

## Pure News: Issue 5

Welcome to Pure News, a newsletter to keep you informed about the latest happenings with the City of San Diego's Water Purification Demonstration Project.



## Putting the AWP Facility to the Test

### What's being tested

Below are a few of the many parameters being tested at the AWP Facility:

**Conductivity:** corresponds to the concentration of dissolved salts and metals

**Nitrogen:** an element that can promote algae growth in a reservoir

**Total organic carbon:** a measurement of the amount of natural and synthetic organic materials dissolved in water

**Turbidity:** a measurement of water clarity

**Ultraviolet transmittance:** the ability of an ultraviolet light to pass through water

To ensure water quality, monitoring is essential at any water treatment facility. At the Advanced Water Purification Facility, automated and manual testing is regularly performed in order to ensure the water purification process is properly functioning and the water produced meets all safety regulations.

One method of ensuring the integrity of the equipment is the use of automated meters. There are more than a dozen meters throughout the facility that continuously measure various water quality parameters throughout the treatment process. In the event an anomaly is detected, the monitoring system would either trigger an alarm or automatically shut down the plant. In a full-scale plant, this would prevent any water that does not meet the water quality requirements from being added to the San Vicente Reservoir.

Operators also manually test water from sampling ports to verify the equipment is functioning correctly. The water samples are tested to ensure that contaminants are removed and that the water meets drinking water standards. These compounds include all of those regulated under the federal and state drinking water acts, as well as unregulated contaminants of emerging concern, such as pharmaceuticals and personal care products. Laboratory analysis is able to detect many compounds in concentrations as low as 5 parts per trillion. One part per trillion is comparable to one drop of water in 20 Olympic-size swimming pools.



Reverse osmosis sampling station

In addition to monitoring water quality, each piece of equipment undergoes specific tests. For example, an automatic pressure decay test is performed daily on the membrane filters. This test is sensitive enough to detect even one broken fiber and helps confirm that more than 99.99 percent of all solid particles are consistently removed by the membranes. The integrity of the reverse osmosis is confirmed by continuous tracking of water quality levels before entering and after exiting the equipment. If the quality of the water produced by the reverse osmosis units were to decline, operators can test each individual pressure vessel to locate the membrane breach. At the ultraviolet disinfection/advanced oxidation stage, the amount of power being applied tells operators whether the lamps are functioning properly. Operators also measure the hydrogen peroxide dose rate to verify that the appropriate amount of hydrogen peroxide is used.

The testing and monitoring performed at the Demonstration Project's AWP Facility not only ensures the safety of the water produced at the facility, but has the added benefit of allowing the City to determine which equipment is the most effective for purifying water. Similar water quality monitoring performed at the demonstration-scale facility would be provided at a full-scale facility. If a full-scale facility were approved, the City's priority would be to ensure only the purest and safest water is added to the San Vicente Reservoir. Additionally, all of the City's drinking water is and will continue to be tested at the City's drinking water plants before being sent to customers' taps.

## Water Purification Demonstration Project: 2011 YEAR-IN-REVIEW

It has been an exciting and eventful year for the Water Purification Demonstration Project. In an effort to demonstrate that water purification can be a reliable, sustainable source of local water for San Diego, the project team strives to inform San Diegans about this important project. To this end, the project team reaches out to community members throughout the City by providing informational presentations, inviting residents to tour the Advanced Water Purification (AWP) Facility, and ensuring accessibility to information on the project website and social media platforms. The Demonstration Project and the AWP Facility have received positive feedback from project stakeholders in San Diego and internationally from Mexico, Vietnam, Australia, the United Kingdom, and Eurasian countries. Take a look at some of our 2011 highlights, including the unveiling of the state-of-the-art AWP Facility:



*After months of planning, design and construction, the AWP Facility was completed and began operation in June 2011.*



*The AWP Facility kicked off public tours with a visit from Mayor Jerry Sanders, Public Utilities Director Roger Bailey, Project Director Marsi Steirer, Councilmember David Alvarez and many local media outlets.*



*The Demonstration Project team has hosted more than 100 tours for over 1,500 people since the AWP Facility opened its doors. The facility has attracted San Diego residents, government leaders, and stakeholders from around the world.*



*Hundreds of San Diegans learned about water purification at the Demonstration Project's informational booths at citywide community events. The City hosted exhibits at the San Diego Multicultural Festival, Earth Fair, Science Expo Day, Tet Festival, FilAmFest, and a dozen other events.*



*More than 100 groups throughout San Diego have invited the Demonstration Project speakers bureau to present to their members. To schedule a speaker for an organization's meeting, email [purewatersd@sandiego.gov](mailto:purewatersd@sandiego.gov) or call (619) 533-6638.*



*Many media outlets have covered stories on the Demonstration Project, including the Union-Tribune, USA Today, Huffington Post and TIME Magazine.*

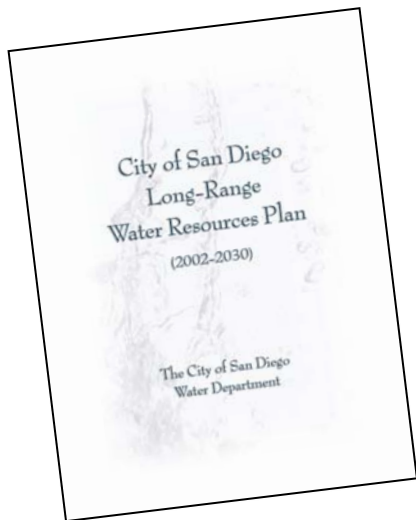


*In September, the WateReuse Association honored the Demonstration Project with the 2011 WateReuse Association Public Education Program of the Year award.*

Thank you to all who have taken the time to become informed and involved in this important project for San Diego's future.

## Planning for a Sustainable Future

In an area where water is so scarce, strategic planning is essential to ensure water sustainability. The City of San Diego's 1997 Strategic Plan for Water Supply prompted the City to be more engaged in the planning and development of its water supply in order to become less reliant on imported water. Previously, the City depended almost entirely on the San Diego County Water Authority (SDCWA) to plan for and acquire necessary water supplies.



### 2002 Long-Range Water Resources Plan

In 2001, the City, with the assistance of a citizen's advisory committee, initiated an update of its Long-Range Water Resources Plan (Long-Range Plan), which was adopted by the City Council in 2002. The objectives of the Long-Range Plan were to extend water demand projections through 2030 and to develop a decision-making framework for evaluating water supply options to meet these demands. The water supply options identified in the Long-Range Plan included water conservation, water reclamation, groundwater desalination, groundwater storage, ocean desalination, marine transport, Central Valley water transfers, and imported supply. Various water supply options were evaluated. It was determined that no single supply source would be sufficient to meet the City's future water demand.

### 2012 Long-Range Water Resources Plan

In April 2011, the City began work on the 2012 Long-Range Water Resources Plan (2012 Plan) to update the 2002 Long-Range Plan. In developing the 2012 Plan, the City has convened a stakeholder committee, who will provide guidance and input on alternative strategies for meeting San Diego's water needs through 2035. The 2012 Plan will address various concerns, including those related to population growth, water resource diversification, climate change and

other issues affecting water reliability. The 2012 Plan is anticipated to be complete in summer 2012.

### 2010 Urban Water Management Plan

While the Long-Range Plan provides a foundation for water options for San Diego, other planning is continually taking place. The City's 2010 Urban Water Management Plan (UWMP) describes long-term resource planning responsibilities to ensure adequate water supplies are available to meet existing and future demands. For the UWMP, the City coordinated with SDCWA and with local water agencies and cities that receive water from the City. The 2010 UWMP assesses current demands, lays out supply expectations over a 20-year period, and details plans for various drought scenarios.



Point Loma Wastewater Treatment Plant



Recycled Water Study meeting

### Recycled Water Study

In addition to sustaining water supplies, the City is examining ways to limit the discharge of wastewater from the Point Loma Wastewater Treatment Plant (WWTP). In order to do this, the City is conducting a Recycled Water Study to identify opportunities and provide recommendations to increase recycling of wastewater, reduce wastewater discharged into the ocean, lessen the complexity of secondary upgrades to Point Loma WWTP, and determine implementation costs. This study is the result of a cooperative agreement the City entered with two local environmental groups in 2009. The agreement requires the City to conduct the Recycled Water Study and find ways to minimize Point Loma WWTP discharges by maximizing reuse. In return, the environmental groups supported the City's waiver application

to operate the Point Loma WWTP as an advanced primary treatment plant. A final Recycled Water Study project report is expected to be complete in spring 2012.

One component of the Recycled Water Study is the completion of the 2010 Recycled Water Master Plan Update (2010 RWMP). The City must update its Recycled Water Master Plan every five years to define, encourage, and develop the use of recycled water. If all of the projects identified in the Recycled Water Study are not pursued, the 2010 RWMP evaluates other opportunities to maximize the reuse of water for non-potable purposes.



Thanks to these and other long-range water resource plans, the City has expanded its recycled water system, developed the Water Purification Demonstration Project, dramatically increased water conservation, and continued to ensure safe and reliable water for San Diego. With the continued development and implementation of these and other plans, San Diegans can count on a reliable source of water for years to come.

## California's Bay-Delta: Fragile and Tapped Out



Few places in the world are as essential to their region as the Sacramento-San Joaquin Bay-Delta is to the State of California. Located on the western edge of the Central Valley where the Sacramento and San Joaquin rivers feed into the San Francisco Bay, the Bay-Delta is a capillary-like expanse of natural and manmade channels that serve as the heart of California's ecosystem and economy. Depending on the current water situation, San Diego relies on the Bay-Delta for anywhere from 25 to 60 percent of its water supply.

The Bay-Delta is also an estuary, funneling freshwater runoff from the Sierra Nevada mountain range to the ocean, resulting in a beautiful, sensitive and complex ecology. This watery marsh creates a fertile peat soil that supports California's agricultural industry. Some of the freshwater that flows into the estuary is diverted to provide drinking water to communities statewide. Water imported from today's Bay-Delta system is fully allotted with no additional water available for future demands. Local supplies must support future water demands.

In recent years, attention has focused on the fragility of the Bay-Delta system. The levee system created in the late 19th century to reclaim farmland, control flooding, and divert water for local irrigation and consumption purposes is very delicate as a result of soil erosion and deferred maintenance. During the last century, nearly 200 Delta levee failures led to island inundations. In 1998, exterior levee breaches inundated over 22,000 acres of land and threatened State Water Project and Central Valley Project facilities.

Additionally, there are concerns that human activities are causing declines in fish populations. One species impacted is the delta smelt. This two-inch fish is considered an environmental indicator—meaning the health of the delta smelt population might be a reflection of the health of the Delta itself. In 2009 the California Fish and Game Commission reclassified the delta smelt from "threatened" to "endangered." In an effort to address the declining population of the delta smelt and other indicator fish species, court-ordered pumping restrictions have curtailed how much water gets sent through the California Aqueduct to Central and Southern California.

This means that a once reliable source of San Diego's water supplies now faces challenges limiting its accessibility. San Diego is particularly vulnerable to a shortage of imported water due to its limited local groundwater and surface water supplies. Developing local water supplies is critical to our economy and quality of life. One of these potential local water sources is purified water, which is the process being examined by the Water Purification Demonstration Project. By purifying recycled water and augmenting local reservoirs, the City can ensure a sustainable water source for San Diego, mitigate its dependence on imported Bay-Delta water, and lessen the environmental impact to a magnificent natural resource.

### Did You Know?

Why do we need more water after the recent rain?

Even though winter rain helps, San Diego is located in a semi-arid desert climate and periodic droughts are inevitable in California. It is always important to use water wisely. Developing local reliable water sources, along with conservation efforts, are key components in San Diego's plan for a sustainable future.

 @PureWaterSD



To schedule a presentation for your organization, email [purewatersd@sandiego.gov](mailto:purewatersd@sandiego.gov) or call (619) 533-6638.

### Get the latest online

For our smartphone-savvy readers, use your barcode-scanning app of choice to scan the quick response (QR) barcodes to the left and right. You'll be an official Demonstration Project fan in no time!

Not receiving email updates from the Demonstration Project? Sign up at [www.purewatersd.org](http://www.purewatersd.org) or email [purewatersd@sandiego.gov](mailto:purewatersd@sandiego.gov).

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