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CHRIS L. WHEELER
STATE ENGINEER

GROUND-WATER DATA IN THE HARRISBURG-HALSEY AREA, CENTRAL WILLAMETTE VALLEY, OREGON

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PREPARED IN COOPERATION WITH
THE UNITED STATES DEPARTMENT OF THE INTERIOR
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By F. J. Frank and Nyra A. Johnson

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INTRODUCTION

Purpose of This Report and its Relation to Other Studies

The increasing demand for ground water for rural, domestic, public, and irrigation uses has brought to attention the need for an evaluation of the ground-water resources in the Harrisburg-Halsey area. To meet this need, this hydrologic study of the area was made by the U.S. Geological Survey in cooperation with the office of the Oregon State Engineer.

An important part of the ground-water resources study is the collection and compilation of data on existing wells. This information, when integrated with data on streamflow, geology, and climatology, forms the basis for evaluation of the ground-water resource of the area. This report was prepared by the Geological Survey and will make available in advance of the final interpretive report, basic records of representative wells, water levels, and chemical quality of the ground water. The basic-data report will continue to be useful because it contains many data that will be omitted from the final interpretive report planned for publication as a U.S. Geological Survey water-supply paper.

Several previous ground-water studies are related to the Harrisburg-Halsey project. The area is included in a report on the ground-water resources of the Willamette Valley by Piper (1942). The Oregon State Engineer has published records of wells, water levels, and chemical quality of ground water for several areas in the northern, southern, and middle Willamette Valley. Among these areas are: French Prairie (Price, 1961), Molalla-Salem Slope (Hampton, 1963), Eola-Amity Hills (Price and Johnson, 1965), lower Santiam River basin (Helm, 1968), the Eugene-Springfield area (Frank and Johnson, 1970), and the Corvallis-Albany area (Frank and Johnson, 1972).

Location and Description of the Area

The Harrisburg-Halsey area covers about 350 square miles in the central Willamette Valley, Oreg., and is part of a broad alluvial plain that lies between the Cascade and Coast Ranges in the central part of the Willamette Valley. The project area lies between two areas studied previously (Frank, 1973; Frank, 1974). The location and boundaries of the study area are shown in figure 1.

Occurrence and Availability of Ground Water

Most of the high-yield wells in the area produce water from alluvial (sand and gravel) aquifers that underlie the valley plain or that are co-extensive with the present flood plain of the Willamette River. The water table in the alluvial aquifer is generally only a few feet below land surface. Pumping lifts are relatively small, and wells produce moderate to large quantities of ground water of good chemical quality.

Volcanic and sedimentary rocks are exposed in the foothill parts of the area. The volcanic rocks are exposed in the foothills of the eastern part of the area and are mostly of andesitic and basaltic composition. These rocks yield only small quantities of water generally adequate for domestic and stock use. The sedimentary rocks are marine-deposited sandstone, siltstone, and shale, and are fine-grained, poorly permeable, and generally yield small volumes of water to wells. The sedimentary rocks are exposed in the foothills in the western part of the area and along the edge of the valley plain in the eastern foothill parts of the area. Although water from wells drilled in the sedimentary deposits in the upland parts of the area is mostly of good quality, water from wells drilled into these deposits beneath the valley plain may be of poor quality and locally too saline for most uses.

Many of the wells drilled in the high parts of the foothills penetrate isolated ground-water bodies perched above the regional water table. Because perched water occurs at various elevations, these wells have a considerable range in depth and yield. Many small springs are outlets for perched water, and a few of these springs are reported to flow throughout the year. Most perched-water bodies yield sufficient water for domestic requirements throughout the year; some of them yield insufficient water supplies during summer.

Acknowledgments

Thanks are extended to the many owners in the area who provided information and allowed free access to their wells to examine the pumping facilities, measure water levels, and collect water samples. The friendly cooperation of these persons has made this report possible.

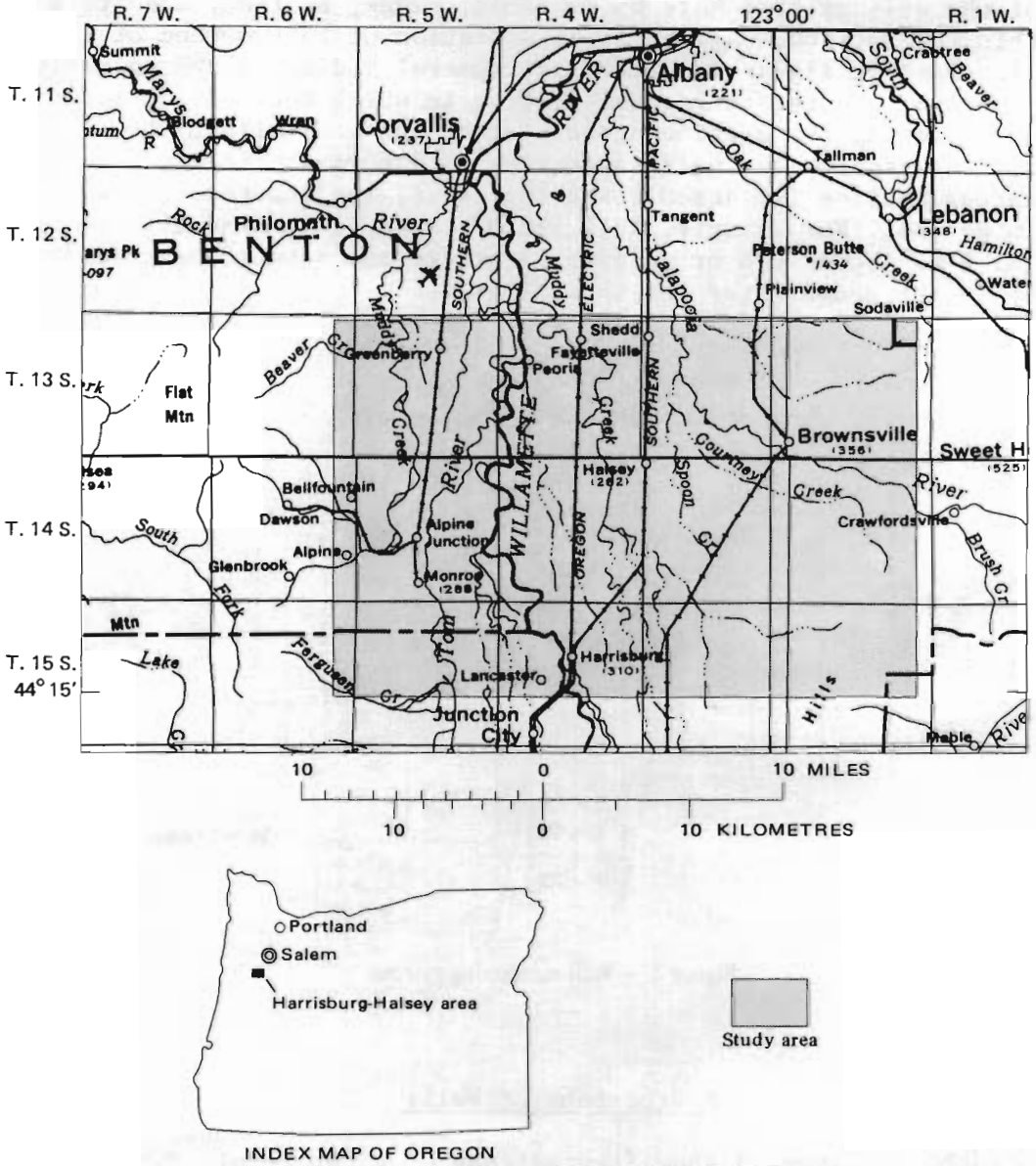

Figure 1. – Map showing location and general features of the Harrisburg-Halsey area.

EXPLANATION OF DATA

Well-Numbering System

Designation of wells discussed in this report are based on the official system for rectangular subdivision of public lands. The number indicates the location of the well or test hole by township, range, section, and its position within the section. A graphic illustration of this method of well numbering is shown in figure 2. The first numeral indicates the township; the second, the range; and the third, the section in which the well is located. The letters following the section number locate the well within the section. The first letter denotes the quarter section (160 acres); the second, the quarter-quarter section (40 acres); and the third, the quarter-quarter-quarter section (10 acres). For example, well 15S/5W-16bcc is in SW¼SW¼NW¼ sec. 16, T. 15 S., R. 5 W. Where two or more wells are in the same 10-acre subdivision, serial numbers are added after the third letter.

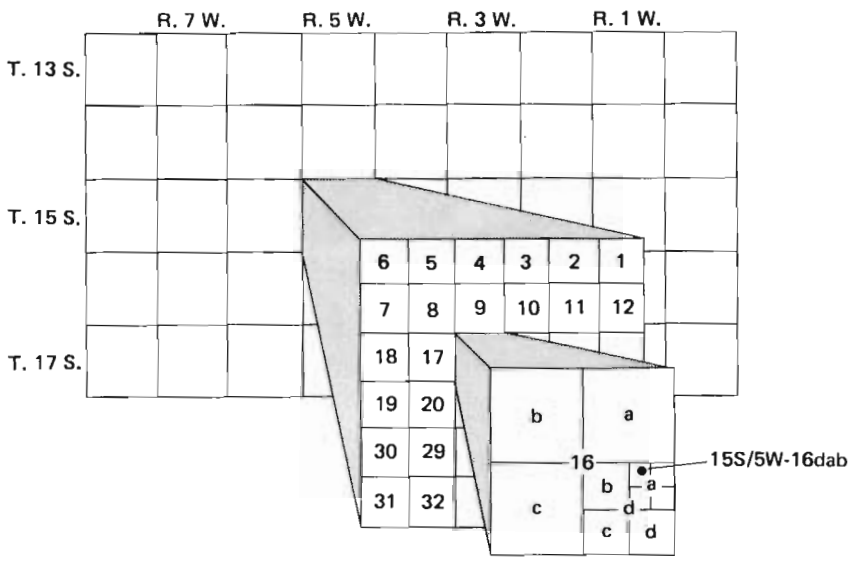

Figure 2. – Well-numbering system

Hydrographs of Wells

Hydrographs in figure 3 show fluctuations of water levels during 1962-74 in six selected observation wells. Rising water levels on the hydrographs indicate periods when more water was added to the reservoir than was discharged; declining water levels indicate periods when more water was discharged from the reservoir than was added. As the hydrographs in figure 3 show, water levels are highest during the wet winter and spring months and lowest during the dry summer and autumn months. Water levels are shown on the hydrographs in feet below the land surface at the well, and in feet above mean sea level.

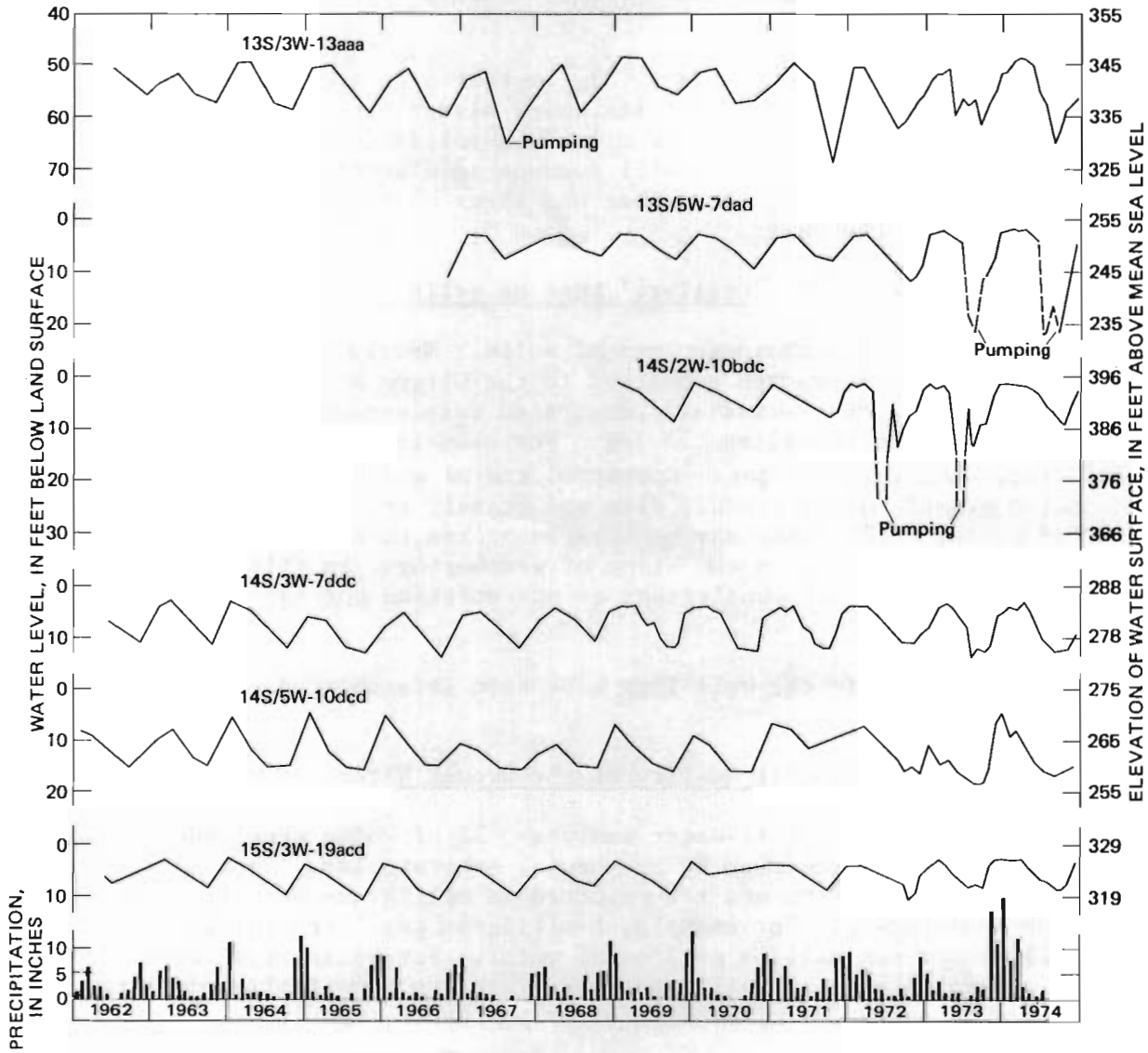

Figure 3.--Hydrographs of six selected observation wells in the study area, and monthly precipitation at Albany, 1962-74.

Records of Wells

Table 1 contains records of 506 representative wells whose locations are shown on plate 1. Most of the well data were obtained from well drillers' reports submitted to the office of the Oregon State Engineer; some of the data were supplied by the well owners or operators.

In the "Use" column of table 1, only the principal uses of the well water are given. The public-supply wells listed include those that supply water for schools and municipalities.

Specific conductance (tables 1, 3), expressed as micromhos per centimetre at 25°C, is a measure of the ease with which electricity will pass through water and is a rough measure of the dissolved-solids content of the water. Most water that occurs naturally will conduct an electrical current. Conductivity depends mainly on the number and kinds of ions in solution and on the temperature of the water.

Drillers' Logs of Wells

Table 2 contains lithologic logs of wells. Nearly all the logs were obtained from drillers' reports submitted to the Oregon State Engineer. Descriptions of the rock materials penetrated vary depending on the terminology of the person compiling the log. For example, compacted clay may be called clay, shale, or hardpan. Compacted gravel and clay may be referred to as cemented gravel, dirty gravel, clay and gravel, or conglomerate. Weathered consolidated rocks may be labeled broken rock, boulders, conglomerate, or clay, depending on the stage of weathering. In this report, the logs have been edited for consistency of presentation but have otherwise remained unchanged.

Altitudes given in the well logs have been interpolated from topographic maps.

Chemical Quality of the Ground Water

Table 3 presents 36 well-water analyses, 32 of which were made by the Geological Survey and the rest by commercial laboratories. Concentrations of dissolved mineral constituents are reported in milligrams per litre, a weight per volume measurement. For example, 1 milligram per litre is equivalent to about 8.33 pounds per million gallons of water. For water with low mineral content, concentrations in milligrams per litre are numerically equal to values given in parts per million in older published reports.

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_____1965, Ground-water levels, 1964: Oregon State Engineer Ground Water Rept. 5, 109 p.

_____1966, Ground-water levels, 1965: Oregon State Engineer Ground Water Rept. 9, 111 p.

Table 1.--Records of wells in the Harrisburg-Halsey area

Well number: See p. 4 for description of well-numbering system.
Type of well: Dr, drilled; Dv, driven; Dg, dug.
Finish: B, open bottom (not perforated or screened); Sc, screened; P, perforated.
Altitude: Altitude of land surface at well, in feet above mean sea level, interpolated from topographic maps.
Water level: Depths to water given in feet and decimals were measured by the Geological Survey; those in whole feet were reported by others or estimated.
Specific conductance of water: Field determination, in micromhos at 25°C.

Type of pump: C, centrifugal; J, jet; S, submersible; P, piston; T, turbine; H, hand; N, none.
Well performance: Yield in gallons per minute, and drawdown in feet below nondischarging water level, reported by owner, operator, driller, or pump company.
Use: D, domestic; PS, public supply; Ir, irrigation; In, industrial; S, stock; F, fire; N, none.
Remarks: Ca, chemical analysis of water in table 3; H, hydrograph in fig. 3; L, driller's log of well in table 2; P, B, or At, pumped, bailed or air tested, for the indicated number of hours, when drawdown was measured. Remarks on adequacy, dependability, and general quality are reported by owners, tenants, drillers, or others.

Well number	Owner	Type of well	Year completed	Depth of well (feet)	Diameter of well (inches)	Depth of casing (feet)	Finish	Water-bearing zone(s)			Altitude (feet)	Water level		Specific conductance of water	Type of pump and hp	Well performance		Use	Remarks
								Depth to top (feet)	Thickness (feet)	Character of material		Feet below datum	Date			Yield (gpm)	Drawdown (feet)		
								T. 13 S., R. 2 W.											
5cbd	Richard Rhiger	Dr	1964	76	6	20	B	--	--	Basalt	320	1.5	6- 9-64	300	J, 1	13	25	D	B 1 hr.
5dda	do	Dr	1969	153	6	86	B	--	--	do	730	27.87	10- 5-72	260	S, 1½	30	66	D	B 2 hr. Partial Ca.
6cdb	David Scofield	Dr	1970	155	6	70	B	--	--	--	295	9.74	10- 1-73	540	S, 3/4	--	--	D	Ca. Water reported to have "soda" taste.
17cdd	Marvin Gourley	Dr	1970	90	6	--	B	--	--	--	500	48.76	10- 2-73	950	J, 1	15	55	D	At 2 hr, L, Ca.
18acb1	Mr. Mills	Dr	1971	362	6	22	B	--	--	--	1,090	220	8-14-71	--	--	12	Total	N	At 1 hr.
18bcc	Archie Cleveland	Dr	1973	510	6	49	B	--	--	Sandstone	725	225.25	8-16-73	--	N	200	180	N	At 1 hr, L.
18bdc	Pat Strawn	Dr	1971	317	6	54	B	--	--	--	950	148.62	10- 2-73	440	S, 1	10	180	D	At 1 hr. Well can easily be pumped dry during summer.
18cbb	Joe McPherson	Dr	1971	510	6	20	B	--	--	--	1,280	110	7-26-71	--	N	<1	Total	N	At 1 hr. Well inadequate for household use.
18dba	Mr. Edgmon	Dr	1971	107	6	21	B	--	--	--	965	18	9-16-71	400	H	12	62	D	At 1 hr.
19adc	D. O. Cowdrey	Dr	1968	95	6	23	B	20	--	Basalt	440	23.87	10- 2-73	255	S, ½	8	94	D	B 2 hr, L.
20bbc1	William Gilmore	Dr	--	44	6	--	B	--	--	--	440	7.88	10- 2-73	1,700	J, ½	--	--	D	Water not used for drinking. Reported to be of poor quality and to contain excessive iron.
20bbc2	do	Dr	1965	280	6	63	B	--	--	--	440	--	--	--	N	--	--	N	L.
28dda	Loren Kirk	Dr	1957	97	5	21	B	--	--	--	500	4.68	10- 2-73	--	J, 3/4	15	70	N	B ½ hr, L. Water reported to be "mineralized."
30dcb	Larry Kauffman	Dr	1970	345	6	74	B	--	--	Volcanic	600	70.90	10- 3-73	380	S, 1½	25	265	D	At 2 hr, L, Ca.
30dcd	Harvey Zoon, Jr.	Dr	1970	485	6	173	P, 42-50, 150-170	--	--	--	600	33.20	10- 2-73	450	S, 1	5	135	D	At 2 hr, L. Well can easily be pumped dry during summer.
30ddb	do	Dr	1970	480	6	103	B	--	--	--	720	57.44	10- 2-73	--	N	2	415	N	At 2 hr. Reported to have inadequate water supply.
30ddc	Richard Smith	Dr	1971	240	6	15	B	200	40	Basalt	720	100	3-30-71	310	S, 1	20	140	D	At 1 hr.
31aac	D. L. Engle	Dr	1973	100	6	80	B	80	20	do	640	35	5- 3-73	340	S, 1	100	55	D	B 1 hr, L. Water contains excessive iron.

Table 1.--Records of wells in the Harrisburg-Halsey area--Continued

Well number	Owner	Type of well	Year completed	Depth of well (feet)	Diameter of well (inches)	Depth of casing (feet)	Finish	Water-bearing zone(s): Depth to top (feet)	Water-bearing zone(s): Thickness (feet)	Water-bearing zone(s): Character of material	Altitude (feet)	Water level: Feet below datum	Water level: Date	Specific conductance of water	Type of pump and hp	Well performance: Yield (gpm)	Well performance: Drawdown (feet)	Use	Remarks
T. 13 S., R. 2 W.--Continued																			
31bac	L. P. Youngdahl	Dr	1969	235	6	18½	B	--	--	--	400	40	4-21-69	580	S, 1	25	150	D	B 1 hr, L.
31bbb	Dwight Edwards	Dr	1963	65	4	20	B	64	1	Sand	330	7.97	10- 2-73	300	J, 1	20	5	D	B 1 hr.
31ccd	G. F. Jayne	Dr	1965	68	6	67	B	--	--	Sand, clay, and gravel	330	8	3-10-65	240	S, 1	30	20	D	B 1 hr.
32cab	Clyde McLain	Dr	1971	212	6	20	B	--	--	Sandstone	420	60	8-31-71	--	N	3	100	N	At 1 hr, L.
33cdc2	James Weibel	Dr	1967	330	6	24	B	--	--	--	380	--	--	--	N	--	--	N	L. Well abandoned. A nearby well (100 ft deep) was abandoned after water yield dropped.
33dcc1	do	Dr	1967	100	6	32	B	--	--	--	380	25.88	10- 2-73	--	N	6	44	N	B 1 hr. Yield of well has dropped; now inadequate for domestic use.
33dcc2	do	Dr	1973	100	6	--	B	--	--	--	380	26.33	10- 2-73	--	S, 1	--	--	D	
34bca	Loren Kirk	Dr	1958	58	6	--	B	--	--	--	560	20.99	10- 2-73	390	J, ½	--	--	D	
T. 13 S., R. 3 W.																			
1dad	Tripp and Tripp	Dr	--	400?	6	--	--	--	--	--	290	4.22	10- 1-73	430	J, ½	--	--	D	
2daa	Joe Morgan	Dr	1940	32	8	--	--	--	--	Sand and gravel	286	10.26	10-10-73	--	C, ½	--	--	N	
3aab	do	Dr	1969	91	6	73	P, 24-32	24	8	Gravel and clay	267	15.26	10-10-73	460	J, 1	60	20	D	B 1 hr, L.
4abc	Lincoln Reed	Dr	1971	52	6	--	--	--	--	Sand and gravel	260	14.87	10-10-73	390	S, 1	--	--	--	
4bdd	F. T. Glaser	Dr	1958	190	6	30	B	32	18	Sandstone	256	23	7-25-58	640	C, 1	7	170	D	B 1 hr, Ca.
6bda	D. H. Margason	Dr	1969	67½	6	67	P, 56-65	56	10	Clay and gravel	262	16.59	10- 9-73	50	S, ½	50	40	D	B 1½ hr, L.
6cbd	Darrell Dannen	Dr	1966	52	6	49	P, 39-49	39	49	Gravel and sand	256	14.53	10- 9-73	560	S, 1	50	10	D	B 1 hr. Well has water-softener attachment.
7bbc2	Halsey-Shedd Fire Dist.	Dr	1968	46	8	44	P, 34-44	34	10	Sand, clay, and gravel	265	7	5-15-68	--	T	120	3	F	B 1½ hr, L.
8abb	Milton Kropf	Dr	1959	38	6	35	P, 26-35	26	9	Gravel	262	12.36	10- 9-73	--	C, ½	40	13	D	B. Water reported to be high in iron.
9bda	R. J. Barrett	Dr	1954	60	6	--	--	--	--	--	280	17.30	10-10-73	400	C, 1/3	--	--	D	
10abc	James Barnts	Dv	--	35	1¼	35	--	--	--	--	271	--	--	380	--	--	--	D	
11bbd	Merle Manning	Dr	1959	40	6	40	P, 32-38	30	5	Gravel	276	10.28	10-10-73	320	J, 1½	30	12	D	B 2 hr.
12cda	Jack Cochran	Dr	1949?	50	8	--	--	--	--	Sand and gravel	290	9.68	10- 1-73	--	T, 3	--	--	N	One of two wells formerly used to irrigate 20 acres of pasture.
12daa	do	Dr	1965	187	6	97	B	--	--	--	360	53.59	10- 1-73	--	J, 1	8	80	D	B 1 hr, L.

Table 1.--Records of wells in the Harrisburg-Halsey area--Continued

Well number	Owner	Type of well	Year completed	Depth of well (feet)	Diameter of well (inches)	Depth of casing (feet)	Finish	Water-bearing zone(s)			Altitude (feet)	Water level		Specific conductance of water	Type of pump and hp	Well performance		Use	Remarks
								Depth to top (feet)	Thickness (feet)	Character of material		Feet below datum	Date			Yield (gpm)	Drawdown (feet)		
T. 13 S., R. 3 W.--Continued																			
13aaa	Jack Cochran	Dr	1950	106	6	--	B	--	--	--	395	57.66	10- 1-73	400	S, 1½	--	--	D	H.
14bad	L. F. Baker	Dv	--	27	1¼	27	--	--	--	--	283	10.34	10-10-73	360	H	--	--	D	
16ccd	Floyd Smith	Dr	1950	33	5	33	--	--	--	Sand and gravel	268	7.15	10- 9-73	--	N	--	--	N	
17dda	Mr. Smith	Dr	1967	42	6	42	P, 37-42	31	11	Gravel	270	10	10- 2-67	320	S	45	5	D	B 3 hr, L, Ca.
18bba	J. W. Pugh	Dr	1964	105	8	80	P, 25-80	25	55	Sand and gravel	265	14.38	10- 9-73	--	T, 15	280	55	Ir	P 2 hr, L.
18bbc1	do	Dr	1959	120	8	115	P, 25-35, 40-45, 60-70, 80-100	25 40 60 80	10 5 10 20	Gravel and clay Gravel and sand do Gravel and clay	266	15.42	10- 1-73	--	N	150	110	N	P 3 hr, L. Formerly used for irrigation.
18bbc2	do	Dr	1970	105	8	--	P, 38-99	40	100	Gravel, sand, and clay	266	9	12- 4-70	--	T, 15	310	63	Ir	P 3 hr.
18cab	Mr. Dickson	Dr	1966	90	10	--	--	--	--	--	268	17.53	10-10-73	--	T, 5	--	--	Ir	
19cbb	B. Davidson	Dv	1920	32	1¼	32	--	--	--	Sand and gravel	269	11.43	10- 9-73	--	H	--	--	N	
19cdc2	Elizabeth Salmon	Dr	1950	36	8	36	--	--	--	do	275	13.77	10-10-73	--	C, 5	--	--	Ir	
19daa	Clyde Montgomery	Dv	--	36	1¼	36	--	--	--	do	276	15.29	10- 9-73	--	C, 1	--	--	D	
21cdb	Vern Elder	Dv	--	19	1¼	--	--	--	--	do	276	9.48	10- 9-73	280	C, ¼	--	--	D	
22dba	Ray Ruckert	Dr	1965	53	8	45	P, 33-45	20	--	Gravel and clay	284	5	5-10-65	370	S, ½	66	30	D	B 1 hr, L.
22ddb1	Harold Mabley	Dr	1969	180	6	20	B	--	--	Basalt	330	26.63	10-10-73	310	S, ½	3	--	D	At 5 hr, L.
23adc	W. Spurlin	Dr	1951	107	6	30	--	--	--	do	296	8.55	10-10-73	285	S, 1	--	--	D	
23cab	R. Palm	Dr	1968	131	6	28	B	--	--	--	308	23.49	7-21-72	--	N	30	28	N	B 2 hr, L.
26bbc	Frank Popineau	Dr	1971	235	6	40	B	--	--	--	491	53.24	7-19-72	255	S, 2	37	85	D	At 2 hr, L.
27aad	D. L. Popineau	Dr	1972	310	6	42	B	--	--	Sandstone	485	153.58	10-10-73	230	S, 3/4	18	140	D	At 2 hr, L, Ca.
27adb	Allen Hicks	Dr	1970	243	6	70	--	--	--	Sandstone	460	116.20	7-21-72	160	S, 1½	60	155	D	At 3 hr, L.
28cab	H. Knuths Estate	Dr	1961	122	8	112	P, 9-62	14	34	Gravel and sand	277	8.02	10- 9-73	--	T, 7½	165	70	Ir	P 4 hr, L.
30baa	Robert House	Dr	1962	40	6	--	--	--	--	do	276	9.80	7-24-72	450	C, 3/4	--	--	D	
31cad2	Pete Williams	Dr	1966	138	10	116	P, 20-116	24	49	Gravel, sand, and clay	179	12	6-23-66	1,700	T, 7½	110	22	Ir	B 1 hr, L.
31cda	do	Dv	--	34	1¼	34	--	--	--	Sand and gravel	278	14.48	10-10-73	--	P	--	--	S	
32acc	R. J. Tippets	Dr	1963	36	6	35	P, 30-35	28	7	Gravel and sand	278	14	9- 6-63	760	C, 1	40	8	D	P.
32ccc1	Central Linn School Dist.	Dr	1958	63	8	63	P, 30-34	30	30	do	280	18	9- 6-58	2,300	T, 10	155	20	Ir	P 6½ hr. Water tastes salty.

Table 1.--Records of wells in the Harrisburg-Halsey area--Continued

Well number	Owner	Type of well	Year completed	Depth of well (feet)	Diameter of well (inches)	Depth of casing (feet)	Finish	Water-bearing zone(s): Depth to top (feet)	Water-bearing zone(s): Thickness (feet)	Water-bearing zone(s): Character of material	Altitude (feet)	Water level: Feet below datum	Water level: Date	Specific conductance of water	Type of pump and hp	Well performance: Yield (gpm)	Well performance: Drawdown (feet)	Use	Remarks
								T. 13 S., R. 3 W.--Continued											
32ccc2	Central Linn School Dist.	Dr	1957	118	8	118	P, 59-63, 110-116	59 110	4 6	Gravel and sand Sand and gravel	282	18.92	10-10-73	--	N	200	92	N	P 5 hr, L, Ca. Water is of poor quality.
32dbc	Lyle Eagy	Dr	1965	40	6	--	--	38	2	Sand	281	11.72	10-10-73	875	J, ½	12	20	D	B 1 hr, L.
33add	Tom Shilling	Dr	1960	18	1¼	18	--	--	--	Sand and gravel	289	--	--	320	--	--	--	S	
34bcc	do	Dv	--	35	3	35	--	--	--	do	291	13.39	10-10-73	--	C, ½	--	--	N	
34cad	Peter Jensen	Dr	1965	95	10	79	P, 25-35, 65-79	25 65	10 14	Gravel and clay Sand and gravel	291	9.08	10-10-73	--	S, 7	190	70	Ir	P 2 hr, L.
								T. 13 S., R. 4 W.											
1baa	Ross Sprenger	Dr	1961	48	6	48	P, 38-48	38	10	Gravel	257	14.66	10- 4-73	480	T, 1	40	6	D	B, L.
1bcd	Melvin McDonald	Dr	1970	45	6	45	P, 36-45	32	10	Sand and gravel	256	11.91	10- 4-73	520	C, 3/4	70	10	D	B 1 hr.
1cdc	Monte Lewis	Dr	1963	59	6	59	P, 51-59	51	8	do	255	11.87	10- 4-73	380	C, ½	40	24	D	B 2 hr.
3aba	R. W. Brown	Dr	1952	125	8	--	--	--	--	do	255	--	--	--	T, 5	--	--	Ir	Used to irrigate 25 acres of pasture.
4baa	Carroll Kirk	Dr	1967	50	6	50	P, 39-48	32	18	Gravel	253	16	2-14-67	520	S	50	24	D	B 1 hr.
4ccd	Harold Curtis	Dr	1969	55	6	50	P, 47-50	47	3	Sand and gravel	250	19	8- 8-69	740	S, 3/4	20	18	D	B 1 hr, L.
4dba	Jim Grossnicklaus	Dr	1957	33	6	30	--	--	--	do	250	22.10	10- 4-73	220	J, 1	--	--	D	
5aca	Floyd Smith	Dr	1971	41	6	41	B	33	5	Gravel	251	23.52	10- 4-73	340	J, 1	10	10	D	B 2 hr.
8bcc	Linn County Parks and Recreation Dept.	Dr	1967	53	6	52	P, 41-50	41	9	do	255	26	2-24-67	245	S	24	21	PS	B 1 hr, L.
8cca	Peoria Store	Dr	1967	47	6	47	P, 36-45	36	8	do	256	29.05	7-11-72	270	J, 3/4	40	15	D	B 1 hr.
8cdd	Clifford Greig	Dr	1967	60	6	51	P, 42-49	40	9	Sand and gravel	258	27.98	10- 3-73	250	S, 3/4	30	20	D	B 2 hr, L.
9bbd	Harold Curtis	Dr	1971	52	6	45	P, 36-45	30	12	Gravel	250	19.05	10- 3-73	320	S, ½	15	29	D	B 1½ hr, L.
9dac	Paul Pugh	Dr	1970	60	6	39	P, 33-38	33 55	5 5	Gravel, sand, and clay Sand and gravel	256	19.99	10- 3-73	440	S, 1½	45	7½	D	B 2 hr, L. A nearby well (120 ft deep) reported to yield saline water.
10bab	P. R. Springer	Dr	1970	65	4	65	--	--	--	do	255	23.77	10- 4-73	420	S, 1/3	--	--	D	
10bca	L. N. Rathbun	Dr	1965	49	6	49	P, 41-49	16 35	4 14	do do	251	15.12	7-12-72	380	C, ½	40	20	D	B 1 hr, L, Ca.
11ccc	Marvin Cannel	Dr	1971	40	6	40	P, 34-38	30	10	do	256	18.21	10- 4-73	810	S	50	25	D	B 2 hr.
12ada	Roger Clay	Dr	1970	45	6	45	P, 36-42	36	9	do	263	15.02	10- 4-73	420	C, 1	40	22	D	B 1 hr, L.
12add	Max Safley	Dr	1967	47	6	47	--	--	--	do	263	16.85	10- 4-73	210	S	--	--	D	

Table 1.--Records of wells in the Harrisburg-Halsey area--Continued

Well number	Owner	Type of well	Year completed	Depth of well (feet)	Diameter of well (inches)	Depth of casing (feet)	Finish	Water-bearing zone(s): Depth to top (feet)	Water-bearing zone(s): Thickness (feet)	Water-bearing zone(s): Character of material	Altitude (feet)	Water level: Feet below datum	Water level: Date	Specific conductance of water	Type of pump and hp	Well performance: Yield (gpm)	Well performance: Drawdown (feet)	Use	Remarks
T. 13 S., R. 4 W.--Continued																			
13bbc	J. W. Pugh, Jr.	Dr	1970	53	6	51	P, 45-51	40	10	Clay and gravel	262	18	11-25-72	560	S	25	18	D	B 1 hr, L.
13ccd	B. Davidson	Dv	1855	24	1½	--	--	--	--	Sand and gravel	262	9.75	10- 4-73	--	N	--	--	N	
14bac	J. K. Bradshaw	Dr	1957±	65	8	60	--	--	--	do	255	18.91	10- 3-73	810	J	--	--	D	
15abc	Lester Abrahams	Dr	1923±	45	5	--	--	--	--	do	255	20	7-12-72	420	J, 1	--	--	D	
15bbc	V. B. Higbee	Dr	--	53	6	--	--	--	--	do	268	25.69	7-13-72	440	J, 1	--	--	D	
15cdd	Mr. Abrahams	Dr	1960	62	8	--	--	--	--	do	272	29.81	10- 3-73	480	J, 1	--	--	D	
16acc	Richard Pimm	Dr	1966	56	8	56	P, 42-54	17 40	18 12	Gravel Sand and gravel	255	10	10-10-66	--	T, 7½	300	38	Ir	P 2 hr. Used to irrigate 40 acres of pasture and berries.
17bac	W. E. Horton	Dr	1965	60	6	58	P, 53-58	30 45	6 13	Gravel Gravel and clay	256	29	7- 3-65	1,100	S	30	10	D	B 2 hr, L, Ca. Water has bad odor and taste.
18ddd	Hilbert & Simms Farms, Inc.	Dr	1968	40	6	40	P, 29-39	29	10	Sand and clay	245	20	8- 2-68	--	S	40	5	In	B 2 hr.
20cda	Harold Popp	Dr	--	35	6	--	--	--	--	Sand and gravel	266	28.46	10- 3-73	340	J, 3/4	--	--	D	
22bba	Mr. Munson	Dr	1963	55	8	--	--	--	--	do	268	18	7-13-72	480	J, 1	--	--	D	
23dcc	Mr. Coons	Dv	--	30	1½	--	--	--	--	--	266	--	--	1,000	C, 1/3	--	--	D	
24ccc	T. C. Dailey, Jr.	Dr	1968	30	12	--	--	--	--	Sand and gravel	245	8.74	9- 7-72	--	C, 25	--	--	Ir	
24cdd	Mr. Otto	Dr	1969	42	6	42	P, 31-40	24	18	do	270	14.57	10- 4-73	875	S	50	4	D	B 1½ hr.
24dcc	Ray Warren	Dr	1960	45	6	44	P, 36-44	32	13	do	271	14.90	10- 4-73	975	S, 1	40	0	D	B, L.
25abc	T. C. Dailey, Jr.	Dr	--	31	12	31	P	--	--	do	247	11.51	9- 7-72	247	N	--	--	Ir	
25cdd	John Smith	Dv	1900	32	3	32	--	--	--	do	276	11.59	7-24-72	--	--	--	--	N	
25dcc	do	Dr	1930	32	4	32	--	--	--	do	276	11.50	7-24-72	--	N	--	--	N	
27acd	Ken Wetgen	Dv	--	26	1½	26	--	--	--	do	261	--	--	260	C, ½	--	--	D	
27dba	Gulf Oil Corp. of California (T. J. Porter #1)	Dr	1964	8,470	13-3/8 9-5/8	526 426	Cemented to surface	--	--	--	266	--	--	--	--	--	--	N	Abandoned oil well; plugged to 4,737 ft. L.
28aab	Smith Bros.	Dv	--	24	1½	24	--	--	--	Sand and gravel	262	11.56	10- 3-73	--	N	--	--	N	
29bda	E. F. Nichols	Dr	1964	33	5	33	--	--	2	do	269	27.22	10- 3-73	--	J, ½	15	0	D	B 1 hr, L.
32bbb	Pine Grove Community Church	Dv	--	28	1½	28	--	--	--	do	261	15.93	10- 3-73	--	H	--	--	N	
32ccb	Don Bayne, Jr.	Dv	--	31	4	31	--	--	--	do	268	18.76	7-14-72	--	N	--	--	N	

Table 1.--Records of wells in the Harrisburg-Halsey area--Continued

Well number	Owner	Type of well	Year completed	Depth of well (feet)	Diameter of well (inches)	Depth of casing (feet)	Finish	Water-bearing zone(s): Depth to top (feet)	Water-bearing zone(s): Thickness (feet)	Water-bearing zone(s): Character of material	Altitude (feet)	Water level: Feet below datum	Water level: Date	Specific conductance of water	Type of pump and hp	Well performance: Yield (gpm)	Well performance: Drawdown (feet)	Use	Remarks
T. 13 S., R. 4 W.--Continued																			
34abd	Ken Wetgen	Dg	1870?	27	36	27	B	--	--	Sand and gravel	272	18.16	10- 3-73	500	J, 3/4	--	--	D	Yield barely adequate for domestic use.
35cda	Frank Bunce	Dv	Before 1900	26	1½	26	--	--	--	do	275	18.80	10- 3-73	700	N	--	--	N	
T. 13 S., R. 5 W.																			
2abb	E. M. Griffin	Dr	1960	44	6	44	B	39	5	Gravel	247	22	7-12-60	--	--	20	--	Ir,D	B, L.
4bab	Clarence Venell	Dr	1964	45	6	41.5	P, 32½-41½	37	5	do	245	7	12-16-64	--	S, 1½	50	10	D	B 1 hr, L.
6bdb	L. E. Jorgenson	Dr	1952	250	4	--	--	--	--	--	330	99.78	11-14-73	380	J, 3/4	--	--	D	
7aac	Inavale School	Dr	1956	130	12 6	32 54	P, 18-31	20	6	Sand and gravel	255	8.88	11-14-73	650	S, ½	--	--	D	L. Yields an inadequate supply of water.
7dad	Newton Jorgensen	Dr	--	60	8	--	--	--	--	do	250	10.15	10-12-73	420	T, 10	--	--	Ir	Ca, H.
8adc	Albert Saxton Park	Dr	1962	33	6	33	P, 27-32	27	5	Gravel	245	10.02	10-12-73	--	N	30	10	N	B 2 hr, L.
8cdc	A & J Rice Farms	--	--	34	5	--	--	--		--	240	17.01	9-14-72	--	J, 7	--	--	D	
9adb	Jack Whitby	Dr	1971	47	6	45	B	26	12	Sand and gravel	250	13.63	10-12-73	--	J	17	30	D	B 1 hr, L.
10acb	Bruce Stocker	--	1923	20.5	8	--	--	--	--	--	250	11.70	9-14-72	--	N	--	--	--	
10dbb	Ben Cameron	Dr	1958	32	4	32	B	30	2+	Gravel	250	15.06	10-12-73	--	N	12	--	--	B, L.
13adb	Neil Vanderberg	Dr	1969	35	8	34	P, 20-34	12	35+	Sand and gravel	244	15.47	10-15-73	330	C, 7½	250	13	Ir	B 1 hr, L.
13dad	John and R. L. Crawford	Dv	1940±	19	2	--	--	--	--	--	245	13.98	10-15-73	--	C, 8	--	--	Ir	
13dbb	do	Dv	--	30	4	--	--	--	--	--	247	21.42	10-15-73	--	C, 10	--	--	Ir	
13dbc	Harvey Crawford	Dr	1966	41	6	41	P, 38-40	31	9	Gravel	248	18	10- -66	250	C, ½	25	10	D	B 1 hr, L, Ca.
14aab	Homer Mackey	--	1959	38	8	38	P, 30-38	30	8+	do	240	6.22	9- 7-72	--	N	200	8	Ir	P 1 hr.
14cba	Richard Guerber	Dr	1959	33	4	33	P, 31-33	30	3+	Sand and gravel	250	18.93	10-15-73	--	C, ½	15	6	Ir	B 1 hr, L.
20cdd	William L. Finley National Wildlife Refuge	--	1951±	100	4	--	--	--	--	--	300	38.02	10-11-73	400	J, 1	--	--	D	
20daa	do	Dr	1968	52	12 6	26 52	P, 26-52	43	7	Clay and gravel	230	11	6-19-68	650	S	50	18	Ir	B 5 hr, L. Reported to have high concentration of iron.
21bbd	Muddy River Hunt Club	Dr	1967	40	8	38	P, 28-37	31	7	Gravel	240	19.73	10-11-73	--	C, 5	45	4	Ir	B 1 hr, L.
23adc	C. E. Miller	Dr	1969	38	8	38	P, 29-37	26	12	Sand	255	13.92	10-11-73	385	C	45	4	D	B 1 hr.
23dac	Gale Miller	Dr	1972	51	6	48	P, 45-47	19	17	Sand and gravel	250	14.04	10-11-73	1,400	C, ½	40	15	D	B 1 hr, L, Ca. Reported to have iron taste.

Table 1.--Records of wells in the Harrisburg-Halsey area--Continued

Well number	Owner	Type of well	Year completed	Depth of well (feet)	Diameter of well (inches)	Depth of casing (feet)	Finish	Water-bearing zone(s): Depth to top (feet)	Water-bearing zone(s): Thickness (feet)	Water-bearing zone(s): Character of material	Altitude (feet)	Water level: Feet below datum	Water level: Date	Specific conductance of water	Type of pump and hp	Well performance: Yield (gpm)	Well performance: Drawdown (feet)	Use	Remarks
T. 13 S., R. 5 W.--Continued																			
23ddb	Ephie Jackson	Dv	1968	23	5	23	P, 18-22	18	3	Sand and gravel	255	10.97	10-11-73	--	N	300	6	Ir	P 1 hr.
24acc	Mrs. John Graham	Dr	1968	222	12	182	P	18 130 170	95 150 180	do	242	3.5	7-15-68	--	N	800	27	N	P 1 hr, L. Water reported to be saline.
24cac	do	--	--	28	6	--	--	--	--	do	252	16.41	10-11-73	205	C, 1	--	--	D	
25abc	John Wahl	--	Before 1966	31	12	--	--	--	--	do	245	11.24	10-11-73	--	N	--	--	Ir	
25bca	do	--	1968	37	12	--	--	--	--	do	245	8.00	10-11-73	--	C, 30	--	--	Ir	
25dcd	Horning Bros.	Dr	1968	25	10	25	P, 19-24	19	6	Gravel	250	10.07	10-11-73	--	N	45	1	Ir	B 1 hr, L.
26bda	Clair Miller	--	1946?	31	5	--	--	--	--	Sand and gravel	255	13.04	10-11-73	215	C, ½	--	--	D	
27aba	Hilmer Schmidt	Dr	1971	35	6	35	P, 31-33	16	17	do	252	7.39	9-14-72	--	S, 1/3	25	33	D	At 1 hr, L.
27cbb	William L. Finley National Wildlife Refuge	Dr	1967	68	10	20	Sc, 20-65	35	8	do	260	14.28	10-15-73	--	N	60	35	Ir	P 5 hr.
27ccc	do	Dr	1960	80	8	62	P, 21-61	16	14	Gravel	260	15.45	10-14-73	--	T, 5	50	--	Ir	B, L.
30dad	do	--	--	48	5	--	--	--	--	--	320	24.67	10-11-73	--	J, ½	--	--	N	
31ddd	E. P. Lee	--	1947	80	--	--	--	--	--	--	340	22.29	10-11-73	--	--	--	--	D	Reported to have high concentration of iron.
31ddc	Mr. Mooney	--	1960±	200	5	--	--	--	--	--	360	21.75	10-11-73	--	S, ½	17	--	D,Ir	
33caa	William L. Finley National Wildlife Refuge	--	1920±	--	6	--	--	--	--	--	290	13.59	10-11-73	--	J, ½	--	--	N	
34cdb	Richard Bushell	Dr	1968	32	5	32	P, 27-32	28	4+	Gravel	265	14.21	10-11-73	280	C, ½	28	2	D	B 1 hr, L.
35abc	Dan Tracer	Dr	1970	51	10	29	P, 18-28	15	10	do	260	6.98	9- 6-72	--	C, 25	400	10	Ir	P 1 hr, L. Used to irrigate 40 acres of beans.
35adc	do	Dr	1970	29	10	29	P, 18-28	14	15	do	255	7.54	9- 6-72	--	C, 30	500	6½	Ir	P 1 hr. Used to irrigate 80 acres of beans.
35caa	R. G. Rickard	--	--	22	4	--	--	--	--	--	260	11.93	10-11-73	--	N	--	--	Ir	
35dac	do	Dv	--	20	4	--	--	--	--	--	255	10.56	10-11-73	--	N	--	--	Ir	
36adb	Horning Bros.	--	1959	21	10	--	--	--	--	--	252	9.86	10-11-73	--	C, 40	--	--	Ir	
36cac	I. M. Horning	Dr	1961	22	10	22	P, 12-22	10	12	Gravel	252	11.09	10-11-73	--	C, 30	50	--	Ir	B.
36cca	C. C. Lindseth	Dr	1965	35	12	32	P, 18-32	8	17	Sand and gravel	256	10.65	9- 6-72	--	C, 50	150	0	Ir	B 1 hr, L.
36dab	Horning Bros.	Dr	1968	30	10	30	P, 20-29	21	9	Gravel	254	12.84	9- 6-72	--	N	45	1	Ir	B 1 hr.

Table 1.--Records of wells in the Harrisburg-Halsey area--Continued

Well number	Owner	Type of well	Year completed	Depth of well (feet)	Diameter of well (inches)	Depth of casing (feet)	Finish	Water-bearing zone(s)			Altitude (feet)	Water level		Specific conductance of water	Type of pump and hp	Well performance		Use	Remarks
								Depth to top (feet)	Thickness (feet)	Character of material		Feet below datum	Date			Yield (gpm)	Drawdown (feet)		
								T. 13 S., R. 5 W.--Continued											
36dcd	Horning Bros.	Dr	1965	32	10	31	P, 18-30	8	24	Sand and gravel	255	11.82	10-11-73	--	C, 30	150	0	Ir	B 1 hr, L.
								T. 13 S., R. 6 W.											
2dac	George Davis	Dr	1967	63	6	25	B	28 44 60	1 5 2	Claystone do do	350	27.05	10-12-73	--	J, 3/4	10	23	D	Do.
11add	A. S. Wallace	Dr	1972	116	6	32	B	80	--	Sandstone	280	11.06	10-12-73	--	S	8	102	D	B 2 hr, L.
12bdb	John Martineau	Dr	1970	100	6	30	B	--	--	Claystone	280	9.89	10-12-73	--	J	5	95	D	B 1 hr, L.
								T. 14 S., R. 2 W.											
2acc	Larry Northern	Dr	1969	250	6	21	B	--	--	--	560	44.75	10- 2-73	510	S, 1	5	180	D	B 1 hr.
2bcc	Ed Laffett	Dr	--	100	8	--	B	--	--	--	430	8.40	10- 2-73	--	N	--	--	N	Well inadequate for domestic use.
3dab	do	Dr	1964	152	8	113	P, 102-113	--	--	--	410	145.4	10- 5-73	--	S, 1	12	130	D	B 1 hr, L. Yield has fallen off; now inadequate for domestic use.
4aaa	C. M. Mischler	Dr	1972	107	6	25	B	--	--	--	410	27.69	7-13-73	320	S, ½	12	58	D	At 1 hr, L. Water contains excessive iron.
4cbc1	O. T. Chamberlain	Dr	1969	85	6	70	B	--	--	--	368	6.12	10- 2-73	--	N	15	40	N	B 1 hr, L. Water is of poor quality.
4cbc2	do	Dr	1969	39	6	38	P, 29-36	29	7	Gravel and clay	368	6	7-14-69	220	J, ½	5	Total	D	B 1 hr.
7baa2	T. A. Red	Dr	1973	120	8	116	P, 35-45, 67-78, 82-116	35 67 82	10 11 34	Clay and sand Clay, sand, and gravel Sand and gravel	335	9	9-20-73	--	N	50	4	Ir	B 1 hr, L.
7bba1	do	Dr	1966	48	8	48	P, 34-46	37	8	Gravel and sand	335	9.48	10- 3-73	160	S, 5	125	22	Ir	P 1 hr.
7dda	George Holmes	Dg	1929	14	36	14	B	--	--	Sand and gravel	345	3	2-16-73	220	C, 1/3	--	--	D	
8acc	E. C. Nye	Dr	1956	72	6	72	P, 18-30	20	10	Gravel and sand	360	13.43	8- 9-73	--	N	--	--	N	Formerly used to irrigate 15 acres.
8acd	do	Dr	1951	56	6	56	P	--	--	do	360	12	8- 9-73	180	J, 2	--	--	D	
8bba	Charles Wheeler	Dr	1968	65	6	47	P, 30-45	26	19	Gravel	350	7.48	9- 9-73	170	C, ½	40	25	D	B 1 hr, L, Ca.
9bbc	Edgar Laffett	Dr	--	50	6	--	--	--	--	Sand and gravel	360	9.46	10-19-72	360	J, ½	--	--	D	
10bdc	J. I. McCord	Dr	1965	64	8	64	P, 55-64	52	12	Gravel	396	8.94	10- 2-73	--	S, 5	88	24	Ir	B 1 hr, H.
10dbd1	Devon Nickerson	Dr	1960	54	6	54	B	--	--	Sand and gravel	395	9.88	10- 2-73	260	J, 1½	30	14	D	B 1 hr, L, Ca.
10dbd2	do	Dr	1960	192	6	125	B	--	--	--	395	1.5	5-10-60	--	N	1	--	N	L. Inadequate water supply.
11acd	L. G. Christopher	Dr	1967	87	5	86	P, 82-86	82	4	Sand and gravel	420	19	9- 7-67	260	S, 1	12	50	D	B 1 hr, L.

Table 1.--Records of wells in the Harrisburg-Halsey area--Continued

Well number	Owner	Type of well	Year completed	Depth of well (feet)	Diameter of well (inches)	Depth of casing (feet)	Finish	Water-bearing zone(s)			Altitude (feet)	Water level		Specific conductance of water	Type of pump and hp	Well performance		Use	Remarks
								Depth to top (feet)	Thickness (feet)	Character of material		Feet below datum	Date			Yield (gpm)	Drawdown (feet)		
T. 14 S., R. 2 W.--Continued																			
11add	Jacob Classen	Dr	1964	92	6	90	P, 80-90	80	10	Sand and gravel	420	12.74	10- 2-73	300	S, ½	30	66	D	B 5 hr.
16bdb	Ida Evans	Dr	1972	150	6	120	B	--	--	--	395	6	7-20-72	320	S, ½	10	135	D	B 1 hr, L.
18caa	Chet Robb	Dr	1970	85	6	20	B	84	1	Claystone	400	30	8-25-70	--	N	1	55	N	At 1 hr. Inadequate water supply; well abandoned.
18cab	do	Dr	1970	130	6	18	B	--	--	--	400	37.93	6-27-73	620	S, 3/4	60	80	D	B 1 hr.
18ccd	D. B. Heller	Dr	1971	99	6 5½	19½ 90	P, 50-90			Sandstone	430	8.02	10- 3-73	600	S, 1½	10	84	D	B 1 hr, L.
19bcb	W. H. Payne	Dr	1970	55	6	--	B	--	--	--	620	22.38	10- 3-73	420	S, 2½	45	--	--	
19bcd	do	Dr	1970	315	6	18	B	--	--	--	680	63	5-20-70	--	N	2	200	N	At 1 hr, L. Inadequate water supply; well abandoned.
21acd	Harold Williamson	Dr	1972	166	6	35	B	--	--	--	685	32.46	10-19-72	--	S, ½	12	100	D	B 1 hr, L.
22dad	Lois Prietsman	Dr	1972	64	6	18½	B	55	5	Basalt	555	4.24	10- 2-73	520	J, ½	9	53	D	B 3 hr, L.
30ccc	D. W. Colerick	Dr	1972	83	6	--	B	--	--	--	690	23.68	10- 3-73	390	C, 1	--	--	D	
31abb	Don Smith	Dr	1972	80	6	--	B	--	--	--	900	--	--	320	S, ½	--	--	D	Water has strong odor of hydrogen sulphide.
31aca	Dick Sapp	Dr	1972	80	6	--	B	--	--	Volcanic rocks	900	--	--	420	S, ½	--	--	D	Ca. Well flows when not in use.
T. 14 S., R. 3 W.																			
2abb	Phillip Mier	Dr	1966	67	6	67	P, 55-65	28 55	4 10	Gravel Gravel and clay	307	6.90	10- 5-73	225	C, 1	45	30	D	B 1 hr.
2dba	Merle Ream	Dr	1970	58	8	57	P, 47-57	45	13	Sand and gravel	307	6.60	10- 5-73	430	S, 3½	90	21	D,Ir	B 1½ hr, L, Ca. Used to irrigate 2 acres.
3ccd	Charles Bireley	Dv	--	30	1½	30	--	--	--	--	295	--	--	800	H	--	--	S	
4abb	Harold Pugh	Dr	1963	72	8	71	P, 58-68	28 60	15 6	Gravel Sand and gravel	286	3	3-20-63	--	T, 5	80	10	D,In	B 1 hr, L, Ca.
4bbb	Phillips Petroleum Co.	Dr	1967	91	6	60	P, 52-58	38	5	do	286	11.20	7-27-72	580	S, 1	50	20	In	B 2 hr, L.
5baa	Don Wilson	Dr	1971	120	8	112	P, 53-58, 64-69, 100-112	53 64 100	5 5 12	do Sand and clay Sand and gravel	283	13.53	10- 5-73	1,100	S, 7½	400	70	Ir	P 10 hr, L. Water has flat taste.
5bab	do	Dr	1967	50	8	48	P, 34-46	34	10	do	283	14.06	10- 5-73	--	S, 7½	110	12½	Ir	B 1 hr.
5bad	do	Dr	1969	110	8	106	P, 25-45	25	30	do	283	13.92	10- 5-73	--	S, 7½	110	9	Ir	B 1½ hr.
6bbb	Lonnie Parker	Dr	1965	40	6	40	P, 31-40	31	9	Gravel	278	15.70	10- 5-73	800	J, 1/3	50	1	D	B 1 hr.

Table 1.--Records of wells in the Harrisburg-Halsey area--Continued

Well number	Owner	Type of well	Year completed	Depth of well (feet)	Diameter of well (inches)	Depth of casing (feet)	Finish	Water-bearing zone(s): Depth to top (feet)	Water-bearing zone(s): Thickness (feet)	Water-bearing zone(s): Character of material	Altitude (feet)	Water level: Feet below datum	Water level: Date	Specific conductance of water	Type of pump and hp	Well performance: Yield (gpm)	Well performance: Drawdown (feet)	Use	Remarks
T. 14 S., R. 3 W.--Continued																			
6bcd	Eldon Cross	Dr	Before 1952	100	10	--	--	--	--	Sand and gravel	281	15.56	10- 5-73	--	T, 10	--	--	Ir,D	
6dad	C. S. Miller	Dr	1966	62	5	62	P, 46-62	58	5	Gravel	286	16.80	10- 5-73	860	J, ½	18	24	D	B 1 hr, L.
7ddc	H. H. Kirk	Dr	1953	123	8	35	P, 35-40, 55-60, 80-98, 98-110	35 50 95	5 61 109	Sand and gravel do do	288	12.27	10- 4-73	1,100	T, 10	75	27	Ir	P 10 hr, L, Ca, H. Federal observation well.
8aba	Rawley Falk	Dv	1958	26	1¼	26	--	--	--	do	288	13.83	8- 8-72	--	H	--	--	N	Water reported to be hard.
8ddc	Robert Carey	Dr	1962	30	6	30	P, 27-29	20	9	do	292	20.88	8- 8-72	--	J, ½	8	14	D	P 2 hr, L.
11aab	Permaneer Corp.	Dr	1960±	100?	8	--	--	--	--	Sandstone	315	6.76	8-10-72	800	J, ½	--	--	D	Water has metallic taste. Plant has four wells, all of which produce unusable water.
11ccb	Gene Odam	Dr	1940±	75	6	--	--	--	--	do	312	15.98	8-28-72	--	J, 1	--	--	D	Water has flat taste; reported to be high in iron.
11ddd	Dave Christopher	Dr	1966	69	5	19	B	36 62	1 2	Shale do	355	23	7-24-66	380	J, 1	20	19	D	B 1 hr. Water has flat taste and sulfurous odor.
12abb	Jack Cochran	Dr	1968	42	6	32	P, 32-40	--	--	Sand and gravel	320	6	8-26-68	540	S, ½	36	12½	D	B ½ hr.
12bbc	Robert Duce	Dr	1971	165	6	112	P, 40-49	40	9	do	316	4.76	6-27-73	2,000	C, ½	60	35	D	B 2 hr, L. Well has water-softener attachment and iron filter.
12cbc	David Christopher	Dr	1970	36	6	19	B	22 29	1 3	Shale do	350	15.00	10- 4-73	480	J, 1	28	--	D	B 1 hr, L. Reported to have excessive iron.
13cbd	C. W. Johnson	Dr	1969	114	6	21	B	--	--	Basalt	430	23.90	10- 3-73	600	S, ½	12	76	D	B 1 hr, L, Ca.
13cdb	Wynes Poultry Farms, Inc.	Dr	1968	40	5	21	B	38	1	Shale	500	33.45	6-27-73	500	J, 1	28	5	S	B 1 hr.
13cdc1	do	Dr	1964	71	5	22	B	70	1	do	480	17	2-15-64	--	J	14	40	S	Do.
13cdc2	do	Dr	1970	200	10	23	B	--	--	--	500	30	12-23-70	560	S, 10	250	70	S	At 2 hr, L, Ca. Main well for large poultry farm.
13cdc3	do	Dr	1968	136	5	21	B	133	3	Shale	480	14.34	6-27-73	--	N	21	60	S	B 1 hr. Water reported to be high in iron.
13cdc4	do	Dr	1970	101	6	21	B	92	2	do	480	21.52	6-27-73	420	J, 1	28	4	S	B 1 hr.
14ada	Mike Ellefson	Dr	1964	48	5	35	B	44	2	do	360	30.08	--	400	S, ½	13	12	D	Do.
14bcc1	E. A. Fitzmorris	Dr	1964	200	6	--	--	--	--	Sandstone	328	9.00	8-28-72	820	J, ½	--	--	S	At 200-ft depth, water was saline. Well partially cemented off.
14bcc2	do	Dr	1964	100	6	--	--	--	--	do	328	7.75	8-28-72	--	N	--	--	N	Reported to produce inadequate water supply.

Table 1.--Records of wells in the Harrisburg-Halsey area--Continued

Well number	Owner	Type of well	Year completed	Depth of well (feet)	Diameter of well (inches)	Depth of casing (feet)	Finish	Water-bearing zone(s): Depth to top (feet)	Water-bearing zone(s): Thickness (feet)	Water-bearing zone(s): Character of material	Altitude (feet)	Water level: Feet below datum	Water level: Date	Specific conductance of water	Type of pump and hp	Well performance: Yield (gpm)	Well performance: Drawdown (feet)	Use	Remarks
T. 14 S., R. 3 W.--Continued																			
14cbb	E. A. Fitzmorris	Dr	1969	47	6	18½	B	--	--	Sandstone	322	6	8-12-69	420	S, 3	50	35	D	B 1 hr, L.
15dcd	Martha Dodd	Dr	1971	70	6	31	B	--	--	--	325	7	5-14-71	415	S, ½	25	50	D	B 2 hr, L.
16ccb	Paul Quimby	Dr	1950	50	10	50	--	--	--	--	300	11.40	10- 4-73	--	S, 2	100	--	N	Formerly used for irrigation. Develops some sand.
17aaa	M. L. Vannice	Dr	--	50	6	50	--	--	--	--	292	8.63	10- 4-73	1,500	S	--	--	D	Water supply for trailer court.
17aba	Robert Carey	Dr	1958	92	8	92	P, 34-48, 70-71, 80-91	34 70 80	10 1 11	Gravel, sand, and clay Sand Gravel, sand, and clay	292	6.83	8- 8-72	1,100	S, 4	--	--	N	L. Formerly used to irrigate 15 acres of pasture; reported to be inadequate. Well was backfilled to 92 ft.
17cdb	Dennis Glasser	Dr	1970	125	10	120	P, 35-103	34	69	Sand and gravel	293	12.76	10- 4-73	--	N	60	0	N	B 1 hr, L.
18cbc	George Smith	Dv	--	25	1¼	25	--	--	--	do	291	16.21	8- 9-72	--	P	--	--	N	
20aba	R. M. Vannice	Dv	--	30	1¼	30	--	--	--	do	295	--	--	950	C, ½	--	--	D	
20ddb	Keneth Bierly	Dv	--	19	1¼	--	--	--	--	do	300	10.38	10- 4-73	--	H	--	--	N	
24dca	Jim Partch	Dr	1968	123	6	18½	B	--	--	Basalt	680	23	7-12-69	700	S, ½	6	100	D	B 1 hr, L.
24ddb	M. S. Pond	Dr	1970	56	6	20	B	--	--	--	800	12	5-27-70	600	S, ½	45	37	D	At 1 hr.
24ddd	do	Dr	1968	155	6	20	B	--	--	--	840	90	1- 8-68	--	N	2½	Total	N	At 1 hr, L.
25bac	M. D. Farley	Dr	1972	202	6	20	B	175	--	Basalt	920	80	8-16-72	--	S, ½	6	60	D	B 1 hr, L.
25bbd	R. F. Farley	Dr	1969	107	6	26	B	--	--	--	720	3	9- -72	--	S, 1/3	5	100	D	B 1 hr. Well has water softener.
27aca	Hurley Overton	Dr	1970	75	6	18	B	--	--	Sandstone	355	16.19	10- 3-73	500	J, 1	10	59	D	B 2 hr, L.
28acc1	Ken Bierly	Dv	--	29	1¼	29	--	--	--	--	312	18.94	8- 9-72	--	H	--	--	N	
28acc2	do	Dr	1947	155	6	--	--	--	--	Sandstone	310	16.83	10- 3-73	--	N	--	--	N	Water reported to be too salty to use. Owner has another well (60 ft deep) for domestic use.
28dac	Frank Bond	Dr	--	48	4	48	--	--	--	--	318	19.30	10- 3-73	1,380	J, ½	--	--	D	
29bdd	Joe Stroda	Dv	--	30	1¼	--	--	--	--	--	303	12.25	8- 9-72	--	N	--	--	N	
30ddc1	John Kropf, Sr.	Dr	1968	105	6	92	P, 87-92	--	--	--	301	5	4-25-68	--	N	--	--	N	L. Water reported to be salty. Well never used.
30ddc2	Floyd Kropf	Dr	1970	55	10	49	P, 19-48	20	28	Sand and gravel	301	9.35	10- 4-73	420	S, 5	80	11	F,Ir	L. Water has iron taste. Owner uses 1¼-in. driven well for domestic uses.
32bdd	Beryl Kizer	Dr	1965	30	6	30	B	23	7	do	305	10	10-30-65	480	C, 3/4	--	--	D	

Table 1.--Records of wells in the Harrisburg-Halsey area--Continued

Well number	Owner	Type of well	Year completed	Depth of well (feet)	Diameter of well (inches)	Depth of casing (feet)	Finish	Water-bearing zone(s): Depth to top (feet)	Water-bearing zone(s): Thickness (feet)	Water-bearing zone(s): Character of material	Altitude (feet)	Water level: Feet below datum	Water level: Date	Specific conductance of water	Type of pump and hp	Well performance: Yield (gpm)	Well performance: Drawdown (feet)	Use	Remarks
								T. 14 S., R. 3 W.--Continued											
33ddc	Russel Lynch	Dr	1970	38	6	--	--	--	--	Sand and gravel	316	19.60	10- 4-73	590	C, 3/4	--	--	D	
35bab	F. W. Jackson	Dr	1969	75	6	21	B	73	2	Shale	385	8.18	10- 3-73	--	J, 1	28	14	D	B 1 hr, L.
35dbc	Francis Baumgartner	Dr	1969	70	6	19	B	69	1	do	355	6.25	10- 3-73	800	J, 1	28	2	D	Do.
35dcc	Donald Barber	Dr	1965	65	6	21	B	--	--	Sandstone	352	12.79	10- 4-73	1,500	J, 3/4	8	40	D	B 1 hr.
36aad	E. A. Newman	Dr	1972	240	6	201	B	--	--	--	680	20	9-16-72	--	N	2	160	N	B 1 hr. Well inadequate for household use.
								T. 14 S., R. 4 W.											
1aab1	Halsey Grade School	Dr	1965	56	8	56	P, 45-56	42	14	Sand and gravel	282	16.60	10- 3-73	840	S	75	10	PS	B 1 hr.
1aab2	Halsey School Dist.	Dr	1953	125	8	120	P, 35-45, 88-98, 99-119	33 98	10 12	Sand do	275	14	9-14-53	--	T	180	54	PS	P 2 hr, L, Ca. Water from this well pumped to Central Linn High School.
1dab1	City of Halsey	Dr	1957	127	8	--	--	--	--	Sand and gravel	283	22.53	10- 3-73	--	S, 5	125	--	--	P 1 hr. One of two wells used as city water supply.
1dab2	do	Dr	1969	200	12	199	P, 40-70, 85-95	42 85	27 10	do Sand, clay, and gravel	280	14	8-28-69	1,150	T, 7	200	66	PS	P 8 hr, L. One of two wells used as city water supply.
2abb	A. S. Lane	Dr	1960	40	6	40	P, 32-40	32	8	Sand and gravel	276	20.70	10- 3-73	900	J, 1	20	23	D	B.
2ccb	American Can Co.	Dv	--	26	1½	26	--	--	--	do	276	17.38	10- 3-73	--	N	--	--	N	
3cdc1	do	Dr	1968	128	10	89	P, 26-36, 74-87	26 77	4 3	Gravel Sand	275	11	7-13-68	--	--	80	80	--	P 2 hr, L.
3cdc2	do	Dr	1968	65	10	58	P, 26-56	25	23	Sand and gravel	275	12	8- 9-68	--	--	100	12½	--	B 1½ hr.
3dbb	do	Dr	1967	160	10	134	P, 86-97, 117-132	-- --	-- --	Sand, gravel, and clay	275	13	10- 9-67	--	--	106	57	--	P 2 hr, L. Well abandoned.
4aba	Leroy Nicewood	Dr	1936	118	8	--	--	--	--	Sand and gravel	276	15.77	10- 3-73	--	T, 5	--	--	Ir	Well used to irrigate 22 acres.
4bba	Roscoe Sisk	Dv	--	30	1½	30	--	--	--	do	273	15.92	10- 3-73	--	N	--	--	D	
5bbd	John Miller	Dr	1952	108	8	--	--	--	--	do	266	11.35	10- 3-73	--	T, 10	--	--	N	Formerly used to irrigate 10 acres of pasture.
5bdd	Wilbur Kropf	Dr	1954	50	8	50	--	--	--	do	270	13	7-18-72	--	T, 5	--	--	Ir	Used to irrigate 6 acres of pasture.
5cab	L. D. Kropf	Dr	1943	56	6	56	--	--	--	do	273	16.74	10- 3-73	320	J, 2	--	--	D	
6cdc	George Van Leeuwen	Dr	1957	40	10	39	P, 31-39	31	8	Gravel	262	10.94	10- 3-73	--	C, 25	300	18	Ir	P 30 hr, L.
7abc	Joe Miller	Dr	1951?	50	10	50	--	--	--	Sand and gravel	275	--	--	400	S, 3/4, T, 7½	--	--	D	Formerly used to irrigate 20 acres.
7cbd	Chris Gwillim	Dr	1967	28	12	--	--	--	--	do	265	7.48	10- 4-73	--	C, 30	--	--	Ir	

Table 1.--Records of wells in the Harrisburg-Halsey area--Continued

Well number	Owner	Type of well	Year completed	Depth of well (feet)	Diameter of well (inches)	Depth of casing (feet)	Finish	Water-bearing zone(s)			Altitude (feet)	Water level		Specific conductance of water	Type of pump and hp	Well performance		Use	Remarks
								Depth to top (feet)	Thickness (feet)	Character of material		Feet below datum	Date			Yield (gpm)	Drawdown (feet)		
								T. 14 S., R. 4 W.--Continued											
8bad	Larry Warfel	Dr	1948	60	8	60	--	--	--	Sand and gravel	273	--	--	--	C, 5	--	--	N	Formerly used to irrigate 5-6 acres of pasture.
8cda	Louis Falk	Dv	--	22	1½	22	--	--	--	do	277	14.19	10- 2-73	--	N	--	--	N	
8dcc	do	Dr	--	65	6	65	--	--	--	do	280	15	7-18-72	--	T, 5	--	--	D	
9aca	Reuben Hughs	Dr	1951	110	10	70	P, 18-25	18	7	do	285	13.80	7-19-72	600	T, 5	--	--	D	Formerly used to irrigate 10 acres of pasture.
9baa1	Emery Heading	Dr	1970	48	6	40	P, 31-40	31	9	do	280	18.20	10- 2-73	300	S, ½	48	13	D	B ½ hr, L, Ca.
9baa2	do	Dr	1966	151	8	116	P, 101-114	20 101	14 13	Gravel Sand and clay	277	17	4-28-66	--	N	70	45	N	P, L. Well abandoned; pumped too much sand.
10dcc	Victor Kropf	Dr	1958	45	6	45	--	--	--	Sand and gravel	282	--	--	480	T, 5	--	--	Ir	Used to irrigate 6-7 acres of pasture.
12bcb	Donald Baker	Dr	1968	45	6	45	P, 34-43	34	9	do	280	10	8-14-68	610	S, ½	50	21	D	B 1½ hr, L.
15aba	Victor Kropf	Dr	1970	44	6	43	P, 34-43	34	8	do	282	13.19	10- 2-73	400	S	60	7½	Ir	B 1½, L. Used to irrigate 12 acres of pasture.
15ccd	M. Mohoff	Dr	1957	75	6	--	--	--	--	do	290	18	1957	560	C, 1	--	--	D	
16cbc	Anton Kayner	Dv	--	25	1½	25	--	--	--	do	282	--	--	400	C, ½	--	--	D	
17ada1	Joe Kropf	Dr	1956	29	5	29	P, 26-29	27	2	Gravel	277	16.60	10- 2-73	580	J, 3/4	10	2	D	B, L. Water reported to be hard. Well has water softener.
17ada2	do	Dr	1960	100	8	--	--	--	--	Sand and gravel	273	--	--	--	T, 5	--	--	N	Formerly used for irrigation.
17dcc	F. L. Goracke	Dr	--	32	6	32	--	--	--	do	283	14.57	10- 2-73	290	C, ½	--	--	D	
18abc	C. P. Evans	Dv	--	36	2	36	--	--	--	do	277	24.01	10- 2-73	340	C, ½	--	--	D	
18dcc2	Trudy Brown	Dr	1967	33	6	33	P, 31-32	20	13	do	285	18.44	10- 2-73	310	J, 3/4	24	8	D	B 1 hr, L.
20aad	Homer Gingrich	Dr	1971	69	10	69	P	--	--	do	285	12.22	7-21-72	--	S, 7½	130	11½	Ir	B 1½ hr. Used to irrigate 4 acres of pasture.
20ada	do	Dr	1971	83	6	83	P, 74-82	25 74	12 8	Gravel Sand, gravel, and clay	285	6	5-12-71	440	C, 3/4	35	5	D	B ½ hr, L. Water reported to be hard and to contain excessive iron.
20bba	W. D. Kropf	Dr	1971	40	8	40	P, 30-41	25	16	Sand	285	14.89	10- 2-73	300	S, 2½	120	7½	D	B 1½ hr, L. Runs 6 sprinklers for large garden and yard.
21dac	Harry Scheffel	Dr	1955	109	10	--	P, 50-100	--	--	Sand and gravel	288	11.81	10- 2-73	--	T, 20	650	45	Ir	P 12 hr, Ca. Formerly used to irrigate 20 acres of pasture. Pumps some sand.
22cdc	Paul Malpass	Dr	1966	53	6	53	B	--	--	do	291	14.48	10- 2-73	--	C, ½	40	7	S	B 3 hr, L.

Table 1.--Records of wells in the Harrisburg-Halsey area--Continued

Well number	Owner	Type of well	Year completed	Depth of well (feet)	Diameter of well (inches)	Depth of casing (feet)	Finish	Water-bearing zone(s): Depth to top (feet)	Water-bearing zone(s): Thickness (feet)	Water-bearing zone(s): Character of material	Altitude (feet)	Water level: Feet below datum	Water level: Date	Specific conductance of water	Type of pump and hp	Well performance: Yield (gpm)	Well performance: Drawdown (feet)	Use	Remarks
T. 14 S., R. 4 W.--Continued																			
23bab	Archie Meadows	Dr	1966	45	8	45	P, 29-44	29	15	Gravel and sand	284	17.60	10- 2-73	--	N	25	12	N	B 2 hr.
23bac	do	Dr	1970	62	8	50½	P, 44-49	30	20	Gravel	284	18.29	10- 2-73	520	S, 1	35	15	D,Ir	B 2 hr, L, Ca. Used to irrigate 2 acres.
24daa	Carl Warden	Dv	--	24	1½	24	--	--	--	Gravel and sand	293	13.94	8-16-72	--	H	--	--	N	
26ada	Harvey Halsey	Dr	1969	45	6	40	P, 32-40	32	12	Sand	292	12.95	10- 2-73	800	C, 3	28	10	D	B 1 hr, L.
27bcd	Jim Malpass	Dr	1964	31	5	31	P, 27-31	27	4	Sand and gravel	292	13.32	10- 2-73	370	C, 1	20	9	D	Do.
28caa	Velden Kropf	Dr	1968	36	6	36	P, 23-34	24	12	do	295	6	2- 8-68	320	S, ½	72	4½	D	B 1 hr.
28dbb1	Archie Willis	Dr	1957	60	6	39½	P, 19-25, 30-39	19 30	6 9	Sand Sand and gravel	294	8	6-26-59	320	T, 2	50	10	D	P 2 hr, L. Also used to irrigate nursery.
28dbb2	L. C. Willis	Dr	1968	38	6	35	P, 22-34	21	13	do	294	8	7- 6-68	--	S	30	12	D	P 1 hr. Also used to irrigate nursery.
29bcd	Cedric Brock	Dr	--	32	6	32	--	--	--	do	291	12.51	10- 2-73	420	S, 3	--	--	Ir	Used to irrigate 6 acres of pasture.
30abd	Sam Brock	Dr	1972	38	6	37	P, 28-37	26	11	do	297	19.81	10- 2-73	410	S	50	4	D	B 1½ hr.
30bcb	Victor Haffner	Dr	1952	17	12	--	--	--	--	do	277	9.72	10- 3-73	--	C, 25	--	--	Ir	
30cba	Ula Cook	Dr	--	22	4	22	--	--	--	do	280	16.21	10- 3-73	105	C, 1	--	--	D,Ir	
31acc	Victor Haffner	Dr	--	35	8	35	--	--	--	do	280	3.53	10- 3-73	--	C, 15	--	--	Ir	
31baa	Edmond Crowson	Dv	--	20½	3	--	--	--	--	do	283	17.38	8-17-72	80	C, 1½	--	--	D	
32bbb	Sam Farruggia	Dr	--	50	6	--	--	--	--	do	290	16.00	7-20-72	340	J, 3/4	--	--	D	
32ccc	Del Pitcher	Dr	--	19	5	--	--	--	--	do	289	10.94	10- 3-73	--	--	--	--	Ir	
33dbb	W. E. Bublitz	Dr	1966	30	6	30	B	20	10	do	296	11	6-24-66	380	S, ½	20	18	D	B 2 hr, L.
33ddd	Lumberland Co.	Dr	1957	42	6	42	--	--	--	do	300	16.63	10- 1-73	400	S, 1	--	--	D	Water has bad taste.
35aab	Berger & Plate Co.	Dr	1967	35	6	35	P, 33-34	31	4	do	297	7	4- -67	--	S	14	14	D,In	B 1 hr, L. Well has water-softener attachment.
35daa	John Curtis	Dr	1970	46	12	46	P, 35-44	21 32	4 12	Gravel Sand and gravel	303	12.78	10- 1-73	--	N	40	6	N	B 1 hr, L.
35dad	Masonic Cemetery	Dv	--	26½	1½	--	--	--	--	do	303	17.08	10- 1-73	--	H	--	--	N	
T. 14 S., R. 5 W.																			
1ddd	George VanLeeuwen	Dr	1968	28	10	28	P	--	--	Sand and gravel	260	9.88	7-14-72	--	C, 30	--	--	Ir	
2add	Horning Bros.	--	--	20	10	--	--	--	--	--	255	10.48	10-11-73	--	N	--	--	Ir	
2dcc	Paul Rigor	Dr	1963	29½	12	29½	P, 23½-28½	15	13½	Gravel	260	10.95	10-11-73	--	N	600	5	Ir	P 2 hr, L.

Table 1.--Records of wells in the Harrisburg-Halsey area--Continued

Well number	Owner	Type of well	Year completed	Depth of well (feet)	Diameter of well (inches)	Depth of casing (feet)	Finish	Water-bearing zone(s)			Altitude (feet)	Water level		Specific conductance of water	Type of pump and hp	Well performance		Use	Remarks
								Depth to top (feet)	Thickness (feet)	Character of material		Feet below datum	Date			Yield (gpm)	Drawdown (feet)		
T. 14 S., R. 5 W.--Continued																			
3abb	William Franklin	Dr	1969	30	10	30	P, 20-29½	24	6	Gravel	270	9.79	9- 6-72	--	C, 25	50	1	Ir	B 1 hr, L.
3caa	David Barclay	Dv	--	30	3	--	--	--	--	--	265	19.20	10-11-73	275	C, ½	--	--	D	
3cca	Church of the First Born	Dr	1970	29	5	29	P, 25-29	26	3	Sand and gravel	265	14.66	10-15-73	--	C, 1	50	1	D	P 2 hr.
3dbc	Horning Bros.	Dr	1969	37	10	37	P, 20-37	17	20	do	270	12.51	9- 5-72	--	C, 20	500	20	Ir	B 1 hr, L.
4ccb	J & C Hunt Club	Dr	1971	45	6	30	P, 26-29	23	7	do	275	12.22	9-13-72	--	S	50	0	Ir	Do.
6bac	Emery Nixon	Dr	1969	200	5	21	B	--	--	--	470	77.10	10-11-73	--	S	3	100	D	Do.
7cdd	Andrew Brandt	Dr	1968	114	5	21	B	--	--	--	355	25.83	10-16-73	--	S, 3/4	8	50	D	Do.
7dbb	Paul Russell	Dr	1963	80	6	18	B	--	--	--	400	24.60	10-16-73	--	J	24	--	D	B, L.
8aab	Don Randall	Dr	1970	55	10	47	P, 26-41	30	11	Sand and gravel	272	19.85	10-15-73	--	S	100	38	D,Ir	B 1 hr, L.
8abb	do	Dr	1958	30	6	30	B	15	14	do	275	19.16	9-13-72	--	--	30	5	D,Ir	B 1 hr.
8bcb	do	Dr	--	42	4	--	--	--	--	--	350	25.00	10-16-73	--	J, 3/4	--	--	D	
9dda	Chris Gwillim	Dr	1960	34	5	32½	P, 28-32½	30	2	Sand and gravel	270	4.90	8-28-72	440	S, ½	28	13	D	B 1 hr, L.
10bda	Crocker Farms	--	1963	28	10	--	--	--	--	do	260	14.45	10-15-73	--	C, 25	--	--	Ir	
10dcb	C. C. Lindseth	Dv	1961	26	4	26	P, 22-26	18	8	Gravel	270	15.73	10- 4-73	400	C	150	22	D,Ir	P 1 hr, L.
10dcd	do	Dv	--	19	1½	19	--	--	--	Sand and gravel	275	17.72	10- 4-73	--	N	--	--	N	H.
10ddb	do	Dr	1963	28	10	28	P, 22-27½	17	28	Gravel	270	13.75	8-31-72	--	C, 20	500	12	Ir	P 1 hr, L.
11bca	do	Dr	--	29	12	--	--	--	--	--	265	9.47	10- 4-73	--	N	--	--	Ir	
11dab	Gary Adams	Dr	--	30	10	--	--	--	--	--	265	11.08	10- 4-73	--	N	--	--	Ir	
11dbd	do	Dr	--	33	12	--	--	--	--	--	265	13.43	10- 4-73	--	C, 30	--	--	Ir	
12abc	Willis King	Dr	1958	26	6	26	P, 21-26	18	8	Gravel	262	13.04	9- 1-72	--	N	40	0	N	B 1 hr.
12cdc	Wade Isom	Dr	1968	28	10	28	P, 19-27	14	14	Sand and gravel	270	13.40	10- 4-73	--	C, 20	50	1	Ir	Do.
12ddb	Virgil Haener	Dr	1963	25	12	25	P, 21-24	12	13	do	270	12.49	10- 4-73	--	C, 15	600	3	Ir	P 2 hr, L. Used to irrigate 40 acres.
13dbd	A. A. Wheeler	Dv	1968	27	6	27	P, 22-26½	20	7	do	265	3.01	10- 4-73	95	C, 25	300	1	Ir	P 1 hr.
15adc	E. E. Smith	Dr	1969	50	12	38	P, 18-37	22	15	do	275	14.41	10- 4-73	--	N	150	14	Ir	P 1 hr, L.
15bba	Kieth Crocker	Dr	1957	28	8	28	P, 18-28	15	13	Gravel	268	10.08	10- 4-73	--	C, 15	40	0	Ir	B ½ hr, L.
15dab	E. E. Smith	Dr	1965	40	10	--	--	--	--	--	275	15.95	10- 4-73	--	C, 20	--	--	Ir	
15dcc	Dennis Doolittle	Dr	1965	35	12	--	--	--	--	--	275	20.21	10- 4-73	--	T, 15	160	18	Ir	P ½ hr. Used to irrigate 25 acres.

Table 1.--Records of wells in the Harrisburg-Halsey area--Continued

Well number	Owner	Type of well	Year completed	Depth of well (feet)	Diameter of well (inches)	Depth of casing (feet)	Finish	Water-bearing zone(s)			Altitude (feet)	Water level		Specific conductance of water	Type of pump and hp	Well performance		Use	Remarks
								Depth to top (feet)	Thickness (feet)	Character of material		Feet below datum	Date			Yield (gpm)	Drawdown (feet)		
T. 14 S., R. 5 W.--Continued																			
16aab	George Horning	Dr	1970	50	6	43	P, 33-43	32	11	Sand and gravel	270	24.14	10-16-73	600	S, 3	60	15	S	B 1 hr, L.
16cab	W. J. Lawrence	Dr	1959	37	5	32	P, 26-32	29	2	Gravel	275	16.02	10-16-73	--	C, 2	40	22	Ir	P 1 hr, L.
16dca	Henry Hoffmann	Dg	1900±	35	--	35	B	--	--	--	277	20.44	8-31-72	--	--	--	--	N	Open brick well; hand dug.
17dac	John Starr	Dv	1920	18	3	--	--	--	--	--	275	14.12	10-16-73	420	P, 5	--	--	D	
18adc	Joe Nickols	Dr	1965	120	6	--	--	--	--	--	340	68.80	10-16-73	200	J, 1	--	--	D	
18cbb	Bryan Carter	Dr	1964	160	6	20	B	--	--	Claystone	330	19.58	10-11-73	--	N	5½	--	N	B.
20bbb	Keith Johnson	Dr	1971	130	6	68	B	--	--	--	342	45.31	8-28-72	150	S, ½	4	106	D	B 1 hr, L.
20bbc	do	Dr	--	--	5	--	--	--	--	--	320	7.22	10-16-73	190	C, 3/4	--	--	D,S	
21acb	Herbert Rex	Dr	1971	38	6	30	P, 26-30	29	1	Sand	283	20.19	8-29-72	--	N	28	7	N	B 1 hr, L.
21acd	Lois Gochenour	Dr	1967	70	6	70	B	--	--	Sand and gravel	280	13.62	3-20-73	600	J, 3/4	25	49	D	B 2 hr, L.
22cac	Raymond Becker	Dr	1968	50	10	42½	P, 18-30, 32-42	19	9	do	270	14.55	10- 4-73	--	C	150	4	Ir	P 1 hr, L.
22dac	Newman Haffner	Dr	1969	28	8	28	P, 20-28	14	14	do	265	10.23	10- 4-73	310	C, 20	200	15	Ir	B 1 hr.
23aaa	Horning Bros.	Dv	1969	20	6	20	P, 16-20	13	7	do	277	13.37	10- 4-73	--	C, 15	60	3	Ir	P 1 hr, L.
23bad	do	Dr	1969	25	10	25	P, 18½-24½	9	16	Gravel	277	11.75	10- 4-73	--	C, 20	50	0	Ir	B 1 hr, L.
23bcb1	A. Eberlein	Dr	1943	140	4	--	--	--	--	--	278	--	--	1,600	J, ½	--	--	Ir	Ca. Water has strong sulfur odor.
23daa	Emma Anderson	Dr	1969	28	10	28	P, 19-27½	18	10	Gravel	276	13.07	8-29-72	--	C, 15	50	2	Ir	B 1 hr, L.
23dbc	Robert Goracke	Dv	1966	25	5	25	P, 21-25	20	5	Sand and gravel	275	13.11	10- 4-73	--	N	300	5	N	P 2 hr. Formerly used for irrigation.
24dcd	Brent Skiles	Dr	1972	32	6	32	P, 22-31	23	9	do	287	20.36	10- 2-73	300	C, 3/4	30	6	D	B 1 hr, L.
25bcb	Del Pitcher	Dr	--	27	6	--	--	--	--	do	282	7.29	10- 4-73	--	N	--	--	Ir	
25cbc	Mr. Wheeler	Dr	1968	25	6	--	--	--	--	do	280	13.08	8-17-72	--	N	--	--	Ir	
26aca	James Crowson	Dr	--	22	10	--	--	--	--	do	275	11.52	10- 4-73	--	N	--	--	Ir	
26bcc	do	Dr	--	25	10	--	--	--	--	do	275	11.67	10- 4-73	--	C, 25	--	--	Ir	
27bab	C. M. Hubbard	Dr	1960	34	12	--	--	--	--	do	277	10.09	10- 4-73	--	N	--	--	Ir	
27dba	do	Dr	--	335	12	--	--	--	--	--	282	12.94	10- 4-73	--	N	--	--	N	Inadequate yield for irrigation.
28bdb	Noel Stubbs	--	1924	306	3	--	--	--	--	--	340	59.20	10- 5-73	150	P	--	--	D	Water has strong iron taste.
28bbd	Horace Price	Dr	1971	90	6	51	B	62	--	Shale	385	31.02	10- 5-73	130	J, 1	15	40	D	B 1 hr, L.

Table 1.--Records of wells in the Harrisburg-Halsey area--Continued

Well number	Owner	Type of well	Year completed	Depth of well (feet)	Diameter of well (inches)	Depth of casing (feet)	Finish	Water-bearing zone(s)			Altitude (feet)	Water level		Specific conductance of water	Type of pump and hp	Well performance		Use	Remarks
								Depth to top (feet)	Thickness (feet)	Character of material		Feet below datum	Date			Yield (gpm)	Drawdown (feet)		
T. 14 S., R. 5 W.--Continued																			
29aac	W. N. Hollembeak	Dr	--	85	6	--	--	--	--	--	300	26.36	10-16-73	370	J, ½	--	--	D	
29bdc	Claude Chadwick	Dr	1968	140	6	33½	B	--	--	Sandstone	315	27.30	10-16-73	750	J, 1	2½	110	D	B 1 hr, L. Water has iron taste.
29dac	Ralph Stahl	Dr	1964	312	6	--	--	--	--	do	480	80.09	10- 4-73	240	S, 3/4	4	240	D	B 1 hr.
30abb	Hershel Snow	Dr	1954	54	6	--	--	--	--	--	305	17.52	10-16-73	340	J, 1	--	--	D	Water has slight iron taste.
30bab	Charles Richards	Dr	1940±	98	6	--	--	--	--	--	290	11.65	10-16-73	90	J	--	--	D	
31acc	M. G. Smith	Dr	1970	155	6	20	B	--	--	--	370	50.36	8-24-72	--	S	30	100	D,S	At.
31cab	Mr. Moore	Dr	1969	162	6	41	B	--	--	Sandstone	315	33.62	10- 5-73	520	J, ½	2	130	D	B 1 hr, L, Ca.
31cdc	Paul Hurns	Dr	1971	105	6	20	B	--	--	Sandstone and shale	425	35.08	10- 5-73	--	N	20	66	N	At, L.
32add	E. L. Conn	Dr	1952	125	4	--	--	--	--	--	400	61.34	10- 5-73	--	J, ½	15-20	--	D	
32baa	Luther Thompson	Dr	1968	240	6	55½	B	--	--	--	525	76.00	10- 5-73	140	S, ½	6	180	D	B 1 hr, L.
32bdc	Jack Miller	Dr	1971	95	6	40	B	85	10	Sandstone	505	19.41	10- 5-73	190	S, 3	30	74	D,S	At 1 hr, L.
32dac	Charles Kreitman	Dr	1957	35	6	13	B	--	--	--	360	32.00	10- 5-73	--	C, 1	21	22	D	B 1 hr, L.
33bab	City of Monroe	Dr	1966	525	6	21	B	--	--	Sandstone	430	73	9-22-66	--	N	30	Total	N	B 1 hr, L. Inadequate yield for city water supply.
33ddc	Lloyd Miller	Dr	1969	455	6	21	B	150	--	do	320	57.03	10- 1-73	330	S, 1	1½	40	D	B 1 hr, L.
34bbb	C. M. Hubbard	Dr	1957	30	5	23	P, 13-23	14	9	Clay and sand	300	12	7-10-57	--	N	6	18	N	B 1 hr, L. Casing pulled.
34bca	Cliff George	Dr	1970	30	8	30	P, 5½-29	20	9	Sand and gravel	282	11.93	10- 4-73	300	C, 1	40	6	Ir	B 2 hr, L.
34bda	N. W. Miller	Dv	1920	29	4	29	P	--	--	--	281	11.99	10- 4-73	--	--	--	--	D	
34dca	Roy Roach	--	--	26	5	--	--	--	--	--	284	8.92	10- 4-73	--	N	--	--	N	
35aad	Mr. Rhea	Dr	1967	22½	8	22½	P, 18-22½	14	8	Sand and gravel	282	9.26	10- 3-73	--	N	700	2	N	P 1 hr.
35aca	George Lowe	Dr	1965	46	12	46	P, 26-46	15	31	do	280	7.07	8-21-72	--	C, 25	100	--	Ir	B, L.
35bad	Chet Oakes	Dr	1970	30	8	30	P, 20-27	16	14	do	283	14.87	10- 4-73	--	C, 20	450	13	N	B 1 hr, L.
35bba	do	Dr	1969	31	10	31	--	19	12	do	281	13.96	8-21-72	240	C, 30	600	20	Ir	B 1 hr.
35dca	George Lowe	Dr	1967	26	6	26	B	8	18	Sand, gravel, and clay	286	13.47	10- 3-73	--	N	15	12	N	B 1 hr, L.
36ada	Gary Adams	Dr	--	23	6	--	--	--	--	--	286	12.83	8-18-72	--	N	--	--	Ir	

Table 1.--Records of wells in the Harrisburg-Halsey area--Continued

Well number	Owner	Type of well	Year completed	Depth of well (feet)	Diameter of well (inches)	Depth of casing (feet)	Finish	Water-bearing zone(s)			Altitude (feet)	Water level		Specific conductance of water	Type of pump and hp	Well performance		Use	Remarks
								Depth to top (feet)	Thickness (feet)	Character of material		Feet below datum	Date			Yield (gpm)	Drawdown (feet)		
								T. 14 S., R. 6 W.											
1dcc	Elmer Humphrey	Dr	1970	125	6	51	B	--	--	Sandstone	350	0.5	9-12-72	--	S, ½	60	40	N	B 1 hr, L. Water has bad taste.
11dac1	Harvey Haynes	Dr	1962	88	5	67	B	66 80	2 1	Gravel Shale	420	17.43	9-12-72	150	J, 3/4	28	24	D	B 1 hr, L. Water has strong concentration of iron.
11dac2	do	Dr	1957	99	6	99	B	56	2	Gravel	420	26.10	9-12-72	200	J, 1	11	80	D	B. Water has slight iron taste.
12bdd	Carmen Nusbaum	Dr	1949	32	4	--	--	--	--	--	330	17.99	9-12-72	460	J, ½	--	--	D	
12dac	Al Peake	Dr	1968	50	6	--	--	--	--	--	325	25.45	9-12-72	190	S, ½	--	--	D	Water has strong iron smell and taste. Well has water-softener attachment.
23aaa	Fiona Rust	Dr	1971	200	6	20	B	--	--	Sandstone	340	13.75	9-11-72	300	J, 3/4	8	174	D	At 2 hr, L.
23aac	do	Dr	1971	365	6	66	B	--	--	Claystone	420	24.32	10-11-73	--	N	1	295	N	At 1 hr.
23dda	Frank Sneed	Dr	1940	68	6	--	--	--	--	--	400	21.07	9-11-72	--	J, 3/4	--	--	D	
24aad	Fred Willigan	Dr	1936	75	4	--	--	--	--	--	282	8.27	8-28-72	570	C, ½	--	--	D	
24acc	Howard Zavodsky	Dg	--	12	36	12	B	--	--	--	360	2.10	9-11-72	85	C, 1	--	--	Ir	
25acc	George Davenport	Dr	1940	80	4	--	--	--	--	--	291	10.40	9- 8-72	340	C, ½	--	--	D	
25baa	E. A. White	Dr	1968	131	5	63	B	121	1	Shale	320	21.60	9- 8-72	120	J, 1	8	100	D	B 1 hr, L, Ca.
25dcb	E. A. Mintonye	Dr	1950	40	6	--	--	--	--	--	305	12.73	9- 8-72	210	J, ½	--	--	D	
26ada2	Gib Crowson	Dr	1969	150	6	21	B	--	--	Sandstone	301	8.78	9-11-72	--	N	1	120	N	B 1 hr, L.
26ddc	Don Coleman	Dr	1946	100	4	--	--	--	--	--	330	31.66	9- 8-72	340	J, 1	--	--	D	Water has slight iron taste.
36aac	Tom Holster	Dr	1952	21	6	--	--	--	--	--	360	14.35	9- 8-72	--	C, ½	--	--	D	
36bad	Donald Shelton	Dr	1955	90	5	77	B	72	--	Shale	440	52.31	9- 8-72	150	J, 1	28	20	D	B 1 hr, L.
								T. 15 S., R. 3 W.											
1ddb	W. D. Gann	Dr	1969	54	6	54	P, 20-54	20	30	Shale	425	7	10-14-73	220	S, 2	70	10	D	P 2 hr.
2abd	Thelma Summerville	Dv	--	24	3	24	--	--	--	--	359	15.18	10- 4-73	1,600	C, ½	--	--	D	
2bbb	Dorothy Lowell	Dr	--	200	6	--	--	--	--	--	345	12.33	10- 4-73	2,800	J, 1½	--	--	D	Ca. Water has bad taste and odor and a rusty color.
5bdd	J. W. Burlington	Dv	1900	35	1¼	35	--	--	--	Sand and gravel	311	8	8- 4-72	800	C, ½	--	--	D	
6bdd	Roger Neuschwander	Dr	1970	100	10	100	P, 23-86, 89-98	28 89	17 10	Gravel Sandy clay	308	6.25	10- 3-72	--	S	45	85	Ir	P 4 hr, L, Ca.
8aba	E. P. Neuschwander	Dr	1960	75	6	54	P, 45-53	45	6	Gravel	315	7.50	10- 4-73	--	C, 1	60	0	N	B, L.
9bdc	D. L. Endicott	Dr	1966	60	8	58	P, 48-58	52	7	Sand and gravel	319	8.44	10 -4-73	--	S	75	10	D	B 1 hr.

Table 1.--Records of wells in the Harrisburg-Halsey area--Continued

Well number	Owner	Type of well	Year completed	Depth of well (feet)	Diameter of well (inches)	Depth of casing (feet)	Finish	Water-bearing zone(s)			Altitude (feet)	Water level		Specific conductance of water	Type of pump and hp	Well performance		Use	Remarks
								Depth to top (feet)	Thickness (feet)	Character of material		Feet below datum	Date			Yield (gpm)	Drawdown (feet)		
								T. 15 S., R. 3 W.--Continued											
9cba	Texaco, Inc.	Dr	1968	140	6	50	B	93 121	4 5	Sand do	320	8	5- 2-68	1,700	S	20	--	D	At 1 hr, L, Ca. Water has bad taste and is of poor quality.
12bcc	Lester Walker	Dr	1969	45	6	18½	B	--	--	Sandstone	385	8.13	10- 4-73	360	C, 1/3	40	0	D	B 2 hr. Water reported to have high concentration of iron.
12bdc	do	Dr	1966	160	6	160	B	--	--	do	395	21.56	10- 4-73	750	S, 1½	16	135	D	B 1 hr, L. Water used in dairy operations.
13ccc	Edwin Leabo	Dr	1969	59	5	21	B	53	2	Shale	375	3	7-23-69	480	S, ½	28	20	D	B 1 hr, L.
16bbd	Ken Perkinson	Dr	1970	59	6	56½	P, 21-56	21	29	Sand and gravel	325	14	8- 9-70	3,000	S, 1	30	3	D	Do.
16ccb	Orpha Wasson	Dr	1946	43	6	--	--	--	--	--	340	13	10- 4-72	800	J, 1½	--	--	D	
18cbc	H. Baker	Dr	1968	32	6	32	--	--	--	--	322	8	8- 4-72	270	S, 1	--	--	D	
19abb	M. C. Gaskill	Dv	--	16	1¼	16	--	--	--	Sand and gravel	326	9.55	10- 4-73	--	N	--	--	N	
19acd1	E. B. Grimes	Dr	1959	98	10	69	P, 21-29, 34-65	21 34	8 21	do do	327	8.37	10- 3-73	--	T, 7½	95	32	Ir	P 4 hr, L, H.
19acd2	do	Dr	1957	31	5	31	P, 23-31	26	5	Gravel	329	7	9- 3-57	360	C, ½	30	4	D	B 1 hr.
20dbb	Walter Bowers	Dr	1959	26	5	26	P, 20-26	21	4	Sand	330	6.35	10- 4-73	220	C, 5	200	10	Ir	P 2 hr, L.
								T. 15 S., R. 4 W.											
1acc	James Smucker	Dr	1967	37	5	36	B, 30-36	30	6	Sand and gravel	310	12.50	5-19-67	480	J, ½	5	14	D	B 1 hr, L.
3bdc	Albert Balkovich	Dr	1940	40	4	--	--	--	--	do	305	13.06	10- 1-73	320	J, 1	--	--	D	
3cdc	E. J. Drew	Dv	1955	33	5	33	P	--	--	do	305	15	7-17-72	360	C, ½	--	--	D,Ir	Well also used to irrigate 2 acres of pasture. Well is equipped with additional 2½-hp centrifugal pump.
5bda	Gary Adams	Dr	--	25	10	--	P	--	--	do	294	13.25	10- 3-73	--	C, 40	--	--	Ir	
5cdd	do	Dr	--	25	10	--	P	--	--	do	297	16.13	10- 3-73	160	C, 40	--	--	Ir	
6aab	Paul Freeman	Dv	--	18	3	--	P	--	--	do	292	13.67	8-17-72	--	N	--	--	N	Formerly used for irrigation.
6cbb	D. Pitcher	Dr	1967	25	8	--	P	--	--	do	293	11.98	10- 3-73	310	C, 40	--	--	Ir	
6dda	Mr. Forte	Dr	--	25	10	--	P	--	--	do	293	14.48	10- 3-73	340	C, 20	--	--	Ir	
7acc	Glen Lee	Dv	1965	21	4	21	P, 18-21	16	5	do	295	15.78	8-18-72	320	C, 1	200	6	D	P 2 hr, L.
7adb	Carson Adams	Dr	1967	101	6	101	P, 90-99	80	20	do	300	15.11	8-10-72	250	S, 3/4	75	2	D	P 1 hr, L.

Table 1.--Records of wells in the Harrisburg-Halsey area--Continued

Well number	Owner	Type of well	Year completed	Depth of well (feet)	Diameter of well (inches)	Depth of casing (feet)	Finish	Water-bearing zone(s): Depth to top (feet)	Water-bearing zone(s): Thickness (feet)	Water-bearing zone(s): Character of material	Altitude (feet)	Water level: Feet below datum	Water level: Date	Specific conductance of water	Type of pump and hp	Well performance: Yield (gpm)	Well performance: Drawdown (feet)	Use	Remarks
T. 15 S., R. 4 W.--Continued																			
7bbd	E. C. and Raymond Jager	Dv	1962	25	6	--	P, 20-25	19	6	Sand and gravel	290	7	6- 9-62	--	C	300	4	Ir	P 1 hr. One of seven similar wells used to irrigate 260 acres of mint and corn.
8abb	Gary Adams	Dr	--	26	10	--	P	--	--	do	295	10.77	10- 3-73	160	C, 40	--	--	Ir	
8bbb	do	Dr	1968	25½	6	25½	P, 19½-25½	19	6	do	298	15.60	8-10-72	380	C, 1	20	2	D	B 1½ hr, L, Ca.
8cbd	do	Dr	1968	27	10	27	P, 18-27	18	9	Gravel	298	12.49	10- 3-73	--	C	75	0	Ir	B 1½ hr, L.
9add1	Morse Bros.	Dr	1960	34	5	34	P, 29-34	29	5	Sand	303	--	--	--	C, 7½	60	0	In	P 1 hr. Water used for concrete plant.
9add2	do	Dr	1966	40	5	40	P, 32-40	31	9	Sand and gravel	303	18	11-22-66	--	C, 5	80	6	In	P 2 hr, L.
9dac	do	Dr	1970	38	6	38	P, 20-36	18	18	do	300	17.37	10- 1-73	--	--	200	20	In	Yield estimated; L. Two other shallow wells manifolded together at this location.
10cad	City of Harrisburg	Dr	1959	56	10	39	P, 26-38	24	17	Gravel	312	17	8- -65	300	T, 10	75	3½	PS	P 2 hr, L.
10dbb	Ben Bliss	Dr	--	30	6	--	P	--	--	Sand and gravel	311	11.12	10- 1-73	--	T, 5	--	--	Ir	Well used to irrigate 4½ acres.
11bbc	Mouldings, Inc.	Dr	1965	35	6	35	P, 25-35	20	15	do	307	6	4- 9-65	--	S, 1	25	20	In	B 4 hr, L.
11ddd	Dean Marxen	Dv	1969	20	2	20	--	--	--	do	314	9.51	10- 1-73	350	C, 2	--	--	S	Well also used to irrigate 2 acres.
12cdd	Willard Smucker	Dr	1967	24	6	24	P	--	--	do	315	9.51	10- 1-73	--	N	--	--	N	
13adb	do	Dr	1961	38	5	--	--	--	--	do	320	13.52	10- 1-73	810	S, 2	--	--	D	Also used as water supply for dairy.
13bab1	Lloyd Poublon	Dr	1958	110	6	83	P, 35-43, 45-83	35 45	8 38	Sand, clay, and do	321	12.70	10- 1-73	320	S, 1½	44	55	D	B 2 hr, L, Ca. Also used as water supply for dairy.
13bab2	do	Dr	1959	42	6	42	P, 22-42	20 35	4 5	Sand and gravel do	320	9	6-29-59	--	T, 5	20	30	D	P 1 hr. Also used as water supply for dairy and livestock.
14cda	Ormond Davis	Dr	1969	40	6	41	P, 36-41	36	3	do	316	10.96	10- 1-73	280	J, 1	26	11	D	B 1 hr, L. Also used as stock well.
15bdc	Dave Orendorff	Dr	1968	61	6	59	P, 50-58	49	7	do	314	12.75	9- 9-68	280	S, 1	55	11	D	B 1½ hr, L.
15cca1	Lee Philpott	Dr	1970	40	10	40	P, 21-38	21	17	Gravel and sand	305	15.6	7-31-72	--	T, 20	400	2	Ir	P 4.
15cca3	do	Dr	1968	81	10	41	P, 21-41	21	27	Sand and gravel	305	14	8-29-69	--	N	70	0	N	B 1 hr, L. Well abandoned.
15cda	D. C. Jensen	Dr	1966	55	6	39	B	25	30	do	320	16.45	10- 1-73	360	J, 1	40	24	D	B 2 hr.
16aac	City of Harrisburg	Dr	1965	305	12 8	0-155 140-305	Sc	--	--	do	310	26	7-31-72	420	T, 40	--	--	PS	L, Ca.

Table 1.--Records of wells in the Harrisburg-Halsey area--Continued

Well number	Owner	Type of well	Year completed	Depth of well (feet)	Diameter of well (inches)	Depth of casing (feet)	Finish	Water-bearing zone(s)			Altitude (feet)	Water level		Specific conductance of water	Type of pump and hp	Well performance		Use	Remarks
								Depth to top (feet)	Thickness (feet)	Character of material		Feet below datum	Date			Yield (gpm)	Drawdown (feet)		
T. 15 S., R. 4 W.--Continued																			
16adc	City of Harrisburg	Dr	1966	400	12	350	P, 110-130, 335-340	115 335	10 2	Sand and gravel do	311	22	8- 5-66	500	S, 7½	300	120	PS	P 27 hr, L.
16bca	John Hentze	Dr	1965	30	10	30	P, 18-30	--	--	do	305	15.44	10- 2-73	--	C, 10	75	--	Ir	
16cbc	Mr. Anderson	Dr	--	30	6	--	P	--	--	do	307	13.82	10- 2-73	--	C, 15	--	--	Ir	This and three other wells used to irrigate 120 acres.
17aad	Floyd Ross	Dv	1958	25	4	25	P, 21-25	21	5	Gravel	300	12	7- -58	--	C	300	4	N	P 6 hr. Formerly used for irrigation.
17abc	C. E. Betterton	Dr	1967	28½	8	28½	P, 20-28	21	7	Sand and gravel	305	15.05	8- -72	--	C	450	1	Ir	P 1 hr, L.
17acb	Walter Nielsen	Dv	1968	27½	5	27½	P, 22½-27	23	4	do	305	12.50	10- 9-68	--	C, 20	350	2	Ir	P 1 hr.
17ada2	Clarence Betterton	Dr	1967	28	8	28	P, 18-27	18	9	do	305	13	6-28-67	--	C, 20	475	½	Ir	P 1 hr, L.
17cbb1	Sam Howard	Dv	1966	27	5	27	P, 23-27	21	6	do	307	13	5-12-66	--	N	--	--	N	Well went dry during late summer.
17ccc	Kyle Howard	Dv	1963	27	5	27	P, 22-27	23	4	Gravel	308	9	3-14-63	--	C, 15	300	8	Ir	P 1 hr, L. Used to irrigate 13 acres of mint.
17dcc1	Barbara Edmonds	Dr	1971	28	10	--	P	--	--	Sand and gravel	302	10.90	8- 9-72	--	C, 25	--	--	Ir	Used to irrigate 50 acres.
18bda	Mr. Anderson	Dv	--	25	4	--	P	--	--	do	301	16.96	8-14-72	--	N	--	--	N	
18dbb	S. D. Anderson	Dr	1960	21	5	21	P, 18-21	18	3	Gravel	304	10.38	10- 2-73	--	--	300	0	Ir	P 2 hr, L.
18ddd2	Dave Bowers	Dr	--	35	6	--	P	--	--	Sand and gravel	310	23.09	8-10-72	320	C, 1	--	--	Ir	Used to irrigate 1 acre of pasture.
19abb	Bernard Glenn	Dv	1966	26	5	26	P, 22-26	21	5	Gravel	300	8	5-13-66	330	C, 25	300	9	Ir	P 2 hr, L.
19aca	do	Dv	1964	24	5	24	P, 20-24	20	4	Sand and gravel	305	5	4-22-64	--	C	250	8	Ir	P 1 hr, L.
19baa	Soren Madsen	Dv	1967	28	5	28	P, 23-28	22	5	do	306	10	4-11-67	--	C	300	7	Ir	P 2 hr, L.
20abd2	Bert Hinchman	Dv	1964	19	2	--	--	--	--	do	306	16.89	8- 9-72	275	H	--	--	S	
20acb	R. E. Bryson	Dr	1967	35	6	35	P, 18-33	18	15	do	310	16.57	10- 2-73	--	N	300	13½	N	B 1 hr, L.
20bbc	Martin Strome	Dr	1967	80	10	51	P, 19-50	--	--	do	307	14.00	6- 3-67	--	T, 30	500	26	Ir	P 4 hr, L.
22bcd	Lee Philpott	Dr	1950	35	10	35	P, 27-35	--	--	do	310	10.15	7-31-72	--	C, 20	650	--	Ir	
24abb	Unknown	Dg	--	20	4'x4'	--	--	--	--	do	327	11.31	10- 4-73	--	N	--	--	N	Dug well has 1¼-in.-diameter pipe driven in center to depth of 20 ft.
T. 15 S., R. 5 W.																			
1adc	Delbert Pitcher	Dv	1969	25	6	25	P, 20-24	14	11	Sand and gravel	286	10	6-18-69	--	C	450	7	Ir	P 1 hr.
1bdd	W. H. Kerrigan	Dr	1971	28	8	28	P, 19-27	14	14	do	290	13.21	10- 3-73	--	C, 7½	400	7½	Ir	P 1 hr, L.

Table 1.--Records of wells in the Harrisburg-Halsey area--Continued

Well number	Owner	Type of well	Year completed	Depth of well (feet)	Diameter of well (inches)	Depth of casing (feet)	Finish	Water-bearing zone(s)			Altitude (feet)	Water level		Specific conductance of water	Type of pump and hp	Well performance		Use	Remarks
								Depth to top (feet)	Thickness (feet)	Character of material		Feet below datum	Date			Yield (gpm)	Drawdown (feet)		
								T. 15 S., R. 5 W.--Continued											
2bbc	J. H. Miller	Dr	1958	52	6	35	P, 29-35	29	6	Sand and gravel	286	5.64	10- 1-73	200	C, 1	20	30	D	B 1 hr, L.
2ccc	Jerry Wall	Dr	1966	34	5	34	P, 30-34	30	3	do	295	8.61	10- 1-73	--	C, 1	24	10	D	B 1 hr.
2dca	John Moody, Sr.	Dr	1957	30	5	30	P, 20-30	23	7	Sand	290	7.54	10- 3-73	--	C, 1½	40	6	Ir	B ½ hr.
4aaa	Bar Kay Ranch	Dr	1964	320	6	19	B	--	--	Sandstone	379	20	5- 7-64	350	S	10	300	D	B 1 hr, L.
4add	Herbert Halstead	Dr	--	129	4	--	B	--	--	--	295	10.59	10- 1-73	290	J, 1	--	--	D	
5aab	Carl Miller	Dr	1960	66	6	--	B	--	--	--	335	11.94	10- 1-73	180	J, 1	--	--	D	Water reported to have high concentration of iron.
5bda1	Bob Wilson	Dr	1961	65	6	--	B	--	--	--	363	6.37	10- 5-73	480	J, 3/4	--	--	D	Do.
5bda2	do	Dr	1969	319	6	39	B	--	--	Shale	365	.97	10- 5-73	600	S, 2	20	Total	D	At 2 hr, L. Water contains gas; has sulfur smell.
6adc	Marvin Fletcher	Dr	1971	90	6	20	B	--	--	--	420	43.40	10- 5-73	430	S, 1	18	--	D	
6daa	Peter Kaye	Dr	1972	149	6	--	B	--	--	--	560	43.00	8-23-72	--	--	--	--	D	
9aac	Dennis Stroda	Dr	1971	80	6	21	B	69	3	Shale	370	36	4- 6-71	160	S	11	16	D	B 1 hr.
9bdc	Bill Dixon	Dr	1970	500	6	45	B	--	--	Sandstone	440	98.39	10- 1-73	690	S	2	420	D	At 1 hr, L.
9bdd	James Playton	Dr	1972	185	6	--	B	--	--	do	400	41.60	10- 1-73	460	S, 1	5	--	D	Ca.
11bad	R. E. McNees	Dr	1966	71	8	70	P, 22-36	22	11	Gravel and sand	295	6.07	10- 1-73	--	S, 1	40	25	Ir	B 1 hr, L. Used to irrigate 1 acre of garden.
11dbb1	Bob Nixon	Dr	1966	56	8	56	P, 40-56	42	14	Sand and gravel	295	6.48	10- 1-73	500	C, 10	65	22	Ir	B 1 hr. Used to irrigate 15 acres of pasture.
11dbb2	C. H. Cleveland	Dr	1972	34	6	34	P, 28-34	31	3	Gravel	295	7.23	10- 1-73	380	C, 1	28	14	D	B 1 hr, L, Ca.
12aad	Howard Gibson	Dr	1967	42	12	42	P, 31-40	19	17	Gravel and sand	292	18.70	8-11-72	--	T, 20	30	0	Ir	B 1 hr.
12dbc1	do	Dr	1967	47	12	46	P, 36-45	16	18	do	301	13.30	10- 2-73	420	T, 15	30	0	Ir	B 1 hr, L.
12dbc2	do	Dr	1967	45	12	44	P, 33-43	26	18	Gravel	301	13.18	10- 2-73	--	T, 15	30	0	Ir	B 1 hr.
13abd	Mr. Templeton	Dv	--	21	1½	21	--	--	--	Sand and gravel	300	13.44	10- 2-73	--	N	--	--	N	
13bdc	Gill Strom	Dv	--	22	1½	22	--	--	--	do	299	7.60	10- 2-73	--	C, 1	--	--	D	
16aac	Douglas Lines	Dr	--	85	4	--	--	--	--	--	340	53.13	10- 1-73	--	N	--	--	N	
16dab	F. E. Peterson	Dr	1965	35	6	--	--	--	--	--	360	24.59	10- 1-73	200	C, 1	--	--	D	
21add	Charles Eggleston	Dr	--	108	8	20	B	--	--	--	335	--	--	--	C, 1	--	--	D	

Table 1.--Records of wells in the Harrisburg-Halsey area--Continued

Well number	Owner	Type of well	Year completed	Depth of well (feet)	Diameter of well (inches)	Depth of casing (feet)	Finish	Water-bearing zone(s)			Altitude (feet)	Water level		Specific conductance of water	Type of pump and hp	Well performance		Use	Remarks
								Depth to top (feet)	Thickness (feet)	Character of material		Feet below datum	Date			Yield (gpm)	Drawdown (feet)		
T. 15 S., R. 5 W.--Continued																			
22aaa	James Detering	Dr	1963	80	6	33	P, 18-24	18	6	Sand and gravel	302	5.74	10- 1-73	--	N	200	21	N	P 1 hr.
22acb1	do	Dr	1967	80	6	23	B	--	--	--	320	11.60	10- 1-73	300	S, 1/3	10	60	S	B 1 hr, L.
22acb2	do	Dr	1967	100	6	27	B	--	--	--	320	26	3- 3-67	--	N	3	75	N	B 1 hr.
23aad	Elbert Starns	Dg	1941	22	48	22	B	--	--	Sand and gravel	305	4.21	8-15-72	--	N	--	--	N	
24bcc	J. L. Freeman	Dv	--	27	5	27	--	--	--	do	305	6.94	10- 2-73	310	C, 1	--	--	--	
T. 15 S., R. 6 W.																			
1bab	R. M. Alexander	Dr	--	40	4	--	--	--	--	--	362	13.67	8-24-72	185	J, 1	--	--	D	
1bdb	Earl Barnts	Dr	--	70	6	20	B	--	--	--	340	9.75	8-24-72	250	S, ½	10	55	D	B 1 hr, L.

Table 2.--Drillers' logs of representative wells

Materials	Thickness (feet)	Depth (feet)
13S/2W-17cdd. Marvin Gourley. Altitude 500 ft. Deepened from 44 ft by Schoen Electric & Pump, 1970. Casing: None		
Unknown	44	44
Sandstone, blue, with quartz	6	50
Sandstone, gray	40	90
13S/2W-18bcc. Archie Cleveland. Altitude 725 ft. Drilled by Joneses Drilling Co., Inc., 1973. Casing: 6-in. diam to 49 ft; unperforated		
Soil, red-brown	12	12
Clay, red-yellow	28	40
Sandstone, blue	470	510
13S/2W-19adc. D. W. Cowdrey. Altitude 440 ft. Drilled by Valley Well Drillers, 1968. Casing: 6-in. diam to 23 ft; unperforated		
Clay, brown, and boulders	20	20
Basalt	75	95
13S/2W-20bbc2. William Gilmore. Altitude 440 ft. Drilled by Casey Jones Well Drilling Co., Inc., 1965. Casing: 6-in. diam to 63 ft; unperforated		
Clay	14	14
Sand, gray-blue	4	18
Clay, blue	42	60
Rock, blue, soft	10	70
Sandstone, gray	2	72
Rock, blue, soft	108	180
Sandstone, blue-gray	25	205
Claystone, gray	17	222
Rock, blue-gray, limey	19	241
Rock, blue, hard	24	265
Sandstone, hard	15	280
13S/2W-28dda. Loren Kirk. Altitude 500 ft. Drilled by O. B. Nye, 1957. Casing: 5-in. diam to 21 ft; unperforated		
Clay, brown	11	11
Rock, hard	2	13
Sandstone, yellow	4½	17½
Sandstone, gray, soft	79	97
13S/2W-30dcb. Larry Kauffman. Altitude 600 ft. Drilled by Schoen Electric & Pump, 1970. Casing: 6-in. diam to 74 ft; unperforated		
Clay and boulders	12	12
Basalt and gravel, loose	21	33
Clay and gravel	5	38
Basalt, fractured	14	52
Claystone, blue	5	57
Claystone, gray and brown	13	70
Sandstone, blue	42	112
Sandstone, gray	14	126
Sandstone, blue, hard	21	147
Rock, brown, hard	6	153
Basalt, blue	36	189
Basalt, fractured, with white quartz	21	210
Sandstone, brown, with clay streaks	5	215
Sandstone, blue-gray	32	247
Claystone, brown	39	286
Claystone, blue	16	302
Sandstone and "streaky" claystone	15	317
Sandstone, blue-gray	18	335
Basalt, gray	10	345
13S/2W-30dcd. Harvey Zoon, Jr. Altitude 600 ft. Drilled by Schoen Electric & Pump, 1970. Casing: 6-in. diam to 173 ft; perforated 42-50 ft and 150-170 ft		
Clay, yellow	25	25
Claystone, blue	18	43
Claystone, brown	7	50
Claystone, blue	24	74
Claystone, blue-brown, shaley	66	140
Claystone, blue-gray	30	170
13S/2W-30dcd.--Continued		
Basalt, blue	13	183
Rock, blue, hard	11	194
Rock, gray, badly fractured	2	196
Rock, gray, hard	7	203
Sandstone, gray	43	246
Claystone, blue	4	250
Claystone, black, shaley	3	253
Claystone, blue-gray	17	270
Sandstone, gray	95	365
Sandstone, blue-gray	19	384
Claystone, black, shaley	5	389
Claystone, blue	26	415
Rock, brown	30	445
Claystone, black, oily	18	463
Rock, blue, hard	12	475
Basalt, blue	10	485
13S/2W-31aac. D. L. Engle. Altitude 640 ft. Drilled by Joneses Drilling Co., Inc., 1973. Casing: 6-in. diam to 90 ft; unperforated		
Soil, brown	1	1
Clay, yellow	3	4
Clay, red	16	20
Claystone, red	40	60
Claystone, blue	20	80
Basalt, blue	20	100
13S/2W-31bac. L. P. Youngdahl. Altitude 400 ft. Drilled by Casey Jones Well Drilling Co., Inc., 1969. Casing: 6-in. diam to 18½ ft; unperforated		
Soil, brown, and boulders	4	4
Basalt, blue, hard	116	120
Shale, brown	10	130
Sandstone, blue	70	200
Basalt, blue, hard	35	235
13S/2W-32cab. Clyde McLain. Altitude 420 ft. Drilled by Joneses Drilling Co., Inc., 1971. Casing: 6-in. diam to 20 ft; unperforated		
Soil, brown, sandy	4	4
Sandstone, rust-red	2	6
Sandstone, gray	74	80
Sandstone	5	85
Sandstone, gray	127	212
13S/2W-33cdc2. James Weibel. Altitude 380 ft. Drilled by Casey Jones Well Drilling Co., Inc., 1967. Casing: 6-in. diam to 24 ft; unperforated		
Clay	6	6
Gravel	10	16
Mud, blue	9	25
Claystone, blue-gray	195	220
Claystone, blue-green	83	303
Shale, brown, soft	9	312
Claystone, blue	18	330
13S/3W-3aab. Joe Morgan. Altitude 267 ft. Drilled by Merle Warren Well Drilling, 1969. Casing: 6-in. diam to 73 ft; perforated 24-32 ft		
Soil	3	3
Clay	12	15
Clay and gravel	12	27
Gravel, water-bearing	5	32
Clay and gravel	7	39
Clay, blue	16	55
Clay, brown	18½	73½
Shale, gray	17½	91

Table 2.--Drillers' logs of representative wells--Continued

Materials	Thickness (feet)	Depth (feet)
13S/3W-6bda. D. H. Margason. Altitude 262 ft. Drilled by Merle Warren Well Drilling, 1969. Casing: 6-in. diam to 67 ft; perforated 56-65 ft		
Soil	3	3
Clay, brown	15	18
Clay, brown, and gravel	8	26
Gravel, dirty	11	37
Clay, brown, and gravel	8	45
Clay, brown	4	49
Gravel, dirty	6	55
Clay, blue, and gravel	3	58
Clay, blue	2	60
Sand, black, and gravel	7½	67½
13S/3W-7bbc2. Halsey-Shedd Fire District. Altitude 265 ft. Drilled by Merle Warren Well Drilling, 1968. Casing: 8-in. diam to 44 ft; perforated 34-44 ft		
Soil	1½	1½
Clay, brown	14½	16
Clay and gravel	10	26
Gravel, coarse	5	31
Clay and gravel	5	36
Sand, brown, and gravel	7	43
Clay and gravel	3	46
13S/3W-12daa. Jack Cochran. Altitude 360 ft. Drilled by Pyle & Salisbury, 1965. Casing: 6-in. diam to 97 ft; unperforated		
Soil	5	5
Rock, broken	42	47
Mud, brown	18	65
Mud, blue	25	90
Rock, black, broken	5	95
Rock, black	37	132
Rock, broken, sandy, water-bearing	4	136
Rock, black	51	187
13S/3W-17dda. Mr. Smith. Altitude 270 ft. Drilled by Ray Gellatly & Ron Witham Well Drilling, 1967. Casing: 6-in. diam to 42 ft; perforated 37-42 ft		
Soil	4	4
Sand, brown, and loam	11	15
Clay, red and gray	10	25
Sand and clay, gray	6	31
Gravel, coarse	11	42
13S/3W-18bba. J. W. Pugh. Altitude 265 ft. Drilled by Pete Tolmasoff Well Drilling, 1964. Casing: 8-in. diam to 80 ft; perforated 25-80 ft		
Soil, dark-colored	1	1
Clay, brown	14	15
Clay, blue	10	25
Gravel, medium-sized, and sand	1	26
Sand, medium, and fine gravel	9	35
Sand, fine, and fine gravel, hard-packed	15	50
Gravel, cemented	6	56
Sand, medium, hard-packed	12	68
Sand, coarse, and fine gravel	12	80
Clay, blue, and black sand	2	82
Clay, gray, firm	23	105
13S/3W-18bbc1. J. W. Pugh. Altitude 266 ft. Drilled by Pete Tolmasoff Well Drilling, 1964. Casing: 8-in. diam to 120 ft; perforated 25-35 ft, 40-45 ft, 60-70 ft, 80-100 ft		
Soil and clay	23	23
Gravel and yellow clay	12	35
Gravel and brown sand	15	50
Clay, dark-brown	4	54
Sand and gravel, black	24	78
Gravel and clay	24	102
Clay, blue	18	120
13S/3W-22dba. Ray Ruckert. Altitude 284 ft. Drilled by Merle Warren Well Drilling, 1965. Casing: 8-in. diam to 45 ft; perforated 33-45 ft		
Soil	3	3
Clay, brown	17	20
Clay and gravel	6	26
Gravel	3	29
Clay	14	43
Shale	3	46
Rock, black	7	53
13S/3W-22ddb1. Harold Mabley. Altitude 330 ft. Drilled by Long Well Drilling, 1969. Casing: 6-in. diam to 20 ft; unperforated		
Soil	2	2
Clay	5	7
Rock, broken	5	12
Rock	28	40
Rock, black, with quartz seams	45	85
Rock, hard	20	105
Rock and quartz	10	115
Rock	35	150
Sandstone	30	180
13S/3W-23cab. R. Palm. Altitude 308 ft. Drilled by Bob's Well Drilling, 1968. Casing: 6-in. diam to 28 ft; unperforated		
Soil	1	1
Clay, gray	8	9
Rock, yellow	12	21
Rock, black	63	84
Rock, gray	47	131
13S/3W-26bbc. Frank Popineau. Altitude 491 ft. Drilled by Schoen Electric & Pump, 1971. Casing: 6-in. diam to 40 ft; unperforated		
Clay, brown, with small boulders	20	20
Basalt, badly fractured	15	35
Sandstone, black, hard	42	77
Sandstone, blue, with streaks of quartz	8	85
Sandstone, blue, hard	2	87
Sandstone, blue	23	110
Sandstone, gray	30	140
Sandstone, blue	85	225
Sandstone, green	10	235
13S/3W-27aad. D. L. Popineau. Altitude 485 ft. Drilled by Joneses Drilling Co., Inc., 1971. Casing: 6-in. diam to 42 ft; unperforated		
Clay, brown	4	4
Clay, gravel, and boulders	31	35
Rock, black, hard, with fractured streaks	45	80
Sandstone, gray	120	200
Sandstone, blue	10	210
Sandstone, gray	50	260
Sandstone, blue	50	310
13S/3W-27adb. Allen Hicks. Altitude 460 ft. Drilled by Long Drilling Co., 1970. Casing: 6-in. diam to 70 ft; unperforated		
Soil	2	2
Clay and broken rock	18	20
Rock, broken	10	30
Sandstone	3	33
Rock, broken	32	65
Rock, gray, hard	25	90
Rock, gray	110	200
Sandstone, brown	8	208
Rock, gray	27	235
Sandstone, brown	5	240
Rock, gray	3	243

Table 2.--Drillers' logs of representative wells--Continued

Materials	Thickness (feet)	Depth (feet)
13S/3W-28cab. Knuths Estate. Altitude 277 ft. Drilled by W. R. Davis, 1961. Casing: 8-in. diam to 112 ft; perforated 9-62 ft		
Soil	2	2
Clay, blue	12	14
Gravel, cemented	7	21
Sand and gravel	20	41
Gravel, cemented	17	58
Clay, blue	58	116
Sand and gravel	1	117
Clay, blue	5	122
13S/3W-31cad2. Pete Williams. Altitude 179 ft. Drilled by Merle Warren Well Drilling, 1966. Casing: 10-in. to 116 ft; perforated 20-116 ft		
Soil	2	2
Clay	22	24
Gravel	12	36
Clay and gravel	1	37
Gravel	9	46
Clay and gravel	10	56
Sand and gravel	2	58
Clay and gravel	5	63
Clay, blue	32	95
Clay, brown	15	110
Clay, blue	28	138
13S/3W-32ccc2. Central Linn School District. Altitude 282 ft. Drilled by William M. Slate, 1957. Casing: 8-in. diam to 118 ft; perforated 59-63 ft, 110-116 ft		
Soil	1	1
Clay, brown	12	13
Clay, brown, and gravel	23	36
Gravel and sand, brown	1	37
Gravel, brown, cemented	12	49
Gravel, black, cemented	11	60
Sand and gravel, black	2	62
Gravel, black, cemented	9	71
Clay, blue	39	110
Sand, black, and small gravel	6	116
Clay, blue	5	121
13S/3W-32dbc. Lyle Eagy. Altitude 281 ft. Drilled by Pyle & Salisbury, 1965. Casing: 6-in. diam to 40 ft; unperforated		
Soil	3	3
Clay, blue	35	38
Sand	2	40
13S/3W-34cad. Peter Jensen. Altitude 291 ft. Drilled by Merle Warren Well Drilling, 1965. Casing: 10-in. diam to 79 ft; perforated 25-35 ft, 65-79 ft		
Soil	3	3
Clay	5	8
Clay and gravel	22	30
Clay, blue	27	57
Clay and gravel	4	61
Clay, sandy, and gravel	2	63
Sand and gravel	15	78
Clay, blue	17	95
13S/4W-1baa. Ross Springer. Altitude 257 ft. Drilled by Merle Warren Well Drilling, 1961. Casing: 6-in. diam to 48 ft; perforated 38-48 ft		
Soil	4	4
Clay	13	17
Gravel, dirty	23	40
Gravel, water-bearing	8	48
13S/4W-4ccd. Harold Curtis. Altitude 250 ft. Drilled by Pete Tolmasoff Well Drilling, 1969. Casing: 6-in. diam to 50 ft; unperforated		
Soil	2	2
Clay, gray, firm	8	10
Silt, brown, sandy, soft	8	18
Clay and gravel, packed	12	30
Gravel, silty	6	36
Gravel and sand, packed	11	47
Sand and gravel, black, loose	3	50
Shale, dark-colored, firm	5	55
13S/4W-8bcc. Linn County Parks and Recreation Department. Altitude 255 ft. Drilled by Merle Warren Well Drilling, 1967. Casing: 6-in. diam to 52 ft; perforated 41-50 ft		
Soil	2	2
Clay	20	22
Clay and gravel	10	32
Gravel, dirty	12	44
Gravel, coarse	5	49
Clay, blue	4	53
13S/4W-8cdd. Clifford Greig. Altitude 258 ft. Drilled by Valley Well Drillers, 1967. Casing: 6-in. diam to 51 ft; perforated 42-49 ft		
Soil	2	2
Clay, gray	12	14
Clay, brown	11	25
Sand and gravel	10	35
Sand, brown	5	40
Sand and gravel	9	49
Clay, brown	2	51
Sandstone, gray	9	60
13S/4W-9bbd. Harold Curtis. Altitude 250 ft. Drilled by Merle Warren Well Drilling, 1971. Casing: 6-in. diam to 45 ft; perforated 36-45 ft		
Soil	3	3
Clay, brown	23	26
Clay and gravel	4	30
Sand, brown, and dirty gravel	8	38
Gravel, pea-sized	4	42
Clay, blue	10	52
13S/4W-9dac. Paul Pugh. Altitude 256 ft. Drilled by Ray Gellatly & Ron Witham Well Drilling, 1970. Casing: 6-in. diam to 256 ft; perforated 33-38 ft		
Soil	2	2
Clay, brown, tough	17	19
Clay and grit	4	23
Boulders and gravel	6	29
Gravel and sand, cemented	7	36
Gravel and clay, cemented	19	55
Sand, brown, and gravel, water-bearing	5	60
13S/4W-10bca. L. N. Rathbun. Altitude 251 ft. Drilled by Merle Warren Well Drilling, 1965. Casing: 6-in. diam to 49 ft; perforated 41-49 ft		
Clay	16	16
Sand and gravel	4	20
Clay, blue	5	25
Boulders	10	35
Sand and gravel	14	49

Table 2.--Drillers' logs of representative wells--Continued

Materials	Thickness (feet)	Depth (feet)
13S/4W-12ada. Roger Clay. Altitude 263 ft. Drilled by Casey Jones Well Drilling Co., Inc., 1970. Casing: 6-in. diam to 45 ft; perforated 36-42 ft		
Soil	4	4
Clay, yellow	12	16
Clay, blue	13	29
Gravel, coarse	5	34
Sand, brown, coarse	4	38
Sand and gravel, coarse	7	45
13S/4W-13bbc. J. W. Pugh, Jr. Altitude 262 ft. Drilled by Pete Tolmasoff Well Drilling, 1970. Casing: 6-in. diam to 51 ft; perforated 45-51 ft		
Soil	3	3
Claystone, brown, firm	22	25
Clay and gravel, packed	8	33
Clay and gravel, soft	2	35
Clay and gravel, packed	5	40
Clay and gravel, loose, water-bearing	6	46
Clay and gravel, packed, water-bearing	4	50
Shale, blue, and gravel, water-bearing	3	53
13S/4W-17bac. W. E. Horton. Altitude 256 ft. Drilled by Ray Gellatly & Ron Witham Well Drilling, 1965. Casing: 6-in. diam to 58 ft; perforated 53-58 ft		
Soil	2	2
Clay, gray	15	17
Gravel, fine, and clay	6	23
Clay, dark-gray	7	30
Gravel, coarse	6	36
Clay, blue	9	45
Clay, light-gray, and gravel	13	58
Clay, gray, hard	2	60
13S/4W-24dcc. Ray Warren. Altitude 271 ft. Drilled by Merle Warren Well Drilling, 1960. Casing: 6-in. diam to 44 ft; perforated 36-44 ft		
Soil	3	3
Clay, yellow	13	16
Clay, blue	2	18
Gravel, dirty	14	32
Sand, black, and gravel	13	45
13S/4W-27dba. Gulf Oil Corporation of California (T. J. Porter #1). Altitude 266 ft. Drilled by owner, 1964. Casing: 9-5/8-in. diam to 426 ft; 13-3/8-in. diam to 526 ft; cemented to surface		
Log not available	50	50
Gravel, weathered, mostly volcanic pebbles	30	80
Siltstone, with sand and streaks of clay	60	140
Sand, with ½-in. diam rounded pebbles; streaks of claystone and siltstone	30	170
Siltstone, with streaks of pebbly sand	120	290
Siltstone and medium-gray clay, with streaks of fine-grained sandstone	255	545
Sand, with sandstone and siltstone	1,269	1,814
Sandstone, siltstone, and shale, assorted (lithologic log not available)	2,941	4,755
Volcanics (lithologic log not available)	3,715	8,470
13S/4W-29bda. E. F. Nichols. Altitude 269 ft. Drilled by O. B. Nye, 1964. Casing: 5-in. diam to 33 ft; unperforated		
Soil and brown clay	16	16
Clay, yellow, and gravel, packed	15	31
Gravel, water-bearing	2	33
13S/5W-2abb. E. M. Griffin. Altitude 247 ft. Drilled by Bill Howell Well Drilling, 1960. Casing: 6-in. diam to 44 ft; unperforated		
Clay, brown, sandy	24	24
Gravel and sand, cemented	12	36
Sand, brown	3	39
Gravel	5	44
13S/5W-4bab. Clarence Venell. Altitude 245 ft. Drilled by Merle Warren Well Drilling, 1964. Casing: 6-in. diam to 41½ ft; perforated 32½-41½ ft		
Soil	2	2
Clay	16	18
Clay, blue	5	23
Clay and gravel	14	37
Gravel	5	42
Clay, blue	3	45
13S/5W-7aac. Inavale School. Altitude 255 ft. Drilled by Bill Howell Well Drilling, 1956. Casing: 12-in. diam to 32 ft, 6-in. diam to 54 ft; perforated 18-31 ft		
Clay, brown, mixed with white clay	20	20
Sand and gravel, water-bearing	6	26
Clay, brown	27	53
Shale, gray	77	130
13S/5W-8adc. Albert Saxton Park. Altitude 245 ft. Drilled by Ray Gellatly & Ron Witham Well Drilling, 1962. Casing: 6-in. diam to 33 ft; perforated 27-32 ft		
Soil	2	2
Clay, sandy	16	18
Gravel and sand, cemented	9	27
Gravel, water-bearing	5	32
Clay, gray and yellow	1	33
13S/5W-9adb. Jack Whitby. Altitude 250 ft. Drilled by Casey Jones Well Drilling Co., Inc., 1971. Casing: 6-in. diam to 45 ft; unperforated		
Soil	3	3
Clay, yellow	11	14
Clay, blue	9	23
Clay, black-blue	3	26
Sand and gravel, coarse	12	38
Clay and gravel, gray	9	47
13S/5W-10dbb. Ben Cameron. Altitude 250 ft. Drilled by Bill Howell Well Drilling, 1958. Casing: 4-in. diam to 32 ft; unperforated		
Clay, brown	27	27
Gravel, cemented	3	30
Gravel	2	32
13S/5W-13adb. Neil Vanderburg. Altitude 244 ft. Drilled by Casey Jones Well Drilling Co., Inc., 1969. Casing: 8-in. diam to 34 ft; perforated 20-34 ft		
Loam, sandy	12	12
Sand and gravel	23	35
13S/5W-13dbc. Harvey Crawford. Altitude 248 ft. Drilled by Howell Well Drilling, 1966. Casing: 6-in. diam to 41 ft; perforated 38-40 ft		
Soil	4	4
Clay, brown	13	17
Sand, brown, and gravel	11	28
Sand, brown	3	31
Gravel	9	40
Clay, blue	1	41

Table 2.--Drillers' logs of representative wells--Continued

Materials	Thickness (feet)	Depth (feet)
13S/5W-14cba. Richard Guerber. Altitude 250 ft. Drilled by G. A. Pruitt Well Drilling, 1959. Casing: 4-in. diam to 33 ft; perforated 31-33 ft		
Soil	4	4
Clay, yellow	14	18
Gravel, cemented	4	22
Quicksand	3	25
Gravel, with find sand	5	30
Gravel, medium, with coarse sand	3	33
13S/5W-20daa. William L. Finley National Wildlife Refuge. Drilled by Casey Jones Well Drilling Co., Inc., 1968. Casing: 6-in. diam to 52 ft; 12-in. diam to 26 ft; perforated 26-52 ft		
Soil	1	1
Clay, yellow	11	12
Clay, blue	11	23
Sand, gravel, and clay	20	43
Clay and gravel	70	50
Clay, yellow	2	52
13S/5W-21bbd. Muddy River Hunt Club. Drilled by Howell Well Drilling, 1967. Casing: 8-in. diam to 38 ft; perforated 28-37 ft		
Soil, brown	3	3
Clay, gray	11	14
Clay, brown, sandy	12	26
Sand, brown, and gravel	5	31
Gravel, coarse	7	38
Clay, blue	2	40
13S/5W-23dac. Gale Miller. Drilled by L. W. Mutschler Well Drilling, 1972. Casing: 6-in. diam to 48 ft; perforated 45-47 ft		
Soil, with gravel	1	1
Clay, yellow, and gravel	18	19
Gravel, small to medium	9	28
Gravel, medium	5	33
Sand, fine, and gravel	3	36
Sand, fine	11	47
Clay, blue	4	51
13S/5W-24acc. Mrs. John Graham. Altitude 242 ft. Drilled by Pitcher Pump & Well Drilling Co., 1968. Casing: 12-in. diam to 182 ft; perforated 18-95 ft, 130-150 ft, 170-180 ft		
Sand and gravel	16	16
Sand, brown, and gravel, with clay	11	27
Gravel and clay, blue	8	35
Sand, blue, with clay	59	94
Clay, greenish-gray, with sand	37	131
Clay, blue-gray, with sand	13	144
Clay, greenish-gray, with sand	10	154
Sand, blue, with clay	16	170
Clay, tight	14	184
Sand and clay, blue	16	200
Sandstone, water-bearing	22	222
13S/5W-25dcd. Horning Bros. Altitude 250 ft. Drilled by Howell Well Drilling, 1968. Casing: 10-in. diam to 25 ft; perforated 19-24 ft		
Clay, brown, sandy	12	12
Sand, brown, and gravel	7	19
Gravel, coarse	6	25
13S/5W-27aba. Hilmer Schmidt. Altitude 252 ft. Drilled by Casey Jones Well Drilling Co., Inc., 1971. Casing: 6-in. diam to 35 ft; perforated 31-33 ft		
Soil	1	1
Silt, gray, clayey	15	16
Sand and gravel, coarse, with cobblestones	17	33
Clay, blue	2	35
13S/5W-27ccc. William L. Finley National Wildlife Refuge. Altitude 260 ft. Drilled by Howell Well Drilling, 1960. Casing: 8-in. diam to 62 ft; perforated 21-61 ft		
Clay, brown	16	16
Gravel, coarse	14	30
Sand and gravel	32	62
Clay, blue	18	80
13S/5W-34cdb. Richard Bushell. Altitude 265 ft. Drilled by O. B. Nye, 1968. Casing: 5-in. diam to 32 ft; perforated 27-32 ft		
Soil and brown clay	15	15
Sand, coarse, and gravel, packed	14	29
Gravel, coarse, water-bearing	3	32
13S/5W-35abc. Dan Tracer. Altitude 260 ft. Drilled by Pitcher Pump & Drilling Co., 1970. Casing: 10-in. diam to 29 ft; perforated 18-28 ft		
Soil, brown	3	3
Sand, brown, tight	12	15
Sand, brown, and gravel, loose	1½	16½
Sand, brown, and gravel, tight	4½	21
Sand, brown, and gravel, loose	1½	22½
Sand, brown, and gravel, with clay	1	23½
Sand, brown, and gravel, loose	1½	25
Sand, brown, and gravel, with clay	2	27
Sand, brown, and gravel, cemented	1	28
Sand, brown, and gravel, with clay	1	29
Clay, blue, with sand	13	42
Sand, blue, with clay	9	51
13S/5W-36cca. C. C. Lindseth. Altitude 256 ft. Drilled by Casey Jones Well Drilling Co., Inc., 1965. Casing: 12-in. diam to 32 ft; perforated 18-32 ft		
Soil and brown clay	3	3
Clay, sandy	5	8
Sand and gravel	27	35
Clay, blue	--	--
13S/5W-36dcd. Horning Bros. Altitude 255 ft. Drilled by Casey Jones Well Drilling Co., Inc., 1965. Casing: 10-in. diam to 31 ft; perforated 18-30 ft		
Soil	3	3
Clay, sandy	5	8
Sand and gravel	24	32
13S/6W-2dac. George Davis. Altitude 350 ft. Drilled by L. W. Mutschler Well Drilling, 1967. Casing: 6-in. diam to 25 ft; unperforated		
Soil	3	3
Clay, yellow	11	14
Claystone, yellow	14	28
Claystone, blue, broken, water-bearing (3 gpm)	1	29
Claystone, brown	15	44
Claystone, brown, broken, water-bearing (5 gpm)	5	49
Claystone, gray	9	58
Claystone, broken, water-bearing (2 gpm)	2	60
Claystone, gray, soft	3	63

Table 2.--Drillers' logs of representative wells--Continued

Materials	Thickness (feet)	Depth (feet)
13S/6W-11add. A. S. Wallace. Altitude 280 ft. Drilled by Ray Gellatly and Ron Witham Well Drilling, 1972. Casing: 6-in. diam to 32 ft; unperforated		
Soil	2	2
Clay, yellow	12	14
Clay, red	4	18
Clay, blue	6	24
"Hardpan," light-gray	6	30
Clay, gray, hard	15	45
Claystone, gray, hard	11	56
Claystone, broken, water-bearing (6 gpm)	12	68
Claystone, gray, and light-gray limestone	12	80
Sandstone, gray, hard, water-bearing (8 gpm)	36	116
13S/6W-12bdb. John Martineau. Altitude 280 ft. Drilled by Howell Well Drilling, 1970. Casing: 6-in. diam to 30 ft; unperforated		
Soil	4	4
Clay, tan	14	18
Clay, blue and brown, mixed	5	23
Claystone, gray	77	100
14S/2W-3dab. Ed Laffett. Altitude 410 ft. Drilled by Merle Warren Well Drilling, 1964. Casing: 8-in. diam to 113 ft; perforated 102-113 ft		
Soil	3	3
Clay	3	6
Gravel	10	16
Clay, blue	29	45
Clay, brown	5	50
Clay, blue	39	89
Rock, porous	6	95
Clay	10	105
Rock, black	47	152
14S/2W-4aaa. C. M. Mischler. Altitude 410 ft. Drilled by Joneses Drilling Co., Inc., 1972. Casing: 6-in. diam to 25 ft; unperforated		
Soil, brown	3	3
Clay, blue	12	15
Claystone, brown-yellow	6	21
Sandstone, blue	4	25
Sandstone, purple	4	29
Sandstone, green	4	33
Sandstone, blue	17	50
Sandstone, brown	2	52
Sandstone, blue	18	70
Sandstone, green	2	72
Sandstone, blue	35	107
14S/2W-4cbcl. O. T. Chamberlain. Altitude 368 ft. Drilled by Casey Jones Well Drilling Co., Inc., 1969. Casing: 6-in. diam to 70 ft; unperforated		
Clay	12	12
Clay and gravel	28	40
Clay, blue and yellow	30	70
Gravel, cemented	15	85
14S/2W-7baa2. T. A. Red. Altitude 335 ft. Drilled by Bob's Well Drilling, Inc., 1973. Casing: 8-in. diam to 116 ft; perforated 35-45 ft, 67-78 ft, 82-116 ft		
Soil, black	6	6
Sand, gravel, and yellow clay	11	17
Clay, yellow	17	34
Clay, blue, and sand	12	46
Clay, blue	14	60
Clay, blue, and sand and gravel	20	80
Clay, blue	17	97
Sand and gravel, black	23	120
14S/2W-8bba. Charles Wheeler. Altitude 350 ft. Drilled by Eldon J. Studebaker, 1967. Casing: 6-in. diam to 47 ft; perforated 30-45 ft		
Soil	5	5
Clay, yellow	6	11
Clay and gravel	9	20
Gravel, cemented	6	26
Gravel, dirty	19	45
Shale	20	65
14S/2W-10dbd1. Devon Nickerson. Altitude 395 ft. Drilled by Jack Witcraft Well Drilling, 1960. Casing: 6-in. diam to 54 ft; unperforated		
Soil	3	3
Clay, brown	4	7
Clay, brown, and gravel	16	23
Gravel, green, cemented	3	26
Sand and chunks of blue shale	26	52
Sand, black, coarse	2	54
14S/2W-10dbd2. Devon Nickerson. Altitude 395 ft. Drilled by Jack Witcraft Well Drilling, 1960. Casing: 6-in. diam to 125 ft; unperforated		
Soil	2	2
Clay and gravel	16	18
Sandstone, gray, soft	58	76
Shale, brown	4	80
Shale, gray	45	125
Sandstone, gray	67	192
14S/2W-11acd. L. G. Christopher. Altitude 420 ft. Drilled by O. B. Nye, 1967. Casing: 5-in. diam to 86 ft; perforated 82-86 ft		
Soil and brown clay	9	9
Clay, yellow, and coarse gravel	12	21
Sand, brown, packed	33	54
Clay, gray, medium	28	82
Sand, gray, packed, water-bearing	2	84
Sand, coarse, and gray clay and coarse gravel	3	87
14S/2W-16bdb. Ida Evans. Altitude 395 ft. Drilled by Bob's Well Drilling, Inc., 1972.		
Soil, black	7	7
Sand and gravel and yellow clay	12	19
Clay, yellow	15	34
Clay, blue	5	39
Clay, yellow	6	45
Clay, blue	63	108
Sand and gravel and hard blue clay	32	140
Clay, blue	10	150
14S/2W-18ccd. D. B. Heller. Altitude 430 ft. Drilled by Clay's Well Drilling, 1971. Casing: 6-in. diam to 19½ ft; 5½-in. diam to 90 ft; perforated 50-90 ft		
Soil	1	1
Clay, dark-brown, soft	5	6
Clay, light-brown, soft	4	10
Sand and gravel with boulders, cemented	4	14
Sandstone, blue-green, firm	6	20
Sandstone, light-blue, firm	30	50
Sandstone, dark-gray, firm	20	70
Sandstone, light-blue, soft, coarse-grained	5	75
Sandstone, dark-gray, firm	3	78
Sandstone, light-blue, firm, fine-grained	21	99
14S/2W-19bcd. W. H. Payne. Altitude 680 ft. Drilled by Casey Jones Well Drilling Co., Inc., 1970. Casing: 6-in. diam to 18 ft; unperforated		
Soil, brown	3	3
Basalt	207	210
Sandstone, blue	85	295
Basalt	20	315

Table 2.--Drillers' logs of representative wells--Continued

Materials	Thickness (feet)	Depth (feet)
14S/2W-21acd. Harold Williamson. Altitude 685 ft. Drilled by O. B. Nye, 1972. Casing: 6-in. diam to 35 ft; unperforated		
Clay, yellow, sandy	11	11
Clay, yellow and gray, sandy	15	26
Clay, brown and gray	30	56
Shale, gray	1	57
Sandstone, brown and gray	104	161
Sandstone, gray	5	166
14S/2W-22dad. Lois Prietsman. Altitude 555 ft. Drilled by Ray Gellatly & Ron Witham Well Drilling, 1972. Casing: 6-in. diam to 18½ ft; unperforated		
Loam, brown, and grit	3	3
Boulders and sand	9	12
Basalt, black, hard, broken; water-bearing	52	64
14S/3W-2dba. Merle Ream. Altitude 307 ft. Drilled by Merle Warren Well Drilling, 1970. Casing: 8-in. diam to 57 ft; perforated 47-57 ft		
Soil	2	2
Clay, brown	5	7
Clay, brown, and gravel	10	17
Clay, blue, and gravel	8	25
Gravel, dirty	3	28
Clay, blue	17	45
Sand, black, and gravel	11	56
Clay, blue, and gravel	2	58
14S/3W-4abb. Harold Pugh. Altitude 286 ft. Drilled by Merle Warren Well Drilling, 1963. Casing: 8-in. diam to 71 ft; perforated 58-68 ft		
Clay	9	9
Gravel, dirty	19	28
Gravel, water-bearing	17	45
Clay, blue	10	55
Sand, black	5	60
Sand and gravel	6	66
Clay, blue	6	72
14S/3W-4bbb. Phillips Petroleum Co. Altitude 286 ft. Drilled by Valley Well Drilling, 1967. Casing: 6-in. diam to 60 ft; perforated 52-58 ft		
Clay, blue	4	4
Clay, yellow	4	8
Clay, gray	6	14
Clay and gravel	10	24
Sand, brown, and gravel and clay	14	38
Sand and gravel	5	43
Clay, blue	17	60
Sandstone, blue-black, and gravel particles	33	93
Clay, red and black	3	96
14S/3W-5baa. Don Wilson. Altitude 283 ft. Drilled by Merle Warren Well Drilling, 1971. Casing: 8-in. diam to 112 ft; perforated 53-58 ft, 64-69 ft, 100-112 ft		
Soil	1	1
Clay, brown	13	14
Clay, brown, and gravel	5	19
Gravel, dirty, coarse	13	32
Sand, black, and gravel	26	58
Clay, dark-gray	2	60
Clay, black, sandy	10	70
Clay, blue	18	88
Clay, black, sandy	6	94
Clay, brown	3	97
Sand, black, coarse, and pea gravel	5	102
Clay, brown	3	105
Clay, black	4	109
Clay, blue	11	120
14S/3W-6dad. C. S. Miller. Altitude 286 ft. Drilled by O. B. Nye, 1966. Casing: 5-in. diam to 62 ft; perforated 46-62 ft		
Soil and brown clay	9	9
Clay, yellow	8	17
Gravel, cemented	25	42
Sand, brown, packed	4	46
Clay, gray, sandy	12	58
Gravel, coarse, water-bearing	4	62
14S/3W-7ddc. H. H. Kirk. Altitude 288 ft. Drilled by C. A. Schaefer, 1953. Casing: 8-in. diam to 35 ft; perforated 35-40 ft, 55-60 ft, 80-98 ft, 98-110 ft		
Clay, brown	12	12
Conglomerate, sand, clay, and small rocks	18	30
Rock, water-bearing	6	36
Conglomerate	12	48
Gravel	2	50
Conglomerate and clay	11	61
Clay, blue	17	78
Gravel	2	80
Clay	15	95
Sand and gravel	14	109
Sand and clay	14	123
14S/3W-8ddc. Robert Carey. Altitude 292 ft. Drilled by Ace Drilling Co., 1962. Casing: 6-in. diam to 30 ft; perforated 27-29 ft		
Soil and clay	15	15
Gravel and yellow clay	13	28
Sand, brown		30
14S/3W-12bbc. Robert Duce. Altitude 316 ft. Drilled by Schoen Electric & Pump, 1971. Casing: 6-in. diam to 112 ft; perforated 40-49 ft		
Soil	2	2
Gravel	24	26
Clay, green	14	40
Sand and gravel	9	49
Clay, green	91	140
Sandstone, green	25	165
14S/3W-12cbc. David Christopher. Altitude 350 ft. Drilled by O. B. Nye, 1970. Casing: 6-in. diam to 19 ft; unperforated		
Soil and brown clay	14	14
Claystone, gray	8	22
Shale, gray, water-bearing	1	23
Sandstone, gray	6	29
Shale, gray, water-bearing	2	31
Sandstone, gray, hard	5	36
14S/3W-13cbd. C. W. Johnson. Altitude 430 ft. Drilled by Casey Jones Well Drilling Co., Inc., 1969. Casing: 6-in. diam to 21 ft; unperforated		
Soil, brown and yellow	16	16
Sandstone, blue	5	21
Basalt, blue	93	114
14S/3W-13cdc2. Wynes Poultry Farms, Inc. Altitude 500 ft. Drilled by Schoen Electric & Pump, 1970. Casing: 10-in. diam to 23 ft; unperforated		
Loam, brown	3	3
Clay, yellow	11	14
Clay, blue	4	18
Rock, blue	132	150
Claystone, gray	30	180
Claystone, blue, with streaks of coal	20	200

Table 2.--Drillers' logs of representative wells--Continued

Materials	Thickness (feet)	Depth (feet)
14S/3W-14cbb. E. A. Fitzmorris. Altitude 322 ft. Drilled by Casey Jones Well Drilling Co., Inc., 1969. Casing: 6-in. diam to 19½ ft; unperforated		
Clay, gray	12	12
Claystone, brown	2	14
Sandstone, blue	33	47
14S/3W-15dcd. Martha Dodd. Altitude 325 ft. Drilled by Schoen Electric & Pump, 1971. Casing: 6-in. diam to 31 ft; unperforated		
Soil, black	2	2
Clay, gray	4	6
Gravel, cemented	18	24
Clay, gray, and gravel	6	30
Sandstone, gray to black	40	70
14S/3W-17aba. Robert Carey. Altitude 292 ft. Drilled by William M. Slate, 1958. Casing: 8-in. diam to 92 ft; perforated 34-48 ft, 70-71 ft, 80-91 ft		
Clay, gray and brown	21	21
Sand and clay, gray	3	24
Gravel and clay, gray	24	48
Clay and sand, gray	2	50
Gravel, black	1	51
Clay, blue	19	70
Sand, black	1	71
Clay, blue	8	79
Clay and gravel, black	1	80
Gravel and sand, black	8	88
Clay, blue	4	92
14S/3W-17cdb. Dennis Glasser. Altitude 293 ft. Drilled by Schoen Electric & Pump, 1970. Casing: 10-in. diam to 120 ft; perforated 35-103 ft		
Soil	2	2
Clay	12	14
Gravel, cemented	10	24
Sand and gravel, coarse	10	34
Sand, packed, with gravel	4	38
Sand, loose, and gravel	1	39
Sand, packed	9	48
Sand and gravel	8	56
Clay, brown	4	60
Clay, blue, sandy	27	87
Clay, green, with gravel	17	104
Sand, gray, and clay	6	110
Clay, brown	7	117
Clay, green	8	125
14S/3W-24dca. Jim Partch. Altitude 680 ft. Drilled by Casey Jones Well Drilling Co., Inc., 1969. Casing: 6-in. diam to 18½ ft; unperforated		
Clay, yellow	14	14
Basalt, blue	91	105
Sandstone, gray	25	130
14S/3W-24ddd. M. S. Pond. Altitude 840 ft. Drilled by W. W. Drilling & Pump Service, 1968. Casing: 6-in. diam to 20 ft; unperforated		
Soil	4	4
Clay, yellow, and boulders	6	10
Rock, black	30	40
Rock, blue	60	100
Sandstone, blue	20	120
Sandstone, gray	80	128
Sandstone, blue	27	155
14S/3W-25bac. M. D. Farley. Altitude 920 ft. Drilled by Arms Well Drilling, 1972. Casing: 6-in. diam to 20 ft; unperforated		
Claystone, brown	6	6
Basalt	169	175
Sandstone, gray	27	202
14S/3W-27aca. Hurley Overton. Altitude 355 ft. Drilled by Schoen Electric & Pump, 1970. Casing: 6-in. diam to 18 ft; unperforated		
Soil	2	2
Sandstone	73	75
14S/3W-30ddc1. John Kropf, Sr. Altitude 301 ft. Drilled by Merle Warren Well Drilling, 1968. Casing: 6-in. diam to 92 ft; perforated 87-92 ft		
Soil	2	2
Clay, brown	12	14
Sand, brown	5	19
Sand, black, and clay and gravel	10	29
Clay, brown, and gravel	23	52
Clay, blue	6	58
Clay, brown	7	65
Clay, blue	18	83
Clay, black	4	87
Clay, blue	7	94
Sand, black, and wood	4	98
Clay, blue	7	105
14S/3W-30ddc2. Floyd Kropf. Altitude 301 ft. Drilled by Pitcher Pump & Drilling Co., 1970. Casing: 10-in. diam to 49 ft; perforated 19-48 ft		
Soil, brown, and clay, with sand	19	19
Sand, brown, and gravel, with clay	4	23
Sand, brown, and gravel	4	27
Sand, brown, and gravel, with some clay	8	35
Sand, brown, and gravel	12	47
Sand, brown, and gravel, with clay	3	50
Clay, brown	5	55
14S/3W-35bab. F. W. Jackson. Altitude 385 ft. Drilled by O. B. Nye, 1969. Casing: 6-in. diam to 21 ft; unperforated		
Soil and brown clay	14	14
Claystone, gray	10	24
Sandstone, gray	8	32
Shale, gray	1	33
Sandstone, gray	40	73
Shale, gray, water-bearing	1	74
Sandstone, gray	1	75
14S/3W-35dbc. Francis Baumgartner. Altitude 355 ft. Drilled by O. B. Nye, 1969. Casing: 6-in. diam to 19 ft; unperforated		
Soil and brown clay	9	9
Claystone, yellow	4	13
Claystone, gray	15	28
Sandstone, gray	41	69
Shale, gray, water-bearing	1	70
14S/4W-1aab2. Halsey School Dist. Altitude 275 ft. Drilled by C. A. Shafer Well Drilling, 1953. Casing: 8-in. diam to 120 ft; perforated 35-45 ft, 88-98 ft, 99-119 ft		
Clay	18	18
Conglomerate	15	33
Gravel, water-bearing (110 gpm)	37	70
Clay, blue	28	98
Sand, water-bearing	12	110
Clay, with streaks of sand	10	120
Clay, blue	5	125

Table 2.--Drillers' logs of representative wells--Continued

Materials	Thickness (feet)	Depth (feet)
14S/4W-1dab2. City of Halsey. Altitude 280 ft. Drilled by W. W. Drilling & Pump Service, 1969. Casing: 12-in. diam to 199 ft; perforated 40-70 ft, 85-95 ft		
Clay, blue	3	3
Clay, brown	16	19
Clay, brown, and small gravel	4	23
Gravel, large, loose	4	27
Gravel, brown, cemented	15	42
Sand and gravel, loose	4	46
Gravel, brown, cemented	23	69
Clay, blue, sandy	16	85
Clay, sand, and gravel, loose	10	95
Clay, blue, sandy	5	100
Clay, brown, sandy	4	104
Clay, gray, sandy	26	130
Clay, blue, sandy	15	145
Clay, brown, sandy	19	164
Sand, blue	4	168
Clay, blue, sandy	32	200
14S/4W-3cdc1. American Can Co. Altitude 275 ft. Drilled by Merle Warren Well Drilling, 1968. Casing: 10-in. diam to 89 ft; perforated 36-40 ft, 50-87 ft		
Soil	1	1
Clay, brown	15½	16½
Clay, brown, and gravel	9½	26
Gravel	4	30
Sand, brown, and gravel	5	35
Clay, brown	2	37
Clay, brown, and coarse gravel	17	54
Clay, brown	4	58
Clay, blue	19	77
Sand, blue	3	80
Clay, brown	24	104
Clay, blue	24	128
14S/4W-3dbb. American Can Co. Altitude 277 ft. Drilled by Merle Warren Well Drilling, 1967. Casing: 10-in. diam to 134 ft; perforated 86-97 ft, 117-132 ft		
Soil	3	3
Clay, brown	12	15
Clay and gravel	12	27
Gravel, dirty	10	37
Gravel, coarse, and clay	17	54
Clay, brown	1	55
Sand, brown, and gravel	3	58
Clay, brown, and gravel	4	62
Clay, blue	25	87
Clay, brown	18	105
Clay, blue	15	120
Sand, black	5	125
Clay, blue	35	160
14S/4W-6cdc. George Van Leeuwen. Altitude 262 ft. Drilled by Gilbert A. Pruitt, 1957. Casing: 10-in. diam to 39 ft; perforated 31-39 ft		
Loam, sandy	19	19
Gravel, ½- to 3-in. diam, water-bearing	11	30
Gravel, 2- to 4-in. diam	10	40
14S/4W-9baa1. Emery Heading. Altitude 280 ft. Drilled by Merle Warren Well Drilling, 1970. Casing: 6-in. diam to 40 ft; perforated 31-40 ft		
Soil	2	2
Clay	19	21
Clay and gravel	14	35
Sand and gravel	3	38
Clay, brown	6	44
Clay, blue	4	48
14S/4W-9baa2. Emery Heading. Altitude 277 ft. Drilled by Merle Warren Well Drilling, 1966. Casing: 8-in. diam to 116 ft; perforated 101-114 ft		
Soil	3	3
Clay, brown	14	17
Gravel	17	34
Clay, brown	2	36
Clay, blue	54	90
Clay, brown	15	105
Sand and blue clay	46	151
14S/4W-12bcb. Donald Baker. Altitude 280 ft. Drilled by Merle Warren Well Drilling, 1968. Casing: 6-in. diam to 45 ft; perforated 34-43 ft		
Soil	3	3
Clay, brown	10	13
Clay, brown, and gravel	12	25
Gravel, dirty	4	29
Clay, brown, and gravel	6	35
Sand, brown, and gravel	8	43
Clay, brown, and gravel	2	45
14S/4W-15aba. Victor Kropf. Altitude 282 ft. Drilled by Merle Warren Well Drilling, 1970. Casing: 6-in. diam to 43 ft; perforated 34-43 ft		
Soil	3	3
Clay, brown	10	13
Clay and gravel	13	26
Sand and gravel, dirty	8	34
Sand, brown, and gravel	8	42
Clay, brown	2	44
14S/4W-17ada1. Joe Kropf. Altitude 277 ft. Drilled by Bill Howell Well Drilling, 1956. Casing: 5-in. diam to 29 ft; perforated 26-29 ft		
Clay, brown	19	19
Gravel, cemented	8	27
Gravel, loose	2	29
14S/4W-18dcc2. Trudy Brown. Altitude 285 ft. Drilled by Howell Well Drilling, 1967. Casing: 6-in. diam to 33 ft; perforated 31-32 ft		
Clay, brown, sandy	17	17
Sand, brown, and gravel	16	33
14S/4W-20ada. Homer Gingrich. Altitude 285 ft. Drilled by Merle Warren Well Drilling, 1971. Casing: 6-in. diam to 82 ft; perforated 74-82 ft		
Soil	3	3
Clay	19	22
Clay and gravel	3	25
Gravel, water-bearing	8	33
Clay, brown, and gravel	10	43
Clay, blue, and gravel	5	48
Clay, black, sandy	22	70
Sand, black, and pea gravel	2	72
Clay, blue, and gravel	2	74
Clay, black, sandy	3	77
Clay, blue, and gravel	6	83
14S/4W-20bba. W. D. Kropf. Altitude 285 ft. Drilled by Merle Warren Well Drilling, 1971. Casing: 8-in. diam to 40 ft; perforated 30-41 ft		
Soil	2	2
Clay, brown	14	16
Clay, brown, and gravel	6	22
Sand, brown, and gravel	18	40

Table 2.--Drillers' logs of representative wells--Continued

Materials	Thickness (feet)	Depth (feet)
14S/4W-22cdc. Paul Malpass. Altitude 291 ft. Drilled by E. P. Brown Drilling, 1966. Casing: 6-in. diam to 53 ft; unperforated		
Clay	12	12
Sand and gravel	9	21
Sand and clay	32	53
14S/4W-23bac. Archie Meadows. Altitude 284 ft. Drilled by Todd's Drilling Service, 1970. Casing: 8-in. diam to 50½ ft; perforated 44-49 ft		
Soil	2	2
Silt, brown	15	17
Sand, fine	3	20
Gravel, medium to coarse	30	50
Clay, yellow	5	55
Clay, blue	7	62
14S/4W-26ada. Harvey Halsey. Altitude 292 ft. Drilled by O. B. Nye, 1969. Casing: 6-in. diam to 40 ft; perforated 32-40 ft		
Soil	3	3
Clay, brown	11	14
Gravel, cemented	10	24
Sand, coarse	1	25
Gravel, cemented	7	32
Sand, coarse, water-bearing	7	39
Clay, gray	6	45
14S/4W-27bcd. Jim Malpass. Altitude 292 ft. Drilled by O. B. Nye, 1964. Casing: 5-in. diam to 31 ft; perforated 27-31 ft		
Soil and brown clay	14	14
Gravel, cemented	12	26
Sand, packed	4	30
Gravel, water-bearing	1	31
14S/4W-28dbb1. Archie Willis. Altitude 294 ft. Drilled by Page Well Drilling & Supply, 1957. Casing: 6-in. diam to 39½ ft; perforated 19-25 ft, 30-39 ft		
Soil and clay	10	10
Sand	4	14
Sand and gravel	4	18
Sand, water-bearing	3	21
Sand, some water	5	26
Sand and gravel	6	32
Sand and gravel, water-bearing	3	35
Sand, possibly some water	4½	39½
Clay	20½	60
14S/4W-33dbb. W. E. Bublitz. Altitude 296 ft. Drilled by E. P. Brown Drilling, 1966. Casing: 6-in. diam to 30 ft; unperforated		
Clay	14	14
Sand and gravel	16	30
14S/4W-35aab. Berger & Plate Co. Altitude 297 ft. Drilled by Howell Well Drilling, 1967. Casing: 6-in. diam to 35 ft; perforated 33-34 ft		
Soil, brown	7	7
Sand, brown, and gravel	14	21
Sand, brown, packed	10	31
Sand, brown, and gravel	4	35
14S/4W-35daa. John Curtis. Altitude 303 ft. Drilled by Art Clinton Well Drilling Co., 1970. Casing: 12-in. diam to 46 ft; perforated 35-44 ft		
Soil	4	4
Clay, brown	4	8
Clay and gravel	13	21
Gravel, medium, water-bearing	3	24
Clay, brown, and medium gravel	8	32
14S/4W-35daa.--Continued		
Sand and gravel, medium, water-bearing	3	35
Gravel, medium, and blue clay	11	46
14S/5W-2dcc. Paul Rigor. Altitude 260 ft. Drilled by Ace Drilling Co., 1963. Casing: 12-in. diam to 29½ ft; perforated 23½-28½ ft		
Soil, clay, and sand	12	12
Gravel and brown sand	3	15
Gravel	14½	29½
14S/5W-3abb. William Franklin. Altitude 270 ft. Drilled by Bill Howell Well Drilling, 1969. Casing: 10-in. diam to 30 ft; perforated 20-29½ ft		
Loam, brown, sandy	3	3
Sand, brown, and pea gravel	21	24
Gravel, coarse, loose	6	30
14S/5W-3dbc. Horning Bros. Altitude 270 ft. Drilled by Casey Jones Well Drilling, Co., Inc., 1960. Casing: 10-in. diam to 37 ft; perforated 20-37 ft		
Loam, sandy	3	3
Clay and gravel	14	17
Sand, medium, and gravel	20	37
14S/5W-4ccb. J & C Hunt Club. Altitude 275 ft. Drilled by Casey Jones Well Drilling Co., 1971. Casing: 6-in. diam to 30 ft; perforated 26-29 ft		
Soil	4	4
Clay, yellow	16	20
Clay and gravel	3	23
Sand, coarse, and gravel	7	30
Sandstone, gray	15	45
14S/5W-6bac. Emery Nixon. Altitude 470 ft. Drilled by O. B. Nye, 1969. Casing: 5-in. diam to 21 ft; unperforated		
Soil and brown clay	5	5
Clay, yellow, sandy	12	17
Claystone, gray	37	54
Sandstone, gray	60	114
Shale, gray, water-bearing	1	115
Sandstone, gray	85	200
14S/5W-7cdd. Andrew Brandt. Altitude 355 ft. Drilled by O. B. Nye, 1968. Casing: 5-in. diam to 21 ft; unperforated		
Clay, yellow	13	13
Claystone, gray	16	29
Sandstone, gray	13	42
Shale, gray, water-bearing	1	43
Sandstone, gray	59	102
Sandstone, light-gray	12	114
14S/5W-7dbb. Paul Russell. Altitude 400 ft. Drilled by Bill Howell Well Drilling, 1963. Casing: 6-in. diam to 18 ft; unperforated		
Clay, brown	14	14
Claystone, blue	66	80

Table 2.--Drillers' logs of representative wells--Continued

Materials	Thickness (feet)	Depth (feet)
14S/5W-8aab. Don Randall. Altitude 272 ft. Drilled by Casey Jones Well Drilling Co., Inc., 1970. Casing: 10-in. diam to 47 ft; perforated 26-41 ft		
Soil	4	4
Clay, yellow	12	16
Clay, blue	7	23
Sand, coarse, and small gravel	7	30
Gravel, medium, and coarse sand	11	41
Clay, blue, and gravel	6	47
Clay, blue	8	55
14S/5W-9dda. Chris Gwillim. Altitude 270 ft. Drilled by O. B. Nye, 1960. Casing: 5-in. diam to 32½ ft; perforated 28-32½ ft		
Soil and clay	14	14
Gravel, cemented	7	21
Clay and gravel, gray	9	30
Sand and gravel, water-bearing	2	32
Clay, gray, hard	2	34
14S/5W-10dcb. C. C. Lindseth. Altitude 270 ft. Drilled by O. B. Nye, 1961. Casing: 4-in. diam to 26 ft; perforated 22-26 ft		
Soil and sand	9	9
Gravel, packed	9	18
Gravel, water-bearing	8	26
14S/5W-10ddb. C. C. Lindseth. Altitude 270 ft. Drilled by Ace Drilling Co., 1963. Casing: 10-in. diam to 28.6 ft; perforated 22-27½ ft		
Soil, clay, and sand	8	8
Gravel and brown sand	7	15
Gravel and clay	2	17
Gravel, clean	11½	28½
14S/5W-12ddb. Virgil Haener. Altitude 270 ft. Drilled by Ace Drilling Co., 1963. Casing: 12-in. diam to 25 ft; perforated 21-24 ft		
Soil and clay	4	4
Clay, sandy	4	8
Sand, fine, with some clay	4	12
Gravel and sand	4	16
Gravel, clean	9	25
14S/5W-15adc. E. E. Smith. Altitude 275 ft. Drilled by Pitcher Pump & Drilling Co., 1969. Casing: 6-in. diam to 38 ft; perforated 18-37 ft		
Soil and sand	11	11
Sand and gravel, with clay	5	16
Sand and clay	6	22
Sand and gravel, with clay	15	37
Sand, blue, and clay, with gravel	1	38
Sand and clay, blue	12	50
14S/5W-15bba. Keith Crocker. Altitude 265 ft. Drilled by O. B. Nye, 1957. Casing: 8-in. diam to 28 ft; perforated 18-28 ft		
Loam, sandy	9	9
Gravel, cemented	6	15
Gravel, water-bearing	13	28
14S/5W-16aab. George Horning. Altitude 270 ft. Drilled by Casey Jones Well Drilling Co., Inc., 1970. Casing: 6-in. diam to 43 ft; perforated 33-43 ft		
Soil	4	4
Clay, yellow	14	18
Clay, dark-blue	6	24
Clay, light-gray	4	28
Sand, medium, and gravel	4	32
Sand, coarse, and gravel	11	43
Clay, blue	7	50
14S/5W-16cab. W. J. Lawrence. Altitude 275 ft. Drilled by O. B. Nye, 1959. Casing: 5-in. diam to 32 ft; perforated 26-32 ft		
Soil	2	2
Clay, gray	12	14
Loam, sandy	7	21
Gravel, cemented	8	29
Gravel, water-bearing	2	31
Gravel, cemented	3	34
Clay, gray	3	37
14S/5W-20bbb. Keith Johnson. Altitude 342 ft. Drilled by Howell Well Drilling, 1971. Casing: 6-in. diam to 68 ft; unperforated		
Clay, tan, sandy	16	16
Clay, blue, sandy	12	28
Sand, blue, fine, packed	35	63
Sandstone, blue	50	113
Claystone, gray	17	130
14S/5W-21acb. Herbert Rex. Altitude 283 ft. Drilled by O. B. Nye, 1971. Casing: 6-in. diam to 30 ft; perforated 26-30 ft		
Soil and brown clay	18	18
Clay, yellow, and gravel	11	29
Sand, brown, coarse, water-bearing	1	30
Clay, brown, hard	2	32
Clay, gray, hard	6	38
14S/5W-21acd. Lois Gochenour. Altitude 280 ft. Drilled by Casey Jones Well Drilling Co., Inc., 1967. Casing: 6-in. diam to 70 ft; unperforated		
Soil	2	2
Clay, gray	8	10
Clay, sandy	8	18
Sand and gravel, cemented	11	29
Clay, light blue-gray, soft	14	43
Sand, gravel, and clay	17	60
Sand, coarse, and fine gravel and clay	10	70
14S/5W-22cac. Raymond Becker. Altitude 270 ft. Drilled by Pitcher Pump & Drilling Co., 1968. Casing: 10-in. diam to 42½ ft; perforated 18-30 ft, 32-42 ft		
Soil and sandy clay	10½	10½
Sand and gravel, with clay	8½	19
Sand and gravel, clean	9	28
Clay, sandy	3½	31½
Sand and gravel, with clay	3½	35
Sand and gravel, with blue clay	6	41
Clay, gray	7	48
Sandstone, gray	2	50
14S/5W-23aaa. Horning Bros. Altitude 277 ft. Drilled by Clay's Well Drilling, 1969. Casing: 6-in. diam to 20 ft; perforated 16-20 ft		
Soil	3	3
Sand and gravel, firm	8	11
Sand	2	13
Sand and gravel, loose	7	20
14S/5W-23bad. Horning Bros. Altitude 277 ft. Drilled by Howell Well Drilling, 1969. Casing: 10-in. diam to 25 ft; perforated 18½-24½ ft		
Loam, brown, sandy	8	8
Sand, brown, and pea gravel	10	18
Gravel, coarse	7	25

Table 2.--Drillers' logs of representative wells--Continued

Materials	Thickness (feet)	Depth (feet)
14S/5W-23daa. Emma Anderson. Altitude 277 ft. Drilled by Howell Well Drilling, 1969. Casing: 10-in. diam to 28 ft; perforated 19-27½ ft		
Loam, brown, sandy	7	7
Sand, brown, and gravel	11	18
Gravel, brown	7	25
Gravel, coarse	3	28
14S/5W-24dcd. Brent Skiles. Altitude 287 ft. Drilled by Merle Warren Well Drilling, 1972. Casing: 6-in. diam to 32 ft; perforated 22-31 ft		
Soil	3	3
Clay, brown	13	16
Clay and gravel	5	21
Sand, brown, and gravel	11	32
14S/5W-28bbd. Horace Price. Altitude 385 ft. Drilled by O. B. Nye, 1971. Casing: 6-in. diam to 51 ft; unperforated		
Clay, red	34	34
Clay, yellow, sandy	8	42
Claystone, gray	20	62
Shale, gray, water-bearing	1	63
Sandstone, gray	27	90
14S/5W-29bdc. Claude Chadwick. Altitude 315 ft. Drilled by Casey Jones Well Drilling Co., Inc., 1968. Casing: 6-in. diam to 33½ ft; unperforated		
Soil	1	1
Clay, yellow and red	29	30
Sandstone, blue	110	140
14S/5W-31cab. Mr. Moore. Altitude 315 ft. Drilled by Pitcher Pump & Drilling Co., 1969. Casing: 6-in. diam to 41 ft; unperforated		
Soil and clay	16	16
Sandstone, blue-gray, soft	17	33
Sandstone, blue-gray, harder	56	89
Sandstone, brownish-gray	13	102
Sandstone, blue-gray	60	162
14S/5W-31cdc. Paul Burns. Altitude 425 ft. Drilled by Casey Jones Well Drilling Co., Inc., 1971. Casing: 6-in. diam to 60 ft; unperforated		
Soil	2	2
Clay, yellow	10	12
Sandstone and shale, blue	93	105
14S/5W-32baa. Luther Thompson. Altitude 525 ft. Drilled by Casey Jones Well Drilling Co., Inc., 1968. Casing: 6-in. diam to 55½ ft; unperforated		
Soil	2	2
Clay, yellow	28	30
Boulder, basalt	3	33
Clay, yellow	9	42
Boulder, basalt	3	45
Clay, red	8	53
Sandstone, blue	165	218
Basalt	22	240
14S/5W-32bdc. Jack Miller. Altitude 505 ft. Drilled by Casey Jones Well Drilling Co., Inc., 1971. Casing: 6-in. diam to 40 ft; unperforated		
Soil	6	6
Clay, brown, sandy	11	17
Sandstone, gray	15	32
Sandstone, blue	12	44
Rock, volcanic	5	49
Sandstone, blue	46	95
14S/5W-32dac. Charles Kreitman. Altitude 360 ft. Drilled by O. B. Nye, 1957. Casing: 6-in. diam to 13 ft; unperforated		
Soil	3	3
Clay, yellow	6	9
Sandstone, gray	22	31
Shale, gray	1	32
Sandstone, gray, hard	3	35
14S/5W-33bab. City of Monroe. Altitude 430 ft. Drilled by Casey Jones Well Drilling Co., Inc., 1966. Casing: 6-in. diam to 21 ft; unperforated		
Soil	2	2
Clay, yellow	5	7
Sandstone, blue-black	146	153
Sandstone, light-gray	82	235
Sandstone, black	36	271
Sandstone, blue-green and black	171	442
Sandstone, light-gray	83	525
14S/5W-33ddc. Lloyd Miller. Altitude 320 ft. Drilled by Casey Jones Well Drilling Co., Inc., 1969. Casing: 6-in. diam to 21 ft; unperforated		
Soil	2	2
Clay, yellow and red	9	11
Sandstone, blue	86	97
Basalt, broken	19	116
Sandstone, blue	249	365
Shale, gray, soft	90	455
14S/5W-34bbb. C. M. Hubbard. Altitude 300 ft. Drilled by O. B. Nye, 1967. Casing: 5-in. diam to 23 ft; perforated 13-23 ft		
Clay	14	14
Clay, sandy	9	23
Sandstone, gray	7	30
14S/5W-34bca. Cliff George. Altitude 282 ft. Drilled by Ray Gellatly & Ron Witham, 1970. Casing: 8-in. diam to 31 ft; perforated 5½ to 29 ft		
Soil	2	2
Sand and grit	6	8
Clay, yellow	8	16
Gravel, cemented	4	20
Sand and gravel	4	24
Gravel, loose, water-bearing	5	29
Clay, gray	1	30
14S/5W-35aca. George Lowe. Altitude 280 ft. Drilled by Casey Jones Well Drilling Co., Inc., 1965. Casing: 12-in. diam to 46 ft; perforated 26-46 ft		
Old well	15	15
Sand and gravel	31	46
14S/5W-35bad. Chet Oakes. Altitude 283 ft. Drilled by Casey Jones Well Drilling Co., Inc., 1970. Casing: 8-in. diam to 30 ft; perforated 20-27 ft		
Soil	4	4
Clay and gravel	12	16
Sand, coarse, and large gravel	14	30
14S/5W-35dca. George Lowe. Altitude 286 ft. Drilled by Casey Jones Well Drilling Co., Inc., 1967. Casing: 6-in. diam to 26 ft; unperforated		
Soil	2	2
Gravel and clay	6	8
Sand, gravel, and clay	18	26

Table 2.--Drillers' logs of representative wells--Continued

Materials	Thickness (feet)	Depth (feet)
14S/6W-1dcc. Elmer Humphrey. Altitude 350 ft. Drilled by Pitcher Pump & Drilling Co., 1970. Casing: 6-in. diam to 51 ft; unperforated		
Clay, tan, and soil	18	18
Sandstone, brown, weathered	8	26
Claystone, blue-gray, soft	23	49
Sandstone, blue, harder	5	54
Sandstone, dark-blue, medium-hard; caves considerably	52	106
Sandstone, dark-blue, hard	4	110
Sandstone, dark-blue, softer	15	125
14S/6W-11dac1. Harvey Haynes. Altitude 420 ft. Drilled by O. B. Nye, 1962. Casing: 5-in. diam to 67 ft; unperforated		
Soil and yellow clay	22	22
Clay, yellow and gray, sandy	44	66
Gravel, water-bearing	2	68
Shale, gray	12	80
Shale, gray, water-bearing	1	81
Sandstone, gray	7	88
14S/6W-23aaa. Fiona Rust. Altitude 340 ft. Drilled by Casey Jones Well Drilling Co., Inc., 1971. Casing: 6-in. diam to 20 ft; unperforated		
Soil	1	1
Clay, brown	6	7
Claystone, gray	80	87
Sandstone, gray, hard	7	94
Claystone, gray, sandy	62	156
Claystone and sandstone, gray	44	200
14S/6W-25baa. E. A. White. Altitude 320 ft. Drilled by O. B. Nye, 1968. Casing: 5-in. diam to 63 ft; unperforated		
Soil and yellow clay	27	27
Clay, yellow and gray, sandy	27	54
Claystone, gray	14	68
Sandstone, gray	53	121
Shale, gray, water-bearing	1	122
Sandstone, gray	9	131
14S/6W-26ada2. Gib Crowson. Altitude 301 ft. Drilled by Casey Jones Well Drilling Co., Inc., 1969. Casing: 6-in. diam to 21 ft; unperforated		
Soil	2	2
Clay, yellow and blue	12	14
Shale, gray	24	38
Sandstone, blue	35	73
Shale, gray	5	78
Sandstone, blue	72	150
14S/6W-36bad. Donald Shelton. Altitude 440 ft. Drilled by O. B. Nye, 1955. Casing: 5-in. diam to 77 ft; unperforated		
Soil	3	3
Clay, yellow	69	72
Shale, gray	18	90
15S/3W-6bdd. Roger Neuschwander. Altitude 308 ft. Drilled by Schoen Electric & Pump, 1970. Casing: 10-in. diam to 100 ft; perforated 23-86 ft, 89-98 ft		
Soil	2	2
Clay, brown	6	8
Gravel	17	25
Sand	3	28
Gravel	17	45
Clay, green, sandy	55	100
15S/3W-8aba. E. P. Neuschwander. Altitude 315 ft. Drilled by Merle Warren Well Drilling, 1960. Casing: 6-in. diam to 54 ft; perforated 45-53 ft		
Soil	3	3
Clay	7	10
Gravel, dirty	35	45
Gravel, water-bearing	6	51
Clay, brown	24	75
15S/3W-9cba. Texaco, Inc. Altitude 320 ft. Drilled by H. J. Flannery, 1968. Casing: 6-in. diam to 50 ft; unperforated		
Loam, black	26	26
Sand and gravel	14	40
Clay, blue	46	86
Sandstone, blue	7	93
Sand, water-bearing	4	97
Clay, yellow	24	121
Sand, water-bearing	5	126
Shale, blue	14	140
15S/3W-12bdc. Lester Walker. Altitude 395 ft. Drilled Casey Jones Well Drilling Co., Inc., 1966. Casing: 6-in. diam to 160 ft; unperforated		
Clay	8	8
Claystone	2	10
Sandstone, blue	112	122
Sandstone, gray, limey	6	128
Sandstone, blue	32	160
15S/3W-13ccc. Edwin Leabo. Altitude 375 ft. Drilled by O. B. Nye, 1969. Casing: 5-in. diam to 21 ft; unperforated		
Soil and brown clay	9	9
Claystone, gray	33	42
Sandstone, gray	11	53
Shale, gray, water-bearing	2	55
Claystone, gray	4	59
15S/3W-16bbd. Ken Perkinson. Altitude 325 ft. Drilled by Christensen Drilling, 1970. Casing: 6-in. diam to 56½ ft; perforated 21-56 ft		
Clay, gray-brown	2	2
Clay, gray, with sand and gravel	6	8
Sand and gravel, with brown clay	11	19
Sand and gravel, with black clay, cemented	27	46
Sand and gravel, loose	2	48
Sand and gravel, cemented	11	59
15S/3W-19acd1. E. B. Grimes. Altitude 327 ft. Drilled by Christensen Drilling, 1959. Casing: 10-in. diam to 69 ft; perforated 21-29 ft, 34-65 ft		
Soil	10	10
Gravel, cemented	8	18
Sand and gravel	12	30
Sand and fine gravel	1	31
Gravel, cemented	2	33
Sand, gravel, and some clay	11	44
Sand and gravel	22	66
Clay, yellow, sandy	22	88
Sand and clay	10	98
15S/3W-20dbb. Walter Bowers. Altitude 330 ft. Drilled by O. B. Nye, 1959. Casing: 5-in. diam to 26 ft; perforated 20-26 ft		
Soil	1	1
Gravel, cemented	6	7
Sand, packed	10	17
Gravel, cemented	4	21
Sand, water-bearing	4	25
Gravel, cemented, and gray clay	1	26

Table 2.--Drillers' logs of representative wells--Continued

Materials	Thickness (feet)	Depth (feet)
15S/4W-1acc. James Smucker. Altitude 310 ft. Drilled by O. B. Nye, 1967. Casing: 5-in. diam to 36 ft; perforated 30-36 ft		
Clay, brown	15	15
Gravel, cemented	17	32
Sand, brown, water-bearing	1	33
Sand, packed, and gravel	3	36
Gravel, cemented	1	37
15S/4W-7acc. Glen Lee. Altitude 295 ft. Drilled by O. B. Nye, 1965. Casing: 4-in. diam to 21 ft; perforated 18-21 ft		
Soil and sandy clay	11	11
Sand, packed, and gravel	5	16
Sand and gravel, water-bearing	5	21
15S/4W-7adb. Carson Adams. Altitude 300 ft. Drilled by Merle Warren Well Drilling, 1967. Casing: 6-in. diam to 101 ft; perforated 90-99 ft		
Soil	6	6
Sand and gravel	41	47
Clay, blue	18	65
Clay, brown	6	71
Clay, blue	4	75
Sand, black, and pea gravel	26	101
15S/4W-8bbb. Gary Adams. Altitude 298 ft. Drilled by Merle Warren Well Drilling, 1968. Casing: 6-in. diam to 25½ ft; perforated 19½-25½ ft		
Loam, brown, sandy	6	6
Gravel, sandy	19½	25½
15S/4W-6cbd. Gary Adams. Altitude 298 ft. Drilled by Merle Warren Well Drilling, 1968. Casing: 10-in. diam to 27 ft; perforated 18-27 ft		
Soil	10	10
Silt, blue, sandy	5	15
Gravel, coarse	12	27
15S/4W-9add2. Morse Bros. Altitude 303 ft. Drilled by O. B. Nye, 1966. Casing: 5-in. diam to 40 ft; perforated 32-40 ft		
Soil and brown clay	14	14
Gravel, cemented, and yellow clay	17	31
Sand, water-bearing	6	37
Sand, coarse, packed	3	40
15S/4W-9dac. Morse Bros. Altitude 300 ft. Drilled by Casey Jones Well Drilling Co., Inc., 1970. Casing: 6-in. diam to 38 ft; perforated 20-36 ft		
Soil and gravel	3	3
Clay and boulders	9	12
Gravel and clay	6	18
Sand, coarse, and gravel	18	36
Gravel, cemented	2	38
15S/4W-10cad. City of Harrisburg. Altitude 312 ft. Drilled by Christensen Drilling, 1959. Casing: 10-in. diam to 39 ft; perforated 26-38 ft		
Clay	11	11
Sand and gravel	7	18
Sand and gravel, with clay	6	24
Gravel, water-bearing	17	41
Clay and gravel	11	52
Clay, blue, sandy	4	56
15S/4W-11bbc. Mouldings, Inc. Altitude 307 ft. Drilled by Miller-Jensen Co., 1965. Casing: 6-in. diam to 35 ft; perforated 25-35 ft		
Clay	20	20
Sand and gravel	15	35
15S/4W-13bab1. Lloyd Poublon. Altitude 321 ft. Drilled by Page Well Drilling & Supply, 1958. Casing: 6-in. diam to 83 ft; perforated 35-43 ft, 45-83 ft		
Soil and clay	13	13
Gravel and sand	22	35
Gravel and sand, very tight; some water	2	37
Gravel, with clay	8	45
Clay, blue, with some sand, water-bearing	65	110
15S/4W-14cda. Ormand Davis. Altitude 316 ft. Drilled by O. B. Nye, 1969. Casing: 6-in. diam to 41 ft; perforated 36-41 ft		
Clay, brown	13	13
Clay, brown, and gravel	9	22
Sand, brown, packed	5	27
Gravel, cemented	9	36
Sand, coarse, and gravel, water-bearing	3	39
Gravel, cemented	1	40
15S/4W-15bdc. Dave Orendorff. Altitude 314 ft. Drilled by Merle Warren Well Drilling, 1968. Casing: 6-in. diam to 59 ft; perforated 50-58 ft		
Soil, brown	2	2
Clay, gray	7½	9½
Gravel, coarse	13½	23
Gravel and sand, dirty	8	31
Sand and gray silt	6	37
Sand and fine gravel	3	40
Sand, packed	9	49
Sand and gravel	7	56
Clay, blue	5	61
15S/4W-15cca3. Lee Philpott. Altitude 305 ft. Drilled by W. W. Drilling & Pump Service, 1968. Casing: 10-in. diam to 41 ft; perforated 21-41 ft		
Loam	6	6
Sand, gravel, and clay	10	16
Sand	2	18
Sand and gravel	24	42
Sand and gravel, brown, tight	3	45
Sand, dark-gray, with clay	20	65
Sand, blue-green, with clay	10	75
Sand, blue-gray, with clay	6	81
15S/4W-16aac. City of Harrisburg. Altitude 310 ft. Drilled by Christensen Drilling & Irrigation, 1965. Casing: 12-in. diam to 155 ft, 8-in. diam 140-305 ft; unperforated		
Soil	9	9
Sand and gravel	35	44
Clay, brown	21	65
Clay, blue	5	70
Sand	24	94
Clay, blue	26	120
Sand and gravel	18	138
Clay, blue	60	198
Sand, black	10	208
Clay, blue	39	247
Sand and gravel	53	300
Clay, blue	5	305

Table 2.--Drillers' logs of representative wells--Continued

Materials	Thickness (feet)	Depth (feet)
15S/4W-16adc. City of Harrisburg. Altitude 311 ft. Drilled by W. W. Drilling & Pump Service, 1966. Casing: 12-in. diam to 350 ft; perforated 110-130 ft, 335-340 ft		
Clay, gray-white	10	10
Clay, gray	4	14
Clay, brown, and pea gravel	33	47
Clay, blue	18	65
Clay, brown, soft, and very fine sand, water-bearing	13	78
Clay, blue, soft	37	115
Sand, black, and gravel, water-bearing	10	125
Clay, blue	10	135
Clay, gray-green	15	150
Clay, blue	28	178
Sand, black, very fine; some water	12	190
Clay, blue, very sticky	60	250
Sand, very fine, and blue clay and lots of wood; some water	25	275
Clay, dark-gray, and fine sand	15	290
Clay, blue, very sticky	45	335
Sand, black, coarse, with "buckshot" gravel	2	337
Clay, blue	63	400
15S/4W-17abc. C. E. Betterton. Altitude 305 ft. Drilled by Christensen Drilling & Irrigation, 1967. Casing: 8-in. diam to 28½ ft; perforated 20-28 ft		
Soil	8	8
Sand and gravel, with clay	8	16
Sand and gravel, loose	2	18
Sand and gravel, with clay	3	21
Sand and gravel, loose	7	28
Sand, with clay	½	28½
15S/4W-17ada2. Clarence Betterton. Altitude 305 ft. Drilled by Christensen Drilling & Irrigation, 1967. Casing: 8-in. diam to 28 ft; perforated 18-27 ft		
Soil	4	4
Sand and gravel, tight	8	12
Sand and gravel, loose	6	18
Sand and some gravel	8	26
Sand and gravel, with clay	2	28
15S/4W-17ccc. Kyle Howard. Altitude 308 ft. Drilled by O. B. Nye, 1963. Casing: 5-in. diam to 27 ft; perforated 22-27 ft		
Soil and brown clay	9	9
Sand, packed, and gravel	14	23
Gravel, water-bearing	4	27
15S/4W-18dbb. S. D. Anderson. Altitude 304 ft. Drilled by O. B. Nye, 1960. Casing: 5-in. diam to 21 ft; perforated 18-21 ft		
Soil and loam	6	6
Gravel, cemented	12	18
Gravel, water-bearing	3	21
15S/4W-19abb. Bernard Glenn. Altitude 300 ft. Drilled by O. B. Nye, 1966. Casing: 5-in. diam to 26 ft; perforated 22-26 ft		
Soil and brown clay	5	5
Clay, brown, and gravel	6	11
Sand, packed, and gravel	10	21
Gravel, water-bearing	5	26
15S/4W-19aca. Bernard Glenn. Altitude 305 ft. Driven by O. B. Nye, 1964. Casing: 5-in. diam to 24 ft; perforated 20-24 ft		
Soil and loam	9	9
Sand, packed, and gravel	12	21
Sand and gravel, water-bearing	3	24
15S/4W-19baa. Soren Madsen. Altitude 306 ft. Driven by O. B. Nye, 1967. Casing: 5-in. diam to 28 ft; perforated 23-28 ft		
Soil and brown clay	9	9
Sand, packed, and gravel	8	17
Clay, brown, and coarse gravel	5	22
Sand and medium gravel, water-bearing	6	28
15S/4W-20acb. R. E. Bryson. Altitude 310 ft. Drilled by Casey Jones Well Drilling Co., Inc., 1967. Casing: 6-in. diam to 35 ft; perforated 18-33 ft		
Soil	3	3
Clay, brown, soft, sandy	4	7
Sand and gravel, cemented	11	18
Sand and gravel	9	27
Sand, gravel, and clay	2	29
Sand and gravel, cemented	6	35
15S/4W-20bbc. Martin Strome. Altitude 307 ft. Drilled by W. W. Drilling & Pump Service, 1967. Casing: 10-in. diam to 51 ft; perforated 19-50 ft		
Soil	5	5
Gravel, cemented	9	14
Gravel, loose	5	19
Sand and gravel, loose	7	26
Sand and gravel, cemented	4	30
Sand and gravel, loose	4	34
Gravel, cemented	6	40
Sand and gravel, loose	4	44
Clay, sandy	16	60
Sand, yellow, fine	10	70
Clay, blue, sandy	10	80
15S/5W-1bdd. W. H. Kerrigan. Altitude 290 ft. Drilled by Pitcher Pump & Drilling Co., 1971. Casing: 8-in. diam to 28 ft; perforated 19-27 ft		
Soil and sand	8	8
Sand and gravel, with clay	6	14
Sand and gravel, loose	13	27
Sand and gravel, with clay	1	28
15S/5W-2bbc. J. H. Miller. Altitude 286 ft. Drilled by O. B. Nye, 1958. Casing: 6-in. diam to 35 ft; perforated 29-35 ft		
Loam, sandy	3	3
Clay, yellow	13	16
Sand, packed	6	22
Gravel, cemented	7	29
Sand and gravel	6	35
Clay, yellow, sandy	15	50
Clay, gray	2	52
15S/5W-4aaa. Bar Kay Ranch. Altitude 379 ft. Drilled by Casey Jones Well Drilling Co., Inc., 1964. Casing: 6-in. diam to 19 ft; unperforated		
Soil	3	3
Clay, yellow	5	8
Sandstone, blue	67	75
Basalt, black	40	115
Sandstone, blue	205	320
15S/5W-5bda2. Bob Wilson. Altitude 365 ft. Drilled by Christensen Drilling, 1969. Casing: 6-in. diam to 39 ft; unperforated		
Clay and sandy soil	3	3
Clay, with layers of gravel	26	29
Shale, with layers of sandstone	290	319

Table 2.--Drillers' logs of representative wells--Continued

Materials	Thickness (feet)	Depth (feet)
15S/5W-9bdc. Bill Dixon. Altitude 440 ft. Drilled by Casey Jones Well Drilling Co., Inc., 1970. Casing: 6-in. diam to 45 ft; unperforated		
Soil	2	2
Clay, yellow	26	28
Shale, blue	13	41
Sandstone, blue	176	217
Basalt, black	19	236
Sandstone, blue	264	500
15S/5W-11bad. R. E. McNees. Altitude 295 ft. Drilled by Casey Jones Well Drilling Co., Inc., 1966. Casing: 8-in. diam to 70 ft; perforated 22-36 ft		
Soil	1	1
Clay, sandy, and gravel	6	7
Gravel, brown	13	20
Clay, brown, sandy	7	27
Gravel and sand, brown	8	35
Sand, blue, and gravel	7	42
Clay, blue	29	71
15S/5W-11dbb2. C. H. Cleveland. Altitude 295 ft. Drilled by O. B. Nye, 1966. Casing: 6-in. diam to 34 ft; perforated 28-34 ft		
Soil and brown clay	13	13
Gravel, cemented	14	27
Sand, brown, packed	4	31
Gravel, coarse, water-bearing	3	34
15S/5W-12dbc1. Howard Gibson. Altitude 301 ft. Drilled by Art Clinton Well Drilling Co., 1967. Casing: 12-in. diam to 46 ft; perforated 36-45 ft		
Soil	4	4
Clay, brown	12	16
Sand, coarse, and medium gravel, water-bearing	30	46
Clay, blue	1	47
15S/5W-22acb1. James Detering. Altitude 320 ft. Drilled by Casey Jones Well Drilling Co., Inc., 1967. Casing: 6-in. diam to 23 ft; perforated		
Clay	16	16
Sand, silty	6	22
Rock, blue	23	45
Rock, blue-gray	25	70
Rock, shaley	10	80
15S/6W-1bdb. Earl Barnts. Altitude 340 ft. Drilled by Eastwood Water Well Drilling, 1968. Casing: 6-in. diam to 20 ft; unperforated		
Soil	7	7
Sandstone, orange, fractured	2	9
Claystone, blue	21	30
Sandstone, blue	40	70

Table 3.--Chemical analyses of water in the Harrisburg-Halsey area

/Analyses by the U.S. Geological Survey unless otherwise noted/

Location number	Water-bearing material	Date of collection	Milligrams per litre																				Sodium-adsorption-ratio (SAR)	Specific conductance (micromhos/cm at 25°C)	pH	Temperature	
			Silica (SiO_2)	Iron (Fe)	Manganese (Mn)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Carbonate (CO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrite + nitrate (as N)	Phosphate, ortho as P	Boron (B)	Arsenic (As)	Dissolved solids, calculated from determined constituents	Hardness (Ca, Mg)	Noncarbonate hardness				°C	°F
1/13S/2W-5dda	Basalt	-71	--	0.45	--	--	--	--	--	122	0	--	3.1	--	--	--	--	--	170	83	--	--	--	--	--	--
13S/2W-6cdb	Sandstone	12- 5-73	32	.02	0	40	9.0	68	1.4	303	0	9.6	19	0.2	0.04	0.04	0.06	0	330	140	0	2.5	526	7.5	8.5	47
13S/2W-17cdd	do	12- 5-73	38	.08	.10	59	9.6	150	1.1	137	0	8.5	280	.1	1.2	.05	.10	.005	620	190	75	4.8	1,160	7.2	8.5	47
13S/2W-30dcb	Volcanic rocks	12- 5-73	43	.20	.23	27	6.9	44	2.3	183	0	4.5	31	.1	.03	.17	.10	.004	250	96	0	2.0	380	7.7	8.0	46
13S/3W-4bdd	Sandstone	12- 4-73	35	.78	.52	41	20	74	1.5	233	0	1.5	110	.1	.00	.07	.05	.001	400	180	0	2.4	720	7.7	9.0	48
13S/3W-17dda	Sand and gravel	12- 4-73	36	.88	1.90	30	14	12	.8	190	0	4.6	53	.2	.01	.07	.003	.005	200	130	0	.5	304	7.4	9.0	48
13S/3W-27aad	Sandstone	12- 4-73	40	.04	.008	14	1	30	.6	110	0	12	3.4	.2	.00	.07	.10	.005	160	39	0	2.1	199	8.0	8.5	47
1/13S/3W-32ccc2	Sand and gravel	6- -58	54	5.8	0	470	47	350	20	150	0	2.6	1,400	.0	.07	--	--	--	3,400	1,400	--	--	720	7.0	10.5	51
13S/4W-10bca	do	12- 4-73	59	0	1.50	32	14	15	1.2	201	0	3.2	6.0	.3	.00	.20	.01	.002	230	140	0	.6	309	7.3	8.0	46
13S/4W-17bac	do	12- 4-73	40	1.60	.72	120	36	97	2.5	173	0	1.6	360	.1	.00	.06	.07	0	740	450	310	2.0	1,470	7.6	8.0	46
13S/5W-7dad	do	12- 6-73	38	4.7	.89	29	12	30	2.8	186	0	6.1	19	.6	.03	.15	.04	.01	240	120	0	1.2	366	7.2	9.0	48
13S/5W-13dbc	do	12- 5-73	50	.04	.008	18	10	8.0	1.1	108	0	9.5	3.7	.0	.48	.09	.007	0	160	86	0	.4	206	6.9	9.0	48
13S/5W-23dac	Sand and clay	12- 3-73	45	.87	.16	170	10	100	1.5	140	0	1.8	400	.1	.00	.28	.09	0	800	470	350	2.0	1,520	7.3	--	--
14S/2W-8bba	Sand and gravel	12- 5-73	34	.04	0	13	4.5	8.1	.6	74	0	2.8	1.0	.1	.05	.04	.003	0	100	51	0	.5	127	7.7	9.5	49
14S/2W-10dbd1	do	12- 5-73	34	.10	.017	15	3.2	31	1.1	138	0	2.9	3.4	.1	.00	.06	.005	.001	160	51	0	1.9	225	8.0	8.5	47
14S/2W-31aca	Volcanic rocks	12- 5-73	42	.04	.008	11	1.1	61	.7	163	0	26	6.9	.2	.00	.08	.20	0	230	32	0	4.7	327	8.3	9.0	48
14S/3W-2dba	Sand and gravel	12- 4-73	34	.16	.23	39	8.4	35	1.1	118	0	.4	79	.1	.02	.27	.040	.001	260	130	35	1.3	452	7.7	--	--
14S/3W-4abb	do	12- 4-73	33	.02	.23	42	8.6	40	1.3	132	0	1.8	85	.1	.00	.27	.06	.004	280	140	32	1.5	478	7.9	9.5	49
14S/3W-7ddc	do	9-13-73	32	.04	.37	150	28	89	2.4	235	0	1.8	360	.1	1.1	.12	0	0	780	490	300	1.8	1,520	7.4	12.0	54
14S/3W-13cbd	Basalt	12- 5-73	70	.25	.67	75	30	13	1.6	125	0	230	4.4	.1	.08	.10	.005	0	490	310	210	.3	645	6.8	5.5	42

See footnote at end of table.

Table 3.--Chemical analyses of water in the Harrisburg-Halsey area--Continued

[Analyses by the U.S. Geological Survey unless otherwise noted]

Location number	Water-bearing material	Date of collection	Milligrams per litre																			Sodium-adsorption-ratio (SAR)	Specific conductance (micromhos/cm at 25°C)	pH	Temperature	
			Silica (SiO_2)	Iron (Fe)	Manganese (Mn)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Carbonate (CO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrite + nitrate (as N)	Phosphate, ortho as P	Boron (B)	Arsenic (As)	Dissolved solids, calculated from determined constituents	Hardness (Ca, Mg)	Noncarbonate hardness				°C	°F
14S/3W-13cdc2	Sandstone	12- 5-73	44	0.59	0.33	46	11	62	3.3	149	0	150	14	0.1	0.00	0.07	0.10	0	400	160	38	2.1	585	7.7	9.5	49
1/ 14S/4W-1aab2	Sand and gravel	3- -61	53	.29	--	85	13	62	3.7	170	0	6.5	160	--	--	--	--	--	590	270	--	--	--	--	--	--
14S/4W-9baa1	do	12- 4-73	55	.02	.01	19	13	14	1.0	113	0	14	9.6	.4	3.1	.11	.02	.003	200	100	8	.6	265	7.5	8.0	46
14S/4W-21dac	do	9-11-73	38	.23	.08	32	19	39	2.1	200	0	2.8	57	.2	.06	.17	.02	.002	290	160	0	1.4	475	7.7	11.0	52
14S/4W-23bac	do	12- 4-73	59	.04	0	39	23	28	1.2	127	0	10	94	.2	.10	.12	0	.003	320	190	88	.9	544	7.2	8.0	46
14S/5W-23bcb1	do	12- 3-73	23	1.00	.083	250	9.1	160	.9	105	0	8.5	630	.1	.03	.03	.40	0	1,100	660	580	2.7	2,220	7.3	7.0	45
14S/5W-31cab	Sandstone	12- 3-73	14	.11	0	9.8	3.5	110	1.3	293	0	4.1	26	.1	.00	.04	.40	0	310	39	0	7.7	521	7.5	--	--
14S/6W-25baa	do	12- 6-73	28	.04	0	4.3	.9	5.1	1.0	27	0	4.1	1.6	.0	.00	.03	.01	0	60	14	0	.6	52	6.9	6.5	44
15S/3W-2bbb	do	12- 5-73	14	.23	.14	150	4.7	360	2.6	64	0	30	790	.6	.02	.01	1.50	.005	1,400	390	340	7.9	2,690	7.1	7.0	45
15S/3W-6bdd	Sand and gravel	12- 4-73	39	.13	.033	16	5.7	9.5	1.0	77	0	4.7	7.3	.1	.64	.15	.007	.002	120	63	0	.5	156	7.7	8.5	47
15S/3W-9cba	Sandstone	12- 4-73	37	.17	.12	220	97	150	4.6	195	0	.7	790	.2	.00	.02	.01	.001	1,400	950	790	2.1	2,730	7.4	8.0	46
15S/4W-8bbb	Sand and gravel	12- 6-73	39	.04	.025	34	16	8.9	1.6	72	0	37	7.5	.1	15	.05	.02	.003	250	150	92	.3	357	7.0	9.0	48
15S/4W-13bab1	do	12- 4-73	53	.01	.008	19	12	22	1.3	136	0	1.8	24	.4	.28	.16	.008	.004	200	97	0	1.0	292	7.7	--	--
1/ 15S/4W-16aac	do	7- -65	23	4.7	.04	42	6.4	43	1.2	94	0	1.6	78	.0	--	--	--	--	420	130	--	--	--	--	--	--
15S/5W-9bdd	Sandstone	12- 3-73	25	.02	0	54	12	21	1.3	243	0	26	5.9	.2	.00	.03	.07	.001	260	180	0	.7	422	7.5	--	--
15S/5W-11dbb2	Sand and gravel	12- 6-73	38	.04	.033	31	15	13	1.8	128	0	13	24	.7	4.7	.08	.03	.005	220	140	34	.5	340	6.8	10.0	50

1/ Analysis by Charlton Laboratories.

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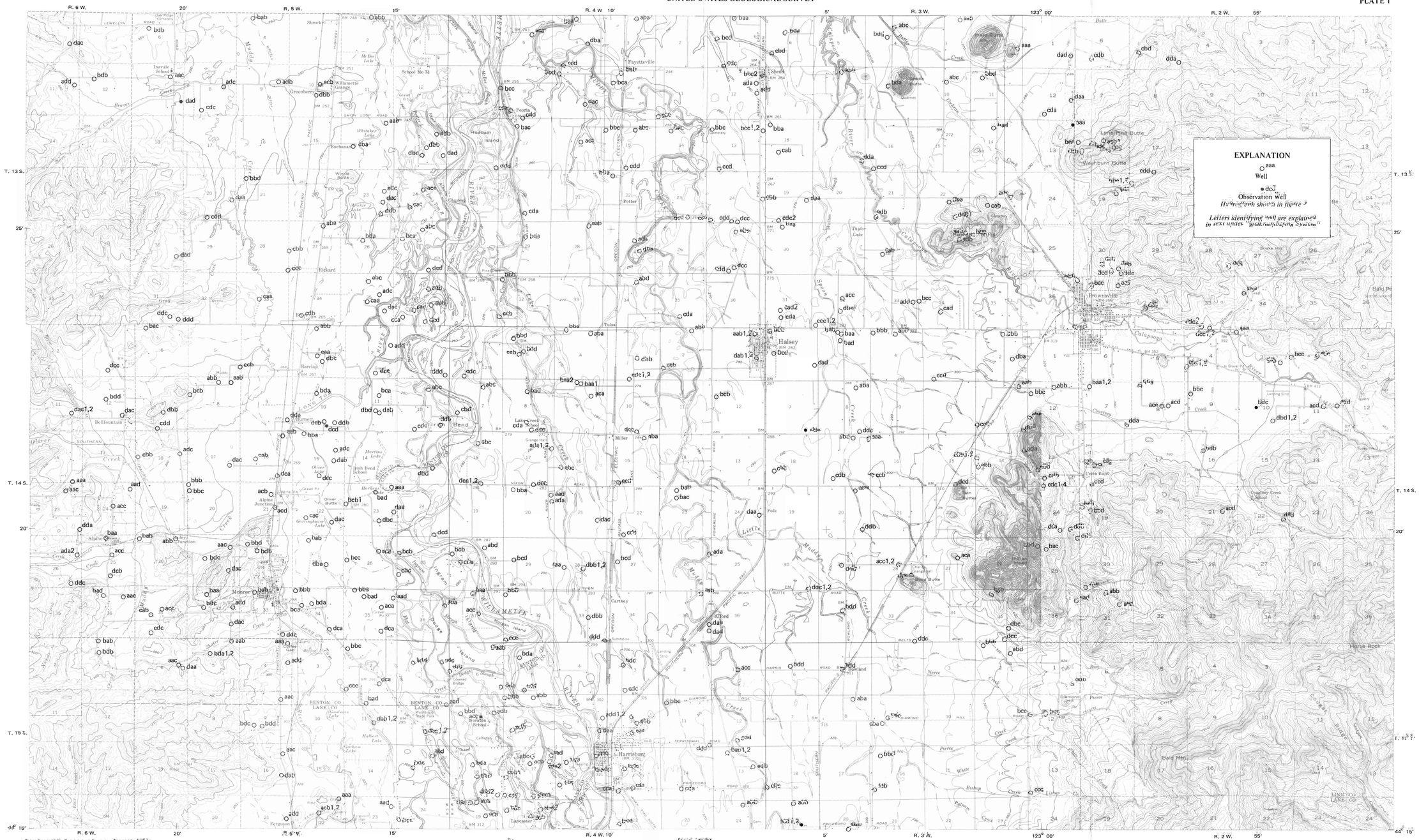

MAP OF THE HARRISBURG-HALSEY AREA, OREGON SHOWING THE LOCATIONS OF REPRESENTATIVE WELLS