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UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
WATER RESOURCES DIVISION
GROUND WATER BRANCH

RECORDS OF WELLS AND SPRINGS, WATER LEVELS, AND QUALITY OF GROUND WATER IN CENTRAL PIERCE COUNTY, WASHINGTON.

By

Jack E. Sceva, Duane E. Wegner, and others

Prepared in cooperation with the
State of Washington
Department of Conservation and Development
Division of Water Resources

and the
City of Tacoma
Department of Public Utilities, Water Division

Open-file report. Not reviewed for conformance with stratigraphic nomenclature or editorial standards of the Geological Survey

May 1955

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INTRODUCTION

Location and Extent of Area

The area covered by this report (fig. 1) includes the part of Pierce County, Wash. that lies west of the foothills of the Cascade Mountains and east of the main waterway of Puget Sound, and extends from the county line on the north to the Nisqually River on the south.

Purpose and Scope of Report

This report presents basic information pertaining to the ground-water resources of the central Pierce County area which has been obtained by the United States Geological Survey since the beginning of the cooperative ground-water investigation in 1937. The data have been tabulated and prepared for release at this time so that they may be used by those concerned with the development and use of ground-water supplies in the area. A comprehensive report analyzing and interpreting the basic data is being prepared and will be released in the future.

History of Investigation

A ground-water investigation in the Tacoma area was begun in 1937 by the Geological Survey in cooperation with the city of Tacoma. During the period 1937-48, field work was done by A. M. Piper, G. A. LaRocque, Jr.,

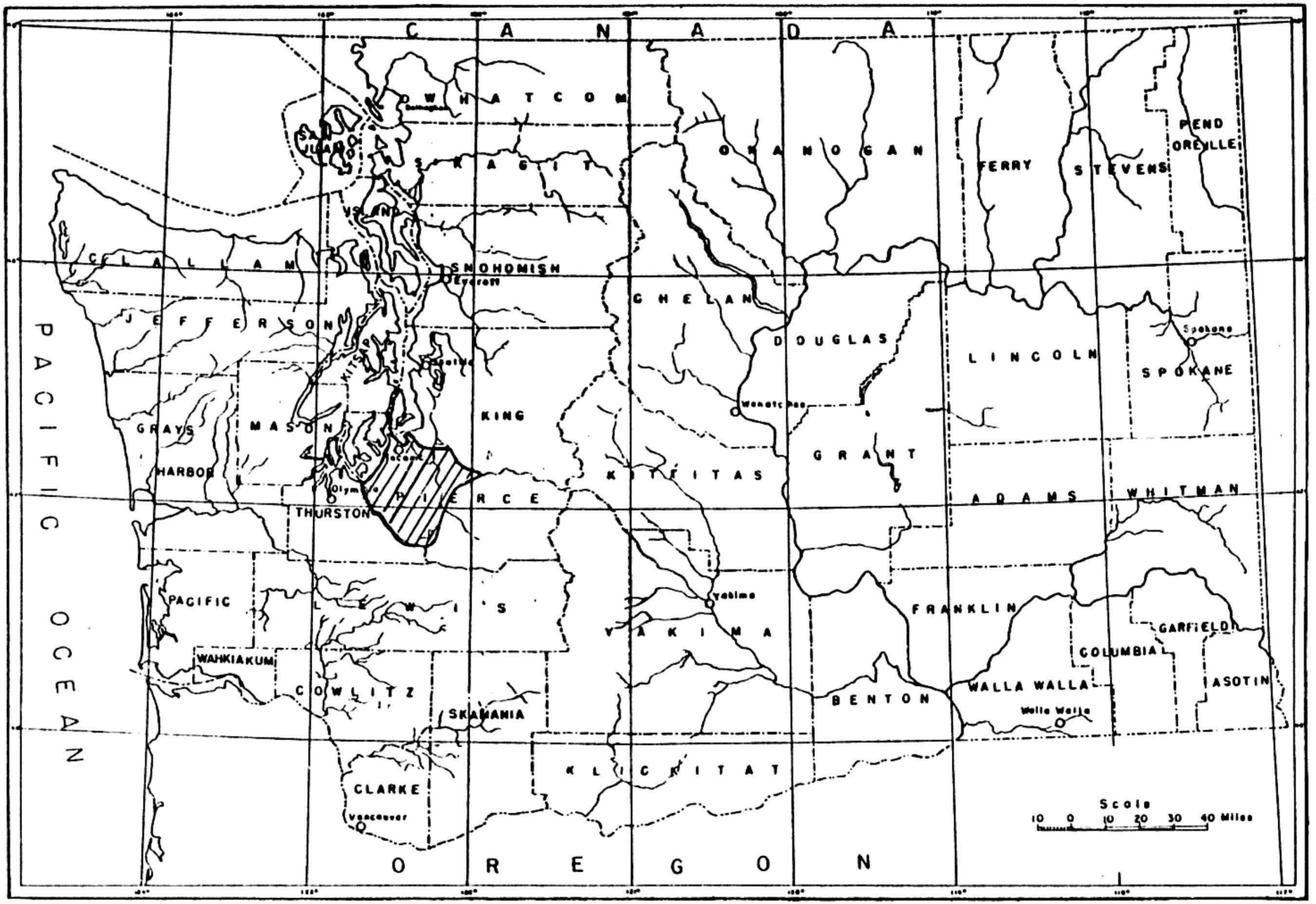


FIGURE 1.–Map of the State of Washington showing area covered by this investigation.

J. W. Robinson, and others. Three reports were released to the open file during this period._/

_/Piper, Arthur M., and LaRocque, George A., Jr., 1938, Ground water in the Tacoma area, Washington: U. S. Geol. Survey, Progress report No. 1, June, Typewritten report, 96 pp.

LaRocque, George A., Jr., and Piper, Arthur M., 1938, Ground water in the Tacoma area, Washington: U. S. Geol. Survey, Progress report No. 2, August, Typewritten report, 70 pp.

Robinson, J. W., Piper, A. M., and others, 1942, Water levels in observation wells and stages in certain lakes of the Tacoma area, Washington: U. S. Geol. Survey duplicated report, 227 pp.

In 1953 the area of investigation was extended south and east, and the study is currently being carried out in cooperation with the Washington State Department of Conservation and Development, Division of Water Resources.

Occurrence of Ground Water

Aquifers in central Pierce County consist almost entirely of strata of sand, or sand and gravel of Quaternary age. The most permeable of these are the outwash deposits of sand and gravel which were laid down during the advance and retreat of a large glacier that extended southward into the Puget Sound basin during the latest glacial epoch. The extreme permeability of the deposits is shown by the yield of the city of Tacoma well 20/2-13A2, which has been pumped at a rate of 2,500 gallons per minute with a drawdown of 2.2 feet.

The outwash deposits generally overlie less permeable sand and gravel strata which were deposited during earlier glacial and interglacial periods. These strata range in thickness from a few feet to more than 200 feet, and generally yield moderately large supplies of ground water to properly constructed and developed wells. They serve as important aquifers in central Pierce County, especially in areas where the outwash materials are missing or are above the zone of saturation.

The unconsolidated or semiconsolidated strata of Quaternary or late Tertiary age that underlie the deposits described above are, in general, finer grained and less permeable. Deep wells in the Fort Lewis area indicate that

those strata extend to depths exceeding 2,000 feet, but only a small proportion are permeable enough to serve as aquifers. However, some deep wells in these older materials have been developed to yield more than 1,000 gallons per minute.

The broad, relatively flat upland areas of central Pierce County are mantled at most places with a layer of glacial till, commonly called "hardpan," which ranges in thickness from a few feet to more than 60 feet. The till, in general, has low permeability, but it is important as a source of domestic water supplies because yields adequate for household needs can generally be obtained from dug wells.

Postglacial alluvial deposits in the Puyallup River valley contain permeable sand and gravel strata of relatively high permeability. These aquifers are generally encountered within the first 200 feet of well penetration. Many of these wells flow at the surface, and yield several hundred gallons per minute with drawdown within the pumping lift of centrifugal pumps. Alluvial deposits up valley from the town of Puyallup are, in general, coarser and more permeable than the deposits occurring down valley. Near the mouth of the Puyallup River, the alluvial deposits are composed principally of silt, clay, and sand. The coarser grained sand strata generally furnish moderate yields to properly constructed and developed wells.

Recharge to aquifers comes almost entirely from precipitation falling on the area, and, contrary to a rather general belief, not from accumulated snowpacks on Mount Rainier and the Cascade Mountains.

The regional water table beneath most of the broad upland that extends from the Puyallup River on the north and east to the Puget Sound on the west has, in general, a slope to the northwest (pl. 1). American, Gravelly, and Steilacoom Lakes are three water-table lakes which have formed where closed depressions in the land surface extend below the water table. In some areas

on the uplands adjacent to the Puyallup River valley, the water table lies at depths greater than 200 feet below the surface. The layer of till that mantles a large part of the uplands impedes the downward movement of water and causes it to collect into small bodies of perched ground water which lie above the water table. Perched ground water is important as a source of domestic water supplies because most perched ground-water bodies are easily accessible to shallow dug wells.

Discharge from the aquifers underlying the uplands is chiefly through springs around their margins. Many submarine springs issue where the uplands border on Puget Sound. Some ground water also moves from the uplands into the alluvial deposits underlying the Puyallup and Nisqually River valleys. Discharge from the alluvial deposits is chiefly into the rivers or into Puget Sound at the mouths of the valleys.

The ground water in central Pierce County has a temperature averaging about 50°F and is generally of good chemical quality, being low in dissolved matter.

Acknowledgments

The cooperation of well owners, operators, and drillers in furnishing information is greatly appreciated. Special acknowledgment is given to Robinson and Roberts, Ground Water Consultants, Tacoma, Wash., who contributed a large amount of information concerning wells in the area.

EXPLANATION OF DATA

Well-Numbering System

Well numbers used by the Geological Survey in the State of Washington are based on and show locations of wells according to the rectangular system for subdivision of public land, indicating township, range, section, and 40-acre tract within the section. For example, in the well number 19/4-23P1, the part preceding the hyphen indicates successively the township and range (T. 19 N., R. 4 E.) north and east of the Willamette base line and meridian. (Because all townships in Washington are north of the Willamette base line the letter "N", indicating north, is omitted; and because most of the State is east of the Willamette meridian the letter "E" is omitted for those ranges east of the Willamette meridian, but "W" is included when the range lies west of the Willamette meridian.) The first number following the hyphen indicates the section (sec. 23) and the letter (P) gives the 40-acre subdivision of the section as shown in the diagram. The last number (1) is the serial number of the well in that particular 40-acre tract. Thus the first well recorded in the SE¼SW¼ sec. 23, T. 19 N., R. 4 E., would have the number 19/4-23P1 and the second well would have the number 19/4-23P2.

Springs are numbered in the same manner except that the letter "s" is added after the serial number. Thus, the first spring in the SE¼SW¼ sec. 23 would have the number 19/4-23P1s.

D	C	B	A
E	F	G	H
M	L	K	J
N	P_o	Q	R

P1

Well Records

Table 1 contains the records of representative wells in central Pierce County. The information was obtained by observation, or from well owners, operators, drillers, and diggers. Where written records were not available, information from memory has been included.

Wells are listed in consecutive order by sections within each township. Township tiers are listed from south to north, the individual townships within each tier being listed by range from west to east. The well locations are shown on plate 1.

The altitude of the land surface at each well has been determined by spirit leveling, barometric traverses, or interpolation from topographic maps. Except where otherwise indicated the depth to water below the land surface has been measured by the Geological Survey.

Spring Records

The records of some representative springs are given in table 2, and their location is given on plate 1.

The discharge of Maplewood Spring (20/4-20J1s) was measured by the Geological Survey during the period 1946-48. The discharge is shown on figure 6.

Well Logs

The descriptions of the materials penetrated by many of the representative wells are given in table 3. These records, which are listed in the same order as the well records, were obtained in most cases from written records of owners, drillers, or diggers. The records have been edited for consistency of form but are not otherwise changed.

Chemical Analyses

Relatively complete chemical analyses for 40 samples of ground water are given in table 4. Some analyses were made by commercial laboratories and others were made by the Geological Survey.

Water-Level Fluctuations

Graphs of the fluctuations of water levels in observation wells and lakes are given in figures 2 - 5 and plates 2 - 8. Measurements have been made by personnel of the Tacoma Water Department, well owners, and the Geological Survey. Measurements through 1943 were published in Geological Survey Water-Supply Paper 990. Measurements during the period 1944-53 inclusive, have been published in Water-Supply Papers 1020, 1027, 1075, 1100, 1130, 1160, 1169, 1195, and 1225, under the general title "Water levels and artesian pressure in observation wells in the United States, (year), part 5, Northwestern States." Measurements made during the period 1953-54 are in the process of publication.

Water levels in wells are shown in feet below land-surface datum. The descriptions of the observation wells are given in table 1. Lake levels (pl. 8) are given in feet above mean sea level.

Water-Level Map

The water-level contours on plate 1 show the approximate position of the regional water table. This map was prepared from information given in table 1. Many shallow wells obtain small to moderate supplies of water from aquifers that are perched above the regional water table.

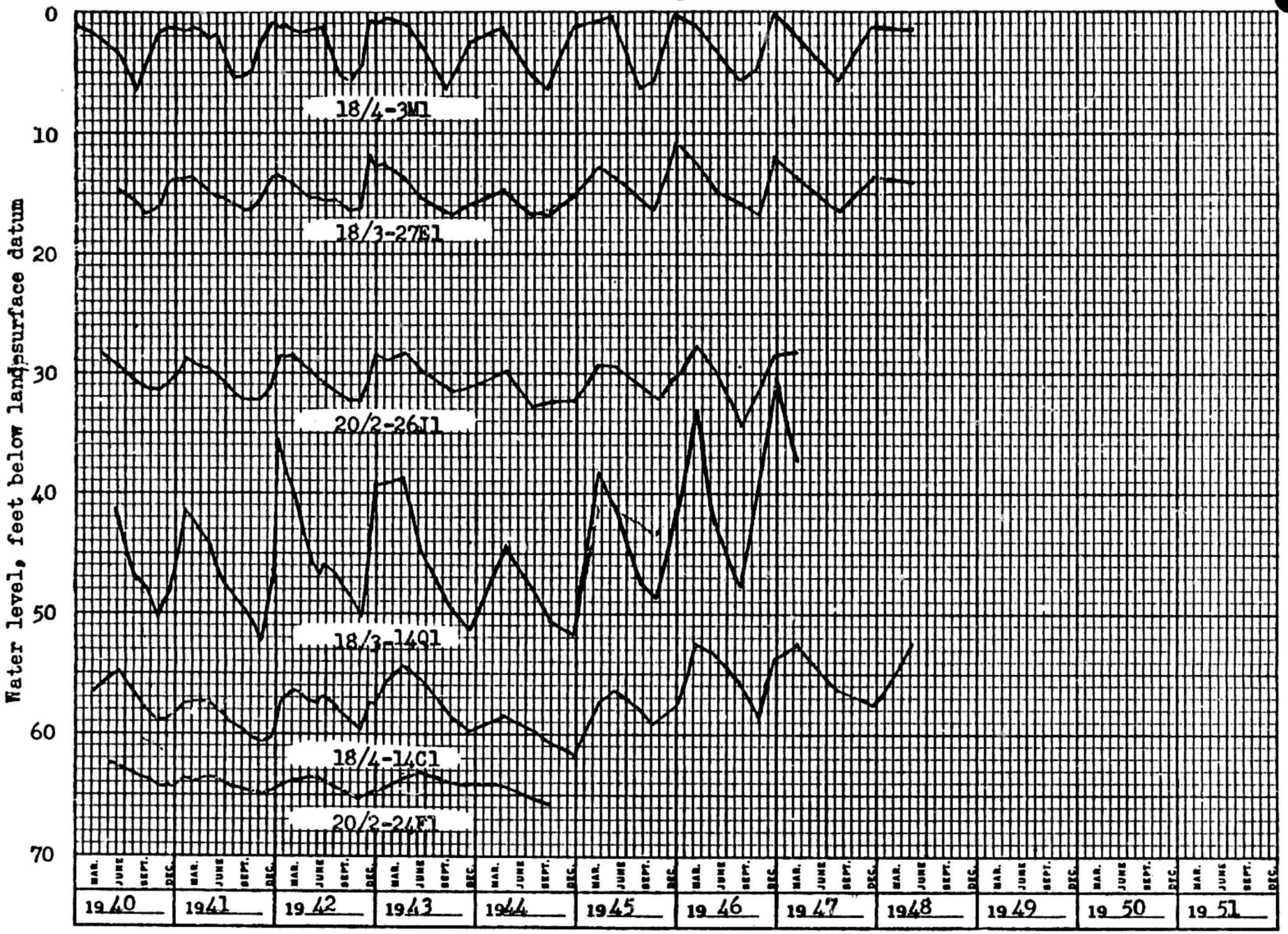


Figure 2.--Hydrographs showing fluctuations of the water levels in observation wells.

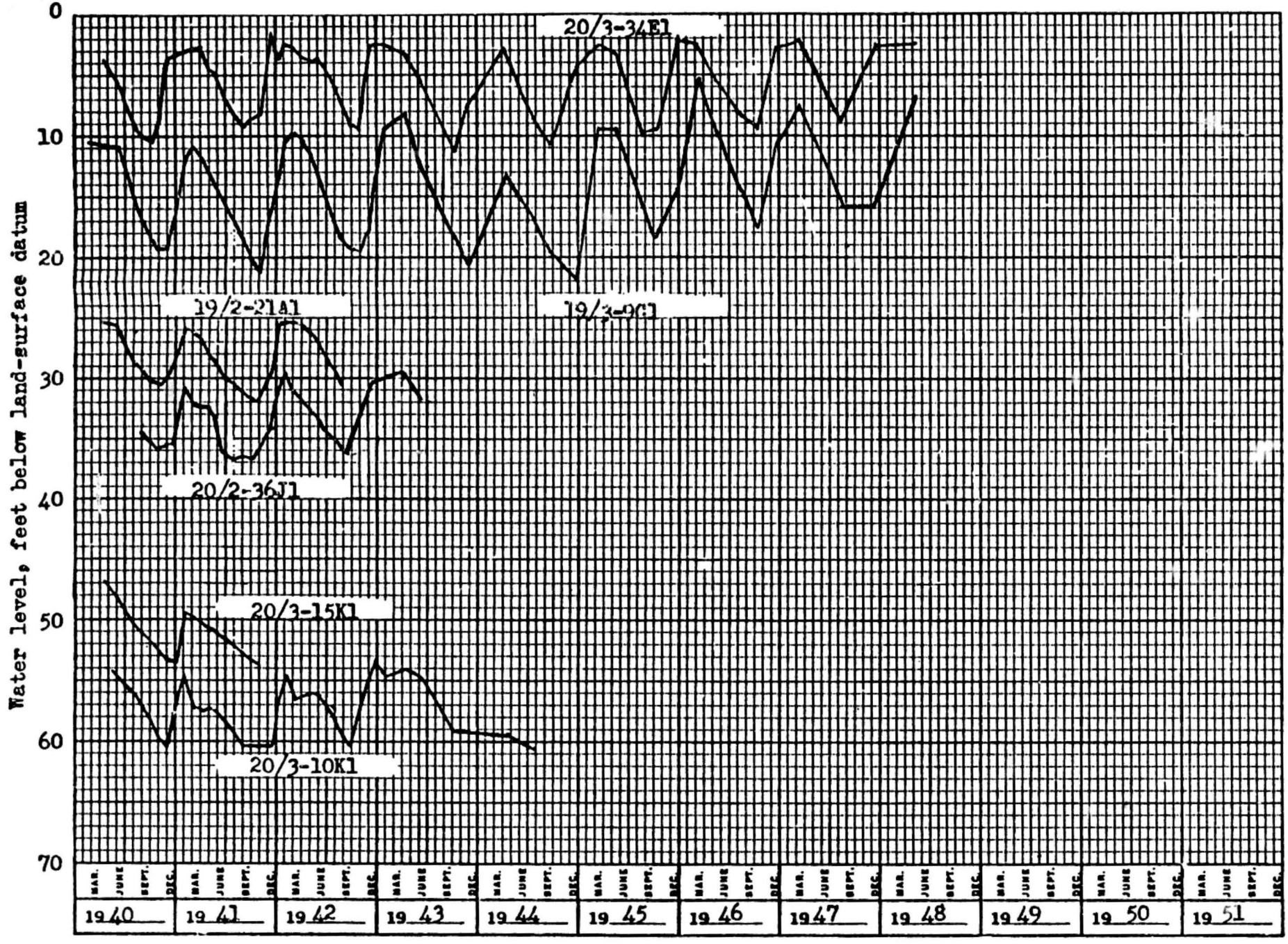


Figure 3.--Hydrographs showing fluctuations of the water levels in observation wells.

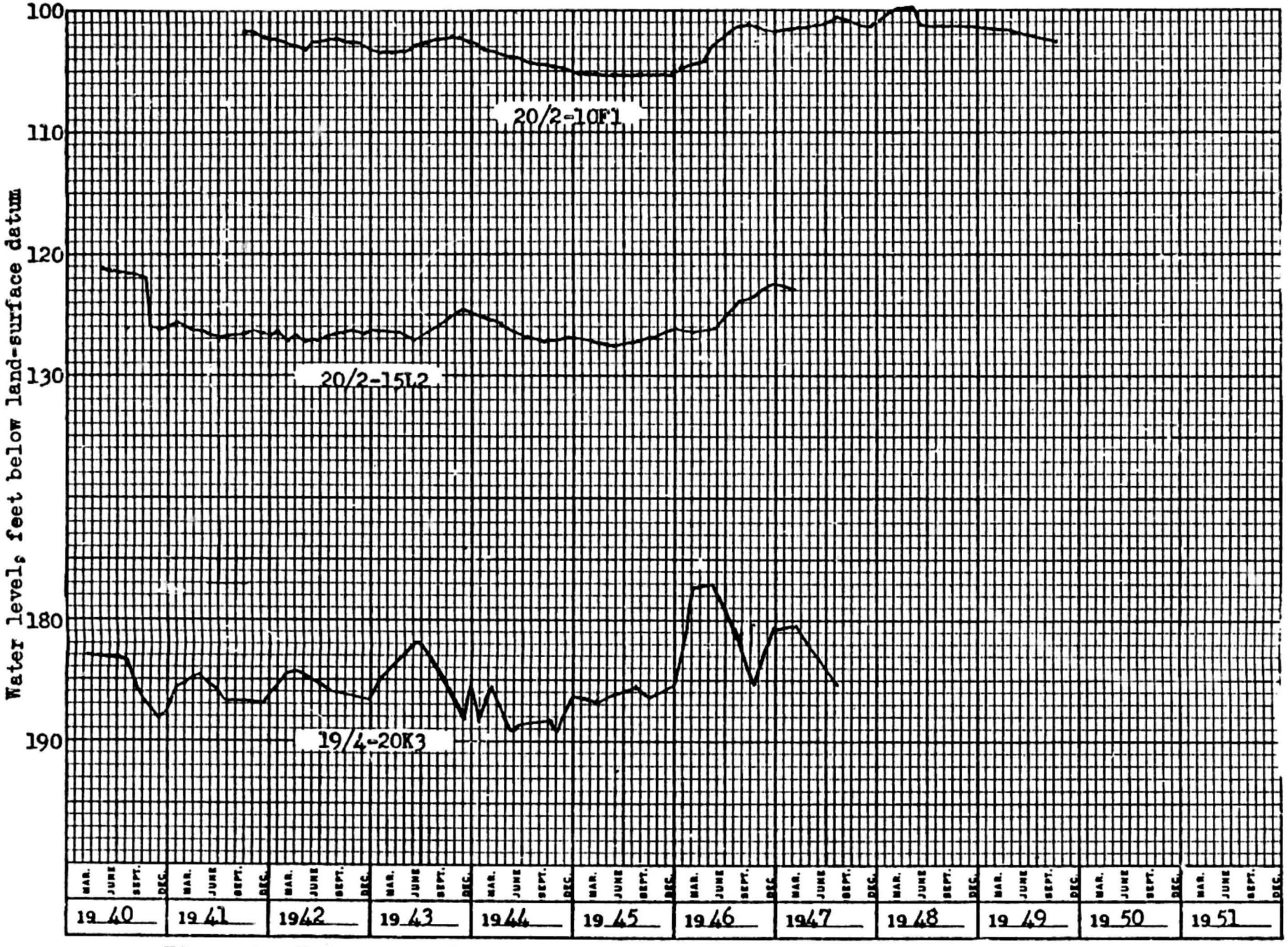
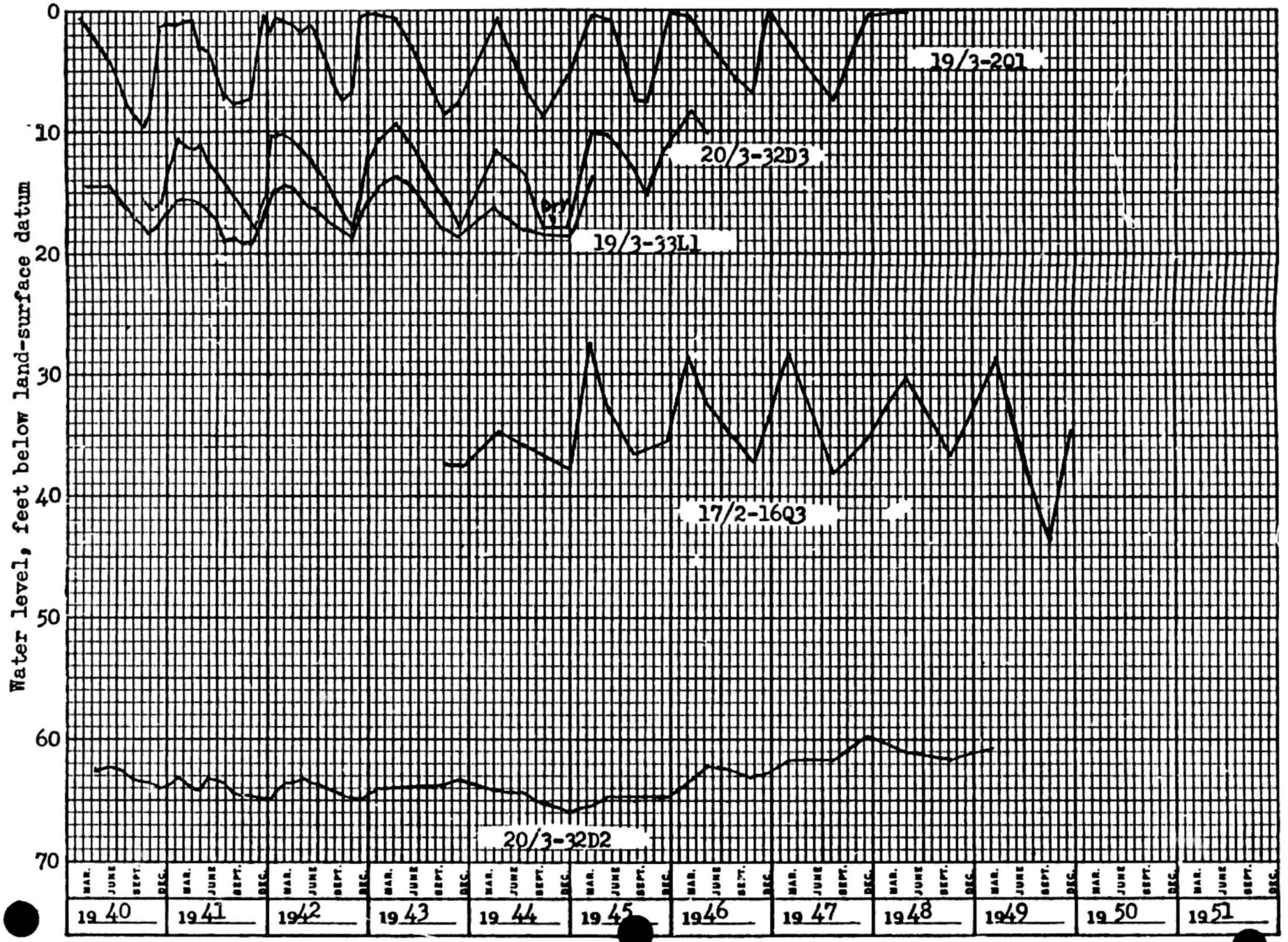


Figure 4.--Hydrographs showing fluctuations of the water levels in observation wells.



Hydrographs showing fluctuations of the water levels in observation wells.

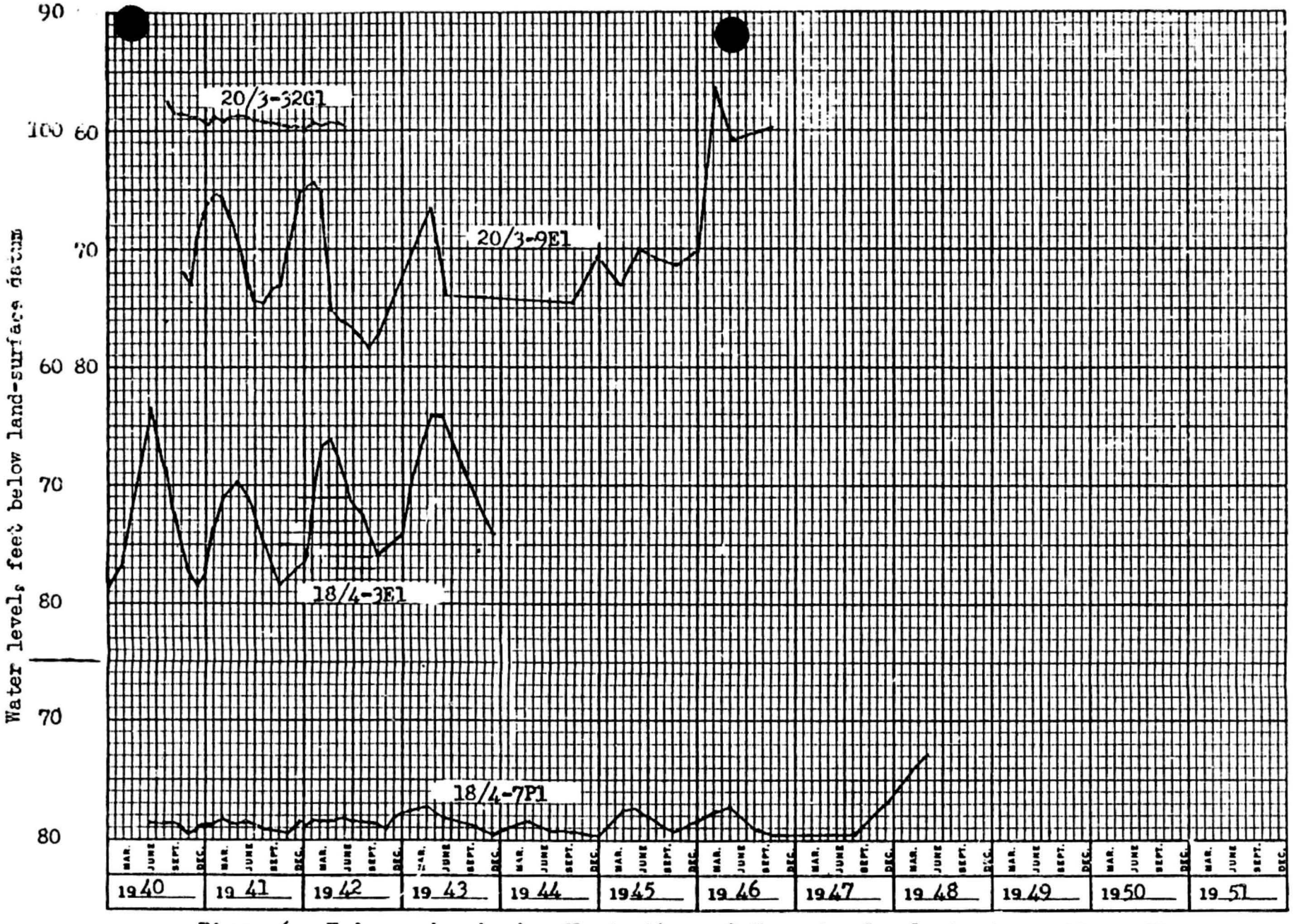


Figure 6.--Hydrographs showing fluctuations of the water levels in observation wells.

Table 1.--Records of wells in
(Locations of wells

Well listing: Wells are listed in consecutive order by section within each township. For example, well 20/3-19P1 (see page 6 for description of well-numbering system) would be listed as 19P1 in the part of the table describing wells in T. 20 N., R. 3 E. Township tiers are listed from south to north with individual townships within each tier listed by range from west to east.

Altitude: The altitude listed is for the land surface at the well. Altitudes have been determined by spirit leveling, barometric traverses, or interpolation from topographic maps.

Type of well: Dg, dug; Dn, driven; Dr, drilled, J, jetted.

Water levels: All water levels except those followed by "r" which are reported, were measured by the Geological Survey. A flowing well whose static head is known has a "+" preceding the water level indicating static head in feet above land-surface datum. A flowing well whose static head is not known is indicated by "Flows".

Well number	Owner or tenant of property	Altitude (feet)	Type of well	Depth of well (feet)	Diameter of well (inches)	Depth of casing (feet)	Water-bearing	
							Depth to top (feet)	Thickness (feet)
	T. 16 N., R. 3 E.							
1A1	R. J. Coleman	675	Dg	30	48	4	..	..
4D1	W. C. Hauss	655	Dg	9	24	4	..	..
4N1	E. Tobie	590	Dg	90	6	60	..	..
6K1	G. R. Brooks	475	Dr	135	6	135	130	5
6E2	R. G. Nixon	480	Dr	36	6	36	..	..
6F1	H. Otto	550	Dg	28	30	..	..	..
6L1	P. Burton	530	Dr	190	6	190	..	..
7F1	T. Wilcox	355	Dr	37	6	37	25	12

Central Pierce County, Washington
are shown on pl. 1.)

Type of pump: A, air lift; C, large-capacity centrifugal; J, jet; N, none; P, deep-well piston; S, suction, including small-capacity centrifugals, gear, shallow-well jets, and shallow-well piston pumps; Sb, submersible; T, turbine.

Use of water: C, commercial (restaurants, gas stations, etc.); D, domestic Ind, industrial; Inst, institutional; Irr, irrigation, N, none; PS, public supply; S, stock.

Remarks: dd, drawdown; est, estimated; ft, feet; gpm, gallons per minute; gpd, gallons per day; in, inches; log, log given in table 3; min, minute(s) mpd, million gallons per day; ppm, parts per million; temp, temperature.

zone(s)	Water level		Type of pump and horsepower	Use of water	Remarks
Character of material	Feet below land-surface datum	Date			
..	5 r	Summer	S	D,S	Reported to go dry in dry summers.
..	5.08	3- 4-54	P, ¼	D	
..	20 r	Summer 1953	P, 1	D	
Sand	81 r	1950	J, 1	D	Reported to have been bailed at 36 gpm with "little" dd. Log.
..	20 r	..	J, 1	D	
..	20 r	..	J, ½	D	
..	150 r	1943	J, 1½	D,S	Reported adequate for 20 head of stock.
Gravel	5 r	..	T, 3	D,S	Adequate for three houses, 15,000 chickens. Log.

Table 1.--Records of wells in

Well no.	Owner or tenant	Altitude	Type of well	Depth of well	Diam. of well	Depth of casing	Water-bearing	
							Depth to top	Thickness
	T. 16 N., R. 3 E.--Con.							
8A1	A. J. Waring	550	Dg	21	48	3	..	..
8A2	. . .do. . .	550	Dg	21	48	3	..	..
8G1	. . .do. . .	540	Dg	12	36	..	..	..
8J1	--Graham	643	Dg	24	60	8	..	..
11M1	J. Asplund	760	Dg	40	42	4	..	..
11M2	. . .do. . .	780	Dg	42	42	..	21	21
13D1	E. Beaumont	610	Dr	263	10	263	..	..
14D1	O. Enwall	625	Dr	295	8	295	..	..
22A1	N. Koenigs	575	Dg	33	96	10	..	..
25B1	I. Von Clasen	700	Dg	27	48	0	..	..
	T. 16 N., R. 4 E.							
4E1	I. Snyder	675	Dg	20 r	48	20	..	..
4J1	S. Cooper	750	Dr	132	8	118	120	12
5F1	J. Sartell	795	Dg	48	108	5	..	..
5P2	A. L. Anderson	785	Dr	109	6	109	..	..
7Q1	L. Thorvaldson	660	Dg	45	72	..	..	..
7R1	. . .do. . .	660	Dr	125	6	125	..	..
7R2	S. C. Josselyn	680	Dg	34	60	34	..	..
9G1	J. Blau, Jr.	740	Dr	190	..	190	..	..
9K1	F. Otremba	740	Dr	76	6	76	..	..

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zone(s) Character of material	Water level: Below datum	Water level: Date	Pump-Type; H. P.	Use	Remarks
..	½r	3- 4-54	P, ¼	D	Reported to go dry in fall.
..	.53	. .do. .	P, ¼	D	. . . . . Do . . . . .
..	..	..	..	..	Water reported to have sulfur odor and taste.
..	7.30	3- 4-54	N	N	
..	17.50	10-20-54	S, ¼	N	
Gravel	37 r	Winter	S, ¼	D	
..	30 r	10-20-54	T, 2	D,S	Reported adequate for 40 head of stock.
..	..	..	T, 5	D,S	Reported adequate for 2 houses and 130 head of stock.
..	10 r	Winter	S	D	Owner reports till 10 ft below land surface.
Gravel	2.09	10-27-28	N	N	
Gravel	12 r	Summer	J, ½	D	
Sand, gravel, and clay, layered	85 r	July 1952	J, 1	D	Dd of 14 ft while bailing 40 gpm. Log.
..	27.15	10-22-54	S, ⅓	D	
..	..	..	J, 1	D	
..	20 r	Summer	J, ½	C	
..	60 r	July 1949	J, ¾	D	
..	27.95	10-20-54	J, ½	D	Log.
..	120± r	..	N	N	Hard material at 170 ft.
..	..	..	J, ½	D,C	Water reported to have high iron content.

Table 1.--Records of wells in

Well no.	Owner or tenant	Altitude	Type of well	Depth of well	Diam. of well	Depth of casing	Water-bearing	
							Depth to top	Thickness
	T. 16 N., R. 4 E.--Con.							
9J1	J. Blau, Sr.	740	Dr	158	8	158	..	..
11Q1	G. Niestadt	800	Dr	77	6	77	..	..
11Q2	. . . do . . .	800	Dr	40	6	40	..	..
14F1	O. E. Hayness	775	Dr	137	8	..	..	..
16H1	W. J. Rosenbladt	480	Dr	47	6	47	..	..
16M1	A. Ludwig	800	Dg	32	48	..	..	..
25B1	A. Miller	1300	Dg	50	36	..	50	..
30B1	F. Hasenbalg	675	Dg	17	60	..	..	..
	T. 17 N., R. 2 E.							
1A1	H. Payne	395	Dg	32	60	..	..	..
1E1	O. W. Waite	400	Dg	55	48	..	..	..
1M1	N. Peterson	390	Dg-Dr	27	6	25	14	13
1N1	L. W. Wood	410	Dg	8	..	..	..	..
1N2	. . . do . . .	410	Dr	113	6	113	105	8+
2B1	J. T. Carlson	400	Dr	110	6	110	..	..
2D1	R. J. Bromell	385	Dg	14	36	..	..	..
2N1	--Lawranz	360	Dg	7.2	72	..	..	..
2Q1	S. Goltao	410	Dg	45	48	..	..	..
3C1	E. Halsey	355	Dg	30	36	..	..	..

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zone(s) Character of material	Water level: Below datum	Water level: Date	Pump-Type, H. P.	Use	Remarks
..	..	..	T, 2	D	
..	65 r	August 1952	J, 1	D	Log.
..	..	..	N	N	Water reported to have high iron content.
..	80 r	12-14-51	J, 7½	Ind	Dd 10 ft after 4 hours pumping 60 gpm.
..	..	..	J, ¾	D	Used for washing barn only. Water reported to be high in iron content.
..	20 r	10-20-54	S, ½	D	
Sand	..	..	N	N	Water level reported to be at land surface during winter, and 40 ft below during summer.
..	11.04	10-20-54	J, ½	D	Reported to have gone dry during dry summer.
..	8.81	2-11-54	S, ¼	D	
..	31 r	..	P, ½	D	
Gravel	14 r	..	S	D	
..	6 r	..	S, ¼	D	
Gravel	93 r	May 1954	J, 2	D,S	Reported adequate for house and 10 head of stock. Log.
..	..	..	J, 2	D,S	
..	..	..	S, ½	D,S	Reported adequate for house and 40 head of stock.
..	4.86	6-28-50	S, ¼	D	
..	30.87	6-29-50	J, ½	D,S	Hardness 62 ppm, chloride 16 ppm.
Gravel	23 r	..	S, ½	D,S	

Table 1.--Records of wells in

Well no.	Owner or tenant	Altitude	Type of well	Depth of well	Diam. of well	Depth of casing	Water-bearing	
							Depth to top	Thickness
	T. 17 N., R. 2 E.--Con.							
3D1	J. J. Scott	330	Dr	37.5	6	..	..	..
3D2	M. H. Booth	330	Dr	40	6	40	..	..
6H1	H. C. Golman	307	Dg	62.3	36	..	..	..
10M1	O. Sokolik	340	Dr	39	6	..	..	..
11F1	H. Anderson	370	Dg	14.8	36	..	..	..
11N1	G. R. Nixson	382	Dg	13.3	48	..	..	..
12C1	W. Wedel	400	Dr	96	6	96	..	..
12P1	P. F. Farmer	420	Dr	85r	6	..	..	..
14G1	E. J. Locke	390	Dg	15	48	..	..	..
14R1	H. L. Wilhoite	410	Dg	38	48	..	..	..
15A1	E. W. Brock	380	Dg	35	..	..	..	..
15D1	--Golding	350	Dr	97	6	..	..	..
15G1	--Crowser	392	Dg	13.4	30	..	..	..
15J1	M. Jenson	395	Dg	24	..	..	..	..
15N1	--Knott	390	Dr	47	6	..	..	..
16H1	--Golding	330	Dr	105	6	..	..	..
16Q1	J. Gonia	315	Dg	21.5	48	..	..	..
16Q2	H. O. Martin	320	Dg	42	48	..	..	..
16Q3	R. Gonia	320	Dg	39	48	..	30	10

central Pierce County, Washington--Con.

Zone(s) / Character of material	Water level: Below datum	Water level: Date	Pump-Type; H. P.	Use	Remarks
Sand	25½r	..	J	D	
Gravel	20 r	..	J	D,S	No dd reported after 20 min pumping 45 gpm. Log.
..	56.96	11- 8-37	..	D,S	Three ft of "hardpan" at bottom.
..	..	..	J, ½	D,S	
Sand	3.48	6-28-50	S, ¼	D	
..	8.00	.. do. .	S, ¼	D	
..	46 r	10-15-54	J, 1	D	Supplies 2 houses.
..	25.48	. .do. .	J, 3	D,S	Reported adequate for house and 60 head of stock.
Gravel	5.46	. .do. .	S, ¼	D	Hardness 30 ppm chloride 10 ppm.
Gravel, cemented	32 r	..	J, ½	D	Reported to have gone dry during fall of 1949.
..	15 r	..	S, ¼	D	
..	..	..	J, ¾	D,S	
Gravel	8.74	6-28-50	S, ½	D,S	Well is at edge of large perched swampy area.
..	..	..	S, ¼	D,S	Hardness 86 ppm chloride 14 ppm.
..	..	..	J, ½	D	
..	..	..	J, 1	D	Hardness 44 ppm chloride 9 ppm. Little dd at 60 gpm.
..	17.48	12-22-37	N	N	Water-level measurements published for period 1937-40.
..	31.07	. .do. .	..	D	. . . . . Do . . . . .
Sand and gravel	37.15	10-4-43	J, 1½	N	Water-level measurements published for period 1943-49. See figure for 4 hydrographs.

Table 1.--Records of wells in

Well no.	Owner or tenant	Alti-tude	Type of well	Depth of well	Diam. of well	Depth of casing	Water-bearing	
							Depth to top	Thick-ness
	T. 17 N., R. 2 E.--Con.							
16Q4	J. Gonia	330	Dr	115	6	..	..	..
16Q5	R. Gonia	320	Dr	96	6	..	..	..
16Q6	J. T. Harrison	330	Dr	100	6	..	..	..
16Q7	. . . .do. . . .	330	Dg	47	36	..	..	..
16R1	F. Poletowski	325	Dg	20	..	..	..	..
21K1	L. Lommire	324	Dr	55	6	..	..	..
22A1	M. Towers	408	Dr	103	6	..	..	..
22B1	W. Goodwin	395	Dg-Dr	86	6	86	..	..
22Q1	J. E. Ockfen	402	Dg	46.9	72	..	..	..
22R1	A. Kirsten	410	Dr	33	6	..	..	..
22R2	. . . .do. . . .	410	Dg	22.6	36	..	..	..
23J1	J. Goldman	447	Dr	87	6	..	..	..
23M1	J. Kuffel	422	Dg	21	36	..	..	..
23N1	E. Kirsten	403	Dg	28.6	36	..	..	..
23R1	A. Johnson	455	Dr	90+	6	..	..	..
24H1	F. Lapenski	420	Dg	24	60	7	..	..
25D1	D. Reichlein	428	Dr	82	6	..	..	..
26D1	H. C. Hardisty	438	Dr	90	6	..	..	..
26D2	. . . .do. . . .	436	Dr	96	6	..	..	..
26H1	R. Hanson	450	Dr	42	6	..	..	..

central Pierce County, Washington--Con.

Zone(s)	Water level		Pump-	Use	Remarks
Character of material	Below datum	Date	Type; H. P.		
Sand	7.05	. .do. .	J, ¾	D	Boulders to 20 ft, "hardpan" to 78 ft. Dd 40 ft after 6 hours pumping 20 gpm. Water-level measurements are available for period 1944-51. See plate 2 for hydrographs.
..	32.83	8-20-45	J, 1	D	Water-level measurements available for period 1950-54.
Sand	1 r	..	J, 4	Irr	Drilled inside 16Q7.
Till	27 r	..	J, ½	D	
Gravel	16 r	..	S, ¼	D	
..	..	..	J, ½	D	
..	..	..	J, ¾	D,S	
Gravel	50 r	May 1951	J, ½	D	
Gravel and sand	16.72	6-27-50	J, ½	D,S	
Sand	6 r	..	J, ½	D,S	
Till	10.55	6-27-50	S, ½	D,S	
..	..	..	J, ½	D,S	
..	7.08	6-27-50	S, ½	D,S	
..	17.51	. .do. .	S, ¼	D	
..	..	..	J, 2	D,S	
..	12 r	Summer	S, ¼	D	
Sand	..	..	J, ½	D	
. . . do . . .	30 r	..	J, 1	D,S	
. . . do . . .	30 r	..	J	D,S	
Sand, black	14 r	..	S, ½	D	

Table 1.--Records of wells in

Well no.	Owner or tenant	Altitude	Type of well	Depth of well	Diam. of well	Depth of casing	Water-bearing	
							Depth to top	Thickness
	T. 17 N., R. 2 E.--Con.							
26K1	J. Grinde	460	Dg	37.3	36	37	..	..
27C1	M. Smith	375	Dr	69	10	69	..	..
	T. 17 N., R. 3 E.							
1E1	C. Harkenson	525	Dg	24	48	10	22	2
1E2	F. Francisco	540	Dg	27	36	..	..	..
1Q1	..	525	Dg	37	48	6	..	..
2N1	R. L. Harland	610	Dg	32	42	8	..	..
3H1	G. H. Erickson	590	Dg	22	48	..	..	..
4A1	L. E. Wood	475	Dr	65	6	..	..	..
4F1	D. L. Flowers	510	Dg	32	48	4	..	..
4G1	. . . .do. . . .	475	Dr	148	6	148	..	..
4N1	A. Backstrom	470	Dr	258	6	258	..	..
4R1	J. Burnside	490	Dg	27	36	3	..	..
5A1	C. Jeschke	425	Dg	12	12	12	..	..
5C1	E. Jeschke	425	Dr	70	8	70	..	..
5E1	J. Grenfelder	415	Dr	70	6	70	65	5
5J1	V. E. Meyers	440	Dr	100	6	40	..	..
5P1	H. L. Segar	430	Dg	18	48	..	..	..
6D1	G. Anderson	395	Dg	30	24	..	..	..
6H1	W. Lenz	425	Dg	16	36	16	..	..
7D1	N. Kanton	390	Dg	24	48	20	..	..

central Pierce County, Washington--Con.

zone(s) Character of material	Water level: Below datum	Water level: Date	Pump-Type, H. P.	Use	Remarks
..	33.94	6-26-50	J, ½	D,S	Reported to have gone dry in fall of 1949.
..	12.90	10-13-54	J, ½	D	
Sand, gray	10 r	1- 8-54	S, ½	D	Log.
..	14.04	.. do. ..	N	D	
..	4.63	.. do. ..	S, ½	D	
Sand, yellow	24.90	.. do. ..	S, ½	D,S	Reported to have gone dry during some summers.
..	12.17	1- 8-54	S, ½	D,S	
..	35 r	3-18-54	J, 1	D,S	Supplies 10 head of stock.
..	15 r	2- 9-54	S, ½	D	
..	70 r	6- -47	T, 5	D	Reported "little" dd after 2 hours bailing 35 gpm.
..	38 r	Spring 1951	J, 1	D,S	
..	3.70	2- 9-54	S, ½	D	
..	4.94	2-10-54	S	D	
..	..	..	J, 1	D,S	
Gravel	48 r	5-20-48	..	..	Da of about 10 ft at 29 gpm. Log.
..	28.49	2- 9-54	S, 1	D,S	
..	9 r	Summer 1953	S, ½	D,S	Supplies 47 head of stock.
..	5 r	2-11-54	S, ½	D	
..	8.43	2-10-54	S, ½	D,S	
..	4.48	2-11-54	S, 1	D,S	Reported to go dry in summer.

Table 1.--Records of wells in

Well no.	Owner or tenant	Altitude	Type of well	Depth of well	Diam. of well	Depth of casing	Water-bearing	
							Depth to top	Thickness
	T. 17 N., R. 3 E.--Con.							
7N1	A. Chopic	400	Dg-J	20	4	20	..	..
8B1	--Guthrie	430	Dg	18	28	18	..	..
8D1	N. Goodwin	422	Dn	17	2½	..	..	..
8D2	--De LaVergne	450	Dr	100	6	100	..	..
8D3	A. Wymer	425	Dr	143	6	143	..	..
8K1	.... do	410	Dr	71	6	71	..	..
10A1	F. Braten	625	Dr	87	6	87	85	2
10D1	J. Reichel	510	Dg	90	48	..	..	..
11R1	H. O'Brien	580	Dg	25	48	12	..	..
12P1	F. V. Bartholomew	560	Dg	13	36	..	..	..
13E1	H. Henrickson	570	Dg	18	48	3	..	..
13G1	F. Kronquist	535	Dr	75	6	75	..	..
13G2	.... do	535	Dr	30	6	30	..	..
13G3	.... do	530	Dg	18	48	..	..	..
13P1	A. Swanson	530	Dr	75	6	75	..	..
15E1	G. Logans	535	Dr	68	6	68	..	..
16A1	N. W. Rhoades	520	Dr	105	6	105	..	..
16E1	F. Corbin	485	Dg	39	60	6	..	..
17C1	E. Rubert	440	Dg	24	30	10	19	1
17F1	G. C. Peterson	450	Dg	14	36	..	13	1
17G1	A. W. Peterson	460	Dg	75 r	42	..	60	15

central Pierce County, Washington--Con.

zone(s) Character of material	Water level: Below datum	Water level: Date	Pump-Type; H. P.	Use	Remarks
Sand	2 r	2-11-54	N	N	
..	12.33	2-10-54	S, ¼	D	
Sand	..	..	S, ¼	D	
..	26.23	2-10-54	N	N	
..	..	. .do. .	C, ¾	D	
..	Flows	. .do. .	S, ¼	D	
Gravel	84.85	2- 9-54	J, 1	D	Log
..	60	. .do. .	P, 1	D,S	
..	2.14	2- 8-54	S, ½	D,S	Reported adequate for 70 head of stock.
..	3.45	2- 4-54	N	D	
..	2.29	2- 8-54	S, ¼	D,S	
..	40 r	2- 4-54	Sb, ½	S	Water reported to have high iron content.
..	8 r	. .do. .	J, ¾	S	
Sand	12 r	. .do. .	S, ½	D	
..	..	..	S, 1	D,S	
..	..	..	S, ½	D,S	Reported adequate for 34 head of stock.
..	35 r	Spring 1953	S, ½	D,S	
..	26.25	10-14-54	J, ½	D,S	Reported that well has gone dry in summer.
Sand	4.50	2-10-54	J, 1	D,S	
. .do. . .	5.71	10-14-54	S, ¼	D	
Gravel	39 r	1930	P	D,S	Log

Table 1.--Records of wells in

Well no.	Owner or tenant	Altitude	Type of well	Depth of well	Diam. of well	Depth of casing	Water-bearing	
							Depth to top	Thickness
	T. 17 N., R. 3 E.--Con.							
17R1	J. Prescott, Jr.	485	Dg	26	36	..	..	..
18H1	W. Brandt	425	Dr	96	6	96	..	..
18N1	A. Redburg	425	Dr	83	6	83	..	..
18N2	. . . .do. . . .	425	Dg	22	48	4	..	..
19B1	F. Schafer	460	Dg	40	40	3	37	3
19N1	T. W. Croom	460	Dg-Dr	79	6	79	..	..
20A1	C. O. Robinson	480	Dr	67	6	67	61	1
20C1	H. LaFontayne	455	Dr	70	8	70	..	..
20H1	I. M. Larson	500	Dr	92	8	92	67	13
20H2	. . . .do. . . .	500	Dg	29	42	6	..	..
20J1	E. G. Stovern	480	Dg	22	36	20	..	..
21D1	J. Kaiser	485	Dg	12	36	..	..	..
22K1	E. Pim	530	Dg	29	48	6	..	..
22K2	J. Gasaway	530	Dr	52	6	52	50	2
22Q1	G. W. Gloyes	525	Dg	29	60	..	..	..
23J1	V. Wilson	540	Dr	23	6	..	..	..
23R1	. . . .do. . . .	540	Dg	23	36	..	..	..
24A1	R. Gallup	555	Dg	34	48	32	28	5

in central Pierce County, Washington--Con.

Zone(s) / Character of material	Water level: Below datum	Water level: Date	Pump-Type, H. P.	Use	Remarks
..	18.85	10-14-54	J, ½	D,S	
..	14.04	2-11-54	J, 1	D	
..	Flows	. .do. .	J, 1	D,S	Reported adequate for 35 head of stock.
..	6.30	. .do. .	N	N	
Gravel and sand	17.76	3-4-54	S, ½	D	Reported to pump dry in 2 hours. Log.
..	8.58	. .do. .	J, ½	D	
Gravel and sand	Flows	1951	J, ½	..	Reported to flow 20 gpm. Log.
..	Flows	1953	T,15	D,S Irr	Flow estimated, 20 gpm.
Gravel	20 r	1952	T, 5	D,S Irr	Dd 60 ft while pumping 60 gpm. Log.
..	7.57	12-30-53	J, ¼	D	
..	3.07	. .do. .	N	D,S	Water level reported to drop to 16 ft in summer.
..	..	..	S, ½	D	
..	10.96	2-9-54	P	D	Reported to have gone dry during summer of 1952.
Gravel	43 r	11-5-52	S, ½	D	Dd of 2 ft while pumping 5 gpm. Log
..	11.59	12-22-37	..	D	Water-level measurements published for period 1938-40.
..	10 r	2-4-54	S, ½	D	
..	9.13	. .do. .	N	N	
Gravel	7.36	. .do. .	S, ½	D	Till above aquifer. Reported to have gone dry in Dec. 1952.

Table 1.--Records of wells in

Well no.	Owner or tenant	Altitude	Type of well	Depth of well	Diam. of well	Depth of casing	Water-bearing	
							Depth to top	Thickness
	T. 17 N., R. 3 E.--Con.							
24J1	L. Nitzel	610	Dr	89	6	..	..	..
24J2	. . . .do. . . .	595	Dg	18	36	2	..	..
24R1	E. H. Meyer	635	Dr	74	6	74(?)	..	..
24R2	. . . .do. . . .	630	Dg	36	48	2	..	..
25C1	F. Potts	575	Dg	50	54	..	..	..
25D1	W. Crosetto	575	Dr	98	6	98	..	..
26D1	J. S. Owen	520	Dg	34	72	..	..	..
26E1	I. W. Brown	530	Dg	20	48	3	..	..
28D1	L. F. Haggard	500	Dr	60	6	60	..	..
28K1	L. E. Steltz	485	Dg	30	48	..	..	..
28L1	A. J. Steele	465	Dg	12	36	12	..	..
30D1	J. Demerse	465	Dg	41	48	..	..	..
30F1	G. Schwendtke	475	Dg	28	48	6	..	..
30J1	W. Schornow	465	Dr	..	..	..	..	..
31A1	R. Johnson	475	Dg	15	48	15	..	..
31K1	J. Russell	475	Dg	15	42	..	..	..
33N1	T. Crossman	660	Dr	104	6	100	..	..
	T. 17 N., R. 4 E.							
1J1	E. R. Kennedy	720	Dg	26r	48	5	..	..
1J2	W. E. Butler	700	Dg	25r	42	..	9	16
1K1	J. W. Carlson	700	Dg	18r	48	..	..	..

central Pierce County, Washington--Con.

Zone(s) / Character of material	Water level: Below datum	Water level: Date	Pump-Type, H. P.	Use	Remarks
..	45.75	2-24-54	S, ½	D	Reported to have gone dry in summer of 1953.
..	1.80	2- 4-54	N	Irr	
..	..	..	C, 1	D,S	
..	7.71	2- 4-54	S, ½	Irr	Till visible below casing.
..	..	..	S, ½	D	
..	58 r	August 1951	J, 1	D,S	
..	12.31	2- 9-54	P	D	
..	4.23	12-30-53	N	D	
..	20 r	Summer 1953	J, 2½	D,S	Reported adequate for 70 head of stock.
..	12 r	12-30-53	S,1/5		
..	8.07	. .do. .	J, ⅓	D	
..	3.18	3- 4-54	S, ½	D	
..	12.31	12-29-53	J, ½	D	
..	..	. .do. .	J, 1	D	
..	6.26	. .do. .	J, 1	D,S	Reported adequate for 600 pheasants.
..	Flows	. .do. .	J, ½	D,S	
..	85 r	March 1954	J, 2	D,S	
..	5 r	10-20-54	S, ½	D,C	Water reported to have high iron content.
Gravel	5 r	. .do. .	J	D,C	
..	10 r	. .do. .	S, ⅓	D	

Table 1.--Records of wells in

Well no.	Owner or tenant	Altitude	Type of well	Depth of well	Diam. of well	Depth of casing	Water-bearing	
							Depth to top	Thickness
	T. 17 N., R. 4 E.--Con.							
2J1	J. Baumgartner	675	Dr	140	6	140	..	..
2J2	. . . .do. . . .	675	Dg	25	48	..	..	..
3D1	E. E. Bronson	640	Dg	18	72	..	..	..
3R1	A. W. Walseth	650	Dr	64	6	64	..	..
4E1	D. Fields	620	Dr	200+	6	..	..	..
4Q1	H. Anderson	650	Dr	97	6	97	79 93	2 4
5A1	J. A. Bjerge	630	Dr	140	6	140	119	21
5Q1	H. E. Johnson	615	Dg	20	48	10	..	..
6J1	W. E. Cornell	700	Dr	142	6	142	..	..
7D1	V. W. Sherrill	590	Dr	105	6	105	..	..
7D2	. . . .do. . . .	590	Dg	20.5	48	4	..	..
7N1	E. Larson	575	Dg	48.5	42	10	..	..
9D1	J. W. Slack	625	Dr	..	6	..	..	..
13D1	Whitman Lake Real Estate	610	Dr	31.5	6	31.5	..	..
13E1	G. S. Tobias	620	Dr	100	6	100	..	..
14P1	R. C. Stidham	650	Dr	87	6	87	..	..
16A1	F. Pond	660	Dg	23	48	..	..	..
16B1	I.M. Furro	655	Dg	28	60	..	..	..
16Q1	R. S. Finch	685	Dg	14	48	..	0	14
17B1	D. J. Connely	625	Dg	46	42	6	..	..

central Pierce County, Wash

Zone(s) / Character of material	Water level: Below datum	Water level: Date	Pump-Type; H. P.	Use	Remarks
..	8 r	10-27-54	P, ¾	D	
..	10 r	. .do. .	S	N	
..	5.55	. .do. .	S, ½	D,C	Reported adequate for 2 houses and 1 store.
..	60 r	. .do. .	J, ½	D	
..	..	..	J, 6	D,S	
Gravel	31 r	June 1953	Sb, ½	D,S	Dd of 10 ft while bailing 10 gpm. Log.
. . .do. . . .	10 r	7- 2-51	T, 5	Irr	Passed through 6 ft of peat and 113 ft of hardpan above aquifer. Dd 25 ft after 4 hours pumping 100 gpm.
..	9.23	10-25-54	S, ½	D	
..	60 r	10-27-54	J, 1½	D,S	Reported adequate for 45 head of stock.
..	50 r	Summer 1951	J, ¾	D,C	
..	4.03	10-25-54	J, ½	N	Till visible below casing.
Gravel	24.39	10-27-54	J, ¼	D,S	
..	..	..	J, ¾	D	
Gravel	7.75	10-27-54	J, ½	D	
..	15.27	10- 6-54	Sb, ½	D	Supplies 4 summer cottages.
..	25 r	10-25-54	J, 1	D,S	Dd 75 ft after 4 hours pumping 15 gpm.
..	1.90	10-26-54	S, ½	N	
..	2.04	. .do. .	S, ½	D	
Gravel	2 r	Sept. 1954	S	D	
..	37.90	10-27-54	J, ½	D,S	

Table 1.--Records of wells in

Well no.	Owner or tenant	Altitude	Type of well	Depth of well	Diam. of well	Depth of casing	Water-bearing	
							Depth to top	Thickness
	T. 17 N., R. 4 E.--Con.							
19E1	Weyerhaeuser School	570	Dg-Dr	52	6	52	50	2+
20C1	A. A. Thorson	690	Dg	26	48	..	..	..
21C1	J. M. Kinney	690	Dg	18	72	8	..	..
21C2	.... do	690	Dr	89	6	89	..	..
22F1	R. C. Stidham	660	Dr	100	6	100	..	..
22K1	--Simi	625	Dr	125	6	125	..	..
23E1	R. M. King	620	Dr	52	6	52	..	..
23E2	L. Reardon	610	Dr	52	6	52	..	..
23F1	H. Rietzel	615	Dr	32	6	32	30	2+
23F2	E. V. Wold	635	Dr	55	6	55	27 50	4 5
28B1	E. Hoffman	688	Dg	18	60	4	..	..
28P1	W. Ludwig	660	Dr	140	6	140	..	..
29C1	E. Peck	700	Dg	34	60	16+	..	..
29G1	L. Flansburg	675	Dg	11	96	3	..	..
30B1	E. Kropf	635	Dg	25	60	8	..	..
30M1	C. Bunch	630	Dg	26	36	4	..	..
32D1	J. Haratyk	665	Dr	130	6	130	..	..
34A1	D. Hellyer	810	Dr	165	6	176	145	31+

central Pierce County, Washington--Con.

Zone(s) Character of material	Water level: Below datum	Water level: Date	Pump-Type; H. P.	Use	Remarks
Gravel	31 r	July 1952	..	Inst	Dd of 2 ft while bailing 30 gpm. Log.
..	12.57	10-26-54	S, ⅓	D	
..	2.40	10-25-54	S, ½	N	Owner reported till encountered 8 ft below land surface.
..	..	..	J, 1	D,S	
..	20 r	1942	J, 1	D,S	Dd 80 ft after 1 hour pumping 17 gpm.
..	..	..	J, ½	D	
..	Flows	10-26-54	J, 1	D,C	Flow estimated 5 gpm.
..	Flows	. .do. .	J, ¾	D	. . . . Do . . . .
Gravel	4 r	4-21-50	J, ½	D	Dd 18 ft while pumping 10 gpm. Log.
. . . .do. . . .	25 r	Oct. 1954	J, ½	D	Water reported to have high iron content. Log.
..	1.34	10-26-54	S	D	
..	32.39	. .do. .	P, 1	D,S	
..	23.94	. .do. .	J, 1	D,S	
..	1.90	. .do. .	S	D,S	
..	8 r	10-25-54	S, ½	D,S	
..	11.93	10-22-54	S	D	Owner reported that well went dry in summer of 1953 and 1954.
..	60 r	Summer	J, ½	D	
Gravel	143 r	August 1954	J, 1	D	

Table 1.--Records of wells in

Well no.	Owner or tenant	Altitude	Type of well	Depth of well	Diam. of well	Depth of casing	Water-bearing	
							Depth to top	Thickness
	T. 17 N., R. 5 E.							
7J1	St. Paul & Tacoma Lumber Co.	750	Dr	72	8	72	62	10
	T. 18 N., R. 2 E.							
34E1	N.P. Railroad(Roy Station)	320	Dg	21	144	11	..	..
34G1	C. A. North	335	Dr	23	8	..	..	..
34N1	F. Betchard	310	Dg	15	36	15	..	..
34P1	Roy Cemetery	332	Dr	50	6	50	..	..
35Q1	G. Lenz	390	Dr	149	6	149	147	2
	T. 18 N., R. 3 E.							
1L1	W. Bodine	432	Dg	52.2	16	..	..	..
2Q1	Mrs. A. Kinsman	456	Dg	87.3	32	..	..	..
3N1	Mrs. Healy	395	Dr	66	6	66	64	2
3P1	J. Shannon	410	Dr	76	6	76	..	..
3R1	G. C. DeMoss	417	Dg	42.5	..	..	..	..
4A1	G. W. Cluney	395	Dg	26	54-30	..	..	..
4H1	J. R. Lloyd	388	Dg	23.3	48	..	..	..
4R1	D. Parker	385	Dr	80	8	80	18 76	7 4
7N1	C. G. Schwentk	350	Dg	14.5	36	..	..	..

central Pierce County, Washington--Con.

Zone(s)	Water level		Pump-	Use	Remarks
Character of material	Below datum	Date	Type, H. P.		
Sand and gravel	45 r	6-11-48	T, 7½	Ind	Log.
..	4 r	Winter	T, 3	Ind	Chemical analysis
Gravel	12.07	5- 8-51	C, 5	Irr	Reported dd of 2½ ft while pumping 150 gpm.
. . . .do. . . .	9.85	10- 2-45	S	D	Supplies 3 families. Water-level measurements published or available for period 1946-54. See pl. 2 for hydrograph.
..	20 r	1951	J (?)	Irr	Reported to have been pumped dry in 20 min. in summer '51.
Gravel	66 r	9-30-52	J, ¾	D	Dd of 36 ft while bailing 10 gpm. Log.
. . . .do. . . .	42.79	1- 9-40	P	D,S	
. . . .do. . . .	83.87	. .do. .	P, 2	D,S	
Sand and gravel	..	..	J, ½	D	Dd to 35 ft while bailing 10 gpm. Log.
..	40 r	10-22-54	J, 1	D	
..	38.5	1- 5-40	P, ½	D,S	
Sand and gravel	20.05	1-12-40	P	D	
. . . .do. . . .	13.88	6- 5-40	P, ½	D	
Gravel . . . .do. . . .	6 r	6- 2-52	T, 7½	Irr	Dd of 9 ft after 5 hours pumping 100 gpm. Log.
..	..	..	..	..	Water-level measurements published for period 1937-43. See pl. 2 for hydrograph.

Table 1.--Records of wells in

Well no.	Owner or tenant	Altitude	Type of well	Depth of well	Diam. of well	Depth of casing	Water-bearing	
							Depth to top	Thickness
	T. 18 N., R. 3 E.--Con.							
10R1	Loveland Garage	420	Dg-Dr	50	6	50	..	..
11A1	F. Fox	456	Dg	86	24	40 by 36	..	..
11D1	M. C. Brown	430	Dg-Dr	94.5	5	..	..	..
11N1	E. Flannery	425	Dg	51.5	48	..	..	..
11N2	Elk Plain School	430	Dr	61	8	60	56	4
11Q1	J. Ockfen	430	Dg	52.4	20	..	45	7
12N1	Bethel School	430	Dr	410	6-5	410	399½	4½
12Q1	L. E. Balmer	430	Dg	38.2	24	..	..	..
12Q2	. . . .do. . . .	430	Dr	145	10	145	..	..
14A1	H. E. Stargel	425	Dr	57	6	..	54	3
14Q1	A. S. Morris	460	Dr	61.5	6	..	..	..
19R1	Mrs. A. Dougherty	385	Dg	31.3	60	..	..	..
24E1	J. E. Burks	455	Dg	15	36	..	..	..
25F1	C. L. Liles	470	Dg	20	36	..	..	..
27E1	H. E. Bowman	412	Dg	19	48	..	15	5
	T. 18 N., R. 4 E.							
1B1	M. Waldvogel	544	Dg	13.6	24	..	..	..
3E1	J. Howard	561	Dg	79.4	54	..	..	..

central Pierce County, Washington--Con.

zone(s) Character of material	Water level: Below datum	Water level: Date	Pump-Type; H. P.	Use	Remarks
Hardpan(?)	12 r	1949	J, ½	D	
Gravel	83 r	12-15-39	P, 1	D,S	
. . . .do. . . .	56 r	Dec. 1939	J		
..	42.0	12-21-37	P	D,Irr	Water-level measurements published for period 1937-45. See pl. 2 for hydrograph.
Gravel	42.03	8- 4-53	..	Inst	Dd of 4.8 ft after 24 hours pumping 110 gpm. Log.
. . . .do. . . .	32.54	6- 1-54	P, 1	D	
. . . .do. . . .	63 r	6-10-52	T,20	Inst	Dd 49 ft after 6 hours pumping 200 gpm. Log.
. . . .do. . .	31.92	1- 5-40	J	D	
..	36 r	4- 2-53	..	Irr	Dd 49 ft after 6 hours pumping 200 gpm. Log.
Gravel	27 r	4- 1-53	J, ¾	D	Log
..	41.45	5-28-40	P, ¾	D	Water-level measurements published for period 1940-48. See fig. 2 for hydrograph.
Gravel	15.08	6 - 1-40	P, 2	D	Water-level measurements published for period 1940-43.
..	10 r	2- 8-54	S, ¼	D	
Gravel	17.41	6- 1-40	S, ½	D	
. . . .do. . . .	14.78	. .do. .	S, 1	D	Water-level measurements published for period 1940-48. See fig. 2 for hydrograph.
. . . .do. . . .	5.66	12-21-39	S	D,S	
Gravel and sand	78.61	1- 5-40	N	..	Water-level measurements published for period 1940-43. See fig. 6 for hydrograph.

Table 1.--Records of wells in

Well no.	Owner or tenant	Altitude	Type of well	Depth of well	Diam. of well	Depth of casing	Water-bearing	
							Depth to top	Thickness
	T. 18 N., R. 4 E.--Con.							
3M1	C. E. Southard	554	Dg	6.5	48	..	..	..
3N1	O. L. Larsen	563	Dg	86	42	..	..	..
4H1	Mrs. E. Jones	565	Dg	15.5	48	..	..	..
4H2	N. Ianello	565	Dr	126	6	..	..	..
4Q1	A. H. Dworsky	529	Dg	7.0	30	..	..	..
4Q2	. . . . do	524	Dg	102.5	36	..	..	..
5B1	M. Vosnek	480	Dg	107.5	36	107.5	..	..
5B2	--Connant	475	Dr	102	6	102	100	2
5L1	P. Williamson	435	Dr	58	7	50	5	8
5P1	A. M. Glew	450	Dg	53.1	12	..	..	..
6L1	F. M. Cashman	449	Dg	60.2	30	..	..	..
7F1	E. Parham	480	Dg-Dr	90	6	..	..	..
7P1	H. W. McFarlane	515	Dg	81.3	..	..	..	..
8F1	E. K. Waldron	426	Dr	151.5	12	..	..	..
8G1	Kirby School	498	Dg	97	30	..	..	..
8J1	A. Nelson	490	Dg	59.2	32	..	..	..
8R1	J. J. Wesley	524	Dg	53.5	34	..	..	..
9A1	A. A. Ellis	576	Dg	89.0	42	..	..	..
9A2	H. E. Johnson	580	Dg-Dr	99	6	..	..	..
9R1	G. Ulvang	595	Dg	72.5	42	..	..	..

central Pierce County, Washington--Con.

zone(s) / Character of material	Water level: Below datum	Water level: Date	Pump-Type, H. P.	Use	Remarks
Gravel	1.32	1- 5-40	S	D	Water-level measurements published for period 1940-48. See fig. 2 for hydrograph.
. . . .do. . . .	85 r	Dec. 1939	..	..	
. . . .do. . . .	11.48	1- 5-40	N	..	
Sand and gravel	80 r	Jan. 1951	..	D	Dd of 4 ft while bailing 5 gpm. Log
Gravel	1.89	12-22-39	..	..	
. . . .do. . . .	Dry	. .do. .	P	D,S	
. . . .do. . . .	105.95	1-9-40	P, ¾	D,S	
. . . .do. . . .	..	..	..	D	Log.
. . . .do. . . .	41.9	8- 3-54	J, ¾	D	Reported that this well has been deepened to 70 ft. Log
. . . .do. . . .	Dry	1- 9-40	P, ¾	D,S	
..	Dry	. .do. .	P	D	
Gravel	..	..	J, ¾	D,S	
..	78.6	6-10-40	P, ½	D,S	Water-level measurments published for period 1940-48. See fig. 6 for hydrograph.
Gravel	31.59	1- 5-40	P	D,S	
. . . .do. . . .	96.95	. .do. .	P, 1	Inst	
. . . .do. . . .	35.77	. .do. .	..	D,S	
. . . .do. . . .	42.17	12-29-39	P	D,S	
. . . .do. . . .	88.23	12-21-39	P, 3	D	
..	83 r	Oct. 1940	P	D	
Gravel and sand	66.77	12-21-37	..	D,S	Water-level measurements published for period 1937-41

Table 1.--Records of wells in

Well no.	Owner or tenant	Altitude	Type of well	Depth of well	Diam. of well	Depth of casing	Water-bearing	
							Depth to top	Thickness
	T. 18 N., R. 4 E.--Con.							
9R2	Graham Grange	600	Dr	113	6	..	..	..
10L1	R. Henderson	599	Dg	29.4	48	..	..	..
10L2	M. Backstrom	606	Dg	54.6	48	..	40	15
10L3	. . . .do. . . .	610	Dg	71	48	..	..	..
10N1	F. Erickson	601	Dg	9.5	30	..	..	..
11R1	--O'Neil	752	Dg-Dr	94	6	..	..	..
12M1	J. F. Brewer	730	Dg	25.6	36	20	..	..
12P1	G. F. Peterson	765	Dg	53.5	36	..	..	..
13M1	C. McGee	757	Dr	89	6	..	..	..
14G1	W. Rodlund	767	Dr	65.3	4	..	..	..
14F1	H. Holworth	800	Dr	159½	6	..	..	..
15B1	H. Dahl	640	Dr	80	6	..	..	..
15E1	A. G. Thorsen	630	Dg	63	36	..	..	..
15E2	--Adams	635	Dr	106	6	106	70	36
15G1	F. G. Dworsky	700	Dg	15	36	..	..	..
15N1	F. H. Goebel	820	Dg	28.4	..	..	..	..
15N2	H. M. Brown	750	Dr	101	6	101	47	54
15P1	R. F. Hampton	790	Dr	216	6	216	216	--
16E1	W. L. Funk	515	Dr	98	6	98	..	..
16L1	D. L. Gates	580	Dr	110	6	110	..	..
17B1	G. Davis	490	Dr	110	6	..	..	..

central Pierce County, Washington--Con.

zone(s) / Character of material	Water level: Below datum	Water level: Date	Pump-Type, H. P.	Use	Remarks
..	100 r	1941	J, 1½	D	
Till	3.0	3-8-40	N	..	Reported to go dry in summer.
Gravel	19 r	.do.	..	S	
....do....	60 r	..	J	D	
Sand	3.08	12-21-37	..	D	Water-level measurements published for period 1937-44. See pl. 2 for hydrograph.
..	80 r	Oct. 1941	..	..	
Sand and gravel	20.49	3-5-40	S, ½	D,S	
....do....	48.68	.do.	..	D,S	
..	54 r	1936	..	..	
Sand and gravel	56.58	3-5-40	..	D,S	Water-level measurements published for period 1940-48. See fig. 2 for hydrograph.
..	100+	2-27-51	P, 1½	D,S	
..	10 r	..	J, 1	D,S	
Gravel	1.52	2-27-51	P, ½	D	
....do....	50 r	Dec. 1950	½	D	Log.
..	3.91	2-27-51	S, ½	D	
..	20 r	.do.	S, ½	D,S	
Gravel and some sand	10 r	10-5-54	Sb, ½	D,S	Log.
Sand and gravel	155 r	8-6-52	Sb	D	Log.
..	13 r	August 1952	..	D	Log.
Gravel	68.19	2-28-51	P, ½	D,S	"Hardpan" below 68 ft.
Sand	51.9	11-3-41	..	..	

Table 1.--Records of wells in

Well no.	Owner or tenant	Altitude	Type of well	Depth of well	Diam. of well	Depth of casing	Water-bearing	
							Depth to top	Thickness
	T. 18 N., R. 4 E.--Con.							
17J1	W. Myers	500	Dg	28	36	..	..	..
17R1	C. M. Gardner	500	Dr	90	6	..	..	..
18A1	W. B. Miller	517	Dg	59.3	60	..	..	..
21A1	D. T. Lindberg	824	Dg-Dr	150.5	6	..	..	..
22N1	G. P. Fager	820	Dg	35	36	..	..	..
23A1	--Stankey	750	Dr	80	6	80	..	..
23C1	H. Reed	745	Dr	81	6	81	80	1+
23M1	William Motycka	720	Dg	20	48	..	..	..
24C1	T. Halpin	770	Dr	60	6	60	..	..
24M1	F. M. Sprague	720	Dr	47	6	47	..	..
25E1	E. A. Robinson	720	Dg	25	48	5	..	..
26D1	J. Schiemar	710	Dr	89	6	89	..	..
26G1	L. O. Gray	710	Dg	30	36	..	..	..
27B1	N. A. Nelson	735	Dr	87	6	..	..	..
27C1	. . . .do. . . .	735	Dg	19.7	36	..	..	..
27M1	Kapowsin Grade School	725	Dr	160	6	85	..	..
27Q1	H. E. Bilderback	670	Dr	105	6	..	..	..
28J1	L. J. Martinson	725	Dg-Dr	80	6	80	..	..
30A1	E. M. Chase	480	Dg	20.1	36	..	..	..
30A2	. . . .do. . . .	480	Dr	77	8	77	70	7
32J1	F. W. Hardman	630	Dr	240	8-6	240	..	..

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zone(s) Character of material	Water level Below datum	Water level Date	Pump- Type, H. P.	Use	Remarks
..	17.44	2-28-51	S, ½	D	
Gravel	70 r	..	J, ½	D	
. . . .do. . . .	44.28	12-29-39	J	D	
..	142.43	9- 6-41	..	D	
..	19.65	2-28-51	J, 1	D,S	
Gravel	60 r	1948	J, 1	D	
. . . .do. . . .	56 r	May 1953	J, 1	D	Reported "little" dd pumping 15 gpm.
..	8.17	2-27-51	S, ½	D,S	
ravel, coarse	40 r	1948	J, 1	D,S	Reported to pump dry in 20 min, some iron in water.
..	..	..	J, ½	D,S	
Gravel	0	2-20-54	P, ½	D,S	
..	29.2	2-27-51	J, ½	D,S	
..	1.87	. .do. .	S, ½	D	
..	38.66	. .do. .	J, 1	D	
..	0	. .do. .	..	S	
..	35 r	..	7½	Inst	
..	40 r	..	J, ½		
..	34 r	Jan. 1953	J, ½	D	
..	17.4	9- 6-41	S, ½	D,S	
Gravel, ccarse	42 r	9-30-52	..	D	Dd 15 ft while pumping 25 gpm. Log.
..	..	..	T, 5	Irr	Originally drilled to 170 ft. Log.

Table 1.--Records of wells in

Well no.	Owner or tenant	Altitude	Type of well	Depth of well	Diam. of well	Depth of casing	Water-bearing	
							Depth to top	Thickness
	T. 18 N., R. 4 E.--Con.							
32N1	F. C. Bolen	750	Dg	54	42	54	52	2+
33H1	J. H. Heck	640	Dr	45	6	45	..	..
33P1	A. W. Hatt	640	Dr	96	6	96	..	..
33Q1	G. Imeson	630	Dr	93	6	93	..	..
34B1	William Turner	675	Dr	142	6	138	..	..
34D1	E. A. Lavenborg	675	Dr	125	6	125	123	2
34J1	W. Schenck	705	Dr	90	6	90	70	20
34J2	. . . .do. . . .	695	Dg	11.2	36	..	..	..
34M1	D. A. Long	635	Dg	22.7	48 by 36	..	..	..
35N1	J. R. Young	695	Dr	6	103	6	103	..
	T. 18 N., R. 5 E.							
5A1	I. Cope	235	Dr	84	8	84	60	24
5B1	A. Fisher	235	Dr	102	8	102	90	12
5G1	L. Smith	235	Dr	77	6	77	70	7
5G2	D. R. Doolittle	235	Dr	79	6	79	70	9
5J1	T. Mathews	250	Dr	64	8	64	40	24
5R1	J. Kitchen	260	Dr	79	5	..	..	..
6A1	State Soldiers Home	210	Dr	104	..	..	83	19
6F1	William Davidson	340	Dr	93	6	93	..	..

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Zone(s) Character of material	Water level: Below datum	Water level: Date	Pump-Type, H. P.	Use	Remarks
Gravel	38.13	10-28-54	J, ¾	D,S	Log.
..	4 r	7-28-47	-, ¾	D	
..	..	..	J, 1½	D,S	Reported adequate for 60 head of stock.
..	..	..	J, 1	D	
..	30.8	8- 4-54	J, 1	..	Log.
Gravel	50 r	7-15-52	J, 3	D,S	Bailer tested at 17 gpm, 60 ft dd. Log.
Sand and gravel	32.25	2-27-51	..	D	Log
..	2.81	. .do. .	N	N	
..	2.88	2-27-51	..	D,S	
..	28 r	Nov. 1951	J, ¾	D	
Gravel	7 r	7-21-52	C, 10	Irr	Dd of 20 ft after 4 hours pumping 150 gpm.
. . . .do. . . .	6 r	4-18-53	..	Irr	Dd of 10 ft after 4 hours pumping 250 gpm.
. . . .do. . . .	..	..	C, 3	D,Irr	Dd of 12 ft at 120 gpm.
. . . .do. . . .	2½r	4- 3-53	..	Irr	Dd of 17 ft after 4 hours pumping 120 gpm.
. . . .do. . . .	..	..	..	..	
. . . .do. . . .	1.6	3-27-51	C, 7½	Irr	Dd of 17 ft after 4 hours pumping 125 gpm.
. . . .do. . . .	3 r	..	..	Inst	Water reported to be of poor quality.
..	Dry	9-24-54	N	N	Log

Table 1.--Records of wells in

Well no.	Owner or tenant	Altitude	Type of well	Depth of well	Diam. of well	Depth of casing	Water-bearing	
							Depth to top	Thickness
	T. 18 N., R. 5 E.--Con.							
9D1	C. D. Patten	275	Dr	70	6	70	65	5
18N1	R. W. Edminister	740	Dg	15	30	15	..	..
18P1	E. F. Parchen	725	Dr	106	6	..	..	..
19C1	R. Miller	745	Dr	57	6	57	55	2
30F1	--Fairbanks	675	Dr	80±	6	..	..	..
30F2	A. P. Beffa	700	Dr	133	6	121	..	..
30M1	C. B. Lingerman	700	Dr	165	6	..	..	..
30M2	. . . .do. . . .	700	Dr	263	6	..	..	..
32R1	W. A. Anderson	580	Dr	56	6	56	51	5
32R2	W. H. Franks	580	Dr	55	6	55	..	..
	T. 19 N., R. 1 E.							
13H1	U. S. Army	236	Dr	350	8	..	145	3
22K1	. . . .do. . . .	168	Dr	185	8	185	169	16
22K2	. . . .do. . . .	197	Dr	242	8	210	..	..
22P1	E. I. duPont deNemours	208	Dr	265	10	252	..	..
22P2	. . . .do. . . .	208	Dr	266	12	266	217	49
27B1	. . . .do. . . .	217	Dr	297	24	297	..	..
27G1	. . . .do. . . .	220	Dr	331	24	331	219	112
34G1	Fort Lewis Golf Course	200	Dr	36	18	36	18	18

central Pierce County, Washington--Con.

Zone(s)	Water level		Pump-	Use	Remarks
Character of material	Below datum	Date	Type, H. P.		
Gravel	10 r	3-25-50	-, 5	Irr	Dd 20 ft after 4 hours pumping 150 gpm.
..	..	..	¼	D,S	Reported to pump dry in summer.
..	..	..	J, 1	D	Iron stain reported.
Gravel	45 r	9-13-52	..	..	Log.
..	..	..	J, ½	D,S	
Gravel	25 r	1944	J, 1	D,S	
..	..	..	J, ¼	D,S	
..	63 r	..	J, ¾	D,S	
Gravel	44 r	3-10-53	J, ½	D	Dd of 1 ft at 10 gpm. Water reported high in iron content.
..	43 r	3-20-53	J, ½	D	Water reported high in iron content.
Sand and gravel	102 r	10-22-40	N	N	Log.
. . . .do. . . .	164 r	7-16-43	N	N	Log.
..	193 r	7-15-43	N	N	Log.
Sand and gravel	208 r	Dec. 1941	T, 40	Ind	Chemical analysis.
. . . .do. . . .	..	..	T	Ind	
. . . .do. . . .	206 r	1944	..	..	Dd 48.5 ft after 6 hours pumping 870 gpm. Log.
Gravel	..	..	T,200	..	Dd 60 ft after 4 hours pumping 1,450 gpm. Log.
Sand and gravel	13.5	7-12-54	T, 40	Irr	Irrigates about 50 acres. Log.

Table 1.--Records of wells in

Well no.	Owner or tenant	Altitude	Type of well	Depth of well	Diam. of well	Depth of casing	Water-bearing	
							Depth to top	Thickness
	T. 19 N., R. 1 E.--Con.							
35A1	Town of Dupont	230	Dr	349	12	128	110	18
35A2	.... do	230	Dr	130	12-10	..	..	..
	T. 19 N., R. 2 E.							
1A1	J. H. Hanson	300	Dr	65	8	65	64	1
1A2	William Grab	300	Dr	60	6	..	59	1
1A3	H. Johnsen	300	Dr	78	6	..	..	..
1C1	R. J. Dean	277	Dg	25	40	25	..	..
1D1	W. Wellan	273	Dg	29	30	24	24	5
1J1	M. T. Richmond	290	Dr	87	8	87	46	7
1K1	Lakewood Water District	280	Dr	177	10	..	..	..
1K2	.... do	280	Dr	173	24	173	153	20
2E1	Park Lodge School	251	Dr	90	6	..	..	..
2J1	Lakewood Water Dist	260	Dr	334	..	..		..
2J2	.... do	260	Dr	96	12-8	96	47	..
2N1	.... do	260	Dr	257	12	256½	71 129 224	18 3 9
2P1	Clover Park School	260	Dr	93½	6	..	90	3½

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zone(s) Character of material	Water level: Below datum	Water level: Date	Pump-Type, H. P.	Use	Remarks
Sand and gravel	30 r	10-29-25	..	PS	Log.
..	..	..	..	PS	
Sand and gravel	..	..		N	Log.
. . . .do. . . .	..	..	J	..	Log.
..	..	..	J, 1	D	
Gravel	12.31	4-17-40	S	N	Reported to go dry.
. . . .do. . . .	23.77	. .do. .	N	..	Reported to go dry in Dec.
Sand and gravel	36 r	6-16-51	..	D	Supplies trailer court. Dd of 21 ft after bailing 30 gpm. Log.
..	..	..	N	N	Test well no. 2, destroyed. Log.
Gravel and sand	25.3 r	1950	T	PS	Well "G". Dd of 52.5 ft after 4½ hours pumping 3,075 gpm. Log and chemical analysis.
..	15.66	4-16-40	P, 2	Inst	Dd 13 ft after 15 min pumping 15 gpm.
..	23 r	6-27-49	..	..	Test well 1, reamed to form well 2J2. Log.
Sand and gravel	23 r	. .do. .	T	PS	Well "F". Twelve-inch casing from 0 to 55½ ft, 8-inch screen from 52½ to 96 ft. Dd of 32 ft after 4 hours pumping 500 gpm.
Sand Sand and gravel . . . .do. . . .	28 r	March 1942	..	N	Well "B", abandoned due to sand. Log.
. . . .do. . . .	21.19	4-12-40	P, 2	Inst	Standby well. Log.

Table 1.--Records of wells in

Well no.	Owner or tenant	Altitude	Type of well	Depth of well	Diam. of well	Depth of casing	Water-bearing	
							Depth to top	Thickness
	T. 19 N., R. 2 E.--Con.							
2P2	Clover Park School	260	Dr	107	8	..	..	..
2Q1	A. Oien	260	Dg-Dr	28	1½	..	..	..
4A1	E. Buckley	230	Dr	54	6	54	46	8
4A2	E. W. Miles	230	Dr	29	6	29	23	6
4B1	Western State Hospital	230	Dr	500	16	500	30 50 162 265 395	5 40 33 30 31
4B2	. . . . do	230	Dr	935	16-8	935	..	..
4K1	H. G. Allgrunn	295	Dg	86	36	80	82	3
4M1	M. Corrigan	250	Dg	..	..	..	..	..
5E1	Town of Steilacoom	275	Dr	207	10	207	157 191	30 16
5G1	H. Sorensen	335	Dg	57	48	..	..	..
5H1	A. Hoffman	330	Dg	107	48	..	..	..
5K1	J. W. Tucker	340	Dr	..	..	..	..	..
5K2	G. T. Moffit	330	Dr	135	4	..	..	..
6P1	Town of Steilacoom	220	Dr	247	12-7	247	213	34
8B1	H. E. Bare	315	Dr	114	..	..	..	..
8G1	E. M. Pease	240	Dr	45	6	44	42	3
8H1	P. S. Herbert	250	Dg-Dr	50	42-5	..	48	2
9F1	--Byers	245	Dr	165	6	..	..	..
9G1	L. L. Knight	245	Dg	26.4	36	26	20	6
9N1	F. Fihn	260	Dg	43½	48	43	..	..

central Pierce County, Washington--Con.

zone(s) / Character of material	Water level: Below datum	Water level: Date	Pump-Type, H. P.	Use	Remarks
..	..	..	T. 5	Inst	
Gravel	22 r	Oct. 1939	P. ¼	D	
. . . . do . . .	17 r	5- 2-53	J. ¾	D	Log.
. . . . do . . .	17 r	7-11-53	J. ½	D	Log.
. . . . do . . . . . . do . . . . . . do . . . Gravel and sand Gravel	20 r	1938	T	Inst	Test pumped at 1,000 gpm for 30 days. Log and chemical analysis. Well 1.
..	27 r	1938	T	Inst	Well 2. Log.
Sand	82.8	4-16-40	P. 2	D	Till near surface.
..	29.9	8-17-54	P. ½	D	
Gravel . . . .do. . . .	48 r	1939	T.30	PS	Log.
..	52	5-30-41	P. ½	D	Reported to go dry in late fall.
..	Dry	. .do. .	N	N	
..	98.9	8-19-54	J. 2	D	
..	113 r	Summer 1941	P. 1	D.S	
Sand and gravel	146.7	10-21-53	..	PS	Dd about 24 ft after 3 hours pumping 250 gpm. Log.
..	97 r	Spring 1949	J. 1	D	
Gravel	38.4	8-19-54	J. ½	D.S	Log.
..	40 r	..	..	D.S	
..	10.1	8-19-54	J. 1	D	
Gravel	21.32	..	J. ½	D	
..	36.8	5-20-40	P. ½	D	

Table 1.--Records of wells in

Well no.	Owner or tenant	Altitude	Type of well	Depth of well	Diam. of well	Depth of casing	Water-bearing	
							Depth to top	Thickness
	T. 19 N., R. 2 E.--Con.							
10E1	Lakewood Water District	265	Dr	460	12	460	98 197	8 15
10F1	. . . . do	263	Dr	174	12	..	..	..
10F2	. . . . do	263	Dr	288	10	288	282	6
10F3	. . . . do	263	Dr	219	10	196	..	..
10F4	. . . . do	263	Dr	610	..	..	..	..
10L1	. . . . do	260	Dr	638	18-12	608	..	..
11E1	--Paige	273	Dr	68	5	..	..	..
11J1	D. T. Jones	265	Dr	74	6	..	..	..
11L1	Lakewood Water District	270	Dr	200	10	200	..	..
12A1	Mountain View Sanitarium	285	Dr	141	..	..	44	64
12C1	W. T. Jones	265	Dg	18	36-24	18	14	4
12M1	R. L. Sawyer	275	Dr	65	8	65	50	15
12M2	. . . . do	275	Dr	40	6	40	..	..
12Q1	Lakeview Riding Stables	270	Dg	23½	36	..	..	..
13C1	W. A. Millard	285	Dr	63	6	63	60	3
13G1	U. S. Air Force	294	Dr	200	12	195	140 156	10 5
13G2	. . . . do	300	Dr	298	12	..	142 138	9 24
14B1	Lakewood Water District	270	Dr	349	..	..	..	..

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zone(s) Character of material	Water level: Below datum	Water level: Date	Pump-Type, H. P.	Use	Remarks
Sand and gravel	..	..	N	N	Abandoned due to sand. Log.
. . . .do. . . .					
. .	45.48	12- 8-50	N	N	Water-level meausrements published for period 1940-51. See pl. 3 for hydrograph.
Sand and gravel	49 r	1945	..	N	Well "D". Pumped 125 gpm. through open-end casing with 19 ft of dd. Log.
..	38 r	Feb. 1945	T	PS	Well "C". Dd of 45 ft while pumping 483 gpm.
..	..	..	N	N	Test well no. 6. Log.
..	50 r	Dec. 1947	T	PS	Well D-1. Log.
..	31.9	4-17-40	D	..	Supplies several families.
Gravel	14.28	4-10-40	S, ½	D	
..	..	..	N	N	Test well no. 4. Log.
Gravel and sand	..	..	..	Inst	Log and chemical analysis.
Gravel	14.11	4-10-40	S, 1	D	
. . . .do. . . .	12 r	3- 6-50	J, 2	D	Supplies 35 house trailers. Log.
..	10 r	8-24-54	S, ¼	D	
..	12.81	5-20-40	P, 1	D,S	
Sand and gravel	25 r	6- 3-53	J, 1½	D	Dd of 10 ft while bailing 25 gpm. Log.
Gravel	27 r	3- 2-39	T	Inst	Well no. 1. Dd of 56 ft after 5 hours pumping 800 gpm. Log.
. . . .do. . . .					
. . . .do. . . .	32 r	6-26-39	T	Inst	Well no. 2. Dd of 62 ft after 4½ hours pumping 600 gpm. Log.
. . . .do. . . .					
..	..	..	N	N	Test well no. 3. Log.

Table 1.--Records of wells in

Well no.	Owner or tenant	Altitude	Type of well	Depth of well	Diam. of well	Depth of casing	Water-bearing	
							Depth to top	Thickness
	T. 19 N., R. 2 E.--Con.							
14B2	Lakewood Water District	270	Dr	110	24	106	86	18
14C1	E. G. Heinrick	275	Dr	58	6	..	..	..
14D1	--Liles	278	Dg-Dr	181	6	..	175	6
15G1	Tacoma Country Club	278	Dr	150	12	..	..	..
16R1	Lakewood Water District	280	Dr	224	16-12	224	154	6
18H1	U. S. Army	242	Dr	1450	26-16	..	..	..
18H2	.... do	233	Dr	1112	20-16	1112	275	11
18Q1	.... do	234	Dr	239	18	..	213	13
19B1	.... do	234	Dr	224	18	220	..	..
19F1	.... do	229	Dr	229	18	229	189	31
21A1	E. J. Webber	277	Dg	34	36	..	..	..
21A2	.... do	279	Dr	59	8	..	..	..
21F1	W. Korte	265	Dr	53	6	53	45	8
21F2	H. T. McGill	264	Dg	28	36	28	20	8
22G1	F. Kelly	279	Dg	25	30	..	15	10

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zone(s) Character of material	Water level: Below datum	Water level: Date	Pump-Type, H. P.	Use	Remarks
Gravel	18.7	3-13-51	T	PS	Well "H". Dd of 65 ft after pumping 2 hours at 2,300 gpm. Log and chemical analysis.
..	31.77	4-10-40	..	..	
Gravel and sand	..	..	..	D	Log.
..	38.6	4-18-40	T, 5	Inst	
Sand and gravel	77 r	8-24-43	T	PS	Well "A". Dd about 60 ft after 8 hours pumping 400 gpm. Log.
..	114.3	6- 4-53	N	N	Well 4. Agandoned due to casing collapse. Log.
Sand and gravel	138 r	1945	T	Inst	Well 4-A, replacement well for 18H1. Dd of 31 ft after 24 hours pumping 500 gpm. Log.
. . . .do. . . .	123 r	Dec. 1940	T	Inst	Well 2. Dd of 48 ft while pumping 1,100 gpm. Log and chemical analysis.
..	125 r	11-22-40	T	Inst	Dd of 78 ft while pumping 900 gpm. Log and chemical analysis.
Sand and gravel	139 r	Jan. 1941	T	Inst	Well 3. Dd of 60 ft while pumping 500 gpm. Log and chemical analysis.
Gravel	25.15	4-10-40	P, 1	D	Water-level measurements published for period 1940-42. See figure 3 for hydrograph.
..	33.7	9- 3-41	-, 1	D	
Gravel	20.14	4-10-40	..	..	
. . . . do	20.34	. .do. .	S, ¾	D	
. . . . do	14.95	4-11-40	S, ¾	D	

Table 1.--Records of wells in

Well no.	Owner or tenant	Altitude	Type of well	Depth of well	Diam. of well	Depth of casing	Water-bearing	
							Depth to top	Thickness
	T. 19 N., R. 2 E.--Con.							
22N1	U. S. Army	280	Dr	2261	38 - 26	1400	..	..
27G1	.... do	287	Dr	1008	20	1008	235 400 593 609 733	133 40 8 12 35
28C1	Washington National Guard	280	Dr	43	24	43	30	13
28C2	.... do	278	Dr	154	12	154	37	113
30B2	U. S. Army	210	Dg	8	192	8	..	..
31K1	.... do	282	Dr	1000	26 - 20	990	..	..
32H1	.... do	293	Dr	1570	..	..	..	..
32H2	.... do	291	Dr	1340	20 - 18	1340	..	..
	T. 19 N., R. 3 E.							
1C1	J. Piekarski	430	Dr	190	8	189	178	11
1D1	L. P. Sharp	472	Dg	19	36	10	..	..
1D2	Summit Water Co.	460	Dr	285	12	283	259	7
1J1	.... do	475	Dr	407	12	407	201	27
2A1	--White	445	Dg	185±	..	..	..	..

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zone(s) Character of material	Water level: Below datum	Water level: Date	Pump-Type; H. P.	Use	Remarks
..	90.7	6- 4-42	T	Inst	Well 7. Dd of 128 ft after 72 hours pumping 1,750 gpm. Log.
Sand and gravel	88 r	Oct. 1943	T,150	Ind	Well 8. Dd of 62 ft after 120 hours pumping 2,125 gpm. Log and chemical analysis.
. . . .do. . . .					
. . . .do. . . .					
. . . .do. . . .					
. . . .do. . . .					
Gravel	29.5	9- 2-40	T. 30	Inst	Water-level measurements published for period 1929-40. See pl. 4 for hydrograph.
Sand and gravel	34.86	11- 5-40	..	Inst	Dd 50 ft while pumping 100 gpm.
ravel	..	..	..	N	"Sullivan well". Dd of 2 ft while pumping 1,500 gpm. Chemical analysis.
..	145 r	March 1942	T		Well 5. Dd 63 ft after several days pumping 1,300 gpm. Log and chemical analysis.
..	..	..	..	..	Well 6. Collapsed during development. 32H2 drilled as replacement. Log.
..	129 r	4-19-43	T,250	Ind	Well 6-A. Dd of 83 ft while pumping 1,800 gpm. Log and chemical analysis.
Gravel and sand	173 r	9-10-53	T. 7½	D,Irr	Dd 8 ft after 4 hours pumping 147 gpm. Log.
Till	6.25	4-23-40	S	D	Reported to go dry in Sept.
Sand and gravel	210½ r	3-19-51	..	PS	Dd of 39½ ft after 3 hours pumping 105 gpm. Log.
. . . .do. . . .	200.8	2-28-51	N	PS	Dd 6.9 ft after 7½ hours pumping 90 gpm. Log.
..	180 r	..	N	N	Partly filled with debris.

Table 1.--Records of wells in

Well no.	Owner or tenant	Altitude	Type of well	Depth of well	Diam. of well	Depth of casing	Water-bearing	
							Depth to top	Thickness
	T. 19 N., R. 3 E.--Con.							
2Q1	I. G. Young	424	Dg	11½	72	..	..	..
3G1	Southeast Tacoma Mutual Water Co.	430	Dr	415	12-8	415	195 312	20 45
3Q1	D. Stuart	408	Dg	157.5	48	150±	150	..
4A1	A. Ellison	398	Dg	19	..	..	..	..
4A2	C. R. Baker	396	Dg	150	48	..	..	..
4P1	D. H. Watts	376	Dr	120	5	120	114	6
5C1	E. Wolstad	321	Dg	69	48	20	55	15
5K1	J. Brunton	323	Dr	64	5	64	55	9
5L1	A. J. Shields	326	Dr	60	5	60	..	..
5L2	Southeast Tacoma Mutual Water Co.	320	Dr	405	12-8	405	209	4
5N1	R. Homola	316	Dr	80	5	80	78	2
5Q1	C. Schrammeck	320	Dr	69	6	69	67	2
6B1	H. H. Lilienthal	316	Dg	41.6	36	..	36	5
6D1	Sunnycraft Sanitarium	307	Dr	82	6	82	78	4
6E1	--Megary	310	Dr	87	6	..	..	..
7B1	W. J. Fritz	293	Dg	18	48	..	..	..
8E1	A. Molinari	299	Dg	21	24	21	10	10
8Q1	C. C. Marsh	305	Dg	25.6	16	19	..	..

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zone(s) Character of material	Water level: Below datum	Water level: Date	Pump-Type, H. P.	Use	Remarks
Sand	.69	2-27-40	N	N	Water-level measurements published for period 1940-48. See fig. 4 for hydrograph.
Sand and gravel	173	2-27-51	T, 50	PS	Well 1. Dd of 11 ft after 4 hours pumping 350 gpm. Log.
. . . .do. . . .					
Gravel	148.42	9-19-50	P, 10	D	Dd less than 2 ft pumping 20 gpm. Water-level measurements published or available for period 1940-54.
Till(?)	4.6	4- 6-40	S	N	
..	140± r	..	N	N	
Gravel	114 r	Sept. 1940	..	Ind	Log.
. . . .do. . . .	56.0	4- 8-40	J	D,S	Log.
. . . .do. . . .	52 r	4-20-40	P	D	Log.
..	52.09	4-28-40	..	D	
Sand and gravel	64	7- 7-51	..	PS	Well 3. Dd to 210 ft after 10 hours pumping 330 gpm. Log.
Gravel, fine	31.8	4-24-40	P, ½	D	Log.
Gravel	50 r	July 1952	J, 1	D	Supplies 3 families. Log.
Till, sandy	29.05	4- 8-40	..	D	
Sand and gravel	..	..	..	..	Log.
..	47 r	August 1939	-, 1	D	
Gravel	9.33	12-26-46	S, ½	D	Water-level measurements published for period 1937-40. See pl. 2 for hydrograph.
Sand and gravel	15.01	4- 5-40	..	D,S	
Gravel	16.21	. .do. .	S, ½	D	

Table 1.--Records of wells in

Well no.	Owner or tenant	Altitude	Type of well	Depth of well	Diam. of well	Depth of casing	Water-bearing	
							Depth to top	Thickness
	T. 19 N., R. 3 E.--Con.							
9C1	W. G. Kramer	383	Dg	26	48	..	..	..
9F1	B. Raymond	349	Dr	90	6	90	80	10
9G1	Parkland Light & Water Co.	..	Dr	..	..	..	..	..
9G2	.... do	380	Dr	367	12	..	..	..
9G3	.... do	390	Dr	230	24	174	154	19
9H1	M. L. Dammann	390	Dg	14.6	36	..	..	..
10D1	J. Curtis	384	Dg	14.3	48	3	..	..
10F1	E. D. Erickson	407	Dg	17.7	48	..	..	..
11K1	W. D. Heyer	434	Dg	18.7	36	..	..	..
12A1	H. Lee	473	Dg	13.7	36	..	..	..
13E1	L. Parker	447	Dg	15.8	48	..	11	2
14Q1	C. J. Gordon	339	Dg	15.4	48	..	..	..
15J1	Brookdale Golf Co.	336	Dg	21.5	..	15	..	..
15M1	A. J. Wahus	319	Dg	20	48	20	..	..
15R1	J. Irwin	325	Dr	38	6	38	36	2
16B1	W. L. Gray	322	Dg	29.9	40	..	..	..
16L1	C. Sacco	310	Dr	6	105	..	105	..
16N1	S. A. Hill	315	Dr	44	..	..	42	2
17E1	William Goodwin	290	Dg	35	6	35	34	1

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zone(s) / Character of material	Water level: Below datum	Water level: Date	Pump-Type, H. P.	Use	Remarks
..	10.66	2-27-40	..	..	Water-level measurements published for period 1940-48. See fig. 3 for hydrograph.
Gravel	69 r	1940	J, 2	D	
..	..	..	..	PS	Well no. 1. Chemical analysis.
Gravel	110 r	1944	T, 60	PS	Well no. 2.
Sand and gravel	102 r	April 1950	T,125	PS	Well no. 3. Dd of 40 ft after 8 hours pumping 1,500 gpm. Log.
..	2.79	3- 4-40	N	N	
..	.53	2-28-40	S, ½	D	
..	2.71	2-27-40	N	N	
Till	1.57	. .do. .	..	..	
..	3.25	2-28-40	N	N	Water-level measurements published for period 1940-42.
Sand	1.17	3-13-40	S	D	
..	2.91	3- 6-40	S, ¼	D	
..	14.29	. .do. .	S, ¾	D	
..	8.32	3-12-40	S	D	
Gravel	19 r	5-19-54	J, 1	D	Dd 2 ft after 2 hours pumping 30 gpm. Log.
..	12.85	3- 4-40	S, ½	D	
Sand and gravel	..	..	J	D	Log.
Gravel	..	..	..	D	Encountered 15 ft of soil and gravel, and 27 ft of cemented gravel above aquifer.
Sand and gravel	18	3-25-50	J, ½	D	Dd of 5 ft while bailing 15 gpm. Log.

Table 1.--Records of wells in

Well no.	Owner or tenant	Altitude	Type of well	Depth of well	Diam. of well	Depth of casing	Water-bearing	
							Depth to top	Thickness
	T. 19 N., R. 3 E.--Con.							
17L1	V. E. Studebaker	300	Dg	23.2	8	..	..	..
18M1	U. S. Air Force	317	Dr	550	18	498	..	..
20K1	M. Crooks and W. Crooks	330	Dr	72	8	72	66	6
20L1	R. E. Lee	330	Dr	97	6	97	72	5
20M1	T. Smith	340	Dr	68	5	68	..	..
20R1	G. Bresemann	350	Dg	32.2	36	..	30	2
21K1	E. E. Reed	356	Dg	23.6	30	24	..	..
21K2	F. Frank	355	Dg-Dr	67	6	67	..	..
22F1	E. E. Larson	340	Dr	57	6	57	57	..
23M1	C. A. Thomson	343	Dg	24	48-24	..	..	..
23N1	..	370	Dg	24	36	..	..	..
24B1	N. Peters	456	Dg	39.3	48	6	..	..
24E1	Glenwood Dairy	350	Dg	34.25	48	29	..	..
25A1	J. Kuper	385	Dr	93	6	..	..	..
25E1	Sutter Brothers	330	Dr	65	8	65	..	..
25F1	. . . .do. . . .	335	Dr	42	4	..	..	..
25F2	. . . .do. . . .	320	Dr	32	..	..	..	..
25H1	L. Gammon	348	Dg	12.4	48	12	..	..
25L1	Sutter Brothers	330	Dg	8	48	..	3½	4½

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Aquifer(s) Character of material	Water level: Below datum	Water level: Date	Pump: Type, H. P.	Use	Remarks
..	15.82	4- 5-40	S, ½	D	
..	59 r	May 1943	..	..	Well 3. Dd 100 ft while pumping 1,380 gpm. Log.
Gravel	20 r	10- 9-46	T, 3	PS	Log.
. . . .do. . . .	..	..	J, 1	D	Log.
Gravel and sand	23.8	4- 5-40	S, 1	D	
Gravel	27.88	3-12-40	-, 3	D	Water-level measurements published for period 1940-41.
..	17.05	3-11-40	P, ½	D	
Gravel, cemented	..	..	J, ⅓	D	
Gravel	27 r	3-20-53	J, 1½	D	Dd 15 ft while pumping 16 gpm. Log.
. . . .do. . . .	12.6	1-12-40	S	D	
..	16.97	. .do. .	..	..	
..	1.92	2-26-40	S	D	Reported to go dry during summer.
Gravel	13.15	3- 6-40	..	D,S	
..	53 r	..	J	Irr	
Gravel	8 r	7- 6-49	-, 40	Irr	Dd of 30 ft after 4 hours pumping 500 gpm.
..	18 r	7- 7-47	-, 3½	Irr	Dd of 8 ft after 4 hours pumping 65 gpm.
Gravel	2 r	8- 9-47	..	..	Dd of 20 ft after 4 hours pumping 500 gpm.
Gravel and sand	5.4	2-26-40	-, 3	D,S	
Gravel	..	..	..	..	Dd of 3 ft after 4 hours pumping 400 gpm.

Table 1.--Records of wells in

Well no.	Owner or tenant	Altitude	Type of well	Depth of well	Diam. of well	Depth of casing	Water-bearing	
							Depth to top	Thickness
	T. 19 N., R. 3 E.--Con.							
25N1	M. Crowell	390	Dr	62½	5	..	..	..
26D1	P. Smithlin	375	Dr	88	6	88	87	1
26F1	R. Crow	373	Dg	50	30	..	..	..
26F2	..	373	Dr	77	8	..	..	..
26J1	H. J. McGee	390	Dr	91	8	91	88	3
27E1	J. Maruna	358	Dg	26.6	28	..	20	7
27J1	B. A. Gustin	380	Dr	42	6	42	22	20
27R1	J. B. Iams	373	Dg	29	36	..	..	..
28B1	L. L. Sanders	380	Dr	390	8	125	120	5
28C1	Mrs. C. Welton	354	Dg	43.6	12	..	42	..
28E1	H. Arends	360	Dg-Dr	75	6	..	73	2
28F1	C. C. Modahl	360	Dg	35	40	..	..	..
28F2	.... do	360	Dr	55	5	..	..	..
28F3	Bethel School District 403	370	Dr	134	8	130	121	9
28F4	.... do	370	Dr	97	6	..	..	..
28J1	F. W. Schrader	370	Dr	55	6	47	45	10
28L1	L. A. Berray	373	Dg	45.5	48	45	40	5
29J1	--Stansbie	340	Dr	39	6	39	38	..
29N1	W. Schmeckel	362	Dg	38	36	38	..	..
33L1	E. L. Tarpenning	385	Dg	20.6	48	..	15	..

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Zone(s) / Character of material	Water level: Below datum	Water level: Date	Pump-Type, H. P.	Use	Remarks
Gravel	47½ r	Jan. 1940	..	..	
. . . .do. . . .	35 r	6-11-53	J, ½	D	Log.
. . . .do. . . .	38.98	1-10-40	P, ½	D,S	
. . . .do. . . .	32 r	Sept. 1939	..	..	
Sand and gravel	49 r	Summer 1951	J, 3	D	Log.
Gravel	18.39	3-12-40	S, ½	D	
. . . .do. . . .	32 r	11-14-47	J	D,Irr	Log.
. . . .do. . . .	23.18	1-12-40	S,1/6	D,S	
and	40 r	..	T, 10	D,Irr	No water below 125 ft. Log.
. . . .do. . . .	22.8	3-11-40	P, ½	D	
Gravel	27.3	8- 5-54	J, ½	D	Log.
Sand	30.17	12-17-47	..	..	Water-level measurements published for period 1937-47. See pl. 3 for hydrograph.
Sand and gravel	30 r	1944	J	D	
. . . .do. . . .	45 r	9-23-53	T, 15	Inst	Dd of 57 ft after 6 hours pumping 100 gpm. Log.
..	..	. .do. .	T, 3	Inst	Auxiliary supply.
Gravel	..	..	J, ¾	D	Log.
Sand	39.25	3-12-40	..	..	
Gravel	18 r	3-21-53	..	D	Dd 1 ft while pumping 20 gpm. Log.
. . . .do. . . .	32.87	4- 4-40	P, 1	D,S	
Gravel and sand	15.32	3-12-40	S, ¼	D	Water-level measurements published for period 1940-45. See fig. 4 for hydrograph.

Table 1.--Records of wells in

Well no.	Owner or tenant	Altitude	Type of well	Depth of well	Diam. of well	Depth of casing	Water-bearing	
							Depth to top	Thickness
	T. 19 N., R. 3 E.--Con.							
33P1	William Fueston	385	Dr	50	6	50	..	..
34D1	T. A. Ayers	376	Dg	42.5	..	..	..	..
35C1	L. Brandfas	385	Dr	47	6	47	45	2
35B1	R. B. Turner	385	Dr	107	8	..	90	8
35F1	E. Fromm	375	Dr	46	8	46	35	11
35G1	G. Nelson	368	Dg	21	24	..	18	3
35J1	R. S. Middleton	388	Dg	21.4	..	..	..	..
35M1	M. Inderbitzin	392	Dg	30	30	..	..	..
35M2	. . . .do. . . .	392	Dr	84	8	84	83	1
35N1	R. S. Boyce	429	Dg	59.0	36	..	..	..
35N2	H. J. Butz	428	Dg	63.5	30	..	..	..
36D1	C. Marvin	395	Dr	110	10	110	95	15+
36N1	G. A. Jasmer	385	Dr	32	6	32	32	?
	T. 19 N., R. 4 E.							
1J1	W. J. Maats	110	Dr	100	7	100	75	25
2D1	R. Meyers	410	Dr	280	8-6	280	41	1
2B2	. . . .do. . . .	410	Dr	351	8-6	351	350	1
4J1	R. J. Moreland	477	Dg	28.5	48	..	..	..
4J2	Mrs. M. R. Ollinger	470	Dg	28.5	43	..	..	..

central Pierce County, Washington--Con.

zone(s) Character of material	Water level: Below datum	Water level: Date	Pump-type, H. P.	Use	Remarks
Gravel and sand	20 r	Summer 1953	J, 1	D	Log.
"	31.13	1-12-40	"	D,S	
Gravel	34 r	11-22-52	J, ½	D	Reported adequate for 2,000 chickens. Dd 1½ ft pumping 6 gpm. Log.
Sand and gravel	24.92	6-24-52	"	Irr	Dd of 33.2 ft after ½ hour pumping 125 gpm. Log.
Gravel	21 r	4- 2-51	-, 5	Irr	Log.
. . . .do. . . .	10.84	3-29-40	P, ½	D	
"	13.61	1- 9-40	S	D,S	
Gravel	21.56	1-10-40	P, ½	D	
. . . .do. . . .	19 r	March 1952	T, 5	Irr	Dd of 51 ft after 4 hours pumping 80 gpm. Log.
"	56.98	1-10-40	P	D	
Gravel	56.73	. .do. .	P, 1	D	
. . . .do. . . .	42 r	4-18-53	T	D,Irr	Log.
. . . .do. . . .	9 r	8-25-54	S, ½	D	Log.
. . . .do. . . .	11 r	6-10-51	"	Irr	Dd of 17 ft after 4 hours pumping 120 gpm.
. . . .do. . . .	"	"	"	N	Log.
Sand, coarse	325	April 1950	"	"	Tested at 15 gpm with no apparent dd. Log.
"	13.73	5- 5-48	"	D	Water-level measurements published for period 1937-48. See pl. 4 for hydrograph.
"	21.89	11-16-37	"	D	Water-level measurements published for period 1937-40.

Table 1.--Records of wells in

Well no.	Owner or tenant	Altitude	Type of well	Depth of well	Diam. of well	Depth of casing	Water-bearing	
							Depth to top	Thickness
	T. 19 N., R. 4 E.--Con.							
4L1	L. Goelser	350	Dr	240	6	240	206	34
4R1	J. H. Annis	439	Dg	12.1	84	5	9	3
5F1	Fruitland Mutual Water Co.	325	Dr	430	12	403	..	..
6L1	E. Scharpf	450	Dr	212	10	212	209	3
6M1	O. H. Thompson	420	Dg	22.8	36	24	..	..
7A1	S. Lilja	423	Dg	36.6	48	3½	..	..
7N1	..	491	Dg	12.9	48	..	..	..
7Q1	S. Lester	473	Dg	225	48	..	..	..
8A1	R. Swalander	378	Dg	39.7	48	8	30	10
8P1	..	464	Dg	17.7	..	..	..	..
9B1	Fruitland Mutual Water Co.	410	Dr	..	..	..	304	..
11K1	H. P. Hartman	526	Dr	418	8-6	410	..	..
12A1	G. J. Hardke	110	Dr	127	4	127	..	..
12G1	O. Reise	115	Dr	285	18-6	150	80	5
12H1	W. C. Harm	114	Dr	124	6	124	80	44
12J1	W. Hardtke	110	Dr	85	6	85	80	5
12J2	J. Talik	110	Dr	125	6	125	123	2
13A1	R. L. Bacon	125	Dr	100	6	100	74	26
13B1	K. J. Scholz	125	Dr	117	6	117	72	35

central Pierce County, Washington--Con.

zone(s) Character of material	Water level: Below datum	Water level: Date	Pump-Type, H. P.	Use	Remarks
Gravel	200 r	10- 3-51	T	Irr	Dd 30 ft after 4 hours pumping 160 gpm. Log.
. . . .do. . . .	2.04	2-28-40	S, ½	D	
..	191.45	5-11-54	N	N	Abandoned due to sand. Log.
Sand and gravel	177	3- 9-50	..	Irr	Log.
..	.48	2-28-40	S, ½	D,S	
..	17.90	12-18-50	..	D,S	Water-level measurements published, or available, for period 1940-54. See pl. 4 for hydrograph.
[illegible]l	2.09	2-29-40	..	..	
Gravel	220	..	N	N	Filled.
. . . .do. . . .	29.05	3- 7-40	P	..	Reported to go dry in Sept.
..	.71	2-29-40	..	..	
Gravel	..	..	..	..	
. . . .do. . . .	350 r	1936	N	N	Log.
. . . .do. . . .	19 r	5-21-50	C	Irr	Dd of 4 ft after 5 hours pumping 75 gpm.
. . . .do. . . .	19.2	3-27-50	T, 7½	Irr	Dd of 6 ft at 300 gpm. Casing perforated from 75 to 150 ft.
. . . .do. . . .	14 r	12-27-51	C, 7½	Irr	Dd of 17 ft after 4 hours pumping 185 gpm.
. . . .do. . . .	15.77	3-27-51	T, 5	Irr	Dd of 2 ft while pumping 50 gpm.
Sand and gravel	18 r	June 1952	C, 6	Irr	Silty sand and clay above aquifer.
[illegible]avel	21.70	10- 5-54	C, 7½	Irr	Dd 2 ft pumping 45 gpm.
. . . .do. . . .	19 r	12- 5-51	..	Irr	Dd of 21 ft after 4 hours pumping 120 gpm.

Table 1.--Records of wells in

Well no.	Owner or tenant	Altitude	Type of well	Depth of well	Diam. of well	Depth of casing	Water-bearing	
							Depth to top	Thickness
	T. 19 N., R. 4 E.--Con.							
13G1	C. Raguse	125	Dr	86	6	86	..	..
13G2	. . . .do. . . .	125	Dg	14	30	14	..	..
14E1	W. E. Park	520	Dg	9.6	36	9	..	..
14M1	W. V. Young	544	Dr	355	8-6	355	343	4
15E1	C. Taylor	480	Dg	20.9	84	20.9	..	..
15Q1	..	450	Dg	27	48	..	..	..
16D1	--Thorson	452	Dg	27.0	..	..	..	..
19A1	A. Uden	498	Dg	61.5	60	6	..	..
19A2	K. M. Bergman	492	Dr	209	4	209	..	..
19D1	J. Sobolcik	456	Dg	9.7	48	..	..	..
19F1	..	425	Dg	21.2	60	..	..	..
20A1	C. G. Aamodt	480	Dr	235	6-4	235	230	5
20A2	. . . .do. . . .	480	Dr	256	10	255	232	20
20E1	A. R. Blades	374	Dg-Dr	98	48-5	..	70	20
20K1	Mrs. M. Gould	475	Dg	17.6	50	..	5	12
20K2	. . . .do. . . .	476	Dr	191	8	..	185	6
20K3	. . . .do. . . .	476	Dr	192.6	8	195	190	5
21G1	L. Powell	483	Dg	8.3	36	4	5	3
22D1	Firgrove Mutual Water Dist.	460	Dr	241	12	236	160 230	20 10

central Pierce County, Washington--Con.

zone(s) Character of material	Water level: Below datum	Water level: Date	Pump-Type, H. P.	Use	Remarks
Gravel	7 r	3-27-51	J, ½	Irr	
. . . .do. . . .	7.62	. .do. .	S, ½	D	
Sand	1.44	2-24-40	..	D	
Gravel, fine	265 r	May 1938	..	D	Log.
..	5.66	2-24-49	N	N	Water-level measurements published for period 1940-43.
..	..	..	..	..	Log.
..	7.03	3- 7-40	N	N	
ill	2 r	2-26-40	½	D,S	Reported to go dry in summer.
..	200 r	..	-, 1	D,S	
Till	1.05	2-26-40	S, ½	D,S	
..	12.03	. .do. .	N	N	
Gravel	215	1944	..	..	Log.
Sand and gravel	204.5	12- 6-50	..	..	Very little dd after 30 minutes bailing 36 gpm. Log.
. . . .do. . . .	70 r	March 1940	P, ½	D,S	
Till	12.06	10- 3-40	N	N	Water-level measurements published for period 1940-43.
Gravel	..	..	N	N	Destroyed.
Gravel and sand	187.23	8-12-47	P, 2	D,S	Water-level measurements published for period 1940-47 See fig. 4 for hydrograph.
Sand	1.75	5- 5-48	S, ½	D	Water-level measurements published for period 1937-48
Gravel . . . . .do. . . .	143 r	March 1953	..	PS	Yields about 90 gpm. Log.

Table 1.--Records of wells in

Well no.	Owner or tenant	Altitude	Type of well	Depth of well	Diam. of well	Depth of casing	Water-bearing	
							Depth to top	Thickness
	T. 19 N., R. 4 E.--Con.							
22K1	C. A. Massie	559	Dg	42.3	36	32	30	..
22M1	E. D. Corliss	490	Dr	..	6	..	..	..
24A1	B. Baker	148	Dn	27	4	30	..	..
24A2	. . . .do. . . .	144	Dn	57	4	..	..	..
24A3	. . . .do. . . .	144	Dr	145	5	145	144	1
25G1	C. Silvernail	160	Dr	59	6	59	..	..
25R1	A. Van Zanten	170	Dr	97	10	97	..	..
27B1	G. Siler	576	Dg	9	40	..	..	..
30D1	J. Kuper	380	Dr	90	8	..	..	..
30D2	. . . .do. . . .	380	Dr	73	6	..	..	..
31B1	Columbia Powder Co.	470	Dr	150	6	150	148	2
31D1	E. Kuper	390	Dr	84	6	..	..	..
31E1	Columbia Powder Co.	390	Dr	76	6	..	..	..
31Q1	. . . .do. . . .	415	Dr	80	10	80	..	..
34E1	..	500	Dg	51.6	48	..	..	..
34M1	..	548	Dg	48	48	..	..	..

central Pierce County, Washington--Con.

zone(s) Character of material	Water level: Below datum	Water level: Date	Pump-type; H. P.	Use	Remarks
Gravel, fine	2.21	2-24-40	S, ¼	D,S	
"	"	"	Sb		
"	16.8	9- 4-41	S	N	Water-level measurements published for period 1941-46.
"	17.77	" do. "	N	N	Water reported to contain iron. Water-level measurements published for period 1941-44.
Gravel	14.26	8- 1-41	J	D,Irr	Water-level measurements published for period 1941-48. See pl. 2 for hydrograph. Log.
" " do. " "	Flows	Jan. 1954	J, 1	D,S	
" " do. " "	11 r	1953	T, 7½	Irr	Dd about 6 ft while pumping 500 gpm.
Sand	3.27	2-29-40	S	D	Encountered till at bottom.
"	55 r	"	J, 3	D,Irr	
"	55 r	"	J, 2	D,Irr	
Gravel	126 r	8-15-47	P, 3	D,Ind	Dd 2 ft after 4 hours pumping 20 gpm. Log.
"	50.24	5-29-40	J, 1	D,S	
"	47.4	11-11-39	"	D	
"	42.9	11- 5-39	T, 15	Ind	
"	47.5	2-29-40	N	N	
"	Dry	3-18-40	"	"	

Table 1.--Records of wells in

Well no.	Owner or tenant	Altitude	Type of well	Depth of well	Diam. of well	Depth of casing	Water-bearing	
							Depth to top	Thickness
	T. 19 N., R. 5 E.							
1D1	G. W. Goudge	640	Dr	20±	4	..	..	..
2C1	A. Bench	625	Dg	18	50	..	..	..
2J1	D. H. Hanson	640	Dg	19.8	48	..	..	..
3A1	--Parker	640	Dr	137	6	..	..	..
4D1	M. A. Iko, Jr.	490	Dg	60	62 by 48	..	..	..
6D1	L. M. Hatch	90	Dr	110	7	110	82	28
6E1	F. S. Johnson	90	Dr	143	6	143	140	3
6E2	J. Ostofichuk	90	Dr	151	6	151	142	9
6L1	C. E. Hyde	95	Dr	111	6	111	85	26
6M1	O. Davis	90	Dr	173	4	173	..	..
6M2	W. E. Crabtree	95	Dr	111	6	111	89	22
6M3	H. Brammer	100	Dr	88	6	88	86	2
6N1	M. Ward	105	Dr	100	6	97	82	18
6N2	H. Y. Shigio	105	Dr	89	6	89	74	15
7D1	N. Polly	105	Dr	120	6	120	..	..
7D2	G. L. Matlock	105	Dr	101	6	101	80	21
8B1	E. Silva	440	Dr	73	6	73	..	..
9R1	C. E. Murray	630	Dg	20	30	6	..	..

central Pierce County, Washington--Con.

zone(s) Character of material	Water level: Below datum	Water level: Date	Pump-Type, H. P.	Use	Remarks
Sand, coarse	147.75	4-14-52	P, ¾	D	Boulders reported from 50 to 60 ft.
Gravel	3	..	S, ½	D	
"Hardpan"	7.8	9-24-53	J, ¾	D,S	
Gravel	119 r	August 1952	T, 1½	D,S	
"Hardpan"	35 r	1953	J, ¾	D,S	
Gravel	7 r	5-30-51	..	Irr	Casing perforated from 82 to 105 ft. Dd 17 ft after 4 hours pumping 160 gpm.
. . . .do. . . .	11 r	2-17-46	C, 5	Irr	Log.
Sand and gravel	15 r	10-10-47	C, 5	Irr	Dd 6 ft after 4 hours pumping 130 gpm. Log.
Gravel	5 r	7-23-52	-, 2	Irr	Dd of 14 ft after 4 hours pumping 120 gpm.
. . . .do. . . .	13 r	1932	..	..	
. . . .do. . . .	6 r	7-29-53	C, 3	Irr	Dd of 11 ft after 4 hours pumping 120 gpm.
Sand and gravel	18 r	June 1952	T, 5	Irr	Dd of 3 ft pumping 32 gpm. Log.
. . . .do. . . .	17 r	6-15-50	-, 5	Irr	Dd of 21 ft after 4 hours pumping 96 gpm.
Gravel	6 r	5- 1-52	C, 7	Irr	Dd of 15 ft after 4 hours pumping 150 gpm.
..	17 r	7-19-50	C, 7½	Irr	
Gravel	15 r	June 1951	..	Irr	Dd 3 ft after 4 hours pumping 120 gpm.
..	71 r	March 1953	T, 1	D	Supplies 3 houses.
Clay	2 r	Jan. 1954	S, ¾	D	

Table 1--Records of wells in

Well no.	Owner or tenant	Altitude	Type of well	Depth of well	Diam. of well	Depth of casing	Water-bearing	
							Depth to top	Thickness
	T. 19 N., R. 5 E.--Con.							
10J1	E. F. Butts	670	Dr	212	6	212	..	..
11G1	A. C. Morse	650	Dr	214	6	214	..	..
13F1	A. D. Snider	400	Dg	4.75	60	..	..	..
13F2	M. Trob	390	Dr	38	..	..	36	2
14J1	A. Bandley	370	Dr	41½	6	41½	..	..
14K1	J. Soler	370	Dr	42	6	42	..	..
19M1	C. J. Lawson	140	Dr	81	6	..	..	..
24R1	L. E. Park	740	Dr	37	8	37	..	..
29L1	B. Brewer	175	Dg	9	36	9	..	..
30M1	E. Campbell	170	Dr	96	6	96	..	..
30P1	H. Flanagan	170	Dr	78	10	78	57	21
32K1	H. P. Ford	200	Dr	83	6	..	..	..
32J1	I. G. Harman	215	Dr	83	6	..	..	..
32J2	Town of Orting	215	Dr	250	12-7	226	..	..
2 M1	E. Olsen	205	Dr	93	8	93	71	22
33N1	Kamarad Brothers	233	Dr	222	3	217	207	10

central Pierce County, Washington--Con.

zone(s) Character of material	Water level: Below datum	Water level: Date	Pump-Type, H. P.	Use	Remarks
Gravel	204 r	1947	P, 3	D	
Sand or gravel(?)	205 r	1948	J, 2	D,S	No apparent dd after 20 min pumping 10 gpm.
Sand and gravel	1.6	9-23-53	S, ¾	D	
Gravel and coarse sand	8.25	4- 2-51	P, 1	D,S	Log.
Gravel, fine	2⅛ r	April 1951	J, ½	D	
..	7	..	J, 1	D,S	Iron stain reported.
..	3.04	6-11-40	C	D,Irr	Dd 5 ft after 4 hours pumping 275 gpm. Water-level measurements published for period 1940-48. See pl. 4 for hydrograph.
Gravel	11.89	4- 2-51	N	N	
Sand and gravel	3 r	10- 1-52	C, 4	D,Irr	Dd 3 ft after 6 hours pumping 40 gpm.
Gravel	..	..	J, ½	S	Some iron stain reported.
Gravel and sand	4 r	1952	T, 15	D,Irr	Dd 14 ft after 24 hours pumping 450 gpm.
..	8 r	1948	C, 5	Irr	Dd of 18 ft after 4 hours pumping 100 gpm.
..	11.45	6-11-40	C, 30	Irr	Dd 5.4 ft after 28 hours pumping 250 gpm.
Sand	6.1	April 1953	..	PS	Dd 30.2 ft after 3.2 hours pumping 485 gpm. Log.
Gravel	8 r	4-18-52	C, 10	Irr	Sand and clay above aquifer. Casing perforated from 71 to 90 ft. Dd 10 ft after 4 hours pumping 150 gpm. Water temp 51.5° F. Log.
.. do ..	13½ r	1935	..	..	

Table 1.--Records of wells in

Well no.	Owner or tenant	Alti-tude	Type of well	Depth of well	Diam. of well	Depth of casing	Water-bearing	
							Depth to top	Thick-ness
	T. 19 N., R. 6 E.							
2R1	Rainier State School	750±	Dr	250±	8-6	..	..	..
4M1	Marion Water District	695	Dr	305	10	305	63	52
8J1	F. Jones	705	Dr	65	6	..	..	..
8J2	M. J. Sippola	700	Dg	23	48	5	19	4
8R1	F. Schoonover	680	Dr	83	..	..	..	..
9N1	H. Eatherton	700	Dr	87	6	87	..	..
9P1	G. Faust	680	Dg	25	36	25	..	..
9P2	J. Cambra	690	Dg	25	36	20	29	4
9P3	C. M. Twitchell	710	Dg	12.6	40	12	..	..
10G1	G. E. Eccles	800	Dg	26	42	..	..	..
10K1	M. Franich	840	Dg	21	48	..	..	..
10P1	M. Peltola	860	Dg	48	42	3	..	..
10Q1	C. J. MacAllister	850	Dr	156	6	..	..	..
10Q2	M. Parlari	840	Dg	23	96	23	..	..
10R1	J. P. Anderson	810	Dg	21	48	..	..	..
17B1	T. Prosser	500	Dg	8	10	..	..	..
18E1	J. C. Clarke	440	Dr	37	6	37	20	17
18K1	G. W. Converse	675	Dg	24.5	72-48	..	..	..

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Zone(s) / Character of material	Water level: Below datum	Water level: Date	Pump-Type, H. P.	Use	Remarks
..	30 r	..	T, 30	Inst	Chemical analysis.
Sand and gravel	49	7-30-53	..	PS	Dd about 8 ft after 5 hours pumping 200 gpm. Log.
..	54 r	1950	J, ¾	D,S	
Gravel	20.19	9-24-53	S, ½	D,S	Reported adequate for 50 head of stock. Log.
..	..	..	..	D	
..	..	..	J, 1	D,S	
..	23.05	9-22-53	P, ¾	D	Reported to have gone dry during summer of 1953.
Sand	16.5	. .do. .	B	D	
..	9.25	. .do. .	S, ¾	D	Some iron stain reported.
Sand, red	13 r	August 1952	J, ½	D	Reported to flow in winter. Log.
..	19.5	9-22-53	S, ½	D	
..	32	. .do. .	J, ¾	D	"Hardpan" to 23 ft, clay from 23 to 48 ft. Aquifers are sand lenses in clay.
..	..	..	P, ½	D,S	
..	13.8	9-22-53	S, ¾	D,S	
..	14.5	. .do. .	S	D	
Sand and gravel	5 r	..	S, ½	D	
Gravel	9	6- 1-51	..	PS	Dd of 7 ft after 4 hours pumping 100 gpm.
..	2.1	4- 2-51	S,1/6	D,S	

Table 1.--Records of wells in

Well no.	Owner or tenant	Altitude	Type of well	Depth of well	Diam. of well	Depth of casing	Water-bearing	
							Depth to top	Thickness
	T. 20 N., R. 2 E.							
3M2	E. A. Randrup	134	Dr	45	6	45	41	4
3N1	A. Johnson	140	Dr	50	..	50	..	..
9C1	Day Island Club	10	Dr	481	4½	481	..	..
9C2	.... do	10	Dr	606	8	606	..	..
10C1	P. Pender	330	Dr	175	6-4	..	..	..
10D1	W. H. Craft	232	Dg	26	48	..	..	..
10F1	C. L. Stout	317	Dg	104.5	36	..	100	4½
10K1	C. W. Holman	313	Dg	61	48	..	..	..
11J1	Town of Fircrest	234	Dr	280	10	280	..	..
11J2	.... do	227	Dr	200	10	200	..	..
11J3	.... do	228	Dr	397	12-8	397	..	..
11J5	.... do	279	Dr	125	8	..	94	26
11J6	.... do	282	Dr	169	10	169	123	43
11J7	.... do	280±	Dr	312	12-6	..	..	..
11L1	Fircrest Golf Club	280±	Dr	120	10	120	77 83 87	4 2 33

Central Pierce County, Washington--Con.

Zone(s) / Character of material	Water level: Below datum	Water level: Date	Pump-Type; H. P.	Use	Remarks
Sand	Flows	5-20-40	P, ½	D	Flows about 2 gpm. Log.
..	Flows	..	..	D	Reported to flow about 5 gpm.
..	+8 r	..	A, 20	PS	Reported to have filled with sand to a depth of 325 ft. Flows about 25 gpm. Log and chemical analysis.
..	Flows	..	A	PS	Log.
..	87 r	..	P, 1½	D	
Gravel	19.35	5-30-41	..	D	Water-level measurements published for period 1939-41.
Sand and gravel	101.20	9-29-49	N	N	Water-level measurements published for period 1941-49. See fig. 4 for hydrograph.
Sand	42.59	12-31-44	P, 1	N	Water-level measurements published for period 1940-44. See fig. 3 for hydrograph.
..	Flows	..	A	PS	Flows about 2 gpm.
..	Flows	..	A	PS	
..	Flows	..	N	N	Originally 100 ft deep, deepened to 397 ft but abandoned because of insufficient yield. Log.
Gravel	49.32	4-11-40	T, 25	PS	Dd of 4 ft after 19 hours pumping 300 gpm. Log.
Gravel and sand	65 r	July 1941	..	PS	Dd of 2 ft after 16 hours pumping 525 gpm. Log.
..	51 r	July 1950	N	N	Log.
Sand and gravel	50 r	3-25-51	T	Irr	Dd of 60 ft after 10 hours pumping 185 gpm. Log.
. . . .do. . . .					
. . . .do. . . .					

Table 1.--Records of wells in

Well no.	Owner or tenant	Altitude	Type of well	Depth of well	Diam. of well	Depth of casing	Water-bearing	
							Depth to top	Thickness
	T. 20 N., R. 2 E.--Con.							
11M1	Fircrest Golf Club	300	Dr	257	10	257	236	21
11N1	. . . .do. . . .	292	Dr	270	10-8	..	..	..
11R1	Town of Fircrest	275	Dr	152	12	152	88	6
12H1	Bellarmine High School	399	Dr	218	8	218	173 210	10 8
13A1	City of Tacoma	259	Dr	211	24-18	210	..	..
13A2	. . . .do. . . .	258	Dr	85	30-24	..	..	..
13H1	. . . .do. . . .	259	Dr	294	26	204	51 84 112 178	20 2 34 4
13J1	. . . .do. . . .	266	Dr	355	26	183	95 138	12 15
13J2	. . . .do. . . .	266	Dr	151	26	112½	95	19
13R1	South Tacoma Ice Co.	264	Dr	140	6	140	90	25
14A1	University Place Water Co.	220	Dr	70	10	50	..	..
14A2	. . . .do. . . .	220	Dr	75	10	75	..	..

central Pierce County, Washington--Con.

zone(s) Character of material	Water level: Below datum	Water level: Date	Pump-Type; H. P.	Use	Remarks
Sand and gravel	97 r	10-10-52	T, 60	Irr	Dd of 80 ft after 4 hours pumping 600 gpm. Log.
..	..	..	..	N	Reported to furnish only small supply. Log.
Gravel and sand	49 r	9- 1-50	T, 25	PS	Dd of 8 ft after 9 hours pumping 525 gpm. Log.
Sand and gravel	172 r	1940	T, 7½	Irr	Log.
. . . .do. . . .	38.6	6-18-53	T	Ind	Wells 13A1 and 13A2 used for heating and cooling of Utility Bldg. Dd 31 ft after 1.9 hours pumping 620 gpm. Log of test well, to 260 ft.
Sand and gravel	..	..	T	Ind	Dd 2.2 ft after 4 hours pumping 2,500 gpm.
Gravel and sand Gravel Gravel and sand Gravel	15.84	12- 6-50	T, 75	PS	Well 4-A. Dd about 75 ft while pumping 1,900 gpm. Water-level measurements published or available for period 1931-54. See pl. 3 for hydrograph. Log.
Gravel and sand . . . .do. . . .	36 r	1939	..	..	Well 6-A. Dd of 60 ft after 4 hours pumping 3,210 gpm. Water-levels published or available for period 1939-54. See pl. 3 for hydrograph. Log.
Sand and gravel	33.31	4-14-50	T,250	PS	Well 11-A. Dd of 24.19 ft after 24 hours pumping 9,130 gpm. Log and chemical analysis.
Gravel, coarse	30 r	1929	A	Ind	Log.
Sand and gravel	9 r	June 1945	T, 50	PS	Log.
Gravel and sand	12 r	. .do. .	T, 30	PS	Log.

Table 1.--Records of wells in

Well no.	Owner or tenant	Altitude	Type of well	Depth of well	Diam. of well	Depth of casing	Water-bearing	
							Depth to top	Thickness
	T. 20 N., R. 2 E.--Con.							
15A1	K. Fichtner	347	Dg	78	48	..	70	8
15G1	L. F. Drexler	380	Dg	123	44	..	..	..
15L1	J. Nelson	384	Dr	251	8-6	251	247	4
15L2	C. H. Erickson	378	Dg	128½	36	..	125	3½
15M1	J. W. Forsythe	393	Dg-Dr	440	36-8	..	..	..
15N1	H. J. Boedecker	390	Dg	145	48-12	110	..	..
16A1	University Place Water Co.	330	Dr	171	8	171	158	13
16M1	Sunset Beach Improvement Club	100±	Dr	118	8	..	105 115	2 3
20P1	Pioneer Sand and Gravel Co.	25	Dr	1020	16-12	1020	..	..
21P1	New Tacoma Cemetery	224	Dr	243	10	243	..	..
21P2	.... do	224	Dr	243	6	243	..	..
22C1	T. Drum	400	Dr	260	6	260	..	..
22G1	C. F. Miller	356	Dr	176	6	176	..	..
23H1	J. Clouers	250	Dg	51	48	..	..	..
23Q1	R. Walder	262	Dg	70	48	..	..	..
24A1	Northern Pacific Ry.	252	Dg	40½	360	..	..	..
24A2	.... do	252	Dr	196	18-15	196	152	15
24A3	Acme Lumber Co.	265	Dr	98	..	..	..	..

central Pierce County, Washington--Con.

zone(s) Character of material	Water level: Below datum	Water level: Date	Pump-Type, H. P.	Use	Remarks
Sand and gravel	72.47	5-22-40	J, 1½	D	Till to 60 ft.
Sand	121.78	. .do. .	P, 1	D	"Hardpan" to 110 ft and sand to 123 ft.
Sand and gravel	200 r	1938	P, 1½	D	Log.
. . . .do. . . .	123.87	3-11-47	P, ¾	D	Water-level measurements published for period 1940-47. See fig. 4 for hydrograph.
..	295.9	5- 1-41	P, 2	D	Supplies several families. Log.
..	Dry	..	N	N	"Hardpan" to 50 ft, then alternate layers of compact sand and gravel.
Gravel and sand	86 r	4-28-51	..	PS	Well no. 6. Dd of 25 ft after 3 hours pumping 440 gpm. Log.
Sand and gravel	75 r	6- 7-52	T, 3	PS	Log.
. . . .do. . . .					
..	Flows	..	T,200	Ind	Flows about 1,000 gpm. Log.
Gravel	133 r	1931	T, 50	Irr	
. . . .do. . . .	140.38	7-13-39	P, 3	D	
..	193 r	1947	..	PS	Log.
..	165 r	1939	P, ¾	D	
..	45.40	5-18-40	J, ½	D	
..	64.44	5-17-40	P, ½	Irr	
Gravel	20.7r	..	N	N	
. . . .do. . . .	..	..	T, 50	Ind	Dd of 47 ft while pumping 1,200 gpm. Log and chemical analysis.
..	30 r	..	..	..	

Table 1.--Records of wells in

Well no.	Owner or tenant	Altitude	Type of well	Depth of well	Diam. of well	Depth of casing	Water-bearing	
							Depth to top	Thickness
	T. 20 N., R. 2 E.--Con.							
24F1	S. W. Bell	284	Dg	67	48	..	63	4
25E1	Calvary Cemetery	240	Dr	330	12-10	330	125	..
25N1	Flett Dairy	235	Dr	72	16	..	..	..
25N2	. . . .do. . . .	235	Dr	60	12	..	..	..
25P1	L. J. Schuler	240	Dr	62	10	62	..	..
26H1	Calvary Cemetery	247	Dr	165	8-6	..	..	..
26J1	J. Holroyd	246	Dg	38	48	..	..	..
26L1	E. Holmberg	230	Dr	30	6	30	22	8
26R1	E. T. Jarvis	230	Dr	91	6	91	86	5
29Q1	West Tacoma Newspring Co.	19	Dr	548	26-10	542	194 244	16 20
29Q2	. . . . do	14	Dr	854	18-12	788	495 524 702 724	10 19 14 51
32B1	. . . . do	22	Dr	1172	18-12	1172	560 575 643 840 1021	10 19 21 40 7
32Q1	H. B. Foster	300	Dg-Dr	93	..	..	..	..
32Q2	G. Taylor	250	Dr	115	6	115	98	17

central Pierce County, Washington--Con.

zone(s) / Character of material	Water level: Below datum	Water level: Date	Pump-Type, H. P.	Use	Remarks
Sand	65.89	9-28-44	..	..	Water-level measurements published for period 1940-44. See fig. 2 for hydrograph. Log.
Gravel and sand	25 r	April 1936	T, 40	Irr	
..	20 r	..	T, 20	Irr	Dd of 20 ft while pumping 400 gpm.
..	..	..	J, 15	Ind	
Sand and gravel	9 r	4-22-48	..	Irr	Dd of 25 ft after 4 hours pumping 450 gpm. Log.
..	25 r	..	N	N	Destroyed.
Sand, fine	28.04	3-11-47	J	D	Water-level measurements published for period 1940-47. See fig. 2 for hydrograph.
Gravel	15 r	Jan. 1951	S, ½	Irr	Log.
. . . .do. . . .	20 r	1950	J, 1	D	
. . . .do. . . .	Flows	..	T, 10	Ind	Flows about 215 gpm. Rehabilitated in 1952, new depth is 275 ft. Log and chemical analysis.
. . . .do. . . .	+28 r	1937	..	N	Flows about 580 gpm. Log and chemical analysis.
Gravel and sand					
Gravel					
Gravel and sand					
Gravel	Flows	1938	T.	Ind	Dd to 50 ft below land surface after 4 hours pumping 4,200 gpm. Log and chemical analysis.
. . . .do. . . .					
. . . .do. . . .					
Sand and gravel					
Gravel					
..	..	..	P, ½	D	Dug to 75 ft.
Sand and gravel	95 r	4- 5-53	..	D	Dd of 3 ft while bailing 16 gpm. Log.

Table 1.--Records of wells in

Well no.	Owner or tenant	Altitude	Type of well	Depth of well	Diam. of well	Depth of casing	Water-bearing	
							Depth to top	Thickness
	T. 20 N., R. 2 E.--Con.							
34B1	R. Nobel	250	Dr	72	6	72	65	7
34E1	Lakewood Water District	245	Dr	287	10	..	190	12
34E2	.... do	245	Dr	267	24-12	267	190	77
34K1	J. J. Werner	240	Dg	44	36	..	..	..
34L1	O. H. Weller	209	Dg	13	48	12	..	..
34R1	J. W. Mann	251	Dg-Dn	40	..	..	34	6
35D1	H. R. Hall	260	Dr	85	6	..	..	..
35P1	Lakewood Community Center	258	Dr	768	10-4	768	..	..
36C1	Flett Dairy	245	Dr	90	6	..	..	..
36F1	Mt. View Memorial Park	240	Dr	42	12	42	18	7
36F2	.... do	240	Dr	155	12	155	129	24
36H1	L. V. Denny	273	Dr	70	5	70	35	35
36J1	T. Welcher	275	Dg	41	48	..	..	..
36L1	Mt. View Memorial Park	270	Dr	202	8	..	198	4
	T. 20 N., R. 3 E.							
1F1	Brookville Gardens	15	Dr	185	10-6	185	..	..
1R1	Century Amusement Co.	20	Dr	253	2	250	223	30
2K1	G. Kawasaki	15	Dr	82	8	82	72	10
2N1	A. R. Bunge	15	Dn	67	2	67	..	..

Central Pierce County, Washington--Con.

zone(s) Character of material	Water level: Below datum	Water level: Date	Pump-Type, H. P.	Use	Remarks
Gravel	..	..	..	..	Log.
Sand and gravel	71 r	July 1950	T	PS	Test well no. 5. Log and chemical analysis.
. . . .do. . . .	72 r	2-14-52	T	PS	Well "I". Log same as 34E1.
Gravel	40.77	5- 3-39	J, 1	D	Water-level measurements published for period 1939-42.
. . . .do. . . .	8.85	4-18-40	S, ½	D	
Gravel, fine	31.09	4-16-40	S, ⅓	D	
..	..	..	J, 1½	Irr	
..	37 r	July 1937	..	N	Dd of about 17 ft while pumping 100 gpm. Log.
..	..	..	7½	Ind	
Gravel and sand	2.2r	5-22-54	..	N	Log.
. . . .do. . . .	1.1r	5-27-54	C	Irr	Dd about 18 ft while pumping 500 gpm. Log.
Gravel	35 r	..	..	D	
. . . .do. . . .	31.05	5-29-40	P, ½	D	Water-level measurements published for period 1940-43. See fig. 3 for hydrograph.
. . . .do. . . .	67 r	1941	..	..	Log.
..	.7	7-22-52	T, 25	Irr	Dd 99 ft after 3 hours pumping 200 gpm. Flows in winter. Log.
Sand, coarse, and pebbles	+12 r	..	..	PS	Flows about 45 gpm. Screened from 238 to 250 ft. Log.
Sand	5 r	June 1950	..	Irr	Dd of 40 ft after 6 hours pumping 250 gpm. Log.
..	5 r	6-10-53	C, 10	Irr	One of 4 similar interconnected driven wells.

Table 1.--Records of wells in

Well no.	Owner or tenant	Altitude	Type of well	Depth of well	Diam. of well	Depth of casing	Water-bearing	
							Depth to top	Thickness
	T. 20 N., R. 3 E.--Con.							
3M1	Washington Gas & Electric Co.	12	Dr	450±	..	..	..	..
3R1	Federal Meat Co.	15	Dr	..	3	..	..	..
4G1	Northwest Door Co.	10	Dr	640	8	620	580	20
4H1	Wheeler-Osgood Co.	12	Dr	392	10-8	..	..	..
4H2	St. Paul & Tacoma Lumber Co.	12	Dr	1501	16-12	1501	..	..
4J1	Carstens Packing Co.	12	Dr	452	12	..	..	..
4J2	. . . . do	12	Dr	705	10- 8	640	625	15
4P1	Washington Gas and Electric Co.	21	Dr	385	12	..	..	..
4P2	Northwestern Woodenware Co.	20	Dr	250	12-10	250	..	..
4Q1	Wheeler Osgood Co.	8	Dr	492	8	490	489	3
5D1	Continental Baking Co.	367	Dr	396	10- 6	..	..	..
7F1	Allenmore Golf Course	299	Dr	160	12-10	..	76	63
7G1	. . . . do	355	Dr	270	10	270	..	..
7J1	City of Tacoma	263	Dr	90	..	..	..	..

central Pierce County, Washington--Con.

zone(s) Character of material	Water level Below datum	Water level Date	Pump- Type. H. P.	Use	Remarks
..	Flows	August 1939	C	Ind	Initially flowed 200 gpm, flow has diminished due to sand.
..	+4 r	..	N	S	Flows about 3 gpm.
Sand, coarse, and gravel	+5 r	1941	T	Ind	Flowed 50 gpm and pumped 500 gpm with dd of about 45 ft in 1941. Yield diminished to about 100 gpm with 35 ft of dd in 1945. Log.
..	Flows	..	A	Ind	Initially pumped at a rate of about 300 gpm. Yield had diminished to about 150 gpm by 1939.
..	Flows	..	-, 15	Ind	Flows about 570 gpm. Dd to 11 ft below land-surface after 24 hr pumping 775 gpm. Log.
..	Flows	..	N	N	Abandoned when 4J2 was drilled. Flowing 140 gpm in 1939.
Gravel	Flows	..	..	..	Flows 40 gpm in 1939. Log and chemical analysis.
..	Flows	1939	..	Ind	
..	+23 r	1940	T, 15	Ind	Flows about 135 gpm; chloride 7 ppm. Log.
Gravel, coarse	+20 r	August 1939	A	Ind	Reported to flow 30 gpm in 1939. Log.
..	80 r	..	N	De	Formerly yielded 72,000 gpd.
Gravel and sand	60 r	..	T, 30	Irr	Dd of 11 ft after 48 hours pumping 300 gpm. Log.
..	126 r	4-15-48	T, 30	Irr	Dd of 9 ft after 4 hours pumping 300 gpm. Log.
..	..	..	N	De	Original site for city well 3-A, abandoned because no water encountered in first 90 ft of drilling. Log.

Table 1.--Records of wells in

Well no.	Owner or tenant	Altitude	Type of well	Depth of well	Diam. of well	Depth of casing	Water-bearing	
							Depth to top	Thickness
	T. 20 N., R. 3 E.--Con.							
7N2	Pacific Match Co.	245	Dr	205	8	..	170	35
7Q1	Tacoma Milk Producers Assoc.	255	Dr	141	8-6	141	126	15
8K1	J. E. Berkheimer Mfg. Co.	240	Dr	107	12-8	107	87	18
8R1	City of Tacoma	200	Dr	221	8-6	..	..	..
9A1	Container Corp. of America	20	Dr	175	8	175	150	25
9A2	.... do	20	Dr	117	6	117	..	..
9A3	.... do	20	Dr	320	12	320	194 223	10 7
9C1	Medosweet Dairies	65	Dr	120	10	..	..	..
9C2	Cammarano Brothers	40	Dr	146	8	146	129	9
9D1	Heidelberg Brewing Co. Breweries Inc.	80	Dr	150	12-8	..	..	..
9D2	.... do	80	Dr	247	10	..	..	..
9D3	.... do	80	Dr	677	14-12	677	..	..
9E1	National Soap Co.	105	Dr	200	6	200	..	..
9E2	.... do	105	Dr	435	12-8	..	381	54

central Pierce County, Washington--Con.

zone(s) / Character of material	Water level: Below datum	Water level: Date	Pump-Type, H. P.	Use	Remarks
Gravel	17 r	Jan. 1940	C, 10	Ind	Dd of 1½ ft after 8 hours pumping 200 gpm. Log.
Gravel and sand	..	..	T	Ind	Dd of 12 ft while pumping 55 gpm. Log.
Gravel	..	..	T, 10	Ind	Log.
..	89	May 1948	N	N	Test well T-1, tests indicate that this location not suitable for production well because of low yield. L.
Gravel and sand	Flows	July 1948	T, 20	Ind	Dd to 75 ft after 4 hours pumping 250 gpm. Interferes with 9A2. Log.
..	Flows	..	..	N	Dd of 20 ft at 20 gpm.
Sand and gravel	Flows	..	..	Ind	Dd to about 50 ft at 500 gpm. Log.
. . . .do. . . .					
..	30 r	1939	T, 25	Ind	Dd of 10 to 11 ft after 24 hours pumping about 150 gpm.
Sand and gravel	36 r	Sept. 1937	T, 15	Ind	Log.
..	40 r	..	N	N	Use of well ciscontinued in 1937.
..	80 r	..	T, 40	Ind	Dd of 60 ft while pumping 375 gpm. Log.
..	61 r	July 1949	T	Ind	Dd of 54 ft after 4 hours pumping 1,500 gpm. Log.
..	97.3	7-13-39	N	N	Use of well discontinued when turbine installed in 9E2 in 1936. Water-level measurements published for period 1940-46. See fig. 6 for hydrograph.
Gravel and sand	..	..	T, 25	Ind	

Table 1.--Records of wells in

Well no.	Owner or tenant	Altitude	Type of well	Depth of well	Diam. of well	Depth of casing	Water-bearing	
							Depth to top	Thickness
	T. 20 N., R. 3 E.--Con.							
9E3	Pacific Refrigerating Co.	145	Dr	259	12-8	259	245	14
9E4	Tacoma Ice & Cold Storage Co.	125	Dr	710	..	..	145	15
9F1	Silver Springs Brewing Co.	40	Dr	618	8-6	610	597	12
10G1	Medosweet Dairies	20	Dr	275	10	269	248	6
11C1	Milwaukee Road	20	Dr	160	3	..	125	27
11J1	W. C. Bluhm	25	Dn	70	1½	70	..	..
11P1	J. J. McDonald	25	Dr	88	6	88	5 83	15 5
11P2	T. Banaszak	25	Dr	41	6	41	38	3
11P3	M. Olson	35	Dr	47	6	47	35	12
12C1	Colonial Gardens	25	Dr	277	3	277	..	..
13G1	L. P. Zabroski	20	Dr	98	8	98	..	..
13H2	W. Stemp	25	Dr	38	4	38	30	8
13H4	. . . .do	25	Dr	253	6	..	..	..
14B1	R. Gunderson	175	Dr	145	6	145	120	14
14C1	C. Rutheford	45	Dr	105	6	105	100	5
14C2	N. M. Becker	40	Dr	38	6	38	34	4
14C3	J. E. Gentner	25	Dr	30	6	30	12	18
14C4	E. Barker	25	Dr	90	6	85	88	90
14R1	D. Robinson	260	Dr	230½	8	230½	..	..

central Pierce County, Washington--Con.

zone(s) Character of material	Water level: Below datum	Water level: Date	Pump-Type, H. P.	Use	Remarks
Gravel	83 r	1935	T	N	Water contains silt, not in use. Log.
Gravel(?)	74	5-21-53	N	Ind	Submersible pump to be installed. Dd of 49 ft while pumping 360 gpm.
Gravel and sand	Flows	1950	J, 7½	Ind	Dd of 25 ft after 4 hours pumping 150 gpm. Log.
Sand and gravel	Flows	June 1951	..	Ind	Log.
Sand	Flows	..	..	Ind	Reported to have flowed 30 gpm. Log.
..	10 r	..	S, ¼	D,S	
Gravel					
. . . .do. . . .	..	..	S, ½	D	Log.
. . . .do. . . .	10 r	..	S, ½	D	Log.
. . . .do. . . .	..	..	S, ½	D	Dd to 32 ft pumping 8 gpm. Log.
Sand, coarse	+4 r	..	C	D,Irr	Flows 27 gpm. Log.
..	Flows	..	..	Irr	"Little" dd after 5 hours pumping 80 gpm.
Sand, coarse	8 r	2-10-51	..	Irr	Log.
..	..	..	..	De	Log.
Gravel, coarse	124 r	1951	..	D	Log.
Sand and gravel	..	..	J, ¾	D	Log.
Gravel	..	..	S, ½	D	Log.
Sand and gravel	2.69	9-14-54	S, ¼	D	Dd to 10 ft pumping 25 gpm.
Gravel	Flows	1952	S, ½	..	Flows 3 gpm. Dd 35 ft pumping 20 gpm. Log.
Sand and gravel	170 r	8- 1-51	S, 5	D,Irr	Log.

Table 1.--Records of wells in

Well no.	Owner or tenant	Altitude	Type of well	Depth of well	Diam. of well	Depth of casing	Water-bearing	
							Depth to top	Thickness
	T. 20 N., R. 3 E.--Con.							
15K1	L. G. Olsen	250	Dg	55	48	8	..	..
15K2	-- Smythe	275	Dg	64.5	48	..	..	..
18C1	City of Tacoma	321	Dr	185	12	185	152	28
18D1	. . . .do. . . .	243	Dr	172	26	145	111	33
18D2	. . . . do	243	Dr	83	30-18	78	58	20
18D3	. . . . do	294	Dr	110	30-26	110	90	18
18F1	B. A. Hogeberg	295	Dr	83	6	83	..	..
19F1	. . . . do	266	Dr	378	26	356	61 126 156 243 270	34 19 54 19 54
19L1	. . . . do	270	Dr	293	26	266	..	..
19P1	. . . . do	261	Dr	310	24	305	101 184 208 252	61 20 27 44
19P2	. . . . do	266	Dr	205	12-10	..	..	..

central Pierce County, Washington--Con.

zone(s) Character of material	Water level: Below datum	Water level: Date	Pump-Type, H. P.	Use	Remarks
..	47.0	4-25-40	P, ¾	D,S	Till above aquifer. Reported to have gone dry in 1939. Water-level measurements published for period 1940-42. See fig. 3 for hydrograph.
..	61.9	5-16-40	N	N	Reported to have been dug to 74 ft.
Gravel, coarse	93.7	5- 6-53	N	..	City test well T-10. Log.
Gravel and sand	24.96	3-30-40	T, 75	PS	City well 2-A. Dd of 60 ft after 4 hours pumping 2,075 gpm. Log.
Gravel	10.6	April 1949	T,200	PS	City well 2-B. Dd of 4.5 ft after 64 hours pumping 3,600 gpm. Water-level measurements published for period 1937-54 See pl. 3 for hydrograph. Log.
Gravel and sand	48 r	July 1953	T,800	PS	City well 9-A, drilled to 127 ft. Log and chemical analysis.
Sand and gravel	64 r	July 1952	J, 3	Irr	Dd 5 ft after 4 hours pumping 31 gpm.
Gravel	37.16	1-31-46	T,300	PS	City well 5-A. Dd of 68 ft while pumping 6,240 gpm. Water-level measurements published for period 1930-46. See pl. 3 for hydrograph. Log and chemical analysis.
Gravel and sand					
. . . .do. . . .					
. . . .do. . . .					
. . . .do. . . .					
..	..	..	N	N	Abandoned because of insufficient yield. Log and chemical analysis.
Gravel	33.08	11- 1-49	T,150	PS	City well 1-A. Dd about 71 ft at 3,300 gpm. Water-level measurements published or available for period 1930-54. See pl. 3 for hydrograph.
. . . .do. . . .					
. . . .do. . . .					
Gravel and sand					
..	34.37	9- 2-37	N	N	City well 15, abandoned and capped in 1940, concrete plug in bottom. Well has been pumped at a rate exceeding 2 mgd. Water-level measurement published for period 1909, 1925-31, 1937-39. See pl. 7 for hydrograph.

Table 1.--Records of wells in

Well no.	Owner or tenant	Altitude	Type of well	Depth of well	Diam. of well	Depth of casing	Water-bearing	
							Depth to top	Thickness
	T. 20 N., R. 3 E.--Con.							
19P3	City of Tacoma	266	Dr	117	11½	..	..	..
19P4	. . . .do. . . .	264	Dr	240	14-12	..	..	..
19P5	. . . .do. . . .	269	Dr	123(?)	12	..	..	..
19P6	City of Tacoma	268	Dr	186	12-10	..	..	..
19P7	. . . .do. . . .	260±	Dr	135	..	..	..	..
19P8	. . . .do. . . .	260±	Dr	153	..	..	..	..
22B1	T. A. Ligman	344	Dg	100	40	..	..	..
23H1	A. Kapphahn	360	Dr	254	6	254	249	15
25B1	S. M. Skoog	298	Dg	56	48	56	50	..
25N1	J. Paulson	425	Dr	248	6	..	..	..
26C1	--Skonberg	392	Dg	72	48	..	..	..
26C2	J. A. Nelson	385	Dg	85	48	30	..	..

central Pierce County, Washington--Con.

zone(s) Character of material	Water level: Below datum	Water level: Date	Pump-Type, H. P.	Use	Remarks
..	32.43	9- 2-37	N	N	City well no. 1. Water-level measurements published for period 1907-09, 1925-31, 1937-39. See pl. 7 for hydrograph.
..	32.74	12-31-50	N	N	City well no. 11. Water-level measurements published or available for period 1907-09, 1925-31, 1937-54. See pl. 4 for hydrograph.
..	37.15	5- 5-40	N	N	City well no. 2. Water-level measurements published for period 1907-09, 1925-31, 1937-40. See pl. 7 for hydrograph.
..	35.33	5-13-40	N	N	City well no. 3. Water-level measurements published for period 1907-09, 1925-31, 1937-40. See pl. 7 for hydrograph.
..	..	..	N	N	City well no. 17, abandoned in 1909.
..	..	..	N	N	City well no. 16, abandoned in 1909.
Gravel	Dry	4-25-40	N	N	Sounded to 94 ft.
Sand and gravel	216 r	1952	..	..	Dd of 22 ft after 4 hours pumping 10 gpm. Log.
Sand	53 r	May 1940	J, ¾	D	No till encountered.
. . . .do. . . .	196 r	1951	..	D	Bailed at 10 gpm.
..	Dry	..	N	N	Dug through till into gravel, but did not reach water.
..	72.3	5-16-40	P	D	Reported to go dry in September and October.

Table 1.--Records of wells in

Well no.	Owner or tenant	Altitude	Type of well	Depth of well	Diam. of well	Depth of casing	Water-bearing	
							Depth to top	Thickness
	T. 20 N., R. 3 E.--Con.							
26H1	Vog Brothers	435	Dg	188	48	188	..	..
26K1	H. E. Barker	416	Dg	27.5	30	10	..	..
27E1	..	415	Dr	187	6	187	178	9
27K1	F. Ido	420	Dg	190	8	190	..	..
28K1	P. A. Carson	390	Dr	180	8	180	150	30
30C1	City of Tacoma	266	Dr	176	12-7	..	..	..
30C2	.... do	267	Dr	244	12-11	..	..	..
30C3	.... do	268	Dr	206	12-10	..	..	..
30C4	.... do	268	Dr	307	26	301	94 125 162 231	20 21 59 33
30F1	.... do	268	Dr	126	12	..	..	..
30F2	.... do	270	Dr	229	10	..	..	..

Central Pierce County, Washington--Con.

zone(s) Character of material	Water level Below datum	Water level Date	Pump- Type. H. P.	Use	Remarks
..	185 r	..	N	N	
Gravel in till	16.37	4-22-40	N	N	
Gravel	178 r	Feb. 1952	..	Irr,D	Log.
..	175±	4-20-40	N	N	Reported to have caved at bottom.
Gravel	150 r	6-20-50	T, 10	Irr	Dd of 10 ft after 4 hours pumping 150 gpm.
..	34.63	5-13-40	N	N	City well 4, water-level measurements published for period 1908-09, 1925-31, 1937-40. See pl. 7 for hydrograph.
..	36.25	12-11-50	N	N	City well 5, water-level measurements published or available for period 1908-09, 1925-31, 1937-54. See pl. 4 for hydrograph.
..	36.00	5-13-40	N	N	City well 6, water-level measurements published for period 1907-09, 1925-31, 1937-40. See pl. 5 for hydrograph.
Sand and gravel . . . .do. . . . . . . .do. . . . Gravel	36.19	12- 6-50	T,200	PS	City well 8-A. Dd of about 60 ft at 3,700 gpm. Water-level measurements published or available for period 1939-54. See pl. 3 for hydrograph. Log.
..	32.40	5-13-40	N	N	City well 7, water-level measurements published for period 1907-09, 1925-31, 1937-40. See pl. 5 for hydrograph.
..	35.77	. .do. .	N	N	City well 13, water-level measurements published for period 1908-09, 1926-31, 1937-40. See pl. 5 for hydrograph.

Table 1.--Records of wells in

Well no.	Owner or tenant	Altitude	Type of well	Depth of well	Diam. of well	Depth of casing	Water-bearing	
							Depth to top	Thickness
	T. 20 N., R. 3 E.--Con.							
30F3	City of Tacoma	269	Dr	151	12-10	..	..	..
30F4	.... do	270	Dr	200(?)	12	..	..	..
30H1	J. E. Reynolds	275	Dg	42	48	10	..	..
30L1	City of Tacoma	268	Dr	155(?)	12	..	..	..
30L2	.... do	258	Dr	149	12	..	..	..
30L3	.... do	256	Dr	207	12-10	..	..	..
30L4	.... do	256	Dr	121	..	..	..	..
30L5	.... do	256	Dr	350	26	307	219	15
30N1	.... do	272	Dr	358	26	312	..	..
31E1	L. Helverson	280	Dr	66	5	66	60	6

central Pierce County, Washington--Con.

zone(s) Character of material	Water level Below datum	Water level Date	Pump- Type, H. P.	Use	Remarks
..	33.34	5-13-40	N	N	City well 8, water-level measurements published for period 1907-09, 1925-31, 1937-40. See pl. 6 for hydrograph.
..	..	..	N	N	City well 12.
..	Dry	4-24-40	..	..	Log.
..	32.65	5-13-40	N	N	City well 14, water-level measurements published for period 1908-09, 1926-31, 1937-40. See pl. 6 for hydrograph.
..	22.89	4-13-40	N	N	City well 9, water-level measurements published for periods 1907-09, 1925-31, 1937-40. See pl. 6 for hydrograph.
..	20.85	3-14-38	N	N	City well 10, water-level measurements published for periods 1907-09, 1925-31, 1937-38. See pl. 6 for hydrograph.
..	..	..	N	N	City well 18. Log.
Gravel	20.25	12- 6-50	T, 50	PS	City well 7-A. Dd of about 40 ft while pumping 900 gpm Water-level measurements pu lished or available for the period 1939-54. See pl. 3 for hydrograph. Log.
Gravel and sand	37.76	12-11-50	T,200	PS	City well 3-A. Dd of about 67 ft while pumping 3,940 gpm. Water-level measure- ments published or availabl for period 1931-54. See pl. 2 for hydrograph. Log and chemical analysis.
Gravel	37.3	3- 5-41	..	..	

Table 1.--Records of wells in

Well no.	Owner or tenant	Altitude	Type of well	Depth of well	Diam. of well	Depth of casing	Water-bearing	
							Depth to top	Thickness
	T. 20 N., R. 3 E.--Con.							
31F1	Lakewood Water District	280	Dr	209	10	..	..	..
31F2	. . . . do	278	Dr	158	18	158	136	23
31M1	R. G. Nobes	280	Dr	75(?)	6	75(?)	55	20
32D1	E. B. Gustafson	306	Dg	16	48	..	..	..
32D2	C. Nielson	314	Dr	80	10	..	..	..
32D3	E. Lambert	304	Dg	18	30	17	..	..
32D4	A. T. Kluss	320	Dr	114	5	114	112	2
32G1	J. L. Ryan	348	Dg	101	48	..	..	..
32G2	--Athow	369	Dg	117	48	..	..	..
33G1	K. Nelson	398	Dg	187	40	..	..	..
34A1	F. Olsen	408	Dg	180	48	..	175	5
34E1	F. Reding	423	Dg	20	48	..	..	..
34F1	H. Berger	417	Dg	185	48	..	..	..
34L1	Southeast Tacoma Mutual Water Co.	410	Dr	505	12-10	396	196	16
35F1	S. Mattson	417	Dg	18	48	..	..	..
35F2	P. Krapf	410	Dr	288	6	288	..	..
35G1	I. S. Broxson	428	Dg	185	30	185	180	5

central Pierce County, Washington--Con.

zone(s) Character of material	Water level Below datum	Water level Date	Pump- Type, H. P.	Use	Remarks
..	54.23	1-22-51	N	N	Test well 7. Log and chemical analysis.
Sand and gravel	56½ r	2-29-52	T	PS	Well "J". Dd about 49 ft at 1,500 gpm. Log.
. . . .do. . . .	53 r	Spring 1953	J, ½	D	Log.
Gravel	8.29	4-22-40	S, ¼	D	Till at 13 ft.
..	62.63	4-24-40	P, 1	D	Water-level measurements published for period 1940-49. See fig. 4 for hydrograph.
Sand	15.5	10- 4-40	..	..	Water-level measurements published for period 1940-46. See fig. 4 for hydrograph.
Gravel	75 r	Dec. 1940	..	D	Log.
..	99.75	6- 3-42	..	D	Water-level measurements published for period 1940-42. See fig. 6 for hydrograph. Log.
Gravel	108 r	1930	N	N	
..	..	1928	N	N	Well now caved below 124 ft.
Sand	175 r	1939	N	N	Well now caved below 133 ft. Log.
Till	3.75	4-20-40	P	..	Water-level measurements published for period 1940-48. See fig. 3 for hydrograph.
..	180 r	..	N	N	Well destroyed.
Sand and gravel	165 r	2-28-51	T, 50	PS	Well no. 2. Dd of 1.5 ft at 350 gpm. Log.
Till	8.92	4-22-40	S	D	
..	208 r	..	T, 5	Irr	
Sand	180.05	11- 5-50	P, 1	D	Water-level measurements published or available for period 1940-54. See p. 4 for hydrograph. Log.

Table 1.--Records of wells in

Well no.	Owner or tenant	Altitude	Type of well	Depth of well	Diam. of well	Depth of casing	Water-bearing	
							Depth to top	Thickness
	T. 20 N., R. 3 E.--Con.							
35H1	--Bjork	430	Dg	186.6	30	185	180	..
36D1	H. J. Aungst	423	Dg	34	48	..	..	..
36R1	L. L. Covey	429	Dg	13	48	..	8	2
	T. 20 N., R. 4 E.							
1D1	Mrs. M. Sledziewiski	60	Dg	18	36	18	..	..
3R1	L. Reisinger	335	Dr	371	8	362	..	..
5E1	Fusfield & Oppheim	30	Dr	350	4	..	..	..
5Q1	Town of Milton	35	Dr	200±	..	..	..	..
5Q2	.... do	35	Dr	540	12-8	540	32	40
5Q3	.... do	35	Dr	80	10	80	56	24
5Q4	.... do	35	Dr	76	12	76	..	..
7A1	Louis Sterino	15	Dr	76	4-2	76	..	..
7D1	Oakwood Dairy	20	Dn	75	2	75	..	..
7J1	R. D. Krenick	20	Dn	84	2	84	..	..
7J2	B. Holdner	20	Dn	46	2	46	..	..
7M1	F. Spear	20	Dn	82	2	82	..	..
8D1	B. Yoshida	40	Dn	60	..	60	..	..
8F1	....do....	40	Dn	44	2	44	..	..
9A1	F. Fillies	360	Dg	31	48	..	..	..
9D1	E. Lutter	275	Dg	119	60	6	..	..
10B1	--	375	Dg	18	72	..	..	..

Central Pierce County, Washington--Con.

zone(s) Character of material	Water level Below datum	Water level Date	Pump-Type, H. P.	Use	Remarks
Sand	175 r	..	P, ¾	D	
..	5.0	4-22-40	..	N	
Sand	3.55	4-23-40	S, ½	D	Supplies 3 families.
..	12 r	8-30-47	-, 1	Irr	Dd of about 2 ft at 17 gpm. Log.
..	115 r	1953	N	N	Log.
..	+2.5	6-13-40	..	N	Flows about 2½ gpm. Log.
..	Flows	..	..	PS	Well 1. Dd of 30 ft after 4 hours pumping 30 gpm.
Sand and gravel	7 r	August 1945	N	N	Well no. 2. Abandoned. Log.
. . . .do. . . .	8 r	June 1948	T, 60	PS	Well no. 3. Dd of 19 ft after 4 hours pumping 500 gpm. Log.
..	8 r	Jan. 1951	T, 50	PS	Well no. 4. Log.
..	7	April 1944	T, 6	Irr	
..	3 r	..	P, ½	D,S	
..	..	..	S, ½	D	
..	6 r	10-27-52	C	Irr	One of four similar driven wells located at this site. Combined yield is about 170 gpm.
..	4½r	3- 2-51	S, ½	D	Yields about 20 gpm.
..	4 r	4-12-53	..	Irr	Pumped at about 100 gpm.
..	4 r	2-10-53	..	..	
..	25.47	11- 3-54	N	N	
..	107.60	. .do. .	P, 1	N	
..	3.80	11- 2-54	N	D	Gravity flow to house.

Table 1.--Records of wells in

Well no.	Owner or tenant	Altitude	Type of well	Depth of well	Diam. of well	Depth of casing	Water-bearing	
							Depth to top	Thickness
	T. 20 N., R. 4 E.--Con.							
10M1	Mt. View-Edgewood Water District	360	Dr	205	..	..	..	..
12A1	--Cartwright	55	Dr	308	..	..	305	1
12C1	V. Canfield	55	Dr	250	3	250	..	..
14F1	F. Pyfer	450	Dg	25	36	..	..	..
14M1	C. J. Thoren	450	Dg	42	42	..	..	..
15F1	H. C. Jorgenson	395	Dg	34	42	..	..	..
15F2	H. W. Thurston	380	Dg	17.5	48	6	8	9.5+
15Q1	H. Henon	400	Dg	29	36	..	..	..
16M1	Sanitary Infant Dairy	30	Dr	250	6	250	..	..
16P1	F. Blaser	30	Dn	175	..	..	..	..
17C1	Western Washington Experimental Station Farm No. 2	25	Dr	300	6	300	..	..
17K1	H. P. Kennedy	30	Dr	267	2	..	182	13
17M1	Western Washington Experimental Station Farm No. 3	20	Dr	370	6	360	..	..
18F1	G. H. Thomas	20	Dn	144	2	144	..	..
18G1	Valley Packing Co.	20	Dr	315	6	315	..	..
18H1	Puyallup Dairy Farm	20	Dr	550	8-4½	550	275	15
18J1	C. W. Kriese	20	Dr	200	6	200	175	25
18K1	F. W. Carlson	25	Dr	308	6	..	..	..

Central Pierce County, Washington--Con.

Zone(s) Character of material	Water level Below datum	Water level Date	Pump- Type, H. P.	Use	Remarks
..	..	..	..	..	Test well, abandoned. Log.
Sand	Flows	March 1954	..	Irr	Flows 100± gpm. Log.
..	..	..	C, 20	Irr	
Gravel	..	..	N	N	Reported to yield small supply. Eight ft of soil and gravel and 6 ft of "hardpan" above aquifer.
..	38 r	Aug. 1926	S	N	
..	33.28	11- 3-54	J, ¾	D	
Gravel	13.08	11- 3-54	S, ½	D	
..	6.27	11- 2-54	S, ⅓	N	
Gravel	Flows	3- 2-51	C, 7½	Ind	
. . . .do. . . .	Flows	. .do. .	J, ½	D,S	
Sand, and fine gravel	Flows	..	C, 20	Irr	Dd of about 42 ft at 600 gpm. Flows 35 gpm.
Silt and sand	+2 r	1932	..	..	Flows about 8 gpm. Log.
Sand, coarse	+20 r	1949	C, 20	Irr	Flows 100 gpm. Dd about 39 ft at 1,000 gpm.
. . . .do. . . .	0 r	..	S, ¼	D	
..	+46 r	1-31-47	C, 5	Ind	Dd to 12 ft below land surface after 4 hours pumping 240 gpm. Casing perforated from 260 to 315 ft.
Sand	Flowed	..	N	N	Destroyed. Log.
Sand, coarse	Flows	1947	-, 5	Irr	Casing perforated from 175 to 185 ft.
..	Flows	..	-, 5	Irr	

Table 1.--Records of wells in

Well no.	Owner or tenant	Altitude	Type of well	Depth of well	Diam. of well	Depth of casing	Water-bearing	
							Depth to top	Thickness
	T. 20 N., R. 4 E.--Con.							
18K2	A. N. Olsen	25	Dn	296	2	..	..	..
18P1	G. Richen	20	Dr	366	6	366	..	..
19B1	M. Ellstead	25	Dn	97	2	97	..	..
19F1	L. Steiner	20	Dn	110	2	110	..	..
19M4	A. Schuler	25	Dr	155	5½	155	..	..
19R1	G. H. Deeds	30	Dn	120	2	120	..	..
20C1	S. Sulkosky	30	Dr	802	6-4	802	..	..
20E1	R. Rasmussen	30	Dn	74	2	74	..	..
20J1	W. G. Knott	30	Dr	265	4	..	..	..
20K1	J. Lounhardt	30	Dr	267	6	267	263	[illegible]
20N1	O. Gaier	30	Dn	90	2	90	..	..
21B1	J. Meyer	30	Dn	190	2	190	..	..
21H1	--Lacy	35	Dr	180	3	..	..	..
21N1	J. C. Franzen	40	Dr	209	6	298	296	2
21P1	L. Henry	40	Dr	230	6	230	223	7
22D1	Mt. View-Edgewood Water District	50	Dr	93	12	92	..	..
22P1	R. J. Frary	45	Dn	29	2	29	..	..
23N1	A. G. Stone	50	Dr	222	6	222	220	2
24B1	Fibreboard Products Inc.	60	Dr	462	16	462	372	70
24C1	.... do	60	Dr	575	16-8	575	90 350 500	25 75 75

central Pierce County, Washington--Con.

zone(s) Character of material	Water level: Below datum	Water level: Date	Pump-Type, H. P.	Use	Remarks
Sand and gravel	Flows	..	N	D,S	Flows about 3 gpm.
Sand	Flows	..	7½	Irr	Flows about 25 gpm.
..	..	..	S, ½	D	
..	Flows	..	S, ½	D,S	
Gravel	Flows	..	J, ¾	D,S	
..	6 r	August 1952	C, 5	Irr	One of three similar wells on property.
..	Flows	Feb. 1952	..	D,Irr	
Sand	16 r	June 1946	S	Irr	Dd of 2 ft after 48 hours pumping 25 gpm.
..	11.3	8-18-54	N	N	Log.
Gravel	0 r	March 1948	S, 3	D,Irr	Log.
Sand	2	4-27-51	C, 3	Irr	Dd of 10 ft after 6 hours pumping 60 gpm.
Gravel and sand	..	..	P, ½	D,S	
..	..	..	C	Irr	
Gravel	Flows	March 1946	C, 5	Irr	Log.
. . . .do. . . .	+7 r	4- 9-46	C, 3	Irr	Flows about 40 gpm. Log.
Sand and gravel	4 r	1953	..	PS	Dd of 5.8 ft while pumping 580 gpm. Log.
Sand	..	..	C	Irr	Pumps 40 gpm.
Gravel	+4½r	9- 1-46	..	Irr	Log.
Gravel	+4.95	2-16-38	T, 75	Ind	Dd of 4.68 ft after 15 min pumping 950 gpm. Log.
ravel and boulders Gravel Sand	Flows	..	C, 30	Ind	Log.

Table 1.--Records of wells in

Well no.	Owner or tenant	Alti-tude	Type of well	Depth of well	Diam. of well	Depth of casing	Water-bearing	
							Depth to top	Thick-ness
	T. 20 N., R. 4 E.--Con.							
24F1	Standard Brands of California, Inc.	61	Dr	480	16-12	..	..	..
24F2	.... do	61	Dr	168	8	..	..	..
24F3	.... do	61	Dr	572	18	562	462	46
25C1	T. St. Clair	60	Dg	28	60	..	12	16
25G1	W. McClane	65	Dr	164	6	164	153	11
25J1	L. O. Faunce	75	Dr	129	8	129	125	4
25N1	S. Van Lierop	65	Dr	113	6	113	80	3
25P1	E. Noble	75	Dr	92	6	92	20 90	30 ?
25Q1	B. L. Nutter	60	Dr	105	6	105	95	10
26D1	C. E. Shoe	55	Dr	218	6	218	..	..
26G1	R. Nix	55	Dr	169	8	169	150	19
26R1	F. E. Sandford	60	Dr	112	6	112	110	2
27L1	Farmers Union Berry Coop.	45	Dr	285	8	..	248	37
28E1	F. J. Plattenberger	40	Dn	82	2	..	78½	3½
28H1	Brew Mfg. Co.	43	Dr	200	12	..	..	..
28H2	Hunt Bros. Packing Co.	46	Dr	140±	8	..	..	..
28H3	.... do	46	Dr	165	4	..	..	..

central Pierce County, Washington--Con.

zone(s) Character of material	Water level: Below datum	Water level: Date	Pump-Type, H. P.	Use	Remarks
..	+1.23	7- 5-38	N	N	Water-level measurements published for period 1937-40.
..	+1.39	3-10-47	N	N	Test well. Water-level measurements published for period 1939-48.
Gravel	+3.25	11-30-37	C, 30 40	Ind	Dd of 8 ft while pumping 2,400 gpm. Log and chemical analysis.
Sand	..	..	C	Irr	
Gravel and sand	1 r	8-21-40	..	Irr	Dd of 3 ft after 4 hours pumping 100 gpm.
. . . .do. . . .	7.84	9-15-54	C, 5	Irr	Reported adequate for 5 acres of berries.
Gravel	6½ r	1-28-52	C, 7½	Irr	Dd of 7 ft after 4 hours pumping 180 gpm.
Sand and gravel	8 r	4-24-53	S, ½	D	Dd 11 ft pumping 60 gpm. Log.
Sand, coarse					
. . . .do. . . .	5 r	4- 2-52	C, 3	D,Irr	Dd 11 ft pumping 4 hours at 60 gpm.
Sand	Flows	1947	C, 5	Irr	Dd of 4 ft at 120 gpm.
Gravel	Flows	10-25-51	C, 5	D,Irr	Flows 35 gpm. Dd 21 in. after 4 hours pumping 150 gpm.
. . . .do. . . .	4½ r	7-28-46	5	Irr	Dd of 12 ft after 4+ hours pumping 120 gpm. Log.
. . . .do. . . .	Flows	Feb. 1946	..	Ind	Dd of 35 ft at 300 gpm.
. . . .do. . . .	9 r	Oct. 1941	-, ½	Irr	Log.
..	Flows	1940	N	Ind	
..	+3 r	June 1940	N	N	Flows 15 to 20 gpm, reported to have pumped sand.
..	+8 r	. .do. .	P	Ind	Temp 52°F.

Table 1.--Records of wells in

Well no.	Owner or tenant	Altitude	Type of well	Depth of well	Diam. of well	Depth of casing	Water-bearing	
							Depth to top	Thickness
	T. 20 N., R. 4 E.--Con.							
28J1	City Ice Co.	45	Dr	252	6	252	247	5
28J2	Puyallup Ice Co.	45	Dr	260	6	"	"	"
29D1	F. T. Smith	30	Dn	108	2	108	"	"
29F1	A. R. Hartman	30	Dr	265	6-4	265	258	7
30K1	M. Delano	350	Dr	284	10	"	"	"
31D1	Summit Water Co.	380	Dr	311	12	"	173	9
31F1	P. S. McDermott	421	Dg	57	36	"	"	"
31G1	J. J. Lyons	350	Dr	126	6	126	119	7
31G2	J. Brown	340	Dr	93	6	93	87	6
32J1	City of Puyallup	32	Dr	164	16-12	162	"	"
34B1	A. L. Luhtala	55	Dr	42	6	42	35	7
34E1	J. Mladinich	50	Dr	43	6	43	37	6
34F1	Lutheran Welfare Society	65	Dr	264	6	264	260	4
34H1	Aves Blueberry Farm	75	Dr	105	8	105	"	"
35B1	F. R. Minckler	70	Dn	22	2	22	"	"
35D1	A. Sandberg	65	Dr	161	8	161	"	"
35E1	H. Leland	70	Dr	46	7	"	41	5
35F1	C. R. Johnson	140±	Dr	38	8	38	"	"
35J1	F. L. Kolilis	135±	Dr	96	6	96	95	1
35J2	A. H. Peterson	175	Dr	195	6	195	193	195
36A1	D. Swanson	75	Dr	100	6	100	95	5
36A2	L. L. Wade	75	Dr	86½	8	86½	70	16½

Central Pierce County, Washington--Con.

zone(s) Character of material	Water level: Below datum	Water level: Date	Pump-Type, H. P.	Use	Remarks
Sand and gravel	..	..	C, 5	Ind	Log
..	..	..	C, 5	Ind	
..	Flows	..	S, ½	D	
Gravel	0 r	3-28-46	..	Irr	
..	30 r	9-15-54	Sb,6	D,Irr	
Sand and gravel	119.83	2-28-51	N	N	Test well no. 2. Log.
..	55 r	1940	P, ½	D	
Gravel, hard-packed	..	..	Sb	D	Dd 16 ft pumping 7 gpm. Log.
Gravel	..	..	J, 1	D	Log.
. . . .do. . . .	Flows	1945	..	PS	Log and chemical analysis.
. . . .do. . . .	2	6-29-52	5	Irr	
Gravel and sand	7 r	9-11-52	S, ½	Irr	Dd 14 ft pumping 25 gpm. Log.
. . . .do. . . .	Flows	August 1947	..	Irr	Log.
..	Flows	9-15-54	C	Irr	
Sand	8 r	10- 9-52	5	Irr	Reported adequate for irrigating 10 acres.
..	5.30	9-15-54	C,11	Irr	Log.
Gravel	6 r	10-11-52	C, 5	Irr	
..	Flows	..	..	PS	
Gravel	23 r	May 1953	J, ¾	D	Dd 10 ft pumping 5 gpm. Log.
. . . .do. . . .	135	June 1953	Sb	..	Dd 20 ft pumping 5 gpm. Log.
Sand and gravel	12 r	3- 4-46	..	Irr	Log.
. . . .do. . . .	4½ r	1946	C,15	Irr	Dd of 4½ ft after 10 hours pumping 300 gpm. Log.

Table 1.--Records of wells in

Well no.	Owner or tenant	Altitude	Type of well	Depth of well	Diam. of well	Depth of casing	Water-bearing	
							Depth to top	Thickness
	T. 20 N., R. 4 E.--Con.							
36G1	E. Johnson	80	Dr	95	6	95	78	17
36H1	F. Chervenka	80	Dr	76	6	..	..	..
36H2	. . . .do. . . .	80	Dr	78	6	..	..	..
36R1	G. Holm	85	Dr	96	6	96	76	20
	T. 20 N., R. 5 E.							
3N1	O. E. McAllister	500	Dg	55	42	12	52	3
3P1	R. A. Walls	500	Dr	175(?)	..	..	..	..
7D1	Dieringer School	55	Dr	408	12	408	..	..
11N1	Mrs. F. Sorensen	560	Dg	45	42	8	..	..
14L1	R. Marshall	550	Dr	58	6	58	..	..
14R1	--Tibbatts	525	Dg	75±	72	4	..	..
17M1	J. McGee	650	Dr	..	10	..	..	..
18A1	G. L. Lane	575	Dg	..	40	..	..	..
18H1	W. D. Goodrow	650	Dg	104	78 by 36	..	..	..
19E1	R. J. Hill	60	Dr	230	3	..	..	..
26H1	V. Imhoff	580	Dg	67	..	..	..	..
26N1	R. Taylor	545	Dg	12	48	8	..	..
27L1	W. G. Johnson	560	Dg	12	48	5	..	..
27Q1	D. Peoples	610	Dr	93	6	93	..	..
27R1	E. McColley	590	Dg	39	36	4	..	..

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zone(s) Character of material	Water level: Below datum	Water level: Date	Pump-type; H. P.	Use	Remarks
Sand and gravel	7 r	5-20-46	3	Irr	Dd of 10 ft after 4 hours pumping 64 gpm. Log.
..	..	..	5	Irr	
..	4.69	1-10-38	C, 15	Irr	Water-level measurements published or available for period 1938-54. See pl. 3 for hydrograph.
Gravel	7 r	1-14-52	C, 3	Irr	Dd of 14 ft after 4 hours pumping 120 gpm.
Sand and gravel	28	Jan. 1954	J, ¾	D,S	"Hardpan" above aquifer.
..	..	..	J, ½	D,S	
..	Flows	9-23-54	C, 2½	Inst	Flows 180 gpm. Dd to 17 ft below land surface while pumping 500 gpm. Log.
Gravel	40	..	J, ½	D,S	"Hardpan" above aquifer.
. . . .do. . . .	..	..	J	D,S	Some iron stain reported.
Sand and gravel	3	Jan. 1954	P, ⅓	D,S	. . . . Do . . . .
..	352.68	3-29-51	..	..	
..	75.21	. .do. .	..	D	
..	99.55	3-29-51			
..	Flows	..	C, 75	D, Irr	Perforated from 190 to 230 ft.
"Hardpan"	..	..	N	N	
Sand	1½	Jan. 1954	S, ½	D	Some iron stain reported.
"Hardpan"(?)	0	. . do . .	S, ⅓	D,S	. . . . Do . . . .
Gravel	84	August 1943	J, 1½	D,S	"Hardpan" and clay above aquifer.
..	29	August 1953	P, ⅓	D,S	

Table 1.--Records of wells in

Well no.	Owner or tenant	Altitude	Type of well	Depth of well	Diam. of well	Depth of casing	Water-bearing	
							Depth to top	Thickness
	T. 20 N., R. 5 E. -Con.							
28N1	Bonny Lake Community	660	Dr	..	..	..	..	..
29A1	M. J. Hall	660	Dr	111	6	109	..	..
29A2	. . . .do. . . .	660	Dg	20	48	..	..	..
29Q1	O. Bowen	660	Dg	34.5	36	..	..	..
30C1	W. Brengman	75	Dr	133	6	133	125	8
30E1	L. Ryan	75	Dr	131	6	131	125	6
30N1	H. D. Foster	65	Dr	90	6	..	..	..
31C1	J. Helmold	75	Dg	52-36	..	..	..	..
31C2	V. Bengtson	75	Dr	134	6	134	..	..
31H1	D. P. Rager	85	Dr	184	6	184	181	3
31N1	G. L. Matlock	85	Dr	151	6	151	..	..
32E1	A. W. Anderson	85	Dn	119	3	..	..	..
32M1	F. Swetz	85	Dr	144	4	144	140	4
33E1	W. Rehberg	575	Dr	207	6	207	200	7
34C1	A. Kacer	610	Dr	111	6	111	..	..
34R1	H. E. Crane	610	Dr	17	60 by 36	5	..	..
34R2	E. C. Comer	630	Dr	134	6	134	132	2
34R3	K. Moulton	640	Dr	192	6	192	..	..
35J1	E. Hulett	625	Dg-Dr	107	5	107	100	7
	T. 21 N., R. 2 E.							
23G1	L. J. Wingard	133	Dr	423	6-4	..	..	..
24D1	Tacoma Smelting Co.	18	Dr	200	..	..	..	..
25B2	City of Tacoma	138	Dr	480	15	..	..	..

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zone(s) Character of material	Water level Below datum	Water level Date	Pump- Type; H. P.	Use	Remarks
..	..	..	..	PS	
..	76.10	3-29-51	..	D,S	
Till	1034	. .do. .	..	D,S	Reported to go dry in summer.
..	8.53	. .do. .	N	N	. . . . Do . . . .
Gravel	1 r	7-23-51	C, 3	Irr	Dd of 17 ft after 4 hours pumping 120 gpm.
. . . .do. . . .	5 r	..	C, 3	Irr	Dd of 18 ft after 5 hours pumping 80 fpm. Log.
Sand and gravel	5 r	2- 3-45	..	Irr	
..	8.46	1-10-38	..	..	
..	10 r	..	C, 3	Irr	Dd of 15 ft at 90 gpm.
Sand and gravel	14 r	11-12-47	..	Irr	Log.
..	8 r	2-25-46	..	..	
..	9 r	4-20-46	S, 1½	D,Irr	
Sand and gravel	11 r	8-20-46	S, 1	D,Irr	Log.
Gravel	180 r	12- 5-49	J, 2	D	Log.
. . . .do. . . .	..	..	T	D,S	
"Hardpan"	10 r	4-14-52	S, ¼	D	
Gravel	116 r	1949	J, 1½	D	Log.
. . . .do. . . .	120	4-11-53	J, 3	D	Bailed at 20 gpm.
Sand and gravel	32.24	4-14-52	J	D	
..	..	..	N	N	Insufficient water for drilling. Log.
..	..	..	T	Ind	Reported to pump about 85 gpm.
..	40.04	11-20-38	..	..	Water-level measurements published for period 1939-48

Table 1.--Records of wells in

Well no.	Owner or tenant	Altitude	Type of well	Depth of well	Diam. of well	Depth of casing	Water-bearing	
							Depth to top	Thickness
	T. 21 N., R. 3 E.							
15K2	Dash Point Coop Water Assc	380±	Dr	67	8	67	..	..
16G1	Beverly Heights Water Co.	350	Dr	40	6	38	..	..
16Q1	Hyada Park Mutual Water System	300	Dr	294	8	294	294	8
16Q2	. . . . do	300	Dr	172	8-6	172	..	..
22F1	Foss Tug Boat Co.	15	Dr	34	6	34	..	..
22L1	E. L. Carnes	15	Dr	25	6	25	22	3
22Q1	National Oyster Co.	15	Dr	75	6	75	66	9
25P1	Woodworth & Co. Inc.	120	Dr	197	8	193	183	10
26N1	City of Tacoma	13	Dr	785	18-12	778	..	..
26Q1	Buffelen Lumber & Mfg. Co.	7	Dr	450	12	450	..	..
27G1	Hooker Electrochemical Co.	10	Dr	1216	12-10	1157	..	..
27H1	Karl Seigel	10	Dr	47	6	47	..	..
29N1	General Mills Inc.	15	Dr	150	..	..	..	..
29P1	. . . .do. . . .	15	Dr	350	12- 8	..	..	..
29P2	. . . .do. . . .	15	Dr	540	12- 8	..	..	..
35B1	Buffelen Lumber & Mfg. Co.	7	Dr	856	18-12	856	..	..
36P1	Kaiser Aluminum & Chemical Corp.	15	Dr	824	18	824	..	..

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zone(s) Character of material	Water level Below datum	Water level Date	Pump- Type, H. P.	Use	Remarks
..	Flows	..	..	PS	Well 6
Sand	..	..	J, 1½	PS	Supplies several families, screened from 32 to 36 ft.
..	223 r	..	T,15	PS	Log.
..	124 r	..	T 7½	PS	
Gravel	..	..	J, ¼	Ind	
. . . .do. . . .	11 r	1950	J, ½	D	Log.
. . . .do. . . .	15 r	. .do. .	T, 5	Ind	Log.
Sand and gravel	97.67	6- 9-53	..	Ind	Dd of 11.59 ft after 3 hours pumping 110 gpm. Hardness 54ppm, chloride 6 ppm. Log
..	+2.6	6- 4-42	T,60	PS	Used as standby. Originally flowed 300 gpm. Dd 95 ft while pumping 1,040 gpm. Log and chemical analysis.
..	+5 r	1939	C,25	Ind	Dd about 25 ft while pumping 200 gpm. Chemical analysis.
..	Flows	. .do. .	T	Ind	Reported to flow 250 gpm. Brackish water reported at 550 ft. Log.
..	5.93	8-18-54	J, ¼	D	
..	+12 r	..	P	Ind	Well 1. Pumps about 70 gpm. Water level reported to fluctuate with tide.
..	+12 r	..	..	Ind	Well 2.
..	+12 r	..	..	Ind	Well 3. Reported to have flowed 140 gpm.
..	Flows	1927	T, 60	Ind	Reported to flow 350 gpm, pump 2,200 gpm. Log and chemical analysis.
..	Flows	1952	T	Ind	Well 1. Reported to pump sand. Log and chemical analysis.

Table 1.--Records of wells in

Well no.	Owner or tenant	Altitude	Type of well	Depth of well	Diam. of well	Depth of casing	Water-bearing	
							Depth to top	Thickness
	T. 21 N., R. 3 E.--Con.							
36P2	Kaiser Aluminum & Chemical Corp.	15	Dr	836	18	836	..	..
36P3	.... do	15	Dr	862	6-3	682	..	..
36P4	.... do	15	Dr	950±	12	950±	..	..
36P5	.... do	15	Dr	901	..	901	888	6

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zone(s) Character of material	Water level: Below datum	Water level: Date	Pump- Type, H. P.	Use	Remarks
..	Flows	1952	N	N	Abandoned. Log.
..	Flows	1947	..	..	Test well, destroyed. Log.
Sand	+14	10-15-52	T	Ind	Well 3, water temp 51.5°F. Log.
Gravel and sand	+14	1954	T	Ind	Flows about 300 gpm. Log.

Table 2.—Representative springs in
(Locations of springs

Spring number: Springs are listed in consecutive order by section under a sub-heading showing township and range. The part of the well number preceding the hyphen therefore is omitted (see page 6 for explanation of well and spring numbering system).

Altitude: The altitude listed is for the land surface of the spring. Altitudes have been determined by spirit leveling, barometric traverses, or interpolation from topographic maps.

Spring number	Owner or tenant of property	Name	Altitude	Water-bearing material
T. 18 N., R. 3 E.				
7N1s	C. G. Schwentz	..	370	Gravel
T. 18 N., R. 4 E.				
4M1s	City of Tacoma	Thomas Spring	435	Gravel, coarse
12B1s	V. C. McMahon	..	645	Sand
20H1s	City of Tacoma	Patterson Spring	500	Gravel

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are shown on plate 1)

Yield: e, estimated

Use of water: D, domestic; Ind, industrial; Inst, institutional; Irr, irrigation; N, none; PS, public supply; RR railroad; S, stock.

Occurrence	Yield		Use	Temperature °F	Remarks
	Gallons per minute	Date			
Drain for perched(?) ground water in outwash gravel	100e	11- 8-37	S	46	Spring in bed of drainage ditch.
Water table intersected by Muck Creek Channel	3,800±	Reported 1892	N	..	Large fluctuation owing to changes in position of water table. Discharge from spring sinks into ground within ½-mile of spring.
Intersection of water table by land surface	5e	3- 5-40	D,S	49	
.... do	500e	8- 4-37	N	44-48	

Table 2.--Representative springs in

Spring number	Owner or tenant of property	Name	Altitude	Water-bearing material
T. 18 N., R. 5 E.				
6G1s	State Soldier's Home	..	248	Sand and gravel
16D1s	Town of Orting	..	525	Gravel
T. 19 N., R. 1 E.				
1B1s	Town of Steilacoom	..	135	. . . .do. . . .
12A1s	. . . . do	Steilacoom Springs	170	. . . .do. . . .
12A2s	..	..	150	..
12G1s	U. S. Army	..	160	Gravel
12K1s	Northern Pacific Railway	Ketron Springs	150	. . . .do. . . .
12P1s	U. S. Army	..	150	. . . .do. . . .
12Q1s	. . . . do	..	145	. . . .do. . . .
13E1s	Pioneer Sand & Gravel Co.	..	185	. . . .do. . . .
22G1s	U. S. Army	Dupont Springs	5	..
T. 19 N., R. 2 E.				
2L1s	Visitation Villa	Ponce de Leon Springs (in part)	240	Gravel
2M1s	..	Ponce de Leon Springs	235	. . . .do. . . .
19Q1s	U. S. Army	Sequallitchew Springs	210	Gravel and sand
26L1	. . . . do	Kinsey Marsh	275	Sand and gravel

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Occurrence	Yield GPM	Yield Date	Use	Temp °F	Remarks
Intersection of water table by land surface	50e	1-10-38	Inst	46	
Drain for perched (?) ground water in outwash materials	..	..	PS	..	
Drain from semi-perched aquifer	100e	4-23-41	PS	..	
.... do	300	12- 6-40	PS	..	
.... do	400	..do..	N	..	
.... do	150	..do..	N	..	
.... do	350	..do..	RR	..	Chemical analysis in table 4.
.... do	50e	..do..	N	..	
.... do	100	..do..	N	..	
.... do	1,000	..do..	N	..	
Intersection of water table by land surface	7,000	12- -42	N	..	Discharge reported to be augmented by infusion of sea water during periods of high tide.
.... do	250	5-31-40	N	..	
.... do	12,000	9- -40	N	52	Numerous orifices along Ponce de Leon Creek. Discharge of 3,000 gpm measured in November 1938.
Intersection of semi-perched water table by land surface.	2,000-3,000	Reported	Inst	..	Discharge believed to be in part from American Lake. Chemical analysis in table 4.
.... do	..	..	N	..	Flow varies from none to several second feet.

Table 2.--Representative springs in

Spring number	Owner or tenant of property	Name	Altitude	Water-bearing material
T. 19 N., R. 3 E.				
6P1s	..	Crystal Springs	275	Gravel
21H1s	Marymount Academy	..	335	. . . .do. . . .
25G1s	F. Deuber	Big Hole Spring	320	..
26H1s	Clover Creek School	Montgomery Spring	333	Sand and gravel
T. 19 N., R. 4 E.				
12N1s	H. Ball	..	300	Gravel
13D1s	Geiger Ranch	..	295	. . . .do. . . .
30H1	..	Marcum Spring	355	. . . .do. . . .
T. 19 N., R. 5 E.				
27G1s	City of Orting	..	450	. . . .do. . . .
37D1s	. . . .do. . . .	..	400	. . . .do. . . .
T. 19 N., R. 6 E.				
18L1s	Town of South Prairie	..	575	. . . .do. . . .
19L1s	E. Romy	..	700	. . . .do. . . .
T. 20 N., R. 2 E.				
3M1s	T. Mathie	..	145	. . . .do. . . .
11K1s	City of Fircrest	..	216	. . . .do. . . .
11K2s	. . . .do. . . .	Regents Park Spring	212	. . . .do. . . .
14A1s	University Place Utilities Co.	..	197	Sand and gravel

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Occurrence	Yield GPM	Yield Date	Use	Temp °F	Remarks
Intersection of water table by land surface	500 to 1,000e	1- -38	N	46	Discharge varies with position of the water table.
. . . . do	200 to 500e	3-11-40	Inst	50	One of several springs
Discharge from aquifer confined beneath till (?).	200	8- -41	Irr	..	
Intersection of water table by land surface	20 to 30e	8- -41	Inst	..	
Intersection of semi-perched aquifer by land surface	200 to 300 e	1- -38	D,S Irr	47	
. . . do	200e	1- -38	D,S	47	
Intersection of water table by land surface	..	..	..	..	
Intersection of perched(?) aquifer by land surface	..	..	PS	..	
. . . . do	..	..	PS	..	
Intersection of semi-perched(?) aquifer by land surface	15e	4- -51	PS	..	Chemical analysis in table 4.
. . . . do	5e	4- -51	D,S		
. . . . do	125e	11- -38	Irr	51	One of several similar springs in immediate area.
Discharge from confined aquifer underlying till.	450	1- -38	N	..	Formerly used for public supply.
. . . do	900±	1- -38	N	..	Dammed to form small pond.
. . . . do	2,000e	1938	PS	46	

Table 2.--Representative springs in

Spring number	Owner or tenant of property	Name	Altitude	Water-bearing material
T. 20 N., R. 2 E.--Con.				
22P1s	Hewitt Land Co.	..	155	Gravel
23P1s	. . . .do. . . .	Keystone Spring	165	. . do . .
27Q1s	Wash. State Dept. of Game	Game Farm Spring	180	Sand and gravel
33E1s	Western State Hospital	Asylum Spring	150	Gravel
36E1s	G. Fuchs	Gardner Spring	230	. . do . .
T. 20 N., R. 3 E.				
8J1s	Northern Pacific Railway	..	180	Sand and gravel
9N1s	. . . .do. . . .	Delin Street Spring	155	Gravel
9P1s	. . . .do. . . .	Pacific Ave. Spring	165	. . do . .
16B1s	. . . .do. . . .	Tacoma and Eastern Spring	1.5	. . do . .
23D1s	. . . .do. . . .	Swan Creek Spring	185	. . do . .
24B1s	A. Norwood	..	130±	. . do . .
25A1s	..	Canyon Road Springs	153	. . do . .
T. 20 N., R. 4 E.				
30L1s	..	..	230	Sand and gravel
32J1s	City of Tacoma	Maplewood Spring	70	..
34Q1s	Puyallup	..	380	..
35J1s	..	..	123	..

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Occurrence	Yield GPM	Yield Date	Use	Temp °F	Remarks
Intersection of semi-perched(?) aquifer by land surface	400e	10- -38	D	..	
.... do	3,500	6- -39	Irr	..	
Intersection of semi-perched aquifer by land surface	3,150	Avg. 1938-1940	..	46	Used for fish hatchery.
..... do	1,000	Reported	PS	53½	One of several similar springs located in valley. Total discharge of all springs was 3,350 gpm 9-3-38. Chemical analysis in table 4.
..... do	50e	6- -39	S	..	Maximum yield reported to exceed 1,000 gpm.
Intersection of water table by infiltration gallery.	600e	11- -38	RR	49	
Intersection of semi-perched(?) aquifer by land surface	1,500±	8- -49	N	50	Formerly used as public supply.
..... do	150e	6- -39	N	49	
..... do	2,100±	6- -39	Ind	..	
..... do	1,200e	8- -39	PS, Ind	48	
..... do	250e	12- -37	D	46	
..... do	550e	8- -39	N	50	Discharge from numerous orifices along ravine.
..... do	75e	4- -41	D	..	
Intersection of water table by land surface	12,700	Avg. 1937-1940	PS	46	Auxiliary supply for city of Puyallup. Chemical analysis in table 4.
Intersection of perched water table by land surface	..	..	PS	..	Overflow estimated to be 400 gpm, April 1941.
..... do	50e	4- -41	N	..	

Table 2.--Representative springs in

Spring number	Owner or tenant of property	Name	Altitude	Water-bearing material
T. 20 N., R. 5 E.				
18L1s	Puyallup	Salmon Springs (part)	230	Sand and gravel
18Q1s	Sumner	. . . do . . .	230	. . . .do. . . .
25G1s	H. Whitehouse	..	500±	..
T. 21 N., R. 2 E.				
23H1s	Tacoma Smelting Co.	Bokien Spring	145	Sand and gravel
25B1s	City of Tacoma	Mason Gulch Spring	122	Sand
27J1s	..	..	..	. . . .do. . . .
27J2s	..	..	..	. . . .do. . . .
27R1s	..	..	..	. . . .do. . . .
30M1s	..	..	70	Sand and gravel
34B1s	..	..	175	Sand
34B2s	..	..	175	. . . .do. . . .
34E1s	Northern Pacific Railway	..	29	. . . .do(?) . .
34F1s	..	..	175	Sand and gravel

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Occurrence	Yield GPM	Yield Date	Use	Temp °F	Remarks
Intersection of semi-perched water table by land surface	3,000	Reported	PS	..	Average use between 2 and 3 million gallons a day.
.... do	1,800	1940	PS	..	Average use about 500,000 gallons a day. Flow increased by four infiltration tunnels. Chemical analysis in table 4.
Intersection of water table by land surface	700±	4- -52	N	..	
Intersection of semi-perched water table by land surface	35	Reported	Ind	..	
.... do	1,400	Reported	N	49.5	Former Tacoma water supply.
.... do	40e	..	N	..	
.... do	125e	..	N	..	
.... do	50e	..	N	..	
.... do	1,000	Reported	N	50	
Intersection of perched water table by land surface	75e	..	N	..	
.... do	75e	..	N	..	
..	400	11- -38	N	48.8	Flow from tunnel, constructed to drain slide area.
Intersection of perched water table by land surface	560	11- -38	N	48.4	

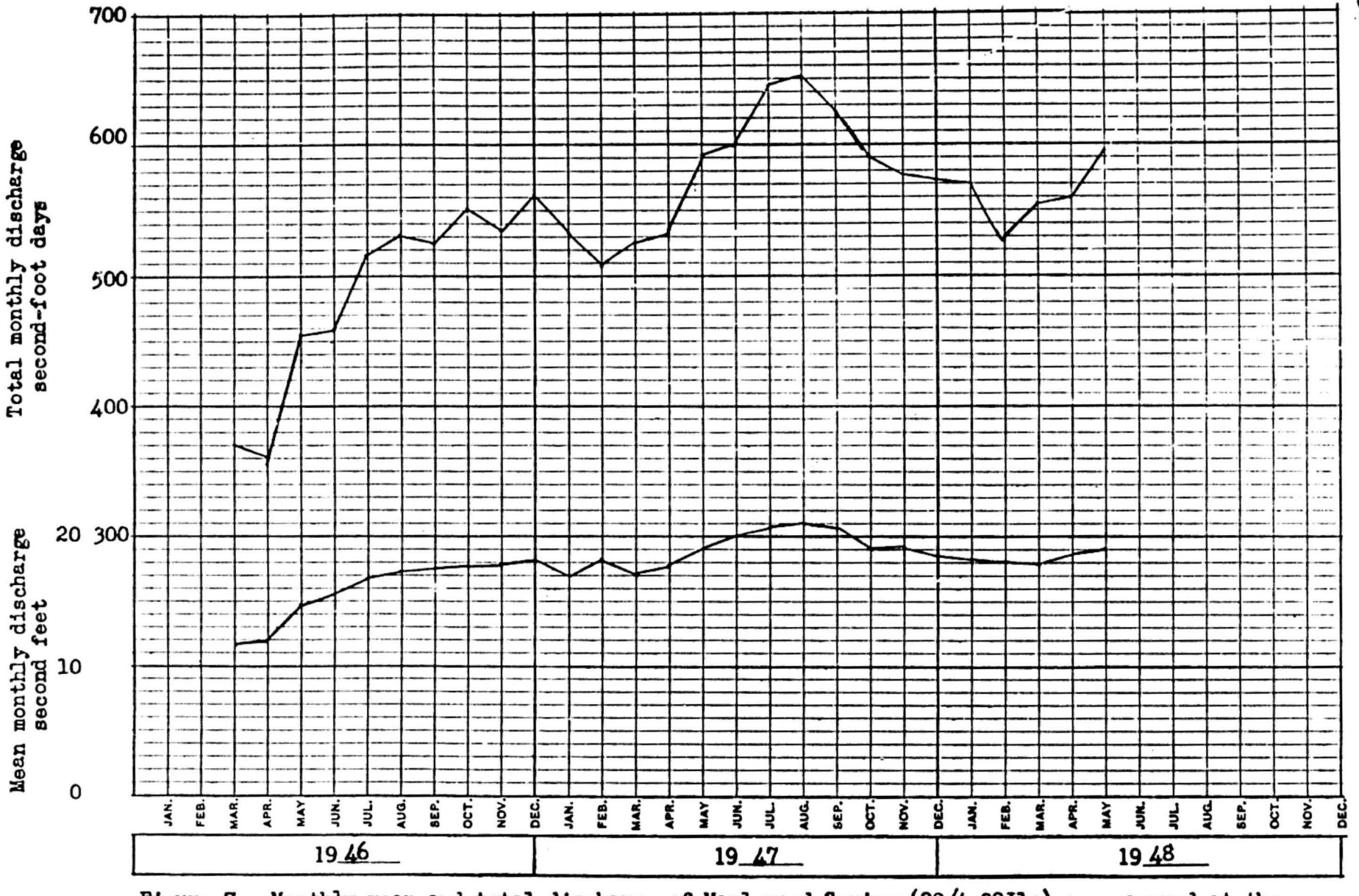

Figure 7.--Monthly mean and total discharge of Maplewood Spring (20/4-32J1s) as measured at the Clark Creek gaging station at Puyallup. (Measurements by the Surface Water Branch).

Table 3.--Logs of representative wells

16/3-6E1. G. R. Brooks. Altitude about 475 feet. Drilled by P. Sylte, 1950.

Materials	Thickness (feet)	Depth (feet)
Old well, no record.	20	20
Sand, coarse.	40	60
Clay and boulders	70	130
Sand.	5	135

Casing, 6-inch, set to 135 feet.

16/3-7F1. T. Wilcox, Altitude about 355 feet. Memory log from owner.

Sand.	10	10
Clay.	15	25
Gravel.	12	37

Casing, 6-inch, set to 37 feet.

16/4-4J1. S. Cooper. Altitude about 750 feet. Drilled by Tacoma Pump and Well Drilling Co., 1952.

Old well, no record.	25	25
Boulders.	5	30
Clay, blue, and rock.	9	39
"Hardpan".	4	43
Gravel, some water.	1	44
Clay and gravel.	7	51
Clay, blue.	9	60
Clay, green, sandy.	8	68
Sand, gravel, and clay, some water	7	75
Clay, blue.	10	85
Sand, water-bearing.	5	90
Sand, gravel, silt, and wood, some water.	30	120
Clay, sandy, blue, water-bearing	12	132

Casing, 8-inch, set to 118 feet.

16/4-7R2. C. C. Josselyn. Altitude about 680 feet.

Gravel, clay, and "hardpan" . .	14	14
Ash.	15	29
Gravel, pumice stone.	4	33
Gravel, clean.	1	34
Shale.	--	--

Casing, 6-inch, set to 34 feet.

Table 3.--Logs of representative wells.--Con.

16/4-11Q1. G. Neistadt. Altitude about 800 feet. Drilled by Service Hardware Co., 1952.

Materials	Thickness (feet)	Depth (feet)
Soil and gravel.	10	10
Sand, gravel, and large rocks. .	11	21
Till.	4	25
Boulders, gravel, and clay . . .	16	41
Boulders and clay.	18	59
No record.	18	77

Casing, 6-inch, set to 77 feet.

17/2-1N2. L. W. Wood. Altitude about 400 feet. Drilled, 1954.

"Hardpan" and boulders.	31	31
Gravel, cemented.	4	35
"Hardpan".	19	54
Gravel, cemented	8	62
"Hardpan".	34	96
Gravel, cemented.	9	105
Gravel and boulders	8	113

Casing, 6-inch, set to 113 feet.

17/2-3D2. M. H. Booth. Altitude about 330 feet. Drilled by Tacoma Pump and Well Drilling Co., 1950.

Sand, coarser towards bottom. .	12	12
Gravel, fine.	2	14
Sand, brown.	5	19
Gravel (struck water at 20 feet)	5	24
Gravel and sand.	16	40

Casing, 6-inch, set to 40 feet.

17/3-1E1. C. Hardkenson. Altitude about 525 feet. Dug by owner.

Gravel.	10	10
Till.	12	22
Sand, gray.	2	24

Casing, set to 10 feet.

Table 3.--Logs of representative wells--Con.

17/3-5E1. J. Gruenfelder. Altitude about 415 feet. Drilled by Peterson Bros. Drilling Co., 1947.

Materials	Thickness (feet)	Depth (feet)
Soil, sandy.	12	12
Gravel, clayey	11	23
Gravel, water-bearing.	2	25
Clay and rock.	40	65
Gravel, water-bearing.	5	70

Casing, 6-inch, set to 70 feet, open bottom.

17/3-10A1. F. Braten. Altitude about 625 feet. Drilled by Tacoma Pump and Well Drilling Co., 1951. Memory log from owner.

Soil.	4	4
Till.	81	85
Gravel	2	87

Casing, 6-inch, set to 87 feet.

17/3-17G1. A. W. Peterson. Altitude about 460 feet. Memory log from owner.

Soil, clay, and rock.	10	10
"Hardpan".	10	20
Gravel and clay.	10	30
Clay.	10	40
Clay, red, and pieces of wood. . .	10	50
"Hardpan"	10	60
Gravel.	15	75

Casing, 42-inch.

17/3-19B1. F. Schafer. Altitude about 460 feet. Dug by owner.

Soil.	4	4
Till.	27	31
Boulders 6" to 18" in diameter). .	6	37
Gravel and sand.	3	40

Casing, 40-inch, set to 3 feet (surface curbing)

17/3-20A1. C. O. Robinson. Altitude about 480 feet. Drilled by P. Sylte, 1951.

Soil.	4	4
Clay, blue, and boulders.	38	42
Gravel, cemented.	24	66
Gravel, fine, some sand	1	67

Casing, 6-inch, set to 67 feet, open bottom.

Table 3.--Logs of representative wells--Con.

17/3-20H1. I. M. Larson. Altitude about 500 feet. Drilled by Harbor Drilling Co., 1952.

Materials	Thickness (feet)	Depth (feet)
Soil and subsoil.	4	4
Till, soft.	16	20
Till, and gravel.	5	25
Clay, blue.	5	30
Till, and hard gravel	32	62
Gravel, loose, water-bearing. . . .	5	67
Gravel, compacted, water-bearing. .	13	80
Till, hard.	10	90
Gravel, compacted, water-bearing. .	2	92

Casing, 8-inch, set to 92 feet; perforated from 75 to 80 feet.

17/3-22K2. J. Gasaway. Altitude about 530 feet. Drilled by Service Hardware Co., 1952.

"Hardpan" and boulders.	35	35
Gravel, hardpacked, and boulders. .	15	50
Gravel.	2	52

Casing, 6-inch, set to 52 feet.

17/4-4Q1. H. Anderson. Altitude about 650 feet. Drilled by Service Hardware Co., 1953.

Silt and brown gravel.	9	9
Boulders, blue clay, and gravel . .	11	20
Boulders and gravel.	5	25
Gravel, cemented.	10	35
"Hardpan" and boulders.	27	62
No record.	14	76
Clay, gray, and gravel.	3	79
Gravel, water-bearing.	2	81
Clay, brown, and gravel, cemented .	10	91
Clay, yellow.	2	93
Gravel, water-bearing	3	96
Gravel and boulders, water-bearing.	1	97

Casing, 6-inch, set to 97 feet.

17/4-19E1. Weyerhauser School. Altitude about 570 feet. Drilled by Tacoma Pump and Well Drilling Co., 1952.

Dug well, no record.	45	45
"Hardpan".	2	47
Gravel and clay, hardpacked, some water	3	50
Gravel, loose, water-bearing . . .	2	52

Casing, 6-inch, set to 52 feet.

Table 3.--Logs of representative wells.--Con.

17/4-23F1. H. Rietzel. Altitude about 615 feet. Drilled by Tacoma Pump and Well Drilling Co.

Materials	Thickness (feet)	Depth (feet)
Sand.	2	2
"Hardpan".	28	30
Gravel.	2	32

Casing, 6-inch, set to 32 feet.

17/4-23F2. E. V. Wold. Altitude about 635 feet. Drilled by Tacoma Pump and Well Drilling Co.

Soil.	3	3
"Hardpan"	24	27
Gravel, hardpacked.	4	31
"Hardpan".	19	50
Gravel, hardpacked	5	55

Casing, 6-inch, set to 55 feet.

17/5-7J1. St. Paul and Tacoma Lumber Co. Altitude about 750 feet. Drilled by L. R. Gaudio, 1948.

Sand and gravel.	20	20
Gravel, cemented.	42	62
Sand and gravel	10	72

Casing, 8-inch, set to 72 feet.

18/2-35Q1. G. Lenz. Altitude about 390 feet. Drilled by Tacoma Pump and Well Drilling Co., 1952.

Old well, no record.	42	42
"Hardpan".	17	59
Gravel, hardpacked, some water	4	63
"Hardpan"	18	81
Sand, fine, and clay, water-bearing, high iron content	52	133
"Hardpan".	3	136
Gravel, hardpacked, water-bearing . . .	11	147
Gravel, clean, water-bearing.	2	149

Casing, 6-inch, set to 149 feet.

18/3-3N1. Mrs. Healy. Altitude about 390 feet. Drilled by Service Hardware Co., 1949.

No record.	10	10
"Hardpan", small amount of water at 38 feet	28	38
Gravel, hard, cemented.	26	64
Sand and gravel, water-bearing. . . .	2	66

Casing, 6-inch, set to 66 feet.

Table 3.--Logs of representative wells--Con.

18/3-4R1. D. Parker. Altitude about 385 feet. Drilled by Tacoma Pump and Well Drilling Co., 1952.

Materials	Thickness (feet)	Depth (feet)
Dug, no record.	12	12
"Hardpan".	6	18
Gravel, coarse, water-bearing	7	25
"Hardpan".	12	37
Gravel, hardpacked, some water. . . .	14	51
Gravel, coarse, some clay and water .	6	57
Sand, fine, and gravel, water-bearing	5	62
Gravel, hardpacked, some water. . . .	14	76
Gravel, loose, coarse, water-bearing.	4	80

Casing, 8-inch, set to 80 feet; perforated from 18 to 25 feet.

18/3-11N2. Elk Plain School. Altitude about 430 feet. Drilled by Tacoma Pump and Well Drilling Co., 1953.

Gravel, dry.	24	24
"Hardpan" with large gravel and some boulders.	18	42
Sand, dry, hardpacked, with large gravel	10	52
Gravel, and 2 feet of clay.	4	56
Gravel, large, small amount of sand.	4	60
Clay and gravel, hardpacked.	1	61

Casing, 8-inch, set to 56 feet; .125 slot screen from 56 to 60 feet.

18/3-12N1. Bethel School. Altitude about 430 feet. Drilled by Service Hardware Co., 1952.

Gravel and soil.	30	30
Clay, brown.	2	32
Gravel, hardpacked	13	45
Gravel, firm, water-bearing.	5	50
Gravel, loose, water-bearing	8	58
Clay and gravel.	3	61
Gravel, loose, water-bearing. . . .	3	64
"Hardpan".	7	71
Gravel, and large rocks, water-bearing	2	73
Sand, hardpacked.	7	80
Gravel and clay.	50	130
Gravel and clay, hardpacked.	4	134
Gravel and clay.	16	150
Gravel, firm, water-bearing, streaks of clay.	20	170
Gravel and sand, loose, water-bearing (fine streaks of clay).	20	190
Gravel, hardpacked, with varying amounts of clay.	57	247

(continued next page)

Table 3.--Logs of representative wells.--Con.

18/3-12N1. (Continued)

Materials	Thickness (feet)	Depth (feet)
Rock.	8	255
Clay with gravel.	19	274
Clay with gravel, occasional layer of water-bearing sand	125½	399½
Gravel, loose, water-bearing. . .	4½	404
Gravel, hard, and clay.	6	410

Casing, 10-inch outer casing, set from 0 to 247, 6-inch, from 0 to 397, and 5-inch from 392 to 410 feet; perforated from 399½ to 402½ feet.

18/3-12Q2. L. E. Balmer. Altitude about 430 feet. Drilled by Ralph Charlton, 1953.

Gravel.	40	40
Gravel and water.	30	70
Clay and sand.	18	88
"Hardpan".	4	92
Clay and rock.	8	100
Clay, with water	13	113
Sand, gravel, and water	22	135
Gravel, soft clay, and water. . .	10	145

Casing, 10-inch, set to 145 feet; perforated from 40 to 145 feet.

18/3-14A1. H. E. Stargel. Altitude about 425 feet. Drilled by Service Hardware Co., 1953.

Soil.	2	2
"Hardpan".	4	6
"Hardpan" and boulders.	18	24
Gravel, cemented.	30	54
Gravel, water-bearing	3	57

Casing, 6-inch.

18/4-4H2. N. Ianello. Altitude about 565 feet. Drilled by Service Hardware Co., 1951.

Soil and gravel.	18	18
"Hardpan" and boulders	70	88
Gravel.	4	92
"Hardpan"	3	95
Clay.	16	111
Gravel, cemented, streaks of sand and gravel with some water.	15	126

Casing, 6-inch.

Table 3.--Logs of representative wells--Con.

18/4-5B2. --Connant. Altitude about 475 feet. Drilled by Service Hardware Co., 1952.

Materials	Thickness (feet)	Depth (feet)
Existing well, no record.	79	79
Gravel, coarse.	11	90
"Hardpan".	10	100
Gravel, water-bearing.	2	102

Casing, 6-inch, set to 102 feet.

18/4-5L1. P. Williamson. Altitude about 435 feet. Drilled by Service Hardware Co.

Soil and large rock.	25	25
Rock and boulders.	15	40
"Hardpan".	5	45
Gravel, water-bearing	5	50
Gravel, loose, water-bearing. . . .	8	58

Casing, 7-inch, set to 50 feet.

18/4-15E2. --Adams. Altitude about 635 feet. Drilled by Service Hardware Co., 1950.

Soil and fill.	10	10
"Hardpan", medium to hard.	30	40
Gravel, cemented.	7	47
Boulders and loose gravel	23	70
Gravel, coarse, water-bearing	36	106

Casing, 6-inch, set to 106 feet.

18/4-15N2. H. M. Brown. Altitude about 750 feet. Drilled by Service Hardware Co., 1952.

Till and rocks.	18	18
Till, very hard	25	43
Clay, brown.	4	47
Gravel, hard, water-bearing	8	55
Gravel, cemented, some water.	4	59
Clay and gravel.	36	95
Sand and gravel.	6	101

Casing, 6-inch, set to 101 feet.

18/4-15P1. R. F. Hampton. Altitude about 790 feet. Drilled by Service Hardware Co.

No record.	43	43
Sand.	12	55
Sand and large rocks.	7	62
Gravel, cemented.	2	64

(continued next page)

Table 3.--Logs of representative wells--Con.

18/4-15P1.--(Continued)

Materials	Thickness (feet)	Depth (feet)
Clay and gravel, hard.	20	84
Gravel, hardpacked.	6	90
Clay, brown, sandy, to hardpacked gravel	16	106
Sand, brown.	18	124
Gravel, hardpacked.	54	178
Sand, dirty, some gravel	11	189
Sand, coarse, heaving.	7	196
Clay, sandy, brown, water-bearing. .	16	212
"Rock", hardpacked.	4	216
Sand and gravel, water-bearing . . .	--	---

Casing, 6-inch, set to 216 feet.

18/4-16E1. W. L. Funk. Altitude about 515 feet. Drilled by Service Hardware Co., 1952.

Soil.	2	2
"Hardpan" with large boulders. . . .	36	38
Clay and rocky "hardpan".	22	60
Sand, hardpacked, with clay and large rock.	16	76
Boulder or boulders	3	79
Gravel, hard, water-bearing.	11	90
Gravel and large rock.	8	98

Casing, 6-inch, set to 98 feet.

18/4-23C1. H. Reed. Altitude about 745 feet. Drilled by Service Hardware Co., 1953.

Old well, no record.	22	22
Gravel and clay, hard.	35	57
Sand, brown, hard.	1	58
Gravel, cemented.	22	80
Gravel.	1	81

Casing, 6-inch, set to 81 feet.

18/4-30A2. E. M. Chase. Altitude about 480 feet. Drilled by Service Hardware Co., 1952.

Gravel, cemented, hard.	45	45
Sand and gravel, hardpacked, a little water.	13	58
Gravel, hardpacked.	9	67
Clay, brown, hard, with large rocks.	3	70
Gravel, coarse, water-bearing . . .	7	77

Casing, 8-inch, set to 77 feet.

Table 3.--Logs of representative wells.--Con.

18/4-32J1. F. W. Hardman. Altitude about 630 feet. Drilled by Service Hardware Co., 1951.

Materials	Thickness (feet)	Depth (feet)
Clay and clay loam.	25	25
Sand, trace of water.	1	26
Clay with rocks.	64	90
Sand, some water.	5	95
Clay and rocks, packed.	30	125
Clay, rocky, water between harder layers.	27	152
Clay, rocky.	18	170

Casing, 8-inch, set to 170 feet.

18/4-32N1. F. D. Bolen. Altitude about 750 feet. Dug by owner.

Sand and loam.	12	12
Till.	20	32
Gravel.	5	37
Sand.	5	42
Till.	10	52
Gravel.	2	54

Casing, 42-inch, set to 54 feet.

18/4-34B1. W. Turner. Altitude about 675 feet. Drilled by Service Hardware Co.

Soil and "hardpan".	60	60
Gravel and large rock	72	132
Clay, brown.	4	136
Boulders.	6	142

Casing, 6-inch, set to 138 feet.

18/4-34D1. E. A. Lavenborg. Altitude about 675 feet. Drilled by Tacoma Pump and Well Drilling Co., 1952.

Soil and clay.	8	8
Clay, brown, and gravel	6	14
Clay, blue, sand and gravel, some water.	14	28
"Hardpan", blue, rocky.	28	56
Sand and clay, some gravel and water	14	70
"Hardpan", blue, and rock. . . .	6	76
Clay and sand.	9	85
"Hardpan", rocky.	20	105
Sand, gravel, and clay, some water	12	117
Gravel, hardpacked, and water . .	6	123
Gravel, loose, water-bearing. . .	2	125

Casing, 6-inch, set to 125 feet, open bottom.

Table 3.--Logs of representative wells.--Con.

18/4-34J1. W. Schenck. Altitude about 705 feet. Drilled by Tacoma Pump and Well Drilling Co., 1947.

Materials	Thickness (feet)	Depth (feet)
Soil and "hardpan", water at 18 feet in gravel	18	18
"Hardpan", water at 29 feet	11	29
"Hardpan", blue	7	36
Gravel and some water	4	40
Gravel, hardpacked, small streams of water	8	48
"Hardpan"	9	57
Gravel and water	3	60
"Hardpan"	10	70
Gravel, hardpacked, and sand, water-bearing	20	90

Casing, 6-inch, set to 90 feet.

18/5-6F1. Wm. Davidson. Altitude about 340 feet. Drilled by Service Hardware Co., 1952.

Soil and sand	38	38
Clay, brown sand, and rocks	11	49
Clay, blue, hard, with boulders at 49 feet	3	52
Clay, light brown, and rocks	15	67
Sand, brown	3	70
Clay, brown, sand, and rocks	11	81
Volcanic rock(?)	12	93

Casing, 6-inch.

18/5-19C1. R. Miller. Altitude about 745 feet. Drilled by Tacoma Pump and Well Drilling Co., 1952.

Soil	5	5
Clay, sand, gravel and rock	10	15
"Hardpan"	31	46
Gravel and clay, some water	9	55
Gravel, loose, and water	2	57

Casing, 6-inch, set to 57 feet.

18/5-32R1. W. A. Anderson. Altitude about 580 feet. Drilled by Service Hardware Co., 1953.

Soil	2	2
"Hardpan"	32	34
Clay and boulders, a little water at 40 ft	9	43
Boulders and hardpacked gravel	6	49
"Hardpan"	2	51
Gravel, packed	5	56

Casing, 6-inch.

Table 3.--Logs of representative wells.--Con.

18/5-32R2.--William H. Franks. Altitude about 580 feet. Drilled by Service Hardware Co., 1953.

Materials	Thickness (feet)	Depth (feet)
Soil	2	2
Clay and gravel	19	21
Clay, gravel, and boulders	14	35
Clay and boulders	7	42
"Hardpan" and boulders	6	48
"Hardpan" and boulders, water at 55 feet	7	55

Casing, 6-inch.

19/1-13H1. U. S. Army. Altitude about 236 feet. Drilled by R. J. Strasser Drilling Co., 1940.

Gravel, clayey matrix, gray	68	68
Gravel, loose, water-bearing	2	70
Gravel, cemented, clayey matrix	11	81
Silt, chocolate brown (lignitic)	15	96
Sand, fine, small amount of water	2	98
Silt, slightly sandy, brownish-gray	47	145
Gravel and sand	3	148
Clay, slightly sandy, brownish-gray	22	170
Clay, sandy, lead blue, some gravel	44	214
Gravel, cemented, blue binder	18	232
Sand, cemented	17	249
Gravel, fine, clay binder	51	300
Sand, hard	4	304
Sand, soft, with gray much	10	314
Sand, soft, some gravel	16	330
Sand, hard	20	350

Casing, 8-inch.

19/1-22K1. U. S. Army. Altitude about 168 feet. Drilled in 1943.

Sand, fine, and gravel	6	6
Not reported	7	13
Sand, coarse, and gravel	2	15
Gravel, coarse, and sand	13	28
Clay, muddy, and gravel	2	30
Gravel, coarse	11	41
Sand and gravel, tight	4½	45½
Gravel, fine	3½	49
Gravel, coarse, and sand	10	59
Gravel, sand, and mud	2	61
Gravel and sand	6	67
Gravel, sand, and mud, tight at 70 feet	4	71
Gravel and sand	23	94
Gravel, sand, and mud	2	96

(continued next page)

Table 3.--Logs of representative wells.--Con.

19/1-22K1.--(Continued)

Materials	Thickness (feet)	Depth (feet)
Gravel	18	114
Sand, fine, some water	2	116
Gravel and sand	1	117
Gravel and coarse sand	9	126
Sand, fine	2	128
Boulders	2	130
Gravel, coarse, and sand	5	135
"Hardpan"	½	135½
Gravel and coarse sand	5	140½
Clay, lead colored, and fine gravel	11½	152
Clay	3	155
Clay and coarse gravel	5	160
Clay and fine gravel	5	165
Sand and gravel	4	169
Sand and fine gravel	16	185

Casing, 8-inch, set to 185 feet.

19/1-22K2. U. S. Army. Altitude about 197 feet. Drilled in 1943.

Gravel, fine, and sand	20	20
Gravel, fine, and yellow clay	8	28
Gravel, coarse, yellow	17	45
Gravel, loose	9	54
Gravel, tight, and yellow clay	4	58
Sand, fine, and gravel	5	63
Gravel, coarse	5	68
Clay, yellow	6	74
Pebbles, sand, and clay	5	79
Clay, lead color	31	110
Gravel, coarse	10	120
Clay, and gravel	11	131
Gravel, loose	11	142
"Hardpan"	13	155
Gravel, sand, and mud	15	170
Gravel, coarse, tight	8	178
Gravel, fine, loose	3	181
Gravel, fine, and clay, no water	27	208
Sand, gravel, and clay	10	218
Gravel, loose, water-bearing	2	220
No record	22	242

Casing, 8-inch, set to 210 feet.

Table 3.--Logs of representative wells.--Con.

19/1-27B1. E. I. DuPont de Nemours. Altitude about 217 feet. Drilled by R. J. Strasser Drilling Co., 1944.

Materials	Thickness (feet)	Depth (feet)
Gravel, loose	112	112
Peat	14	126
Clay, yellow, sandy	19	145
Clay and gravel "conglomerate"	31	176
Gravel, cemented	56	232
Sand and gravel, loose	5	237
Sand and gravel, cemented	8	245
Sand and gravel	25	270
Sand	12	282
Sand and gravel	13	295
Sand	2	297

Casing, 24-inch, set to 297 feet; perforated from 220 to 250 feet, and from 258 to 280 feet.

19/1-27C1. E. I. DuPont de Nemours. Altitude about 220 feet. Drilled by N. C. Jannsen Drilling Co., 1945.

Sand and gravel	149	149
Conglomerate, clay, and gravel	37	186
Clay, yellow, sandy	29	205
Peat	14	219
Gravel, loose	112	331

Casing, 24-inch, set to 331 feet; perforated from 220 to 280 feet.

19/1-34G1. Fort Lewis Golf Course. Altitude about 200 feet. Drilled by Richardson Well Drilling Co., 1950.

Dirt and sand	9	9
Clay, yellow, sand and gravel	3	12
"Hardpan"	6	18
Sand and gravel, water-bearing	18	36

Casing, 18-inch, set to 36 feet.

19/1-35A1. Town of Dupont. Altitude about 250 feet. Drilled in 1925.

Gravel, dry	45	45
Gravel, cemented	35	80
Sand, coarse	30	110
Sand and gravel, water-bearing	18	128
"Hardpan", sandy	45	173
Sand and gravel, loose, dry	55	228
Clay and gravel	10	238
Sand, hardpacked	75	313
Sand and clay	16	329
Sand, blue	20	349

Casing, 12-inch, set to 128 feet.

Table 3.--Logs of representative wells.--Con.

19/2-1A1. J. H. Hanson. Altitude about 300 feet. Drilled by Richardson Well Drilling Co., 1950.

Materials	Thickness (feet)	Depth (feet)
Sand and gravel	21	21
Gravel and clay	4	25
"Hardpan"	26	51
Sand and gravel, with streaks of clay, some water	13	64
Sand and gravel	1	65

Casing, 8-inch, set to 65 feet.

19/2-1A2. William Crab. Altitude about 300 feet. Drilled by Richardson Well Drilling Co., 1951.

Sand and gravel	25	25
Gravel and clay	19	44
Sand with streaks of clay	15	59
Sand, coarse, and gravel	1	60

Casing, 6-inch, set to 60 feet.

19/2-1J1. M. T. Richmond. Altitude about 290 feet. Drilled by Richardson Well Drilling Co., 1951.

Gravel, large, and clay	7	7
"Hardpan"	24	31
Clay and gravel	3	34
Sand and gravel, coarse	3	37
Clay, yellow, and gravel	9	46
Sand, coarse, and gravel, loose	7	53
Clay, yellow, and gravel, water shut off at 55 feet	14	67
"Hardpan"	10	77
Sand, coarse, and gravel, showing clay	4	81
Sand, fine	2	83
Sand, coarse, and gravel	4	87

Casing, 8-inch, set to 87 feet; perforated from 53 to 69 feet.

19/2-1K1. Lakewood Water District, Test hole 2. Altitude about 280 feet. Drilled by Richardson Well Drilling Co., 1949.

Soil	2	2
Gravel, cemented	15	17
"Hardpan"	24	41
Gravel and sand, coarse	15	56
Gravel, coarse, loose, some clay	6	62
Gravel, loose, some coarse sand	5	67
Sand and gravel	5	72

(continued next page)

Table 3.--Logs of representative wells.--Con.

19/2-1K1.--(Continued)

Materials	Thickness (feet)	Depth (feet)
"Hardpan"	3	75
Gravel, loose, some coarse sand	5	80
Sand	8	88
Sand, fine, and clay	3	91
Sand and gravel	2	93
Sand, fine	28	121
Clay, blue, sandy, chunks of wood	16	137
Clay, blue	11	148
Sand, coarse	2	150
Sand and gravel	3	153
Gravel and sand, coarse, water-bearing	20	173
Sand and gravel, small streaks of clay, last 2 feet finer	4	177

19/2-1K2. Lakewood Water District, Well "G". Altitude about 280 feet. Drilled by L. R. Gaudio, 1950.

Soil	2	2
Sand and gravel, cemented, streaks of clay	42	44
Gravel, coarse, and sand	12	56
Gravel, coarse, some clay	6	62
Sand and gravel	10	72
"Hardpan"	3	75
Sand and gravel	5	80
Sand	8	88
Sand, fine, and clay	3	91
Sand and gravel	2	93
Sand, fine	28	121
Clay, blue	27	148
Sand, fine, and gravel	5	153
Gravel, coarse, and sand	20	173

Casing, 30-inch outer casing, set from 0 to 150 feet, 24-inch casing, set from 0 to 150 feet; 24-inch .150 slot screen, set from 148 to 173 feet.

19/2-2J1. Lakewood Water District, Test well 1. Altitude about 260 feet. Drilled by Richardson Well Drilling Co., 1949.

Gravel, coarse	5	5
"Hardpan"	18	23
Gravel, loose, water-bearing	8	31
"Hardpan"	16	47
Gravel, loose, water-bearing	9	56
Sand, gray, and gravel	7	63
Gravel, coarse	5	68

(continued next page)

Table 3.--Logs of representative wells.—Con.

19/2-2J1.--(Continued)

Materials	Thickness (feet)	Depth (feet)
Gravel, cemented.	2	70
Gravel, large, small streaks of coarse sand.	10	80
Gravel, medium and sand	5	85
Gravel, coarse.	3	88
Gravel, coarse, streaks of sand and clay	5	93
Gravel, coarse.	3	96
"Hardpan", blue.	2	98
Gravel, coarse, loose, water-bearing.	17	115
Gravel and clay.	2	117
Clay.	4	121
Gravel and clay streaks	5	126
Clay, blue, sandy.	39	165
Clay and gravel.	15	180
Sand and pebbles, water-bearing . . .	5	185
Gravel, and clay, "hardpan".	16	201
Sand, fine.	2	203
"Hardpan".	29	232
Sand, fine.	1	233
"Hardpan".	9	242
Clay, blue, with streaks of sand and gravel	11	253
Clay, gray, pebbles and sand.	12	265
Clay and gravel.	4	269
Sand and gravel.	4	273
Clay, blue.	5	278
"Hardpan"	20	298
Sand, fine.	5	303
Sand, coarse, and pea gravel.	5	308
Sand, coarse.	7	315
Sand and pea gravel.	5	320
Sand and gravel.	4	324
Clay, green.	10	334

19/2-2N1. Lakewood Water District, Well "B". Altitude about 260 feet. Drilled by R.J.Strasser Drilling Co., 1942.

Sand and gravel.	16	16
Gravel, cemented	9	25
Gravel, water-bearing.	1	26
Gravel, cemented	21	47
Clay, sandy.	6	53
Clay, hard, and gravel	8	61
Clay, sandy.	10	71
Sand, fine, water-bearing.	18	89
Sand and gravel, cemented.	9	98

(continued next page)

Table 3.--Logs of representative wells.--Con.

19/2-2N1.--(Continued)

Materials	Thickness (feet)	Depth (feet)
Sand, tight	31	129
Sand, loose, water-bearing	3	132
Gravel, cemented	17	149
Gravel and clay	8	157
Clay, blue	46	203
Gravel, cemented	21	224
Sand, coarse, and gravel, water-bearing	12	236
Gravel, cemented	21	257

Casing, 18-inch outer casing, set to 60 feet, 12-inch casing set from 0 to 256½ feet; perforated from 75 to 90 feet, 125 to 135 feet, 142 to 154 feet, and 219 to 233 feet.

19/2-2P1. Clover Park School. Altitude about 260 feet. Drilled by R. Gilstrap, 1928.

Sand and gravel, water-bearing below 18 feet	28	28
"Hardpan"	5	33
Sand and gravel, loose	7	40
Sand and gravel, tight	25	65
Sand, loose, water-bearing	15	80
"Hardpan"	10	90
Sand and gravel, water-bearing	3½	93½

Casing, 6-inch.

19/2-4A1. E. Buckley. Altitude about 230 feet. Drilled by Service Hardware Co., 1953.

Soil and boulders	2	2
"Hardpan" and boulders	18	20
Gravel, cemented	15	35
Gravel, cemented, some water	11	46
Gravel	8	54

Casing, 6-inch, set to 54 feet.

19/2-4A2. E. W. Miles. Altitude about 230 feet. Drilled by Service Hardware Co., 1953.

Soil and boulders	8	8
Gravel, cemented	15	23
Gravel, hardpacked	6	29

Casing, 6-inch, set to 29 feet.

Table 3.--Logs of representative wells.--Con.

19/2-4B1. Western State Hospital, Well 1. Altitude about 230 feet. Drilled by N. C. Jannsen Drilling Co., 1938.

Materials	Thickness (feet)	Depth (feet)
Sand and gravel	30	30
Gravel	5	35
Not reported	15	50
Gravel	40	90
Clay, blue	72	162
Gravel	33	195
Shale	70	265
Gravel and sand	30	295
Boulders and gravel	60	355
Clay, hard and sandy	40	395
Gravel and boulders	31	426
Gravel	34	460
Clay, sticky	6	466
Boulders	5	471
Clay and gravel	17	488
Boulders	4	492
Not reported	8	500

Casing, 24-inch outer casing, set from 0 to 31 feet, 16-inch casing, set from 0 to 500 feet; perforated from 30 to 35 feet, 50 to 90 feet, 162 to 195 feet, 275 to 355 feet, 395 to 420 feet, 430 to 455 feet, and 475 to 500 feet.

19/2-4B2. Western State Hospital, Well 2. Altitude about 230 feet. Drilled by N. C. Jannsen Drilling Co., 1938.

Sand and gravel	35	35
Sand	15	50
Gravel	40	90
Clay, blue	74	164
Gravel	31	195
Shale	70	265
Gravel and sand	30	295
Boulders and gravel	60	355
Clay, hard and sandy	40	395
Gravel and boulders	31	426
Gravel	34	460
Clay	6	466
Boulder	5	471
Clay and gravel	29	500
Gravel, cemented, and boulder	78	578
Sand	12	590
Gravel, cemented	60	650
Sand and boulders	50	700
Clay, sandy	30	730

(continued next page)

Table 3.--Logs of representative wells.--Con.

19/2-4B2.--(Continued)

Materials	Thickness (feet)	Depth (feet)
Gravel, cemented and hard.	53	783
Sand and boulders.	67	850
Clay, sandy, with wood	15	865
Sand and boulders.	20	885
Clay, sandy.	10	895
Boulders and clay.	25	920
Sand, with wood.	13	933
Clay and gravel.	2	935

Casing, 32-inch outer casing, set from 0 to 30 feet, 16-inch casing, set from 0 to 500 feet, and 8-inch set from 471 to 935; 8-inch perforated for entire length.

19/2-5E1. Town of Steilacoom. Altitude about 275 feet. Drilled by L. V. Denny, 1939.

Sand and gravel.	35	35
"Hardpan"; blue clay	10	45
Sand and gravel, water-bearing . . .	1	46
Clay, blue, sandy.	18	64
Gravel, water-bearing.	1	65
"Hardpan", blue clay	11	76
Sand and gravel.	9	85
Gravel, cemented.	27	112
Sand and gravel, muddy.	13	125
Gravel, cemented, blue.	32	157
Gravel, coarse, water-bearing. . . .	30	187
Gravel, cemented.	4	191
Gravel and sand, water-bearing, pieces of wood at 205 feet	16	207

Casing, 10-inch, set to 207 feet.

19/2-6P1. Town of Steilacoom. Altitude about 220 feet. Drilled by L. R. Gaudio, 1953.

Soil and gravel.	3	3
Gravel, hard.	6	9
"Hardpan", light gray.	42	51
Gravel and sand, some clay.	12	63
"Hardpan", brown.	8	71
Gravel with brown clay.	2	73
Gravel, with blue, brown, and gray clay	4	77
Gravel, some red stained and dirty sand	6	83
Gravel, some red stained, little sand	3	86
Gravel and sand, blue-gray, dirty .	3	89
Sand, blue, and a little gravel . .	3	92
Sand and gravel, dirty.	9	101
Sand, fine to medium, blue and gray	5	106

(continued next page)

Table 3.--Logs of representative wells.--Con.

19/2-6P1.--(Continued)

	Thickness (feet)	Depth (feet)
Clay, brown and blue.	11	117
Sand, fine, very little small gravel	7	124
Sand, fine to coarse, dirty	8	132
Sand, fine, with small chunks of clay and pieces of wood.	11	143
Clay, dark gray.	8	151
Sand, dirty, gray.	3	154
Sand and gravel.	3	157
Clay, little pea gravel.	7	164
Sand, fine, dirty.	3	167
Sand and pea gravel	6	173
Sand, fine, some clay.	8	181
Sand and gravel, some clay.	4	185
Gravel, with sand and clay.	11	196
Sand and gravel up to 3 inches. . .	8	204
"Hardpan".	5	209
Sand, fine.	4	213
Sand and a little gravel.	21	234
"Hardpan".	5	239
Gravel, coarse.	8	247

Casing, 12-inch, set to 193 feet, 7-inch casing and screen, set to 247 feet; .030 slot screen from 223 to 233 feet, and .10 slot screen set from 239 to 247 feet.

19/2-8G1. F. M. Pease. Altitude about 240 feet. Drilled by R. Gilstrap.

Soil.	2	2
Gravel, pea size.	15	17
Clay.	10	27
Till.	15	42
Gravel.	3	45

Casing, 6-inch, set to 44 feet.

19/2-10E1. Lakewood Water District, Well "E". Altitude about 265 feet. Drilled by R & W Well Drilling Co.

Not recorded.	50	50
Gravel, loose.	25	75
Sand, fine, brown.	23	98
Sand and gravel.	3	101
Gravel, fine.	5	106
Sand.	11	117
Clay, blue, and coarse gravel . . .	12	129
Clay, blue.	7	136
Clay, yellow, and sand	21	157

(continued next page)

Table 3.--Logs of representative wells.--Con.

19/2-10E1.--(Continued)

Materials	Thickness (feet)	Depth (feet)
Clay, hard, and coarse sand. . . .	40	197
Gravel, coarse, and sand.	12	209
Gravel, coarse.	3	212
Sand, coarse, and gravel	15	227
Sand, brown.	2	229
Sand and gravel.	4	233
Sand and clay.	8	241
Gravel, large.	8	249
Sand, coarse, gray	11	260
Sand, coarse, gray, hard	8	268
Sand, gray, and hard gravel. . . .	3	271
Clay, yellow.	2	273
Clay, blue.	42	315
Sand, fine, blue.	6	321
Clay, blue, and gravel.	4	325
Sand, blue, fine.	19	344
Gravel, small	9	353
Clay, gray.	56	409
Clay and gravel	12	421
Clay, gray-green.	9	430
Clay and gravel.	14	444
Clay, yellow.	16	460

Casing, 18-inch outer casing, set from 0 to 117 feet, 12-inch casing, set from 0 to 460 feet; perforated from 200 to 212 feet, 243 to 249 feet, and 267 to 270 feet.

19/2-10F2. Lakewood Water District, Well "D". Altitude about 263 feet. Drilled by L. V. Denny in 1920, and deepened by R. & W. Well Drilling Co., 1945.

Original well.	184	184
Sand, packed.	4	188
"Hardpan".	6	194
Gravel, coarse.	11	205
Sand, some gravel.	13	218
Sand, medium.	6	224
Sand, finer, some brown.	18	242
Gravel, medium.	6	248
Gravel, coarse, and sand.	8	256
Sand, coarse.	10	266
"Hardpan".	16	282
Gravel and sand, coarse.	6	288

Casing, 10-inch, set to 288 feet.

Table 3.--Logs of representative wells.--Con.

19/2-10F4. Lakewood Water District, Test well 6. Altitude about 263 feet. Drilled by L. R. Gaudio Drilling Co., 1950.

Materials	Thickness (feet)	Depth (feet)
"Hardpan"	76	76
Clay, blue	11	87
Gravel, and sand, water-bearing	2	89
Sand, water-bearing	10	99
Gravel and sand, water-bearing	11	110
Sand, brown, and clay	9	119
Sand, brown, and clay, some gravel	52	171
"Hardpan"	35	206
Sand and gravel, hardpacked	11	217
Sand, fine	17	234
Sand, some gravel	8	242
Gravel, coarse, water-bearing	9	251
Sand	6	257
"Hardpan"	5	262
Sand and gravel, water-bearing	8	270
"Hardpan"	2	272
Sand and gravel, water-bearing	13	285
Clay	2	287
Sand, water-bearing	29	316
Gravel and clay	3	319
Clay, sandy, peat at 333 feet	73	392
Clay, sandy, red	29	421
Sand, gray, fine	5	426
"Hardpan", gray	10	436
Clay and brown sand	13	449
Clay, yellow	8	457
Sand and gravel, hard, cemented streaks, water-bearing	58	515
Clay, sandy	19	534
"Hardpan"	22	556
Clay, brown	9	565
Clay, sandy	18	583
Gravel, cemented	8	591
Sand, water-bearing	19	610

Table 3.--Logs of representative wells.--Con.

19/2-10L1. Lakewood Water District, Well D-1. Altitude about 260 feet. Drilled by N. C. Jannsen Drilling Co., 1947.

Materials	Thickness (feet)	Depth (feet)
Gravel, and loose rock.	84	84
Gravel, tight packed.	8	92
Clay.	8	100
Gravel and rock.	10	110
Gravel, loose.	5	115
Gravel and rock.	65	180
Gravel, fine, with rock.	37	217
Sand, coarse, with gravel.	23	240
Sand, gravel, and blue clay	10	250
Clay, blue, with gravel.	10	260
Gravel.	20	280
Sand and gravel.	30	310
Gravel, sand, and clay	10	320
Clay.	10	330
Sand, coarse, and water gravel.	288	618
Clay.	20	638

Casing, 24-inch, outer casing, set from 0 to 82 feet, 18-inch casing, set from 0 to 185 feet, and 12-inch casing from 185 to 608 feet; perforated from 310 to 608 feet.

19/2-11L1. Lakewood Water District, Test well 4. Altitude about 270 feet. Drilled by Richardson Well Drilling Co., 1950.

Soil.	3	3
Gravel and clay	21	24
Gravel, water-bearing	4	28
Sand and gravel, streaked with clay	16	44
Gravel and clay.	23	67
"Hardpan".	6	73
Clay, yellow, and gravel.	9	82
"Hardpan".	20	102
Clay, sandy, and gravel.	4	106
Clay, sandy.	7	113
Clay, sandy, and gravel.	3	116
"Hardpan".	10	126
Sand and gravel.	4	130
Clay, brown.	2	132
Clay, blue.	8	140
"Hardpan"	43	183
Sand, dirty, some gravel.	5	188
"Hardpan"	12	200

Casing, 10-inch, set to 200 feet.

Table 3.--Logs of representative wells.--Con.

19/2-12A1. Mountain View Sanitorium. Altitude about 285 feet. Drilled by N. C. Jannsen Drilling Co., 1929.

Materials	Thickness (feet)	Depth (feet)
Pit.	7	7
Gravel, loose.	15	22
Gravel, cemented	3	25
"Hardpan".	3	28
Gravel.	11	39
Boulders	5	44
Gravel and sand, some cobbles. . .	64	108
Sand and clay.	4	112
Clay, sandy.	5	117
Sand.	24	141

19/2-12M1. R. L. Sawyer. Altitude about 275 feet. Drilled by Tacoma Pump and Well Drilling Co., 1950

Soil.	2	2
Clay, sand, and gravel.	14	16
Gravel, water-bearing.	7	23
"Hardpan".	11	34
Sand and gravel.	7	41
"Hardpan".	9	50
Gravel, water-bearing.	15	65

Casing, 8-inch, set to 65 feet.

19/2-13C1. W. A. Millard. Altitude about 285 feet. Drilled by Tacoma Pump and Well Drilling Co., 1953.

Soil.	2	2
Gravel, dry.	9	11
"Hardpan".	17	28
Clay, sandy.	4	32
"Hardpan".	12	44
Gravel, hardpacked, some water . .	16	60
Sand and gravel, water-bearing . .	3	63

Casing, 6-inch, set to 63 feet.

Table 3.--Logs of representative wells.--Con.

19/2-13G1. U. S. Air Force, well 1. Altitude about 294 feet. Drilled by R. J. Strasser, 1939.

Materials	Thickness (feet)	Depth (feet)
Gravel, loose to tight.	109	109
Silt.	31	140
Gravel, loose	10	150
Gravel, tight.	6	156
Gravel, loose.	5	161
Gravel, tight	20	181
Sand and gravel, loose.	9	190
Clay, blue.	10	200

Casing, 12-inch, set to 195 feet; perforated from 145 to 150 feet, 152 to 165 feet, and 170 to 181 feet.

19/2-13G2. U. S. Air Force, well 2. Altitude about 300 feet. Drilled by R. J. Strasser, 1939.

Gravel, cemented at top but clean toward bottom.	93	93
Sand, with clay binder.	10	103
Gravel.	7	110
Sand, very muddy.	7	117
Gravel, cemented.	25	142
Gravel, loose.	9	151
Sand, clean.	7	158
Gravel.	24	182
Sand.	1	183
Gravel, cemented.	27	210
Sand, muddy.	50	260
Sand and gravel, muddy.	38	298

Casing, 12-inch; perforated from 140 to 153 feet, 165 to 182 feet, and 264 to 278 feet.

19/2-14B1. Lakewood Water District, test well 3. Altitude about 270 feet. Drilled by Richardson Well Drilling Co., 1949.

"Hardpan".	21	21
Gravel, dry, and "hardpan"	2	23
Clay, gray, and gravel.	4	27
"Hardpan".	18	45
Clay, brown, and gravel.	4	49
Clay, sand, and gravel	6	55
"Hardpan".	5	60
Gravel, coarse, loose, water-bearing.	2	62
Sand and gravel.	4	66
Gravel, loose, showing of clay. . . .	14	80
Sand, brown, some gravel.	4	84

(continued next page)

Table 3.--Logs of representative wells.--Con.

19/2-14B1.--(Continued)

Material	Thickness (feet)	Depth (feet)
Sand, coarse	2	86
Sand and gravel	2	88
Gravel, with streaks of clay	8	96
Sand, gravel, some clay	4	100
Gravel, loose, some coarse sand	6	106
Sand, coarse, streaked with gravel	9	115
Gravel and fine sand	3	118
Sand, fine, heaving	5	123
Clay, sandy, blue	6	129
Sand, gray, fine, heaving	51	180
Clay, brown, sand, some gravel	13	193
"Hardpan"	9	202
Clay, green, coarse sand and gravel	4	206
"Hardpan"	20	226
Sand, coarse	3	229
Gravel, loose	2	231
Gravel and coarse sand, some clay	10	241
Gravel and coarse sand	2	243
Clay, blue	20	263
Clay, streaked with gravel	5	268
Sand, coarse, and gravel	1	269
Clay, gray, and gravel, dry	6	275
"Hardpan"	23	298
Clay and coarse sand	3	301
Gravel and coarse sand	2	303
Clay, sand and gravel	4	307
Gravel and coarse sand	12	319
Clay, brown, sand and gravel	6	325
Sand, fine, red, and clay	24	349

Casing pulled.

19/2-14B2. Lakewood Water District. Altitude about 270 feet. Drilled by L. R. Gaudio, 1951.

Gravel, dirty	18	18
"Hardpan", with large boulders	18	36
Sand and gravel, dirty	12	48
"Hardpan"	5	53
Sand and gravel, streaks of clay	33	86
Gravel, loose, coarse, some clay below 95 feet	18	104
Sand, fine	6	110

Casing, 30-inch outer casing, set to 93 feet, 24-inch casing set from 0 to 85.4 feet, .100 slot screen from 85.4 to 106 feet.

Table 3.--Logs of representative wells.--Con.

19/2-14D1. --Liles. Altitude about 278 feet. Drilled by R & W Well Drilling Co., 1941.

Material	Thickness (feet)	Depth (feet)
Dug well, no record	50	50
Gravel, cemented	70	120
Sand, heaving	55	175
Gravel and sand	6	181

Casing, 6-inch.

19/2-16R1. Lakewood Water District. Altitude about 280 feet. Drilled by R. J. Strasser, 1942.

Gravel, loose	18	18
Gravel, coarse	10	28
Clay, sandy, and gravel	11	39
Sand and gravel, water-bearing	4	43
Gravel, cemented	4	47
Clay, sandy	9	56
Gravel and sand, water-bearing	45	101
Clay sandy, hard	30	131
Gravel, cemented	23	154
Sand and gravel, water-bearing	6	160
Clay, sand, hard	11	171
Gravel, cemented	13	184
Sand and gravel, water-bearing	19	203
Clay, sandy, and coarse gravel	16	219
Clay, sandy, some gravel	5	224

Casing, 16-inch, set to 107 feet, 12-inch to 224 feet.

19/2-18H1. U. S. Army, well no. 4. Altitude about 242 feet. Drilled by N. C. Jannsen Drilling Co., 1941.

(Record from inspection of cuttings. Materials above 842 feet shown in log of replacement well 19/2-18H2).		
Clay, sandy	58	900
Sand and grit	60	960
Sand, grit, and clay	40	1000
Sand and ½-inch pebbles	100	1100
Sand, grit, and clay	30	1130
Clay, lead-blue	90	1220
Clay, gritty in part	70	1290
Sand, fine to grit	60	1350
Grit and clay	10	1360
Sand to ½-inch pebbles	90	1450
Clay	--	--

Table 3.--Logs of representative wells.--Con.

19/2-18H2. U. S. Army, well no. 4-A. Altitude about 233 feet. Drilled by Roscoe Moss Drilling Co., 1943.

Materials	Thickness (feet)	Depth (feet)
Soil	1	1
Sand gravel to 10-inch	48	49
Clay, blue	3	52
Sand and gravel, water-bearing	8	60
Clay, sandy, and gravel	13	73
Sand and gravel, water-bearing	2	75
Clay, sandy, and gravel	29	104
Sand and pebble gravel, water-bearing	16	120
Sand, fine	4	124
Sand, gravel, and cobbles	2	126
Clay, gray, pieces of wood	26	152
Sand, fine	6	158
Clay, silty, brown	17	175
Clay, blue, hard	4	179
Clay, blue and brown, hard	41	220
Clay, sandy, and gravel	55	275
Sand and cobble gravel, water-bearing	11	286
Clay, sandy	49	335
Clay, blue	335	670
Clay, sandy, blue	26	696
Clay, blue	34	730
Clay, sandy, blue	98	828
Clay, blue, hard	10	838
Clay, sandy, blue	64	902
Clay, blue, some pebble gravel	3	905
Sand, coarse, and clay	13	918
Clay, sandy, blue	9	927
Sand, fine, blue	16	943
Sand, gravel, and some clay	5	948
Clay, sandy, blue	12	960
Gravel and sand	10	970
Clay, sandy, blue	10	980
Gravel and sand	46	1026
Clay, sandy, blue	10	1036
Gravel and sand	14	1050
Clay, sandy, blue	10	1060
Clay, sandy, brown	30	1090
Clay, brown	5	1095
Clay, sandy, blue	5	1100
Clay, blue, silty	12	1112

Casing, 20-inch set from 0 to 580 feet, 18-inch from 580 to 730 feet, and 16-inch from 730 to 1,112 feet; perforated from 276 to 290, 943 to 947, 960 to 970, 985 to 1,026, and 1,036 to 1,050 feet.

Table 3.--Logs of representative wells.--Con.

19/2-18Q1. U. S. Army, well 2. Altitude about 234 feet. Drilled by R. J. Strasser, 1940

Materials	Thickness (feet)	Depth (feet)
Gravel, cemented.	36	36
Silt, blue.	9	45
Gravel, water-bearing	5	50
Silt, blue.	25	75
Sand, heaving.	32	107
Silt, sandy, blue.	33	140
Clay, hard, with some gravel. . .	18	158
Gravel, cemented.	57	215
Sand gravel, water-bearing. . . .	13	228
Gravel, cemented.	11	239

Casing, 18-inch.

19/2-19B1. U. S. Army, well 1. Altitude about 234 feet. Drilled by R. J. Strasser, 1940.

Gravel, cemented.	45	45
Sand, coarse, water-bearing . . .	2	47
Sand, some gravel, pieces of wood	6	53
Gravel, cemented.	36	89
Sand, fine, yellow, water-bearing	10	99
Silt, blue.	20	119
Gravel, loose, water-bearing. . .	3	122
Silt, gray.	27	149
Clay, hard, brown	3	152
"Hardpan".	18	170
Gravel, cemented	26	196
Sand, loose.	6	202
Sand and gravel, loose, water-bearing	12	214
"Conglomerate" and "sandstone". .	10	224

Casing, 18-inch, set to 220 feet; perforated from 192 to 199 and 201 to 215 feet.

19/2-19F1. U. S. Army, well 3. Altitude about 229 feet. Drilled by R. J. Strasser, 1940.

Gravel, cemented.	40	40
Gravel, loose, and sand, some water	5	45
Sand, "heavy", gray	20	65
Clay, hard, blue.	4	69
Sand, gray, heaving.	11	80
Silt, blue.	24	104
Gravel, cemented, and large boulders	34	138
Clay, blue.	10	148
Gravel, cemented.	2	150
Peat and rotted wood.	5	155
Clay, blue.	3	158

(continued next page)

Table 3.--Logs of representative wells.--Con.

19/2-19F1.--(Continued)

Materials	Thickness (feet)	Depth (feet)
Gravel, hard, cemented.	31	189
Sand and gravel, water-bearing.	31	220
Gravel, cemented.	9	229

Casing, 18-inch, set to 229 feet.

19/2-22N1. U.S. Army, well 7. Altitude about 280 feet. Drilled by Roscoe Moss Drilling Co., 1941.

Gravel and boulders.	114	114
Sand and gravel.	19	133
Clay and gravel.	27	160
Gravel and boulders.	16	176
Boulder, granite.	3	179
Clay, hard, and gravel.	16	195
Sand.	5	200
Clay, hard, and gravel.	31	231
Clay, sticky.	8	239
Clay.	5	244
Sand, gravel, and clay	50	294
Sand, gravel, and boulders. . .	5	299
Clay and gravel.	16	315
Gravel, boulders, and some clay	70	385
Sand and gravel, with streaks of clay.	85	470
"Rock", black	28	498
Clay, sandy.	29	527
Clay, hard, and sand.	8	535
Clay and streaks of sand. . . .	70	605
Clay, and a few boulders. . . .	15	620
Clay, sandy, hard.	10	630
Clay, sandy, with streaks of sand	41	671
Clay, with streaks of sand and gravel.	105	776
Boulders, in hard clay and sand	28	804
Sand.	15	819
Clay, hard.	6	825
Boulders, hard.	8	833
Clay, hard, and sand.	7	840
Boulders, hard (clay matrix). .	20	860
Clay, sandy, hard, and some gravel	24	884
"Shale", black (lignitic clay).	6	890
Clay, sandy, with streaks of sand	16	906
Clay, blue.	16	922
Clay, gray.	8	930
Clay, blue.	15	945
Clay, sandy, gray	35	980
Clay, with streaks of sand. . .	28	1008
Sand, gray (medium to fine) . .	12	1020

(continued next page)

Table 3.--Logs of representative wells.--Con.

19/2-22N1. U. S. Army, well 7. Altitude about 280 feet. Drilled by Roscoe Moss Drilling Co., 1941.

Materials	Thickness (feet)	Depth (feet)
Clay, blue.	100	1120
Clay and sand, hard	42	1162
Clay, hard, sticky.	33	1195
Sand, fine, with streaks of clay.	141	1336
Clay, sticky.	14	1350
Clay, blue and gray	63	1413
Clay, hard, sticky.	32	1445
Clay, blue and gray	60	1505
Clay, gray.	10	1515
Clay and sand.	21	1536
Clay.	69	1605
Clay, sandy, hard and sticky. . .	180	1785
Sand, hard, cemented clay, and clay	476	2261

Casing, 36-inch outer casing, set to 100 feet, 26-inch casing, set to 1,400 feet; perforated from 460 to 480, 600 to 620, 660 to 680, 800 to 820, 940, to 1,020, 1,140 to 1,220 and 1,240 to 1,350 feet.

19/2-27G1. U.S.Army, well 8. Altitude about 287 feet. Drilled by Roscoe Moss Drilling Co., 1943.

Sand, gravel, and boulders. . . .	65	65
Sand and clay.	2	67
Sand, gravel, and boulders. . . .	11	78
Sand and gravel, loose.	10	88
Clay, blue.	2	90
Clay, sandy, blue	115	205
Clay, blue.	30	235
Sand and gravel to 6-inch	35	270
Sand, coarse, some gravel to ½-inch	8	278
Sand and gravel to 6-inch	90	368
Sand, blue.	10	378
Sand and gravel to 6-inch	12	390
Clay, blue, and gravel, hard. . .	10	400
Sand, gravel, and cobbles	40	440
Clay, hard, gray.	60	500
Clay and gravel, hard.	93	593
Sand and pebble gravel.	8	601
Clay, blue.	8	609
Sand and pebble gravel.	12	621
Clay, hard, gravelly.	19	640
Sand and clay, hard.	93	733
Sand and cobble gravel.	35	768
Sand and pebble gravel.	19	787
Sand, tight, and lignite.	11	798
Sand, silt, and clay.	122	920
Clay and lignite.	4	924

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Table 3.--Logs of representative wells.--Con.

19/2-27G1.--(Continued)

Materials	Thickness (feet)	Depth (feet)
Sand, cemented, and clay.	72	996
Clay, gray, laminated.	12	1008

Casing, 20-inch, set to 1,008 feet; perforated from 235 to 270, 280 to 368, 378 to 390, 400 to 440, 593 to 601, 609 to 621, and 733 to 787 feet.

19/2-31K1. U.S. Army, well 5. Altitude about 282 feet. Drilled by Roscoe Moss Drilling Co., 1941.

Sand, gravel, and boulders	60	60
Clay and gravel.	60	120
Sand and gravel, in clay.	40	160
Sand and gravel.	20	180
Clay, blue.	25	205
Clay, blue, with some gravel. . . .	5	210
Sand, cobble gravel and some clay .	28	238
Sand, gravel, cobbles, and boulders	22	260
Sand and clay, packed.	40	300
Sand and gravel, in clay.	55	355
Sand, packed, contains carbonized wood	15	370
Sand, packed, with streaks of clay.	42	412
Clay, silty, gray.	28	440
Clay, blue.	40	480
Clay and gravel	20	500
Sand, packed, and clay.	16	516
Clay, blue.	9	525
Sand, packed, and clay(carbonaceous)	35	560
Clay, some wood.	10	570
Sand.	30	600
Clay, blue.	10	610
Gravel, cobble.	16	626
Clay.	24	650
Clay and sand	10	660
Sand and cobble gravel.	32	692
Sand.	20	712
Clay and gravel, some wood.	20	732
Gravel, pebble and cobble	8	740
Clay, some gravel at top.	70	810
Clay, sandy.	85	895
Sand and clay, some gravel.	10	905
Clay, sandy.	20	925
Sand, fine.	5	930
Clay, sandy.	25	955
Sand, clay, and gravel	7	962
Clay, blue.	16	978
Clay, gray (carbonaceous)	22	1000

Casing, 38-inch double stovepipe outer casing from 0 to 91 feet, 26-inch double stovepipe casing from 0 to 732 feet, 20-inch double stovepipe casing from 712 to 990 feet; perforated from 210 to 260, 300 to 355, 610 to 626, 660 to 692, 732 to 745, 895 to 905, and 955 to 965 feet.

Table 3.--Logs of representative wells.--Con.

19/2-32H1. U. S. Army, well 6. Altitude about 293 feet. Drilled by Rosecoe Moss Drilling Co., 1941.

Materials	Thickness (feet)	Depth (feet)
Gravel	90	90
Gravel and clay	20	110
Gravel and boulders	35	145
Clay and grit	67	212
Gravel	18	230
Clay	103	333
Sand and gravel	29	362
Clay	18	380
Clay and some gravel	15	395
Gravel and some clay	30	425
Sand, packed	11	436
Gravel and some clay	14	450
Clay and sand	105	555
Boulders	52	607
Clay and gravel	5	612
"Conglomerate"	108	720
Clay, blue	87	807
Clay, blue, and gravel	44	851
Sand and gravel	22	873
Clay, blue, and gravel	87	960
Sand and gravel	80	1040
Clay and gravel	20	1060
Clay	23	1083
Clay and gravel	37	1120
Clay, sandy	170	1290
Sand and gravel	36	1326
Clay	48	1374
Clay, some gravel	9	1383
Clay	101	1484
Sand and gravel	35	1519
Clay	51	1570

Casing, 36-inch outer casing from 0 to 100 feet, 26-inch casing 0 to 1,570 feet.

19/2-32H2. U. S. Army, well 6-A. Altitude about 291 feet. Drilled by Roscoe Moss Drilling Co., 1943.

Sand, gravel, and cobbles	30	30
Sand, gravel, and boulders, cemented	8	38
Sand and cobble gravel	3	41
Sand, gravel, and boulders, tight	27	68
Sand, gravel, and boulders, loose	22	90
Sand, gravel, and boulders, tight	15	105
Sand and cobble gravel, loose	25	130
Sand, fine, yellow	64	194
Clay, blue (carbonaceous)	6	200
Sand, fine, blue	4	204

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Table 3.--Logs of representative wells.--Con.

19/2-32H2.--(Continued)

Materials	Thickness (feet)	Depth (feet)
Sand and cobble gravel.	12	216
Sand, fine, brown.	54	270
Sand, fine, blue.	16	286
Clay, blue.	38	324
Clay, blue, and gravel.	16	340
Sand and gravel, tight.	8	348
Clay, blue.	208	556
Sand, fine, blue, packed.	34	590
Sand, blue, silty.	68	658
Sand and cobble gravel.	2	660
Sand, blue, hard.	140	800
Sand and cobble gravel.	20	820
Sand and pebble gravel.	5	825
Sand, fine, blue.	115	940
Sand, fine, and cobble gravel . .	20	960
Sand and pebble gravel.	10	970
Sand and cobble gravel.	20	990
Clay with sandy streaks	49	1039
Sand with clayey streaks.	141	1180
Clay, blue, sandy.	54	1234
Sand and fine gravel, tight . . .	36	1270
Sand, fine, blue, tight.	53	1323
Clay, blue (carbonaceous)	17	1340

Casing, 20 to 18-inch; perforated from 105 to 130, 204 to 216, 340 to 348, 800 to 825, 950 to 990, and 1240 to 1270 feet, gravel packed.

19/3-1C1. J. Piekarski. Altitude about 430 feet. Drilled by P. Sylte, 1953.

Soil.	3	3
"Hardpan".	26	29
Gravel, hardpacked, dry	131	160
Gravel, sand, and clay	15	175
Sand, some gravel, small amount of water.	3	178
Gravel and sand, water-bearing. .	11	189
Gravel, cemented.	1	190

Casing, 8-inch, set to 189 feet; perforated from 184 to 187 feet.

Table 3.—Logs of representative wells.—Con.

19/3-1D2. Summit Water Co. Altitude about 460 feet. Drilled by L. R. Gaudio, 1951.

Materials	Thickness (feet)	Depth (feet)
Clay, brown.	4	4
"Hardpan", blue.	77	81
Gravel, cemented, greenish brown .	82	163
Sand, fine, brown, dry	14	177
Gravel, cemented, gray	23	200
Clay, sandy, brown.	15	215
Sand, brown.	1	216
Clay, sandy, brown	17	233
Sand and gravel.	1½	234½
Gravel and clay.	21½	256
Sand and gravel, hard, clayey. . .	3	259
Sand and gravel, loose, water-bearing	7	266
"Hardpan", gray.	3	269
Gravel, cemented.	16	285

Casing, 12-inch, set to 283 feet.

19/3-1J1. Summit Water Co. Altitude about 475 feet. Drilled by L. R. Gaudio, 1950.

Till.	56	56
Gravel, yellow, cemented	24	80
Gravel, yellow, cemented, with streaks of sand.	84	164
Sand.	3	167
Gravel, yellow, cemented	34	201
Sand and gravel, water-bearing . .	1	202
Gravel, cemented, top 2 feet yellow	9	211
Sand and gravel, hard.	17	228
Clay and gravel, yellow.	20	248
Clay, yellow, sandy.	16	264
Clay, yellow, and coarse gravel. .	21	285
Clay, yellow, sandy.	4	289
Gravel, yellow, cemented	17	306
Gravel, cemented, blue	44	350
Sand and gravel, hard.	12	362
Clay and gravel, yellow, cemented.	13	375
Clay, yellow, sandy.	12	387
Gravel, cemented.	20	407

Casing, 12-inch, perforated from 200 to 230 feet.

Table 3.--Logs of representative wells.--Con.

19/3-3G1. Southeast Tacoma Mutual Water Co., well 1. Altitude about 430 feet. Drilled by P. Sylte, 1947.

Materials	Thickness (feet)	Depth (feet)
Gravel and clay.	19	19
Sand and gravel.	4	23
Gravel and clay.	33	56
Sand and clay, a little water. . . .	2	58
Clay and gravel.	77	135
Gravel, coarse, dry.	40	175
Clay and gravel.	20	195
Sand and gravel, good flow of water.	25	220
Clay and gravel.	66	286
Sand and gravel, water-bearing . . .	4	290
Clay and gravel.	22	312
Sand and gravel, water-bearing . . .	18	330
Sand, small flow of water.	45	375
Sand and gravel, some water.	40	415

Casing, 12-inch, set from 0 to 155, 10-inch from 155 to 386; perforated from 197 to 218, and 313 to 330 feet, screen, 8-inch, .016 slot, from 385 to 415 feet.

19/3-4P1. D. H. Watts. Altitude about 376 feet. Drilled by owner, 1940.

Clay.	4	4
"Hardpan"	23	27
Sand.	86	113
"Hardpan".	1	114
Gravel, clean, well sorted	6	120

Casing, 5-inch, set to 120 feet.

19/3-5C1. E. Walstad. Altitude abou 321 feet. Dug in 1924.

Gravel.	19	19
"Hardpan".	20	39
Gravel.	30	69

Casing, 48-inch, set to 20 feet.

19/3-5K1. J. Brunton. Altitude about 323 feet. Drilled by L. V. Denny, 1940.

Soil and gravel.	21	21
Gravel, cemented.	34	55
Gravel, clean	9	64

Casing, 5-inch, set to 64 feet.

Table 3.--Logs of representative wells.--Con.

19/3-5L2. Southeast Tacoma Mutual Water Co., well 3. Altitude about 320 feet. Drilled by P. Sylte, 1951

Materials	Thickness (feet)	Depth (feet)
Soil.	2	2
Gravel, dry	19	21
Gravel, cemented.	7	28
"Hardpan".	16	44
Gravel, cemented.	21	65
Gravel and clay, small flow of water	33	98
Gravel, cemented.	6	104
Sand and gravel, red, good flow of red water.	27	131
Gravel, cemented.	4	135
Sand and gravel, red, good flow of red water.	4	139
Gravel, cemented.	30	169
Clay, blue.	15	184
Gravel, cemented.	20	204
"Hardpan".	5	209
Sand and gravel, good flow of water	4	213
Gravel, cemented.	22	235
Clay, blue.	13	248
Clay, sandy	5	253
Gravel, cemented.	17	270
Gravel and clay, blue	5	275
Gravel, cemented.	10	285
Clay, sandy, blue.	15	300
Gravel, sand, clay, peat.	30	330
Gravel and clay, very small flow of water.	4	334
Sand and gravel, cemented.	27	361
Sand and gravel, muddy.	8	369
Gravel, cemented.	6	375
Sand, gravel, and clay.	15	390
Sand, green, hardpacked	15	405

Casing, 12-inch, set from 0 to 333 feet, 8-inch, set from 333 to 405 feet; perforated from 209 to 213 feet.

19/3-5N1. R. Homola. Altitude about 316 feet. Drilled by L. V. Denny, 1940.

Gravel, coarse, and sand.	50	50
Quicksand.	26	76
Gravel, fine, clean	4	80

Casing, 5-inch, set to 80 feet.

Table 3.--Logs of representative wells.--Con.

19/3-5Q1. C. Schrammeck. Altitude about 320 feet. Drilled by Tacoma Pump and Well Drilling Co., 1952.

Materials	Thickness (feet)	Depth (feet)
Soil.	2	2
Gravel.	14	16
"Hardpan"	32	48
Gravel, hardpacked.	8	56
"Hardpan".	2	58
Gravel, hardpacked, some water. . .	9	67
Gravel, loose, water-bearing. . . .	2	69

Casing, 6-inch, set to 69 feet.

19/3-6D1. Sunnycroft Sanitarium. Altitude about 316 feet. Drilled by N. C. Jannsen Drilling Co., 1931.

Gravel, loose.	33	33
Gravel, cemented, water-bearing . .	26	59
Gravel.	11	70
Sand, fine.	3	73
Sand and gravel, packed.	5	78
Sand and gravel, water-bearing. . .	4	82

Casing, 6-inch, set to 82 feet.

19/3-9G3. Parkland Light and Water Co. Altitude about 390 feet. Drilled by Richardson Well Drilling Co., 1950.

Sand and clay.	9	9
"Hardpan", clay, and boulders. . . .	47	56
Gravel, cemented.	19	75
"Hardpan".	1	76
Gravel and clay, loose.	4	80
Gravel, loose, and sand.	10	90
Sand, dry, and fine gravel	10	100
"Hardpan".	11	111
Gravel, loose.	5	116
"Hardpan".	4	120
Gravel, not much water.	26	146
Gravel, fine, and coarse sand. . . .	5	151
Clay, sand, and gravel.	3	154
Gravel, loose, and sand	19	173
Sand, gravel, and clay.	2	175
"Hardpan".	15	190
Gravel, and coarse sand.	6	196
Sand, medium, and some coarse gravel	23	219
Clay, yellow, coarse sand, and some gravel.	2	221
"Hardpan".	9	230

Casing, 30-inch outer casing, set from 0 to 152 feet, 24-inch casing, 0 to 152, screened from 152 to 174 feet.

Table 3.--Logs of representative wells.--Con.

19/3-15R1. J. Irwin. Altitude about 325 feet. Drilled by Tacoma Pump and Drilling Co., 1954.

Material	Thickness (feet)	Depth (feet)
Gravel, dry	19	19
Gravel, water-bearing	7	26
Gravel, hardpacked	2	28
"Hardpan"	8	36
Gravel, water-bearing	2	38
"Hardpan"	--	--

Casing, 6-inch, set to 38 feet.

19/3-16L1. C. Sacco. Altitude about 310 feet. Drilled by Richardson Well Drilling Co., 1949.

Topsoil	4	4
Gravel and boulders	5	9
Gravel and clay	11	20
"Hardpan"	27	47
Sand and gravel	5	52
Clay, sandy	3	55
"Hardpan"	4	59
Clay, sandy, and gravel	8	67
"Hardpan"	2	69
Clay, sandy, and gravel	8	77
"Hardpan"	14	91
Gravel and clay	2	93
"Hardpan"	12	105
Sand and gravel, coarse	--	--

Casing, 6-inch, set to 105 feet.

19/3-17E1. W. M. Goodwin. Altitude about 290 feet. Drilled by Tacoma Pump and Drilling Co., 1950.

Soil	2	2
Gravel, dry	28	30
"Hardpan"	4	34
Sand and gravel, water-bearing	1	35

Casing, 6-inch, set to 35 feet.

19/3-18M1. U. S. Air Force, well 3. Altitude about 317 feet. Drilled by Roscoe Moss Drilling Co., 1943.

Topsoil	2	2
Sand and cobble gravel, some clay	38	40
Sand and cobble gravel	18	58
Gravel and cobbles	48	106
Sand, gravel, and cobbles, tight	28	134
Sand and cobble gravel	46	180

(continued next page)

Table 3.--Logs or representative wells.--Con.

19/3-18M1.--(Continued)

Materials	Thickness (feet)	Depth (feet)
Gravel and clay	20	200
Sand and cobble gravel	10	210
Clay, blue	5	215
Sand and gravel	5	220
Clay and gravel	25	245
Gravel and cobbles	7	252
Sand and gravel, tight	42	294
Sand and gravel, coarse	56	350
Clay, blue, and sandy	12	362
Sand	13	375
Clay, blue	25	400
Clay, yellow, and boulders	12	412
Sand, yellow, and cobbles with gravel	58	470
Clay, brown	10	480
Sand and gravel	10	490
Clay, blue	2	492
Sand, gravel, and 2-inch cobbles	8	500
Clay, blue (green)	50	550

Casing, 18-inch, set to 500 feet; perforated from 201 to 210, 217 to 220, 245 to 350, 417 to 470, 481 to 490, and 492 to 498 feet.

19/3-20K1. M. Crooks, and W. Crooks. Altitude about 330 feet. Drilled by Richardson Well Drilling Co., 1946.

"Hardpan"	50	50
Sand, with some water	2	52
Clay and gravel	15	66
Gravel, water-bearing	6	72

Casing, 8-inch, set to 72 feet.

19/3-20L1. R. E. Lee. Altitude about 330 feet. Drilled by Service Hardware Co., 1950.

Soil, gravel, and boulders	30	30
Clay, brown	14	44
(?), yields silty water	5	49
"Hardpan"	21	70
(?), yields silty water	8	78
Gravel, cemented, boulders	14	92
Gravel, water-bearing	5	97

Casing, 6-inch, set to 97 feet.

Table 3.--Logs of representative wells.--Con.

19/3-22F1. E. E. Larson. Altitude about 340 feet.
Drilled by Tacoma Pump and Drilling Co., 1953.

Materials	Thickness (feet)	Depth (feet)
Soil	1½	1½
Gravel, dry	38½	40
Gravel, and some clay, some water	15	55
Clay, blue, sandy	2	57
Gravel, clean, water-bearing	--	--

Casing, 6-inch, set to 57 feet.

19/3-26D1. P. Smithlin. Altitude about 375 feet.
Drilled by Service Hardware Co., 1953.

No record	14	14
Gravel, dry	14	28
Gravel, sand, and clay	2	30
Gravel, cemented	9	39
Gravel, cemented, a little water	3	42
Clay, sandy, gray	18	60
Clay and gravel	10	70
Gravel, cemented	6	76
Sand, water-bearing	7	83
Clay, yellow, and sand	4	87
Gravel, water-bearing	1	88

Casing, 6-inch, set to 88 feet.

19/3-26J1. H. J. McGee. Altitude about 390 feet.
Drilled by Service Hardware Co., 1951.

"Hardpan" and boulders	10	10
Gravel, hardpacked	27	37
"Hardpan" and boulders	9	46
Gravel, cemented, and boulders	35	81
"Hardpan" and gravel	5	86
"Hardpan", sand, and gravel	2	88
Sand and gravel	3	91

Casing, 8-inch, set to 91 feet.

19/3-27J1. B. A. Gustin. Altitude about 380 feet.
Drilled in 1947.

Soil	1	1
Gravel, dry, hardpacked	4	5
"Hardpan"	15	20
Gravel, coarse, water-bearing	22	42

Casing, 6-inch, set to 42 feet.

Table 3.--Logs of representative wells.--Con.

19/3-28B1. L. L. Sanders. Altitude about 365 feet. Drilled by L. V. Denny, 1933.

Material	Thickness (feet)	Depth (feet)
Gravel	65	65
"Hardpan"	13	78
Sand and gravel	22	100
Sand, fine, water-bearing	25	125
No record, reported not to be water-bearing	265	390

Casing, 8-inch, set to 125 feet.

19/3-28E1. H. Arends. Altitude about 360 feet. Drilled by Service Hardware Co.

Dug well, no record	32	32
"Hardpan"	4	36
Clay and sand	9	45
Clay	3	48
Gravel, cemented	25	73
Gravel	2	75

Casing, 6-inch.

19/3-28F3. Bethel School District 403. Altitude about 370 feet. Drilled by Tacoma Pump & Drilling Co., 1953.

Gravel, dry	22	22
"Hardpan"	25	47
Sand and gravel, cemented	6	53
Clay, sandy	2	55
Sand	2	57
Gravel, cemented	21	78
Sand and gravel, water-bearing, tested 30 gpm	1	79
Sand and gravel, cemented	3	82
Sand and gravel, heavy with clay	4	86
Gravel, coarse, and sand	3½	89½
Sand, gravel, and clay	7½	97
Sand and gravel, cemented	2	99
Sand, coarse, some large gravel	2	101
Gravel, coarse, some sand	13	114
Sand and gravel, cemented	1	115
Clay, blue	6	121
Sand and gravel, coarse	9	130
No record	4	134

Casing, 8-inch, set to 121 feet; .040 slot screen set from 121 to 130 feet.

Table 3.--Logs of representative wells.--Con.

19/3-28J1. F. W. Schrader. Altitude about 370 feet. Drilled by Service Hardware Co., 1951.

Materials	Thickness (feet)	Depth (feet)
Soil and gravel	6	6
Gravel, loose, dry	24	30
"Hardpan"	5	35
Gravel, water-bearing	3	38
"Hardpan"	7	45
Gravel, with large rock, water-bearing	10	55

Casing, 6-inch, set to 47 feet.

19/3-29J1. --Stansbie. Altitude about 340 feet. Drilled by Tacoma Pump and Drilling Co., 1953.

Soil	2	2
Gravel, loose, dry	33	35
Gravel, hardpacked	3	38
Gravel, loose, clean, water-bearing	1	39

Casing, 6-inch, set to 39 feet.

19/3-33P1. William Fueston. Altitude about 385 feet. Drilled by Service Hardware Co., 1950.

Boulders and gravel	24	24
Clay, brown, and gravel	10	34
Gravel, hardpacked	16	50

Casing, 6-inch, set to 50 feet.

19/3-35C1. L. Brandfas. Altitude about 385 feet. Drilled by Service Hardware Co., 1952.

Old well, no record	33	33
"Hardpan"	12	45
Gravel, water-bearing	2	47

Casing, 6-inch, set to 47 feet.

Table 3.--Logs of representative wells.--Con.

19/3-35D1. R. B. Turner. Altitude about 385 feet. Drilled by Service Hardware Co., 1952. Log compiled from samples.

Materials	Thickness (feet)	Depth (feet)
Gravel, fine, and clay.	10	10
Clay, with sand and fine gravel .	10	20
Gravel and clay.	10	30
Gravel.	8	38
Clay, silty.	2	40
Sand and pebbles.	6	46
Gravel and sand, some water . . .	2	48
Gravel, fine, cemented.	6	54
Sand and gravel, some water . . .	12	66
Sand and some gravel.	7	73
Till(?).	17	90
Gravel.	17	107

Casing, 8-inch.

19/3-35F1. E. Fromm. Altitude about 375 feet. Drilled by Tacoma Pump and Drilling Co., 1951.

Soil.	3	3
Sand and gravel, hard, dry. . . .	32	35
Gravel, water-bearing	11	46

Casing, 8-inch, set to 46 feet; perforated from 25 to 45 feet.

19/3-35M2. M. Inderbitzen. Altitude about 392 feet. Drilled in 1952.

Soil.	4	4
Gravel, hardpacked, dry	9	13
"Hardpan".	11	24
Gravel, hardpacked, some water. .	9	33
Gravel, loose, clean, some water.	2	35
Sand, fine, muddy, water.	4	39
Gravel, hardpacked.	5	44
Gravel, coarse, some clay, water.	2	46
Gravel, hardpacked with clay, some water.	25	71
Sand and gravel, clean, water . .	2	73
Gravel, hardpacked, some water. .	6	79
Sand and coarse gravel, some clay, water.	2	81
Sand and gravel, hardpacked, less water.	2	83
Gravel, loose, coarse, water. . .	1	84

Casing, 8-inch, set to 84 feet.

Table 3.--Logs of representative wells.--Con.

19/3-36N1. G. A. Jasmer. Altitude about 385 feet. Drilled by Service Hardware Co.

Material	Thickness (feet)	Depth (feet)
Soil and rock.	9	9
Gravel, hardpacked	11	20
"Hardpan".	12	32
Sand and gravel, loose, water-bearing.	--	--

Casing, 6-inch, set to 32 feet.

19/4-2D1. R. Meyers. Altitude about 410 feet. Drilled by Richardson Well Drilling Co., 1950.

Soil.	3	3
Sand, dry	11	14
Gravel and clay, hard.	9	23
"Hardpan".	15	38
Clay, yellow, and gravel	3	41
Gravel, water-bearing.	1	42
"Hardpan".	12	54
Clay and gravel, yellow.	24	78
"Hardpan".	9	87
Clay and gravel.	10	97
Clay, blue.	11	108
Clay, brown, gritty.	43	151
"Hardpan".	37	188
Clay, gravel, and boulders . . .	43	231
Clay, sandy, yellow.	34	265
Sand, brown, silty	15	280

Casing, 8-inch, 0 to 192 feet, 6-inch to 280 feet.

19/4-2D2. R. Meyers. Altitude about 410 feet. Drilled by Richardson Well Drilling Co., 1950.

Soil.	2	2
"Hardpan".	58	60
Clay, yellow.	2	62
Clay, yellow, and gravel	21	83
Clay, blue.	3	86
Clay, blue, gritty, and hard gravel	3	89
"Hardpan".	7	96
Gravel and yellow clay	13	109
Clay, blue, gritty.	14	123
Clay, yellow, and gravel	35	158
Gravel and boulders, cemented. .	23	181
Clay, yellow, and gravel. . . .	34	215
"Hardpan".	25	240
Clay, brown, and gravel.	10	250

(continued next page)

19/4-2D2.--(Continued)

Materials	Thickness (feet)	Depth (feet)
Clay, yellow.	13	263
Clay, yellow, and gravel.	12	275
Clay, sandy, dirty brown.	42	317
Clay, sand, gravel, and boulders	33	350
Sand, coarse.	1	351

Casing, 8-inch, 0 to 263 feet, 6-inch to 351 feet.

19/4-4L1. L. Goelzer. Altitude about 350 feet. Drilled by R. Charlton, 1951.

"Hardpan".	180	180
Gravel.	6	186
"Hardpan".	20	206
Gravel.	34	240

Casing, 6-inch, set to 240 feet; perforated from 200 to 235 feet.

19/4-5F1. Fruitland Mutual Water Co. Altitude about 325 feet. Drilled by R. Charlton, 1954.

"Hardpan".	20	20
Gravel, water-bearing.	3	23
"Hardpan".	245	268
Gravel, fairly clean, some sand, loose.	7	275
Sand, fine.	25	300
Clay.	60	360
Sand, fine, heaving	41	401
Sandstone (?), fine-grained, hard.	16	417
Granite (?).	13	430

Casing, 12-inch, set to 403 feet.

19/4-6L1. E. Scharpf. Altitude about 450 feet. Drilled by L. R. Gaudio, 1950.

Soil and gravel.	12	12
Gravel, cemented	12	24
Sand and gravel, loose.	8	32
Gravel, cemented.	61	93
Gravel, cemented, with streaks of sand	19	112
Gravel, cemented	48	160
Clay, cemented gravel, streaks of sand	35	195
Sand, fine, streaks of clay, thin streaks of gravel.	14	209
Sand and gravel.	3	212

Casing, 10-inch, set to 212 feet.

Table 3.--Logs of representative wells.--Con.

19/4-11K1. H. P. Hartman. Altitude about 526 feet. Drilled by N. C. Jannsen Drilling Co., 1936.

Materials	Thickness (feet)	Depth (feet)
Gravel, cemented	15	15
Gravel	7	22
Gravel, cemented, and sand	11	33
Gravel	9	42
Gravel, cemented	6	48
Gravel and boulders	25	73
Sand	5	78
Gravel, coarse, and boulders	19	97
Sand	5	102
Gravel	23	125
Sand, coarse, and gravel	53	178
Gravel, loose, some sand, a little water at bottom	26	204
Sand	2	206
Gravel	2	208
"Hardpan"	1	209
Gravel, loose, dry	58	267
Gravel and sand	18	285
Sand	10	295
Sand and gravel	33	328
Quicksand, water-bearing	12	340
Sand and fine gravel	62	402
Gravel, fine, water-bearing	6	408
Gravel, and coarse sand, water-bearing	10	418

Casing, 8 to 6-inch, set to 410 feet; perforated from 365 to 375 feet and 390 to 408 feet.

19/4-14M1. W. V. Young. Altitude about 544 feet. Drilled by N. C. Jannsen Drilling Co., 1938.

Gravel, cemented	40	40
Gravel, loose, and boulders	41	81
Gravel and sand	29	110
Gravel, loose	41	151
Gravel, fine	43	194
Boulders	59	253
"Hardpan"	27	280
Gravel, cemented	57	337
Gravel and clay	6	343
Gravel, fine, water-bearing	4	347
Clay	8	355

Casing, 8-inch, set from 0 to 267, 6-inch to 355 feet.

Table 3.--Logs of representative wells.--Con.

19/4-15Q1. Owner unknown. Altitude about 450 feet. Dug in 1941.

Materials	Thickness (feet)	Depth (feet)
Soil	2	2
Clay	3	5
Till	18	23
Gravel, cemented	4	27

19/4-20A1. C. G. Aamodt. Altitude about 480 feet. Drilled by R. & W. Well Drilling Co., 1943.

Clay, yellow	12	12
"Hardpan", blue	15	27
(?), with some water	3	30
Clay, blue, and gravel	8	38
"Hardpan", with boulders	89	127
Rock	9	136
"Hardpan"	82	218
"Hardpan"(?), show of water at 219 ft	12	230
Gravel, water-bearing	5	235

Casing, 6-inch, set to 127 feet, 4-inch set to 235 feet.

19/4-20A2. C. G. Aamodt. Altitude about 480 feet. Drilled by L. R. Gaudio, 1950.

Clay and gravel	10	10
Gravel, cemented	16	26
Clay, gravel, rocks	30	56
Gravel, cemented	149	205
Clay and gravel	4	209
Gravel, cemented	7	216
Sand and gravel, tight, some water	16	232
Sand and gravel, coarse, water-bearing	20	252
"Hardpan"	4	256

Casing, 10-inch, set from 0 to 255 feet; perforated from 232 to 252 feet.

Table 3.--Logs of representative wells.--Con.

19/4-22D1. Firgrove Mutual Water District. Altitude about 460 feet. Drilled by R. Charlton, 1953.

Materials	Thickness (feet)	Depth (feet)
Sand.	5	5
Rock, loose.	35	40
Gravel and water.	20	60
Gravel, loose, dry.	100	160
Gravel, water-bearing.	20	180
"Hardpan".	50	230
Gravel, clean.	10	240
Clay- hardpan.	1	241

Casing, 12-inch, set to 236 feet; perforated from 165 to 170, and 226 to 236 feet.

19/4-24A3. B. Birchal. Altitude about 144 feet. Drilled by R & W Well Drilling Co., 1941.

Silt.	25	25
Gravel, water reported to contain iron.	5	30
Sand, water reported to contain iron	20	50
Clay, blue and gravel.	35	85
Gravel, brown, cemented	59	144
Gravel, water-bearing.	1	145

Casing, 5-inch, set to 145 feet.

19/4-31B1. Columbia Powder Co. Altitude about 470 feet. Drilled by Richardson Well Drilling Co., 1947.

Soil.	3	3
"Hardpan".	37	40
Clay and boulders	25	65
"Hardpan".	13	78
Clay and boulders.	20	98
Clay, sandy.	37	135
Clay with large boulders	13	148
Gravel, water-bearing.	2	150

Casing, 6-inch, set to 150 feet.

Table 3.--Logs of representative wells.--Con.

19/5-6E1. F. S. Johnson. Altitude about 90 feet. Drilled by N. Nelson.

Materials	Thickness (feet)	Depth (feet)
Soil and clay	12	12
Sand, fine, water	19	31
Sand and gravel	5	36
Clay and gravel	32	68
Gravel, water	2	70
Sand and gravel	13	83
Sand, hard, and gravel	6	89
Sand, fine	19	108
Sand, hard, and gravel	27	135
Sand, water	5	140
Gravel	3	143

Casing, 6-inch, set to 143 feet. Open bottom.

19/5-6E2. J. Ostofichuk. Altitude about 90 feet. Drilled by N. Nelson, 1949.

Soil and clay	9	9
Sand, black, water	15	24
Clay, blue and gravel	31	55
Sand, black, hard, with gravel, water-bearing	17	72
Sand, black, water-bearing	70	142
Sand and gravel, water-bearing	9	151

Casing, 6-inch, set to 151 feet. Open bottom.

19/5-6M3. H. Brammer. Altitude about 100 feet. Drilled by Service Hardware Co., 1952.

Clay and sand	51	51
Clay, sand, and rock	20	71
Clay, hard, and rock	10	81
Sand	5	86
Sand and gravel	2	88

Casing, 6-inch, set to 88 feet.

19/5-13F2. M. Trob. Altitude about 350 feet. Drilled by N. C. Jannsen Drilling Co., 1933.

Loam, black	3	3
Gravel	7	10
Sand and gravel	12	22
Gravel and boulders	8	30
Gravel	6	36
Gravel and coarse sand, water-bearing	2	38

Casing, 6-inch, set to 38 feet.

Table 3.--Logs of representative wells.--Con.

19/5-32J2. Town of Orting. Altitude about 215 feet. Drilled by L. R. Gaudio, 1953.

Materials	Thickness (feet)	Depth (feet)
Silt, mucky, sand and gravel	63	63
Sand, gravel, and boulders, irony water	27	90
"Hardpan"	1	91
Sand and gravel	3	94
Sand, brown	41	135
Sand, blue, hard	50	185
Sand and gravel, brown	12	197
Clay, blue	16	213
Sand and gravel, hard	5	218
Sand and gravel, loose	7	225
Sand, fine, and clay	17	242
Sand, fine, and coarse gravel	8	250

Casing, 18-inch outer casing, set to 34 feet; 12-inch casing, set from 0 to 189 feet; 7-inch, from 171 to 226 feet; screened, 0.10 slot, from 189 to 199, and from 211 to 226 feet.

19/5-33N1. Kamarad Bros. Altitude about 233 feet. Drilled by F. H. Jensen, 1935.

Soil	5	5
Boulders and gravel, loose	15	20
Sand and clay	3	23
"Hardpan"	7	30
Sand and gravel, fine	7	37
Clay, gray, with fine gravel	14½	51½
"Hardpan" and coarse gravel	2½	54
Boulders, hard	8½	62½
"Hardpan"	1½	64
Sand and clay, hard	3	67
"Hardpan"	25½	92½
Sand, gray, water-bearing	½	93
Sand, with mica and reddish clay	19	112
Sand, yellow, and blue silt, a few rocks	97	209
"Hardpan", water-bearing	11	220
Sand, fine, gray, and clay	2	222

Casing, 3-inch, screened from 208 to 217 feet.

Table 3.--Logs of representative wells.--Con.

19/6-4M1. Marion Water District, Altitude about 695 feet. Drilled by Northwest Well Drilling Co., 1953

Material	Thickness (feet)	Depth (feet)
Soil	4	4
Sand and gravel, brown, boulders	16	20
Sand, gravel, and clay, brown, boulders	9	29
Sand and gravel, brown	7	36
Sand, brown	9	45
Gravel, brown, dry	9	54
Gravel and sand, brown, water-bearing	7	61
Clay, blue, sand, and gravel	2	63
Sand and gravel, hardpacked, water-bearing	52	115
Clay, brown, and gravel	9	124
Sand, brown, and gravel, dry(?)	62	186
Clay, blue, sand, and gravel	10	196
Clay, blue, thin layers of sand	54	250
Clay, blue, and gravel	55	305

Casing, 10-inch, set to 305 feet; perforated from 63 to 115 feet.

19/6-8J2. M. J. Sippola. Altitude about 700 feet.

Soil	4	4
Clay, blue	15	19
Gravel	4	23
"Hardpan", blue	--	--

Casing, 48-inch, set to 5 feet.

19/6-10G1. G. E. Eccles. Altitude about 800 feet. Dug by owner.

Loam and sand	5	5
"Hardpan"	7	12
Sand, red	10	22
Sand, green	4	26

20/2-3M2. E. A. Randrup. Altitude about 134 feet. Drilled in 1940.

"Hardpan"	35	35
Clay, brown	7	42
Sand	3	45

Casing, 6-inch, set to 45 feet.

Table 3.--Logs of representative wells.--Con.

20/2-9C1. Day Island Club. Altitude about 10 feet. Drilled by W. A. Garland, 1923.

Materials	Thickness (feet)	Depth (feet)
Clay, hard, sandy	3	3
Sand, cemented	29	32
Clay, blue	10	42
Sand, gravel, and boulders, hard	43	85
Boulder	4	89
"Hardpan"	22	111
Boulders and sand	5	116
Sand, blue, fine, and gravel	6	122
Sand and coarse gravel	7	129
Sand, fine, and gravel	45	174
Sand, gravel, and boulders	4	178
Sand, fine, cemented	15	193
Sand and gravel, cemented	39	232
Clay and sand	8	240
Clay, blue	35	275
Sand, fine, and boulders	6	281
Sand, brown	4	285
Sand and gravel	21	306
Clay, blue and brown, with sandy streaks	75	381
Sand, fine, and gravel	9	390
Clay, blue, and sand	47	437
Clay, brown	4	441
Wood fragments	2	443
Sand, fine, and silt	7	450
Gravel, coarse, water-bearing	3	453
Gravel and sand, cemented	3	456
Sand, fine, blue and gray	25	481
Gravel	--	---

Casing, 8-inch, 0 to 288 ft, 6-inch, to 337, 4½-inch to 481 feet.

20/2-9C2. Day Island Club. Altitude about 10 feet. Drilled by Richardson Well Drilling Co., 1950.

Soil	3	3
Clay, yellow, and gravel	6	9
"Hardpan"	36	45
Sand, clay, and gravel	2	47
Clay, blue, and gravel	8	55
Clay, blue	12	67
Sand, fine, and gravel	2	69
"Hardpan"	7	76
Gravel, loose, coarse	4	80
Clay, sand, and gravel	10	90
"Hardpan"	76	166

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Table 3.--Logs of representative wells.--Con.

20/2-9C2.--(Continued)

Material	Thickness (feet)	Depth (feet)
Sand, fine, and gravel, some clay	3	169
Sand, clay, and some gravel	17	186
"Hardpan"	7	193
Clay, sand, and gravel	1	194
"Hardpan"	87	281
Clay, blue	8	289
Clay and gravel	18	307
Sand, fine, clay, and gravel	7	314
"Hardpan"	20	334
Clay, blue, and fine sand	19	353
Sand, fine	19	372
Clay, brown, blue, and pink	18	390
Sand, fine, clay, and some gravel	6	396
"Hardpan"	19	415
Sand, fine, heaving, with streaks of clay	10	425
Clay, blue, green, and brown	23	448
Sand, clay, and a little fine gravel	4	452
Clay, black, and brown, and a few pieces of wood	15	467
"Hardpan"	13	480
Clay, sand, and some gravel	24	504
Sand, coarse, clay streaks, and a few pebbles	28	532
Clay, gray, and brown	14	546
Clay, brown, and fine sand	9	555
Clay, brown	10	565
"Hardpan", fine and sandy	13	578
Sand, pebbles, and some clay	8	586
Sand, coarse to fine, and pea gravel	7	593
Sand, coarse to fine, with clay	6	599
Sand and gravel, coarse, some clay	7	606

Casing, 10-inch outer casing, set from 0 to 284 feet; 8-inch casing, set from 0 to 606 feet, open bottom.

20/2-11J3. Town of Fircrest. Altitude about 228 feet. Drilled by L. V. Denny, 1940.

Sand, coarse	100	100
Sand, fine	107	207
Clay, blue	3	210
"Hardpan"	80	290
Clay, gray	4	294
Silt	10	304
Gravel, cemented	50	354
Clay, pink	3	357
"Hardpan", sandy	20	377
Sand, to "volcanic"	20	397

Table 3.--Logs of representative wells.--Con.

20/2-11J5. Town of Fircrest. Altitude about 279 feet. Drilled by L. V. Denny, 1940.

Materials	Thickness (feet)	Depth (feet)
Soil	3	3
"Hardpan"	35	38
Sand and gravel, hard	14	52
Sand, coarse	42	94
Gravel, water-bearing	26	120
"Hardpan"	5	125

Casing, 8-inch.

20/2-11J6. Town of Fircrest. Altitude about 282 feet. Drilled by L. V. Denny, 1941.

Soil	5	5
"Hardpan"	30	35
Sand, some water	2	37
Sand, hard, dry	33	70
Sand and clay	31	101
Gravel and sand	2	103
Gravel, coarse, and sand, water-bearing	11	114
Gravel, fine, and sand	2	116
Sand	3	119
Gravel, coarse, and sand, water-bearing	21	140
Gravel, fine, and sand, water-bearing	8	148
Gravel, coarse	18	166
Gravel, fine, and sand	3	169
Quicksand	--	--

Casing, 10-inch, set to 169 feet; perforated from 123 to 162 feet, plugged at bottom.

20/2-11J7. Town of Fircrest. Altitude about 280 feet. Drilled by P. Sylte, 1950.

Soil	4	4
Sand and gravel, cemented	41	45
Sand, hard, dry	8	53
Sand, some water	13	66
Sand, cemented	21	87
"Hardpan"	15	102
Sand and gravel, water-bearing	5	107
Sand, fine	9	116
Sand and gravel, cemented	6	122
Sand, very fine	2	124

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Table 3.--Logs of representative wells.--Con.

20/2-11J7.--(Continued)

Materials	Thickness (feet)	Depth (feet)
Sand, cemented.	11	135
"Hardpan".	58	193
Sand, muddy.	2	195
"Hardpan".	13	208
Sand, muddy.	13	221
"Hardpan".	44	265
Gravel, sand, and clay.	10	275
Silt.	13	288
"Hardpan".	5	293
Sand, hard, small flow of water .	5	298
Gravel, cemented.	14	312

20/2-11L1. Fircrest Golf Club. Altitude about 280 feet. Drilled by Tacoma Pump & Drilling Co., 1951.

Soil.	6	6
Sand and gravel, compact.	4	10
"Hardpan".	23	33
Clay, sandy.	6	39
Sand and gravel, some water . . .	10	49
"Hardpan".	15	64
Sand and gravel, compact, some water	4	68
"Hardpan", sandy.	9	77
Sand and gravel, water-bearing. .	2	79
Sand and gravel, hardpacked . . .	2	81
Sand, hardpacked.	2	83
Sand and gravel, hardpacked . . .	2	85
"Hardpan".	2	87
Sand and gravel, coarse.	24	111
Sand and gravel, hardpacked . . .	4	115
Sand and gravel, coarse.	5	120

Casing, 10-inch, set to 120 feet; perforated from 77 to 81, 83 to 85, and 87 to 120 feet.

20/2-11M1. Fircrest Golf Club. Altitude about 300 feet. Drilled by Tacoma Pump & Drilling Co., 1952.

Soil, rocky.	3	3
Sand, gravel, and clay, dry. . .	16	19
Sand, loose, with gravel and clay	3	22
"Hardpan", sandy.	4	26
Sand and gravel, dry	13	39
"Hardpan".	2	41
Sand and gravel, dry	34	75
Sand, coarse, muddy, some water.	10	85
Quicksand.	17	102
Sand and gravel, medium, muddy .	12	114

(continued next page)

Table 3.--Logs of representative wells--Con.

20/2-11M1.--(Continued)

Materials	Thickness (feet)	Depth (feet)
Quicksand	30	144
Sand and gravel, clean	2	146
Quicksand, fine	13	159
"Hardpan", sandy	19	178
Clay, blue	4	182
Sand and gravel, hardpacked	6	188
Sand and gravel, loose, muddy	3	191
Sand and gravel, hardpacked	7	198
Gravel, cemented, dry	12	210
Sand and coarse gravel	6	216
Clay, brown	1	217
Sand and gravel, muddy	4	221
Peat and blue clay	8	229
Sand, gravel, clay, hardpacked, small amount of water	7	236
Sand and gravel, clean, water-bearing	4	240
Sand, gravel, and clay	2	242
Sand and gravel, clean water-bearing	15	157

Casing, 10-inch, set to 257 feet; perforated from 236 to 252 feet.

20/2-11N1. Fircrest Golf Club. Altitude about 292 feet. Drilled by E. F. Lawson, 1923; deepened by N.C.Jannsen Drilling Co., 1930.

Loam	2	2
"Hardpan"	48	50
Sand	5	55
"Hardpan"	3	58
Sand, red, dry	49	107
Quicksand	62	169
Sand, packed or cemented	9	178
Gravel and coarse sand	6	184
Gravel, coarse	3½	187½
Sand and gravel	7½	195
No record	10	205
Clay and sand	20	225
Sand and gravel	2	227
No record	3	230
Sand	2	232
Sand and gravel	13	245
Gravel, fine	6	251
Sand, hard	19	270

Table 3.--Logs of representative wells--Con.

20/2-11R1. Town of Fircrest. Altitude about 275 feet. Drilled by P. Sylte, 1950.

Materials	Thickness (feet)	Depth (feet)
Soil	1½	1½
"Hardpan"	17½	19
Sand and gravel, dry	10	29
Sand, dry, some clay	33	62
Sand and gravel	5	67
Sand, coarse, little water	1	68
Clay and sand	5	73
Sand, coarse, little water	1	74
Clay and sand	9	83
Gravel, cemented	5	88
Gravel and sand, water-bearing	6	94
Sand, small flow of water	10	104
Sand and gravel, cemented	2	106
Gravel, good flow of water	1	107
Gravel, cemented	6	113
Clay, sand, and gravel	8	121
Gravel and sand, water-bearing	1	122
Gravel, cemented	6	128
Sand and gravel, good flow of water	2	130
Sand	4	134
Gravel, cemented	7	141
Gravel, good flow of water	8	149
Gravel, cemented	1	150
Sand and clay, dry	2	152

Casing, 12-inch, set to 152 feet; perforated from 88 to 94, and 141 to 149 feet.

20/2-12H1. Bellarmine High School. Altitude about 399 feet. Drilled by J. J. Bell & Son, 1940.

"Hardpan"	22	22
Sand, silty, and clay	151	173
Sand, coarse, and gravel, water-bearing	10	183
Sand, silty, hard	27	210
Sand, coarse, and gravel, water-bearing	8	218

Casing, 8-inch, set to 218 feet; perforated from 173 to 183, and 210 to 215 feet.

Table 3.--Logs of representative wells--Con.

20/2-13A1. City of Tacoma, log of test hole. Altitude about 259 feet. Drilled by L. R. Gaudio, 1953.

Materials	Thickness (feet)	Depth (feet)
Sand and gravel, dirty	5	5
Sand, coarse, dirty, and some gravel	45	50
Sand and gravel	15	65
Gravel, coarse	24	89
Sand, gravel, and clay	3	92
Sand and gravel, cemented with blue clay	28	120
Sand and gravel, cemented with brown clay	5	125
Sand and gravel, cemented with blue clay	7	132
Sand and gravel, cemented with green clay	4	136
Sand and gravel, coarse, a little blue clay	4	140
Sand, gravel, and clay	18	158
Sand and gravel, cemented with brown clay	4	162
Clay, brown, sandy	5	167
Sand, brown, with little clay	8	175
Clay and sand	3	178
Sand, gravel, and clay	9	187
Sand and gravel	15	202
Sand, gravel, and clay	6	208
Sand and gravel	5	213
Sand, gravel, and clay	9	222
Gravel and sand, some clay	4	226
Sand, gravel, and clay	29	255
Clay	5	260

20/2-13H1. City of Tacoma, well 4-A. Altitude about 259 feet. Drilled by N. C. Jannsen Drilling Co., 1930

Sand	48	48
Gravel	3	51
Gravel and sand	20	71
"Hardpan"	1	72
Gravel and sand	4	76
Sand	5	81
Gravel, "hardpan"	3	84
Gravel, clean	2	86
Gravel, "hardpan"	26	112
Gravel, fine, and sand	34	146
Clay, blue	5	151
Sand, hard	16	167
Gravel, cemented	11	178

(continued next page)

Table 3.--Logs of representative wells--Con.

20/2-13H1.--(Continued)

Materials	Thickness (feet)	Depth (feet)
Gravel, clean	4	182
Gravel, cemented	9	191
Sand, cemented	11	202
Gravel, cemented	2	204
Gravel and boulders, cemented	26	230
Clay, hard	4	234
Gravel, cemented	5	239
Clay, sticky	4	243
Gravel and boulders, cemented	17	260
Sand and gravel, loose	5	265
Sand, fine and hard	29	294

Casing, 38-inch outer casing, set from 0 to 60 feet, 26-inch casing, set from 0 to 204 feet; perforated from 60 to 76, 83 to 121, 125 to 146, and 153 to 184 feet, plugged at bottom.

20/2-13J1. City of Tacoma, well 6-A. Altitude about 266 feet. Drilled by C. V. Enloe, 1939.

Sand, brown, fine	30	30
Sand, fine, with some pea gravel	38	68
Sand, gravel, and cobbles; water-bearing	9	77
Gravel and sand, cemented	7	84
Gravel and sand, coarse, water-bearing	6	90
Gravel and sand, cemented	5	95
Gravel and sand, loose, and water-bearing	12	107
Sand, brown, packed	6	113
Sand, gray, packed	25	138
Gravel and sand	15	153
Gravel, black, tightly cemented (no sand)	29	182
Sand with some gravel; hard, cemented, streaked with clay	21	203
Sand, gravel, and boulders, with hard clay	10	213
Sand, black, hard	7	220
Sand, gray, and gravel; cemented	6	226
Clay, bluish gray	129	355

Casing, 38-inch outer casing, set from 0 to 101 feet, 26-inch casing from 0 to 183 feet; perforated from 91 to 125 and from 141 to 175 feet; plugged with concrete at 179 feet.

Table 3.--Logs of representative wells--Con.

20/2-13J2. City of Tacoma, well 11-A. Altitude about 266 feet. Drilled in 1950.

Materials	Thickness (feet)	Depth (feet)
Sand and gravel, coarse	10	10
Sand, silty, yellow brown, occasional small pebble	48	58
Sand and some fine gravel, water-bearing	23	81
Sand and gravel	12	95
Sand and gravel, water-bearing	5	100
Gravel, coarse, clean, water-bearing	14	114
Gravel, "hardpan", some clay	6	120
Sand	3	123
Sand and gravel, hard	3	126
Sand and fine gravel	4	130
Sand, fine	10	140
Gravel, cemented, some clay	10	150
Sand, fine	1	151

Casing, 36-inch outer casing, set from 0 to 92 feet, 26-inch casing, set from 0 to 92½ feet; screen set from 92½ to 112½ feet.

20/2-13R1. South Tacoma Ice Co.. Altitude about 264 feet. Drilled in 1929.

Sand and gravel	60	60
Sand	8	68
Sand and gravel	22	90
Gravel, coarse	25	115
Sand	15	130
Gravel	10	140

20/2-14A1. University Place Water Co. Altitude about 220 feet. Drilled in 1945.

Soil and sand	8	8
"Hardpan"	10	18
Sand and gravel, some water	30	48
Gravel to sand, water-bearing	22	70

Casing, 10-inch, set to 50 feet, perforated.

Table 3.--Logs of representative wells--Con.

20/2-14A2. University Place Water Co. Altitude about 220 feet. Drilled in 1945.

Materials	Thickness (feet)	Depth (feet)
Soil and sand	6	6
"Hardpan"	10	16
Sand and some gravel	31	47
Gravel and sand, water-bearing	28	75

Casing, 10-inch set to 75 feet; perforated 56 to 71 feet.

20/2-15L1. J. Nelson. Altitude about 384 feet. Drilled by N. C. Jannsen Drilling Co., 1938.

Clay	2	2
Boulders	15	17
Gravel, cemented	14	31
Gravel	98	129
Sand	5	134
Gravel	25	159
Sand and clay	11	170
Gravel, sand, and clay	13	183
Sand and clay	14	197
Sand, yellow	17	214
Sand	33	247
Gravel, fine	1	248
Sand, with coarse gravel	3	251

Casing, 8-inch to 6-inch, set to 251 feet.

20/2-15M1. J. W. Forsythe. Altitude about 393 feet. Drilled in 1940.

"Hardpan"	65	65
Sand and gravel, loose	145	210
Sand, blue, fine	60	270
Sand and some gravel	25	295
Gravel, cemented	20	315
Clay, blue	20	335
Gravel, cemented, wood at 385 feet	105	440

Table 3.--Logs of representative wells--Con.

20/2-16A1. University Place Water Co. Altitude about 330 feet. Drilled by Charles Weller, 1951.

Materials	Thickness (feet)	Depth (feet)
Sand	27	27
"Hardpan"	14	41
Gravel and sand	4	45
Sand	73	118
Gravel, cemented	3	121
Sand and gravel	1	122
Gravel, cemented	6	128
Sand	7	135
Gravel, cemented	5	140
Sand	15	155
Gravel, cemented	2	157
Sand and gravel	1	158
Gravel and sand, gravel up to 3-inches in diameter	13	171

Casing, 8-inch, set from 0 to 162 feet; .100 slot screen from 161 to 171 feet.

20/2-16M1. Sunset Beach Improvement Club. Altitude about 100 feet. Drilled by Richardson Well Drilling Co., 1952.

Clay, yellow, and gravel	5	5
Clay, blue	63	68
"Hardpan"	7	75
Clay, blue, and gravel	9	84
Sand, water-bearing	6	90
Clay, brown, sand, silt, and bits of wood	15	105
Sand and gravel, coarse, water-bearing	2	107
"Hardpan"	8	115
Sand and gravel, loose, water-bearing	3	118

Casing, 8-inch.

20/2-20P1. Pioneer Sand and Gravel Co. Altitude about 25 feet. Drilled by N. C. Jannsen Drilling Co., 1940.

Sand and gravel	110	110
Shale (clay)	80	190
Gravel, water-bearing	2	192
Clay, blue, and gravel	223	415
Gravel, water-bearing	10	425
Clay, blue, and boulders	41	466
Gravel, water-bearing	69	535
Gravel, with some coarse sand, water-bearing	265	800

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Table 3.--Logs of representative wells--Con.

20/2-20P1.--(Continued)

Materials	Thickness (feet)	Depth (feet)
Shale.	40	840
Gravel, fine, dark, angular, water-bearing.	180	1020

Casing, 22-inch outer casing, set from 0 to 110 feet, 16-inch, casing from 0 to 535 feet, and 12-inch from 520 to 1020 feet; perforated from 260 to 300, 535 to 800, and 840 to 1020 feet.

20/2-22C1. T. Drum. Altitude about 400 feet. Drilled by P. Sylte, 1947.

Dug well, no record.	53	53
Sand, packed, dry.	72	125
Sand and gravel, cemented.	72	197
Sand, fine, dirty, small amount of water.	23	220
Sand, and a little small gravel. .	10	230
Clay, sandy.	30	260

Casing, 6-inch, set to 260 feet; screened from 220 to 230 feet.

20/2-24A2. Northern Pacific Railway. Altitude about 252 feet. Drilled by N.C.Jannsen Drilling Co., 1928.

Dug, no record.	40½	40½
Sand, fine to coarse, a few cobbles	10	50½
Sand and gravel, with cobbles. . .	49½	100
Sand and gravel, cemented, some blue clay.	13	113
Gravel, water-bearing.	1	114
Sand, gravel, and clay hardpan . .	16	130
Quicksand.	1	131
"Hardpan".	4	135
Gravel, water-bearing.	2	137
"Hardpan".	2	139
Sand, red, compact	6	145
Sand and gravel, packed.	7	152
Gravel, water-bearing.	15	167
Sand and some fine gravel.	20	187
Clay, blue.	1	188
Gravel and sand, water-bearing . .	5	193
"Hardpan".	3	196

Casing, 18-inch, set to 152 feet, 15-inch, set from 144 to 196 feet.

Table 3.--Logs of representative wells--Con.

20/2-24F1. S.W. Bell. Altitude about 284 feet. Dug about 1910.

Materials	Thickness (feet)	Depth (feet)
"Hardpan"	10	10
Gravel, cemented	10	20
Sand	47	67

Casing, 48-inch.

20/2-25P1. L. J. Schuler. Altitude about 240 feet. Drilled by L. R. Gaudio, 1948.

Soil and gravel	16	16
Clay, sand, and gravel	4	20
Gravel, water-bearing	33	53
Sand and gravel, water-bearing	9	62

Casing, 10-inch, set to 62 feet; perforated from 40 to 60 feet.

20/2-26L1. E. Holmberg. Altitude about 230 feet. Drilled by Service Hardware Co., 1951.

Gravel	20	20
Clay, mucky, brown	2	22
Gravel, water-bearing	8	30

Casing, 6-inch, set to 30 feet.

20/2-29Q1. West Tacoma Newsprint Co. Altitude about 19 feet. Drilled by N. C. Jannsen Drilling Co., 1937.

Gravel, coarse, silt, and wood	45	45
Clay, streaks of sand	48	93
Clay	101	194
Gravel, coarse and pervious	16	210
Clay	34	244
Gravel, pervious	20	264
Clay	242	506
Sand	6	512
Clay	28	540
Gravel, cemented	8	548

Casing, 34-inch outer casing, set from 0 to 90 feet, 26 inch casing, from 0 to 287 feet, 24-inch, from 283 to 326 feet, and 10-inch from 320 to 542 feet. Rehabilitated in 1952, 12-inch casing extends from surface to 75 feet, 8-inch, from 75 to 275 feet; perforated from 189 to 219 and 240 to 270 feet.

Table 3.--Logs of representative wells.--Con.

20/2-29Q2. West Tacoma Newsprint Co. Altitude about 14 feet. Drilled by N. C. Jannsen Drilling Co., 1937

Materials	Thickness (feet)	Depth (feet)
Boulders, gravel, and sand.	50	50
Gravel.	25	75
Clay.	15	90
Clay, sandy	74	164
Gravel.	9	173
Clay.	10	183
Gravel.	53	236
Clay.	31	267
Sand and fine gravel.	20	287
Clay.	45	332
Sand.	10	342
Clay.	70	412
"Hardpan"	25	437
Gravel and boulders	22	459
Sand and clay.	36	495
Gravel, water-bearing.	10	505
Sand and boulders.	19	524
Gravel and sand.	19	543
Clay.	5	548
Sand.	133	681
Clay.	21	702
Gravel.	14	716
Clay.	8	724
Gravel and sand	51	775
Clay and sand.	65	840
Sand.	8	848
Gravel and sand	6	854

Casing, 36-inch outer casing, set from 0 to 6 feet, 34-inch casing, from 0 to 18 feet, 18-inch from 0 to 508 feet, 12-inch, from 266 to 788 feet; perforated from 500 to 775 feet.

Table 3.--Logs of representative wells.--Con.

20/2-32B1. West Tacoma Newsprint Co. Altitude about 22 feet. Drilled by N. C. Jannsen Drilling Co., 1938.

Materials	Thickness (feet)	Depth (feet)
"Muck"	16	16
Gravel	79	95
Clay	50	145
Shale and gravel	36	181
Clay, blue, some gravel	63	244
Clay, sandy	129	373
Silt	45	418
Shale, sandy	22	440
Silt	12	452
Gravel and clay	12	464
Silt	18	482
Shale, sandy	68	550
Boulder	10	560
Gravel, water-bearing	8	568
Shale	7	575
Gravel, water-bearing	19	594
Shale	24	618
Shale, gravelly	15	633
Shale	10	643
Gravel, water-bearing	21	664
Boulders	18	682
Gravel and boulders	20	702
Sand, packed, and gravel	10	712
Gravel and boulders	34	746
Gravel	14	760
Gravel, coarse, and shale	47	807
Shale	33	840
Sand and gravel, water-bearing	40	880
Shale	15	895
Gravel	20	915
Shale, gravelly	30	945
Shale, soft	12	957
Shale, gravelly	64	1021
Gravel, water-bearing	7	1028
Shale	5	1033
Gravel, water-bearing	79	1112
Shale	60	1172

Casing, 18-inch, set from 0 to 502 feet, and 12-inch from 476 to 1172 feet; perforated from 554 to 849, and 988 to 1093 feet.

Table 3.--Logs of representative wells--Con.

20/2-32Q2. G. Taylor. Altitude about 250 feet. Drilled by Tacoma Pump and Drilling Co., 1953.

Materials	Thickness (feet)	Depth (feet)
Soil.	3	3
Sand and gravel, hardpacked, dry. .	17	20
Sand and gravel, some clay.	27	47
"Hardpan".	7	54
Sand and gravel, some clay.	26	80
Clay, sandy.	18	98
Sand and gravel, clean, water-bearing	17	115

Casing, 6-inch, set to 115 feet.

20/2-34B1. R. Nobel. Altitude about 250 feet. Drilled by Service Hardware Co., 1950.

Gravel, hardpacked, dry.	55	55
Clay.	10	65
Gravel, water-bearing.	7	72

Casing, 6-inch, set to 72 feet.

20/2-34E1. Lakewood Water District, test well 5. Drilled by L. R. Gaudio, 1950.

Soil.	2	2
Sand and small rock	18	20
Sand, some dirt, loose rock, and pea gravel.	6	26
Gravel, loose, fine, and sand . . .	20	46
Sand.	4	50
Sand, loose, and gravel	4	54
Gravel, cemented with brown clay. .	32	86
Gravel, loose, sand, and clay. . . .	5	91
Sand.	4	95
Gravel, loose, sand, clay	14	109
Sand, medium, fine.	5	114
Sand, coarse, and fine gravel. . .	4	118
Sand, coarse, fine gravel, brown clay	11	129
Gravel, sand, and brown clay. . . .	21	150
Sand and gravel, and purple clay. .	10	160
Sand, and very little small gravel.	5	165
Sand, heaving.	7	172
Gravel, cemented.	16	188
Gravel, loose.	2	190
Sand and gravel, loose.	12	202
Sand and a few rocks.	5	207
Sand, loose, and rocks.	4	211
Gravel and some loose sand.	21	232
Gravel, loose, and some sand. . . .	19	251

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Table 3.--Logs of representative wells--Con.

20/2-34E1.--(Continued)

Materials	Thickness (feet)	Depth (feet)
Gravel, fine to coarse.	11	262
Gravel, coarse.	20	282
Sand, heaving.	5	287

Casing, 10-inch; perforated from 190 to 200, and 212 to 250 feet.

20/2-35P1. Lakewood Community Center. Altitude about 258 feet. Drilled by N.C.Jannsen Drilling Co., 1937.

Gravel, with boulders.	49	49
Sand.	21	70
Clay, blue, a little gravel mixed with clay below 150 feet.	164	234
Gravel and sand.	16	250
Clay.	6	256
Sand and gravel	82	338
Gravel, water-bearing.	3	341
Clay, sandy.	43	384
Clay.	10	394
Sand, brown.	91	485
Gravel, cemented.	20	505
Clay, sandy, with gravel	80	585
Sand, yellow, water-bearing. . . .	52	637
Sand, black, water-bearing	131	768

Casing, 10-inch, set from 0 to 180 feet, 8-inch, from 151 to 480 feet, 6-inch, from 457 to 576 feet, and 4-inch, from 536 to 768 feet; perforated from 576 to 637, and 664 to 747 feet.

20/2-36F1. Mountain View Memorial Park. Altitude about 240 feet. Drilled by L. R. Gaudio, 1954.

Peat.	5	5
Sand and gravel, brown.	13	18
Gravel, coarse and sand	7	25
Boulders and sand, tight.	6	31
Sand and gravel, blue, tight, with pieces of wood.	11	42
Clay, sandy.	--	--

Casing, 12-inch, set to 42 feet.

Table 3.--Logs of representative wells--Con.

20/2-36F2. Mountain View Memorial Park. Altitude about 240 feet. Drilled by L. R. Gaudio, 1954.

Materials	Thickness (feet)	Depth (feet)
Peat	6	6
Sand and gravel	2	8
Sand	8	16
Sand and gravel, up to 1½ inches	10	26
Gravel, up to 8 inches	6	32
Sand	8	40
Clay, blue, sandy	46	86
Gravel, coarse, and dirty blue sand	22	108
Sand, dirty	21	129
Boulders, up to 9 inches, and sand and gravel, brownish	24	153
Gravel and clay	2	155

Casing, 12-inch, set to 155 feet.

20/2-36L1. Mountain View Memorial Park. Altitude about 270 feet. Drilled in 1941.

Gravel	..	..
Sand	..	..
Clay	..	80
"Hardpan"	17	97
Not recorded	26	123
Sand, coarse	13	136
Clay	3	139
Sand, fine	33	172
Clay	26	198
Gravel	4	202

20/3-1F1. Brookville Gardens. Altitude about 15 feet. Drilled by L. R. Gaudio, 1952.

Sand	30	30
Clay	11	41
Sand and clay, hard	9	50
Clay, sandy, and streaks of clay	90	140
Sand, hard	25	165
Clay	4	169
Sand and streaks of clay	16	185

Casing, 10-inch, set to 157 feet, 6-inch, set to 185 feet; slotted casing from 157 to 185 feet.

Table 3.--Logs of representative wells--Con.

20/3-1R1. Century Amusement Co. Altitude about 20 feet. Drilled by F. H. Jensen

Materials	Thickness (feet)	Depth (feet)
Gravel (fill)	3	3
Muck and sand	3	6
Gravel, fine, and sand	9	15
Gravel, slightly coarser	3	18
Sand, soft	3	21
Sand and silt	15	36
Clay, gray, muck, silt and sand	6½	42½
Sand and clay, fine, hardpacked	1½	44
Clay, dark gray, brownish muck, silt and sand	27	71
Sand, black, fine, porous	6	77
Sand and clay	2	79
Sand, silt, and shells	6½	85½
Sand	6½	92
Sand, mucky, and shells	10	102
Clay, dark bluish, soft, with silty sand	4	106
Clay, muck, and some sand	9	115
Silt	6	121
Silt and soft dark clay	4	125
Sand, gray, fine and silty, numerous shells	51	176
Sand, gray and fine, lumps of "fatty" clay	7	183
Clay	3	186
Sand and clay, "hole stands"	10	196
Clay, gray and yellow, with wood pieces	17¾	213¾
Clay, yellow, and fine sand	4¼	218
Sand, coarser, and occasional small pebbles	34¾	252¾

Casing, 2-inch, set to 238 feet; screen set from 238 to 250 feet.

20/3-2K1. G. Kawosaki. Altitude about 15 feet. Drilled by J. J. Bell & Son, 1950.

Soil and clay	5	5
Silt, brown, heavy with clay	11	16
Sand, gray, fine; water-bearing	3	19
Clay, gumbo and wood	36	55
Sand, dirty; water-bearing	17	72
Sand, clean; water-bearing	10	82
Sand, dirty	--	--

Casing, 8-inch, set to 72 feet; .020 slot screen set from 72 to 82 feet.

Table 3.--Logs of representative wells--Con.

20/3-4G1. Northwest Door Co. Altitude about 10 feet. Drilled in 1941

Materials	Thickness (feet)	Depth (feet)
Sand, black, salt water	161	161
Silt, brown	17	178
Sand, coarse, and gravel, salt water	8	186
Peat, brown	3	189
Sand and gravel, coarse, fresh water	7	196
Sand, yellow, and clay	79	275
"Hardpan", brown	35	310
"Hardpan", gray	65	375
Clay, blue, and silty sand	48	423
Sand, cemented, and gravel	6	429
"Hardpan", blue, and large rocks	149	578
Gravel, cemented, hard	5	583
Sand, coarse, and gravel, water-bearing	27	612
Clay, brown, laminated, and sand	12	624
Sand, brown, and very fine silt	10	634
Clay, brown, and rocks	6	640

Casing, 12-inch outer casing, set from 0 to 157 feet, 10-inch casing, from 0 to 257 feet, and 8-inch set from 0 to 620 feet.

20/3-4H2. St. Paul and Tacoma Lumber Co. Altitude about 12 feet. Drilled by N. C. Jannsen Drilling Co., 1940.

Sand, wood, and mud	84	84
Gravel, sand, and mud	185	269
Gravel, cemented	20	289
Clay and boulders	13	302
Gravel	12	314
Clay	6	320
Gravel	7	327
"Hardpan"	113	440
Clay and boulders	20	460
Gravel and boulders	127	587
Rock	5	592
Shale	90	682
Gravel	132	814
Shale	7	821
Sand	65	886
Gravel	37	923
Clay, blue	44	967
Clay and boulders	47	1014
Gravel	17	1031
Shale	72	1103
Gravel and sand	21	1124
Shale	92	1216

(continued next page)

Table 3.--Logs of representative wells--Con.

20/3-4H2.--(Continued)

Materials	Thickness (feet)	Depth (feet)
Sand.	4	1220
Clay.	28	1248
Gravel and sand	52	1300
Shale.	51	1351
Clay, sandy.	104	1455
Gravel and boulders.	39	1494
Clay and boulders.	7	1501

Casing, 16-inch, set from 0 to 600 feet, 12-inch, set from 587 to 1,501 feet. Perforated from 655 to 665, 775 to 839, 847 to 919, 937 to 982, 999 to 1,031, 1,263 to 1,295, and from 1,455 to 1,486 feet.

20/3-4J2. Carstens Packing Co. Altitude about 12 feet. Drilled by N. C. Jannsen Drilling Co., 1936.

Sand, silt, logs.	70	70
Sand.	60	130
Sand, black.	125	255
Gravel, coarse.	7	262
Boulders, in part cemented with clay	84	346
Clay and boulders.	75	421
Boulders.	17	438
Sand, gray, water-bearing.	8	446
Boulders.	24	470
Gravel and cobbles, water-bearing	25	495
Boulders, water-bearing	29	524
Boulders and gravel.	8	532
Gravel, cemented.	6	538
Boulders.	15	553
Boulders and clay	22	575
Boulders.	21	596
Clay.	29	625
Gravel, water-bearing	15	640
Clay.	65	705

Casing, 10-inch, set from 0 to 276 feet, 8-inch, set from 267 to 640 feet. Perforated from 356 to 640 feet.

Table 3.--Logs of representative wells--Con.

20/3-4P2. Northwestern Woodenware Co. Altitude about 20 feet. Drilled by J. J. Bel & Son, 1940.

Materials	Thickness (feet)	Depth (feet)
Cinders (fill)	8	8
Clay, blue, sandy, with shells	20	28
Gravel, cemented, brown, water-bearing	39	67
"Hardpan" and clay	4	71
"Hardpan", yellow	69	140
Sand and gravel, yellow, coarse, water-bearing	5	145
"Hardpan", yellow	33	178
Shale, yellow, hard	17	195
Sand and gravel, yellow, hard	29	224
Sand and gravel, yellow, water-bearing	14	238
Sand, brown, well flowing 135 gpm	12	250

Casing, 12- to 10-inch, set to 250 feet.

20/3-4Q1. Wheeler-Osgood Co. Altitude about 8 feet. Drilled by E. F. Lawson.

Silt and sand	25	25
Sand, streaks of "hardpan"	175	200
"Hardpan"	60	260
Clay, blue, sandy	3	263
Gravel, coarse, water-bearing	2	265
"Hardpan", yellow	7	272
Clay, yellow, sticky	3	275
Clay, blue	3	278
"Hardpan"	28	306
Clay, brown and blue	14	320
Gravel, coarse, water-bearing	8	328
"Hardpan"	7	335
Sand, packed	16	351
Sand, loose	64	415
Gravel and cobbles	15	430
"Hardpan"	59	489
Gravel, coarse, water-bearing	3	492

Casing, 10-inch outer casing, set from 0 to 313 feet, and 8-inch casing, set from 0 to 490 feet.

Table 3.--Logs of representative wells--Con.

20/3-7F1. Allenmore Golf Course. Altitude about 299 feet. Drilled in 1931.

Materials	Thickness (feet)	Depth (feet)
No record.	12	12
"Hardpan".	15	27
Quicksand, fine	23	50
"Hardpan".	37	87
Sand and gravel, some boulders, water-bearing.	65	152
"Hardpan".	8	160

Casing, 12- to 10-inch.

20/3-7G1. Allenmore Golf Course. Altitude about 355 feet. Drilled by P. Sylte, 1948.

Soil.	4	4
"Hardpan".	11	15
Sand and gravel, cemented	37	52
Sand and gravel, dry.	73	125
Sand and gravel, cemented. . . .	5	130
Sand and gravel, small flow of water	22	152
Sand and gravel, cemented. . . .	2	154
Gravel, coarse, water-bearing . .	16	170
Sand, fine, very little water . .	17	187
Gravel, cemented.	39	226
Sand and silt.	10	236
"Hardpan" and boulders	30	266
Sand, cemented, small flow of water	4	270

Casing, 10-inch, set to 270 feet. Perforated from 155 to 169 feet.

20/3-7J1. City of Tacoma (original site of well 3-A). Altitude about 263 feet. Drilled by N. C. Jannsen Drilling Co., 1930.

Gravel.	31	31
Gravel and sand	15	46
Gravel and clay.	12	58
Gravel, cemented	7	65
Gravel and clay.	5	70
Gravel, cemented	20	90

Table 3.--Logs of representative wells--Con.

20/3-7N2. Pacific Match Co. Altitude about 245 feet. Drilled in 1936.

Materials	Thickness (feet)	Depth (feet)
Fill(?)	20	20
Sand	21	41
Gravel, coarse	23	64
"Hardpan"	20	84
Clay, blue	5	89
Sand, very fine	21	110
"Hardpan"	45	155
Sand	15	170
Gravel	35	205

Casing, 8-inch. Perforated from 140 to 155, 170 to 180, and 185 to 200 feet.

20/3-7Q1. Tacoma Milk Producers Association. Altitude about 255 feet. Drilled by N. C. Jannsen Drilling Co., 1934.

Sand and gravel	19	19
Boulders	4	23
No record	7	30
Sand and gravel, some water	27	57
Gravel, water-bearing	10	67
Gravel	13	80
Sand and gravel	14	94
Silt, sand, and clay	7	101
Sand, gravel, and clay	8	109
Clay, sandy	12	121
Gravel and sand, water-bearing	5	126
Gravel, coarse, and sand, water-bearing	15	141

Casing, 8- to 6-inch, set to 141 feet.

20/3-8K1. J. E. Berkheimer Mfg. Co. Altitude about 240 feet. Drilled by N.C. Jannsen Drilling Co., 1928.

No record	30	30
Gravel	8	38
Clay	3	41
Sand and boulders	4	45
Sand and gravel, hard	6	51
Gravel, hard, some water	19	70
"Hardpan"	1	71
Gravel, loose	1	72
Clay, brown	9	81
Gravel, hard	6	87
Gravel	18	105
Boulders	2	107

Casing, 12- to 8-inch, set to 107 feet.

Table 3.--Logs of representative wells--Con.

20/3-8R1. City of Tacoma, well T-1. Altitude about 200 feet. Drilled in 1948.

Materials	Thickness (feet)	Depth (feet)
Gravel and fill	14½	14½
Sand	2½	17
Gravel and sand	7	24
Sand, silty	17	41
Gravel	9	50
Gravel, cemented	1	51
Sand, cemented	22	73
Gravel, hard, cemented	19	92
Sand and clay	3	95
Gravel, coarse, clay streak at 106 ft	24	119
Gravel and clay, cemented	9	128
Gravel, coarse	7	135
Gravel, cemented	3	138
Gravel, coarse	2	140
Sand, cemented	11	151
Gravel and sand	21	172
Gravel, cemented	3	175
Sand and clay, layered	9	184
Clay	3	187
Sand and gravel	6	193
Gravel, cemented	3	196
Sand and gravel	2	198
Sand, cemented, some gravel	10	208
Clay	3	211
Sand, fine to coarse	6	217
Clay and gravel	3	220
Sand, fine	1	221

20/3-9A1. Container Corp. of America. Altitude about 20 feet. Drilled by Tacoma Pump and Drilling Co., 1948.

Sand, clay, wood, muck, and fill	40	40
Clay and gravel	10	50
Gravel, water-bearing	2	52
Sand and gravel, water-bearing	8	60
Gravel, "hardpan"	11	71
Clay, blue	9	80
Gravel, "hardpan"	17	97
Gravel (80%), and sand	8	105
Sand (80%), and gravel	12	117
Sand and gravel	8	125
Sand and gravel, dirty	7	132
Gravel, coarse, clean	5	137
Gravel, hardpacked	10	147
"Hardpan"	3	150
Gravel, clean, and sand	25	175

Casing, 8-inch, set to 171 feet. .120 slot screen set from 171 to 175 feet.

Table 3.--Logs of representative wells--Con.

20/3-9A3. Container Corp. of America. Altitude about 20 feet. Drilled by Tacoma Pump & Drilling Co., 1954.

Materials	Thickness (feet)	Depth (feet)
Soil and fill	4	4
Clay and muck	33	37
Gravel and clay	12	49
Sand and gravel, cemented	24	73
Clay	11	84
Sand and gravel	2	86
"Hardpan"	4	90
Sand and gravel, cemented	5	95
"Hardpan"	4	99
Sand and gravel, cemented	6	105
"Hardpan"	3	108
Sand and gravel, packed	1	109
Sand and gravel, coarse, some clay	3	112
Sand and gravel, slightly cemented	16	128
"Hardpan", large rocks	1	129
Sand and gravel, cemented	12	141
"Hardpan"	4	145
Sand and gravel, cemented	2	147
"Hardpan"	2	149
Sand, cemented	1	150
"Hardpan"	2	152
Sand and gravel, cemented	2	154
Sand, loose, coarse	6	160
Sand and gravel, cemented	3	163
Sand, coarse, with gravel and clay	7	170
Sand and gravel, coarse	15	185
Clay	3	188
Sand and gravel, packed	1	189
Clay and gravel	1	190
Sand and gravel, cemented	4	194
Sand and gravel, coarse	10	204
Sand and gravel, cemented	2	206
Gravel and sand	2	208
Sand, loose	3	211
Sand, cemented	1	212
Sand and coarse gravel, mostly sand	11	223
Sand and gravel, coarse	7	230
Sand and clay, some large rocks	4	234
Clay, sandy	9	243
Gravel, some sand	2	245
Sand, very little gravel, some clay	2	247
Gravel, some sand	1	248
Sand and large gravel, some clay	5	253
Sand and gravel, cemented	1	254
Clay	5	259
"Hardpan	18	277
Sand and gravel, cemented	3	280

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Table 3.--Logs of representative wells--Con.

20/3-9A3.--(Continued)

Materials	Thickness (feet)	Depth (feet)
Clay.	8	288
Sand and gravel, coarse, with clay	15	303
Clay.	9	312
"Hardpan"	8	320

Casing, 12-inch, set to 320 feet. Perforated from 199 to 200, 224 to 230 feet, and at 244 and 248 feet.

20/3-9C2. Cammarano Brothers. Altitude about 40 feet. Drilled in 1937.

Clay, gray, silty.	10	10
"Hardpan".	16	26
Gravel, water-bearing.	2	28
Gravel, cemented.	20	48
Clay, blue, and gray silt. . . .	30	78
Gravel, cemented.	12	90
Rock, coarse, sand and water . .	19	109
Clay, green, and rock.	4	113
"Hardpan".	16	129
Sand and gravel, loose, water-bearing	9	138
"Hardpan".	8	146

Casing, 8-inch, set to 146 feet. Perforated from 90 to 109 feet.

20/3-9D2. Heidelberg Brewing Co. Altitude about 80 feet. Drilled by C. E. Miller, 1936.

Clay.	6	6
Clay and sand	22	28
Gravel.	6	34
Sand and gravel, tight.	29	63
Clay, blue.	7	70
Gravel, "hardpan"	15	85
Gravel, loose, water-bearing . .	18½	103½
Clay, carbonaceous.	1½	105
Clay, "hardpan". gray	25	130
Gravel.	4	134
Gravel, coarse.	2	136
Gravel, fine to coarse.	6	142
"Hardpan" and clay.	2	144
Sand, coarse, and gravel	9	153
Gravel, some clay.	2	155
Gravel, tight.	15	170
Sand and gravel, loose, water-bearing	8	178
Gravel, tight.	6	184

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Table 3.--Logs of representative wells--Con.

20/3-9D2.--(Continued)

Materials	Thickness (feet)	Depth (feet)
Gravel, loose, water-bearing. . .	14	198
Gravel, tight.	4	202
Clay, "hardpan".	2	204
Gravel, tight.	4	208
Clay, "hardpan".	11	219
Sand, loose, water-bearing. . . .	1	220
Gravel, tight.	2	222
Clay, "hardpan".	13	235
Sand and gravel	5	240
Sand, coarse, and gravel	5	245
"Hardpan"and cement gravel. . . .	2	247

Casing, 10-inch.

20/3-9D3. Heidelberg Brewing Co. Altitude about 80 feet. Drilled by N. C. Jannsen Drilling Co., 1949.

Sand and gravel, hardpacked. . .	260	260
Clay.	15	275
Sand and gravel, coarse.	15	290
Gravel and clay.	10	300
Gravel and clay, with sand. . . .	45	345
Sand.	5	350
Clay, sandy.	25	375
Sand.	63	438
Sand and gravel.	122	560
Sand, coarse.	91	651
Clay.	26	677

Casing, 22-inch outer casing, set from 0 to 107 feet, 14-inch casing, set from 0 to 235 feet, 12-inch from 235 to 677 feet. Perforated from 405 to 652 feet.

20/3-9E3. Pacific Refrigerating Co. Altitude about 145 feet. Drilled by R. J. Strasser, 1935.

No record.	18	18
Gravel, cemented	18	36
Gravel, loose.	34	70
Gravel, with boulders.	22	92
Sand and gravel, cemented. . . .	4	96
Gravel, water-bearing.	9	105
Sand.	4	109
Gravel, cemented.	9	118
Gravel, loose, water-bearing . .	14	132
Clay, blue.	5	137
Gravel, cemented.	11	148

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Table 3.--Logs of representative wells--Con.

20/3-9E3.--(Continued)

Materials	Thickness (feet)	Depth (feet)
Boulder, "granite".	4	152
Gravel, loose, water-bearing. . .	8	160
Gravel, cemented.	13	173
Sand and clay.	11	184
Gravel, cemented.	10	194
Boulders.	11	205
Gravel, loose, water-bearing. . .	4	209
Gravel, cemented.	7	216
Sand and gravel, water-bearing. .	20	236
Sand and gravel, packed.	9	245
Gravel, loose, water-bearing. . .	14	259

Casing, 12-inch, set from 0 to 129½ feet, 10-inch, set from 123 to 168 feet, and 8-inch, set from 161 to 259 feet. Perforated from 204 to 217, 220 to 235, and 242 to 256 feet.

20/3-9F1. Silver Springs Brewing Co. Altitude about 40 feet. Drilled by P. Sylte, 1950.

Fill dirt, gravel and clay. . . .	23	23
Clay, brown.	13	36
"Hardpan".	35	71
Clay, sandy.	21	92
"Hardpan"	73	165
Gravel, sandy, small flow of water	1	166
"Hardpan".	4	170
Gravel, sandy, and clay.	25	195
Clay, blue.	7	202
"Hardpan".	4	206
Gravel, cemented.	11	217
Clay, brown, and a little gravel.	6	223
"Hardpan".	4	227
Gravel, and blue clay.	59	286
Sand, hardpacked.	53	339
Sand, gray, and clay.	14	353
Sand and gravel, hardpacked . . .	16	369
Sand, fine to coarse, and small gravel, small flow of water . .	1	370
Gravel, cemented.	45	415
Sand, heaving.	4	419
Sand, hardpacked, some clay . . .	13	432
Gravel, cemented.	23	455
Clay, blue.	12	467
Sand and gravel, cemented	7	474
Clay, sandy.	18	492
Sand and gravel, cemented. . . .	105	597

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Table 3.--Logs of representative wells--Con.

20/3-9F1.--(Continued)

Materials	Thickness (feet)	Depth (feet)
Sand and gravel, good flow of water	12	609
"Hardpan"	9	618

Casing, 8-inch, set from 0 to 560 feet, and 6-inch, set from 560 to 595 feet. .020 slot screen set from 595 to 610 feet.

20/3-10G1. Medosweet Dairies. Altitude about 20 feet. Drilled by P. Sylte, 1951.

Soil and clay	8	8
Sand and gravel, cemented	18	26
"Hardpan"	9	35
Sand and gravel, muddy, little water	9	44
Clay and gravel	13	57
Sand and gravel, little water	2	59
Gravel, and clay, hard	19	78
Clay and gravel, soft, little water	18	96
Sand and gravel, cemented	20	116
Sand, hard, dry	10	126
Sand and gravel, little water	10	136
Clay, blue, and gravel	46	182
Clay, green, and gravel	29	211
Sand and gravel	6	217
Sand and gravel, cemented	18	235
Sand and gravel, small flow of water	2	237
Sand, fine, small flow of water	5	242
Sand and gravel, flowing	6	248
Clay	7	255
Sand, black, and gravel, flowing	8	263
Clay and gravel	6	269
Clay and gravel, open hole	6	275

Casing, 10-inch, set to 269 feet. Perforated from 247 to 264 feet.

20/3-11C1. The Milwaukee Road. Altitude about 20 feet. Drilled by F. H. Jenson.

Silt and fine sand	42	42
Clay and silt	8	50
Sand, coarse	12	62
Sand, fine, wood particles, shell and clay	11	73
Silt and clay, many shells	19	92
Sand and shells	2	94
Sand, fine, fairly clean, shells	10½	104½
Silt, clay, and shells	15	119½
Sand, medium, with clay and vegetable matter	4½	124
Sand, fine to coarse	26	160

Casing, 3-inch.

Table 3.--Logs of representative wells--Con.

20/3-11P1. J. J. McDonald. Altitude about 25 feet. Drilled by Service Hardware Co.

Materials	Thickness (feet)	Depth (feet)
Soil	5	5
Gravel	15	20
"Hardpan"	10	30
Gravel, cemented	53	83
Gravel	5	88

Casing, 6-inch, set to 88 feet.

20/3-11P2. T. Bangszak. Altitude about 25 feet. Drilled by Service Hardware Co.

Soil	9	9
Clay, brown, some water at 20 feet	11	20
Clay, blue	18	38
Gravel, water-bearing	3	41

Casing, 6-inch, set to 41 feet.

20/3-11P3. M. Olson. Altitude about 35 feet. Drilled by Service Hardware Co.

Soil	16	16
Clay, brown, some water at 25 feet	9	25
Clay, hard, and gravel	10	35
Gravel and water	12	47

Casing, 6-inch, set to 47 feet.

20/3-12C1. Colonial Gardens. Altitude about 25 feet. Drilled by F. H. Jensen.

Sand, fine, muck, some clay and wood	18	18
Clay and silt	12	30
Clay and silty sand	31½	61½
Sand, medium, some clay	16½	78
Sand and fine, mucky clay	4	82
Sand, medium, many shells	5	87
Muck, many shells	5	92
Muck, soft, and clay with shells	9½	101½
Clay, gray, hard and packed, shells and sand between layers	20½	122
Clay and some coarse sand	8	130
Muck, sandy, very soft	4	134
Sand, hardpacked	9	143
Muck and clay	20	163
Sand, fine, with clay and some coarse wood	30	193

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Table 3.--Logs of representative wells--Con.

20/3-12C1.--(Continued)

Materials	Thickness (feet)	Depth (feet)
Clay.	7	200
Sand medium, and clay	3	203
Muck.	7	210
Sand and clay	9	219
Sand, coarse.	5½	224½
Sand, fine.	5½	230
Clay and fine sand.	2	232
Sand, fine and open	3	235
Sand, medium.	3	238
Sand, coarse.	4	242
Sand, very fine with occasional coarser sand.	3	245
Sand, fine.	14	259
Sand, medium.	6	265
Sand, coarse.	12	277
Sand, fine and mucky.	--	---

Casing, 3-inch. Screen at bottom.

20/3-13H2. W. Stemp. Altitude about 25 feet. Drilled by Service Hardware Co., 1951.

Silt and sand.	20	20
Clay, brown.	10	30
Sand, coarse.	8	38

Casing, 4-inch. screened from 28 to 38 feet.

20/3-13H4. W. Stemp. Altitude about 25 feet. Drilled by Service Hardware Co., 1951.

Gravel and sand, hard, some water at 40 feet.	48	48
Clay.	16	64
Sand, water-bearing	16	80
Clay and sand.	173	253

Casing, 6-inch.

20/3-14B1. R. Gunderson. Altitude about 175 feet. Drilled by Service Hardware Co., 1951.

Clay, yellow, sandy.	23	23
Gravel, coarse.	10	33
Gravel and clay	20	53
Boulders and sand.	10	63
Gravel, sandy, black, and boulders.	7	70

(continued next page)

Table 3.--Logs of representative wells--Con.

20/3-14B1.--(Continued)

Materials	Thickness (feet)	Depth (feet)
Gravel, sand and boulders.	8	78
Gravel and sand, yellow.	18	96
Gravel, sand, and boulders	24	120
Gravel, coarse.	14	134
Clay, sandy.	11	145

Casing, 6-inch, set to 145 feet. Perforated.

20/3-14C1. C. Rutheford. Altitude about 45 feet. Drilled by Service Hardware Co., 1951.

Soil.	18	18
Clay.	18	36
- - -, water-bearing.	6	42
Clay, hard, and "hardpan" and rock	58	100
Sand and gravel, water-bearing . .	5	105

Casing, 6-inch, set to 105 feet.

20/3-14C2. N. M. Becker. Altitude about 40 feet. Drilled by Service Hardware Co.

Soil.	14	14
Clay, brown, some water at 20 feet	6	20
Clay, blue.	14	34
Gravel, water-bearing	4	38

Casing, 6-inch.

20/3-14C4. E. Barker. Altitude about 25 feet. Drilled by Service Hardware Co.

Clay.	45	45
"Hardpan"	43	88
Gravel, water-bearing.	2	90

Casing, 6-inch, set to 85 feet.

Table 3.--Logs of representative wells--Con.

20/3-14R1. D. Robinson. Altitude about 260 feet. Drilled by C. Weller, 1951.

Materials	Thickness (feet)	Depth (feet)
Soil and loose gravel.	3	3
Gravel, loose.	25	28
Clay, blue.	26	54
Sand, brown, clay, and gravel. . . .	4	58
Sand, brown.	10	68
Sand and gravel.	32	100
Sand, clay, and gravel	23	123
Clay and gravel.	53	176
Clay, sand, and gravel	33	209
Clay and gravel.	8	217
Sand, brown, and gravel.	2	219
Clay and gravel.	6	225
Sand, brown.	1	226
Clay and gravel.	4½	230½

Casing, 8-inch, set to 230½ feet. Perforated from 192 to 226 feet.

20/3-18C1. City of Tacoma, T-10. Altitude about 321 feet. Drilled by Richardson Well Drilling Co., 1952.

Soil.	5	5
"Hardpan", gray	19	24
Sand and gravel, with gray-green clay	38	62
Clay, sandy, with some gray gravel .	34	96
Sand and gravel	4	100
Clay, sandy.	32	132
Sand, dirty.	14	146
"Hardpan", gray.	7	153
Sand, streaks of gray gravel	27	180
Sand and gravel, coarse.	5	185
Sand, coarse.	--	---

Casing, 12-inch, set to 185 feet. Perforated from 152 to 175 feet.

20/3-18D1. City of Tacoma, well 2-A. Altitude about 243 feet. Drilled by N. C. Jannsen Drilling Co., 1930.

Gravel.	8	8
Sand and fine gravel.	36	44
Gravel and sand, with some cobbles .	14	58
Gravel, hard.	2	60
Gravel and sand, with cobbles. . . .	14	74
Sand, clayey and hard, with streaks of blue or yellow clay.	34	108

(continued next page)

Table 3.--Logs of representative wells--Con.

20/3-18D1.--(Continued)

Materials	Thickness (feet)	Depth (feet)
Sand and gravel, cemented. . . .	3	111
Gravel, clean, and coarse sand .	21	132
"Mud" and gravel.	7	139
Gravel and sand.	5	144
Clay, blue.	28	172

Casing, 38-inch casing originally extended from 0 to 59 feet, but has since dropped to a depth of 70± feet, 26-inch casing set from 0 to 146 feet. Perforations in 26-inch casing from 58 to 108 and 111 to 144 feet.

20/3-18D2. City of Tacoma, well 2-B. Altitude about 243 feet. Drilled in 1949.

Soil, coarse gravel, and sand .	15	15
Sand, silty, with streaks of fine sand and gravel.	36	51
Gravel, hard, cemented. . . .	7	58
Gravel, clean, with cobbles, water-bearing.	20	78
Clay and gravel.	5	83

Casing, 36-inch outer casing, set from 0 to 57½ feet, 30-inch casing, set from 0 to 57 feet, 18-inch diameter screen set from 57 to 78 feet.

20/3-18D3. City of Tacoma, well 9-A. Altitude about 294 feet. Drilled in 1953.

Soil, clay, and gravel.	10	10
Sand, silty, with a few fine pebbles, tight.	48	58
Sand and gravel, some water . .	22	80
Gravel and sand.	8	88
"Hardpan".	2	90
Gravel (up to 6-inches) and sand, clean.	18	108
Sand, coarse.	2	110
Gravel and sand, tighter. . . .	9	119
Sand.	2	121
"Hardpan", yellow	6	127

Casing, 52-inch, set from 0 to 40 feet, 42-inch from 40 to 90 feet, and 26-inch diameter .187 slot screen from 90 to 110 feet.

Table 3.--Logs of representative wells--Con.

20/3-19F1. City of Tacoma, well 5-A. Altitude about 266 feet. Drilled by N. C. Jannsen Drilling Co., 1930.

Materials	Thickness (feet)	Depth (feet)
Gravel	25	25
Sand, hard	22	47
Gravel, fine, and sand	7	54
Sand, fine	7	61
Gravel, clean and coarse, water-bearing	34	95
Gravel and sand	26	121
Gravel, cemented	5	126
Gravel and sand	19	145
Clay and peat	4	149
Gravel, fine	5	154
Sand, fine	2	156
Gravel and sand	54	210
Sand, fine	32	242
Clay, laminated	1	243
Gravel and sand	19	262
Sand and clay	8	270
Cobbles, gravel and sand	18	288
Cobbles and gravel	20	308
Gravel, clean, with sand	8	316
Sand, packed, and gravel	8	324
Sand, hard and packed	29	353
Gravel and cobbles	1	354
Clay, hard, with streaks of lignite	24	378

Casing, 38-inch outer casing, set from 0 to 62 feet, 26-inch casing, set from 0 to 356 feet. Perforated from 65 to 145, 160 to 210, 247 to 262, and 273 to 324 feet.

20/3-19L1. City of Tacoma. Altitude about 270 feet. Drilled by C. V. Enloe, 1940.

Gravel and cobbles	23½	23½
Sand, fine	13½	37
Sand and gravel	6	43
Sand and fine gravel, hard	9½	52½
Sand, gravel, and small cobbles	32½	85
Gravel, cemented	21	106
Sand, black, with gravel and cobbles, water-bearing	42	148
Gravel, cemented	1	149
Clay, laminated (brownish gray with carbonaceous streaks)	21	170
Gravel, cemented	2	172
Sand, gravel, and cobbles cemented in streaks	46	218
Sand, cemented	33	251

(continued next page)

Table 3.--Logs of representative wells--Con.

20/3-19L1.--(Continued)

Materials	Thickness (feet)	Depth (feet)
Clay, streaks.	3	254
Gravel, cemented.	39	293

Casing, 38-inch outer casing, set from 0 to 96 feet, 26-inch casing, from 0 to 266 feet. Perforated from 106 to 149, and from 172 to 218 feet.

20/3-19P1. City of Tacoma, well 1-A. Altitude about 261 feet. Drilled by N. C. Jannsen Drilling Co., 1929.

Gravel, coarse, with cobbles and some sand.	14	14
Sand, fine, with some clay	20	34
Sand, cemented, and clay	3	37
Gravel and coarse sand, some cobbles and a little clay.	25	62
Gravel, sand, and some clay, cemented	1	63
Gravel and coarse sand, with some cobbles and clay.	28	91
Gravel, cemented and clay	10	101
Gravel, coarse, with cobbles and coarse black sand.	61	162
Gravel, coarse, with cobbles, cemented in streaks.	22	184
Cobbles, with gravel and some sand	20	204
Cobbles and gravel, with blue and yellow clay.	4	208
Cobbles, with gravel and some sand	19	227
Sand, coarse and packed, with fine gravel and clay.	14	241
Gravel, coarse, and sand, cemented	11	252
Cobbles, gravel, and sand, with some clay.	44	296
Cobbles, coarse gravel, and sand, with streaks of clay.	6	302
Cobbles, gravel, and sand, cemented	8	310

Casing, 38-inch outer casing, set from 0 to 100 feet, 24-inch casing, set from 0 to 305 feet. Perforated from 110 to 285 feet.

Table 3.--Logs of representative wells--Con.

20/3-23H1. A. Kapphahn. Altitude about 360 feet. Drilled by Service Hardware Co., 1952.

Material	Thickness (feet)	Depth (feet)
Soil.	6	6
Gravel, cemented.	82	88
"Hardpan" (clay?)	37	125
Gravel, cemented.	108	233
Clay and sand.	12	245
Clay, sand, and gravel.	5	250
Clay and sand.	4	254

Casing, 6-inch, set to 254 feet.

20/3-27E1. -- Altitude about 415 feet. Drilled by Service Hardware Co., 1952.

Soil.	3	3
Clay, yellow, "hardpan"	7	10
Clay and gravel, "hardpan".	15	25
Sand, blue, hard, some water at 35 feet	10	35
Gravel, cemented.	15	50
Gravel, coarse, dry.	20	70
Gravel, cemented.	76	146
Gravel.	41	187

Casing, 6-inch set to 187 feet.

20/3-30C4. City of Tacoma, Well 8-A. Altitude about 268 feet. Drilled by C. V. Enloe, 1939.

Soil.	2	2
Sand and gravel, loose.	51	53
Sand and gravel, harder	9	62
Sand, gravel, and clay.	8	70
Gravel and sand, cemented, water-bearing	18	88
Gravel, cemented and hard.	6	94
Sand and pea gravel, with some cobbles, loose and water-bearing.	20	114
Gravel and coarse sand, with clay .	11	125
Sand, coarse, and gravel.	21	146
Sand and gravel with clay, hard (mud-cemented gravel)	14	160
Sand, gravel, and small cobbles, fairly loose.	2	162
Gravel, water-bearing	12	174
Clay streak, cobble gra , and sand	6	180
Gravel and sand, loose and water-bearing	41	221
Sand and gravel, very hard and packed	10	231
Gravel, cobbles, and a little sand, water-bearing.	33	264

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Table 3.--Logs of Representative wells--Con.

20/3-30C4.--(Continued)

Materials	Thickness (feet)	Depth (feet)
Gravel, cemented.	38	302
Clay.	5	307

Casing, 38-inch, set from 0 to 99 feet, 26-inch, from 0 to 301 feet, perforated from 101½ to 285 feet.

20/3-30H1. J. E. Reynolds. Altitude about 275 feet. Dug in 1940.

Gravel.	8	8
Till.	10	18
Gravel.	24	42

Casing, 48-inch.

20/3-30L4. City of Tacoma, well 18. Altitude about 256 feet. Drilled in 1907.

Gravel and sand.	37	37
Gravel, coarse, and sand.	28	65
Clay.	1	66
Sand and gravel	2	68
Clay.	5	73
Sand and gravel.	25	98
Gravel, very coarse, very little sand	5	103
Clay.	1	104
Lignite (?)	7	111
Clay, very hard	10	121

20/3-30L5. City of Tacoma, well 7-A. Altitude about 256 feet. Drilled by C. V. Enloe, 1938.

No record.	14	14
Sand and pebbles	16	30
Sand and gravel.	12	42
Gravel, coarse	4	46
Gravel and cobbles.	2	48
Sand and gravel.	8	56
Gravel, hard, some sand.	11	67
Gravel, hard.	6	73
Sand, hard.	1	74
Gravel and small cobbles, with sand, hard	35	109
Sand, hard and cemented, some fine gravel and clay.	6	115
Sand, gravel, and boulders, cemented	3	118

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Table 3.--Logs of representative wells--Con.

20/3-30L5.--(Continued)

Materials	Thickness (feet)	Depth (feet)
Sand, with some fine gravel, cemented	7½	125½
Sand, hard.	8	133½
Gravel and sand.	2½	136
Sand and gravel, cemented	6	142
Gravel, cobbles, and sand, cemented	15	157
Sand and clay.	2½	159½
Gravel and sand.	8½	168
Sand, hard.	1	169
Gravel, cemented, very hard	10	179
Sand, hard.	22	201
Gravel, fine, and sand, hard.	4	205
Gravel, coarse, and sand, largely cemented, with loose water-bearing zones	14	219
Gravel and sand, loose.	10	229
Gravel and small cobbles, loose	5	234
Clay, blue, and boulders, very hard	3	237
Gravel and sand, loose and water-bearing	42	279
Clay, hard, with some sand, laminated, blue and gray.	12	291
Shale, hard at top.	9	300
Shale, with gravel.	10	310
Clay, gray (boulder at 315 feet).	8½	318½
Gravel, cemented.	12½	331
Peat, brown, sandy.	19	350

Casing, 38-inch, set from 0 to 100 feet, 26-inch, from 0 to 307 feet. Perforated from 100 to 117, 175 to 185, 204½ to 282½ feet. Concrete plug below 298 feet.

20/3-30N1. City of Tacoma, well 3-A. Altitude about 272 feet. Drilled by N. C. Jannsen Drilling Co., 1931.

Gravel, hard and packed.	20	20
Gravel, cemented.	6	26
Gravel and sand.	14	40
Gravel, hard and packed.	10	50
Gravel and sand.	40	90
Gravel, cemented	50	140
Gravel, fine, loosely cemented	4	144
Clay, brown.	4	148
Clay, brown and sandy.	13	161
Clay, green, hard.	10	171
Clay, brown and sticky	11	182
Clay, brown and sandy.	3	185
Clay, brown and gummy.	14	199
Sand, gray.	7	206
Peat.	1½	207½

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Table 3.--Logs of representative wells--Con.

20/3-30N1. --(Continued)

Materials	Thickness (feet)	Depth (feet)
Sand, green, fine	13½	221
Gravel and cobbles, cemented and weathered	16	237
Gravel, hard, and cemented	3	240
Sand, yellow, fine	2	242
Mud, coarse sand, and pebbles	9	251
Cobbles, gravel, and coarse sand	19	270
Cobbles, gravel, and coarse sand, "muddy water"	20	290
Cobbles, gravel, and some boulders, "mud cemented"	15	305
Cobbles, gravel, and sand	6	311
Shale, green, hard	3	314
Clay, green and sandy	44	358

Casing, 38-inch, set from 0 to 60 feet, 26-inch, from 0 to 312 feet. Perforated from 59 to 139, 220 to 239, and from 250 to 310 feet.

20/3-31F1. Lakewood Water District, test well 7. Altitude about 280 feet. Drilled by L. R. Gaudio, 1950.

Soil and gravel	6	6
"Hardpan"	51	57
Sand and gravel	12	69
Sand and clay	3	72
Gravel, some sand and clay	8	80
Sand	7	87
Gravel and blue clay	2	89
Sand and gravel, water-bearing	8	97
Gravel, some sand, and clay, water-bearing	10	107
Gravel, loose, water-bearing	4	111
Sand and gravel, loose, water-bearing	5	116
Sand and gravel, some clay	22	138
Sand and gravel, water-bearing	22	160
Sand	5	165
Sand and gravel, water-bearing	8	173
Sand, fine	6	179
Sand	15	194
Clay, brown	6	200
"Hardpan", brown	9	209

Casing, 10-inch. Perforated from 138 to 160 feet.

Table 3.--Logs of representative wells--Con.

20/3-31F2. Lakewood Water District, well "J". Altitude about 278 feet. Drilled by L. R. Gaudio, 1952.

Materials	Thickness (feet)	Depth (feet)
Soil	4	4
Sand and gravel	12	16
"Hardpan"	39	55
Sand and gravel, some clay	12	67
Sand and clay	3	70
Gravel, some sand, and clay	8	78
Sand	7	85
Gravel and blue clay	2	87
Sand and gravel	8	95
Gravel, some sand and clay	10	105
Gravel, loose	4	109
Sand and gravel, loose	5	114
Sand and gravel, some clay	22	136
Sand and gravel	23	159

Casing, 36-inch, set from 0 to 16 feet, 24-inch, set from 0 to 138 feet, .100 slot screen set from 137 to 158 feet.

20/3-31M1. R. G. Nobes. Altitude about 280 feet. Drilled by Tacoma Pump and Drilling Co., 1950.

Soil	2	2
Gravel, dry	43	45
"Hardpan"	10	55
Sand and gravel	20	75

Casing, 6-inch, set to 75(?) feet.

20/3-32D2. A. T. Kluss. Altitude about 320 feet. Drilled by L. V. Denny, 1940.

"Hardpan"	40	40
Gravel, cemented	15	55
Gravel, fine angular, dark, water-bearing	20	75
Gravel, cemented	37	112
Gravel, loose, water-bearing	2	114

Casing, 5-inch, set to 114 feet, open bottom.

Table 3.--Logs of representative wells--Con.

20/3-32G1. J. L. Ryan. Altitude about 348 feet. Dug in 1940.

Materials	Thickness (feet)	Depth (feet)
Soil and clay.	18	18
Clay, blue, and boulders	6	24
Clay, sand, packed.	20	44
Gravel and sand.	16	60
Sand.	5	65
Gravel and sand, gray.	36	101

20/3-34A1. F. Olson. Altitude about 408 feet. Dug in 1930.

Till.	30	30
Gravel.	130	160
Sand.	20	180

20/3-34L1. Southeast Tacoma Mutual Water Co., well 2. Altitude about 410 feet. Drilled by P. Sylte, 1947.

Soil.	4	4
Gravel, cemented.	31	35
"Hardpan", blue.	40	75
Gravel, cemented.	65	140
Sand and gravel, dry.	20	160
Gravel, cemented.	24	184
Sand and gravel, dirty, small show of water.	7	191
Gravel, cemented.	4	195
Sand and fine gravel, good flow of water	4	199
Gravel, good flow of water. . . .	3	202
Gravel, cemented.	1	203
Gravel, coarse, good flow of water	9	212
Gravel, cemented.	2	214
Sand and gravel, fair flow of water	2	216
Sand, dirty.	7	223
Gravel, cemented.	7	230
"Hardpan".	8	238
Gravel, cemented	29	267
Sand, fine.	2	269
"Hardpan"	51	320
Sand and gravel, dirty	10	330
Silt.	24	354
Quicksand	30	384
Sand.	10	394
Sand and gravel, fair flow of water	2	396
"Hardpan".	33	429
Sand and gravel.	1	430
"Hardpan".	25	455
Silt and gravel.	4	454

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Table 3.--Logs of representative wells--Con.

20/3-34L1.--(Continued)

Materials	Thickness (feet)	Depth (feet)
"Hardpan"	5	459
Sand and blue clay	11	470
"Hardpan"	11	481
Clay, green	4	485
"Hardpan", brown	20	505

Casing, 12-inch, set from 0 to 150, 10-inch from 150 to 396 feet. Perforated from 196 to 215 feet.

20/3-35G1. I. S. Broxson. Altitude about 428 feet. Dug in 1938.

"Hardpan"	40	40
Gravel, cemented	50	90
Gravel and sand	95	185

20/4-1D1. Mrs. M. Sledziewiski. Altitude about 60 feet. Dug in 1947.

Soil	2	2
Sand	10	12
Clay and water crevices	6	18

20/4-3R1. L. Reisinger. Altitude about 335 feet. Drilled by Service Hardware Co., 1953.

Gravel, boulders, and clay	14	14
Gravel and clay	8	22
Gravel, hard	12	34
Gravel, very hard	4	38
Gravel, hard	27	65
Sand, brown	4	69
Gravel, hard	5	74
Gravel and boulders	8	82
Gravel, hard	22	104
Gravel and clay	16	120
Gravel, cemented	11	131
Gravel and clay, bailed 20 gpm for 30 min. with dd of 12 feet. Static water level about 113 feet.	7	138
No record	11	149
Gravel, hard, and clay, some water at 167 feet	36	185
Gravel, fine, hard	19	204
Gravel, hard, with clay, a little water at 225 feet	25	229

(continued next page)

Table 3.--Logs of representative wells--Con.

20/4-3R1.--(Continued)

Materials	Thickness (feet)	Depth (feet)
No record.	9	238
Gravel, fine, and coarse sand. . .	2	240
Gravel and clay.	5	245
Gravel, very hard.	7	252
Gravel, hard, some clay.	21	273
No record.	36	309
Gravel, hard.	7	316
Sand, clay, and rock.	3	319
Gravel and clay.	8	327
No record.	44	371

Casing, 8-inch, set to 362 feet. Perforated from 65 to 70, 80 to 95, 120 to 123, 130 to 175, 180 to 192, and 220 to 240 feet.

20/4-5E1. Fusfield and Oppheim. Altitude about 30 feet. Drilled by N. C. Jannsen Drilling Co., 1930.

Clay, sand, and gravel.	18	18
Sand and gravel.	6	24
Sand, gravel, and silt.	14½	38½
Sand and gravel.	21½	60
Sand and silt.	20	80
Sand, loose.	25	105
Clay, sandy.	14	119
Silt.	37	156
Sand, clay, and silt.	15	171
Silt.	20	191
Clay, sandy.	9	200
Clay.	29	229
Clay, some gravel.	11	240
Clay.	110	350

20/4-5Q2. Town of Milton, well 2. Altitude about 35 feet. Drilled by P. Sylte, 1945.

Soil.	5	5
Sand, dry	7	12
Sand, dirty	20	32
Sand, coarse, some gravel, water-bearing.	40	72
Sand, fine, muddy, small flow of water.	22	94
Sand, very fine, blue	5	99
Silt, blue, dry.	21	120
Clay, blue, hard.	52	172

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Table 3.--Logs of representative wells--Con.

20/4-5Q2.--(Continued)

Materials	Thickness (feet)	Depth (feet)
Sand and silt, brown.	1	173
Clay, sandy, brown.	11	184
Sand, fine, blue.	3	187
Silt, blue, hard, and some blue clay	32	219
Clay, blue.	37	256
Silt, dry.	2	258
Silt, dry, some pea gravel. . . .	20	278
Clay, sandy, small flow of water.	10	288
Sand, fine, muddy, small flow of water	27	315
Sand, gray, fine.	1	316
Sand, fine muddy.	16	332
Clay, blue.	3	335
Clay, blue, and silt.	55	390
Clay, blue.	25	415
Sand, heaving.	65	480
Quicksand.	60	540

Casing, 12-inch, set from 0 to 364, 10-inch from 364 to 529, and 8-inch from 529 to 540 feet. Perforated from 35 to 75 feet.

20/4-5Q3. Town of Milton, well 3. Altitude about 35 feet. Drilled by P. Sylte, 1948.

Sand.	6	6
Sand and gravel, "hardpan". . . .	9	15
Sand, water-bearing	1	16
Sand and gravel, cemented	8	24
Sand and gravel, water-bearing. .	56	80

Casing, 10-inch, set to 80 feet. Perforated from 50 to 75 feet.

20/4-5Q4. Town of Milton. Altitude about 35 feet. Drilled by P. Sylte, 1951.

Dirt (fill).	6	6
Peat.	5	11
Sand and gravel.	14	25
Sand and small gravel.	49	74
Sand.	2	76

Casing, 12-inch, set to 76 feet. Perforated from 41 to 71 feet.

Table 3.--Logs of representative wells--Con.

20/4-10M1. Mt. View-Edgewood Water District. Altitude about 360 feet. Drilled in 1953.

Materials	Thickness (feet)	Depth (feet)
Soil and sandy clay.	17	17
Clay, sandy, and small gravel. . . .	9	26
Gravel, sand, and brown clay	37	63
Gravel and sand.	4	67
Gravel, sand, and light brown clay .	64	131
Gravel, a little clay and sand, 3-inch diatomite layer at 141 feet. . . .	10	141
Gravel, clay, and sand, some water .	4	145
Gravel, sand, and clay.	3	148
Clay, gray, and sand.	3	151
Clay, brown, and gravel.	2	153
Gravel, sand, and clay	21	174
Gravel, a little sand and clay, some water	5	179
"Hardpan".	1	180
Gravel, clay, and sand, hard, streaks of water-bearing material from 181 to 186 feet.	16	196
Gravel, yellow, cemented	9	205

20/4-12A1. --Cartwright. Altitude about 55 feet. Drilled by Service Hardware Co., 1954.

Sand, silt, clay, and peat.	282	282
Sand and gravel, cemented, (till ?)	23	305
Sand, water-bearing.	1	306
Clay.	2	308

20/4-17K1. H. P. Kennedy. Altitude about 30 feet. Drilled by F. Jensen, 1932.

No record.	25	25
Clay, reddish, and fine sand. . . .	15	40
Clay.	5	45
Clay, soft, with fine sand.	6	51
Clay, gray, hard in part.	10	61
Silt, dark, and gray clay.	3¾	64¾
Sand, coarse, and packed.	3	67¾
Muck.	4	71¾
Clay, dark blue, soft	5	76¾
Sand, medium to coarse.	5	81¾
Silt, clay, and some coarse sand. .	10	91¾
Silt and clay.	2¼	94
Sand, medium, hardpacked.	2½	96½
Muck.	5	101½
Muck and clay, with shells.	4½	106

(continued next page)

Table 3.--Logs of representative wells--Con.

20/4-17K1.--(Continued)

Materials	Thickness (feet)	Depth (feet)
Silt and clay.	67½	173½
Sand, coarse.	1	174½
Silt and clay.	12	186½
Sand, water-bearing.	21	207½
Silt, soft and mucky	30	237½
Silt, hardpacked.	10	247½
Clay and silt, hardpacked.	8	255½
Silt, coarser, contains one 6-inch streak of packed fine gravel . .	12	267½

20/4-18H1. Puyallup Dairy Farm. Altitude about 20 feet.
Drilled by N. C. Jannsen Drilling Co., 1924.

Clay, sandy.	22	22
Sand	40	62
Sand, black.	28	90
Sand.	61	151
Clay, sandy	29	180
Sand, clay at 428 feet.	248	428
Clay, sandy.	25	453
Clay.	59	512
No record.	38	550

20/4-20J1. W. G. Knott. Altitude about 30 feet.
Drilled by Service Hardware Co., 1953.

No record.	171	171
Clay and brown sand.	18	189
Sand, brown, can drill open hole .	21	210
Sand, brown to gray, can drill open hole.	7	217
Sand, brown.	19	236
Clay, brown, and sand.	10	246
Sand, black, and clay.	19	265

Casing, 4-inch.

Table 3.--Logs of representative wells--Con.

20/4-20K1. J. Lounhardt. Altitude about 30 feet.
Drilled by N. Nelson, 1948.

Materials	Thickness (feet)	Depth (feet)
Soil.	12	12
Silt and fine sand.	80	92
Clay, brown.	13	105
Sand, black, fine	40	145
Sand, black, water-bearing. . . .	11	156
Clay, blue.	4	160
Sand, fine.	81	241
Clay, blue.	5	246
Sand, water-bearing	17	263
Gravel, water-bearing	4	267

Casing, 6-inch, set to 267 feet, open bottom.

20/4-21N1. J. C. Franzen. Altitude about 40 feet.
Drilled by N. Nelson, 1946.

Soil and clay.	12	12
Sand, fine, water-bearing.	58	70
Silt, fine.	42	112
Sand and gravel, water-bearing . .	8	120
Clay.	7	127
Silt, fine.	71	198
Sand, fine.	6	204
Silt, fine.	38	242
Sand, fine.	6	248
Sand and gravel.	6	254
Sand, fine.	42	296
Gravel, coarse, water-bearing. . .	2	298

Casing, 6-inch, set to 298 feet. Open bottom.

20/4-21P1. L. Henry. Altitude about 40 feet.
Drilled by N. Nelson, 1946.

Soil and clay.	10	10
Sand, fine, water-bearing.	52	62
Silt, fine.	98	160
Clay, blue.	2	162
Silt, fine.	28	190
Sand, water-bearing.	33	223
Gravel, water-bearing.	7	230

Casing, 6-inch, set to 230 feet.

Table 3.--Logs of representative wells--Con.

20/4-22D1. Mt. View-Edgewood Water District. Altitude about 60 feet. Drilling in 1953.

Materials	Thickness (feet)	Depth (feet)
Sand and gravel, some clay.	22	22
Clay, yellow, soft, some sand and gravel	5	27
Gravel, up to 8-inches in diameter, and sand, gray.	29	56
Gravel, sand, and clay.	3	59
Gravel, and gray sand	11	70
Gravel, coarse and gray sand. . . .	12	82
"Hardpan", gray.	11	93

Casing, 12-inch, set to 92 feet. Perforated from 70 to 82 feet.

20/4-23N1. A. G. Stone. Altitude about 50 feet. Drilled by N1 Nelson, 1946.

Soil.	12	12
Sand, brown, fine	25	37
Silt, fine.	43	80
Sand, black, fine	15	95
Sand, black, and gravel, some water	12	107
Clay, brown, and silt	78	185
Sand, brown, coarse, water-bearing.	21	206
Silt, brown.	12	218
Sand, black, coarse, water-bearing.	2	220
Gravel, water-bearing	2	222

Casing 6-inch, set to 222 feet, open bottom.

20/4-24B1. Fibreboard Products Inc. Altitude about 60 feet. Drilled by N. C. Jannsen Drilling Co., 1938.

No record.	45	45
Peat.	15	60
Sand, fine, and carbonized wood. .	70	130
Silt, gray, gritty, with some carbonized wood.	38	168
Silt, gray, very fine.	60	228
Gravel, coarse, dark and subangular	4	232
Sand, dark gray, compact	59	291
Clay, gray, silty.	6	297
Sand, dark gray, some pebbles. . .	75	372
Gravel, coarse, dark, and sub-angular, water-bearing.	70	442
Sand.	20	462

Casing, 16-inch, set to 462 feet. Perforated.

Table 3.--Logs of representative wells--Con.

20/4-24C1. Fibreboard Products Inc. Altitude about 60 feet. Drilled by N. C. Jannsen Drilling Co., 1915(?)

Materials	Thickness (feet)	Depth (feet)
Clay	15	15
Clay, wood, and gravel	15	30
Gravel and wood	20	50
Gravel	30	80
Sand	10	90
Gravel and boulders	25	115
Gravel, cemented	20	135
Gravel, loose	30	165
Clay	15	180
Shale, hard	30	210
Clay, soft	5	215
Boulders	12	227
Gravel, fine, hard	11	238
Gravel, cemented	19	257
Boulders, cemented	13	270
Gravel and boulders	2	272
Sand and gravel, water-bearing	40	312
Sand, water-bearing	33	345
Gravel, water-bearing	75	420
Sand	20	440
"Hardpan" and gravel	60	500
Sand, water-bearing	75	575

Casing, 16-inch, set to 150 feet, perforated from 113 to 132 feet; 392 feet of 12-inch casing, perforated from 350 to 420 feet; and 103 feet of 8-inch casing, perforated from 540 to 575 feet.

20/4-24F3. Standard Brands of California, Inc. Altitude about 61 feet. Drilled by N. C. Jannsen Drilling Co., 1926.

Clay	25	25
Gravel and sand	32	57
Sand, fine	15	72
Gravel and sand	18	90
Sand	15	105
Gravel and sand	15	120
Sand	20	140
Gravel and sand	37	177
Sand	17	194
Mud, blue	13	207
Sand	15	222
Gravel and sand	16	238
Sand	8	246
Gravel and sand	23	269

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Table 3.--Logs of representative wells--Con.

20/4-24F3.--(Continued)

Materials	Thickness (feet)	Depth (feet)
Sand, fine.	24	293
Sand.	15	308
Sand, hard.	7	315
Sand, fine.	84	399
Sand, running	11	410
Sand, fine.	25	435
Sand, hard.	20	455
Gravel, clean	7	462
Gravel, coarse, water-bearing . . .	46	508
Clay, blue, sticky.	64	572

Casing, 18-inch, set to 562 feet. Perforated from 462 to 508 feet.

20/4-25P1. E. Noble. Altitude about 75 feet. Drilled by Tacoma Pump and Drilling Co., 1953.

Soil.	5	5
Logs.	4	9
Clay, sandy	11	20
Sand, gravel, and water	30	50
Clay.	25	75
Clay, sand, and gravel.	15	90
Sand, coarse.	2	92

Casing, 6-inch, set to 92 feet.

20/4-26R1. F. E. Sandford. Altitude about 60 feet. Drilled by Tacoma Pump and Drilling Co., 1946.

Soil.	4	4
Clay.	16	20
Clay and sand	20	40
Sand and gravel.	5	45
Sand, silty.	15	60
Silt and sand, heaving.	50	110
Gravel, coarse.	2	112

Casing, 6-inch, set to 112 feet, open bottom.

20/4-28E1. F. J. Plattenberger. Altitude about 82 feet.

Silt and clay.	20	20
Gravel.	2½	22½
Clay.	56	78½
Gravel.	3½	82

Casing, 2-inch

Table 3.--Logs of representative wells--Con.

20/4-28J1. City Ice Co. Altitude about 45 feet. Drilled by R. Charlton, 1948.

Materials	Thickness (feet)	Depth (feet)
Clay, sandy	45	45
Gravel, fine, irony water	40	85
Sand and clay	162	247
Gravel and sand, clean, water-bearing	5	252

Casing, 6-inch.

20/4-31D1. Summit Water Co. Altitude about 380 feet. Drilled by L. R. Gaudio, 1950.

Soil	7	7
Till	23	30
Sand, little pea gravel	19	49
Sand and brown clay	2	51
"Hardpan", gray	39	90
Gravel with clay, loose	3	93
"Hardpan", gray	17	110
"Hardpan", yellow	16	126
"Hardpan", gray	8	134
"Hardpan", yellow	10	144
"Hardpan", gray	29	173
Sand and gravel, water-bearing	9	182
Gravel, gray, cemented	48	230
Gravel, gray, and clay	8	238
Gravel and clay	30	268
"Hardpan", yellow	22	290
Gravel, cemented	21	311

Casing, 12-inch, perforated from 90 to 100 and 172 to 185 feet.

20/4-31G1. J. J. Lyons. Altitude about 350 feet. Drilled by Service Hardware Co., 1952.

Sand, gravel, and clay	16	16
"Hardpan"	21	37
Gravel, cemented	5	42
"Hardpan" and boulders	4	46
Gravel, hard, and boulders	15	61
Gravel, hardpacked, and lay, boulder at 70 feet	12	73
Gravel, hardpacked, and clay	3	76
"Hardpan", rocky	26	102
Gravel, hardpacked, with clay	10	112
Gravel, some water	14	126

Casing, 6-inch, set to 126 feet.

Table 3.--Logs of representative wells--Con.

20/4-31G2. J. Brown. Altitude about 340 feet. Drilled by Service Hardware Co.

Materials	Thickness (feet)	Depth (feet)
No record.	48	48
Gravel, water-bearing.	5	53
Gravel, and a little clay.	8	61
Gravel and sand, loose.	8	69
Clay and gravel.	4	73
Red lava(?) bearing a little water	11	84
Gravel, cemented	3	87
Gravel, water-bearing.	6	93

Casing, 6-inch, set to 93 feet.

20/4-32J1. City of Puyallup. Altitude about 45 feet. Drilled by N. C. Jannsen Drilling Co., 1945.

Clay and peat.	23	23
Sand, fine gravel, and some clay (flowed about 10 gpm at 36 feet)	13	36
Sand and gravel.	10	46
Sand, medium to coarse	4	50
Sand and some gravel.	13	63
Sand, fine.	10	73
Gravel.	1	74
Sand, fine.	4	78
Clay, fine sand, and some gravel .	29	107
Gravel, coarse.	1	108
Sand.	4	112
Clay, sand and gravel	3	115
Sand and gravel (test at 1,500 gpm)	11	126
Sand and gravel.	9	135
Gravel, coarse.	10	145
Gravel and sand (flowing about 500 gpm)	7	152
Gravel and clean sand.	10	162
Clay, blue.	2	164

Casing, 16- to 12-inch. Perforated from 46 to 78 and 139 to 148 feet.

20/4-34E1. J. Mladinich. Altitude about 50 feet. Drilled by Service Hardware Co., 1952

Sand, silt, and clay.	26	26
Sand.	1	27
Sand, silt, and clay.	10	37
Gravel and sand, packed	6	43

Casing, 6-inch, set to 43 feet.

Table 3.--Logs of representative wells--Con.

20/3-34F1. Lutheran Welfare Society. Altitude about 65 feet. Drilled by E. J. Webber, 1947.

Materials	Thickness (feet)	Depth (feet)
Sand.	34	34
Sand, with a little gravel, water-bearing	2	36
Sand, some water.	94	130
Clay, sandy.	24	154
Sand.	18	172
Clay, brown, and sand	18	190
"Quicksand".	13	203
Clay and gravel.	2	205
Clay, fine, sandy.	42	247
Silt, fine, heaving.	5	252
Clay, blue.	8	260
Gravel, with some sand.	4	264

Casing, 6-inch, set to 264 feet, open bottom.

20/4-35D1. A. Sandberg. Altitude about 65 feet. Drilled by Service Hardware Co.

No record.	40	40
Gravel.	28	68
Clay and sand	12	80
Sand and gravel	5	85
Clay.	8	93
Sand.	7	100
Gravel.	3	103
Clay, silt, and sand.	22	125
Sand.	8	133
Sand and shells	13	146
Sand, fine.	15	161

Casing, 8-inch, set to 161 feet. Perforated from 47 to 85 feet.

20/4-35J1. F. L. Kolilis. Altitude about 135 feet. Drilled by Service Hardware Co., 1953.

Clay.	35	35
Clay and sand, water-bearing. . . .	37	72
Clay and gravel, water-bearing. . .	23	95
Gravel.	1	96

Casing, 6-inch, set to 96 feet.

Table 3.--Logs of representative wells--Con.

20/4-35J2. A. H. Peterson. Altitude about 175 feet. Drilled by Service Hardware Co., 1953.

Materials	Thickness (feet)	Depth (feet)
Clay	43	43
Clay and sand	12	55
Gravel, cemented, and boulders	75	130
"Hardpan"	8	138
Gravel, cemented, and boulders	4	142
Boulders	2	144
Gravel, cemented, some water	7	151
Gravel, cemented, and boulders	14	165
Gravel, cemented, some water	12	177
Gravel, cemented, and boulders	5	182
Gravel, cemented, some water	11	193
Gravel, water-bearing	2	195

Casing, 6-inch, set to 195 feet.

20/4-36A1. D. Swanson. Altitude about 75 feet. Drilled by P. Sylte, 1946.

Soil	5	5
Clay and sand	12	17
Sand, muddy, small flow of water	78	95
Sand and gravel, water-bearing	5	100

Casing, 6-inch, set to 100 feet.

20/4-36A2. L. L. Wade. Altitude about 75 feet. Drilled by P. Sylte, 1946.

Soil	4	4
Sand	7	11
Sand and clay	16	27
Sand and gravel, some water	8	35
Sand, gravel, and clay	35	70
Sand and gravel, water-bearing	16½	86½

Casing, 8-inch, set to 86½ feet.

20/4-36G1. E. Johnson. Altitude about 80 feet. Drilled by N. Nelson, 1946.

Sand, fine	14	14
Gravel, water-bearing	4	18
Clay and gravel	55	73
Sand, water-bearing	5	78
Sand and gravel, water-bearing	17	95

Casing, 6-inch, set to 95 feet.

Table 3.--Logs of representative wells--Con.

20/5-7D1. Dieringer School. Altitude about 55 feet. Drilled by Service Hardward Co., 1954.

Materials	Thickness (feet)	Depth (feet)
Clay and silty sand, cedar log at 60 feet.	90	90
Sand, fine, water flows.	40	130
Clay, brown, soft, with rocks and gravel.	20	150
Gravel, hardpacked with clay. . .	75	225
Gravel, water-bearing, flows 20 gpm	1	226
Sand, in layers of clay, water-bearing	87	313
Sand, in layers of clay and "hardpan"	73	386
Clay.	22	408
Sand	--	---

Casing, 12- to 10-inch, set to 408 feet. Perforated from 215 to 238, and 245 to 286 feet.

20/5-30E1. L. Ryan. Altitude about 75 feet. Drilled by Service Hardware Co.

Loam, sandy.	25	25
Sand, fine, black, water-bearing .	3	28
Clay with rock.	97	125
Gravel, water-bearing.	6	131

Casing, 6-inch, set to 131 feet, open bottom.

20/5-31H1. D. P. Roger. Altitude about 85 feet. Drilled by Tacoma Pump and Drilling Co., 1949.

Soil.	6	6
Sand, dirty, some water.	15	21
Clay, blue, silty.	57	78
Clay, blue, sand and gravel	6	84
Sand and gravel, some water	8	92
Sand and gravel, tight, small amount of water.	43	135
Clay, brown, sandy.	15	150
Sand and gravel, dirty.	31	181
Sand and gravel, water-bearing. . .	3	184

Casing, 6-inch, set to 184 feet, open bottom.

Table 3.--Logs of representative wells--Con.

20/5-32M1. F. Swetz. Altitude about 85 feet. Drilled in 1946.

Materials	Thickness (feet)	Depth (feet)
Sand	20	20
Gravel	10	30
Sand	5	35
Clay	60	95
Gravel, fine, and sand	20	115
Clay	25	140
Sand and gravel	4	144

Casing, 4-inch, set to 144 feet, open bottom.

20/5-33E1. W. Rohberg. Altitude about 575 feet. Drilled by O. J. Kesti.

Gravel, loose	22	22
"Hardpan"	48	70
Gravel, loose, and "hardpan"	130	200
Gravel, water-bearing	7	207

Casing, 6-inch, set to 207 feet, open bottom.

20/5-34R2. E. C. Comer. Altitude about 630 feet. Drilled by Tacoma Pump & Drilling Co., 1949.

Soil	4	4
"Hardpan", brown, clayey	34	38
"Hardpan", blue	27	65
Clay, sandy	7	72
"Hardpan", rocky	49	121
Gravel, clean, some water	11	132
Gravel, clean, coarse, water-bearing	2	134

Casing, 6-inch, set to 134 feet.

21/2-23G1. L. J. Wingard. Altitude about 133 feet. Drilled by N. C. Jannsen Drilling Co., 1931.

Clay and gravel	10	10
Clay, blue	93	103
Sand and gravel	8	111
Sand, hard	24	135
Sand	23	158
Sand, fine	35	193
Clay, blue	10	203
Sand, hard, with some "shale", and streaks of gravel	114	317
Gravel, cemented	106	423

Casing, 6-inch to 4-inch.

Table 3.--Logs of representative wells--Con.

21/3-16Q1. Hyada Park Mutual Water System. Altitude about 300 feet. Drilled by L. R. Gaudio, 1947.

Materials	Thickness (feet)	Depth (feet)
Boulders and sand.	45	45
Gravel, fine, water-bearing. . .	13	58
Gravel and sand, water-bearing .	25	83
Sand and blue clay	27	110
Sand and heavy gravel.	2	112
Boulders, thin sand zones, and streaks of clay.	111	223
Gravel and sand, water-bearing .	30	253
Sand and thin layers of clay . .	35	288
Gravel, water-bearing.	6	294

Casing, 8-inch, set to 294 feet, open bottom.

21/3-22L1. E. L. Carnes. Altitude about 15 feet. Drilled by Service Hardware Co., 1950.

Fill, sandy.	10	10
"Hardpan".	12	22
Sand and gravel, water-bearing .	3	25

Casing, 6-inch, set to 25 feet.

21/3-22Q1. National Oyster Co. Altitude about 15 feet. Drilled in 1950.

"Hardpan", layered with gravel .	24	24
Gravel.	42	66
Gravel, water-bearing	9	75

Casing, 6-inch, set to 75 feet.

21/3-25P1. Woodworth & Co., Inc. Altitude about 120 feet. Drilled by Tacoma Pump & Drilling Co., 1953.

Sand, gravel, and clay.	16	16
Sand and clay.	13	29
Sand, muddy, water-bearing . . .	15	44
Sand and gravel, clean, water-bearing	1	45
Sand and clay, some water. . . .	5	50
Sand and gravel, fairly clean, water-bearing. Static water level about 29 feet.	2	52
Clay, blue, sandy, dry	10	62
Sand and gravel, water-bearing .	1	63
Sand and clay, layered, water in sand layers.	24	87
"Hardpan", sand, gravel, and clay, dry	24	111

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Table 3.--Logs of representative wells--Con.

21/3-25P1.--(Continued)

Material	Thickness (feet)	Depth (feet)
"Hardpan", some water.	9	120
Sand, gravel, clean, water-bearing, static water level about 98 feet	2	122
"Hardpan".	1	123
"Hardpan", looser.	7	130
Gravel and sand, loose, water-bearing	2	132
Gravel and sand, harder, with more clay	2	134
Gravel and sand, hard, with less water	3	137
Gravel and sand, hard, more water. .	2	139
Gravel and sand, more clay, less water	3	142
Gravel and sand, loose, water-bearing	2	144
Sand, gravel, clay, hard, no water .	8	152
Sand, fine, gravel.	6	158
Sand, fine, and gravel, loose, water-bearing.	6	164
Sand, more clay, and less water. . .	6	170
Sand and gravel, blue-gray, water-bearing.	3	173
Sand and gravel, loose water-bearing	7	180
Gravel, hardpacked.	3	183
Gravel and sand, loose, water-bearing	3	186
Gravel and sand, tighter, some water	3	189
Gravel, fine to coarse, and loose blue sand, water-bearing.	4	193
Gravel, hardpacked.	3	196
Clay, blue.	1	197

Casing, 8-inch, set to 193 feet.

21/3-26N1. City of Tacoma. Altitude about 13 feet. Drilled by N. C. Jannsen Drilling Co., 1927.

No record.	10	10
Sand.	132	142
Sand and sandy clay.	20	162
Sand.	20	182
Clay.	20	202
Clay, sandy.	24	226
Clay.	64	290
Sand, fine.	20	310
Sand and gravel, in streaks.	30	340
Clay, contains marine shells	92	432
Clay, sandy.	16	448
Clay, blue, sticky	2	450
Clay.	6	456
Gravel.	2	458
Clay.	10	468

(continued next page)

Table 3.--Logs of representative wells--Con.

21/3-26N1.--(Continued)

Materials	Thickness (feet)	Depth (feet)
Gravel, loose and water-bearing. . .	17	485
Sand and gravel.	21	506
Gravel, loose and water-bearing. . .	13½	519½
Gravel, and cemented gravel.	10½	530
Gravel with streaks of blue clay . .	12	542
Sand and gravel, hard.	15	557
Sand, hard.	5	562
Gravel, coarse, and sand.	9	571
Gravel, coarse.	16½	587½
Gravel, cemented.	4½	592
Gravel, cemented, and boulders. . .	16	608
Clay, blue.	6	614
Boulders.	4	618
Clay, blue.	7	625
Clay, blue, and sand.	12	637
Clay, blue.	8	645
Sand.	8	653
Sand, compact	7	660
Gravel and sand, water-bearing . . .	6	666
Gravel, coarse, water-bearing. . . .	12	678
Gravel and sand.	6	684
Gravel, coarse, water-bearing. . . .	52	736
Gravel, coarse, with sand.	4	740
Gravel, cemented.	4	744
Sand, fine.	12	756
Sand, log at 758 feet.	2	758
"Shale".	4	762
Sand.	2	764
"Shale".	21	785

Casing, 24-inch outer casing, set from 0 to 469 feet, 18-inch casing, from 0 to 614, and 12-inch from 580 to 778 feet. Perforated from 470 to 582, and 660 to 740 feet.

Table 3.--Logs of representative wells--Con.

21/3-27G1. Hooker Electrochemical Co. Altitude about 10 feet. Drilled by N. C. Jannsen Drilling Co., 1938

Materials	Thickness (feet)	Depth (feet)
Sand and wood.	86	86
Clay, blue, sandy.	61	147
Gravel, cemented.	27	174
Gravel and clay.	16	190
Gravel, cemented, and boulders	53	243
Gravel.	19	262
Gravel, cemented.	4	266
Gravel, loose, with boulders	38	304
Gravel.	24	328
"Hardpan".	24	352
Wood.	2	354
Gravel.	20	374
Clay, blue.	24	398
Clay and gravel.	16	414
Gravel, cemented	6	420
Gravel.	10	430
Gravel and clay	10	440
Clay, sandy.	14	454
Clay, blue.	73	527
Gravel.	18	545
Shale, green.	25	570
Sand, fine.	40	610
Sandstone.	10	620
Clay, blue.	137	757
Gravel, water-bearing	6	763
Gravel, cemented.	29	792
Gravel, water-bearing	18	810
Clay.	90	900
Sand and gravel.	6	906
Clay.	16	922
Gravel, cemented.	12	934
Gravel and clay.	14	948
Clay, sandy.	20	968
Gravel.	4	972
Clay, hard, and gravel	36	1008
Clay.	4	1012
Gravel, water-bearing	11	1023
Gravel, cemented.	42	1065
Gravel, water-bearing	28	1093
Gravel, cemented.	32	1125
Gravel, water-bearing	10	1135
Clay and gravel.	3	1138
Sand and gravel.	8	1146
Clay and gravel.	70	1216

Casing, 18-inch, set from 0 to 247, 16-inch from 220 to 660, 12-inch, from 0 to 100, and 10-inch, from 100 to 1157 feet. Perforated from 757 to 763, 792 to 810, 965 to 975, 1,000 to 1,025, 1,070 to 1,093, and 1,120 to 1,145 feet.

Table 3.--Logs of representative wells--Con.

21/3-35B1. Buffelen Lumber and Manufacturing Co. Altitude about 7 feet. Drilled by N. C. Jannsen Drilling Co., 1927.

Materials	Thickness (feet)	Depth (feet)
Clay	45	45
Sand	43	88
Clay	164	252
Sand, brown, some gravel	50	302
Sand	28	330
Sand, fine	86	416
Clay, blue	30	446
Sand	12	458
Clay	23	481
Gravel and boulders	53	534
Clay	27	561
Gravel, cemented	29	590
Clay	153	743
"Sandstone"	27	770
Sand, gravel, and cobbles	42	812
Sand, hard, lot at bottom	8	820
Gravel	15	835
Gravel, clean	21	856

Casing, 18-inch, set from 0 to 782 feet, 12-inch, from 750 to 856 feet. Perforated from 835 to 850 feet.

21/3-36P1. Kaiser Aluminum and Chemical Corp., well 1. Altitude about 15 feet. Drilled by N. C. Jannsen Drilling Co., 1942.

Clay	28	28
Sand	20	48
Clay	18	66
Sand	23	89
Clay	15	104
Sand	6	110
Clay	37	147
"Shale"	30	177
Sand	28	205
Clay	20	225
Sand	16	241
Gravel	47	288
Sand	177	465
Gravel, fine	44	509
Sand	6	515
Clay	105	620
Gravel, water-bearing	60	680
Clay	62	742

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Table 3.--Logs of representative wells--Con.

21/3-36P1.--(Continued)

Materials	Thickness (feet)	Depth (feet)
Gravel, water-bearing.	11	753
Clay.	29	782
Gravel, water-bearing.	32	814
Gravel, cemented.	10	824

Casing, 24-inch outer casing, set to 72 feet, 18-inch casing, from 0 to 824 feet. Perforated from 620 to 664 and 704 to 814 feet.

21/3-36P2. Kaiser Aluminum and Chemical Corp., well 2. Altitude about 15 feet. Drilled by N. C. Jannsen Drilling Co., 1942.

Clay.	29	29
Sand.	11	40
Clay.	18	58
Sand.	8	66
Gravel.	6	72
Clay.	9	81
Gravel.	57	138
Clay.	72	210
Sand.	16	226
Clay.	82	308
Sand.	222	530
Clay.	96	626
Gravel.	38	664
Clay.	18	682
Gravel.	32	714
Sand.	28	742
Gravel.	30	772
Sand.	6	778
Gravel.	50	828
Cap rock(?)	8	836

21/3-36P3. Kaiser Aluminum and Chemical Corp., test well. Altitude about 15 feet. Drilled by Layne-Pacific Drilling Co., 1947.

Gravel, coarse, fill materials . .	8½	8½
Clay.	24½	33
Sand, coarse.	31	64
Clay.	6	70
Sand and clay, medium to coarse . .	12	82
Sand and shells.	10	92
Sand, medium to coarse.	10	102
Sand and clay, fine, muddy.	20	122

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Table 3.--Logs of representative wells--Con.

21/3-36P3.--(Continued)

Materials	Thickness (feet)	Depth (feet)
Sand and clay, fine, muddy, and shells	75	197
Sand, coarse, black, and shells. . .	25	222
Sand, medium to coarse, and clay . .	50	272
Clay, sandy.	268	540
Clay, blue.	62	602
Gravel and clay.	15	617
Gravel and sand.	15	632
Sand, coarse, gravel, and boulders .	13	645
Sand, clay, and gravel.	7	652
Clay, blue.	22	674
Gravel.	2	676
Sand, with streaks of clay	26	702
Clay, blue.	37	739
Clay, sand, and gravel.	6	745
Clay, with streaks of gravel	17	762
Gravel, broken, and clay.	10	772
Gravel, cemented.	6½	778½
Clay, blue.	33½	812
Clay and streaks of sand	50	862

21/3-36P4. Kaiser Aluminum and Chemical Corp., well 3. Altitude about 15 feet. Drilled by A. A. Durand and Son (log compiled from samples), 1952.

Sand and silt, and fill material . .	30	30
Clay and silt, brown.	10	40
Sand, gray, fine to medium, contains some coarse sand and pebbles . . .	85	125
Sand, gray, medium to coarse, contains pebbles and many shell fragments .	5	130
Sand, gray, fine to medium.	50	180
Sand, fine to coarse, some gravel. .	57	237
Silt and very fine sand.	53	290
Sand, gray, fine to medium	25	315
Sand, gray, coarse, uniform.	29	344
Clay, and silt, brown, hard, laminated, contains wood fragments.	8	352
Sand, gray, fine.	148	500
Silt and very fine sand, brown, several shell fragments in sample.	40	540
Silt and clay, brown.	70	610
Boulders, gravel, and sand.	5	615
Clay, gray.	70	685
Clay, silt, and very fine sand, gray	35	720
Silt and very fine sand, gray . . .	15	735
Clay and silt.	40	775

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Table 3.--Logs of representative wells--Con.

21/3-36P4.--(Continued)

Materials	Thickness (feet)	Depth (feet)
Silt and very fine sand, gray. . . .	105	880
Sand, fine, gray.	27	907
Sand, medium to coarse.	23	930
Sand, medium.	20	950

Casing, 30-inch, 0 to 153 feet, 26-inch, 0 to 350 feet, 20-inch, 0 to 554, 16-inch, from 299 to 625, 12-inch, from 502 to 925+ feet, .012 slot screen from 925 to 950± feet.

21/3-36P5. Kaiser Aluminum & Chemical Corp. Altitude about 15 feet. Drilled by L. R. Gaudio, 1954.

Fill.	10	10
Clay and sand	17	27
Clay.	16	43
Sand and clay	15	58
Clay.	5	63
Sand and clay.	9	72
Clay.	15	87
Sand.	6	93
Clay.	19	112
Sand.	4	116
Sand and clay.	22	138
Sand.	16	154
Clay.	6	160
Sand.	6	166
Clay.	3	169
Sand, clay, and some gravel. . . .	6	175
Sand and clay.	13	188
Clay.	3	191
Sand and clay.	20	211
Clay.	6	217
Sand, gravel, and some clay. . . .	18	235
Sand and clay.	24	259
Clay and some sand	12	271
Sand and clay.	30	301
Clay and some sand	8	309
Sand and some clay	20	329
Clay and sand.	16	345
Sand.	4	349
Clay and sand.	8	357
Sand.	13	370
Sand and layers of clay	38	408
Sand.	10	418
Sand and some clay.	14	432
Clay.	13	445

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Table 3.--Logs of representative wells--Con.

21/3-36P5.--(Continued)

Materials	Thickness (feet)	Depth (feet)
Sand	23	468
Clay	147	615
Sand and gravel	2	617
Clay	56	673
Sand and layers of clay	96	769
Sand	2	771
Clay	4	775
Sand	3	778
Clay	4	782
Clay and sand	10	792
Sand	28	820
Sand and clay	40	860
Sand and some gravel	11	871
Sand and gravel	6	877
Sand and some gravel	11	888
Gravel	6	894
Sand	7	901

Casing, 16-inch, set to 458 feet, 12-inch to 712 feet, 8-inch to 867 feet, 7-inch, 10 slot screen from 867 to 878 feet, and 20 slot from 878 to 898 feet.

Table 4.--Chemical analyses of ground water from central Pierce County
(Chemical constituents in parts per million)

Well or spring number	18/2-34E1	19/1-12K1s	19/1-22P1	19/2-1K2	19/2-4B1	19/2-12A1	19/2-14B2	19/2-18Q1
Date of collection	1946	1946	Feb 1942	7-31-50	1938	8-16-46	3-21-51	4-3-42
Silica (SiO_2)	14	15	28	31	15	19	32	31
Iron (Fe)	0	..	.04	.1	Tr	..	..	.01
Manganese (Mn)	..	..	..	..	..	..	..	..
Calcium (Ca)	5	9	15	9.3	5	17	..	10
Magnesium (Mg)	5	4	8.8	5.8	1	7.2	4.2	5.8
Sodium (Na)	..	..	..	9.3	12	1.4	6.7	5.4
Potassium (K)	..	..	..	..	1	..	..	1.4
Bicarbonate (HCO_3)	38	47	..	71	24	..	52	70
Carbonate (CO_3)	..	..	..	..	..	..	..	0
Sulfate (SO_4)	2	2	44	5.8	2	..	7.1	1.7
Chloride (Cl)	9	10	20	6.3	6	10	7.7	2.0
Fluoride(F)	..	..	..	..	0	..	0	.1
Nitrate (NO_3)	..	..	..	Tr	7	..	.1	0
Dissolved solids	51	69	142	103	58	..	88	85
Hardness as $CaCO_3$	32	41	74	47	16	72	46	49
Specific Conductance (micromhos at 25°C)	..	..	..	..	..	..	..	119
pH	6.6	7.7	8.0	7.7	..	..	7.4	..
Temperature (°F)	..	..	..	..	..	..	..	..
Analyst /	N.P.R.	N.P.R.	D	N.W.	U.S.A.	L	N.W.	U.S.G.S.

/ B, Bennetts Laboratories; D, Dupont Laboratories; L, Laucks Laboratories; N. W., Northwest Laboratories; U. S. G. S., United States Geological Survey; N. P. R., Northern Pacific Railway; M. R. R. Milwaukee Railroad; U. S. A. United States Army; W. S. D. H., Washington State Department of Health.

Table 4.--Chemical analyses of ground water from central Pierce County--Con.
(Chemical constituents in parts per million)

Well or spring number	19/2-19B1	19/2-19F1	19/2-19Q1s	19/2-27G1	19/2-31K1	19/2-32H2	19/3-9G1	19/6-2R1
Date of collection	4-3-46	1944	1942	1944	1942	1943	6-29-46	8-16-46
Silica (SiO_2)	33	28	9	47	26	42	20	27
Iron (Fe)	.01	.5	.1	0	.2	0	1.3	..
Manganese (Mn)	..	..	..	..	..	..	..	..
Calcium (Ca)	10	10	8	9	7	8	6.6	25
Magnesium (Mg)	5.5	5	4	5	3	5	4.0	5.4
Sodium (Na)	5.4	5	5	8	3	7	7.5	6.1
Potassium (K)	1.4	..	..	..	..	..		..
Bicarbonate (HCO_3)	68	60	44	63	44	59	41	64
Carbonate (CO_3)	0	..	..	..	..	..	0	..
Sulfate (SO_4)	1.6	3	3	4	5	4	5.9	..
Chloride (Cl)	2.1	3	4	..	2	3	6.5	3.6
Fluoride (F)	.1	..	..	..	..	.6	..	..
Nitrate (NO_3)	0	0	.9	..	.4	0	..	Tr
Dissolved solids	86	90	74	131	75	96	85	..
Hardness as $CaCO_3$	48	46	36	43	30	40	33	85
Specific conductance (micromhos at 25°C)	116	..	..	..	..	..	..	..
pH	..	7.7	6.4	6.3	7.2	7.4	..	..
Temperature (°F)	..	..	..	..	..	..	..	..
Analyst	U.S.G.S.	U.S.A.	U.S.A.	U.S.A.	U.S.A.	U.S.A.	L.	N.W.

Table 4.--Chemical analyses of ground water from central Pierce County--Con.
(Chemical constituents in parts per million)

Well or spring number	19/6-18L1s	20/2-9C1	20/2-13J2	20/2-24A2	20/2-29Q1	20/2-29Q2	20/2-32B1	20/2-33E1s
Date of collection	1946	11-4-38	..	1946	10-1-38	10-1-38	10-1-38	10-4-38
Silica (SiO_2)	15	51	22	22	45	46	50	19
Iron (Fe)	0	.28	.05	2	.07	.07	.04	.01
Manganese (Mn)	..	..	.03	..	..	..	..	..
Calcium (Ca)	8	10	9.9	9	18	12	11	8.4
Magnesium (Mg)	2	6.4	16	4	5.8	6.2	5.9	3.4
Sodium (Na)	..	16	9.4	..	10	7.6	9.2	5.0
Potassium (K)	..	2.2	..	..	3.9	1.6	1.8	1.4
Bicarbonate (HCO_3)	39	101	..	64	108	84	84	46
Carbonate (CO_3)	..	0	..	..	0	0	0	0
Sulfate (SO_4)	0	.4	..	0	1.2	2.1	1.8	4.1
Chloride (Cl)	9	1.9	5.7	10	2.8	2.2	2.0	3.0
Fluoride (F)	..	.2	.2	..	0	0	0	0
Nitrate (NO_3)	..	.75	4.4	..	.4	0	0	.5
Dissolved solids	55	141	105	70	142	121	126	66
Hardness as $CaCO_3$	31	51	90	43	69	55	52	35
Specific conductance (micromhos at 25°C)	..	..	..	..	..	..	..	..
pH	7.8	..	7.5	7.2	..	..	..	..
Temperature (°F)	..	..	..	..	51	53	54	54
Analyst	N.P.R.	U.S.G.S.	N.W.	N.P.R.	U.S.G.S.	U.S.G.S.	U.S.G.S.	U.S.G.S.

Table 4.--Chemical analyses of ground water from central Pierce County--Con.
(Chemical constituents in parts per million)

Well or spring number	20/2-34E1 [1]	20/2-34E1 [2]	20/3-4J2	20/3-18D3	20/3-19F1	20/3-19P1	20/3-30N1	20/3-31F1 [3]
Date of collection	7-31-50	7-31-50	10-24-46	4-21-52	1-4-39	1-4-39	1-4-39	1-2-51
Silica (SiO_2)	41	52	..	31	28	24	26	33
Iron (Fe)	.2	.1	.07	.11	.04	.04	.06	.1
Manganese (Mn)	..	..	..	.00	..	..	..	..
Calcium (Ca)	8.7	8.4	..	8.8	11	7.2	8.9	8.7
Magnesium (Mg)	6.2	5.8	..	8.0	6.7	4.0	4.8	5.8
Sodium (Na)	8.7	8.4	16	5.5	4.9	3.4	4.2	5.2
Potassium (K)	..	..		1.2	1.4	1.2	.9	..
Bicarbonate (HCO_3)	64	62	78	54	58	35	54	50
Carbonate (CO_3)	..	..	..	..	0	0	0	..
Sulfate (SO_4)	5.4	5.6	1	11	7.0	4.2	2.8	6.5
Chloride (Cl)	5.8	5.8	19	5.3	4.2	3.3	2.6	6.4
Fluoride (F)	..	..	..	.1	.3	0	0	0
Nitrate (NO_3)	Tr	Tr	..	4.3	4.9	6.0	.9	.1
Dissolved solids	100	113	..	102	94	70	78	90
Hardness as $CaCO_3$	47	45	58	55	55	34	42	46
Specific conductance (micromhos at 25°C)	..	..	191	131	..	..	..	..
pH	7.6	7.6	..	7.3	..	..	..	7.7
Temperature (°F)	..	..	..	..	..	..	..	..
Analyst	N.W.	N.W.	U.S.G.S.	U.S.G.S.	U.S.G.S.	U.S.G.S.	U.S.G.S.	N.W.

1/ Sample from aquifer between 190 and 200 feet
2/ Sample from aquifer between 212 and 250 feet
3/ Sample from aquifer between 89 and 116 feet

Table 4.--Chemical analyses of ground water from central Pierce County--Concluded
(Chemical constituents in parts per million)

Well or spring number	20/3-31F1 [1]	20/4-24F3	20/4-32J1s	20/5-18Q1s	21/3-26N1	21/3-26Q1	21/3-35B1	21/36P1,P2 [2]
Date of collection	12-30-50	1-11-38	1-11-38	1944	12-29-44	2-6-39	2- -39	..
Silica (SiO_2)	29	44	30	19	39	46	24	5
Iron (Fe)	.15	.14	.13	..	1.5	4.1	5.5	..
Manganese (Mn)	..	..	..	..	..	..	..	..
Calcium (Ca)	8.1	18	9.2	14	21	11	17	20
Magnesium (Mg)	5.3	6.3	5.7	5	6.6	10	4.2	5.9
Sodium (Na)	6.6	59	4.5	6	53	146	80	..
Potassium (K)	..	4.3	1.6	..	2.2	..	..	..
Bicarbonate (HCO_3)	50	222	59	73	199	230	183	128
Carbonate (CO_3)	..	0	0	..	0	..	..	..
Sulfate (SO_4)	6.1	1.8	4.2	0	1.6	.48	1.4	..
Chloride (Cl)	6.4	13	2.1	5	17	92	16	11
Fluoride (F)	0	0	.0	..	.2	..	..	..
Nitrate (NO_3)	.1	..	.3	..	3.4	..	..	..
Dissolved solids	196	255	83	96	242	..	..	196
Hardness as $CaCO_3$	42	71	46	55	80	69	60	74
Specific Conductance (micromhos at 25°)	..	..	..	..	368	..	..	..
pH	7.3	..	..	..	..	..	..	7.3
Temperature (°F)	..	..	..	..	..	..	..	56
Analyst	N.W.	U.S.G.S.	U.S.G.S.	M.R.R.	U.S.G.S.	B	B	..

1/ Sample from aquifer between 138 and 160 feet.
2/ Composite sample.