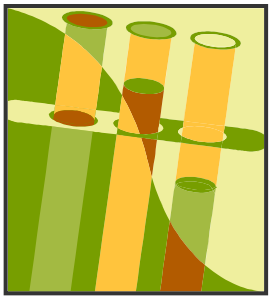
Water Quality

This section discusses the Water Quality within Central Basin's service area



5.1 Overview

Water quality regulations are an important factor in Central Basin's water management activities. MWD is responsible for complying with State and Federal drinking water regulations on imported water sold to Central Basin. Purveyors that Central Basin sells imported water to are responsible for ensuring compliance in their individual distribution systems and at the customer tap.

For groundwater quality, Central Basin assists purveyors in its service area in meeting drinking water standards through its *Cooperative Basin-Wide Title 22 Groundwater Quality Monitoring Program*. Title 22 is in reference to the California Code of Regulations section pertaining to both domestic drinking water and recycled water standards. Central Basin offers this program to water agencies for wellhead and reservoir sample collection, water quality testing and reporting services. Sampling is conducted for compliance with the Federal Safe Drinking Water Act and Title 22 regulations. 29 agencies in Central Basin's service area participate in the monitoring program. Results are compiled in a published annual report.

In March 1999, Governor Gray Davis signed an executive order requiring the use of MTBE (methyl tertiary-butyl ether), a gasoline oxygenate, be phased out by January 1, 2003. This deadline was later postponed to January 1, 2004. Central Basin has been monitoring its groundwater wells since 1996 for MTBE; to date it has not been detected in any wells.

In another development, the California Department of Health Services (CDHS) recommended that drinking water wells be tested for the rocket fuel component perchlorate. Central Basin began monitoring for perchlorate voluntarily in 1997 as part of the Title 22 Monitoring program. CDHS required all water purveyors in the State to monitor for perchlorate under the 2001 Unregulated Contaminant Monitoring Rule. To date, perchlorate has been detected in nine separate wells. Furthermore, the presence of perchlorate in the San Gabriel Basin could impact water quality in Central Basin's service area. In response, the Central Basin Board of Directors has supported a plan to clean up the contaminated groundwater before it migrates into the Central Basin. The "San Gabriel Basin Restoration Fund" was created and 11 firms agreed to pay $200 million to construct treatment facilities throughout the San Gabriel Valley to remove contaminants and restore the groundwater basin.

5.2 Quality of Existing Water Supplies

A number of issues are considered when evaluating alternative water supply options. Of primary consideration is a project's ability to provide a safe, reliable, and cost-effective drinking water supply. Providing a safe drinking water supply to Central Basin's customers is a task of paramount importance. All prudent actions are taken to ensure that water delivered throughout the service area meets or exceeds drinking water standards set by the State's primary water quality regulatory agency, the CDHS. MWD is also proactive in its water quality efforts, protecting its water quality interests in the State Water Project and Colorado River through active participation in processes that would provide for the highest water quality from both sources.

5.2.1 Imported Water

Central Basin's imported water comes from the State Water Project and Colorado River via MWD pipelines and aqueducts. MWD tests its water for microbial, organic, inorganic, and radioactive contaminants as well as pesticides and herbicides. Protection of MWD's water system is a top priority. In coordination with its 26 member agencies, MWD added new security measures in 2001 and continues to upgrade and refine procedures. Changes have included an increase in the number of water quality tests conducted each year (more than 300,000) as well as contingency plans that coordinate with the Homeland Security Office's multicolored tiered risk alert system.[1] MWD also has one of the most advanced laboratories in the country where water quality staff performs tests, collects data, reviews results, prepares reports, and researches other treatment technologies. Although not required, MWD monitors and samples elements that are not regulated but have captured scientific and/or public interest.

MWD has a strong record of identifying those water quality issues that are most concerning and have identified necessary water management strategies to minimize the impact on water supplies. Part of its strategies, is to support and be involved in programs that address water quality concerns related to both the SWP and Colorado River supplies. Some of the programs and activities include:

- **CALFED Program** – This program coordinates several SWP water feasibility studies and projects. These include:

    1. A feasibility study on water quality improvement in the California Aqueduct
    2. The conclusion of feasibility studies and demonstration projects under the Southern California-San Joaquin Regional Water Quality Exchange Project.[2] This exchange project was discussed earlier as a mean to convey higher quality water to MWD.

[1] MWD's website, www.mwdh2o.com/mwdh2o/pages/yourwater/2005_report/protect_02.html
[2] The Metropolitan Water District of Southern California, Regional Urban Water Management Plan, 2005

3. DWR's Municipal Water Quality Investigations Program and the Sacramento River Watershed Program. Both programs address water quality problems in the Bay-Delta and Sacramento River watershed.

- **Delta Improvement Package** – MWD in conjunction with DWR and US Geologic Survey have completed modeling efforts of the Delta to determine if levee modifications at Franks Tract would reduce ocean salinity concentrations in water exported from the Delta. Currently, tidal flows trap high saline water in the track. By constructing levee breach openings and flow control structures, it is believed saline intrusion can be reduced. This would significantly reduce total dissolved solids and bromide concentrations in water from the Delta.

- **Source Water Protection** – In 2001, MWD completed a Watershed Sanitary Survey as required by CDHS to examine possible sources of drinking water contamination and identify mitigation measures that can be taken to protect the water at the source. CDHS requires the survey to be completed every five years. MWD also completed a Source Water Assessment (December 2002) to evaluate the vulnerability of water sources to contamination. Water from the Colorado River is considered to be most vulnerable to contamination by recreation, urban/storm water runoff, increasing urbanization in the watershed, wastewater and past industrial practices. Water supplies from SWP are most vulnerable to urban/storm-water runoff, wildlife, agriculture, recreation, and wastewater.[3]

5.2.2 Groundwater

Groundwater in the Central Basin is continually monitored for the quality of the water because of its susceptibility to seawater intrusion, potential contamination from adjacent basins and migration of shallow contamination into deeper aquifers. The Alamitos Barrier, located in the southwest portion of Central Basin's service area, provides a buffer between the groundwater basin and seawater intrusion. The available supply of replenishment water to physically recharge the basin includes local and imported water. The local water that recharges the groundwater basin comes from storm flows from the San Gabriel Valley and flow obligations under the San Gabriel River Judgment with the Upper Area of the Central Basin. This water is defined as "Make-Up Water." Imported Water is purchased from MWD to be used for surface spreading at the Montebello Forebay and for seawater barrier injection at the Alamitos Barrier. Recycled water is purchased from the County Sanitation Districts of Los Angeles County for spreading and injection.

As a voluntary service to its purveyors, the District's Water Quality staff coordinates wellhead testing at approximately 150 groundwater wells within the service area to ensure high quality of local supply. By outsourcing laboratory services for complex analytical tests, Central Basin helps purveyors save time and money while providing a

[3] The Metropolitan Water District of Southern California, Regional Urban Water Management Plan, 2005

valuable service for public safety. Due to the mixture of imported and natural groundwater in the Central Basin, testing of the water ensures that the water is safe for drinking purposes.

Water Replenishment District Programs

As the regional groundwater management agency for the Central and West Coast Groundwater Basins, the WRD has several active programs to monitor, evaluate and mitigate water quality issues.

Under its Groundwater Quality Program, WRD continually evaluates current and proposed water quality compliance in agency production wells, monitoring wells, and recharge/injection waters of the groundwater basins. If non-compliance is identified, WRD staff develops a recommended course of action and associated cost estimates to address the problem and to achieve compliance. WRD also monitors and evaluates the impacts of pending drinking water regulations and proposed legislation.

WRD's Regional Groundwater Monitoring Program consists of a network of about 200 WRD and USGS-installed monitoring wells at 45 locations throughout the District. Monitoring well data is supplemented with information from production wells to capture the most accurate information available. WRD staff, comprised of certified hydrogeologists and registered engineers, provides the in-house capability to collect, analyze and report groundwater data. This information is stored in the District's GIS and provides the basis to better understand the characteristics of the Central and West Coast Groundwater Basins.

WRD's Safe Drinking Water Program (SDWP) is intended to promote the cleanup of groundwater resources at specific well locations. Through the installation of wellhead treatment facilities at existing production wells, the District hopes to remove contaminants from the underground supply and deliver the extracted water for potable purposes. Projects implemented through the program are accomplished through direct input and coordination with well owners. The current program focuses on the removal of volatile organic compounds (VOCs) and offers financial assistance for the design and equipment of the selected treatment facility.

More information regarding these and other groundwater management programs can be found in the WRD current Engineering and Survey Report and Regional Groundwater Monitoring Report.

5.2.3 Recycled Water

Tertiary recycled water meeting Title 22 standards can be used for a wide variety of industrial and irrigation purposes where high-quality, non-potable water is needed.

Central Basin relies on the County Sanitation Districts of Los Angeles County (CSDLAC) to meet all applicable State and Federal water quality regulations for recycled water it purchases and distributes through its two systems. Central Basin purchases recycled water from CSDLAC's San Jose Creek Water Reclamation Plant (WRP) and Los Coyotes WRP. These two plants together produce approximately 120 MGD of tertiary-treated effluent. Recycled water from CSDLAC's reclamation plants not reused is discharged to the ocean directly and through major flood control channels.

5.3 Effects on Water Management Strategies

Poor water quality makes a water source unreliable, affects overall supply and increases the cost of serving water to the public. A water source that fails drinking water regulations must be taken out of service. The source can be restored through treatment or other management strategies.

Groundwater can become impaired through leaching of contaminants into an aquifer, or by excessive concentrations of naturally-occurring constituents that impact quality, such as arsenic. Surface water sources become contaminated from human activities in the watershed or deliberate contamination.

5.4 Effects on Supply Reliability

The District's Water Quality staff assists the purveyors in meeting new State and Federal drinking water standards and guidelines. The staff also manages research and development projects to find effective solutions to improve water treatment for non-potable use.

As part of a voluntary service offered by the District, the staff coordinates regular wellhead testing through a contract laboratory at approximately 160 groundwater wells in Central Basin's service area. Analytical reports are sent to Central Basin, purveyors, and the CDHS. This voluntary service saves purveyors time and money while ensuring high quality of local groundwater supply.

The quality of recycled water is regularly monitored for process control, regulatory compliance and customer development. Through special sampling and testing, customers can have the confidence of knowing that they are receiving the quality of recycled water needed for their use.

5.5 Water Quality Protection Project

In the early 1980's, the San Gabriel Valley aquifer was discovered to have contaminants including trichloroethylene (TCE) and perchloroethylene (PCE) in the water supply. Based on the contamination level, the Environmental Protection Agency (EPA) declared the area as a superfund site. As the contamination plume moved south towards the Central Groundwater Basin over the next 20 and threatened the local groundwater

supplies, Central Basin developed a containment plan known as the Water Quality Protection Project (WQPP).

By taking necessary steps to ensure removal of the contaminants, it prevented any further migration of contamination from the San Gabriel Valley into the Central Groundwater Basin, preventing the contamination from reaching the spreading grounds. The cleanup of the aquifer at no cost to Central Basin produces a safe and reliable supply of potable water

to participating producers without affecting water rates and it minimizes the impact of rising energy costs to participating producers. Central Basin obtained necessary Federal funds for the implementation of the WQPP with the objective of preventing the further migration of contaminants into the Central Groundwater Basin. Funding legislation was enacted in December 2000 with congressional support.

The $10 million project consists of the construction of two extraction wells with a collector pipeline and treatment facility. The extraction wells will pump out the contaminated groundwater with a combined rate of approximately 3,600 gallons per minute and convey it via the collector pipeline to the central treatment facility for purification. To ensure service while saving costs, Central Basin entered into an agreement with the City of Whittier to co-locate components of the WQPP with Whittier's existing water facilities. Whittier's facilities are utilized to distribute the treated groundwater to purveyors.