

A new recycled water project in California's San Joaquin Valley diverts urban wastewater toward a number of beneficial uses. Anthea Hansen, general manager of Del Puerto Water District and a key player in the project, explains.

WRITTEN BY Matt Weiser

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Dan Madden, left, who helps oversee the city of Turlock's sewage treatment plant, conducts visitors on a tour of the facility on July 22, 2014. They stand atop a filter tower that helps the city carry out tertiary treatment of its sewage. That treated water is now set to become a supplemental supply for farmers in the Del Puerto Water District and six state and federal wildlife refuges in the San Joaquin Valley. John Holland, Modesto Bee

CALIFORNIA'S ONGOING DROUGHT has sparked a lot of interest in recycled water – basically, cleaning treated sewage to the highest level to make it suitable for other uses. One of the biggest new projects is the **North Valley Regional Recycled Water Program**, a collaboration among numerous agencies in the North San Joaquin Valley.

The project will take tertiary-treated sewage from the cities of Modesto, Turlock and Ceres and route it through new pipelines into the Delta Mendota Canal, owned by the U.S. Bureau of Reclamation. From there, it will be purchased by Del Puerto Water District to irrigate crops on some 200 family farms along the west side of the San Joaquin Valley.

A unique aspect of the project is that **wildlife will also benefit**. Reclamation has an option to purchase as much as 20 percent of the water for wildlife refuges in the San Joaquin Valley to satisfy requirements of the Central Valley Project Improvement Act. Six state and federal refuges will also receive this water from the Delta-Mendota Canal.

The \$90 million project broke ground in August. When completed, it could deliver more than 50,000 acre-feet (62m cubic meters) of recycled water annually to farms and wildlife habitat in a notoriously dry region.



Anthea Hansen, general manager of Del Puerto Water District, was instrumental in plans for the new recycled water project. (Anthea Hansen) To learn more about the project, Water Deeply recently spoke with Anthea Hansen, general manager of Del Puerto Water District.

Water Deeply: Is this project the first of its kind in the Central Valley?

Anthea Hansen: I think so, yes. We're very proud to say that. We believe we are and we believe it may be one of the largest agricultural beneficial reuse projects in California and possibility in the U.S.

The other important thing that I see with this project is those landowners we serve return value to supporting the local economy. We have small towns – Westley, Patterson, Newman, Gustine – along the West Side that are adjacent to Del Puerto's boundaries. Many of our landowners do business in those towns, and we employ people that live in those towns.

This truly is a wonderful project for the region, not just for the district. That's one of the things that was so great to work with the cities on. They truly had their minds around the regional concept.

Water Deeply: How does water move through the project?

Hansen: It's basically just a very simple pipeline project connecting existing facilities.

What we will have, once our construction is completed, is a pipeline that connects to the current outfall from the Turlock wastewater treatment plant. Their outfall is currently located at the San Joaquin River. We will connect a pipeline from that discharge and direct the water northerly to the Modesto wastewater treatment plant, about 8 miles (13km) away. Then, at that point, we will route a pipeline under the San Joaquin River, up two county roads another 6 miles or so, where it will meet up with the Delta-Mendota Canal. And we'll build an outfall facility there, so we will be able to redeliver our share of the recycled water to all the turnouts our district serves both north and south of the outfall facilities.

Water Deeply: How does this project help wildlife?

Hansen: My understanding is this is the first long-term arrangement of this sort for the refuge water supply program since the Central Valley Project Improvement Act required more water for refuges in 1992. I know they have been successful at some shorter-term and interim-type activities. But 44 years is the length of our contract, so that is a pretty long time.

Del Puerto Water District is acquiring 100 percent of the water from the cities. Then we, in turn, have entered into a purchase and exchange contract with the Bureau of Reclamation to pave the way for the sharing of the water with the refuge program.

The contract is a little bit complicated. But in simple numbers, at the end of each year the refuge component could get 20 percent of the available supply and the district would get the remainder. And that's assuming they option their portion in any given year. It's been a good partnership thus far working with refuge water supply program.

Water Deeply: Your district currently gets all its water from the Central Valley Project. Won't this new recycled water supply be more reliable?

Hansen: The CVP has been our sole source of supply. Our contract is for 140,210 acre-feet (17 cubic meters) of water per year. With agricultural service contractors, of which Del Puerto is one of many, our service contracts are subject to shortages. Our contract has been severely hindered by the shortage provisions, and our ability to adequately and affordably meet the needs of our customers is very limited. And it's been extremely difficult, if not impossible, during the drought.

Recycled water is not going to fix or fully meet all of our needs. But it is going to give us some base supply upon which we can count on each year – year in and year out. So it will give us a basis to work off of as we're building our acquisitions to fulfill the rest of our demand.

Recycled water is reliable because it originates as wastewater from households, and then it comes through the treatment plant. This occurs daily on a fairly constant level, thus the reliability. It's produced every day and we will have this closed pipeline that will deliver it every day into the Delta-Mendota Canal.

Compared to what water is available right now – if it's even available – it will be very reasonably priced supplemental water for the duration of the project. Probably somewhere in the \$200 to \$250 an acre-foot range, if I had to guess right now.

We hope the first year will be 25,000 acre-feet, more or less. Over time, as the cities grow and their population increases, we think the water could go upwards of 50 thousand or more acre-feet.

Water Deeply: Will this additional reliability allow farmers in your district to change what they grow?

Hansen: I don't think so. Almost 70 percent of the arable acreage in the district is already in permanent crops. We grow almonds, walnuts, peaches, apricots, cherries, citrus, pistachios. All of those crops are permanent in nature and require a water supply every year. You can't fallow an orchard.

Water Deeply: Will this project help take pressure off groundwater in your district?

Hansen: It should, and this is a secondary benefit that probably 10 years ago wasn't something that was in the front of our thinking. But, certainly, with the Sustainable Groundwater Management Act and our requirements to meet those regulations, we definitely see this as another tool in the toolbox. It should very much help us remain sustainable here in our area.

We are currently in the phase of formulating a groundwater sustainability agency. We plan to get that perfected by the end of the year. Then, once the agency is formed, we've been meeting and working with all of the local agencies in this area to do a comprehensive plan – a group plan, if you will, for this area.

<https://www.newsdeeply.com/water/articles/2016/09/13/north-valley-recycling-urban-wastewater-for-farms-and-wildlife>