ARIZONA
WATER
COMMISSION
BULLETIN 8

PHOENIX, ARIZONA
AUGUST 1974

PREPARED BY
THE GEOLOGICAL SURVEY
UNITED STATES DEPARTMENT
OF THE INTERIOR

GROUND-WATER CONDITIONS IN THE LOWER HASSAYAMPA AREA MARICOPA COUNTY ARIZONA

BY R. S. STULIK

FLOOD CONTROL DISTRICT
PHOENIX, ARIZONA 85009

ARIZONA WATER COMMISSION BULLETINS

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No.

1. Annual report on ground water in Arizona, spring 1970 to spring 1971, prepared under the direction of H. M. Babcock, District Chief, Arizona District, Water Resources Division, U.S. Geological Survey: 45 p., 30 figs., 1972.

2. Bibliography of U. S. Geological Survey water-resources reports for Arizona, May 1965 through June 1971, compiled under the direction of H. M. Babcock, District Chief, Arizona District, Water Resources Division, U.S. Geological Survey: 60 p., 1972.

3. Hydrologic regimen of lower Tonto Creek basin, Gila County, Arizona—a reconnaissance study, by H. H. Schumann and B. W. Thomsen: 39 p., 14 figs., 1972.

*4. Hydrologic conditions in the San Pedro River valley, Arizona, 1971, by R. H. Roeske and W. L. Werrell: 76 p., 2 pls., 5 figs., 1973.

No.

5. Annual report on ground water in Arizona, spring 1971 to spring 1972, prepared under the direction of H. M. Babcock, District Chief of the U.S. Geological Survey in Arizona: 48 p., 32 figs., 1973.

6. Water-resources appraisal of the Big Sandy area, Mohave County, Arizona, by E. S. Davidson: 40 p., 2 pls., 4 figs., 1973.

7. Annual report on ground water in Arizona, spring 1972 to spring 1973, prepared under the direction of H. M. Babcock, District Chief of the U.S. Geological Survey in Arizona: 46 p., 3 pls., 31 figs., 1974.

8. Ground-water conditions in the lower Hassayampa area, Maricopa County, Arizona, by R. S. Stulik: 52 p., 2 pls., 3 figs., 1974.

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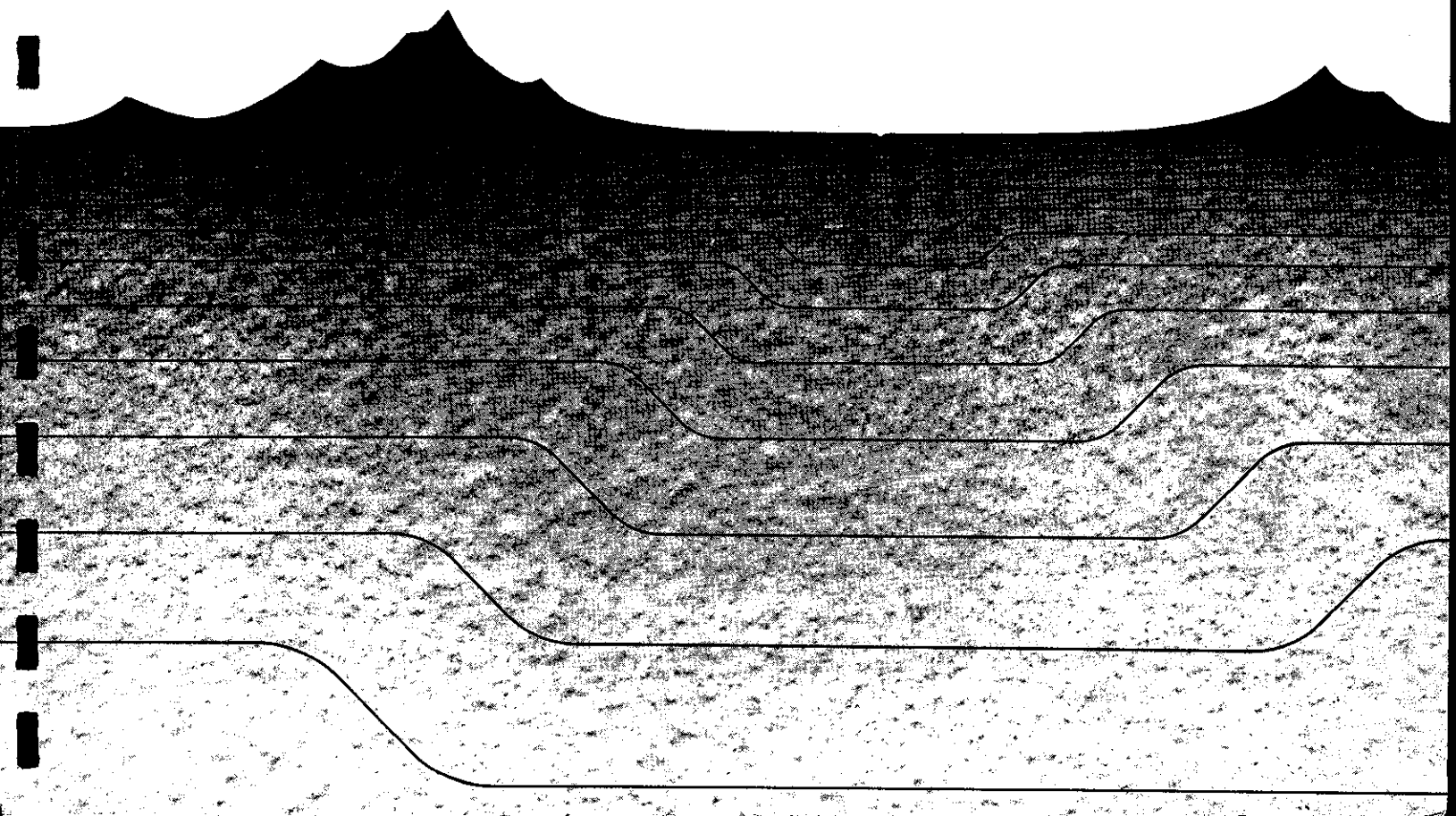
MARICOPA COUNTY ARIZONA

BY R. S. STULIK



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GROUND-WATER CONDITIONS IN THE LOWER HASSAYAMPA AREA, MARICOPA COUNTY, ARIZONA

By

R. S. Stulik

Introduction

The lower Hassayampa area in northwestern Maricopa County, Ariz. (fig. 1), depends almost entirely on ground water for its irrigation, domestic, and livestock water supplies. Since 1939, a planned program of water-resources studies has been conducted in Arizona by the U.S. Geological Survey in cooperation with the State. From 1942 to April 1971 the State was represented by the Arizona State Land Department; currently, the Arizona Water Commission represents the State in the cooperative program. The purpose of the program is to make available the basic hydrologic data that are useful in water-resources planning and development and in solving or alleviating problems that result from the large-scale development of water supplies. This report summarizes the ground-water conditions in the lower Hassayampa area and makes available the basic ground-water data.

In 1968 and 1969 an inventory was made of all irrigation wells and many of the domestic and livestock wells in the lower Hassayampa area. During 1968-73, fieldwork included measurements of discharge from wells, water-level measurements in pumping and nonpumping wells, and the collection of water samples for chemical analysis. Power-consumption records were obtained from the Arizona Public Service Co.; pumpage for irrigation use was computed from power-consumption records on the basis of measurements of well discharge per unit of power consumption. The irrigated acreage was mapped from aerial photographs taken in the summer of 1968. Records of selected wells, water-level measurements, chemical analyses, field determinations of temperature and specific conductance, and drillers' logs are given in tables 1, 2, 3, 4, and 5, respectively, in the appendix at the end of this report. All well locations in the area are described in accordance with the well-numbering system used in Arizona, which is explained and illustrated on figure 2; the well locations are shown on plate 1.

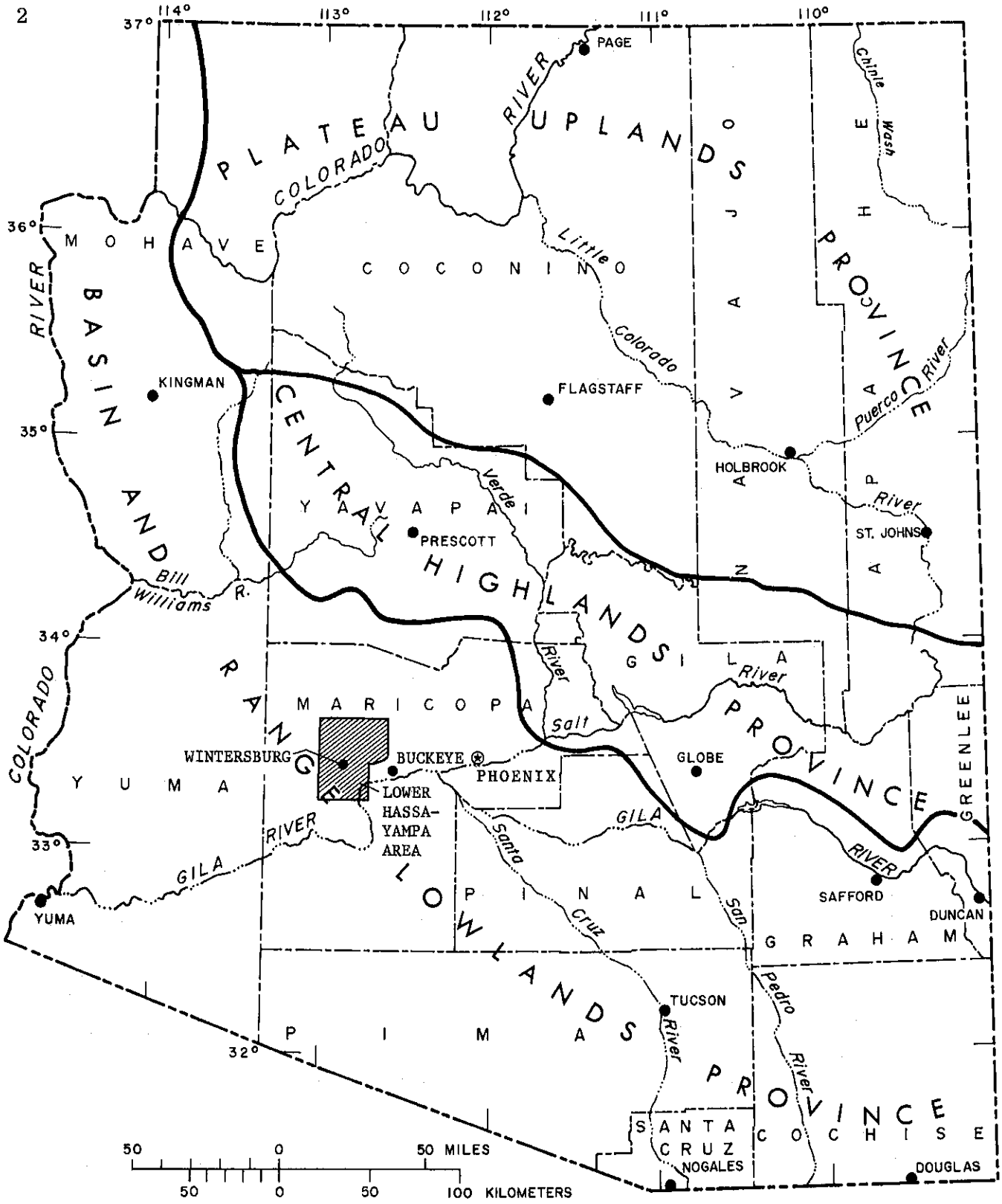
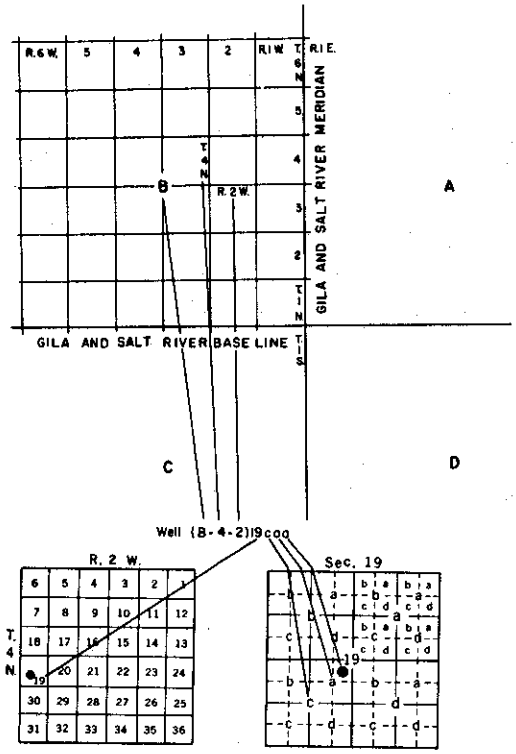


FIGURE 1.--AREA OF REPORT AND ARIZONA'S WATER PROVINCES.



The well numbers used by the Geological Survey in Arizona are in accordance with the Bureau of Land Management's system of land subdivision. The land survey in Arizona is based on the Gila and Salt River meridian and base line, which divide the State into four quadrants. These quadrants are designated counterclockwise by the capital letters A, B, C, and D. All land north and east of the point of origin is in A quadrant, that north and west in B quadrant, that south and west in C quadrant, and that south and east in D quadrant. The first digit of a well number indicates the township, the second the range, and the third the section in which the well is situated. The lowercase letters a, b, c, and d after the section number indicate the well location within the section. The first letter denotes a particular 160-acre (64.8-hectare) tract, the second the 40-acre (16.2-hectare) tract, and the third the 10-acre (4.0-hectare) tract. These letters also are assigned in a counterclockwise direction, beginning in the northeast quarter. If the location is known within the 10-acre (4.0-hectare) tract, three lowercase letters are shown in the well number. In the example shown, well number (B-4-2)19caa designates the well as being in the NE$\frac{1}{4}$NE$\frac{1}{4}$SW$\frac{1}{4}$ sec. 19, T. 4 N., R. 2 W. Where more than one well is within a 10-acre (4.0-hectare) tract, consecutive numbers beginning with 1 are added as suffixes.

FIGURE 2.--WELL-NUMBERING SYSTEM IN ARIZONA.

Reporting of data.--The U.S. Geological Survey has adopted the policy of reporting data in metric units in combination with English units as a first step in what eventually will be total conversion to the metric system—the system used by most nations of the world. For this report, metric units are given in parentheses following English units in the text, and English and metric units are shown on the illustrations. The data in the appendix are given either in English units or in metric units, as extensive tabular data do not lend themselves to dual treatment.

The following factors may be applied to convert the English units used in this report to metric units.

Multiply English unit	By	To obtain metric unit
feet (ft)	0.3048	meters (m)
miles (mi)	1.609	kilometers (km)
square miles (mi^2)	2.590	square kilometers (km^2)
acres (ac)	.4047	hectares (ha)
acre-feet (ac-ft)	.001233	cubic hectometers (hm^3)
gallons (gal)	.003785	cubic meters (m^3)
gallons per minute (gpm) per foot	.01242	cubic meters (m^3) per minute per meter
inches (in)	25.4	millimeters (mm)

The Survey has been reporting water-quality data in metric units for several years; therefore, the water-quality data in the appendix (tables 3 and 4) are given in milligrams per liter (mg/l), degrees Celsius (°C), and micromhos per centimeter at 25°C. The terms "parts per million" and "milligrams per liter" are almost synonymous for water containing as much as 5,000 to 10,000 mg/l of dissolved solids. The exact amount is dependent on the nature of the dissolved material. The Survey has set 7,000 mg/l dissolved solids as the point above which the difference in parts per million and milligrams per liter becomes significant. In order to convert data from one system to the other, a density factor must be applied to the analytical results of all water containing more than 7,000 mg/l of dissolved solids.

Temperature data given in tables 3 and 4 (see appendix) can be converted to degrees Fahrenheit (°F) by using the following:

°F	°C	°F	°C	°F	°C
32	0	63	17	94	34
33	1	64	18	95	35
34	1	65	18	96	36
35	2	66	19	97	36
36	2	67	19	98	37
37	3	68	20	99	37
38	3	69	21	100	38
39	4	70	21	101	38
40	4	71	22	102	39
41	5	72	22	103	39
42	6	73	23	104	40
43	6	74	23	105	41
44	7	75	24	106	41
45	7	76	24	107	42
46	8	77	25	108	42
47	8	78	26	109	43
48	9	79	26	110	43
49	9	80	27	111	44
50	10	81	27	112	44
51	11	82	28	113	45
52	11	83	28	114	46
53	12	84	29	115	46
54	12	85	29	116	47
55	13	86	30	117	47
56	13	87	31	118	48
57	14	88	31	119	48
58	14	89	32	120	49
59	15	90	32	121	49
60	16	91	33	122	50
61	16	92	33		
62	17	93	34		

Location, physical setting, and climate.--The lower Hassayampa area includes the lower parts of the Hassayampa River and Centennial Wash drainage basins in northwestern Maricopa County, Ariz. (pl. 1). The lower Hassayampa area is in the Basin and Range lowlands water province and is about 50 miles (80 km) west of Phoenix (fig. 1).

For ease of discussion, the report area is arbitrarily divided into two parts—the Tonopah-Hassayampa area and the Centennial area (pl. 1)—in this report. The report area covers about 550 square miles (about 1, 400 km^2) of gently sloping alluvial plain that is surrounded by low steep-sloped mountains—the White Tank Mountains on the east, the Belmont Mountains on the northwest, the Palo Verde Hills on the west, and the Buckeye Hills on the southeast. The altitude of the alluvial plain ranges from about 1, 400 feet (430 m) above mean sea level at the north end to about 800 feet (240 m) at the south end near the Gila River. The altitude of the surrounding mountains ranges from about 1, 000 to 3, 000 feet (300 to 900 m) above mean sea level.

The Gila River and its principal tributaries—the Hassayampa River and Centennial Wash—drain the area. In general the streams are ephemeral and flow only in response to precipitation; the Gila River, however, may flow during part of the year as a result of runoff of excess irrigation water.

The climate in the Hassayampa area is semiarid and is characterized by hot summers and moderate winters. At Buckeye, which is about 5 miles (8 km) southeast of the report area at an altitude of 870 feet (265 m) above mean sea level, the average daily minimum and maximum temperatures range from about 33°F (1°C) in January to about 106°F (41°C) in July. The mean annual precipitation is about 7.5 inches (190 mm), but precipitation is extremely variable and ranged from less than 2 inches (50 mm) in 1956 to more than 21 inches (530 mm) in 1905 (Green and Sellers, 1964). More than two-thirds of the average annual precipitation occurs in the summer and winter. In general summer thunderstorms produce high-intensity rainfall of short duration over small areas, and winter frontal storms produce low-intensity rainfall of long duration over large areas. Occasionally, rainfall is sufficient to cause local floods; these infrequent floods furnish some recharge to the ground-water reservoir, but data are not available to determine the amount.

The erratic occurrence of precipitation and streamflow precludes the extensive development of surface-water supplies. When available, however, small amounts of surface water are diverted into the Arlington Canal—about 7 miles (11 km) east of the report area—from the Gila River near Allenville for irrigation in the Centennial area. About 100 large-diameter irrigation wells furnish water to more than 24, 000 acres (9, 700 ha) of cultivated land in the lower Hassayampa area.

Rock Units and Their Water-Bearing Properties

The rock units in the lower Hassayampa area are, from oldest to youngest, crystalline and consolidated sedimentary rocks, volcanic rocks, valley-fill deposits, and stream and flood-plain alluvium (pl. 1). The crystalline and consolidated sedimentary rocks and the volcanic rocks form the mountains that surround the area and yield small amounts of water to wells only where saturated and extensively fractured. The principal water-bearing unit in the area is the weakly consolidated valley fill, which underlies the alluvial plain to depths of as much as 1,200 feet (370 m). The unconsolidated stream and flood-plain alluvium along the channels and flood plains of the Gila River and its tributaries generally is above the water table.

The crystalline and consolidated sedimentary rocks consist mainly of granite and gneiss and are exposed in the Buckeye Hills and the White Tank and Belmont Mountains (pl. 1). In the eastern part of the Belmont Mountains and at the northwest end of the White Tank Mountains, the unit includes highly deformed sedimentary and volcanic rocks. The crystalline and consolidated sedimentary rocks yield a few gallons per minute of water to wells only where the unit is saturated and extensively fractured.

The volcanic rocks overlie the crystalline and consolidated sedimentary rocks and are exposed principally in the western part of the area. The volcanic rocks comprise a thick sequence of moderately deformed rhyolitic to andesitic tuff, welded tuff, and flows that are overlain by basaltic andesite to andesitic basalt flows. In general the water-bearing characteristics of the volcanic rocks are similar to those of the crystalline and consolidated sedimentary rocks; however, in places, such as in the southeastern part of the Palo Verde Hills near Wintersburg, wells may yield a few tens of gallons per minute of water from fractures in the tuff and flows or from weakly indurated tuff.

The valley-fill deposits consist mainly of weakly consolidated sand, silt, and clay and smaller amounts of gravel and minor basalt flows. In places the unit is capped by as much as 50 feet (15 m) of caliche-cemented gravel, terrace and piedmont deposits, and slope wash. In the central part of the area sand, silt, and clay are present to depths of as much as 1,200 feet (370 m), and some gravel is present near the Hassayampa River. Toward the mountains, the sand, silt, and clay grade laterally into sand and gravel, which may be only a few tens of feet thick. The valley-fill deposits make up the principal aquifer in the report area, and the unit may yield from several hundred to a few

thousand gallons per minute of water to wells. Basalt flows as much as 300 feet (90 m) thick are present in places in the upper part of the unit and are exposed along the Gila River near Arlington. The flows are above the water table and are not of hydrologic significance.

The stream and flood-plain alluvium consists of unconsolidated gravel, sand, and silt. The alluvium generally is less than 50 feet (15 m) thick and is above the water table in most of the area. In places near the Hassayampa and Gila Rivers, however, the unit is as much as 100 feet (30 m) thick, is saturated in the lower part, and may yield moderate amounts of water to wells.

Ground Water

Most of the ground water is stored in the valley-fill deposits in the lower Hassayampa area; much smaller amounts of water are stored in the other units. The stored ground water is the result of an accumulation over a long period of time, although some new water is added during major flood events. The ground water is stored in void spaces between the rock fragments, and, in general, the larger the void spaces the more quickly water can be extracted. Therefore, coarse-grained materials, such as sand and gravel, yield more water to wells than fine-grained materials, such as silt and clay.

An indication of the water-yielding ability of the materials penetrated by a well can be obtained by determining the specific capacity, which is calculated by dividing the rate of discharge of water from the well by the drawdown of the water level within the well. The specific capacity is a function not only of the water-bearing characteristics of the material but also of the construction of the well, particularly the distribution of the casing perforations in the saturated zone and the depth to which the well penetrates the water-bearing material. In the lower Hassayampa area specific capacities range from about 1 to 86 gpm per foot of drawdown (0.01 to 1.1 m^3 per minute per meter of drawdown). (See table 1 in the appendix.) Specific-capacity values are useful in estimating differences in the water-bearing characteristics of a unit from place to place.

In 1970 the depth to water in the valley-fill deposits ranged from less than 20 feet (6 m) below the land surface along the Hassayampa and Gila Rivers to 395 feet (120 m) below the land surface in the northwestern part of the Tonopah-Hassayampa area (pl. 2A). For the most part, the water levels appear to represent a single water-table aquifer. Exceptions

include water levels in several shallow wells along Winters Wash, which appear to represent a shallow water-table zone fed by periodic flow in the wash.

Use of ground water.--In the lower Hassayampa area nearly all the water withdrawn from the ground-water reservoir is used for irrigation. In 1969, about 95,000 acre-feet (117 hm^3) of ground water was used to irrigate slightly more than 24,000 acres (9,700 ha) of cultivated land. The irrigation pumpage was almost evenly divided between the Tonopah-Hassayampa and the Centennial areas. About 50,000 acre-feet (62 hm^3) was pumped from the Tonopah-Hassayampa area, and about 45,000 acre-feet (55 hm^3) was pumped from the Centennial area. The amount of ground water withdrawn for domestic and livestock purposes probably was less than 100 acre-feet (0.12 hm^3) in 1969.

Effects of ground-water withdrawal.--Prior to extensive agricultural development, the slope of the water table in the lower Hassayampa area was southward and southeastward toward the Gila River and was somewhat less than the slope of the land surface. The present configuration of the water-table surface is principally the result of increased withdrawal of ground water for irrigation (pl. 2B). Extensive agricultural development in the Tonopah-Hassayampa and Centennial areas began in the early 1950's, and by 1960 about 24,000 acres (9,700 ha) of land was under cultivation.

The 1970 water-level contours show large cones of depression in the water-table surface in the areas of extensive agricultural development, and ground-water flow is being diverted toward the center of the cones (pl. 2B). The cones of depression are the result of ground-water withdrawal. Near the Hassayampa River in the Tonopah-Hassayampa area, pumping for agricultural purposes is much less than elsewhere, and ground water moves southward along the course of the river.

From spring 1962 to spring 1970, water-level changes ranged from little or no change to declines of more than 50 feet (15 m) in the lower Hassayampa area (pl. 2A). Water levels in the eastern part of the Tonopah-Hassayampa area did not decline appreciably during the period; however, water levels in the extensively developed western part declined as much as 57 feet (17 m). (See pl. 2A.) In the eastern part of the Tonopah-Hassayampa area ground-water supplies are used mainly for domestic and livestock purposes; therefore, ground-water withdrawal is considerably less than in the western part of the area. The 1962 water-level data for the Centennial area were insufficient to construct water-level change maps. From spring 1963 to spring 1970, however, water-level changes ranged from a gain of about 15 feet (4.6 m) near

the Gila River to a decline of about 30 feet (9 m) in the central part of the area. Nearly all the water levels in wells in the heavily pumped central part of the area showed declines in excess of 15 feet (4.6 m) during the period. Figure 3 shows water levels in selected wells in the lower Hassayampa area.

Chemical quality of the ground water.--The available chemical analyses and the field determinations of specific conductance of water from wells in the lower Hassayampa area indicate that, in general, the water is suitable for irrigation use (tables 3 and 4). The water generally is suitable for domestic use, although the dissolved-solids concentrations are somewhat greater than the lower maximum concentration of 500 mg/l recommended by the U.S. Public Health Service (1962). Most ground water in the area contains less than 1,000 mg/l, which is the maximum recommended dissolved-solids concentration if water containing less dissolved solids is not available. The recommended concentrations are used as guidelines and are not firmly established limits. Water containing more than 1,000 mg/l of dissolved solids has been used for domestic consumption without apparent harmful effects.

Fluoride concentrations place definite limits on the consumption of water for drinking purposes. Excessive amounts of fluoride in drinking water cause mottling of the enamel in children's teeth. The recommended average optimum fluoride concentration for a water supply differs according to the annual average maximum daily air temperatures (U.S. Public Health Service, 1962). In the lower Hassayampa area the optimum concentration in drinking water is 0.7 mg/l. The presence of more than two times the optimum value (1.4 mg/l) is grounds for rejection of a water supply. In the lower Hassayampa area fluoride concentrations range from 1.2 to 13 mg/l, and most of the ground water sampled contains fluoride in excess of twice the recommended optimum value (table 3).

Field determinations of specific conductance of water from more than 50 wells are given in table 4 and may be used to estimate the dissolved-solids concentrations. Specific conductance is a measure of the ability of the ions in solution to conduct an electrical current and is an indication of the amount of dissolved solids in the water; the dissolved-solids concentration in milligrams per liter is about 0.6 of the specific conductance in micromhos. Specific-conductance values range from slightly less than 300 micromhos (about 180 mg/l dissolved solids) in water from wells near Wintersburg to about 6,000 micromhos (about 3,600 mg/l dissolved solids) near the confluence of the Gila and Hassayampa Rivers. Specific-conductance values for ground water in the Centennial area generally exceed 1,000 micromhos (about 600 mg/l dissolved solids);

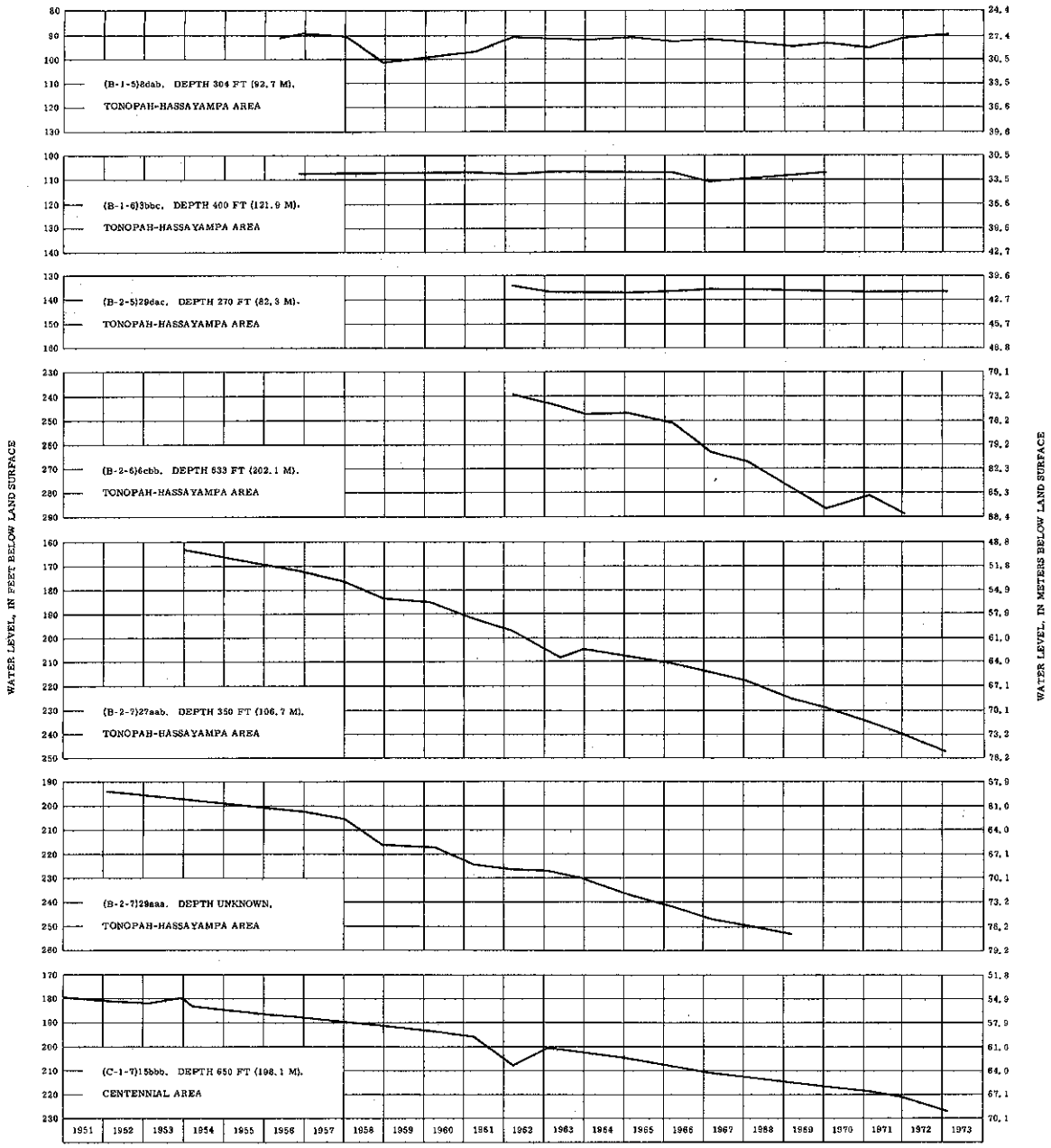


FIGURE 3.--WATER LEVELS IN SELECTED WELLS IN THE LOWER HASSAYAMPA AREA.

along the Gila River the values range from about 2,000 to 5,000 micromhos (about 1,200 to 3,000 mg/l dissolved solids). Specific-conductance values in most of the Tonopah-Hassayampa area range from 500 to 800 micromhos (about 300 to 480 mg/l dissolved solids); however, the specific conductance of water from eight wells in a 2-mile (3.2-km) radius of Tonopah ranges from 1,080 to 1,900 micromhos (about 650 to 1,100 mg/l dissolved solids). The temperature of the water from five of these wells ranges from 38° to 43°C or 100° to 110°F. The temperature for most of the ground water in the area ranges from 20° to 35°C or 68° to 95°F.

Summary

More than 24,000 acres (9,700 ha) of land is irrigated with ground water in the 550-square-mile (1,400-km^2) lower Hassayampa area. The principal source of ground water is the valley-fill deposits, which consist mainly of weakly consolidated sand, silt, and clay; the deposits are as much as 1,200 feet (370 m) thick in the center of the area. About 95,000 acre-feet (117 hm^3) of ground water was pumped from the deposits in 1969.

In 1970 the depth to water in the valley-fill deposits ranged from less than 20 to 395 feet (6 to 120 m) below the land surface. From spring 1962 to spring 1970, pumping for irrigation caused water-level declines of as much as 57 feet (17 m) in the extensively developed part of the area; little or no water-level change took place in the undeveloped part of the area. Specific-capacity values range from 1 to 86 gpm per foot of drawdown (0.01 to 1.1 m^3 per minute per meter of drawdown).

Dissolved-solids concentrations in the ground water range from 180 mg/l in the northern part of the area to 3,600 mg/l near the Gila River. Most of the water contains less than 1,000 mg/l of dissolved solids. Fluoride concentrations range from 1.2 to 13 mg/l. Most of the water sampled contains fluoride in excess of twice the recommended optimum value.

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U.S. Public Health Service, 1962, Drinking water standards: U.S. Public Health Service Pub. 956, 61 p.

APPENDIX —— BASIC DATA

Table 1.--Records of selected wells in the lower Hassayampa area

Well location: See figure 2 for description of well-numbering system.
Perforated interval: OH, open hole.
Land-surface altitude: Determined from Geological Survey topographic maps.

Type of well: D, domestic; I, irrigation; S, stock; U, unused; X, destroyed.
Water level: I, interpolated; R, reported.
Pumping data: R, reported.

Well location	Date completed (year)	Depth of well (feet)	Diameter of casing (inches)	Depth of casing (feet)	Perforated interval (feet below land surface)	Land-surface altitude (feet above mean sea level)	Type of well	Water level: Depth below land surface (feet)	Water level: Date measured	Pumping data: Yield (gpm)	Pumping data: Drawdown (feet)	Pumping data: Date measured	Specific capacity (gallons per minute per foot of drawdown)	Remarks
(B-1-4)4bad	....	....	12	.....	.....	1,145	U	244.5	12- 6-56	.....	.....	.....	.....	
5dad	1969	300	6	0- 300	200- 280	1,110	D	208.7	1-19-70	.....	.....	.....	.....	
(B-1-5)4adb	....	70	48	.....	.....	1,044	U	62.4 1/65.2	4- 8-46 12-21-71	.....	.....	.....	.....	
6ccd	....	....	60	.....	.....	1,064	U	91.2 Dry at 92	12-18-53 12- 5-56	.....	.....	.....	.....	
6dab	....	....	8	.....	.....	1,061	S	91.7 89.7	8-28-68 1-19-70	.....	.....	.....	.....	
6ddb1	....	100	8	.....	.....	1,060	D	88.5	1-16-70	.....	.....	.....	.....	
6ddb2	....	160	12	.....	.....	1,060	I	89.9	1-16-70	.....	.....	.....	.....	
7aab	1955	253	16	0- 253	9- 250	1,048	I	74.4 75.8	12- 5-56 2-27-63	.....	.....	.....	.....	
7abb	1959	350	12½	0- 350	154- 290	1,060	I	95.1 1/89.8	3-15-62 12-21-71	.....	.....	.....	.....	
7baa	....	....	.....	.....	.....	1,060	D,S	.....	.....	.....	.....	.....	.....	
8dab	1955	304	16	0- 304	.....	1,057	U	90.7 89.1	5- 9-56 2- 7-73	.....	.....	.....	.....	
10bbc	....	....	16	.....	.....	1,010	U	40.7 40.0	9-23-69 1-16-70	.....	.....	.....	.....	
10bcc	1962	352	16 12¾	0- 270 270- 352	70- 220	1,001	I	37.3 37.8	9-23-69 1-16-70	.....	.....	.....	.....	
10cbb	....	44	None	.....	OH 0- 44	1,000	D	36.6 38.5	3-31-61 1-17-70	.....	.....	.....	.....	Dug well, 48-inch diameter.
10ccb	....	....	60	.....	.....	1,000	U	42.6 39.8	2-28-63 1-17-70	.....	.....	.....	.....	
10ccc	....	44	36	.....	.....	998	I,D,S	38.5 37.6	3-31-60 1-16-70	.....	.....	.....	.....	
15bbb1	....	....	8	.....	.....	994	D,S	.....	.....	.....	.....	.....	.....	
15bbb2	....	....	12	.....	.....	994	I	37.6	1-16-70	.....	.....	.....	.....	
15cbb1	....	140	12	0- 140	.....	980	U	36.2 40.8	3-20-62 2-28-63	.....	.....	.....	.....	
15cbb2	....	100	12	0- 100	None	978	U	39.1 36.9	3-31-61 2-28-63	.....	.....	.....	.....	

See footnote at end of table.

Table 1.--Records of selected wells in the lower Hassayampa area—Continued

Well location	Date completed (year)	Depth of well (feet)	Diameter of casing (inches)	Depth of casing (feet)	Perforated interval (feet below land surface)	Land-surface altitude (feet above mean sea level)	Type of well	Water level: Depth below land surface (feet)	Water level: Date measured	Pumping data: Yield (gpm)	Pumping data: Drawdown (feet)	Pumping data: Date measured	Specific capacity (gallons per minute per foot of drawdown)	Remarks
(B-1-5)15cbc	1962	159	16	0- 154	120- 140 OH 154- 159	980	I	45.7 45.1	9-23-69 1-16-70	.....	.....	.....	.....	
15cdc	1935	150	20	0- 150	None	963	U	5.9 17.0	2- 7-46 2-20-73	.....	.....	.....	.....	Depth measured 145.8 feet on Feb. 7, 1946.
16bbb	1951	320	16	0- 312	0- 296 OH 312- 320	1,040	I	85.1 1/83.0	12-10-53 12-21-71	1,100 500	....	7-29-53 8- 7-56	.....	
16bca	1964	850	16 10	0- 500 484- 850	484- 850	1,034	I	98.0 92.1	3-13-69 1-16-70	.....	.....	.....	.....	
17acd	1955	303	16	0- 303	24- 303	1,023	I	77.2 83.5	12-30-57 1-16-70	.....	.....	.....	.....	
17adb	1958	205	16	0- 205	10- 205	1,025	U	84.2 83.4	12-30-57 3-13-69	.....	.....	.....	.....	
17add	1957	142	16	0- 142	10- 142	1,028	D,S	.....	.....	.....	.....	.....	.....	
17ddc	1964	270	8⅝	0- 240	180- 220 OH 240- 270	1,014	D	.....	.....	.....	.....	.....	.....	
17ddd	....	330	6	.....	.....	1,006	D	.....	.....	.....	.....	.....	.....	
19bcd1	....	126	8	.....	.....	990	U	66.1 62.4	3-31-61 1-16-70	.....	.....	.....	.....	
19bcd2	....	....	8	.....	.....	990	D	.....	.....	.....	.....	.....	.....	
20acc	....	74	60	.....	.....	1,005	X	71.0	5-19-49	.....	.....	.....	.....	
20dcb	....	92	6	.....	.....	995	U	66.5	12- -54	.....	.....	.....	.....	
21bbb	1952	320	16	0- 320	5- 306	1,004	I	59.4 1/64.2	12- 4-56 12-21-71	500	.....	6- 4-62	.....	
21ddb	1948	275	12	0- 275	.....	980	I	60.2 65.4	5-19-49 1-15-70	250 340	 52	7-29-53 9-25-69	 6	
21ddd	....	....	8	.....	.....	982	D	.....	.....	.....	.....	.....	.....	
22bbb	....	....	6	.....	.....	980	D	26.0 39.3	12- 3-53 2-28-63	.....	.....	.....	.....	
27bbc	1951	384	16	0- 264	0- 264 OH 264- 384	977	I	67.7 68.0	12- -53 2-20-73	430	63	8-27-68	7	
28aaa1	1956	160	8	0- 160	60- 160	981	D	.....	.....	.....	.....	.....	.....	
28aaa2	1961	1,115	.....	.....	.....	981	I	79.9 71.2	3-15-62 1-15-70	.....	.....	.....	.....	

See footnote at end of table.

Table 1.--Records of selected wells in the lower Hassayampa area—Continued

Well location	Date completed (year)	Depth of well (feet)	Diameter of casing (inches)	Depth of casing (feet)	Perforated interval (feet below land surface)	Land-surface altitude (feet above mean sea level)	Type of well	Water level: Depth below land surface (feet)	Water level: Date measured	Pumping data: Yield (gpm)	Pumping data: Drawdown (feet)	Pumping data: Date measured	Specific capacity (gallons per minute per foot of drawdown)	Remarks
(B-1-5)28ada	1957	320	16	0- 143	120- 140 OH 143- 320	973	U	.....	.....	.....	.....	.....	.....	
28adb	1968	150	8	0- 125	OH 125- 150	965	D	.....	.....	.....	.....	.....	.....	
28dab	1969	....	10	.....	.....	958	D	58.6	1-15-70	.....	.....	.....	.....	
29aab	....	120	8	.....	.....	975	U	55.8 1/58.9	5-19-49 12-21-71	.....	.....	.....	.....	
30cba	....	177	7	.....	.....	968	U	58.1 67.5	3-11-54 1-16-70	.....	.....	.....	.....	
31caa	1961	160	8	0- 160	None	941	D	.....	.....	.....	.....	.....	.....	
34bdc	1947	3,505	.....	.....	.....	944	U	.....	.....	.....	.....	.....	.....	Oil-test hole.
35aba	....	300	16	0- 300	.....	920	I	49.0	1-15-70	640	.....	7- 7-53	.....	
35daa1	....	....	20	.....	.....	917	U	.....	.....	1,510	.....	8-11-48	.....	
35daa2	1961	337	16	0- 337	124- 337	917	I	.....	.....	1,300	.....	8-21-69	.....	
36ccb	1961	300	16	0- 300	104- 300	900	I	69.8	3-13-69	.....	.....	.....	.....	
(B-1-6)1abb	1960	1,223	16 12 10¾	0- 495 495- 503 503-1,223	200-1,223	1,082	U	105.2 108.4	3-31-61 1- 2-73	.....	.....	.....	.....	
1cbb	1960	358	16	0- 303	88- 303 OH 303- 358	1,062	I	94.7 1/96.2	3-15-62 12-22-71	.....	.....	.....	.....	
1ccb	....	....	.....	.....	.....	1,060	S	.....	.....	.....	.....	.....	.....	
2abb	1963	1,001	16	0- 500	120- 500 OH 500-1,001	1,077	I	103.9 103.2	3-12-69 1-12-70	.....	.....	.....	.....	
3bbc	1950	400	8	0- 240	OH 240- 400	1,069	U	106.7 107.2	12-16-53 1-12-70	.....	.....	.....	.....	
7abd1	1888	95	96	0- 20	OH 20- 95	1,024	U	72.7 35.3	3-11-54 1-13-70	.....	.....	.....	.....	Winters well at old stage stop.
7abd2	1916	185	6	0- 20	OH 20- 185	1,024	U	33.0	12- 5-56	.....	.....	.....	.....	
7bdd	1953	340	16	0- 130	90- 120 OH 130- 340	1,024	I	87.0 146.5	11- 8-56 2- 7-73	760	.....	8-10-61	.....	
8abb	1962	805	20	.....	300- 465	1,030	I	129.4 134.2	3-13-62 2-27-63	 1,360	....	..... 8- 7-69	.....	

See footnote at end of table.

Table 1.--Records of selected wells in the lower Hassayampa area—Continued

Well location	Date completed (year)	Depth of well (feet)	Diameter of casing (inches)	Depth of casing (feet)	Perforated interval (feet below land surface)	Land-surface altitude (feet above mean sea level)	Type of well	Water level: Depth below land surface (feet)	Water level: Date measured	Pumping data: Yield (gpm)	Pumping data: Drawdown (feet)	Pumping data: Date measured	Specific capacity (gallons per minute per foot of drawdown)	Remarks
(B-1-6)9bba	1953	670	16	0- 546	OH 546- 670	1,034	U	95.7 1/144.2	12- 5-56 12-22-71	.....	.....	.....	.....	
10aab	1959	1,690	20 16	0- 407 407-1,690	200-1,690	1,044	I	172.1 1/177.0	3-12-69 12-22-71	1,710 1,640	 206	6- 4-62 8- 5-68	 8	
10bab	....	....	10	.....	.....	1,052	S	99.6 100.2	12- 5-56 1- 3-58	.....	.....	.....	.....	
11bca	....	....	.....	.....	.....	1,041	I	91.0 81.2	12- 5-56 1- 2-73	320	160	8- 5-68	2	
11ccc	....	220	8	.....	.....	1,024	D	.....	.....	.....	.....	.....	.....	
11ccd	....	350	12	0- 242	90- 242 OH 242- 350	1,030	D	.....	.....	.....	.....	.....	.....	
11dad	....	....	7	.....	.....	1,018	D	.....	.....	.....	.....	.....	.....	
11dbb	1968	....	.....	.....	.....	1,040	D	.....	.....	.....	.....	.....	.....	
11dbc	1959	260	8	0- 243	OH 243- 260	1,036	D	.....	.....	.....	.....	.....	.....	Bailer test, 35 gpm; no drawdown.
12baa	1960	470	16	0- 461	100- 455 OH 461- 470	1,054	I	88.1 89.2	3-12-61 2-27-63	.....	.....	.....	.....	
13aaa	1960	962	16	0- 905	445- 905 OH 905- 962	1,018	U	66.6 66.4	3-31-61 2- 4-71	.....	.....	.....	.....	
13acb	1959	695	16	0- 583	215- 325 500- 580 OH 583- 695	1,025	U	85.5 1/85.7	1-13-70 12-22-71	.....	.....	.....	.....	
14aab	1966	180	8	0- 180	.....	1,021	D	.....	.....	.....	.....	.....	.....	
14bcd	....	....	8	.....	.....	1,021	S	.....	.....	.....	.....	.....	.....	
14ccc	....	....	.....	.....	.....	1,004	D	.....	.....	.....	.....	.....	.....	
15aaa	1969	....	.....	.....	.....	1,023	D	67.4	1-12-70	.....	.....	.....	.....	
15add	....	....	12	.....	.....	1,012	U	70.5 70.0	3-12-69 1-13-70	.....	.....	.....	.....	
15bba1	....	250	8	.....	.....	1,025	D	.....	.....	.....	.....	.....	.....	
15bba2	....	86	8	.....	.....	1,024	U	80.7 Dry at 82	3-13-69 1-13-70	.....	.....	.....	.....	
16dda1	....	119	10	.....	.....	1,009	X	85.3 82.9	5- 2-46 3- 1-60	.....	.....	.....	.....	
16dda2	1961	200	8	.....	.....	1,009	D	.....	.....	.....	.....	.....	.....	
16ddd1	1961	402	8	0- 402	.....	1,006	U	.....	.....	.....	.....	.....	.....	

See footnote at end of table.

Table 1.--Records of selected wells in the lower Hassayampa area—Continued

Well location	Date completed (year)	Depth of well (feet)	Diameter of casing (inches)	Depth of casing (feet)	Perforated interval (feet below land surface)	Land-surface altitude (feet above mean sea level)	Type of well	Water level: Depth below land surface (feet)	Water level: Date measured	Pumping data: Yield (gpm)	Pumping data: Drawdown (feet)	Pumping data: Date measured	Specific capacity (gallons per minute per foot of drawdown)	Remarks
(B-1-6)16ddd2	....	....	.....	.....	.....	1,008	D	.....	.....	.....	.....	.....	.....	Wintersburg School well.
16ddd3	....	....	14	.....	.....	1,002	D	86.5 1/85.2	3-13-69 12-27-71	.....	.....	.....	.....	
17ada1	1946	300	16	0- 238	80- 238 OH 238- 300	1,002	D	75.8 176.6	5-13-46 1-13-70	1,070	.....	8- 3-56	.....	
17ada2	1962	....	.....	.....	.....	1,002	I	173.4 1/179.0	2-11-65 12-27-71	.....	.....	.....	.....	
18aaa1	1940	200	20	0- 135	60- 130 OH 135- 200	1,007	U	34.0	12- 5-56	.....	.....	.....	.....	
18aaa2	....	....	.....	.....	.....	1,007	U	60.2 87.1	3- 1-60 2-27-63	.....	.....	.....	.....	
20adb	1945	188	16	0- 188	50- 188	978	U	.....	.....	.....	.....	.....	.....	
20bba	1936	254	20	0- 200	75- 200 OH 200- 254	985	U	48.9 132.5	7-21-49 5-19-70	.....	.....	.....	.....	
20dab	1946	229	16	0- 210	50- 210 OH 210- 229	965	I	115.4 1/193.0	12- -53 12-22-71	1,010 410	....	5-13-48 8-10-61	.....	
20dbb	1955	792	20 16	0- 405 405- 792	120- 792	970	I	129.9 1/192.0	12- 4-56 12-22-71	1,950 1,360	....	7-13-55 8- 9-61	.....	
22add1	....	116	8	.....	.....	995	U	81.4 85.1	3-11-54 3-13-69	.....	.....	.....	.....	
22add2	1960	218	6	0- 197	OH 197- 218	995	D	.....	.....	.....	.....	.....	.....	
22bab1	....	87	10	.....	.....	1,003	U	68.8 67.9	12-17-53 12-31-63	.....	.....	.....	.....	
22bab2	1970	200	8	0- 179	96- 120 OH 179- 200	1,003	D	.....	.....	.....	.....	.....	.....	
23dcd	1968	460	8	0- 225	205- 225 OH 225- 460	987	D	138.1	8- 5-68	.....	.....	.....	.....	
25add	....	....	.....	.....	.....	960	S	68.0	1-13-70	.....	.....	.....	.....	
26baa	....	....	20	.....	.....	983	U	189.0 188.2	8- 5-68 1-13-70	.....	.....	.....	.....	
27acc	1950	656	.....	.....	.....	970	X	.....	.....	.....	.....	.....	.....	Well destroyed shortly after completion.
27cbc	1952	1,200	20 16 14	0- 370 370- 730 730- 782	150- 782 OH 782-1,200	965	I	155.0 254.1	12- 8-53 2- 7-73	860 120	 119	7-22-53 8-21-69	 1	

See footnote at end of table.

Table 1.--Records of selected wells in the lower Hassayampa area—Continued

Well location	Date completed (year)	Depth of well (feet)	Diameter of casing (inches)	Depth of casing (feet)	Perforated interval (feet below land surface)	Land-surface altitude (feet above mean sea level)	Type of well	Water level: Depth below land surface (feet)	Water level: Date measured	Pumping data: Yield (gpm)	Pumping data: Drawdown (feet)	Pumping data: Date measured	Specific capacity (gallons per minute per foot of drawdown)	Remarks
(B-1-6)27ddc	1951	1,050	20 16	0- 500 500-1,050	160-1,050	953	I	172.4	12- 8-53	2,000 1,250	....	7-22-53 8-10-61	.....	
32cbb	....	....	.....	.....	.....	930	S	138.0 139.2	3- 5-69 1-14-70	.....	.....	.....	.....	
34abb	1948	1,413	20	0-1,255	250-1,235 OH 1,255-1,413	958	I	128.7	8-30-54	3,490 2,260	....	7-20-49 8- 5-68	.....	
34acc	1954	1,100	20 16	0- 482 482-1,100	200-1,100	945	I	236.4	3- 5-69	1,840	.....	8- 5-68	.....	
34adc	1961	1,122	20 16	0- 468 468-1,122	268-1,122	945	I	257.0	3-11-63	.....	.....	.....	.....	
35aba	1951	1,090	.....	.....	.....	960	X	.....	.....	.....	.....	.....	.....	Well destroyed shortly after completion.
36abb	1963	205	.....	.....	.....	940	X	.....	.....	.....	.....	.....	.....	Well destroyed shortly after completion.
(B-1-7)1bbb	....	....	.....	.....	.....	1,070	I	110.1 166.7	12- 3-56 1-12-70	3,260 3,180	....	8- 3-56 7-31-68	.....	
(B-2-4)29dcd	....	....	10	.....	.....	1,187	S	223.4 218.3	7-15-63 1-19-70	.....	.....	.....	.....	
(B-2-5)15bbc	....	....	16	.....	.....	1,160	S	123.0 125.0	5- 8-69 1-19-70	.....	.....	.....	.....	
29aac	1956	155	8	.....	.....	1,133	D	135.7 140.6	11-19-56 1-19-70	.....	.....	.....	.....	
29dac	1958	270	16	0- 215	150- 210 OH 215- 270	1,127	U	134.2 136.8	3-15-62 2- 7-73	.....	.....	.....	.....	
31bca	1959	200	16	50- 200	OH 0- 50 110- 200	1,098	D	110.1 1/114.0	12-30-57 1- 3-72	.....	.....	.....	.....	Originally dug to 115 feet in 1957; deepened to 200 feet in 1959.
32aba	1959	285	16	0- 285	160- 285	1,120	U	128.7	3-15-62	.....	.....	.....	.....	
(B-2-6)4caa	1969	1,000	15	0- 886	160- 866 OH 886-1,000	1,208	I	283.3	1-13-70	.....	.....	.....	.....	
4cad	....	505	16	.....	.....	1,198	U	.....	.....	.....	.....	.....	.....	
5daa	1960	890	16 14	0- 866 858- 890	400- 890	1,201	I	228.2 1/285.0	3-24-61 12-30-71	2,350	45	8- 7-68	53	
6cbb	1960	663	16	0- 663	355- 658	1,216	U	239.4 1/288.3	3-12-62 12-30-71	.....	.....	.....	.....	

See footnote at end of table.

Table 1.--Records of selected wells in the lower Hassayampa area—Continued

Well location	Date completed (year)	Depth of well (feet)	Diameter of casing (inches)	Depth of casing (feet)	Perforated interval (feet below land surface)	Land-surface altitude (feet above mean sea level)	Type of well	Water level: Depth below land surface (feet)	Water level: Date measured	Pumping data: Yield (gpm)	Pumping data: Drawdown (feet)	Pumping data: Date measured	Specific capacity (gallons per minute per foot of drawdown)	Remarks
(B-2-6)6daa	1964	1,000	16 12	0- 839 828-1,000	400-1,000	1,198	I	273 I 1/288	1- -69 12- -71	2,290	83	8- 7-68	28	
8aaa	1960	710	16	0- 710	370- 705	1,190	I	221.2 265.4	3-14-62 1-13-70	.....	.....	.....	.....	
8caa	1969	....	.....	.....	.....	1,170	I	241.5	1-13-70	.....	.....	.....	.....	
9aba	1959	1,090	20	0-1,000	320- 990 OH 1,000-1,090	1,197	I	1/282	12- -71	.....	.....	.....	.....	
9bba	....	600	20	.....	.....	1,194	I	.....	.....	1,670 2,480	....	8-21-61 6- 1-62	.....	
10aac	1952	250	6	0- 200	OH 200- 250	1,200	U	Dry at 203	1-15-70	.....	.....	.....	.....	Well apparently filled in.
12aaa	1963	250	6	0- 20	OH 20- 250	1,233	S	.....	.....	.....	.....	.....	.....	
16caa	1956	520	20	0- 520	170- 520	1,157	I	171.0 228.4	11-19-56 1-13-70	1,021 600- 1,020	 93	8- 4-61 8- 7-68	 11	January 13, 1970, well yield variable because of pump surge; specific capacity applicable to 1,020 gpm yield.
17aaa	1957	675	20	0- 506	201- 506 OH 506- 675	1,160	I	229 I 1/247	1- -69 12- -71	2,300 2,830	 93	8-21-61 8- 6-68	 30	
17bdb	....	220	12	200- 220	OH 0- 200	1,142	U	164.8 190.7	12-18-53 3-22-61	.....	.....	.....	.....	Dug well with casing in bottom of well.
17daa	1963	1,000	20	0- 420	320- 420 OH 420-1,000	1,144	I	211 I 214.7	1- -69 1-13-70	1,710	88	8- 7-68	19	
19bbb	1963	300	8	0- 300	180- 300	1,130	I	.....	.....	.....	.....	.....	.....	
19daa	1956	525	22	0- 476	140- 475 OH 476- 525	1,114	I	140.2 193.2	11-19-56 1-13-70	.....	.....	.....	.....	
20bba	....	500	16	0- 500	100- 500	1,124	I	170.6 1/224	3-22-61 12- -71	1,580 1,120	 76	6- 1-62 8- 7-68	 15	
20cdd1	....	....	4	.....	.....	1,102	X	89.0 123.2	5- 2-46 3-29-54	.....	.....	.....	.....	
20cdd2	....	....	8	.....	.....	1,100	U	.....	.....	.....	.....	.....	.....	
20daa	1970	1,032	14 12	0- 529 508-1,032	72- 529 528-1,012	1,118	I	172.0 1/226	3-24-61 12- -71	720	.....	8- 7-68	.....	Originally drilled to 529 feet in 1950; deepened to 1,032 feet in 1970.
20dcc	1966	715	8	0- 699	OH 699- 715	1,103	D	.....	.....	.....	.....	.....	.....	Originally drilled to 529 feet in 1950; deepened to 715 feet in 1966.

See footnote at end of table.

Table 1.--Records of selected wells in the lower Hassayampa area—Continued

Well location	Date completed (year)	Depth of well (feet)	Diameter of casing (inches)	Depth of casing (feet)	Perforated interval (feet below land surface)	Land-surface altitude (feet above mean sea level)	Type of well	Water level: Depth below land surface (feet)	Water level: Date measured	Pumping data: Yield (gpm)	Pumping data: Drawdown (feet)	Pumping data: Date measured	Specific capacity (gallons per minute per foot of drawdown)	Remarks
(B-2-6)21bba	....	....	.....	.....	.....	1,136	I	183.6 1/241	3-24-61 12- -71	1,220 980	 148	6- 1-62 8- 7-68	 7	
21dbb	....	500	.....	.....	.....	1,127	I	195.5 1/235	3-14-62 12- -71	.....	.....	.....	.....	
23aab	1962	1,002	16	0-1,000	178- 286 305- 474 648- 990 OH 1,000-1,002	1,160	I	176.8 1/191	3-14-62 12- -71	390 1,070	....	8-21-61 9-17-69	.....	Originally drilled to 632 feet in 1961; deepened to 1,002 feet in 1962.
23aba	1951	382	20 16	0- 250 240- 380	184- 375 OH 380- 382	1,162	U	178.5 1/191	12- 6-56 12- -71	.....	.....	.....	.....	
23ddc	....	....	6	.....	.....	1,138	U	147.1 147.2	12-17-56 3- 1-63	.....	.....	.....	.....	
24caa	1958	300	16	0- 285	0- 270 OH 285- 300	1,154	X	.....	.....	.....	.....	.....	.....	
24cba	1960	485	16	0- 302	0- 302 OH 302- 485	1,150	I	161.8 1/165	3-24-61 12- -71	350	21	6-10-70	17	
24dab	1967	300	8	0- 300	200- 300	1,155	D	.....	.....	.....	.....	.....	.....	
24dba	1966	300	8	0- 300	200- 300	1,155	D	.....	.....	.....	.....	.....	.....	
24dcb1	....	....	8	.....	.....	1,123	D	.....	.....	.....	.....	.....	.....	
24dcb2	1967	....	6	.....	.....	1,122	D	.....	.....	.....	.....	.....	.....	
25baa	....	....	6	.....	.....	1,139	U	157.7 152.1	12- 9-53 1- 3-58	.....	.....	.....	.....	
27ada	1956	405	16	0- 250	138- 250 OH 250- 405	1,118	I	133.2 1/136	3-14-62 12- -71	.....	.....	.....	.....	
27bab	1962	610	16 14	0- 260 0- 605	160- 590 OH 605- 610	1,122	I	154.8 1/196	3-22-61 12- -71	.....	.....	.....	.....	Originally drilled to 545 feet in 1957; deepened to 610 feet in 1962.
28aab	....	502	.....	.....	.....	1,114	D	.....	.....	.....	.....	.....	.....	School well.
28bab	1952	1,000	16	0- 721	175- 715 OH 721-1,000	1,111	I	140.5 182.8	12- 6-56 1-12-70	1,700 2,000	 117	7-29-53 8- 7-68	 17	
31daa	1954	....	.....	.....	.....	1,065	I	108.4 158.0	11- 7-56 3-13-69	3,260 2,450	 106	8- 3-56 8- 5-68	 23	
33caa	1955	1,208	20 16	0- 500 500-1,208	280-1,208	1,075	I	111.4 170.5	5-26-55 1-14-70	1,930 1,740	 227	7-13-55 8- 5-68	 8	

See footnote at end of table.

Table 1.--Records of selected wells in the lower Hassayampa area—Continued

Well location	Date completed (year)	Depth of well (feet)	Diameter of casing (inches)	Depth of casing (feet)	Perforated interval (feet below land surface)	Land-surface altitude (feet above mean sea level)	Type of well	Water level: Depth below land surface (feet)	Water level: Date measured	Pumping data: Yield (gpm)	Pumping data: Drawdown (feet)	Pumping data: Date measured	Specific capacity (gallons per minute per foot of drawdown)	Remarks
(B-2-7)12cbb	1966	600	12	400	OH 400- 600	1,194	D,I	260.2	1-12-70	.....	.....	.....	.....	Irrigates 4 acres.
14cbb	1953	685	16	317	0- 317 OH 317- 685	1,184	I	197.5 1/266.0	12- -53 12-29-71	2,100 1,730	 42	7-29-53 8- 6-68	 41	
20cdd	1968	....	8	.....	.....	1,188	D	256.4 259.3	3- 6-69 1-12-70	.....	.....	.....	.....	
22bbb	1959	800	20 16	0- 690 670- 800	250- 800	1,194	I	230.6 1/272.0	3-21-61 12-29-71	1,470 1,280	 23	6- 1-62 8- 6-68	 55	
22cbb	1959	800	16	0- 800	245- 800	1,175	I	211.2 1/263.0	3-20-61 12-29-71	880 780	 23	6- 1-62 8- 6-68	 34	
22dbc	1952	325	12	0- 40	OH 40- 325	1,158	I	.....	.....	440 310	....	8- 3-56 6- 1-62	.....	
23acd	....	....	12	.....	.....	1,140	U	202.1 222.0	3-12-65 1-19-70	.....	.....	.....	.....	
23bbb	....	338	12	0- 10	OH 10- 338	1,165	U	187.6 Dry at 240	12-17-56 1-12-70	.....	.....	.....	.....	Originally drilled to 195 feet; deepened to 338 feet in about 1960.
23cca	1960	390	10	0- 336	OH 336- 390	1,140	U	186.4 237.3	3-21-61 2- 1-73	.....	.....	.....	.....	
23ccb	1964	600	20	0- 400	250- 400 OH 400- 600	1,145	I	225.6 227.4	3-12-69 1-12-70	1,910	38	8- 5-68	51	
23cda	....	160	6	.....	.....	1,132	U	150.4 Dry at 160	12- 7-53 5-15-68	.....	.....	.....	.....	
23cdc	....	208	8	.....	.....	1,134	U	184.5 187.1	3-12-62 2-20-63	.....	.....	.....	.....	
24bba	1968	360	10	0- 350	300- 330 OH 350- 360	1,145	D	.....	.....	.....	.....	.....	.....	
25bca	1953	345	16	0- 250	125- 240 OH 250- 345	1,109	I	142.2 196.5	12-30-57 1-19-70	1,020 760	 34	6- 1-62 8- 6-68	 22	
26aaa	....	208	8	.....	.....	1,119	U	.....	.....	.....	.....	.....	.....	
26aab	1946	400	16	0- 316	150- 310 OH 316- 400	1,122	I	1/222.0	12-29-71	680 860	....	7-29-53 8- 7-56	.....	
26aac	1967	342	8 7	0- 265 265- 350	.....	1,117	D	.....	.....	.....	.....	.....	.....	Originally drilled to 265 feet in 1956; deepened to 350 feet and backfilled to 342 feet in 1967. Water is used in swimming pool and is bottled and sold for medicinal purposes.

See footnote at end of table.

Table 1.--Records of selected wells in the lower Hassayampa area—Continued

Well location	Date completed (year)	Depth of well (feet)	Diameter of casing (inches)	Depth of casing (feet)	Perforated interval (feet below land surface)	Land-surface altitude (feet above mean sea level)	Type of well	Water level: Depth below land surface (feet)	Water level: Date measured	Pumping data: Yield (gpm)	Pumping data: Drawdown (feet)	Pumping data: Date measured	Specific capacity (gallons per minute per foot of drawdown)	Remarks
(B-2-7)26aba	....	188	10	.....	.....	1,125	U	139.4 Dry at 188	5- 2-46 3-15-66	.....	.....	.....	.....	Originally reported to be 245 feet deep.
26abb	1953	400	16	0- 320	144- 310 OH 320- 400	1,127	I	210 I	1- -69	980 900	 72	8- 7-56 8- 5-68	 12	
26acb	1957	500	18	0- 500	155- 495	1,119	I	175.6 203 I	2-20-62 1- -69	1,920	44	8- 6-68	44	
26bab	1956	450	16	0- 450	167- 389	1,128	I	185.0 1/230.0	3-12-62 12-29-71	960 1,110	....	7- 7-61 7-31-68	.....	
27aab	1953	350	16	0- 300	154- 290 OH 300- 350	1,146	I	162.8 247.6	12- 3-53 2- 1-73	1,300 1,240	....	7-29-53 6- 1-62	.....	
28aaa	....	....	6	.....	.....	1,164	U	194.7 192.3	12- 3-53 1- 3-58	.....	.....	.....	.....	
28bab	....	....	.....	.....	.....	1,168	I	.....	.....	.....	.....	.....	.....	
28bbb	1955	1,047	20 16	0- 488 488-1,000	160-1,000 OH 1,000-1,047	1,175	I	223.4 255.4	3-21-62 1-12-70	1,260 660	 113	8- 3-56 8- 6-68	 6	
28bdd	1968	....	.....	.....	.....	1,155	I	239 I 242.6	1- -69 1-12-70	400	97	8- 5-68	4	
28caa	1968	....	.....	.....	.....	1,150	I	242.9 243.3	3- 6-69 1-12-70	1,100	86	7-31-68	13	
28daa	....	....	.....	.....	.....	1,140	U	197.4 225.4	3-12-62 3- 6-69	.....	.....	.....	.....	
29aaa	....	....	10	.....	.....	1,180	S	194.0 1/270.0	1-31-52 12-29-71	.....	.....	.....	.....	
33baa	1964	817	None	.....	.....	1,143	X	120 R	10-16-64	150R	430R	10-16-64	.....	Well destroyed shortly after completion.
34bba	1957	1,000	20 16	0- 402 402-1,000	200-1,000	1,126	I	184.7 1/232.0	3-12-62 12-29-71	.....	.....	.....	.....	
36abb	1954	990	20 16	0- 508 508- 890	130- 890 OH 890- 990	1,082	I	114.0 1/195.0	5-11-56 2-16-72	2,900 2,300	 37	8-11-61 8- 6-68	 62	
36bba	1953	340	16	0- 340	110- 260	1,092	I	120.0 170.3	5-11-56 3-13-69	1,450 910	 46	8-11-61 8- 6-68	 20	
36cbb	1964	970	20 16	0- 386 386- 970	300- 950	1,080	I	.....	.....	1,200	.....	7-31-68	.....	
(B-3-5)4bbb	....	....	8	.....	.....	1,432	S	.....	.....	.....	.....	.....	.....	

See footnote at end of table.

Table 1.--Records of selected wells in the lower Hassayampa area—Continued

Well location	Date completed (year)	Depth of well (feet)	Diameter of casing (inches)	Depth of casing (feet)	Perforated interval (feet below land surface)	Land-surface altitude (feet above mean sea level)	Type of well	Water level: Depth below land surface (feet)	Water level: Date measured	Pumping data: Yield (gpm)	Pumping data: Drawdown (feet)	Pumping data: Date measured	Specific capacity (gallons per minute per foot of drawdown)	Remarks
(B-3-5)11dcd	....	118	6	.....	.....	1,278	S	82.5	5- 7-69	.....	.....	.....	.....	
26daa	....	102	48	.....	.....	1,223	S	97.8 85.3	4- 2-46 5- 7-69	.....	.....	.....	.....	
(B-3-6)27acd	1952	350	6	0- 300	OH 300- 350	1,291	S	.....	.....	.....	.....	.....	.....	
30bad	....	....	8	.....	.....	1,322	S	382.9	1-15-70	.....	.....	.....	.....	
(C-1-5)1aab	....	185	6	.....	.....	919	U	68.0 Plugged at 93	2- 7-46 2- 4-65	.....	.....	.....	.....	
1dcc	1950	202	20	0- 202	86- 192	870	I	48.1 1/ 41.8	2- -61 1- 5-72	.....	.....	.....	.....	
3baa1	1946	170	20	.....	70- 150	931	U	69.2 103.8	11- 9-51 5-17-73	.....	.....	.....	.....	
3baa2	1954	300	16	.....	.....	931	I	.....	.....	110	.....	5-26-55	.....	
3bab1	....	....	.....	.....	.....	930	D	.....	.....	.....	.....	.....	.....	
3bab2	1969	200	16	0- 200	50- 200	930	I	.....	.....	.....	.....	.....	.....	
4aaa1	....	100	6	0- 40	OH 40- 100	930	D	.....	.....	.....	.....	.....	.....	
4aaa2	1951	600	16	0- 552	70- 545 OH 552- 600	930	I	99.9	3-10-54	.....	.....	.....	.....	
4ddd	....	97	.....	.....	.....	897	U	83.4 95.6	11-12-54 8-27-70	.....	.....	.....	.....	Well was never cased.
11adb	....	44	36	.....	.....	856	U	28.0 34.4	3-21-46 10- 8-48	.....	.....	.....	.....	
13aab	1948	184	20	0- 184	50- 160	837	I	26.6	1-13-70	2,500	29	6-10-70	86	
13aad	1952	150	20	0- 150	40- 148	835	I	.....	.....	1,930	.....	6-10-70	.....	
13bad	1930	154	20	0- 154	30- 142	835	I	.....	.....	2,540 2,060	....	8-12-48 8- 7-68	.....	
13bba	1930	236	20	.....	.....	849	I	37.6 1/ 38.0	3-12-54 1- 4-72	2,800 2,080	....	8-24-50 9- 8-54	.....	
13cdd	....	....	.....	.....	.....	823	I	.....	.....	1,820	.....	6-11-70	.....	
17abb1	....	417	10	.....	.....	863	U	71.9 1/ 72.0	1-16-56 12-21-71	.....	.....	.....	.....	
17abb2	....	....	.....	.....	.....	863	U	72.4 75.0	3- 6-69 1-13-70	.....	.....	.....	.....	

See footnote at end of table.

Table 1.--Records of selected wells in the lower Hassayampa area—Continued

Well location	Date completed (year)	Depth of well (feet)	Diameter of casing (inches)	Depth of casing (feet)	Perforated interval (feet below land surface)	Land-surface altitude (feet above mean sea level)	Type of well	Water level: Depth below land surface (feet)	Water level: Date measured	Pumping data: Yield (gpm)	Pumping data: Drawdown (feet)	Pumping data: Date measured	Specific capacity (gallons per minute per foot of drawdown)	Remarks
(C-1-5)17dda	1951	87	48	0- 78	OH 78- 87	838	U	47.1 1/49.0	1-16-56 12-21-71	.....	.....	.....	.....	
21bbb	1934	57	6 4	0- 20 20- 57	.....	834	U	48.0 51.2	1-16-56 12- 4-56	.....	.....	.....	.....	
21cdd	1952	569	16 12	0- 265 265- 569	60- 563	798	I	50.2 1/50.0	3- 6-69 12-21-71	2,050 1,760	....	7- 1-53 5-26-55	.....	Originally drilled to 114 feet in 1951; deepened to 569 feet in 1952.
22ccc	1949	170	20	0- 144	40- 144 OH 144- 170	788	I	19.8 1/27.0	1-13-70 12-21-71	2,350 2,710	....	8-24-50 8-21-69	.....	
23ccc	1959	664	20 16	0- 235 213- 655	213- 655 OH 655- 664	787	I	1/47.0	12-21-71	.....	.....	.....	.....	
23dca	1955	740	20 18	.....	.....	795	I	65.2 69.3	1-13-70 1-15-70	.....	.....	.....	.....	
24ccb	1951	114	20	0- 102	40- 100 OH 102- 114	800	I	.....	.....	2,240	.....	7- 1-53	.....	
26abb	1963	842	16	.....	.....	795	I	.....	.....	.....	.....	.....	.....	
27ddd1	1951	150	20	0- 144	50- 137 OH 144- 150	782	U	.....	.....	.....	.....	.....	.....	
27ddd2	1951	525	18 16 12	0- 295 295- 419 419- 461	100- 292 299- 461 OH 461- 525	782	I	47.3 1/42.0	1-13-70 12-22-71	2,240	.....	8- 7-68	.....	
28aab	1964	597	16 12 10	0- 150 147- 498 497- 597	245- 590	787	I	.....	.....	1,680	.....	8- 6-68	.....	
29adc	1954	650	20	0- 650	350- 650	788	I	40.9 67.0	1-16-56 2-20-73	2,470 1,940	 129	5-26-55 8- 6-68	 15	
32baa	1957	843	20 14	0- 400 400- 843	400- 843	780	I	1/64.0	2-24-72	2,800	.....	6-11-70	.....	
32ccb	1967	910	20 16	0- 225 212- 910	473- 900	796	I	73.5 85.0	6- 7-67 1-12-70	.....	.....	.....	.....	
34adc	1952	443	20	0- 418	250- 410 OH 418- 443	778	I	24.0 20.1	1-16-56 5-17-73	1,210 1,910	108	8- 6-68 6-11-70	11	
34daa	....	30	16	.....	.....	790	U	Dry at 30	7-16-63	.....	.....	.....	.....	
34dbd	1953	532	20	0- 522	190- 522 OH 522- 532	774	I	32.6	1-13-70	1,990 1,700	....	7- 1-53 9- 8-54	.....	
(C-1-6)2aba	....	952	.....	.....	.....	945	X	.....	.....	.....	.....	.....	.....	Well was never cased.

See footnote at end of table.

Table 1.--Records of selected wells in the lower Hassayampa area—Continued

Well location	Date completed (year)	Depth of well (feet)	Diameter of casing (inches)	Depth of casing (feet)	Perforated interval (feet below land surface)	Land surface altitude (feet above mean sea level)	Type of well	Water level: Depth below land surface (feet)	Water level: Date measured	Pumping data: Yield (gpm)	Pumping data: Drawdown (feet)	Pumping data: Date measured	Specific capacity (gallons per minute per foot of drawdown)	Remarks
(C-1-6)3aaa	1949	657	.....	.....	.....	926	X	.....	.....	.....	.....	.....	.....	Well was never cased.
3baa	1951	1,100	20 16	0- 397 397- 911	397- 911 OH 911-1,100	932	X	84.9	1-26-51	.....	.....	.....	.....	Casing has been pulled and well destroyed.
3bbb	1948	1,085	20	0-1,006	150-1,006 OH 1,006-1,085	939	X	59.1 84.9	3-23-50 1-26-51	.....	.....	.....	.....	Well has been destroyed.
9abc	....	176	4	.....	.....	917	U	171.0 168.5	3- 5-69 1-14-70	.....	.....	.....	.....	
12bbc	1951	1,000	20 16	0- 400 400- 940	160- 940 OH 940-1,000	925	U	.....	.....	.....	.....	.....	.....	
13cab	....	1,200	20	0-1,160	120-1,160 OH 1,160-1,200	890	I	165.0 1/202.0	12- -53 12-22-71	820 690	 115	7-20-49 8- 6-68	 6	
14aaa	1967	1,000	18 16 14	0- 480 470- 600 590-1,000	325-1,000	904	U	211.3 1/221.0	1-28-69 12-22-71	.....	.....	.....	.....	
14dbb	1948	1,114	20 16	0- 390 390-1,060	190-1,130 OH 1,060-1,114	891	I	157.4 204.8	12- -53 2- 7-73	2,460	.....	3-21-69	.....	
17abb	1960	1,219	20	0- 414	260- 410 OH 414-1,219	890	I	174.6 222.3	2-11-63 1-22-71	2,690	.....	8- 5-68	.....	
18bbb	1953	1,333	20 16 12¾	0- 268 268-1,200 1,200-1,300	OH 1,300-1,333	912	I	166.4 205.8	12- -52 2- 7-73	2,700 2,840	....	7-22-53 7-13-55	.....	
19abb	1959	1,045	20 16	0- 408 397- 884	180- 880 OH 884-1,045	890	I	174.6 1/200.0	4- 5-61 12-22-71	1,900	110	3- 5-68	17	
19cbb	....	168	6	.....	.....	876	S	113.9 154.0	7-26-49 3-27-62	.....	.....	.....	.....	
20aab1	1968	340	20	0- 284	150- 284 OH 284- 340	875	U	.....	.....	.....	.....	.....	.....	Originally drilled to 284 feet in 1930; deepened to 340 feet in 1968.
20aab2	1968	1,110	20 16	0- 505 488-1,051	508-1,041 OH 1,051-1,110	875	I	178.0	1-14-70	.....	.....	.....	.....	
21abb	1948	1,252	.....	.....	.....	880	X	.....	.....	.....	.....	.....	.....	Well was never cased; reported to be a dry hole.
21cbb1	....	408	20	.....	.....	867	U	137.8 171.1	12- 3-56 1-14-70	1,840 1,200	....	7-20-49 7-13-55	.....	
21cbb2	1958	1,012	20 16	0- 600 600-1,012	229-1,012	867	I	142.4 175.3	12-18-58 1-14-70	880 1,360	....	9-13-61 8- 6-68	.....	

See footnote at end of table.

Table 1.--Records of selected wells in the lower Hassayampa area—Continued

Well location	Date completed (year)	Depth of well (feet)	Diameter of casing (inches)	Depth of casing (feet)	Perforated interval (feet below land surface)	Land-surface altitude (feet above mean sea level)	Type of well	Water level: Depth below land surface (feet)	Water level: Date measured	Pumping data: Yield (gpm)	Pumping data: Drawdown (feet)	Pumping data: Date measured	Specific capacity (gallons per minute per foot of drawdown)	Remarks
(C-1-6)23adb	1948	1,158	20	0- 930	140- 930 OH 930-1,158	869	I	157.6 180.7	8-31-54 1-13-70	2,680 1,740	....	7-22-53 8- 6-68	.....	
23bab	1950	1,010	20 16	0- 497 497-1,010	355-1,010	876	I	153.2 1/198.0	12- 3-53 12-22-71	2,190 610	....	10- 6-51 9-14-61	.....	
23caa	1959	1,157	20 16	0- 380 380-1,091	380-1,091 OH 1,091-1,157	873	I	184.0 200.2	3-11-63 1-13-70	1,900	.....	9-12-61	.....	
26aba	....	1,130	20	0-1,130	200-1,130	864	I	148.0 1/171.0	8-31-54 12-27-71	2,630 1,870	....	3-22-49 8- 7-69	.....	
26dad	....	1,135	20	0-1,135	126-1,135	828	I	122.3 1/165.0	10-29-54 12-27-71	3,140 2,680	....	3-22-49 8- 6-68	.....	
27acc	1950	655	.....	.....	.....	838	X	.....	.....	.....	.....	.....	.....	Well was never cased; reported to be a dry hole.
27bbc	....	1,090	20	0-1,050	90-1,050 OH 1,050-1,090	847	I	.....	.....	1,880 2,130	....	8-13-48 8- 6-68	.....	
28acc1	....	....	.....	.....	.....	848	U	144.4	1-13-70	1,330 780	....	10- 6-51 7-22-53	.....	
28acc2	1961	337	15	0- 337	124- 337	848	I	.....	.....	1,940 2,470	....	9-12-61 8-21-69	.....	
31adb	....	....	6	.....	.....	890	S	196.2	5-26-70	.....	.....	.....	.....	
34cab	....	116	6	.....	.....	820	U	61.6	12- 3-56	.....	.....	.....	.....	
(C-1-7)11baa	1932	286	6	.....	.....	970	U	260.5 262.9	3- 5-69 1-14-70	.....	.....	.....	.....	
12cbb	1952	1,300	18	.....	.....	943	U	227.5 228.4	3- 5-69 1-14-70	.....	.....	.....	.....	
14add	....	....	16	.....	.....	920	U	150.2 1/223.0	3-21-46 12-22-71	.....	.....	.....	.....	
14bbb	1965	1,200	20	0- 600	300- 600 OH 600-1,200	939	U	204.7 1/227.0	3-11-63 12-22-71	.....	.....	.....	.....	
14dcd	....	165	12	.....	.....	910	U	143.2 Dry at 165	7-26-49 6-18-69	.....	.....	.....	.....	
15abb	....	....	20	.....	.....	947	U	223.0 1/231.0	3- 5-69 12-22-71	.....	.....	.....	.....	
15bbb	....	650	20	0- 256	164- 254 OH 256- 650	949	U	178.2 227.0	3- 4-49 2- 7-73	.....	.....	.....	.....	

See footnote at end of table.

Table 1.--Records of selected wells in the lower Hassayampa area—Continued

Well location	Date completed (year)	Depth of well (feet)	Diameter of casing (inches)	Depth of casing (feet)	Perforated interval (feet below land surface)	Land-surface altitude (feet above mean sea level)	Type of well	Water level: Depth below land surface (feet)	Water level: Date measured	Pumping data: Yield (gpm)	Pumping data: Drawdown (feet)	Pumping data: Date measured	Specific capacity (gallons per minute per foot of drawdown)	Remarks
(C-1-7)15dbb	....	....	10	.....	.....	930	U	.....	.....	.....	.....	.....	.....	
22adc	....	187	8	.....	.....	903	U	149.7 151.5	3- 5-69 6-17-69	.....	.....	.....	.....	
32dab	....	....	20	.....	.....	965	U	54.4	5-26-70	.....	.....	.....	.....	
(C-2-5)3aaa	....	501	16	.....	.....	783	I	.....	.....	1,310	.....	8- 7-68	.....	
5bcb	....	900	20 16	0- 446 210- 900	380- 900	790	I	75.2 78.5	6- -67 3- 6-69	3,150	.....	8-21-69	.....	
5ccb	....	....	.....	.....	.....	790	I	1/ 73.0	12-28-71	2,740 2,300	....	5-26-55 8-21-69	.....	
8aab	....	150	20	0- 150	.....	772	U	15.5	2-11-70	.....	.....	.....	.....	
8aba	1963	300	6	0- 110	OH 110- 300	775	D	.....	.....	.....	.....	.....	.....	
8abb	1963	502	10	0- 502	250- 502	787	I	65.6 1/ 59.0	3- 6-69 12-28-71	.....	.....	.....	.....	
8bca	1942	98	4	.....	.....	783	D	19.4 23.6	3- 6-46 2- 9-71	.....	.....	.....	.....	
8ccc	....	....	.....	.....	.....	779	I	61.8	1-13-70	2,980	.....	8- 6-68	.....	
9cbb	....	590	20	0- 550	250- 550 OH 550- 590	768	I	21.7 40.8	1-18-57 1-13-70	.....	.....	.....	.....	
16abb	1951	112	20	0- 112	28- 104	763	I	17.6 29.4	1-16-56 2- 9-71	.....	.....	.....	.....	
16daa	....	....	20	.....	.....	762	I	20.6 1/ 35.0	1-16-56 1- 4-72	.....	.....	.....	.....	
17cca	....	102	6	.....	.....	778	S	24.1 58.7	3- 7-46 1-19-66	.....	.....	.....	.....	
18adc	1969	850	16	0- 850	360- 850	785	S	.....	.....	.....	.....	.....	.....	
18cbb	1970	793	$10\frac{3}{4}$	0- 622	206- 622 OH 622- 793	812	D	104.4	5- 4-70	.....	.....	.....	.....	

1/ Measurement made by U.S. Bureau of Reclamation.

Table 2.--Measurements of the water level in wells in the lower Hassayampa area

Well location: See figure 2 for description of well-numbering system.
Water level: In feet below land surface.

Water-level altitude: In feet above mean sea level.
I, interpolated; P, affected by pumping.

Well location	Date measured	Water level	Water-level altitude
(B-1-4)4bad	12- 6-56	244.5	901
(B-1-4)5dad	1-19-70	208.7	901
(B-1-5)4adb	4- 8-46	62.4	982
	6-12-46	63.7	980
	3-11-47	60.8	983
	10-11-48	62.1	982
	2-24-49	61.7	982
	10- 6-49	61.8	982
	3-23-50	61.9	982
	12-14-50	61.9	982
	2- 2-51	61.9	982
	11- 8-51	58.8	985
	1-31-52	59.2	985
	11- 6-52	60.6	983
	2-16-53	60.5	984
	10-29-53	61.6	982
	12-18-53	61.4	983
	2-17-54	60.4	984
	2-18-55	61.8	982
	1-11-56	61.8	982
	12- 5-56	61.9	982
	1- 3-58	62.5	982
	12-17-58	61.9	982
	2- 3-59	61.6	982
	2-15-60	61.2	983
	3-31-61	61.8	982
	1-10-62	52.3	992
	2- 5-63	64.1	980
	1-23-64	70.8	973
	2- 4-65	63.2	981
	1-19-66	62.8	981
	9-23-69	Dry at 70 feet	.....
	12-21-71	1/65.2	.....
(B-1-5)6ccd	12-18-53	91.2	973
	12- 5-56	Dry at 92 feet	.....
(B-1-5)6dab	8-28-68	91.7	969
	1-19-70	89.7	971
(B-1-5)6ddb1	1-16-70	88.5	972
(B-1-5)6ddb2	1-16-70	89.9	970
(B-1-5)7aab	12- 5-56	74.4	974
	2-30-57	74.9	973
	3-31-61	75.8	972
	3-15-62	83.2	965
	2-27-63	75.8	972
(B-1-5)7abb	3-15-62	95.1	965
	2-27-63	95.1	965
	1-16-70	89.4	971
	12-21-71	1/89.8	970
(B-1-5)8dab	5- 9-56	90.7	966
	12- 5-56	88.7	968
	1- 3-58	90.1	967
	12-17-58	101.1	956
	3-31-61	96.5	961
	3-15-62	90.2	967
	3-20-62	90.7	966
	3- 1-63	90.8	966
	12-31-63	91.6	965
	3-16-65	90.4	967
	3-11-66	92.2	965
	2-24-67	91.3	966
	1-26-68	92.3	965
	3-12-69	94.3	963
	1-16-70	93.2	964
	2- 4-71	95.2	960
	12-21-71	1/90.8	966
	2- 7-73	89.1	966
(B-1-5)10bbc	9-23-69	40.7	969
	1-16-70	40.0	970
(B-1-5)10bcc	9-23-69	37.3	964
	1-16-70	37.8	963
(B-1-5)10cbb	3-31-61	36.6	963
	3-20-62	37.2	963
	2-28-63	39.6	960
	1-17-70	38.5	962
(B-1-5)10ccb	2-28-63	42.6	957
	9-23-69	40.2	960
	1-17-70	39.8	960
(B-1-5)10ccc	3-31-60	38.5	960
	1-16-70	37.6	960
(B-1-5)15bbb2	1-16-70	37.6	956
(B-1-5)15cbb1	3-20-62	36.2	944
	2-28-63	40.8	939
(B-1-5)15cbb2	3-31-61	39.1	939
	3-20-62	35.4	943
	2-28-63	36.9	941
(B-1-5)15cbc	9-23-69	45.7	934
	1-16-70	45.1	935
(B-1-5)15cdc	2- 7-46	5.9	957
	4- 8-46	6.0	957
	6-12-46	6.4	957
	10- 2-46	5.7	957
	2-11-47	5.8	957
	11- 4-47	6.9	956
	4- 2-48	6.5	957
	10-11-48	7.6	955
	2-24-49	6.8	956
	10- 6-49	7.9	955
	3-23-50	7.2	956
	12-14-50	8.1	955
	1- 2-51	8.0	955
	11- 8-51	7.1	956
	1-31-52	6.8	956
	11- 6-52	10.2	953
	2-16-53	8.3	955
	10-28-53	12.6	950
	2-17-54	8.7	954
	2-18-55	9.3	954
	1-11-56	9.4	954
	12- 4-56	11.4	952
	1-16-58	11.4	952
	2- 3-59	12.7	950
	1- 5-60	12.0	951
	3-31-61	21.0	942
	1-10-62	13.4	950
	2- 5-63	18.2	945
	1-23-64	16.2	947
	2- 4-65	17.2	946
	1-19-66	15.3	948
	2- 9-67	17.7	945
	1-11-68	15.3	948
	2- 3-69	14.7	948
	1-16-70	15.6	947
	1-23-70	14.9	948
	2- 9-71	18.3	945
	2-20-73	17.0	946
(B-1-5)16bbb	12-10-53	85.1	955
	1-11-56	82.3	958
	12- 4-56	84.3	956
	12-30-57	83.6	956
	1-16-58	83.1	957
	12-17-58	91.4	949
	2-15-60	82.2	958
	3-20-62	86.1	954
	2- 5-63	85.6	954
	1-23-64	87.8	952
	2- 4-65	87.8	952
	1-19-66	87.7	952
	2- 9-67	87.5	952
	3-12-69	92.4	948
	1-16-70	86.1	954
	12-21-71	1/83.0	957
(B-1-5)16bca	3-13-69	98.0	936
	1-16-70	92.1	942
(B-1-5)17acd	12-30-57	77.2	946
	2-28-63	87.9	935
	3-13-69	79.8	943
	1-16-70	83.5	939
(B-1-5)17adb	12-30-57	84.2	941
	3-20-62	85.0	940
	2-28-63	85.8	939
	3-13-69	83.4	942
(B-1-5)19bcd1	3-31-61	66.1	924
	3-21-62	65.3	925
	1-16-70	62.4	928
(B-1-5)20acc	5-19-49	71.0	934
(B-1-5)20dcb	12- -54	66.5	929
(B-1-5)21bbb	12- 4-56	59.4	945
	12-30-57	61.2	943
	3-15-62	74.5	930
	3-13-69	63.9	940
	1-16-70	63.8	940
	12-21-71	1/64.2	940
(B-1-5)21ddb	5-19-49	60.2	920
	12-10-53	62.6	917
	2-28-63	74.4	906
	1-15-70	65.4	915
(B-1-5)22bbb	12- 3-53	26.0	954
	12- 4-56	27.7	952
	12-30-57	28.7	951
	3-20-62	30.5	950
	2-28-63	39.3	941
(B-1-5)27bbc	12- -53	67.7	909
	1-11-56	66.0	911
	12- 4-56	67.6	909
	12-30-57	68.1	909
	1-16-58	68.8	908
	2- 3-59	67.8	909
	2-17-60	68.4	909
	3-31-61	71.0	906
	1-10-62	69.2	908
	3-15-62	70.4	907
	2- 5-63	75.7	901
	1-23-64	70.4	907
	2- 4-65	71.6	905
	1-19-66	71.2	906
	2- 9-67	71.0	906
	1-11-68	70.4	907
	2- 3-69	69.9	907
	3- 6-69	70.1	907
	1-15-70	69.8	907
	1-23-70	63.7	913
	2- 9-71	68.5	909
	12-21-71	1/71.2	906
	2-20-73	68.0	909
(B-1-5)28aaa2	3-15-62	79.9	901
	1-15-70	71.2	910
(B-1-5)28dab	1-15-70	58.6	899
(B-1-5)29aab	5-19-49	55.8	919
	12-16-53	55.7	919
	3-20-62	57.2	918
	2-28-63	57.2	918
	1-16-70	57.6	917
	12-21-71	1/58.9	916
(B-1-5)30cba	3-11-54	58.1	910
	12-17-56	62.6	905
	12-16-58	63.4	905
	4-21-60	64.4	904
	4- 5-61	65.2	903
	3-20-62	65.0	903
	2-27-63	66.0	902

See footnote at end of table.

Table 2.--Measurements of the water level in wells in the lower Hassayampa area—Continued

Well location	Date measured	Water level	Water-level altitude
(B-1-5)30cba—Continued	12-30-63	67.1	901
	2-10-65	66.8	901
	3-11-66	66.8	901
	2-24-67	67.4	901
	1-16-70	67.5	900
(B-1-5)35aba	*1-15-70*	*49.0*	*871*
(B-1-5)36ccb	3-13-69	69.8	830
(B-1-6)1abb	3-31-61	105.2	977
	3-15-62	105.5	976
	2-27-63	106.2	976
	12-30-63	106.6	975
	2-10-65	108.2	974
	3-11-66	107.3	975
	2-24-67	107.2	975
	1-26-68	107.1	975
	3-12-69	107.6	974
	1-12-70	106.3	976
	2- 4-71	106.4	976
	12-22-71	1/ 107.0	975
	1- 2-73	108.4	974
(B-1-6)1cbb	3-15-62	94.7	967
	8-28-68	96.3	966
	3-12-69	95.8	966
	1-12-70	95.5	966
	12-22-71	1/ 96.2	966
(B-1-6)2abb	3-12-69	103.9	973
	1-12-70	*103.2*	*974*
(B-1-6)3bbc	12-16-53	106.7	962
	11-21-56	107.4	962
	1- 3-58	107.2	962
	3- 1-60	106.9	962
	3-28-61	106.6	962
	3-13-62	107.6	961
	2-27-63	106.4	963
	3-11-66	106.6	962
	2-24-67	110.8	958
	1-12-70	107.2	962
(B-1-6)7abd1	3-11-54	72.7	951
	12- 5-56	33.2	991
	12-15-58	43.1	981
	3- 1-60	44.3	980
	3-28-61	32.7	991
	3-13-62	30.3	994
	2-27-63	38.1	986
	1-13-70	35.3	989
(B-1-6)7abd2	12- 5-56	33.0	991
(B-1-6)7bdd	11- 8-56	87.0	937
	12-15-58	*93.1*	*931*
	3- 1-60	97.7	926
	3-14-62	112.5	912
	2-27-63	123.9	900
	12-30-63	118.4	906
	2-10-65	121.9	902
	3-11-66	124.2	900
	2-24-67	131.8	892
	1-26-68	135.1	889
	3-12-69	136.4	888
	1-13-70	137.4	887
	2- 4-71	138.2	886
	12-30-71	1/ 146.7	877
	2- 7-73	146.5	878
(B-1-6)8abb	3-13-62	129.4	901
	2-27-63	134.2	896
(B-1-6)9bba	12- 5-56	95.7	938
	1- 3-58	96.1	938
	12-15-58	101.9	932
	3- 1-60	106.0	928
	3-24-61	117.2	917
	3-13-62	118.5	916
	2-27-63	122.2	912
	12-30-63	119.0	915
(B-1-6)9bba—Continued	2-10-65	121.0	913
	3-11-66	125.1	909
	2-24-67	138.4	896
	3-12-69	137.5	896
	1-13-70	134.6	899
	12-22-71	1/ 144.2	890
(B-1-6)10aab	3-12-69	172.1	872
	1-12-70	162.5	882
	12-22-71	1/ 177.0	867
(B-1-6)10bab	12- 5-56	99.6	952
	1- 3-58	100.2	952
(B-1-6)11bca	12- 5-56	91.0	950
	12-16-58	80.8	960
	3- 1-60	82.8	958
	3-24-61	83.6	957
	3-13-62	83.7	957
	2-27-63	86.8	954
	12-30-63	84.0	957
	2-10-65	84.8	956
	3-11-66	84.6	956
	2-24-67	80.2	961
	1-25-68	85.0	956
	3-12-69	85.8	955
	1-13-70	84.2	957
	1- 2-73	81.2	960
(B-1-6)12baa	3-12-61	88.1	966
	3-12-62	85.2	969
	2-27-63	*89.2*	*965*
(B-1-6)13aaa	3-31-61	66.6	951
	3-15-62	64.6	953
	2-27-63	68.4	950
	12-30-63	65.8	952
	2-10-65	66.8	951
	3-11-66	65.7	952
	2-24-67	66.2	952
	1-26-68	66.2	952
	3-12-69	66.4	952
	1-13-70	66.4	952
	2- 4-71	66.4	952
(B-1-6)13acb	1-13-70	85.5	939
	12-22-71	1/ 85.7	939
(B-1-6)15aaa	1-12-70	67.4	956
(B-1-6)15add	3-12-69	70.5	942
	1-13-70	70.0	942
(B-1-6)15bba2	3-13-69	80.7	943
	1-13-70	Dry at 82 feet	.....
(B-1-6)16dda1	5- 2-46	85.3	924
	5-13-48	85.7	923
	3- 4-49	86.3	923
	3-21-50	87.7	921
	1-26-51	85.4	924
	2- 5-52	85.5	923
	2-27-53	85.3	924
	3-28-54	85.6	923
	12- 5-56	95.3	914
	1-31-58	98.5	909
	12-15-58	87.6	921
	3- 1-60	82.9	926
(B-1-6)16ddd3	3-13-69	86.5	916
	1-13-70	85.3	917
	12-27-71	1/ 85.2	917
(B-1-6)17ada1	5-13-46	75.8	926
	12- -53	143.2	859
	12- 5-56	158.4	844
	12-15-58	164.1	838
	3-28-61	171.1	831
	3-28-62	171.9	830
	3- 8-63	178.4P	824
(B-1-6)17ada1—Continued	12-30-63	170.1	832
	1-13-70	176.6	825
(B-1-6)17ada2	2-11-65	173.4	829
	3-11-66	170.1	832
	3-13-69	171.2	831
	12-27-71	1/ 179.0	823
(B-1-6)18aaa1	12- 5-56	34.0	973
(B-1-6)18aaa2	3- 1-60	60.2	947
	3-28-61	73.6	933
	2-27-63	87.1	920
(B-1-6)20bba	7-21-49	48.9	936
	5-19-70	132.5	853
(B-1-6)20dab	12- -53	115.4	850
	5-14-68	179.6	785
	3- 5-69	184.1	781
	12-22-71	1/ 193.0	772
(B-1-6)20dbb	12- 4-56	129.9	840
	12-18-58	144.3	826
	3- 1-60	156.5	814
	3-27-62	169.0	801
	3- 8-63	161.1	809
	12-30-63	165.5	804
	2-12-65	168.9	801
	3-11-66	163.5	806
	5-14-68	168.0	802
	1-13-70	*186.4*	*784*
	12-22-71	1/ 192.0	778
(B-1-6)22add1	3-11-54	81.4	914
	12-17-56	83.6	911
	3- 1-60	80.5	915
	3-13-69	85.1	910
(B-1-6)22bab1	12-17-53	68.8	934
	12-17-56	69.6	933
	12-15-58	67.8	935
	3- 1-60	77.2	926
	3-20-62	69.6	933
	2-27-63	69.4	934
	12-31-63	67.9	935
(B-1-6)23dcd	8- 5-68	138.1	849
(B-1-6)25add	1-13-70	68.0	892
(B-1-6)26baa	8- 5-68	189.0	794
	3-13-69	189.2	794
	1-13-70	188.2	795
(B-1-6)27cdc	12- 8-53	155.0	810
	12-17-56	*219.4*	*748*
	1- 3-58	221.3	744
	12-16-58	247.6	717
	3- 1-60	224.8	740
	3-27-62	259.8	705
	2-27-63	250.3	715
	3-11-66	219.7	745
	3- 2-67	275.4	690
	1-26-68	238.9	726
	3- 5-69	253.5	711
	1-13-70	255.3	710
	12-27-71	1/ 265.0	700
	2- 7-73	254.1	711
(B-1-6)27ddc	12- 8-53	172.4	781
(B-1-6)32cbb	3- 5-69	138.0	792
	1-14-70	139.2	791
(B-1-6)34abb	8-30-54	128.7	829
(B-1-6)34acc	3- 5-69	236.4	709
(B-1-6)34adc	3-11-63	257.0	688

See footnote at end of table.

Table 2. --Measurements of the water level in wells in the lower Hassayampa area—Continued

Well location	Date measured	Water level	Water-level altitude
(B-1-7)1bbb	12- 3-56	110.1	960
	1- 3-58	112.0	958
	12-15-58	133.5	936
	3- 1-60	134.1	936
	2-20-63	132.9	937
	1-12-70	166.7	903
(B-2-4)29dcd	7-15-63	223.4	964
	5- 7-69	219.6	967
	1-19-70	218.3	969
(B-2-5)15bbc	5- 8-69	123.0	1,037
	1-19-70	125.0	1,035
(B-2-5)29aac	11-19-56	135.7	997
	1- 3-58	136.0	997
	3- 1-60	139.2	994
	3-14-62	137.2	996
	3- 1-63	145.6	987
	1-19-70	140.6	992
(B-2-5)29dac	3-15-62	134.2	993
	3- 1-63	136.8	990
	12-31-63	136.8	990
	2-16-65	137.1	990
	3-15-66	136.5	991
	2-24-67	135.8	991
	1-26-68	135.9	991
	3-12-69	136.2	991
	1-19-70	136.4	991
	2- 5-71	136.8	990
	12-28-71	1/ 136.7	990
	2- 7-73	136.8	990
(B-2-5)31bca	12-30-57	110.1	988
	3- 1-60	110.6	987
	3-14-62	111.7	986
	1- 3-72	1/ 114.0	984
(B-2-5)32aba	3-15-62	128.7	991
(B-2-6)4caa	1-13-70	283.8	924
(B-2-6)5daa	3-24-61	228.2	973
	3-28-62	232.5	969
	3- 8-63	239.5	961
	2-11-65	248.2	953
	3-15-66	253.7	947
	3- 5-69	277.9	923
	1-13-70	289.2	912
	2- 5-71	286.4	915
	12-30-71	1/ 285.0	916
(B-2-6)6cbb	3-12-62	239.4	977
	3- 8-63	243.3	973
	12-31-63	247.8	968
	2-11-65	247.2	969
	3-15-66	250.8	965
	2-24-67	263.3	953
	1-26-68	267.4	949
	1-13-70	286.6	929
	2- 5-71	281.3	935
	12-30-71	1/ 288.3	928
(B-2-6)6daa	1- -69	273 I	925
	1-13-70	282.1	916
	12- -71	1/ 288	910
(B-2-6)8aaa	3-14-62	221.2	969
	3- 1-63	232.4	958
	1-13-70	265.4	925
(B-2-6)8caa	1-13-70	241.5	928
(B-2-6)9aba	12- -71	1/ 282	915
(B-2-6)10aac	1-15-70	Dry at 203 feet	.....
(B-2-6)16caa	11-19-56	171.0	986
	1- 3-58	173.4	984
	3-28-62	205.4	952
	3- 5-69	231.3	926
	1-13-70	228.4	929
(B-2-6)17aaa	1- -69	229 I	931
	1-13-70	233.1	927
	12- -71	1/ 247	913
(B-2-6)17bdb	12-18-53	164.8	977
	11-19-56	167.7	974
	1- 3-58	169.9	972
	12-17-58	161.8	980
	3- 1-60	160.0	982
	3-22-61	190.7	951
(B-2-6)17daa	1- -69	211 I	933
	1-13-70	214.7	929
(B-2-6)19daa	11-19-56	140.2	974
	12-17-58	152.7	961
	3-21-61	158.8	955
	3-12-62	177.0	937
	3- 5-69	196.0	918
	1-13-70	193.2	921
(B-2-6)20bba	3-22-61	170.6	953
	3- 1-63	183.3	941
	3- 5-69	206.9	917
	1-13-70	205.5	918
	12- -71	1/ 224	900
(B-2-6)20cdd1	5- 2-46	89.0	1,013
	5-13-48	120.8	981
	10-13-48	120.8	981
	3- 4-49	120.8	981
	3-23-50	123.2	979
	1-26-51	120.8	981
	1-31-52	120.8	981
	12- 9-53	126.0	976
	3-29-54	123.2	979
(B-2-6)20daa	3-24-61	172.0	946
	12- -71	1/ 226	892
(B-2-6)21bba	3-24-61	183.6	952
	3-14-62	185.1	951
	3- 1-63	193.6	942
	2-11-65	186.4	950
	3-15-66	199.5	936
	2-24-67	214.4	922
	1- -69	205 I	931
	1-13-70	209.0	927
	12- -71	1/ 241	895
(B-2-6)21dbb	3-14-62	195.5	931
	3- 1-63	195.4	932
	3- 6-69	219.0P	908
	1-13-70	200.0	927
	12- -71	1/ 235	892
(B-2-6)23aab	3-14-62	176.8	983
	3- 1-63	182.8	977
	12- -71	1/ 191	969
(B-2-6)23aba	12- 6-56	178.5	984
	1- 3-58	183.2	979
	12-17-58	192.7	969
	3- 1-60	174.0	988
	3-14-62	176.3	986
	12-31-63	181.9	980
	2-11-65	187.3	975
	3-15-66	181.0	981
	12- -71	1/ 191	971
(B-2-6)23ddc	12-17-56	147.1	991
	1- 3-58	147.1	991
	12-17-58	146.5	992
	3-24-61	147.7	990
	3-14-62	151.9	986
	3- 1-63	147.2	991
(B-2-6)24cba	3-24-61	161.8	988
	3-14-62	166.5	984
	3- 1-63	169.4	981
	3-12-69	164.1	986
	1-12-70	1/ 164.5	986
	12- -71	165	985
(B-2-6)25baa	12- 9-53	157.7	981
	12- 6-56	148.2	991
	1- 3-58	152.1	987
(B-2-6)27ada	3-14-62	133.2	985
	3- 1-63	135.6	982
	3- 6-69	135.1	983
	1-12-70	135.3	983
	12- -71	1/ 136	982
(B-2-6)27bab	3-22-61	154.8	967
	3-14-62	144.8	977
	12- -71	1/ 196	926
(B-2-6)28bab	12- 6-56	140.5	971
	1- 3-58	144.6	966
	12-17-58	150.1	961
	3- 1-60	159.2	952
	3-14-62	166.3	945
	3-12-69	194.1	917
	1-12-70	182.8	928
(B-2-6)31daa	11- 7-56	108.4	957
	3- 1-60	120.8	944
	3- 1-63	145.5	919
	12-31-63	131.7	933
	2-11-65	136.0	929
	3-13-69	158.0	907
(B-2-6)33caa	5-26-55	111.4	964
	12-17-56	125.3	950
	12-17-58	130.6	944
	3- 1-60	131.0	944
	12-31-63	146.9	928
	2-11-65	147.2	928
	3-11-66	157.9	917
	2-24-67	191.5	883
	3-13-69	177.3	898
	1-14-70	170.5	905
(B-2-7)12cbb	1-12-70	260.2	934
(B-2-7)14cbb	12- -53	197.5	986
	12- 6-56	204.6	979
	1- 3-58	207.5	976
	12-16-58	230.3	954
	3- 1-60	241.3	943
	3-22-62	225.1	959
	2-20-63	226.8	957
	1- -69	250 I	934
	1-12-70	254.5	930
	12-29-71	1/ 266.0	918
(B-2-7)20cdd	3- 6-69	256.4	932
	1-12-70	259.3	929
(B-2-7)22bbb	3-21-61	230.6	963
	2-20-63	238.3	956
	3- 6-69	262.7	931
	1-12-70	265.7	928
	12-29-71	1/ 272.0	922
(B-2-7)22cbb	3-20-61	211.2	964
	3-21-62	216.2	959
	2-20-63	219.2	956
	12-31-63	223.7	951
	3-15-65	228.3	947
	3- 2-67	236.8	938
	3- 6-69	243.2	932
	1-12-70	247.2	928
	12-29-71	1/ 263.0	912

See footnote at end of table.

Table 2. --Measurements of the water level in wells in the lower Hassayampa area—Continued

Well location	Date measured	Water level	Water-level altitude
(B-2-7)23acd	3-12-65	202.1	938
	3-16-66	204.6	935
	3-23-67	211.9	928
	3- 6-69	218.0	922
	1-19-70	222.0	918
(B-2-7)23bbb	12-17-56	187.6	977
	1- 3-58	190.7	974
	3-21-61	205.4	960
	3-22-62	208.5	957
	2-20-63	212.2	953
	5-27-63	215.6	949
	12-31-63	217.2	948
	2-15-65	221.6	943
	3-15-66	223.9	941
	3- 2-67	229.8	935
	1-25-68	231.5	933
	3- 6-69	236.9	928
	1-12-70	Dry at 240 feet	.....
(B-2-7)23cca	3-21-61	186.4	954
	3-21-62	192.2	948
	2-20-63	193.5	946
	7-11-63	200.8	939
	2- 7-64	199.0	941
	1-13-65	204.7	935
	1-17-66	207.0	933
	1-20-67	211.7	928
	1-24-68	212.8	927
	1-15-69	219.3	921
	3- 6-69	220.6	919
	3-12-69	220.4	920
	1-19-70	223.7	916
	1-18-71	229.0	911
	2-15-72	237.0	903
	2- 1-73	237.3	903
(B-2-7)23ccb	3-12-69	225.6	919
	1-12-70	227.4	918
(B-2-7)23cda	12- 7-53	150.4	982
	5-15-68	Dry at 160 feet	.....
(B-2-7)23cdc	3-12-62	184.5	950
	2-20-63	187.1	947
(B-2-7)25bca	12-30-57	142.2	967
	3-12-62	162.2	947
	2-22-63	168.3	941
	3- 6-69	192.9	916
	1-19-70	196.5	913
(B-2-7)26aab	12-29-71	1/ 222.0	900
(B-2-7)26aba	5- 2-46	139.4	986
	5-13-48	140.5	985
	10-13-48	139.5	985
	3- 4-49	139.3	986
	3-23-50	139.5	985
	1-26-51	139.5	985
	1-31-52	139.7	985
	2-27-53	141.4	984
	12-15-53	143.0	982
	3-29-54	142.1	983
	2- 7-55	143.2	982
	3-15-56	147.9	977
	12- 6-56	152.1	973
	1- 3-58	156.8	968
	1-31-58	156.8	968
	2- 5-59	162.2	963
	3- 1-60	162.6	962
	3-28-61	172.2	953
	3-21-62	178.2	947
	2-20-63	178.4	947
	5-27-63	184.8	940
	12-31-63	183.6	941
	2-12-65	187.5	937
	3-15-66	Dry at 188 feet	.....
(B-2-7)26abb	1- -69	210 I	917
(B-2-7)26acb	2-20-62	175.6	943
	1- -69	203 I	916
(B-2-7)26bab	3-12-62	185.0	943
	2-20-63	187.0	941
	3-12-69	215.1	913
	12-29-71	1/ 230.0	898
(B-2-7)27aab	12- 3-53	162.8	983
	12- 6-56	172.1	974
	1- 3-58	176.6	969
	12-16-58	183.7	962
	3- 1-60	185.1	961
	3-21-61	192.0	954
	3-21-62	197.6	948
	5-27-63	208.1	938
	12-31-63	204.7	941
	2-15-65	207.8	938
	3-15-66	210.6	935
	3- 2-67	233.9P	912
	1-25-68	218.0	928
	3- 6-69	225.5	920
	1-19-70	229.0	917
	2- 5-71	234.8	911
	12-29-71	1/ 240.0	906
	2- 1-73	247.6	898
(B-2-7)28aaa	12- 3-53	194.7	969
	12- 6-56	188.0	976
	1- 3-58	192.3	972
(B-2-7)28bbb	3-21-62	223.4	952
	1- -69	251 I	924
	1-12-70	255.4	920
(B-2-7)28bdd	1- -69	239 I	916
	1-12-70	242.6	912
(B-2-7)28caa	3- 6-69	242.9	907
	1-12-70	243.3	907
(B-2-7)28daa	3-12-62	197.4	943
	2-20-63	197.3	943
	3- 6-69	225.4	915
(B-2-7)29aaa	1-31-52	194.0	986
	12- 6-56	202.4	978
	1- 3-58	205.8	974
	12-16-58	216.5	964
	4-21-60	217.7	962
	3-21-61	224.4	956
	3-21-62	226.2	954
	2-20-63	227.3	953
	12-31-63	230.1	950
	2-15-65	237.2	943
	3-16-66	242.0	938
	3- 2-67	247.3	933
	1-25-68	249.7	930
	3- 6-69	253.4	927
	12-29-71	1/ 270.0	910
(B-2-7)34bba	3-12-62	184.7	941
	3-21-62	184.0	942
	2-20-63	183.5	942
	12-31-63	189.4	937
	1-12-70	214.9	911
	12-29-71	1/ 232.0	894
(B-2-7)36abb	5-11-56	114.0	968
	12- 5-56	116.8	965
	12-16-58	130.6	951
	3- 1-60	128.8	953
	3-13-69	172.0	910
	2-16-72	1/ 195.0	887
(B-2-7)36bba	5-11-56	120.0	972
	12- 6-56	123.6	968
	12-30-57	127.7	964
	12-16-58	139.4	953
(B-2-7)36bba—Continued	3- 1-60	135.6	956
	12-31-63	155.3	937
	3-13-69	170.3	922
(B-3-5)11dcd	5- 7-69	82.5	1,196
(B-3-5)26daa	4- 2-46	97.8	1,125
	10-11-48	87.8	1,135
	2-24-49	87.4	1,136
	7-22-49	88.2	1,135
	3-21-50	87.2	1,136
	12-14-50	87.3	1,136
	11- 8-51	84.8	1,138
	1-31-52	85.0	1,138
	2-16-53	85.5	1,137
	10-29-53	85.5	1,137
	2-17-54	85.5	1,137
	5- 7-69	85.3	1,138
(B-3-6)30bad	1-15-70	382.9	939
(C-1-5)1aab	2- 7-46	68.0	851
	2-11-47	66.6	852
	4- 2-48	64.0	855
	2-23-49	68.9	850
	3-27-50	76.7	842
	2- 2-51	72.1	847
	1-30-52	72.7	846
	2-16-53	76.3	843
	2-16-54	78.2	841
	2-18-55	81.2	838
	1-11-56	79.2	840
	1-18-57	78.2	841
	1-16-58	80.6	838
	2- 3-59	84.7	834
	1- 5-60	86.5	833
	3-16-61	91.4	828
	1-10-62	92.1	827
	1-21-63	95.1	824
	1-22-64	Plugged at 93 feet	.....
	2- 4-65	Plugged at 93 feet	.....
(C-1-5)1dcc	2- -61	48.1	822
	1-13-70	45.0	825
	1- 5-72	1/ 41.8	828
(C-1-5)3baa1	11- 9-51	69.2	862
	1-31-52	68.6	862
	11- 6-52	69.9	861
	2-16-53	69.0	862
	10-29-53	70.8	860
	12- -53	68.9	862
	2-17-54	69.7	861
	12-18-55	133.1P	798
	1-11-56	90.0	841
	12- 4-56	117.6	813
	1-16-58	99.2	832
	2- 3-59	134.1	797
	2-12-60	98.8	832
	1-10-62	98.2	833
	1-23-64	101.0	830
	2- 4-65	100.8	830
	1-19-66	97.5	833
	2- 9-67	108.6	822
	1-11-68	96.6	834
	1-29-69	97.0	834
	1-15-70	137.1P	794
	2- 9-71	135.9P	797
	12-21-71	1/ 93.6	839
	2-20-73	92.0	839
	5-17-73	103.8	827
(C-1-5)4aaa2	3-10-54	99.9	830
(C-1-5)4ddd	11-12-54	83.4	814
	12- 5-56	93.9	803
	8-27-70	95.6	801

See footnote at end of table.

Table 2.--Measurements of the water level in wells in the lower Hassayampa area—Continued

Well location	Date measured	Water level	Water-level altitude
(C-1-5)11adb	3-21-46	28.0	828
	6-12-46	28.0	828
	10-25-46	26.8	829
	12-20-46	27.9	828
	2-17-47	26.6	829
	11- 4-47	27.7	828
	4- 2-48	27.9	828
	10- 8-48	34.4	822
(C-1-5)13aab	1-13-70	26.6	810
(C-1-5)13bba	3-12-54	37.6	811
	1-11-56	35.5	813
	1-18-57	35.6	813
	2-15-60	42.9	806
	2- 5-63	47.2	802
	1-23-64	44.1	805
	2- 4-65	42.8	806
	1-19-66	40.6	808
	2- 9-67	41.4	808
	3- 6-69	38.4	811
	1-13-70	39.3	810
	1- 4-72	1/ 38.0	811
(C-1-5)17abb1	1-16-56	71.9	791
	12-19-56	72.8	790
	1-16-58	73.2	790
	1-21-59	74.1	789
	2-16-60	74.1	789
	3-16-61	74.4	789
	1-11-62	76.2	787
	2- 5-63	76.1	787
	1-23-64	76.7	786
	2- 4-65	76.7	786
	1-19-66	76.9	786
	2- 9-67	76.6	786
	3- 6-69	75.5	787
	1-13-70	75.6	787
	12-21-71	1/ 72.0	791
(C-1-5)17abb2	3- 6-69	72.4	791
	1-13-70	75.0	788
(C-1-5)17dda	1-16-56	47.1	791
	3- 6-69	50.2	788
	1-13-70	49.0	789
	12-21-71	1/ 49.0	789
(C-1-5)21bbb	1-16-56	48.0	786
	12- 4-56	51.2	783
(C-1-5)21cdd	3- 6-69	50.2	748
	1-13-70	48.6	749
	12-21-71	1/ 50.0	748
(C-1-5)22ccc	1-13-70	19.8	768
	12-21-71	1/ 27.0	761
(C-1-5)23ccc	12-21-71	1/ 47.0	740
(C-1-5)23dca	1-13-70	65.2	730
	1-15-70	69.3	726
(C-1-5)27ddd2	1-13-70	47.3	735
	12-22-71	1/ 42.0	740
(C-1-5)29adc	1-16-56	40.9	747
	1-18-57	43.2	745
	1-29-58	47.4	741
	1-29-59	46.5	742
	2-16-60	56.6	731
	3-16-61	55.7	732
	1-11-62	63.3	725
	2- 5-63	79.9	708
	2- 4-65	75.6	712
	1-19-66	52.4	736
	2- 9-67	59.8	728
	1-11-68	50.5	738
	1-29-69	50.0	738
	3- 6-69	67.4	721
	1-12-70	64.9	723
	1-23-70	61.2	727
(C-1-5)29adc—Continued	2- 9-71	75.1	713
	2-20-73	67.0	721
(C-1-5)32baa	2-24-72	1/ 64.0	716
(C-1-5)32ccb	6- 7-67	73.5	722
	3- 6-69	85.7	710
	1-12-70	85.0	711
(C-1-5)34adc	1-16-56	24.0	754
	1-18-57	28.0	750
	1-21-59	29.9	748
	2-16-60	30.6	747
	3-16-61	34.5	744
	1-11-62	35.1	743
	2- 6-63	40.6	737
	1-23-64	41.4	737
	2- 4-65	43.9	734
	2- 9-67	36.3	742
	1-11-68	29.2	749
	1-29-69	49.5	728
	1-13-70	35.4	743
	2- 9-71	41.3	737
	12-22-71	1/ 32.0	746
	2-20-73	34.2	744
	5-17-73	20.1	758
(C-1-5)34daa	7-16-63	Dry at 30 feet	.....
(C-1-5)34dbd	1-13-70	32.6	741
(C-1-6)3baa	1-26-51	84.9	847
(C-1-6)3bbb	3-23-50	59.1	880
	1-26-51	84.9	854
(C-1-6)9abc	3- 5-69	171.0	746
	6- 8-69	171.1	746
	1-14-70	168.5	749
(C-1-6)13cab	12- -53	165.0	725
	12- 3-56	175.0	715
	1- 3-58	173.8	716
	1-13-70	198.7	691
	12-22-71	1/ 202.0	688
(C-1-6)14aaa	1-28-69	211.3	693
	12-22-71	1/ 221.0	683
(C-1-6)14dbb	12- -53	157.4	734
	12- 3-56	173.9	717
	1- 3-58	172.4	719
	3- 2-67	208.5	683
	3- 6-69	218.5	673
	2- 5-71	206.7	684
	2- 7-73	204.8	686
(C-1-6)17abb	2-11-63	174.6	715
	12-30-63	183.4	707
	2-15-65	188.2	702
	3-10-66	187.3	703
	3- 2-67	191.1	699
	1-26-68	191.7	698
	3- 5-69	174.3	716
	1-14-70	204.3	686
	1-22-71	222.3	.....
(C-1-6)18bbb	12- -52	166.4	746
	12- -53	168.7	743
	12- 3-56	176.9	735
	1- 3-58	177.5	734
	2-13-63	193.9	718
	12-27-63	199.2	713
	2-15-65	202.9	709
	3- 2-67	208.7	703
	1-26-68	209.1	703
	3- 5-69	212.9	699
	1-14-70	214.0	698
	12-22-71	1/ 219.0	693
	2- 7-73	205.8	706
(C-1-6)19abb	4- 5-61	174.6	715
	3-11-63	180.0	710
	12-27-63	182.2	708
	2-15-65	184.0	706
	3-10-66	178.0	712
	1-14-70	193.7	696
	12-22-71	1/ 200.0	690
(C-1-6)19cbb	7-26-49	113.9	762
	3-23-50	114.6	761
	1-26-51	119.0	757
	2- 5-52	129.7	746
	2-27-53	128.6	747
	3-29-54	129.0	747
	2- 7-55	129.7	746
	3-15-56	133.7	742
	12- 3-56	138.7	737
	1-31-58	146	730
	4-21-60	144.4	732
	4- 5-61	145	731
	3-27-62	154.0	722
(C-1-6)20aab2	1-14-70	178.0	697
(C-1-6)21cbb1	12- 3-56	137.8	729
	1- 3-58	136.6	730
	3- 5-69	169.8	697
	1-14-70	171.1	696
(C-1-6)21cbb2	12-18-58	142.4	725
	4-21-60	151.7	715
	3-27-62	157.0	710
	12-30-63	157.4	710
	2-15-65	164.3	703
	3-10-66	168.5	699
	3- 2-67	174.0	693
	3- 5-69	172.6	694
	1-14-70	175.3	692
(C-1-6)23adb	8-31-54	157.6	711
	12- 4-56	151.8	717
	1- 3-58	148.8	720
	3- 6-69	192.6	676
	1-13-70	180.7	688
(C-1-6)23bab	12- 3-53	153.2	723
	12- 3-56	171.4	705
	1- 3-58	170.5	706
	12-22-71	1/ 198.0	678
(C-1-6)23caa	3-11-63	184.0	689
	1-13-70	200.2	673
(C-1-6)26aba	8-31-54	148.0	716
	3-11-63	166.7	697
	3-10-66	169.8	694
	3- 6-69	181.1	683
	1-13-70	174.5	690
	12-27-71	1/ 171.0	693
(C-1-6)26dad	10-29-54	122.3	706
	12- 4-56	103.5	724
	12-27-71	1/ 165.0	663
(C-1-6)28acc1	1-13-70	144.4	704
(C-1-6)31adb	5-26-70	196.2	694
(C-1-6)34cab	12- 3-56	61.6	758
(C-1-7)11baa	3- 5-69	260.5	710
	1-14-70	262.9	707
(C-1-7)12cbb	3- 5-69	227.5	715
	6-18-69	235.6	707
	1-14-70	228.4	715
(C-1-7)14add	3-21-46	150.2	770
	7-26-49	152.6	767
	12- 3-56	173.6	746
	4-21-60	181.6	738
	4- 5-61	183.9	736

See footnote at end of table.

Table 2.--Measurements of the water level in wells in the lower Hassayampa area—Continued

Well location	Date measured	Water level	Water-level altitude
(C-1-7)14add—Continued	3-27-62	188.2	732
	2-13-63	191.4	729
	3-11-63	191.4	729
	2-15-65	199.4	721
	3-10-66	224.2	696
	3- 2-67	210.5	710
	1-26-68	205.5	714
	3- 5-69	209.2	711
	2- 5-71	211.1	709
	12-22-71	1/ 223.0	697
(C-1-7)14bbb	3-11-63	204.7	734
	1-14-70	225.0	714
	12-22-71	1/ 227.0	712
(C-1-7)14dcd	7-26-49	143.2	767
	12- 3-56	152.2	758
	12-18-58	161.2	749
	6-18-69	Dry at 165 feet	.....
(C-1-7)15abb	3- 5-69	223.0	724
	1-14-70	225.8	721
	12-22-71	1/ 231.0	716
(C-1-7)15bbb	3- 4-49	178.2	771
	7-26-49	178.6	770
	3-23-50	179.0	770
	1-26-51	179.7	769
	2- 5-52	180.7	768
	2-27-53	182.1	767
	12-18-53	179.8	769
	3-29-54	183.5	765
	2- 7-55	184.8	764
	3-15-56	186.7	762
	12- 3-56	187.8	761
	1-23-57	188.0	761
	1-31-58	189.9	759
	2- 5-59	191.6	757
	4-21-60	193.8	755
	4- 5-61	195.9	753
	3-27-62	208.0	741
	2-13-63	200.2	749
	3-11-63	200.4	749
	12-27-63	202.4	747
	2-15-65	205.3	744
	3-10-66	208.0	741
	3- 2-67	211.0	738
	1-26-68	212.6	736
	3- 6-69	215.1	734
	1-14-70	216.4	733
	2- 5-71	218.3	730
	12-22-71	1/ 221.0	728
	2- 7-73	227.0	722
(C-1-7)22adc	3- 5-69	149.7	753
	6-17-69	151.5	751
(C-1-7)32dab	5-26-70	54.4	911
(C-2-5)5bcb	6- -67	75.2	715
	3- 6-69	78.5	712
(C-2-5)5ccb	12-28-71	1/ 73.0	717
(C-2-5)8aab	2-11-70	15.5	756
(C-2-5)8abb	3- 6-69	65.6	721
	12-28-71	1/ 69.0	718
(C-2-5)8bca	3- 6-46	19.4	764
	6-12-46	22.1	761
	10-25-46	21.1	762
	12-27-46	20.9	762
	3-11-47	18.1	765
	4- 2-48	18.4	765
	10- 8-48	23.5	759
	2-24-49	19.7	763
	10- 6-49	20.6	762
	3-27-50	18.9	764
	12-14-50	21.6	761
	2- 2-51	20.3	763
	11- 9-51	18.6	764
	2- 7-52	17.8	765
	11-10-52	20.2	763
	2-18-53	19.4	764
	10-30-53	21.7	761
	2-17-54	20.2	763
	1-16-56	17.9	765
	12-20-56	22.8	760
	1-16-58	22.8	760
	1-21-59	23.0	760
	2-16-60	24.0	759
	3-16-61	24.4	759
	1-11-62	25.6	757
	2- 6-63	27.1	756
	1-23-64	27.6	755
	2- 4-65	28.6	754
	1-19-66	27.6	755
	2- 9-67	24.4	759
	1-23-70	23.1	760
	2- 9-71	23.6	759
(C-2-5)8ccc	1-13-70	61.8	717
(C-2-5)9cbb	1-18-57	21.7	746
	1-21-59	25.3	743
	2-16-60	27.4	741
	3-16-61	28.8	739
	1-11-62	35.4	733
	1-23-64	39.4	729
	1-19-66	30.5	738
	1-11-68	32.1	736
	1-13-70	40.8	727
(C-2-5)16abb	1-16-56	17.6	745
	1-18-57	20.9	742
	1-16-58	24.6	738
	2-16-60	24.6	738
	3-16-61	26.4	737
	1-11-62	30.0	733
	2- 6-63	34.5	729
	7-17-63	39.9	723
	1-23-64	33.8	729
	2- 4-65	36.4	727
	2- 9-67	21.0	742
	1-11-68	18.4	745
	1-29-69	27.1	736
	2- 9-71	29.4	734
(C-2-5)16daa	1-16-56	20.6	741
	1-18-57	25.2	737
	1-16-58	28.4	734
	2-16-60	30.5	732
	1-11-62	31.2	731
	1-13-70	32.5	730
	1- 4-72	1/ 35.0	727
(C-2-5)17cca	3- 7-46	24.1	754
	6-12-46	24.4	754
	10-25-46	25.9	752
	12-10-46	26.3	752
	3-11-47	23.5	754
	10- 8-48	26.9	751
	2-24-49	25.6	752
	10- 6-49	31.1	747
	3-27-50	28.5	750
	12-12-50	29.7	748
	2- 2-51	29.7	748
	11- 9-51	30.0	748
	2- 7-52	28.9	749
	11-10-52	32.7	745
	2-18-53	44.4	734
	10-30-53	34.8	743
	2-17-54	34.2	744
	1-16-56	43.4	735
	12-20-56	57.2	721
	1-16-58	49.1	729
	1-21-59	48.0	730
	2-16-60	51.4	727
	3-16-61	51.4	727
	1-11-62	56.2	722
	2- 6-63	63.0	715
	1-23-64	66.6	711
	2- 4-65	66.7	711
	1-19-66	58.7	719
(C-2-5)18cbb	5- 4-70	104.4	708

1/ Measurement made by U.S. Bureau of Reclamation.

Table 3. --Chemical analyses of water from selected wells in the lower Hassayampa area

[Analyses by U. S. Geological Survey. Analytical results in milligrams per liter except as indicated. Dissolved solids: Dissolved solids represent sum of determined constituents in solution]

Well location	Date of collection	Depth of well (feet)	Temperature (° C)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium and potassium (Na + K)	Bicarbonate (HCO_3)	Carbonate (CO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids		Hardness as $CaCO_3$		Percent sodium	Sodium-adsorption ratio (SAR)	Specific conductance (micromhos at 25° C)	Remarks
																Milligrams per liter	Tons per acre-foot	Calcium, magnesium	Noncarbonate				
(B-1-5)4adb	4- 8-46	70	24	....	....	44	11	84	248	0	59	41	1.2	16	0.6	378	0.51	155	0	....	....	627	
(B-1-6)23dcd	9-25-68	460	28	16	0.01	4.5	0	140	71	0	66	98	13	4.0	.7	391	.53	11	0	96	18	673	
34abb	7-22-53	1,413	29	58	....	20	8.3	244	218	0	101	220	6.4	5.6	....	770	.....	84	0	....	....	1,270	
(B-2-6)23aba	9-26-52	382	26	29	....	22	5.7	83	189	0	37	42	.....	8.9	....	321	.44	78	0	70	....	523	
28bab	7-29-53	1,000	26	31	....	15	3.3	119	132	0	74	61	10	14	....	392	.53	51	0	83	....	637	
(B-2-7)14cbb	7-29-53	685	36	32	....	17	3.3	219	114	0	92	231	5.2	3.7	....	659	.90	56	0	89	....	1,140	
26aaa	7- 8-46	208	48	....	.04	29	2.4	306	73	0	125	381	6.9	4.0	....	890	1.21	82	22	....	....	1,600	Temperature reported by owner.
26abb	9-16-71	400	44	28	.01	24	1.9	252	162	0	110	290	5.1	1.2	.8	797	1.08	68	0	89	13	1,370	
(C-1-6)18bbb	7-22-53	1,333	35	46	....	19	11	387	324	0	275	246	10	11	....	1,160	1.58	92	0	90	....	1,880	
26aba	7-22-53	1,130	29	50	....	45	17	278	126	0	222	308	2.6	13	....	998	1.36	182	80	77	....	1,650	
(C-1-7)11baa	3-21-46	286	....	....	....	42	16	227	144	0	163	262	1.3	6.4	1.4	789	1.07	171	53	....	....	1,390	

Table 4.--Field determinations of temperature and specific conductance of water from selected wells in the lower Hassayampa area

Well location	Date of collection	Temperature (°C)	Specific conductance (micromhos at 25°C)
(B-1-5)21ddb	9-25-69	25	1,400
27bbc	8-27-68	26	520
35daa2	8-21-69	27	700
(B-1-6)8abb	8- 7-69	31	900
10aab	8- 5-68	31	560
11bca	8- 5-68	26	740
27cbc	8-21-69	33	290
34abb	8- 5-68	29	1,020
34acc	8- 5-68	31	1,540
(B-2-6)5daa	8- 7-68	28	830
6daa	8- 7-68	35	750
8aaa	5-16-68	29	750
16caa	8- 7-68	26	650
17aaa	8- 6-68	27	780
17daa	5-16-68 8- 7-68	26 27	650 740
19daa	5-16-68	28	1,100
20bba	5-16-68 8- 7-68	28 28	730 750
20daa	8- 7-68	27	700
21bba	8- 7-68	26	640
(B-2-6)23aab	9-17-69	27	500
24cba	6-10-70	26	500
28bab	8- 7-68	26	680
31daa	8- 5-68	33	1,130
33caa	8- 5-68	27	550
(B-2-7)14cbb	8- 6-68	38	1,100
22bbb	8- 6-68	31	500
22cbb	8- 6-68	32	510
23ccb	5-15-68 8- 5-68	33 36	700 740
25bca	8- 6-68	42	1,400
26abb	5-15-68 8- 5-68	42 43	1,500 1,420
26acb	8- 6-68	37	1,900
28bbb	8- 6-68	32	800
28bdd	8- 5-68	33	1,080
36abb	8- 6-68	38	1,320
(C-1-5)13aab	6-10-70	23	5,000

Table 4.--Field determinations of temperature and specific conductance of water from selected wells in the lower Hassayampa area—Continued

Well location	Date of collection	Temperature (°C)	Specific conductance (micromhos at 25°C)
(C-1-5)13aad	6-10-70	23	6,000
13bad	8- 7-68	20	3,500
13cdc	6-11-70	22	4,400
22ccc	8-21-69	26	2,400
27ddd2	8- 7-68	30	3,400
28aab	8- 6-68	34	620
29adc	8- 6-68	32	980
32baa	6-11-70	31	1,800
34adc	8- 6-68 6-11-70	28 29	5,500 5,000
(C-1-6)13cab	8- 6-68	31	1,620
14dbb	8-21-69	30	1,500
17abb	8- 5-68	31	840
21cbb2	8- 6-68	33	1,650
23adb	8- 6-68	27	1,070
23bab	9-14-61	26	1,020
26aba	3- 7-69	29	1,900
26dad	8- 6-68	32	1,720
28acc2	8-21-69	27	2,350
(C-2-5)3aaa	8- 7-68	26	5,200
5bcb	8-21-69	32	1,300
5ccb	8-21-69	30	1,000
8ccc	8- 6-68	29	1,400
9cbb	2- 9-67	32	1,300

Table 5.--Modified drillers' logs of selected wells in the lower Hassayampa area

[Stratigraphic-unit identification inferred where possible; author does not have access to well cuttings for most wells]

Stratigraphic unit	Description	Thickness (feet)	Depth (feet)
	(B-1-5)7aab		
Valley-fill deposits	Topsoil	8	8
	Sandy clay	17	25
	Clay	130	155
	Hard sandstone	26	181
	Sand and gravel	72	253
	TOTAL DEPTH		253
	(B-1-5)7abb		
Valley-fill deposits	Sandy gravel	50	50
	Conglomerate	25	75
	Sandy clay	37	112
	Water, sand	73	185
	Clay	10	195
	Sand	55	250
	Sandy clay	40	290
	Conglomerate	50	340
	Clay	5	345
	Water, sand	5	350
	TOTAL DEPTH		350
	(B-1-5)8dab		
Valley-fill deposits	Soil	10	10
	Caliche	10	20
	Sand rock	10	30
	Sand	10	40
	Caliche	10	50
	Sand	10	60
	Sand, caliche	20	80
	Sand	10	90
	Sand rock	10	100
	Rock hard	13	113
	Sand and gravel	16	129
	Sand and gravel	8	137
	Sand and clay	16	153
	Gravel and clay	16	169
	Sand	8	177
	Clay	8	185
	Pea gravel	8	193
	Sand and gravel	16	209
	Clay	8	217
	Hard clay	6	223
	Sand and hard rock	26	249
	Sand and sand rock	20	269
	Sand	6	275
	Sand and clay	29	304
	TOTAL DEPTH		304
	(B-1-5)10bcc		
Stream and flood-plain alluvium	Topsoil	6	6
	Sand and gravel	24	30
Stream and flood-plain alluvium or valley-fill deposits	Clay	15	45
	Fine water sand	25	70
	Sand and gravel	23	93
Valley-fill deposits	Clay and gravel	10	103
	Sand and gravel	7	110
	Sand, gravel, and clay	20	130
	Clay and gravel	10	140
	Red clay	15	155
	Sand and pea gravel	15	170
	Clay and gravel	17	187
	Sand and gravel	23	210
	Clay and gravel	10	220
	Clay	10	230
	Clay, sand, and gravel	15	245
	Red clay only	107	352
	TOTAL DEPTH		352
	(B-1-5)15cbc		
Stream and flood-plain alluvium	Boulders in a little soil	27	27
	Black soil	5	32
Stream and flood-plain alluvium or valley-fill deposits	Fine sand	26	58
	Caliche	2	60
	Sand and gravel	64	124
	Clay	11	135
Valley-fill deposits	Sandstone	2	137
	Sand and gravel	22	159
	TOTAL DEPTH		159
	(B-1-5)16bbb		
Valley-fill deposits	Ground. Struck water 83 feet. Water rose to 79 feet	83	83
	Sand	17	100
	Rock	1	101
	Sand	2	103
	Sand, gravel mixed	24	127
	Sand	5	132
	Sand and dirt mixed	10	142
	Sand	5	147
	Clay, sand, gravel mixed	15	162
	Sand	3	165
	Sand, clay mixed	25	190
	Sand	1	191
	Sand and dirt	18	209
	Sand	6	215
	Clay	3	218
	Sand	2	220
	Clay	3	223
	Sand, gravel	6	229
	Dirt and sand	2	231
	Sand	6	237
	Clay, rock	13	250
	Sand	10	260
	Gravel	36	296
	Sand	4	300
	Clay	20	320
	TOTAL DEPTH		320
	(B-1-5)16bca		
Valley-fill deposits	Fill	27	27
	Sand and gravel	23	50
	Gravel, boulders, gravel and sand	25	75
	Clay and gravel	115	190
	Sand, gravel and clay	360	550
	Sticky clay	160	710
	Hard clay	10	720
	Sticky clay	10	730
	Sandy clay streaks, clay	31	761
	Boulders(?)	30	791
	Cemented conglomerate	59	850
	TOTAL DEPTH		850
	(B-1-5)17adb		
Valley-fill deposits	Surface soil and gravel	30	30
	Hardpan or sandstone	43	73
	Hard clay or blue clay (first water)	7	80
	Water sand	11	91
	Sandstone	34	125
	Hard clay	15	140
	Sand and gravel (second water)	15	155
	Sandstone or gravel	20	175
	Blue clay very hard	10	185
	Sand and gravel (third water)	5	190
	Clay	15	205
	TOTAL DEPTH		205

Table 5.--Modified drillers' logs of selected wells in the lower Hassayampa area—Continued

Stratigraphic unit	Description	Thickness (feet)	Depth (feet)
	(B-1-5)17add		
Valley-fill deposits	Surface soil and gravel	25	25
	Sandstone or gravel ledge	40	65
	Blue clay	15	80
	Sand (first water)	11	91
	Hardpan or sandstone	29	120
	Blue clay	9	129
	Sand (second water)	6	135
	Blue clay, very hard	7	142
	TOTAL DEPTH		142
	(B-1-5)17ddc		
Valley-fill deposits	Topsoil	2	2
	Rock and caliche	28	30
	Boulders and cemented ledge	10	40
	Yellow clay	30	70
	Sandy clay and thick sand	20	90
	Fine water sand	5	95
	Sandy clay	15	110
	Yellow clay	40	150
	Red clay	30	180
	Red clay, tough	20	200
	Red clay, soft	20	220
	Red clay, sandy	27	247
	Sand	3	250
	Layers sand and clay	20	270
	TOTAL DEPTH		270
	(B-1-5)27bbc		
Valley-fill deposits	Sand, gravel, clay	62	62
	Fine sand (water at 62 feet)	9	71
	Clay	4	75
	Clay	6	81
	Clay and fine sand	43	124
	Clay	8	132
	Sand and heavy gravel	8	140
	Clay	2	142
	Sand and rock	10	152
	Clay	8	160
	Clay	20	180
	Sand and gravel	5	185
	Clay	9	194
	Fine sand	4	198
	Clay	26	224
	Sand and gravel	6	230
	Clay	6	236
	Sand and heavy gravel	7	243
	Red clay	141	384
	TOTAL DEPTH		384
	(B-1-5)35daa2		
Stream and flood-plain alluvium	Surface silt	20	20
Valley-fill deposits	Gravel and sand	60	80
	Sand with streaks of clay	70	150
	Well-rounded gravel with streaks of clay	100	250
	Coarse gravel with boulders	50	300
	Clay	37	337
	TOTAL DEPTH		337
	(B-1-5)36ccb		
Stream and flood-plain alluvium	Surface sand	20	20
Valley-fill deposits	Sand and gravel	100	120
	Sand and light streaks gravel and clay	60	180
	Gravel with streaks clay	60	240
	Gravel with streaks, boulders light streaks clay showing in bottom	60	300
	TOTAL DEPTH		300
	(B-1-6)1abb		
Valley-fill deposits	Sandy soil or dirt	44	44
	Clay and sand	136	180
	Clay and sand streaks	456	636
	Clay	383	1,019
	Clay to all sand	126	1,145
	Water sand	78	1,223
	TOTAL DEPTH		1,223
	(B-1-6)1cbb		
Valley-fill deposits	Topsoil	6	6
	Sandy clay	39	45
	Clay	57	102
	Sand and gravel	20	122
	Clay	10	132
	Sand and gravel	6	138
	Clay	24	162
	Sand	14	176
	Caliche	26	202
	Sand	10	212
	Clay	66	278
	Sand	5	283
	Clay with layers of caliche	57	340
	Clay	18	358
	TOTAL DEPTH		358
	(B-1-6)2abb		
Valley-fill deposits	Surface soil	5	5
	Coarse sand	22	27
	Cemented sand	83	110
	Sandy clay	30	140
	Clay, gravel streaks	20	160
	Coarse sand	80	240
	Sandy clay	130	370
	Sand	22	392
	Clay	238	630
	Red sticky clay	371	1,001
	TOTAL DEPTH		1,001
	(B-1-6)3bbc		
Valley-fill deposits	Sand, gravel, caliche	50	50
	Caliche, hardpan	75	125
	Clay, red	267	392
	Water	4	396
	Water flow, sand	4	400
	TOTAL DEPTH		400
	(B-1-6)8abb		
Stream and flood-plain alluvium or valley-fill deposits	Hard rock	85	85
Valley-fill deposits	Red clay	10	95
	Little water	40	135
	Sandy red clay	40	175
	Shell and water	3	178
	Sand and water	12	190
	Sand and water	30	220
	Rock	30	250
	Hard rock	50	300
	Sandy clay	75	375
	Red rock	35	410
	Red hard rock	40	450
	Hard conglomerate red rock	50	500
	Rock granite	75	575
	Granite wash	35	610
	Conglomerate	40	650
	Hard rock	155	805
	TOTAL DEPTH		805

Table 5.--Modified drillers' logs of selected wells in the lower Hassayampa area—Continued

Stratigraphic unit	Description	Thickness (feet)	Depth (feet)
	(B-1-6)9bba		
Stream and flood-plain alluvium or valley-fill deposits	Soil	2	2
	Caliche and clay	4	6
	Caliche and cemented rock	2	8
	Silt	6	14
	Gravel	6	20
Valley-fill deposits	Cemented rock and sand	44	64
	Water sand and gravel—not perforated	4	68
	Clay, sandstone, shells	34	102
	Clay, sandstone, shells	68	170
	Clay and gravel (water)	5	175
	Clay and shells	37	212
	Sand (pipe followed) (water)	4	216
	Red tough clay and shells	49	265
	Sand (pipe followed) (water)	9	274
	Cemented gravel	16	290
	Red clay and shells	110	400
	Muddy sand and gravel (water)	18	418
	Sandstone	12	430
	Red volcanic rock	20	450
	Cemented gravel and sandstone	40	490
	Cemented mountain and red clay	8	498
	Cemented gravel and hard shells	32	530
	Mountain conglomerate	120	650
	Black malpais boulders (water)	20	670
	TOTAL DEPTH		670
	(B-1-6)10aab		
Valley-fill deposits	Surface sand	20	20
	Fine gray sand	60	80
	Gray sand and gravel	80	160
	Brown clay	640	800
	Brown clay with streaks of gravel	80	880
Volcanic rocks or valley-fill deposits	Malpais with gray sand	180	1,060
Valley-fill(?) deposits	Coarse gray sand	80	1,140
	Dark gray variegated sand	240	1,380
	Variegated sand and small gravel	160	1,540
	Gray sand with some coarse gravel	150	1,690
	TOTAL DEPTH		1,690
	(B-1-6)11dbc		
Valley-fill deposits	Topsoil	10	10
	Caliche	20	30
	Gravelly clay	40	70
	Clay	15	85
	Gravel	8	93
	Clay (first water at 100 feet, raised to 90 feet)	27	120
	Sandy clay	65	185
	Sand and gravel	20	205
	Clay	30	235
	Gravelly clay	12	247
	Sand and gravel	13	260
	TOTAL DEPTH		260
	(B-1-6)12baa		
Valley-fill deposits	Sandy loam soil	3	3
	Clay	7	10
	Sand	20	30
	Sandy clay	19	49
	Clay with gravel mixed	14	63
	Clay with layers of silt (water bearing)	67	130
	Clay with gravel	35	165
	Fine sand (water bearing)	15	180
	Clay with layers of sand (water bearing)	24	204
	Clay	52	256
	Sand (water bearing)	4	260
	Clay	185	445
	Sand (water bearing)	2	447
	Clay	23	470
	TOTAL DEPTH		470
	(B-1-6)13aaa		
Stream and flood-plain alluvium	Sand and gravel	10	10
Valley-fill deposits	Caliche	20	30
	Sandy clay	30	60
	Silty sand (first show of water)	25	85
	Sand	15	100
	Clay	20	120
	Fine sand	5	125
	Sand with thin strata of clay	75	200
	Clay	95	295
	Coarse sand	8	303
	Clay	22	325
	Gravelly clay	10	335
	Clay	280	615
	Sandy clay	25	640
	Fine sand with thin strata of clay	120	760
	Clay	75	835
	Sandy clay	10	845
	Coarse sand	10	855
	Thin strata sand and clay	50	905
	Cemented conglomerate	24	929
	Clay	7	936
	Sand	4	940
	Sandy clay	5	945
	Conglomerate	7	952
	Hard rock	8	960
	Gravelly clay	2	962
	TOTAL DEPTH		962
	(B-1-6)13acb		
Valley-fill deposits	Topsoil	2	2
	Caliche	83	85
	Clay	10	95
	Sand (first show of water at 95 feet)	10	105
	Silty sand	10	115
	Clay	15	130
	Fine sand	35	165
	Sticky clay	25	190
	Sand	15	205
	Sandy clay	95	300
	Sticky clay	200	500
	Sandy clay, with some small gravel	70	570
	Hard gray rock	40	610
Valley-fill deposits or crystalline and consolidated sedimentary rocks	Granite	85	695
	TOTAL DEPTH		695
	(B-1-6)16ddd1		
Valley-fill deposits	Caliche	10	10
	Sand, clay	35	45
	Sand, gravel, clay	15	60
	Gravel, clay	20	80
	Sand, gravel, clay; some water	22	102
	Sand, gravel, clay	48	150
	Sandy clay	35	185
	Clay and rock	20	205
	Clay	10	215
	Gravel, sand, clay	45	260
	Clay	60	320
	Gravel, clay	35	355
	Caliche	10	365
	Clay and gravel	5	370
	Clay balls with water	10	380
	Gravel, clay	20	400
	No log	2	402
	TOTAL DEPTH		402

Table 5.--Modified drillers' logs of selected wells in the lower Hassayampa area—Continued

Stratigraphic unit	Description	Thickness (feet)	Depth (feet)
	(B-1-6)17ada1		
Stream and flood-plain alluvium	Topsoil	5	5
	Caliche	10	15
	Clay	69	84
Valley-fill deposits	Cemented rock	6	90
	Clay	30	120
	Malpais rock	5	125
	Clay	3	128
	Cemented rock	3	131
	Clay	15	146
	Sandy clay	2	148
	Cemented rock	7	155
	Malpais rock	5	160
Volcanic rocks	Green malpais rock	78	238
	Black malpais rock	12	250
	Red rock—formation unknown	50	300
	TOTAL DEPTH		300
	(B-1-6)18aaa1		
Stream and flood-plain(?) alluvium	Topsoil	4	4
	Silt	4	8
Valley-fill deposits	Clay	55	63
	Water gravel	5	68
	Clay	22	90
	Water sand and pack sand	25	115
	Boulders and gravel	10	125
	Sandy clay	60	185
	Gravel	15	200
	TOTAL DEPTH		200
	(B-1-6)20adb		
Valley-fill deposits	Soil	2	2
	Silt	3	5
	Sandy soil	2	7
	Cemented gravel	3	10
	Sandy clay	39	49
	Cemented small rock, sand and gravel	14	63
Volcanic rocks	Malpais rock, water gravel and sand	20	83
	Malpais rock, conglomerate, large, medium, and fine	7	90
	Boulders, gravel and sand	20	110
	Cemented boulders	15	125
	Large boulders	3	128
	Pack sand and water	2	130
	Water boulders and sand	8	138
	Red clay, gravel, sand and boulders	12	150
	Malpais boulders	2	152
	Boulders and sand	3	155
	Malpais boulders	2	157
	Slick boulders and sand	30	187
	Very hard brown rock	1	188
	TOTAL DEPTH		188
	(B-1-6)20dab		
Stream and flood-plain alluvium or valley-fill deposits	Soil	2	2
	Caliche and clay	7	9
	Gravel and silt	13	22
Valley-fill deposits	Clay	48	70
	Gravel and water (sand)	3	73
	Pack sand and clay	47	120
	Pack sand and gravel	15	135
	Tough clay	13	148
	Slick water boulders	6	154
	Cemented—hard red clay and boulders	6	160
	Pea gravel and water sand	8	168
	Large and small boulders and sand	42	210
	Hard cemented boulders	1	211
	Large and small boulders and sand	11	222
	Large loose boulders	2	224
	Large and small slick boulders and sand	5	229
	TOTAL DEPTH		229
	(B-1-6)20dbb		
Stream and flood-plain alluvium or valley-fill deposits	Surface sand	40	40
Valley-fill deposits	Clay	20	60
	Gray sand	40	100
	Sand and gravel with streaks of malpais	40	140
	Gravel with streaks of clay	40	180
	Malpais with streaks of gravel	120	300
	Coarse gray sand and streaks of gravel	160	460
	Gravel with streaks of clay	50	510
	Fine red sand	30	540
	Fine black sand with small streaks of clay	60	600
Volcanic(?) rocks	Malpais with streaks of red sand	20	620
	Boulders and malpais	80	700
	Malpais with streaks of quartz and red sand	80	780
	Hard tight black sand	12	792
	TOTAL DEPTH		792
	(B-1-6)23dcd		
Valley-fill deposits	Valley fill	4	4
	Sandy clay	42	46
	Caliche type clay (soft)	45	91
	Brown clay	107	198
	Gray-white sand (very fine and tight, only water strata in well)	28	226
	Brown clay, sticky	234	460
	TOTAL DEPTH		460
	(B-1-6)27acc		
Valley-fill deposits	Silt and sand	40	40
	Gray sand	10	50
	Clay	164	214
	Clay	6	220
Volcanic(?) rocks	Melaphyre	92	312
	Melaphyre and boulders	81	393
	Red sandy clay	10	403
	Melaphyre	82	485
	Red clay	10	495
	Melaphyre	15	510
	Red clay	10	520
	Melaphyre	20	540
	White sandy clay	5	545
	Dark-reddish melaphyre	40	585
	Melaphyre	20	605
	Hard melaphyre	51	656
	TOTAL DEPTH		656
	(B-1-6)27ddc		
Stream and flood-plain alluvium and valley-fill deposits	Clay with few streaks of sand	360	360
Valley-fill deposits	Gray-colored boulders	70	430
	Gray clay	30	460
	Gray boulders	260	720
	Red clay	20	740
	Gray boulders	20	760
	Red caliche formation	60	820
	Gray caliche formation	100	920
	Red caliche formation	80	1,000
	Gray caliche formation	30	1,030
	Red clay	20	1,050
	TOTAL DEPTH		1,050

Table 5.--Modified drillers' logs of selected wells in the lower Hassayampa area—Continued

Stratigraphic unit	Description	Thickness (feet)	Depth (feet)
	(B-1-6)34abb		
Stream and flood-plain alluvium and valley-fill deposits	Fine gravel	80	80
Valley-fill deposits	Clay with some gravel	270	350
	Fine gravel	30	380
	Clay	10	390
	Water gravel	80	470
	Clay	10	480
	Water gravel	20	500
	Clay	20	520
	Sand and gravel	80	600
	Clay	40	640
	Gravel	230	870
	Water gravel	110	980
	Clay	80	1,060
	Good water gravel	80	1,140
	Gravel	80	1,220
	Clay	15	1,235
	No data	178	1,413
	TOTAL DEPTH		1,413
	(B-1-6)34adc		
Stream and flood-plain(?) alluvium	Sand and surface silt	40	40
Valley-fill deposits	Clay with streaks of gravel, or clay streaks and gravel	40	80
	Clay and gravel	280	360
	Boulders with streaks of coarse gravel, red and black	120	480
	Boulders with streaks of large, well-rounded gravel	140	620
	Boulders with streaks of medium-sized red and black gravel	140	760
	Boulders with streaks of medium-sized red and black gravel and slight streaks of clay	60	820
	Boulders with fair-sized red and black gravel	40	860
	Malpais boulders with slight showing of clay	40	900
	Malpais boulders and gravel, red and black	40	940
	Fair-sized gravel, red and black	40	980
	Well-rounded gravel with showing of clay	40	1,020
	Boulders with streaks of red and black gravel	40	1,060
	Boulders with streaks of red and black gravel, finer and tighter	62	1,122
	TOTAL DEPTH		1,122
	(B-1-6)35aba		
Valley-fill deposits	Surface sand and clay	70	70
	Gray sand	10	80
	Clay with small streaks of sand	60	140
Volcanic(?) rocks	Melaphyre	140	280
	Melaphyre and streaks of clay	20	300
	Gray melaphyre	20	320
	Gray clay	20	340
	Black melaphyre	40	380
	Green melaphyre	20	400
	Melaphyre with streaks of fine black sand	40	440
	Black melaphyre with streaks of fine black sand	180	620
	Red clay	30	650
	Brown melaphyre and black sand	110	760
	Black sand	15	775
	Red clay and sand	15	790
	Melaphyre and streaks of black sand	60	850
	Melaphyre and sand	50	900
	Sandy melaphyre with streaks of clay	100	1,000
	Melaphyre and streaks of sand	80	1,080
	White bentonite embedded in melaphyre	10	1,090
	TOTAL DEPTH		1,090
	(B-1-6)36abb		
Valley-fill deposits	Topsoil	2	2
	Sand, soil, and gravel	6	8
	Clay	32	40
	Sandy clay	5	45
	Hard sand	5	50
	Yellow clay	12	62
	Sandy clay	8	70
	Water sand (water bearing)	10	80
	Red clay	10	90
	Yellow clay	15	105
	Clay and pack sand	20	125
	Clay and water sand (water bearing)	15	140
	Sandy clay	6	146
	Hard shell	4	150
	Clay	30	180
	Water sand (water bearing)	15	195
	Pack sand	10	205
	TOTAL DEPTH		205
	(B-2-5)29dac		
Valley-fill deposits	Soil	5	5
	Caliche	10	15
	Sand	2	17
	Caliche	6	23
	Sand	12	35
	Gravel	10	45
	Sand with 6- to 12-inch bands caliche	80	125
	Sandstone	2	127
	Sand	18	145
	Sandstone (water at 150 feet, raised to 132 feet)	5	150
	Sandy gravel	30	180
	Sandstone	3	183
	Sandy gravel	29	212
	Clay	4	216
	Sand	8	224
	Clay	8	232
	Sandstone	17	249
	Sand and gravel	12	261
	Conglomerate	4	265
	Gravel	5	270
	TOTAL DEPTH		270
	(B-2-5)32aba		
Valley-fill deposits	Soil	8	8
	Caliche	7	15
	Sand	20	35
	Gravel	10	45
	Caliche	5	50
	Sand with 8- to 10-inch bands caliche	80	130
	Sand with water	15	145
	Sandstone	6	151
	Sand and gravel	29	180
	Sandstone	3	183
	Sand and gravel	32	215
	Clay and caliche	60	275
	Granite	2	277
	Heavy gravel	8	285
	TOTAL DEPTH		285
	(B-2-6)6cbb		
Stream and flood-plain alluvium and valley-fill deposits	Topsoil	3	3
	Gravelly clay	147	150
	Sand and gravel	20	170
	Gravelly clay	20	190
	Gravel	15	205
	Sandy clay and gravel (first show of water at 240 feet)	55	260
	Gravel and loose rock	165	425
	Sand and gravel with thin strata of clay	238	663
	TOTAL DEPTH		663

Table 5.--Modified drillers' logs of selected wells in the lower Hassayampa area—Continued

Stratigraphic unit	Description	Thickness (feet)	Depth (feet)
	(B-2-8)6daa		
Stream and flood-plain alluvium and valley-fill deposits	Topsoil	4	4
	Caliche	3	7
	Gravel	18	25
	Clay	5	30
	Gravelly clay and boulders	208	238
	Silty clay	9	247
	Sand and gravel (first show of water 260 feet)	86	333
	Sand and gravel with thin strata of clay	150	483
	Sandy clay	31	514
	Gravel	241	755
	Cemented gravel, with strata of sand	40	795
	Sand and gravel	20	815
	Red cinder rock	130	945
	Conglomerate with strata of sand and clay	55	1,000
	TOTAL DEPTH		1,000
	(B-2-6)8aaa		
Stream and flood-plain(?) alluvium	Topsoil and sandy clay	20	20
	Sand and gravel	30	50
Valley-fill deposits	Caliche	40	90
	Sand and gravel	30	120
	Caliche	105	225
	Sand (first show of water at 215 feet)	55	280
	Coarse sand and gravel	20	300
	Sandy clay	30	330
	Sand and gravel	40	370
	Sandy clay and gravel	135	505
	Sand and gravel	118	623
	Cemented sand	7	630
	Sand and gravel	80	710
	TOTAL DEPTH		710
	(B-2-6)9aba		
Stream and flood-plain alluvium and valley-fill deposits	Topsoil and gravel	15	15
	Gravelly clay (first show of water)	210	225
	Brown sand	45	270
	Sand, gravel and rock	120	390
	Sand	10	400
	Sand and gravel	70	470
	Rock (more water)	58	528
	Rock	87	615
	Gravelly clay	15	630
	Sand and gravel	50	680
	Gravelly clay	5	685
	Hard rock	13	698
	Conglomerated rock with thin strata of clay	392	1,090
	TOTAL DEPTH		1,090
	(B-2-6)17aaa		
Stream and flood-plain alluvium	Topsoil	50	50
Valley-fill deposits	Sand clay	75	125
	Sand, dry	25	150
	Sand clay	45	195
	Sand gravel (lots of water, raised 177 feet)	30	225
	Boulders and water	25	250
	Hard red rock	40	290
	Sand and gravel	20	310
	Gravel and water	10	320
	Sand gravel	30	350
	Conglomerate	30	380
	Gravel	20	400
	Conglomerate	40	440
	Clay	10	450
	Sand and gravel	45	495
	Conglomerate, very hard	180	675
	TOTAL DEPTH		675
	(B-2-6)17daa		
Stream and flood-plain alluvium and valley-fill deposits	Valley fill	2	2
	Caliche	20	22
	Sand with clay	123	145
	Clay (hit water at 190 feet)	125	270
	Clay with sand and gravel	135	405
	Clay and gravel	210	615
	Clay, sand, and gravel	385	1,000
	TOTAL DEPTH		1,000
	(B-2-6)19bbb		
Stream and flood-plain alluvium and valley-fill deposits	Topsoil and silt	8	8
	Gravel and clay	72	80
	Sandy clay	110	190
	Water, sand, and gravel	30	220
	Water, sand, gravel, and clay	80	300
	TOTAL DEPTH		300
	(B-2-6)20daa		
Stream and flood-plain alluvium	Sandy clay	50	50
Valley-fill deposits	Sand, dry	50	100
	Sand and gravel	25	125
	Water sand and gravel	75	200
	Sandy clay	100	300
	Water sand and gravel	60	360
	Sand and gravel	110	470
	Conglomerate	5	475
	Sand, gravel and water	25	500
	Conglomerate	29	529
	No log of deepening	503	1,032
	TOTAL DEPTH		1,032
	(B-2-6)23aab		
Valley-fill deposits	No data	632	632
	Clay	101	733
	Sand and gravel	7	740
	Clay with gravel, cemented	7	747
	Sand and gravel	3	750
	Clay with gravel, cemented	28	778
	Sand and gravel	8	786
	Clay with gravel, cemented	14	800
	Sand and gravel	10	810
	Clay with gravel, cemented	30	840
	Sand and gravel	6	846
	Clay with gravel, cemented	14	860
	Sand and gravel	6	866
	Clay with gravel, cemented	37	903
	Sand and gravel	14	917
	Clay with gravel, cemented	19	936
	Sand and gravel	8	944
	Clay with gravel, cemented	28	972
	Sand and gravel	6	978
	Clay with gravel, cemented	12	990
	Sand and gravel	7	997
	Clay with gravel, cemented	5	1,002
	TOTAL DEPTH		1,002

Table 5.--Modified drillers' logs of selected wells in the lower Hassayampa area—Continued

Stratigraphic unit	Description	Thickness (feet)	Depth (feet)
	(B-2-6)23aba		
Stream and flood-plain alluvium	Soil	1	1
	Clay caliche	7	8
	Silt and gravel	14	22
	Valley fill and clay	8	30
Valley-fill deposits	Gravel	10	40
	Cemented gravel and silt	15	55
	Pack sand	5	60
	Cemented gravel and small boulders	50	110
	Gravel and sandstone	15	125
	Clay	10	135
	Cemented conglomerate	20	155
	Pack sand and sandstone shells	9	164
	Gravel and small boulders	12	176
	Clay	6	182
	Hard water sand	10	192
	Clay and pack sand	13	205
	Water sand	13	218
	Clay and pack sand	22	240
	Sandstone shells and clay	30	270
	Pack sand	40	310
	Water sand	20	330
	Clay	7	337
	Hard sandstone	11	348
	Water sand and pack sand	27	375
	Red clay, tough	7	382
	TOTAL DEPTH		382
	(B-2-6)24caa		
Valley-fill deposits	Soil	1	1
	Rock, broken	3	4
	Fine sand	18	22
	Rock and sand	3	25
	Sandstone	3	28
	Sand	4	32
	Caliche	6	38
	Thin layers of sand between stone	6	44
	Sand	18	62
	Clay	2	64
	Sand	7	71
	Clay	1	72
	Sand	4	76
	Clay	1	77
	Fine sand	3	80
	Clay	1	81
	Sand	6	87
	Stone	5	92
	Sand	9	101
	Clay	1	102
	Sand	2	104
	Sandstone	1	105
	Sand	6	111
	Sandstone	5	116
	Sand	15	131
	Sandstone	1	132
	Sand	5	137
	Clay	1	138
	Sand	2	140
	Clay	1	141
	Sand	4	145
	Clay	1	146
	Sand	5	151
	Clay	4	155
	Sand	6	161
	Sandstone	2	163
	Fine sand	6	169
	Clay	1	170
	Sandstone	2	172
	Sand (first water, hot)	1	173
	Clay	1	174
	Coarse sand, clay and sand rocks (water)	5	179
	Stone	2	181
	Coarse sand	2	183
	Fine sand	2	185
	Clay	7	192
	Sand (water)	17	209
	Clay	13	222
	Fine sand with clay bands	10	232
	Sand and gravel (water)	8	240
	Clay	1	241
	Sand, clay, and gravel strata varying from 1 to 8 inches	7	248
	Fine sand and clay	4	252
	Clay	48	300
	TOTAL DEPTH		300
	(B-2-6)27ada		
Valley-fill deposits	Caliche	100	100
	Dry sand	38	138
	Water sand (water 138 feet, stands 130 feet)	10	148
	Clay	33	181
	Sand	8	189
	Clay	34	223
	Sand	22	245
	Clay	72	317
	Sand	6	323
	Clay	64	387
	Sand	18	405
	TOTAL DEPTH		405
	(B-2-6)27bab		
Valley-fill deposits	Topsoil	6	6
	Caliche	74	80
	Sand	20	100
	Caliche	12	112
	Sand and gravel	8	120
	Clay	30	150
	Sand	20	170
	Clay	12	182
	Sand	16	198
	Clay	152	350
	Gravel	4	354
	Clay	14	368
	Sand and gravel	7	375
	Clay	150	525
	Sand	4	529
	Clay	12	541
	Gravel	4	545
	Red clay and gravel	30	575
	Clay	10	585
	Gravel	3	588
	Gravel and clay	22	610
	TOTAL DEPTH		610
	(B-2-6)28bab		
Stream and flood-plain alluvium	Topsoil	5	5
	Clay and gravel	15	20
	Loose gravel	12	32
Valley-fill deposits	Clay	118	150
	Sandy clay	55	205
	Clay	10	215
	Sandy clay	90	305
	Sand and gravel	20	325
	Sandy clay	120	445
	Hard clay	20	465
	Cemented sand and gravel with soft spots	535	1,000
	TOTAL DEPTH		1,000
	(B-2-6)33caa		
Stream and flood-plain alluvium and valley-fill deposits	Surface sand and silt	125	125
	Clay with small streaks of small gravel	455	580
	Small gravel and sand	55	635
	Small variegated gravel and sand	345	980
	Sand with streaks of clay	170	1,150
	Hard firm sand	58	1,208
	TOTAL DEPTH		1,208

Table 5.--Modified drillers' logs of selected wells in the lower Hassayampa area—Continued

Stratigraphic unit	Description	Thickness (feet)	Depth (feet)
	(B-2-7)22bbb		
Stream and flood-plain(?) alluvium	Very gravelly topsoil	15	15
Valley-fill deposits	Gravelly clay	90	105
	Sandy clay	65	170
	Very gravelly	40	210
	Sandy clay	15	225
	Mostly gravel with very little clay	85	310
	Gravelly clay	125	435
	Gravel and sand	33	468
	Gravelly clay	22	490
	Mostly gravel	25	515
	Gravelly clay	210	725
	Gravel	9	734
	Gravel and clay	36	770
	Gravel	20	790
	Gravelly clay	10	800
	TOTAL DEPTH		800
	(B-2-7)22cbb		
Stream and flood-plain(?) alluvium	Layers of sandy clay and gravel	60	60
Valley-fill deposits	Gravelly clay	110	170
	Gravel	11	181
	Gravelly clay (water)	36	217
	Gravelly clay	59	276
	Gravel	14	290
	Gravelly clay	203	493
	Sand and gravel	7	500
	Gravelly clay	75	575
	Sand and gravel	15	590
	Clay	10	600
	Gravel, very little clay	55	655
	Sticky clay	25	680
	Gravelly clay, sticky	110	790
	Sandy clay	10	800
	TOTAL DEPTH		800
	(B-2-7)22dbc		
Stream and flood-plain alluvium and valley-fill deposits	Soil	5	5
	Gravel, sand	3	8
	Clay	16	24
	Gravel	2	26
	Clay	126	152
	Gravel	1	153
	Clay (water level, 170 feet)	17	170
	Gravel, sand (water bearing)	4	174
	Clay	12	186
	Gravel (water bearing)	7	193
	Conglomerate	31	224
	Gravel (water bearing)	2	226
	Conglomerate	14	240
	Gravel (water)	2	242
	Hard clay	7	249
	Gravel, small boulders (water)	6	255
	Conglomerate	43	298
	Coarse gravel, small boulders (water)	7	305
	Hard conglomerate	20	325
	TOTAL DEPTH		325
	(B-2-7)23ccb		
Stream and flood-plain alluvium and valley-fill deposits	Valley fill	3	3
	Gravel and caliche	22	25
	Gravel and clay	370	395
	Clay with grit	150	545
	Bricklike clay	55	600
	TOTAL DEPTH		600
	(B-2-7)24bba		
Stream and flood-plain alluvium and valley-fill deposits	Gravel and sand	20	20
	Gravel, sand, decomposed granite	10	30
	Gravel and sand	10	40
	Sand and rock	80	120
	Sand and rock, increase in sand	30	150
	Sand, gravel and rock	20	170
	Sand, gravel and rock, increase in sand	20	190
	Sand and rock	130	320
	Sand and rock, cemented	30	350
	Sand and rock, looser	10	360
	TOTAL DEPTH		360
	(B-2-7)26aab		
Stream and flood-plain alluvium and valley-fill deposits	Topsoil	2	2
	Cemented gravel	48	50
	Gravel	12	62
	Clay	3	65
	Gravel	25	90
	Clay	2	92
	Gravel	13	105
	Clay	3	108
	Gravel	2	110
	Clay	3	113
	Gravel	7	120
	Clay	4	124
	Gravel	6	130
	Clay	3	133
	Gravel	5	138
	Clay	2	140
	Gravel (water)	10	150
	Clay	3	153
	Gravel	2	155
	Clay	6	161
	Gravel	7	168
	Clay	3	171
	Gravel	9	180
	Clay	6	186
	Gravel	6	192
	Clay	4	196
	Gravel	4	200
	Clay	2	202
	Gravel	4	206
	Clay	1	207
	Gravel	3	210
	Clay	2	212
	Gravel	4	216
	Clay	2	218
	Gravel	3	221
	Clay	1	222
	Gravel	1	223
	Clay	2	225
	Gravel	3	228
	Clay	5	233
	Gravel	2	235
	Clay	8	243
	Gravel	1	244
	Clay	1	245
	Gravel	1	246
	Clay	5	251
	Gravel	1	252
	Clay	4	256
	Gravel	2	258
	Clay	2	260
	Gravel	2	262
	Clay	3	265
	Gravel	3	268
	Clay	2	270
	Gravel	1	271
	Clay	4	275
	Gravel	2	277
	Clay	2	279
	Gravel	1	280
	Clay	6	286
	Gravel	2	288
	Clay	2	290
	Gravel	4	294
	Clay	4	298
	Gravel	2	300
	Clay	5	305
	Gravel	5	310
	Rock	5	315
	Gravel	2	317
	Rock	2	319

Table 5.--Modified drillers' logs of selected wells in the lower Hassayampa area—Continued

Stratigraphic unit	Description	Thickness (feet)	Depth (feet)
	(B-2-7)26aab—Continued		
Stream and flood-plain alluvium and valley-fill deposits—continued	Gravel	2	321
	Rock	3	324
	Gravel	3	327
	Rock	2	329
	Gravel	3	332
	Rock	2	334
	Gravel	3	337
	Rock	2	339
	Gravel	3	342
	Rock	2	344
	Gravel	3	347
	Rock	2	349
	Gravel	3	352
	Rock	2	354
	Gravel	3	357
	Rock	2	359
	Gravel	3	362
	Rock	2	364
	Gravel	2	366
	Rock	3	369
	Gravel	3	372
	Rock	3	375
	Gravel	2	377
	Rock	2	379
	Gravel	2	381
	Rock	2	383
	Gravel	2	385
	Rock	13	398
	Gravel	2	400
	TOTAL DEPTH		400
	(B-2-7)26abb		
Stream and flood-plain alluvium and valley-fill deposits	Topsoil	2	2
	Hard clay	6	8
	Sand, gravel	3	11
	Hard clay	18	29
	Gravel	2	31
	Hard clay	23	54
	Gravel	6	60
	Clay	26	86
	Gravel	5	91
	Clay	49	140
	Soft clay	4	144
	Fine silt and sand (water bearing)	2	146
	Clay	10	156
	Gravel (water bearing)	3	159
	Hard clay	49	208
	Water-bearing gravel and thin hard shells	70	278
	Conglomerate (hard clay and small rock)	13	291
	Gravel (water bearing)	5	296
	Conglomerate	6	302
	Gravel (water bearing)	5	307
	Conglomerate	21	328
	Gravel (water bearing)	1	329
	Hard conglomerate	63	392
	Gravel (water bearing)	1	393
	Hard conglomerate	7	400
	TOTAL DEPTH		400
	(B-2-7)26acb		
Stream and flood-plain alluvium and valley-fill deposits	*Sandy clay*	155	155
	Sandy gravel (water)	30	185
	Sand rock	55	240
	Sandy gravel (hot water)	20	260
	Sandstone	35	295
	Conglomerate	105	400
	Sandy gravel	50	450
	Conglomerate	50	500
	TOTAL DEPTH		500
	(B-2-7)26bab		
Stream and flood-plain alluvium and valley-fill deposits	Hard topsoil	5	5
	Rock, conglomerate	160	165
	Gravel (water)	2	167
	Hard mixture of red rock and conglomerate	283	450
	TOTAL DEPTH		450
	(B-2-7)27aab		
Stream and flood-plain alluvium and valley-fill deposits	Topsoil	7	7
	Clay	18	25
	Gravel	6	31
	Clay	123	154
	Sand (water bearing)	6	160
	Gravel	37	197
	Hard clay	35	232
	Gravel (water bearing)	26	258
	Hard clay	17	275
	Gravel (water bearing)	6	281
	Hard clay	23	304
	Clay	6	310
	Gravel (water bearing)	9	319
	Hard conglomerate	31	350
	TOTAL DEPTH		350
	(B-2-7)28bbb		
Stream and flood-plain alluvium and valley-fill deposits	Surface sand	20	20
	Fine gray sand	80	100
	Sand, boulders and clay	80	180
	Sand with streaks gravel, malpais, clay	40	220
	Sand, gravel with streaks malpais	80	300
	Malpais with sand and clay streaks	100	400
	Fine gray sand, small streaks boulders, clay streaks	180	580
	Sand with very light streaks clay and gravel streaks	135	715
	Hard gray sand	185	900
Volcanic(?) rocks	Hard malpais with streaks hard sand	147	1,047
	TOTAL DEPTH		1,047
	(B-2-7)33baa		
Stream and flood-plain alluvium and valley-*fill deposits*	Surface sand and gravel	20	20
	Sand and gravel	100	120
	Sand and malpais	140	260
	Sand and gravel with streaks of malpais	40	300
	Gravel streaks and red boulders	60	360
	Gravel and black boulders	40	400
	Sand, gravel and malpais boulders	120	520
	Cemented sand	20	540
	Sand and gravel streaks	60	600
	Cemented malpais	80	680
	Malpais boulders	80	760
	Sand and gravel	25	785
	Sharp sand	10	795
	Very hard cemented conglomerate	22	817
	TOTAL DEPTH		817

Table 5.--Modified drillers' logs of selected wells in the lower Hassayampa area—Continued

Stratigraphic unit	Description	Thickness (feet)	Depth (feet)
	(B-2-7)34bba		
Stream and flood-plain alluvium	Surface sand and gravel	83	83
	Brown clay	77	160
	Clay with boulders	111	271
	Hard brown clay embedded with boulders	117	388
	Gray sand	57	445
	Variegated sand	63	508
Volcanic rocks	Black volcanic rock	40	548
	Variegated sand	96	644
	Malpais	35	679
	Streaks of dark sand and clay	204	883
	Streaks of variegated sand alternating with streaks of clay	117	1,000
	TOTAL DEPTH		1,000
	(B-2-7)36abb		
Stream and flood-plain alluvium and valley-fill deposits	Surface sand and clay	100	100
	Sand and gravel with streaks of clay	160	260
	Gravel streaks and gravel	180	440
	Fine sandy gravel	60	500
	Gravel and sand	40	540
	Fine sand and gravel streaks, bentonite	160	700
Volcanic rocks	Black malpais, sand, and fine gravel	40	740
	Fine sand and gravel	60	800
	Black sand and rock	40	840
	Sand and gravel	40	880
	Gravel	20	900
	Sand and gravel	80	980
	Fine gravel	10	990
	TOTAL DEPTH		990
	(B-2-7)36bba		
Stream and flood-plain alluvium	Coarse gravel	14	14
Valley-fill deposits	Clay	7	21
	Sandy clay	83	104
	Silt and clay	6	110
	Fine sand (water bearing)	2	112
	Clay	9	121
	Coarse gravel (water bearing)	3	124
	Clay	39	163
	Alternating water-bearing gravel and hard clay shells	95	258
	Conglomerate	3	261
	Alternating conglomerate shells and water-bearing gravel	67	328
	Hard cemented conglomerate	12	340
	TOTAL DEPTH		340
	(B-2-7)36cbb		
Stream and flood-plain alluvium and valley-fill deposits	Valley fill	5	5
	Gravel with clay	5	10
	Caliche	15	25
	Gravel with clay	5	30
	Clay with gravel	30	60
	Clay with gravel	205	265
	Clay, gravel and sand	70	335
	Clay, sand and gravel (little more clay)	25	360
	Clay, sand and gravel	223	583
Volcanic rocks	Red lava	17	600
	Malpais and ash	80	680
	Malpais and ash	35	715
	Red lava and clay	38	753
	Black malpais	107	860
	Gravel and malpais	5	865
	Red malpais (extremely hard)	105	970
	TOTAL DEPTH		970
	(C-1-5)1dcc		
Stream and flood-plain alluvium	Silt fill	4	4
	Sandy silt	11	15
	Sand	5	20
	Gravel (Gila)	16	36
Valley-fill deposits	Clay	15	51
	Sand	22	73
	Shell	1	74
	Sand	11	85
	Shell	1	86
	Sand	10	96
	Show of gravel	5	101
	Shell	3	104
	Clay	3	107
	Sand (show of gravel)	12	119
	Shell	4	123
	Sand	13	136
	Clay and sand	12	148
	Clay	2	150
	Sand	16	166
	Show of gravel	16	182
	Sandy clay	18	200
	Clay	2	202
	TOTAL DEPTH		202
	(C-1-5)3baa1		
Valley-fill deposits	Clay and caliche	70	70
	Sand	10	80
	Clay	50	130
	Sand	30	160
	Clay	10	170
	TOTAL DEPTH		170
	(C-1-5)4aaa2		
Valley-fill deposits	No data	70	70
	Caliche and clay	180	250
	Hard rock	1	251
	Clay	349	600
	TOTAL DEPTH		600
	(C-1-5)13aab		
Stream and flood-plain alluvium	Topsoil	3	3
	Sandy silt	9	12
	Sand (show of gravel)	16	28
	Gravel (Gila)	8	36
Valley-fill deposits	Clay	2	38
	Coarse sand	41	79
	Clay	1	80
	Sand and clay	1	81
	Clay	33	114
	Coarse sand (show of gravel)	11	125
	Clay	2	127
	Coarse sand (show of gravel)	17	144
	Clay	2	146
	Sand	2	148
	Clay	36	184
	TOTAL DEPTH		184
	(C-1-5)13aad		
Stream and flood-plain alluvium	Silt soil	12	12
	Gravel (Gila)	13	25
	Gravel, coarse	13	38
	Gravel	17	55
Valley-fill deposits	Strata of clay and sand	19	74
	Sand (mucky)	34	108
	Sand (show of gravel)	8	116
	Shell	4	120
	Sand (show of gravel)	15	135
	Sand and sandstone strata	15	150
	TOTAL DEPTH		150

Table 5.--Modified drillers' logs of selected wells in the lower Hassayampa area—Continued

Stratigraphic unit	Description	Thickness (feet)	Depth (feet)
	(C-1-5)13bad		
Stream and flood-plain alluvium	Sand	14	14
	Gravel	6	20
	Boulders and gravel	18	38
	Gravel and sand	6	44
Valley-fill deposits	Sand and clay	87	131
	Gravel and sand	6	137
	Sandstone	9	146
	Clay	8	154
	TOTAL DEPTH		154
	(C-1-5)13bba		
Stream and flood-plain alluvium	Soil	6	6
Valley-fill deposits	Rock malpais	18	24
	Clay	4	28
	Sand and silt	25	53
	Clay	9	62
	Sand clay	66	128
	Tough clay	6	134
	Sand and clay	24	158
	Tough clay	12	170
	Clay and sand	13	183
	Tough clay	53	236
	TOTAL DEPTH		236
	(C-1-5)17dda		
Valley-fill deposits	Surface soil	4	4
	Caliche	10	14
	Clay	6	20
	Sand	19	39
	Sandstone	2	41
	Clay (struck water at 51 feet, rose to 44 feet)	10	51
	Quicksand	9	60
	Coarse sand, boulders in bottom	27	87
	TOTAL DEPTH		87
	(C-1-5)21cdd		
Stream and flood-plain alluvium	Sandy soil	8	8
	Sandy clay	8	16
	Show of gravel (desert)	16	32
	Gravel (Gila)	4	36
	Strata of sandstone, sand, and sandy clay	7	43
	Coarse sand, show of gravel	6	49
	Sand clay and sandstone strata	19	68
	Show of gravel	22	90
	Sandstone sand strata	11	101
Valley-fill deposits	Clay	13	114
	Clay	96	210
	Clay and sand streaks	280	490
	Sand	27	517
	Clay	23	540
	Decomposed granite fill	29	569
	TOTAL DEPTH		569
	(C-1-5)22ccc		
Stream and flood-plain alluvium	Surface soil	5	5
	Fine sand	18	23
	Caliche	4	27
	Sand gravel	14	41
	Boulders	10	51
	Caliche	8	59
	Sand	50	109
	Sand gravel	16	125
Valley-fill deposits	Clay	15	140
	Red sticky clay	30	170
	TOTAL DEPTH		170
	(C-1-5)23ccc		
Stream and flood-plain alluvium	Dark-brown topsoil	6	6
	Volcanic ash ribs	5	11
	River sand with some clay and boulders (hit river water at 23 feet)	39	50
	Quicksand	34	84
Valley-fill deposits	Clay with a few streaks of gravel	251	335
	Second water, very little sand or gravel with it	15	350
	Gravelly clay	55	405
	Very gravelly and could be making water	20	425
	Gravel and boulders with some clay	42	467
Crystalline and consolidated sedimentary(?) rocks	Decomposed granite with very little change in it	100	567
	Still in decomposed granite with occasional soft streaks. Hit small cracks and seams and the water level rose 2 feet at 567 feet	78	645
	Granite gravel but it does not look like much water	12	657
	Decomposed granite	7	664
	TOTAL DEPTH		664
	(C-1-5)24ccb		
Stream and flood-plain alluvium	Sandy soil	6	6
	Sand (first water)	10	16
	Clay	2	18
	Sandy	16	34
	Gravel (Gila)	14	48
Valley-fill deposits	Sandstone, clay strata	13	61
	Shell	2	63
	Clay	20	83
	Sand (mucky)	7	90
	Clay	9	99
	Shell	3	102
	Clay	12	114
	TOTAL DEPTH		114
	(C-1-5)27ddd1		
Stream and flood-plain alluvium	Sandy silt	15	15
	Sand and gravel	65	80
Valley-fill deposits	Clay	14	94
	Sand and gravel	2	96
	Clay with gravel	16	112
	Sand and gravel	2	114
	Sandy clay with gravel	11	125
	Sand and gravel	3	128
	Clay with gravel	17	145
	Sand and gravel with streaks of clay	5	150
	TOTAL DEPTH		150
	(C-1-5)27ddd2		
Stream and flood-plain alluvium	Silty soil	15	15
	Sand gravel and small boulders (wet)	24	39
	Mountain wash and multicolored clay (dry)	43	82
Valley-fill deposits	Tough yellow clay, some gravel (dry)	20	102
	Loose mountain wash (wet)	3	105
	Mountain wash and clay	15	120
	Loose mountain wash (wet)	3	123
	Eroded granite fill, possible few water streaks	227	350
	Hard granite	3	353
	Cemented red volcanic	8	361
	Semisolid volcanic fill (water?)	89	450
	Loose granite fill (water)	11	461
Volcanic(?) rocks	Volcanic clay and coarse volcanic sand	13	474
	Tough red clay and coarse volcanic sand	11	485
	Volcanic clay (alternate layers of red, blue, gray, and yellow)	40	525
	TOTAL DEPTH		525

Table 5.--Modified drillers' logs of selected wells in the lower Hassayampa area—Continued

Stratigraphic unit	Description	Thickness (feet)	Depth (feet)
	(C-1-5)28aab		
Stream and flood-plain alluvium	Surface soil and sand	34	34
	Boulders	32	66
	Sand and boulders	10	76
Valley-fill deposits	Sand	20	96
	Clay	244	340
	Sand and clay	12	352
	Sandy clay and gravel	113	465
	Cemented sand and gravel	30	495
	Granite wash	65	560
Crystalline and consolidated sedimentary(?) rocks	Decomposed granite	37	597
	TOTAL DEPTH		597
	(C-1-5)29adc		
Stream and flood-plain alluvium	Sand and boulders	110	110
Valley-fill deposits	Brown clay	190	300
	Sandy clay	200	500
	Coarse sand	150	650
	TOTAL DEPTH		650
	(C-1-5)32baa		
Stream and flood-plain alluvium	Sand and gravel	99	99
Valley-fill deposits	Clay	301	400
	Gravel	350	750
	Large gravel	93	843
	TOTAL DEPTH		843
	(C-1-5)32ccb		
Stream and flood-plain alluvium	Gravel and boulders	25	25
	Sand	65	90
Valley-fill deposits	Clay	25	115
	Sticky clay	130	245
	Sand and clay	10	255
	Layers of clay and layers of sand 4 to 8 inches deep	40	295
	Sticky clay	10	305
	Sandy clay	65	370
	Clay and gravel	35	405
	Volcanic rock and gravel	165	570
	Clay volcanic rock	20	590
Valley-fill(?) deposits	Granite and sand and clay	80	670
	Granite and gravel	22	692
	Hard granite	3	695
	Sandy clay and granite	75	770
	Sandy clay, granite wash	140	910
	TOTAL DEPTH		910
	(C-1-5)34adc		
Stream and flood-plain alluvium	Soil	14	14
	Sand	11	25
	Gravel and boulders	55	80
Valley-fill deposits	Conglomerate	40	120
Crystalline and consolidated sedimentary(?) rocks	Granite	240	360
	Fine granite	55	415
Crystalline and consolidated sedimentary rocks	Hard granite	28	443
	TOTAL DEPTH		443
	(C-1-5)34dbd		
Stream and flood-plain(?) alluvium	Surface sand and clay	35	35
	Boulders, gravel and cemented streaks	115	150
Valley-fill deposits	Gravel, streaks of cemented sand and streaks of bentonite	30	180
	Boulders, streaks of gravel	20	200
	Hard sand, gravel with cemented streaks of sand	100	300
	Bentonite, streaks sand and gravel	20	320
	Sand and gravel	20	340
	Bentonite, streaks sand and gravel	60	400
	Gravel, streaks of sand	80	480
	Medium coarse sand, streaks of gravel	52	532
	TOTAL DEPTH		532
	(C-1-6)2aba		
Valley-fill deposits	Surface sand	25	25
	Red clay and sand	13	38
	Sandy brown clay	149	187
	Sand and gravel	3	190
	Red clay with sandy streaks	161	351
	Brown clay with sand streaks and sticky clay	82	433
	Conglomerate	63	496
	Sandy brown clay	5	501
	Hard coarse sand	21	522
	Fine sand	6	528
	Hard sand with clay	21	549
	Conglomerate	185	734
	Sand	5	739
	Hard sand, streaks of clay	10	749
	Conglomerate	50	799
	Coarse sand with soft streaks	30	829
	Hard rock	31	860
	Hard sand	42	902
	Hard black rock	12	914
Volcanic(?) rocks	Clay	4	918
	Hard black rock	33	951
	No log	1	952
	TOTAL DEPTH		952
	(C-1-6)3baa		
Stream and flood-plain alluvium and valley-fill deposits	Surface sand	50	50
	Red clay	110	160
	Sand	40	200
	Clay	125	325
	Sandy clay with streaks of sand	44	369
	Sticky red clay	31	400
	Clay with streaks of sand	60	460
	Boulders embedded in clay with streaks of sand	110	570
	Sand and boulders	50	620
	Sand	40	660
	Hard red clay embedded with gravel	45	705
	Red clay and streaks of caliche	80	785
	Sand and gravel with streaks of red clay	110	895
	Light-colored sand with little clay	70	965
	Hard gray sand	45	1,010
	Light-colored sand	45	1,055
	Sand and clay	45	1,100
	TOTAL DEPTH		1,100
	(C-1-6)12bbc		
Valley-fill deposits	Surface sand	60	60
	Clay with small streaks of sand	380	440
	Sandy clay	40	480
	Gray sand	60	540
	Sandy clay	20	560
	Gray sand, small streaks of clay	360	920
	Hard tight sand	60	980
	Very hard tight sand	20	1,000
	TOTAL DEPTH		1,000

Table 5.--Modified drillers' logs of selected wells in the lower Hassayampa area—Continued

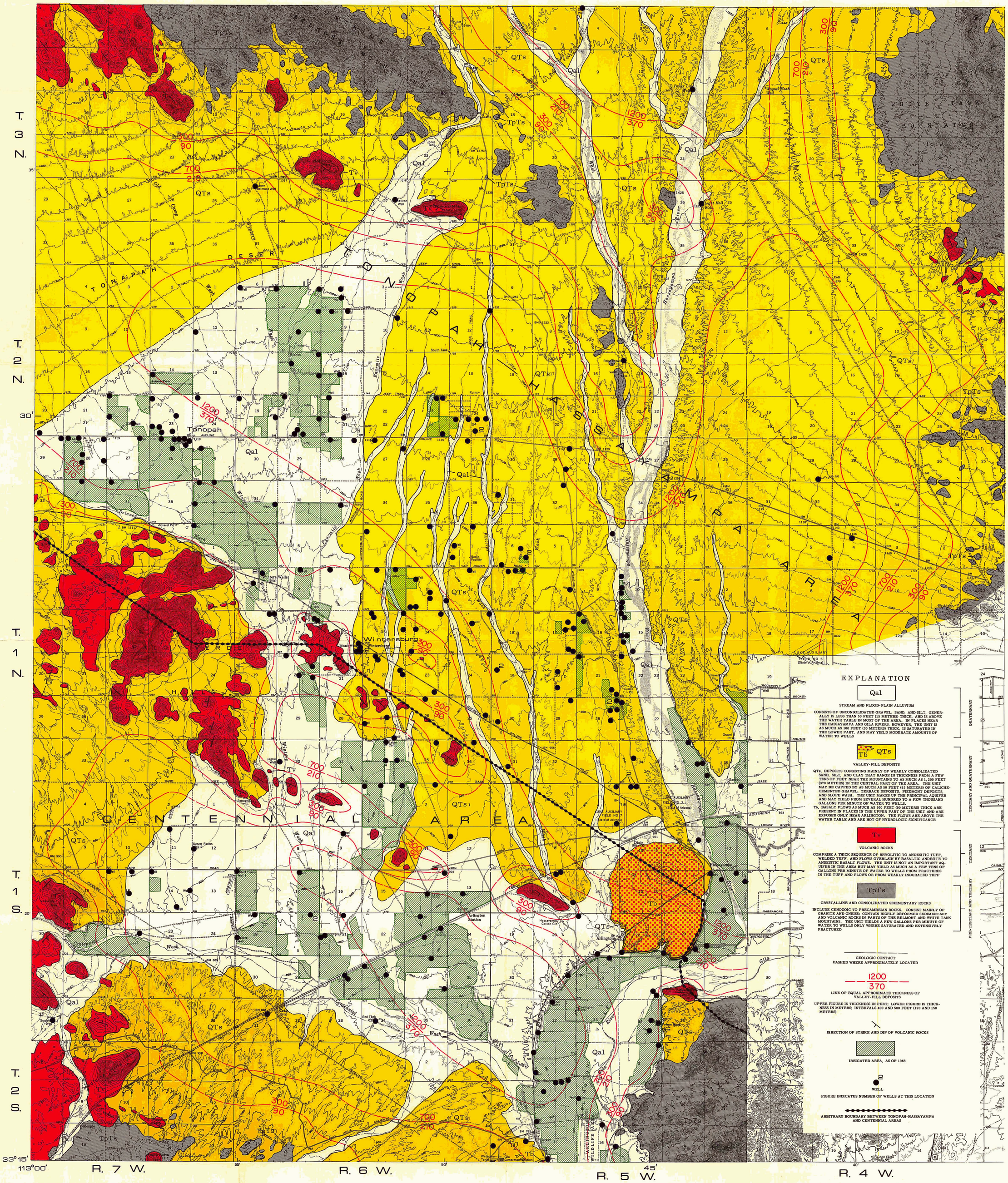
Stratigraphic unit	Description	Thickness (feet)	Depth (feet)
	(C-1-6)14aaa		
Stream and flood-plain alluvium and valley-fill deposits	Dry clay loam	10	10
	Clay	140	150
	Clay and sand stringers	50	200
	Clay	50	250
	Sand and clay	150	400
	Rock	30	430
	Clay and sand (hit rock at 1,000 feet)	570	1,000
	TOTAL DEPTH		1,000
	(C-1-6)14dbb		
Stream and flood-plain alluvium and valley-fill deposits	Clay	383	383
	Sand with streaks of clay	309	692
	Coarse dark sand with streaks of clay	98	790
	Coarse sand	50	840
	Red sandy shale	10	850
	Coarse dark sand	30	880
	Small variegated gravel	110	990
	Clay with variegated sand	120	1,110
	Black shale	4	1,114
	TOTAL DEPTH		1,114
	(C-1-6)17abb		
Stream and flood-plain alluvium and valley-fill deposits	Soil	2	2
	Caliche	8	10
	Rock	20	30
	Clay	40	70
	Sandy clay	90	160
	Rock and clay	5	165
	Sand and clay (first water at 175 feet)	25	190
	Clay and rock (in layers)	300	490
	Clay	16	506
	Hard rock	2	508
	Clay and ash	62	570
	Clay and rock	35	605
	Loose rock	35	640
	Clay and rock	65	705
	Rock and clay (in layers)	42	747
	Sandy clay	15	762
	Clay and rock	73	835
	Rock	5	840
	Rock and clay (in layers)	86	926
	Rock	22	948
	Clay and rock	58	1,006
	Rock	5	1,011
	Clay	14	1,025
	Clay and rock	56	1,081
	Layers of rock and clay	22	1,103
	Rock	2	1,105
	Clay and rock	93	1,198
	Rock	2	1,200
	Yellow clay and rock	16	1,216
Volcanic(?) rocks	Very hard rock	3	1,219
	TOTAL DEPTH		1,219
	(C-1-6)19abb		
Stream and flood-plain alluvium and valley-fill deposits	Soil	3	3
	Caliche	27	30
	Clay	20	50
	Rock and clay (first water at 180 feet)	150	200
	Rock (water)	5	205
	Rock and clay	90	295
	Clay	40	335
	Rock (water)	15	350
	Rock and clay	5	355
	Rock, loose (water)	215	570
	Clay	5	575
	Rock and clay	85	660
	Clay and rock (clay with rock streaks)	140	800
	Rock (water)	2	802
	Clay	38	840
	Clay and rock	35	875
	Rock (water)	10	885
	(C-1-6)19abb—Continued		
Stream and flood-plain alluvium and valley-fill deposits—continued	Rock and clay (rock with clay streaks)	25	910
	Clay and rock	45	955
	Clay (yellow)	32	987
	Loose rock, cuttings washed away (water)	56	1,043
Volcanic(?) rocks	Hard rock	2	1,045
	TOTAL DEPTH		1,045
	(C-1-6)20aabi		
Stream and flood-plain alluvium and valley-fill deposits	Soil	9	9
	Gravel	20	29
	Clay and caliche	26	55
	Silt with rock strata	10	65
	Sandstone	57	122
	Soft sand clay	6	128
	Hard sandy clay	22	150
	Clean gravel	5	155
	Hard sandy clay	9	164
	Soft clay with sandstone strata	26	190
	Clay, gravel and sand	30	220
	Clean gravel (water)	18	238
	Gravel and sand, cemented	22	260
	Conglomerate very hard	20	280
Volcanic(?) rocks	Hard black rock	4	284
	TOTAL DEPTH		284
	(C-1-6)20aab2		
Stream and flood-plain alluvium	Soil	10	10
	Sand and gravel	15	25
Valley-fill deposits	Clay	35	60
	Clay and gravel	130	190
	Sand and gravel, volcanic (first water at 200 feet)	215	405
	Volcanic gravel with layers of clay	80	485
	Clay with layers of volcanic gravel	110	595
	Sandy clay	15	610
	Volcanic gravel and boulders (boulders very hard)	28	638
	Clay and volcanic gravel	162	800
	Volcanic rock, very hard	43	843
	Brown clay and volcanic rock	14	857
	Yellow clay and volcanic gravel	3	860
	Volcanic rock, very hard	6	866
	Yellow clay and volcanic gravel	144	1,010
	Loose volcanic rock (possible water)	80	1,090
	Clay	10	1,100
Volcanic rocks	Rock, very hard	10	1,110
	TOTAL DEPTH		1,110
	(C-1-6)23adb		
Stream and flood-plain(?) alluvium	Clay and gravel	40	40
Valley-fill deposits	Gravel and white sand with streaks of clay	42	82
	White sand and streaks of clay	98	180
	Clay	200	380
	Sand	30	410
	Clay	50	460
	Gray sand with streaks of clay	200	660
	Clay with streaks of sand	60	720
	Gravel	30	750
	Clay	20	770
	Gravel	160	930
	Clay	60	990
	Small showing of gravel embedded in clay (casing set at 940 feet)	168	1,158
	TOTAL DEPTH		1,158

Table 5.--Modified drillers' logs of selected wells in the lower Hassayampa area—Continued

Stratigraphic unit	Description	Thickness (feet)	Depth (feet)
	(C-1-6)23bab		
Stream and flood-plain alluvium and valley-fill deposits	Surface sand	83	83
	Blue clay, streaks of sand	82	165
	Sandy clay	53	218
	Clay	122	340
	Streak of sand	10	350
	Clay	30	380
	Sand	5	385
	Sandy clay	49	434
	Sticky reddish clay with streaks of reddish sand	21	455
	Sandy clay	100	555
	Coarse sand	59	614
	Sand streaked with clay	86	700
	Fine sand and occasional boulders	124	824
	Sand	143	967
	Sand with streaks of clay	43	1,010
	TOTAL DEPTH		1,010
	(C-1-6)23caa		
Stream and flood-plain alluvium	Surface sand and gravel	20	20
Valley-fill deposits	Clay with sand streaks	280	300
	Clay with light gravel streaks	120	420
	Sand and gravel, very light clay streaks	160	580
	Sand	260	840
	Sand and gravel streaks	160	1,000
	Sand and small gravel with very light clay streaks	153	1,153
	No log	4	1,157
	TOTAL DEPTH		1,157
	(C-1-6)26aba		
Stream and flood-plain alluvium and valley-fill deposits	Clay	385	385
	Clay with streaks of small variegated gravel	125	510
	Clay with small streaks of sand	170	680
	Gray sand	125	805
	Clay	15	820
	White sand	260	1,080
	Clay with some sand	50	1,130
	TOTAL DEPTH		1,130
	(C-1-6)26dad		
Stream and flood-plain alluvium and valley-fill deposits	Clay	336	336
	Dark variegated sand	24	360
	Streak of clay	10	370
	Streaks of sand and clay	80	450
	Dark variegated sand	180	630
	Clay	20	650
	Dark variegated sand	256	906
	Clay	24	930
	White sand	150	1,080
	Gray sand, harder than white sand to drill	55	1,135
	TOTAL DEPTH		1,135
	(C-1-6)27acc		
Stream and flood-plain alluvium and valley-fill deposits	Light clay	420	420
	Dark ashy or cinder looking formation	230	650
Volcanic(?) rocks	Granite	5	655
	TOTAL DEPTH		655
	(C-1-6)27bbc		
Stream and flood-plain alluvium and valley-fill deposits	Clay with small streaks sand and gravel	220	220
	Sand gravel	90	310
	Hard sand shale	190	500
	Hard sand	250	750
	Hard sand shale	80	830
	Small gravel	70	900
	Small white gravel	20	920
	Brown gravel	20	940
	Coarse gray sand	40	980
	Coarse dark sand	51	1,031
	Black sand	59	1,090
	TOTAL DEPTH		1,090
	(C-1-7)14bbb		
Stream and flood-plain alluvium and valley-fill deposits	Clay, gravel	30	30
	Clay, sand and gravel	10	40
	Clay, gravel	110	150
	Sand, boulders	20	170
	Sand, gravel, clay	45	215
	Clay, gravel	70	285
	Sand, gravel, clay	120	405
	Clay, small gravel	45	450
	Clay, gravel	30	480
Volcanic rocks	Malpais	475	955
	Sticky clay	25	980
	Clay	5	985
	Malpais	5	990
	Clay	10	1,000
	Malpais	130	1,130
	Sticky clay	10	1,140
	Clay	30	1,170
	Malpais	30	1,200
	TOTAL DEPTH		1,200
	(C-1-7)15bbb		
Valley-fill deposits	Silt and boulders	18	18
	Clay with some gravel	154	172
	Clay, sand and gravel (water)	8	180
	Clay	45	225
	Clay, sand and gravel	50	275
	Decomposed rock, conglomerate	123	398
	Conglomerate rock, consolidated	12	410
	Clay with some gravel and volcanic rock	240	650
	TOTAL DEPTH		650
	(C-2-5)8aab		
Stream and flood-plain(?) alluvium	Soil	2	2
	Clay	17	19
	Sand	7	26
	Coarse gravel	26	52
	Clay	2	54
	Strata of sand, sandstone and clay	30	84
Valley-fill deposits	Clay, tough	66	150
	TOTAL DEPTH		150
	(C-2-5)8aba		
Stream and flood-plain alluvium	Topsoil	8	8
	Sandy soil	17	25
	River gravel and sand	65	90
	Sandy clay	10	100
Valley-fill deposits	Clay	100	200
	Water gravel and clay	100	300
	TOTAL DEPTH		300

Table 5.--Modified drillers' logs of selected wells in the lower Hassayampa area—Continued

Stratigraphic unit	Description	Thickness (feet)	Depth (feet)
	(C-2-5)8abb		
Stream and flood-plain alluvium	Topsoil	10	10
	Sandy clay	15	25
	Sand, gravel and boulders	50	75
Valley-fill deposits	Clay balls, sand and gravel	15	90
	Clay	110	200
	Sandy clay	20	220
	Clay, sand, gravel	70	290
	Water gravel	25	315
	Gravel, some clay	60	375
	No data	15	390
	Gravel and some red clay	85	475
	Gravel and more clay	27	502
	TOTAL DEPTH		502
	(C-2-5)9cbb		
Stream and flood-plain alluvium	Topsoil	10	10
	Sand	52	62
	Clay	5	67
Valley-fill deposits	Boulders and gravel	31	98
	Sandy clay	116	214
	Sand and gravel	86	300
	Sand (slightly cemented)	280	580
	Decomposed granite and boulders	10	590
	TOTAL DEPTH		590
	(C-2-5)16abb		
Stream and flood-plain alluvium	Silt	8	8
	River muck	12	20
	Sand and gravel	5	25
	Gravel and boulders	27	52
	Coarse gravel	23	75
	Gravel and boulders	10	85
	(C-2-5)16abb—Continued		
Valley-fill deposits	Sand and gravel	13	98
	Mountain wash	3	101
	Sheet, decomposed granite	4	105
	Loose wash	1	106
	Sheet, decomposed granite	5	111
	Loose wash	1	112
	TOTAL DEPTH		112
	(C-2-5)18adc		
Valley-fill deposits	Topsoil and sand	30	30
	Fine sand and gravel	30	60
	Sand and gravel	30	90
	Sand and clay and gravel	30	120
	Sand and clay and gravel	200	320
	Sand and clay and gravel	530	850
	TOTAL DEPTH		850
	(C-2-5)18cbb		
Valley-fill deposits	Surface sand	20	20
	Sand (loose)	40	60
	Gravel and sand	130	190
	Slightly cemented sand	40	230
	Cemented sand and gravel	30	260
	Sand and malpais	40	300
	Gravel and malpais	240	540
	Sand and gravel	85	625
Volcanic rocks	Malpais	75	700
	Red shaley rock and malpais	93	793
	TOTAL DEPTH		793



BASE FROM U.S. GEOLOGICAL SURVEY, 1:62500
ARLINGTON, 1962; BELMONT MOUNTAINS, 1962;
BUCKEYE, 1958; AND WHITE TANK MOUNTAINS,
1957

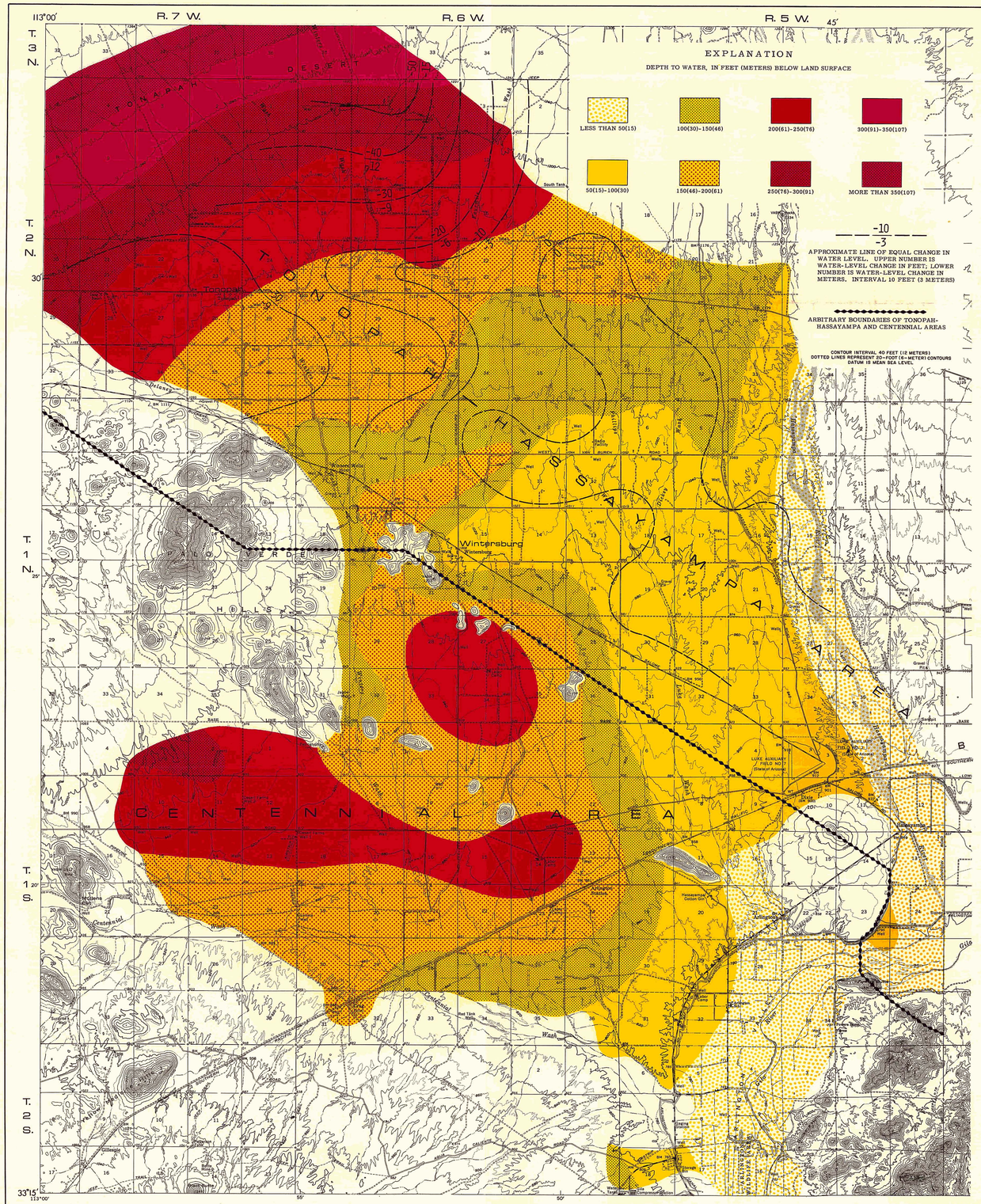
GEOLOGY BY M. E. COOLEY, 1971.
HYDROLOGY BY R. S. STULIK, 1970

1 ½ 0 1 2 3 4 MILES

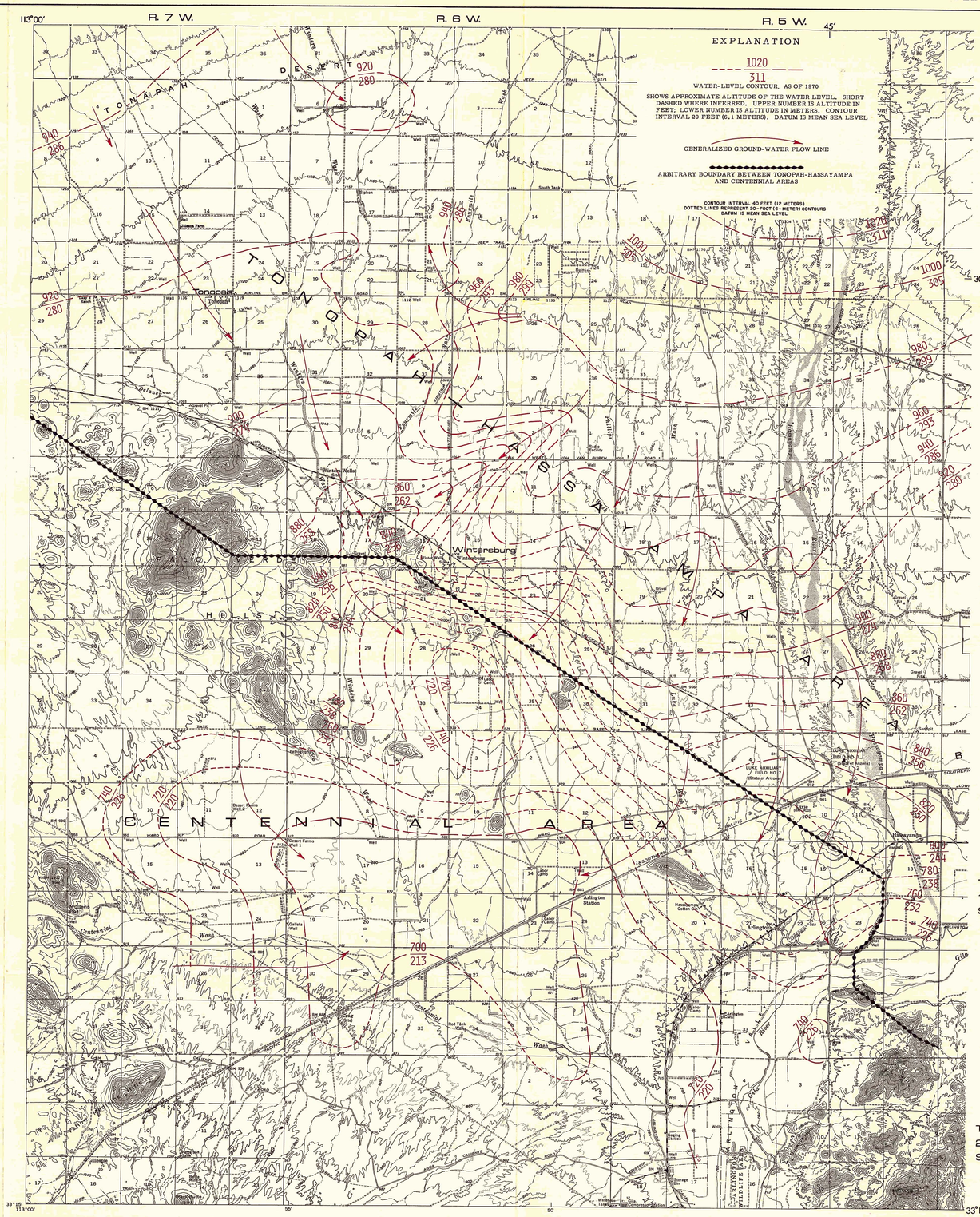
1 .5 0 1 2 3 4 5 KILOMETERS

CONTOUR INTERVAL 40 FEET (12 METERS)
DOTTED LINES REPRESENT 20-FOOT (6-METER) CONTOURS
DATUM IS MEAN SEA LEVEL

MAP SHOWING RECONNAISSANCE GEOLOGY, APPROXIMATE THICKNESS OF THE VALLEY-FILL DEPOSITS, LOCATION OF SELECTED WELLS, AND IRRIGATED AREAS IN THE LOWER HASSAYAMPA AREA, ARIZONA



A. DEPTH TO WATER, 1970, IN THE LOWER HASSAYAMPA AREA AND CHANGE IN WATER LEVEL, 1962-70, IN THE TONOPAH-HASSAYAMPA AREA



B. ALTITUDE OF THE WATER TABLE AND GENERALIZED FLOW PATTERN, 1970, IN THE LOWER HASSAYAMPA AREA

BASE FROM U.S. GEOLOGICAL SURVEY, 1:62500, ARLINGTON, 1962; BELMONT MOUNTAINS, 1962; BUCKEYE, 1958; AND WHITE TANK MOUNTAINS, 1957

1 ½ 0 1 2 3 4 MILES
1 0 1 2 3 4 5 KILOMETERS

HYDROLOGY BY R. S. STULIK, 1970

MAPS SHOWING GROUND-WATER CONDITIONS IN THE LOWER HASSAYAMPA AREA, ARIZONA