WATER-LEVEL DATA FOR THE ALBUQUERQUE BASIN, NEW MEXICO, OCTOBER 1, 1986, THROUGH SEPTEMBER 30, 1990

By Dale R. Rankin

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CONVERSION FACTORS AND VERTICAL DATUM

Multiply	By	To obtain
foot	0.3048	meter
mile	1.609	kilometer
acre	4,047	square meter

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.

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ABSTRACT

The Albuquerque Basin, located in central New Mexico, is about 100 miles long and 25 to 40 miles wide. The basin is defined as the extent of Cenozoic deposits that encompass the structural Rio Grande Rift within the basin. The drinking-water supply throughout the Albuquerque Basin is obtained solely from ground-water resources. The population of the basin grew from 419,000 in 1980 to 563,600 in 1990, a 34-percent increase, and resulted in increases in water demand and ground-water pumpage. Between April 1982 and September 1983, a network of wells was established to monitor changes in ground-water levels throughout the Albuquerque Basin. Water-level data are being collected at 79 wells and piezometers that presently (1994) comprise the network. This report summarizes ground-water-level data collected from October 1, 1986, through September 30, 1990, in the Albuquerque Basin.

INTRODUCTION

The Albuquerque Basin is located in central New Mexico and is about 100 miles long and 25 to 40 miles wide. The basin is defined as the extent of Cenozoic deposits that encompass the structural Rio Grande Rift within the basin (Thorn and others, 1993). The study area extends from Bernalillo south to San Acacia and from Tijeras Canyon west to near the intersection of Interstate 40 and the Bernalillo/Cibola County line (fig. 1). Parts of Sandoval, Bernalillo, Valencia, and Socorro Counties are located within the study area. The only perennial stream is the southward-flowing Rio Grande, which approximately bisects the basin.

The Albuquerque metropolitan area includes a population of 502,100 (U.S. Department of Commerce, 1991). Although the majority of people are concentrated within the Albuquerque city limits, the basinwide population increased from 419,000 in 1980 to 563,600 in 1990, an increase of 34 percent. The demand for ground water has likewise increased since because the drinking-water supply throughout the Albuquerque Basin is obtained solely from ground-water resources (Kues, 1987).

This report provides water-level and other data for selected wells and piezometers in the Albuquerque Basin, central New Mexico (Wilkins, 1986; Anderholm and Bullard, 1987; and Kues, 1987). Water levels of 79 wells and piezometers measured by U.S. Geological Survey personnel from October 1, 1986, through September 30, 1990, are included.

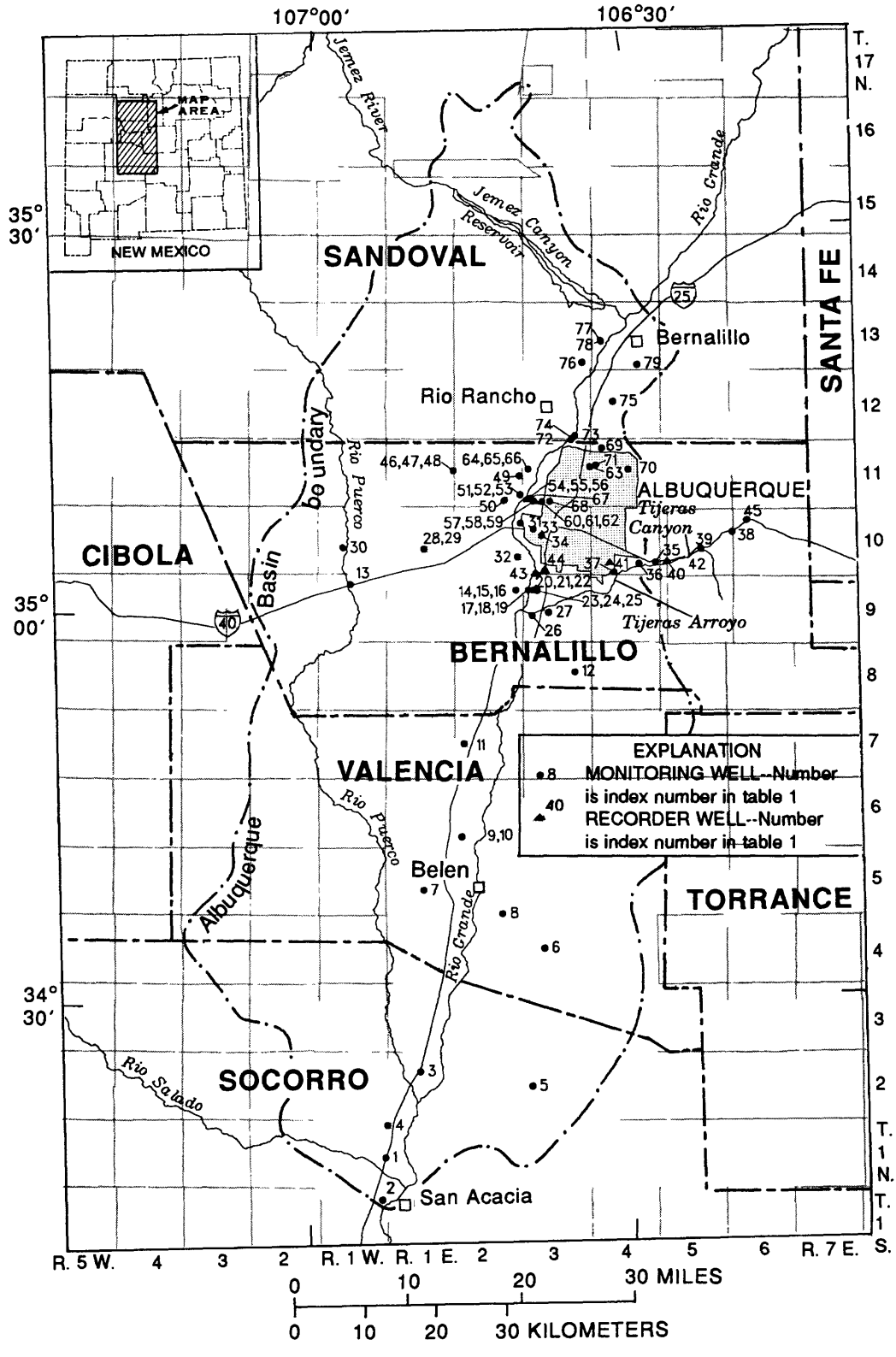

Figure 1.--Location of study area.

Well-Numbering System

The system of numbering wells in New Mexico is based on the common subdivision of public lands into sections (fig. 2). The well number, in addition to designating the well, locates its position to the nearest 10-acre tract in the land network. This number is divided into four segments. The first segment denotes the township north of the New Mexico base line, the second denotes the range east of the New Mexico principal meridian, and the third denotes the section. The fourth segment of the number, which consists of three digits, denotes the 160-, 40-, and 10-acre tracts, respectively, in which the well is situated. For this purpose, the section is divided into four quarters, numbered 1, 2, 3, and 4, in the normal reading order, for the northwest, northeast, southwest, and southeast quarters. The first digit of the fourth segment gives the quarter section, which is a tract of 160 acres. Similarly, the quarter section is divided into four 40-acre tracts numbered in the same manner, and the second digit denotes the 40-acre tract. Finally, the 40-acre tract is divided into four 10-acre tracts, and the third digit denotes the 10-acre tract. For example, well 10N.03E.32.412 is in the NE 1/4 of the NW 1/4 of the SE 1/4 of section 32, T. 10 N., R. 3 E. (fig. 2). Letters A, B, C, etc. are added to the last segment of the well number to designate the second, third, fourth, and succeeding wells in the same 10-acre tract.

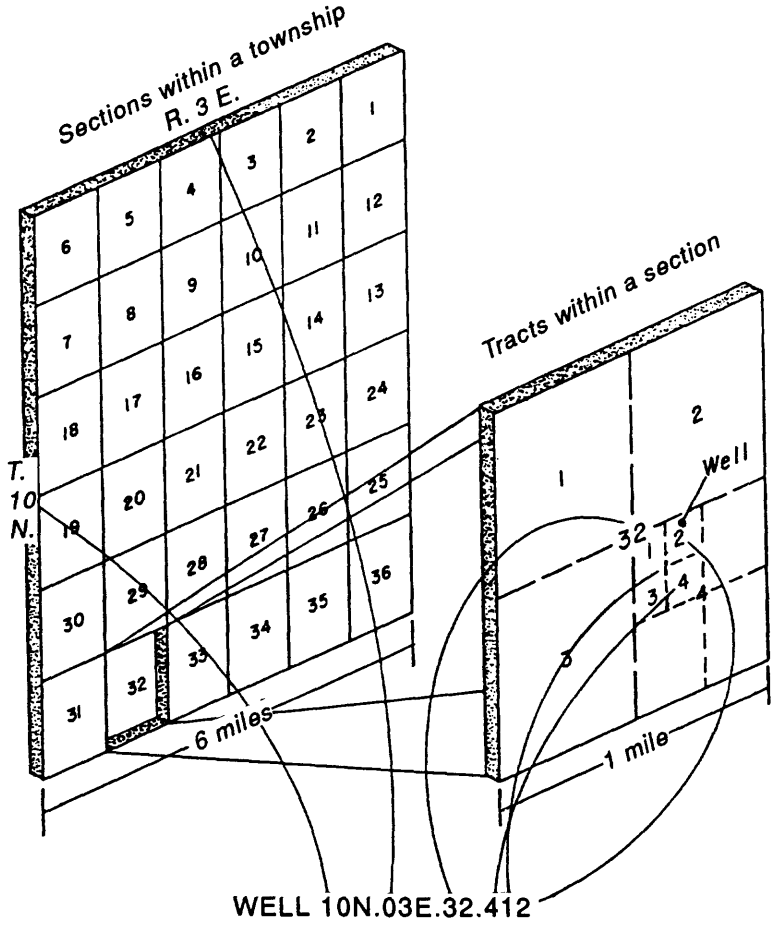

Figure 2.--System of numbering wells in New Mexico.

Methods

The water-level data were collected by U.S. Geological Survey personnel. Water levels at site 11 are measured annually; at sites 1-10, semiannually; at sites 28, 29, and 46-48, quarterly; and at sites 12-27, 30-40, 45, 49-53, and 60-79, monthly. Electric and steel tapes are used to collect data from sites measured annually, semiannually, quarterly, and monthly. Water levels at sites 41-44 are monitored with Fischer-Porter[1] analog-to-digital recorders. Water levels at sites 54-59 are monitored with Campbell CR-21[1] data loggers. The recorders and loggers record water levels hourly.

WATER-LEVEL AND OTHER DATA

Well and piezometer data are listed in table 1. The data in table 1 include site number, site identifier, local identifier, owner, other identifier, total depth, and screened interval of wells and piezometers in the network. Hydrographs of water-level data for the 5-year record are shown in figure 3. The well name on each hydrograph shown in figure 3 refers to the "other identifier" column in table 1. In cases where "other identifier" is not available, the well name refers to the well owner. The data presented in the hydrographs include the depth to water, in feet below land surface, and the hydraulic head, in feet above sea level. Hydraulic head refers to the altitude of the water level. In some cases the recorded data are incomplete because of recorder malfunction; in other cases, the recorder was temporarily removed for sampling. The data shown on some hydrographs (for example, site 37) appear to be incomplete; these sites were added to the network at a later date.

REFERENCES CITED

Anderholm, S.K., and Bullard, T.F., 1987, Description of piezometer nests and water levels in the Rio Grande Valley near Albuquerque, Bernalillo County, New Mexico: U.S. Geological Survey Open-File Report 87-122, 51 p.

Kues, G.E., 1987, Ground-water-level data for the Albuquerque-Belen Basin, New Mexico, through water year 1985: U.S. Geological Survey Open-File Report 87-116, 51 p.

Thorn, C.R., McAda, D.P., and Kernodle, J.M., 1993, Geohydrologic framework and hydrologic conditions in the Albuquerque Basin, central New Mexico: U.S. Geological Survey Water-Resources Investigations Report 93-4149, 106 p.

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[1]Use of brand names in this report is for identification purposes only and does not constitute endorsement by the U.S. Geological Survey.

Table 1.--Well and piezometer data

[--, no data]

Site number (figs. 1 and 3)	Site identifier	Local identifier	Owner	Other identifier	Total depth (feet below land surface)	Screened interval (feet)
1	341839106531601	01N.01W.13.244	NM Highway Dept.	Rest Area	212	173-212
2	341528106533301	01S.01W.01.213	Herkenhoff	--	38	--
3	342513106500301	02N.01E.04.444	Salas	--	107	99-106
4	342107106530401	02N.01E.31.313	Sevilleta National Wildlife Refuge	Headquarters	223	210-220
5	342406106394501	02N.03E.18.232	Sevilleta National Wildlife Refuge	Black Butte	346	--
6	343428106383301	04N.02E.17.244	McLaughlin	--	355	335-355
7	343853106494101	05N.01E.22.141	City of Belen	Belen Airport	620	453-483
8	343706106422301	05N.01E.35.143	Faust	--	375	353-373
9	344258106460901	06N.02E.30.412A	Estes	Estes 1	135	125-130
10	344258106460902	06N.02E.30.412B	Estes	Estes 5	300	265-270
11	345000106455501	07N.02E.18.422	Webb	Grasslands	407	150-230
12	345524106353901	08N.03E.14.231	Isleta Pueblo	ECW 3	440	--
13	350204106562301	09N.01W.04.424	Collier	Rio Puerco Trading Post	150	--
14	350137106410501	--	City of Albuq.	Rio Bravo 1	148.5	138.5-143.5
15	350137106410502	--	City of Albuq.	Rio Bravo 1	103.8	93.8-98.8
16	350137106410503	--	City of Albuq.	Rio Bravo 1	38.4	28.4-33.4
17	350138106395501	09N.03E.07.131A	City of Albuq.	Rio Bravo 2	153.5	143.5-148.5
18	350138106395502	09N.03E.07.131B	City of Albuq.	Rio Bravo 2	91.1	81.1-86.1

Table 1.--Well and piezometer data--Continued

Site number (figs. 1 and 3)	Site identifier	Local identifier	Owner	Other identifier	Total depth (feet below land surface)	Screened interval (feet)
19	350138106395503	09N.03E.07.131C	City of Albuq.	Rio Bravo 2	48.6	38.6-43.6
20	350138106393201	09N.03E.07.241A	City of Albuq.	Rio Bravo 3	148	138-143
21	350138106393202	09N.03E.07.241B	City of Albuq.	Rio Bravo 3	101	91-96
22	350138106393203	09N.03E.07.241C	City of Albuq.	Rio Bravo 3	49.3	39.3-44.3
23	350135106390601	09N.03E.08.144A	City of Albuq.	Rio Bravo 4	149.4	139.4-144.4
24	350135106390602	09N.03E.08.144B	City of Albuq.	Rio Bravo 4	124.2	114.2-119.2
25	350135106390603	09N.03E.08.144C	City of Albuq.	Rio Bravo 4	49.3	39.3-44.3
26	345940106393401	09N.03E.19.243	Guzman, Sal	Chava Trucking	125	113-123
27	345953106380201	09N.03E.21.12	City of Albuq.	South Broadway Landfill 4	--	--
28	350449106493103	10N.01E.22.322C	City of Albuq.	West Mesa 1A 1,175-foot piezometer	1,175	None
29	350449106493102	10N.01E.22.322B	City of Albuq.	West Mesa 1A 1,049-foot piezometer	1,049	None
30	350454106570401	10N.01W.21.134	Cañoncito Pueblo	C-1	117	--
31	350646106403601	10N.02E.12.241	City of Albuq.	City 4	150	
32	350411106405501	10N.02E.25.213	City of Albuq.	Atrisco 6	360	--
33	350620106392401	10N.03E.07.434	B.I.A.	--	35	--
34	350548106383901	10N.03E.17.232	City of Albuq.	City 1	149	138-148
35	350343106280901	10N.04E.25.324	NM Highway Dept.	Granite Hill	--	--
36	350339106294001	10N.04E.26.331	City of Albuq.	Four Hills	--	--

Table 1.--Well and piezometer data--Continued

Site number (figs. 1 and 3)	Site identifier	Local identifier	Owner	Other identifier	Total depth (feet below land surface)	Screened interval (feet)
37	350259106315801	10N.04E.32.422	City of Albuq.	Eubank	–	–
38	350602106210401	10N.05E.12.434	NM Highway Dept.	Home Oil	54	–
39	350448106235901	10N.05E.22.143	NM Highway Dept.	Tijeras	84	–
40	350352106270501	10N.05E.25.422	NM Highway Dept.	Sink Hole	–	–
41	350346106322301	10N.04E.29.413	KAFB	KAFB 5	1,004	504-1,004
42	350359106254701	10N.05E.29.114	NM Highway Dept.	Dead Man's Curve	–	–
43	350256106390801	10N.03E.32.314	City of Albuq.	San Jose 9	765	188-764
44	350304106383401	10N.03E.32.412	City of Albuq.	San Jose 3	503	360-503
45	350655106194501	10N.06E.05.332	NM Highway Dept.	Junction	–	–
46	351046106464702	11N.02E.18.313B	City of Albuq.	West Mesa 2 Annulus	1,805	800-830 925-955 1,630-1,695 1,735-1,795
47	351046106464704	11N.02E.18.313D	City of Albuq.	West Mesa 2 1,500-foot piezometer	1,500	None
48	351046106464703	11N.02E.18.313C	City of Albuq.	West Mesa 2 1,350-foot piezometer	1,350	None
49	351019106404001	11N.02E.24.223	Nelson	–	274	258-273
50	350829106420401	11N.02E.35.142	Ovenwest Corp.	La Luz del Sol	250	230-245
51	350854106403701	11N.02E.25.341A	City of Albuq.	Montaño 1	152	142-147
52	350854106403702	11N.02E.25.341B	City of Albuq.	Montaño 1	93	83-88
53	350854106403703	11N.02E.25.341C	City of Albuq.	Montaño 1	48	38-43

Table 1.--Well and piezometer data--Continued

Site number (figs. 1 and 3)	Site identifier	Local identifier	Owner	Other identifier	Total depth (feet below land surface)	Screened interval (feet)
54	350836106395601	--	City of Albuq.	Montaño 2	147	89-94
56	350836106395603	--	City of Albuq.	Montaño 2	39	29-34
57	350827106391301	--	City of Albuq.	Montaño 3	149	139-144
58	350827106391302	--	City of Albuq.	Montaño 3	99	89-94
59	350827106391303	--	City of Albuq.	Montaño 3	49	39-44
60	350821106383701	--	City of Albuq.	Montaño 4	131	121-126
61	350821106383702	--	City of Albuq.	Montaño 4	93	83-88
62	350821106383703	--	City of Albuq.	Montaño 4	50	40-45
63	351100106341201	11N.03E.13.242	Shoemaker	--	460	380-400
64	351051106395302	11N.03E.18.411B	City of Albuq.	West Mesa 3 Annulus	1,050	350-390 490-590 710-790 870-990 1,010-1,050
65	351051106395304	11N.03E.18.411D	City of Albuq.	West Mesa 3 980-foot piezometer	980	None
66	351051106395303	11N.03E.18.411C	City of Albuq.	West Mesa 3 760-foot piezometer	760	None
67	350837106393801	11N.03E.31.214	City of Albuq.	City 3	152	142-152
68	350824106375301	11N.03E.33.143	City of Albuq.	City 2	150	140-150
69	351226106330301	11N.04E.06.424	Sandia Pueblo	Sandia R1	--	--
70	351049106303801	11N.04E.15.321	Vandermey	--	660	--

Table 1.--Well and piezometer data--Concluded

Site number (figs. 1 and 3)	Site identifier	Local identifier	Owner	Other identifier	Total depth (feet below land surface)	Screened interval (feet)
71	351108106333601	11N.04E.18.124	Betania	--	575	--
72	351304106355201	11N.03E.02.2122	Sandia Pueblo	South Bosque	--	--
73	351312106354401	12N.03E.35.342	Sandia Pueblo	Middle Bosque	--	--
74	351322106353201	12N.03E.35.414	Sandia Pueblo	North Bosque	--	--
75	351556106315901	12N.04E.17.424	Sandia Pueblo	Sandia 2	--	--
76	351852106344901	13N.03E.36.132A	San Miguel	--	206	--
77	352032106330601	13N.04E.19.243	Santa Ana Pueblo	Santa Ana 2	200	180-200
78	352029106330601	13N.04E.19.421	Santa Ana Pueblo	Santa Ana 1	108	--
79	351843106294501	13N.04E.34.422	Deaver	Tierra Mirage	703	693-703

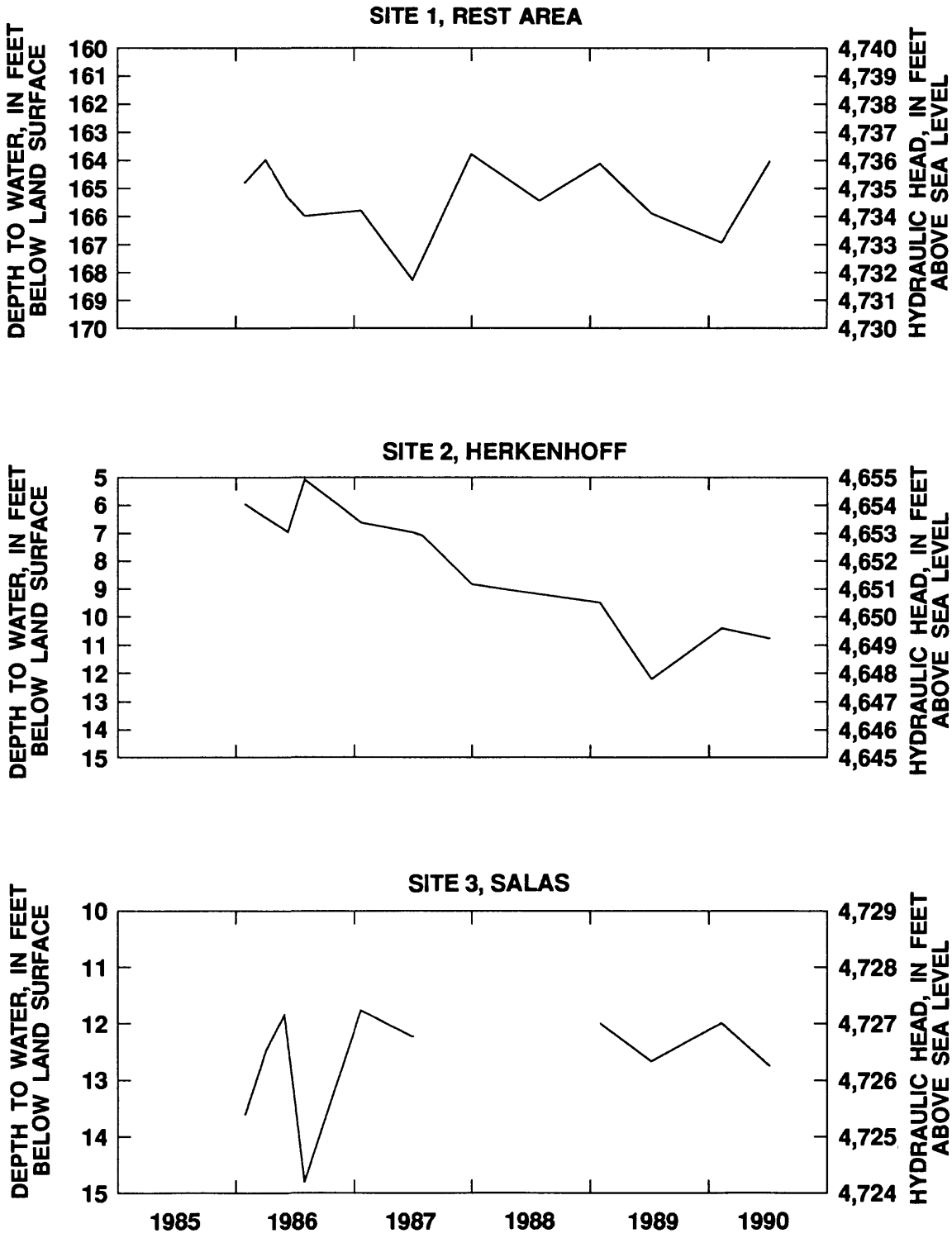
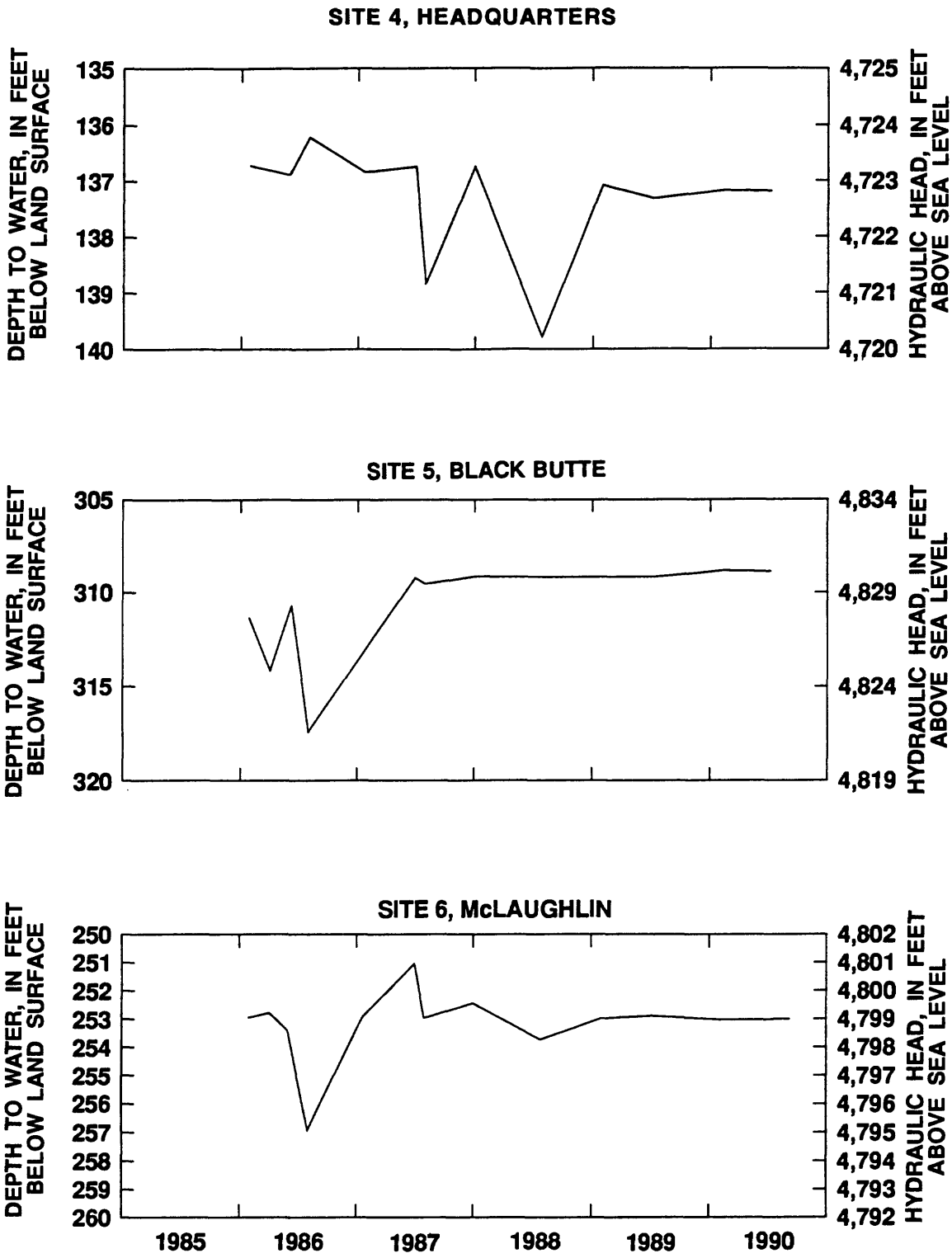


Figure 3.--Water-level data from selected wells and piezometers in the Albuquerque Basin (site location shown in figure 1).



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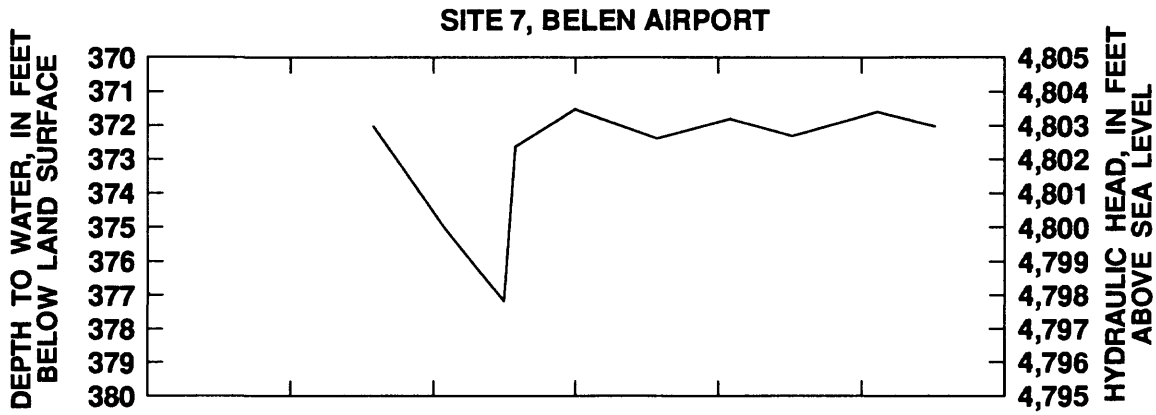

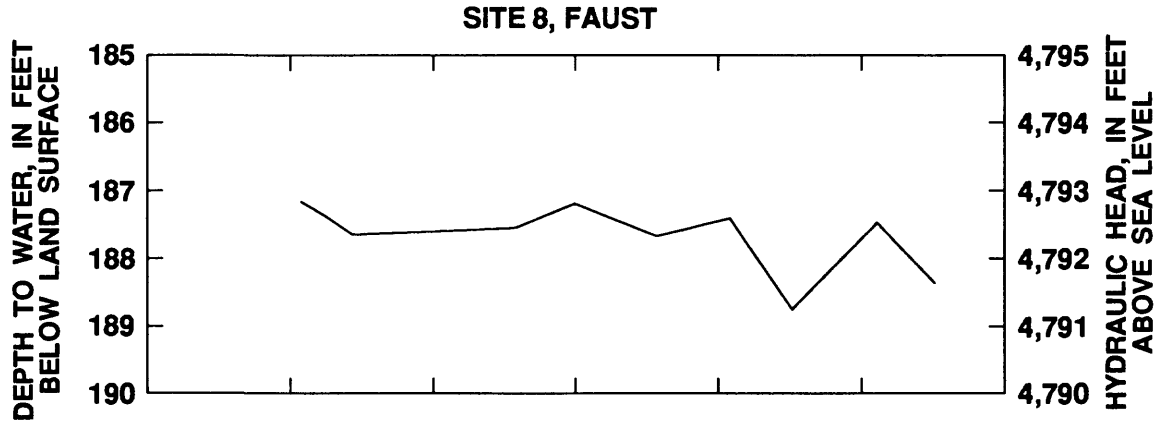

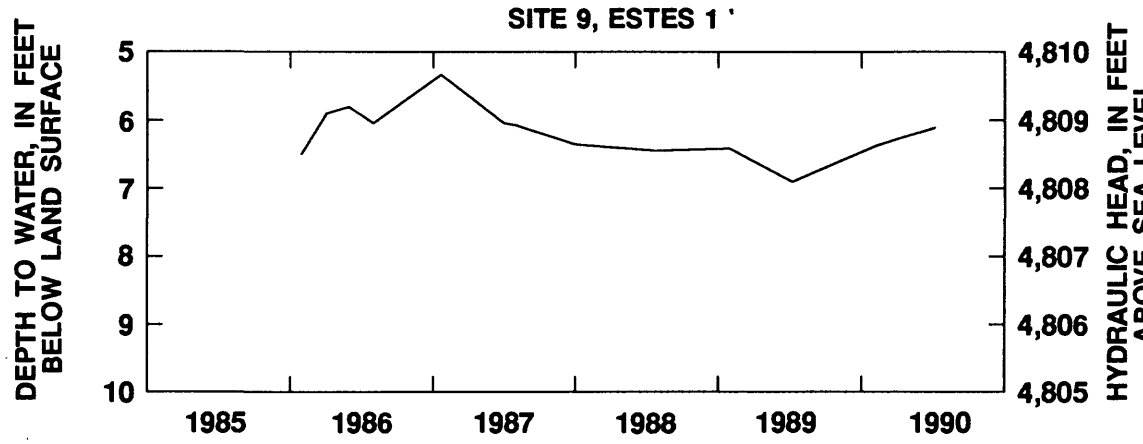

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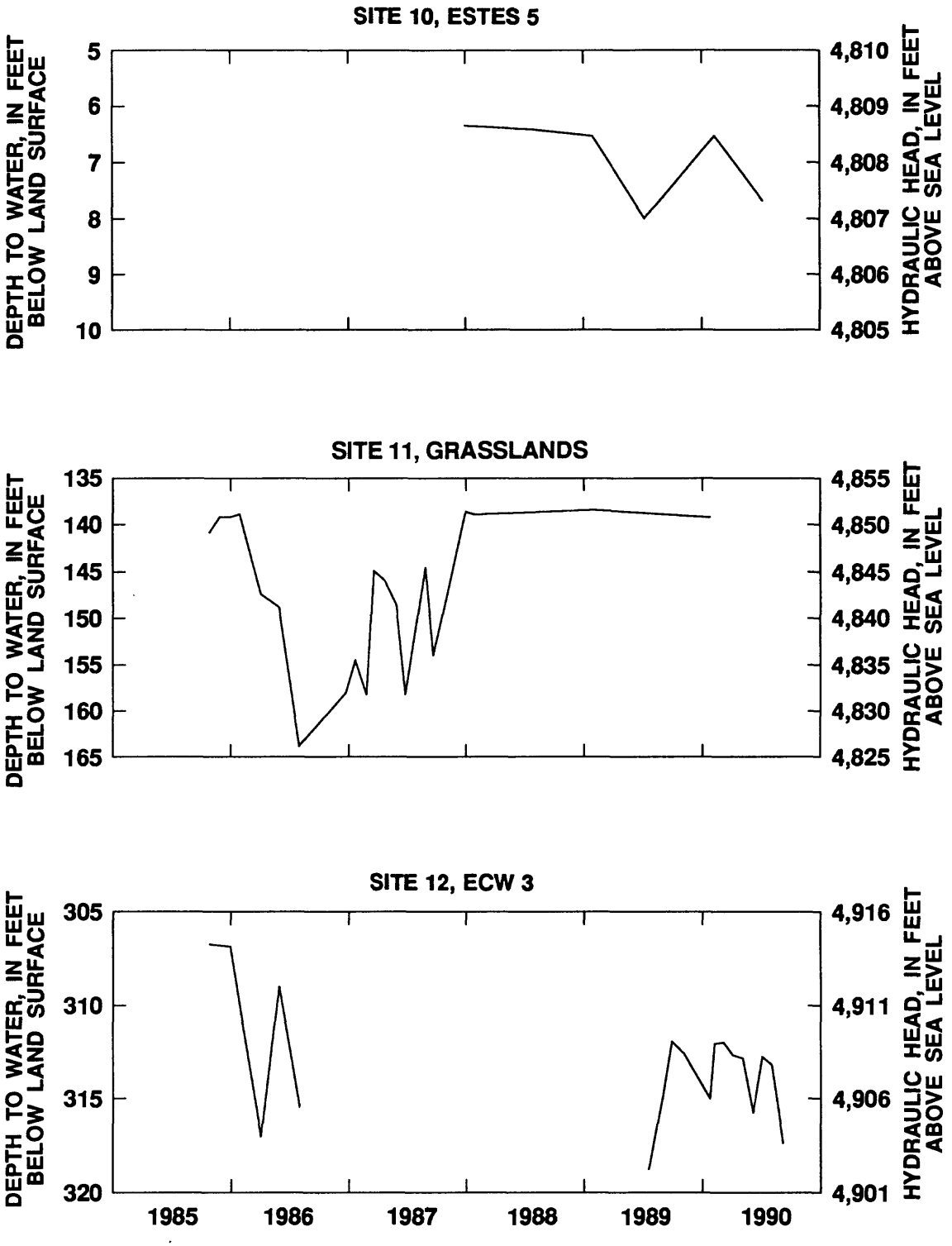

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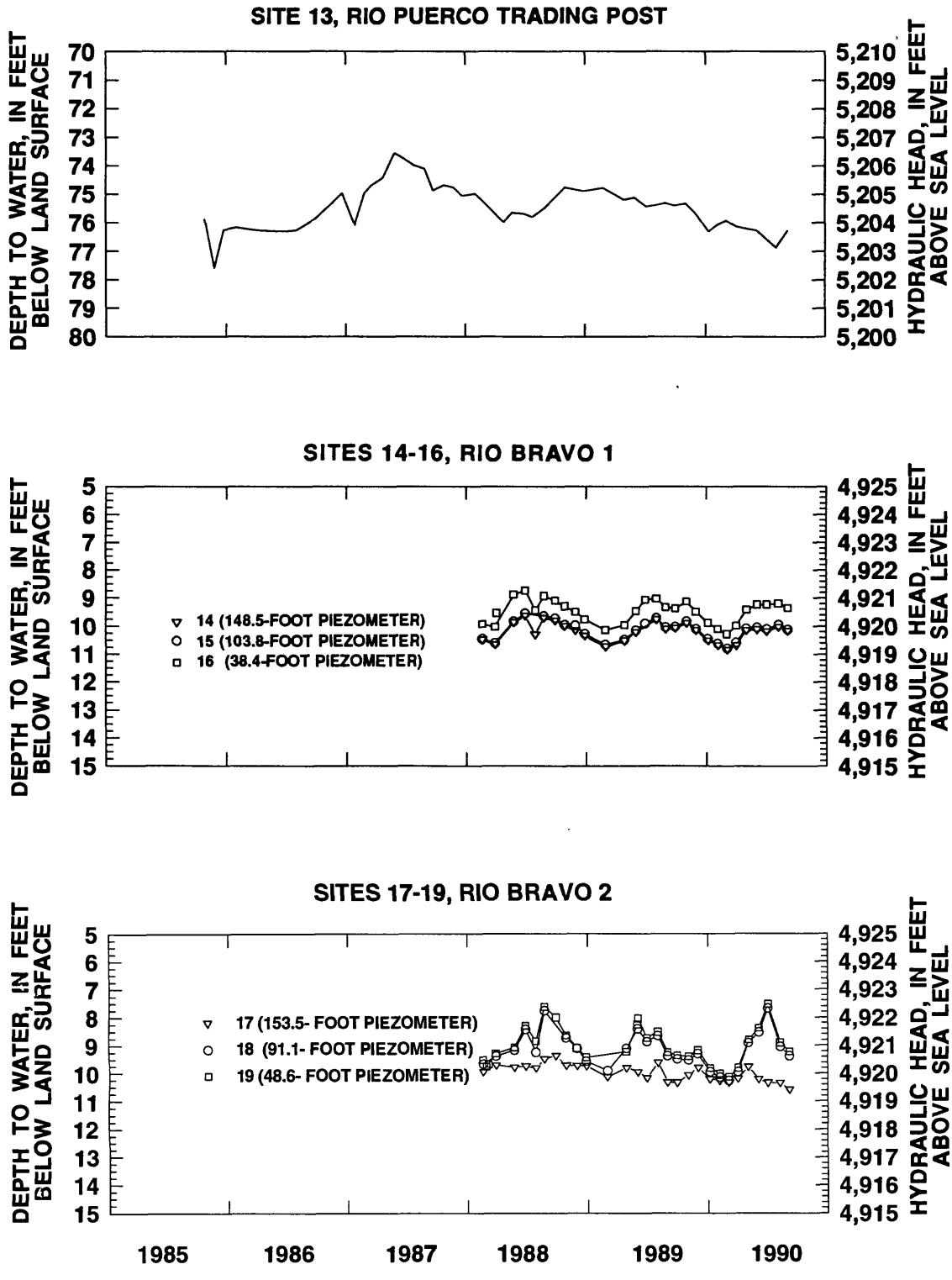

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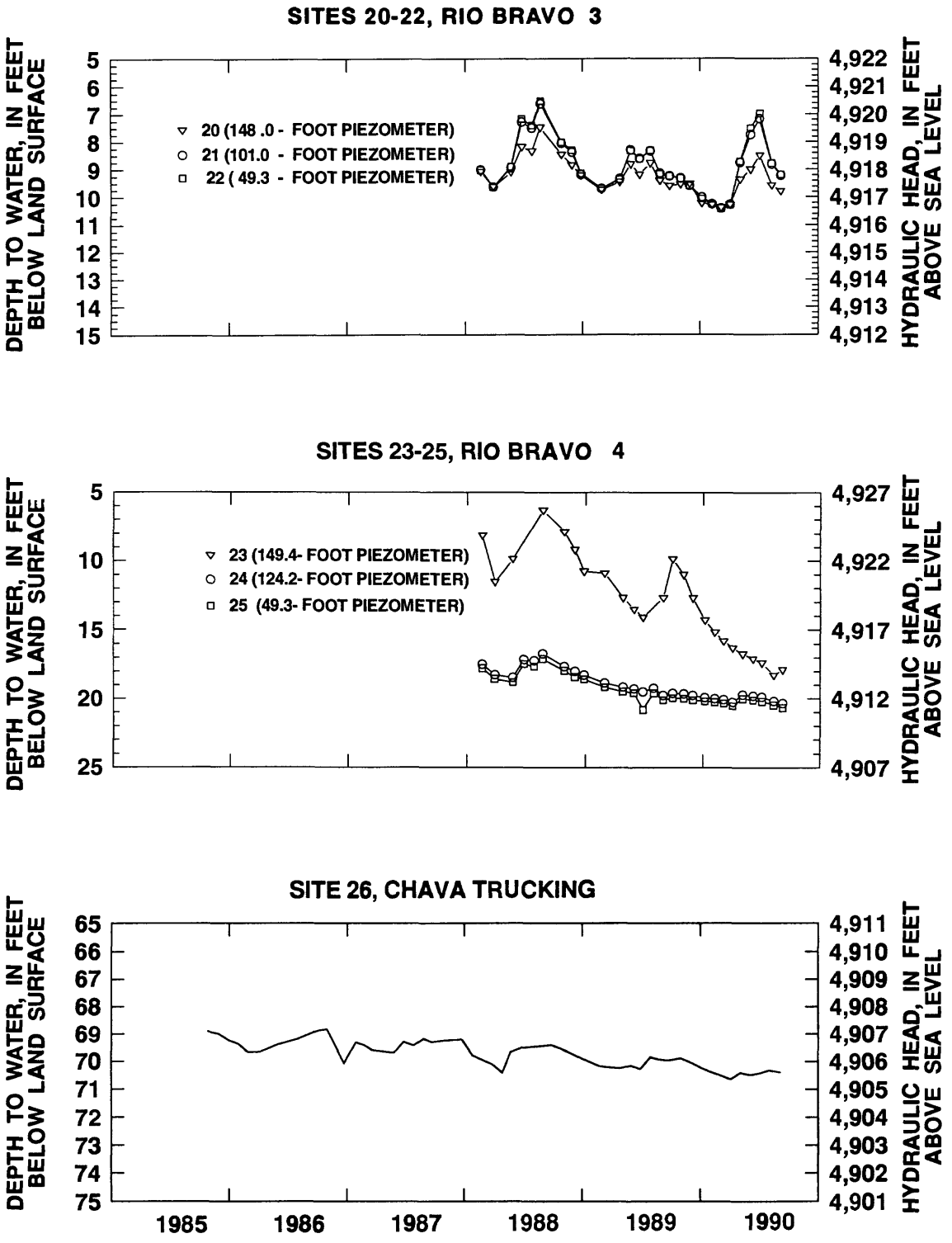
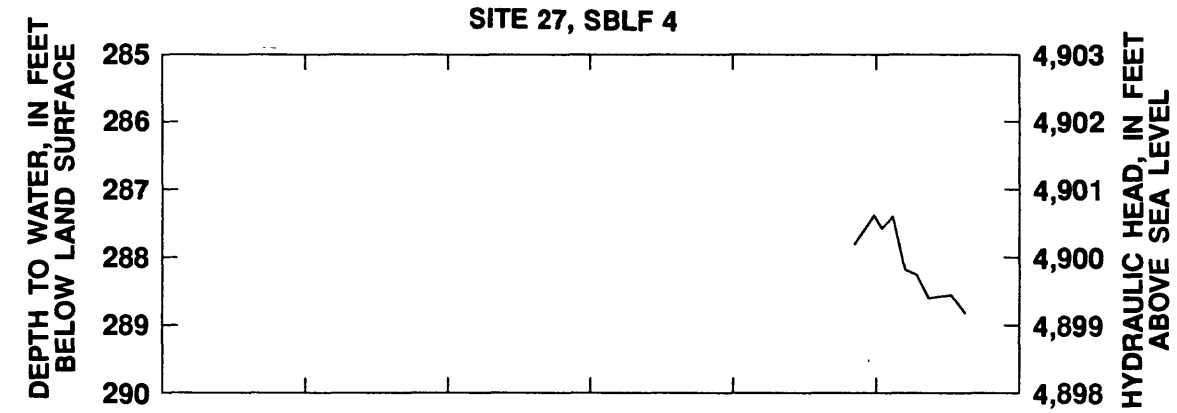
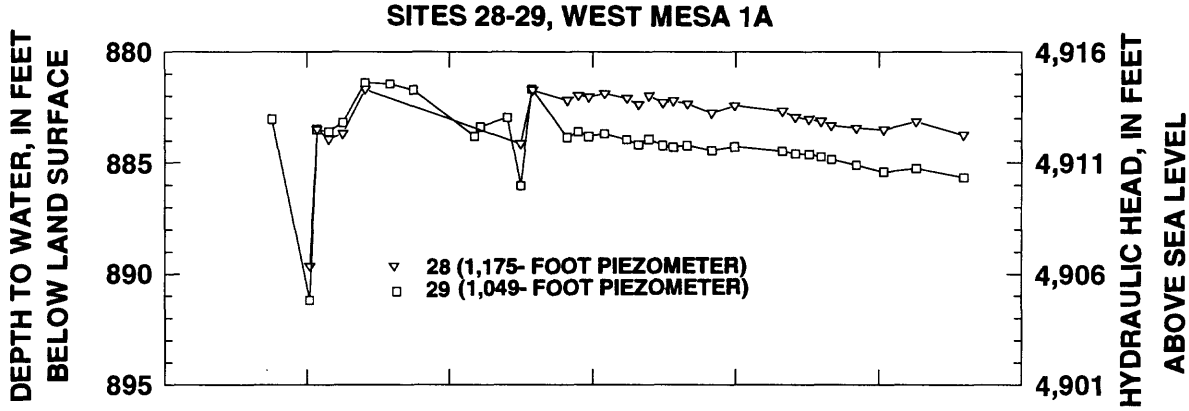
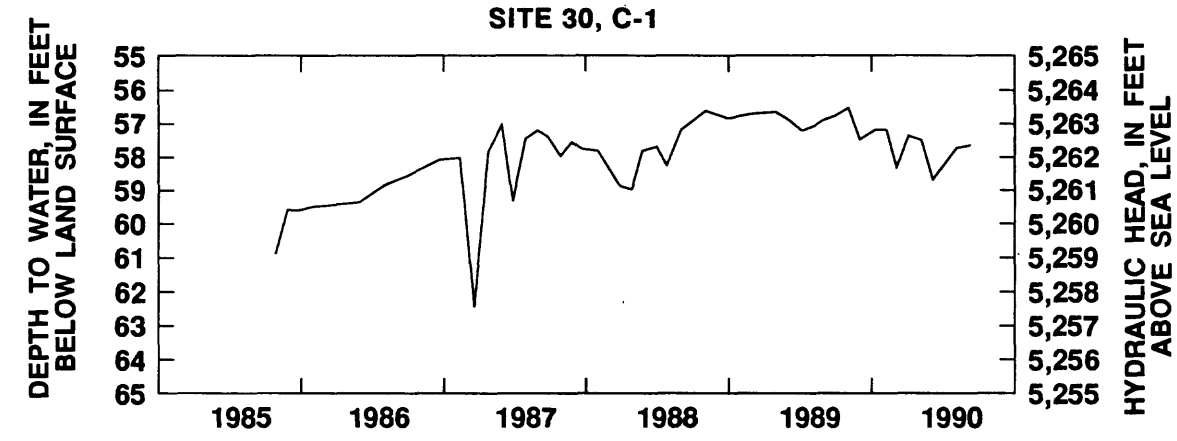


Figure 3.--Water-level data from selected wells and piezometers in the Albuquerque Basin (site location shown in figure 1) - Continued.







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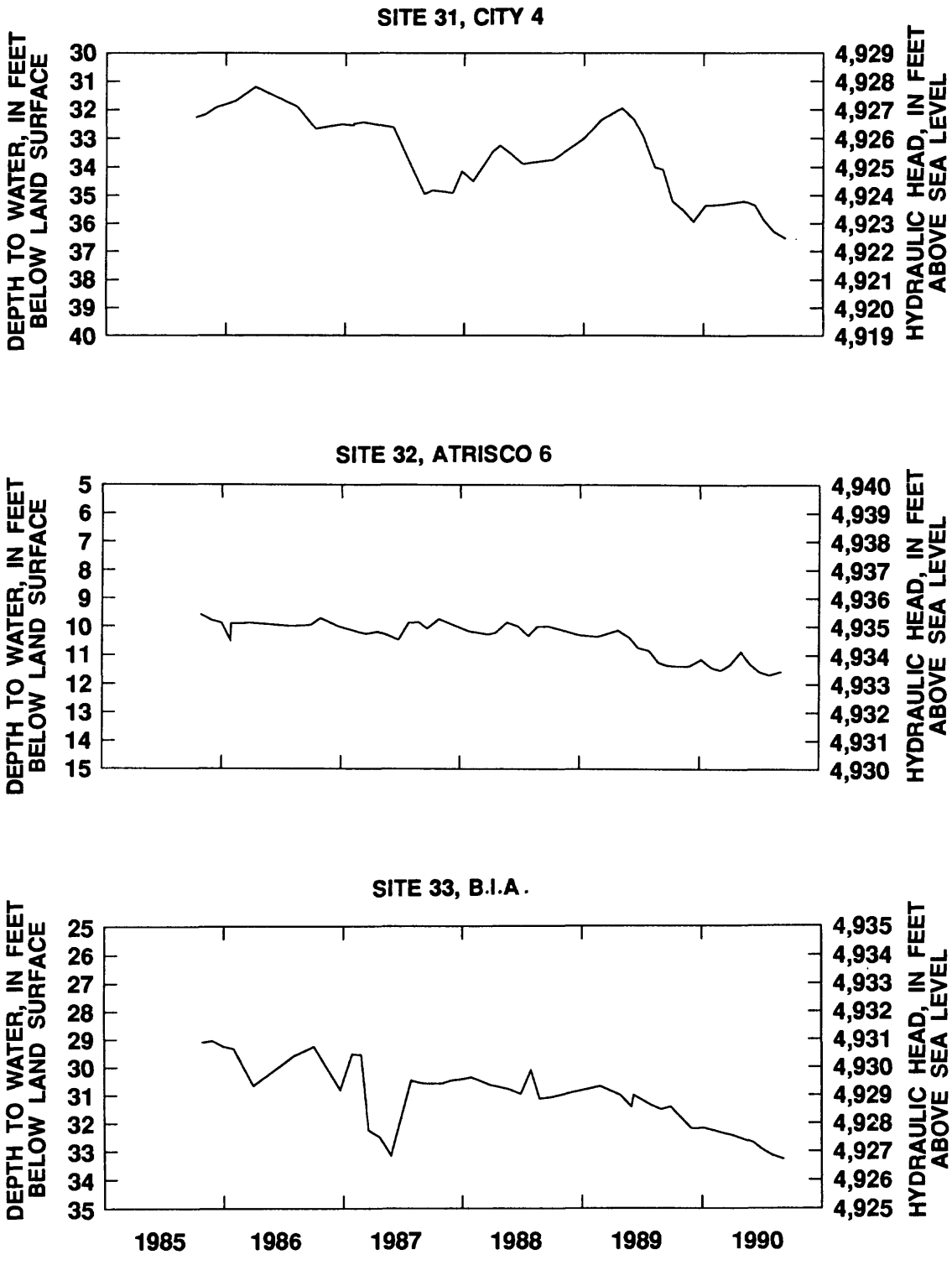

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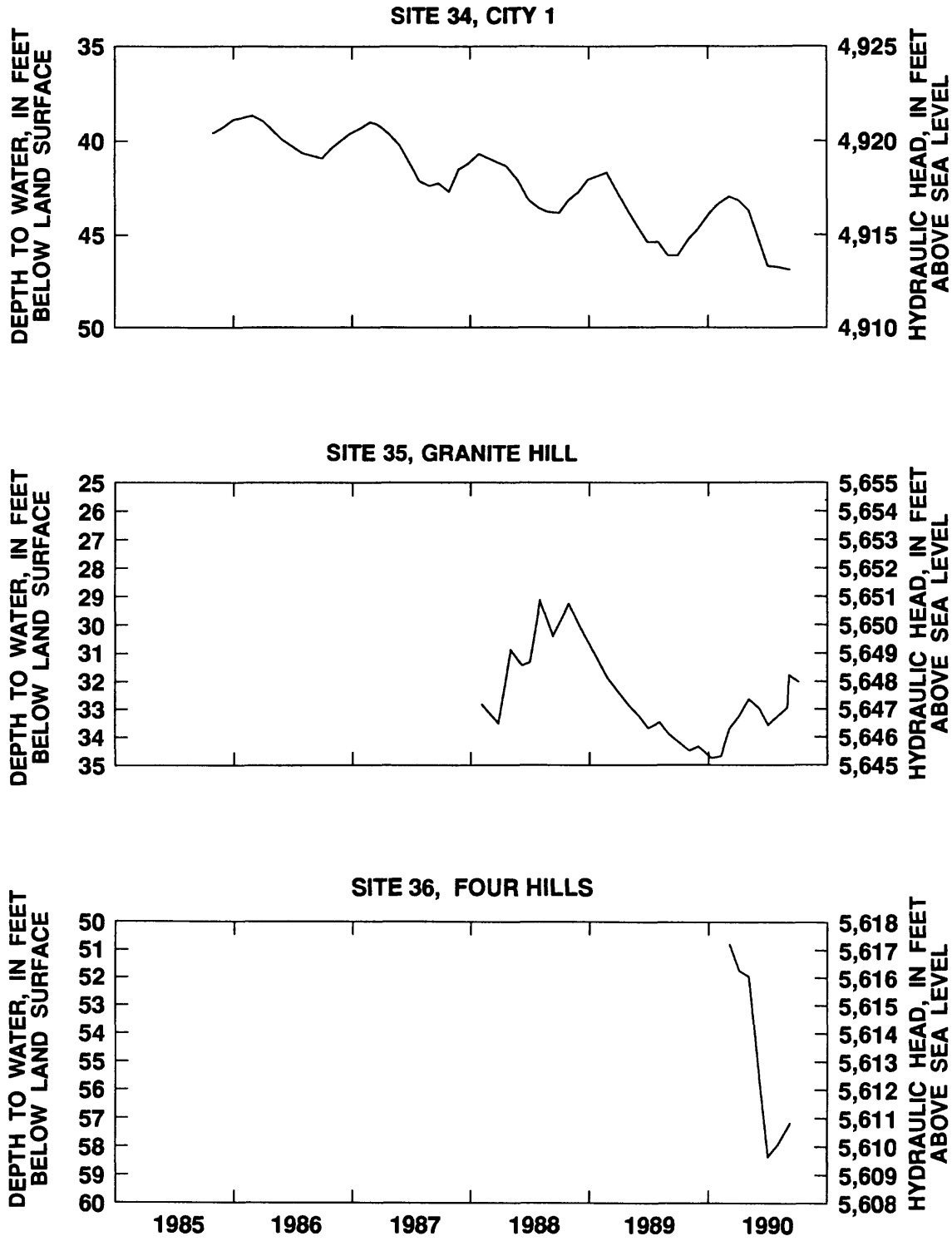

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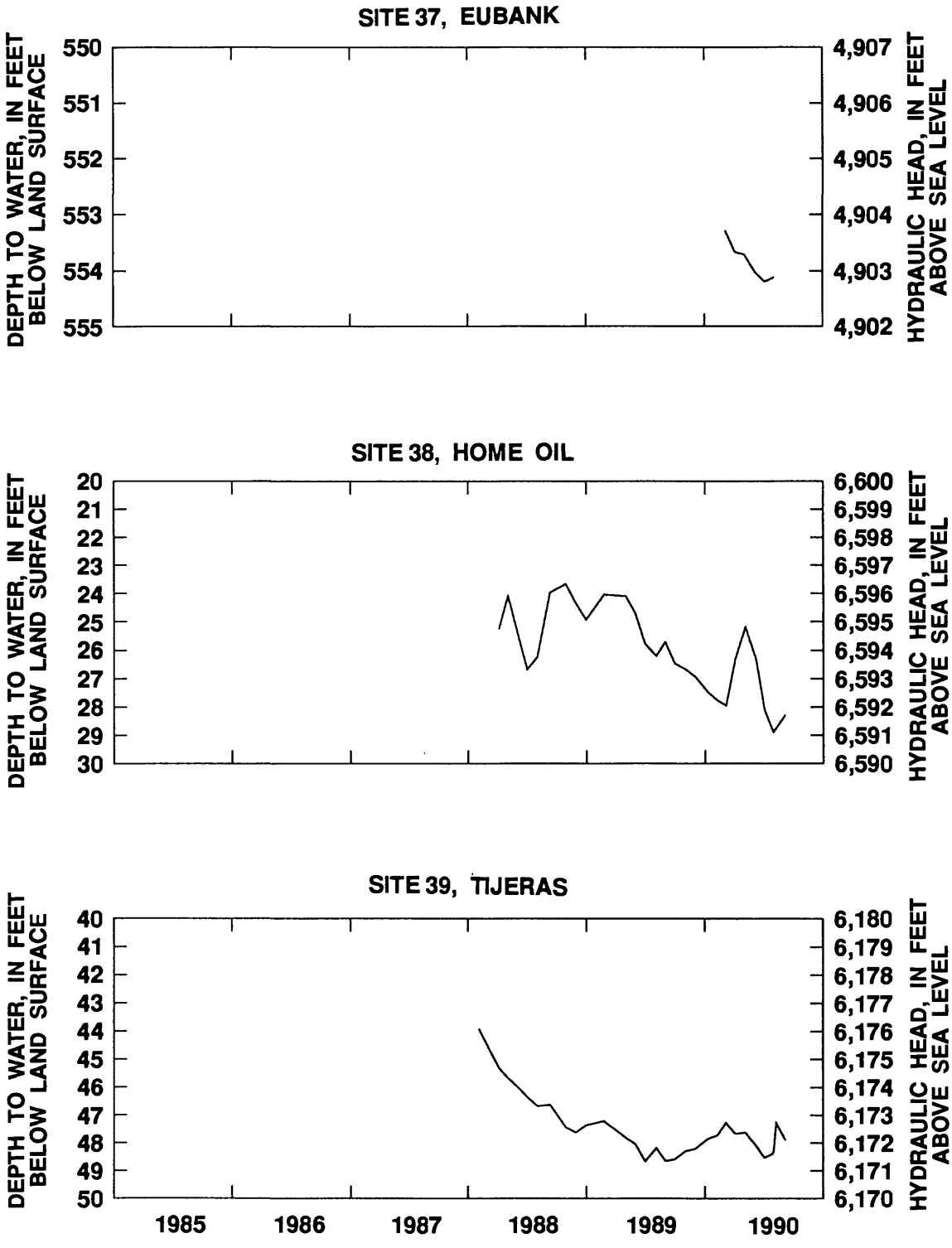

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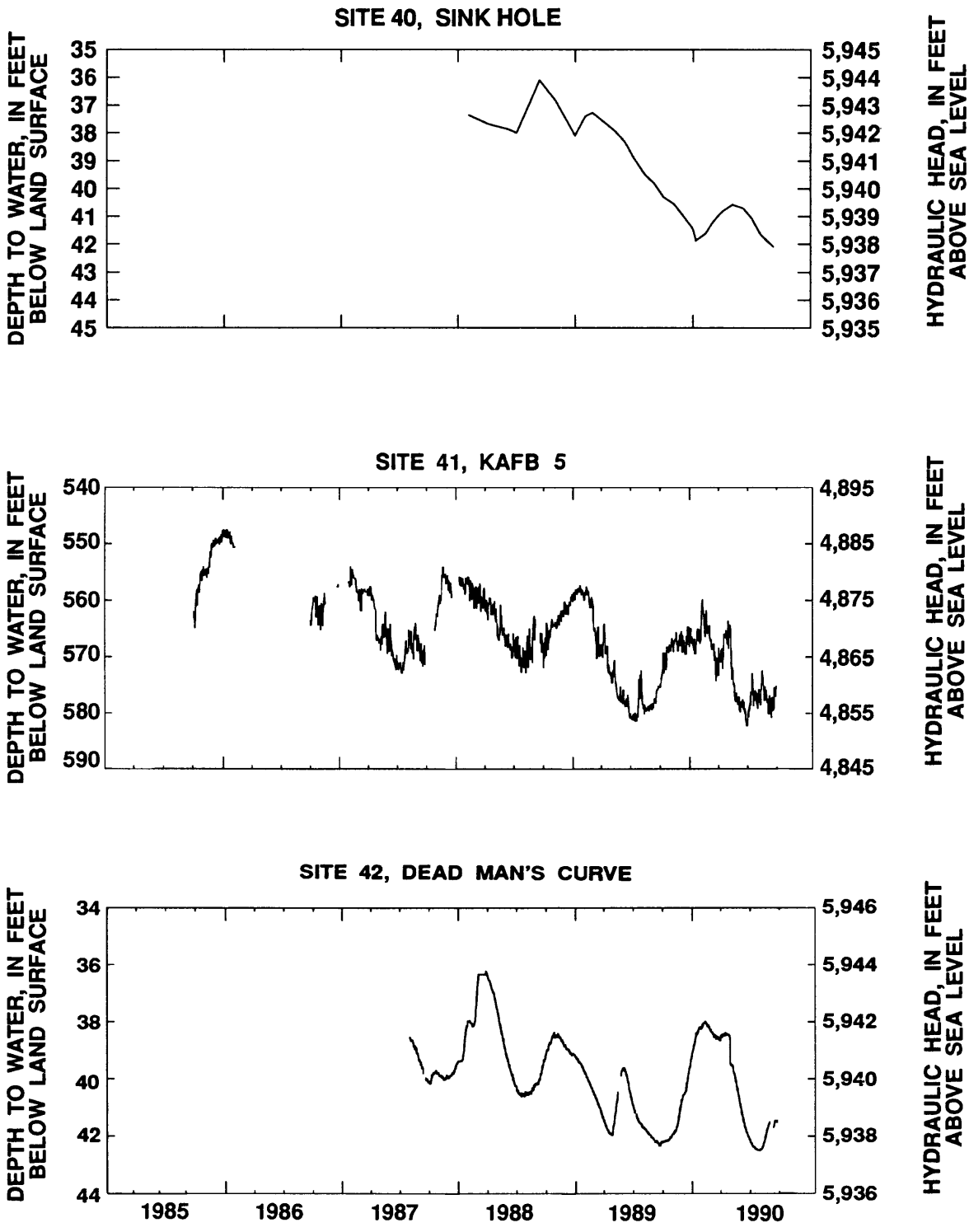

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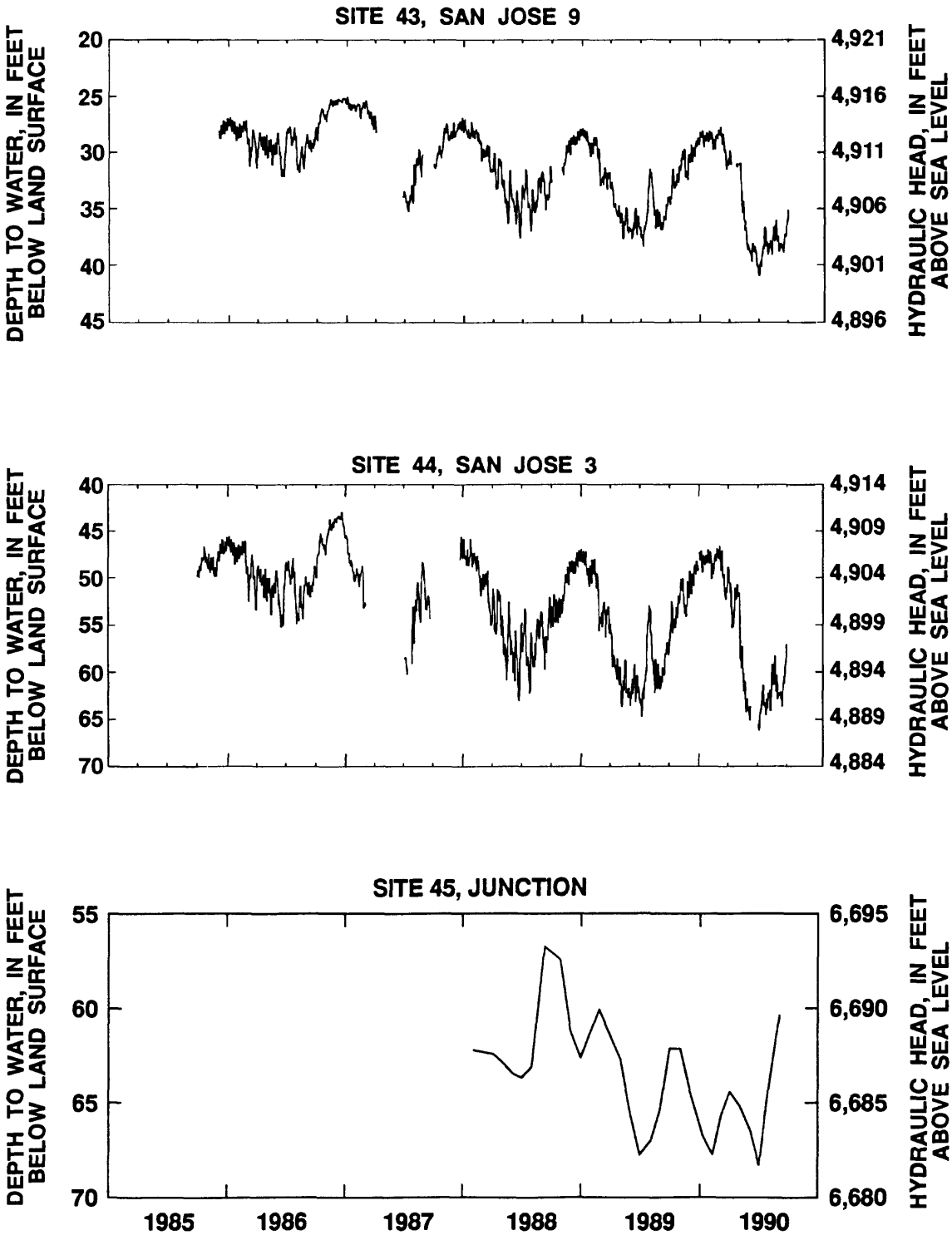

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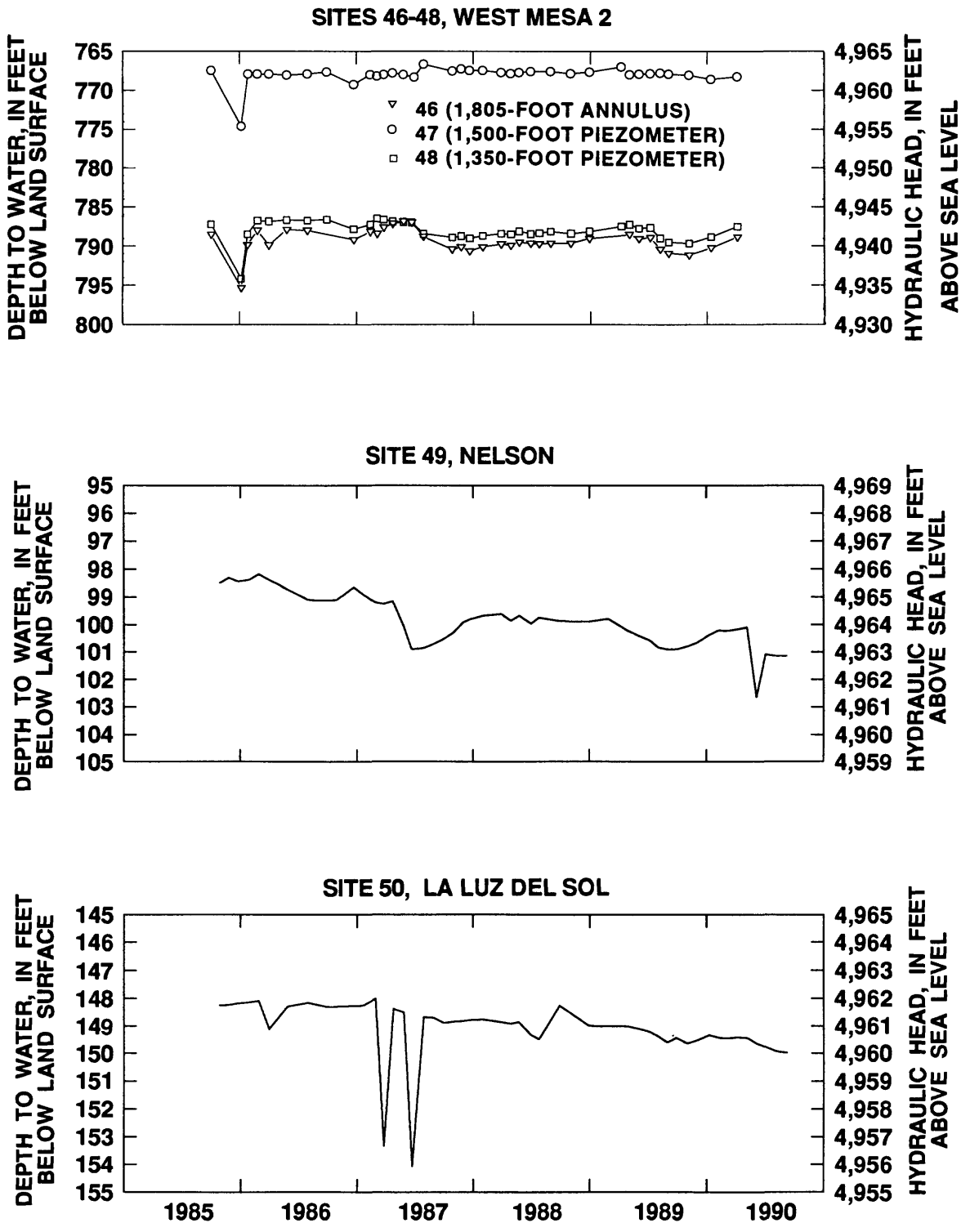
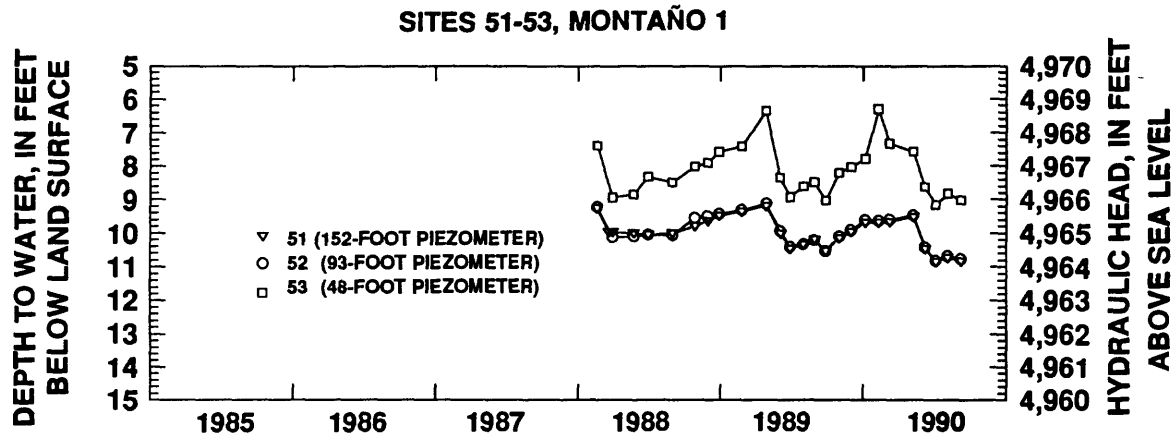
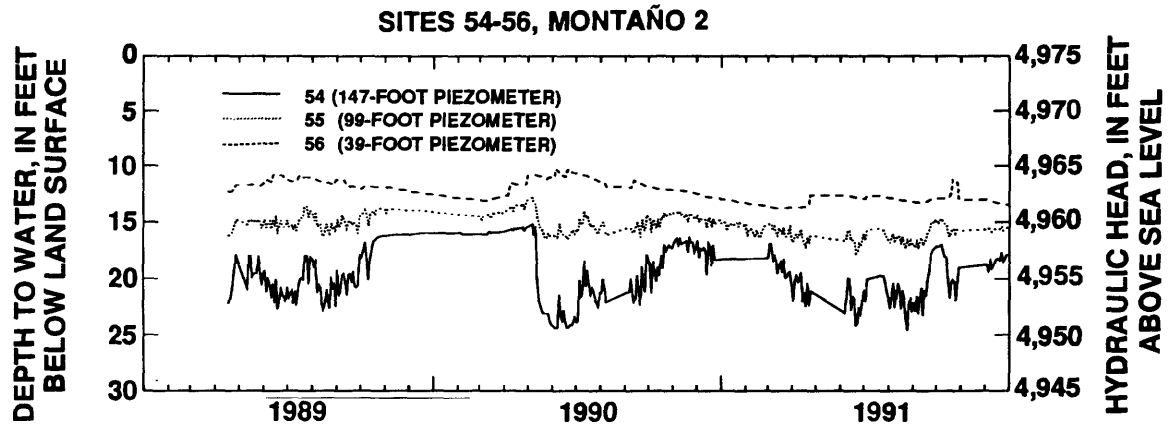


Figure 3.--Water-level data from selected wells and piezometers in the Albuquerque Basin (site location shown in figure 1) - Continued.





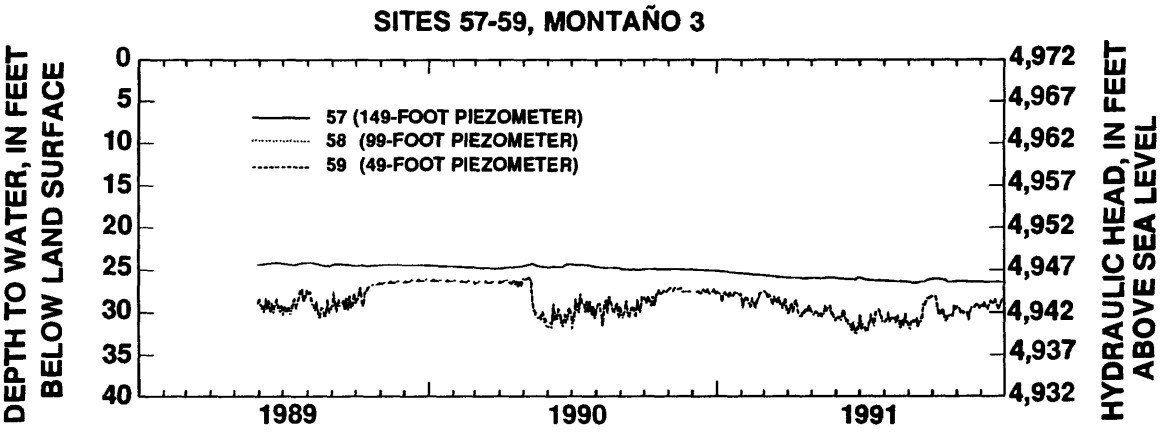


Figure 3.--Water-level data from selected wells and piezometers in the Albuquerque Basin (site location shown in figure 1) - Continued.

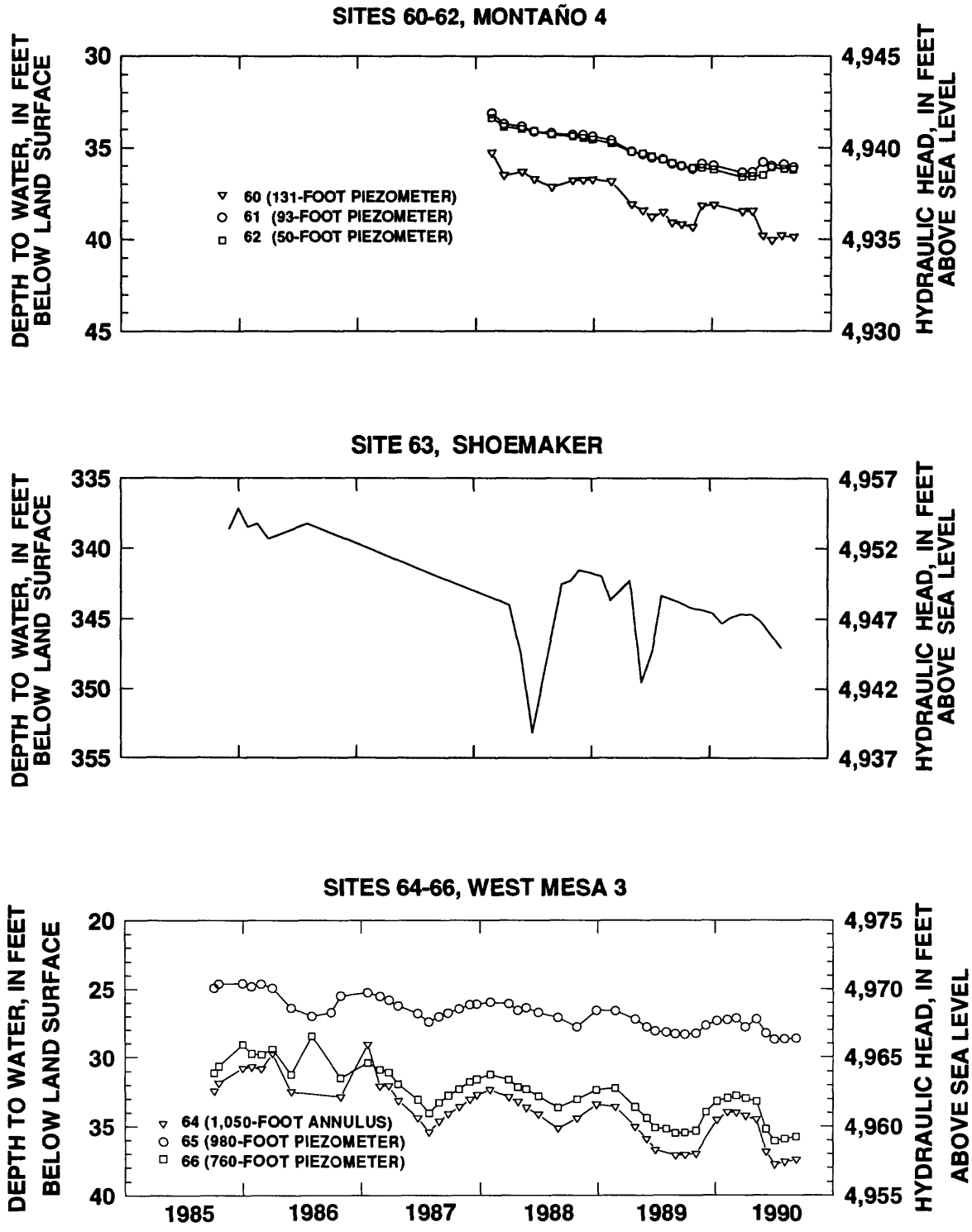
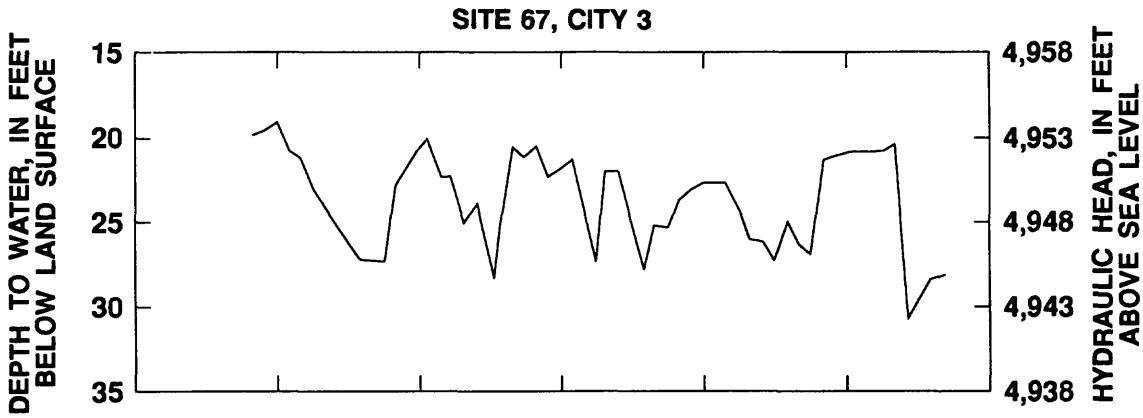
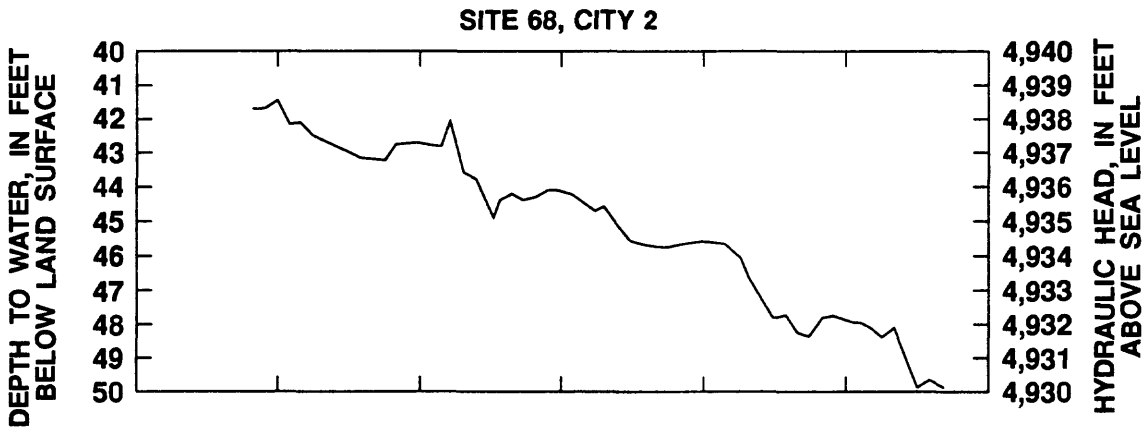


Figure 3.--Water-level data from selected wells and piezometers in the Albuquerque Basin (site location shown in figure 1) - Continued.





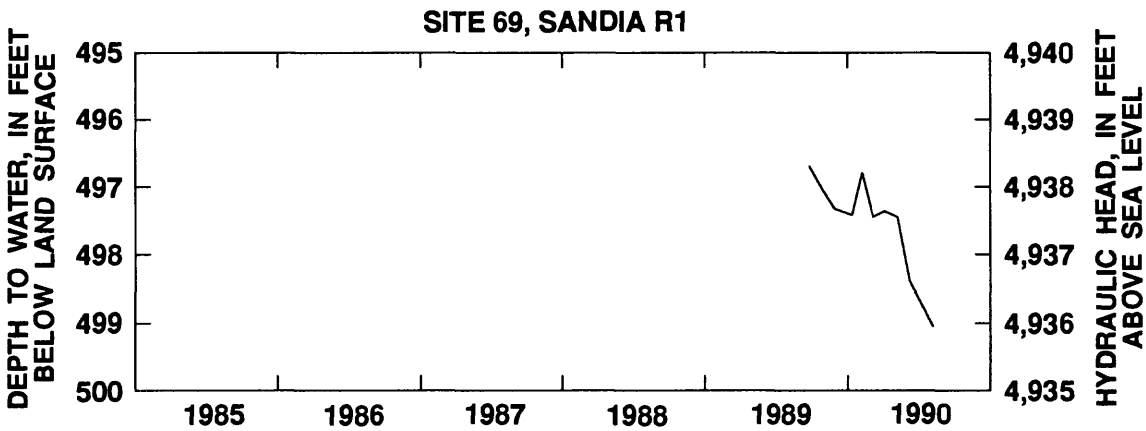


Figure 3.--Water-level data from selected wells and piezometers in the Albuquerque Basin (site location shown in figure 1) - Continued.

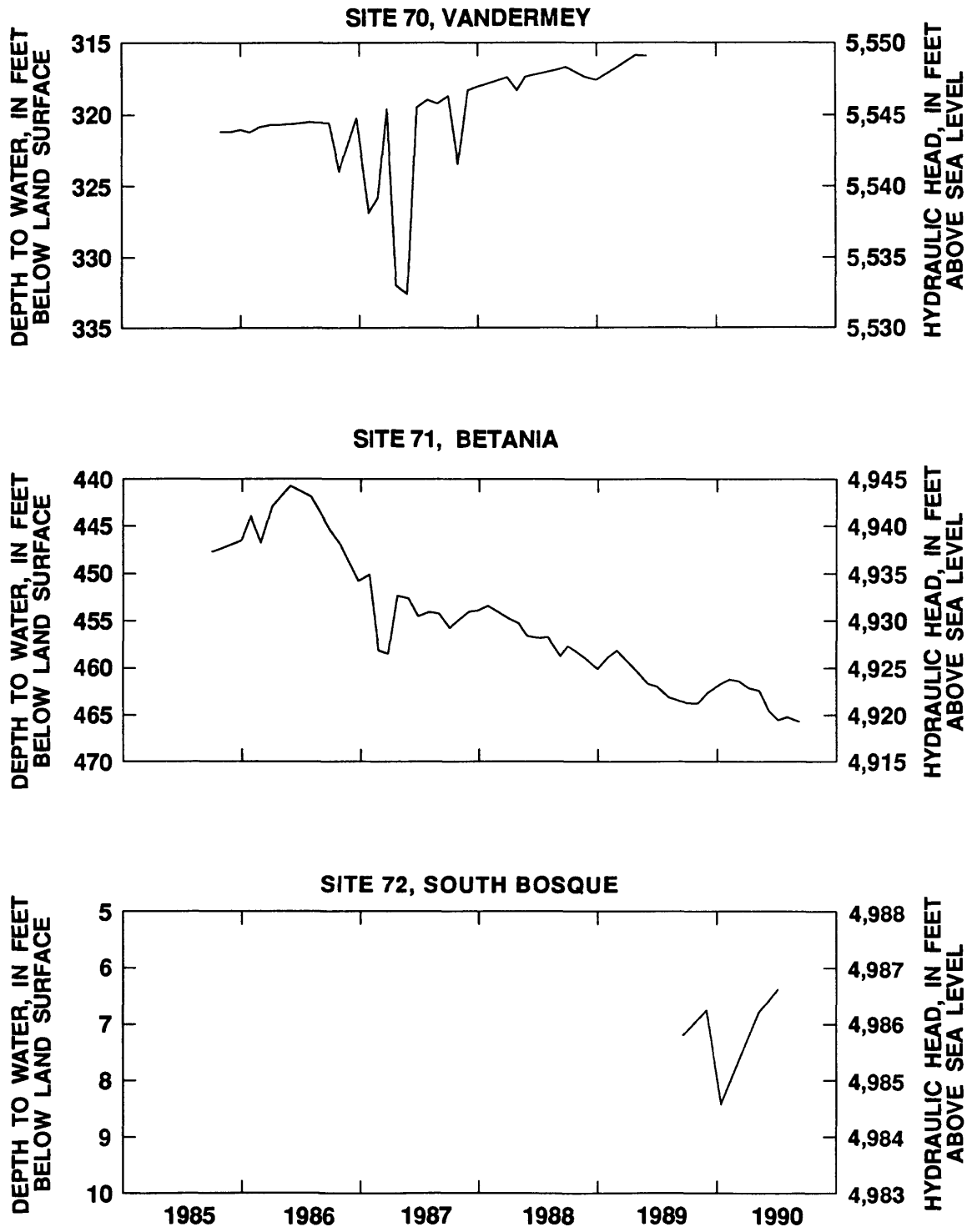


Figure 3.--Water-level data from selected wells and piezometers in the Albuquerque Basin (site location shown in figure 1) - Continued.

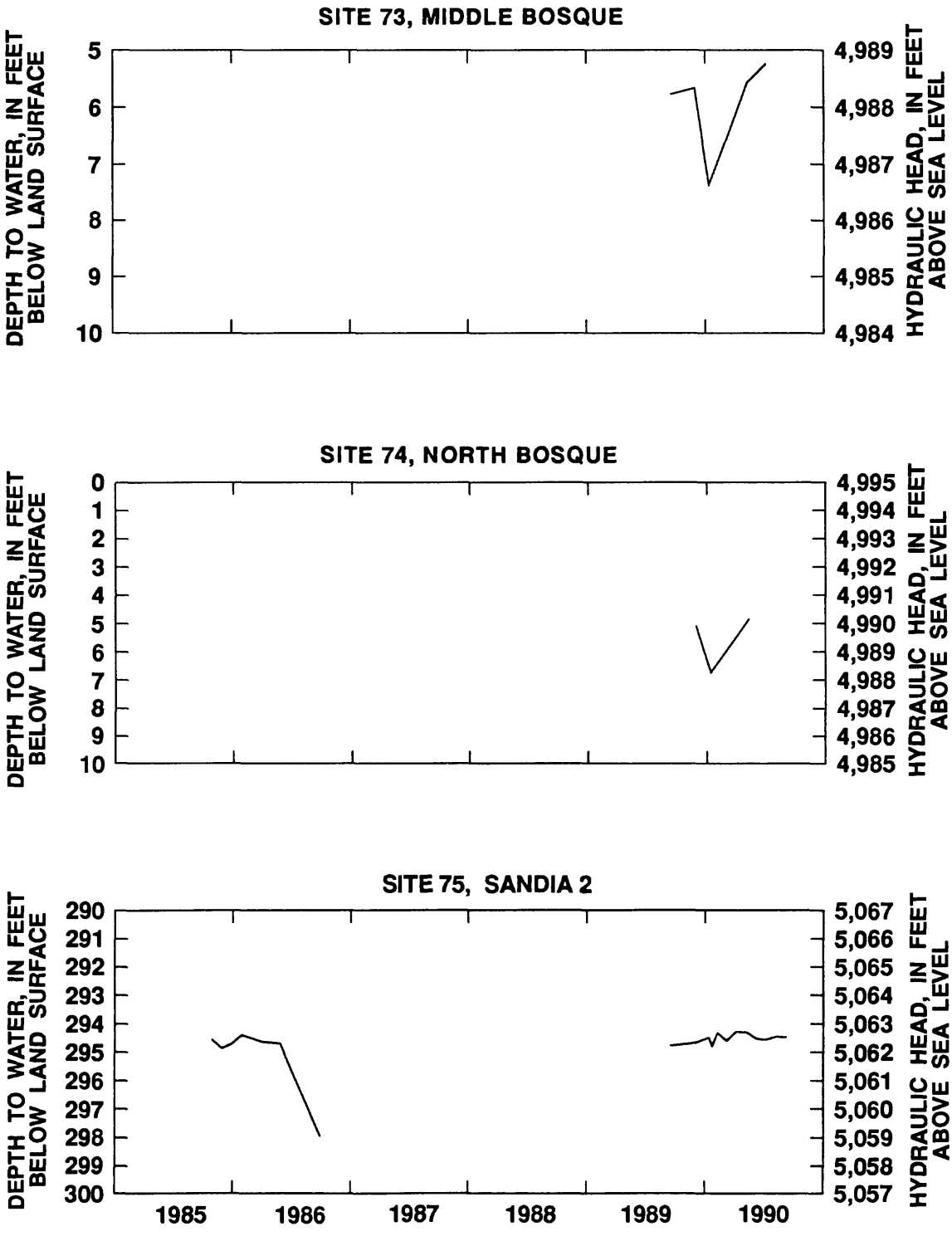
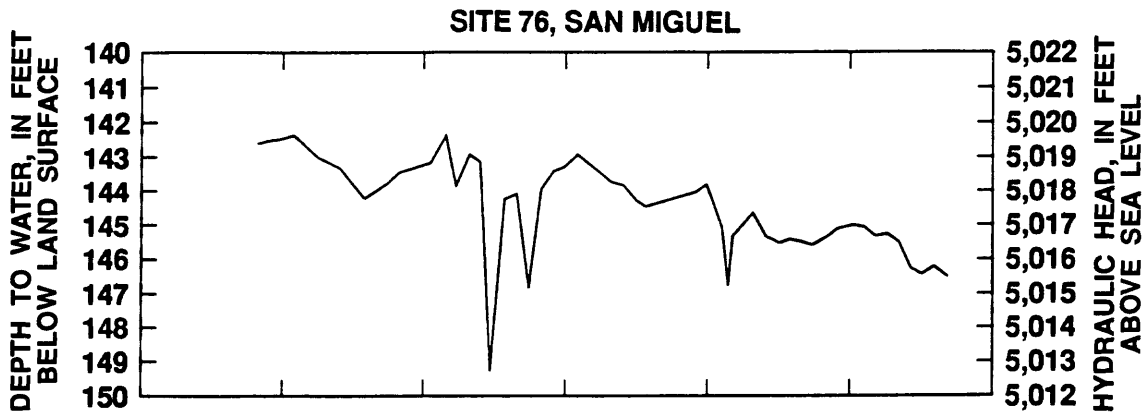
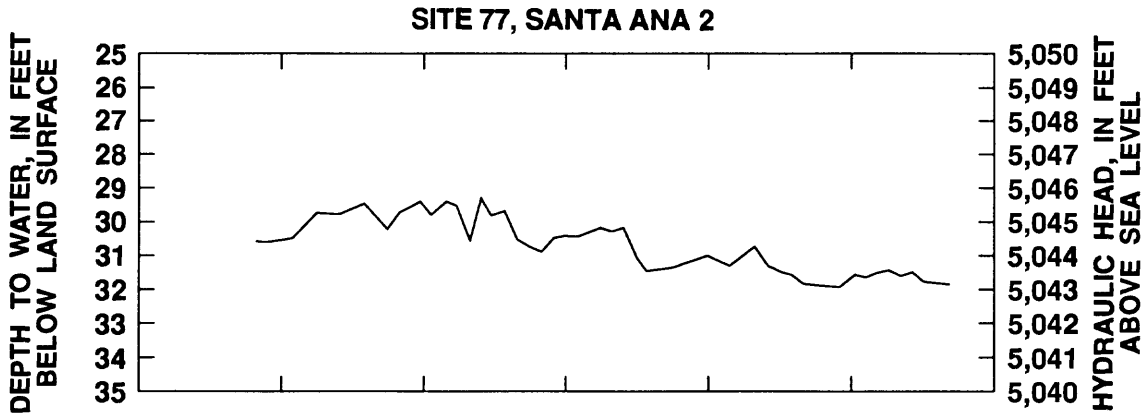


Figure 3.--Water-level data from selected wells and piezometers in the Albuquerque Basin (site location shown in figure 1) - Continued.





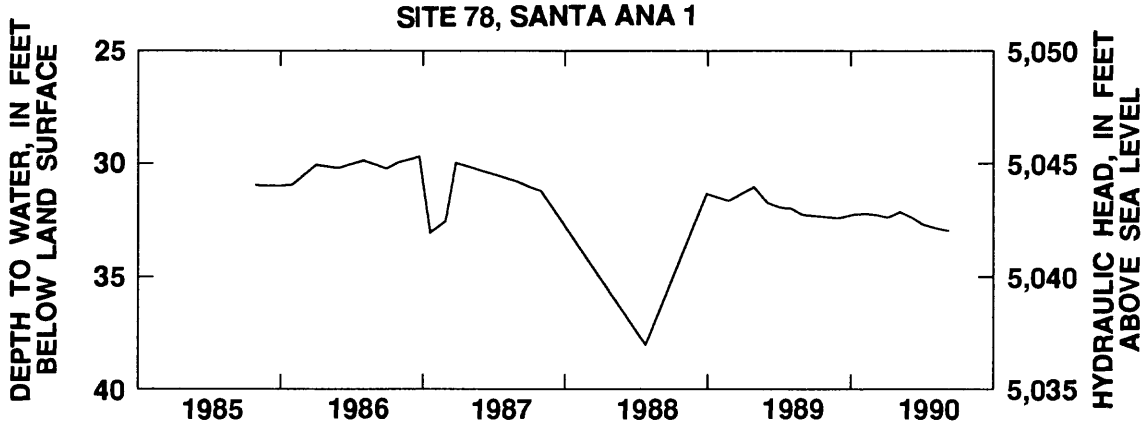


Figure 3.--Water-level data from selected wells and piezometers in the Albuquerque Basin (site location shown in figure 1) - Continued.

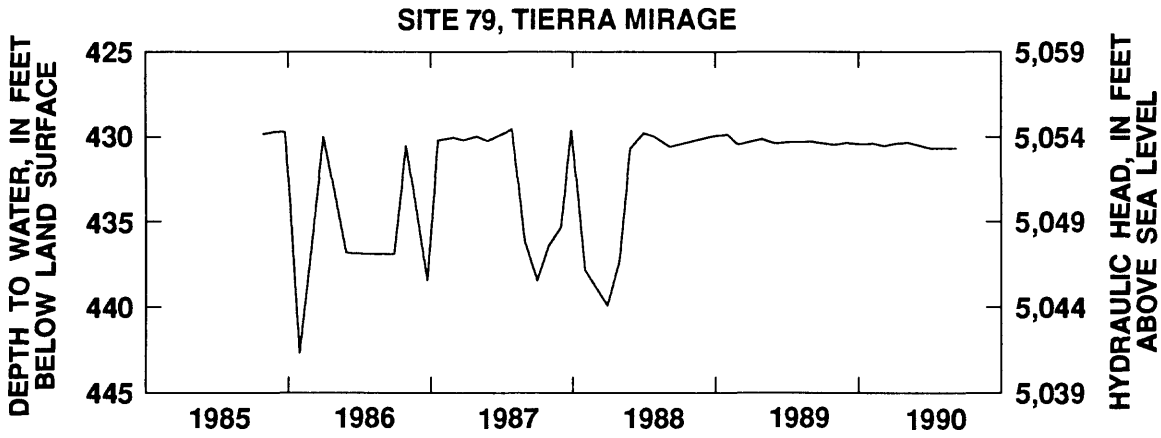


Figure 3.--Water-level data from selected wells and piezometers in the Albuquerque Basin (site location shown in figure 1) - Concluded.

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