

2019 NPDES SELF-MONITORING PROGRAM ANNUAL REPORT

NPDES PERMIT NO. CA0037869

East Bay Dischargers Authority
City of San Leandro
Oro Loma Sanitary District
Castro Valley Sanitary District
City of Hayward
Union Sanitary District

January 30, 2020

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Section 1: Comprehensive Discussion of Treatment Plant Performance and Compliance

East Bay Dischargers Authority (EBDA) reached a major milestone in 2019 with renewal of its Joint Powers Agreement (JPA), which was set to expire at the end of 2019. The existing agreement was extended through June 30, 2020, and an Amended and Restated JPA was adopted effective July 1, 2020 through June 30, 2040. The JPA outlines the governance and cost-sharing of EBDA's joint transport and outfall system and associated infrastructure.

Major milestones and construction projects completed at the EBDA member treatment plants included the following:

- Oro Loma Sanitary District (OLSD) is nearing completion on a full scale nitrification and denitrification process. The \$24.7M construction project is 80% complete and expected to begin start-up in April 2020. The scope includes the construction of a fourth aeration basin, six new blowers and associated building, and retrofit of existing mechanical aeration with fine bubble diffusers. When completed, the project will reduce TIN to below 15 mg/L during the dry season and reduce TIN levels across the entire year by approximately 50%.
- OLSD also plans to implement full scale sidestream nitrification using Microvi's biocatalyst. The full scale implementation follows three years of pilot work considering both mainstream and sidestream treatment applications. As planned, approximately 100,000 gpd of belt press filtrate will be treated each day. The stream contains approximately 20% of the total influent nitrogen. The project is in late design stage and bids for the installation are expected in January 2020. The system is scheduled for start-up in May 2020.
- Hayward's Recycle Water Tank and Pump Station was completed in 2019. When the treatment system is installed, this will supply 300k gallons of recycled water to neighboring businesses. The Nutrient Management Strategy TM completed, which is a part of the Facilities Master Plan. Sludge Blending tank walls were repaired along with a manway constructed and Final Clarifier 2 structure was recoated. The primary clarifier effluent gate was removed and expanded to a larger gate to reduce the head loss and allow more flow to the trickling filters.
- San Leandro is nearing completion of a nearly 1MW solar array and is currently reviewing a design proposal for a microgrid system with multiple sources of power. The two projects together would reduce demand for grid energy, nearly eliminate need to run diesel backup, and create energy security. Treatment wetlands are in the design and initial permitting phase.
- Union Sanitary District (USD) has completed pre-design efforts and will begin design of the Enhanced Treatment and Site Upgrade Program, which includes nutrient removal options in the future. Final Design for Digester #7 has been completed and construction is expected to commence in 2020. Ongoing design for a new Standby Generator system should be completed in 2020.

EBDA also completed a thorough review and update to its Asset Management Plan to ensure appropriate renewal and replacement of infrastructure. The estimated total restoration cost over 20 years is approximately \$11.3 million.

In addition, EBDA has nearly completed the \$3 million motor control center replacement project at the Hayward Effluent Pump Station (HEPS). The project will improve reliability at the station.

EBDA's Member Agencies recycled approximately 410 million gallons in 2019 for irrigation, up from 369 million gallons in 2018. Adding the flow recycled as an environmental input through Hayward Marsh, EBDA's total recycling was over 1 billion gallons. As shown in the table below, including the LAVWMA agencies, water recycling accounted for more than 3.1 billion gallons, about 13% of EBDA's outfall discharge last year of 23.9 billion gallons.

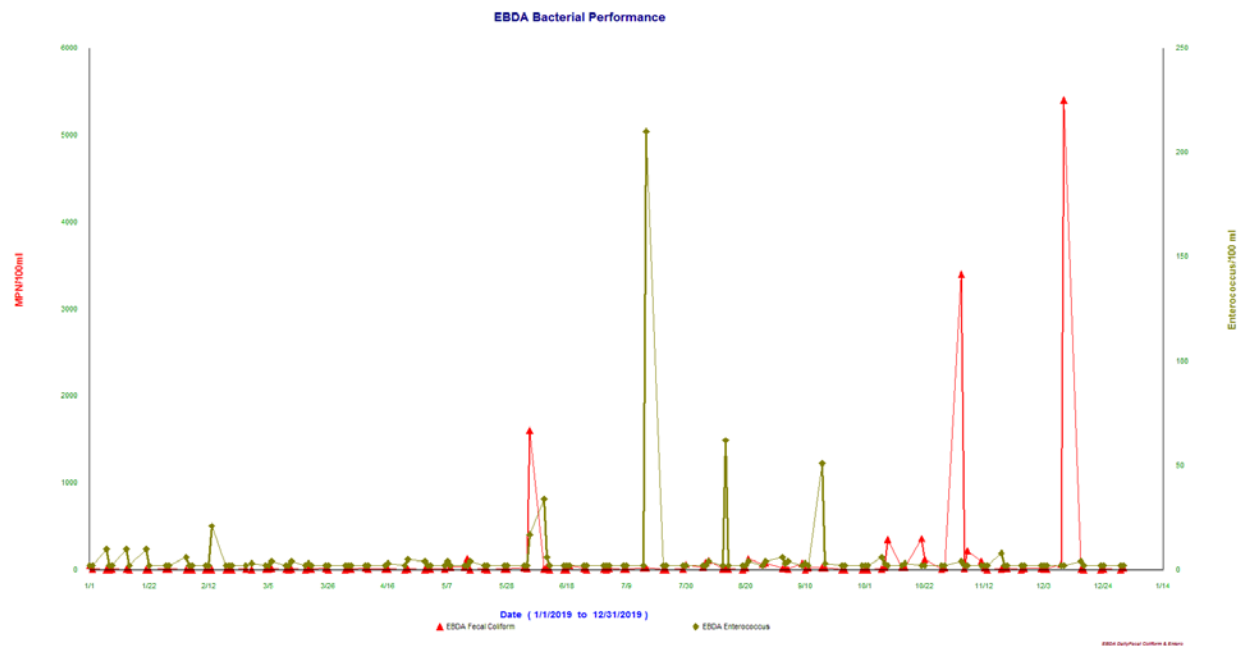
<i>Agency</i>	<i>2019 Recycled Water Production (MG)</i>
Hayward	257.09
San Leandro	96.25
EBDA Skywest Project	57.15
EBDA Subtotal – Irrigation Reuse	410.49
USD Hayward Marsh	684.11
EBDA Total	1094.6
Livermore	644.03
Dublin San Ramon Services District (DSRSD)	1401.149
LAVWMA Total	2045.18
Grand Total	3139.78

Bacterial Limits

The graphic below presents fecal pathogen data from daily samples through the year. Note that permit limits are calculated as monthly geometric means or monthly 90%ile samples. At random intervals, perhaps once a month, a high sample can be detected. This outcome is probably due to the sloughing of pipe biofilms into the sample line—these events are why permit compliance is determined by geometric means.

EBDA and its member agencies worked hard over the past few years to improve chlorine dosing to prevent outbreaks of bacterial contamination that had occurred in prior years. This led to consistent compliance with limits. EBDA plans to further study chlorine dosing optimization to prevent bacterial regrowth in 2020.

Figure 1 – EBDA Bacterial Contaminant Performance



Section 2: List of Analyses for Which the Discharger Is Certified

EBDA conducts no analyses of its own. Each member agency is certified by the State Water Resources Control Board for standard water quality tests such as BOD, TSS, pH, DO, enterococcus, and fecal coliform. City of San Leandro staff performs these analyses on the combined effluent.

All metals and organics analyses are performed by the Authority's contract laboratory, Caltest Analytical Laboratory. Caltest's lab is certified for these analyses. Caltest subcontracts for analytical work on some items, including dioxin and furan compounds and PCBs to other certified labs.

Pacific Eco-Risk Laboratory (PERL), also a certified laboratory, conducts the required acute and chronic toxicity testing for the Authority.

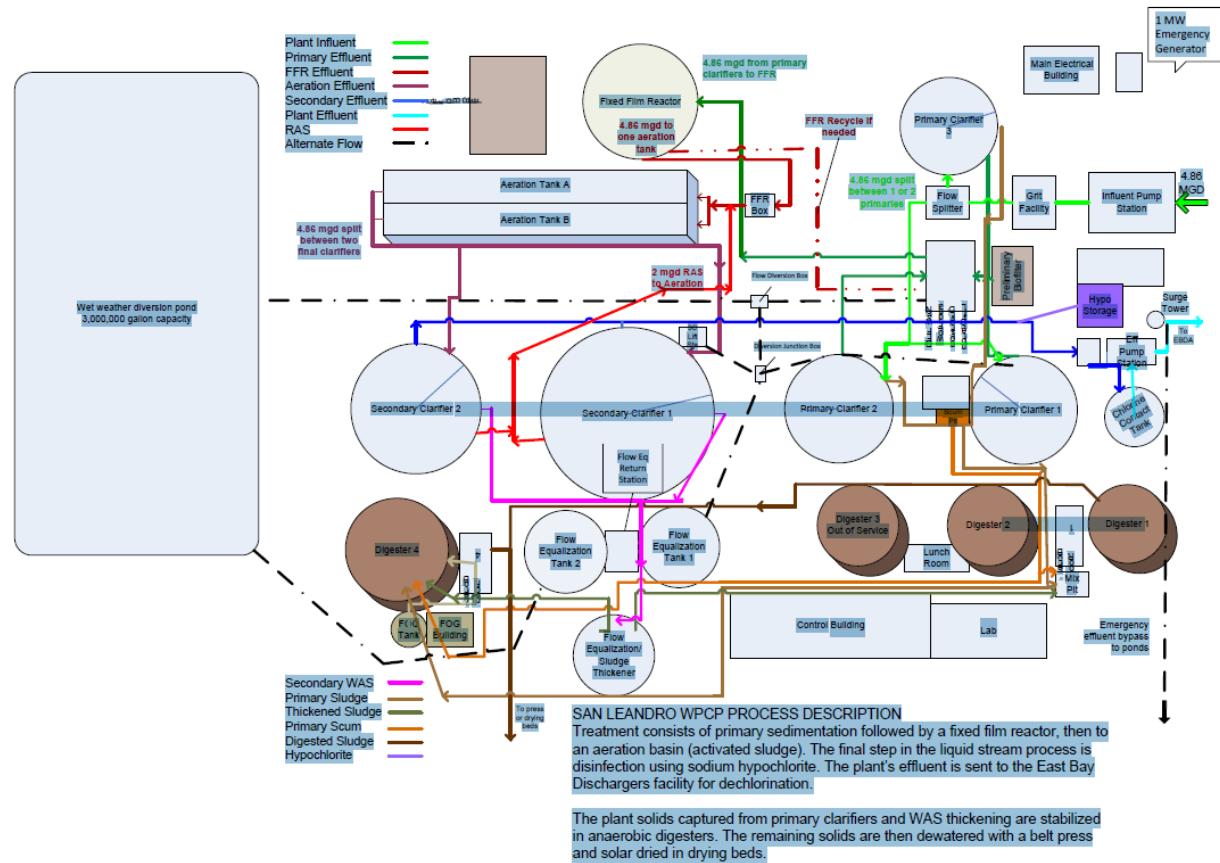
Copies of all laboratory reports are maintained on file at the Authority's office and are available for review upon request. Said reports are not included in this report.

Section 3: Plan View Drawing or Map Showing the Discharger's Facility, Flow Routing, Sampling and Observation Station Locations

Marina Dechlorination Facility



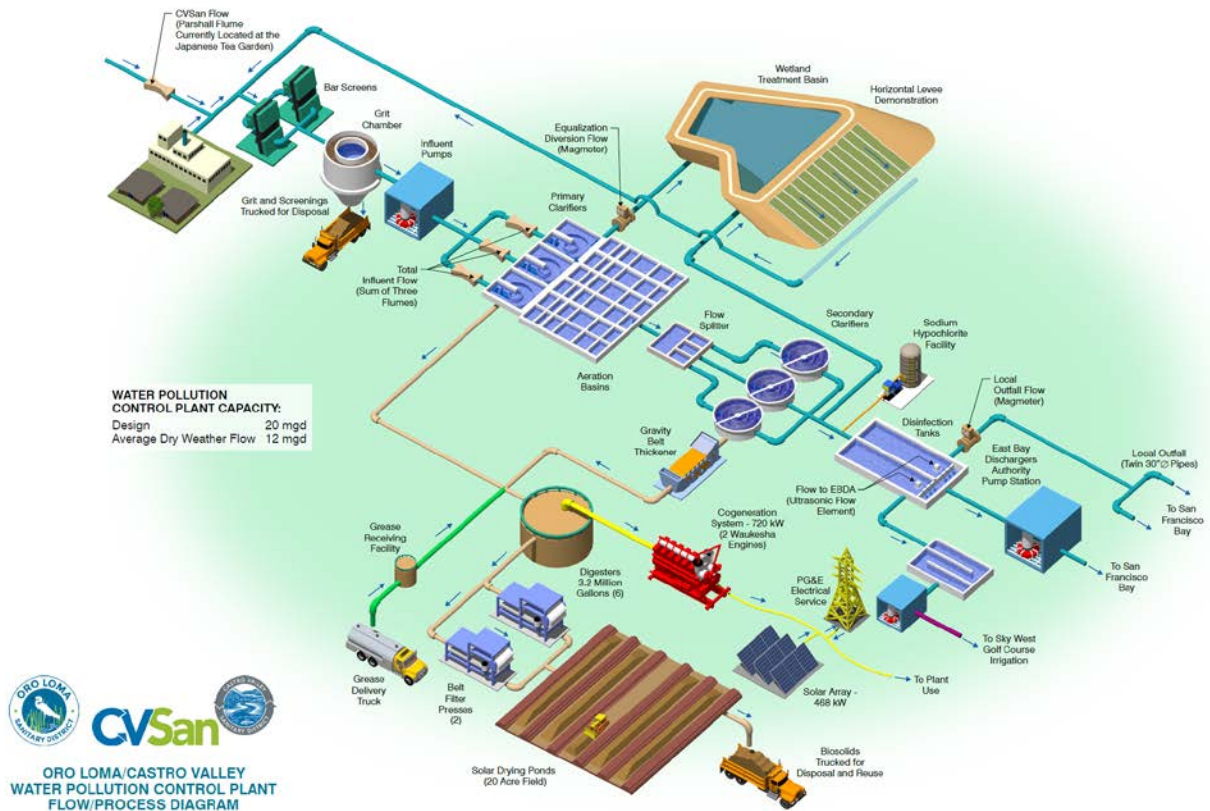
San Leandro Plant – Process Flow Diagram



San Leandro Plant – Sampling Locations



OLSD Plant – Process Flow Diagram



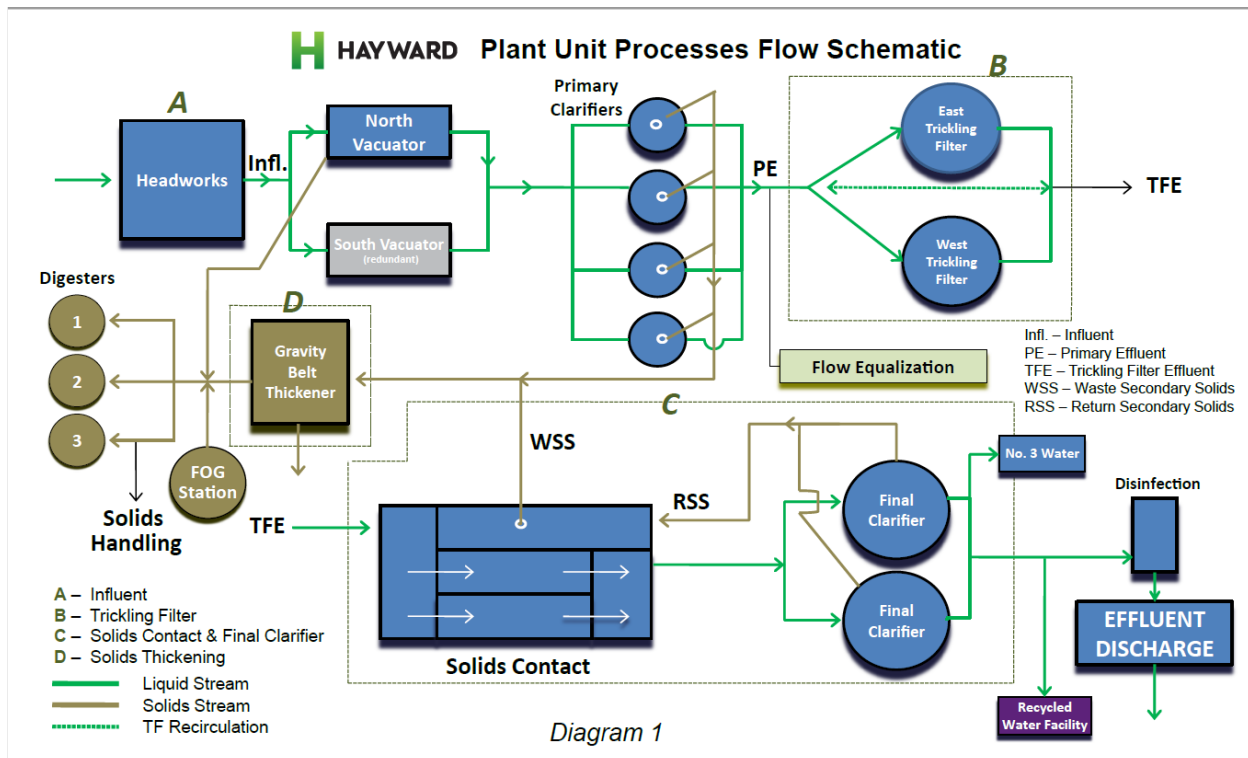
OLSD Plant – Sampling Locations

**PLANT
INFLUENT
SAMPLE POINT**



**PLANT
EFFLUENT
SAMPLE POINT**

Hayward Plant – Process Flow Diagram

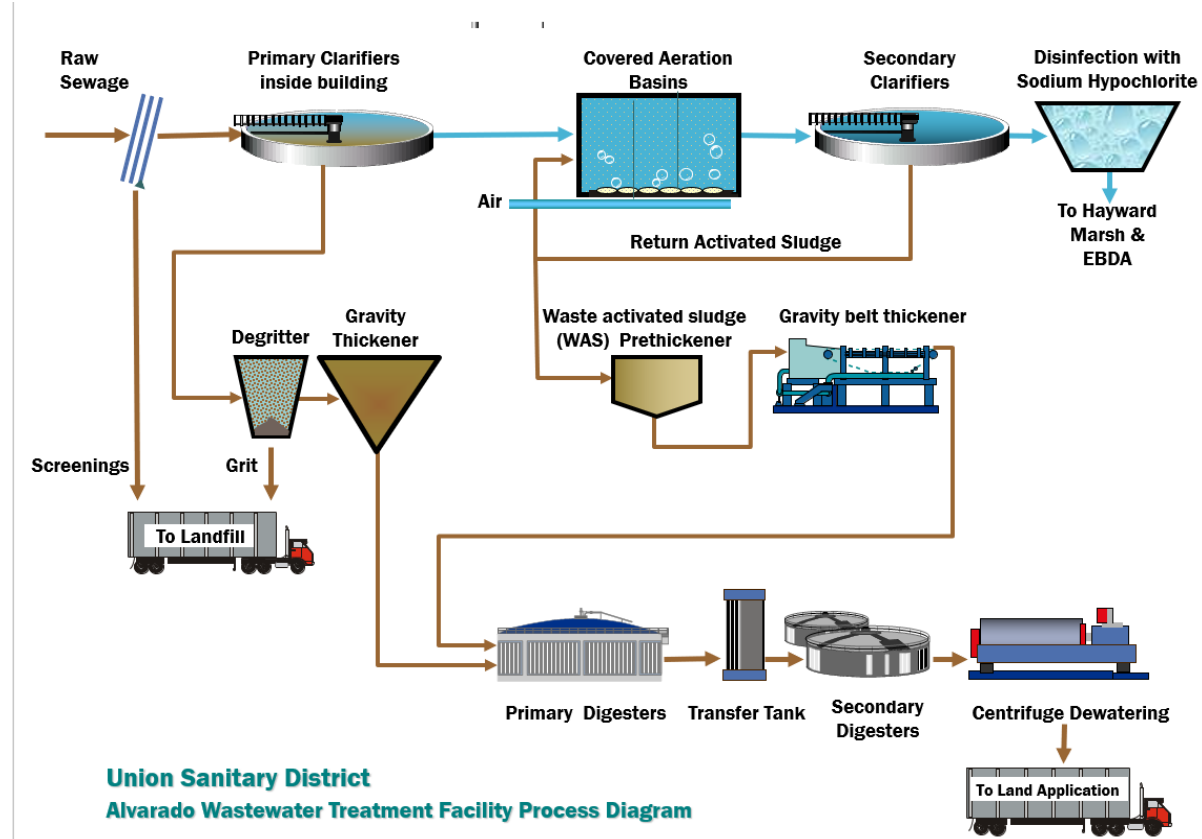


Hayward Plant – Sampling Locations



USD Plant – Process Flow Diagram

UNION SANITARY DISTRICT



USD Plant – Sampling Locations



Section 4: Results of Facility Report Reviews

The tables in this section summarize the status of reviewing and updating the following documents: Operations & Maintenance (O&M) Manual, Contingency Plan, Spill Prevention Plan, and Wastewater Facilities Status Report.

EBDA Facilities

REPORTS	REVIEW DATE	REVIEW PROCEDURES	PLANNED ACTIONS	SCHEDULE
O&M Manual	Jan 2020	Updated on an as-needed basis and reviewed annually by the EBDA O&M Manager.	The Authority maintains a comprehensive O&M Manual for the joint-use facilities. Chapters of the Manual are regularly reviewed and updated. EBDA's Wet Weather SOP is updated annually.	Performed annually
Contingency Plan	Jan 2020	Updated annually by EBDA O&M Manager and EBDA Administrative Assistant. EBDA is included in the Alameda County's Office of Emergency Service's Utility Unit.	The Emergency Operating Contingency Plan is supported by Operations & Maintenance Agreements between Member Agencies, which are compatible with their existing plans and known to all other local and county agencies for emergency purposes. Operation and maintenance activities are contracted with the Member Agencies for routine work. Emergency work is performed sometimes by Member Agencies and sometimes through contracts with private specialty firms.	Performed annually
Spill Prevention Plan	Jan 2020	Updated annually by EBDA O&M Manager	No major changes planned for 2020.	Performed annually
Wastewater Facilities Status Report	Jan 2020	EBDA continues to maintain a comprehensive Replacement and Renewal Policy covering all of EBDA's equipment above a \$3,000 value. The Authority has an Asset Management Plan that covers all critical equipment. The plan is currently being updated and will be reviewed semi-annually by the EBDA General and O&M Managers.	<p>In 2019, EBDA completed the SCADA System Upgrade, Asset Management Plan Update, and improvements to network security.</p> <p>In 2020, the Authority is continuing work on the following projects that provide upgrades to the EBDA system:</p> <ol style="list-style-type: none"> 1. Replacement of the Motor Control Center at the Hayward Effluent Pump Station (HEPS). 2. Facilities Electrical Evaluation 3. EBDA Office Repairs 4. Replacement of 4 pumps at HEPS 5. Redundant back-up power for the Oro Loma Effluent Pump Station (OLEPS) 	<p>Anticipated Completion:</p> <p>HEPS MCC Replacement, March 2020</p> <p>Facilities Electrical Evaluation, March 2020</p> <p>EBDA Office Repairs, June 2020</p> <p>HEPS Pump Replacements, June 2020</p> <p>OLEPS Backup Power, Dec 2021</p>

San Leandro Treatment Plant

Document	Review Date	Review Procedures	Planned Actions	Schedule
O&M Manual	Sections assigned and updated throughout the year	O&M manuals and SOPs are written and revised as necessary by designated Plant Operators and reviewed by the Operations Supervisor and Plant Manager	Review O&M chapters and SOPs as needed. Continue developing and revising SOPs for plant processes. SOPs reviewed/revised or created are: Screenings conveyor reverse operation, plant flowmeter calibration, Clean and inspect washer compactor, removing grease from grit facility, Check valve deragging, PD pump deragging, Cleaning FFR fans, Cleaning DO probes, Tertiary fill station Coliform testing. Digester 1 and two deragging and sludge transfer, Belt filter press truck operation, Replacing Polymer totes, MOSM creation, O&M is still a mix of electronic and older paper as we transition we have fewer and fewer paper versions per year.	Performed continuously
Contingency Plan	January 2020	WPCP management reviews, edits and approves	Contingency plan reviewed annually and updated as needed. Update employee list and emergency contacts along with contractor contacts.	Performed annually
Spill Prevention Plan	January 2020	WPCP management reviews, edits and approves	Plan reviewed and updated. Training and review done annually, including: new employee orientation, 8 hour on-site level 1 responder training, and tailgate review on plan and emergency spill kits.	Performed annually

Oro Loma Sanitary District Treatment Plant

Document	Review Date	Review Procedures	Planned Actions	Schedule
O&M Manual	Ongoing	New sections of the O&M for the Nutrient Optimization facilities are in draft and expected to be available for start-up activities in Spring 2020.	New sections will be added to reflect the new nitrification and denitrification facilities. Drafts of the new sections will be available for use during start-up in Spring 2020. The District continues to invest significant time in training existing staff for the new process. Training will continue in advance of and through start-up.	Review updated Nutrient Treatment Sections in Winter 2019/20. Finalize sections in Summer 2020.
Contingency Plan	December 2019	Management team reviews each section and updates to reflect changes in contact information or equipment/facility changes.	Continue to make updates as needed, at least annually.	December 2020
Spill Prevention Plan	July 2018	The District updated its plan in 2018 to reflect changes to the fuel tank at the EBDA Pump Station at Oro Loma.	Continue to make updates as needed.	As needed
Wastewater Facilities Status Report	January 2019		<p>The District continues to execute on its planned 5-Year, \$110M capital program. The program includes extensive sewer pipe renewal (1.5% of system/year), Nutrient Treatment Upgrades, and Digester Construction.</p> <p>In 2019, the District applied for \$25M in financing from the State Revolving Fund. The District plans to replace a minimum of 40 miles of pipe in the next 10 years.</p> <p>The District is currently in construction of a Nutrient Optimization Project. The project will provide full nitrification and denitrification. Start-up planned for Spring 2020.</p>	10-Year Capital Plan (Updated December 2019)

Hayward Water Pollution Control Facility

Document	Review Date	Review Procedures	Planned Actions	Schedule
O&M Manual	Ongoing	COH WPCF electronic O&M manuals, including SOP's, are reviewed and updated annually by staff. Revisions are made to Sections and SOP's	12 SOPs were written or updated in 2019. Procedure for moisture balance analysis, run pump in reverse with Allen Bradley #7700 VFDs, seal water strainers, using plant air, flushing headworks wet wells, EQ pond isolation for Contractor, drying bed underflow line isolation for contractor, GBT and SBT isolation for contractors, snail kill update, procedure for cleaning distillation glass, update VA/TA, H2S Sensodyne Draeger tube readings. The review of SOPs and O&M will be done as needed throughout the year of 2020.	SOP's and O&M sections are reviewed periodically and updated no less than on an annual basis. Updates occurred throughout 2019
Contingency Plan	January 2020	The entire plan is reviewed by the WPCF manager with updates and edits made by the Senior Secretary.	The latest update was made in November 2019 and updates will be made as needed throughout 2020. Edits and/or updates were made to the following areas: <ul style="list-style-type: none"> • Emergency Phone Numbers • WPCF Employee Phone List • Standby and Emergency Call Lists • Critical Emergency Procedures • Emergency Contact List • F.O.G. Supplier List 	A thorough and comprehensive review is completed annually in January. Emergency contact & Personnel phone lists are kept up-to-date.
Spill Prevention Plan	January 2020	Plan reviewed by WPCF Manager every January. Changes made by Senior Secretary.	Make updated as needed.	Spill Prevention Plan was reviewed in January 2020

Facilities Status	January 2020	<p>The City continues implementation of projects as recommended in the 2014 Master Plan update.</p> <p>Consultant selection process for Phase 2 Master Plan began in 2017.</p>	<p>Planned for 2020:</p> <ul style="list-style-type: none"> • Design of Headworks bar screen began in 2019 and will be complete in 2020. construction will begin in 2020 and expected to be complete in 2021 • Construction of the first phase of the Recycled Water Pipeline (8 miles) Project was completed in 2019 along with the construction for the Recycled Water Storage Tank and Pump Station. The Treatment system will be installed and completed in 2020. When it is completed the treatment system will have a capacity of 5 million gallons per day with an initial service demand of roughly 300K gallons per day • Construction of Effluent Pump Station electrical building, MCC and dissipater structure was completed in 2019 the rest of project will be complete in 2020 • There are several elements of the Phase Two WPCF Improvements that have been incorporated into the Sewer Replacement & Sewer Improvement CIP's which will move forward in year 2020 	<p>10-year Master Plan CIP planning changes are made every year in July with mid-year adjustments made in January/February</p>
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Union Sanitary District Treatment Plant

Document	Review Date	Review Procedures	Planned Actions	Schedule
O&M Manual	Ongoing	Plant O&M documents are incorporated into the District's Competency-Based Training Program. USD utilizes Microsoft Sharepoint software to track document review.	Plant management reviews training documents and SOP's as changes occur (i.e., following construction) or as scheduled.	Each individual training module and SOP has a review frequency of 3 years.
Contingency Plan	December 2019	Plant Manager reviews and updates the Contingency Plan annually.	None. Contingency Plan was updated in December 2019.	Complete next review by December 2020.
Spill Prevention Plan	December 2019	Spill Prevention Plan is incorporated into our Contingency Plan and is reviewed at the same time.	None. Spill Prevention Plan was reviewed in December 2019.	Complete next review by December 2020.
Wastewater Facilities Status Report	December 2019	<p>USD's Master Plans address most of the Facilities Evaluation requirements. Our Plant Master Plan is updated every 5 years and Pump Station and Collection System Master Plans are updated as needed. Asset management data is updated on an ongoing basis. CIP and Operating plans and budgets are reviewed and revised annually.</p> <p>2019 Projects Completed/in-progress:</p> <ul style="list-style-type: none"> • Redundant Degritter system. • New Anaerobic Digester #7 (Design, Completed) • Digester # 3 Rehabilitation (Completed) • Headworks 3rd Bar Screen (Design complete) • Alvarado Pump Station (Design, Complete) 	<p>Complete capital improvements in accordance with 20-year CIP plan. Implement annual rate adjustments for Sewer Service Charges and Capacity Fees in accordance with 10-year financial plan.</p> <p>2020 Projects Planned:</p> <ul style="list-style-type: none"> • New Anaerobic Digester #7 (Commence Construction) • Standby Power Upgrade. (Design) • Digester # 2 Rehabilitation (Repair in progress) • Enhanced Treatment and Site Upgrade (Pre-design of Activated Sludge Improvements complete, Design to commence) • Headworks 3rd Bar Screen (Construction in progress) • Alvarado Pump Station (Construction to Commence) 	<p>20-year CIP annual update in June.</p> <p>Master Plans:</p> <ul style="list-style-type: none"> • Newark Basin MP 2019 • Irvington Basin 2021 • Pump Station Asset Condition Assessment 2021 • Plant Asset Condition Assessment 2024 • Plant Solids System/Capacity Assessment 2024 • Alvarado Basin 2025

Section 5: BACWA Watershed Permitting and Monitoring

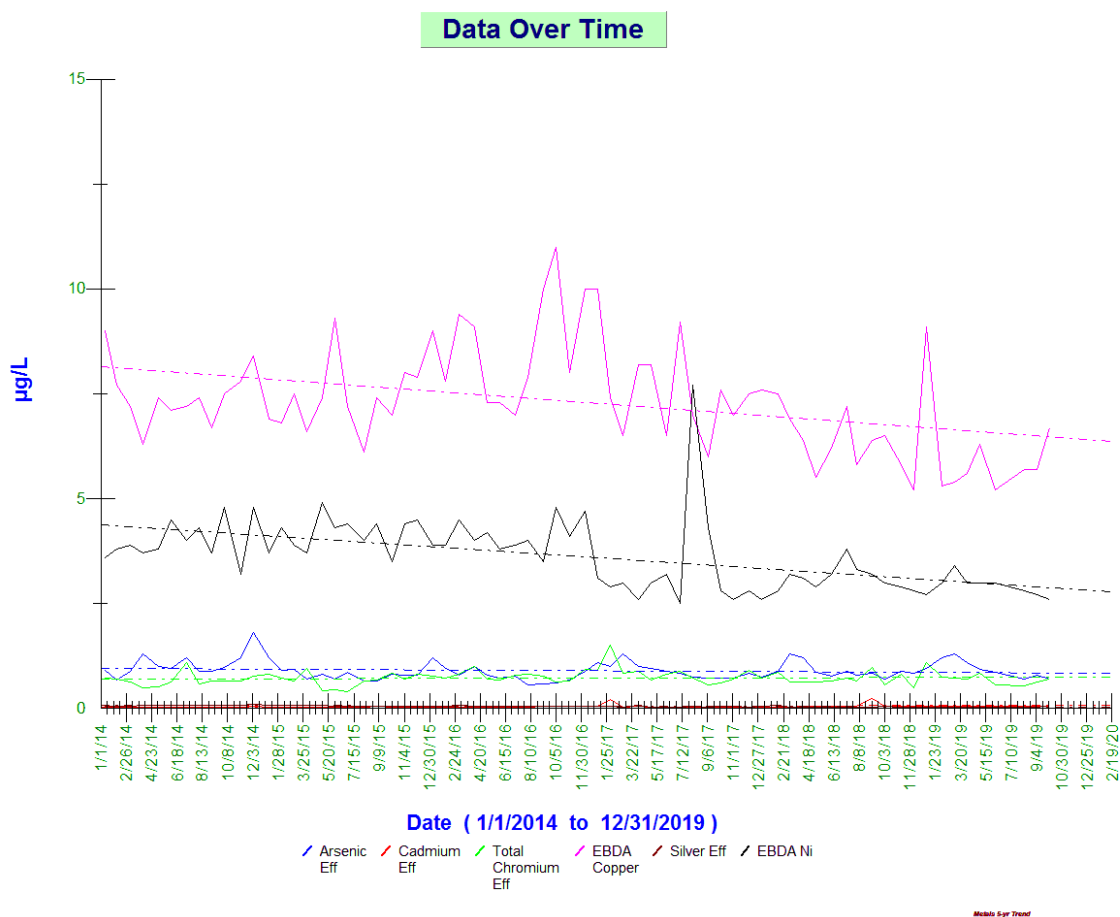
EBDA participates in a number of group processes coordinated by BACWA to fulfill other permit requirements, including Receiving Water Quality Monitoring, TMDL/SSO Support, Mercury and PCBs Watershed Permit Support, Nutrients Watershed Permit Support, and Implementation of Copper Action. Participation in these items is described in an annual BACWA letter to Water Board found here: <https://bacwa.org/wp-content/uploads/2020/01/BACWA-NPDES-Permit-Letter-2020-submitted.pdf>

Section 6: Effluent Characterization Study and Report

EBDA regularly monitors and evaluates discharges from the common outfall and each contributing plant's effluent to identify any concerning trends. No significant increases over past performance were noted in 2019 data.

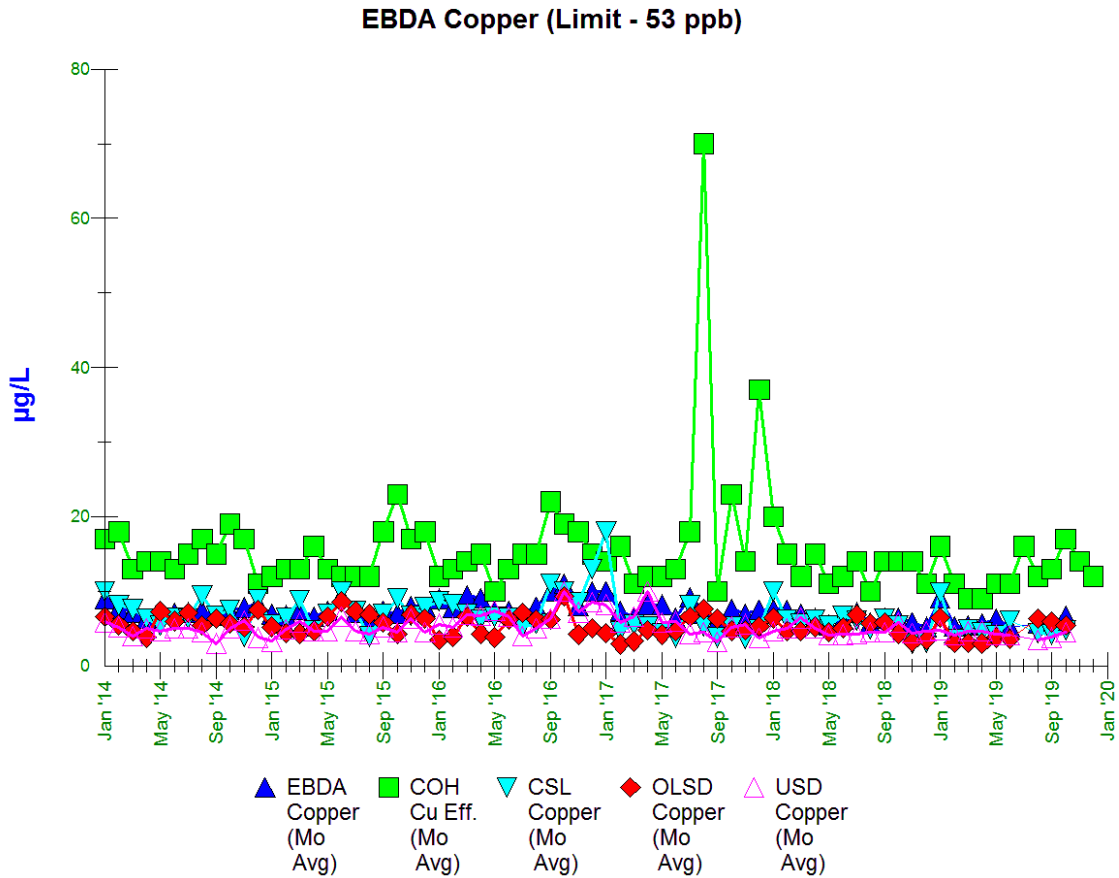
EBDA monitors monthly for metals and cyanide. Cyanide is rarely detected. As shown in Figure 2, five years of metals data continue to show flat or downward trends.

Figure 2 – EBDA Effluent Metals Trends



EBDA's five-year trend for copper shows that while individual member agency effluent concentrations have varied, EBDA's common outfall concentration consistently averaged less than 20 ppb versus a permit limit of 53 ppb (see Figure 3).

Figure 3 – Effluent Copper Trend



EBDA's effluent mercury loads also continue to be well below permit limits, as shown in Figure 4.

Figure 4 – Effluent Mercury Trend

