U.S. DEPARTMENT OF THE INTERIOR
U.S. GEOLOGICAL SURVEY

Prepared in cooperation with the ANTELOPE VALLEY WATER GROUP

WATER-RESOURCES INVESTIGATIONS REPORT 98-4022
Sheet 2 of 2

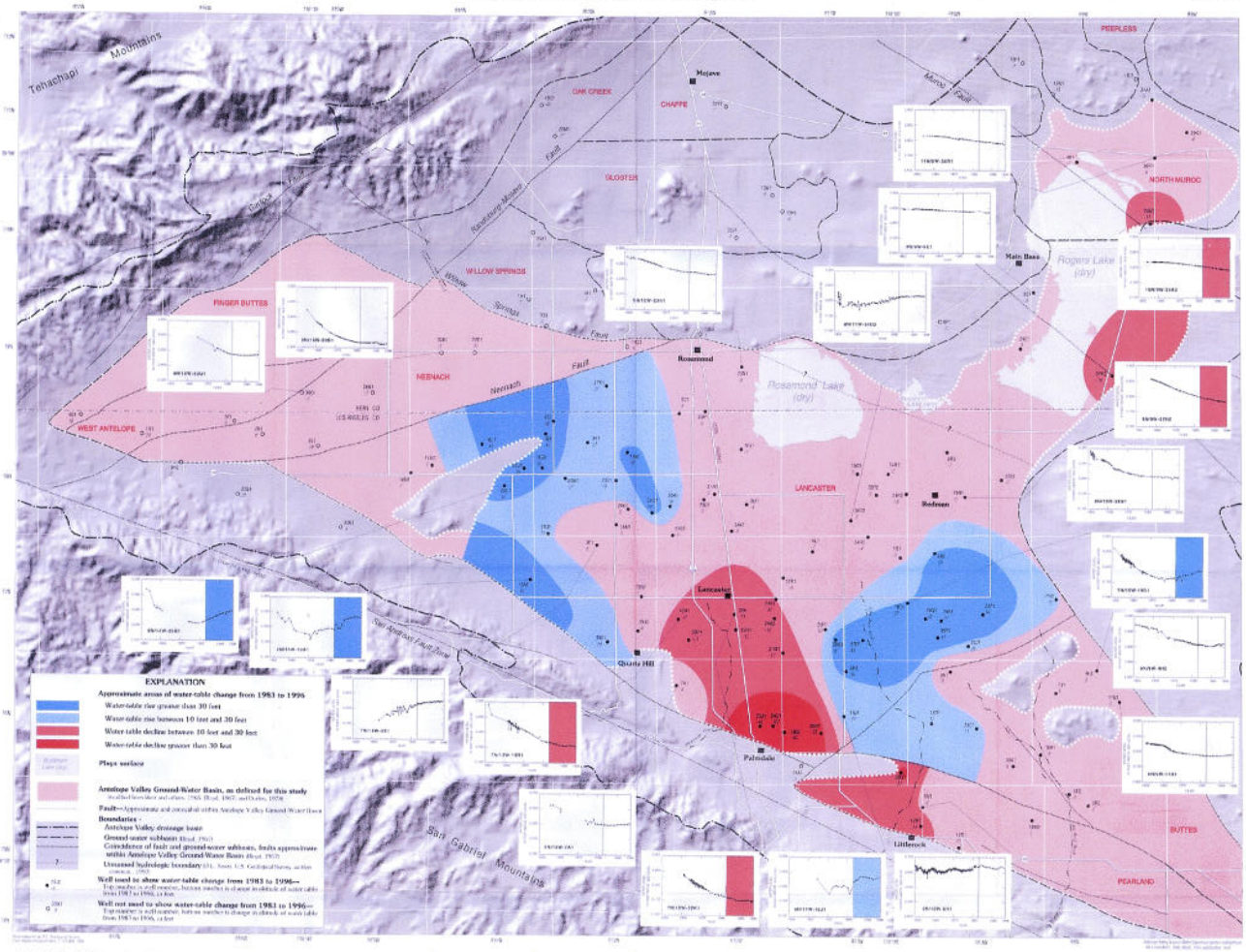

Figure 4. Water-table change from 1983 to 1996 and selected historical hydrographs in Antelope Valley.

Scale: 1:125,000

Table 1. Summary of well data, Antelope Valley.

where water levels have declined: the vicinity of Lancaster, 10- to 21-ft decline; the vicinity of Palmdale, 33- to 107-ft decline; northwest of Littlerock, 15- to 31-ft decline; and east of Rogers Lake, greater than 10-ft decline. The area of water-level decline shown east of Rogers Lake (dry) in the Lancaster subbasin is larger than would be justified by one data point (9N/9W-27H2) and was based on historical water levels that do not correspond to the period 1983-1996 (not shown). On the basis of a single well measurement (11N/9W-24A2), an area of a greater than 10-ft water-level decline is shown in the North Muroc subbasin. Notably, 1983 water-level data are not available near the southern end of Rogers Lake (dry) in the primary ground-water production zone for Edwards Air Force Base. The available records show a water-level decline of about 2 ft/yr on the basis of April water levels in this area (9N/10W-30P2) since 1992.

There are two primary areas where water levels have risen: east of Lancaster between Redman and Littlerock, 10- to 46-ft rise; northwest of Lancaster, 11- to 42-ft rise. None of the areas with rising water levels are near major urban centers, and probably all of these areas previously were irrigated more heavily. Even though water levels have risen in these areas (fig. 4), they are still regional water-table lows, as shown on the water-table map (fig. 2).

Summary

The 1996 water-table map indicates that ground-water movement is toward regional water table lows southwest of Rosamond and south and east of Lancaster. Ground-water movement also occurs toward water table lows both north and south of Rogers Lake (dry). Generally, areas of increased urbanization show water-level declines for the period 1983-1996: the vicinity of Lancaster, 10- to 21-ft decline; the vicinity of Palmdale, 33- to 107-ft decline, and northwest of Littlerock, 15- to 31-ft decline. Limited data indicate areas of greater than 10-ft water-level declines east of Rogers Lake (dry). Water-level data for 1983 are not available near the southern end of Rogers Lake (dry) in the primary ground-water production zone for Edwards Air Force Base. Available records indicate a water-level decline of about 2 ft/yr since 1992 on the basis of April water levels in this area. Areas of decreased agricultural production show water-level rises for the period 1983-1996: east of Lancaster between Redman and Littlerock, 10- to 46-ft rise; and northwest of Lancaster, 11- to 42-ft rise. Even though water levels have risen in these areas (fig. 4), the areas are still regional water-table lows, as shown on the water-table map (fig. 2). Ground-water movement, pumping lifts, and subsidence rates are affected by these changing conditions. Water-table conditions could be defined better by including additional wells in the monitoring network, particularly in areas of sparse data and rapidly changing water levels.

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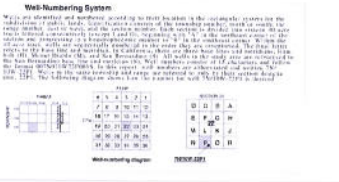
Well-Numbering System

Wells are identified and numbered according to their location in the rectangular system for the subdivision of public lands. Each letter in each section of the township and range, north or south, and east or west, and the section number. Each section is divided into sixteen 40-acre tracts, lettered consecutively, beginning with the letter M in the northeast corner of the section and proceeding in a boustrophedonic manner, ending with the letter E in the southeast corner. Within the 40-acre tract, wells are successively numbered in the order they are inventoried, beginning with the letter, or by the letter and a number, for example, in California, the three basic lines and meridians, from both (H) Mount Diablo (M), and San Bernardino (S). All wells in the study area are referenced to the Mount Diablo base line and meridian. The first number in the well number denotes the township, the second number the range, and the third number the section. For this report, well numbers are abbreviated to only the last three digits (for example, 32N/12W-17H1). Wells in the same township and range are referred to only by their section designation (for example, 17H1). The following diagram shows how the system for well number 32N/12W-17H1 is derived.



Vertical Datum

Sea level: In this report, sea level refers to the National Geodetic Vertical Datum of 1929, a geodetic datum derived from a general adjustment of the first-order level nets of the United States and Canada, formerly called Sea Level Datum of 1929.

Conversion Factors

Multiply	By	To obtain
acre-feet (acre-ft)	1,233.5	cubic meter
acre-foot per square mile	200.23	cubic hectometer per year
foot per year (ft/yr)	0.96	meter per year
foot (ft)	0.305	meter
inch (in)	25.4	millimeter
mile (mi)	1.609	kilometer
square mile (mi²)	2.590	square kilometer

Temperature in degrees Fahrenheit (°F) can be converted to degrees Celsius (°C) by the following equation:

°C = (°F - 32) / 1.8

Regional Water Table (1996) and Water-Table Changes in the Antelope Valley Ground-Water Basin, California

by Carl S. Carlson, David A. Leighton, Steven P. Phillips, and Loren F. Metzger, 1998

EXHIBIT B