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SIGNATURE: ....Janis Wilson........................

TITLE: Business Partner Specialist..

OFFICE: ...United States Geological Survey..................................

PWS-0198-0001

Ground-Water-Level Monitoring, Basin Boundaries, and Potentiometric Surfaces of the Aquifer System at Edwards Air Force Base, California, 1992

By DIANE L. REWIS

U.S. GEOLOGICAL SURVEY

Water-Resources Investigations Report 95-4131

Prepared in cooperation with the U.S. DEPARTMENT OF THE AIR FORCE, EDWARDS AIR FORCE BASE, AIR FORCE FLIGHT TEST CENTER

Sacramento, California
1995

PWS-0198-0002

U.S. DEPARTMENT OF THE INTERIOR

BRUCE BABBITT, Secretary

U.S. GEOLOGICAL SURVEY

Gordon P. Eaton, Director

For addtional information write to:

District Chief
U.S. Geological Survey
Federal Building, Room W-2233
2800 Cottage Way
Sacramento, CA 95825

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CONVERSION FACTORS

Multiply	By	To obtain
acre-feet (acre-ft)	1,233	cubic meter
foot (ft)	0.3048	meter
gallon (gal)	3.785	liter
inch (in.)	2.54	centimeter
inch per year (in/yr)	2.54	centimeter per year
mile (mi)	1.609	kilometer
square mile (mi^2)	2.590	square kilometer

In this report, units of measurement for recharge and pumpage are given in acre-feet and gallons. Acre-feet can be converted to gallons by multiplying by $3.259 x 10^5$. Raw data were reported by Edwards Air Force Base in thousand gallons.

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.

Acronyms

EAFB Edwards Air Force Base
GPS Global Positioning System
USGS U.S. Geological Survey

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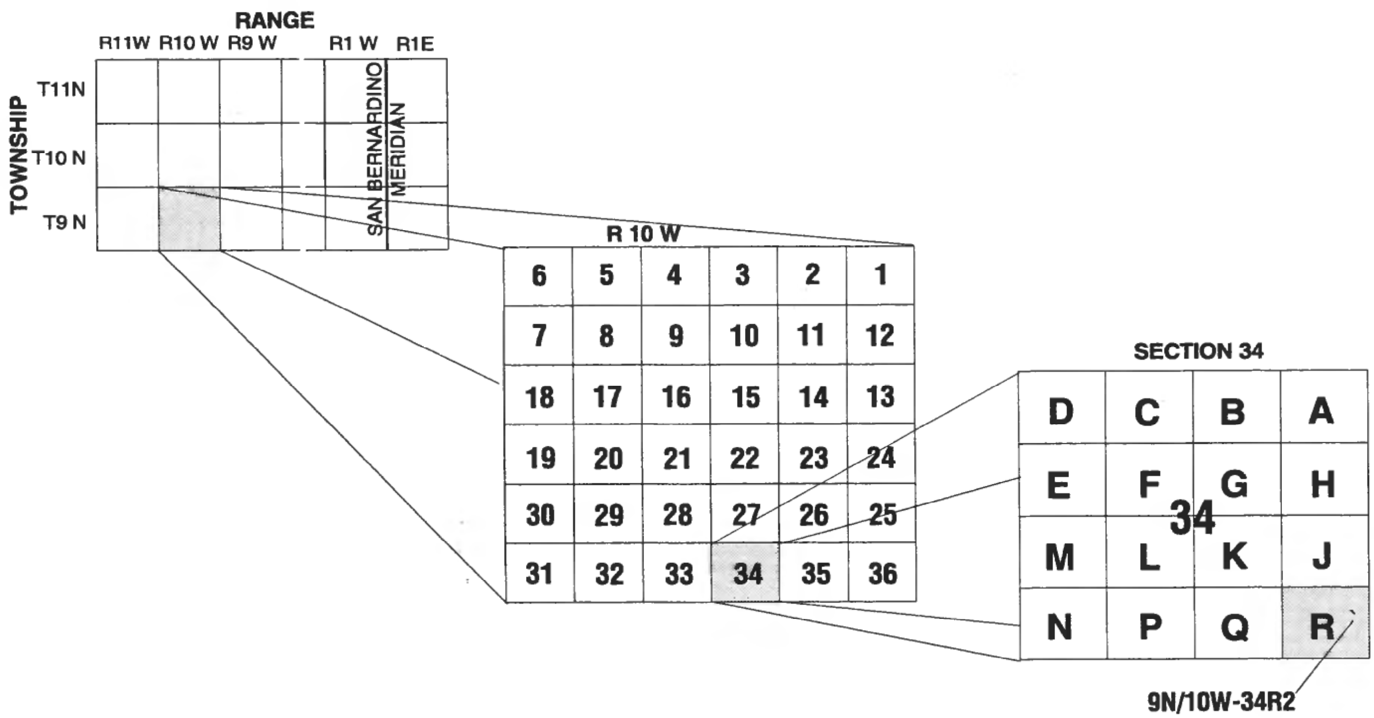
Well-Numbering System

Wells are identified and numbered according to their location in the rectangular system for subdivision of public lands. For example, in well number 009N010W34R002S, the identification number consists of the township number, north or south; the range number, east or west; and the section number. Each section is further divided into sixteen 40-acre tracts lettered consecutively (except I and O), beginning with "A" in the northeast corner of the section and progressing in a sinusoidal manner to "R" in the southeast corner. Within each 40-acre tract, wells are sequentially numbered in the order that they are inventoried. The final letter refers to the base line and meridian. In California, there are three base lines and meridians: Humbolt (H), Mount Diablo (M), and San Bernardino (S). Because all wells in the study area are referenced to the San Bernardino base line and meridian (S), the final letter will be omitted. In this report, well numbers are abbreviated and written 9N/10W-34R2. Wells in the same township and range may be referred to only by their section designation, -34R2. The following diagram shows how the number for well 9N/10W-34R2 is derived.



PWS-0198-0006

Ground-Water-Level Monitoring, Basin Boundaries, and Potentiometric Surfaces of the Aquifer System at Edwards Air Force Base, California, 1992

By Diane L. Rewis

Abstract

A ground-water-level monitoring program was implemented at Edwards Air Force Base, California, from January through December 1992 to monitor spatial and temporal changes in potentiometric surfaces that largely are affected by ground-water pumping. Potentiometric-surface maps are needed to determine the correlation between declining ground-water levels and the distribution of land subsidence. The monitoring program focused on areas of the base where pumping has occurred, especially near Rogers Lake, and involved three phases of data collection: (1) well canvassing and selection, (2) geodetic surveys, and (3) monthly ground-water-level measurements. Construction and historical water-level data were compiled for 118 wells and piezometers on or near the base, and monthly ground-water-level measurements were made in 82 wells and piezometers on the base.

The compiled water-level data were used in conjunction with previously collected geologic data to identify three types of no-flow boundaries in the aquifer system: structural boundaries, a principal-aquifer boundary, and ground-water divides. Heads were computed from ground-water-level measurements and land-surface altitudes and then were used to map seasonal potentiometric surfaces for the principal and deep aquifers underlying the base. Pumping has created a regional depression in the potentiometric surface of the deep aquifer in the South Track, South Base, and Branch Park well-field area. A 15-foot decline in the potentiometric surface from April to September 1992 and 20- to 30-foot drawdowns in the three production wells in the South Track well field caused locally unconfined conditions in the deep aquifer.

INTRODUCTION

Land subsidence, resulting from aquifer-system compaction caused by declining ground-water levels, and the associated playa-surface deformation of Rogers Lake affect the strategic and economic operations at Edwards Air Force Base (EAFB), Antelope Valley, California (fig. 1). Deformation of the playa surface by land subsidence at Rogers Lake has caused sinklike depressions, fissures, and desiccation cracks that adversely affect the use of the playa as a runway (Blodgett and Williams, 1992; Londquist and others, 1993). The playa is used by the U.S. Department of the Air Force and the National Aeronautics and Space Administration for test aircraft and space shuttle landings.

A ground-water-level monitoring program was developed and maintained by the U.S. Geological Survey (USGS) in cooperation with the U.S. Department of the Air Force, Edwards Air Force Base, Air Force Flight Test Center during 1992 as part of a comprehensive investigation of land subsidence and aquifer-system compaction at EAFB. The objective of the comprehensive investigation is to determine the hydrologic factors related to land subsidence at EAFB and playa-surface deformation (Blodgett and Williams, 1992; Londquist and others, 1993). The data collected during this study and interpretations of these data will be needed in future work to determine

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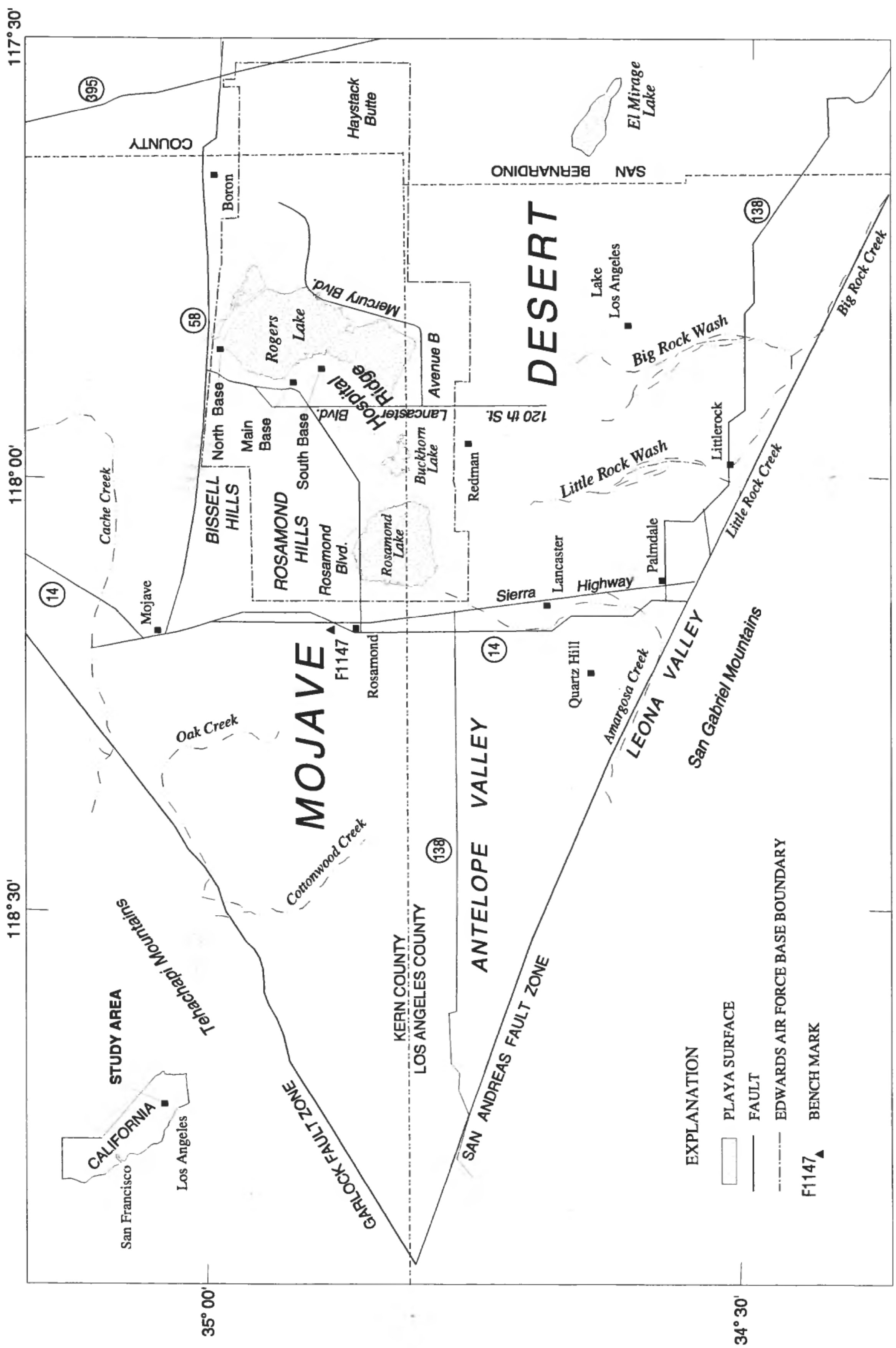

Figure 1. Location of study area.

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relations between declining ground-water levels and the distribution of land subsidence.

The ground-water-level monitoring program was implemented to monitor spatial and temporal changes in the potentiometric surfaces of the aquifer system. These changes are caused primarily by ground-water pumping. The program focused on areas of the base where ground-water pumping occurs, especially near Rogers Lake and areas that might be developed for future ground-water supply. This program establishes a baseline for future ground-water-level monitoring and aquifer restoration programs.

Description of Study Area

Edwards Air Force Base is about 60 mi northeast of Los Angeles, in Antelope Valley, California. Antelope Valley is bounded by the Garlock Fault Zone and the Tehachapi Mountains to the west and northwest, the San Andreas Fault Zone and the San Gabriel Mountains to the south and southwest, and low bedrock hills to the east and north (fig. 2). Antelope Valley is in the rain shadow of the San Gabriel and Tehachapi Mountains. The climate at EAFB is arid with an average annual precipitation of 4.96 in. (period of record, 1942-92) (Donald Cameron, Range Staff Meteorologist, Air Force Flight Test Center, Edwards Air Force Base, written commun., 1993). Total precipitation in 1992 at the base was 12.07 in., 7.11 in. above average. The boundary of EAFB encompasses about 470 mi^2 of arkosic alluvium, low sand dunes, and playa surfaces surrounded by exposed bedrock hills (fig. 2).

Purpose and Scope

This report describes the ground-water-level monitoring program and presents interpretations of the ground-water-basin boundaries and seasonal potentiometric surfaces derived from the data collected during this monitoring program. Well-construction and historical water-level data were compiled for 118 wells and piezometers on and near the base. Monthly water-level measurements were made in 82 wells and piezometers on the base from January through December 1992. Land-surface altitudes for most of the monitored wells and piezometers were surveyed using differential leveling and Global Positioning System (GPS) surveying; some land-surface altitudes were derived from topographic maps. Hydraulic heads were computed from land-surface altitudes and water-level measurements. Monthly pumpage data were computed and tabulated from daily pumpage logs. These data are presented in data tables, hydrographs, bar graphs, and potentiometric-surface maps in this report.

Acknowledgments

The author would like to thank the many individuals and offices at EAFB that supported and contributed to this work. The Office of Programs and Plans Management at the Air Force Flight Test Center authorized security clearance into sensitive areas on EAFB and coordinated our activities on the base. The Civil Engineering office provided construction and pumpage data for production wells and access to pumphouses. The Base Operations office authorized access to Rogers Lake and provided meteorological data for EAFB. The Phillips Laboratory Civil Engineering office provided construction and pumpage data for production wells and escort into that facility.

HYDROGEOLOGIC SETTING

Antelope Valley is a closed alluvial basin filled with 5,000 to 10,000 ft of sediment (Durbin, 1978). Twelve ground-water subbasins have been identified in the Antelope Valley (fig. 2) (Bloyd, 1967). The aquifer system at EAFB is part of two ground-water subbasins, the Lancaster subbasin and the North Muroc subbasin (fig. 3) (Bloyd, 1967; Londquist and others, 1993). The aquifer system in the Lancaster subbasin is divided into two aquifers, the unconfined principal aquifer which overlies the partly confined, deep aquifer (fig. 4). These two aquifers are separated by a southwestward-dipping confining unit consisting of blue or greenish-gray, fine- to very fine-grained lacustrine deposits of locally variable thickness. The confining unit is shallow along the southern shore of Rogers Lake where it is overlain by thin playa deposits. The aquifer in the North Muroc subbasin is unconfined. For a more thorough description of the areal extent of the confining unit, the reader is referred to Durbin (1978). Lithologies of these aquifers are described by Londquist and others (1993) and Rewis (1993).

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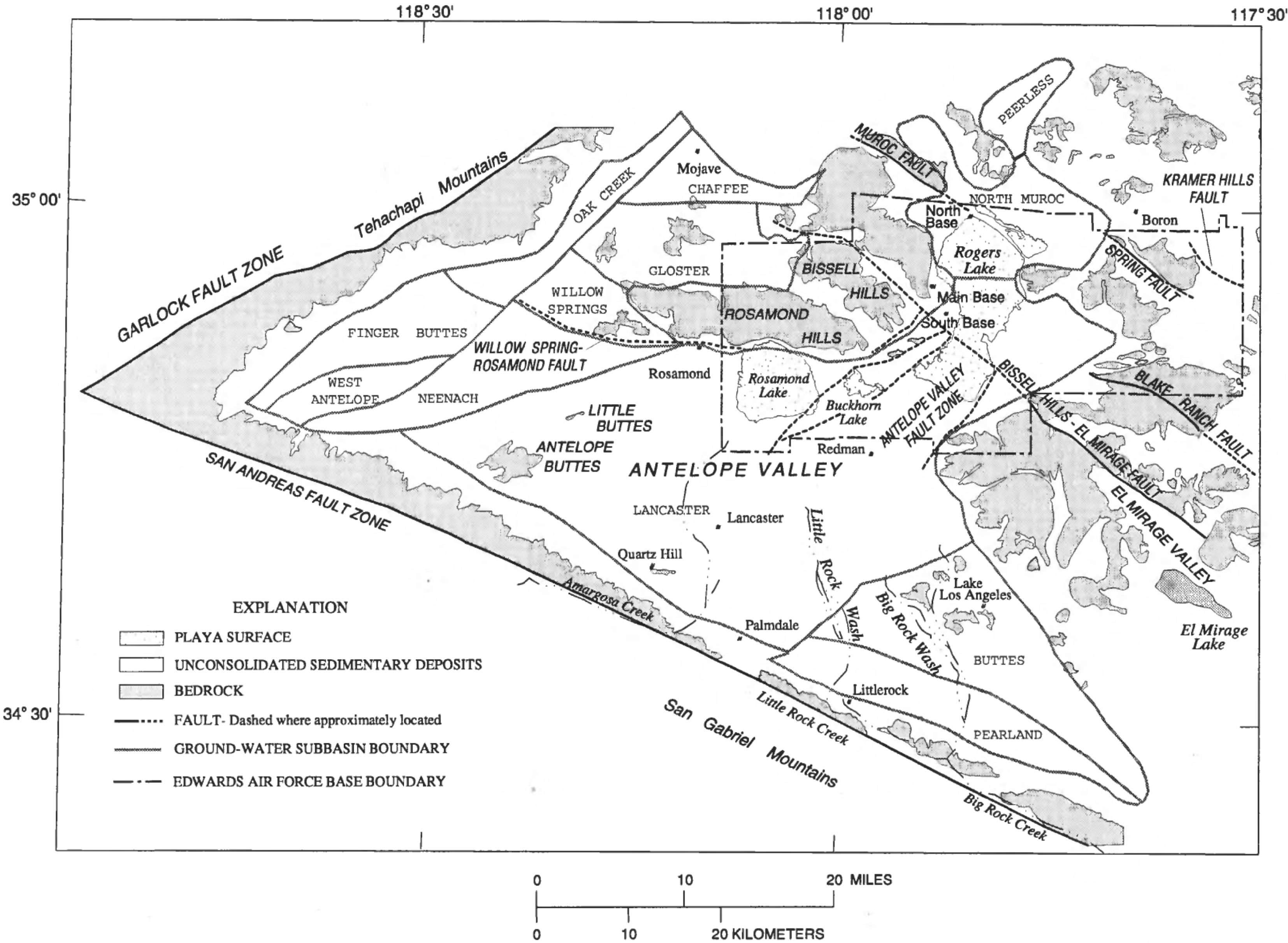

Figure 2. General geology and location of ground-water subbasins in the Antelope Valley, California. (Base map modified from Dibblee, 1960; Bloyd, 1967; Londquist and others, 1993; and Gary Dixon (U.S. Geological Survey, written commun., 1993.)

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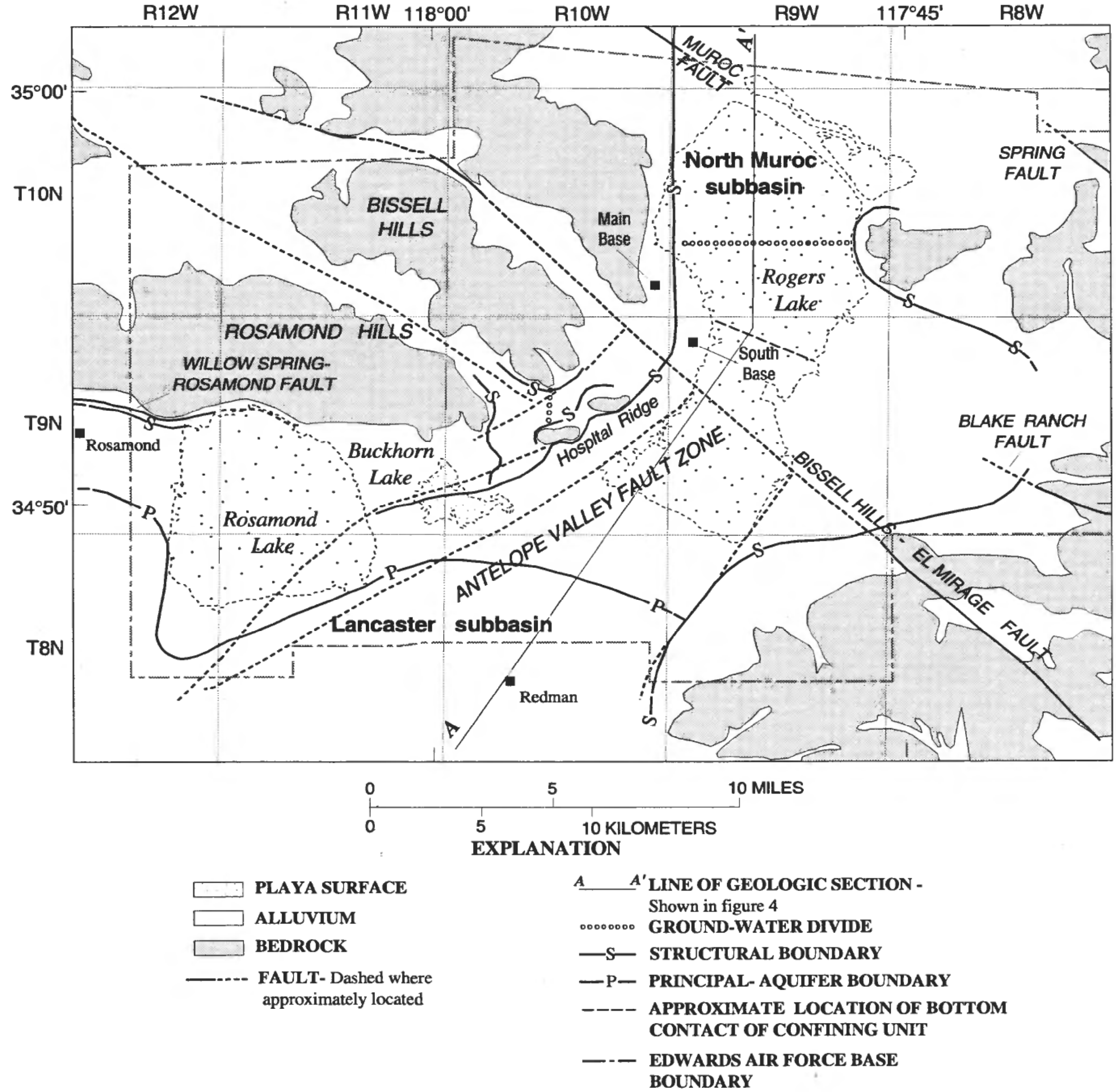

Figure 3. General geology and ground-water basin boundaries at Edwards Air Force Base, California, and geologic section *A-A'*. (Base map modified from Dibblee, 1960; Bloyd, 1967; Londquist and others, 1993; and Gary Dixon (U.S. Geological Survey, written commun., 1993).

To map potentiometric surfaces and ground-water flow at EAFB, boundary conditions for the aquifer system had to be identified. Three types of no-flow boundaries were identified: (1) structural boundaries, (2) the principal-aquifer boundary, and (3) ground-water divides (fig. 3). These boundaries are discussed more fully in the "Basin Boundary" section of this report. Each of these no-flow boundaries represents a specified-flux boundary where the flux across the boundary is equal to zero ("flux" refers to the volume of fluid crossing a unit cross-sectional surface area per unit time) (Franke and others, 1987). Some of these boundaries may coincide with faults recently identified in this part of Antelope Valley (fig. 3).

For simplicity, structural boundaries and ground-water divides are assumed to be fixed boundaries for the period of this study. In reality, the ground-water divides and, to a lesser extent, the structural and

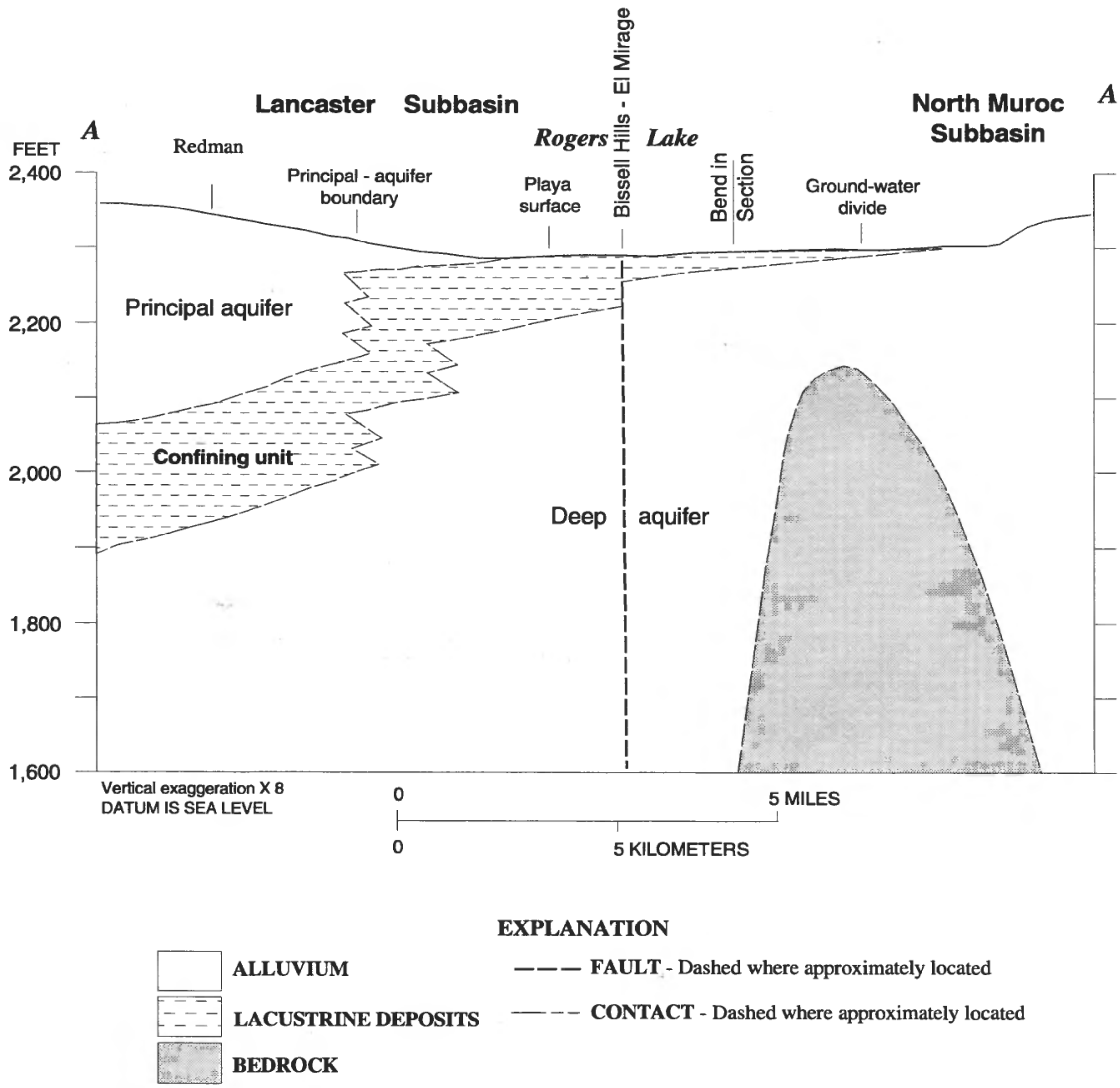

Figure 4. Geologic section *A-A′* showing the principal aquifer boundary and the ground-water divide between the Lancaster and North Muroc subbasins, Edwards Air Force Base, California.

principal-aquifer boundaries are time dependent and will migrate laterally with fluctuating ground-water levels.

Between Hospital Ridge and Rosamond and Bissell Hills lies a small, isolated, unnamed subbasin that previously has been included within the Lancaster subbasin boundary (Bloyd, 1967; Duell, 1987). The boundaries of the aquifer system in this area are not well defined. For purposes of this report, this small subbasin is considered separate from the Lancaster subbasin.

Average annual recharge to the aquifer system in Antelope Valley was estimated by Durbin (1978) to be 40,700 acre-ft, or 13,300 million gal. The principal source of recharge to the aquifer system in the Lancaster subbasin is infiltration of rainfall runoff through the alluvial fans of Big Rock, Little Rock, and Amargosa Creeks (fig. 1). Durbin (1978) reported that measured average annual runoff was 23,600 acre-ft, or 7.7

billion gal, for the Big Rock Creek and Little Rock Creek drainage basins; he assumed that 100 percent of the runoff was recharge to the aquifer system. Snyder (1955) reported an annual runoff estimate of 3,584 acre-ft, or 1.2 billion gal, for the Leona Valley-Amargosa Creek area.

Recharge to the North Muroc subbasin prior to development of the valley occurred as underflow from the Lancaster subbasin (Durbin, 1978). Because of pumping from the principal and deep aquifers, ground-water levels have declined in the Lancaster subbasin to the point where ground water no longer flows into the North Muroc subbasin (Durbin, 1978; Londquist and others, 1993). Ground-water-level data compiled for this study and presented in this report identify a ground-water divide hydraulically separating these two subbasins.

Recharge to the subbasins from infiltration in the bedrock hills on the eastern and northwestern parts of EAFB is minimal because average annual precipitation is less than 5 in/yr, and average annual pan evaporation is high, about 114 in/yr (Bloyd, 1967). A small amount of runoff may infiltrate the alluvium along the base of the bedrock hills and the coarse-grained sediments along intermittent stream channels. Some direct recharge to the aquifer system within the valley from storm runoff was observed. This storm runoff inundated the playas and infiltrated the subsurface through giant desiccation cracks and fissures in the playa surface. The volume of this recharge is difficult to determine, but probably is small because the vertical pathways become plugged with low permeability sediments washed in from the surface. Most of the water that reaches the playa probably evaporates.

GROUND-WATER-LEVEL MONITORING PROGRAM

The ground-water-level monitoring program involved three phases of data collection: (1) well canvassing and selection, (2) geodetic surveys to determine vertical datum for each well, and (3) monthly water-level measurements. Ground-water levels in 82 wells and piezometers on EAFB (fig. 5) were measured monthly from January through December 1992. These included 48 piezometers that were installed by the USGS at 15 sites, 10 production wells in 7 well fields, 15 abandoned wells monitored by the USGS annually and semiannually as part of the Antelope Valley-East Kern Water Agency ground-water-monitoring program, and 9 other abandoned homestead, irrigation, and production wells (table 1). Pumpage data were tabulated from daily records for the 10 production wells that were monitored at EAFB for this program and for 4 other production wells (9N/9W-14P2, -14Q1, 9N/10W-34P3, and 10N/9W-5B1) that were not monitored for this program. These wells are included in table 1. Monthly pumpage totals were compared with water levels measured in the wells and piezometers in the base well fields.

Land-surface altitude, date of construction, and original ground-water-level data were compiled for 36 wells on and near the base that were not monitored for this program (table 1; fig. 5). Lithologic data for these wells were used to determine the position and extent of aquifer-system boundaries.

Well Selection and Well Data

Selection of wells used in the ground-water-level monitoring program was based on (1) measurable ground-water levels, (2) accessibility of the wells, (3) proximity to the base well fields and Rogers Lake, (4) proximity to other suitable wells to avoid redundancy, and (5) the position of the screened or perforated interval in the well. The wells were differentiated in table 1 as being completed within the deep aquifer, the principal aquifer, and the confining unit in the Lancaster subbasin; within the unconfined aquifer of the small, unnamed subbasin; near the ground-water divide on Rogers Lake; or within the unconfined aquifer in the North Muroc subbasin.

The USGS piezometers generally are single or nested, small, 2- to 3-inch diameter wells with 10- to 40-foot screens at isolated intervals in the borehole (table 1) (Londquist and others, 1993; Rewis, 1993). Piezometer 9N/10W-16F1 is 6.75 in. in diameter and is uncased and open to the bedrock formation in the interval from 275 to 458 ft below land surface. The most shallow piezometers in the Lancaster subbasin are screened within the confining lacustrine unit and range from about 30 to 150 ft below land surface. The deeper piezometers are screened in the deep or confined aquifer ranging from about 80 to 1,010 ft below land surface. The tops of the screened or perforated intervals for most of the production and abandoned wells range from 96 to 300 ft below land surface and

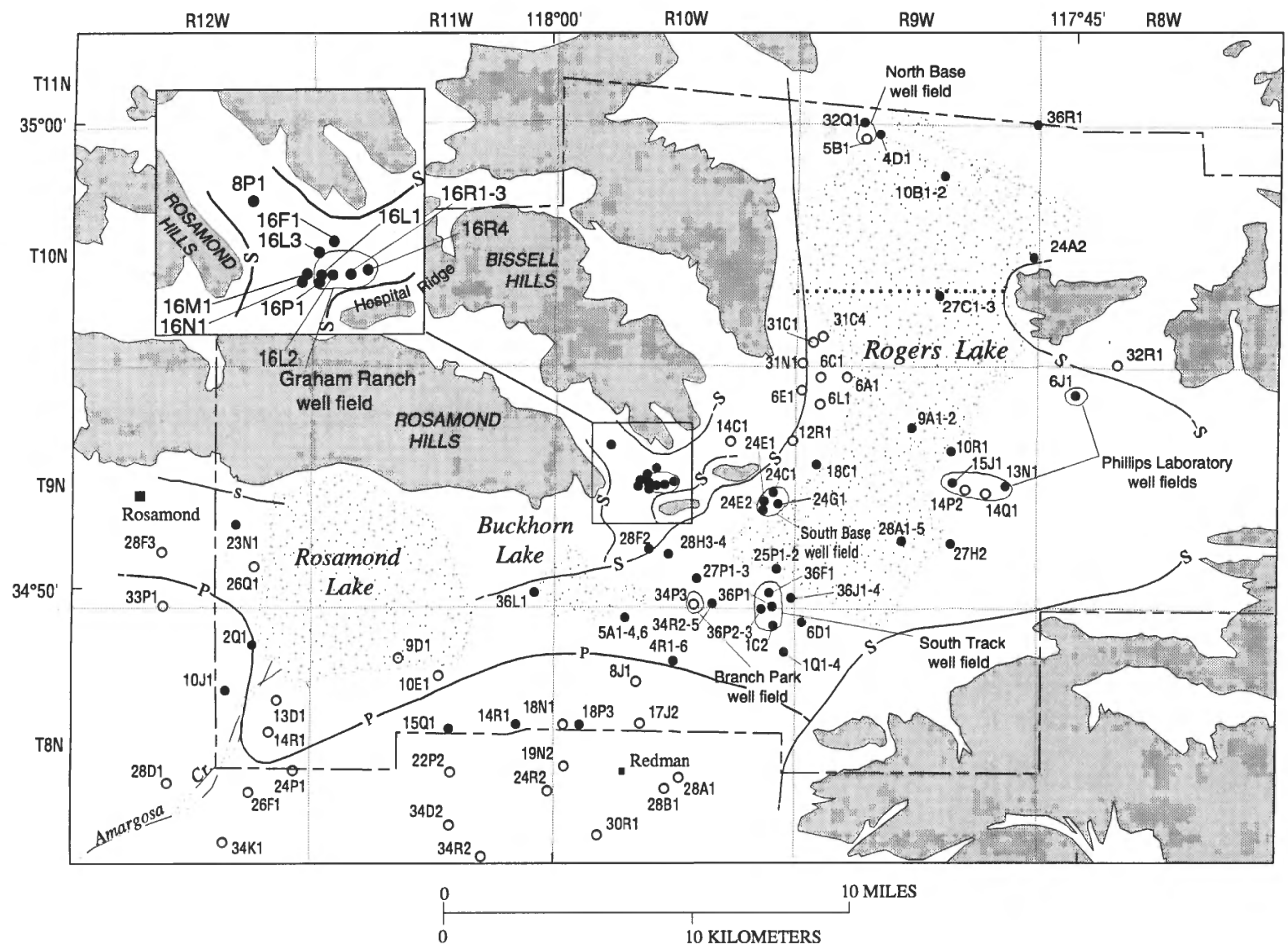

Figure 5. Locations of wells and piezometers on Edwards Air Force Base, California. (Base map modified from Dibblee, 1960; Bloyd, 1967; and Londquist and others, 1993.)

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EXPLANATION FOR FIGURE 5

(stippled box)	PLAYA SURFACE
(open box)	ALLUVIUM
(shaded box)	BEDROCK
—S—	STRUCTURAL BOUNDARY
—P—	PRINCIPAL-AQUIFER BOUNDARY
— — —	EDWARDS AIR FORCE BASE BOUNDARY
··········	GROUND-WATER DIVIDE
27H2●	WELL OR PIEZOMETER AND NUMBER- For which water-level measurements were made
6L1○	WELL AND NUMBER-Not monitored for the Antelope Valley-East Kern Water Ageney

generally are screened to the bottom of the well (table 1).

Land-Surface Altitudes

Prior to this study, land-surface altitudes of wells on EAFB generally were not surveyed because of the remoteness of the well fields and homesteads. Land-surface altitudes were estimated from topographic maps with accuracies of about plus or minus one-half the contour interval of the map.

The accuracy of the land-surface altitude at a well is dependent on the method and precision standards used. Three methods were used to establish land-surface altitudes for the monitored wells and piezometers: third-order differential leveling; GPS surveying (J.C. Blodgett and M.E. Ikehara, U.S. Geological Survey, written commun., 1993); and estimates from USGS topographic quadrangle maps.

Spirit leveling surveys were made to 25 well and piezometer sites from bench marks along adjusted level lines that originated from bench mark F1147 (fig. 1). Bench mark F1147 was surveyed using first-order accuracy by the National Geodetic Survey in 1961 (U.S. Department of Commerce, 1966). Accuracy of the spirit leveling surveys at EAFB was plus or minus one-hundredth of a foot. Twenty-one stations, or sites, were measured using static and pseudo-kinematic GPS surveys. The average standard error for vertical components of the GPS surveys was about 0.1 ft. Because of adjustments along the level lines and the accuracy of the GPS surveys, land-surface altitudes derived from leveling and GPS surveys were rounded to the nearest tenth of a foot (table 1).

Land-surface altitudes for wells 8N/12W-2Q1, 9N/8W-6J1, and 9N/9W-13N1 (see fig. 5 for well locations) were estimated from 7.5-minute quadrangle maps of Rosamond Lake, Rogers Lake North, and Rogers Lake South. Accuracies of land-surface altitudes for these wells were assumed to be plus or minus one-half the contour interval, 2.5 ft, 5 ft, and 10 ft, respectively.

Ground-Water Levels and Hydraulic Heads

Ground-water levels were measured to one-hundredth of a foot using a 300-foot calibrated steel measuring tape. Monthly ground-water levels in the wells and piezometers monitored for this study are listed in table 2 by well number and aquifer-system unit. Water levels generally ranged from about 95 to 130 ft below land surface in the North Muroc subbasin, 70 to 200 ft below land surface in the deep aquifer in the Lancaster subbasin, 35 to 95 ft below land surface in the principal aquifer in the Lancaster subbasin, and 100 to 125 ft below land surface in or near the Graham Ranch well field (table 2).

Hydraulic heads, or heads, were computed using ground-water levels and land-surface altitudes given in table 2. Head is the height of water in a well or piezometer referenced from an established datum, which for this report is sea level. Heads generally ranged from about 2,170 to 2,195 ft above sea level in the North Muroc subbasin; 2,150 to 2,200 ft above sea level in the deep aquifer in the Lancaster subbasin; 2,225 to 2,250 ft above sea level in the principal aquifer in the Lancaster subbasin; and 2,200 to 2,215 ft above sea level in the Graham Ranch well field. Heads in wells and piezometers completed in the confining unit ranged from about 2,210 to 2,275 ft above sea level.

Seasonal fluctuations of hydraulic heads for USGS piezometers on or near the base well fields and on Rogers Lake are shown in figure 6. Seasonal fluctuations for heads in piezometers screened in the deep

Table 1. Well-construction data and historic water-level data for wells and piezometers on and near Edwards Air Force Base, California

[State well No.: See well-numbering system on page V. See figure 5 for well locations. Altitude of land surface in feet above sea level rounded to the nearest tenth of a foot. Land-surface altitude, date of construction, and original ground-water-level data for wells not monitored for this study were compiled from Dutcher and others (1962). Type of well: AB, abandoned production or irrigation wells; AVEK, abandoned well monitored annually or semiannually by the U.S. Geological Survey for the Antelope Valley-East Kern Water Agency; D, destroyed; NPOT, production well for non-potable use; PIEZ, piezometer installed by the U.S. Geological Survey; POT, production well for potable use. Well depth, depth to water, and screened interval in feet below land surface. Casing in inches. --, data not available]

State well No.	Base well identification No.	Altitude of land surface	Type of well	Date of construction	Well depth		Casing diameter	Screened interval	Earliest recorded depth to water	
					Original	Current (1992)			Date	Measurement
Completed in the deep aquifer in the Lancaster subbasin										
8N/10W-1C2	S-6	2,293.8	POT	1984	700	--	16	300 - 690	10/84	146
-1Q1		2,301.8	PIEZ	1990	1,023	1,023	2	980 - 1,010	5/90	147.37
-1Q2		2,301.7	PIEZ	1990	645	645	3	605 - 635	5/90	146.87
-1Q3		2,301.7	PIEZ	1990	475	475	2	430 - 460	5/90	145.46
-4R1		2,301.4	PIEZ	1991	980	980	2	920 - 960	7/91	146.40
-4R2		2,301.4	PIEZ	1991	750	750	2	700 - 740	7/91	145.17
-4R3		2,301.4	PIEZ	1991	546	546	2	496 - 536	7/91	143.36
-4R4		2,301.4	PIEZ	1991	250	250	2	220 - 240	7/91	135.11
-5A1		2,287.3	PIEZ	1989	947	947	2	897 - 927	1/90	129.65
-5A2		2,287.3	PIEZ	1991	560	560	2	530 - 550	7/91	127.02
-5A3		2,287.3	PIEZ	1991	390	390	2	360 - 380	7/91	127.11
-5A4		2,287.3	PIEZ	1991	274	274	2	246 - 266	7/91	121.99
-30R1[1]		2,361	AVEK	1950	1,064	1,064	16	650 - 1,064	2/73	157.00
8N/11W-9D1[1]		2,276	D	1952	5,576	--	--	--	--	--
-10E1[1]		2,289	AB	--	612	--	8	550 - 612	5/51	36.47
8N/12W-13D1[1]		2,283	AB	1949	451	--	8	300 - 451	11/52	20.39
-14R1[1]		2,291	AB	1949	404	--	12	254 - 404	11/51	28.34
9N/8W-6J1	MW-3	2,394	POT	1961	363	--	14	147 - 363	6/61	145.7
9N/9W-6A1[1]		2,275	AB	1943	199	--	14	76 - 184	--	--
-6C1[1]		2,287	AB	1942	117	--	14	38 - 101	1/48	39.8
-6E1[1]		2,290	AB	1942	112	--	14	35 - 96	1/48	41.3
-6L1[1]		2,282	AB	1940	147	--	14	33 - 130	1/48	43.4
-9A1		2,271.2	PIEZ	1991	345	345	2	320 - 340	7/91	85.36
-9A2		2,271.2	PIEZ	1991	175	175	2	160 - 170	7/91	84.76
-10R1		2,281.5	AVEK	1937	106	97.9	9.5	--	10/51	18.14
-13N1	Well D	2,350.2	POT	--	555	--	12	178 - 533	8/62	104.0
-14P2[1]	Well B	2,296	POT	1963	500	--	12	--	8/62	53.0
-14Q1[1]	Well C	2,320	POT	--	--	--	12	--	--	--
-15J1	Well A	2,282.8	POT	--	534	--	14	155 - 505	8/62	42
-18C1	S-1	2,280.1	AB	1944	360	221	14	250 - 310	1/48	10.6
-27H2		2,279.8	AVEK	1957	200	170.8	8	100 - 200	7/57	22.76
-28A1		2,271.1	PIEZ	1991	755	755	2	735 - 745	6/91	93.47
-28A2		2,271.1	PIEZ	1991	524	524	2	494 - 514	6/91	95.09

Footnote at end of table.

Table 1. Well-construction data and historic water-level data for wells and piezometers on and near Edwards Air Force Base, California--*Continued*

State well No.	Base well identification No.	Altitude of land surface	Type of well	Date of construction	Well depth		Casing diameter	Screened interval	Earliest recorded depth to water	
					Original	Current (1992)			Date	Measurement
Completed in the deep aquifer in the Lancaster subbasin--*Continued*										
9N/9W-28A3		2,271.1	PIEZ	1991	350	350	2	320 - 340	6/91	89.07
-28A4		2,271.1	PIEZ	1991	220	220	2	195 - 215	6/91	87.80
9N/10W-12R1[1]		2,280.7	AB	1994	180	180	16	--	1/48	11.1
-14C1[1]		2,288	AB	1942	113	--	12	40 - 82	1/42	23.7
-24C1	S-9	2,283.0	AVEK	1951	750	733	14	156 - 733	7/52	24.65
-24E1	S-11	2,271.9	AB	1958	650	--	16	280 - 650	3/58	29.38
-24E2	S-3	2,271.1	POT	1974	590	579	14	220 - 590	5/74	116
-24G1	S-2	2,277.9	POT	1951	738	--	14	238 - 738	10/51	24.20
-25P1		2,269.5	PIEZ	1991	480	480	2	450 - 470	11/91	110.72
-25P2		2,269.5	PIEZ	1991	130	130	2	100 - 120	11/91	71.60
-27P1		2,278.6	PIEZ	1992	560	560	3	530 - 550	9/92	127.65
-27P2		2,278.6	PIEZ	1992	410	410	2	380 - 400	9/92	130.09
-27P3		2,278.8	PIEZ	1992	220	220	2	200 - 220	9/92	121.55
-28F2		2,293.9	AVEK	1953	140.8	140.8	10	--	7/57	44.55
-28H3		2,288.6	PIEZ	1992	500	500	2	475 - 495	9/92	125.94
-28H4		2,288.6	PIEZ	1992	305	305	2	275 - 295	9/92	131.92
-34P3[1]	C-1	2,295	NPOT	1958	350	--	8	--	--	--
-34R2		2,290.4	PIEZ	1989	838	838	2	788 - 808	1/91	133.81
-34R3		2,290.0	PIEZ	1989	520	520	2	480 - 510	1/91	132.80
-34R4		2,290.0	PIEZ	1989	250	250	2	210 - 240	1/91	132.08
-36F1	S-4	2,285.6	POT	1974	672	--	14	216 - 662	--	--
-36J1		2,283.0	PIEZ	1991	900	900	2	870 - 890	7/91	127.70
-36J2		2,283.0	PIEZ	1991	529	529	2	503 - 523	7/91	131.92
-36J3		2,283.0	PIEZ	1991	237	237	2	212 - 232	7/91	125.31
-36P1	S-5	2,288.3	POT	1974	667	--	16	223 - 655	--	--
-36P2		2,290.9	PIEZ	1991	465	465	2	435 - 455	11/91	135.35
9N/11W-36L1		2,289.2	AVEK	--	127.1	127.1	12	--	1/56	30.86
9N/12W-23N1		2,292.4	AVEK	1948	266.7	263.9	12	--	3/51	17.41
-26Q1[1]		2,286	AB	1945	300	--	12	102 - 300	3/47	flowing
-28F3[1]		2,324	AB	1951	150	150	8	--	8/51	32.00
10N/8W-32R1[1]		2,450	AB	1948	148	--	--	--	--	--
10N/9W-31C1[1]		2,280	AB	--	177	--	10	--	1/51	41.45
-31C4[1]		2,280	AB	1926	128	--	16	48 - 114	1/52	44.72
-31N1[1]		2,294	AB	1948	83	--	6	43 - 83	11/51	46.31

Footnote at end of table.

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Table 1. Well-construction data and historic water-level data for wells and piezometers on and near Edwards Air Force Base, California--*Continued*

State well No.	Base well identification No.	Altitude of land surface	Type of well	Date of construction	Well depth		Casing diameter	Screened interval	Earliest recorded depth to water	
					Original	Current (1992)			Date	Measurement
Completed in the principal aquifer in the Lancaster subbasin										
8N/10W-8J1[1]		2,315	AB	1951	648	--	12	--	11/51	63.83
-17J2[1]		2,327	AB	--	206	--	12	110 - 206	3/60	61.40
-18N1[1]		2,324	AB	1919	275	--	9	48 - 275	3/49	41.7
-18P3		2,322.5	AB	--	--	113.2	14	--	--	--
-19N2[1]		2,377	AB	1945	788	--	14	312 - 788	--	--
-28A1[1]		2,359	AB	1945	288	--	12	102 - 186	--	--
-28B1[1]		2,358	AVEK	1932	215	--	16	--	1/51	66.75
8N/11W-14R1		2,313.7	AVEK	1949	186	164.9	12	--	5/60	93.11
-15Q1		2,304.3	AVEK	1952	179.2	177.8	12	--	11/52	77.98
-22P2[1]		2,323	AVEK	--	202	--	12	--	12/78	109.75
-24R2[1]		2,337	AVEK	1946	270	132.2	12	120 - 270	5/51	124.86
-34D2[1]		2,340	AVEK	--	250	250	12	--	9/51	145.8
-34R2[1]		2,358	AVEK	--	260	--	12	--	11/51	147.71
8N/12W-2Q1		2,283.8	AVEK	--	260	72.7	6	--	5/51	flowing
-10J1		2,288.8	AVEK	--	91	85	6	30 - 91	3/60	13.67
-24P1[1]		2,307	AB	1923	723	--	18	--	--	--
-26F1[1]		2,303	AVEK	--	123	123	6	--	1/51	14.27
-28D1[1]		2,308	AVEK	--	316	316	12	48 - 316	4/51	11.89
-34K1[1]		2,316	AVEK	--	144	144	--	--	--	--
9N/12W-33P1[1]		2,310	AVEK	--	146	146	12	--	--	--
Completed within the confining lacustrine unit in the Lancaster subbasin										
8N/9W-6D1		2,287.2	AVEK	1950	200	135.6	8	--	3/59	26.90
8N/10W-1Q4		2,301.7	PIEZ	1990	130	130	2	85 - 115	5/90	51.98
-4R5		2,301.4	PIEZ	1991	150	150	2	135 - 150	10/91	89.54
-4R6		2,301.4	PIEZ	1991	100	100	2	80 - 100	10/91	59.56
-5A6		2,287.3	PIEZ	1991	55	55	2	30 - 50	7/91	28.02
9N/9W-28A5		2,271.1	PIEZ	1991	65	65	3	40 - 60	6/91	40.30
9N/10W-34R5		2,290.5	PIEZ	1991	90	90	2	60 - 80	10/91	17.90
-36J4		2,283.0	PIEZ	1991	95	95	2	70 - 90	7/91	21.90
-36P3		2,291.2	PIEZ	1991	120	120	2	90 - 110	11/91	27.88
Completed in the small, unconfined, unnamed subbasin										
9N/10W-8P1		2,370.5	AVEK	--	137	132.6	6	--	10/51	82.45
-16F1		2,320.7	PIEZ	1991	458	458	6.75	275 - 458	1/92	111.53

Footnote at end of table.

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Table 1. Well-construction data and historic water-level data for wells and piezometers on and near Edwards Air Force Base, California--*Continued*

State well No.	Base well identification No.	Altitude of land surface	Type of well	Date of construction	Well depth		Casing diameter	Screened interval	Earliest recorded depth to water	
					Original	Current (1992)			Date	Measurement
Completed in the small, unconfined, unnamed subbasin--*Continued*										
9N/10W-16L1		2,319.5	AB	1948	500	--	14	--	10/51	125.20
-16L2		2,319.0	AB	1949	723	--	14	--	10/51	96.82
-16L3		2,318.7	AB	1989	270	270	16	50 - 260	1/90	111.50
-16M1		2,324.0	AB	1938	140.7	140.5	16	--	2/51	103.52
-16N1		2,325.8	AB	1946	396	376	14	96 - 396	5/54	99.39
-16P1	C-3	2,320.2	NPOT	1949	532	--	14	96 - 528	4/52	99.06
-16R1		2,312.9	PIEZ	1989	840	840	2	800 - 830	3/90	100.67
-16R2		2,312.8	PIEZ	1989	584	584	2	494 - 564	3/90	101.19
-16R3		2,312.8	PIEZ	1989	360	360	2	300 - 340	3/90	101.59
-16R4	C-4	2,308.4	NPOT	1990	700	700	16	290 - 690	4/90	110
Completed near the ground-water divide on Rogers Lake										
10N/9W-27C1		2,272.4	PIEZ	1991	222	222	2	207 - 217	7/91	79.59
-27C2		2,272.4	PIEZ	1991	160	160	2	130 - 150	7/91	78.39
-27C3		2,272.4	PIEZ	1991	80	80	2	55 - 75	7/91	70.29
Completed in the unconfined aquifer in the North Muroc subbasin										
10N/9W-4D1		2,304.2	AVEK	1957	502	456.2	12	144 - 433	3/57	95.02
-5B1[1]	N-2	2,278.0	POT	1964	500	--	16	100 - 500	6/64	75.99
-10B1		2,278.6	PIEZ	1991	312	312	2	285 - 302	10/91	95.42
-10B2		2,278.6	PIEZ	1991	150	150	2	117 - 137	10/91	95.10
-24A2		2,290.6	AVEK	1953	--	278.7	14	--	5/54	72.56
11N/9W-32Q1	N-1	2,302.9	AB	1957	450	--	16	234 - 450	10/57	93.61
-36R1		2,311.9	AVEK	1953	298	254.1	10	100 - 132	5/54	98.25

[1] Wells not monitored for this study.

Table 2. Ground-water levels for wells and piezometers on Edwards Air Force Base, California, 1992

[Water level, in feet below land surface. Altitude: altitude of land surface in feet above sea level. Depth: depth to water in feet below land surface]

Date	Water Level	Date	Water level	Date	Water level	Date	Water level
Completed in deep aquifer in the Lancaster subbasin							
8N/10W-1C2. Altitude, 2,293.8; depth, 700							
1-09-92	131.30	4-07-92	130.81	8-06-92	144.35	11-07-92	135.62
2-03-92	130.47	6-16-92	143.73	9-09-92	144.73	12-17-92	132.23
3-10-92	134.90	7-08-92	140.40	10-07-92	144.92		
8N/10W-1Q1. Altitude, 2,301.8; depth, 1,023							
1-08-92	144.42	4-04-92	142.46	7-13-92	145.71	10-29-92	147.86
1-13-92	144.36	5-05-92	142.63	8-05-92	146.62	12-14-92	145.31
2-03-92	143.56	6-09-92	144.89	9-09-92	147.79		
2-24-92	142.85	6-10-92	144.93	9-14-92	147.79		
3-10-92	142.60	7-07-92	145.59	10-05-92	147.82		
8N/10W-1Q2. Altitude, 2,301.7; depth, 645							
1-08-92	137.55	4-04-92	137.12	7-13-92	145.43	10-05-92	146.47
1-13-92	137.61	5-05-92	142.42	7-14-92	145.56	10-29-92	143.66
2-03-92	136.95	6-09-92	145.87	8-05-92	146.18	12-14-92	138.26
2-24-92	137.08	6-11-92	144.48	9-09-92	146.63		
3-10-92	137.13	7-07-92	145.29	9-14-92	146.34		
8N/10W-1Q3. Altitude, 2,301.7; depth, 475							
1-07-92	136.92	4-04-92	136.52	8-05-92	145.28	11-07-92	141.87
1-13-92	136.99	5-05-92	141.21	9-09-92	145.71	12-14-92	137.66
2-03-92	136.39	6-09-92	144.40	9-14-92	145.42		
2-24-92	136.23	7-07-92	144.35	10-05-92	145.65		
3-10-92	136.20	7-13-92	144.56	10-29-92	143.11		
8N/10W-4R1. Altitude, 2,301.4; depth, 980							
1-09-92	146.71	4-05-92	143.66	7-08-92	144.39	10-05-92	146.93
2-03-92	145.83	5-07-92	143.44	8-11-92	145.36	11-08-92	147.26
3-09-92	144.43	6-16-92	144.31	9-09-92	146.28	12-14-92	146.56
8N/10W-4R2. Altitude, 2,301.4; depth, 750							
1-09-92	143.00	4-05-92	140.27	7-08-92	143.36	10-05-92	146.06
2-03-92	142.00	5-07-92	140.89	8-11-92	144.60	11-08-92	145.64
3-10-92	140.59	6-16-92	143.14	9-09-92	145.70	12-14-92	143.41
8N/10W-4R3. Altitude, 2,301.4; depth, 546							
1-09-92	140.59	4-05-92	138.74	7-08-92	141.78	10-05-92	143.89
2-03-92	139.74	5-07-92	139.70	8-11-92	142.88	11-08-92	142.93
3-09-92	138.53	6-16-92	141.43	9-09-92	143.67	12-14-92	140.56
8N/10W-4R4. Altitude, 2,301.4; depth, 250							
1-09-92	133.66	4-05-92	132.04	7-08-92	133.81	10-05-92	135.51
2-03-92	132.96	5-07-92	132.64	8-11-92	134.68	11-08-92	135.13
3-09-92	132.00	6-16-92	133.58	9-09-92	135.28	12-14-92	133.65

Table 2. Ground-water levels for wells and piezometers on Edwards Air Force Base, California, 1992--*Continued*

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Completed in the deep aquifer in the Lancaster subbasin--*Continued*							
8N/10W-5A1. Altitude, 2,287.3; depth 947							
1-09-92	127.23	3-31-92	125.72	7-08-92	125.21	10-05-92	126.38
2-03-92	126.79	5-08-92	125.48	8-11-92	125.73	11-08-92	126.61
3-09-92	126.18	6-16-92	125.72	9-09-92	126.16	12-14-92	126.37
8N/10W-5A2. Altitude, 2,287.3; depth, 560							
1-09-92	126.44	3-31-92	124.60	7-08-92	125.56	10-05-92	126.95
2-03-92	125.80	5-08-92	124.75	8-11-92	126.18	11-08-92	126.94
3-09-92	124.93	6-16-92	125.52	9-09-92	126.74	12-14-92	126.06
8N/10W-5A3. Altitude, 2,287.3; depth, 390							
1-09-92	126.39	3-31-92	124.50	7-08-92	125.68	10-05-92	127.19
2-03-92	125.70	5-08-92	124.75	8-11-92	126.37	11-08-92	127.10
3-09-92	124.80	6-16-92	125.62	9-09-92	126.96	12-14-92	126.06
8N/10W-5A4. Altitude, 2,287.3; depth 274							
1-09-92	126.41	3-31-92	124.48	7-08-92	125.82	10-05-92	127.37
2-03-92	125.70	5-08-92	124.80	8-11-92	126.53	11-08-92	127.22
3-09-92	124.77	6-16-92	125.70	9-09-92	127.14	12-14-92	126.10
9N/8W-6J1. Altitude, 2,394; depth, 363							
2-06-92	202.76	6-17-92	204.37	9-09-92	204.39	12-17-92	204.09
3-13-92	204.06	7-09-92	204.31	10-08-92	204.86		
5-09-92	203.30	8-08-92	203.91	11-07-92	227.54[1]		
9N/9W-9A1. Altitude, 2,271.2; depth, 345							
2-05-92	88.40	5-11-92	86.36	8-06-92	86.30	11-07-92	86.41
3-11-92	86.38	6-17-92	86.50	9-09-92	86.46	12-16-92	86.22
4-05-92	86.52	7-07-92	86.30	10-06-92	86.56		
9N/9W-9A2. Altitude, 2,271.2; depth, 175							
2-05-92	81.99	5-11-92	82.19	8-06-92	83.89	11-07-92	84.22
3-11-92	82.41	6-17-92	82.74	9-09-92	83.98	12-16-92	84.06
4-05-92	81.88	7-07-92	83.63	10-06-92	84.21		
9N/9W-10R1. Altitude, 2,281.5; depth 97.9							
2-05-92	94.58	5-11-92	94.98	8-06-92	95.28	11-07-92	95.49
3-11-92	94.75	6-17-92	95.04	9-09-92	95.52	12-16-92	95.72
4-05-92	94.76	7-07-92	95.15	10-06-92	95.50		
9N/9W-13N1. Altitude, 2,350.2; depth, 555							
2-05-92	161.39	6-17-92	161.77	9-10-92	162.35	12-17-92	162.64
3-13-92	161.63	7-09-92	162.10	10-08-92	162.43		
5-09-92	161.54	8-08-92	162.06	11-07-92	162.33		
9N/9W-15J1. Altitude, 2,282.8; depth, 534							
2-06-92	97.03	5-09-92	97.11	8-08-92	97.82	11-07-92	98.20
3-11-92	96.07	6-17-92	96.80	9-10-92	98.10	12-17-92	97.94
4-07-92	97.36	7-09-92	97.84	10-08-92	98.09		

Footnote at end of table.

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Date	Water level	Date	Water level	Date	Water level	Date	Water level
Completed in the deep aquifer in the Lancaster subbasin--*Continued*							
9N/9W-18C1. Altitude, 2,280.1; depth, 221							
2-04-92	101.42	5-07-92	101.29	8-10-92	102.05	11-08-92	102.08
3-10-92	101.28	6-16-92	101.66	9-09-92	102.22	12-15-92	101.81
4-05-02	101.11	7-08-12	101.75	10-07-92	101.78		
9N/9W-27H2. Altitude, 2,279.8; depth, 170.8							
3-11-92	93.50	6-17-92	93.87	9-09-92	94.21	12-16-92	94.51
4-05-92	93.52	7-09-92	94.06	10-06-92	94.28		
5-09-92	93.55	8-08-92	94.17	11-07-92	94.39		
9N/9W-28A1. Altitude, 2,271.1; depth 755							
1-10-92	92.49	4-05-92	92.18	7-29-92	94.94	10-28-92	94.81
1-17-92	92.39	5-05-92	93.36	8-06-92	94.98	12-17-92	93.02
2-05-92	92.24	6-09-92	94.44	9-09-92	95.23		
3-09-92	92.01	7-07-92	94.39	9-14-92	95.03		
3-11-92	92.11	7-13-92	94.57	10-06-92	95.34		
9N/9W-28A2. Altitude, 2,271.1; depth, 524							
1-10-92	91.32	4-05-92	91.07	7-30-92	93.49	10-06-92	93.89
1-17-92	91.22	5-05-92	92.14	8-06-92	93.54	10-28-92	93.39
2-05-92	91.08	6-09-92	93.10	8-11-92	93.54	11-07-92	93.02
3-09-92	90.93	7-07-92	93.02	9-09-92	93.81	12-16-92	92.00
3-11-92	91.01	7-13-92	93.20	9-14-92	93.65		
9N/9W-28A3. Altitude, 2,271.1; depth, 350							
1-17-92	88.40	4-05-92	88.34	7-13-92	89.59	9-14-92	89.97
2-05-92	88.35	5-05-92	88.86	7-30-92	89.84	10-06-92	90.16
3-09-92	88.28	6-09-92	89.46	8-06-92	89.84	10-28-92	89.95
3-11-92	88.32	7-07-92	89.50	9-09-92	90.07	12-17-92	89.14
9N/9W-28A4. Altitude, 2,271.1; depth, 220							
1-17-92	87.26	5-05-92	87.84	8-06-92	88.76	11-07-92	88.86
2-05-92	87.50	6-09-92	88.33	9-09-92	88.96	12-16-92	88.37
3-09-92	87.34	7-07-92	88.42	9-14-92	88.87		
3-11-92	87.46	7-13-92	88.52	10-06-92	89.07		
4-05-92	87.44	7-30-92	88.72	10-28-92	88.92		
9N/10W-24C1. Altitude, 2,283.0; depth, 733							
1-10-92	116.99	4-05-92	115.87	7-08-92	117.80	10-07-92	118.94
2-04-92	116.41	5-07-92	115.80	8-10-92	118.49	11-08-92	116.35
3-10-92	116.21	6-16-92	117.25	9-09-92	118.59	12-17-92	116.62
9N/10W-24E1. Altitude, 2,271.9; depth, 650							
2-04-92	109.37	5-07-92	110.10	8-10-92	135.44	11-08-92	133.52
3-10-92	108.93	6-16-92	133.60	9-09-92	128.06	12-17-92	110.32
4-05-92	111.26	7-08-92	130.14	10-07-92	126.28		

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Completed in the deep aquifer in the Lancaster subbasin--*Continued*							
9N/10W-24E2. Altitude, 2,271.1; depth, 579							
5-07-92	112.30	10-07-92	182.42[1]	11-08-92	237.21[1]	12-17-92	109.45
9N/10W-24G1. Altitude, 2,277.9; depth, 738							
2-04-92	162.12[1]	7-08-95	161.83[1]	9-09-92	161.91[1]	12-17-92	117.36
5-07-92	172.18[1]	8-10-92	161.85[1]	11-08-92	112.05		
9N/10W-25P1. Altitude, 2,269.5; depth, 480							
1-09-92	106.07	5-09-92	109.07	8-06-92	114.77	10-07-92	114.91
2-03-92	105.47	6-16-92	114.28	9-09-92	115.11	10-30-92	111.61
4-07-92	105.62	7-08-92	114.45	9-18-92	113.29	12-15-92	106.67
9N/10W-25P2. Altitude, 2,269.5; depth, 130							
1-09-92	69.91	5-09-92	70.79	8-06-92	71.77	10-07-92	72.26
2-03-92	70.07	6-16-92	71.97	9-09-92	72.11	10-30-92	72.02
4-07-92	70.06	7-08-92	71.32	9-18-92	72.28	12-15-92	71.57
9N/10W-27P1. Altitude, 2,278.6; depth, 560							
9-07-92	127.65	10-05-92	127.99	11-09-92	128.17	12-16-92	128.23
9N/10W-27P2. Altitude, 2,278.6; depth, 410							
9-07-92	130.09	10-05-92	130.12	11-09-92	129.67	12-16-92	128.10
9N/10W-27P3. Altitude, 2,278.8; depth, 220							
9-07-92	121.55	10-05-92	121.83	11-09-92	121.31	12-16-92	120.22
9N/10W-28F2. Altitude, 2,293.9; depth, 140.8							
1-09-92	90.55	4-04-92	90.56	7-07-92	90.52	10-05-92	90.84
2-04-92	90.49	5-11-92	90.65	8-10-92	90.71	11-08-92	90.81
3-10-92	90.63	6-16-92	90.73	9-07-92	90.78	12-15-92	90.89
9N/10W-28H3. Altitude, 2,288.6; depth, 500							
9-07-92	125.94	10-05-92	128.15	11-08-92	127.78	12-16-92	127.32
9N/10W-28H4. Altitude, 2,288.6; depth, 305							
9-07-92	131.92	10-05-92	133.10	11-09-92	133.25		
9N/10W-34R2. Altitude, 2,290.4; depth, 838							
2-03-92	132.00	6-16-92	134.92	9-17-92	136.93	12-14-92	133.40
3-09-92	130.90	7-08-92	134.98	10-05-92	137.20		
4-05-92	130.86	8-11-92	136.22	10-29-92	136.84		
5-08-92	132.36	9-07-92	137.02	11-08-92	136.11		
9N/10W-34R3. Altitude, 2,290.0; depth, 520							
1-10-92	132.14	5-08-92	134.10	9-07-92	136.77	12-15-92	132.05
2-03-92	131.03	6-16-92	134.82	9-17-92	136.42		
3-09-92	130.36	7-08-92	135.25	10-05-92	136.98		
4-05-92	130.66	8-11-92	136.31	10-29-92	135.78		

Footnote at end of table.

Table 2. Ground-water levels for wells and piezometers on Edwards Air Force Base, California, 1992--*Continued*

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Completed in the deep aquifer in the Lancaster subbasin--*Continued*							
9N/10W-34R4. Altitude, 2,290.0; depth, 250							
2-03-92	130.43	6-16-92	134.20	9-17-92	136.21	12-14-92	131.62
3-09-92	129.73	7-08-92	134.66	10-05-92	136.69		
4-05-92	130.42	8-11-92	135.99	10-29-92	135.47		
5-08-92	132.63	9-07-92	136.46	11-08-92	134.76		
9N/10W-36F1. Altitude, 2,825.6; depth, 672							
1-09-92	122.36	4-07-92	122.27	8-06-92	151.68[1]	11-07-92	126.74
2-03-92	141.85	5-09-92	126.15	9-09-92	133.50	12-17-92	125.44
3-10-92	124.22	6-16-92	152.50[1]	10-07-92	133.91		
9N/10W-36J1. Altitude, 2,283.0; depth, 900							
1-09-92	122.28	5-09-92	122.72	7-31-92	128.30	10-05-92	128.74
2-04-92	121.30	6-16-92	126.48	8-06-92	128.65	10-30-92	128.40
3-10-92	120.57	7-08-92	127.17	9-09-92	129.60	12-15-92	123.52
4-07-92	120.64	7-16-92	127.32	9-16-92	129.35		
9N/10W-36J2. Altitude, 2,283.0, depth, 529							
1-09-92	119.43	5-09-92	124.12	7-31-92	132.88	10-05-92	131.55
2-04-92	119.10	6-16-92	131.73	8-06-92	131.81	10-30-92	125.07
3-10-92	121.96	7-08-92	130.35	9-09-92	131.79	12-15-92	120.02
4-07-92	119.35	7-16-92	131.23	9-16-92	129.82		
9N/10W-36J3. Altitude, 2,283.0; depth, 237							
1-09-92	116.54	5-09-92	118.91	8-06-92	124.44	11-07-92	120.33
2-04-92	116.49	6-16-92	124.67	9-09-92	124.60	12-16-92	117.25
3-10-92	116.59	7-08-92	125.11	9-16-92	125.30		
4-07-92	116.82	7-31-92	125.64	10-07-92	124.68		
9N/10W-36P1. Altitude, 2,288.3; depth, 667							
1-09-92	126.41	5-09-92	134.05	8-06-92	167.73[1]	11-07-92	130.16
2-03-92	125.32	6-16-92	167.90[1]	9-09-92	170.35[1]	12-17-92	127.51
4-07-92	125.47	7-08-92	137.27	10-07-92	169.82[1]		
9N/10W-36P2. Altitude, 2,290.9; depth, 465							
1-09-92	128.34	5-09-92	136.92	7-29-92	143.50	10-07-92	139.42
2-03-92	127.22	6-16-92	142.81	8-06-92	142.21	10-30-92	133.37
3-10-92	132.42	7-08-92	138.10	9-09-92	141.80	12-15-92	128.16
4-07-92	127.48	7-15-92	138.63	9-15-92	142.17		
9N/11W-36L1. Altitude, 2,289.2; depth, 127.1							
4-06-92	92.19	7-08-92	100.23	10-05-92	99.88		
5-11-92	101.47	8-05-92	94.97	11-08-92	101.54		
6-17-92	100.11	9-07-92	99.99	12-15-92	93.13		

Footnote at end of table.

Table 2. Ground-water levels for wells and piezometers on Edwards Air Force Base, California, 1992--*Continued*

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Completed in the deep aquifer in the Lancaster subbasin--*Continued*							
9N/12W-23N1. Altitude, 2,292.4; depth 263.9							
3-12-92	72.69	5-06-92	72.56	8-05-92	72.77	11-08-92	73.15
4-06-92	72.64	6-17-92	72.65	9-09-92	72.94	12-14-92	73.35
4-16-92	72.61	7-08-92	72.65	10-05-92	73.08		
Completed in the principal aquifer in the Lancaster subbasin							
8N/10W-18P3. Altitude, 2,322.5; depth, 113.2							
2-07-92	93.28	5-06-92	93.46	8-05-92	93.57	11-08-92	93.62
3-12-92	93.39	6-17-92	93.54	9-09-92	93.62	12-14-92	93.70
3-31-92	93.42	7-08-92	93.57	10-05-92	93.69		
8N/11W-14R1. Altitude, 2,313.7; depth, 164.9							
3-12-92	86.41	6-17-92	86.48	9-09-92	86.59	12-14-92	86.70
4-04-92	86.29	7-08-92	86.70	10-05-92	86.72		
5-06-92	86.48	8-05-92	86.53	11-08-92	86.52		
8N/11W-15Q1. Altitude, 2,304.3; depth, 177.8							
3-12-92	78.55	6-17-92	78.62	9-09-92	78.61	12-14-92	78.69
4-04-92	78.43	7-08-92	78.65	10-05-92	78.69		
5-06-92	78.54	8-05-92	78.56	11-08-92	78.55		
8N/12W-2Q1. Altitude, 2,283.8; depth, 72.7							
4-06-92	49.00	7-08-92	49.68	9-09-92	50.78	11-08-92	52.13
5-06-92	48.94	8-05-92	50.30	10-05-92	51.29	12-14-92	52.06
6-17-92	49.26						
8N/12W-10J1. Altitude, 2,288.8; depth, 85							
3-11-92	36.43	5-06-92	36.42	8-05-92	36.88	11-08-92	37.13
4-06-92	36.33	6-17-92	36.42	9-09-92	36.92	12-14-92	37.15
4-13-92	36.48	7-08-92	36.81	10-05-92	37.03		
Completed within the confining lacustrine unit in the Lancaster subbasin							
8N/9W-6D1. Altitude, 2,287.2; depth, 135.6							
1-09-92	40.73	4-07-92	39.82	7-08-92	42.61	10-05-92	42.25
2-04-92	40.83	5-09-92	40.23	8-06-92	42.44	11-07-92	41.80
3-10-92	39.96	6-16-92	40.61	9-09-92	42.05	12-16-92	41.22
8N/10W-1Q4. Altitude, 2,301.7; depth, 130							
1-07-92	52.94	4-04-92	53.14	8-05-92	53.32	11-07-92	53.50
1-13-92	53.02	5-05-92	53.19	9-09-92	53.41	12-14-92	53.56
2-03-92	53.02	6-09-92	53.28	9-14-92	53.43		
2-24-92	53.07	7-07-92	53.16	10-05-92	53.44		
3-10-92	53.10	7-13-92	53.22	10-29-92	53.47		
8N/10W-4R5. Altitude, 2,301.4; depth, 150							
1-09-92	89.17	4-05-92	88.87	7-08-92	89.11	10-05-92	89.58
2-03-92	89.11	5-07-92	89.01	8-11-92	89.25	11-08-92	89.67
3-09-92	88.93	6-16-92	89.14	9-09-92	89.42	12-14-92	89.57

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Completed within the confining lacustrine unit in the Lancaster subbasin--*Continued*							
8N/10W-4R6. Altitude, 2,301.4; depth, 100							
1-09-92	59.41	4-05-92	59.47	7-08-92	58.35	10-05-92	58.45
2-03-92	59.49	5-07-92	59.52	8-11-92	58.43	11-08-92	58.46
3-09-92	59.49	6-16-92	59.45	9-09-92	58.44	12-14-92	58.47
8N/10W-5A6. Altitude, 2,287.3; depth, 55							
1-09-92	28.36	3-31-92	28.38	7-08-92	28.49	10-05-92	28.64
2-03-92	28.36	5-08-92	28.39	8-11-92	28.56	11-08-92	28.66
3-09-92	28.36	6-16-92	28.46	9-09-92	28.62	12-14-92	28.66
9N/9W-28A5. Altitude, 2,271.1; depth, 65							
1-10-92	35.27	3-11-92	40.35	7-13-92	40.67	10-06-92	40.84
1-17-92	37.65	4-02-92	40.45	7-30-92	40.69	10-28-92	40.67
2-05-92	39.69	5-05-92	40.43	8-11-92	40.70	12-17-92	40.04
2-21-92	40.24	6-09-92	40.60	9-09-92	40.74		
3-09-92	40.25	7-07-92	40.69	9-14-92	40.60		
9N/10W-34R5. Altitude, 2,290.5; depth, 90							
1-10-92	17.45	5-08-92	17.92	9-07-92	18.33	12-15-92	17.58
2-03-92	17.41	6-16-92	17.85	9-17-92	18.26		
3-09-92	17.49	7-08-92	17.99	10-05-92	18.28		
4-05-92	17.70	8-11-92	18.21	10-29-92	18.04		
9N/10W-36J4. Altitude, 2,283.0; depth, 95							
1-09-92	22.09	5-09-92	21.80	8-06-92	21.46	11-07-92	21.63
2-04-92	21.84	6-16-92	21.70	9-09-92	21.53	12-16-92	21.81
3-10-92	21.77	7-08-92	21.57	9-16-92	21.53		
4-07-92	21.70	7-31-92	21.47	10-07-92	21.57		
9N/10W-36P3. Altitude, 2,291.2; depth, 120							
1-09-92	27.53	5-09-92	27.01	7-29-92	27.37	10-07-92	27.27
2-03-92	27.55	6-16-92	27.14	8-06-92	27.37	10-30-92	27.31
3-10-92	27.06	7-08-92	27.36	9-09-92	27.31	12-15-92	27.19
4-07-92	27.00	7-15-92	27.35	9-15-92	27.30		
Completed in the small, unconfined, unnamed subbasin							
9N/10W-8P1. Altitude, 2,370.5; depth, 132.6							
1-09-92	81.58	4-05-92	81.47	7-08-92	81.54	10-06-92	81.45
2-04-92	81.53	5-11-92	81.53	8-10-92	81.42	11-07-92	81.46
3-10-92	81.56	6-17-92	81.50	9-08-92	81.50	12-15-92	81.41
9N/10W-16F1. Altitude, 2,320.7; depth, 458							
1-08-92	111.53	4-05-92	111.33	7-07-92	110.40	10-06-92	110.92
2-04-92	111.49	5-11-92	111.30	8-10-92	110.98	11-08-92	110.80
3-10-92	111.40	6-16-92	111.16	9-07-92	111.02	12-15-92	110.74
9N/10W-16L1. Altitude, 2,319.5; depth, 500							
1-08-92	117.66	4-05-92	116.29	7-07-92	118.49	10-06-92	116.95
2-04-92	116.98	5-11-92	121.00	8-10-92	117.74	11-08-92	116.37
3-10-92	116.61	6-17-92	121.11	9-08-92	117.70	12-14-92	116.20

Table 2. Ground-water levels for wells and piezometers on Edwards Air Force Base, California, 1992--*Continued*

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Completed in the small, unconfined, unnamed subbasin--*Continued*							
9N/10W-16L2. Altitude, 2,319.0; depth, 732							
1-08-92	113.40	4-05-92	112.16	7-07-92	113.65	10-06-92	112.96
2-04-92	112.87	5-11-92	112.43	8-10-92	113.08	11-08-92	112.90
3-10-92	112.42	6-16-92	113.46	9-07-92	113.06	12-14-92	112.92
9N/10W-16L3. Altitude, 2,318.7; depth, 270							
1-07-92	113.06	4-05-92	112.84	7-07-92	111.53	10-06-92	112.64
2-04-92	113.06	5-11-92	112.85	8-10-92	112.07	11-08-92	112.72
3-10-92	112.91	6-16-92	112.87	9-07-92	112.58	12-14-92	112.69
9N/10W-16M1. Altitude, 2,324.0; depth, 140.5							
1-09-92	120.25	4-05-92	120.33	7-07-92	120.45	10-06-92	120.58
2-04-92	120.29	5-11-92	120.35	8-10-92	120.50	11-08-92	120.58
3-10-92	120.33	6-16-92	120.40	9-07-92	120.58	12-15-92	120.60
9N/10W-16N1. Altitude, 2,325.8; depth, 376							
1-08-92	122.04	4-05-92	122.06	7-07-92	122.22	10-06-92	122.29
2-04-92	122.07	5-11-92	122.11	8-10-92	122.21	11-08-92	122.25
3-10-92	122.07	6-16-92	122.12	9-07-92	122.29	12-15-92	122.32
9N/10W-16P1. Altitude, 2,320.2; depth, 532							
1-08-92	118.07	4-05-92	116.88	7-07-92	118.75	10-06-92	117.48
2-04-92	117.50	5-11-92	121.33	8-10-92	118.17	11-08-92	116.96
3-10-92	117.16	6-16-92	121.00	9-07-92	118.11	12-15-92	116.81
9N/10W-16R1. Altitude, 2,312.9; depth, 840							
1-08-92	100.45	3-30-92	100.40	7-14-92	100.00	10-06-92	103.73
1-28-92	100.46	5-05-92	100.66	8-10-92	101.79	10-29-92	103.26
2-04-92	100.48	6-16-92	100.69	9-07-92	103.55	11-08-92	103.11
3-10-92	100.47	7-07-92	99.71	9-15-92	103.53	12-15-92	102.94
9N/10W-16R2. Altitude, 2,312.8; depth 584							
1-08-92	101.41	3-30-92	101.48	7-14-92	101.56	10-06-92	104.68
1-28-92	101.44	5-05-92	101.59	8-10-92	103.45	10-29-92	104.19
2-04-92	101.48	6-11-92	101.62	9-07-92	104.98	12-15-92	104.14
3-10-92	101.53	7-07-92	101.46	9-15-92	104.74		
9N/10W-16R3. Altitude, 2,312.8; depth, 360							
1-08-92	101.69	3-30-92	101.77	7-14-92	102.25	10-06-92	104.29
1-28-92	101.68	5-05-92	101.84	8-10-92	103.28	10-29-92	104.19
2-04-92	101.77	6-16-92	101.86	9-07-92	104.47	11-08-92	104.16
3-10-92	101.77	7-07-92	102.27	9-15-92	104.53	12-15-92	104.32
9N/10W-16R4. Altitude, 2,308.4; depth, 700							
2-04-92	99.74	5-11-92	99.91	8-10-92	136.69[1]	11-08-92	103.03
3-10-92	99.80	6-16-92	99.91	9-07-92	132.89[1]	12-15-92	103.10
4-05-92	99.85	7-07-92	116.09[1]	10-06-92	102.79		

Footnote at end of table.

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Table 2. Ground-water levels for wells and piezometers on Edwards Air Force Base, California, 1992--*Continued*

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Completed near the ground-water divide on Rogers Lake							
10N/9W-27C1. Altitude, 2,272.4, depth 222							
2-05-92	79.03	5-11-82	79.30	8-07-92	79.50	11-07-92	79.76
3-11-92	80.18	6-17-92	79.42	9-09-92	79.60	12-16-92	79.89
4-05-92	79.14	7-07-92	79.35	10-06-92	79.69		
10N/9W-27C2. Altitude, 2,272.4; depth, 160							
2-05-92	78.90	5-11-92	79.18	8-06-92	79.36	11-07-92	79.61
3-11-92	79.07	6-17-92	79.28	9-09-92	79.45	12-16-92	79.78
4-05-92	79.11	7-07-92	79.23	10-06-92	79.61		
10N/9W-27C3. Altitude, 2,272.4; depth, 80							
2-05-92	74.38	5-11-92	74.42	8-07-92	74.45	11-07-92	74.40
3-11-92	75.39	6-17-92	74.42	9-09-92	74.51	12-16-92	74.41
4-05-92	74.44	7-07-92	74.44	10-06-92	74.49		
Completed in the unconfined aquifer in the North Muroc subbasin							
10N/9W-4D1. Altitude, 2,304.2; depth, 456.2							
2-06-92	127.11	5-09-92	127.66	8-07-92	129.12	11-07-92	128.61
3-11-92	126.88	6-17-92	128.20	9-10-92	129.54	12-16-92	128.19
4-05-92	127.20	7-09-92	128.75	10-06-92	129.43		
10N/9W-10B1. Altitude, 2,278.6; depth, 312							
1-08-92	95.70	4-05-92	95.80	7-09-92	95.91	10-06-92	96.06
2-05-92	95.69	5-09-92	95.80	8-07-92	95.95	11-07-92	96.11
3-11-92	95.72	6-17-92	95.88	9-10-92	96.06	12-17-92	96.18
10N/9W-10B2. Altitude, 2,278.6; depth, 150							
1-08-92	95.52	4-05-92	95.61	7-09-92	95.72	10-06-92	95.88
2-05-92	95.48	5-09-92	95.60	8-07-92	95.77	11-07-92	95.91
3-11-92	95.51	6-17-92	95.67	9-10-92	95.88	12-17-92	96.01
10N/9W-24A2. Altitude, 2,290.6; depth, 278.7							
1-08-92	94.51	4-05-92	94.63	7-09-92	94.78	10-06-92	95.04
2-05-92	94.49	5-09-92	94.65	8-07-92	94.85	11-07-92	94.98
3-11-92	94.54	6-17-92	94.73	9-10-92	94.99	12-16-92	95.24
11N/9W-32Q1. Altitude, 2,302.9; depth, 450							
1-07-92	127.25	4-05-92	127.72	7-09-92	130.06	10-06-92	130.46
2-06-92	127.35	5-09-92	128.27	8-07-92	130.64	11-07-92	129.00
3-11-92	126.88	6-17-92	128.95	9-10-92	130.99	12-16-92	128.44
11N/9W-36R1. Altitude, 2,311.9; depth, 254.1							
2-06-92	121.80	5-09-92	121.98	8-07-92	122.05	11-07-92	122.20
3-11-92	121.82	6-17-92	121.98	9-10-92	122.19	12-17-92	122.27
4-04-92	121.98	7-09-92	122.06	10-06-92	122.18		

[1] Pumping level (or well pumping).

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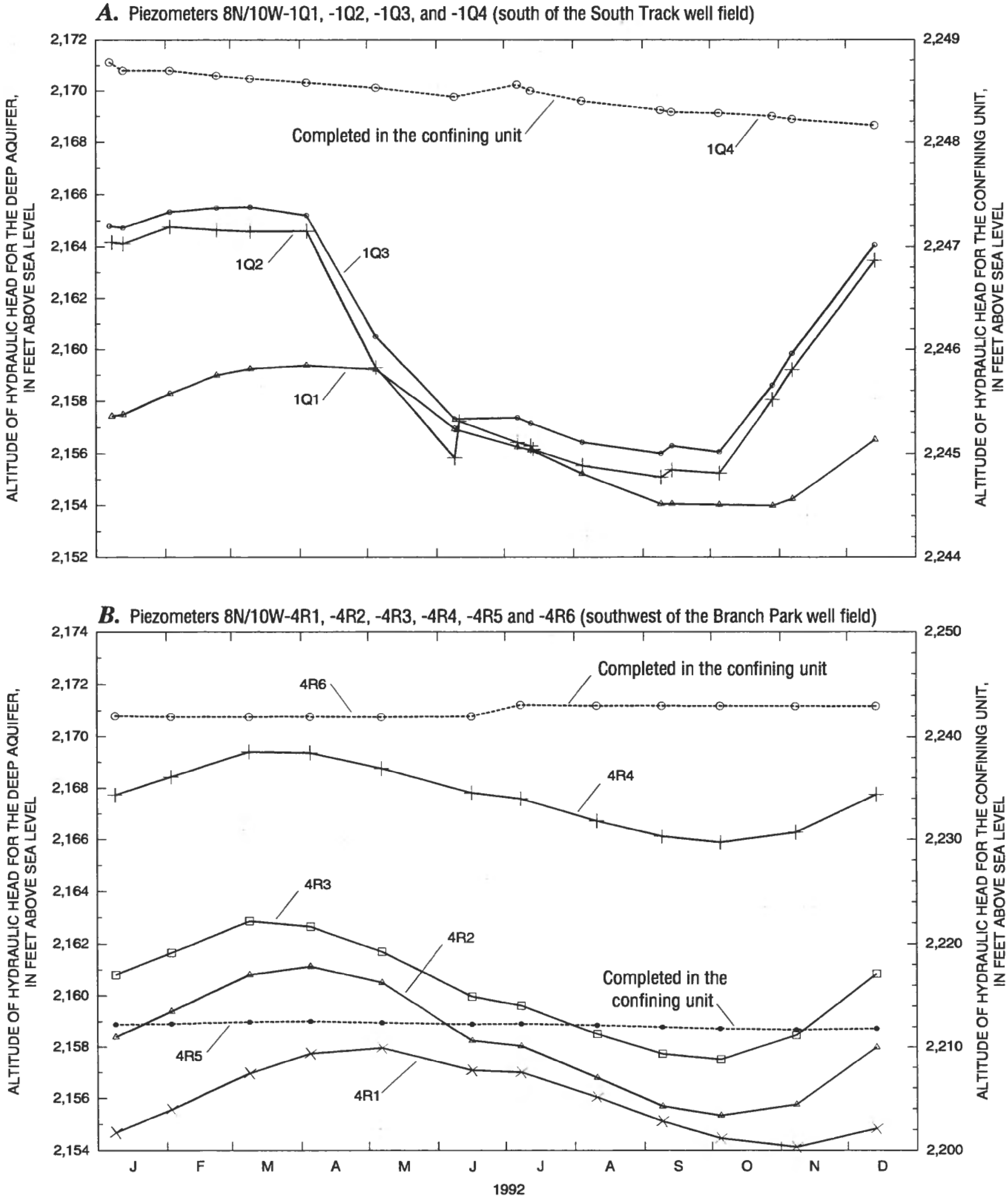

Figure 6. Hydraulic heads for U.S. Geological Survey piezometers on Edwards Air Force Base, California, 1992. (Screened in the deep aquifer of the Lancaster subbasin except where indicated. See figure 5 for piezometer locations.)