Slant drilling could make desalination viable

By Mike Hodgson/Associate Editor

A subsurface system being tested in Southern California could provide low-cost, low-impact "feedwater" for a desalination plant to supply Nipomo with supplemental water.

That is, of course, if the Nipomo Community Services District decides to use desalination as a source of water for the community, which is using more groundwater than is being replenished.

Last week, members of an NCSD committee heard a report on the system being tested by the Municipal Water District of Orange County.

The report, presented by Boyle Engineering, is just one of many steps in a long process that could eventually lead to construction of a desalination plant.

"We're just now beginning to explore desalination," said Cliff Trotter, chair of the two-person committee that includes NCSD Director Ed Eby. "It's very complicated, and it takes many years to develop a desalination plant.

"On an interim basis, we hope to find a supplemental water supply with neighboring communities," he added, noting that the district is not now working with any specific communities.

A plan to buy supplemental water from Santa Maria was put on the far back burner last year when the projected costs for a pipeline project skyrocketed beyond the district's means.

The deflation of that hope sent NCSD on a hunt for other alternatives, the most promising of which may be a desalination plant through which sea water is filtered into fresh water.

Trotter said the committee may have a recommendation to give the full NCSD board at its Oct. 10 meeting, but he noted it's far too early to say for certain what that recommendation will be.

"I think the committee will recommend continuing to find a supplemental water supply, then, on the long-term basis, build a desalination plant," Trotter said. "But I caution you that this is all very, very preliminary.

"It's too early to tell if we can afford it, how long it will take and where the plant would be located," he added.

Trotter said the district might build and operate a plant in partnership with other communities like Grover Beach, which is also facing a potential water shortage and recently instituted voluntary water conservation measures.

In the meantime, Boyle Engineering is helping the district investigate supplemental water sources.

"The more we do that, the more we realize how difficult it is to find supplemental water," Trotter said.

Among the issues to deal with in developing a desalination plant are mitigating any environmental impacts, getting permits from the many regulatory agencies involved, obtaining relatively clean sea

water to process and keeping costs within reason.

That's where the process being tested by the Municipal Water District could help.

The Orange County district is testing a technique of slant drilling from the beach out under the ocean, where saltwater obtained from a subsurface aquifer is relatively clean because of natural filtration through the sea floor.

A report on the project by engineer Richard B. Bell, the project manager, indicates slant wells can be constructed in a short time at a reasonable cost and with minimal environmental impact.

Multiple wells can be drilled from a single point on a beach, minimizing disturbance of the environment and allowing water from several wells to be collected at a single underground point.

The cost of the slant drilling at Dana Point was about

$2.2 million, with much of the financing coming from state and federal grants, according to Bell's report.

The California Department of Water Resources, U.S. Bureau of Reclamation and the U.S. Environmental Protection Agency funded $1.5 million of the project.

“We're very pleased with the project, and it has promising technology,” Bell said last week. “We tapped into an alluvial channel offshore.

“One of the positive aspects of our findings was that we got water with very low particulates, about 0.6 SDI, so the well pumped very clear water. That's good.”

SDI, or silt density index, is a measure of the fouling potential of solid particles suspended in water. Numbers of 5 or less are considered good for a reverse osmosis desalination system because the membranes that filter the water will clog at a very low rate.

That increases the yield of fresh water and reduces maintenance costs for reverse osmosis plants, which at present are the most efficient.

“The technology is very good, but we still have a lot of questions that we weren't able to answer yet,” Bell noted.

Bell added that an integral part of any such project is understanding the hydrology of the area where the slant drilling will take place and designing a system that works within that structure.

That, too, is another issue NCSD and its consultants will have to investigate.

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