



CONSULTING ENGINEERS AND LAND SURVEYORS

Memo

TO: File 801800.6
FROM: Seth Swanson, E.I.
DATE: 4/9/09
RE: Southern Sioux Co. RWS
Well I-2 Test Pumping

Gary Patton and I had a conference call with Doug Yantzie of Sargent Drilling to discuss the development work that has been done on Well I-2 and how to proceed with the test pumping. Doug gave us some data on the well from pre-development and post-development as follows:

Pre-Development

Static Water Level: 102'-6"
Pumping Water Level: 160'
Pumping Rate: 543 gpm
Specific Capacity: 9.4 gpm/ft

Post Development

Static Water Level: 102'-6"
Pumping Water Level: 143'-6"
Pumping Rate: 506 gpm
Specific Capacity: 12.3 gpm/ft

While the specific capacity of Well I-2 is lower than the specific capacity of approximately 25 gpm/ft that is seen in the existing Well I-1, Doug believes that Well I-2 has been fully developed.

Given that the top of the screen of Well I-2 is at a depth of 145 feet, the maximum likely capacity of the well will be around 500 gpm. The step test will be run at rates of 200, 300, 400, and 500 gpm for two hours for each pumping rate. The data for the step test will be reviewed by DGR to recommend a pumping rate for the 24-hour test which will likely occur the day after the step test is complete.

There are two observation wells in the intermediate aquifer and one observation well in the deep Dakota Sandstone Aquifer on site that should be monitored during the pumping tests along with Well I-2, for a total of four wells to be monitored. Sargent Drilling will provide pressure transducers for the monitoring. The wells will be monitored during the step test, the recovery period following the step test, the 24-hour test, and the recovery period following the 24-hour test.

The test pumping will likely be started the middle of next week or on the following Monday, April 27th. Doug will coordinate with Russ Coons ahead of the pumping tests to ensure that wells, such as Well D-1, that could cause interference with the pumping test are shut down. Doug will also coordinate with Russ so that the necessary water samples can be collected during the pumping tests.

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