GROK SURF'S SAN DIEGO

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A primer/refresher on San Diego's Water Purification Demonstration Project

San Diego's Indirect Potable Reuse Reservoir Augmentation Demonstration Project, with roots going back to 2004, intends to supplement the city's water resources with purified reclaimed water. For discussion purposes, the name is often shortened to *IPR Project* and for publicity purposes the Water Department plans to use the term *Water Purification Demonstration Project*. The City's public outreach and education program is still in development, so this article should give you a good basic understanding of the Project.

San Diego has two large water reclamation plants that treat wastewater to tertiary standards. Tertiary water is clean enough to be used for irrigation and industrial applications in San Diego (and has been for many years), but is not considered quite good enough to drink. Here are a few photos from the San Diego North City Water Reclamation Plant (all photos in this article are mine):

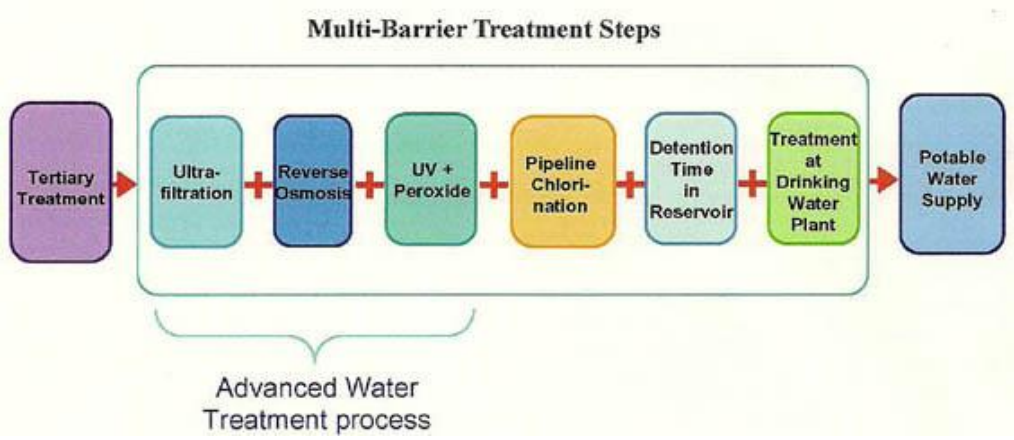
Primary clarifier, where heavy particles sink to the bottom of the tank and are removed.

Secondary clarifier, where organic solids sink to the bottom of the tank and are separated from the treated wastewater.

EDR (Electro Dialysis Reversal) area of the plant, where portions of the reclaimed water receive additional treatment for removal of dissolved solids.

Chlorine contact basin where recycled water is treated with chlorine to kill any remaining bacteria.

This is where the IPR Project begins. It will take the tertiary treated water from the North City Water Reclamation Plant and subject it to a series of advanced treatment processes that will result in water that is said to be nearly distilled water quality. Once it actually begins operations, the Project will spend a year producing and analyzing the highly treated water to determine if it would be feasible for use as a supplement to our water supply. This graphic illustrates the additional treatment given to the tertiary water:



If the study proves to everyone's satisfaction that the water is reliably pure, and if the San Diego City Council and Mayor along with the residents of the city agree, the Project envisions that 16 million gallons of water per day (for starters) could supplement our city's drinking water supply.

Here's a short interview with an Australian water researcher with the Commonwealth Scientific and Industrial Research Organisation. Like San Diego, Australia has a long-term water supply problem and is also looking for IPR to help address its water needs.

Note that the discussion in the video indicates that with reverse osmosis the water is approaching distilled quality. In San Diego's plan, the water will additionally receive ultraviolet treatment, peroxide treatment, and additional pipeline chlorination prior to mixing with the raw water supply. Then it will be aged in the reservoir for a period of time and eventually given final conditioning at a water treatment plant prior to distribution.

Consider: Our raw imported water contains treated wastewater from upstream users (including greater Las Vegas, which sends ALL of its highly treated wastewater [an average of 193 million gallons per day] into Lake Mead on the Colorado River) and is treated in San Diego only once at a water treatment plant like the Alvarado Water Treatment Plant shown here:

Alvarado Water Treatment Plant next to the dam at Lake Murray

Under the IPR Project, tertiary reclaimed water (which approaches the quality of our raw untreated imported water) would be subjected to the advanced treatment described above. In other words, the IPR Project water would not be very different from what we're importing now, and may possibly be an improvement.

A previous San Diego IPR water quality study found that "AWT [Advanced Water Treatment] reduced all compounds regulated by state and federal drinking water standards…to below their notification levels" and "Compared to samples from San Diego reservoirs which store untreated imported water, AWT product water was lower or equivalent in concentration levels for nearly all contaminants/parameters measured."

Indeed, one might wonder why the advanced IPR water treatment isn't done for all imported water supplies!

In the end, if the process is finally approved for production, the purified reclaimed water blended with imported raw supplies will be stored and aged at the San Vicente Reservoir, where the dam is now being raised in order to more than double its current capacity. The added capacity is primarily to serve as an emergency regional backup in case of disruptions in the imported supply and the supplemental IPR process could help keep it full while reducing our import requirements.

A few months ago, San Vicente Dam's surface was prepared for new concrete that will soon arrive in massive quantities needed to raise the top by another 117 feet

Although the demonstration project was approved by the City Council in 2007, implementation has been very slow, partly because of interference by some councilmembers who are still opposed to the idea. Mayor Sanders originally vetoed the project but was overridden. Just two weeks ago Councilmembers DeMaio and Lightner caused a further delay by temporarily blocking a council vote on a contract to start construction on the necessary treatment facility for the project. Still, politics notwithstanding, the project will go on.

"Thousands have lived without love, not one without water." — W.H. Auden