

2011 Annual Reports and Summary for the South Bay Wastewater Reclamation Plant & Ocean Outfall



NPDES No. CA 0109045
Order No. 2006-067
&
Order No. 2000-203



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THE CITY OF SAN DIEGO

June 29, 2011

Mr. David W. Gibson, Executive Officer
California Regional Water Quality Control Board
9174 Sky Park Court, Suite 100
San Diego, CA 92123

Attn: POTW Compliance Unit

Dear Mr. Gibson:

Enclosed is the 2011 South Bay Water Reclamation Plant and Ocean Outfall Annual Reports and Summary, as specified in discharge Order No. 2006-067, NPDES Permit No. CA0109045.

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,

Steve Meyer
Deputy Public Utilities Director

BGB

cc: EPA Region 9
San Diego County Department of Environmental Health
Distribution
File

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City of San Diego
Public Utilities Department
Environmental Monitoring & Technical Services Division

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Credits and Acknowledgements

**South Bay Wastewater Reclamation Plant and Ocean Outfall Annual
Monitoring Report
2011**

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I. Introduction

- A. Executive Summary
- B. Explanatory Notes
- C. Reporting Definitions
- D. Overview of the Metropolitan Wastewater (Metro) System
- E. Overview of SBWRP
- F. Discussion of Compliance Record
- G. Plant Facility Operations Report
- H. Correlation of Results to Plant Conditions

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I. Introduction

A. Executive Summary:

Purpose:

This report meets the annual reporting requirements of Monitoring and Reporting Program (MRP) in Order No. R-2006-067 (NPDES Permit No. CA0109045), as well as the requirements of Order No. 2000-203 relating to the production and purveyance of recycled water at the South Bay Water Reclamation Plant (SBWRP). It also serves as a historical record and reference of operational and compliance metrics.

Background:

The South Bay Water Reclamation Plant (SBWRP) is located at the intersection of Dairy Mart and Monument Roads in the Tijuana River Valley. The plant relieves the South Metro Sewer Interceptor System and provides local wastewater treatment services and reclaimed water to the South Bay. The plant opened in May 2002 and has a wastewater treatment capacity of 15 million gallons a day. The plant shares the South Bay Ocean Outfall (SBOO) with the International Wastewater Treatment Plant operated by the U.S. Section of the International Boundary and Water Commission (IBWC). While the plant has been operating since May 2002, distribution of reclaimed water started 4-years later in July 2006. The volume reclaimed and distributed varies depending on demand for recycled water.

During 2011, the plant received and treated 3.0 billion gallons of wastewater, reclaiming 72% or 2.2 billion gallons. Fifty five percent of the reclaimed water was beneficially reused by the Otay Water District, the International Treatment Plant, or used for in-plant processes. Between the months of April thru October more than seventy percent of the reclaimed water was reused.

Key metrics for 2011	Daily Average Flow (mgd)	Total Annual Flow (million gallons)
Influent to plant (Raw Wastewater Treated)	8.22	3,001
Effluent to Ocean Outfall	3.54	1,288
Reclaimed Water Produced	5.89	2,154
Beneficial Reuse (recycled water distributed)	3.22	1,177
Sludge and returns to South Metro Interceptor (SMI)	1.38	505
Plant Use of Reclaimed Water	0.97	353

For a detailed discussion of the plant and treatment process see sections I. F., Plant Facility Operation Report, and Chapter III. Plant Operations Summary.

B. Explanatory Notes:

The past year's data is presented in tabular and graphical form. We include annual monitoring results, as well as special items and discussions itemized in the permits. This document is comprehensive, including supporting information on monitoring 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.

The Recycled Water Users Summary Report as described in Permit No. 2000-203 is submitted separately from this report. However, we do include summary information and an evaluation of the Water Reclamation and beneficial reuse integral to the operations of the plant. Section 7 contains a thorough presentation and evaluation of the Reclaimed Water process information and monitoring data.

For averaging purposes, "less than" and "not detected" (nd) values were treated as zero. In many parts of the report zero values are found. Our computer system reads "less than" values as zero for summaries, as well as in computing averages. In those areas where zeros are found the reader can find appropriate method detection limits (MDL) in the table of 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.

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 $\pm 100\%$ when the result is near the MDL. Only at concentrations approximately 5 times the MDL is the confidence interval at $\pm 20\%$. 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 that don't go to zero concentrations but show, in magnified scale, that range of concentrations where variation takes place. This makes differences and some trends obvious that might normally not be noticed however, it also provides the temptation to interpret minor changes or trends as being of more significance than they are. Please reference the chart axis scales.

C. Reporting Definitions

Estimated Concentrations (“E” Qualifier)

The “E” qualifier stands for “estimated value”, and is used in data reduction to flag data that has a lower concentration than normally acceptable for monitoring programs, or the method under federal regulations or ELAP requirements, but the qualitative identification has high certainty. Using normal detection limit criteria, useful information would be lost. In making determinations and reporting data there are circumstances where, due to the nature of the analysis and the needs of the customer, the certainty in quantitation can be less than the requirements necessary for general environmental monitoring and reporting for regulatory compliance.

Data annotated with an “E” followed by a value (always less than the reported MDL) is an estimated value. Data annotated in this manner has an uncertainty in concentrations unacceptable for compliance determinations or other concentration dependent conclusions.

D. Overview of the Metropolitan Wastewater (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 providing for 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 Pt. Loma Wastewater Treatment Plant (PLWTP). Solids treatment and handling provided at the PLWTP and the Metro Biosolids Center (MBC). The City of San Diego contributes approximately 65% of the flow in the Metro System with the remainder coming from the Participating Agencies.

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 MWWD.

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

The System is a complex system 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) which treats and disposes of all treatment process solids material removed by the treatment plants.

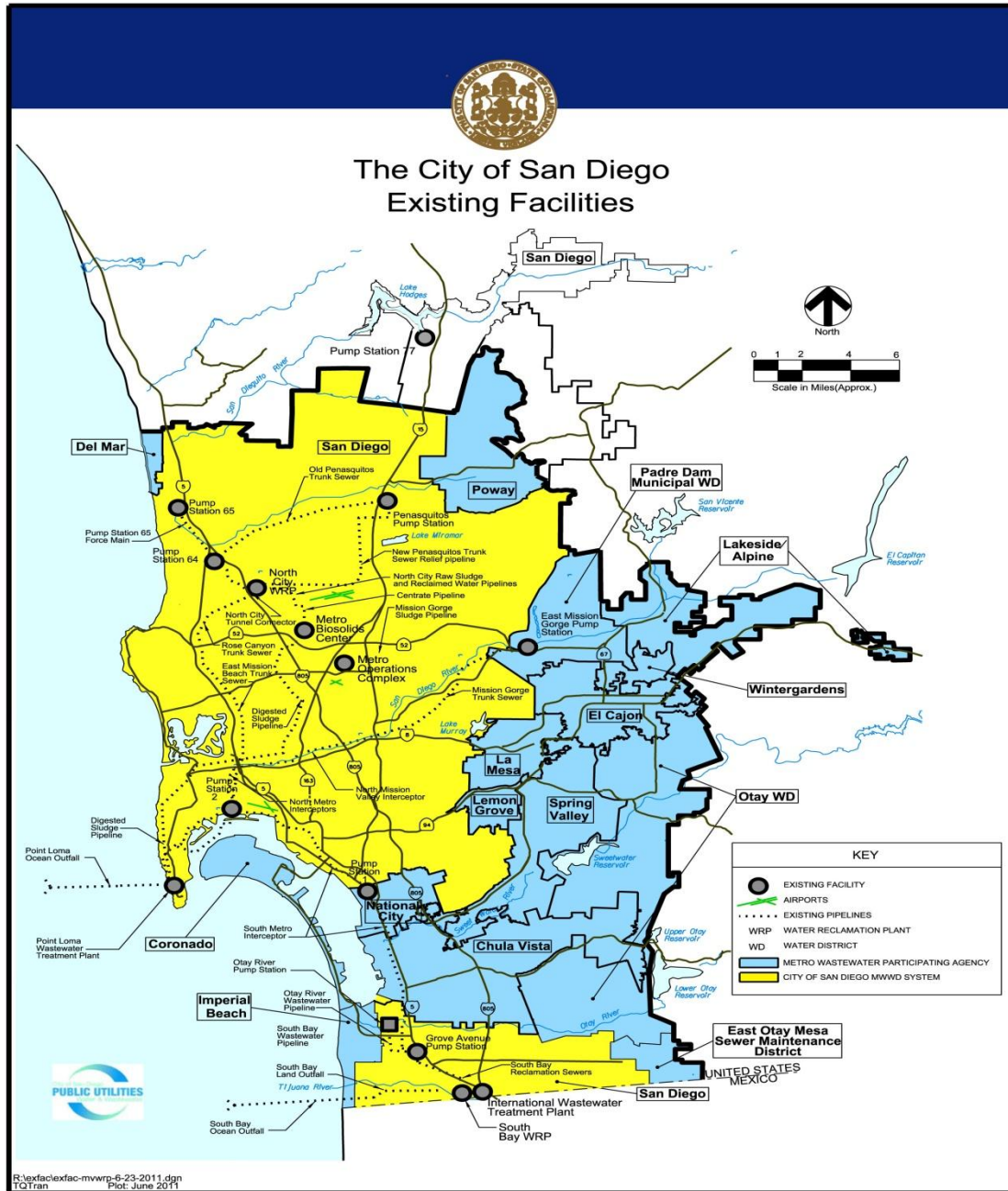
The PLWTP is the largest of the wastewater treatment plants in the System. The PLWTP is an advanced primary treatment WWTP that uses chemical addition to increase performance of the primary clarifiers and is the terminus for the System. The PLWTP discharges effluent through the Pt. Loma Ocean Outfall (PLOO). As an advanced primary treatment WWTP, performance is not measured entirely by effluent quality, but also against the California Ocean Plan and the Basin Plan which address the water quality and beneficial uses of the Pacific Ocean.

The plant has a rated capacity of 240 million gallons per day (mgd) average daily dry weather flow, 432 mgd peak wet weather flow, and currently operates at 156 mgd. The NCWRP has a rated capacity of 30 mgd and currently operates at a nominal flow-rate of 19.5 mgd. The SBWRP has a rated capacity of 15 mgd and is currently treating a nominal 8.2 mgd. The PLWTP is a modern primary treatment facility and the NCWRP and SBWRP are both modern tertiary treatment facilities.

The other two facilities, the NCWRP and the 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 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 the South Bay Ocean Outfall (SBOO).

The MBC processes primary and secondary solids from the NCWRP through anaerobic digestion and dewatering, and processed 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 ISO¹ 14001, Environmental Management Systems.



¹ International Standards Organization

E. Overview of SBWRP

The **South Bay Water Reclamation Plant (SBWRP)** relieves the South Metro Sewer Interceptor System and provides local wastewater treatment services and reclaimed or recycled water to the South Bay. The plant opened in May 2002 and has a wastewater treatment capacity of 15 million gallons a day. The plant design incorporates the newest technologies and provides advanced treatment for up to 15 million gallons of wastewater per day.



The advanced treatment meets tertiary or reclaimed water standards including disinfection. The SBWRP treatment process is a state-of-the-art implementation of traditional secondary treatment using activated-sludge. Much of the secondary effluent is reclaimed and beneficially reused after tertiary filtration through anthracite coal beds and disinfection with high-intensity ultraviolet (UV) light. The plant shares the South Bay Ocean Outfall (SBOO) with the International Wastewater Treatment Plant (IWTP) operated by the U.S. Section of the International Boundary and Water Commission (IBWC).

Treatment processes consist of mechanical bulky debris and grit removal at the headworks using standard traveling bar screens and aerated grit chambers. The removed debris is then dewatered and taken to landfills. Suspended solids of wastewater are removed by primary sedimentation. Scum removal is concurrent with primary sedimentation. Primary effluent is followed by industry standard aerated activated sludge secondary treatment. Secondary clarifiers allow settling and removal of the remainder of the solids (also called sludge) which is returned to the Metro System via the South Metro Interceptor and is pumped to the Pt. Loma WWTP. The resultant secondary effluent is either discharged to the South Bay Ocean Outfall or directed to tertiary treatment in the plant.

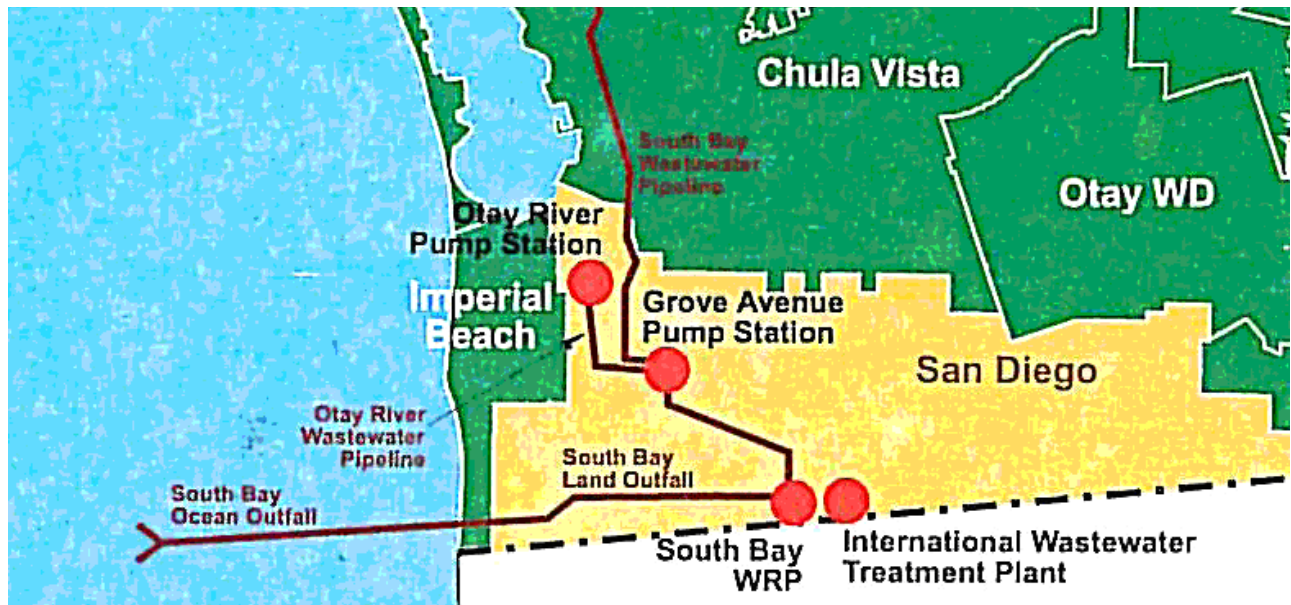


In 2011, approximately three quarters of the influent treated was directed to tertiary treatment. Tertiary treatment consists of running the secondary effluent through anthracite coal beds where it is filtered of remaining solids as it passes through the layered medium. The filtered water then passes through chambers where it is disinfected through exposure to high-energy ultraviolet light (UV). At this stage the "reclaimed" water meets State Title 22 full body contact requirements. Recycled or reclaimed water is beneficially reused for in-plant processes at SBWRP, at the nearby International Wastewater Treatment Plant and an increasing percentage of the recycled water is distributed to the Otay Water District for non-potable beneficial reuse off-setting demands for traditional potable water sources.

South Bay Ocean Outfall (SBOO)

The South Bay Water Reclamation Plant (SBWRP) is located at 2411 Dairy Mart Road, San Diego, CA 92154. It sits at the intersection of Dairy Mart and Monument Roads in the Tijuana River Valley just meters north of the U.S.-Mexico International border. The plant provides additional treatment capacity and reclaimed water for the southern service area of the Metro System (South Metro Sewer Interceptor System).

The South Bay Ocean Outfall extends approximately 3.5 miles offshore and discharges effluent in approximately 100 feet of water. The outfall tunnel has an 11 foot diameter and is 19,000 feet long.



F. Discussion of Compliance Record

The South Bay Water Reclamation Plant operates with two separate permits. NPDES Permit No. CA0109045/ Order No. 2006-067 (with addenda) provides for the treatment and disposition of wastewater via the shared South Bay Ocean Outfall and Reclaimed Water Permit No. 2000-203 (with addenda) provides for water reclamation.

South Bay Ocean Outfall:

There was one discharge limit exceeded for the South Bay Ocean Outfall in 2011. On November 7, 2011 the residual chlorine grab sample taken at 1406 was 21.2 mg/L, which is above the instantaneous maximum of 5.7 mg/L.

This event was attributed to a leak of chlorinated water during a filter cleaning event that lasted for 20 minutes. Operating procedures were updated specifying the closure of a redundant manual valve, in-line with the filter effluent valve, during filter cleaning events.

Recycled (Reclaimed) Water:

This is the sixth year of operating where reclaimed water was produced and distributed. There were 8 exceedances of recycled water limits in 2011 on days in which recycled water was distribution.

Chloride

The monthly average chloride limit of 260mg/L was exceeded in January with a value of 280mg/L and in March with a value of 262mg/L. The increase in the concentration of chloride in the reclaimed water to levels just above the monthly average limit is attributable to a similar increase in the chloride concentration of the influent to the plant from the wastewater collections system. The chloride limit is based on a Secondary MCL for aesthetics, i.e. taste, not a health concern. Reclaimed water from the SBWRP is not used for human consumption.

Percent Sodium

The percent sodium of the reclaimed water composite sample for November 2, 2011 was 62.4% and exceeded the daily maximum limit of 60%. The 30-day average on November 2, 2011 was at the limit of 60%.

The percent sodium determination is a calculation value utilizing monitoring results for calcium, magnesium, potassium, as well as, sodium. The ratio calculation is represented below, concentration is in moles:

$$\frac{[\text{Na}]}{[\text{Na}] + [\text{K}] + [\text{Ca}] + [\text{Mg}]}$$

The cause of the increase in the percent sodium value in the November 2, 2011 composite sample is attributable to low values for calcium and magnesium and not an elevated amount of Sodium in the sample. The sodium value was 177mg/L below the annual average for 2011 of 183 mg/L. The unusual decrease in the concentration of calcium and magnesium on November 2, 2011 cannot be attributed to any cause or event, such as rain, and is not

consistent with past data.

Coliform

The 7-day median coliform value of 7.8 MPN on January 23, 2011 exceeded the limit of 2.2 MPN.

On March 7, 2011 the total coliform test result was 920 MPN/100 ml, exceeding the limit of 240. On March 12 and 13 the total coliform test results were 26 and 33 MPN/100ml respectively exceeding the limit of not more than one value over 23 MPN/100mL in any 30 consecutive days. Also on March 13th the seven day median result was 19 MPD/100ml exceeding the limit of 2.2 MPN/100 ml.

The 7-day median coliform value of 4.5 MPN on August 6, 2011 exceeded the limit of 2.2 MPN.

On one occasion (February 5, 2011) a representative recycled water grab sample for coliform analysis was not obtained and on one occasion (May 14, 2011) a composite sample for BOD and Solids analysis was accidentally discarded.

Reclaimed Water Permit No. 2000-203		
Month	Number of measures exceeding Limits.	Comments: (see monthly report for further details.)
January 2011	2	1. The monthly average value for Chloride of 280 mg/L exceeded the limit of 260 mg/L. 2.The 7-day median coliform value of 7.8 MPN on January 23, 2011 exceeded the limit of 2.2MPN.
February 2011	none	
March 2011	4	1. The monthly average value for chloride of 262 mg/L exceeded the limit of 260 mg/L. 2. On March 7, 2011 the total coliform test result was 920 MPN/100 ml, exceeding the limit of 240. On March 12 and 13 the total coliform test results were 26 and 33 MPN/100ml respectively exceeding the limit of not more than one value over 23 MPN/100mL in any 30 consecutive days. Also on March 13 th the seven day median result was 19 MPN/100ml exceeding the limit of 2.2 MPN/100 ml.
April 2011	none	
May 2011	none	
June 2011	none	
July 2011	none	
August 2011	1	The 7-day median coliform value of 4.5 MPN on August 6, 2011 exceeded the limit of 2.2 MPN.
September 2011	none	
October 2011	none	
November 2011	1	The percent sodium of the reclaimed water composite

Reclaimed Water Permit No. 2000-203

Month	Number of measures exceeding Limits.	Comments: (see monthly report for further details.)
		sample for November 2, 2011 was 62.4% and exceeded the daily maximum limit of 60%. The 30-day average on November 2, 2011 was at the limit of 60% with a value of 60.2%.
December 2011	none	
Total:	8	

Ranges of Major Constituents in Reclaimed Water, 2011.

Waste Discharge and Water Recycling Requirements for the South Bay Water Reclamation Plant (Order No. 2000-203)			
Parameter	Permit Limits		Measured Values CY 2011
BOD ₅	Monthly Average	30 mg/L	<2.0 – 5.1
	Daily Maximum	45 mg/L	ND – 20.8
Total Dissolved Solids (TDS)	Monthly Average	1,200 mg/L	847 - 990
	Daily Maximum	1,300 mg/L	724 - 1160
Sulfate	Monthly Average	250 mg/L	124 - 201
	Daily Maximum	300 mg/L	115 - 212
MBAS	Monthly Average	0.5 mg/L	0.07 – 0.28
	Daily Maximum	0.7 mg/L	0.07 – 0.28
Iron	Monthly Average	0.3 mg/L	ND – 0.065
	Daily Maximum	0.4 mg/L	ND – 0.065
Fluoride	Monthly Average	1.0 mg/L	0.50 – 0.72
	Daily Maximum	1.2 mg/L	0.46 – 0.86
Total Coliform	Daily Maximum	MPN 23/100-mLs	<1.8 – 13

G. Plant Facility Operation Report

SOUTH BAY WATER RECLAMATION PLANT 2011 ANNUAL FACILITY REPORT Prepared by Plant Superintendent Ernesto Molas

This facility report summarizes some of the key operational considerations involved in the facility operation of the South Bay Water Reclamation Plant (SBWRP) during calendar year 2011. Numerical data and analysis presented in this section are based on plant staff work. Refer to the laboratory data in this document for validated results for official reporting purposes.

Influent Sampling:

Plant staff continues to implement a preventive maintenance program of switching and cleaning of the sample delivery pumps on a regular basis to ensure consistency in samples.

Basin Utilization:

The number of basins online for each unit processes meets the plant's overflow rates and detention time design criteria ranges which are as follows:

- 3 Primary Tanks on line with 2 offline as backups
- 5 Aeration Basin on line with 3 offline as backups
- 6 Secondary Basin on line with 3 as offline as backups

Influent Flows:

The design capacity of the plant is 15 million gallons per day (MGD), with a peak capacity of 18 MGD. The average daily influent flow treated during 2011 was 8.55 MGD. Effluent flow discharged to the ocean outfall was 3.53 MGD. Total reclaimed water produced was 4.20 MGD with 3.23 MGD of it was sold to customers and the remaining 0.97 MGD was used internally for filter backwashing and as utility water for plant equipments and processes.

Solids Handling:

The influent screening and washer/compaction units operated well, with adequate on-site hopper capacity. Approximately 29.26 tons of screenings were disposed of through the end of December 2011. Grit storage capacity was also adequate with 14.75 tons of grit hauled off site. All primary scum was returned to the MWW collection system (for treatment at the Pt. Loma WWTP facility) by routing the scum collection discharge to the blended sludge pump wet well. Primary and secondary sludge is also routed to the collection system via the blended sludge pumps. The activated sludge process was maintained through the use of high capacity wasting directly from the aeration basins to the blended sludge pumps during the full period of 2011 operation. Average daily totals for blended sludge volumes returned to the Pt. Loma facility via the South Metro Interceptor were 1.38 MGD.

Secondary Performance:

Secondary treatment performance for TSS and BOD has been an average TSS of 11.10 mg/L and BOD of 15.75 mg/L for 2011. Average secondary effluent turbidity was 4.57 NTU. MCRT has typically been maintained between 5 to 7 days.

Tertiary Processes:

The average filter effluent turbidity for 2011 was 0.54 NTU. The anthracite media for the tertiary filters did not experience any losses for 2011. All seven filters were available for operation. And 4 to 5 filters were on line to meet the RW demand.

Chlorine is added at the UV influent to control algae growth. The total chlorine residual is maintain at equal or below 0.5 mg/l. The frequency of chlorine addition is 12 hrs/day.

Water Reclamation & Distribution:

RW water was delivered to IBWC (International Boundary Water Commission) at an average daily rate of less than 0.5 MGD throughout the year. And the average delivery rate to Otay Storage tank during summer months was 5 to 7 mgd and only less than 1 mgd during the winter months.

Discussion of compliance record:

Coliform

The 7-day median coliform value of 7.8 MPN on January 23, 2011 exceeded the limit of 2.2. Maintenance and calibration of the transmittance analyzer is suspected to have impacted the disinfection system starting on January 18th. During the initial phases of this maintenance from January 18th thru the 23rd, coliform was detected in the recycled water.

This resulted in 7-day median values of 7.8 MPN on January 23rd and 24th. No recycled water was distributed on January 24, 2011. Maintenance and calibration was completed on January 28th and no further impacts are anticipated.

No coliform monitoring occurred on February 5, 2010. On this day there was a brief period when 0.61 MGD of recycled water was sent to the distribution system. The plants Distributed Control System (DCS) system was reprogrammed in March with safeguards to prevent reoccurrence of this event. An interlock to the Recycled Water pump which prevents the pumping of recycled water to the distribution system was programmed to be initiated and unlocked by onsite supervisors only.

On March 7, 2011 the total coliform test result was 920 MPN/100 ml, exceeding the limit of 240. On March 12 and 13 the total coliform test results were 26 and 33 MPN/100ml respectively exceeding the limit of not more than one value over 23 MPN/100mL in any 30 consecutive days. Also on March 13th the seven day median result was 19 MPN/100ml exceeding the limit of 2.2 MPN/100 ml. On March 7th, the remote monitoring group (COMC) was given instruction not to pump RW as the UV system has not been completely put back into service. But RW pumping occurred after midnight forcing plant operations personnel to collect a bacti sample in the morning with the knowledge that the UV system was not fully functioning. To safeguard this from happening again and as reported in the February report: "The plant's Distributed Control System (DCS) was reprogrammed in March with safeguards to prevent reoccurrence of this event. An interlock to the Recycled Water pump which prevents the pumping of recycle water to the distribution system was programmed to be initiated and unlocked by onsite supervisors only". For the coliform exceedances that

occurred on March 12th, and 13th, 2011 the UV system was examined and it was determined the lamps wipers were not wiping 100% due to a malfunctioning hydraulic valve switch. The valve switch was replaced. One of the two hydraulic pumps was replaced and the other was overhauled to ensure the hydraulic system is functioning fully. Failures of hydraulic rams which are directly connected to the wipers have been occurring more frequently which have randomly cause coliform results of above 2 MPN/100 ml. The hydraulic rams have reached their life functionality. The failed hydraulic rams are being replaced immediately and the old rams are being replaced as replacement parts become available.

The 7-day median coliform value of 4.5 MPN on August 6, 2011 exceeded the limit of 2.2 MPN. Strainers between the sodium hypochlorite bulk tanks and sodium hypochlorite metering pumps were clogged with scales which limited the flow from the tank to the pump decreasing the final output of sodium hypochlorite. The restricted flow of sodium hypochlorite would lower the chlorine concentration around the UV lamps which is suspected to have allowed algae growth on the UV lamps impacting the efficiency of the disinfection system resulting in the exceedance of the 7-day median on August 6, 2011. The strainers have been cleared of scales. A preventive maintenance schedule for the strainers has been added to the maintenance management system (EMPAC) to inspect and clean the strainer as necessary on a monthly basis.

Sampling

No coliform monitoring occurred on February 5th, 2011. On this day there was a brief period when 0.61 MGD of recycled water was sent to the distribution system. The plants Distributed Control System (DCS) system was reprogrammed in March 2011 with safeguards to prevent reoccurrence of this event. An interlock to the Recycled Water pump which prevents the pumping of recycled water to the distribution system was programmed to be initiated and unlocked by onsite supervisors only.

Chloride

In January and March, the monthly average values for Chloride were 280 mg/L and 262 mg/L respectively exceeded the limit of 260mg/L. The chloride levels in the influent increased correspondingly. This increase in chloride concentration is under investigation. The chloride limit is based on Secondary MCL for aesthetics, i.e. taste, not a health concern. Recycled water from the SBWRP is not used for human consumption.

Vector Control:

The presence of midge flies has been an on-going issue with the potential to adversely affect effluent quality, primarily at the secondary clarifiers and tertiary filters. Plant staff continues to rotate secondary clarifiers to disrupt midge flies larvae production. Control measures also include lowering the water level of a secondary clarifier to expose the larvae adhering to the side walls so they can be hosed down and removed. The staff also wash the sides of the filter during it backwash cycle to disrupt the midge fly from reproducing. The efforts to gain full control over this problem continue.

Engineering Projects:

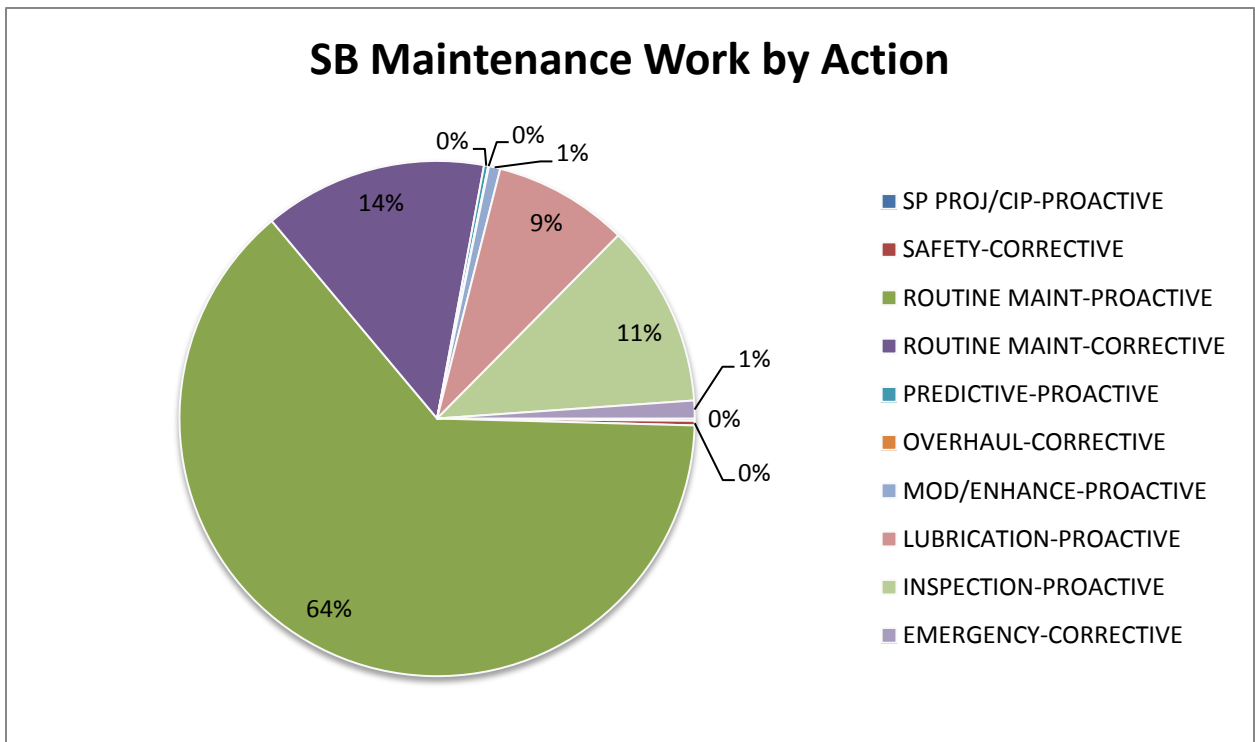
During 2011, the resident engineer position was eliminated. The Engineering group for the Wastewater Treatment and Disposal Division (WWTD) took over providing engineer support for the plant. Their support is mainly on-demand (no resident engineer) so the on-going and completed projects identified below were mainly accomplished by plant staff.

1. Sludge Pumps Replacement Project – pneumatics pumps will be replaced with motorized pumps to lower maintenance cost. Funding has been approved and the pumps and grinders have been ordered. Once the plant drawings have been reviewed and approved, the installation of the motorized pumps will begin.
2. Service Air Compressor Replacement Project – The compressor currently uses large amounts of reclaimed water (RW) for cooling. When the sludge Pumps Replacement Project is completed, the compressor will be replaced with an air cooled type compressor eliminating the need to use RW for cooling. Currently seeking funding to plan for replacement when the new sludge pump installation is completed.
3. Odor Control Chemical Metering Pumps Replacement Project – a skip mounted metering pumps was purchased and installed to provide accurate and reliable delivery of chemical to the Odor Control system. The improvement increased the treatment efficiency of odor. Completed and in operation.
4. Grit Tanks Rehab Project – Grit Tank #1 is completed and Grit Tank #2 was completed in March 2012.. The project entails resurfacing the grit tank walls, refurbishing all mechanical piping and valves, replacement of grit tank covers, and repairs of corroded concrete around the surface are of the grit tank.

Maintenance Report:

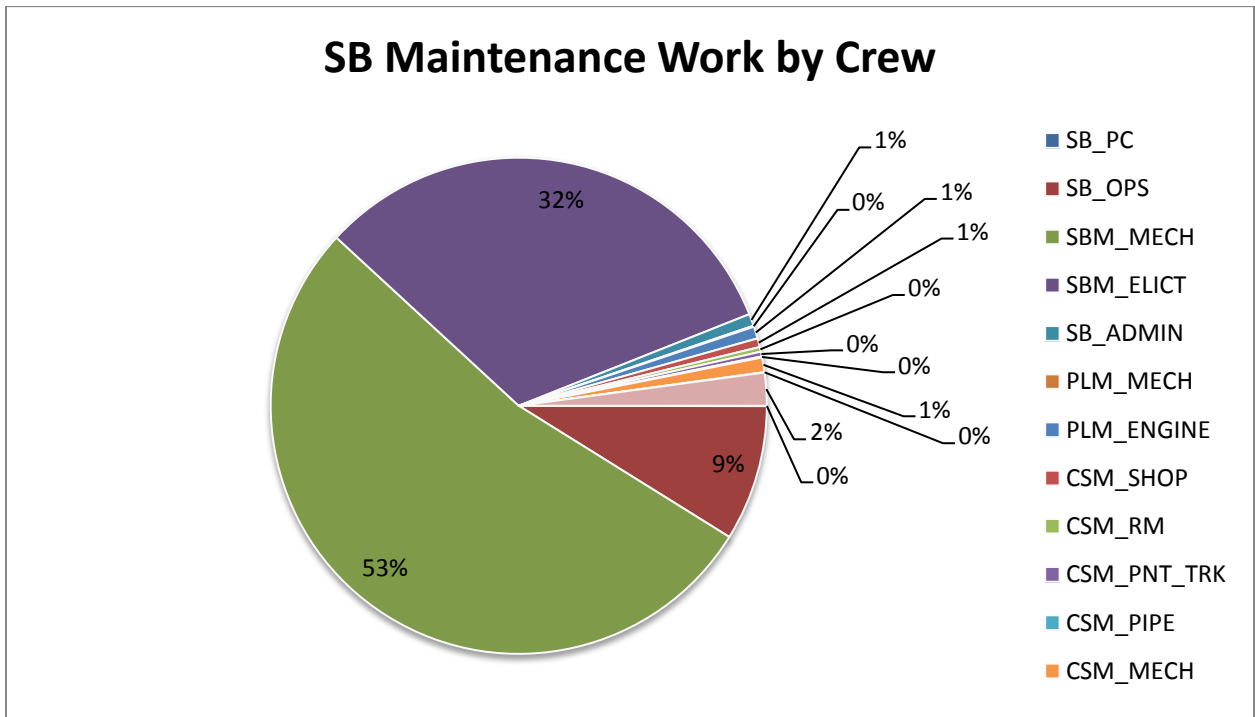
South Bay Maintenance Work Orders by Action

Action	Work Order Count
EMERGENCY-CORRECTIVE	47
INSPECTION-PROACTIVE	482
LUBRICATION-PROACTIVE	356
MOD/ENHANCE-PROACTIVE	30
OVERHAUL-CORRECTIVE	2
PREDICTIVE-PROACTIVE	11
ROUTINE MAINT-CORRECTIVE	589
ROUTINE MAINT-PROACTIVE	2668
SAFETY-CORRECTIVE	12
SP PROJ/CIP-PROACTIVE	6



South Bay Maintenance Work Orders by Crew

Crew	Work Order Count
CFM_BLDG	90
CS_ADMIN	1
CSM_MECH	40
CSM_PIPE	3
CSM_PNT_TRK	13
CSM_RM	13
CSM_SHOP	24
PLM_ENGINE	33
PLM_MECH	3
SB_ADMIN	33
SBM_ELICT	1351
SBM_MECH	2228
SB_OPS	372
SB_PC	1



H. Correlation of Results to Plant Conditions

In 2011 the amount of system flows treated at the SBWRP averaged over 8 million gallons per day

Annual Totals

Year	SBWRP Influent (million gals)	SBWRP Discharge to South Bay Outfall (million gals)	SBWRP Distributed Recycled Water (million gals)	System Return Stream (million gals)	Net removed from Metro (million gals)
2011	3,001	1,288	1,177	505	2465
2010	3,003	1,248	1,156	571	2404
2009	3,050	958	1,501	564	2,459
2008	3,173	1,167	1,388	601	2,555
2007	3,158	1,467	1,101	527	2,568

Comparative flow data:

low stream	2008		2009		2010		2011	
	Daily Average	Annual Total	Daily Average	Annual Total	Daily Average	Annual Total	Daily Average	Annual Total
Influent	8.67	3,173	8.33	3,050	8.23	3,003	8.22	3,000
RW (Reclaimed Water) Produced	6.49	2,378	6.51	2,378	6.52	2,380	5.89	2,154
RW Distributed	3.78	1,388	4.11	1,501	3.15	1,156	3.22	1,177
RW In-plant use	0.68	250	0.78	284	0.85	311	0.97	353
Total reuse	4.46	1,638	4.89	1,785	4.0	1,467	4.19	1,530
Effluent to SBOO	3.20	1,167	2.62	958	3.43	1,248	3.54	1,288
Return to SMI	1.64	601	1.55	564	1.56	571	1.38	505