THE METROPOLITAN WATER DISTRICT OF SOUTHERN CALIFORNIA

Board Report

Water System Operations Group

- **Operations Monthly Activities Report January 2024**

Summary

This monthly report for the Water System Operations Group provides a summary of activities for January 2024 in the following key areas:

- Enhance Workforce Safety
- Develop Workforce and Prepare Employees for New Opportunities
- Provide Reliable Water Deliveries and Manage Storage
- Develop New Supplies and Optimize System Flexibility
- Manage Power Resources and Energy Use in a Sustainable Manner
- Protect Source Waters and Ensure Water Quality Compliance
- Optimize Water Treatment and Distribution
- Protect Infrastructure and Optimize Maintenance
- Ensure Power and Environmental Regulatory Compliance
- Enhance Emergency Preparedness and Response
- Prepare for Future Legislation and Regulations
- Advance Education and Outreach Initiatives
- Engage with Member Agencies and Other Stakeholders on Technical Matters

Purpose

Informational by the Water System Operations Group on a summary of key activities for the month of January 2024

Attachments

Attachment 1: Detailed Report – Water System Operations Group's Monthly Activities for January 2024

Date of Report: February 12, 2024

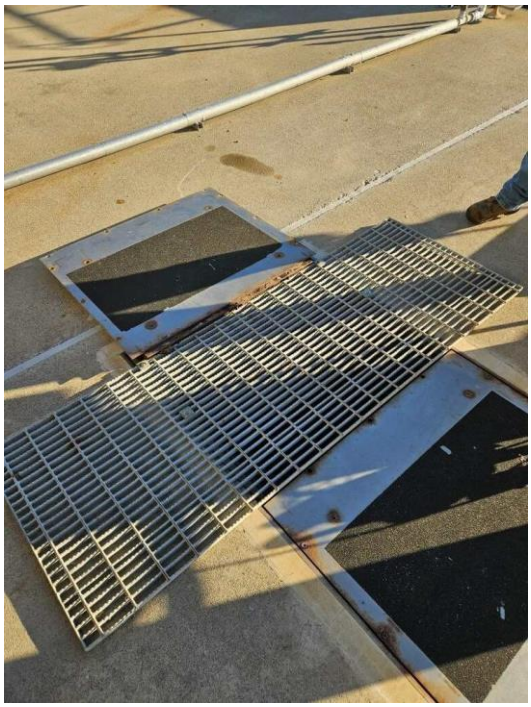
Operations

Water System Operations

Core Business Objectives

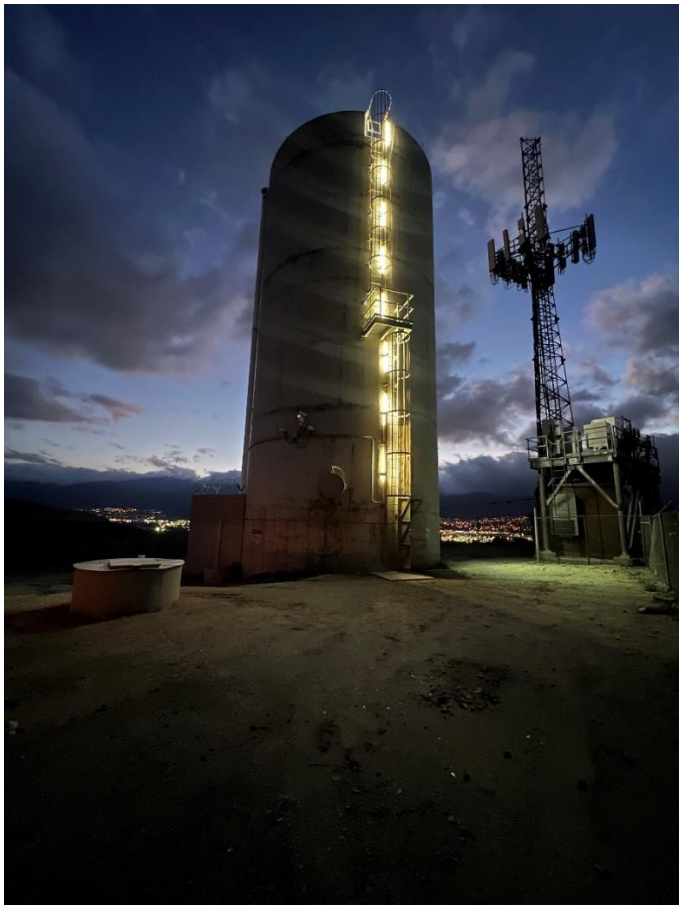
Enhance Workforce Safety

During the Diemer plant shutdown, a temporary handrail system was constructed to provide staff with a safe entry point into a confined space area. The entry point was staffed 24/7 to log all employees who entered or exited the confined space. Staff also installed temporary gratings over the reservoir inlet channel to provide visual monitoring and enhance safety.



Temporary handrail and gratings installed for worker safety

To enhance worker safety at the hydroelectric power plants located along the Lower Feeder between Lake Mathews and the Diemer plant, staff installed lighting on the power plant towers to be able to safely climb the structure at night. The towers are often accessed at night to make flow changes, inspect gate positions, and install clearance points for shutdown activities.



Temescal Hydroelectric Plant tower lit up with the sun setting in the west

Develop Workforce and Prepare Employees for New Opportunities

In January, seven plant operators representing four water treatment plants participated in the inaugural T5 operator certification training class. At least one T5 certified operator is required to oversee the operation of each treatment plant. This prestigious certification is currently held by 18 staff at Metropolitan. Internal training was developed to assist and encourage more employees to acquire the T5 certification. This will provide Metropolitan with additional expertise and redundancy to ensure regulatory compliance and proper oversight of the treatment plants.

T5 Training Class participants (from left to right): Jeff Potter, Cris Zuniga, Matt Cloward, Brandon Morse, Ryan Jordan, Scott Walezonia, and Jonathan Chumpitaz

Provide Reliable Water Deliveries and Manage Storage

Metropolitan member agency water deliveries were 70,200 acre-feet (AF) for January, with an average of 2,260 AF per day, about 1,300 AF per day lower than in December. Metropolitan suspended Cyclic and Conjunctive Use Program deliveries in January to preserve State Water Project supplies. Treated water deliveries were 13,400 AF lower than in December, for a total of 36,700 AF, or 52 percent of total deliveries for the month. The Colorado River Aqueduct (CRA) pumped a total of 60,000 AF in January. Metropolitan maintained a four-pump flow along the CRA for most of the month. State Water Project (SWP) imports averaged 600 AF per day, totaling about 19,800 AF for the month. The target SWP blend is 0 percent for the Weymouth, Diemer, and Skinner plants.

On December 1, 2023, the Department of Water Resources issued an initial 10 percent SWP Allocation for 2024. The 10 percent SWP Allocation when combined with Colorado River supplies, does not provide the region with sufficient water to meet demands, and Metropolitan would need to rely on stored supplies if the allocation continues to remain low. Water supplies continue to be managed according to Water Surplus and Drought Management (WSDM) principles and operational objectives with an emphasis on positioning SWP supplies to meet future demands in the SWP-dependent area. Metropolitan continued deliveries to Desert Water Agency and Coachella Valley Water District.

With the low initial SWP Allocation, Metropolitan minimized its use of Table A supplies this month and will adapt its operations based on supply conditions as the year progresses.

Develop New Supplies and Optimize System Flexibility

Staff stabilized operations at the Napolitano Innovation Center demonstration facility, ensuring that the tertiary membrane bioreactor (MBR) could achieve more than 60 percent nitrogen removal in a nitrifying-denitrifying mode, mimicking earlier performance observed during pilot testing by the Los Angeles County Sanitation Districts. Staff also continued developing the tertiary MBR test plan in preparation for baseline testing to begin in February. A filtrate pump on the MBR system was replaced after internal pump seals failed and the pump seized, limiting the plant to half capacity for two weeks.

Staff repairing a pump at the Napolitano Innovation Center demonstration plant

Manage Power Resources and Energy Use in a Sustainable Manner

Energy markets in January 2024 experienced a brief natural gas supply and pricing event in the second week but remained broadly stable. Natural gas prices were generally in the seasonally normal $5–10 per Metric Million British Thermal Unit (MMBtu) range, with electricity prices in the CAISO market following suit, averaging in the $40–60 per megawatt-hour (MWh) range. Prices did briefly spike into the $200–300/MWh range because of extreme cold weather in the Pacific Northwest but had little effect on overall CRA energy costs.

CRA pumping averaged four pumps in January, driven by reduced demand and nearly full storage levels at Lake Mathews, helping to keep CRA pumping costs trending below budget. CRA pumping costs for January were about $6 million. The CRA energy cost budget for fiscal year 2023/24 is $82.6 million, with the current cost forecast significantly lower at $50 million because of reduced pumping and lower forward cost curves. Monthly costs are forecasted to increase after the scheduled CRA shutdown in March as the aqueduct returns to a higher scheduled flow and energy prices increase as summer approaches.

Daily generation output from Metropolitan's small hydroelectric plants averaged around 6 MW during January, for a total energy output of about 4,400 MWh. Metropolitan's solar facilities, totaling 5.4 megawatts of capacity, generated approximately 600 MWh in January.

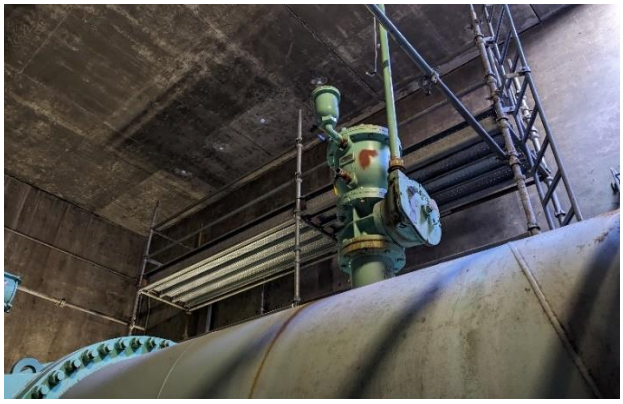
Protect Source Waters and Ensure Water Quality Compliance

Metropolitan complied with all water quality regulations and primary drinking water standards during December 2023.

Optimize Water Treatment and Distribution

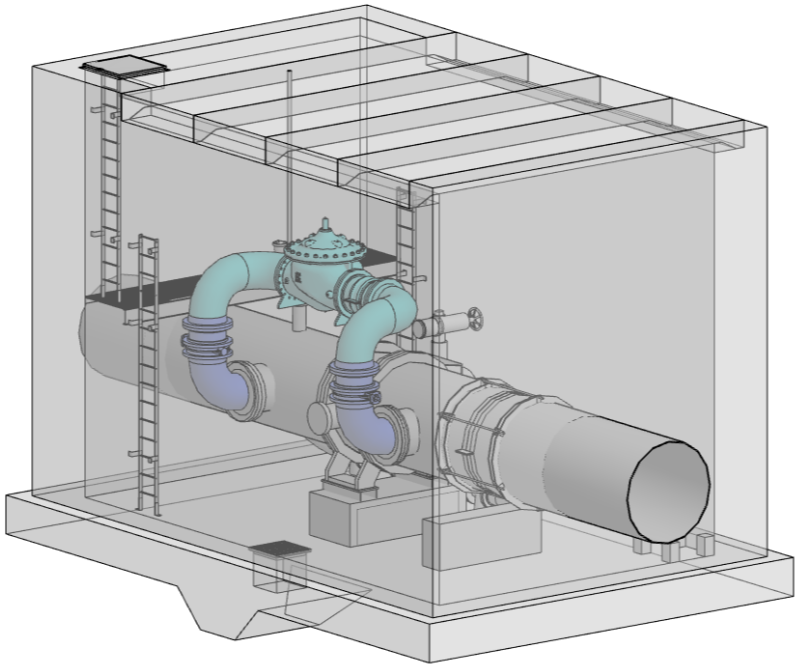
This month, in response to the low initial SWP allocation, the SWP target blend entering the Weymouth plant was lowered from 80 percent to zero percent. The SWP blend for the Diemer plant remained below 10 percent. The SWP target entering Lake Skinner was lowered to zero percent in January, and the SWP blend leaving the lake decreased gradually from 60 percent to below 40 percent. Flow-weighted running annual averages for total dissolved solids from December 2022 through November 2023 for Metropolitan's treatment plants capable of receiving a blend of supplies from the SWP and the Colorado River Aqueduct were 385, 442, and 490 milligrams per liter (mg/L) for the Weymouth, Diemer, and Skinner plants, respectively.

Staff began work to install a 24-inch Cla-Val pressure control valve inside the OC-88 sectionalizing valve structure along the Allen McColloch Pipeline (AMP). The valve installation is being performed for improved hydraulic control of the AMP, in response to a recent inspection of this prestressed concrete cylinder pipeline. Staff coordinated with Engineering Services and Safety & Regulatory Training (SRT) to remove the structure roof slabs. The existing lifting eyes were compromised, requiring new through-bolt style lifters to be procured and installed. The roof slabs are 6' wide and 23' long, weighing 23,000 lbs.



Inside view with scaffolding installed (left) and 100-ton crane setup for lid removal (right) at OC-88 valve structure along the AMP

Staff installed pipe elbows, isolation valves, and blind flanges for a bypass line at the OC-88 sectionalizing valve on the AMP during the Diemer plant shutdown. The final piping connections will be installed next month. The new bypass line will allow flexibility to operate the AMP at a lower pressure.



3D rendition of the planned final bypass pipe system along the AMP

Staff installed a new instrumentation panel at the Palos Verdes Reservoir to monitor water quality in the distribution system. The new water quality panel equipment uses a reagent-less chlorine probe. The self-cleaning and reagent-less equipment requires less maintenance and will reduce costs associated with labor, equipment parts, and reagents. Staff repaired the total organic carbon (TOC) analyzer, installed an uninterruptible power supply (UPS) system, and improved the instrument wiring to enhance use and accessibility.

Old (left) and new (right) water quality panel at the Palos Verdes Reservoir

To provide a safe and reliable system for operators to isolate and secure the electrical supply to chemical feed valves at the fluoride and polymer tank farms at the Weymouth plant, staff installed lockable rotary disconnect switches for ten individual valves and modified the control wiring. This allows operators to de-energize and secure each valve individually without causing a loss of chemical feed and process upset.

Staff terminating wiring and securing control panel at chemical tank farms at the Weymouth plant

Protect Infrastructure and Optimize Maintenance

The La Verne Shops received an urgent request to manufacture a new Venturi flowmeter and its associated adapter spools and thimbles for a service connection on the Santa Monica Feeder. An inspection was conducted that revealed significant wear to the existing meter. This resulted in the need to quickly manufacture, calibrate, and install the components. The meter was subsequently installed and is currently in operation.



Masking for initial blast (left), fitting of flanges to meter (center) and completed welding of flanges to meter (right) at the La Verne Shops


Machining of 28” flange (left), and welding of downstream (center) and upstream (right) spools at the La Verne Shops

Operations (continued)

During the Diemer plant shutdown, staff replaced batteries on the Remote Terminal Units (RTUs) throughout the plant and replaced an Uninterruptible Power Supply (UPS) unit for the ozone process. Staff also performed repairs on a chlorine solution line in the combined filter effluent channel. Overall, several critical repairs and maintenance were performed during this full-plant shutdown.

Staff working on RTUs and UPS during the 3-day Diemer plant shutdown

Staff repairing chlorine diffuser inside the combined filter effluent channel at the Diemer plant

Operations (continued)

Staff completed the coatings application on the Oak St. Pressure Control Structure (PCS) near the Palos Verdes Reservoir. The PCS provides crucial flow control in the Central Pool and also supplies an agency service connection. Oak St. PCS consists of seven flow control lines ranging in size from 16 to 30 inches. Staff prepared all surfaces by removing previous coatings using white metal blast cleaning and then applied an industrial coating system to maintain long-lasting reliability against corrosion.

Oat St. PCS pipe system before (left) and after (right) recoating

Operations (continued)

The harsh environment and extreme temperatures of the desert reduce the service life of equipment. Consistent maintenance ensures that Metropolitan obtains the maximum life expectancy from our assets. Staff refurbished a 20-foot jibboom for a mobile crane to extend its service life.

Refurbishment of a 20-foot jibboom for a mobile crane at a desert facility

Staff installed a rebuilt exciter rheostat on a CRA main pump motor. The rheostat adjusts voltage to create the 12,500-horsepower needed to operate the pump.

Staff installing a DC rheostat on a CRA pump motor

Staff performed switching to remove a transformer bank from service and to replace a high-voltage bushing on the 6.9kV transformer at Intake pumping plant.

Staff performing switching in the 6.9kV switch house at Intake pumping plant

Staff removed dirt and debris from a blowoff structure on the Upper Feeder in preparation for a February shutdown. Staff removed 50 tons of material and repaired storm damage in the earthen-lined channel that conveys water from the blowoff to the Los Angeles County storm drain system.

Staff removing debris from an earthen channel (left) and repairing erosion on a slope (right) along the Upper Feeder

Ensure Power and Environmental Regulatory Compliance

Metropolitan initiated its annual self-certification for the calendar year 2023, attesting to compliance with mandatory electric reliability compliance requirements as promulgated by the North American Electric Reliability Corporation (NERC) in January 2024. Metropolitan is subject to 39 NERC standards with 135 unique requirements. The Western Electricity Coordinating Council (WECC) is the Regional Entity tasked with enforcing NERC standards. For calendar year 2023, WECC requires Metropolitan to self-certify for the following two standards:

- TPL-001-5.1 R1, R2–Transmission Planning
- PRC-023-4 R2–Transmission Relay Load ability

The self-certification documentation is due to be submitted to WECC on March 1, 2024. Following best industry practices, Metropolitan reviews and ensures compliance with all applicable NERC standards annually.

Enhance Emergency Preparedness and Response

The Water Quality Incident Command Post conducted a tabletop exercise on January 22, focused on assigned roles and responsibilities during a simulated elevated turbidity event. Regular exercises and scenario role-playing ensures that staff are prepared to respond to emergencies and all unplanned operational events.

Staff continued the electrical improvement project connecting two substations at the Water Quality Laboratory. The improvement provides a connection to two substations and increases power reliability in the event of an emergency or other power loss to one of the substations.

Staff installing new electrical (left) and completed conduit installation (right) at the Water Quality Laboratory

Prepare for Future Legislation and Regulations

On December 19, the State Water Resources Control Board adopted its proposed Direct Potable Reuse regulations. The regulations provide the regulatory framework by which highly treated recycled water can be introduced either immediately upstream of a water treatment plant or directly into a public water system. Metropolitan commented with the Los Angeles County Sanitation Districts on the proposed regulations, as the regulations govern the DPR options for Pure Water Southern California.

On December 21, staff sent a comment letter supporting EPA's second draft guidance on how to apply the "functional equivalency" test found in the Supreme Court's County of Maui v. Hawaii Wildlife Fund decision. Under the Maui decision, the Supreme Court set forth seven factors to determine whether a NPDES permit is required when a point source pollutant discharged to groundwater has the same "functional equivalency" as a direct discharge to a navigable water. Metropolitan operations are not expected to be affected by the new guidance, though the guidance is expected to help protect source water quality throughout the Colorado River Basin.

On December 22, staff provided comments on Division of Drinking Water's new "Clearinghouse Annual Inventory Report (CAIR)." The CAIR consolidates a section of the Electronic Annual Report (eAR) and 2023 Drought and Conservation Reporting Order into a centralized location for public water systems to report water supply and demand data. Staff requested that three of Metropolitan's small water systems be removed from the drought reporting requirements under CAIR and offered technical fixes to help streamline data reporting. The CAIR went into effect January 1, 2024. Metropolitan staff were asked by DDW to serve on a working group to help streamline the reporting requirements under CAIR.

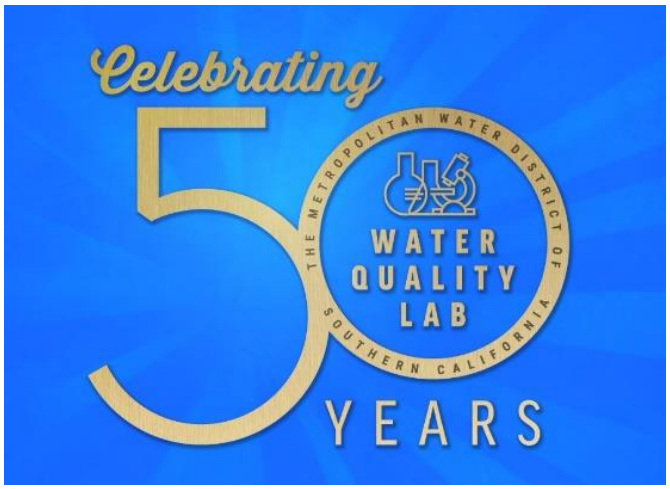
On December 26, staff submitted comments on CARB's Zero-Emission Forklift Rulemaking package. The proposed rule prohibits fleet operators from purchasing new propane or gasoline-fueled Class IV (any lift capacity) and Class V forklifts (lifting capacity up to 12,000 lbs.) starting in 2026. Metropolitan operates approximately 30 forklifts subject to the requirements of the proposed regulation. Metropolitan's comments focused on streamlining the forklift reporting requirements and modifying the low-use forklift purchasing exemption. CARB anticipates adopting the rule in Summer 2024.

On January 5, in accordance with a Consent Decree in the NRDC v. EPA case, the court announced that EPA will be required to propose a maximum contaminant level goal ("MCLG") and a national primary drinking water regulation ("NPDWR") for perchlorate by November 21, 2025, and publish a final MCLG and NPDWR by May 21, 2027. Previously, staff has commented in support of EPA promulgating a federal perchlorate standard to protect public health and help with long-term remediation of perchlorate contamination in the Colorado River Basin. Staff will continue to monitor and engage in any future regulatory activity with respect to perchlorate.

On January 8, the California Association of Mutual Water Companies, Community Water Systems Alliance, and the California-Nevada Section of the American Water Works Association submitted a letter in response to the Office of Environmental Health Hazard Assessment's (OEHHA) request for comments on the Draft Proposed Health-Protective Concentration for the Noncancer Effects of Hexavalent Chromium in Drinking Water. Staff provided support in developing the letter, which requested that OEHHA explain the rationale for changing uncertainty factors that make the calculated health-protective concentration much more stringent and questioned the potential impact of a lower Maximum Contaminant Level on affordability, particularly for low-income consumers.

Advance Education and Outreach Initiatives

Metropolitan's Water Quality Section will celebrate its 50th anniversary in 2024 with a series of events to mark this important milestone, in parallel with recognizing the 50th anniversary of the federal Safe Drinking Water Act. In January, staff completed designing commemorative displays for installation in the lobby of the Water Quality Laboratory in La Verne.



Metropolitan's Water Quality and Research Branch was founded in 1974

Engage with Member Agencies and Other Stakeholders on Technical Matters

On January 9, staff hosted Peter Grevatt, the Executive Director of the Water Research Foundation, for a meeting at the Water Quality Laboratory to discuss potential partnering, collaboration, research grant opportunities, and Metropolitan's long-standing support as one of the Foundation's utility subscribers.

Executive Director of the Water Research Foundation, Peter Grevatt, describes research funding opportunities to Metropolitan staff during a January 9 meeting

Operations (continued)

Invasive quagga mussels were detected for the first time in Idaho's Snake River in September 2023. On January 18, staff provided an overview of Metropolitan's experience managing quagga mussels in the Colorado River Aqueduct system to the Idaho Water Users Association as part of their effort to develop control and mitigation measures.

On January 24, the State Water Resource Control Board's Division of Drinking Water conducted staff training at the Weymouth facility, with tours of the plant and the Water Quality Laboratory providing background and insight into treatment plant operations and water quality monitoring.

The Weymouth plant treatment process being explained to Division of Drinking Water staff

Staff describing water quality monitoring and testing to representatives from the Division of Drinking Water

Staff met with Central Coast Water Authority representatives on January 29 to share and compare experiences of managing nitrification in distribution systems.