ND
Halomethane Purgeable Cmpnds	.7	UG/L	2.5	0.0	0.0	0.0	0.0	0.0
Total Dichlorobenzenes	.5	UG/L	0.0	0.0	0.0	0.0	0.0	0.0
Purgeable Compounds	1.3	UG/L	6.8	6.8	0.0	0.0	21.6	17.4

Additional Analytes Determined:

Analyte	MDL	Units	P878341	P895091	P831101	P857698	P878358	P895108
Acetone	6.74	UG/L	840	1150	103	88.1	175	105
Allyl chloride	.6	UG/L	ND	ND	ND	ND	ND	ND
Benzyl chloride	1.1	UG/L	ND	ND	ND	ND	ND	ND
2-Butanone	6.3	UG/L	13.2	12.8	DNQ8.4	DNQ8.6	ND	DNQ9.0
Carbon disulfide	.6	UG/L	3.8	4.6	ND	ND	DNQ1.0	2.2
Chloroprene	.4	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	.6	UG/L	ND	ND	ND	ND	ND	ND
Methyl methacrylate	.8	UG/L	ND	ND	ND	ND	ND	ND
2-Nitropropane	12	UG/L	ND	ND	ND	ND	ND	ND
ortho-xylene	.4	UG/L	ND	DNQ0.4	ND	ND	ND	ND
Styrene	.38	UG/L	ND	ND	ND	ND	ND	ND
1,2,4-Trichlorobenzene	.7	UG/L	ND	ND	ND	ND	ND	ND
meta,para xylenes	.85	UG/L	ND	ND	ND	ND	ND	ND
2-Chloroethylvinyl ether	1.1	UG/L	ND	ND	ND	ND	ND	ND
4-Methyl-2-pentanone	1.3	UG/L	ND	ND	ND	ND	DNQ0.6	1.2

* = Sample analyzed out of the 12-hour period for BFB instrument tuning per method requirement. Value not used in average calculations.
# = 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 the Minimum Level but greater than or equal to MDL.

POINT LOMA WASTEWATER TREATMENT PLANT

ANNUAL 2016

PURGEABLE COMPOUNDS
EPA Method 8260B

Source			DIG COMP	DIG COMP	DIG COMP	DIG COMP	RAW COMP	RAW COMP
Date			02-FEB-2016	03-MAY-2016	02-AUG-2016	04-OCT-2016	02-FEB-2016	03-MAY-2016
Analyte	MDL	Units	P831415	P857734	P878394	P895144	P831401	P857720
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	DNQ6.0
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	DNQ107.0	DNQ108.0	DNQ88.4	ND	ND
Carbon tetrachloride	3	UG/KG	ND	ND	ND	ND	ND	ND
Chlorobenzene	1	UG/KG	ND	DNQ9.5	DNQ6.3	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	DNQ19.2	ND	ND	DNQ46.8
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	DNQ70.2	105#	DNQ45.2	ND	DNQ71.5	DNQ125#
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	DNQ142	DNQ179	DNQ182	DNQ98	DNQ127	DNQ51
Methylene chloride	3.5	UG/KG	DNQ80.5	DNQ111	DNQ90.1	DNQ174	DNQ139	DNQ111
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	DNQ6.6
Toluene	1.2	UG/KG	DNQ333	661#	DNQ123	DNQ136	982	376#
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	0.0	0.0	0.0	0.0	0.0	0.0
Total Dichlorobenzenes	1.8	UG/KG	0.0	0.0	0.0	0.0	0.0	0.0
Purgeable Compounds	6.9	UG/KG	0.0	0.0	0.0	0.0	982	0.0

Additional Analytes Determined:

Analyte	MDL	Units	DIG COMP 02-FEB-2016 P831415	DIG COMP 03-MAY-2016 P857734	DIG COMP 02-AUG-2016 P878394	DIG COMP 04-OCT-2016 P895144	RAW COMP 02-FEB-2016 P831401	RAW COMP 03-MAY-2016 P857720
Acetone	31.4	UG/KG	2440	4190	2550	1690	10100	21900
Allyl chloride	3.6	UG/KG	ND	ND	ND	ND	ND	ND
Benzyl chloride	4.3	UG/KG	ND	ND	DNQ32.8	DNQ17.1	ND	ND
2-Butanone	36.3	UG/KG	DNQ710	DNQ1270	DNQ650	DNQ507	2930	3380
Carbon disulfide	4.7	UG/KG	DNQ177	222	DNQ156	DNQ49	111	142
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	DNQ9.3	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	DNQ29.1	DNQ12.3	ND	184	DNQ47.3
Styrene	1.7	UG/KG	DNQ21.4	DNQ30.4	DNQ20.9	DNQ13.8	174	215
1,2,4-Trichlorobenzene	2.5	UG/KG	DNQ32.3	DNQ29.4	DNQ18.4	DNQ12.8	DNQ17.8	DNQ16.4
meta,para xylenes	4.2	UG/KG	DNQ61.6	DNQ61.4	DNQ31.1	DNQ49.1	443	DNQ114
2-Chloroethylvinyl ether	5.5	UG/KG	ND	ND	ND	ND	ND	ND
4-Methyl-2-pentanone	9.7	UG/KG	ND	DNQ64.7	ND	DNQ67.4	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 the Minimum Level but greater than or equal to MDL.

POINT LOMA WASTEWATER TREATMENT PLANT

ANNUAL 2016

PURGEABLE COMPOUNDS
EPA Method 8260B

Source			RAW COMP	RAW COMP
Date			02-AUG-2016	04-OCT-2016
Analyte	MDL	Units	P878380	P895130
Acrolein	6.4	UG/KG	ND	ND
Acrylonitrile	3.9	UG/KG	ND	ND
Benzene	2.1	UG/KG	ND	DNQ4.7
Bromodichloromethane	2.2	UG/KG	ND	ND
Bromoform	2.4	UG/KG	ND	ND
Bromomethane	6.9	UG/KG	DNQ58.8	DNQ39.5
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	ND	ND
Chloromethane	3.4	UG/KG	DNQ22.5	ND
Dibromochloromethane	2.4	UG/KG	ND	ND
1,2-Dichlorobenzene	1.5	UG/KG	ND	DNQ3.7
1,3-Dichlorobenzene	1.8	UG/KG	ND	ND
1,4-Dichlorobenzene	1.5	UG/KG	ND	ND
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	DNQ8	DNQ21
Methylene chloride	3.5	UG/KG	338	DNQ152
1,1,2,2-Tetrachloroethane	5.9	UG/KG	ND	ND
Tetrachloroethene	2.8	UG/KG	ND	ND
Toluene	1.2	UG/KG	DNQ66	DNQ112
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	0.0	0.0
Total Dichlorobenzenes	1.8	UG/KG	0.0	0.0
Purgeable Compounds	6.9	UG/KG	338	0.0

Additional Analytes Determined:

Acetone	31.4	UG/KG	18600	13100
Allyl chloride	3.6	UG/KG	ND	ND
Benzyl chloride	4.3	UG/KG	ND	ND
2-Butanone	36.3	UG/KG	2110	2640
Carbon disulfide	4.7	UG/KG	DNQ54	84
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	DNQ6.0	DNQ19.4
Styrene	1.7	UG/KG	DNQ19.0	DNQ16.9
1,2,4-Trichlorobenzene	2.5	UG/KG	DNQ7.8	DNQ6.6
meta,para xylenes	4.2	UG/KG	DNQ12.8	DNQ40.0
2-Chloroethylvinyl ether	5.5	UG/KG	ND	ND
4-Methyl-2-pentanone	9.7	UG/KG	ND	ND

ND= not detected, NA= not analyzed, NS= not sampled
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 2016

Purgeables
EPA Method 8260B

Source			MBCDEWCN	MBCDEWCN	MBCDEWCN	MBCDEWCN	MBCDEWCN	MBCDEWCN
Date			31-JAN-2016	29-FEB-2016	31-MAR-2016	30-APR-2016	31-MAY-2016	30-JUN-2016
Analyte	MDL	Units	P834072	P844126	P851302	P858086	P863684	P873441
Acrolein	440	UG/KG	ND	ND	ND	ND	ND	ND
Acrylonitrile	410	UG/KG	ND	ND	ND	ND	ND	ND
Benzene	340	UG/KG	ND	ND	DNQ3.4	DNQ3.3	DNQ7.1	DNQ2.9
Bromodichloromethane	170	UG/KG	ND	ND	ND	ND	ND	ND
Bromoform	200	UG/KG	ND	ND	ND	ND	ND	ND
Bromomethane	290	UG/KG	ND	ND	ND	ND	ND	ND
Carbon tetrachloride	390	UG/KG	ND	ND	ND	ND	ND	ND
Chlorobenzene	140	UG/KG	ND	ND	DNQ3.0	DNQ2.9	ND	DNQ3.0
Chloroethane	460	UG/KG	ND	ND	ND	ND	ND	ND
Chloroform	220	UG/KG	ND	ND	ND	ND	ND	ND
Chloromethane	140	UG/KG	ND	DNQ12.1	DNQ20.0	DNQ10.9	ND	ND
Dibromochloromethane	390	UG/KG	ND	ND	ND	ND	ND	ND
1,2-Dichlorobenzene	150	UG/KG	ND	ND	ND	ND	ND	ND
1,3-Dichlorobenzene	170	UG/KG	ND	ND	ND	ND	ND	ND
1,4-Dichlorobenzene	170	UG/KG	59.8	57.9	59.9	DNQ2.15#	59.7	73.3
Dichlorodifluoromethane	200	UG/KG	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	210	UG/KG	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane	290	UG/KG	ND	ND	ND	ND	ND	ND
1,1-Dichloroethene	240	UG/KG	ND	ND	ND	ND	ND	ND
trans-1,2-dichloroethene	290	UG/KG	ND	ND	ND	ND	ND	ND
1,2-Dichloropropane	230	UG/KG	ND	ND	ND	ND	ND	ND
cis-1,3-dichloropropene	200	UG/KG	ND	ND	ND	ND	ND	ND
trans-1,3-dichloropropene	320	UG/KG	ND	ND	ND	ND	ND	ND
Ethylbenzene	87	UG/KG	148	276	264	242	287	296
Methylene chloride	170	UG/KG	DNQ8.1	DNQ10.9	DNQ9.8	DNQ9.9	DNQ11.1	82.7
1,1,2,2-Tetrachloroethane	220	UG/KG	ND	ND	ND	ND	ND	ND
Tetrachloroethene	360	UG/KG	ND*	ND	ND	ND	ND	DNQ8.6
Toluene	270	UG/KG	79.4	108	150	ND#	106	105
1,1,1-Trichloroethane	340	UG/KG	ND	ND	ND	ND	ND	ND
1,1,2-Trichloroethane	340	UG/KG	ND	ND	ND	ND	ND	ND
Trichloroethene	240	UG/KG	ND	ND	ND	ND	ND	DNQ8.8
Trichlorofluoromethane	630	UG/KG	ND	ND	ND	ND	ND	ND
Vinyl chloride	230	UG/KG	ND	ND	ND	ND	ND	ND
1,2,4-Trichlorobenzene	230	UG/KG	ND	ND	ND	ND	ND	ND
Halomethane Purgeable Compounds	390	UG/KG	0.0	0.0	0.0	0.0	0.0	0.0
Purgeable Compounds	630	UG/KG	287	442	474	242	453	557

Additional Analytes Determined:

Analyte	MDL	Units	P834072	P844126	P851302	P858086	P863684	P873441
Acetone	610	UG/KG	21400	14000	15900	23200	21300	28300
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	360	UG/KG	6290	3900	4650	6830	5820	10700
Carbon disulfide	4.7	UG/KG	119	109	131	155	113	192
Chloroprene	3.1	UG/KG	ND	ND	ND	ND	ND	ND
1,2-Dibromoethane	390	UG/KG	ND	ND	ND	ND	ND	ND
Isopropylbenzene	140	UG/KG	ND	ND	ND	ND	DNQ16.4	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	240	UG/KG	ND	ND	ND	ND	ND	ND
2-Nitropropane	45.8	UG/KG	ND	ND	ND	ND	ND	ND
ortho-xylene	130	UG/KG	31.8	43.7	46.8	43.5	44.4	42.1
Styrene	190	UG/KG	26.6	40.8	50.8	44.2	48.4	45.7
meta,para xylenes	340	UG/KG	58.9	80.4	87.8	83.1	85.2	81.3
2-Chloroethylvinyl ether	240	UG/KG	ND	ND	ND	ND	ND	ND
4-Methyl-2-pentanone	340	UG/KG	33.2	18.4	34.8	30.2	32.0	43.8

*= Recovery of compound in internal check and matrix spike sample outside method acceptance limits; value is not used in average calculations.
# = 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 the Minimum Level but greater than or equal to MDL.

POINT LOMA WASTEWATER TREATMENT PLANT

ANNUAL 2016

Purgeables
EPA Method 8260B

Source			MBCDEWCN	MBCDEWCN	MBCDEWCN	MBCDEWCN	MBCDEWCN*
Date			31-JUL-2016	31-AUG-2016	30-SEP-2016	31-OCT-2016	30-NOV-2016
Analyte	MDL	Units	P880435	P890180	P896143	P902770	P908688
Acrolein	440	UG/KG	ND	ND	ND	ND	ND
Acrylonitrile	410	UG/KG	ND	ND	ND	ND	ND
Benzene	340	UG/KG	DNQ2.8	DNQ2.4	DNQ3.6	ND	ND
Bromodichloromethane	170	UG/KG	ND	ND	ND	ND	ND
Bromoform	200	UG/KG	ND	ND	ND	ND	ND
Bromomethane	290	UG/KG	DNQ8.1	ND	ND	ND	ND
Carbon tetrachloride	390	UG/KG	ND	ND	ND	ND	ND
Chlorobenzene	140	UG/KG	DNQ3.4	DNQ3.7	ND	ND	ND
Chloroethane	460	UG/KG	ND	ND	ND	ND	ND
Chloroform	220	UG/KG	ND	ND	ND	ND	ND
Chloromethane	140	UG/KG	DNQ9.3	ND	ND	DNQ12.5	ND
Dibromochloromethane	390	UG/KG	ND	ND	ND	ND	ND
1,2-Dichlorobenzene	150	UG/KG	DNQ5.8	DNQ5.3	ND	ND	ND
1,3-Dichlorobenzene	170	UG/KG	DNQ2.6	DNQ2.9	ND	ND	ND
1,4-Dichlorobenzene	170	UG/KG	90.2	79.3	73.0	79.6	ND
Dichlorodifluoromethane	200	UG/KG	ND	ND	ND	ND	ND
1,1-Dichloroethane	210	UG/KG	ND	ND	ND	ND	ND
1,2-Dichloroethane	290	UG/KG	ND	ND	ND	ND	ND
1,1-Dichloroethene	240	UG/KG	ND	ND	ND	ND	ND
trans-1,2-dichloroethene	290	UG/KG	ND	ND	ND	ND	ND
1,2-Dichloropropane	230	UG/KG	ND	ND	ND	ND	ND
cis-1,3-dichloropropene	200	UG/KG	ND	ND	ND	ND	ND
trans-1,3-dichloropropene	320	UG/KG	ND	ND	ND	ND	ND
Ethylbenzene	87	UG/KG	418	389	275	244	ND
Methylene chloride	170	UG/KG	DNQ12.3	DNQ7.4	DNQ29.3	92.0	ND
1,1,2,2-Tetrachloroethane	220	UG/KG	<5.9	ND	ND	ND	ND
Tetrachloroethene	360	UG/KG	ND	ND	ND	ND	ND
Toluene	270	UG/KG	142	129	179	195	ND
1,1,1-Trichloroethane	340	UG/KG	ND	ND	ND	ND	ND
1,1,2-Trichloroethane	340	UG/KG	ND	ND	ND	ND	ND
Trichloroethene	240	UG/KG	ND	ND	ND	ND	ND
Trichlorofluoromethane	630	UG/KG	ND	ND	ND	ND	ND
Vinyl chloride	230	UG/KG	ND	ND	ND	ND	ND
1,2,4-Trichlorobenzene	230	UG/KG	DNQ10.8	DNQ12.1	ND	ND	ND
Halomethane Purgeable Compounds	390	UG/KG	0.0	0.0	0.0	0.0	0.0
Purgeable Compounds	630	UG/KG	650	597	527	611	0.0

Additional Analytes Determined:

Analyte	MDL	Units	P880435	P890180	P896143	P902770	P908688
Acetone	610	UG/KG	25500	20000	31500	33400	2900
Allyl chloride	3.6	UG/KG	ND	ND	ND	ND	NA
Benzyl chloride	4.3	UG/KG	DNQ17.3	DNQ8.0	ND	ND	NA
2-Butanone	360	UG/KG	7590	6310	12100	10100	1500
Carbon disulfide	4.7	UG/KG	171	166	221	142	NA
Chloroprene	3.1	UG/KG	ND	ND	ND	ND	NA
1,2-Dibromoethane	390	UG/KG	ND	ND	ND	ND	ND
Isopropylbenzene	140	UG/KG	20.0	DNQ17.7	23.0	DNQ21.2	ND
Methyl Iodide	3.8	UG/KG	ND	ND	ND	ND	NA
Methyl methacrylate	2.4	UG/KG	ND	ND	ND	ND	NA
Methyl tert-butyl ether	240	UG/KG	ND	ND	ND	ND	ND
2-Nitropropane	45.8	UG/KG	DNQ72.5	<45.8	ND	ND	NA
ortho-xylene	130	UG/KG	61.0	54.7	58.3	57.3	ND
Styrene	190	UG/KG	59.1	55.1	52.2	38.6	ND
meta,para xylenes	340	UG/KG	125	107	112	111	ND
2-Chloroethylvinyl ether	240	UG/KG	ND	ND	ND	ND	ND
4-Methyl-2-pentanone	340	UG/KG	33.0	25.7	79.2	40.0	ND

* = Sample analyzed out of the 12-hour period for BFB instrument tuning per method requirement. Value not used in average calculations.
ND= not detected, NA= not analyzed, NS= not sampled
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 2016

Purgeables
EPA Method 8260B

Source			MBCDEWCN	Average
Date			30-DEC-2016	
Analyte	MDL	Units	P914706	
Acrolein	440	UG/KG	ND	0.0
Acrylonitrile	410	UG/KG	ND	0.0
Benzene	340	UG/KG	ND	0.0
Bromodichloromethane	170	UG/KG	ND	0.0
Bromoform	200	UG/KG	ND	0.0
Bromomethane	290	UG/KG	ND	0.0
Carbon tetrachloride	390	UG/KG	ND	0.0
Chlorobenzene	140	UG/KG	ND	0.0
Chloroethane	460	UG/KG	ND	0.0
Chloroform	220	UG/KG	ND	0.0
Chloromethane	140	UG/KG	ND	0.0
Dibromochloromethane	390	UG/KG	ND	0.0
1,2-Dichlorobenzene	150	UG/KG	ND	0.0
1,3-Dichlorobenzene	170	UG/KG	ND	0.0
1,4-Dichlorobenzene	170	UG/KG	ND	52.7
Dichlorodifluoromethane	200	UG/KG	ND	0.0
1,1-Dichloroethane	210	UG/KG	ND	0.0
1,2-Dichloroethane	290	UG/KG	ND	0.0
1,1-Dichloroethene	240	UG/KG	ND	0.0
trans-1,2-dichloroethene	290	UG/KG	ND	0.0
1,2-Dichloropropane	230	UG/KG	ND	0.0
cis-1,3-dichloropropene	200	UG/KG	ND	0.0
trans-1,3-dichloropropene	320	UG/KG	ND	0.0
Ethylbenzene	87	UG/KG	ND	218
Methylene chloride	170	UG/KG	ND	14.5
1,1,2,2-Tetrachloroethane	220	UG/KG	ND	0.0
Tetrachloroethene	360	UG/KG	ND	0.7
Toluene	270	UG/KG	ND	99.5
1,1,1-Trichloroethane	340	UG/KG	ND	0.0
1,1,2-Trichloroethane	340	UG/KG	ND	0.0
Trichloroethene	240	UG/KG	ND	0.0
Trichlorofluoromethane	630	UG/KG	ND	0.0
Vinyl chloride	230	UG/KG	ND	0.0
1,2,4-Trichlorobenzene	230	UG/KG	ND	0.0
Halomethane Purgeable Compounds	390	UG/KG	0.0	0.0
Purgeable Compounds	630	UG/KG	0.0	384.4
Acetone	610	UG/KG	2900	18484
Allyl chloride	3.6	UG/KG	NA	0.0
Benzyl chloride	4.3	UG/KG	NA	0.0
2-Butanone	360	UG/KG	ND	5830
Carbon disulfide	4.7	UG/KG	NA	138.1
Chloroprene	3.1	UG/KG	NA	0.0
1,2-Dibromoethane	390	UG/KG	ND	0.0
Isopropylbenzene	140	UG/KG	ND	3.6
Methyl Iodide	3.8	UG/KG	NA	0.0
Methyl methacrylate	2.4	UG/KG	NA	0.0
Methyl tert-butyl ether	240	UG/KG	ND	0.0
2-Nitropropane	45.8	UG/KG	NA	0.0
ortho-xylene	130	UG/KG	ND	37.2
Styrene	190	UG/KG	ND	35.5
meta,para xylenes	340	UG/KG	ND	71.7
2-Chloroethylvinyl ether	240	UG/KG	ND	0.0
4-Methyl-2-pentanone	340	UG/KG	ND	28.5

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

POINT LOMA WASTEWATER TREATMENT PLANT

ANNUAL 2016

BASE/NEUTRAL COMPOUNDS
EPA Method 625

Source			PLR	PLR	PLR	PLR	PLE	PLE
Date			02-FEB-2016	03-MAY-2016	02-AUG-2016	04-OCT-2016	02-FEB-2016	03-MAY-2016
Analyte	MDL	Units	P831365	P857684	P878344	P895094	P831359	P857678
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	ND	ND	14.6	15.0	<8.96	<8.96
Diethyl phthalate	3.05	UG/L	3.80	3.18	3.68	3.38	3.95	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	3.8	3.2	18.3	18.4	4.0	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 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 2016

BASE/NEUTRAL COMPOUNDS
EPA Method 625

Source			PLE	PLE	MBC_COMBCN	MBC_COMBCN	MBC_COMBCN	MBC_COMBCN
Date			02-AUG-2016	04-OCT-2016	02-FEB-2016	03-MAY-2016	02-AUG-2016	04-OCT-2016
Analyte	MDL	Units	P878338	P895088	P831376	P857695	P878355	P895105
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	<8.96	ND	9.55	ND	35.5	25.8
Diethyl phthalate	3.05	UG/L	<3.05	3.84	13.40	3.43	ND	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	DNQ3.70	31.00	DNQ5.09	4.99
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	3.8	26.7	34.4	40.6	30.8

Additional Analytes Determined:

Analyte	MDL	Units	P878338	P895088	P831376	P857695	P878355	P895105
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 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 2016

BASE/NEUTRAL COMPOUNDS
EPA Method 8270C

Source			MBCDEWCN	MBCDEWCN	MBCDEWCN	MBCDEWCN
Date			29-FEB-2016	31-MAY-2016	31-AUG-2016	31-OCT-2016
Analyte	MDL	Units	P844126	P863684	P890180	P902770
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
Benzo[a]anthracene	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]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
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	1110	1210	ND	1140
Di-n-butyl phthalate	330	UG/KG	ND	ND	ND	ND
Bis-(2-ethylhexyl) phthalate	330	UG/KG	30800	66900	71800	66100
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	840	ND	354	ND
3,3-Dichlorobenzidine	330	UG/KG	30300	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	ND	ND	<330	416
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	ND	550	371	411
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	445	572	561	570
Pyrene	330	UG/KG	ND	<330	ND	346
1,2,4-Trichlorobenzene	330	UG/KG	ND	ND	<330	ND
Polynuc. Aromatic Hydrocarbons			445	572	561	916
Base/Neutral Compounds			63495	69232	73086	68983

Additional Analytes Determined:

Benzo[e]pyrene		UG/KG	ND	ND	ND	ND
Biphenyl		UG/KG	ND	605	ND	ND
2,6-Dimethylnaphthalene		UG/KG	1060	1220	1330	1330
1-Methylnaphthalene		UG/KG	ND	ND	ND	ND
1-Methylphenanthrene		UG/KG	ND	ND	ND	ND
2-Methylnaphthalene		UG/KG	195	369	246	493
2,3,5-Trimethylnaphthalene		UG/KG	ND	ND	ND	ND
Perylene	330	UG/KG	ND	ND	ND	ND
2-Chloronaphthalene		UG/KG	ND	ND	ND	ND
Pyridine		UG/KG	325	ND	ND	ND

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

POINT LOMA WASTEWATER TREATMENT

ANNUAL 2016

Dioxin and Furan Analysis
EPA Method 1613

Source			PLR	PLR	PLR	PLR	PLR	PLR	PLR	PLR	PLR
Month			JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
Analyte	MDL	Units		P831365	P845020	P851608	P857684	P863772	P872703	P878344	P893660
2,3,7,8-tetra CDD	.316	PG/L	ND	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	ND
1,2,3,4,7,8_hexa_CDD	.808	PG/L	ND	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	ND
1,2,3,7,8,9-hexa CDD	.756	PG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2,3,4,6,7,8-hepta CDD	.857	PG/L	DNQ14.6	DNQ24.2	ND	DNQ17.4	DNQ18.7	DNQ14.9	DNQ15.0	DNQ20.6	DNQ18.1
octa CDD	1.2	PG/L	160	270	ND	200	230	150	DNQ133	190	190
2,3,7,8-tetra CDF	.307	PG/L	DNQ0.735	ND	ND	DNQ1.46	ND	ND	DNQ1.26	ND	DNQ0.981
1,2,3,7,8-penta CDF	.421	PG/L	ND	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	ND
1,2,3,4,7,8-hexa CDF	.486	PG/L	DNQ0.394	ND	ND	ND	ND	ND	ND	ND	ND
1,2,3,6,7,8-hexa CDF	.521	PG/L	DNQ1.180	ND	ND	ND	ND	ND	ND	ND	ND
1,2,3,7,8,9-hexa CDF	.556	PG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND
2,3,4,6,7,8-hexa CDF	.663	PG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2,3,4,6,7,8-hepta CDF	.489	PG/L	DNQ4.69	DNQ6.22	ND	DNQ4.40	DNQ4.23	DNQ4.06	DNQ2.91	DNQ4.91	DNQ3.98
1,2,3,4,7,8,9-hepta CDF	.69	PG/L	ND	ND	ND	ND	ND	ND	ND	ND	ND
octa CDF	1.7	PG/L	DNQ10.0	DNQ15.9	ND	DNQ9.96	DNQ10.2	DNQ8.03	DNQ9.19	DNQ13.2	DNQ11.4

Source			PLR	PLR	PLR
Month			OCT	NOV	DEC
Analyte	MDL	Units	P895094	P903287	P907874
2,3,7,8-tetra CDD	.316	PG/L	ND	ND	ND
1,2,3,7,8-penta CDD	.607	PG/L	ND	ND	ND
1,2,3,4,7,8_hexa_CDD	.808	PG/L	ND	ND	ND
1,2,3,6,7,8-hexa CDD	.891	PG/L	ND	ND	ND
1,2,3,7,8,9-hexa CDD	.756	PG/L	ND	ND	ND
1,2,3,4,6,7,8-hepta CDD	.857	PG/L	DNQ14.7	DNQ16.1	DNQ12.1
octa CDD	1.2	PG/L	150	160	120
2,3,7,8-tetra CDF	.307	PG/L	DNQ1.27	ND	ND
1,2,3,7,8-penta CDF	.421	PG/L	ND	ND	ND
2,3,4,7,8-penta CDF	.431	PG/L	ND	ND	ND
1,2,3,4,7,8-hexa CDF	.486	PG/L	ND	ND	ND
1,2,3,6,7,8-hexa CDF	.521	PG/L	ND	ND	DNQ2.51
1,2,3,7,8,9-hexa CDF	.556	PG/L	ND	ND	ND
2,3,4,6,7,8-hexa CDF	.663	PG/L	ND	ND	ND
1,2,3,4,6,7,8-hepta CDF	.489	PG/L	DNQ4.76	DNQ5.280	DNQ3.31
1,2,3,4,7,8,9-hepta CDF	.69	PG/L	ND	ND	ND
octa CDF	1.7	PG/L	DNQ8.92	DNQ10.7	DNQ9.25

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 2016

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		P831359	P845017	P851605	P857678	P863769	P872700	P878338
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	DNQ3.41	DNQ3.19	DNQ4.18	DNQ2.02	ND	ND	DNQ1.86	DNQ3.86
octa CDD	1.2	PG/L	DNQ26.0	DNQ31.0	DNQ31.0	DNQ13.0	DNQ12.0	DNQ14.0	DNQ9.90	DNQ26.0
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	.556	PG/L	ND	ND	ND	ND	ND	ND	ND	ND
2,3,4,6,7,8-hexa CDF	.663	PG/L	ND	ND	ND	ND	ND	ND	ND	ND
1,2,3,4,6,7,8-hepta CDF	.489	PG/L	DNQ1.03	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	DNQ2.00	ND	ND	ND	ND	ND	ND	ND

Source			PLE	PLE	PLE	PLE
Month			SEP	OCT	NOV	DEC
Analyte	MDL	Units	P893657	P895088	P903284	P907871
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	DNQ2.07	DNQ2.95	DNQ3.90	DNQ4.99
octa CDD	1.2	PG/L	DNQ14.0	DNQ22.0	DNQ30.0	DNQ42.0
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	.556	PG/L	ND	ND	ND	ND
2,3,4,6,7,8-hexa CDF	.663	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 2016

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		P831365	P845020	P857684	P863772	P872703
2,3,7,8-tetra CDD	.316	PG/L	1.000	ND	ND	ND	ND	ND	ND
1,2,3,7,8-penta CDD	.3035	PG/L	0.500	ND	ND	ND	ND	ND	ND
1,2,3,4,7,8_hexa_CDD	.0808	PG/L	0.100	ND	ND	ND	ND	ND	ND
1,2,3,6,7,8-hexa CDD	.0891	PG/L	0.100	ND	ND	ND	ND	ND	ND
1,2,3,7,8,9-hexa CDD	.0756	PG/L	0.100	ND	ND	ND	ND	ND	ND
1,2,3,4,6,7,8-hepta CDD	.00857	PG/L	0.010	DNQ0.146	DNQ0.242	ND	DNQ0.187	DNQ0.149	DNQ0.150
octa CDD	.0012	PG/L	0.001	0.160	0.270	ND	0.230	0.150	DNQ0.133
2,3,7,8-tetra CDF	.0307	PG/L	0.100	DNQ0.074	ND	ND	ND	ND	DNQ0.126
1,2,3,7,8-penta CDF	.02105	PG/L	0.050	ND	ND	ND	ND	ND	ND
2,3,4,7,8-penta CDF	.2155	PG/L	0.500	ND	ND	ND	ND	ND	ND
1,2,3,4,7,8-hexa CDF	.0486	PG/L	0.100	DNQ0.039	ND	ND	ND	ND	ND
1,2,3,6,7,8-hexa CDF	.0521	PG/L	0.100	DNQ0.118	ND	ND	ND	ND	ND
1,2,3,7,8,9-hexa CDF	.0556	PG/L	0.100	ND	ND	ND	ND	ND	ND
2,3,4,6,7,8-hexa CDF	.0663	PG/L	0.100	ND	ND	ND	ND	ND	ND
1,2,3,4,6,7,8-hepta CDF	.00489	PG/L	0.010	DNQ0.047	DNQ0.062	ND	DNQ0.042	DNQ0.041	DNQ0.029
1,2,3,4,7,8,9-hepta CDF	.0069	PG/L	0.010	ND	ND	ND	ND	ND	ND
octa CDF	.0017	PG/L	0.001	DNQ0.010	DNQ0.016	ND	DNQ0.010	DNQ0.008	DNQ0.009

Source				PLR	PLR	PLR	PLR
				TCDD	TCDD	TCDD	TCDD
Month				SEP	OCT	NOV	DEC
Analyte	MDL	Units	Equiv	P893660	P895094	P903287	P907874
2,3,7,8-tetra CDD	.316	PG/L	1.000	ND	ND	ND	ND
1,2,3,7,8-penta CDD	.3035	PG/L	0.500	ND	ND	ND	ND
1,2,3,4,7,8_hexa_CDD	.0808	PG/L	0.100	ND	ND	ND	ND
1,2,3,6,7,8-hexa CDD	.0891	PG/L	0.100	ND	ND	ND	ND
1,2,3,7,8,9-hexa CDD	.0756	PG/L	0.100	ND	ND	ND	ND
1,2,3,4,6,7,8-hepta CDD	.00857	PG/L	0.010	DNQ0.181	DNQ0.147	DNQ0.161	DNQ0.121
octa CDD	.0012	PG/L	0.001	0.190	0.150	0.160	0.120
2,3,7,8-tetra CDF	.0307	PG/L	0.100	DNQ0.098	DNQ0.127	ND	ND
1,2,3,7,8-penta CDF	.02105	PG/L	0.050	ND	ND	ND	ND
2,3,4,7,8-penta CDF	.2155	PG/L	0.500	ND	ND	ND	ND
1,2,3,4,7,8-hexa CDF	.0486	PG/L	0.100	ND	ND	ND	ND
1,2,3,6,7,8-hexa CDF	.0521	PG/L	0.100	ND	ND	ND	DNQ0.251
1,2,3,7,8,9-hexa CDF	.0556	PG/L	0.100	ND	ND	ND	ND
2,3,4,6,7,8-hexa CDF	.0663	PG/L	0.100	ND	ND	ND	ND
1,2,3,4,6,7,8-hepta CDF	.00489	PG/L	0.010	DNQ0.040	DNQ0.048	DNQ0.053	DNQ0.033
1,2,3,4,7,8,9-hepta CDF	.0069	PG/L	0.010	ND	ND	ND	ND
octa CDF	.0017	PG/L	0.001	DNQ0.011	DNQ0.009	DNQ0.011	DNQ0.009

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 2016

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		P831359	P845017	P857678	P863769	P872700
2,3,7,8-tetra CDD	.316	PG/L	1.000	ND	ND	ND	ND	ND	ND
1,2,3,7,8-penta CDD	.3035	PG/L	0.500	ND	ND	ND	ND	ND	ND
1,2,3,4,7,8_hexa_CDD	.0808	PG/L	0.100	ND	ND	ND	ND	ND	ND
1,2,3,6,7,8-hexa CDD	.0891	PG/L	0.100	ND	ND	ND	ND	ND	ND
1,2,3,7,8,9-hexa CDD	.0756	PG/L	0.100	ND	ND	ND	ND	ND	ND
1,2,3,4,6,7,8-hepta CDD	.00857	PG/L	0.010	DNQ0.034	DNQ0.032	DNQ0.042	ND	ND	DNQ0.019
octa CDD	.0012	PG/L	0.001	DNQ0.026	DNQ0.031	DNQ0.031	DNQ0.012	DNQ0.014	DNQ0.010
2,3,7,8-tetra CDF	.0307	PG/L	0.100	ND	ND	ND	ND	ND	ND
1,2,3,7,8-penta CDF	.02105	PG/L	0.050	ND	ND	ND	ND	ND	ND
2,3,4,7,8-penta CDF	.2155	PG/L	0.500	ND	ND	ND	ND	ND	ND
1,2,3,4,7,8-hexa CDF	.0486	PG/L	0.100	ND	ND	ND	ND	ND	ND
1,2,3,6,7,8-hexa CDF	.0521	PG/L	0.100	ND	ND	ND	ND	ND	ND
1,2,3,7,8,9-hexa CDF	.0556	PG/L	0.100	ND	ND	ND	ND	ND	ND
2,3,4,6,7,8-hexa CDF	.0663	PG/L	0.100	ND	ND	ND	ND	ND	ND
1,2,3,4,6,7,8-hepta CDF	.00489	PG/L	0.010	DNQ0.010	ND	ND	ND	ND	ND
1,2,3,4,7,8,9-hepta CDF	.0069	PG/L	0.010	ND	ND	ND	ND	ND	ND
octa CDF	.0017	PG/L	0.001	DNQ0.002	ND	ND	ND	ND	ND

Source				PLE	PLE	PLE	PLE
				TCDD	TCDD	TCDD	TCDD
Month				SEP	OCT	NOV	DEC
Analyte	MDL	Units	Equiv	P893657	P895088	P903284	P907871
2,3,7,8-tetra CDD	.316	PG/L	1.000	ND	ND	ND	ND
1,2,3,7,8-penta CDD	.3035	PG/L	0.500	ND	ND	ND	ND
1,2,3,4,7,8_hexa_CDD	.0808	PG/L	0.100	ND	ND	ND	ND
1,2,3,6,7,8-hexa CDD	.0891	PG/L	0.100	ND	ND	ND	ND
1,2,3,7,8,9-hexa CDD	.0756	PG/L	0.100	ND	ND	ND	ND
1,2,3,4,6,7,8-hepta CDD	.00857	PG/L	0.010	DNQ0.021	DNQ0.030	DNQ0.039	DNQ0.050
octa CDD	.0012	PG/L	0.001	DNQ0.014	DNQ0.022	DNQ0.030	DNQ0.042
2,3,7,8-tetra CDF	.0307	PG/L	0.100	ND	ND	ND	ND
1,2,3,7,8-penta CDF	.02105	PG/L	0.050	ND	ND	ND	ND
2,3,4,7,8-penta CDF	.2155	PG/L	0.500	ND	ND	ND	ND
1,2,3,4,7,8-hexa CDF	.0486	PG/L	0.100	ND	ND	ND	ND
1,2,3,6,7,8-hexa CDF	.0521	PG/L	0.100	ND	ND	ND	ND
1,2,3,7,8,9-hexa CDF	.0556	PG/L	0.100	ND	ND	ND	ND
2,3,4,6,7,8-hexa CDF	.0663	PG/L	0.100	ND	ND	ND	ND
1,2,3,4,6,7,8-hepta CDF	.00489	PG/L	0.010	ND	ND	ND	ND
1,2,3,4,7,8,9-hepta CDF	.0069	PG/L	0.010	ND	ND	ND	ND
octa CDF	.0017	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 the Minimum Level but greater than or equal to MDL.

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POINT LOMA WASTEWATER TREATMENT PLANT

ANNUAL 2016

Dioxin and Furan AnalysiS
EPA Method 8290

Source			MBCDEWCN	MBCDEWCN	MBCDEWCN	MBCDEWCN	MBCDEWCN	MBCDEWCN
Date			31-JAN-2016	29-FEB-2016	31-MAR-2016	30-APR-2016	31-MAY-2016	30-JUN-2016
Analyte	MDL	Units	P834072	P844126	P851302	P858086	P863684	P873441
2,3,7,8-tetra CDD	.353	NG/KG	DNQ0.0005	ND	DNQ0.0005	DNQ0.0006	DNQ0.0004	DNQ0.0006
1,2,3,7,8-penta CDD	.575	NG/KG	ND	ND	DNQ0.0035	DNQ0.0042	ND	DNQ0.0026
1,2,3,4,7,8_hexa_CDD	.758	NG/KG	DNQ0.0018	DNQ0.0020	DNQ0.0013	DNQ0.0018	DNQ0.0012	DNQ0.0015
1,2,3,6,7,8-hexa CDD	.823	NG/KG	0.0091	0.0102	0.0097	0.0170	0.0062	0.0127
1,2,3,7,8,9-hexa CDD	.704	NG/KG	DNQ0.0043	DNQ0.0043	DNQ0.0037	0.0056	DNQ0.0029	0.0051
1,2,3,4,6,7,8-hepta CDD	.845	NG/KG	0.182	0.231	0.208	0.252	0.140	0.213
octa CDD	.136	NG/KG	1.52	1.51	1.28	1.29	1.13	1.11
2,3,7,8-tetra CDF	.277	NG/KG	0.0042	0.0045	0.0049	0.0054	0.0038	0.0045
1,2,3,7,8-penta CDF	.45	NG/KG	DNQ0.0017	DNQ0.0015	DNQ0.0016	DNQ0.0017	DNQ0.0013	DNQ0.0017
2,3,4,7,8-penta CDF	.462	NG/KG	DNQ0.0019	DNQ0.0018	DNQ0.0018	DNQ0.0019	DNQ0.0022	DNQ0.0020
1,2,3,4,7,8-hexa CDF	.456	NG/KG	DNQ0.0028	DNQ0.0026	DNQ0.0026	DNQ0.0026	DNQ0.0018	DNQ0.0023
1,2,3,6,7,8-hexa CDF	.408	NG/KG	DNQ0.0025	DNQ0.0020	DNQ0.0021	DNQ0.0023	DNQ0.0020	DNQ0.0024
1,2,3,7,8,9-hexa CDF	.544	NG/KG	DNQ0.0011	DNQ0.0007	DNQ0.0009	DNQ0.0008	ND	DNQ0.0009
2,3,4,6,7,8-hexa CDF	.421	NG/KG	DNQ0.0028	DNQ0.0027	DNQ0.0025	DNQ0.0023	DNQ0.0020	DNQ0.0023
1,2,3,4,6,7,8-hepta CDF	.446	NG/KG	0.0247	0.0224	0.0201	0.0227	0.0158	0.017
1,2,3,4,7,8,9-hepta CDF	.555	NG/KG	0.0019	DNQ0.0016	DNQ0.0018	DNQ0.0020	DNQ0.0013	DNQ0.0015
octa CDF	.102	NG/KG	0.0610	0.0529	0.0487	0.0578	0.0372	0.0440

Source			MBCDEWCN	MBCDEWCN	MBCDEWCN	MBCDEWCN	MBCDEWCN	MBCDEWCN
Date			31-JUL-2016	31-AUG-2016	30-SEP-2016	31-OCT-2016	30-NOV-2016	30-DEC-2016
Analyte	MDL	Units	P880435	P890180	P896143	P902770	P908688	P914706
2,3,7,8-tetra CDD	.353	NG/KG	ND	DNQ0.0007	DNQ0.0009	DNQ0.0006	DNQ0.0009	ND
1,2,3,7,8-penta CDD	.575	NG/KG	DNQ0.0025	ND	0.0031	DNQ0.0031	ND	DNQ0.0042
1,2,3,4,7,8_hexa_CDD	.758	NG/KG	DNQ0.0017	DNQ0.0021	DNQ0.0020	DNQ0.0023	DNQ0.0016	DNQ0.0016
1,2,3,6,7,8-hexa CDD	.823	NG/KG	0.0135	0.0188	0.0181	0.0134	0.0131	0.0161
1,2,3,7,8,9-hexa CDD	.704	NG/KG	DNQ0.0044	DNQ0.0060	DNQ0.0051	DNQ0.0045	DNQ0.0046	DNQ0.0057
1,2,3,4,6,7,8-hepta CDD	.845	NG/KG	0.213	0.249	0.212	0.205	0.223	ND
octa CDD	.136	NG/KG	1.01	1.09	0.940	1.01	1.11	ND
2,3,7,8-tetra CDF	.277	NG/KG	0.0049	0.0045	0.0049	0.0051	0.0052	0.0051
1,2,3,7,8-penta CDF	.45	NG/KG	DNQ0.0018	DNQ0.0019	DNQ0.0017	DNQ0.0017	DNQ0.0021	DNQ0.0020
2,3,4,7,8-penta CDF	.462	NG/KG	DNQ0.0021	DNQ0.0020	DNQ0.0026	DNQ0.0019	DNQ0.0021	DNQ0.0013
1,2,3,4,7,8-hexa CDF	.456	NG/KG	DNQ0.0023	DNQ0.0029	DNQ0.0025	DNQ0.0025	DNQ0.0028	DNQ0.0026
1,2,3,6,7,8-hexa CDF	.408	NG/KG	DNQ0.0024	DNQ0.0020	DNQ0.0023	DNQ0.0023	DNQ0.0025	DNQ0.0025
1,2,3,7,8,9-hexa CDF	.544	NG/KG	DNQ0.0008	DNQ0.0010	DNQ0.0010	DNQ0.0009	DNQ0.0010	DNQ0.0010
2,3,4,6,7,8-hexa CDF	.421	NG/KG	DNQ0.0023	DNQ0.0021	DNQ0.0020	DNQ0.0026	DNQ0.0027	DNQ0.0026
1,2,3,4,6,7,8-hepta CDF	.446	NG/KG	0.0164	0.0200	0.0167	0.0184	0.0203	0.0221
1,2,3,4,7,8,9-hepta CDF	.555	NG/KG	DNQ0.0011	DNQ0.0017	DNQ0.0011	DNQ0.0016	DNQ0.0015	DNQ0.0015
octa CDF	.102	NG/KG	0.0407	0.0436	0.0379	0.0419	0.0459	0.0569

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 2016. The MDLs referenced in this report are the maximum MDL for the calendar year. The following is a table listing, by Analyses Code and Analyte Name, the changes in the MDLs that occurred in 2016. All MDL studies were performed following CFR136.3. This year, most MDL studies utilized clean matrix, i.e. Deionized Water or clean sand.

ANALYSIS CODE	ANALYTE NAME	EFFECTIVE DATE	CURRENT MDL	PAST MDL	UNITS
NH3_N_TIT_SLDG	Ammonia-N	26-JUL-16	28		MG/KG
NO2_N_SLDG	Nitrite as N	16-MAR-16	0.33		MG/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 2016.** 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	12/31/2017
PTL Superintendent:			
Marlow, David	V	10216	Dec 2018
Senior Operations Supervisors:			
Duarte, Arthur	V	5301	Dec 2017
Operations Supervisors:			
Cesar Sanchez	V	10083	Jun 2017
Avila, Juan	III	28383	Dec 2017
Griffiths, Eric	III	28975	Dec 2017
Moreno, Daniel	III	40707	Dec 2018
Hayvert, William	III	27959	Dec 2017
Plant Operators:			
Mohler, Victor	III	28869	Jun 2018
Sardina, Michael	II	42415	Aug 2018
Robosa, Michael	II	42729	Apr 2018
Pizarro, Emiliano	II	9863	Jun 2018
Wade, Brian	II	9141	Dec 2018
Valenzuela, Sam	II	40695	Jan 2020
Childress, Linda	II	41589	Jan 2020

NAME	Grade	Cert #	Expiration
Gumbiner, Jason	III	42529	Jan 2020
Carrol Gregory	II	34033	May 2020
Langford, Craig	II	41084	Aug 2018
Ayers, Jeff	II	40253	May 2018
Tao Jacqueline	OIT		Feb 2020
Hill Shalamar	OIT		April 2020
Process Control			
Nunez, Carlos	III	7626	Jun, 2018
Dornfeld, Michael	II	7678	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 2017**, 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:			
Vacant			
Operations Supervisors:			
John Cauzza	III	8563	Jun 2018
Ralph Dugdale	III	5936	June 2020
Dedric Evans	III	10196	June 2018
Shannon McKiernan	III	7465	Dec 2017
Matt Tomas	III	29044	Dec 2017
Javier Zavala	III	9635	Jun 2020
Plant Operators:			
Barry Calton	III	10178	Jun 2018
Larren Colum	II	41857	Dec 2018
Raymond Crowder	II	40563	Aug 2017
James Johnson	II	29021	Jun 2020
Laura Kaiser	II	28842	Jun 2018
Robert Lane	Gr I OIT		Feb 2020
Eric Neptune	II	28839	June 2020
John Reeder	II	42592	Apr 2018
Ben Reynolds	II	6638	Dec 2017

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 2017.** Name, Certification Grade, Certification Number, and expiration date are shown for each operator.

NAME	Grade	Cert #	Expiration
COMC			
Senior Operations Supervisors:			
Vacant			
Operations Supervisors:			
Paul Farnworth	V	9664	12/31/18
Romeo Feliciano	III	28436	6/30/20
Frank Perea	III	7968	6/30/20
Sony Reth	III	29023	6/30/18
Senior Wastewater Operator			
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
Operations Supervisors:			
John Cozad	III	7138	12/31/2017
Richie Jacques	III	27921	06/30/2018
John Carroll	V	28867	06/09/2020
Rob Relph	III	6742	12/31/2018
Plant Senior Operator:			
Will Mercado	III	41838	09/23/2017
Plant Operators:			
George Wendorff	II	9774	12/31/2017
Robert Strunk	II	42439	09/27/2018
Nahdia Mohammed	OIT - I	N/A	04/04/2020

NAME	Grade	Cert #	Expiration
Traci Squyres	III	35602	10/31/2018
Mathew Birchett	OIT - II	N/A	04/04/2020
Adolfo Gonzalez	II	40774	05/05/2020
Marshall Hullin	III	42679	04/11/2020
Noel Saulog	II	10299	12/31/2018
Marlene Gutierrez	II	9636	06/30/2020

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	12/31/2017
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	12/31/2017
VACANT			
Wastewater Operators:			
Al Johnson	III	9638	6/30/2018
Herb Decatur	III	28880	6/30/2020
Douglas Evans	II	9844	6/30/2018
Romeo Millan	II	9846	6/30/2018
Gabriel Duresseau	II	28294	7/1/2018
Noemi Gonzalez-Bueno	II	41833	10/31/2018

C. Status of the Operations and Maintenance Manual

Point Loma WTP:

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	- In most cases Biosolids and digested (a processed) Sludge is synonymous
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
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, Pt. Loma
N-2-P	- North Digester Number 2, Primary, Pt. Loma
N30-DFE	- Disinfected Final Effluent
N34-REC WATER	- Reclaimed Water
NCWRP	- North City Water Reclamation Plant
NPDES	- National Pollutant Discharge Elimination System.
PLE	- Point Loma Effluent (effluent from the plant).
PLR	- Point Loma Raw (influent to the plant)
PLWWTP	- Point Loma Wastewater Treatment Plant
PLWTP	- Point Loma Wastewater Treatment Plant
RAW COMP	- A Composite of Raw Sludge taken over the preceding 24 hrs.
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
WWTP	- 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 2016	Instrumentation 2015	Instrumentation 2016	Method 2016
Alkalinity	Selected Endpoint Titration	Mettler DL-21 & 25 Titrator Orion 950	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	Buchi Distillation Unit K-314, B-324, K-350 Orion 950 pH Meter Mettler DL25 titrator Mettler DL15 titrator Orion 250A	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)	SM 5210 B-2001
Chemical Oxygen Demand (COD)	Closed Reflux / Colorimetric	Hach DR-2010 UV/Vis spectrophotometer	Hach DR-2010 UV/Vis spectrophotometer Hach DR2700	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	Hach DR-4000/Vis	SM 4500-CN E-1999 & SM 4500-CN B or C-1999
Floating Particulates	Flotation Funnel	Mettler AX-105 Mettler AG 204 Balance	Various models of balances.	SM 2530 B
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-AES / Calculation	IRIS INTREPID DUO	IRIS INTREPID DUO & ICAP 6000	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	Velp scientificA Buchi K-314 distiller & Orion 950 pH meter	SM-4500-Norg B-1997
Oil and Grease	Hexane Extraction / Gravimetric	Mettler AX-105 Balance	Various models of balances.	EPA 1664A
Organic Carbon (TOC)	Catalytic Oxidation / IR Water Production Laboratory)	Shimadzu ASI-5000	Shimadzu ASI-5000	5310 B (Water Production Laboratory)

Analyte	Description 2016	Instrumentation 2015	Instrumentation 2016	Method 2016
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 (TestAmerica)	External Laboratory (FGL)	EPA 900 (External Laboratory)
Solids, Dissolved-Total	Gravimetric @ 180°C using analytical balance	Mettler AG204,AX105,AB204	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	Mettler AG204,AX105,AB204	Various models of balances.	SM 2540 D-1997
Solids, Suspended-Volatile	Gravimetric @ 500°C	Mettler AG204,AX105,AB204	Various models of balances.	SM 2540 E-1997
Solids, Total	Gravimetric @ 103-105°C	Mettler AG204,AX105,AB204	Various models of balances.	SM 2540 B-1997
Solids, Total-Volatile	Gravimetric @ 500°C	Mettler AG204,AX105,AB204	Various models of balances.	EPA 160.4 (Issued 1971)
Temperature	Direct Reading	Fisher Digital Thermometer	Fisher Digital Thermometer	SM 2550 B-2000
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 2016	Instrumentation 2015	Instrumentation 2016	Method 2016
Aluminum	Acid Digestion / ICP-AES	IRIS INTREPID DUO	ICAP 6000	EPA 200.7 Rev. 4.4
Antimony	Acid Digestion / ICP-AES	IRIS INTREPID DUO	ICAP 6000	EPA 200.7 Rev. 4.4
Arsenic	Hydride Generation / AA	Thermo iCE 3000	Thermo iCE 3000	SM 3114 B-2009
Barium	Acid Digestion / ICP-AES	IRIS INTREPID DUO	ICAP 6000	EPA 200.7 Rev. 4.4
Beryllium	Acid Digestion / ICP-AES	IRIS INTREPID DUO	ICAP 6000	EPA 200.7 Rev. 4.4
Boron	Acid Digestion / ICP-AES	IRIS INTREPID DUO	ICAP 6000	EPA 200.7 Rev. 4.4
Cadmium	Acid Digestion / ICP-AES	IRIS INTREPID DUO	ICAP 6000	EPA 200.7 Rev. 4.4
Calcium	Acid Digestion / ICP-AES	IRIS INTREPID DUO	ICAP 6000	EPA 200.7 Rev. 4.4
Chromium	Acid Digestion / ICP-AES	IRIS INTREPID DUO	ICAP 6000	EPA 200.7 Rev. 4.4

Analyte	Description 2016	Instrumentation 2015	Instrumentation 2016	Method 2016
Cobalt	Acid Digestion / ICP-AES	IRIS INTREPID DUO	ICAP 6000	EPA 200.7 Rev. 4.4
Copper	Acid Digestion / ICP-AES	IRIS INTREPID DUO	ICAP 6000	EPA 200.7 Rev. 4.4
Iron	Acid Digestion / ICP-AES	IRIS INTREPID DUO	ICAP 6000	EPA 200.7 Rev. 4.4
Lead	Acid Digestion / ICP-AES	IRIS INTREPID DUO	ICAP 6000	EPA 200.7 Rev. 4.4
Lithium	Acid Digestion / ICP-AES	IRIS INTREPID DUO	ICAP 6000	EPA 200.7 Rev. 4.4
Magnesium	Acid Digestion / ICP-AES	IRIS INTREPID DUO	ICAP 6000	EPA 200.7 Rev. 4.4
Manganese	Acid Digestion / ICP-AES	IRIS INTREPID DUO	ICAP 6000	EPA 200.7 Rev. 4.4
Mercury	Cold vapor atomic fluorescence spectroscopy (CVAF)	Leeman Hydra Gold(CVAA) & Milestone DMA80 (thermal decomposition, amalgamation, and atomic absorption spectrophotometry)	PSAnalytical PSA 10.035 Millennium Merlin 1631	EPA 1631E
Molybdenum	Acid Digestion / ICP-AES	IRIS INTREPID DUO	ICAP 6000	EPA 200.7 Rev. 4.4 (1994)
Nickel	Acid Digestion / ICP-AES	IRIS INTREPID DUO	ICAP 6000	EPA 200.7 Rev. 4.4 (1994)
Potassium	Acid Digestion / ICP-AES	IRIS INTREPID DUO	ICAP 6000	EPA 200.7 Rev. 4.4 (1994)
Selenium	Hydride Generation / AA	Thermo iCE 3000	Thermo iCE 3000	SM 3114 C-2009
Silver	Acid Digestion / ICP-AES	IRIS INTREPID DUO	ICAP 6000	EPA 200.7 Rev. 4.4
Sodium	Acid Digestion / ICP-AES	IRIS INTREPID DUO	ICAP 6000	EPA 200.7 Rev. 4.4 (1994)
Thallium	Acid Digestion / ICP-AES	IRIS INTREPID DUO	ICAP 6000	EPA 200.7 Rev. 4.4 (1994)
Vanadium	Acid Digestion / ICP-AES	IRIS INTREPID DUO	ICAP 6000	EPA 200.7 Rev. 4.4 (1994)
Zinc	Acid Digestion / ICP-AES	IRIS INTREPID DUO	ICAP 6000	EPA 200.7 Rev. 4.4 (1994)

WASTEWATER INFLUENT and EFFLUENT (Organics)

Analyte	Description 2016	Instrumentation 2015	Instrumentation 2016	Method 2016
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	HP-6890GC / 5973MSD Capillary DB-5.625	EPA 625
Benzidines	Basic / Methylene Chloride continuous extraction, GC-MSD	HP-6890GC / 5973MSD Capillary DB-5.625	HP-6890GC / 5973MSD 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	Perkin Elmer Clarus 680 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 & TestAmerica)	EPA 1613 (external laboratory)
Organophosphorus Pesticides	Methylene Chloride 15% / Hexane 85% extraction, GC-PFPD	Varian 3800 GC-PFPD RTX-1 RTX-50	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	HP-6890GC / 5973MSD 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	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

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

Analyte	Description 2016	Instrumentation 2015	Instrumentation 2016	Method 2016
Alkalinity	Selected Endpoint Titration	Mettler DL-25 Titrator Orion 950	Mettler 25 Titrator Orion 950	SM 2320 B-1997
Cyanide	Acid Digest-Distil / Colorimetric	Hach DR/4000V	Hach DR/4000V	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 (TestAmerica)	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°C	Mettler PB 4002-S Mettler PG 5002-S Mettler AB204	Various models of balances.	SM 2540G 1997
Solids, Total-Volatile	Gravimetric @ 500°C	Mettler PB 4002-S Mettler PG 5002-S Mettler AB204	Various models of balances.	SM 2540G 1997

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

Analyte	Description 2016	Instrumentation 2015	Instrumentation 2016	Method 2016
Aluminum	Acid Digestion / ICP-AES	IRIS INTREPID DUO	IRIS INTREPID DUO & ICAP 6000	EPA 6010B
Antimony	Acid Digestion / ICP-AES	IRIS INTREPID DUO	IRIS INTREPID DUO & ICAP 6000	EPA 6010B
Arsenic	Hydride Generation / AA	Thermo iCE 3000	Thermo iCE 3000	EPA 7062
Beryllium	Acid Digestion / ICP-AES	IRIS INTREPID DUO	IRIS INTREPID DUO & ICAP 6000	EPA 6010B
Barium	Acid Digestion / ICP-AES	IRIS INTREPID DUO	IRIS INTREPID DUO & ICAP 6000	EPA 6010B
Boron	Acid Digestion / ICP-AES	IRIS INTREPID DUO	IRIS INTREPID DUO & ICAP 6000	EPA 6010B
Cadmium	Acid Digestion / ICP-AES	IRIS INTREPID DUO	IRIS INTREPID DUO & ICAP 6000	EPA 6010B
Chromium	Acid Digestion / ICP-AES	IRIS INTREPID DUO	IRIS INTREPID DUO & ICAP 6000	EPA 6010B
Cobalt	Acid Digestion / ICP-AES	IRIS INTREPID DUO	IRIS INTREPID DUO & ICAP 6000	EPA 6010B
Copper	Acid Digestion / ICP-AES	IRIS INTREPID DUO	IRIS INTREPID DUO & ICAP 6000	EPA 6010B
Iron	Acid Digestion / ICP-AES	IRIS INTREPID DUO	IRIS INTREPID DUO & ICAP 6000	EPA 6010B
Lead	Acid Digestion / ICP-AES	IRIS INTREPID DUO	IRIS INTREPID DUO & ICAP 6000	EPA 6010B
Manganese	Acid Digestion / ICP-AES	IRIS INTREPID DUO	IRIS INTREPID DUO & ICAP 6000	EPA 6010B
Mercury	Cold Vapor Atomic Absorption (CVAA) & backup method Thermal decomposition atomic absorption	Leeman Hydra Gold (CVAA) & 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-AES	IRIS INTREPID DUO	IRIS INTREPID DUO & ICAP 6000	EPA 6010B
Nickel	Acid Digestion / ICP-AES	IRIS INTREPID DUO	IRIS INTREPID DUO & ICAP 6000	EPA 6010B
Selenium	Hydride Generation / AA	Thermo iCE 3000	Thermo iCE 3000	EPA 7742
Silver	Acid Digestion / ICP-AES	IRIS INTREPID DUO	IRIS INTREPID DUO & ICAP 6000	EPA 6010B
Thallium	Acid Digestion / ICP-AES	IRIS INTREPID DUO	IRIS INTREPID DUO & ICAP 6000	EPA 6010B
Vanadium	Acid Digestion / ICP-AES	IRIS INTREPID DUO	IRIS INTREPID DUO & ICAP 6000	EPA 6010B
Zinc	Acid Digestion / ICP-AES	IRIS INTREPID DUO	IRIS INTREPID DUO & ICAP 6000	EPA 6010B

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

Analyte	Description 2016	Instrumentation 2015	Instrumentation 2016	Method 2016
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	HP-6890GC / 5973MSD Capillary DB-5.625	EPA 625
Benzidines	Basic / Methylene Chloride continuous extraction, GC-MSD	HP-6890GC / 5973MSD Capillary DB-5.625	HP-6890GC / 5973MSD 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	Perkin Elmer Clarus 680 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	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 & TestAmerica)	EPA 8290 (External Laboratory)
Organophosphorus Pesticides	Methylene Chloride 15% / Hexane 85% extraction, GC-PFPD	Varian 3800 GC-PFPD RTX-1 RTX-50	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	HP-6890GC / 5973MSD 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	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

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

Analyte	Description 2016	Instrumentation 2015	Instrumentation 2016	Method 2016
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 2016	Instrument 2015	Instrumentation 2016	Method 2016
Cyanide	Acid Digest-Distillation Colorimetric	Hach DR/4000V UV/Vis	Hach DR/4000V UV/Vis	EPA 9014 & EPA 9010B (Distillation)
Cyanide Reactive	Distillation / Colorimetric	Hach DR/4000V UV/Vis	Hach DR/4000V UV/Vis	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 (TestAmerica)	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

Waste Extraction Test (WET)	Extraction with Sodium Citrate ICP-AES	Burrel wrist action shaker TJA IRIS	(j) Section 66261.100

DRIED SLUDGE: Metro Biosolids Center (Metals)

Analyte	Description 2016	Instrumentation 2015	Instrumentation 2016	Method 2016
Aluminum	Acid Digestion / ICP-AES	IRIS INTREPID DUO	IRIS INTREPID DUO & ICAP 6000	EPA 6010B
Antimony	Acid Digestion / ICP-AES	IRIS INTREPID DUO	IRIS INTREPID DUO & ICAP 6000	EPA 6010B
Arsenic	Hydride Generation / AA	Thermo iCE 3000	Thermo iCE 3000	EPA 7062
Barium	Acid Digestion / ICP-AES	IRIS INTREPID DUO	IRIS INTREPID DUO & ICAP 6000	EPA 6010B
Beryllium	Acid Digestion / ICP-AES	IRIS INTREPID DUO	IRIS INTREPID DUO & ICAP 6000	EPA 6010B
Boron	Acid Digestion / ICP-AES	IRIS INTREPID DUO	IRIS INTREPID DUO & ICAP 6000	EPA 6010B
Cadmium	Acid Digestion / ICP-AES	IRIS INTREPID DUO	IRIS INTREPID DUO & ICAP 6000	EPA 6010B
Chromium	Acid Digestion / ICP-AES	IRIS INTREPID DUO	IRIS INTREPID DUO & ICAP 6000	EPA 6010B
Cobalt	Acid Digestion / ICP-AES	IRIS INTREPID DUO	IRIS INTREPID DUO & ICAP 6000	EPA 6010B
Copper	Acid Digestion / ICP-AES	IRIS INTREPID DUO	IRIS INTREPID DUO & ICAP 6000	EPA 6010B
Iron	Acid Digestion / ICP-AES	IRIS INTREPID DUO	IRIS INTREPID DUO & ICAP 6000	EPA 6010B
Lead	Acid Digestion / ICP-AES	IRIS INTREPID DUO	IRIS INTREPID DUO & ICAP 6000	EPA 6010B
Manganese	Acid Digestion / ICP-AES	IRIS INTREPID DUO	IRIS INTREPID DUO & ICAP 6000	EPA 6010B
Mercury	Cold Vapor Atomic Absorption (CVAA) & Thermal decomposition atomic absorption	Leeman PS Hydra Gold & Milestone DMA80	PSAnalytical PSA 10.045 Millennium & Milestone DMA80 (thermal decomposition, amalgamation, and atomic absorption spectrophotometry)	EPA 7471A & EPA 7473 Methods 7471A for California & 7473 for Arizona
Molybdenum	Acid Digestion / ICP-AES	IRIS INTREPID DUO	IRIS INTREPID DUO & ICAP 6000	EPA 6010B
Nickel	Acid Digestion / ICP-AES	IRIS INTREPID DUO	IRIS INTREPID DUO & ICAP 6000	EPA 6010B
Selenium	Hydride Generation / AA	Thermo iCE 3000	Thermo iCE 3000	EPA 7742
Silver	Acid Digestion / ICP-AES	IRIS INTREPID DUO	IRIS INTREPID DUO & ICAP 6000	EPA 6010B
Thallium	Acid Digestion / ICP-AES	IRIS INTREPID DUO	IRIS INTREPID DUO & ICAP 6000	EPA 6010B
Vanadium	Acid Digestion / ICP-AES	IRIS INTREPID DUO	IRIS INTREPID DUO & ICAP 6000	EPA 6010B
Zinc	Acid Digestion / ICP-AES	IRIS INTREPID DUO	IRIS INTREPID DUO & ICAP 6000	EPA 6010B

DRIED SLUDGE: Metro Biosolids Center (Organics)

Analyte	Description 2016	Instrumentation 2015	Instrument 2016	Method 2016
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 / 5975MSD 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 & TestAmerica)	EPA 8290 External Laboratory
Organophosphorus Pesticides	Methylene Chloride 50% / Acetone 50% Sonication Extraction, hexane exchange, GC-PFPD	Varian 3800 GC-PFPD RTX-1 RTX-50	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 2016	Instrumentation 2015	Instrumentation 2016	Method 2016
Tri, Di, and Monobutyl Tin	Hexane extraction, derivatization, GC-PFPD	Varian 3400 GC-FPD DB-608/30m DB-1/30m	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)	Combustion / GC-TCD (part of year 2016) & Since May 2016 Calculation Sum all Nitrogen (TKN, NO_2, NO_3)	Carlo-Erba NC-2500 Porapak QS	Carlo-Erba NC-2500 Porapak QS & Calculation: Sum all Nitrogen (TKN, NO_2, NO_3)	Calculation Sum all Nitrogen (TKN, NO_2, NO_3)

OCEAN SEDIMENT (General)

Analyte	**Description 2016**	**Instrumentation 2015**	**Instrumentation 2016**	**Method 2016**
Biochemical Oxygen Demand (BOD-5 Day)	Dissolved Oxygen Probe	YSI-5000 DO Meter	YSI-5000 DO Meter	SM 5210 B-2001
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 C°	Various balances	Various balances	SM 2540 G
Solids, Total-Volatile	Gravimetric @ 500 C°	Various balances	Various balances	SM 2540 G
Total Organic Carbon (TOC) and Total Nitrogen (TN)	Combustion / GC-TCD	Carlo-Erba NC-2500 Porapak QS	Carlo-Erba NC-2500 Porapak QS & 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 2016	Instrumentation 2015	Instrument 2016	Method 2016
Aluminum	Acid Digestion / ICP-AES	IRIS INTREPID DUO	IRIS INTREPID DUO & ICAP 6000	EPA 6010B
Antimony	Acid Digestion / ICP-AES	IRIS INTREPID DUO	IRIS INTREPID DUO & ICAP 6000	EPA 6010B

Analyte	Description 2016	Instrumentation 2015	Instrumentation 2016	Method 2016
Arsenic	Hydride Generation / AA, ICP-AES	Thermo iCE 3000	Thermo iCE 3000, IRIS INTREPID DUO & ICAP 6000	EPA 7062 & EPA 6010B
Beryllium	Acid Digestion / ICP-AES	IRIS INTREPID DUO	IRIS INTREPID DUO & ICAP 6000	EPA 6010B
Cadmium	Acid Digestion / ICP-AES	IRIS INTREPID DUO	IRIS INTREPID DUO & ICAP 6000	EPA 6010B
Chromium	Acid Digestion / ICP-AES	IRIS INTREPID DUO	IRIS INTREPID DUO & ICAP 6000	EPA 6010B
Copper	Acid Digestion / ICP-AES	IRIS INTREPID DUO	IRIS INTREPID DUO & ICAP 6000	EPA 6010B
Iron	Acid Digestion / ICP-AES	IRIS INTREPID DUO	IRIS INTREPID DUO & ICAP 6000	EPA 6010B
Lead	Acid Digestion / ICP-AES	IRIS INTREPID DUO	IRIS INTREPID DUO & ICAP 6000	EPA 6010B
Manganese	Acid Digestion / ICP-AES	IRIS INTREPID DUO	IRIS INTREPID DUO & ICAP 6000	EPA 6010B
Mercury	Thermal decomposition atomic absorption	Milestone DMA80	Milestone DMA80	EPA 7473
Nickel	Acid Digestion / ICP-AES	IRIS INTREPID DUO	IRIS INTREPID DUO & ICAP 6000	EPA 6010B
Selenium	Hydride Generation / AA	Thermo iCE 3000	Thermo iCE 3000	EPA 7742
Silver	Acid Digestion / ICP-AES	IRIS INTREPID DUO	IRIS INTREPID DUO & ICAP 6000	EPA 6010B
Thallium	Acid Digestion / ICP-AES	IRIS INTREPID DUO	IRIS INTREPID DUO & ICAP 6000	EPA 6010B
Tin	Acid Digestion / ICP-AES	IRIS INTREPID DUO	IRIS INTREPID DUO & ICAP 6000	EPA 6010B
Zinc	Acid Digestion / ICP-AES	IRIS INTREPID DUO	IRIS INTREPID DUO & ICAP 6000	EPA 6010B

OCEAN SEDIMENT (Organics)

Analyte	Description	Instrumentation 2015	Instrumentation 2016	Method 2016
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 2016	Instrumentation 2015	Instrumentation 2016	Method 2016
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 2016	Instrumentation 2015	Instrumentation 2016	Method 2016
Aluminum	Acid Digestion / ICP-AES	IRIS INTREPID DUO	IRIS INTREPID DUO & ICAP 6000	EPA 200.7 / EPA 200.3
Antimony	Acid Digestion / ICP-AES	IRIS INTREPID DUO	IRIS INTREPID DUO & ICAP 6000	EPA 200.7 / EPA 200.3
Arsenic	Acid Digestion / ICP-AES	IRIS INTREPID DUO	IRIS INTREPID DUO & ICAP 6000	EPA 200.7 / EPA 200.3
Beryllium	Acid Digestion / ICP-AES	IRIS INTREPID DUO	IRIS INTREPID DUO & ICAP 6000	EPA 200.7 / EPA 200.3
Cadmium	Acid Digestion / ICP-AES	IRIS INTREPID DUO	IRIS INTREPID DUO & ICAP 6000	EPA 200.7 / EPA 200.3
Chromium	Acid Digestion / ICP-AES	IRIS INTREPID DUO	IRIS INTREPID DUO & ICAP 6000	EPA 200.7 / EPA 200.3
Copper	Acid Digestion / ICP-AES	IRIS INTREPID DUO	IRIS INTREPID DUO & ICAP 6000	EPA 200.7 / EPA 200.3
Iron	Acid Digestion / ICP-AES	IRIS INTREPID DUO	IRIS INTREPID DUO & ICAP 6000	EPA 200.7 / EPA 200.3
Lead	Acid Digestion / ICP-AES	IRIS INTREPID DUO	IRIS INTREPID DUO & ICAP 6000	EPA 200.7 / EPA 200.3
Manganese	Acid Digestion / ICP-AES	IRIS INTREPID DUO	IRIS INTREPID DUO & ICAP 6000	EPA 200.7 / EPA 200.3
Mercury	Thermal decomposition, amalgamation, and atomic absorption spectrophotometry	Milestone DMA80	Milestone DMA80	EPA 7473
Nickel	Acid Digestion / ICP-AES	IRIS INTREPID DUO	IRIS INTREPID DUO & ICAP 6000	EPA 200.7 / EPA 200.3
Selenium	Hydride Generation / AA	Thermo iCE 3000	Thermo iCE 3000	EPA 7742
Silver	Acid Digestion / ICP-AES	IRIS INTREPID DUO	IRIS INTREPID DUO & ICAP 6000	EPA 200.7 / EPA 200.3
Thallium	Acid Digestion / ICP-AES	IRIS INTREPID DUO	IRIS INTREPID DUO & ICAP 6000	EPA 200.7 / EPA 200.3
Tin	Acid Digestion / ICP-AES	IRIS INTREPID DUO	IRIS INTREPID DUO & ICAP 6000	EPA 200.7 / EPA 200.3
Zinc	Acid Digestion / ICP-AES	IRIS INTREPID DUO	IRIS INTREPID DUO & ICAP 6000	EPA 200.7 / EPA 200.3

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

Analyte	Description 2016	Instrumentation 2015	Instrumentation 2016	Method 2016
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	Varian 3800 GC Saturn 2000 MS-Ion Trap 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	Varian 3800 GC Saturn 2000 MS-Ion Trap 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) The Determination of Metals and Trace Elements in Water and Waste
Revision 4.4, EMMC Version, EMMC Methods Work Group, 1994

f) Standard Methods for the Examination of Water and Wastewater,
APHA, AWWA, WPCF, 17th Edition, 1989.

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 - 2016

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	Weekly	Composite			
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	
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
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		Reported in the monthly Toxicity Testing Report by the Biology Section

D. Laboratories Contributing Results used in this report.

i. Metropolitan Wastewater Chemistry Laboratory (EPA Lab Code: CA00380, ELAP Certificate: 1609)
5530 Kiowa Drive
La Mesa, CA 91942
(619)668-3212
All results except those listed below.

ii. Point Loma Wastewater Chemistry Laboratory
(EPA Lab Code: CA01435,
ELAP Certificate: 2474)
1902 Gatchell Road
San Diego, CA 92106
(619)221-8765
Process control analyses and wet methods for the plant.

iii. North City Wastewater Chemistry Laboratory
(EPA Lab Code: CA01436,
ELAP Certificate: 2477)
4949 Eastgate Mall
San Diego, CA 92121
(858)824-6009
Process control analyses and wet methods for the plant.

iv. Metro Biosolids Center Chemistry Laboratory
(EPA Lab Code: CA01437,
ELAP Certificate: 2478)
5240 Convoy Street
San Diego, CA 92111
(858)614-5834
Process control analyses and wet methods for the plant.

v. South Bay Water Reclamation Plant
(EPA Lab Code: CA01460,
ELAP Certificate: 2539)
2411 Dairy Mart Road
San Diego, CA 92173
619.428.7349
Process control analyses and wet methods for the plant.

vi. City of San Diego - Water Quality Laboratory
(EPA Lab Code: CA00080,
ELAP Certificate: 1058)
5530 Kiowa Drive
La Mesa, CA 91942
(619)668-3237
Total Organic Carbon in Wastewater

vii. City of San Diego - Marine Microbiology and Vector Management
(EPA LabCode: CA01393, ELAP Certificate: 2185)
4918 Harbor Drive, Suite 101
San Diego, CA 92106
(619) 758-2312
Microbiology

viii. City of San Diego - Toxicity Bioassay Laboratory
(EPA Lab Code: CA01302,
ELAP Certificate: 1989)
4918 Harbor Drive, Suite 101
San Diego, CA 92106
(619) 758-2347
Bioassays

ix. Frontier Analytical Laboratory
(EPA Lab Code: CA014455,
NELAP- Certificate: 02113CA)
5172 Hillsdale Circle
El Dorado Hills, CA95762
(916) 934-0900
0

x. Test America (EPA Lab code: WA00023,
CA ELAP Certification: 2425
2800 George Washington Way
Richland, WA 99354-1613
Telephone# (509) 375-3131
Gross Alpha/Beta Radioactivity

xi. Test America
17461 Derian Ave Suite 100
Irvine, CA 92614
CA ELAP Certification: 2706
Telephone# (615) 726-0177

xii. Weck Laboratories, Inc.
CA ELAP Certification: 1132
14859 East Clark Avenue
City of Industry, CA 91745
Telephone# (626) 336-2139
Organics (Volatile & Semi-Volatile); Herbicides

xiii. Fruit Growers Laboratories, Inc. (FGL)
CA ELAP Certification: 1573
853 Corporation Street
Santa Paula, CA 93060
Telephone# (805) 392-2000
Gross Alpha/Beta Radioactivity

E. QA Report Summary

Summary and Overview:

The Environmental Chemistry Services (ECS) Section of the Environmental Monitoring and Technical Services (EMTS) Division, Public Utilities Department, performs most of the NPDES and other permit analytical and reporting functions, as well as process control chemical and physical testing for the City of San Diego's E.W. Bloom Point Loma Wastewater Treatment Plant (PLWWTP), North City Water Reclamation Plant (NCWRP), South Bay Water Reclamation Plant (SBWRP), and the Metro Biosolids Center (MBC). The ECS laboratory staff also performs the chemical/physical testing of ocean sediment and fish tissue samples in support of the Ocean Monitoring Program for the City of San Diego's PLWWTP Ocean Outfall and SBWRP Ocean Outfall and the International Boundary and Water Commission's International Treatment Plant outfall. Additionally, laboratory staff provides environmental testing services to various customers, both internal to the City of San Diego and to other external agencies.

The QA/QC activities of the Laboratory are comprehensive and extensive. Of the 47,399 samples received in the Laboratory in 2016, approximately 40.1% were Quality Control (QC) samples, such as blanks, check samples, and standard reference materials. A total of 136 different analyses were performed throughout the year resulting in 354,066 analytical determinations that consist of 158,162 (~44.7%) 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 five (5) 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 Treatment & Disposal Division and all Public Utilities Department 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 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 2016 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.

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.
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.
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
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

* Licensed & certified as Arizona Out-of-State Laboratory

Facilities & Scope:

The Environmental Chemistry Services (ECS) comprises five geographically separated laboratories - the main laboratory facilities located at the Alvarado Joint Laboratory building in La Mesa and the four satellite chemistry laboratories located at Public Utilities treatment plants. Each maintains individual California Department of Drinking Water's 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 L 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
North City Water Reclamation Plant Satellite Lab	North City Wastewater Chemistry Laboratory	4949 Eastgate Mall San Diego, CA 92121	858.824.6009	CA01436		2477
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.

Due to a divisional restructuring in October 2015, 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. With this realignment, the Industrial Waste Laboratory (IWL) was similarly moved to become part of ECS. Final integration to include merging of ECS and IWL databases was not completed as anticipated in 2016. 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 2016.

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 (PLWWTP), NPDES No. CA0107409/ Order No. R9-2009-0001, including the ocean monitoring program.
- North City Water Reclamation Plant (NCWRP), Order No. 97-03.
- Metro Biosolids Center (MBC), no permit, but monitoring requirements contained in Permit No. R9-2009-0001.
- South Bay Water Reclamation Plant (SBWRP), NPDES No. CA0109045/ Order No. R9-2013-0006.

- Ocean monitoring program for 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 Test America and Frontier Analytical Laboratories
- Semivolatile & 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.). In all of these cases, we 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, 2016 - December 31, 2016.[15]
The sample distribution increased 5.2% in year 2016 from 2015; Of the 354,066 analytical determinations made on 47484 samples received by the Laboratory in 2016 (see table A.) 18,991 or 40.1% were Quality Control (QC) samples; 12.5% were blanks; and 27.6% were check or reference samples.

Table A. Samples	2016 Number of Samples	Percent of total samples	2015 % Difference
Customer/Environmental samples	**28,408**	**59.93%**	**5.2%**
Quality Control (QC) samples	**18,991**	**40.07%**	**4.3%**
Total Samples	**47,399**	**100.00%**	**4.8%**
QC Samples:			
Blanks:			
FIELD_BLANK	**237**	**0.50%**	**-3.4%**
REAGENT_BLANK	**56**	**0.12%**	**26.8%**
TRIP BLANK	**6**	**0.01%**	**33.3%**
METHOD_BLANK	**5,608**	**11.83%**	**4.3%**
Total Blanks:	**5,907**	**12.46%**	
Check samples:			
External Check samples	**5,807**	**12.25%**	**-0.7%**
Internal Check samples	**7,191**	**15.17%**	**8.3%**
Low Level MDL Verification	**38**	**0.08%**	**-18.4%**
SRMs (Standard Reference Material)	**47**	**0.10%**	**31.9%**
Total Check Samples:	**13,083**	**27.60%**	**4.3%**
Total QC Samples:	**18,990**	**40.06%**	**4.3%**

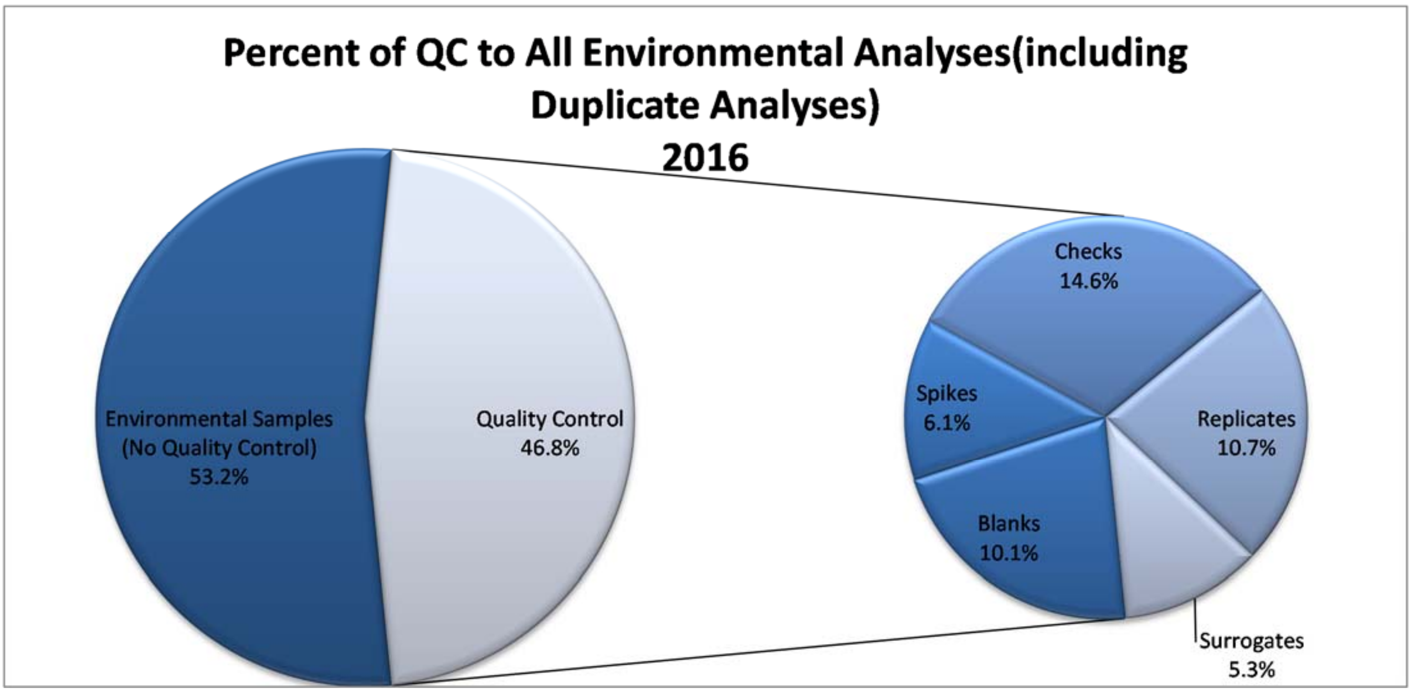
A high level of Quality Control is used for laboratory determinations. Of the 354,066 determinations, 44.7% were QC (e.g. blanks, lab replicates, matrix spikes, surrogates, etc.). If calculated for the 337,979 customer determinations only, the percentage increases to 46.8%.

A small percentage (2.29%) of the total analytical batches 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 26, 2017 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, 2016 and December 31, 2016. 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) - 2016

	Number	Percent of total	
Total number of analytes/results determined:	**354,066**	NA	
Total results not complete [2]:	16,087	4.5%	
No. of results for Customer/Environmental Samples [1,3]:	**337,979**	**95.5%**	
Total number of rejected results:	64,231	20.26%	
No. of results for blanks [3]:	34,097	9.6%	10.1%
No. of results for matrix spikes [3]:	20,569	5.8%	6.1%
No. of results for Check samples [3]:	49,351	13.9%	14.6%
No. of results for Replicates [3]:	36,214	10.2%	10.7%
No. of results for surrogates [3]:	17,931	5.1%	5.3%
Total QC analyses run [3] :	**158,162**	**44.7%**	**46.8%**



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 354,066.

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%

QA Plan:

A copy of our Laboratory's current Quality Assurance Plan is included as Attachment 3. The Quality Assurance Plan was updated in March 2017.

Summary of 2016 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 18 PT studies for 2016. PT studies were purchased from ERA and Phenova and were successfully completed. 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 2016 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 (%)
HW-0116	72	72	100%
HW-0416	107	106	99.10%
HW-0716	2	2	100%
WP-0216	2	2	100%
WP-0316	159	153	96%
WP-0516	1	1	100.00%
WP-0416	17	16	94%
Total analytes:	**360**	**352**	**98%**

North City Chemistry Laboratory: See attachment 7 for copy of reports.

PT Study	Number of Analytes	Number of Acceptable results	Success Rate (%)
WP-0416	14	14	100%
Total analytes:	**14**	**14**	**100%**

Metro Biosolids Center (MBC) Chemistry Laboratory: See attachment 8 for copy of reports

PT Study	Number of Analytes	Number of Acceptable results	Success Rate (%)
WP-0316	5	5	100%
Total analytes:	**5**	**5**	**100%**

Pt. Loma Environmental Chemistry Laboratory: See attachment 9 for copy of reports.

PT Study	Number of Analytes	Number of Acceptable results	Success Rate (%)
WP-0216	5	5	100%
WP-0316	2	2	100%
WP-0416	5	5	100%
WP-0516	1	1	100%
HW--0716	2	2	100%
Total analytes:	**13**	**13**	**100%**

South Bay Wastewater Chemistry Laboratory: See attachment 10 for copy of reports.

PT Study	Number of Analytes	Number of Acceptable results	Success Rate (%)
WP-0316	14	14	100%
WS-237	1	1	100%
WP-255	1	1	100%
WS-416	2	2	100%
Total analytes:	**18**	**18**	**100%**

F. Staff contributing to this Report

Staff Contributing to this Report in 2016

Initials	ID	First Name	Last Name	Signature
VB	VBASILAN	Virginia	Basilan	
EB	EBLANCO	Enrique	Blanco	
IBA	IBOLIO	Irma	Bolio	
TC	TJCANNON	Tim	Cannon	
JC	JCASTRO	Jose	Castro	
JCM	JCAZARES	Jacqueline	Cazares-Medina	M. Jacqueline Cazares Medina
SC	SCORIA	Salvador	Coria	
MC	MCORONEL	Maricela	Coronel	
CC	CCORRAO	Christine	Corrao	
~~JCM~~ GBC	JCZAJKOWSKI	Jerry	Czajkowski	GBC
KD	KDANG	Ken	Dang	
MM	MMDAOUD	Mike	Daoud	
BD	BDONAHUE	Brad	Donahue	
BLD	BDOWELL	Brenda	Dowell	
ACD	ADURAN	Angelica	Duran	
LBE	LEDWARDS	Lauren	Edwards	
AJE	AJENTERA	Angela	Entera	
EFITZ	EFITZGERALD	Erica	Fitzgerald	
TG	TGARCIA	Tatsiana	Garcia	
NG	NGRIMAUD	Nicole	Grimaud	
JGB	JDGUERRERO	Jose	Guerrero	
RG	RGUERRERO	Ricardo	Guerrero	
MH	MHETU	Marcel	Hetu	
EH	EHUNT	Eric	Hunt	
RJ	RJARDINE	Ron	Jardine	
BK	BKELLEY	Brett	Kelley	
LK	LKING	Lee	King	
VK	VKOZAREV	Vesselka	Kozarev	
EL	ELANEZ	Estela	Lanez	
ITL	ILAWLESS	IAN	Lawless	
AM	AMARTINEZ	Armando	Martinez	
FM	FMARTINEZ	Fernando	Martinez	
CGM	CONNIEM	Connie	Mata	
JM	JMCANALLY	Jeff	McAnally	
EM	EMERCADO	Elvie	Mercado	
OM	OMIRANDASAND	Oscar	Miranda Sandoval	OM
JN	JNIETO	Jesus	Nieto	
MN	MNOLLER	Maria	Noller	
PP	PPARRA	Paola	Parra	
CP	CPAYAN	Ciara	Payan	
LP	LPRZYBYLO	Leonard	Przybylo	
CAQ	CQUINATA	Corinna	Quinata	
YXR	YREYNOSOMAR	Yolanda	Reynoso Martin	Yolanda Reynoso-Martin
RR	RROMERO	Raul	Romero	
SR	SEROMERO	Sonji	Romero	
RR	RRONSAIRO	Rowena	Ronsairo	
RS	RSANDOVAL	Robert	Sandoval	
VS	VSANTIBANEZ	Victoria	Santibanez	
GS	GSCHLIMME	Greg	Schlimme	Schlimme
MS	MSHEFFIELD	Marie	Sheffield	
MS	MSOHN	Minsung	Sohn	
SV	SVALENZUELA	Sandra	Valenzuela	
JW	JWEBB	Julie	Webb	
EW	EWESTCOTT	Erica	Westcott	

Figure 1. Chemistry Laboratory Organization Chart.

Public Utilities Department
Environmental Monitoring and Technical Services Division

Environmental Chemistry Services

Deputy Director
Peter Vroom, Ph.D

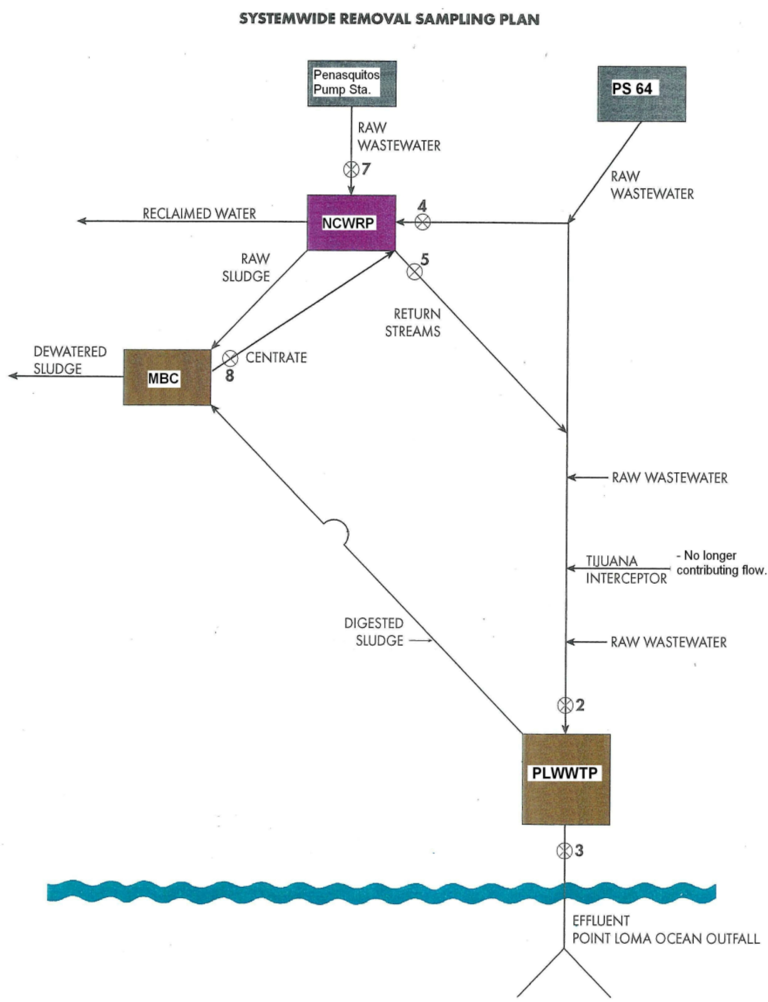
Senior Chemist *1.00*
Brent Bowman

Pesticides Group	***QA/DM Group***	***Metals Group***	***Pt. Loma WWTP / MBC Group***	***South Bay WRP Group***	***GC/MS Group***	***GC/MS Industrial Waste Group***	***Inorganic Industrial Waste Group***
Associate Chemist 1.00 SALVADOR CORIA	*Associate Chemist 1.00* LEE KING	*Associate Chemist 1.00* SANDRA VALENZUELA	*Associate Chemist 1.00* VESSELKA KOZAREV	*Associate Chemist 1.00* ROBERT SANDOVAL	*Associate Chemist 1.00* JEFF MCANALLY	*Associate Chemist 1.00* IAN LAWLESS	*Associate Chemist 1.00* RON JARDINE
Assistant Chemists: 5.00 JACQUELINE CAZARES- MEDINA BRADLEY DONAHUE BRENDA DOWELL LAUREN EDWARDS Vacant	*Assistant Chemists: 4.00* ARMANDO MARTINEZ FERNANDO MARTINEZ MARIA NOLLER JULIE WEBB	*Assistant Chemists: 6.00* JERRY CZAJKOWSKI KEN DANG JESUS NIETO LEONARD PRZYBYLO MARIE SHEFFIELD Vacant	*Assistant Chemists: 2.00* ENRIQUE BLANCO VIRGINIA BASILAN	*Assistant Chemists: 1.00* GREG SCHLIMME	*Assistant Chemists: 3.00* ESTELA LANEZ MARCEL HETU CONNIE MATA	*Assistant Chemists: 3.00* YOLANDA REYNOSO-MARTIN RAUL ROMERO Vacant	*Assistant Chemists: 3.00* RICARDO GUERRERO VICTORIA SANTIBANEZ IRMA BOLIO
Laboratory Technician: 2.00 MARICELA CORONEL PAOLA PARRA	*Laboratory Technician: 2.00* ERIC GWYNN CIARA PAYAN	*Laboratory Technician: 1.00* ERICA FITZGERALD	*Laboratory Technician: 5.00* TIM CANNON NICOLE GRIMAUD ROWENA RONSAIRO OSCAR MIRANDA MINSUNG SOHN	*Laboratory Technician: 2.00* JOSE CASTRO ANGELICA DURAN	*Laboratory Technician: 1.00* ANGELA ENTERA	*Laboratory Technician: 1.00* JOSE GUERRERO	*Laboratory Technician: 1.00* MIKE DAOUD
Intern:	*Word Processing Operator: 1.00* CORINNA QUINATA	Intern:					

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 calculation16. 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.



16 Calculations are performed by a computer database application working with Metro System flow and concentration data.

```
Equation 1.
System-wide %Removal= (ΣSystem Influents)-(ΣReturn Streams) - (ΣOutfall Discharge) x 100%
                              ΣSystem Influents - ΣReturn Streams

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 nnual 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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