Desalination plant could cost Nipomo $16M

By Todd Cralley/Adobe Staff

In its search for supplemental water, Nipomo Community Services District is questioning the feasibility of a desalination plant as a possible answer to Nipomo's water woes.

In what was strictly an educational presentation by Boyle Engineering, members of the district's board of directors last week were given a crash course in two popular forms of desalination used throughout the United States.

They are electrodialysis reversal, used frequently with brackish water treatment, and reverse osmosis, the preferred method for sea water.

If the district is to consider using water from the Pacific Ocean, the reverse osmosis process would yield the best results, according to Ernie Kertinen of Boyle Engineering.

However, a plant that would process 3 million gallons of water a day would be costly, with construction costs alone running from $11 million to $16 million.

Kevin Beauchamp, a member of the South County Advisory Council, asked about the overall cost of a desalination plant for the Central Coast.

"Has Boyle looked at the cost of setting up pumps and pipes for the system?" he asked.

Michael Nunley of Boyle Engineering responded, "We are going to look at the costs associated with development. We will identify all cost restraints before we bring anything back to the board."

That includes buying beachfront property, running a pipeline, environmental impact reports and everything else associated with a construction project of that magnitude.

According to the report by the engineering firm, a 3-million-gallon-a-day reverse osmosis plant will create 3,000 acre-feet of potable water per year.

"If we are able to develop something like this, it would completely replace our groundwater," said Larry Vierheilig, NCSD director.

While costs associated with the necessary technology to run a reverse osmosis plant have continued to drop in recent years, conversely, the cost of energy needed to run such a plant has steadily increased.

That's because of the power needed to drive the enormous pumps that force the water through the osmosis membrane.

The membranes are tightly wound, layer over layer, and encased in eight-inch-diameter by 20-foot cartridges. A typical 3-million-gallon-a-day plant will have between 150 and 200 cartridges.

Salt water is forced through the membranes with large pumps and permeate, or clean water, is then separated from the concentrate, or salt water.

“A typical membrane will last eight to 10 years,” Kertinen said. “The cost of technology has come way down recently.”

Operating and maintenance costs would run between $2.8 million and $3.3 million per year, the report said.

Even though Kertinen’s presentation was strictly for educational purposes, NCSD President Mike Winn admitted it is something the board of directors needs to look into as a viable option for recharging the area’s underground aquifers and meeting the needs of a growing community.

“Because we are in a state of overdraft, we have been told by a judge that it is necessary to recharge our aquifer with supplemental water,” Winn said. “We were ordered to put back 2500 acre-feet of water per year.

“That amount is just to make up for the overdraft situation that we are in, and that doesn’t include new development,” he explained. “Many people think it’s going to boost growth, but that’s not how it works. We will also have to bring in new water sources for any future growth.”

An acre-foot is about 326,000 gallons, or the amount of water generally considered to supply the annual needs of four to 10 people in an urban environment.