

# 2018 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, 2019

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## Section 1: Comprehensive Discussion of Treatment Plant Performance and Compliance

Major milestones and construction projects completed at the East Bay Dischargers Authority (EBDA) facilities included the following:

- Oro Loma Sanitary District (OLSD) has initiated construction on a full scale nitrification and denitrification process. The \$24.7M construction project is 15% complete and expected to begin start-up in Summer 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 piloted Microvi's mainstream nitrification/denitrification process as planned in 2018. The results showed consistent and rapid nitrification (<2 hours) and less consistent denitrification results. Based upon the results, OLSD is transitioning the pilot skid to a sidestream application, where ammonia from the OLSD's belt filtrate will be nitrified via Microvi's process and then returned to the headworks where odor control and denitrification benefits are expected to occur under the low dissolved oxygen conditions present in the influent.
- San Leandro is beginning the design phase of a grant funded treatment wetlands project that, if successfully permitted and found functional, will pave the way for larger projects of the type within the City.
- Hayward's digester upgrades were completed in 2018, significantly increasing gas production for the cogen facility. Final clarifier wall repairs and coatings were also completed. A consultant was selected to update the Facility Master Plan in preparation of the next permit requirements.
- Union Sanitary District (USD) has completed its Solids Capacity Study and is currently conducting a Facility Master Plan, which includes exploring nutrient removal options in the future. Final Design for Digester #7 and design for a new Standby Generator system should be completed in 2019.
- Castro Valley Sanitary District (CVSan) adopted an Ordinance in 2018 which will institute a requirement on July 1, 2019 for all property owners to have their private sewer lateral inspected prior to the sale of the property. This will allow CVSan to take the necessary steps to ensure that laterals servicing private properties are in good working order and will facilitate progress towards the long term goal of reducing inflow and infiltration.
- An updated Pretreatment Program, as well as necessary Ordinance for code modifications, were accepted by the CVSan Board of Directors in the Spring of 2018.

In addition, EBDA began a thorough review and update to its Asset Management Plan to ensure appropriate renewal and replacement of infrastructure. Updates are expected to be completed in early 2019.

EBDA's Member Agencies recycled approximately 369 million gallons in 2018, down from to 1.56 billion gallons in 2017. As shown in the table below, including the

LAVWMA agencies, water recycling accounted for more than 2.5 billion gallons, about 11% of EBDA’s outfall discharge last year of 22.2 billion gallons.

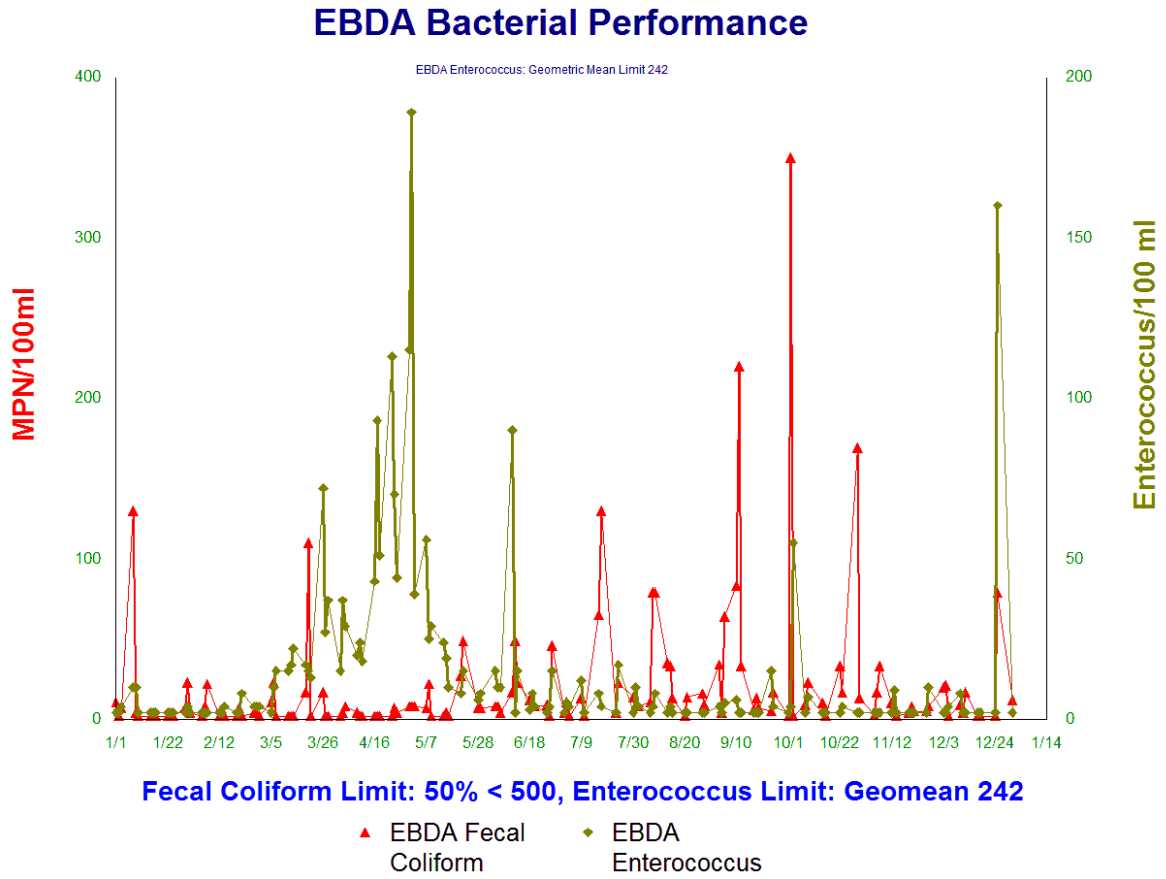
<i>Agency</i>	<i>2018 Recycled Water Production (MG)</i>
Hayward	205.39
San Leandro	98.1
EBDA Skywest Project	65.39
Livermore	768
Dublin San Ramon Services District (DSRSD)	1,385.27
<b>Total</b>	<b>2522.15</b>

*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 during warm weather, 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 this year to optimize chlorine dosing to prevent outbreaks of bacterial contamination that had occurred in prior years. This led to consistent compliance with limits.

Figure 1 – EBDA Bacterial Contaminant Performance



EBDA Daily Fecal Coliform & Enterococcus

## **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 laboratories. Through February 2018, the Authority's analyses were conducted by East Bay Municipal Utility District (EBMUD). Beginning in March 2018, the Authority's new contract laboratory is Caltest Analytical Laboratory. EBMUD and Caltest's labs are both certified for these analyses. EBMUD and Caltest each subcontract 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.

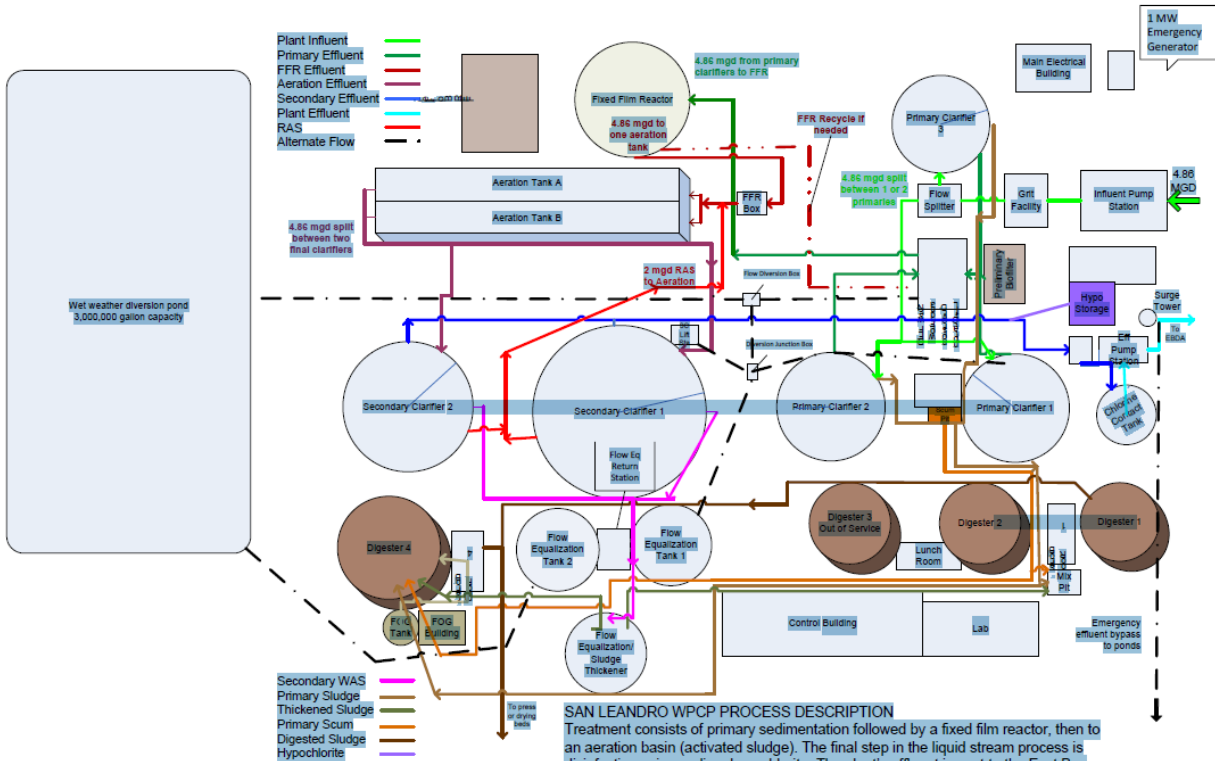
Copies of all laboratory reports are maintained on file at the Authority's office and are available for review upon request. Said reports are not included in this report.

# 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 WPCP PROCESS DESCRIPTION

Treatment consists of primary sedimentation followed by a fixed film reactor, then to an aeration basin (activated sludge). The final step in the liquid stream process is disinfection using sodium hypochlorite. The plant's effluent is sent to the East Bay Dischargers facility for dechlorination.

The plant solids captured from primary clarifiers and WAS thickening are stabilized in anaerobic digesters. The remaining solids are then dewatered with a belt press and solar dried in drying beds.



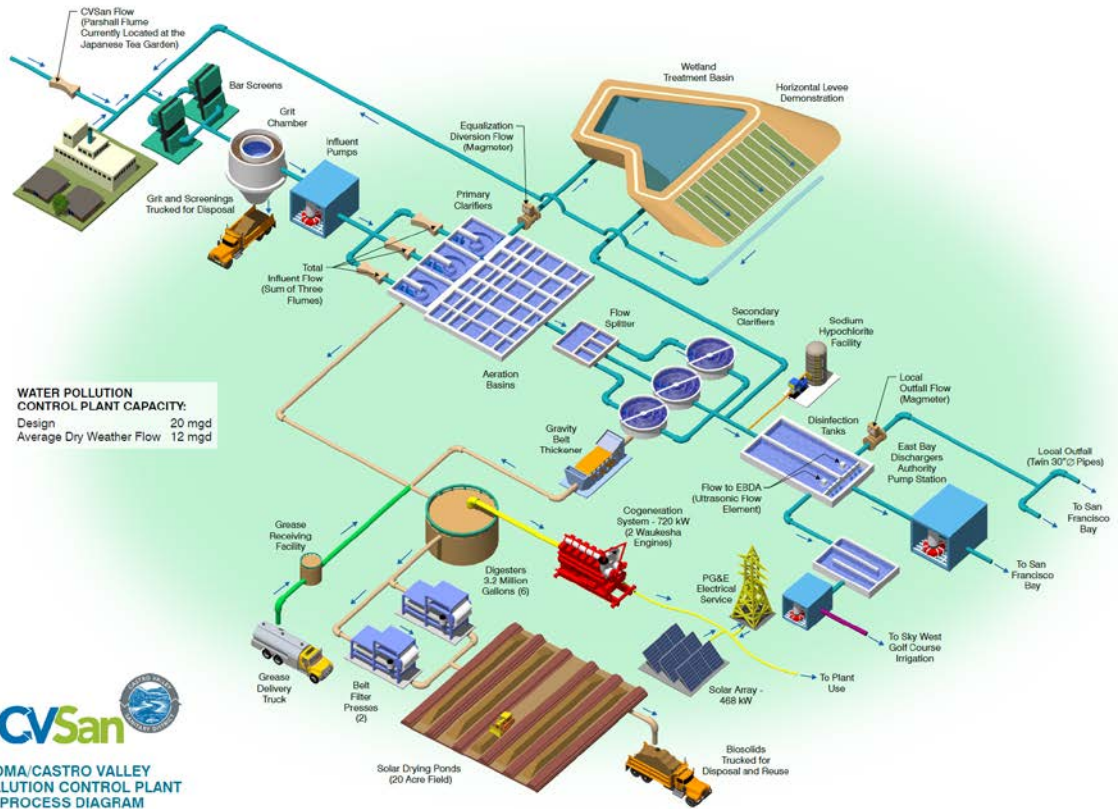
San Leandro Plant – Sampling Locations



Effluent Sampling Point

Influent Sampling Point

# OLSD Plant – Process Flow Diagram





  
**ORO LOMA/CASTRO VALLEY**  
**WATER POLLUTION CONTROL PLANT**  
**FLOW/PROCESS DIAGRAM**

## OLSD Plant – Sampling Locations

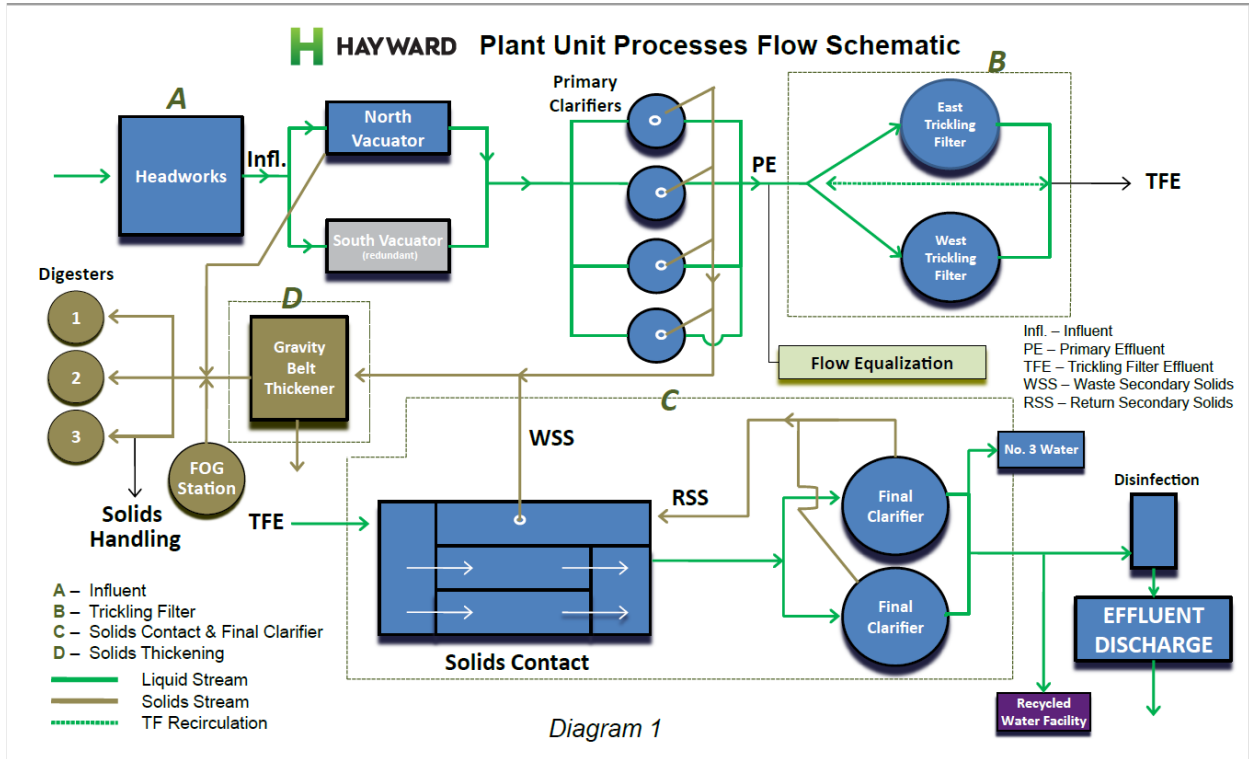
**PLANT  
INFLUENT  
SAMPLE POINT**



**PLANT  
EFFLUENT  
SAMPLE POINT**



# Hayward Plant – Process Flow Diagram

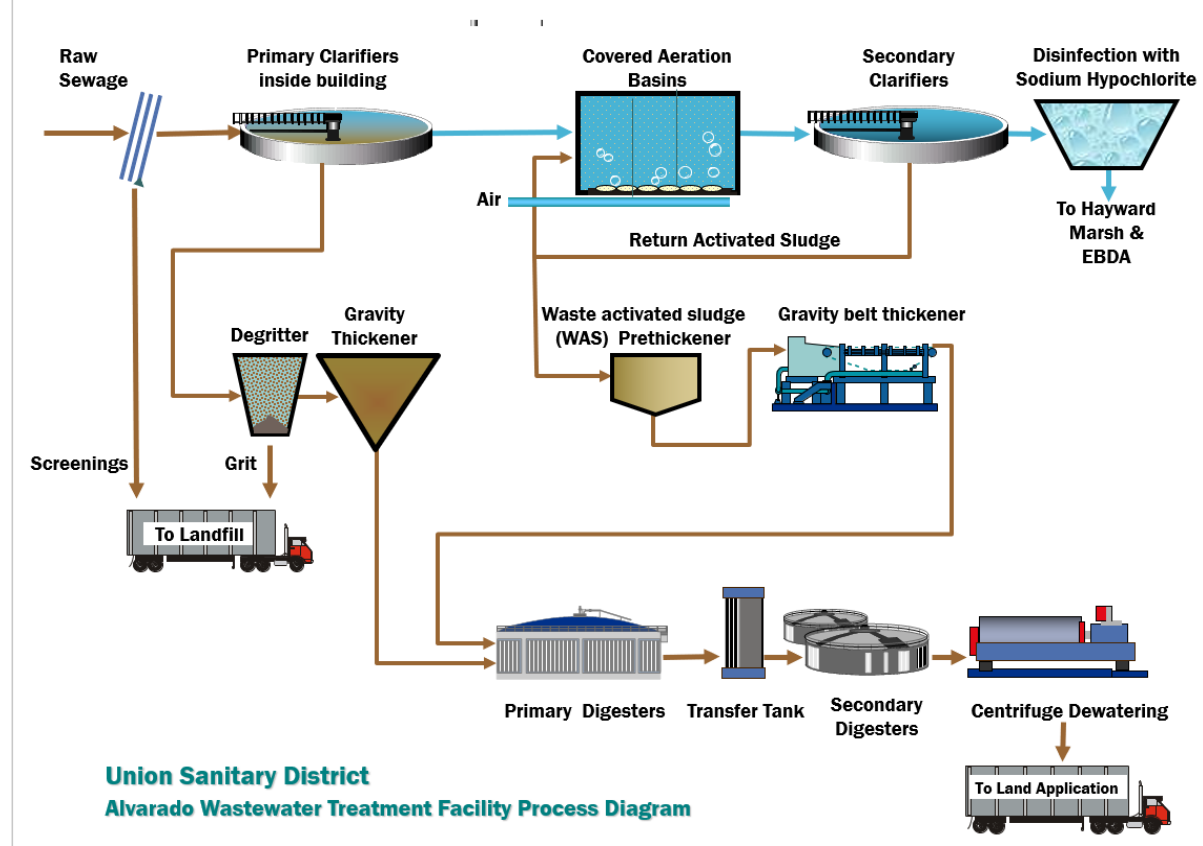


# Hayward Plant – Sampling Locations



# 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 2019	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 2019	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 2019	Updated annually by EBDA O&M Manager	In 2018 EBDA worked with OLSD to update their SPP to include OLEPS.  No major changes planned for 2019.	Performed annually
Wastewater Facilities Status Report	Jan 2019	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.	In 2018, EBDA completed the decommissioning of two 6,000 gallon underground diesel storage tanks and the installation of an 8,000 gallon aboveground diesel storage tank.  In 2019, the Authority is continuing work on the following projects that provide upgrades to the EBDA system:  1. Replacement of the Motor Control Center at the Hayward Effluent Pump Station. 2. Oro Loma Effluent Pump Station Diesel Engine Control and PLC/SCADA programming project. 3. Upgrade of the SCADA System. 4. Asset Management Plan Update 5. Facilities Electrical Evaluation	HEPS MCC Replacement, June 2019  OLEPS Engine and PLC Project, Late 2019  SCADA System Upgrade, Summer 2019  Asset Management Plan Update, January 2019  Facilities Electrical Evaluation, March 2019

## San Leandro Treatment Plant

Document	Review Date	Review Procedures	Planned Actions	Schedule
O&M Manual	November 2018 through February 2019	O&M manuals and SOPs are written and revised as necessary by designated Plant Operators and reviewed by the Operations Supervisor and Plant Manager	<p>Review O&amp;M chapters and SOPs as needed. Continue developing and revising SOPs for plant processes. SOPs reviewed are:            Fuel inventory SOP, New Fixed Film Reactor Flushing SOP, Wet Weather Operation SOP, and Biological Microscope Observation SOP.</p> <p>SOP's in progress are; Heat Exchanger SOP, IPS Coliform setup SOP.            Sample Line Hypo Flush SOP.</p> <p>O&amp;M Manuals are due for review; to date we have made a plan to integrate our new electronic interactive (web based) WPCP O&amp;M Manual with our existing electronic and paper forms. Next will be removing old O&amp;M manuals from library and scanning paper only forms.</p>	Performed annually
Contingency Plan	January 2019	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 2019	WPCP management reviews, edits and approves	Plan reviewed and updated. New emergency power and pumping equipment included. 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



<p>Wastewater Facilities Status Report</p>	<p>January 2019</p>	<p>SSMP 2015, reviewed biannually by WPCP management</p> <p>SS Maintenance Plan 2017, reviewed by Engineering and approved by City Council</p> <p>Plant staff reviews status of all facilities on a weekly basis. Plant predictive replacement, maintenance and repair activities are determined by CMMS</p> <p>Long term SS Lift Station replacement at four locations has been placed on the CIP list.</p> <p>Wastewater rates and capacity charges are reviewed and approved annually</p>	<p>SSMP indicated several areas for improvement. City has addressed several issues, and continues to pursue improvements based on importance.</p> <p>The vast majority of the plant has had a major refit. Staff recently completed a recycled water filtration and dispensing facility. Projects to improve drainage and repave the plant have been completed.</p> <p>The next CIP projects for the plant will be energy improvements. There is currently a solar project in construction. The City is investigating options for NZE including food waste receiving for local industry.</p> <p>The City is beginning the design phase of a grant funded treatment wetlands project that, if successfully permitted and found functional, will pave the way for larger projects of the type within the City.</p>	<p>SSMP recommended improvements are ongoing</p> <p>Solar project expected completion in 2019</p> <p>Lift Station replacement 2022-2025</p> <p>Wetlands design and permitting 2019-20</p>
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## Oro Loma Sanitary District Treatment Plant

Document	Review Date	Review Procedures	Planned Actions	Schedule
O&M Manual	Ongoing	The recently completed O&M Manual for the Equalization Basin/Horizontal Levee was audited during Winter 2018 and updated as planned in Summer 2018.	The District is constructing a plant modification to treat nutrients. The design scope includes the production of new O&M manual sections to reflect the new treatment processes. Drafts of the new sections will be available for review in Summer 2019. Operations staff has received approximately five full days of training on the new treatment process. Training will continue in advance of and through start-up.	Review updated Nutrient Treatment Sections in Summer 2019. Finalize sections in Summer 2020.
Contingency Plan	December 2018	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 2019
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, \$100M capital program. The program includes extensive sewer pipe renewal (1.5% of system/year), Nutrient Treatment Upgrades, a Flow Equalization Basin Expansion, and Digester Construction.</p> <p>In 2018, the District replaced 5.2 miles of collection system pipe – the most in any year of its history. The District plans to replace a minimum of 30 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 partial denitrification. Start-up planned for Summer 2020.</p>	10-Year Capital Plan (Updated December 2018)

## 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	14 New SOPs were written in 2018. Hot Sludge Flush to Sludge Blend Tank, HEPS Pump 2 for PM and Emergency, Cogen Cold Start, 3 Water Lines (including isolation points), Calibration of Samplers: Hach Sigma SD900, 900 Max, and AS950, Drawing Hypo off the new 3 Water System, Initiating a manual backwash on new 3 Water Filters, New Rexa valves -auto to manual, Boiler Loop Bypass and Boiler Isolation, Boiler Flame Failure, Heat Loop Pressure Recharge and Release, Calibrate VWR Symphony H10D DO Meter, Boiler Startup, and Procedure for Moisture Analysis	SOP's and O&M sections are reviewed periodically and updated no less than on an annual basis. Updates occurred throughout 2018
Contingency Plan	January 2019	The entire plan is reviewed by the WPCF manager with updates and edits made by the Senior Secretary.	The latest update was made in January 2019. Edits and/or updates were made to the following areas: <ul style="list-style-type: none"> <li>• Emergency Phone Numbers</li> <li>• WPCF Employee Phone List</li> <li>• Standby and Emergency Call Lists</li> <li>• Critical Emergency Procedures</li> <li>• Emergency Contact List</li> <li>• F.O.G. Supplier List</li> </ul>	A thorough and comprehensive review is completed annually in January. Emergency contact & Personnel phone lists are kept up-to-date.
Spill Prevention Plan	January 2019	Plan reviewed by WPCF Manager every January. Changes made by Senior Secretary.	None.	Spill Prevention Plan was reviewed in January 2019

Facilities Status	January 2019	<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>Reviewed and Updated</p> <ul style="list-style-type: none"> <li>• Future elements of the Phase Two WPCF Improvements have been incorporated into the Sewer Replacement &amp; Sewer Improvement CIP's</li> <li>• Construction for the Recycled Water Storage Tank and Pump Station began in 2018.</li> <li>• Construction of the first phase of the Recycled Water Pipeline (8 miles) Project was completed in 2018</li> <li>• Final Clarifier and GBT Sludge Blending Tank repairs/upgrades began in 2018.</li> <li>• Construction of Effluent Pump Station electrical building, MCC and dissipater structure began in 2018</li> <li>• Design for Recycled Water Treatment was completed in 2018 and construction to begin in 2019</li> </ul>	<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 2018	Plant Manager reviews and updates the Contingency Plan annually.	None. Contingency Plan was updated in December 2018.	Complete next review by December 2019.
Spill Prevention Plan	December 2018	Spill Prevention Plan is incorporated into our Contingency Plan and is reviewed at the same time.	None. Spill Prevention Plan was reviewed in December 2018.	Complete next review by December 2019.
Wastewater Facilities Status Report	December 2018	<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>2018 Projects Completed/in-progress:</p> <ul style="list-style-type: none"> <li>• Redundant Degritter system. (Almost Complete)</li> <li>• New Anaerobic Digester #7 (Design, In Progress)</li> <li>• Digester # 3 Rehabilitation (Ongoing)</li> <li>• Headworks 3<sup>rd</sup> Bar Screen (Pre-Design complete)</li> <li>• Alvarado Pump Station (Pre-Design, Complete)</li> <li>• Plant Asset Condition 2018 (Complete)</li> </ul>	<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>2019 Projects Planned:</p> <ul style="list-style-type: none"> <li>• New Anaerobic Digester #7 (Design &amp; Commence Construction)</li> <li>• Standby Power Upgrade. (Design)</li> <li>• Digester # 2 Rehabilitation (Design &amp; Repair)</li> <li>• Plant Master Plan (Pre-design of Activated Sludge Improvements)</li> <li>• Headworks 3<sup>rd</sup> Bar Screen (Construction to begin)</li> <li>• Alvarado Pump Station (Design)</li> </ul>	<p>20-year CIP annual update in June.</p> <p>10-year financial plan annual update in June.</p> <p>Master Plans:</p> <ul style="list-style-type: none"> <li>• Plant Asset Condition Assessment 2019</li> <li>• Newark Basin MP 2019</li> <li>• Irvington Basin 2021</li> <li>• Pump Station Asset Condition Assessment 2021</li> <li>• Alvarado Basin 2023</li> </ul>

## **Section 5: BACWA Watershed Permitting and Monitoring**

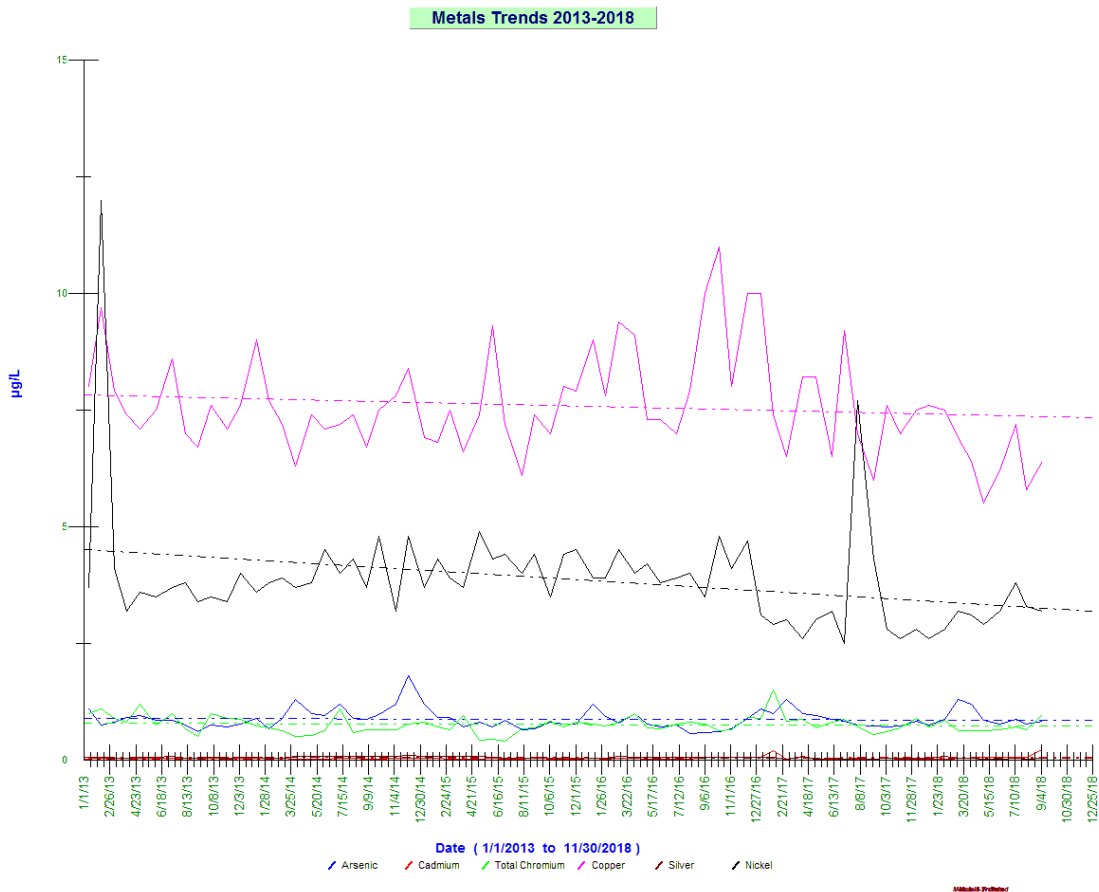
EBDA participates in a number of group processes coordinated by BACWA to fulfill other permit requirements, including Receiving Water Quality Monitoring, TMDL/SSO Support, Mercury and PCBs Watershed Permit Support, Nutrients Watershed Permit Support, and Implementation of Copper Action. Participation in these items is described in an annual BACWA letter to Water Board found here: <https://bacwa.org/wp-content/uploads/2019/01/BACWA-NPDES-Permit-Letter-with-SFEI-Letter-attached-1-23-19.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 2018 data.

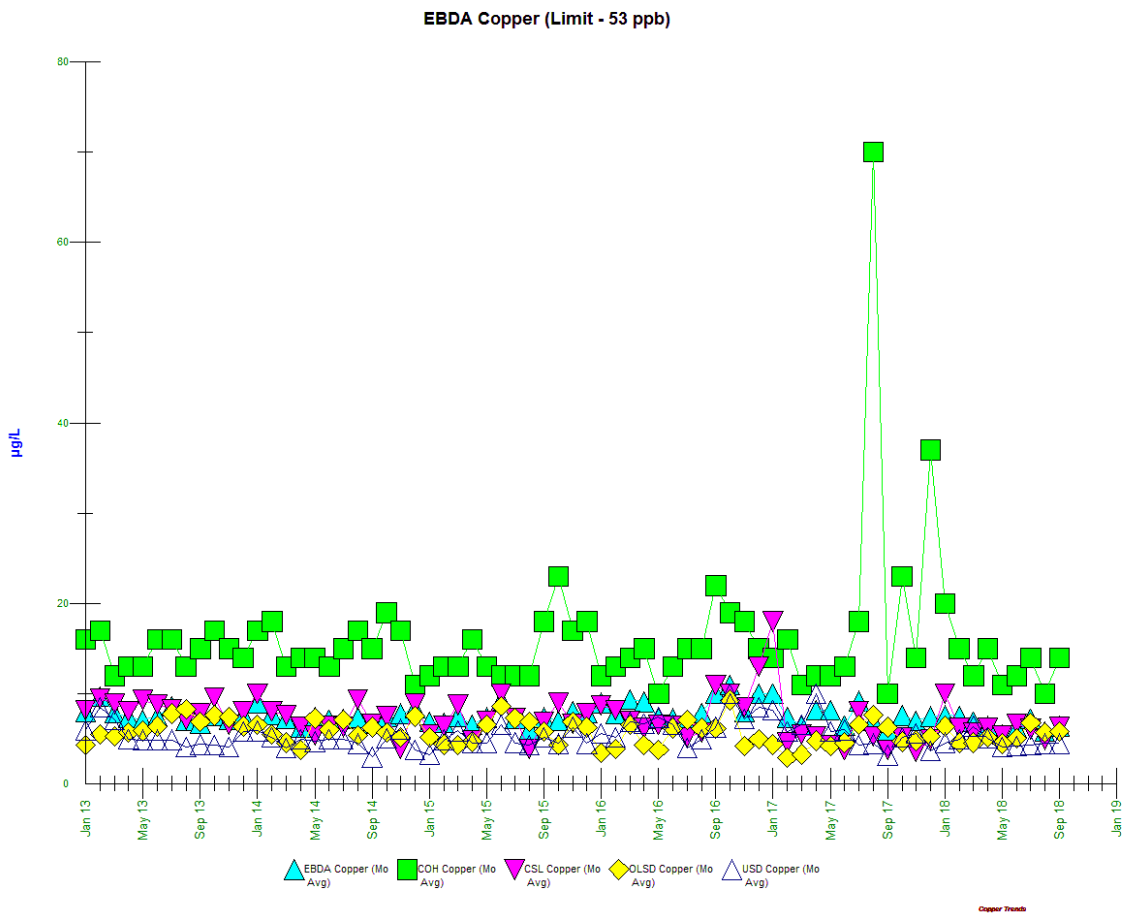
EBDA monitors monthly for metals and cyanide. Cyanide is rarely detected. As shown in Figure 2, five years of metals data continue to show flat or downward trends.

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

