GROUND-WATER LEVELS AND DIRECTION OF GROUND-WATER FLOW IN THE CENTRAL PART OF BERNALILLO COUNTY, NEW MEXICO, SUMMER 1983

By Georgianna Kues

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UNITED STATES DEPARTMENT OF THE INTERIOR

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CONVERSION FACTORS

In this report, measurements are given in inch-pound units only. The following table contains factors for converting to metric units.

Multiply inch-pound units	By	To obtain metric units
foot	0.3048	meter
foot per mile	0.1894	meter per kilometer
mile	1.609	kilometer
acre	4,047	square meter
acre	0.004047	square kilometer
square mile	2.590	square kilometer

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ABSTRACT

In 1980, toxic chemicals were detected in water samples from wells in and near Albuquerque's San Jose well field. At the request of Environmental Improvement Division of the New Mexico Health and Environment Department, the U.S. Geological Survey conducted a study to determine ground-water levels and flow direction.

Water levels were measured in 44 wells in a 64-square-mile area along the Rio Grande and adjacent areas during a period of near-maximum municipal pumpage. Based on the altitude of screened interval, wells were grouped into shallow (screened interval above an altitude of 4,800 feet) or deep (screened interval below an altitude of 4,800 feet) zones.

Ground water in the shallow zone generally moves from north to south parallel to flow in the Rio Grande. Ground water in the deep zone generally moves from the northwest to the east and southeast. A poorly developed cone of depression within the deep zone was present in the northeast. Water levels in wells were as much as 18 feet higher in the shallow zone than in the deep zone in the vicinity of the San Jose well field, indicating a downward gradient.

INTRODUCTION

In summer 1980, several toxic chemicals were detected in water samples from three wells in and near the city of Albuquerque's San Jose well field (fig. 1). Also of concern were large concentrations of nitrate in ground-water samples from wells in the community of Mountainview to the south (fig. 1). Nitrate concentrations more than 40 times the U.S. Environmental Protection Agency (1977) maximum contaminant level of 10 milligrams per liter have been detected.

The Environmental Improvement Division (EID) of the New Mexico Health and Environment Department requested the U.S. Geological Survey to provide information about ground-water levels and direction of flow in the area to aid in determining the source or sources of contamination. In spring 1981, Hudson (1982) measured water levels in 12 wells in the San Jose well-field area during a time of minimal municipal pumpage. The water-level data indicated that ground water generally flowed eastward from the Rio Grande.

Purpose and Scope

The purpose of this study was to measure and compare water levels in the wells measured by Hudson (1982) and to determine the direction of ground-water flow during a period of near-maximum municipal pumpage. The study area was expanded to include 32 wells within and outside of the area studied by Hudson (1982) (fig. 1).

Acknowledgments

Personnel of the Water Resources Department of the City of Albuquerque are thanked for their cooperation. Special thanks go to Robert Hume, who arranged to have municipal wells in the San Jose, Yale, and Burton well fields turned off prior to water-level measurements, and to Ernest Jahn, who assisted in water-level data collection in municipal wells.

Dennie Gayet of the Administration Office of the Albuquerque Public School System was helpful in obtaining permission to measure wells. David Stone, Shelley Crowe, Kathryn Muster, and Rita Sullivan of the New Mexico State Engineer Office in Albuquerque helped search for well records. Glenn Hammock of Leedshill-Herkenhoff, Inc., provided well-record information. Thanks also are extended to private well owners who were contacted during this study.

Location and Extent of Study Area

The 64-square-mile study area is located partly within and adjacent to the city of Albuquerque (fig. 1). It is bounded on the north by Central Avenue, on the west by Coors Boulevard, and on the east by San Mateo Boulevard. The area extends 1 mile south of the community of Mountainview.

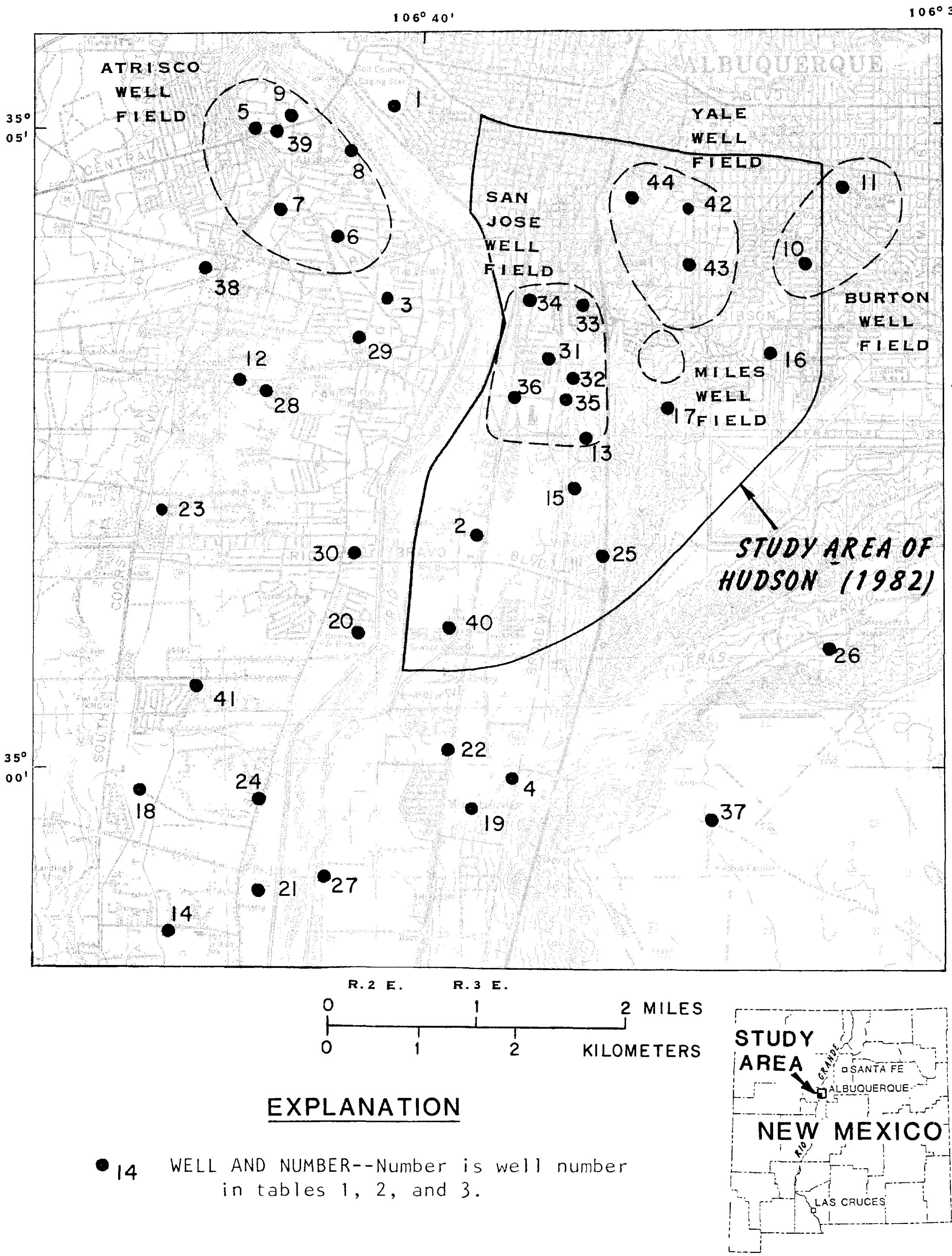


Figure 1.--Location of study area and measured wells.

Well-Numbering System

The system of numbering wells in New Mexico is based on the subdivision of public lands into sections. The well number locates the well's position to the nearest 10-acre tract in the land network. The well number is divided into four segments. In the study area, the first segment denotes the township north of the New Mexico base line; the second segment denotes the range east of the New Mexico principal meridian. The third denotes the section. The fourth segment consists of three digits and denotes the 160-, 40-, and 10-acre tracts, respectively, in which the well is located. For this purpose, the section is divided into four quarters, numbered 1 for the northwest, 2 for the northeast, 3 for the southwest, and 4 for the southeast quarter. The first digit of the fourth segment gives the quarter section, a tract of 160 acres. The second digit denotes the 40-acre tract within the 160 acres, and the third digit denotes the 10-acre tract within the 40 acres. For example, well 10N.03E.32.412 is in the NE$\frac{1}{4}$NW$\frac{1}{4}$SE$\frac{1}{4}$ sec. 32, T. 10 N., R. 3 E. (fig. 2).

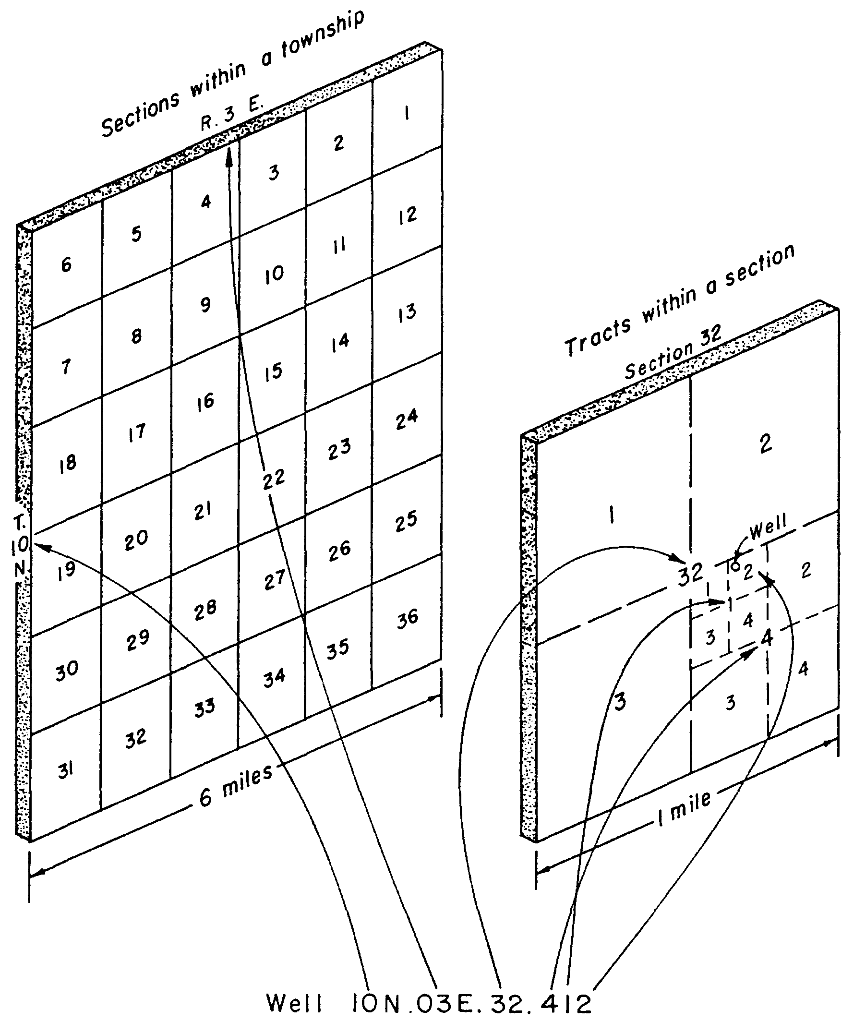


Figure 2.--System of numbering wells.

GEOGRAPHIC, GEOLOGIC, AND HYDROLOGIC SETTING

The Rio Grande is the only perennial stream in the study area. It flows from north to south, approximately bisecting the study area. The alluvial flood plain along the river generally extends 2 to 3 miles west of the river and $\frac{1}{4}$ to 1 mile east of it.

The land surface slopes upward away from the flood plain in a series of terraces (fig. 3). These terraces terminate in remnants of several flat, erosional surfaces. The surfaces are beyond the western boundary and within the southeastern boundary of the study area. In the northeast, the terraces terminate at the edge of a gently westerly sloping pediment or mountain-outwash surface.

Tijeras Arroyo has eroded through the flat erosional surface in the southeastern part of the study area. The arroyo opens onto the Rio Grande flood plain in the vicinity of Mountainview. Water generally does not flow in the arroyo.

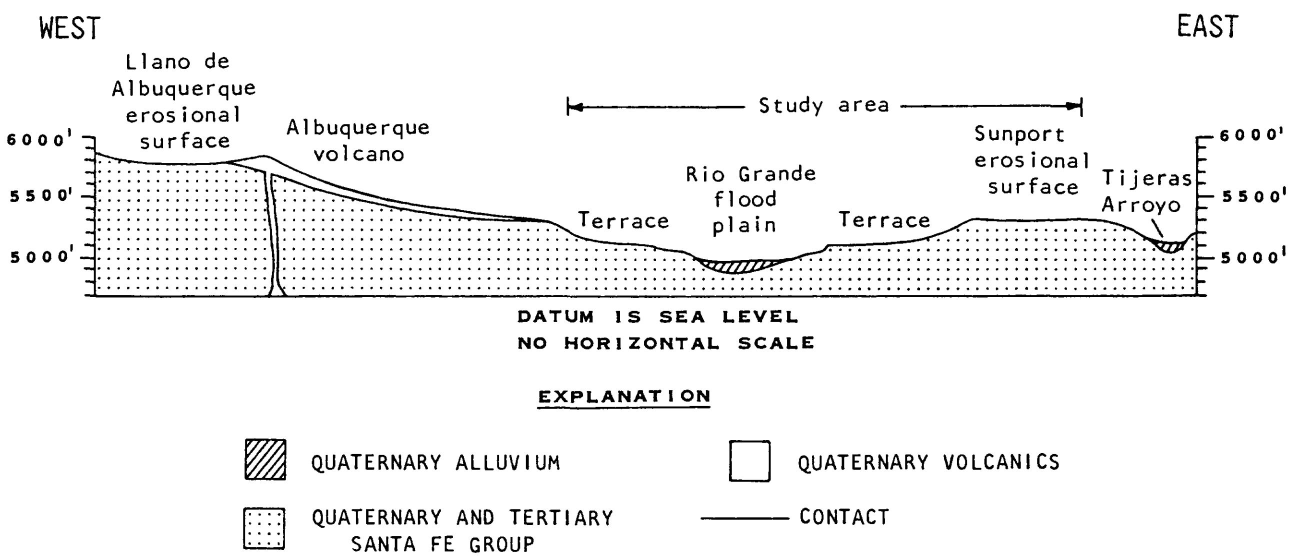


Figure 3.--General relationship of principal erosional surfaces and terraces to the Rio Grande flood plain (Modified from Kelley, 1982, p. 14).

The northern area is urban and is supplied with water by the city of Albuquerque. The city water system consists of 85 wells grouped into 26 well fields on both sides of the Rio Grande. The Atrisco, Burton, Miles, San Jose, and Yale well fields are in the study area. Of these, all but the Atrisco wells are in regular use. Other municipal wells in regular use are in the northeastern part of the study area and in well fields north, west, and east of the study area. Most municipal wells are north and northeast of the study area.

The southern part of the study area is rural with a mixture of small communities, farms, and some light industry east of the Rio Grande. Water for agriculture comes from irrigation canals that divert water from the Rio Grande. Water for domestic use generally is obtained from wells that typically are less than 300 feet deep. The far southeastern area is largely undeveloped and very few wells have been drilled.

The irrigation canals are a part of a complex network of canals, drains, and channels that mostly are within the Rio Grande flood plain (fig. 4). The network allows water to be routed throughout urban and rural areas for agricultural use, flood control, and to prevent water logging of low-lying lands. The network includes a series of unlined drains that are deep enough to intercept and carry excess ground water. Riverside drains generally parallel the Rio Grande. The drains convey water to the south and eventually intersect the river several miles downstream.

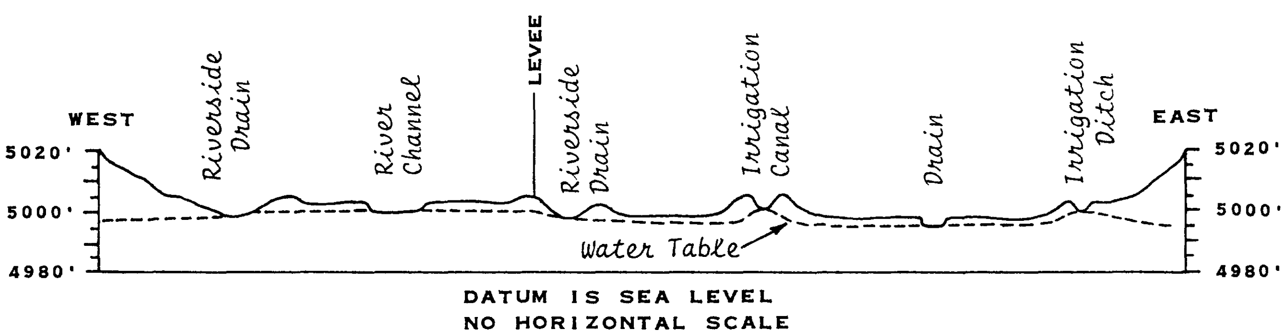


Figure 4.--General relationship of river channel, drains, irrigation canals, and ditches in the Rio Grande flood plain (Modified from Kelley, 1982, p. 16).

The uppermost geologic unit is the Quaternary alluvium, which is composed of silt, clay, sand, and gravel deposited along the Rio Grande and Tijeras Arroyo (fig. 3). This unit is as much as 120 feet thick (Bjorklund and Maxwell, 1961, p. 15).

The Quaternary and Tertiary Santa Fe Group underlies the flood-plain alluvium and forms terraces and erosional surfaces west and east of the flood plain (fig. 3). The Santa Fe Group primarily is composed of silt, clay, and sand with gravel lenses. In the central Rio Grande valley, the Santa Fe Group was deposited by streams flowing into the valley from the east, west, and north (Bjorklund and Maxwell, 1961, p. 19). The Santa Fe Group is at least 9,000 feet thick (Bjorklund and Maxwell, 1961, p. 21) and in an area about 10 miles southwest of Albuquerque may be more than 21,000 feet thick (Black, 1982, p. 316).

The saturated part of the Santa Fe Group is the major aquifer in the study area. Although the alluvium and Santa Fe Group have widely varying compositions and include several distinct units (Lambert, 1968), they are considered to be a single aquifer in this report.

METHODS OF DATA COLLECTION AND ANALYSIS

The timing of data collection was determined in cooperation with personnel of the Albuquerque Water Resources Department. July 1983, especially the last 2 weeks of the month, was expected to be a time of maximum pumpage by the city; water levels were measured in all active (in operation) city wells. Measurements also were made in all but one well used in Hudson's (1982) study. The exception, the Public Service Company well in Hudson (1982), referred to in this study as Person Station 6, was measured on August 10, 1983. Measurements in inactive wells (not in operation) in the Atrisco well field were not completed until August 18, 1983. However, measurements made in Atrisco well 4 on July 20, 1983, and on August 18, 1983, were identical, indicating that ground-water conditions in the Atrisco well field had not changed appreciably during that time. All water levels were measured no later than August 19, 1983 (table 1).

Water levels in San Jose well 3 are shown in figure 5. Water levels generally declined during the summer and almost completely recovered each winter, apparently in response to changes in the quantity of city pumpage.

All water-level measurements were made with a steel tape. All municipal wells had not been pumped for at least 24 hours prior to measurement. All other wells had not been pumped for at least 1 hour prior to measurement. In all but two wells (Burton 1 and Sludge Disposal Facility, numbers 10 and 37 in table 1), measurements were made at each well approximately 20 minutes before or after the measurements reported in table 1. All duplicate measurements agree to within 0.05 foot. Shallowest depths to water are reported. The 24-hour and 1-hour recovery periods and duplicate measurements are believed to be adequate to obtain a water-level measurement that is representative of aquifer conditions in the vicinity of the well.

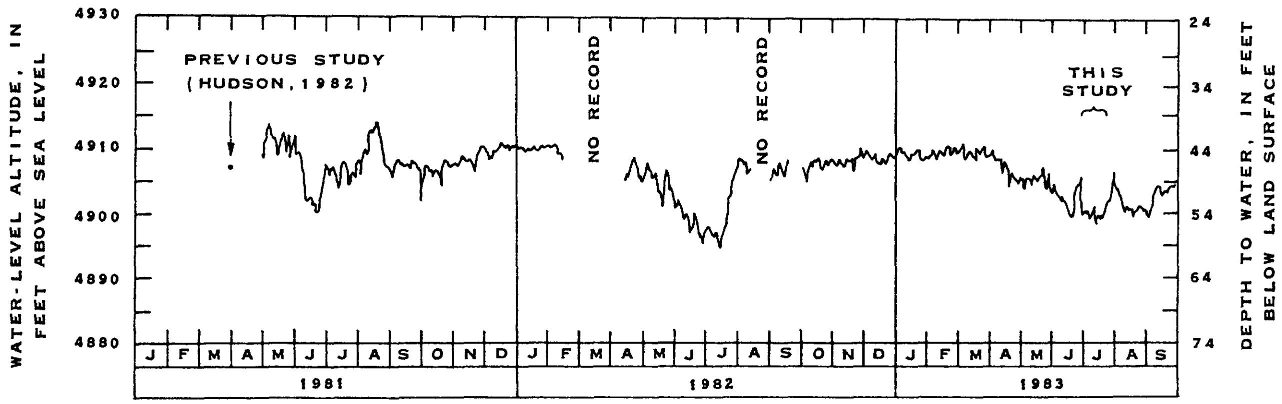


Figure 5.--Water levels in San Jose well 3, April 1981 to September 1983.

The altitude of the top and bottom of the screened interval for each well was calculated by subtracting the interval's depth from the land-surface altitude at the well site. Based on the relationship of screened-interval altitude to the altitude of an arbitrary datum (4,800 feet), wells were grouped into two categories: shallow and deep. Shallow wells have the entire screened interval above an altitude of 4,800 feet above sea level; deep wells have the entire screened interval below an altitude of 4,800 feet. Only measurements in wells with the entire length of screened interval above or below the datum were used to generate water-level maps. Wells were assigned to a category in order to assure that all water entering a well through a screen was derived from a comparable zone in the aquifer.

For wells in the shallow category, the top of screen ranged from 4,817 to 4,913 feet (open hole) and the bottom ranged from 4,804 to 4,901 feet. Length of screen ranged from 0 (open hole) to 77 feet. For wells in the deep category, the top of screen ranged from 4,491 to 4,796 feet above sea level and the bottom ranged from 3,914 to 4,789 feet. Length of screen ranged from 5 to 840 feet.

Water-level contour maps were made using measured water levels in wells in the shallow zone (fig. 6) and deep zone (fig. 7). Contours were not extended into the area between the riverside drains in figures 6 and 7 because of the lack of data needed to describe the complex interaction between the Rio Grande, riverside drains, irrigation canals, and ground-water levels.

DIRECTION OF GROUND-WATER MOVEMENT

Shallow Zone

Ground-water flow in the shallow zone approximately parallels the Rio Grande west of the river and immediately east of the river in the southeastern part of the study area (fig. 6). In the northeast, the direction of ground-water flow generally is eastward.

The gradient in the shallow zone along the Rio Grande is about 5 feet per mile. Surface-water altitudes were not measured in the riverside drains, so the exact relationship between the river, riverside drains, and shallow ground water is not known.

In the northeast, water-level altitudes in wells completed in the shallow zone decrease eastward away from the river (fig. 6). This gradient indicates that the river, riverside drains, irrigation canals, and ditches recharge the aquifer in this area. Pumpage from city wells occurs in this part of the study area.

In the vicinity of Mountainview, ground water in the shallow zone flows southeastward (fig. 6). Based on available data, the significance of Tijeras Arroyo as a source of recharge to the shallow zone cannot be determined.

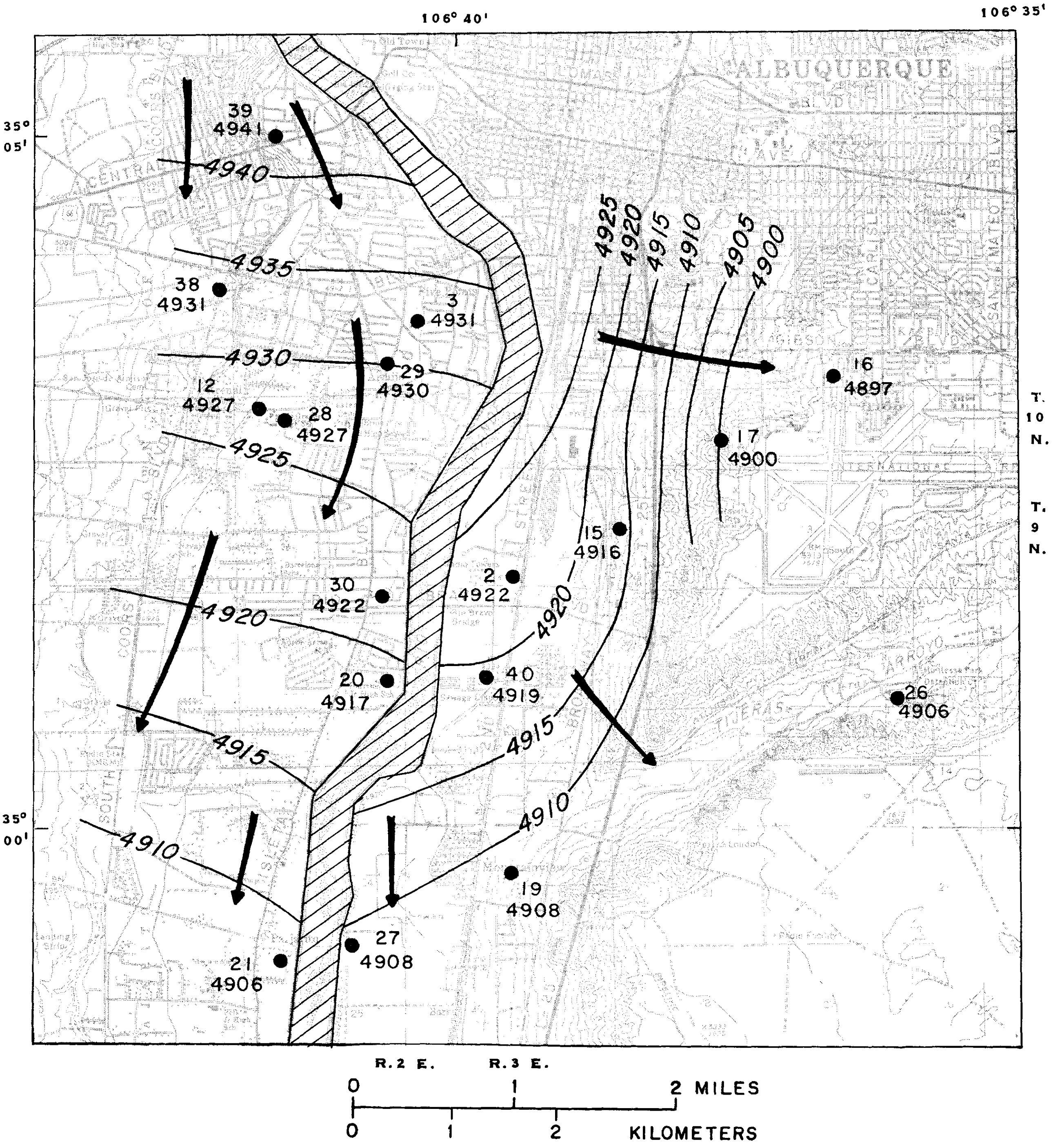
Deep Zone

Ground water in the deep zone flows from the northwest to the south, east, and southeast (fig. 7). A significant feature of water-level contours within this zone is a poorly developed cone of depression approximately centered between San Jose well 4 and Yale well 3 (numbers 33 and 43 on fig. 7 and table 1).

Water-level altitudes on July 20, 1983, were 18 feet lower in the deep zone (number 13, fig. 7) than in the shallow zone (number 15, fig. 6) in the vicinity of the San Jose well field, indicating a downward gradient from the shallow zone to the deep zone in the well-field area.

CHANGE IN GROUND-WATER LEVELS

Water levels measured in the area's wells during summer 1983 generally were lower than water levels measured in wells in spring 1981. Water-level measurements made in 11 of 12 wells measured by Hudson (1982) were between 2 and 11 feet lower in 1983 than in 1981 (fig. 8, table 3). The depth to water of 57.4 feet measured in 1983 in the EPS Industries well [Insulbead well in Hudson (1982)] was 1 foot higher than the measurement made in 1981. These water levels probably are affected by the quantity and duration of ground-water withdrawals from each measured well and adjacent wells. Data on ground-water pumpage were not obtained.



EXPLANATION

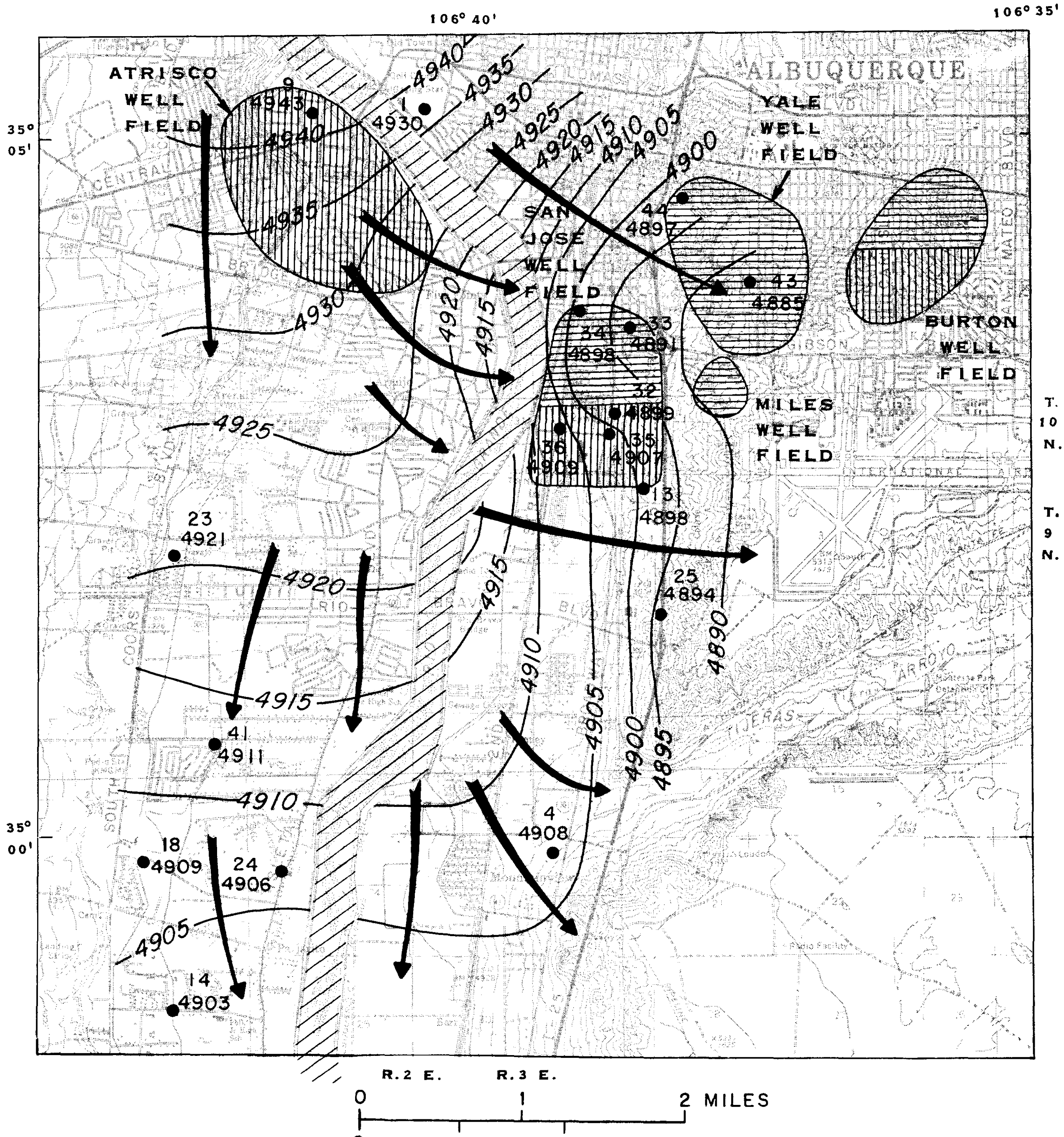
FLOW LINE--Approximate direction of horizontal component of ground-water flow.

21 ● 4906 — WELL--Upper number is well number in tables 1,2,and 3. Lower number is water-level altitude, in feet above sea level.

AREA BETWEEN RIVERSIDE DRAINS

—4910— APPROXIMATE WATER-LEVEL CONTOUR--Shows altitude at which water would have stood in wells, July and August 1983. Contour interval 5 feet. Datum is sea level.

Figure 6.--Water levels for wells completed above 4,800 feet above sea level.



EXPLANATION

FLOW LINE--Approximate direction of horizontal component of ground-water flow

MUNICIPAL WELL FIELD WITH WELLS PUMPED DURING 1983--Boundaries are approximate.

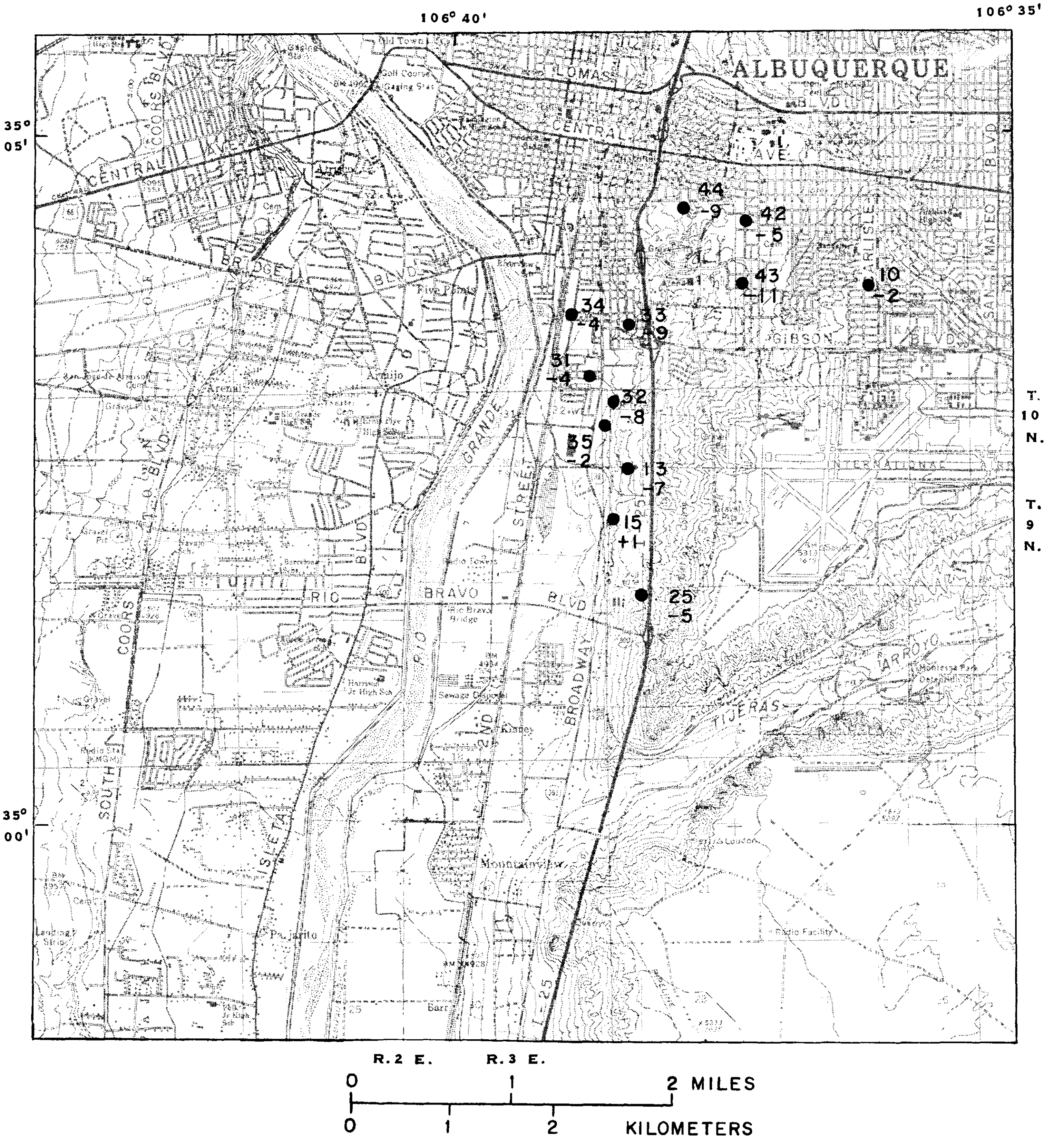
INACTIVE MUNICIPAL WELL FIELD--Boundaries are approximate.

AREA BETWEEN RIVERSIDE DRAINS

—4900— APPROXIMATE WATER-LEVEL CONTOUR--Shows altitude at which water would have stood in wells, July and August 1983. Contour interval 5 feet. Datum is sea level.

4
4908
● WELL--Upper number is well number in tables 1, 2, and 3. Lower number is water-level altitude, in feet above sea level.

Figure 7.--Water levels for wells completed below 4,800 feet above sea level.



EXPLANATION

25
-5 ● WELL--Upper number is well number in tables 1, 2, and 3. Lower number is water-level rise (+) or decline (-) from spring 1981 to summer 1983.

Figure 8.--Location of measured wells and change in water levels from spring 1981 to summer 1983.

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Lambert, P. W., 1968, Quaternary stratigraphy of the Albuquerque area, New Mexico: Albuquerque, University of New Mexico, unpublished Ph.D. dissertation, 329 p.

U.S. Environmental Protection Agency, 1977, National interim primary drinking water regulations: EPA-570/9-76-003, 159 p.

Table 1.—Well information and water-level data

[GWSI: Ground-Water Site-Inventory File of the U.S. Geological Survey National Water Data Storage and Retrieval System (WATSTORE). Depth measurements and perforated interval are reported in feet below land surface. Altitudes are reported in feet above sea level.]

Number in figures 1, 6, 7, and 8	Well name or owner	Well number (GWSI number in parentheses)	Depth of well (feet)	Perforated or screened interval (feet)
1	Albuquerque County Club #1 South well	10N.03E.19.111 (350513106401802)	340	200-330
2	Alpha Southwest	09N.03E.06.444 (350149106393101)	87	82-87
3	Armijo Elementary School	10N.03E.30.331 (350342106402501)	102	80-100
4	Assoc. Milk Producers, Inc.	09N.03E.20.114 (345952106391101)	305	295-305
5	Atrisco Field 1 Well 3	10N.02E.23.223 (350505106414101)	500	--
6	Atrisco 4	10N.02E.25.213 (350411106405501)	360	--
7	Atrisco 6	10N.02E.24.333 (350424106412301)	412	--
8	Atrisco 7	10N.02E.24.234 (350452106404201)	430	--
9	Atrisco 9	10N.02E.24.112 (350513106411801)	813	180-804
10	Burton 1	10N.03E.27.244 (350401106363201)	1,000	452-1,000

Land-surface altitude (feet)	Water-level data			Remarks
	Date measured	Depth to water (feet)	Water-level altitude (feet)	
4,948	07-28-83	12.0	4,936	--
4,927	07-27-83	4.9	4,922	--
4,943	08-18-83	12.0	4,931	--
5,005	07-20-83	97.0	4,908	Land-surface altitude from topographic map with 10-foot contour interval
4,956	08-18-83	12.2	4,944	Formerly named Atrisco 1, well 13
4,945	07-20-83	9.9	4,935	Formerly named Atrisco 6
	08-18-83	9.9	do.	
4,946	08-18-83	11.0	4,936	Formerly named Atrisco 8
4,949	08-18-83	10.0	4,939	Formerly named Atrisco 11
4,952	08-18-83	9.1	4,943	Formerly named Atrisco 1, well 2
5,317	07-19-83	432.7	4,884	Land-surface altitude of 5,324 feet reported by Hudson (1982); water-level measurement not repeated

Table 1.—Well information and water-level data - Continued

Number in figures 1, 6, 7, and 8	Well name or owner	Well number (GWSI number in parentheses)	Depth of well (feet)	Perforated or screened interval (feet)
11	Burton 3	10N.03E.23.314 (350439106355901)	994	358-994
12	Dewatering project piezometer	10N.02E.35.412 (350303106414701)	20	open bottom
13	Dixie Petro-Chem	09N.03E.05.221 (350238106382401)	522	510-522
14	Eigner	09N.02E.26.133 (345844106423001)	160	155-160
15	EPS Industries	09N.03E.05.234B (350214106383801)	90	84-89
16	ES-Yale 1	10N.03E.34.233 (350304106364401)	464	400-452 457-464
17	ES-Yale 2	10N.03E.33.431 (350251106374701)	305	250-300
18	Frese	09N.02E.22.233 (345949106424601)	125	120-125
19	Guzman	09N.03E.19.243 (345940106393401)	125	113-123
20	Harrison Middle School	09N.02E.12.441 (350105106403901)	120	41-51 65-69 110-118
21	Jensen	09N.02E.26.224 (345902106413401)	75	57-73

Land-surface altitude (feet)	Water-level data			Remarks
	Date measured	Depth to water (feet)	Water-level altitude (feet)	
5,214	07-19-83	327.9	4,886	—
4,933	07-22-83	6.4	4,927	—
5,001	07-20-83	103.0	4,898	Amerigas well of Hudson (1982)
4,909	07-22-83	5.6	4,903	—
4,973	07-20-83	57.4	4,916	Formerly named Southwest Insul-Bead; Insulbead well of Hudson (1982)
5,303	07-20-83	406.5	4,897	Pumping well, Kirtland 1(?), about 100 feet north of this well
5,150	07-27-83	250.4	4,900	—
4,914	07-26-83	5.4	4,909	—
4,976	08-19-83	68.5	4,908	—
4,923	08-17-83	5.8	4,917	—
4,912	07-22-83	6.3	4,906	—

Table 1.—Well information and water-level data - Continued

Number in figures 1, 6, 7, and 8	Well name or owner	Well number (GWSI number in parentheses)	Depth of well (feet)	Perforated or screened interval (feet)
22	Mountainview Elementary School	09N.03E.18.433 (350005106394302)	170	129-159
23	Navajo Elementary School	09N.02E.02.313 (350201106423001)	244	134-144 177-187 231-241
24	Old Pajarito Elementary School	09N.02E.23.242 (345947106413401)	350	320-340
25	Person Station 6	09N.03E.09.111 (350139106381801)	895	515-815
26	Police Farm 3	09N.03E.11.333 (350059106360801)	302	248-288
27	Prices Valley Gold Dairy	09N.02E.25.122 (345907106405901)	110	40-110
28	Rio Grande High School	10N.02E.35.424 (350257106413401)	71	29-62
29	Rodgers	10N.2E.36.221 (350325106403801)	55	35-55?
30	Safeway	09N.02E.12.214 (350139106404401)	130	118-128
31	San Jose 1	10N.03E.32.231 (350317106384801)	306	--
32	San Jose 3	10N.03E.32.412 (350304106383401)	504	360-504

Land-surface altitude (feet)	Water-level data Date measured	Depth to water (feet)	Water-level altitude (feet)	Remarks
4,956	07-28-83	45.0	4,911	--
4,930	07-27-83	9.3	4,921	--
4,918	08-18-83	11.8	4,906	--
5,107	08-10-83	212.8	4,894	Public Service well of Hudson (1982)
5,142	07-28-83	235.6	4,906	--
4,914	07-20-83	6.4	4,908	Land-surface altitude from topographic map with 10-foot contour interval
4,935	08-17-83	8.5	4,927	Old well, drilled in 1958
4,941	07-27-83	10.7	4,930	Old irrigation well, drilled in 1974
4,935	07-22-83	13.3	4,922	--
4,950	07-18-83	38.9	4,911	--
4,954	07-21-83	54.9	4,899	--

Table 1.—Well information and water-level data - Concluded

Number in figures 1, 6, 7, and 8	Well name or owner	Well number (GWSI number in parentheses)	Depth of well (feet)	Perforated or screened interval (feet)
33	San Jose 4	10N.03E.29.441 (350336106383201)	996	264-996
34	San Jose 5	10N.03E.29.341 (350343106390101)	1,036	192-1,032
35	San Jose 6	10N.03E.32.414 (350255106384401)	912	180-912
36	San Jose 9	10N.03E.32.314 (350256106390801)	764.5	188.5-764.5
37	Sludge Disposal Facility	09N.03E.22.311 (345935106371601)	551	407-479 515-539
38	South Coors Truck Salvage	10N.02E.26.322 (350356106420601)	104	96-104
39	Teeple	10N.02E.24.131 (350501106412401)	50	41-48
40	Treatment Plant No. 2	09N.03E.07.413 (350108106394901)	51	36-41
41	Valley Gardens 1	09N.02E.14.142 (350041106420801)	464	414-429 437-462
42	Yale 2	10N.03E.21.444 (350427106372601)	960	336-960
43	Yale 3	10N.03E.28.243 (350358106372801)	1,191	351-1,179
44	Yale 4	10N.03E.21.341 (350435106380001)	1,004	320-992

	Water-level data			
Land-surface altitude (feet)	Date measured	Depth to water (feet)	Water-level altitude (feet)	Remarks
4,992	07-18-83	101.5	4,891	Formerly named San Jose 7; depth of hole reported as well depth by Hudson (1982)
4,946	07-18-83	48.2	4,898	Formerly named San Jose 8; depth of hole reported as well depth by Hudson (1982)
4,941	07-19-83	38.2	4,903	Formerly named San Jose 10
4,941	07-19-83	31.8	4,909	—
5,300	08-19-83	407.5	4,892	Water-level measurement not repeated; land-surface altitude from topographic map with 10-foot contour interval
5,005	07-28-83	73.9	4,931	—
4,949	07-27-83	7.7	4,941	—
4,925	07-20-83	5.7	4,919	Unequipped dewatering well north of plant
4,922	07-19-83	11.3	4,911	—
5,160	07-18-83	269.7	4,890	Formerly named Yale 1
5,127	07-19-83	242.0	4,885	—
5,080	07-19-83	188.6	4,891	—

Table 2.--Sources of well-completion data

[Sources of data: AP, Albuquerque Public School files; CP, City Plan II, text section pages 54-58, compiled by Gordon Herkenhoff, Inc.; M, measured; RD, reported by driller; RO, reported by owner; SF, data other than a well record in State Engineer Albuquerque Office files; WL, well list compiled July 13, 1966, by city of Albuquerque; WR, State Engineer Albuquerque Office well record.]

	Source of data		State Engineer Office	
Well number	Well depth	Perforated interval	permit or file number	Reporting individual or organization
1	RD	RD	--	Leedshill-Herkenhoff, Inc.
2	RO	RO	--	Alpha Southwest, Inc.
3	WR	WR	RG-2687	--
4	WR	WR	RG-541-B-C	--
5	WL	--	--	--
6	WL	--	--	--
7	WL	--	--	--
8	WL	--	--	--
9	SF	SF	RG-2194	--
10	RD	RD	--	Leedshill-Herkenhoff, Inc.
11	RD	RD	--	Do.
12	RD	RD	--	Howard Sheets
13	WR	WR	RG-4891	--
14	WR	WR	RG-37794	--
15	WR	WR	RG-6722s	--
16	RO	RO	--	City of Albuquerque, Department of Services
17	RO	RO	--	Do.
18	RD	RD	--	Rodgers and Co., Inc.
19	RO	RO	--	--
20	AP	AP	--	--
21	WR	WR	RG-38980	--
22	SF	SF	--	--
23	WR	WR	RG-3610	--
24	WR	WR	RG-4126	--
25	WR	WR	RG-50-s-4	--

Table 2.--Sources of well-completion information - Concluded

Well number	Source of data: Well depth	Source of data: Perforated interval	State Engineer Office permit or file number	Reporting individual or organization
26	WR	WR	RG-00606-B	--
27	WR	WR	RG-118	--
28	WR	WR	RG-1227	--
29	WR	WR	--	--
30	WR	WR	RG-19227	--
31	WL	--	--	--
32	M	RD	--	Howard Sheets
33	CP	CP,WR	RG-3203	--
34	CP	CP,WR	RG-3203-x-6-s-4	--
35	CP	CP,WR	RG-3203-x-6-s-2	--
36	RO	RO	--	City of Albuquerque, Department of Services
37	WR	WR	RG-16265	--
38	WR	WR	RG-16265	--
39	WR	WR	RG-27583	--
40	WR	WR	RG-37174-Explor.	--
41	SF	SF	RG-9788	--
42	CP	CP,WR	RG-3203-x-6-s-2(?)	--
43	CP	CP	--	
44	CP	CP,WR	RG-3200-x-19-s-3(?)	--

Table 3.--Comparison of water-level altitudes in selected wells, spring 1981 and summer 1983

Well number	Water-level altitude, in feet above sea level, spring 1981	Water-level altitude, in feet above sea level, summer 1983	Change in water level, in feet
10	4,886*	4,884	- 2
13	4,905	4,898	- 7
15	4,915	4,916	+ 1
25	4,899	4,894	- 5
31	4,915	4,911	- 4
32	4,907	4,899	- 8
33	4,900	4,891	- 9
34	4,902	4,898	- 4
35	4,905	4,903	- 2
42	4,895	4,890	- 5
43	4,896	4,885	-11
44	4,900	4,891	- 9

* Hudson (1982) reported a water-level altitude of 4,893 feet using a land-surface altitude of 5,324 feet. Land-surface altitude at well is 5,317 feet.

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