

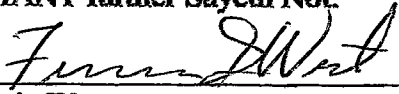
AFFIDAVIT

STATE OF NEW MEXICO)  
  ) ss.  
COUNTY OF SANTA FE,)

I, Francis West, being first duly sworn, do depose and state:

1. I am named as an expert witness for Defendants in the case of State of New Mexico, ex rel. State Engineer v Aamodi. 66cv6639 MV/WPL.
2. I presently reside at 27 Calle Corvo, Placitas, NM 87043.
3. Attached to this affidavit as "Attachment A" is a copy of my letter responses to inquiries by attorney Lorenzo Atencio regarding the hydrology of the Pojoaque Basin surface and underground water therein.
4. The opinions expressed in Attachment "A" are as an expert on the hydrology of the Pojoaque Basin as set forth in my curriculum vitae attached as "Attachment "B".

AFFIANT further Sayeth Not.

  
\_\_\_\_\_  
Francis West

Subscribed and sworn to before me this 1 day of October, 2014.

  
\_\_\_\_\_  
Notary Public



OFFICIAL SEAL  
Jamarquis Dixon  
NOTARY PUBLIC - STATE OF NEW MEXICO

My Commission Expires: 09/10/17

August 30, 2012

Lorenzo Atencio, Attorney  
La Familia  
PO Box 1538  
Española, N.M. 87532

Mr. Atencio:

You have posed two questions related to the ground water aquifer in the Nambé – Pojoaque – Tesuque Basin proper.

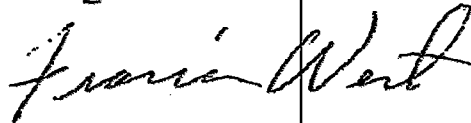
Does the domestic well use in the Basin proper in general and with respect specifically to the defendant, significantly impact the surface water?

Since there is no hydraulic connection between surface water and the ground water in the Basin proper all wells derive their water the storage of water in the aquifer as is required by the Theis equation. The amount of water in storage has been estimated to be on the order of 55 million acre-feet, thus rendering the amount used by a domestic well to be essentially irrelevant.

Is the N-P-T aquifer hydraulically connected to the surface waters of the Basin proper?

To answer that question one would use the "Basic Data Report: Well Location and Water-level Map and Data for Santa Fe County" W.A. Mourant, 1980, State Engineer Office. The data for the water-level contours on the map (figure 3) do not indicate that there is any hydraulic connection between the Rio Nambé, Rio Tesuque or the Pojoaque River in the Basin proper. The map, as contoured, does indicate a connection in the reach of the Rio Nambé from Nambé Pueblo to Nambé Falls, however, there are no data in that area to support such a contouring.

Francis West, Hydrologist  
27 Calle Corvo  
Placitas N.M. 87043



"A"

**RESUME OF  
FRANCIS G. WEST, Professional Engineer.  
(Hydrologic)**

**SUMMARY**

Involved in all aspects of water resources for the last forty years. This experience has included geohydrologic investigations, developing ground-water basin administrative plans and criteria, advising counties on subdivision matters and providing expert testimony at State Engineer hearings and in Federal Court.

**1993 to Present Consultant**

Consulting on various aspects of water resource planning and development, including water rights. These have included the Santa Fe County Water Resource Inventory and the Village of Cimmaron Water Planning Study. Reviewed Water Rights Acquisition Project for the Pecos River.

**1980 to 1993: New Mexico State Engineer Office  
Water Resource Engineering Specialist**

As Chief of Water Use and Reports, I directed studies on New Mexico' water supply, demands and shortages to be prepared as reports for publication. I prepared the current estimates of the states reserves of ground water. An additional responsibility was the review of water supply proposals of subdividers and providing advice to counties (8) amending subdivision or land-use regulations. As Chief of Hydrology, I directed the staff in the technical preparation of cases for water rights litigation and adjudication, such as in the lower Rio Grande (Texas v. N.M.). This included the initiation and monitoring of the progress of projects to acquire needed geohydrologic data. Testimony as an expert witness in geohydrology was given in various State Engineer hearings and in Federal Court. During this period financial budgets for the activities were prepared and personnel matters were ongoing.

**1968-1980: Los Alamos Scientific Laboratory  
Staff Member to Assistant Group Leader**

Initially involved in the field testing of nuclear devices at the Nevada Test Site, Rulison, Colorado (Plowshare Project) and Amchitka, Alaska. In connection with these test sites, the geology and ground-water conditions were investigated to determine any possible impact on the event. Coring and geophysical logging, particularly large-diameter dry holes, was a primary responsibility. Assigned field responsibility on particular tests for directional drilling operations to recover device residue for radiochemistry analysis.

The last seven years at Los Alamos were spent in the geoscience facets of the "Hot Dry Rock" geothermal project. Disciplines utilized were geohydrology, geophysics and rock mechanics, particularly as applied to flow through fractures. As part of the technology transfer phase of the project it was necessary to train private firms under contractual arrangements. I served as contract monitor for the Department of Energy on the New

" B "

Mexico Low-Temperature Direct-Utilization Geothermal Program. I was active in the writing of proposals for two projects. I was the principal investigator on a project to review the viability of seismic detection of nuclear underground bomb tests when considered in light of recent geologic and geophysical data.

**1959-1968:** New Mexico State Engineer Office  
Water Resource Engineer/Geohydrologist

Concerned with the application of hydrogeology/geohydrology to the administration of New Mexico water laws, this included the development of plans for the management of the Lordsburg and Mimbres ground water basins using economic criteria. I planned, designed and performed the economic analysis of the proposed Portales Irrigation Project. Field investigations and office studies that included mathematical models of ground-water conditions were performed for various areas of the State. I developed the first computational model for the administration of water rights in the Santa Fe area. Water supply wells were located for a number of rural communities.

**1955 to 1959:** Mobil Oil Company  
Senior Seismologist

Engaged in exploration for oil in five states and Venezuela. The principles of hydrodynamic entrapment of petroleum were applied in certain of the prospects. Knowledge of the general ground-water conditions was used to predict levels of seismic coupling to determine proper instrument settings.

**EDUCATION:** New Mexico Institute of Mining and Technology  
Bachelor of Science in Geophysics, 1955

**REGISTRATION:**  
Professional Engineer in Geological and Hydrologic Engineering,  
1960, #3416 N. M.

**PERSONAL:** Age: 81  
Married: Three grown children  
Veteran: Army

**ORGANIZATIONS:**  
Las Acequias de Chupadero Chairman 1976 to 1997; Parciante since 1952  
Las Tres Villas (Tesuque/Chupadero/Rio En Medio), president 1993  
Tesuque Volunteer Fire Department, Chief 1989-90.  
American Geophysical Union.

**PUBLICATIONS OF FRANCIS G. West**  
**Professional Journals and Papers Presented**

- West, F. G., 1973, Geohydrology of the Jemez Plateau, (abs), EOS Am. Geophys. Union Trans., V. 54., No. 11, p. 1214-1215
- West, F. G., 1974, Dry Hot Rock Project, N. Mex. Geol. Soc. Guidebook, 25th Field Conf., p. 355-358.
- West, F. G., and A. W. Laughlin, 1976, Spectral gamma logging in crystalline basement rocks, Geology, V. 4, p. 617-618.
- Laughlin, A. W., and F. G. West, 1977, Hot Dry Rock geothermal energy: exploitation and exploration, (abs) APPG-SEPM Convention on Energy and Minerals, Washington, D.C.
- Laughlin, A. W., R. A. Pettit, F. G. West, A. C. Eddy, J. P. Balogna, and R. W. Charles, 1977 Status of the Los Alamos experiment to extract geothermal energy from hot dry rocks, Geology, V. 5, p. 237-240.
- West, F. G. and T. J. Shankland, 1977, Hot Dry Rock-widespread, but invisible, EOS Am. Geophys. Union Trans., V. 58, No. 5, p. 299-302.
- West, F. G., 1977, Tilts associated with volcanic activity Guadeloupe F. W. I., Fall 1976, (abs) 8th Caribbean Geological Conference, Curacao, p. 224.
- Kintzinger, P. R. and F. G. West, 1978, Mise a La Masse detection and modeling of hydraulic fractures at LASL geothermal site, (abs), Soc. Exploration Geophysicists.
- West, F. G. and A. W. Laughlin, 1979, Aquarius Mountain area Arizona: a possible HDR prospect, Geothermal Energy, V. 7. p. 13-20.
- Heiken, G., B. Crowe, T. McGetchin, F. West, J. Eichelberger, D. Bartrom, R. Peterson and K. Wohletz, 1980, Phreatic eruption clouds; The activity of La Soufriere de Guadeloupe F.W.I.; August-October 1976, 1980, Bull. Volcanologique, V. 43-2, p. 383-395.
- West, F. G. and W. M. Fleming, 1989, Erosion in Northern New Mexico revisited; American Water Resources Association, Conference on Advances in Management of Southwestern Watersheds, Socorro, N.M.
- West, F. G. 1990, Time, Semantics and Water Resources, Am. Geophys. Union Hydrology Days, Ft. Collins, Co.
- West, F. G., 1992, Hydrologic Processes in Volcanoes, Geol. Soc. Am. Penrose Conf., Kennewick, Oregon.

- West, F. G., 1995, Water Resources of the Mesilla Valley: A Century of Investigations, 40th Annual N.M. Water Conference, Las Cruces N.M.
- Lewis, A. C. and F. G. West, 1995, Conceptual Hydrologic Systems for Santa Fe County, 46th Field Conference, N.M. Geological Society.

#### Government Documents

- Keller, C., D. Engstrom and F. West, 1971, In-situ permeability measurements for event U1-C, Los Alamos Scientific Laboratory LA-5425-MS
- West F., 1973, Regional geology and geophysics of the Jemez Mountains, Los Alamos Scientific Laboratory, LA-5362-MS
- Purtyman, W., F. West and W. Adams, 1974, Preliminary study of the quality of water in the drainage area of the Jemez River and Rio Guadalupe, Los Alamos Scientific Laboratory LA-5595-MS.
- West, F., P. Kintzinger and A. Laughlin, 1975, Geophysical Logging in Los Alamos Scientific Laboratory Geothermal Test Hole No.2., Los Alamos Scientific Laboratory LA-6112-MS.
- Purtyman, W., R. Pettitt, and F. West, 1975, Geology of geothermal test hole GT-2, Fenton Hill Site, Los Alamos Scientific Laboratory, LA-5780-MS.
- West, F., P. Kintzinger and W. Purtyman, 1975, Hydrologic testing geothermal test hole No. 2, Los Alamos Scientific Laboratory, LA-6071-MS.
- West, F., P. Kintzinger and A. Laughlin, 1975, Geophysical logging in Los Alamos Scientific Laboratory geothermal test hole No. 2, Los Alamos Scientific Laboratory, LA-6112-MS.
- Kintzinger, P. and F. West, 1976, Seismic reconnaissance of the Los Alamos Scientific Laboratory's Dry Hot Rock Geothermal Project Area, Los Alamos Scientific Laboratory, LA-6435-MS.
- Purtyman, W., W. Adams, A. Stoker, and F. West, 1976, Water quality in vicinity of Fenton Hill Site, 1975, Los Alamos Scientific Laboratory LA-6511-MS.
- Kintzinger, P., F. West and R. Aamodt, 1977, Downhole electrical detection of hydraulic fractures in GT-2 and EE-1, Los Alamos Scientific Laboratory LA-6890-MS.
- Kintzinger, P., C. Reynolds, F. West and G. Suhr, 1978, Seismic reflection surveys near LASL geothermal site, Los Alamos Scientific Laboratory LA-7228-MS.

- Aiken, C., A. Laughlin and F. West, 1978, Residual Bouguer gravity anomaly map of New Mexico, Los Alamos Scientific Laboratory LA-7466-MP.
- Lansford, R., B. Creel, F. West, H. Vanderberry, and D. Gerhardt, 1984, Sources of irrigation water and irrigated acreages in New Mexico by county 1978-1983; New Mexico State University Agricultural Experiment Station Research Report 554.
- Lansford, R., B. Creel, C. Mapel, F. West, B. Peacock, H. Vanderberry and D. Gerhardt, 1985, Sources of irrigation water and irrigated acreages in New Mexico by county 1978-1983; New Mexico State University Agricultural Experiment Station Research Report 571.
- Lansford, R., B. Creel, C. Mapel, F. West, B. Peacock, H. Vanderberry and D. Gerhardt, 1986, Sources of irrigation water and irrigated acreages in New Mexico by county, 1980-1985; New Mexico State University Agricultural Experiment Station Research Report 596.