San José-Santa Clara Regional Wastewater Facility

2020 Annual Self-Monitoring Report

San José-Santa Clara
Regional Wastewater Facility
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San José-Santa Clara Regional Wastewater Facility

2020 Self-Monitoring Annual Report

San José-Santa Clara Regional Wastewater Facility Annual Reports are posted on the City of San José website at:

http://www.sanjoseca.gov/regulatoryreports

This annual report summarizes the past year of facility effluent monitoring and provides summary data for the previous two years for comparison. Graphical charts also show flow and selected pollutant data back to January 2005 to capture the past 15 years of trends. Subsequent sections of this report summarize significant or interesting events impacting facility operations, maintenance, personnel, and finance. The final section discusses ongoing receiving water monitoring and special projects.

Reporting for the San José-Santa Clara Regional Wastewater Facility is managed by the Wastewater Compliance Team:

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On the Cover: Highlights from 2020 at the San José-Santa Clara Regional Wastewater Facility. Clockwise from top right: Wastewater Compliance biologist, Jaylyn Babitch conducts required Bay water quality monitoring while adhering to COVID-19 safety protocols; Construction of the new Cogeneration Building was completed in 2020; Construction of a new grit removal building, which is part of the New Headworks Facility that broke ground in June 2020.

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Annual Self-Monitoring Report Background

NPDES Requirements

The Annual Self-Monitoring Report for the San José-Santa Clara Regional Wastewater Facility is required by NPDES Permit Number CA-0037842, Water Board Order Number R2-2020-0001.

In 2020, the Facility maintained 100% compliance with all NPDES effluent limitations.

The facility continues to meet NPDES provision E-VI (permit page E-9) by participating in the San Francisco Bay Regional Monitoring Program (RMP) in collaboration with other BACWA agencies.

Annual status reports for various NPDES related programs and plans are summarized below:

General Annual Reporting for the NPDES Permit: Permit Provisions VI.C.2 - 5 require that the facility provide the following routine status reports:

a. Effluent Characterization Study – this analytical monitoring is reported via monthly & annual Facility Self-Monitoring Reports (SMRs)
b. Pollutant Minimization Program – annual Pollution Prevention (P2) program is reported to Regional Water Board by 28 February each year & posted on the City of San José website.
c. Pretreatment Program – annual & semi-annual pretreatment reports, submitted to Water Board by 28 February and 31 July respectively, are governed by NPDES Permit Attachment H, "Requirements for Pretreatment Annual Reports."
d. Sludge and Biosolids Management – Biosolids hauled off-site are reported to EPA, Region 9, in February each year in accordance with NPDES permit & 40 CFR part 503.
e. Collection System Management – Collection systems for Cities of San José & Santa Clara are managed & reported in accordance with NPDES Permit Attachment D & State Water Board Order No. WQ 2006-0003 DWQ, "General Collection System WDRs."
f. Avian Botulism Control Program – Provision VI.C.5.a: An Avian Botulism Control Program annual report is required by February 28 each year.

This SMR report, satisfying items "a." & "d." above, along with reports "b.", "c." & "f.", are posted on City of San José "Regulatory Reports" website:

https://www.sanjoseca.gov/your-government/environment/regulatory-reports

The Collection System Management Annual Report (aka "Sewer System Management Plan," item "e.") is posted at this site:

https://www.sanjoseca.gov/your-government/departments/transportation/roads/sewers-storm-drains

Additional Annual SMR Report Requirements: Permit Attachment G, page G-11 outline required Facility Annual SMR reporting. In addition, Attachment G calls for the following plans and reports be reviewed annually and updated as necessary so as to remain useful and relevant to current practices:

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

Facility Information

Facility Process Areas and Sampling Points

The wastewater treatment process consists of screening, grit removal, primary sedimentation, secondary (biological nutrient removal) treatment, secondary clarification, filtration, disinfection, and dechlorination. Figure 1, below, illustrates the facility treatment areas, flow routing, as well as the influent and effluent sample points.

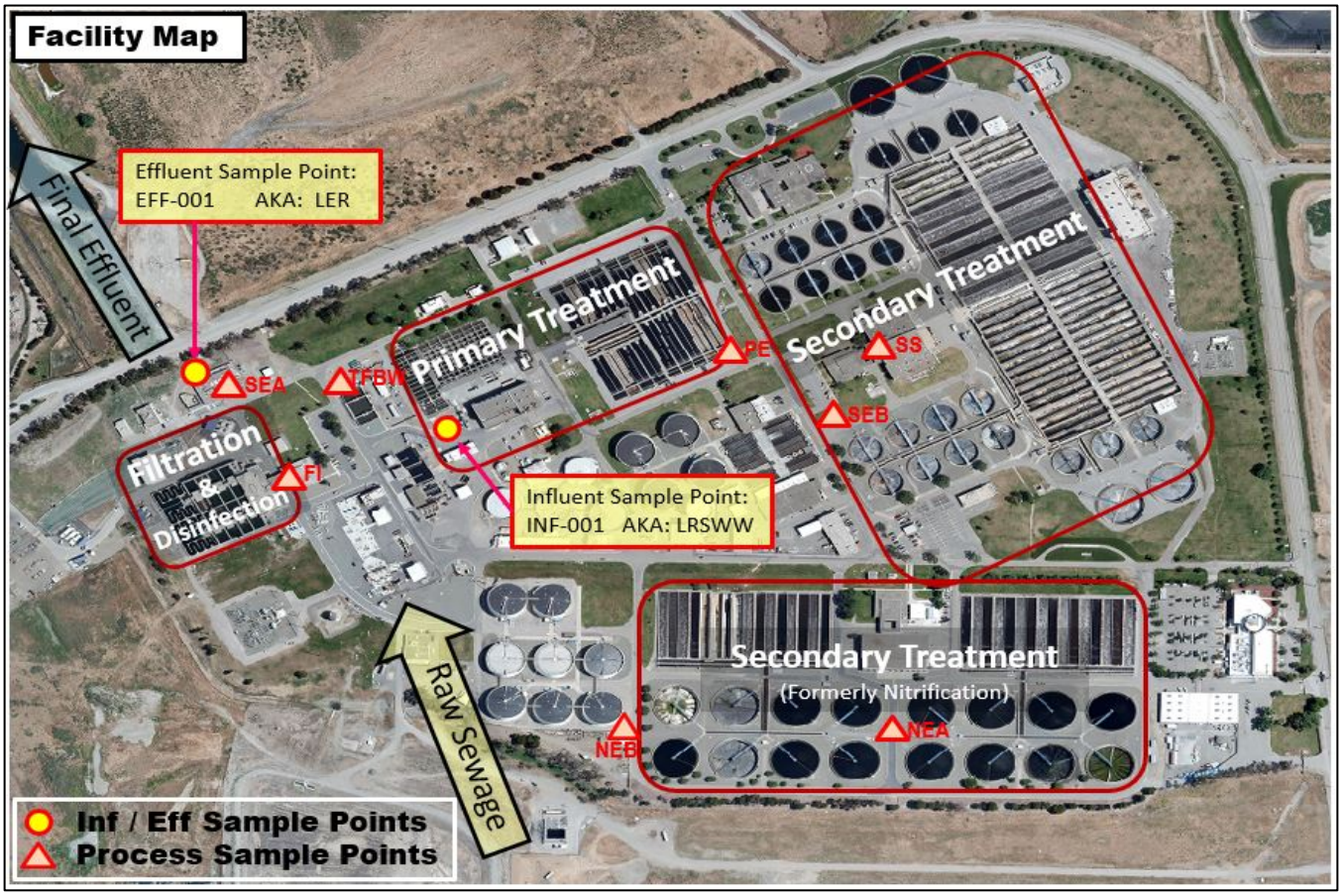


FIGURE 1 WATER POLLUTION CONTROL PLANT: STANDARD FLOW ROUTING AND INFLUENT AND EFFLUENT SAMPLING STATIONS

Facility Stormwater Conveyance System

The treatment facility is designed to capture all spills and stormwater on site. 20 stormwater collection systems convey flows to 6 pump stations (Figure 2). Stormwater pump stations direct all captured water back to facility 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.

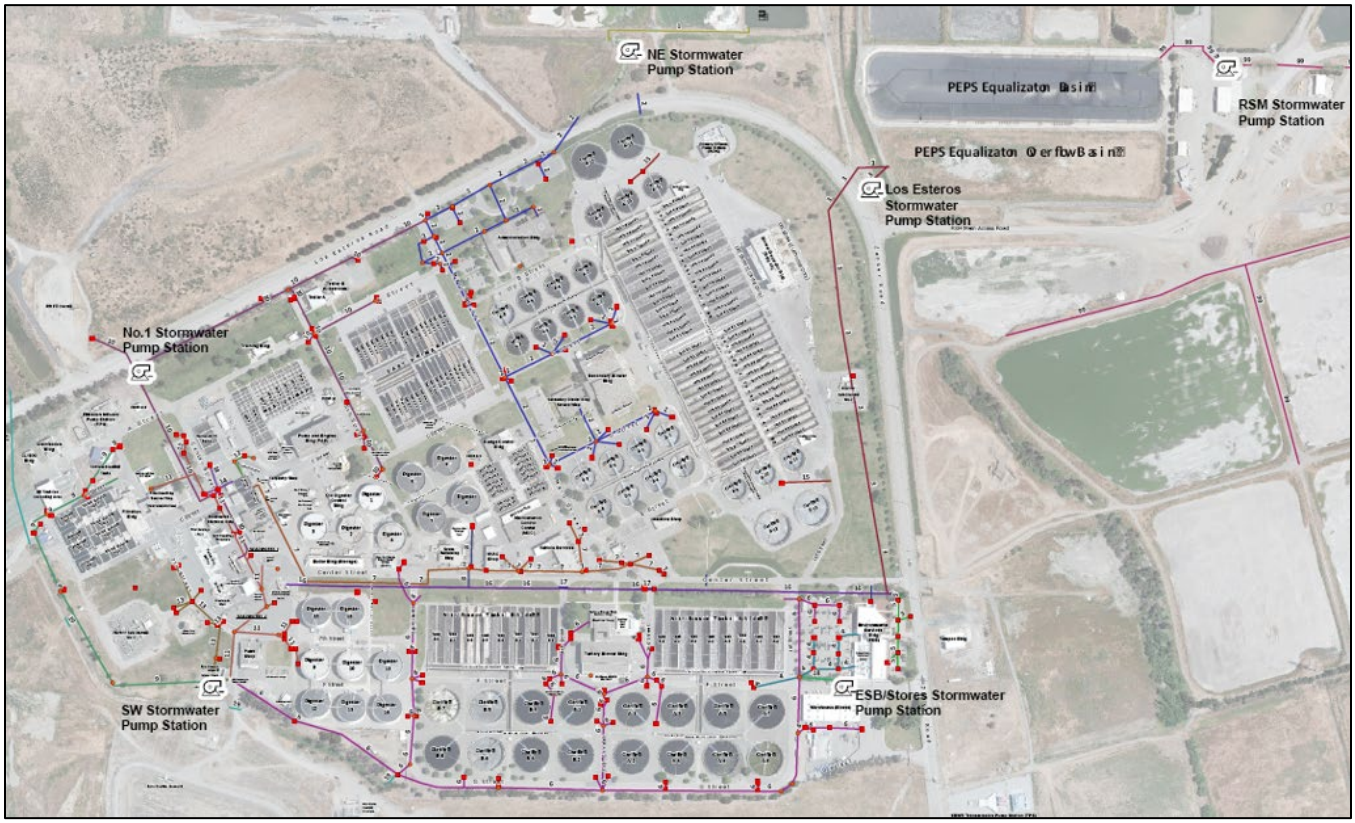


FIGURE 2 FACILITY STORMWATER CONVEYANCE SYSTEM MAP

Facility Service Area

The Facility receives wastewater from roughly 1.5 million residents and more than 17,000 commercial and industrial facilities. The City of San José manages the San José -Santa Clara Regional Wastewater Facility for the following Cities or agencies (Figure 3):

- 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)

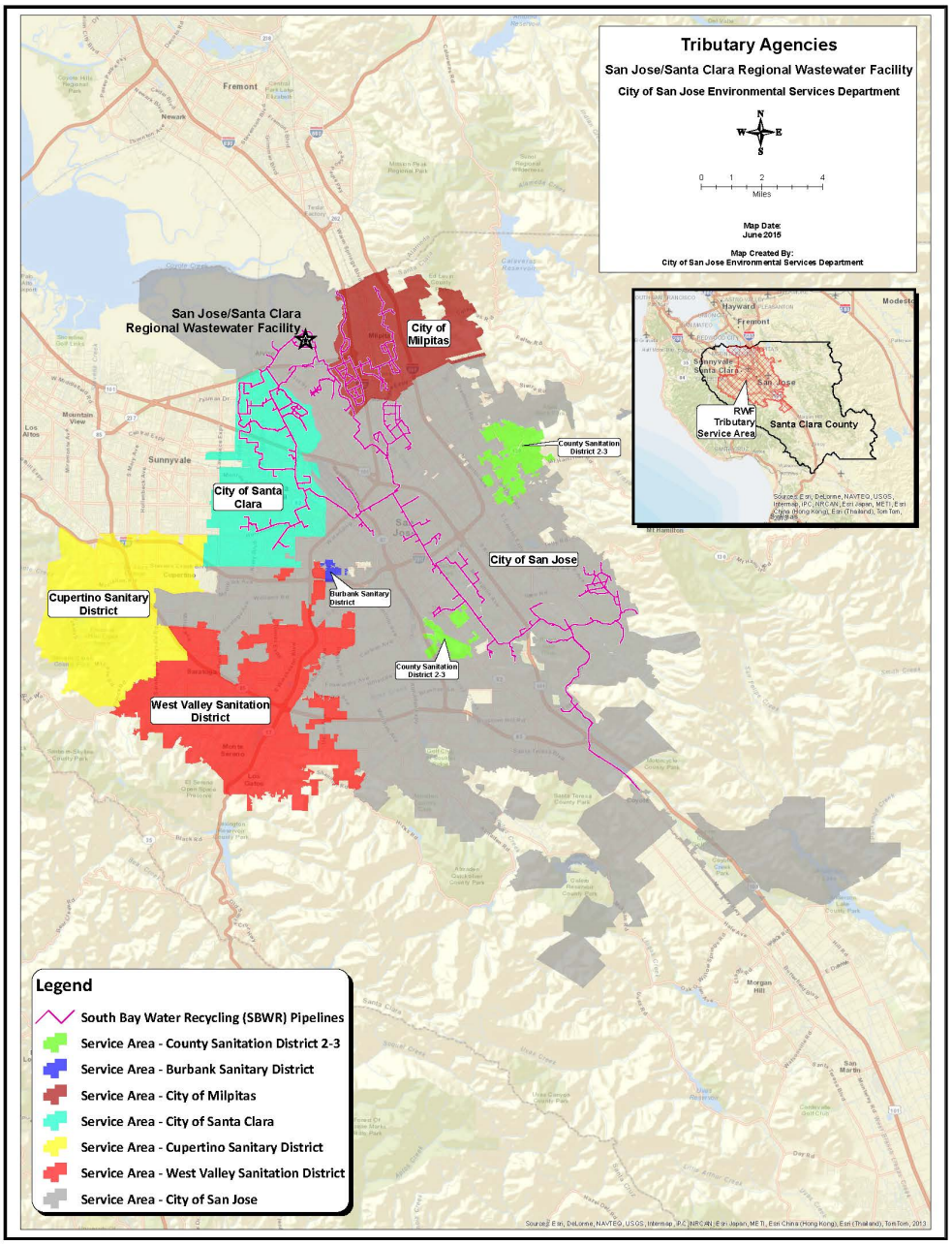


FIGURE 3 FACILITY LOCATION AND SERVICE AREA

1. Annual Reporting Requirements

Facility Flows

The peak average monthly effluent flow of 93.2 MGD occurred in April 2020. The peak daily flow for the year was 112.9 MGD on April 5. Table 1, below, summarizes influent and effluent flows for the last three years and Figure 4, below, illustrates daily average flows from 2005 through 2020.

Average Weather Influent Flow (ADWIF) is the highest five-weekday period from June through October. The 2020 ADWIF was 101.99 MGD and occurred between June 1 and June 5.

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 2020, ADWEF was 75.3 MGD and occurred during the months of June to August.

TABLE 1 SUMMARY OF INFLUENT AND EFFLUENT FLOWS 2018-2020

Year	Influent Flow	Effluent Flow			ADWIF Limit = 167 MGD ADWEF Trigger = 120 MGD	
	Average	Low	High	Average	ADWIF	ADWEF
2018	105.5	72.7	122.4	87.6	110.3	79.4
2019	108.6	69.6	164.0	93.2	109.6	79.3
2020	**101.0**	**68.4**	**112.9**	**82.7**	**102.0**	**75.4**

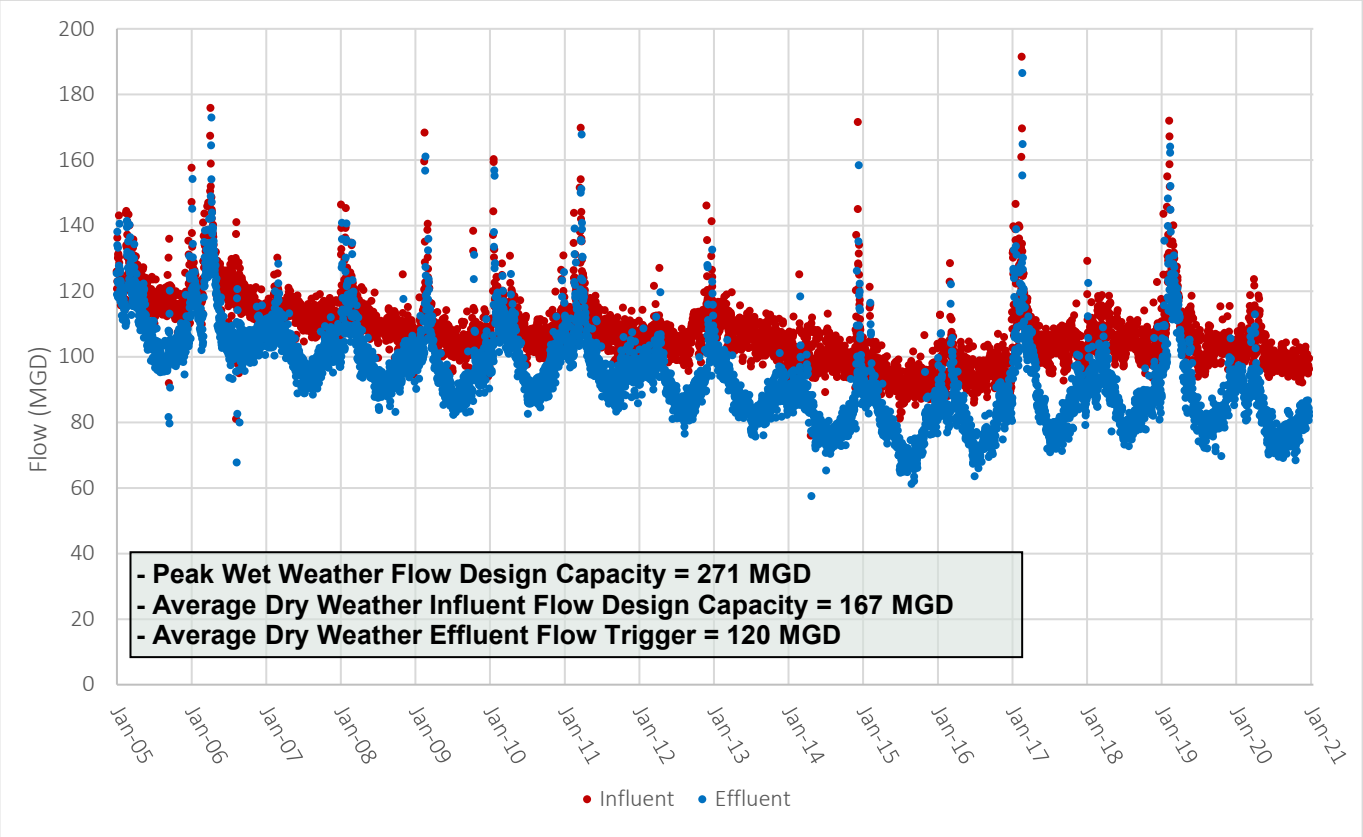


FIGURE 4 GRAPH OF DAILY AVERAGE FLOWS (MGD) 2005-2020

Biosolids and Material

Biosolids

Roughly one million gallons per day (1 MGD) of digester effluent is pumped to Residual Sludge Management (RSM) area sludge lagoons where the material stabilizes for 3 to 4 years. Floating dredges then pump biosolids to solar drying beds for one summer drying season. The facility has 4 Liquid Waste Technologies (LWT) dredges in inventory. Dredges typically have a 10-year operating life.

While drying, biosolids are churned using FECON FTX-600 Mulching Tractors and Caterpillar (CAT) bulldozers. FECON mulchers are most effective churning wet biosolids. Once biosolids have dried to a firmer consistency, the extra horsepower of a CAT D6 or D7 bulldozer is needed. Dried material is trucked to adjacent Newby Island Landfill where biosolids are used as Alternate Daily Cover (Figure 5).

FIGURE 5 BIOSOLIDS SOLAR-DRIED, PILED, AND READY FOR HAULING FOR USE AS ALTERNATE DAILY COVER

A project to replace open-air solar drying beds and lagoons with a new facility that will mechanically dewater all digested biosolids was scoped in 2018. Design began in October 2019 with 100% design projected for late 2021.

TABLE 2 CONCENTRATIONS IN BIOSOLIDS (mg/kg)

	2018	2019	2020
Antimony	ND	ND	**ND**
Arsenic	7.0	6.7	**4.2**
Barium	320	210	**220**
Beryllium	ND	0.57	**0.33**
Cadmium	1.2	1.8	**0.9**
Chromium	76	76	**54**
(Cr STLC)	1.3	1.0	**1.0**
Cobalt	9.6	12	**8.5**
Copper	340	370	**180**
(Cu STLC)	0.2	0.2	**NR**
Lead	24	36	**15**
Mercury	1.3	0.9	**0.6**
Molybdenum	7.3	8.5	**2.1**
Nickel	62	66	**46**
Selenium	4.4	3.6	**2.0**
Silver	4.7	5.8	**2.8**
Thallium	ND	ND	**ND**
Vanadium	54	48	**36**
Zinc	480	600	**270**
Cyanide	ND	ND	**1.9**
DR organics	200	510	**20**
OR organics	430	1000	**98**

TABLE 3 BIOSOLIDS SUMMARY

Year	Truck Loads	Wet Tons	Total Solids	Volatile Solids	Dry Metric Tons-DMT
2018	2,878	45,315	77%	22%	31,839
2019	3,287	53,872	81%	20%	39,521
2020	**3467**	**59,972**	**79%**	**15%**	**43,126**

Grit, Grease, and Screenings

Grit and screenings are collected near the headworks facility. Grease is floating material that accumulates in primary and secondary clarifiers. These materials are partially dewatered prior to being hauled to the local landfill. Table 4

TABLE 4 GRIT, GREASE, AND SCREENINGS (TONS) HAULED 2018-2020

Year	Grit	Grease	Screenings
2018	550	367	517
2019	528	395	522
2020	**474**	**370**	**450**

Effluent Monitoring

Facility NPDES Permit

Monitoring requirements from NPDES Permit Table 4 and monitoring frequency specified in Table E-3 of attachment E (Monitoring and Reporting Program) are summarized below in Table 5.

TABLE 5 EFFLUENT LIMITATIONS

	Average Monthly Effluent Limit (AMEL)	Maximum Daily Effluent Limit (MDEL)	Frequency
CBOD5 (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, as N	3 mg/L	8 mg/L	Monthly
Copper	11 µg/L	16 µg/L	Monthly
Nickel	25 µg/L	33 µg/L	Monthly
Cyanide, Total	5.7 µg/L	11 µg/L	Monthly
Dioxin – TEQ	1.7 X 10^{-8} µg/L	2.8 x 10^{-8} µg/L	2 x year
	Instantaneous Minimum	**Instantaneous Maximum**	**Frequency**
pH	6.5	8.5	Daily
Total Chlorine Residual	N/A	0.0 mg/L	Hourly
Turbidity	N/A	10 NTU	Weekly
Dissolved Oxygen	5.0 mg/L	N/A	Daily
	6-week rolling Geometric Mean	**Monthly 90th Percentile**	**Frequency**
Enterococcus Bacteria	30 MPN/100 mL	110 MPN/100 mL	5x/week

Mercury & PCBs Watershed Permit

Effluent limits below in Table 6 are established in the Mercury and PCBs Watershed Permit, Permit Number CA0038849, Order No. R2-2017-0041.

TABLE 6 EFFLUENT LIMITATIONS FOR MERCURY & PCBS

	AMEL µg/L	MDEL µg/L	Annual Mass	Frequency
Mercury	0.025	0.027	0.8 kg/yr	Monthly
PCBs	0.00039	0.00049	N/A	Quarterly

Nutrient Watershed Permit

Permit Number CA0038873, Order No. R2-2019-0017 requires influent and effluent (Table 7) monitoring as detailed below – no limits are established.

TABLE 7 NUTRIENT WATERSHED PERMIT INFLUENT AND EFFLUENT MONITORING REQUIREMENTS

Parameter	Units	Influent Frequency	Effluent Frequency
Ammonia, Total	mg/L and kg/day as N	1x per quarter	2x per month
Total Kjeldahl Nitrogen	mg/L and kg/day as N	1x per quarter	Not required
Nitrate-Nitrite	mg/L and kg/day as N	1x per quarter	2x per month
Inorganic Nitrogen, Total (calculated)	mg/L and kg/day as N	Not required	2x per month
Phosphorus, Total	mg/L and kg/day as P	1x per quarter	2x per month

Annual average calculations for water quality constituents are determined from monthly average results except for constituents measured daily or multiple times per week

Non-detected values are substituted with corresponding Method Detection Level (MDL) values. Tables and Graphs also substitute the MDL for non-detected results.

a. Conventional Pollutants

The 2020 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. Dissolved oxygen (DO) in the receiving water cannot fall below 5.0 mg/L due to effluent discharges. Loads for BOD, Ammonia, and TSS are calculated by multiplying each daily concentration by corresponding daily average flow.

Conventional pollutants with effluent limitations

pH

Effluent pH ranged from 7.1 to 7.6 standard units (S.U.) in 2020. Effluent Limits are 6.5 & 8.5 S.U.

Temperature

Effluent temperatures for 2020 ranged from 16.1 to 26.3° C, averaging 21.6° C.

Total Chlorine Residual

The Facility uses both continuous monitoring equipment and wet chemical analysis to monitor residual chlorine. In 2020, residual chlorine was not detected in final effluent at the outfall.

Enterococcus Bacteria

Facility effluent limit for Enterococcus is 30 colonies per 100 mL as a 6-week rolling geometric mean. The 6-week rolling geometric mean concentrations ranged from 2.0 to 4.5 Most Probably Number (MPN) per 100 mL during 2020. In addition, the monthly 90th percentile value for enterococcus cannot exceed 110 MPN per 100 mL. The maximum monthly 90th percentile value in 2020 was 7 MPN/100 mL.

Oil & Grease

In 2020, Oil and Grease was not detected any of the four quarterly monitoring events. The ESD Lab Method Detection Limit (MDL) for Oil and Grease using Standard Method EPA 1664A was 1.5 – 1.7 mg/L in 2020 and the MDL is used as the reported value when all results are Non-Detect (ND). Facility effluent limits are 5 mg/L (AMEL) and 10 mg/L (MDEL).

Dissolved Oxygen

Dissolved oxygen (DO) concentrations in effluent were above Bay Water Quality Objective of 5 mg/L throughout 2020 (TABLE 8).

TABLE 8 DO CONCENTRATIONS 2020

	Low	High	Average	2019 Averages
Effluent (mg/l)	6.2	8.6	7.5	7.5
Saturation (%)	75.1	100.9	85.5	83.7

Conventional pollutants with effluent limits and load calculations

Biochemical Oxygen Demand (BOD)

As defined by American Heritage Science Dictionary, Biochemical Oxygen Demand is: "The amount of oxygen required by aerobic microorganisms to decompose organic matter in a sample of water, such as one polluted by sewage. It is used as a measure of the degree of water pollution."

The secondary aeration process (aka: Biological Nutrient Removal, BNR, Process) cultivates microbes that consume oxygen and organic material.

TABLE 9 BOD (mg/L) AMEL = 10 mg/L, MDEL = 20 mg/L

Year	Influent			Effluent			
	Low	High	Average	Low	High	Average	Removal
2018	270	460	340	2	5	3	99%
2019	141	450	284	2	6	3	99%
2020	**140**	**380**	**297**	**2**	**7**	**3**	**99%**

TABLE 10 BOD LOADINGS 2020 (kg/d)

	Annual Total	Low	High	Average	2019 Averages
Influent	41,294,682 (kg)	56,915	147,472	112,827	117,296
Effluent	323,544 (kg)	565	2440	884	974

Total Suspended Solids (TSS)

TSS is a measure of solid material suspended in water. Suspended solids settle out of the water column throughout the Facility treatment train: roughly half is removed in Primary settling tanks and another 40 to 45 percent is removed secondary/BNR clarifiers. Tertiary filtration removes up to an addition 10 mg/L.

TABLE 11 TSS (mg/L) AMEL = 10 mg/L MDEL = 20 mg/L

Year	Influent			Effluent			
	Low	High	Average	Low	High	Average	Removal
2018	337	428	315	1.0	2.0	1.0	99.6%
2019	123	506	314	1.0	3.0	1.0	99.6%
2020	**248**	**378**	**306**	**0.5**	**1.9**	**1.1**	**99.6%**

TABLE 12 TSS LOADINGS 2020 (kg/d)

	Annual Total	Low	High	Average	2019 Averages
Influent	43,151,640 (kg)	92,567	158,308	117,901	129,732
Effluent	134,640 (kg)	168	822	368	476

Turbidity

TABLE 13 TURBIDITY 2020 (NTU) HIGH LIMIT = 10 NTU

	Low	High	Average	2019 Average
Effluent	0.5	2.0	0.8	0.9

Total Ammonia

Practically all ammonia is removed. Chloramination process adds some back.

TABLE 14 AMMONIA N (mg/L) IN EFFLUENT AMEL = 3 mg/L MDEL = 8 mg/L

Year	Low	High	Average
2018	0.5	1.3	0.6
2019	0.4	1.1	0.6
2020	**0.3**	**1.9**	**0.6**

TABLE 15 AMMONIA LOADINGS 2020 (kg/d)

	Annual Total	Low	High	Average	2019 Averages
Influent	5,159,136 kg	12,205	17,197	14,096	13,409
Effluent	67,710 kg	76	670	185	217

b. Priority Pollutants

The Facility is required to perform periodic monitoring of 126 priority pollutants listed in NPDES permit Table B of Attachment G. Most of these are organic compounds that are never detected in effluent. The Facility has specific effluent limitations for 5 priority pollutants: Copper, Nickel, Cyanide, Dioxin, and Mercury. Additional metals from the priority pollutant list are typically detected at concentrations below applicable Water Quality Objectives.

Priority Pollutants with Effluent Limitations

The following tables summarize the past three years of influent and effluent water quality for the six priority pollutants for which the Facility has effluent limits. The charts represent the past 15 years of influent and effluent monitoring to display longer-term trends.

Cyanide

The Facility produces a small amount of cyanide from chloramination disinfection. Table 16 summarizes influent and effluent concentrations.

TABLE 16 CYANIDE (µg/L) AMEL = 5.7 µg/L MDEL 11 µg/L

Year	Influent			Effluent			
	Low	High	Average	Low	High	Average	Removal
2018	0.9(ND)	1.8(DNQ)	1.6	0.9(ND)	1.3(DNQ)	1.0	N/A
2019	0.9(ND)	2.0(DNQ)	1.1	0.9(ND)	2.0(DNQ)	1.0	N/A
2020	**0.9(ND)**	**2.0(DNQ)**	**1.3**	**0.9(ND)**	**2.0(DNQ)**	**1.0**	**N/A**

Copper

TABLE 17 COPPER (µg/L) AMEL = 11 µg/L MDEL 16 µg/L

Year	Influent			Effluent			
	Low	High	Average	Low	High	Average	Removal
2018	94	138	118	2.04	3.12	3.03	98%
2019	58	94	80	2.11	2.82	2.36	97%
2020	**82**	**137**	**101**	**1.75**	**3.10**	**2.54**	**97%**

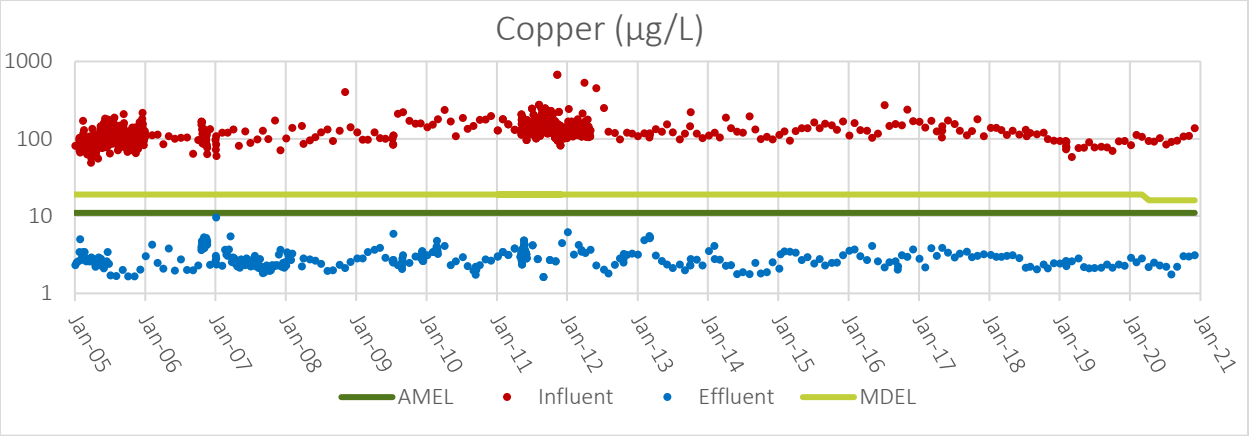


FIGURE 6 TOTAL COPPER (µg/L) REMOVAL PERFORMANCE - 2005 THRU 2020

Nickel

TABLE 18 NICKEL (µg/L) AMEL = 25 µg/L MDEL 33 µg/L

Year	Influent			Effluent			
	Low	High	Average	Low	High	Average	Removal
2018	6.55	19.30	9.11	3.84	6.29	4.69	49%
2019	6.37	14.80	8.62	3.55	5.26	4.16	52%
2020	**6.71**	**11.80**	**8.69**	**3.34**	**6.40**	**4.34**	**50%**

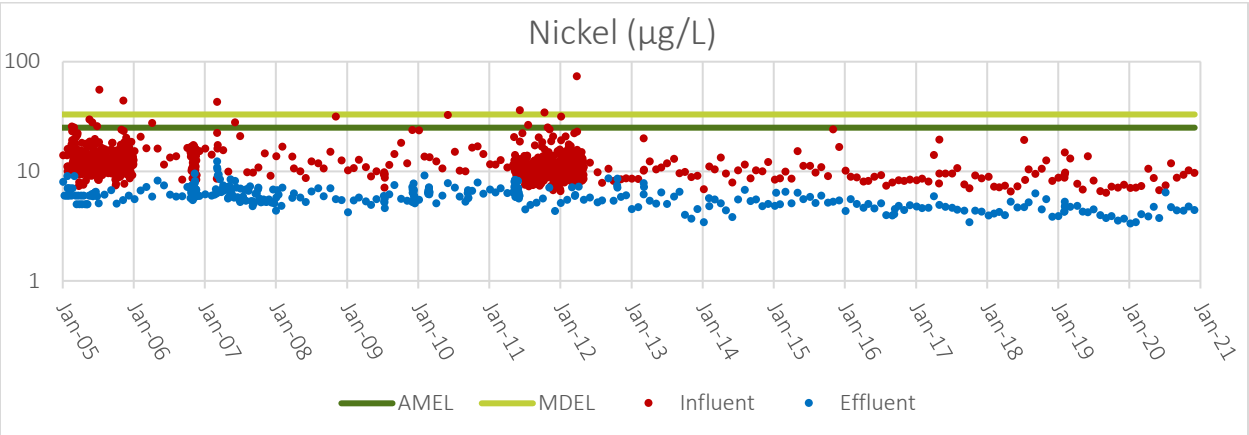


FIGURE 7 TOTAL NICKEL (µg/L) REMOVAL PERFORMANCE - 2005 THRU 2020

Mercury

TABLE 19 MERCURY (µg/L) AMEL = 0.025 µg/L

Year	Influent			Effluent			Annual Load
	Low	High	Average	Low	High	Average	kg/year
2018	0.058	0.134	0.099	0.00104	0.00195	0.00126	0.155
2019	0.061	0.140	0.083	0.00094	0.00234	0.00128	0.170
2020	**0.030**	**0.236**	**0.076**	**0.00058**	**0.00196**	**0.00104**	**0.120**

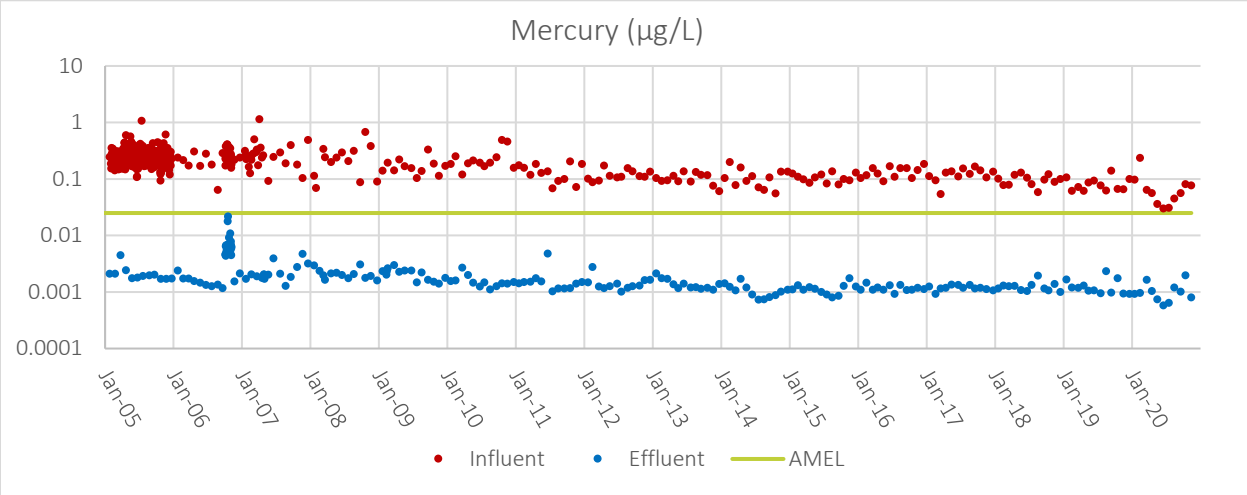


FIGURE 8 TOTAL MERCURY (µg/L) REMOVAL PERFORMANCE - 2005 THRU 2020

TABLE 20 MONTHLY MERCURY CONCENTRATIONS, FLOWS AND LOADS IN 2020

Sample Date	Mercury Concentration (µg/L)	Effluent Flow (MGD)	Mercury Load (kg/day)
1/7/2020	0.00092	94.07	0.000328
2/4/2020	0.00093	95.56	0.000337
3/4/2020	0.00096	85.45	0.000311
4/8/2020	0.00165	102.55	0.000641
5/6/2020	0.00104	82.77	0.000326
6/4/2020	0.00074	73.60	0.000206
7/7/2020	0.00058	73.01	0.000161
8/4/2020	0.00064	73.06	0.000177
9/2/2020	0.00120	76.29	0.000347
10/6/2020	0.00101	74.88	0.000287
11/2/2020	0.00196	76.58	0.000569
12/2/2020	0.00080	81.69	0.000248

Dioxin-TEQ

The 2020 NPDES Permit established effluent concentration limits for Dioxin-TEQ (toxic equivalence) of 1.4 x 10^{-8} µg/L as an Average Monthly Limit (AMEL) and 2.8 x 10^{-8} as a Maximum Daily Limit (MDEL), with a monitoring frequency of twice per year. In 2016, an Alternate Monitoring and Reporting Permit (Order R2-2016-0008) revised monitoring frequency to once every five years. Dioxin has not been detected in final effluent.

Other priority pollutants

The following tables summarize the past three years of influent and effluent water quality and percent removal for the priority pollutants for which the Facility does not have effluent limits.

Arsenic

TABLE 21 ARSENIC (µg/L) WQO = 36 µg/L

Year	Influent			Effluent			
	Low	High	Average	Low	High	Average	Removal
2018	1.73	2.76	2.15	0.75	1.79	1.07	50%
2019	1.60	2.40	1.88	0.79	1.31	0.97	48%
2020	**1.46**	**2.33**	**1.74**	**0.65**	**1.40**	**0.95**	**45%**

Cadmium

TABLE 22 CADMIUM (µg/L) WQO =7.3 µg/L

Year	Influent			Effluent			
	Low	High	Average	Low	High	Average	Removal
2018	0.12(ND)	0.43	0.20	0.03(ND)	0.03(DNQ)	0.03	85%
2019	0.08(ND)	0.27	0.20	0.02(ND)	0.05(ND)	0.04(ND)	81%
2020	**0.08(ND)**	**0.38**	**0.17**	**0.02(ND)**	**0.04(ND)**	**0.02(ND)**	**88%**

Chromium

The 2020 NPDES Permit allows measurement of total chromium instead of hexavalent chromium in Facility Effluent.

TABLE 23 CHROMIUM (µg/L) WQO = 180 µg/L

Year	Influent			Effluent			
	Low	High	Average	Low	High	Average	Removal
2018	4.80	8.88	6.52	0.37	0.55	0.44	93%
2019	5.31	7.10	6.25	0.30(DNQ)	0.52	0.43	93%
2020	**5.30**	**8.40**	**6.58**	**0.30(DNQ)**	**0.51**	**0.43**	**93%**

Selenium

TABLE 24 SELENIUM (µg/L) WQO = 5 µg/L

Year	Influent			Effluent			Removal
	Low	High	Average	Low	High	Average	
2018	2.00	2.47	2.20	0.36	0.87	0.58	74%
2019	1.73	4.41	2.25	0.35	1.17	0.61	73%
2020	**1.73**	**3.16**	**2.13**	**0.26**	**0.79**	**0.43**	**80%**

Silver

TABLE 25 SILVER (µg/L) WQO = 2.2 µg/L

Year	Influent			Effluent			Removal
	Low	High	Average	Low	High	Average	
2018	0.29	0.75	0.51	0.032(ND)	0.032(ND)	0.032	94%
2019	0.28	0.61	0.39	0.0037(ND)	0.042(ND)	0.026	93%
2020	**0.27**	**0.58**	**0.39**	**0.0037(ND)**	**0.0140(DNQ)**	**0.006**	**99%**

Zinc

TABLE 26 ZINC (µg/L) WQO = 161 µg/L

Year	Influent			Effluent			Removal
	Low	High	Average	Low	High	Average	
2018	153	200	168	15.8	22.9	19.3	89%
2019	114	181	150	14.0	20.2	17.3	88%
2020	**140**	**201**	**163**	**16.2**	**22.9**	**19.7**	**88%**

Lead

TABLE 27 LEAD (µg/L) WQO = 135 µg/L

Year	Influent			Effluent			Removal
	Low	High	Average	Low	High	Average	
2018	1.71	4.23	2.46	0.05(DNQ)	0.15	0.07	97%
2019	1.55	2.92	2.17	0.041(DNQ)	0.24	0.11	95%
2020	**1.20**	**2.69**	**1.94**	**0.030(ND)**	**0.71**	**0.23**	**88%**

Other metals

Concentrations for antimony, beryllium, and thallium for the last three years are presented below in Table 28, Table 29, and Table 30, respectively.

TABLE 28 ANTIMONY (µg/L) WQO = 4300

Year	Effluent			
	Low	High	Average	Removal
2018	0.32	0.53	0.42	N/A
2019	0.35	0.47	0.42	N/A
2020	**0.33**	**0.50**	**0.40**	**N/A**

TABLE 29 BERYLLIUM (µg/L) WQO = N/A

Year	Effluent			
	Low	High	Average	Removal
2018	0.0093(ND)	0.0093(ND)	0.0093(ND)	N/A
2019	0.0064(ND)	0.0120(DNQ)	0.0065(ND)	N/A
2020	**0.0064(ND)**	**0.0900(ND)**	**0.0134(ND)**	**N/A**

TABLE 30 THALLIUM (µg/L) WQO = 6.3 (CTR)

Year	Effluent			
	Low	High	Average	Removal
2018	0.020(ND)	0.071(DNQ)	0.029	N/A
2019	0.023(ND)	0.34	0.094	N/A
2020	**0.005(ND)**	**1.54**	**0.267**	**N/A**

Organic Priority Pollutants

The Facility's NPDES permit requires semi-annual monitoring of organic priority pollutants in effluent. This monitoring frequency was modified by Order R2-2016-0008, the *"Alternative Monitoring and Reporting Requirements (AMR) for Municipal Wastewater Dischargers for the Purposes of Adding Support to the San Francisco Bay Regional Monitoring Program (RMP),"* effective April 1, 2016. The AMR reduces monitoring frequency from twice-per-year to once every five years if discharger pays an additional RMP fee.

The Facility opted to reduce monitoring frequency and pay the AMR fee, so organic priority pollutants were last measured in February of 2016 (Table 31). Of 113 compounds analyzed, only three Volatile Organic Compounds (VOCs) were detected in Facility Effluent in 2016. The three detected VOCs were well below the most stringent water quality criteria (WQC) available.

TABLE 31 VOC CONCENTRATIONS IN 2016 ANALYSIS

Volatile Organic Compounds (µg/L)	February 2016	WQC
Chloroform	3.8	N/A
Dichlorobromomethane	1.2	46*
Toluene	0.45	200,000*

Polychlorinated biphenyls (PCBs)

The Mercury and PCBs Watershed Permit, Permit #CA0038849, Order No. R2-2017-0041, requires twice per year monitoring of PCBs aroclors using USEPA method 608. Like organics monitoring requirements, frequency of aroclor monitoring was reduced to once every five years by the AMR. PCBs aroclors in effluent were not measured in 2020.

The Facility is also required to measure total PCBs by congener quarterly, using USEPA Proposed Method 1668c, for information only. Method 1668c data were collected in four times in 2020. PCBs congeners are reported as the sum of a subset of 40 congeners (SFEI 40) plus co-elutes. Since April 2011, only four of 41 sampling events have quantified any PCBs congeners (Figure 9).

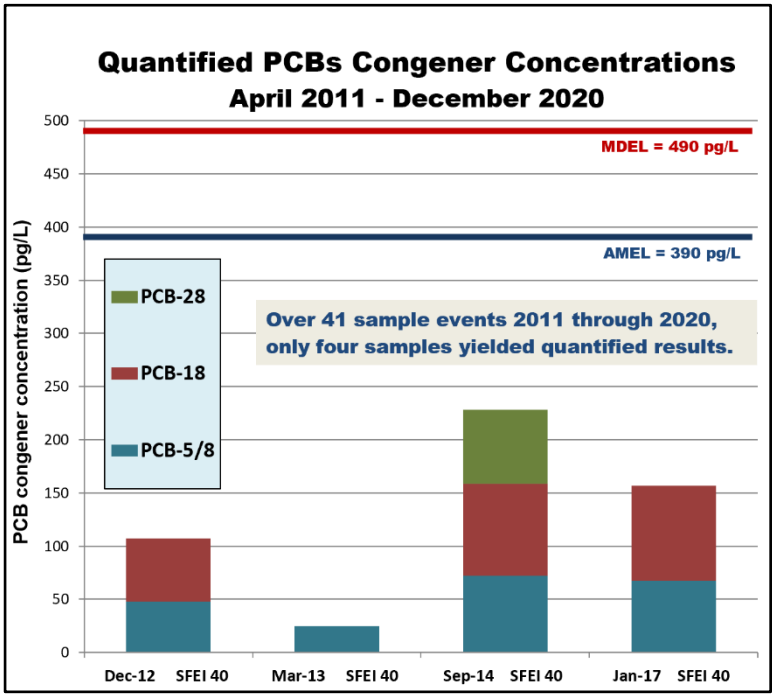


FIGURE 9 QUANTIFIED PCBS CONGENER CONCENTRATIONS 2011-2020

c. Nutrients

Effluent and Influent Nutrient Loadings in 2020

The Facility measures forms of nitrogen and phosphorus in effluent twice per month and in influent quarterly as required by the Nutrients Watershed Permit (NPDES No. CA 0038873, Order No. R2-2019-0017).

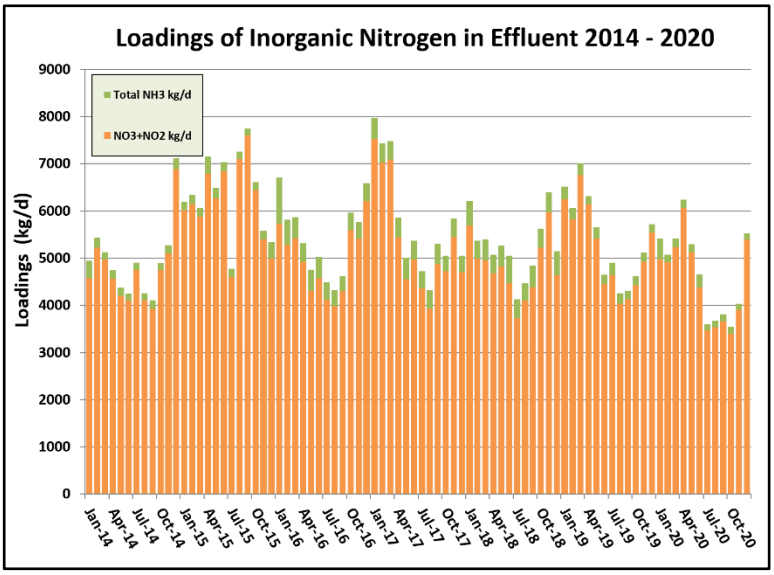


FIGURE 10 LOADINGS OF INORGANIC NITROGEN 2014-2020

Nitrogen

Total Nitrogen (TN) is the sum of total ammonia (NH3), nitrate (NO3), nitrite (NO2), and organic nitrogen. Total Inorganic Nitrogen (TIN) is the sum of NH3, NO3, and NO2. The 2019 Nutrient Permit emphasizes Total Inorganic Nitrogen (TIN), which is more biologically available for effluent while also requiring quarterly TN measurements for influent. The reissued Permit also prioritizes dry season loadings of nitrogen and encourages dry season load reductions.

Dry season discharged load of TIN averaged 4,210 kg/day in 2020. The discharged nitrogen was mostly as nitrate (NO3). Figure 10 illustrates loadings of inorganic nitrogen from 2014 through 2020.

Based on measured influent loads of 22,797 kg/day in 2020, roughly 81% of total nitrogen was removed through a combination of treatment (76%) and recycled water diversions (5%) in the past year.

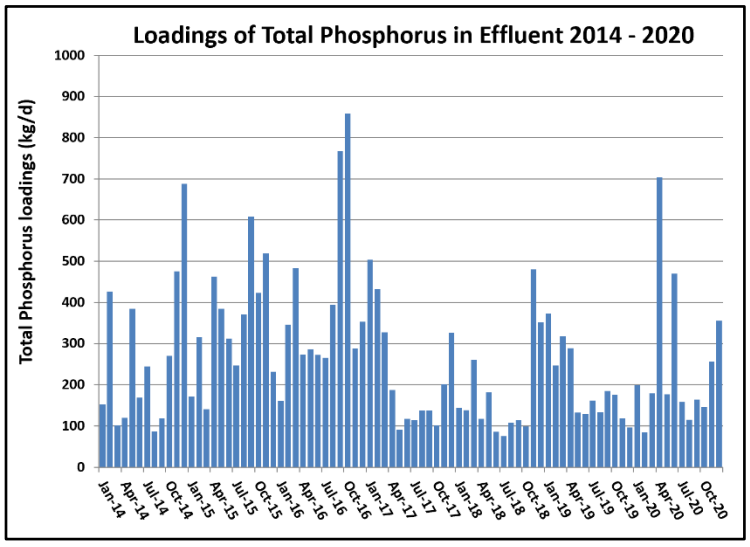


FIGURE 11 TOTAL PHOSPHORUS LOADINGS 2014-2020

Phosphorus

Discharged load of Total Phosphorus (TP) averaged 251 kg/day in 2020. Compared to measured influent loads of 2958 kg/day entering the RWF in raw sewage, the Facility removed approximately 92% of TP through treatment in 2020.

d. Whole Effluent Toxicity

The Facility is required to measure for acute (lethality) and chronic (non-lethal) toxicity in its effluent using Whole Effluent Toxicity (WET) methods. Tests from January through march were conducted by Laboratory staff. Tests from April through December were conducted by Pacific EcoRisk Labs in Fairfield, CA.

Acute Toxicity

Acute toxicity of facility effluent is evaluated quarterly in accordance with EPA methods. In 2020, four tests using larval rainbow trout *(Oncorhynchus mykiss*) for testing under the 2014 permit and fathead minnow (*Pimephales promelas*) under the new permit issued in 2020 were performed. All quarterly acute toxicity tests passed with no indication of acute toxicity (Table 32) present. SJ-SC RWF has not failed an acute toxicity effluent test since its inception in 1987. The acute toxicity test requires: a 3-sample median result of not less than 90% survival and a single-sample maximum of not less than 70% survival.

TABLE 32 ACUTE TOXICITY TEST RESULTS 2015 THROUGH 2020

ACUTE TOXICITY TEST LARVAL TROUT and FATHEAD MINNOW		
ENDING DATE	EFFLUENT SURVIVAL	CONTROL SURVIVAL
01/31/15	100	100
04/24/15	100	100
07/24/15	100	100
10/23/15	100	100
02/12/16	100	100
04/22/16	100	100
09/20/16	100	100
10/11/16	100	100
01/28/17	100	100
04/28/17	100	100
08/20/17	100	100
10/06/17	100	100
01/26/18	100	100
05/25/18	100	100
07/23/18	100	100
11/09/18	100	100
02/17/19	100	100
05/24/19	100	100
09/01/19	100	100
12/06/19	100	100
01/31/20	100	100
04/17/20	100	100
07/13/20	100	100
10/18/20	97.5	100

Chronic Toxicity

The Facility conducted monthly chronic toxicity testing using *Ceriodaphnia dubia* (water flea) evaluated for both reproduction and survival endpoints from 1994 until April 2020 when the new permit designated the fathead minnow (*Pimephales promelas*) as the most sensitive chronic toxicity test species. Tests are conducted following EPA Methods. In 2020, no toxicity was detected using either test species in the Facility's effluent (Table 33) when evaluated using the NOEC, LOEC, IC25, or TST methods.

TABLE 33 CHRONIC TOXICITY TEST RESULTS FOR 2020

Start Date	Survival		Reproduction			TUc	TST
	NOEC	LOEC	NOEC	LOEC	IC25		
1/21/2020	100	>100	100	>100	>100	<1	PASS
2/24/2020	100	>100	100	>100	>100	<1	PASS
3/16/2020	100	>100	100	>100	>100	<1	PASS
4/19/2020	100	>100	100	>100	>100	<1	PASS
5/13/2020	100	>100	100	>100	>100	<1	PASS
6/21/2020	100	>100	100	>100	>100	<1	PASS
7/15/2020	100	>100	100	>100	>100	<1	PASS
8/12/2020	100	>100	100	>100	>100	<1	PASS
9/14/2020	100	>100	100	>100	>100	<1	PASS
10/20/2020	100	>100	100	>100	>100	<1	PASS
11/9/2020	100	>100	100	>100	>100	<1	PASS
12/13/2020	100	>100	100	>100	>100	<1	PASS

2. Facility Annual Report Updates

The following annual update reports are submitted in accordance with NPDES Permit Attachment G.

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

a. Wastewater Facility Status

NPDES Permit Attachment G requires annual update of Wastewater Facilities Status. This encompasses major wastewater facility operations or capital improvements over the past year. Activities that involve planning, assessing, and upgrading Facility assets are divided into six areas: 1) Property Management, 2) General Facility Status, 3) Operational Assessment, Infrastructure/Asset Management, Personnel, and Finance.

Pandemic Response and Impacts

The past year was an unprecedented year in recent history. The global pandemic from the SARS-CoV-2 virus that causes COVID-19 impacted everyone, and wastewater treatment services were no exception. Following federal, state, county, and city health and safety guidance was and remains a top priority for the Regional Wastewater Facility. Some of the adaptive measures implemented throughout 2020 in response to the global health crisis included:

- Staff who could work remotely did so to the extent possible. This included most staff that are not in operational, maintenance, power and automation divisions, and the Environmental Laboratory staff.
- Staffing levels for those responsibilities where work requires an onsite presence were reduced and staff were assigned to rotating shifts to limit number of staff on site and number of different individuals who were coming into even distanced contact with each other.
- Mandatory mask wearing was implemented in the early days of the pandemic, reinforced with ubiquitous signage, frequent reminders of the mandatory mask policy, and disciplinary action if warranted.
- Room occupancy limitations implemented in all shared workspaces including open floor plan office spaces, conference rooms, and break rooms.
- Health screening was implemented on an adaptive basis as new information about symptoms and best practices came in and guidance was refined. Currently all individuals coming on site must be temperature checked and answer a series of health screening questions related to the most up-to-date knowledge of COVID-19 symptoms.
- Ongoing close coordination with Department Contact Tracing leads and the City's Emergency Operations Center (EOC), which has been leading the City's pandemic response from day one.

Health and safety protocols remain in place at the RWF. Despite these changes to day to day operations and despite some COVID positive cases from individuals who were on site, the RWF continued to treat 100% of wastewater received, met 100% of effluent water quality requirements, and achieved progress on a number of key Capital Improvement Projects described later in this status report. The pandemic did result in suspension of some voluntary environmental monitoring and slight delays to some capital projects.

1) Facility Property Management

South Bay Shoreline Study

US Army Corps of Engineers (USACE) closed construction bids for the South Bay Shoreline Levee in January of 2020. USACE rejected the bids received in March 2020 and as a result, re-advertised the South San Francisco Bay Shoreline Phase 1 Project Reaches 1, 2 & 3 in December 2020. USACE anticipates construction of Reach 1 (from the Alviso Marina to the Union Pacific railroad) and Reaches 2 & 3 (from Union Pacific railroad to the Artesian Slough) beginning in spring/summer 2021. Design for Reach 1 is 100% complete and designs for Reaches 2 and 3 are 90% complete. In October 2020, 60% designs for Reach 4 and 5. Valley Water is working on extending temporary easements required for construction of Reaches 1, 2, and 3. City staff continues to coordinate with USACE, California Coastal Commission, and Valley Water on levee alignment and construction that will extend the levee across the RWF outfall and along the north and west sides of Facility biosolid lagoon areas.

Burrowing Owl Habitat

The western burrowing owl (Figure 12) population in the grasslands south of the RWF was studied closely throughout 2020. Owls utilized the habitat, including natural and artificial burrows, the entire year with peak breeding activity occurring in June when 6 adults and 9 chicks were using the area. This does represent a decline in population dynamics metrics compared to 2019, which had particularly high reproductive success. A highlight from 2020 occurred in February when three female juvenile burrowing owls were brought into the habitat after spending the winter at the Peninsula Humane Society. They were released in artificial burrows under an enclosure, which was constructed to protect them from predators. Two of the three females stayed and nested successfully in 2020.

FIGURE 12 TWO BANDED ADULT BURROWING OWLS CAPTURED ON A MOTION ACTIVATED CAMERA "SHARING A SECRET."

Santa Clara Valley Audubon Society biologists and Santa Clara Valley Habitat Agency staff manage the RWF owl habitat. They continued a supplemental feeding program for breeding pairs during the spring and summer and their efforts boosted the nutrition for all owls and supported the owl population throughout the lower San Francisco Bay Conservation Area. The City continues to work with the Santa Clara Valley Habitat Agency and the Santa Clara Valley Audubon Society to manage and enhance the quality of the owl habitat under a 5-year management agreement by facilitating feeding support, protection, and repair of artificial burrows, and construction of new burrows.

2) General Facility Status

a) Capital Improvement Program (CIP) Monthly Status Reports

Monthly CIP status reports and many other CIP status update documents are available at this web address: https://sjenvironment.org/cip Status of key CIP projects are also summarized in the following sections of this report.

b) Power

Generators

Table 34 summarizes the RWF engine-driven generators. Three Engine Generators (EG-1, EG-2, and EG-3) and associated controls and switchgears were previously upgraded to work in tandem with the four 3 MW emergency backup diesel generators. Periodic "Black Start" tests are performed to demonstrate continued backup power reliability, keep staff familiar with backup power operating procedures, continue to test the new emergency generators, and tune existing engine generators to work seamlessly in event of power loss.

TABLE 34 SUMMARY OF ENGINE-DRIVEN GENERATORS

Engine-Driven Generators				
Generator	**Location**	**Year Built / Overhauled**	**Capacity (KW)**	**Operational Status**
Emergency Backup (4)	West Side	2017	12,000	**Standby**
EG-1	Building 40	1994/2015	2,800	**In Service**
EG-2	Building 40	1983/2009	2,800	**Standby**
EG-3	Building 40	1983/2013	2,800	**In Service**

- The four 3 MW Emergency Backup Diesel Engines assume electrical load in the event that RWF power is lost or interrupted.
- Engine Generators, EG-1 and EG-3 are in service.
- EG-2 continues to available for use but is at "high hour" threshold. The unit is kept in standby until replacement by new cogeneration engines.
- New 3.5 MW units will provide power to the facility along with heat needed for the digesters. The engines are designed to perform on low BTU, which will utilize all digester gas produced with a fifty percent blend of natural gas. The new control system will allow the Cat engines to work in tandem with the current engines.

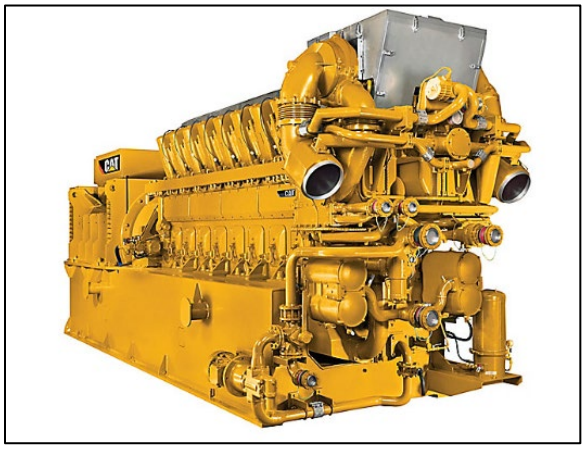


FIGURE 13 MANUFACTURER'S IMAGE OF ONE OF THE NEW 3.5 MW CG260-16 ENGINE GENERATORS

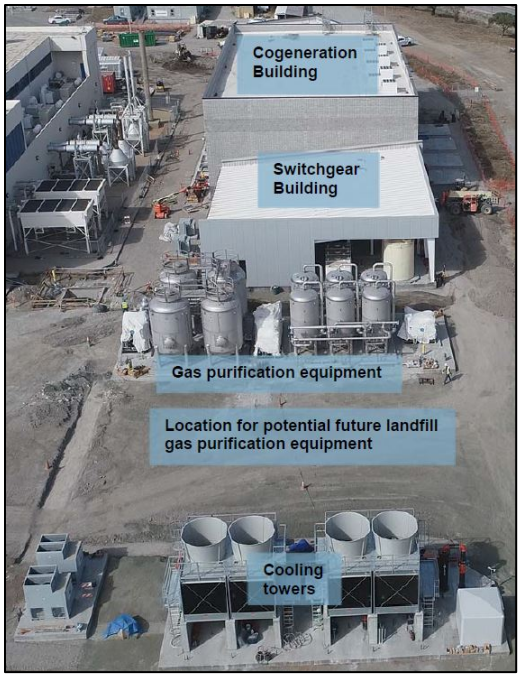


FIGURE 14 CONSTRUCTION OF THE NEW COGENERATION BUILDING

Construction of a new cogeneration building, adjacent to "Building 40" began in March 2018 and will house four new Caterpillar "CG 260-16" 3.5 MW engine generators (Figure 14). The project reached substantial completion in December 2020 and following additional testing, the new engines are expected to fully replace existing cogeneration units by late 2021. The new units are slightly smaller but more powerful with cleaner emissions than the 35 to 60-year old engines they will replace (Figure 15).

FIGURE 15 NEW COGENERATION ENGINES INSTALLED IN THE NEW COGENERATION BUILDING

Blowers

Table 35 summarizes the on-site electric blowers.

Three large capacity electric Process Air Blowers (PABs) are located in Building 40. PAB-1 and PAB-3 are currently functional and reliable but run sparingly due to electrical cost. PAB-2 was taken out of service as part of the blower upgrade project (Figure 16).

All Five "Tertiary Building Blowers" (TBBs), also known as nitrification area blowers, are operational. All six engine-driven blowers in Secondary Blower Building (SBB) are operational. These blowers are also known as "Coopers," built by Cooper-Bessemer Corp).

FIGURE 16 BLOWER IMPROVEMENTS PROJECT PREPARING TO INSTALL A NEW ELECTRIC MOTOR TO IMPROVE THE AERATION SYSTEMS' RELIABILITY

TABLE 35 SUMMARY OF ELECTRIC BLOWERS

Electric Blowers			
3 - *Building 40*			
Blower	**Capacity (BHP)**	**Start Date**	**Operational Status**
PAB-1	4,000	1983	Standby
PAB-2	4,000	1983	Out-of-Service
PAB-3	4,000	1983	Standby
5 - Nitrification Building			
TBB N-1	2,250	1979	In Service
TBB N-2	2,250	1979	In Service
TBB N-3	2,250	1979	In Service
TBB N-4	2,250	1979	In Service
TBB N-5	2,250	1979	In Service
6 Engine-Driven Blowers *Secondary Blower Building*			
Blower	**Capacity (BHP)**	**Startup Date**	**Operational Status**
SBB A-1	2,345	1962/64	In Service
SBB A-2	2,345	1962/65	In Service
SBB A-3	2,345	1962/66	In Service
SBB B-1	1,855	1962/67	In Service
SBB B-2	1,855	1962/68	In Service
SBB B-3	1,855	1962/69	In Service

c) General Maintenance & Construction

Construction

Construction projects underway or completed in 2020 associated with Operational Areas are included in the Operational Assessment section. General construction projects that were performed or completed in 2020:

Environmental Services Building (ESB) Lab HVAC Ducting Replacement. Following a recommendation in the HVAC Improvements Project Condition Assessment completed in 2018, approximately 80 feet of corroded exhaust ducts in the ESB building was replaced by Kinetics Mechanical Service, Inc. Five exhaust hoods and their support cabinets were also replaced under this project. Construction began in November 2019 and reached substantial completion and beneficial use in October 2020.

Electrical Distribution System Improvements. Electrical distribution throughout the Facility is delivered through a 4160 V Ring Bus System. Upgrades and improvements to the system have been ongoing and construction began on a CIP project to upgrade/replace Main Distribution station M4 and G3 and G4 Switchgears in June 2020 with substantial completion expected in late 2022. The improvements will enhance load carrying capacity and strengthen the Ring Bus system.

d) Condition Assessments and Studies

The following studies, reports and condition assessments were completed, initiated, or realized significant progress in 2020:

Blower Improvements Project

The biological processes used to treat wastewater in the BNR-1 and BNR-2 require oxygen so microorganisms can perform treatment through respiration. The RWF has 14 blowers (6 engine-driven and 8 electric), that provide the oxygen for this process. The 14 blowers are between 36-57 years old. These aging blowers play a critical role in meeting discharge permit requirements for ammonia.

The RWF performed a condition assessment and construction on the recommended improvements began in 2019 and is scheduled to continue until substantial completion in January 2023. The improvements will extend the life of the system by approximately 30 years. Process air flow meters, temperature and pressure transmitters, and valve actuators are also recommended for replacement.

Process Optimization Study

A project to identify and evaluate options for optimizing RWF unit treatment processes, individually or in combination, to improve wastewater and solids process treatment efficiencies while accounting for future flows, loads and regulations was initiated in 2020. The study is using the anticipated future nitrogen load caps in the Nutrient Watershed Permit as a driving boundary condition for the analysis.

The Study is currently following an implementation strategy to select options for optimizing the unit treatment processes while taking into account current and planned CIP Projects. A short list of treatment alternatives was developed and finalized in late 2020 and will be further evaluated in 2021 with respect to final technology selection and timing of implementation.

3) Operational Assessment

a) Headworks

Facility headworks include both a newer headworks area (Headworks 2 or HW2) an old headworks area (HW1) and an upstream Emergency Basin Overflow Structure (EBOS) that receives flow from the main interceptor lines. Each headworks unit consists of bar screens and grit removal chambers to capture and remove screenings and grit material.

FIGURE 17 IRON SALT FEED STATION

An Iron Salt Feed Station at EBOS, comprised of four ferric chloride ($FeCl_3$) tanks and a pump station for injecting $FeCl_3$ into raw sewage to help reduce odors and sulfide emissions from digesters and engines.(Figure 17).

A polymer injection station located upstream of the East Primary area can be used to aid primary settling through chemically enhanced primary treatment (CEPT) by dosing 0.2 mg/L of polymer with the 10 mg/L ferric chloride. The polymer was used for CEPT intermittently in 2020 to evaluate its effectiveness at enhanced solids and organics removal in east primary clarifiers and its possible effects on other downstream treatment processes.

New Headworks

Construction began in June 2020 on a design-build project to construct a new headworks facility (Headworks 3 or HW3) to replace aging HW1. The design and equipment selected for HW3, which will be located near EBOS (Figure 18), was chosen following a comprehensive evaluation of cost, hydraulics, odor, O&M issues, environmental and social concerns. Estimated cost of HW3 is $150M with a substantial completion date of January 2024.

FIGURE 18 SITE FOR NEW HEADWORKS

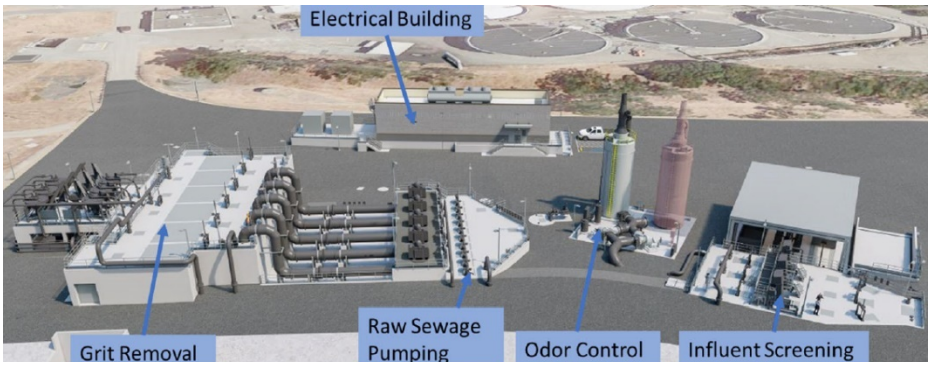


FIGURE 19 COMPUTER RENDERING OF NEW HEADWORKS SITE LAYOUT

b) Primary Clarifiers

West Primary

West Primary area (Figure 20) has been used as needed during shutdowns of select East Primary tanks for necessary repairs. Prior to 2017, West Primary (part of the original 1956 facility) had been out of service for nearly a decade.

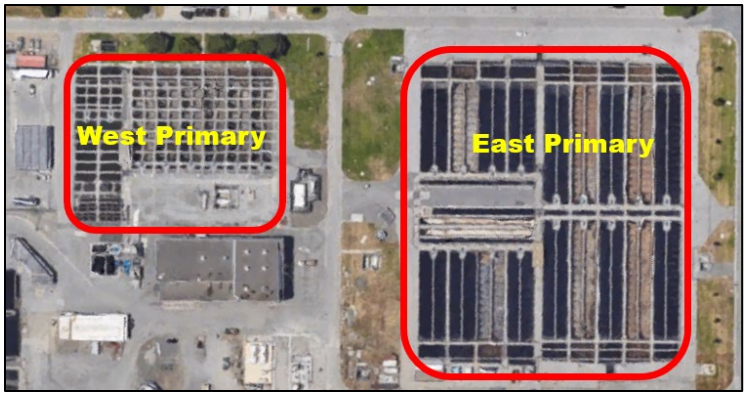


FIGURE 20 WEST AND EAST PRIMARY

East Primary

Following primary sedimentation in the primary clarifiers, primary effluent is piped from East Primary (Figure 20) to the secondary blower building (SBB) where it is then distributed to one of the four BNR process sections or to an equalization basin. Two settled sewage (SES) pipes, a 96-inch and a 87x136-inch, carry the primary effluent from East Primary to SBB. A project to evaluate these two pipes was initiated and scoped in 2018 and design of the plans to rehabilitate both pipes was completed in May 2019. The scope and design include:

- Rehabilitating the 96-inch SES pipe and performing concrete crown repair and epoxy coating for the 87x136-inch pipeline.
- Use existing re-route equipment that was used in the repair of the 78-inch primary effluent line in 2018 to re-route SES flows as work on the pipelines begins (Figure 21, Figure 22).
- Construction work on the SES rehabilitation project began in June 2020 and reached substantial completion and beneficial use in October 2020.

FIGURE 21 SECTIONS OF 36-INCH HDPE PIPE, USED AS A TEMPORARY PIPING SYSTEM IN 2018 THAT WILL BE USED AGAIN FOR THE SES REHABILITATION PROJECT

FIGURE 22 TWO OF THE PUMPS UTILIZED IN THE TEMPORARY PIPING SYSTEM THAT WAS USED IN 2018 AND WILL BE USED AGAIN FOR THE SES REHABILITATION PROJECT.

c) Digesters, Gas, & Sludge

Digester Status

Eight digesters are currently in service (Figure 23).

- Digester 11 was cleaned in 2020 and remains out of service.
- None of the Digesters are currently being cleaned and Digesters 9, 10, and 12-16 are all in service.
- Digesters 2 & 4 suffer permanent structural degradation and will be eventually demolished.
- Digesters 5 thru 8 continue to be out of service pending rebuild as part of the Digester and Thickener Facilities Upgrade project.

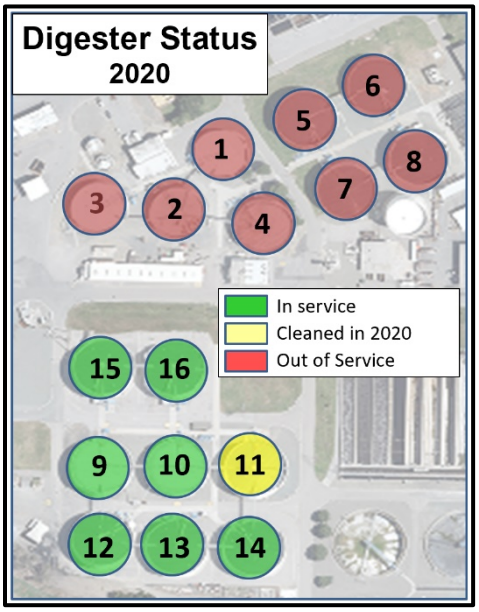


FIGURE 23 DIGESTER STATUS 2020

Digester and Thickener Facilities Upgrade Project

This project was initiated in 2016 and includes converting digesters 5 thru 8 to thermophilic digestion to allow Temperature-Phased Anaerobic Digestion (TPAD) in conjunction with the remaining mesophilic digesters, conversion of six DAFT tanks to operate as co-thickener units (primary and secondary sludges), construction of a new primary sludge screening facility (Figure 24), along with two new electrical buildings, and external elevated gas piping and gas flare systems.

FIGURE 25 AERIAL IMAGE OF PROGRESS ON UPGRADES TO DIGESTERS 5 - 8

FIGURE 24 NEW SLUDGE SCREENING BUILDING NEARING COMPLETION

Highlights in 2020 include:

- Interior work on digesters 5 through 8 completed with testing underway. Associated digester equipment, equipment pads and piping are also nearing substantial completion.
- Permanent elevated, above-ground pipe racks nicknamed the "monorail" are complete (Figure 26).
- All associated systems are being tested and modified as needed before substantial completion and beneficial use, which are expected in 2021.

FIGURE 26 NEW PERMANENT ABOVE-GROUND PIPING RACKS: "THE MONORAIL" AT THE REMOTE DIGESTERS

Digested Sludge Dewatering Facility

A project to build new digested sludge dewatering facility, including a new building, centrifuges, conveyors, truck bays, and polymer storage & dosing equipment is underway. Ancillary facilities include digested sludge pump stations & pipelines from digesters to a storage tank, digested sludge pump station & pipeline from the storage tank to the dewatering building, and a centrate return pump station & pipeline. Design contract was awarded in late 2019 to Brown and Caldwell. The project is following the progressive design build model with design completion forecast for October 2021 and substantial completion of construction forecast for fall 2023.

d) Biological Nutrient Removal (BNR)

The Biological Nutrient Removal (BNR) Process is carried out in two locations, historically referred to the "Secondary" and "Nitrification" areas, with each area having two batteries (A-side and B-side). The two areas employ the same 4-stage BNR process and are run in parallel.

Secondary Area (BNR-1)

An Advanced Facility and Meter Control Replacement Project has been underway since 2016 when the RWF selected Black & Veatch as the design consultant to provide engineering services. The project will replace aging flow meters, valves, actuators, and sensors to ensure accurate and effective process control in the BNR process areas.

FIGURE 27 SECONDARY AREA (BNR-1)

- The Advanced Facility Meter Replacement Project is being implemented in two phases to align with planned maintenance shutdowns of the four BNR process areas.
- Phase 1 has been in the construction phase since July 2018 and will replace control equipment in the secondary (BNR-1, Figure 27) B-side batteries as well as the nitrification (BNR-2) B-side batteries and is expected to reach beneficial use by mid-2021.
- Phase 2 will replace flow meters, valves and actuators, and sensors in the A-side batteries. Following completion of design work, a contract was awarded to Kiewit in mid-2020 with construction beginning in September 2020.

Nitrification Area (BNR-2)

The RWF's 16 clarifiers (Figure 28) in the nitrification-BNR-2 section were constructed in the 1970s and 1980s. Following a previous series of shut-downs in the BNR-1 section to evaluate necessary repairs to degraded Return Activated Sludge (RAS) lines, a two-phase project to enhance the efficiency of the clarifiers and minimize unscheduled maintenance began. Engineering services contract was awarded to HDR Engineers and the project will follow the conventional design-bid-build approach.

FIGURE 28 WORKER ON A CLARIFIER "TOW-BRO" ARM

- Phase 1 of the nitrification clarifiers rehabilitation project will replace clarifier mechanisms and appurtenances for 8 clarifiers, rehab up to 8 RAS pipelines, and install groundwater monitoring wells. Phase 1 will also replace drain valves, RAS valves, pressure relief valves, electrical and instrumentation control equipment for all 16 clarifiers in BNR-1. Following completion of design work for phase 1, construction began in January 2020 and substantial completion is forecast for September 2022.
- Phase 2 will follow completion of Phase 1 and will include rehabilitation of up to 8 of the remaining RAS pipelines and rehabilitation of the 8 remaining clarifiers. Phase 2 is at 60% design and is expected to reach detailed design in early 2022 following completion of phase 1.

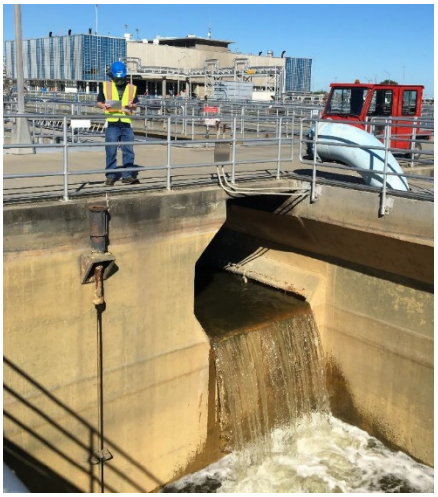


FIGURE 29 A WORKER COLLECTING READINGS AS PART OF THE ONGOING ADVANCED FACILITY CONTROL AND METER REPLACEMENT PROJECT

Ongoing improvements to Secondary/BNR valves and meters and fine bubble diffuser maintenance has been steadily improving nitrogen control and removal. Incidents of ammonia and nitrite breakthrough have been greatly reduced since 2013. In 2019, BNR operations teams also began modifying aeration levels in the mixed liquor channels of BNR-2 (NA and NB in Figure below) to determine if additional denitrification could be achieved, a practice that was continued in 2020. Results suggest additional nitrogen removal capabilities may exist without significant capital investments to basin and flow design.

e) Filtration & Disinfection

The RWF tertiary filtration process consists of 16 granular media filters and associated ancillary equipment. The filtration process is one of the final treatment steps and is responsible for producing effluent that is in compliance with the RWF NPDES Permit and Title 22 requirements for recycled water.

Filter Rehabilitation Project

The RWF tertiary filtration process consists of 16 granular media filters and associated ancillary equipment. Many of the filtration process components (valves, electrical switchgear and control, filter media, piping, concrete) are nearing 40 years old and are in need of replacement or upgrade.

- The construction cost estimate is approximately $38.3M
- The project is being delivered using the conventional design-bid-build approach and reached 100% design completion in February 2020.
- Construction contract was awarded to Walsh Construction Company in November 2020. Construction is scheduled to begin end of March 2021 and beneficial use achieved in early 2024.

Outfall Bridge, Levee, and Instrumentation Improvement Project

Following filtration, disinfection, and de-chlorination, the RWF final effluent is discharged to the outfall channel, which ends at the outfall weir bridge structure. The weir is the final point of regulatory compliance. Contractor AECOM provided a condition assessment report in June 2018 that evaluated the condition of the bridge, weir, monitoring instrumentation (including chlorine and flow meters), electrical components, and support buildings. In 2019, the final scope of the project was completed and subsequently revised in 2020 in consideration of the Final Effluent Pump Station Project. The and includes:

- Repair erosion scour along downstream edge of the outfall weir.
- Replace electrical transformer and water quality instrumentation at the outfall weir.
- Improve staff access to support buildings.
- Provide fiber optic system to support buildings and final effluent daylight station.
- Replace existing outfall pipe flow meters with new insertion-style flow meters that use doppler technology. New meters will greatly improve access to maintain and calibrate the flow meters (Figure 30).

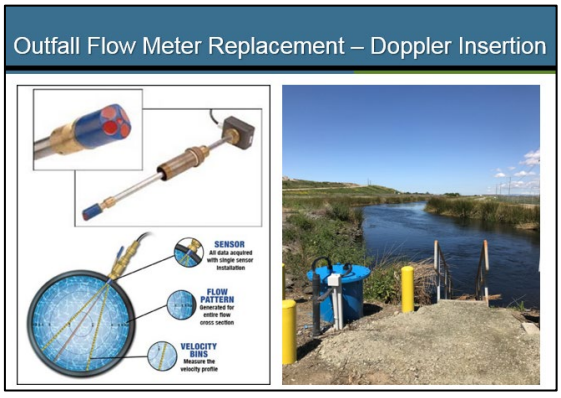


FIGURE 30 EXAMPLE OF DOPPLER INSERTION SENSOR TECHNOLOGY

Construction has been delayed and is anticipated to start in mid-2022 with beneficial use forecasted for late-2022.

Final Effluent Pump Station

A project was initiated in late 2019 to provide a new pump station that pumps RWF final effluent to the Bay when the Shoreline Flood Control Levee is completed by US Army Corps of Engineers and their closure structure prevents gravity flow out to the bay through the Artesian Slough. Several alternative discharge strategies were evaluated in 2020 and raised outfall channel levee walls plus a pump station located at RWF was the preferred option. Design, timing of implementation, and tie-in with the are being discussed with USACE to determine how best to integrate the Shoreline Levee and Pump Station projects.

4) Plant Infrastructure / Asset Management

Asset Management Support

The Asset Management Group oversees implementation of the Computerized Maintenance Management System (CMMS) and the Geographic Information System (GIS).

CMMS

The RWF has been using Infor Enterprise Asset Management (EAM) system as its CMMS system since July 2009.

- Infor EAM tracks life cycle acquisition & maintenance cost of thousands of pieces of equipment and infrastructure (vertical & linear assets) (Table 36).
- Warehouse inventory items are cataloged, and their usage is tracked.
- Non-inventory parts acquired through direct purchase by various shops are logged.
- Preventative maintenance is scheduled and tracked for appropriate equipment following manufacturer's recommendations.
- Work orders and purchase orders are tracked and analyzed for labor and material costs that are added to a work order history for future reference.
- The current Infor version 11.3 has been in use since April 2018 and has been well received by the end users. The group has been actively involved with preparations to integrate new equipment into the CMMS for new CIP projects coming online. This has been done through active engagement with the concerned process groups/shops and meetings with vendors/contractors.

  In 2020 the new COGEN facility was in testing and coming online. All of its associated equipment will be integrated into the CMMS database. Some equipment from the COGEN project has already been integrated in the CMMS database to facilitate required maintenance by O&M staff.

  The New Digester upgrade CIP project in also in the installation phase and some equipment from this project has also been integrated into the CMMS and some PM schedules are now part of the CMMS.

TABLE 36 INFOR EAM TRACKING SUMMARY

Infor EAM (Enterprise Asset Management)	2018	2019	2020
Current Software version	V.11.3	V.11.3	V.11.3
Assets tracked; vertical and linear	15,061	16,543	16,722
Warehouse inventory items cataloged & tracked	5,153	5,162	5,180
Non-inventory parts/direct purchase items logged	3,122	3,328	2,161
Preventative Maintenance items scheduled/recorded	2,374	2,416	2,485
Work Orders created & executed (regular/other)	3,202/3,283	3,606/3,373	3,036/3,442

GIS

The RWF Geographic Information Systems (GIS) group provides mapping, documentation, and field support for RWF operations, maintenance, electrical, and CIP/master planning groups. In addition, the GIS team runs the Subsurface Utility Damage Prevention Program.

The City of San Jose now has an Enterprise Agreement (EA) with ESRI. ESRI is the GIS software vendor used by the City and RWF. This has removed previously existing silos that reduced efficiencies in the areas of data sharing and app development. The efficiencies gained with the EA include new, and faster desktop web maps for RWF Operation, Maintenance, Electric Shop, Land Use Planning, and a CIP Project Tracking

App. A new mobile GIS app has been developed to locate buried utilities in the RWF that can be used by RWF Construction and Maintenance staff. In addition, these inherently new efficiencies have allowed the RWF GIS Team to begin experimenting with how to leverage new geospatial development opportunities. These include the use of oblique aerial photography and innovative data visualization tools in our apps.

Process Control Group

The RWF Process Control Systems (PCS) group oversees the administration, configuration, and maintenance of the Distributed Control System (DCS). The DCS is a collection of industrial computer controllers, networks, and input/output devices used to control, monitor, and report thousands of wastewater treatment processes and parameters throughout the facility.

The PCS group is actively engaged in the design/review process of most CIP projects. The role of the group is to verify that all equipment is correctly wired and networked into the DCS system and to guide or assist contractors with the creation of all code and graphics.

In addition, part of the 10-year CIP program includes a DCS upgrade project that is replacing the existing 25+ year old System Six DCS with a new Harmony DCS. Upgrades to the DCS system are being implemented through a phased, multi-year project with direction and leadership from the PCS team.

FIGURE 31 THE DCS IS BEING UPGRADED FROM SYSTEM SIX (LEFT) TO NEW HARMONY (RIGHT) CONTROLLERS

5) Personnel

The Facility, under direction of the Deputy Director of Wastewater Management, is supported by three principal divisions: Operations, Mechanical Maintenance, and Energy and Automation. Additional support is provided by Capital Improvement Program, Sustainability and Compliance Division, Environmental Laboratory, and an Asset Management group.

Facility operations, maintenance, energy, asset management and administrative staffing totaled 223 positions of which 35 were vacant at end of 2020.

Vacancies included: 1 air conditioning mechanic, 1 associate engineering technician, 1 engineering technician, 1 heavy equipment operator, 3 industrial electricians, 2 instrument control technicians, 1 office specialist, 1 painter, 1 senior engineering technician, 2 senior heavy equipment operators, 1 senior painter, 5 wastewater attendants, 8 wastewater mechanics, 2 wastewater operations superintendents, 3 wastewater operators, 2 wastewater senior mechanics.

Operations Division

80 positions are responsible for daily control of the treatment processes. A minimum of 8 personnel are on site at all times supervised by a wastewater operations foreperson, whose working title is shift foreperson.

In 2020, nine wastewater operator trainees were hired, offset by 2 retirements, 3 separations, and 1 transfer.

Seven wastewater superintendents supervise seven functional areas: 1) computer room & shift forepersons; 2) training & scheduling; 3) primary & sludge control treatment; 4) biological nutrient removal treatment; 5) filtration & disinfection; 6) residual solid management; and 7) liaison for capital improvement projects. Superintendents are supported by 20 wastewater forepersons: 6 assigned to each treatment area, 6 to the computer room, 6 as Shift Forepersons, and 2 training forepersons. Wastewater superintendents and forepersons rotate through various assignments on about a two-year basis.

Facility Maintenance Division

72 positions are organized in three sections:

Mechanical Process Maintenance and CIP Support - repairs and maintains all mechanical equipment including, pumps, piping, rotating equipment, and structures, as well as provides design review and assistance in construction of various capital improvement projects.

Training, Scheduling, and Special Projects - administers and develops technical training for Wastewater Attendants Mechanics; researches and procures parts for mechanical equipment work orders; plans and schedules large maintenance projects.

Facilities and Maintenance - maintains all buildings on site, provides protective coatings for equipment and infrastructure, and is responsible for landscaping, warehouse, and bufferland management.

Energy and Automation Division

57 positions maintain electrical infrastructure, power generation, instrumentation, and process control systems. They are organized in four sections: Electrical & HVAC, Instrument Control, Power & Air, and Process Control. This Division also oversees Facility energy use and purchase of natural gas and electricity.

CIP Division

52 positions are responsible for design and construction of capital projects. CIP Division is comprised of 6 sections: Program Management, Power and Energy, Solids, Liquids, Facilities, and Process Engineering. Twelve positions are currently vacant. This Division is supported by co-located Public Works staff and consultant program management staff.

Environmental Compliance and Safety

13 positions. These personnel are comprised of environmental and regulatory analysts, scientists, and engineers who monitor, report, manage renewal of, and handle corrective action related to the National Pollutant Discharge Elimination System (NPDES) permit, air emissions permit, and health and safety regulations.

Environmental Laboratory

28 positions. Laboratory chemists, biologists, microbiologists, and laboratory technicians provide analytical support under California Environmental Laboratory Accreditation Program (ELAP), for Facility NPDES and Watershed Permits, and Pretreatment programs.

6) Finance

The Facility operates through a Joint Powers Agreement (JPA) titled "Agreement between San José and Santa Clara Respecting Sewage Treatment Plant" dated May 6, 1959. Under this "master agreement," the Facility is jointly owned by both cities and is administered and operated by City of San José. Through a series of additional "Master Agreements for Wastewater Treatment," five additional tributary collection systems hold rights to a share of SJ-SC RWF treatment capacity (Figure 32). In addition to cities of San José and Santa Clara, agreements cover: City of Milpitas, Cupertino Sanitary District, West Valley Sanitation District, County Sanitation District Nos. 2-3, and Burbank Sanitary District. Each agency retains sole ownership and responsibility of its own sanitary sewer collection system.

Each tributary agency prepares its revenue program annually. Rates are adopted by ordinance or resolution of the governing body of each Agency. Each Agency submits its revenue program to City of San José for review to determine conformity with State Water Board revenue program guidelines.

FIGURE 32 JPA CONTRIBUTING AGENCIES

Reserve Funds

The Wastewater Facility 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 State Water Resources Control Board's Fund Loan Agreement policy.

2021-2025 Capital Improvement Program (CIP)

The 2021-2025 CIP provides funding of $1.21 billion, of which $305.7 million is allocated for 2020-2021. Revenues for the five-year CIP are derived from several sources: transfers from the City of San José Sewer Service and Use Charge (SSUC) Fund and Sewage Treatment Plant Connection Fee Fund; contributions from the City of Santa Clara and other tributary agencies; interest earnings; Calpine Metcalf Energy Center Facilities repayments; a federal grant from the US Bureau of Reclamation; and debt-financing proceeds.

- $227.5 million: transfers from the City of San José Sewer Service and Use Charge Fund.
- $241.5 million in contributions from the City of Santa Clara and other agencies.
- $604 million in wastewater revenue notes proceeds and bond proceeds. This element consists of short-term "bridge" financing until long-term bond funding is available.

A Plant Master Plan (PMP) was approved by City of San José and City of Santa Clara City Councils in November and December 2013. The PMP recommended more than 114 capital improvement projects to be implemented over a 30-year period at an investment level of roughly $2 billion.

Additional information can be found in the Water Pollution Control 2020-2021 Capital Budget at: https://www.sanjoseca.gov/home/showpublisheddocument?id=66163 Table 37 below provides 2019-2020 actual CIP expenditures & encumbrances as of June 30, 2020.

TABLE 37 CIP FISCAL YEAR-END EXPENDITURE

2019-2020 Capital Improvement Program Year-end Expenditure Summary				
	Appn	Project	Expenditure on 6/30/2020	Current Encumbrances
1	401B	OWNER CONTROLLED INSURANCE PROGRAM	3,016,308	0
2	402M	FLOOD PROTECTION	56,202	57,141
3	404V	STORMWATER IMPROVEMENTS	450,062	239,665
4	410S	VARIOUS INFRA DECOMMISSIONING	0	0
5	410T	MASTER PLAN UPDATES	205,900	1,291,900
6	412H	FINAL EFFLUENT PUMP STATION & STORMWATER	574,605	15,710
7	418N	LEGACY LAGOON REMEDIATION	1,142,352	5,935,957
8	4127	DIGESTER & THICKENER FACILITIES UPGRADE	26,928,172	26,545,257
9	4332	EQUIPMENT REPLACEMENT	0	0
10	4341	PLANT ELECTRICAL RELIABILITY	232,713	6,496,850
11	5690	PLANT INFRASTRUCTURE IMPVT	712,016	835,749
12	5957	PUBLIC ART	110,508	142,834
13	6000	CITY-WIDE & PW CAP SUPPRT COST	724,000	0
14	6584	PAYMENT FOR CWFA TRUSTEE	5,000	0
15	7074	NITRIFICATION CLARIFIER REHAB	3,548,394	32,878,040
16	7224	ADVNCD FACILITY CONTRL & METER REPLACEMENT	2,933,423	12,108,378
17	7226	E PRIMARY REHAB-SEISMIC & ODOR	0	0
18	7227	FILTER REHABILITATION	1,596,494	255,781
19	7394	T.P. DISTRIBUTD CONTROL SYSTEM	2,038,814	4,130,209
20	7395	URGENT & UNSCHEDULD T.P. REHAB	-139	0
21	7396	YARD PIPING & ROAD IMPROVEMENTS	2,288,848	6,951,789
22	7448	HEADWORKS IMPROVEMENTS	1,621,616	13,248,185
23	7449	NEW HEADWORKS	12,645,338	118,881,775
24	7452	DIGESTED SLUDGE DEWATERING FACILITY	4,103,261	8,363,842
25	7454	ENERGY GENERATION IMPROVEMENTS	38,808,304	9,571,829
26	7456	PRELIMINARY ENGINEERING	53,882	593,830
27	7481	PROGRAM MANAGEMENT	8,115,895	2,006,001
28	7677	AERATION TANKS & BLOWER REHAB	17,264,904	21,057,152
29	7678	OUTFALL BRIDGE & LEVEE IMPROVEMENTS	571,917	150,140
30	7679	FACILITY WIDE WATER SYSTEM IMPROVEMENTS	975,873	216,733
31	7681	SUPPORT BUILDING IMPROVEMENTS	749,896	330,700
		TOTAL	131,474,560	272,305,447

Operating and Maintenance Budget

ENVIRONMENTAL SERVICES DEPARTMENT

San Jose-Santa Clara Regional Wastewater Facility

FY 2020-21 Operating & Maintenance Budget Summary

Budget Summary	2019-2020 Actual Expenses	2019-2020 Adopted Budget	2020-2021 Base Budget	2020-2021 Adopted Budget
Personal Services	$55,371,123	$62,171,402	$62,493,227	$62,263,776
Non-personal Services	26,955,725	32,584,558	31,625,607	36,747,159
Equipment	1,150,973	906,000	906,000	906,000
Inventory	430,563	600,000	600,000	600,000
Overhead	12,459,172	12,459,172	12,888,925	12,888,925
NCH Debt Service	1,015,299	1,015,299	988,825	988,825
SCVWD- Adv. Water Treatment	3,420,617			1,116,344
SSUC Fund	2,266,575			1,000,000
Legacy Lagoon Remediation				39,300,000
Workers' Compensation	398,807	605,000	605,000	605,000
City Services	762,032	991,012	804,475	887,638
Total Operating Expenses	**$104,230,885**	**$111,332,443**	**$110,912,059**	**$157,303,667**

ESTIMATED COST DISTRIBUTION

2020-2021 Estimated Total Gallons Treated (MG)	(1) Percent of Total Sewage Treated	City / District	2020-2021 Proposed
25,000.953	63.155	City of San Jose	$99,345,131
4,944.990	14.891	City of Santa Clara	$23,424,089
29,945.943	**78.046**	**Sub-Total**	**$122,769,220**
3,441.998	9.102	West Valley Sanitation District	$14,317,780
1,996.009	5.582	Cupertino Sanitary District	$8,780,691
2,275.250	6.099	City of Milpitas	$9,593,951
348.408	0.939	Sanitation District # 2 - 3	$1,477,081
86.180	0.232	Burbank Sanitary District	$364,945
8,147.845	**21.954**	**Sub-Total**	**$34,534,448**
38,093.788	**100.000**	**TOTAL**	**$157,303,668**

(1) Composite of four parameters (flow, BOD, SS, ammonia). Source 2018-19 Revenue Program.

Regulatory fees and membership dues

Major Permit Fees		Paid	Paid	Invoiced
Fees	**Agency**	**2018-19**	**2019-20**	**2020-21**
Permit: Annual NPDES Fee	State Water Resources Control Board	$577,091	$653,081	$712,888
Permit: Annual RMP Participation	Regional Monitoring Program – SFEI	$201,819	$247,382	$239,824
Permit: Alternate Monitoring Fee*	Regional Monitoring Program – SFEI	$9,726	$9,726	$9,726
Permit: Annual Air Permit Fee	Bay Area Air Quality Management District	$70,198	$86,073	$59,921
Fee: Annual Cap and Trade	California Air Resources Board	$295,728		
Related Membership Dues				
BACWA Annual Dues	Bay Area Clean Water Agencies	$296,034	$385,355	$376,334
CASA Annual Dues	CA Association of Sanitation Agencies	$20,053	$20,053	$20,500

*A new "RMP Alternate Monitoring Fee" was established in 2016 that allows discharging agencies to elect to pay a supplemental fee in lieu of NPDES required quarterly and semiannual monitoring of EPA listed "Priority Pollutants."

b. O&M Manual Update

The RWF maintains an electronic Online Manual (OLM) and continuously updates Standard operating procedures (SOPs). Both the OLM and SOPs are accessible via the department intranet from any onsite networked computer. At the end of 2020, 552 documents were filed in the SOP library, which included SOPs and ancillary documents.

TABLE 38 2020 SOP COUNT BY RWF DIVISION

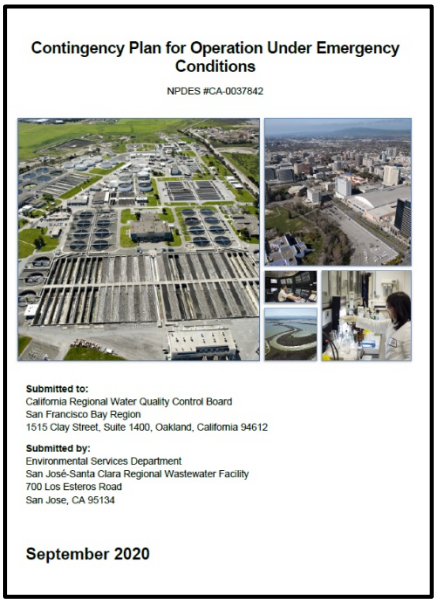
RWF Division	Number of SOPs
Operations	379
Maintenance	55
Energy & Automation	52
Support & Administration	66
Totals	***552***

Many SOPs are utilized by multiple divisions and workgroups. SOPs are cross-referenced so they appear in searches for all relevant groups. For example, Lock-Out Tag-Out (LOTO) SOPs appear under maintenance, operations, and energy.

- Operations includes process treatment areas, utility service, recycled water, and operations management SOPs.
- Maintenance includes all mechanical, paint shop, facilities and grounds keeping, and LOTO SOPs.
- Energy and Automation includes electrical, HVAC, instrumentation, and power & air SOPs.
- All other SOPs for general documentation, administration, asset management, regulatory compliance, safety, and security are under Support and Administration.

c. Contingency Plan Update

Since 1974, the facility has maintained a "Contingency Plan for Continued Operations Under Emergency Conditions." The Plan was updated in January 2020 to reflect changes in personnel, plan holders, provide clarifying language on spill response, and to improve consistency between the Contingency Plan and other internal emergency response plans. The Plan was again reviewed and updated in early September 2020 to expand flood response protocols under more typical storm conditions and under more extreme storms such as 100-year or stronger storms. The Plan resides in SOP and Safety Libraries on the Facility's network and hard copies are kept in key locations such as the Computer Room.


Contingency Plan for Operation Under Emergency Conditions

NPDES #CA-0037842

Submitted to:
California Regional Water Quality Control Board
San Francisco Bay Region
1515 Clay Street, Suite 1400, Oakland, California 94612

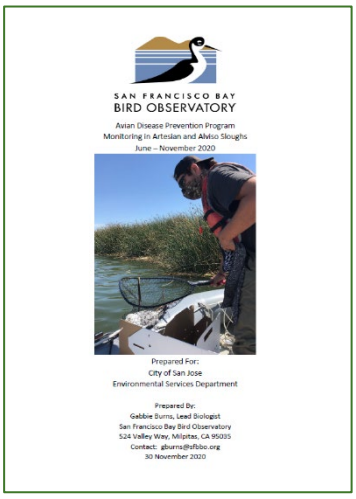
Submitted by:
Environmental Services Department
San José-Santa Clara Regional Wastewater Facility
700 Los Esteros Road
San Jose, CA 95134

September 2020

3. ENVIRONMENTAL MONITORING

Due to the global pandemic, worker safety, and restrictions on close contact work, the majority of field monitoring elements that RWF staff performed in past years was suspended for 2020. The nature of this field work requires close contact among the field crew for extended periods of time. While the monitoring of Bay water quality, biological integrity, beneficial uses is incredibly valuable, the monitoring presented below is a summary of only the required environmental monitoring that was conducted in 2020 with nearly all non-required monitoring having been suspended for the year.

a. Avian Botulism Monitoring


SAN FRANCISCO BAY
BIRD OBSERVATORY

Avian Disease Prevention Program
Monitoring in Artesian and Alviso Sloughs
June – November 2020

Prepared For:
City of San Jose
Environmental Services Department

Prepared By:
Gabbie Burns, Lead Biologist
San Francisco Bay Bird Observatory
524 Valley Way, Milpitas, CA 95035
Contact: gburns@sfbbo.org
30 November 2020

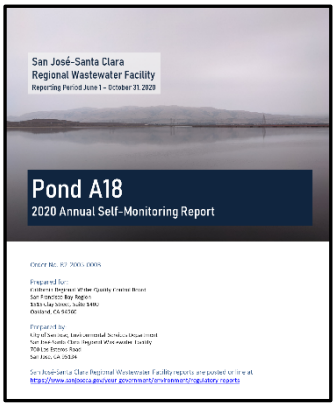
Since 1983, the Facility has contracted with San Francisco Bay Bird Observatory (SFBBO) to monitor for avian botulism outbreaks in the wastewater discharge vicinity from June through November.

In 2020, no outbreaks of avian botulism were detected. Eleven injured and eighteen dead birds were found in the Artesian Slough – Lower Coyote Creek survey area over the six-month survey period from 2 June through 23 November. None of the sick birds were diagnosed with avian botulism. Additionally, two dead unidentified fish were found and collected.

The Avian Botulism Report is posted on the City's web site:

https://www.sanjoseca.gov/your-government/environment/regulatory-reports/-folder-71http://www.sanjoseca.gov/Archive.aspx?AMID=156&Type=&ADID

b. Pond A18 Monitoring


San José-Santa Clara
Regional Wastewater Facility
Reporting Period June 1 – October 31, 2020

Pond A18
2020 Annual Self-Monitoring Report

Pond A18 is a shallow, 856-acre former salt pond owned by City of San José. The pond circulates Bay water using two hydraulic control structures located at northern and southern ends of its western levee. Discharge of pond water is regulated by Waste Discharge Requirements (WDR) Order No. R2-2005-0003.

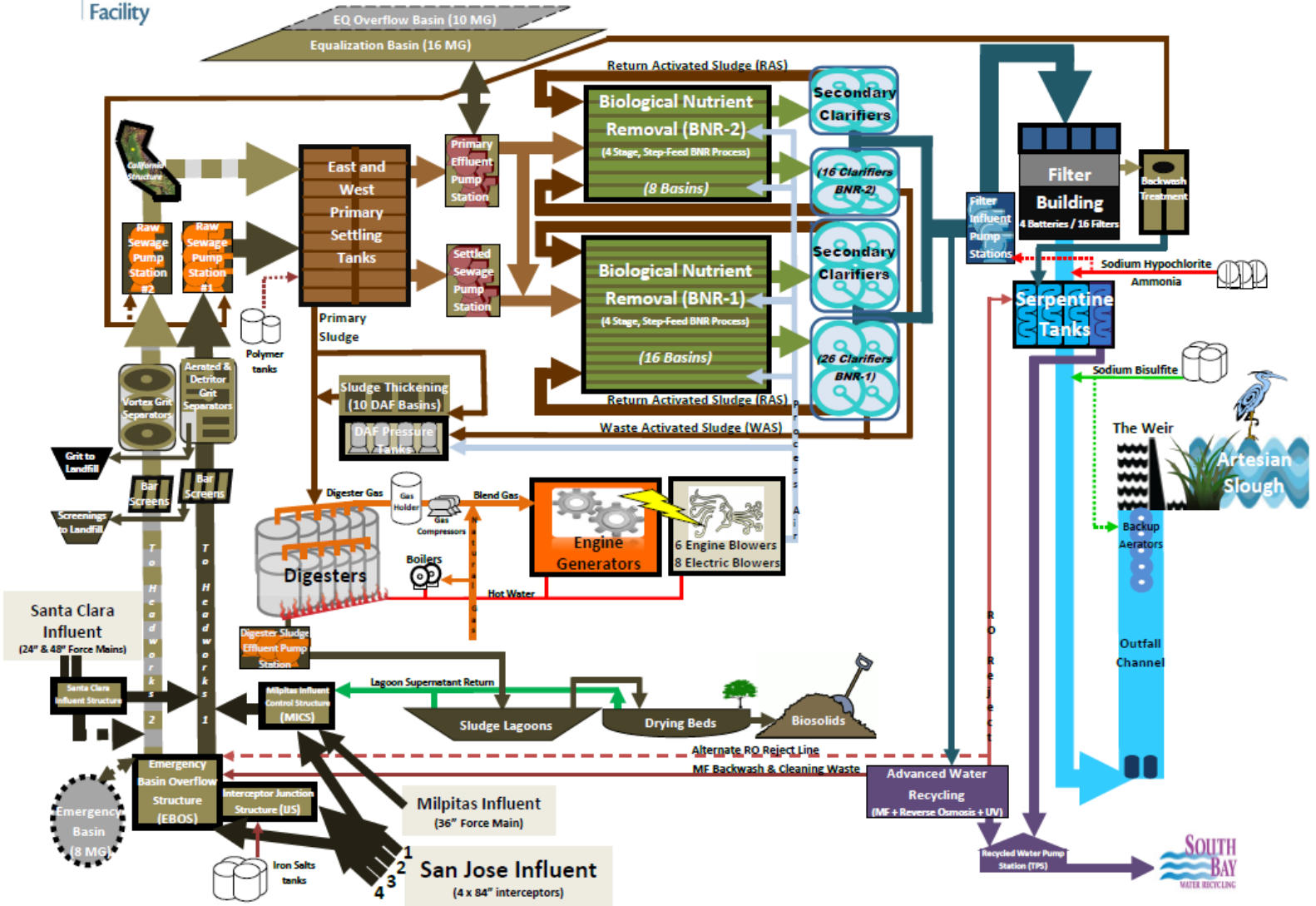
During dry season (June through October), the WDR requires continuous monitoring for DO, pH, temperature, and salinity in the pond. Four receiving water stations in Artesian Slough and Coyote Creek are monitored once per month with additional monitoring conducted whenever pond dissolved oxygen concentration falls below WDR specified thresholds. Fifteen years of pond discharge monitoring have demonstrated no negative impacts to receiving water.

Pond A18 Annual Reports are posted on City of San José web site at:
https://www.sanjoseca.gov/your-government/environment/regulatory-reports/-folder-70

San José-Santa Clara Regional Wastewater Facility

Process Schematic

Revised: 9/2019



ATTACHMENT A - Laboratory Accreditation

Accreditation covering all of 2020

CALIFORNIA
Water Boards
STATE WATER RESOURCES CONTROL BOARD
REGIONAL WATER QUALITY CONTROL BOARDS

CALIFORNIA STATE

ENVIRONMENTAL LABORATORY ACCREDITATION PROGRAM

CERTIFICATE OF ENVIRONMENTAL ACCREDITATION

Is hereby granted to

San Jose / Santa Clara WPCP Laboratory

Watershed Protection

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 inspection, 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: **9/30/2020**

Effective Date: **10/1/2018**

Sacramento, California
subject to forfeiture or revocation

Christine Sotelo, Chief
Environmental Laboratory Accreditation Program

CALIFORNIA Water Boards
STATE WATER RESOURCES CONTROL BOARD
REGIONAL WATER QUALITY CONTROL BOARDS

Interim

CALIFORNIA STATE

ENVIRONMENTAL LABORATORY ACCREDITATION PROGRAM

CERTIFICATE OF ENVIRONMENTAL ACCREDITATION

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Environmental Laboratory Accreditation Program