San Jose/Santa Clara Water Pollution Control Plant

2011
Annual Self Monitoring Report

Reporting Period:

January 1 – December 31, 2011

San Jose/Santa Clara Water Pollution Control Plant
2011 Annual Self Monitoring Report

San Jose/Santa Clara Water Pollution Control Plant Annual Reports are posted on the City of San Jose website at : http://www.sanjoseca.gov/esd/pub_res.asp

Editor in Chief Jim Ervin

Principal Data Compiler Simret Yigzaw

Contributing Editor Ryan Mayfield

Main Office:
700 Los Esteros Road,
San Jose, CA 94135

Ph: (408) 945-5300

On the Cover:

(L to R) Troy Hunt, Kelley Mayne, and Dan Luksik simulate closure of the gas valve on the last chlorine rail car on November 15th, 2011. Disinfection using chlorine gas was phased out in 2011 and replaced with a new disinfection system that uses sodium hypochlorite (chlorine bleach).

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BACKGROUND

The Annual Self-Monitoring Report for San Jose/Santa Clara Water Pollution Control Plant, is prepared in accordance with NPDES Permit Number CA-0037842, Water Board Order Number R2-2009-0038. The Plant's Annual Self-Monitoring Report is required both by specific NPDES permit provision and Regional Standard Provisions (Attachment G) attached to the Permit:

1. **NPDES Permit Provisions:**

Permit Provisions VI.C.4.a thru 4.d. require inclusion in each Annual Self-Monitoring Report a description or summary of review and evaluation procedures and any applicable changes for the following documents:

a. Wastewater Facilities Status Report
b. Reliability Status Report
c. O&M Manual Update
d. Contingency Plan for Operations Under Emergency Conditions

Provision VI.C.2.c. requires the Plant to submit an Avian Botulism Control Program annual report by February 28 each year.

Provision VI.C.2.d. requires the Plant to assess marsh habitat and document changes to or conversion of marsh habitat to determine potential impacts to endangered species two times during the duration of the permit, in 2010 and 2012.

2. **NPDES Permit Attachment G, pages G-17 thru G-18 (Section V.C.1.f.) calls for additional reports to be includes in Annual SMR reports as summarized below:**

1) Annual compliance summary table of treatment plant performance …;

2) Comprehensive discussion of treatment plant performance and permit compliance …;

3) Both tabular and graphical summaries of monitoring data if parameters are monitored at a frequency of monthly or greater;

4) List of approved analyses, including the following:
   (i) List of analyses for which the Discharger is certified;
   (ii) List of analyses performed for the Discharger by a separate certified laboratory; and
   (iii) List of "waived" analyses, as approved;

5) Plan view drawing or map showing the Discharger's facility, flow routing, and sampling and observation station locations;

6) Results annual SWPP Plan facility inspection – *Not Applicable for the San Jose/Santa Clara Water Pollution Control Plan because all storm water is routed to headworks*…; and

7) Results of facility report reviews: … the O&M Manual, the Contingency Plan, the Spill Prevention Plan, and Wastewater Facilities Status Report. ...

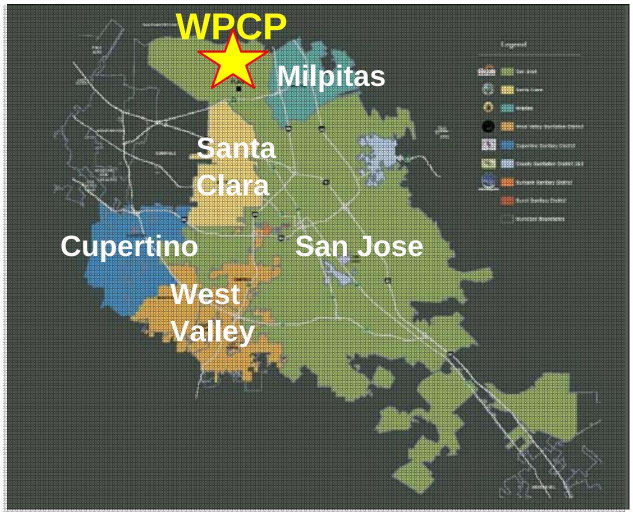
1. ANNUAL SELF MONITORING REPORT

This report summarizes 2011 discharge monitoring results for the San Jose/Santa Clara Water Pollution Control Plant (Plant). During 2011, the Plant maintained 99.98% compliance with all NPDES Effluent limitations (2 exceedances out of 10,782 reportable water quality measurements - These were two exceedances of instantaneous chlorine concentrations on December 19th, 2011.)

The Plant continues to participate in the Bay Area Clean Water Agencies (BACWA) Mercury Watershed Permit Group Reporting effort and the Mercury Risk Reduction effort as called for under the Mercury Watershed Permit. The Plant also continues to meet NPDES permit provision E-VIII (page E-9 of the permit) by providing participating in the San Francisco Bay Regional Monitoring Program (RMP) in collaboration with the other BACWA agencies.

Descriptive Statistics Employed In This Report. Calculations of monthly and yearly averages summarized in this report utilize actual reported results for quantified and estimated values. Non-detected values are substituted with corresponding Method Detection Level (MDL) values. Tables and Graphs also substitute the MDL for non-detected results. Use of the MDL in lieu of zero for non-detected (ND) values may overestimate actual “true” values of measured constituents found in Plant Influent and Effluent.

Annual average calculations for water quality constituents were determined from monthly average results (i.e. weighted) except for constituents that were measured on a daily or repeating weekly schedule (e.g. 3 or 5 times per week).



Facility Description. The City of San José manages the San Jose/Santa Clara Water Pollution Control Plant (Plant) for the Cities of San José, Santa Clara, Milpitas, Cupertino Sanitary District, County Sanitation Districts 2-3, Burbank Sanitary District and West Valley Sanitation District (Campbell, Los Gatos, Monte Sereno, and Saratoga) as shown above. The Plant discharges to the southern end of the San Francisco Bay and receives wastewater from roughly 1.4 million residents and more than 16,000 commercial and industrial facilities.

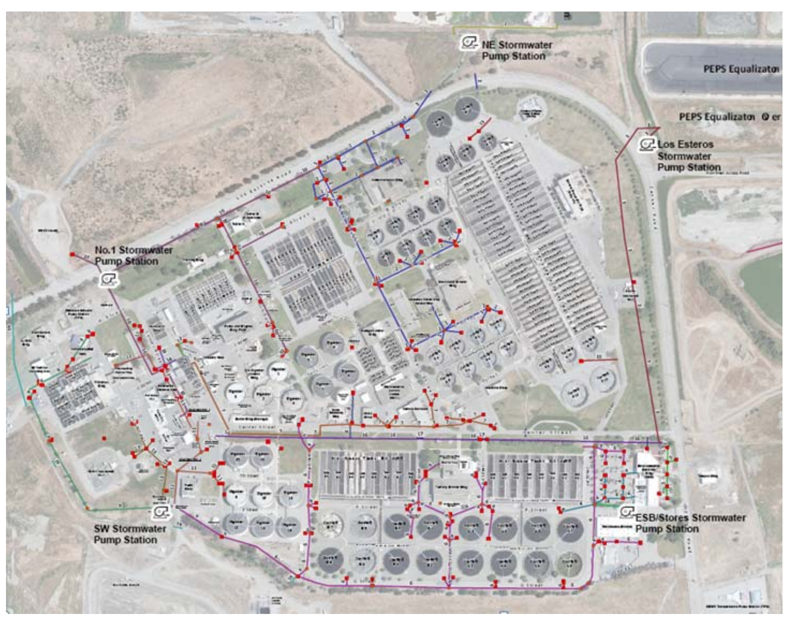
Treatment Process: The wastewater treatment process consists of screening and grit removal, primary sedimentation, secondary (biological nutrient removal) treatment, secondary clarification, filtration, disinfection, and dechlorination.

Facility Map

Water Pollution Control Plant: flow routing and influent and effluent sampling stations.

Facility Storm Water Conveyance System

The Plant facility is bermed and graded to capture all spills and stormwater on site. There are 20 stormwater catch basins that convey flows to 6 stormwater pump stations. The stormwater pump stations direct all captured water back to Plant headworks for treatment. The stormwater catch basin system has capacity to contain at least several hundred thousand gallons of spilled process waters if such an event occurs.



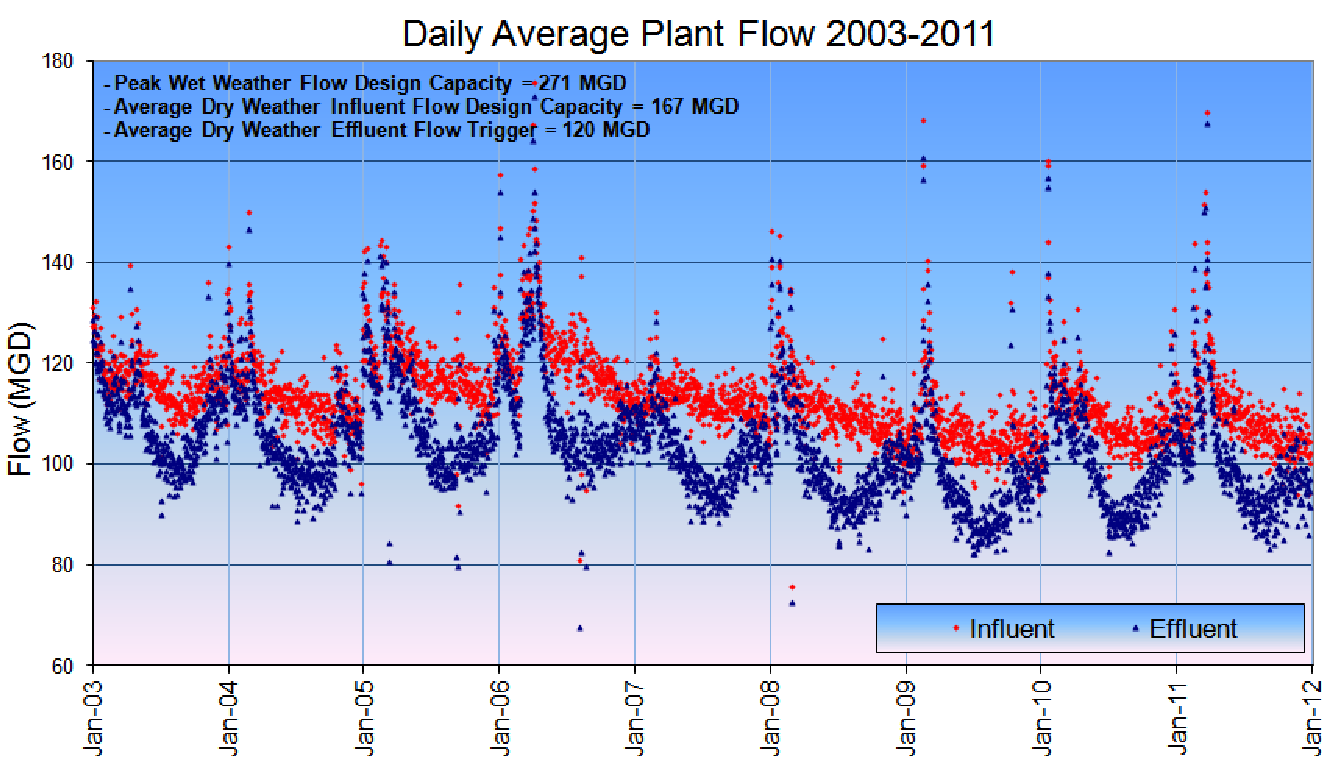
a. Plant Flows

Daily average Effluent flows for 2011 are shown in the table below. The peak average monthly flow of 120.6 MGD occurred in March 2011.

- Average Dry Weather Influent Flow (ADWIF) is the highest five-weekday period from June through October. For 2011, ADWIF was 113.0 MGD and occurred from May 31st through June 4th.
- Average Dry Weather Effluent Flow (ADWEF) is the lowest average Effluent flow for any three consecutive months between the months of May and October. For 2011, ADWEF was 91.2 MGD and occurred during the months of July to September.

Plant Effluent flows increased slightly in 2011 but are still well below annual flows reported for most of the past three decades.

Plant Effluent Flow (MGD) (Recent Years)				ADWIF Limit = 167 MGD ADWEF Limit = 120 MGD	
	Low	**High**	**Average**	**ADWIF**	**ADWEF**
2009	**82.2**	**160.9**	**96.7**	**121.0**	**88.0**
2010	**82.5**	**156.8**	**100.5**	**111.6**	**89.6**
2011	**83.2**	**167.7**	**100.3**	**113.0**	**91.2**



b. Biosolids and other material

Roughly one million gallons per day of Primary and Secondary clarifier sludge are digested in anaerobic digesters for 20 to 50 days at 95 degrees F. Currently, 7 of the Plant's 16 digesters are in service.

The digestion process reduces sludge volatile solids by about 50 percent, produces methane gas, and kills pathogens of concern to human health. Digestion converts sewage sludge into liquid "biosolid" material which is pumped to storage lagoons where the material further stabilizes for up to three years. After the lagoon consolidation process, biosolids are pumped to drying beds where the material is dried using inexpensive, natural solar and wind energy for at least 120 days. Dried material is then hauled by truck to the adjacent Newby Island Landfill, usually at the end of summer season in September and October. At the landfill, biosolids are used as Alternate Daily Cover. Prior to shipment, biosolids are analyzed for a suite of chemical pollutants and human pathogens to ensure they meet EPA "Class A" biosolid standards.

In 2011, Plant staff pumped additional biosolids that had accumulated in lagoons in recent years. This increased tonnage did not reflect any change to annual digester output.

Biosolids Hauled		
	Wet Tons	Dry Metric Tons (DMT)
2010	50,427	**45,746**
2011	78,754	**64,188**

Grit, Grease, and Screenings. The Plant collects other solid materials in the forms of grit, grease, and screenings. Grit and screenings are collected near the headworks facility. Grease is floating material that is accumulated in the primary and secondary clarifiers. These three materials go through partial dewatering prior to being hauled to the local landfill.

For 2011, the amount of grit collected at Plant headworks increased due to flushing of the four main interceptor lines that lead to the Plant. An additional 143 tons of grit was manually collected at the Emergency Basin Overflow Structure (EBOS). In recent years, lower raw sewage flows have resulted in lower flow velocities. This in turn results in more particulate matter (grit) settling in the main sewage lines. To alleviate this problem, flows through the four interceptors closest to the Plant are alternated to achieve sufficient flushing velocities. The extra grit that collects in the EBOS, as sewage enters the Plant, is cleaned out and hauled.

Grit, Grease, and Screening Materials Hauled (Tons)			
	Grit	Grease	Screenings
2010	644.8	550.6	637.8
2011	905.7 (+143 tons from EBOS)	557.7	663.8

c. Effluent Monitoring Data

Chemical Analyses of Plant influent and effluent are mostly performed by the Plant's in-house laboratory. A full list of analyses for which the lab is certified is provided in Attachment I.

Plant pollutant removal performance is monitored in accordance with NPDES permit provisions that govern what pollutants must be monitored, how frequently and from which sample points (Effluent and/or influent). Monitoring requirements are found in Tables 6 and 7 of the permit and monitoring frequency is specified in Table E-4 of permit attachment E (Monitoring and Reporting Program). The tables provided below summarize those requirements:

Effluent Limitations for Conventional Pollutants (From permit Table 6)

	Average Monthly Effluent Limit (AMEL)	Maximum Daily Effluent Limit (MDEL)	Frequency
$CBOD_5$ (BOD may be substituted)	10 mg/l	20 mg/l	Weekly
Total Suspended Solids (TSS)	10 mg/l	20 mg/l	Weekly
Oil and Grease	5 mg/l	10 mg/l	Quarterly
Total Ammonia	3 mg/l	8 mg/l	Monthly
	Instantaneous Minimum	Instantaneous Max	
pH	6.5	8.5	Daily
Total Chlorine Residual	N/A	0.0 mg/l	Hourly
Turbidity	N/A	10 NTU	Daily
Dissolved Oxygen	5.0 mg/l	N/A	Daily
	30-day geometric mean		
Enterococcus Bacteria	35 CFU		5 x Week

Effluent Limitations for Toxic Pollutants (From permit Table 7)

	AMEL	MDEL	Frequency
Copper	11 ug/l	19 ug/l	Monthly
Nickel	25 ug/l	33 ug/l	Monthly
Cyanide	5.7 ug/l	14 ug/l	Monthly
Dioxin - TEQ	N/A	6.3×10^{-5} ug.l *(Interim)	2 x year
Heptachlor	0.00021 ug/l	0.00042 ug/l	Quarterly
Tributyltin	0.0061 ug/l	0.012 ug/l	Quarterly

Effluent limits for Mercury and PCBs were established by the Mercury Watershed Permit, Permit # CA0038849, Order No. R2-2007-0077, as amended by Order No. R2-2011-0012

Effluent Limitations for Mercury and PCBs

	AMEL ug/l	MDEL ug/l	Annual Mass	Frequency
Mercury	0.025	0.027	1.0 Kg/yr	Monthly
Methylmercury	N/A			Quarterly
PCBs	0.00039	0.00049	N/A	Quarterly

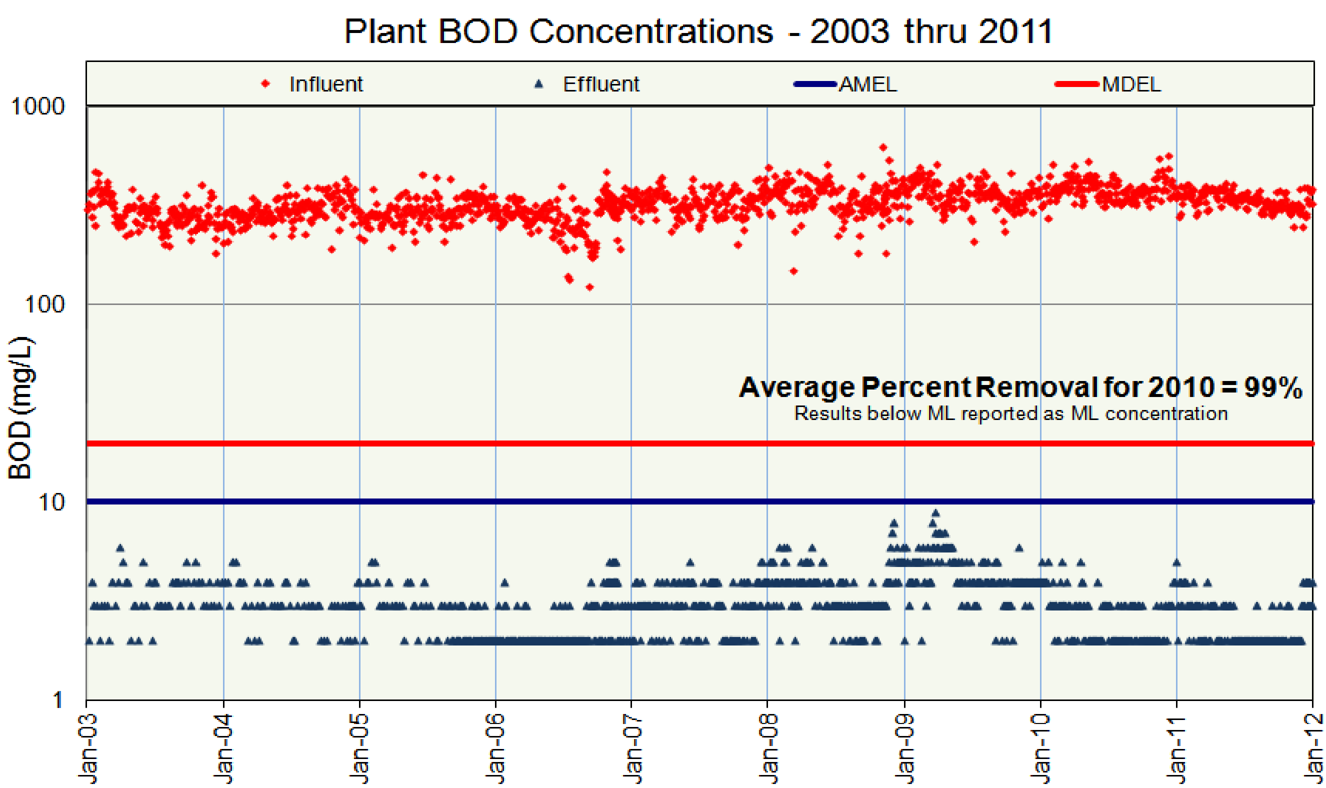
1) Conventional Pollutants and Loadings

a) Effluent Limitations

The Plant's 2009 NPDES Permit established Effluent limitations for Biochemical Oxygen Demand (BOD), Total Suspended Solids (TSS), BOD & TSS Percent Removal, Oil & Grease, pH, Total Chlorine Residual, Turbidity, Total Ammonia, and Enterococcus bacteria.

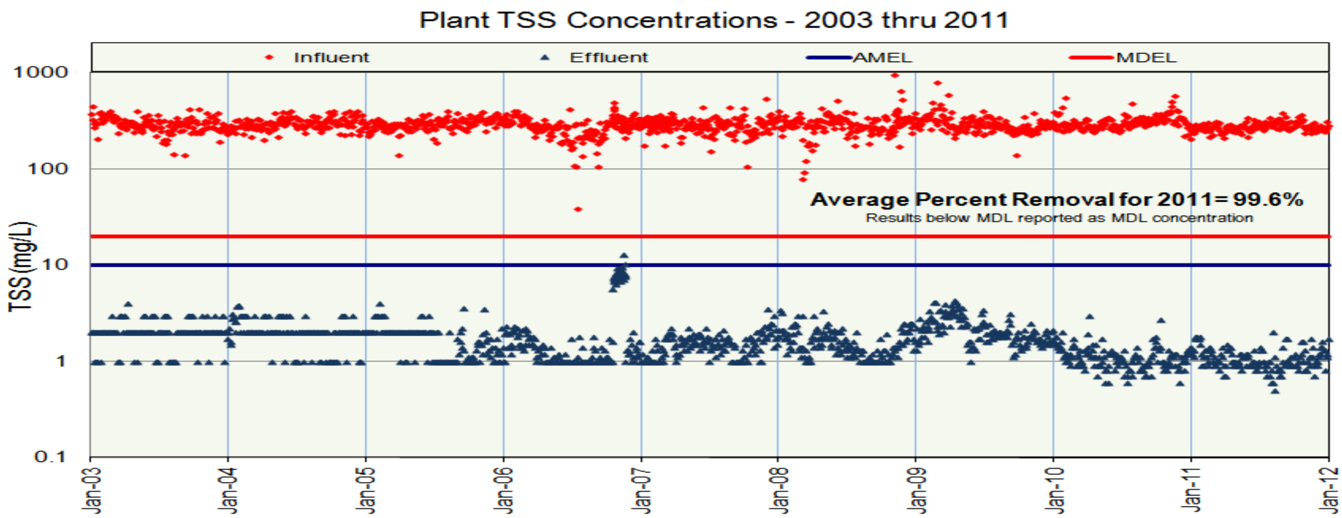
Biochemical Oxygen Demand (BOD): Effluent BOD concentrations in 2011 were well below the Effluent limitations (AMEL=10 mg/L; MDEL=20 mg/L).

BOD (mg/L)							AMEL = 10 mg/L MDEL = 20 mg/L
	Influent			Effluent			*Removal*
	Low	High	**Average**	Low	High	**Average**	
2009	**210**	**512**	**366**	**2**	**9**	**4**	*99%*
2010	**274**	**568**	**387**	**2**	**5**	**3**	*99%*
2011	**248**	**410**	**341**	**2**	**4**	**3**	***99%***



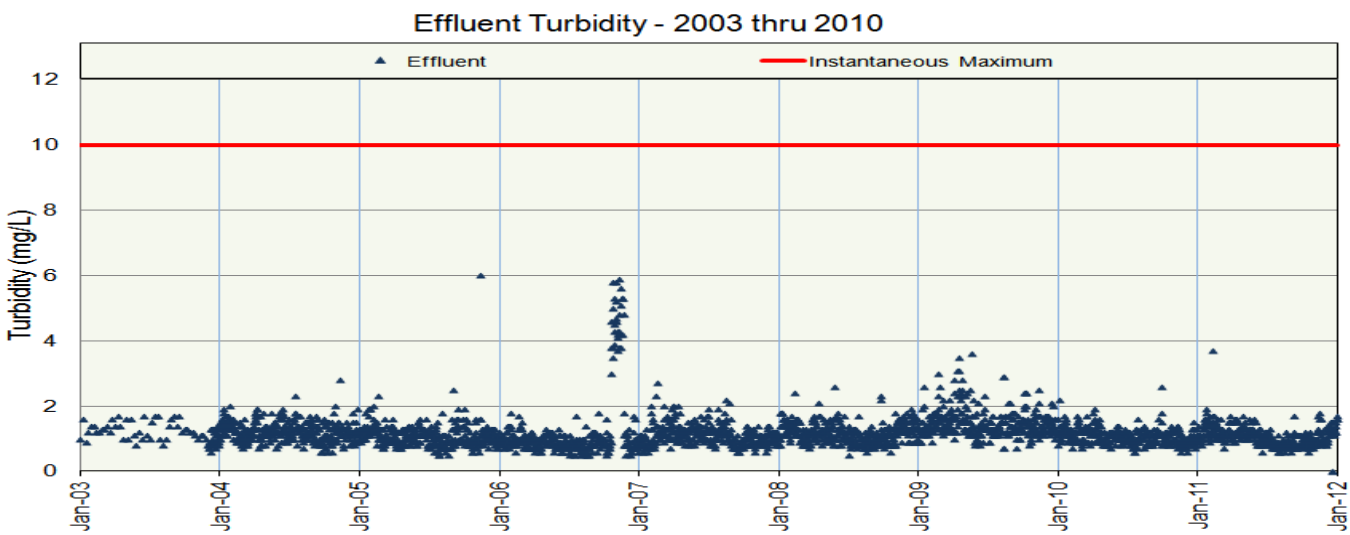
Total Suspended Solids (TSS): The Plant is very efficient in removing TSS.

TSS (mg/L)							AMEL = 10 mg/L MDEL = 20 mg/L
	Influent			Effluent			*Removal*
	Low	High	**Average**	Low	High	**Average**	
2009	**138**	**797**	**297**	**1.0**	**4.3**	**2.2**	*99.2%*
2010	**204**	**574**	**311**	**0.6**	**3.0**	**1.1**	*99.6%*
2011	**210**	**379**	**276**	**0.5**	**2.0**	**1.1**	***99.6%***



Turbidity:

Turbidity 2011 (NTU)				High Limit = 10 NTU
Effluent	**Low**	**High**	**Average**	2010 Average
	0.6	**3.7**	**1.1**	1.1



Oil & Grease: For 2011, Oil and Grease measurements ranged from 1.4 to 2.1 and averaged 1.6 mg/l. This was within the Effluent Limits of 5 mg/l (AMEL) and 10 mg/l (MDEL).

pH: Plant Effluent pH ranged from 6.9 and 7.8 standard units (S.U.). This was within the Effluent Limits of 6.5 & 8.5 S.U.

Total Chlorine Residual: The Plant complies with its Chlorine Residual monitoring requirements using the Water Board's Alternative Chlorine Compliance Strategy described in the Plant's 2009 NPDES Permit. Under this strategy, the Plant records discrete readings from continuous chlorine monitoring equipment every hour on the hour, for a total of 24 readings (samples analyzed) per day.

The Plant experienced two exceedances of the Total Chlorine Residual instantaneous maximum effluent limit of 0.0 on December 19th, 2011. On that date, top-of-the-hour reading of 0.47 and 0.48 were recorded at 1400 and 1800 respectively. These incidents were reported to Water Board during the event, the following day, and in the December SMR monthly report.

Total Ammonia: Plant Effluent ammonia concentrations were well below discharge limits.

Total Ammonia N – 2011 (mg/l)				AMEL = 3 MDEL = 8
Effluent	**Low**	**High**	**Average**	2010 Average
	0.3	**2.6**	**0.8**	0.8

Enterococcus Bacteria: The Plant's Effluent Limit for Enterococcus is 35 colonies per 100 mL as a rolling 30-day geometric mean. The Plant Effluent enterococci concentrations ranged from 1.0 to 1.6 Colony Forming Units (CFU) per 100 mL and averaged 1.1 CFU during 2011.

b) Other Conventional Water Quality Parameters

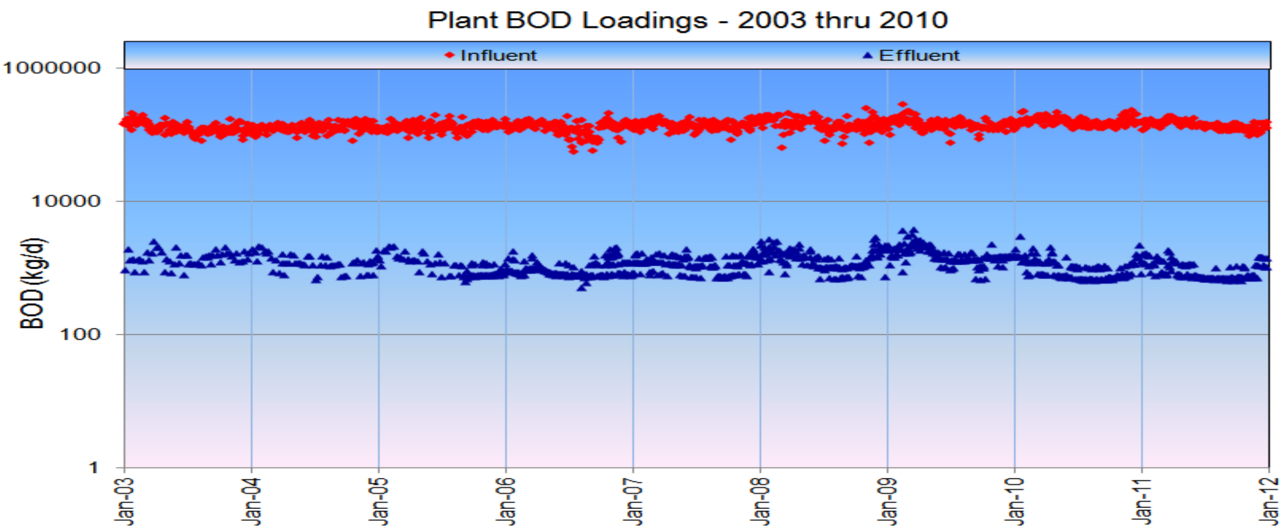
Dissolved Oxygen: Dissolved oxygen (DO) concentrations in Plant Effluent were above the receiving water Water Quality Objective of 5 mg/L throughout 2011. The 3-month rolling median value for DO percent saturation ranged from 77% to 79% during 2011.

DO Concentrations 2011				Min = 5.0 mg/L
	Low	**High**	**Average**	2010 Average
Effluent (mg/L)	**6.3**	**8.0**	**7.0**	7.2
Saturation (%)	**67.6**	**90.4**	**77.6**	79.9

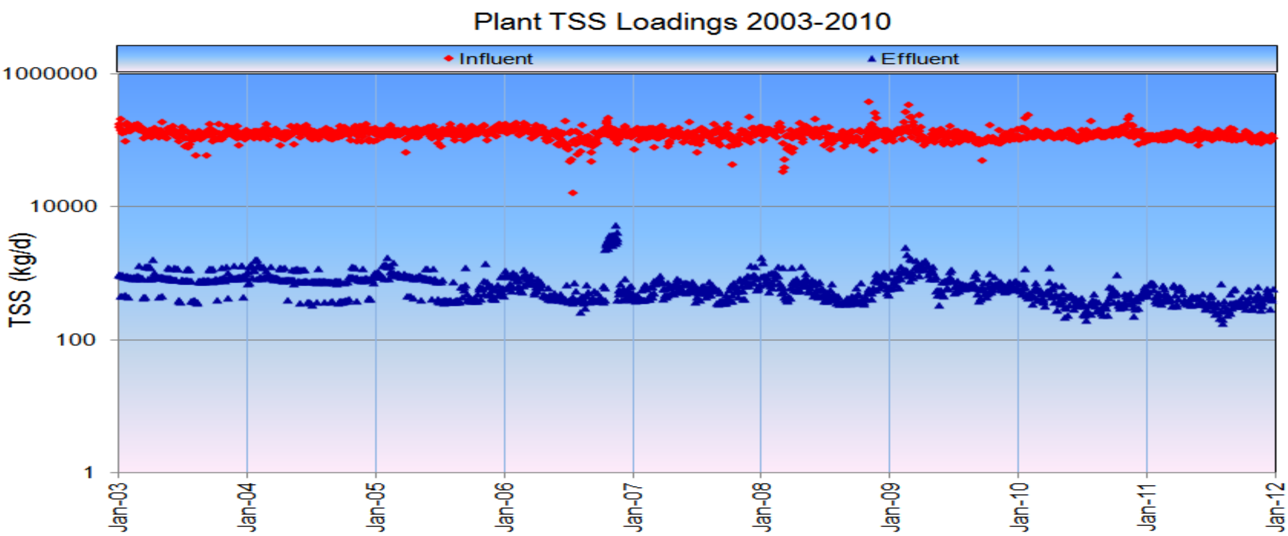
Temperature: Average Plant Effluent temperatures for 2011 ranged from 14.0 to 24.8 and averaged 20.2 °C.

c) BOD and TSS Loadings:

BOD Loadings 2011 (kg/d)					
	Low	**High**	**Total**	**Average**	2010 Average
Influent	**97,164**	**195,087**	**51,868,821 (kg)**	**142,106**	161,756
Effluent	**637**	**1,877**	**345,733 (kg)**	**947**	1,027



TSS Loadings 2011 (kg/d)					
	Low	**High**	**Total**	**Average**	2010 Average
Influent	**85,255**	**156,448**	**41,918,984 (kg)**	**114,847**	129,605
Effluent	**179**	**724**	**151,882 (kg)**	**416**	433



2) Priority Pollutants

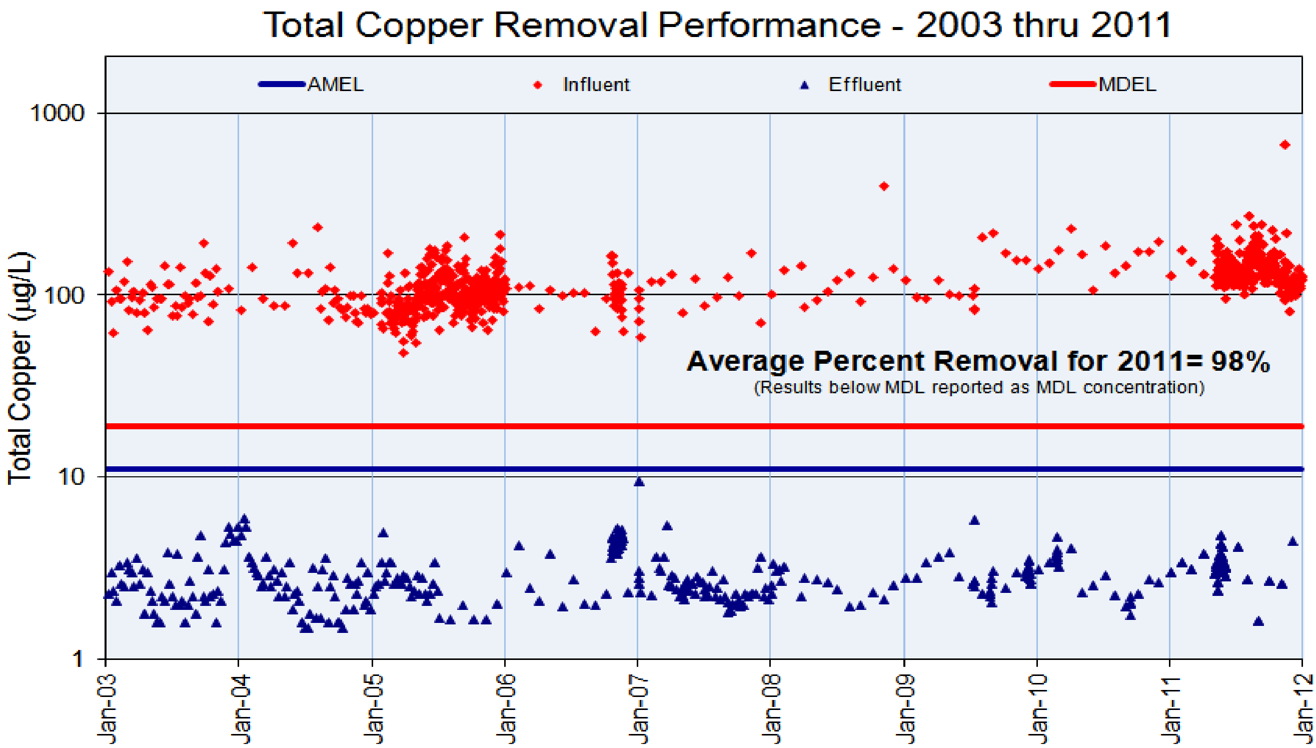
In addition to conventional pollutants (BOD, TSS, Ammonia, etc.), the Plant is required to perform twice per year monitoring of the 126 priority pollutants listed in NPDES permit Table C of Attachment G. Most of these are organic compounds that are never detected in Plant effluent. The Plant has specific effluent limitations for 7 priority pollutants: Copper, Nickel, Cyanide, Dioxin, Heptachlor, Tributyltin, and Mercury. 10 additional metals, methylmercury, and a few of the organic compounds from the priority pollutant list are typically detected at concentrations below the applicable Water Quality Objective.

a) Effluent Limitations

The 2009 NPDES Permit established Effluent limitations for Copper, Nickel, Cyanide, Dioxin-TEQ, Heptachlor, and Tributyltin. The 2008 Mercury Watershed NPDES Permit added Effluent limitations for Mercury. Results for these priority pollutants are summarized below.

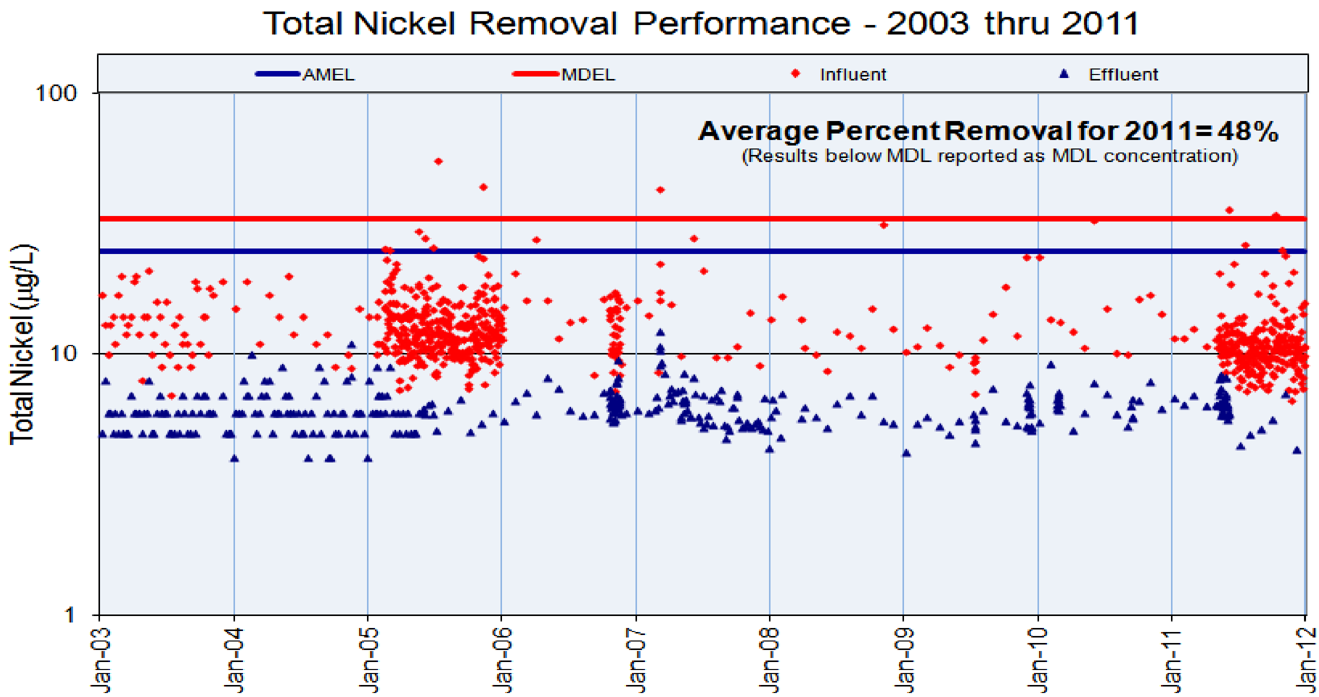
Copper:

Copper (ug/L) AMEL = 11 ug/L MDEL = 19 ug/L	Influent			Effluent			*Removal*
	Low	High	**Average**	Low	High	**Average**	
2009	**83**	**219**	**137**	**2.06**	**5.9**	**3.05**	*98%*
2010	**108**	**234**	**166**	**1.74**	**4.76**	**2.83**	*98%*
2011	**82**	**671**	**145**	**1.63**	**4.80**	**3.12**	***98%***



Nickel: The Plant treatment process does not remove nickel particularly well. Nickel binds strongly to dissolved ligands in wastewater which prevents it from precipitating as particulate.

Nickel (ug/L) AMEL = 25 ug/L MDEL = 33 ug/L	Influent			Effluent			Removal
	Low	High	**Average**	Low	High	**Average**	
2009	**7.1**	**23.7**	**12.6**	**4.21**	**7.71**	**5.60**	*56%*
2010	**9.98**	**32.6**	**15.7**	**5.11**	**9.17**	**6.45**	*59%*
2011	**6.69**	**36.0**	**11.37**	**4.33**	**8.31**	**5.92**	***48%***



Dioxin-TEQ: The 2009 NPDES Permit established an interim Effluent concentration limit for Dioxin-TEQ (toxic equivalence) of 6.3 x 10^{-5} ug/l and a monitoring frequency of twice per year. None of the 17 dioxin congeners were detected in Plant Effluent in 2010 or 2011.

Heptachlor: The Plant's monthly average Effluent limitation for heptachlor is 0.00021 ug/l based on a human health water quality criterion. Heptachlor was not detected in quarterly influent or effluent samples in 2011.

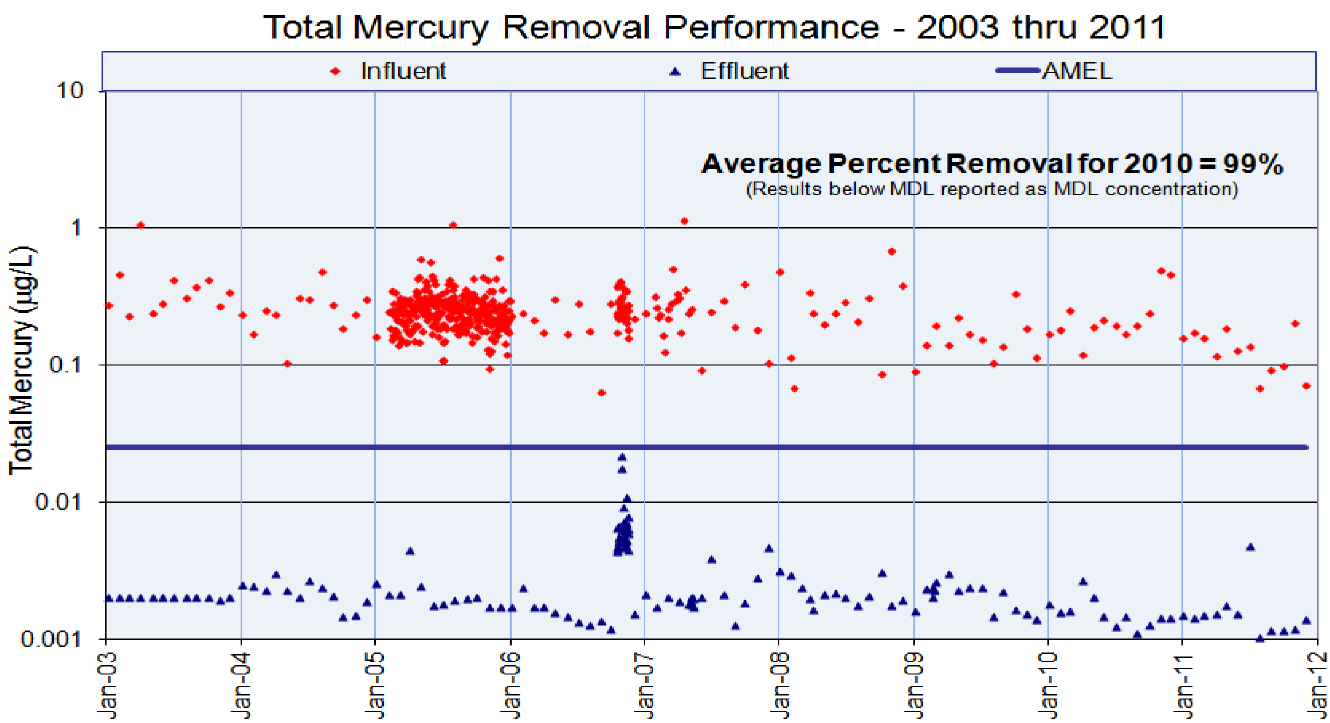
Tributyltin: The Plant's Permit limit for tributlytin is 0.0061 ug/L as a monthly average. Tributyltin was not detected in quarterly effluent samples in 2011.

Cyanide: The Plant produces a small amount of cyanide from chloramination disinfection.

Cyanide (ug/L) AMEL = 5.7 ug/L MDEL = 14 ug/L							
	Influent			Effluent			*Removal*
	Low	High	**Average**	Low	High	**Average**	
2009	**1.0**	**2.4**	**1.8**	**2.0**	**3.1**	**2.5**	*NA*
2010	**0.4 (ND)**	**1.5 (DNQ)**	**0.9**	**2.0 (DNQ)**	**3.5**	**2.5**	
2011	**0.4(ND)**	**1.4(DNQ)**	**0.7**	**0.4(ND)**	**6.5**	**1.9**	

Mercury: Mercury concentrations were well below the Plant's concentration and mass limits.

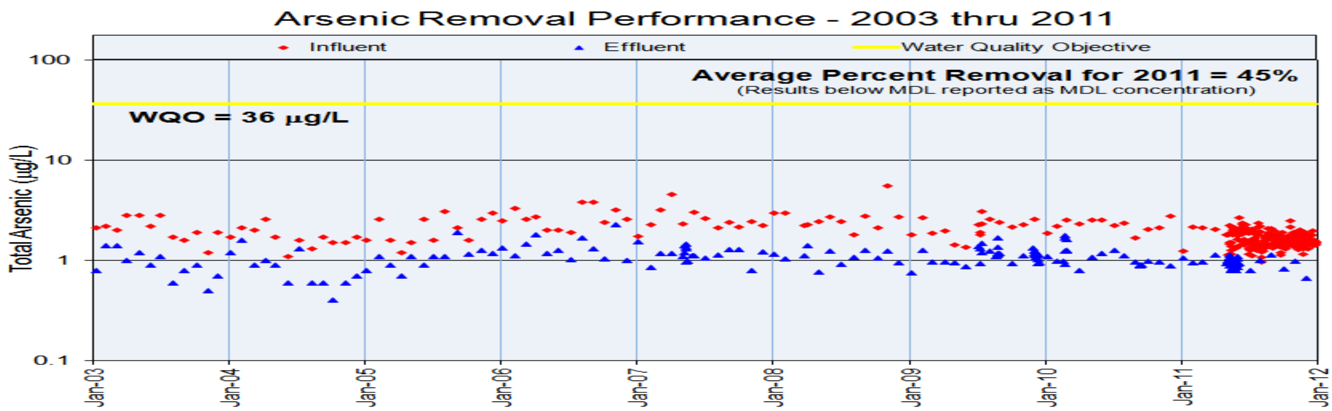
Mercury (ug/L) AMEL = 0.025 ug/L							
	Influent			Effluent			*Kg/yr*
	Low	High	**Average**	Low	High	**Average**	
2009	**0.0895**	**0.33**	**0.165**	**0.00140**	**0.00297**	**0.00206**	*0.2865*
2010	**0.120**	**0.490**	**0.239**	**0.00111**	**0.00270**	**0.00158**	*0.2211*
2011	**0.068**	**0.205**	**0.133**	**0.00102**	**0.00476**	**0.00166**	***0.2313***



b) Priority Pollutant Metals

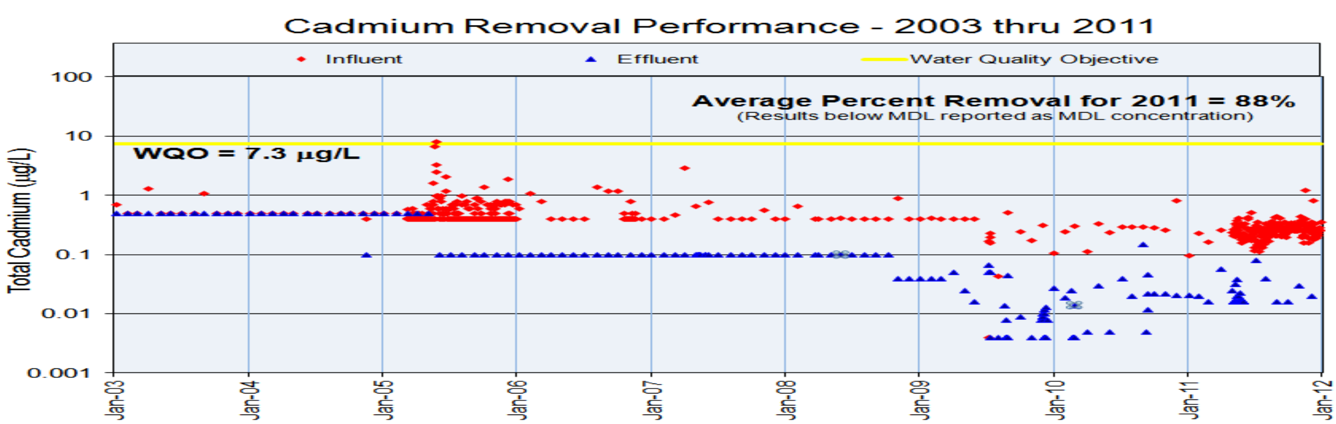
Arsenic: Plant Influent arsenic concentrations decreased a bit in 2011.

Arsenic (ug/L)							WQO = 36 ug/L
	Influent			**Effluent**			*Removal*
	Low	High	**Average**	Low	High	**Average**	
2009	**1.36**	**3.10**	**2.11**	**0.75**	**1.67**	**1.05**	*50%*
2010	**1.69**	**2.77**	**2.27**	**0.80**	**1.78**	**1.07**	*53%*
2011	**0.96**	**2.65**	**1.72**	**0.66**	**1.13**	**0.95**	***45%***



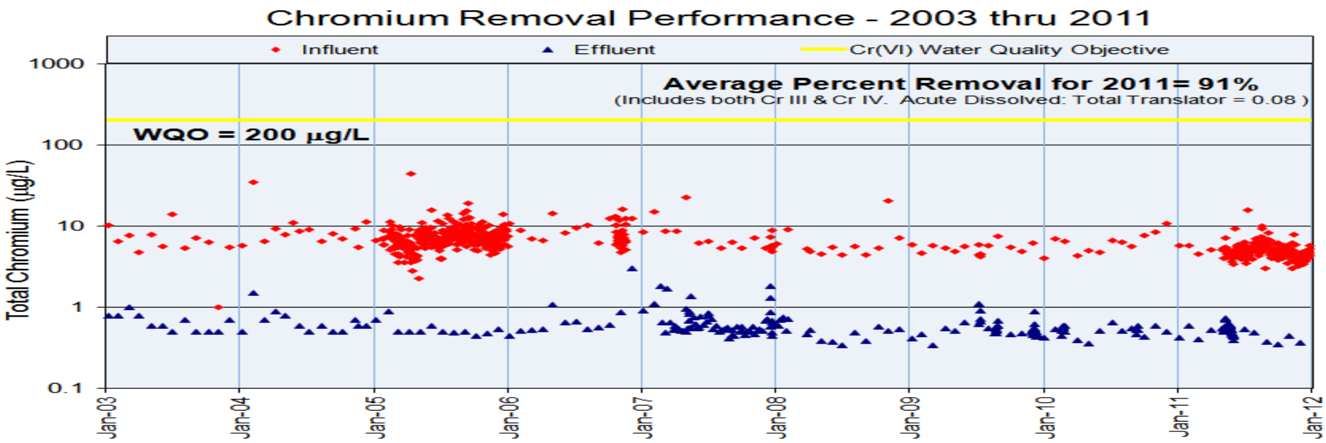
Cadmium: The Plant is efficient at removing cadmium. Plant Effluent concentrations are well below the most stringent (freshwater) Basin Plan water quality objective of 7.3 ug/l.

Cadmium (ug/L)							WQO = 7.3 ug/L **(Basin Plan – Freshwater)**
	Influent			**Effluent**			*Removal*
	Low	High	**Average**	Low	High	**Average**	
2009	**0.004 (ND)**	**0.55**	**0.32**	**0.004 (ND)**	**0.066**	**0.027**	*92%*
2010	**0.11 (DNQ)**	**0.82**	**0.25**	**0.004 (ND)**	**0.150**	**0.022**	*91%*
2011	**0.10(DNQ)**	**1.21**	**0.24**	**0.016 (ND)**	**0.081(DNQ)**	**0.029**	***88%***



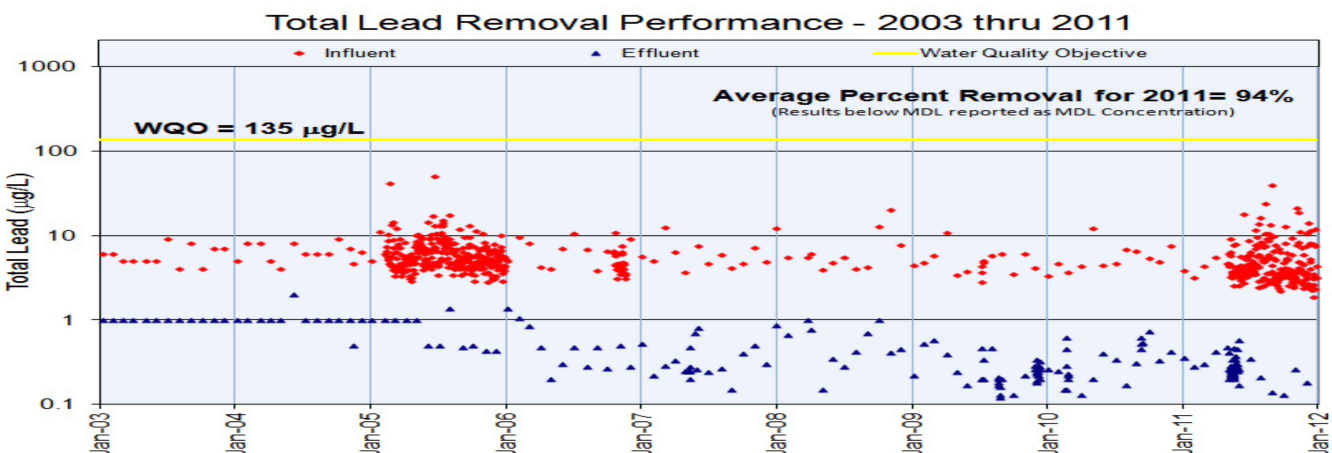
Total Chromium (substituted for Hexavalent Chromium): The 2009 NPDES Permit allows measurement of total chromium instead of hexavalent chromium in Plant Effluent.

Chromium (ug/L)							WQO = 200 ug/L
	Influent			Effluent			*Removal*
	Low	High	Average	Low	High	Average	
2009	4.3	7.6	5.60	0.34	1.1	0.53	*91%*
2010	4.08	10.8	6.45	0.36	0.65	0.51	*92%*
2011	3.02	15.8	5.14	0.35	0.74	0.46	***91%***



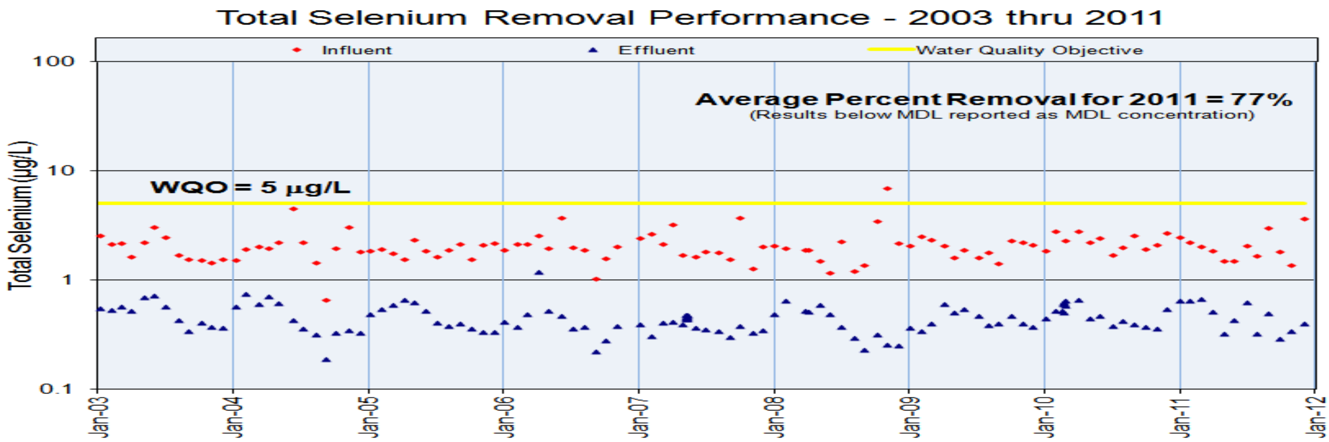
Lead: Plant Effluent Lead concentrations have been two orders of magnitude below the applicable water quality objective of 135 ug/L for over a decade.

Lead (ug/L)							WQO = 135 ug/L
	Influent			Effluent			*Removal*
	Low	High	Average	Low	High	Average	
2009	2.8	10.9	5.25	0.12	0.58	0.28	*95%*
2010	3.34	12.1	5.70	0.13	0.73	0.33	*94%*
2011	1.86	39.7	4.84	0.13	0.58	0.27	***94%***



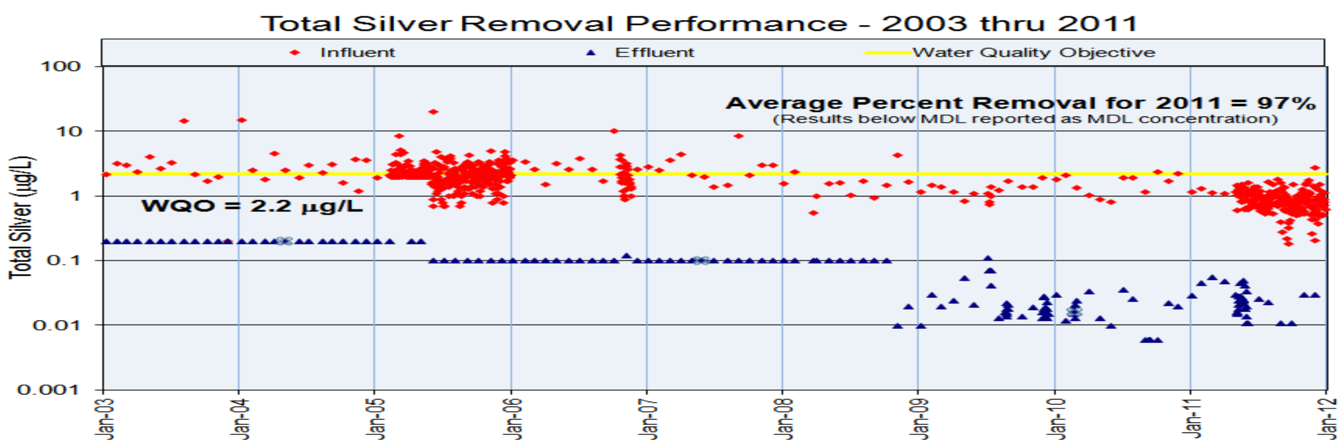
Selenium: Plant Effluent selenium concentrations have remained well below the applicable selenium water quality objective of 5 ug/L for over a decade.

Selenium (ug/L) WQO = 5 ug/L							
	Influent			Effluent			*Removal*
	Low	High	Average	Low	High	Average	
2009	**1.41**	**2.50**	**1.98**	**0.34**	**0.60**	**0.44**	*78%*
2010	**0.36**	**2.79**	**2.28**	**0.36**	**0.66**	**0.47**	*79%*
2011	**1.36**	**3.68**	**2.09**	**0.29**	**0.67**	**0.47**	***77%***



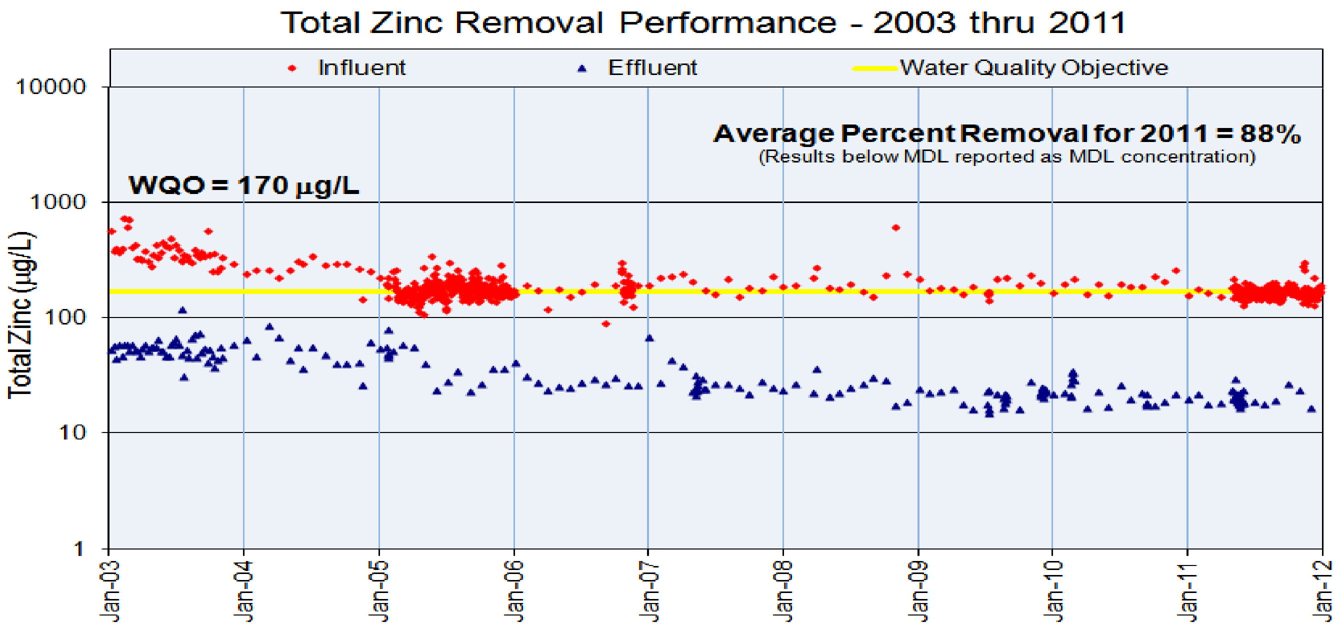
Silver: Effluent silver concentrations are well below the applicable water quality objective.

Silver (ug/L) WQO = 2.2 ug/L							
	Influent			Effluent			*Removal*
	Low	High	Average	Low	High	Average	
2009	**0.74**	**1.91**	**1.31**	**0.010**	**0.110**	**0.027**	*98%*
2010	**0.81**	**2.40**	**1.62**	**0.006 (ND)**	**0.036 (DNQ)**	**0.020**	*99%*
2011	**0.18**	**2.79**	**1.00**	**0.011(ND)**	**0.056(DNQ)**	**0.029**	***97%***



Zinc: Plant Influent and Effluent zinc concentrations have changed little in recent years.

Zinc (ug/L)							WQO = 170 ug/L
	Influent			Effluent			*Removal*
	Low	High	**Average**	Low	High	**Average**	
2009	**140**	**233**	**194**	**15**	**28**	**21.1**	*89%*
2010	**157**	**261**	**197**	**16.7**	**34.2**	**21.6**	*89%*
2011	**129**	**306**	**166**	**16.4**	**29.3**	**20.1**	***88%***



Methylmercury: The Mercury Watershed Permit requires quarterly monitoring for Methylmercury. There is no promulgated Water Quality Standard for methyl mercury.

Methylmercury (ug/L)				WQO = NA
	Effluent			*Removal*
	Low	High	**Average**	
2009	**0.000029**	**0.000090**	**0.000053**	***NA***
2010	**0.000030**	**0.000085**	**0.000048**	
2011	**0.000030**	**0.000071**	**0.000055**	

c) Non-Priority Metals

Antimony: Plant Effluent antimony concentrations are well below the EPA recommended water quality objective for human health of 640 ug/L.

Antimony (ug/L)				WQO = 640 (EPA – Human Health)
	Effluent			Removal
	Low	High	**Average**	
2009	**0.33**	**0.58**	**0.42**	
2010	**0.34**	**0.49**	**0.40**	***NA***
2011	**0.32**	**0.46**	**0.38**	

Beryllium: There are no current recommended EPA water quality criteria for beryllium. However, published literature suggests chronic toxicity of beryllium may be as low as 5.3 ug/L. Plant Effluent concentrations of Beryllium are well below this number.

Beryllium (ug/L)				WQO = NA
	Effluent			Removal
	Low	High	**Average**	
2009	**0.006 (ND)**	**0.20**	**0.014**	
2010	**0.006 (ND)**	**0.015**	**0.007**	***NA***
2011	**0.005 (ND)**	**0.015 (ND)**	**0.012**	

Thallium: Plant Effluent thallium concentrations in 2011 were very low (mean = 0.024 ug/L).

Thallium (ug/L)				WQO = 6.3 (CTR)
	Effluent			Removal
	Low	High	**Average**	
2009	**0.005 (ND)**	**0.22**	**0.020**	
2010	**0.005 (ND)**	**0.300**	**0.037**	***NA***
2011	**0.005 (ND)**	**0.08 (DNQ)**	**0.024**	

d) Organics

Organic priority pollutants were measured semi-annually in Plant Effluent in March and September each year. Of 113 compounds analyzed, only six were detected in Plant Effluent in 2011.

Volatile Organic Compounds (VOCs): Six VOCs were detected in Plant Effluent in 2011. All six VOCs were well below California Toxic Rule (CTR) Water Quality Objectives (WQO).

Volatile Organic Compounds (ug/L)	March 2011	September 2011	CTR WQO
Trans-1,3-dichloropropene	Not Detected	0.52 (DNQ)	1700
Chloroform	3.2	2	470
Dibromochloromethane	0.5	Not Detected	34
Dichlorobromomethane	1.3	0.53 (DNQ)	46
Methylene Chloride	0.30 (DNQ)	0.47 (DNQ)	1,600
Toluene	0.4 (DNQ)	0.21 (DNQ)	200,000

Semi-Volatile Organic Compounds:
No semi volatile organic compounds were detected in Plant Effluent in 2011. During the previous year, 2010, of all the semi-volatile organics, only Bis (2-Ethylhexyl) phthalate was detected, but not quantified (DNQ) at 1.60 ug/l.

Polynuclear Aromatic Hydrocarbon (PAH) Compounds:
No PAH compounds were detected in Plant Effluent in 2011.

Legacy Pesticides and Polychlorinated Biphenyl (PCB) Compounds:
No legacy pesticides or PCB compounds were detected in Plant Effluent in 2011.

e) Nutrients

Currently there is no permit requirement to monitor nitrate, nitrite, or phosphate in Plant final effluent. However, the Plant routinely monitors nutrients to assess removal performance and assure quality for recycled water.
Current regulatory initiatives by Federal EPA and the California State Water Board have started a process for determining if water quality objectives should be established for nutrients, other than those already listed as conventional pollutants. A Water Board-stakeholder process to conduct nutrient studies in San Francisco Bay began in 2011 under the project title "Numeric Nutrient Endpoint" (NNE).

San Jose/Santa Clara Water Pollution Control Plant

Effluent Nutrient Concentrations and Loads

	Ammonia Concentrations (mg/L)			Ammonia Loads (kg/d)		
	Low	High	**Average**	Low	High	**Average**
2009	0.4	1.2	0.7	131.2	501.0	248.1
2010	0.4	2.6	0.8	152.5	1143.5	301.6
2011	0.3	2.6	0.8	107.7	995.5	309.4

	Nitrate Concentrations (mg/L)			Nitrate Loads (kg/d)		
	Low	High	**Average**	Low	High	**Average**
2009	7.3	14.2	10.3	2585.0	5267.0	3826.9
2010	7.8	12.6	10.3	2801.9	5333.6	3880.1
2011	7.9	13.8	10.9	3020.2	5654.6	4170.3

	Nitrite Concentrations (mg/L)			Nitrite Loads (kg/d)		
	Low	High	**Average**	Low	High	**Average**
2009	0.02	0.89	0.15	6.5	340.9	55.5
2010	0.01	1.12	0.28	2.2	533.2	111.4
2011	0.03	0.74	0.23	9.0	269.4	90.7

	Phosphate Concentrations (mg/L)			Phosphate Loads (kg/d)		
	Low	High	**Average**	Low	High	**Average**
2009	0.70	8.00	2.32	271.9	2891.0	861.2
2010	0.70	4.50	1.50	258.0	1904.9	578.0
2011	0.94	7.60	2.12	345.9	3050.2	810.4

3) Whole Effluent Toxicity

Acute Toxicity: Plant Effluent acute toxicity is tested monthly using Rainbow Trout exposed to Effluent for 96 hours under flow-through conditions. The test endpoint is survival. Survival of Rainbow Trout in Plant Effluent averaged 99.5% (*n*=12) in 2011. Plant Effluent has not observed acute toxicity in Final Effluent for over 16 years. Since the initiation of Rainbow Trout testing in October 2003, the minimum survival in Plant Effluent was 95.6%.

Chronic Toxicity: Chronic toxicity of Plant Effluent has been evaluated monthly using *Ceriodaphnia dubia* (water flea) since the inception of the Plant's chronic toxicity characterization program in the early 1990s. The test endpoint is reproduction. If ceriodaphnia exposed to Plant final effluent produce significantly less offspring than identical animals exposed to control water, the test concludes that reproduction has been inhibited which indicates that a toxic substance may be present in the effluent.

The Plant has detected biological inhibition in its Final Effluent on 24 occasions over 18 years. Last year's 2010 Annual Self Monitoring Report summarized the results of Toxicity Identification Evaluations that were conducted in 2010. None of those evaluations identified the class of compounds responsible for the biological inhibition except that some type of organic compounds in general could be the primary cause. A broader Toxicity Reduction Evaluation conducted from October 2009 until June 2010 was unable to identify a possible cause(s) of chronic toxicity.

Chronic Toxicity Results Summary

Year	# Tests Conducted	# Results >1 but <2 TUc	# Results >2 TUc
1994	12	0	0
1995	11	0	0
1996	13	1	1
1997	12	2	0
1998	12	2	0
1999	14	0	2
2000	12	0	0
2001	12	0	0
2002	12	0	0
2003	12	0	0
2004	12	0	1
2005	12	0	1
2006	11	0	0
2007	13	0	1
2008	11	0	0
2009	19*	3*	1*
2010	26*	4*	2*
2011	14	2	1

* Some tests were duplicate testing events.

In 2011, the Plant again observed biological inhibition in its Final Effluent in three of fourteen tests. As in the two previous years, monthly chronic toxicity events in 2011 were always followed by at least one immediate non-toxic event. The lack of consistent toxicity in Plant Effluent continues to plague efforts to determine the cause(s) of the occasional observed reproductive inhibition. None-the-less, Plant staff continues to investigate signs of adverse biological effects and is actively collaborating with other Bay Area researchers and wastewater treatment agencies to improve testing procedures and understanding of test results.

Chronic Test Results - 2011 (% Effluent)						
TEST START DATE	SURVIVAL		REPRODUCTION			
	NOEC	LOEC	NOEC	LOEC	IC_{25}	TUc
1/10/11	100	>100	100	>100	>100	<1
2/21/11	100	>100	100	>100	>100	<1
3/7/11	100	>100	100	>100	>100	<1
4/21/11	100	>100	100	>100	>100	<1
5/10/11	**100**	**>100**	**25**	**50**	**18.3**	**5.46**
6/9/11	100	>100	100	>100	>100	<1
6/21/11	**100**	**>100**	**50**	**100**	**71**	**1.4**
7/23/11	100	>100	100	>100	>100	<1
8/8/11	100	>100	100	>100	>100	<1
8/22/11	**100**	**>100**	**25**	**50**	**58.9**	**1.70**
9/13/11	100	>100	100	>100	>100	<1
10/3/11	100	>100	100	>100	>100	<1
11/2/11	100	>100	100	>100	>100	<1
12/5/11	100	>100	100	>100	>100	<1

Microscope evaluation of ceriodaphnia.

Calibration of monitoring equipment in the toxicity lab.

2. PLANT ANNUAL REPORT UPDATES

The following annual update reports are submitted in accordance with NPDES Permit Provisions VI.C.4.a. thru 4.d.

a. **Wastewater Facilities Status Report**
b. **Reliability Status Report**
c. **Operations & Maintenance Manual (O&M Manual) Update**
d. **Contingency Plan for Operations Under Emergency Conditions**

a. WASTEWATER FACILITY STATUS

NPDES Permit Provision VI.C.4.a requires an annual update of Wastewater Facilities Status. This report encompasses major wastewater facility programs or capital improvements over the past year. Activities that involve planning, assessing, and upgrading Plant assets are divided into four areas: 1) Master Planning, 2) CIP Condition Assessments, 3) Significant CIP projects, 4) an additional major facility change occurred in 2011: retirement of the 25-year old VAX data processing system and 5) Special Studies performed by the Plant's process engineering group.

1) Master Planning – 2011

The Plant Master Plan effort has completed its planning phase through the selection of a preferred alternative by the San Jose City Council in April 2011. The focus of effort will now be on evaluating and obtaining environmental clearance for selected projects. The following Plant Master Plan Project summary is extracted from the Plant's 2012-2016 "Capital Budget:"

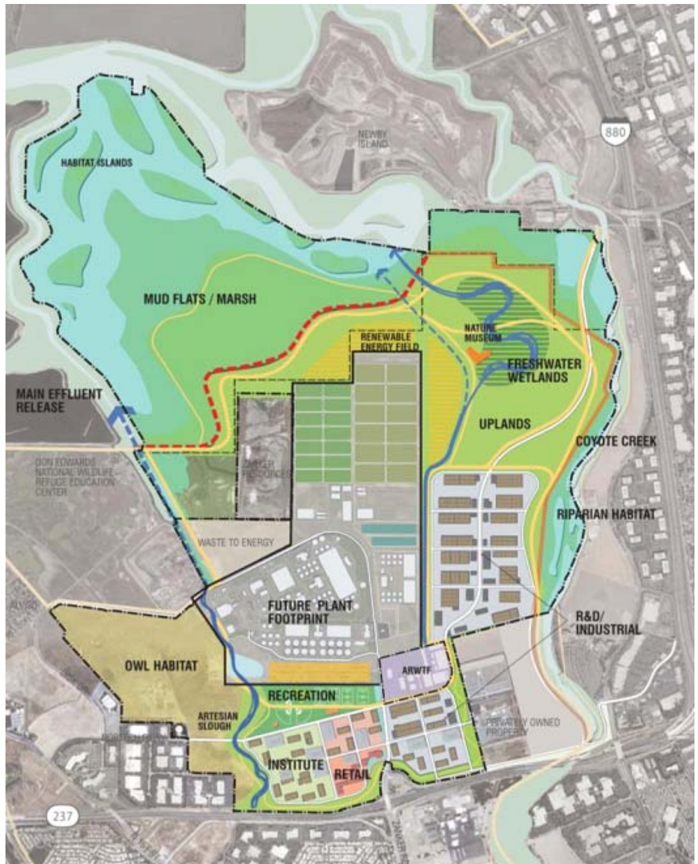
The Plant Master Plan is a three-year process initiated in 2008, which will guide the Plants capital improvement program and land use changes over the next 30 years. Four key conditions drive the need for the Plan: aging infrastructure, population and job growth, new stricter regulations, and the availability of better technologies. The Master Plan strives to balance environmental, economic, and community preferences with the technical needs of the Plant in its land use recommendations.

The preferred alternative of the Master Plan was approved by the City Council on April 19, 2011, with environmental clearance to be completed in early 2013. Preliminary cost estimates for the many projects based on the recommendations of the Master Plan were incorporated into the Capital Improvement Program (CIP). The Master Plan has developed technical recommendations as well as a draft recommended land use alternative. The Master Plan also addresses future regulatory requirements and flows as well as an overhaul of the entire solids treatment process. A financing strategy to cover the estimated $2.2 billion in recommended improvements will be developed in collaboration with the Plant co-owners and tributary agencies.

The current CIP aligns with the rehabilitation recommendations in the Master Plan related to the liquids process, digesters, and energy generation. It should be noted that several projects in the CIP include significant funding changes as compared to the 2011-2015 CIP, as the Master Plan was still in development at that time. The scope and cost of many projects will continue to be refined as technologies recommended by the Master Plan are evaluated and tested.

The Master Plan recommendations for wastewater treatment processes are shaping expectations for the future physical footprint of the Plant's operational area. This footprint will enable land use planning of the Plant's 2600 acres, which includes the bufferlands, biosolids treatment area, and Pond A18. Public outreach and stakeholder involvement have been a major component of the Plant Master Plan process. Over 9,000 community members have toured the Plant since 2008, the Plant Master Plan website provides the public with up-to-date information on the Plan's progress, and a Community Advisory Group (CAG) has been formed and meets monthly for detailed discussions of the complex issues facing the Plant.

The Plant Master Plan has its own website, complete with interactive map, at: www.rebuildtheplant.org



Master Plan map showing projected uses of Plant lands.

Artist's conception of freshwater wetlands proposed in the Plant Master Plan.

2) Significant CIP Projects – 2011

a) Electrical Reliability

The Electrical Reliability Project to upgrade the Plant's electrical distribution system was initiated in 2008. The following projects under the overall $72.5 million Electrical Reliability Program were completed in 2011:

Motor Control Center (MCC) Replacements. Several existing 480V MCCs were designated for replacement because of age and obsolescence.

- MCC Phase I Replacements. The replacement of MCCs H1, H2, J1 and J2 in the secondary blower Building were completed in 2011. The project was awarded to DYNA Electric in December 2009 with a budget of $2 million.
- MCC Phase II Replacements. MCCs B, N, R and SO2 were replaced in 2011. The project was awarded to Blocka Construction in June 2010 with a budget of $1.2 million.

Switchgear M1/M2/M3 Replacement. The project to replace the Plant's main 4160V distribution switchgears: M1, M2 and M3 was awarded to Rosendin Electric in June 2010 with a budget of $8.4 million. The installation of the new M1 switchgear was completed in November of 2011. The new M1 switchgear replaced the functions of both the old M1 & M2 switchgears which were the core of the Plant's original electrical distribution system.

Installation of M1 Switchgear, November 2011.

A new M3 switchgear was designed and manufactured. The new switchgear was delivered to the Plant in July of 2011 and is scheduled to be installed in the summer of 2012.

Before replacement of the M3 switchgear can begin, the 115KV substation controls must be relocated from the old M3 switchgear to a new 115KV Relay Building. The new 115KV Relay Building was completed in October of 2010. The installation of new control panels in the Relay Building is expected to be completed in May of 2012.

b) Alternate Disinfection

The new liquid chlorine (bleach) disinfection system was operationally tested in 2010, and the Plant began intermittent use of the bleach disinfection system on February 14th, 2011. Chlorine gas was retained on site as emergency backup until Plant staff was confident in the use of the equipment. Plant staff shut off the last chlorine gas rail car on November 15th, 2011.

Construction of a new disinfection system using liquid sodium hypochlorite (chlorine bleach) and sodium bisulfate that began in 2009 is now substantially complete. The Plant will continue to use sulfur dioxide (SO2) gas for dechlorination until the last rail car of SO2 is expended around March 2012 at which time all use of bulk gas shipped by rail will have ceased.

Plant operators prepare to close the dome gas valve on the last chlorine rail car after 40 years of gas disinfection.

The existing disinfection system, using rail car delivery of gas, was inaugurated on March 28th, 1971. With population growth and increasing concerns about disaster preparedness over the intervening 40 years, the benefit of switching to a liquid system became increasingly clear. Although the chemical costs are higher for liquid disinfection as compared to use of gas, the health and safety risks associated with gaseous chlorine and SO2 are substantial, and the costs for maintaining risk management and disaster response plans, equipment, and personnel are significant. The new liquid system greatly reduces those risks.

This significant change to disinfection practices was featured in a San Jose Mercury News article on November 10th, 2011, titled: "End of chlorine gas at Silicon Valley's largest sewage treatment plant." http://www.mercurynews.com/science/ci_19300471


The last tank car valve is closed.

3) Operational Assessment

Weekly operations meeting

Plant operational status is monitored 24 hours a day by a Shift Supervisor and Computer Room Operator. The day-to-day operations are then reviewed at a weekly roundtable meeting of all Plant Area Supervisors and the Chief Plant Operator. Each Area Supervisor brings to the meeting a data summary of the previous week's operational parameters (e.g.: flows, BOD and TSS loads, air and energy consumption, sludge blanket thickness, etc.) This allows each Area Supervisor to point out changes to operational parameters and alert of potential impacts to other areas of Plant operations. This is also the meeting where coordination of significant upgrade projects or changes to Standard Operating Proceedures (SOPs) occurs.

The following paragraphs list some of the highlights or milestones for each Plant area in 2011:

a) Headworks Status

Plant headworks facilities include both a new headworks area (Headworks 2 or HW2) an old headworks area (HW1) and an upstream Emergency Basin Overflow Structure (EBOS) that receives flow from the Plant's main interceptor lines. The old headworks facility (HW1) is original to the Plant. The new HW2 became fully operational in 2010. Each headworks facility consists of bar screens and grit removal chambers to capture and remove screenings and grit material.

The Plant utilized each headworks facility independently about 50 percent of the time in 2011. The availability of HW2 was critical during times when HW1 had to be shut down (mentioned below). Nevertheless, there are a few ongoing issues that impede full availability of HW2. Bar screen misalignment and screenings washer-compactor motor and gear box mechanical issues require frequent maintenance actions. Permanent corrective repairs are planned for both issues in 2012. Also, because HW2 is serviced exclusively by recycled water, HW2 cannot be operated during times when recycled water production is shut down. During those instances, there is no backup water supply for HW2 pump seal water and screenings sluiceways. Despite these issues, HW2 is carrying roughly 50% of the headworks load during the year and provides backup when HW1 must be secured.

In 2011, there were two significant headworks issues related to grit accumulation:

- EBOS Grit Cleanout. The EBOS was pumped out in mid 2011 to accommodate repair of a broken valve gearbox and evaluation of the Plant influent flow meter. As the water level went down, a large amount of grit material (143 tons) was discovered at the bottom of the tank. This material accumulated since the last pump-out in 2009, at least in part, because the broken valve required that one of the EBOS gates remain closed which reduced flow velocity in the EBOS chamber. The accumulated grit was removed and disposed. It is expected that the repaired and operational EBOS valve and gate will prevent future excess grit accumulation.
- Old Headworks (HW1) Shut Downs. From July through October, HW1 had to be shut down (and the flows routed to HW2) approximately twice per week due to plugged bar screens and grit pumps overwhelmed by sudden grit loads. Upon investigation, Plant Source Control personnel discovered that these high grit and screenings loads corresponded to City of Santa Clara public works operation of a pump station that feeds the Santa Clara force main. When the pump station was pumped down rapidly, the San Jose/Santa Clara Water Pollution Control Plant HW1 would plug up in less than 30 minutes. After the problem was identified, plant staff coordinated with City of Santa Clara Public Works. Slower pump-out of the pump station (using 3 pumps versus all 7) alleviated this problem. Operators have noted that the solid material is largely comprised of a pulpy paper-like substance. There is initial speculation that accumulation of sanitary wipes is contributing to grit loads and bar screen fouling.

b) <u>Primary Clarifiers</u>

Primary clarifiers operated well throughout 2011 with only routine maintenance and mechanical repairs interrupting service. A special pilot study was performed, mentioned below.

Ferric Chloride for H_2S Control and Enhanced Primary Treatment – full-scale pilot study. Hydrogen sulfide (H_2S) gas is a common source of odors at wastewater treatment plants. Currently, the San Jose/Santa Clara Water Pollution Control Plant controls H_2S emissions by injecting hydrogen peroxide at three stations at the Plant. In addition, the San Jose Department of Transportation injects ferrous chloride ($FeCl_2$) at the Downer-Canoas dosing station in the upstream collection system. The Plant is in full compliance with the Bay Area Air Quality Management District's (BAAQMD) 350 ppm total sulfur emission standard. However, in the past three years, the Plant experienced spikes in digester gas levels. A series of $FeCl_2$ versus $FeCl_3$ bench and full scale tests in May 2009 showed that dosing of ferric chloride ($FeCl_3$) at headworks could control H_2S better.

$FeCl_3$ is a stronger (also more expensive) coagulant that, in theory, provides the following advantages over $FeCl_2$:

- improves removal of Total Suspended Solids (TSS) and BOD_5 in primary clarifiers, which results in …
- reduction in organic and solids material flowing to the secondary (BNR) biological processes so that BNR tanks need less air, hence less energy, and also …

- more primary sludge is pushed into the anaerobic digesters to boost methane production, along with,
- precipitation of H_2S which controls odor, and
- mitigation of struvite scale formation.

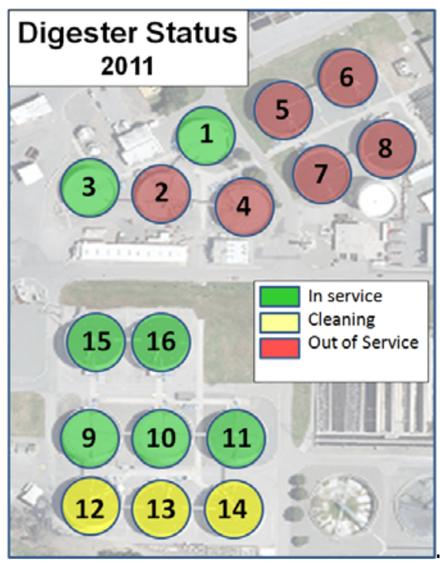
A full-scale study was started in July 2011. The study tested dosing $FeCl_3$ (10 mg/L and 15 mg/L) at the Emergency Basin Overflow Structure (EBOS) and dosing polymer (0.2 mg/L) at the influent to the east primary clarifiers. Preliminary results confirmed effectiveness of $FeCl_3$ dosing. More TSS and BOD_5 were removed in the primary tanks, H2S in digester gas was controllable at below 200 ppm, digester gas production increased, odor level at the Plant was reduced. The testing phase will end mid-January 2012. Data will then be evaluated. $FeCl_3$ seems to work well. The final evaluation will determine if it is cost effective.

Pilot ferric station at EBOS

Pilot polymer station at East Primary tanks

c) Digesters

The Plant has 16 digesters for processing sewage sludge. These are of varying age. Three (digesters #s 1, 2, and 3) are original to the Plant, having been constructed in 1956. The rest were installed between 1960 to 1975.



- Ten digesters, 1, 3, 9, 10, 11, 12, 13, 14, 15 and 16, were in service for most of 2011.
- Digesters 12, 13 and 14 were taken out of service in December in preparation for cleaning in early 2012. In late 2011, Plant paint staff applied an insulation coating to digester 13 as a pilot test to determine if this type of coating could provide better heat retention.
- Four digesters, 5, 6, 7, and 8, are out of service for long-term rehabilitation and repairs that will be completed in 2016.
- Digesters 13 and 14 will be upgraded by late 2012 to serve as Fats, Oil, and Grease (FOG) fed digesters. The City intends to partner with a private company to build and operate a demonstration FOG receiving station to feed FOG into up to three digesters

for FOG re-use and enhanced methane gas production. The FOG receiving station, located at an abandoned ammonia station, will provide gradually increasing amounts of FOG feed to digesters 13 and 14, up to 27,000 gpd maximum. Eventually, digester 11 will be converted for FOG as well, with digester 12 retained as a control. A final FOG Evaluation report was provided by Brown and Caldwell in October 2011.

d) Dissolved Air Flotation System

A CIP project to rehabilitate the Plant's Dissolved Air Flotation (DAF) system was completed in 2009 and accepted in 2010. The DAF system concentrates sludge from the Secondary / Biological Nutrient Removal (BNR) process for use as digester feed material. After completion of the CIP project, Plant electrical staff upgraded lighting in the underground DAF areas in 2010, and Plant process engineers throughout 2011 performed on-going testing of the Pressure Relief Tanks (PRTs) to increase air solubility above the current 40% level.

e) Secondary Area

The Plant's Secondary A Battery was shut down in May to accommodate replacement of a Motor Control Center (MCC H) in the Blower Bulding. The Battery was refilled and commenced operations in December 2011.

Secondary Clarifier Condition Assessment. CH2M HILL conducted initial field inspections of all 26 secondary clarifiers and submitted an Initial Condition Assessment Report in January 2011. The initial assessment selected five clarifiers (A-1, A-11, B-4, B-6, and B-13) for detailed field inspections. The findings from the detailed condition assessment of these five clarifiers and recommendations for rehabilitation and replacement for all secondary clarifier equipment and structures will be presented in a Final Condition Assessment Report in early 2012.

CH2M HILL also teamed up with sub-consultant HDR conducted a Computational Fluid Dynamics (CFD) modeling and scum removal alternatives study to improve the clarifier treatment efficiencies. The findings and recommendations from this study will be incorporated into the Secondary Clarifiers Condition Assessment Report mentioned above.

Aeration Study. Aeration of the Plant's secondary and nitrification basins (also known as the Biological Nutrient Removal (BNR) basins) is the largest consumer of energy at the Plant. The air is essential. The bacteria (the "bugs") that consume organic material in sewage need oxygen to grow and reproduce. Management of the aeration system is both energy intensive and complex. Starting in 2000, the Plant partially converted BNR tanks from coarse bubble diffusers (CBD) to more efficient fine bubble diffusers (FBD). Over time, it was discovered that energy efficiency comes at a cost: some types of fine bubble diffusers do not last long in the BNR process, others are not optimal for use with the existing piping and engine-blower systems.

To evaluate future aeration system improvements, a 16-month in-situ study of third generation diffusers was initiated, in collaboration with Professor Michael Stenstrom from UCLA, in October 2010. This study will test various types of bubble diffusers to optimize (reduce) energy consumption while maintaining high treatment efficiency. This work will assess fouling rates and material incompatibilities and the overall economics and implications of replacing piping and blowers. Conclusions and recommendations will be available in mid-2012.

Aeration Study sensor equipment (handrail rack with rotameters)

f) Nitrification Area

During 2011, staff has observed that Nitrification basin does not perform as well as the Secondary basin in terms of solids generation and sufficient aeration. Occasional ammonia breakthrough and pin floc resulting from this problem affects the performance of filtration and disinfection areas that are downstream.

Nitrification tank B-4.

In theory, both the nitrification and secondary basins are run in parallel and perform identical treatment ever since the Plant converted both basins to a step-feed Biological Nutrient Removal (BNR) process in 1998. However, in reality the physical dimensions of the tanks and the condition of the aeration systems differ. The end result is that the Secondary Basin simply seems to provide better treatment for a given amount of aeration. In June and July, aeration was increased in the nitrification basin (aeration was switched from pulse to continuous mode). This appeared to alleviate ammonia breakthrough, albeit higher ambient temperatures during the summer months would have added to the improved treatment as well.

Nitrification Clarifier Condition Assessment. AECOM submitted a Nitrification Clarifiers Condition Assessment – Final Report in December 2011. AECOM performed a life-cycle cost analysis for seven alternatives to repair and rehabilitate nitrification clarifiers. A two-phase implementation plan for identified improvements was recommended with estimated construction costs of $4,695,000 for Phase 1 and $3,533,300 for Phase 2.

g) Filtration

The Plant filters were partially shut down on three occasions during 2011 to facilitate upgrades and repairs as follows:

- From July 21st to August 3rd, Serpentine tank #2 was shutdown and dewatered to allow installation of a brine (R.O. Reject) line from the Advanced Water Treatment Facility (AWTF). This shutdown also allowed Plant maintenance staff to perform epoxy injection repairs to cracks in the serpentine tank concrete structure.
- On October 24th, the filter building A-side backwash system was shut down for 10.5 hours to allow contractor, D.W. Nicholson, to replace the backwash flow control valve and a section of the backwash discharge line
- On November 30th, the filter building B-side backwash system was shut down for 9 hours to allow D.W Nicholson to perform the same replacement work on that system.

4) Modernization of Automated/Manual Data Entry System

On December 22nd, 2011, the Plant's Process Controls Systems group retired the VAX server system (Virtual Address eXtension) from its role as the process data historian. The VAX system brought the Plant into the modern data processing age when it was introduced in the 1980s. For 25 years the VAX served the Plant by supporting many mission-critical tasks, such as collection of plant process information, storage of laboratory data, generation of reports, etc.

The availability of modern hardware and programming tools eventually forced the decision to replace the VAX with a faster, more user-friendly system. A newer server would also allow upgrading the outdated hardware that supports the data historian.

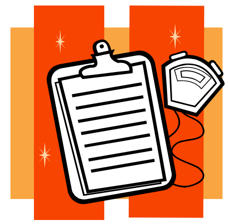
When the VAX was retired, data processing work was immediately picked up by the new (next generation) "NoVAX" Manual Data Entry 3 system (also known as NoVAX-M-3). Transition to the NoVAX-M3 system took years to accomplish. A number of in-house computer programs were developed to improve and work around the old VAX in recent years. A first release of the NoVAX system in 2009 gave Plant personnel data on demand on their desks. Many of the "in-house" computer applications were designed to move data processing functions to the initial version of NoVAX during the transition. The NoVAX-M3 provides a solid system for integration to the new DCU-HMI plus safer Plant data storage and faster delivery of meaningful data. The legacy VAX server, although no longer supporting mission critical functions, is still viable and available for other data processing tasks.

The old VAX was comprised of two units: Microvax II in the large tower (purchased in 1987) and VAX 4000-300 in the smaller tower (purchased in 1990).

b. PLANT RELIABILITY REPORT UPDATE

Permit Provision VI.C.4.a. requires annual review and update of the Plant Reliability Report. Plant reliability depends on at least three general categories of inputs: 1) Plant infrastructure (asset) management, 2) personnel and procedures, and 3) financial resources.

1) Plant Infrastructure / Asset Management



The Asset Management Group oversees the implementation of the Computerized Maintenance Management System (CMMS) and the Geographic Information System (GIS), and provides day to day technical support to the end users. The group also develops and improves the systems features based on the feedback from the users.

Although CMMS staff was reduced to one person during much of 2011, efforts were undertaken to continuously update the database and provide training to the end users. Implementation of the preventative maintenance (PM) program is underway with many of the Plant areas fully incorporated. Four staff members have now been reallocated to the Asset Management Group. In 2012, the team will be updating the CMMS database to a newer version with many additional needed features.

CMMS. The CMMS database now tracks and maintains over 14,500 vertical and linear assets, 4,000 inventory items, and over 9,750 non inventory items. Preventive maintenance activities are in place for almost 1,900 pieces of equipment with an ongoing effort to fold more equipment into the PM schedules. To date, over 13,500 work orders, 7,000 requisitions and 6,600 purchase orders have been generated through CMMS with the system providing input on labor and material costs.

Underground pipes are common at the Plant.

Process Pipe Mapping. The GIS Database now includes 200 miles of above ground and underground utilities located within approximately 5 square miles. It contains critical information pertaining to 80+ different utilities, such as: piping systems for Natural Gas, Digester Gas, Landfill Gas, Supernatant, Sanitary Sewer, Chlorine Solution, and Sodium Bisulfite Solution, and electrical conduits for high and low voltage duct banks. In addition, over 1,500 isolation valves, manholes, catch basins, and other assets associated with the piping systems are included in the GIS database. The GIS also has over 2,000 GPS-located digital photos of exposed buried utilities. Historically, record drawings were the primary source of information for determining the location and configuration of buried pipes. However, paper records quickly become out of date, and this information seldom reached the end user due to limited distribution. The GIS electronic data is accessed by Plant staff using online interactive mapping software that allows them to view piping system maps, isolation valve locations, locations of buried utilities, and, when available, photos of buried utilities at specific locations.

Underground Service Alert (USA) Program. The Plant is a member of USA North as required by State Law. All contractors excavating and/or drilling are required to call USA North for assignment of a USA Ticket which guarantees that the GIS Team is notified of all digging activity. Contractors are also required to receive a copy of the Plant USA Guidebook prior to excavation. The guidebook provides a list of underground utilities and marking systems used on Plant property and explanations of how the GIS Team can assist them in ensuring a safe excavation. In 2011, the GIS Team received and successfully closed over 200 USA Tickets.

2) Personnel

185 positions work directly under the Deputy Director of Plant Operations in day-to-day support of the wastewater management operations and maintenance program at the San Jose / Santa Clara Water Pollution Control Plant. Within this group, there were a total of 35 vacant positions as of December 31st, 2011. The vacancies include: 1 Air Conditioning Mechanic, 1 Assistant Heavy Diesel Equipment Operator Mechanic, 1 Associate Engineering Technician, 1 Division Manager, 1 Electrician, 1 Heavy Diesel Equipment Operator Mechanic, 1 Instrumentation Control Technician, 2 Maintenance Workers, 1 Plant Painter, 1 Plant Assistant General Operations Supervisor, 1 Plant Attendant, 8 Plant Mechanics, 1 Plant Mechanical Supervisor, 8 Plant Operators, 2 Senior Engineers, 2 Senior Plant Operators, 1 Supply Clerk and 1 Warehouse Worker.

Operations and Maintenance. Plant day-to-day operations are supported by staff organized into three primary divisions: Operations, Mechanical Maintenance, and Energy and Automation.

The Operations Division is assigned 70 positions and is responsible for the daily functioning and control of the water treatment processes. A minimum of 8 personnel are on site at all times under the oversight of a Shift Supervisor who acts as On-Scene Commander in event of emergency or catastrophic Plant failure.

The Mechanical Maintenance Division is assigned 60 positions and is responsible for the maintenance of the plant mechanical infrastructure, facilities maintenance, warehouse services, landscaping, painting, and land management. It is organized in three sections, Corrective Maintenance, Preventative Maintenance, and Paint Shop. The Corrective Maintenance section is responsible for all mechanical equipment throughout the plant including, pumps, piping, rotating equipment, and structures. The Preventative Maintenance section oversees maintenance planning and scheduling and the Maintenance Control Center in addition to maintaining all buildings on site, landscaping, warehouse, and land management. The Paint section provides protective coatings for all infrastructures at the plant.

The Energy and Automation Division is assigned 55 positions and is responsible for the maintenance of the plant electrical infrastructure, power generation system, and instrumentation & control. It is organized in three sections, Electrical (which includes HVAC), Instrument

Control, and Power & Air. This Division is also responsible for overseeing plant energy use and minimizing energy cost by optimizing the purchase of natural gas, landfill gas and electricity.

In addition to the maintenance role, all maintenance sections participate in the design and implementation of large capital improvement projects managed by the Planning and Development Program. Additionally, small process improvement and equipment replacement projects are frequently undertaken. Maintenance staff works hand-in-hand with the operations staff for upkeep and repairs of the plant equipment.

The Plant is also directly supported by another 82 personnel in the Planning and Development Division, the Sustainability and Compliance Division and the Plant Environmental Laboratory.

Planning and Development. The planning and development program implements and coordinates capital improvement projects (CIP) for the Water Pollution Control Plant, providing services that include: CIP construction management, CIP design, CIP program management, electrical engineering, knowledge systems and asset management, and process engineering.

CIP Implementation includes engineering support and is provided by 21 members of the Planning and Development Division. This group is comprised of construction and wastewater process engineers and contract managers.

The Knowledge Systems Management group includes 23 positions that support and maintain four major digital information services for the Plant: Management Information Systems (MIS or computer services), Geographic Information Systems (GIS), Asset Management, and Process Control Systems (PCS).

Environmental Compliance and Safety. Regulatory compliance and land use planning is overseen by 13 members of this group under the Environmental Services Department, Sustainability and Compliance Division. These personnel are comprised of environmental and regulatory analysts who handle monitoring, reporting, and corrective action related to the Plant's National Pollutant Discharge Elimination System (NPDES) permit, air emissions permit, and health and safety compliance.

Plant Environmental Laboratory. Laboratory services are provided by an on-site laboratory staffed with 25 personnel. 14 laboratory chemists and technicians support wastewater operations, the remainder of laboratory staff perform trace analytical work and client services.

3) Finance

The Plant operates through a Joint Powers Agreement (JPA) under an "Agreement between San José and Santa Clara Respecting Sewage Treatment Plant" dated May 6, 1959.   In accordance with this original master agreement, the Plant is jointly owned by both cities and is administered and operated by the City of San José. The Plant service area includes additional tributary sanitary sewer collection agencies, including municipalities and sanitary sewer districts. The Plant service area includes the following cities and adjacent, unincorporated County territory: San José, Santa Clara, Milpitas, Cupertino Sanitary District, West Valley Sanitation District, County Sanitation District Nos. 2-3, and Burbank Sanitary District. Each municipality retains sole ownership and responsibility of its own sanitary sewer collection system. Through a series of additional "Master Agreements for Wastewater Treatment," the six additional tributary collection systems hold the rights to a share of Plant treatment capacity.

Each Agency prepares its revenue program annually by establishing sewer service and use charges. Rates are adopted by ordinance or resolution of the governing body of each Agency. The Agencies' revenue programs are submitted to the City of San Jose, as the administering agency, for review to determine conformity with State Water Board revenue program guidelines.

The Contributing Agencies

2012-2016 Capital Improvement Program (CIP). The 2012-2016 CIP was adopted for $426.7 million, of which $132.3 million was allocated for 2011-2012. Revenue for the five-year CIP is derived from several sources: transfers from the City of San Jose Sewer Service and Use Charge Fund ($207 million), contributions from the other Agencies ($109.2 million), the San Jose Sewage Treatment Plant Connection Fee Fund ($15.5 million), Interest earnings ($8.7 million), Calpine Metcalf Energy Center Facilities Repayments ($1.9 million), federal grants from the US Bureau of Reclamation ($1.5 million), and contributions from the Santa Clara Valley Water District related to recycled water projects ($1.0 million).

Contributions from the City of Santa Clara and other Agencies increased by $13.7 million (14%) as a result of additional investments in Plant infrastructure improvements and repairs. Transfers from the City's own Sewer Service and Use Charge Fund to the CIP over the five years of the CIP decreased by $9.0 million (4.2% decrease). The decrease in transfer from City of San Jose is a result of an accumulated Fund Balance available to fund projects. The San Jose transfer includes a 3% rate increase in Sewer Service and Use Charge fees in 2011-2012 and assumes a 3% rate increase in the following years which is lower than the 6% rate increase assumed in the 2011-2015 CIP.

In addition to the below projects, the Plant continues to maintain a Reserve for Equipment Replacement of $5.0 million according to its Master Agreement guideline, Clean Water Financing Authority (CWFA) Bond Covenants, and the State Water Resources Control Board's (SWRCB) Fund Loan Agreement policy. Other reserves are included in the 2012-2016 CIP:

- A $20.0 million Reserve for Biosolids Program for disposal of legacy biosolids on Plant lands.
- A $10.0 million Reserve for Odor Control Projects to evaluate and incorporate odor control technology.
- A $10.0 million Reserve for Electrical Reliability Improvements to fund contingencies related to electrical systems improvements.

Over the last five years, the Plant has seen an unprecedented decline in staffing resources in all areas: engineering, operations and maintenance. These staffing challenges have resulted in reduced delivery and/or delayed progress on many of the capital projects. The Plant is developing plans to deliver the capital projects contained in the Plant Master Plan by analyzing whether project delivery options, that are not the traditional design-bid-build approach currently used, could assist in making progress on the capital program.

Table below provides 2010-2011 actual CIP expenditures & encumbrances as of June 30, 2011.

2010-2011 Capital Improvement Program Year-end Expenditure Summary				
	Appn	**Project**	**Current Encumbrances**	**Expenditure on 6/30/2011**
1	4120	Plant Master Plan	1,796,776	1,378,513
2	4124	M5, Ring Buss, and Cable Replacement	0	356,682
3	4127	Digester Rehabilitation	320,291	334,951
4	4332	Equipment Replacement	1,657,043	1,118,385
5	4341	Plant Electrical Reliability	6,542,729	8,311,062
6	4383	ESD MIS Improvements	0	122,996
7	4679	Alternative Disinfection	1,013	1,235,656
8	4691	Lab Information Mgmt System	33,796	27,250
9	4931	Inactive Lagoon Biosolids Removals	51,500	15,000
10	5157	DAF Pressure Tank and Valves	0	14,178
11	5690	Plant Infrastructure Improvements	1,611,130	3,549,912
12	5691	Unanticipated/Critical Repairs	0	0
13	5957	Public Art	107,000	149,853
14	6000	PW Support Service Costs	0	307,727
15	6147	Land Acquisition & Improvements	0	0
16	6507	Environmental Svcs Bulding Rehab	0	20,998
17	6508	SBWR Reservoir Facility	2,680,093	2,416,587
18	6585	WPCP Reliability Improvements	21,259	0
19	6589	Revised South Bay Action Plan	10,412,288	7,668,583
20	7073	Headworks Enhancement	174,479	262,755
21	7074	Secondary and Nitrification Clarifier Rehab	540,372	530,269
22	7161	Recovery Act SBWR Phase 1C	183,606	4,086,087
23	7224	Advanced Process Control & Automation	52,446	34,402
24	7225	DAF Dissolution Improvements	0	80,053
25	7226	E. Prim. Concrete Repair & Steel Conversion	0	27,918
26	7227	Filter Improvements	0	0
27	7228	Fine Bubble Membrane Diffuser Conversion	0	0
28	7229	Fuel Cell	957,779	243,839
29	7230	Iron Salt Feed Station	0	0
30	7231	Warehousing Facility Additions	0	5,198
		Total	**27,143,600**	**32,298,854**

Operating and Maintenance Budget. The Treatment Plant Operating Fund Budget that was adopted for fiscal year 2011-12 increased over the previous year due to increases in pension and medical benefits contributions which were only partially offset by salary reductions. One adopted adjustment of $264,000 was made for 2011-12 to re-budget funds for the Mechanic in Training Program from the FY10-11 budget. These funds are needed for temporary, over-strength positions that would serve to fill future mechanic vacancies.

TREATMENT PLANT OPERATING FUND BUDGET SUMMARY

Budget Summary	2010-11 Actuals Budget	2011-12 Proposed Budget	2011-12 Adopted Adjustments	2011-12 Adopted Budget
Personal Services	36,829,035	43,053,983	264,000	43,317,983
Non-personal Expenses	22,202,364	24,648,275		24,648,275
Equipment	1,809,382	900,000		900,000
Inventory	376,432	400,000		400,000
Department Expenses	**61,217,213**	**69,002,258**	**264,000**	**69,266,258**
Overhead	7,228,538	6,429,975		6,429,975
City Hall Debt Service	886,403	850,879		850,879
Workers' Compensation	508,202	700,000		700,000
City Services	748,713	973,422		973,422
City Expenses	**9,371,856**	**8,954,276**	**0**	**8,954,276**
TOTAL EXPENSES	**$70,589,069**	**$77,956,534**	**$264,000**	**$78,220,534**

ESTIMATED COST DISTRIBUTION

2011-12 Estimated Total Gallons Treated (MG)	(1) Percent of Total Sewage Treated	City / District	2011-12 Projected
24,972.734	65.087	City of San Jose	$50,739,570
5,094.298	13.505	City of Santa Clara	10,528,030
30,067.032	78.592	Sub-Total	$61,267,600
3,385.881	8.956	West Valley Sanitation District	6,981,787
1,927.447	5.268	Cupertino Sanitary District	4,106,750
2,272.369	5.868	City of Milpitas	4,574,489
381.538	1.031	Sanitation District # 2 - 3	803,732
105.505	0.285	Burbank Sanitary District	222,176
8,072.740	21.408	Sub-Total	$16,688,934

Regulatory fees and membership dues. Permit fees and membership dues with professional organizations that represent the wastewater industry are a small but essential component of the overall Plant budget.

Major Permit Fees - 2011		
Fees	Agency	Amount
Permit: Annual NPDES Fee	State Water Resources Control Board	$495,897
Permit: Annual Air Permit Fee	Bay Area Air Quality Management District	$79,904
Permit: Annual RMP Participation	Regional Monitoring Program – SFEI	$223,500
Certification: Annual Laboratory Fee	Calif. Department of Health Services	$5,071
Related Membership Dues		
Membership: BACWA Annual Dues	Bay Area Clean Water Agencies	$156,000
Membership: WERF Research Dues	Water Environment Research Foundation	$39,256
Membership: NACWA Annual Dues	National Association of Clean Water Agencies	$36,509
Membership: CASA Annual Dues	California Association of Sanitation Agencies	$18,000
Membership: Water Reuse Association	Water Reuse Association	$25,000
Membership: AWWA	American Water Works Association	$5,015

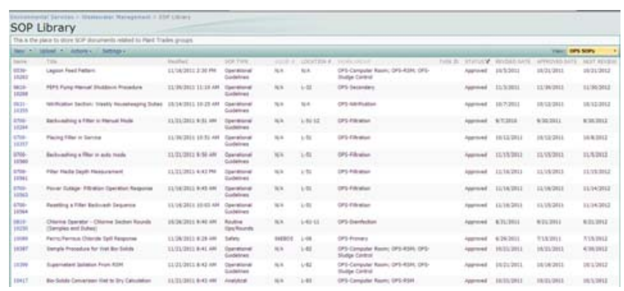
c. O&M MANUAL UPDATE

The Plant O&M Manual is posted electronically on the Water Pollution Control Plant intranet server. The manual provides an easily searchable general reference library describing Plant processes, equipment, and operational constraints. A total of 141 Standard Operating Procedures (SOPs) are filed in the O&M Manual electronic library. The electronic format allows changes to the manual as new equipment is installed and old equipment is upgraded or decommissioned.

In 2011, a SharePoint software document library was introduced to facilitate the storage, search ability, and version control of SOP documents. SOPs continue to be accessible, via hyperlinks, through the existing Plant O&M Manual, but can now also be managed and reviewed via SharePoint technology.

Annual wet weather preparation procedures were updated for the 2011-2012 wet weather season. New flow management procedures created in 2010 were modified to allow optimum operation of all valves, gates and interceptors at both flow management structures.

Existing Plant electronic O&M Manual

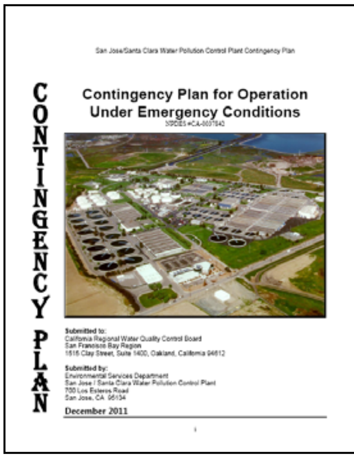


O&M Manual SOPs are now posted to a SharePoint online library. Hyperlinks allow a user to switch between Sharepoint and O&M Manual versions of each SOP

d. CONTINGENCY PLAN UPDATE

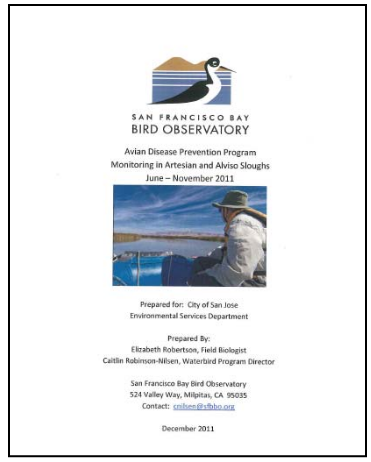
An annual Plant Contingency Plan review and update is required under NPDES Permit Provision VI.C.4.d.

In 2011, section 3.8 procedures for reporting spills or discharge of untreated or partially treated wastewater were revised to reflect changes to Regional Water Quality Control Board guidance. Also, emergency procedures responding to a chlorine gas release were revised after the chlorine gas disinfection system was replaced with a liquid bleach system.



3. ENVIRONMENTAL MONITORING

a. Avian Botulism Monitoring


SAN FRANCISCO BAY
BIRD OBSERVATORY

Avian Disease Prevention Program
Monitoring in Artesian and Alviso Sloughs
June – November 2011

Prepared for: City of San Jose
Environmental Services Department

Prepared By:
Elizabeth Robertson, Field Biologist
Caitlin Robinson-Nilsen, Waterbird Program Director

San Francisco Bay Bird Observatory
524 Valley Way, Milpitas, CA 95035
Contact: cnilsen@sfbbo.org

December 2011

In accordance with Permit Provision VI.C.2.c., the San Jose / Santa Clara Water Pollution conducts annual avian botulism surveys of lagoons and sloughs in the vicinity of the wastewater discharge. This annual program has been in effect since 1983. During the warm season, the Plant monitors for signs of botulism outbreak in waterfowl residing in or adjacent to Plant lands. Historically, there have been regional outbreaks in the South Bay roughly once every several years. When an outbreak occurs, the Plant promptly notifies the Santa Clara Valley Water District and other local government and wildlife agencies. Prompt action to remove sick and dead birds reduces the severity and duration of an avian botulism event.

The San Francisco Bay Bird Observatory (SFBBO) monitored for avian botulism outbreaks from June through November 2011 in Coyote Creek, Artesian Slough and Alviso Slough. Concurrently, City staff conducted additional monitoring in the Residual Sludge Management (RSM) area of the Plant. No outbreaks of avian botulism were detected in 2011. Of 2 sick or injured birds, and 12 dead birds, collected, none were diagnosed with botulism.

The full Avian Botulism Report is posted on the City of San Jose web site at: http://www.sanjoseca.gov/esd/avian-botulism-reports.asp

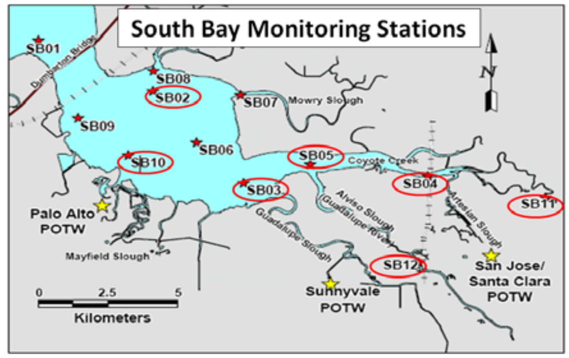
b. Marsh Assessments

Permit Provision VI.C.2.d requires that Salt Marsh Vegetative Assessments be performed in 2010 and 2012 during the term of the current NPDES permit (Order No. R2-2009-0038). Accordingly, there was no assessment in 2011. The Plant's 19th Salt Marsh Vegetative Assessment will be conducted in 2012.

c. South Bay Monitoring

San Jose/Santa Clara Water Pollution Control Plant biologists perform quarterly monitoring of Lower South San Francisco Bay receiving water by boat. The Plant has monitored the Lower South San Francisco Bay (South of the Dumbarton Bridge) for water quality parameters (pH, Dissolved Oxygen (DO), Temperature, and Turbidity) monthly from 1965 to 2009. Nutrient monitoring (Ammonia, Nitrate, Nitrite, and Phosphate) was added in the mid-1970s. Additional monitoring of concentrations of total and dissolved metals was added in 1997. This data provides long-term measurements of the health of the receiving waters immediately downstream of the Plant. The data also demonstrate drastic improvements in South Bay water quality as Plant treatment process were upgraded from the 1970s through the 1990s.

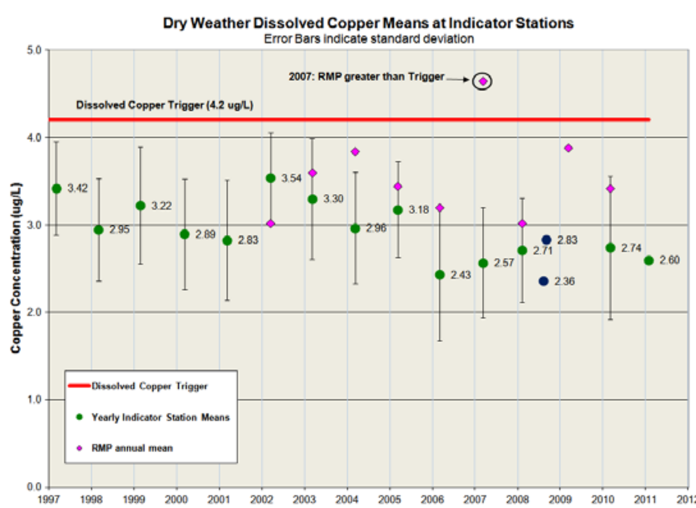
Historically, 12 stations (10 in the bay and 2 in tributary rivers) were monitored monthly (See Map). This monitoring was a requirement in previous NPDES permits. In May 2009, monitoring was reduced to quarterly frequency at 7 of the original 12 stations. This reduced monitoring still provides adequate statistical power for detecting changes in the Lower South Bay. The data tracks seasonal and annual trends for a variety of pollutants of concern.



South Bay Monitoring - Water Quality Measurements			
Water Chemistry (since 1965)	**Particulates**	**Nutrients (since 1975)**	**Metals (since 1997)**
pH	Secchi (1965 to 1993)	NH3	Copper
Temp	Turbidity (1985 to 1993)	NO2	Nickel
DO	TSS (since 1997)	NO3	Mercury
Hardness (since 1997)		PO4	Methylmercury
DOC (since 1997)			Selenium

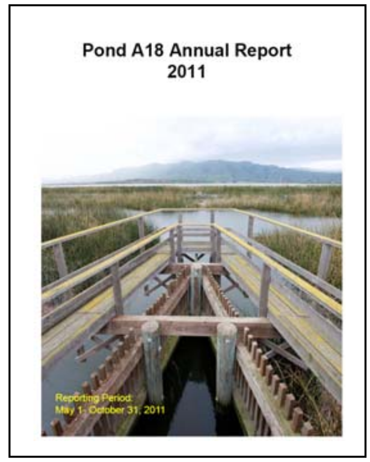
Ammonia Monitoring. In 2010 and 2011, the Plant shared South Bay Monitoring ammonia data and collaborated on additional ammonia studies with the other two South Bay Dischargers: City of Palo Alto and City of Sunnyvale. Ammonia in the Lower South Bay has been an environmental concern for many decades, and it is one of many issues that the three agencies work on together. The Plant's South Bay Monitoring Program is currently the only source for relevant ammonia data.

Copper Action Plan. The Plant's current NPDES permit requires implementation of additional "Copper Action Plan" tasks if the three-year rolling mean dissolved copper concentration of South Bay exceeds 4.2 ug/l. Absent the Plant's monitoring of copper, only the San Francisco Bay Regional Monitoring Program (RMP) performs this function once per year at five stations in the Lower South Bay. Unfortunately, the less frequent



sampling performed by the RMP tends to show slightly higher dissolved copper concentrations than detected by the Plant's more rigorous program. Plant and RMP staff have studied sampling protocols in detail, but could not determine a reason for the different results. Data through 2011 show that the dissolved copper three-year rolling mean remains below the 4.2 ug/l trigger level using either data set, but the RMP data indicates higher concentrations, and even rose above the trigger on one instance in 2007.

d. Pond A18 Monitoring



Since 2005, the City of San Jose (City) monitored water quality for Salt Pond A18 in accordance with Waste Discharge Requirements (WDR) Order No. R2-2005-0003 (Order) issued by the San Francisco Bay Regional Water Quality Control Board (Water Board). During the dry season each year, the City continuously monitors general water quality of Pond A18 and the receiving waters in Artesian Slough. Water quality readings for dissolved oxygen (DO), temperature, pH, and salinity are recorded every 15-minutes from May 1 to October 31. Additional water quality monitoring parameters such as chlorophyll a, turbidity, mercury, methylmercury, and phytoplankton species composition have been taken at various intervals during the years.

In general, Pond A18 can be characterized as a shallow, slow circulation, highly productive impounded water body with a hydraulic residence time of more than a week. Because it is a shallow, slow moving water body, Pond A18 experiences regular hypoxia (low DO conditions) during warm summer months due to high respiration and decomposition rates, high algal biomass, and phytoplankton community turnover or succession. In 2011, the occurrence of the hypoxia was much later than in previous years of monitoring. Hypoxia generally occurrs somewhere between July and late August, with the pond recovering by mid to late September. In 2011, due to a milder summer with greater freshwater inputs from upper watershed dam releases, unusual summer rains, and lower temperatures, the pond did not experience hypoxia until later in the season (mid September) when phytoplankton community succession occurred.

In past years, the City measured mercury, methylmercury, and associated parameters in sediments collected inside Pond A18. For 2011, per Water Board instruction, the City measured these parameters in the sediments from the receiving waters (Artesian Slough) that A18 discharges to rather than from inside the pond. While the results will likely have little correlation with Pond A18 sediment mercury concentrations, the data will be useful in the broader context of mercury concentrations in the Lower South Bay and its tributaries, especially as the South Bay Salt Pond Restoration Project continues to proceed.

The full Pond A18 Annual Report is posted on the City of San Jose web site at: http://www.sanjoseca.gov/esd/PondA18SMPReports.asp

ATTACHMENT

Laboratory Accreditation

CDPH
California Department of Public Health

CALIFORNIA STATE

ENVIRONMENTAL LABORATORY ACCREDITATION PROGRAM BRANCH

CERTIFICATE OF ENVIRONMENTAL ACCREDITATION

Is hereby granted to

SAN JOSE/ SANTA CLARA WPCP LABORATORY

ESD

4245 ZANKER ROAD

SAN JOSE, CA 95134

Scope of the certificate is limited to the
"Fields of Testing"
which accompany this Certificate.

Continued accredited status depends on successful completion of on-site, proficiency testing studies, and payment of applicable fees.

This Certificate is granted in accordance with provisions of Section 100825, et seq. of the Health and Safety Code.

Certificate No.: **1313**

Expiration Date: **09/30/2012**

Effective Date: **10/01/2010**

Richmond, California
subject to forfeiture or revocation

George C. Kulasingam, Ph.D., Chief
Environmental Laboratory Accreditation Program Branch

CALIFORNIA DEPARTMENT OF PUBLIC HEALTH
ENVIRONMENTAL LABORATORY ACCREDITATION PROGRAM
Accredited Fields of Testing

SAN JOSE/ SANTA CLARA WPCP LABORATORY
ESD
4245 ZANKER ROAD
SAN JOSE, CA 95134
Phone: (408) 945-3743

Certificate No.: 1313
Renew Date: 9/30/2010

Field of Testing: 101 - Microbiology of Drinking Water			
101.010	001	Heterotrophic Bacteria	SM9215B
101.060	002	Total Coliform	SM9223
101.060	003	E. coli	SM9223
Field of Testing: 107 - Microbiology of Wastewater			
107.010	001	Heterotrophic Bacteria	SM9215B
107.020	001	Total Coliform	SM9221B
107.040	001	Fecal Coliform	SM9221C,E (MTF/EC)
107.060	001	Total Coliform	SM9222B
107.080	001	Fecal Coliform	SM9222D
107.244	001	Enterococci	EPA 1600
107.245	001	E. coli	SM9223
Field of Testing: 108 - Inorganic Chemistry of Wastewater			
108.112	001	Boron	EPA 200.7
108.112	002	Calcium	EPA 200.7
108.112	003	Hardness (calc.)	EPA 200.7
108.112	004	Magnesium	EPA 200.7
108.112	005	Potassium	EPA 200.7
108.112	006	Silica	EPA 200.7
108.112	007	Sodium	EPA 200.7
108.120	001	Bromide	EPA 300.0
108.120	002	Chloride	EPA 300.0
108.120	003	Fluoride	EPA 300.0
108.120	004	Nitrate	EPA 300.0
108.120	007	Phosphate, Ortho	EPA 300.0
108.120	008	Sulfate	EPA 300.0
108.381	001	Oil and Grease	EPA 1664A
108.390	001	Turbidity	SM2130B
108.410	001	Alkalinity	SM2320B
108.421	001	Hardness	SM2340C
108.430	001	Conductivity	SM2510B
108.440	001	Residue, Total	SM2540B
108.441	001	Residue, Filterable	SM2540C
108.442	001	Residue, Non-filterable	SM2540D
108.443	001	Residue, Settleable	SM2540F
108.461	001	Chlorine	SM4500-Cl C

As of 9/7/2010 , this list supersedes all previous lists for this certificate number.
Customers: Please verify the current accreditation standing with the State.

108.465	001	Chlorine	SM4500-Cl G
108.470	001	Cyanide, Manual Distillation	SM4500-CN C
108.472	001	Cyanide, Total	SM4500-CN E
108.473	001	Cyanide, amenable	SM4500-CN G
108.480	001	Fluoride	SM4500-F C
108.490	001	pH	SM4500-H+ B
108.492	001	Ammonia	SM4500-NH3 C (19th/20th)
108.493	001	Ammonia	SM4500-NH3 D or E (19th/20th)
108.493	002	Kjeldahl Nitrogen	SM4500-NH3 D or E (19th/20th)
108.510	001	Nitrite	SM4500-NO2 B
108.531	001	Dissolved Oxygen	SM4500-O G
108.540	001	Phosphate, Ortho	SM4500-P E
108.541	001	Phosphorus, Total	SM4500-P E
108.580	001	Sulfide	SM4500-S= D
108.590	001	Biochemical Oxygen Demand	SM5210B
108.591	001	Carbonaceous BOD	SM5210B
108.610	001	Total Organic Carbon	SM5310B
108.660	001	Chemical Oxygen Demand	HACH8000
108.675	001	Phosphorus, Total	HACH8190

Field of Testing: 109 - Toxic Chemical Elements of Wastewater

109.010	001	Aluminum	EPA 200.7
109.010	002	Antimony	EPA 200.7
109.010	003	Arsenic	EPA 200.7
109.010	004	Barium	EPA 200.7
109.010	005	Beryllium	EPA 200.7
109.010	007	Cadmium	EPA 200.7
109.010	009	Chromium	EPA 200.7
109.010	010	Cobalt	EPA 200.7
109.010	011	Copper	EPA 200.7
109.010	012	Iron	EPA 200.7
109.010	013	Lead	EPA 200.7
109.010	015	Manganese	EPA 200.7
109.010	016	Molybdenum	EPA 200.7
109.010	017	Nickel	EPA 200.7
109.010	019	Selenium	EPA 200.7
109.010	021	Silver	EPA 200.7
109.010	023	Thallium	EPA 200.7
109.010	024	Tin	EPA 200.7
109.010	026	Vanadium	EPA 200.7
109.010	027	Zinc	EPA 200.7
109.020	001	Aluminum	EPA 200.8
109.020	002	Antimony	EPA 200.8
109.020	003	Arsenic	EPA 200.8

109.020	004	Barium	EPA 200.8
109.020	005	Beryllium	EPA 200.8
109.020	006	Cadmium	EPA 200.8
109.020	007	Chromium	EPA 200.8
109.020	008	Cobalt	EPA 200.8
109.020	009	Copper	EPA 200.8
109.020	010	Lead	EPA 200.8
109.020	011	Manganese	EPA 200.8
109.020	012	Molybdenum	EPA 200.8
109.020	013	Nickel	EPA 200.8
109.020	014	Selenium	EPA 200.8
109.020	015	Silver	EPA 200.8
109.020	016	Thallium	EPA 200.8
109.020	017	Vanadium	EPA 200.8
109.020	018	Zinc	EPA 200.8
109.020	022	Tin	EPA 200.8
109.020	023	Titanium	EPA 200.8
109.311	001	Thallium	EPA 279.2
109.331	001	Titanium	EPA 283.2
109.350	001	Zinc	EPA 289.1
109.361	001	Mercury	EPA 1631E
109.410	002	Antimony	SM3113B
109.410	003	Arsenic	SM3113B
109.410	005	Beryllium	SM3113B
109.410	006	Cadmium	SM3113B
109.410	007	Chromium	SM3113B
109.410	009	Copper	SM3113B
109.410	011	Lead	SM3113B
109.410	014	Nickel	SM3113B
109.410	015	Selenium	SM3113B
109.410	016	Silver	SM3113B
109.991	001	Titanium	EPA 200.7

Field of Testing: 110 - Volatile Organic Chemistry of Wastewater

110.040	040	Halogenated Hydrocarbons	EPA 624
110.040	041	Aromatic Compounds	EPA 624
110.040	043	Other Volatile Organics	EPA 624

Field of Testing: 111 - Semi-volatile Organic Chemistry of Wastewater

111.101	032	Polynuclear Aromatic Hydrocarbons	EPA 625
111.101	034	Phthalates	EPA 625
111.101	036	Other Extractables	EPA 625
111.170	030	Organochlorine Pesticides	EPA 608
111.170	031	PCBs	EPA 608

Field of Testing: 113 - Whole Effluent Toxicity of Wastewater

113.022	003B	Rainbow trout (O. mykiss)	EPA 2019 (EPA-821-R-02-012), Static Renewal
113.022	003C	Rainbow trout (O. mykiss)	EPA 2019 (EPA-821-R-02-012), Continuous Flow
113.051	005	Daphnid (C. dubia)	EPA 1002 (EPA-821-R-02-013)

Field of Testing: 120 - Physical Properties of Hazardous Waste

120.070	001	Corrosivity - pH Determination	EPA 9040B

Field of Testing: 126 - Microbiology of Recreational Water

126.010	001	Total Coliform (Enumeration)	SM9221A,B,C
126.020	001	Total Coliform (Enumeration)	SM9222A,B
126.030	001	Fecal Coliform (Enumeration)	SM9221E
126.040	001	Fecal Coliform (Enumeration)	SM9222D
126.050	001	Total Coliform and E. coli	SM9223
126.070	001	Enterococci	EPA 1600