Table 5. Hydraulic heads and change in hydraulic heads for selected wells and piezometers used to plot the potentiometric surfaces of the aquifer system at Edwards Air Force Base, California, 1992

[State well No.: See well-numbering system on page V. See figures 15 through 18 for locations of wells. Hydraulic head, in feet, computed from land-surface altitude and depth to water (table 2), rounded to nearest tenth of a foot. Div., at the ground-water divide; ft, foot; do., ditto; --, data not available]

State well No.	Subbasin	Hydraulic head, spring		Hydraulic head, late summer		Change in hydraulic head (ft)
		Date	Head	Date	Head	
		Completed in deep aquifer				
8N/10W-1C2	Lancaster	4-07-92	2,163.0	9-09-92	2,149.1	13.9
-1Q3	do.	4-04-92	2,165.2	9-09-92	2,156.0	9.2
-4R4	do.	4-05-92	2,169.4	9-09-92	2,166.1	3.3
-5A4	do.	3-31-92	2,162.8	9-09-92	2,160.2	2.6
-30R1[1]	do.	4-14-92	2,217.4	--	--	--[2]
9N/8W-6J1	do.	3-31-92	2,190.0	9-09-92	2,190.0	0
9N/9W-9A2	do.	4-05-92	2,189.3	9-09-92	2,187.2	2.1
-10R1	do.	4-05-92	2,186.7	9-09-92	2,186.0	.7
-13N1	do.	3-13-92	2,188.6	9-10-92	2,187.9	.7
-15J1	do.	4-07-92	2,185.4	9-10-92	2,184.7	.7
-18C1	do.	4-05-92	2,179.0	9-09-92	2,177.8	1.2
-27H2	do.	4-05-92	2,186.3	9-09-92	2,185.6	.7
-28A4	do.	4-05-92	2,183.7	9-09-92	2,182.1	1.6
9N/10W-24C1	Lancaster	4-05-92	2,167.1	9-09-92	2,164.4	2.7
-24E1	do.	4-05-92	2,160.3	9-09-92	2,143.5[3]	16.8
-25P1	do.	4-07-92	2,163.9	9-09-92	2,154.4	9.5
-27P3	do.	--[4]	--[4]	9-07-92	2,157.0	--[2]
-28F2	do.	4-04-92	2,203.3	9-07-92	2,203.1	.2
-28H4	do.	--[4]	--[4]	9-07-92	2,156.7	--[2]
-34R4	do.	4-05-92	2,159.6	9-07-92	2,153.5	6.1
-36F1	do.	4-07-92	2,163.3	9-09-92	2,152.1	11.2
-36J2	do.	4-07-92	2,163.6	9-09-92	2,151.2	12.4
-36P1	do.	4-07-92	2,162.8	9-09-92	--[5]	--[2]
-36P2	do.	4-07-92	2,163.4	9-09-92	2,149.1	14.3
9N/11W-36L1	do.	4-06-92	2,197.0	9-07-92	2,189.2	7.8
9N/12W-23N1	do.	4-06-92	2,219.8	9-09-92	2,219.5	.3
10N/9W-4D1	North Muroc	4-05-92	2,177.0	9-10-92	2,174.7	2.3
-10B1	do.	4-05-92	2,182.8	9-10-93	2,182.5	.3
-24A2	do.	4-05-92	2,196.0	9-10-92	2,195.6	.4
-27C2	Div.	4-05-92	2,193.3	9-09-92	2,193.0	.3
11N/9W-32Q1	North Muroc	4-05-92	2,175.2	9-10-92	2,171.9	3.3
-36R1	do.	4-04-92	2,189.9	9-10-92	2,189.8	.1

Footnotes at end of table.

Table 5. Hydraulic heads and change in hydraulic heads for selected wells and piezometers used to plot the potentiometric surfaces of the aquifer system at Edwards Air Force Base, California, 1992--*Continued*

State well No.	Subbasin	Hydraulic head, spring		Hydraulic head, late summer		Change in hydraulic head (ft)
		Date	Head	Date	Head	
Completed in principal aquifer						
8N/10W-18P3	Lancaster	3-31-92	2,229.1	9-09-92	2,228.9	0.2
-28B1[1]	do.	4-15-92	2,206.9	--	--	--[2]
8N/11W-14R1	do.	4-04-92	2,227.4	9-09-92	2,227.1	.3
-15Q1	do.	4-04-92	2,225.9	9-09-92	2,225.7	.2
-22P2[1]	do.	4-14-92	2,223.2	--	--	--[2]
-24R2[1]	do.	4-14-92	2,227.4	--	--	--[2]
-34D2[1]	do.	4-15-92	2,217.4	--	--	--[2]
-34R2[1]	do.	4-15-92	2,226.8	--	--	--[2]
8N/12W-2Q1	do.	4-06-92	2,234.8	9-09-92	2,232.0	2.8
-10J1	do.	4-06-92	2,252.5	9-09-92	2,251.9	.6
-26F1[1]	do.	4-13-92	2,279.5	--	--	--[2]
-28D1[1]	do.	4-13-92	2,248.9	--	--	--[2]
-34K1[1]	do.	4-13-92	2,259.5	--	--	--[2]
9N/12W-33P1[1]	do.	4-16-92	2,235.4	--	--	--[2]
Completed in the unconfined aquifer						
9N/10W-8P1	Unnamed	4-05-92	2,289.0	9-08-92	2,289.0	0
-16F1	do.	4-05-92	2,209.4	9-07-92	2,209.7	-.3
-16L1	do.	4-05-92	2,203.2	9-08-92	2,201.8	1.4
-16L2	do.	4-05-92	2,206.8	9-07-92	2,205.9	.9
-16L3	do.	4-05-92	2,205.9	9-07-92	2,206.1	-.2
-16M1	do.	4-05-92	2,203.7	9-07-92	2,203.4	.3
-16N1	do.	4-05-92	2,203.7	9-07-92	2,203.5	.2
-16P1	do.	4-05-92	2,203.3	9-07-92	2,202.1	1.2
-16R3	do.	3-30-92	2,211.0	9-07-92	2,208.3	2.7
-16R4	do.	4-05-92	2,208.5	10-06-92	2,205.6	2.9

[1]Wells monitored annually for Antelope Valley-East KErn Water Agency (Johnson and Fong-Frydendal, 1993).
[2]Not able to calculate.
[3]Influenced by pumping from well 9N/10W-24E2.
[4]Drilled in August 1992.
[5]Well pumping.

across Rogers Lake did not measurably change (fig. 19).

In the Graham Ranch well field, hydraulic heads in production wells 9N/10W-16P1 and -16R4 declined 1 and 3 ft, respectively, from spring to late summer (table 5, fig. 19). The north-south, 2,210-foot potentiometric contours that defined the ground-water divide in the spring (fig. 15) merged and were plotted northeast of the well field in late summer (fig. 16).

Principal Aquifer

The potentiometric surface of the principal aquifer near wells 8N/10W-18P3 and 8N/11W-14R1 and -15Q1 was relatively flat (figs. 17 and 18), whereas the slope of the potentiometric surface steepened toward a regional ground-water depression south of Redman (Londquist and others, 1993, fig. 5). Heads in wells 8N/10W-18P3 and 8N/11W-14R1 and -15Q1 changed less than 0.5 ft between April and September (table 5). The potentiometric-surface contours of the principal aquifer southwest of Rosamond Lake ranged from about 2,220 to 2,280 ft above sea level (figs. 17 and 18). Because ground-water levels for wells south of the base were not available, the potentiometric surface of the principal aquifer for late summer is inferred.

Ground-Water Flow

Ground water flows from areas of high hydraulic head to areas of low hydraulic head. Flow may be vertical as well as horizontal. Hydraulic gradient is the ratio of the difference in hydraulic head between two wells and the distance between the wells. Vertical hydraulic gradient is the ratio of the difference in head in nested or clustered wells and the difference in altitude of the midpoint of the screened interval.

Four subregional ground-water-flow directions were identified in the deep aquifer: (1) north and northeast from the Lancaster subbasin to the Branch Park and South Track well fields; (2) south and southwest from the central part of Rogers Lake to the South Base and South Track well fields; (3) west from the alluvial fan upslope (east) of the Phillips Laboratory well fields to Rogers Lake; and (4) north from a ground-water divide in the north-central part of Rogers Lake to the North Base well field (figs. 15 and 16). The spring and late summer hydraulic gradients for these four flow directions are listed in table 6.

Table 6. Hydraulic gradients for four subregional ground-water-flow directions in the deep aquifer at Edwards Air Force Base, California, 1992

Flow direction	Hydraulic gradients, in feet	
	Spring	Late summer
8N/10W-4R4 to 9N/10W-34R4	0.0012	0.0016
9N/9W-28A4 to 9N/10W-36J2	.0011	.0017
9N/9W-13N1 to 9N/9W-15J1	.0005	.0005
10N/9W-10B1 to 10N/9W-4D1	.0006	.0008

Hydraulic heads in the piezometers completed in the deep aquifer (figs. 6*A*, 6*B*, 6*C*, 6*F*, 6*G*, 6*J*, and 6*K*) indicate that the vertical gradient generally is downward from the upper confined zone to the lower confined zone. During the summer pumping season, heads in piezometers near the South Track well field (figs. 6*C*, 6*F*, and 6*G*) indicate that the vertical gradient had reversed at these sites causing upward flow from the lower confined zone to the upper confined zone. This may cause hard, saline type water (Londquist and others, 1993) to move upward from the lower confined zone to the upper confined zone.

EXPLANATION FOR FIGURE 19

PLAYA SURFACE

ALLUVIUM

BEDROCK

.... GROUND-WATER DIVIDE

—— S —— STRUCTURAL BOUNDARY

—— - —— EDWARDS AIR FORCE BASE BOUNDARY

—— 4 —— LINE OF EQUAL HEAD DECLINE-Spring to late summer 1992. Interval 1 foot. Dashed where approximate

24E1 WELL OR PIEZOMETER AND NUMBER-With hydraulic head changes for the deep aquifer

30R1 ○ WELL OR PIEZOMETER AND NUMBER-Not monitored for this study

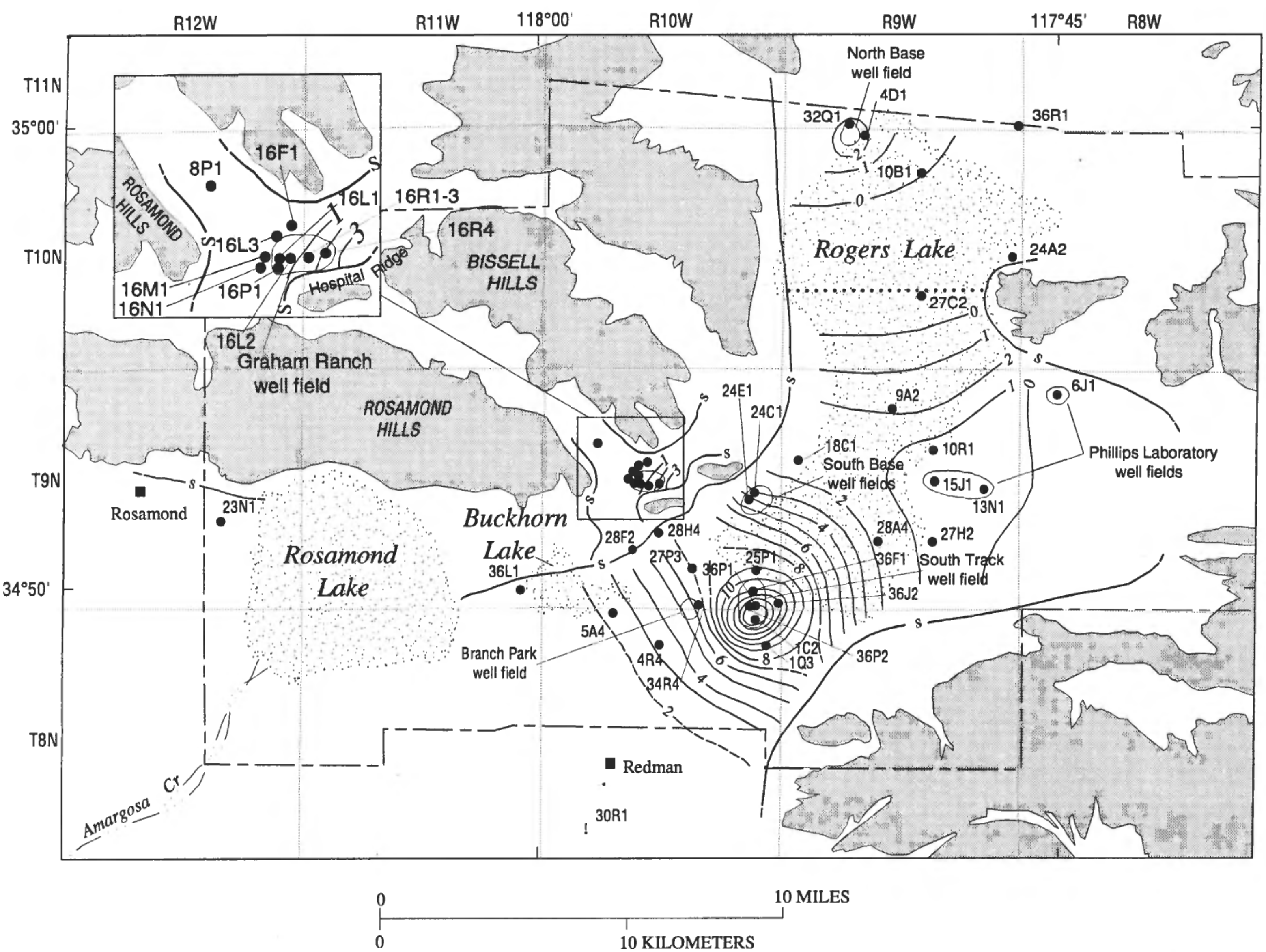

Figure 19. Change in hydraulic head in wells and piezometers completed in the deep aquifer, Edwards Air Force Base, California, spring to late summer 1992. (Base map modified from Dibblee, 1960; Bloyd, 1967; and Londquist and others, 1993.)

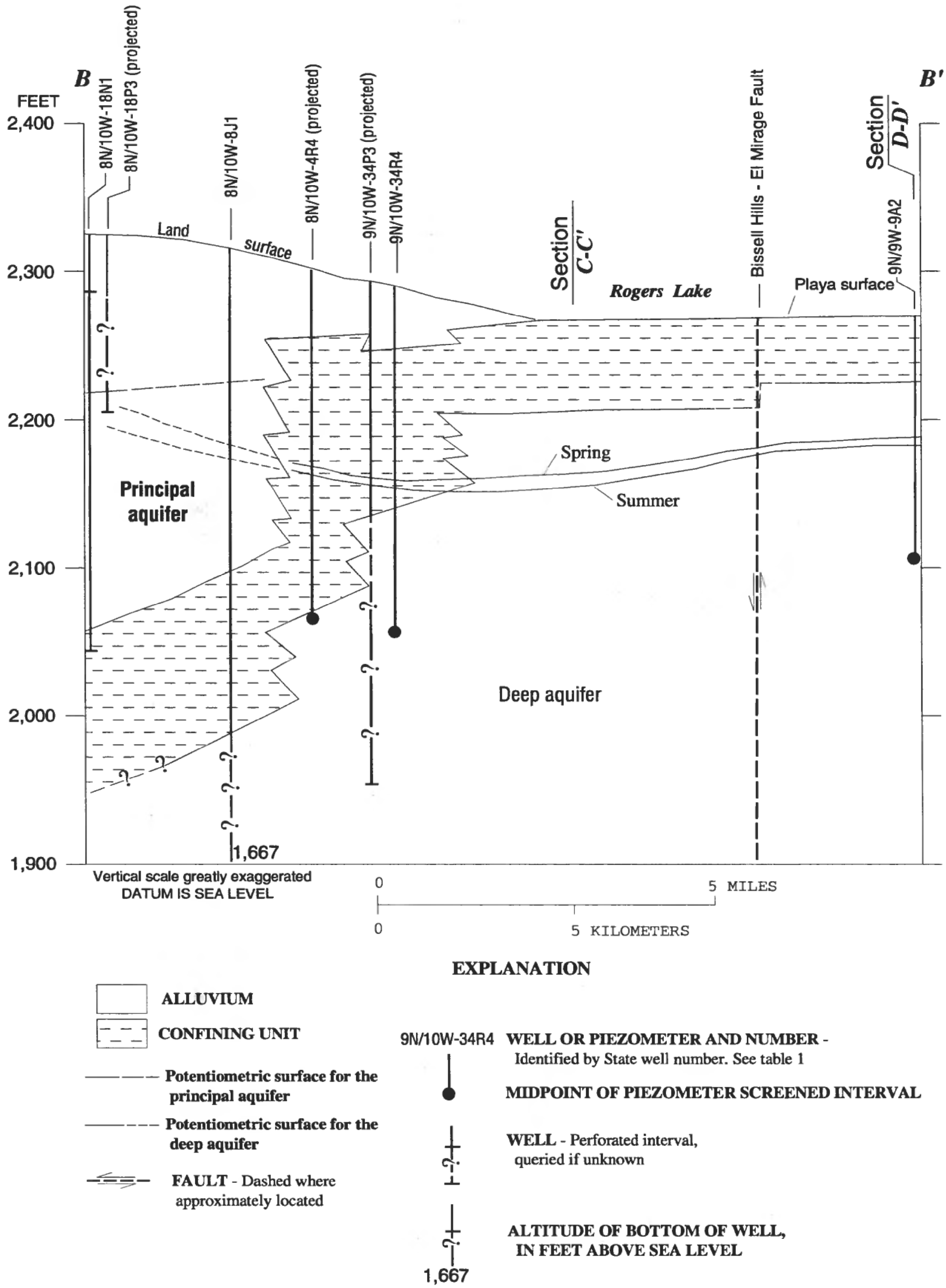

Figure 20. Hydraulic-head profiles for geologic sections *B-B'*, *C-C'* and *D-D'*, Edwards Air Force Base, California.

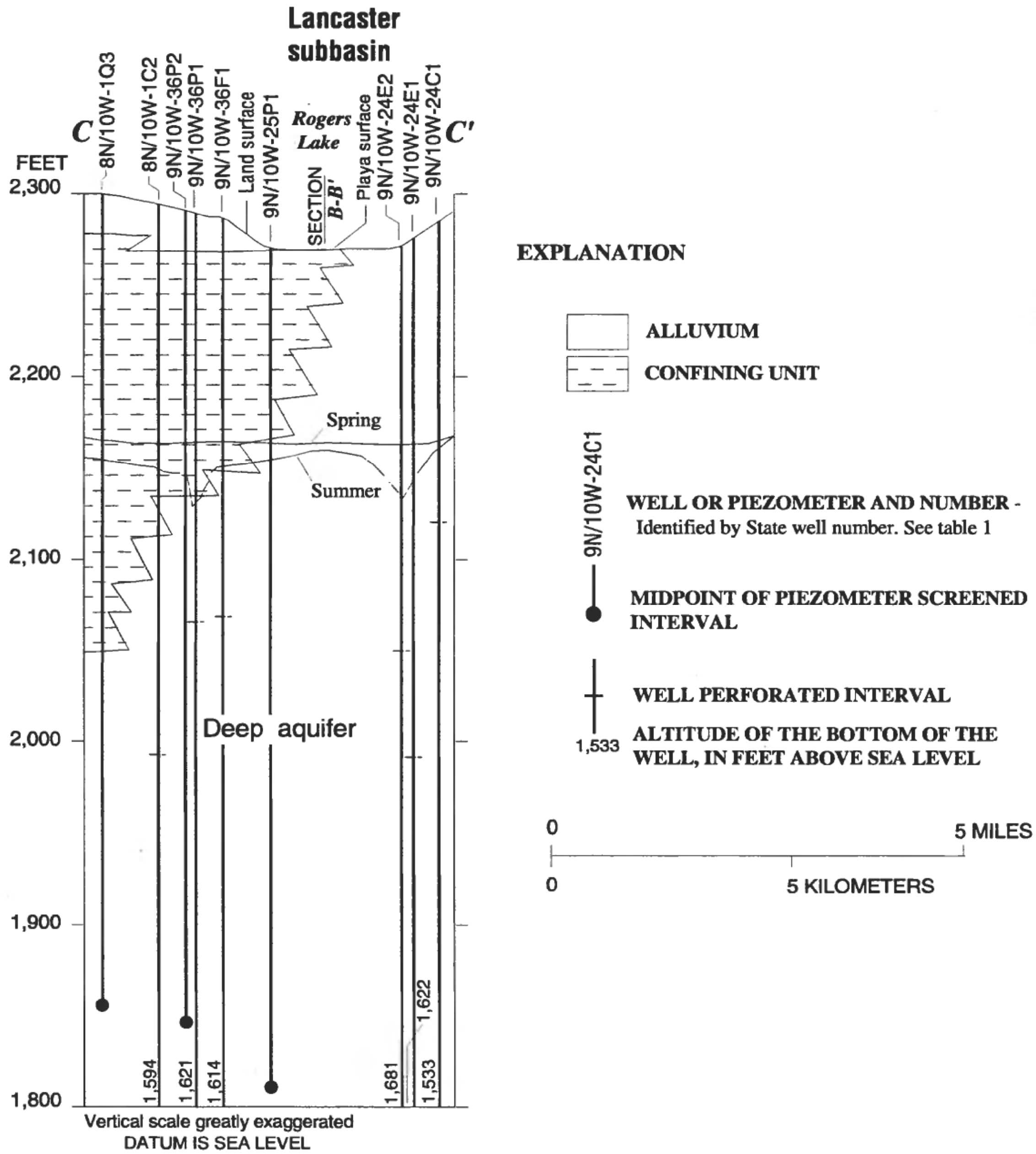

Figure 20. Hydraulic-head profiles for geologic sections *B-B'*, *C-C'* and *D-D'*, Edwards Air Force Base, California--*Continued.*

PWS-0198-0055

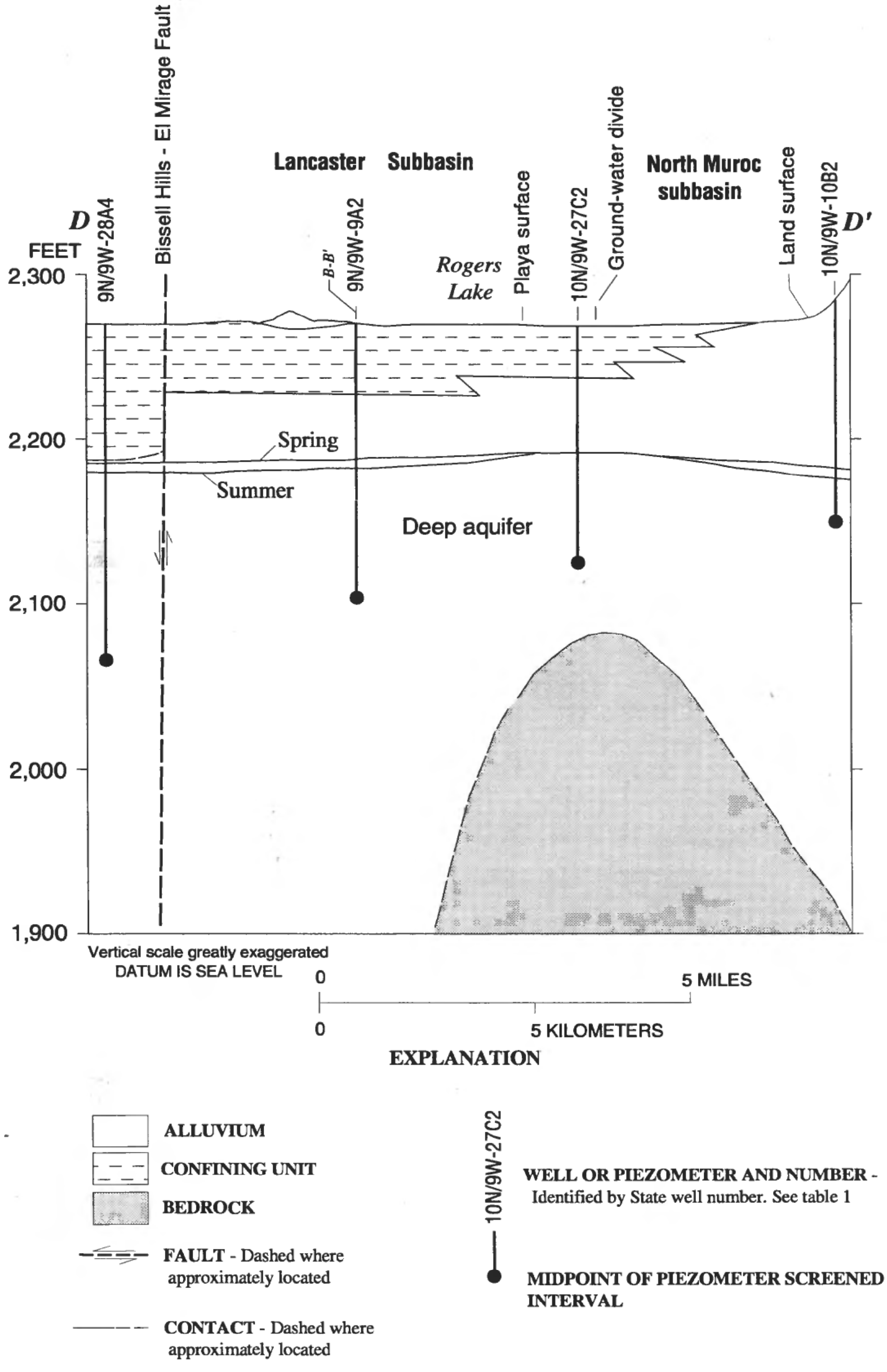

Figure 20. Hydraulic-head profiles for geologic sections *B-B'*, *C-C'* and *D-D'*, Edwards Air Force Base, California--*Continued.*

PWS-0198-0056

Johnson (1911) reported that alkali deposition on the playa surface of Rogers Lake possibly was due to ground-water evaporation. Historical evidence of artesian flow in wells completed in the deep aquifer in this area indicated an upward vertical gradient from the deep aquifer through the confining unit (Johnson, 1911). According to historical records for the late 1950's, well 8N/9W-6D1, completed in the confining unit, and wells 9N/9W-27H1 and 9N/10W-24C1, completed in the deep aquifer, had similar water levels—about 20 to 25 ft below land surface (Londquist and others, 1993)—indicating equilibrium between heads in the deep aquifer and heads in the confining unit. In 1992, hydraulic heads in the piezometers completed in the confining unit were higher than those completed in the confined aquifer, indicating that the vertical gradient is now downward from the confining unit to the deep aquifer. Because the vertical gradient between the confining unit and deep aquifer is downward, the confining unit is being dewatered. This dewatering is causing compaction of fine-grained sediments, which, in turn, results in land-surface deformation.

Hydraulic heads in the confining unit south of the principal-aquifer boundary are not known. Further study in this area is needed to determine the vertical gradients between the deep aquifer and the confining unit and between the confining unit and the principal aquifer.

In the area of the Graham Ranch well field, ground water flows toward the pumping centers of production wells 9N/10W-16P1 and -16R4 (figs. 15 and 16). Higher hydraulic heads in the deepest piezometer, 9N/10W-16R1 (fig. 6*N*), and lower hydraulic head in the shallowest piezometer, 9N/10W-16R3, indicate that the vertical hydraulic gradient is upward. Near well 9N/12W-23N1, ground water probably flows westward away from Rosamond Lake (figs. 15 and 16).

In the principal aquifer, ground water flows south and southeastward, away from EAFB and radially from the ground-water mound identified southwest of Rosamond Lake (figs. 17 and 18). The ground-water mound is at the terminus of Amargosa Creek (figs. 17 and 18) where the Los Angeles Sanitation District maintains lagoons that contain treated wastewater that is discharged from their sanitation facilities west of Sierra Highway (fig. 1). This ground-water mound may indicate that surface-water runoff and treated wastewater recharges the principal aquifer at that location. Spring water levels in wells 8N/12W-2Q1, -10J1, -26F1, -28D1, and -34K1 indicate ground water flows south and westward from this mound. Water levels in wells 8N/12W-2Q1 and -10J1 declined less than 2 ft from April to September (table 5, fig. 14), indicating that the principal aquifer may respond to seasonal recharge fluctuations and increased pumping west and southwest of Rosamond during the summer months. Public and private supply wells in this area, which may be screened above and below the confining unit, could affect heads and ground-water flow in both the principal and deep aquifers.

SUMMARY AND CONCLUSIONS

A ground-water-level monitoring program was implemented at Edwards Air Force Base (EAFB), Antelope Valley, California, to monitor spatial and temporal changes in the potentiometric surfaces of the aquifer system that 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 ground-water-level monitoring program focused on areas of EAFB where ground-water pumping occurs, especially near Rogers Lake. Well-construction, historical water-level, and lithologic data were compiled for 118 wells and piezometers on and near the base, and monthly measurements of ground-water levels were made for 82 wells and piezometers on the base from January to December 1992.

The ground-water-level monitoring program involved three phases of data collection: (1) well canvassing and selection, (2) geodetic surveying to determine vertical datum for each well, and (3) monthly measurements of ground-water levels. Selection of wells used in this monitoring program was based on (1) measurable ground-water levels, (2) accessibility of the wells, (3) proximity to the EAFB 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.

Ground-water levels generally ranged from about 95 to 130 ft below land surface in wells and piezometers in the North Muroc subbasin, 70 to 200 feet below land surface in the deep aquifer in the Lancaster subbasin, 35 to 95 feet below land surface in the principal aquifer in the Lancaster subbasin, and 100 to 125 feet below land surface in or near the Graham Ranch well field. Total hydraulic heads, or heads, were computed using these ground-water levels and land-surface altitudes. Heads generally ranged from about 2,170 to 2,195 feet above sea level in the North Muroc subbasin, 2,150 to 2,200 feet above sea level in the deep aquifer in the Lancaster subbasin, 2,225 to 2,250 feet above sea level in the principal aquifer in the Lancaster subbasin, and 2,200 to 2,215 feet 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 feet above sea level.

Heads for the piezometers completed in the deep aquifer, west, south, east, and in the South Track well field, which were higher than the lower contact of the confining unit, indicate confined, nonflowing, artesian conditions. Heads in piezometers completed in the deep aquifer north of the South Track well field which were lower than the lower contact of the confining unit, indicate locally unconfined aquifer conditions.

Heads in the piezometers completed below 1,500 feet above sea level indicate a delay in response to seasonal recharge and discharge stresses in the aquifer, which, in turn, indicates a poor hydraulic connection between the upper and lower confined zones. This poor hydraulic connection probably is due to the consolidation of the deeper alluvium.

Total pumpage for 1992 from seven well fields on EAFB was about 1,700 million gallons or 5,225 acre-feet. Total pumpage of about 697.3 million gallons, 2,140 acre-feet, from the EAFB production wells in the South Track well field caused heads to decline about 9 to 10 feet. Drawdowns in these wells ranged from about 20 to 30 feet. About 397.2 million gallons, 1,219 acre-feet, was pumped from the North Base well field, lowering heads about 2 to 3 feet. About 379.7 million gallons, 1,165 acre-feet, was pumped from the South Base well field. Large drawdowns of 50 to 130 feet in the South Base wells may indicate low transmissivity, possibly a result of dewatering and compaction of the fine-grained layers.

Boundaries of the aquifer system were determined using surface and borehole geophysical data, lithologic logs, and ground-water-level data. Three types of no-flow boundaries were identified: structural boundaries, a principal-aquifer boundary, and ground-water divides.

Structural boundaries to the south and southeast of Rogers Lake and north of the Phillips Laboratory well field are bedrock-alluvium contacts. Another structural boundary south of the Rosamond and Bissell Hills, striking southwest-northeast from the eastern shore of Rosamond Lake to Buckhorn Lake, is a permeable/less permeable alluvium contact that coincides with the northwestern boundary of the Antelope Valley Fault Zone. The boundary extends across Buckhorn Lake, becomes a bedrock-alluvium boundary along the southeastern edge of Hospital Ridge, then strikes northward, crosses the buried Bissell Hills-El Mirage Fault, and parallels exposed bedrock west of Rogers Lake. The boundary probably continues northward west of the North Base well field, but, because of insufficient data, its position is not known.

Ground-water-level and lithologic data were used to determine the position of the principal-aquifer boundary. The confining unit is at or near land surface in wells or piezometers north of the boundary. South of the boundary, wells generally are completed in the principal aquifer; the deep aquifer is confined. The lateral, northeastern extent of the confining unit is in the south-central part of Rogers Lake. North of the South Track well field, the deep aquifer is unconfined. A ground-water divide strikes east-west across the north-central part of Rogers Lake. The divide separates the Lancaster and North Muroc subbasins and prevents ground water from flowing between the two subbasins. The boundaries of the unconfined aquifer in the Graham Ranch well field are irregularly shaped bedrock-alluvium contacts. A ground-water divide separates the EAFB production wells in this small subbasin.

Hydraulic heads of base production wells, abandoned wells, and one piezometer from each of the USGS piezometer sites were used to contour seasonal potentiometric surfaces of the aquifer system at EAFB. Mapping of the potentiometric surfaces was done to provide a visual interpretation of the areal extent and generalized ground-water-flow paths of the aquifer system. Changes in the potentiometric surfaces of the aquifer system at EAFB were relatively small, with heads ranging from about 2,160 to 2,220 feet above sea level in the deep aquifer and about 2,200 to 2,280 feet above sea level in the principal aquifer in the Lancaster subbasin; about 2,180 to 2,190 feet above sea level in the North Muroc subbasin; and about 2,210 to 2,290 feet in the Graham Ranch well-field area.

The potentiometric surface of the deep aquifer for spring 1992 ranged from 2,160 to 2,180 feet above sea level forming a regional ground-water depression in the areas between, and adjacent to, the South Track, South Base, and Branch Park well fields. By late summer, the potentiometric surface had declined about 10 feet in the South Track well field, about 3 feet in the South Base well field, and about 8 feet in the Branch Park well field. A 10-foot decline in the potentiometric surface and 20- to 30-foot drawdowns in the EAFB production wells caused local, unconfined conditions in the deep aquifer in the South Track well field. The potentiometric surfaces near the Phillips Laboratory and North Base well fields declined about 0 to 3 feet between spring and late summer. The potentiometric surface near the ground-water divide across Rogers Lake did not change measurably. The potentiometric surface in and near the Graham Ranch well field declined 1 to 3 feet.

The potentiometric surface of the principal aquifer near wells along the southern boundary of the base were relatively flat, whereas the slope of the potentio-metric surface steepened toward a regional ground-water depression south of Redman. The potentiometric-surface contours of the principal aquifer southwest of Rosamond Lake ranged from about 2,220 to 2,280 feet above sea level, forming a ground-water mound beneath the terminus of Amargosa Creek where surface-water runoff and treated wastewater discharge probably recharge the principal aquifer. The principal aquifer in this area may respond to both seasonal recharge fluctuations and increased pumping in the Rosamond area during the summer months. The configuration of the potentiometric surface of the deep aquifer south and west of EAFB is unknown.

Four major ground-water-flow directions were identified in the deep aquifer: (1) north and northeast from the Lancaster subbasin to the Branch Park and South Track well fields; (2) south and southwest from the central part of Rogers Lake toward the South Base and South Track well fields; (3) west from the Phillips Laboratory well fields to Rogers Lake, and (4) north from a ground-water divide in the north-central part of Rogers Lake to the North Base well field. Ground-water flow in the area of the Graham Ranch well field is toward the EAFB production wells. Ground-water flow in the principal aquifer is south and southeastward away from EAFB and radially from the ground-water mound southwest of Rosamond Lake. Ground-water flow near well 9N/12W-23N1 probably is westward away from Rosamond Lake.

Vertical head differences in piezometers constructed in the Lancaster and North Muroc subbasins indicate that vertical ground-water flow generally is downward from the upper confined zone into the lower confined zone. In the summer months, increased pumping in the South Track well field caused flow to reverse in the deep aquifer and to move upward from the lower confined zone into the upper confined zone. Vertical head differences in piezometers in the Graham Ranch well field indicate flow is upward.

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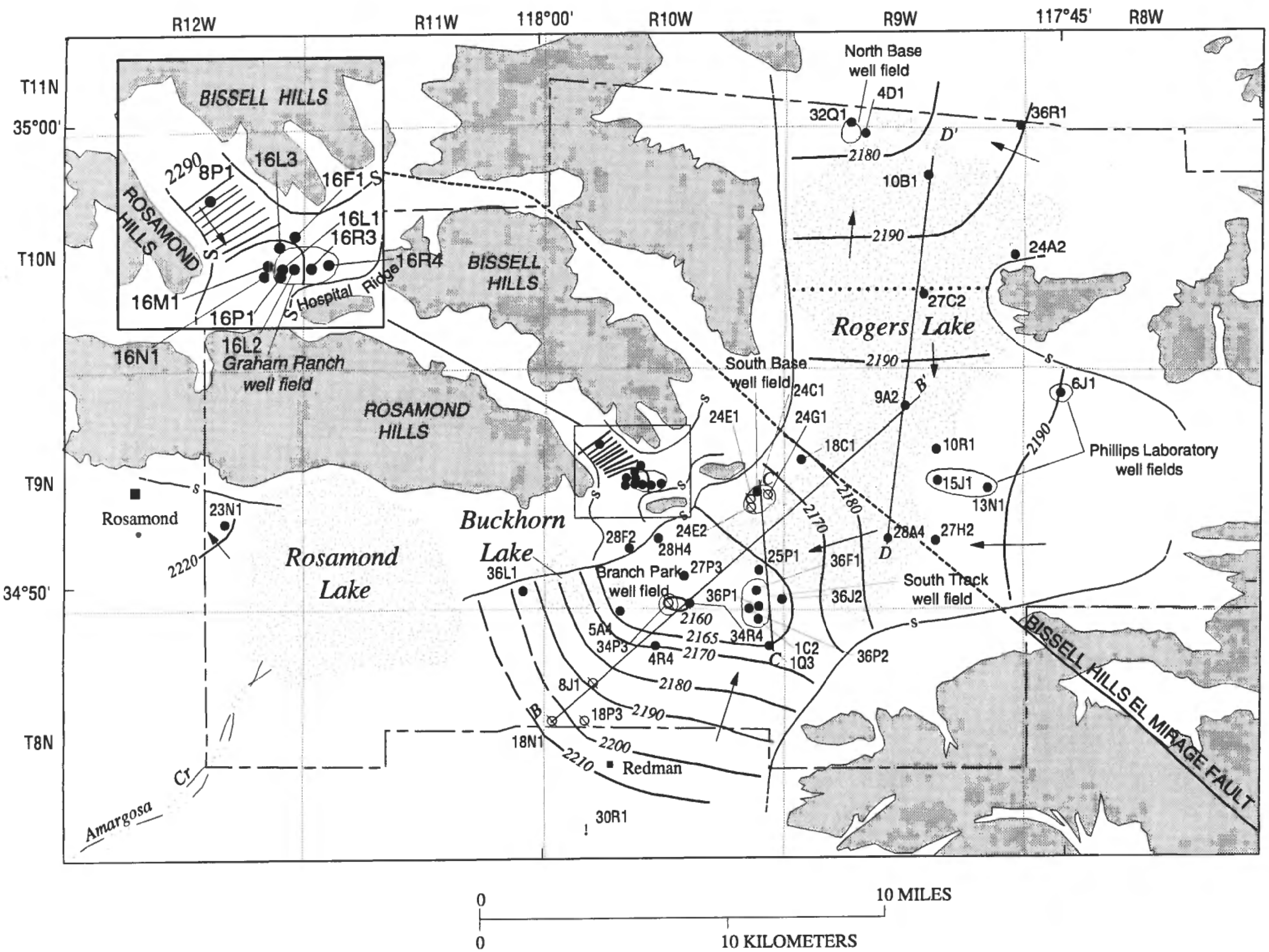

Figure 15. Potentiometric surface of the deep aquifer, Edwards Air Force Base, California, spring 1992. (Base map modified from Dibblee, 1960; Bloyd, 1967; and Londquist and others, 1993.)

EXPLANATION FOR FIGURE 15

PLAYA SURFACE

ALLUVIUM

BEDROCK

B B' LINE OF GEOLOGIC SECTION- Shown in figure 20

DIRECTION OF GROUND-WATER FLOW

GROUND-WATER DIVIDE

——S—— STRUCTURAL BOUNDARY

EDWARDS AIR FORCE BASE BOUNDARY

FAULT- Dashed where approximately located

2190 POTENTIOMETRIC CONTOUR-Shows altitude at which water would have stood in tightly cased wells, spring 1992.
Contour interval variable. Dashed where approximately located. Datum is sea level

24E1 WELL OR PIEZOMETER AND NUMBER- For which water-level measurements were made

30R1 WELL OR PIEZOMETER AND NUMBER- Monitored for the Antelope Valley-East Kern Water Agency, not for this study

8J1 WELL OR PIEZOMETER AND NUMBER- Not monitored for the study but used to obtain lithologic data

PWS-0198-0061

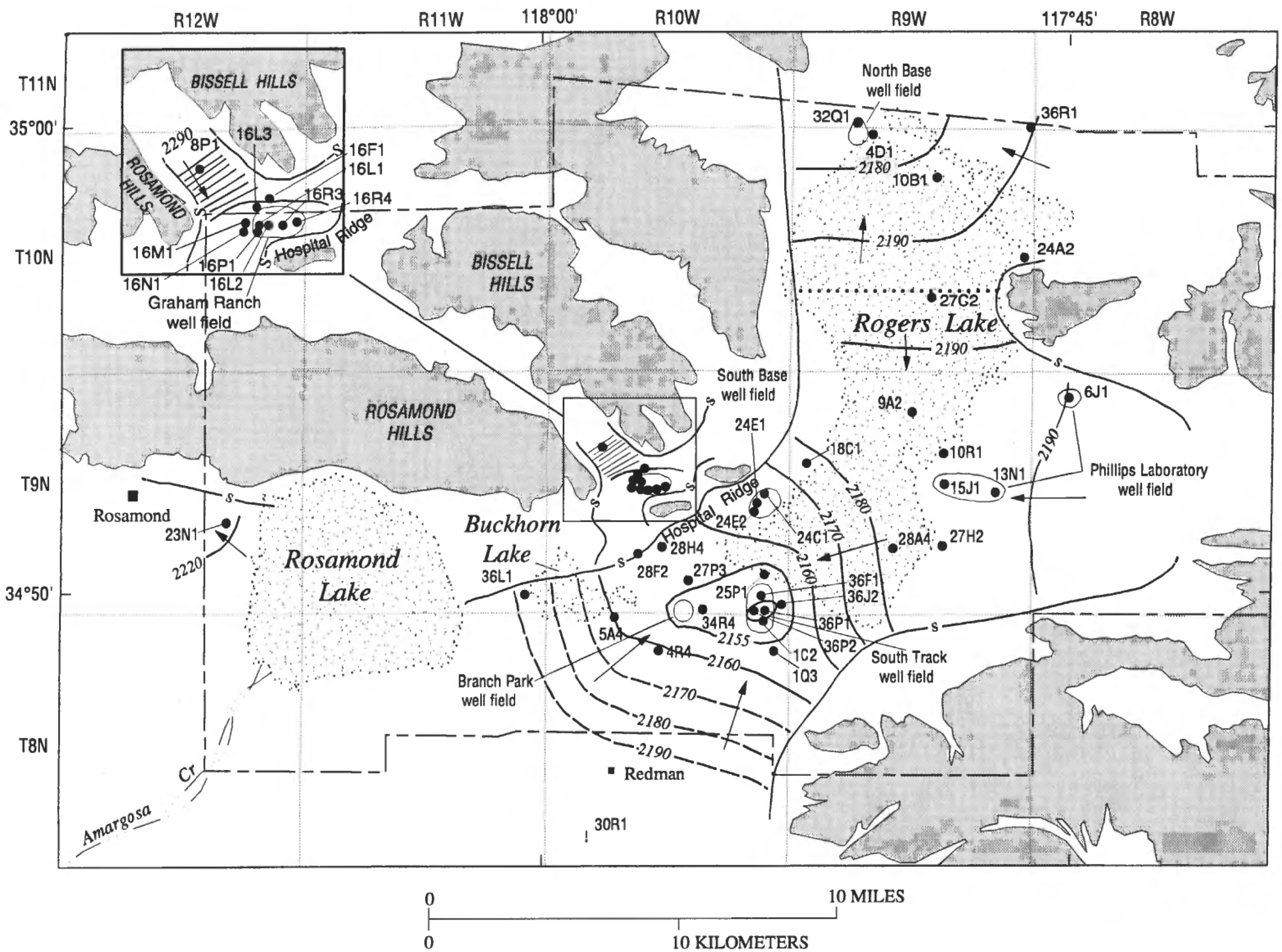

Figure 16. Potentiometric surface of the deep aquifer, Edwards Air Force Base, California, late summer 1992. (Base map modified from Dibblee, 1960; Bloyd, 1967; and Londquist and others, 1993.)

PWS-0198-0062

EXPLANATION FOR FIGURE 16

(stippled box)	PLAYA SURFACE
(blank box)	ALLUVIUM
(shaded box)	BEDROCK
←———	DIRECTION OF GROUND-WATER FLOW
....	GROUND-WATER DIVIDE
——S——	STRUCTURAL BOUNDARY
— — ——	EDWARDS AIR FORCE BASE BOUNDARY
2190 ————	POTENTIOMETRIC CONTOUR-Shows altitude at which water would have stood in tightly cased wells, late summer 1992. Contour interval variable. Dashed where approximately located. Datum is sea level
24E1 `	WELL OR PIEZOMETER AND NUMBER-For which water-level measurements were made
30R1 ○	WELL OR PIEZOMETER AND NUMBER-Monitored for the Antelope Valley-East Kern Water Agency, not for this study

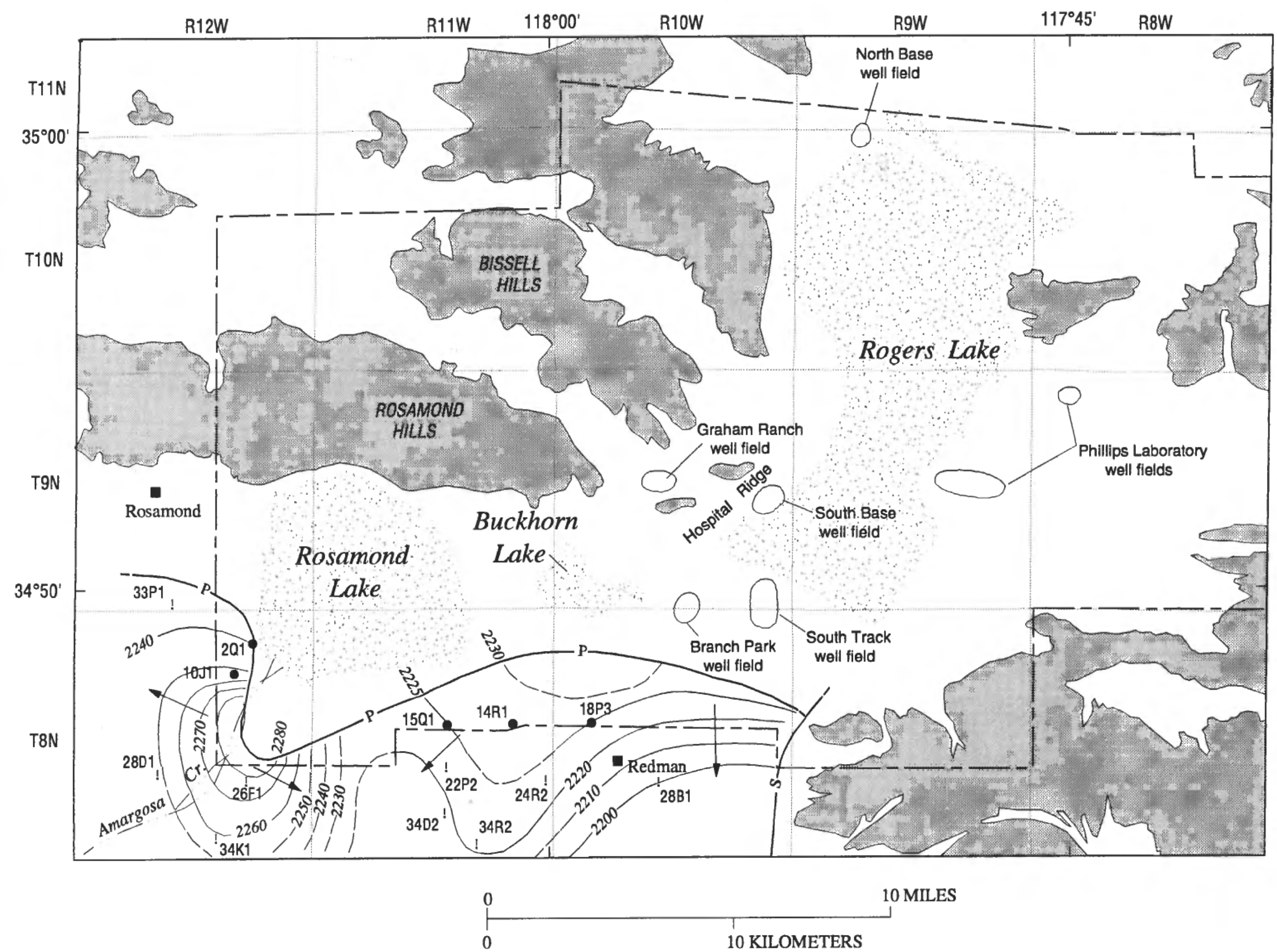

Figure 17. Potentiometric surface of the principal aquifer, Edwards Air Force Base, California, spring 1992. (Base map modified from Dibblee, 1960; Bloyd, 1967; and Londquist and others, 1993.)

PWS-0198-0064

EXPLANATION FOR FIGURE 17

	PLAYA SURFACE
	ALLUVIUM
	BEDROCK
←———	DIRECTION OF GROUND-WATER FLOW
—S—	STRUCTURAL BOUNDARY
—P—	PRINCIPAL-AQUIFER BOUNDARY
— - —	EDWARDS AIR FORCE BASE BOUNDARY
2240 ———	POTENTIOMETRIC CONTOUR-Shows altitude at which water would have stood in tightly cased wells, spring 1992. Contour interval variable. Dashed where approximately located. Datum is sea level
18P3 `	WELL OR PIEZOMETER AND NUMBER-For which water-level measurements were made
34D2 ○	WELL OR PIEZOMETER AND NUMBER-Monitored for the Antelope Valley-East Kern Water Ageney, not for this study

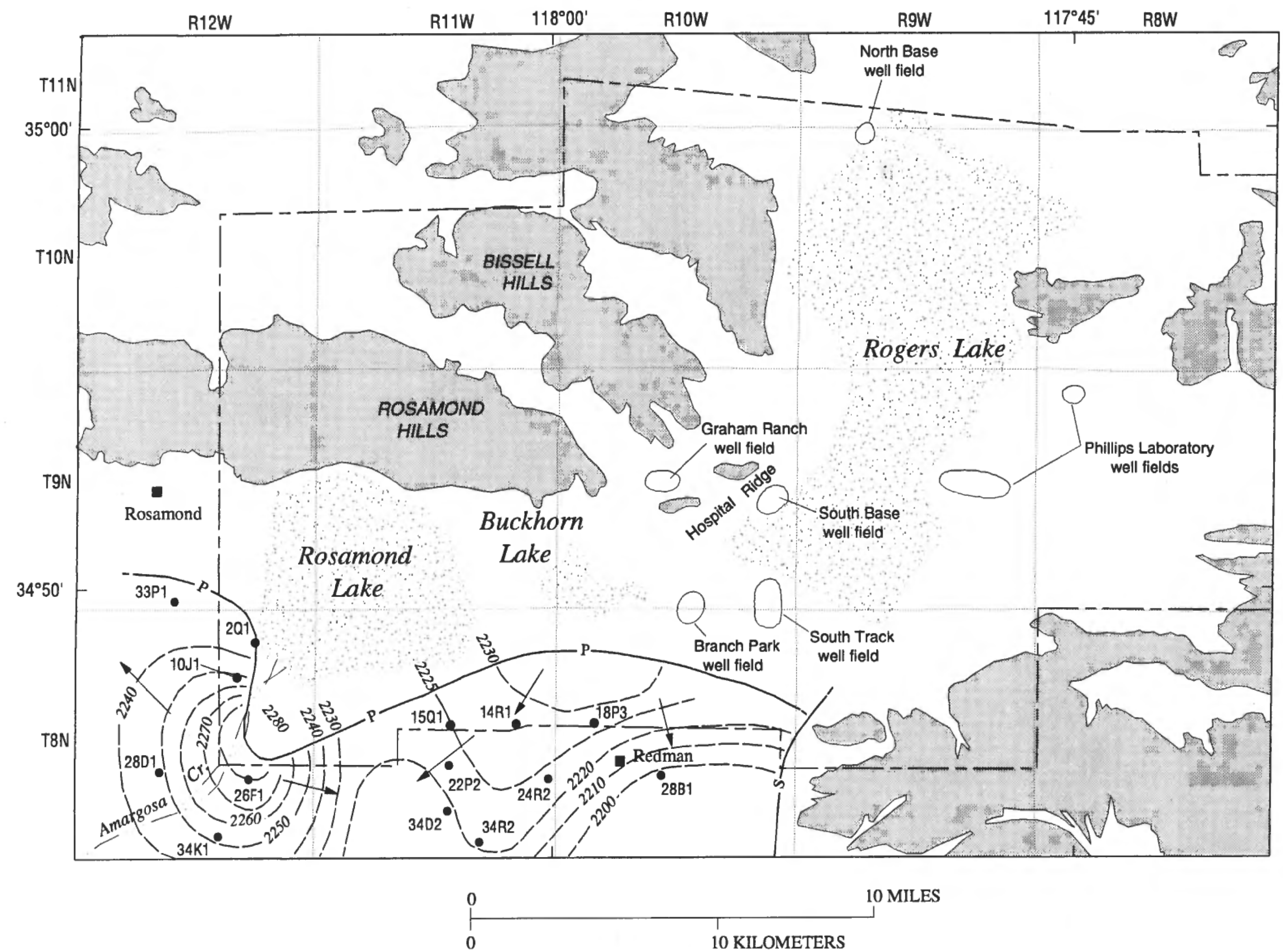

Figure 18. Potentiometric surface of the principal aquifer, Edwards Air Force Base, California, late summer 1992. (Base map modified from Dibblee, 1960; Bloyd, 1967; and Londquist and others, 1993.)

PWS-0198-0066

EXPLANATION FOR FIGURE 18

PLAYA SURFACE

ALLUVIUM

BEDROCK

DIRECTION OF GROUND-WATER FLOW

——S—— STRUCTURAL BOUNDARY

——P—— PRINCIPAL-AQUIFER BOUNDARY

— – —— EDWARDS AIR FORCE BASE BOUNDARY

2240 ——— POTENTIOMETRIC CONTOUR-Shows altitude at which water would have stood in tightly cased wells, late summer 1992. Contour interval variable. Dashed where approximately located. Datum is sea level

14R1 WELL OR PIEZOMETER AND NUMBER-For which water-level measurements were made

34D2 o WELL OR PIEZOMETER AND NUMBER-Monitored for the Antelope Valley-East Kern Water Agency, not for this study