

# MEMORANDUM

New Mexico Office of the State Engineer  
*Water Use and Conservation Bureau*

July 29, 2002

**To:** Brian Wilson, P.E., Water Use and Conservation Bureau Chief

**From:** Patrick J. Romero, Water Master I

**Subject:** Deer Canyon Preserve Subdivision Plan (Phase I), Torrance County

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Phase I of the Deer Canyon Preserve Subdivision proposal is a request to develop a 1,160-acre lot into a 316 lot residential subdivision. The lot is located approximately 3 miles South of Mountainair, and is accessible via CR B016, in Sections 20, 21, 28, 29, 33, and 34 of T3N, R6E, N.M.P.M.. This proposal was reviewed pursuant to the Torrance County Subdivision Regulations, and the New Mexico Subdivision Act. The developer proposes that water will be supplied to this development via shared wells.

The subdivider has submitted a geohydrologic report, pursuant to Section 5.4 of the Supplemental guidelines of the Torrance County Subdivision Regulations. The geohydrologic report, and the supplemental data provided by Blackham, Underwood, Gunaji, and Associates includes well logs, results of three well tests, and a calculation of the drawdowns in the water table that would be caused by this development.

A review of the well tests performed indicated that there were irregularities. Both well tests showed that the aquifer being drilled into was extremely limited in extent. Impermeable boundaries were experienced at 10 minutes in well # 12, and at 100 minutes in well #5. The water levels in the wells appeared to level off after approximately 190 and 250 feet of drawdown. I feel that this was due to throttling down done by the well driller, or by the pump, due to the fact that the water levels had reached the pumps. The consultant, who was not present for the tests, apparently felt that the cone of depression had intercepted a fault. I feel that the likelihood of two different wells experiencing the same type of anomaly is unlikely. Due to the fact that reliable recovery data was unavailable, I asked the developer to re-run at least one of the pump tests. The results, an addendum to the report, were supplied to me on 7/23/02. This pump test of Deer Canyon Preserve well #5 did not correlate with the first; the leveling off occurred at 94 feet of drawdown, well before the leveling off seen at 190 feet in the first test. After the throttling down effect seen in the re-done well test at 10 minutes, the test results appear to be skewered, effected by the pump's ability to draw water against increased head. It is my conclusion that the pump was not sufficiently sized, and/or control of the pumping rate was not done properly. This pump test should be re-done by a qualified technician. If the developer does not want to re-do this pump test, he should use a transmissivity value of 3.5 ft<sup>2</sup>/day. This is the value I calculated, using 3 gallons per minute as the rate of water being pumped. This amount of water is the least amount of water being pumped, after the effect of increased head is accounted for.

The developer has failed to supply modeling of each shared well system. Each well should be modeled to reflect the amount of water to be withdrawn by the each well, for the 70-year period. This modeling should be used to determine the drawdown in each well which would occur due to this development. Well inefficiencies as well as historically declining water tables should be added to this drawdown, as per Section 5.4.D. This expected drawdown should not exceed the thickness of the water-bearing strata.

The subdivider has properly quantify his subdivision's annual water requirements, as per Section 2 of the Supplemental guidelines of the Torrance County Subdivision Regulations. The subdivider has specified water restrictions to ensure that his subdivision would not exceed the amount of water legally available from each 72-12-1 domestic well.

It is my conclusion that the subdivider has not demonstrated that sufficient water is available to meet the requirements of his development in accordance with the Torrance County Subdivision Regulations. A favorable opinion to this effect should be **withheld**.