

ECHOWATER PROJECT CUSTOMER UPDATE

One of the largest public works projects in the region's history is underway.

The EchoWater Project will upgrade Regional San's wastewater treatment plant and improve water quality in the Sacramento River.

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A 48-Hour Success: Outfall Pipe Replacement

Regional San is working hard to deliver the EchoWater Project under budget and on schedule by 2023—and we are currently on track to do just that. With a project as complex and fast moving as this one, it's no surprise that we face numerous challenges each and every day that have to be quickly and expertly addressed by our staff and project partners.

In the summer of 2018, we successfully tackled a particularly challenging construction project for our

new flow-through diversion structure, which is part of the EchoWater Project's Flow Equalization Project.

The task before us was clear: We had to replace a portion of the existing 102-inch outfall pipe—which carries treated wastewater, or effluent, to the Sacramento River—with a new steel pipe and valving. Our challenge was also clear: Since the outfall pipe could not be used during this project, we had to

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The flow-through diversion structure was successfully reconnected after the new outfall pipe was installed.

A 48-Hour Success: Outfall Pipe Replacement, *cont'd*

temporarily divert the effluent to storage basins, and with limited volume, we had only 48 hours to complete this massive effort.

In the end, the team was able to successfully install the new pipe and complete the work in only 41 hours.

Since every minute counted, nothing could be left to chance. Hour-by-hour work sequences were developed, crane locations and lift plans were carefully determined, contact lists were made for key decision makers, and access requests and safety plans were submitted, reviewed, and finalized. Installation of temporary supports for the existing pipe were also carried out. All of this meticulous planning was critical to ensuring the work could be done within the 48-hour shutdown.

When it came time to do the project, dozens of people gathered onsite ready to work around the clock.

First, the outfall was completely drained. Then, the team began removing the existing outfall pipe, which was no easy feat. Pipe cuts at the walls went smoothly, but breaking the joint between pipe sections was both difficult and time consuming, putting the project hours behind schedule. Once that formidable task was accomplished, however, the team rapidly made up the time.

In the end, the team was able to successfully install the new pipe and complete the work in only 41 hours—and that includes the eight hours it took to drain the existing pipeline.

“It took a lot of diligence and determination from our capable staff and the design and construction team to get this huge pipe replaced in such a short time,” said Ruben Robles, director of Regional San Operations. “Our Operations and Maintenance, Engineering, and Safety sections were instrumental in making it happen.”

Construction Feature: Tertiary Treatment Facilities

As the final critical component of the EchoWater Project, the Tertiary Treatment Facilities (TTF) Project broke ground in May 2018. With an estimated construction cost of \$300 million, this large and complex project will use tertiary filtration and disinfection to remove pathogens and produce high-quality recycled water. The project is made up of more than a dozen large concrete structures, including enormous granular media filters, four massive disinfection basins, several pumping stations, electrical buildings, and numerous support facilities.

Once completed, the TTF Project will be the largest treatment facility of its kind in the country, providing long-term benefits to water quality and the environment. The treatment plant will be able to produce a ready supply of high-quality recycled water for enhanced environmental habitat, irrigation, and groundwater recharge, including for the planned South County Agriculture Program.



Crews excavated and winterized most of the TTF site to ensure heavy construction can proceed despite the winter rains.

Low-Cost Financing Minimizes Rate Increases

The EchoWater Project is largely funded by Regional San's monthly rates and impact fees, which are charged to new users connecting to the sewer system. Funding a project of this magnitude—with construction costs of up to \$1.8 billion and ongoing operation and maintenance costs of approximately \$42 million per year—requires careful planning and a combination of cash expenditures, loans, and bond funding to minimize long-term financial obligations.

In order to help minimize rate increases, Regional San secured \$1.6 billion in a low-interest loan from

California's Clean Water State Revolving Fund Program. The loan has an average interest rate of 1.68% for 30 years, saving our customers at least \$500 million in interest costs over time.

As a result of the low-interest loan and careful financial planning, monthly rates will not rise to the \$60 per month range as originally expected. Regional San's monthly rate has gradually increased during the past eight years, and the current charge is \$37 per month for a single family home. Monthly rates may increase to \$39 by 2021.



"Hoots from Otto!"

Our EchoWater Project Ambassador, Otto the Owl, has interesting facts you may not know about the EchoWater Project.

Biological Nutrient Removal

A critically important requirement of the EchoWater Project is nutrient removal. As a result, the largest and most complex component of the EchoWater Project is the construction of our Biological Nutrient Removal (BNR) facility. The BNR basins alone take up about 20 acres of land at our wastewater treatment plant. That's about 15 football fields!

By reducing ammonia and nitrate in treated wastewater, the BNR facility will ultimately help improve water quality in our receiving water, the Sacramento River. When the BNR facility is completed and operational, it will reduce the amount of ammonia in our treated wastewater by nearly 99 percent! The BNR facility will also help Regional San meet the stringent state discharge requirements that are the primary driver for the EchoWater Project.

With a total construction cost of more than \$400 million, the scope of the BNR project is enormous. It includes the construction of eight massive basins that are 25 feet deep, a pump station, an aeration blower building containing six massive blowers, four electrical buildings, and various support facilities. At the peak of construction, up to 1,000 cubic yards of concrete were being poured in the new basins each day!

In 2018, the BNR project made significant progress. The area control center and blower buildings were erected, the primary effluent pumping station structure was completed, and about half of the work on the BNR basins was completed. Almost all of the site piping, and about a third of the piping in the galleries, were completed. Electrical equipment is currently being set.

The first half of 2019 will bring a flurry of activity as more equipment is set and electrical wire is pulled, terminated, and tested. Testing of the equipment with clean water is expected in late fall 2019, with construction continuing through 2020.



The BNR is the largest and most complex component of the EchoWater Project, with the basins alone taking up about 20 acres of land.



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Low-interest financing for the EchoWater Project has been provided in part by the Clean Water State Revolving Fund through an agreement with the State Water Resources Control Board. The contents of this document do not necessarily reflect the views and policies of the State Water Resources Control Board, nor does mention of trade names or commercial products constitute endorsement or recommendation for use.

What's Next?



In 2019, construction is focusing on two major ongoing projects—the Biological Nutrient Removal Project and the Tertiary Treatment Facilities Project. Work also continues on the Channel Aeration Blower System, the Return Activated Sludge Pumping Project, and the Nitrifying Sidestream Treatment Project. Peak construction activities will continue through 2019, after which many projects will be complete and preparing for commissioning and operation. We will continue to keep our customers updated on the landmark EchoWater Project with next year's annual newsletter.

Connect with Us!

Check out our project website at EchoWaterProject.com. You'll find a complete project overview, project milestones, a photo gallery, and much more!



We're on Facebook! Visit our page at facebook.com/SacRegionalSan to stay updated on Bufferlands events, public tours, and wastewater tips you can incorporate at home.

Regional San remains dedicated to meeting its mission and serving your needs reliably as we move into the next generation of wastewater treatment in our region.