



THE METROPOLITAN WATER DISTRICT
OF SOUTHERN CALIFORNIA

Board Report

Water System Operations Group

• Operations Monthly Activities for June 2024

Summary

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

- Enhance Workforce Safety
- Ensure Accurate Billing and Support Revenue Generation
- 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
- Optimize Asset and Maintenance Management
- 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 June 2024

Attachments

Attachment 1: Detailed Report – Water System Operations Group’s Monthly Activities for June 2024

Operations

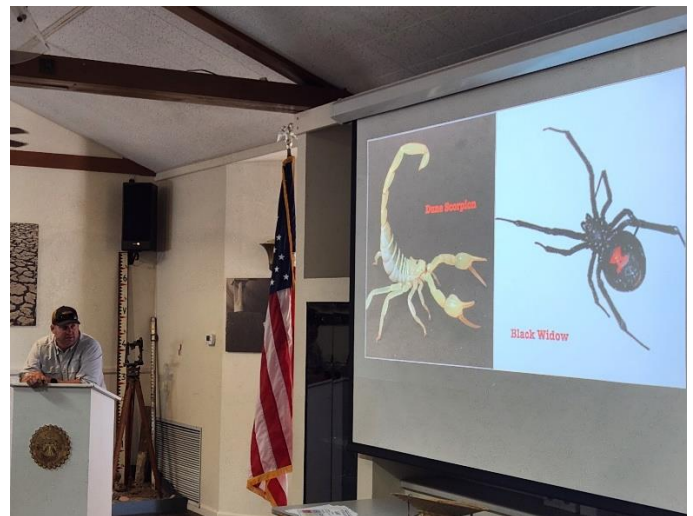


Water System Operations

Core Business Objectives

Enhance Workforce Safety

The Desert section held an all-hands employee safety event at the Gene Camp facility. This event featured speakers and presentations from the Safety Committee, SRT, Security, Environmental, Employee Relations, and Desert management. Demonstrations of new tools and warehouse items were available for review, and the teams were able to spend time collaborating across disciplines in a relaxed, safety-focused environment.



Staff participated in the June Safety Month Event at Gene Camp

Ensure Accurate Billing and Support Revenue Generation

Operations staff is working with Finance, Information Technology, and a consultant team to develop the WINS 2.0 application that will eventually replace the current application for invoicing member agencies' monthly water transactions. Staff has been testing the Automatic Meter Reading and Meter Maintenance modules and has been working with the project group to review various components. This month, workshops began for the new Water Programs module. The Water Programs module, along with the application's Rules Engine, will allow for an efficient setup and invoicing of water delivered under Metropolitan's various water programs.

Provide Reliable Water Deliveries and Manage Storage

Metropolitan member agency water deliveries were 101,600 acre-feet (AF) for June with an average of 3,400 AF per day, which was about 300 AF per day higher than in May. Metropolitan continued delivering water to the Cyclic and Conjunctive Use Programs. Treated water deliveries were 6,300 AF higher than in May for a total of 58,500 AF, or 58 percent of total deliveries for the month. The Colorado River Aqueduct (CRA) pumped a total of 96,000 AF in June. State Water Project (SWP) imports averaged 2,000 AF per day, totaling about 60,000 AF for the month. The target SWP blend is 25 percent for Weymouth, Diemer, and Skinner plants.

Metropolitan expects to have sufficient SWP and Colorado River supplies to meet demands in 2024. Water continues to be managed according to Water Surplus and Drought Management (WSDM) principles and operational objectives with an emphasis to position SWP supplies to meet future demands in the SWP-dependent area. Metropolitan has resumed deliveries to Desert Water Agency and Coachella Valley Water District because of the improved supply conditions. Metropolitan is continuing to minimize the use of Table A supplies this year to improve SWP carryover for next year.

Develop New Supplies and Optimize System Flexibility

During June, staff continued baseline monitoring for tertiary membrane bioreactor (MBR) nitrification-denitrification testing at the Pure Water Southern California Napolitano Innovation Center (NIC) demonstration plant and maintained stable MBR and reverse osmosis (RO) process performance at target operating conditions. The carbon dosing system was optimized to achieve MBR filtrate nitrate targets. Comprehensive monitoring at multiple process locations was completed to characterize performance of the treatment train. Metropolitan's SCADA personnel enhanced the plant's control system to enable automatic flow variation, aiming for a more precise simulation of full-scale operations while initiating stress tests on the bioreactors.



Electrical panel maintenance (left) and preparing ultrafilters for microbial sampling of the MBRs (right) at the NIC demonstration facility

Manage Power Resources and Energy Use in a Sustainable Manner

Energy markets in June trended upward because of the onset of summer weather but still reflect relatively plentiful natural gas supplies. Natural gas prices remained in the \$2–5 per Metric Million British Thermal Unit (MMBtu) range. Renewable generation remained strong; however, increasing load caused overall electric power prices to increase, resulting in fewer hours with negative electricity prices. Careful scheduling of CRA load and Metropolitan’s USBR generation allocations at Hoover and Parker did allow for several weeks in June with a net refund from the California ISO for CRA energy.

The California ISO hosted its annual summer readiness meeting on May 23, 2024. The CAISO reported that the system has added significant bulk energy storage (BES) capacity since the previous year, and they do not anticipate a significant risk of electric system disruptions for the upcoming summer operating season. Metropolitan resumed reporting weekly to the CAISO on the amount and duration of short-term load reduction available by reducing pumping at Gene and Intake pumping plants.

The CRA resumed full operation following the March shutdown, averaging about 7 pumps. Overall CRA pumping costs are trending below budget. The CRA energy cost budget for fiscal year 2023/24 is \$82.6 million; the current cost forecast for the year is significantly lower at \$41.7 million, because of reduced pumping earlier in the year and lower prices than forecast throughout the year. As we begin the next fiscal year, monthly costs are forecast to increase as energy prices increase for the summer.

Protect Source Waters and Ensure Water Quality Compliance

Metropolitan complied with all water quality regulations and primary drinking water standards during May 2024.

During the week of June 10, an external auditor assessed operations at the Water Quality Laboratory for compliance with drinking water laboratory accreditation requirements, ahead of a formal regulatory audit later in the year. The assessment showed that the laboratory conforms to required standards and is well-prepared for the regulatory audit. The auditor also provided mandatory annual Ethics and Data Integrity training for Water Quality staff.

Optimize Water Treatment and Distribution

The SWP target blend entering the Weymouth and Diemer plants was 25 percent during June. The SWP target blend entering Lake Skinner was 25 percent, while the blend leaving Lake Skinner was close to 20 percent. Flow-weighted running annual averages for total dissolved solids from April 2023 through March 2024 for Metropolitan's treatment plants capable of receiving a blend of supplies from the SWP and the CRA were 358, 445, and 466 mg/L for the Weymouth, Diemer, and Skinner plants, respectively.

Staff recently completed building a prototype sodium hypochlorite injection skid that can be deployed in multiple areas when chlorine boosting is needed to combat nitrification within the distribution system. This is a project that was done quickly to be able to be deployed this summer to assist in preventing potential nitrification events, if needed. The effort took coordination between Water Quality, Engineering, and C&D to design and construct. The need for such a system presented itself during last year's significant nitrification event.



Sodium hypochlorite injection skid prototype to manage nitrification in the distribution system

Staff recently installed a new 250 cfs flow orifice plate at the USG-03 service connection, located within the San Gabriel Mountains in Azusa Canyon. The USG-03 service connection branches from the 186-inch diameter Glendora Tunnel that receives raw water from the San Dimas PCS and the Rialto Pipeline downstream of East Branch of the SWP. For this service connection, flows are adjusted using manually installed orifice plates ranging from 25 cfs to 400 cfs. The newly installed 1-inch-thick stainless-steel orifice plate is approximately 54-inches in diameter and will control flow at about 250 cfs, in between the next closest orifice plates that control flow to about 200 cfs or 300 cfs. This new plate improves the ability to match downstream spreading basin capacity to maximize groundwater storage and help protect an SWP-Dependent Area from future droughts.



250 cfs flow orifice plate



Staff installing orifice plate at USG-03 service connection

Operations staff worked with Engineering to complete initial functional testing of two ozone generators at the Jensen plant. This work is part of refurbishment of the ozone generator system and power supply units and will provide Jensen with reliable ozone generation for the next 20 years. The generators will now undergo extended duration testing over the next month to further verify system operations.



Contractor installing new dielectrics for the ozone generators at the Jensen plant

Weymouth electricians replaced two Adjustable Speed Drive (ASD) controllers on the plant's return pumps in Filter Building No. 2. The ASDs were installed in the early 2000s and have recently been experiencing operational failures. The pumps are a critical part of the plant process to recycle the process water and return it to the ozone contactors. Electricians installed the ASDs and connected the wiring. Working with mechanical and control system staff, the work was completed in less than four hours, which allowed the plant to continue operation without any impacts to water quality or capacity.



Terminating cables and programming the new ASDs to control pumps at the Weymouth plant

Protect Infrastructure and Optimize Maintenance

The Desert section requires a specialized workforce to cover a large and geographically remote area of operations. One of these specialized crews is the Powerline Maintenance Team. This team performs high-voltage electrical work on a regular basis to maintain the Desert's legacy electrical transmission and distribution systems. Overhead electrical systems were repaired at Gene pumping plant as they can become damaged by regularly occurring high winds. Staff is trained and well equipped to make these critical repairs in the field.



Staff performing repairs to an overhead electrical bank at Gene Camp

The Desert Aqueduct Maintenance Team completed excavation and grading for a new crane pad at Gene pumping plant. This project was important to gain better access for crane work at the Copper Basin outlet structure. The new pad will allow cranes to be parked closer to the work zone and require less reach for heavy lifts while repairing gates, motors, and other components.



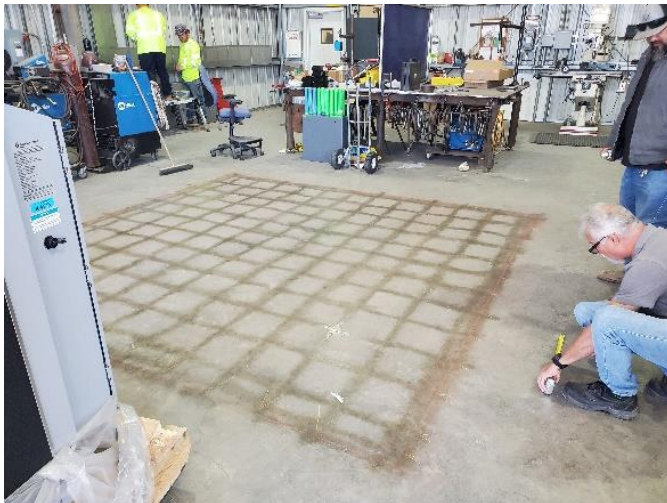
New crane pad for better access to perform maintenance

At the Gene pumping plant, disassembly and repair of the Unit 1 Discharge Valve continues. Before disassembly, an isolator fitting was installed to secure Unit 1 from the delivery line. Staff removed and stored the oil for the actuating mechanism and teardown. Assessment and refurbishment efforts are now in progress.

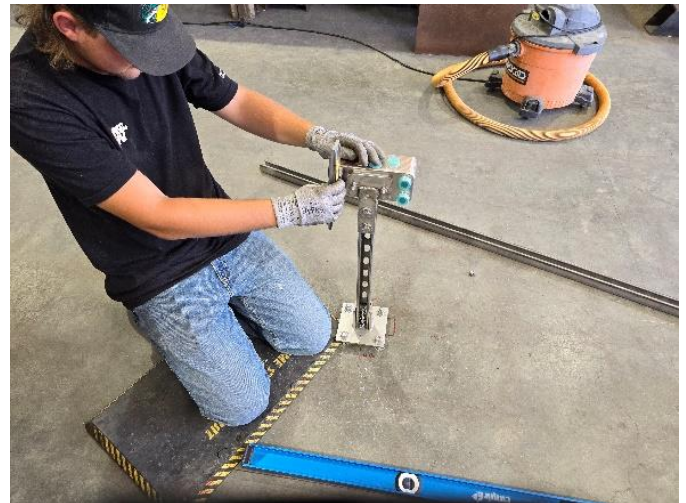


Discharge Valve repair at Gene pumping plant

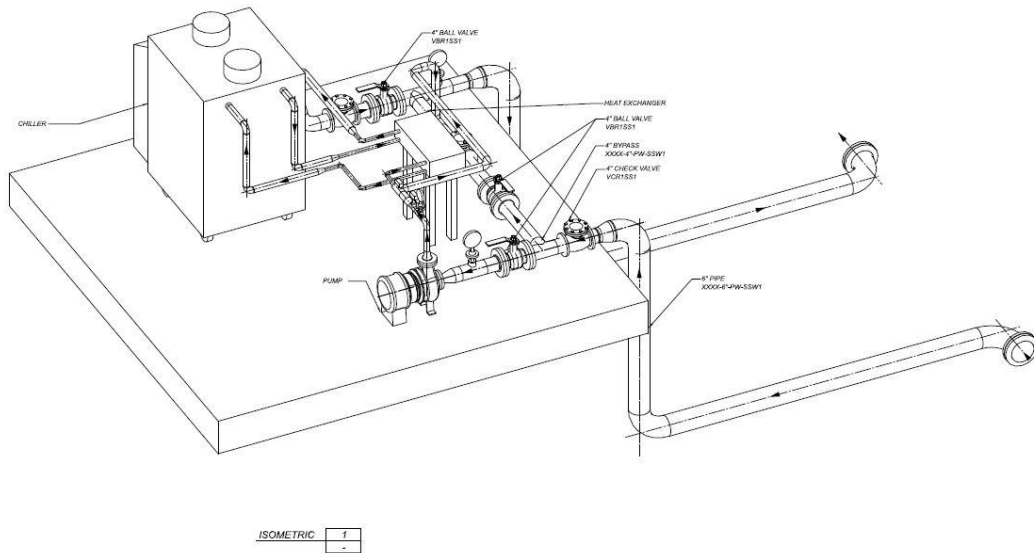
Staff began construction of the Eagle Mountain Village Domestic Water Loop Chiller System. The piping, controls, and components are being pre-assembled at the Lake Mathews facility to improve the efficiency of the system's installation. The system is designed to lower the temperature of the water main loop, which provides potable water to the residences at the facility.



Pad and rebar layout at Lake Mathews shop



Staff assembling chiller components



Chiller Loop Design

The Detention Peak communications site is a vital connection point to ensure reliable communications between the Desert facilities in the east and the Operations Control Center in the west. Redundant systems allow for backup in the event of a unit malfunctioning. One rectifier system recently failed, placing the Detention Peak communication site at a single point of failure. Staff successfully replaced the faulty rectifier system with a new unit, allowing the communication site to maintain the necessary redundancy.



Staff installing the new rectifier system at the Detention Peak communications site

Staff repaired a leaking 2-inch natural gas leak at the Weymouth plant. Staff reported a possible gas leak near the Ozone building. Staff completed the investigation and discovered that a steel riser had excessive corrosion, causing a small natural gas leak.



Staff excavating a gas line using Hydro-Excavation to prevent damage to utilities at the Weymouth plant

The La Verne Shops received a request to refurbish another 42-inch sleeve valve for the Auld Valley Pressure Control Structure. One sleeve valve was recently refurbished by the Shops and placed back in operation. A second sleeve was removed and sent to the Shops for assessment. This sleeve valve was recently disassembled and is being cleaned to assess its current condition before refurbishment.



Auld Valley PCS sleeve valve received at La Verne Shops for refurbishment



As received actuator (left) and disassembly of actuator (right) at the La Verne Shops for refurbishment

Staff recently cleaned and inspected the sedimentation basin and influent channel at the Diemer plant. The influent channel has been in service for several years, resulting in heavy algae growth and accumulation of solids at the bottom of the channel. Staff took this portion of the plant out of service, drained, cleaned, and performed preventative maintenance on the equipment.



Staff washing down the sedimentation basin and influent channel at the Diemer plant

Optimize Asset and Maintenance Management

Metropolitan staff across different groups and consultants collaborated to conduct a Constructability Review for several Diemer capital projects, including the Diemer Filter Rehabilitation Project and the Diemer Chemical Tank Farm Upgrade Project. This study was conducted over two weeks. Topics of discussion included lessons learned from the Weymouth Filter Rehabilitation Project, project risk mitigation, construction sequencing, construction schedule, and filter media selection.



Staff across multiple groups collaborated to conduct a Constructability Review for Diemer capital projects

Staff continues to implement best asset management approaches to develop a long-term 25-year renewal forecast that incorporates a transition of Metropolitan's fleet vehicles from internal combustion to zero emission. Options are being evaluated based on a careful balance between protecting Metropolitan's reliability, complying with regulations, and balancing costs. This is a collaborative effort with Finance staff to understand the benefits and impacts of various funding sources. Operations staff has been working collaboratively with Engineering to develop a long-term optimization model for the Capital Investment Plan. The model uses readily available software applications and considers stakeholder inputs, such as sponsor priority, risk, and other factors, to optimize capital spending and the sequencing of projects.

Prepare for Future Legislation and Regulations

On May 24, EPA published the final revisions to the Consumer Confidence Report (CCR) regulation. The regulation requires public water systems serving over 10,000 people to deliver CCRs twice a year, encourage modern electronic delivery options, clarify information regarding lead in drinking water, and provide translation for customers with limited English proficiency. The biennial requirement is only for community water systems that exceed a maximum contaminant level, health advisory, notification level, or response/action level, or have new Unregulated Contaminant Monitoring Rule (UCMR) results. As a wholesaler, Metropolitan is not required to do a CCR but will be required to provide water quality data to our member agencies twice per year. Staff worked with AMWA, AWWA, and CMUA on comments. Compliance with the new CCR content and delivery requirements begins April 1, 2025.

On June 11, Cal/OSHA released the final text for the Indoor Heat Illness Prevention Standard. The rule applies when indoor workplaces temperatures meet or exceed 82°F while employees are present. The rule requires industry to develop written indoor heat illness prevention procedures, assess areas affected by excessive heat, and determine appropriate control measures (e.g., provide cooling, breaks, monitoring for signs of heat illness, and training). Staff is combining the existing Outdoor Heat Illness Prevention Standard with new requirements from the Indoor Heat Illness Prevention Standard into one Metropolitan Heat Illness Prevention Program. Cal/OSHA is scheduled to adopt the rule on June 20, 2024, with an effective date starting in July 2024.

Advance Education and Outreach Initiatives

Tours of the Water Quality Laboratory were provided on June 6 and June 28 for Metropolitan Directors and guests from their respective agencies and represented communities. These tours provide a broad summary of Water Quality's daily activities, regulatory monitoring requirements, and applied research to address emerging water quality challenges.

Engage with Member Agencies and Other Stakeholders on Technical Matters

On June 27, Metropolitan hosted a hybrid half-day workshop on nitrification and chloramine disinfection for Member Agency Water Quality Managers. The workshop provided a basic understanding of the causes, consequences, and control of distribution system nitrification. Key presentations by Metropolitan staff and an external industry expert included the microbiology of nitrification, a review of the 2023 nitrification event in Metropolitan's system, and a discussion on the various factors to consider in response to nitrification.