

# 2020 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 27, 2021



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

East Bay Dischargers Authority (EBDA) reached a major milestone in 2020 with implementation of a new Amended and Restated Joint Powers Agreement (JPA), which took effect on July 1, 2020 and runs through June 30, 2040. The JPA outlines the governance and cost-sharing of EBDA's joint transport and outfall system and associated infrastructure. EBDA is continuing to negotiate terms with the Livermore-Amador Valley Water Management Agency (LAVWMA) for a new or amended Master Agreement governing LAVWMA's discharges through the EBDA system.

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

- Oro Loma/Castro Valley Sanitary Districts (OLSD/CVSan)
  - Completed construction of a full-scale nitrification and denitrification process. The \$24.7M construction project was completed in Summer 2020 and the plant has operated since. The scope included the construction of a fourth aeration basin, six new blowers and associated building, and retrofit of existing mechanical aeration with fine bubble diffusers. Initial performance is exceeding expectations. The process is removing Total Inorganic Nitrogen levels to below 10 mg/L during dry weather. Staff expects to exceed the target annual TIN removal of 50%. Ammonia reduction is typically to below 2 mg/L.
  - Starting a full scale sidestream nitrification process using Microvi's biocatalyst (January 2021). The full-scale implementation follows three years of pilot work considering both mainstream and sidestream treatment applications. As constructed, approximately 100,000 gpd of belt press filtrate will be treated each day. The stream contains approximately 20% of the total influent nitrogen. The process is designed to reduce Ammonia to nitrite, which is readily available for denitrification in the mainstream process.
- Union Sanitary District (USD)
  - Commenced design of the first phase of the Enhanced Treatment and Site Upgrade Program, which includes nutrient removal options in the future. The design for phase 1a is expected to be complete by late 2021, and the commencement of design for phase 1b, will take place in mid-2021. Phase 1a will modify the existing aeration basins, add an 8th aeration basin, and relocate existing administrative buildings to allow for phase 1b to be built. Phase 1b will construct new secondary clarifiers and new effluent pump station.
  - Design for Digester #7 was completed, and construction is ongoing, with completion anticipated by early 2022.

- Ongoing design for a new Standby Generator system should be completed in 2021.
- City of Hayward
  - Recycled water membrane treatment system has been completed and will be in service as soon as approval is received from the Department of Drinking Water. This will supply 300k gallons of recycled water to neighboring businesses.
  - A 0.6MW solar array was added to the system, bringing total solar array output to 1.6MW.
  - A new drive unit was installed in Final Clarifier #2, along with new ground water relief valves.
  - Contractors have begun work on the bar screen project at headworks. This project includes replacing the grinders with bar screens, major reconstruction to the headworks building, foul air handling system upgrades, replacement of the biofilter bed, and a new ferric chloride dosing station.
- City of San Leandro
  - 1MW solar system is online and currently producing better than expected results.
  - Treatment Wetlands is at 60% design phase, with anticipated design completion in the late spring/summer 2021.
  - Approved and in design phase for a project that allows local industry to place pretreatment byproduct “high strength waste” directly to anaerobic digestion, replaces several pieces of equipment for energy efficiency, and provides a battery backup for peak shaving and diesel-free emergency power.

As part of implementation of the new JPA, EBDA formally transferred ownership and financial responsibility for the San Leandro Effluent Pump Station (SLEPS) to the City of San Leandro. Also, in lieu of implementing capital upgrades at the Union Effluent Pump Station (formerly Alvarado Effluent Pump Station), EBDA began providing annual capital payments to USD, which they will use to relocate the station as part of their Enhanced Treatment and Site Upgrade Program, up to a total of \$4.2 million over ten years. Ownership of the station and associated infrastructure will be transferred from EBDA to USD when the station is relocated.

EBDA also continues to implement 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 2020, EBDA completed the \$3 million motor control center replacement project at the Hayward Effluent Pump Station (HEPS). The project, which also includes a variety of station upgrades described on page 16, improves station reliability. EBDA also completed upgrades to the backup power systems at the

Oro Loma Effluent Pump Station (OLEPS) to improve power reliability, including completing a connection to Oro Loma Sanitary District's backup power system. Improvements to the main switchboard at OLEPS are underway.

EBDA continued its key role in the Transforming Shorelines Project. This project, funded by an EPA Water Quality Improvement Fund grant, includes design of a full-scale horizontal levee south of Oro Loma ("First Mile" project), continued research at Oro Loma's horizontal levee pilot, advancement of pilot wetlands projects at San Leandro and Hayward, and building capacity for nature-based solutions among Bay Area wastewater agencies. In close coordination with East Bay Regional Park District, Hayward Area Shoreline Protection Agency, and San Francisco Estuary Partnership, EBDA facilitated a Request for Proposals and consultant selection process for the First Mile and Hayward projects. The contract was approved in December 2020, and the projects are being kicked off in January 2021.

EBDA's Member Agencies recycled approximately 789 million gallons in 2020. For consistency with recycled water totals submitted through GeoTracker, these totals now include in-plant reuse. The values can therefore not easily be compared with prior year data, but we will endeavor to make them consistent for evaluation of trends going forward. Also of note, there was no discharge to the Hayward Marsh in 2020.

As shown in the table below, including the LAVWMA agencies, water recycling accounted for more than 3.1 billion gallons, about 14% of EBDA's outfall discharge last year of approximately 22.6 billion gallons.

<i>Agency</i>	<i>2020 Recycled Water Production (MG)</i>
Hayward	288.04
San Leandro	96.00
EBDA Skywest Project	15.44
Oro Loma Sanitary District	18.00
Union Sanitary District	371.64
<b>EBDA Subtotal</b>	<b>789.13</b>
USD Hayward Marsh	0
<b>EBDA Total</b>	<b>789.13</b>
Livermore	804.13
Dublin San Ramon Services District (DSRSD)	1570.27
<b>LAVWMA Total</b>	<b>2374.40</b>
<b>Grand Total</b>	<b>3163.53</b>

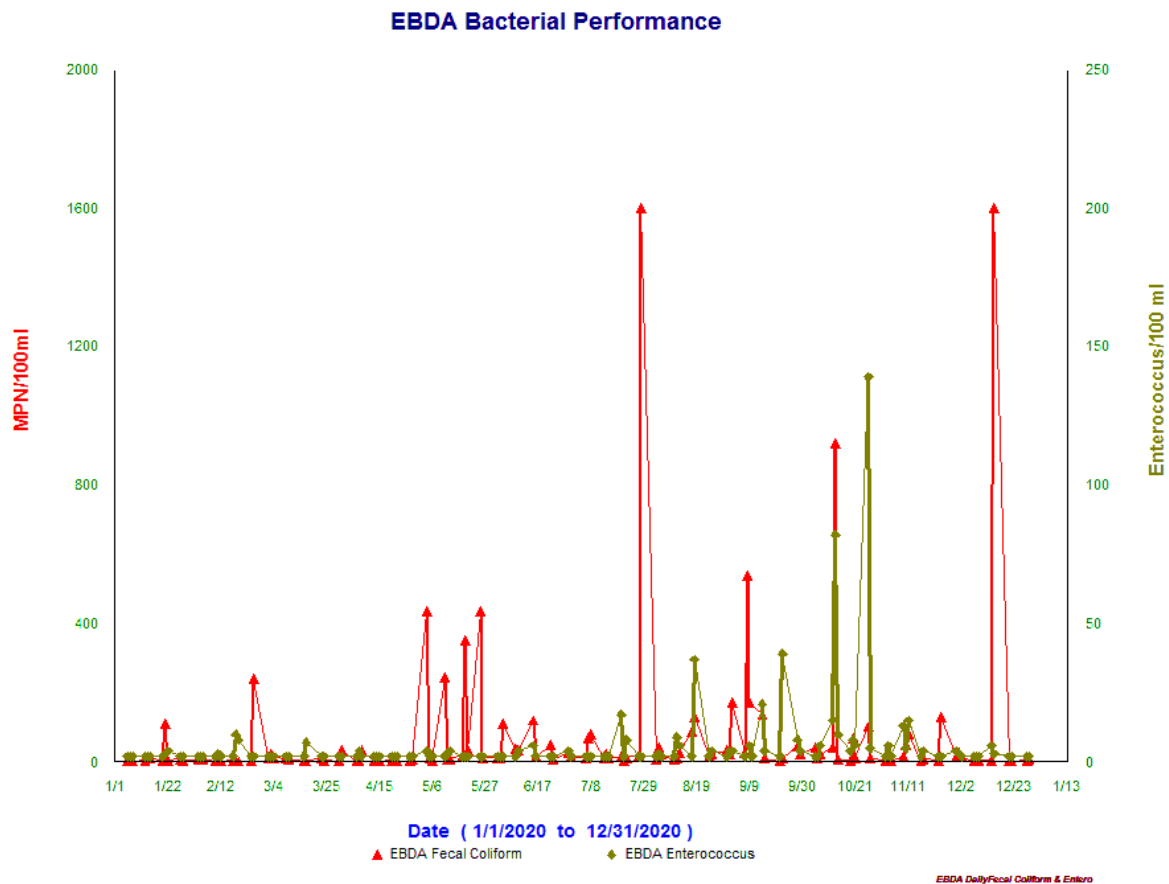
#### *Bacterial Limits*

The graphic below presents fecal pathogen data from samples through the year. Note that permit limits are calculated as monthly geometric means or monthly 90%ile samples. Sporadically, at random intervals, 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 has led to consistent compliance with limits. EBDA has issued a Request for Proposals for a consultant to develop a Disinfection Master Plan in 2021. This Master Plan will assist EBDA in further optimizing chlorine dosing to prevent bacterial regrowth.

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.



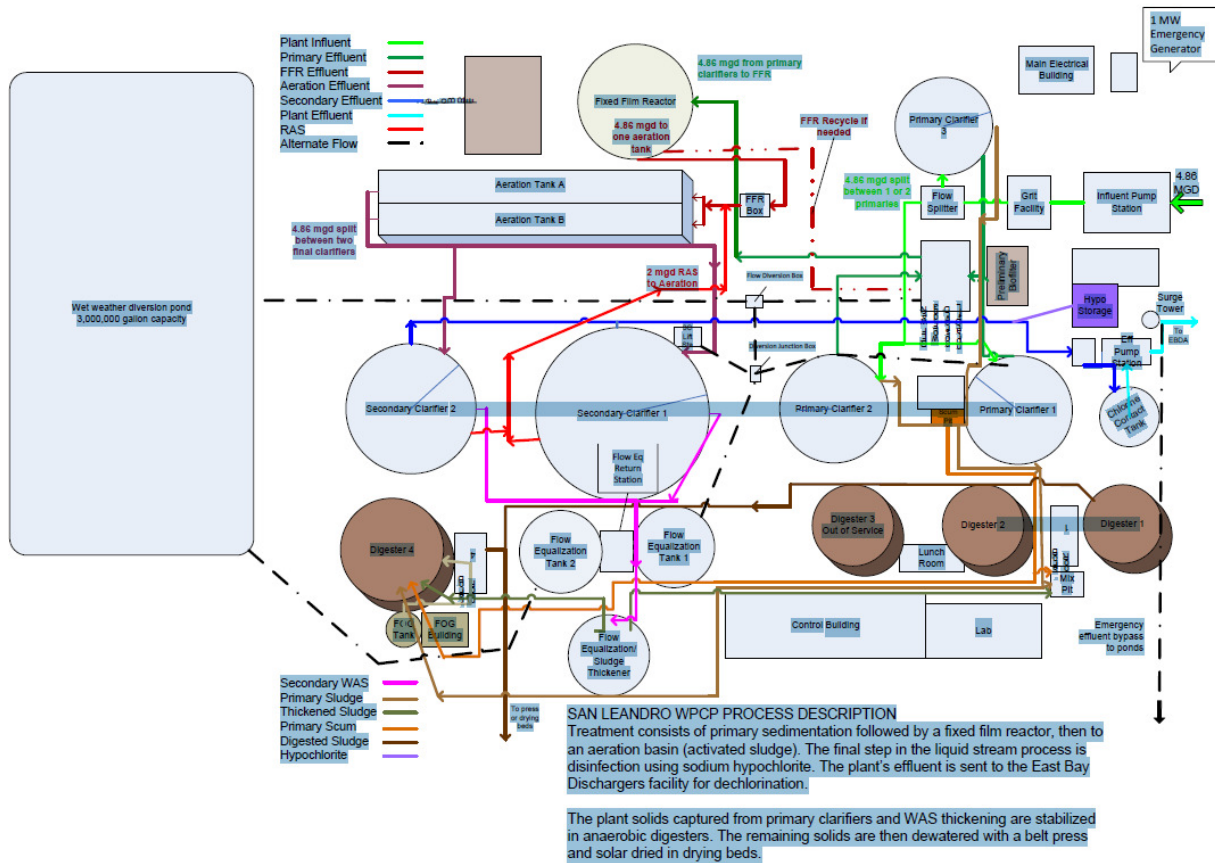
### Section 3: Plan View Drawing or Map Showing the Discharger's Facility, Flow Routing, Sampling and Observation Station Locations

#### Marina Dechlorination Facility





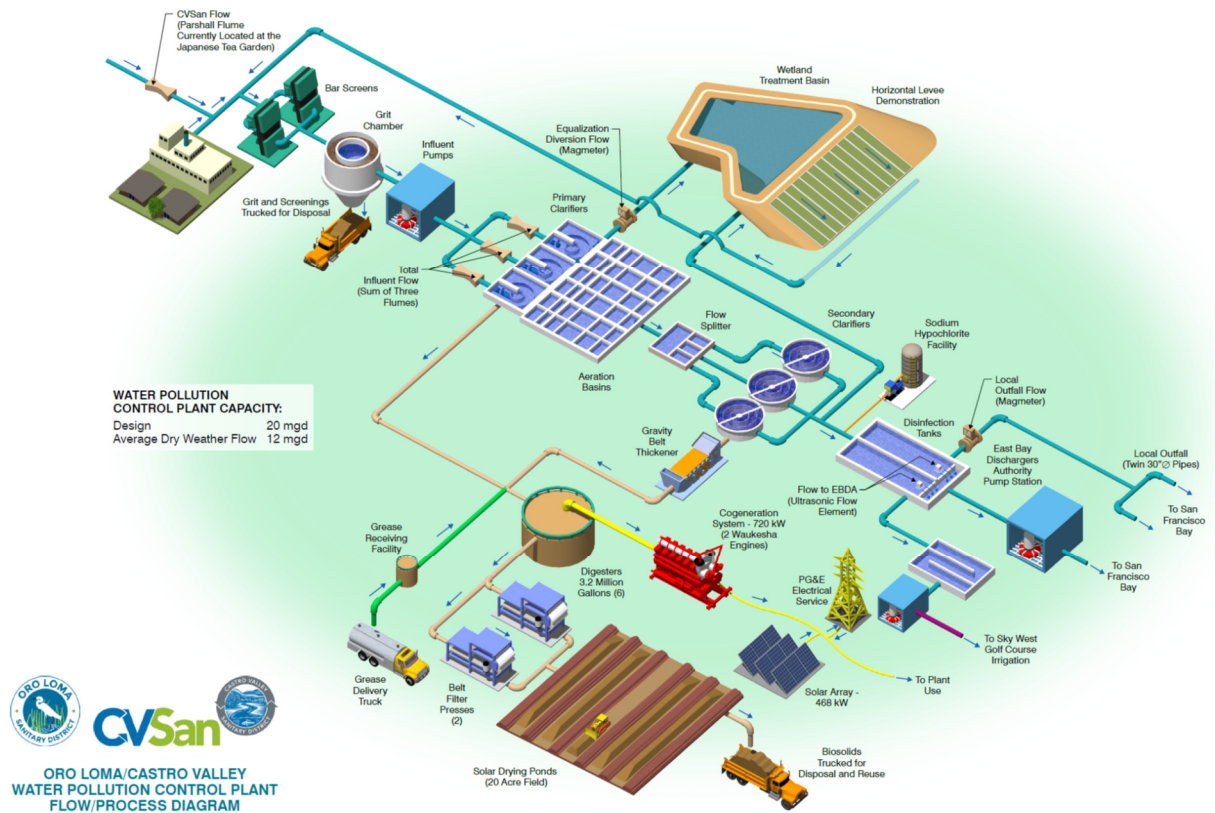
## San Leandro Plant – Process Flow Diagram



## San Leandro Plant – Sampling Locations



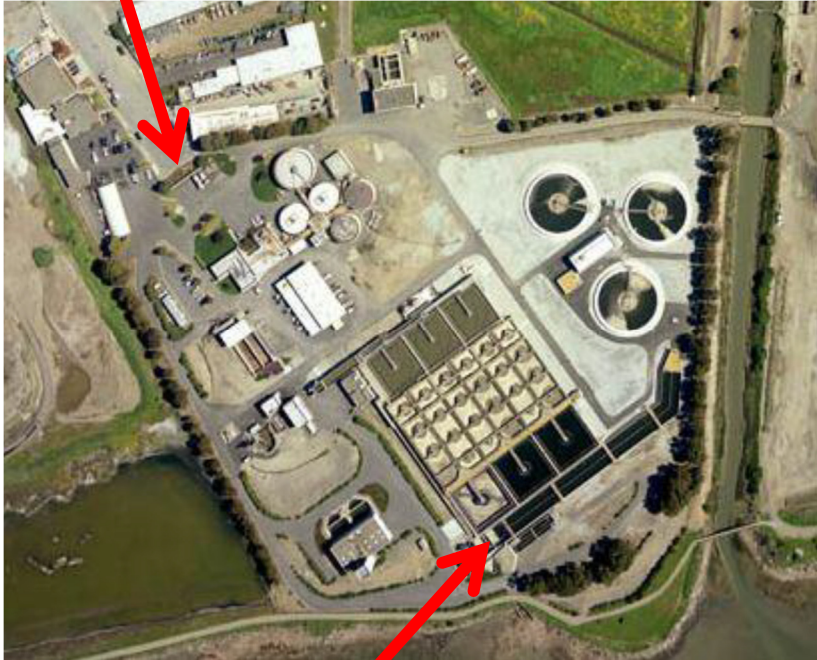
## OLSD Plant – Process Flow Diagram





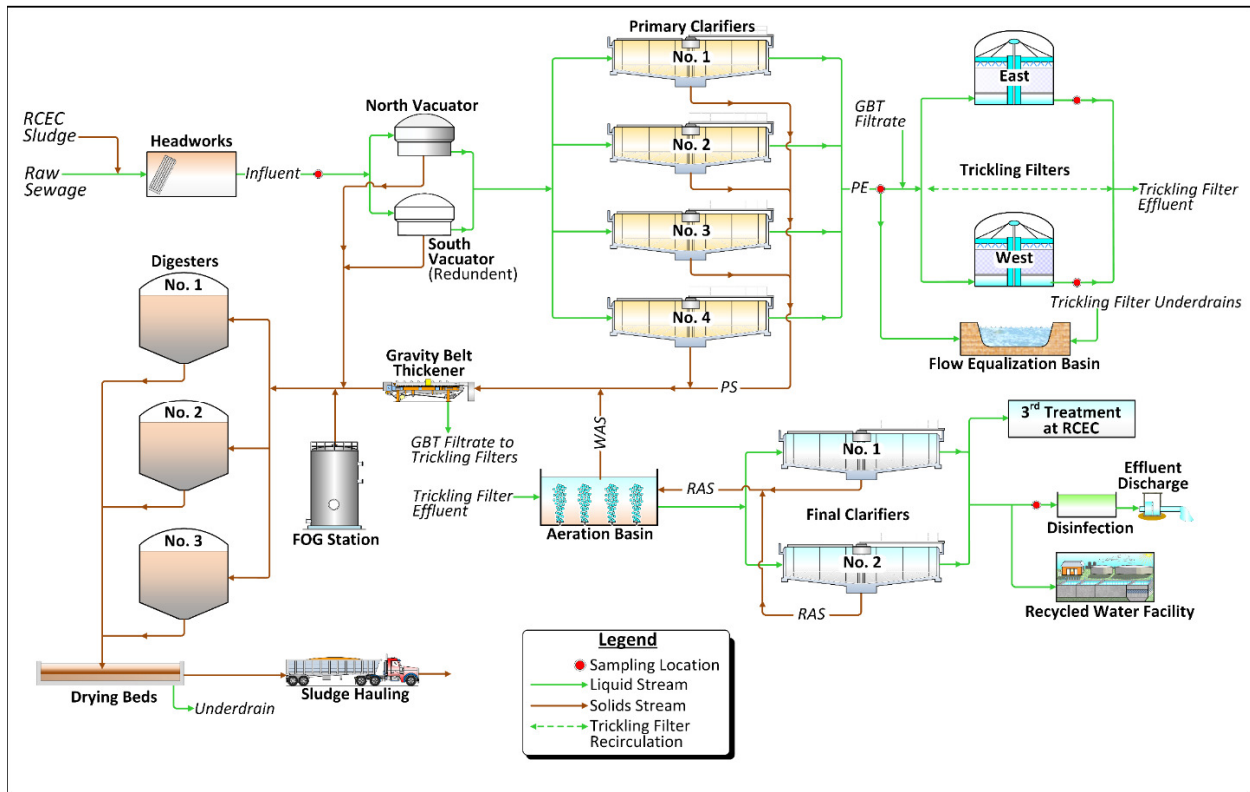
## OLSD Plant – Sampling Locations

**PLANT  
INFLUENT  
SAMPLE POINT**



**PLANT  
EFFLUENT  
SAMPLE POINT**

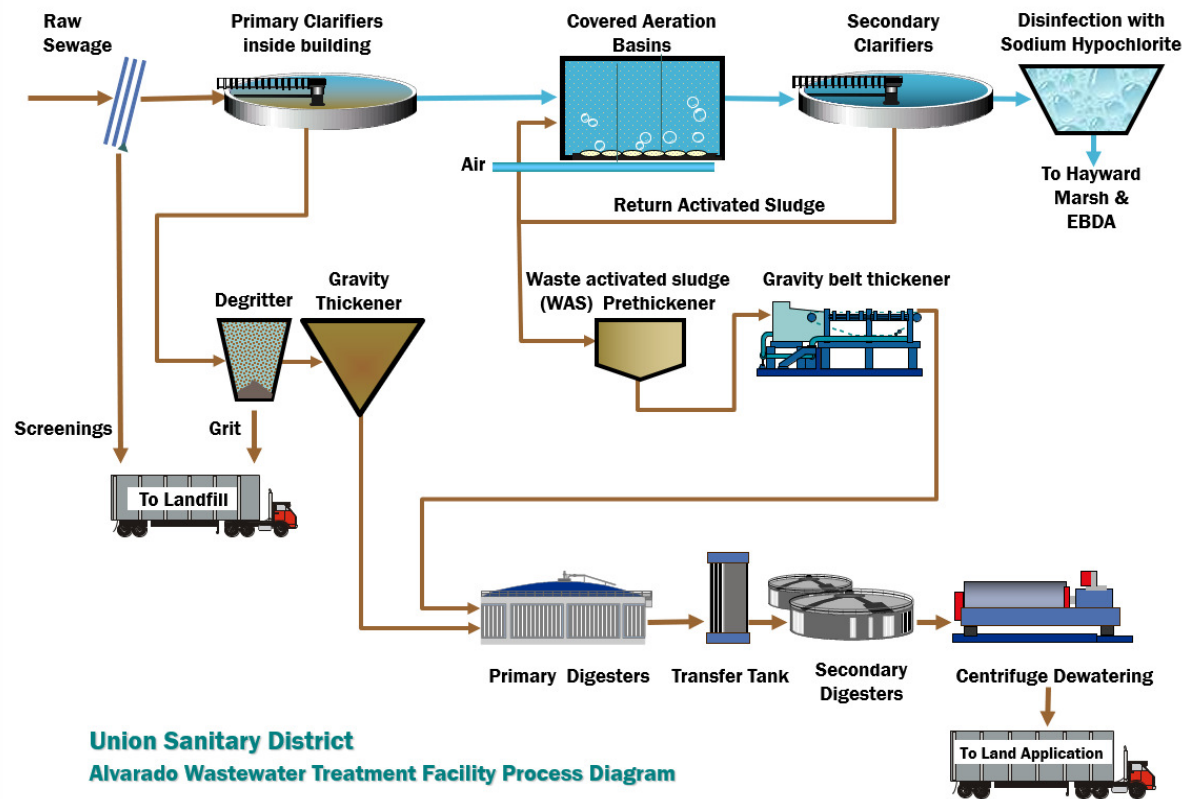
## Hayward Plant – Process Flow Diagram



## Hayward Plant – Sampling Locations



## USD Plant – Process Flow Diagram





## 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 2021	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 2021	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 2021	Updated annually by EBDA O&M Manager	No major changes planned for 2021.	Performed annually
Wastewater Facilities Status Report	Jan 2021	EBDA continues to implement a comprehensive Replacement and Renewal Program. The Authority has an Asset Management Plan that covers all critical equipment. The plan was recently updated and will be reviewed semi-annually by the EBDA General and O&M Managers.	<p>In 2020, EBDA completed the following projects:</p> <ul style="list-style-type: none"> <li>Replacement of the Motor Control Center at the Hayward Effluent Pump Station (HEPS). <ul style="list-style-type: none"> <li>Constructed a pond influent flow dissipater structure</li> <li>Installed piping from the pump station to the dissipater structure</li> <li>Installed new valves and motorized valve actuators</li> <li>Installed an access platform around the existing generator</li> <li>Installed stairs into the new MCC Building</li> <li>Upgraded pipe coatings</li> <li>Repaved the existing site</li> <li>Installed new perimeter fencing</li> </ul> </li> <li>EBDA Office Repairs</li> <li>Redundant back-up power for the Oro Loma Effluent Pump Station (OLEPS)</li> <li>OLEPS Water System Upgrade</li> <li>OLEPS Paving Improvements</li> </ul> <p>In 2021, the Authority is continuing work on the following upgrades to the EBDA system:</p> <ul style="list-style-type: none"> <li>Marina Dechlorination Facility (MDF) Automation Upgrades</li> <li>OLEPS Hypo System Automation</li> <li>OLEPS Main Electrical Switchboard Upgrade</li> <li>Radio Communications Upgrades</li> </ul>	<p>Anticipated Completion:</p> <p>MDF Automation Upgrades, December 2021</p> <p>OLEPS Hypo System Automation, April 2021</p> <p>OLEPS Main Electrical Switchboard Upgrade, December 2021</p> <p>Radio Communications Upgrades, June 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: Inspecting and replacing Hypo pump tubing, Cleaning Filter press belt with chemical, Starting or switching thickening processes, EQ pump oil drip adjustment, Plant genset fuel transfer, Manual transfer to backup generator. 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/Castro Valley 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 were completed as expected in advance of start-up in Summer 2020.	The District has developed a computer-based training program for the 25 unit processes in the treatment plant (including the EBDA pump station). Staff will continue to train on the modules.	Ongoing
Contingency Plan	December 2019	Management team completed its review and updated document to reflect changes in contact information or equipment/facility changes.	Continue to make updates as needed, at least annually.	January 2021
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 2021		<p>The District continues to execute on its planned 5-Year, \$85.5M capital program. The program includes extensive sewer pipe renewal (1.5% of system/year) and Digester Construction in 2025.</p> <p>In 2019, the District applied for \$25M in financing from the State Revolving Fund. In 2020, the District applied for a second \$25M SRF loan. The District has received a preliminary award of the 2019 application. The District plans to borrow between \$30-\$40M to replace a minimum of 40 miles of pipe in the next 10 years.</p>	10-Year Capital Plan (Updated December 2020)

## Hayward Water Pollution Control Facility

REPORTS	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	19 SOPs were written or updated in 2020. ETF flush, Derag Grit Classifier, A Brief Guide to SCADA Tags, VA/TA, Cogen Fire Alarm Sensor Cleaning, HEPS Generator PM Procedures, Chlorine Analyzer Sample Pump Backflush, Wrench sizes, Effluent Channel Flush to Ponds, Procedure for Hypo Delivery, Turbidimeter, Troubleshooting HEPS Pumps, Verifying Backup Power for Hypo Station, HEPS Station Checklist, Hypo Station Checklist, Cleaning Wet Pit at South PC, Cleaning New TSS Analyzer, Residual Chlorine Titration and Analyzer Calibration, Transferring Hypo Between Storage Tanks. The review of SOPs and O&M will be done as needed throughout the year of 2021.	SOP's and O&M sections are reviewed periodically and updated no less than on an annual basis. Updates occurred throughout 2020.
Contingency Plan	January 2021	The entire plan is reviewed by the WPCF manager with updates and edits made by the Senior Secretary.	Continue to make updates as needed.	A thorough and comprehensive review is completed annually in January. Emergency contact & Personnel phone lists are kept up-to-date.
Spill Prevention Plan	January 2021	Plan reviewed by WPCF Manager every January. Changes made by Senior Secretary.	Make updates as needed.	Spill Prevention Plan was reviewed in January 2020.

REPORTS	REVIEW DATE	REVIEW PROCEDURES	PLANNED ACTIONS	SCHEDULE
Wastewater Facilities Status Report	Jan 2021	<p>The phase II Facilities Plan was completed in 2020.</p> <p>The City will implement projects as recommended in the 2020 Phase II Facilities Plan.</p>	<p>Planned for 2021:</p> <ul style="list-style-type: none"> <li>• Construction of the Headworks bar screen project began in 2020 and will be complete in 2021.</li> <li>• The Membrane Recycled Water Treatment system was completed in 2020 and awaiting permit to operate. When it is permitted the treatment system will have a capacity of 5 million gallons per day with an initial service demand of roughly 300K gallons per day</li> <li>• Construction of Effluent Pump Station electrical building, MCC and dissipater structure was completed in 2020. The replacement of the effluent pumps is anticipated in 2021.</li> <li>• Design of the new 12KV switchgear update project will begin in 2020 and be completed and ready for bid in early 2021.</li> <li>• There are several elements of the Phase Two WPCF Improvements that have been incorporated into the Sewer Replacement &amp; Sewer Improvement CIP's which will move forward in year 2020.</li> </ul>	10-year Master Plan CIP planning changes are made every year in July with mid-year adjustments made in January/February

## 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 2020	Plant Manager reviews and updates the Contingency Plan annually.	None. Contingency Plan was updated in December 2020.	Complete next review by December 2021.
Spill Prevention Plan	December 2020	Spill Prevention Plan is incorporated into our Contingency Plan and is reviewed at the same time.	None. Spill Prevention Plan was reviewed in December 2020.	Complete next review by December 2021.
Wastewater Facilities Status Report	December 2020	<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>2020 Projects Completed/in-progress:</p> <ul style="list-style-type: none"> <li>• New Anaerobic Digester #7 (Construction in Process.)</li> <li>• Digester # 2 Rehabilitation (Repair in progress)</li> <li>• Headworks 3<sup>rd</sup> Bar Screen (Construction Complete)</li> <li>• Alvarado Pump Station (Construction in Process.)</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>2021 Projects Planned:</p> <ul style="list-style-type: none"> <li>• Standby Power Upgrade. (Complete Design)</li> <li>• Digester # 1 Rehabilitation</li> <li>• ETSU:</li> <li>• Aeration Basin Modification (Complete Design)</li> <li>• Campus relocation (Complete Design)</li> <li>• New Secondary Clarifiers. (Commence Design.)</li> <li>• New Effluent Pump Station (Commence Design)</li> <li>• Alvarado Pump Station (Construction Ongoing)</li> </ul>	<p>20-year CIP annual update in June.</p> <p>Master Plans:</p> <ul style="list-style-type: none"> <li>• Newark Basin MP 2019</li> <li>• Irvington Basin 2021</li> <li>• Pump Station Asset Condition Assessment 2021</li> <li>• Plant Asset Condition Assessment 2024</li> <li>• Plant Solids System/Capacity Assessment 2024</li> <li>• Alvarado Basin 2025</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:

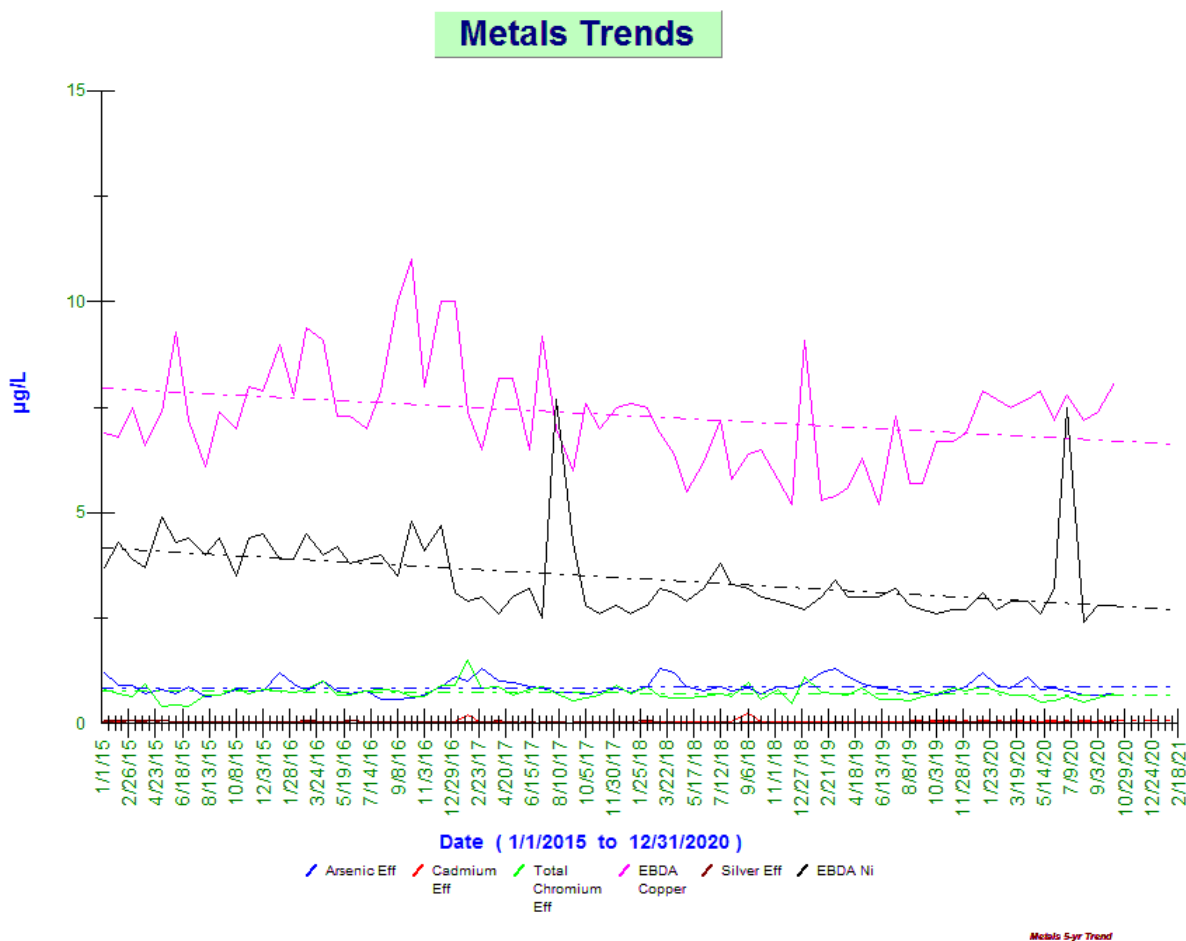
<https://bacwa.org/wp-content/uploads/2021/01/BACWA-NPDES-Permit-Letter-2021-wSFEI-Attach-2021-01-14.pdf>

## 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 2020 data.

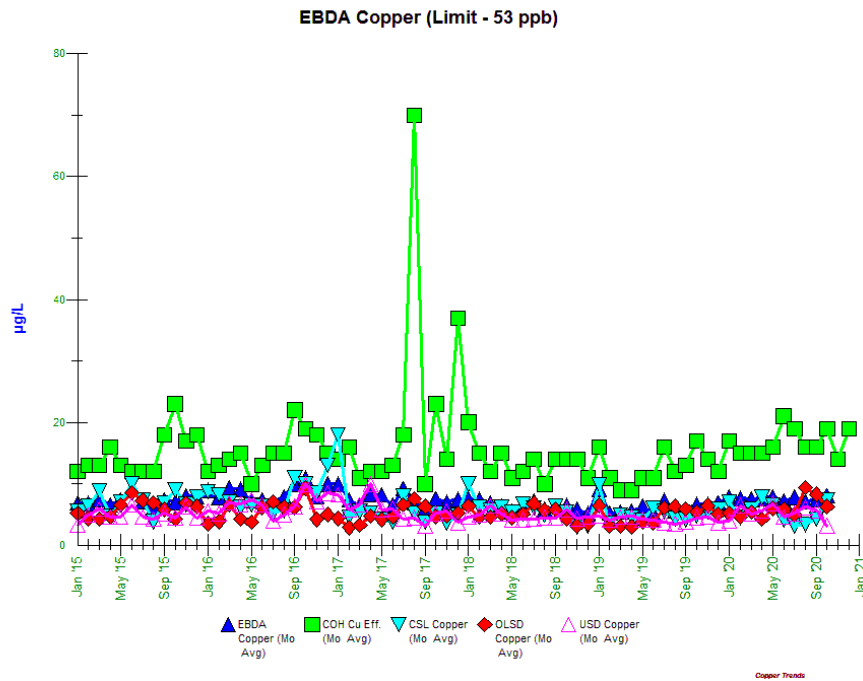
EBDA monitors monthly for metals and cyanide. Cyanide is rarely detected. As shown in Figure 2, five years of metals data continue to show flat or downward trends.

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

