

Pure News: Issue 2

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.

Why rain isn't enough

Every winter after a storm, you hear the same question: with all this rain, why doesn't San Diego have enough water?

The answer is related to San Diego's climate and population. From year to year, San Diego's rainfall is anything but dependable. In the past decade, rainfall in the City of San Diego has been as low as 4 inches to as high as 14 inches, which is not enough to meet the demands of San Diego's population. Since rainfall is so varied, so is runoff into the City's nine reservoirs where raw water is stored. Lower Otay Reservoir, the City's oldest, has records dating back more than 100 years, which tell the story of San Diego's water runoff challenges. Years go by with little runoff – some years none at all – and then there are wet years that fill the reservoir with water, followed again by very dry years.



"Normal rainfall in the San Diego region can range from very dry to very wet," said Jeff Pasek, San Diego Public Utilities Department Watershed Manager. "If you look at the records of rainfall and runoff over the years, you'll see extremes in fluctuation. We can't count on any certain amount of rainfall."



The situation is exacerbated by the City's ever-growing population. San Diego's system of local reservoirs was built from about 1900 to 1950. These reservoirs amply supplied San Diego through the first half of the last century, but because of population growth, the demand for

water has quadrupled over the last 60 years. San Diegans have diligently conserved water over the past 20 years, steadying the water demand despite continued population growth. Nevertheless, even if rainfall in the San Diego region was consistently above average, the local runoff would not be enough to sustain the City.

Even in a wet year, natural runoff accounts for a small percentage, roughly 15 percent, of San Diego's annual water supply; the rest has to be imported. Countywide, the



Did you know...

Does San Diego need more water?
The City of San Diego imports approximately 85 percent of its water supply from Northern California's Bay-Delta and the Colorado River. For the past few years, California has been affected by a historic dry period and a drought on the Colorado River. Legal and regulatory decisions to protect endangered species have resulted in restrictions on the amount of imported water from Northern California. Population projections predict the City will need more water in the future than is used today. For all of these reasons, the City needs to develop local water supplies to secure a reliable supply for present and future City of San Diego water customers.

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AWPF construction begins!

In January, work crews poured the foundation for the new Advanced Water Purification Facility (AWP Facility) located at the North City Water Reclamation Plant. Construction on the testing facility will continue throughout the spring.



The Advanced Water Purification Facility's canopy is now installed.

Ahrens Corporation completed construction on the concrete pad for the AWP Facility in January 2011. The facility canopy, which will cover the advanced water treatment equipment, was completed in late February.

Upon completion of the AWP Facility this summer, the City will begin testing advanced purification technology for approximately one year. During the demonstration period, 1 million gallons of purified water per day will be produced. Concurrently, the San Vicente Reservoir is being studied to examine the viability of adding the advanced purified water to

the reservoir to augment drinking water supplies. Other studies, including cost analysis, will be completed at the same time. Together these studies and tests will determine if the project concept is feasible for full scale.

In the community

If you've been to a community event recently, there's a good chance the Water Purification Demonstration Project was there, too. Beginning in early 2011, the Demonstration Project team staffed informational booths at several community events.

In January and February, the Demonstration Project staff teamed up with the City's Conservation team to reach out to San Diegans with important messages about water at the San Diego Multicultural Festival, the San Diego Lunar New Year Tet Festival and the San Diego Chinese New Year Food and Cultural Fair. In February and March, the Demonstration Project team struck out on their own to participate in the Heritage Weekend Festival and the San Diego Science Festival Expo Day.

Hundreds of passersby stopped by the booth to learn more and ask questions about the Demonstration Project. Staff explained the details of the project and provided fact sheets to them. After learning about the project, these visitors were invited to spin the prize wheel for a chance to win the Demonstration Project's highly coveted reusable tote bag. Many interested participants (including some of you who are reading this right now) signed up to receive email updates about the project.

"By participating in these events, we are able to talk to a wider variety of San Diegans, not just those who have an interest in water issues," said Alma Rife, Public Information Officer for the Demonstration Project. "These events have been great opportunities to share information about the Demonstration Project and eliminate misinformation and confusion about it."

In April and May, the Demonstration Project staff will be at the Lao New Year at Market Creek Plaza on Saturday, April 2, and the EarthFair in Balboa Park on Sunday, April 17. Hope to see you there!



Guests visit the Demonstration Project booth at the Tet Festival.

Why rain isn't enough (Continued from Page 1)

portion of water supply from local runoff is even lower. This supply is not only low because of the fluctuating amount of rainfall, but also because San Diego's watersheds extend less than a thousand square miles from the western slopes of our mountains to the coastal plain. When compared to the watershed of the Colorado River – hundreds of thousands of square miles in seven states with the snowcap of the Rocky Mountains draining into it – the San Diego watersheds are not a very big area to capture water.

When San Diego does get rain, most of the rain runoff in the region occurs in the back country and mountains, and flows down streams to be captured in reservoirs. San Diego's reservoirs are sized and situated to capture almost all of the runoff that's available from rain events. If all the reservoirs are full, they can hold nearly two years' worth of water supply for the City. Just this winter, Barrett and Hodges reservoirs received so much runoff they filled and overflowed into the ocean. However, because major rainstorms are infrequent, the reservoirs are not often full or even close to full. In fact, the last time all of San Diego's reservoirs were completely full was 1983.

Compared to cities that sit next to the Great Lakes, the Mississippi River or atop massive aquifers, San Diego's water supply has always been rather precarious. That's part of life in Southern California. Rainfall is iffy, rivers are scanty, watersheds are small, reservoirs are few and groundwater is limited. Since San Diego cannot depend on local rainfall, the City must depend on importing about 85 percent of its water supply. As imported supplies become more expensive and less reliable, it is time to diversify San Diego's local water sources to supplement the small supply produced by the rain.

Treating water right: Part I

When it comes to wastewater treatment, there is no "one-size-fits-all" approach. In fact, there are several levels for "cleaning" wastewater. Regulatory requirements determine



Point Loma Wastewater Treatment Plant

which level of treatment the wastewater will undergo: primary, secondary or tertiary treatment. Tertiary treated water is considered "recycled water" and can be used for many applications.

At San Diego's Point Loma Wastewater Treatment Plant, sewage goes through what is called "advanced primary treatment." In this process, water is separated from grit or large particles.

Following grit removal, the wastewater is pumped into sedimentation tanks. With

the assistance of chemical treatment, solids or "primary sludge" settle to the bottom of the tanks and "scum" (primarily cooking grease and oil) float to the surface. At this point, approximately 80 percent of the suspended solids have been removed. The waste is separated from the water and is disposed offsite. After a final screening, the treated wastewater is discharged from the Point Loma Wastewater Treatment Plant through a long pipeline 4.5 miles out into the ocean.

Wastewater may continue on to secondary treatment. If this occurs, bacteria are added to the wastewater. Air is pumped into this mixture, and the bacteria ingest and digest the organic solids. Next, the wastewater is pumped into secondary clarifiers,

Terms to Know

Potable Water:

Water that has been treated to drinking water standards. This is the water delivered to consumers' taps.

Raw Water:

Water from rain, snow, rivers, and lakes/reservoirs that has not been treated at a drinking water plant.

Storm Water:

Urban runoff water from rainfall and irrigation. In most of San Diego, this water is untreated and flows into creeks, bays, lagoons, and ultimately the ocean.

Wastewater:

Water collected in the sewer system from residences and business. It is mostly water with some impurities.

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Treating water right *(Continued from Page 3)*



North City Water Reclamation Plant

where the bacteria and digested solids settle to the bottom as "secondary sludge." Similar to primary treatment, the sludge is removed for further treatment, and the treated wastewater can either be moved along to tertiary treatment to produce reclaimed water or may be discharged.

After going through primary and secondary treatment processes, tertiary-treated wastewater is produced by filtering to remove any remaining solids, chlorination to disinfect, and demineralization to reduce the amount of salt in the water. The resulting product is known in California as "recycled water." Recycled water produced

at the North City Water Reclamation Plant is safe for industrial uses and outdoor irrigation.

Water treatment doesn't end there. Stay tuned because in the next Pure News we will talk about how recycled and raw water can go through additional treatment steps.

Schedule a presentation for your group or organization

Contact the speakers bureau at (619) 533-6638 or email purewatersd@sandiego.gov.

Upcoming Events

Learn more about the Demonstration Project at one of the following community events. Project team members will be present to answer questions about the project and to share the latest project news.

Lao New Year

Market Creek Plaza
(310 Euclid Avenue, San Diego, 92114)

Saturday, April 2
10 a.m. - 6 p.m.

www.LCCCSD.com

EarthFair

Balboa Park
Sunday, April 17

10 a.m. - 5 p.m.

www.earthdayweb.org/

Coming soon:

Tours of the Advanced Water Purification Facility.
Watch for an email in the coming months.



North City Water Reclamation Plant



THE CITY OF SAN DIEGO

PureWaterSD.org

Visit our project website to sign up for project updates.

