
WATER SYSTEM OPERATIONS

Water System Operations (WSO) group reliably treats and delivers high-quality water to Metropolitan's member agencies in an efficient, sustainable, and environmentally responsible manner.

PROGRAMS

Water System Operations treats and delivers water from the Colorado River and the State Water Project (SWP) through a raw water conveyance system, five treatment plants, and an extensive treated water distribution network. Water quality is paramount and all functions focus on producing and maintaining water surpassing drinking water standards.

WSO accomplishes its mission through the following programs or sections:

Office of Manager provides day-to-day operational management as well as strategic and organizational leadership, directing all initiatives and core business efforts of WSO. The office also provides support functions such as budgeting, administration, and security. The security function ensures that Metropolitan's employees, water infrastructure, and equipment are adequately protected.

Operations Support Services provides a diverse range of support to Metropolitan's core operational reliability functions and, on a reimbursable basis, to public entities such as DWR and member agencies. The Manufacturing unit performs fabrication, machining, coating, valve and pump refurbishment, underwater maintenance, and crane safety and certification. Construction Services unit performs general construction, large equipment transportation, equipment installation, and emergency response. The Fleet Services unit acquires and maintains vehicles and emergency generators. The Power & Equipment Reliability unit provides maintenance services which include: predictive, preventive, and corrective maintenance analysis for critical

equipment, including all hydroelectric power plants, pressure control structures, high voltage equipment, and heating, ventilation, and air conditioning (HVAC) systems. Additionally, the section helps member agencies with service connection requests.

Water Treatment operates and maintains five water treatment plants with a combined capacity of over 2.6 billion gallons per day. The section oversees treatment processes to ensure high-quality water is reliably produced that complies with drinking water regulations. All five treatment plants are staffed and operated 24 hours a day, seven days a week. Four of the treatment plants (Jensen, Mills, Skinner, and Diemer) have been retrofit to use ozone as the primary disinfectant. Ozone construction is underway at the Weymouth plant and, by the end of this biennial budget, the nearly \$1.3 billion ozone retrofit program will be complete.

Water Conveyance and Distribution meets delivery requirements of member agencies by moving water throughout Metropolitan's 5,200 square mile service area and performing a wide range of operations and maintenance activities to ensure system reliability. The conveyance system consists primarily of the Colorado River Aqueduct system and five pumping plants. The distribution system consists of about 820 miles of pipelines, approximately 350 service connections to member agencies, 16 hydroelectric plants, and 9 storage and regulatory reservoirs that help Metropolitan meet peak flow periods.

Water Quality ensures that Metropolitan provides safe and aesthetically pleasing water through the following activities: conducting chemical and biological analyses; optimizing existing treatment processes; testing new technologies to assure compliance with current and future regulations; and providing technical expertise, laboratory services, and troubleshooting of water quality issues for Metropolitan and its member agencies. Water Quality also works to preserve and improve source water quality through rigorous watershed surveys and advocating for measures to reduce the risk of point and non-point source pollution.

Water Operations and Planning plans and implements the movement and use of water resources. These plans incorporate infrastructure and supply limitations, agency demands, changing water quality requirements, and storage program economics. Operational scenarios that encompass a broad range of potential supplies and demands are developed and refined on a weekly basis throughout the year. This process prepares WSO for a wide variety of possible outcomes as the year develops while maintaining reliable deliveries and balancing water storage reserves at reasonable cost.

In addition, the section programs and maintains Metropolitan’s control system, known as Supervisory Control and Data Acquisition (SCADA) and is also responsible for emergency response management and providing emergency response training to employees.

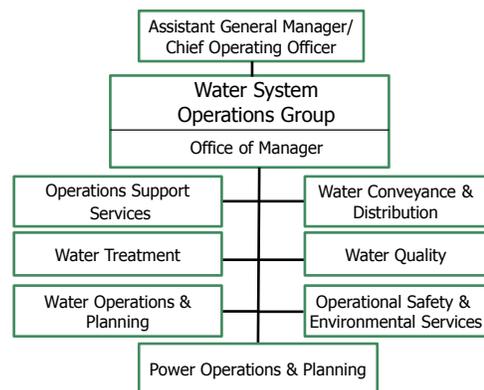
Safety and Environmental Services is responsible for ensuring a safe working environment for employees through programs and training, ensuring business operations are conducted in an environmentally responsible way, and complying with all environmental and occupational health and safety rules and regulations. The section integrates environmental, health and safety practices into

Metropolitan’s operations and culture with the goal of achieving a safe work place and eliminating environmental incidents.

In addition, the section manages technical skills training for maintenance craft employees and sponsors an accredited apprenticeship program which trains industrial mechanics and electricians over a four-year period of classroom and hands-on instruction.

Power Operations and Planning plans, acquires and accounts for the energy required to operate the Colorado River Aqueduct (CRA). This activity requires energy transactions with electric utilities and marketers. The section also negotiates and manages the contracts and energy accounting of Renewable Energy Credits and Greenhouse Gas Allowances for 16 small hydroelectric power plants and the CRA.

In addition, the section is generally responsible for most wholesale energy activities including evaluation of proposed energy-related regulations and legislation; analysis of state and regional transmission plans and impacts to the CRA transmission system; and reporting on compliance with regional and national electric reliability standards. Finally, the section works closely with energy staff at DWR on energy and transmission issues for the SWP.



GOALS AND OBJECTIVES

In FY 2016/17 and FY 2017/18, WSO will focus on the following key issues:

System Reliability

Manage and maintain the water system to ensure operational reliability for all reasonably expected demands.

As the drought eases, rebuild water storage into accounts that provide the greatest delivery flexibility and cost effectiveness.

Plan, schedule, and execute the Annual Shutdown Plan to ensure reliable operation of the water delivery system, including a strategy to manage longer shutdowns to support the refurbishment of pre-stressed concrete cylinder pipelines.

Maintain eight-pump flow readiness and manage storage accounts to capture all available Colorado River supplies.

With member agency and regional partners, develop new water supplies to supplement the core SWP and Colorado River supplies including groundwater recovery, ocean desalination, and indirect potable reuse.

Participate with the California Department of Water Resources (DWR) on value-engineering efforts to ensure cost-effective rehabilitation of SWP conveyance, pumping, and generation facilities.

Fully utilize the manufacturing shops in La Verne to maintain Metropolitan's infrastructure reliability and support projects for DWR and the member agencies.

Establish vibration-based predictive maintenance program for all large electric motors, vertical turbine pumps, and emergency generators to improve equipment reliability and reduce unnecessary maintenance.

Provide secure facilities through employee training, access controls, incident monitoring, and

response for critical infrastructure sites and office locations.

Conduct emergency response exercises involving internal operational groups and member agencies.

Energy Management

Manage and limit price exposure for wholesale energy to support CRA pumping.

Secure an agreement for coordinated electrical operations of the CRA.

Workforce Development & Succession Planning

Conduct annual Management Academy to improve internal recruitment pool for entry-level supervisors.

Recruit and begin training a new apprentice class each year for the mechanical and electrical trades.

Water Quality, Environmental Protection, and Safety

Meet or surpass all drinking water standards and ensure delivery of aesthetically pleasing water.

Engage in the regulatory process to ensure full consideration of technical and economic feasibility for drinking water and environmental regulations.

Engage watershed stakeholders and regulators to ensure effective control of source water contaminants such as uranium, perchlorate, chromium, pharmaceuticals, nutrients, and algal toxins.

Complete implementation of ozone retrofit program with the startup of ozone at the Weymouth plant.

Provide safety and environmental services to ensure safe work practices and adhere to environmental and workplace health and safety regulations.