

1 BILL LOCKYER
Attorney General of the State of California
2 TOM GREENE
Chief Assistant Attorney General
3 J. MATTHEW RODRIQUEZ
Senior Assistant Attorney General
4 MICHAEL L. CROW
Deputy Attorney General
5 State Bar No. 70498
VIRGINIA CAHILL
6 Deputy Attorney General
State Bar No. 99167
7 1300 I Street
P.O. Box 944255
8 Sacramento, CA 94244-2550
Telephone: (916) 327-7856
9 Fax: (916) 327-2319
michael.crow@doj.ca.gov;
10 virginia.cahill@doj.ca.gov
Attorneys for Defendant State of California;
11 Santa Monica Mountains Conservancy; 50th District
Agricultural Association

12 SUPERIOR COURT OF CALIFORNIA

13 COUNTY OF LOS ANGELES

14
15 Coordination Proceeding Special title (Rule 1550(b))

16 **ANTELOPE VALLEY GROUNDWATER CASES:**

17 Included Actions:

18 Los Angeles County Waterworks District No. 40 v.
Diamond Farming Co.
Superior Court of California, County of Los Angeles,
19 Case No.: BC 325 201

20 Los Angeles County Waterworks District No. 40 v.
Diamond Farming Co.
Superior Court of California, County of Kern, Case No.:
21 S-1500-CV-254-348

22 Wm. Bolthouse Farms, Inc. v. City of Lancaster
23 Diamond Farming Co. v. City of Lancaster
Diamond Farming Co. v. Palmdale Water District
24 Superior Court of California, County of Riverside,
consolidated actions, Case Nos. RIC 353 840, RIC 344
25 436, RIC 344 668

Judicial Council Coordination
Proceeding No.: 4408

Case No.: 1-05-CV-049053

**EXPERT DECLARATION OF
ROBERT L. PIEROTTI IN
SUPPORT OF STATE OF
CALIFORNIA'S POSITION
ON ANTELOPE VALLEY
GROUNDWATER BASIN
BOUNDARIES**

Dept: 1

Judge: Hon. Jack Komar
(By Judicial Council
Assignment)

Trial: July 24, 2006
10:00 a.m.

26
27 ///

28 ///

1 I, ROBERT L. PIEROTTI, declare:

2 1. I am a Supervising Engineering Geologist with the California Department of
3 Water Resources (DWR), Southern District. I am a California Professional Geologist, a
4 California Certified Engineering Geologist, and a California Certified Hydrogeologist.

5 2. I earned a Master of Science degree in geology in 1992 from California State
6 University, Los Angeles. Prior to that, I earned a Bachelor of Science degree in geology in 1985
7 and a Bachelor of Arts degree in geography in 1980 from California State University, Northridge.

8 3. I have been employed by the California Department of Water Resources, Southern
9 District since October 1985. I am currently a Supervising Engineering Geologist and have held
10 that position since October of 2004, acting as Chief of the Resources Assessment Branch. Prior
11 to that time, I held the position of Senior Engineering Geologist (Supervisor) from January 1999
12 to October 2004, acting as Chief of the Groundwater Section. I was a Senior Engineering
13 Geologist (Specialist) from June 1994 to January 1999, and conducted basin-wide hydrogeologic
14 and groundwater quality investigations. From October 1989 to May 1994, I was an Associate
15 Engineering Geologist acting as Leadperson of the Water Quality Evaluation Section. From
16 October 1985 to September 1989, I was an Engineering Geologist and conducted basin-wide and
17 site-specific hydrogeologic and water quality investigations.

18 4. It is and has been my responsibility as Chief of the Resources Assessment Branch
19 in the Southern District of the California Department of Water Resources to supervise and
20 manage three sections: Groundwater, Watermaster, and Special Studies and to act as Deputy
21 Watermaster for the Central and West Coast Basins of Los Angeles County. As Chief of the
22 Groundwater Section, I managed the groundwater basin assessment project and the Southern
23 District's work on the 2003 update of DWR's Bulletin 118, *California's Ground Water*.

24 5. In 1996, I testified as an expert witness on behalf of the California Department of
25 Health Services, Food and Drug Branch at an administrative law hearing in San Diego,
26 California, regarding a claim that a source of water was a spring and that the water from it could
27 be bottled and labeled as "spring water." (*In Re Application of Rancho Tres Cedros*, DHS No.
28 96-001; OAH No. L960816.)

1 6. I have been requested by the California Attorney General's Office, on behalf of
2 the State of California to identify the hydrogeologic boundaries and sources of replenishment for
3 the Antelope Valley Groundwater Basin.

4 7. In 1975, the Department of Water Resources published Bulletin 118, entitled
5 *California's Ground Water* (118-75). The purpose of this report was to summarize available
6 information from the Department of Water Resources, United States Geological Survey, and
7 other agencies for individual groundwater basins to "help those who must make decisions
8 affecting the protection, additional use, and management of the State's ground water resources."
9 Bulletin 118-75 contained a summary of technical information for 248 of the 461 identified
10 groundwater basins, subbasins, and what were referred to as "areas of potential groundwater
11 storage" in California with maps showing their location and aerial extent. The Bulletin 118-75
12 basin boundary definition was based on geologic and hydrogeologic considerations.

13 In 2003, DWR published an update of Bulletin 118 (118-03). The updating of Bulletin
14 118 began in late 1999 and continued until the report was published in 2003. During that time, I
15 was responsible for supervising DWR's investigation of all groundwater basins within the
16 Southern District, including the Antelope Valley Groundwater Basin.

17 Delineation of the groundwater basins' boundaries is based primarily on the 1:250,000
18 scale Geologic Map of California (California Division of Mines and Geology). For some basins,
19 other maps, literature, or borehole lithologic logs were used to identify boundaries. Groundwater
20 basin boundaries may be based on geologic contacts, groundwater barriers, surface drainage
21 divides, groundwater divides, political boundaries, or a combination thereof. To help define the
22 Antelope Valley Groundwater Basin, we also used the Bouguer Gravity Map of California
23 published by the California Division of Mines and Geology.

24 8. The Antelope Valley Groundwater Basin underlies an extensive valley in the
25 western Mojave Desert. The basin is bounded on the northwest by the Tehachapi Mountains and
26 on the southwest by the San Gabriel Mountains. The basin is bounded on the east by ridges,
27 buttes, and low hills that form a surface water drainage divide, on the northeast by the Harper
28 Valley Groundwater Basin, and on the north by the Fremont Valley Groundwater Basin. At the

1 southern end of the Fremont Valley Groundwater Basin, the boundary with the Antelope Valley
2 Groundwater Basin is formed by a southeastward-trending groundwater divide that extends from
3 the mouth of Oak Creek through Middle Butte to exposed bedrock near Gem Hill.

4 Antelope Valley overlies a large sediment-filled structural basin that is broken by
5 several faults including the San Andreas, Randsburg-Mojave, Cottonwood, Willow Springs,
6 Rosamond, Neenach, El Mirage, Spring, and Blake Ranch faults. To varying degrees, these
7 faults impede the flow of groundwater within the Antelope Valley Groundwater Basin, and some
8 of these faults have been used by some investigators as subunit boundaries. The Antelope Valley
9 Groundwater Basin as defined in Bulletin 118-03 is shown on Exhibit 1 and is incorporated
10 herein by reference. This map was prepared under my supervision by DWR Southern District
11 staff, employing the same process as used in other groundwater basins.

12 9. In preparing Bulletin 118-03, one of the questions DWR staff under my supervision
13 analyzed was whether or not the Willow Springs area should be included in the Antelope Valley
14 Groundwater Basin. The Willow Springs area referred to herein lies north of the Willow Springs
15 and Cottonwood faults and southwest of a line that extends southeastward from the mouth of
16 Oak Creek Canyon through Middle Butte to the exposed bedrock near Gem Hill. Based on the
17 available hydrogeological and geophysical information, it is our opinion that it is appropriate to
18 classify the Willow Springs area as a portion of the Antelope Valley Groundwater Basin. We
19 base our conclusion on our analysis of groundwater level data (Exhibit 2) and our interpretation
20 of the Bouguer Gravity Map of California (Exhibit 3). Exhibits 2 and 3 were prepared under my
21 direction by DWR Southern District staff, and are attached hereto and incorporated herein by
22 reference.

23 Our groundwater contour map (Exhibit 2) shows lines of equal elevation of the water
24 table in an area that extends from south of the Willows Spring fault to north of Oak Creek. Our
25 interpretation of the data is that water from Oak Creek and the Tehachapi Mountains contributes
26 to the groundwater replenishment of the Antelope Valley Groundwater Basin. After emerging
27 from the mouth of Oak Creek Canyon, Oak Creek flows predominantly southward in braided
28 channels. However, except during floods, stream flow likely infiltrates into the ground near the

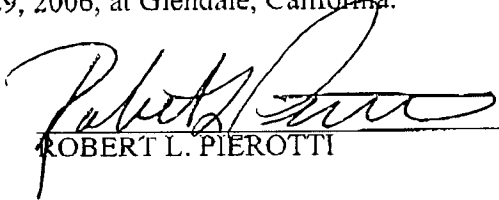
1 mouth of the canyon and flows in the subsurface eastward, southeastward, and southward,
2 perpendicular to the groundwater contours shown on the map. This dispersion of flow creates a
3 groundwater divide that extends from the mouth of Oak Creek Canyon southeastward through
4 Middle Butte to exposed bedrock near Gem Hill. The water on the northeastern side of the divide
5 flows eastward, then northward toward Koehn Lake in Fremont Valley, whereas the groundwater
6 on the southwestern side of the divide flows southeastward through the Willow Springs area,
7 across the Willow Springs fault, and toward the central part of the Antelope Valley Groundwater
8 Basin.

9 The Bouguer gravity map indicates that there is a trough of lower density materials
10 trending northeastward across the western part of Antelope Valley and crossing the Willow
11 Springs fault. Bouguer gravity maps are interpreted to show variations in the density of rock
12 materials. Relatively high value-contours (i.e., less negative values) delineate areas underlain by
13 higher density materials, whereas relatively low value-contours (i.e., more negative values)
14 delineate areas underlain by lower density materials. Well consolidated rocks tend to have higher
15 densities and poorly consolidated rocks tend to have lower densities. In the Antelope Valley, we
16 interpret lower density material to be unconsolidated alluvium or highly weathered and
17 decomposed bedrock. These lower density rocks tend to have higher porosities and, hence,
18 higher water-bearing capacities. The groundwater divide (Exhibit 2) and a connected body of
19 alluvium implied by the Bouguer gravity contours (Exhibit 3) support our conclusion that the
20 Willow Springs area is properly included as belonging to the Antelope Valley Groundwater
21 Basin.

22 10. Natural recharge to the Antelope Valley Groundwater Basin is accomplished
23 primarily through the infiltration of surface runoff from the surrounding mountains and hills.
24 Attached as Exhibit 4 and incorporated herein by reference is a map prepared by DWR Southern
25 District staff under my direction showing stream gauging stations and the average annual flow in
26 acre feet at those gauging stations. The creeks with the greatest volume of flow are Big Rock
27 Creek, Little Rock Creek, and Mescal Creek, which flow into the southeastern part of the valley
28 from the San Gabriel Mountains, and Oak Creek, which flows into the Willow Springs area from

1 the Tehachapi Mountains. Exhibit 4 shows an average annual flow of 25,714 acre feet on Big
2 Rock Creek, 12,472 acre feet on Little Rock Creek, 2,060 acre feet on Mescal Creek, and 919
3 acre feet on Oak Creek.

4 I declare under penalty of perjury under the laws of the State of California that the
5 foregoing is true and correct. Executed on June 29, 2006, at Glendale, California.

6
7 
8 ROBERT L. PIEROTTI

9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28

DECLARATION OF SERVICE

I, declare:

I am employed in the Office of the Attorney General, which is the office of a member of the California State Bar at which member's direction this service is made. I am 18 years of age or older and not a party to this matter; my business address is: 1300 I Street, P.O. Box 944255, Sacramento, California 94244-2550.

On June 29, 2006, I served the **EXPERT DECLARATION OF ROBERT L. PIEROTTI IN SUPPORT OF STATE OF CALIFORNIA'S POSITION ON ANTELOPE VALLEY GROUNDWATER BASIN BOUNDARIES.**

- Posting the document(s) listed above to the Santa Clara County Superior Court web site in regard to the Antelope Valley Groundwater matter on June 29, 2006.
- by placing a true copy of the document(s) listed above in a sealed envelope with postage thereon fully prepaid using the overnight courier, Golden State Overnight Courier Service, addressed as follows:

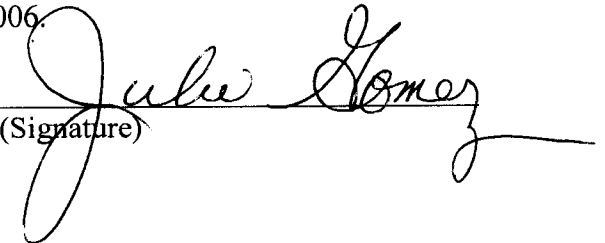
Presiding Judge of the Superior Court of California, County of Los Angeles
County Courthouse
111 North Hill Street
Los Angeles, CA 90012-3014

Chair, Judicial Council of California
Administrative office of the Courts
Attn: Appellate and Trial Court Judicial Services (Civil Case Coordination)
455 Golden Gate Avenue
San Francisco, CA 94102-3688

Honorable Jack Kumar
Santa Clara County Superior Court
191 North First Street, Department 17C
San Jose, Ca 95113

I declare under penalty of perjury under the laws of the State of California the foregoing is true and correct and that this declaration was executed on June 29, 2006.

Declarant
Julie Gomez


(Signature)