

**OREGON STATE ENGINEER**

**GROUND WATER REPORT NO. 7**

**STATE OF OREGON**

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STATE ENGINEER**

**SELECTED GROUND WATER DATA IN THE  
EOLA-AMITY HILLS AREA, NORTHERN  
WILLAMETTE VALLEY, OREGON**

**BY  
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**PREPARED IN COOPERATION WITH  
THE UNITED STATES DEPARTMENT OF THE INTERIOR  
GEOLOGICAL SURVEY  
NOVEMBER, 1965**

## FOREWORD

An investigation of the ground-water resources of the Willamette Valley was begun in 1960 as a cooperative program between the U.S. Geological Survey and the Oregon State Engineer. The purpose of the investigation is to obtain a better understanding of the occurrence, movement, quality, and availability of ground water in the valley to aid in the optimum development of this valuable resource.

The investigation was begun in the northern part of the valley, which was subdivided into three study areas--the French Prairie-Mission Bottom, Salem-Molalla Slope, and Eola-Amity Hills areas. Ground-water data collected in the French Prairie-Mission Bottom area and the Molalla-Salem Slope area have been published in State Engineer Ground Water Reports 1 and 2. Data collected in the Eola-Amity Hills area are contained in this report. Interpretive reports describing the ground-water conditions and availability in all three areas will be published by the U.S. Geological Survey.

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SELECTED GROUND-WATER DATA IN THE EOLA-AMITY HILLS AREA,  
NORTHERN WILLAMETTE VALLEY, OREGON

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By Don Price and Nyra A. Johnson

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INTRODUCTION

Purpose of This Report

The Eola-Amity Hills area is one of highly diversified geologic and hydrologic conditions, which make the occurrence, quality, and availability of ground water differ considerably from place to place. Withdrawals of ground water for irrigation, domestic, and public supplies have increased progressively in recent years. Because withdrawals are expected to continue to increase in the future, information is needed to aid in the orderly and efficient development of the ground-water resources of the area.

To obtain this needed information, a study was begun in 1962 of the occurrence, quality, availability, and uses of ground water in the area; the adequacy of the ground-water resources to meet future requirements; and the ground-water problems that are likely to develop. During the investigation, records of more than a hundred representative wells and 15 springs were collected, water levels in 15 selected wells were measured periodically, and samples of water from 14 wells and 2 springs were analyzed to determine their chemical character.

The purpose of this report is to assemble the basic ground-water data collected during this investigation and to make these data available in advance of the final report. The final interpretative report, which is proposed for publication by the U.S. Geological Survey, will include only a small part of the data presented in this report.

Acknowledgments

The basic data included in this report were supplied by well and spring owners and operators, well drillers, and pump companies and their representatives. Officials and operating personnel of various communities and water-supply systems contributed valuable information regarding sources, quality, and use of water. The cooperation of these people is gratefully acknowledged.

LOCATION AND DESCRIPTION OF THE AREA

The Eola-Amity Hills area lies between lat  $44^{\circ}53'$  and  $45^{\circ}15'$  N. and long  $123^{\circ}00'$  and  $123^{\circ}15'$  W. in northwestern Oregon. It includes that part of the northern Willamette Valley west of the Willamette River between Salem and McMinnville, Oreg., and covers about 230 square miles. The boundaries and general features of the area of investigation are shown in figure 1.

The Eola-Amity Hills area includes the following main physiographic sub-areas: (a) The Eola-Amity Hills, (b) the east valley plain, (c) the west valley plain, and (d) the Willamette River flood plain; those subareas are described briefly below.

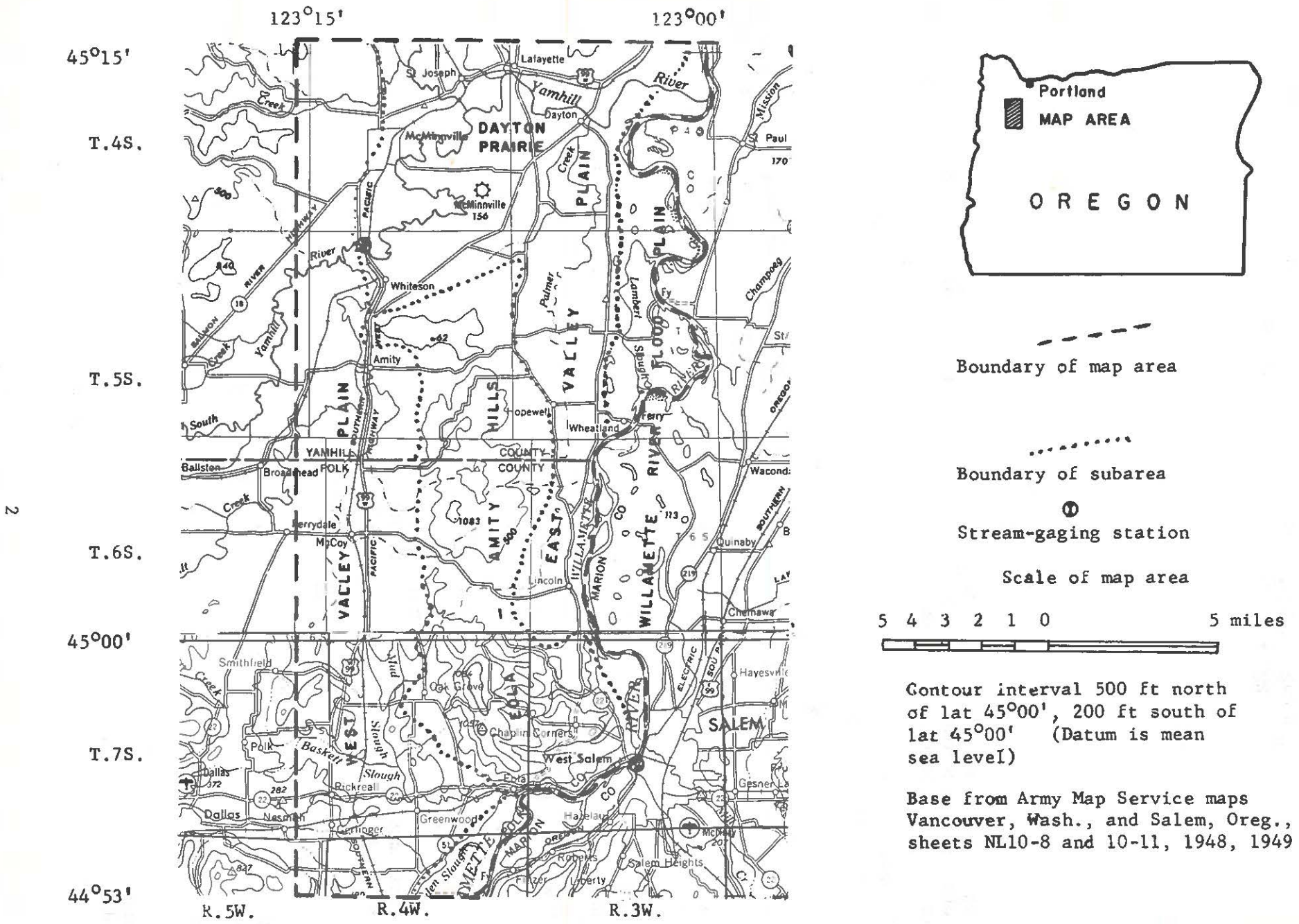


Figure 1.--Map showing boundaries and general features of the Eola-Amity Hills area.

### Eola-Amity Hills

The Eola-Amity Hills subarea is one of several isolated lava-capped upland areas in the northern Willamette Valley between Salem and Portland. It is separated from Salem Hills by a gap through which the Willamette River flows, and from the Coast Range and Red Hills of Dundee, and other local upland areas by intervening segments of the main Willamette Valley plain. The subarea occupies approximately 70 square miles, or about one-third of the study area.

### East Valley Plain

The east valley plain is that part of the main Willamette Valley plain east of McMinnville and the Eola-Amity Hills.

This subarea is one of the most important parts of the study area with respect to agriculture because it is underlain to depths of more than 200 feet by relatively permeable sand and gravel aquifers, which are tapped by a number of moderate- to large-yield irrigation wells.

### West Valley Plain

The west valley plain includes that part of the main Willamette Valley plain west of McMinnville and the Eola-Amity Hills (fig. 1). It differs from the east valley plain because it has an undulating surface owing to local outcrops of relatively resistant shale and siltstone, which form small scattered knolls and hills. The subarea is divided into two parts by a western extension of the Eola Hills that is breached by Holmes Gap. North of Holmes Gap, the plain slopes gently to the north; south of Holmes Gap it slopes southeastward.

### Willamette River Flood Plain

The present flood plain of the Willamette River is about 30 to 80 feet lower in altitude than the main valley plain and is separated from the main valley plain by a steep erosional scarp of the Willamette River. Only discontinuous segments of the Willamette River flood plain lie within the study area, which is west of the Willamette River. The largest of these segments includes Grand Island, which covers about 13 square miles. The other segments (unnamed) have a combined areal extent of about 10 square miles.

### AVAILABILITY OF GROUND WATER

Sufficient ground water of generally good chemical quality can be obtained in most parts of the Eola-Amity Hills area to meet normal domestic requirements. The availability of ground water in the area differs considerably from place to place, depending chiefly on the nature and distribution of the geologic units in the area. Table 1 describes briefly the geologic situation and availability of ground water by subarea.

### EXPLANATION OF DATA

#### Well- and Spring-Numbering System

In this report, wells are designated by symbols that indicate their location according to the official rectangular subdivision of public lands. For example, in the symbol for well 6/4W-1H1, the part preceding the hyphen indicates the township and range (T. 6 S., R. 4 W.) south and west of the Willamette base line

Table 1.--Geologic situation, and availability of ground water by subarea

Subarea	Geologic situation	Availability of ground water
Eola-Amity Hills <sup>1/</sup>	Underlain by marine sedimentary rocks that consist of a thick sequence of poorly permeable siltstone and shale strata with some interbedded sandstone. The marine sedimentary rocks are capped along the east flanks of the hills by a sequence of accordantly layered basaltic lava flows which have an aggregate thickness that ranges from less than 1 to about 900 feet and averages about 200 feet. The lava flows and the underlying sedimentary strata dip gently to the east.	Most of the wells that tap the marine sedimentary rocks produce only small to moderate quantities of water, as do wells that tap shallow aquifers in the overlying basalt. Deeper aquifers in the basalt yield moderate to large quantities to wells locally along the lower east flanks of the Eola-Amity Hills and Red Hills of Dundee. The ground water in this subarea is of generally good chemical quality for most uses.
East valley plain	Soil and rock materials underlying this subarea, in descending order, are a sequence of silt up to about 80 feet thick, fluviolacustrine deposits ranging in thickness from a few to about 200 feet and consisting chiefly of clay and sand with thin interbeds and stringers of gravel; lava flows (at places) and marine sedimentary rocks consisting chiefly of shale and siltstone.	Most of the wells in this subarea tap fluviolacustrine deposits. Those wells produce moderate to large quantities of water, the most productive of which are large-diameter irrigation wells that tap one or more gravel or sand and gravel layers. The ground water in this subarea is of generally good chemical quality for most uses, but the water from some wells contains considerable suspended sediment owing to the predominance of silt and fine sand in the aquifer materials.
West valley plain	Most of this subarea is underlain by marine sedimentary rocks consisting chiefly of shale and siltstone with some interbedded sandstone and intercalated volcanic rocks, but except for a few scattered outcrops, these rocks are covered by a thin veneer of nonmarine sedimentary rocks consisting of silt and local deposits of sand and gravel. A small segment of the subarea north and west of McMinnville is underlain by intrusive igneous rocks.	Most of the wells in this subarea produce only small quantities of water; however, several wells reportedly produce several tens to more than a hundred gallons per minute. The most productive wells tap sand and gravel deposits near the South Yamhill River and in the southeast corner of the subarea. The ground water is of generally good chemical quality for most uses, but wells that tap the marine sedimentary rocks produce saline water.
Willamette River flood plain	Underlain by young alluvium consisting of alternating layers of clay, sand, and gravel capped by several feet of flood-plain silt. The young alluvium extends to depths of about 30 to 80 feet in most parts of the subarea and is underlain by older alluvium or fluviolacustrine deposits locally near Salem, where it is directly underlain by basalt or marine sedimentary rocks.	Most of the wells in this subarea obtain ground water from the young alluvium; the water table is generally only a few feet below the land surface, pumping lifts are relatively small, and the large-diameter irrigation wells produce moderate to large quantities of water. Several wells that tap the older fluviolacustrine deposits in Grand Island flow at the land surface. The ground water in the subarea is of generally good chemical quality for irrigation and most other uses.

<sup>1/</sup> Summary also pertains to the Red Hills of Dundee.

and meridian. Because most of the State lies south of the Willamette base line and east of the Willamette meridian, the letters indicating the directions south and east are omitted but the letters "W" and "N" for wells lying west of the meridian and north of the base line are used. The first digits following the hyphen indicate the section (sec. 1), and the letter indicates the 40-acre subdivision of that section, according to figure 2. The final digit is the serial number for that particular well. Thus, well 6/4W-1H1 is in the SE $\frac{1}{4}$ NE $\frac{1}{4}$  sec. 1, T. 6 S., R. 4 W., and was the first well in that tract to be listed.

Springs are numbered the same as wells except that the letter "s" is added following the final digit. For example, the first spring recorded in the NW $\frac{1}{4}$ SE $\frac{1}{4}$  sec. 4, T. 4 S., R. 3 W., has the number 4/3W-4K1s.

In the table of well records (table 2), only those parts of the well numbers following the hyphen (1H1 for example) are shown; subheads indicate the appropriate townships and ranges. In tables 4 and 5 (records of springs and chemical analyses of ground water, respectively), only the first well or spring listed under a given township and range is shown with its full number; only the part following the hyphen is given for other wells or springs listed under that township and range.

On plate 1, the map showing locations of wells and springs, the parts of the well and spring numbers following the hyphen are shown near the well or spring symbols; this shows at a glance the section and segment of the section in which the well or spring is located. The number in parentheses is not a part of the well number; this is explained in the explanation section of the map.

#### Records of Wells

Table 2 contains records of 132 representative wells, the locations of which are shown on plate 1. Most of the well data were obtained from well drillers' reports submitted to the Oregon State Engineer; some of the data were supplied by the well owners or operators.

In the "use" column of table 2, only the principal uses of the well waters are given. The public-supply wells listed include those supplying water for schools, municipalities, water districts, and subdivisions.

Most of the water temperatures in the "remarks" column were reported by the well drillers or representatives of pump companies, and presumably were measured when the wells were completed or being tested. Additional temperatures, measured when water samples were collected for chemical analyses, are given in table 5.

#### Drillers' Logs of Wells

Table 3 contains lithologic logs of 112 wells. Nearly all the logs were obtained from drillers' reports to the Oregon State Engineer. Some of the older logs, however, were reported from memory.

Description of the rock materials penetrated varies depending on the terminology of the person compiling the log. For example, clay may be referred to variously as "clay," "shale," or "hardpan." Similarly, compact clay and gravel may be called "cemented," "clay and gravel," or "conglomerate," and weathered basalt may be called "boulders" or "clay," depending on the stage of weathering. In this report, the logs have been edited for consistency of presentation, but

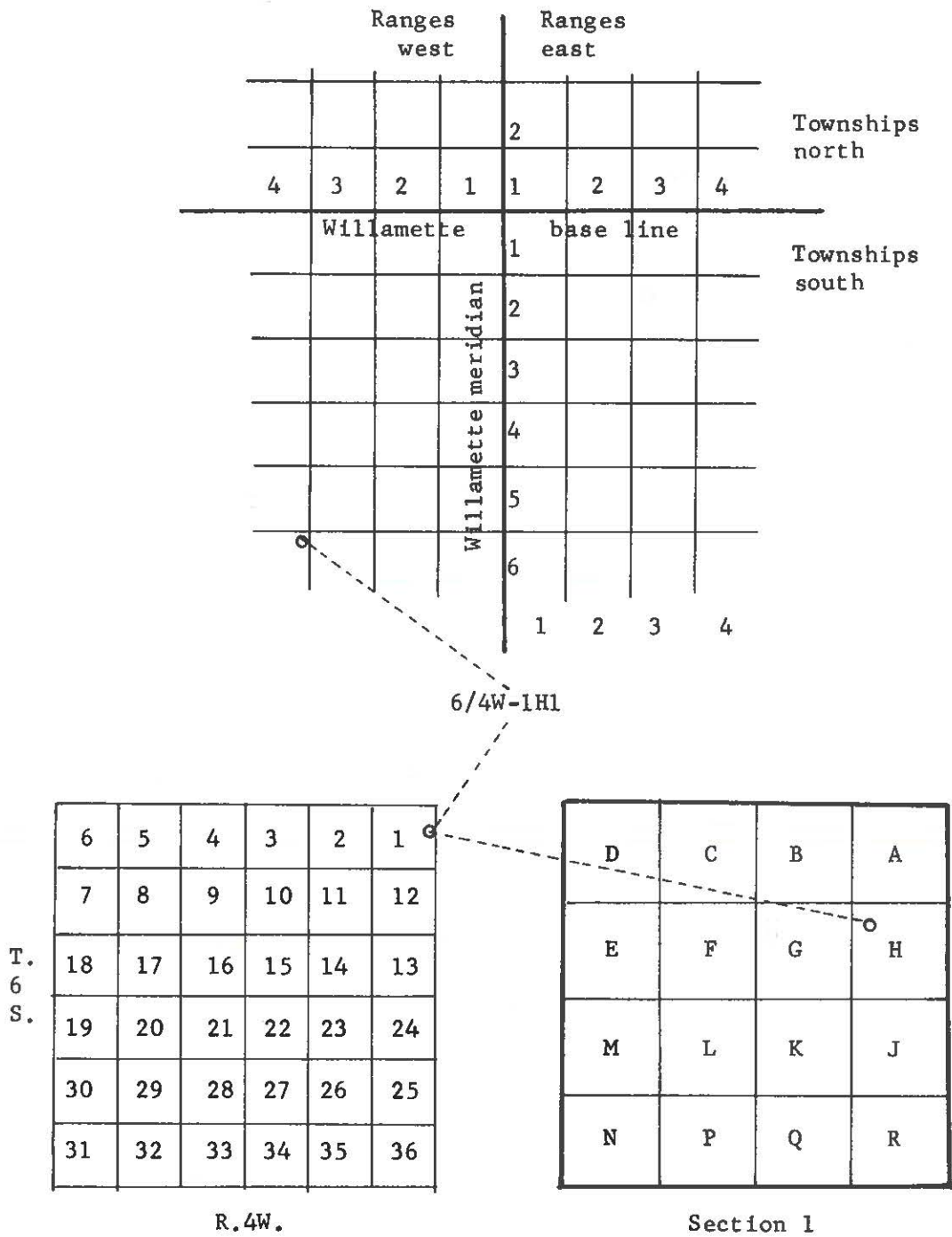


Figure 2.--Diagram illustrating well- and spring-numbering system.

original lithologic designations have not been changed; in some cases, however, the writers' interpretation has been added in parentheses after the driller's designation. The altitudes given in the log headings are interpolated from topographic maps.

#### Hydrographs of Wells

Hydrographs of nine selected observation wells are given in figures 3 and 4. The hydrographs in figure 3 show the fluctuations of water levels in eight wells during the period 1962-65, and the hydrograph in figure 4 shows the fluctuations of water level in one well during the period 1928-65.

Rising water levels on the hydrographs indicate periods when more water is added to the reservoir than is discharged; declining water levels indicate a period when more water is discharged from the reservoir than is added. As the hydrographs in figure 3 show, the water levels are highest during the wet winter and spring months and lowest during the dry summer and autumn months.

#### Records of Springs

Table 4 contains records of 13 springs in the area. The few listed are fairly representative of a great many springs in the Eola-Amity Hills and Red Hills of Dundee. Not represented in table 4 are springs and seeps that occur along the channels and flood plains of deeply incised streams that traverse the main valley plain.

#### Chemical Analyses of Ground Water

Chemical analyses of water from 14 wells and 2 springs are given in table 5. The analyses show the concentration of minerals most commonly found in natural waters. The dissolved mineral constituents are reported in parts per million (ppm) by weight. For example, one part per million is a unit weight of a constituent dissolved in a million unit weights of the water.

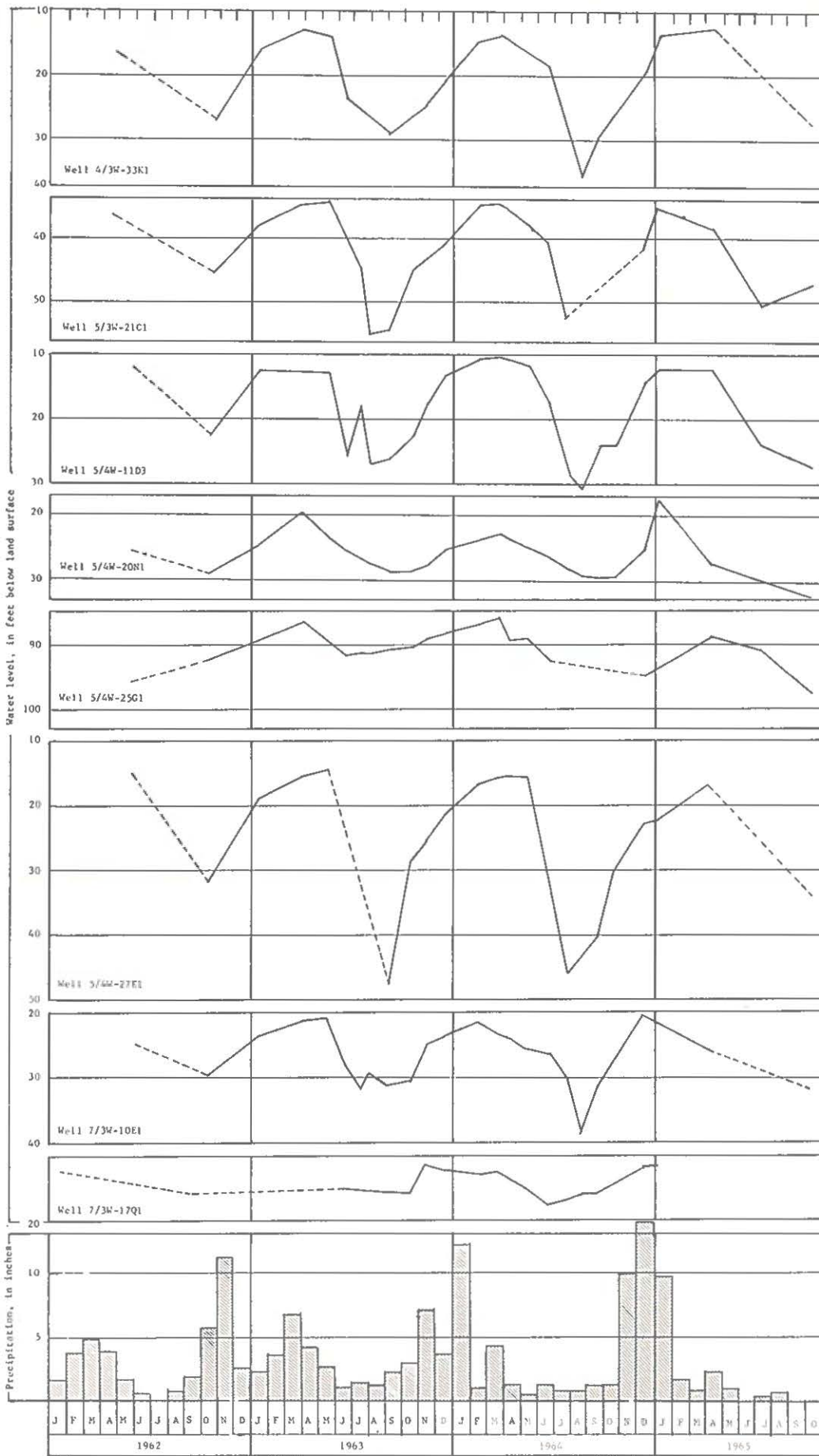


Figure 3.--Hydrographs of eight selected wells in the Eola-Amity Hills area, and monthly precipitation at McMinville, Oregon, for the period 1962-65.

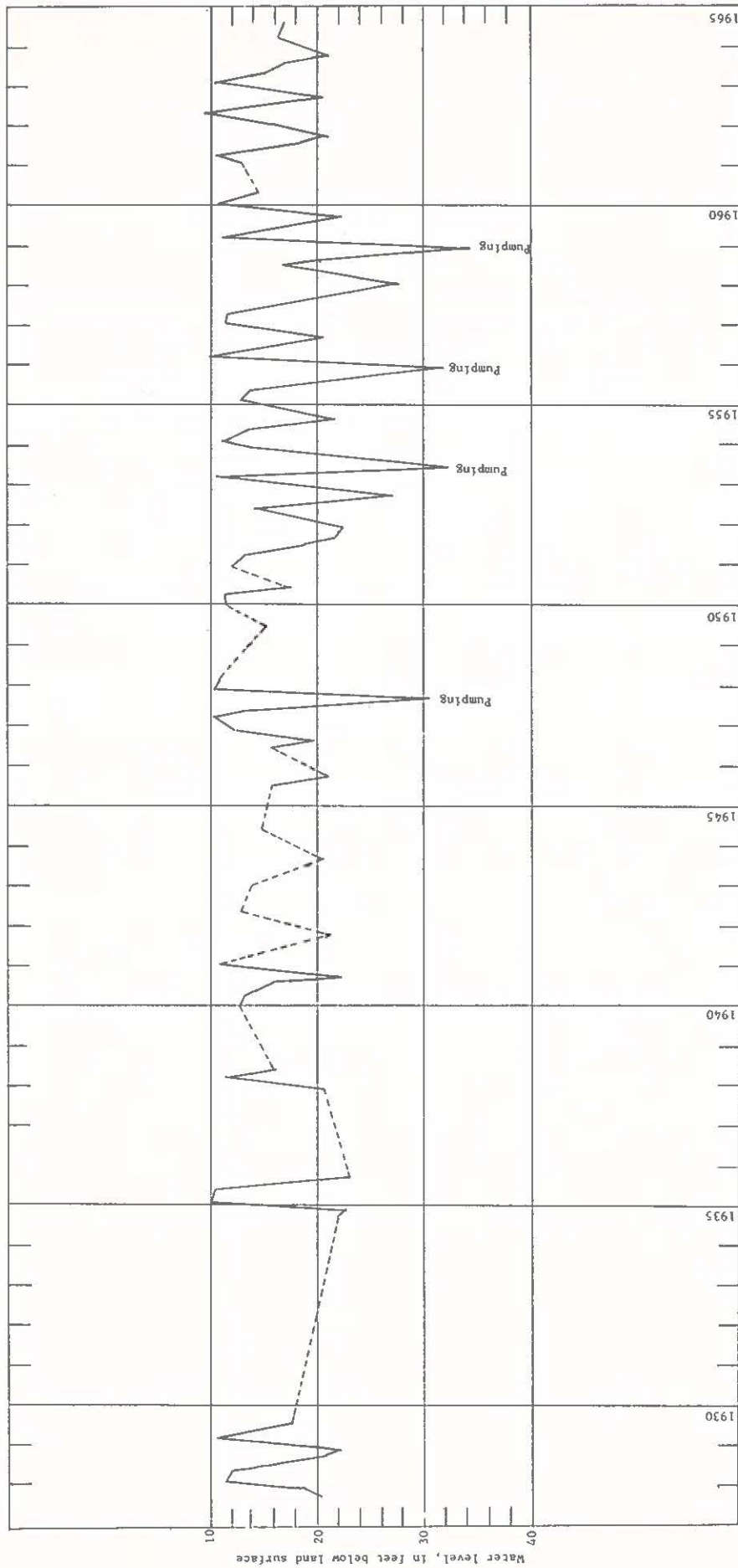


Figure 4.--Hydrograph of well 5/SW-1381 for the period 1928-65.

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- \_\_\_\_\_ 1965, Geology and ground water in the French Prairie area, northern Willamette Valley, Oregon: U.S. Geol. Survey open-file report, 277 p., 22 figs.
- Sceva, J. E., and DeBow, Robert, 1964, Ground-water levels, 1963: Oregon Ground Water Rept. 4, 71 p., 1 fig.
- \_\_\_\_\_ 1965, Ground-water levels, 1964: Oregon Ground Water Rept. 5, 109 p., 1 fig.

Table 2.--Records of representative wells in the Fola-Amity Hills area

Well number: See p. for description of well-numbering system.  
 Type of well: Dg, dug; Dr, drilled.  
 Finish: B, open bottom (casing unperforated); G, gravel packed; P, casing perforated.  
 Depth interval of gravel pack and perforations given in feet below land surface at well.  
 Altitude: Altitude of land-surface datum at well, in feet above mean sea level, interpolated from topographic maps.  
 Water level: Depths to water given in feet and decimal fractions are measured; those given in whole feet are reported by the well owner or driller.  
 Type of pump: C, centrifugal; Cy, cylinder; J, jet; N, none; S, submersible; T, turbine.

Well performance: Yield, in gallons per minute, and drawdown, in feet below nondischarging water level, reported by owner, operator, driller, or pump company. Bailed yields are indicated by "b"; flowing yields are indicated by "f."  
 Use: D, domestic; Irr, irrigation; N, none; PS, public supply; S, stock.  
 Remarks: Ca, chemical analysis in table 4; H, hydrograph included in this report; L, driller's log of well in table 2; Temp, temperature of water in degrees Fahrenheit; WL, additional water-level measurements available at the offices of the Oregon State Engineer, Salem, Oreg., and the U.S. Geological Survey, Portland, Oreg. Remarks on the adequacy and dependability of water supply, general quality of water, and materials penetrated 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		Type of pump and hp	Well performance		Use	Remarks
								Depth to top (feet)	Thickness (feet)	Character of material		Feet below datum	Date		Yield (gpm)	Draw-down (feet)		
T. 4 S., R. 3 W.																		
3L1	Ted Wriffs	Dr	1956	342	6	41½	B	320	22	Basalt	300	85	9- -56	S	10	225	D	L.
5R1	John Winters	Dr	1957	278	6	102	B	101	177	Shale	275	95	9-19-57	N	10b	105	N	Well has never been used; L.
6N1	City of Lafayette	Dr	1913	235	--	235	P	--	--	--	220	53.20	5-23-63	T, 25	180	50	PS	WL.
9B1	City of Dayton	Dr	--	208	8	--	B	200	8	Basalt	280	120	3- 3-65	T, 30	150	80	PS	Ca, L.
10B1	Esther Schrweid	Dr	1961	165	6	70	B G, 18-55	50	115	Rock	175	63.30	12-11-63	S, 3/4	12b	95	D	L.
11C1	W. E. Forrest	Dr	1937	196	6	192½	B	42 192	1 1	Sand, coarse Rock, porous	140	9.78	9-18-63	J	5	178	D	L.
18L1	Leon Marling	Dr	1957	105	6	105	P, 95-105 G, 21-105	102	3	Gravel, fine	150	40	11- 9-57	J, 1	25	60	D	L.
20E1	Brooks Sweeney	Dr	1956	125	8	125	P, 65-125	105	20	Sand, coarse	155	20	5- -56	T, 15	235	120	Irr	Irrigates about 60 acres; Temp 57. L.
20K1	Glenn Childs	Dr	1956	104	6	104	P, 92-104	96	7	Gravel, fine, and sand	160	21	9- -56	--	20	62	D	L.
21P1	J. M. Murphey	Dr	1961	148	10	136	P, 84-97, 111-136 G, 18-136	77 121	12 15	Sand, fine Sand, coarse, and fine gravel	164	21.50	8- 1-61	T, 30	200	28	Irr	L.
26K1	R. H. Wood	Dr	--	40	6	--	B	40	--	Alluvium(?)	80	--	--	--	--	--	PS	Ca.
28B1	W. E. Grabenhorst	Dr	1961	158	8	159	P, 82-158 G, 20-158	116	19	Sand	162	21 28.79	10-14-61 9-21-62	T, 25	385	110	Irr	Irrigates about 40 acres; L.
32B1	Jess Hockema	Dr	1957	155	10	155	P, 80-155	85 129	15 6	Sand do	158	14	5- -57	--	480	125	Irr	Temp 56. L.

Table 2.--Records of representative wells in the Eola-Amity Hills 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		Type of pump and hp	Well performance		Use	Remarks
								Depth to top (feet)	Thickness (feet)	Character of material		Feet below datum	Date		Yield (gpm)	Draw-down (feet)		
T. 4 S., R. 3 W.--Continued																		
33K1	C. J. Trent	Dr	1959	228	8	220	P, 64,69,85-100 175-220 G, 19-220	83 173	9 46	Sand, fine Sand, some clay	160	26.70	10-29-62	T, 30	350	90	Irr	Irrigates about 60 acres; Temp 55, Ca, H, L, WL.
T. 4 S., R. 4 W.																		
6R1	I. H. Bernards	Dr	1957	46	6	46.6	P, 22-46 G, 16-46	21	25	Basalt, weathered	220	8	6- -57	J, 3/4	10b	27	D	Well reportedly adequate for irrigation of lawn and small garden; L.
7F1	W. B. Foster	Dr	1963	160	6	72	B	72	57	Basalt	188	50	12-21-63	S, 1	10b	85	D	L.
8H1	C. E. Conrad	Dr	1958	96	6	96	P, 79-96	84	11½	Gravel, loose	155	17 14.50	6-20-58 12- 6-63	S, 1/2	20b	25	D	L.
10R1	B. E. Cobe	Dr	1956	100	6, 5	100	P, 60-100	60	40	Sand and silt	150	30	6- -56	J, 1	10b	35	D	Casing 6-in. to 56 ft, 5-in. 54-100 ft; L.
15Q1	Johnny Young	Dr	1961	110	6	110	P, 100-110 G, 20-110	85	25	Sand, coarse, and fine gravel	152	50.32	6-27-61 12- 6-63	J, 1	20b	20	D	L.
17B1	F. A. Pettit	Dr	1958	106½	6	106½	P, 82-106	87	18	Sand and fine gravel	162	35	9-20-58	S	15	60	Irr	Water "corrosive"; used to irrigate lawn only; L.
21R1	R. A. Rossner	Dr	1963	88	6	88	P, 80-87	80	7	Gravel, fine	150	31.25	12-10-63	S	12	16	D	L.
23C1	W. N. O'Neil	Dr	1958	61	6	61	P, 20-61 G, 12-61	23	48	Sand, silt, and clay; some fine gravel	110	12	5-21-58	--	10b	10	D	L.
23N1	Crittenden Huston	Dr	1960	116	6	116	P, 93-102, 109-116	93 109	9 7	Sand, coarse, and fine gravel Gravel, fine	155	30	8-22-60	S, 1	30	40	D,Irr	Irrigates large lawn and garden; L.
24J1	Ross Cruickshank	Dr	1951	114	8	114	P, 94-114	--	--	--	150	5.58	2- 2-64	N	100	7.5	N	Pumped considerable sand.
24N1	A. J. Mott	--	--	41	12	--	--	--	--	"Valley fill"	152	9.63	7-25-30	--	10+	--	D, S	Temp 52.5, Ca.
24M2	Romeo Goche	Dr	1960	95	6	95	P, 83-95	77	16	Sand; wood	155	18	4-21-60	J, 1	30	30	D	L.

Table 2.--Records of representative wells in the Eola-Amity Hills 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		Type of pump and hp	Well performance		Use	Remarks
								Depth to top (feet)	Thickness (feet)	Character of material		Feet below datum	Date		Yield (gpm)	Draw-down (feet)		
T. 4 S., R. 4 W.--Continued																		
24R1	Rosa Cruickshank	Dr	1957	145	8	145	P, 65-145 G	70 90 107	10 15 38	Sand, coarse do Sand, some gravel	150	14.00 14.41	5-28-62 12-17-63	T, 25	500	50	Irr	Temp 56, L, WL.
27D1	J. L. Wilcox	Dr	1956	120	10	120	P, 92-120	92	23	Gravel and coarse sand	150	17.48 27.97	5-28-62 10-16-62	S	75	42	D, Irr	Also used to supply water for trailer camp; Temp 54.5, Ca, H, L, WL.
28A1	H. P. Stowell	Dr	1956	125	6	113	B	125	--	Sand and gravel	150	40	8-1-56	J, 1	--	--	D	L.
30J1	McMinnville Grange	Dr	1960	96	6	60½	P, 54-60 G, 29-60	49	47	Mudstone, gritty	140	15	4-7-60	--	20b	45	D	L.
31B1	E. J. Hess	Dr	1955	230	6	84	P	70	14	Sand, gravel, and clay	140	--	--	J	15b	30	N	Well backfilled to 84 ft; abandoned owing to excessive corrosiveness of water; L.
31F1	Ames Eash	Dr	1961	75	6	53	P, 42-53 G, 20-53	46	6	Gravel, cemented	150	20	4-12-61	S, 1/2	20	30	D	L.
32F1	Glen Farrow	Dr	1956	92	6	90	P, 75-90	70	22	Sand and gravel	150	20	7- -56	J, 1	40	35	D	L.
36A1	Don Goodrich	Dr	1960	93	6	93	P, 78-93 G, 29-93	76	14	Sand	152	20	8-18-60	J, 3/4	35	40	D	L.
T. 4 S., R. 5 W.																		
24K1	R. A. Menefee	Dr	1960	50	6	44	P, 22-44	22	--	Rock, soft	205	8	8-22-60	--	15	15	D	L.
T. 5 S., R. 3 W.																		
5D1	J. V. Springer	Dr	1962	200	10	200	P, 49-66, 100-116, 126-136, 144-195 G, 0-188	140 172	20 16	Sand and fine gravel Sand, fine	155	10.13	12-10-63	T, 25	350 400	35 40	Irr	Temp 55, L.
6G1	Robert Stockhoff	Dr	1962	122	10	122	P, 20-122 G	20	87	Sand, silt, and clay	140	15	3-8-62	T, 15	200	100	Irr	L.
6K1	do	Dr	1962	43	10	--	--	--	--	--	150	--	--	N	--	--	N	"Dry hole"; well abandoned; L.

Table 2.--Records of representative wells in the Eola-Amity Hills 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		Type of pump and hp	Well performance		Use	Remarks
								Depth to top (feet)	Thickness (feet)	Character of material		Feet below datum	Date		Yield (gpm)	Draw-down (feet)		
T. 5 S., R. 3 W.--Continued																		
8G1	Fred Finnicum	Dr	1937	310	6	297	P, 7-82, 87-92	--	--	Sand, fine, and clay	154	15	4- -37	S, 1	10+	--	D, S	L.
9N1	Howard Baker	Dr	1959	307	10	301	P, 110-115, 258-266	112 260	3 6	Sand Sand; some gravel	160	30	5-12-59	N	300 500	95 137	Irr	Abandoned; reportedly pumped "saline water"; Temp 56, L.
9P1	do	Dr	1961	118	10	118	P, 64-70, 74-95, 103-118	64 74 103	6 21 15	Sand, fine, compact Sand, fine Sand, gravel, and boulders	162	17.19	4-26-62	T, 30	300	--	Irr	L, WL.
15R1	D. R. Wiley	Dr	1958	192	10	150	B	31 192	8 --	Gravel, coarse Sand	100	--	5- 3-58	C, 1/4	--	--	D, Irr	Well flows about 150 gpm; Temp 54.5, Ca, L.
19N1	W. J. Ojua	Dr	1958	163	6	158	B	156	7	Rock	165	6 7	12- 2-57 3-12-58	J, 1	30	25	D	Flows at times in winter; Temp 56, L.
21C1	L. W. McGee	Dr	1949	234	8	234	P, 112-134	--	--	--	165	45.22 34.84	10-29-62 5-23-63	T, 15	250	40	Irr	Has hydrogen sulfide odor; H, WL.
21F1	Eugene Stockhoff	Dr	1961	154	10	145	P, 55-60, 75-80, 85-90, 103-145	51 85	10 54	Sand, fine, compacted Sand, gravel, and boulders	165	35	1- -61	T, 30	650	120	Irr	L.
21L1	W. L. Dorman	Dr	1961	142	10	142	P, 98-142	106	36	Gravel and boulders	165	38	12- 1-61	T	300	--	Irr	Temp 51, L.
21N1	F. C. Stockhoff	Dr	1952	138	10	138	P, 98-138	98	40	Sand and gravel	165	42.62	10-29-62	T, 40	800	40	Irr	Clay and silt to 98 ft, sand and gravel 98-138 ft; WL.

Table 2.--Records of representative wells in the Eola-Amity Hills 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		Type of pump and hp	Well performance		Use	Remarks
								Depth to top (feet)	Thickness (feet)	Character of material		Feet below datum	Date		Yield (gpm)	Draw-down (feet)		
T. 5 S., R. 3 W.--Continued																		
22J1	Dan Tomkins	Dr	1962	190	8	190	B	189	1	Gravel	102	1	8-22-62	C, 20	200	66	Irr	Flows in winter; L.
29Q1	Fred Withee	Dr	1963	119	8	116	P, 57-72, 92-116 G	96 99	17 16	Sand, medium to coarse Gravel, fine	160	19	8- -63	T	300	85(?)	Irr	L.
30K1	Ester Polvi	Dr	1961	137	6	23	B	24	113	Sand, hard, and shale	165	8	6- -61	--	20b	77	D	L.
30M1	Gust Janzen	Dr	1952	91	8	91	P, 51-91	60 78	10 8	Rock, medium-hard, and clay Rock, soft	200	60	11-10-63	T, 7½	125 175	25 78	D, Irr	L.
30R1	Glen Robertson (estate of Russ Rogers)	Dr	1959	168	8	157	P, 30-42, 115-124, 140-157 G, 25-157	162	6	Sand and very fine gravel	180	15	3-22-59	N	80	140	N	Drilled for irrigation; L, WL.
32B1	Clement Schrock	Dr	1962	120	8	107	P, 77-107 G, 21-107	71	33	Sand, medium to coarse, and fine gravel	160	19 9.00	7-31-62 12-13-63	T, 20	200	40	Irr	Irrigates about 50 acres; L.
33J1	J. W. Ediger	Dr	1957	38	10	38	P, ?	--	--	Sand and gravel	112	--	--	C, 30	400	8	Irr	

Table 2.--Records of representative wells in the Eola-Amity Hills 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		Type of pump and hp	Well performance		Use	Remarks
								Depth to top (feet)	Thickness (feet)	Character of material		Feet below datum	Date		Yield (gpm)	Draw-down (feet)		
T. 5 S., R. 4 W.																		
1B1	E. F. Day	Dr	1956	147	8	147	P, 8-147	118	29	Sand, coarse, and gravel	152	8.58 17.66	5-29-62 10-16-62	T	375	87	Irr	Temp 57, L, WL.
1C1	do	Dr	1963	172	10	172	P, 70-170 G, 18-172	68	90	Sand; some clay and gravel	155	15	4-11-63	T, 40	300 900	35 77	Irr	Temp 55.5, Ca, L.
1E1	W. E. Stockhoff	Dr	1963	165	10	165	P, 60-165	138	23	Sand, coarse, and fine gravel	160	10	4-28-63	T, 40	925	60	Irr	L.
9E1	C. R. Jackson	Dr	1956	90	6	90	P, 74-90 G	74	16	do	165	22	7- -56	--	45	40	D, Irr	L.
11D3	N. J. Longhurst	Dr	1948	96	6	96	P, 75-96	72	24	Sand	162	12.66 22.74	5-23-63 10-14-63	N	90	64	N	H, L, WL.
11D4	do	Dr	1963	155	10	156	P, 65-155 G, 18-155	66	89	Clay, sand, and gravel	162	24	3-27-63	T	470	116	Irr	L.
17H1	Walter Woodcock	Dr	1960	56	6	56	P, 48-56 G, 16-56	40	15	Shale	190	20	7-20-60	J, 3/4	4	36	D	Pumps dry when used to water lawn; L.
20N1	City of Amity	Dr	1953	126	10(?)	--	--	62 90	10 6	Sand and gravel Sand, loose	162	24.32	5-23-63	T, 7 1/2	60	97	PS	H, L, WL.
25G1	Hilda Parvin	Dr	1954	268	10	50	B	50	218	Basalt	470	95.54 89.45	5-29-62 1-14-63	T, 15	75	--	Irr	50 ft of clay and soil overlies basalt; irrigates about 10 acres and supplies water for orchard spray; Temp 55, Ca, H, WL.
25M1	E. J. Scaggs	Dr	1962	175	6	80	B	80	95	Rock	720	135	1-17-62	--	4b	50	D	L.
26K1	Glen Robertson	Dr	1959	185	6	185	P, 145-185	180	5	do	742	50	4-19-59	S, 3/4	15b	20	D	L.
27E1	Marvin Deraove	Dr	1953	77	10	50	--	50	27	Rock, soft	172	14.74 31.73	5-29-62 10-16-62	T, 10	120	55	Irr	Temp 55, Ca, H, L, WL.
27F1	Merle Williams	Dr	1959	85	6	50	P, 31-49	36 65	4 20	Rock, brown, soft Sandstone	175	18	6- -59	J	18b	24	D	L.
33N1	Glen Patty	Dr	1959	120	6	63	P, 21-28	20	4	Silt and clay	165	18	11-11-59	J, 1/4	5b	100	D	Temp 55, L.

Table 2.--Records of representative wells in the Eola-Amity Hills 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		Type of pump and hp	Well performance		Use	Remarks	
								Depth to top (feet)	Thickness (feet)	Character of material		Feet below datum	Date		Yield (gpm)	Draw-down (feet)			
T. 5 S., R. 4 W.--Continued																			
35C1	W. J. Schlecht	Dr	1959	163	6	67	B	153	10	Sand, coarse	940	128.52	5-23-63	N	15b	--	N	Filled in with silt to 140 ft by 1964; abandoned; L.	
T. 5 S., R. 5 W.																			
1P1	Ivan and Marvin Bernards	Dr	1952	325	12	60	B	60	125	"Alluvium"	128	26 21.28	9- -52 12-13-63	N	75	160	N	Well has never been used; L.	
13B1	George Fuller	Dr	--	64	6	--	B	64	--	Gravel and sand	152	8.25 17.60	4- 1-63 7-15-63	J	7+	--	D, S	H, L, WL.	
25A1	City of Amity	Dr	1959	89	10	88	P, 57½-71, 85½-86	58½ 84½	8½ ½	Gravel, loose do	162	11	4-17-59	T	200 220	44 61½	PS	Temp 54, L.	
T. 6 S., R. 3 W.																			
17	4D1	L. L. Lind	Dr	1954	104	10	104	P, 86-104	80	24	Sand and gravel	170	42.92	4-26-62	T, 20	360	27	Irr	L, WL.
	6J1	Stephen Tarter	Dr	1958	170	6	150	B	150	20	Shale, yellow, rocky	180	27	7-31-58	--	16b	55	D	Temp 57, L.
	6R1	Gust Janzen	Dr	1952	142	10	122	B	122	20	Basalt	190	--	--	T, 7½	80 110	115 135	Irr	Irrigates about 30 acres; water level 12 ft above land surface Feb. 1953; L.
	7A1	Estate of Belle Simkins	Dr	1958	250	6	187	B	185	35	do	200	30	9- 1-58	--	6	160	D	L.
	7H1	D. L. Gingerich	Dr	1955	220	8	220	B	20	200	Rock	250	89.60 70.86	1-14-63 4- 2-63	S, 1½	21	--	D, Irr	Irrigates about 10 acres; L, WL.
	19D1	Robert Miller	Dr	1959	132	6	127½	B	130	2	Siltstone	245	28	10-20-59	J, 3/4	15b	90	D	L.
	20D1	V. R. Punzel	Dr	1961	107	8	106	P, 96-106	97	10	Sand and gravel	165	40	9- -61	--	45b	5	D	L.
	30Q2	A. H. Nisly	Dr	1956	66	6	65	B	65	1	do	170	25	1956	--	30b	15	D	Temp 56, L.
	32H1	Fred Tedro	Dr	1960	89	6	22	B	20	69	Basalt	130	1	8-23-60	J, 1	10	74	D	Flows in winter; Temp 56, L.

Table 2.--Records of representative wells in the Eola-Amity Hills 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		Type of pump and hp	Well performance		Use	Remarks
								Depth to top (feet)	Thickness (feet)	Character of material		Feet below datum	Date		Yield (gpm)	Draw-down (feet)		
T. 6 S., R. 4 W.																		
1H1	E. F. Curtis	Dr	1962	235	6	143	B	219	14	Basalt	500	129	2- -62	S, 1½	10	35	D	Temp 55.5, Ca, L.
3A1	R. N. Pettingill	Dr	1962	171	6	154	P, 134-154	122	49	Rock, broken	1,060	86	3-30-62	S, 1	3b	85	D	L.
6E1	A. L. McKee	Dg	--	37	48	37	B	35	2	Fine sand	190	18	5-14-65	C, 1	10	--	D	Silt to 35 ft. fine sand to 37 ft.
6F1	do	Dr	1922	2,985	12	--	B	--	--	Sandstone(?)	240	--	--	N	5f	--	N	Abandoned oil-test well; originally cased to 2,985 ft; upper 1,200 ft of casing recovered; well flows about 5 gpm and discharges some gas; Ca.
8E1	Dewey Carrico	Dr	1958	60	6	60	P, 24-34, 46-52	--	--	--	180	7	9-10-58	S	5b	38	D	L.
10E1	Richard Olson	Dr	1963	110	6	75	P, 31-32, 71-73	--	--	Claystone	380	25	6- 6-63	J, 1/2	7½b	80	D	Temp 56, L.
12B1	R. H. Wacken	Dr	1964	369	6	20	B	349	--	Basalt	642	95	5-14-65	N	9	185	D	Soil to 1 ft, weathered basalt to 16 ft, unweathered basalt to 369 ft.
16F1	Donald Shields	Dr	1956	96	6	40	B	64	32	Shale, porous	220	15	8- -56	--	30b	40	D, S	L.
17C1	Arthur Leppin	Dr	1960	120	6	33	B	84 110	2 10	Sandstone do	210	20	12-16-60	J, 3/4	2½b	80	S	Reportedly pumps slightly salty water; not used in 1963; Temp 56, L.
17K1	John Romig	Dr	1956	270	8	32	B	191	10	Rock	220	32 22.63	11- -56 7-15-63	S	6	--	D, S	Well produced a small amount of volatile gas on completion; Temp '56, Ca, L, WL.
22A1	C. W. LeVee	Dr	1960	135	6	101	B	125	2	Rock, broken	605	92	12-29-60	S, 1/2	8½	33	D	L.
22H1	James Salmon	Dr	1957	124	6	47	B	120	4	Shale, very hard	440	89	7-10-57	--	15b	11	D	L.
23N1	Ernest Solle	Dr	1956	238	6	21	B	--	--	Sandstone	440	20	9-13-56	J, 3/4	4b	200	D	L.
T. 7 S., R. 3 W.																		
5B1	J. C. Heffley	Dr	1960	100½	6	58½	B	59	41½	Basalt	225	14	10-18-60	--	40b	31	D	L.

Table 2.--Records of representative wells in the Eola-Amity Mills 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		Type of pump and hp	Well performance		Use	Remarks
								Depth to top (feet)	Thickness (feet)	Character of material		Feet below datum	Date		Yield (gpm)	Draw-down (feet)		
T. 7 S., R. 3 W.--Continued																		
5K1	Joseph Singer	Dr	1961	202	6	23½	B	18½	147½	Andesite, un-weathered do	200	50 46	7-18-59 10-28-61	-- --	18b 33b	98 10	D	Well deepened from 166 ft; 1959 water-level and well-performance data pertain to original depth; L.
6K1	R. E. Noteboom	Dr	1963	205	6	18	B	30	117	Basalt	460	145	10- -63	N	1	--	N	Abandoned owing to insufficient yield; L.
8G1	Emmett Rogers	Dr	1964	700	10	295	B	135	15	Rock, porous	250	85	9- 9-63	--	150	16	PS	Eight-inch steel liner from 395 to 455 ft; L.
8J1	Vick Bros.	Dr	1956	326	8	160	B	--	--	Basalt	200	68	4- -56	--	95	232	PS	Supplies water for small housing development; Temp 69, L.
8R1	F. W. Berme	Dr	1960	110	6	96	B	108	7	Basalt, "diced"	160	--	--	J, 3/4	40b 20f	30	D	Flows, static head about 4½ ft (1960); supplies water for swimming pool; Temp 55.5, Ca, L.
9F1	Oak Crest Farm	Dr	1957	73½	10	73½	P, 25-72	24	47½	Gravel, sand, and clay	125	18	5-18-65	T, 60	500	7	Irr	L.
10E1	L. P. Brandt	Dr	1961	150	12	134½	P, 40-130	20	130	Gravel and sand, cemented	110	24.55 29.55	6- 5-62 10-16-62	T, 20	570	100	Irr	Temp 57, H, L, WL.
17Q1	Mrs. Amon Grice	Dg	--	17½	36	17½	B	--	--	Basalt, weathered	400	12.59 16.18	1-23-62 9-14-62	Cy	5±	--	N	Not used in 1963; H.
17Q2	Don Muelhaupt, Sr.	Dr	1962	147	8	55	B	47	100	Andesite, un-weathered	430	65	8-20-61	C, (?)	3b	65	D	L.
17R1	Schindler Bros.	Dr	Prior 1930	550	8	--	B	250±	--	Basalt	400	166.28	4-18-53	N	--	--	N	Gamma ray log in files of U.S. Geol. Survey, Portland, Oreg.
18E1	Orchard Heights Water Dist.	Dr	--	187	8	65	B	--	--	Basalt(?)	580	40.38	2- 9-65	T, 7½	40(?)	--	PS	WL.
18E2	do	Dr	--	285	8	16½	B	--	--	do	580	35.33	2- 5-65	T, 10	40(?)	--	PS	WL.
18L1	Tony Perkins	Dr	1951	235	8, 6	140	B	225	10	Basalt, porous	550	33.65 20.12	10- 2-51 9- 6-63	--	--	--	D	Casing 8-in. to 20 ft, 6-in. to 140 ft; L.

Table 2.--Records of representative wells in the Eola-Amity Hills 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		Type of pump and hp	Well performance		Use	Remarks	
								Depth to top (feet)	Thickness (feet)	Character of material		Feet below datum	Date		Yield (gpm)	Draw-down (feet)			
T. 7 S., R. 3 W.--Continued																			
19P1	Curt Ferguson	Dr	1957	154	6	135	P, 114-134	--	--	--	650	78	10- 3-57	J, 1/2	13b	70	D	L.	
20E1	V. T. Mardock	Dr	1959	160	6	--	--	31	6	Basalt, fractured	285	9 4.18	9-21-59 1-23-62	N	2b	150	N	Not used in 1962; Temp 56, L.	
20K1	Rollin Beaver	Dr	1924	300+	6(?)	--	B	240	37	Basalt	400	--	--	--	--	--	D, S		
22N1	Northwest Natural Gas Co.	Dr	1963	400	10	20	B	160	15	Sand, medium, and gravel	130	--	--	--	--	--	--	Grounding well for gas pipeline; L.	
28B1	City of West Salem	Dg	--	34	168	34	B	30+	--	Gravel	125	29.5	9-19-28	--	165	--	PS	Temp 54, Ca.	
29M1	Bonneville Power Adm.	Dr	1940	375	10, 8	251	P, 129-251	135 170	23 5	Shale do	200	--	--	--	26	--	--	Casing 10-in. to 129 ft, 8-in. to 251 ft; L.	
T. 7 S., R. 4 W.																			
29	161	C. E. Allen	Dr	1957	269	6	--	B	--	--	Basalt(?)	325	--	--	B	7b	189	N	Uncased test well; abandoned owing to insufficient yield; L.
	6R1	Arthur Leppin	Dr	1956	89	6	16½	B	16	73	Basalt and shale	245	16	1956	J, 1/2	3b	73	S	L, WL.
	10D1	Don Grimsbo	Dr	1957	78	6	61	B	61	17	Shale	225	10	3- 57	J, 1	--	--	D	L.
	13R1	J. W. Simmons	Dr	--	385	6	--	--	--	--	Basalt(?)	775	--	--	--	--	--	--	Basalt to 201 ft, shale 201-385 ft.
	15A1	Nila H. Farm	Dr	1957	110	6	69	B	82	22	Sandstone	525	10	6-13-57	--	26b	90	D	Temp 58, L.
	15K1	Arthur Bishop	Dr	1958	61	6	41	P	--	--	Shale	315	29	7-21-58	--	19	30	D	L.
	16Q1	Howland & Son	Dr	1950+	160	--	--	--	--	--	--	130	--	--	--	15	--	D	Quality of water reportedly good.
	23Q1	J. A. Heinrichs	Dr	1963	180	6	172	B	172	8½	Basalt, "diced"	315	58	10-10-63	S, 3/4	20	120	D	Temp 55, L.
	24G1	R. W. Clarke	Dr	1953	216	8	14	B	216	--	Basalt	600	23.93	1-19-53	C, 10	105	60+	D, Irr	Well originally flowed.
	27N1	E. K. Splane	Dr	1962	96½	6	81	B	93	½	Claystone, "diced"	160	14	7-10-62	J, 1/2	10	70	D, S	Temp 55, L.
	28Q1	Bolton Stinnette	Dr	1958	62	6	46	B	46	16	do	165	15	9- 9-58	J, 3/4	3b	45	D	Temp 56, L.

Table 2.--Records of representative wells in the Eola-Amity Hills 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		Type of pump and hp	Well performance		Use	Remarks
								Depth to top (feet)	Thickness (feet)	Character of material		Feet below datum	Date		Yield (gpm)	Draw-down (feet)		
T. 7 S., R. 4 W.--Continued																		
29Q1	P. L. Small	Dr	1962	60	6	60	P, 33-57	--	--	Clay	175	11	4-18-62	J, 1/3	2	--	D	Temp 55, L.
29Q2	W. L. Braman	Dr	1958	48	6	48	P, 28-33, 45-46	--	--	Shale	175	16	10-10-58	--	2½	30	D	Temp 56, L.
36F1	Gordon Dague	Dr	1957	39	10	35	P, 21-35	15	21	Gravel	125	15	1- -57	--	300 500	3 5	Irr	L.
T. 8 S., R. 4 W.																		
3B1	T. C. Muller	Dr	1962	60	12	60	P, 38-56	31	27	Gravel, medium, and clay	170	28.37	6- 5-62	--	400	28	Irr	L, WL.
3K1	C. A. Evans	Dr	1960	52	8	45	P, 33-42	33	2	Gravel	150	21	2-19-60	J, 3	50	20	D, Irr	Temp 55, L.
6D1	Walter Boyer	Dr	1955	141	6	28	B	51 127 140	½ 1 1	Sandstone do do	225	14	9- 9-55	--	6	122	D	Temp 55, L.
21 9K1	Green Villa Farms	Dr	1962	89	6	44½	B	55	--	"Limestone"	155	27	9- 6-62	S, 1/2	16b	50	D	Temp 55, L.

Table 3.--Drillers' logs of representative wells in  
the Eola-Amity Hills area

4/3W-3L1. Ted Wriuffs. Altitude 300 ft. Drilled by Meeker Well Drilling Co.,  
1956

Materials	Thickness (feet)	Depth (feet)
Clay, red -----	8	8
Rock, soft, decomposed -----	8	16
Rock, hard, with soft layers -----	178	194
Shale, green, soft -----	4	198
Basalt, hard -----	8	206
Rock, gray, hard, creviced -----	94	300
Basalt, blue, hard -----	20	320
Rock, hard -----	10	330
Lava rock with soft streaks -----	8	338
Lava rock, soft -----	4	342

Casing: 6-in. to 41½ ft; unperforated.

4/3W-5R1. John Winters. Altitude 275 ft. Drilled by Wilcox Drilling Co.,  
1957

Top soil, red -----	2	2
Clay, red -----	23	25
Clay, varicolored -----	76	101
Shale -----	62	163
Shale, gritty -----	20	183
Shale; layers of rocks -----	75	258
Shale, black -----	18	276
Shale, blue -----	2	278

Casing: 6-in. to 102 ft; unperforated.

4/3W-9B1. City of Dayton. Altitude 280 ft. Driller and date drilled unknown

Clay, brown -----	35	35
Clay, red -----	16	51
Gravel, cemented -----	15	66
Boulders -----	10	76
Sand -----	3	79
Rock -----	10	89
Sand, black -----	1	90
Rock -----	20	110
Clay and rock -----	90	200
Lava, water-bearing -----	8	208

Casing: 8-in. to unknown depth.

4/3W-10B1. Esther Sohrweid. Altitude 175 ft. Drilled by Ted Schueler Well  
Drilling Co., 1961

Top soil -----	2	2
Clay, yellow -----	23	25
Clay, blue -----	1	26
Clay, yellow -----	4	30

Table 3.--Drillers' logs of representative wells--Continued

Materials	Thickness (feet)	Depth (feet)
Shale, brown -----	20	50
Rock, blue, fine-grained -----	109	159
Rock, shattered -----	6	165
Casing: 6-in. to 70 ft; unperforated; gravel pack 18-55 ft.		

4/3W-11C1. W. E. Forrest. Altitude 140 ft. Drilled by A. M. Janssen Drilling Co., 1937

Top soil -----	2	2
Sand, yellow -----	24	26
Sand, blue -----	10	36
Sand, hard -----	6	42
Sand, coarse -----	1	43
Sand, blue -----	20	63
Clay, yellow, and sand -----	97	160
Sandstone and clay -----	32	192
Rock, porous -----	1	193
Rock, hard -----	3	196
Casing: 6-in. to 192½ ft; unperforated.		

4/3W-18L1. Leon Harling. Altitude 150 ft. Drilled by Wilcox Drilling Co., 1957

Top soil -----	1	1
Clay, brown -----	20	21
Silt, brown -----	12	33
Clay, blue, silty -----	9	42
Clay, blue -----	29	71
Sand, compact -----	4	75
Clay, yellow, sandy -----	7	82
Clay, blue, tough -----	11	93
Gravel, fine, imbedded in clay -----	8	101
Clay, hard -----	1	102
Gravel, fine, water-bearing -----	3	105
Casing: 6-in. to 105 ft; perforated 95-105 ft.		

4/3W-20E1. Brooks Sweeney. Altitude 155 ft. Drilled by Arrow Drilling & Supplies Co., 1956

Clay -----	39	39
Clay, blue, sandy -----	26	65
Sand, black, fine -----	20	85
Clay, blue -----	4	89
Sand, black -----	16	105
Sand, black, coarse -----	20	125
Casing: 8-in. to 125 ft; perforated 65-125 ft.		

Table 3.--Drillers' logs of representative wells--Continued

4/3W-20K1. Glenn Childs. Altitude 160 ft. Drilled by Wilcox Drilling Co.,  
1956

Materials	Thickness (feet)	Depth (feet)
Top soil -----	1	1
Clay, brown -----	20	21
Silt -----	12	33
Clay, blue, silty -----	4	37
Silt -----	6	43
Clay, blue, silty -----	13	56
Clay, blue -----	12	68
Sand, very fine -----	4	72
Clay, blue, hard -----	12	84
Sand with imbedded wood -----	12	96
Gravel and fine sand -----	7	103
Clay -----	1	104

Casing: 6-in. to 104 ft; perforated 92-104 ft.

4/3W-21P1. J. M. Murphey. Altitude 164 ft. Drilled by Wilcox Drilling Co.,  
1961

Top soil -----	2	2
Clay, brown -----	16	18
Clay, brown, silty -----	16	34
Clay, blue, silty -----	11	45
Clay, blue -----	14	59
Sand, fine, compacted -----	9	68
Clay, blue, sandy -----	9	77
Sand, black, fine -----	12	89
Clay, blue, sandy -----	8	97
Sand, with wood -----	16	113
Clay, blue, tight -----	8	121
Sand, coarse, and fine gravel -----	15	136
Clay, blue, tight -----	12	148

Casing: 10-in. to 136 ft; perforated 84-97 ft, 111-136 ft.

4/3W-28B1. W. E. Grabenhorst. Altitude 162 ft. Drilled by Arrow Drilling &  
Supplies Co., 1961

Top soil -----	2	2
Clay, yellow -----	22	24
Clay, blue -----	35	59
Sand, black -----	8	67
Clay, blue -----	5	72
Sand, black -----	5	77
Clay, blue -----	12	89
Clay, green, sandy -----	16	105
Clay, blue -----	11	116
Sand, black -----	19	135
Clay, blue -----	15	150
Clay, green -----	8	158

Casing: 8-in. to 159 ft; perforated 82-158 ft; gravel pack 20-158 ft.

Table 3.--Drillers' logs of representative wells--Continued

4/3W-32B1. Jess Hockema. Altitude 158 ft. Drilled by Arrow Drilling & Supplies Co., 1957

Materials	Thickness (feet)	Depth (feet)
Top soil -----	3	3
Clay, yellow -----	35	38
Hardpan -----	2	40
Clay, blue -----	20	60
Hardpan -----	10	70
Clay, blue -----	15	85
Sand, black, water-bearing -----	15	100
Clay, blue -----	29	129
Sand, black, water-bearing -----	6	135
Clay, blue -----	20	155

Casing: 10-in. to 155 ft; perforated 80-155 ft.

4/3W-33K1. C. J. Trent. Altitude 160 ft. Drilled by Wilcox Drilling Co., 1959

Top soil -----	1	1
Clay, brown -----	18	19
Clay, brown, silty -----	10	29
Clay, blue, silty -----	23	52
Clay, blue -----	12	64
Sand, fine, compact -----	5	69
Clay, blue, with fine sand -----	14	83
Sand, fine, water-bearing -----	9	92
Clay, yellow and blue -----	50	142
Clay, blue, tight -----	31	173
Sand with streaks of clay, water-bearing -----	46	219
Clay, blue, silty -----	9	228

Casing: 8-in. to 220 ft; perforated 64-69 ft, 85-100 ft, 175-220 ft.

4/4W-6R1. I. H. Bernards. Altitude 220 ft. Drilled by Meeker Well Drilling Co., 1957

Clay, black -----	3	3
Clay, brown -----	7	10
Soapstone -----	11	21
Boulders -----	3	24
Sand, yellow; some clay -----	11	35
Shale, yellow, broken (or "ash") layer -----	11	46
Rock, hard (probably andesite) -----	-	-

Casing: 6-in. to 46 ft 8 in.; perforated 22-46 ft.

4/4W-7F1. W. B. Foster. Altitude 188 ft. Drilled by Wilcox Drilling Co., 1963

Top soil -----	1	1
Clay and "volcanic ash," varicolored -----	41	42
Basalt, weathered, and some ash -----	30	72

Table 3.--Drillers' logs of representative wells--Continued

Materials	Thickness (feet)	Depth (feet)
Basalt, blue and black, water-bearing at 93 and 129 ft -----	88	160
Casing: 6-in. to 72 ft; unperforated.		
4/4W-8H1. C. E. Conrad. Altitude 155 ft. Drilled by Wilcox Drilling Co., 1958		
Top soil -----	2	2
Clay, brown -----	17	19
Silt, brown -----	10	29
Clay, blue, silty -----	9	38
Clay, blue -----	22	60
Sand, fine, with wood -----	8	68
Clay, blue, sandy -----	5	73
Gravel, cemented -----	11	84
Gravel, loose -----	11½	95½
Shale -----	½	96
Casing: 6-in. to 96 ft; perforated 79-96 ft.		
4/4W-10R1. B. E. Cobe. Altitude 150 ft. Drilled by Meeker Well Drilling Co., 1956		
Clay -----	12	12
Sand and silt, brown -----	26	38
Clay, blue -----	22	60
Sand and silt, blue -----	40	100
Casing: 6-in. to 56 ft, 5-in. 54-100 ft; perforated 60-100 ft.		
4/4W-15Q1. Johnny Young. Altitude 152 ft. Drilled by Wilcox Drilling Co., 1961		
Top soil -----	2	2
Clay, brown -----	19	21
Silt, gray -----	24	45
Clay, blue, silty -----	7	52
Clay, blue, tight -----	15	67
Clay, blue, sandy -----	2	69
Clay, blue -----	14	83
Sand, fine -----	2	85
Sand, coarse, and fine gravel -----	25	110
Casing: 6-in. to 110 ft; perforated 100-110 ft; gravel pack 20-110 ft.		
4/4W-17B1. F. A. Pettit. Altitude 162 ft. Drilled by Wilcox Drilling Co., 1958		
Top soil -----	1	1
Clay, brown, silty -----	28	29

Table 3.--Drillers' logs of representative wells--Continued

Materials	Thickness (feet)	Depth (feet)
Clay, varicolored -----	12	41
Sand, brown, dry -----	2	43
Clay, blue, silty, hard -----	11	54
Clay, blue, sandy -----	15	69
Gravel, brown, fine -----	4	73
Clay, blue, sandy -----	5	78
Gravel, cemented -----	4	82
Clay, blue, sandy, with wood -----	5	87
Sand and fine gravel -----	18	105
Clay, blue, tough -----	1½	106½

Casing: 6-in. to 106½ ft; perforated 82-106 ft.

4/4W-21R1. R. A. Rossner. Altitude 150 ft. Drilled by Ted Schueler Drilling Co., 1963

Top soil -----	3	3
Clay, yellow -----	4	7
Silt -----	21	28
Clay, blue -----	34	62
Sand, blue -----	2	64
Clay, blue -----	13	77
Sand, blue -----	3	80
Gravel, fine -----	7	87
Unlogged -----	1	88

Casing: 6-in. to 88 ft; perforated 80-87 ft.

4/4W-23C1. W. N. O'Neil. Altitude 110 ft. Drilled by Meeker Well Drilling Co., 1958

Top soil -----	4	4
Silt, brown, with some blue sand -----	9	13
Sand and silt, blue -----	10	23
Sand, blue, hard-packed -----	3	26
Sand and silt, blue -----	5	31
Clay, blue, tight -----	10	41
Clay and silt, gray -----	5	46
Sand and silt, brown -----	5	51
Clay, blue, with sand and fine gravel -----	4	55
Gravel, blue, fine -----	1	56
Silt, blue, sandy, with some coarse sand -----	5	61

Casing: 6-in. to 61 ft; perforated 20-61 ft; gravel pack 12-61 ft.

4/4W-23N1. Crittenden Huston. Altitude 155 ft. Drilled by Wilcox Drilling Co., 1960

Top soil -----	2	2
Clay, brown -----	26	28
Clay, blue -----	44	72

Table 3.--Drillers' logs of representative wells--Continued

Materials	Thickness (feet)	Depth (feet)
Clay, yellow, silty -----	5	77
Sand, fine, compacted -----	12	89
Clay, blue, silty -----	4	93
Sand, coarse, and fine gravel -----	9	102
Clay, blue, silty -----	7	109
Gravel, fine -----	7	116

Casing: 6-in. to 116 ft; perforated 93-102 ft, 109-116 ft.

4/4W-24N2. Romeo Goche. Altitude 155 ft. Drilled by Wilcox Drilling Co.,  
1960

Top soil -----	2	2
Clay, brown -----	20	22
Silt, brown -----	4	26
Clay, blue, silty -----	11	37
Clay, blue -----	16	53
Sand, fine, compacted -----	6	59
Clay, blue, tight -----	18	77
Sand with some wood -----	16	93
Clay, blue, gritty -----	2	95

Casing: 6-in. to 95 ft; perforated 83-95 ft.

4/4W-24R1. Ross Cruickshank. Altitude 150 ft. Drilled by Arrow Drilling &  
Supplies Co., 1957

Top soil -----	3	3
Clay, yellow -----	27	30
Sand, black, fine -----	35	65
Clay, blue -----	5	70
Sand, black, coarse -----	15	85
Clay, blue -----	5	90
Sand, black, coarse, with wood -----	15	105
Clay, blue -----	2	107
Sand, black, and gravel -----	30	137
Sand, black, fine -----	8	145

Casing: 8-in. to 145 ft; perforated 65-145 ft.

4/4W-27D1. J. L. Wilcox. Altitude 150 ft. Drilled by Wilcox Drilling Co.,  
1956

Top soil -----	2	2
Clay, brown -----	16	18
Clay, silty -----	9	27
Clay, blue -----	42	69
Sand -----	16	85
Clay -----	7	92
Gravel and coarse sand -----	23	115
Clay -----	5	120

Casing: 10-in. to 120 ft; perforated 92-120 ft.

Table 3.--Drillers' logs of representative wells--Continued

4/4W-28A1. H. P. Stowell. Altitude 150 ft. Drilled by Irving Sears, 1956

Materials	Thickness (feet)	Depth (feet)
Top soil -----	3	3
Clay, yellow -----	17	20
Silt and sand, yellow -----	30	50
Clay and sand, black, water-bearing -----	12	62
Clay, brown, sandy -----	8	70
Clay, black, sandy -----	6	76
Sand, black -----	7	83
Clay, black, sandy -----	7	90
Clay, greenish -----	10	100
Clay, gray, sandy, soft -----	8	108
Clay, brown, hard -----	12	120
Clay, blue-black, soft -----	5	125
Sand and gravel, black, water-bearing -----	-	-

Casing: 6-in. to 113 ft; unperforated.

4/4W-30J1. McMinnville Grange. Altitude 140 ft. Drilled by Wilcox Drilling Co., 1960

Top soil -----	2	2
Clay, brown -----	27	29
Clay, blue -----	17	46
Sand and gravel, brown, cemented -----	3	49
Mudstone, brown, gritty -----	12	61
Mudstone, blue and black, very hard -----	35	96

Casing: 6-in. to 60½ ft; perforated 54-60 ft; gravel pack 29-60 ft.

4/4W-31B1. E. J. Hess. Altitude 140 ft. Drilled by Wilcox Drilling Co., 1955

Top soil -----	2	2
Clay, brown -----	19	21
Clay, silty -----	13	34
Clay, blue -----	21	55
Clay, sandy -----	15	70
Gravel and clay -----	2	72
Sand and gravel -----	12	84
Shale, soft -----	146	230

Casing: 6-in. to 84 ft; perforated at unknown depth.

4/4W-31F1. Amos Eash. Altitude 150 ft. Drilled by Wilcox Drilling Co., 1961

Top soil -----	2	2
Clay, brown -----	16	18
Clay, blue, silty -----	12	30
Clay, blue, tight -----	16	46
Gravel, brown, cemented -----	6	52
Shale, blue, hard -----	14	66
Basalt, gray -----	9	75

Casing: 6-in. to 53 ft; perforated 42-53 ft; gravel pack 20-53 ft.

Table 3.--Drillers' logs of representative wells--Continued

4/4W-32F1. Glen Farrow. Altitude 150 ft. Drilled by Wilcox Drilling Co.,  
1956

Materials	Thickness (feet)	Depth (feet)
Top soil -----	2	2
Clay, brown -----	17	19
Silt, gray -----	17	36
Clay, blue -----	20	56
Sand, fine -----	12	68
Sand, with tree limbs and logs imbedded -----	2	70
Sand -----	12	82
Gravel, loose -----	8	90
Gravel, cemented -----	2	92

Casing: 6-in. to 90 ft; perforated 75-90 ft.

4/4W-36A1. Don Goodrich. Altitude 152 ft. Drilled by Wilcox Drilling Co.,  
1960

Top soil -----	2	2
Clay, brown -----	11	13
Clay, blue, silty -----	16	29
Clay, blue -----	15	44
Clay, blue, silty, tight -----	24	68
Sand, fine, compacted -----	8	76
Sand -----	14	90
Clay, blue, sandy -----	3	93

Casing: 6-in. to 93 ft; perforated 87-93 ft; gravel pack 29-39 ft.

4/5W-24K1. R. A. Menefee. Altitude 205 ft. Drilled by Harold Riley, 1960

Clay, red -----	15	15
Rock, soft; water at 22 ft -----	13	28
Rock, black, hard -----	12	40
Rock, black, soft -----	6	46
Rock, black, hard -----	4	50

Casing: 6-in. to 44 ft; perforated 22-44 ft.

5/3W-5D1. J. V. Springer. Altitude 155 ft. Drilled by Bottner Drilling Co.,  
1962

Top soil -----	4	4
Clay, brown -----	8	12
Clay, blue -----	24	36
Sand -----	3	39
Clay, blue -----	6	45
Sand -----	9	54
Clay, blue -----	12	66
Sand, blue -----	12	78
Clay, gray -----	9	87
Sand, water-bearing -----	10	97

Table 3.--Drillers' logs of representative wells--Continued

Materials	Thickness (feet)	Depth (feet)
Clay, gray -----	8	105
Clay, blue, soft, with logs -----	5	110
Clay, gray -----	15	125
Sand -----	5	130
Clay, blue -----	10	140
Sand and fine gravel -----	20	160
Clay, blue -----	12	172
Sand, fine, water-bearing -----	16	188
Clay, blue -----	12	200
Casing: 10-in. to 200 ft; perforated 49-66 ft, 100-116 ft, 126-136 ft, 144-195 ft.		
5/3W-6G1. Robert Stockhoff. Altitude 140 ft. Drilled by Meeker Well Drilling Co., 1962		
Clay, blue -----	5	5
Sand and silt, brown -----	7	12
Clay and silt, blue -----	20	32
Clay and sand, blue, caving -----	3	35
Sand and silt, blue -----	31	66
Clay, blue -----	6	72
Sand and silt, brown -----	11	83
Sand and silt, blue -----	12	95
Sand, coarse, and light-brown silt -----	12	107
Clay, red, sticky -----	15	122
Casing: 10-in. to 122 ft; perforated 20-122 ft.		
5/3W-6K1. Robert Stockhoff. Altitude 150 ft. Drilled by Meeker Well Drilling Co., 1962		
Top soil -----	3	3
Clay, blue, hard -----	4	7
Sand and silt, brown -----	9	16
Clay and silt, dark-blue -----	27	43
Basalt, medium-hard -----	-	-
Casing: No casing installed; abandoned well.		
5/3W-8G1. Fred Finnicum. Altitude 154 ft. Drilled by Steinman Bros., 1937		
Top soil -----	3	3
Clay, yellow -----	13	16
"Silt" -----	23	39
Clay, blue -----	41	80
Sand, fine -----	5	85
Clay, blue -----	20	105
"Silt" -----	7	112
Clay, gray, sticky -----	43	155
Clay, blue -----	20	175

Table 3.--Drillers' logs of representative wells--Continued

Materials	Thickness (feet)	Depth (feet)
Clay, gray, sticky -----	12	187
"Silt," dry -----	13	200
Clay, yellow, soft -----	50	250
Clay, brown, soft -----	40	290
Clay, brown, sandy -----	6	296
Shale, gray, caving -----	14	310

Casing: 6-in. to 297 ft; perforated 70-82 ft, 87-92 ft.

5/3W-9N1. Howard Baker. Altitude 160 ft. Drilled by Willamette Drilling Co.,  
1959

Top soil -----	2	2
Clay, yellow -----	23	25
Clay, blue -----	87	112
Sand, black, water-bearing -----	3	115
Clay, blue -----	23	138
Clay, gray, sticky -----	65	203
Clay, blue -----	17	220
Clay, black -----	10	230
Clay, blue, sticky -----	30	260
Sand, brown; some gravel -----	6	266
Clay, blue, with boulders -----	19	285
Clay, sandy -----	15	300
Sand, black, and gravel -----	6	306
Gravel and clay, tight -----	1	307

Casing: 10-in. to 301 ft; perforated 110-115 ft, 258-266 ft.

5/3W-9P1. Howard Baker. Altitude 162 ft. Drilled by Wilcox Drilling Co.,  
1961

Top soil -----	2	2
Clay, brown -----	24	26
Clay, blue, silty -----	19	45
Clay, blue -----	19	64
Sand, fine, compacted; contains some wood -----	6	70
Clay, blue, tight -----	4	74
Sand, black, fine -----	21	95
Clay, blue -----	8	103
Sand and fine gravel -----	9	112
Boulders and gravel -----	6	118

Casing: 10-in. to 118 ft; perforated 64-70 ft, 74-95 ft, 103-118 ft.

5/3W-15R1. D. R. Wiley. Altitude 100 ft. Drilled by Willamette Drilling Co.,  
1958

Top soil -----	2	2
Silt and sand -----	12	14
Silt and clay, yellow -----	17	31

Table 3.--Drillers' logs of representative wells--Continued

Materials	Thickness (feet)	Depth (feet)
Gravel, coarse, water-bearing -----	8	39
Clay, blue -----	36	75
Sand, black, water-bearing -----	3	78
Clay, blue -----	35	113
Sand and clay, black; well flowed about 1 gpm -----	4	117
Clay, sandy; flow increased to 7 gpm -----	75	192
Sand, black; flow increased to about 150 gpm -----	-	-

Casing: 10-in. to 150 ft; unperforated.

5/3W-19N1. W. J. Ojua. Altitude 165 ft. Drilled by Willamette Drilling Co.,  
1958

Top soil -----	2	2
Clay, yellow -----	22	24
Clay, blue -----	24	48
Sand, black, fine -----	12	60
Clay, blue -----	47	107
Clay, yellow -----	35	142
Shale, yellow, water-bearing -----	14	156
Rock, broken -----	2	158
Rock, black -----	5	163

Casing: 6-in. to 158 ft; unperforated.

5/3W-21F1. Eugene Stockoff. Altitude 165 ft. Drilled by Wilcox Drilling Co.,  
1961

Top soil -----	2	2
Clay, brown -----	22	24
Clay, brown, silty -----	9	33
Clay, blue, silty -----	18	51
Sand, fine, compacted -----	10	61
Clay, blue, tight -----	14	75
Sand, black, fine -----	4	79
Clay, blue -----	6	85
Sand -----	19	104
Gravel and boulders -----	35	139
Clay, blue, sandy -----	15	154

Casing: 10-in. to 145 ft; perforated 55-60 ft, 75-80 ft, 85-90 ft, 103-145 ft.

5/3W-21L1. W. L. Dorman. Altitude 165 ft. Drilled by Wilcox Drilling Co.,  
1961

Top soil -----	2	2
Clay, brown -----	24	26
Clay, brown, silty -----	8	34
Clay, blue -----	21	55
Sand, fine, tight -----	10	65
Clay, blue -----	13	78
Sand, black -----	8	86

Table 3.--Drillers' logs of representative wells--Continued

Materials	Thickness (feet)	Depth (feet)
Clay, blue, sandy -----	20	106
Gravel and boulders, with wood -----	36	142
Clay -----	-	-
Casing: 10-in. to 142 ft; perforated 98-142 ft.		
5/3W-22J1. Dan Tomkins. Altitude 102 ft. Drilled by Willamette Drilling Co., 1962		
Top soil -----	27	27
Gravel -----	40	67
Mud, black -----	83	150
Sand -----	8	158
Clay, brown -----	24	182
Gravel -----	3	185
Sand -----	4	189
Gravel -----	1	190
Casing: 8-in. to 190 ft; unperforated.		
5/3W-29Q1. Fred Withee. Altitude 160 ft. Drilled by Wilcox Drilling Co., 1963		
Top soil -----	2	2
Clay, brown -----	27	29
Clay, blue -----	13	42
Sand, fine, compacted -----	14	56
Sand, medium to coarse -----	17	73
Clay, blue -----	26	99
Gravel, fine -----	16	115
Clay, blue, hard -----	4	119
Casing: 8-in. to 116 ft; perforated 57-72 ft, 92-116 ft; gravel pack at un- known depth.		
5/3W-30K1. Ester Polvi. Altitude 165 ft. Drilled by John T. Miller, 1961		
Top soil -----	3	3
Clay, gray -----	21	24
Sand, gray, hard -----	33	57
Shale, blue -----	23	80
Sand, hard -----	7	87
Shale, gray -----	50	137
Casing: 6-in. to 23 ft; unperforated.		
5/3W-30M1. Gust Janzen. Altitude 200 ft. Drilled by John T. Miller, 1952		
Clay -----	26	26
Rock, broken; some water -----	4	30
Rock, hard -----	30	60
Rock, medium-hard, and clay, water-bearing (50 gpm) -----	10	70
Rock, soft -----	5	75

Table 3.--Drillers' logs of representative wells--Continued

Materials	Thickness (feet)	Depth (feet)
Rock, hard -----	3	78
Rock, soft, water-bearing -----	8	86
Rock, hard -----	2	88
Rock, soft -----	3	91
Casing: 8-in. to 91 ft; perforated 51-91 ft.		
5/3W-30R1. Glen Robertson (estate of Russ Rogers). Altitude 180 ft. Drilled Hubert W. Panther, 1959		
Top soil, silt, brown -----	12	12
Clay, red, and brown silt -----	23	35
Sand, light-yellow -----	7	42
Clay, blue, and black sand -----	38	80
Sand, light-yellow, coarse -----	15	95
Soil, dark-red -----	2	97
Shale, red -----	18	115
Sand, light -----	9	124
Soil, brown, with fine gravel -----	8	132
Shale, red and black -----	25	157
Rock, black, thin layers -----	5	162
Sand, light, and very fine gravel -----	6	168
Rock, black, solid -----	-	-
Casing: 8-in. to 157 ft; perforated 30-42 ft, 115-124 ft, 140-157 ft; gravel pack 25-157 ft.		
5/3W-32B1. Clement Schrock. Altitude 160 ft. Drilled by Wilcox Drilling Co., 1962		
Top soil -----	1	1
Clay, blue -----	3	4
Clay, brown -----	19	23
Clay, blue -----	18	41
Sand, black, fine -----	7	48
Clay, blue, sandy -----	23	71
Sand, black, medium to coarse -----	12	83
Sand and fine gravel -----	21	104
Clay, gray, hard -----	16	120
Casing: 8-in. to 107 ft; perforated 77-107 ft; gravel pack 21-107 ft.		
5/4W-1B1. E. F. Day. Altitude 152 ft. Drilled by Arrow Drilling & Supplies Co., 1956		
Soil and clay -----	57	57
Sand, fine -----	27	84
Clay, blue -----	3	87
Sand, blue -----	27	114
Clay, blue -----	4	118
Sand, black, coarse, and gravel -----	29	147
Casing: 8-in. to 147 ft; perforated 8-147 ft.		

Table 3.--Drillers' logs of representative wells--Continued

5/4W-1C1. E. F. Day. Altitude 155 ft. Drilled by Arrow Drilling & Supplies Co., 1963

Materials	Thickness (feet)	Depth (feet)
Top soil -----	2	2
Clay, brown -----	16	18
Clay, blue -----	31	49
Clay, blue, sandy -----	6	55
Clay, blue -----	10	65
Clay, blue, sandy -----	3	68
Sand, black, fine -----	13	81
Clay, blue, sandy -----	4	85
Sand, black, medium -----	13	98
Clay and gravel -----	18	116
Sand and gravel -----	4	120
Clay, blue, sandy -----	19	139
Sand and gravel -----	6	145
Gravel and clay -----	13	158
Sand and gravel -----	4	162
Clay, blue -----	10	172

Casing: 10-in. to 172 ft; perforated 70-170 ft; gravel pack 18-172 ft.

5/4W-1E1. W. E. Stockhoff. Altitude 160 ft. Drilled by Arrow Drilling & Supplies Co., 1963

Top soil -----	3	3
Clay, brown -----	13	16
Clay, blue -----	45	61
Sand, black, fine -----	11	72
Clay, blue, sandy -----	11	83
Sand, black, medium -----	12	95
Sand and gravel -----	12	107
Clay, blue -----	31	138
Sand, black, coarse, and fine gravel -----	23	161
Clay, blue -----	4	165

Casing: 10-in. to 165 ft; perforated 60-165 ft.

5/4W-9E1. C. R. Jackson. Altitude 165 ft. Drilled by Wilcox Drilling Co., 1956

Top soil -----	2	2
Clay, brown -----	18	20
Silt -----	4	24
Clay, blue -----	39	63
Sand, fine -----	4	67
Clay, blue -----	7	74
Sand, coarse, and fine gravel -----	16	90

Casing: 6-in. to 90 ft; perforated 74-90 ft; gravel pack at unknown depth.

Table 3.--Drillers' logs of representative wells--Continued

5/4W-11D3. N. J. Longhurst. Altitude 162 ft. Drilled (driller unknown), 1948

Materials	Thickness (feet)	Depth (feet)
Top soil -----	3	3
Clay, brown -----	21	24
Silt -----	8	32
Clay, blue -----	22	54
Clay, brown -----	18	72
Sand, black -----	24	96

Casing: 6-in. to 96 ft; perforated 75-96 ft.

5/4W-11D4. N. J. Longhurst. Altitude 162 ft. Drilled by Arrow Drilling &amp; Supplies Co., 1963

Soil -----	2	2
Clay, brown -----	22	24
Clay, blue -----	42	66
Sand, black, firm -----	12	78
Clay, sandy -----	38	116
Sand, black, coarse -----	11	127
Clay and gravel, brown -----	5	132
Clay, blue, sandy -----	3	135
Clay and gravel -----	3	138
Gravel and sand -----	12	150
Clay and gravel -----	5	155

Casing: 10-in. to 156 ft; perforated 65-155 ft; gravel pack 18-155 ft.

5/4W-17H1. Walter Woodcock. Altitude 190 ft. Drilled by Ted Schueler Well Drilling Co., 1960

Clay, brown -----	26	26
Sand, gray, fine -----	9	35
Clay, gray -----	5	40
Shale, blue -----	15	55
Unlogged -----	1	56

Casing: 6-in. to 56 ft; perforated 48-56 ft; gravel pack 16-56 ft.

5/4W-20N1. City of Amity. Altitude 162 ft. Drilled by Wilcox Drilling Co., 1953

Top soil -----	4	4
Clay -----	36	40
Silt; some water -----	10	50
Sand, fine, and clay -----	12	62
Sand and gravel, water-bearing -----	10	72
Rocks -----	18	90
Sand, loose, water-bearing -----	6	96
Rock -----	30	126

Casing: 10-in.(?) to unknown depth.

Table 3.--Drillers' logs of representative wells--Continued

5/4W-25M1. E. J. Scaggs. Altitude 720 ft. Drilled by Art Clinton Well Drilling Co., 1962

Materials	Thickness (feet)	Depth (feet)
Clay and boulders, brown -----	40	40
Rock, blue -----	95	135
Clay, brown -----	8	143
Rock, blue -----	32	175
Casing: 6-in. to 80 ft; unperforated.		

5/4W-26K1. Glen Robertson. Altitude 742 ft. Drilled by H. W. Panther, 1959

Top soil and red clay -----	49	49
Soil, brown, and light-colored sand (tuffaceous) -----	7	56
Shale, varicolored -----	16	72
Shale, black, hard -----	20	92
Rock, black, solid -----	3	95
Shale, red to yellow -----	11	106
Rock, gray, layered -----	47	153
Shale, black and yellow -----	21	174
Sand, coarse, light-colored (tuffaceous) -----	6	180
Rock, black, layered -----	5	185
Casing: 6-in. to 185 ft; perforated 145-185 ft.		

5/4W-27E1. Marvin Deraeve. Altitude 172 ft. Drilled (driller unknown), 1953

Top soil -----	6	6
Clay with sand streaks; yields some water -----	40	46
"Slate" -----	4	50
Rock -----	24	74
Rock with soft streaks; water-bearing (120 gpm) -----	3	77
Casing: 10-in. to 50 ft.		

5/4W-27F1. Merle Williams. Altitude 175 ft. Drilled by Meeker Well Drilling Co., 1959

Top soil, black -----	4	4
Clay and silt, brown -----	15	19
Clay, blue, silty -----	10	29
Hardpan -----	1	30
Shale, blue -----	6	36
Rock, brown, soft; yields some water -----	4	40
Shale, blue, sandy -----	8	48
Sandstone, hard -----	17	65
Sandstone, hard, fractured; yields some water -----	20	85
Casing: 6-in. to 50 ft; perforated 31-49 ft.		

Table 3.--Drillers' logs of representative wells--Continued

5/4W-33N1. Glen Patty. Altitude 165 ft. Drilled by J. A. Sneed &amp; Sons, 1959

Materials	Thickness (feet)	Depth (feet)
Top soil -----	2	2
Clay, yellow -----	18	20
Silt, blue -----	4	24
Clay, blue -----	8	32
Shale, blue, decomposed -----	5	37
Shale, sticky -----	24	61
Sandstone, gray -----	5	66
Shale, tan -----	30	96
Shale, gray -----	24	120

Casing: 6-in. to 63 ft; perforated 21-28 ft.

5/4W-35C1. W. J. Schlecht. Altitude 940 ft. Drilled by H. W. Panther, 1959

Top soil -----	3	3
Shale, soft -----	13	16
Sandstone -----	10	26
Rock, gray, hard -----	10	36
Sandstone -----	14	50
Clay, blue -----	3	53
Sand, dark, dry -----	7	60
Rock, black -----	4	64
"Soil," brown -----	3	67
Rock, black -----	21	88
Shale -----	16	104
Shale, dark, hard -----	44	148
Sandstone -----	5	153
Sand, coarse -----	10	163

Casing: 6-in. to 67 ft; unperforated.

5/5W-1P1. Ivan and Marvin Bernards. Altitude 128 ft. Drilled by Barron &amp; Strayer, 1952

"Alluvium"; some gravel -----	185	185
Shale, dark, hard -----	35	220
Shale, blue, soft -----	80	300
Sand, agglomeratic, and dark shale -----	25	325

Casing: 12-in. to 60 ft; unperforated.

5/5W-13B1. George Fuller. Altitude 152 ft. Driller and date drilled unknown

Clay -----	50	50
Clay, sandy, and gravel; hardpan at 54 ft -----	4	54
Sand, coarse, and gravel -----	10	64

Casing: 6-in. to unknown depth.

Table 3.--Drillers' logs of representative wells--Continued

5/5W-25A1. City of Amity. Altitude 162 ft. Drilled by Robinson Drilling & Supply Co., 1959

Materials	Thickness (feet)	Depth (feet)
Top soil -----	2	2
Clay, yellow -----	6½	8½
Silt, sandy -----	½	9
Silt, yellow -----	9	18
Clay, yellow, sticky -----	18	36
Clay, blue -----	14	50
Clay, blue, with some gravel -----	5	55
Gravel, fine, loose, water-bearing -----	3	58
Gravel and yellow clay -----	½	58½
Gravel, loose, water-bearing -----	8½	67
Gravel and yellow clay -----	2	69
Gravel, loose, and brown sand -----	2	71
Gravel, coarse, with greenish-black stain -----	3	74
Gravel, coarse, and blue clay -----	4	78
Clay, blue -----	2	80
Sand, bluish-black, with wood -----	4½	84½
Gravel, loose, and blue sediments -----	½	85
Sediments, blue, soft, with wood and leaves -----	1	86
Shale, blue -----	3	89

Casing: 10-in. to 88 ft; perforated 57½-71 ft, 85½-86 ft.

6/3W-4D1. L. L. Lind. Altitude 170 ft. Drilled by J. T. Miller, 1954

Top soil -----	3	3
Clay, gray, sandy -----	20	23
Sand -----	57	80
Sand and gravel -----	24	104

Casing: 10-in. to 104 ft; perforated 86-104 ft.

6/3W-6J1. Stephen Tarter. Altitude 180 ft. Drilled by Willamette Drilling Co., 1958

Top soil -----	2	2
Clay, yellow -----	22	24
Clay, white, sticky -----	27	51
Clay, blue -----	14	65
Clay, black, with some wood -----	37	102
Shale, yellow, hard -----	48	150
Shale, yellow, rocky, water-bearing -----	20	170

Casing: 6-in. to 150 ft; unperforated.

6/3W-6R1. Gust Janzen. Altitude 190 ft. Drilled (driller unknown), 1952

Top soil -----	3	3
Clay -----	24	27
Clay; some water -----	1	28
Clay -----	31	59

Table 3.--Drillers' logs of representative wells--Continued

Materials	Thickness (feet)	Depth (feet)
Clay, water-bearing -----	1	60
Clay -----	46	106
Rock, black -----	1	107
Clay, red -----	2	109
Shale, gray -----	13	122
Rock, broken, water-bearing -----	13	135
Rock and shale, hard, black -----	7	142

Casing: 10-in. to 122 ft; unperforated.

6/3W-7A1. Estate of Belle Simkins. Altitude 200 ft. Drilled by West Well Drilling, 1958

No record -----	86	86
Clay, blue -----	17	103
Clay, tan to red -----	48	151
Clay, red, soft, caving; yields some water -----	4	155
Clay, red -----	30	185
Basalt, decomposed, with some unweathered layers; yields some water -----	35	220
Shale, light blue-gray, moderately hard -----	10	230
Shale, blue and red, soft, caving -----	20	250

Casing: 6-in. to 187 ft; unperforated.

6/3W-7H1. D. L. Gingerich. Altitude 250 ft. Drilled by J. T. Miller, 1955

Boulders -----	20	20
Rock, hard -----	145	165
Rock, soft -----	55	220

Casing: 8-in. to 220 ft; unperforated.

6/3W-19D1. Robert Miller. Altitude 245 ft. Drilled by Robinson Drilling & Supply Co., 1959

Top soil and clay -----	10	10
Andesite, weathered -----	12	22
Clay, yellow -----	63	85
Shale, gray -----	13	98
Shale, gray-green -----	32	130
Siltstone, gray, water-bearing between 130-132 ft -----	2	132

Casing: 6-in. to 127½ ft; unperforated.

6/3W-20D1. V. R. Punzel. Altitude 165 ft. Drilled by Willamette Drilling Co., 1961

Top soil -----	4	4
Clay, yellow -----	8	12
Silt, brown, sandy -----	23	35

Table 3.--Drillers' logs of representative wells--Continued

Materials	Thickness (feet)	Depth (feet)
Shale, brown, sandy -----	15	50
Shale, gray, sandy -----	18	68
Sand and gravel, cemented -----	22	90
Sand and gravel, brown -----	7	97
Sand and gravel, black -----	10	107

Casing: 8-in. to 106 ft; perforated 96-106 ft.

6/3W-30Q2. A. H. Nisly. Altitude 170 ft. Drilled by Roy Perkins, 1956

Top soil -----	2	2
Silt, yellow -----	6	8
Clay, yellow -----	12	20
Clay, gray and yellow -----	15	35
Sand, fine, black, and clay -----	15	50
Sand, fine, black -----	2	52
Sand, fine, black, and clay -----	6	58
Clay, blue -----	3	61
Gravel, sandy, cemented -----	4	65
Sand, "sharp," and gravel, water-bearing -----	1	66
Clay, blue -----	-	-

Casing: 6-in. to 65 ft; unperforated.

6/3W-32H1. Fred Tedrow. Altitude 130 ft. Drilled by Duffield Bros., 1960

Top soil and clay, brown -----	17	17
Clay, silty, very soft -----	3	20
Basalt, black, hard -----	69	89

Casing: 6-in. to 22 ft; unperforated.

6/4W-1H1. E. F. Curtis. Altitude 500 ft. Drilled by Willamette Drilling Co.,  
1962

Top soil -----	3	3
Clay, brown -----	9	12
Clay, red -----	28	40
Shale, gray-brown -----	10	50
Basalt, gray, soft -----	8	58
Basalt, hard -----	65	123
Shale, gray, hard, gritty -----	3	126
Sand -----	14	140
Sand, white, fine -----	3	143
Basalt, black -----	92	235

Casing: 6-in. to 143 ft; unperforated.

Table 3.--Drillers' logs of representative wells--Continued

6/4W-3A1. R. M. Pettingill. Altitude 1,060 ft. Drilled by Meeker Well Drilling Co., 1962

Materials	Thickness (feet)	Depth (feet)
Top soil -----	5	5
Rock, red, soft -----	3	8
Basalt, gray, soft -----	8	16
Rock, gray, medium-soft -----	98	114
Basalt, blue, hard -----	8	122
Rock, broken layers, hard -----	49	171

Casing: 6-in. to 154 ft; perforated 134-154 ft.

6/4W-8E1. Dewey Carrico. Altitude 180 ft. Drilled by Kulick Well Drilling, 1958

Top soil -----	9	9
Clay, yellow and blue -----	16	25
Shale, blue, porous, water-bearing -----	5	30
Clay and shale -----	18	48
Shale, porous, water-bearing -----	6	54
Soapstone and sandstone, black -----	6	60

Casing: 6-in. to 60 ft; perforated 24-34 ft, 46-52 ft.

6/4W-10E1. Richard Olson. Altitude 380 ft. Drilled by J. A. Sneed & Sons, 1963

Top soil -----	2	2
Clay, yellow -----	18	20
Basalt, weathered -----	32	52
Claystone, blue, soft -----	20	72
Claystone, hard, broken -----	1	73
Claystone, soft -----	32	105
Claystone, hard -----	5	110

Casing: 6-in. to 75 ft; perforated 31-32 ft, 71-73 ft.

6/4W-16F1. Donald Shields. Altitude 220 ft. Drilled by Wilcox Drilling Co., 1956

Soil and clay -----	18	18
Clay with beds of siltstone -----	8	26
Shale, soft, crumbly -----	7	33
Shale, hard -----	31	64
Shale, porous, water-bearing -----	1½	65½
Shale, hard, water-bearing 85-96 ft -----	30½	96

Casing: 6-in. to 40 ft; unperforated.

Table 3.--Drillers' logs of representative wells--Continued

6/4W-17C1. Arthur Leppin. Altitude 210 ft. Drilled by J. A. Sneed & Sons, 1960

Materials	Thickness (feet)	Depth (feet)
Top soil -----	2	2
Clay, yellow -----	16	18
Clay, brown -----	10	28
Claystone, blue, firm -----	56	84
Sandstone, white -----	2	86
Claystone, blue, firm -----	24	110
Sandstone, white, firm -----	10	120

Casing: 6-in. to 33 ft; unperforated.

6/4W-17K1. John Romig. Altitude 220 ft. Drilled by John T. Miller, 1956

Top soil and clay -----	32	32
Shale, blue -----	109	141
Rock, black, hard -----	10	151
Shale -----	40	191
Rock, black, water-bearing -----	10	201
Shale, blue -----	14	215
Shale, blue, sticky -----	10	225
Shale, blue, hard -----	3	228
Shale, blue, sticky -----	7	235
Shale, blue, hard -----	35	270

Casing: 8-in. to 32 ft; unperforated.

6/4W-22A1. C. W. LeVee. Altitude 605 ft. Drilled by Robinson Drilling & Supply Co., 1960

No record -----	59	59
Basalt boulders, hard, and decomposed rock -----	5	64
Shale, yellow, soft, caving -----	14	78
Shale, blue, hard, broken -----	23	101
Shale, blue, solid -----	24	125
Rock, broken, water-bearing -----	2	127
Shale, blue -----	8	135

Casing: 6-in. to 101 ft; unperforated.

6/4W-22H1. James Salmon. Altitude 440 ft. Drilled by Duffield Bros., 1957

Top soil and clay -----	3	3
Shale, gray, shattered -----	33	36
Shale, gray, medium-hard -----	74	110
Shale, gray, very hard -----	14	124

Casing: 6-in. to 47 ft; unperforated.

Table 3.--Drillers' logs of representative wells--Continued

6/4W-23N1. Ernest Solle. Altitude 440 ft. Drilled by J. A. Sneed & Sons,  
1956

Materials	Thickness (feet)	Depth (feet)
Top soil -----	1	1
Basalt, weathered -----	7	8
Sandstone, blue -----	72	80
Shale, blue -----	80	160
Sandstone, gray -----	30	190
Shale, blue -----	48	238

Casing: 6-in. to 21 ft; unperforated.

7/3W-5B1. J. C. Heffley. Altitude 225 ft. Drilled by Robinson Drilling &  
Supply Co., 1960

Clay, gray -----	40	40
Clay, yellow, "from decomposed rock" -----	12	52
Basalt, brown, black, and yellow; partly decomposed -----	7	59
Basalt, gray to black -----	41½	100½

Casing: 6-in. to 58½ ft; unperforated.

7/3W-5K1. Joseph Singer. Altitude 200 ft. Drilled by Robinson Drilling &  
Supply Co., 1961

Clay -----	10	10
Rock, weathered -----	5	15
Andesite boulders -----	3½	18½
Andesite, unweathered -----	147½	166
Andesitic basalt, unweathered -----	36	202

Casing: 6-in. to 23½ ft; unperforated.

7/3W-6K1. R. E. Noteboom. Altitude 460 ft. Drilled by Willamette Drilling  
Co., 1963

Top soil -----	3	3
Clay, red -----	12	15
Boulders -----	15	30
Rock; some water from crevice -----	117	147
Shale, dark-brown -----	6	153
Rock -----	53	205

Casing: 6-in. to 18 ft; well considered dry hole.

7/3W-8G1. Emmett Rogers. Altitude 250 ft. Drilled by Barron & Strayer, 1964

Top soil -----	10	10
Clay, red -----	8	18
Rock, black, hard -----	117	135
Rock, black, porous, water-bearing -----	15	150
Rock, black, hard -----	65	215

Table 3.--Drillers' logs of representative wells--Continued

Materials	Thickness (feet)	Depth (feet)
Rock, gray -----	50	265
Clay, black -----	15	280
Clay, gray -----	5	285
Rock, gray -----	10	295
Rock, gray, hard -----	20	315
"Iron pockets" -----	3	318
Rock, gray, very hard -----	22	340
Rock, black, hard -----	35	375
Rock, gray, very hard -----	40	415
Clay, red -----	15	430
Clay, red, blue, and yellow -----	15	445
Clay, blue -----	30	475
Clay, blue, hard -----	23	498
Rock and clay -----	2	500
Clay, blue, hard -----	45	545
Clay, blue, some rock -----	20	565
Sandstone -----	75	640
Sandstone, fine -----	60	700

Casing: 10-in. to 295 ft, 8-in. liner 395-455 ft; unperforated.

7/3W-8J1. Vick Bros. Altitude 200 ft. Drilled by Robinson Drilling & Supply Co., 1956

Clay, light-gray, sticky -----	10	10
Clay, red -----	12	22
Clay, yellow "weathered andesite" -----	46	68
Andesite, broken, unweathered -----	60	128
Shale, carboniferous, and charred wood fragments -----	12	140
Shale -----	19	159
Basalt -----	167	326

Casing: 8-in. to 160 ft; unperforated.

7/3W-8R1. F. W. Berms. Altitude 160 ft. Drilled by J. A. Sneed & Sons, 1960

Top soil -----	2	2
Clay, yellow -----	18	20
Clay, blue -----	40	60
Shale, blue, sandy -----	10	70
Shale, blue, firm, sandy -----	12	82
Shale, blue, sticky -----	8	90
Basalt, weathered -----	2	92
Basalt, "diced" -----	4	96
Basalt, solid -----	12	108
Basalt, "diced," water-bearing -----	2	110

Casing: 6-in. to 96 ft; unperforated.

Table 3.--Drillers' logs of representative wells--Continued

7/3W-9F1. Oak Crest Farm. Altitude 125 ft. Drilled by Harry A. Robinson,  
1957

Materials	Thickness (feet)	Depth (feet)
Silt -----	15	15
Sand and gravel, small -----	2	17
Sand and gravel, packed -----	7	24
Sand and gravel, loose -----	10	34
Gravel with clay, tight -----	2½	36½
Gravel, loose -----	1	37½
Gravel and clay (becoming tighter as the hole progressed)	36	73½
Andesite, fresh, very hard -----	-	-

Casing: 10-in. to 73½ ft; perforated 25-64 ft, 64-72 ft.

7/3W-10E1. L. P. Brandt. Altitude 150 ft. Drilled by Duffield Bros., 1961

Silt, brown, sandy -----	20	20
Gravel and sand, brown, cemented -----	69	89
Gravel and sand, gray, cemented -----	61	150

Casing: 12-in. to 134½ ft; perforated 40-130 ft.

7/3W-17Q2. Don Muelhaupt, Sr. Altitude 430 ft. Drilled by Robinson Drilling  
& Supply Co., 1962

Clay, red -----	2	2
Andesite, weathered -----	33	35
Clay, red -----	5	40
Andesite, weathered, grading into hard rock -----	7	47
Andesite, unweathered -----	100	147

Casing: 8-in. to 55 ft; unperforated.

7/3W-18L1. Tony Perkins. Altitude 550 ft. Drilled by Mr. McRae, 1951

Top soil and weathered basalt -----	20	20
Basalt, hard -----	60	80
Clay and gravelly rock, water-bearing -----	60	140
Basalt, water-bearing at 235 ft -----	95	235

Casing: 8-in. to 20 ft, 6-in. to 140 ft; unperforated.

7/3W-19P1. Curt Ferguson. Altitude 650 ft. Drilled by J. A. Sneed & Sons,  
1957

Top soil -----	2	2
Clay, red -----	16	18
Volcanic ash -----	20	38
Volcanic ash and boulders -----	19	57
Basalt, (flat-lying) -----	31	88
Volcanic ash -----	5	93
Basalt, diced -----	6	99
Basalt, porous -----	6	105

Table 3.--Drillers' logs of representative wells--Continued

Materials	Thickness (feet)	Depth (feet)
Volcanic ash -----	5	110
Basalt, porous -----	4	114
Volcanic ash, water-bearing (5 gpm) -----	20	134
Basalt, solid -----	6	140
Basalt, (decomposed), water-bearing (8 gpm) -----	10	150
Basalt, abrasive -----	5	154

Casing: 6-in. to 135 ft; perforated 114-134 ft.

7/3W-20E1. V. T. Murdock. Altitude 285 ft. Drilled by J. A. Sneed & Sons,  
1959

Top soil -----	3	3
Clay, brown -----	3	6
Basalt, weathered -----	2	8
Basalt, "diced" -----	7	15
Basalt, weathered -----	16	31
Basalt, "diced" -----	6	37
Basalt, weathered -----	9	46
Shale, blue -----	114	160

Casing: 6-in. to unknown depth.

7/3W-22M1. Northwest Natural Gas Co. Altitude 130 ft. Drilled by Bottner  
Drilling Co., 1963

Soil, brown, sandy -----	6	6
Sand and boulders, mostly fill -----	58	64
Gravel, pea-sized -----	20	84
Clay, brown, soft -----	76	160
Sand and medium gravel, water-bearing -----	15	175
Clay, brown, hard -----	85	260
Sand, medium -----	25	285
Clay, blue, hard -----	115	400

Casing: 10-in. to 20 ft; unperforated.

7/3W-29M1. Bonneville Power Admin. Altitude 200 ft. Drilled by Steinman  
Bros., 1940

Clay, yellow -----	15	15
Clay, yellow, sandy -----	10	25
Shale, red; some water -----	50	75
Shale, brown, sticky -----	60	135
Shale, gray, sandy, water-bearing -----	23	158
Shale, blue and brown, water at 170-175 ft -----	42	200
Shale, brown -----	105	305
Shale, gray -----	32	337
Shale and sand, gray -----	13	350
Limestone and sandstone, gray -----	25	375

Casing: 10-in. to 129+ ft, 8-in. to 251 ft; perforated 129-251 ft.

Table 3.--Drillers' logs of representative wells--Continued

7/4W-1G1. C. E. Allen. Altitude 325 ft. Drilled by Wilcox Drilling Co., 1957

Materials	Thickness (feet)	Depth (feet)
Top soil, red -----	3	3
Clay, red -----	15	18
Clay, varicolored -----	12	30
Volcanic ash -----	44	74
Basalt, soft -----	20	94
Basalt, greenish -----	15	109
Basalt, black, with some green flecks; mostly fractured -	122	231
Shale, blue, fractured -----	36	267
Shale, harder with depth -----	2	269

Casing: Uncased well, abandoned.

7/4W-6R1. Arthur Leppin. Altitude 245 ft. Drilled by Wilcox Drilling Co.,  
1956

Top soil -----	1	1
Clay, brown -----	15	16
Shale, hard -----	1	17
Shale, blue, very hard -----	71	88
Basalt, black -----	1	89

Casing: 6-in. to 16½ ft; unperforated.

7/4W-10D1. Don Grimsbo. Altitude 225 ft. Drilled by Robinson Drilling &  
Supply Co., 1957

Clay -----	34	34
Andesite, decomposed -----	6	40
Shale, dark-gray -----	10	50
Shale, gray -----	22	72
Shale, gray -----	6	78

Casing: 6-in. to 61 ft; unperforated.

7/4W-15A1. Nila H. Farm. Altitude 525 ft. Drilled by J. A. Sneed & Sons,  
1957

Top soil -----	3	3
Volcanic ash -----	57	60
Sandstone, blue -----	21	81
Sandstone, (with crevices), gray, water-bearing -----	1	82
Sandstone, gray, solid -----	9	91
Sandstone, (with crevices), gray, water-bearing -----	1	92
Sandstone, brown, solid -----	12	104
Sandstone, (with crevices), gray, water-bearing -----	1	105
Sandstone, gray, solid -----	5	110

Casing: 6-in. to 69 ft; unperforated.

Table 3.--Drillers' logs of representative wells--Continued

7/4W-15K1. Arthur Bishop. Altitude 315 ft. Drilled by J. A. Sneed & Sons,  
1958

Materials	Thickness (feet)	Depth (feet)
Top soil and boulders -----	4	4
Clay, yellow -----	8	12
Volcanic ash -----	20	32
Shale, blue, sandy -----	5	37
Shale, blue, "diced" -----	1	38
Shale, blue, firm -----	22	60
Shale, blue, shattered -----	1	61

Casing: 6-in. to 41 ft; perforated at unknown depth.

7/4W-23Q1. J. A. Heinrichs. Altitude 315 ft. Drilled by J. A. Sneed & Sons,  
1963

Clay, red -----	2	2
Basalt, weathered -----	98	100
Claystone, blue, caving -----	16	116
Basalt, "diced" -----	64	180

Casing: 6-in. to 172 ft; unperforated.

7/4W-27N1. E. K. Splane. Altitude 160 ft. Drilled by J. A. Sneed & Sons,  
1962

Top soil -----	2	2
Clay, yellow -----	20	22
Clay, blue, soft -----	19	41
Claystone, green, hard -----	7	48
Claystone, gray, soft -----	2	50
Conglomerate, 1-in.-diam., water-bearing (5 gpm) -----	1	51
Claystone, blue, soft -----	10	61
Claystone, green, soft -----	12	73
Basalt, "diced" -----	2	75
Claystone, gray, hard -----	18	93
Claystone, gray, "diced" -----	$\frac{1}{2}$	93 $\frac{1}{2}$
Claystone, gray, soft -----	3	96 $\frac{1}{2}$

Casing: 6-in. to 81 ft; unperforated; gravel pack at unknown depth.

7/4W-28Q1. Bolton Stinnette. Altitude 165 ft. Drilled by J. A. Sneed & Sons,  
1958

Top soil -----	2	2
Clay, yellow -----	25	27
Shale, blue -----	16	43
Shale and gravel, gray -----	3	46
Sandstone, gray, diced -----	16	62

Casing: 6-in. to 46 ft; unperforated.

Table 3.--Drillers' logs of representative wells--Continued

7/4W-29Q1. P. L. Smull. Altitude 175 ft. Drilled by J. A. Sneed &amp; Sons, 1962

Materials	Thickness (feet)	Depth (feet)
Top soil -----	2	2
Clay, yellow -----	15	17
Clay, blue -----	12	29
Clay, brown -----	20	49
Clay, blue -----	11	60

Casing: 6-in. to 60 ft; perforated 33-57 ft.

7/4W-29Q2. W. L. Braman. Altitude 175 ft. Drilled by J. A. Sneed &amp; Sons, 1958

Top soil -----	2	2
Clay, yellow -----	18	20
Clay, blue -----	7	27
Shale, blue -----	21	48

Casing: 6-in. to 48 ft; perforated 28-33 ft, 45-46 ft.

7/4W-36F1. Gordon Daque. Altitude 125 ft. Drilled by Art Clinton Well Drilling Co., 1957

Top soil -----	11	11
Gravel -----	25	36
Rock -----	3	39

Casing: 10-in. to 35 ft; perforated 21-35 ft.

8/4W-3B1. T. C. Muller. Altitude 170 ft. Drilled by Art Clinton Well Drilling Co., 1962

Clay, brown, sandy -----	4	4
Clay, gray, sandy -----	14	18
Clay, blue -----	13	31
Gravel, medium -----	19	48
Gravel and clay -----	10	58
Clay, blue, hard -----	2	60

Casing. 12-in. to 60 ft; perforated 38-56 ft.

8/4W-3K1. C. A. Evans. Altitude 150 ft. Drilled by J. A. Sneed &amp; Sons, 1960

Top soil -----	1	1
Clay, blue -----	1	2
Silt, yellow -----	6	8
Clay, yellow -----	15	23
Gravel, cemented -----	10	33
Gravel, 2-in.-diam., water-bearing -----	2	35
Gravel, cemented -----	7	42
Sand, fine, water-bearing -----	3	45
Shale, blue -----	7	52

Casing: 8-in. to 45 ft; perforated 33-42 ft.

Table 3.--Drillers' logs of representative wells--Continued

8/4W-6D1. Walter Boyer. Altitude 225 ft. Drilled by J. A. Sneed & Sons, 1955

Materials	Thickness (feet)	Depth (feet)
Top soil -----	2	2
Clay, yellow -----	16	18
Gravel, cemented -----	10	28
Shale, gray -----	9	37
Sandstone, gray -----	14	51
Sandstone, white, water-bearing (2 gpm) -----	$\frac{1}{2}$	51 $\frac{1}{2}$
Shale, gray, sandy -----	75 $\frac{1}{2}$	127
Sandstone, white, water-bearing (1 $\frac{1}{2}$ gpm) -----	1	128
Shale, gray, sandy -----	12	140
Sandstone, white, water-bearing (2 $\frac{1}{2}$ gpm) -----	1	141
Shale, gray -----	-	-

Casing: 6-in. to 28 ft; unperforated.

8/4W-9K1. Green Villa Farms. Altitude 155 ft. Drilled by J. A. Sneed & Sons,  
1962

Top soil -----	1	1
Clay, yellow -----	24	25
Clay, blue -----	3	28
Sand, fine -----	10	38
Gravel, coarse, and sand -----	4	42
Claystone, gray, hard -----	12	54
Sandstone, white, hard -----	2	56
Limestone, hard -----	30	86
Sandstone, gray, hard -----	3	89

Casing: 6-in. to 44 $\frac{1}{2}$  ft; unperforated.

Table 4.--Records of representative springs in the Eola-Amity Hills and Red Hills of Dundee

Number: See p. for explanation of numbering system.

Altitude: Altitude of land surface at spring in feet above mean sea level, interpolated from topographic maps.

Yield: Yield of spring estimated on given date; yields of all springs reportedly fluctuate considerably throughout the year.

Use: D, domestic; Irr, irrigation; PS, public supply; S, stock watering.

Remarks: Ca, chemical analysis given in table 3; gpm, gallons per minute; ppm, parts per million; Temp, temperature of water in degrees Fahrenheit.

Number	Name	Owner or user	Altitude (feet)	Geologic source	Occurrence	Yield		Use	Remarks
						Gallons per minute	Date		
4/4W-4K1s	Unnamed	City of Dayton	295	Basalt	Flows from small spring cirque in ravine; several outlets visible	150	3-3-65	PS, Irr	Flows into small concrete collector sumps; diverted from small sumps into reservoir system of about 175,000-gallon capacity; overflow used for irrigation; Ca.
5/4W-23P1s	Breeding	City of Amity	400	Basalt	Flows from near contact between basalt and marine sedimentary rocks	20	5-14-65	PS	Flows into small concrete collector sump; diverted from sump to 220,000-gallon-capacity reservoir; Temp 55; supplemented by flow from Matthews Spring and one well.
25F1s	Unnamed	Hilda Parvin	495	Weathered basalt	Seeps from beneath few feet of soil near small ravine	< 5	do	D	Seeps into small collector box; flows by gravity from collector box to Parvin home.
35A1s	Matthews	City of Amity, A. L. Matthews	800	Basalt	Flows from head of small ravine near hilltop	20	6-14-65	PS, Irr, D	Flows into small concrete collector sump; part of water diverted from sump to city of Amity pipeline, part diverted for domestic and irrigation supply; Temp 55.
35N1s	Unnamed	Henry Gusa	900	Basalt	Seeps from rubble at base of steep slope	5	12-13-63	D, Irr	Seeps into small tile sump from which part is pumped for domestic supply; part flows into about a 30,000-gallon-capacity reservoir for irrigation.
36N1s	Zimmerman	Hopewell Water Comm.	500	Basalt	Flows from head of small ravine near contact between basalt and marine sedimentary rocks	25	6-14-65	PS	Diverted into small concrete reservoir by a 3-in. pipe driven into spring source; supplemented by flow from smaller nearby spring.
6/4W-12M1s	Unnamed	Meeker Ranch	800	Weathered basalt	Flows from large seep area near small ravine	15	do	S	Flow impounded behind small dirt dam at stock-watering point; Temp 55.

Table 4.--Records of representative springs in the Eola-Amity Hills and Red Hills of Dundee--Continued

Number	Name	Owner or user	Altitude (feet)	Geologic source	Occurrence	Yield		Use	Remarks
						Gallons per minute	Date		
6/4W-12B1s	Unnamed	R. H. Wacken	600	Weathered basalt	Seeps from beneath several feet of soil on a moderately steep slope	10	--	D, S	Seeps into small tile collector sump.
23M1s	do	Ernest Solle	480	Basalt	Flows from near contact between basalt and marine sedimentary rocks	20	6-21-65	Irr	Diverted directly into small reservoir; used to irrigate several acres of nursery stock.
24L1s	Purvine	C. N. Purvine	300	Weathered basalt	Flows from base of low escarpment into small ravine	80	6-21-65	D, S, Irr	Development includes a 3-in. and a 1-in. pipe driven into spring source; overflow impounded in small reservoir formed by dirt-filled dam across ravine; irrigates about 15 acres.
7/3W-30M1s	Unnamed	Oregon State Highway Dept. (Holman State Park)	225	Landslide debris	Source not seen; flows from landslide rubble; source appears to be base of landslide escarpment	20	6-21-65	D	Formerly supplied water for drinking and park restrooms; park abandoned in 1965 to make room for freeway.
7/4W-11M1s	Goodwin Branch	Used by several families	610	Basalt	Flows from base of landslide escarpment near contact between basalt and marine sedimentary rocks	50	6-17-63	D, Irr	Flows into small wooden trough; measured yield 30 gpm Oct. 2, 1951; Ca.
14L1s	McNary Branch	Used by several families	600	Basalt	Flows from rubble slope near contact between basalt and marine sedimentary rocks	--	--	D, Irr	Measured flow was 78 gpm 100 ft below upper orifice and 115 gpm 1/4 mile below upper orifice on Oct. 3, 1951; hardness 22 ppm, chloride 2.5 ppm.

Table 5.--Chemical analyses of ground waters in the Eola-Amity Hills area, northern Willamette Valley, Oreg.

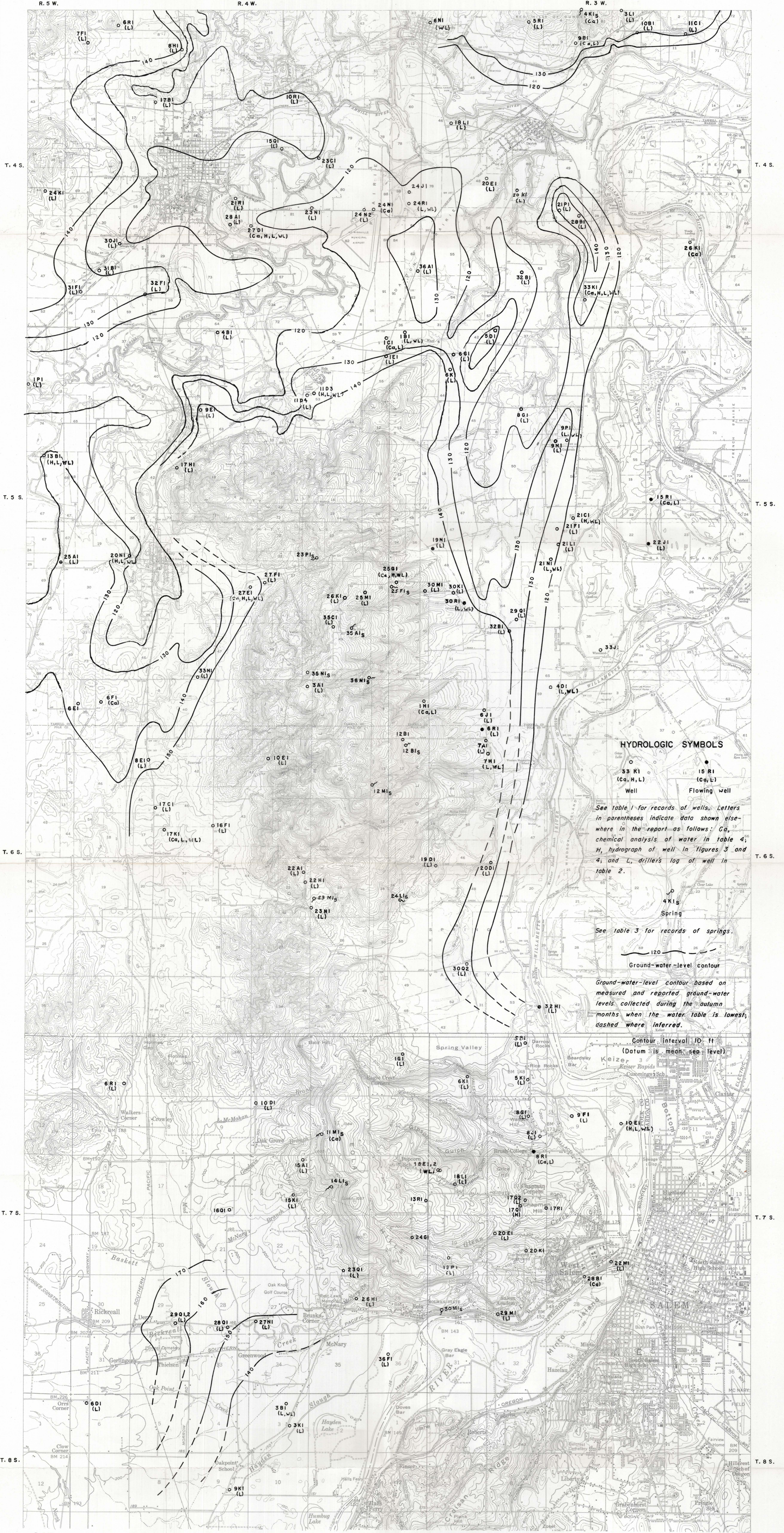
[Analyses by U.S. Geological Survey, except those noted by footnote]

Number	Geologic source	Depth of water-bearing zones(s) (feet)	Date of collection	Temperature (°F)	Parts per million																Sodium adsorption ratio (SAR)	Specific conductance (micromhos at 25°C)	pH	
					Silica (SiO <sub>2</sub> )	Iron (Fe)	Manganese (Mn)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO <sub>3</sub> )	Carbonate (CO <sub>3</sub> )	Sulfate (SO <sub>4</sub> )	Chloride (Cl)	Fluoride (F)	Nitrate (NO <sub>3</sub> )	Phosphate (PO <sub>4</sub> )	Boron (B)	Dissolved solids <sup>1/</sup>				Hardness, as CaCO <sub>3</sub>
2/4/3W-4K1s	Basalt	--	4-20-54	--	7.0	0.3	0.2	3.7	2.2	4.8	--	22	0	1.7	3.2	0.1	--	0.2	--	90	17	--	--	7.2
2/9B1	do	200-208	4-20-54	--	3.2	5.0	.1	4.5	4.5	7.4	--	29	0	3.8	3.5	.2	--	.5	--	101	23	--	--	7.4
26K1	Alluvium(?)	40	10-13-28	51.5	42	.37	--	15	8.0	7.2	1.3	88	0	5.5	2.6	--	5.3	--	--	132	70	0.4	--	--
33K1	Fluviolacustrine deposits	64-69	8-15-63	55.0	31	7.7	--	38	14	14	2.5	209	0	1.8	4.2	.4	3.5	2.3	0.00	215	153	.5	337	7.7
4/4W-24N1	Silt	41	10-15-28	52.5	21	.23	--	40	10	12	1.4	160	0	17	10	--	3.8	--	--	197	141	.4	--	--
27D1	Fluviolacustrine deposits	92-120	6-15-63	54.5	32	.42	.1	30	10	8.3	1.7	141	0	6.0	8.2	.2	1.5	1.0	--	168	116	.3	258	7.5
5/3W-15R1	do	192	6-17-63	54.5	33	.35	.2	18	9.1	40	1.8	203	0	.2	4.5	.1	.4	3.1	--	211	82	1.9	314	8.0
5/4W-1C1	do	70-170	6-17-63	55.5	35	6.3	--	45	21	18	2.7	278	0	.4	8.0	.5	.3	5.0	--	273	197	.6	427	7.7
25G1	Basalt	50-268	6-15-63	55.0	41	9.7	--	7.5	4.0	8.7	1.6	52	0	9.6	2.0	.2	.6	1.0	--	102	35	.6	110	7.5
27E1	Marine sedimentary rocks	50-77	6-25-63	55.0	--	--	--	--	--	--	--	--	--	--	172	--	--	--	.36	--	153	--	1,220	--
6/4W-1H1	Basalt	219-233	6-17-63	55.5	50	.07	--	4.5	1.7	5.6	2.0	36	0	.0	2.0	.2	.9	.47	--	85	18	.6	68	7.2
6F1	Marine sedimentary rocks	2,000+	2-6-65	--	4	1.5	.4	1,500	51	4,060	22.0	14	0	12.0	26,000	--	53.0	--	--	341,800	28,900	--	49,700	6.1
17K1	do	191-201	6-17-63	56.0	25	.17	--	34	5.0	770	5.8	194	0	2.6	1,160	.3	3.0	.07	--	2,100	106	33.0	3,860	7.6
7/3W-8R1	Basalt	108-110	6-17-63	55.5	51	.03	--	6.0	2.2	8.8	2.6	49	0	.2	2.5	.2	.7	.64	--	99	24	.8	91	7.4
28B1	Alluvium(?)	34	10-13-28	54.0	57	.10	--	18	10	9.1	.7	109	0	5.3	5.5	--	2.8	--	--	156	86	.4	--	--
7/4W-11L1s	Basalt	--	11-1-63	53.0	37	.04	--	9.5	3.7	5.2	2.2	56	0	.0	3.0	.1	1.8	.23	--	91	38	.4	104	6.6

1/ Calculated values with bicarbonate (HCO<sub>3</sub>) recomputed as carbonate (CO<sub>3</sub>).

2/ Analysis by Oregon State Board of Health.

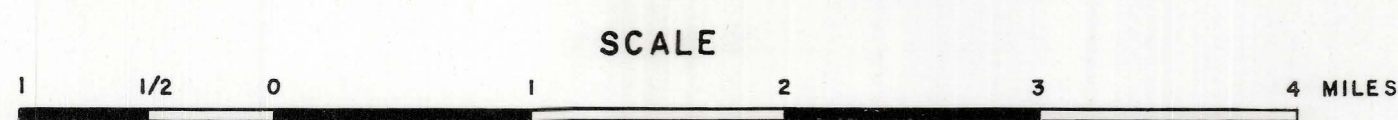
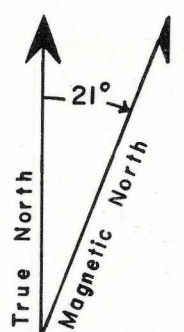
3/ Includes 63 ppm of bromide (Br) and 14 ppm of iodide (I).



Base from U. S. Geological Survey topographic quadrangle maps: Amity, Dayton, McMinnville, Mission Bottom, and Salem (1957)

Prepared in cooperation with the U. S. Geological Survey (1965)

**MAP OF THE EOLA-AMITY HILLS AREA, OREGON,**  
showing the locations of representative wells and springs,  
and ground-water-level contours



Contour interval is 20 ft north of long 45°00'  
and 25 ft south of long 45°00'  
(Datum is mean sea level)

