## Desalination plant to produce water this fall

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BROWNSVILLE, Aug, 20 — Brownsville will soon have a new source of drinking water.

The Southmost Regional Water Authority's desalination plant under construction on FM 511 is about 70 percent complete and should be producing potable water "in the October range," said Bill Norris, principal engineer with NRS Consulting Engineers, the company that designed and is overseeing its construction.
Norris said the $25 million facility will provide more than 50 percent of the water for Brownsville, Los Fresnos, Rancho Viejo, Indian Lake and the Port of Brownsville. He expects it operate at full capacity by the end of the year. Construction began in January.

The Laguna Madre Water District is also part of the SRWA but opted out of buying water from the plant.

The desalination project is expected to stabilize both the supply and cost of water in the Brownsville area. The SRWA plant will produce about 7.5 million gallons of water a day at a cost of $1.60 per 1,000 gallons.


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That is comparable to what it would cost to build a conventional surface-water treatment plant at the same location, buying water rights and transporting the water from the river, Norris said. The $1.60 figure includes debt service on the facility.

But the cost of providing additional water should eventually decrease.

The plant has been built so it can be easily expanded to two or three times its present capacity at an additional cost of $10 million to $15 million, Norris said. Expansion would lower the cost of 1,000 gallons of water to $1.40 or less, he said.

"We've oversized the pipelines and the building," he said. "All we have to do is add wells and the units that actually treat the water."

The SRWA plant will produce water using a reverse osmosis system. Its 20 wells, each of which is about 300 feet deep, deliver brackish groundwater to the plant. There, the water is driven under pressure through reverse osmosis membranes. The semipermeable membranes let water molecules pass through, but filter out salts and other minerals, Norris said.

After the minerals are removed, the water's acidity level is adjusted and some well water is blended back in. The treated water is then pumped into water storage tanks and distributed according to demand.

The remaining byproduct from the reverse osmosis process – which is non-toxic and supports marine life – will be discharged into the Brownsville Ship Channel.

Plants like the one the SRWA is building generally last about 30 years, he said, but with proper maintenance "they last indefinitely. The pipe doesn't go bad," Norris said.

NRS initially began its research and development of desalination technology in 1985. Then it began raining, the reservoirs filled up and the project no longer seemed urgent.

"We took John Bruciak (now the general manager of the Brownsville Public Utilities Board) to Florida to look at plants because the Valley was suffering a drought at that time," Norris said. "We felt this should be a viable alternative for us then.

"As long as there's been water in the river, there hasn't been the desire or need to produce alternate sources," Norris said.

Since then, the economics of water have changed.

Ten years ago, desalinated water would have cost more than treated river water. But desalination technology has improved while the cost of treating surface water has increased.

"The two curves have crossed," Norris said.

The town of Rancho Viejo has been getting part of its water from a much smaller desalination plant for four years.

"Overall, our experience has been good," said Robert Burkhart, general manager of the Valley Municipal Utility District, which runs the plant. "The primary reason we bought into the Southmost plant is because it's cheaper than expanding our own plant."

The fact that PUB has lower electric rates also means water from the new SRWA plant can be produced more cheaply.

"The biggest cost of these (plants) is electricity," Burkhart said.

The SRWA project has benefited from VMUD's experience. For example, VMUD's well was built with the standard steel casing and galvanized steel pipe, but they corroded quickly and were replaced with pipes made of polyvinyl chloride.

"The water was much more corrosive than we expected," Burkhart said. "They fell apart in a year."

The SRWA is using stainless steel – much more durable than standard steel – for its well casings, and carrier pipes to the well pump and will use PVC pipe at the well head, Burkhart said.