

Description of aquifer test for Granite well.

A single-well constant rate test of the well was conducted by Carson Pump of Carson City, Nevada following rehabilitation of the well originally drilled in 1989. Copies of time-drawdown and pump-rate data were obtained from files of Brown and Caldwell (Chuck Zimmerman, written commun. 2008). Results of the aquifer tests will be used in the development of a numerical ground-water flow model of the Middle Carson River basin, project # 9705-D29BE. Specifically, the estimated transmissivity will be used to develop a relation between transmissivity and specific yield. The relation is planned to be used with data from driller's logs to develop a preliminary distribution of transmissivity for the model.

The well is located at 39.232778° N, 119.572111° W, NAD 83, in the Carson Plains subbasin of the Dayton Valley Hydrographic Area, about 1.2 miles east of Dayton, Nevada; NWIS site ID [391358119342001](#). The well is completed in a broken rock aquifer to a depth of 494 feet below land surface (see attached Nevada driller's log # [32168](#) for construction details).

Prior to the constant-rate test the well had been cleaned and swabbed and a step-drawdown test was completed on May 17, 2001. The constant-rate test was begun on May 21, 2001 with a rate of about 1,140 GPM for a 72- hour period. Static water level at the start of the constant-rate test was 1.6 feet lower than at that at the start of the step-drawdown test though the well had not been pumped for three days. The lower static water level may indicate that either the well had not fully recovered from the step-drawdown test, or the new static water level was the result of well development during the step-drawdown test. A 100-HP submersible pump was set at a depth of 240 feet in the well and a 6-inch McCrometer flow meter was used to measure discharge. The methods of water-level measurements, location of the discharge of pumped water, and trends in pre-test water-levels are not known. The well was reported completed on 9/6/89. Its use between the time of completion and aquifer testing is not known, but was likely in use for much of the 12-year period between completion and testing.

Time-drawdown data were analyzed using an Excel spreadsheet program (Halford and Kuniansky, 2002). The Cooper-Jacob analysis was used for the constant rate tests. Plots of the time-drawdown data combined with the estimated best-fit straight line used to estimate T, and time-drawdown data are shown in attached copies of the spreadsheet. An offset of data points is seen in late-time data and corresponds to an adjustment of the discharge rate, presumably required to maintain a constant discharge rate. The best-fit line was selected to approximate the slope of points prior to and after the adjustment.

Results of the test indicate a hydraulic conductivity and transmissivity of 6 ft/day and 2,200 ft²/day, respectively.

References Cited

Halford K.J., and Kuniansky, E.L. 2002, Documentation of spreadsheets for the analysis of aquifer pumping and slug test data: U.S. Geological Survey Open-File Report 02-197, 54 p.