

GEOHYDROLOGIC AND CHEMICAL DATA FROM WELLS IN THE MUD LAKE AREA, EASTERN IDAHO, 1988–91

By Joseph M. Spinazola, A.M. Tungate, and T.L. Rogers

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MANUEL LUJAN, Jr., *Secretary*

U.S. GEOLOGICAL SURVEY

Dallas L. Peck, *Director*

For additional information
write to:

District Chief
U.S. Geological Survey
230 Collins Road
Boise, ID 83702

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CONVERSION FACTORS

Multiply	By	To Obtain
acre	4,047	square meter
foot (ft)	0.3048	meter
inch (in.)	25.4	millimeter
mile (mi)	1.609	kilometer
square mile (mi ²)	2.590	square kilometer

Temperatures in °C (degrees Celsius) can be converted to °F (degrees Fahrenheit) as follows:

$$^{\circ}\text{F} = (1.8)(^{\circ}\text{C}) + 32$$

Metric units used in this report that do not have commonly used inch-pound equivalents are µg/L (micrograms per liter); mg/L (milligrams per liter); and µS/cm (microsiemens per centimeter at 25°C).

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

Well information, results of test drilling, water-level measurements in observation wells, and chemical and isotopic constituents in ground-water samples were among the data collected as part of a study of the availability of ground water from the eastern Snake River Plain aquifer system in the Mud Lake area of eastern Idaho. Data from about 1,200 wells were stored in the National Water Information System ground-water data base. Test holes were drilled at eight sites. Water levels were measured in 594 wells in April or May 1989 and in 470 wells in August or September 1989. Hydrographs of water levels were constructed for 99 observation wells. Water samples were collected from nine irrigation wells and were analyzed for nutrients, common dissolved ions, stable isotopes of hydrogen and oxygen, trace elements, herbicides, insecticides, and polychlorinated compounds.

INTRODUCTION

The Mud Lake area covers about 2,200 mi² in the northernmost part of the eastern Snake River Plain (fig. 1). The study area is bounded on the northwest by the Beaverhead and Centennial Mountains and on the northeast by Big Bend Ridge. Camas Creek and its primary tributary, Beaver Creek, flow southwestward from the mountains into Mud Lake, the terminus of a closed basin with no natural surface-water outlet.

Agriculture is the primary livelihood in the area where the majority of cultivated land is irrigated. Most irrigation water is obtained from flowing or pumped wells. Lakes, ponds, and wetlands within the Mud Lake Wildlife Management Area (WMA), Camas National Wildlife Refuge, and Market Lake WMA provide habitat for migratory waterfowl and native flora and fauna. Mud Lake WMA and Camas Refuge rely on streamflow in Beaver and Camas Creeks, ground-water inflow, and water from flowing or pumped wells for their water supply. Market Lake WMA is supplied solely by ground-water inflow.

Ground-water users depend on the Snake River Plain aquifer for an adequate supply of suitable-quality water for agricultural and other uses. By the end of the 1980's, two issues were identified as having a potentially undesirable effect on the future availability of ground water: (1) continued agricultural development in the study area and (2) changing irrigation practices in a nearby area. Established water users contend that large agricultural tracts, irrigated with ground water and developed from the late 1970's until 1989, have reduced streamflow and decreased yields from existing wells. At the same time, conversion from subirrigation to sprinkler irrigation on Egin Bench, a river terrace on the right bank of the Henrys Fork between St. Anthony and Rexburg, has resulted in less water available to recharge the aquifer system. Local ground-water

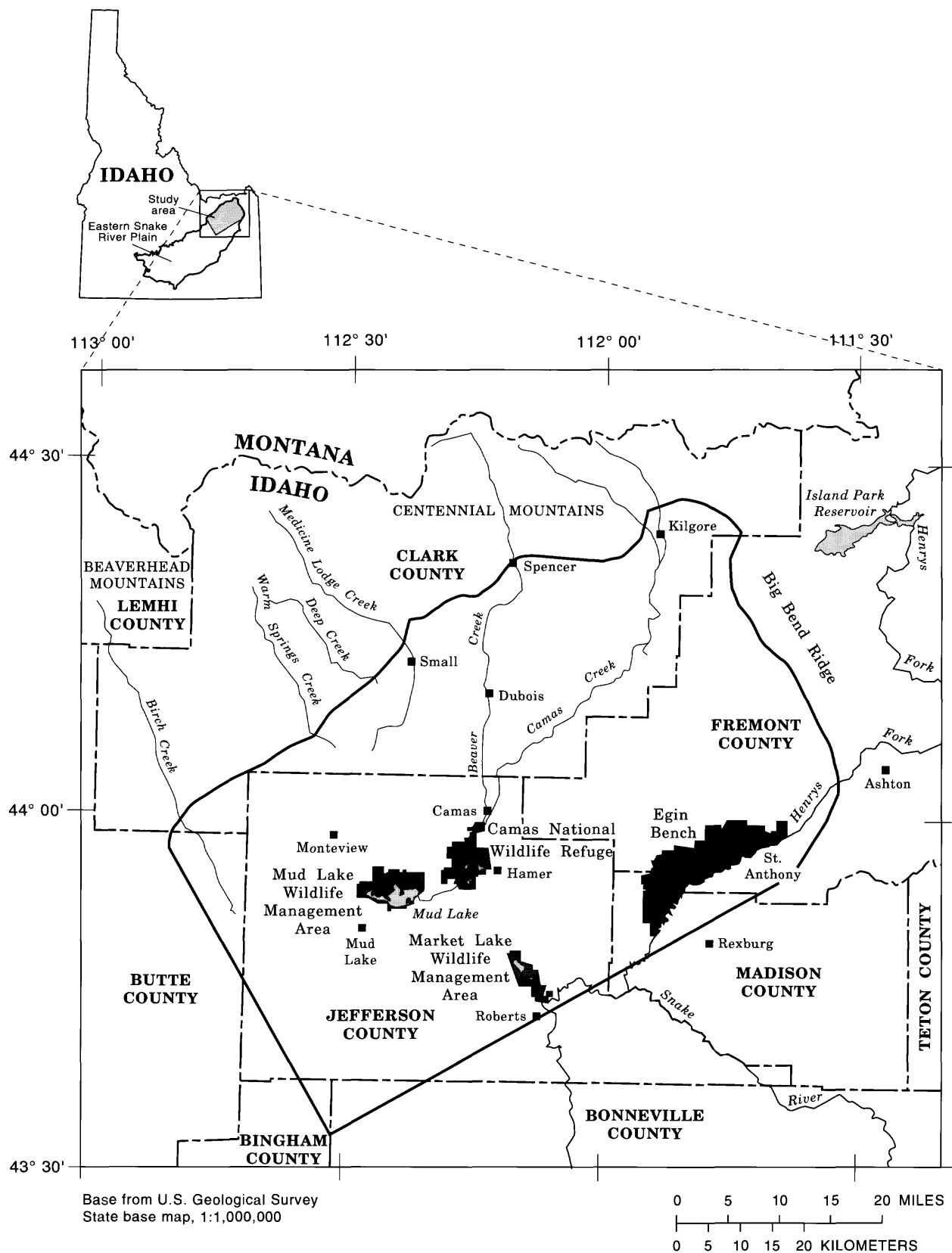


Figure 1.—Location of study area.

users fear that uncontrolled conversion to sprinkler irrigation on Egin Bench could reduce ground-water availability in the Mud Lake area.

The foregoing issues are being addressed in a 3-year study, in cooperation with the Idaho Department of Water Resources, that began in April 1989. The study included collection of geohydrologic and chemical data such as locations of and descriptive information about irrigation wells, lithologic descriptions from test holes, water levels in observation wells, and chemical analyses of water samples from wells. The purpose of this report is to present the results of those data-collection activities.

ACKNOWLEDGMENTS

The Idaho Department of Water Resources and the U.S. Department of Energy shared the cost of this study with the U.S. Geological Survey. The Idaho Department of Water Resources also provided information on wells. All the landowners, canal companies, and water users in the study area, including Larsen Farms, U.S. Fish and Wildlife Service, and Idaho Fish and Game Commission, allowed access to their property for survey work and hydrologic measurements. Appreciation is expressed to Lloyd Ferguson, U.S. Bureau of Land Management, and Richard Orme for granting easements to drill test holes and complete observation wells described in this report. The work by J.A. Singer, R.M. McKean, Jack Hannagan, Rick Ludlam, and Jim Huckaby, U.S. Geological Survey, Western Region Drill Rig Operations, Santa Barbara, Calif., is acknowledged. Special thanks are expressed to Don Shenton, Watermaster of Water District 31, for his assistance with the selection of observation wells and drill-site locations, and to Keith Day and Don Kemner, Idaho Fish and Game Commission, and Jack Richardson, U.S. Fish and Wildlife Service, for their regular observations of water levels in ponds and wells.

WELL-NUMBERING SYSTEM

The well-numbering system used by the U.S. Geological Survey in Idaho (fig. 2) indicates the location of wells within the official rectangular subdivision of public lands, with reference to the Boise base line and Meridian. The first two segments of the number designate the township (north or south) and range (east or west). The third segment gives the section number; three letters, which indicate the 1/4 section (160-acre tract), 1/4-1/4 section (40-acre tract), and 1/4-1/4-1/4 section (10-acre tract); and serial number of the well within the tract.

Quarter sections are designated by the letters A, B, C, and D in counterclockwise order from the northeast quarter of each section. Forty-acre and 10-acre tracts within each quarter section are lettered in the same manner. Well 7N-38E-23DBA3, for example, is in the NE1/4NW1/4SE1/4 sec. 23, T. 7 N., R. 38 E., and is the third well inventoried in that tract.

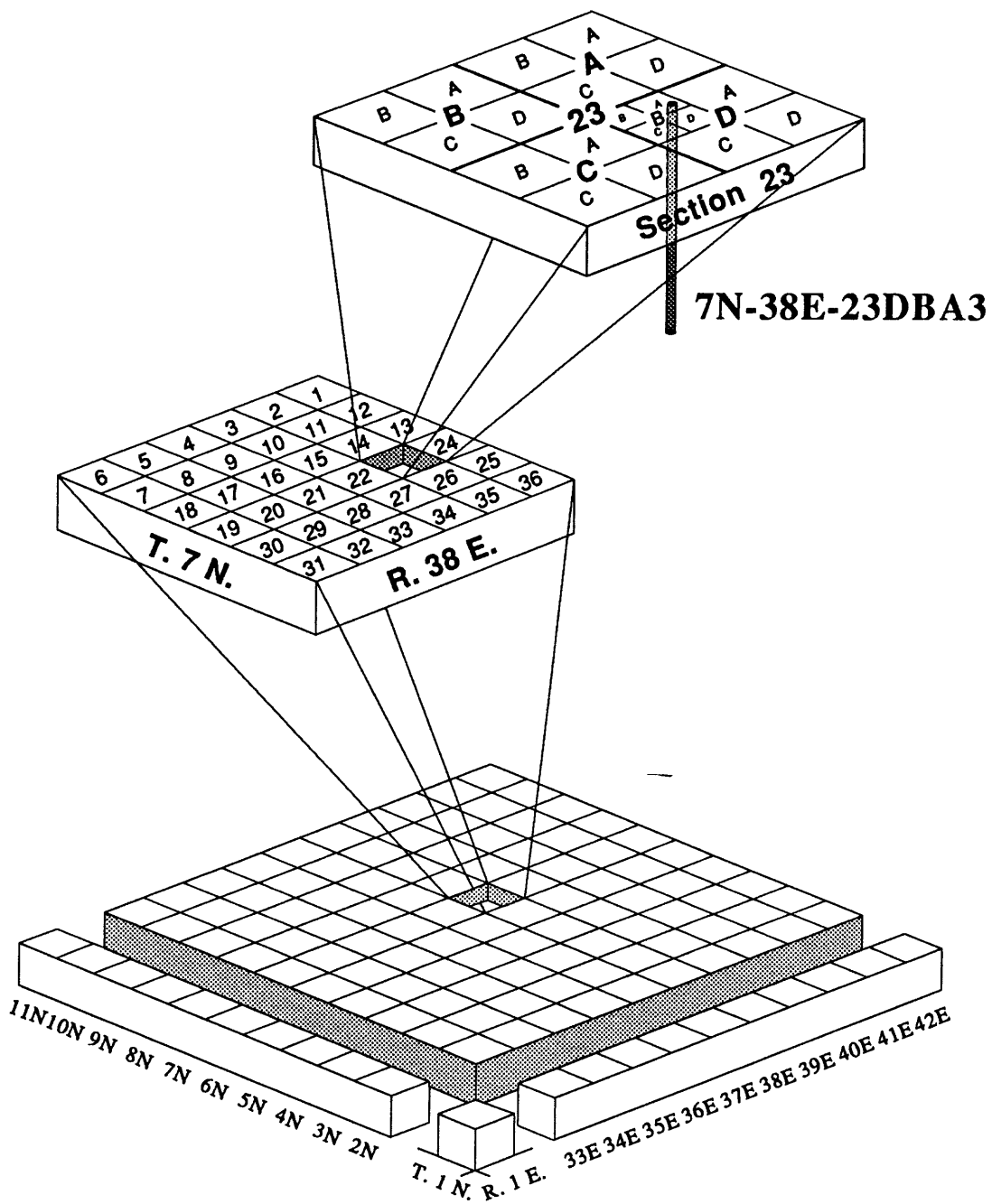


Figure 2.—Well-numbering system.

WELL INFORMATION

An inventory was made in April 1989 to determine locations and record descriptive information about wells in the study area. All irrigation wells were visited as part of the inventory. From the total of about 1,200 wells visited, about 850 were irrigation wells. Others included domestic, stock, and observation wells (fig. 3). Descriptive information recorded at each well includes horizontal locations and land-surface datum and, when available, water-level measurements, ownership, well construction, well completion, pump discharge, pumping lift, general pump descriptions, lithologic material logs from drillers' reports, and other information recorded specifically for this study.

All information recorded during the inventory was transferred to the National Water Information System ground-water data base (Mathey, 1990). The user's manual for the data base documents component items that contain the descriptive information collected from the inventory and describes the methods used to retrieve the information from the data base. Well information is stored in the data base in files and records listed in table 1.

Values assigned to some data-base components for certain information collected during the well inventory are not described in the user's manual. For example, data-base component number C97 (in the geohydrologic units record of the Geohydrologic logs file) contains the lithologic material log for a well, when available, coded verbatim from the driller's report on file with the Idaho Department of Water Resources. Data-base components for remarks (numbers C311 and C185 in the remarks record of the Miscellaneous file) were used to describe characteristics of the irrigation system (values for C311 from 120 to 150), suitability for discharge measurements (values for C311 from 150 to 190), and availability of a hose bib for collection of water samples (a value for C311 of 300). A key to values for "remarks" components is presented in table 2.

Hard or machine-readable copies of data from the well inventory can be obtained for a nominal charge from the ground-water data-section manager at the address on the inside front cover of this report. Request data-base components of interest for the counties within the study area boundary (fig. 1).

TEST DRILLING

Test holes were drilled at eight sites to obtain lithologic information and were completed with piezometers to provide access for water-level measurements at selected locations in the aquifer system (table 3, back of report, and fig. 4). Holes greater than 60 ft deep were drilled by air-hammer, air-rotary, or mud-rotary methods by the U.S. Geological Survey Western Region drill crew. Holes less than 60 ft deep were drilled with a trailer-mounted hollow-stem auger by the principal author with the assistance of Steven A. Frenzel. Completion diagrams and lithologic, gamma, caliper, and drilling-time logs for test holes greater than 60 ft deep are presented in figures 5 through 8 (back of report). Completion diagrams and lithologic logs for test holes less than 60 ft deep are presented in figures 9 through 12 (back of report). Lithologic descriptions for test holes are listed in table 3.

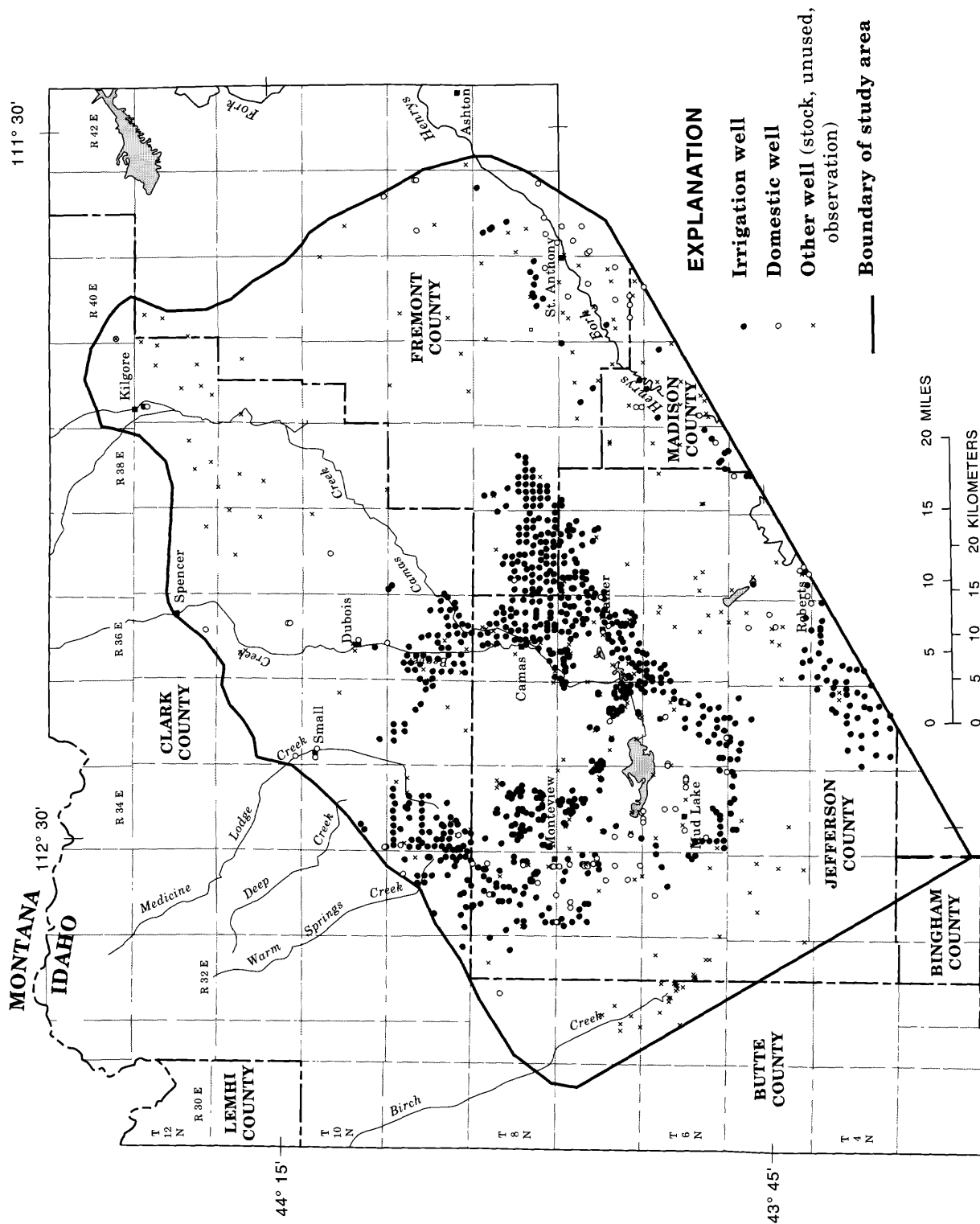


Figure 3.—Locations of wells.

Table 1.—Index to files and records in the National Water Information System ground-water data base used to store well information

[Any file may have any number of records;
—, no records in file]

File	Record
Site	—
Construction	lift construction hole casing openings
Water level	—
Discharge	—
Miscellaneous	owners other data site visits geophysical logs networks remarks
Geohydrologic logs	geohydrologic units

Table 2.—Key to values for “remarks” components of the National Water Information System ground-water data base used to describe well information

[Column heading is data-base component-name;
term in parentheses is component number]

Remarks sequence number (C311)	Remarks (C185)
120	Hand-line sprinkler
130	Roller sprinkler
140	Pivot-impulse head
145	Pivot-mist head
150	Flood
160	In-line flow meter
170	Pressure gage
180	Open discharge
190	<i>n</i> feet of unobstructed pipe, where <i>n</i> is number of feet
300	Hose bib

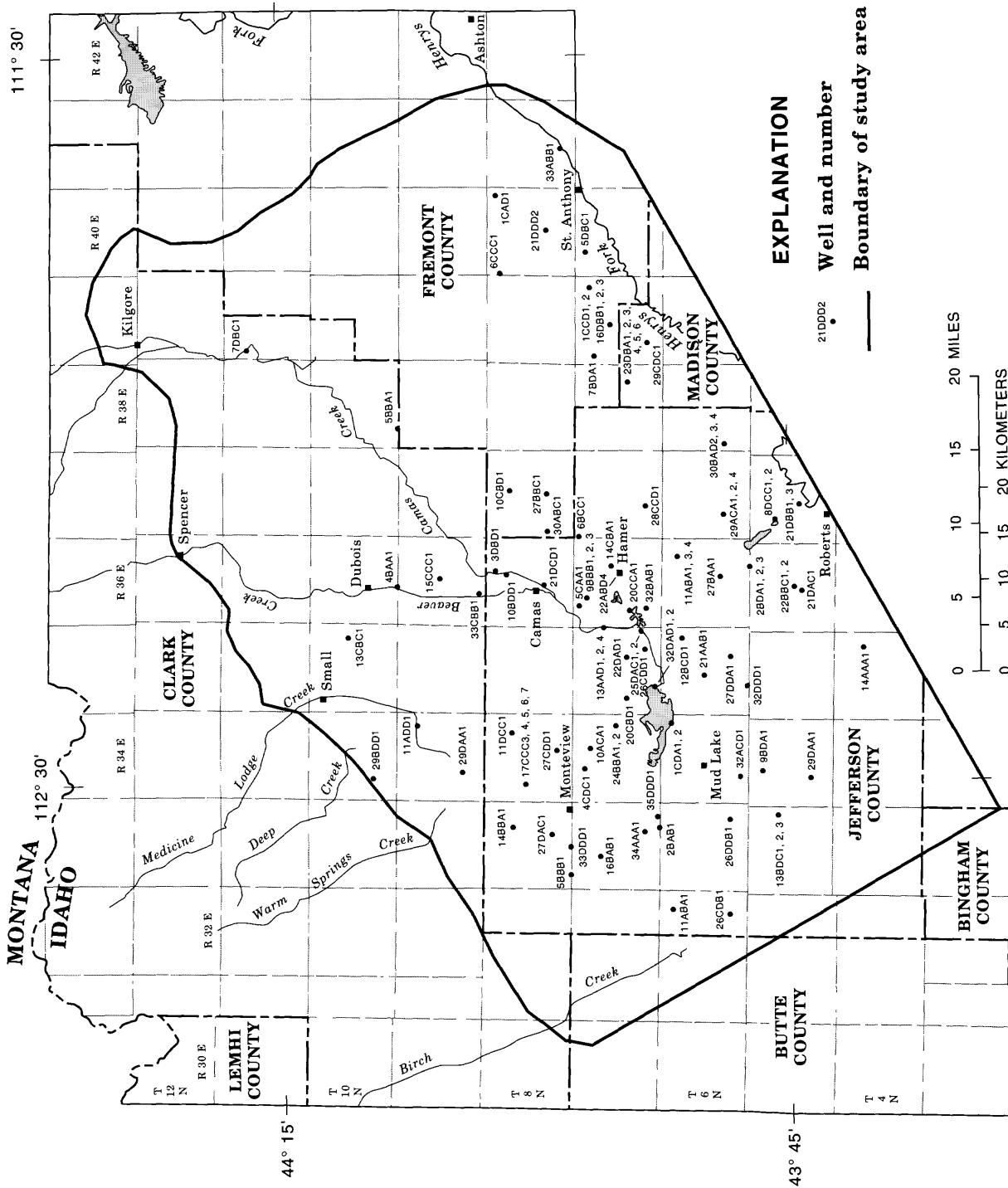


Figure 4.—Locations of test holes, water-level observation wells, and wells where water samples were collected for chemical analysis.

WATER LEVELS IN OBSERVATION WELLS

Water-level measurements were made in 594 wells in April or May 1989 and in 470 wells in August or September 1989. Water-level measurements are listed in table 4 (back of report).

From 1988 until 1991, continuous-recorder or periodic water-level measurements were made in a monitoring network of 99 wells at 66 sites in the study area (fig. 4). Periodic measurements were made monthly, bimonthly, quarterly, or semiannually. The monitoring network, operated by the U.S. Geological Survey in cooperation with the Idaho Department of Water Resources, U.S. Bureau of Reclamation, and other Federal and State agencies, was augmented for this study. Hydrographs of water levels in wells (fig. 13, back of report) supplement records for previous years (Young, 1983; Jones and Tungate, 1989). Solid lines on the hydrographs connect water-level measurements. Solid circles on the lines indicate that two or more months passed between water-level measurements. Some measurement points are labeled with letters to indicate wells that were P, pumping; R, recently pumped; or S, pumping nearby.

CHEMICAL AND ISOTOPIC CONSTITUENTS IN GROUND WATER

Ground-water samples were collected and analyzed to provide baseline concentrations of selected chemical and isotopic constituents that included nutrients, common dissolved ions, stable isotopes of hydrogen and oxygen, trace elements, herbicides, insecticides, and polychlorinated compounds. Other investigations by the U.S. Geological Survey include chemical analyses of ground-water samples in the Mud Lake area (Parlman, 1982, 1983; Edwards and others, 1990).

The methods used to collect water samples from the nine irrigation wells listed in table 5 are described in reports by Wood (1981), Claassen (1982), and Feltz and others (1985). Samples were analyzed at the U.S. Geological Survey National Water-Quality Laboratory in Arvada, Colo.

Analyses of selected chemical and isotopic constituents in water samples are given in table 5. Nutrients are described by concentrations of dissolved ammonia (as nitrogen), nitrite (as nitrogen), nitrite plus nitrate (as nitrogen), and orthophosphate (as phosphorus). Concentrations of selected trace elements are given in table 6.

Water samples were analyzed for the presence of selected herbicides, insecticides, and gross polychlorinated compounds listed in tables 7 and 8. Concentrations of all these constituents were below the reporting levels, with three exceptions. Metribuzin was measured at a concentration of 0.3 µg/L in water from well 8N-37E-27BBC1 and 0.2 µg/L in water from well 8N-37E-30ABC1. DDT was measured at a concentration of 0.01 µg/L in water from well 6N-35E-12BCD1.

Table 5.—Chemical and isotopic constituents in water from selected irrigation wells

[μS/cm, microsiemens per centimeter at 25 degrees Celsius; mg/L, milligrams per liter; permil, parts per thousand; <, less than; —, no data available; ²H/H, deuterium; ¹⁸O/¹⁶O, oxygen-18/oxygen-16]

Well number	Sample date (1989)	Water temperature (°C)	Specific conductance lab (μS/cm)	pH (standard units)	Alkalinity (mg/L as CaCO ₃)	Nitrogen, ammonia, dissolved (mg/L as N)	Nitrogen, nitrite, dissolved (mg/L as N)	Nitrogen, NO ₂ +NO ₃ , dissolved (mg/L as N)	Phosphorus, ortho, dissolved (mg/L as P)	Calcium, dissolved (mg/L as Ca)
6N-34E-32ACD1	8-29	14.5	579	7.8	184	0.01	<0.01	4.1	0.01	42
6N-35E-12BCD1	8-29	13.0	479	7.7	199	<0.01	<0.01	2	.03	48
6N-35E-21AAB1	8-29	14.0	609	7.7	148	.01	<0.01	3.9	.02	85
7N-33E-16BAB1	8-29	11.0	1,160	7.4	250	.02	<0.01	4	.01	110
7N-34E-10ACA1	8-29	14.0	267	8.0	114	<0.01	<0.01	.9	.01	28
7N-35E-22DAD1	8-30	14.0	258	8.0	109	<0.01	<0.01	.75	.01	28
7N-36E-5CAA1	8-30	15.0	260	8.1	113	<0.01	<0.01	1	.02	33
8N-37E-27BBC1	8-30	14.0	413	8.1	124	<0.01	<0.01	7.9	.02	46
8N-37E-30ABC1	8-30	16.0	283	8.1	118	<0.01	<0.01	2.3	.01	32

Table 5.—Chemical and isotopic constituents in water from selected irrigation wells—Continued

Well number	Sample date (1989)	Magnesium, dissolved (mg/L as Mg)	Sodium, dissolved (mg/L as Na)	Potassium, dissolved (mg/L as K)	Chloride, dissolved (mg/L as Cl)	Sulfate, dissolved (mg/L as SO ₄)	Fluoride, dissolved (mg/L as F)	Silica, dissolved (mg/L as SiO ₂)	² H/H Stable isotope ratio (permil)	¹⁸ O/ ¹⁶ O Stable isotope ratio (permil)
6N-34E-32ACD1	8-29	14	56	6.5	43	30	0.4	29	-123.0	-15.55
6N-35E-12BCD1	8-29	13	36	3.1	16	17	.4	32	-133.0	-17.45
6N-35E-21AAB1	8-29	24	44	4.6	48	56	.2	32	—	—
7N-33E-16BAB1	8-29	34	83	6.8	140	110	.2	34	-131.0	-17.15
7N-34E-10ACA1	8-29	9	15	2.2	8.4	8	.4	35	—	—
7N-35E-22DAD1	8-30	9.1	11	1.9	8.1	7	.4	34	-135.0	-17.95
7N-36E-5CAA1	8-30	8.1	10	2.2	6	7	.5	34	—	—
8N-37E-27BBC1	8-30	13	19	3	21	16	.9	38	—	—
8N-37E-30ABC1	8-30	8.9	14	2.6	7.2	6	.9	39	-135.5	-17.60

Table 6.—*Concentrations of selected trace elements in water from irrigation wells*

[<, less than; all elements are reported in micrograms per liter]

Well number	Sample date (1989)	Arsenic, dis-solved (as As)	Barium, dis-solved (as Ba)	Beryl-lum, dis-solved (as Be)	Boron, dis-solved (as B)	Cadmium, dis-solved (as Cd)	Chro-mium, dis-solved (as Cr)	Cobalt, dis-solved (as Co)	Copper, dis-solved (as Cu)	Iron, dis-solved (as Fe)	Lead, dis-solved (as Pb)
6N-34E-32ACD1	8-29	3	95	<0.5	50	<1	10	<3	<10	5	<10
6N-35E-12BCD1	8-29	2	51	<.5	60	<1	<5	<3	<10	3	<10
6N-35E-21AAB1	8-29	1	200	<.5	30	<1	9	<3	<10	<3	<10
7N-33E-16BAB1	8-29	4	52	<.5	120	<1	6	<3	<10	8	<10
7N-34E-10ACA1	8-29	2	19	<.5	30	<1	<5	<3	<10	3	<10
7N-35E-22DAD1	8-30	2	10	<.5	20	<1	<5	<3	<10	10	10
7N-36E- 5CAA1	8-30	1	16	<.5	20	<1	<5	<3	<10	<3	<10
8N-37E-27BBC1	8-30	2	6	<.5	60	<1	<5	<3	<10	4	<10
8N-37E-30ABC1	8-30	1	5	<.5	50	<1	<5	<3	<10	<3	<10

Table 6.— *Concentrations of selected trace elements in water from irrigation wells— Continued*

Well number	Sample date (1989)	Lithium, dissolved (as Li)	Manganese, dissolved (as Mn)	Molybdenum, dissolved (as Mo)	Nickel, dissolved (as Ni)	Selenium, dissolved (as Se)	Silver, dissolved (as Ag)	Strontium, dissolved (as Sr)	Vanadium, dissolved (as V)	Zinc, dissolved (as Zn)
6N-34E-32ACD1	8-29	32	<1	<10	<10	8	2	180	8	3
6N-34E-12BCD1	8-29	18	<1	<10	<10	<1	<1	180	<6	3
6N-34E-21AAB1	8-29	24	<1	<10	<10	1	<1	320	<6	8
7N-33E-16BAB1	8-29	41	<1	<10	<10	2	1	400	<6	13
7N-34E-10ACA1	8-29	14	<1	<10	<10	<1	<1	110	11	3
7N-35E-22DAD1	8-30	14	<1	<10	<10	<1	<1	100	9	<3
7N-36E- 5CAA1	8-30	16	<1	<10	<10	<1	<1	100	<6	3
8N-37E-27BBC1	8-30	26	<1	<10	<10	<1	2	130	7	<3
8N-37E-30ABC1	8-30	21	<1	<10	<10	<1	2	81	7	4

Table 7.—Names and reporting levels for herbicides for which water samples were analyzed

[Reporting levels are from report by Feltz and others (1985);
 $\mu\text{g/L}$, micrograms per liter]

Triazines and other nitrogen-containing herbicides:
reporting level is 0.1 $\mu\text{g/L}$

<u>Herbicide</u>	<u>Herbicide</u>
Alachlor	Prometon
Ametryne	Prometryn
Atrazine	Propazine
Cyanazine	Simazine
Metolachlor	Simetryn
Metribuzin	Trifluralin

Chlorophenoxy acid herbicides:
reporting level is 0.01 $\mu\text{g/L}$

<u>Herbicide</u>	<u>Herbicide</u>
2,4-D	Silvex
2,4-DP	2,4,5-T

Table 8.—Names and reporting levels for insecticides and gross polychlorinated compounds for which water samples were analyzed

[Reporting levels are from report by Feltz and others (1985);
µg/L, micrograms per liter]

Carbamate insecticides: reporting level is 0.5 µg/L

<u>Insecticide</u>	<u>Insecticide</u>
Aldicarb	3-Hydroxycarbofuran
Aldicarb sulfoxide	Methomyl
Aldicarb sulfone	1-Naphthol
Carbaryl (Sevin)	Oxamyl
Carbofuran	Propham

Organophosphorus insecticides: reporting level is 0.01 µg/L

<u>Insecticide</u>	<u>Insecticide</u>
Diazinon	Methyl trithion
Ethion	Parathion
Malathion	Phorate
Methyl parathion	Trithion

Organochlorine insecticides: reporting level is 0.01 µg/L
except for chlordane and perthane (0.1 µg/L), and toxaphene (1.0 µg/L)

<u>Insecticide</u>	<u>Insecticide</u>
Aldrin	Heptachlor
Chlordane	Heptachlor epoxide
DDD	Lindane
DDE	Methoxychlor
DDT	Mirex
Dieldrin	Perthane
Endosulfan	Toxaphene
Endrin	

Gross polychlorinated compounds: reporting level is 0.1 µg/L

Compound

Gross polychlorinated biphenyls
Gross polychlorinated naphthalenes

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Figures 5 – 13

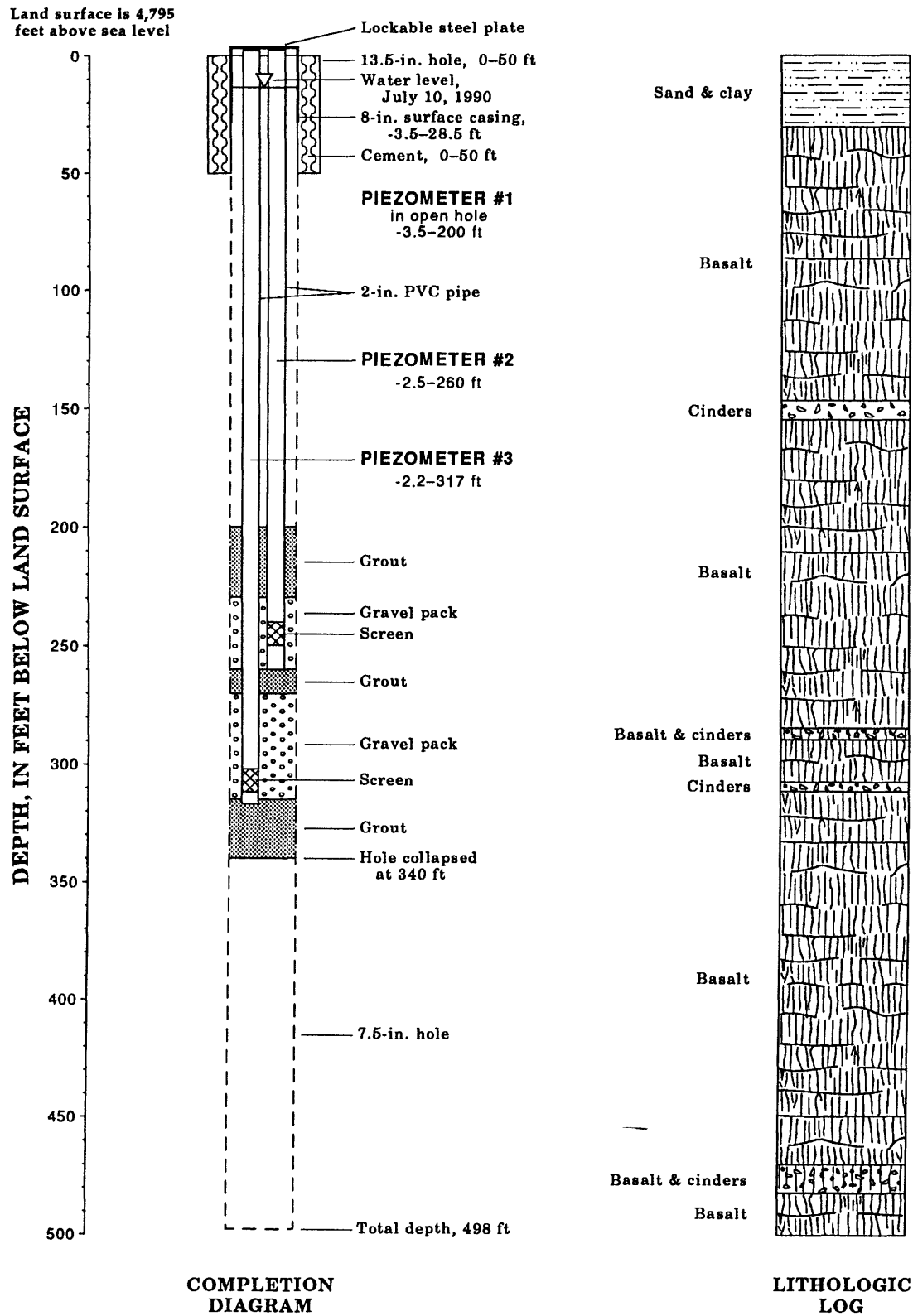
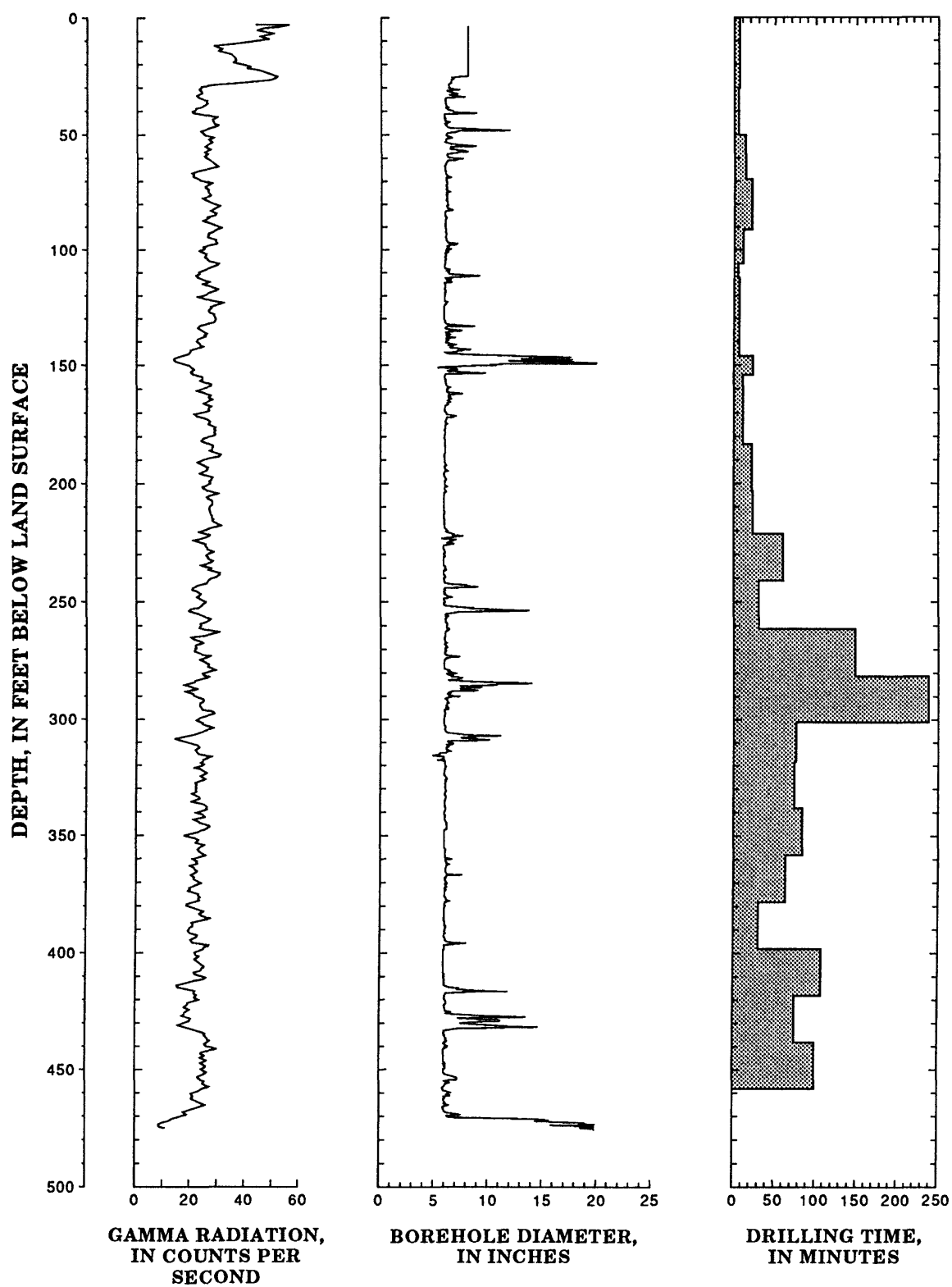
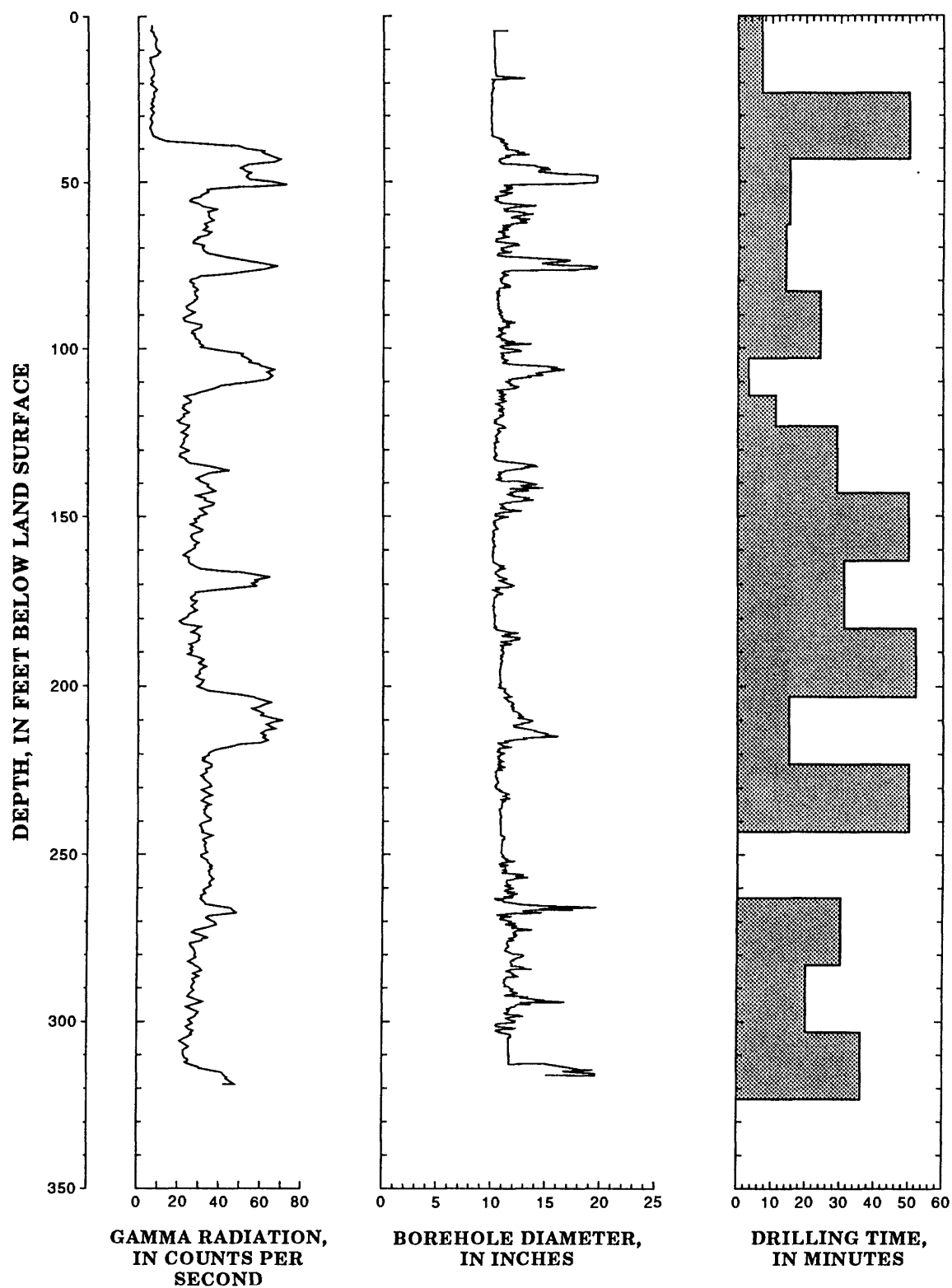


Figure 5.—Completion diagram for piezometers 7N-36E-9BBB1, 2, and 3, and



lithologic, gamma, caliper, and drilling-time logs for test hole 7N-36E-9BBB.



caliper, and drilling-time logs for test hole 8N-40E-6CCC1.

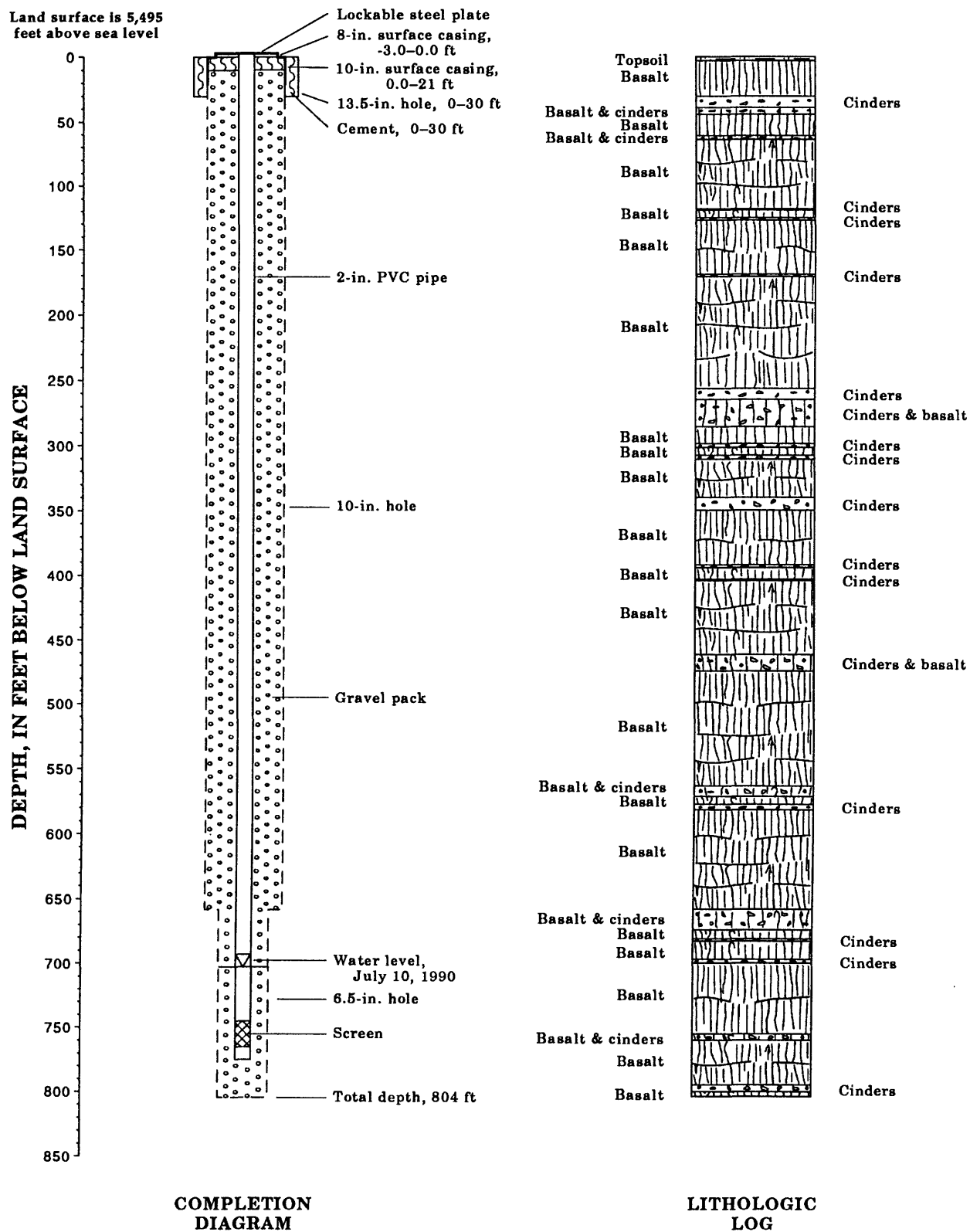
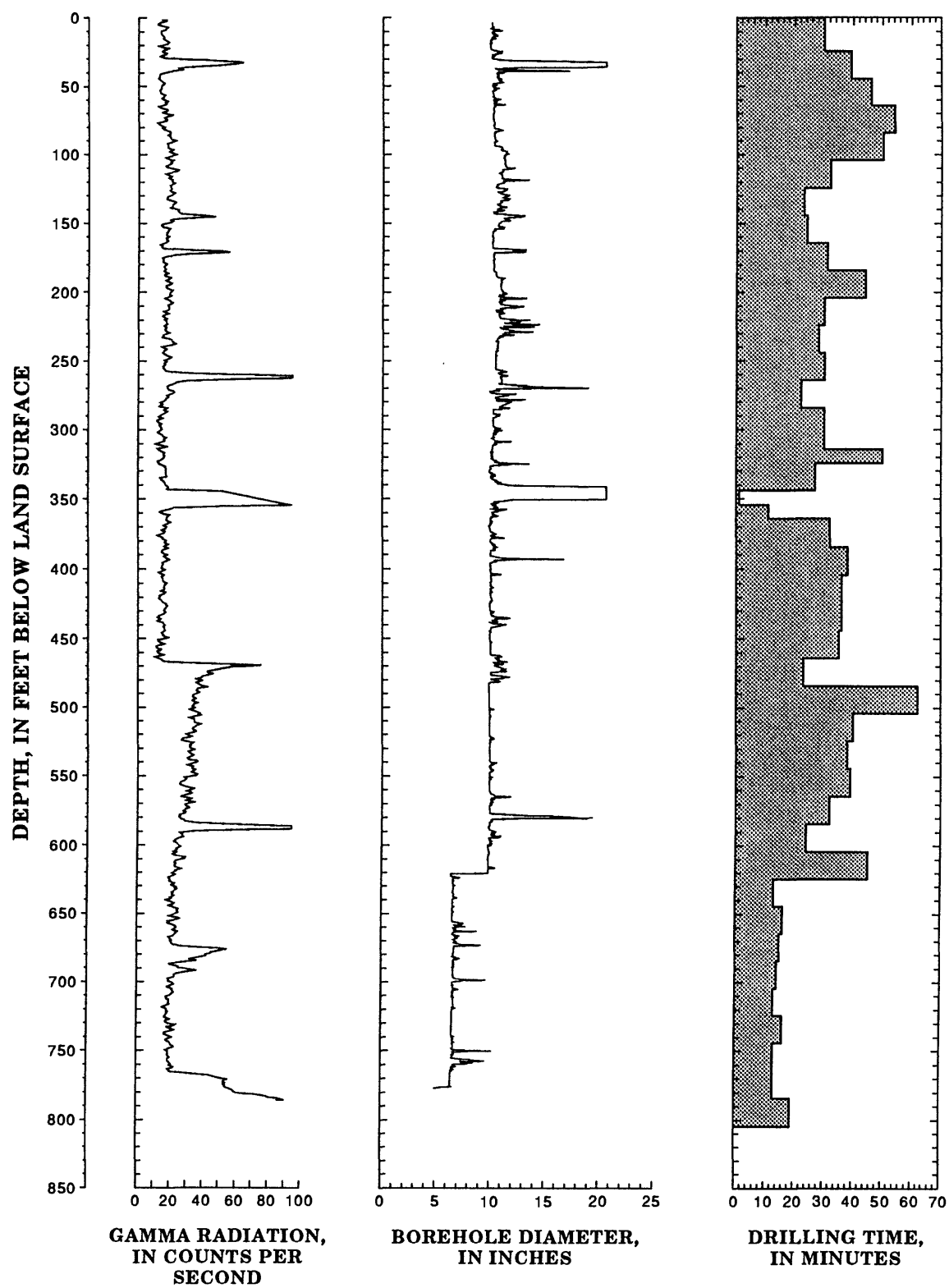
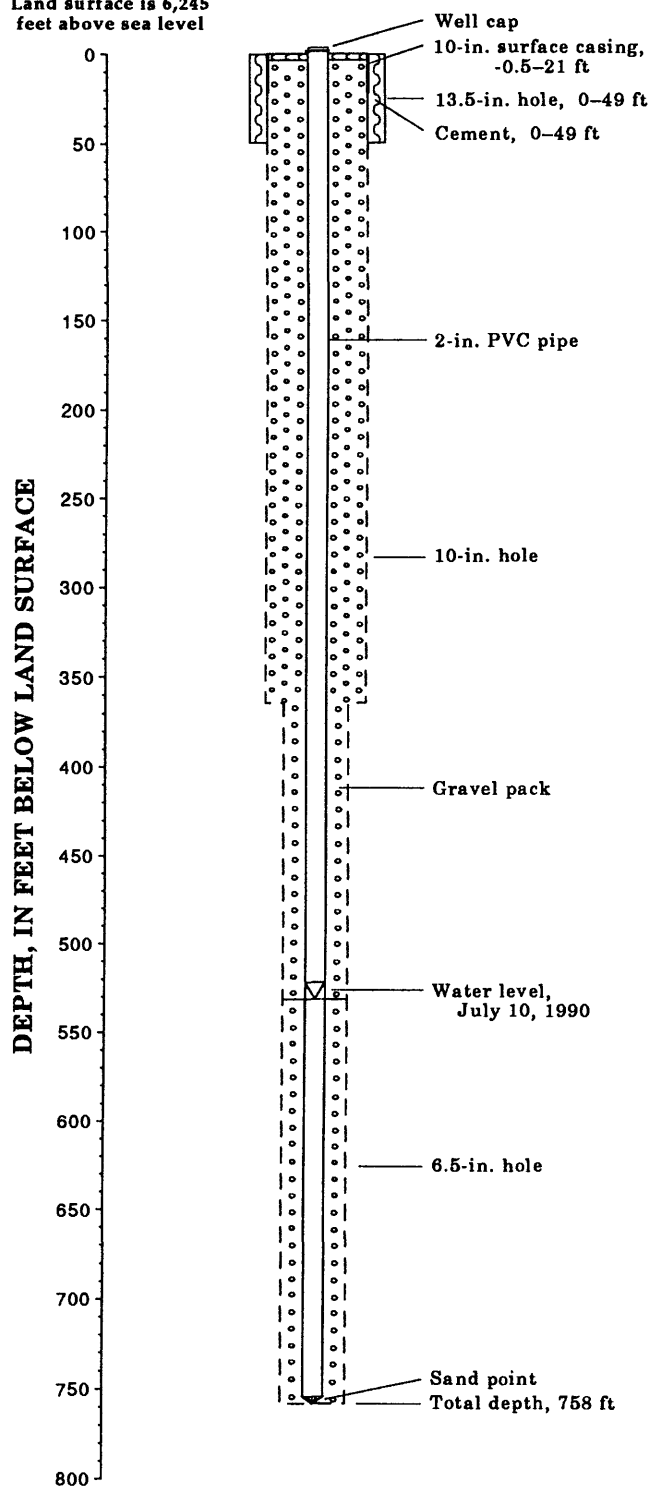


Figure 7.—Completion diagram for piezometer and lithologic, gamma,

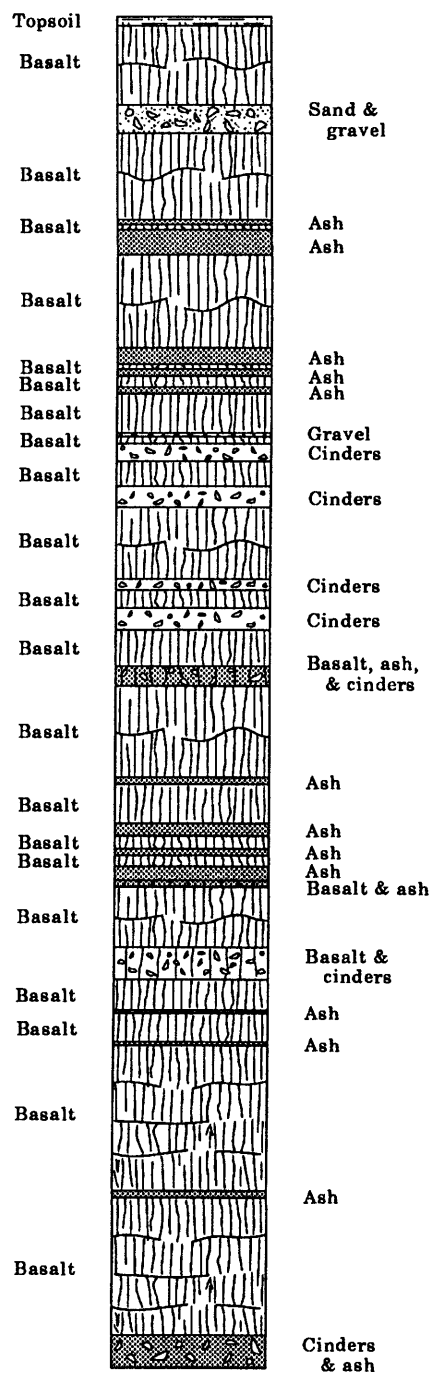


caliper, and drilling-time logs for test hole 9N-38E-5BBA1.

Land surface is 6,245 feet above sea level

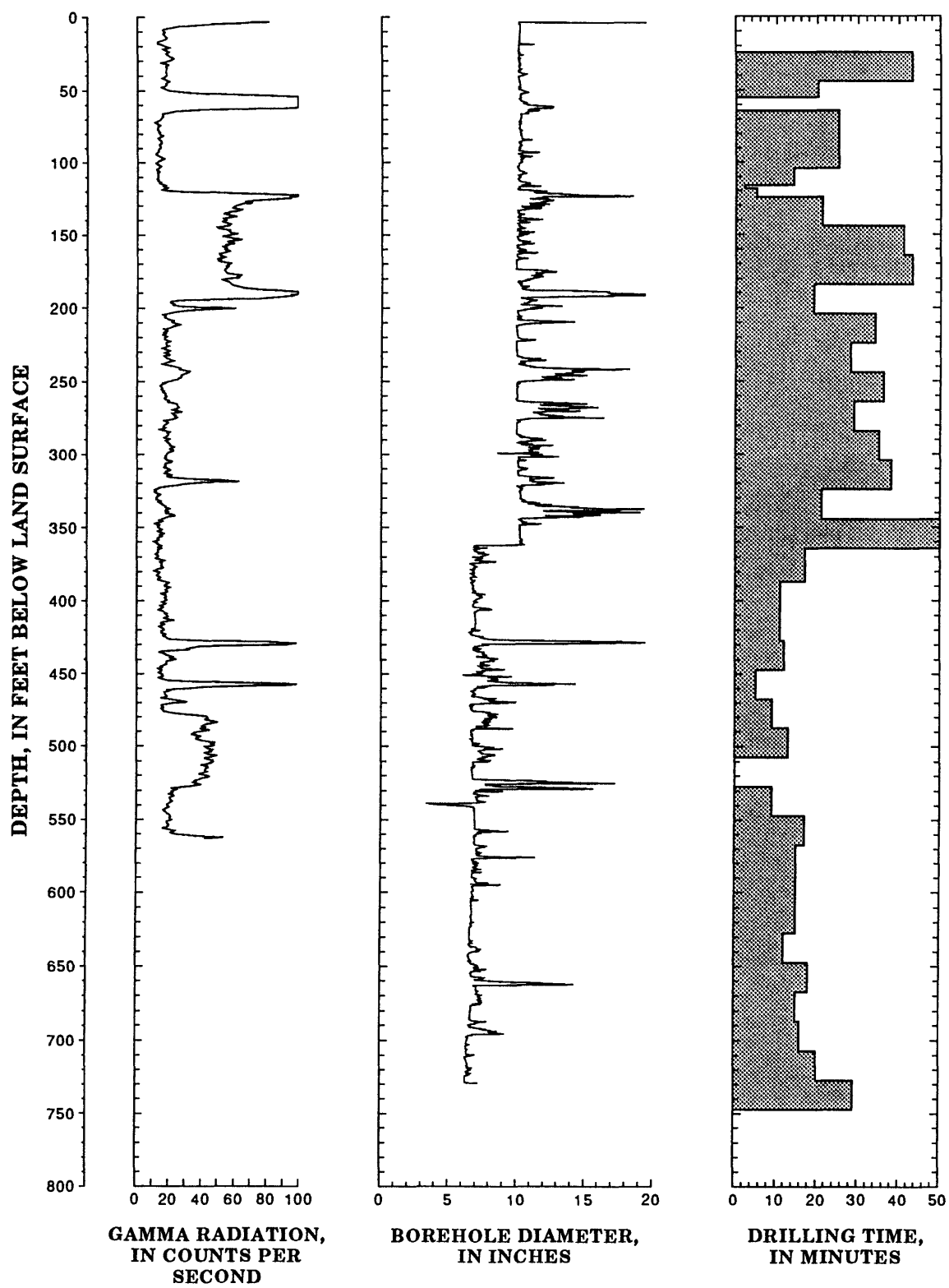


COMPLETION
DIAGRAM



LITHOLOGIC
LOG

Figure 8.—Completion diagram for piezometer and lithologic, gamma,



caliper, and drilling-time logs for test hole 11N-39E-7DBC1.

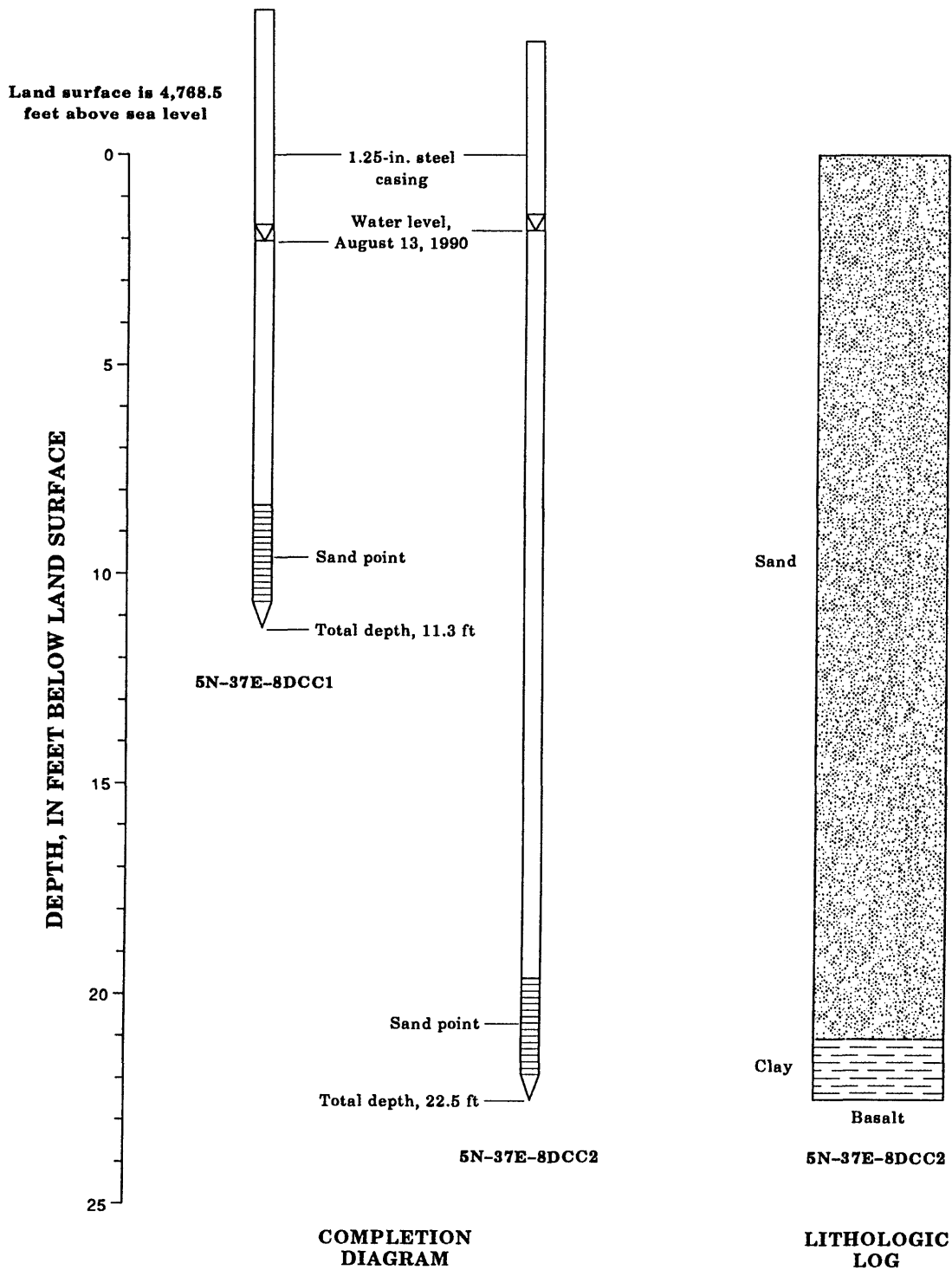


Figure 9.—Completion diagrams for piezometers 5N-37E-8DCC1 and 2, and lithologic log for test hole 5N-37E-8DCC2.

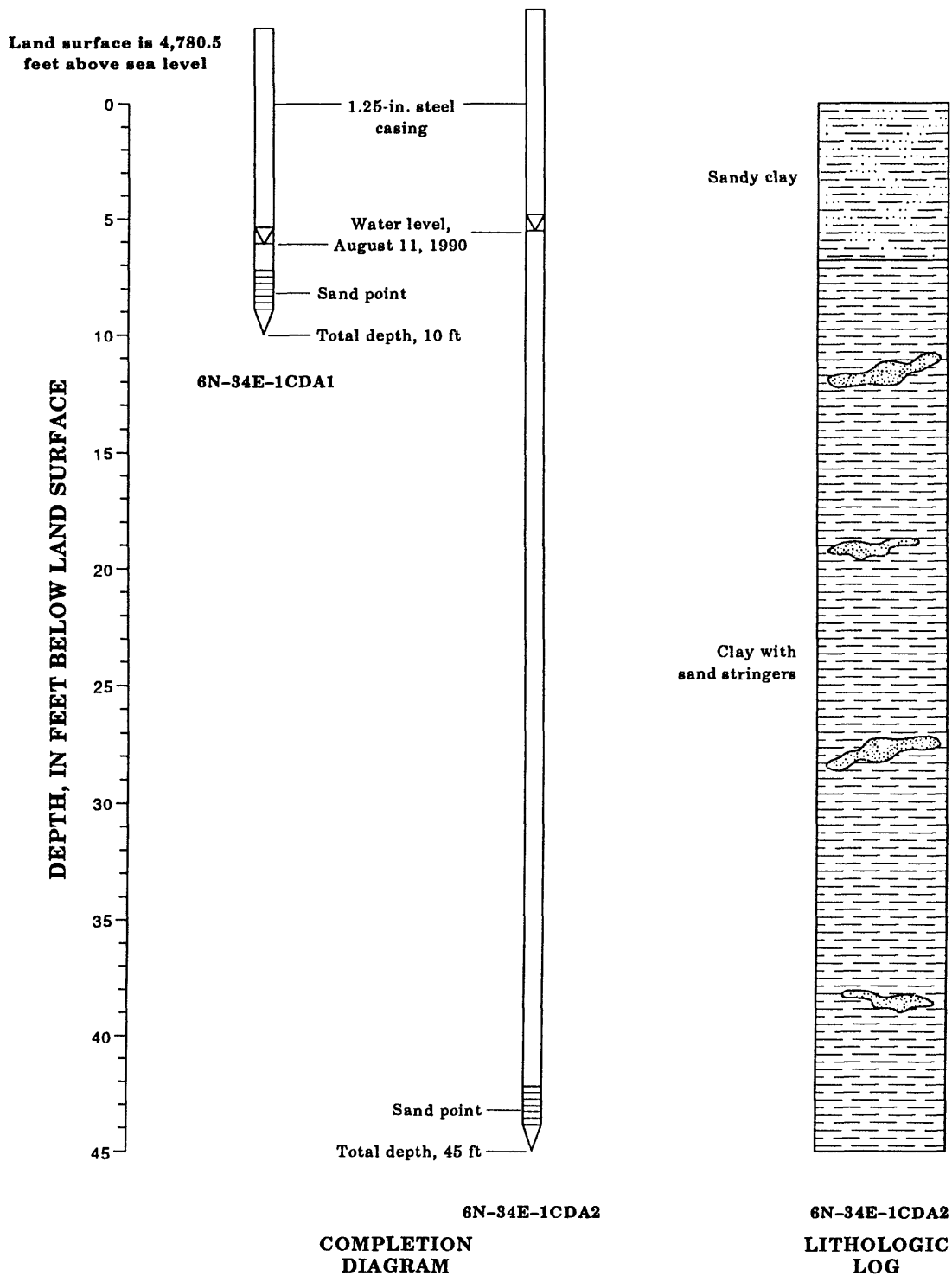


Figure 10.—Completion diagrams for piezometers 6N-34E-1CDA1 and 2, and lithologic log for test hole 6N-34E-1CDA2.

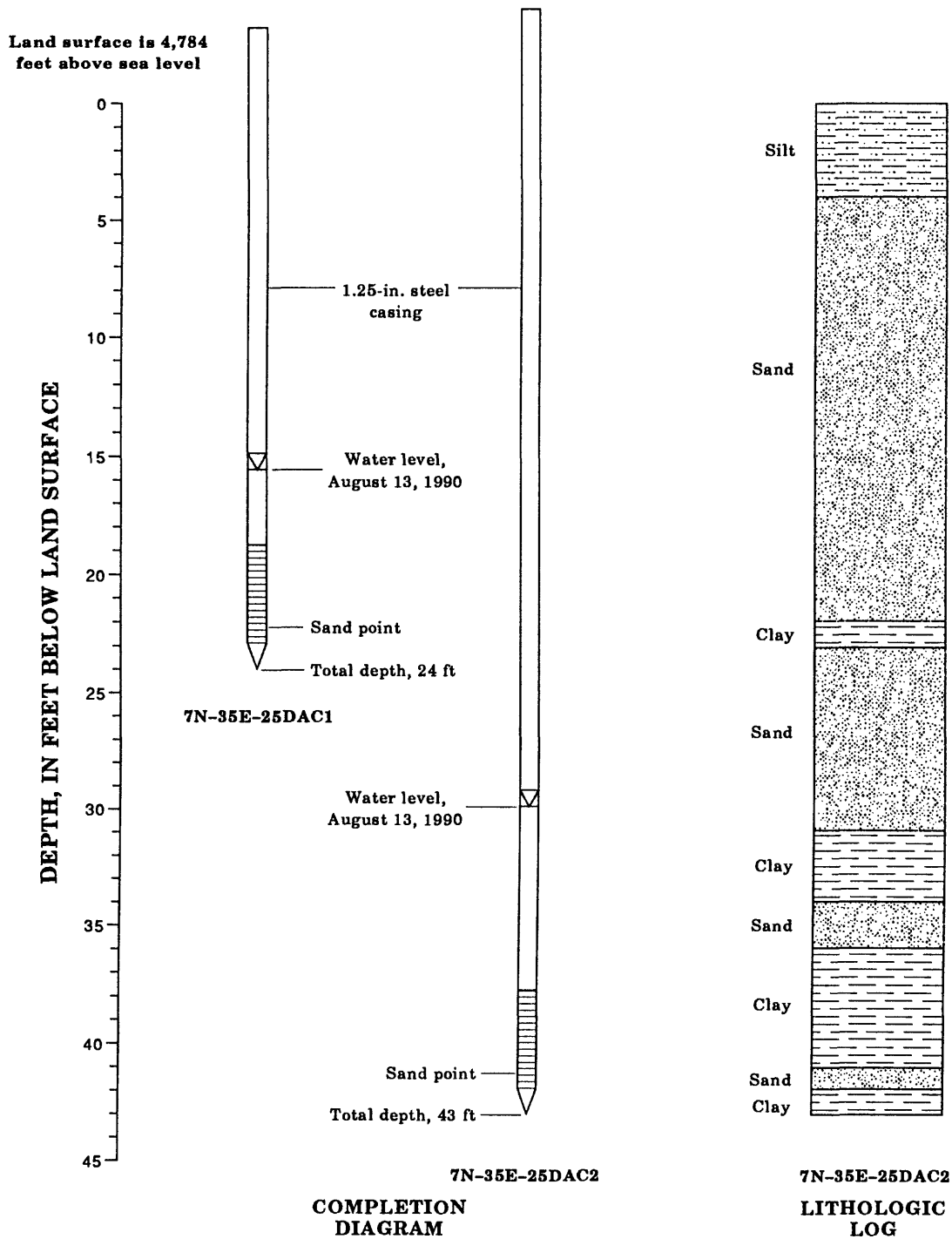


Figure 11.—Completion diagrams for piezometers 7N-35E-25DAC1 and 2, and lithologic log for test hole 7N-35E-25DAC2.

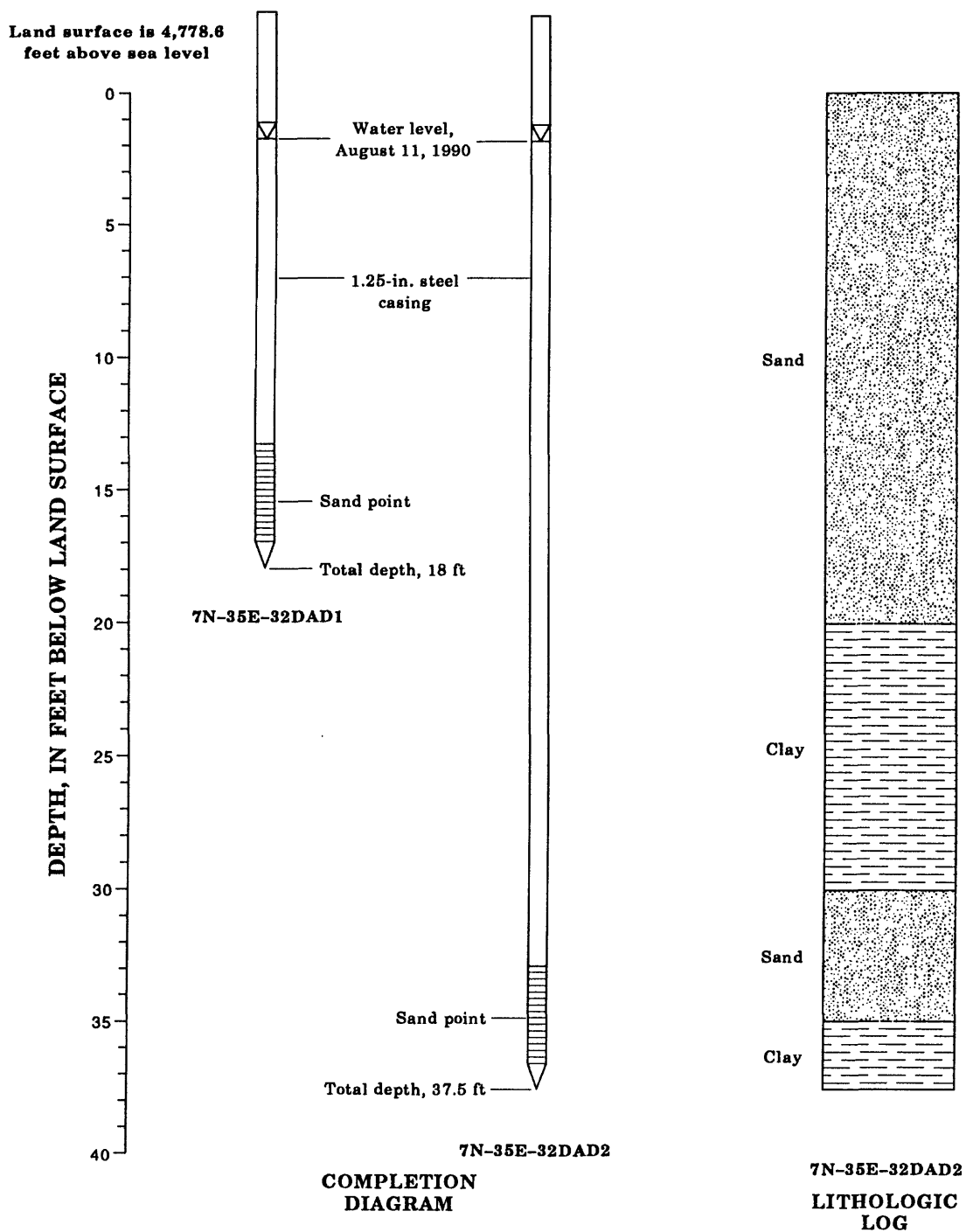
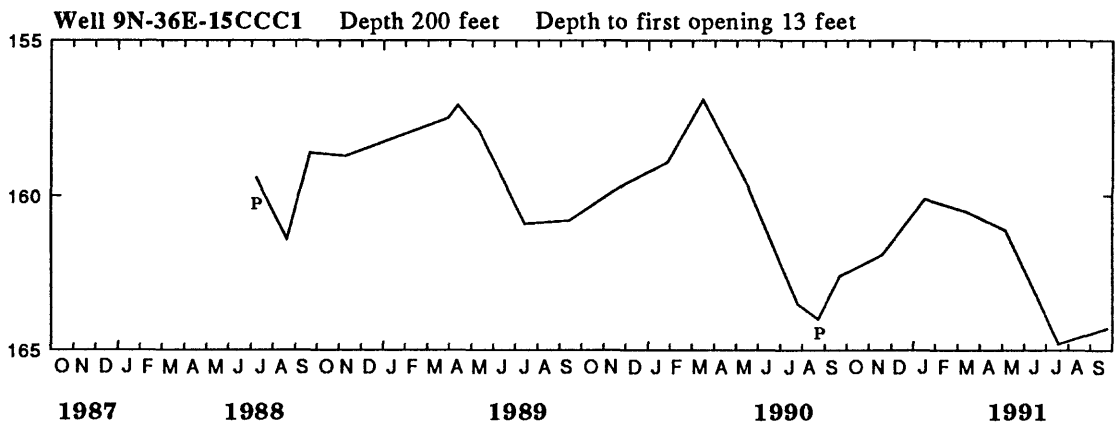
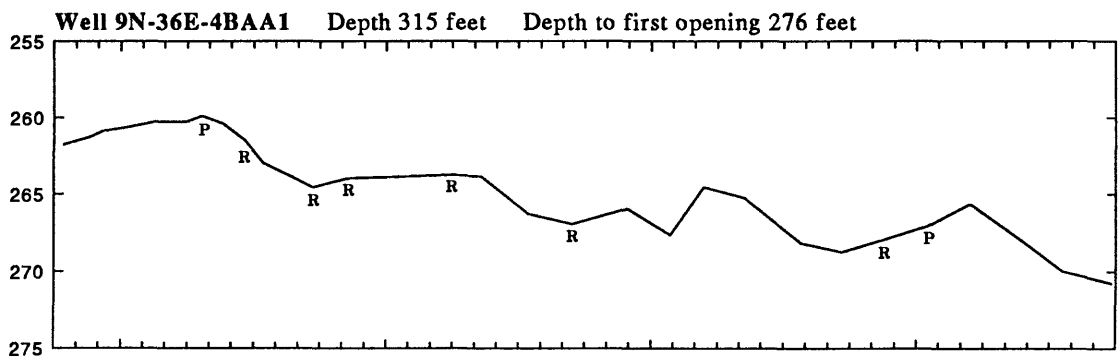
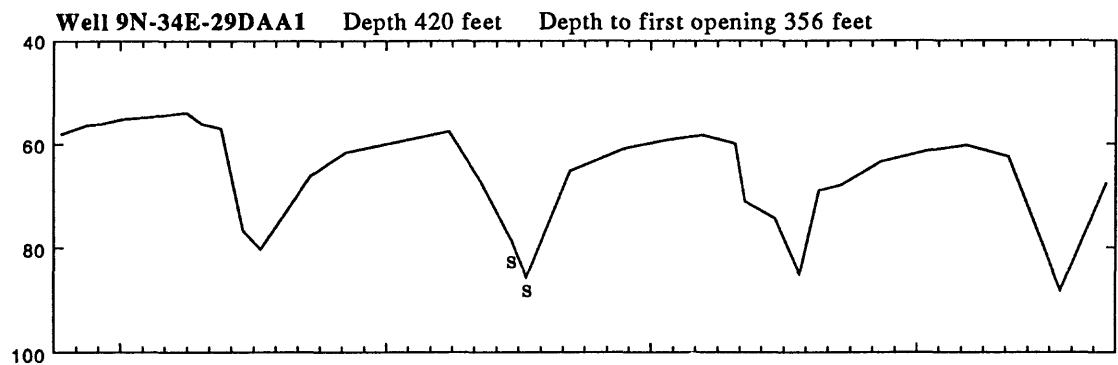
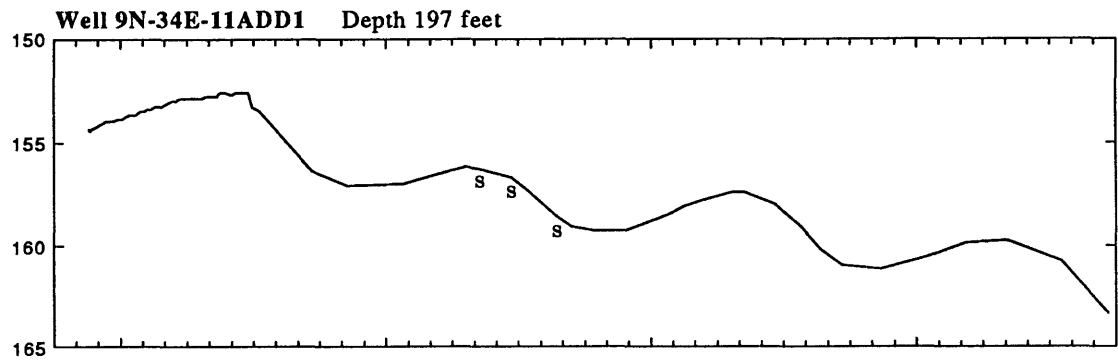


Figure 12.—Completion diagrams for piezometers 7N-35E-32DAD1 and 2, and lithologic log for test hole 7N-35E-32DAD2.

Figure 13. — Hydrographs of water levels in wells.

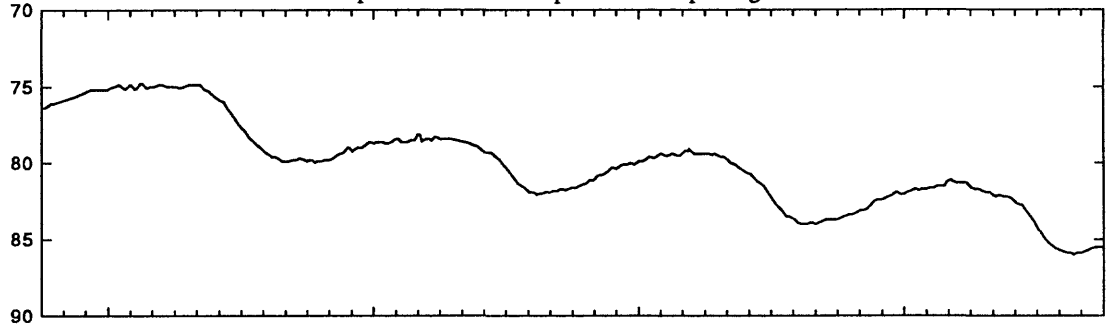
CLARK COUNTY

WATER LEVEL, IN FEET BELOW LAND SURFACE

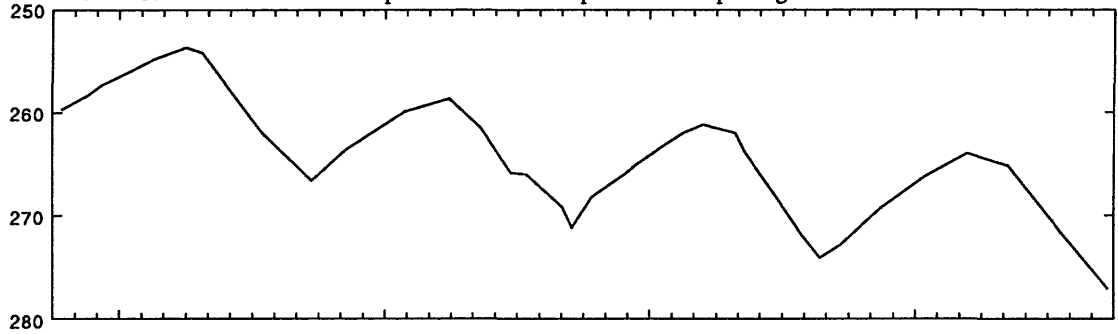


CLARK COUNTY

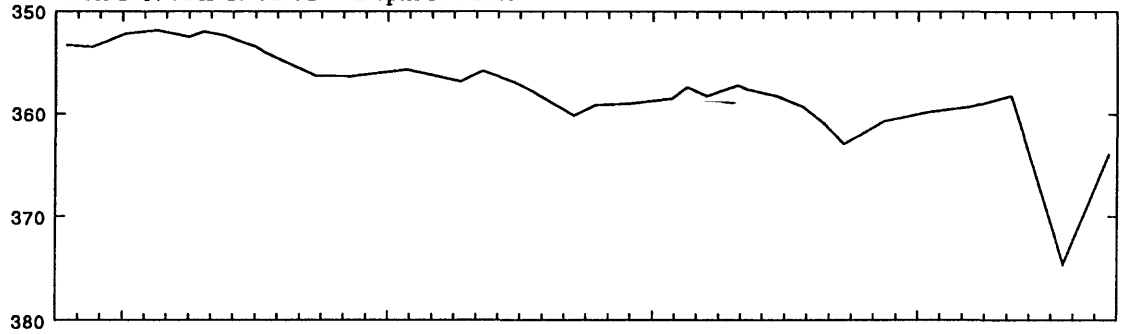
Well 9N-36E-33CBB1 Depth 155 feet Depth to first opening 12 feet



Well 10N-34E-29BDD1 Depth 390 feet Depth to first opening 22 feet

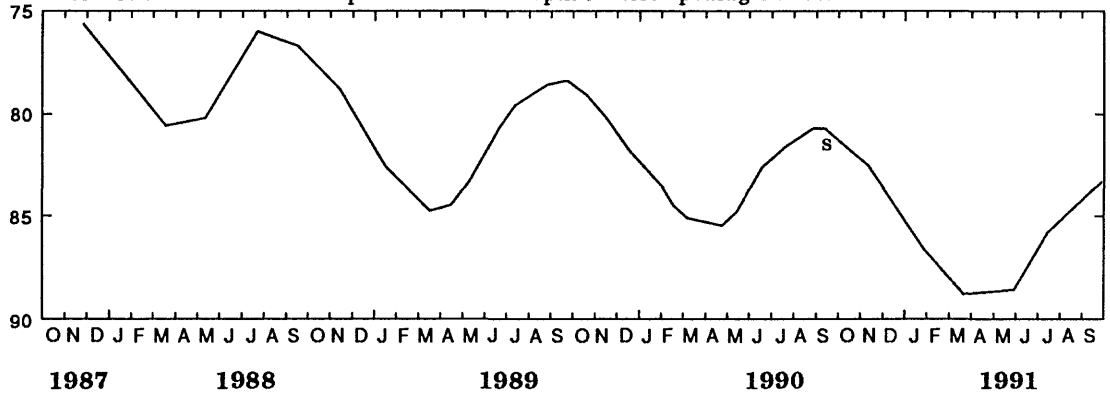


Well 10N-35E-13CBC1 Depth 370 feet



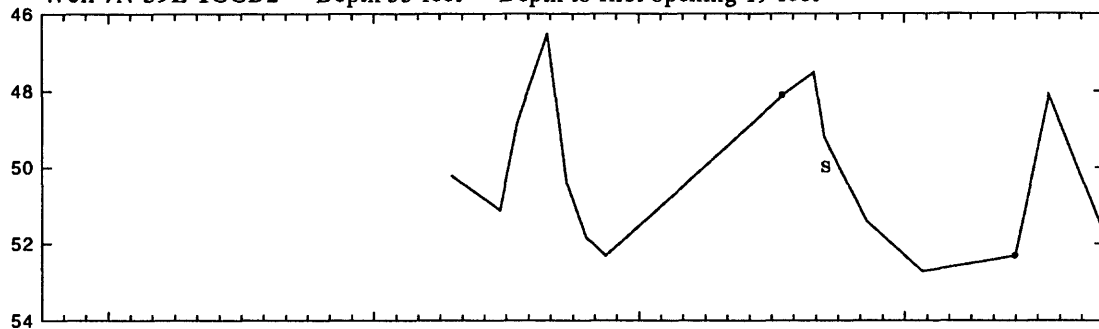
FREMONT COUNTY

Well 7N-39E-1CCD1 Depth 122 feet Depth to first opening 84 feet

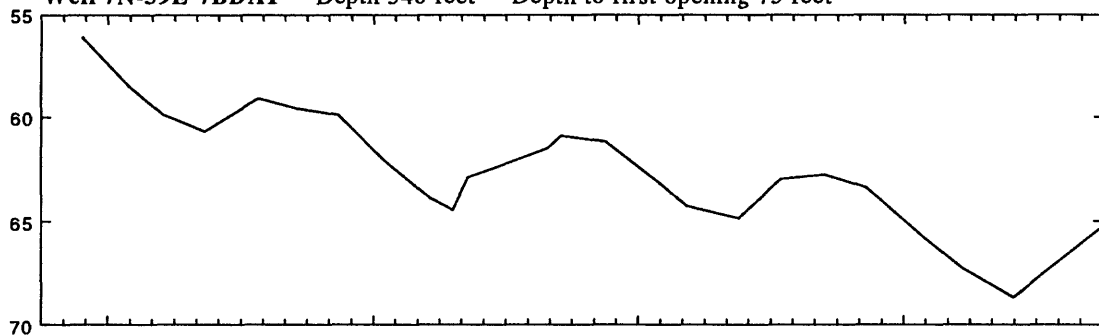


FREMONT COUNTY

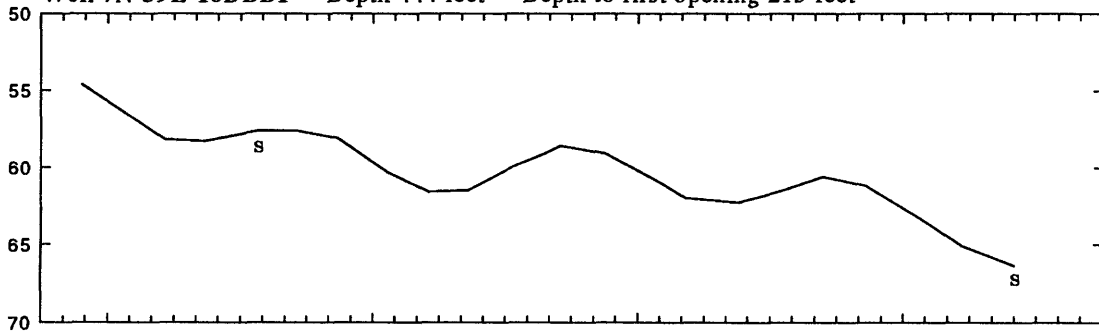
Well 7N-39E-1CCD2 Depth 55 feet Depth to first opening 19 feet



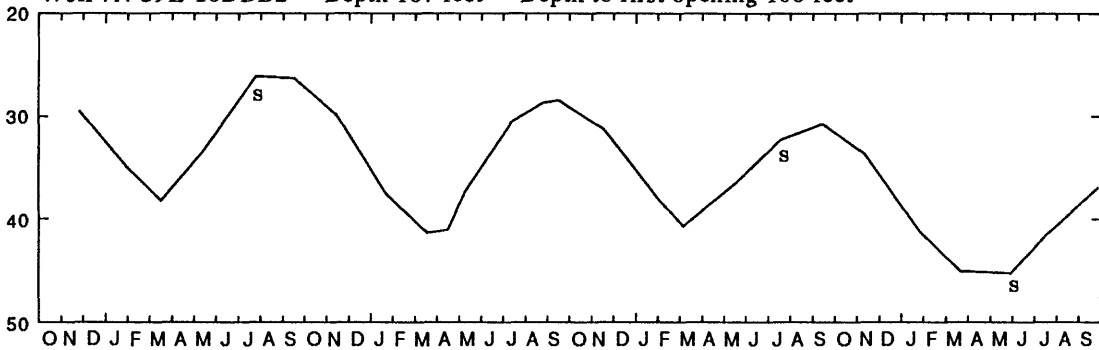
Well 7N-39E-7BDA1 Depth 340 feet Depth to first opening 75 feet



Well 7N-39E-16DBB1 Depth 444 feet Depth to first opening 215 feet

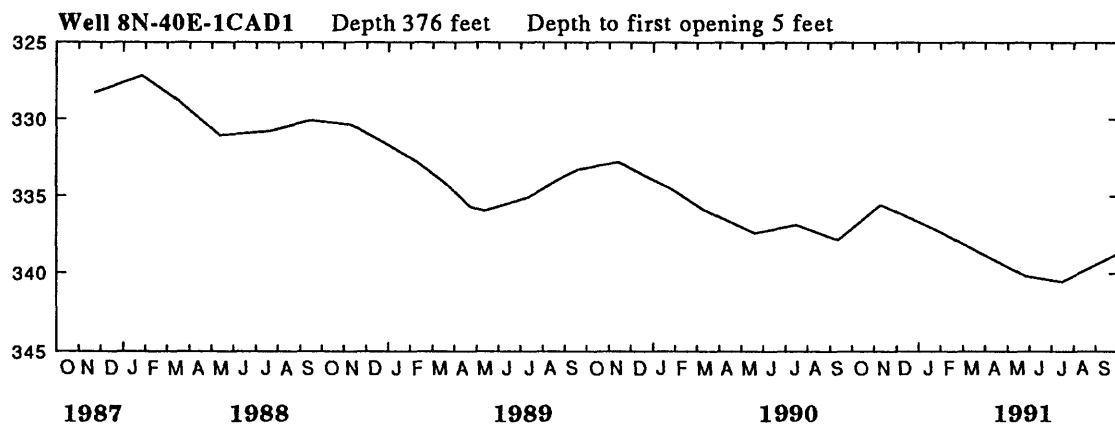
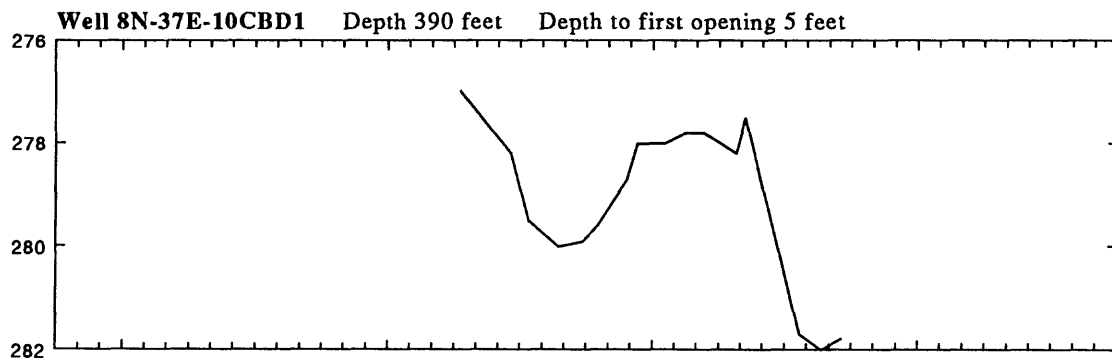
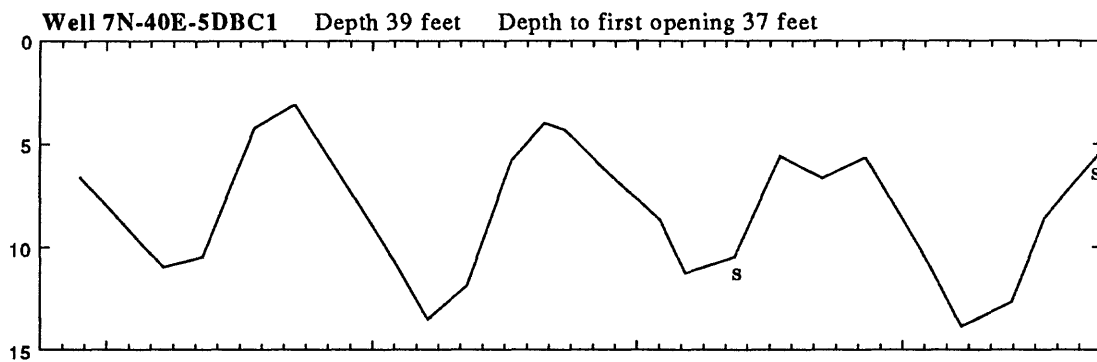
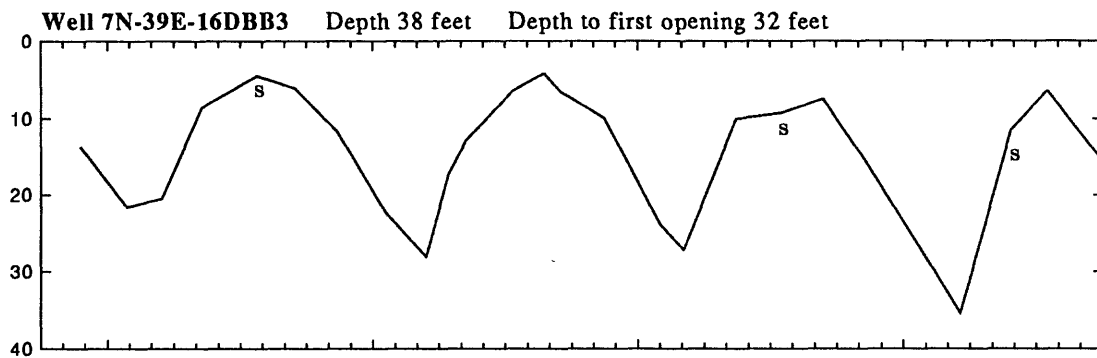


Well 7N-39E-16DBB2 Depth 107 feet Depth to first opening 100 feet

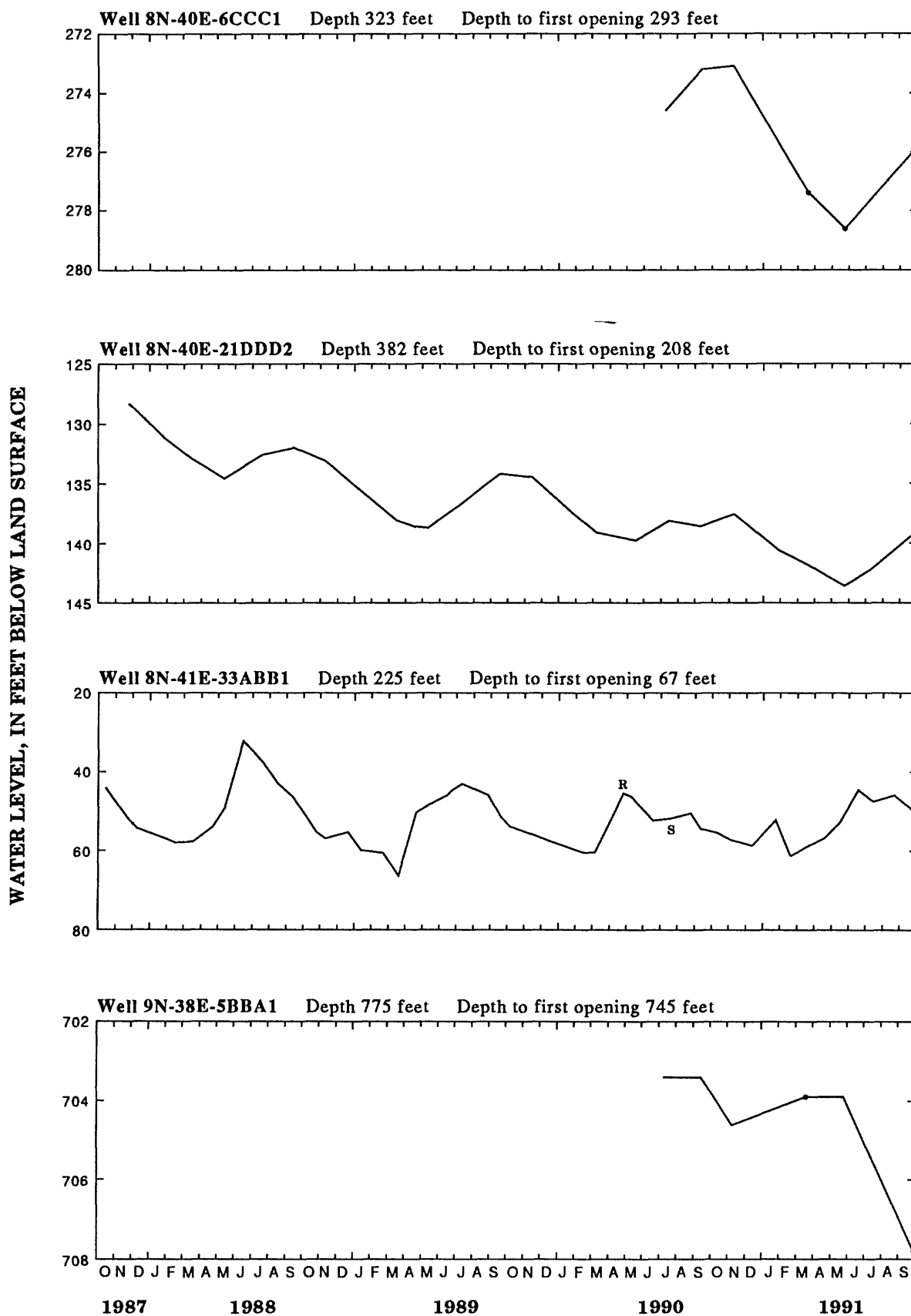


FREMONT COUNTY

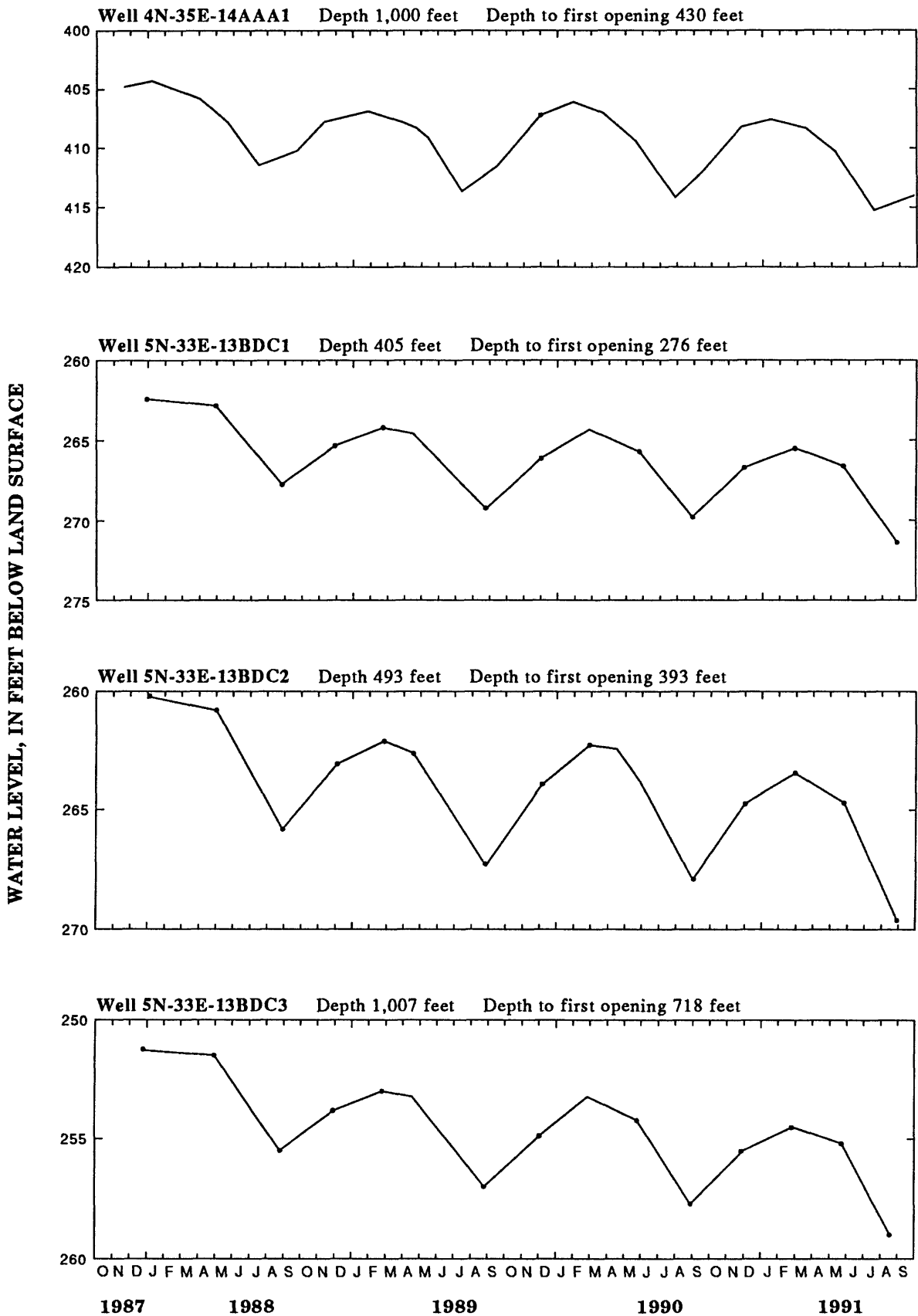
WATER LEVEL, IN FEET BELOW LAND SURFACE



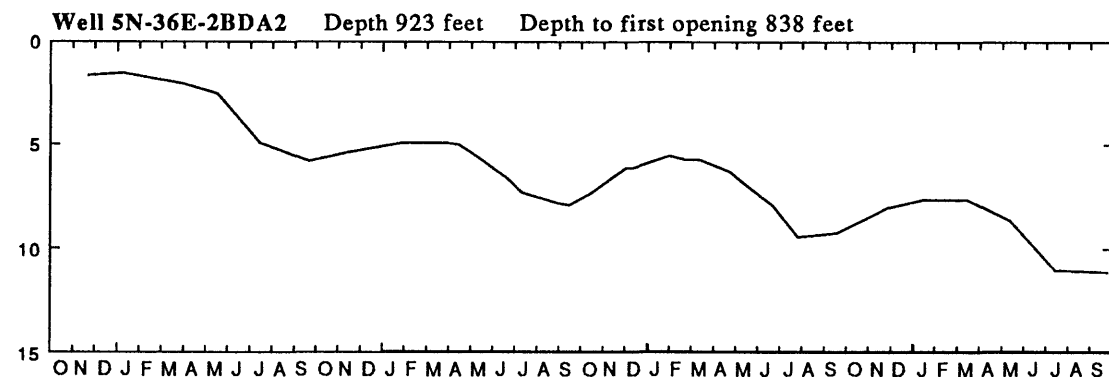
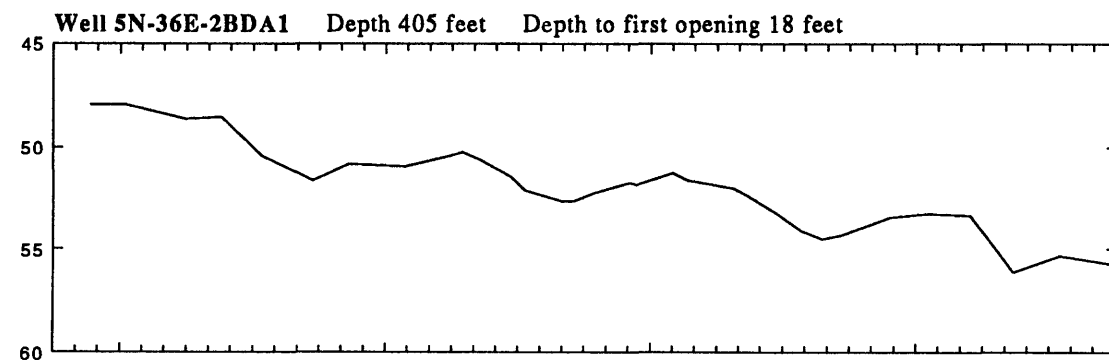
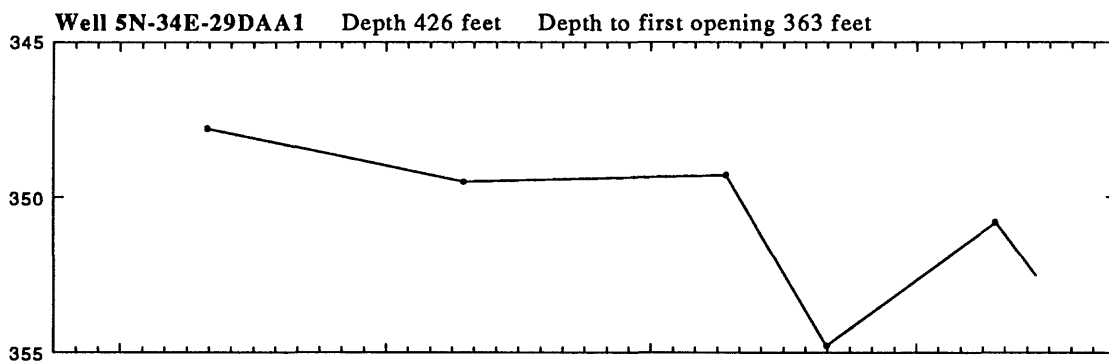
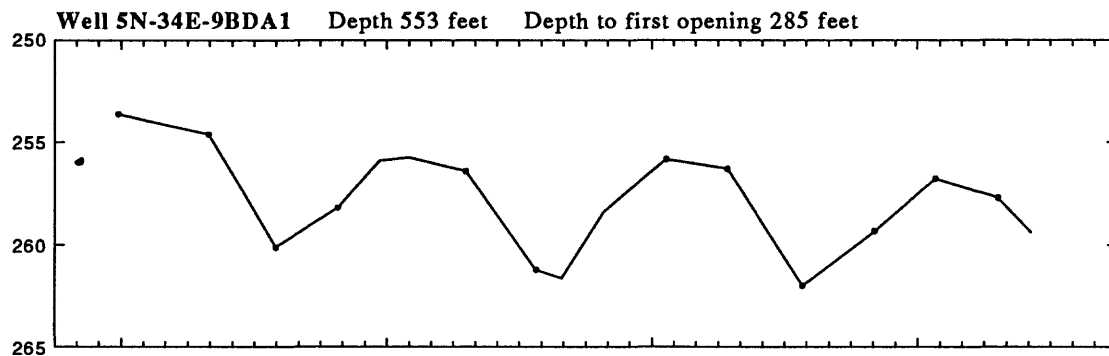
FREMONT COUNTY



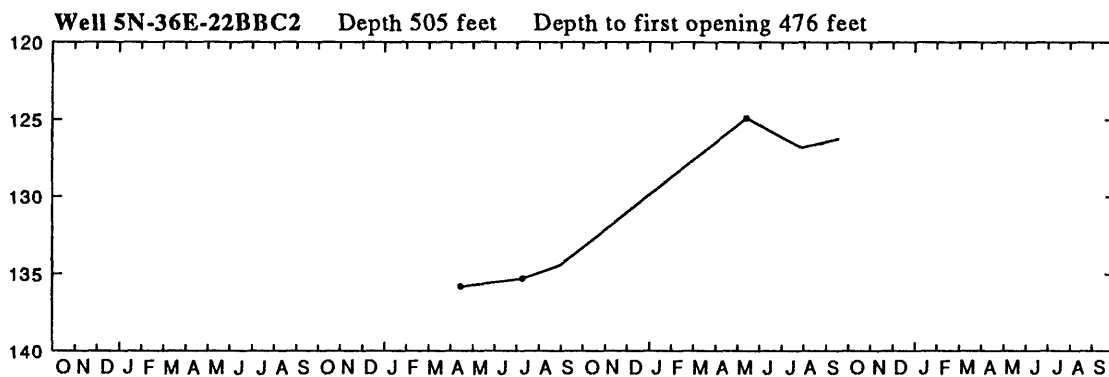
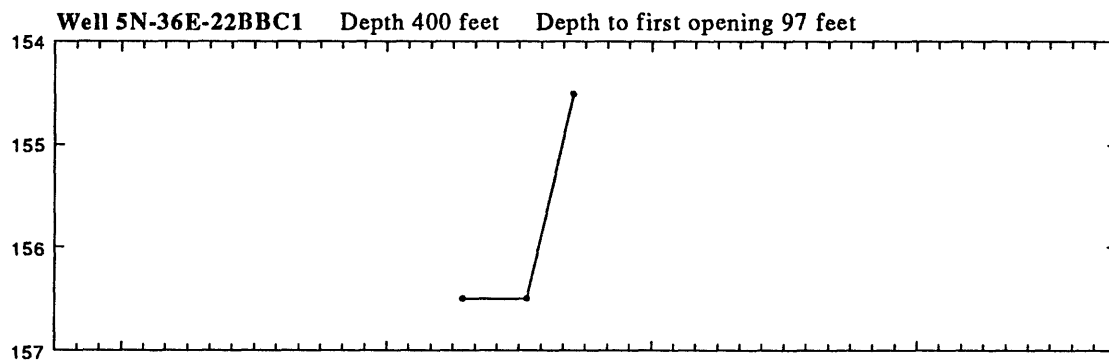
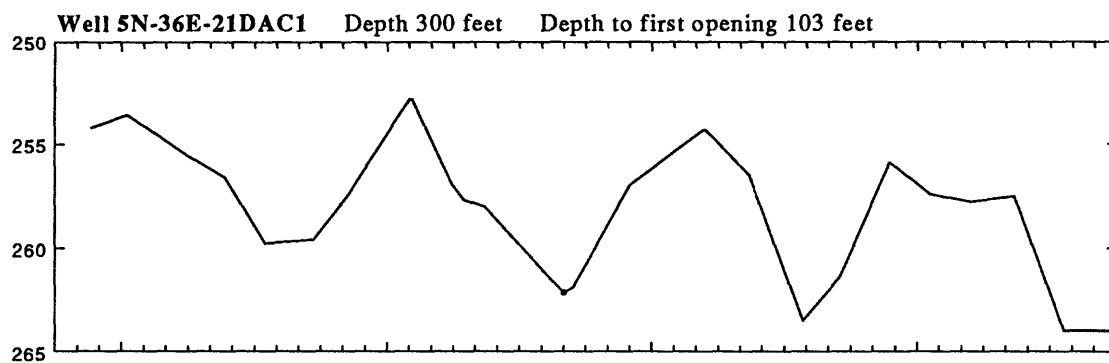
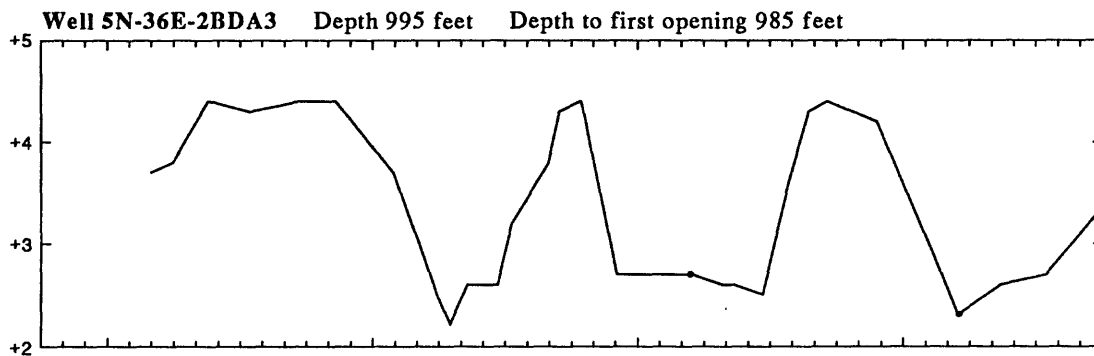
JEFFERSON COUNTY



JEFFERSON COUNTY



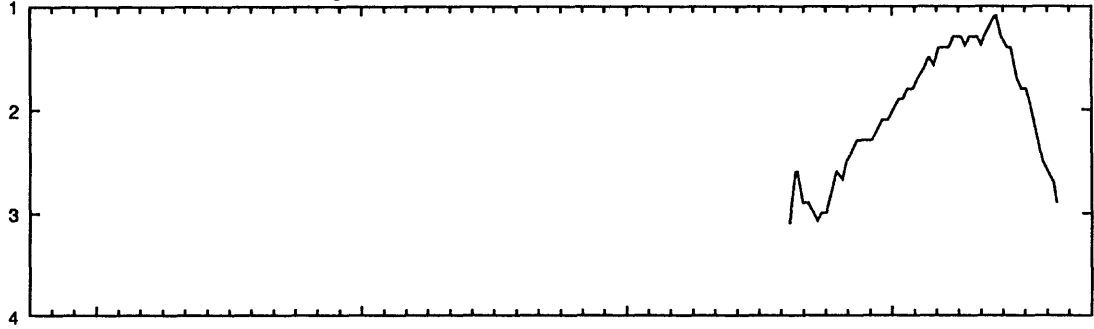
JEFFERSON COUNTY



WATER LEVEL, IN FEET ABOVE(+) AND BELOW LAND SURFACE

JEFFERSON COUNTY

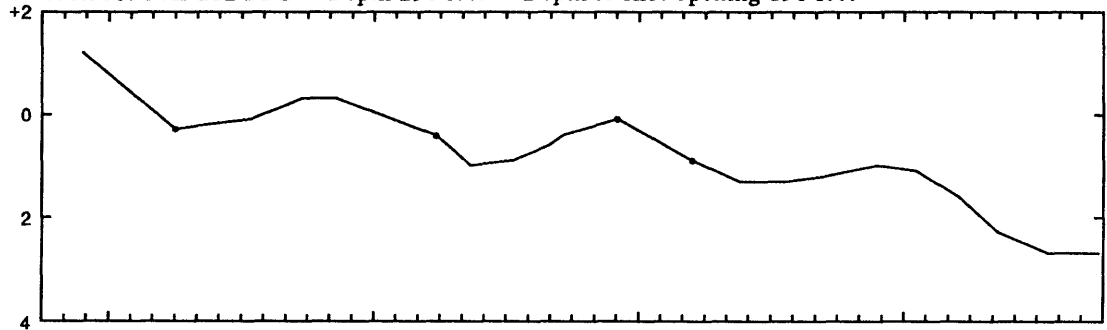
Well 5N-37E-8DCC1 Depth 11 feet Depth to first opening 8 feet



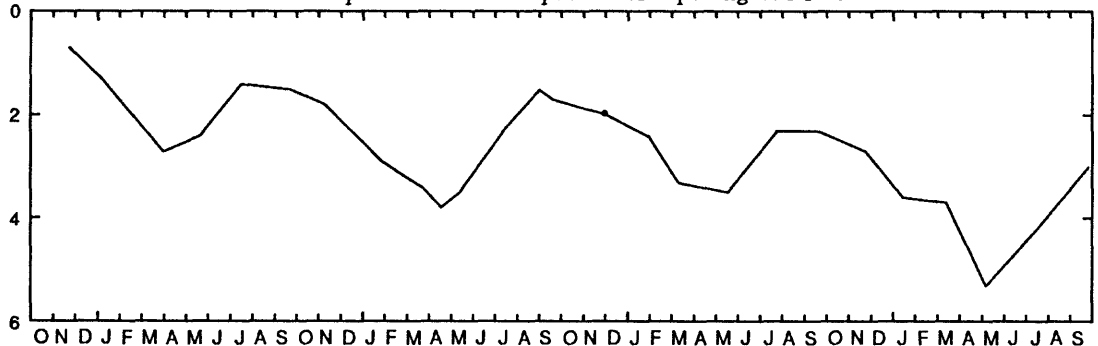
Well 5N-37E-8DCC2 Depth 23 feet Depth to first opening 20 feet



Well 5N-37E-21DBB1 Depth 290 feet Depth to first opening 190 feet



Well 5N-37E-21DBB3 Depth 478 feet Depth to first opening 471 feet



1987

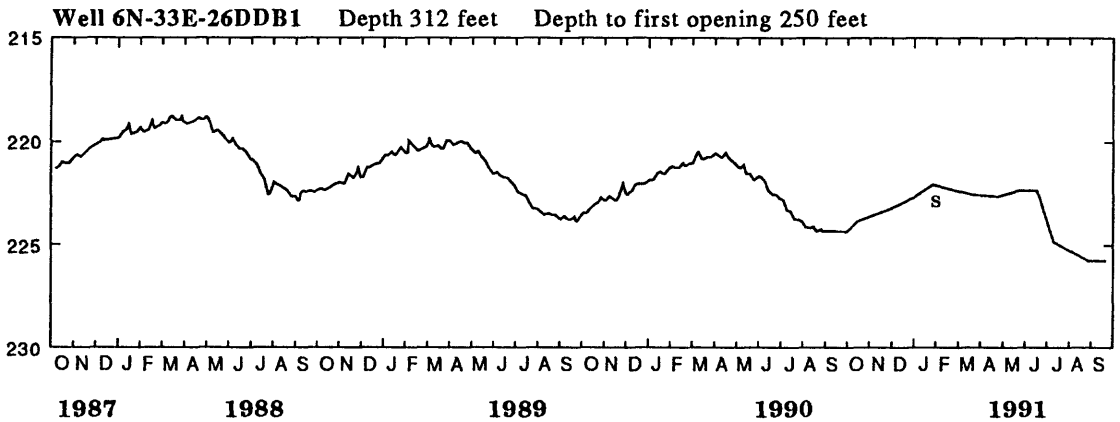
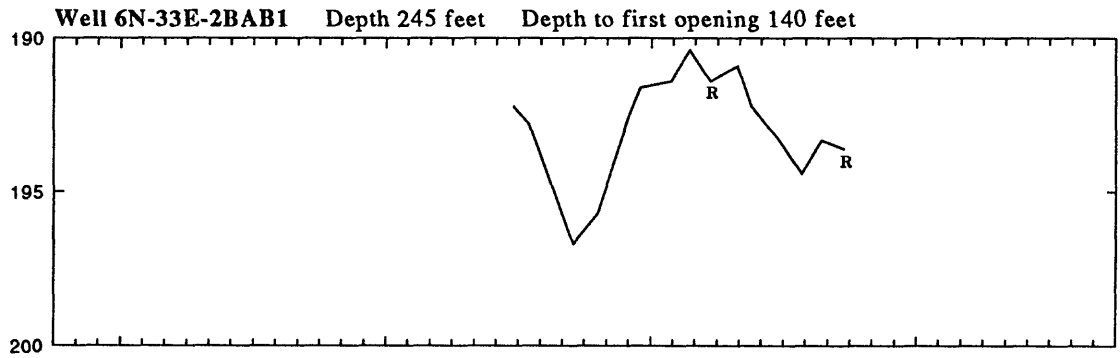
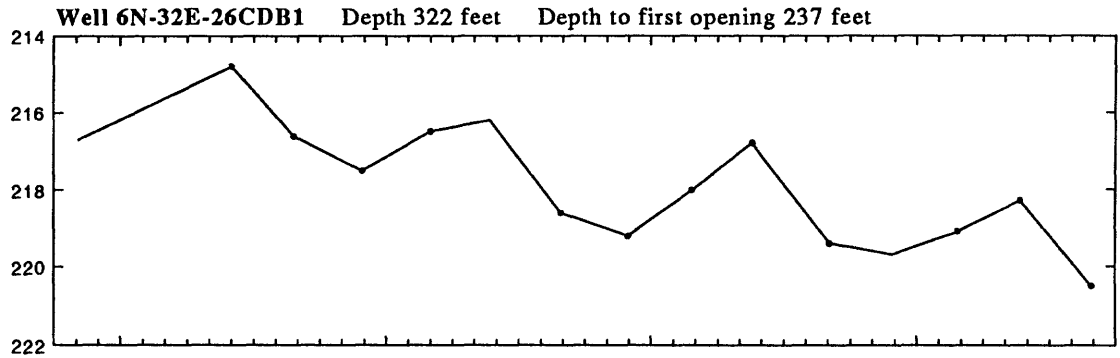
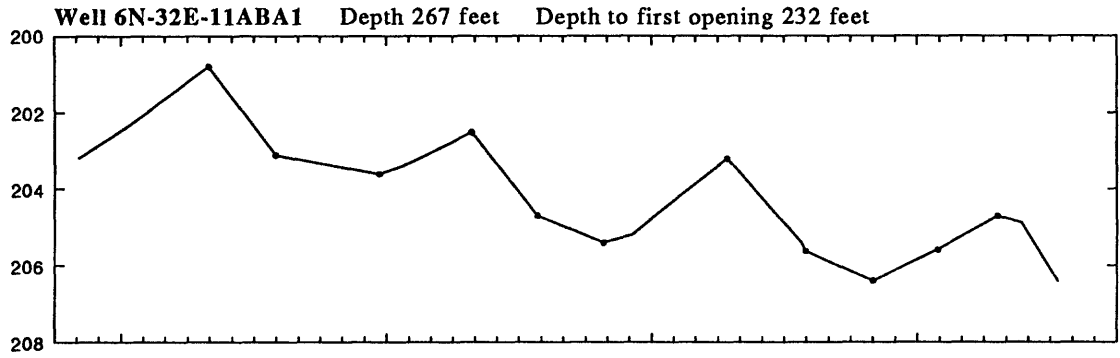
1988

1989

1990

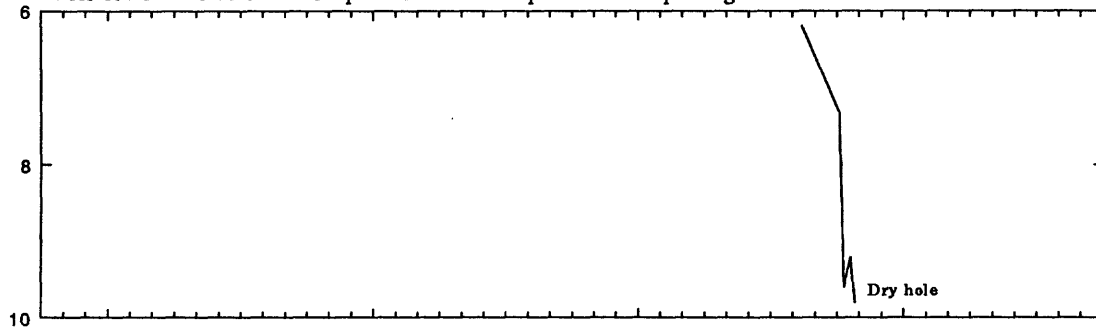
1991

JEFFERSON COUNTY

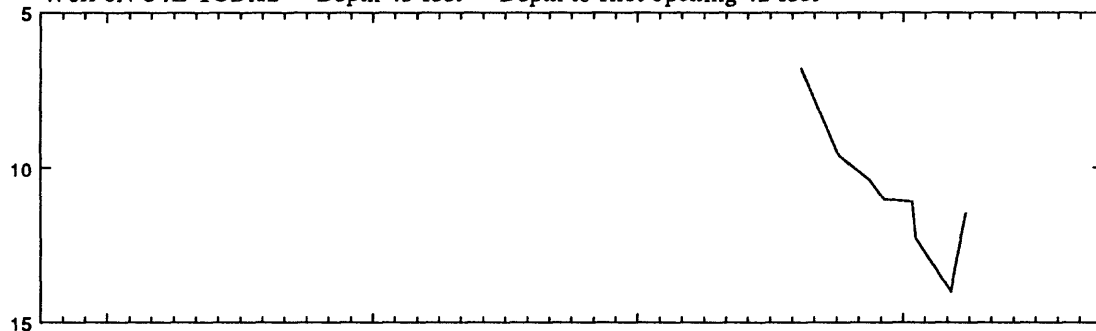


JEFFERSON COUNTY

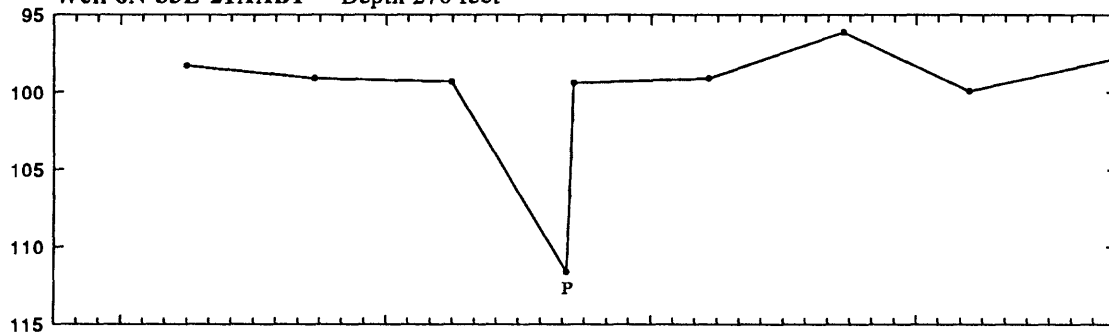
Well 6N-34E-1CDA1 Depth 10 feet Depth to first opening 7 feet



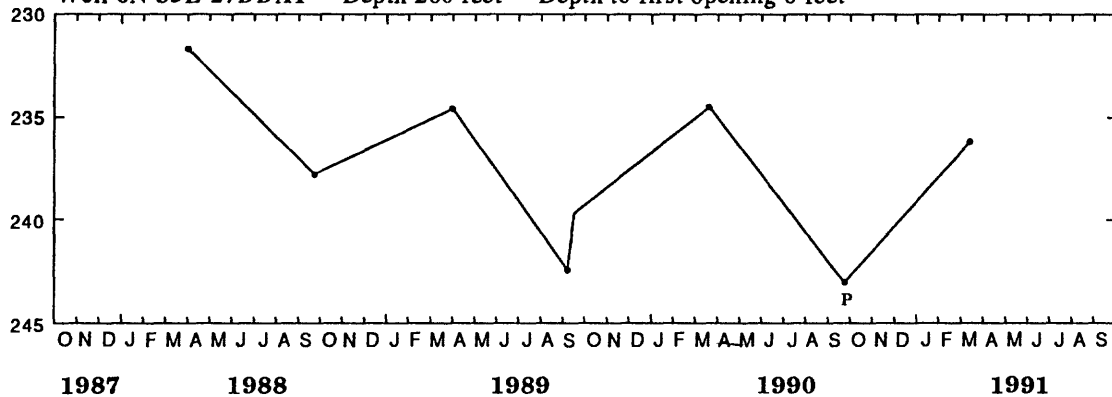
Well 6N-34E-1CDA2 Depth 45 feet Depth to first opening 42 feet



Well 6N-35E-21AAB1 Depth 276 feet

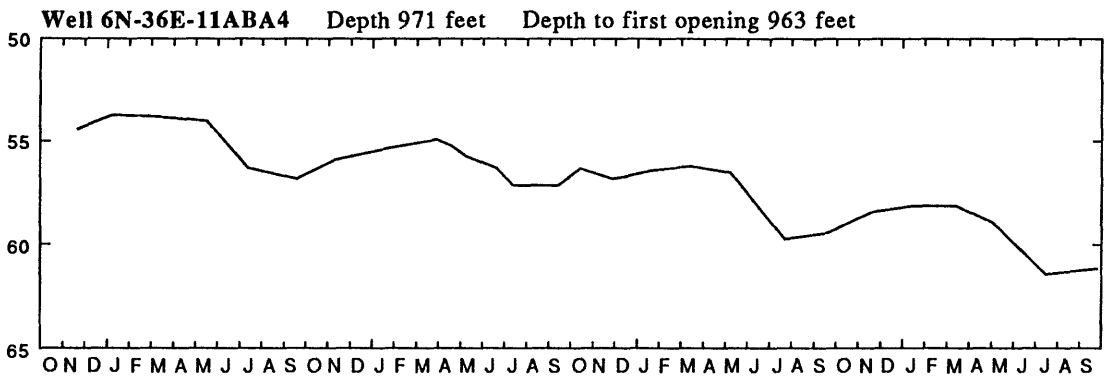
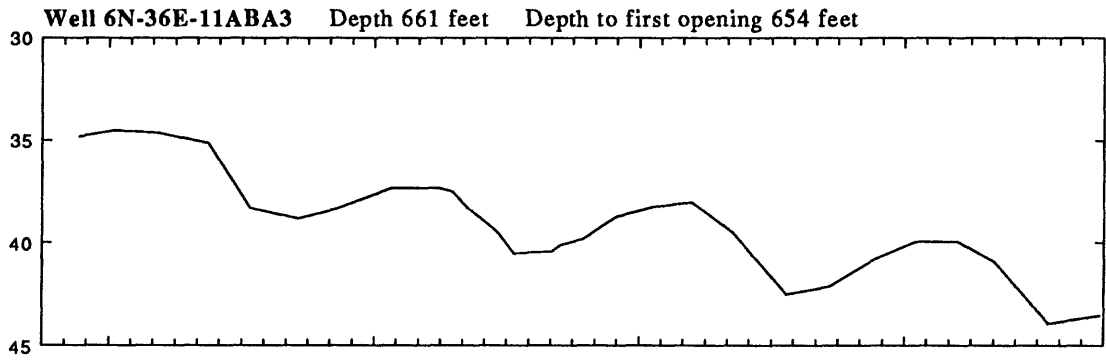
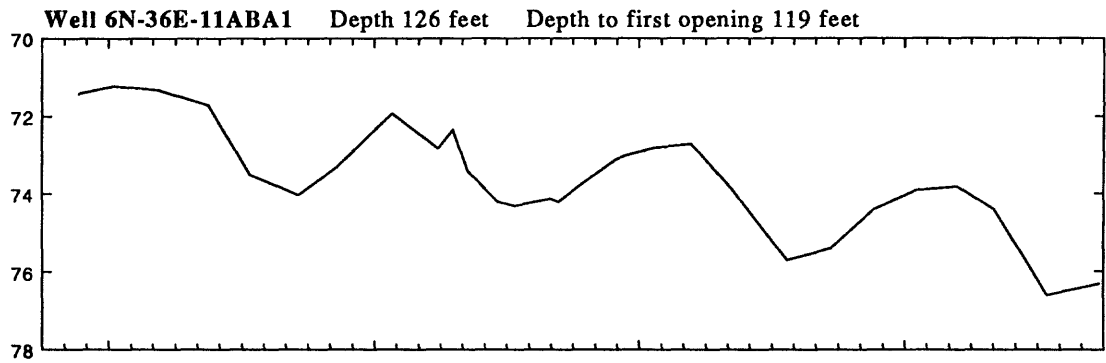
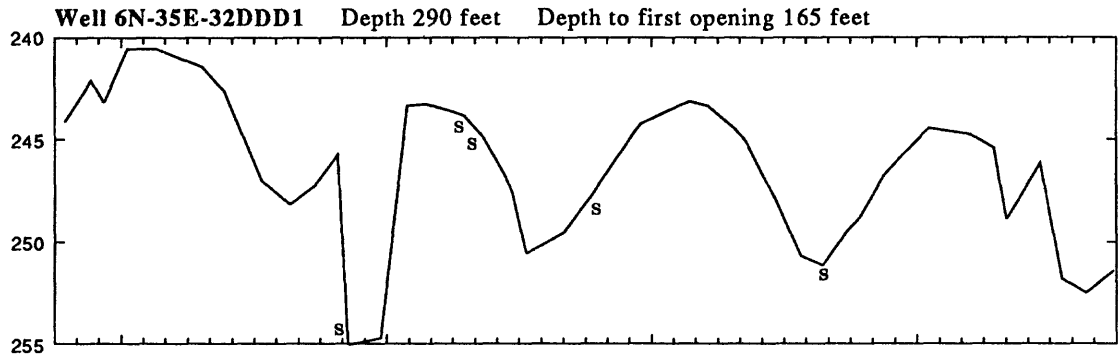


Well 6N-35E-27DDA1 Depth 260 feet Depth to first opening 8 feet

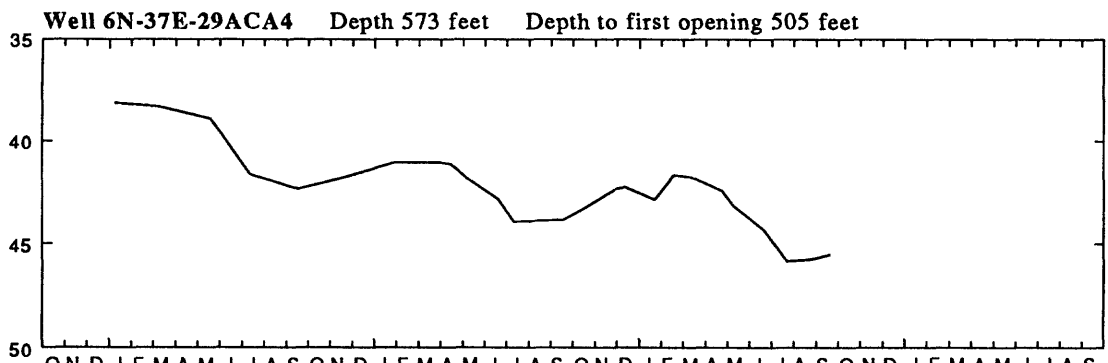
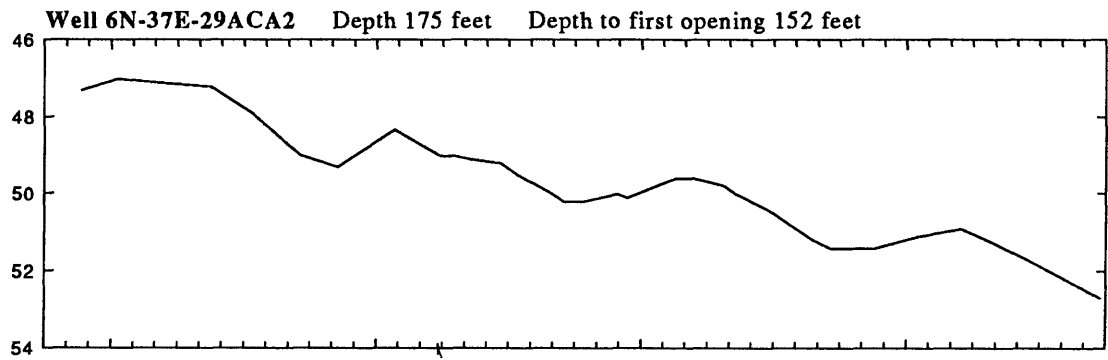
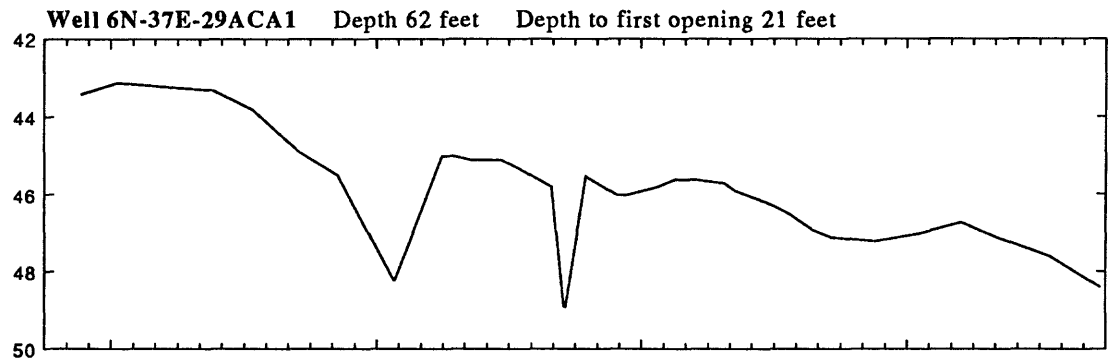
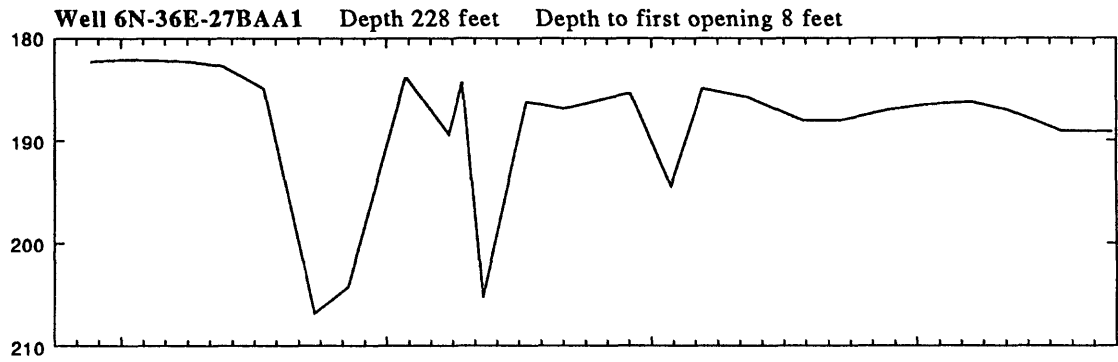


JEFFERSON COUNTY

WATER LEVEL, IN FEET BELOW LAND SURFACE



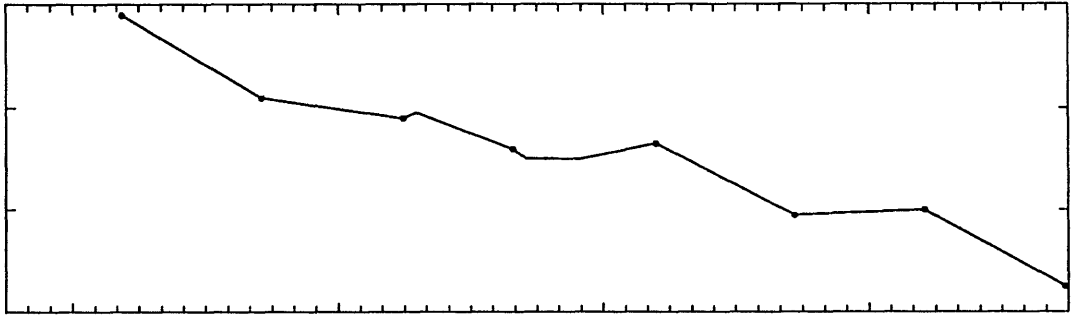
JEFFERSON COUNTY



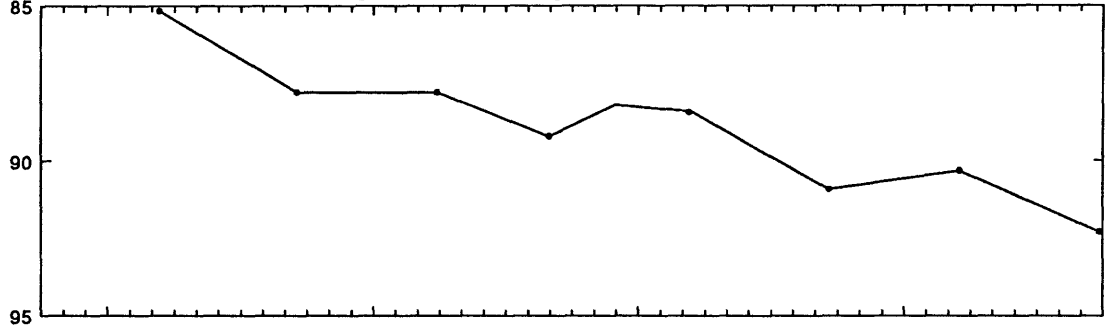
ONDJFMAMJJASONDJFMAMJJASONDJFMAMJJASONDJFMAMJJAS
 1987 1988 1989 1990 1991

JEFFERSON COUNTY

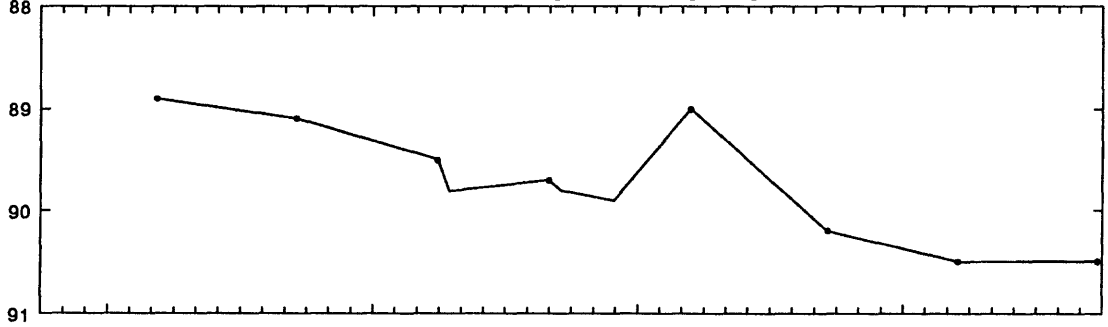
Well 6N-38E-30BAD2 Depth 308 feet Depth to first opening 260 feet



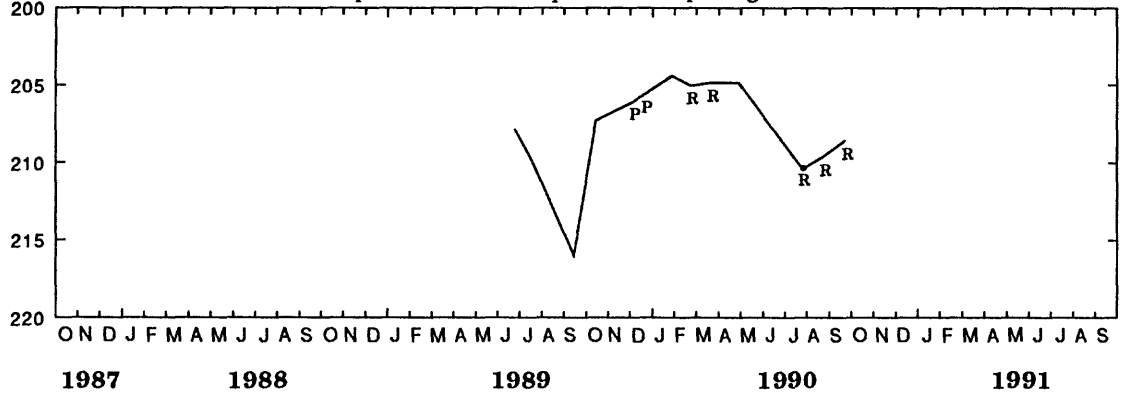
Well 6N-38E-30BAD3 Depth 544 feet Depth to first opening 443 feet



Well 6N-38E-30BAD4 Depth 638 feet Depth to first opening 588 feet

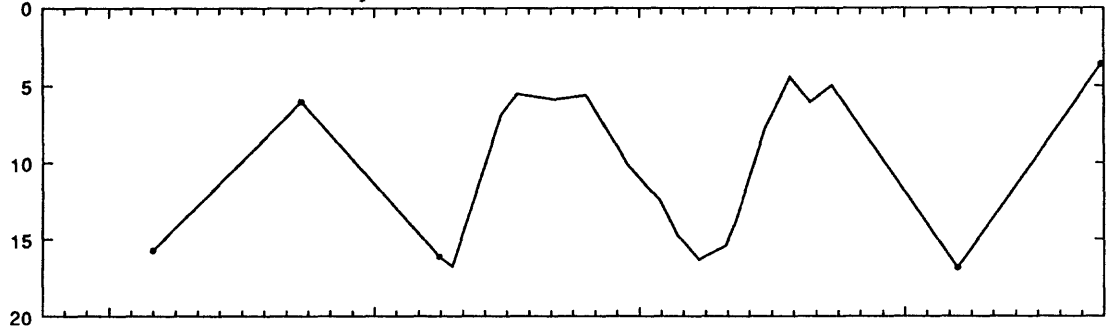


Well 7N-33E-5BBB1 Depth 232 feet Depth to first opening 160 feet

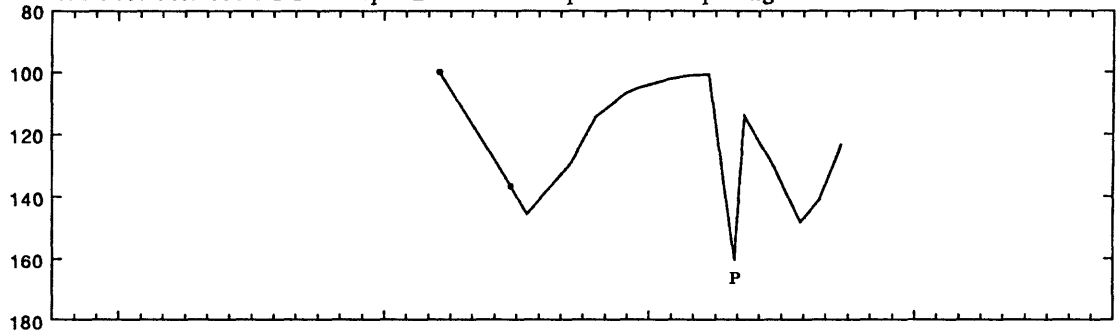


JEFFERSON COUNTY

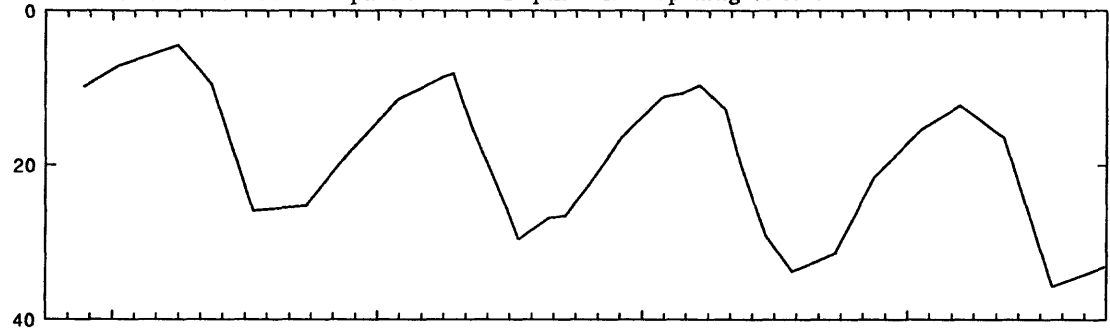
Well 7N-33E-34AAA1 Depth 61 feet



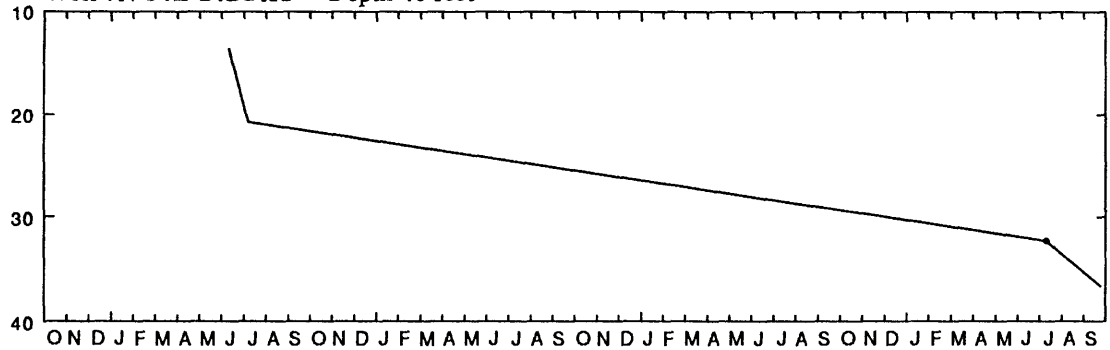
Well 7N-33E-35DDD1 Depth 200 feet Depth to first opening 143 feet



Well 7N-34E-4CDC1 Depth 57 feet Depth to first opening 41 feet

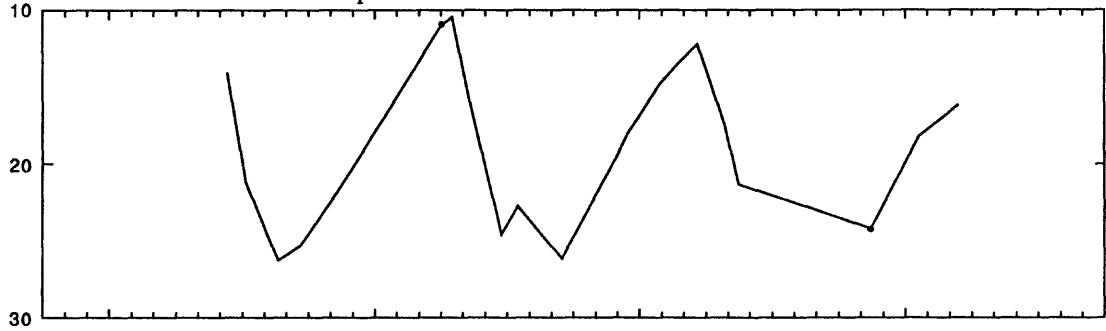


Well 7N-34E-24BBA1 Depth 40 feet

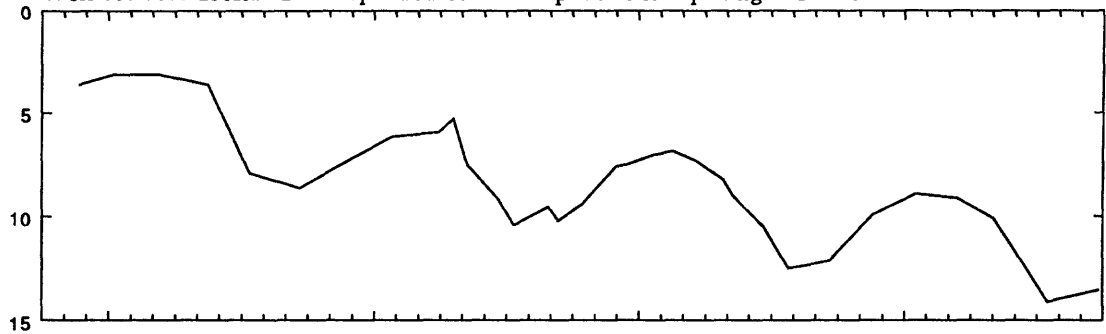


JEFFERSON COUNTY

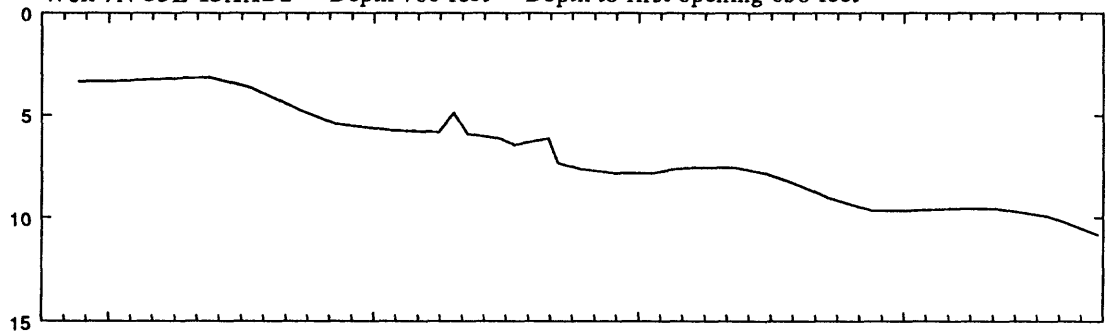
Well 7N-34E-24BBA2 Depth 29 feet



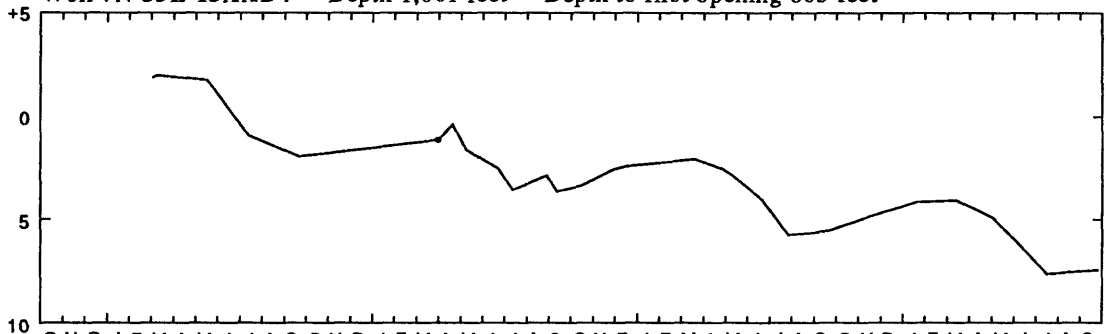
Well 7N-35E-13AAD1 Depth 515 feet Depth to first opening 323 feet



Well 7N-35E-13AAD2 Depth 760 feet Depth to first opening 638 feet



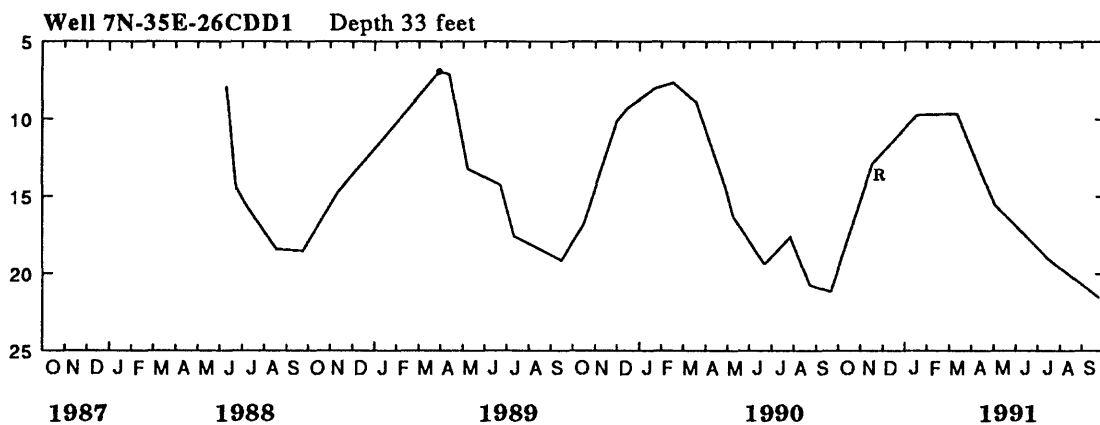
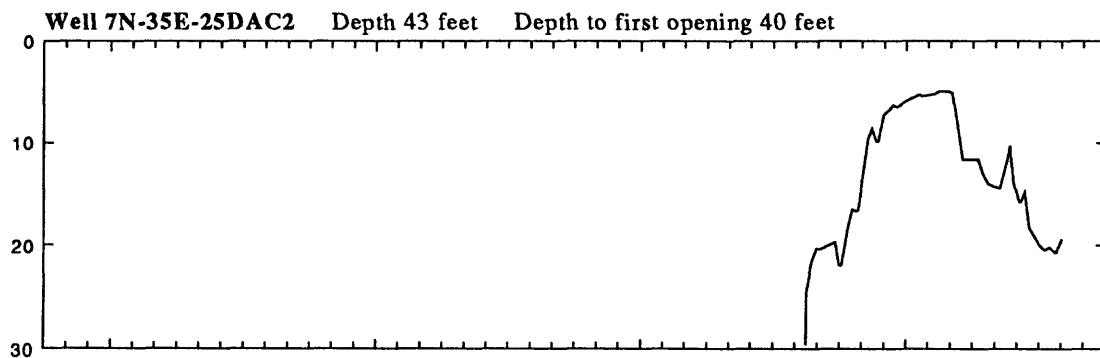
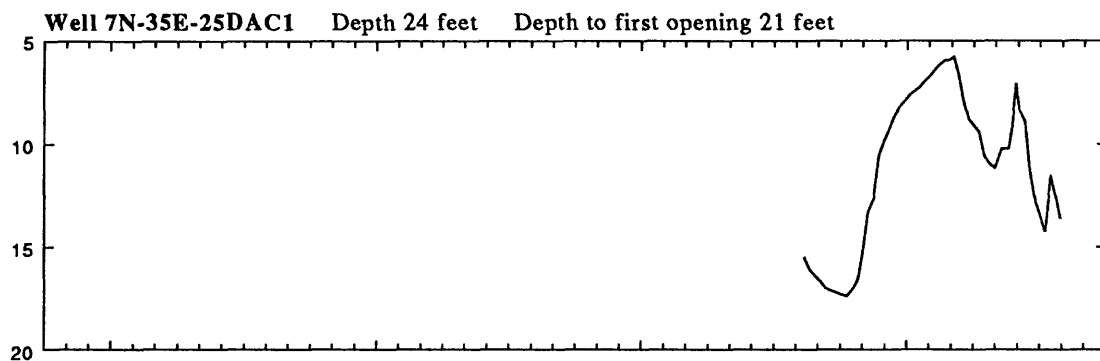
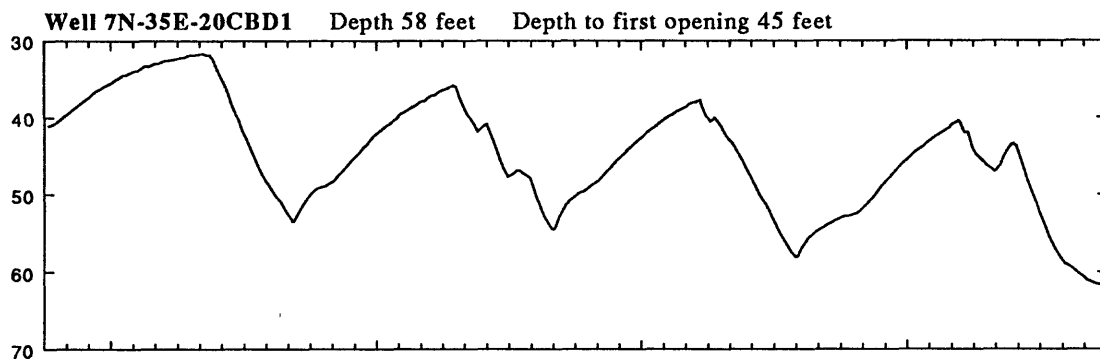
Well 7N-35E-13AAD4 Depth 1,001 feet Depth to first opening 863 feet



WATER LEVEL, IN FEET ABOVE(+) AND BELOW LAND SURFACE

JEFFERSON COUNTY

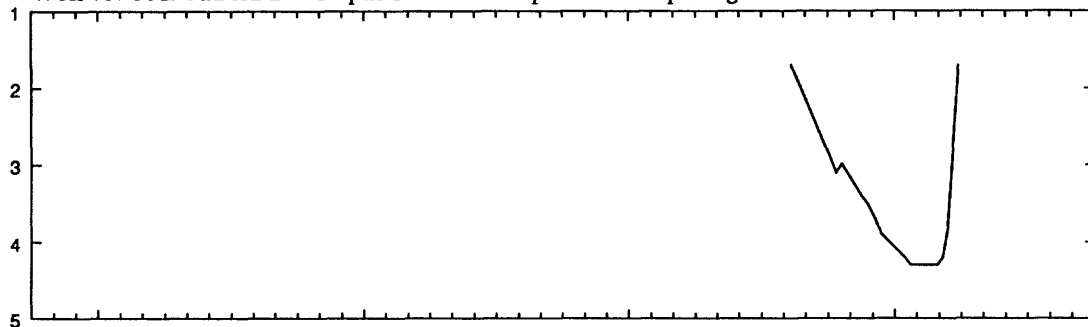
WATER LEVEL, IN FEET BELOW LAND SURFACE



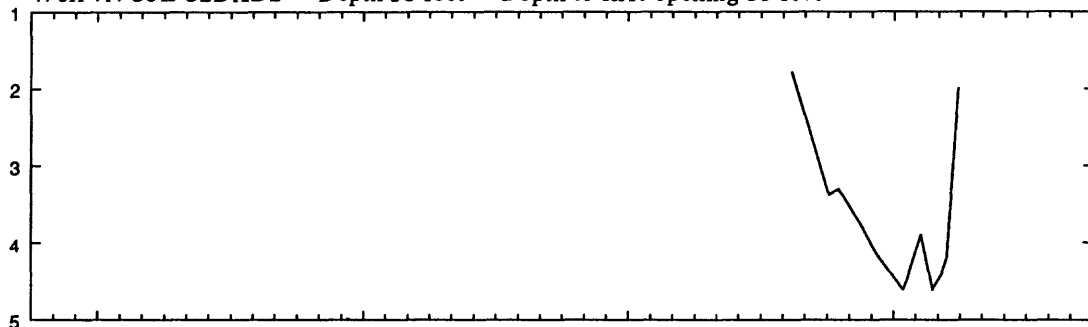
WATER LEVEL, IN FEET BELOW LAND SURFACE

JEFFERSON COUNTY

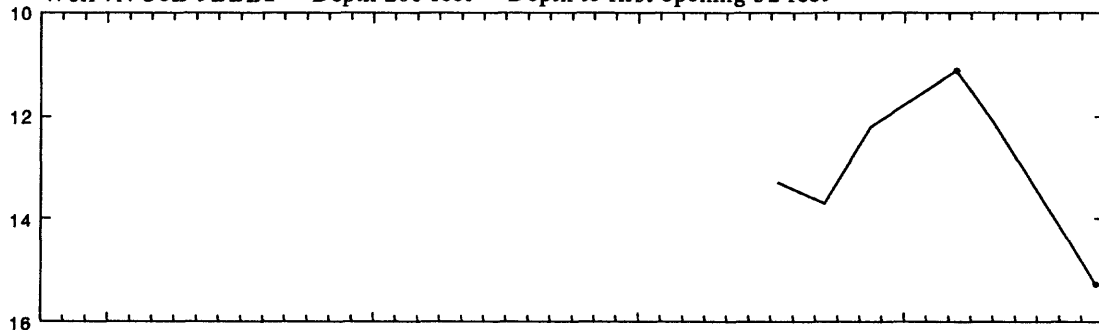
Well 7N-35E-32DAD1 Depth 18 feet Depth to first opening 15 feet



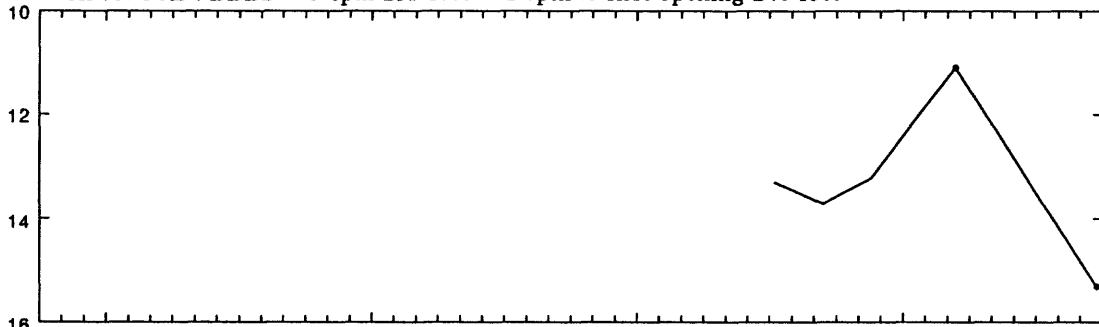
Well 7N-35E-32DAD2 Depth 38 feet Depth to first opening 35 feet



Well 7N-36E-9BBB1 Depth 200 feet Depth to first opening 32 feet



Well 7N-36E-9BBB2 Depth 255 feet Depth to first opening 240 feet



1987

1988

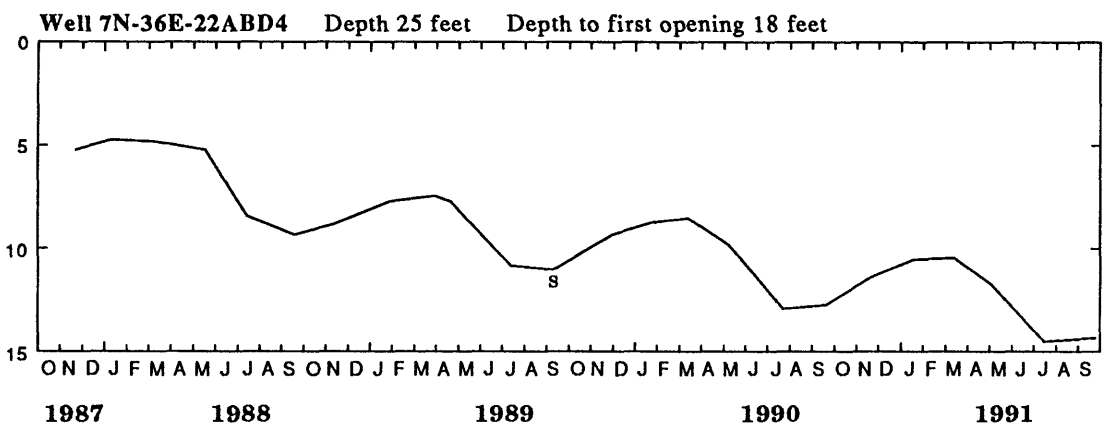
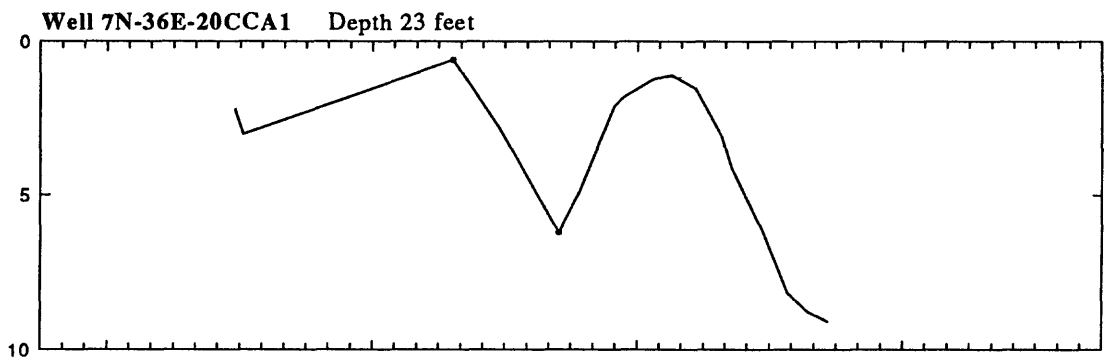
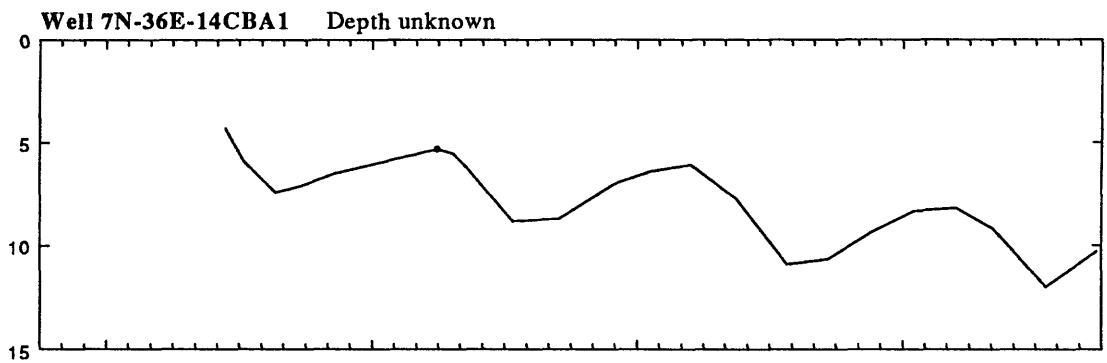
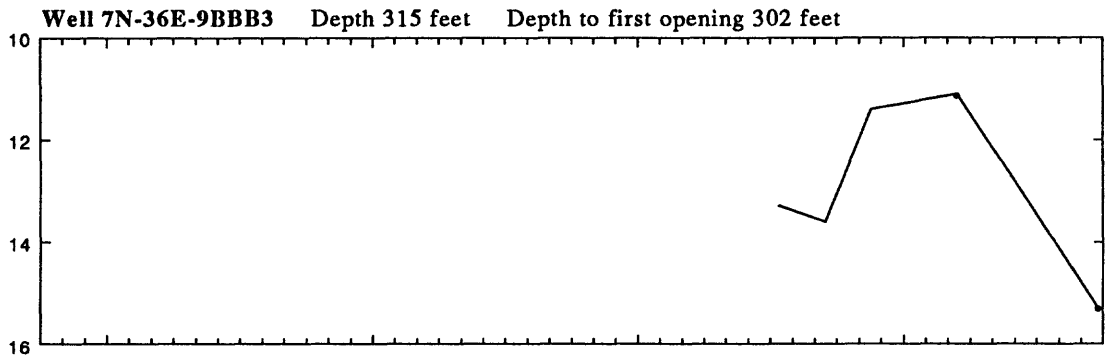
1989

1990

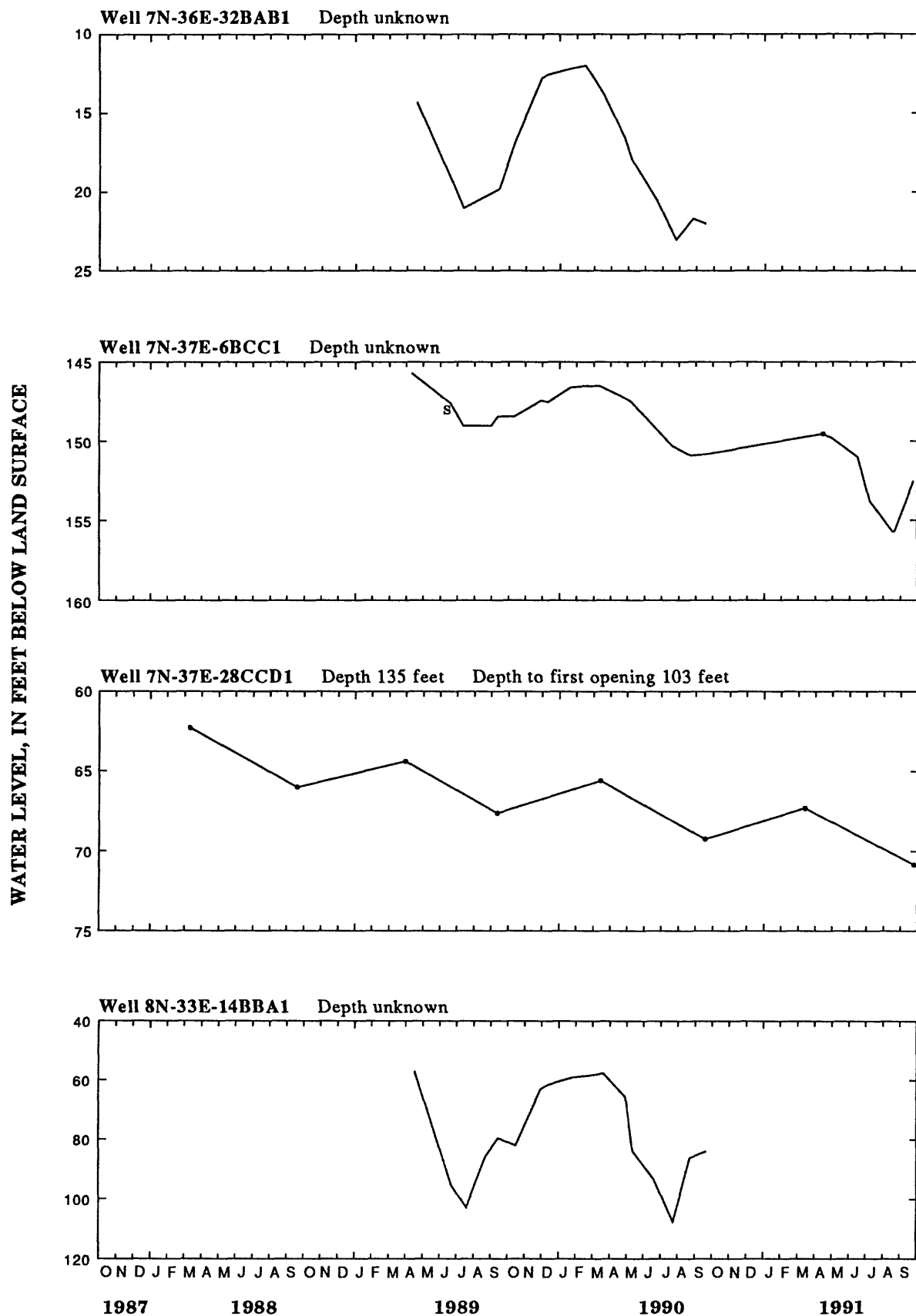
1991

JEFFERSON COUNTY

WATER LEVEL, IN FEET BELOW LAND SURFACE

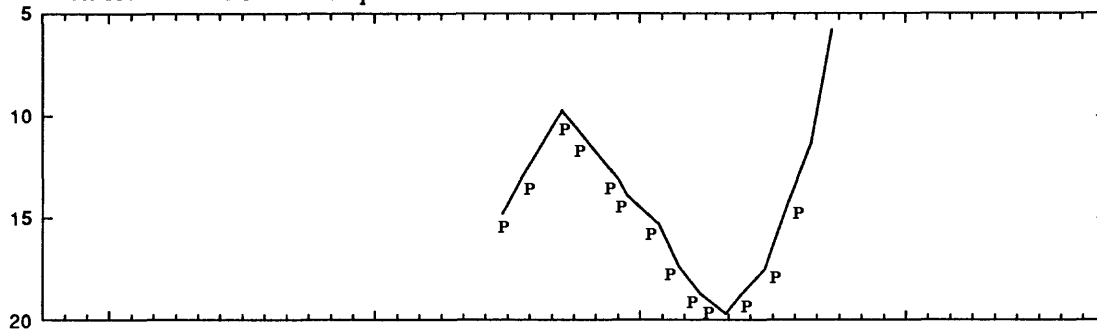


JEFFERSON COUNTY

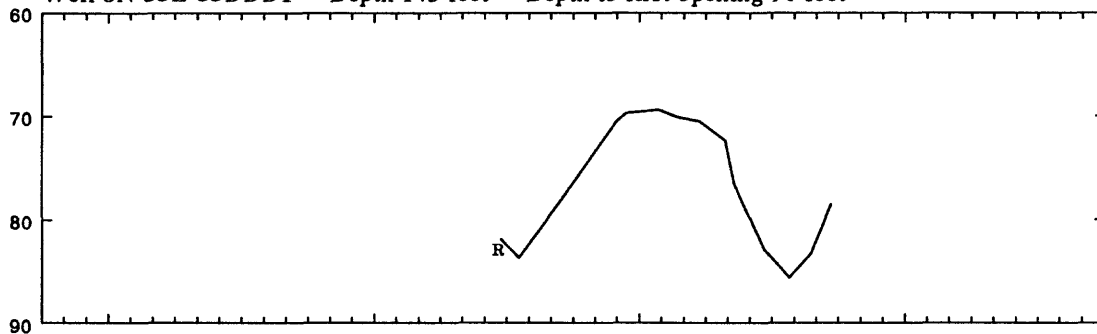


JEFFERSON COUNTY

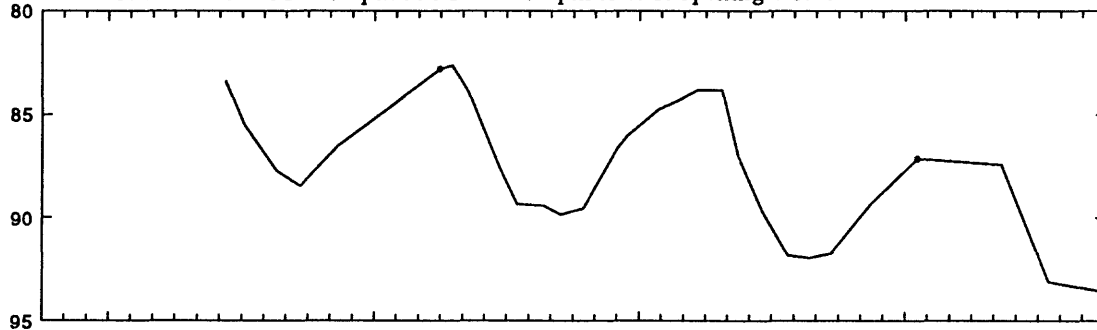
Well 8N-33E-27DAC1 Depth 35 feet



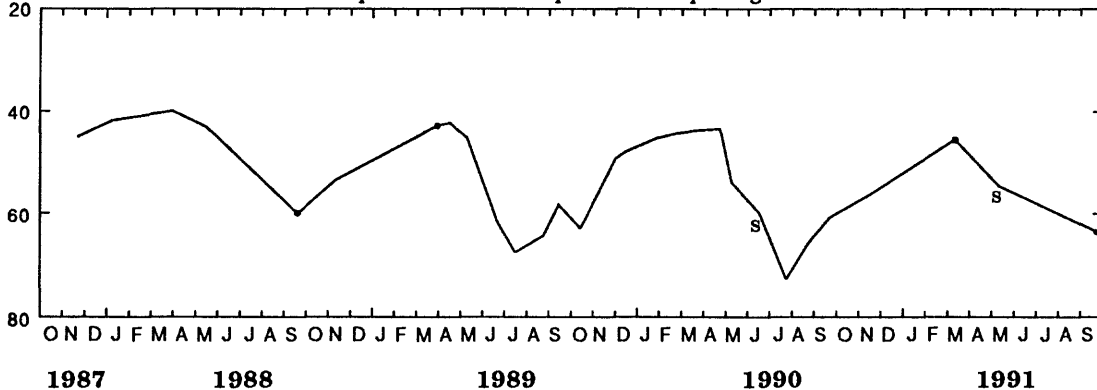
Well 8N-33E-33DDD1 Depth 145 feet Depth to first opening 90 feet



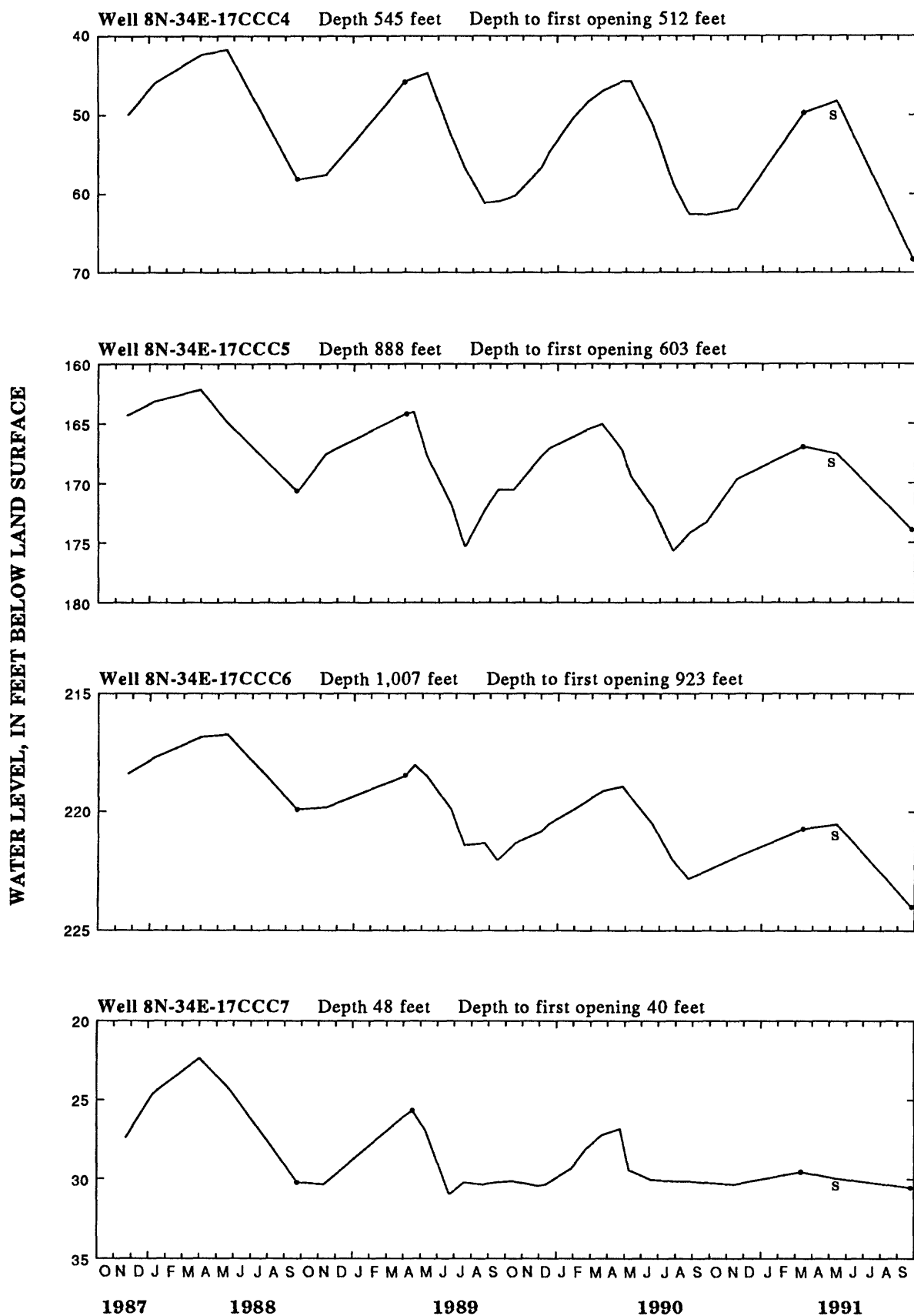
Well 8N-34E-11DCC1 Depth 110 feet Depth to first opening 7 feet



Well 8N-34E-17CCC3 Depth 440 feet Depth to first opening 340 feet

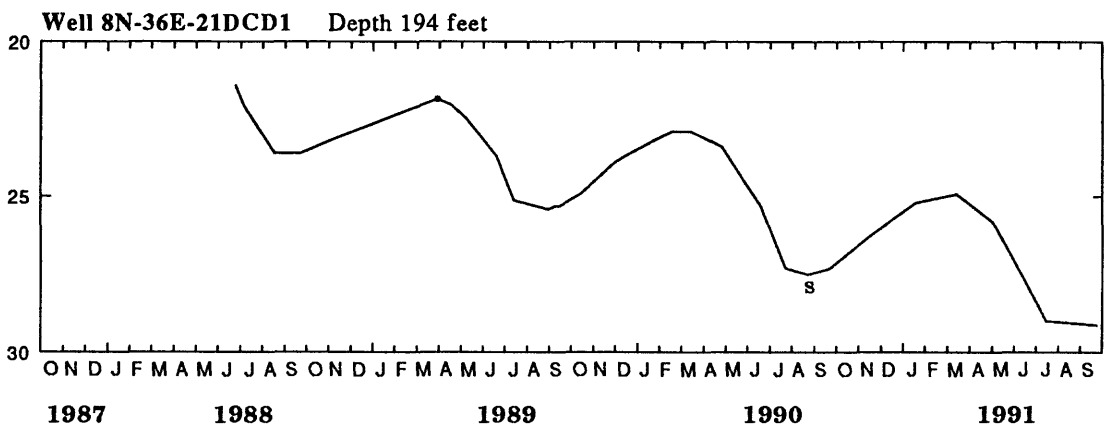
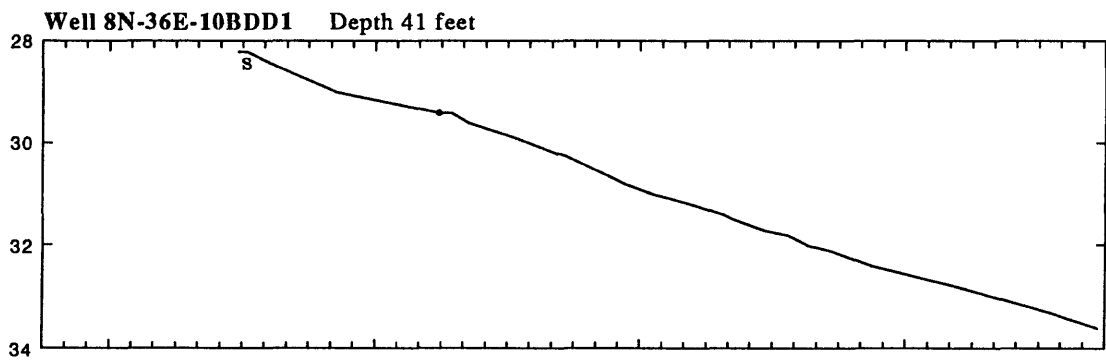
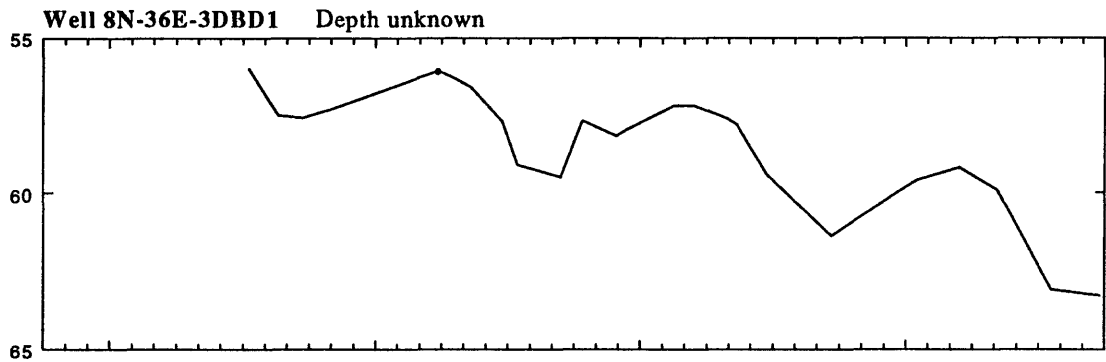
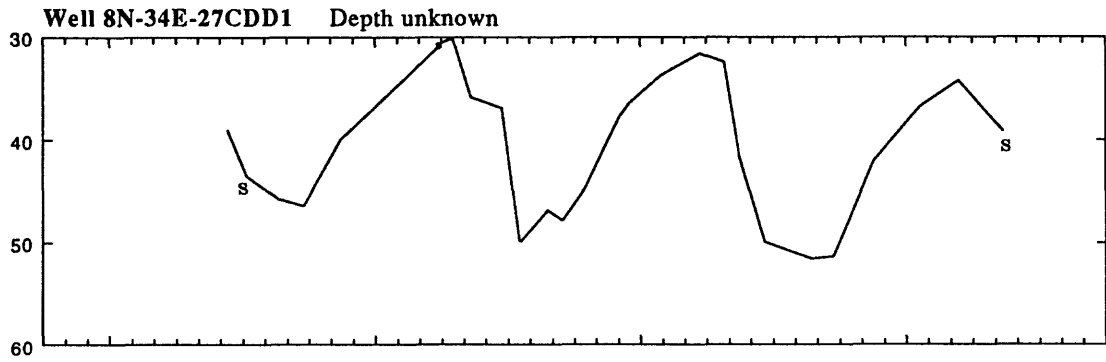


JEFFERSON COUNTY



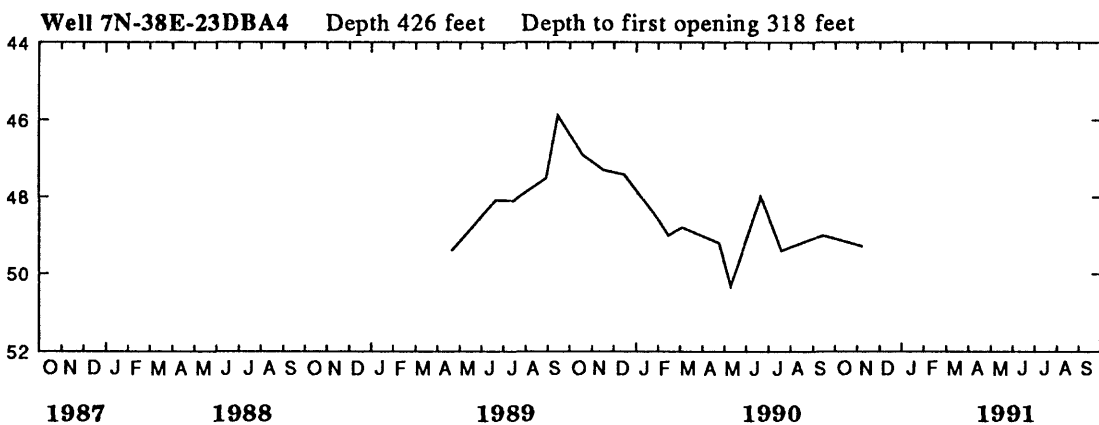
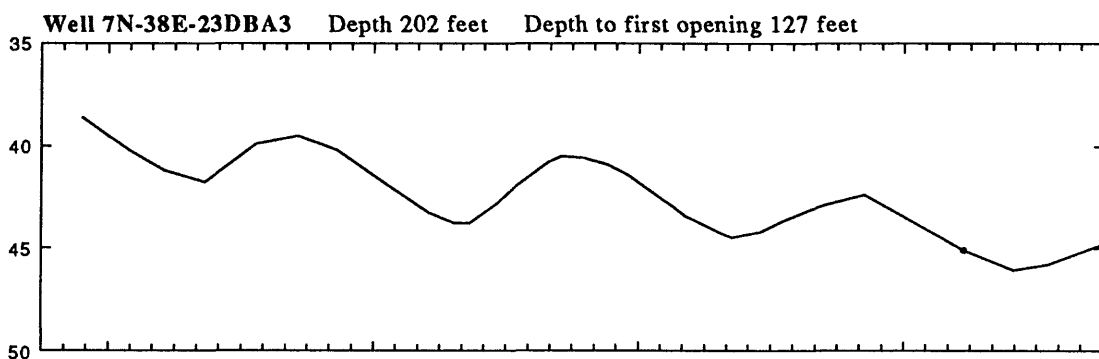
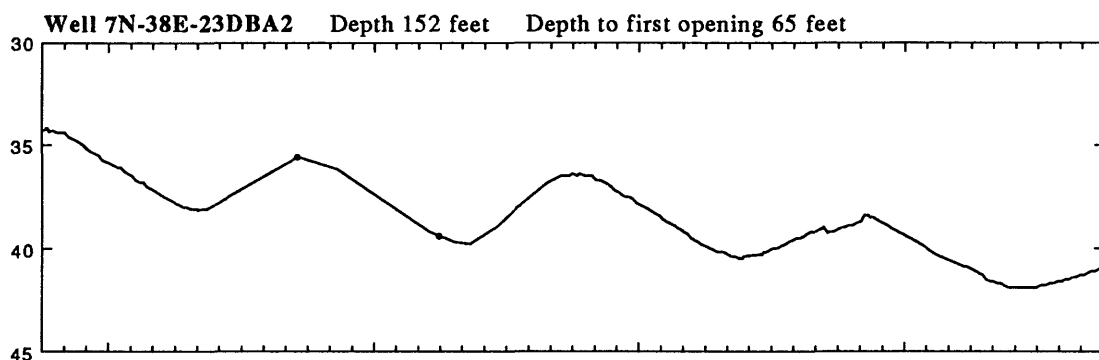
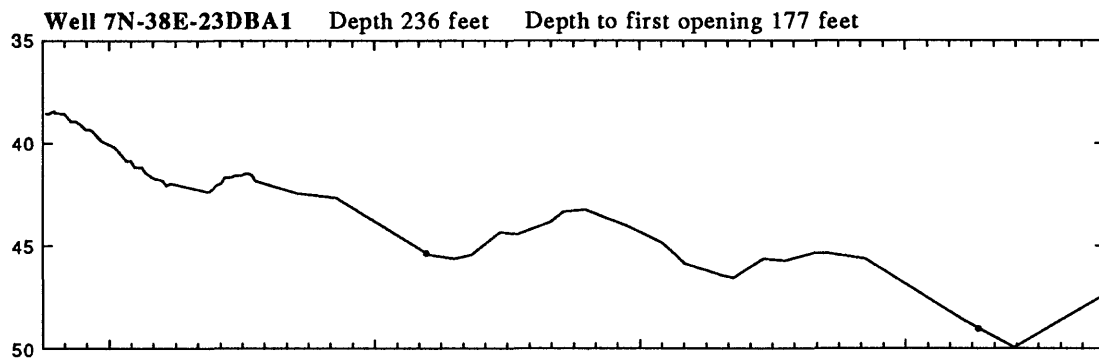
JEFFERSON COUNTY

WATER LEVEL, IN FEET BELOW LAND SURFACE



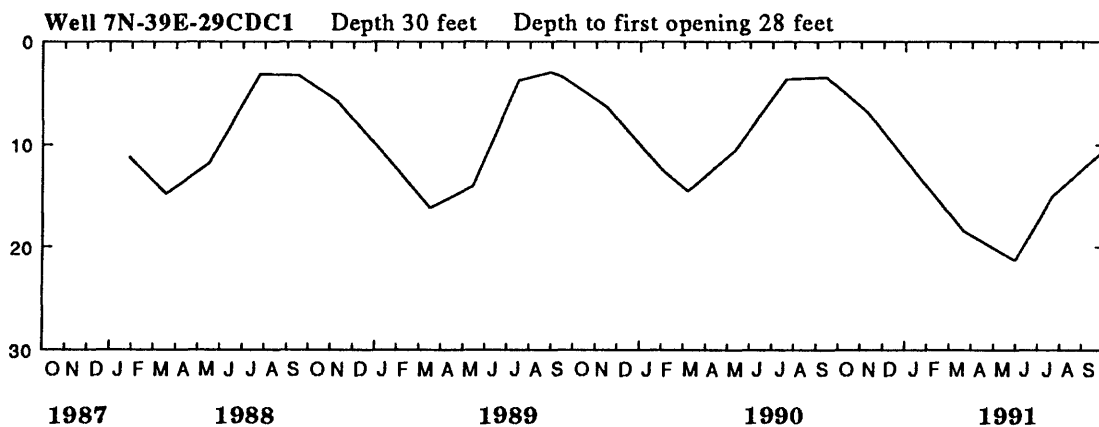
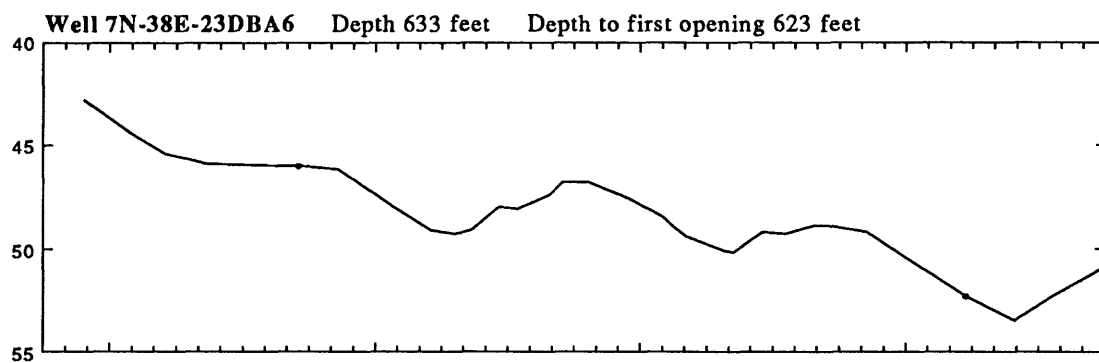
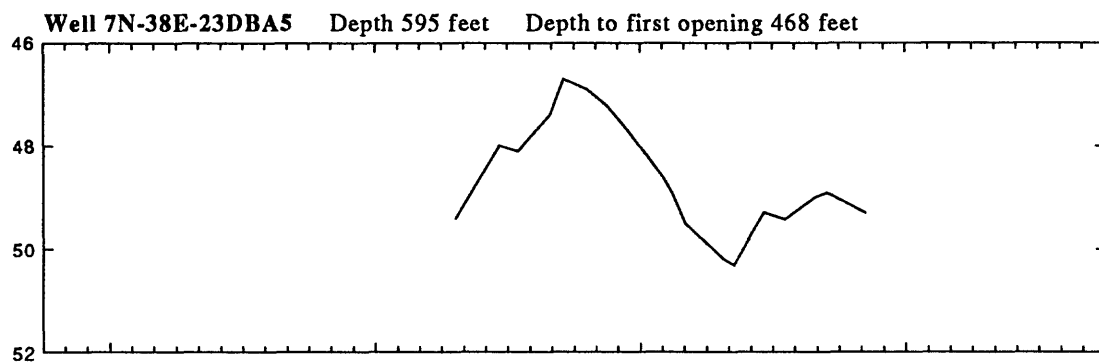
MADISON COUNTY

WATER LEVEL, IN FEET BELOW LAND SURFACE



MADISON COUNTY

WATER LEVEL, IN FEET BELOW LAND SURFACE



Tables 3 – 4

Table 3.—Lithologic material logs for selected test holes

[Depth, in feet below land-surface datum. Thickness, in feet]

Well number	Material	Depth		Thickness
		From	To	
5N-37E- 8DCC2	Sand	0	21	21
	Clay	21	22.5	1.5
	Basalt	22.5		
6N-34E- 1CDA2	Sandy clay	0	7	7
	Clay, sand stringers	7	45	38
7N-35E-25DAC2	Silt	0	4	4
	Sand	4	22	18
	Clay	22	23	1
	Sand	23	31	8
	Clay	31	34	3
	Sand	34	36	2
	Clay	36	41	5
	Sand	41	42	1
	Clay	42	43	1
7N-35E-32DAD2	Sand	0	20	20
	Clay	20	30	10
	Sand	30	35	5
	Clay	35	37.5	2.5
7N-36E- 9BBB1	Sand and clay	0	30	30
	Grey basalt	30	50	20
	Red basalt	50	61	11
	Grey basalt	61	69	8
	Red basalt	69	91	22
	Grey basalt	91	106	15
	Red basalt	106	112	6
	Hard grey basalt	112	146	34
	Cinders	146	154	8
	Grey basalt	154	242	88
	Broken basalt	242	244	2
	Basalt	244	252	8
	Broken basalt	252	255	3
	Basalt	255	283	28
	Broken basalt and cinders	283	288	5

Table 3.—Lithologic material logs for selected test holes—Continued

Well number	Material	Depth		Thickness
		From	To	
7N-36E- 9BBB1	Basalt	288	306	18
	Cinders	306	310	4
	Broken basalt	310	314	4
	Dense grey basalt	314	366	52
	Broken basalt	366	368	2
	Dense grey basalt	368	395	27
	Broken basalt	395	396	1
	Dense grey basalt	396	414	18
	Broken basalt	414	417	3
	Dense grey basalt	417	426	9
	Broken basalt	426	432	6
	Grey basalt	432	452	20
	Broken basalt	452	454	2
	Basalt	454	459	5
	Broken basalt	459	461	2
	Basalt	461	468	7
	Broken basalt and cinders	468	480	12
	Grey basalt	480	498	18
8N-40E- 6CCC1	Fine sand	0	2	2
	Basalt	2	10	8
	Broken basalt	10	12	2
	Basalt	12	36	24
	Red cinders	36	53	17
	Broken basalt	53	73	20
	Red cinders	73	77	4
	Basalt	77	101	24
	Red cinders	101	112	11
	Basalt	112	134	22
	Red cinders	134	136	2
	Basalt	136	140	4
	Red cinders	140	146	6
	Broken basalt	146	150	4
	Basalt	150	164	14
	Red cinders	164	171	7
	Basalt	171	183	12
	Broken basalt	183	188	5
	Basalt	188	201	13

Table 3.—Lithologic material logs for selected test holes—Continued

Well number	Material	Depth		Thickness
		From	To	
8N-40E- 6CCC1	Red cinders	201	216	15
	Basalt	216	251	35
	Broken basalt and cinders	251	304	53
	Basalt	304	311	7
	Cinders	311	319	8
9N-38E- 5BBA1	Sandy topsoil	0	3	3
	Basalt	3	30	27
	Red cinders	30	36	6
	Tan cinders	36	39	3
	Basalt and cinders	39	44	5
	Basalt	44	61	17
	Basalt and cinders	61	64	3
	Hard grey basalt	64	118	54
	Cinders	118	119	1
	Hard grey basalt	119	125	6
	Cinders	125	127	2
	Basalt and broken basalt	127	138	11
	Broken basalt	138	141	3
	Basalt	141	143	2
	Broken basalt	143	149	6
	Basalt	149	169	20
	Cinders	169	171	2
	Hard grey basalt	171	204	33
	Broken basalt	204	211	7
	Hard grey basalt	211	229	18
	Broken basalt	229	233	4
	Hard grey basalt	233	257	24
	Cinders	257	265	8
	Cinders and broken basalt	265	286	21
	Basalt	286	299	13
	Cinders	299	302	3
	Basalt	302	308	6
	Cinders	308	311	3
	Basalt	311	322	11
	Broken basalt	322	326	4

Table 3.— *Lithologic material logs for selected test holes—Continued*

Well number	Material	Depth		Thickness
		From	To	
9N-38E- 5BBA1	Basalt	326	340	14
	Cinders	340	350	10
	Hard basalt	350	374	24
	Broken basalt	374	378	4
	Hard basalt	378	392	14
	Cinders	392	394	2
	Basalt	394	403	9
	Cinders	403	404	1
	Basalt	404	461	57
	Cinders and broken basalt	461	474	13
	Hard grey basalt	474	563	89
	Broken basalt and cinders	563	571	8
	Hard grey basalt	571	577	6
	Cinders	577	581	4
	Hard grey basalt	581	658	77
	Broken basalt and cinders	658	674	16
	Basalt	674	681	7
	Cinders	681	683	2
	Basalt	683	697	14
	Cinders	697	700	3
	Basalt	700	748	48
	Broken basalt	748	751	3
	Basalt	751	755	4
	Broken basalt and cinders	755	760	5
	Basalt	760	795	35
	Cinders	795	800	5
	Basalt	800	803	3
11N-39E- 7DBC1	Soil	0	5	5
	Basalt	5	49	44
	Sand and gravel	49	65	16
	Basalt	65	114	49
	Red ash	114	117	3
	Basalt	117	120	3
	Red ash	120	134	14
	Basalt	134	186	52
	Red ash	186	195	9
	Basalt	195	198	3

Table 3.—Lithologic material logs for selected test holes—Continued

Well number	Material	Depth		Thickness
		From	To	
11N-39E- 7DBC1	Red ash	198	202	4
	Basalt	202	208	6
	Red ash	208	212	4
	Basalt	212	234	22
	Gravel	234	236	2
	Basalt	236	240	4
	Cinders	240	250	10
	Basalt	250	264	14
	Cinders	264	276	12
	Basalt	276	316	40
	Cinders	316	322	6
	Basalt	322	332	10
	Cinders	332	344	12
	Basalt	344	364	20
	Basalt, ash, and cinders	364	375	11
	Basalt	375	426	51
	Red ash	426	430	4
	Basalt	430	452	22
	Red ash	452	459	7
	Basalt	459	466	7
	Red ash	466	470	4
	Basalt	470	476	6
	Red ash	476	484	8
	Basalt and ash	484	488	4
	Basalt	488	522	34
	Broken basalt and cinders	522	540	18
	Basalt	540	557	17
	Red ash	557	559	2
	Basalt	559	575	16
	Red ash	575	577	2
	Basalt	577	659	82
	Red ash	659	663	4
	Basalt	663	740	77
	Cinders and ash	740	758	18

Table 4.—Water-level measurements in selected wells, 1989

[Well number, see figure 2 and description in text; land-surface datum, in feet above sea level (data to nearest foot were estimated from topographic maps, data to hundredths of a foot were leveled); well depth, in feet below land-surface datum; depth to first perforation, in feet below land-surface datum; water-level measurement, in feet below land-surface datum; status: D—dry, G—nearby flowing, P—pumping, R—recently pumped, S—nearby pumping, V—foreign substance, X—surface-water effects; —, no data; blank elements denote repeating information in same column from preceding row]

Well number	Land-surface datum	Well depth	Depth to first perforation	Water-level measurement		
				Depth	Date	Status
4N-35E-10DAD1	4,995	—	—	458.45	4-17	
4N-35E-14AAA1	4,939.32	1,000	430	408.33	4-20	
4N-35E-14AAA1				411.53	9-14	
4N-35E-15DBA1	4,981	495	11	450.78	4-15	
4N-35E-20CAA1	5,030	—	—	503.61	4-13	
4N-35E-25ADA1	4,958	—	—	425.19	4-15	
4N-35E-34ADD1	5,010	655	18	483.78	4-13	
4N-35E-34CBB1	5,040	—	—	514.90	4-12	
4N-36E- 1DDB1	4,830	942	143	94.93	4-10	V
4N-36E- 2CDA1	4,832	375	18	297.68	4-11	
4N-36E- 3AAB1	4,803	—	—	266.58	4-10	
4N-36E- 3AAB1				269.91	8-31	
4N-36E- 3CAD1	4,821	393	—	282.03	4-13	
4N-36E- 3CAD1				284.69	8-31	
4N-36E- 3DAD1	4,800	—	—	262.23	4-13	
4N-36E- 4CAB1	4,830	410	138	298.88	4-13	
4N-36E- 4CAB1				302.53	8-31	
4N-36E- 4DAD1	4,821	—	—	288.40	4-13	
4N-36E- 4DAD1				291.65	8-31	
4N-36E- 5ABA1	4,850	415	69	304.35	4-13	
4N-36E- 5ABA1				308.43	8-31	
4N-36E- 8ACD1	4,852	467	42	322.23	4-12	
4N-36E-18BDC1	4,898	520	15	364.64	4-19	
5N-32E-36ADD1	4,839.44	405.50	360	327.91	4-15	
5N-32E-36ADD1				330.41	8-15	
5N-33E-10CDC1	4,886.19	428	285	252.34	4-17	
5N-33E-10CDC1				255.62	8-28	
5N-33E-13BDC1	4,794.58	405	276	264.61	4-17	
5N-33E-13BDC1				269.28	8-24	
5N-33E-13BDC2	4,794.58	493	392.50	262.60	4-17	

Table 4.—Water-level measurements in selected wells, 1989—Continued

Well number	Land-surface datum	Well depth	Depth to first perforation	Water-level measurement		
				Depth	Date	Status
5N-33E-13BDC2				267.34	8-24	
5N-33E-13BDC2				267.40	8-28	
5N-33E-13BDC3	4,794.58	1,006.50	717.50	253.22	4-17	
5N-33E-13BDC3				257.28	8-28	
5N-33E-17ADD1	4,771.61	334	254	226.94	4-17	
5N-33E-17ADD1				229.76	8-28	
5N-33E-23DDA1	4,812.38	392	306	284.82	4-17	
5N-34E- 1DAB1	4,787	—	—	248.21	4-12	
5N-34E- 1DAB1				253.52	8-31	S
5N-34E- 1DBC1	4,786	—	—	252.05	8-31	R
5N-34E- 2DAB1	4,790	337	52.50	251.95	4-12	
5N-34E- 4DAA1	4,790	—	—	258.68	8-28	S
5N-34E- 5DAB1	4,789	—	—	253.25	4-16	S
5N-34E- 5DDC1	4,790	—	—	249.45	8-28	
5N-34E- 9BDA1	4,791.28	553	285	256.40	4-16	
5N-34E- 9BDA1				261.58	8-28	
5N-34E-29DAA1	4,877.52	425.50	363	349.54	4-17	
5N-35E- 1CCC1	4,793	300	21	236.09	4-13	
5N-35E- 3ACD1	4,801	—	—	251.97	4-12	
5N-35E- 3ACD1				258.22	9- 6	
5N-35E- 3CDB1	4,792	—	—	247.92	4-13	
5N-35E- 3CDB1				249.88	9- 6	
5N-35E- 4BDB3	4,789	—	—	244.39	4-11	
5N-35E- 4BDB3				250.16	8-31	
5N-35E- 6DDC1	4,789	330	60.50	248.29	4-11	
5N-35E- 6DDC1				253.76	8-31	S
5N-35E- 8AAD1	4,790	372	24	250.13	4-11	
5N-35E- 8AAD1				253.08	8-31	
5N-35E- 8BAA1	4,790	—	—	246.09	4-11	
5N-35E- 8BAA1				251.67	8-31	S
5N-35E-10DCC1	4,900	350	16	258.84	4-13	
5N-36E- 2BDA1	4,763.57	405	18	50.18	4-15	
5N-36E- 2BDA1				52.55	8-30	
5N-36E- 2BDA2	4,763.57	923	838	5.04	4-15	
5N-36E- 2BDA2				7.79	8-30	

Table 4.—Water-level measurements in selected wells, 1989—Continued

Well number	Land-surface datum	Well depth	Depth to first perforation	Water-level measurement		
				Depth	Date	Status
5N-36E- 2BDA3	4,763.57	995	985	-2.16	4-15	
5N-36E- 2BDA3				-3.76	8-30	
5N-36E-12BCC1	4,757.06	208	—	18.89	4-14	
5N-36E-21DAC1	4,800.94	299.50	102.62	257.67	4-14	
5N-36E-21DAC1				262.19	8-30	
5N-36E-22BBC1	4,780.86	400	97	156.54	4-14	
5N-36E-22BBC1				154.52	9-14	
5N-36E-22BBC2	4,780.86	505	475.50	135.76	4-14	
5N-36E-22BBC2				134.40	8-30	
5N-36E-31ACB1	4,880	—	—	316.71	4-18	
5N-36E-33CAB1	4,823	378	32	284.09	4-11	
5N-36E-33CAB1				288.44	8-31	
5N-36E-35DBA1	4,791	—	—	252.93	4-10	
5N-37E-21DBB1	4,774.59	289.50	190	.69	4-18	
5N-37E-21DBB1				.58	8-30	
5N-37E-21DBB2	4,774.59	342	334.50	.63	4-18	
5N-37E-21DBB2				.10	8-30	
5N-37E-21DBB3	4,774.59	478	470.50	3.81	4-18	
5N-37E-21DBB3				1.55	8-30	
5N-38E- 2BAD1	4,852.80	82	15	61.85	8-29	P
5N-38E- 9ACD1	4,840	—	—	55.30	4-18	V
5N-38E- 9ACD1				54.99	8-29	
6N-31E-10ACC1	4,794.63	305	210.60	208.24	5-19	
6N-31E-11CDC1	4,780.51	300	174.61	196.10	5-19	
6N-31E-12ACD1	4,790.14	324	219	203.94	5-19	
6N-31E-13DBB1	4,796.02	326	255	209.23	4-15	
6N-31E-13DBB1				211.65	8-15	
6N-31E-16DCA1	4,785	—	—	200.35	5-19	
6N-32E-11ABA1	4,789.79	266.50	232	202.48	4-27	
6N-32E-22CCB1	4,786.72	402	43	202.74	4-27	
6N-32E-26CDB1	4,787.92	321.80	236.64	216.22	5-22	
6N-32E-26CDB1				218.60	8-28	
6N-32E-36ADD1	4,785.58	292	—	218.07	4-26	
6N-32E-36ADD1				220.36	8-28	
6N-33E- 1DCD1	4,784	521	124	118.55	4-18	

Table 4.—Water-level measurements in selected wells, 1989—Continued

Well number	Land-surface datum	Well depth	Depth to first perforation	Water-level measurement		
				Depth	Date	Status
6N-33E- 1DCD1				142.83	8-23	
6N-33E- 2BAB1	4,782.90	245	140	196.74	9-13	
6N-33E-10DBC1	4,783	630	146	96.55	4-18	
6N-33E-10DBC1				217.90	8-23	P
6N-33E-11ADD1	4,783	351	205	119.06	4-18	
6N-33E-11ADD1				159.47	8-23	
6N-33E-24AAC1	4,785	360	300	148.85	4-18	
6N-33E-24AAC1				195.61	8-23	S
6N-33E-24BDD1	4,785	660	366	213.45	4-18	
6N-33E-24DDB1	4,785	—	465	197.70	4-18	
6N-33E-24DDB1				205.75	8-23	S
6N-33E-26DDB1	4,784.32	312	250	219.89	4-15	
6N-33E-26DDB1				223.43	8-15	
6N-34E- 4BAB1	4,783	370	345	161.27	8-21	R
6N-34E- 7BAA1	4,784	784	272	106.24	4-18	
6N-34E- 7BAA1				176.80	8-23	P
6N-34E- 15BCC1	4,784.75	247	115	199.60	4-18	
6N-34E- 15BCC1				200.98	8-31	
6N-34E-23AAA1	4,787	—	—	220.88	4-18	
6N-34E-23AAA1				223.78	8-31	R
6N-34E-30DAC1	4,786	610	542.50	217.65	4-16	
6N-34E-30DAC1				237.28	8-28	S
6N-34E-31BDB1	4,785	—	—	248.66	8-24	S
6N-34E-31CDB1	4,785	—	—	257.68	4-15	
6N-34E-32ACD1	4,788	—	—	251.10	4-16	
6N-34E- 2ACD1				258.50	8-31	R
6N-34E-32CAB1	4,786	—	—	250.67	4-16	
6N-34E-32CAB1				277.25	8-24	P
6N-34E-33ADB1	4,790	380	50	257.24	8-31	
6N-34E- 34BBB1	4,790	—	—	251.07	4-16	
6N-34E- 34BBB1				255.70	8-31	
6N-34E-36DBA1	4,785	—	—	248.53	4-12	
6N-34E-36DBA1				250.30	8-31	P
6N-35E- 1BBD1	4,790	—	—	70.10	4-19	
6N-35E- 1CDB1	4,790	—	—	89.40	4-14	

Table 4.—Water-level measurements in selected wells, 1989—Continued

Well number	Land-surface datum	Well depth	Depth to first perforation	Water-level measurement		
				Depth	Date	Status
6N-35E- 1CDB1				91.24	8-24	
6N-35E- 1DAD2	4,795	152	18	82.90	4-14	
6N-35E- 1DAD2				85.50	8-24	
6N-35E- 7CCB1	4,783.71	253	125	198.27	4-10	
6N-35E- 7CCB1				200.65	8-31	R
6N-35E-10BDD1	4,785	166	82	101.94	4-11	
6N-35E-10BDD1				92.02	9- 5	
6N-35E-12ADB1	4,795	152	21	89.52	4-14	
6N-35E-12DDD1	4,850	196	13	148.96	4-14	
6N-35E-12DDD1				150.82	9- 7	
6N-35E-13BCA1	4,810	—	—	113.68	4-19	
6N-35E-13BCA1				115.40	8-24	P
6N-35E-14ACA1	4,790	145	19	96.64	4-19	
6N-35E-14ACA1				98.77	8-24	S
6N-35E-14BAA1	4,789	—	—	94.04	4-14	
6N-35E-14BAA1				107.40	9- 7	P
6N-35E-14CAD1	4,789	155	64	100.62	4-13	
6N-35E-14CAD1				102.83	9- 7	
6N-35E-14DBD1	4,789	—	—	97.95	4-19	
6N-35E-14DBD1				134.29	9- 7	P
6N-35E-15AAD1	4,787.85	132	—	93.16	4-14	
6N-35E- 5AAD1				93.87	9- 5	
6N-35E-21AAB1	4,784.50	275.50	—	99.45	4-10	
6N-35E-21AAB1				111.63	9- 5	P
6N-35E-22BAB1	4,786	277	92	101.64	4-11	
6N-35E-22BAB1				96.03	9- 5	
6N-35E-22CCC1	4,788	338	24	234.07	4-11	
6N-35E-22CCC1				264.37	9- 6	
6N-35E-23BAD1	4,790.14	394	24	176.66	4-13	
6N-35E-23BAD1				200.41	9- 6	
6N-35E-23DDD1	4,833	—	—	178.68	4-13	
6N-35E-23DDD1				180	9- 6	
6N-35E-26BAC1	4,790.59	307	39	218.05	4-13	
6N-35E-26BAC1				222.05	9- 6	
6N-35E-27ABC1	4,796	350	—	237.29	4-13	

Table 4.—*Water-level measurements in selected wells, 1989—Continued*

Well number	Land-surface datum	Well depth	Depth to first perforation	Water-level measurement		
				Depth	Date	Status
6N-35E-27DDA1	4,798.23	260	8	234.60	4-12	
6N-35E-27DDA1				242.39	9- 6	
6N-35E-28BBA1	4,785	310	98	233.20	4-10	
6N-35E-29DBA1	4,786	—	—	238.86	4-10	
6N-35E-29DBA1				244.54	9- 6	
6N-35E-31DBC1	4,785	—	—	239.53	4-11	
6N-35E-31DBC1				245.12	8-31	S
6N-35E-32ACC1	4,788	—	—	238	4-11	
6N-35E-32ACC1				243.55	9- 6	
6N-35E-32DDD1	4,789	290	165	243.83	4-17	S
6N-35E-32DDD1				249.48	8-31	
6N-35E-33BBA1	4,788	—	—	240.07	4-10	
6N-35E-33BBA1				246.26	9- 6	P
6N-35E-33CDA1	4,792.28	400	101	245.07	4-10	
6N-35E-33CDA1				251.44	8-31	S
6N-35E-35BCB1	4,802.95	—	3.25	239.66	4-12	
6N-35E-35BCB1				328.79	9- 6	V
6N-36E- 5ADB1	4,855	—	—	134.16	4-20	
6N-36E- 5ADB1				136.38	9- 6	
6N-36E- 5BCA1	4,819	—	—	99.15	4-20	
6N-36E- 5CDB1	4,850	—	—	131.86	4-20	
6N-36E- 6ADB1	4,804	—	—	112.25	4-19	
6N-36E- 6BCD1	4,800	—	—	91.92	4-19	
6N-36E- 6BDB1	4,792	—	—	75.36	4-20	
6N-36E- 6CAC1	4,815	157	18	111	4-19	
6N-36E- 7DBC1	4,851	—	—	146.28	4-14	
6N-36E- 7DBC1				149.85	8-24	P
6N-36E- 8BCC1	4,885	260	5	52.40	9- 5	
6N-36E-11ABA1	4,817.90	126	118.50	72.33	4-18	
6N-36E-11ABA1				74.08	8-30	
6N-36E-11ABA3	4,817.90	661	653.50	37.54	4-18	
6N-36E-11ABA3				40.37	8-30	
6N-36E-11ABA4	4,817.90	971	962.50	55.17	4-18	
6N-36E-11ABA4				57.06	8-30	
6N-36E-15ACA1	4,875.14	170	5	152.19	4-18	

Table 4.—*Water-level measurements in selected wells, 1989—Continued*

Well number	Land-surface datum	Well depth	Depth to first perforation	Water-level measurement		
				Depth	Date	Status
6N-36E-15ACA1				154.34	8-30	
6N-36E-27BAA1	4,884.31	227.50	7.75	184.33	4-15	
6N-36E-27BAA1				186.89	8-30	
6N-37E-20CBD1	4,820	—	—	33.81	4-15	
6N-37E-20CBD1				34.60	8-30	
6N-37E-29ACA1	4,823.62	62	21	45.02	4-15	
6N-37E-29ACA1				45.79	8-29	
6N-37E-29ACA2	4,823.62	175	151.50	48.98	4-15	
6N-37E-29ACA2				49.98	8-29	
6N-37E-29ACA4	4,823.62	573	505	41.06	4-15	
6N-37E-29ACA4				43.80	9-15	
6N-37E-30BAB1	4,770	50	—	28.69	4-15	
6N-37E-30BAB1				30.18	8-30	
6N-38E- 2DBD1	4,884.70	325	—	82.54	4-10	
6N-38E- 2DBD1				76.63	8-29	
6N-38E- 2DBD2	4,884.70	685	618.50	82.54	4-10	
6N-38E- 2DBD2				80.94	8-29	
6N-38E-14DBB2	4,845	—	—	37.89	4-10	
6N-38E-25ACB4	4,826.70	681	483.30	21.52	5-12	
6N-38E-25ACB4				18.64	9-20	
6N-38E-30BAD1	4,870.56	112	—	89.53	4-15	
6N-38E-30BAD1				92.57	8-29	
6N-38E-30BAD2	4,874.35	308	260	92.12	4-15	
6N-38E-30BAD2				92.78	8-29	
6N-38E-30BAD3	4,874.35	543.50	442.50	87.86	4-15	
6N-38E-30BAD3				89.18	8-29	
6N-38E-30BAD4	4,874.35	638	587.50	89.79	4-15	
6N-38E-30BAD4				89.70	8-29	
6N-38E-34BDA1	4,815.80	40	—	20.08	4-10	
6N-38E-34BDA1				22.09	8-29	S
6N-38E-34BDD1	4,835	—	—	41.07	4-10	
6N-38E-34BDD1				48.25	8-29	P
6N-38E-34DDA1	4,835	—	—	44.96	4-10	
6N-38E-34DDA1				45.78	8-29	
6N-39E-10BBB1	4,834.20	260.05	168	23.38	5-15	

Table 4.—Water-level measurements in selected wells, 1989—Continued

Well number	Land-surface datum	Well depth	Depth to first perforation	Water-level measurement		
				Depth	Date	Status
6N-39E- 10BBB1				20.68	9-20	
6N-39E- 10BBB2	4,834.20	317	307.50	23.61	5-15	
6N-39E- 10BBB2				20.92	9-20	
6N-39E- 10BBB3	4,834.20	545	376.50	23.53	5-15	
6N-39E- 10BBB3				20.84	9-20	
6N-39E- 10BBB4	4,834.20	636.80	592.50	21.51	5-15	
6N-39E- 10BBB4				20.85	9-20	
6N-39E- 13ABA1	4,863.51	29.90	27.90	12.59	5-15	
6N-39E- 13ABA1				7.34	9-20	
6N-39E- 16DAA1	4,834.85	26.70	24.70	8.74	5-15	
6N-39E- 16DAA1				5.24	9-20	
6N-39E- 28BBB1	4,828.69	26.30	24.30	8.42	5-15	
6N-39E- 28BBB1				5.46	9-18	
6N-39E- 30ADC1	4,816.92	295	263	6.36	5-15	
6N-39E- 30ADC1				4.20	9-18	
6N-39E- 30ADC2	4,816.92	620	437.50	9.83	5-15	
6N-39E- 30ADC2				7.22	9-18	
7N-31E- 22BDD1	4,935.01	433	353.79	346.86	5-19	
7N-31E- 26BBC1	4,885.55	406	322.34	298.70	5-19	
7N-31E- 28CAC1	4,896.09	432	321.90	309.14	5-19	
7N-31E- 28DAB1	4,891.30	386	312.63	304.65	4-18	
7N-31E- 33DCD1	4,872.51	396	296.24	285.96	5-19	
7N-31E- 34BDD1	4,848.83	320	285	262.09	4-15	
7N-31E- 34BDD1				264.78	8-15	
7N-33E- 2AAD1	4,789	—	—	39.21	4-19	
7N-33E- 2DBC1	4,789	335	17	52.18	4-18	
7N-33E- 2DBC1				65.59	9- 7	
7N-33E- 3DAA1	4,789	26	—	24.10	4-18	P
7N-33E- 5BBB1	4,796	232	160	215.97	9-13	
7N-33E- 5BBC1	4,795	—	—	204.42	4-17	
7N-33E- 5BBC1				208.35	9- 6	
7N-33E- 5BDC1	4,794	—	—	217.19	9- 6	P
7N-33E- 5DDD1	4,792	—	—	116.95	4-18	
7N-33E- 5DDD1				123.49	9- 6	
7N-33E- 6DBA1	4,800	—	—	209.46	4-17	

Table 4.—*Water-level measurements in selected wells, 1989—Continued*

Well number	Land-surface datum	Well depth	Depth to first perforation	Water-level measurement		
				Depth	Date	Status
7N-33E- 6DBA1				215.33	9- 6	P
7N-33E- 7AAD1	4,791	390	70	202.46	4-17	
7N-33E- 8CAD1	4,792	517	60	202.07	4-17	
7N-33E- 12CCB1	4,790.02	290	163	38.42	4-16	V
7N-33E- 12CCB1				50.25	9- 6	V
7N-33E- 12DDB1	4,784	—	—	34.64	4-16	V
7N-33E- 12DDB1				59.34	9- 6	V
7N-33E- 13CDA1	4,783	220	173	25.94	4-19	
7N-33E- 14BDA1	4,974	300	227	77.18	4-16	
7N-33E- 14BDA1				118.62	9- 6	
7N-33E- 14DDC1	4,782	—	—	70.32	4-16	V
7N-33E- 14DDC1				108.04	9- 6	
7N-33E- 17BBC1	4,791	490	61	207.26	4-17	
7N-33E- 17BBC1				210.43	9- 6	
7N-33E- 34AAA1	4,784	61	—	16.67	4-16	
7N-33E- 34AAA1				5.93	9- 6	
7N-33E- 35DDD1	4,782	200	143	129.06	9-13	
7N-34E- 1ABB1	4,870	115	79	85.18	4-15	
7N-34E- 1ABB1				101.83	8-24	
7N-34E- 3ACD1	4,811	75	20	25.02	4-13	
7N-34E- 3ACD1				42.86	8-23	
7N-34E- 3BAA1	4,798	—	—	17	4-13	
7N-34E- 3BAA1				34.65	8-23	
7N-34E- 3BAC1	4,800	—	—	14.05	4-13	
7N-34E- 3BAC1				34.89	8-23	
7N-34E- 3BAD1	4,800	—	—	14.88	4-13	
7N-34E- 3BCA1	4,800	—	—	16.74	4-13	
7N-34E- 3BDD1	4,798	85	19	12.26	4-13	
7N-34E- 3CDA1	4,798	75	12	13.78	4-13	
7N-34E- 3CDA1				32.41	8-23	
7N-34E- 4CDC1	4,791.76	57.30	41	7.98	4-14	
7N-34E- 4CDC1				26.78	8-22	
7N-34E- 4DAD1	4,794	61	25	8.24	4-13	
7N-34E- 4DAD1				30.98	8-22	P
7N-34E- 4DCD1	4,794	—	—	10.02	4-14	

Table 4.—Water-level measurements in selected wells, 1989—Continued

Well number	Land-surface datum	Well depth	Depth to first perforation	Water-level measurement		
				Depth	Date	Status
7N-34E- 4DCD1				30.85	8-22	
7N-34E- 4DDD1	4,794	—	—	7.63	4-14	
7N-34E- 5DAC1	4,790	—	—	6.30	4-14	
7N-34E- 5DAC1				23.46	8-23	
7N-34E- 6CDC1	4,791	—	—	14.16	4-18	
7N-34E- 6CDC1				26.53	9- 7	
7N-34E- 9ABD1	4,792	—	—	7.22	4-12	
7N-34E- 9ABD1				30.90	8-22	
7N-34E-10ACA1	4,805	88	—	17.43	4-10	
7N-34E-10ACA1				36.56	8-22	P
7N-34E-10BCA1	4,795	75	19	6.91	4-12	
7N-34E-10BCA1				33.20	8-22	P
7N-34E-10CDC1	4,795	—	—	13.69	4-11	
7N-34E-10CDC1				31.37	8-22	
7N-34E-10DCB1	4,829	110	72	44.42	4-10	
7N-34E-11BBD1	4,856	112	36	71.35	4-10	
7N-34E-11BBD1				88.56	8-22	
7N-34E-13ACC1	4,799.61	52	12	16.92	4-11	
7N-34E-13ACC1				44.30	8-22	
7N-34E-13DBA1	4,799	—	—	9.75	4-11	V
7N-34E-13DBA1				31.09	8-22	
7N-34E-15ABA1	4,815	—	—	32.56	4-10	
7N-34E-23BAB3	4,791.83	135	55	9.20	4-12	
7N-34E-23BAB3				25.46	8-22	
7N-34E-24AAC1	4,792.61	106	56	8.73	4-11	
7N-34E-24ABA1	4,792	—	—	7.26	4-11	
7N-34E-24BBA2	4,790	29.33	—	10.40	4-15	
7N-34E-24BBA2				26.07	9-14	
7N-34E-24BBC1	4,795	—	—	12.08	4-12	
7N-34E-24BBC1				33.49	8-22	P
7N-34E-32BDB1	5,780	—	—	54.53	4-10	
7N-34E-32BDB1				116.31	8-21	
7N-34E-33DCD1	4,782.21	418	382.50	43.58	4-10	
7N-34E-33DCD1				89.86	8-21	
7N-35E- 1ADC1	4,798	—	—	7.28	4-19	X

Table 4.—Water-level measurements in selected wells, 1989—Continued

Well number	Land-surface datum	Well depth	Depth to first perforation	Water-level measurement		
				Depth	Date	Status
7N-35E- 1DAA1	4,794.90	174	60	10.09	4-18	
7N-35E- 1DAA1				14.16	8-29	
7N-35E- 1DBB1	4,800	185	—	11.65	4-18	
7N-35E- 1DBB1				15.80	8-29	S
7N-35E- 6ACC1	4,857	—	—	73.36	4-15	
7N-35E-13AAD1	4,789.50	515	322.50	5.24	4-19	X
7N-35E-13AAD1				9.45	8-28	
7N-35E-13AAD2	4,789.50	760	637.50	4.83	4-19	X
7N-35E-13AAD2				6.09	8-28	
7N-35E-13AAD3	4,789.50	827	809.50	.43	4-19	X
7N-35E-13AAD3				2.78	8-28	
7N-35E-13AAD4	4,789.50	1,000.70	862.50	.32	4-19	X
7N-35E-13AAD4				2.82	8-28	
7N-35E- 13CCC2	4,793.72	—	—	11.94	4-18	S
7N-35E- 13CCC2				24.70	8-28	S
7N-35E- 13CCC3	4,795	—	—	11.25	4-18	S
7N-35E- 13CCC3				28.92	8-28	P
7N-35E- 13CCD1	4,792.29	30	—	12.25	4-18	S
7N-35E- 13CCD3	4,800	—	—	14.86	4-17	P
7N-35E- 13CDC1	4,800	—	—	13.42	4-17	
7N-35E- 16DCB1	4,840	—	—	96.73	4-17	
7N-35E- 18CAA1	4,840	—	—	29.79	4-12	
7N-35E- 18CAA1				49.67	8-22	
7N-35E- 18CCD1	4,798	—	—	11.13	4-12	
7N-35E- 18CDC1	4,809	—	—	24.71	4-12	
7N-35E- 19BAA1	4,810	—	—	13	4-11	
7N-35E- 19BCA1	4,793	—	—	8.39	4-11	
7N-35E- 19BDB1	4,791	—	—	8.21	4-11	
7N-35E- 19BDB1				39.10	8-22	P
7N-35E- 20CBD1	4,818.15	58.10	45	35.80	4-14	
7N-35E- 20CBD1				51.85	8-15	
7N-35E- 20DDA1	4,798.77	99	48	19.84	4-14	
7N-35E- 20DDA2	4,790	—	—	10.49	4-14	
7N-35E- 22CBD1	4,790	—	—	8.40	4-17	
7N-35E- 22CBD2	4,790	—	—	8.76	4-17	

Table 4.—*Water-level measurements in selected wells, 1989—Continued*

Well number	Land-surface datum	Well depth	Depth to first perforation	Water-level measurement		
				Depth	Date	Status
7N-35E-22DAC1	4,790	36	—	9.67	4-15	
7N-35E-22DAD1	4,792.49	43	—	8.16	4-15	
7N-35E-23CBC1	4,790	—	—	9.03	4-14	
7N-35E-23CBC1				40.56	8-25	
7N-35E-23CCC1	4,790	—	—	10.32	4-14	
7N-35E-25ABB1	4,788	—	—	6.88	4-12	V
7N-35E-25BBA1	4,795	83	—	7.31	4-13	V
7N-35E-25BBB1	4,790	61	36	6.47	4-13	
7N-35E-25CBC1	4,800	—	—	18.31	4-12	
7N-35E-25CCB1	4,795	—	—	9.47	4-12	
7N-35E-25CCB3	4,795	—	—	10.55	4-13	
7N-35E-25CCB4	4,795	152	95	9.66	4-13	V
7N-35E-25CCC1	4,790	33	28.24	10.67	4-12	
7N-35E-25CDA3	4,790	—	—	7.47	4-11	X
7N-35E-25DCB1	4,790	—	—	6.55	4-13	
7N-35E-25DCB2	4,790	—	—	6.77	4-11	X
7N-35E-25DCB3	4,790	—	—	6.74	4-11	
7N-35E-25DCB4	4,790	—	—	6.92	4-11	X
7N-35E-25DCB5	4,790	—	—	6.60	4-11	X
7N-35E-25DCC1	4,790	82	59	8.82	4-11	
7N-35E-26AAC1	4,791	—	—	8.01	4-13	
7N-35E-26ADC1	4,795	—	—	9.68	4-13	
7N-35E-26CBA1	4,790	—	—	5.92	4-14	
7N-35E-26CDB1	4,785	—	—	4.89	4-14	
7N-35E-26CDD1	4,790	32.63	—	7.13	4-13	
7N-35E-26CDD1				19.11	9-14	
7N-35E-26DAA1	4,795	75	34	11.80	4-13	
7N-35E-26DAC1	4,790	49	40	9.30	4-12	
7N-35E-26DDA1	4,790	—	—	9.93	4-12	
7N-35E-26DDB1	4,792	—	—	12.39	4-12	
7N-35E-27ABB1	4,792	—	—	7.56	4-15	V
7N-35E-27ABD1	4,790	—	—	7.49	4-15	
7N-35E-27ABD2	4,790	—	—	7.79	4-15	
7N-35E-27ADB1	4,786	—	—	4.57	4-15	X
7N-35E-27ADD1	4,790	—	—	6.99	4-15	X

Table 4.—Water-level measurements in selected wells, 1989—Continued

Well number	Land-surface datum	Well depth	Depth to first perforation	Water-level measurement		
				Depth	Date	Status
7N-35E-27DAA1	4,790	30	19	6.41	4-14	
7N-35E-34DDB1	4,785	—	—	148.14	4-11	
7N-35E-36AAC1	4,790	120	89	37.04	4-11	
7N-35E-36BAA1	4,790	—	—	9.30	4-13	
7N-35E-36BBD1	4,790	180	94	9.61	4-13	V
7N-35E-36CDD1	4,790	—	—	167.24	4-11	
7N-35E-36DAC1	4,790	—	—	65.10	4-11	
7N-36E- 1AAC1	4,950	180	20	166.03	4-12	
7N-36E- 1AAC1				169.35	8-31	
7N-36E- 1CAB1	4,960	236	19	182.26	4-11	V
7N-36E- 1CAB1				185.69	8-31	V
7N-36E- 2ADB1	4,935	225	8	145.19	4-11	R
7N-36E- 2ADB1				148.72	8-31	P
7N-36E- 3BDA1	4,836	154	10	61.34	4-12	
7N-36E- 3BDA1				64.80	8-31	
7N-36E- 3CDA1	4,865	153	13	76.85	4-12	
7N-36E- 3CDA1				80.27	8-31	
7N-36E- 4CBA1	4,800	150	82	17.29	4-20	
7N-36E- 4CBA1				20.79	8-30	S
7N-36E- 4DDD1	4,817	120	15	30.16	4-12	
7N-36E- 5CAA1	4,798	239	74.75	16.95	4-19	P
7N-36E- 5CAA1				20.15	8-29	P
7N-36E- 5DDA1	4,800	—	—	12.26	4-20	
7N-36E- 5DDA1				15.89	8-30	P
7N-36E- 6BCA1	4,798.22	38	12	8.57	4-20	
7N-36E- 6DAD1	4,800	—	—	11.13	4-19	
7N-36E- 6DBA1	4,800	165	75	8.15	4-19	X
7N-36E-10AAB1	4,885	168	3	99.83	4-11	V
7N-36E-10AAB1				103.34	8-31	V
7N-36E-10BCA1	4,815	75	18	28.04	4-12	V
7N-36E-10BCA1				31.54	8-31	
7N-36E-11ACD1	4,900	—	—	103.95	4-10	V
7N-36E-11CCA1	4,855	110	19	61.22	4-11	
7N-36E-12BBA1	4,970	262	150	185.27	4-11	
7N-36E-12DAB1	4,900	225	160	111.55	4-13	

Table 4.—Water-level measurements in selected wells, 1989—Continued

Well number	Land-surface datum	Well depth	Depth to first perforation	Water-level measurement		
				Depth	Date	Status
7N-36E-12DAB1				114.82	8-31	S
7N-36E-13AAB1	4,852.75	153	15	66.79	4-13	
7N-36E-13AAB1				69.97	8-31	
7N-36E-13BBC1	4,840	—	—	40.97	4-10	V
7N-36E-13BBC1				44.19	8-31	V
7N-36E-14CBA1	4,789	—	—	5.54	4-20	
7N-36E-14CBA1				8.73	9-11	
7N-36E-15BAC1	4,800	—	—	9.55	4-20	
7N-36E-20CCA1	4,785	23.17	—	.64	4-19	X
7N-36E-20CCA1				6.20	9-11	
7N-36E-20DDA1	4,790	—	—	8.75	4-20	
7N-36E-21DAA1	4,791	114	4	12.16	4-20	
7N-36E-21DAA1				15.07	9- 6	
7N-36E-21DCA1	4,790	—	—	2.71	4-20	V
7N-36E-22ABD4	4,791.73	24.52	18	7.71	4-20	
7N-36E-22ABD4				10.99	9- 6	S
7N-36E-22DDA1	4,805	150	20	19.36	4-10	V
7N-36E-22DDA1				37.35	9- 6	P
7N-36E-23ABC1	4,795	—	—	13.05	4-10	
7N-36E-23ABC1				16.33	9- 6	
7N-36E-23CAD1	4,812	155	20	33.48	4-10	
7N-36E-23CAD1				57.45	9- 6	P
7N-36E-24AAB1	4,830	85	18	39.90	4-18	
7N-36E-24AAB1				42.94	9- 7	
7N-36E-24ADB1	4,828	—	—	40.42	4-13	
7N-36E-24ADB1				43.47	9- 7	
7N-36E-26BBC1	4,800	—	—	37.91	4-10	V
7N-36E-26BBC1				45.64	9- 6	
7N-36E-27DAB1	4,802	—	—	55.91	4-13	
7N-36E-27DAB1				57.55	9- 6	
7N-36E-27DDB1	4,795	—	—	46.37	4-13	
7N-36E-27DDB1				48.59	9- 6	
7N-36E-28BDB1	4,790	350	233	7.22	4-20	
7N-36E-28BDB1				10.08	9- 6	
7N-36E-28DAC1	4,792	—	—	50.50	4-20	R

Table 4.—Water-level measurements in selected wells, 1989—Continued

Well number	Land-surface datum	Well depth	Depth to first perforation	Water-level measurement		
				Depth	Date	Status
7N-36E-28DAC1				51.61	9- 6	
7N-36E-29DBB1	4,790	—	—	10.70	4-20	
7N-36E-29DBB1				15.42	9- 6	
7N-36E-31BAB2	4,793	—	—	28.28	4-20	
7N-36E-31BBA1	4,790	—	—	37.59	4-20	
7N-36E-32BAB1	4,791	—	—	14.33	4-20	
7N-36E-32BAB1				19.75	9-14	
7N-36E-32DDD1	4,840	—	—	114.96	4-20	
7N-36E-32DDD1				117.34	9- 6	
7N-36E-33DCA1	4,810	—	—	26.56	4-20	
7N-36E-33DCA1				31.25	9- 6	
7N-36E-34BBD1	4,805	—	—	64.05	4-20	
7N-36E-34BBD1				66.35	9- 6	
7N-36E-35ABD1	4,800	—	—	50.69	4-13	
7N-36E-35ABD1				62.35	9- 6	P
7N-36E-35BCB1	4,830	116	24	68.40	4-20	
7N-36E-35BCB1				70.82	9- 6	P
7N-37E- 2DDA1	4,880	123	18	100.70	8-22	
7N-37E- 3CCD1	4,858	116	8	69.12	4-19	
7N-37E- 3CCD1				72.30	8-21	
7N-37E- 5BCA1	4,890	—	—	96.74	4-14	V
7N-37E- 5BCA1				99.94	8-31	
7N-37E- 5BCC1	4,908.82	135	—	119.61	4-14	
7N-37E- 5CAD1	4,980	—	—	198.13	4-18	V
7N-37E- 5CAD1				201.27	8-31	
7N-37E- 6ACA1	4,908	—	—	114.57	4-12	V
7N-37E- 6BAC1	4,917	—	—	130.67	4-12	
7N-37E- 6BAC1			133.94	8-31	V	
7N-37E- 6BCC1	4,930	—	—	145.68	4-12	
7N-37E- 6BCC1				149	8-31	
7N-37E- 6DCC1	4,920	205	90	129.62	4-14	V
7N-37E- 6DCC1				132.90	8-31	V
7N-37E- 7DAC1	4,845	195	18	55.21	4-18	V
7N-37E- 7DAC1				58.29	8-31	R
7N-37E- 8CAC1	4,870	159	19	82.20	4-18	

Table 4.—Water-level measurements in selected wells, 1989—Continued

Well number	Land-surface datum	Well depth	Depth to first perforation	Water-level measurement		
				Depth	Date	Status
7N-37E- 8CAC1				85.39	8-31	R
7N-37E- 8DCA1	4,887	—	—	90.85	8-21	
7N-37E- 9BAD1	4,855	115	40	66.11	4-19	
7N-37E- 9BAD1				69.22	8-21	
7N-37E- 9BCA1	4,882	—	—	93.52	4-20	
7N-37E- 9BCA1				96.57	8-21	
7N-37E-10DBC1	4,850	126	36	60.47	4-19	
7N-37E-10DBC1				63.34	8-21	
7N-37E-11BAD1	4,880	115	18	88.97	8-21	
7N-37E-12BBC1	4,860	120	23.50	69.52	8-22	
7N-37E-14DBB1	4,880	180	20	86.32	8-21	
7N-37E-14DCA1	4,900	210	20	111.18	8-21	
7N-37E-15DAB1	4,870	—	—	83.87	8-21	
7N-37E-17ABB1	4,855	130	18	74.60	8-21	
7N-37E-18ACB1	4,840	100	18	46.60	4-18	
7N-37E-18CBC1	4,820	—	—	34.06	4-18	V
7N-37E-28CCD1	4,848.92	135	103	67.56	9-11	
7N-38E- 6ABD1	5,055	—	—	258.78	8-22	
7N-38E-23DBA1	4,852.35	236	177.30	45.63	4-19	
7N-38E-23DBA1				43.75	8-28	
7N-38E-23DBA2	4,852.38	152	65	39.72	4-19	
7N-38E-23DBA2				36.77	8-28	
7N-38E-23DBA3	4,855.75	201.50	127	43.81	4-19	
7N-38E-23DBA3				40.81	8-28	
7N-38E-23DBA4	4,855.75	426	317.50	49.38	4-19	
7N-38E-23DBA4				47.48	8-28	
7N-38E-23DBA5	4,855.75	595	467.50	49.36	4-19	
7N-38E-23DBA5				47.42	8-28	
7N-38E-23DBA6	4,855.75	632.50	622.50	49.31	4-19	
7N-38E-23DBA6				47.37	8-28	
7N-39E- 1AAC1	4,909	—	—	19.51	4-16	
7N-39E- 1AAC1				10.01	8-25	
7N-39E- 1CCD1	4,904.30	122	84.30	84.53	4-16	
7N-39E- 1CCD1				78.62	8-25	
7N-39E- 1CCD2	4,904.30	55	19	50.23	4-16	

Table 4.—*Water-level measurements in selected wells, 1989—Continued*

Well number	Land-surface datum	Well depth	Depth to first perforation	Water-level measurement		
				Depth	Date	Status
7N-39E- 1CCD2				46.51	8-25	
7N-39E- 7BDA1	4,874.50	340	75	64.49	4-19	
7N-39E- 7BDA1				61.54	8-28	
7N-39E- 8DBB1	4,866	110	61	42.90	8-28	
7N-39E- 15CCB1	4,873	39.40	37.40	24.67	4-20	
7N-39E- 16DBB1	4,872.84	444	215	61.49	5-11	
7N-39E- 16DBB1				59.09	8-25	
7N-39E- 16DBB2	4,872.64	107	100	41.10	4-16	
7N-39E- 16DBB2				28.67	8-25	
7N-39E- 16DBB3	4,872.54	38	32	17.17	4-16	
7N-39E- 16DBB3				4.18	8-25	
7N-39E- 29CDC1	4,849.95	29.70	27.70	13.99	5-12	
7N-39E- 29CDC1				2.93	8-28	
7N-39E- 32CBA1	4,845	159	—	19	8-28	
7N-39E- 32CCA1	4,845	55	—	9.62	8-28	
7N-39E- 34CCB1	4,828.31	342	161.50	17.63	5-15	
7N-39E- 34CCB1				14.89	9-20	
7N-40E- 5DBC1	4,919.90	39.30	37.30	11.90	5-11	
7N-40E- 5DBC1				3.98	8-25	
7N-40E- 19ADD2	4,856.33	355	144	36.24	4-16	
7N-40E- 19ADD2				30.86	9-18	
7N-40E- 19ADD3	4,856.33	40.50	33.50	21.54	4-16	
7N-40E- 19ADD3				13.21	9-18	
7N-40E- 19ADD4	4,856.93	20.50	13.50	7.42	4-16	
7N-40E- 19ADD4				2.52	9-18	
7N-40E- 23CCB1	4,923.83	50.20	48.20	47.86	4-16	
7N-40E- 23CCB1				25.45	9-18	
8N-32E- 12ADB1	4,848	335	17	257.33	4-17	
8N-32E- 13CBC1	4,880	380	11	292.51	4-17	V
8N-32E- 13CBC1				295.60	9- 1	V
8N-33E- 1BAB1	4,817	206	162	64.44	4-10	
8N-33E- 1BAB1				67.80	8-21	
8N-33E- 1BBC1	4,821	84	80	38.52	4-19	
8N-33E- 2CDC1	4,812	—	—	63.65	4-19	
8N-33E- 2CDC1				90.96	8-24	

Table 4.—Water-level measurements in selected wells, 1989—Continued

Well number	Land-surface datum	Well depth	Depth to first perforation	Water-level measurement		
				Depth	Date	Status
8N-33E- 2DAB1	4,813	—	—	77.24	4-19	P
8N-33E- 2DAB1				112.17	8-22	
8N-33E- 3ABB1	4,835	—	—	188.77	4-10	
8N-33E- 4BBB1	4,850	299	101	255.50	4-11	
8N-33E- 4BBC1	4,849	400	110	248.64	4-15	
8N-33E- 4BBC1				263.62	8-22	
8N-33E- 4CDB1	4,827	451	208	227.78	4-15	
8N-33E- 9CDD1	4,816	—	—	123.16	4-18	
8N-33E-10ADA1	4,815	—	—	64.06	4-19	
8N-33E-10ADA1				93.50	8-22	
8N-33E-10CDA1	4,816	—	—	69.81	4-18	
8N-33E-10CDA1				100.59	8-22	
8N-33E-11AAB1	4,808	260	152	58.26	4-19	
8N-33E-14BBA1	4,807	—	—	57.09	4-17	
8N-33E-14BBA1				85.81	8-22	
8N-33E-15CAD1	4,804.90	201	67	59.37	4-18	
8N-33E-15CAD1				103.55	8-22	
8N-33E-16ACB1	4,811	215	15	132.30	4-18	
8N-33E-16ACB1				132.20	8-22	
8N-33E-16CAD1	4,806	—	—	131.98	4-18	
8N-33E-20BCB1	4,814	—	—	249	8-23	
8N-33E-21CAB1	4,800	—	—	174.09	4-18	
8N-33E-21CAB1				172.36	8-22	
8N-33E-22CCB1	4,800	—	—	174.59	4-19	
8N-33E-22CCB1				174.65	8-22	
8N-33E-24BAB1	4,797	—	—	7.71	4-17	
8N-33E-24BAB1				7.55	8-22	
8N-33E-24CBC1	4,794	35	—	7.50	4-17	
8N-33E-24CBC1				7.74	8-22	
8N-33E-26CAB2	4,800	68	21	9.83	4-19	
8N-33E-26CAB2				7.43	9- 6	
8N-33E-26CAD1	4,793	—	—	8.98	4-19	
8N-33E-27AAD2	4,794	225	121	47.65	4-19	
8N-33E-27AAD2				66.23	9- 6	
8N-33E-27AAD4	4,794	61.50	—	15.51	4-19	

Table 4.—Water-level measurements in selected wells, 1989—Continued

Well number	Land-surface datum	Well depth	Depth to first perforation	Water-level measurement		
				Depth	Date	Status
8N-33E-27AAD4				9.67	9- 6	
8N-33E-27DAC1	4,793	35	—	9.70	9-13	P
8N-33E-32ABB1	4,794	300	60	203.97	4-17	
8N-33E-32ABB1				207.43	9- 6	
8N-33E-32BCB1	4,804	290	48	214.47	4-17	
8N-33E-32CCB1	4,801	298	55	210.76	4-17	V
8N-33E-33CBB1	4,791	335	80	195.50	4-18	
8N-33E-33CBB				199.90	9- 6	
8N-33E-33DDD1	4,790	145	90	77.99	9-13	
8N-34E- 5BBA1	4,816	607	—	33.76	4-19	
8N-34E- 5BBA1				31.32	8-22	
8N-34E- 5BBA2	4,816	—	—	33.72	4-19	
8N-34E- 5BBA2				31.66	8-22	
8N-34E- 7AAA1	4,810	—	—	21.44	4-19	
8N-34E- 7AAA1				13.26	8-22	
8N-34E- 9DDB1	4,830	—	—	39.78	4-17	
8N-34E- 9DDB1				46.58	8-22	
8N-34E-11DCC1	4,870	110	7	82.60	4-18	
8N-34E-11DCC1				89.38	8-22	
8N-34E-13DCA1	4,795	—	—	8.91	4-11	
8N-34E-15DAB1	4,828	—	—	39.23	4-18	
8N-34E-15DAB1				48.28	8-22	S
8N-34E-15DCA1	4,822.45	83	6	35.52	4-18	
8N-34E-16BDD1	4,810	—	—	23.89	4-17	
8N-34E-17CCC3	4,808.92	440	340	42.23	4-17	
8N-34E-17CCC3				64.38	8-21	
8N-34E-17CCC4	4,808.92	545	511.50	45.15	4-17	
8N-34E-17CCC4				61.07	8-21	
8N-34E-17CCC5	4,808.92	888	602.50	163.97	4-17	
8N-34E-17CCC5				172.11	8-21	
8N-34E-17CCC6	4,808.92	1,006.50	922.50	218.02	4-17	
8N-34E-17CCC6				221.28	8-21	
8N-34E-17CCC7	4,808.92	47.57	40	25.57	4-17	
8N-34E-17CCC7				30.28	8-21	
8N-34E-18BAA1	4,803	—	—	14.45	4-17	

Table 4.—Water-level measurements in selected wells, 1989—Continued

Well number	Land-surface datum	Well depth	Depth to first perforation	Water-level measurement		
				Depth	Date	Status
8N-34E-18BAA1				10.23	8-22	
8N-34E-19ADB1	4,820	—	—	55.47	4-17	
8N-34E-19ADB1				77.68	8-21	
8N-34E-20AAD1	4,810	73	—	25.13	4-17	
8N-34E-20AAD1				40.55	8-21	
8N-34E-20CDA2	4,818.94	55	—	37.93	4-16	
8N-34E-20CDA2				54.58	8-21	
8N-34E-20DAC1	4,808	—	—	27.72	4-17	
8N-34E-20DAC1				47.42	8-22	P
8N-34E-21ABC1	4,825	—	—	38.75	4-17	
8N-34E- 21ABC1				65	8-21	P
8N-34E-21DAA1	4,820	—	—	19.65	4-18	
8N-34E-21DAA1				34.85	8-21	
8N-34E-22AAA1	4,824.74	81	5	39.55	4-18	
8N-34E-22AAA1				50.16	8-22	S
8N-34E-22ADC1	4,830	93	3	40.37	4-18	
8N-34E-23DBB1	4,837	—	—	40.61	4-18	
8N-34E- 23DBB1				57.14	8-22	S
8N-34E-26CBA1	4,822	—	—	50.23	8-23	
8N-34E- 26CCB1	4,813.94	75	10	27.50	4-15	
8N-34E- 26CCB1				43.52	8-23	
8N-34E- 26CCC1	4,820	—	—	46.75	8-23	
8N-34E- 27CCC1	4,810	76	12	40.13	8-23	
8N-34E-27CDD1	4,805	—	—	29.99	4-16	
8N-34E-27CDD1				46.69	8-23	
8N-34E-27DBA1	4,811	—	—	42.67	8-23	
8N-34E-27DDD1	4,800	73	—	24.41	4-15	
8N-34E-28ABC1	4,806	50	5	18.54	4-18	
8N-34E-28ABC1				35	8-23	
8N-34E-28CBD1	4,805	—	—	18.57	4-18	
8N-34E- 28CBD1				44.55	8-23	P
8N-34E-28CCD1	4,810	—	—	40.95	8-23	P
8N-34E-28DDA1	4,805	75	10	25.19	4-18	
8N-34E-29ABB2	4,815	250	—	29.72	4-18	
8N-34E- 29CCC1	4,796.83	102	12	54.53	8-23	P

Table 4.—Water-level measurements in selected wells, 1989—Continued

Well number	Land-surface datum	Well depth	Depth to first perforation	Water-level measurement		
				Depth	Date	Status
8N-34E-31BAD1	4,794	—	—	10.42	4-19	
8N-34E-31BAD1				25.68	9- 6	
8N-34E-31CAB1	4,793	—	—	11.13	4-19	
8N-34E-31CAB1				21.45	9- 6	V
8N-34E-33BAD1	4,803.75	48	8	17.53	4-18	
8N-34E-33BAD1				39.65	8-23	P
8N-34E-34AAB1	4,820	74	—	24.85	4-15	
8N-34E-34AAB1				44.78	8-23	P
8N-35E-36DAD1	4,810	—	—	6.14	4-18	
8N-35E-36DAD1				10.15	8-29	S
8N-36E- 3CBA1	4,865	—	—	60.25	4-11	
8N-36E- 3DBD1	4,853	—	—	56.28	4-14	
8N-36E- 3DBD1				59.46	9-12	
8N-36E- 4CAD1	4,860	—	—	63.18	4-14	
8N-36E- 4CAD1				66.57	9- 7	
8N-36E- 9ABD1	4,850	—	—	54.45	4-14	R
8N-36E- 9ABD1				57.69	9- 7	
8N-36E-10AAD1	4,850	115	60	52.12	4-14	S
8N-36E-10AAD1				55.17	9- 7	
8N-36E-10BDD1	4,837	40.89	—	29.40	4-14	
8N-36E-10BDD1				30.24	9- 7	
8N-36E-10CCA1	4,840	100	90	46.51	4-14	
8N-36E-10CCA1				49.73	9- 7	
8N-36E-10DDA1	4,840	—	—	46.22	4-14	
8N-36E-10DDA1				49.05	9- 7	
8N-36E-11DDB1	4,830	80	19	38.70	4-14	S
8N-36E-11DDB1				41.86	9- 7	
8N-36E-13BBB1	4,825	160	20	32.39	4-14	
8N-36E-13CCB1	4,820	—	—	34.43	9- 7	
8N-36E-13DCB1	4,830	—	—	44.35	9- 7	
8N-36E-14ADB1	4,825	72	25	34.63	9- 7	
8N-36E-14DCB1	4,825	147	112	35.22	9- 7	
8N-36E-15DCB1	4,825	95	33	44.25	9- 7	
8N-36E-21ADA1	4,820	77	24	28	4-15	
8N-36E-21ADA1				31.43	9- 7	

Table 4.—*Water-level measurements in selected wells, 1989—Continued*

Well number	Land-surface datum	Well depth	Depth to first perforation	Water-level measurement		
				Depth	Date	Status
8N-36E-21DCD1	4,810	194.37	—	22.04	4-14	
8N-36E-21DCD1				25.39	8-30	
8N-36E-22CAD1	4,820	150	32	26.68	4-16	S
8N-36E-22CAD1				29.89	9- 7	
8N-36E-23AAC1	4,820	101	35	27.77	4-15	S
8N-36E-23AAC1				31.04	9- 7	S
8N-36E-23DBD1	4,820	176	—	29.85	9- 7	P
8N-36E-25ADD1	4,860	—	—	70.60	4-15	
8N-36E-25ADD1				73.82	8-30	R
8N-36E-25BAD1	4,840	109	20	56.48	8-30	
8N-36E-26ADD1	4,855	145	23	62.30	4-16	
8N-36E-26ADD1				65.67	8-30	
8N-36E-26BDD1	4,830	—	—	33.62	4-16	
8N-36E-26BDD1				36.91	8-30	
8N-36E-27ADC1	4,815	—	—	22.67	8-30	
8N-36E-28CBD1	4,812.90	209	54.50	20.19	4-19	
8N-36E-28CBD1				23.70	8-29	
8N-36E-28DCA1	4,810	95	32.50	17.10	4-19	
8N-36E-31CDB1	4,800	41	5	13.86	4-18	
8N-36E-31DDA1	4,800	—	—	11.10	4-20	
8N-36E-31DDA1				14.92	8-29	
8N-36E-32BDD1	4,805	255	53	11.77	4-19	
8N-36E-32BDD1				15.96	8-29	P
8N-36E-32DAA1	4,805	—	—	15.80	4-19	
8N-36E-32DAA1				19.31	8-29	S
8N-36E-32DAD1	4,805	—	—	15	4-19	
8N-36E-32DAD1				19.13	8-29	P
8N-36E-33BCD1	4,805	—	—	17.97	4-19	V
8N-36E-33BCD1				21.37	8-30	S
8N-36E-34ACB1	4,825	—	—	37.56	4-17	V
8N-36E-34ACB1				40.96	8-31	
8N-36E-34BCB1	4,810	97	—	13.80	4-17	V
8N-36E-34BCB1				17.48	8-31	V
8N-36E-34DCB1	4,830	—	—	38.10	4-17	
8N-36E-34DCB1				41.53	8-31	

Table 4.—Water-level measurements in selected wells, 1989—Continued

Well number	Land-surface datum	Well depth	Depth to first perforation	Water-level measurement		
				Depth	Date	Status
8N-36E-34DDB1	4,855	150	6	64.74	8-31	V
8N-36E-35BCB1	4,875	100	8	74.88	4-17	
8N-36E-35BCB1				78.19	8-30	
8N-36E-36BDC1	4,930	—	—	129.59	4-15	
8N-36E-36BDC1				132.80	8-30	
8N-36E-36DAB1	4,930	180	69	131.30	4-15	V
8N-36E-36DAB1				134.49	8-30	
8N-37E-10CBD1	5,060	390	5	227	4-10	
8N-37E-10CBD1				279.99	8-25	
8N-37E-16BBD1	4,975	—	—	180.50	4-12	
8N-37E-16BBD1				183.54	8-25	V
8N-37E-16DCA1	4,950	—	—	154.25	4-12	
8N-37E-16DCA1				157.28	8-25	
8N-37E-17CBD1	4,880	—	—	112.02	9-7	
8N-37E-17CCC1	4,871.24	215	—	82.37	4-17	
8N-37E-17DDC1	4,915	—	—	113.82	4-17	
8N-37E-19CAD1	4,855	—	—	62.14	9-7	
8N-37E-20BBD1	4,890	—	—	100.40	4-17	
8N-37E-20BBD1				104.05	9-7	
8N-37E-21ADB1	4,965	—	—	170.48	4-10	
8N-37E-21ADB1				173.36	8-25	
8N-37E-21BAC1	4,935	—	—	133.16	4-10	
8N-37E-21BAC1				136.38	8-25	
8N-37E-21DAC1	4,970	226	19	175.05	8-25	
8N-37E-23BDB1	5,025	—	—	237.72	4-12	
8N-37E-23DCA1	5,035	—	—	237.41	4-12	P
8N-37E-23DCA1				240.37	8-24	
8N-37E-25CAD1	5,045	290	18	234.19	4-15	
8N-37E-25CAD1				237.28	8-23	
8N-37E-28DCB1	4,985	—	—	206.80	8-23	
8N-37E-29BCB1	4,910	—	—	118.72	4-16	P
8N-37E-29BCB1				121.90	8-30	
8N-37E-30ABC1	4,890	—	—	97.16	4-15	
8N-37E-30ABC1				100.69	8-30	
8N-37E-30DCB1	4,900	—	—	110.56	4-15	

Table 4.—*Water-level measurements in selected wells, 1989—Continued*

Well number	Land-surface datum	Well depth	Depth to first perforation	Water-level measurement		
				Depth	Date	Status
8N-37E-30DCB1				113.81	8-30	S
8N-37E-31BDD1	4,900	—	—	106.54	4-15	
8N-37E-31BDD1				109.74	8-30	V
8N-37E-32ACB1	4,910	—	—	123.39	4-14	
8N-37E-32ADC1	4,890	200	18	97.76	4-15	V
8N-37E-32ADC1				101.05	8-22	
8N-37E-32CCB1	4,885	—	—	89.15	4-14	
8N-37E-32CCB1				92.22	8-30	V
8N-37E-32DCB1	4,890	—	—	104.03	4-14	V
8N-37E-32DCB1				107.12	8-30	V
8N-37E-33CDB1	4,925	205	20	127.59	4-14	
8N-37E-33DAC1	4,940	225	20	146.95	4-14	
8N-37E-33DAC1				150.19	8-22	
8N-37E-34BAC1	5,000	240	20	209.60	4-12	
8N-37E-34DBD1	4,975	—	—	186.80	8-22	
8N-37E-35BDB1	4,965	270	19	169.46	8-22	
8N-37E-35CAC1	4,955	—	—	163.99	4-12	
8N-37E-35CAC1				166.24	8-22	P
8N-37E-36CAC1	5,010	270	18	215.33	4-15	
8N-37E-36CAC1					215.85	8-22
8N-38E-28AAC1	5,215	—	—	416.87	4-18	
8N-38E-28CAC1	5,135	—	—	326.87	4-18	
8N-40E-1CAD1	5,161	376	5	335.68	4-20	
8N-40E-1CAD1				333.77	8-28	
8N-40E-21DDD1	4,963.64	80	72.50	—	4-16	D
8N-40E-21DDD2	4,963.64	382	207.50	138.64	4-16	
8N-40E-21DDD2				134.86	8-28	
8N-40E-21DDD3	4,963.64	450	437.50	138.93	4-16	
8N-40E-21DDD3				135.13	8-28	
8N-40E-25ABC1	4,995	—	—	168.49	4-17	V
8N-40E-25ABC1				163.60	8-28	
8N-40E-26AAB1	4,980	—	—	155.89	4-17	V
8N-40E-28ADA1	4,950	—	—	99.08	4-17	
8N-41E-5CDA1	5,122	—	—	284.03	8-28	
8N-41E-5CDA2	5,122	—	—	285.70	4-20	

Table 4.—Water-level measurements in selected wells, 1989—Continued

Well number	Land-surface datum	Well depth	Depth to first perforation	Water-level measurement		
				Depth	Date	Status
8N-41E-25CBB1	5,075	140	91	76.92	4-17	
8N-41E-25CBB1				46.94	8-15	
8N-41E-33ABB1	5,010	225	67	50.19	4-17	
8N-41E-33ABB1				45.84	8-28	
9N-32E-36BDC1	4,940	435	49	347.93	4-17	
9N-32E-36BDC1				350.09	9-1	
9N-33E-11BAC1	5,010	280	—	79.99	4-13	
9N-33E-11BAC1				82.92	8-24	
9N-33E-12BAC1	4,898	280	96	180.53	4-13	
9N-33E-13BAA1	4,893	436	264	173.63	4-12	
9N-33E-13BAA1				188.03	8-24	
9N-33E-14CCA1	4,990	480	43	287.89	8-24	
9N-33E-15ACA1	5,040	415	199	337.16	4-14	
9N-33E-20ACC1	5,091	—	—	433.62	4-13	
9N-33E-20ACC1				479.14	8-25	
9N-33E-24BAA1	4,878	323	291.50	175.40	4-12	P
9N-33E-24BAA1				196.52	8-24	
9N-33E-24CDB1	4,868	—	—	123.39	4-12	
9N-33E-24CDB1				145.80	8-23	
9N-33E-25ACB1	4,845	266	145	89.93	4-11	
9N-33E-25ACB1				103.72	8-23	
9N-33E-25DCB1	4,831	266	140	75.53	4-11	
9N-33E-25DDA1	4,827	256	156	64.90	4-11	
9N-33E-25DDA1				82.12	8-23	
9N-33E-26BDB1	4,885	—	—	206.20	4-12	
9N-33E-31DBB1	4,902	—	—	301.56	4-11	
9N-33E-32ACB1	4,915	485	375	303	4-11	
9N-33E-32DAD1	4,880	325	262	259.60	4-10	
9N-33E-33AAD1	4,880	430	144	263.25	4-10	
9N-33E-33DAA1	4,866	480	133	220.80	4-10	
9N-33E-34DAD1	4,840	435	370	147.72	4-10	
9N-33E-36AAA1	4,824	266	146	58.68	4-10	
9N-33E-36ACB1	4,823	—	—	62.26	4-19	
9N-33E-36ACB1				79.24	8-21	
9N-33E-36BAB1	4,834	256	116	77.71	4-11	

Table 4.—Water-level measurements in selected wells, 1989—Continued

Well number	Land-surface datum	Well depth	Depth to first perforation	Water-level measurement		
				Depth	Date	Status
9N-33E-36CAD1	4,817	170	70	44.31	4-10	
9N-33E-36CAD1				37.40	8-21	
9N-33E-36DAD1	4,117	256	150	53.29	4-10	
9N-33E-36DAD1				71.10	8-21	
9N-34E- 2CBA1	4,938	430	298	155.50	4-13	
9N-34E- 2CBA1				161.68	8-25	
9N-34E- 2DAC1	4,945	—	—	154.20	4-14	
9N-34E- 3CBA1	4,920	250	141	144	4-13	
9N-34E- 3CBA1				148.95	8-25	
9N-34E- 3DAB1	4,931	285	153	148.28	4-13	
9N-34E- 4ACD1	4,915	250	138	143.20	4-13	
9N-34E- 4ACD1				145.41	8-25	
9N-34E- 4BDC1	4,910	—	—	134	4-13	
9N-34E- 4BDC1				138.63	8-25	
9N-34E- 5CBA1	4,892	—	—	129.03	4-13	
9N-34E- 5DAB1	4,901	270	130	131.25	4-13	
9N-34E- 5DAB1				145.07	8-24	P
9N-34E- 6ADC1	4,890	—	—	130.18	4-13	
9N-34E- 6ADC1				140	8-25	
9N-34E- 6CAB1	4,885	—	—	150.77	4-13	
9N-34E- 6CAB1				166.52	8-24	
9N-34E- 7CAC1	4,863	295	—	92.80	4-12	
9N-34E- 7CAC1				98.58	8-24	
9N-34E- 7DCA1	4,868	—	—	94.50	4-12	
9N-34E- 7DCA1				123.42	8-24	
9N-34E- 9CAB1	4,886	—	—	167.87	4-14	
9N-34E- 9DAB1	4,893	500	131	123.41	4-18	
9N-34E- 9DAB1				145.90	8-22	S
9N-34E-10DAA1	4,914	—	—	136.09	4-14	
9N-34E-10DAB1	4,903	—	—	149.32	4-14	
9N-34E-10DAB1				128.60	8-22	
9N-34E-11ADD1	4,955	196.60	—	156.23	4-20	
9N-34E-11ADD1				158.60	8-23	S
9N-34E-15ADC1	4,885	—	—	84.37	8-23	
9N-34E-15BCD1	4,885	—	—	95.10	4-20	

Table 4.—Water-level measurements in selected wells, 1989—Continued

Well number	Land-surface datum	Well depth	Depth to first perforation	Water-level measurement		
				Depth	Date	Status
9N-34E-15BCD1				99.77	8-23	
9N-34E-15DDC1	4,870	118	—	90.02	8-23	
9N-34E-16ADC1	4,880	—	—	93	4-20	
9N-34E-16ADC1				98.15	8-23	S
9N-34E-16BCD1	4,873	—	—	89.25	4-20	
9N-34E-17ACD1	4,867	—	—	85.37	4-20	
9N-34E-17ACD1				91.10	8-23	P
9N-34E-17BDC1	4,862	—	—	93.85	4-20	
9N-34E-17BDC1				118.58	8-23	P
9N-34E-18BDB1	4,855	273	140	97.53	4-11	
9N-34E-18BDB1				113.49	8-24	
9N-34E-18CAA1	4,855	435	338	98.77	4-12	
9N-34E-19BBA1	4,852	266	143	90.45	4-11	
9N-34E-19BBA1				125.43	8-24	P
9N-34E-19CAB1	4,846	—	—	86.28	4-11	
9N-34E-19DAB1	4,845	266	143	72.13	4-19	
9N-34E-19DAB1				80.13	8-22	
9N-34E-20DCD1	4,845	—	—	65.19	4-19	
9N-34E-20DCD1				73.92	8-22	
9N-34E-21BCD1	4,857	286	120	72.38	4-19	
9N-34E-21BCD1				77.94	8-22	
9N-34E-27BDB1	4,853	450	—	65.26	4-19	
9N-34E-27BDB1				70.38	8-22	
9N-34E-28CAB1	4,839	—	—	57.33	4-19	
9N-34E-28CAB1				65.39	8-22	
9N-34E-28CCB1	4,835	—	—	52.25	4-19	
9N-34E-28CCB1				61.23	8-22	
9N-34E-29CAB1	4,837	—	—	58.15	4-19	
9N-34E-29CAB1				68.06	8-22	
9N-34E-29DAA1	4,839	420	356	67.44	5-10	
9N-34E-29DAA1				65.27	9-13	
9N-34E-29DAB1	4,838	256	134	56.96	4-19	
9N-34E-29DAB1				66.62	8-22	
9N-34E-30ABA1	4,839	—	—	65.14	4-19	
9N-34E-30ABA1				73.28	8-22	

Table 4.—Water-level measurements in selected wells, 1989—Continued

Well number	Land-surface datum	Well depth	Depth to first perforation	Water-level measurement		
				Depth	Date	Status
9N-34E-30BBA1	4,837	256	114	70.34	4-11	
9N-34E-30BBA1				87.10	8-24	
9N-34E-30CBA1	4,829	260	118	67.63	4-11	
9N-34E-30CBA1				104.08	8-23	P
9N-34E-31BBA1	4,823	—	—	60.18	4-10	
9N-34E-31CAB1	4,116	256	100	53.43	4-10	
9N-34E-31CAB1				69.22	8-21	
9N-34E-31DCC1	4,816	—	—	47.44	4-15	
9N-34E-32BBB2	4,827	286	100	50.66	4-19	
9N-34E-32BBB2				60.60	8-22	
9N-34E-32BDC1	4,826	256	132	47.40	4-19	
9N-34E-32BDC1				58.75	8-22	
9N-34E- 7ABC1	4,875	—	—	111.38	4-11	
9N-34E- 7ABC1				124.09	8-24	
9N-35E- 4ADC1	4,988	395	200	195.25	4-10	V
9N-35E- 5ACD1	4,992	336	204	202.71	4-10	
9N-35E- 5ACD1				206.52	8-30	
9N-35E- 9BDB1	4,973	266	177	183.34	4-10	
9N-35E-10DDC1	4,945	247	217	153.38	4-11	V
9N-35E-10DDC1				156.87	8-29	V
9N-35E-13CBD1	4,926	225	24	133.37	4-14	V
9N-35E-13CBD1				136.90	8-31	V
9N-35E-13DAC1	4,929	250	125	136.90	4-14	V
9N-35E-13DAC1				140.22	8-31	V
9N-35E-14BCD1	4,928	254	192	148.27	4-15	V
9N-35E-14BCD1				154.84	8-31	V
9N-35E-24ABC1	4,921	250	160	129.09	4-13	V
9N-35E-24ABC1				132.86	8-29	V
9N-35E-26BBC1	4,789	—	—	203.40	4-15	
9N-35E-26BBC1				208.66	9- 1	
9N-36E- 4BAA1	5,055	315	276.17	263.92	5-10	
9N-36E- 4BAA1				266.98	9-12	R
9N-36E- 8CCB1	4,970	—	—	179.40	4-12	V
9N-36E- 8CCB1				182.75	8-31	V
9N-36E- 8DCD1	4,973	—	—	182.85	4-11	V

Table 4.—Water-level measurements in selected wells, 1989—Continued

Well number	Land-surface datum	Well depth	Depth to first perforation	Water-level measurement		
				Depth	Date	Status
9N-36E- 9CAB1	5,005	280	35	210	4-11	
9N-36E-14DDC1	5,010	—	—	222.75	4-13	
9N-36E-14DDC1				225.82	9- 7	
9N-36E- 15CCC1	4,952	200	13	157.06	4-11	
9N-36E- 15CCC1				160.75	9-12	V
9N-36E-16ADD1	4,970	215	186	175.08	4-11	
9N-36E-16ADD1				178.29	9- 7	
9N-36E- 17BCB1	4,960	242	229	166.02	4-12	V
9N-36E- 17BCB1				169.68	8-31	V
9N-36E-17DBA1	4,692	—	—	168.42	4-12	
9N-36E-17DBA1				172.26	9- 7	P
9N-36E-18ABA1	4,955	254	112	161.02	4-13	V
9N-36E-18ABA1				175.24	8-31	P
9N-36E-18DBB1	4,942	—	—	147.14	4-13	
9N-36E-18DBB1				152.09	8-31	P
9N-36E-19ABC1	4,924	—	—	131.84	4-13	V
9N-36E-19ABC1				135.34	8-31	V
9N-36E- 19BBC1	4,921	217	36	128.28	4-13	V
9N-36E- 19BBC1				131.81	8-31	V
9N-36E-19DCB1	4,907	—	—	114.15	4-13	V
9N-36E-19DCB1				117.64	8-31	V
9N-36E-20BAA1	4,942	221	—	155.09	4-12	
9N-36E-20BAA1				158.34	9- 7	
9N-36E-21DBB1	4,930	210	62	138.44	4-11	
9N-36E-21DBB1				147.02	9- 7	
9N-36E-23DAC1	4,975	245	20	184.32	4-12	S
9N-36E-23DAC1				187.65	9- 7	
9N-36E-26BAC1	4,960	200	25	162.92	4-12	S
9N-36E-27ADB1	4,925	210	19	136.90	4-12	S
9N-36E-27ADB1				140.05	9- 7	V
9N-36E- 27BCB1	4,300	160	20	111.12	4-11	
9N-36E- 27BCB1				114.33	9- 7	V
9N-36E-27DCA1	4,910	370	225	117.66	4-13	S
9N-36E-29ACA1	4,899	—	—	109.43	4-12	V
9N-36E-29ACA1				112.65	9- 7	V

Table 4.—Water-level measurements in selected wells, 1989—Continued

Well number	Land-surface datum	Well depth	Depth to first perforation	Water-level measurement		
				Depth	Date	Status
9N-36E-29CBC1	4,887	173	18	86.90	4-13	
9N-36E-29CBC1				100.86	9- 1	P
9N-36E-30ACC1	4,900	190	134	106.10	4-13	V
9N-36E-30ACC1				109.72	9- 1	V
9N-36E-31BAD1	4,919	—	—	129.97	9- 1	
9N-36E-32ABD1	4,875	180	159	87.56	4-12	
9N-36E-32ABD1				90.82	9- 7	
9N-36E-32BCB1	4,879	170	23	87.39	4-13	
9N-36E-32BCB1				91.07	9- 1	V
9N-36E-33CBB1	4,865	155	12	78.44	4-14	
9N-36E-33CBB1				82.12	8-12	
9N-36E-34ADA1	4,900	175	19	95.38	4-13	S
9N-36E-34ADA1				98.60	9- 7	
9N-36E-34BCD1	4,870	118	34	77.01	4-11	
9N-36E-34BCD1				80.45	9- 7	
9N-36E-35BAA1	4,925	215	19	134.82	4-12	S
9N-36E-35BAA1				137.90	9- 7	
9N-39E- 4AAC1	5,668.20	884.60	10	845.67	8-24	
9N-40E- 5DDD1	5,535.40	747.60	5	706.43	4-14	
9N-40E- 5DDD1				706.61	8-24	
9N-41E-21BCC1	5,275	—	—	327.75	4-20	
9N-41E-21BCC1				330.57	8-28	
10N-34E-29AAC1	4,990	360	49	225.68	4-14	
10N-34E-29BDD1	5,030	390	22	261.53	5-10	
10N-34E-29BDD1				269.16	8-30	
10N-34E-31CCD1	4,917	189	—	178.80	4-14	
10N-35E- 6CDD1	5,281	—	—	140.16	4-14	
10N-35E- 6CDD1				135.24	8-30	
10N-35E-13CBC1	5,150.96	370	—	356.89	4-10	
10N-35E-13CBC1					360.16	9-12
10N-35E-32DBA1	5,030	430	325	240.16	4-10	
10N-35E-32DBA1				243.83	8-30	V
10N-36E-20DAD1	5,155	478	370	353.58	4-11	
10N-36E-20DAD1				356.69	8-25	
10N-36E-21CAC1	5,143	478	—	351.26	4-11	

Table 4.—Water-level measurements in selected wells, 1989—Continued

Well number	Land-surface datum	Well depth	Depth to first perforation	Water-level measurement		
				Depth	Date	Status
10N-36E-21CAC1				354.32	8-25	
10N-36E-33BAB1	5,095	425	94	300.18	4-11	
10N-36E-33BAB1				303.38	8-25	
10N-41E-21BBB1	5,518	—	—	122.58	4-20	
10N-41E-21BBB1				113.62	8-29	
11N-36E-8DAC1	5,475	—	—	264.95	4-19	
11N-36E-8DAC1				253.42	8-21	
12N-38E-23DCC1	6,250	139	54	100.03	8-24	
12N-39E-1DBA1	6,408	196	—	64.81	8-21	
12N-39E-5CCB2	6,312	212	—	3.96	8-21	G
12N-39E-10DAD1	6,350	263	—	48.95	8-21	
12N-39E-12CDB1	6,395	—	—	94.44	8-21	
12N-39E-21BDC1	6,284	—	—	25.42	8-24	
12N-39E-24DDA1	6,447	236	—	190.33	8-25	
12N-39E-28DCB1	6,310	—	—	72.21	8-24	
12N-39E-32DAD1	6,265	—	—	23.86	8-24	
12N-40E-17ABC1	6,488	230	20	165.60	8-21	