

March 25, 2003

Alex Tafoya  
San Miguel County  
500 W. National Suite 104  
Las Vegas, NM 87801

**CERTIFIED MAIL**  
**RETURN RECEIPT**  
**REQUESTED**

Reference: Santa Fe Mountain Ranch Estates

Dear Mr Tafoya:

The Office of the State Engineer has reviewed the preliminary plat subdivision proposal for the referenced subdivision pursuant to the San Miguel County Subdivision Regulations and provisions of the New Mexico Subdivision Act. It is the opinion of this office that the subdivider's water supply proposal does not comply with the county's subdivision regulations.

The Santa Fe Mountain Ranch Estates proposal is a request to develop the 2311-acre Starkey Ranch into a 87-lot residential subdivision. The lot is located near Gallinas, approximately 10 miles northeast of Las Vegas. It is in the Las Vegas Land Grant in Projected Sections 8, through 11, 14 through 17, 21, and 22 of T17N, R15E, N.M.P.M.. This proposal was reviewed pursuant to the San Miguel County Land Subdivision Regulations, and the New Mexico Subdivision Act. The developer proposes that water will be supplied to this development via individual 72-12-1 domestic wells.

The developer has quantified the maximum annual water requirements of his subdivision, pursuant to Attachment A of Appendix E, Part 2 of the San Miguel County Subdivision Regulations. Water requirements are separated into indoor and outdoor uses. Water use restrictions are specified in the disclosure statement and the covenants. These restrictions are consistent with the water requirement calculations, to ensure that residents will not exceed the amount of water that the domestic wells are proposed to provide, as per the geohydrologic modeling done.

The developer has submitted a geohydrologic report, as required in Attachment A of Appendix E, Part 5. The report, by MJDarrconsult, included interpretive lithologic logs, geologic cross-sections, drawdown and recovery well test data, and 40-year schedule of effects modeling. The developer tested five wells on the property in order to characterize the different water-bearing geologic strata found below the proposed subdivision. In characterizing these aquifers, the author should have provided actual OSE well logs. The drillers notes submitted indicated that the wells encountered thin fractures and in-beds in massive rocks.

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Of primary concern to this office was the inability of three of the wells tested (Far East Replacement, Upper Meadow, and New Well at Gate) to recover. This lack of recovery implies that the aquifers drilled into were partially dewatered. Long term-model based predictions based on these wells may not be accurate due to this dewatering. The hydrologist did not provide an explanation for the failure of the aquifer at these sites. Re-testing may be necessary to determine if these failures were due to the wells not being fully developed. Other concerns of this office include the impermeable boundaries experienced by the “High”, “Upper Meadow”, and “New Well at Gate” wells.

In evaluating the recoveries of the wells, the hydrologist should plot  $t/t'$  (time since pumping started divided by the time since pump ended) vs. depth to water. This Cooper-Jacobs correlation would enable a more detailed evaluation of the data.

The hydrologist should model the aquifer so as to more accurately portray the actual conditions. The wells produce from thin zones in massive rocks. The model employs a 300 foot homogeneous aquifer. This is thicker than any of the fractures experienced. His model portrays a level aquifer, bounded by an impermeable boundary (granite), and a recharge boundary (Gallinas River). This modeling is inaccurate, as the steeply sloping property lying above the stream will not obtain significant recharge from the stream. The use in the subdivision would, instead, intercept recharge flowing towards the Gallinas. The hydrologist’s model predict that 52% of the water needed by the subdivision will come via the Gallinas. This contradicts his statement that this development will have no impacts on the Gallinas. In revising the model for the steeper elevations above the Gallinas, the hydrologist should also use aquifer thickness and transmissivity values reflective of those found in the worse well tested, as per Attachment A of Appendix E, Part 5.c.3.

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 San Miguel County Subdivision Regulations. A positive opinion to this effect will be **withheld**. If you have any questions regarding this opinion, please feel free to call me at (505) 827-6790.

Sincerely,

Patrick J. Romero  
Water Resource Engineer

Cc: Brian C. Wilson, P.E., Water Use and Conservation Bureau