

Bismarck Looks at New Water System

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It's still fairly early in the process, but it looks as though Bismarck could be a candidate for a new type of water-intake system that would provide the city more water for less money.

Preliminary results from a three-day test show Bismarck could benefit from a horizontal collector well along the Missouri River. The well is a new type of technology, and would be the first of its kind in North Dakota.

The current intake system draws in surface water from the Missouri, complete with bacteria that needs to be chemically treated and sand that's hard on machine parts. It provides the city about 30 million gallons of water per day.

The horizontal collector well would tap a cleaner water source and could save the city money on chemicals, labor and parts. The idea is to sink a pump into an aquifer beneath the river and draw river water down through the riverbed. The riverbed acts as a natural filter, ridding the water of much of the bacteria and most of the sand and gravel.

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-Brett Jochim, AE2S Project Engineer

Up to 35 mgd would be pumped from the aquifer to the treatment plant via a mile or so of pipes. “We're shooting for the best of both worlds,” said Brett Jochim, an engineer for the project. “River water and aquifer water each have their problems. Our intention would be to collect good-quality water from the river after it's been drawn through the riverbed.”

Jochim's employer, Advanced Engineering, ran a 72-hour test of the aquifer June 25-28. Water was continuously pumped out of the aquifer to test the rate at which the river recharged it. The engineers determined the rate was sufficient, which told the city the project was feasible.

But don't look for construction to begin anytime soon on the well, which carries an estimated price tag of more than \$6 million.

The project is still in its early stages, performed not because there's an immediate need for water in Bismarck, but instead to plan for the future. In 25 years or so, the city wants to be able to provide its citizens about 40 mgd. In 50 or 60 years, it wants to pull about 50 mgd from the river, depending on growth of the city.

One horizontal collector well cannot meet those needs here. Whether the city decides to construct two or use a combination of one of the wells and the current intake system, or simply build a larger version of what it has now, is up in the air.

Factors that contribute to the uncertainty are how the Army Corps of Engineers will manage the river and how a Memorial Bridge replacement – which could be built very near the site of the proposed well, south of the current bridge – affects the location.

Some of those questions will be answered in Advanced Engineering's final report of the project, due in August.